

Calculation and Selection Result

A.Project Overview

Project Name	Metadon
Country	Poland
City	-
Address	
Client Name	
Client Address	
Reference	
Revision	
Project Date	11 / 3 / 2020
Altitude	m
Cooling Condition: Indoor Dry-bulb	24.0 °C
Cooling Condition: Indoor Rel. Humidity	55
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 Rel. Humidity	100

Mini VRF

1.1 Material List

Model	Quantity	Description
MULTI+P180	1	All DC Inverter Mini VRF (380V)
MG-36M2	2	Wall_mounted (2nd DC IDU)
MG-28M2	2	Wall_mounted (2nd DC IDU)
MG-22M2	2	Wall_mounted (2nd DC IDU)
FQZHN-01D	5	Branch Joint
WDC-86E/KD	6	2nd generation wired controller
Ø19.1	4.0 m	Copper Pipe
Ø15.9	9.7 m	Copper Pipe
Ø12.7	11.7 m	Copper Pipe
Ø9.53	13.7 m	Copper Pipe
Ø6.35	11.7 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)	MCA(A)	MFA(A)
09	MG-36M2	33(SSH)	11.40	990*315*223	220-240,50,1	30	0.45	15
10	MG-28M2	31(SSH)	9.50	835*280*203	220-240,50,1	28	0.32	15
03	MG-28M2	31(SSH)	9.50	835*280*203	220-240,50,1	28	0.32	15
02	MG-36M2	33(SSH)	11.40	990*315*223	220-240,50,1	30	0.45	15
05	MG-22M2	31(SSH)	8.40	835*280*203	220-240,50,1	28	0.32	15
06	MG-22M2	31(SSH)	8.40	835*280*203	220-240,50,1	28	0.32	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 (m³/h)	ESP (Pa)
09	MG-36M2	24.0/55.0%	0.00	3.19	0.00	2.13	20.0	0.00	2.49	656(SSH)	N/A
10	MG-28M2	24.0/55.0%	0.00	2.45	0.00	1.77	20.0	0.00	1.99	417(SSH)	N/A
03	MG-28M2	24.0/55.0%	0.00	2.45	0.00	1.77	20.0	0.00	1.98	417(SSH)	N/A
02	MG-36M2	24.0/55.0%	0.00	3.19	0.00	2.13	20.0	0.00	2.48	656(SSH)	N/A
05	MG-22M2	24.0/55.0%	0.00	1.96	0.00	1.38	20.0	0.00	1.48	422(SSH)	N/A
06	MG-22M2	24.0/55.0%	0.00	1.96	0.00	1.38	20.0	0.00	1.47	422(SSH)	N/A

1.3 Outdoor Unit Specifications

Name	Model	Module	Dimension(mm)	Weight(kg)	Base refr(kg)	Add refr(kg)	Power Supply	MCA(A)	MFA(A)
ODU1	MULTI+P180	MULTI+P180	900*1327*400	107.00	4.50	1.54	380~415V~50Hz~3ph	N/A	N/A

Name	Model	CR%	Temp(°C)	CC(kW)	Req CC(kW)	Temp(H/RH)(°C)	HC(kW)	Req HC(kW)
ODU1	MULTI+P180	95.56	32.0	15.95	0.00	-20.0/100%	12.02	0.00

Name	Model	EER	COP	Cooling Power(kW)	Heating Power(kW)
ODU1	MULTI+P180	3.86	2.38	3.99	5.06

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	6/9
Combination Ratio	95.56%
Additional refrigerant charge	1.54 kg $= 11.70(6.35) * 0.022 + 13.70(9.53) * 0.057 + 5 * 0.1$
Factory refrigerant charge	4.50 kg
Total refrigerant charge	6.04 kg
Total Pipe Length	27.9 m / 100 m
Furthest Actual	16.3 m / 60 m
Furthest Equivalent	18.8 m / 70 m
Furthest Equivalent from First Branch to IDU	14.3 m / 20 m
Drop Height between IDU and IDU	0 m / 8 m
Drop height between IDU and ODU(Below ODU)	3 m / 30 m
Available Capacity Cooling	15.25 kW
Available Capacity Heating	11.98 kW

Note:

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

Pipe

No.	Length	Gas Pipe	Liquid Pipe
(1)	4.0 m	Ø19.1	Ø9.53
(2)	3.0 m	Ø15.9	Ø9.53
(3)	4.2 m	Ø15.9	Ø9.53
(4)	0.9 m	Ø15.9	Ø9.53
(5)	1.6 m	Ø15.9	Ø9.53
(6)	2.5 m	Ø12.7	Ø6.35
(7)	1.0 m	Ø12.7	Ø6.35
(8)	2.5 m	Ø12.7	Ø6.35
(9)	1.0 m	Ø12.7	Ø6.35
(10)	2.1 m	Ø12.7	Ø6.35
(11)	2.6 m	Ø12.7	Ø6.35

Branch Joint

No.	Load kW	Model
(1)	17.20	FQZHN-01D
(2)	13.60	FQZHN-01D
(3)	10.80	FQZHN-01D

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No.	Load kW	Model
(4)	8.00	FQZHN-01D
(5)	4.40	FQZHN-01D

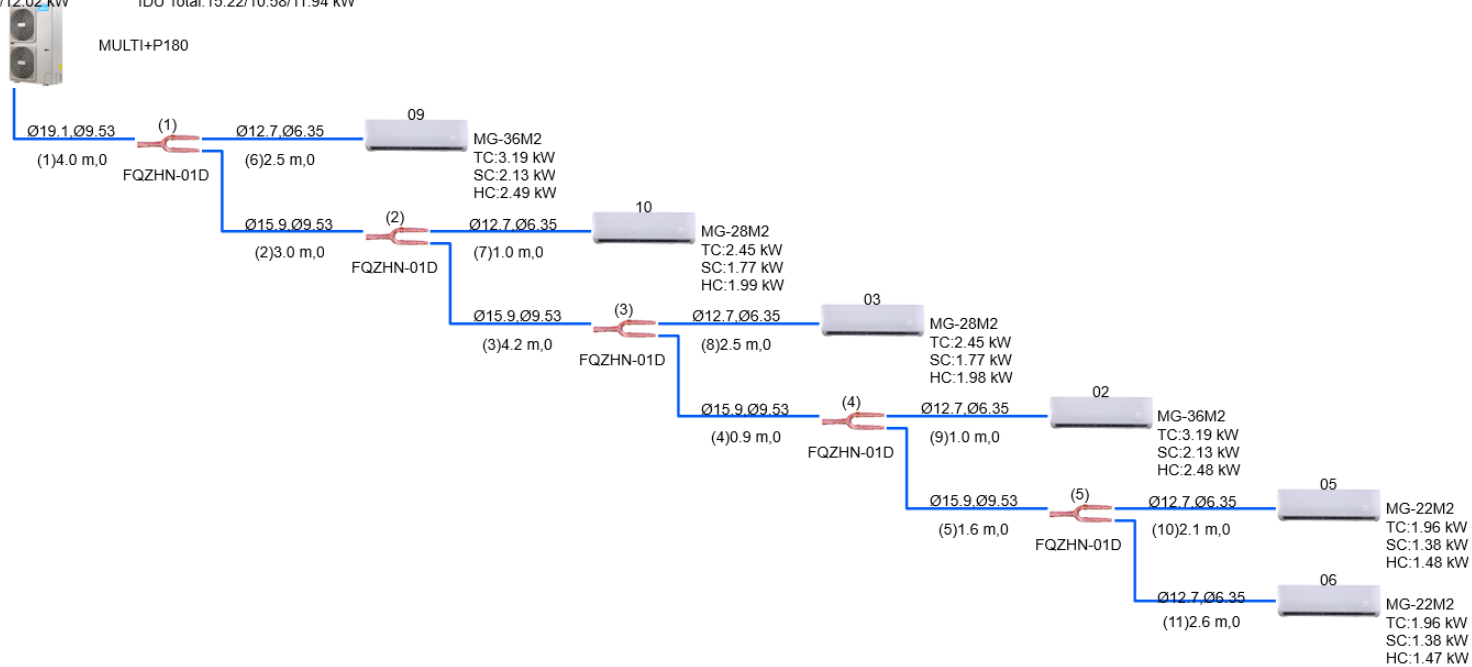
1.5 Piping Diagram

VRF 50Hz R410A

ODU:15.95/12.02 kW

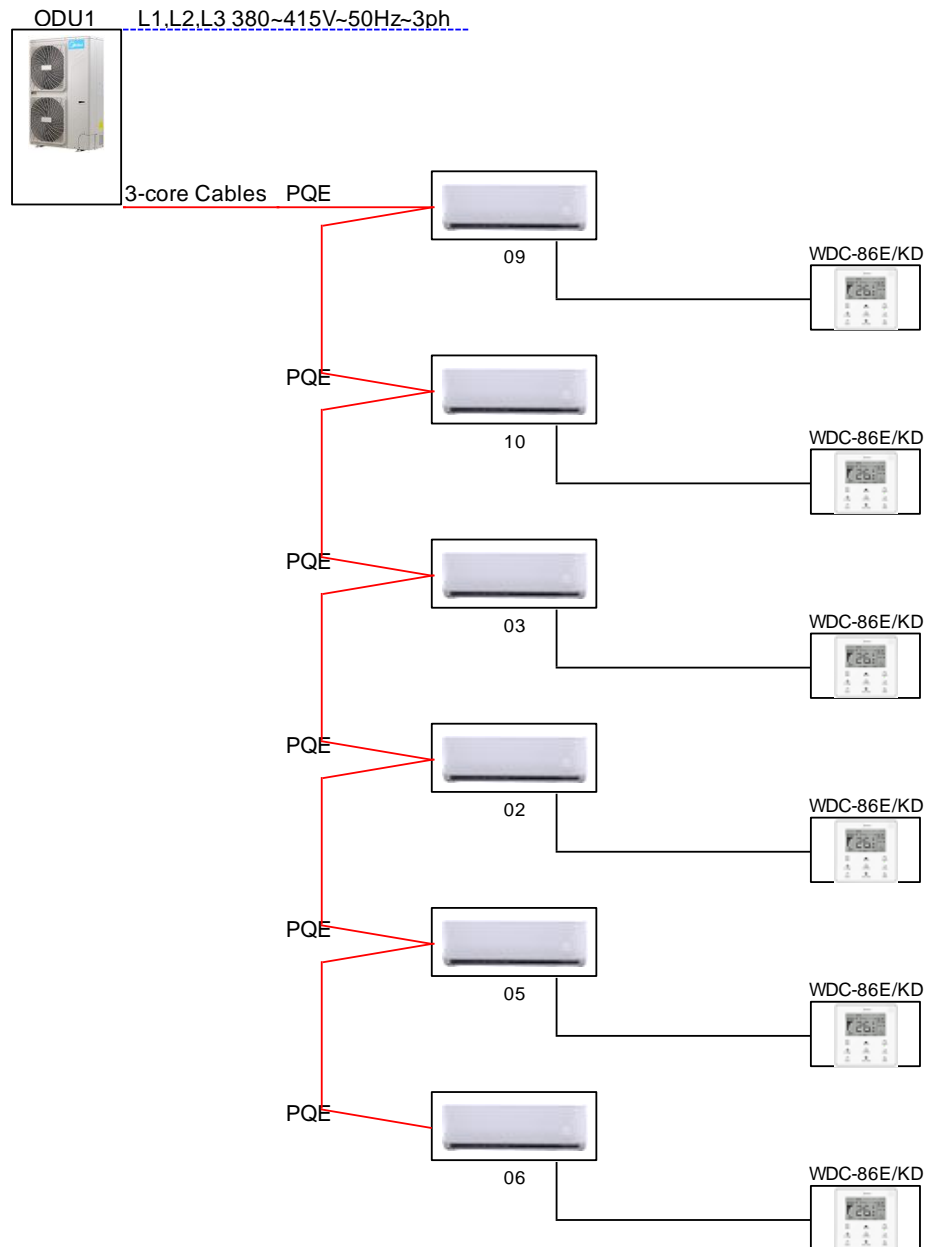
IDU Total:15.22/10.58/11.94 kW

MULTI+P180



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.