

# New Heating & Cooling Concept with Peltier Elements

The next shaker generation



## Tailored to meet your requirements

The ISF1-Z incubator shaker is suitable for applications in laboratories, research centers and production facilities. The ISF1-Z complies with GMP (good manufacturing practice) requirements and regulations. It offers a large shaking capacity with a small footprint and many features allowing straightforward, safe handling of any culture or product. The incubator shaker is applicable for microbial, plant and animal cell cultures.

### Features at a glance

- Large shaking capacity with small footprint
- Hygienic design according to DIN EN ISO 14159
- Improved maintenance-free direct drive
- Up to three incubators stackable
- Flexible and retrofittable



ISF1-Z

## The appropriate properties for every application

The ISF1-Z incubator shaker is available in three different models: ISF1-Z, ISF1-Z EcoDew® and ISF1-Z Peltier. Each model provides distinct features and is additionally available with CO<sub>2</sub> control for cell culture processes.

**ISF1-Z**  
basic version  
+ temperature control  
(precise heating)

**ISF1-Z EcoDew®**  
+ temperature control  
(precise heating)  
+ precise humidity control  
+ no cooling liquid (eco-friendly)

**ISF1-Z Peltier**  
+ temperature control  
(precise heating & cooling)  
+ precise humidity control (50% to 80%)  
+ no cooling liquid (eco-friendly)

Attribute	Unit	ISF1-Z Peltier (SMZ1503P)	ISF1-Z EcoDew (SMZ1502)	ISF1-Z Basic (SMZ1500)
		ISF1-ZC Peltier* (SMZ1503PC)	ISF1-ZC EcoDew* (SMZ1502C)	ISF1-ZC Basic* (SMZ1500C)
<b>Temperature Control</b>				
Cooling	yes/no	yes	no	no
Temp. minimum	°C	RT - 5	RT + 10	RT + 10
Temp. maximum	°C	60	80 (60 with CO <sub>2</sub> )	80 (60 with CO <sub>2</sub> )
Setting, digital	°C	0.1	0.1	0.1
Temperature distribution at 37°C/85% r.F.	± °C	< 0.20	< 0.20	< 0.20
Power of heating	W	384 (peltier)	800 (restistance)	800 (resistance)
Power of cooling	W	approx. 150 (peltier)	-	-
Principle of temp. sensor	type	Pt-100	Pt-100	Pt-100
Gas circulation	m <sup>3</sup> / h	380	570	570
<b>Humidity Control</b>				
Humidity max. at 25 - 55 °C	% r.H.	85	85	-
Humidity min. at 25 - 55 °C	% r.H.	50	depends on temperature (70-80%)	-
Setting, digital	% r.H.	1	1	-
Accuracy absolute	± % r.H.	2	2	-
Power of waterbath heater	W	180	180	-
Power of door and frame heater	W	140	140	-
Water refill		automatic	automatic	-
Principle of hum. sensor	type	capacitive	capacitive	-
Principle of hum. control	type	evaporation & recondensation	evaporation & recondensation	-
<b>CO<sub>2</sub> Control*</b>				
CO <sub>2</sub> max.	%	20	20	20
CO <sub>2</sub> min.	%	0	0	0
Setting, digital	%	0.1	0.1	0.1
Accuracy absolute	± %	0.40 at 5 % CO <sub>2</sub>	0.40 at 5 % CO <sub>2</sub>	0.40 at 5 % CO <sub>2</sub>
Temperature range	°C	up to 60	up to 60	up to 60
CO <sub>2</sub> supply	bar	max. 2 bar overpressure	max. 2 bar overpressure	max. 2 bar overpressure
Principle of sensor	type	Infrared	Infrared	Infrared
<b>Shaking Control</b>				
Motor	type	direct drive	direct drive	direct drive
Shaking diameter	mm	3 / 6 / 9 / 12.5 / 19 / 25 / 50 / 70 (0 - 70 mm, stepless)	3 / 6 / 9 / 12.5 / 19 / 25 / 50 / 70 (0 - 70 mm, stepless)	3 / 6 / 9 / 12.5 / 19 / 25 / 50 / 70 (0 - 70 mm, stepless)
Shaking motion	type	orbital	orbital	orbital
Shaking frequency range at 12.5 mm	rpm	0, 20 - 700	0, 20 - 700	0, 20 - 700
Shaking frequency range at 25 mm	rpm	0, 20 - 550	0, 20 - 550	0, 20 - 550
Shaking frequency range at 50 mm	rpm	0, 20 - 400	0, 20 - 400	0, 20 - 400
Shaking frequency range at 70 mm	rpm	0, 20 - 300	0, 20 - 300	0, 20 - 300
Tray size max.	mm	F (800 x 420 mm)	F (800 x 420 mm)	F (800 x 420 mm)
Loading max.	kg	25 (up to 60**)	25 (up to 60**)	25 (up to 60**)
Setting, digital	rpm	1	1	1
Accuracy absolute	± rpm	0.5	0.5	0.5
Timer	s:h	1 s - 999 h	1 s - 999 h	1 s - 999 h
Acceleration		controlled	controlled	controlled
Active brake		adjustable	adjustable	adjustable
Stop on position		no	no	no
Power of standard motor (EM-60/160)	W	70 / 140	70 / 140	70 / 140
<b>General</b>				
Power consumption typical	W	approx. 250	approx. 230	approx. 220
Power consumption max.	W	approx. 1000	approx. 1000	approx. 1000
Incubation gas volume	L	366	378	378
Weight	kg	210	202	200
Illumination	type	LED	LED	LED
Operation menu MMI		DE, FR, EN, IT, ES	DE, FR, EN, IT, ES	DE, FR, EN, IT, ES
Operation menu Insight		EN	EN	EN
Interface, standard		CAN-Bus	CAN-Bus	CAN-Bus
Interface, optional		USB, Ethernet, digital, analogue	USB, Ethernet, digital, analogue	USB, Ethernet, digital, analogue
Ambient temperature	°C	10 - 35	10 - 35	10 - 35
Cable feedthrough port	mm	40	40	40
Dimensions (L x D x H)	mm	1285 x 884 x 771	1285 x 918 x 771	1285 x 855 x 771
Material incubation chamber		stainless steel	stainless steel	stainless steel
Material outer chamber		painted stainless steel	painted stainless steel	painted stainless steel
Useful height above shaker tray	mm	460	460	460

\*\* depends on shaking speed and diameter (specification sheet available)

Technical Data subject to change