R32 EVI Inverter Heat Pump Series:

Efficient and reliable heating and domestic hot water solution

Heat Pump WiFi Module (Optional, model number: DTWD-WIFI-AV)

Control your heat pump

with your smart phone

anywhere, anytime

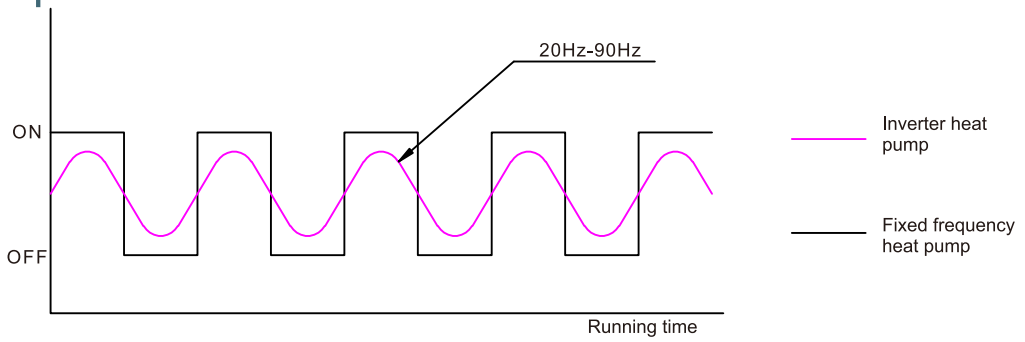
Unit App. control function:

- **Unit on/off control**
- **Heating/cooling/domestic hot water temp. setup**
- **Heating curve function enable/disable**
- **Aux. electric heater setup**
- **Schedule heating/cooling timer on/off**
- **Fault alert**

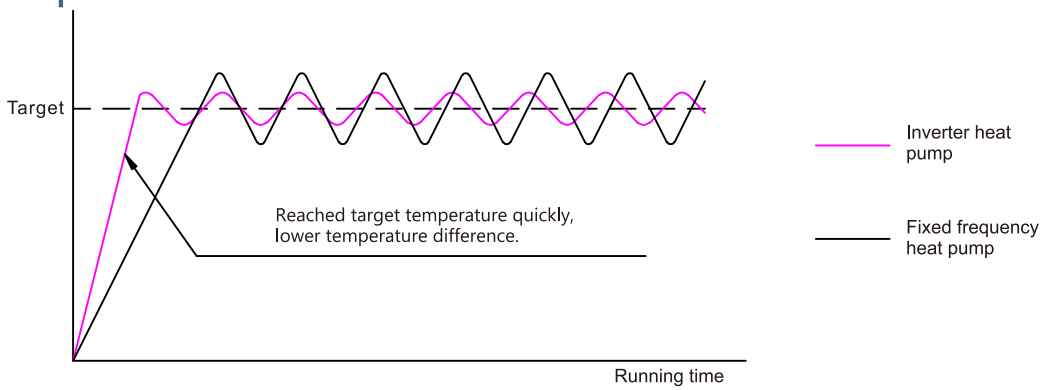
DC inverter EVI heat pump offers a wide heat output . It could adjust heat output automatically according to your house heating requirement . In winter , the inverter compressor and fan motor will runs on high speed to provide more heating when ambient temperature is very low ; If your house need less heating , it will drop running frequency down to 20Hz in which condition the heat pump will consume less electric power .

Heat pump is not just a heating system for new buildings , it can also be integrated into existing buildings that already have heating systems easily . Irrespective of whether you have a gas , oil boiler or solar panels , the heat pump switches on the 2nd heat generator according to demand for keeping lowest heating costs.

Compressor Control



Temperature Control

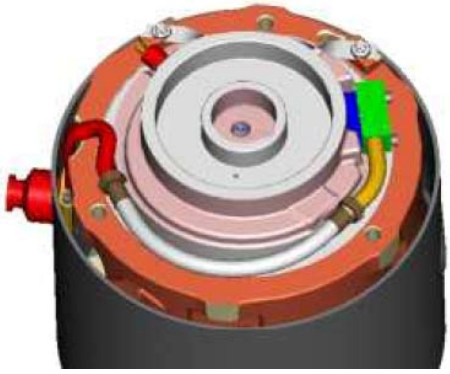


DC Inverter EVI Heat Pump Advantages:

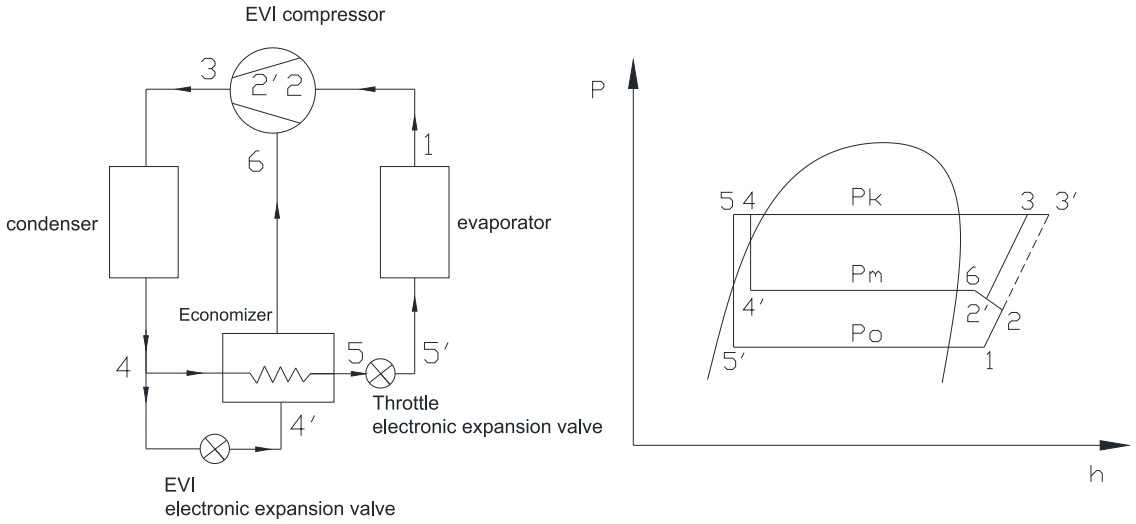
1.Save more than 30% energy than fixed frequency heat pump
2.Soft start to protect your electric network
3.Smooth temperature varies curve
4.Wide heating/cooling output range
5.Can be used in combination with heat generators such as gas ,oil or solar that existing in buildings
6.Intelligent defrosting by reverse circulation
7.Weather compensation function: heating / cooling curve
8.Heating, cooling and domestic hot water
9. SG Ready.
10. Flow feedback Grundfos circulation pump ,saving water flow switch and displaying water flow rate.
11. Delivers higher capacity at low evaporating temperature thereby better responding to heating requirement thanks to EVI compressor.It also results in less supplementary heating to cover the full heating demand on the coldest days.

EVI Working principle

The compressor contains two injection inlets on the compression room. the compression process is divided into two section. The compressor becomes two stage compression.



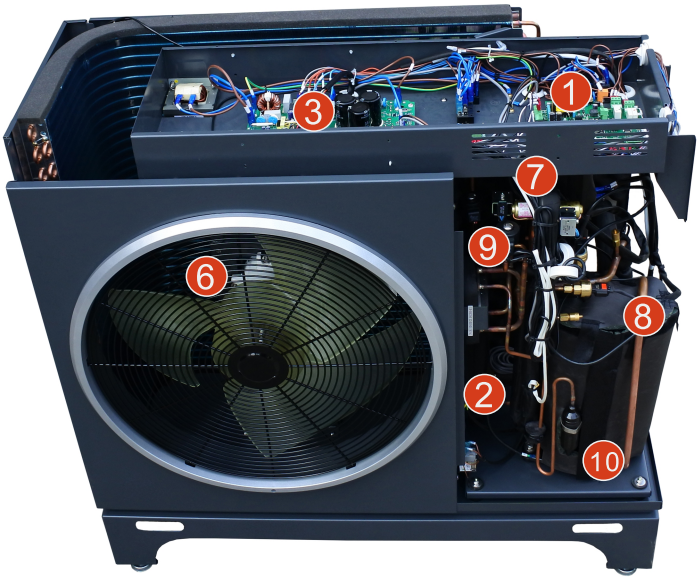
As diagram below, compressor injection – compressing process could be divided into three states.



1).Compressor absorb state 1 vapor is compressed into state 2
2).State 2 gas in working room is mixed with the injecting gas from injection inlet ,and then injecting, mixing and compressing process goes on at the same time until working room separates from injection inlet. The gas state in working room change to state 2'from state 2 .
3).After working room separates from injection inlet, the gas inside is compressed from state 2' to state 3 (3' is normal heat pump).

Heat output increases almost in linear trend following the increase of relative injected gas pressure. When other condition unchanged, the increase of relative injected gas pressure means the increase of quantity of gas injected. Increasing gas injected not only increases gas flow rate in condenser but also increase compressor power consumption. Both of these can increase unit heat output.

Main Components



1. Carel Controller UP3A00200T3S0
2. Plate Heat Exchanger
3. Sanhua inverter
4. Circulation Pump Flow Feedback Board
5. Grundfos Circulation Pump
6. Panasonic EC Fan Motor
7. Saginomiya 4 Way Valve
8. Sensata Pressure Transducer
9. Carel Electronic Expansion Valve
10. Panasonic Twin Rotary EVI Compressor
11. Carel PGN1000F00 user interface

Data Sheet

Model Number		RS07V/L		
Heating performance		Min.	Nominal	Max.
Heat output/Power consumption/COP at A7/W35℃	kW	2.20/0.48/4.58	6.82/1.44/4.75	7.42/1.62/4.58
Heat output/Power consumption/COP at A2/W35℃	kW	3.00/0.96/3.13	6.14/1.45/4.23	6.68/1.63/4.09
Heat output/Power consumption/COP at A-7/W35℃	kW	3.20/1.19/2.69	4.60/1.44/3.19	5.00/1.62/3.09
Heat output/Power consumption/COP at A-10/W35℃	kW	3.76/1.53/2.46	4.15/1.41/2.95	4.51/1.59/2.85
Heat output/Power consumption/COP at A-15/W35℃	kW	3.80/1.58/2.40	3.67/1.50/2.45	3.99/1.69/2.37
Heat output/Power consumption/COP at A7/W45℃	kW	2.30/0.61/3.78	6.44/1.82/3.54	7.00/2.05/3.42
Heat output/Power consumption/COP at A2/W45℃	kW	3.20/1.07/2.98	5.73/1.81/3.17	6.23/2.04/3.06
Heat output/Power consumption/COP at A-7/W45℃	kW	3.30/1.38/2.40	4.61/1.76/2.62	5.01/1.98/2.53
Heat output/Power consumption/COP at A-10/W45℃	kW	3.36/1.53/2.20	4.27/1.81/2.36	4.64/2.04/2.28
Heat output/Power consumption/COP at A-15/W45℃	kW	3.42/1.80/1.90	3.81/2.00/1.91	4.14/2.25/1.84
Heat output/Power consumption/COP at A7/W55℃	kW	2.35/0.79/2.96	7.11/2.38/2.99	7.73/2.68/2.89
Cool output/Power consumption/EER at A35/W7℃	kW	1.30/0.50/2.60	5.19/1.78/2.92	5.51/1.93/2.86
Nominal running current at A7/W35	A	6.50		
Aux. electric heater	KW	3		
Max operating current （aux. heater running)	A	12.6 (25.6)		
Max. power consumption （aux. heater running)	KW	2.8 (5.8)		
Power Supply		220-240V/1phase/50Hz		
Compressor		Panasonic EVI twin rotary		
Condenser		Brazed plate heat exchanger		
Nominal flow heating medium	m3/h	1.18		
Internal pressure drop at nominal flow	kPa	11		
Nominal air flow	m^3/h	3000		
Nominal fan output	W	110		
Max outlet heating medium temperature	℃	55		
Refrigerant R32 filling weight	g	**1300**		
Dimensions (HxWxD)	mm	1005 x 1060 x 420		
Pipe connector		G1' external thread		
Net Weight	kg	98		
Operating ambient temp. range	℃	Heating -25~35		
		DHW -25~43		
		Cooling 10~45		
Sound power level L_{WA}	dB(A)	59		

The above data is tested by EN14511. A7/W35℃ means air temp. 7℃,outlet water temp. 35℃

Data Sheet

Model Number		RS10V/L		
Heating performance		Min.	Nominal	Max.
Heat output/Power consumption/COP at A7/W35℃	kW	2.60/0.54/4.74	9.55/2.20/4.34	10.20/2.46/4.15
Heat output/Power consumption/COP at A2/W35℃	kW	4.10/0.86/4.51	8.80/2.28/3.86	9.40/2.48/3.79
Heat output/Power consumption/COP at A-7/W35℃	kW	3.60/1.29/2.79	7.18/2.24/3.21	7.60/2.42/3.14
Heat output/Power consumption/COP at A-10/W35℃	kW	3.20/1.28/2.50	6.78/2.25/3.01	7.20/2.43/2.96
Heat output/Power consumption/COP at A-15/W35℃	kW	2.16/1.28/1.67	6.13/2.38/2.58	7.20/2.94/2.45
Heat output/Power consumption/COP at A7/W45℃	kW	3.75/1.00/3.75	11.23/3.07/3.66	11.98/3.32/3.61
Heat output/Power consumption/COP at A2/W45℃	kW	4.19/1.47/2.85	10.15/3.12/3.25	10.82/3.51/3.08
Heat output/Power consumption/COP at A-7/W45℃	kW	3.24/1.81/1.79	8.21/3.19/2.57	8.75/3.75/2.33
Heat output/Power consumption/COP at A-10/W45℃	kW	3.04/1.81/1.68	7.56/3.21/2.36	8.06/3.63/2.22
Heat output/Power consumption/COP at A-15/W45℃	kW	2.65/1.90/1.39	6.49/3.24/2.00	6.92/3.52/1.97
Heat output/Power consumption/COP at A7/W55℃	kW	3.19/1.05/3.04	10.35/3.48/2.98	11.04/3.92/2.81
Cool output/Power consumption/EER at A35/W7℃	kW	1.72/0.57/3.00	6.00/2.45/2.45	6.43/2.75/2.34
Nominal running current at A7/W35	A	9.8		
Max operating current (aux. heater running)	A	16 (29)		
Auxiliary electric heater	KW	3		
Max. power consumption (aux. heater running)	KW	3.7 (7.7)		
Power Supply		220-240V/1phase/50Hz		
Compressor		Panasonic EVI twin rotary		
Condenser		Brazed plate heat exchanger		
Nominal flow heating medium	m3/h	1.64		
Internal pressure drop at nominal flow	kPa	19		
Nominal air flow	m^3/h	3000		
Nominal fan output	W	110		
Max outlet heating medium temperature	℃	55		
Refrigerant R32 filling weight	kg	**1.8**		
Dimensions (HxWxD)	mm	1005 x 1060 x 420		
Pipe connector		G1' external thread		
Net Weight	kg	102		
Operating ambient temp. range	℃	Heating -25~35		
		Cooling 10~43		
Sound power level L_{WA}	dB(A)	61		

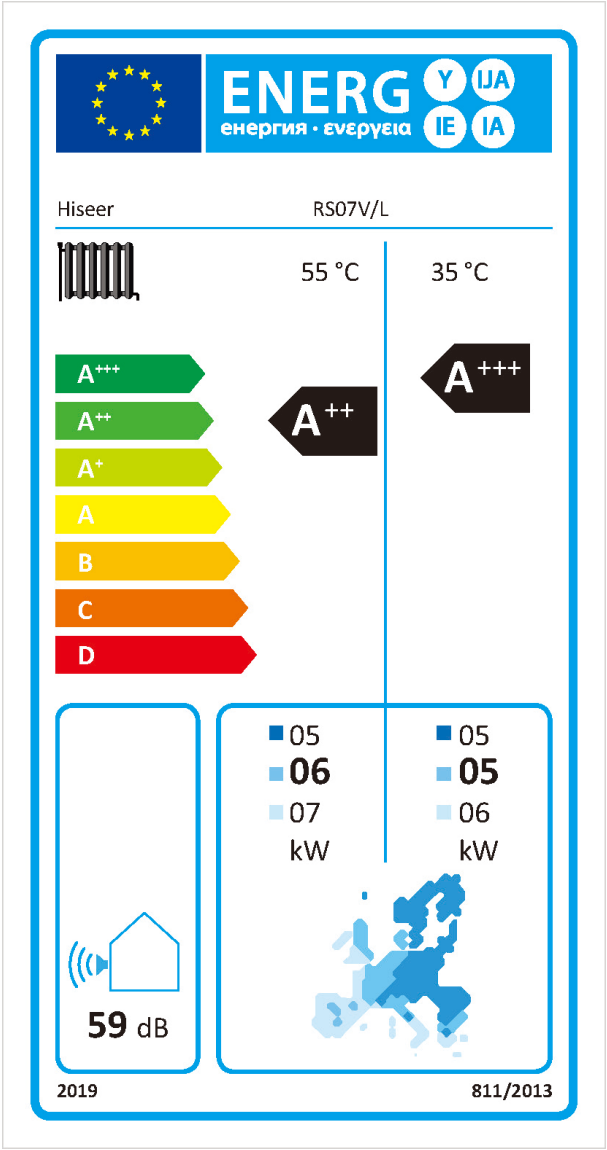
The above data is tested by EN14511. A7/W35℃ means air temp. 7℃,outlet water temp. 35℃

The Sound power level is tested by EN12102

Data Sheet

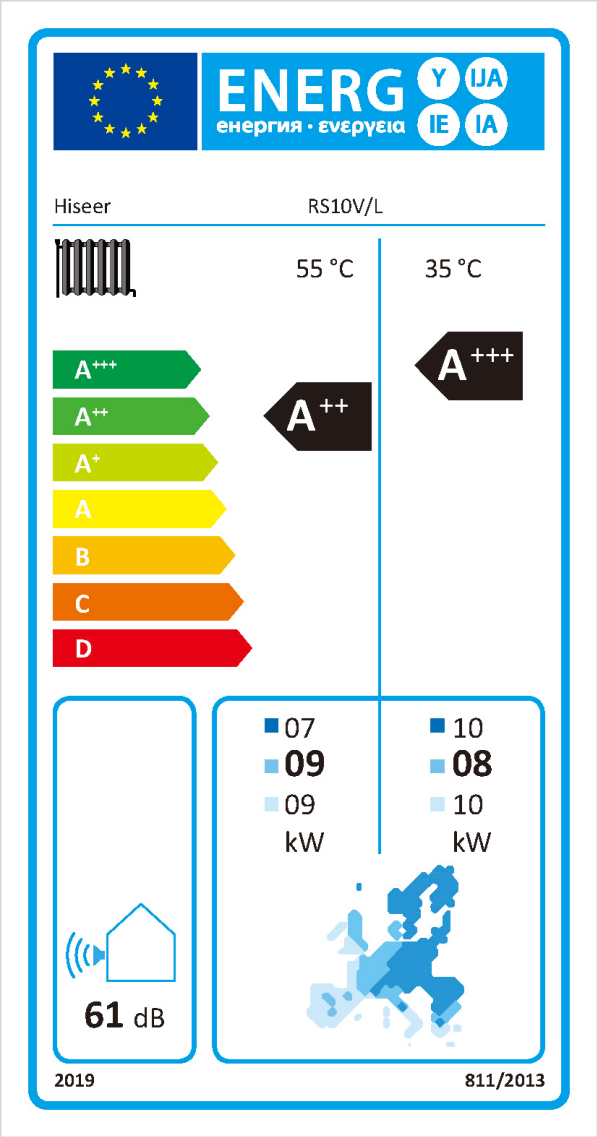
Model Number		RS15V/L		
Heating performance		Min.	Nominal	Max.
Heat output/Power consumption/COP at A7/W35℃	kW	4.90/1.14/4.30	15.28/3.27/4.67	17.80/4.05/4.40
Heat output/Power consumption/COP at A2/W35℃	kW	8.00/2.22/3.60	13.53/3.27/4.14	15.70/4.03/3.90
Heat output/Power consumption/COP at A-7/W35℃	kW	5.60/2.34/2.39	9.75/3.68/2.65	11.30/4.52/2.50
Heat output/Power consumption/COP at A-10/W35℃	kW	5.50/2.43/2.26	9.67/3.84/2.51	11.15/4.72/2.36
Heat output/Power consumption/COP at A-15/W35℃	kW	4.90/2.51/1.95	8.6/3.96/2.17	10.00/4.93/2.03
Heat output/Power consumption/COP at A7/W45℃	kW	9.00/2.82/3.19	15.58/4.40/3.54	18.20/5.47/3.33
Heat output/Power consumption/COP at A2/W45℃	kW	8.03/2.77/3.00	13.80/4.48/3.07	16.00/5.52/2.90
Heat output/Power consumption/COP at A-7/W45℃	kW	6.10/2.99/2.04	10.58/4.66/2.27	12.30/5.86/2.10
Heat output/Power consumption/COP at A-10/W45℃	kW	5.70/3.03/1.88	9.80/4.70/2.09	11.30/5.68/1.99
Heat output/Power consumption/COP at A-15/W45℃	kW	5.00/2.98/1.68	8.77/4.70/1.87	10.20/5.67/1.80
Heat output/Power consumption/COP at A7/W55℃	kW	5.20/2.02/2.57	15.80/5.51/2.86	18.40/6.81/2.70
Cool output/Power consumption/EER at A35/W7℃	kW	4.14/1.51/2.75	11.25/4.43/2.54	13.08/5.45/2.40
Nominal running current at A7/W35	A	5.43		
Aux. heater	KW	6		
Max operating current (Aux. heater on)	A	11.2 (19.9)		
Max power consumption (Aux. heater on)	KW	6.6 (12.6)		
Power Supply		380-415V//3phase/50Hz		
Compressor		Panasonic EVI twin rotary		
Condenser		Brazed plate heat exchanger		
Nominal flow heating medium	m3/h	2.58		
Internal pressure drop at nominal flow	kPa	10		
Nominal air flow	m^3/h	5000		
Nominal fan output	W	220		
Max outlet heating medium temperature	℃	58		
Refrigerant R32 filling weight	kg	**2.9**		
Dimensions (HxWxD)	mm	1172 x 1060 x 420		
Pipe connector		G1' external thread		
Net Weight	kg	140		
Operating ambient temp. range	℃	Heating -25~35		
		DHW -25~43		
		Cooling 10~45		
Sound power level L_{WA}	dB(A)	69		

ErP label and product fiche



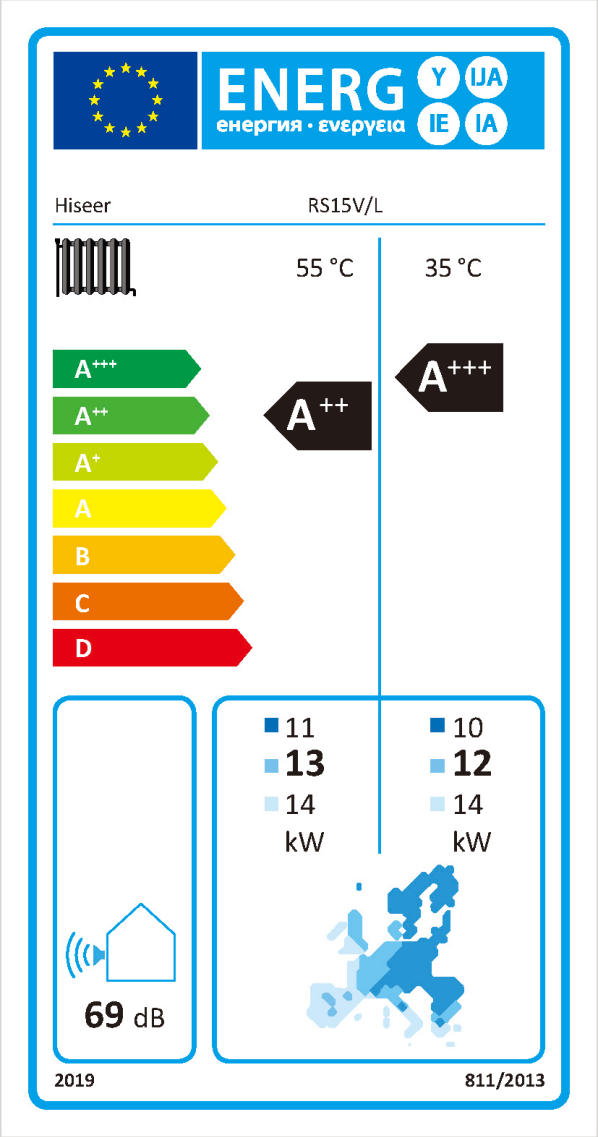
Type		Air to water heat pump	
Model		RS07V/L	
Temperature application		55°C	35°C
Seasonal space heating energy efficiency class, average climate		A^{++}	A^{+++}
Rated heat output ,average climate	[KW]	6	5
Annual energy consumption, average climate *	[KWh]	3556	2362
Seasonal space heating energy efficiency η_s, average climate		130%	178%
SCOP ,average climate		3.34	4.53
Sound power level LWA, outdoors	[dB(A)]	59	
Rated heat output ,cold climate	[KW]	5	5
Annual energy consumption, cold climate *	[KWh]	4280	3544
Seasonal space heating energy efficiency η_s, cold climate		110%	146%
SCOP ,cold climate		2.82	3.73
Rated heat output ,warm climate	[KW]	7	6
Annual energy consumption, warm climate *	[KWh]	2090	1391
Seasonal space heating energy efficiency η_s, warm climate		167%	225%
SCOP ,warm climate		4.25	5.71
Dimension (H X W X D)	[mm]	1005 x 1060 x 420	
Weight	[kg]	98	
Power source		220-240V/1ph/50Hz	

ErP label and product fiche



Type		Air to water heat pump	
Model		RS10V/L	
Temperature application		55°C	35°C
Seasonal space heating energy efficiency class, average climate		A^{++}	A^{+++}
Rated heat output ,average climate	[KW]	9	8
Annual energy consumption, average climate *	[KWh]	5443	3686
Seasonal space heating energy efficiency η_s, average climate		126%	179%
SCOP ,average climate		3.24	4.55
Sound power level LWA, outdoors	[dB(A)]	61	
Rated heat output ,cold climate	[KW]	7	10
Annual energy consumption, cold climate *	[KWh]	5883	5994
Seasonal space heating energy efficiency η_s, cold climate		120	156
SCOP ,cold climate		3.08	3.98
Rated heat output ,warm climate	[KW]	9	10
Annual energy consumption, warm climate *	[KWh]	3046	2600
Seasonal space heating energy efficiency η_s, warm climate		159	207
SCOP ,warm climate		4.04	5.24
Dimension (H X W X D)	[mm]	1005 x 1060 x 420	
Weight	[kg]	110	
Power source		220-240V/1ph/50Hz	

ErP label and product fiche



Type		Air to water heat pump	
Model		RS15V/L	
Temperature application		55°C	35°C
Seasonal space heating energy efficiency class, average climate		A^{++}	A^{+++}
Rated heat output ,average climate	[KW]	13	12
Annual energy consumption, average climate *	[KWh]	8098	7670
Seasonal space heating energy efficiency η_s, average climate		132%	180%
SCOP ,average climate		3.37	4.58
Sound power level LWA, outdoors	[dB(A)]	69	
Rated heat output ,cold climate	[KW]	11	10
Annual energy consumption, cold climate *	[KWh]	9003	6871
Seasonal space heating energy efficiency η_s, cold climate		112%	147%
SCOP ,cold climate		2.89	3.74
Rated heat output ,warm climate	[KW]	14	14
Annual energy consumption, warm climate *	[KWh]	4669	3379
Seasonal space heating energy efficiency η_s, warm climate		154%	211%
SCOP ,warm climate		3.92	5.34
Dimension (H X W X D)	[mm]	1172 x 1060 x 420	
Weight	[kg]	140	
Power source		380-420V/3ph/50Hz	

Rated Speed Performance Curve

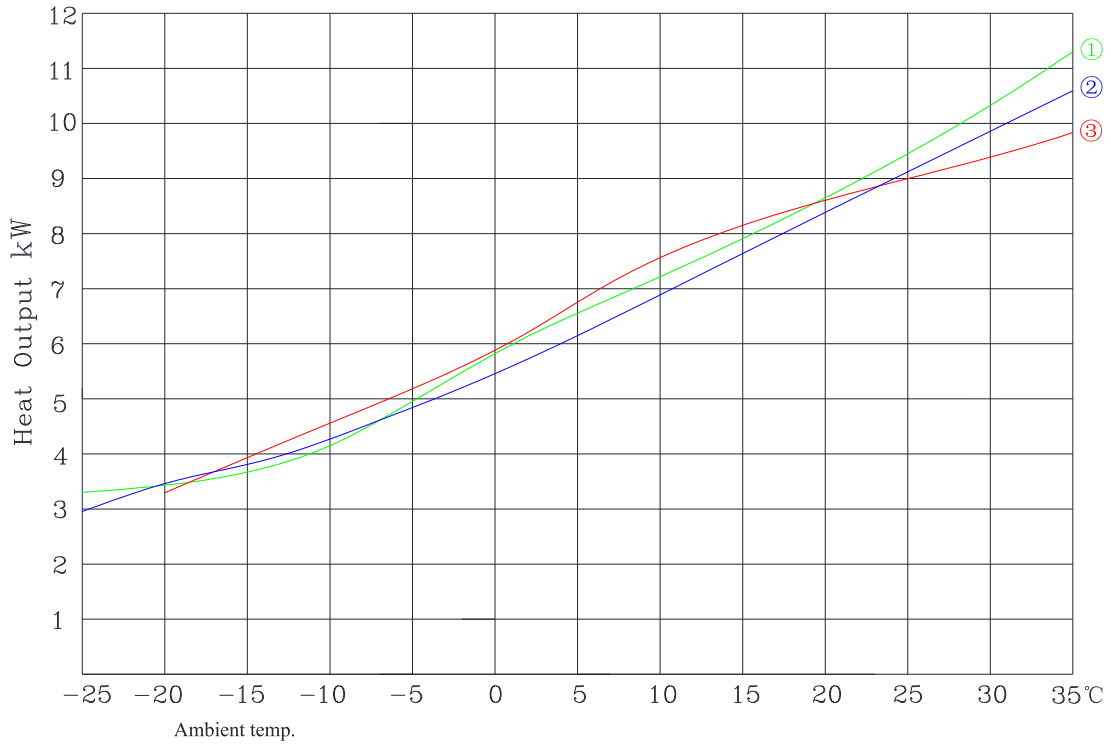
Model:RS07V/L

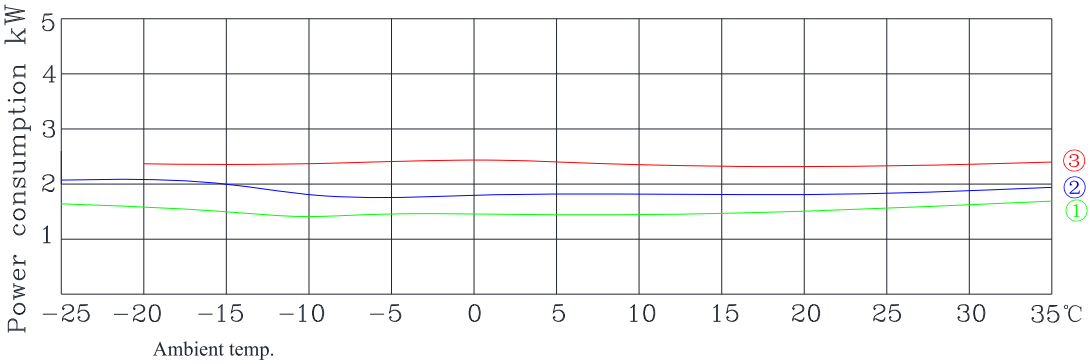
Heating performance curve

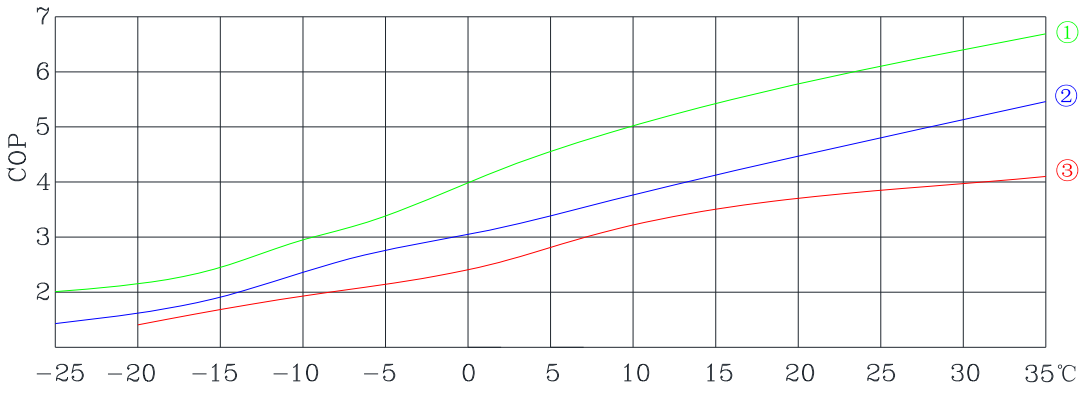
1=Flow temperature 35℃ Full load

2=Flow temperature 45℃ Full load

3=Flow temperature 55℃ Full load

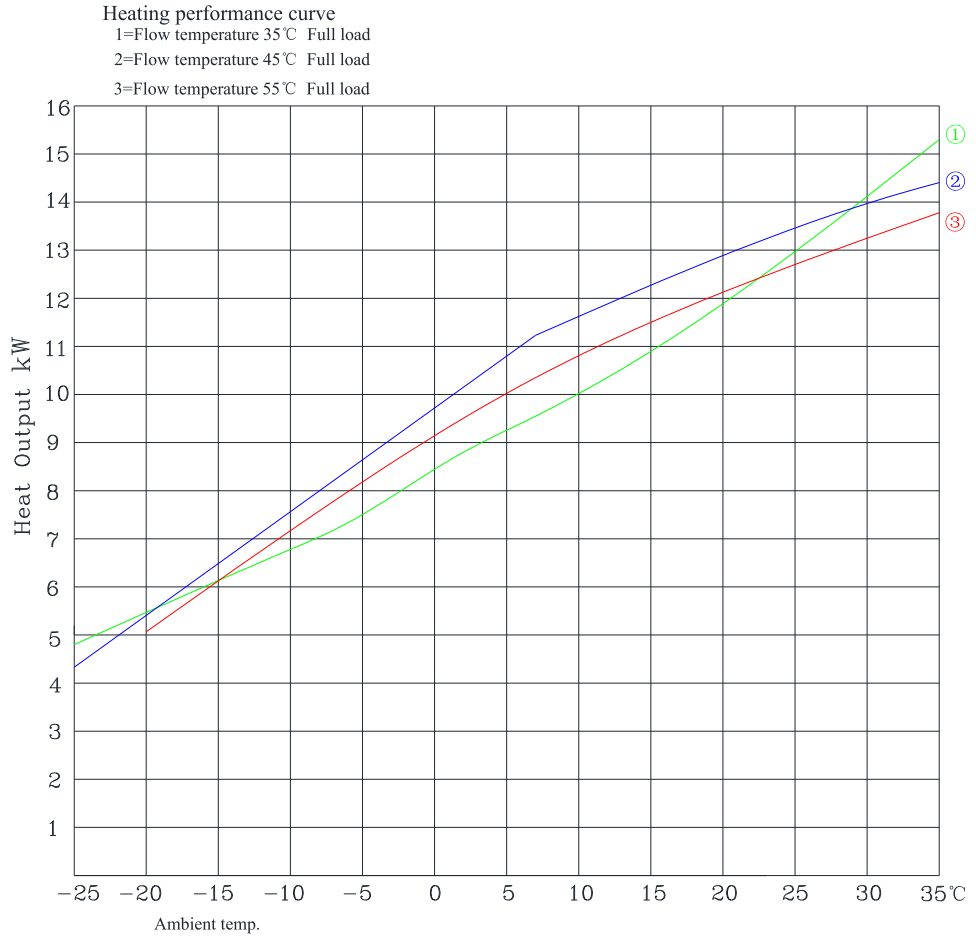


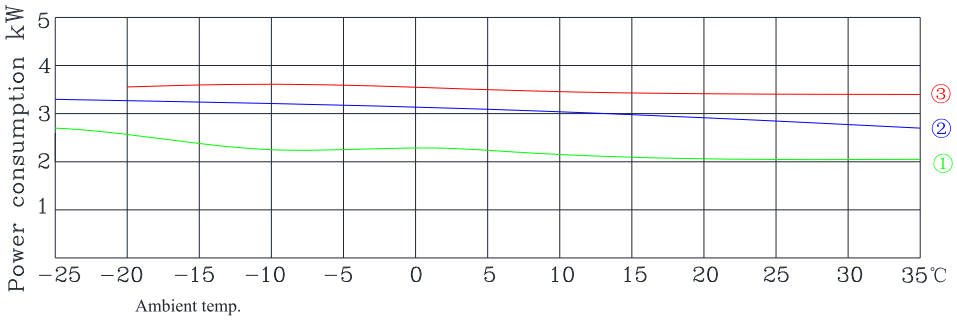


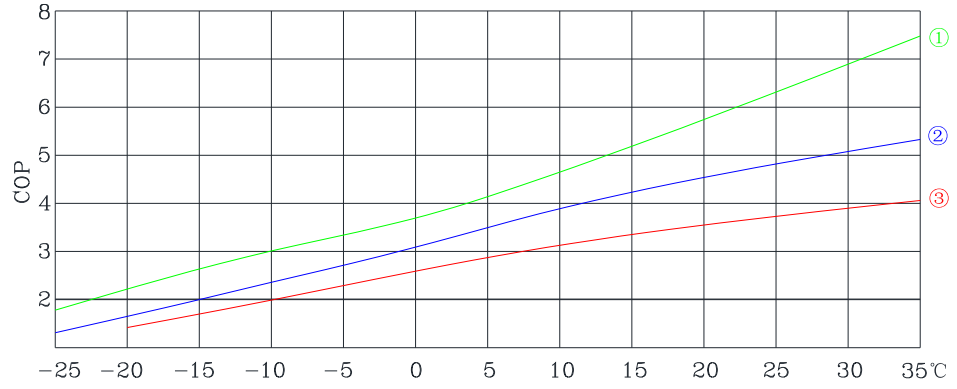


Rated Speed Performance Curve

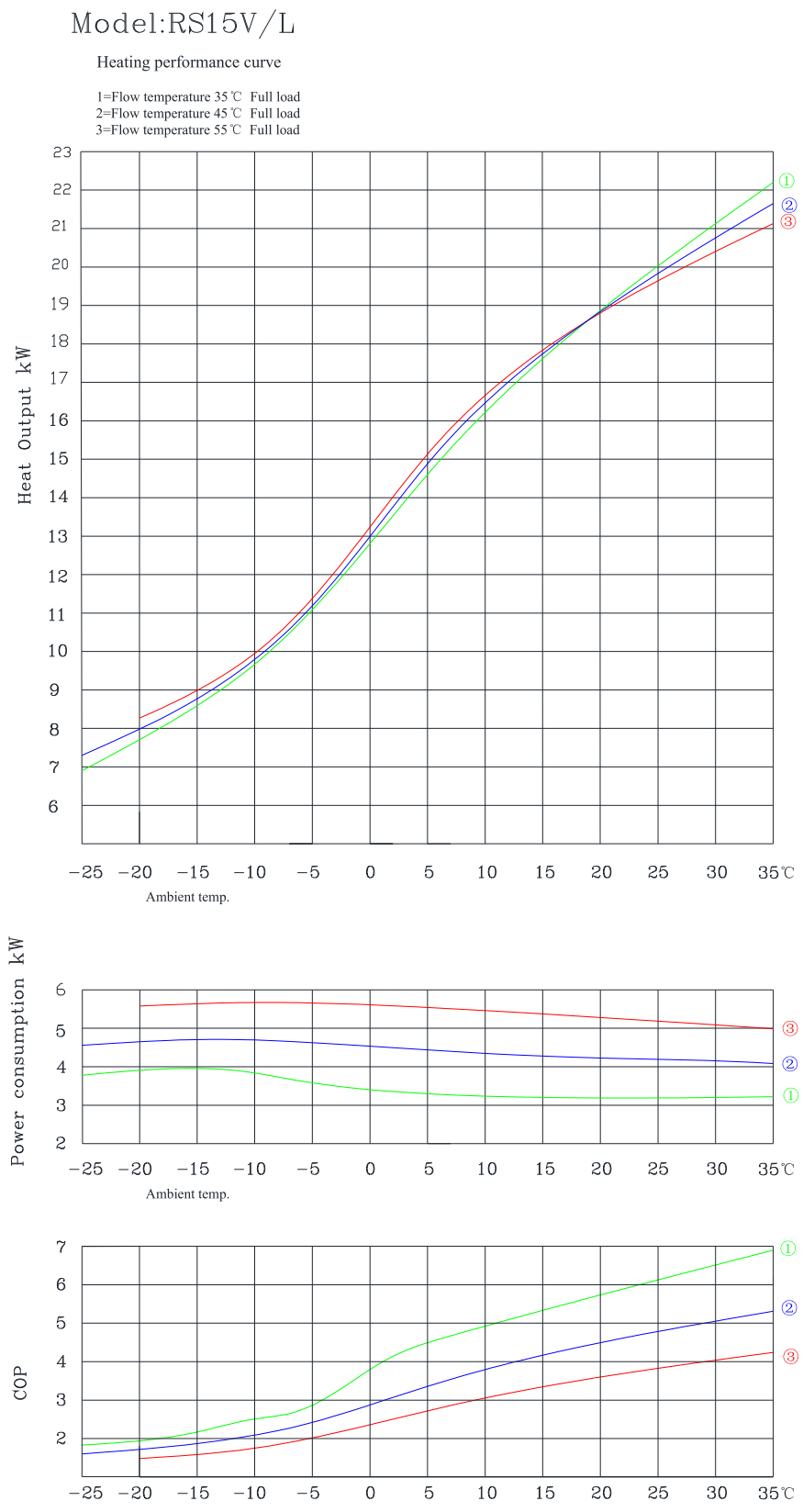
Model:RS10V/L



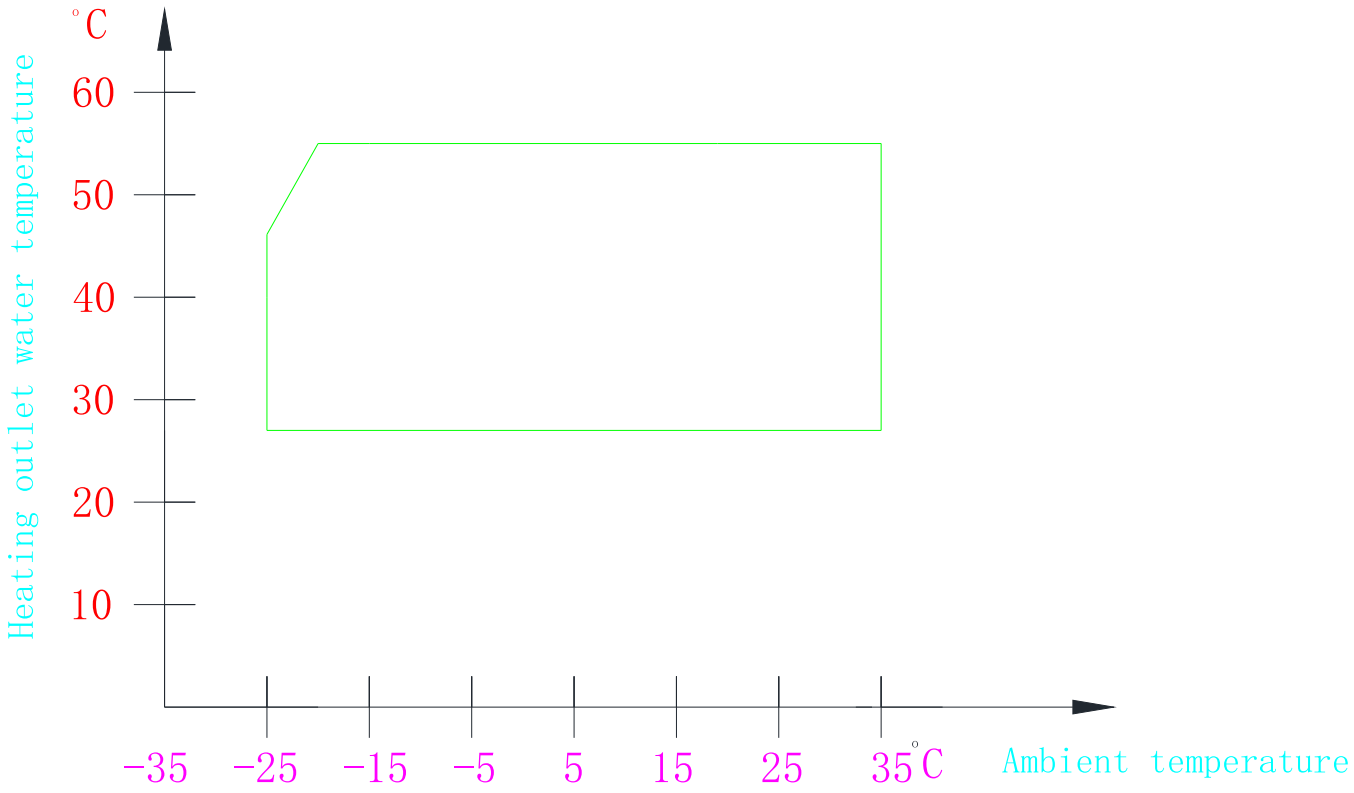




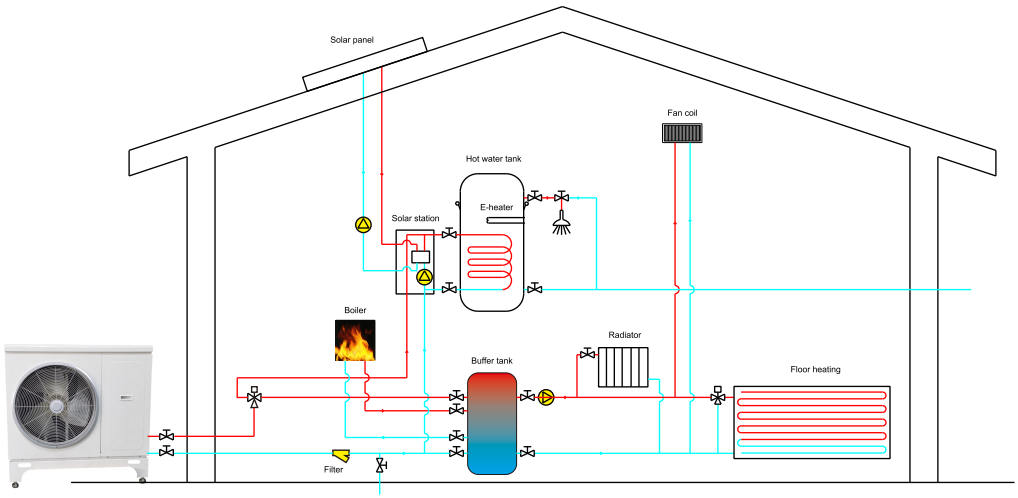
Rated Speed Performance Curve



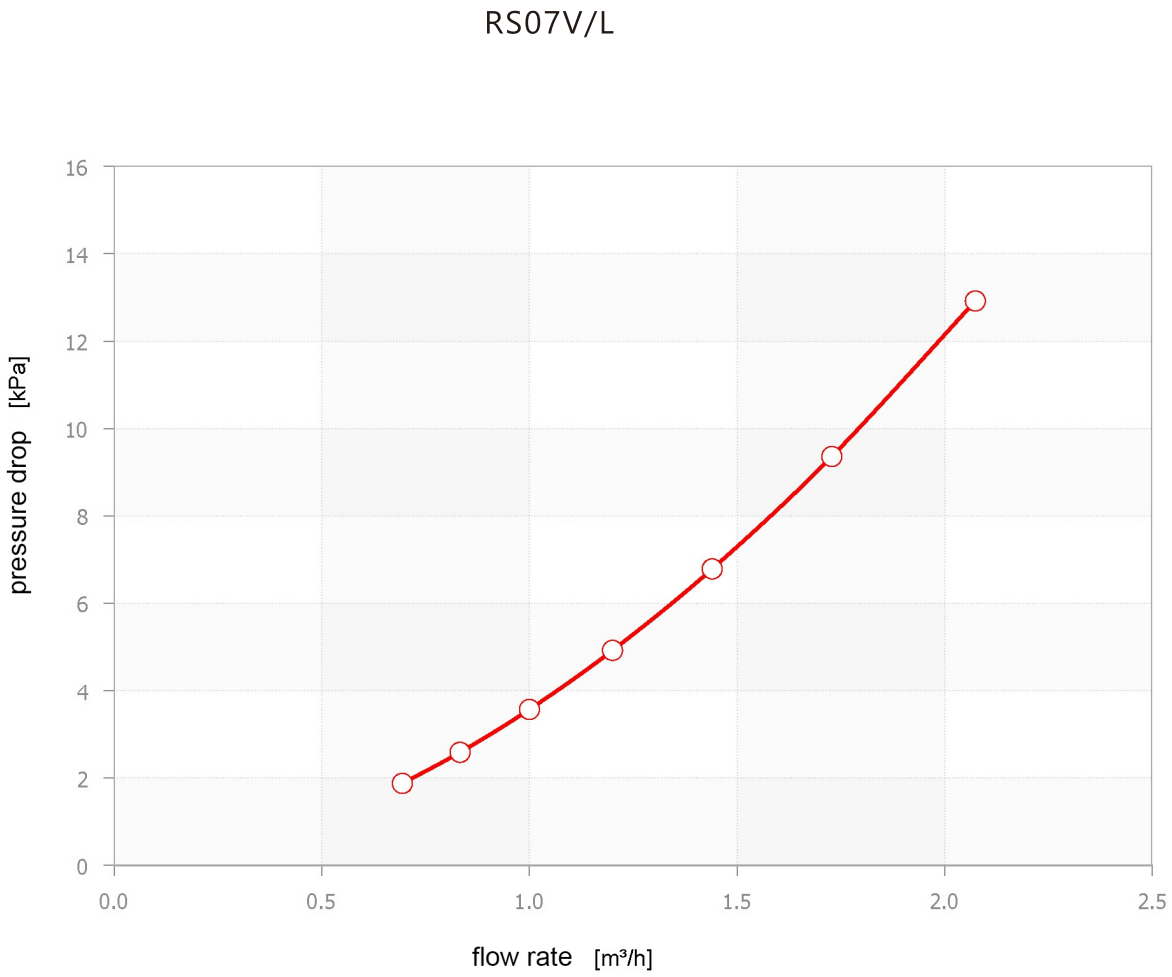
Workable Range



Typical application

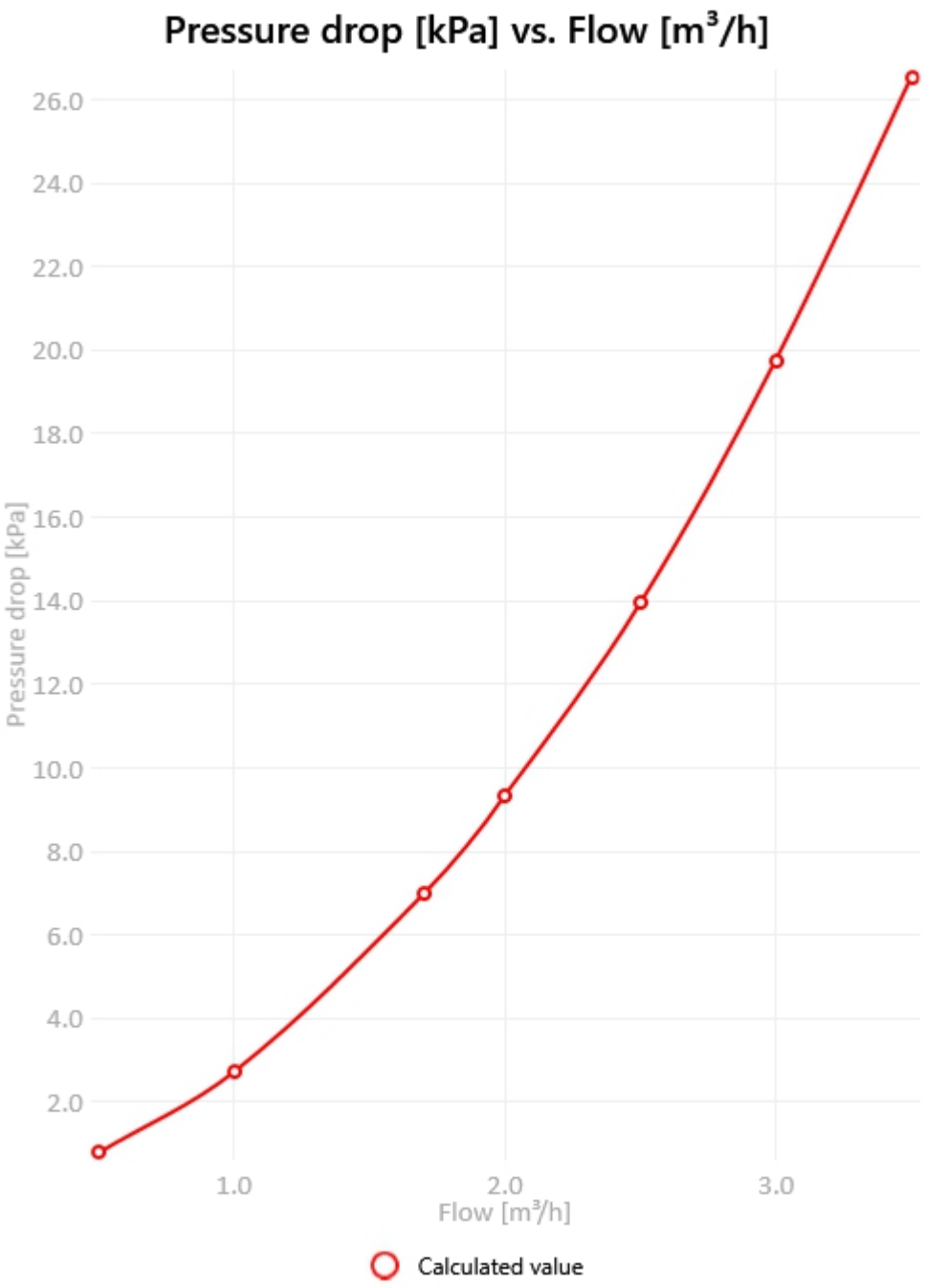


Pressure Drop Curve



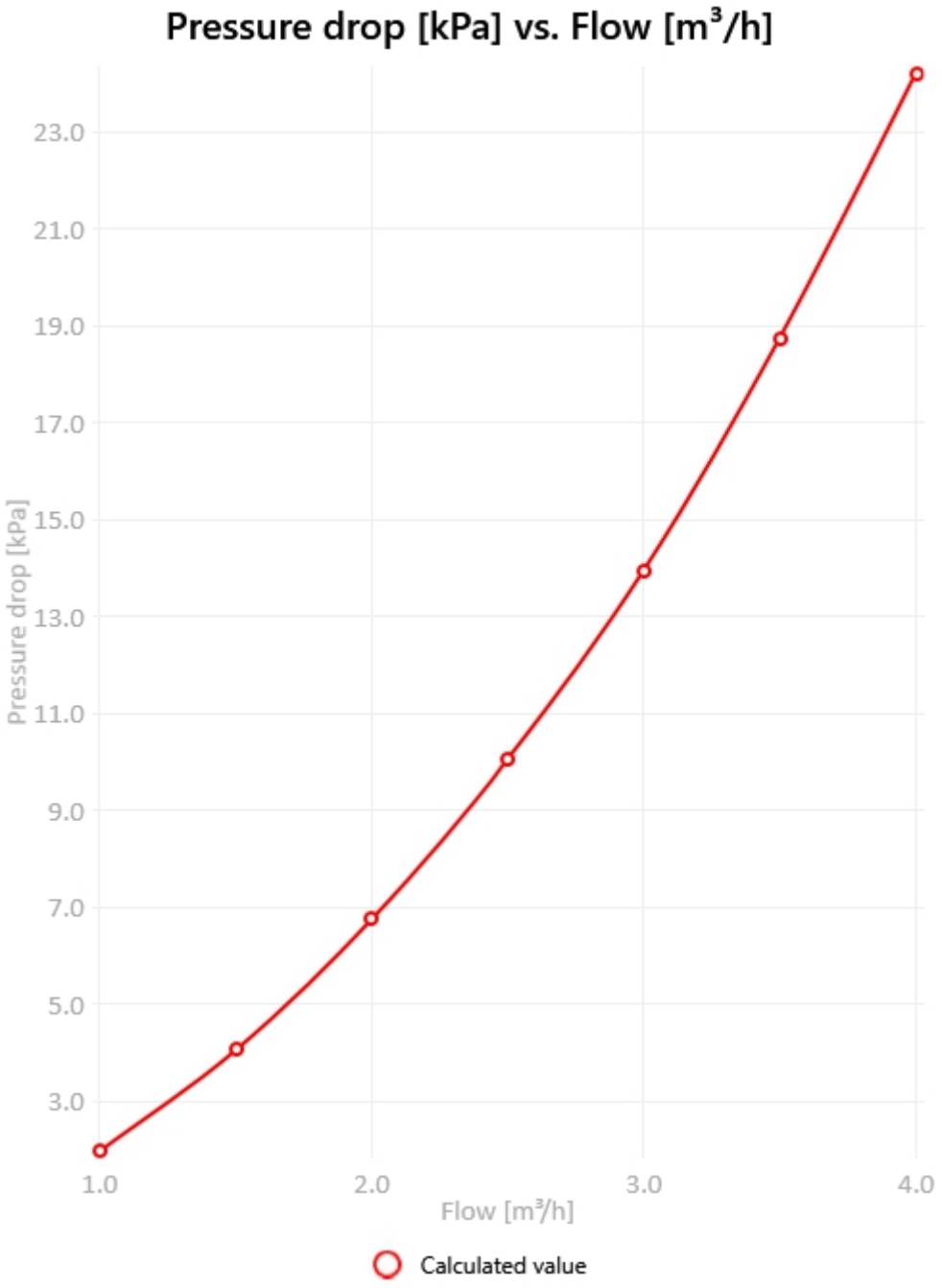
Pressure Drop Curve

RS10V/L



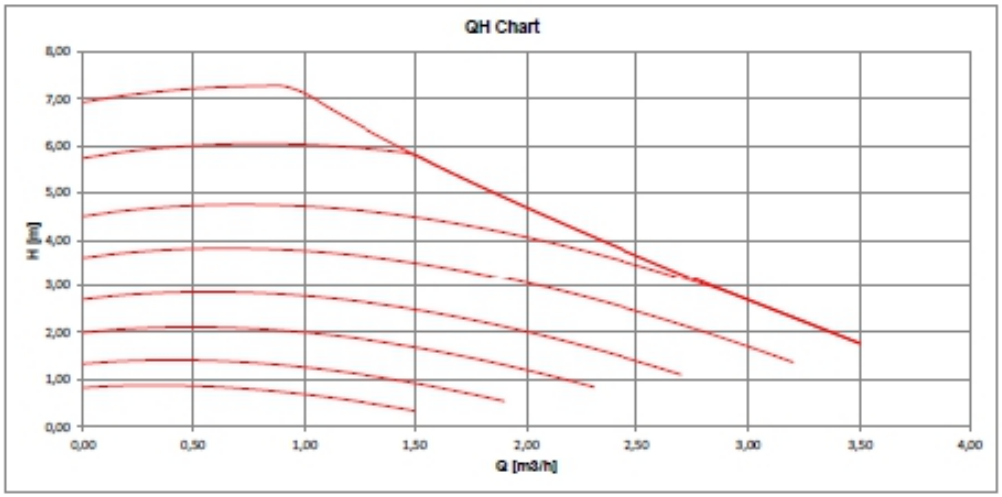
Pressure Drop Curve

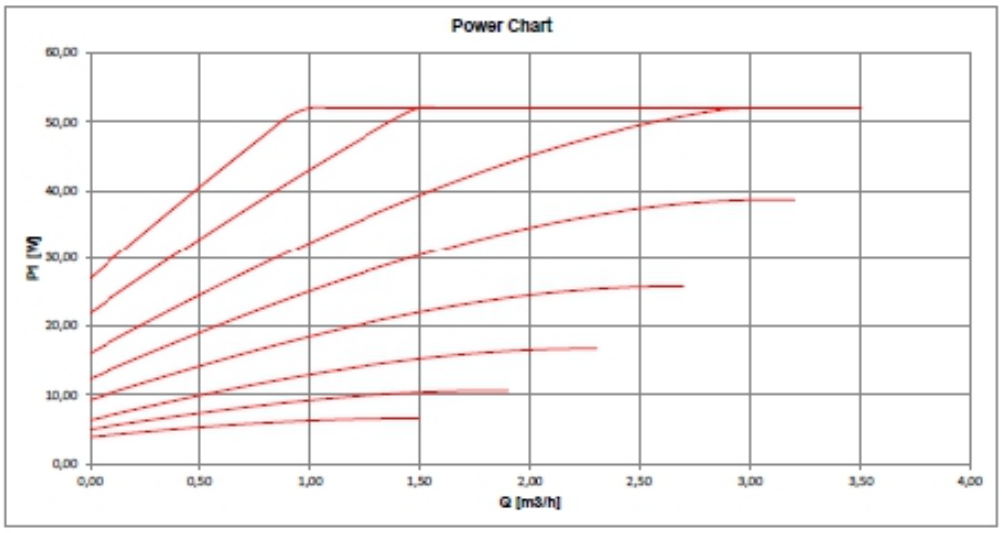
RS15V/L

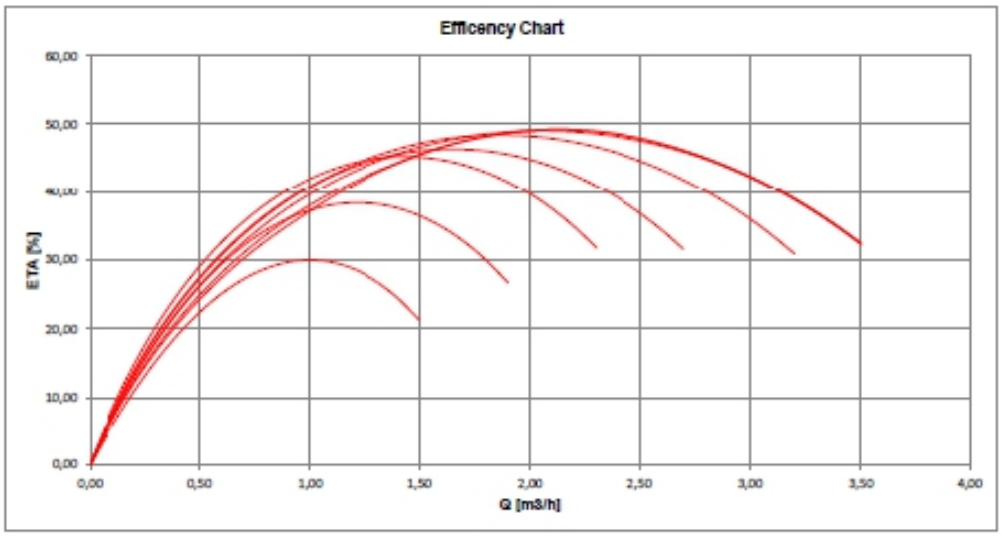


Internal Pump Grundfos UPM3K 25-75 Curve (RS07V/L RS10V/L)

Title Test data UPM3 PWM 7.0m 130
Product no

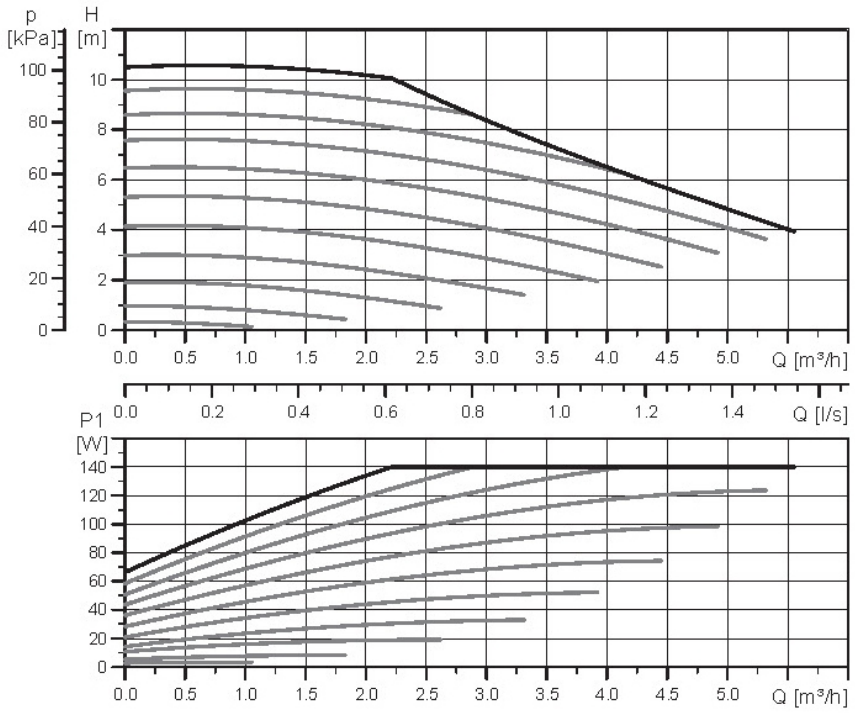






Internal Pump Grundfos UPML GEO 25-105 Curve (RS15V/L)

UPML GEO 25-105 130 PWM, 1 x 230 V, 50/60 Hz



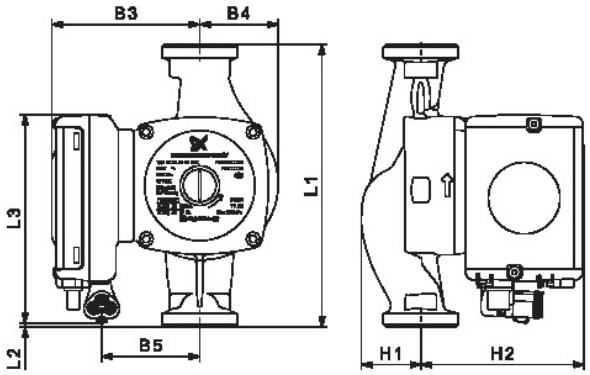
EEI ≤ 0.23

TM05 7251 0813

Electrical data, 1 x 230 V, 50 Hz

Speed	P_1 [W]	$I_{1/1}$ [A]
Min.	3	0.04
Max.	140	1.1

Dimensional sketches and control box positions



TM05 5123 3312

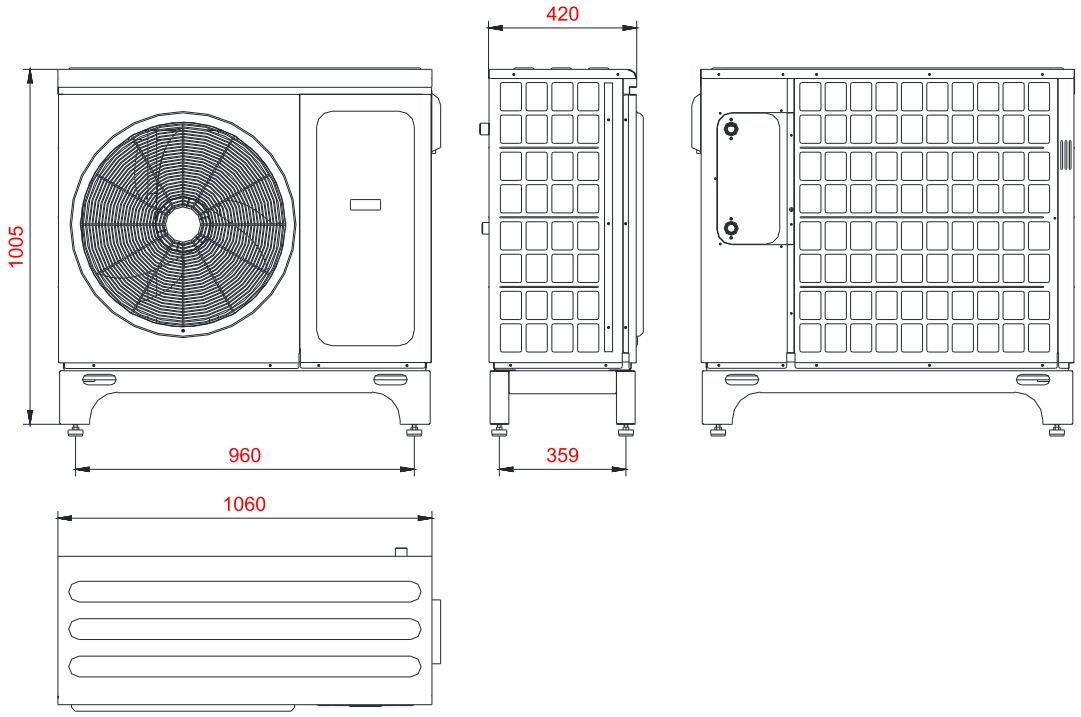
Pump type	Dimensions [mm]									Net weight [kg]	Quantity per pallet
	L1	L2	L3	B3	B4	B5	H1	H2	Connection		
UPML GEO 25-105	130	22	131	95	50	64	27	112	G 1 1/2	2.4	-

Technical data

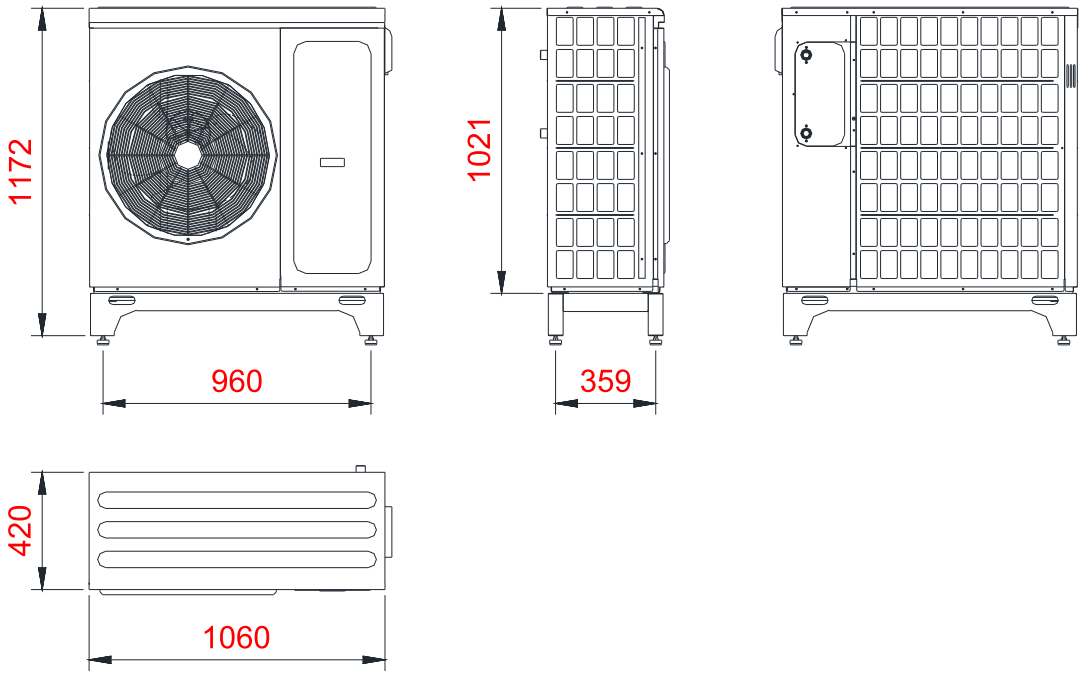
System pressure:	Max. 1.0 MPa (10 bar)	Enclosure class:	IPX2D
Minimum inlet pressure:	0.01 MPa (0.10 bar) at 95 °C liquid temperature	Insulation class:	H
Liquid temperature:	-10 °C to +95 °C (TF 95)	Equipment class:	I
Motor protection:	Overload protection	Approval and marking:	VDE, CE

Inverter EVI Air Source Heat Pump Dimension :

RS07V/L RS10V/L



RS15V/L



Inverter EVI Air Source Heat Pump Ichnography Installation Drawing: