Ahead of the Expected

Description		IDU (Hydro Unit)	ODU
1Ø	12 kW	HN1616HC NK0	HM121HF UB60
	14 kW		HM141HF UB60
	16 kW		HM161HF UB60
3Ø	9 kW	HN1639HC NK0	HM093HFX UB60
	12 kW		HM123HF UB60
	14 kW		HM143HF UB60
	16 kW		HM163HF UB60

* Natural refrigerant with GWP 3

THERMA V™ R290* Monobloc

Comparison with Competitors

<Disclaimer>

1. This document is valid for a year from the updated date, and the content of the document after the expired date may differ from the actual specifications(performance, functions, etc.) of products.
2. Due to our policy of innovation some specifications may be changed without notification.
3. Data in the PDB takes precedence, if some data in this material is different from the PDB.
4. The contents of this material were based on each company's catalogue, and it may be different according to the release of each company's products after date of each company's catalogue published

Prepared in Feb. 2024

Heating Overseas Sales Team

1st ver. : Prepared in Feb. 2024

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Comparison with Viessmann Vitocal 150-A & 151-A

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- LG Therma V R290 Monobloc has a **Higher SCOP** compared to Vitocal 150-A & 151-A
- LG Therma V R290 Monobloc has **Wider operation range** in terms of water outlet and ambient temperature compared to Vitocal 150-A & 151-A
- LG Therma V R290 Monobloc has a **Lower Noise Level** compared to Vitocal 150-A & 151-A
- LG Therma V R290 Monobloc uses **Less refrigerant** compared to Vitocal 150-A & 151-A

Company		LG				Viessmann					
Model name		Therma V R290 Monobloc				Vitocal 150-A & 151-A					
Model		9 kW	12 kW	14 kW	16 kW	A04	A06	A08	A10	A13	A16
Appearance											
Capacity (kW)	Heating - Rated (A7/W35)	9	12	14	16	4.0	4.8	5.6	7.3	8.1	9.1
	Heating - Max. (A7/W35)	9	12	14	16	4.0	6.0	8.0	12	13.4	14.9
Refrigerant	Type	R290 (3)				R290 (3)			R290 (3)		
	Amount (kg)	1.2				1.2			2		
	t-CO2 eq.	0.0036				0.0036			0.006		
Efficiency	SCOP (AVG, 35℃)	5.23	5.45	5.38	5.11	4.7	4.6	4.4	4.83	4.53	4.53
	SCOP (AVG, 55℃)	3.75	3.97	3.96	3.92	3.6	3.6	3.5	3.7	3.6	3.6
	ErP energy label (35℃/55℃)	A+++ / A++	A+++ / A+++			A+++ / A++			A+++ / A++		
	COP - Rated (A7/W35)	4.90	4.70	4.50	4.30	5.0	4.9	4.7	5.0	4.9	4.9
Operation Range (Heating)	Ambient Temp. (℃)	-28 ~ 35				-20 ~ 40			-20 ~ 40		
	Max. Water Temp. (℃)	75				70			70		
Size	Dimension (HxWxD, mm)	1019 x 1560 x 520				841 x 1144 x 600			1382 x 1144 x 600		
	Foot print (m2)	0.72				0.69			0.69		
	Volume (m3)	0.73				0.58			0.95		
Weight	Unit(kg)	181				162			1Φ : 191 / 3Φ : 197		
Sound Power Level	Heating / Rated (dB(A))	49	49	51	52	51	51	51	56	56	56
Power supply	Φ / Hz / V	3~/ 50 / 380-415	1~/ 50 / 220-240 or 3~/ 50 / 380-415			1 / 50 / 230			1 / 50 / 230 & 3 / 50 / 400		
	Recommended circuit breaker for ODU (A)	1Φ : 25 / 3Φ : 16				1Φ : 16			1Φ : 25 / 3Φ : 16		1Φ : 32 / 3Φ : 16
Connectable Indoor Units	**Control Unit**	O (To be available)				X			X		
	Hydro Unit	O				O			O		
	Size (HxWxD, mm)	850 x 490 x 315				920 x 450 x 360			920 x 450 x 360		
	Weight (kg)	30 (1Φ) / 31 (3Φ)				47			47		
	Sound Power Level (dB(A))	39				40			40		
	Expansion Tank	8 L				10 L			10 L		
	Electric heater	6kW (1Φ) / 9kW (3Φ)				5kW (1Φ) / 8kW (3Φ)			5kW (1Φ) / 8kW (3Φ)		
	Combi Unit	O (To be available)				O			O		

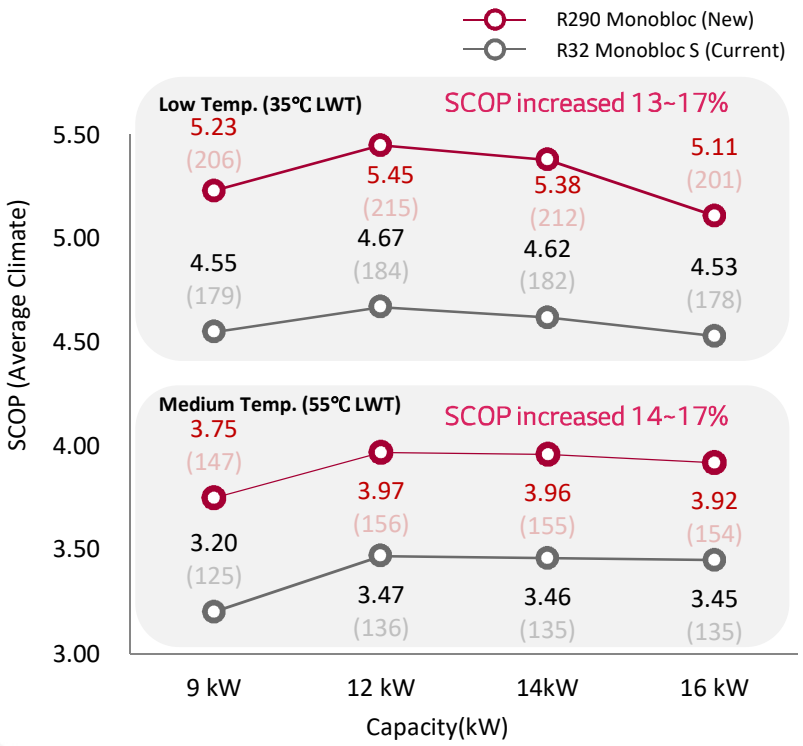
※ The contents of this page were based on each company's catalogue, and it may be different according to the release of each company's products after date of each company's catalogue published.

1 Higher SCOP

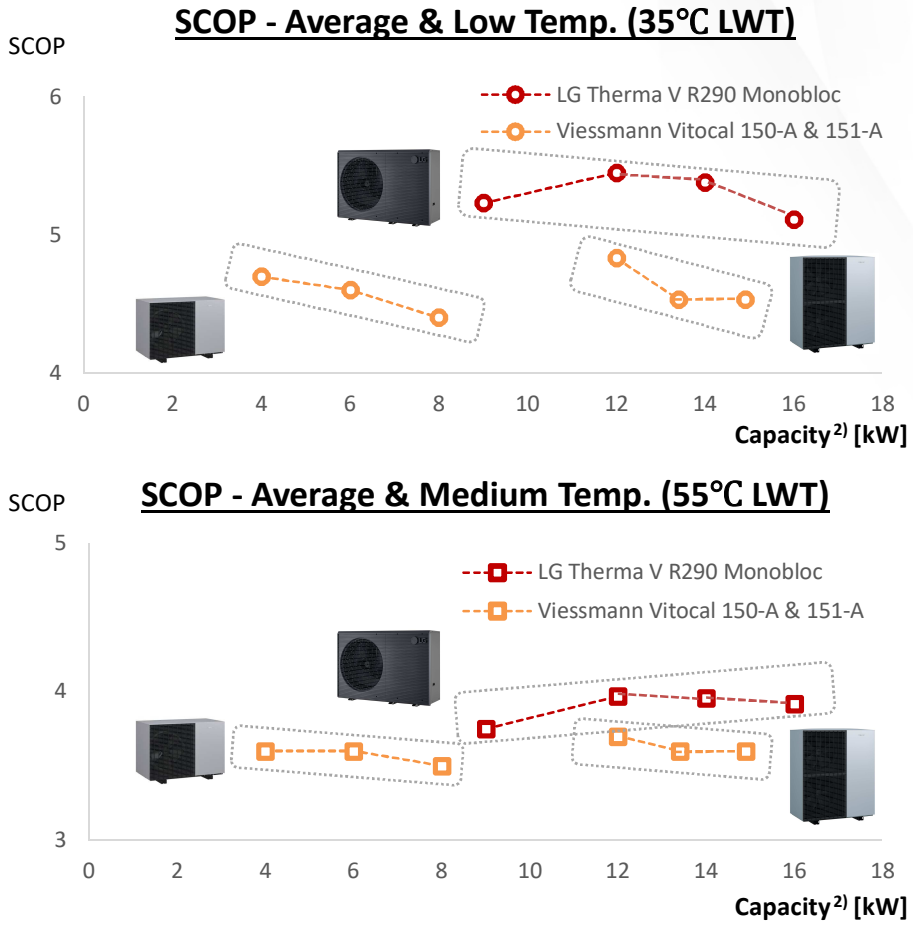
vs. Viessmann

LG Therma V R290 Monobloc has a Higher SCOP compared to **Viessmann Vitocal 150-A & 151-A**.
Furthermore, LG R290 Monobloc has achieved ErP Energy Labeling A+++ / A+++ [1] for space heating.

SCOP of LG R290 Monobloc



Comparison with V Company



1) ErP Energy labeling A+++/A+++ applies only to 12/14/16 kW models of R290 Monobloc.
2) Based on Max. Heating capacity under A7/W35 condition

※ The contents of this page were based on each company's catalogue, and it may be different according to the release of each company's products after date of each company's catalogue published.

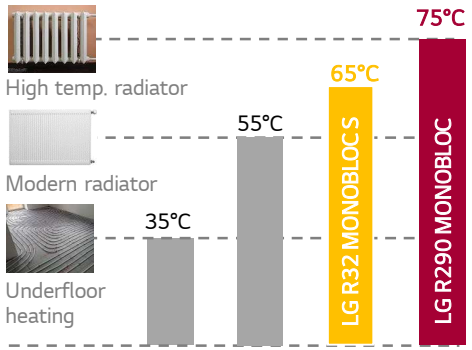
2 Wider Operation Range

vs. Viessmann

LG Therma V R290 Monobloc has a wider operation range in terms of water outlet and ambient temperature compared to **Viessmann Vitocal 150-A & 151-A**.

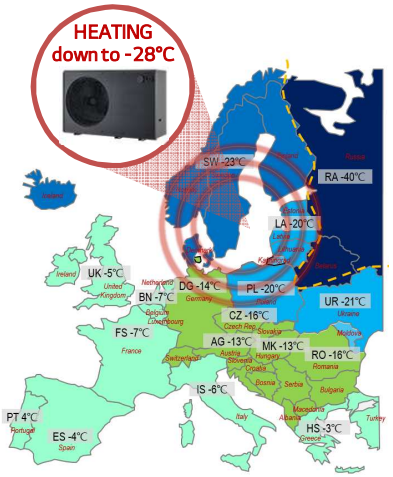
Wide operation range of LG R290 Monobloc

[Water outlet Temp.]



Ultimate solution for replacement and new build

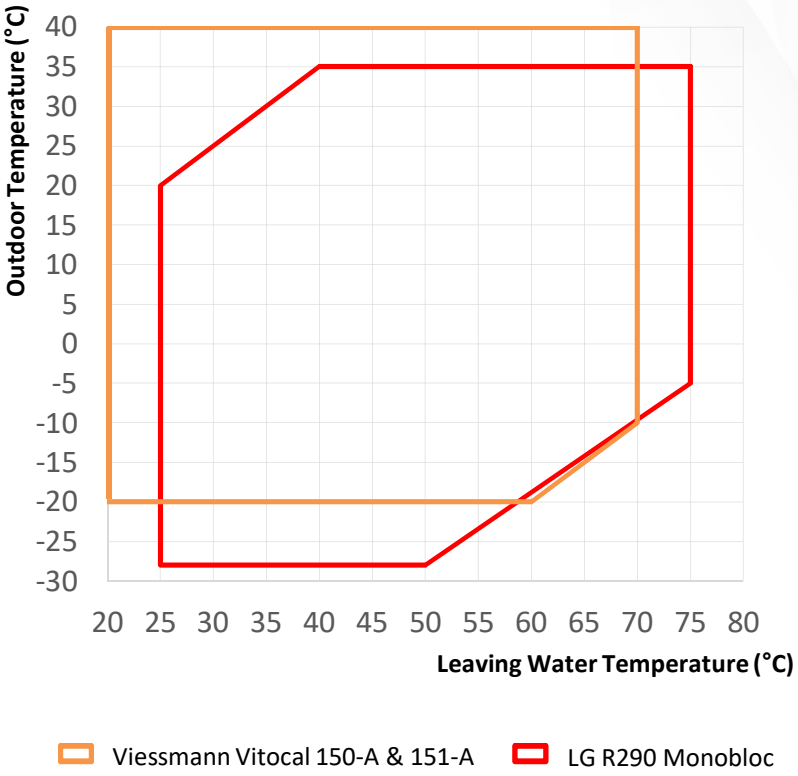
[Ambient Temp.]



Stable heating operation in All EU countries

Comparison with V Company

- Heating Continuous operation area



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3 Lower Noise Level

vs. Viessmann

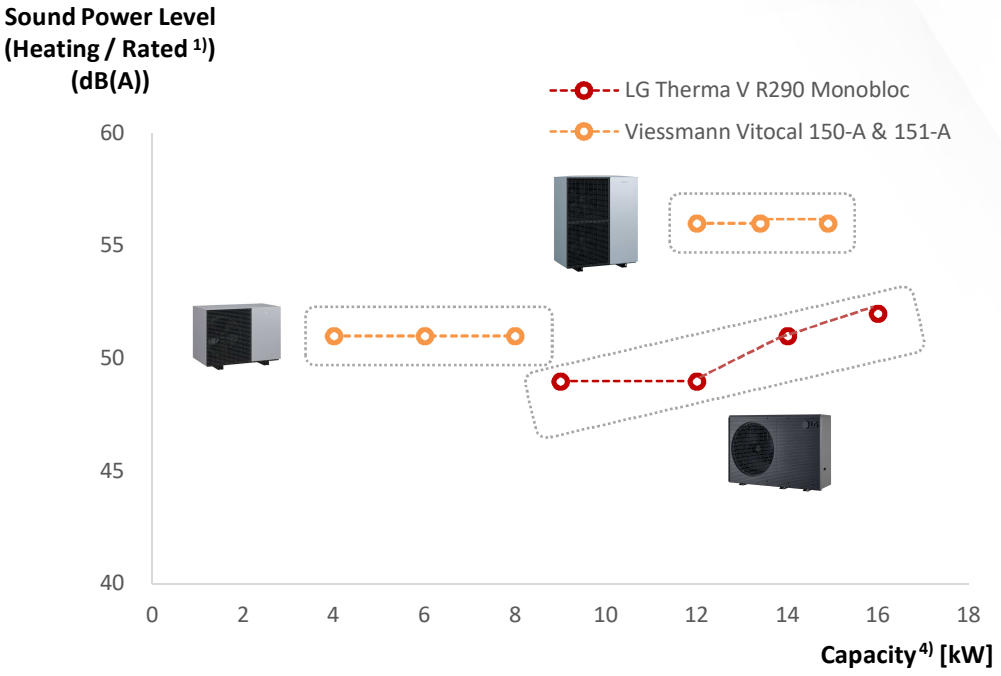
LG Therma V R290 Monobloc has a Lower Noise Level compared to **Viessmann Vitocal 150-A & 151-A**. In fact, LG Therma V R290 Monobloc is one of the super-quiet model in the market and all models have received the Quiet Mark certification.

Noise Level of LG R290 Monobloc

QUIET MARK

Sound power level	R290 Monobloc			
	9 kW	12 kW	14 kW	16 kW
Sound power level (Heating / Rated [1])	49	49	51	52
Sound power level (Heating / daytime max.[2])	59	59	60	61
Sound power level (Heating / Low noise mode [3])	48	48	50	51

Comparison with V Company



1) Rated sound power level was measured on the rated condition in accordance with EN 12102-1 and ISO 9614.
2) Daytime Max. sound power level was measured based on max. Fan RPM and max. Compressor Hz. that can be reached under OAT 2°C in accordance with EN 12102-1 and ISO 9614.
3) Low Noise Mode is a mode that lowers the noise by limiting the compressor Hz. and fan RPM, and thus the performance may be limited. Sound power level of this mode was measured in accordance with EN 12102-1 and ISO 9614.
4) Based on Max. Heating capacity under A7/W35 condition

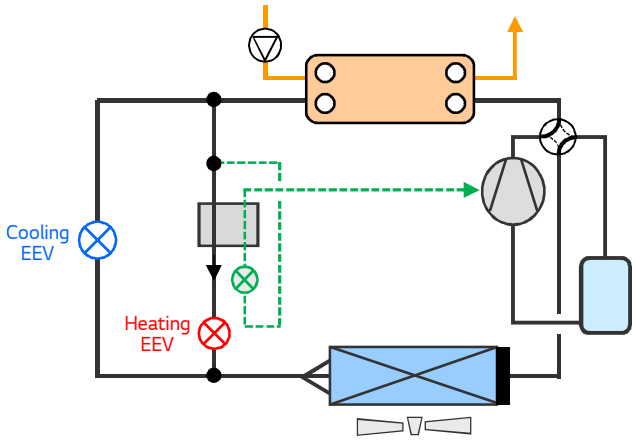
※ The contents of this page were based on each company's catalogue, and it may be different according to the release of each company's products after date of each company's catalogue published.

4 Less Refrigerant

vs. Viessmann

LG Therma V R290 Monobloc uses Less refrigerant compared to **Viessmann Vitocal 150-A & 151-A**. Considering the flammability of the R290 refrigerant, the choice to reduce the refrigerant amount enhances safety measures, creating a safer operating environment.

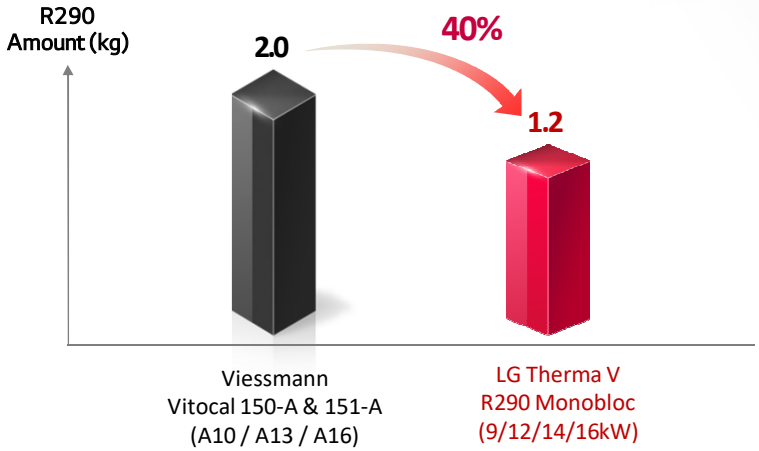
Dual EEV Control of LG R290 Monobloc



Optimal control of the two EEVs based on operating conditions minimizes the refrigerant amount from 2.0 kg to 1.2 kg.

Operation Condition	Heating	Cooling	Defrost
Heating EEV	Open	Closed	Open
Cooling EEV	Closed	Open	Open

Comparison with V Company



Considering the flammability of the R290 refrigerant, **the choice to reduce the refrigerant amount enhances safety measures, creating a safer operating environment.**

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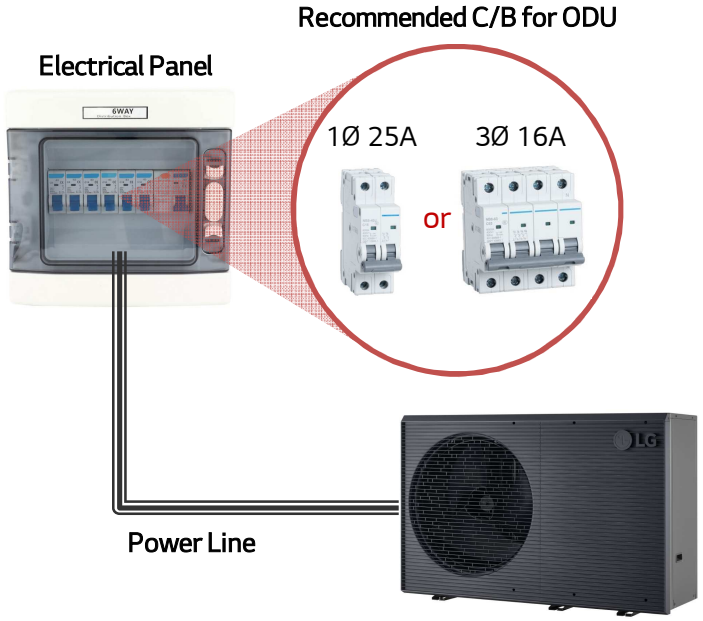
5 Optimized Circuit Breaker

vs. Viessmann

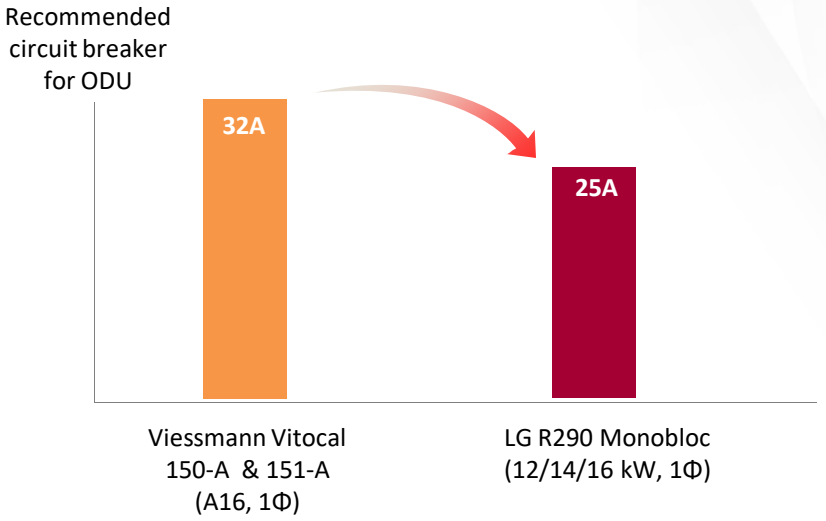
LG Therma V R290 Monobloc requires smaller circuit breakers compared to **Viessmann Vitocal 150-A & 151-A.**

Optimized Circuit Breaker of LG R290 Monobloc



Description		Recommended circuit breaker for outdoor Unit		Remark
		LG R32 Monobloc S	*LG R290 Monobloc*	
1Ø	12 kW	40 A	25 A	Optimized for filed condition
	14 kW			
	16 kW			
3Ø	9 kW	16 A	16 A	Same as R32 Monobloc S
	12 kW			
	14 kW			
	16 kW			

Comparison with V Company



By optimizing the circuit breaker specifications of LG R290 Monobloc, it helps installers reduce costs by allowing them to use low-current circuit breakers.

※ The contents of this page were based on each company's technical data book, and it may be different according to the release of each company's products after date of each company's technical data book published.

Comparison with Viessmann Vitocal 250-A & 252-A

vs. Viessmann

- LG Therma V R290 Monobloc has a **Higher SCOP** compared to Vitocal 250-A & 252-A
- LG Therma V R290 Monobloc has a **Lower Noise Level** compared to Vitocal 250-A & 252-A
- LG Therma V R290 Monobloc uses **Less refrigerant** compared to Vitocal 250-A & 252-A
- LG Therma V R290 Monobloc has a **Less Weight** compared to Vitocal 250-A & 252-A

※ The contents of this page were based on each company's catalogue, and it may be different according to the release of each company's products after date of each company's catalogue published.

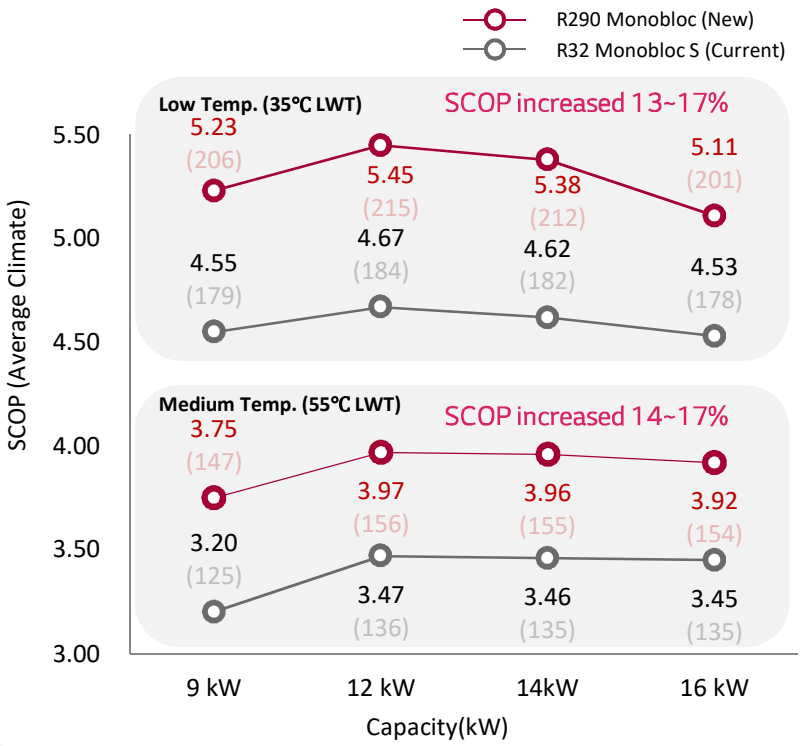
Company		LG				Viessmann				
Model name		Therma V R290 Monobloc				Vitocal 250-A & 252-A				
Model		9 kW	12 kW	14 kW	16 kW	A04	A06	A08	A10	A13
Appearance										
Capacity (kW)	Heating - Rated (A7/W35)	9	12	14	16	4.0	4.8	5.6	7.3	8.1
	Heating - Max. (A7/W35)	9	12	14	16	4.0	6.0	8.0	12	13.4
Refrigerant	Type	R290 (3)				R290 (3)			R290 (3)	
	Amount (kg)	1.2				1.2			2	
	t-CO2 eq.	0.0036				0.0036			0.006	
Efficiency	SCOP (AVG, 35℃)	5.23	5.45	5.38	5.11	4.8	4.7	4.5	5.01	4.96
	SCOP (AVG, 55℃)	3.75	3.97	3.96	3.92	3.7	3.6	3.6	3.87	3.93
	ErP energy label (35℃/55℃)	A+++ / A++	A+++ / A+++			A+++ / A++			A+++ / A+++	
	COP - Rated (A7/W35)	4.90	4.70	4.50	4.30	5.1	5.1	4.9	5.31	5.21
Operation Range (Heating)	Ambient Temp. (℃)	-28 ~ 35				-20 ~ 40			-20 ~ 40	
	Max. Water Temp. (℃)	75				70			70	
Size	Dimension (HxWxD, mm)	1019 x 1560 x 520				841 x 1144 x 600			1382 x 1144 x 600	
	Foot print (m2)	0.72				0.69			0.69	
	Volume (m3)	0.73				0.58			0.95	
Weight	Unit(kg)	181				162			1Φ : 215 / 3Φ : 221	
Sound Power Level	Heating / Rated (dB(A))	49	49	51	52	49	49	49	54	54
Power supply	Φ / Hz / V	3~/ 50 / 380-415	1~/ 50 / 220-240 or 3~/ 50 / 380-415			1 / 50 / 230			1 / 50 / 230 & 3 / 50 / 400	
	Recommended circuit breaker for ODU (A)	1Φ : 25 / 3Φ : 16				1Φ : 16			1Φ : 25 / 3Φ : 16	
Connectable Indoor Units	**Control Unit**	O (To be available)				X			X	
	Hydro Unit	O				O			O	
	Size (HxWxD, mm)	850 x 490 x 315				920 x 450 x 360 920 x 600 x 360 (2nd circuit)			920 x 450 x 360 920 x 600 x 360 (2nd circuit)	
	Weight (kg)	30 (1Φ) / 31 (3Φ)				47 / 54(2nd circuit)			47 / 54(2nd circuit)	
	Sound Power Level (dB(A))	39				40			40	
	Expansion Tank	8 L				18 L			18 L	
	Electric heater	6kW (1Φ) / 9kW (3Φ)				8kW (1Φ or 3Φ)			8kW (1Φ or 3Φ)	
	Combi Unit	O (To be available)				O			O	

1 Higher SCOP

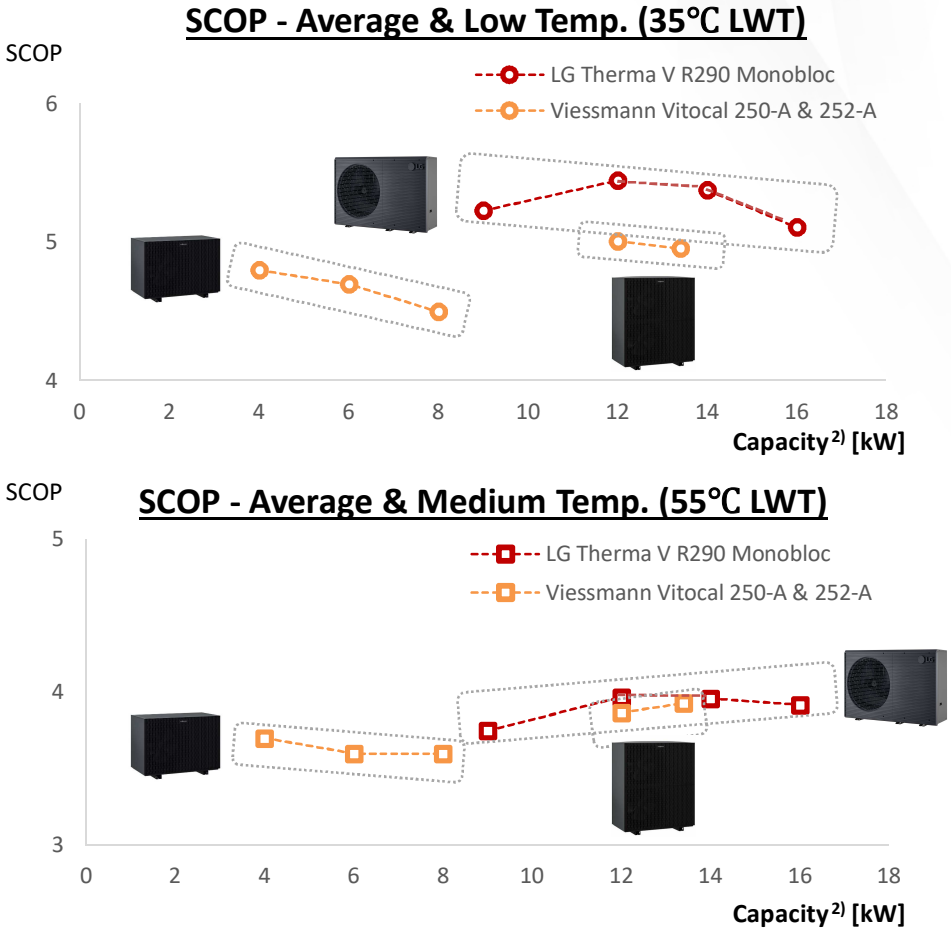
vs. Viessmann

LG Therma V R290 Monobloc has a Higher SCOP compared to **Viessmann Vitocal 250-A & 252-A**.
Furthermore, LG R290 Monobloc has achieved ErP Energy Labeling A+++ / A+++ [1] for space heating.

SCOP of LG R290 Monobloc



Comparison with V Company



1) ErP Energy labeling A+++/A+++ applies only to 12/14/16 kW models of R290 Monobloc.
2) Based on Max. Heating capacity under A7/W35 condition

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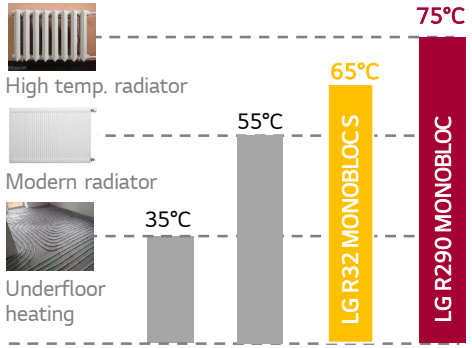
2 Wider Operation Range

vs. Viessmann

LG Therma V R290 Monobloc has a wider operation range in terms of water outlet and ambient temperature compared to **Viessmann Vitocal 250-A & 252-A**.

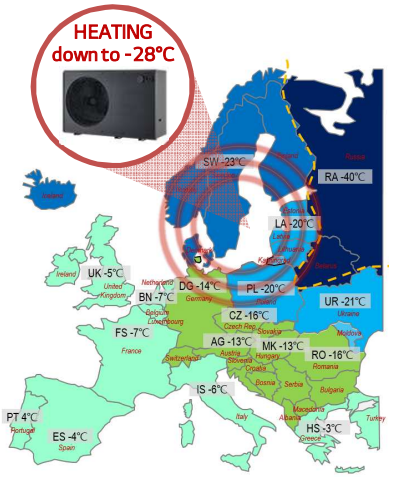
Wide operation range of LG R290 Monobloc

[Water outlet Temp.]



Ultimate solution for replacement and new build

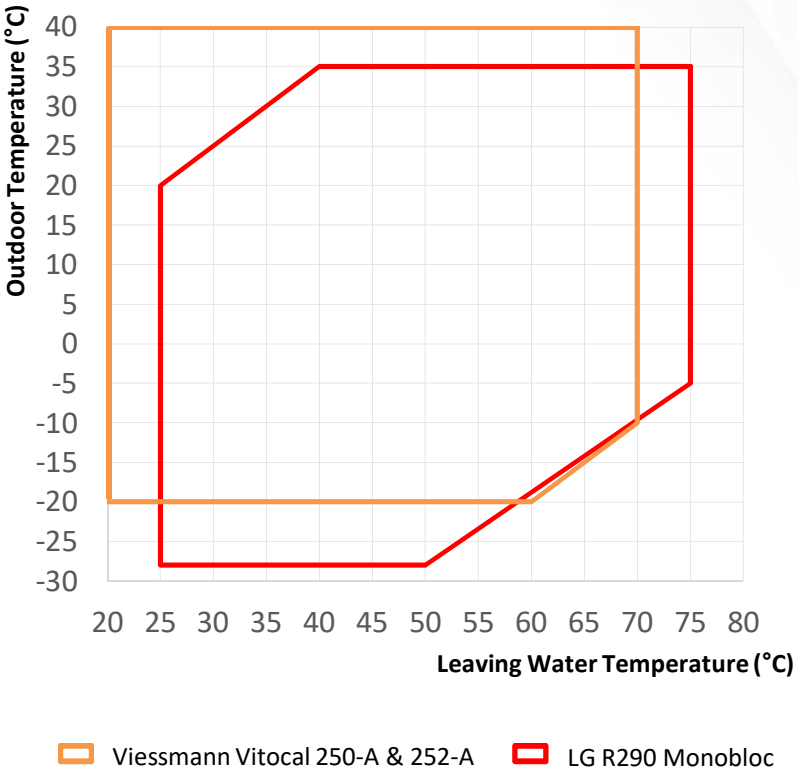
[Ambient Temp.]



Stable heating operation in All EU countries

Comparison with V Company

- Heating Continuous operation area



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3 Lower Noise Level

vs. Viessmann

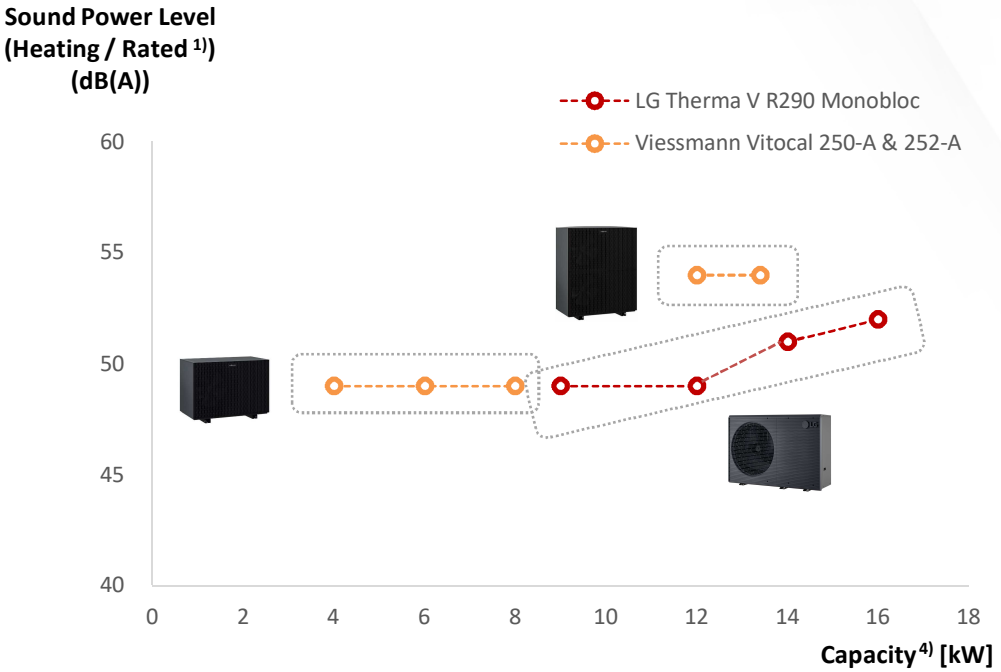
LG Therma V R290 Monobloc has a Lower Noise Level compared to **Viessmann Vitocal 250-A & 252-A**. In fact, LG Therma V R290 Monobloc is one of the super-quiet model in the market and all models have received the Quiet Mark certification.

Noise Level of LG R290 Monobloc

QUIET MARK

Sound power level	R290 Monobloc			
	9 kW	12 kW	14 kW	16 kW
Sound power level (Heating / Rated [1])	49	49	51	52
Sound power level (Heating / daytime max.[2])	59	59	60	61
Sound power level (Heating / Low noise mode [3])	48	48	50	51

Comparison with V Company



1) Rated sound power level was measured on the rated condition in accordance with EN 12102-1 and ISO 9614.
2) Daytime Max. sound power level was measured based on max. Fan RPM and max. Compressor Hz. that can be reached under OAT 2°C in accordance with EN 12102-1 and ISO 9614.
3) Low Noise Mode is a mode that lowers the noise by limiting the compressor Hz. and fan RPM, and thus the performance may be limited. Sound power level of this mode was measured in accordance with EN 12102-1 and ISO 9614.
4) Based on Max. Heating capacity under A7/W35 condition

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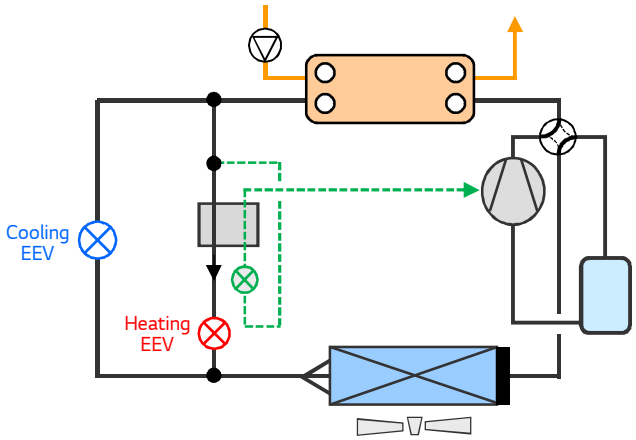
4 Less Refrigerant

vs. Viessmann

LG Therma V R290 Monobloc uses Less refrigerant compared to **Viessmann Vitocal 250-A & 252-A**. Considering the flammability of the R290 refrigerant, the choice to reduce the refrigerant amount enhances safety measures, creating a safer operating environment.

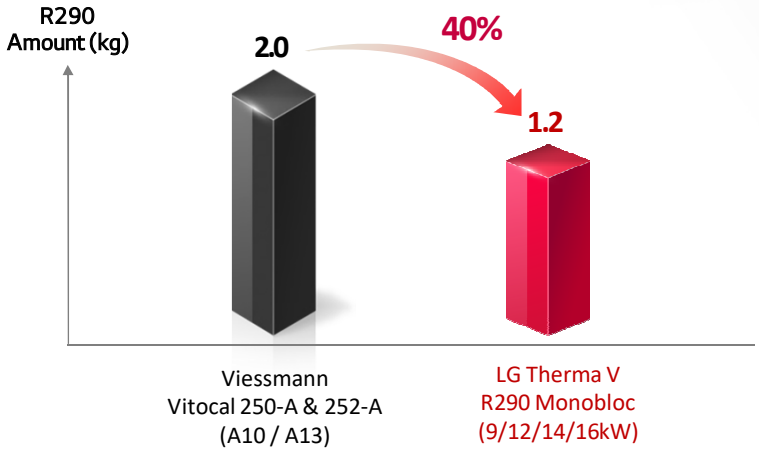
Dual EEV Control of LG R290 Monobloc



Optimal control of the two EEVs based on operating conditions minimizes the refrigerant amount from 2.0 kg to 1.2 kg.

Operation Condition	Heating	Cooling	Defrost
Heating EEV	Open	Closed	Open
Cooling EEV	Closed	Open	Open

Comparison with V Company



Considering the flammability of the R290 refrigerant, **the choice to reduce the refrigerant amount enhances safety measures, creating a safer operating environment.**

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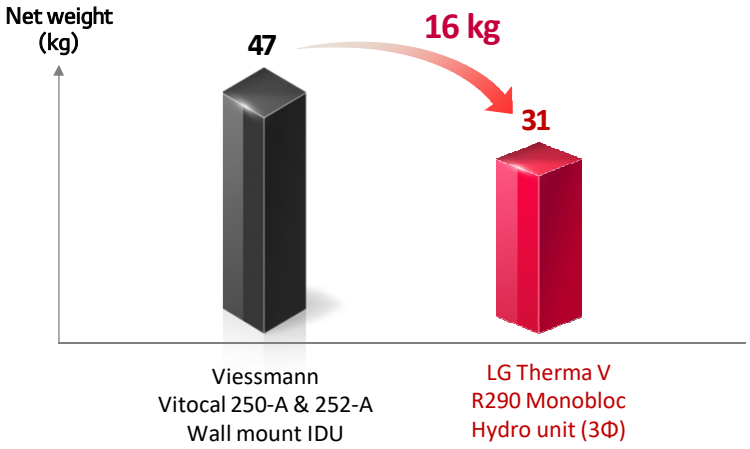
5 Less Weight

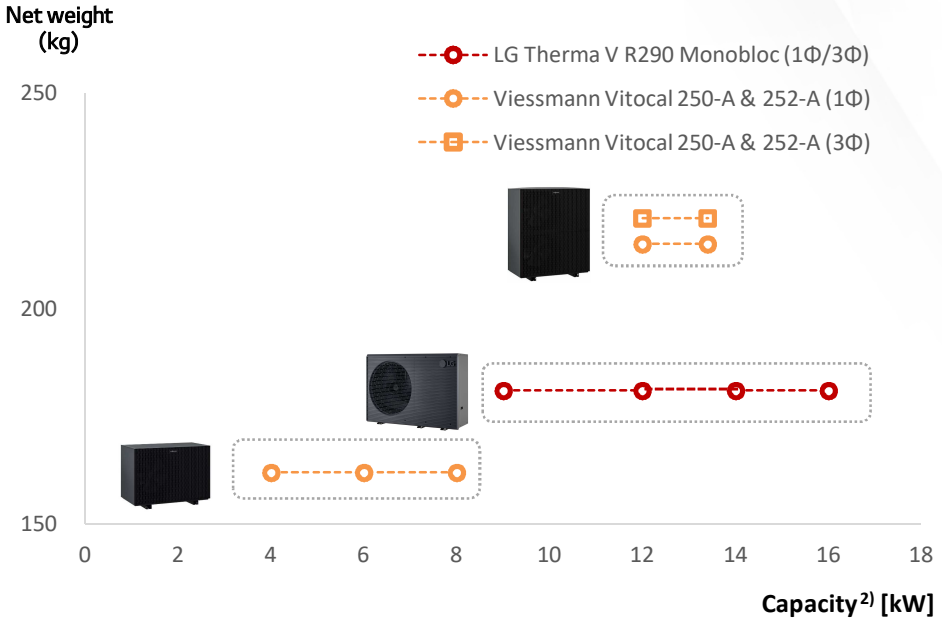
vs. Viessmann

LG Therma V R290 Monobloc has a Less Weight compared to **Viessmann Vitocal 250-A & 252-A**. LG R290 Monobloc is lighter not only for outdoor units but also for wall-mounted indoor units than Viessmann Vitocal 250-A & 252-A

Comparison with V Company for IDU



Comparison with V Company for ODU



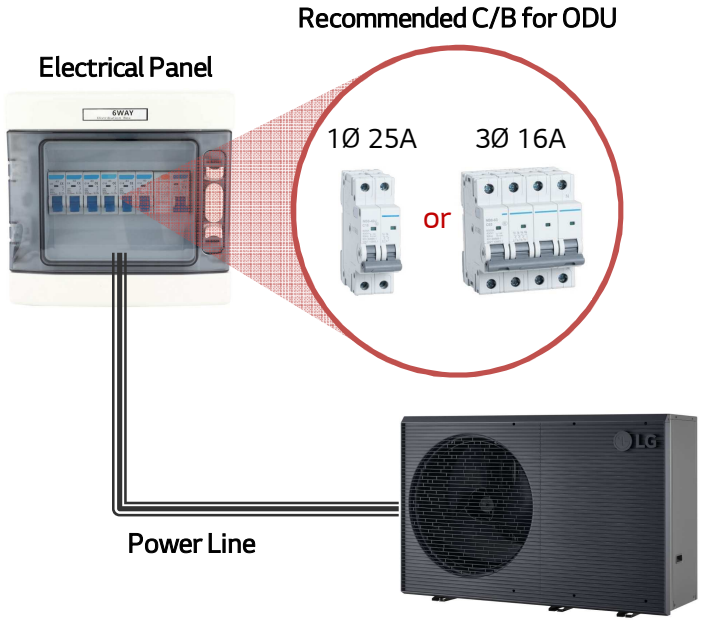
※ The contents of this page were based on each company's catalogue, and it may be different according to the release of each company's products after date of each company's catalogue published.

6 Optimized Circuit Breaker

vs. Viessmann

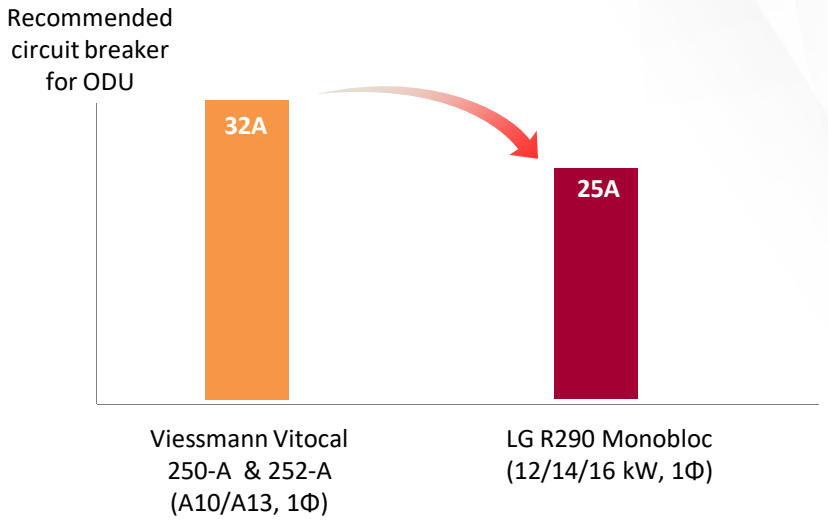
LG Therma V R290 Monobloc requires smaller circuit breakers compared to **Viessmann Vitocal 250-A & 252-A.**

Optimized Circuit Breaker of LG R290 Monobloc



Description		Recommended circuit breaker for outdoor Unit		Remark
		LG R32 Monobloc S	*LG R290 Monobloc*	
1Ø	12 kW	40 A	25 A	Optimized for filed condition
	14 kW			
	16 kW			
3Ø	9 kW	16 A	16 A	Same as R32 Monobloc S
	12 kW			
	14 kW			
	16 kW			

Comparison with V Company



By optimizing the circuit breaker specifications of LG R290 Monobloc, it helps installers reduce costs by allowing them to use low-current circuit breakers.

※ The contents of this page were based on each company's technical data book, and it may be different according to the release of each company's products after date of each company's technical data book published.

Comparison with Nibe S2125

vs. Nibe

- LG Therma V R290 Monobloc has a **Higher SCOP** compared to S2125
- LG Therma V R290 Monobloc has a **hydro unit option**, while Nibe doesn't have it.

Company		LG				Nibe	
Model name		Therma V R290 Monobloc				S2125	
Model		9 kW	12 kW	14 kW	16 kW	S2125-8	S2125-12
Appearance							
Capacity (kW)	Heating - Rated (A7/W35)	9	12	14	16	3.2	3.7
	Heating - Max. (A7/W35)	9	12	14	16	6.8	10.0
Refrigerant	Type	R290 (3)				R290 (3)	
	Amount (kg)	1.2				0.8	
	t-CO2 eq.	0.0036				0.0024	
Efficiency	SCOP (AVG, 35℃)	5.23	5.45	5.38	5.11	5.0	5.0
	SCOP (AVG, 55℃)	3.75	3.97	3.96	3.92	3.7	3.8
	ErP energy label (35℃/55℃)	A+++ / A++	A+++ / A+++			A+++ / A++	A+++ / A+++
	COP - Rated (A7/W35)	4.90	4.70	4.50	4.30	5.18	5.21
Operation Range (Heating)	Ambient Temp. (℃)	-28 ~ 35				-25 ~ 38	
	Max. Water Temp. (℃)	75				75	
Size	Dimension (HxWxD, mm)	1019 x 1560 x 520				1070 x1130 x 820	
	Foot print (m2)	0.72				0.93	
	Volume (m3)	0.73				0.99	
Weight	Unit(kg)	181				1Φ : 150 / 3Φ : 160	
Sound Power Level	Heating / Rated (dB(A))	49	49	51	52	49	49
Power supply	Φ / Hz / V	3~/ 50 / 380-415	1~/ 50 / 220-240 or 3~/ 50 / 380-415			1~/ 50 / 230 & 3~/ 50 / 400	
	Recommended circuit breaker for ODU (A)	1Φ : 25 / 3Φ : 16				1Φ : 20 / 3Φ : 16	
Connectable Indoor Units	**Control Unit**	O (To be available)				O (SMO Control module)	
	Hydro Unit	O				X	
	Size (HxWxD, mm)	850 x 490 x 315					
	Weight (kg)	30 (1Φ) / 31 (3Φ)					
	Sound Power Level (dB(A))	39					
	Expansion Tank	8 L					
	Electric heater	6kW (1Φ) / 9kW (3Φ)					
	Combi Unit	O (To be available)				O (VVM S320)	

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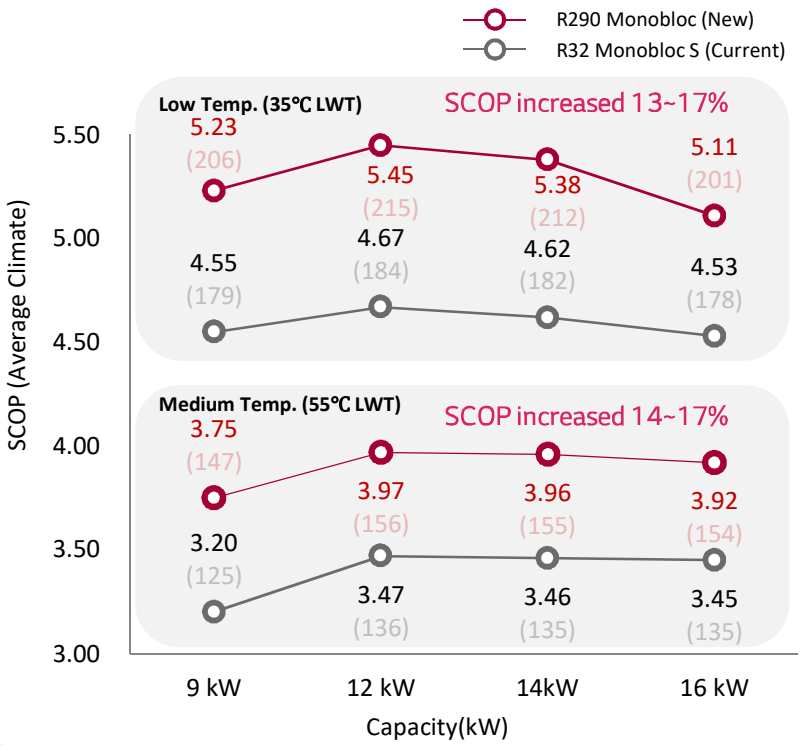
1 Higher SCOP

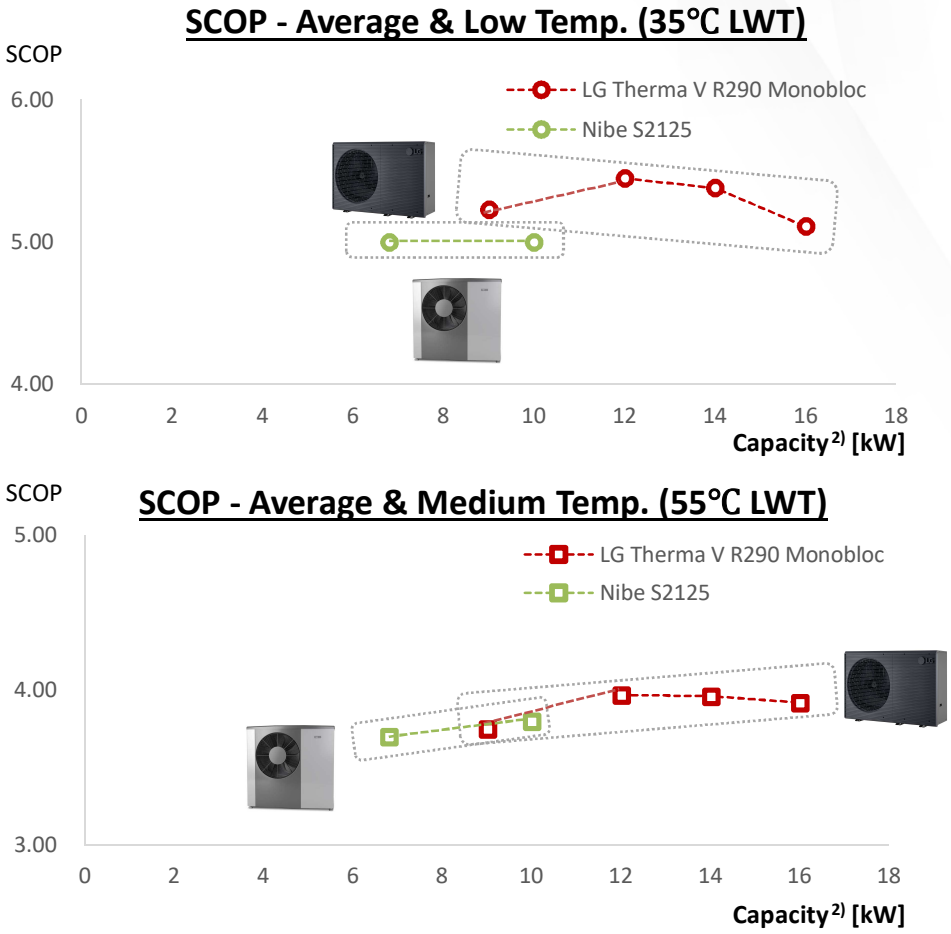
vs. Nibe

LG Therma V R290 Monobloc has a Higher SCOP compared to **Nibe S2125.** Furthermore, LG R290 Monobloc has achieved ErP Energy Labeling A+++ / A+++ [1] for space heating.

SCOP of LG R290 Monobloc



Comparison with N Company



1) ErP Energy labeling A+++/A+++ applies only to 12/14/16 kW models of R290 Monobloc.
2) Based on Max. Heating capacity under A7/W35 condition

※ The contents of this page were based on each company's catalogue, and it may be different according to the release of each company's products after date of each company's catalogue published.

2 Hydro Unit Option

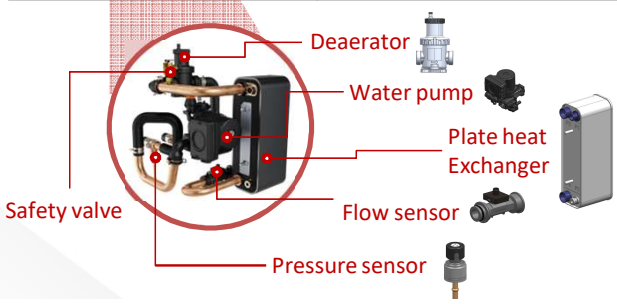
vs. Nibe

LG Therma V R290 Monobloc has a hydro unit option while **Nibe S2125** doesn't have it. LG R290 Monobloc can be connectable with 3 type of indoor units. In particular, our outdoor unit is versatile and accommodates various installations, with differentiation on the indoor side.

Indoor unit options for LG R290 Monobloc

- Customized options through different IDU combinations

ODU	IDU type	Description
	Apr. '24	**Control Unit Combination** ▪ Stand-alone concept (No water piping connection) ▪ Recommended when not using a backup heater
	Dec. '23 	**Hydro Unit Combination** ▪ Back-up heater & expansion tank integrated inside the hydro box
	Aug. '24 	**Combi Unit Combination** ▪ DHW tank, electric heater, expansion tank integrated inside the Combi unit ▪ 200l stainless steel tank



Hydronic components are integrated in the ODU.

Indoor unit options for Nibe S2125

ODU	IDU type	Description
		**NIBE SMO Control module** [NIBE SMO 20, NIBE SMO 40]
		**NIBE VVM indoor modules** [NIBE VVM 310, NIBE VVM 500]

In case of Nibe S2125, only the SMO control module (same as control unit) option and VVM indoor module (same as combi unit) option can be connected.

No hydro unit combination

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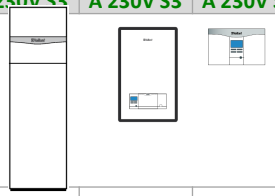
Comparison with Vaillant aroTHERM Plus

vs. Vaillant

- LG Therma V R290 Monobloc has a **Higher SCOP** compared to aroTHERM Plus
- LG Therma V R290 Monobloc has a **Lower Noise Level** compared to aroTHERM Plus
- LG Therma V R290 Monobloc uses **Less refrigerant** compared to aroTHERM Plus

※ The contents of this page were based on each company's catalogue, and it may be different according to the release of each company's products after date of each company's catalogue published.

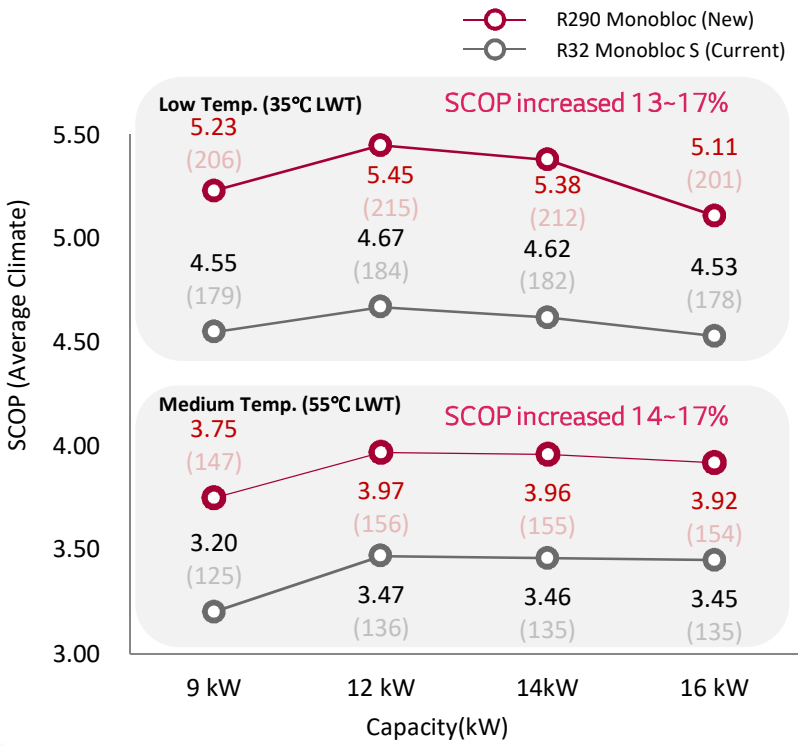
Company		LG				Vaillant								
Model name		Therma V R290 Monobloc				aroTHERM Plus								
Model		9 kW	12 kW	14 kW	16 kW	VWL 35/6 A 230V S2	VWL 45/6 A 230V S3	VWL 55/6 A 230V S3	VWL 65/6 A 230V S3	VWL 75/6 A 230V S2	VWL 85/6 A 230V S3	VWL 105/6 A S2	VWL 125/6 A S3	VWL 155/6 A S3
Appearance														
Capacity (kW)	Heating - Rated (A7/W35)	9	12	14	16	3.3	4.1	4.2	5.1	4.6	7.8	8.1	11.6	14.3
	Heating - Max. (A7/W35)	9	12	14	16		6.5	7.9	8.5		9.0		13.5	15.0
Refrigerant	Type	R290 (3)				R290 (3)			R290 (3)			R290 (3)		
	Amount (kg)	1.2				0.6			0.9			1.3		
	t-CO2 eq.	0.0036				0.0018			0.0027			0.0039		
Efficiency	SCOP (AVG, 35℃)	5.23	5.45	5.38	5.11	4.4	4.6	4.5	4.7	4.7	4.7	5.0	5.1	4.7
	SCOP (AVG, 55℃)	3.75	3.97	3.96	3.92	3.1	3.3	3.3	3.5	3.4	3.4	3.6	3.7	3.7
	ErP energy label (35℃/55℃)	A+++ / A++	A+++ / A+++			A++ / A+	A+++ / A++		A+++ / A++			A+++ / A++		
	COP - Rated (A7/W35)	4.90	4.70	4.50	4.30	4.8	4.6	4.4	4.7	4.8	4.4	5.3	4.7	4.3
Operation Range (Heating)	Ambient Temp. (℃)	-28 ~ 35				-25 ~ 46			-25 ~ 46			-25 ~ 46		
	Max. Water Temp. (℃)	75				75			75			75		
Size	Dimension (HxWxD, mm)	1019 x 1560 x 520				765 x 1100 x 450			965 x 1100 x 450			1565 x 1100 x 450		
	Foot print (m2)	0.72				0.50			0.50			0.50		
	Volume (m3)	0.73				0.38			0.48			0.77		
Weight	Unit(kg)	181				121			133			1Φ : 185 / 3Φ : 203		
Sound Power Level	Heating / Rated (dB(A))	49	49	51	52	54	52	54	57	55	57	1Φ : 60 / 3Φ : 59	60	61
Power supply	Φ / Hz / V	3~/ 50 / 380-415	1~/ 50 / 220-240 or 3~/ 50 / 380-415			1~/ 50 / 230						1~/ 50 / 230 & 3~/ 50 / 400		
	Recommended circuit breaker for ODU (A)	1Φ : 25 / 3Φ : 16				1Φ : 16			1Φ : 20			1Φ : 32 / 3Φ : 16		
Connectable Indoor Units	**Control Unit**	O (To be available)				O (Heatpump Interface)			O (Heatpump Interface)			O (Heatpump Interface)		
	Hydro Unit	O				O (VWZ MEH 97)			O (VWZ MEH 97)			O (VWZ MEH 97)		
	Size (HxWxD, mm)	850 x 490 x 315				720x440x350			720x440x350			720x440x350		
	Weight (kg)	30 (1Φ) / 31 (3Φ)				20			20			20		
	Sound Power Level (dB(A))	39				30			30			30		
	Expansion Tank	8 L				10 L			10 L			10 L		
	Electric heater	6kW (1Φ) / 9kW (3Φ)				6kW (1Φ) / 9kW (3Φ)			6kW (1Φ) / 9kW (3Φ)			6kW (1Φ) / 9kW (3Φ)		
	Combi Unit	O (To be available)				O (VIH QW 190 / 6 E)			O (VIH QW 190 / 6 E)			O (VIH QW 190 / 6 E)		

1 Higher SCOP

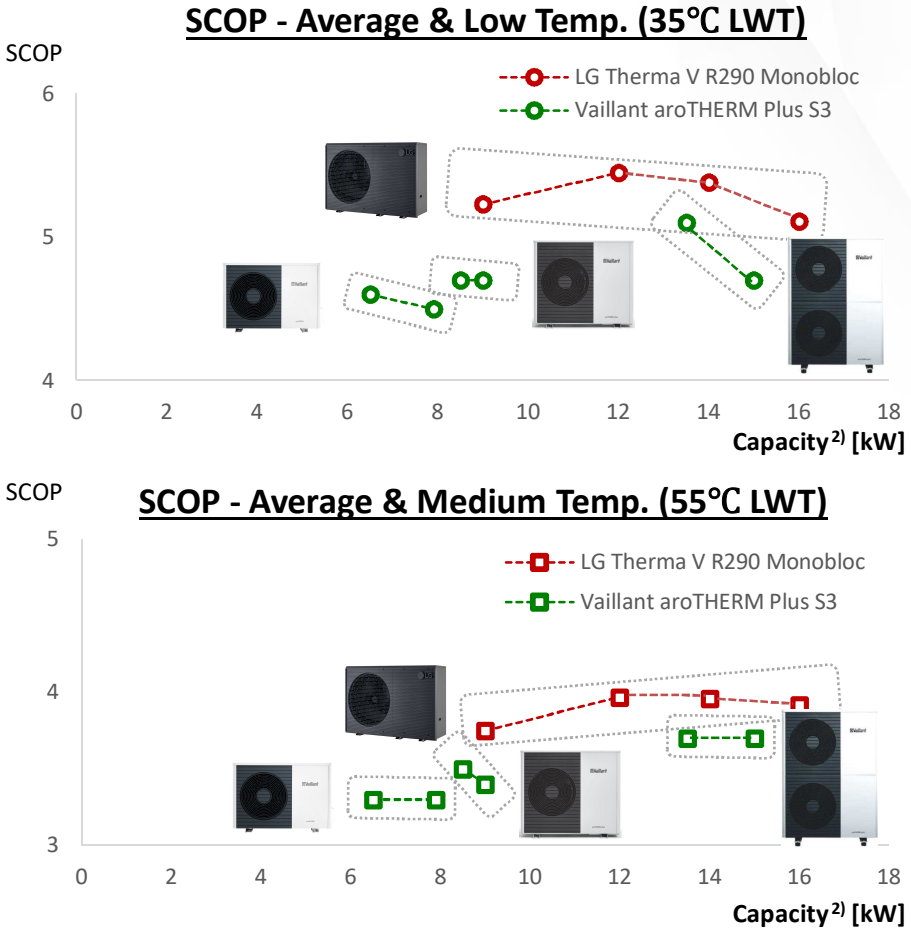
vs. Vaillant

LG Therma V R290 Monobloc has a Higher SCOP compared to **Vaillant aroTHERM Plus S3**. Furthermore, LG R290 Monobloc has achieved ErP Energy Labeling A+++ / A+++ [1] for space heating.

SCOP of LG R290 Monobloc



Comparison with V Company



1) ErP Energy labeling A+++/A+++ applies only to 12/14/16 kW models of R290 Monobloc.
2) Based on Max. Heating capacity under A7/W35 condition

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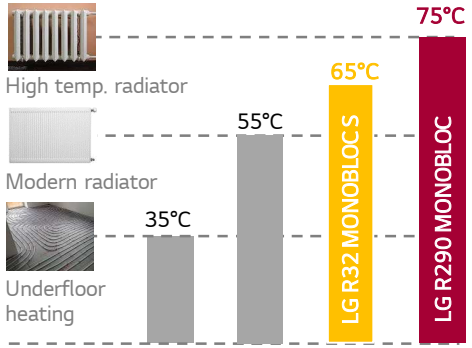
2 Wider Operation Range

vs. Vaillant

LG Therma V R290 Monobloc has a wider operation range in terms of water outlet and ambient temperature compared to **Vaillant aroTHERM Plus**.

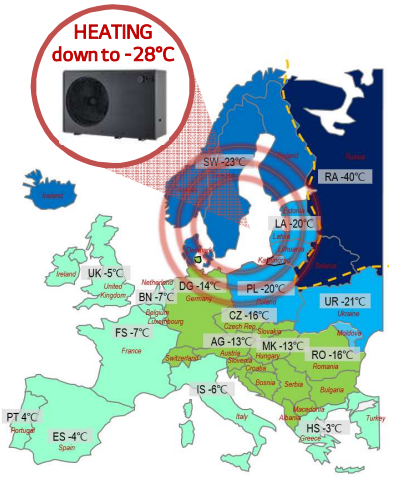
Wide operation range of LG R290 Monobloc

[Water outlet Temp.]



Ultimate solution for replacement and new build

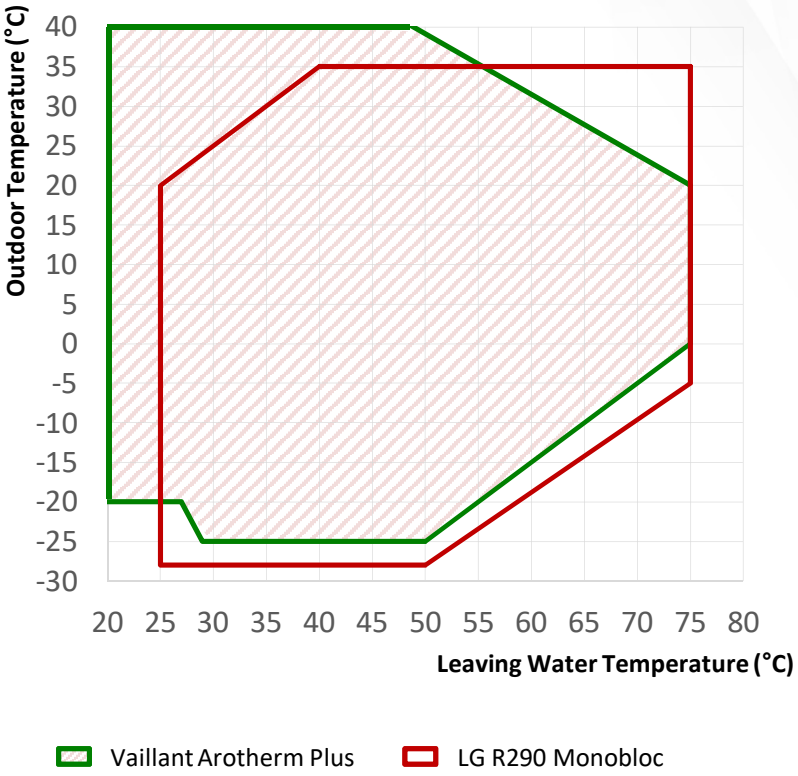
[Ambient Temp.]



Stable heating operation in All EU countries

Comparison with V Company

- Heating Continuous operation area



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3 Lower Noise Level

vs. Vaillant

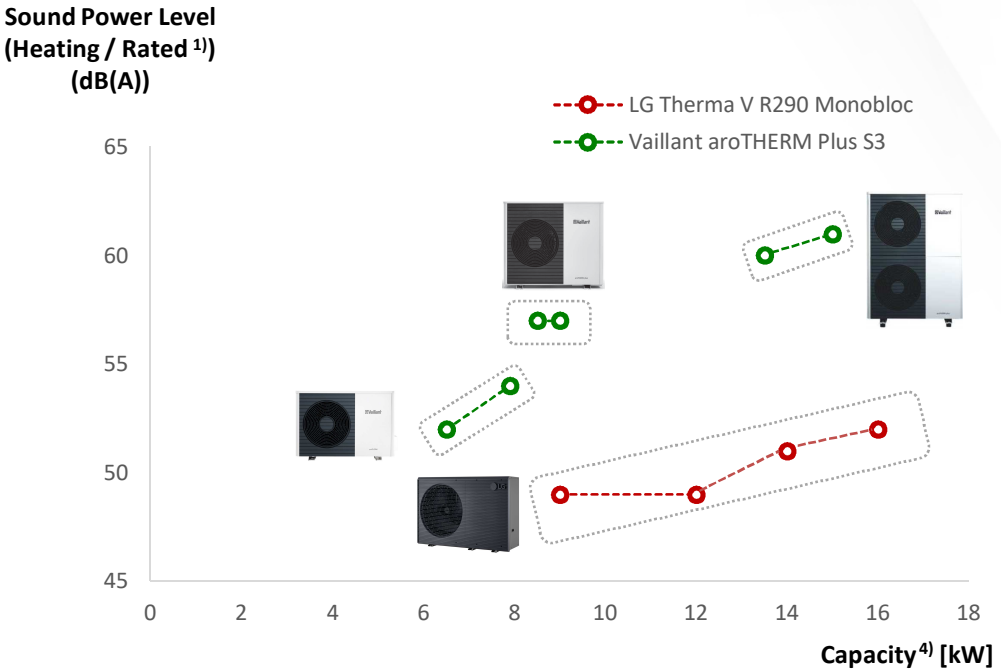
LG Therma V R290 Monobloc has a Lower Noise Level compared to **Vaillant aroTHERM Plus S3**. In fact, LG Therma V R290 Monobloc is one of the super-quiet model in the market and all models have received the Quiet Mark certification.

Noise Level of LG R290 Monobloc

QUIET MARK

Sound power level	R290 Monobloc			
	9 kW	12 kW	14 kW	16 kW
Sound power level (Heating / Rated [1])	49	49	51	52
Sound power level (Heating / daytime max.[2])	59	59	60	61
Sound power level (Heating / Low noise mode [3])	48	48	50	51

Comparison with V Company



1) Rated sound power level was measured on the rated condition in accordance with EN 12102-1 and ISO 9614.
2) Daytime Max. sound power level was measured based on max. Fan RPM and max. Compressor Hz. that can be reached under OAT 2°C in accordance with EN 12102-1 and ISO 9614.
3) Low Noise Mode is a mode that lowers the noise by limiting the compressor Hz. and fan RPM, and thus the performance may be limited. Sound power level of this mode was measured in accordance with EN 12102-1 and ISO 9614.
4) Based on Max. Heating capacity under A7/W35 condition

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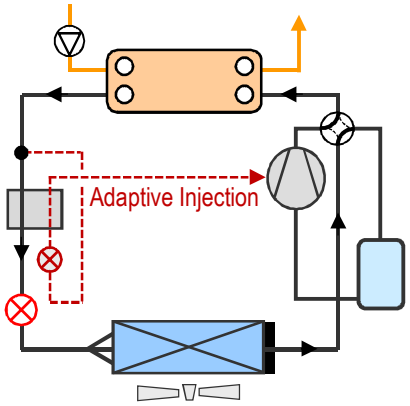
4 Excellent Heating Performance at Low Ambient Temperature

vs. Vaillant

LG Therma V R290 Monobloc provides excellent heating performance at low ambient temperature compared to **Vaillant aroTHERM Plus**. Thanks to Adaptive Injection technology and HiPOR™ (High Pressure Oil Return) technology, it does not only provide higher capacity but also higher efficiency at low ambient temperature.

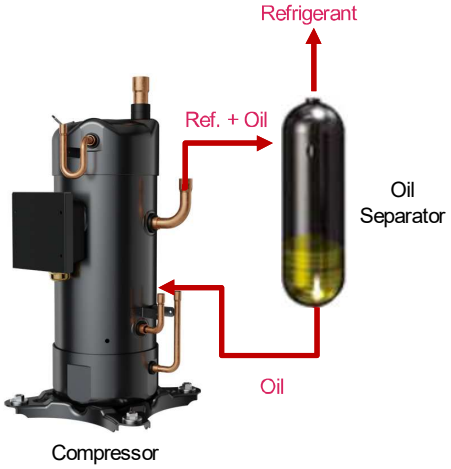
Applied Technologies of LG R290 Monobloc



[Adaptive Injection Technology]

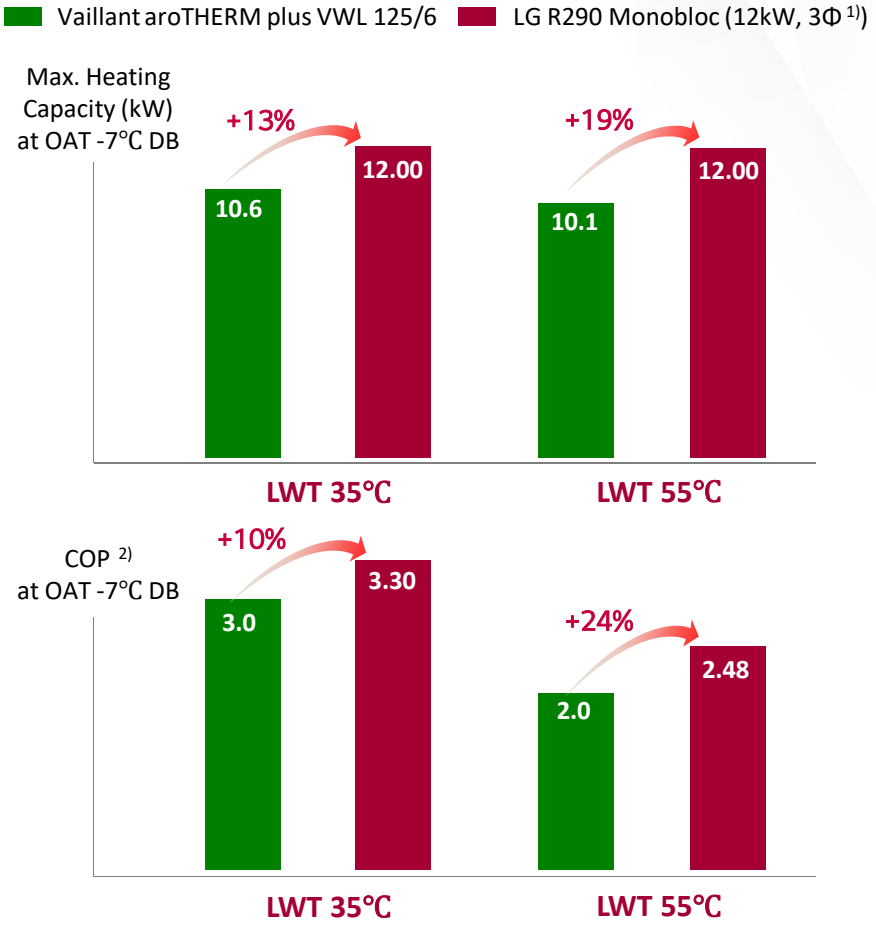
The Adaptive Injection cycle, tailored for R290 refrigerant, optimizes heating capacity and efficiency.

Maximizing compressor efficiency by minimizing energy loss with direct oil return



[HiPOR™]
(High Pressure Oil Return)

Comparison with V Company



1) Based on Peak Control - Step 3 & 4 (Available Only for 3ph models)
2) Based on each company's maximum Heating capacity

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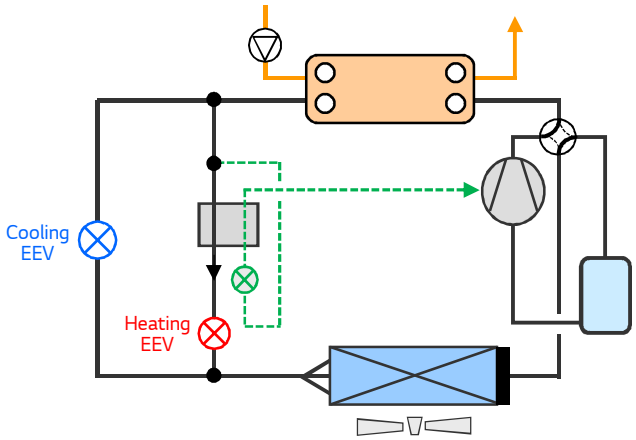
5 Less Refrigerant

vs. Vaillant

LG Therma V R290 Monobloc uses Less refrigerant compared to **Vaillant aroTHERM Plus**. Considering the flammability of the R290 refrigerant, the choice to reduce the refrigerant amount enhances safety measures, creating a safer operating environment.

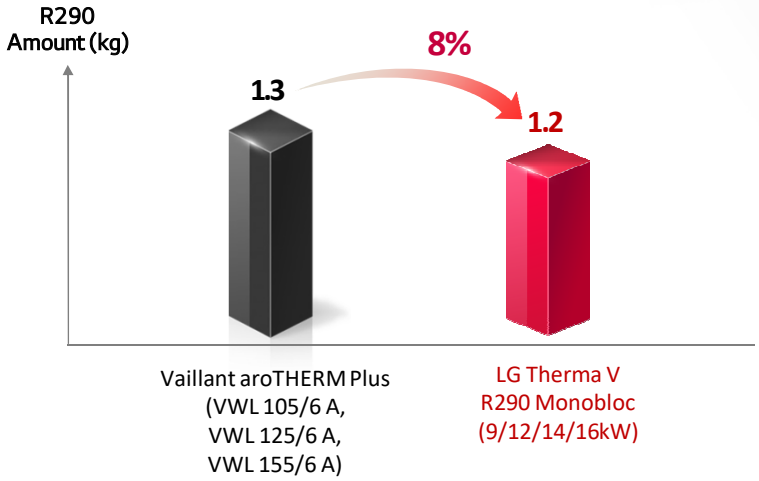
Dual EEV Control of LG R290 Monobloc



Optimal control of the two EEVs based on operating conditions minimizes the refrigerant amount from 2.0 kg to 1.2 kg.

Operation Condition	Heating	Cooling	Defrost
Heating EEV	Open	Closed	Open
Cooling EEV	Closed	Open	Open

Comparison with V Company



Considering the flammability of the R290 refrigerant, **the choice to reduce the refrigerant amount enhances safety measures, creating a safer operating environment.**

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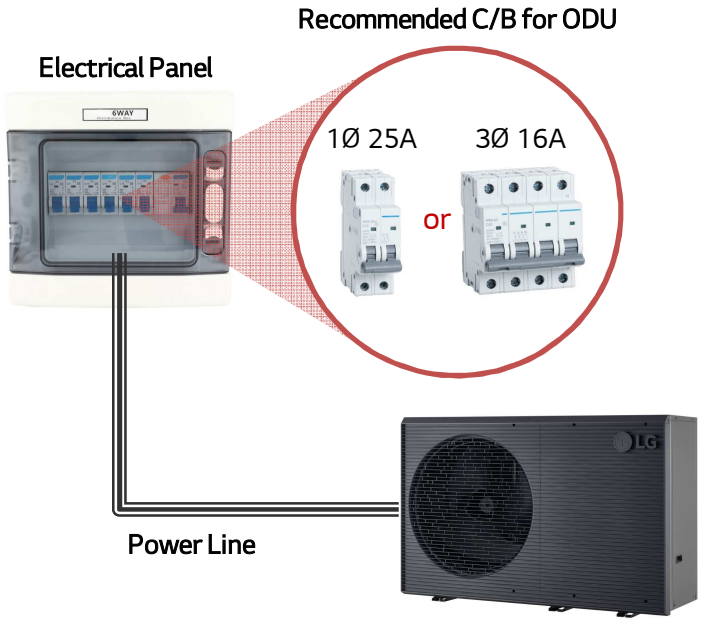
6 Optimized Circuit Breaker

vs. Vaillant

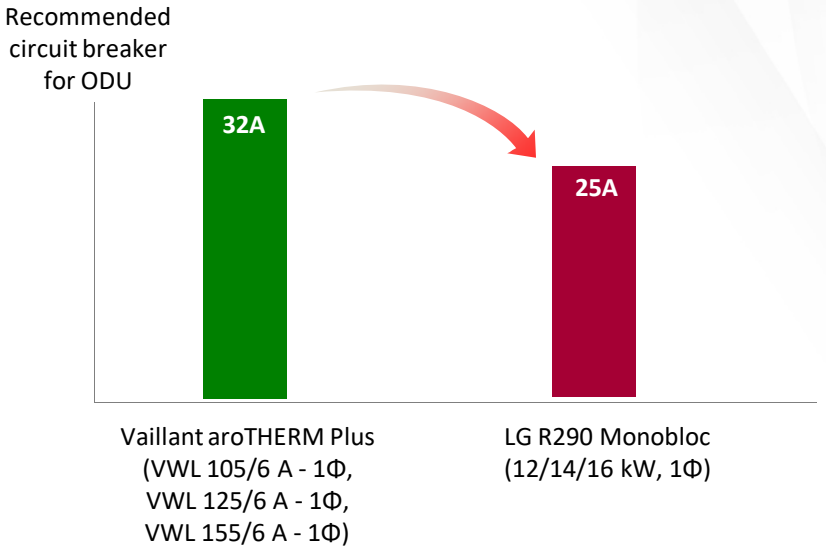
LG Therma V R290 Monobloc requires smaller circuit breakers compared to **Vaillant aroTHERM Plus.**

Optimized Circuit Breaker of LG R290 Monobloc



Description		Recommended circuit breaker for outdoor Unit		Remark
		LG R32 Monobloc S	*LG R290 Monobloc*	
1Ø	12 kW	40 A	25 A	Optimized for filed condition
	14 kW			
	16 kW			
3Ø	9 kW	16 A	16 A	Same as R32 Monobloc S
	12 kW			
	14 kW			
	16 kW			

Comparison with V Company



BENEFITS

By optimizing the circuit breaker specifications of LG R290 Monobloc, it helps installers reduce costs by allowing them to use low-current circuit breakers.

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Comparison with Samsung EHS Mono R290

vs. Samsung

- LG Therma V R290 Monobloc has a **Higher SCOP** compared to EHS Mono R290
- LG Therma V R290 Monobloc has a **Lower Noise Level** compared to EHS Mono R290
- LG Therma V R290 Monobloc requires **Smaller Circuit Breakers** compared to EHS Mono R290

Company		LG				Samsung							
Model name		Therma V R290 Monobloc				EHS Mono R290							
Model		9 kW	12 kW	14 kW	16 kW	Hydrosplit				Full Monobloc			
Appearance													
Capacity (kW)	Heating - Rated (A7/W35)	9	12	14	16	5.0	8.0	12.0	16.0	5.0	8.0	12.0	16.0
	Heating - Max. (A7/W35)	9	12	14	16	5.0	8.0	12.0	16.0	5.0	8.0	12.0	16.0
Refrigerant	Type	R290 (3)				R290 (3)		R290 (3)		R290 (3)		R290 (3)	
	Amount (kg)	1.2				0.63	0.87	1.25		0.63	0.87	1.25	
	t-CO2 eq.	0.0036				0.0019	0.0026	0.0038		0.0019	0.0026	0.0038	
Efficiency	SCOP (AVG, 35℃)	5.23	5.45	5.38	5.11	5.1	4.85	4.9	4.7	5.1	4.85	4.9	4.7
	SCOP (AVG, 55℃)	3.75	3.97	3.96	3.92	3.6	3.55	3.65	3.55	3.6	3.55	3.65	3.55
	ErP energy label (35℃/55℃)	A+++ / A++	A+++ / A+++			A+++ / A++		A+++ / A++		A+++ / A++		A+++ / A++	
	COP - Rated (A7/W35)	4.90	4.70	4.50	4.30	5.10	4.91	4.80	4.51	5.10	4.91	4.80	4.51
Operation Range (Heating)	Ambient Temp. (℃)	-28 ~ 35				-25 ~ 35				-25 ~ 35			
	Max. Water Temp. (℃)	75				75				75			
Size	Dimension (HxWxD, mm)	1019 x 1560 x 520				850 x 998 x 500		1018 x 1270 x 530		850 x 1270 x 500		1018 x 1270 x 530	
	Foot print (m2)	0.72				0.50		0.67		0.64		0.67	
	Volume (m3)	0.73				0.42		0.69		0.54		0.69	
Weight	Unit(kg)	181				86	98	140		113	125	154	
Sound Power Level	Heating / Rated (dB(A))	49	49	51	52	55	59	60	65	55	59	60	65
Power supply	Φ / Hz / V	3~/ 50 / 380-415	1~/ 50 / 220-240 or 3~/ 50 / 380-415			1~/ 50 / 230	1~/ 50 / 230 & 3~/ 50 / 400			1~/ 50 / 230	1~/ 50 / 230 & 3~/ 50 / 400		
	Recommended circuit breaker for ODU (A)	1Φ : 25 / 3Φ : 16				MFA 1Φ : 17.6	MFA 1Φ : 28.6 / 3Φ : 17.7	MFA 1Φ : 35.2 / 3Φ : 17.7		MFA 1Φ : 17.6	MFA 1Φ : 28.6 / 3Φ : 17.7	MFA 1Φ : 35.2 / 3Φ : 17.7	
Connectable Indoor Units	**Control Unit**	O (To be available)				O (Mono Control Kit)				N / A			
	Hydro Unit	O				X				X			
	Size (HxWxD, mm)	850 x 490 x 315											
	Weight (kg)	30 (1Φ) / 31 (3Φ)											
	Sound Power Level (dB(A))	39											
	Expansion Tank	8 L											
	Electric heater	6kW (1Φ) / 9kW (3Φ)											
	Combi Unit	O (To be available)				O				X			

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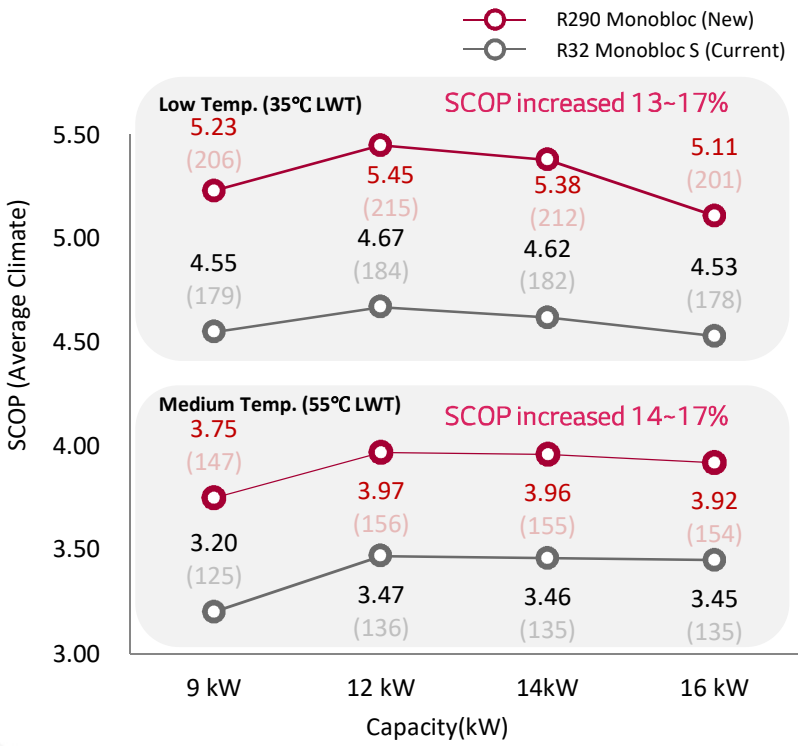
1 Higher SCOP

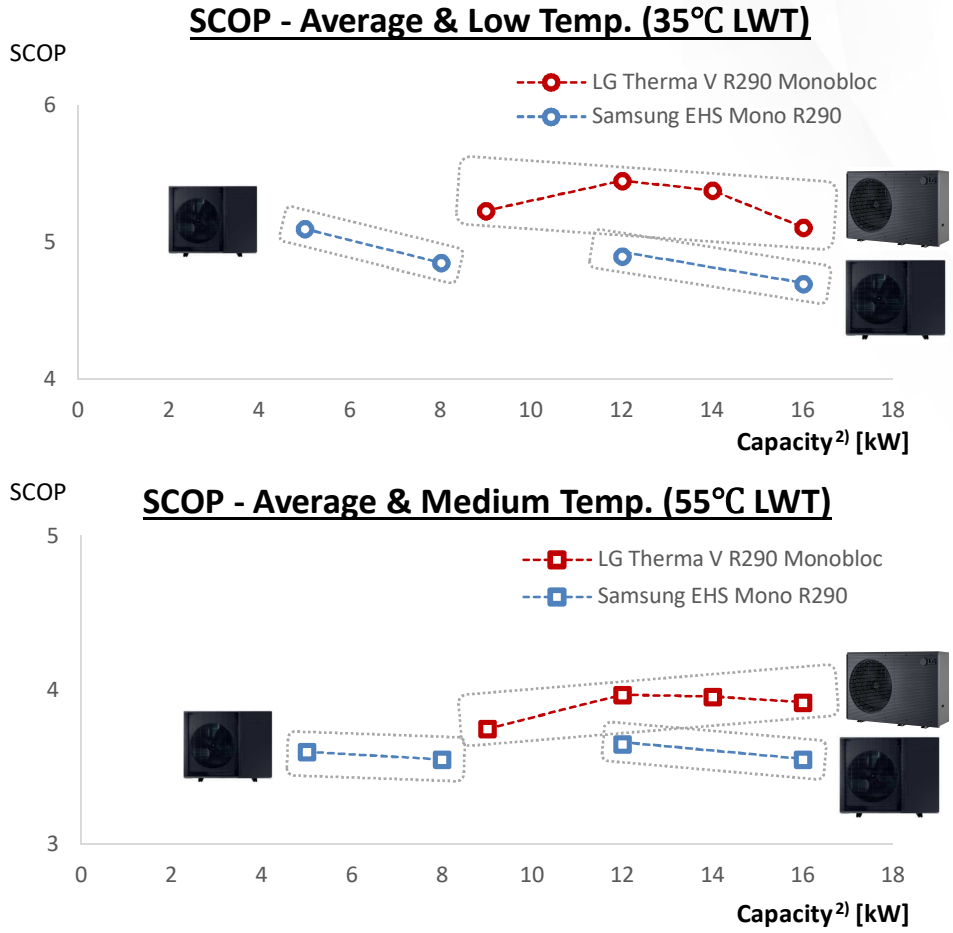
vs. Samsung

LG Therma V R290 Monobloc has a Higher SCOP compared to **Samsung EHS Mono R290**. Furthermore, LG R290 Monobloc has achieved ErP Energy Labeling A+++ / A+++ [1] for space heating.

SCOP of LG R290 Monobloc



Comparison with V Company



1) ErP Energy labeling A+++/A+++ applies only to 12/14/16 kW models of R290 Monobloc.
2) Based on Max. Heating capacity under A7/W35 condition

※ The contents of this page were based on each company's catalogue, and it may be different according to the release of each company's products after date of each company's catalogue published.

2 Lower Noise Level

vs. Samsung

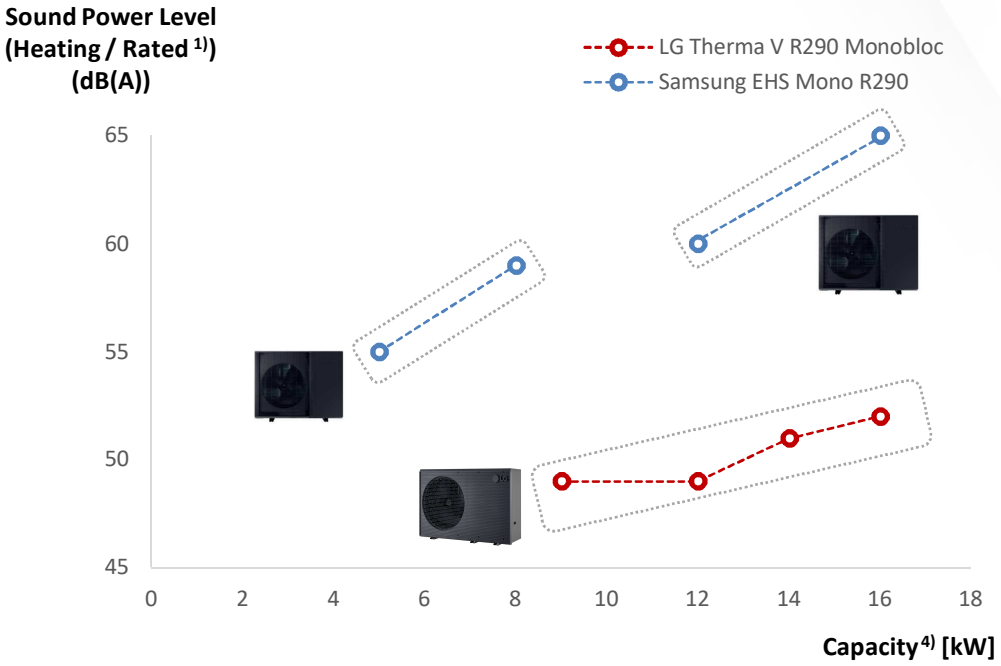
LG Therma V R290 Monobloc has a Lower Noise Level compared to **Samsung EHS Mono R290**. In fact, LG Therma V R290 Monobloc is one of the super-quiet model in the market and all models have received the Quiet Mark certification.

Noise Level of LG R290 Monobloc

QUIET MARK

Sound power level	R290 Monobloc			
	9 kW	12 kW	14 kW	16 kW
Sound power level (Heating / Rated [1])	49	49	51	52
Sound power level (Heating / daytime max.[2])	59	59	60	61
Sound power level (Heating / Low noise mode [3])	48	48	50	51

Comparison with V Company



1) Rated sound power level was measured on the rated condition in accordance with EN 12102-1 and ISO 9614.
2) Daytime Max. sound power level was measured based on max. Fan RPM and max. Compressor Hz. that can be reached under OAT 2°C in accordance with EN 12102-1 and ISO 9614.
3) Low Noise Mode is a mode that lowers the noise by limiting the compressor Hz. and fan RPM, and thus the performance may be limited. Sound power level of this mode was measured in accordance with EN 12102-1 and ISO 9614.
4) Based on Max. Heating capacity under A7/W35 condition

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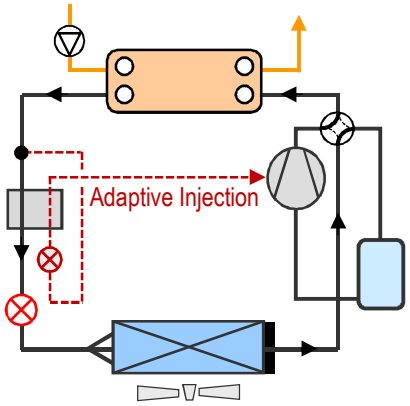
3 Excellent Heating Performance at Low Ambient Temperature

vs. Samsung

LG Therma V R290 Monobloc provides excellent heating performance at low ambient temperature compared to **Samsung EHS Mono R290**. Thanks to Adaptive Injection technology and HiPOR™ (High Pressure Oil Return) technology, it does not only provide higher capacity but also higher efficiency at low ambient temperature.

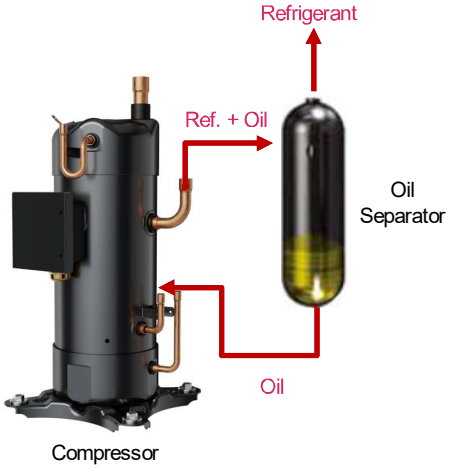
Applied Technologies of LG R290 Monobloc



[Adaptive Injection Technology]

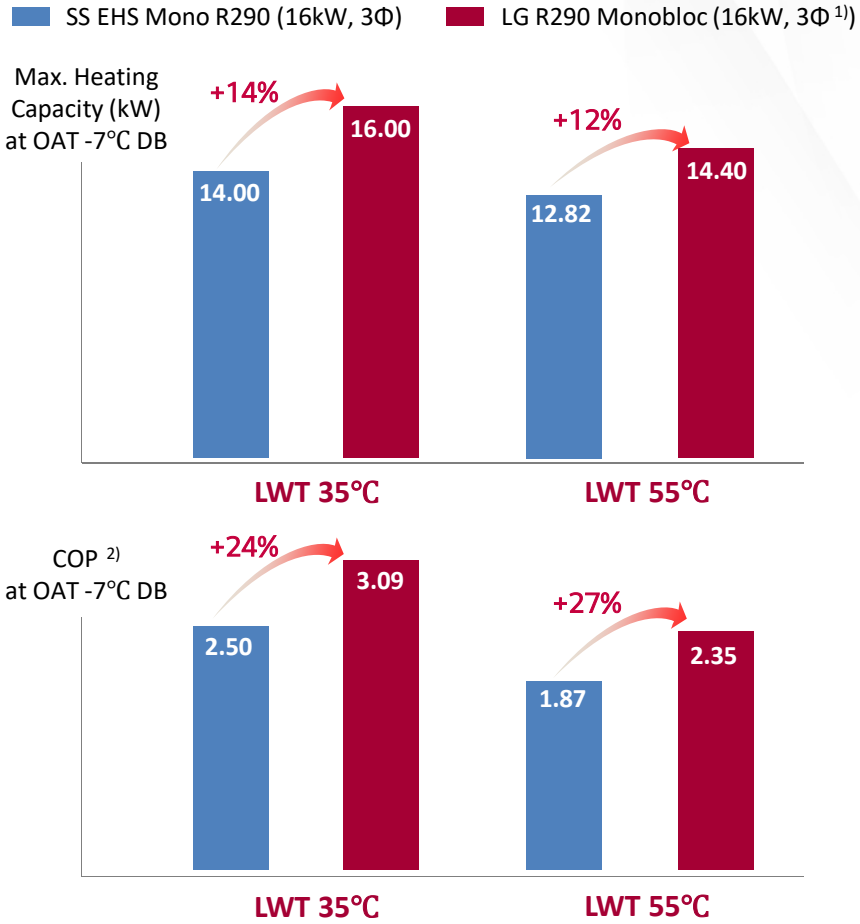
The Adaptive Injection cycle, tailored for R290 refrigerant, optimizes heating capacity and efficiency.

Maximizing compressor efficiency by minimizing energy loss with direct oil return



[HiPOR™]
(High Pressure Oil Return)

Comparison with SS Company



1) Based on Peak Control - Step 3 & 4 (Available Only for 3ph models)
2) Based on each company's maximum Heating capacity

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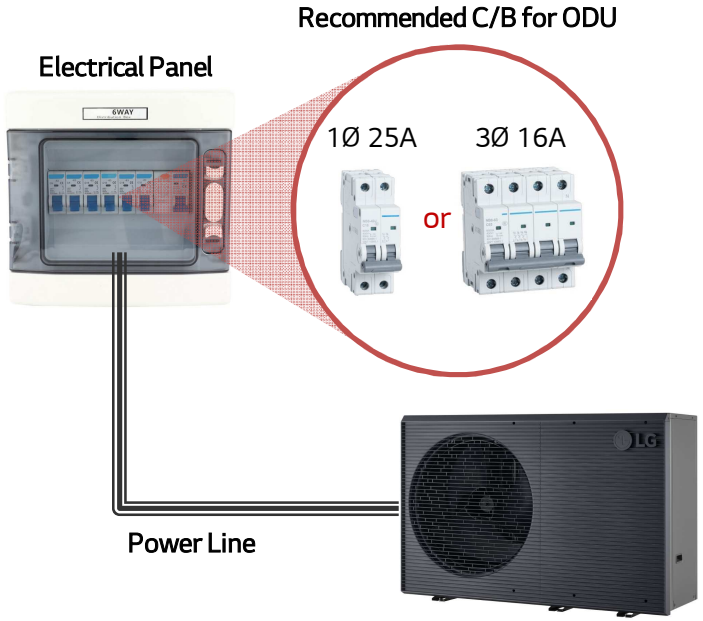
4 Optimized Circuit Breaker

vs. Samsung

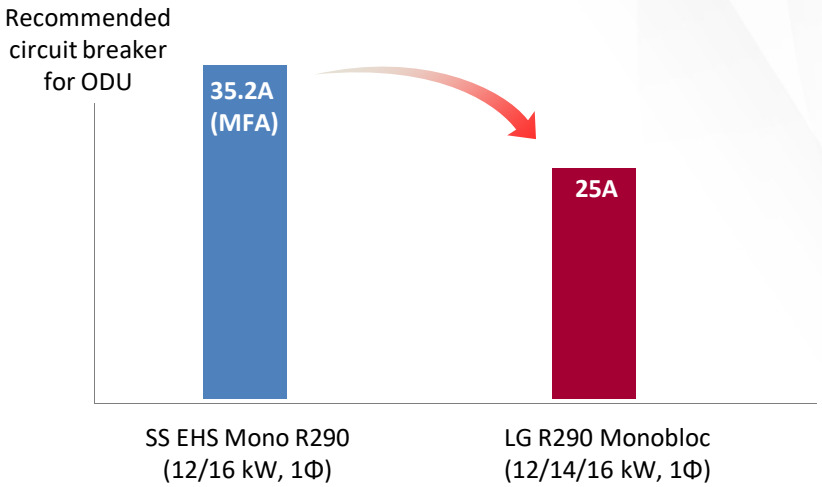
LG Therma V R290 Monobloc requires smaller circuit breakers compared to **Samsung EHS Mono R290.**

Optimized Circuit Breaker of LG R290 Monobloc



Description		Recommended circuit breaker for outdoor Unit		Remark
		LG R32 Monobloc S	*LG R290 Monobloc*	
1Ø	12 kW	40 A	25 A	Optimized for filed condition
	14 kW			
	16 kW			
3Ø	9 kW	16 A	16 A	Same as R32 Monobloc S
	12 kW			
	14 kW			
	16 kW			

Comparison with SS Company



BENEFITS

By optimizing the circuit breaker specifications of LG R290 Monobloc, it helps installers reduce costs by allowing them to use low-current circuit breakers.

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