

Production of all dairy products with one device





ALL-IN-ONE **PASTEURIZERS AND CHEESE KETTLES** WITH A HEATING-COOLING UNIT

РН100^{моновьоск} **РН**200-650 **SKH-Н**200-650





INDEX

PH100^{monoblock} pasteurizer

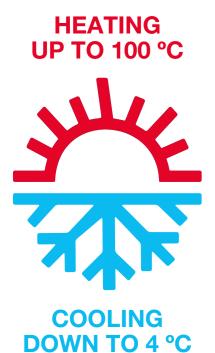
The PH100 Monoblock pasteurizer is a **compact professional solution** for processing smaller quantities of milk (100 I) into various dairy products. The PH offers a wide array of different stirrers. With its surface area under 1 m², the device is particularly suitable where space is limited.

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PH200-650 PASTEURIZERS WITH A HEATING-COOLING UNIT

The PH200-650 pasteurizers are professional pasteurizers capable of processing 200-650 I of milk. The heating-cooling unit provides heating and cooling as needed for processing and without preconditioning. It enables all thermal processes between 4 and 100 °C.

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ALL-IN-ONE PASTEURIZERS AND CHEESE KETTLES WITH A HEATING-COOLING UNIT

Instant cooling and heating as required.

A single device combines **a heating** and **a cooling unit** which enable **automated heating and cooling processes** in the temperature range between 4°C and 100 °C.

The operation (heating and cooling) requires only a power outlet*.

Built-in smart controllers and state-of-the-art stirrers provide quality, fast, and repeatable processes.

SKH-H200-650 CHEESE KETTLES WITH A HEATING-COOLING UNIT

The SKH-H200-650 are professional cheese kettles capable of processing 200-650 l of milk. They are equipped with automated harps, which makes them particularly suitable for making various types of cheese. Furthermore, they can be used to make numerous different dairy products as well, such as curd and yogurt. The heating-cooling unit provides heating and cooling as needed for processing and without preconditioning. The heating-cooling unit enables all thermal processes between 4 and 100 °C.



p. 6-11, 15-17

PROPERTIES, **REFERENCES**

The specifications of the heating-cooling processing devices, controllers, and references





PH pasteurizers ALL-IN-ONE





BENEFITS

1 PRODUCTION OF ALL DAIRY PRODUCTS (using a single device)

Different stirrers allow the production of: yogurt, pasteurized milk, cheese, curd, cream, spreads, mozzarella, jam, juices, sauces, etc. More on pages 8 and 14.



2 COMPLETE ENERGY EFFICIENCY

Energy-saving construction, sophisticated design and energy reusability provide excellent energy efficiency. More on page 9.



3 PLUG IN AND START PROCESSING

Simple solution for a quick start of milk processing.



The only requirement for heating and cooling is a power outlet.

4 AUTOMATED PROCESSING PROCEDURES

Convenient and easy management using smart controllers for controlled and repeatable processes. They ensure the working day is more efficient and organized, and the processes documented (with the MC 500 R or MC700i recorder) More on page 10.





Remote access option

MC500 in MC500R



More on page 11.

* The EV, EVV, and ETCVV versions also require a water outlet







SKH-H cheese kettles ALL-IN-ONE





Z-stirrer and stirring shovels, which provide an option to produce various other products, such as curd, yogurt etc., using the same device. More on



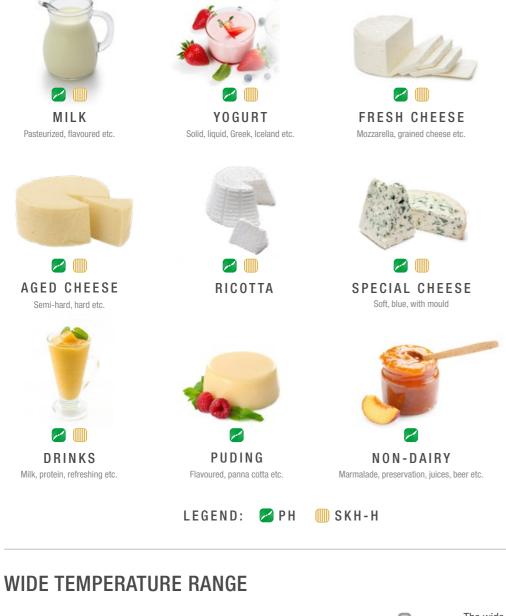


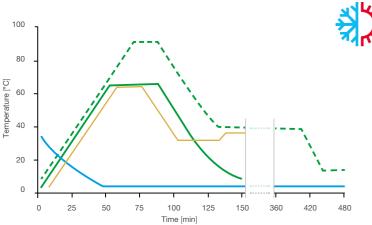


and repeatable processes. They make each working day more efficient and organized. The MC 500 R and MC 700i enable proper documenting

PRODUCTION OF ALL DAIRY PRODUCTS

LET YOUR IMAGINATION FLY: A wide temperature range and different types of stirrers and harps allow the PH and SKH-H devices the production of numerous kinds of dairy products, thus expanding your product range (milk, yogurt, cheese, curd, ricotta, fresh cheeses, special cheeses etc.). Above all, the PH can be used to produce numerous food products, such as sauces, puddings, juices, marmalades etc.







The wide temperature range enables various treatment processes between 4 and 100 °C (pasteurization, fermentation, evaporation, maturing, cooling etc.)

CURD

Smooth. chunkv etc.

DESSERTS

Ice-cream base, chocolate, creams etc.

....

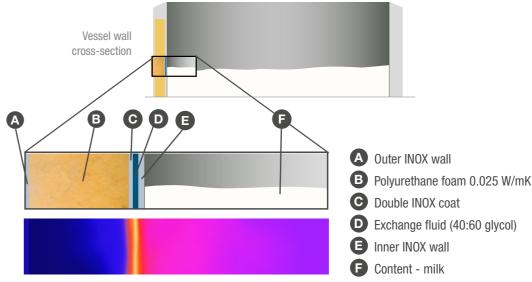
And many other

SAMPLE PROCESSES

- Cheesemaking (up to the cheese grain)
- Milk pasteurization
- Yogurt production (pasteurization, fermentation, cooling)
 - Product cooling

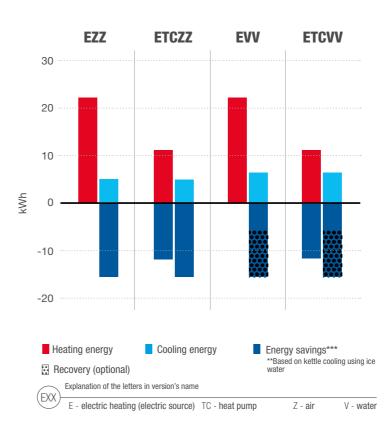
COMPLETE ENERGY EFFICIENCY

The heating and cooling energy is transferred directly across the large surface through the walls of the **coat** and the **bottom** of the vessel, which enables **quick heating of the product**. Due to its **insulated triple coat (energy-saying construction)**. which operates in a closed pressure system driven by a water pump, the device has 10 to 30% lower energy consumption. The small volume of the coat (between 3 and 6% of the vessel's volume) which contains secondary water, the controlled water pump and the advanced controller provide excellent thermal capacity and very precise process control. Different heating and cooling options are readily available, such as heating using the water pump, air-cooling, water-cooling or a combination of both down to 4 °C.



Thermographic display of temperature exchange in the vessel wall

Example of energy consumption during pasteurization of 200 l of milk up to 92 °C and cooling down to 10 °C (during yogurt production) Different designs enable different energy savings and energy recovery





EZZ and ETCZZ versions using air:

Optional heating using the heat pump, with 70% reduction in energy consumption. Extremely efficient air cooling ("free cooling") down to 40 °C (COP* 35 and more). Cooling down to 4 °C with a highly efficient air-cooled cooling unit (COP* 2-3).

*COP = coefficient of performance

EVV and ETCVV versions using water:

Optional heating using the heat pump, with **70% reduction in** energy consumption. The cooling unit with water cooling can be in the same room as the device because it doesn't warm the room. Medium cooling down to 40 °C using water via a heat exchanger, and cooling down to 4 °C using the highly efficient water-cooled cooling unit (COP* 2.5). Energy recovery is available as an option. Example: While the cooling unit operates, domestic water is heated in the water container (from 15 °C to 50 °C).

MODERN AND EASY PROCESS CONTROL

Convenient and easy management using smart controllers for controlled and repeatable processes, as well as constant properties of products. Save time and money **with start** and stop delay of processes. Set them in such a way that milk is thermally ready for cheesemaking by next morning. An option to record and document all active process parameters (temperature, stirring, etc.).



A modern controller for **process automation**. Set your unique processes and ensure **stable quality** of your end-products.



Easy, user-friendly control: A large 5" colour touch screen with an excellent overview offers a superior user experience in 7 languages.



Outstanding flexibility and clear overview. It is possible to choose from 12 programs,which can be adjusted to suit your technological procedures.

	Pro	grar	n 1	-	Ed	ESC	
2	Temp. [*C	_	tirrer se	min.	ENTER		
1	85.0		Duration 10	ON1	10	10	00
0Z	40.0	1	10	ON1	10	10	00
1	35.0		10	ON1	10	10	00
Ø	70.0	1	10	OFF	10	10	00
6	30.0	1	1500	ON2	10	10	00

Advanced expert programs Customizable programs support up to 15 steps. They enable advanced settings like temperature, time, stirring speed and direction, as well as activating the "gentle", controlled temperature retention mode.



The mobile app for the MC 500 and MC 500 R provides the settings for: turn on/off, delay, transfer records, skip to the next process step, temperature change, as well as certain other parameters, such as speed and stirring direction.

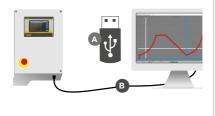


The MC 500 R with an integrated recorder enables **digital recording** of all parameters of active processes (temperature, stirring, etc.).



Complete documenting – registration of the temperature and processes.

The MC 500 R controller has a built-in recorder which automatically records all active processes, making it easier to control them, plus it offers an overview of the completed processes. Records can be easily transferred via a USB-port (A flash drive or B cable) to the computer, where you can view and save them with the dedicated software.





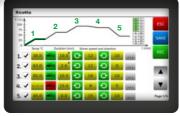
Remote access (WiFi) and additional software settings

Remote access via mobile phone, tablet, or laptop enables management and control of milk processing processes even when not on-site.



Smart controller for the highest level of process automation. Automated processes for the best and repeatable quality of your products.





MAIN BENEFITS

Process recording • PH sensor
 Quantity sensor • Stirrer control

 Inlet and outlet control
 of the vessel content • Precise heating
 regulation • Maintaining the temperature
 Remote access • WiFi assistance • The
 MC700i can be incorporated into main control centres

Using the app, the MC700i enables all functionalities of the controller.



EASY CONTROL AND MAINTENANCE

Simple and fast control using the Plevnik devices. Due to the ingenious design of the devices, including the controllers and stirrers, their handling is easy, making the operation fast and efficient. All processes (cutting, stirring, thermal treatment etc.) can simply be started by pressing a button. Cleaning is faster and easier due to the special **2R polished inner surface** which prevents sticking to the vessel

walls.



Testimonies of our customers









"We use the PH 100 for smaller quantities and milk pasteurization. The milk is cooled down to 4 °C without any problems. This compact device has proved its value when we were starting out. We had the PH only and very limited space. We could still make anything we wanted. From soft cheese and yogurt to semi-hard cheese."

Malina Michalscheck, James Farm, Germany

"We are very satisfied with the PH pasteurizers. They are very highquality, reliable, and they never break. They are really easy to use."

Daniel and Elinor Bergvall, Kråkarps Gårdsmejeri, Kråkarp, Sweden

Ted and Louise Gunnarsson, Sjundekvillsgard, Sweden

Equipment overview

PH

PH pasteurizers – all-in-one	PH 100	PH 200-650 🖾
	 included optional not available 	 included optional not available
HEATING UP TO	100 °C	100 °C
COOLING DOWN TO	4 °C	4 °C
VESSEL	AISI 304/316	AISI 304/316
Durable and reliable material – stainless steel		
Energy-saving construction – laser welded		•
	/	0
Faster, easier discharge – bigger outlet More efficient heat exchange – indirect cooling (plate heat exchanger)		•
Lower energy consumption – water pump		•
Less cleaning, time-saving – 2R polished vessel interior		0
STIRRERS		
Basic propeller stirrer		•
Larger 75 % propeller stirrer	1	0
Professional stirrer for yogurt, cheese and milk		0
Professional stirrer for yogurt, cheese and milk – stirring rake	/	0
Scrape stirrer		0
A console for the stirrer and two-part cover	/	0
CONTROL		
Advanced automatic temperature regulation MC500		•
Digital process recorder for the MC 500 controller - not higher than MC 500 R		0
The most advanced automatic temperature regulation using a recorder – MC700i	/	0
Remote access - WiFi module		0
Stirring speed and direction regulation		•
Energy-saving using small batches: Module for choosing the power of heating (full or partial)		0
In case of overvoltage (lightning strike) - a module for operation without the controller		0
OTHER EQUIPMENT		
For easier handling and discharging – a stable support with a tilting mechanism*	/	•
For easier moving – a support on wheels	•	0
For easier access and ergonomic work – a working platform	/	0
For easier access and ergonomic work – an elevating device	/	0
Protection around the support to protect the water system up to including 300 I	•	0
Greater durability – a stainless steel control panel	•	•
Stirrer motor protection – a stainless steel cover	•	0
Greater durability – a stainless steel power cabinet	/	•
Smaller dimensions for facilities with narrower door frames – adaptation for doors	/	0
Local requirements – a cover and valve position sensor		0



Working platform Easier access, higher discharge and easy decantation of content for further processing. Safe, efficient and ergonomic process control.



Elevating device Enables ergonomic setting of the working height, making operation (discharging, cleaning) easier. An ideal solution for facilities with a low ceiling.



2R polished interior Due to its very smooth surface, the contents do not stick to the walls during processing. This enables quick and easy cleaning.



A console for the stirrer and two-part cover For accessing the vessel during processing. The vessel is closed with a two-part cover.

PASTEURIZERS AND CHEESE KETTLES PLEVNIK

Reliable milk processing equipment ensures long life cycle, and prevents defects and production standstills.

The built-in components of established European manufacturers ensure a long-lasting, stable, and reliable quality of our devices.



M619q6 outokumpu Stainless steel, Sweden, Finland



An efficient heat exchanger, Sweden

*Mechanical, from 500 I, the tilting mechanism is pneumatic,



Protection around the support Protects the kettle pipes against dirt and makes cleaning the entire kettle easier. Long life cycle due to the protection of water system.



Protection for the stirrer motor For easy cleaning and protection of the key parts of the motor and better hygiene





Electric components for electric installations, Austria

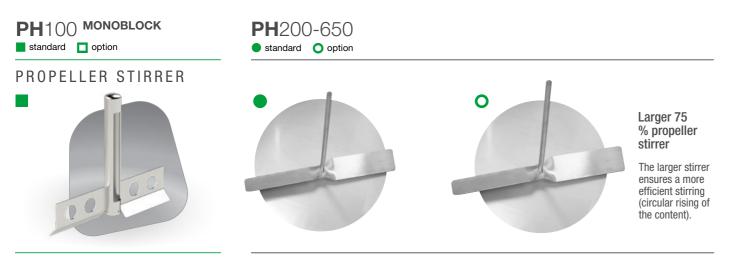
SCastel

Reliable valves for long equipment lifespan, Italy

DIVERSE AND EFFICIENT STIRRING

6.1

PH



PROFESSIONAL STIRRER FOR YOGURT, CHEESE AND MILK

Its shape enables efficient, yet gentle stirring for a homogeneous product. The stirrer is made of stirring shovels at one or two levels.



SCRAPE STIRRERS

The sliding scrape stirrers prevent the product from sticking to the pasteurizer walls during treatment (gentle scraping of the pasteurizer walls) and facilitates the emptying of the container. Recommended for making pudding, rice pudding, jam, chocolate and other highly viscous products.





CHEESE HARPS

Manual or automated harps with sharp and thin blades ensure a precise cut which improves the quality and quantity of the final product (less cheese dust and more cheese).







SKH-H200-650 CHEESE KETTLES SKH-H

GOOD AND EFFICIENT PROCESSING OF CHEESE MASS

AUTOMATED CHEESE HARPS

The Plevnik harps are specially designed, sharpened and polished to facilitate smooth cutting. Substituting harps for other stirrers is simple - in a single move.

O Cutting: Automated harps with sharp and thin blades ensure a precise cut, which improves the quality and quantity of the final product (less cheese dust and more cheese). **Stirring (the oposite direction of harp spinning): stirring** shovels are automatically activated when the stirring direction changes, and build the required stirring speed for more efficient stirring and drying of the cheese grains.

New Plevnik cutting/ stirring cheese harps



Cheese mass

Quality cutting – more cheese mass

The desired goal of cheesemaking is more cheese mass and less cheese dust. Precise and gentle cutting results in more cheese mass and thus better milk yield.

PLEVNIK cheese harps Sharp and polished harps

are designed for precise and efficient cutting, and for the highest cheese mass yield possible.

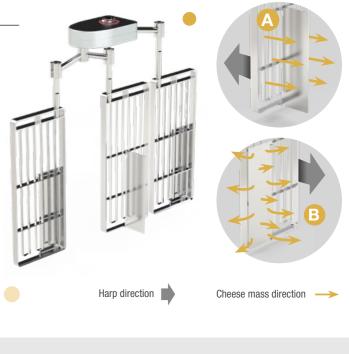


OTHER STIRRING OPTIONS

Z-STIRRER (A PROPELLER STIRRER)

Due to its larger diameter, the Z-stirrer ensures more efficient stirring and circular rising of the content. Available in combination with a two-part cover.





Cheese harps

Wire harps - cutting with a wire as shown: The round blade form causes tearing and more cheese dust - more small cheese mass particles which are lost with whey



STIRRING SHOVELS

For even and efficient stirring during cheese mass drying. The stirring shovels ensure the homogeneity of cheese grain and whey.



Equipment overview

SKH-H

SKH-H cheese kettles – all-in-one SKH-H 200-650

HEATING UP TO	100 °C
COOLING DOWN TO	4 °C
VESSEL	
Durable and reliable material – stainless steel	AISI 304/316
Energy-saving construction – laser welded	•
Faster, easier discharge – bigger outlet	0
More efficient heat exchange – indirect cooling (plate heat exchanger)	•
Lower energy consumption - water pump	•
Less cleaning, time-saving – 2R polished vessel interior	0
STIRRERS	
Automated cutting of the cheese mass – a three-part automated harp, a two-part cover	•
For stirring above 65 °C – a central "Z" stirrer	0
For drying cheese grains – stirring shovels	0
CONTROL	
Advanced automatic temperature regulation – MC 500	•
Digital process recorder for the MC 500 controller - not higher than MC 500 R	0
A state-of-the-art controller for the highest level of automation - MC 700i	0
Stirrer/harp speed and stirring direction regulation	•
Energy-saving using small batches – Module for choosing the power of heating (full or partial)	0
In case of overvoltage (lightning strike) - a module for operation without the controller	0
OTHER EQUIPMENT	
For easier handling and discharging – a stable support with a tilting mechanism*	•
For easier moving – a support on wheels	0
For easier access and ergonomic work – a working platform	0
For easier access and ergonomic work – an elevating device	0
Protection around the support to protect the water system up to including 300 l	0
Protection for the stirrer motor – an inox cover	•
Greater durability – a stainless steel control panel	•
Greater durability – a stainless steel power cabinet	•
A solution for facilities with narrow doors – adaptation for doors	0
Local requirements – a rounded two-part cover	0
Draining the curd – a curd strip**	0
Local requirements – a cover and valve position sensor	0
Additional safety - sensor protection against the harps	0
Additional safety - a protective net in front of the harps	0

* Mechanical (from 500 l), the tilting mechanism is pneumatic** up to including 650 l







Working platform Easier access, higher outlet and easy decantation of the cheese mass to the draining table. Safe, efficient and ergonomic process control.

Elevating device Enables setting the ergonomic working height which makes the work easier. An ideal solution for rooms with lower ceiling.





2R polished interior Due to its very smooth surface, the contents do not stick to the walls during processing. This enables quick and easy cleaning.

in front of the harps Physically prevents unauthorized reaching into the vessel during operation - for better safety at work.

ERGONOMICS AT WORK

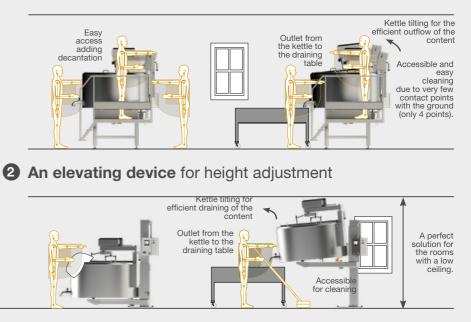
HEALTH COMES FIRST

Using the Plevnik working platform or elevating device you are able to adapt the working height to your best working zone.

Long-term working in an unsuitable working environment can result in poor posture, which in turn results in numerous health issues, such as back pain, neck pain, headaches and others. Each person's body dimensions are unique.

ECONOMICAL ERGONOMICS

The listed solutions enable you to work faster and easier. Create good working conditions to ensure your employees remain healthy and satisfied.



Protective net



Protection around the support

Protects the kettle pipes against dirt and makes cleaning the entire kettle easier. Long life cycle due to the protection of water system.



Recovery

A module that stores the heat generated by the cooling processes and enables it to be reused for other applications on the farm and within the household.

PLEVNIK SOLUTIONS:

1 A working platform A static solution with a fixed height

PROPERTIES OF THE HEATING-COOLING PROCESSING DEVICES AND SPECIFICATIONS

Heating and cooling designs

				PH	100				
				EZ	EV	EZZ	EVV	ETCZZ	ETCVV
	With electric heaters (up to 1	00 °C)		\checkmark	✓	\checkmark	\checkmark	\checkmark	\checkmark
HEATING		2	Air-cooled condenser	-	-	-	-	\checkmark	-
	With a heat pump (up to 45 °	⁽ C)	Water-cooled condenser	-	-	-	-	-	\checkmark
	With a boot evenenger	(100 °C to 40 °C) (100 °C to 25 °C)	Air-cooled	-	-	\checkmark	-	\checkmark	-
COOLING	With a heat exchanger		Water-cooled	-	-	-	\checkmark	-	\checkmark
GOOLING	With a cooling unit (down to	4.90)	Air-cooled condenser	\checkmark	-	\checkmark	-	\checkmark	-
	With a cooling unit (down to	Water-cooled condenser	-	\checkmark	-	\checkmark	-	\checkmark	
Energy recuperation					optional	-	optional	-	optional

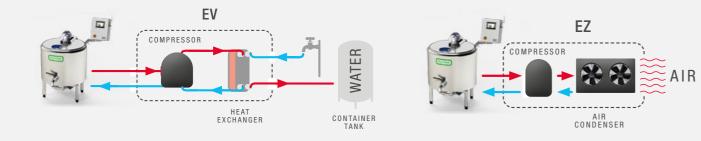
The meaning of the letters in version name

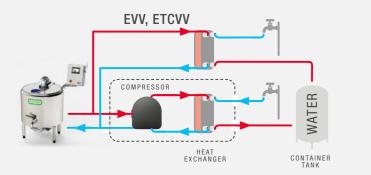
(EXX) E - electric heating (electric source) TC - heat pump Z - air V - water

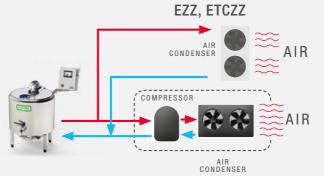
VERSIONS

Versions with a heat pump (ETCZZ, ETCVV) additional money savings

The cooling unit also functions as a heat pump. As such, it can be used for heating up milk up to 45 °C. Using the heat pump for heating uses 70% less electricity than using electric heaters alone. Electric heaters are used for heating milk above 45 °C. Switching between heating with the heat pump and heating with electric heaters is automatic.







Water and energy reusability

Water-cooled cooling units are smaller and do not radiate heat. A ventilated room is not required for their installation. If you are using kettles up to 500 I, you can install them in the dairy. While cooling the milk, the cooling unit is heating up the water which can be used to clean the dairy, provide water for the livestock etc. The water can be reused as domestic water, whereas the recovered energy can be used for heating.



Example: The Plevnik 200 EVV device can heat up 200 I of water from 15 °C to 50 °C while cooling down 200 I of milk from 65 °C to 10 °C.

PH

Туре	Heater power	Cooling unit cooling	PH	100-650 -	dimensi	
		(kW)⁴	power ¹	W/L	W1	Н
	PH 100	10	6.1	W=780/L=980	/	1190
	PH 200	18	/	ø820	980	1010
	PH 300	24	/	ø1000	1150	1010
	PH 500	36	/	ø1120	1270	1030
	PH 650	45	/	ø1280	1430	1010

SKH-H

Туре	Heater power	ower cooling						Connections for the heating-cooling	Weight (kg)	Outlet (diameter)
	(kW) ⁴	power	W/L	W1	Н	H1	С	unit		
SKH-H 200	18	/	ø820	1025	1025	1595	475	1"	170	DN50
SKH-H 300	24	/	ø1000	1105	1025	1600	475	1"	230	DN65
SKH-H 500	36	/	ø1120	1375	1035	1600	330	5/4"	310	DN65
SKH-H 650	45	/	ø1280	1520	1035	1610	330	5/4"	360	DN65

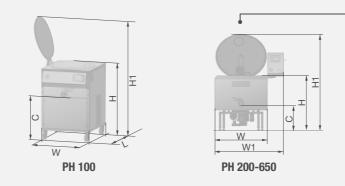
Heating-cooling unit

Litres	Cooling unit cooling power ¹ (KW)	Heat exchan- ger cooling power (KW) EZZ ² / EVV ³	HEATING-COOLING unit – dimensions (mm)						EZZ connections	EVV connections	EVV	
			Type EZZ, ETCZZ			Type EVV, ETCVV			heating- cooling	cooling unit –	connections cooling	
			V	L	S	V	L	S	unit kettle	kettle	water	
200	14.2	21/29.9	1870	1500	890	1250	900	750	1"	1"	3/4"	
300	17.3	21/41.3	1870	1500	890	1250	900	750	1"	1"	3/4"	
500	30.1	25.5/62.5	2400	1800	980	1400	1000	800	5/4"	5/4"	1"	
650	36.6	38.5/78.5	2200	2300	1080	1600	1100	900	5/4"	5/4"	1"	

¹ At evaporation temperature of 0 °C and condensation temperature of 45 °C

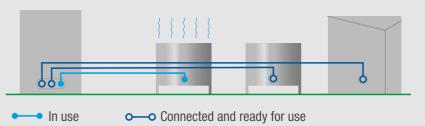
 $^{\rm 2}$ At the temperature difference between the cold medium and the air of dT=15 °C ³ At cold water temperature of 12 °C and flow rate between 25 and 55 l/min (relative to the cooling power)

⁴ Power outlet EL 400V 3N 50Hz (heater power + 0,5 kW). Optional adaptation of the power outlet upon request.

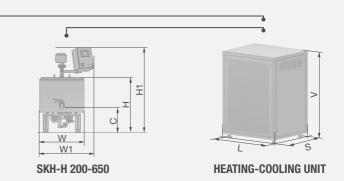


MULTIBLOCK – multiple devices connected to the heating-cooling unit for cooling processes (Available upon request)

The heating-cooling unit can be ordered with up to three adapter connectors which enable system-wide power connection of three thermal consumers (pasteurizer, cheese kettle, cold store). Only one device can be active at the same time.



for the heating ons (mm) Weight (kg) Outlet Tap water (diameter coolin H1 С unit 750 1900 3/4" 125 DN65 1380 475 1"/1" 170 DN50 DN50 1450 475 1"/1" 230 1450 330 5/4"/5/4' 310 DN65 DN65 1500 330 5/4" / 5/4' 360



Complete dairy

solutions

Plevnik products in the service of the user

All Plevnik devices are user- and environmentally friendly, as well as energy-efficient. They are designed and manufactured for longterm use.

In the process of constant improvements, we reserve the right to make technical and design modifications without prior notice.

Consulting

Visit

Planning



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The milk processing equipment specialists.

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Creating joyful countryside stories.

lling

Production





More information



Assembly and start-up

start-up