

Calculation and Selection Result

A. Project Overview

Project Name	Szkola Nowy Tomyśl
Country	Poland
City	Nowy Tomyśl
Address	
Client Name	
Client Address	
Reference	
Revision	
Project Date	8 / 8 / 2018
Altitude	m
Cooling Condition: Indoor Dry-bulb	27.0 °C
Cooling Condition: Indoor Wet-bulb	19.0 °C
Cooling Condition: Outdoor Dry-bulb	32.0 °C
Cooling condition: Outdoor wet bulb	28.6 °C
Heating Condition: Indoor Dry-bulb	20.0 °C
Heating Condition: Outdoor Dry-bulb	-20.0 °C
Heating Condition: Outdoor Wet-bulb	-20.0 °C

B. Material List

Model	Quantity	Description
MDV-V120W/DRN1	1	All DC Inverter Mini VRF (380V)
MI-56Q4/DHN1-D	1	Four_way Cassette (DC Fan Motor)
MI-22Q4/DHN1-A3	2	Compact Four-way Cassette (DC Fan Motor)
MI-36Q4/DHN1-A3	1	Compact Four-way Cassette (DC Fan Motor)
FQZHN-01D	3	Branch Joint
Ø15.9	17.4 m	Copper Pipe
Ø12.7	5.5 m	Copper Pipe
Ø9.53	17.4 m	Copper Pipe
Ø6.35	5.5 m	Copper Pipe

mini VRF 1 - 12,3kW

1.1 Material List

Model	Quantity	Description
MDV-V120W/DRN1	1	All DC Inverter Mini VRF (380V)
MI-56Q4/DHN1-D	1	Four_way CallPette (DC Fan Motor)
MI-22Q4/DHN1-A3	2	Compact Four-way CallPette (DC Fan Motor)
MI-36Q4/DHN1-A3	1	Compact Four-way CallPette (DC Fan Motor)
FQZHN-01D	3	Branch Joint
Ø15.9	17.4 m	Copper Pipe
Ø12.7	5.5 m	Copper Pipe
Ø9.53	17.4 m	Copper Pipe
Ø6.35	5.5 m	Copper Pipe

1.2 Indoor Unit Specifications

IDU Name	Model	Sound (dB(A))	Weight(kg)	Dimension(mm) W x H x D	Power Supply	Rated Power(W)
123	MI-56Q4/DHN1-D	43(High)	24.00	904*230*840	220-240,50,1	31
0.50	MI-22Q4/DHN1-A3	35(High)	16.00	570*260*570	220-240,50,1	15
0.49	MI-36Q4/DHN1-A3	41(High)	17.50	570*260*570	220-240,50,1	21
0.48	MI-22Q4/DHN1-A3	35(High)	16.00	570*260*570	220-240,50,1	15

IDU Name	Model	Cooling AT (°C)	Req.TC (kW)	TC (kW)	Req.SC (kW)	SC (kW)	Heating AT (°C)	Req.HC (kW)	HC (kW)	Air flow (m ³ /h)	ESP (Pa)
123	MI-56Q4/DHN1-D	27.0/19.0	0.00	5.26	0.00	3.19	20.0	0.00	3.49	1029(High)	N/A
0.50	MI-22Q4/DHN1-A3	27.0/19.0	0.00	2.06	0.00	1.50	20.0	0.00	1.33	576(High)	N/A
0.49	MI-36Q4/DHN1-A3	27.0/19.0	0.00	3.37	0.00	2.25	20.0	0.00	2.21	604(High)	N/A
0.48	MI-22Q4/DHN1-A3	27.0/19.0	0.00	2.04	0.00	1.49	20.0	0.00	1.31	576(High)	N/A

1.3 Outdoor Unit Specifications

Name	Model	Module	Dimension(mm)	Weight(kg)	Base refr(kg)	Add refr(kg)	Power Supply
ODU1	MDV-V120W/DRN1	MDV-V120W/DRN1	900*1327*400	95.00	3.30	1.41	380~415V~50Hz~3ph

Name	Model	CR%	Temp(°C)	CC(kW)	Req CC(kW)	Temp(H/RH)(°C)	HC(kW)	Req HC(kW)
ODU1	MDV-V120W/DRN1	110.57	32.0	12.79	0.00	-20.0/100%	8.38	0.00

Name	Model	EER	COP	Cooling Power(kW)	Heating Power(kW)
ODU1	MDV-V120W/DRN1	4.14	2.62	3.1	3.2

Req.TC: Required Total Cooling Capacity Req.SC: Required Sensible Cooling Capacity Req.HC: Required Total Heating Capacity

TC: Available Total Cooling Capacity SC: Available Sensible Cooling Capacity HC: Available Total Heating Capacity

AT: Ambient Temperature ESP: External Static Pressure

Req.CC: Required Cooling Capacity

CC: Available Cooling Capacity

1.4 Piping and Mode Selection Devices

IDU Quantity	4/6
Combination Ratio	110.57%
Additional refrigerant charge	1.41 kg = 5.50(6.35) * 0.022 + 17.40(9.53) * 0.057 + 3 * 0.1
Factory refrigerant charge	3.30 kg
Total refrigerant charge	4.71 kg
Total Pipe Length	24.4 m / 100 m
Further Actual	15.4 m / 60 m
Further Equivalent	16.9 m / 70 m
Further Equivalent from First Branch to IDU	14.9 m / 20 m
Drop Height between IDU and IDU	3.5 m / 8 m
Drop height between IDU and ODU(Above ODU)	5 m / 20 m
Available Capacity Cooling	12.79 kW
Available Capacity Heating	8.38 kW

Note:

1.The equivalent length of each branch joint is 0.5m.

Pipe

No.	Length	Gas Pipe	Liquid Pipe
(1)	1.5 m	Ø15.9	Ø9.53
(2)	5.5 m	Ø15.9	Ø9.53
(3)	3.9 m	Ø15.9	Ø9.53
(4)	6.5 m	Ø15.9	Ø9.53
(5)	0.5 m	Ø12.7	Ø6.35
(6)	0.5 m	Ø12.7	Ø6.35
(7)	4.5 m	Ø12.7	Ø6.35

Branch Joint

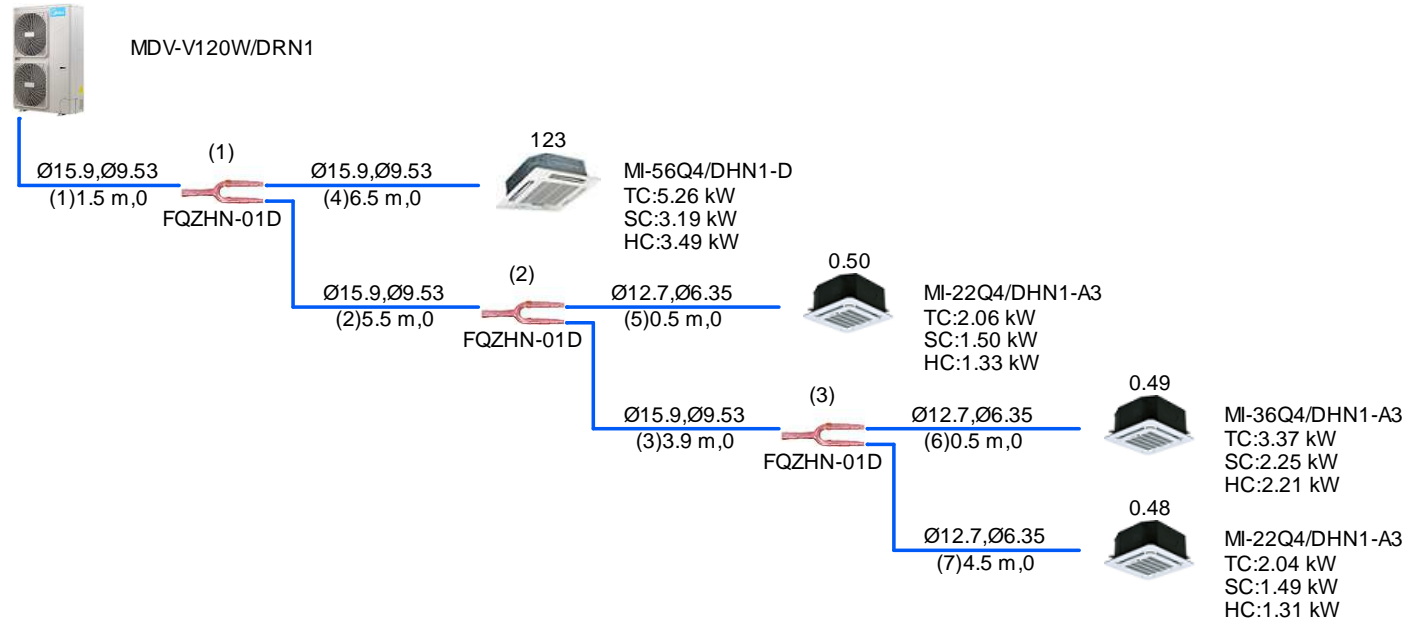
No.	Load kW	Model
(1)	13.60	FQZHN-01D
(2)	8.00	FQZHN-01D
(3)	5.80	FQZHN-01D

1.5 Piping Diagram

VRF 50Hz R410A

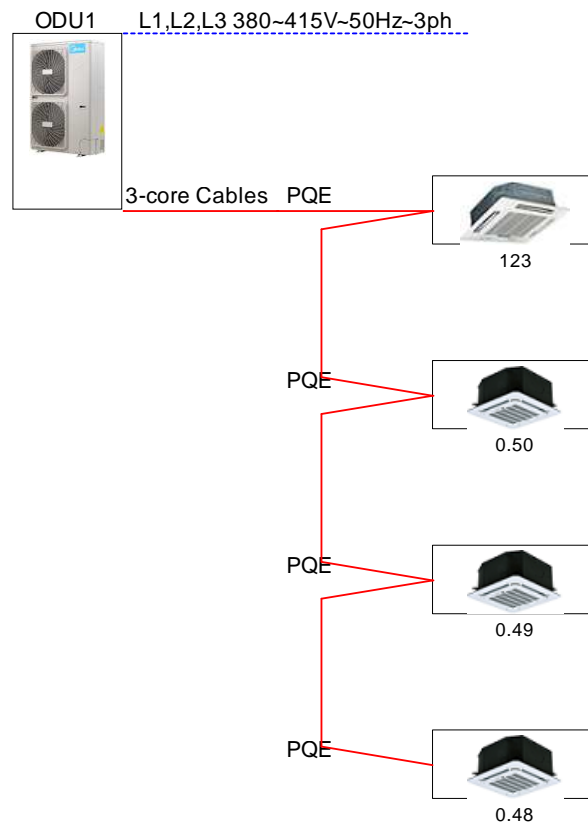
ODU:12.79/8.38 kW IDU Total:12.76/8.44/8.37 kW

MDV-V120W/DRN1



The piping size may be different with the actual situation because of the software's illustration limitation, please confirm the piping size according to the installation manual before installation.

1.6 Wiring Diagram



The wiring diagram may be different with the actual situation because of software's illustration limitation, please confirm the wiring diagram according to the installation manual before installation.