Listen to the silence...
Appreciate the performance

The industrial strength of a world leader

Mitsubishi Electric, a world leader in the field of heat pumps for climate control and heating, have produced several million machines that use Ecodan Power Inverter and Zubadan Power Inverter technologies. These machines are reknowned for their reliability and excellent performance levels

Mitsubishi and BWT decided to pool their core expertise to create two ranges of swimming pool heat pumps, the M.P.I. (Ecodan) range and the M.Z.I. (Zubadan) range, that exploit these technologies to achieve exceptional performance levels, both in terms of noise level and improved coefficient of performance.

M.Z.I. heat pumps are real all-season heat pumps, purpose designed to heat covered pools that are used year round and for which a nominal heating power must be maintained.

COMPREHENSIVE RANGE

The BWT Zubadan range offers a broad selection of models to equip pools of every type and size.

SYSTEMATIC QUALITY CONTROL

In order to guarantee reliability, all BWT Zubadan heat pumps are tested before being shipped.

TOTALLY AUTOMATIC

BWT Zubadan heat pumps are designed to be easy to install and simple to use.

REVERSIBLE PUMPS

All BWT Zubadan heat pumps are reversible as standard. BWT Zubadan heat pumps can be used to either heat or cool a pool.

START-UP OVERCURRENT

BWT Zubadan heat pumps are fitted with a soft start system that creates an acceleration ramp to avoid overcurrents on start-up along with their inherent negative impact on electrical and electronic devices in the home.

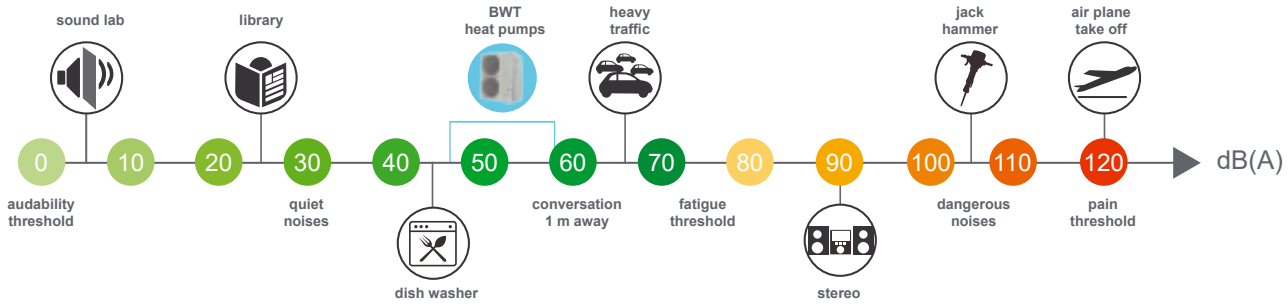
ACOUSTIC COMFORT

The acoustic power of an On/Off heat pump remains constant even while the machine is running at water temperatures around the set point. On the contrary, a BWT M.Z.I. heat pump adapts the operating regimes of its compressor and its fan(s) to match the actual heating demand of the pool, notably as the water temperature approaches the set point.

The evaporator in a BWT M.Z.I. heat pump has a very large surface area: air can circulate more freely, more slowly thus reducing whistling. All BWT M.Z.I. heat pumps (except for the M.Z.I. 160 M model) are fitted with Mitsubishi Scroll Inverter compressors, the recognised reference in terms of acoustic performance. Mitsubishi Electric Power Inverter® compressors are acoustically isolated.
To hear a BWT M.Z.I. heat pump, you really have to listen carefully. This feature is particularly appreciated in situations where the heat pump must be installed near your residence or that of your neighbours.

Zubadan Power Inverter heat pumps slow considerably when running at temperatures around the set point and so are a lot quieter than traditional On/Off machines.

In order to appreciate the acoustic performance of BWT M.Z.I. heat pumps, a scale is provided below that allows you to compare the tolerance limits of various devices and everyday events.
It may be seen that, even running at 100% capacity, BWT M.Z.I. heat pumps fall well within common, acceptable tolerance limits.



Silence

OPERATING PRINCIPLE

BWT Mitsubishi Zubadan Inverter (M.Z.I.) heat pumps share a lot of the same characteristics as the BWT M.P.I. heat pumps.
On the contrary to conventional On/Off heat pumps for swimming pools, a BWT M.Z.I. heat pump can deliver 71% of its heating capacity at temperatures as low as -15°C.
BWT M.Z.I. heat pumps are real all season machines specifically designed to provide year-round heating for indoor pools and for which it is necessary to maintain a nominal heating power.
BWT M.Z.I. heat pumps compensate for extremely low outdoor air temperatures by injecting hot gas from an additional bottle directly at the compressor.

TYPE OF HEAT PUMP		
Outdoor temperature	On/Off	BWT MZI
15°C	100%	100%
12°C	91%	99%
7°C	79%	89%
-7°C	54%	86%
-10°C	-	82%
-15°C	-	75%

The table above summarises the % heating capacity of the various air/ water swimming pool heat pumps at a range of outdoor air temperatures.

In traditional units, when the outdoor temperature is low, the volume of refrigerant circulating in the compressor decreases due to the drop in refrigerant pressure and overheating protection triggered by high compression thereby reducing the heating capacity of the unit. The Flash Injection circuit injects refrigerant to maintain the refrigerant circulation volume and compressor operation load, thereby maintaining the heating capacity. The Flash Injection ensures that the compressor has enough refrigerant fluid to prevent overheating which would automatically cause the compressor to slow in order to protect itself.

Performance

TECHNICAL DATA

	BWT M.Z.I. 160M	BWT M.Z.I. 190M	BWT M.Z.I. 190T	BWT M.Z.I. 320T
Certified heating capacity, Air temp 26° C, Water temp 26° C	26 kW	31.4 kW	31.4 kW	50 kW
Certified heating capacity, Air temp 15° C, Water temp 26° C	17 kW	20.2 kW	20.2 kW	33 kW
Certified cooling capacity, Air temp 35° C, Water temp 28° C	13.00 kW	19.5 kW	19.5 kW	35.2 kW
Recommended pool water volume*	≤104m³	≤123m³	≤123m³	≤208m³
Type of refrigerant	R 410A	R 410A	R 410A	R 410A
Recommended water flow rate	4 to 6 m³/h	5 to 7 m³/h	5 to 7 m³/h	10 to 12 m³/h
Maximum current consumed	30 A	35 A	13 A	26 A
Power supply	230 V 1ph	230 V 1ph	400 V 3ph	400 V 3ph
Power cable cross section	3 × 6 mm²	3 × 10 mm²	5 × 2.5 mm²	5 × 6 mm²
Electrical protection	32 A	40 A	16 A	32 A
Exchanger model	Helical plate	Helical plate	Helical plate	Helical plate
Compressor	Rotary	Scroll	Scroll	Scroll
Inlet/ Outlet unions	5.50 Kg	5.50 Kg	5.50 Kg	7.10 Kg
Number of fans	2	2	2	2
Dimension L x D x H (mm)	1250×360 x1350	1250×360 x1350	1250×360 x1350	1250×360 x1340
Weight	127 Kg	127 Kg	141 Kg	155 Kg

** The values shown are valid under the following conditions: Ambient air temperature 15°C. Water temperature 26°C, pool covered with an isothermal cover at night, filtration system running at least 15 hours per day during the heating season.*

The table below summarises the main characteristics of the Zubadan heat pumps in their various operating modes. BWT M.Z.I. heat pumps automatically select the operating mode best suited to the current weather and operating conditions:

- **LOW SPEED:** The heat pump operates in this mode when it is close to the set point (within approximately 1°C). BWT M.Z.I. heat pumps can operate at three speeds below 50 Hz (Step 1, 2 and 3). At these speeds, BWT M.Z.I. heat pumps offer a COP and sound levels that cannot be achieved by conventional On/ Off heat pumps.
- **CRUISING SPEED:** This is the operating speed of a standard On/ Off heat pump, it corresponds to a compressor speed of 50 Hz, or Step 4.
- **FULL SPEED:** BWT M.Z.I. heat pumps operate at one of three speeds greater than 50 Hz (Steps 5, 6 and 7) during the initial heating ramp or when weather conditions are harsh.

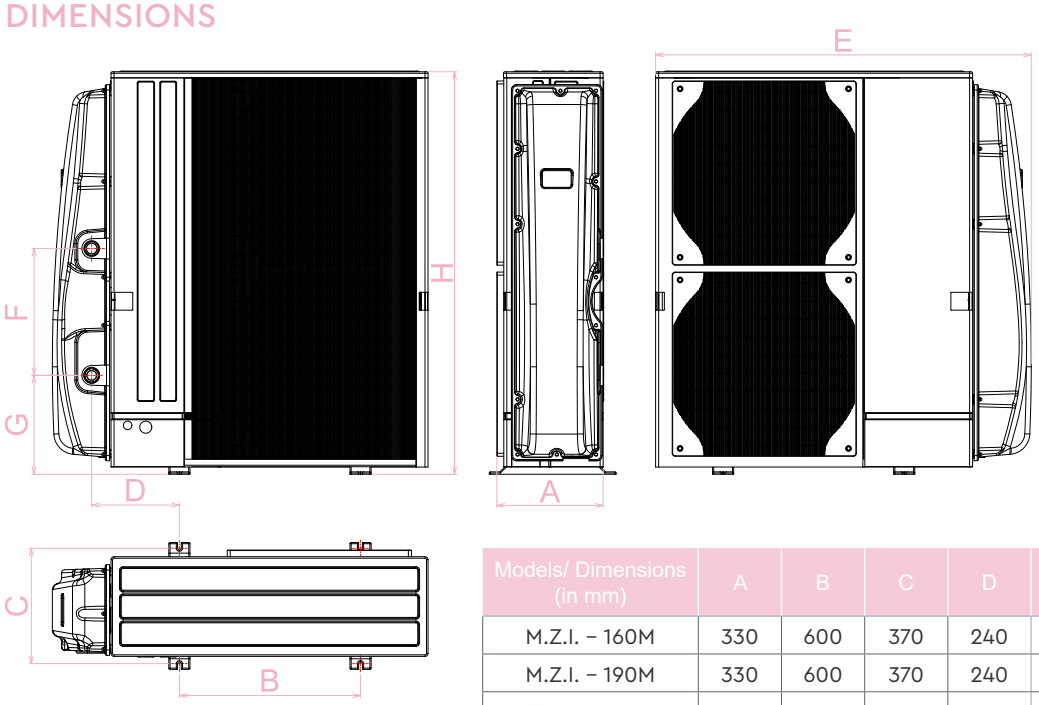
			M.Z.I. 160M	M.Z.I. 190M	M.Z.I. 190T	M.Z.I. 320T
LOW SPEED	STEP 1: 20 Hz	COP*	8.14	7.69	7.69	6.95
		Acoustic pressure level at 10 m, in dB (Lp)	30	31	31	35
		Acoustic power, in dB (Lw)	57.9	58.7	58.7	62.9
CRUISINIG SPEED	STEP 4: 50 Hz	COP*	6.95	6.54	6.54	5.84
		Acoustic pressure level at 10 m, in dB (Lp)	34	35	35	39
		Acoustic power, in dB (Lw)	61.9	62.8	62.8	67.3
HIGH SPEED	STEP 7: 100 Hz	COP*	5.44	5.15	5.15	4.68
		Acoustic pressure level at 10 m, in dB (Lp)	41	42	42	47
		Acoustic power, in dB (Lw)	69.0	70.0	70.0	75.0

NOTA BENE: The technical data shown in both of the tables above has been certified by CETIAT and was collected according to the EN-14511 protocol, recommended in DTP no. 10 of the 'Fédération des Professionnels de la Piscine' (French federation of pool professionals) and used by CERTITA in its certification standard 'NF Heat Pumps'.

TECHNICAL SPECIFICATIONS

- Improved heating power and COP (coefficient of performance),
- Reversible machine, can be used to heat or cool the pool water,
- The pool water temperature, set point and operating mode (heat/ cool) are displayed on the remote control,
- Automatic defrosting by cycle inversion, allows the machine to operate at outside temperatures down to -15°C,
- Complies with EC standards,
- Low acoustic power in low speed mode thanks to the Mitsubishi Scroll Inverter compressor,
- Titanium, helical plate heat exchangers (BWT exclusive), compatible with salt electrolysis,
- Wired-in remote control (option),
- Low water level safety device (Flow switch),
- Wired in via a watertight deck box,
- Anti UV treated ABS casing allowing integration of a regulator, deck box, heat exchanger, flow controller, probes and communication and control circuit boards,
- Hydraulic connections, Ø 50 mm, solvent,
- ICHILL thermostat, Comfort and Eco mode,
- Condensate drainage and recovery kit.

DIMENSIONS



Models/ Dimensions (in mm)	A	B	C	D	E	F	G	H
M.Z.I. – 160M	330	600	370	240	1245	335	412	1335
M.Z.I. – 190M	330	600	370	240	1245	335	412	1335
M.Z.I. – 190T	330	600	370	240	1245	335	412	1335
M.Z.I. – 320T	330	600	370	240	1245	420	327	1335

Dealer's stamp

GUARANTEE 5 YEARS HEAT PUMP

GUARANTEE 10 YEARS TITANIUM EXCHANGER

GUARANTEE 5 YEARS COMPRESSOR

bwt.com

12202 – Non-contractual document. Technical data is provided for information purposes only and may be subject to modification without prior notification. Copyright protected. Please do not litter. Created by: BWT Group (10/2020f).