

Part 1

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1. Model Names of Indoor/Outdoor Units

Indoor unit

Type	Model Name								
4- way cassette	MDV-D	56Q4/N1	71Q4/N1	80Q4/N1	90Q4/N1	112Q4/N1			
4- way cassette compact	MDV-D	28Q4/BN1	36Q4/BN1	45Q4/BN1					
All plastic duct	MDV-D	22T2/N1-A3	28T2/N1-A3	36T2/N1-A3					
Duct	MDV-D	45T2/CN1	56T2/CN1	71T2/CN1	80T2/CN1	90T2/CN1	112T2/CN1	140T2/CN1	
Ceiling & floor	MDV-D	36DL/N1-B	45DL/N1-B	56DL/N1-B	71DL/N1-B	80DL/N1-B	90DL/N1-B	112DL/N1-B	140DL/N1-B
Wall mounted	MDV-D	22G/N1-E1	28G/N1-E1	36G/N1-E1	45G/N1-E1	56G/N1-E1			

Power supply of all the indoor units is 1 phase, 220~240V, 50Hz

Outdoor unit

Type	Model Name									
Cooling & Heating	MDV-D	252W/CSN1	280W/CSN1	335W/CSN1	400W/CSN1	450W/CSN	532W/CSN1	560W/CSN1	615W/CSN1	
		Model Name								
Cooling & Heating	MDV-D	680W/CSN1	730W/CSN1	785W/CSN1	850W/CSN1	900W/CSN1	960W/CSN1	1010W/CSN1	1065W/CSN1	
		Model Name								
Cooling & Heating	MDV-D	1130W/CSN1	1180W/CSN1	1235W/CSN1	1300W/CSN1	1350W/CSN1	1405W/CSN1	1455 W/CSN1	1520W/CSN1	
		Model Name								
Cooling & Heating	MDV-D	1570W/CSN1	1630W/CSN1	1685W/CSN1	1750W/CSN1	1800W/CSN1				













Power supply of all the outdoor units is 3 phase,380V-415V, 50Hz

2. External Appearance

2.1 Indoor unit

External Appearance	Model Name	External Appearance	Model Name
<p>Four way cassette</p>  <p>EEV Beside</p>	<p>MDV-D56Q4/N1 MDV-D71Q4/N1 MDV-D80Q4/N1 MDV-D90Q4/N1 MDV-D112Q4/N1</p>	<p>Compact four way cassette</p>  <p>EEV Beside</p>	<p>MDV-D28Q4/BN1 MDV-D36Q4/BN1 MDV-D45Q4/BN1</p>
<p>All plastic duct</p>  <p>EEV Separated</p>	<p>MDV-D22T2/N1-A3 MDVD28T2/N1-A3 MDVD36T2/N1-A3</p>	<p>Wall mounted unit</p>  <p>EEV Separated &EEVI Inside</p>	<p>MDV-D22G/N1-E1 MDV-D28G/N1-E1 MDV-D36G/N1-E1 MDV-D45G/N1-E1 MDV-D56G/N1-E1</p>
<p>Ceiling & floor unit</p>  <p>EEV Inside</p>	<p>MDV-D36DL/N1-B MDV-D45DL/N1-B MDV-D56DL/N1-B MDV-D71DL/N1-B MDV-D80DL/N1-B MDV-D90DL/N1-B MDV-D112DL/N1-B MDV-D140DL/N1-B</p>	<p>Duct</p>  <p>EEV Beside</p>	<p>MDV-D45T2/CN1 MDV-D56T2/CN1 MDV-D71T2/CN1 MDV-D80T2/CN1 MDV-D90T2/CN1 MDV-D112T2/CN1 MDV-D140T2/CN1</p>

2.2 Outdoor unit

 <p>8,10,12HP</p>	 <p>14,16HP</p>
 <p>18,20,22HP</p>	 <p>24,26,28HP</p>
 <p>30,32HP</p>	 <p>34,36,38HP</p>
 <p>40, 42, 44HP</p>	 <p>46,48HP</p>
 <p>50,52HP</p>	 <p>54, 56HP</p>
 <p>58, 60HP</p>	 <p>62,64HP</p>

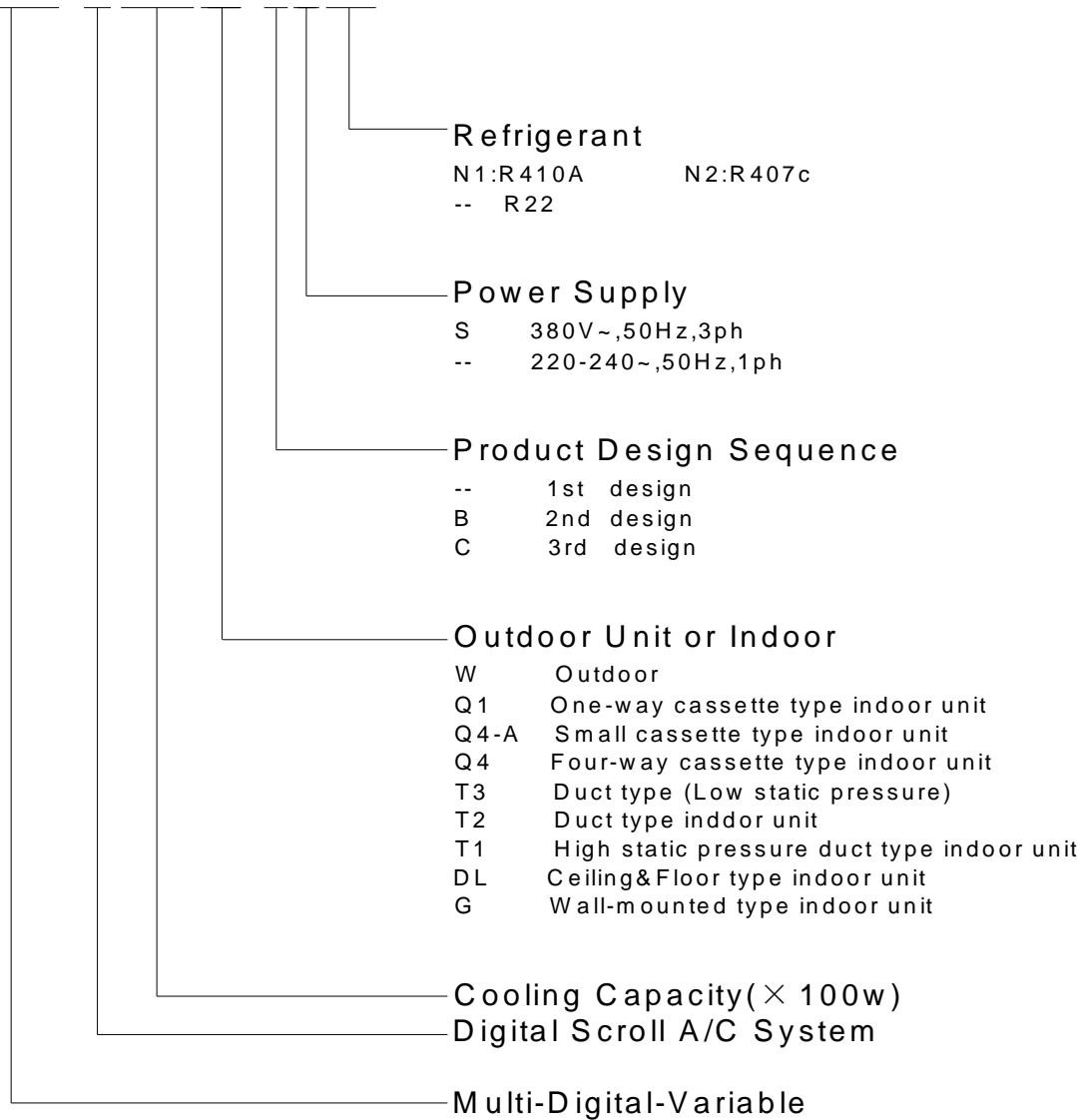
3. Combination of Outdoor Unit

Horse power (HP)	Model	Recommend combination	Max. connection indoor units	Horse power (HP)	Model	Recommend combination	Max. connection indoor units
8	MDV-D252W/CSN1	8	13	38	MDV-D1065W/CSN1	10+12+16	32
10	MDV-D280W/CSN1	10	16	40	MDV-D1130W/CSN1	10+14+16	40
12	MDV-D335W/CSN1	12	16	42	MDV-D1180W/CSN1	10+16×2	40
14	MDV-D400W/CSN1	14	16	44	MDV-D1235W/CSN1	12+16×2	40
16	MDV-D450W/CSN1	16	20	46	MDV-D1300W/CSN1	14+16×2	40
18	MDV-D532W/CSN1	8 +10	20	48	MDV-D1350W/CSN1	16×3	40
20	MDV-D560W/CSN1	10+10	20	50	MDV-D1405W/CSN1	12×3+14	50
22	MDV-D615W/CSN1	10+12	20	52	MDV-D1455 W/CSN1	12×3+16	50
24	MDV-D680W/CSN1	10+14	20	54	MDV-D1520W/CSN1	12×2+14+16	50
26	MDV-D730W/CSN1	10+16	20	56	MDV-D1570W/CSN1	12×2+16×2	50
28	MDV-D785W/CSN1	12+16	20	58	MDV-D1630W/CSN1	10+16×3	50
30	MDV-D850W/CSN1	14+16	32	60	MDV-D1685W/CSN1	12+16×3	64
32	MDV-D900W/CSN1	16+16	32	62	MDV-D1750W/CSN1	14+16×3	64
34	MDV-D960W/CSN1	10×2+14	32	64	MDV-D1800W/CSN1	16×4	64
36	MDV-D1010W/CSN1	10×2+16	32				

Note: In the D3 A/C system, the indoor units that are connected to the outdoor units can have the total capacity within 50 % to 130% of outdoor units' nominal capacity. But if the capacity ratio exceeds 100%, the actual capacity of each indoor unit will decrease compared with indoor unit's nominal capacity when all the units operated simultaneously.

4. Nomenclature

MDV-D280W/C SN1



5. Features

5.1 Variable-capacity compressor

The world's first PWM (Pulse Width Modulation) compressor controls the cooling and heating capacity automatically according to the load.

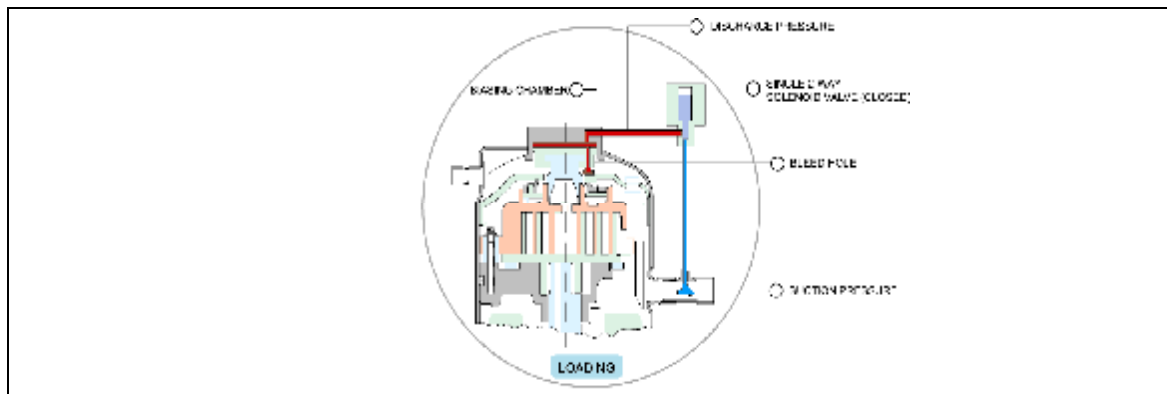
5.2 Principle of the digital scroll compressor:

5.1.1 Composition

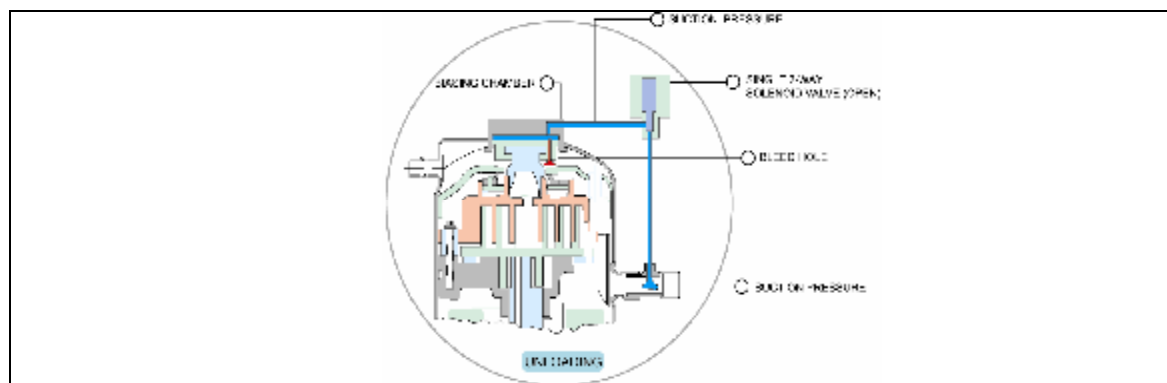
The solenoid valve is installed for the compressor's loading/ unloading between the upper part of the fixed scroll and the suction pipe.

5.1.2 Mechanism

a. When the solenoid valve is turned off, the fixed scroll is close to the orbiting (Loading).

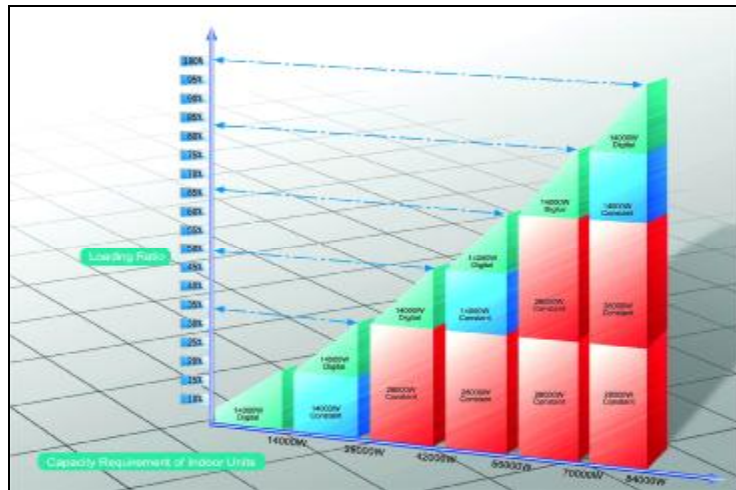


b. When the solenoid valve is turned on, the fixed scroll is separated from the orbiting scroll. (Unloading).



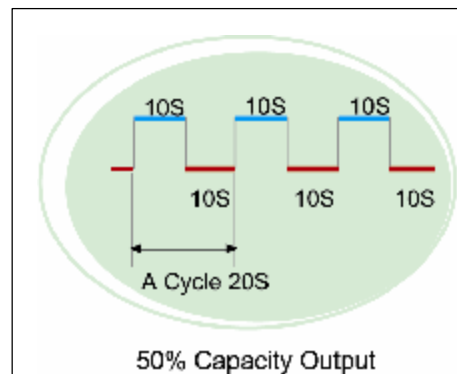
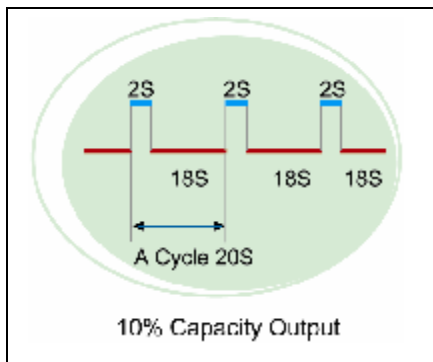
c. This process controls the On / Off time of the valve and the rotating refrigerants in the circle thus adjusting the capacity.

d. The cooling capacity of the outdoor units is adjusted automatically, according to the number of operating indoor unit(s).



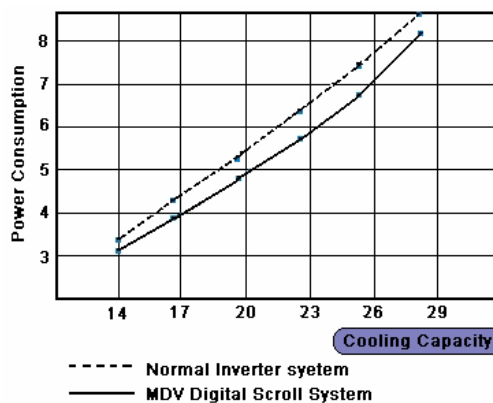
5.1.3 PWM (Pulse Width Modulation) Valve

PWM valve is the valve to take away the fixed scroll by lifting up through the difference of pressure after the digital scroll compressor being connected to the outlet and inlet of suction. Therefore, the capacity of compressor is controlled automatically according to the operation status such as loading when the valve is closed or unloading when the valve is opened. PWM means the ON/OFF signal to the valve for loading /unloading.



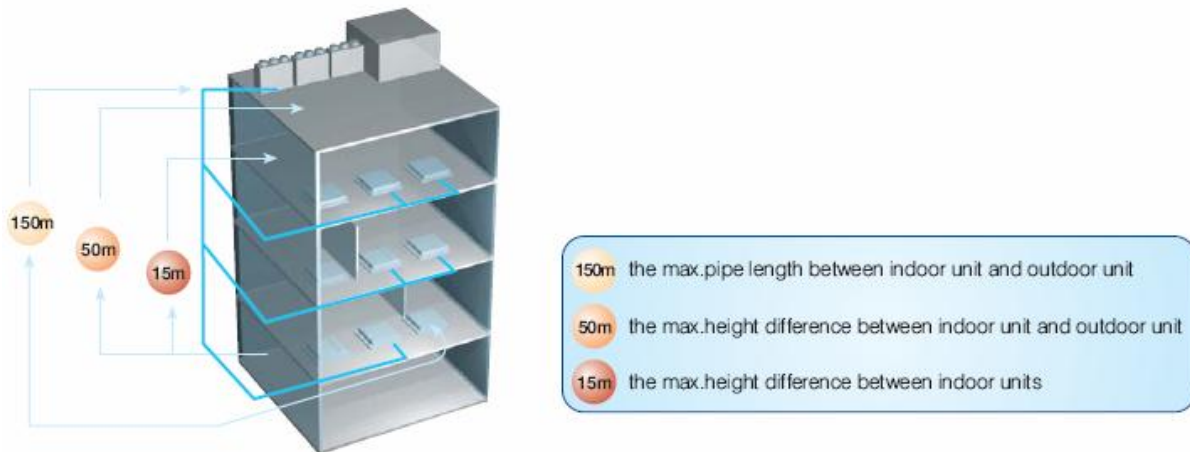
5.3 High efficiency

EER is up to 3.5



5.4 Long & single piping system

Digital scroll system is the only system that is free of oil separator and oil recycling equipment. In the loading state, the speed of the refrigerant is enough to move oil back to the compressor.



5.5 Free combination, wide capacity range

- I 5 basic modules, which can be freely assembled.
- I 2HP increments of capacity range, which meets customer's needs accurately.
Maximum capacity is 64HP, the maximum capacity in air-conditioner refrigeration industry.



5.6 Patented design, running reliable

I Gas balance

MDV-DIII adopts unique gas balance device among compressors, which balancing the gas suction volume among different compressors.

5.7 High air volume & low noise

New designed inner hidden duct circle improve outlet air field, decrease fan noise and boost fan efficiency. The grille of fan air inlet and fan air outlet has airflow direction adjusting function, which leads to lower pressure. Adopt dual turbofan which makes bigger airflow volume with lower noise.



5.8 High efficient heat-exchanger & precisely refrigerant control

Adopt 3-row inner-screw copper heat-exchanger, which creates higher heat exchange efficiency and powerful heating capacity especially in low ambient temperature. Outdoor heat-exchange area can be adjusted by running load. MDV-DIII adopts dual EXV ,which achieves up to 960 steps refrigerant adjusting precision to insure precise control of refrigerant and raise system circulation efficiency.



5.9 Patented double four way valve design.

The combination of one main and one auxiliary four way valve can control the outdoor heat exchanger and outdoor air flow independently. And according to the load adjust the heat exchange volume of outdoor unit accurately and prevent wasting the capacity in part load time.

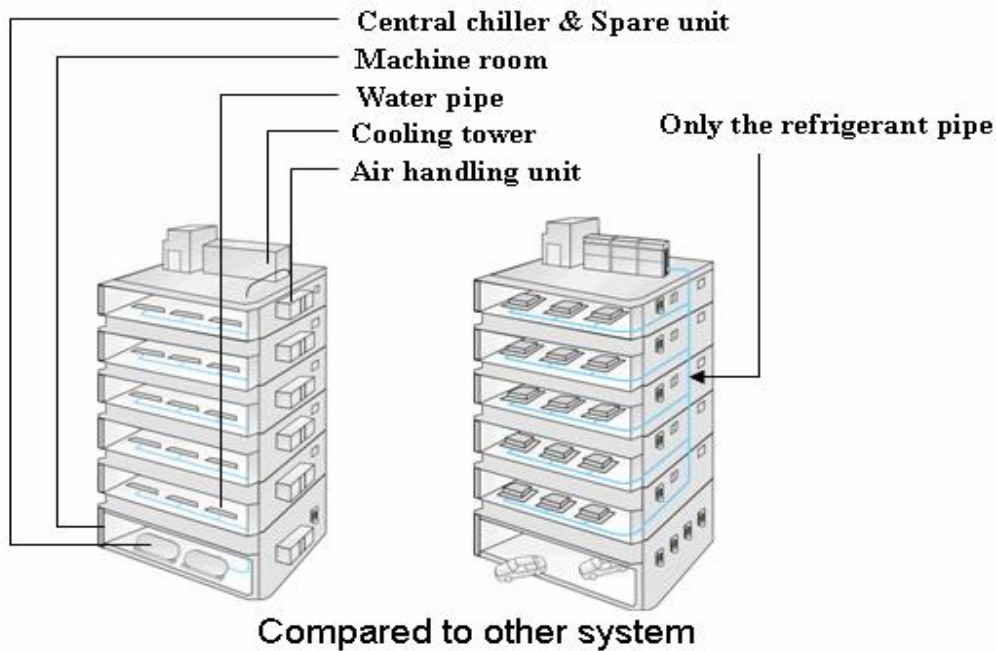
Main Four Way Valve



Auxiliary Four Way Valve



5.10 Space saving



5.11 Simple installation and easy maintenance

5.11.1 Easy installation

- I The structure of the MDV-D system and the piping work are simple, thus the installation is easy.
- I Indoor units installation: each series of indoor units have the same pipe dimension, and all the pipes are connected by flare nut, so it is easy to connect and decrease your installation cost up to 30%.

5.11.2 Independent system

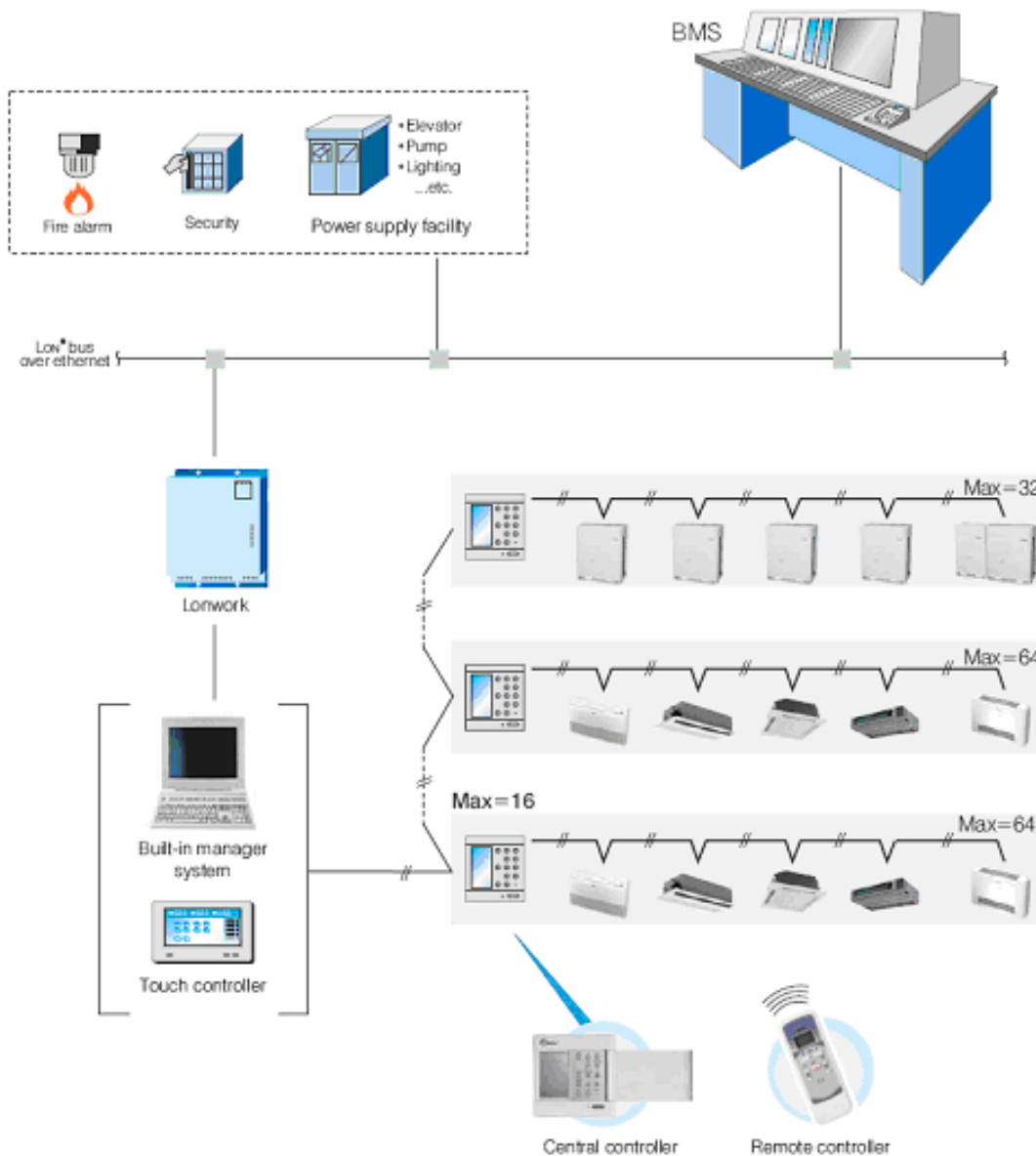
- The MDV-D system can be installed by stages and the owners can install their system at their convenient time. Thus the system has less installation time limit.
- I Installation by stages can avoid the noninstallment for the new project
- I Convenient installation is realized for the rebuilt project.

5.11.3 No need special maintenance work

- Simple refrigerant piping system without any complicated maintenance work
- Compared with the water-cooled system:
 - Without water-cooled system, there is no need to clean the water pipe
 - No full-time person is needed to do the maintenance work
 - Module construction enables the system to be free from large-scale repair regularly

5.12 Flexible control system

- Individual control, group control, network control are all available.
- The Midea 3rd generation network control system can realize intelligent management to the A/C system, it adopts Lonworks protocol and can be connected to the BMS:
 - 1 computer can monitor max 16 indoor CCM and 16 outdoor CCM;
 - 1 indoor CCM can max control 64 indoor units;
 - 1 outdoor CCM can max monitor 32 outdoor units;
 - So 1 Computer can monitor max 1024 indoor units and 512 outdoor units.



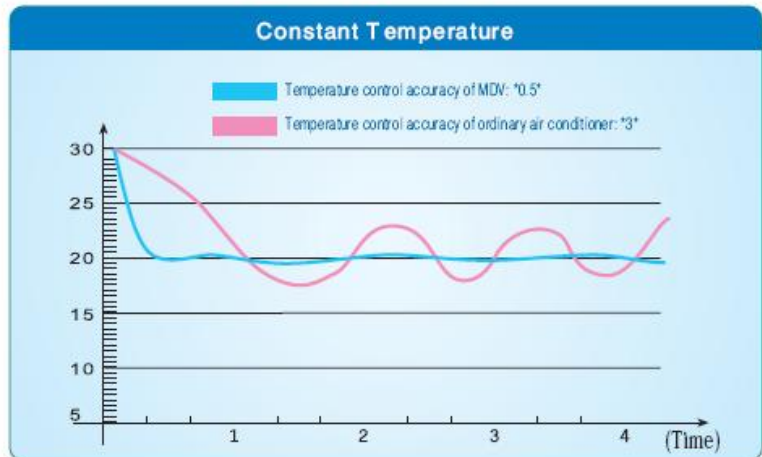
5.13 Healthy and more comfortable

5.13.1 Accurate temperature control

Adopting high speed DSP processing chip and stepless control to insure small temperature fluctuate. Temperature fluctuate is as small as $\pm 0.5^{\circ}\text{C}$.

Accurate Temperature Control

- Compared with the traditional central air conditioning system, MDV System can reach a 0.5 Degree Centigrade accuracy.



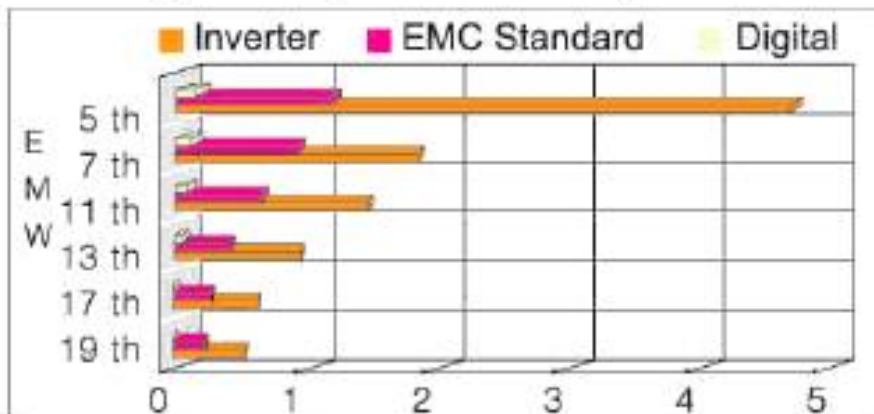
5.13.2 Wide operating range

MDV-DIII is cooling and heating type, system operating range is broaden by use of digital technology. The lowest heating temperature can reach -20 °C. The highest cooling temperature can reach +50 °C.

5.13.3 No electromagnetic disturbance

MDV Digital Scroll System causes no electromagnetic disturbance, since the loading and unloading of compressor are merely mechanical movement.

Electromagnetic Comparison Between Digital And Inverter



This special feature makes the Digital Scroll System applicable to telecommunication companies, power stations, and all kinds of precise science labs.



Precise Science Lab



Communication Computer Lab



TV & Radio Receiver Station