	(heat n			requirements eat pump combination heaters)				
Model(s): COPMAX HIGH POWE				reat pump combination neaters)				
Air-to-water heat pump	Y			Low-temperature heat pump	N			
Water-to-water heat pump		N		Equipped with a supplementary heater	Y			
Brine-to-water heat pump		N		Heat pump combination heater		Y		
Parameters declared for				Medium-temperature application				
Parameters declared for				Average climate condition				
Item	symbol	value	unit	Item	symbol	value	unit	
Rated heat output (*)	Prated 5 kW		kW	Seasonal space heating energy efficiency	ηs	137	%	
Declared capacity for heating for part outdoor tem		or temperatu	re 20 °C and	Declared coefficient of performance of indoor temperature 20 °C a				
Tj = − 7 °C	Pdh	4.3	kW	T: 7.00	CODI	2.47		
Degradation co-efficient (**)	Cdh	0.99	-	Tj = − 7 °C	COPd	2.47	_	
Tj = 2 °C	Pdh	2.7	kW	T: 2 °C	CODI	2.10		
Degradation co-efficient (**)	Cdh	0.98	-	Tj = 2 ℃	COPd	3.19	_	
Tj = 7 ℃	Pdh	1.7	kW	T: 7 %	CODI	4.00		
Degradation co-efficient (**)	Cdh	0.95	-	Tj = 7 ℃	COPd	4.89	_	
Tj = 12℃	Pdh	1.6	kW	T: 10%	CODI	6.61		
Degradation co-efficient (**)	Cdh	0.94	-	$Tj = 12^{\circ}C$	COPd	6.61	_	
Tj = bivalent temperature	Pdh 4.3 kW		kW	Tj = bivalent temperature	COPd	2.47	_	
Tj = operation limit temperature	Pdh	Pdh 3.6 kW		Tj = operation limit temperature	COPd	1.56	_	
For air-to-water heat pumps: $Tj = -15^{\circ}C$ (if $TOL < -20^{\circ}C$)	Pdh	NA	kW	For air-to-water heat pumps: $T_j = -15 ^{\circ}\mathbb{C}$ (if $TOL < -20 ^{\circ}\mathbb{C}$)	COPd	NA	_	
Bivalent temperature	Tbiv	Tbiv -7 ℃		For air-to-water heat pumps: Operation limit temperature	TOL	-10	$^{\circ}$	
			1,447	Cycling interval efficiency	СОРсус	NA	_	
Cycling interval capacity for heating	Pcych	NA	kW	Heating water operating limit temperature	WTOL 65		°C	
Power consumption in mo-	des other tha	n active mod	le	Supplemen	ntary heater			
Off mode	P_{OFF}	0.025	kW	Rated heat output (*)	Psup	1.4	kW	
Thermostat-off mode	P_{TO}	0.025	kW					
Standby mode	P_{SB}	0.025	kW	Type of energy input		Electric		
Crankcase heater mode	P_{CK}	0.025	kW					
Other	items							
Capacity control		variable		For air-to-water heat pumps: Rated air flow rate, outdoors	_	3200	m 3 /h	
Sound power level, outdoors	L_{WA}	58	dB	For water- or brine-to-water heat pumps: Rated brine or water flow	_	NA	m 3 /h	
Annual energy consumption	Q_{HE}	2882	kWh	rate, outdoor heat exchanger	- NA		m 3 /n	
For heat pump combination heater:								
Declared load profile		XL		Water heating energy efficiency	ηwh	128	%	
Daily electricity consumption	Qelec	6.253	kWh	Daily fuel consumption	Qfuel	NA	kWh	
Annual electricity consumption	AEC	1311	kWh	Annual fuel consumption	AFC	NA	GJ	
Contact details: Mimersvej 2, 8722 Hedensted, Denmark Name of the supplier: VVS-EKSPERTEN A/S (*) For heat nump space heaters and heat nump combination heaters, the rated heat output Prated is equal to the design load for heating Pdesign.								

^(*) For heat pump space heaters and heat pump combination heaters, the rated heat output Prated is equal to the design load for heating Pdesignh, and the rated heat output of a supplementary heater Psup is equal to the supplementary capacity for heating sup(Tj). (**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0,9.

	(heat p			requirements eat pump combination heaters)			
Model(s): COPMAX HIGH POWE	R 4KW						
Air-to-water heat pump	Y			Low-temperature heat pump	N		
Water-to-water heat pump		N		Equipped with a supplementary heater	Y		
Brine-to-water heat pump		N		Heat pump combination heater		Y	
Parameters declared for				Medium-temperature application			
Parameters declared for				Colder climate condition			
Item	symbol	value	unit	Item	symbol	value	unit
Rated heat output (*)	Prated 4 kW		kW	Seasonal space heating energy efficiency	ηs	112	%
Declared capacity for heating for part outdoor tem		or temperatu	re 20 °C and	Declared coefficient of performance of indoor temperature 20 °C a			
Tj = − 7 °C	Pdh	2.6	kW	Tj = − 7 °C	COPd	2.05	
Degradation co-efficient (**)	Cdh	0.99	_	IJ = - / C	COPa	2.05	_
Tj = 2 ℃	Pdh	1.6	kW	T: _ 2 °C	COD4	2.77	
Degradation co-efficient (**)	Cdh	0.97	_	Tj = 2 ℃	COPd	3.77	_
Tj = 7 ℃	Pdh	1.3	kW	T: 7 %	CODI	5.15	
Degradation co-efficient (**)	Cdh	0.95	-	Tj = 7 ℃	COPd	5.15	_
Tj = 12℃	Pdh	1.5	kW	T: 10%	CODI	7.21	
Degradation co-efficient (**)	Cdh	0.95	-	$Tj = 12^{\circ}C$	COPd	7.21	_
Tj = bivalent temperature	Pdh 3.5 kW		kW	Tj = bivalent temperature	COPd	1.76	_
Tj = operation limit temperature	Pdh	Pdh 2.5 kW		Tj = operation limit temperature	COPd	1.20	_
For air-to-water heat pumps: Tj = -15% (if $TOL < -20%$)	Pdh	3.5	kW	For air-to-water heat pumps: $T_j = -15 \text{ °C} \text{ (if TOL} < -20 \text{ °C} \text{)}$	COPd	1.76	_
Bivalent temperature	Tbiv	-15	$^{\circ}$	For air-to-water heat pumps: Operation limit temperature	TOL	-22	$^{\circ}$
		1 ***	Cycling interval efficiency	СОРсус	NA	_	
Cycling interval capacity for heating	Pcych	NA	kW	Heating water operating limit temperature	WTOL 65		$^{\circ}$
Power consumption in mod	des other tha	n active mod	le	Supplemen	ntary heater		
Off mode	P_{OFF}	0.025	kW	Rated heat output (*)	Psup	1.5	kW
Thermostat-off mode	P_{TO}	0.025	kW				
Standby mode	P_{SB}	0.025	kW	Type of energy input		Electric	
Crankcase heater mode	$P_{\scriptscriptstyle \mathrm{CK}}$	0.025	kW				
Other	items						
Capacity control		variable		For air-to-water heat pumps: Rated air flow rate, outdoors	_	3200	m 3 /h
Sound power level, outdoors	L_{wa}	58	dB	For water- or brine-to-water heat pumps: Rated brine or water flow		NA	m 3 /h
Annual energy consumption	Q_{HE}	3721	kWh	rate, outdoor heat exchanger		11/21	111 3 / 11
		For	heat pump co	mbination heater:			
Declared load profile		XL		Water heating energy efficiency	ηwh	90	%
Daily electricity consumption	Qelec	8.849	kWh	Daily fuel consumption	Qfuel	NA	kWh
Annual electricity consumption	AEC	1862	kWh	Annual fuel consumption	AFC	NA	GJ
Contact details: Mimersvej 2, 8722 Hedensted, Denma	nrk			Name of the supplier: VVS-EKSPERTEN A/S			

^(*) For heat pump space heaters and heat pump combination heaters, the rated heat output Prated is equal to the design load for heating Pdesignh, and the rated heat output of a supplementary heater Psup is equal to the supplementary capacity for heating sup(Tj). (**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0,9.

	(heat m			requirements				
Model(s): COPMAX HIGH POWE		ump space n	eaters and n	eat pump combination heaters)				
Air-to-water heat pump		Low-temperature heat pump		N				
All-to-water fleat pump		Y			N			
Water-to-water heat pump		N		Equipped with a supplementary heater	Y			
Brine-to-water heat pump		N		Heat pump combination heater		Y		
Parameters declared for				Medium-temperature application				
Parameters declared for				Warmer climate condition				
Item	symbol	value	unit	Item	symbol	value	unit	
Rated heat output (*)	Prated	5	kW	Seasonal space heating energy efficiency	ηs	170	%	
Declared capacity for heating for part outdoor tem		or temperatur	re 20 °C and	Declared coefficient of performance of indoor temperature 20 °C a				
Tj = −7 °C	Pdh	NA	kW	F: 7.00	CODI	27.4	_	
Degradation co-efficient (**)	Cdh	NA	-	Tj = − 7 °C	COPd	NA	_	
Tj = 2 °C	Pdh	5.2	kW	Tj = 2 °C	COD4	2.44		
Degradation co-efficient (**)	Cdh	0.99	_	1j – 2 C	COPd	2.44		
Tj = 7 ℃	Pdh	3.2	kW	kW Ti = 7 °C		3.67	_	
Degradation co-efficient (**)	Cdh	0.98	-	1j / C	COPd			
Tj = 12℃	Pdh	1.5	kW	Tj = 12℃	COPd	5.79	_	
Degradation co-efficient (**)	Cdh	0.95	-			3.77		
Tj = bivalent temperature	Pdh 5.2 kW		kW	Tj = bivalent temperature	COPd	2.44	_	
Tj = operation limit temperature	Pdh	Pdh 5.2 kW		Tj = operation limit temperature	COPd	2.44	-	
For air-to-water heat pumps: $Tj = -15^{\circ}C$ (if TOL $< -20^{\circ}C$)	Pdh	NA kW		For air-to-water heat pumps: $Tj = -15^{\circ}C$ (if $TOL < -20^{\circ}C$)	COPd	NA	-	
Bivalent temperature	Tbiv	2	°C	For air-to-water heat pumps: Operation limit temperature	TOL	2	$^{\circ}$	
Cycling interval capacity for heating	Pcych NA	kW	Cycling interval efficiency	COPcyc	NA	-		
Cycling interval capacity for heating	1 Cycli	Toyon 141		Heating water operating limit temperature	WTOL	65	$^{\circ}$	
Power consumption in mo	des other tha	n active mod	e	Supplementary heater				
Off mode	P _{OFF}	0.025	kW	Rated heat output (*)	Psup	0	kW	
Thermostat-off mode	P _{TO}	0.025	kW					
Standby mode	P_{SB}	0.025	kW	Type of energy input	Electric			
Crankcase heater mode	P_{CK}	0.025	kW					
Other	items					Т		
Capacity control		variable		For air-to-water heat pumps: Rated air flow rate, outdoors	-	3200	m 3 /h	
Sound power level, outdoors	L_{w_A}	58	dB	For water- or brine-to-water heat pumps: Rated brine or water flow		NA	m 3 /h	
Annual energy consumption	Q_{HE}	1604	kWh	rate, outdoor heat exchanger	- NA		111 3 / 11	
For heat pump combination heater:								
Declared load profile		XL		Water heating energy efficiency	ηwh	120	%	
Daily electricity consumption	Qelec	6.683	kWh	Daily fuel consumption	Qfuel	NA	kWh	
Annual electricity consumption	AEC	1219	kWh	Annual fuel consumption	AFC	NA	GJ	
Contact details: Mimersvej 2, 8722 Hedensted, Denma	Name of the supplier: VVS-EKSPERTEN A/S							

^(*) For heat pump space heaters and heat pump combination heaters, the rated heat output Prated is equal to the design load for heating Pdesignh, and the rated heat output of a supplementary heater Psup is equal to the supplementary capacity for heating sup(Tj). (**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0,9.

	(heat p			requirements leat pump combination heaters)				
Model(s): COPMAX HIGH POWE	R 4KW							
Air-to-water heat pump	Y			Low-temperature heat pump	N			
Water-to-water heat pump		N		Equipped with a supplementary heater	Y			
Brine-to-water heat pump		N		Heat pump combination heater		Y		
Parameters declared for				Low-temperature application				
Parameters declared for				Average climate condition				
Item	symbol	value	unit	Item	symbol	value	unit	
Rated heat output (*)	Prated 5 kW		kW	Seasonal space heating energy efficiency	ηs	192	%	
Declared capacity for heating for part outdoor tem		or temperatu	re 20 °C and	Declared coefficient of performance of indoor temperature 20 °C a				
Tj = − 7 °C	Pdh	4.8	kW	Tj = −7 °C	COPd	3.43		
Degradation co-efficient (**)	Cdh	0.99	-	1j=-/ C	COPa	3.43	_	
Tj = 2 ℃	Pdh	3.1	kW	Tj = 2 ℃	COPd	4.83		
Degradation co-efficient (**)	Cdh	0.98	-	1j – 2 C	COPa	4.63	_	
Tj = 7 ℃	Pdh	1.9	kW	T: - 7 °C	COD4	5.05		
Degradation co-efficient (**)	Cdh	0.95	-	Tj = 7 ℃	COPd	5.95	_	
Tj = 12°C	Pdh	1.7	kW	T' 12°C	CODI	8.49		
Degradation co-efficient (**)	Cdh	0.94	-	$Tj = 12^{\circ}C$	COPd		_	
Tj = bivalent temperature	Pdh 4.8 kW		kW	Tj = bivalent temperature	COPd	3.43	_	
Tj = operation limit temperature	Pdh	Pdh 4.4 kW		Tj = operation limit temperature	COPd	2.46	_	
For air-to-water heat pumps: $Tj = -15^{\circ}C$ (if $TOL < -20^{\circ}C$)	Pdh	NA	kW	For air-to-water heat pumps: $Tj = -15^{\circ}\mathbb{C}$ (if $TOL < -20^{\circ}\mathbb{C}$)	COPd	NA	-	
Bivalent temperature	Tbiv	-7	$^{\circ}$	For air-to-water heat pumps: Operation limit temperature	TOL	-10	$^{\circ}$	
		1 337	Cycling interval efficiency	COPcyc	NA	_		
Cycling interval capacity for heating	Pcych	NA	kW	Heating water operating limit temperature	WTOL	65	$^{\circ}$	
Power consumption in mo	des other tha	n active mod	le	Supplementary heater				
Off mode	P_{OFF}	0.025	kW	Rated heat output (*)	Psup	0.6	kW	
Thermostat-off mode	P_{TO}	0.025	kW					
Standby mode	$P_{\scriptscriptstyle SB}$	0.025	kW	Type of energy input		Electric		
Crankcase heater mode	$P_{\scriptscriptstyle \mathrm{CK}}$	0.025	kW					
Other	items							
Capacity control		variable		For air-to-water heat pumps: Rated air flow rate, outdoors	_	3200	m 3 /h	
Sound power level, outdoors	L_{wa}	58	dB	For water- or brine-to-water heat pumps: Rated brine or water flow	_	NA	m 3 /h	
Annual energy consumption	Q_{HE}	2306	kWh	rate, outdoor heat exchanger		11/21	111 3 / 11	
		For	heat pump co	mbination heater:				
Declared load profile		XL		Water heating energy efficiency	ηwh	128	%	
Daily electricity consumption	Qelec	6.253	kWh	Daily fuel consumption	Qfuel	NA	kWh	
Annual electricity consumption	AEC	1311	kWh	Annual fuel consumption	AFC	NA	GJ	
Contact details: Mimersvej 2, 8722 Hedensted, Denma	ark			Name of the supplier: VVS-EKSPERTEN A/S				

^(*) For heat pump space heaters and heat pump combination heaters, the rated heat output Prated is equal to the design load for heating Pdesignh, and the rated heat output of a supplementary heater Psup is equal to the supplementary capacity for heating sup(Tj). (**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0,9.

	(heat p			requirements eat pump combination heaters)			
Model(s): COPMAX HIGH POWE	R 4KW						
Air-to-water heat pump	Y			Low-temperature heat pump	N		
Water-to-water heat pump		N		Equipped with a supplementary heater	Y		
Brine-to-water heat pump		N		Heat pump combination heater		Y	
Parameters declared for				Low-temperature application			
Parameters declared for				Colder climate condition			
Item	symbol	value	unit	Item	symbol	value	unit
Rated heat output (*)	Prated 5 kW		kW	Seasonal space heating energy efficiency	ηs	168	%
Declared capacity for heating for part outdoor tem		or temperatu	re 20 °C and	Declared coefficient of performance of indoor temperature 20 °C a			
Tj = − 7 °C	Pdh	2.9	kW	Tj = − 7 °C	COPd	3.43	
Degradation co-efficient (**)	Cdh	0.99	-	1j = - / C	COPa	3.43	_
Tj = 2 ℃	Pdh	1.8	kW	Tj = 2 ℃	COPd	5.41	
Degradation co-efficient (**)	Cdh	0.97	-	1j – 2 C	COPa	3.41	_
Tj = 7 ℃	Pdh	1.3	kW	T: - 7 °C	COD4	6.24	
Degradation co-efficient (**)	Cdh	0.95	_	Tj = 7 ℃	COPd	0.24	_
Tj = 12°C	Pdh	1.5	kW				
Degradation co-efficient (**)	Cdh	0.95	_	$Tj = 12^{\circ}C$	COPd	8.38	_
Tj = bivalent temperature	Pdh 3.7 kW		kW	Tj = bivalent temperature	COPd	2.85	_
Tj = operation limit temperature	Pdh	Pdh 3.2 kW		Tj = operation limit temperature	COPd	1.65	_
For air-to-water heat pumps: $Tj = -15^{\circ}C$ (if $TOL < -20^{\circ}C$)	Pdh	3.7	kW	For air-to-water heat pumps: $Tj = -15^{\circ}\mathbb{C}$ (if $TOL < -20^{\circ}\mathbb{C}$)	COPd	2.85	-
Bivalent temperature	Tbiv	-15	$^{\circ}$	For air-to-water heat pumps: Operation limit temperature	TOL	-22	$^{\circ}$
		1 337	Cycling interval efficiency	СОРсус	NA	_	
Cycling interval capacity for heating	Pcych	NA	kW	Heating water operating limit temperature	WTOL	65	$^{\circ}$
Power consumption in mo	des other tha	n active mod	le	Supplementary heater			
Off mode	P_{OFF}	0.025	kW	Rated heat output (*)	Psup	1.8	kW
Thermostat-off mode	P_{TO}	0.025	kW				
Standby mode	$P_{\scriptscriptstyle SB}$	0.025	kW	Type of energy input		Electric	
Crankcase heater mode	$P_{\scriptscriptstyle \mathrm{CK}}$	0.025	kW				
Other	items						
Capacity control		variable		For air-to-water heat pumps: Rated air flow rate, outdoors	_	3200	m 3 /h
Sound power level, outdoors	L_{wa}	58	dB	For water- or brine-to-water heat pumps: Rated brine or water flow	_	NA	m 3 /h
Annual energy consumption	Q_{HE}	2630	kWh	rate, outdoor heat exchanger		1171	111 3 7 11
		For	heat pump co	mbination heater:			
Declared load profile		XL		Water heating energy efficiency	ηwh	90	%
Daily electricity consumption	Qelec	8.849	kWh	Daily fuel consumption	Qfuel	NA	kWh
Annual electricity consumption	AEC	1862	kWh	Annual fuel consumption	AFC	NA	GJ
Contact details: Mimersvej 2, 8722 Hedensted, Denma	ırk			Name of the supplier: VVS-EKSPERTEN A/S			

^(*) For heat pump space heaters and heat pump combination heaters, the rated heat output Prated is equal to the design load for heating Pdesignh, and the rated heat output of a supplementary heater Psup is equal to the supplementary capacity for heating sup(Tj). (**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0.9.

	(heat n			requirements				
Model(s): COPMAX HIGH POWE		ump space n	eaters and n	neat pump combination heaters)				
Air-to-water heat pump		Y		Low-temperature heat pump	N			
				Equipped with a supplementary	IN			
Water-to-water heat pump		N		heater	Y			
Brine-to-water heat pump		N		Heat pump combination heater		Y		
Parameters declared for				Low-temperature application				
Parameters declared for				Warmer climate condition				
Item	symbol	value	unit	Item	symbol	value	unit	
Rated heat output (*)	Prated	5	kW	Seasonal space heating energy efficiency	ηs	239	%	
Declared capacity for heating for part outdoor tem		or temperatui	re 20 °C and	Declared coefficient of performance of indoor temperature 20 °C a				
Tj = − 7 °C	Pdh	NA	kW					
Degradation co-efficient (**)	Cdh	NA	-	Tj = − 7 °C	COPd	NA	_	
Tj = 2 °C	Pdh	5.1	kW	T: 2 °C	CODI	2.95		
Degradation co-efficient (**)	Cdh	0.99	-	Tj = 2 ℃	COPd	3.85	_	
Tj = 7 °C	Pdh	3.4	kW	Ti = 7 °C	COPd	5.80		
Degradation co-efficient (**)	Cdh	0.98	_	1j = / C	COPa	3.80	_	
Tj = 12℃	Pdh	1.5	kW	Tj = 12℃	COPd	7.20	_	
Degradation co-efficient (**)	Cdh	0.95	-	15 12 (2014		_	
Tj = bivalent temperature	Pdh 5.1 kW		kW	Tj = bivalent temperature	COPd	3.85	-	
Tj = operation limit temperature	Pdh	Pdh 5.1 kW		Tj = operation limit temperature	COPd	3.85	-	
For air-to-water heat pumps: $Tj = -15^{\circ}C$ (if $TOL < -20^{\circ}C$)	Pdh	NA kW		For air-to-water heat pumps: $Tj = -15^{\circ}C$ (if $TOL < -20^{\circ}C$)	COPd	NA	-	
Bivalent temperature	Tbiv 2 °C		$^{\circ}$	For air-to-water heat pumps: Operation limit temperature	TOL	2	$^{\circ}$	
Cooling internal consists for booking	Daniel NA	kW	Cycling interval efficiency	COPcyc	NA	_		
Cycling interval capacity for heating	Pcych	NA	K W	Heating water operating limit temperature	WTOL	65	$^{\circ}$	
Power consumption in mo	des other tha	n active mod	e	Supplementary heater				
Off mode	P _{OFF}	0.025	kW	Rated heat output (*)	Psup	0	kW	
Thermostat-off mode	P _{TO}	0.025	kW					
Standby mode	P_{SB}	0.025	kW	Type of energy input		Electric		
Crankcase heater mode	P_{CK}	0.025	kW					
Other	items							
Capacity control		variable		For air-to-water heat pumps: Rated air flow rate, outdoors	-	3200	m 3 /h	
Sound power level, outdoors	L_{w_A}	58	dB	For water- or brine-to-water heat pumps: Rated brine or water flow	_	NA	m 3 /h	
Annual energy consumption	Q_{HE}	1124	kWh	rate, outdoor heat exchanger		11/1	111 3 711	
For heat pump combination heater:								
Declared load profile		XL		Water heating energy efficiency	ηwh	120	%	
Daily electricity consumption	Qelec	6.683	kWh	Daily fuel consumption	Qfuel	NA	kWh	
Annual electricity consumption	AEC	1219	kWh	Annual fuel consumption	AFC	NA	GJ	
Contact details: Mimersvej 2, 8722 Hedensted, Denma				Name of the supplier: VVS-EKSPERTEN A/S				

^(*) For heat pump space heaters and heat pump combination heaters, the rated heat output Prated is equal to the design load for heating Pdesignh, and the rated heat output of a supplementary heater Psup is equal to the supplementary capacity for heating sup(Tj). (**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0,9.

