

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-0019  
Revision: C02  
Revision Date: 14-Dic-2023  
Stage: WS5  
Status: A1  
Document Title: ADM-DOAS-1

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

- 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	ADM-DOAS-1
Computation ID reference	N.A.
Drawing ID reference	N.A.
Special Specification ID reference	MXP11-RHD-DC-ZZ-DR-M-0714 Schematic MXP11-RHD-DC-XX-CA-M-0039 Supply MXP11-RHD-DC-XX-CA-M-0040 Return
Materials/Supply Proposed	
Data taken from construction documents - by the Enterprise	
Description	ADM-DOAS-1 Supply m3/h 8.150 Pa = 500; Return m3/h 7.030 Pa =450
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				
<b>Approvazione Generale</b> 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				

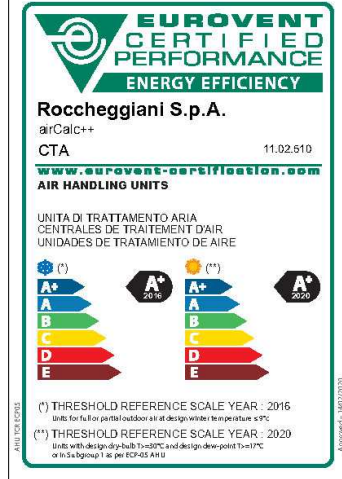
Attachments

Notes

Offer	<b>UTA 21001082.17</b>	Position	<b>1.0</b>	<b>MPX11-ADM-DOAS_01</b>
Project	<b>MXP11 Data Centre</b>			From date <b>13/12/2023</b>
				User:

Unit size	<b>CTA 17.11</b>	<b>C54TT</b>	Length [mm]	<b>7.190,0</b>	Net weight [kg]	<b>~2.910,00</b>
-----------	------------------	--------------	-------------	----------------	-----------------	------------------

Panel inside	<b>Galvanized prepainted</b>	<b>0,80 mm</b>	Simil RAL 9002
Panel outside	<b>Galvanized prepainted</b>	<b>0,80 mm</b>	Simil RAL 9002
Panel inside bottom	<b>AISI 304</b>	<b>0,80 mm</b>	
Profiles	<b>Aluminium - Thermal Break</b>		
Guides	<b>AISI 304</b>		
Insulation	<b>Mineralwool</b>	Thickness	<b>54,0 mm</b>
Corners	<b>Nylon</b>		
Panel reaction to fire class due to UNI 9177: <b>0 (ZERO)</b>			

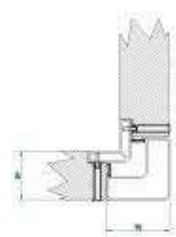


**Certified mechanical performances due to EN 1886:2007**

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

**Certified thermal performances of casing due to EN 1886:2007**

Thermal bridge class	<b>TB2</b>
Thermal transmittance class	<b>T2</b>



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]	<b>74,0</b>	<b>70,0</b>	<b>81,0</b>	<b>74,0</b>	<b>68,0</b>	<b>64,0</b>	<b>60,0</b>	<b>57,0</b>	<b>76,1</b>
Total sound power level at the unit outlet [dB]	<b>78,0</b>	<b>74,0</b>	<b>85,0</b>	<b>77,0</b>	<b>75,0</b>	<b>75,0</b>	<b>70,0</b>	<b>66,0</b>	<b>79,9</b>
Break out airborne sound power [dB]	<b>57,0</b>	<b>56,0</b>	<b>67,0</b>	<b>56,0</b>	<b>55,0</b>	<b>53,0</b>	<b>37,0</b>	<b>29,0</b>	<b>61,7</b>

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

**Main data:**

<u>Supply</u>	Airflow	<b>8.150 [m³/h]</b>	External static	<b>500 [Pa]</b>	Motor absorbed/nominal power	<b>4,340 /6,600 [kW]</b>
<u>Return</u>	Airflow	<b>7.030 [m³/h]</b>	External static	<b>450 [Pa]</b>	Motor absorbed/nominal power	<b>2,380 /6,600 [kW]</b>

Certification number	<b>11.02.510</b>	Specific fan power [W/(m³/s)]	<b>2.628</b>	<b>SFP5</b>
Model Box number	<b>Pr08/Zn08-54RW-TT</b>	Used lowest temp. [°C]	<b>-4,00</b>	
Type of unit	<b>External unit</b>	Recirculation [%]		
A.m.s.l. [m]	<b>0</b>	Air velocity [m/s]	<b>1,42</b>	
HRS Winter Thermal eff. (1:1) (dry)	<b>82,10</b> (EN 308)	Specific weight [kg/m³]	<b>1,20</b>	
HRS Summer Thermal eff. (1:1)	<b>79,3</b> (EN 308)	Factor Fs-Pref (wint./summ. cond.)	<b>0,99 / 0,82</b>	
HRS Summer Humidity eff. (1:1)	<b>75,70</b> (EN 308)	<i>Energy label class designed for wet conditions</i>		

Offer	<b>UTA 21001082.17</b>	Position	<b>1.0</b>	airCalc Vers.	<b>P 4.2.0</b>
Project	<b>MXP11 Data Centre</b>				<b>13/12/2023</b>
Position	<b>MPX11-ADM-DOAS_01</b>				

<b>Supply air</b>					
Unit definition			Casing:		
Unit size	<b>CTA 17.11</b>	<b>C54TT</b>	Thickness	<b>54,0 mm</b>	<b>Mineralwool</b>
Airflow [m³/h]	<b>8.150</b>	Length [mm]	<b>7.190,0</b>	Panel inside	<b>Galvanized prepainted 0,80 mm</b>
Ext. pressure [Pa]	<b>500</b>	Width [mm]	<b>1.670,0</b>	Panel outside	<b>Galvanized prepainted 0,80 mm</b>
Tot. pressure [Pa]	<b>1.292</b>	Height [mm]	<b>1.130,0</b>	Panel inside bottom	<b>AISI 304 0,80 mm</b>
Air velocity [m/s]	<b>1,42</b>	Net weight [kg]	<b>~2.179,0</b>	Profiles	<b>Aluminium</b>
Class DIN EN 13053	<b>V1</b>			Guides	<b>AISI 304</b>
Thermal transmittance class		<b>T2</b>	Mechanical stability		<b>D1(M)</b>
Thermal bridge class		<b>TB2</b>	Filter by-pass leakage		<b>F9</b>
Casing leakage -400 Pa		<b>L1(M)</b>	Casing leakage +700 Pa		<b>L1(M)</b>

Filter		Supply air	<b>1.260,0 mm</b>	<b>6,86 m2</b>	<b>113 Pa</b>
Manufacture	<b>Roccheggiani</b>	Filter length [mm]	<b>535,0</b>		
Type	<b>V-BF-M5-535-S</b>	Filter surface [m2]	<b>17,60</b>		
Class (EN 779:2012)	<b>M5</b>	Cells pcs x size	<b>2 x V-BF-M5-535-S</b>	<b>592,0 x 592,0</b>	
Class (ISO 16890)	<b>ePM10 65%</b>		<b>2 x V-BF-M5-535-S</b>	<b>287,0 x 592,0</b>	
Clean dP [Pa]	<b>56</b>				
Dirty dP [Pa]	<b>156</b>				
Applied dP [Pa]	<b>106</b>				
Airflow [m³/h]	<b>8.150</b>	<b>2,18 m/s</b>			
Filter handling	<b>Dirty air withdrawal</b>				
Material frame	<b>AISI 304</b>				
		Filter energy class			

Door with hinge and single lever		Dimensions [mm]	<b>540,0 x 990,0</b>		
<u>Damper:</u>		Dimensions [mm]	<b>1.260,0 x 610,0 x 125,0</b>		
Actuated by	<b>Axle</b>	Airflow [m³/h]	<b>8.150</b>	Frame	<b>Aluminium</b>
Qta. Levers	<b>1</b>	Air velocity [m/s]	<b>2,95</b>	Blades	<b>Aluminium</b>
torque [Nm]	<b>6,240</b>	Pressure drop [Pa]	<b>7</b>	Type	<b>DP1</b>
<u>Damper actuator</u>	<b>GMA126.1E</b>				
Quantity	<b>1</b>	Mode	<b>on/off</b>	Voltage [V]	<b>24</b>
Supplier	<b>Siemens</b>	torque [Nm]	<b>7,000</b>	Current [A]	<b>0,21</b>
				Protection	<b>IP54</b>
<u>Inspection window</u>	<b>Round</b>	Diameter [mm]	<b>200,0</b>		
<u>Lamp</u>	<b>PVC-STD Lamp</b>	Nominal data	<b>230 V</b>	<b>9 W</b>	<b>0,04 A IP65</b>
		Wiring	<b>Yes</b>		
<b>1 Pcs</b>	<b>Differential pressure switch PS500 (0-500Pa)</b>				
<b>1 Pcs</b>	<b>A2G-10 Differential Pressure Gauge 0-500 Pa</b>				

Empty section		Supply air	<b>540,0 mm</b>	<b>2,58 m2</b>	<b>Pa</b>
Door with hinge and single lever		Dimensions [mm]	<b>500,0 x 990,0</b>		
<u>Inspection window</u>	<b>Round</b>	Diameter [mm]	<b>200,0</b>		
<u>Lamp</u>	<b>PVC-STD Lamp</b>	Nominal data	<b>230 V</b>	<b>9 W</b>	<b>0,04 A IP65</b>
		Wiring	<b>Yes</b>		
<b>1 Pcs</b>	<b>FTK+ 270 VVS NTC10K Temperature and humidity probe (0-10V)</b>				

Offer	<b>UTA 21001082.17</b>		Position	<b>1.0</b>		airCalc Vers.	<b>P 4.2.0</b>	
Project	<b>MXP11 Data Centre</b>						<b>13/12/2023</b>	
Position	<b>MPX11-ADM-DOAS_01</b>							
<b>Filter</b>			Supply air	<b>670,0 mm</b>	<b>3,25 m2</b>	<b>163 Pa</b>		
Manufacture	<b>Roccheggiani</b>		Filter length [mm]	<b>535,0</b>				
Type	<b>V-BF-F8-535-S</b>		Filter surface [m2]	<b>15,20</b>				
Class (EN 779:2012)	<b>F8</b>		Cells pcs x size	<b>2 x V-BF-F8-535-S</b>	<b>592,0 x 592,0</b>			
Class (ISO 16890)	<b>ePM1 70%</b>			<b>2 x V-BF-F8-535-S</b>	<b>290,0 x 592,0</b>			
Clean dP [Pa]	<b>113</b>							
Dirty dP [Pa]	<b>213</b>							
Applied dP [Pa]	<b>163</b>							
Airflow [m³/h]	<b>8.150</b>	<b>2,17 m/s</b>						
Filter handling	<b>Dirty air withdrawal</b>							
Material frame	<b>AISI 304</b>		Filter energy class					
<b>1 Pcs</b>	<b>Differential pressure switch PS1500 (200-1000Pa)</b>		<b>-</b>					
<b>1 Pcs</b>	<b>A2G-10 Differential Pressure Gauge 0-500 Pa</b>		<b>-</b>					
<b>Empty section</b>			Supply air	<b>230,0 mm</b>	<b>0,72 m2</b>	<b>Pa</b>		
Removable panel			Dimensions [mm]	<b>540,0 x 990,0</b>				
<u>Inspection window</u>	<b>Round</b>		Diameter [mm]	<b>200,0</b>				
<u>Lamp</u>	<b>PVC-STD Lamp</b>		Nominal data	<b>230 V</b>	<b>9 W</b>	<b>0,04 A</b>	<b>IP65</b>	
			Wiring	<b>Yes</b>				
<b>Heat wheel in casing</b>			Supply air	<b>680,0 mm</b>	<b>3,81 m2</b>	<b>246 Pa</b>		
<b>EM1550x1550-1500V-016-2D000-8BPI-A</b>								
<u>Heating mode</u>			<u>Cooling mode</u>					
Supply [m³/h]	<b>8.150</b>		Supply [m³/h]	<b>8.150</b>				
Entering [°C]	<b>-4,00</b>	Humidity [%]	Entering [°C]	<b>33,70</b>	Humidity [%]	<b>54,8</b>		
Leaving [°C]	<b>15,40</b>	Humidity [%]	Leaving [°C]	<b>27,80</b>	Humidity [%]	<b>55,4</b>		
Pressure drop [Pa]	<b>202</b>		Pressure drop [Pa]	<b>235</b>				
Standard pressure drop (1.2 kg/m3) [Pa]	<b>208</b>		Standard pressure drop (1.2 kg/m3) [Pa]	<b>210</b>				
Exhaust [m³/h]	<b>7.030</b>		Exhaust [m³/h]	<b>7.030</b>				
Entering [°C]	<b>21,00</b>	Humidity [%]	Entering [°C]	<b>26,00</b>	Humidity [%]	<b>51,8</b>		
Leaving [°C]	<b>-1,50</b>	Humidity [%]	Leaving [°C]	<b>32,90</b>	Humidity [%]	<b>53,5</b>		
Pressure drop [Pa]	<b>180</b>		Pressure drop [Pa]	<b>202</b>				
Standard pressure drop (1.2 kg/m3) [Pa]	<b>180</b>		Standard pressure drop (1.2 kg/m3) [Pa]	<b>181</b>				
Tot. recovery capacity [kW]	<b>81,27</b>		Tot. recovery capacity [kW]	<b>52,46</b>				
Sens. recovery capacity [kW]	<b>53,07</b>		Sens. recovery capacity [kW]	<b>16,18</b>				
thermal efficiency [%]	<b>77,7</b>	(EN 308)	thermal efficiency [%]	<b>76,9</b>				
Humidity efficiency [%]	<b>76,8</b>		Humidity efficiency [%]	<b>71,1</b>				
Energy efficiency class [%]	<b>H1</b>	(EN 13053)						
Energy efficiency [%]	<b>78,90</b>	(EN 13053)						
<u>control type</u>	<b>SSTD</b>		<b>Advance step drive</b>					
<u>Nominal data</u>								
Nominal power [kW]	<b>0,180</b>	nominal current [A]	<b>1,20</b>	nominal voltage [V]	<b>3x230</b>			
Pressure Door			Dimensions [mm]	<b>540,0 x 1.940,0</b>				
<u>Drain pan</u>	Quality <b>AISI 304</b>		Drain connection <b>1 1/4</b>					



Offer	<b>UTA 21001082.17</b>	Position	<b>1.0</b>	airCalc Vers.	<b>P 4.2.0</b>
Project	<b>MXP11 Data Centre</b>				<b>13/12/2023</b>
Position	<b>MPX11-ADM-DOAS_01</b>				
<b>Empty section</b>		Supply air	<b>540,0 mm</b>	<b>2,32 m2</b>	<b>Pa</b>
Removable panel		Dimensions [mm]	<b>450,0 x 990,0</b>		
<u>Inspection window</u>	<b>Round</b>	Diameter [mm]	<b>200,0</b>		
<u>Lamp</u>	<b>PVC-STD Lamp</b>	Nominal data	<b>230 V</b>	<b>9 W</b>	<b>0,04 A IP65</b>
		Wiring	<b>Yes</b>		

<b>Plug fan</b>		Supply air	<b>990,0 mm</b>	<b>4,64 m2</b>	<b>46 Pa</b>
Fan	<b>2x1 GR35I-ZID.DG.CR</b>	Motor	<b>2x1 ECblue-IE5-50-116-0-3.3</b>	<b>IE5</b>	
Air volume [m³/h]	<b>8.150</b>	Protection	<b>IP55</b>		
External static [Pa]	<b>500</b>	Insulation class	<b>F</b>		
dynamic pressure [Pa]	<b>22</b>	Voltage	<b>3x400 V / 50 Hz</b>		
Add. dynamic pressure [Pa]	<b>46</b>	Power [kW]	<b>2x</b>	<b>3,300</b>	
Total static pressure [Pa]	<b>1.224</b>	Speed [1/min]	<b>3.410</b>		
Total pressure [Pa]	<b>1.292</b>	System absorbed power [kW]	<b>4,340</b>		
Speed [1/min]	<b>2.939</b>	nominal current [A]	<b>3,99</b>		
efficiency %	<b>67,3</b>	Function mode	<b>Paral.calc.mode</b>		
Supplier	<b>Ziehl-Abegg</b>				
Code	<b>ZAB-116893/A01-3/400/50</b>				
K-factor [m³/h]	<b>139</b>	[ $\rho = 1,2 \text{ kg/m}^3$ ]	$(Q = k \sqrt{\Delta p})$	K-factor [adim]	<b>108</b>
					$(Q = k \sqrt{\Delta p \frac{2}{\rho}})$
Fan octave band sound power level (Lokt) [dB]		Control Signal (0-10V)	<b>8,60</b>		
Frq.[Hz]	63 125 250 500 1000 2000 4000 8000	Specific fan power [W/(m3/s)]	<b>1.677 SFP3</b>		
Inlet	<b>73,0 70,0 82,0 76,0 71,0 68,0 65,0 63,0</b>				
Outlet	<b>77,0 76,0 89,0 81,0 80,0 78,0 73,0 69,0</b>				
<b>1 Pcs</b>	<b>DPE2500 Flow LCD for airflow measurement</b>				<b>-</b>
<b>1 set</b>	<b>Tube for airflow measurement</b>				<b>-</b>
Removable panel		Dimensions [mm]	<b>630,0 x 990,0</b>		
<b>1 set</b>	<b>Microswitch</b>				<b>-</b>
Opening	<b>L</b>	Dimensions [mm]	<b>365,0 x 365,0</b>		
Opening	<b>L</b>	Dimensions [mm]	<b>365,0 x 365,0</b>		
<u>Inspection window</u>	<b>Round</b>	Diameter [mm]	<b>200,0</b>		
<u>Lamp</u>	<b>PVC-STD Lamp</b>	Nominal data	<b>230 V</b>	<b>9 W</b>	<b>0,04 A IP65</b>
		Wiring	<b>Yes</b>		

Offer	<b>UTA 21001082.17</b>		Position	<b>1.0</b>	airCalc Vers.	<b>P 4.2.0</b>	
Project	<b>MXP11 Data Centre</b>					<b>13/12/2023</b>	
Position	<b>MPX11-ADM-DOAS_01</b>						
<b>Cooling coil</b>			Supply air	<b>540,0 mm</b>	<b>2,32 m2</b>	<b>149 Pa</b>	
Airflow [m³/h]	<b>8.150</b>		Medium	<b>Water</b>			
Air velocity [m/s]	<b>1,96</b>		Med. Flow [l/s]	<b>2,0190</b>			
Air in [°C]	<b>28,40</b>	Humidity [%]	<b>59,0</b>	Med. velocity [m/s]	<b>1,04</b>		
Air out [°C]	<b>14,40</b>	Humidity [%]	<b>99,8</b>	Med. in [°C]	<b>10,00</b>		
Total capacity [kW]	<b>67,62</b>			Med. out [°C]	<b>18,00</b>		
Sens. capacity [kW]	<b>39,08</b>			Med. pres. drop [kPa]	<b>35,76</b>		
Air press. Drop [Pa]	<b>149/125</b>	(wet/dry)		SHR	<b>0,58</b>		
dp for energy eff. class [Pa]	<b>24</b>						
<b>P40-16 AR 8R-21T-1375A-2.5Pa Cu/Al</b>			<u>Materials:</u>				
Rows	<b>8</b>		Fins	<b>Aluminium</b>			
Circuits	<b>10</b>		Pipes	<b>Copper</b>			
Fin space [mm]	<b>2,50</b>		Header	<b>Copper</b>			
Connection in	<b>1 1/2"</b>		Frames	<b>AISI 304</b>			
Connection out	<b>1 1/2"</b>		Fin protection	<b>-</b>			
<b>Drain pan</b>			Quality	<b>AISI 304</b>		Drain connection <b>1 1/4</b>	
<b>1 Pcs</b>	<b>Technical cabinet TC</b>		Dimensions [m]	<b>1.83 x 2.218 x 1</b>			
panel thickness	<b>25 mm</b>		Profiles	<b>Aluminium</b>			
Panel inside	<b>Galvanized steel</b>		Insulation	<b>Polyurethane foam</b>			
Panel outside	<b>Galvanized prepainted</b>		With support pins	<b>Yes</b>			
Panel inside bottom	<b>No</b>		With baseframe	<b>No</b>			
<b>1 Pcs</b>	<b>AKF10+ NTC10k Temperature probe (-50/150°C)</b>		<b>-</b>				
<b>Anti frost frame</b>			Supply air	<b>220,0 mm</b>	<b>0,93 m2</b>	<b>Pa</b>	
Removable panel			Dimensions [mm]	<b>180,0 x 990,0</b>			
<b>1 Pcs</b>	<b>Technical cabinet connected to previous TC</b>		<b>-</b>				
<b>1 Pcs</b>	<b>TF30 Antifreeze thermostat -10 to 10°C 3 m capillar</b>		<b>-</b>				
<b>Heating coil</b>			Supply air	<b>310,0 mm</b>	<b>1,39 m2</b>	<b>25 Pa</b>	
Airflow [m³/h]	<b>8.150</b>		Medium	<b>Water</b>			
Air velocity [m/s]	<b>2,04</b>		Med. Flow [l/s]	<b>0,5200</b>			
Air in [°C]	<b>13,20</b>	Humidity [%]	<b>60,0</b>	Med. velocity [m/s]	<b>0,95</b>		
Air out [°C]	<b>21,00</b>	Humidity [%]	<b>36,5</b>	Med. in [°C]	<b>45,00</b>		
Capacity [kW]	<b>21,56</b>			Med. out [°C]	<b>35,00</b>		
Air press. Drop [Pa]	<b>25</b>			Med. pres. drop [kPa]	<b>27,97</b>		
				WT Content [l]	<b>12,900</b>		
<b>Inox304-Al-Inox304 P40AC 2R-21T-1320A-4.0pa 3C 1" (.11)</b>			<b>.6- 2)</b>				
RRows	<b>2</b>		<u>Materials:</u>				
Circuits	<b>3</b>		Fins	<b>Aluminium</b>			
Fin space [mm]	<b>4,00</b>		Pipes	<b>AISI 304</b>			
Connection in	<b>1 0/0"</b>		Header	<b>AISI 304</b>			
Connection out	<b>1 0/0"</b>		Frames	<b>AISI 304</b>			
Number of exchanger H/W	<b>1 / 1</b>		Fin protection	<b>-</b>			
<b>1 Pcs</b>	<b>Technical cabinet connected to previous TC</b>		<b>-</b>				

Offer	<b>UTA 21001082.17</b>		Position	<b>1.0</b>		airCalc Vers.	<b>P 4.2.0</b>	
Project	<b>MXP11 Data Centre</b>						<b>13/12/2023</b>	
Position	<b>MPX11-ADM-DOAS_01</b>							
<b>Steam humidification section</b>			Supply air	<b>760,0 mm</b>	<b>3,71 m2</b>	<b>21 Pa</b>		
Steam humidifier - steam distributor codes			<b>UR027HL004 - D106504000</b>					
nos. of distributors	<b>1</b>	Temperature in [°C]	<b>21,00</b>	Humidification [kg/h]	<b>25,00</b>			
lance length [mm]	<b>1.065,0</b>	Air On Relative humidity [%]	<b>25,7</b>	Nominal power [kW]	<b>20,000</b>			
		Air Off Relative humidity [%]	<b>42,0</b>	Voltage [V]	<b>3x400</b>			
<b>1 Pcs</b>	<b>Steam pipe supplied</b>		<b>-</b>					
Removable panel			Dimensions [mm]	<b>450,0 x 990,0</b>				
<b>Drain pan</b>		Quality	<b>AISI 304</b>		Drain connection <b>1 1/4</b>			
<b>Drop eliminator</b>		Model	<b>SE130</b>	Frame	<b>AISI 304</b>		Fins	<b>PPTV</b>
								<b>21 Pa</b>

<u>Inspection window</u>	<b>Round</b>	Diameter [mm]	<b>200,0</b>					
<u>Lamp</u>	<b>PVC-STD Lamp</b>	Nominal data	<b>230 V</b>	<b>9 W</b>	<b>0,04 A</b>	<b>IP65</b>		
		Wiring	<b>Yes</b>					
<b>1 Pcs</b>	<b>Technical cabinet connected to previous TC</b>		<b>-</b>					
<b>1 Pcs</b>	<b>FTK+ 270 VVS NTC10K Temperature and humidity probe (0-10V)</b>							

<b>Empty section</b>			Supply air	<b>450,0 mm</b>	<b>2,68 m2</b>	<b>7 Pa</b>		
Pressure Door			Dimensions [mm]		<b>360,0 x 990,0</b>			
<u>Damper:</u>			Dimensions [mm]		<b>1.260,0 x 610,0 x 125,0</b>			
Actuated by	<b>Axle</b>	Airflow [m³/h]	<b>8,150</b>	Frame	<b>Aluminium</b>			
Qta. Levers	<b>1</b>	Air velocity [m/s]	<b>2,95</b>	Blades	<b>Aluminium</b>			
torque [Nm]	<b>6,240</b>	Pressure drop [Pa]	<b>7</b>	Type	<b>DP1</b>			
<u>Damper actuator</u>		<b>GMA126.1E</b>						
Quantity	<b>1</b>	Mode	<b>on/off</b>		Voltage [V]	<b>24</b>		
Supplier	<b>Siemens</b>	torque [Nm]	<b>7,000</b>		Current [A]	<b>0,21</b>		
					Protection	<b>IP54</b>		
<u>Inspection window</u>	<b>Round</b>	Diameter [mm]	<b>200,0</b>					
<u>Lamp</u>	<b>PVC-STD Lamp</b>	Nominal data	<b>230 V</b>	<b>9 W</b>	<b>0,04 A</b>	<b>IP65</b>		
		Wiring	<b>Yes</b>					

<b>Noise calculation</b>										
sound power [dB]										
Frq. Hz	63	125	250	500	1000	2000	4000	8000	Sum [dB(A)]	
Inlet	<b>74,0</b>	<b>70,0</b>	<b>81,0</b>	<b>74,0</b>	<b>68,0</b>	<b>64,0</b>	<b>60,0</b>	<b>57,0</b>	<b>76,1</b>	
Outlet	<b>78,0</b>	<b>74,0</b>	<b>85,0</b>	<b>77,0</b>	<b>75,0</b>	<b>75,0</b>	<b>70,0</b>	<b>66,0</b>	<b>79,9</b>	
Casing	<b>57,0</b>	<b>56,0</b>	<b>67,0</b>	<b>56,0</b>	<b>55,0</b>	<b>53,0</b>	<b>37,0</b>	<b>29,0</b>	<b>61,7</b>	
sound pressure level [dB]										
Frq. Hz	63	125	250	500	1000	2000	4000	8000	Sum [dB(A)]	
Inlet	<b>66,1</b>	<b>62,1</b>	<b>73,1</b>	<b>66,1</b>	<b>60,1</b>	<b>56,1</b>	<b>52,1</b>	<b>49,1</b>	<b>68,2</b>	
Outlet	<b>70,1</b>	<b>66,1</b>	<b>77,1</b>	<b>69,1</b>	<b>67,1</b>	<b>67,1</b>	<b>62,1</b>	<b>58,1</b>	<b>72,6</b>	
Casing	<b>49,1</b>	<b>48,1</b>	<b>59,1</b>	<b>48,1</b>	<b>47,1</b>	<b>45,1</b>	<b>29,1</b>	<b>21,1</b>	<b>53,8</b>	

measuring point at **1 m** of distance

Offer	<b>UTA 21001082.17</b>	Position	<b>1.0</b>	airCalc Vers.	<b>P 4.2.0</b>
Project	<b>MXP11 Data Centre</b>				<b>13/12/2023</b>
Position	<b>MPX11-ADM-DOAS_01</b>				

<b>Exhaust air</b>					
Unit definition			Casing:		
Unit size	<b>CTA 17.9</b>	<b>C54TT</b>	Thickness	<b>54,0 mm</b>	<b>Mineralwool</b>
Airflow [m³/h]	<b>7.030</b>	Length [mm]	<b>4.510,0</b>	Panel inside	<b>Galvanized prepainted</b>
Ext. pressure [Pa]	<b>450</b>	Width [mm]	<b>1.670,0</b>	Panel outside	<b>Galvanized prepainted</b>
Tot. pressure [Pa]	<b>835</b>	Height [mm]	<b>950,0</b>	Panel inside bottom	<b>AISI 304</b>
Air velocity [m/s]	<b>1,49</b>	Net weight [kg]	<b>~731,00</b>	Profiles	<b>Aluminium</b>
Class DIN EN 13053	<b>V1</b>			Guides	<b>AISI 304</b>
Thermal transmittance class		<b>T2</b>	Mechanical stability		<b>D1(M)</b>
Thermal bridge class		<b>TB2</b>	Filter by-pass leakage		<b>F9</b>
Casing leakage -400 Pa		<b>L1(M)</b>	Casing leakage +700 Pa		<b>L1(M)</b>

Filter		Exhaust air	<b>1.260,0 mm</b>	<b>6,16 m2</b>	<b>117 Pa</b>
Manufacture	<b>Roccheggiani</b>	Filter length [mm]	<b>535,0</b>		
Type	<b>V-BF-M5-535-S</b>	Filter surface [m2]	<b>13,30</b>		
Class (EN 779:2012)	<b>M5</b>	Cells pcs x size	<b>1 x V-BF-M5-535-S</b>	<b>592,0 x 592,0</b>	
Class (ISO 16890)	<b>ePM10 65%</b>		<b>1 x V-BF-M5-535-S</b>	<b>490,0 x 592,0</b>	
Clean dP [Pa]	<b>62</b>		<b>1 x V-BF-M5-535-S</b>	<b>287,0 x 592,0</b>	
Dirty dP [Pa]	<b>162</b>				
Applied dP [Pa]	<b>112</b>				
Airflow [m³/h]	<b>7.030</b>	<b>2,41 m/s</b>			
Filter handling	<b>Dirty air withdrawal</b>				
Material frame	<b>AISI 304</b>		Filter energy class		
Door with hinge and single lever		Dimensions [mm]	<b>540,0 x 810,0</b>		
<u>Damper:</u>		Dimensions [mm]	<b>1.260,0 x 610,0 x 125,0</b>		
Actuated by	<b>Axle</b>	Airflow [m³/h]	<b>7.030</b>	Frame	<b>Aluminium</b>
Qta. Levers	<b>1</b>	Air velocity [m/s]	<b>2,54</b>	Blades	<b>Aluminium</b>
torque [Nm]	<b>6,240</b>	Pressure drop [Pa]	<b>5</b>	Type	<b>DP1</b>
<u>Damper actuator</u>	<b>GMA126.1E</b>				
Quantity	<b>1</b>	Mode	<b>on/off</b>	Voltage [V]	<b>24</b>
Supplier	<b>Siemens</b>	torque [Nm]	<b>7,000</b>	Current [A]	<b>0,21</b>
				Protection	<b>IP54</b>
<u>Inspection window</u>	<b>Round</b>	Diameter [mm]	<b>200,0</b>		
<u>Lamp</u>	<b>PVC-STD Lamp</b>	Nominal data	<b>230 V</b>	<b>9 W</b>	<b>0,04 A IP65</b>
		Wiring	<b>Yes</b>		
<b>1 Pcs</b>	<b>Differential pressure switch PS500 (0-500Pa)</b>		<b>-</b>		
<b>1 Pcs</b>	<b>A2G-10 Differential Pressure Gauge 0-500 Pa</b>		<b>-</b>		

Empty section		Exhaust air	<b>720,0 mm</b>	<b>3,26 m2</b>	<b>Pa</b>
<b>Electric panel</b>					

Offer	<b>UTA 21001082.17</b>	Position	<b>1.0</b>	airCalc Vers. P 4.2.0		
Project	<b>MXP11 Data Centre</b>				13/12/2023	
Position	<b>MPX11-ADM-DOAS_01</b>					
<b>Empty section</b>		Exhaust air	<b>540,0 mm</b>	<b>2,16 m2</b>	<b>Pa</b>	
Removable panel				Dimensions [mm]	<b>450,0 x 810,0</b>	
<u>Inspection window</u>	<b>Round</b>			Diameter [mm]	<b>200,0</b>	
<u>Lamp</u>	<b>PVC-STD Lamp</b>	Nominal data	<b>230 V</b>	<b>9 W</b>	<b>0,04 A</b>	<b>IP65</b>
		Wiring	Yes			
<b>Heat wheel in casing</b>		Exhaust air	<b>680,0 mm</b>	<b>3,81 m2</b>	<b>213 Pa</b>	
<b>Empty section</b>		Exhaust air	<b>410,0 mm</b>	<b>1,54 m2</b>	<b>Pa</b>	
Removable panel				Dimensions [mm]	<b>320,0 x 810,0</b>	
<u>Inspection window</u>	<b>Round</b>			Diameter [mm]	<b>200,0</b>	
<u>Lamp</u>	<b>PVC-STD Lamp</b>	Nominal data	<b>230 V</b>	<b>9 W</b>	<b>0,04 A</b>	<b>IP65</b>
		Wiring	Yes			

Offer	UTA 21001082.17		Position	1.0		airCalc Vers.	P 4.2.0	
Project	MXP11 Data Centre						13/12/2023	
Position	MPX11-ADM-DOAS_01							
<b>Plug fan</b>			Exhaust air	900,0 mm	4,43 m2	40 Pa		
Fan	2x1 GR35I-ZID.DG.CR		Motor	2x1	ECblue-IE5-50-116-0-3.3	IE5		
Air volume [m³/h]	7.030		Protection	IP55				
External static [Pa]	450		Insulation class	F				
dynamic pressure [Pa]	16		Voltage	3x400 V / 50 Hz				
Add. dynamic pressure [Pa]	35		Power [kW]	2x	3,300			
Total static pressure [Pa]	785		Speed [1/min]	3.410				
Total pressure [Pa]	835		System absorbed power [kW]	2,380				
Speed [1/min]	2.395		nominal current [A]	3,99				
efficiency %	68,4		Function mode	Paral.calc.mode				
Supplier	Ziehl-Abegg							
Code	ZAB-116893/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	( $Q = k \sqrt{\frac{\Delta p}{\rho}}$ )		
Fan octave band sound power level (Lokt) [dB]			Control Signal (0-10V)	7,00				
Frq.[Hz]	63	125	250	500	1000	2000	4000	8000
Inlet	66,0	73,0	74,0	72,0	65,0	62,0	59,0	57,0
Outlet	69,0	78,0	81,0	75,0	75,0	72,0	67,0	63,0
				Specific fan power [W/(m3/s)]	1.102 SFP3			
1 set	Tube for airflow measurement		-					
1 Pcs	DPE2500 Flow LCD for airflow measurement		-					
Removable panel			Dimensions [mm]	630,0 x 810,0				
1 set	Microswitch		-					
<u>Damper:</u>			Dimensions [mm]	1.260,0 x 610,0 x 125,0				
Actuated by	actuator	Airflow [m³/h]	7,030	Frame	Aluminium			
Qta. Levers	1	Air velocity [m/s]	2,54	Blades	Aluminium			
torque [Nm]	6,240	Pressure drop [Pa]	5	Type	DP1			
<u>Damper actuator</u>	GCA126.1E							
Quantity	1	Mode	on/off	Voltage [V]	24			
Supplier	Siemens	torque [Nm]	16,000	Current [A]	0,38			
				Protection	IP54			
Opening	L			Dimensions [mm]	365,0 x 365,0			
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	UTA 21001082.17	Position	1.0	airCalc Vers. P 4.2.0
Project	MXP11 Data Centre			13/12/2023
Position	MPX11-ADM-DOAS_01			

**Noise calculation**

sound power [dB]									
Frq. Hz	63	125	250	500	1000	2000	4000	8000	Sum [dB(A)]
Inlet	67,0	73,0	73,0	70,0	62,0	58,0	54,0	51,0	70,4
Outlet	72,0	81,0	84,0	78,0	76,0	75,0	70,0	66,0	79,9
Casing	49,0	58,0	59,0	50,0	50,0	47,0	31,0	23,0	55,3

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	59,1	65,1	65,1	62,1	54,1	50,1	46,1	43,1	62,5	
Outlet	64,1	73,1	76,1	70,1	68,1	67,1	62,1	58,1	72,9	
Casing	41,1	50,1	51,1	42,1	42,1	39,1	23,1	15,1	47,4	

<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	KRT00SMD.000A Rilevatore di fumo	-
-------	----------------------------------	---

Delivery sections

no.	Width	Height	Length	Net weight
1	1.670,0	950,0	2.520,0	404,00
2	1.670,0	950,0	1.310,0	327,00
3	1.670,0	1.130,0	2.700,0	556,00
4	1.670,0	2.080,0	680,0	368,00
5	1.670,0	1.130,0	1.530,0	361,00
6	1.670,0	1.130,0	2.280,0	894,00

**Regulation 1253:14**

---

Calculation valid	<b>Yes</b>
ErP Ready 2016	<b>Yes</b>
ErP Ready note 2016	<b>-</b>
ErP Ready 2018	<b>Yes</b>
ErP Ready note 2018	<b>-</b>
Specific fan power internal [W/(m3/s)]	<b>869</b>
effective electric power input [kW]	<b>6,720</b>
type of heat recovery system	<b>other HRS</b>
thermal efficiency [%]	<b>82,10</b>
directional unit type	<b>BVU - NRVU</b>
Motor and drive type	<b>variable speed</b>
external leakage rate at +400 Pa [%]	<b>2,89</b>
external leakage rate at -400 Pa [%]	<b>2,28</b>
internal leakage rate at 200 Pa [%]	<b>1,50</b>



**Roccheggiani S.p.A.**

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

Tel.: 071 / 730023  
Fax: 071 / 7304005

Offer **UTA 21001082.17**  
From date **13/12/2023**  
Project **MXP11 Data Centre**  
Position **1.0**  
LV-Position  
Quantity **1**  
Print data **13/12/2023**  
User

[www.roccheggiani.it](http://www.roccheggiani.it)  
[ahu@roccheggiani.it](mailto:ahu@roccheggiani.it)

### 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

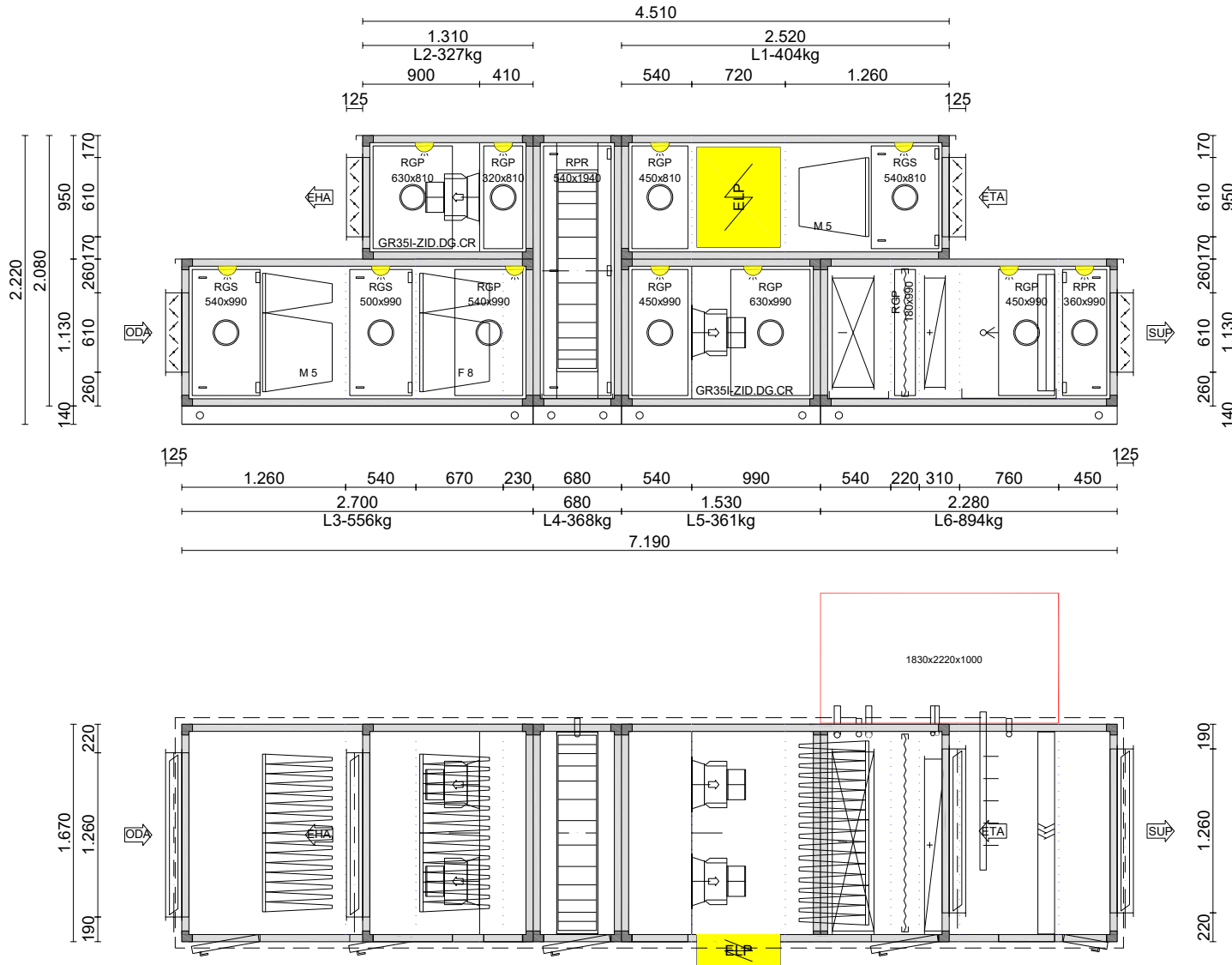
Offer **UTA 21001082.17**  
 Project **MPX11 Data Centre**  
 Position **1.0**  
 Description **MPX11-ADM-DOAS\_01**

airCalc Vers. P 4.2.0

From date **13/12/2023**

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	TCONN6J000	"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	GMA126.1E	Damper actuator, on-off, with spring return
18	1	GCA126.1E	Damper actuator, on-off, 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	DPE2500	Controller for differential pressure/airflow, 0-2500 Pa
22	1	DPE2500	Controller for differential pressure/airflow, 0-2500 Pa



Preliminary drawing

<b>SUPPLY</b>	CTA 17.11	C54TT	<b>EXHAUST</b>	CTA 17.9	C54TT	<b>CLIENTE-CUSTOMER:</b>	Bouygues E&S InTec Italia S.p.A.	<b>REV.0</b>	<b>DATA-DATE:</b>	User:
Airflow	m <sup>3</sup> /h	8.150	Airflow	m <sup>3</sup> /h	7.030	<b>CANTIERE-CONSTRUCTION.:</b>	MXP11 Data Centre	<b>POS.-ID:</b>	1.0	
Ext. pressure	Pa	500	Ext. pressure	Pa	450	<b>RIFERIMENTO-REF.:</b>	MPX11-ADM-DOAS_01	<b>PROJECT-ID.:</b>	UTA 21001082.17	
Tot. pressure	Pa	1.292	Tot. pressure	Pa	835	<b>OGGETTO-OBJECT:</b>	CTA 17.11	<b>TIPO-TYPE:</b>		
Motorpower	kW 2x	3,300	Motorpower	kW 2x	3,300	<b>ROCCHEGGIANI.</b>	ROCCHEGGIANI S.p.A. Via 1° maggio, 50021 Camerano (AN) Italy	<b>scale:</b>	xx.xx	<b>TOLL.:</b> UNI.EN22768-V
Power supply		400V/3/50Hz	Power supply		400V/3/50Hz	<b>scale:</b>	xx.xx	<b>TOLL.:</b>	UNI.EN22768-V	<b>DISEGNO-DRAW.:</b>
PHW-heating	kW	21,56	Energy rec	kW	81,27 / 52,46	DESEGNO DI PROPRIETA' DELLA ROCCHEGGIANI SPA - RIPRODUZIONE E DIFFUSIONE VIETATA AI TERMINI DI LEGGE THE DESIGN AND DRAWINGS ARE PROPERTY OF ROCCHEGGIANI SPA-UNAUTHORIZED USE/COPY OR ANY FORM OF MODIFICATION IS STRICTLY PROHIBITED				
PCW-cooling	kW	67,62								
Energy rec	kW	81,27 / 52,46								
Humidification	kg/h	25,00								