

## Subtype MAB 4-6 v10 190

Certificate Holder	Salvador Escoda S.A.
Address	Carrer Nàpols 249 Pl.1
ZIP	08013
City	Barcelona
Country	ES
Certification Body	BRE Global Limited
Subtype title	MAB 4-6 v10 190
Registration number	041-K012-02
Heat Pump Type	Outdoor Air/Water
Refrigerant	R32
Mass of Refrigerant	1.5 kg
Certification Date	21.05.2021
Testing basis	Heat Pump Keymark Scheme Rules Rev 09
Testing laboratory	TÜV SÜD Certification and Testing Co., Ltd. Guangzhou Branch, CN

## Model MAB-4-V10M + HR-4-6-190L-V10M

Model name	MAB-4-V10M + HR-4-6-190L-V10M
Application	Heating + DHW + low temp
Units	Indoor, Outdoor
Climate zone (for heating)	Warmer Climate, Colder Climate
Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

## General data

Power supply	1x230V 50Hz
Off-peak product	n/a

## Outdoor Air/Water

### EN 16147 | Average Climate

Declared load profile	L
Efficiency $\eta_{DHW}$	127 %
COP	3.10
Heating up time	1:47 h:min
Standby power input	22.0 W
Reference hot water temperature	47.0 °C
Mixed water at 40°C	200 l

### EN 16147 | Colder Climate

Declared load profile	L
Efficiency $\eta_{DHW}$	102 %
COP	2.50
Heating up time	1:54 h:min
Standby power input	24.0 W
Reference hot water temperature	47.0 °C
Mixed water at 40°C	200 l

### EN 16147 | Warmer Climate

Declared load profile	L
Efficiency $\eta_{DHW}$	157 %
COP	3.80
Heating up time	1:31 h:min
Standby power input	21.0 W
Reference hot water temperature	47.0 °C
Mixed water at 40°C	200 l

## EN 14511-4 | Heating

Shutting off the heat transfer medium flow passed

Complete power supply failure passed

Defrost test	passed	
Starting and operating test	passed	
EN 14511-2   Heating		
	Low temperature	Medium temperature
Heat output	4.25 kW	4.40 kW
El input	0.82 kW	1.49 kW
COP	5.20	2.95
EN 12102-1   Average Climate		
	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	56 dB(A)	56 dB(A)
EN 14825   Average Climate		
	Low temperature	Medium temperature
$\eta_s$	191 %	130 %
Prated	5.52 kW	4.40 kW
SCOP	4.85	3.31
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	4.88 kW	3.89 kW
COP Tj = -7°C	3.19	2.17
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = +2°C	3.06 kW	2.38 kW
COP Tj = +2°C	4.78	3.30
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = +7°C	1.93 kW	2.95 kW
COP Tj = +7°C	6.13	4.41
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	1.48 kW	1.32 kW
COP Tj = 12°C	8.05	5.66
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	4.88 kW	3.89 kW
COP Tj = Tbiv	3.19	2.17
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.42 kW	3.42 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.86	1.91
WTOL	65 °C	65 °C
Poff	14 W	14 W
PTO	24 W	24 W
PSB	14 W	14 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity

Supplementary Heater: PSUP	1.11 kW	0.98 kW
Annual energy consumption Q <sub>he</sub>	2351 kWh	2744 kWh

#### EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	56 dB(A)	56 dB(A)

#### EN 14825 | Colder Climate

	Low temperature	Medium temperature
$\eta_s$	159 %	102 %
Prated	4.57 kW	3.37 kW
SCOP	4.06	2.63
T <sub>biv</sub>	-15 °C	-15 °C
TOL	-22 °C	-22 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	2.76 kW	2.14 kW
COP T <sub>j</sub> = -7°C	3.49	2.32
C <sub>dh</sub> T <sub>j</sub> = -7 °C	0.90	0.90
P <sub>dh</sub> T <sub>j</sub> = +2°C	1.77 kW	1.28 kW
COP T <sub>j</sub> = +2°C	4.95	2.99
C <sub>dh</sub> T <sub>j</sub> = +2 °C	0.90	0.90
P <sub>dh</sub> T <sub>j</sub> = +7°C	1.17 kW	1.01 kW
COP T <sub>j</sub> = +7°C	5.53	3.86
C <sub>dh</sub> T <sub>j</sub> = +7 °C	0.90	0.90
P <sub>dh</sub> T <sub>j</sub> = 12°C	1.43 kW	1.36 kW
COP T <sub>j</sub> = 12°C	7.67	6.28
C <sub>dh</sub> T <sub>j</sub> = +12 °C	0.90	0.90
P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>	3.72 kW	2.75 kW
COP T <sub>j</sub> = T <sub>biv</sub>	2.57	1.74
P <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	2.80 kW	1.64 kW
COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	1.97	1.02
WTOL	65 °C	65 °C
P <sub>off</sub>	14 W	14 W
PTO	24 W	24 W
PSB	14 W	14 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.76 kW	1.73 kW
Annual energy consumption Q <sub>he</sub>	2770 kWh	3159 kWh
P <sub>dh</sub> T <sub>j</sub> = -15°C (if TOL	3.72	2.75
COP T <sub>j</sub> = -15°C (if TOL	2.57	1.74
C <sub>dh</sub> T <sub>j</sub> = -15 °C	0.90	0.90

#### EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	56 dB(A)	56 dB(A)

#### EN 14825 | Warmer Climate

	Low temperature	Medium temperature
$\eta_s$	254 %	162 %
Prated	5.54 kW	5.02 kW
SCOP	6.52	4.14
Tbiv	7 °C	7 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	5.35 kW	4.84 kW
COP Tj = +2°C	3.94	2.51
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = +7°C	3.56 kW	3.23 kW
COP Tj = +7°C	5.92	3.68
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	1.64 kW	1.47 kW
COP Tj = 12°C	7.91	5.15
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	3.56 kW	3.23 kW
COP Tj = Tbiv	5.92	3.68
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.35 kW	4.84 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.94	2.51
WTOL	65 °C	65 °C
Poff	14 W	14 W
PTO	24 W	24 W
PSB	14 W	14 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.19 kW	0.18 kW
Annual energy consumption Qhe	1152 kWh	1621 kWh

## Model MAB-6-V10M + HR-4-6-190L-V10M

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Reversibility	Yes
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

## General data

Power supply	1x230V 50Hz
Off-peak product	n/a

## Outdoor Air/Water

### EN 16147 | Average Climate

Declared load profile	L
Efficiency $\eta_{DHW}$	127 %
COP	3.10
Heating up time	1:47 h:min
Standby power input	22.0 W
Reference hot water temperature	47.0 °C
Mixed water at 40°C	200 l

### EN 16147 | Colder Climate

Declared load profile	L
Efficiency $\eta_{DHW}$	102 %
COP	2.50
Heating up time	1:54 h:min
Standby power input	24.0 W
Reference hot water temperature	47.0 °C
Mixed water at 40°C	200 l

### EN 16147 | Warmer Climate

Declared load profile	L
Efficiency $\eta_{DHW}$	157 %
COP	3.80
Heating up time	1:31 h:min
Standby power input	21.0 W
Reference hot water temperature	47.0 °C
Mixed water at 40°C	200 l

## EN 14511-4 | Heating

Shutting off the heat transfer medium flow passed

Complete power supply failure passed

Defrost test	passed	
Starting and operating test	passed	
EN 14511-2   Heating		
	Low temperature	Medium temperature
Heat output	6.20 kW	6.00 kW
El input	1.24 kW	2.00 kW
COP	5.00	3.00
EN 12102-1   Average Climate		
	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	58 dB(A)	58 dB(A)
EN 14825   Average Climate		
	Low temperature	Medium temperature
$\eta_s$	195 %	138 %
Prated	6.82 kW	5.70 kW
SCOP	4.95	3.52
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	6.03 kW	5.05 kW
COP Tj = -7°C	3.09	2.17
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = +2°C	3.88 kW	3.12 kW
COP Tj = +2°C	4.85	3.51
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = +7°C	2.40 kW	2.09 kW
COP Tj = +7°C	6.63	4.54
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	1.39 kW	1.28 kW
COP Tj = 12°C	7.83	5.59
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	6.03 kW	5.05 kW
COP Tj = Tbiv	3.09	2.17
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.36 kW	4.52 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.76	1.91
WTOL	65 °C	65 °C
Poff	14 W	14 W
PTO	24 W	24 W
PSB	14 W	14 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity

Supplementary Heater: PSUP	1.45 kW	1.18 kW
Annual energy consumption Q <sub>he</sub>	2846 kWh	3345 kWh

#### EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	58 dB(A)	58 dB(A)

#### EN 14825 | Colder Climate

	Low temperature	Medium temperature
$\eta_s$	165 %	111 %
Prated	5.63 kW	4.26 kW
SCOP	4.21	2.85
T <sub>biv</sub>	-15 °C	-15 °C
TOL	-22 °C	-22 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	3.42 kW	2.70 kW
COP T <sub>j</sub> = -7°C	3.59	2.46
C <sub>dh</sub> T <sub>j</sub> = -7 °C	0.90	0.90
P <sub>dh</sub> T <sub>j</sub> = +2°C	2.06 kW	1.61 kW
COP T <sub>j</sub> = +2°C	5.21	3.36
C <sub>dh</sub> T <sub>j</sub> = +2 °C	0.90	0.90
P <sub>dh</sub> T <sub>j</sub> = +7°C	1.47 kW	1.02 kW
COP T <sub>j</sub> = +7°C	6.24	3.94
C <sub>dh</sub> T <sub>j</sub> = +7 °C	0.90	0.90
P <sub>dh</sub> T <sub>j</sub> = 12°C	1.44 kW	1.37 kW
COP T <sub>j</sub> = 12°C	7.66	6.35
C <sub>dh</sub> T <sub>j</sub> = +12 °C	0.90	0.90
P <sub>dh</sub> T <sub>j</sub> = T <sub>biv</sub>	4.60 kW	3.48 kW
COP T <sub>j</sub> = T <sub>biv</sub>	2.53	1.86
P <sub>dh</sub> T <sub>j</sub> = TOL or P <sub>dh</sub> T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	3.48 kW	2.10 kW
COP T <sub>j</sub> = TOL or COP T <sub>j</sub> = T <sub>designh</sub> if TOL < T <sub>designh</sub>	1.96	1.13
WTOL	65 °C	65 °C
P <sub>off</sub>	20 W	20 W
PTO	24 W	24 W
PSB	14 W	14 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.15 kW	2.16 kW
Annual energy consumption Q <sub>he</sub>	3301 kWh	3681 kWh
P <sub>dh</sub> T <sub>j</sub> = -15°C (if TOL	4.60	3.48
COP T <sub>j</sub> = -15°C (if TOL	2.53	1.86
C <sub>dh</sub> T <sub>j</sub> = -15 °C	0.90	0.90

#### EN 12102-1 | Warmer Climate



	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	42 dB(A)
Sound power level outdoor	58 dB(A)	58 dB(A)

#### EN 14825 | Warmer Climate

	Low temperature	Medium temperature
$\eta_s$	258 %	165 %
Prated	6.12 kW	5.15 kW
SCOP	6.63	4.19
Tbiv	7 °C	7 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	5.94 kW	5.03 kW
COP Tj = +2°C	3.91	2.48
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = +7°C	3.93 kW	3.31 kW
COP Tj = +7°C	5.89	3.67
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	1.80 kW	1.60 kW
COP Tj = 12°C	8.20	5.29
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	3.93 kW	3.31 kW
COP Tj = Tbiv	5.89	3.67
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.94 kW	5.03 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.91	2.48
WTOL	65 °C	65 °C
Poff	14 W	14 W
PTO	24 W	24 W
PSB	14 W	14 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.18 kW	0.12 kW
Annual energy consumption Qhe	1251 kWh	1640 kWh