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Instructions and recommendations

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MAGIS M12-14-16TEH9

Block heat pumps
Technical Data



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Dear Customer

Congratulations for having chosen a top-quality Immergas product, able to assure well-being and safety for a long period of time. As an Immergas customer you can also count on a Qualified Authorised After-Sales Technical Assistance Centre, prepared and updated to guarantee constant efficiency of your appliance. Read the following pages carefully: you will be able to draw useful tips on the proper use of the device, compliance with which will confirm your satisfaction with the Immergas product.

For assistance and routine maintenance, contact Authorised Technical Service Centres: they have original spare parts and are specifically trained directly by the manufacturer.

The company **IMMERGAS S.p.A.**, with registered office in via Cisa Ligure 95 42041 Brescello (RE), declares that the design, manufacturing and after-sales assistance processes comply with the requirements of standard **UNIEN ISO 9001:2015**.

For further details on the product CE marking, request a copy of the Declaration of Conformity from the manufacturer, specifying the appliance model and the language of the country.

The manufacturer declines all liability due to printing or transcription errors, reserving the right to make any modifications to its technical and commercial documents without forewarning.



GENERAL RECOMMENDATIONS

- The instruction booklet is an integral and essential part of the product and must be given to the new user in the case of transfer or succession of ownership.
 - It must be stored with care and consulted carefully, as all of the warnings provide important safety indications for installation, use and maintenance stages.
 - In compliance with the legislation in force, the systems must be designed by qualified professionals, within the dimensional limits established by the Law. Installation and maintenance must be performed in compliance with the regulations in force, according to the manufacturer's instructions and by professionally qualified staff, meaning staff with specific technical skills in the plant sector, as provided for by Law.
 - Improper installation or assembly of the Immergas device and/or components, accessories, kits and devices can cause unexpected problems for people, animals and objects. Read the instructions provided with the product carefully to ensure proper installation.
 - This instructions manual provides technical information for installing Immergas products. As for the other issues related to the installation of products (e.g. safety at the workplace, environmental protection, accident prevention), it is necessary to comply with the provisions of the standards in force and the principles of good practice.
 - All Immergas products are protected with suitable transport packaging.
 - The material must be stored in a dry place protected from the weather.
 - Maintenance must be carried out by skilled technical staff. For example, the Authorised Service Centre that represents a guarantee of qualifications and professionalism.
 - The appliance must only be destined for the use for which it has been expressly declared. Any other use will be considered improper and therefore potentially dangerous.
 - If errors occur during installation, operation and maintenance, due to non-compliance with technical laws in force, standards or instructions contained in this booklet (or however supplied by the manufacturer), the manufacturer is excluded from any contractual and extra-contractual liability for any damages and the device warranty is invalidated.
 - This manual provides a detailed explanation on the precautions to be taken during use.
 - Read this manual carefully before using the wall-mounted control unit to guarantee its proper operation.
 - After you have read this manual, keep it for future consultation.
 - For further information regarding legislative and statutory provisions relative to the installation of heat pumps, consult the Immergas site at the following address: www.immergas.com
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1 TECHNICAL DATA

1.1 MEDIUM TEMPERATURE APPLICATIONS

Model	For medium temperature applications				
	Energy efficiency class	Sound power of unit	Medium zone temperatures		
			Nominal heat output	Space heating seasonal energy efficiency	For space heating, annual power consumption
	-	dB	kW	%	kWh
MAGISM12TEH9	A++	65,0	11,6	135,1	6928
MAGISM14TEH9	A++	65,0	12,1	135,6	7203
MAGISM16TEH9	A++	68,0	13,0	133,2	7896

Model	For medium temperature applications				
	Energy efficiency class	Sound power of unit	Cold zones temperatures		
			Nominal heat output	Space heating seasonal energy efficiency	For space heating, annual power consumption
	-	dB	kW	%	kWh
MAGISM12TEH9	A++	65,0	10,3	117,7	8420
MAGISM14TEH9	A++	65,0	11,0	118,9	8867
MAGISM16TEH9	A++	68,0	11,8	121,8	9310

Model	For medium temperature applications				
	Energy efficiency class	Sound power of unit	Hot zones temperatures		
			Nominal heat output	Space heating seasonal energy efficiency	For space heating, annual power consumption
	-	dB	kW	%	kWh
MAGISM12TEH9	A++	65,0	12,5	173,8	3780
MAGISM14TEH9	A++	65,0	14,17	174,9	4262
MAGISM16TEH9	A++	68,0	14,17	175,8	4236

1.2 LOW TEMPERATURE APPLICATIONS

Model	For low temperature applications				
	Energy efficiency class	Sound power of unit	Medium zone temperatures		
			Nominal heat output	Space heating seasonal energy efficiency	For space heating, annual power consumption
-	dB	kW	%	kWh	
MAGISM12TEH9	A+++	65,0	12,0	189,0	5153
MAGISM14TEH9	A+++	65,0	13,7	186,0	6013
MAGISM16TEH9	A+++	68,0	15,2	182,0	6805

Model	For low temperature applications				
	Energy efficiency class	Sound power of unit	Cold zones temperatures		
			Nominal heat output	Space heating seasonal energy efficiency	For space heating, annual power consumption
-	dB	kW	%	kWh	
MAGISM12TEH9	A+++	65,0	11,4	160,2	6871
MAGISM14TEH9	A+++	65,0	12,6	159,6	7667
MAGISM16TEH9	A+++	68,0	13,7	157,8	8431

Model	For low temperature applications				
	Energy efficiency class	Sound power of unit	Hot zones temperatures		
			Nominal heat output	Space heating seasonal energy efficiency	For space heating, annual power consumption
-	dB	kW	%	kWh	
MAGISM12TEH9	A+++	65,0	11,1	255,6	2296
MAGISM14TEH9	A+++	65,0	12,1	259,8	2462
MAGISM16TEH9	A+++	68,0	13,1	248,1	2786

2 PRODUCT DATA SHEET

Space heating appliance with heat pump		Unit	MAGISM12 T EH9	MAGISM14 T EH9	MAGISM16 T EH9
Sound power of unit	Low temperature medium weather application	dB	65,0	65,0	68,0
	Medium weather temperature application	dB	65,0	65,0	68,0
Space heating	Energy efficiency class 35°C (low temperature application)	-	A+++	A+++	A+++
Space heating	Energy efficiency class 55°C (medium temperature application)	-	A++	A++	A++

Medium weather (design temperature = -10°C)		Unit	MAGISM12 T EH9	MAGISM14 T EH9	MAGISM16 T EH9
Space heating 35°C	P_{rated} (declared heating capacity) @ -10°C	kW	12,0	13,7	15,2
	Space heating seasonal energy efficiency (η_s)	%	189,0	186,0	182,0
	Annual power consumption	kWh	5153	6013	6805
Space heating 55°C	P_{rated} (declared heating capacity) @ -10°C	kW	11,6	12,1	13,0
	Space heating seasonal energy efficiency (η_s)	%	135,1	135,6	133,2
	Annual power consumption	kWh	6928	7203	7896

Low temperature application medium weather space heating partial load conditions		Unit	MAGISM12 T EH9	MAGISM14 T EH9	MAGISM16 T EH9
(A) Condition (-7°C)	P_{dh} (Declared heating capacity)	kW	10,61	12,14	13,45
	COP_d (Declared COP)	-	2,88	2,79	2,72
	C_{dh} (Degradation coefficient)	-	0,9	0,9	0,9
(B) Condition (2°C)	P_{dh} (Declared heating capacity)	kW	6,69	7,94	8,56
	COP_d (Declared COP)	-	4,65	4,52	4,41
	C_{dh} (Degradation coefficient)	-	0,9	0,9	0,9
(C) Condition (7°C)	P_{dh} (Declared heating capacity)	kW	4,44	5,2	5,7
	COP_d (Declared COP)	-	6,62	6,68	6,56
	C_{dh} (Degradation coefficient)	-	0,9	0,9	0,9
(D) Condition (12°C)	P_{dh} (Declared heating capacity)	kW	3,74	3,75	3,78
	COP_d (Declared COP)	-	8,47	8,52	8,51
	C_{dh} (Degradation coefficient)	-	0,9	0,9	0,9

Low temperature application medium weather space heating partial load conditions		Unit	MAGISM12 T EH9	MAGISM14 T EH9	MAGISM16 T EH9
(E) Tol (operation limit temperature)	Tol (operation limit temperature)	°C	-10	-10	-10
	P _{dh} (Declared heating capacity)	kW	10,74	11,47	12,52
	COP _d (Declared COP)	-	2,77	2,59	2,48
	W _{TOL} (Water heating limit operation)	°C	65	65	65
(F) T _{bivalente} temperature	T _{biv}	°C	-7	-7	-7
	P _{dh} (Declared heating capacity)	kW	10,61	12,14	13,45
	COP _d (Declared COP)	-	2,88	2,79	2,72
Supplementary capacity to P _{design}	P _{sup} (@T _{designh} : -10°C)	kW	1,26	2,23	2,68

Medium temperature application average weather temperature space heating partial load conditions		Unit	MAGISM12 T EH9	MAGISM14 T EH9	MAGISM16 T EH9
(A) Condition (-7°C)	P _{dh} (Declared heating capacity)	kW	10,24	10,68	11,52
	COP _d (Declared COP)	-	2,01	2,01	1,99
	C _{dh} (Degradation coefficient)	-	0,9	0,9	0,9
(B) Condition (2°C)	P _{dh} (Declared heating capacity)	kW	6,52	6,86	7,18
	COP _d (Declared COP)	-	3,44	3,43	3,34
	C _{dh} (Degradation coefficient)	-	0,9	0,9	0,9
(C) Condition (7°C)	P _{dh} (Declared heating capacity)	kW	4,36	4,63	4,67
	COP _d (Declared COP)	-	4,59	4,66	4,61
	C _{dh} (Degradation coefficient)	-	0,9	0,9	0,9
(D) Condition (12°C)	P _{dh} (Declared heating capacity)	kW	3,29	3,31	3,31
	COP _d (Declared COP)	-	6,05	6,13	6,07
	C _{dh} (Degradation coefficient)	-	0,9	0,9	0,9
(E) Tol (operation limit temperature)	Tol (operation limit temperature)	°C	-10	-10	-10
	P _{dh} (Declared heating capacity)	kW	9,1	9,19	10,33
	COP _d (Declared COP)	-	1,79	1,76	1,8
	W _{TOL} (Water heating limit operation)	°C	65	65	65
(F) T _{bivalente} temperature	T _{biv}	°C	-7	-7	-7
	P _{dh} (Declared heating capacity)	kW	10,24	10,68	11,52
	COP _d (Declared COP)	-	2,01	2,01	1,99
Supplementary capacity to P _{design}	P _{sup} (@T _{designh} : -10°C)	kW	2,5	2,91	2,67

Cold weather (Design temperature = -22°C)		Unit	MAGISM12 TEH9	MAGISM14 TEH9	MAGISM16 TEH9
Space heating 35°C	P_{rated} (declared heating capacity) @ -22°C	kW	11,4	12,6	13,7
	Space heating seasonal energy efficiency (η_s)	%	160,2	159,6	157,8
	Annual power consumption	kWh	6871	7667	8431
Space heating 55°C	P_{rated} (declared heating capacity) @ -22°C	kW	10,3	11,0	11,8
	Space heating seasonal energy efficiency (η_s)	%	117,7	118,9	121,8
	Annual power consumption	kWh	8420	8867	9310

Low temperature application cold weather space heating partial load conditions		Unit	MAGISM12 TEH9	MAGISM14 TEH9	MAGISM16 TEH9
(A) Condition (-7°C)	P_{dh} (Declared heating capacity)	kW	7,05	7,96	8,31
	COP_d (Declared COP)	-	3,48	3,44	3,37
	C_{dh} (Degradation coefficient)	-	0,9	0,9	0,9
(B) Condition (2°C)	P_{dh} (Declared heating capacity)	kW	4,67	5,05	5,26
	COP_d (Declared COP)	-	4,96	4,92	4,86
	C_{dh} (Degradation coefficient)	-	0,9	0,9	0,9
(C) Condition (7°C)	P_{dh} (Declared heating capacity)	kW	3,14	3,15	3,62
	COP_d (Declared COP)	-	6,10	6,11	6,49
	C_{dh} (Degradation coefficient)	-	0,9	0,9	0,9
(D) Condition (12°C)	P_{dh} (Declared heating capacity)	kW	3,57	3,57	3,34
	COP_d (Declared COP)	-	7,87	7,82	7,40
	C_{dh} (Degradation coefficient)	-	0,9	0,9	0,9
(E) Tol (operation limit temperature)	Tol (operation limit temperature)	°C	-22	-22	-22
	P_{dh} (Declared heating capacity)	kW	7,01	7,57	8,88
	COP_d (Declared COP)	-	1,98	1,92	1,97
	W_{TOL} (Water heating limit operation)	°C	65	65	65
(F) $T_{bivalente}$ temperature	T_{blv}	°C	-15	-15	-15
	P_{dh} (Declared heating capacity)	kW	9,28	10,31	11,22
	COP_d (Declared COP)	-	2,59	2,53	2,43
Supplementary capacity to P_{design}	P_{sup} (@ $T_{designh}$: -22°C)	kW	4,40	5,03	4,82

Medium temperature application cold weather space heating partial load conditions		Unit	MAGISM12 T EH9	MAGISM14 T EH9	MAGISM16 T EH9
(A) Condition (-7°C)	P_{dh} (Declared heating capacity)	kW	6,63	6,89	7,64
	COP_d (Declared COP)	-	2,63	2,66	2,65
	C_{dh} (Degradation coefficient)	-	0,9	0,9	0,9
(B) Condition (2°C)	P_{dh} (Declared heating capacity)	kW	4,06	4,32	4,42
	COP_d (Declared COP)	-	3,60	3,66	3,79
	C_{dh} (Degradation coefficient)	-	0,9	0,9	0,9
(C) Condition (7°C)	P_{dh} (Declared heating capacity)	kW	2,78	3,06	2,97
	COP_d (Declared COP)	-	4,54	4,72	4,81
	C_{dh} (Degradation coefficient)	-	0,9	0,9	0,9
(D) Condition (12°C)	P_{dh} (Declared heating capacity)	kW	3,33	3,33	3,43
	COP_d (Declared COP)	-	6,25	6,25	6,29
	C_{dh} (Degradation coefficient)	-	0,9	0,9	0,9
(E) Tol (operation limit temperature)	Tol (operation limit temperature)	°C	-22	-22	-22
	P_{dh} (Declared heating capacity)	kW	4,19	4,2	5,21
	COP_d (Declared COP)	-	1,13	1,13	1,23
	W_{TOL} (Water heating limit operation)	°C	65	65	65
(F) $T_{bivalente}$ temperature	T_{blv}	°C	-15	-15	-15
	P_{dh} (Declared heating capacity)	kW	8,41	8,94	9,61
	COP_d (Declared COP)	-	1,84	1,79	1,86
Supplementary capacity to P_{design}	P_{sup} (@ $T_{designh} : -22°C$)	kW	6,12	6,80	6,59

Warm weather (Design temperature = 2°C)		Unit	MAGISM12 T EH9	MAGISM14 T EH9	MAGISM16 T EH9
Space heating 35°C	P_{rated} (declared heating capacity) @ -2°C	kW	11,1	12,1	13,1
	Space heating seasonal energy efficiency (η_s)	%	255,6	259,8	248,1
	Annual power consumption	kWh	2296	2462	2786
Space heating 55°C	P_{rated} (declared heating capacity) @ -2°C	kW	12,5	14,17	14,17
	Space heating seasonal energy efficiency (η_s)	%	173,8	174,9	175,8
	Annual power consumption	kWh	3780	4262	4236

Low temperature application warm weather space heating partial load conditions		Unit	MAGISM12 T EH9	MAGISM14 T EH9	MAGISM16 T EH9
(B) Condition (2°C)	P_{dh} (Declared heating capacity)	kW	11,1	12,04	13,1
	COP_d (Declared COP)	-	3,59	3,44	3,35
	C_{dh} (Degradation coefficient)	-	0,9	0,9	0,9
(C) Condition (7°C)	P_{dh} (Declared heating capacity)	kW	7,14	7,78	8,41
	COP_d (Declared COP)	-	5,87	5,84	5,36
	C_{dh} (Degradation coefficient)	-	0,9	0,9	0,9
(D) Condition (12°C)	P_{dh} (Declared heating capacity)	kW	3,55	3,75	3,87
	COP_d (Declared COP)	-	7,94	8,25	8,11
	C_{dh} (Degradation coefficient)	-	0,9	0,9	0,9
(E) Tol (operation limit temperature)	Tol (operation limit temperature)	°C	2	2	2
	P_{dh} (Declared heating capacity)	kW	11,1	12,04	13,1
	COP_d (Declared COP)	-	3,59	3,44	3,35
	W_{TOL} (Water heating limit operation)	°C	65	65	65
(F) $T_{bivalente}$ temperature	T_{blv}	°C	7	7	7
	P_{dh} (Declared heating capacity)	kW	7,14	7,78	8,41
	COP_d (Declared COP)	-	5,87	5,84	5,36
Supplementary capacity to P_{design}	P_{sup} (@ $T_{designh}$: 2°C)	kW	0,00	0,06	0,00

Medium temperature application warm weather space heating partial load conditions		Unit	MAGISM12 T EH9	MAGISM14 T EH9	MAGISM16 T EH9
(B) Condition (2°C)	P_{dh} (Declared heating capacity)	kW	12,07	13,04	13,38
	COP_d (Declared COP)	-	2,31	2,20	2,29
	C_{dh} (Degradation coefficient)	-	0,9	0,9	0,9
(C) Condition (7°C)	P_{dh} (Declared heating capacity)	kW	8,04	9,11	9,11
	COP_d (Declared COP)	-	3,86	3,89	3,89
	C_{dh} (Degradation coefficient)	-	0,9	0,9	0,9
(D) Condition (12°C)	P_{dh} (Declared heating capacity)	kW	3,75	4,08	4,06
	COP_d (Declared COP)	-	5,70	5,90	5,86
	C_{dh} (Degradation coefficient)	-	0,9	0,9	0,9

Medium temperature application warm weather space heating partial load conditions		Unit	MAGISM12 T _{EH9}	MAGISM14 T _{EH9}	MAGISM16 T _{EH9}
(E) Tol (operation limit temperature)	Tol (operation limit temperature)	°C	2	2	2
	P _{dh} (Declared heating capacity)	kW	12,07	13,04	13,38
	COP _d (Declared COP)	-	2,31	2,2	2,29
	W _{TOL} (Water heating limit operation)	°C	65	65	65
(F) T _{bivalente} temperature	T _{blv}	°C	7	7	7
	P _{dh} (Declared heating capacity)	kW	8,04	9,11	9,11
	COP _d (Declared COP)	-	3,86	3,89	3,89
Supplementary capacity to P _{design}	P _{sup} (@T _{designh} : 2°C)	kW	0,43	1,13	0,79

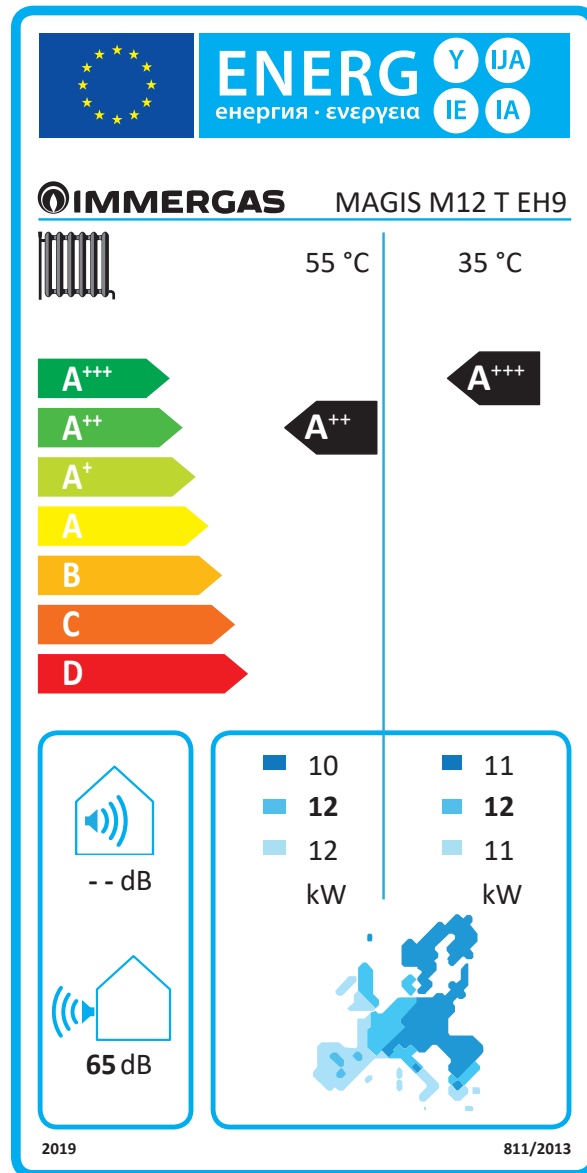
		Unit	MAGISM12 T _{EH9}	MAGISM14 T _{EH9}	MAGISM16 T _{EH9}
Description of the product	Air-water heat pump	Y/N	SI	SI	SI
	Water-water heat pump	Y/N	NO	NO	NO
	Brine to water heat pump	Y/N	NO	NO	NO
	Low temperature heat pump	Y/N	NO	NO	NO
	Equipped with additional heater	Y/N	SI	SI	SI
	Mixed central heating device with heat pump:	Y/N	NO	NO	NO
Air-water unit	Nominal air flow	m ³ /h	4060	4060	4650
Brine/water to water unit	Water/brine at nominal flow rate (H/E outdoor)		/	/	/

Space heating appliance with heat pump		Unit	MAGISM12 T _{EH9}	MAGISM14 T _{EH9}	MAGISM16 T _{EH9}
Other	Capacity control	-	VARIABLE	VARIABLE	VARIABLE
	P _{off} (Power consumption OFF Mode)	kW	0,020	0,020	0,020
	P _{to} (Power consumption with thermostat at OFF Mode)	kW	0,030	0,030	0,030
	P _{sb} (Power consumption in Standby Mode)	kW	0,020	0,020	0,020
	P _{CK} (Electric crankcase heater model)	kW	0,000	0,000	0,000
	Q _{elec} (Daily electricity consumption)	kWh	/	/	/
	Q _{fuel} (Daily fuel consumption)	kWh	/	/	/

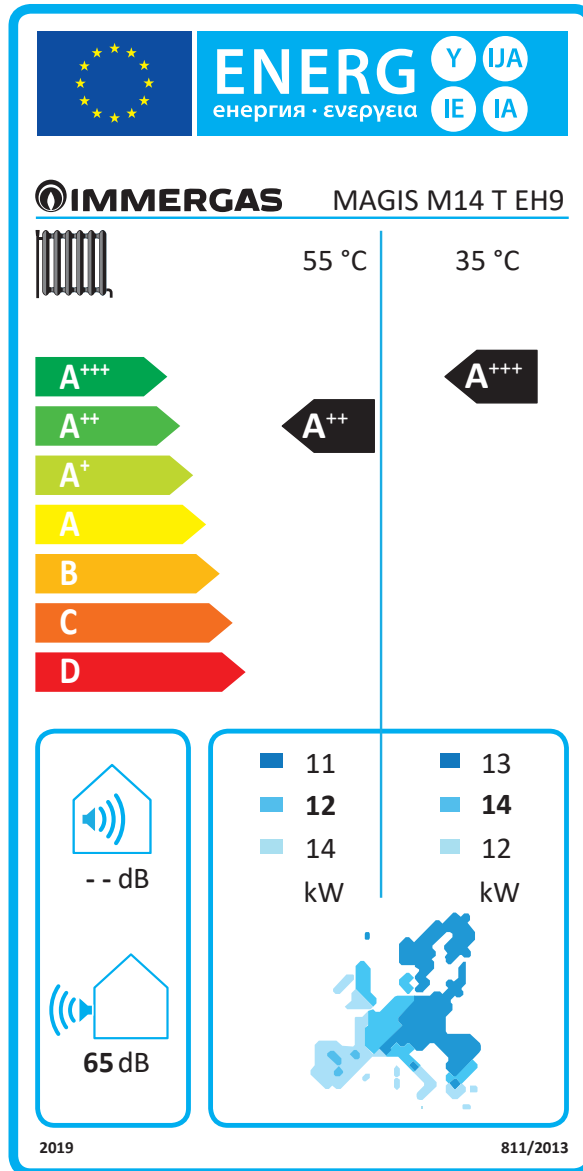
Details and precautions on installation, maintenance and assembly can be found in the use and installation manual.
Data of the product data sheets according to the directive on energy labelling 2010/30/EC (EU) 811/2013.

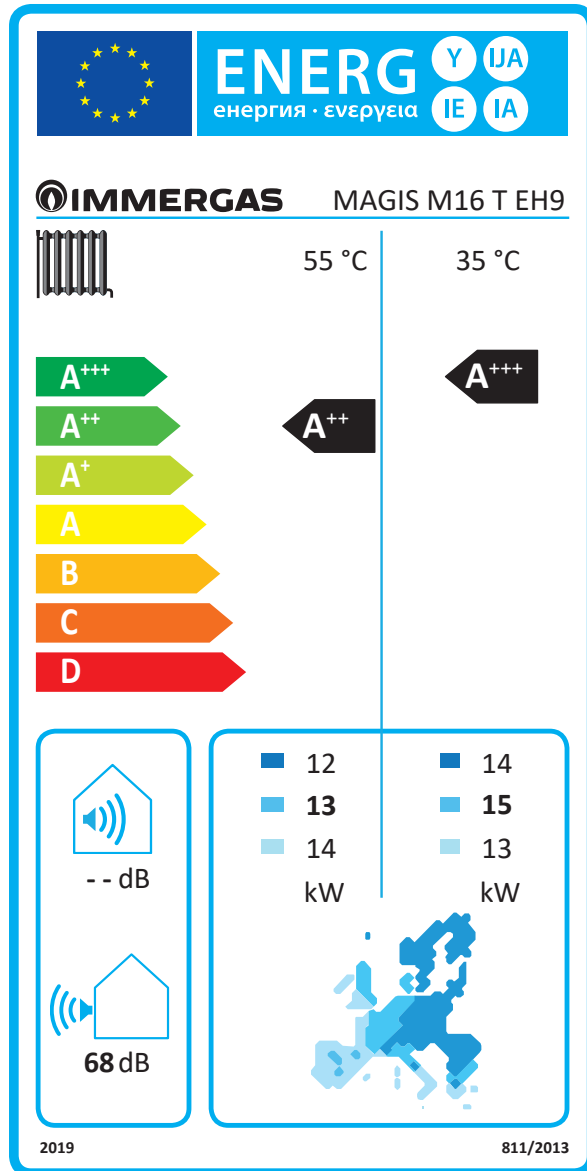
2.1 PRODUCT LABELS

MagisM12TEH9



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3 TECHNICAL PARAMETERS

Model	MAGISM12TEH9						
Air/water heat pump	SI	Low temperature heat pump				NO	
Water/water heat pump	NO	With Supplementary heater				SI	
Brine/water heat pump	NO	Mixed central heating device with heat pump:				NO	
Declared weather condition: MEDIUM							
The parameters are declared for the medium temperature application.							
Element	Symbol	Value	Unit	Element	Symbol	Value	Unit
Rated heat output (*)	P_{rated}	11,6	kW	Room central heating seasonal energy efficiency	η_s	135,1	%
Central heating capacity declared for a partial load at indoor temperature of 20°C and outdoor temperature T_j				Central heating capacity declared for a partial load at indoor temperature of 20°C and outdoor temperature T_j			
$T_j = -7\text{ °C}$	P_{dh}	10,24	kW	$T_j = -7\text{ °C}$	COP_d	2,01	-
$T_j = +2\text{ °C}$	P_{dh}	6,52	kW	$T_j = +2\text{ °C}$	COP_d	3,44	-
$T_j = +7\text{ °C}$	P_{dh}	4,36	kW	$T_j = +7\text{ °C}$	COP_d	4,59	-
$T_j = +12\text{ °C}$	P_{dh}	3,29	kW	$T_j = +12\text{ °C}$	COP_d	6,05	-
$T_j =$ bivalent temperature	P_{dh}	10,24	kW	$T_j =$ bivalent temperature	COP_d	2,01	-
$T_j =$ operating limit temperature	P_{dh}	9,1	kW	$T_j =$ operating limit temperature	COP_d	1,79	-
For air-water heat pumps: $T_j = -15\text{ °C}$	P_{dh}	-	kW	For air-water heat pumps: $T_j = -15\text{ °C}$	COP_d	-	-
Bivalent temperature	T_{biv}	-7	°C	For air/water heat pumps: Operating limit temperature	TOL	-10	°C
Capacity of the cycle range for central heating	P_{cyc}	-	kW	Efficiency of cycle range	COP_{cyc}	-	-
Degradation coefficient (**)	C_{dh}	0,9	-	Heating water operation limit temperature	W_{TOLp}	65	°C
Power consumption in modes other than active mode				Additional heater			
OFF mode	P_{OFF}	0,020	kW	Rated heat output (*)	P_{sup}	2,5	kW
Standby Mode	P_{TO}	0,020	kW	Type of energy supplied	electrical		
Thermostat OFF mode	P_{SB}	0,030	kW				
Crankcase heater mode electrical	P_{CK}	0,000	kW				
Other items							
Capacity control	VARIABLE			For air-water heat pumps: Rated air flow rate outdoors	-	4060	m^3/h
Indoor/outdoor sound level	L_{WA}	-/65,0	dB	For water or brine-water heat pumps: Rated water or brine flow rate, heat exchanger outdoors	-	-	m^3/h
Annual energy consumption	Q_{HE}	6928	kWh				
For mixed central heating appliances with a heat pump							
Stated load profile	-			Water central heating energy efficiency	η_{wh}	-	%
Daily electrical power consumption	Q_{elec}	-	kWh	Daily fuel consumption	Q_{fuel}	-	kWh
Annual electrical power consumption	AEC	-	kWh	Annual fuel consumption	AFC	-	GJ
Contact information	Immergas S.p.A. via Cisa Ligure n.95						
(*) For heat pump appliances for space heating and heating appliances mixed with heat pump, the rated heat output P_{rated} is equal to the design load for heating. $P_{designh}$ and the rated heat output of an additional heater P_{sup} is equal to the supplementary heating capacity sup(Tj).							
(**) If C_{dh} is not determined by measuring, the default degradation coefficient is $C_{dh} = 0.9$.							

Model		MAGISM12TEH9					
Air/water heat pump		SI	Low temperature heat pump			NO	
Water/water heat pump		NO	With Supplementary heater			SI	
Brine/water heat pump		NO	Mixed central heating device with heat pump:			NO	
Declared weather condition: COLD							
The parameters are declared for the medium temperature application.							
Element	Symbol	Value	Unit	Element	Symbol	Value	Unit
Rated heat output (*)	P_{rated}	10,3	kW	Room central heating seasonal energy efficiency	η_s	117,7	%
Central heating capacity declared for a partial load at indoor temperature of 20°C and outdoor temperature Tj				Central heating capacity declared for a partial load at indoor temperature of 20°C and outdoor temperature Tj			
$T_j = -7\text{ °C}$	Pdh	6,63	kW	$T_j = -7\text{ °C}$	COPd	2,63	-
$T_j = +2\text{ °C}$	Pdh	4,06	kW	$T_j = +2\text{ °C}$	COPd	3,60	-
$T_j = +7\text{ °C}$	Pdh	2,78	kW	$T_j = +7\text{ °C}$	COPd	4,54	-
$T_j = +12\text{ °C}$	Pdh	3,33	kW	$T_j = +12\text{ °C}$	COPd	6,25	-
$T_j =$ bivalent temperature	Pdh	8,41	kW	$T_j =$ bivalent temperature	COPd	1,84	-
$T_j =$ operating limit temperature	Pdh	4,19	kW	$T_j =$ operating limit temperature	COPd	1,13	-
For air-water heat pumps: $T_j = -15\text{ °C}$	Pdh	-	kW	For air-water heat pumps: $T_j = -15\text{ °C}$	COPd	-	-
Bivalent temperature	T_{biv}	-15	°C	For air/water heat pumps: Operating limit temperature	TOL	-22	°C
Capacity of the cycle range for central heating	P_{cyc}	-	kW	Efficiency of cycle range	COP_{cyc}	-	-
Degradation coefficient (**)	C_{dh}	0,9	-	Heating water operation limit temperature	W_{TOLP}	65	°C
Power consumption in modes other than active mode				Additional heater			
OFF mode	P_{OFF}	0,020	kW	Rated heat output (*)	P_{sup}	6,12	kW
Standby Mode	P_{TO}	0,020	kW	Type of energy supplied	electrical		
Thermostat OFF mode	P_{SB}	0,030	kW				
Crankcase heater mode electrical	P_{CK}	0,000	kW				
Other items							
Capacity control	VARIABLE			For air-water heat pumps: Rated air flow rate outdoors	-	4060	m³/h
Indoor/outdoor sound level	L_{WA}	-/-	dB	For water or brine-water heat pumps: Rated water or brine flow rate, heat exchanger outdoors	-	-	m³/h
Annual energy consumption	Q_{HE}	8420	kWh				
For mixed central heating appliances with a heat pump							
Stated load profile	-			Water central heating energy efficiency	η_{wh}	-	%
Daily electrical power consumption	Q_{elec}	-	kWh	Daily fuel consumption	Q_{fuel}	-	kWh
Annual electrical power consumption	AEC	-	kWh	Annual fuel consumption	AFC	-	GJ
Contact information	Immergas S.p.A. via Cisa Ligure n.95						
(*) For heat pump appliances for space heating and heating appliances mixed with heat pump, the rated heat output P_{rated} is equal to the design load for heating. $P_{designh}$ and the rated heat output of an additional heater P_{sup} is equal to the supplementary heating capacity sup(Tj).							
(**) If C_{dh} is not determined by measuring, the default degradation coefficient is $C_{dh} = 0.9$.							

Model		MAGISM12TEH9					
Air/water heat pump		SI	Low temperature heat pump			NO	
Water/water heat pump		NO	With Supplementary heater			SI	
Brine/water heat pump		NO	Mixed central heating device with heat pump:			NO	
Declared weather condition: WARM							
The parameters are declared for the medium temperature application.							
Element	Symbol	Value	Unit	Element	Symbol	Value	Unit
Rated heat output (*)	P_{rated}	12,5	kW	Room central heating seasonal energy efficiency	η_s	173,8	%
Central heating capacity declared for a partial load at indoor temperature of 20°C and outdoor temperature T_j				Central heating capacity declared for a partial load at indoor temperature of 20°C and outdoor temperature T_j			
$T_j = -7\text{ °C}$	P_{dh}	-	kW	$T_j = -7\text{ °C}$	COP_d	-	-
$T_j = +2\text{ °C}$	P_{dh}	12,07	kW	$T_j = +2\text{ °C}$	COP_d	2,31	-
$T_j = +7\text{ °C}$	P_{dh}	8,04	kW	$T_j = +7\text{ °C}$	COP_d	3,86	-
$T_j = +12\text{ °C}$	P_{dh}	3,75	kW	$T_j = +12\text{ °C}$	COP_d	5,70	-
$T_j =$ bivalent temperature	P_{dh}	8,04	kW	$T_j =$ bivalent temperature	COP_d	3,86	-
$T_j =$ operating limit temperature	P_{dh}	12,07	kW	$T_j =$ operating limit temperature	COP_d	2,31	-
For air-water heat pumps: $T_j = -15\text{ °C}$	P_{dh}	-	kW	For air-water heat pumps: $T_j = -15\text{ °C}$	COP_d	-	-
Bivalent temperature	T_{biv}	7	°C	For air/water heat pumps: Operating limit temperature	TOL	2	°C
Capacity of the cycle range for central heating	P_{cyc}	-	kW	Efficiency of cycle range	COP_{cyc}	-	-
Degradation coefficient (**)	C_{dh}	0,9	-	Heating water operation limit temperature	W_{TOLp}	65	°C
Power consumption in modes other than active mode				Additional heater			
OFF mode	P_{OFF}	0,020	kW	Rated heat output (*)	P_{sup}	0,43	kW
Standby Mode	P_{TO}	0,020	kW	Type of energy supplied	electrical		
Thermostat OFF mode	P_{SB}	0,030	kW				
Crankcase heater mode electrical	P_{CK}	0,000	kW				
Other items							
Capacity control	VARIABLE			For air-water heat pumps: Rated air flow rate outdoors	-	4060	m^3/h
Indoor/outdoor sound level	L_{WA}	-/-	dB	For water or brine-water heat pumps: Rated water or brine flow rate, heat exchanger outdoors	-	-	m^3/h
Annual energy consumption	Q_{HE}	3780	kWh				
For mixed central heating appliances with a heat pump							
Stated load profile	-			Water central heating energy efficiency	η_{wh}	-	%
Daily electrical power consumption	Q_{elec}	-	kWh	Daily fuel consumption	Q_{fuel}	-	kWh
Annual electrical power consumption	AEC	-	kWh	Annual fuel consumption	AFC	-	GJ
Contact information	Immergas S.p.A. via Cisa Ligure n.95						
(*) For heat pump appliances for space heating and heating appliances mixed with heat pump, the rated heat output P_{rated} is equal to the design load for heating $P_{designh}$ and the rated heat output of an additional heater P_{sup} is equal to the supplementary heating capacity $sup(T_j)$.							
(**) If C_{dh} is not determined by measuring, the default degradation coefficient is $C_{dh} = 0.9$.							

Model		MAGISM14TEH9					
Air/water heat pump		SI	Low temperature heat pump			NO	
Water/water heat pump		NO	With Supplementary heater			SI	
Brine/water heat pump		NO	Mixed central heating device with heat pump:			NO	
Declared weather condition: MEDIUM							
The parameters are declared for the medium temperature application.							
Element	Symbol	Value	Unit	Element	Symbol	Value	Unit
Rated heat output (*)	P_{rated}	12,1	kW	Room central heating seasonal energy efficiency	η_s	135,6	%
Central heating capacity declared for a partial load at indoor temperature of 20°C and outdoor temperature T_j				Central heating capacity declared for a partial load at indoor temperature of 20°C and outdoor temperature T_j			
$T_j = -7\text{ °C}$	P_{dh}	10,68	kW	$T_j = -7\text{ °C}$	COPd	2,01	-
$T_j = +2\text{ °C}$	P_{dh}	6,86	kW	$T_j = +2\text{ °C}$	COPd	3,43	-
$T_j = +7\text{ °C}$	P_{dh}	4,63	kW	$T_j = +7\text{ °C}$	COPd	4,66	-
$T_j = +12\text{ °C}$	P_{dh}	3,31	kW	$T_j = +12\text{ °C}$	COPd	6,13	-
T_j = bivalent temperature	P_{dh}	10,68	kW	T_j = bivalent temperature	COPd	2,01	-
T_j = operating limit temperature	P_{dh}	9,19	kW	T_j = operating limit temperature	COPd	1,76	-
For air-water heat pumps: $T_j = -15\text{ °C}$	P_{dh}	-	kW	For air-water heat pumps: $T_j = -15\text{ °C}$	COPd	-	-
Bivalent temperature	T_{biv}	-7	°C	For air/water heat pumps: Operating limit temperature	TOL	-10	°C
Capacity of the cycle range for central heating	P_{cyc}	-	kW	Efficiency of cycle range	COP _{cyc}	-	-
Degradation coefficient (**)	C_{dh}	0,9	-	Heating water operation limit temperature	W_{TOLP}	65	°C
Power consumption in modes other than active mode				Additional heater			
OFF mode	P_{OFF}	0,020	kW	Rated heat output (*)	P_{sup}	2,91	kW
Standby Mode	P_{TO}	0,020	kW	Type of energy supplied	electrical		
Thermostat OFF mode	P_{SB}	0,030	kW				
Crankcase heater mode electrical	P_{CK}	0,000	kW				
Other items							
Capacity control	VARIABLE			For air-water heat pumps: Rated air flow rate outdoors	-	4060	m ³ /h
Indoor/outdoor sound level	L_{WA}	-/65,0	dB	For water or brine-water heat pumps: Rated water or brine flow rate, heat exchanger outdoors	-	-	m ³ /h
Annual energy consumption	Q_{HE}	7203	kWh				
For mixed central heating appliances with a heat pump							
Stated load profile	-			Water central heating energy efficiency	η_{wh}	-	%
Daily electrical power consumption	Q_{elec}	-	kWh	Daily fuel consumption	Q_{fuel}	-	kWh
Annual electrical power consumption	AEC	-	kWh	Annual fuel consumption	AFC	-	GJ
Contact information	Immergas S.p.A. via Cisa Ligure n.95						
(*) For heat pump appliances for space heating and heating appliances mixed with heat pump, the rated heat output P_{rated} is equal to the design load for heating. $P_{designh}$ and the rated heat output of an additional heater P_{sup} is equal to the supplementary heating capacity sup(T_j).							
(**) If C_{dh} is not determined by measuring, the default degradation coefficient is $C_{dh} = 0.9$.							

Model		MAGISM14TEH9					
Air/water heat pump		SI	Low temperature heat pump			NO	
Water/water heat pump		NO	With Supplementary heater			SI	
Brine/water heat pump		NO	Mixed central heating device with heat pump:			NO	
Declared weather condition: COLD							
The parameters are declared for the medium temperature application.							
Element	Symbol	Value	Unit	Element	Symbol	Value	Unit
Rated heat output (*)	P_{rated}	11,0	kW	Room central heating seasonal energy efficiency	η_s	118,9	%
Central heating capacity declared for a partial load at indoor temperature of 20°C and outdoor temperature T_j				Central heating capacity declared for a partial load at indoor temperature of 20°C and outdoor temperature T_j			
$T_j = -7\text{ °C}$	P_{dh}	6,89	kW	$T_j = -7\text{ °C}$	COP_d	2,66	-
$T_j = +2\text{ °C}$	P_{dh}	4,32	kW	$T_j = +2\text{ °C}$	COP_d	3,66	-
$T_j = +7\text{ °C}$	P_{dh}	3,06	kW	$T_j = +7\text{ °C}$	COP_d	4,72	-
$T_j = +12\text{ °C}$	P_{dh}	3,33	kW	$T_j = +12\text{ °C}$	COP_d	6,25	-
$T_j =$ bivalent temperature	P_{dh}	8,94	kW	$T_j =$ bivalent temperature	COP_d	1,79	-
$T_j =$ operating limit temperature	P_{dh}	4,2	kW	$T_j =$ operating limit temperature	COP_d	1,13	-
For air-water heat pumps: $T_j = -15\text{ °C}$	P_{dh}	-	kW	For air-water heat pumps: $T_j = -15\text{ °C}$	COP_d	-	-
Bivalent temperature	T_{biv}	-15	°C	For air/water heat pumps: Operating limit temperature	TOL	-22	°C
Capacity of the cycle range for central heating	P_{cyc}	-	kW	Efficiency of cycle range	COP_{cyc}	-	-
Degradation coefficient (**)	C_{dh}	0,9	-	Heating water operation limit temperature	W_{TOLp}	65	°C
Power consumption in modes other than active mode				Additional heater			
OFF mode	P_{OFF}	0,020	kW	Rated heat output (*)	P_{sup}	6,80	kW
Standby Mode	P_{TO}	0,020	kW	Type of energy supplied	electrical		
Thermostat OFF mode	P_{SB}	0,030	kW				
Crankcase heater mode electrical	P_{CK}	0,000	kW				
Other items							
Capacity control	VARIABLE			For air-water heat pumps: Rated air flow rate outdoors	-	4060	m^3/h
Indoor/outdoor sound level	L_{WA}	-/-	dB	For water or brine-water heat pumps: Rated water or brine flow rate, heat exchanger outdoors	-	-	m^3/h
Annual energy consumption	Q_{HE}	8867	kWh				
For mixed central heating appliances with a heat pump							
Stated load profile	-			Water central heating energy efficiency	η_{wh}	-	%
Daily electrical power consumption	Q_{elec}	-	kWh	Daily fuel consumption	Q_{fuel}	-	kWh
Annual electrical power consumption	AEC	-	kWh	Annual fuel consumption	AFC	-	GJ
Contact information	Immergas S.p.A. via Cisa Ligure n.95						
(*) For heat pump appliances for space heating and heating appliances mixed with heat pump, the rated heat output P_{rated} is equal to the design load for heating $P_{designh}$ and the rated heat output of an additional heater P_{sup} is equal to the supplementary heating capacity $sup(T_j)$.							
(**) If C_{dh} is not determined by measuring, the default degradation coefficient is $C_{dh} = 0.9$.							

Model		MAGISM14TEH9					
Air/water heat pump		SI	Low temperature heat pump			NO	
Water/water heat pump		NO	With Supplementary heater			SI	
Brine/water heat pump		NO	Mixed central heating device with heat pump:			NO	
Declared weather condition: WARM							
The parameters are declared for the medium temperature application.							
Element	Symbol	Value	Unit	Element	Symbol	Value	Unit
Rated heat output (*)	P_{rated}	14,17	kW	Room central heating seasonal energy efficiency	η_s	174,9	%
Central heating capacity declared for a partial load at indoor temperature of 20°C and outdoor temperature T_j				Central heating capacity declared for a partial load at indoor temperature of 20°C and outdoor temperature T_j			
$T_j = -7\text{ °C}$	P_{dh}	-	kW	$T_j = -7\text{ °C}$	COP_{dh}	-	-
$T_j = +2\text{ °C}$	P_{dh}	13,04	kW	$T_j = +2\text{ °C}$	COP_{dh}	2,20	-
$T_j = +7\text{ °C}$	P_{dh}	9,11	kW	$T_j = +7\text{ °C}$	COP_{dh}	3,89	-
$T_j = +12\text{ °C}$	P_{dh}	4,08	kW	$T_j = +12\text{ °C}$	COP_{dh}	5,90	-
T_j = bivalent temperature	P_{dh}	9,11	kW	T_j = bivalent temperature	COP_{dh}	3,89	-
T_j = operating limit temperature	P_{dh}	13,04	kW	T_j = operating limit temperature	COP_{dh}	2,2	-
For air-water heat pumps: $T_j = -15\text{ °C}$	P_{dh}	-	kW	For air-water heat pumps: $T_j = -15\text{ °C}$	COP_{dh}	-	-
Bivalent temperature	T_{biv}	7	°C	For air/water heat pumps: Operating limit temperature	TOL	2	°C
Capacity of the cycle range for central heating	P_{cyc}	-	kW	Efficiency of cycle range	COP_{cyc}	-	-
Degradation coefficient (**)	C_{dh}	0,9	-	Heating water operation limit temperature	W_{TOLP}	65	°C
Power consumption in modes other than active mode				Additional heater			
OFF mode	P_{OFF}	0,020	kW	Rated heat output (*)	P_{sup}	1,13	kW
Standby Mode	P_{TO}	0,020	kW	Type of energy supplied	electrical		
Thermostat OFF mode	P_{SB}	0,030	kW				
Crankcase heater mode electrical	P_{CK}	0,000	kW				
Other items							
Capacity control	VARIABLE			For air-water heat pumps: Rated air flow rate outdoors	-	4060	m³/h
Indoor/outdoor sound level	L_{WA}	-/-	dB	For water or brine-water heat pumps: Rated water or brine flow rate, heat exchanger outdoors	-	-	m³/h
Annual energy consumption	Q_{HE}	4262	kWh				
For mixed central heating appliances with a heat pump							
Stated load profile	-			Water central heating energy efficiency	η_{wh}	-	%
Daily electrical power consumption	Q_{elec}	-	kWh	Daily fuel consumption	Q_{fuel}	-	kWh
Annual electrical power consumption	AEC	-	kWh	Annual fuel consumption	AFC	-	GJ
Contact information	Immergas S.p.A. via Cisa Ligure n.95						
(*) For heat pump appliances for space heating and heating appliances mixed with heat pump, the rated heat output P_{rated} is equal to the design load for heating. $P_{designh}$ and the rated heat output of an additional heater P_{sup} is equal to the supplementary heating capacity sup(T_j).							
(**) If C_{dh} is not determined by measuring, the default degradation coefficient is $C_{dh} = 0.9$.							

Model	MAGISM16TEH9						
Air/water heat pump	SI	Low temperature heat pump				NO	
Water/water heat pump	NO	With Supplementary heater				SI	
Brine/water heat pump	NO	Mixed central heating device with heat pump:				NO	
Declared weather condition: MEDIUM							
The parameters are declared for the medium temperature application.							
Element	Symbol	Value	Unit	Element	Symbol	Value	Unit
Rated heat output (*)	P_{rated}	13,0	kW	Room central heating seasonal energy efficiency	η_s	133,2	%
Central heating capacity declared for a partial load at indoor temperature of 20°C and outdoor temperature T_j				Central heating capacity declared for a partial load at indoor temperature of 20°C and outdoor temperature T_j			
$T_j = -7\text{ °C}$	P_{dh}	11,52	kW	$T_j = -7\text{ °C}$	COP_d	1,99	-
$T_j = +2\text{ °C}$	P_{dh}	7,18	kW	$T_j = +2\text{ °C}$	COP_d	3,34	-
$T_j = +7\text{ °C}$	P_{dh}	4,67	kW	$T_j = +7\text{ °C}$	COP_d	4,61	-
$T_j = +12\text{ °C}$	P_{dh}	3,31	kW	$T_j = +12\text{ °C}$	COP_d	6,07	-
$T_j =$ bivalent temperature	P_{dh}	11,52	kW	$T_j =$ bivalent temperature	COP_d	1,99	-
$T_j =$ operating limit temperature	P_{dh}	10,33	kW	$T_j =$ operating limit temperature	COP_d	1,8	-
For air-water heat pumps: $T_j = -15\text{ °C}$	P_{dh}	-	kW	For air-water heat pumps: $T_j = -15\text{ °C}$	COP_d	-	-
Bivalent temperature	T_{biv}	-7	°C	For air/water heat pumps: Operating limit temperature	TOL	-10	°C
Capacity of the cycle range for central heating	P_{cyc}	-	kW	Efficiency of cycle range	COP_{cyc}	-	-
Degradation coefficient (**)	C_{dh}	0,9	-	Heating water operation limit temperature	W_{TOLp}	65	°C
Power consumption in modes other than active mode				Additional heater			
OFF mode	P_{OFF}	0,020	kW	Rated heat output (*)	P_{sup}	2,67	kW
Standby Mode	P_{TO}	0,020	kW	Type of energy supplied	electrical		
Thermostat OFF mode	P_{SB}	0,030	kW				
Crankcase heater mode electrical	P_{CK}	0,000	kW				
Other items							
Capacity control	VARIABLE			For air-water heat pumps: Rated air flow rate outdoors	-	4650	m^3/h
Indoor/outdoor sound level	L_{WA}	-/68,0	dB	For water or brine-water heat pumps: Rated water or brine flow rate, heat exchanger outdoors	-	-	m^3/h
Annual energy consumption	Q_{HE}	7896	kWh				
For mixed central heating appliances with a heat pump							
Stated load profile	-			Water central heating energy efficiency	η_{wh}	-	%
Daily electrical power consumption	Q_{elec}	-	kWh	Daily fuel consumption	Q_{fuel}	-	kWh
Annual electrical power consumption	AEC	-	kWh	Annual fuel consumption	AFC	-	GJ
Contact information	Immergas S.p.A. via Cisa Ligure n.95						
(*) For heat pump appliances for space heating and heating appliances mixed with heat pump, the rated heat output P_{rated} is equal to the design load for heating $P_{designh}$ and the rated heat output of an additional heater P_{sup} is equal to the supplementary heating capacity $sup(T_j)$.							
(**) If C_{dh} is not determined by measuring, the default degradation coefficient is $C_{dh} = 0.9$.							

Model		MAGISM16TEH9					
Air/water heat pump		SI	Low temperature heat pump			NO	
Water/water heat pump		NO	With Supplementary heater			SI	
Brine/water heat pump		NO	Mixed central heating device with heat pump:			NO	
Declared weather condition: COLD							
The parameters are declared for the medium temperature application.							
Element	Symbol	Value	Unit	Element	Symbol	Value	Unit
Rated heat output (*)	P_{rated}	11,8	kW	Room central heating seasonal energy efficiency	η_s	121,8	%
Central heating capacity declared for a partial load at indoor temperature of 20°C and outdoor temperature T_j				Central heating capacity declared for a partial load at indoor temperature of 20°C and outdoor temperature T_j			
$T_j = -7\text{ °C}$	P_{dh}	7,64	kW	$T_j = -7\text{ °C}$	COPd	2,65	-
$T_j = +2\text{ °C}$	P_{dh}	4,42	kW	$T_j = +2\text{ °C}$	COPd	3,79	-
$T_j = +7\text{ °C}$	P_{dh}	2,97	kW	$T_j = +7\text{ °C}$	COPd	4,81	-
$T_j = +12\text{ °C}$	P_{dh}	3,43	kW	$T_j = +12\text{ °C}$	COPd	6,29	-
T_j = bivalent temperature	P_{dh}	9,61	kW	T_j = bivalent temperature	COPd	1,86	-
T_j = operating limit temperature	P_{dh}	5,21	kW	T_j = operating limit temperature	COPd	1,23	-
For air-water heat pumps: $T_j = -15\text{ °C}$	P_{dh}	-	kW	For air-water heat pumps: $T_j = -15\text{ °C}$	COPd	-	-
Bivalent temperature	T_{biv}	-15	°C	For air/water heat pumps: Operating limit temperature	TOL	-22	°C
Capacity of the cycle range for central heating	P_{cyc}	-	kW	Efficiency of cycle range	COP _{cyc}	-	-
Degradation coefficient (**)	C_{dh}	0,9	-	Heating water operation limit temperature	W_{TOLP}	65	°C
Power consumption in modes other than active mode				Additional heater			
OFF mode	P_{OFF}	0,020	kW	Rated heat output (*)	P_{sup}	6,59	kW
Standby Mode	P_{TO}	0,020	kW	Type of energy supplied	electrical		
Thermostat OFF mode	P_{SB}	0,030	kW				
Crankcase heater mode electrical	P_{CK}	0,000	kW				
Other items							
Capacity control	VARIABLE			For air-water heat pumps: Rated air flow rate outdoors	-	4650	m ³ /h
Indoor/outdoor sound level	L_{WA}	-/-	dB	For water or brine-water heat pumps: Rated water or brine flow rate, heat exchanger outdoors	-	-	m ³ /h
Annual energy consumption	Q_{HE}	9310	kWh				
For mixed central heating appliances with a heat pump							
Stated load profile	-			Water central heating energy efficiency	η_{wh}	-	%
Daily electrical power consumption	Q_{elec}	-	kWh	Daily fuel consumption	Q_{fuel}	-	kWh
Annual electrical power consumption	AEC	-	kWh	Annual fuel consumption	AFC	-	GJ
Contact information	Immergas S.p.A. via Cisa Ligure n.95						
(*) For heat pump appliances for space heating and heating appliances mixed with heat pump, the rated heat output P_{rated} is equal to the design load for heating. $P_{designh}$ and the rated heat output of an additional heater P_{sup} is equal to the supplementary heating capacity sup(T_j).							
(**) If C_{dh} is not determined by measuring, the default degradation coefficient is $C_{dh} = 0.9$.							

Model	MAGISM16TEH9						
Air/water heat pump	SI	Low temperature heat pump				NO	
Water/water heat pump	NO	With Supplementary heater				SI	
Brine/water heat pump	NO	Mixed central heating device with heat pump:				NO	
Declared weather condition: WARM							
The parameters are declared for the medium temperature application.							
Element	Symbol	Value	Unit	Element	Symbol	Value	Unit
Rated heat output (*)	P_{rated}	14,17	kW	Room central heating seasonal energy efficiency	η_s	175,8	%
Central heating capacity declared for a partial load at indoor temperature of 20°C and outdoor temperature T_j				Central heating capacity declared for a partial load at indoor temperature of 20°C and outdoor temperature T_j			
$T_j = -7\text{ °C}$	P_{dh}	-	kW	$T_j = -7\text{ °C}$	COPd	-	-
$T_j = +2\text{ °C}$	P_{dh}	13,38	kW	$T_j = +2\text{ °C}$	COPd	2,29	-
$T_j = +7\text{ °C}$	P_{dh}	9,11	kW	$T_j = +7\text{ °C}$	COPd	3,89	-
$T_j = +12\text{ °C}$	P_{dh}	4,06	kW	$T_j = +12\text{ °C}$	COPd	5,86	-
T_j = bivalent temperature	P_{dh}	9,11	kW	T_j = bivalent temperature	COPd	3,89	-
T_j = operating limit temperature	P_{dh}	13,38	kW	T_j = operating limit temperature	COPd	2,29	-
For air-water heat pumps: $T_j = -15\text{ °C}$	P_{dh}	-	kW	For air-water heat pumps: $T_j = -15\text{ °C}$	COPd	-	-
Bivalent temperature	T_{biv}	7	°C	For air/water heat pumps: Operating limit temperature	TOL	2	°C
Capacity of the cycle range for central heating	P_{cyc}	-	kW	Efficiency of cycle range	COP_{cyc}	-	-
Degradation coefficient (**)	C_{dh}	0,9	-	Heating water operation limit temperature	W_{TOLp}	65	°C
Power consumption in modes other than active mode				Additional heater			
OFF mode	P_{OFF}	0,020	kW	Rated heat output (*)	P_{sup}	0,79	kW
Standby Mode	P_{TO}	0,020	kW	Type of energy supplied	electrical		
Thermostat OFF mode	P_{SB}	0,030	kW				
Crankcase heater mode electrical	P_{CK}	0,000	kW				
Other items							
Capacity control	VARIABLE			For air-water heat pumps: Rated air flow rate outdoors	-	4650	m^3/h
Indoor/outdoor sound level	L_{WA}	-/-	dB	For water or brine-water heat pumps: Rated water or brine flow rate, heat exchanger outdoors	-	-	m^3/h
Annual energy consumption	Q_{HE}	4236	kWh				
For mixed central heating appliances with a heat pump							
Stated load profile	-			Water central heating energy efficiency	η_{wh}	-	%
Daily electrical power consumption	Q_{elec}	-	kWh	Daily fuel consumption	Q_{fuel}	-	kWh
Annual electrical power consumption	AEC	-	kWh	Annual fuel consumption	AFC	-	GJ
Contact information	Immergas S.p.A. via Cisa Ligure n.95						
(*) For heat pump appliances for space heating and heating appliances mixed with heat pump, the rated heat output P_{rated} is equal to the design load for heating $P_{designh}$ and the rated heat output of an additional heater P_{sup} is equal to the supplementary heating capacity $sup(T_j)$.							
(**) If C_{dh} is not determined by measuring, the default degradation coefficient is $C_{dh} = 0.9$.							

4 INFORMATION REQUIREMENTS FOR SPACE CHILLERS

Information requirements for space chillers							
Model				MAGISM12TEH9			
Heat exchanger:				Air-Water			
Type:				Steam compression cycle			
Compressor start-up:				Electric motor			
Element	Symbol	Value	Unit	Element	Symbol	Value	Unit
Rated cooling capacity	$P_{rated,c}$	11,5	kW	Space heating seasonal energy efficiency	$\eta_{s,c}$	193,0	%
Cooling capacity declared for partial load at a given outdoor temperature T_j				Cooling capacity declared for partial load at a given outdoor temperature T_j			
$T_j = +35^\circ\text{C}$	P_{dc}	11,50	kW	$T_j = +35^\circ\text{C}$	EER_d	2,75	-
$T_j = +30^\circ\text{C}$	P_{dc}	8,76	kW	$T_j = +30^\circ\text{C}$	EER_d	3,93	-
$T_j = +25^\circ\text{C}$	P_{dc}	5,81	kW	$T_j = +25^\circ\text{C}$	EER_d	5,73	-
$T_j = +20^\circ\text{C}$	P_{dc}	2,63	kW	$T_j = +20^\circ\text{C}$	EER_d	6,75	-
Degradation coefficient for chillers (*)							
	C_{dc}	0,9	-				
Power consumption in modes other than “active mode”							
OFF mode	P_{OFF}	0,020	kW	Crankcase heater mode electrical	P_{CK}	0,000	kW
Thermostat OFF mode	P_{TO}	0,010	kW	Standby Mode	P_{SB}	0,020	kW
Other items							
Capacity control	VARIABLE			For air-water emergency chillers: air flow rate, measured outdoors	-	4060	$\text{m}^3\text{/h}$
Sound power level, indoors/outdoors	L_{WA}	- \65	dB				
Emissions of nitrogen oxides (if applicable)	$NO_x (**)$	-	$\text{mg}\backslash$ kWh input GCV	For water / brine-water chillers: brine or rated brine water flow rate, outdoors side heat exchanger	-	-	$\text{m}^3\text{/h}$
GWP of refrigerant	-	675	kg CO_{2eq}				
Standard rating conditions used	Low temperature application						
Contact information	Immergas S.p.A. via Cisa Ligure n.95						
(*) If C_{dc} is not determined by measuring, the standard degradation coefficient of chillers must be 0.9.							
(**) Since September 26, 2018							

Information requirements for space chillers							
Model				MAGISM12TEH9			
Heat exchanger:				Air-Water			
Type:				Steam compression cycle			
Compressor start-up:				Electric motor			
Element	Symbol	Value	Unit	Element	Symbol	Value	Unit
Rated cooling capacity	$P_{rated,c}$	12,0	kW	Space heating seasonal energy efficiency	$\eta_{s,c}$	279,7	%
Cooling capacity declared for partial load at a given outdoor temperature T_j				Cooling capacity declared for partial load at a given outdoor temperature T_j			
$T_j = +35^\circ\text{C}$	P_{dc}	12,00	kW	$T_j = +35^\circ\text{C}$	EER_d	3,95	-
$T_j = +30^\circ\text{C}$	P_{dc}	9,21	kW	$T_j = +30^\circ\text{C}$	EER_d	5,50	-
$T_j = +25^\circ\text{C}$	P_{dc}	5,74	kW	$T_j = +25^\circ\text{C}$	EER_d	8,66	-
$T_j = +20^\circ\text{C}$	P_{dc}	3,33	kW	$T_j = +20^\circ\text{C}$	EER_d	10,07	-
Degradation coefficient for chillers (*)							
	C_{dc}	0,9	-				
Power consumption in modes other than "active mode"							
OFF mode	P_{OFF}	0,020	kW	Crankcase heater mode electrical	P_{CK}	0,000	kW
Thermostat OFF mode	P_{TO}	0,010	kW	Standby Mode	P_{SB}	0,020	kW
Other items							
Capacity control	VARIABLE			For air-water emergency chillers: air flow rate, measured outdoors	-	4060	m^3/h
Sound power level, indoors/outdoors	L_{WA}	- \64	dB	For water / brine-water chillers: brine or rated brine water flow rate, outdoors side heat exchanger	-	-	m^3/h
Emissions of nitrogen oxides (if applicable)	NO_x (**)	-	$\text{mg} \backslash \text{kWh input GCV}$				
GWP of refrigerant	-	675	kg CO_{2eq}				
Standard rating conditions used	Medium temperature application						
Contact information	Immergas S.p.A. via Cisa Ligure n.95						
(*) If C_{dc} is not determined by measuring, the standard degradation coefficient of chillers must be 0.9.							
(**) Since September 26, 2018							

Information requirements for space chillers							
Model				MAGISM14TEH9			
Heat exchanger:				Air-Water			
Type:				Steam compression cycle			
Compressor start-up:				Electric motor			
Element	Symbol	Value	Unit	Element	Symbol	Value	Unit
Rated cooling capacity	$P_{rated,c}$	12,4	kW	Space heating seasonal energy efficiency	$\eta_{s,c}$	190,8	%
Cooling capacity declared for partial load at a given outdoor temperature T_j				Cooling capacity declared for partial load at a given outdoor temperature T_j			
$T_j = +35^\circ\text{C}$	P_{dc}	12,40	kW	$T_j = +35^\circ\text{C}$	EER_d	2,50	-
$T_j = +30^\circ\text{C}$	P_{dc}	9,41	kW	$T_j = +30^\circ\text{C}$	EER_d	3,85	-
$T_j = +25^\circ\text{C}$	P_{dc}	6,16	kW	$T_j = +25^\circ\text{C}$	EER_d	5,80	-
$T_j = +20^\circ\text{C}$	P_{dc}	2,63	kW	$T_j = +20^\circ\text{C}$	EER_d	6,74	-
Degradation coefficient for chillers (*)							
	C_{dc}	0,9	-				
Power consumption in modes other than "active mode"							
OFF mode	P_{OFF}	0,020	kW	Crankcase heater mode electrical	P_{CK}	0,000	kW
Thermostat OFF mode	P_{TO}	0,010	kW	Standby Mode	P_{SB}	0,020	kW
Other items							
Capacity control	VARIABLE			For air-water emergency chillers: air flow rate, measured outdoors	-	4060	m^3/h
Sound power level, indoors/outdoors	L_{WA}	- \65	dB				
Emissions of nitrogen oxides (if applicable)	$\text{NO}_x (**)$	-	mg/kWh input GCV	For water / brine-water chillers: brine or rated brine water flow rate, outdoors side heat exchanger	-	-	m^3/h
GWP of refrigerant	-	675	kg CO_{2eq}				
Standard rating conditions used	Low temperature application						
Contact information	Immergas S.p.A. via Cisa Ligure n.95						
(*) If C_{dc} is not determined by measuring, the standard degradation coefficient of chillers must be 0.9.							
(**) Since September 26, 2018							

Information requirements for space chillers							
Model				MAGIS M14 TEH9			
Heat exchanger:				Air-Water			
Type:				Steam compression cycle			
Compressor start-up:				Electric motor			
Element	Symbol	Value	Unit	Element	Symbol	Value	Unit
Rated cooling capacity	$P_{rated,c}$	13,5	kW	Space heating seasonal energy efficiency	$\eta_{s,c}$	272,5	%
Cooling capacity declared for partial load at a given outdoor temperature T_j				Cooling capacity declared for partial load at a given outdoor temperature T_j			
$T_j = +35^\circ\text{C}$	P_{dc}	13,50	kW	$T_j = +35^\circ\text{C}$	EER_d	3,61	-
$T_j = +30^\circ\text{C}$	P_{dc}	10,20	kW	$T_j = +30^\circ\text{C}$	EER_d	5,26	-
$T_j = +25^\circ\text{C}$	P_{dc}	6,57	kW	$T_j = +25^\circ\text{C}$	EER_d	8,45	-
$T_j = +20^\circ\text{C}$	P_{dc}	3,33	kW	$T_j = +20^\circ\text{C}$	EER_d	10,07	-
Degradation coefficient for chillers (*)							
	C_{dc}	0,9	-				
Power consumption in modes other than "active mode"							
OFF mode	P_{OFF}	0,020	kW	Crankcase heater mode electrical	P_{CK}	0,000	kW
Thermostat OFF mode	P_{TO}	0,010	kW	Standby Mode	P_{SB}	0,020	kW
Other items							
Capacity control	VARIABLE			For air-water emergency chillers: air flow rate, measured outdoors	-	4060	m^3/h
Sound power level, indoors/outdoors	L_{WA}	- \ 64	dB				
Emissions of nitrogen oxides (if applicable)	NO_x (**)	-	$\text{mg} \backslash$ kWh input GCV	For water / brine-water chillers: brine or rated brine water flow rate, outdoors side heat exchanger	-	-	m^3/h
GWP of refrigerant	-	675	kg CO_{2eq}				
Standard rating conditions used	Medium temperature application						
Contact information	Immergas S.p.A. via Cisa Ligure n.95						
(*) If C_{dc} is not determined by measuring, the standard degradation coefficient of chillers must be 0.9.							
(**) Since September 26, 2018							

Information requirements for space chillers							
Model				MAGISM16TEH9			
Heat exchanger:				Air-Water			
Type:				Steam compression cycle			
Compressor start-up:				Electric motor			
Element	Symbol	Value	Unit	Element	Symbol	Value	Unit
Rated cooling capacity	$P_{rated,c}$	14,0	kW	Space heating seasonal energy efficiency	$\eta_{s,c}$	183,7	%
Cooling capacity declared for partial load at a given outdoor temperature T_j				Cooling capacity declared for partial load at a given outdoor temperature T_j			
$T_j = +35^\circ\text{C}$	P_{dc}	14,00	kW	$T_j = +35^\circ\text{C}$	EER_d	2,50	-
$T_j = +30^\circ\text{C}$	P_{dc}	10,68	kW	$T_j = +30^\circ\text{C}$	EER_d	3,63	-
$T_j = +25^\circ\text{C}$	P_{dc}	6,76	kW	$T_j = +25^\circ\text{C}$	EER_d	5,27	-
$T_j = +20^\circ\text{C}$	P_{dc}	3,41	kW	$T_j = +20^\circ\text{C}$	EER_d	7,29	-
Degradation coefficient for chillers (*)							
	C_{dc}	0,9	-				
Power consumption in modes other than "active mode"							
OFF mode	P_{OFF}	0,020	kW	Crankcase heater mode electrical	P_{CK}	0,000	kW
Thermostat OFF mode	P_{TO}	0,010	kW	Standby Mode	P_{SB}	0,020	kW
Other items							
Capacity control	VARIABLE			For air-water emergency chillers: air flow rate, measured outdoors	-	4650	$\text{m}^3\text{/h}$
Sound power level, indoors/outdoors	L_{WA}	- \69	dB				
Emissions of nitrogen oxides (if applicable)	NO_x (**)	-	$\frac{\text{mg}}{\text{kWh}}$ input GCV	For water / brine-water chillers: brine or rated brine water flow rate, outdoors side heat exchanger	-	-	$\text{m}^3\text{/h}$
GWP of refrigerant	-	675	$\frac{\text{kg}}{\text{CO}_{2eq}}$				
Standard rating conditions used	Low temperature application						
Contact information	Immergas S.p.A. via Cisa Ligure n.95						
(*) If C_{dc} is not determined by measuring, the standard degradation coefficient of chillers must be 0.9.							
(**) Since September 26, 2018							

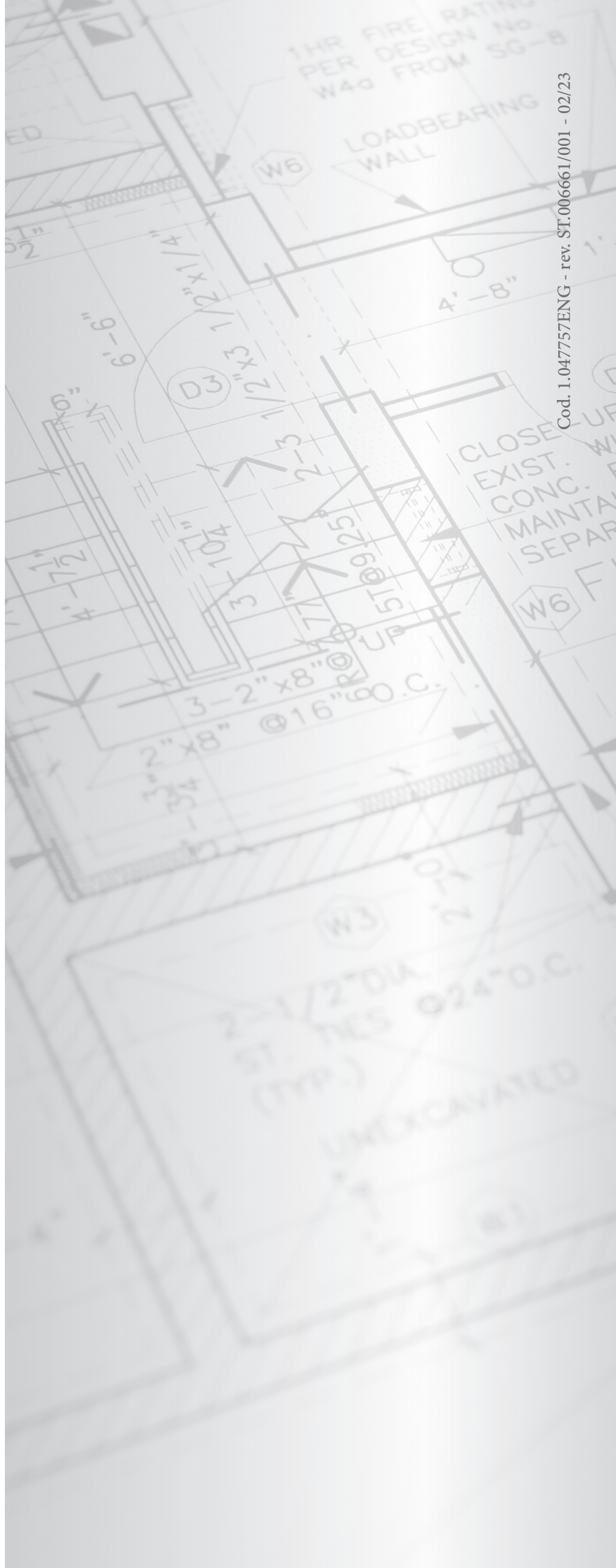
Information requirements for space chillers							
Model				MAGISM16TEH9			
Heat exchanger:				Air-Water			
Type:				Steam compression cycle			
Compressor start-up:				Electric motor			
Element	Symbol	Value	Unit	Element	Symbol	Value	Unit
Rated cooling capacity	$P_{rated,c}$	14,2	kW	Space heating seasonal energy efficiency	$\eta_{s,c}$	265,0	%
Cooling capacity declared for partial load at a given outdoor temperature T_j				Cooling capacity declared for partial load at a given outdoor temperature T_j			
$T_j = +35^\circ\text{C}$	P_{dc}	14,20	kW	$T_j = +35^\circ\text{C}$	EER_d	3,61	-
$T_j = +30^\circ\text{C}$	P_{dc}	11,42	kW	$T_j = +30^\circ\text{C}$	EER_d	5,14	-
$T_j = +25^\circ\text{C}$	P_{dc}	7,27	kW	$T_j = +25^\circ\text{C}$	EER_d	7,83	-
$T_j = +20^\circ\text{C}$	P_{dc}	3,40	kW	$T_j = +20^\circ\text{C}$	EER_d	10,35	-
Degradation coefficient for chillers (*)							
	C_{dc}	0,9	-				
Power consumption in modes other than "active mode"							
OFF mode	P_{OFF}	0,020	kW	Crankcase heater mode electrical	P_{CK}	0,000	kW
Thermostat OFF mode	P_{TO}	0,010	kW	Standby Mode	P_{SB}	0,020	kW
Other items							
Capacity control	VARIABLE			For air-water emergency chillers: air flow rate, measured outdoors	-	4650	m^3/h
Sound power level, indoors/outdoors	L_{WA}	- \69	dB	For water / brine-water chillers: brine or rated brine water flow rate, outdoors side heat exchanger	-	-	m^3/h
Emissions of nitrogen oxides (if applicable)	NO_x (**)	-	mg\ kWh input GCV				
GWP of refrigerant	-	675	kg CO_{2eq}				
Standard rating conditions used	Medium temperature application						
Contact information	Immergas S.p.A. via Cisa Ligure n.95						
(*) If C_{dc} is not determined by measuring, the standard degradation coefficient of chillers must be 0.9.							
(**) Since September 26, 2018							

5 TECHNICAL DATA TABLE ON ENVIRONMENTAL CONDITIONS

Conditions (°C)		MAGISM12T EH9	MAGISM14T EH9	MAGISM16T EH9
Room Temperature: 35/24 Water Temperature: 12/7	Capacity (kW)	11,5	12,4	14,0
	Absorbed power (kW)	4,18	4,96	5,6
	EER/COP (/)	2,75	2,5	2,5
Room Temperature: 35/24 Water Temperature: 23/18	Capacity (kW)	12,0	13,5	14,2
	Absorbed power (kW)	3,04	3,74	3,94
	EER/COP (/)	3,95	3,61	3,61
Room Temperature: 7/6 Water Temperature: 30/35	Capacity (kW)	11,7	14,5	15,9
	Absorbed power (kW)	2,36	3,15	3,53
	EER/COP (/)	4,95	4,6	4,5
Room Temperature: 2/1 Water Temperature: 30/35	Capacity (kW)	9,20	11,00	13,00
	Absorbed power (kW)	2,36	3,06	3,77
	EER/COP (/)	3,90	3,60	3,45
Room Temperature: -7/-8 Water Temperature: 30/35	Capacity (kW)	10,00	12,00	13,10
	Absorbed power (kW)	3,33	4,21	4,85
	EER/COP (/)	3,00	2,85	2,70
Room Temperature: 7/6 Water Temperature: 40/45	Capacity (kW)	12,3	14,1	16,0
	Absorbed power (kW)	3,32	3,92	4,57
	EER/COP (/)	3,7	3,6	3,5
Room Temperature: 2/1 Water Temperature: 40/45	Capacity (kW)	10,60	11,50	12,70
	Absorbed power (kW)	3,53	4,04	4,46
	EER/COP (/)	3,00	2,85	2,85
Room Temperature: -7/-8 Water Temperature: 40/45	Capacity (kW)	10,20	11,70	12,80
	Absorbed power (kW)	4,25	4,98	5,69
	EER/COP (/)	2,40	2,35	2,25
Room Temperature: 7/6 Water Temperature: 47/55	Capacity (kW)	11,9	13,8	16,0
	Absorbed power (kW)	3,9	4,68	5,61
	EER/COP (/)	3,05	2,95	2,85
Room Temperature: 2/1 Water Temperature: 47/55	Capacity (kW)	11,30	12,40	13,30
	Absorbed power (kW)	4,52	5,06	5,54
	EER/COP (/)	2,50	2,45	2,40
Room Temperature: -7/-8 Water Temperature: 47/55	Capacity (kW)	9,80	11,00	12,50
	Absorbed power (kW)	4,78	5,37	6,25
	EER/COP (/)	2,05	2,05	2,00



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Immergas S.p.A.
42041 Brescello (RE) - Italy
Tel. 0522.689011
Fax 0522.680617

