

Technical Data Sheet



Air



Ground



Water

Air/Water Heat Pump 30 | 40 | 55 kW



Heliotherm Sensor Solid Split

The Air/Water Split Design heat pump based on a stepless performance control, electronic expansion valve with DSI technology, twin-X technology, REMOTE CONTROL heat pump control, sound-optimized case design, PV connection, Smart Grid Ready, and possible active cooling mode.

Sensor Solid Split Advantages

- Minimum operating costs due to a COP of up to 4,5 at (A7/W35)
- Exceptionally silent in operation due to its acoustic optimized custom designed case
- Efficient solution for refurbishing projects with a max. heating outlet temperature of up to 62 °C
- Very quiet operation (indoor and outdoor unit) through the sound-optimized customized case
- Heat pump system optimization and easy to operate by means of REMOTE CONTROL
- Integral building control through integrated KNX connection
- Energetically optimized heat pump operation in connection to a photovoltaic system
- Pleasant room climate in warm summer days through active cooling (optional)



Technical Data

Typ Sensor Solid Split		30 kW	40 kW	55 kW
Energy source				
Air volume	m ³ /h	4.000 - 10.000	4.000 - 10.000	6.000 - 15.000
Evaporator area	m ²	240	240	360
Min. air inlet flow temperature	°C	-25	-25	-25
Max. air inlet flow temperature	°C	45	45	45
Cooling Mode				
Min. air inlet flow temperature	°C	10	10	10
Max. air inlet flow temperature	°C	45	45	45
Heating water at 5 K Temperature difference				
Content	liter	6,5	9,5	13
Volume flow	m ³ /h	2,2 - 4,7	3,1 - 6,9	4,4 - 9,3
Pressure loss	m H ₂ O	2,8	2,9	3,1
Max. outlet temperature at A0°C	°C	62	62	58
Electric values				
Nominal voltage		3/N/PE 400 V / 50 Hz	3/N/PE 400 V / 50 Hz	3/N/PE 400 V / 50 Hz
Max. nominal voltage	A	26	31	52
Starting current	A	30	45	58
Fuse protection characteristics G	A	32	40	64
Max. nominal current- fan	A	1	2	2
Fan protection	A	thermal relay	thermal relay	thermal relay
Nominal control circuit	V	1/N/PE 230 V/50 Hz	1/N/PE 230 V/50 Hz	1/N/PE 230 V/50 Hz
Protection control circuit	A	13	13	13
Power consumption				
Fan	W	120 - 380	120 - 380	180 - 570
Max. power consumption- compressor	kW	7,6	13	15,2
Refrigerant cycle				
Working fluid		R-410A	R-410A	R-410A
Split lines fill amount at 10 m	kg	12	18	34
Compressor	Typ	Scroll	Scroll	Scroll
Compressor speed	1/min	900 - 7.200	1.200 - 6.000	900 - 7.200
Oil amount	liter	2,3	4,6	4,6



Technical Data

Type Sensor Solid Brine		30 kW	40 kW	55 kW
Indoor unit dimensions				
Total length	mm	715	715	1.203*
Total width	mm	687	687	913
Total height	mm	1.602	1.602	1.700
Outdoor unit dimensions				
Total length	mm	1.998	1.998	2.953
Total width	mm	1.137	1.137	1.135
Total height	mm	1.506	1.506	1.506
Indoor unit - total weight	kg	210	350	380
Outdoor unit - total weight	kg	281	281	455
Permitted operating pressure	bar	10	10	10
Connections				
Heating water Heating out-and inlet	Inch	6/4"	2"	2½"
Suction line	mm	28	35	35
Liquid line	mm	16	18	22

* incl. hydraulics 1634 mm

Acoustic Technical Data

Type Sensor Solid Split 30 kW with outdoor evaporator Silent Source 240

A-Rated acoustic capacity & level in heating mode at A7(±3 K)/W35 (±1 K)		Indoor unit	Outdoor unit standing unit
Min. heating output	dB(A)	42	48
Max. heating output	dB(A)	53	54

Type Sensor Solid Split 40 kW with outdoor evaporator Silent Source 240

A-Rated acoustic capacity & level in heating mode at A7(±3 K)/W35 (±1 K)		Indoor unit	Outdoor unit standing unit
Min. heating output	dB(A)	42	48
Max. heating output	dB(A)	54	54

Type Sensor Solid Split 55 kW with outdoor evaporator Silent Source 300

A-Rated acoustic capacity & level in heating mode at A7(±3 K)/W35 (±1 K)		Indoor unit	Outdoor unit standing unit
Min. heating output	dB(A)	42	48
Max. heating output	dB(A)	56	58



Performance Data Sensor Solid Split 30

acc. EN14825 (calculated values; errors reserved)
Operating limit temperature TOL = -25 °C

Bivalent temperature for climate zone "medium"

H. Outlet temperature level	T _{bivalent} [°C]
high (55°C)	-9

Bivalent temperature for climate zone "colder"

H. Outlet temperature level	T _{bivalent} [°C]
lower (35°C)	-17
medium (45°C)	-15
high (55°C)	-15

Full load and Seasonal Performance Factor in heating mode

Climate zone	H. Outlet temperature level	P _{desinh} [kW]	SCOP
medium (Strasbourg)	low (35°C)	28,0	5,15
	medium (45°C)	24,0	4,11
	high (55°C)	24,0	3,45
warmer (Athens)	low (35°C)	30,0	6,32
	medium (45°C)	30,0	5,33
	high (55°C)	30,0	4,47
colder (Helsinki)	low (35°C)	28,0	4,45
	medium (45°C)	28,0	3,60
	high (55°C)	28,0	3,07

Full load in cooling mode for ceiling cooling applications
SPF in cooling mode for ceiling cooling applications

P_{desinh} = 28 kW
SEER = 6,50

Full load in cooling mode for convector fans
SPF in cooling mode for convector fans

P_{desinh} = 28 kW
SEER = 6,14



Performance Sensor Solid Split 30 (Continued)

Partial loads and COPs for the reference heating season, "medium" (Strasbourg)

Temperature level	Operating point	Partial load ratio [%]	Heating capacity P_{dh} [kW]	COP _d
low (35°C)	A12/W24	15	11,33	7,40
	A7/W27	35	10,84	6,61
	A2/W30	54	16,37	5,23
	A-7/W34	88	26,38	3,08
	A-10/W35	100	27,62	2,29
medium (45°C)	A12/W28	15	10,54	6,55
	A7/W33	35	9,08	4,87
	A2/W37	54	12,99	4,30
	A-7/W43	88	21,14	2,43
	A-10/W45	100	24,00	1,65
high (55°C)	A12/W30	15	10,41	6,38
	A7/W36	35	8,72	5,15
	A2/W42	54	12,79	3,57
	A-7/W52	88	21,18	1,55
	A-9/W54	96	21,34	1,31
	A-10/W55	100	20,15	1,11

Partial loads and COPs for the reference heating season, "warmer" (Athens)

Temperature level	Operating point	Partial load ratio [%]	Heating capacity P_{dh} [kW]	COP _d
low (35°C)	A12/W26	29	11,46	6,94
	A7/W31	64	19,17	6,07
	A2/W35	100	30,24	4,23
medium (45°C)	A12/W31	29	10,67	6,21
	A7/W39	64	19,57	4,95
	A2/W45	100	29,98	2,98
high (55°C)	A12/W34	29	10,27	5,71
	A7/W46	64	19,02	3,90
	A2/W55	100	29,98	2,04



Performance Data Sensor Solid Split 30 (Continued)

Partial loads and COPs for the reference heating season, "colder" (Helsinki)

Temperature level	Operating point	Partial load ratio [%]	Heating capacity P_{dh} [kW]	COP _d
low (35°C)	A12/W24	11	11,20	7,26
	A7/W25	24	9,43	6,04
	A2/W27	37	10,31	5,43
	A-7/W30	61	16,79	3,90
	A-15/W32	82	23,55	2,51
	A-19/W34	92	23,01	2,19
	A-22/W35	100	18,53	1,62
medium (45°C)	A12/W26	11	10,94	6,97
	A7/W30	24	8,97	5,59
	A2/W33	37	10,38	4,79
	A-7/W38	61	16,73	3,06
	A-15/W41	79	22,41	1,68
	A-22/W45	100	15,49	1,17
high (55°C)	A12/W28	11	10,54	6,55
	A7/W32	24	8,74	5,33
	A2/W37	37	10,21	4,30
	A-7/W44	61	16,96	2,55
	A-15/W49	82	19,80	1,25
	A-22/W55	100	12,76	1,09

Partial loads and COPs in cooling mode for ceiling cooling applications

Operating point	Partial load ratio [%]	Cooling capacity P_{dc} [kW]	EER _d
A20/W18	21	11,20	7,91
A25/W18	47	13,05	7,00
A30/W18	74	20,79	6,04
A35/W18	100	27,97	4,21

Partial loads and COPs in cooling mode for cooling mode convector

Operating point	Partial load ratio [%]	Cooling capacity P_{dc} [kW]	EER _d
A20/W11,5	21	9,10	6,37
A25/W10	47	13,50	7,07
A30/W8,5	74	20,80	5,91
A35/W7	100	28,20	4,02



Performance Data Sensor Solid Split 40

acc. EN14825 (calculated values; errors reserved)
Operating limit temperature TOL = -25 °C

Bivalent temperature for climate zone "medium"

H. Outlet temperature level	T _{bivalent} [°C]
high (55°C)	-8

Bivalent temperature for climate zone "colder"

H. Outlet temperature level	T _{bivalent} [°C]
low (35°C)	-16
medium (45°C)	-15
high (55°C)	-13

Full Load and Seasonal Performance Factor in Heating Mode

Climate zone	H. Outlet temperature level	P _{desinh} [kW]	QHE [kWh]	SCOP	ηS [%]
medium (Strasbourg)	low (35°C)	40	11178	5,01	197
	medium (45°C)	35	12129	4,04	159
	high (55°C)	35	14203	3,45	135
warmer (Athen)	low (35°C)	45	10413	6,05	239
	medium (45°C)	45	12257	5,14	203
	high (55°C)	45	14651	4,30	169
colder (Helsinki)	low (35°C)	40	19444	4,32	170
	medium (45°C)	40	23140	3,63	142
	high (55°C)	40	28475	2,95	115

Full load in cooling mode for ceiling cooling applications
SPF in cooling mode for ceiling cooling applications

P_{desinh} = 45 kW
SEER = 6,15

Full load in cooling mode for convector fans
SPF in cooling mode for convector fans

P_{desinh} = 45 kW
SEER = 5,38



Performance Data Sensor Solid Split 40 (Continued)

Partial loads and COPs for the reference heating season "medium" (Strasbourg)

Temperature level	Operating point	Partial load ratio [%]	Heating capacity P_{dh} [kW]	COP _d
low (35°C)	A12/W24	15	18,60	6,99
	A7/W27	35	14,10	6,17
	A2/W30	54	20,29	4,98
	A-7/W34	88	34,08	3,31
	A-10/W35	100	38,56	2,68
medium (45°C)	A12/W28	15	17,72	6,33
	A7/W33	35	14,09	4,69
	A2/W37	54	18,48	4,16
	A-7/W43	88	29,51	2,51
	A-10/W45	100	32,48	1,92
high (55°C)	A12/W30	15	17,28	6,00
	A7/W36	35	14,28	4,83
	A2/W42	54	17,19	3,57
	A-7/W52	88	29,59	1,69
	A-8/W53	92	30,46	1,44
	A-10/W55	100	26,49	1,28

Partial loads and COPs for the reference heating season "warmer" (Athens)

Temperature level	Operating point	Partial load ratio [%]	Heating capacity P_{dh} [kW]	COP _d
low (35°C)	A12/W26	29	18,82	6,81
	A7/W31	64	28,87	5,57
	A2/W35	100	43,61	4,39
medium (45°C)	A12/W31	29	17,94	6,18
	A7/W39	64	28,65	4,55
	A2/W45	100	44,70	3,12
high (55°C)	A12/W34	29	17,28	5,71
	A7/W46	64	26,27	3,61
	A2/W55	100	45,27	2,01



Performance Data Sensor Solid Split 40 (Continued)

Partial loads and COPs for the reference heating season, "colder" (Helsinki)

Temperature level	Operating point	Partial load ratio [%]	Heating capacity P_{dh} [kW]	COP _d
low (35°C)	A12/W24	11	18,38	6,50
	A7/W25	24	15,80	5,62
	A2/W27	37	13,63	4,95
	A-7/W30	61	24,31	3,53
	A-15/W32	82	31,83	2,50
	A-16/W32	84	33,18	2,31
	A-22/W35	100	24,58	1,70
medium (45°C)	A12/W26	11	17,94	6,18
	A7/W30	24	15,04	5,11
	A2/W33	37	14,69	4,33
	A-7/W38	61	26,04	2,91
	A-15/W41	79	30,00	1,84
	A-22/W45	100	19,96	1,17
	high (55°C)	A12/W28	11	17,72
A7/W32		24	14,66	5,19
A2/W37		37	14,57	4,17
A-7/W44		61	24,90	2,29
A-13/W48		76	29,15	1,54
A-15/W49		82	25,57	1,33
A-22/W55		100	15,81	1,05

Partial loads and COPs in cooling mode for ceiling cooling applications

Operating point	Partial load ratio [%]	Cooling capacity P_{dc} [kW]	EER _d
A20/W18	21	20,60	7,49
A25/W18	47	22,33	6,69
A30/W18	74	32,64	5,35
A35/W18	100	45,96	4,18

Partial loads and COPs in cooling mode for cooling mode for convector fans

Operating point	Partial load ratio [%]	Cooling capacity P_{dc} [kW]	EER _d
A20/W11,5	21	16,72	6,35
A25/W10	47	21,32	5,63
A30/W8,5	74	33,06	4,86
A35/W7	100	43,65	3,99



Performance Data Sensor Solid Split 55

acc. EN14825 (calculated values; errors reserved)
Operating limit temperature TOL = -25°C

Bivalent temperature for climate zone "medium"

H. Outlet temperature level	T _{bivalent} [°C]
high (55°C)	-9

Bivalent temperature for climate zone "colder"

H. Outlet temperature level	T _{bivalent} [°C]
low (35°C)	-17
medium (45°C)	-15
high (55°C)	-15

Full Load and Seasonal Performance Factor in Heating Mode

Climate zone	H. Outlet temperature level	P _{desinh} [kW]	QHE [kWh]	SCOP	ηS [%]
medium (Strasbourg)	low (35°C)	45,0	12233	5,15	203
	medium (45°C)	45,0	15328	4,11	161
	high (55°C)	45,0	18261	3,45	135
wärmer (Athen)	low (35°C)	55,0	12184	6,32	250
	medium (45°C)	55,0	14447	5,33	210
	high (55°C)	50,0	15660	4,47	176
kälter (Helsinki)	low (35°C)	45,0	21236	4,45	175
	medium (45°C)	45,0	26250	3,60	141
	high (55°C)	45,0	30782	3,07	120

Full load in cooling mode for ceiling cooling applications
SPF in cooling mode for ceiling cooling applications

P_{desinh} = 56 kW
SEER = 6,50

Full load in cooling mode for convector fans
SPF in cooling mode for convector fans

P_{desinh} = 56 kW
SEER = 6,14



Performance Data Sensor Solid Split 55 (Continued)

Partial loads and COPs for the reference heating season "medium" (Strasbourg)

Temperature level	Operating point	Partial load ratio [%]	Heating capacity P_{dh} [kW]	COP _d
low (35°C)	A12/W24	15	17,66	7,40
	A7/W27	35	17,68	6,61
	A2/W30	54	24,74	5,23
	A-7/W34	88	39,76	3,08
	A-10/W35	100	45,24	2,29
medium (45°C)	A12/W28	15	16,08	6,55
	A7/W33	35	15,16	4,87
	A2/W37	54	24,98	4,30
	A-7/W43	88	39,28	2,43
	A-10/W45	100	45,00	1,65
high (55°C)	A12/W30	15	16,82	6,38
	A7/W36	35	15,44	5,15
	A2/W42	54	23,58	3,57
	A-7/W52	88	39,36	1,55
	A-9/W54	96	42,68	1,31
	A-10/W55	100	43,30	1,11

Partial loads and COPs for the reference heating season "warmer" (Athens)

Temperature level	Operating point	Partial load ratio [%]	Heating capacity P_{dh} [kW]	COP _d
low (35°C)	A12/W26	29	18,92	6,94
	A7/W31	64	35,34	6,07
	A2/W35	100	55,48	4,23
medium (45°C)	A12/W31	29	18,34	6,21
	A7/W39	64	35,14	4,95
	A2/W45	100	54,96	2,98
high (55°C)	A12/W34	29	16,54	5,71
	A7/W46	64	32,04	3,90
	A2/W55	100	50,96	2,04



Performance Data Sensor Solid Split 55 (Continued)

Partial loads and COPs for the reference heating season "colder" (Helsinki)

Temperature level	Operating point	Partial load ratio [%]	Heating capacity P_{dh} [kW]	COP _d
low (35°C)	A12/W24	11	17,40	7,26
	A7/W25	24	15,86	6,04
	A2/W27	37	18,62	5,43
	A-7/W30	61	27,58	3,90
	A-15/W32	82	36,10	2,51
	A-19/W34	92	38,02	2,19
	A-22/W35	100	35,06	1,62
medium (45°C)	A12/W26	11	17,88	6,97
	A7/W30	24	15,94	5,59
	A2/W33	37	18,76	4,79
	A-7/W38	61	27,46	3,06
	A-15/W41	79	36,82	1,68
	A-22/W45	100	30,98	1,17
high (55°C)	A12/W28	11	18,08	6,55
	A7/W32	24	15,48	5,33
	A2/W37	37	18,42	4,30
	A-7/W44	61	27,92	2,55
	A-15/W49	82	36,60	1,25
	A-22/W55	100	25,52	1,09

Partial loads and COPs in cooling mode for ceiling cooling applications

Operating point	Partial load ratio [%]	Cooling capacity P_{dc} [kW]	EER _d
A20/W18	21	22,40	7,91
A25/W18	47	26,10	7,00
A30/W18	74	41,58	6,04
A35/W18	100	55,94	4,21

Partial loads and COPs in cooling mode for cooling mode for convector fans

Operating point	Partial load ratio [%]	Cooling capacity P_{dc} [kW]	EER _d
A20/W11,5	21	18,20	6,37
A25/W10	47	27,00	6,19
A30/W8,5	74	41,60	5,91
A35/W7	100	56,40	4,02

