



HPAW air-to-water heat pump

TECHNICAL DATA MANUAL

B-0000-0339/000
1221114596



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General properties

Parameter	Description	Unit	HPAW-18 3N	HPAW-22 3N	HPAW-26 3N	HPAW-30 3N
Product description	Air-to-water heat pump	Y/N	Yes	Yes	Yes	Yes
	Water-to-water heat pump	Y/N	No	No	No	No
	Brine-to-water heat pump	Y/N	No	No	No	No
	Low-temperature heat pump	Y/N	No	No	No	No
	Equipped with a supplementary heater	Y/N	No	No	No	Yes
Unit sound power level (outdoors)	Heat pump combination heater	Y/N	No	No	No	No
		dB(A)	71	73	75	77
Capacity of the supplementary heater	P _{sup} supplementary heater (optional)	kW	0	0	0	0
	Energy efficiency class, 35°C (low temperature application)	-	A+++	A+++	A+++	A++
Space heating	Energy efficiency class, 55°C (medium temperature application)	-	A++	A++	A+	A+

Comparison table for heating and cooling mode

Function	Inspection condition	Description	Unit	HPAW-18 3N	HPAW-22 3N	HPAW-26 3N	HPAW-30 3N
Heating mode	Ambient temperature: 7/6 °C Water temperature: 30/35 °C	Capacity	[kW]	18,0	22,0	26,0	30,1
		Power input	[kW]	3,830	5,000	6,373	7,698
		EER/COP	-	4,70	4,40	4,08	3,91
	Ambient temperature: 2/1 °C Water temperature: 30/35 °C	Capacity	[kW]	18,0	22,0	24,0	26,0
		Power input	[kW]	5,325	7,097	8,333	9,286
		EER/COP	-	3,38	3,10	2,88	2,80
	Ambient temperature: -7/-8 °C Water temperature: 30/35 °C	Capacity	[kW]	18,0	21,0	22,0	23,0
		Power input	[kW]	6,667	8,077	8,800	9,388
		EER/COP	-	2,70	2,60	2,50	2,45
	Ambient temperature: 7/6 °C Water temperature: 40/45 °C	Capacity	[kW]	18,0	22,0	26,0	30,0
		Power input	[kW]	5,143	6,471	8,387	10,345
		EER/COP	-	3,50	3,40	3,10	2,90
Cooling mode	Ambient temperature: 7/6 °C Water temperature: 47/55 °C	Capacity	[kW]	18,0	22,0	26,0	30,0
		Power input	[kW]	6,545	8,302	10,612	13,043
		EER/COP	-	2,75	2,65	2,45	2,30
	Ambient temperature: 35/24 °C Water temperature: 12/7 °C	Capacity	[kW]	17,0	21,0	26,0	29,5
		Power input	[kW]	5,574	7,119	9,630	11,569
		EER/COP	-	3,05	2,95	2,70	2,55
	Ambient temperature: 35/24 °C Water temperature: 23/18 °C	Capacity	[kW]	18,5	23,0	27,0	31,0
		Power input	[kW]	3,895	5,000	6,279	7,750
		EER/COP	-	4,75	4,60	4,30	4,00

Condition	Parameter	Unit	HPAW-18 3N	HPAW-22 3N	HPAW-26 3N	HPAW-30 3N
Low temperature application (Indoor heat exchanger output temperature: 35 °C)						
Energy efficiency class						
Average climate	Unit sound power level	dB	A+++	A+++	A+++	A+++
	Rated heat output (P_{rated})	kW	18	22	25	29
	Seasonal space heating efficiency (η_s)	%	181	178	177	165
	Seasonal COP (SCOP)	-	4,08	4,06	4,02	4,02
	Annual energy consumption (Q_{HE})	kWh	8 086	10 180	11 489	14 165
Colder climate	Rated heat output (P_{rated})	kW	18	21	26	29
	Seasonal space heating efficiency (η_s)	%	146	146	143	138
	Seasonal COP (SCOP)	-	-	-	-	-
	Annual energy consumption (Q_{HE})	kWh	11 740	14 179	17 421	20 390
Warmer climate	Rated heat output (P_{rated})	kW	18	22	26	30
	Seasonal space heating efficiency (η_s)	%	226	234	231	213
	Seasonal COP (SCOP)	-	-	-	-	-
	Annual energy consumption (Q_{HE})	kWh	4 116	4 945	5 959	7 540
Medium temperature application (Indoor heat exchanger output temperature: 55 °C)						
Energy efficiency class						
Average climate	Unit sound power level	dB	A+++	A+++	A+++	A+++
	Rated heat output (P_{rated})	kW	18	22	26	30
	Seasonal space heating efficiency (η_s)	%	125	126	123	123
	Seasonal COP (SCOP)	-	3,02	3,05	3,12	3,12
	Annual energy consumption (Q_{HE})	kWh	11 375	14 390	17 204	19 316
Colder climate	Rated heat output (P_{rated})	kW	18	22	26	30
	Seasonal space heating efficiency (η_s)	%	97	102	101	100
	Seasonal COP (SCOP)	-	-	-	-	-
	Annual energy consumption (Q_{HE})	kWh	18 156	21 067	24 967	29 238
Warmer climate	Rated heat output (P_{rated})	kW	18	22	26	30
	Seasonal space heating efficiency (η_s)	%	157	161	168	163
	Seasonal COP (SCOP)	-	-	-	-	-
	Annual energy consumption (Q_{HE})	kWh	6 041	7 180	8 218	9 580

Average climate (design temperature: -10 °C)						
Inspection condition	Description	Unit	HPAW-18 3N	HPAW-22 3N	HPAW-26 3N	HPAW-30 3N
General properties, 35°C A2/35	P_{rated} (rated heat output) @ -10°C	kW	18	22	25	29
	η_s (seasonal space heating efficiency)	%	181	178	177	165
	SCOP (seasonal COP)	-	4,08	4,06	4,02	4,02
	Q_{HE} (annual energy consumption)	kWh	8 086	10 180	11 489	14 165
General properties, 55°C A2/55	P_{rated} (rated heat output) @ -10°C	kW	18	22	26	30
	η_s (seasonal space heating efficiency)	%	125	126	123	123
	SCOP (seasonal COP)	-	3,02	3,05	3,12	3,12
	Q_{HE} (annual energy consumption)	kWh	11 375	14 390	17 204	19 316
Part load conditions (average climate, low temperature application)						
(A) condition (7°C)	P_{dh} (declared capacity for heating)	kW	15,91	19,73	22,15	21,95
	$COP_{declared}$ (declared COP)	-	2,85	2,74	2,56	2,53
	C_{dh} (degradation coefficient)	-	0,9	0,9	0,9	0,9
	P_{dh} (declared capacity for heating)	kW	9,67	12,04	13,78	16,22
(B) condition (2°C)	$COP_{declared}$ (declared COP)	-	4,57	4,40	4,41	4,12
	C_{dh} (degradation coefficient)	-	0,9	0,9	0,9	0,9
	P_{dh} (declared capacity for heating)	kW	6,57	8,02	9,38	10,69
	$COP_{declared}$ (declared COP)	-	5,95	6,24	6,43	6,21
(C) condition (7°C)	C_{dh} (degradation coefficient)	-	0,9	0,9	0,9	0,9
	P_{dh} (declared capacity for heating)	kW	3,77	3,81	4,11	4,59
	$COP_{declared}$ (declared COP)	-	6,97	7,00	7,08	7,14
	C_{dh} (degradation coefficient)	-	0,9	0,9	0,9	0,9
(D) condition (12°C)	T_{OL} (temperature operation limit)	°C	-10	-10	-10	-10
	P_{dh} (declared capacity for heating)	kW	18,14	20,34	20,36	20,43
	$COP_{declared}$ (declared COP)	-	2,49	2,35	2,34	2,34
	WTOL (heating water operation limit)	°C	60	60	60	60
(E) Temperature operating limit	T_{biv} (bivalent temperature)	°C	-7	-7	-7	-5
	P_{dh} (declared capacity for heating)	kW	15,91	19,73	22,15	23,57
	$COP_{declared}$ (declared COP)	-	2,85	2,74	2,56	2,70
	P_{sup} (design temperature, $T_{designh}^*$ -10°C)	kW	0,00	1,97	4,68	8,75

Space heating mode, part 2

Part load conditions (average climate, medium temperature application)						
Inspection condition	Description	Unit	HPAW-18 3N	HPAW-22 3N	HPAW-26 3N	HPAW-30 3N
(A) condition (7°C)	P_{dh} (declared capacity for heating)	kW	15,64	19,84	20,65	20,12
	$COP_{declared}$ (declared COP)	-	1,72	1,74	1,69	1,63
	C_{dh} (degradation coefficient)	-	0,9	0,9	0,9	0,9
(B) condition (2°C)	P_{dh} (declared capacity for heating)	kW	9,62	11,91	14,28	16,50
	$COP_{declared}$ (declared COP)	-	3,30	3,30	3,11	3,09
	C_{dh} (degradation coefficient)	-	0,9	0,9	0,9	0,9
(C) condition (7°C)	P_{dh} (declared capacity for heating)	kW	6,40	7,99	9,30	10,51
	$COP_{declared}$ (declared COP)	-	4,41	4,62	4,72	4,73
	C_{dh} (degradation coefficient)	-	0,9	0,9	0,9	0,9
(D) condition (12°C)	P_{dh} (declared capacity for heating)	kW	3,60	3,62	3,90	4,65
	$COP_{declared}$ (declared COP)	-	5,09	5,20	5,41	5,85
	C_{dh} (degradation coefficient)	-	0,9	0,9	0,9	0,9
(E) Temperature operating limit	T_{OL} (temperature operating limit)	°C	-10	-10	-10	-10
	P_{dh} (declared capacity for heating)	kW	15,03	13,83	13,87	13,83
	$COP_{declared}$ (declared COP)	-	1,17	1,08	1,08	1,07
(F) Bivalent temperature	WTOL (heating water operation limit)	°C	60	60	60	60
	T_{biv} (bivalent temperature)	°C	-7	-7	-6	-5
	P_{dh} (declared capacity for heating)	kW	15,64	19,84	22,13	23,98
Supplementary capacity at design capacity	$COP_{declared}$ (declared COP)	-	1,72	1,74	1,88	2,02
	P_{sup} (design temperature, $T_{designh}$: -10°C)	kW	2,64	8,60	12,28	15,86

Space heating mode, part 3

Colder climate (design temperature: -22 °C)						
Inspection condition	Description	Unit	HPAW-18 3N	HPAW-22 3N	HPAW-26 3N	HPAW-30 3N
General properties, 35°C	P_{rated} (rated heat output) @ -22°C	kW	18	21	26	29
	η_s (seasonal space heating efficiency)	%	146	146	143	138
	Q_{HE} (annual energy consumption)	kWh	11 740	14 179	17 421	20 390
General properties, 55°C	P_{rated} (rated heat output) @ -22°C	kW	18	22	26	30
	η_s (seasonal space heating efficiency)	%	97	102	101	100
	Q_{HE} (annual energy consumption)	kWh	18 156	21 067	24 967	29 238
Part load conditions (colder climate, low temperature application)						
(0) conditon (15°C)	P_{dh} (declared capacity for heating)	kW	14,49	17,46	18,95	18,61
	$COP_{declared}$ (declared COP)	-	2,42	2,36	2,27	2,24
	C_{dh} (degradation coefficient)	-	0,9	0,9	0,9	0,9
(A) conditon (7°C)	P_{dh} (declared capacity for heating)	kW	11,21	13,30	15,91	18,49
	$COP_{declared}$ (declared COP)	-	3,09	3,12	3,10	3,07
	C_{dh} (degradation coefficient)	-	0,9	0,9	0,9	0,9
(B) conditon (2°C)	P_{dh} (declared capacity for heating)	kW	6,64	8,25	10,10	11,88
	$COP_{declared}$ (declared COP)	-	4,50	4,42	4,45	4,42
	C_{dh} (degradation coefficient)	-	0,9	0,9	0,9	0,9
(C) conditon (7°C)	P_{dh} (declared capacity for heating)	kW	4,77	5,45	6,30	7,53
	$COP_{declared}$ (declared COP)	-	5,85	5,87	6,06	6,15
	C_{dh} (degradation coefficient)	-	0,9	0,9	0,9	0,9
(D) conditon (12°C)	P_{dh} (declared capacity for heating)	kW	3,95	3,98	4,03	4,11
	$COP_{declared}$ (declared COP)	-	7,18	7,19	7,13	6,87
	C_{dh} (degradation coefficient)	-	0,9	0,9	0,9	0,9
(E) Temperature operating limit	T_{OL} (temperature operation limit)	°C	-22	-22	-22	-22
	P_{dh} (declared capacity for heating)	kW	13,14	13,27	13,07	13,17
	$COP_{declared}$ (declared COP)	-	1,67	1,69	1,67	1,67
(F) Bivalent temperature	WTOL (heating water operation limit)	°C	37	37	37	37
	T_{biv} (bivalent temperature)	°C	-15	-15	-12	-10
	P_{dh} (declared capacity for heating)	kW	14,49	17,46	18,97	19,93
Supplementary capacity at design capacity	$COP_{declared}$ (declared COP)	-	2,42	2,36	2,36	2,44
	P_{sup} (design temperature, $T_{design} : -22^{\circ}C$)	kW	4,62	8,13	12,68	15,96

Space heating mode, part 4

Part load conditions (colder climate, medium temperature application)						
Inspection condition	Description	Unit	HPAW-18 3N	HPAW-22 3N	HPAW-26 3N	HPAW-30 3N
(O) conditon (15°C)	P_{dh} (declared capacity for heating)	kW	13,56	13,78	13,37	13,06
	$COP_{declared}$ (declared COP)	-	1,21	1,24	1,20	1,18
	C_{dh} (degradation coefficient)	-	0,9	0,9	0,9	0,9
(A) conditon (7°C)	P_{dh} (declared capacity for heating)	kW	11,12	13,53	15,90	18,40
	$COP_{declared}$ (declared COP)	-	1,98	2,07	2,10	2,10
	C_{dh} (degradation coefficient)	-	0,9	0,9	0,9	0,9
(B) conditon (2°C)	P_{dh} (declared capacity for heating)	kW	6,65	8,61	10,17	11,23
	$COP_{declared}$ (declared COP)	-	3,44	3,70	3,58	3,51
	C_{dh} (degradation coefficient)	-	0,9	0,9	0,9	0,9
(C) conditon (7°C)	P_{dh} (declared capacity for heating)	kW	4,66	5,21	6,52	7,42
	$COP_{declared}$ (declared COP)	-	4,35	4,49	4,99	5,18
	C_{dh} (degradation coefficient)	-	0,9	0,9	0,9	0,9
(D) condition (12°C)	P_{dh} (declared capacity for heating)	kW	3,74	3,74	3,63	3,64
	$COP_{declared}$ (declared COP)	-	5,68	5,76	5,68	5,73
	C_{dh} (degradation coefficient)	-	0,9	0,9	0,9	0,9
(E) Temperature operating limit)	T_{OL} (temperature operation limit)	°C	-15	-15	-15	-15
	P_{dh} (declared capacity for heating)	kW	13,56	13,78	13,37	13,06
	$COP_{declared}$ (declared COP)	-	1,21	1,24	1,20	1,18
(F) Bivalent temperature	WTOL (heating water operation limit)	°C	50	50	50	50
	T_{biv} (bivalent temperature)	°C	-7	-7	-7	-7
	P_{dh} (declared capacity for heating)	kW	11,12	13,53	15,90	18,40
Supplementary capacity at design capacity	$COP_{declared}$ (declared COP)	-	1,98	2,07	2,10	2,10
	P_{sup} (design temperature, $T_{design}^* : -22^{\circ}\text{C}$)	kW	18,38	22,36	26,27	30,41

Space heating mode, part 5

Melegebb éghajlat (design temperature: 2 °C)						
Inspection condition	Description	Unit	HPAW-18 3N	HPAW-22 3N	HPAW-26 3N	HPAW-30 3N
General properties, 35°C	P_{rated} (rated heat output) @ 2°C	kW	18	22	26	30
	η_s (seasonal space heating efficiency)	%	226	234	231	213
	Q_{HE} (annual energy consumption)	kWh	4 116	4 945	5 959	7 540
General properties, 55°C	P_{rated} (rated heat output) @ 2°C	kW	18	22	26	30
	η_s (seasonal space heating efficiency)	%	157	161	168	163
	Q_{HE} (annual energy consumption)	kWh	6 041	7 180	8 218	9 580
Part load conditions (warmer climate, low temperature application)						
(B) conditon (2°C)	P_{dh} (declared capacity for heating)	kW	17,84	21,81	25,50	26,29
	$COP_{declared}$ (declared COP)	-	3,53	3,31	3,00	2,94
	C_{dh} (degradation coefficient)	-	0,9	0,9	0,9	0,9
(C) conditon (7°C)	P_{dh} (declared capacity for heating)	kW	11,36	14,08	16,77	19,57
	$COP_{declared}$ (declared COP)	-	5,16	5,20	5,02	4,75
	C_{dh} (degradation coefficient)	-	0,9	0,9	0,9	0,9
(D) condition (12°C)	P_{dh} (declared capacity for heating)	kW	5,45	6,44	7,65	8,90
	$COP_{declared}$ (declared COP)	-	7,01	7,50	7,78	7,53
	C_{dh} (degradation coefficient)	-	0,9	0,9	0,9	0,9
(E) Temperature operating limit)	T_{OL} (temperature operation limit)	°C	2	2	2	2
	P_{dh} (declared capacity for heating)	kW	17,84	21,81	25,50	26,29
	$COP_{declared}$ (declared COP)	-	3,53	3,31	3,00	2,94
(F) Bivalent temperature	WTOL (heating water operation limit)	°C	60	60	60	60
	T_{biv} (bivalent temperature)	°C	7	7	7	7
	P_{dh} (declared capacity for heating)	kW	11,36	14,08	16,77	19,57
Supplementary capacity at design capacity	$COP_{declared}$ (declared COP)	-	5,16	5,20	5,02	4,75
	P_{sup} (design temperature, $T_{designh}: 2^{\circ}C$)	kW	0,00	0,09	0,58	4,15

Space heating mode, part 6

Part load conditions (warmer climate, medium temperature application)						
Inspection condition	Description	Unit	HPAW-18 3N	HPAW-22 3N	HPAW-26 3N	HPAW-30 3N
(B) condition (2°C)	P_{dh} (declared capacity for heating)	kW	4,83	5,02	7,55	8,06
	$COP_{declared}$ (declared COP)	-	2,51	2,48	2,59	2,59
	C_{dh} (degradation coefficient)	-	0,9	0,9	0,9	0,9
(C) condition (7°C)	P_{dh} (declared capacity for heating)	kW	3,22	3,31	5,38	5,54
	$COP_{declared}$ (declared COP)	-	3,68	3,67	4,01	4,10
	C_{dh} (degradation coefficient)	-	0,9	0,9	0,9	0,9
(D) condition (12°C)	P_{dh} (declared capacity for heating)	kW	1,47	1,60	2,31	2,53
	$COP_{declared}$ (declared COP)	-	5,15	5,29	5,55	5,82
	C_{dh} (degradation coefficient)	-	0,9	0,9	0,9	0,9
(E) Temperature operating limit	T_{OL} (temperature operation limit)	°C	2	2	2	2
	P_{dh} (declared capacity for heating)	kW	18,44	22,12	26,50	26,41
	$COP_{declared}$ (declared COP)	-	2,12	2,12	1,99	1,99
(F) Bivalent temperature	WTOL (heating water operation limit)	°C	60	60	60	60
	T_{biv} (bivalent temperature)	°C	7	7	7	7
	P_{dh} (declared capacity for heating)	kW	11,62	14,15	16,86	19,11
Supplementary capacity at design capacity	$COP_{declared}$ (declared COP)	-	3,49	3,50	3,47	3,37
	P_{sup} (design temperature, $T_{design}: 2^{\circ}C$)	kW	0,00	0,00	0,00	3,32
Ecodesign technical data						
Other properties of the air-water unit (on all climate and temperature application)	Rated airflow	m ³ /h	10650	10650	11200	11200
	Capacity control	-	inverter	inverter	inverter	inverter
	P_{off} (Power consumption in Off mode)	kW	0,018	0,018	0,018	0,018
	P_{to} (Power consumption in Thermostat off mode)	kW	0,096	0,096	0,096	0,096
	P_{sb} (Power consumption in Standby mode)	kW	0,018	0,018	0,018	0,018
	P_{cK} (Power consumption in Crankcase heat mode)	kW	0,000	0,000	0,000	0,000

Space cooling mode, part 1

Inspection condition	Description	Unit	HPAW-18 3N	HPAW-22 3N	HPAW-26 3N	HPAW-30 3N
General properties	Unit sound power level	dB	71	73	75	77
	P_{rated} (rated heat output)	kW	16,6	20,6	25,5	29,5
	$\eta_{s,c}$ (seasonal space cooling efficiency)	%	185	185	183	177
Part load conditions (low temperature application)						
(A) condition (35°C)	P_{dc} (rated cooling efficiency)	kW	16,6	20,6	25,5	29,5
	EER_g (declared energy efficiency ratio)	-	3,06	2,89	2,63	2,29
	C_{dc} (degradation coefficient)	-	0,9	0,9	0,9	0,9
(B) condition (30°C)	P_{dc} (rated cooling efficiency)	kW	11,9	14,9	18,5	21,2
	EER_g (declared energy efficiency ratio)	-	4,13	3,95	3,79	3,62
	C_{dc} (degradation coefficient)	-	0,9	0,9	0,9	0,9
(C) condition (25°C)	P_{dc} (rated cooling efficiency)	kW	7,6	9,3	11,8	13,5
	EER_g (declared energy efficiency ratio)	-	5,59	5,37	5,19	5,06
	C_{dc} (degradation coefficient)	-	0,9	0,9	0,9	0,9
(D) condition (20°C)	P_{dc} (rated cooling efficiency)	kW	3,5	4,3	5,6	6,0
	EER_g (declared energy efficiency ratio)	-	5,55	6,19	6,84	6,75
	C_{dc} (degradation coefficient)	-	0,9	0,9	0,9	0,9
Ecodesign technical data						
Other properties of the air-water unit (on arbitrary climate and temperature application)	Rated airflow (outdoor)	m ³ /h	8100	8950	9750	10650
	Capacity control	-	variable	variable	variable	variable
	P_{off} (Power consumption in Off mode)	kW	0,017	0,017	0,017	0,017
	P_{to} (Power consumption in Thermostat off mode)	kW	0,084	0,084	0,084	0,084
	P_{sb} (Power consumption in Standby mode)	kW	0,017	0,017	0,017	0,017
	P_{OK} (Power consumption in Crankcase heat mode)	kW	0,000	0,000	0,000	0,000

Space cooling mode, part 2

Inspection condition	Description	Unit	HPAW-18 3N	HPAW-22 3N	HPAW-26 3N	HPAW-30 3N
General properties	Unit sound power level	dB	71	73	75	77
	P _{rated} (rated heat output)	kW	18,4	22,8	26,8	30,8
	η _{s,c} (seasonal space cooling efficiency)	%	216	224	226	225
	Part load conditions (medium temperature application)					
(A) conditon (35°C)	P _{dc} (rated cooling efficiency)	kW	18,4	22,8	26,8	30,8
	EERd (declared energy efficiency ratio)	-	4,44	4,25	4,04	3,79
	C _{dc} (degradation coefficient)	-	0,9	0,9	0,9	0,9
	P _{dc} (rated cooling efficiency)	kW	13,3	16,3	19,4	22,1
(B) conditon (30°C)	EERd (declared energy efficiency ratio)	-	5,26	5,16	5,21	5,06
	C _{dc} (degradation coefficient)	-	0,9	0,9	0,9	0,9
	P _{dc} (rated cooling efficiency)	kW	8,5	10,2	12,1	13,9
	EERd (declared energy efficiency ratio)	-	6,68	6,45	6,23	6,33
(C) conditon (25°C)	C _{dc} (degradation coefficient)	-	0,9	0,9	0,9	0,9
	P _{dc} (rated cooling efficiency)	kW	3,3	4,6	5,9	6,3
	EERd (declared energy efficiency ratio)	-	5,15	6,38	6,94	7,01
	C _{dc} (degradation coefficient)	-	0,9	0,9	0,9	0,9
Ecodesign technical data						
Other properties of the air-water unit (on arbitrary climate and temperature application)	Rated airflow (outdoor)	m ³ /h	8100	8950	9750	10650
	Capacity control	-	variable	variable	variable	variable
	P _{off} (Power consumption in Off mode)	kW	0,017	0,017	0,017	0,017
	P _{to} (Power consumption in Thermostat off mode)	kW	0,084	0,084	0,084	0,084
	P _{sb} (Power consumption in Standby mode)	kW	0,017	0,017	0,017	0,017
	P _{ok} (Power consumption in Crankcase heat mode)	kW	0,000	0,000	0,000	0,000

NOTES

This image shows a full page of blank graph paper. The grid consists of small, equal-sized squares formed by thin black lines. There are no margins, text, or other markings on the page.

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HAJDU Hajdúsági Ipari Zrt.

4243 Téglás, Külterület 0135/9. hrsz.
Tel.: 06(52) 582-787 Fax: 06(52) 384-126
vevoszolgalat@hajdurt.hu
www.hajdurt.hu