सत्यमेव जयते

केंद्रीय लोक निर्माण विभाग
कार्यालय ज्ञापन
सं.–डीजी/अधीक्षण अभियंता(वै)टास/नई तकनीक/01
महानिदेशक, के.लो.नि.वि. द्वारा प्रदत्त अधिकार द्वारा जारी

निर्माण भवन, नई दिल्ली दिनांक 10.07.2019

विषय:- Adoption of New & Emerging Technologies by CPWD- issue of DSR & AOR items for VRF/VRV Air conditioning system- regarding

It is hereby notified that DSR & AOR (Items for VRF/VRV Air-Conditioning System)-2019 have been approved and have become effective with immediate effect. These are available in PDF format at https://www.cpwd.gov.in/Publication/DSR AOR Items for VRF VRV Air Conditioning System 2019.pdf.

(डी के तुलानी)
अधीक्षण अभियंता (वै)
तकनीकी अनुप्रयोग एवं मानक

फाइल नंबर–ई–9059857/9(नई टेक्नोलॉजी)/मु.अ.(वै)सीएसक्यू/2019

सेवा में, (केवल केंद्रीय लोक निर्माण विभाग की वेबसाइट के माध्यम से)

सभी विशेष महानिदेशक/अतिरिक्त महानिदेशक/मुख्य अभियंता/मुख्य परियोजना प्रबन्धक/अधीक्षण अभियंता/परियोजना प्रबन्धक/कार्यपालक अभियंता, के. लो. नि. वि. को सूचनार्थ एवं आवश्यक कार्रवाई हेतु।

DSR & AOR
ITEMS FOR
VRF/VRV AIR CONDITIONING SYSTEM

2019

CPWD
CENTRAL PUBLIC WORKS DEPARTMENT
Ministry of Housing and Urban Affairs

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PART-I

Delhi Schedule of Rates (Items for VRF/VRV AIR-CONDITIONING SYSTEM)- 2019

DELHI SCHEDULE OF RATES			
OUTDOOR UNIT			
Item No.	**Description**	**Unit**	**Rate (Rs.)**
1	**Supply Installation, Testing & Commissioning of modular type Variable Refrigerant Flow/Variable Refrigerant Volume air cooled Outdoor units suitable for cooling and heating, having all hermetically sealed inverter type Scroll Compressor(s), minimum two compressors for above 14 HP modules, microprocessor based Controller, top discharge type condensing unit(s), with R 410 A Refrigerant, vibration isolators, with suitable foundation etc. complete as required. The unit shall deliver the rated capacity at AHRI Conditions and work even at 50°C ambient temperature without tripping. The unit shall be suitable to work on 400V +/- 10%, 3 Phase, 50Hz AC power supply. The unit shall be filled with first charge of the refrigerant and ready for use as required. The COP at AHRI conditions shall not be less than 3.1 and IEER not less than 6.5 .**	Per HP	16415
INDOOR UNIT-CASSETTE TYPE			
Item No.	**Description**	**Unit**	**Rate (Rs.)**
2	**Supply, installation, testing and commissioning of following minimum capacity 4-way flow VRV/VRF Cassette Type Indoor ceiling mounted unit equipped with synthetic washable media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX Copper coil, electronic expansion valve, outer cabinet, drain pump, grill, necessary supports, vibration isolation, cord less remote control etc., suitable for operation on single phase 230 V ± 10%, 50Hz AC supply, complete, as required. The unit shall have automatic force shut down provision in case of fire on receiving signal from BMS System. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature.**		
2.1	0.8 TR	Each	27381
2.2	1 TR	Each	29137
2.3	1.2 TR	Each	29488
2.4	1.6 TR	Each	30204
2.5	2 TR	Each	30801
2.6	2.4 TR	Each	31453
2.7	2.8 TR	Each	32015
2.8	3.2 TR	Each	32787
2.9	3.6 TR	Each	33209
2.10	4 TR	Each	33981

INDOOR UNIT-HIGH WALL TYPE			
Item No.	**Description**	**Unit**	**Rate (Rs.)**
3	**Supply, installation, testing and commissioning of following minimum capacity VRV/VRF High wall type Indoor unit equipped with washable synthetic media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX copper coil, electronic expansion valve, outer cabinet, cord less remote control, drain pan, necessary accessories etc., suitable for operation on 230 V ± 10%, 50 Hz, single phase AC supply, complete as required. The unit shall have automatic force shut down provision in case of fire on receiving signal from BMS System. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature.**		
3.1	0.6 TR	each	18730
3.2	0.8 TR	each	19312
3.3	1 TR	each	19700
3.4	1.3 TR	each	21176
3.5	1.45 TR	each	21315
3.6	1.65 TR	each	21746
3.7	2 TR	each	22100
INDOOR UNIT-DUCTABLE TYPE			
Item No.	**Description**	**Unit**	**Rate (Rs.)**
4	**Supply, installation, testing and commissioning of following minimum capacity and external static pressure VRF/VRV ceiling mounted ductable type Indoor unit equipped with washable synthetic media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX copper coil, electronic expansion valve, corded remote control, outer cabinet, vibration isolators, drain pan, other necessary supports etc., suitable for operation on single phase AC supply 230 V ± 10%, 50 Hz complete as required. The unit shall have automatic force shut down provision in case of fire on receiveing signal from BMS System. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature.**		
	Low static ductable units (minimum 25 pascal external static pressure)		
4.1	0.6 TR	each	26896
4.2	0.7 TR	each	27735
4.3	0.8 TR	each	28336
4.4	0.9 TR	each	29598
4.5	1 TR	each	29660
4.6	1.1 TR	each	32610

4.7	1.3 TR	each	34350
4.8	1.4 TR	each	34650
4.9	1.6 TR	each	35259
	Mid Static Ductable units (minimum 45 pascal external static pressure)		
4.10	1.8 TR	each	38032
4.11	2 TR	each	38913
4.12	2.3 TR	each	39669
4.13	2.6 TR	each	42350
4.14	2.8 TR	each	46782
4.15	3.4 TR	each	47651
4.16	4 TR	each	48731
	High Static Ductable units (minimum 110 pascal external static pressure)		
4.17	5.5 TR	each	85766
4.18	7.1 TR	each	87281
4.19	8 TR	each	89590
	COPEER REFRIGERANT PIPING		
Item No.	**Description**	**Unit**	**Rate (Rs.)**
5	**Supply, Installation, testing and commissioning including vaccumiazation and Nitrogen testing of following nominal sizes of soft/hard drawn copper refrigerant piping for VRV/VRF system, complete with fittings, with suitable adjustable ring type hanger supports, jointing/brazing including accessories, insulated with XPLE Class-O tubular insulation/with Class-O closed cell elastometric nitrile rubber tubular sleeves sections of specified thickness as given below for Suction and Liquid lines, all accessories as per specifications etc. as required :**		
5.1	6.4 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with 19 mm thick insulation	m	245
5.2	9.5 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with 19 mm thick insulation	m	331
5.3	12.7 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with 19 mm thick insulation	m	466
5.4	15.86 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with 19 mm thick insulation	m	588
5.5	19 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm with 19 mm thick insulation	m	707
5.6	22.2 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm with 19 mm thick insulation	m	865
5.7	25.4 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm with 19 mm thick insulation	m	1022
5.8	28.58 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm with 19 mm thick insulation	m	1108
5.9	31.8 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm with 19 mm thick insulation	m	1170

5.10	34.9 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm with 19 mm thick insulation	m	1230
5.11	38.1 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm with 19 mm thick insulation	m	1265
5.12	41.27 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm with 19 mm thick insulation	m	1309

NOTE:- 1)The Copper Piping & Piping Circuit should be with Minimum Number of joints, which shall be attained by :

(i) Using One End Expanded Tubes

(ii) Bending the tubes instead of using elbow joints wherever 90 degree bending is required.

(2) Piping should be routed at site in such a manner, that brazed joints in the refrigeration piping are kept to a minimum.

(3) The makes of tube fittings shall be same as that of tubes.

(4) The thickness of fittings used shall be same as that of the pipe.

PART-II

Delhi Analysis of Rates (Items for VRF/VRV AIR-CONDITIONING SYSTEM)- 2019

DELHI ANALYSIS OF RATES					
OUTDOOR UNIT					
1	**Supply Installation, Testing & Commissioning of modular type Variable Refrigerant Flow/Variable Refrigerant Volume air cooled Outdoor units suitable for cooling and heating, having all hermetically sealed inverter type Scroll Compressor(s), minimum two compressors for above 14 HP modules, microprocessor based Controller, top discharge type condensing unit(s), with R 410 A Refrigerant, vibration isolators, with suitable foundation etc. complete as required. The unit shall deliver the rated capacity at AHRI Conditions and work even at 50°C ambient temperature without tripping. The unit shall be suitable to work on 400V +/- 10%, 3 Phase, 50Hz AC power supply. The unit shall be filled with first charge of the refrigerant and ready for use as required. The COP at AHRI conditions shall not be less than 3.1 and IEER not less than 6.5 .**				
1.1	**18 HP ODU**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Basic Price for 18 HP ODU i/c accessories, fittings, supports etc.	Each	1	214470	214470.00
	Cartage @1% of A				2144.70
	Total A				**216614.70**
	ITC @4% of A				8664.59
	Total				**225279.29**
	Add 12% GST (MF = 0.1405)				31651.74
	Total				**256931.03**
	Overhead & Profit @ 15%				38539.65
	TOTAL				**295470.68**
	Rate Per HP				**16415.04**
	Say Rs.				**16415**
INDOOR UNIT-CASSETTE TYPE					
2	**Supply, installation, testing and commissioning of following minimum capacity 4-way flow VRV/VRF Cassette Type Indoor ceiling mounted unit equipped with synthetic washable media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX Copper coil, electronic expansion valve, outer cabinet, drain pump, grill, necessary supports, vibration isolation, cord less remote control etc., suitable for operation on single phase 230 V ± 10%, 50Hz AC supply, complete, as required. The unit shall have automatic force shut down provision in case of fire on receiving signal from BMS System. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature.**				
2.1	**0.8 TR**				

	Description	Unit	Qty.	Rate	Amount (Rs.)
	A Material				
	Price for 0.8 TR Cassette type IDU i/c accessories, fittings, supports etc.	Each	1	19875	19875
	Cartage @1% of A				198.75
	Total A				**20073.75**
	ITC @4% of A				802.95
	Total				**20876.7**
	Add 12% GST (MF = 0.1405)				2933.18
	Total				**23809.88**
	Overhead & Profit @ 15%				3571.48
	TOTAL				**27381.36**
	Say Rs.				**27381**
2.2	**1 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 1 TR Cassette type IDU i/c accessories, fittings, supports etc.	Each	1	21149	21149
	Cartage @1% of A				211.49
	Total A				**21360.49**
	ITC @4% of A				854.42
	Total				**22214.91**
	Add 12% GST (MF = 0.1405)				3121.19
	Total				**25336.10**
	Overhead & Profit @ 15%				3800.41
	TOTAL				**29136.51**
	Say Rs.				**29137**
2.3	**1.2 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 1.2 TR Cassette type IDU i/c accessories, fittings, supports etc.	Each	1	21404	21404
	Cartage @1% of A				214.04
	Total A				**21618.04**
	ITC @4% of A				864.72
	Total				**22482.76**
	Add 12% GST (MF = 0.1405)				3158.83
	Total				**25641.59**

	Overhead & Profit @ 15%				3846.24
	TOTAL				**29487.83**
	Say Rs.				**29488**
2.4	**1.6 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 1.6 TR Cassette type IDU i/c accessories, fittings, supports etc.	Each	1	21924	21924
	Cartage @1% of A				219.24
	Total A				**22143.24**
	ITC @4% of A				885.73
	Total				**23028.97**
	Add 12% GST (MF = 0.1405)				3235.57
	Total				**26264.54**
	Overhead & Profit @ 15%				3939.68
	TOTAL				**30204.22**
	Say Rs.				**30204**
2.5	**2 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 2 TR Cassette type IDU i/c accessories, fittings, supports etc.	Each	1	22357	22357
	Cartage @1% of A				223.57
	Total A				**22580.57**
	ITC @4% of A				903.22
	Total				**23483.79**
	Add 12% GST (MF = 0.1405)				3299.47
	Total				**26783.26**
	Overhead & Profit @ 15%				4017.49
	TOTAL				**30800.75**
	Say Rs.				**30801**
2.6	**2.4 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 2.4 TR Cassette type IDU i/c accessories, fittings, supports etc.	Each	1	22830.50	22830.50
	Cartage @1% of A				228.31
	Total A				**23058.81**
	ITC @4% of A				922.35

	Total				**23981.16**
	Add 12% GST (MF = 0.1405)				3369.35
	Total				**27350.51**
	Overhead & Profit @ 15%				4102.58
	TOTAL				**31453.08**
	Say Rs.				**31453**
2.7	**2.8 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 2.8 TR Cassette type IDU i/c accessories, fittings, supports etc.	Each	1	23238.5	23238.5
	Cartage @1% of A				232.39
	Total A				**23470.89**
	ITC @4% of A				938.84
	Total				**24409.72**
	Add 12% GST (MF = 0.1405)				3429.57
	Total				**27839.29**
	Overhead & Profit @ 15%				4175.89
	TOTAL				**32015.18**
	Say Rs.				**32015**
2.8	**3.2 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 3.2 TR Cassette type IDU i/c accessories, fittings, supports etc.	Each	1	23799	23799
	Cartage @1% of A				237.99
	Total A				**24036.99**
	ITC @4% of A				961.48
	Total				**24998.47**
	Add 12% GST (MF = 0.1405)				3512.28
	Total				**28510.75**
	Overhead & Profit @ 15%				4276.61
	TOTAL				**32787.36**
	Say Rs.				**32787**
2.9	**3.6 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 3.6 TR Cassette type IDU i/c accessories, fittings, supports etc.	Each	1	24105	24105

	Cartage @1% of A				241.05
	Total A				**24346.05**
	ITC @4% of A				973.84
	Total				**25319.9**
	Add 12% GST (MF = 0.1405)				3557.44
	Total				**28877.33**
	Overhead & Profit @ 15%				4331.60
	TOTAL				**33208.93**
	Say Rs.				**33209**
2.10	**4 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 4 TR Cassette type IDU i/c accessories, fittings, supports etc.	Each	1	24665.50	24665.5
	Cartage @1% of A				246.66
	Total A				**24912.16**
	ITC @4% of A				996.49
	Total				**25908.64**
	Add 12% GST (MF = 0.1405)				3640.16
	Total				**29548.80**
	Overhead & Profit @ 15%				4432.32
	TOTAL				**33981.12**
	Say Rs.				**33981**
	INDOOR UNIT-HIGH WALL TYPE				
3	**Supply, installation, testing and commissioning of following minimum capacity VRV/VRF High wall type Indoor unit equipped with washable synthetic media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX copper coil, electronic expansion valve, outer cabinet, cord less remote control, drain pan, necessary accessories etc., suitable for operation on 230 V ± 10%, 50 Hz, single phase AC supply, complete as required. The unit shall have automatic force shut down provision in case of fire on receiving signal from BMS System. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature.**				
3.1	**0.6 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 0.6 TR High Wall type IDU i/c accessories, fittings, supports etc.	Each	1	13595	13595
	Cartage @1% of A				135.95

	Total A				**13730.95**
	ITC @4% of A				549.24
	Total				**14280.19**
	Add 12% GST (MF = 0.1405)				2006.37
	Total				**16286.56**
	Overhead & Profit @ 15%				2442.98
	TOTAL				**18729.54**
	Say Rs.				**18730**
3.2	**0.8 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 0.8 TR High Wall type IDU i/c accessories, fittings, supports etc.	Each	1	14018	14018
	Cartage @1% of A				140.18
	Total A				**14158.18**
	ITC @4% of A				566.33
	Total				**14724.51**
	Add 12% GST (MF = 0.1405)				2068.79
	Total				**16793.30**
	Overhead & Profit @ 15%				2518.99
	TOTAL				**19312.29**
	Say Rs.				**19312**
3.3	**1 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 1 TR High Wall type IDU i/c accessories, fittings, supports etc.	Each	1	14299.5	14299.50
	Cartage @1% of A				143.00
	Total A				**14442.50**
	ITC @4% of A				577.70
	Total				**15020.19**
	Add 12% GST (MF = 0.1405)				2110.34
	Total				**17130.53**
	Overhead & Profit @ 15%				2569.58
	TOTAL				**19700.12**
	Say Rs.				**19700**
3.4	**1.3 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				

	Price for 1.3 TR High Wall type IDU i/c accessories, fittings, supports etc.	Each	1	15371	15371
	Cartage @1% of A				153.71
	Total A				**15524.71**
	ITC @4% of A				620.99
	Total				**16145.70**
	Add 12% GST (MF = 0.1405)				2268.47
	Total				**18414.17**
	Overhead & Profit @ 15%				2762.13
	TOTAL				**21176.29**
	Say Rs.				**21176**
3.5	**1.45 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 1.45 TR High Wall type IDU i/c accessories, fittings, supports etc.	Each	1	15472	15472
	Cartage @1% of A				154.72
	Total A				**15626.72**
	ITC @4% of A				625.07
	Total				**16251.79**
	Add 12% GST (MF =0.1405)				2283.38
	Total				**18535.17**
	Overhead & Profit @ 15%				2780.28
	TOTAL				**21315.44**
	Say Rs.				**21315**
3.6	**1.65 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 1.65 TR High Wall IDU i/c accessories, fittings, supports etc.	Each	1	15784.50	15784.50
	Cartage @1% of A				157.85
	Total A				**15942.35**
	ITC @4% of A				637.69
	Total				**16580.04**
	Add 12% GST (MF =0.1405)				2329.50
	Total				**18909.54**
	Overhead & Profit @ 15%				2836.43
	TOTAL				**21745.97**
	Say Rs.				**21746**

3.7	**2 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 2 TR High Wall type IDU i/c accessories, fittings, supports etc.	Each	1	16041.50	16041.5
	Cartage @1% of A				160.42
	Total A				**16201.92**
	ITC @4% of A				648.08
	Total				**16849.99**
	Add 12% GST (MF = 0.1405)				2367.42
	Total				**19217.41**
	Overhead & Profit @ 15%				2882.61
	TOTAL				**22100.02**
	Say Rs.				**22100**
INDOOR UNIT-DUCTABLE TYPE					
4	**Supply, installation, testing and commissioning of following minimum capacity and external static pressure VRF/VRV ceiling mounted ductable type Indoor unit equipped with washable synthetic media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX copper coil, electronic expansion valve, corded remote control, outer cabinet, vibration isolators, drain pan, other necessary supports etc., suitable for operation on single phase AC supply 230 V ± 10%, 50 Hz complete as required. The unit shall have automatic force shut down provision in case of fire on receiveing signal from BMS System. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature.**				
	Low static ductable units (minimum 25 pascal external static pressure)				
4.1	**0.6 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 0.6 TR Ductable type IDU i/c accessories, fittings, supports etc.	Each	1	19523	19523.00
	Cartage @1% of A				195.23
	Total A				**19718.23**
	ITC @4% of A				788.73
	Total				**20506.96**
	Add 12% GST (MF = 0.1405)				2881.23
	Total				**23388.19**
	Overhead & Profit @ 15%				3508.23
	TOTAL				**26896.42**

	Say Rs.				**26896**
4.2	**0.7 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 0.7 TR Ductable type IDU i/c accessories, fittings, supports etc.	Each	1	20132	20132.00
	Cartage @1% of A				201.32
	Total A				**20333.32**
	ITC @4% of A				813.33
	Total				**21146.65**
	Add 12% GST (MF = 0.1405)				2971.10
	Total				**24117.75**
	Overhead & Profit @ 15%				3617.66
	TOTAL				**27735.42**
	Say Rs.				**27735**
4.3	**0.8 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 0.8 TR Ductable type IDU i/c accessories, fittings, supports etc.	Each	1	20568	20568.00
	Cartage @1% of A				205.68
	Total A				**20773.68**
	ITC @4% of A				830.95
	Total				**21604.63**
	Add 12% GST (MF = 0.1405)				3035.45
	Total				**24640.08**
	Overhead & Profit @ 15%				3696.01
	TOTAL				**28336.09**
	Say Rs.				**28336**
4.4	**0.9 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 0.9 TR Ductable type IDU i/c accessories, fittings, supports etc.	Each	1	21484	21484.00
	Cartage @1% of A				214.84
	Total A				**21698.84**
	ITC @4% of A				867.95
	Total				**22566.79**
	Add 12% GST (MF = 0.1405)				3170.63

	Total				**25737.42**
	Overhead & Profit @ 15%				3860.61
	TOTAL				**29598.04**
	Say Rs.				**29598**
4.5	**1 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 1 TR Ductable type IDU i/c accessories, fittings, supports etc.	Each	1	21529	21529.00
	Cartage @1% of A				215.29
	Total A				**21744.29**
	ITC @4% of A				869.77
	Total				**22614.06**
	Add 12% GST (MF = 0.1405)				3177.28
	Total				**25791.34**
	Overhead & Profit @ 15%				3868.70
	TOTAL				**29660.04**
	Say Rs.				**29660**
4.6	**1.1 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 1.1 TR Ductable type IDU i/c accessories, fittings, supports etc.	Each	1	23670	23670.00
	Cartage @1% of A				236.70
	Total A				**23906.70**
	ITC @4% of A				956.27
	Total				**24862.97**
	Add 12% GST (MF = 0.1405)				3493.25
	Total				**28356.22**
	Overhead & Profit @ 15%				4253.43
	TOTAL				**32609.65**
	Say Rs.				**32610**
4.7	**1.3 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 1.3 TR Ductable type IDU i/c accessories, fittings, supports etc.	Each	1	24933	24933.00
	Cartage @1% of A				249.33
	Total A				**25182.33**

	ITC @4% of A				1007.29
	Total				**26189.62**
	Add 12% GST (MF = 0.1405)				3679.64
	Total				**29869.26**
	Overhead & Profit @ 15%				4480.39
	TOTAL				**34349.65**
	Say Rs.				**34350**
4.8	**1.4 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 1.4 TR Ductable type IDU i/c accessories, fittings, supports etc.	Each	1	25151	25151.00
	Cartage @1% of A				251.51
	Total A				**25402.51**
	ITC @4% of A				1016.10
	Total				**26418.61**
	Add 12% GST (MF = 0.1405)				3711.81
	Total				**30130.42**
	Overhead & Profit @ 15%				4519.56
	TOTAL				**34649.98**
	Say Rs.				**34650**
4.9	**1.6 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 1.6 TR Ductable type IDU i/c accessories, fittings, supports etc.	Each	1	25593	25593.00
	Cartage @1% of A				255.93
	Total A				**25848.93**
	ITC @4% of A				1033.96
	Total				**26882.89**
	Add 12% GST (MF = 0.1405)				3777.05
	Total				**30659.94**
	Overhead & Profit @ 15%				4598.99
	TOTAL				**35258.93**
	Say Rs.				**35259**
	Mid Static Ductable units (minimum 45 pascal external static pressure)				
4.10	**1.8 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				

	Price for 1.8 TR Ductable type IDU i/c accessories, fittings, supports etc.	Each	1	27606	27606.00
	Cartage @1% of A				276.06
	Total A				**27882.06**
	ITC @4% of A				1115.28
	Total				**28997.34**
	Add 12% GST (MF = 0.1405)				4074.13
	Total				**33071.47**
	Overhead & Profit @ 15%				4960.72
	TOTAL				**38032.19**
	Say Rs.				**38032**
4.11	**2 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 2 TR Ductable type IDU i/c accessories, fittings, supports etc.	Each	1	28245	28245.00
	Cartage @1% of A				282.45
	Total A				**28527.45**
	ITC @4% of A				1141.10
	Total				**29668.55**
	Add 12% GST (MF = 0.1405)				4168.43
	Total				**33836.98**
	Overhead & Profit @ 15%				5075.55
	TOTAL				**38912.52**
	Say Rs.				**38913**
4.12	**2.3 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 2.3 TR Ductable type IDU i/c accessories, fittings, supports etc.	Each	1	28794	28794.00
	Cartage @1% of A				287.94
	Total A				**29081.94**
	ITC @4% of A				1163.28
	Total				**30245.22**
	Add 12% GST (MF = 0.1405)				4249.45
	Total				**34494.67**
	Overhead & Profit @ 15%				5174.20
	TOTAL				**39668.87**
	Say Rs.				**39669**

4.13	**2.6 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 2.6 TR Ductable type IDU i/c accessories, fittings, supports etc.	Each	1	30740	30740.00
	Cartage @1% of A				307.40
	Total A				**31047.40**
	ITC @4% of A				1241.90
	Total				**32289.30**
	Add 12% GST (MF = 0.1405)				4536.65
	Total				**36825.95**
	Overhead & Profit @ 15%				5523.89
	TOTAL				**42349.84**
	Say Rs.				**42350**
4.14	**2.8 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 2.8 TR Ductable type IDU i/c accessories, fittings, supports etc.	Each	1	33957	33957.00
	Cartage @1% of A				339.57
	Total A				**34296.57**
	ITC @4% of A				1371.86
	Total				**35668.43**
	Add 12% GST (MF = 0.1405)				5011.41
	Total				**40679.84**
	Overhead & Profit @ 15%				6101.98
	TOTAL				**46781.82**
	Say Rs.				**46782**
4.15	**3.4 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 3.4 TR Ductable type IDU i/c accessories, fittings, supports etc.	Each	1	34588	34588.00
	Cartage @1% of A				345.88
	Total A				**34933.88**
	ITC @4% of A				1397.36
	Total				**36331.24**
	Add 12% GST (MF = 0.1405)				5104.54
	Total				**41435.78**

	Overhead & Profit @ 15%				6215.37
	TOTAL				**47651.14**
	Say Rs.				**47651**
4.16	**4 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 4 TR Ductable type IDU i/c accessories, fittings, supports etc.	Each	1	35372	35372.00
	Cartage @1% of A				353.72
	Total A				**35725.72**
	ITC @4% of A				1429.03
	Total				**37154.75**
	Add 12% GST (MF = 0.1405)				5220.24
	Total				**42374.99**
	Overhead & Profit @ 15%				6356.25
	TOTAL				**48731.24**
	Say Rs.				**48731**
	High Static Ductable units (minimum 110 pascal external static pressure)				
4.17	**5.5 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 5.5 TR Ductable type IDU i/c accessories, fittings, supports etc.	Each	1	62254	62254.00
	Cartage @1% of A				622.54
	Total A				**62876.54**
	ITC @4% of A				2515.06
	Total				**65391.60**
	Add 12% GST (MF = 0.1405)				9187.52
	Total				**74579.12**
	Overhead & Profit @ 15%				11186.87
	TOTAL				**85765.99**
	Say Rs.				**85766**
4.18	**7.1 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 7.1 TR Ductable type IDU i/c accessories, fittings, supports etc.	Each	1	63354	63354.00
	Cartage @1% of A				633.54
	Total A				**63987.54**

	ITC @4% of A				2559.50
	Total				**66547.04**
	Add 12% GST (MF = 0.1405)				9349.86
	Total				**75896.90**
	Overhead & Profit @ 15%				11384.54
	TOTAL				**87281.44**
	Say Rs.				**87281**
4.19	**8 TR**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 8 TR Ductable type IDU i/c accessories, fittings, supports etc.	Each	1	65030	65030.00
	Cartage @1% of A				650.30
	Total A				**65680.30**
	ITC @4% of A				2627.21
	Total				**68307.51**
	Add 12% GST (MF = 0.1405)				9597.21
	Total				**77904.72**
	Overhead & Profit @ 15%				11685.71
	TOTAL				**89590.43**
	Say Rs.				**89590**
	COPEER REFRIGERANT PIPING				
5	**Supply, Installation, testing and commissioning including vaccumiazation and Nitrogen testing of following nominal sizes of soft/hard drawn copper refrigerant piping for VRV/VRF system, complete with fittings, with suitable adjustable ring type hanger supports, jointing/brazing including accessories, insulated with XPLE Class-O tubular insulation/with Class-O closed cell elastometric nitrile rubber tubular sleeves sections of specified thickness as given below for Suction and Liquid lines, all accessories as per specifications etc. as required :**				
5.1	**6.4 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with 19 mm thick insulation**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 6.4 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with 19 mm thick insulation	m	1	178	178
	Cartage @1% of A				1.78
	Total A				**179.78**
	ITC @4% of A				7.1912
	Total				**186.97**

	Add 12% GST (MF = 0.1405)				26.27
	Total				**213.24**
	Overhead & Profit @ 15%				31.99
	TOTAL				**245.23**
	Say Rs.				**245**
5.2	**9.5 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with 19 mm thick insulation**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 9.5 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with 19 mm thick insulation	m	1	240	240
	Cartage @1% of A				2.40
	Total A				**242.40**
	ITC @4% of A				9.70
	Total				**252.10**
	Add 12% GST (MF =0.1405)				35.42
	Total				**287.52**
	Overhead & Profit @ 15%				43.13
	TOTAL				**330.64**
	Say Rs.				**331**
5.3	**12.7 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with 19 mm thick insulation**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 12.7 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with 19 mm thick insulation	m	1	338	338
	Cartage @1% of A				3.38
	Total A				**341.38**
	ITC @4% of A				13.66
	Total				**355.04**
	Add 12% GST (MF = 0.1405)				49.88
	Total				**404.92**
	Overhead & Profit @ 15%				60.74
	TOTAL				**465.65**
	Say Rs.				**466**
5.4	**15.86 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with 19 mm thick insulation**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				

	Price for 15.86 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with 19 mm thick insulation	m	1	427	427
	Cartage @1% of A				4.27
	Total A				**431.27**
	ITC @4% of A				17.25
	Total				**448.52**
	Add 12% GST (MF = 0.1405)				63.02
	Total				**511.54**
	Overhead & Profit @ 15%				76.73
	TOTAL				**588.27**
	Say Rs.				**588**
5.5	**19 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm with 19 mm thick insulation**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 19 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm with 19 mm thick insulation	m	1	513	513
	Cartage @1% of A				5.13
	Total A				**518.13**
	ITC @4% of A				20.73
	Total				**538.86**
	Add 12% GST (MF = 0.1405)				75.71
	Total				**614.57**
	Overhead & Profit @ 15%				92.18
	TOTAL				**706.75**
	Say Rs.				**707**
5.6	**22.2 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm with 19 mm thick insulation**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 22.2 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm with 19 mm thick insulation	m	1	628	628
	Cartage @1% of A				6.28
	Total A				**634.28**
	ITC @4% of A				25.37
	Total				**659.65**
	Add 12% GST (MF = 0.1405)				92.68
	Total				**752.33**
	Overhead & Profit @ 15%				112.85

	TOTAL				**865.18**
	Say Rs.				**865**
5.7	**25.4 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm with 19 mm thick insulation**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 25.4 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm with 19 mm thick insulation	m	1	742	742
	Cartage @1% of A				7.42
	Total A				**749.42**
	ITC @4% of A				29.98
	Total				**779.40**
	Add 12% GST (MF =0.1405)				109.51
	Total				**888.91**
	Overhead & Profit @ 15%				133.34
	TOTAL				**1022.24**
	Say Rs.				**1022**
5.8	**28.58 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm with 19 mm thick insulation**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 28.58 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm with 19 mm thick insulation	m	1	804	804
	Cartage @1% of A				8.04
	Total A				**812.04**
	ITC @4% of A				32.48
	Total				**844.52**
	Add 12% GST (MF = 0.1405)				118.66
	Total				**963.18**
	Overhead & Profit @ 15%				144.48
	TOTAL				**1107.66**
	Say Rs.				**1108**
5.9	**31.8 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm with 19 mm thick insulation**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 31.8 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm with 19 mm thick insulation	m	1	849	849
	Cartage @1% of A				8.49

	Total A				**857.49**
	ITC @4% of A				34.30
	Total				**891.79**
	Add 12% GST (MF = 0.1405)				125.30
	Total				**1017.09**
	Overhead & Profit @ 15%				152.56
	TOTAL				**1169.65**
	Say Rs.				**1170**
5.10	**34.9 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm with 19 mm thick insulation**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 34.9 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm with 19 mm thick insulation	m	1	893	893
	Cartage @1% of A				8.93
	Total A				**901.93**
	ITC @4% of A				36.08
	Total				**938.01**
	Add 12% GST (MF = 0.1405)				131.79
	Total				**1069.80**
	Overhead & Profit @ 15%				160.47
	TOTAL				**1230.27**
	Say Rs.				**1230**
5.11	**38.1 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm with 19 mm thick insulation**				
	Description	**Unit**	**Qty.**	**Rate**	**Amount (Rs.)**
	A Material				
	Price for 38.1 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm with 19 mm thick insulation	m	1	918	918
	Cartage @1% of A				9.18
	Total A				**927.18**
	ITC @4% of A				37.09
	Total				**964.27**
	Add 12% GST (MF = 0.1405)				135.48
	Total				**1099.75**
	Overhead & Profit @ 15%				164.96
	TOTAL				**1264.71**
	Say Rs.				**1265**
5.12	**41.27 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm with 19 mm thick insulation**				

	Description	Unit	Qty.	Rate	Amount (Rs.)
	A Material				
	Price for 41.27 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm with 19 mm thick insulation	m	1	950	950
	Cartage @1% of A				9.50
	Total A				**959.50**
	ITC @4% of A				38.38
	Total				**997.88**
	Add 12% GST (MF = 0.1405)				140.20
	Total				**1138.08**
	Overhead & Profit @ 15%				170.71
	TOTAL				**1308.79**
	Say Rs.				**1309**