

UNI EN ISO 9001 QUALITY MANAGEMENT SYSTEM
MATERIALS/SUPPLIES APPROVAL (art. 6 d.m. 7 marzo 2018, n.49)

Client	VDC MXP11 S.r.l.- Vicolo San Giovanni sul Muro 9, 20121 Milano (MI)
Construction Manager	Architetto Luciano Franchi
Work of	Costruzione Nuovo Data Center da 16 MW e Opere Infrastrutturali annesse
Project prepared by	DBA Pro – Piazza Roma 19 – 32045 Santo Stefano di Cadore (BL)
Building Permit/Construction Authorization	
Contractual Amount of Work €	68.340.000,00 €
Contract Agreement	Stipulato in data 15 Settembre 2022
Contractor	Bouygues E&S Italia S.p.A. - Via Stephenson, 73 – 20157 Milano.
Director of Works	Ing. Sacha Busetti

Project: MXP11
Document N°: MXP11-BYE-XX-XX-SP-M-0018
Revision: **C03**
Revision Date: 29-Dic-2023
Stage: WS5
Status: A1
Document Title: DM-DOAS-4

Revision History

Date	Revision	Status	Revised Sections	Description
10-May-2023	P01	S3	/	Internal revision
18-May-2023	P02	S4	/	FIRST ISSUE
29-Nov-2023	C01	A1	Pag. 1,2-6/19	EDIT DATA SHEETS
14-Dic-2023	C02	A1	Pag. 1-6/19	EDIT DATA SHEETS
29-Dic-2023	C03	A1	Pag. 1-6/19	EDIT DATA SHEETS

- General Data (Enterprise section)

Materials/Supply Approval Sheet								
Data to be entered for cataloging and archiving - by the Enterprise								
Categoria	STR		ARC		MEP		VVF	
Verifica Necessaria	Strutturale		Architettonico		Meccanico Elettrico Idrico		Sicurezza Antincendio	
	SI	NO	SI	NO	SI	NO	SI	NO
Campionatura Richiesta	SI				NO			

Materials/Project supply	
Data taken from Project documents - by the Enterprise	
Description	DM-DOAS-4
Computation ID reference	N.A.
Drawing ID reference	N.A.
Special Specification ID reference	MXP11-RHD-DC-ZZ-DR-M-0715 Schematic MXP11-RHD-DC-XX-CA-M-0031 Supply MXP11-RHD-DC-XX-CA-M-0032 Return
Materials/Supply Proposed	
Data taken from construction documents - by the Enterprise	
Description	DM-DOAS-4 Supply m3/h 4.010 Pa = 220; Return m3/h 3.410 Pa =220
Product ID reference	ROCCHEGGIANI

Sampling Available	SI	NO
Business Cards	SI	NO
Data Sheets	SI	NO
DOP Declaration of Performance	SI	NO
CE Marking	SI	NO
Supplementary Reports	SI	NO
Specialist Evaluatios	SI	NO

Contractor Evaluations	
Proposal as project	SI NO

Cost variations	SI	NO
Stam/signature		

Attachments
Technical data sheet

Notes

- APPROVALS (Section Reserved for DL)

Specialist approvals A- APPROVATO B- APPROVATO CON NOTE – Ri Sottomissione NON NECESSARIA C- APPROVATO CON NOTE – Ri Sottomissione NECESSARIA D- NON APPROVATO Data to be entered by Specialist Consultants and/or Construction Management				
Fire Fighting Design	SI		NO	
Description				
Observations				
Type	A	B	C	D
Stamp/signature				
Dir. Lavori STR	SI		NO	
Description				
Observations				
Type	A	B	C	D

Stamp/signature				
Dir. Lav. ARC	SI		NO	
Description				
Observations				
Type	A	B	C	D
Stamp/signature				
Dir. Lav. MEP	SI		NO	
Description				
Observations				
Type	A	B	C	D
Stamp/signature				
Approvazione Generale E- APPROVATO F- APPROVATO CON NOTE – Ri Sottomissione NON NECESSARIA G- APPROVATO CON NOTE – Ri Sottomissione NECESSARIA H- NON APPROVATO				
DLG	SI		NO	
Description				
Observations				
Type	A	B	C	D
Stamp/signature				

Attachments

Notes

Offer	UTA21001082.18	Position	5.0	MPX11-DM-DOAS-04
Project	MXP11 Data Centre			From date 28/12/23
				User:

Unit size	CTA 12.8	C54TT	Length [mm]	6.650,0	Net weight [kg]	~2.424,00
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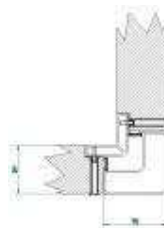
Panel inside	Galvanized prepainted	0,80 mm	Simil RAL 9002
Panel outside	Galvanized prepainted	0,80 mm	Simil RAL 9002
Panel inside bottom	AISI 304	0,80 mm	
Profiles	Aluminium - Thermal Break		
Guides	AISI 304		
Insulation	Mineralwool	Thickness	54,0 mm
Corners	Nylon		
Panel reaction to fire class due to UNI 9177: 0 (ZERO)			

Certified mechanical performances due to EN 1886:2007

Mechanical stability	D1(M)
Casing leakage -400 Pa	L1(M)
Filter by-pass leakage	F9
Casing leakage +700 Pa	L1(M)

Certified thermal performances of casing due to EN 1886:2007

Thermal bridge class	TB2
Thermal transmittance class	T2



Reference city **Milan**
airCalc++ Vers. **P 4.2.0**

Sound power levels [dB]

Frq.[Hz]	63	125	250	500	1000	2000	4000	8000	Sum [dB(A)]
Total sound power level at the unit inlet [dB]	65,0	63,0	72,0	66,0	62,0	57,0	54,0	51,0	68,3
Total sound power level at the unit outlet [dB]	70,0	68,0	78,0	72,0	73,0	71,0	67,0	64,0	77,9
Break out airborne sound power [dB]	47,0	49,0	57,0	48,0	48,0	47,0	32,0	25,0	53,7

Internal frame material	AISI 304	Drain pan material	AISI 304
Dampers material	Aluminium / Aluminium	Drop eliminator material	AISI 304 / PPTV

Main data:

<u>Supply</u>	Airflow	4.010 [m³/h]	External static	220 [Pa]	Motor absorbed/nominal power	1,520 /2,500 [kW]
<u>Return</u>	Airflow	3.410 [m³/h]	External static	220 [Pa]	Motor absorbed/nominal power	0,820 /2,500 [kW]

Certification number	11.02.510	Specific fan power [W/(m³/s)]	1.754	SFP3
Model Box number	Pr08/Zn08-54RW-TT	Used lowest temp. [°C]	-10,10	
Type of unit	External unit	Recirculation [%]		
A.m.s.l. [m]	0	Air velocity [m/s]	1,34	
HRS Winter Thermal eff. (1:1) (dry)	82,10 (EN 308)	Specific weight [kg/m³]	1,20	
HRS Summer Thermal eff. (1:1)	79,3 (EN 308)	Factor Fs-Pref (wint./summ. cond.)	0,93 / 0,7	
HRS Summer Humidity eff. (1:1)	73,60 (EN 308)	<i>Energy label class designed for wet conditions</i>		

Offer	UTA21001082.18	Position	5.0	airCalc Vers.	P 4.2.0
Project	MXP11 Data Centre				28/12/2023
Position	MPX11-DM-DOAS-04				3

Supply air					
Unit definition			Casing:		
Unit size	CTA 12.8	C54TT	Thickness	54,0 mm	Mineralwool
Airflow [m³/h]	4.010	Length [mm]	6.650,0	Panel inside	Galvanized prepainted 0,80 mm
Ext. pressure [Pa]	220	Width [mm]	1.220,0	Panel outside	Galvanized prepainted 0,80 mm
Tot. pressure [Pa]	946	Height [mm]	860,0	Panel inside bottom	AISI 304 0,80 mm
Air velocity [m/s]	1,34	Net weight [kg]	~1.879,0	Profiles	Aluminium
Class DIN EN 13053	V1			Guides	AISI 304
Thermal transmittance class		T2	Mechanical stability		D1(M)
Thermal bridge class		TB2	Filter by-pass leakage		F9
Casing leakage -400 Pa		L1(M)	Casing leakage +700 Pa		L1(M)

Filter		Supply air	1.170,0 mm	4,45 m2	106 Pa
Manufacture	Roccheggiani	Filter length [mm]	535,0		
Type	V-BF-M5-535-S	Filter surface [m2]	9,00		
Class (EN 779:2012)	M5	Cells pcs x size	2 x V-BF-M5-535-S	490,0 x 592,0	
Class (ISO 16890)	ePM10 65%				
Clean dP [Pa]	50				
Dirty dP [Pa]	150				
Applied dP [Pa]	100				
Airflow [m³/h]	4.010	1,92 m/s			
Filter handling	Dirty air withdrawal				
Material frame	AISI 304	Filter energy class			
Door with hinge and single lever		Dimensions [mm]	500,0 x 720,0		
<u>Damper:</u>		Dimensions [mm]	780,0 x 510,0 x 125,0		
Actuated by	actuator	Airflow [m³/h]	4.010	Frame	Aluminium
Qta. Levers	1	Air velocity [m/s]	2,80	Blades	Aluminium
torque [Nm]	3,220	Pressure drop [Pa]	6	Type	DP1
<u>Damper actuator</u>	GMA161.1E				
Quantity	1	Mode	modulating	Voltage [V]	24
Supplier	Siemens	torque [Nm]	7,000	Current [A]	0,21
				Protection	IP54
<u>Inspection window</u>	Round	Diameter [mm]	200,0		
<u>Lamp</u>	PVC-STD Lamp	Nominal data	230 V	9 W	0,04 A IP65
		Wiring	Yes		
1 Pcs	Differential pressure switch PS500 (0-500Pa)				-
1 Pcs	A2G-10 Differential Pressure Gauge 0-500 Pa				-

Empty section		Supply air	540,0 mm	1,87 m2	Pa
Door with hinge and single lever		Dimensions [mm]	500,0 x 720,0		
<u>Inspection window</u>	Round	Diameter [mm]	200,0		
<u>Lamp</u>	PVC-STD Lamp	Nominal data	230 V	9 W	0,04 A IP65
		Wiring	Yes		
1 Pcs	FTK+ 270 VVS NTC10K Temperature and humidity probe (0-10V)				

Offer	UTA21001082.18		Position	5.0		airCalc Vers.	P 4.2.0	
Project	MXP11 Data Centre						28/12/2023	
Position	MPX11-DM-DOAS-04							
Filter			Supply air	670,0 mm	2,34 m2	152 Pa		
Manufacture	Roccheggiani		Filter length [mm]	535,0				
Type	V-BF-F8-535-S		Filter surface [m2]	7,60				
Class (EN 779:2012)	F8		Cells pcs x size	2 x V-BF-F8-535-S	492,0 x 592,0			
Class (ISO 16890)	ePM1 70%							
Clean dP [Pa]	102							
Dirty dP [Pa]	202							
Applied dP [Pa]	152							
Airflow [m³/h]	4.010	1,91 m/s						
Filter handling	Dirty air withdrawal							
Material frame	AISI 304		Filter energy class					
1 Pcs	Differential pressure switch PS1500 (200-1000Pa)		-					
1 Pcs	A2G-10 Differential Pressure Gauge 0-500 Pa		-					
Empty section			Supply air	230,0 mm	0,53 m2	Pa		
Door with hinge and single lever			Dimensions [mm]	540,0 x 720,0				
<u>Inspection window</u>	Round		Diameter [mm]	200,0				
<u>Lamp</u>	PVC-STD Lamp		Nominal data	230 V	9 W	0,04 A	IP65	
			Wiring	Yes				
Heat wheel in casing			Supply air	680,0 mm	2,94 m2	249 Pa		
EM1100x1100-1050V-016-2D000-BBPI-A								
<u>Heating mode</u>			<u>Cooling mode</u>					
Supply [m³/h]	4.010		Supply [m³/h]	4.010				
Entering [°C]	-10,10	Humidity [%]	76,5	Entering [°C]	37,90	Humidity [%]	55,9	
Leaving [°C]	14,70	Humidity [%]	39,0	Leaving [°C]	31,90	Humidity [%]	50,0	
Pressure drop [Pa]	198		Pressure drop [Pa]	238				
Standard pressure drop (1.2 kg/m3) [Pa]	208		Standard pressure drop (1.2 kg/m3) [Pa]	210				
Exhaust [m³/h]	3.410		Exhaust [m³/h]	3.410				
Entering [°C]	22,20	Humidity [%]	29,9	Entering [°C]	30,00	Humidity [%]	41,7	
Leaving [°C]	-7,00	Humidity [%]	79,4	Leaving [°C]	36,60	Humidity [%]	54,3	
Pressure drop [Pa]	175		Pressure drop [Pa]	201				
Standard pressure drop (1.2 kg/m3) [Pa]	177		Standard pressure drop (1.2 kg/m3) [Pa]	179				
Tot. recovery capacity [kW]	42,71		Tot. recovery capacity [kW]	37,78				
Sens. recovery capacity [kW]	33,41		Sens. recovery capacity [kW]	8,04				
thermal efficiency [%]	76,9	(EN 308)	thermal efficiency [%]	75,7	(EN 308)			
Humidity efficiency [%]	75		Humidity efficiency [%]	69,1				
Energy efficiency class [%]	H1	(EN 13053)						
Energy efficiency [%]	79,00	(EN 13053)						
<u>control type</u>	SSTD		Advance step drive					
<u>Nominal data</u>								
Nominal power [kW]	0,040	nominal current [A]	0,39	nominal voltage [V]	3x230			
Pressure Door			Dimensions [mm]	540,0 x 1.580,0				
<u>Drain pan</u>	Quality AISI 304		Drain connection 1 1/4					

Offer	UTA21001082.18		Position	5.0		airCalc Vers. P 4.2.0	
Project	MXP11 Data Centre					28/12/2023	
Position	MPX11-DM-DOAS-04						
Circular air			Supply air	450,0 mm	1 m2	Pa	
<u>Mixed air calculation 1</u>							
Recircle air [m³/h]	Temp. [°C]	Humidity [%]	Temperature mixed air [°C]		Humidity [%]		
Fresh air [m³/h]	Temp. [°C]	Humidity [%]					
<u>Mixed air calculation 2</u>							
Recircle air [m³/h]	Temp. [°C]	Humidity [%]	Temperature mixed air [°C]		Humidity [%]		
Fresh air [m³/h]	Temp. [°C]	Humidity [%]					
Removable panel			Dimensions [mm]	360,0 x 720,0			
<u>Inspection window</u>		Round	Diameter [mm]	200,0			
<u>Lamp</u>	PVC-STD Lamp	Nominal data	230 V	9 W	0,04 A	IP65	
		Wiring	Yes				

Plug fan			Supply air	720,0 mm	2,34 m2	45 Pa	
Fan	GR35I-ZID.DC.CR		Motor	ECblue-IE5-50-116-0-2.5		IE5	
Air volume [m³/h]	4.010		Protection	IP55			
External static [Pa]	220		Insulation class	F			
dynamic pressure [Pa]	21		Voltage	3x400 V / 50 Hz			
Add. dynamic pressure [Pa]	45		Power [kW]	2,500			
Total static pressure [Pa]	881		Speed [1/min]	3.100			
Total pressure [Pa]	946		System absorbed power [kW]	1,520			
Speed [1/min]	2.585		nominal current [A]	3,04			
efficiency %	69,2						
Supplier	Ziehl-Abegg						
Code	ZAB-116892/A01-3/400/50						
K-factor [m³/h]	139	$[\rho = 1,2 \text{ kg/m}^3]$	$(Q = k \sqrt{\Delta p})$	K-factor [adim]	108	$(Q = k \sqrt{\Delta p \frac{2}{\rho}})$	
Fan octave band sound power level (Lokt) [dB]			Control Signal (0-10V)		8,30		
Frq.[Hz]	63	125	250	500	1000	2000	4000 8000
Inlet	67,0	66,0	76,0	71,0	68,0	64,0	62,0 60,0
Outlet	70,0	72,0	82,0	76,0	75,0	71,0	68,0
			Specific fan power [W/(m3/s)]		1.117 SFP2		
1 Pcs DPE2500 Flow LCD for airflow measurement			-				
1 set Tube for airflow measurement			-				
Removable panel			Dimensions [mm]	630,0 x 720,0			
Opening	L		Dimensions [mm]	365,0 x 365,0			
<u>Inspection window</u>		Round	Diameter [mm]	200,0			
<u>Lamp</u>	PVC-STD Lamp	Nominal data	230 V	9 W	0,04 A	IP65	
		Wiring	Yes				

Offer	UTA21001082.18		Position	5.0	airCalc Vers.	P 4.2.0	
Project	MXP11 Data Centre					28/12/2023	
Position	MPX11-DM-DOAS-04						
Cooling coil			Supply air	450,0 mm	1,34 m2	88 Pa	
Evaporating coil			Airflow [m³/h]		4.010	Medium type	
Air velocity [m/s]			2,38	Evaporating temp. [°C]		R410A	
Air in [°C]			33,50	Humidity [%]	55,0	Overheating [°C]	
Air out [°C]			12,90	Humidity [%]	97,0	SHR	
Tot. capacity [kW]			58,86		Connection in [mm]		35
Air press. Drop [Pa]			88/65 (wet/dry)		Connection out [mm]		52
dp for energy eff. class [Pa]			23				
Heating mode			Air in [°C]		Condensing temp. [°C]		45,00
Air out [°C]			31,10		hot gas temp. in [°C]		70,00
Tot. capacity [kW]			22,05		hot gas temp. out [°C]		40,00
25 x 21.65 5/16 - CR 23NT 6NR 815A 2.1P 34NC			<u>Materials:</u>				
Rows			6		Fins		Aluminium
nos. of refr.circuits			2 circuits		Pipes		Copper
Circuits			34		Header		Copper
Fin space [mm]			2,10		Frames		AISI 304
					Fin protection		-
<u>Drain pan</u>			Quality AISI 304		Drain connection 1 1/4		
1 Pcs AKF10+ NTC10k Temperature probe (-50/150°C)			-				
1 Pcs Technical cabinet TC			Dimensions [m]		1.74 x 1.858 x 0.8		
panel thickness			25 mm		Profiles		Aluminium
Panel inside			Galvanized prepainted		Insulation		Polyurethane foam
Panel outside			Galvanized prepainted		With support pins		Yes
Panel inside bottom			No		With baseframe		No
Anti frost frame			Supply air	220,0 mm	0,67 m2	Pa	
Removable panel			Dimensions [mm]		180,0 x 720,0		
1 Pcs Technical cabinet connected to previous TC			-				
1 Pcs TF30 Antifreeze thermostat -10 to 10°C 3 m capillar			-				
Heating coil			Supply air	310,0 mm	1 m2	40 Pa	
Airflow [m³/h]			4.010		Medium		Water
Air velocity [m/s]			2,29		Med. Flow [l/s]		0,5600
Air in [°C]			1,00		Med. velocity [m/s]		1,01
Air out [°C]			18,00		Med. in [°C]		45,00
Capacity [kW]			22,98		Med. out [°C]		35,00
Air press. Drop [Pa]			40		Med. pres. drop [kPa]		16,23
					WT Content [l]		6,300
Inox304-Al-Inox304 P40AC 2R-14T-870A-2.5pa 3C 1" (.11-.6- 2)			<u>Materials:</u>				
RRows			2		Fins		Aluminium
Circuits			3		Pipes		AISI 304
Fin space [mm]			2,50		Header		AISI 304
Connection in			1 0/0"		Frames		AISI 304
Connection out			1 0/0"		Fin protection		-
Number of exchanger H/W			1 / 1				
1 Pcs Technical cabinet connected to previous TC			-				

Offer	UTA21001082.18		Position	5.0	airCalc Vers.	P 4.2.0
Project	MXP11 Data Centre					28/12/2023
Position	MPX11-DM-DOAS-04					
Steam humidification section			Supply air	760,0 mm	2,68 m2	20 Pa
Steam humidifier - steam distributor codes			UR013HL004 - D061503000			
nos. of distributors	1	Temperature in [°C]	18,00	Humidification [kg/h]	10,33	
lance length [mm]	615,0	Air On Relative humidity [%]	23,3	Nominal power [kW]	10,000	
		Air Off Relative humidity [%]	40,0	Voltage [V]	3x400	
Steam pipe not supplied						
Removable panel			Dimensions [mm]	450,0 x 720,0		
Drain pan		Quality	AISI 304	Drain connection 1 1/4		
Drop eliminator		Model	SE130	Frame	AISI 304	Fins PPTV 20 Pa

<u>Inspection window</u>	Round	Diameter [mm]	200,0			
<u>Lamp</u>	PVC-STD Lamp	Nominal data	230 V	9 W	0,04 A	IP65
		Wiring	Yes			
1 Pcs	Technical cabinet connected to previous TC		-			

Empty section			Supply air	450,0 mm	1,77 m2	6 Pa
Pressure Door			Dimensions [mm]		360,0 x 720,0	
<u>Damper:</u>			Dimensions [mm]		780,0 x 510,0 x 125,0	
Actuated by	Axle	Airflow [m³/h]	4,010	Frame	Aluminium	
Qta. Levers	1	Air velocity [m/s]	2,80	Blades	Aluminium	
torque [Nm]	3,220	Pressure drop [Pa]	6	Type	DP1	
<u>Damper actuator</u>		GMA126.1E				
Quantity	1	Mode	on/off	Voltage [V]	24	
Supplier	Siemens	torque [Nm]	7,000	Current [A]	0,21	
				Protection	IP54	
<u>Inspection window</u>	Round	Diameter [mm]	200,0			
<u>Lamp</u>	PVC-STD Lamp	Nominal data	230 V	9 W	0,04 A	IP65
		Wiring	Yes			

Noise calculation										
sound power [dB]										
Frq. Hz	63	125	250	500	1000	2000	4000	8000	Sum [dB(A)]	
Inlet	65,0	63,0	72,0	66,0	62,0	57,0	54,0	51,0	68,3	
Outlet	70,0	68,0	78,0	72,0	73,0	71,0	67,0	64,0	77,9	
Casing	47,0	49,0	57,0	48,0	48,0	47,0	32,0	25,0	53,7	
sound pressure level [dB]										
Frq. Hz	63	125	250	500	1000	2000	4000	8000	Sum [dB(A)]	measuring point at 1 m of distance
Inlet	57,1	55,1	64,1	58,1	54,1	49,1	46,1	43,1	60,4	
Outlet	62,1	60,1	70,1	64,1	65,1	63,1	59,1	56,1	70,0	
Casing	39,1	41,1	49,1	40,1	40,1	39,1	24,1	17,1	45,8	

Offer	UTA21001082.18	Position	5.0	airCalc Vers.	P 4.2.0
Project	MXP11 Data Centre				28/12/2023
Position	MPX11-DM-DOAS-04				3

Exhaust air					
Unit definition			Casing:		
Unit size	CTA 12.8	C54TT	Thickness	54,0 mm	Mineralwool
Airflow [m³/h]	3.410	Length [mm]	4.500,0	Panel inside	Galvanized prepainted 0,80 mm
Ext. pressure [Pa]	220	Width [mm]	1.220,0	Panel outside	Galvanized prepainted 0,80 mm
Tot. pressure [Pa]	595	Height [mm]	860,0	Panel inside bottom	AISI 304 0,80 mm
Air velocity [m/s]	1,14	Net weight [kg]	~545,00	Profiles	Aluminium
Class DIN EN 13053	V1			Guides	AISI 304
Thermal transmittance class		T2	Mechanical stability		D1(M)
Thermal bridge class		TB2	Filter by-pass leakage		F9
Casing leakage -400 Pa		L1(M)	Casing leakage +700 Pa		L1(M)

Filter		Exhaust air	1.260,0 mm	4,79 m2	93 Pa
Manufacture	Roccheggiani	Filter length [mm]	535,0		
Type	V-BF-M5-535-S	Filter surface [m2]	9,00		
Class (EN 779:2012)	M5	Cells pcs x size	2 x V-BF-M5-535-S	490,0 x 592,0	
Class (ISO 16890)	ePM10 65%				
Clean dP [Pa]	44				
Dirty dP [Pa]	132				
Applied dP [Pa]	88				
Airflow [m³/h]	3.410	1,63 m/s			
Filter handling	Dirty air withdrawal				
Material frame	AISI 304	Filter energy class			

Door with hinge and single lever		Dimensions [mm]	540,0 x 720,0
<u>Damper:</u>		Dimensions [mm]	780,0 x 510,0 x 125,0
Actuated by	actuator	Airflow [m³/h]	3.410
Qta. Levers	1	Air velocity [m/s]	2,38
torque [Nm]	3,220	Pressure drop [Pa]	5
		Frame	Aluminium
		Blades	Aluminium
		Type	DP1
<u>Damper actuator</u>	GMA126.1E		
Quantity	1	Mode	on/off
Supplier	Siemens	torque [Nm]	7,000
		Voltage [V]	24
		Current [A]	0,21
		Protection	IP54
<u>Inspection window</u>	Round	Diameter [mm]	200,0
<u>Lamp</u>	PVC-STD Lamp	Nominal data	230 V 9 W 0,04 A IP65
		Wiring	Yes
1 Pcs	Differential pressure switch PS500 (0-500Pa)		-
1 Pcs	A2G-10 Differential Pressure Gauge 0-500 Pa		-

Empty section	Exhaust air	800,0 mm	2,82 m2	Pa
Electric panel				

Empty section	Exhaust air	130,0 mm	0,14 m2	Pa
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Offer	UTA21001082.18		Position	5.0	airCalc Vers.	P 4.2.0	
Project	MXP11 Data Centre					28/12/2023	
Position	MPX11-DM-DOAS-04						
Plug fan			Exhaust air	720,0 mm	2,34 m2	33 Pa	
Fan	GR35I-ZID.DC.CR		Motor	ECblue-IE5-50-116-0-2.5		IE5	
Air volume [m³/h]	3.410		Protection	IP55			
External static [Pa]	220		Insulation class	F			
dynamic pressure [Pa]	15		Voltage	3x400 V / 50 Hz			
Add. dynamic pressure [Pa]	33		Power [kW]	2,500			
Total static pressure [Pa]	547		Speed [1/min]	3.100			
Total pressure [Pa]	595		System absorbed power [kW]	0,820			
Speed [1/min]	2.092		nominal current [A]	3,04			
efficiency %	68,8						
Supplier	Ziehl-Abegg						
Code	ZAB-116892/A01-3/400/50						
K-factor [m³/h]	139	[ρ = 1,2 kg/m³]	($Q = k \sqrt{\Delta p}$)	K-factor [adim]	108	($Q = k \sqrt{\Delta p \frac{2}{\rho}}$)	
Fan octave band sound power level (Lokt) [dB]			Control Signal (0-10V)			6,70	
Frq.[Hz]	63	125	250	500	1000	2000	4000 8000
Inlet	64,0	69,0	66,0	66,0	63,0	59,0	57,0 54,0
Outlet	66,0	75,0	72,0	70,0	72,0	69,0	65,0 62,0
			Specific fan power [W/(m3/s)]			749 SFP1	
1 set	Tube for airflow measurement						-
1 Pcs	DPE2500 Flow LCD for airflow measurement						-
Removable panel			Dimensions [mm]			630,0 x 720,0	
Opening	L		Dimensions [mm]			365,0 x 365,0	
<u>Inspection window</u>	Round		Diameter [mm]			200,0	
<u>Lamp</u>	PVC-STD Lamp		Nominal data	230 V	9 W	0,04 A	IP65
			Wiring	Yes			
1 Pcs	FTK+ 270 VVS NTC10K Temperature and humidity probe (0-10V)						

Offer	UTA21001082.18		Position	5.0		airCalc Vers. P 4.2.0	
Project	MXP11 Data Centre					28/12/2023	
Position	MPX11-DM-DOAS-04						
Circular air			Exhaust air	450,0 mm	1 m2	18 Pa	
<u>Mixed air calculation 1</u>							
Recircle air [m³/h]	Temp. [°C]	Humidity [%]	Temperature mixed air [°C]		Humidity [%]		
Fresh air [m³/h]	Temp. [°C]	Humidity [%]					
<u>Mixed air calculation 2</u>							
Recircle air [m³/h]	Temp. [°C]	Humidity [%]	Temperature mixed air [°C]		Humidity [%]		
Fresh air [m³/h]	Temp. [°C]	Humidity [%]					
Removable panel			Dimensions [mm]		360,0 x 720,0		
<u>Damper:</u>			Dimensions [mm]		980,0 x 210,0 x 125,0		
Actuated by	actuator	Airflow [m³/h]	3,410	Frame	Aluminium		
Qta. Levers	1	Air velocity [m/s]	4,60	Blades	Aluminium		
torque [Nm]	1,620	Pressure drop [Pa]	18	Type	DP1		
<u>Damper actuator</u>			GDB161.1E				
Quantity	1	Mode	modulating		Voltage [V]	24	
Supplier	Siemens	torque [Nm]	5,000		Current [A]	0,09	
					Protection	IP54	
<u>Inspection window</u>			Round		Diameter [mm]	200,0	
<u>Lamp</u>			PVC-STD Lamp		Nominal data	230 V	9 W
					Wiring	0,04 A	IP65
							Yes

Heat wheel in casing			Exhaust air	680,0 mm	2,94 m2	212 Pa	
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Empty section			Exhaust air	460,0 mm	1,63 m2	5 Pa	
Removable panel			Dimensions [mm]		320,0 x 720,0		
<u>Damper:</u>			Dimensions [mm]		780,0 x 510,0 x 125,0		
Actuated by	actuator	Airflow [m³/h]	3,410	Frame	Aluminium		
Qta. Levers	1	Air velocity [m/s]	2,38	Blades	Aluminium		
torque [Nm]	3,220	Pressure drop [Pa]	5	Type	DP1		
<u>Damper actuator</u>			GMA161.1E				
Quantity	1	Mode	modulating		Voltage [V]	24	
Supplier	Siemens	torque [Nm]	7,000		Current [A]	0,21	
					Protection	IP54	
<u>Inspection window</u>			Round		Diameter [mm]	200,0	
<u>Lamp</u>			PVC-STD Lamp		Nominal data	230 V	9 W
					Wiring	0,04 A	IP65
							Yes

Offer	UTA21001082.18	Position	5.0	airCalc Vers. P 4.2.0
Project	MXP11 Data Centre			28/12/2023
Position	MPX11-DM-DOAS-04			

Noise calculation

sound power [dB]		
Frq. Hz	63 125 250 500 1000 2000 4000 8000 Sum [dB(A)]	
Inlet	64,0 69,0 66,0 66,0 63,0 59,0 57,0 54,0 68,1	
Outlet	64,0 72,0 68,0 65,0 66,0 62,0 57,0 53,0 69,8	
Casing	43,0 52,0 47,0 42,0 44,0 41,0 26,0 19,0 47,8	
sound pressure level [dB]		
Frq. Hz	63 125 250 500 1000 2000 4000 8000 Sum [dB(A)]	measuring point at 1 m of distance
Inlet	56,1 61,1 58,1 58,1 55,1 51,1 49,1 46,1 60,2	
Outlet	56,1 64,1 60,1 57,1 58,1 54,1 49,1 45,1 61,9	
Casing	35,1 44,1 39,1 34,1 36,1 33,1 18,1 11,1 39,9	

<u>Baseframe</u>	BF140	Material	Galvanized steel	Thickness	2,0 mm
Lifting holes [mm]	56,0	Height [mm]	140,0	Welded	No

1 set **Roof** **Galvanized prepainted**

1 Pcs **U-24ME2E8 (Unità esterna VRF Eco-i Eco-eXtreme) - Eco-i Eco-eXtreme series high energy efficiency variable refrigerant flow (vrf) heat pump outdoor unit, equipped with DC Inverter regulation, having the following main technical characteristics:**

- COP = 4.69
- EER = 3.93
- Inverter bi-compressor system
- Very low standard sound level: 60 dB(A)
- Silent mode
- Winter operation up to - 25°C.
- Summer operation up to +52°C
- VET system for managing the flow temperature of the indoor unit
- Demand control function for limitation of standard consumption peaks
- Nominal cooling capacity: 68.0 kW
- Nominal thermal potential: 76.5 kW
- 380 Volt power supply.

PAW-560MAH2 : UTA Advanced Series Kit for VRF
Advanced type AHU management kit with direct expansion for batteries with capacities up to 56 kW nominal. The kit, suitable for combination with VRF variable refrigerant flow systems, is made up of a LEV electronic expansion valve, thermistors, an IP 65 plastic box containing the control part and no. 1 electronic control with LCD display model CZ-RTC4. The control logic includes the cold draft prevention function, setpoint modulation according to the external temperature, and the possibility of external demand control management via 0-10V signal

1 Pcs **KRT00SMD.000A Rilevatore di fumo** -

Delivery sections

no.	Width	Height	Length	Net weight
1	1.220,0	860,0	2.190,0	274,00
2	1.220,0	860,0	1.170,0	192,00
3	1.220,0	860,0	460,0	79,00
4	1.220,0	860,0	2.610,0	595,00
5	1.220,0	1.720,0	680,0	303,00
6	1.220,0	860,0	1.170,0	287,00
7	1.220,0	860,0	2.190,0	694,00

Offer **UTA21001082.18**
Project **MXP11 Data Centre**
Position **MPX11-DM-DOAS-04**

Position **5.0**

airCalc Vers. **P 4.2.0**
28/12/202
3

Regulation 1253:14

Calculation valid	Yes
ErP Ready 2016	Yes
ErP Ready note 2016	-
ErP Ready 2018	Yes
ErP Ready note 2018	-
Specific fan power internal [W/(m3/s)]	812
effective electric power input [kW]	2,340
type of heat recovery system	other HRS
thermal efficiency [%]	82,10
directional unit type	BVU - NRVU
Motor and drive type	variable speed
external leakage rate at +400 Pa [%]	4,03
external leakage rate at -400 Pa [%]	3,18
internal leakage rate at 200 Pa [%]	1,50

Roccheggiani S.p.A.

Via I° Maggio, 10
IT 60021 Camerano (AN)

Tel.: 071 / 730023

Fax: 071 / 7304005

Offer **UTA21001082.18**
From date **28/12/'23**
Project **MXP11 Data Centre**
Position **5.0**
LV-Position
Quantity **1**
Print data
28/12/'23

airCalc++ Vers. P 4.2.0

www.roccheggiani.it
ahu@roccheggiani.it

User

Regulation list

Electric panel

- n. 1 Power and regulation electrical panel. Power supply 400V/3F+N/50Hz
Start and stop signal. Indication of dirty filters. Motor save protection.
Performance of logical engineering of regulation and drafting of wiring diagrams
AHU Calibration and functional factory testing included

Control type External/ambient air

Temperature and humidity control

Control type Supply air

Temperature and humidity control
Freeze protection thermostat
Saturation temperature probe

Control type Return air

Temperature and humidity control

Additional options

Room terminal with display, supplied not mounted
Coil valves and actuators included
Hydraulic assemblies and accessories included

Start-up on site

Included, by specialized technicians

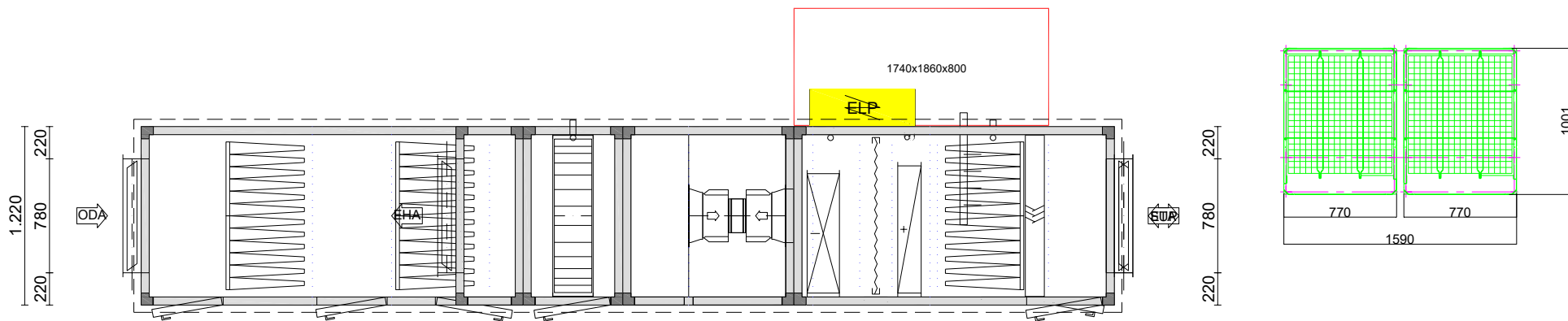
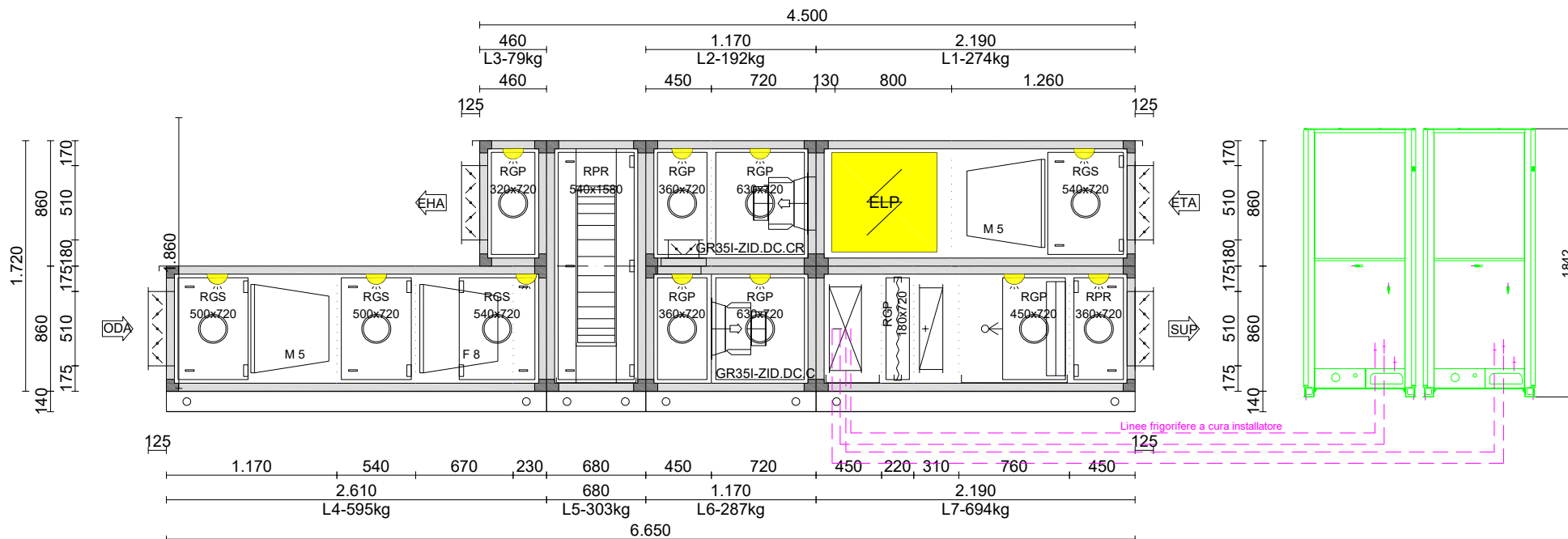
Offer **UTA21001082.18**
 Project **MXP11 Data Centre**
 Position **5.0**
 Description **MPX11-DM-DOAS-04**

airCalc Vers. P 4.2.0

From date **28/12/'23**

List of material mounted on board

Pos.	QTA	Code	Description
1	1	COM_CTD	Power and regulation electrical panel. Power supply 400V/3F+N/50Hz. Start and stop signal. Dirty filters indication.
2	1	C.PCO	C.PCO Controller
3	1	C.PCO-CON	Removable connector kit for C.PCO
4	1	SKIT1000.0001	PGN1000F01 + PGN100FRM1 Display for panel mounting, connectable to the pCO by means of a cable with telephone connector
5	1	PGN1000W00	pGD__1__ LCD, 132x64 pixels
6	1	TCOON6J000	"T" connector for local network
7	1	AKF10+ NTC10k Carel 250.06	Temperature probe (-50/150°C)
8	1	FTK + 270 VVS NTC10k	Temperature and humidity probe (0-10V)
9	1	FTK + 270 VVS NTC10k	Temperature and humidity probe (0-10V)
10	1	TF30	Antifreeze thermostat -10 to 10°C 3 m capillar
11	1	A2G-10	Differential pressure gauge 0-500 Pa
12	1	A2G-10	Differential pressure gauge 0-500 Pa
13	1	A2G-10	Differential pressure gauge 0-500 Pa
14	1	PS 500	Differential pressure switch 0-500 Pa
15	1	PS 500	Differential pressure switch 0-500 Pa
16	1	PS 1500	Differential pressure switch 200-1000 Pa
17	1	GMA161.1E	Damper actuator, modulating, with spring return
18	1	GMA161.1E	Damper actuator, modulating, with spring return
19	1	GMA126.1E	Damper actuator, on-off, with spring return
20	1	GMA126.1E	Damper actuator, on-off, with spring return
21	1	GDB161.1E	Damper actuator, modulating, without spring return
22	1	DPE2500	Controller for differential pressure/airflow, 0-2500 Pa
23	1	DPE2500	Controller for differential pressure/airflow, 0-2500 Pa



Preliminary drawing

SUPPLY	CTA 12.8	C54TT	EXHAUST	CTA 12.8	C54TT	CLIENTE-CUSTOMER:	Bouygues E&S InTec Italia S.p.A.	REV. 0	DATA-DATE:	User:
Airflow	m ³ /h	4,010	Airflow	m ³ /h	3,410	CANTIERE-CONSTRUCTION:	MXP11 Data Centre	POS.-ID:	5.0	
Ext. pressure	Pa	220	Ext. pressure	Pa	220	RIFERIMENTO-REF.:	MPX11-DM-DOAS-04	PROJECT-ID.:		
Tot. pressure	Pa	946	Tot. pressure	Pa	595	OGGETTO-OBJECT:	CTA 12.8	TIPO-TYPE:		
Motorpower	kW 1x	2,500	Motorpower	kW 1x	2,500	ROCCHEGGIANI.		.SHEET:	- / -	
Power supply		400V/3/50Hz	Power supply		400V/3/50Hz	<small>ROCCHEGGIANI S.p.A. Via 1° maggio, 50021 Camerano (AN) Italy</small>	scale:	TOLL.:	UNI.EN22768-V	
PHW-heating	kW	22,98	Energy rec	kW	42,71 / 42,91			DISEGNO-DRAW.:		
DX-cooling	kW	58,86								
Energy rec	kW	42,71 / 37,78								
Humidification	kg/h	10,33								