



MELcalc

Project Information:

Energy calculations
Linköping LN35

Dealer:

The Brewery
omfort@live.se



Summary

Energy/power consumption

Energy for heating	20000 kWh
Building's power req for heating at DOT	6,3 kW

After heatpump installation

1 * MUZ-LN35 VGHZ	
Energy from heat pump totally	18954 kWh/year
Auxiliary energy	1045 kWh/year
Energy to purchase	5690 kWh/year
Energy savings	14309 kWh/year

Installation

City	Linköping
Avg. outdoor temp	6,7 °C
Dim. Outdoor Temp (DOT)	-16,6 °C
Room temp curr	21,0 °C
Heating stops at	20,0 °C
Specific energy consumption	44 kWh/m ²

Performance data

Total energy production	19999 kWh/year
Total Energy Consumption	5690 kWh/year
Auxiliary energy for heating	1045 kWh/year
Power coverage at DOT	57,5 %
Energy coverage heat pump	94,8 %
Yearly performance factor (heat pump)	4,08
Max heating power of HP at DOT	3,6 kW

Indata

Project Data

Project name	Linköping LN35	Notes
Building		
Company		

Energy/power consumption

Net Energy Consumption	20000 kWh	Calculation method	Known energy consumption
Room temp curr	21,0 °C	Energy (efficiency)	Net (gross)
Selfheating	1,0 K	Electricity ($\eta=100\%$)	20000 (20000) kWh
Heated Area A(temp)	130 m ²		

Installation

Heatpump	1 * MUZ-LN35 VGHZ	City	Linköping
Indoor unit	MSZ-LN35 VG	Dim. Outdoor Temp (DOT)	-16,6 °C
Area efficiency	95 %	Avg. outdoor temp	6,7 °C
Source	Ambient air	Degreehours	116969
Auxiliary power	6,3 kW		

Calculation Results

Heating

Building's energy req for heating	20000 kWh
Building's power req for heating at DOT	6,3 kW
Energy coverage heat pump for heating	94,8 %
HP operation (heating)	5356 h
Max heating power of HP at DOT	3,6 kW
Power produced at DOT	27,7 W/m ²
Power coverage at DOT	57,5 %
Max electric power HP heating	3,8 kW
Energy from heat pump for heating	18954 kWh/year

Energy Consumption

Electricity to heat pump for heating	4644 kWh/year
Auxiliary energy for heating	1045 kWh/year
Total Energy Consumption	5690 kWh/year
Specific energy consumption	44 kWh/m ²

Performance data

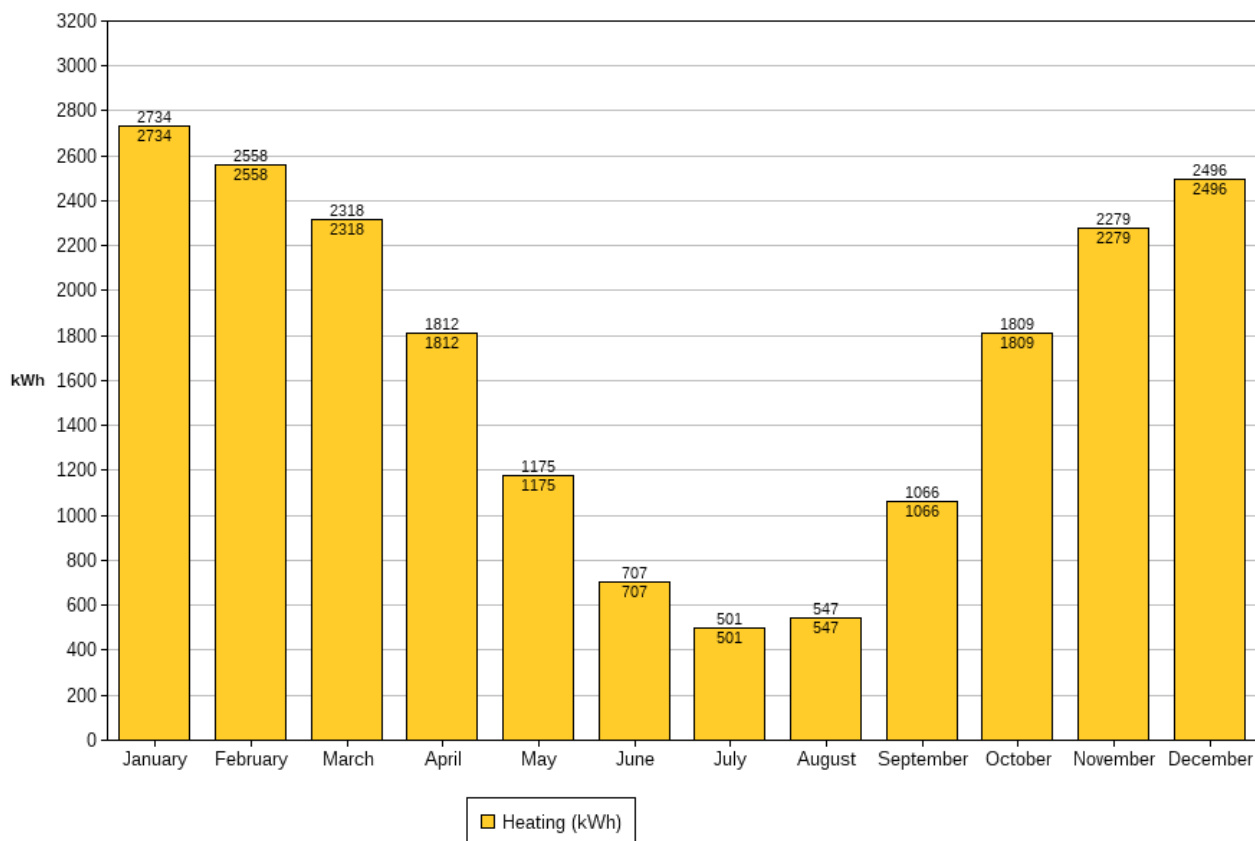
Yearly performance factor heat pump (heating)	4,08
Yearly performance factor (HP + aux)	3,51

Energy savings

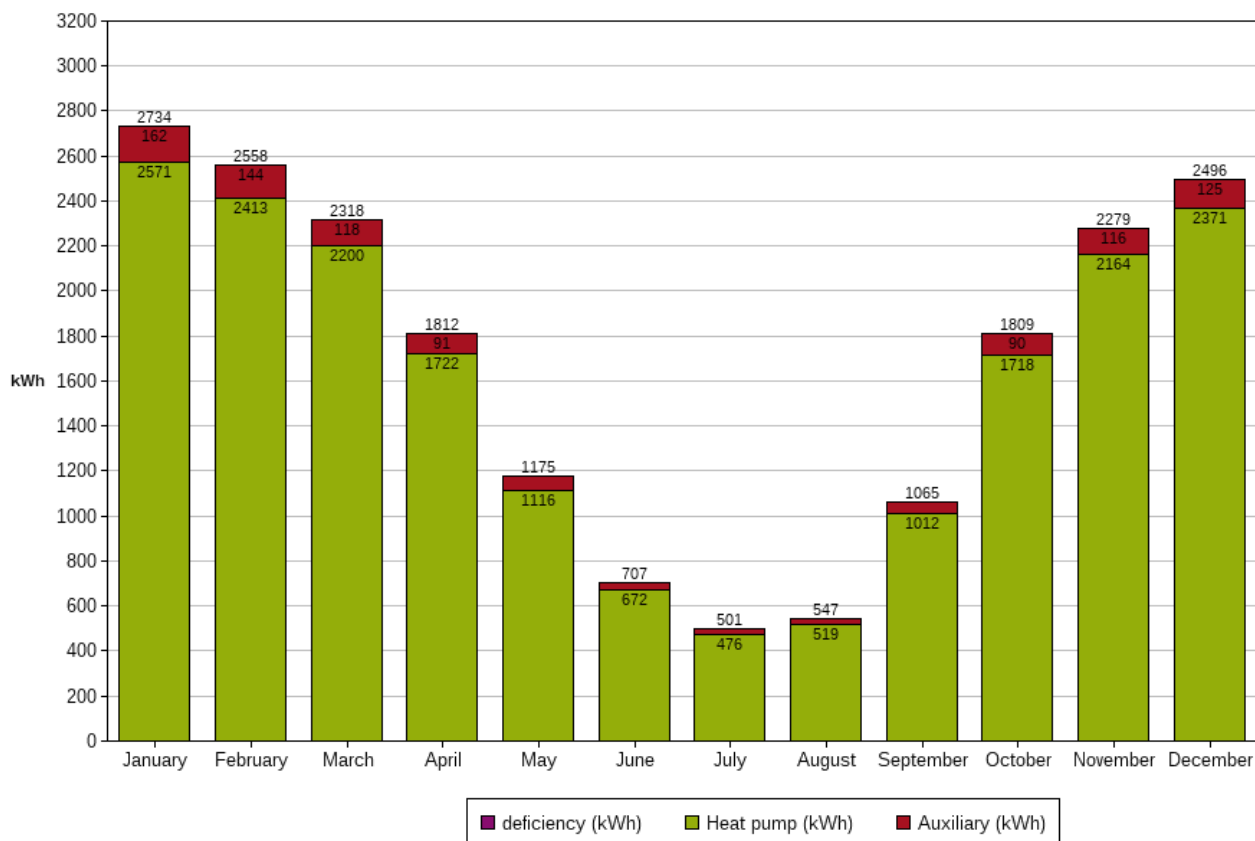
	14309 kWh/year
Gross savings on purchased energy	14310 kWh/year

deficiency observed

Energy consumption/mon



Energy production/mon

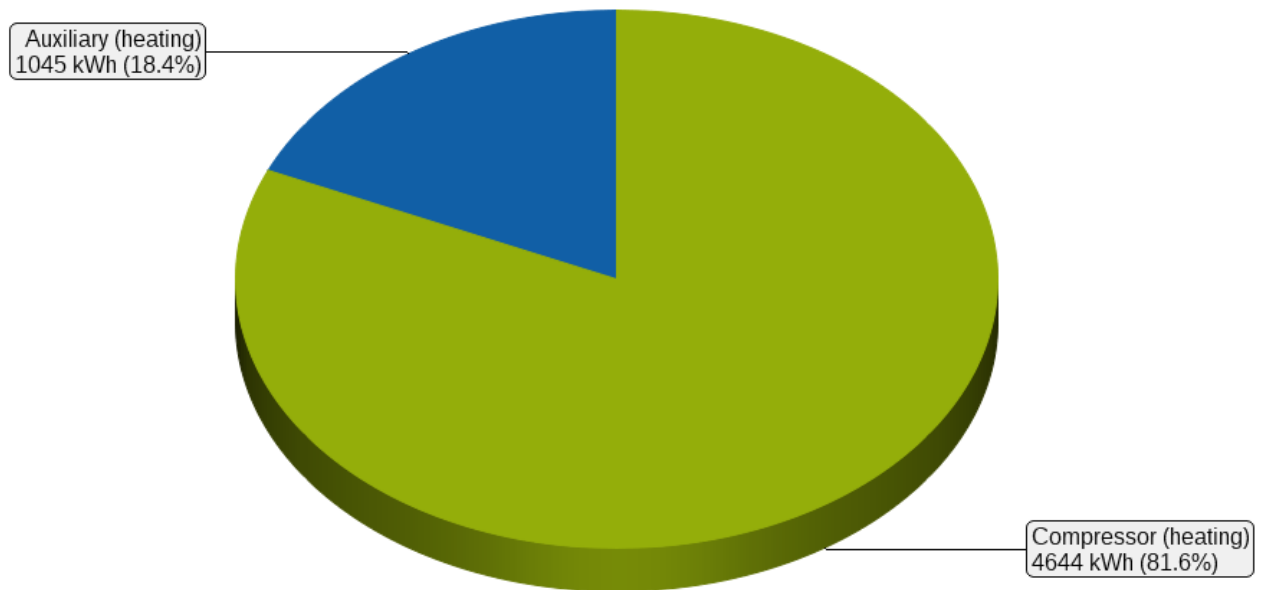


The results from the calculation are estimates and should not be considered as a promise. Changes in climate, building construction and building usage will affect the results.

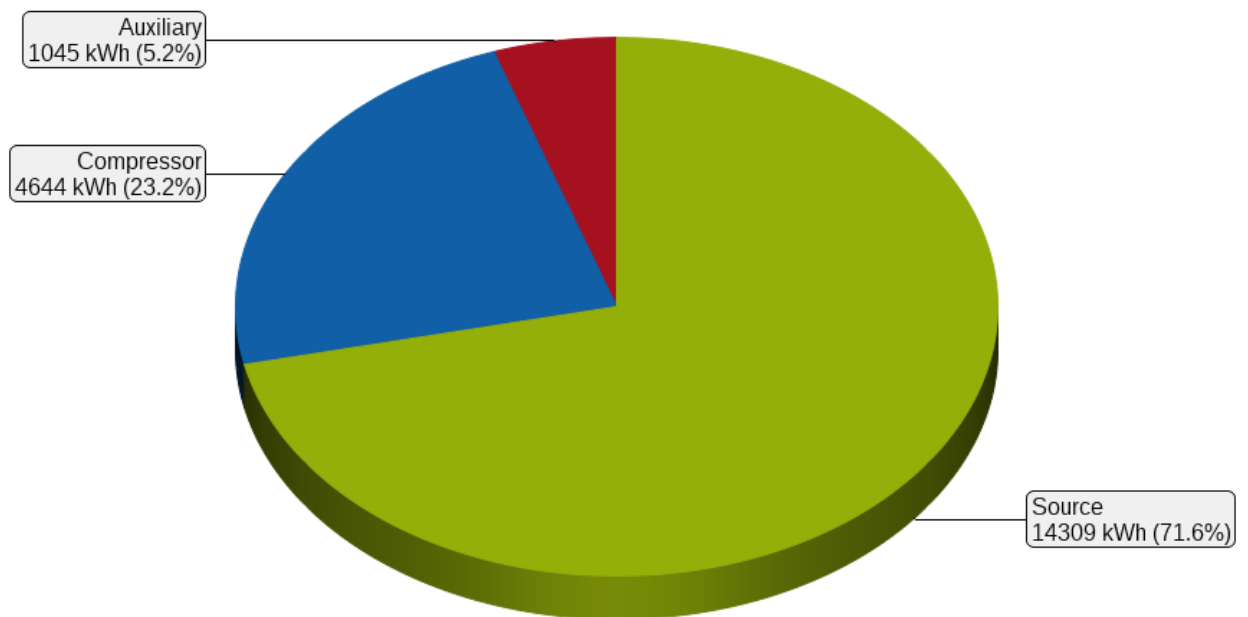
Meteorological data from Klimatfiler 1981-2010 för Energiberäkning Sveby-SMHI.

Mitsubishi Electric - COPCALC™ cf75a0a5 (1.96d) / Calculation ID: OATCMI1BV5UQH / 2020-09-10 13:43:41

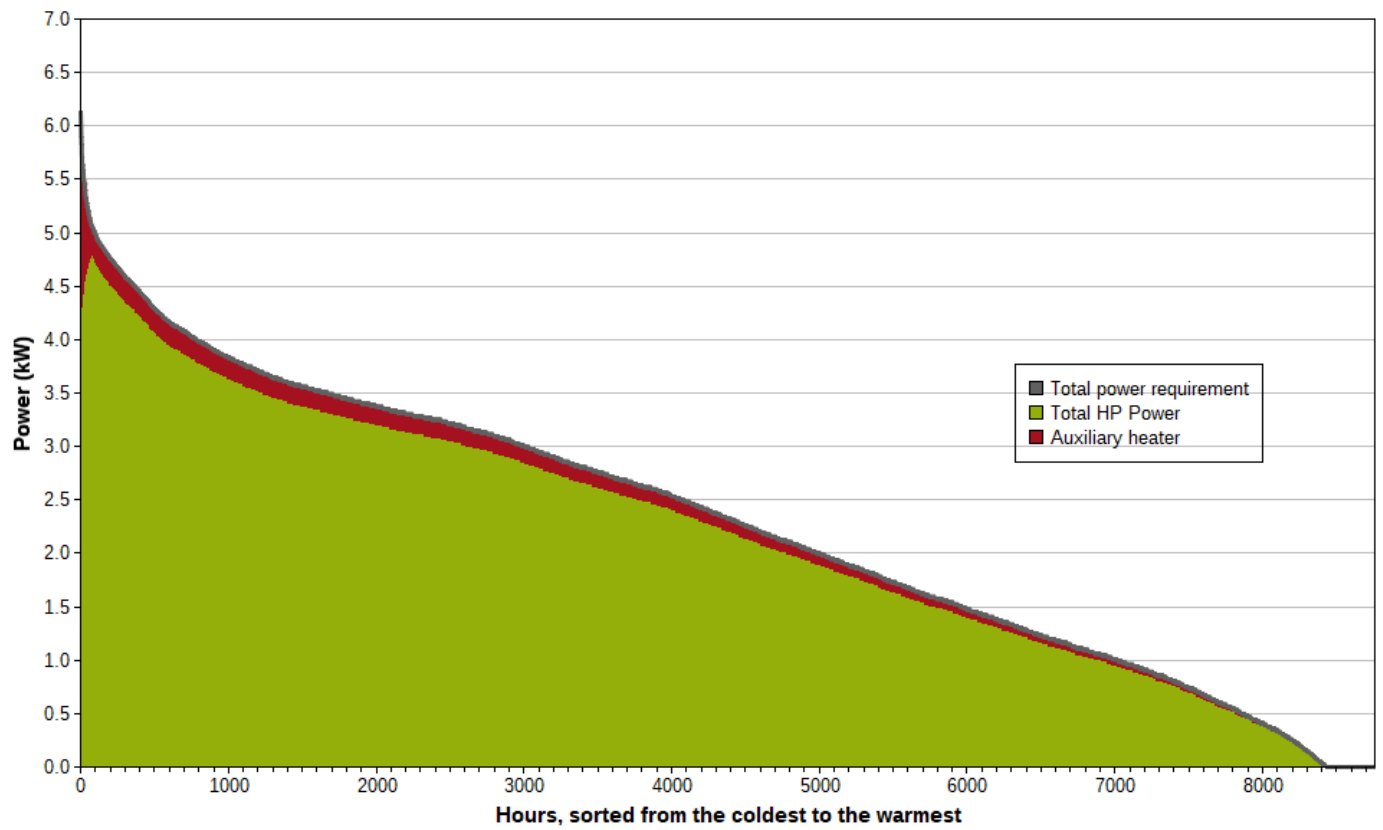
Electricity consumption



Energy production



Consecutive Graphs



Product information

MSZ-LN					
INDOOR UNIT			MSZ-LN25VG	MSZ-LN35VG	MSZ-LN50VG
OUTDOOR UNIT			MUZ-LN25VGHZ	MUZ-LN35VGHZ	MUZ-LN50VGHZ
HEATING	Design load (P-Design)	kW	3,2	4,0	6,0
	Annual electricity consumption	kWh/a	849	1082	1826
	SCOP*	SCOP	A+++ / 5,2	A+++ / 5,1	A++ / 4,6
	SCOP for cold climate	SCOP	A+ / 4,0	A+ / 4,0	A / 3,4
	Heating capacity (Nominal)	kW	3,2	4,0	6,0
	Heating capacity (At -15°C)	kW	3,2	4,0	6,0
	Heating capacity (Min-Max)	kW	1,0 - 6,3	1,0 - 6,6	1,8 - 8,7
COOLING	Design load (P-Design)	kW	2,5	3,5	5,0
	Annual electricity consumption	kWh/a	83	130	230
	SEER	SEER	A+++ / 10,5	A+++ / 9,4	A++ / 7,6
	Cooling capacity (Nominal)	kW	2,5	3,5	5,0
	Cooling capacity (Min-Max)	kW	0,8 - 3,5	0,8 - 4,0	1,4 - 5,8
INDOOR UNIT	Dimensions (B x H x (I-See sensor) x D)***	mm	890 x 307(+34) x 233		
	Weight	kg	15,5	15,5	15,5
	Air volume (Low- High)	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
	Sound level (SPL) (Low - High)	dB(A)	19 - 24 - 29 - 36 - 45	19 - 24 - 29 - 36 - 45	25 - 29 - 34 - 39 - 47
	Sound level (PWL)	dB(A)	58	58	60
OUTDOOR UNIT	Dimensions (B x H x D)	mm	800 x 550 x 285		840 x 880 x 330
	Weight	kg	35	36	55
	Sound level - Heating (SPL)	dB(A)	49	50	54
	Sound level - Cooling (SPL)	dB(A)	46	49	51
	Recommended breaker size	A	10	13	16
Guaranteed operation range (Heating / Cooling)		°C	-35 / -10	-35 / -10	-35 / -10
Pipe dimension (Liquid/ Gas)		inch	1/4" - 3/8"	1/4" - 3/8"	1/4" - 3/8"
Max. piping length		m	20	20	30
Max. Height different		m	12	12	15
Electric data		V / Fas / Hz	230 / 1 / 50	230 / 1 / 50	230 / 1 / 50
GWP / CO2 EQUIVALENT					
Refrigerant**			R32	R32	R32
GWP				675	675
Refrigerant charge	Weight	kg	1,00	1,00	1,25
	CO2-equivalent	ton	0,68	0,68	0,85
Max Refrigerant charge	Weight	kg	0,26	0,26	0,26
	CO2-equivalent	ton	0,18	0,18	0,18

* SCOP Seasonal Coefficient of Performance. Annual efficiency-average climate zone.

** This product contains refrigerant type R32 with a GWP value of 675 (CO2 = 1kg) In case of intervention in the system, requirements according to the applicable F-gas regulation apply. This GWP value is based on Directive (EU) 517/2014 from the IPCC 4th edition.

*** Operating height 307 + 100mm.

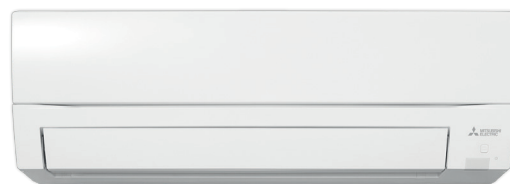


Product information

MSZ-FT					
INDOOR UNIT			MSZ-FT25VGK-SC	MSZ-FT35VGK-SC	MSZ-FT50VGK-SC
OUTDOOR UNIT			MUZ-FT25VGHZ-SC	MUZ-FT35VGHZ-SC	MUZ-FT50VGHZ-SC
HEATING	Design load (P-Design)	kW	3,2	4,0	5,0
	Annual electricity consumption	kWh/a	973	1216	1625
	SCOP*	SCOP	A++/4,6	A++/4,6	A+/4,3
	Heating capacity (Nominal)	kW	3,2	4,0	5,0
	Heating capacity (At -15°C)	kW	3,6	4,4	5,0
COOLING	Heating capacity (Min-Max)	kW	0,9 - 6,2	0,9 - 6,6	0,9 - 7,8
	Design load (P-Design)	kW	2,5	3,5	5,0
	Annual electricity consumption	kWh/a	101	142	243
	SEER	SEER	A+++/8,6	A+++/8,6	A+++/7,2
	Cooling capacity (Nominal)	kW	2,5	3,5	5,0
INDOOR UNIT	Cooling capacity (Min-Max)	kW	0,8 - 3,5	0,8 - 4,0	0,8 - 5,2
	Dimensions (B x H x D)	mm	838 x 280 x 229		
	Weight	kg	10	10	10
	Air volume (Low- High) at heating operation	m³ / min	3,9 - 6,3 - 9,0 - 12,0 - 13,2	3,9 - 6,9 - 10,2 - 13,5 - 14,7	5,5 - 8,4 - 11,4 - 14,4 - 15,5
	Sound level (SPL) (Low - High)	dB(A)	19 - 31 - 39 - 46 - 49	19 - 33 - 42 - 49 - 52	28 - 36 - 45 - 51 - 54
OUTDOOR UNIT	Sound level (PWL)	dB(A)	60	60	60
	Dimensions (B x H x D)	mm	800 x 550 x 285	800 x 714 x 285	
	Weight	kg	34	40	40
	Sound level - Heating / Cooling (SPL)	dB(A)	49 / 46	52 / 49	54 / 51
	Operating current (Max)	A	9,6	13,5	13,5
Recommended breaker size		A	10	16	16
Guaranteed operation range (Heating / Cooling)		°C	-35 / -10	-35 / -10	-35 / -10
Operating current (Max)		A	10,0	13,9	13,9
Pipe dimension (Liquid/ Gas)		inch	1/4" / 3/8"	1/4" / 3/8"	1/4" / 3/8"
Max. piping length		m	20	30	30
Max. Height different		m	12	15	15
Electric data		V / Fas /Hz	230 / 1 /50	230 / 1 /50	230 / 1 /50
GWP / CO2 EQUIVALENT					
Refrigerant**			R32	R32	R32
GWP			675	675	675
Refrigerant charge	Weight	kg	0,85	0,95	0,95
	CO2-equivalent	ton	0,58	0,65	0,65
Max Refrigerant charge	Weight	kg	0,25	0,45	0,45
	CO2-equivalent	ton	0,17	0,31	0,31

* SCOP Seasonal Coefficient of Performance. Annual efficiency-average climate zone.

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Product information

MSZ-FH						
INDOOR UNIT			MSZ-FH25VE	MSZ-FH35VE	MSZ-FH50VE	
OUTDOOR UNIT			MUZ-FH25VEHZ	MUZ-FH35VEHZ	MUZ-FH50VEHZ	
HEATING	Design load (P-Design)		kW	3,2	4,0	6,0
	Annual electricity consumption		kWh/a	924	1173	2006
	SCOP*		SCOP	A++ / 4,9	A++ / 4,8	A+ / 4,2
	Heating capacity (Nominal)		kW	3,2	4,0	6,0
	Heating capacity (At -15°C)		kW	3,2	4,0	6,0
	Heating capacity (Min-Max)		kW	1,0 - 6,3	1,0 - 6,6	1,7 - 8,7
COOLING	Design load (P-Design)		kW	2,5	3,5	5,0
	Annual electricity consumption		kWh/a	96	138	244
	SEER		SEER	A+++ / 9,1	A+++ / 8,9	A++ / 7,2
	Cooling capacity (Nominal)		kW	2,5	3,5	5,0
	Cooling capacity(Min-Max)		kW	0,8 - 3,5	0,8 - 4,0	1,9 - 6,0
INDOOR UNIT	Dimensions (B x H x D)		mm	925 x 305 (+17) x 234		
	Weight		kg	13,5	13,5	13,5
	Air volume (Low- High)		m³ / min	4.0 - 4.7 - 6.4 - 9.2 - 13.2	4.0 - 4.7 - 6.4 - 9.2 - 13.2	5.7 - 7.2 - 9.0 - 11.2 - 14.6
	Sound level (SPL) (Low - High)		dB(A)	20 - 24 - 29 - 36 - 44	21 - 24 - 29 - 36 - 44	25 - 29 - 34 - 39 - 46
	Sound level (PWL)		dB(A)	58	58	60
OUTDOOR UNIT	Dimensions(B x H x D)		mm	800 x 550 x 285		840 x 880 x 330
	Weight		kg	37	37	55
	Sound level - Heating (SPL)		dB(A)	49	50	54
	Sound level - Cooling (SPL)		dB(A)	46	49	51
	Recommended breaker size		A	10	13	16
	Guaranteed operation range (Heating / Cooling)		°C	-25 / -10	-25 / -10	-25 / -10
Pipe dimension (Liquid/ Gas)		inch	1/4" / 3/8"	1/4" / 3/8"	1/4" / 1/2"	
Max. piping length		m	20	20	30	
Max. Height different		m	12	12	15	
Electric data		V / Fas / Hz	230 / 50	230 / 50	230 / 50	
GWP / CO2 EQUIVALENT						
Refrigerant**			R410A	R410A	R410A	
GWP			2088	2088	2088	
Refrigerant charge	Weight	kg	1,15	1,15	1,55	
	CO2-equivalent	ton	2,41	2,41	3,24	
Max Refrigerant charge	Weight	kg	0,39	0,39	0,46	
	CO2-equivalent	ton	0,82	0,82	0,97	

* SCOP Seasonal Coefficient of Performance. Annual efficiency - what you can expect to receive again during the year.

** This product contains refrigerant type R410A with a GWP value of 2088 (CO2 = 1kg) In case of intervention in the system, requirements according to the applicable F-gas regulation apply.

This GWP value is based on Directive (EU) 517/2014 from the IPCC 4th edition.



Product information

MSZ-AP								
INDOOR UNIT			MSZ-AP25VGK	MSZ-AP35VGK	MSZ-AP42VG / VGK	MSZ-AP50VGK	MSZ-AP60VG	MSZ-AP71VG
OUTDOOR UNIT			MUZ-AP25VGH	MUZ-AP35VGH	MUZ-AP42VGH	MUZ-AP50VGH	MUZ-AP60VGH	MUZ-AP71VGH
HEATING	Design load (P-Design)	kW	2,4	2,9	3,8	4,2	4,6	6,7
	Annual electricity consumption	kWh/a	703	873	1134	1275	1398	2132
	SCOP*	SCOP	A++ / 4,7	A++ / 4,6	A++ / 4,6	A++ / 4,6	A++ / 4,6	A+ / 4,4
	Heating capacity (Nominal)	kW	3,2	4,0	5,4	5,8	3,7	5,4
	Heating capacity (At -15°C)	kW	2,4	2,6	4,2	4,7	6,8	8,1
	Heating capacity (Min-Max)	kW	1,0 - 4,1	1,3 - 4,6	1,3 - 6,0	1,4 - 7,3	2,0 - 8,6	2,2 - 10,3
COOLING	Design load (P-Design)	kW	2,5	3,5	4,2	5,0	6,1	7,1
	Annual electricity consumption	kWh/a	101	142	188	236	288	345
	SEER	SEER	A+++ / 8,6	A+++ / 8,6	A++ / 7,8	A++ / 7,4	A++ / 7,4	A++ / 7,2
	Cooling capacity (Nominal)	kW	2,5	3,5	4,2	5,0	6,1	7,1
	Cooling capacity (Min-Max)	kW	0,9 - 3,4	1,1 - 3,8	0,9 - 4,5	1,4 - 5,4	1,4 - 7,3	2,0 - 8,7
	Dimensions (B x H x D)	mm	798 x 299 x 219				1100 x 325 x 257	1100 x 325 x 257
INDOOR UNIT	Weight	kg	10,5	10,5	10,5	10,5	16	17
	Air volume (Low- High)	m³/min	4,9-5,9-7,3-8,9-12,9	4,9-5,9-7,3-8,9-12,9	5,3-6,1-7,7-9,4-14,0	5,6-6,5-8,2-10,0-14,0	10,8 - 13,4 - 15, - 17,4 - 20,3	10,2 - 11,5 - 13,2 - 15,3 - 19,2
	Sound level (SPL) (Low - High)	dB(A)	19 - 24 - 31 - 38 - 45	19 - 24 - 31 - 38 - 45	21 - 29 - 35 - 40 - 45	28 - 33 - 38 - 43 - 48	30 - 37 - 41 - 45 - 48	30 - 37 - 41 - 45 - 51
	Sound level (PWL)	dB(A)	57	57	57	58	65	65
	Dimensions (B x H x D)	mm	800 x 550 x 285			800 x 714 x 285	800 x 714 x 285	840 x 880 x 330
	Weight	kg	31	31	35	40	40	55
OUTDOOR UNIT	Sound level - Heating (SPL)	dB(A)	48 / 47	50 / 49	51 / 50	52 / 52	57 / 56	55 / 56
	Sound level - Cooling (SPL)	dB(A)	6,8	8,2	9,6	13,3	13,6	16
	Recommended breaker size	A	10	10	13	16	16	20
	Guaranteed operation range (Heating / Cooling)	°C	-20 / -10	-20 / -10	-20 / -10	-20 / -10	-15 / -10	-15 / -10
	Pipe dimension (Liquid/ Gas)	inch	1/4" / 3/8"	1/4" / 3/8"	1/4" / 3/8"	1/4" / 3/8"	1/4" / 1/2"	1/4" / 1/2"
	Max. piping length	m	20	20	20	20	30	30
Max. Height different		m	12	12	12	12	15	15
	Electric data	V / Fas / Hz	230 / 1 / 50	230 / 1 / 50	230 / 1 / 50	230 / 1 / 50	230 / 1 / 50	230 / 1 / 50
GWP / CO2 EQUIVALENT								
Refrigerant**			R32	R32	R32	R32	R32	R32
GWP			675	675	675	675	675	675
Refrigerant charge	Weight	kg	0,55	0,55	0,70	1,00	1,05	1,50
	CO2-equiv- valent	ton	0,37	0,37	0,47	0,68	0,70	1,01
Max Refrigerant charge	Weight	kg	0,26	0,26	0,26	0,26	0,30	0,30
	CO2-equiv- valent	ton	0,18	0,18	0,18	0,18	0,20	0,20

* SCOP Seasonal Coefficient of Performance. Annual efficiency-average climate zone.

** This product contains refrigerant type R32 with a GWP value of 675 (CO₂ = 1kg) In case of intervention in the system, requirements according to the applicable F-gas regulation apply. This GWP value is based on Directive (EU) 517/2014 from the IPCC 4th edition.



Product information

MFZ-KJ				
INDOOR UNIT			MFZ-KJ25VE	MFZ-KJ35VE
OUTDOOR UNIT			MUFZ-KJ25VEHZ	MUFZ-KJ35VEHZ
HEATING	Design load (P-Design)	kW	3,5	3,6
	Annual electricity consumption	kWh/a	1104	1158
	SCOP*	SCOP	A+ / 4,4	A+ / 4,3
	Heating capacity (Nominal)	kW	3,4	4,3
	Heating capacity (At -15°C)	kW	3,4	4,3
COOLING	Heating capacity (Min-Max)	kW	1,2 - 5,1	1,2 - 5,8
	Design load (P-Design)	kW	2,5	3,5
	Annual electricity consumption	kWh/a	102	150
	SEER	SEER	A+++ / 8,5	A++ / 8,1
	Cooling capacity (Nominal)	kW	2,5	3,5
INDOOR UNIT	Cooling capacity (Min-Max)	kW	0,5 - 3,4	0,5 - 3,7
	Dimensions (B x H x D)	mm	750 x 600 x 215	
	Weight	kg	13,5	13,5
	Air volume (Low- High)	m³ / min	3,9 - 5,1 - 6,2 - 7,7 - 9,7	3,9 - 5,1 - 6,2 - 7,7 - 9,7
	Sound level (SPL) (Low - High)	dB(A)	19 - 25 - 30 - 35 - 41	19 - 25 - 30 - 35 - 41
OUTDOOR UNIT	Sound level (PWL)	dB(A)	49	50
	Dimensions (B x H x D)	mm	800 x 550 x 285	
	Weight	kg	37	37
	Sound level - Heating (SPL)	dB(A)	31,3	31,3
	Sound level - Cooling (SPL)	dB(A)	33,6	33,6
Recommended breaker size		A	10	13
Guaranteed operation range (Heating / Cooling)		°C	-25 / -10	-25 / -10
Pipe dimension (Liquid/ Gas)		inch	1/4" / 3/8"	1/4" / 3/8"
Max. piping length		m	20	20
Max. Height different		m	12	12
Electric data		V / Fas / Hz	230 / 1 / 50	230 / 1 / 50
GWP / CO2 EQUIVALENT				
Refrigerant**			R410A	R410A
GWP			2088	2088
Refrigerant charge	Weight	kg	1,1	1,1
	CO2-equivalent	ton	2,30	2,30
Max Refrigerant charge	Weight	kg	0,39	0,39
	CO2-equivalent	ton	0,82	0,82

* SCOP Seasonal Coefficient of Performance. Annual efficiency - what you can expect to receive again during the year.

** This product contains refrigerant type R410A with a GWP value of 2088 (CO2 = 1kg) In case of intervention in the system, requirements according to the applicable F-gas regulation apply.

This GWP value is based on Directive (EU) 517/2014 from the IPCC 4th edition.

