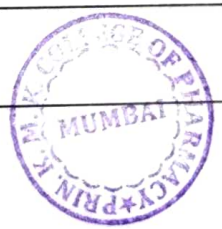
AIR HANDLING UNITS BOQ TECHNICAL SPECIFICATIONS			
Sr. No.	**Description**	**Tender Requirement**	**REMARKS**
1	Make	All AHU's shall be provided with Euro vent certification. AHU selection document submission shall be done as per Euro vent compliance.	
2	AHU Profile	Double Skin, in 16 swg anodized extruded aluminum hollow sections in thermal break profile and integral coving of minimum 15 mm. Self Supporting Hollow extruded Al. AHUs shall be airtight double skin construction confirming EN1886:2007 and Filter shall be certified as per ISO16890/EN1822 standard.	
3	Corner and Section Joint Profiles	Heavy duty PVC Extruded sections with internal coving	
4	Panels	Double Skin Sandwich Panels of minimum 43 mm thickness. Minimum width of the AHU door shall be 650 mm. 300mm between coil and blower section to be provided. App length of the AHU should be around 5000mm or more as per construction requirement meeting to EUROVENT certification	
5	Outer Skin of Panels	22 Gauge, 120 GSM Pre-plasticized / Pre-coated Outer Skin.	
6	Inner Skin of Panels	22 Gauge SS-304.	
7	Sandwich Insulation	CFC Free injected PUF of density not less than 40 Kg / M^3 for NFLP unit. Rockwool wool of density 96Kg / M^3 for FLP Unit	
8	Coil Section Access Panel	Access panel along the coil section to be provided for condensate drain pan maintenance along with sliding type PVC mist eliminator. Minimum two pass sliding PVC mist eliminator is required after chilled water coil.	
9	Supply, Return, Fresh Air, Bleed and By -Pass Damper	Low Leakage Aerofoil Damper blade with EPDM food grade gasket, in Extruded Al. Frame with sealed gear arrangement, extended shaft, position markings, sealing and locking arrangement. Certificate of food grade gasket will be required. The air handling units (all dampers) shall have extruded aluminum aero foil Low Leakage , opposed type blade volume control dampers with extended shaft. Dampers shall have 16 G frame, 18 G blades suitable with manual/automatic operation. Dampers shall be gear operated in construction and smooth in operation. All dampers shall be provided with extended stem for mounting of actuator with locking arrangement and percentage opening marking. Electrical Actuator mounting arrangement/provision for each damper shall be provided. All the dampers shall be operated from outside the AHU	
10	Base Frame	100mm Base Frame, 2mm Thick Powder coated.	
11	Screws / Nut Blots.	All Internal Screws and Nut Bolts in SS. All exposed ends of the screws shall be provided with PVC cap	
12	Gasket	All gasket shall be of Food Grade EPDM. Certificate of food grade gasket will be required.	

13	Mechanical Strength of Casing	EN 1886 D1	
14	Casing Air Leakage Test	EN 1886 L1	
15	Casing Thermal Transmittance and Thermal Bridging	EN 1886 T2 & TB2	
16	Filter By-pass Leakage	F-9	
17	AHU Noise at 1 mtr from AHU during operation	To be less then 75 db.	
18	Fan	Direct Coupled Backward Curve Plug Fan for FLP areas . Spark proof wherever specified.EC fans for NFLP areas.	
19	Fan Make	Nicotra / Punker / Ziehl-Abegg/EBM	
20	Fan Operating RPM at Selected Static Pressure for Plug fans only	Best efficient Fan to be selected so as to deliver rated fan CFM.Motor shall be VFD compatible.	
21	Flow Measurement	Instrumented inlet ring at the suction of fan with pressure ports to be provided and to be terminated at external AHU body for easy access. Nozzle to be provided at min. 4 points on the suction cone each placed at 90° apart.	
22	Blower Motor Mounting Assembly	In Anodized Aluminium Extruded Section and MS frame for motor mounting. C Channel Frame Work mounted on Spring Vibration Isolator selected as per the weight of blower motor. Should have more strength to avoid any cracking on foundation.	
23	Canvass Connection	Double wrapped, lint free, fungal resistant fire retardant canvass connection supported on brass frame work. Frame to be in Extruded aluminum.	
24	Motor	415 +/- 10% voltage, 50 cycles, 3-phase squirrel cage, totally enclosed fan cooled, Class F, with IP 55 protection induction motor. Flameproof wherever specified. Should be compatible to VFD operation.	
25	Motor Make	Siemens /ABB / Crompton Greaves/BBL/EBM	
26	Motor Efficiency	IE-4	
27	Limit Switch and Inspection Lamps	Blower section door to have protection guard and limit switch to trip the motor incase of door opening. View window and Weather Proof Lamp to be considered in all sections. Wherever AHU is flameproof then Lamp, Limit Switch and Lamp Switch should be of Flame proof design. Internal Cabling for the Limit Switch and Inspection lamp and cabling at one point within the AHU to be provided. Limit switch & lamp will be in AHU manufacturers scope. Wherever AHU is flameproof then Limit Switch and Lamp Switch should be of Flame proof design.	

28	Cable Entry	There shall be opening for XLPE ARMOURED cables with gland and shall be leak proof. The cabling should be done with double compression gland.Roxtech / Equivalent Cable Management System to be provided.	
29	Filter Frame Work	In 16 ga. Anodized Aluminium Extruded Aluminium Section.	
30	Filter Type	Flange Type	
31	Filter Fixing Arrangement	Threaded Inserts as per standard filter sizes on Al. frame work for filter fixing. Tightened with Hard PVC Wing Bolt with inbuilt washer.	
32	Filter Sizes	Filter of standard 610 mm x 610 mm, 610 mm x 305 mm and 305 mm x 305 mm face area sizes to be selected.	
33	Filter Make	Camfil	
34	Filter Frame MOC	Anodized Al. Extruded Section with EPDM food Grade rubber gasket. Al. spacers for filter pleats. Media sealed with epoxy based sealant across the filter frame.	
35	Filter Face Velocity	To not exceed 500 FPM	
36	G-4 Filter Media	Filter media Washable.	
38	F-8 Filter Media	NON-WASHABLE	
39	Pressure Ports Across Filter	High and Low Pressure PVC Nozzle ports with provision of Silicon tube at other end to be provided.	
40	Cooling coil MOC	18 swg SS 304 Sheet Frame Work, 27 swg Copper Tube of 12.5 mm OD and 36 swg thick Sine Wave Al. Fins with hydrophilic coating, 12-13 fins per inch spacing	
41	Coil Maximum Velocity	Maximum velocity should be 450 FPM & Minimum 6 Row chilled water coil to be provided. If coil selection demands more than 6 row, same to be provided. No rate escalations shall be provided at later stage. Fouling Factor of 0.0005 ft2Khr/BTU to be considered on water as well as airside for selection.	
42	Coil Header	In 16 ga Copper with 100 mm MS spool piece at the end for manifold connection. Coil header with flanges to be provided. Coil to be supplied in pressurized nitrogen gas condition at site. After witness by Client the pressure to be released and taken for installation.	
43	All Blank Off	In 22 ga SS 304.	
44	Temperature Measuring Port	Dual Temperature Measuring Port should be provided in the Mixing Chamber, After cooling Coil and Heating coil.	
45	Pressure Measuring Port	Should be provided across each section of AHU including relief.	
46	Drain Pan	In 18 swg SS 304 Matt Finished drain pan with slope to avoid water stagnation. Drain Pan length shall cover both CHW & HW coil.	
47	Drain Pan Insulation	Insulation thickness to avoid condensation. Nitrile Rubber.	
48	Leakage / Pressure testing at site	Should be considered with automated equipment & should get report from machine printout.	
49	Exhaust Unit section	Exhaust unit section shall be provided on the upper tier of the unit with provision for recirculation and once through with motorised dampers.	



50	Dehumidifier section	Dehumidifier wheel section with 100% reactivation heater shall be provided wherever required.	
52	AHU Color	As per clients requirement ()