MSZ–L SERIES

MSZ-LN25/35/50/60VGR

R32

GOOD DESIGN AWARD 2016
BEST 100

Developed to complement modern interior room décor, the LN Series is available in four colours specially chosen to blend in naturally wherever installed. Not only the sophisticated design, but also the optimum energy efficiency and operational comfort add even more value to this series.

Luminous and Luxurious Design

Natural White, Pearl White, Ruby Red, and Onyx Black. LN Series indoor units are available in four colours to match various lifestyles. The appearance of the indoor unit differs depending on the lighting in the room, attracting the attention of everyone that enters the room.
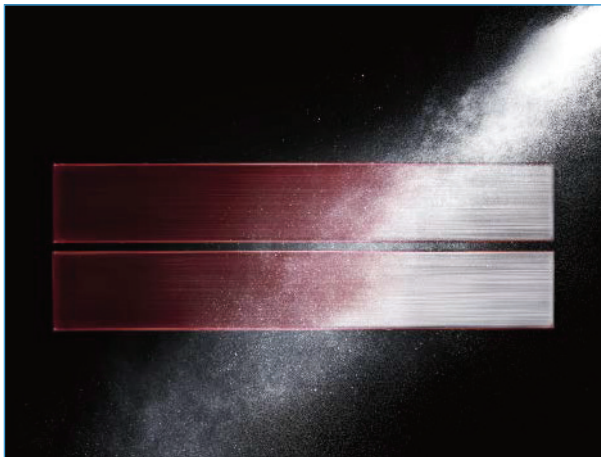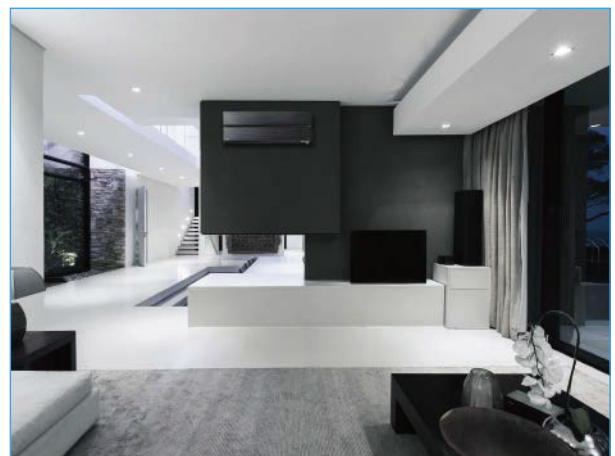
Master craftsmanship painting technology has resulted in a refined design, giving the finish deep colour and a premium quality feel.

Pearl White blends in with any interior.
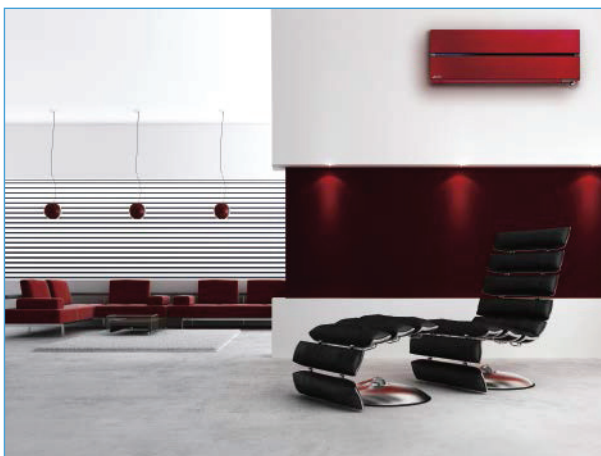
Ruby Red gives an accent to the room, affording timeless elegance to sophisticated interiors.

Onyx Black matches darker interiors, creating a comfortable environment.

Not only the indoor units, but the wireless remote controllers come in four colours as well. Each remote controller matches the indoor unit. Even the textures are the same.
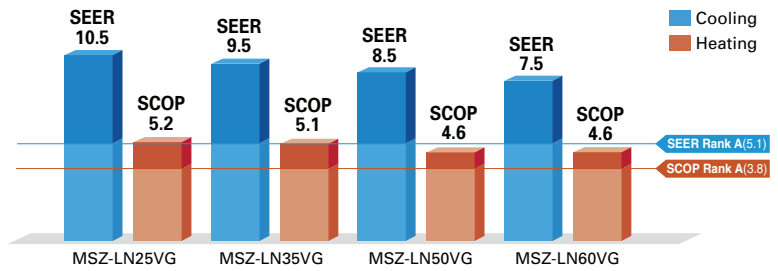
| Pearl White | Ruby Red | Onyx Black | Natural White |

High Energy Efficiency

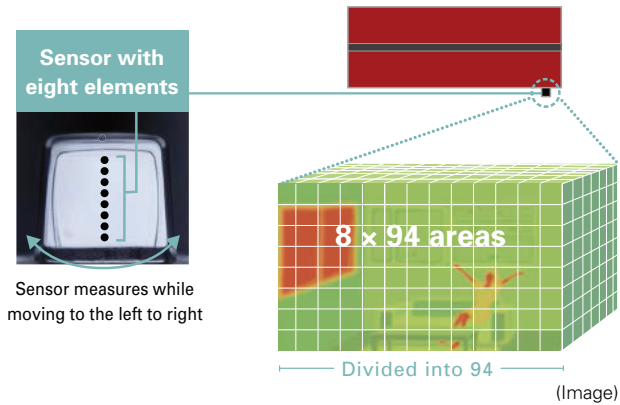**DC Inverter** **SEER A+++** 25/35/50 **SCOP A+++** 25/35

Optimum cooling/heating performance is another feature for the LN series. Models from capacities 25 to 50 have achieved the "Rank A+++" for SEER, and models for capacities 25 and 35 have achieved the "Rank A+++" for SCOP as well.

■ Cooling
■ Heating

|	MSZ-LN25VG	MSZ-LN35VG	MSZ-LN50VG	MSZ-LN60VG
SEER	10.5	9.5	8.5	7.5
SCOP	5.2	5.1	4.6	4.6

SEER Rank A(5.1)
SCOP Rank A(3.8)

3D i-see Sensor

The LN Series is equipped with 3D i-see Sensor, an infrared-ray sensor that measures the temperature at distant positions. While moving to the left and right, eight vertically arranged sensor elements analyze the room temperature in three dimensions. This detailed analysis makes it possible to judge where people are in the room, thus allowing creation of features such as "Indirect airflow," to avoid airflow hitting people directly, and "direct airflow" to deliver airflow to where people are.

Sensor with eight elements

Sensor measures while moving to the left to right

8 × 94 areas

─ Divided into 94 ─

(Image)

No occupancy energy-saving mode
The sensors detect whether there are people in the room. When no-one is in the room, the unit automatically switches to energy-saving mode.
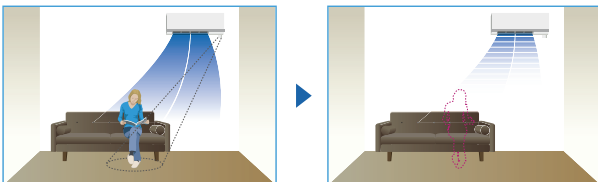
The "3D i-see Sensor" detects people's absence and the power consumption is automatically reduced approximately 10% after 10 minutes and 20% after 60 minutes.

Indirect Airflow
The indirect airflow setting can be used when the flow of air feels too strong or direct. For example, it can be used during cooling to avert airflow and prevent body temperature from becoming excessively cooled.
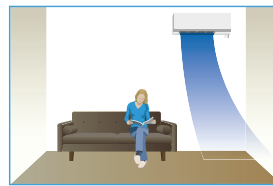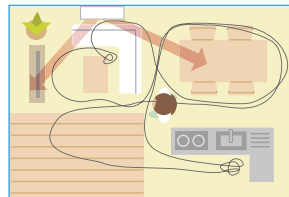
Direct Airflow
This setting can be used to directly target airflow at people such as for immediate comfort when coming indoors on a hot (cold) day.
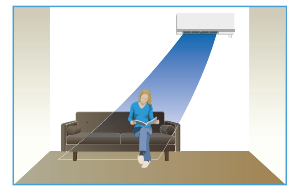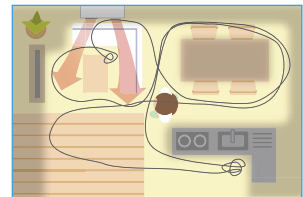
### Even Airflow *LN Series only
Normal swing mode

Even airflow mode

The airflow is distributed equally throughout the room, even to spaces where there is no human movement.

The 3D i-see sensor memorizes human movement and furniture positions, and efficiently distributes airflow.

No occupany Auto-OFF mode *LN Series only
The sensors detect whether or not there are people in the room. When there is no one in the room, the unit turns off automatically.

AUTO OFF
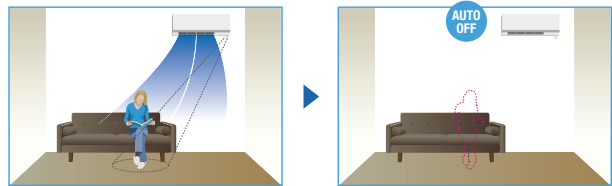
R32 Refrigerant

The new R32 refrigerant has a global warming potential approximately 1/3*1 that of our current refrigerant, R410A; thereby dramatically reducing the negative impact more than ever. Actively introducing the new R32 refrigerant to suppress global warming, Mitsubishi Electric continues to promote manufacturing while considering the environment.

Comparison of Global Warming Potential

Global warming potential approx. 1/3 *1

R410A	R32
2088	675
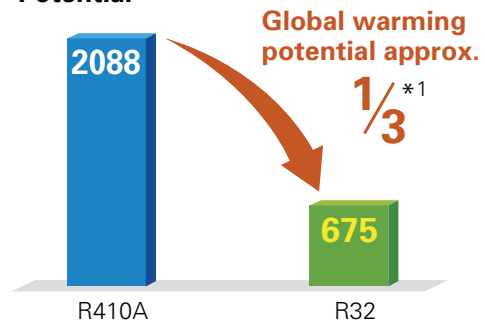
*1 : Source: IPCC 4th Assessment Report, global warming potential (GWP) 100-year value. Comparison of 2088 (R410A) and 675 (R32).

Plasma Quad Plus

Plasma Quad Plus is a plasma-based filter system that effectively removes six kinds of air pollutants. Plasma Quad Plus captures mold and allergens more effectively than Plasma Quad. It can also capture PM2.5 and particles smaller than 2.5μm, creating healthy living spaces for all.
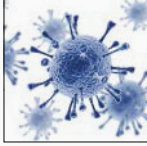
Bacteria

Test results have confirmed that Plasma Quad Plus neutralizes 99% of bacteria in 162 minutes in a 25m^3 test space.

<Test No.> KRCES-Bio. Test Report
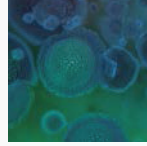No. 2016-0118

Viruses

Test results have confirmed that Plasma Quad Plus neutralizes 99% of virus particles in 72 minutes in a 25m^3 test space.

<Test No.> vrc.center, SMC
No. 28-002

Molds

Test results have confirmed that Plasma Quad Plus neutralizes 99% of mold in 135 minutes in a 25m^3 test space.

<Test No.> Japan Food Research Laboratories
Test Report No. 16069353001-0201
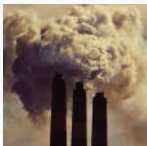
Allergens

In a test, air containing cat fur and pollen was passed through the air cleaning device at the low airflow setting. Before and after measurements confirm that Plasma Quad Plus neutralizes 98% of cat fur and pollen.

<Test No.> ITEA Report No. T1606028

PM2.5

Test results have confirmed that Plasma Quad Plus removes 99% of PM2.5 in 145 minutes in a 28m^3 test space.

<In-company investigation>

Dust

Test results have confirmed that Plasma Quad Plus removes 99.7% of dust and mites.

<Test No.> ITEA Report No. T1606028

Model	Name	Method	Bacteria	Viruses	Molds	Allergens	Dust	PM2.5*
FH Series	Plasma Quad	One-Stage Plasma	A	A	B	B	C	
LN Series	Plasma Quad Plus	Two-Stage Plasma	A	A	A	A	A	A

A: Highly effective
B: Effective
C: Partially effective

*PM2.5:
Particles smaller than 2.5μm

Image of Plasma Quad Plus

Bacteria Viruses Allergens
Dust Molds Microparticle (PM2.5)

Principle of Plasma Quad Plus

Dirty Air

Wire Wire

Clear air

Dust, PM2.5
Viruses Bacteria
Mold Allergens

1st stage
• Make plasma.
• Break mold and allergens. Inhibit viruses.
• Dust and PM2.5 given an electrical charge (+).

2nd stage
• Make a strong electrical field.
• The charged dust and PM2.5 (+) are absorbed in the strong electrical field (−).

Dual Barrier Coating

A two-barrier coating prevents dust and greasy dirt from getting into the air conditioner.
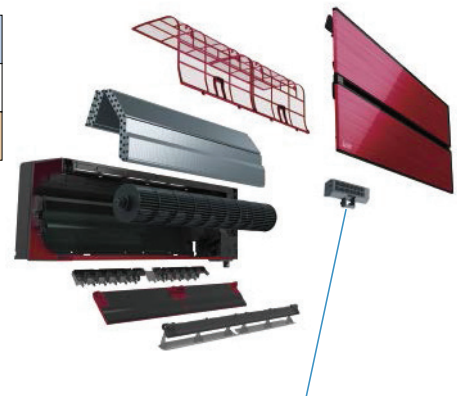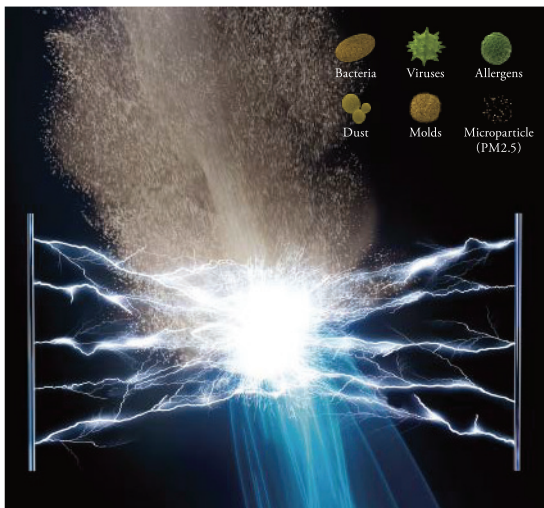

Dual Barrier Coating is used for
- **Heat exchanger**
- **Fan**
- **Air duct**
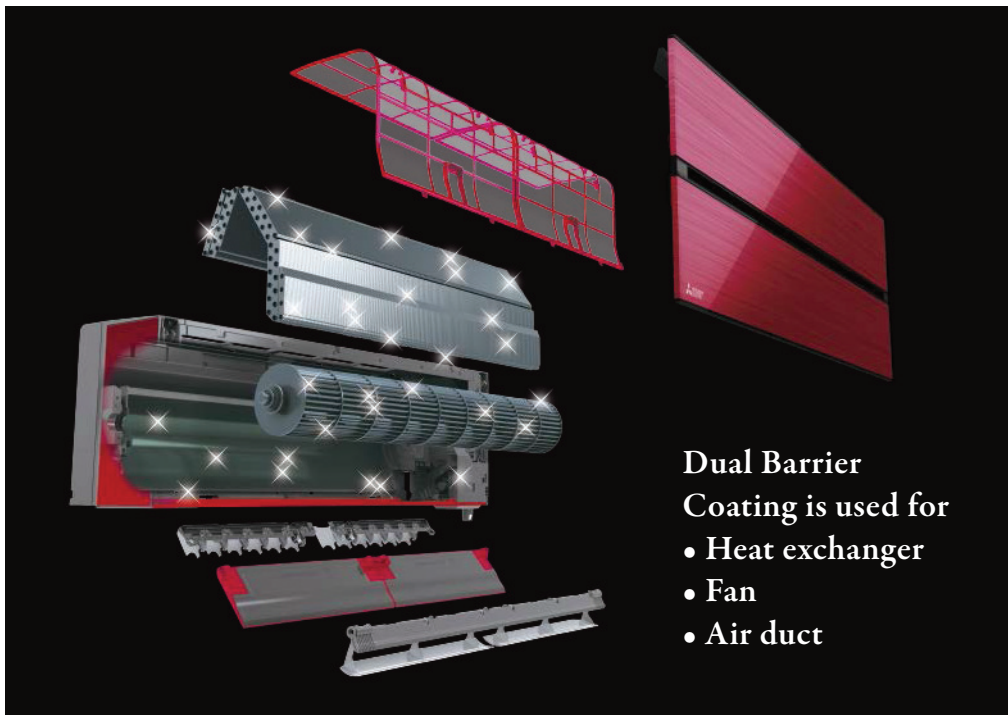
State-of-the-art coating technology

Dirt is generally classified into two groups: hydrophilic dirt such as fiber dust and sand dust, and hydrophobic dirt such as oil and cigarette smoke. Mitsubishi Electric's dual barrier coating works as a two-barrier coating with blended "fluorine particles" that prevent hydrophilic dirt penetration and "hydrophilic particles" that prevent hydrophobic dirt from getting into the air conditioner. This dual coating on the inner surface keeps the air conditioner clean year-round.

Hydrophobic dirt
- Grease mist
- Cigarette smoke

Hydrophilic dirt
- Dust
- Dirt

image
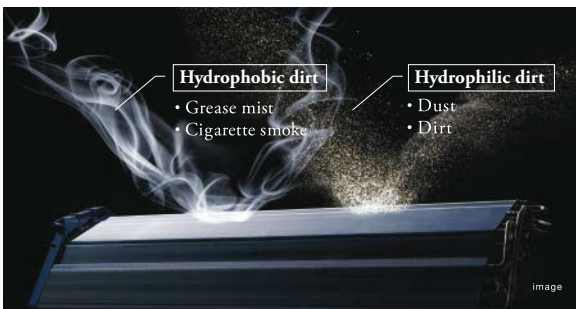
Comparison of dirt on heat exchanger, fan and air duct (in-house comparison)

Heat exchanger

Fan

Air duct

No dual barrier coating (image after 10 years)   Dual barrier coating used

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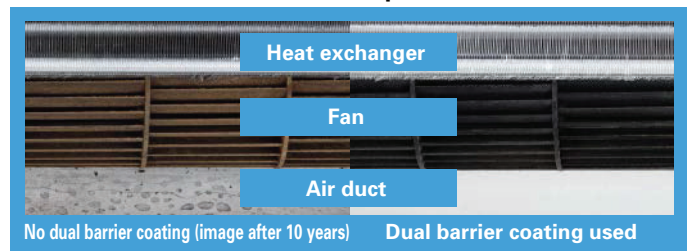
The inside of the indoor unit gets dirty after many years of usage.

Heat exchanger		Fan	
New	10 years later (image)	New	10 years later (image)
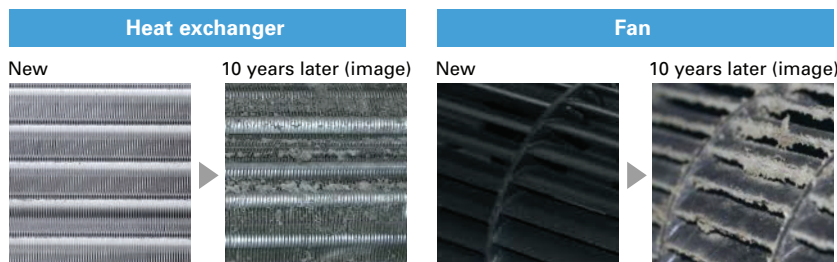
Consequences when the inside of the indoor unit is left dirty.

- Deterioration in energy efficiency.
- Musty smell from the unit.

Double Flap

The vanes create various airflows to make each person in the room comfortable. Not only the horizontal vanes, but also the vertical vanes move independently, eliminating hot spots or cold spots throughout the room.

Night Mode

When Night Mode is activated using the wireless remote controller, air conditioner operation will switch to the following settings.
- The brightness of the operation indicator lamp will become dimmer.
- The beeping sound will be disabled.
- The outdoor operating noise will drop to 3dB lower than the rated operating noise specification.

*The cooling/heating capacity may drop.

No beeping sound

Lamp dims

–3dB
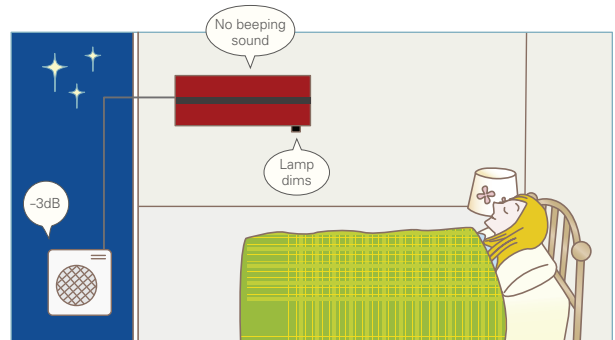
10°C Heating

During heating operation, the temperature can be set in 1°C increments down to 10°C.
This function can also be used with the Weekly Timer setting.

▶ 15°C ▶ 14°C ▶ 13°C ▶ 12°C ▶ 11°C ▶
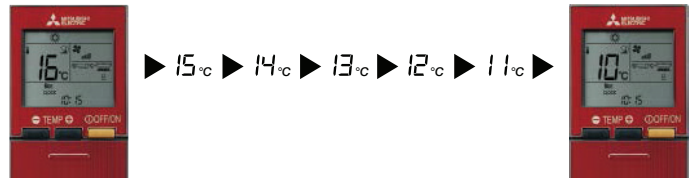
Quiet Operation

The indoor unit noise level is as low as 19dB for LN25/35 models, offering a peaceful inside environment.

● Noise Level

Subway car interior	Quiet passenger car interior (40km/h)	Library interior	Sound of rustling leaves	Human hearing limits (Extremely quiet)

80dB   60dB   40dB   10dB

Only **19dB** (for LN25/35 models)

In-house investigation
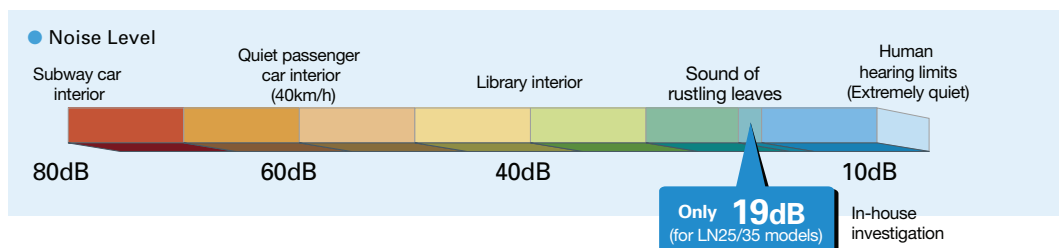
Built-in Wi-Fi Interface

The indoor unit is equipped with a Wi-Fi Interface inside an exclusive pocket in the unit.
This eliminates the need to install a Wi-Fi interface, and also contributes to the beautiful appearance since the interface is hidden.

MSZ-L SERIES

EUROVENT CERTIFIED PERFORMANCE

R32 | DC Inverter | Joint Lap | DC Fan Motor | PAM | Grooved Piping | SEER A+++ 25/35/50 | SCOP A+++ 25/35
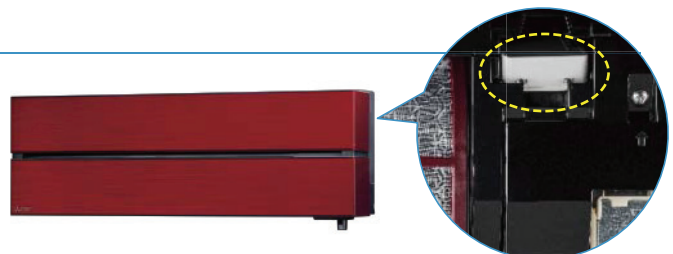
Indoor Unit / Remote Controller

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<Pearl White>

MSZ-LN25/35/50/60VGV

<Ruby Red>

MSZ-LN25/35/50/60VGR

<Natural White>

MSZ-LN25/35/50/60VGW

<Onyx Black>

MSZ-LN25/35/50/60VGB

Outdoor Unit

MUZ-LN25/35VG

MUZ-LN50VG

MUZ-LN60VG

Feature icons: 3D i-see Sensor | AREA | HUMAN | Econo Cool | AUTO VANE | Plasma Quad Plus | Dual Barrier Coating | Double Vane | SWING | SWING | AUTO | Weekly Timer | i save | ACO | Auto Restart

Low Temp Cooling | Optional | Group Control (Optional) | M-NET connection (Optional) | Wi-Fi Interface | MXZ connection 25/35 | 10°C | Indoor | Night | Cleaning-free pipe reuse | Flare connection | Self Diagnosis | Failure Recall

Type			Inverter Heat Pump			
Indoor Unit			MSZ-LN25VG (W) (V) (R) (B)	MSZ-LN35VG (W) (V) (R) (B)	MSZ-LN50VG (W) (V) (R) (B)	MSZ-LN60VG (W) (V) (R) (B)
Outdoor Unit			MUZ-LN25VG	MUZ-LN35VG	MUZ-LN50VG	MUZ-LN60VG
Refrigerant			R32[*1]			
Power Supply	Source		Outdoor Power Supply			
	Outdoor (V / Phase / Hz)		230 / Single / 50			
Cooling	Design load	kW	2.5	3.5	5.0	6.1
	Annual electricity consumption [*2]	kWh/a	83	128	205	285
	SEER [*4]		10.5	9.5	8.5	7.5
	Energy efficiency class		A+++	A+++	A+++	A++
	Capacity	Rated	kW	2.5	3.5	5.0	6.1
		Min-Max	kW	1.0 - 3.5	0.8 - 4.0	1.0 - 6.0	1.4 - 6.9
	Total Input	Rated	kW	0.485	0.820	1.380	1.790
Heating (Average Season)[*5]	Design load	kW	3.0(-10°C)	3.6(-10°C)	4.5(-10°C)	6.0(-10°C)
	Declared Capacity	at reference design temperature	kW	3.0(-10°C)	3.6(-10°C)	4.5(-10°C)	6.0(-10°C)
		at bivalent temperature	kW	3.0(-10°C)	3.6(-10°C)	4.5(-10°C)	6.0(-10°C)
		at operation limit temperature	kW	2.5(-15°C)	3.2(-15°C)	4.2(-15°C)	6.0(-15°C)
	Back up heating capacity	kW	0.0(-10°C)	0.0(-10°C)	0.0(-10°C)	0.0(-10°C)
	Annual electricity consumption [*2]	kWh/a	794	974	1369	1826
	SCOP [*4]		5.2	5.1	4.6	4.6
	Energy efficiency class		A+++	A+++	A++	A++
	Capacity	Rated	kW	3.2	4.0	6.0	6.8
		Min-Max	kW	0.8 - 5.4	1.0 - 6.3	1.0 - 8.2	1.8 - 9.3
	Total Input	Rated	kW	0.580	0.800	1.480	1.810
Operating Current (Max)		A	7.1	9.9	13.9	15.2
Indoor Unit	Input	Rated	kW	0.029	0.029	0.034	0.040
	Operating Current(Max)	A	0.3	0.3	0.4	0.4
	Dimensions	H*W*D	mm	307-890-233	307-890-233	307-890-233	307-890-233
	Weight	kg	15.5	15.5	15.5	15.5
	Air Volume (SLo-Lo-Mid-Hi-SHi[*3](Dry/Wet))	Cooling	m³/min	4.3 - 5.8 - 7.1 - 8.8 - 11.9	4.3 - 5.8 - 7.1 - 8.8 - 12.8	5.7 - 7.6 - 8.8 - 10.6 - 13.9	7.1 - 8.8 - 10.6 - 12.7 - 15.7
		Heating	m³/min	4.0 - 5.7 - 7.1 - 8.5 - 14.4	4.3 - 5.7 - 7.1 - 8.5 - 13.7	5.4 - 6.4 - 8.5 - 10.7 - 15.7	6.6 - 9.5 - 11.5 - 13.6 - 15.7
	Sound Level (SPL) (SLo-Lo-Mid-Hi-SHi[*3])	Cooling	dB(A)	19 - 23 - 29 - 36 - 42	19 - 24 - 29 - 36 - 43	27 - 31 - 35 - 39 - 46	29 - 37 - 41 - 45 - 49
		Heating	dB(A)	19 - 24 - 29 - 36 - 45	19 - 24 - 29 - 36 - 45	25 - 29 - 34 - 39 - 47	29 - 37 - 41 - 45 - 49
	Sound Level (PWL)	Cooling	dB(A)	58	58	60	65
Outdoor Unit	Dimensions	H*W*D	mm	550-800-285	550-800-285	714-800-285	880-840-330
	Weight	kg	35	35	40	55
	Air Volume	Cooling	m³/min	31.4	31.4	40.0	50.1
		Heating	m³/min	26.6	29.8	40.5	51.3
	Sound Level (SPL)	Cooling	dB(A)	46	49	51	55
		Heating	dB(A)	49	50	54	55
	Sound Level (PWL)	Cooling	dB(A)	60	61	64	65
	Operating Current (Max)	A	6.8	9.6	13.5	14.8
	Breaker Size	A	10	10	16	16
Ext. Piping	Diameter	Liquid/Gas	mm	6.35/9.52	6.35/9.52	6.35/9.52	6.35/12.7
	Max.Length	Out-In	m	20	20	20	30
	Max.Height	Out-In	m	12	12	12	15
Guaranteed Operating Range (Outdoor)	Cooling	°C	-10 ~ +46	-10 ~ +46	-10 ~ +46	-10 ~ +46
	Heating	°C	-15 ~ +24	-15 ~ +24	-15 ~ +24	-15 ~ +24

(*1) Refrigerant leakage contributes to climate change. Refrigerant with lower global warming potential (GWP) would contribute less to global warming than a refrigerant with higher GWP, if leaked to the atmosphere. This appliance contains a refrigerant fluid with a GWP equal to 550. This means that if 1 kg of this refrigerant fluid would be leaked to the atmosphere, the impact on global warming would be 550 times higher than 1 kg of CO_2, over a period of 100 years. Never try to interfere with the refrigerant circuit yourself or disassemble the product yourself and always ask a professional.
The GWP of R32 is 675 in the IPCC 4th Assessment Report.
(*2) Energy consumption based on standard test results. Actual energy consumption will depend on how the appliance is used and where it is located.
(*3) SHi: Super High
(*4) SEER, SCOP and other related description are based on COMMISSION DELEGATED REGULATION (EU) No.626/2011. The temperature conditions for calculating SCOP are based on "Average Season".
(*5) Please see page 63 for heating (warmer season) specifications.

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