

<b>STATE BANK OF INDIA</b>			
<b>BOQ FOR HVAC WORK OF KANDIVALI INDUSTRIAL ESTATE BRANCH, MUMBAI.</b>			
Sr. No.	DESCRIPTION	QTY	UNIT
<b>I</b>	<b>Supply of Variable Refrigerant Flow ( VRF ) AC System of MAKE: HITACHI, DAIKIIN, MITSUBISHI, CARRIER TOSHIBA, OGENERAL. BLUE STAR.</b>		
	Supply, of inverter /Digital scroll compressor with Variable refrigerant system (VRF) connectable to multiple indoor units. Outdoor unit is factory assembled weather proof casing constructed from heavy gauge mild steel panels. The unit is completely factory wired and tested with necessary controls and charged with refrigerant. The compressor is highly efficient scroll type. The aluminium fins shall be covered with anti-corrosion resin. Unit is equipped with oil recovery system to ensure stable operation with long refrigerant piping. Units are tested and commissioned with additional refrigerant. The unit shall be compatible for BMS operation (optional) Necessary relay card /soft integrator to be provided, Including rubber pads for outdoor units etc.		
1	OUTDOOR UNITS - INVERTER VRF System		
1.1	18	2	Nos.
2	Supply of ceiling 4 Way Cassette type unit ceiling suspended units		
2.1	2.8 TR	6	Nos.
2.2	4.0 TR	4	Nos.
2.3	1.5 TR	1	Nos.
3	SUPPLYING OF following CASSETTE / SPLIT (single/three phase) AIR CONDITIONERS- AIR-COOLED TYPE having ODU & Single circuits with Scroll Compressors make "Danfoss/Copeland" including indoor unit with fan, fan-motor, Copper cooling coil, expansion Device, condensing unit, compressors, cond. coils, cond. Fans, safety cutouts, inbuilt control panel complete with contactors, relays, internal cabling, thermostat to control temperature & machine, having single Indoor unit & single Outdoor unit with Display facility.		
3.1	1.0-TR High Wall Split Unit GE rating of three STAR and above	2	Nos.
3.2	1.5-TR High Wall Split Unit GE rating of three STAR and above	2	Nos.
3.3	2.0 Tr Cassette GE rating of three STAR and above	3	Nos.

4.0	"Y" joint refnet	11	Nos.
5.0	Wireless Remote for Indoor units of VRF.	11	Nos.
<b>SUB TOTAL OF (Part - I) WORKS:</b>			
<b>LOW SIDE WORKS:</b>			
B	Installation, Testing and Commissioning of Out Door Units suitable for VRF / VRV System & - Price shall inclusive of LIFTING SHIFTING OF ALL VRF UNITS, and other necessary accessories Pressure Testing, Nitrogen flushing, testing & commissioning of the air-conditioning system		
1	OUTDOOR UNITS VRF System		
1.1	18 HP	2	NOS
2	INSTALLATION OFAIRCONDITIONERS		
2.1	Hi-Wall unit 1.0 TR/1.5 TR	4	NOS
2.2	4 Way Cassette type unit ceiling suspended units	14	NOS
3	REFRIGERANT PIPING		
3.1	Hard drawn copper piping in brazed construction, with 19mm thick class "O" armaflex Nitrile rubber insulation suitable for VRF/ VRV system including all fittings like bends, elbows, tees with all internal joint type fittings. Pipe line must be tested for requisite pressure & must be laid on perforated Cable tray's supports/ suspender, as per enclosed specification.		
a)	Line Size: 1/4" (6.4 mm) OD.	30	Rmt
b)	Line Size: 3/8" (9.5 mm) OD.	50	Rmt
c)	Line Size: 1/2" (12.7 mm) OD.	50	Rmt
d)	Line Size: 5/8" (15.9 mm) OD.	50	Rmt
e)	Line Size: 3/4" (19.1 mm) OD.	50	Rmt
f)	Line Size: 7/8" (22.2 mm) OD.	30	Rmt
g)	Line Size: 1" (25.4 mm) OD.	30	Rmt
h)	Line Size: 1-1/8" (28.6 mm) OD.	50	Rmt
4	Communication Cable		
4.1	Supply and Installation of suitable Control Cabling - From All Indoor Units to the Outdoor Units. (1.5 sqmm 3core Copper shilded cable.)	100	Mtr
4.2	Supply and Installation of suitable Control Cabling - From All Indoor Units to the Outdoor Units. (6sqmm 4core Copper shilded cable.)	200	Mtr
5	Core Cuttings	3	Nos.

6	Drain water piping work out of 25/30 mm PVC/HDPE hard pipes covered with Hilton insulations, complete with fittings, bends, elbows, tees flanges, tappings, wall sleeves, hangers, supports, anchors	100	Rmt
7	Supply & Installation of 16A AC1, Timer Switch alongwith 1 no. 2NO 40A 3M contactor alongwith suitable size enclosure box for signage, etc. including power circuit wiring of (2x4 + 1x4 Sq.mm) FRLS flexible wires laid through PVC conduit directly taken from AC Point including all necessary hardware & accessories, etc. complete as required. (Schneider / Hager / Siemens / Legrand make as approved by client / consultant)	1	Nos.
8	Dismantling of existing airconditioner, Necessary civil work : Trenching work / Making & remaking of holes in walls, final finishing the same in all respects etc.	1	L/S
9	MS FRAME WORK		
	M. S. Stands Frame work for split & cassette AC as per the manufacturara's requirement for installing Outdoor Units with anti-vibration pads etc in complete in all aspect .	7	Nos
10	Additional Refrigerant Gas R-410	40	Kg
11	CONDENSING UNIT STANDS FOR VRF	2	Nos
<b>SUB TOTAL OF (Part - II) WORKS:</b>			
<b>GRAND Total (Part I + II)</b>			
<b>GST on Part -I @ 28%</b>			
<b>GST on Part -II @ 18%</b>			

**Note:- The rates taken in the estimate are excluding GST on estimated amount.**