

MSSP Report

1. Project Information

Date	2024-5-23
Project name	Martes Sport Bielsko-Biała
Project address	
Country	Poland
State	
City	Bielsko-Biała
Client name	
Client address	
Designed by	
Reference	New Project
Revision	
Altitude(m)	295
Indoor DB temperature in cooling(°C)	26
Indoor WB temperature in cooling(°C)	19
Outdoor DB temperature in cooling(°C)	32
Outdoor WB temperature in cooling(°C)	21.5
Indoor DB temperature in heating(°C)	20
Indoor WB temperature in heating(°C)	14
Outdoor DB temperature in heating(°C)	-20
Outdoor WB temperature in heating(°C)	-20

2. Overall Material List

2.1 Equipment List

Model	Quantity	Description
MV8i-730WV2RN1E(MA)	1	V8i Master VRF (380-415V EU series)
MIH80Q4N18	9	Four-way Cassette (EU series)
FQZHN-02D	6	Branch joint
FQZHN-03D	1	Branch joint
FQZHN-04D	1	Branch joint
Φ22.2<->Φ25.4	2	Reducer
Φ15.9<->Φ19.1	1	Reducer
WDC3-120T	1	3rd generation group controller

2.2 Field Providing List

2.2.1 Refrigerant Piping Materials

Model	Quantity	Unit	Description
Φ9.52	51.85	m	Copper pipe
Φ12.7	49.15	m	Copper pipe
Φ15.9	51.85	m	Copper pipe
Φ19.1	23.55	m	Copper pipe
Φ22.2	5	m	Copper pipe
Φ25.4	26.2	m	Copper pipe
Φ31.8	0.6	m	Copper pipe
Φ38.1	5	m	Copper pipe
Insulation casing for piping			All refrigerant piping and branch joints should be completely insulated.

Recommended insulation casing thickness:

Piping size	Thickness	
	Humidity<80%RH	Humidity≥80%RH
Φ6.35~Φ38.1mm	≥15mm	≥20mm
Φ41.3~Φ38.1mm	≥20mm	≥25mm

2.2.2 Refrigerant charge

System name	Model	Quantity	Unit	Description
VRF	R410A	17.96	kg	Extra Refrigerant Added

2.2.3 Electrical cables

Type	Size	Length
Power supply cable	Select based on MCA of each unit	According to the actual system design
Communication cable	0.75mm2 3-core shielded	According to the actual system design

3. Overall Electrical Characteristics

Model	Quantity	Power supply	MCA(A)	MFA(A)
MV8i-730WV2RN1E(MA)	1	380-415V-3ph-50Hz	48,00	63
MIH80Q4N18	9	220-240V-50Hz	1,20	15

Notes:

1. MCA: Minimum Circuit Amps. MCA is used to select wire size. The value in above table is for one unit.
2. MFA: Maximum Fuse Amps. MFA is used to select overcurrent circuit breakers and residual-current circuit breakers. The value in above table is for one unit.

4. VRF

4.1 BOM List (VRF)

Model	Quantity	Unit	Description
MV8i-730WV2RN1E(MA)	1		V8i Master VRF (380-415V EU series)
MIH80Q4N18	9		Four-way Cassette (EU series)
FQZHN-02D	6		Branch joint
FQZHN-03D	1		Branch joint
FQZHN-04D	1		Branch joint
WDC3-120T	1		3rd generation group controller
Φ22.2<->Φ25.4	2		Reducer
Φ15.9<->Φ19.1	1		Reducer
R410A	17.96	kg	Extra Refrigerant Added
Φ9.52	51.85	m	Copper pipe
Φ12.7	49.15	m	Copper pipe
Φ15.9	51.85	m	Copper pipe
Φ19.1	23.55	m	Copper pipe
Φ22.2	5	m	Copper pipe
Φ25.4	26.2	m	Copper pipe
Φ31.8	0.6	m	Copper pipe
Φ38.1	5	m	Copper pipe

4.2 Indoor Unit Details (VRF)

4.2.1 Indoor Unit Details Table

IDU Name	Model	Weight(kg)	Dimension(WxHxD)(mm)	Power supply	MCA(A)	MFA(A)
IDU1	MIH80Q4N18	22	840*204*840	220-240V-50Hz	1,2	15
IDU1	MIH80Q4N18	22	840*204*840	220-240V-50Hz	1,2	15
IDU1	MIH80Q4N18	22	840*204*840	220-240V-50Hz	1,2	15
IDU1	MIH80Q4N18	22	840*204*840	220-240V-50Hz	1,2	15
IDU1	MIH80Q4N18	22	840*204*840	220-240V-50Hz	1,2	15
IDU1	MIH80Q4N18	22	840*204*840	220-240V-50Hz	1,2	15
IDU1	MIH80Q4N18	22	840*204*840	220-240V-50Hz	1,2	15
IDU1	MIH80Q4N18	22	840*204*840	220-240V-50Hz	1,2	15

IDU Name	Model	Tmp-C(°C)	RTC(kW)	ATC(kW)	RSC(kW)	ASC(kW)	PI-C(W)	Tmp-H(°C)	RHC(kW)	AHC(kW)	PI-H(W)
IDU1	MIH80Q4N18	26,0/19,0		7,93		6,42	41	20		7,32	41
IDU1	MIH80Q4N18	26,0/19,0		7,89		6,39	41	20		7,32	41
IDU1	MIH80Q4N18	26,0/19,0		7,73		6,26	41	20		7,32	41
IDU1	MIH80Q4N18	26,0/19,0		7,65		6,19	41	20		7,32	41
IDU1	MIH80Q4N18	26,0/19,0		7,95		6,44	41	20		7,32	41
IDU1	MIH80Q4N18	26,0/19,0		7,76		6,29	41	20		7,32	41
IDU1	MIH80Q4N18	26,0/19,0		7,88		6,38	41	20		7,32	41
IDU1	MIH80Q4N18	26,0/19,0		7,72		6,25	41	20		7,32	41
IDU1	MIH80Q4N18	26,0/19,0		7,55		6,12	41	20		7,32	41

IDU Name	Model	Airflow(m³/h)	Sound-Pr dB(A)	ESP(Pa)
IDU1	MIH80Q4N18	1330[SSH]	38[SSH]	
IDU1	MIH80Q4N18	1330[SSH]	38[SSH]	
IDU1	MIH80Q4N18	1330[SSH]	38[SSH]	
IDU1	MIH80Q4N18	1330[SSH]	38[SSH]	
IDU1	MIH80Q4N18	1330[SSH]	38[SSH]	

IDU1	MIH80Q4N18	1330[SSH]	38[SSH]	
IDU1	MIH80Q4N18	1330[SSH]	38[SSH]	
IDU1	MIH80Q4N18	1330[SSH]	38[SSH]	
IDU1	MIH80Q4N18	1330[SSH]	38[SSH]	

IDU Name	Model	Piping Length to 1st Y Joint(m)
IDU1	MIH80Q4N18	12,00
IDU1	MIH80Q4N18	16,00
IDU1	MIH80Q4N18	28,45
IDU1	MIH80Q4N18	34,55
IDU1	MIH80Q4N18	3,60
IDU1	MIH80Q4N18	25,20
IDU1	MIH80Q4N18	16,85
IDU1	MIH80Q4N18	29,20
IDU1	MIH80Q4N18	41,50

4.2.2 Table of Abbreviations

Abbreviation code	Description
Tmp-C	Indoor temperature in cooling (Dry bulb temp. / Wet bulb temp. / RH)
RTC	Required total cooling capacity
ATC	Available total cooling capacity
RSC	Required sensible cooling capacity
ASC	Available sensible cooling capacity
Tmp-H	Indoor temperature in heating (Dry bulb temp.)
RHC	Required heating capacity
AHC	Available heating capacity
Tdis-H	Indoor unit discharge air temperature in heating
Airflow	Indoor unit airflow (High/Medium/Low)
ESP	External static pressure
Sound-Pr	Sound pressure level (High/Medium/Low)
Sound-Po	Sound power level (High/Medium/Low)
MCA	Minimum Circuit Amps
MFA	Maximum Fuse Amps
PI-C	Power input in cooling
PI-H	Power input in heating
Power supply	Power supply
Dimension(WxHxD)	Net Dimension (WxHxD) mm
Weight	Weight

4.3 Outdoor Unit Details (VRF)

4.3.1 Outdoor Unit Details Table

Model		MV8i-730WV2RN1E(MA)
Module		MV8i-730WV2RN1E(MA)
Tmp-C	°C	32
RTC	kW	
ATC	kW	71,58
PI-C	kW	31,03
EER		2,31
Tmp-H	°C/°C	-20/-20
RHC	kW	
AHC	kW	65,92
PI-H	kW	30,57
COP		2,16
CR		98,6
Airflow	m³/h	29000
Sound-Pr		68
Sound-Po		93
Bas-Refr	kg	11,96
Ex-Refr	kg	17,96
TCO2 eq.		62,47
MCA	A	48
MFA	A	63
Power supply	V/ph/Hz	380-415V-3ph-50Hz
Dimension (WxHxD)	mm	1880*1760*825
Weight	kg	373

4.3.2 Table of Abbreviations

Abbreviation code	Description
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Tmp-C	Outdoor conditions in cooling (Dry bulb temp.)
RTC	Required cooling capacity
ATC	Available cooling capacity
PI-C	Power input in cooling
EER	EER
Tmp-H	Indoor conditions in heating (Dry bulb temp. / Wet bulb temp. / RH)
RHC	Required heating capacity
AHC	Available heating capacity
PI-H	Power input in heating
COP	COP
CR	Combination ratio
Airflow	Outdoor unit airflow
Sound-Pr	Sound pressure level
Sound-Po	Sound power level
Bas-Refr	Standard factory refrigerant charge
Ex-Refr	Extra refrigerant charge
TCO2 eq.	Tonnes of CO2 equivalent
MCA	Minimum Circuit Amps
MFA	Maximum Fuse Amps
Power supply	Power supply
Dimension (WxHxD)	Net Dimension (WxHxD) mm
Weight	Weight

4.4 Piping Limitations (VRF)

4.4.1 Piping Limitations

Item	Capability	Actual Value
Total piping length	1100,00(m)	160,35(m)
Longest actual length	220,00(m)	44,50(m)
Longest equivalent length	260,00(m)	47,00(m)
Longest equivalent length after first branch	120,00(m)	41,50(m)
Indoor unit to nearest branch length	40,00(m)	13,40(m)
Length difference between longest and shortest distance to indoor units	40,00(m)	37,90(m)
Height difference between indoor and outdoor unit(ODU up)	110,00(m)	0,00(m)
Height difference between indoor and outdoor unit(ODU down)	110,00(m)	0,00(m)
Height difference between indoor units	40,00(m)	0,00(m)
Combination ratio	50-200%	98,63%
IDU quantity	43	9

4.4.2 Correction Factors

Item	Correction factor
Altitude (indoor unit)	0,994
Altitude (outdoor unit)	0,997
Piping (cooling)	1,000
Piping (heating)	1,000
Defrost (heating)	1,000

4.4.3 Piping Details Table

No.	Length(m)	Piping diameter
(1)	5,00	Φ38.1/Φ22.2
(2)	12,00	Φ15.9/Φ9.52
(3)	0,60	Φ31.8/Φ19.1
(4)	0,70	Φ25.4/Φ12.7
(5)	12,50	Φ25.4/Φ12.7
(6)	11,10	Φ15.9/Φ9.52
(7)	1,15	Φ25.4/Φ12.7
(8)	1,30	Φ15.9/Φ9.52
(9)	11,85	Φ25.4/Φ12.7
(10)	1,10	Φ15.9/Φ9.52
(11)	11,85	Φ19.1/Φ12.7
(12)	1,10	Φ15.9/Φ9.52
(13)	13,40	Φ15.9/Φ9.52
(14)	1,35	Φ15.9/Φ9.52
(15)	11,10	Φ19.1/Φ12.7
(16)	2,20	Φ15.9/Φ9.52
(17)	8,30	Φ15.9/Φ9.52

4.4.4 Branch Joints Details Table

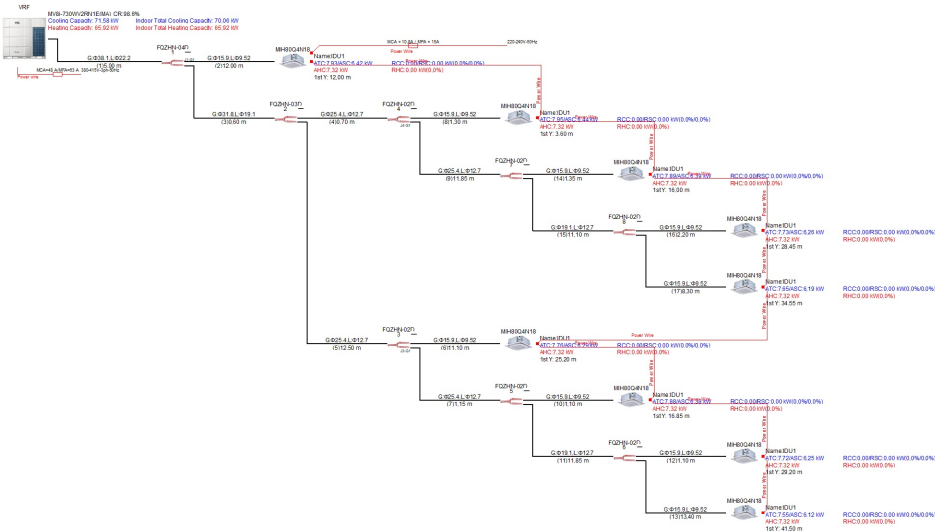
No.	Load(kW)	Model
(1)	72	FQZHN-04D
(2)	64	FQZHN-03D
(3)	32	FQZHN-02D

(4)		32	FQZHN-02D
(5)		24	FQZHN-02D
(6)		16	FQZHN-02D
(7)		24	FQZHN-02D
(8)		16	FQZHN-02D

4.4.5 Reducer Details Table

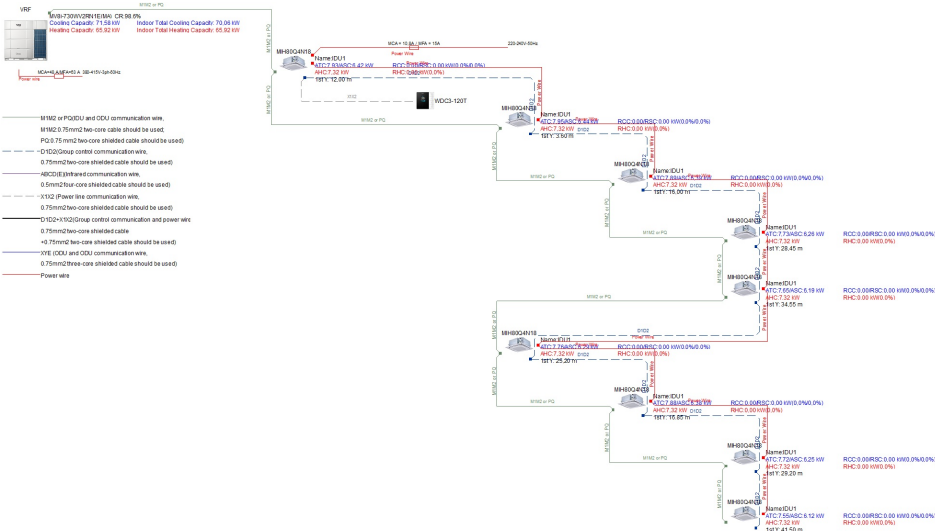
Reducer Name	Description
J1-G1	Φ15.9<->Φ19.1
J3-G1	Φ22.2<->Φ25.4
J4-G1	Φ22.2<->Φ25.4

4.5 Piping Diagrams (VRF)



The drawing may differ from actual conditions due to limitations of the software. Please confirm before installation according to the installation manual.

4.6 Wiring Diagrams (VRF)



The drawing may differ from actual conditions due to limitations of the software. Please confirm before installation according to the installation manual.

5. Centralized Control Solution

5.1 Centralized Controller List

The centralized control system of this project is full output regardless of whether the system is selected.