EN

Installation and operating manual

Compressed air refrigeration dryer

DRYPOINT® RX

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BEKO

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1. Notes

This documentation contains the necessary steps for using the product and accessories.

1.1 Contact

Manufacturer	Customer service and tools
BEKO TECHNOLOGIES CORP. 900 Great Southwest Pkwy SW | Atlanta, GA 30336 Tel. + 1 (404) 924-6900 beko@bekousa.com www.beko-technologies.us	**BEKO** TECHNOLOGIES CORP. 900 Great Southwest Pkwy SW | Atlanta, GA 30336 Tel. + 1 (404) 924-6900 beko@bekousa.com www.beko-technologies.us

INFORMATION	Country-specific manufacturer representative
	Contact the country-specific manufacturer representative using the address listed in the address section on the rear cover or contact form on the manufacturer's website.

1.2 Information on the installation and operating manual

INFORMATION	Copyright protection
	The contents of the installation and operating manual in the form of text, figures, illustrations, photographs, technical drawings, diagrams and other representations are protected by manufacturer copyright. The distribution and duplication of this document, exploitation and disclosure of its contents are prohibited unless expressly authorised.

Publication date	Revision	Version	Reason for amendment	Amendment scope
December 01, 2023	00	00	New product	New document

The installation and operating manual was originally written in ENGLISH.

The installation and operating manual, hereafter referred to as the manual, must be kept close to the product and in a legible state.
The manual must be handed over along with the product if it is sold or transferred.

NOTE	Follow the instructions given in the manual
	This manual contains the basic information required for safe operation of the product and must be read before performing any actions. Otherwise personal and material hazards and malfunction and device failure are possible.

1.3 Other applicable documents

- Refrigerant fluid safety data sheet
- **BEKOMAT®** Installation and operating manual
- Wiring diagrams
- Modbus configuration description

2. Safety

2.1 Use

2.1.1 Intended use

The **DRYPOINT® RX**, hereafter product or device, is a compressed-air refrigeration dryer used to separate the moisture in compressed air, where compressed air does not treat foodstuffs and is not used for breathing purposes.

The product is intended only for the separation of moisture in compressed air. Using this product in ways not specified in this manual is considered unintended and may pose risks to human safety and environmental health.

The following must be noted for intended use:

- Read and follow the manual.
- Use the product and accessories within the operating parameters given in the technical data and the agreed delivery conditions.
- Use the product and accessories with media which are free from caustic, aggressive, corrosive, toxic, flammable, oxidising or inorganic components. An analysis must be carried out in cases of doubt.
- Use the product and accessories in areas which are free from toxic and corrosive chemicals and gases.
- Use the product and accessories within piping system designed for the technical data with appropriate connections, pipe diameters and assembly clearances.
- Use the product and accessories outside potentially explosive atmospheres.
- Use the product and accessories away from direct solar radiation and heat sources and areas subject to frost.
- Combine the product and accessories with the products and components named and recommended by **BEKO** TECHNOLOGIES in the manual.
- Comply with the prescribed maintenance schedules.

Before using the product and accessories, the operating company must make sure that all conditions and prerequisites for intended use are met.

The product and accessories have been exclusively designed for stationary use in a commercial or industrial area. Assembly, installation, operation, maintenance, disassembly and disposal work described may only be performed by qualified skilled technical personnel.

2.1.2 Reasonably foreseeable incorrect use

Reasonably foreseeable incorrect use is when the product or accessories are used in any other way than what described in section "2.1.1 Intended use" on page 8.

Reasonably foreseeable incorrect use includes the use of the product or accessories in a manner unintended by the manufacturer or supplier but which may result from user behavior.

Reasonably foreseeable incorrect use includes:

- Using treated air for foodstuffs or breathing purposes.
- Making any modifications, such as constructive and process-technology related works.
- Suspending, failure to comply or not applying existing or recommended safety equipment.

This list is not exhaustive since it cannot include all possible incorrect use. If the operating company is aware of any incorrect use of the product or accessories which are not listed here, the manufacturer must be informed immediately.

2.2 Operating company responsibility

To prevent accidents, incidents and adverse effects on the environment, the responsible operating company must ensure the following:

- Before all actions, check to ensure that the manual available belongs to the product.
- The product and accessories are used, serviced and repaired based on the intended use.
- The product and accessories are used with the recommended and fully operable safety equipment.
- Assembly, installation and maintenance work must be carried out by qualified skilled technical personnel.
- Personnel must have the necessary personal protective equipment available and use it.
- Suitable technical safety measures to comply with permissible operating parameters.
- Maintain the safety symbols and type plate on the product and accessories in a legible state. Replace damaged and illegible markings immediately.

2.3 Target group and personnel

This manual addresses the personnel listed below who are involved with work on the product or accessories.

INFORMATION	Accessibility to the product
	This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance. For APPLIANCES NOT ACCESSIBLE TO THE GENERAL PUBLIC, the classification according to 6.101 shall be included. ("appliances which are located either in a secured location with restricted access (e.g. machine rooms, rooftop and the like) or at a level not less than 2,5 m or in secured rooftop areas")".

INFORMATION	Personnel requirements
	Personnel may not perform any actions on the product or accessories if they are under the influence of drugs, medications, alcohol or other substances that may impair their awareness.

Operating personnel
Operating personnel are those who can operate the product and accessories safely based on product and accessories manual knowledge. Operating personnel can recognise possible malfunctions and dangerous situations independently and arrange for related measures.

Skilled technical personnel - transport and storage
Skilled technical personnel specialising in transport and storage have the training, professional experience, qualifications, and the necessary skills to safely perform product transport and storage actions. They can instruct, detect possible dangerous situations independently and implement measures to avoid danger. Their skills include experience with hoists, forklifts and lifting equipment and knowledge of local laws, standards and guidelines relating to transport and storage.

Skilled technical personnel – pressure equipment and systems
Skilled technical personnel specialising in pressure equipment and systems have the training, professional experience, qualifications and the necessary skills to safely perform pressurized fluid and system actions. They can instruct, detect possible dangerous situations independently and implement measures to avoid danger. Their skills include experience in using measuring and control equipment, and knowledge of local laws, standards and guidelines for pressurized systems.

Skilled technical personnel - refrigeration engineering

Skilled technical personnel specialising in refrigeration engineering have the training, professional experience, qualifications and the necessary skills to safely perform refrigerant fluid actions. They can instruct, detect possible dangerous situations independently and implement measures to avoid danger.

Their skills include experience in handling refrigerant fluids, refrigerant circuits, measurement and control technology, and knowledge of local laws, standards and guidelines for refrigerant fluids technology.

Skilled technical personnel - electrical engineering

Skilled technical personnel specialising in electrical engineering have the training, professional experience, qualifications and the necessary skills to safely perform actions related to electricity. They can instruct, detect possible dangerous situations independently and implement measures to avoid danger.

Their skills include experience in using electrical systems, measurement and control technology, and knowledge of local laws, standards and guidelines for electrical technology.

Skilled technical personnel – customer service

Skilled technical personnel specialising in customer service have the skills and qualifications mentioned above. Skilled technical personnel specialising in customer service must be authorised and have documented proof of training for working on the product.

2.4 Explanation of the symbols

The symbols used below indicate safety-relevant and important information which must be followed when handling the product and ensure safe and optimum operation.

Symbol	Description / explanation
	General warning symbol (danger, warning, caution)
	Danger: pressurized system
	Danger: electric voltage
	Warning: hot surfaces
	Follow the installation and operating manual
	General mandatory sign
	Wear safety footwear
	Use respiratory protection, class FFP 3 protection (particle-filtering half mask)
	Use self-contained respiratory protection
	Use protective gloves (cut-proof, liquid-resistant, chemicals-proof)
	Wear safety goggles with side shields
	General information

2.5 Safety instructions and warning notices

This section provides an overview of important safety aspects for personal protection, the safe and problem-free operation of the product and accessories.

The following sections list the dangers posed by this product and accessories even if used correctly. To minimise the risk of personal injury and damage to property and avoid dangerous situations, follow the safety instructions and warning notices in the other sections of this manual.

Basic warning notices and the necessary qualifications of skilled technical personnel are listed at the beginning of the "Warning notices" section.

Warning notices related to specific actions are printed directly before potentially hazardous procedures or sequences of actions.

2.5.1 General applicable safety instructions

- Before starting work, refer to the system's technical documentation and follow the operating instructions.
- Carry out a risk assessment before starting work on site (last minute risk assessment).
- Use suitable personal protective equipment (PPE) for work.
- Set up a safety area around the working area during installation, maintenance and repair work.
- Use existing plant-specific Lockout Tagout (LOTO) procedure for safe shutdown and isolation from energy hazards.

2.5.2 Safe operation

The following actions may result in serious personal injury or death:

- Commissioning and operation of the product and accessories outside the permissible limit values and operating parameters.
- Unauthorised interference and modifications of the product and accessories.
- To guarantee safe operation of the product and accessories, follow these instructions:
  1. Observe the limits and operating parameters specified in the type plate and manual.
  2. Check whether the permissible operating parameters have been changed or restricted by accessories.
  3. Observe the assembly and ambient conditions.
  4. Comply with maintenance intervals.

2.5.3 Pressurized systems

The following may result in serious personal injury or death:

- Contact with fast or suddenly escaping fluids.
- Bursting system parts.
- Whipping movements of pressurized hoses and pipes during separation.

To safely handle pressurized systems, follow these instructions:

- Observe the following safety rules during work:
  1. Shut down the system or system section.
  2. Secure the system or system section against restarting.
  3. Reduce the pressure in the system or system sections to ambient pressure.
     e.g. by slowly releasing the pressure in a controlled manner via relief valves.
  4. Prevent pressure being re-applied.
- Check pressurized systems for safety, contamination and possible damage.
- Before pressurisation, check all system connections for leak tightness and tighten if necessary.
- Pressurise systems slowly.
- Avoid pressure blows and high differential pressures.
- Compensate any vibrations occurring in the pipe network by using vibration dampers.

2.5.4 Electric voltage

Contact with live components may result in serious personal injuries or death.

To safely handle live components, follow these instructions:

- Connect the product and accessories to the voltage supply only if they are undamaged.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- Comply with local applicable regulations and requirements during installation.
- Provide a circuit breaker in the power supply within easy reach of the product. The circuit breaker disconnects current-carrying conductors.
- Connect the protective conductor (earth connection) under regulations.
- Operate the product and accessories with the cover complete and closed and the electronics housing closed.
- Before starting work on the product:
  1. Disconnect.
     → Disconnect the product from all poles and sides.
  2. Secure against restarting.
  3. Determine the absence of voltage at all poles.
     → With suitable and permissible measuring device (e.g. voltage tester).
  4. Earth and short circuit.

2.5.5 Transport and storage

Incorrect transport or storage may result in personal injury or damage to property.

For safe transport and storage of the product and accessories, follow these instructions:

- Handle the packaging, product and accessories carefully.
- Transport and handle the packaged product and accessories according to the markings on the packaging (note lifting gear attachment points, the centre of gravity and alignment e.g. keep vertical, do not throw, etc.).
- Use means of transport and lifting equipment that is working properly.
- Comply with permissible storage parameters.
- Store the product and accessories outside areas exposed to direct sunlight and heat sources.

2.5.6 Installation

Incorrect assembly or electrical installation of the product and accessories may result in personal injury and damage to property and impair operation.

For safe assembly and electrical installation, follow these instructions:

- Assemble the product, parts, accessories and materials so they are free from mechanical stress.
- Check the plug-type connections for a correct fit.
- Avoid tripping risks by routing cables and hoses properly.
- Avoid mechanical strain on the cables.
- Fix and fasten hoses so they do not dangle.
- Install air inlet/outlet and drain lines as fixed pipes.
- Install an appropriate separating frame to separate the fresh air flow entering the condenser between the hot air flow exiting the product.

2.5.7 Maintenance

Improper performance of maintenance and repair work may result in serious personal injuries or death.

For safe maintenance and repair, follow these instructions:

- Before starting work, depressurise the product and accessories and secure them against unintentional pressurisation.
- Before starting work, disconnect the product and accessories and prevent them from being switched back ON unintentionally.
- The product contains fluorinated greenhouse refrigerant fluid. Observe the requirements indicated on the safety data sheet of the refrigerant fluid during maintenance, repair and emptying operations of the refrigerant circuit.

- Use materials approved for the respective application.
- Use suitable tools that are in proper working order.
- Use cleaned pipes and hoses that are free from dirt and corrosion.
- Never use abrasive or aggressive cleaning agents or solvents which could damage the outer coating (e.g. markings, type plate, corrosion protection, etc.).
- Never clean the product with hard or pointed implements.
- Use the specified materials and media for cleaning.
- Comply with statutory, local and in-house hygiene regulations.
- Pay attention to order and cleanliness during maintenance and repair work. Prevent contamination from entering the opened product and accessories. Store disassembled components and accessories directly in a safe place.
- After completing maintenance and repair work, remove the tools, cleaning agents, and parts that are no longer needed, from the work area.
- Dispose of product and accessories when cleaned and freed of any residue.
- Dispose of components, parts, operating and auxiliary materials and cleaning agents professionally and under local applicable regulations and standards.
- Dispose of electrical and electronic components using a specialist disposal company or return them to the manufacturer.
- Dispose of the refrigerant fluid under applicable national and local regulations and the requirements specified on the safety data sheet of the refrigerant fluid.

2.5.8 Handling hazardous substances

Contact with condensate containing substances which endanger health and the environment can pose a health hazard, causing irritation or damage to the eyes, skin and mucous membranes. Polluted condensate must be prevented from entering the sewerage system, waters or the ground.

To safely handle polluted condensate, follow these instructions:

- Use suitable protective equipment when handling condensate.
- Pick up and dispose of any leaking or spilled condensate under applicable regional laws and requirements.

The product contains fluorinated greenhouse refrigerant fluid. Improper handling of the refrigerant fluid can be harmful to health and cause damage to the environment.

To safely handle refrigerant fluid, follow these instructions:

- Use suitable protective equipment when handling refrigerant fluid. Self contained breathing apparatus is recommended, where unknown exposure may be expected, e.g. during maintenance, repair and dismantling work on refrigerant circuit.
- Pick up and dispose of the refrigerant fluid under national and local applicable regulations. Discharging large quantities of refrigerant into the atmosphere should be avoided.

2.5.9 Spare parts, accessories or materials

Using incorrect spare parts, accessories, materials, auxiliary and operating materials, may result in death or serious injury. Malfunction, device failure or material damage may occur.

- Use undamaged original parts, auxiliary and operating materials which are specified by the manufacturer to complete work.
- Use the materials approved for the related application and tools that are working properly.
- Use cleaned pipes that are free from dirt and corrosion.
- Use electrical components and materials that comply with local applicable specifications and regulations (standards, directives, etc.) for electrical safety.

2.6 Warning notices

Warning notices warn against dangers when handling the product and accessories.

To prevent accidents, personal injury and damage to property and impairments during operation, it is essential to comply with the warning notices.

Structural set up:

SIGNAL WORD	Type and source of danger
 Symbol	Possible consequences if the danger is ignored • Measures to prevent the danger

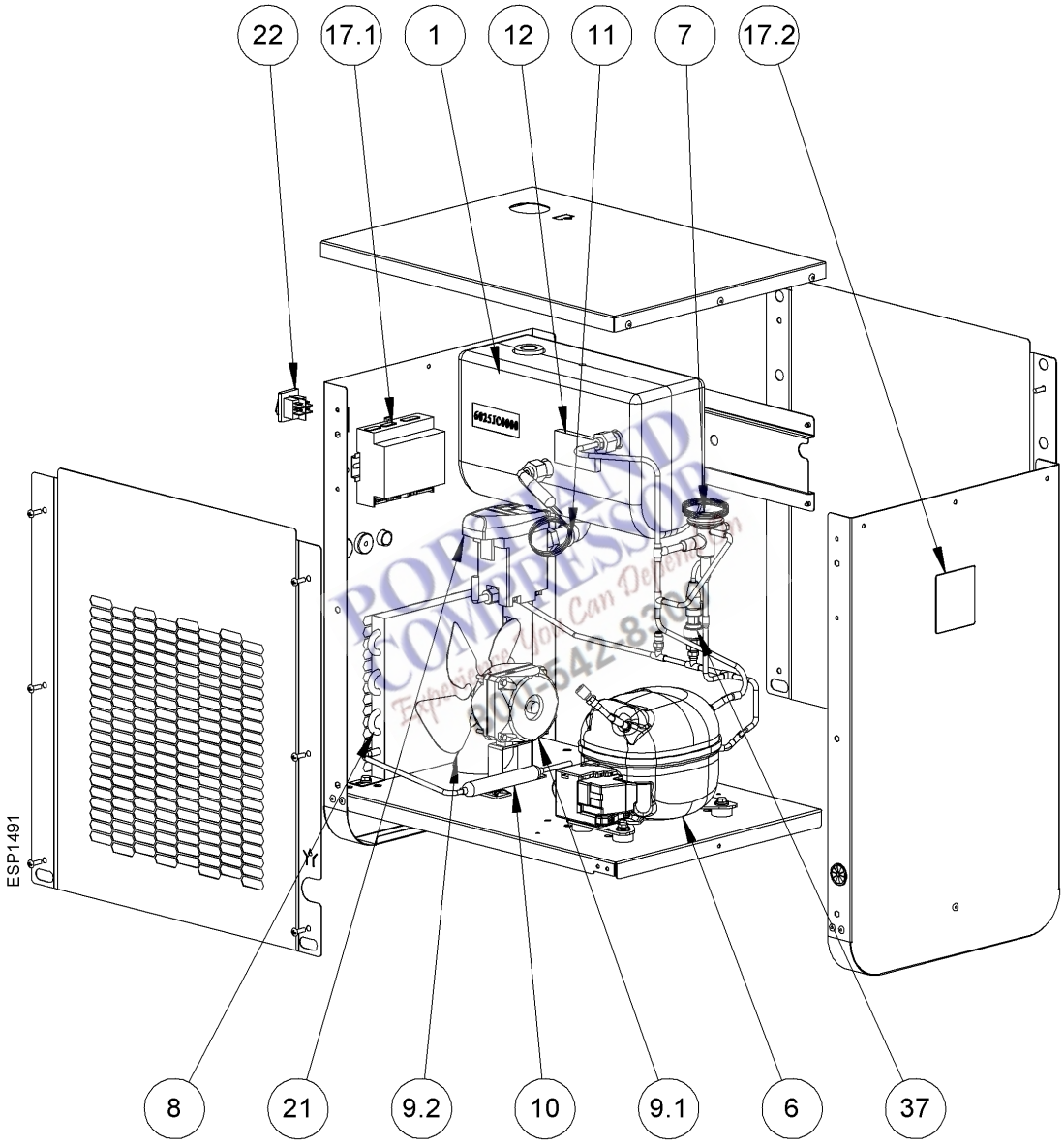
Signal words:

DANGER	**Imminent hazard** Consequences of non-compliance: Death or serious personal injury
WARNING	**Imminent hazard** Consequences of non-compliance: Death or serious personal injuries are possible
CAUTION	**Potential hazard** Consequences of non-compliance: Personal injuries or damage to property are possible
NOTE	**Additional notes** Consequences of non-compliance: Damage to property, malfunction and device failures are possible. No hazard to people or endangerment of safe operation

3. Product information

3.1 Product overview

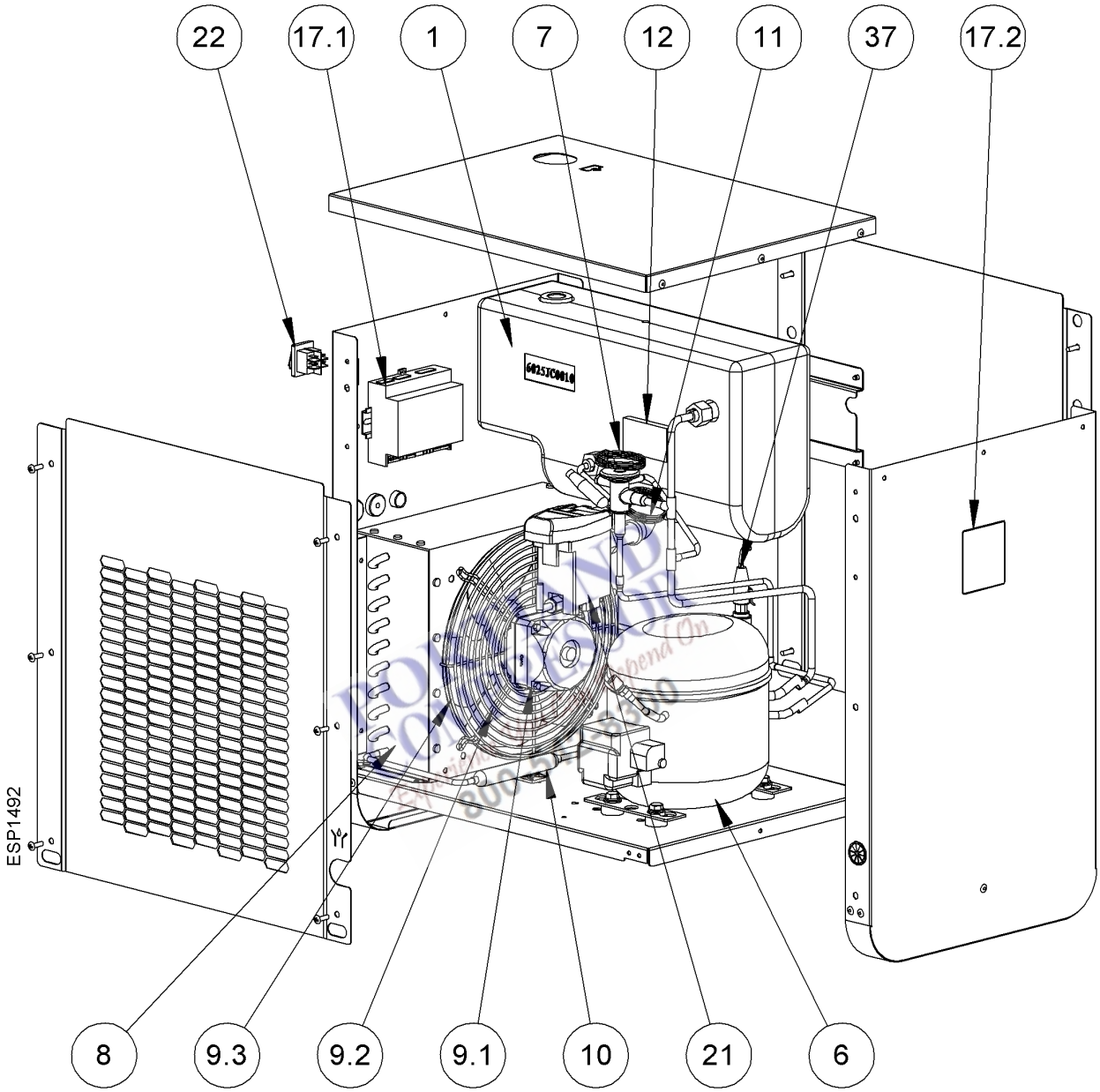
3.1.1 DRYPOINT® RX 10, 20



Pos. No.	Description / explanation
[1]	Heat exchanger
[6]	Refrigerant compressor
[7]	Hot gas by-pass valve
[8]	Condenser
[9.1]	Cooling fan - motor
[9.2]	Cooling fan - blade
[10]	Refrigerant fluid filter

Pos. No.	Description / explanation
[11]	Capillary tube
[12]	Temperature probe BT1
[17.1]	Electronic Control Unit
[17.2]	User Interface
[21]	Condensate drain
[22]	ON-OFF switch
[37]	Pressure transducer BHP

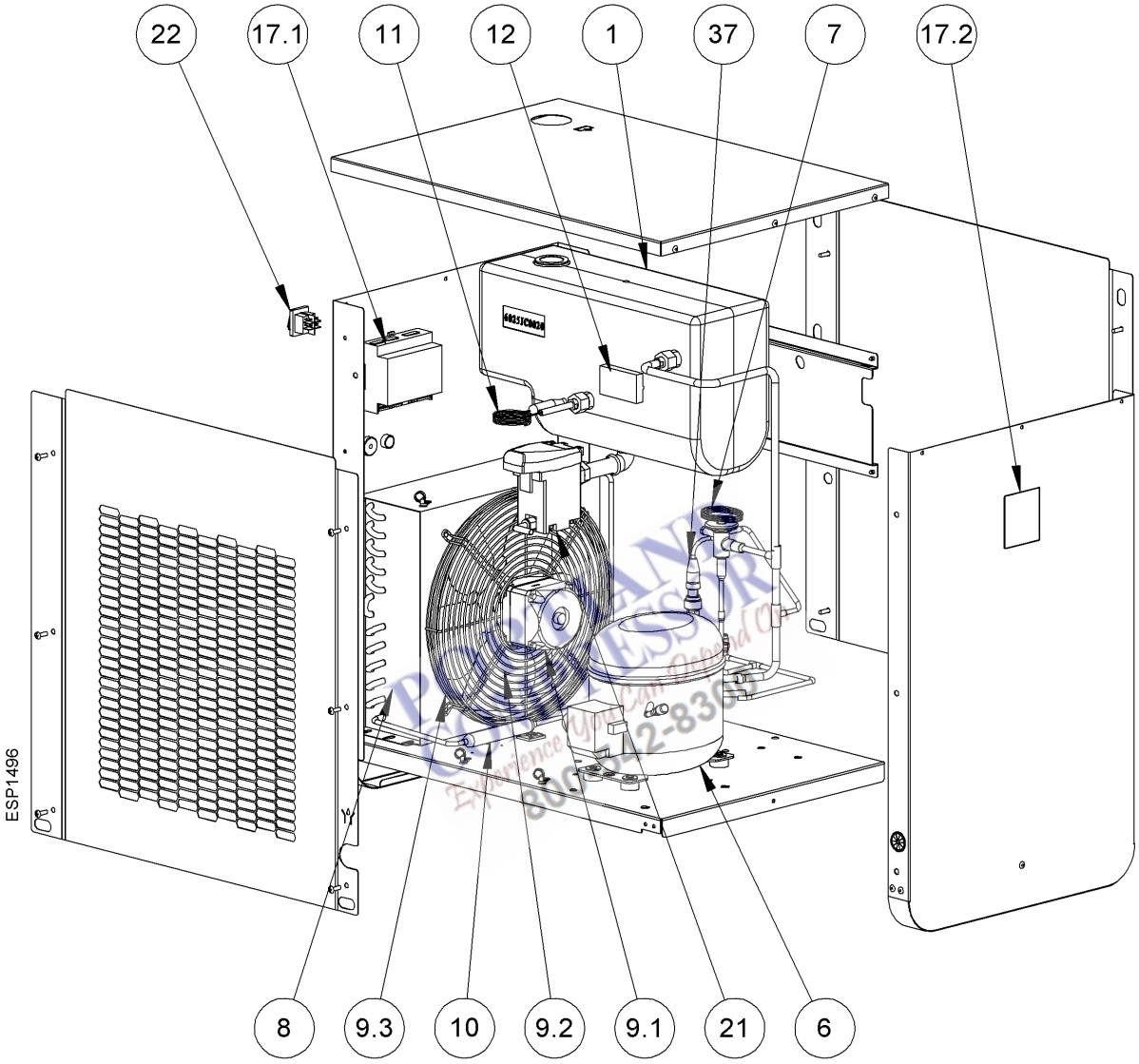
3.1.2 DRYPOINT® RX 30, 60



Pos. No.	Description / explanation
[1]	Heat exchanger
[6]	Refrigerant compressor
[7]	Hot gas by-pass valve
[8]	Condenser
[9.1]	Cooling fan - motor
[9.2]	Cooling fan - blade
[9.3]	Cooling fan - grid
[10]	Refrigerant fluid filter

Pos. No.	Description / explanation
[11]	Capillary tube
[12]	Temperature probe BT1
[17.1]	Electronic Control Unit
[17.2]	User Interface
[21]	Condensate drain
[22]	ON-OFF switch
[37]	Pressure transducer BHP

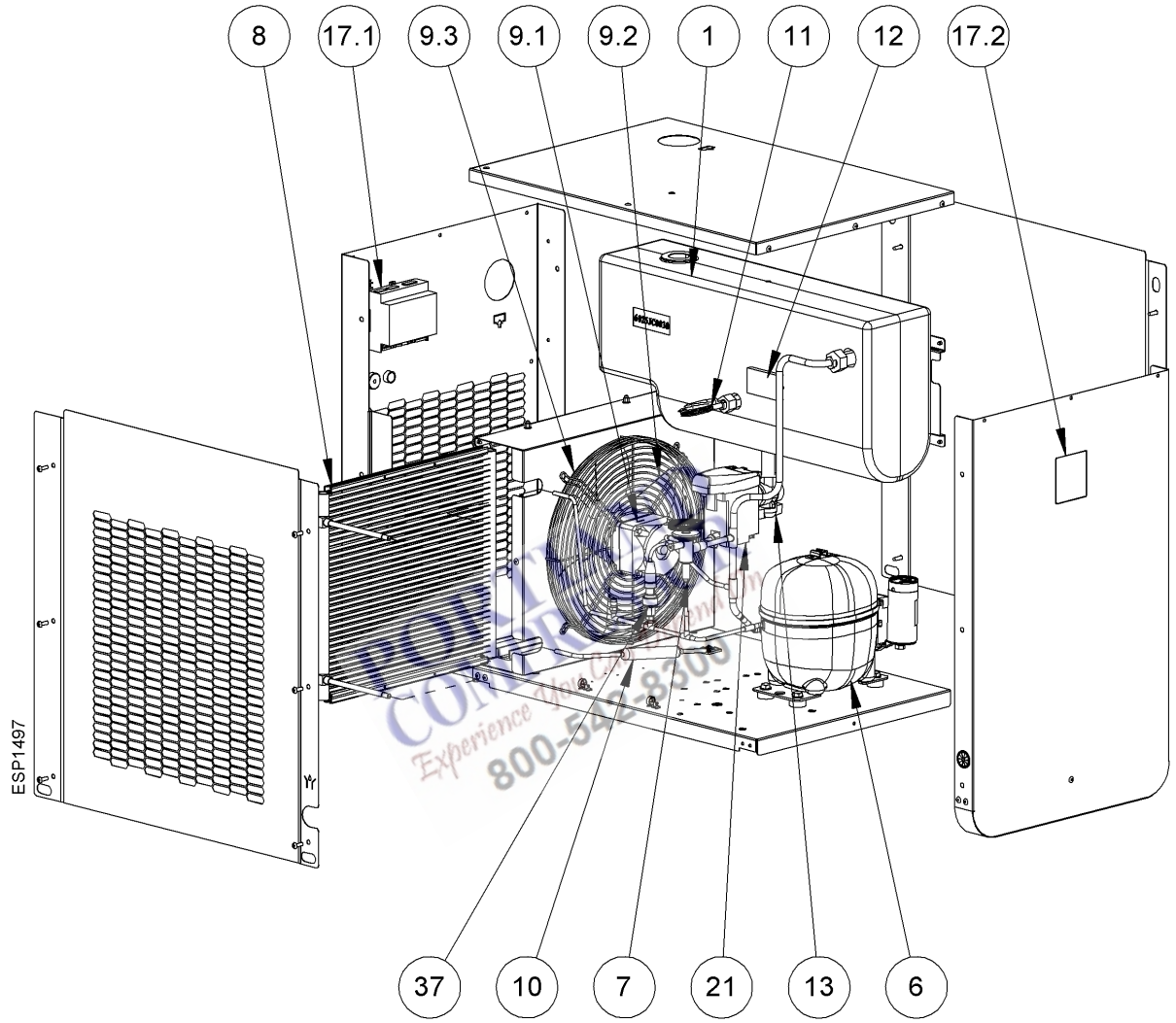
3.1.3 DRYPOINT® RX 70



Pos. No.	Description / explanation
[1]	Heat exchanger
[6]	Refrigerant compressor
[7]	Hot gas by-pass valve
[8]	Condenser
[9.1]	Cooling fan - motor
[9.2]	Cooling fan - blade
[9.3]	Cooling fan - grid
[10]	Refrigerant fluid filter

Pos. No.	Description / explanation
[11]	Capillary tube
[12]	Temperature probe BT1
[17.1]	Electronic Control Unit
[17.2]	User Interface
[21]	Condensate drain
[22]	ON-OFF switch
[37]	Pressure transducer BHP

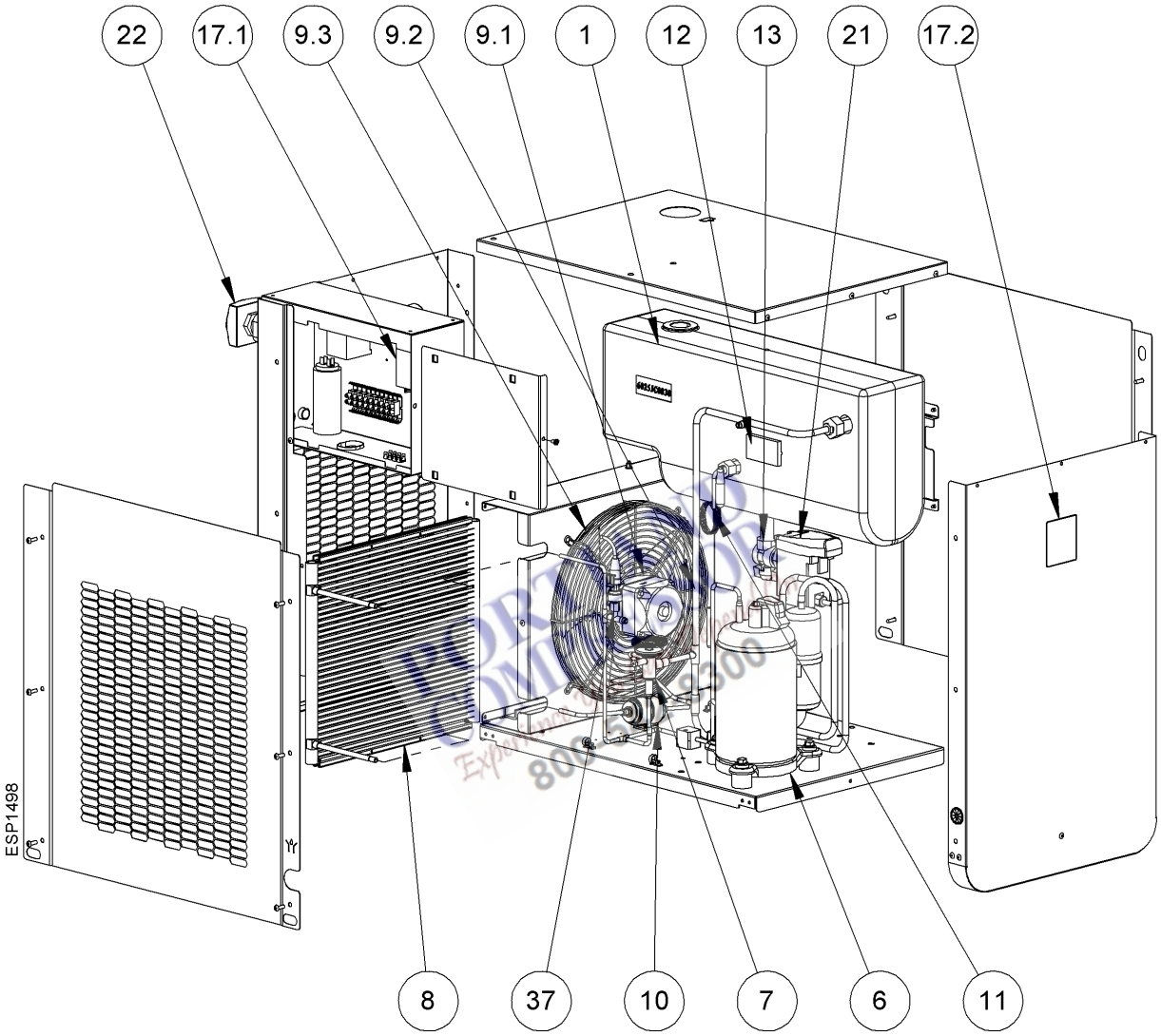
3.1.4 DRYPOINT® RX 100



Pos. No.	Description / explanation
[1]	Heat exchanger
[6]	Refrigerant compressor
[7]	Hot gas by-pass valve
[8]	Condenser
[9.1]	Cooling fan - motor
[9.2]	Cooling fan - blade
[9.3]	Cooling fan - grid
[10]	Refrigerant fluid filter

Pos. No.	Description / explanation
[11]	Capillary tube
[12]	Temperature probe BT1
[13]	Condensate drain service valve
[17.1]	Electronic Control Unit
[17.2]	User Interface
[21]	Condensate drain
[22]	ON-OFF switch
[37]	Pressure transducer BHP

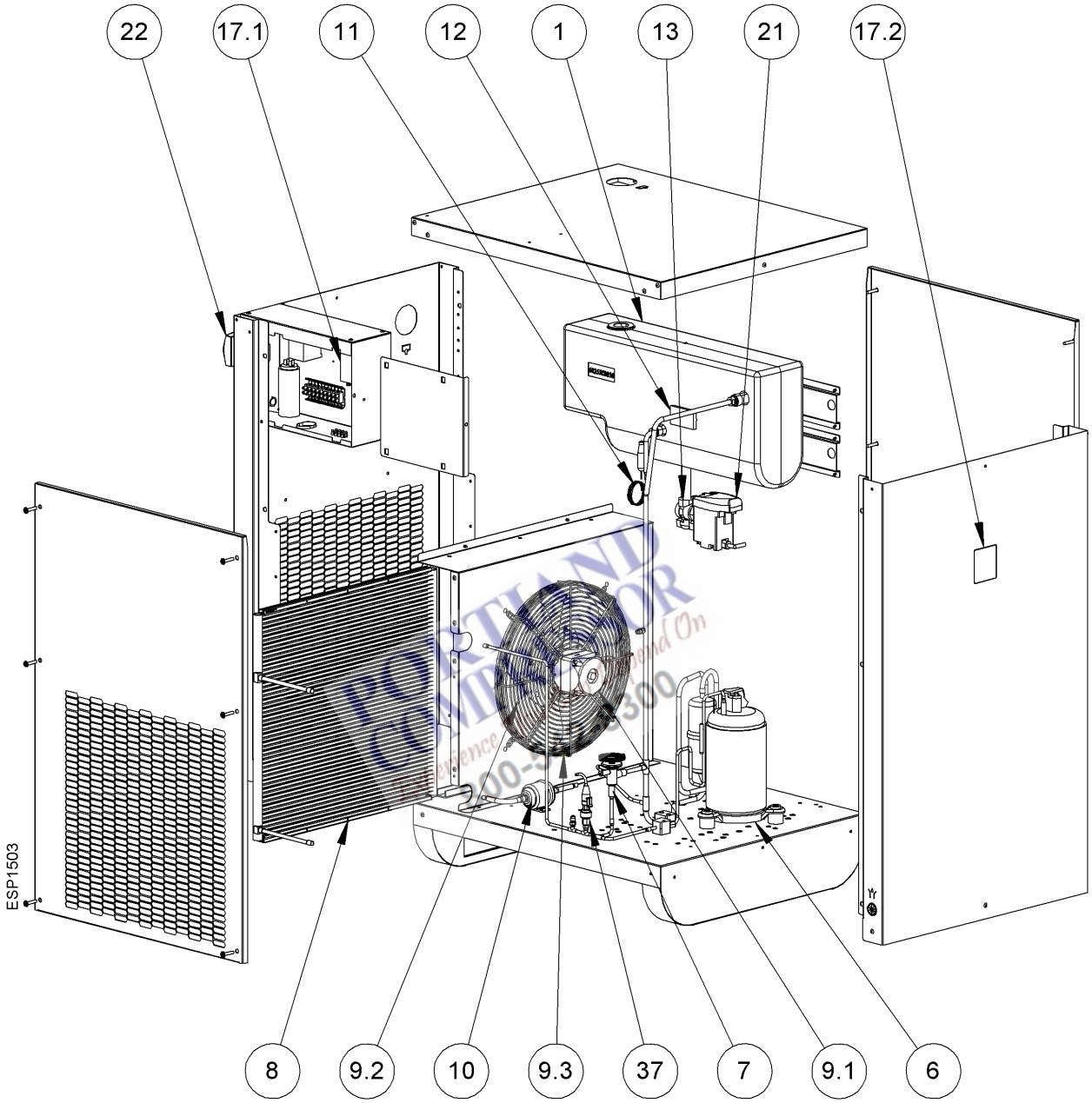
3.1.5 DRYPOINT® RX 125, 150



Pos. No.	Description / explanation
[1]	Heat exchanger
[6]	Refrigerant compressor
[7]	Hot gas by-pass valves
[8]	Condenser
[9.1]	Cooling fan - motor
[9.2]	Cooling fan - blade
[9.3]	Cooling fan - grid
[10]	Refrigerant fluid filter

Pos. No.	Description / explanation
[11]	Capillary tube
[12]	Temperature probe BT1
[13]	Condensate drain service valve
[17.1]	Electronic Control Unit
[17.2]	User Interface
[21]	Condensate drain
[22]	ON-OFF switch
[37]	Pressure transducer BHP

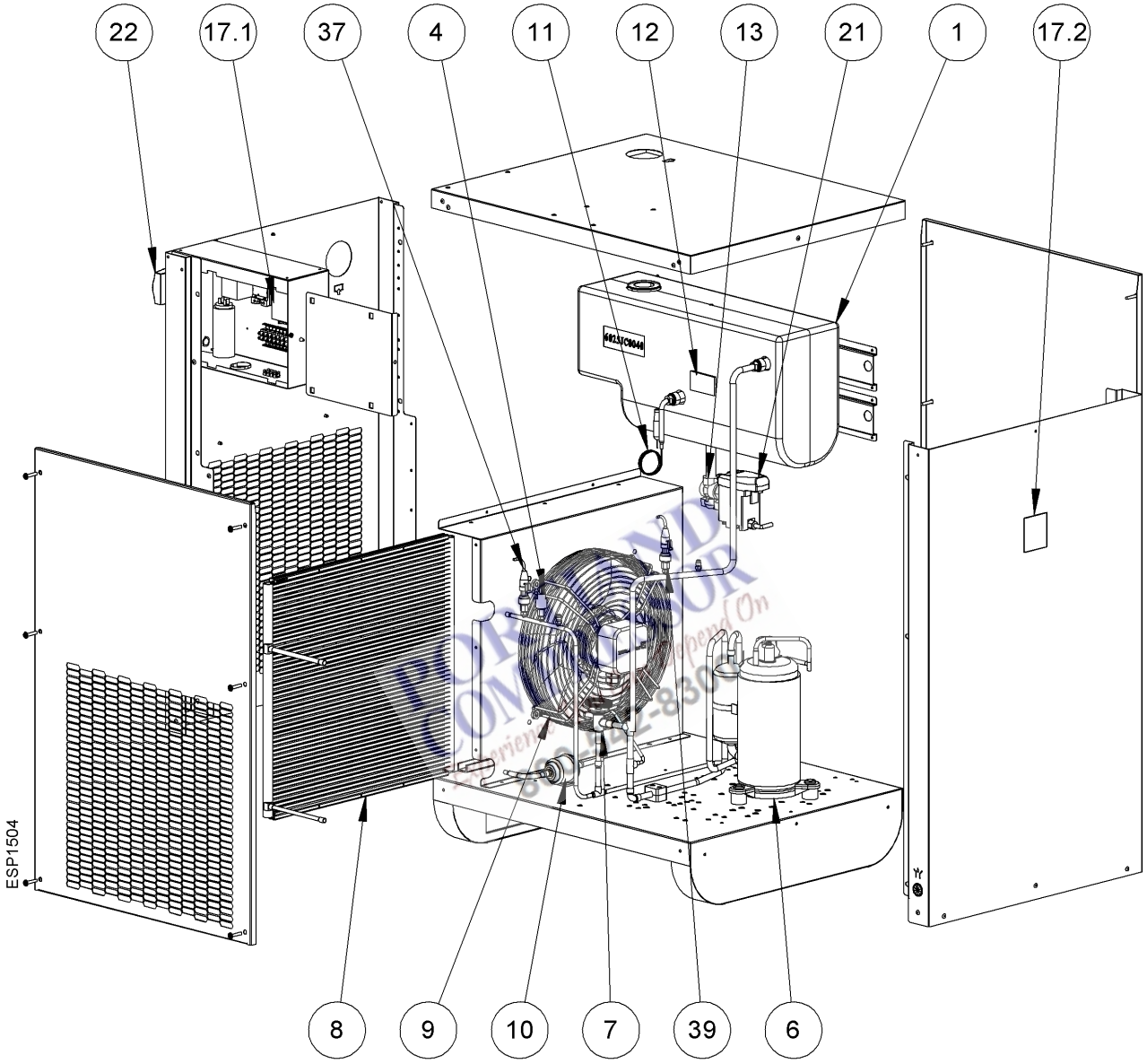
3.1.6 DRYPOINT® RX 200, 250



Pos. No.	Description / explanation
[1]	Heat exchanger
[6]	Refrigerant compressor
[7]	Hot gas by-pass valves
[8]	Condenser
[9.1]	Cooling fan - motor
[9.2]	Cooling fan - blade
[9.3]	Cooling fan - grid
[10]	Refrigerant fluid filter

Pos. No.	Description / explanation
[11]	Capillary tube
[12]	Temperature probe BT1
[13]	Condensate drain service valve
[17.1]	Electronic Control Unit
[17.2]	User Interface
[21]	Condensate drain
[22]	ON-OFF switch
[37]	Pressure transducer BHP

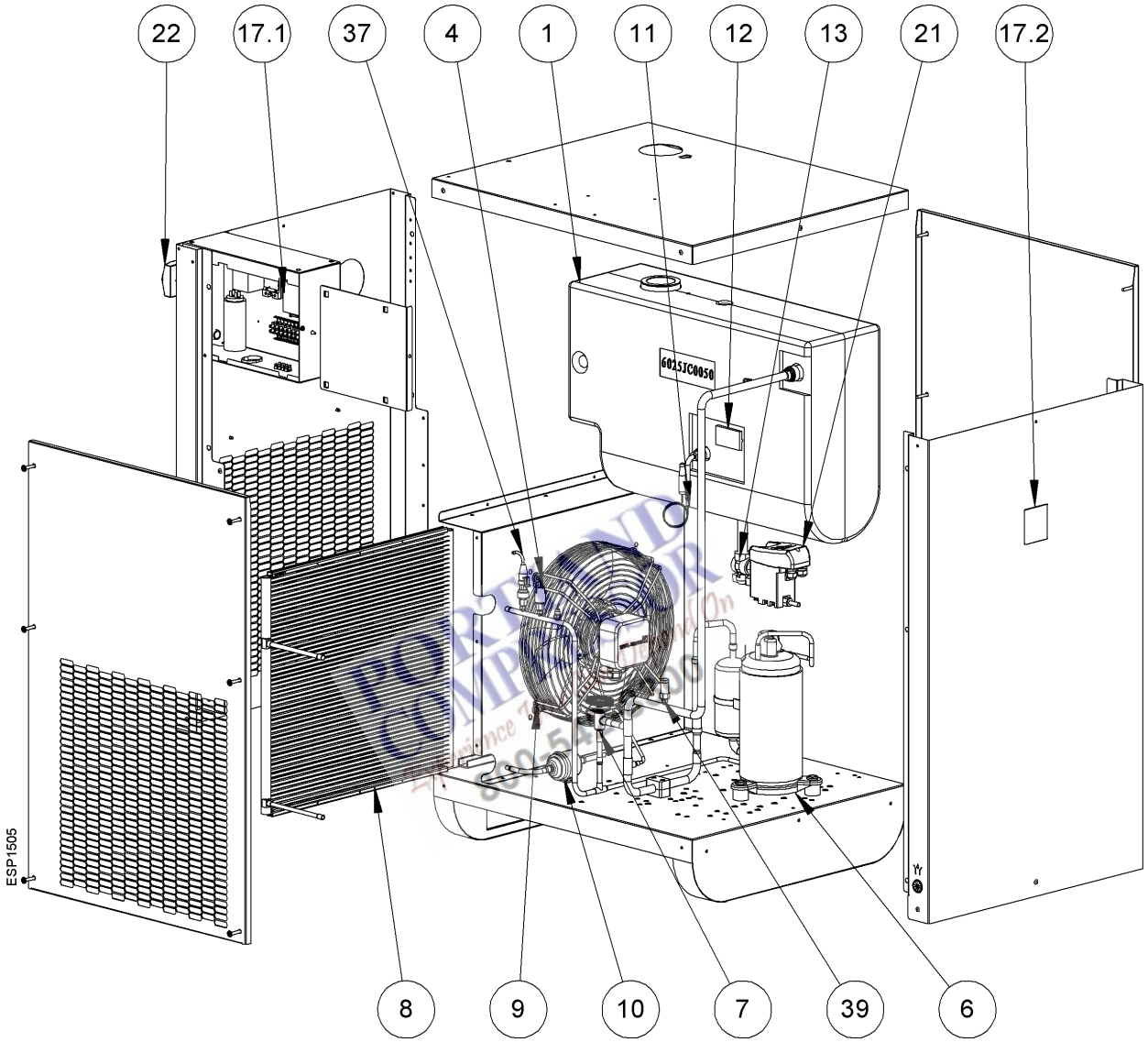
3.1.7 DRYPOINT® RX 300



Pos. No.	Description / explanation
[1]	Heat exchanger
[4]	High pressure switch HPS
[6]	Refrigerant compressor
[7]	Hot gas by-pass valves
[8]	Condenser
[9]	Cooling fan
[10]	Refrigerant fluid filter
[11]	Capillary tube

Pos. No.	Description / explanation
[12]	Temperature probe BT1
[13]	Condensate drain service valve
[17.1]	Electronic Control Unit
[17.2]	User Interface
[21]	Condensate drain
[22]	ON-OFF switch
[37]	Pressure transducer BHP
[39]	Pressure transducer BLP

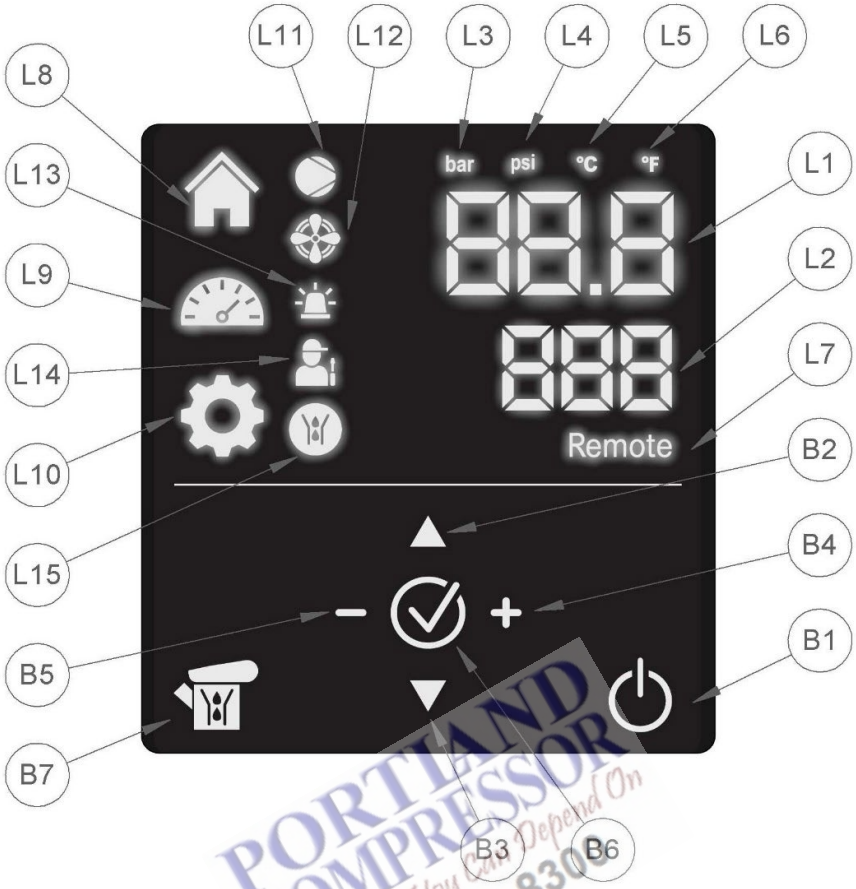
3.1.8 DRYPOINT® RX 350, 450



Pos. No.	Description / explanation
[1]	Heat exchanger
[4]	High pressure switch HPS
[6]	Refrigerant compressor
[7]	Hot gas by-pass valve
[8]	Condenser
[9]	Cooling fan
[10]	Refrigerant fluid filter
[11]	Capillary tube

Pos. No.	Description / explanation
[12]	Temperature probe BT1
[13]	Condensate drain service valve
[17.1]	Electronic Control Unit
[17.2]	User Interface
[21]	Condensate drain
[22]	ON-OFF switch
[37]	Pressure transducer BHP
[39]	Pressure transducer BLP

3.2 User Interface

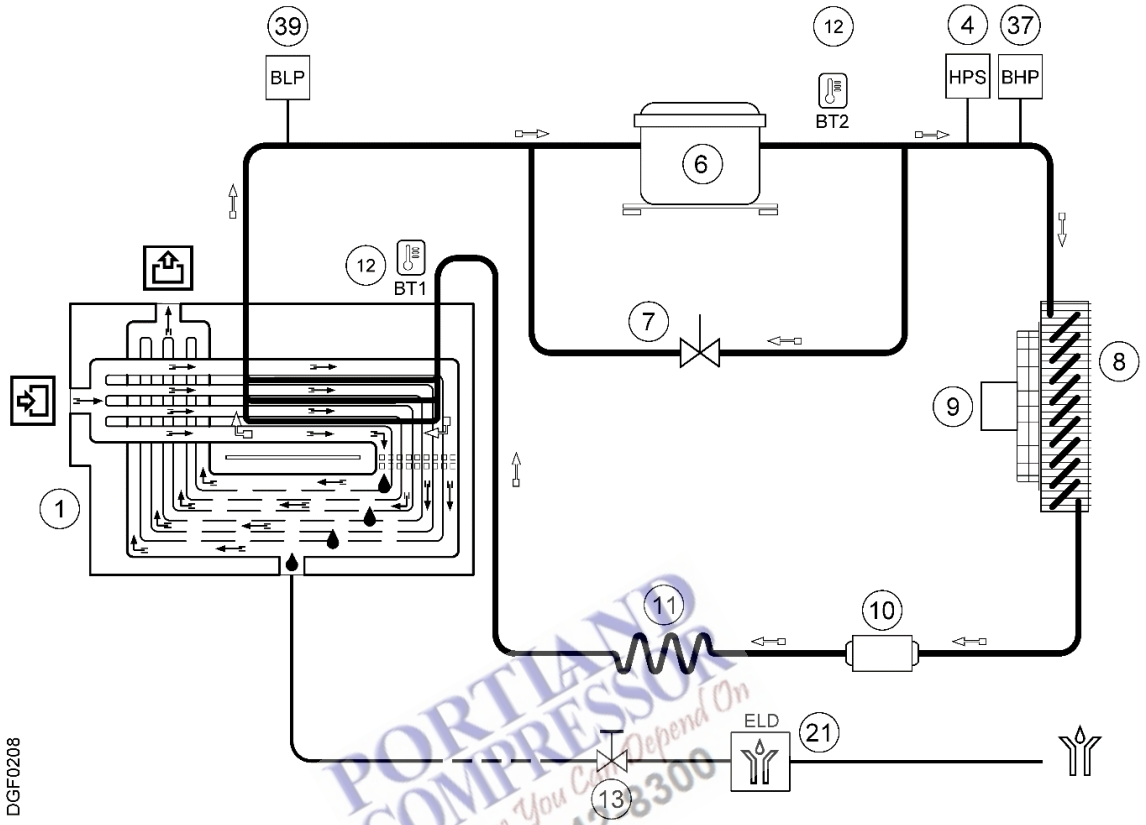


Display elements	
Pos. No.	**Description / explanation**
[L1]	MAIN 7-segment display
[L2]	SECONDARY 7-segment display
[L3]	PRESSURE status LED IN BAR
[L4]	PRESSURE status LED IN PSI
[L5]	TEMPERATURE status LED IN °C
[L6]	TEMPERATURE status LED IN °F
[L7]	REMOTE MODE status LED
[L8]	HOME status LED
[L9]	LIVE DATA status LED
[L10]	SETUP status LED
[L11]	REFRIGERANT COMPRESSOR status LED
[L12]	COOLING FAN status LED
[L13]	ALARM status LED
[L14]	WARNING status LED
[L15]	CONDENSATE DRAIN status LED

Controls	
Pos. No.	**Description / explanation**
[B1]	START-STOP button
[B2]	NAVIGATION UP button
[B3]	NAVIGATION DOWN button
[B4]	INCREASE button
[B5]	DECREASE button
[B6]	ENTER/CONFIRM button
[B7]	CONDENSATE DRAIN TEST button

3.3 Function description

3.3.1 Flow diagram



3.3.2 Compressed air flow

The hot, humid air enters the heat exchanger **[1]**, cools and reaches a temperature of approximately 36°F (2°C). At this temperature, the humidity present in the air changes to a liquid state, precipitates to the bottom of the exchanger **[1]** and is expelled through the automatic condensate drain **[21]**. The cold, dry air is then channelled and heated again until it reaches a temperature at the outlet of the exchanger that is approximately 8°C lower than the incoming air temperature.

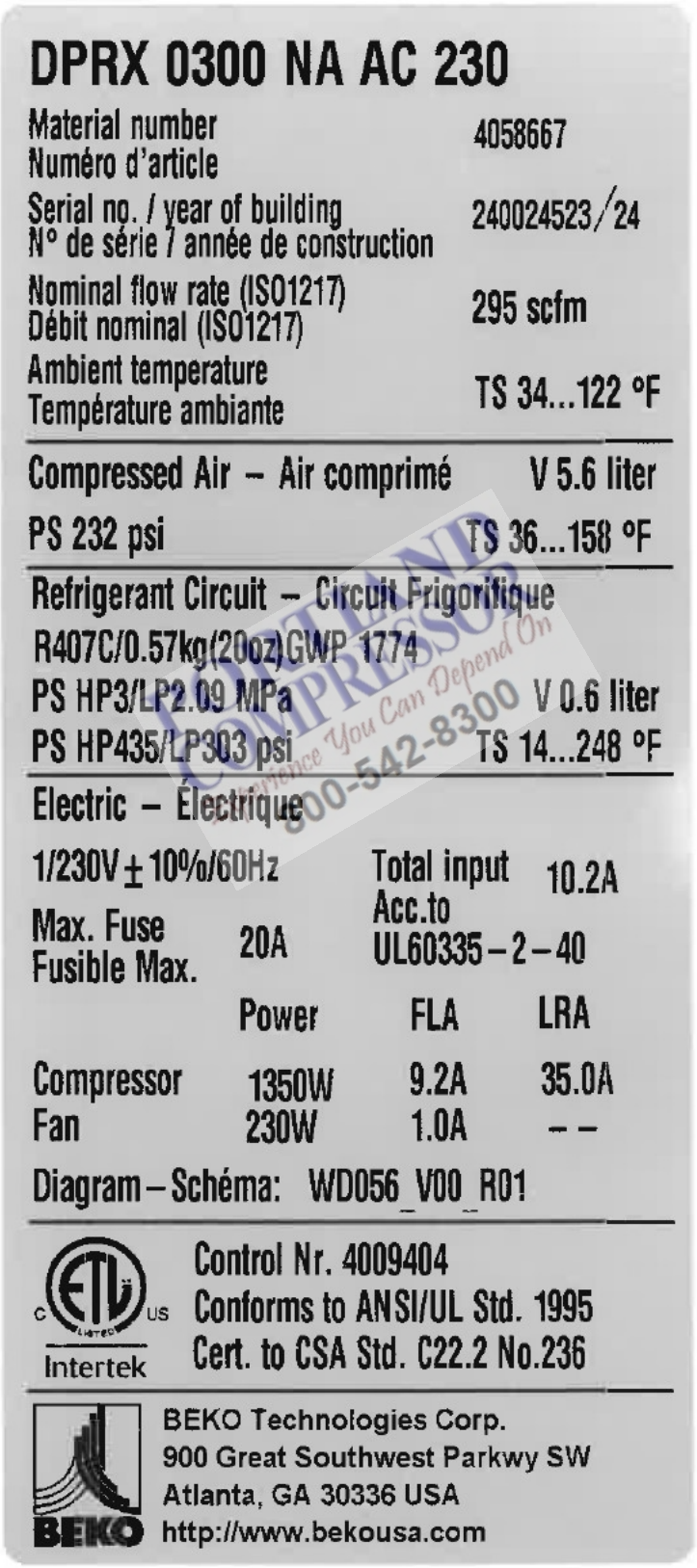
3.3.3 Refrigerating cycle

The refrigerant compressor **[6]** compresses the refrigerant fluid and conveys it at high pressure towards the condenser **[8]** inside which the gas cools and becomes liquid at high pressure. The liquid refrigerant passes through the refrigerant fluid filter **[10]** and the capillary tube **[11]** where, due to the pressure drop, it reaches the preset temperature. The low pressure liquid refrigerant enters the heat exchanger **[1]** and the heat present in the environment is transferred to the liquid refrigerant causing its evaporation. The low pressure and low temperature refrigerant fluid then returns to the refrigerator compressor **[6]** where it is further compressed and the cycle repeats.

If there is low thermal load (compressed air at a flow rate lower than the dryer nominal flow rate), the excess refrigerant is automatically diverted from the delivery side by the refrigeration compressor **[6]** towards the suction side via the hot gas by-pass valve [7].

3.4 Type plate

3.4.1 Type plate of DRYPOINT® RX 300



3.5 Scope of delivery

Illustration	Description / explanation
	**DRYPOINT® RX**
	Installation and operating manual

4. Technical data

4.1 Operating parameters

INFORMATION	Nominal conditions
	The nominal condition refers to an ambient temperature of 100°F (38°C) with inlet air at 100 psig (7 barg) and 100°F (38°C).

INFORMATION	Refrigerant quantity
	Refrigerant quantity stated below is the design value. The type plate records the quantity of refrigerant used in each device.

Operating parameters		
Parameter	**Unit**	**Value**
Pressure dew point at nominal conditions	°F (°C)	+41.0 (+5)
Nominal ambient temperature		+100.4 (+38)
Min. ... max. ambient temperature		+33.8 ... +122.0 (+1 ... +50)
Nominal inlet air temperature		+100.4 (+38)
Max. inlet air temperature		+158.0 (+70)
Nominal inlet air pressure	psi(g) (bar(g))	101.53 (7)
Max. inlet air pressure		232.06 (16)
Refrigerant fluid	Type	R134a, models 10 – 100
		R407C, models 125 – 450
Max. noise level at 1 m	dbA	< 70

4.1.1 DRYPOINT® RX 10 ... 60

Parameter	Unit	DRYPOINT® RX				
		10	20	30	50	60
Air flow rate at nominal conditions	scfm	10	20	30	50	60
	m³/h	17	34	51	85	102
	l/min	283	566	849	1415	1698
Air pressure drop	psi (bar)	0.44 (0.03)	1.16 (0.08)	0.87 (0.06)	1.89 (0.13)	0.87 (0.06)
Cooling air fan flow	cfm (m³/h)	176.6 (300)				
Heat rejection	btu/hr (kW)	2525 (0.74)	3753 (1.10)	3753 (1.10)	4777 (1.40)	9213 (2.70)
Refrigerant quantity	oz (kg)	4.½ (0.13)		8 (0.23)	8.¾ (0.25)	13.¾ (0.39)
Power supply	V/ph/f	115/1/60				
Nominal power	kW	0.18	0.28		0.36	0.61
Nominal current	A	2.1	3.3		3.8	7.0
Total input current	A	2.7	4.0		4.0	8.6
Minimum Circuit Ampacity (MCA)	A	3.4	4.9		4.9	10.6
Maximum rating of Overcurrent Protective device (MOP)	A	5.9	8.4		8.4	19.0
Fuse max.	A	5	8		8	15

4.1.2 DRYPOINT® RX 70 ... 150

Parameter	Unit	DRYPOINT® RX					
		70	100	125		150	
Air flow rate at nominal conditions	scfm	70	100	125		150	
	m³/h	119	170	212		255	
	l/min	1981	2830	3538		4245	
Air pressure drop	psi (bar)	0.73 (0.05)	0.58 (0.04)	0.73 (0.05)		1.02 (0.07)	
Cooling air fan flow	cfm (m³/h)	353.1 (600)					
Heat rejection	btu/hr (kW)	9213 (2.70)	11260 (3.30)	15355 (4.50)	14672 (4.30)	15355 (4.50)	14672 (4.30)
Refrigerant quantity	oz (kg)	13.¾ (0.39)	10.½ (0.30)	12.¼ (0.35)			
Power supply	V/ph/f	115/1/60		115 1/60	230 1/60	115 1/60	230 1/60
Nominal power	kW	0.64	0.95	0.95		0.96	
Nominal current	A	6.9	8.7	8.7	4.2	8.8	4.3
Total input current	A	8.9	10.1	10.2	5.3	10.2	5.3
Minimum Circuit Ampacity (MCA)	A	10.9	12.4	12.6	6.5	12.6	6.5
Maximum rating of Overcurrent Protective device (MOP)	A	19.0	21.7	22.1	11.2	22.1	11.2
Fuse max.	A	15	20	20	10	20	10

4.1.3 DRYPOINT® RX 200 ... 450

Parameter	Unit	DRYPOINT® RX					
		200	250	300	350	450	
Air flow rate at nominal conditions	scfm	190	250	295	350	460	
	m³/h	323	425	501	594	781	
	l/min	5377	7075	8349	9905	13018	
Air pressure drop	psi (bar)	1.45 (0.10)	1.02 (0.07)	1.45 (0.10)	0.87 (0.06)	1.45 (0.10)	
Cooling air fan flow	cfm (m³/h)	529.7 (900)		1589.2 (2700)			
Heat rejection	btu/hr (kW)	15355 (4.50)	14672 (4.30)	19449 (5.70)	22861 (6.70)	22861 (6.70)	30709 (9.0)
Refrigerant quantity	oz (kg)	17.¾ (0.50)		19.½ (0.55)	20 (0.57)	28.¼ (0.80)	
Power supply	V/ph/f	115 1/60	230 1/60	230/1/60			
Nominal power	kW	0.96		1.30	1.60		2.60
Nominal current	A	8.8	4.3	5.8	7.4	7.2	12.0
Total input current	A	10.2	5.2	5.3	8.6	8.6	11.6
Minimum Circuit Ampacity (MCA)	A	12.6	6.4	6.6	10.5	10.5	14.3
Maximum rating of Overcurrent Protective device (MOP)	A	22.1	11.1	11.5	18.1	18.1	24.9
Fuse max.	A	20	10	10	15	15	20

4.2 Correction factors

Corrections factors (CF)											
Parameter	**Unit**	**Value**									
Ambient temperature	°F (°C)	≤ +80.6 (+27)	+89.6 (+32)	+95.0 (+35)	+100.4 (+38)	+104.0 (+40)	+109.4 (+43)	+113.0 (+45)	+122.0 (+50)	-	-
CF	-	1.11	1.09	1.06	1.00	0.94	0.87	0.78	0.69	-	-
Inlet air temperature	°F (°C)	≤ +89.6 (+32)	+100.4 (+38)	+109.4 (+43)	+122.0 (+50)	+131.0 (+55)	+140.0 (+60)	+149.0 (+65)	+158.0 (+70)	-	-
CF	-	1.16	1.00	0.82	0.68	0.61	0.52	0.45	0.40	-	-
Inlet air pressure	psig (barg)	58.02 (4)	79.77 (5.5)	101.53 (7)	116.03 (8)	145.38 (10)	159.54 (11)	174.05 (12)	203.05 (14)	217.56 (15)	232.06 (16)
CF	-	0.79	0.91	1.00	1.07	1.13	1.18	1.23	1.27	1.30	1.33

4.3 Storage parameters

Parameter	Unit	DRYPOINT® RX				
		10	20	30	50	60
Min ... max temperature	°F (°C)	+33.8 ... +122.0 (+1 ... +50)				
Relative humidity	%	Max 80% without condensation				
Weight	lbs (kg)	60 (27)	60 (27)	71 (32)	77 (35)	82 (37)

Parameter	Unit	DRYPOINT® RX			
		70	100	125	150
Min ... max temperature	°F (°C)	+33.8 ... +122.0 (+1 ... +50)			
Relative humidity	%	Max 80% without condensation			
Weight	lbs (kg)	106 (48)	108 (49)	110 (50)	110 (50)

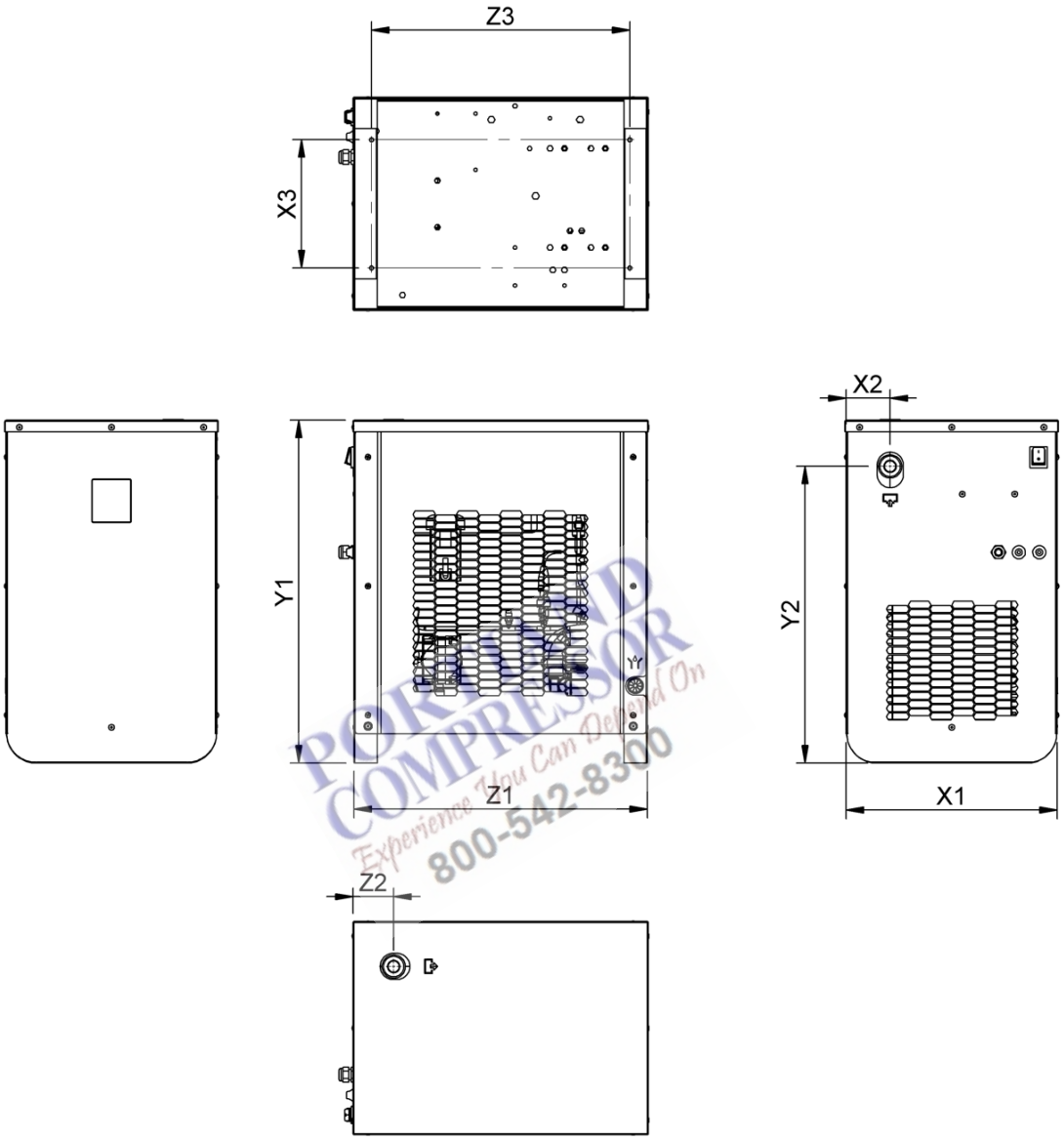
Parameter	Unit	DRYPOINT® RX				
		200	250	300	350	450
Min ... max temperature	°F (°C)	+33.8 ... +122.0 (+1 ... +50)				
Relative humidity	%	Max 80% without condensation				
Weight	lbs (kg)	174 (79)	179 (81)	194 (88)	220 (100)	243 (110)

4.4 Materials

Component	Material
Housing and supports	Structural steel, epoxy paint
Refrigerant compressor	Steel, copper, aluminium, oil
Heat exchanger	Aluminium
Condenser	Aluminium, copper, structural steel
Pipes	Copper
Fan	Aluminium, copper, steel
Valves	Brass, steel
BEKOMAT® condensate drain	Aluminium, plastic mix and electronics
Insulating material	Synthetic rubber, polystyrene, polyurethane
Electronic Control Unit	Plastic mix and electronics
Electric cables, electric parts	Copper, brass, PVC, plastic mix

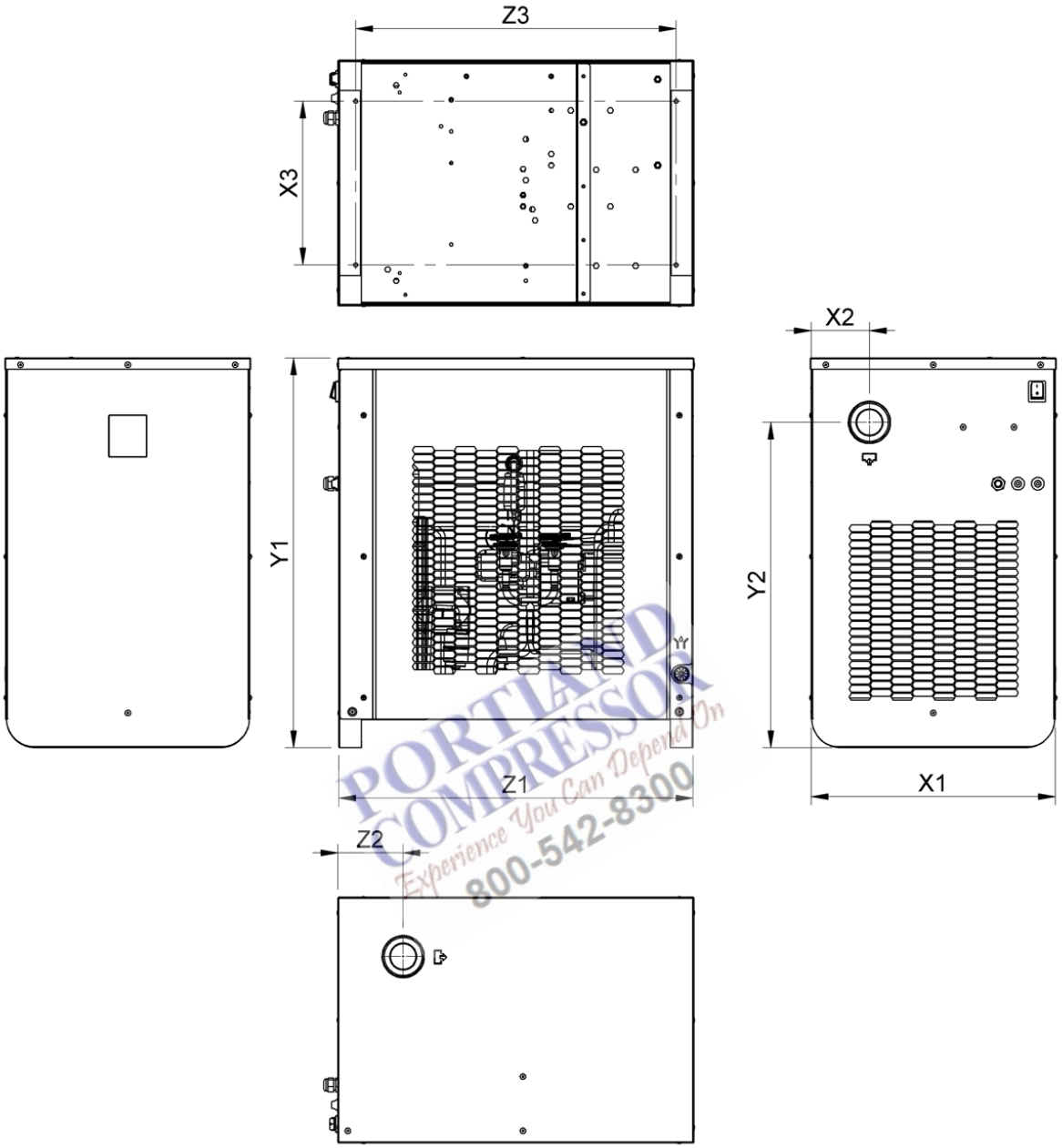
4.5 Dimensions

4.5.1 DRYPOINT® RX 10 ... 60



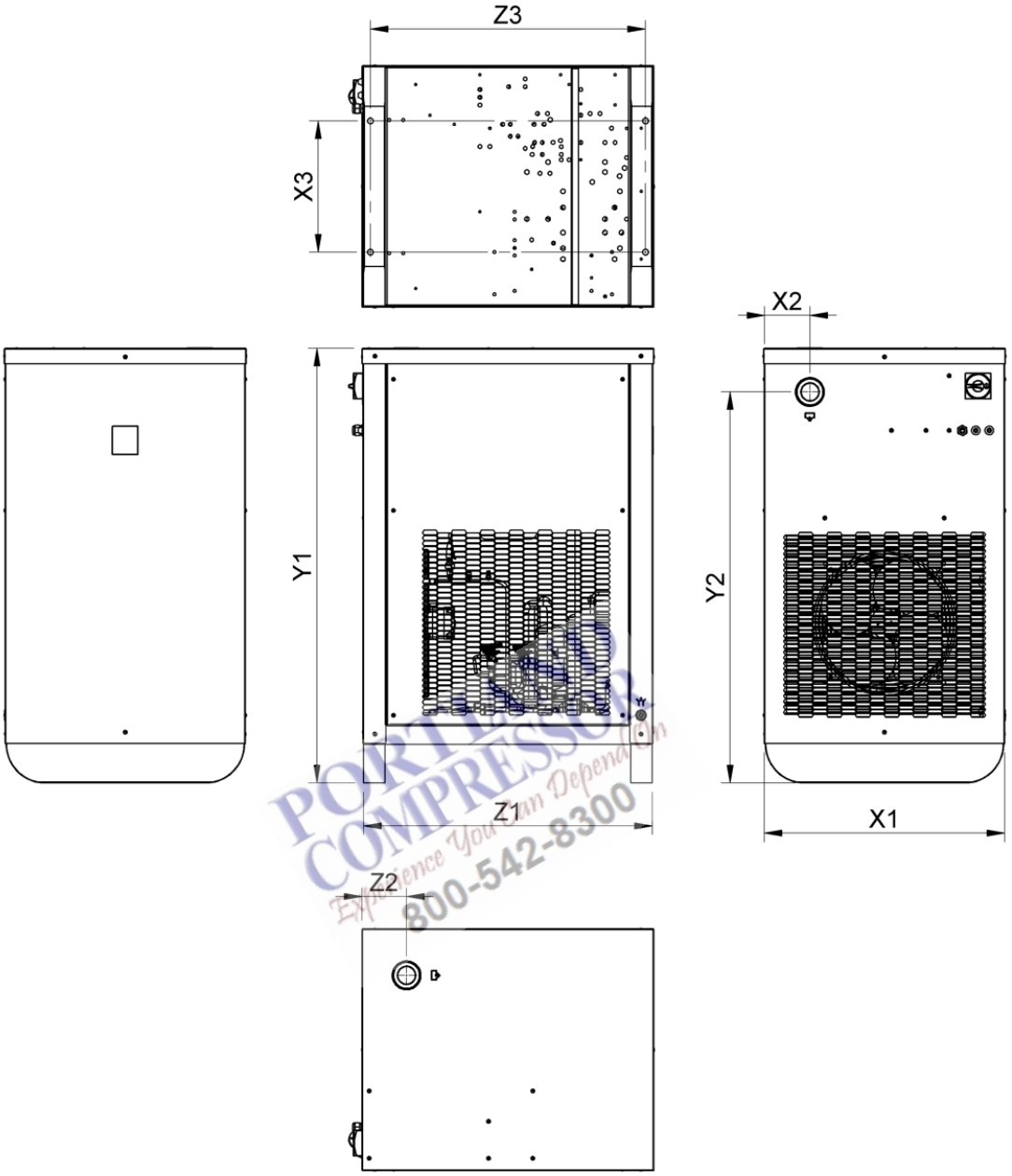
Pos. No.	Unit	DRYPOINT® RX				
		10	20	30	50	60
[X1]	in (mm)	14.37 (365)				
[X2]		2.95 (75)				3.39 (86)
[X3]		8.66 (220)				
[Y1]		23.23 (590)				
[Y2]		20.08 (510)		19.49 (495)		
[Z1]		19.88 (505)				
[Z2]		2.76 (70)		2.95 (75)		
[Z3]		17.44 (443)				

4.5.2 DRYPOINT® RX 70 ... 150



Pos. No.	Unit	DRYPOINT® RX			
		70	100	125	150
[X1]	in (mm)	17.00 (432)			
[X2]		3.35 (85)		4.06 (103)	
[X3]		11.42 (290)			
[Y1]		x27.17 (690)			
[Y2]		23.43 (595)	22.83 (580)	22.64 (575)	
[Z1]		24.80 (630)			
[Z2]		2.95 (75)	4.41 (112)	4.53 (115)	
[Z3]		22.32 (567)			

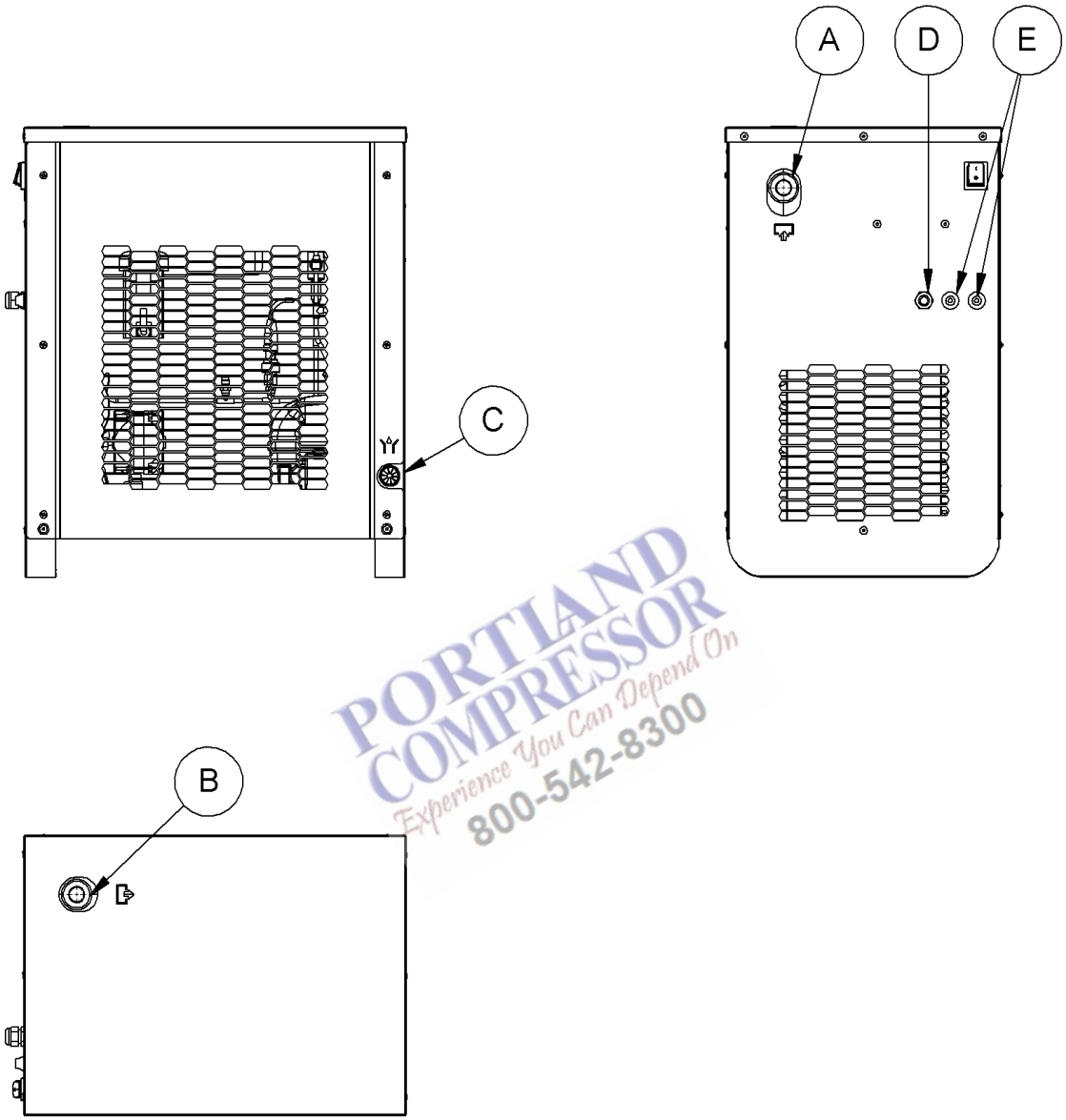
4.5.3 DRYPOINT® RX 200 ... 450



Pos. No.	Unit	DRYPOINT® RX				
		200	250	300	350	450
[X1]	in (mm)	24.61 (625)				
[X2]		3.94 (100)	4.65 (118)		5.31 (135)	
[X3]		13.39 (340)				
[Y1]		44.49 (1130)				
[Y2]		40.16 (1020)	40.08 (1018)		37.60 (955)	
[Z1]		29.72 (755)				
[Z2]		4.33 (110)	4.53 (115)		6.93 (176)	
[Z3]		28.15 (715)				

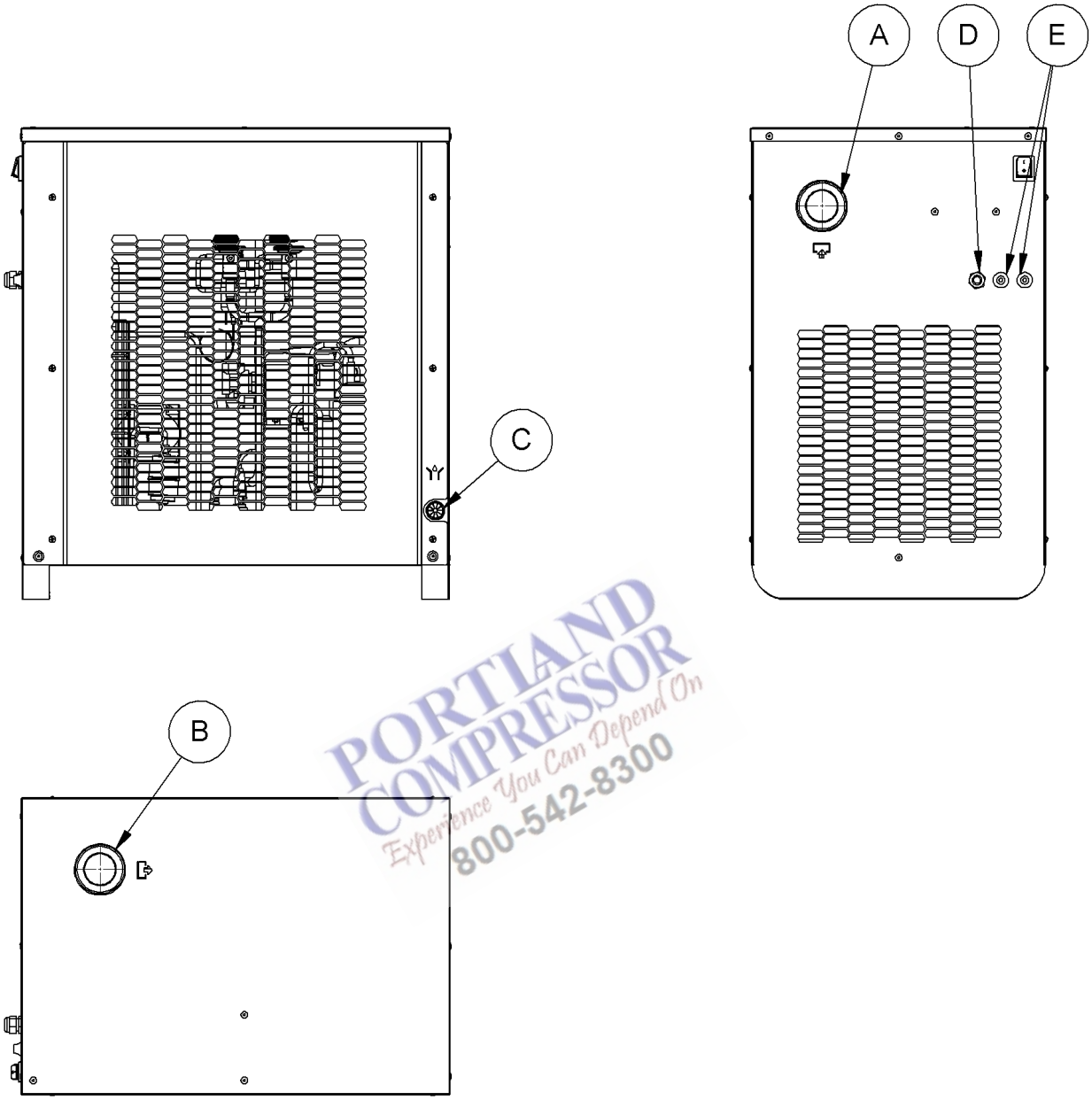
4.6 Connections

4.6.1 DRYPOINT® RX 10 ... 60



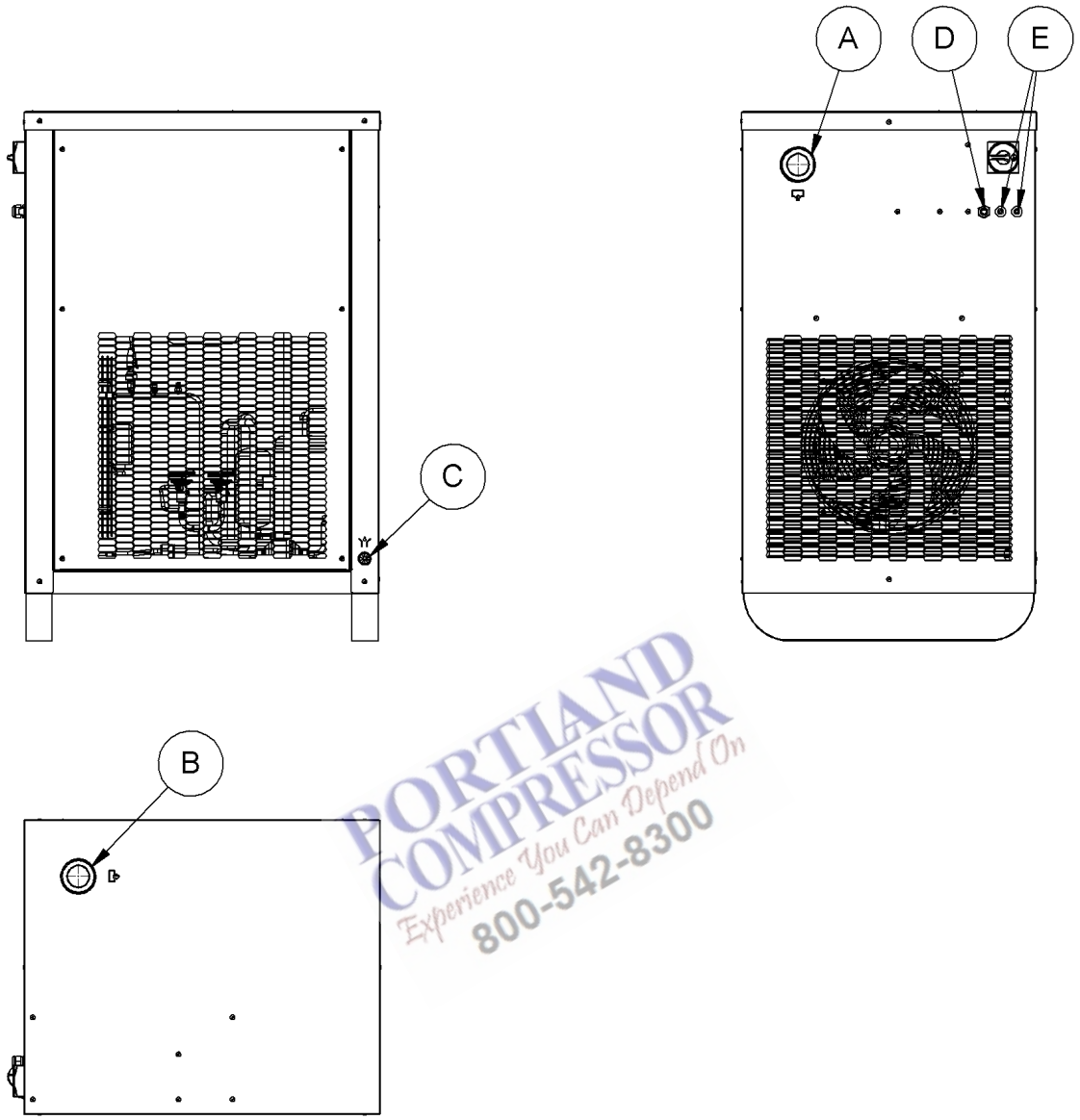
DRYPOINT® RX	Pos. No.	Connection	Description / explanation
10 ... 50	**[A]**	NPT ½"	Sleeve connection, connection for compressed air inlet.
	[B]	NPT ½"	Sleeve connection, connection for compressed air outlet.
60	**[A]**	NPT 1"	Sleeve connection, connection for compressed air inlet.
	[B]	NPT 1"	Sleeve connection, connection for compressed air outlet.
10 ... 60	**[C]**	0.31 in (8 mm)	Rubber hose, connection for condensate outlet.
	[D]	-	Cable with plug, connection for external power supply.
	[E]	PG 11	Rubber grommets, connection for auxiliary wiring.

4.6.2 DRYPOINT® RX 70 ... 150



DRYPOINT® RX	Pos. No.	Connection	Description / explanation
70	[A]	NPT 1”	Sleeve connection, connection for compressed air inlet.
	[B]	NPT 1”	Sleeve connection, connection for compressed air outlet.
100 ... 150	[A]	NPT 1 ¼”	Sleeve connection, connection for compressed air inlet.
	[B]	NPT 1 ¼”	Sleeve connection, connection for compressed air outlet.
70 ... 150	[C]	0.31 in (8 mm)	Rubber hose, connection for condensate outlet.
	[D]	-	Cable with plug, connection for external power supply.
	[E]	PG 11	Rubber grommets, connection for auxiliary wiring.

4.6.3 DRYPOINT® RX 200 ... 450



DRYPOINT® RX	Pos. No.	Connection	Description / explanation
200	[A]	NPT 1 ¼”	Sleeve connection, connection for compressed air inlet.
	[B]	NPT 1 ¼”	Sleeve connection, connection for compressed air outlet.
250, 300	[A]	NPT 1 ½”	Sleeve connection, connection for compressed air inlet.
	[B]	NPT 1 ½”	Sleeve connection, connection for compressed air outlet.
350, 450	[A]	NPT 2”	Sleeve connection, connection for compressed air inlet.
	[B]	NPT 2”	Sleeve connection, connection for compressed air outlet.
200 ... 450	[C]	0.31 in (8 mm)	Rubber hose, connection for condensate outlet.
	[D]	-	Cable with plug, connection for external power supply.
	[E]	PG 11	Rubber grommets, connection for auxiliary wiring.

4.7 Assembly conditions

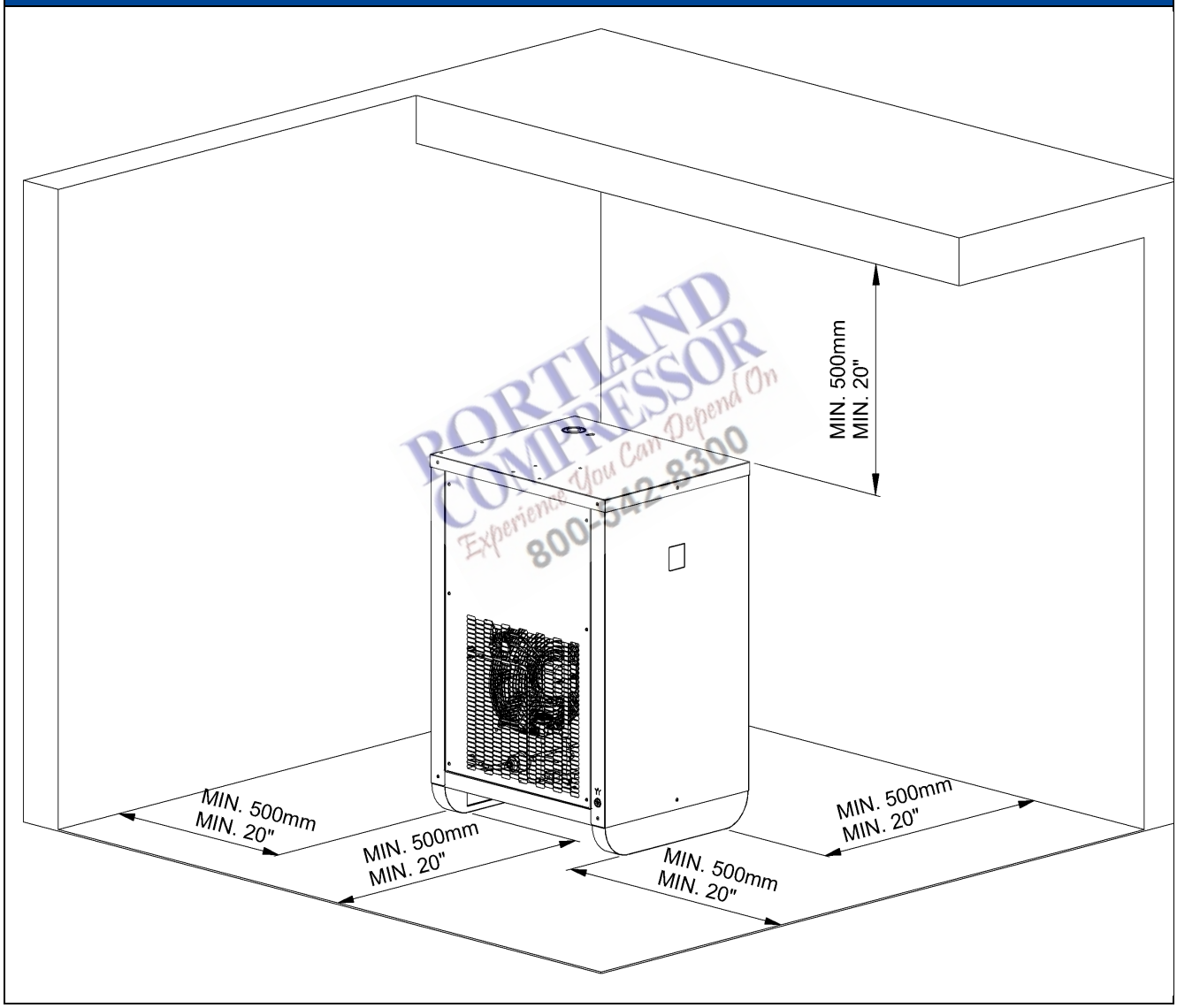
Observe the following conditions when setting up and selecting the installation location:

- The location must be clean and dry, protected from direct sunlight, rain, frost, sources of heat and fire. Unlimited exchange of air and sufficient ventilation must be guaranteed, refer to section "4.7.1 Minimum distance from adjacent structures" on page 44.
- The location must have sufficient space for product assembly and maintenance.
- The set-up area must be level, smooth and suitable to bear the product's weight.
- Sealed set-up area or spill protection basin must be available. If there is any damage, untreated condensate or oil must not get into the sewer system or soil.
- A customer-side compressed air supply line is available.
- A customer-side condensate collection line is available.
- A customer-side 1ph+N+E power supply line is available.

4.7.1 Minimum distance from adjacent structures

CAUTION	Cooling air re-circulation
	Re-circulation of cooling air may result in overheating and / or damage to the device .
	• Install an appropriate separating frame to separate the fresh air flow entering the condenser between the hot air flow exiting the dryer.

Illustration



5. Transport and storage

5.1 Warning notices

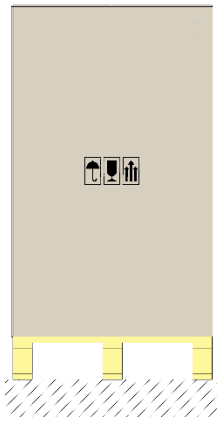
WARNING	Insufficient qualification
	If personnel carrying out work on the product and accessories are not properly qualified, this may result in accidents, personal injury and damage to property and impair operations.
	• Work on the product and accessories must be carried out exclusively by skilled technical personnel specialising in transport and storage.

CAUTION	Incorrect transport or storage
	Incorrect transport or storage may result in personal injury or damage to property.
	• Use personal protective equipment while working with packaging material. • Handle the packaging, product and accessories with care. • Pack impact-proof parts using suitable material. • Transport and handle the packaging under the markings (note lifting gear attachment points, the centre of gravity and alignment e.g. keep vertical, do not throw, etc.). • Use means of transport and lifting equipment that is working properly. • Comply with permissible transport and storage parameters. • Store the product and accessories outside areas exposed to direct sunlight and heat sources.

NOTE	Handling packaging material
	Incorrect disposal of packaging material can cause environmental damage.
	• Dispose of the packaging material under the applicable legal requirements and provisions of the country and place of use.

5.2 Transport

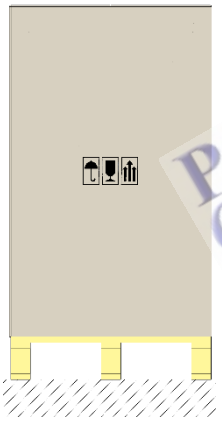
NOTE	Incorrect handling of the product
	Product damage might occur if it is not kept upright during transport. Heavy blows will cause irreparable damage.
	• Transport the product with care, in an upright position.

Transporting	
Illustration	**Description / explanation**
	• Transport the product and accessories in their original and undamaged packaging. • Use a suitable trolley or a forklift to move the packaged product and accessories.

5.3 Storage

NOTE	Incorrect storage of the product
	Product damage might occur if it is not kept upright during transport.
	• Store the product in an upright position.

NOTE	Long term storage
	After a long storage period the device components and functioning must be checked by the manufacturer.
	• Contact the manufacturer if storage period exceeds 12 months.

Storage	
Illustration	**Description / explanation**
	• Store the product and accessories in their original and undamaged packaging. • Comply with the storage conditions in section "4.3 Storage parameters" on page 35. • The storage location must be dry, frost-free and lockable. • Protect from weather, direct sunlight, and heat sources. • Prevent the product from falling over and vibrations.

6. Assembly

6.1 Warning notices

DANGER	Incorrect spare parts, accessories or materials
	Using the incorrect spare parts, accessories or materials, and auxiliary and operating materials, may result in death or serious injury. Malfunctions, device failure and material damage can occur.
	• Use undamaged original parts, auxiliary and operating materials which are specified by the manufacturer to complete work. • Use the materials approved for the related application and tools that are working properly. • Use pipes that are free from dirt, damage and corrosion.

DANGER	Pressurized system
	There is a danger of death or serious personal injury resulting from contact with fast or suddenly escaping fluids or bursting system parts.
	• Before starting work, depressurise the system and secure it against unintentional pressurisation. • Set up a safety area around the working area during assembly, installation, maintenance and repair work. • Assemble pipes and hoses free from mechanical stress.

WARNING	Insufficient qualification
	If personnel carrying out work on the product and accessories are not properly qualified, this may result in accidents, personal injury and damage to property and impair operations.
	• Work on the product and accessories must be carried out exclusively by skilled technical personnel specialising in pressure equipment and systems.

WARNING	Incorrect assembly
	Incorrect assembly of the product and accessories can lead to personal injury and damage to property and impair operations.
	• Assemble the product, parts, accessories and materials so they are free from mechanical stress. • Fix hoses so they do not dangle.

6.2 Assembly

Assembly must be carried out while wearing the following protective equipment and after the preparatory tasks have been completed.

Prerequisites		
Tools	**Material**	**Protective equipment**
• No tool necessary	• No material necessary	

Preparatory tasks	
1.	Select and set up the place of installation under the specifications in section "4.7 Assembly conditions" on page 43.
2.	The compressed air supply line, condensate collection line provided by the customer must be pressureless and secured against unintentional pressure build up.
3.	Have the necessary tools and materials ready.
4.	Prepare the required connection materials suitable for the pressure and temperature range.
5.	Check the product for damage, and use undamaged products.
6.	Section "4.6 Connections" on page 40 must be read and applied.

Assembly	
1.	Align the product so the User Interface is visible and connection elements are accessible.
2.	Fix the product to the floor, if necessary.
3.	Compressed air: connect the threaded connection to the compressed air line.
4.	Condensate drain: connect the condensate drain hose to the drain collection line.
5.	Install collision protection, if necessary.

7. Electrical installation

7.1 Warning notices

DANGER	Incorrect spare parts, accessories or materials
	Using the incorrect spare parts, accessories or materials, and auxiliary and operating materials, may result in death or serious injury. Malfunctions, device failure and material damage can occur.
	• Use undamaged original parts, auxiliary and operating materials which are specified by the manufacturer to complete work. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard. • Use the materials approved for the related application and tools that are working properly. • Use electrical components and materials that comply with local applicable specifications and regulations for electrical safety.

DANGER	Electric voltage
	There is a danger of death or serious injuries if electrified components are touched. Malfunction, device failure and material damage can occur.
	• Carry out installation, maintenance and repair work on the product and accessories when they have been disconnected and secured against being accidentally switched on. • Set up a safety area around the working area during assembly, installation, maintenance and repair work. • Comply with local applicable regulations and requirements during installation. • Provide a circuit breaker in the power supply within easy reach of the product. The circuit breaker disconnects current-carrying conductors. • Connect the protective conductor (earth connection) under regulations.

WARNING	Insufficient qualification
	If personnel carrying out work on the product and accessories are not properly qualified, this may result in accidents, personal injury and damage to property and impair operations.
	• Work on the product and accessories must be carried out exclusively by skilled technical personnel specialising in electrical engineering.

WARNING	Incorrect electrical installation
	Improper electrical installation of the product and accessories can lead to personal injury and damage to property and impair operations.
	• Check the plug-type connections for a correct fit. • Avoid tripping risks by routing cables and hoses properly. • Avoid mechanical strain on the cables.

WARNING	Entry of moisture or foreign bodies
	Removing components or opening the product may allow water or foreign bodies to enter the product. Entry of water or foreign bodies can lead to accidents, personal injury, damage to property and impair operation.
	• Protect the product against water splashes or moisture. • Open the product or remove components in a dry place. • Do not insert any foreign bodies into product openings. • Keep contact surfaces and openings free from dirt and moisture.

7.2 Connections

Electrical installation must be carried out while wearing protective equipment and after the preparatory tasks have been completed.

Prerequisites		
Tools	**Material**	**Protective equipment**
• No tool necessary	• No material necessary	

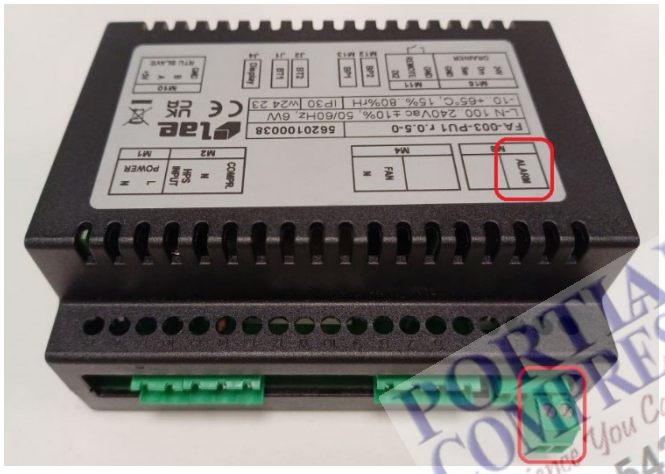
Preparatory tasks	
1.	A protective contact socket must be installed within reach of the installation location.
2.	The fuse for the protective contact socket or terminal box should be properly sized according to the power consumption.
3.	Product assembly must be complete.
4.	**ON-OFF** switch of the product must be in the **OFF** position.
5.	Have the necessary tools and materials ready.
6.	Section "4.6 Connections" on page 40 must be read and applied.

7.2.1 External power supply

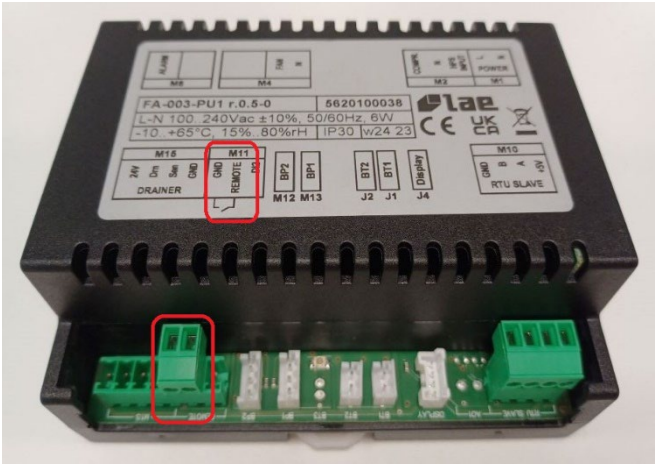
Connections	
1.	Guide the power cable to the protective contact socket.
2.	Plug the protective contact plug into the protective contact socket.
3.	Ensure the power cable is free from mechanical stress and mechanically protected.

7.2.2 WARNING / ALARM, digital output signal

NOTE	WARNING / ALARM digital output failure
	The WARNING / ALARM contact is a potential-free contact. Using the contact with unsuitable voltages and currents will cause its failure.
	• The WARNING / ALARM contact must be used with a low safety voltage (SELV) 30Vdc / 1A max.

Connections	
Illustration	**Description / explanation**
	1. Guide a two-wires signal cable through the arranged rubber grommet on the product. 2. Product side: connect the cable to the connector M8 ALARM of the Electronic Control Unit. 3. Plant side: connect the cable to the plant supervisory system. 4. Ensure the power cable is free from mechanical stress and mechanically protected.

7.2.3 Remote START-STOP, digital input signal

Connections	
Illustration	**Description / explanation**
	1. Guide a two-wires signal cable through the arranged rubber grommet on the product. 2. Product side: Connect the cable to the connector M11 REMOTE/GND of the Electronic Control Unit. 3. Plant side: connect the cable to the plant supervisory system. 4. Ensure the power cable is free from mechanical stress and mechanically protected.

7.2.4 Remote management, Modbus RTU data signal

INFORMATION	Modbus RTU installation and configuration
	For further information on the Modbus RTU installation and configuration, refer to section "1.3 Other applicable documents" on page 7.

8. Commissioning

8.1 Warning notices

DANGER	Operation outside the permissible limit
	Operation of the product or accessories outside the permissible limits and operating parameters, unauthorised work and modifications may result in death or serious injury.
	• Observe the limits and operating parameters specified on the type plate and manual. • Check whether the operating parameters have been changed or restricted by accessories.

DANGER	Pressurized system
	There is a danger of death or serious personal injury resulting from contact with fast or suddenly escaping fluids or bursting system parts.
	• Before pressurisation, check all system pipe connections for leak tightness and tighten if necessary. • Slowly pressurise the system. • Avoid pressure blows and high differential pressures.

DANGER	Electric voltage
	There is a danger of death or serious injuries if electrified components are touched. Malfunction, device failure and material damage can occur.
	• Operate the product and accessories with the cover complete and closed and the electronics housing closed. • Check the product and accessories before commissioning under local applicable legal requirements and regulations.

WARNING	Insufficient qualification
	If personnel carrying out work on the product and accessories are not properly qualified, this may result in accidents, personal injury and damage to property and impair operations.
	• Work on the product and accessories must be carried out exclusively by skilled technical personnel specialising in pressure equipment and systems and skilled technical personnel specialising in electrical engineering.

8.2 Initial commissioning

Initial commissioning must be carried out while wearing protective equipment and after the preparatory tasks have been completed.

Prerequisites		
Tools	**Material**	**Protective equipment**
• No tool necessary	• No material necessary	

Preparatory tasks	
1.	Product assembly must be complete.
2.	Compressed air inlet/outlet valves must be closed.
3.	Electrical installation of the product must be complete.
4.	Section "3.1 Product overview" on page 18 must be read and applied.
5.	The condensate drain service valve must be open.
6.	Section "3.2 User Interface" on page 26 must be read and applied.

NOTE	Refrigerant compressor failure
	Starting and stopping the device too often could damage the refrigerant compressor unrepairably.
	• Wait at least five minutes between a stop and a new start. • Start / stop actions on the device must be limited to six times an hour.

INFORMATION	Dew point value
	A dew point between 32°F (0°C) and 50°F (10°C) displayed on the User Interface is considered to be correct under the possible operating conditions, e.g. flow rate, air inlet temperature, ambient temperature, etc.

Commissioning	
1.	Connect to the mains.
2.	Power the product acting on the **ON-OFF** switch. Refer to section "3.1 Product overview" on page 18.
3.	Start the product pushing for three seconds the **START-STOP** button on the User Interface. Refer to section "3.2 User Interface" on page 26.
4.	Check the power consumption complies with the values engraved on the type plate.
5.	Wait for the cooling fan to run.
6.	Wait until the dew point value displayed on the User Interface is stable. Refer to section "3.2 User Interface" on page 26.
7.	Connect the compressed air supply.
8.	Slowly open the air inlet valve.
9.	Slowly open the air outlet valve.
10.	Check the air connections for air leakage.
11.	Wait for the condensate drain to work.
12.	Check the condensate drain works correctly.

9. Operation

9.1 Warning notices

DANGER	Operation outside the permissible limit
	Operation of the product or accessories outside the permissible limits and operating parameters, unauthorised work and modifications may result in death or serious injury.
	• Observe the limits and operating parameters specified on the type plate and manual. • Observe the assembly and ambient conditions. • Check whether the operating parameters have been changed or restricted by accessories. • Comply with maintenance intervals.

DANGER	Electric voltage
	There is a danger of death or serious injuries if electrified components are touched. Malfunction, device failure and material damage can occur.
	• Operate the product and accessories with the cover complete and closed and the electronics housing closed.

NOTE	Operating personnel
	Insufficient knowledge of the product and accessories can lead to damage to property, the environment and impair operations.
	• The product and accessories may only be operated and used by qualified operating personnel.

9.2 Daily operating checks

With the product in normal running condition, perform the following daily checks:

- Dew point value stability.
- Functioning of condensate drain.
- Condenser cleanliness
- Cyclical run/stop of the cooling fan.
- Noiseless of normal running condition.

9.3 Operate on the User Interface

For product operation, preparatory tasks must have been completed.

Preparatory tasks	
1.	The procedure on section "8 Commissioning" on page 55 must be carried out.
2.	The product must be switched **ON** and started.
3.	Compressed air flows into the air circuit.
4.	The condensate is regularly discharged.
5.	Section "3.2 User Interface" on page 26 must be read and applied.

INFORMATION	Callouts
	Callouts **[L#]** and **[B#]** mentioned below are included in section “3.2 User Interface” on page 26.

9.3.1 Normal running status

INFORMATION	Dew point value
	A dew point between 32°F (0°C) and 50°F (10°C) displayed on the User Interface is considered to be correct under the possible operating conditions, e.g. flow rate, air inlet temperature, ambient temperature, etc.

INFORMATION	Refrigerant compressor running
	During the normal running status, the refrigerant compressor runs continuously. The product must remain started during the entire compressed air usage time, even if the air compressor works periodically.

Illustration	Description / explanation
	**Normal running status** • **HOME status LED [L8]** is lit. • **REFRIGERANT COMPRESSOR status LED [L11]** is lit. • **TEMPERATURE status LED IN** °F **[L6]** is lit. • **MAIN** display **[L1]** shows the dew point temperature. • **SECONDARY** display **[L2]** shows **PdP** • If the cooling fan is running, the **COOLING FAN status LED [L12]** is lit.

9.3.2 Stopping and starting

NOTE	Refrigerant compressor failure
	Starting and stopping the product too often could damage the refrigerant compressor unrepairably.
	• Wait at least five minutes between a stop and a new start. • Start / stop actions on the device must be limited to six times an hour.

Illustration	Description / explanation
	**Stopping the device** **HOME status LED [L8]** is lit. Press and hold the **START-STOP** button **[B1]** for three seconds. → The device stops. → **MAIN** display **[L1]** shows **OFF**
	**Starting the device** **HOME status LED [L8]** is lit. Press and hold the **START-STOP** button **[B1]** for three seconds. → The device starts. → **COMPRESSOR status LED [L11]** is lit. → **TEMPERATURE status LED IN** °F **[L6]** is lit. → **MAIN** display **[L1]** shows the dew point value. → **SECONDARY** display **[L2]** shows **PdP**.

9.3.3 Condensate drain test

INFORMATION	Condensate drain test
	The condensate drain test can be performed at any time, regardless of the device status and any display indication.

Illustration	Description / explanation
	Condensate drain test HOME status LED [L8] is lit. 1. Press and hold the **CONDENSATE DRAIN TEST** button **[B7]**. → **CONDENSATE DRAIN [L15]** Status LED is lit. 2. Release the button to stop the test.

9.3.4 Live data

Code	Description / explanation
	**t1** – Dew point temperature
	**t2** – Refrigerant fluid temperature detected at compressor discharge side.
	**LP** – Refrigerant fluid pressure detected at compressor suction side.
	**HP** – Refrigerant fluid pressure detected at compressor discharge side.
	**HrS** – Device working hours
	**SrV** – Hours remaining to next service

Illustration	Description / explanation
	**Live data** 1. With the device in normal running status, press the **NAVIGATION UP** button **[B2]** or **NAVIGATION DOWN** button **[B3]** to select **LIVE DATA**. → **LIVE DATA status LED [L9]** is lit.

Illustration	Description / explanation
	2. Press the **ENTER/CONFIRM** button **[B6]**. → **MAIN** display **[L1]** shows the first detected value, dew point temperature. → **SECONDARY** display **[L2]** shows the code **t1** 3. Press repeatedly the **NAVIGATION DOWN** button **[B3]** to scroll menu data **t1 → t2 → LP → HP → HrS → SrV →ESC** or Press repeatedly the **NAVIGATION UP** button **[B2]** to scroll menu data in reverse order. 4. Select **ESC** and press the **ENTER/CONFIRM** button **[B6]** to exit **LIVE DATA**.

9.3.5 WARNING status

A WARNING is an anomalous event related to a device malfunction. WARNINGS do not compromise device functioning or operator safety.

NOTE	WARNING status
	With the device in WARNING status the compressed air treatment may be incorrect.
	• Call maintenance personnel immediately if one or more WARNINGS are detected. • Maintenance personnel will refer to section "16 Troubleshooting" on page 91.

INFORMATION	Device behavior when there is a WARNING
	• When the device is stopped: WARNINGS are not shown on the User Interface. The device can be started when there is a WARNING. After starting, the WARNING code will be shown on the User Interface. • When the device is started: a WARNING does not stop it. • Only **HdP** WARNING can be set: → - to prevent starting the device, if stopped. → - to stop the device, if started.

Code	Description / explanation
	**HdP** – Dew point temperature too high.
	**LdP** – Dew point temperature too low.
	**drn** – Condensate drain, defective or faulty.
	**SrV** – Device maintenance, time expired.
	**dt** – Refrigerant fluid, temperature too high.
	**LEP** – Refrigerant fluid, low evaporating pressure.
	**HCP** – Refrigerant fluid, high condensing pressure.

Illustration	Description / explanation
	**e.g. High Dew Point Warning** With the device in normal running status, a too high dew point temperature is detected. • **MAIN** display **[L1]** shows the dew point value. • **SECONDARY** display **[L2]** shows **HdP** code. • **WARNING status LED [L14]** flashes.

9.3.6 ALARM status

An ALARM is an anomalous event related to a device malfunction or fault. An ALARM stops the device to ensure device and operator safety.

NOTE	ALARM status
	With the device in ALARM status the compressed air will not be treated.
	• Call maintenance personnel immediately if one or more ALARMS are detected. • Maintenance personnel will refer to section "16 Troubleshooting" on page 91.

INFORMATION	Device behavior when there is an ALARM
	• When the device is stopped: ALARMS are not shown on the User Interface. The device cannot be started if there are active ALARMS. After a starting attempt, the ALARM code will be shown on the User Interface and the device will remain stopped. • When the device is started: an ALARM stops it. • ALARMS LP, ICE, FLP are shown with the device stopped.

Code	Description / explanation
	**HP** – Refrigerant fluid, pressure too high.
	**LP** – Refrigerant fluid, pressure too low.
	**Hdt** – Refrigerant fluid, temperature too high.
	**ICE** – Heat exchanger body, temperature too low.
	**PF2** – Temperature probe, defective or broken.
	**FLP** – Pressure transducer, defective or broken.
	**FHP** – Pressure transducer, defective or broken.
	**PF1** – Temperature probe, defective or broken.

Illustration	Description / explanation
	**Example: High Pressure Alarm** When the device is operating normally, it detects that the pressure of the refrigerant fluid is above the safety limits. 1. The device immediately stops and **MAIN** display **[L1]** shows **OFF** 2. **SECONDARY** display **[L2]** shows **HP** code. 3. **ALARM status LED [L13]** flashes.

9.3.7 Remote mode

INFORMATION	Device behavior in remote mode
	The device cannot be started and stopped from the local User Interface. Access to other functions using the local User Interface remains permitted. The device starts and stops without any preliminary signalling on the local User Interface.

Illustration	Description / explanation
	**Remote mode** • The device is stopped. • **REMOTE MODE status LED [L7]** is lit.
	• The device is started. • **REMOTE MODE status LED [L7]** is lit.

9.3.8 User parameters

NOTE	Incorrect setting of user parameters
	Incorrect setting of user parameters can lead to unexpected device behavior like improper air treatment due to a wrong dew point, unexpected start and stop, unexpected signalling of one or more warnings / alarms, condensate drain malfunction, breakdown of Modbus communication.
	• Default user parameters must be carefully modified, following the compressed air plant specifications and requirements.

Code	Description / explanation	Value range	Accuracy	Default value
	**drC – Local / Remote management** NO = local START-STOP mode YES = remote START-STOP via digital input signal Modbus = remote START-STOP via Modbus RTU.	NO, YES, Modbus	-	NO
	**HdA – High Dew Point Warning** Threshold temperature	32 ... 77°F or 0.0 ... 25.0°C	1°F or 0.5°C	68°F or 20.0°C
	**Hdd – High Dew Point Warning** Triggering delay time	01 ... 20 minutes	1 minute	15
	**HdS – Behavior of device due to High Dew Point Warning during normal running status** NO = device doesn't stop YES = device stops	NO, YES	-	NO
	**SrV – Device maintenance timer** Countdown timer setting	0.0 ... 9.0 (x 1000) hours	0.5 (x 1000) hours	8.0
	**SCL – Units** °C = temperature in °C and pressure in bar °F = temperature in °F and pressure in psi	°C, °F	-	°F

Code	Description / explanation	Value range	Accuracy	Default value
	**AS – Automatic restart after a voltage drop** NO = device must be intentionally restarted YES = device restarts automatically, if it was running before voltage drop	NO, YES	-	NO
	**ACN – WARNING / ALARM contact management** Selects the triggering logic of the WARNING / ALARM contact 1 = any Alarm and High Dew Point Warning 2 = any Alarm and any Warning 3 = any Alarm	1, 2, 3	-	1
	**bNt – Condensate drain type** 1 = **BEKOMAT® 31 IF** 2 = **BEKOMAT® 32 IF**	1, 2	-	1
	**IPA – Modbus address**	1 … 255	-	1

Illustration	Description / explanation
	**Parameter modification** 1. With the device stopped or in normal running status, press the **NAVIGATION UP** button **[B2]** or **NAVIGATION DOWN** button **[B3]** to navigate and select **SETUP**. ➞ Status LED **SETUP [L10]** is lit.

Illustration	Description / explanation
	2. Press the **ENTER/CONFIRM** button **[B6].** → **MAIN** display **[L1]** shows the value of the list's first parameter. → **SECONDARY** display **[L2]** shows **drC** code 3. Press repeatedly the **NAVIGATION DOWN** button **[B3]** to scroll the menu parameters **drC → HdA → Hdd → HdS → SrV → SEL → AS → ACN → bNt → IPA → ESC** or Press repeatedly the **NAVIGATION UP** button **[B2]** to scroll the menu parameters in reverse order. 4. Press the **ENTER/CONFIRM** button **[B6]** to modify the value of the selected parameter. The value shown on **MAIN** display **[L1]** flashes. 5. Press the **INCREASE** button **[B4]** or **DECREASE** button **[B5]** to modify the value. 6. Press the **ENTER/CONFIRM** button **[B6]** to confirm the modified value. or Press the **START-STOP** button **[B1]** to cancel the modified value and return to the previous value. The value shown on **MAIN** display **[L1]** is stored and stops flashing. 7. Press **NAVIGATION DOWN** button **[B3]** or **NAVIGATION UP** button **[B2]** to select another parameter and repeat steps 4, 5, 6. 8. Select **ESC** and press the **ENTER/CONFIRM** button **[B6]** to exit the parameter menu.

9.3.9 Modbus function

The Modbus function can be used to manage the operating functions and device information.

INFORMATION	Modbus configuration
	For further information on the Modbus function, refer to section "1.3 Other applicable documents" on page 7.

10. Maintenance

10.1 Warning notices

DANGER	Pressurized system
	There is a danger of death or serious personal injury resulting from contact with fast or suddenly escaping fluids or bursting system parts.
	• Before starting work, depressurise the system and secure it against unintentional pressurisation. • Set up a safety area around the working area during assembly, installation, maintenance and repair work. • Assemble pipes and hoses free from mechanical stress. • Before pressurisation, check all system connections for leak tightness and tighten if necessary. • Slowly pressurise the system. • Avoid pressure blows and high differential pressures.

DANGER	Electric voltage
	There is a danger of death or serious injuries if electrified components are touched. Malfunction, device failure and material damage can occur.
	• Carry out installation, maintenance and repair work on the product and accessories when they have been disconnected and secured against being accidentally switched on. • Set up a safety area around the working area during assembly, installation, maintenance and repair work.

DANGER	Incorrect spare parts, accessories or materials
	Using the incorrect spare parts, accessories or materials, and auxiliary and operating materials, may result in death or serious injury. Malfunctions, device failure and material damage can occur.
	• Use undamaged original parts, auxiliary and operating materials which are specified by the manufacturer to complete work. • Use the materials approved for the related application and tools that are working properly. • Use pipes that are free from dirt, damage and corrosion. • Use electrical components and materials that comply with local applicable specifications and regulations for electrical safety.

WARNING	Refrigerant fluid
	The incorrect handling of refrigerant fluid may result in serious injury. Malfunctions, device failure and environment damage can occur. Refer to the product type plate for the type and amount of refrigerant fluid in the product.
	• Work on the product and accessories must be carried out exclusively by skilled technical personnel specialising in refrigeration engineering and customer service.

WARNING	Hot surfaces
	Contact with hot surfaces during work on the product and accessories can lead to burns, accidents and personal injury.
	• Switch the product OFF before maintenance and allow it to cool.

WARNING	Insufficient qualification
	If personnel carrying out work on the product and accessories are not properly qualified, this may result in accidents, personal injury and damage to property and impair operations.
	• Work on the product and accessories must be carried out exclusively by skilled technical personnel specialising in customer service.

WARNING	Entry of moisture or foreign bodies
	Removing components or opening the product may allow water or foreign bodies to enter the product. Entry of water or foreign bodies can lead to accidents, personal injury, damage to property and impair operation.
	• Protect the product against water splashes or moisture. • Open the product or remove components in a dry place. • Do not insert any foreign bodies into product openings. • Keep contact surfaces and openings free from dirt and moisture.

CAUTION	Condensate
	Contact with condensate containing substances which endanger health and the environment can pose a health hazard, causing irritation or damage to the eyes, skin and mucous membranes.
	• Use suitable protective equipment when handling condensate. • Pick up and dispose of any leaking or spilled condensate under applicable regional laws and requirements.

10.2 Maintenance

Maintenance must be carried out while wearing the following protective equipment and after the preparatory tasks have been completed.

Prerequisites		
Tools	**Material**	**Protective equipment**
• No tool necessary	• No material necessary	

Preparatory tasks	
1.	The procedure on section "13 Decommissioning" on page 83 must be carried out.

Maintenance	Interval
• Clean the condenser using an air jet, max 2 bar / 29 psi, inside out.	200 hours or monthly, depending on which occurs first.
• Check the electrical connections tightness. • Check the electrical cables insulation integrity. • Check the electrical clamps integrity. • Check the electrical equipment fasteners integrity. • Check the refrigeration circuit for signs of oil or refrigerant leaks. • Check the condensate drain rubber hose integrity.	1000 hours or annually, depending on which occurs first.
• Check / clean / replace the condensate drain.	8000 hours.

Final tasks	
1.	Follow the procedure in section "8 Commissioning" on page 55.
2.	Follow the procedure in section "16.1.1 Resetting a WARNING" on page 91. table Resetting the **SrV** WARNING "maintenance time expired"

11. Adjustments

11.1 Warning notices

DANGER	Pressurized system
	There is a danger of death or serious personal injury resulting from contact with fast or suddenly escaping fluids or bursting system parts.
	• Set up a safety area around the working area during assembly, installation, maintenance and repair work. • Slowly pressurise the system.

DANGER	Electric voltage
	There is a danger of death or serious injuries if electrified components are touched. Malfunction, device failure and material damage can occur.
	• Set up a safety area around the working area during assembly, installation, maintenance and repair work.

WARNING	Refrigerant fluid
	The incorrect handling of refrigerant fluid may result in serious injury. Malfunctions, device failure and environment damage can occur. Refer to the product type plate for the type and amount of refrigerant fluid in the product.
	• Work on the product and accessories must be carried out exclusively by skilled technical personnel specialising in refrigeration engineering and customer service.

WARNING	Hot surfaces
	Contact with hot surfaces during work on the product and accessories can lead to burns, accidents and personal injury.
	• Pay attention to the hot surfaces during adjustment work.

WARNING	Insufficient qualification
	If personnel carrying out work on the product and accessories are not properly qualified, this may result in accidents, personal injury and damage to property and impair operations.
	• Work on the product and accessories must be carried out exclusively by skilled technical personnel specialising in customer service.

WARNING	Entry of moisture or foreign bodies
	Removing components or opening the product may allow water or foreign bodies to enter the product. Entry of water or foreign bodies can lead to accidents, personal injury, damage to property and impair operation.
	• Protect the product against water splashes or moisture. • Open the product or remove components in a dry place. • Do not insert any foreign bodies into product openings. • Keep contact surfaces and openings free from dirt and moisture.

11.2 Adjustment

Adjustment must be carried out while wearing the following protective equipment.

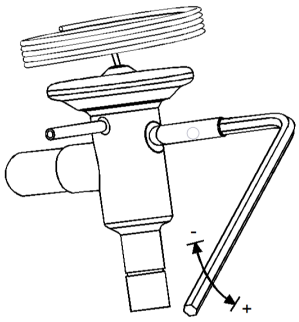
Prerequisites		
Tools	**Material**	**Protective equipment**
• No tool necessary	• No material necessary	

11.2.1 Adjustment of hot gas by-pass valve

NOTE	Schrader service valve
	Each time a pressure gauge is connected to the Schrader service valve, a part of refrigerant fluid is discharged in the environment.
	• Connect the pressure gauge to the Schrader service valve if there is a significant refrigerant circuit malfunction.

INFORMATION	Hot gas by-pass valve factory setting
	The hot gas by-pass valve is adjusted by the manufacturer during the device testing phase and the adjusting screw is sealed with yellow sealant. If there is a refrigerant circuit malfunction, the by-pass valve can be recalibrated.

Preparatory tasks	
1.	The device is stopped.
2.	Inlet / outlet air valves must be closed. Compressed air must not flow into the heat exchanger.
3.	Remove service panels.
4.	A low pressure gauge must be connected to the Schrader service valve on the low pressure side of refrigerant circuit.
5.	A set of hex keys is available.

Adjustment	
Illustration	**Description / explanation**
	1. Start the device and wait a few minutes. 2. Turn the adjustment screw clockwise to reduce or counterclockwise to increase the evaporation pressure. 3. Wait for the evaporation pressure to stabilise, until the set point value is reached. R134a: 29.0 psig +1.5/-0 psi (2.0 barg, +0.1/-0 bar) R407C: 65.3 psig +1.5/-0 psi (4.5 barg, +0.1/-0 bar)

Final tasks	
1.	Disconnect the low pressure gauge from the refrigerant circuit.
2.	Reinstall the service panels.
3.	Slowly open the air inlet valve.
4.	Slowly open the air outlet valve.

12. Spare parts

12.1 Order information

The spare parts list for each device is printed on a sticker applied on the internal side of the device's rear panel. Each spare part is identified with its callout number referred to section "3.1 Product overview" on page 18 and its Material Number.

BEKO TECHNOLOGIES customer service requires the following data for an inquiry or order:

- Product name and installation size (see type plate)
- Serial number (see type plate)
- Material number and part designation
- Required quantity of parts to be delivered

The contact data for **BEKO** TECHNOLOGIES customer service are listed in section "1.1 Contact" on page 6.

12.2 Spare parts

INFORMATION	Callouts
	Callouts **[#]** mentioned below are included in section "3.1 Product overview" on page 18.

No.	Designation
[1]	Heat exchanger
[4]	High pressure switch HPS
[6]	Refrigerant compressor
[7]	Hot gas by-pass valve
[8]	Condenser
[9]	Cooling fan
[9.1]	Cooling fan - motor
[9.2]	Cooling fan - blade
[9.3]	Cooling fan - grid
[10]	Refrigerant fluid filter
[12]	Temperature probe BT1
[17.1]	Electronic Control Unit
[17.2]	User Interface
[21]	Condensate drain
[22]	ON-OFF switch
[37]	Pressure transducer BHP
[39]	Pressure transducer BLP

13. Decommissioning

The product must be decommissioned during longer periods of standstill, for example:

- Product or accessory maintenance.
- Longer standstill of the system due to planned work (e.g. conversion work, major repairs, system decommissioning).
- Product disassembly.

13.1 Warning notices

DANGER	Pressurized system
	There is a danger of death or serious personal injury resulting from contact with fast or suddenly escaping fluids or bursting system parts.
	• Set up a safety area around the working area before starting work.

DANGER	Electric voltage
	There is a danger of death or serious injuries if electrified components are touched. Malfunction, device failure and material damage can occur.
	• Set up a safety area around the working area before starting work.

WARNING	Insufficient qualification
	If personnel carrying out work on the product and accessories are not properly qualified, this may result in accidents, personal injury and damage to property and impair operations.
	• Work on the product and accessories must be carried out exclusively by skilled technical personnel specialising in customer service.

13.2 Decommissioning

Decommissioning must be carried out while wearing the following protective equipment.

Prerequisites		
Tools	**Material**	**Protective equipment**
• No tool necessary	• No material necessary	

Decommissioning	
1.	Slowly close the air inlet valve and secure it against unintentional opening.
2.	Slowly close the air outlet valve and secure it against unintentional opening.
3.	Wait a few minutes and then stop the product by pushing the **START-STOP** button on the User Interface for three seconds. Refer to section "3.2 User Interface" on page 26.
4.	Turn off the power acting on the **ON-OFF** switch. Refer to section "3.1 Product overview" on page 18.
5.	Interrupt the mains and secure it against being accidentally switched on.
6.	Depressurise the product air circuit.

14. Disassembly

14.1 Warning notices

DANGER	Pressurized system
	There is a danger of death or serious personal injury resulting from contact with fast or suddenly escaping fluids or bursting system parts.
	• Set up a safety area around the working area before starting work. • Before starting work, depressurise the system and secure it against unintentional pressurisation.

DANGER	Electric voltage
	There is a danger of death or serious injuries if electrified components are touched.
	• Set up a safety area around the working area before starting work. • Before starting work, disconnect the product and accessories and prevent them from being switched back ON unintentionally.

WARNING	Refrigerant fluid
	The incorrect handling of refrigerant fluid may result in serious injury and environment damage. Refer to the product type plate for the type and amount of refrigerant fluid in the product.
	• Work on the product and accessories must be carried out exclusively by skilled technical personnel specialising in refrigeration engineering and customer service. • Pick up the refrigerant fluid under applicable local laws and requirements.

WARNING	Insufficient qualification
	If personnel carrying out work on the product and accessories are not properly qualified, this may result in accidents, personal injury and damage to property.
	• Work on the product and accessories must be carried out exclusively by skilled technical personnel specialising in refrigeration engineering and customer service.

CAUTION	Condensate
	Contact with condensate containing substances which endanger health and the environment can pose a health hazard, causing irritation or damage to the eyes, skin and mucous membranes.
	• Use suitable protective equipment when handling condensate. • Pick up and dispose of any leaking or spilled condensate under applicable regional laws and requirements.

14.2 Disassembly

Disassembly must be carried out while wearing the following protective equipment and after the preparatory tasks have been completed.

Prerequisites		
Tools	**Material**	**Protective equipment**
• No tool necessary	• No material necessary	

Preparatory tasks	
1.	The procedure on section "13 Decommissioning" on page 83 must be carried out.
2.	Have the necessary tools ready.

Disassembly	
1.	Disconnect the power cable from the protective contact socket / terminal box.
2.	Uninstall collision protection, if installed.
3.	Disconnect the condensate drain hose from the drain collection line.
4.	Disconnect the threaded connection from the compressed air line.
5.	Remove fixing bolts, if the product was fixed on the floor.
6.	Remove the service panels on the product.
7.	Remove disassembled parts and accessories from the installation location.
8.	Remove the refrigerant fluid from the refrigerant circuit.
9.	Clean the installation area from any fluid or oil leakage occurred during disassembly.

15. Disposal

15.1 Warning notices

NOTE	Incorrect disposal
	Incorrect disposal of components, parts, operating and auxiliary materials, refrigerant fluid and cleaning media can cause environmental damage.
	• Dispose of components, parts, operating and auxiliary materials, refrigerant fluid and cleaning media properly and under national and local applicable regulations and standards. • Do not discharge the refrigerant into atmosphere. • Dispose of electrical and electronic components through a specialist waste disposal company. • When in doubt, consult a local disposal company before disposal.

NOTE	Incorrect storage
	Incorrect storage of components, parts, operating and auxiliary materials, refrigerant fluid and cleaning media can cause environmental damage.
	• Store components, parts, operating and auxiliary materials, refrigerant fluid and cleaning media properly and under national and local applicable regulations and standards.

INFORMATION	Disposal of electrical and electronic equipment
	Electrical and electronic equipment (EEE) contains materials, components and substances which can be dangerous and harmful for human health and the environment if the waste from electrical and electronic equipment (WEEE) is not disposed of properly. Electrical and electronic equipment is marked by a crossed-out rubbish bin. A crossed-out rubbish bin symbolises that electrical and electronic equipment must be collected separately and must not be disposed of with unsorted domestic waste. For additional information regarding local applicable laws and regulations concerning recycling electrical and electronic products, contact your local disposal companies or the relevant municipal authority.

15.2 Disposal of materials and components

Disposal must be carried out while wearing the following protective equipment and after the preparatory tasks have been completed.

Prerequisites		
Tools	**Material**	**Protective equipment**
• No tool necessary	• No material necessary	

Preparatory tasks	
1.	The procedure on section "14 Disassembly" on page 85 must be carried out.

Operating / auxiliary material	Material	Waste code
Adsorption and filter materials, cleaning wipes and protective clothing – contaminated by oils or other hazardous substances	-	
Adsorption and filter materials, cleaning wipes and protective clothing – except those classified under 15 02 02	-	
Packaging	Paper / cardboard	
	Plastic	
	Wood	

Component	Material	Waste code
Device (with or without refrigerant fluid)	-	
Refrigerant fluid	-	
Refrigerant compressor (sealed, with oil included)	-	
Refrigerant fluid filter (sealed)		
Refrigerant circuit tubes	Copper	
Condenser (tubes)		
Condenser (frame)	Iron / carbon steel	
Fan grid		
Hot gas by-pass valve		
Panels, mounting frame, supports, screws		

Component	Material	Waste code
Heat exchanger	Aluminium	
Condenser (fins)		
Fan blade		
Complete cooling fan	Electric / electronic components with their plastic parts	
Fan motor (with capacitor removed)		
Temperature probes		
Pressure transducers		
Pressure switches		
ON-OFF switch		
Electronic Control Unit / User Interface		
Condensate drain		
Other electric / electronic components		
Capacitor (removed from cooling fan motor)	-	
Electrical wires	PVC / copper	
Insulating material	Elastomeric foam	
Other plastic parts	Plastic	
Condensate drain hose	Contaminated plastic / rubber	

16. Troubleshooting

INFORMATION	Applicable documents
	The following applicable documents are necessary and available: • **BEKOMAT®** Installation and operating manual. • Wiring diagrams.

INFORMATION	Technical support
	This section contains solutions to the most probable malfunctions/faults. It is impossible to predict all device malfunctions and failures. If there are any malfunctions / faults which are not described here, malfunctions which cannot be acknowledged / eliminated or other related questions, contact BEKO Technologies customer service. Refer to section "1.1 Contact" on page 6.

16.1 Warnings and alarms

16.1.1 Resetting a WARNING

NOTE	Resetting a WARNING with the device in remote mode
	When the device is set to remote mode (**drC** parameter = **YES** or Modbus), resetting a WARNING is not an option. To reset a WARNING, the device must be switched in local mode.
	• Refer to section "9.3.8 User parameters" on page 70 and set the **drC** parameter = **NO** • After resetting the WARNING, reset the device to remote mode.

INFORMATION	Re-initialising of maintenance timer
	Maintenance timer can be re-initialised to its current value at any time, independently from expiration.

Resetting a WARNING (except SrV "maintenance time expired")	
1.	Refer to section "3.2 User Interface" on page 26.
2.	Refer to section "9.3.5 WARNING status" on page65.
3.	Fix the cause which has triggered the WARNING.
4.	The status LED WARNING **[L14]** is lit.
5.	Press the ENTER/CONFIRM button **[B6]** twice.
6.	The status LED WARNING **[L14]** goes out.

Resetting the SrV "maintenance time expired" WARNING	
1.	Refer to section "3.2 User Interface" on page 26.
2.	Refer to section "9.3.4 Live data" on page 63.
3.	Follow steps 1. to 6. and select **SrV**
4.	Hold the **ENTER/CONFIRM** button **[B6]** for five seconds, **MAIN** display **[L1]** shows "**rES**".
5.	Press the **ENTER/CONFIRM** button **[B6]** to initialise the maintenance timer to its current value.
6.	Press repeatedly the **NAVIGATION** button **[B2]** or **[B3]** to select **ESC**
7.	Press the **ENTER/CONFIRM** button **[B6]** to exit **LIVE DATA**.

WARNING code	Cause	Action
	**HdP** – The **HdA** parameter value is too low.	Increase the parameter value.
	HdP – Probe BT1, the dew point temperature is too high.	Refer to section "16.2 Specific malfunctions" on page 96, "Probe BT1, dew point temperature too high".
	**LdP** – Probe BT1, the dew point temperature is too low.	Refer to section "16.2 Specific malfunctions" on page 96, "Probe BT1, dew point temperature too low".
	The condensate drain is defective or faulty	Consult the **BEKOMAT®** Installation and operating manual.
	drn – The electrical wiring between the condensate drain and Electronic Control Unit is interrupted.	Restore the electrical wiring.
	Compressed air line is depressurized.	Pressurise the compressed air line.
	**SrV**– The maintenance time is expired	Refer to section "10.2 Maintenance" on page 76.
	**dt** – Probe BT2, the temperature on discharge side of refrigerant compressor is too high.	Refer to section "16.2 Specific malfunctions" on page 96, "Probe BT2, compressor discharge temperature too high".
	**LEP** – Transducer BLP, the evaporating pressure of the refrigerant fluid is too low.	Refer to section "16.2 Specific malfunctions" on page 96, "Transducer BLP, evaporating pressure of refrigerant fluid too low".
	**HCP** – Transducer BHP, the condensing pressure of the refrigerant fluid is too high.	Refer to section "16.2 Specific malfunctions" on page 96, "Transducer BHP, condensing pressure of refrigerant fluid too high".

16.1.2 Resetting an ALARM

NOTE	Resetting an ALARM with the device in remote mode
	When the device is set to remote mode (**drC** parameter = **YES** or Modbus), resetting an ALARM is not an option. To reset an ALARM, the device must be switched in local mode.
	• Refer to section "9.3.8 User parameters" on page 70 and set the **drC** parameter = **NO** • After resetting the ALARM, reset the device to remote mode.

Resetting an ALARM	
1.	Refer to section "3.2 User Interface" on page 26.
2.	Refer to section "9.3.6 ALARM status" on page 67.
3.	Fix the cause which has triggered the ALARM.
4.	The **ALARM status LED [L13]** is lit.
5.	Press the **ENTER/CONFIRM** button **[B6]** twice.
6.	The **ALARM status LED [L13]** goes out.

ALARM code	Cause	Action
	**HP** – Safety pressure switch **HPS**, the pressure of the refrigerant fluid has reached the safety limit.	Refer to section "16.2 Specific malfunctions" on page 96, "High Pressure Safety Switch (HPS) has triggered".
	**LP** – Transducer **BLP**, the pressure of the refrigerant fluid has reached the minimum value allowed. There is a refrigerant circuit leak.	Repair the refrigerant circuit.
	**Hdt** – Probe **BT2**, the temperature of the refrigerant fluid has reached the safety limit.	Refer to section "16.2 Specific malfunctions" on page 96, "Probe BT2, temperature of the refrigerant fluid has reached the safety limit".
	**ICE** – Probe **BT1**, the heat exchanger temperature is under 32°F (0°C).	Refer to section "16.2 Specific malfunctions" on page 96, "Probe BT1, dew point temperature too low".
	**PF2** – Probe **BT2**, defective or faulty.	Replace the probe.
	PF2 – The electrical wiring between the probe and Electronic Control Unit is interrupted.	Restore the electrical wiring.
	**FLP** – Transducer **BLP**, defective or faulty.	Replace the transducer.
	FLP – The electrical wiring between the transducer and Electronic Control Unit is interrupted.	Restore the electrical wiring.
	Transducer BHP, defective or faulty.	Replace the transducer.
	FHP – The electrical wiring between the transducer and Electronic Control Unit is interrupted.	Restore the electrical wiring.
	**PF1** – Probe **BT1**, defective or faulty.	Replace the probe.
	PF1 – The electrical wiring between the probe and Electronic Control Unit is interrupted.	Restore the electrical wiring.

16.2 Specific malfunctions

Specific malfunction	Cause	Action
Probe BT1, dew point temperature too high.	Probe BT1 does not detect the temperature correctly.	Check / place the probe back in its correct position.
	The refrigerant compressor stopped.	See "The refrigerant compressor stopped" specific malfunction.
	The ambient temperature is too high or ventilation is insufficient.	Restore the nominal operating conditions.
	The inlet compressed air temperature is too high.	
	The inlet compressed air pressure is too low.	
	The inlet compressed air flow rate is higher than the device nominal flow rate.	
	The condenser is dirty.	Clean the condenser.
	The cooling fan stopped.	See “The cooling fan stopped” specific malfunction.
	The device does not drain condensate.	See "The device does not drain condensate" specific malfunction.
	The hot gas by-pass valve is out of calibration.	Refer to section "11.2.1 Adjustment of hot gas by-pass valve" on page 79.
	There is a refrigerant circuit leak.	Repair the refrigerant circuit.
Probe BT1, dew point temperature too low.	The ambient temperature is too low or the device is installed in a windy area.	Restore the nominal operating conditions.
	The cooling fan is running continuously.	Replace the Electronic Control Unit.
	The hot gas by-pass valve is out of calibration.	Refer to section "11.2.1 Adjustment of hot gas by-pass valve" on page 79.

Specific malfunction	Cause	Action
Probe BT2, compressor discharge temperature too high.	Probe BT2 does not detect the temperature correctly.	Check / place the probe back in its correct position.
	Excessive thermal load.	Restore the nominal operating conditions.
	The inlet compressed air temperature is too high.	
	The ambient temperature is too high or ventilation is insufficient.	
	The condenser is dirty.	Clean the condenser.
From previous page Probe BT2, compressor discharge temperature too high.	The cooling fan stopped.	See “The cooling fan stopped” specific malfunction.
	There is a refrigerant circuit leak.	Repair the refrigerant circuit.
	The hot gas by-pass valve is out of calibration.	Refer to section "11.2.1 Adjustment of hot gas by-pass valve" on page 79.
Transducer BLP, refrigerant fluid evaporating pressure too low.	There is a refrigerant circuit leak.	Repair the refrigerant circuit.
	The hot gas by-pass valve is out of calibration.	Refer to section "11.2.1 Adjustment of hot gas by-pass valve" on page 79.
	Transducer BLP is defective.	Replace the transducer.
	The cooling fan is running continuously.	Replace the Electronic Control Unit.

Specific malfunction	Cause	Action
Transducer BHP, refrigerant fluid condensing pressure too high.	The inlet compressed air temperature is too high.	Restore the nominal operating conditions.
	The ambient temperature is too high or ventilation is insufficient.	
	The inlet compressed air flow rate is higher than the device nominal flow rate.	
	The condenser is dirty.	Clean the condenser.
	The cooling fan stopped.	See "The cooling fan stopped" specific malfunction.
	Transducer BHP is defective.	Replace the transducer.
The pressure of the refrigerant fluid has reached the safety limit. Safety switch HPS has triggered.	The inlet compressed air temperature is too high.	Restore the nominal operating conditions, then press the reset button on the pressure switch.
	The inlet compressed air flow rate is higher than the device nominal flow rate.	
	The ambient temperature is too high or ventilation is insufficient.	
	The condenser is dirty.	Clean the condenser, then press the reset button on the pressure switch.
	The cooling fan stopped.	See "The cooling fan stopped" specific malfunction, then press the reset button on the pressure switch.
	Pressure switch HPS is defective.	Replace the pressure switch.

Specific malfunction	Cause	Action
Probe BT2, the temperature of the refrigerant fluid has reached the safety limit.	Probe BT2 does not detect the temperature correctly.	Check / place the probe back in its correct position.
	Excessive thermal load.	Restore the nominal operating conditions.
	The inlet compressed air temperature is too high.	
	The inlet compressed air flow rate is higher than the device nominal flow rate.	
	The ambient temperature is too high or ventilation is insufficient.	
	The condenser is dirty.	Clean the condenser.
	The cooling fan stopped.	See “The cooling fan stopped” specific malfunction.
	The hot gas by-pass valve is out of calibration.	Refer to section "11.2.1 Adjustment of hot gas by-pass valve" on page 79.
	There is a refrigerant circuit leak.	Repair the refrigerant circuit.
The refrigerant compressor stopped.	The internal heat protection has triggered.	Wait 30 minutes for the compressor to cool down.
	The internal heat protection, start-up relay or starting capacitor are defective.	Replace the components.
	The electrical wiring is interrupted.	Restore the electrical wiring.
	The compressor is faulty.	Replace the compressor.

Specific malfunction	Cause	Action
The cooling fan stopped.	The internal heat protection has triggered.	Wait 30 minutes for the motor to cool down.
	The internal heat protection is defective.	Replace the motor.
	The starting capacitor is defective.	Replace the capacitor.
	There is a refrigerant circuit leak.	Repair the refrigerant circuit.
	The electrical wiring is interrupted.	Restore the electrical wiring.
	Transducer BHP is defective.	Replace the transducer.
	The motor is faulty.	Replace the motor.
The device does not drain condensate.	The compressed air pressure is too low.	Restore the nominal operating conditions.
	The condensate service valve is closed.	Open the valve.
	Condensate is frozen.	See "Probe BT1, dew point temperature too low" specific malfunction.
	The **BEKOMAT®** condensate drain does not work properly.	Consult **BEKOMAT®** Installation and operating manual.
The device continuously drains condensate.	The **BEKOMAT®** condensate drain does not work properly.	Consult **BEKOMAT®** Installation and operating manual.
Excessive air pressure drop.	Condensate is frozen.	See "Probe BT1, dew point temperature too low" specific malfunction.
	The device does not drain condensate.	See "The device does not drain the condensate" specific malfunction.
	The heat exchanger is clogged.	Check and clean the heat exchanger.

17. Notes

BEKO TECHNOLOGIES CORP.

900 Great Southwest Pkwy SW
US - Atlanta, GA 30336
Tel. +1 404 924-6900
beko@bekousa.com

US

BEKO TECHNOLOGIES S. de R.L. de C.

BEKO Technologies, S de R.L. de C.V.
Blvd. Vito Alessio Robles 4602 Bodega 10
Zona Industrial
Saltillo, Coahuila, 25107
Mexico
Tel. +52(844) 218-1979
informacion@beko-technologies.com

MX

www.bekousa.com