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User Manual

Packo Ice Builder (PIB)

Ref. 168042 V 2.00

Eco Cool

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About this manual

Introduction

We, at PACKO INOX N.V., thank you for choosing one of our products and hope we may also count you as one of our satisfied customers.

Therefore we strive to do everything possible to inform you and be of service as well as possible.

In this manual you will find …

This manual was drawn up to make you familiar with your Packo Ice Builder e.g. description of the equipment and instructions for normal use.

Please read everything carefully before you start to use the appliance. A minimum of effort beforehand by reading these instructions guarantees you a maximum return and a long life of your investment.

Use of the icons

A number of icons are used in this manual, to draw your attention to, for example, safety information. The table below provides an overview of the icons used and what they mean:

Icon	Meaning	Description
	Remark	A remark provides additional information about a certain topic. The information in a remark is not invaluable, but can be useful.
	Attention!	If you do not follow the directions precisely, then: • The system can be damaged (in this case, damage is not covered by the warranty) • The operation can be disturbed.
	Warning!	A warning draws your attention to a possible danger or risk of personal injury.

Procedures

The procedures in this manual are broken down into numbered actions . These actions have to be carried out in the described sequential order.

Changes

The company PACKO INOX N.V. reserves the right to make changes to the manual at any time and without prior notice.

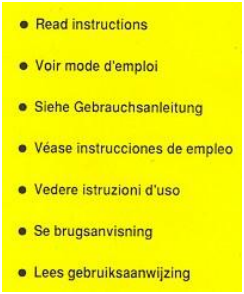
Safety instructions

Introduction

Next to the safety instructions here below, always observe local regulations and prescriptions.

Stickers

The stickers below can be fixed on to your PIB to assure the safety of the use of the tank. They cannot be removed according to the CE regulations:

Sticker	Instructions
CE	The machine or part of it is built according to the CE regulations.
	You are invited to read the instructions.
	Danger : Machinery / equipment connected to electrical network.
	Do not spray water on the motor.
	Do not spray water on the pump.

Training of operators

The operator needs to read this manual carefully before using the PIB.

Maintenance & fault finding

Service or maintenance works should **only** be carried out by **trained personnel**.

Electricity

Before doing the following, turn the main switch (located on the side of the electrical control cabinet) to 0 or OFF and lock it:

- Prior the opening the electrical cabinet of the PIB.
- Prior to any service work to the PIB or any of its components.
- In case of electrical or mechanical faults, inform the installer immediately.
- Prior to any work on the cooling system.

 Make sure that your hands are dry when you use the buttons.

 When you touch electronic equipment make sure you unload yourself of static electricity.

Cleaning

Never spray water under high pressure at the PIB.

 Wear protective gloves and safety goggles whilst cleaning the equipment.

General

- Only use the PIB for its intended use which means the creation of ice water.
- The PIB is not suitable for cooling other liquids then ice water.
- Do not put anything on the PIB.

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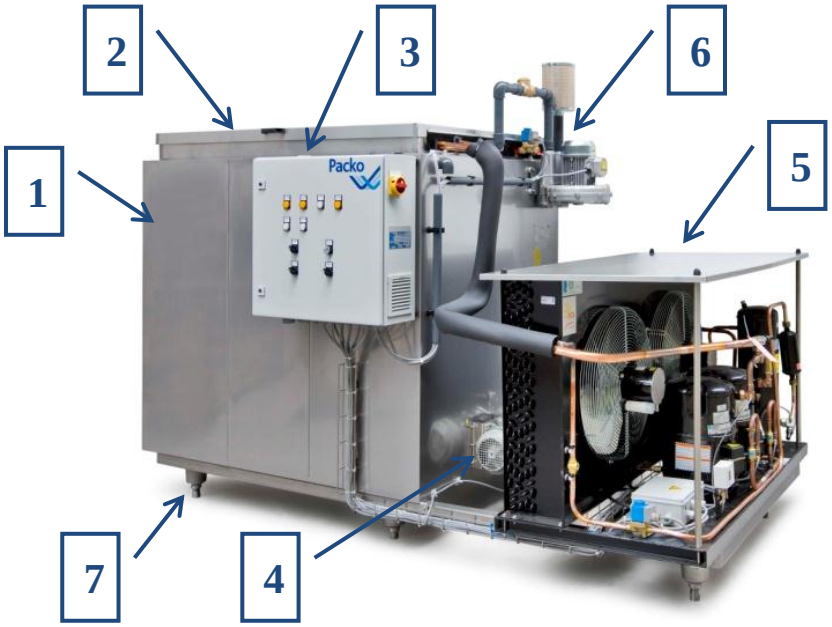
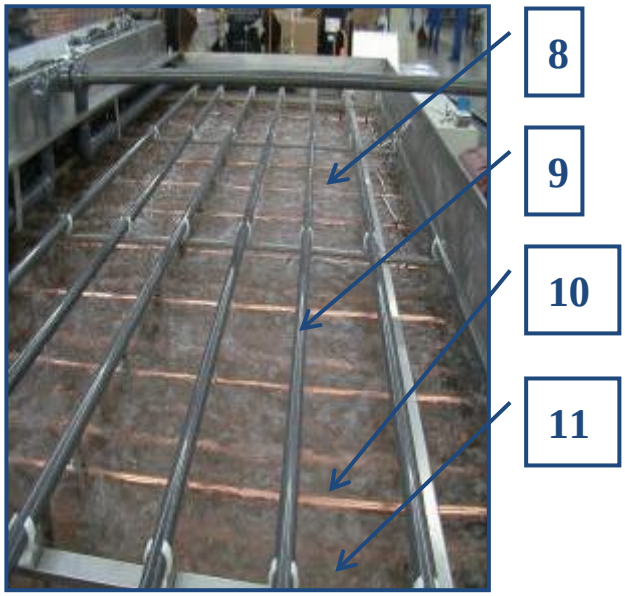
1. Equipment overview

The Packo Ice Builders (PIB) are compact and powerful units capable of storing cooling energy in ice form and afterwards releasing this energy by generating ice water for various cooling applications.

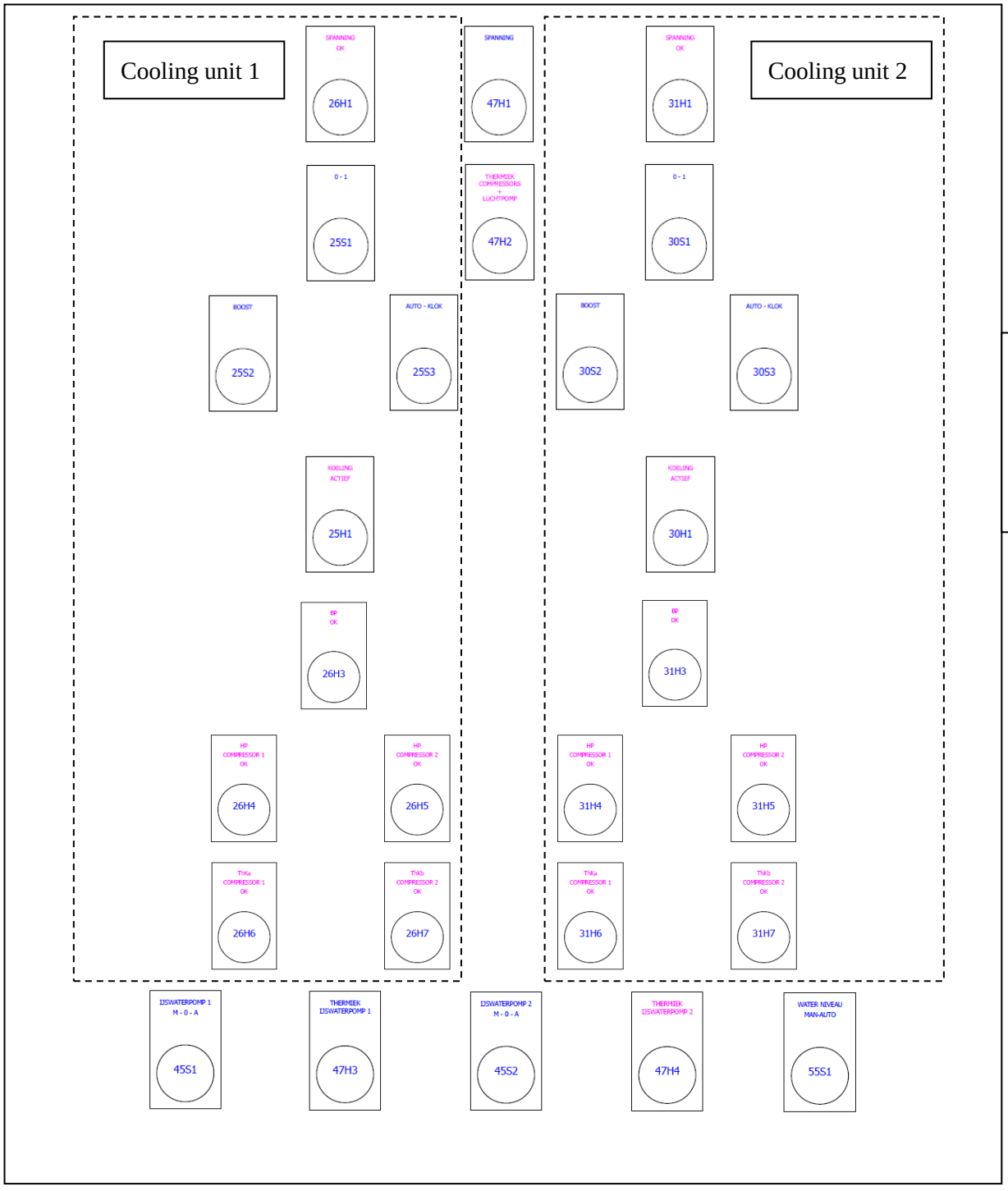




Main parts and functions:

Element	Description	Function
1	Ice water reservoir	Insulated vessel to hold the ice water.
2	Insulated cover	Insulated cover for the ice water reservoir.
3	Electrical enclosure	Control system PIB.
4	Ice water pump	Supply the ice water to the cooling application.
5	Cooling unit	Provide the required cooling capacity to the evaporator.
6	Ice water homogenisation (PIB 25 → 370)	Ensure an even ice meltdown by injecting air through the ice water reservoir. The air blower is automatically turned on when the ice water pump is running.
7	Leg	Adjustment/levelling of the PIB
8	Evaporator	Cool / freeze the water in the ice water reservoir.
9	Return header	Distribute the return (heated) water back into the PIB.
10	Electronic ice thickness sensors	Control the thickness of the ice layer between the pre-set minimum and maximum value.
11	Automatic ice water level control	Maintains the ice water up the required level.
12	Heat exchanger (optional)	The heat exchanger provides cooling to a secondary circuit and is available in the following sizes: – Type B28*46 (flow rate = 40l/min) – Type B28*80 (flow rate = 60 l/min) – Type B28*126 (flow rate = 100 l/min) Type B28*126 is not possible with PIB-8 and PIB-13

2. Electrical control panel



#	Component	Tag	Function
Tension			
Main switch	Switch	Main Switch 0-1	Power equipment on / off
47H1	Lamp	Tension	Indicates when the PIB is on (tension present). Main Switch.
Alarm			
47H2	Lamp	Thermal Safety compressor(s) and air blower(s)	Indicates when the motor of compressor(s), air blower(s) is overloaded.
Cooling unit 1			
26H1	Lamp	Tension Ok	Main switch on Cooling unit 1 – 0: off – 1: on
25S1	Switch	0 - 1	Control circuit Cooling unit 1 – 0: off – 1: on
25S2	Knob	Boost function cooling unit 1	– Push: built up once to max. ice limits
25S3	Switch	Clock switch cooling unit 1	– Auto: no clock is used – Clock: Clock is used
25H1	Lamp	Cooling active	Liquid valve – 0: off – 1: on
26H3	Lamp	BP OK	On : when BP is closed and Cooling is active
26H4	Lamp	HP Compressor 1 OK	On : when HP is closed and BP is closed and cooling is active
26H6	Lamp	ThKa Compressor 1 OK	Indicates when compressor 1 (cooling unit 1) is running. On : when ThKa is closed and HP is closed and BP is closed and cooling is active
26H5	Lamp (Model dependant)	HP Compressor 2 OK	On : when HP is closed and BP is closed and cooling is active

26H7	Lamp (Model dependant)	ThKa Compressor 2 OK	Indicates when compressor 2 (cooling unit 1) is running. On : when ThKa is closed and HP is closed and BP is closed and cooling is active
Cooling unit 2-4 (Model dependant)			
31H1	Lamp	Tension Ok	Main switch on Cooling unit 2 – 0: off – 1: on
30S1	Switch	0 – 1	Control circuit Cooling unit 2 – 0: off – 1: on
30S2	Knob	Boost function cooling unit 1	– Push: built up once to max. ice limits
30S3	Switch	Clock switch cooling unit 1	– Auto: no clock is used – Clock: Clock is used
30H1	Lamp	Cooling active	Liquid valve – 0: off – 1: on
31H3	Lamp	BP OK	On : when BP is closed and Cooling is active
31H4	Lamp	HP Compressor 1 OK	On : when HP is closed and BP is closed and cooling is active
31H6	Lamp	ThKa Compressor 1 OK	Indicates when compressor 1 (cooling unit 2) is running. On : when ThKa is closed and HP is closed and BP is closed and cooling is active
31H5	Lamp (Model dependant)	HP Compressor 2 OK	On : when HP is closed and BP is closed and cooling is active
31H7	Lamp (Model dependant)	ThKa Compressor 2 OK	Indicates when compressor 2 (cooling unit 2) is running. On : when ThKa is closed and HP is closed and BP is closed and cooling is active
Ice water circuit			
45S1	Switch	Ice water pump 1 M-0-A	– M: Manual operation – 0: Pump off – A: Automatic operation

47H3	Lamp	Thermal Safety ice water pump 1	Indicates when ice water pump 1 is overloaded.
45S2, …	Switch (model dependant)	Ice water pump 2-8 M-0-A	– M: Manual operation – 0: Pump off – A: Automatic operation
47H4, …	Lamp (Model dependant)	Thermal Safety ice water pump 2	Indicates when ice water pump 2 is overloaded.
Level control			
55S1	Switch	Level control M-A	– M: Manual operation – A: Automatic operation

3. Start-up and normal use

3.1. Filling PIB

The Packo Ice Builder has to be filled with pure, clear water (drinking quality) up to 1cm above the top copper tube of the evaporator.


The ice water reservoir may only be filled with water after the cooling circuit has been made vacuum and put under pressure.


To protect the system an inhibitor must be added to the water before the start-up.

The PIB can be filled automatically by following these steps:

Step	Action
1	Place the switch “Level control” in position A which will open the water supply valve.
2	The filling cycle will automatically stop when the required level has been reached.
3	Remove the cover.
4	Add the amount of 1, 2, 3-Benzotriazol needed to the ice water reservoir. For the required dosage please check Manual for installation/ operation/ maintenance, chapter “4. Maintenance”.
5	Put the cover plate back in place.

3.2. PIB operation

When starting up the PIB, proceed as indicated in the following table:

Step	Action	
1	Turn on the power supply (main switch).	
2	Turn on the cooling unit(s) (switches cooling units).	
3	When the controls are ...	Then...
	Manually (the ice water pump is controlled by the PIB)	Put the control switch in position "M".
	Automatically (the ice water pump is controlled by an external source)	Put the control switch in position "A".
4	When the ice formation has reached the required level, the valve controlling the flow of cooling agent is closed and the cooling units are stopped. During a prolonged period without ice building (cooling units are not running), the cooling units can switch on and off for a short period.	
5	Always leave the ice accumulator under tension to ensure proper control of the ice capacity.	