

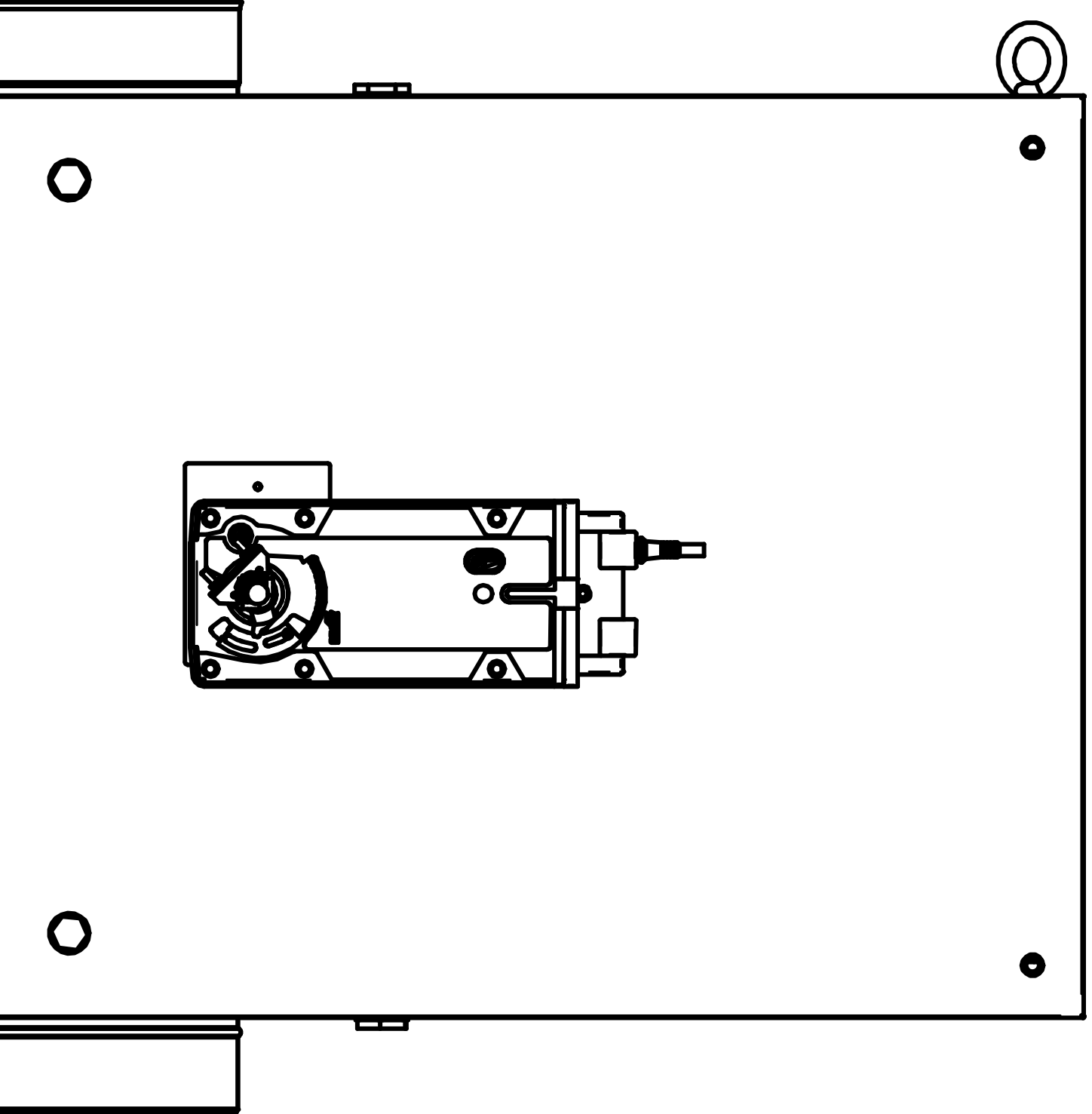
Heat Recovery

# SP



UK | Read and save these instructions!

**exodraft**  
Your energy. Optimized.



## Heat Recovery | Safe Plate

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## How to use this manual

*This manual has been prepared based on the specific product and contains relevant technical information and installations guides.*

*Accessories and spare parts are not covered by this manual. Please refer to the individual manuals of these components.*

*This installation manual does not contain any system design documentation.*

*Failure to observe instructions marked with a danger symbol may result in personal injury and/or damage to the product.*

Errors and omissions excepted.



## Disposal

Electrical and electronic equipment (EEE) often contain materials, components and substances that may harm the environment or be hazardous to your health. Products (WEEE) marked with the 'crossed-out wheeled bin' symbol should be disposed of separately from other waste at the end of its life. Though legislation may differ from country to country we strongly advise that electrical and electronic waste is separated from other waste and disposed of according to national legislation to protect the environment and personnel that may come into contact with waste.

# Symbols

The following symbols may be used in the manual to draw attention to danger or risk of personal injury or damage to the product.



## General prohibition

Failure to observe instructions marked with the prohibited symbol may result in extreme danger or serious personal injury.



## General attention

Marks a dangerous situation that, in the worst-case scenario, can cause serious personal injury or significant damage to the product.



## General warning

Failure to observe instructions marked with a danger symbol may result in personal injury and/or damage to the product.



## Electricity hazard/High Voltage

Marks a situation in which caution is advised due to the risk of high voltage electric shock which can cause serious personal injury or significant damage to the product.



## Connect an earth terminal to the ground

Failure to observe instructions marked with a danger symbol may result in personal injury and/or damage to the product.



## Permitted and approved

Permitted and approved method of installation.



## Prohibited and not approved

Prohibited and not approved method of installation.



## Warning

To minimise the risk of fire, electric shock, personal injury and/or damage to the product please observe the following:

- Please always read the manual and only use the product in accordance with the manufacturer's instructions. If in doubt, contact one of the Exodraft specialized dealers.
- All installations must be carried out by properly qualified personnel in accordance with national legislation and regulations.
- Prior to servicing the product, the heat source must be shut off and cooled down.
- Please ensure that the heat source is not turned back on inadvertently.
- A safety thermostat (ST110) and/or safety valve must be installed and connected to the burner, ensuring disconnection in case of excessive temperatures. The switch must comply with EN 14597.

## Product information

An Exodraft Safe Plate is a compact heat recovery unit for use in Exodraft system solutions.

The exchange cassette is a compact lead-in module that recovers the passing heat (air to water).

Safe Plate is used primarily in smaller industrial and commercial plants with long operating hours and high exit temperatures (max 400°C) in flue pipes and chimneys.

Safe Plate is easy and fast to maintain and clean. Typically, it is used in bakeries, the food processing industry, and in metal processing.

The recovered and stored energy may be used for things like production, utility water, water for heating, cleaning, or process water.

Safe Plate comes with an integrated safety and operative bypass damper and is prepared for easy installation along with standard Exodraft automation.

Safe Plate can be used in heated process air from gas, electricity, and oil\* for heated heat sources.

\*May require special alloy for exchanger

### The Safe Plates limitations

- Strictly for indoor installation
- Range of operation: 80-500 kW (nominal burner power input)
- Max. temperature 400°C
- Process air or flue gas must be of a nature that does not clog up the exchangers in short time
- Directions for standard use must be followed

To find out more about heat recovery visit [www.exodraft.com](http://www.exodraft.com)

### Scope of supply

- Exodraft Safe Plate
- Installation manual and user instructions
- Pallet\*
- Straps\*
- Screws\*
- Transportation safety brackets\*

\*For transportation only. Be aware to disconnect these parts before installation.

## Accessories and spare parts

The table below shows the spare parts available for the Safe Plate models.

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<b>Spare parts</b>	
2400282	Heat exchanger gasket
3200986	Exchanger GLX30-79 WT (Copper brazed)
3200987	Exchanger GLX30-99 WT (Copper brazed)
3200989	Exchanger GLX30-139 WT (Copper brazed)
3201081	Damper motor NFA 10 Nm
3201080	Damper motor SFA 20 Nm
3201064	Damper motor EF230A - 30 Nm

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\*This manual does not describe the specific use of accessories. We refer to the separate manuals for such components.  
For more details contact your Exodraft dealer.



## Warranty

All Exodraft products are covered by a 2-year guarantee as per European consumer rights legislation. For some countries an extended period of guarantee may apply depending on either national legislation or other clearly stipulated conditions. Customer complaints must be handled by a specialised dealer or wholesaler (preferably where the Exodraft product has been bought originally). An updated list of Exodraft specialised dealers can be found on our website for the country in question.

Exodraft products must always be installed by properly qualified personnel. Exodraft reserves the right to change these guidelines without prior notice.

The warranty and liability does not cover instances regarding personal injury or damage to property or the product that can be ascribed to one or more of the following causes:

- Failure to follow this installation and operation manual
- Incorrect installation, start-up, maintenance or servicing
- Improper repairs
- Unauthorised structural modifications made to the product
- Installation of additional components that have not been tested/approved with the product
- Any damage resulting from continued use of the product despite an evident defect
- Failure to use original spareparts and accessories
- Failure to use the product as intended
- Exceeding or failure to meet the limit values in the technical data
- Force majeure

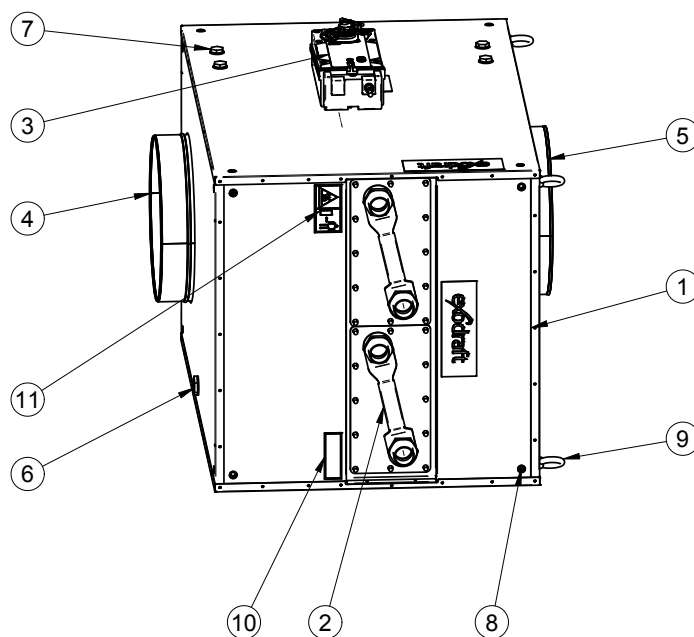
## Technical specifications

### Basic types

Exodraft item number	Type (Safe Plate)	Description	Approximate connection power
8001100	SP80	Integrated bypass GLX30 exchanger, copper brazed Standard pipe connection dimensions Max. 400°C	80 kW
8001200	SP120	Integrated bypass GLX30 exchanger, copper brazed Standard pipe connection dimensions Max. 400°C	120 kW
8001300	SP250	Integrated bypass GLX30 exchanger, copper brazed Standard pipe connection dimensions Max. 400°C	250 kW
8001400	SP375	Integrated bypass GLX30 exchanger, copper brazed Standard pipe connection dimensions Max. 400°C	375 kW
8001500	SP500	Integrated bypass GLX30 exchanger, copper brazed Standard pipe connection dimensions Max. 400°C	500 kW

## Standard components

1	Cabinet
2	Heat exchanger
3	Damper motor
4	Input connection
5	Outlet sleeve
6	1" drain (all 1" connections are drains)
7	½" measuring point (all ½" connections are measuring points)
8	M12 thread for fastening (there is a total of three mounting points in each corner of Safe Plate, each with M12 thread)
9	Lifting eye
10	Nameplate
11	Danger/ Caution sign



## Optional components

### PT 1000 temperature transmitter

SP Model	PT 1000 Type	Length
SP80	2400279	150 mm
SP120	2400279	150 mm
SP250	2400279	150 mm
SP375	2400278	300 mm
SP500	2400278	300 mm

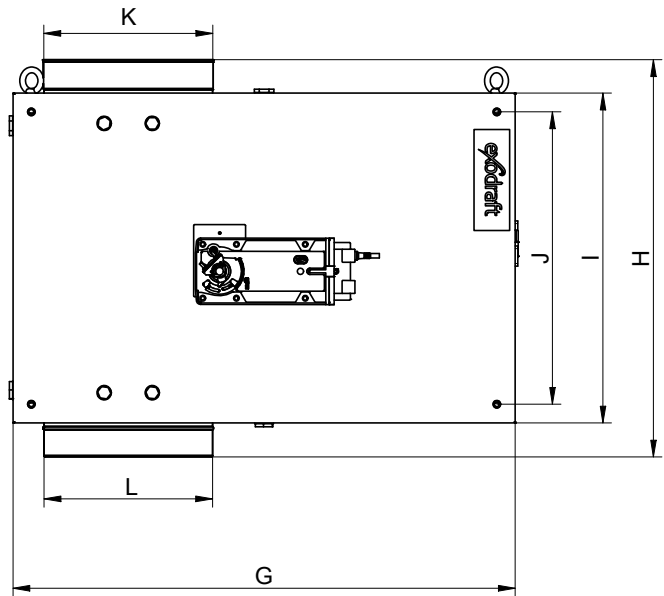
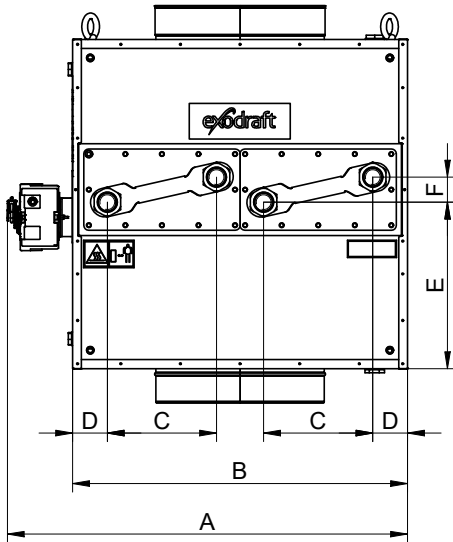
2400266	Pressure connection for $\varnothing 8/4$ mm hose
2400067	Double cover plate
2400068	Single cover plate
2000335	Silicone hose $\varnothing 8/\varnothing 4$ mm
2400355	ST110 safety thermostat
3200984	Damper motor auxiliary switch

## Technical data

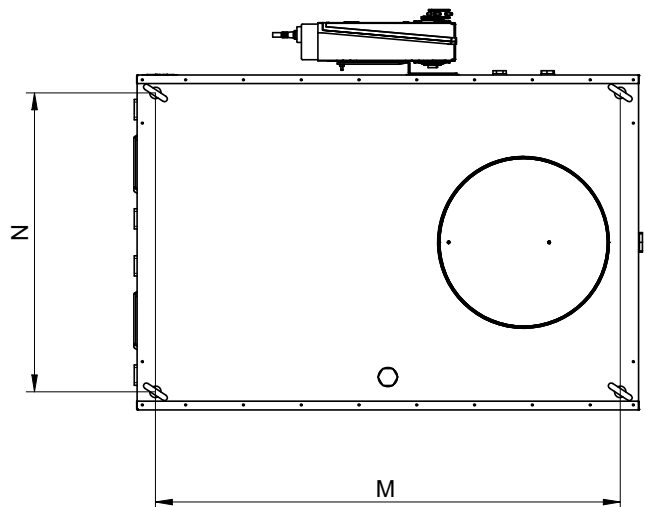
Model	Dimensions [mm]													
	A	B	C	D	E	F	G	H	I	J	K*	L**	M	N
SP80	481	371	227	72	246	52	647	646	506	428	181,2	180,5	569	296
SP120	481	371	227	72	348	52	1044	826	686	608	201,2	200,5	966	296
SP250	481	371	227	72	348	52	1044	826	686	608	251,2	250,5	966	296
SP375	832	696	227	72	346	52	1044	826	686	608	301,2	300,5	966	621
SP500	832	696	227	72	346	52	1044	826	686	608	351,2	350,5	966	621

\*Specifies inside sleeve dimensions

\*\*Specifies outside adapter dimensions



Model	Number of heat exchangers	Weight	
		Incl. heat exchanger [kg]	Excl. heat exchanger [kg]
SP80	1	58	48
SP120	1	90	76
SP250	1	92	74
SP375	2	144	118
SP500	2	150	116



## Mechanical installation

Exodraft products must always be installed by properly qualified personnel.

These instructions, applicable standards and relevant safety procedures from the manufacturer must be followed and at the same time the official provisions in force in the country, where the product is installed, must be observed.



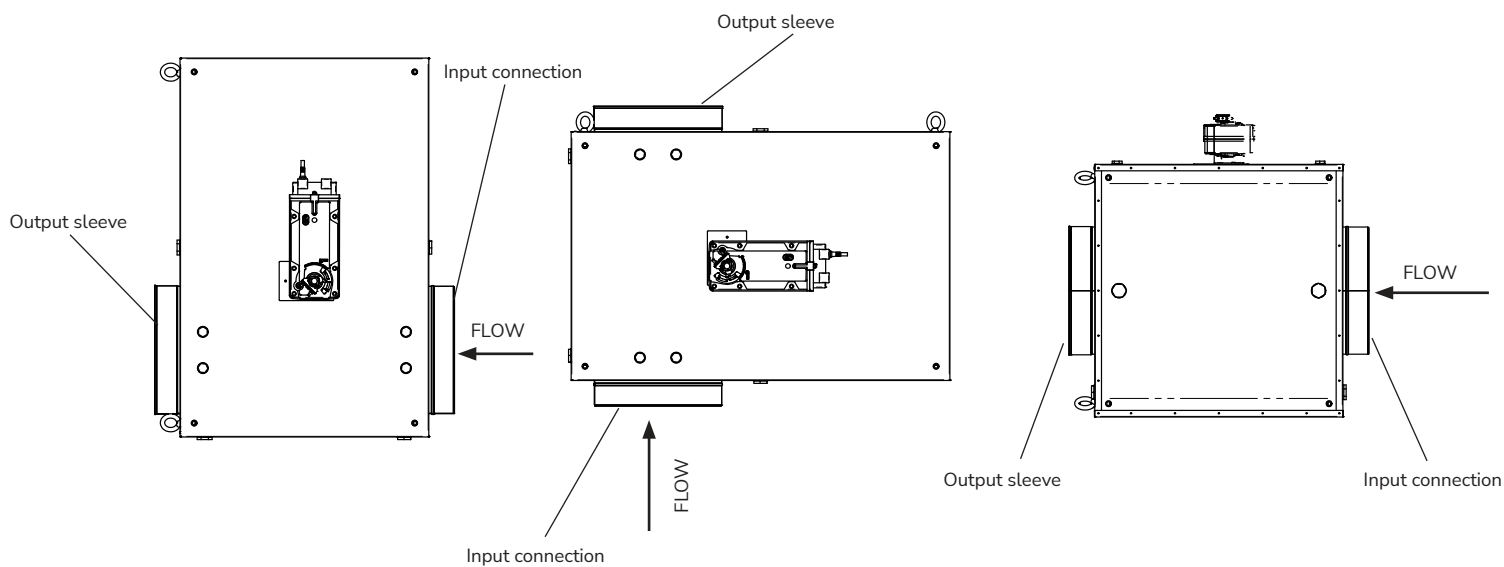
**CAUTION!** If the Exodraft Safe Plate heat recovery unit is not installed, maintained, and/or operated in compliance with the manufacturer's instructions, conditions may arise which could lead to personal injury or material damage.

## Orientation

Safe Plate can be oriented in 3 different ways.

When orienting Safe Plate heat recovery units, it is important to consider placement of drain connections as well as options for ventilating the heat exchangers.

Safe Plate cannot be operated with the damper motor facing down, since this risks any condensation running down the damper axle.

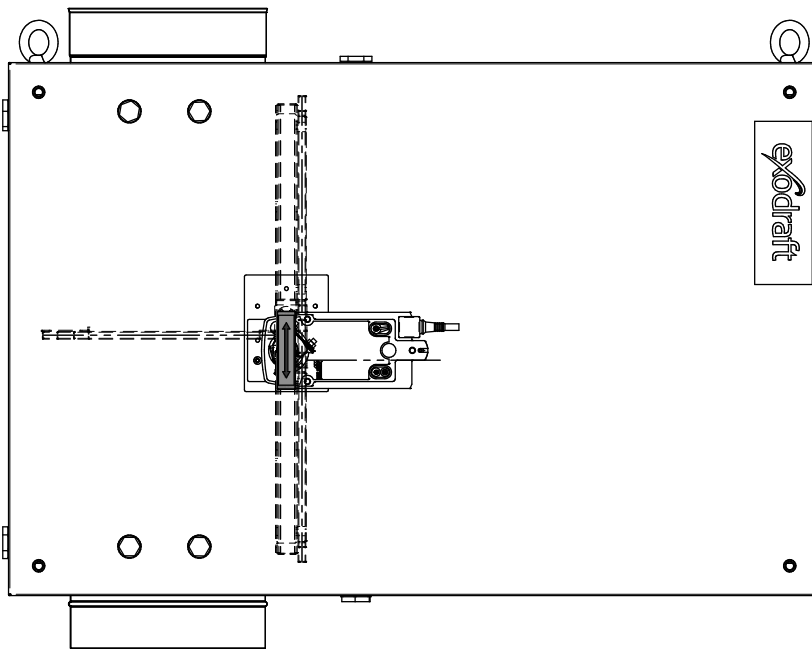


## Damper direction

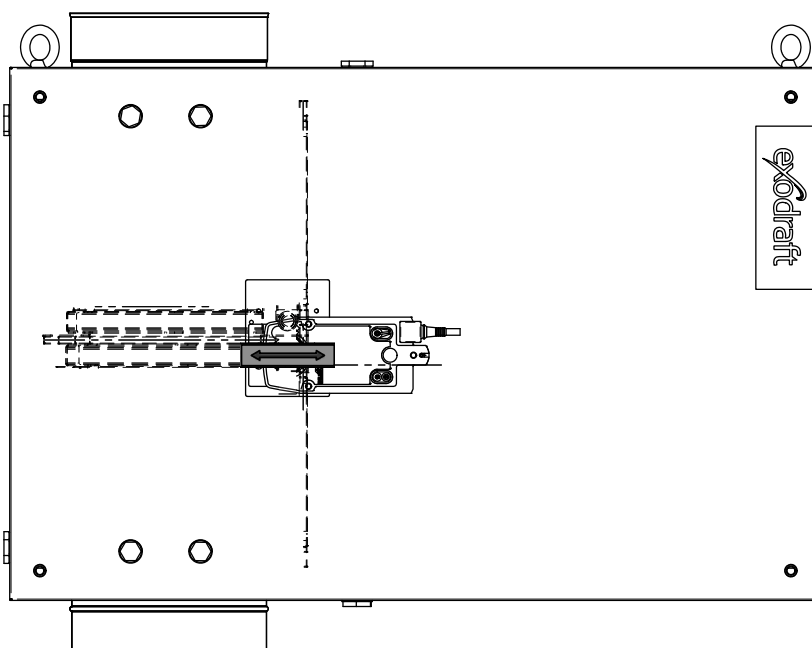
To ensure which direction the damper faces when the unit is mounted, a damper indicator is mounted at the end of the shaft. The arrow points the direction of the damper. See examples below.

As a default setting, the safety position of the dampers is always from the Exodraft production, closed for access to the heat exchangers, which corresponds to the first situation below.

↑↓ Vertical damper direction and vertical flue gas direction  
- Dampers are closed for heat exchanger



↔ Horizontal damper direction and vertical flue gas direction  
- Dampers are open for heat exchanger



## Placement

Placement of the Safe Plate heat recovery unit must be considered carefully.

We recommend placing the Safe Plate as close to the heat source as possible. Furthermore, you must allow for hot surfaces on the Safe Plate.

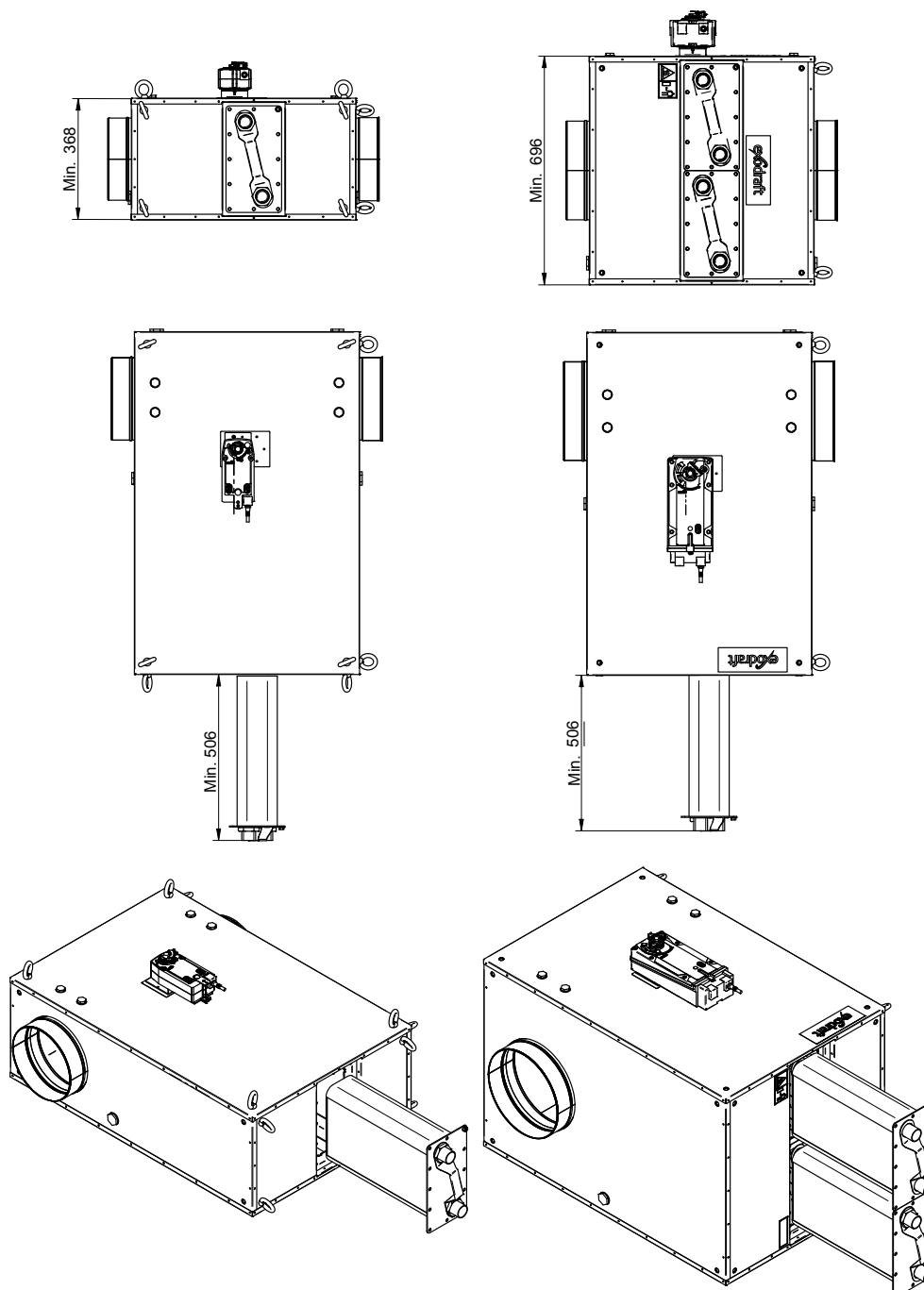


**DANGER!** Observe national regulations regarding distance from flammable materials.

If Safe Plate is placed where it is easily accessible, it must be shielded to avoid inadvertent touch and any risk of collision.

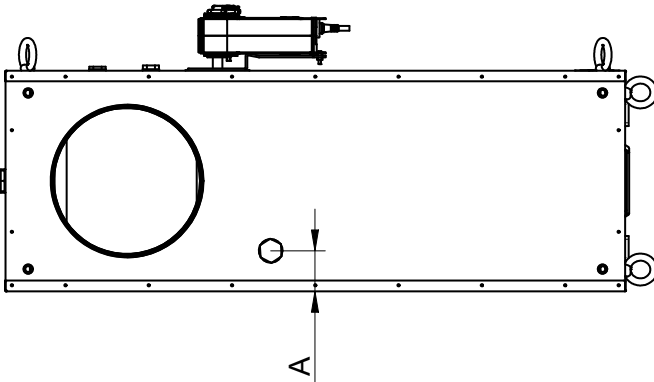


**CAUTION!** Safe Plate must be installed in a way that accommodates pulling out the exchanger for servicing and maintenance.

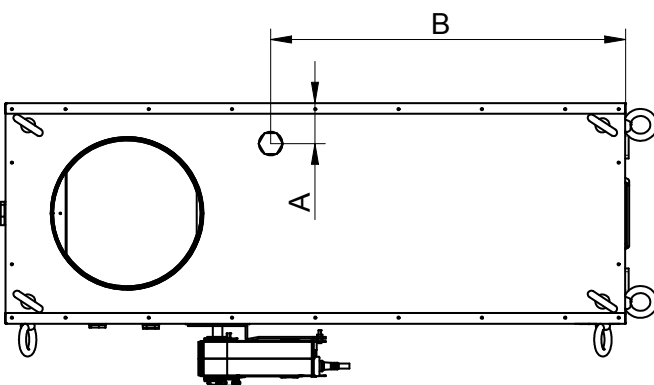
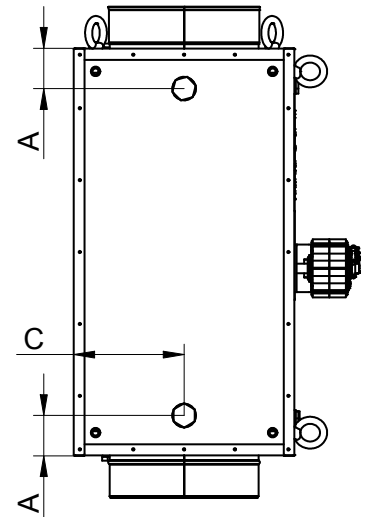
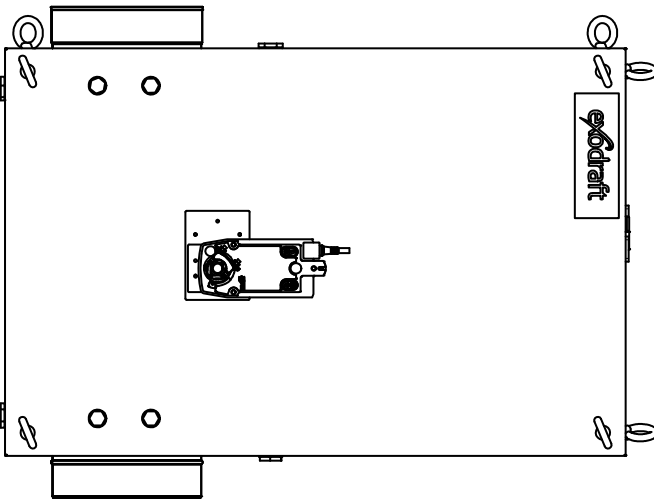


## Drain connection

Placement of drain holes in Safe Plate



Model	A [mm]	B [mm]	C [mm]
SP80	68	324	186
SP120	68	597	186
SP250	68	597	186
SP375	68	522	348
SP500	68	522	348





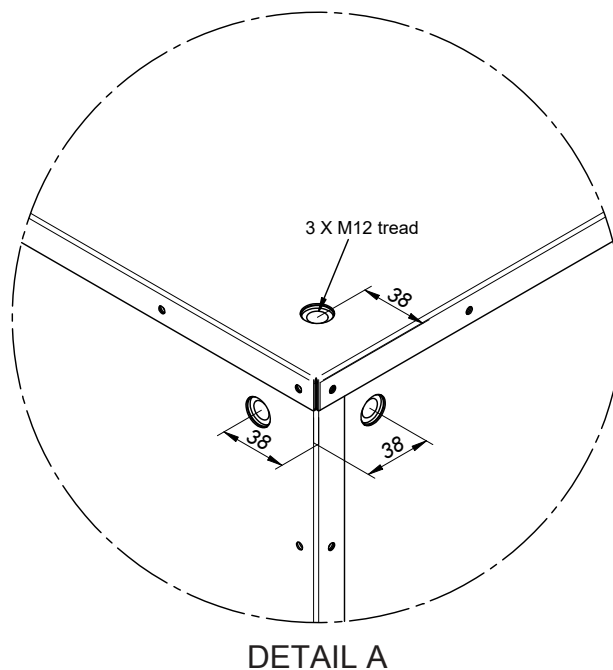
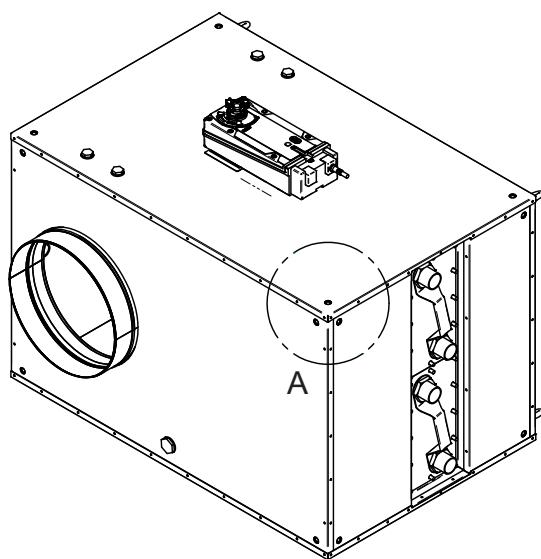
## Mounting

The weight must be distributed among at least 4 mounting corners (see next section – Mounting points). Mounting points are only intended to support the weight of the product itself.

Safe Plate is not built to support the weight of any chimney.



**DANGER!** Max. load on mounting corner 100kg



Exodraft item number	Type (Safe Plate)	Weight incl. heat exchangers [kg]	Number of heat exchangers	Weight each heat exchanger [kg]
8001100	SP80	58	1	11
8001200	SP120	90	1	13
8001300	SP250	92	1	17,5
8001400	SP375	144	2	13
8001500	SP500	150	2	17,5

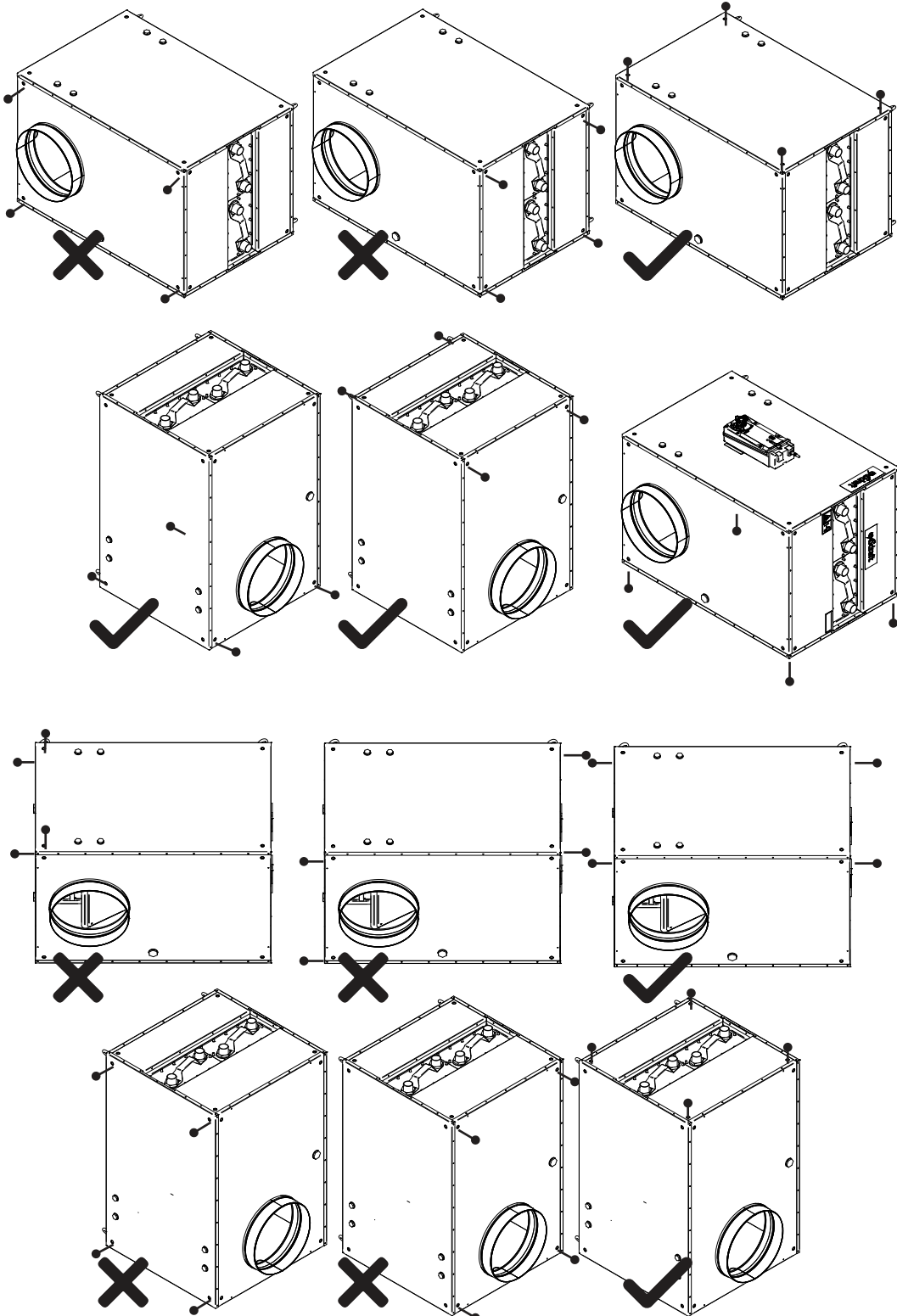
## Mounting points

Safe Plate must be fitted in at least four different corners of the product.

In addition, for safety reasons, it must be ensured that the weight of the product is evenly distributed over all four assembly points.

The following examples show different solutions to approved and unauthorized mounting methods.

### Approved and unapproved mounting methods



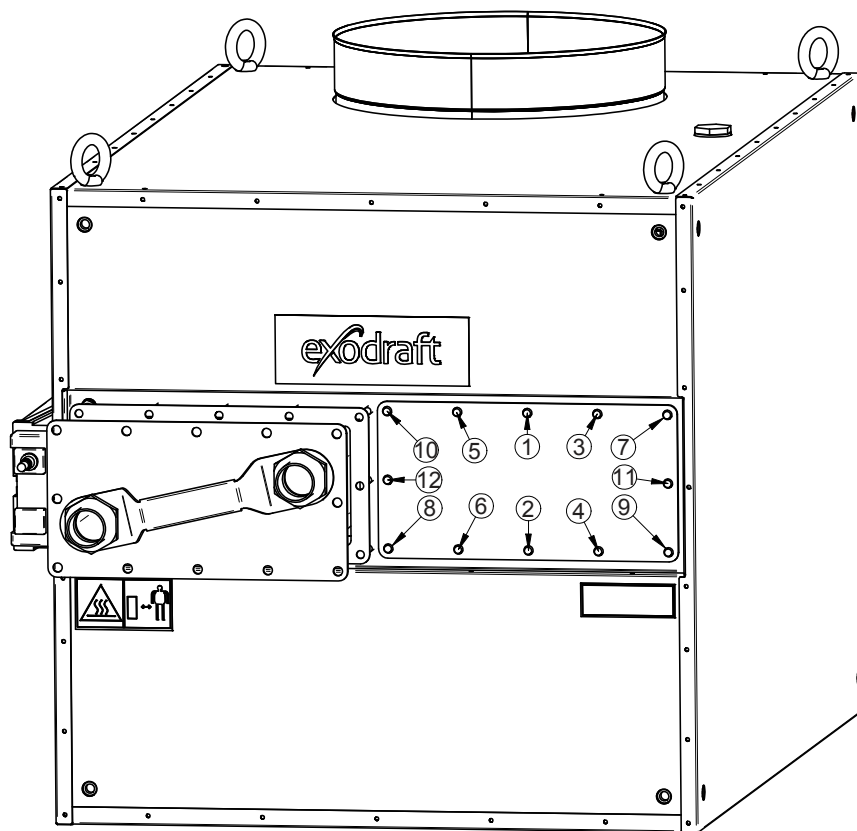
## Connection

- Connection on heat exchangers is 1 1/4" outside thread
- Connection to drain is 1" inside thread
- Connection to measuring points is 1/2" inside thread

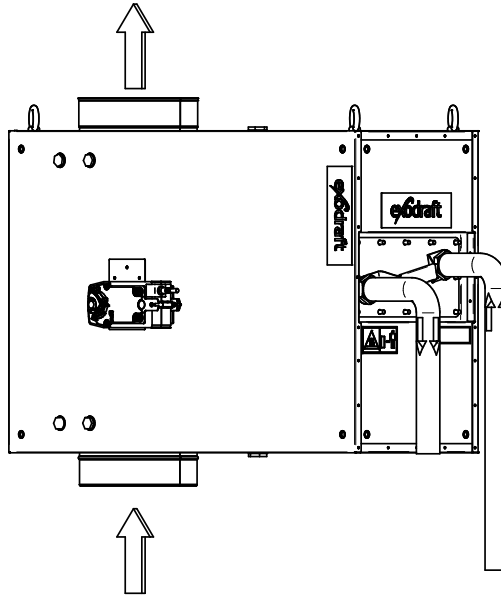


**CAUTION!** Safe Plate comes with heat exchangers temporarily mounted for shipping. When installing, the included gaskets, nuts, and washers must be fitted. Tightening the exchanger is done as shown on the illustration below. Nuts are tightened crosswise to 20 Nm.

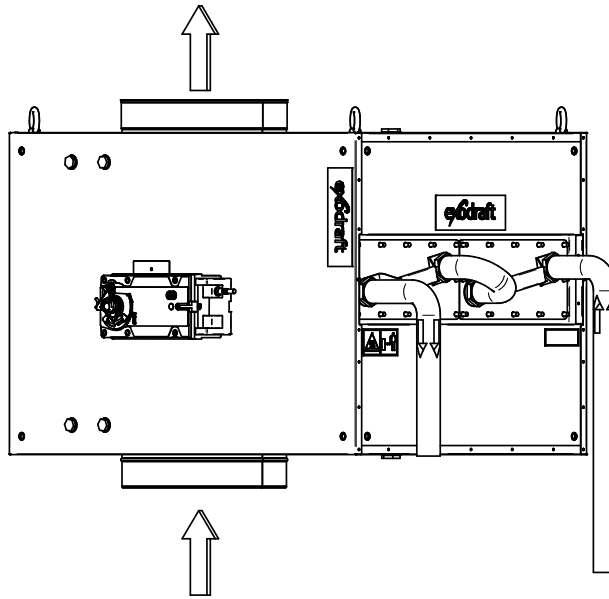
As a rule, the washer for the heat exchanger can be used only once.



Water connection for SP80/120/250



Water connection for SP375/500



When selecting gasket material, keep in mind that the temperature for drains and measuring points can be the same as the temperature of the flue gas.

We recommend installing a water trap on the drain connection. The water trap should be placed a good distance from the Safe Plate to avoid the water evaporating.



**DANGER!** The safety thermostat must be fitted on the supply side.  
Pressure relief valve must be fitted to the water circuit.  
See recommended system pressure in section about Maintenance and Troubleshooting.

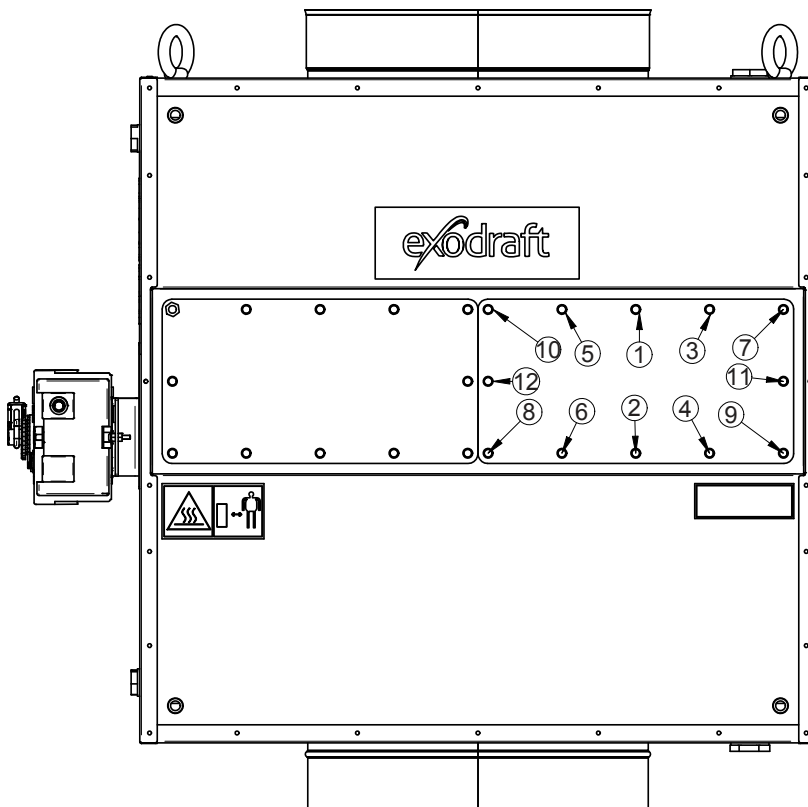
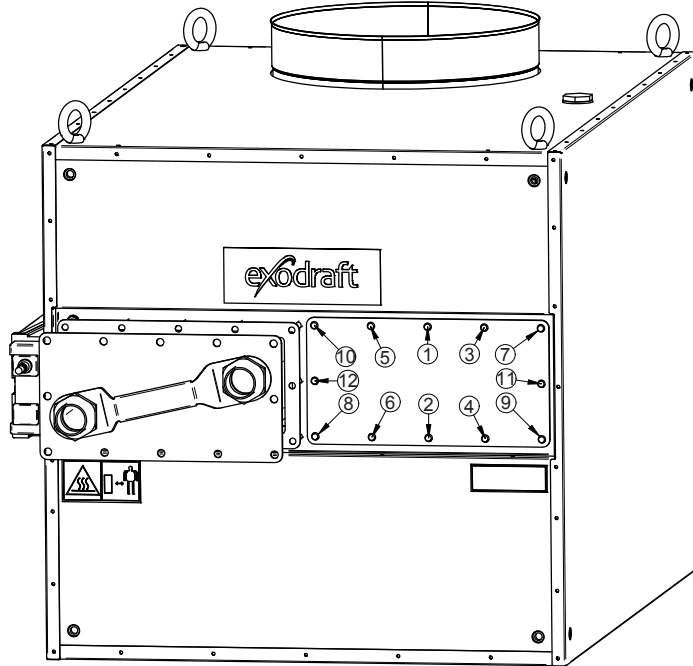


**CAUTION!** If the drain is connected to the sewer system, you must ensure that condensate complies with any emission requirements.

## Installation without water connection

If Safe Plate is installed without water connection, the exchanger must be pulled out and a cover plate installed (if needed see section about Optional Components).

Tightening of the exchanger cover plate is done as shown in the illustration. Nuts are tightened crosswise to 20 Nm.



## Electrical installation



**DANGER!** Turn off the power before working on the unit. Contact with live wires can cause electric shock or death.



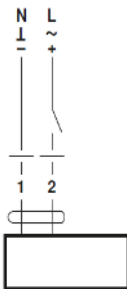
**CAUTION!** If it becomes necessary to replace any of the original wiring that was delivered with the system, you need to use the same type of wire with the same temperature classification.

If this is not done, the isolation can melt or erode, exposing the actual wire.  
All wiring must be completed in accordance with national regulations.

## Wiring diagram / Electrical connection of Damper Motor

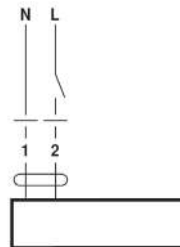
SP80 / SP120 / SP250

AC 24 ... 240 V / DC 24 ... 125 V ⚠



SP375 / SP500

AC 230 V

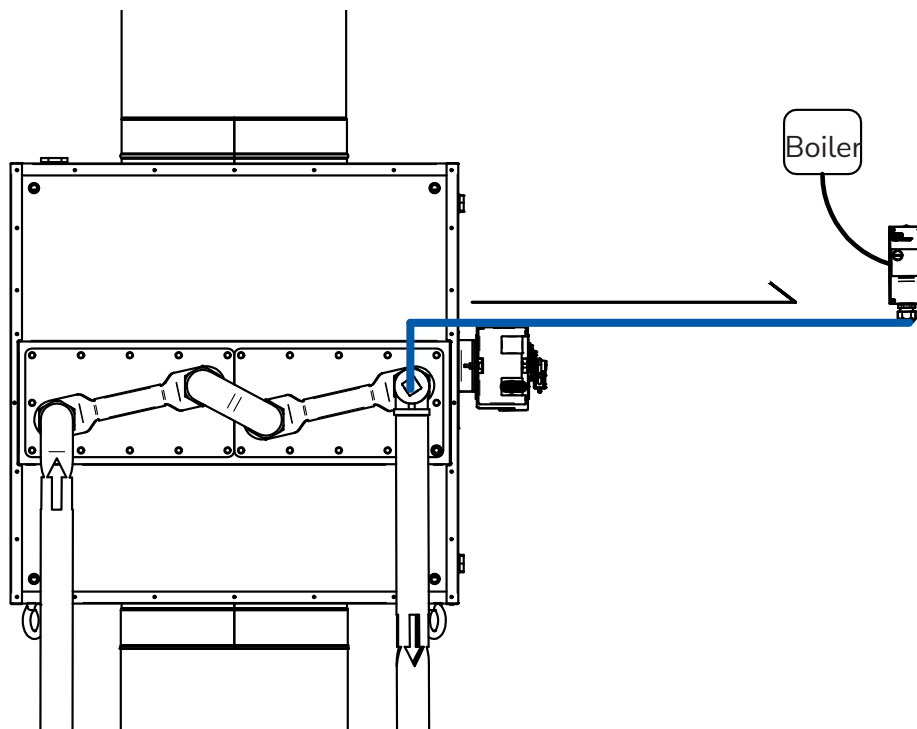


## Placement of Safety Thermostat



**CAUTION!** If using safety thermostat ST110, it must be placed away from the heat source, so the ambient temperature of the sensor is as low as possible.

If this is not complied with, the boiler may be disabled inadvertently.



## Operating conditions

### Primary-/Flue Gas Side

- Max. flue gas temperature: 400°C
- Max. working pressure: 0 Pa
- Min. working pressure: -5000 Pa
- Max. temperature on surface of heat exchanger: 190° (calculated in Opticalc)
- Flue gas quality: check that the flue gas is not corrosive for exchanger (option of other types of exchangers upon request)
- The chemical composition and pH of the condensate shall be checked before disposal

### Secondary-/Liquid Side

- Max. working pressure: copper brazed heat exchanger 12 bar<sub>a</sub>/ nickel brazed heat exchanger 6 bar<sub>a</sub>.
- Min. working pressure: recommended system pressure 1.5 bar<sub>a</sub>. See recommended system pressure in section about System pressure.
- Max. temperature on surface of heat exchanger: 190° (calculated in opticalc)
- Max. media temperature is dependent on the surface temperature and the used media

## Startup and configuration

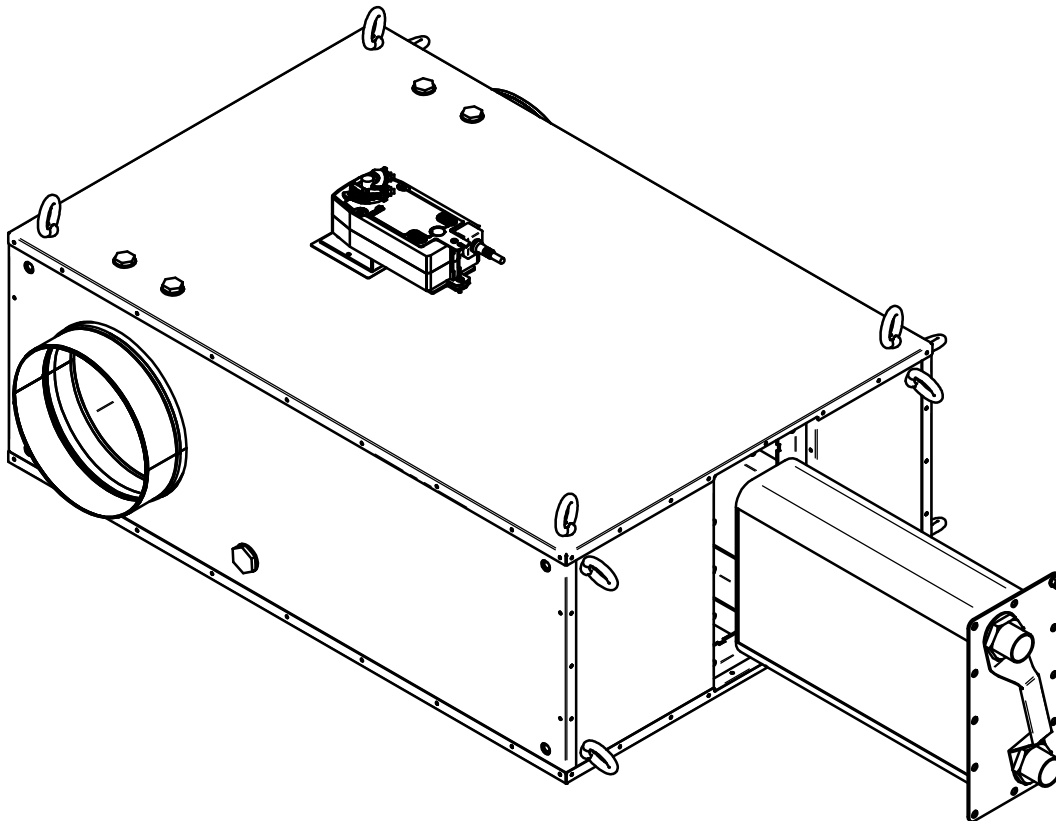
The purpose of this Exodraft Safe Plate heat recovery unit is to recover surplus energy from flue gasses and process air. The unit is environmentally friendly, economical, and compact.

### System startup



**CAUTION!** Safe Plate should not be put into operation before being properly installed.  
Danger of contact with hot components.

1. Connect the water and bleed the system
2. If condensation is a possibility, connect the drain to an appropriate outlet
3. Activate the circulation pump (not supplied by Exodraft) and check that it's running
4. Check that system pressure is consistent with system pressure tables in section about System pressure
5. Check the voltage comparing it to the name plate of the damper motor
6. Check that the unit is set to bypass when the motor receives no voltage that the damper has not been bent during shipping or installation
7. Turn on the power and check that the bypass damper is working (see operating manual)
8. Do a slow and controlled warmup of the Safe Plate water recovery unit
9. Check joints and connections for any leaking





# Maintenance and troubleshooting

## Care and cleaning



**CAUTION!** Safe Plate should be cleaned at regular intervals depending of the level of dirt in the passing air. The unit should be checked for leaks, corrosion, and wear at least once a year.

To ensure maximum flow through the exchanger cassettes, it is important to clean them. The cleaning interval will depend on how much dirt the unit is exposed to.

### Cleaning of exchanger

1. Drain the water from the exchanger cassettes
2. Detach hose/pipe connections to exchanger
3. Loosen all nuts on the exchanger and pull the exchanger out by the handle
4. When cleaning the exchanger, you can use compressed air, soaking, or pressure washing
5. After cleaning, the exchanger is refitted. (Note that as a rule, the gasket can only be used once)
6. Nuts on the exchanger should be tightened crosswise to 20Nm
7. Reattach hose/pipe connections to exchanger
8. Follow directions from the point about Secondary-/Liquid Side as far as restarting the system



**CAUTION!** Use gloves and protective glasses when cleaning the exchanger.

Note: The exchangers are heavy – see weight table below.

Exodraft item number	Exchanger product number	Number of exchangers	Weight per exchanger [kg]
8001100 SP80	3200986	1	11
8001200 SP120	3200987	1	13
8001300 SP250	3200989	1	17,5
8001400 SP375	3200987	2	13
8001500 SP500	3200989	2	17,5



**CAUTION!** Do not open the housing unless the Safe Plate power has been disconnected from the power supply.

## Troubleshooting

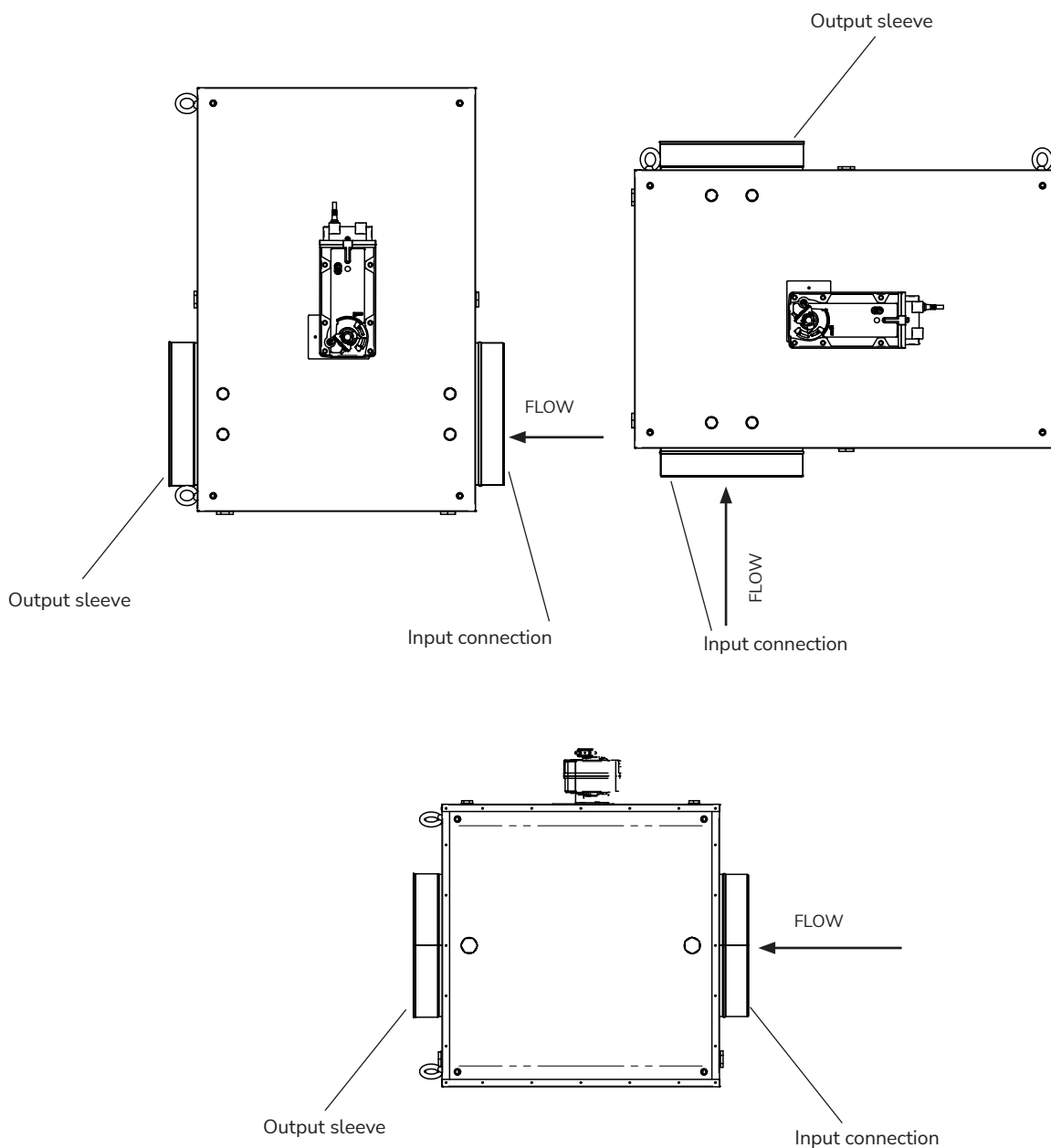
Observation	Problem	Solution
<i>The supply water temperature is low and the temperature difference between the flue gas intake and exhaust is too small</i>	There is air in the water system	The system needs to be bled
	The circulation pump is not operating correctly	Check the operation of the circulation pump
	The water flow is too fast	Check the operation of the circulation pump and mixing loop
	The mixing valve is not operating correctly	Check the operation of the controller
	The unit is in bypass mode	Check the motor voltage and connection
	The water connections have been switched	Correctly connect the supply and return sides (see section about connection)
	The exchanger cassette is blocked by debris	Clean the unit and check that the drain is working
<i>The burner is disabled at low water temperatures</i>	The damper is jammed	Clean the unit and check that the damper can move
	The safety thermostat is disengaging	Check the operation of the safety thermostat Check the safety thermostat setting
		The system needs to be bled Check the operation of the circulation pump
<i>The burner is disabled at high water temperatures</i>	There is air in the water system	The system needs to be bled
	The circulation pump is not operating correctly	Check the operation of the circulation pump
	The mixing valve is not operating correctly	Check the operation of the controller
	The unit isn't switching to bypass	Check voltage and connection of motor Check that the damper can turn freely
	The burner is operating at excessively high power	A larger Safe Plate is needed or the burner power must be reduced
	The damper is jammed	Clean the unit and check that the damper can move
<i>Poor chimney draft</i>	The exchanger cassette is dirty	Clean the unit and check that the drain is working
	The damper is jammed	Clean the unit and check that the damper can move

# Maximum operating time in bypass

## Importance of orientation

The orientation of the Safe Plate is significant for how long you can stay in bypass operation without risking excessive heating of the water in the heat exchanger.

In the tables of the following sections you will find indications as to how many hours it is possible to operate in bypass without water circulation before the water temperature exceeds 105°C (minimum system pressure 1.5 bar<sub>a</sub>) and 115°C (minimum pressure 2 bar<sub>a</sub>), respectively according to orientation. In both tables, the water temperature starts at 60°C.



## Overview table for water temperature 60-105°C

The time is indicated in hours and the water temperature is 60-105°C.

The value of the tables come from the Exodraft testing stand.

### SP80

Position / Flue gas temperature	200°C	300°C	400°C
1	∞	∞	∞
2	∞	∞	10,45
3	∞	∞	4,15

### SP120/250

Position / Flue gas temperature	200°C	300°C	400°C
1	∞	∞	∞
2	∞	10,15	2,30
3	∞	∞	3,30

### SP350/500

Position / Flue gas temperature	200°C	300°C	400°C
1	∞	10,45	3
2	∞	13,30	2,30
3	∞	∞	1,15

## Overview table for water temperature 60-115°C

The time is indicated in hours and the water temperature is 60-115°C.

The value of the tables come from the Exodraft testing stand.

### SP80

Position / Flue gas temperature	200°C	300°C	400°C
1	∞	∞	∞
2	∞	∞	∞
3	∞	∞	14,45

### SP120/250

Position / Flue gas temperature	200°C	300°C	400°C
1	∞	∞	∞
2	∞	∞	3,15
3	∞	∞	6,15

### SP350/500

Position / Flue gas temperature	200°C	300°C	400°C
1	∞	∞	4,10
2	∞	∞	3,40
3	∞	∞	1,40

## System pressure

System pressure is tested according to these standards:

2014/68/EU Fluid Group: 1 & 2 201, 2006/42/EF and 2014/35/EU

### System pressure SP80

Minimum system pressure [bar <sub>a</sub> ]									
Exhaust temperature [°C]					Exhaust temperature [°C]				
Water sample temperature	$\Delta t$	200	300	400	Water sample temperature	$\Delta t$	200	300	400
		10	1,5	1,5		1,5		10	1,5
	20	1,5	1,5	1,5		20	1,5	1,5	2
60°C	30	1,5	1,5	2	70°C	30	1,5	2,5	3
	40	1,5	2	3		40	1,5	3	4
	50	1,5	2,5	4		50	2	3,5	5
Water sample temperature	$\Delta t$	200	300	400	Water sample temperature	$\Delta t$	200	300	400
		10	1,5	1,5		1,5		10	1,5
	20	1,5	2	2,5		20	2	3	3,5
80°C	30	2,5	3	4	90°C	30	3	4	5
	40	2,5	4	5		40	3,5	5	6,5
	50	3	4,5	7		50	3,5	6	9
Water sample temperature	$\Delta t$	200	300	400	Water sample temperature	$\Delta t$	200	300	400
		10	2	2,5		2,5		10	2
	20	3	3,5	4,5		20	3	3,5	4,5
100°C	30	3,5	5	6,5		30	3,5	5	6,5
	40	4	6,5	8		40	4	6,5	8
	50	5	8	NA		50	5	8	NA

## System pressure SP120

Minimum system pressure [bar <sub>a</sub> ]									
Exhaust temperature [°C]					Exhaust temperature [°C]				
Water sample temperature	$\Delta t$	200	300	400	Water sample temperature	$\Delta t$	200	300	400
		10	1,5	1,5		1,5		10	1,5
	20	1,5	1,5	1,5		20	1,5	1,5	2
60°C	30	1,5	1,5	2	70°C	30	1,5	2	3
	40	1,5	2	3		40	1,5	3	4
	50	1,5	2,5	4		50	2	3,5	4,5
Water sample temperature	$\Delta t$	200	300	400	Water sample temperature	$\Delta t$	200	300	400
		10	1,5	1,5		1,5		10	1,5
	20	1,5	2	2,5		20	2	3	3,5
80°C	30	2	3	4	90°C	30	3	4	5
	40	2,5	4	5		40	3,5	5	6,5
	50	2,5	4,5	7		50	3,5	6	8,5
Water sample temperature	$\Delta t$	200	300	400	Water sample temperature	$\Delta t$	200	300	400
		10	2	2,5		2,5		10	2
	20	3	3,5	4		20	3	3,5	4
100°C	30	3,5	5	6	100°C	30	3,5	5	6
	40	4	6,5	8		40	4	6,5	8
	50	5	7	11		50	5	7	11

## System pressure SP250

Minimum system pressure [bar <sub>a</sub> ]									
Exhaust temperature [°C]					Exhaust temperature [°C]				
Water sample temperature	$\Delta t$	200	300	400	Water sample temperature	$\Delta t$	200	300	400
		10	1,5	1,5		1,5		10	1,5
	20	1,5	1,5	1,5		20	1,5	1,5	2
60°C	30	1,5	1,5	2	80°C	30	1,5	2	2,5
	40	1,5	2	3		40	1,5	2,5	3
	50	1,5	2,5	3,5		50	2	3	4,5
Water sample temperature	$\Delta t$	200	300	400	Water sample temperature	$\Delta t$	200	300	400
		10	1,5	1,5		1,5		10	1,5
	20	1,5	2	2,5		20	2	2,5	3
80°C	30	2	3	4	90°C	30	2,5	4	5
	40	2,5	3,5	5		40	3	5	6,5
	50	2,5	4,5	6		50	3,5	5,5	8
Water sample temperature	$\Delta t$	200	300	400	Water sample temperature	$\Delta t$	200	300	400
		10	2	2,5		2,5		10	2
	20	2,5	3,5	4		20	2,5	3,5	4
100°C	30	3,5	4,5	6	100°C	30	3,5	4,5	6
	40	4	6	8		40	4	6	8
	50	5	7	10		50	5	7	10

## System pressure SP375

Minimum system pressure [bar <sub>a</sub> ]									
Exhaust temperature [°C]					Exhaust temperature [°C]				
Water sample temperature	$\Delta t$	200	300	400	Water sample temperature	$\Delta t$	200	300	400
	60°C	10	1,5	1,5		1,5	70°C	10	1,5
20		1,5	1,5	1,5	20	1,5		1,5	1,5
30		1,5	1,5	1,5	30	1,5		1,5	1,5
40		1,5	1,5	1,5	40	1,5		1,5	2
50		1,5	1,5	1,5	50	1,5		1,5	2
Water sample temperature	$\Delta t$	200	300	400	Water sample temperature	$\Delta t$	200	300	400
	80°C	10	1,5	1,5		1,5	90°C	10	1,5
20		1,5	1,5	1,5	20	1,5		2	2
30		1,5	1,5	2	30	1,5		2	2,5
40		1,5	2	2,5	40	2		2,5	3
50		1,5	2,5	3	50	2		3	3,5
Water sample temperature	$\Delta t$	200	300	400	Water sample temperature	$\Delta t$	200	300	400
	100°C	10	1,5	2		2	100°C	10	1,5
20		2	2,5	2,5	20	2		2,5	2,5
30		2,5	3	3,5	30	2,5		3	3,5
40		2,5	3,5	4	40	2,5		3,5	4
50		3	4	5	50	3		4	5

## System pressure SP500

Minimum system pressure [bar <sub>a</sub> ]									
Exhaust temperature [°C]					Exhaust temperature [°C]				
Water sample temperature	$\Delta t$	200	300	400	Water sample temperature	$\Delta t$	200	300	400
	60°C	10	1,5	1,5		1,5	80°C	10	1,5
20		1,5	1,5	1,5	20	1,5		1,5	1,5
30		1,5	1,5	1,5	30	1,5		1,5	1,5
40		1,5	1,5	1,5	40	1,5		1,5	2
50		1,5	1,5	1,5	50	1,5		1,5	2
Water sample temperature	$\Delta t$	200	300	400	Water sample temperature	$\Delta t$	200	300	400
	80°C	10	1,5	1,5		1,5	90°C	10	1,5
20		1,5	1,5	1,5	20	1,5		2	2
30		1,5	1,5	2	30	2		2	2,5
40		1,5	2	2,5	40	2		2,5	3
50		2	2,5	3	50	2		3	4
Water sample temperature	$\Delta t$	200	300	400	Water sample temperature	$\Delta t$	200	300	400
	100°C	10	1,5	2		2	100°C	10	1,5
20		2	2,5	2,5	20	2		2,5	2,5
30		2,5	3	3,5	30	2,5		3	3,5
40		2,5	3,5	4	40	2,5		3,5	4
50		3	4	5	50	3		4	5





**UK Conformity Assessed**

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**Exodraft a/s  
Industrivej 10  
DK-5550 Langeskov**

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Hereby declares that the following products:

---

SP80, SP120, SP250, SP375, SP500

---

Were manufactured in conformity with the provisions of the following regulations:

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**The Supply of Machinery (Safety) Regulations 2008**

**Electrical Equipment (Safety) Regulations 2016**

**Electromagnetic Compatibility Regulations 2016**

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Langeskov, 01-11-2022  
Managing Director  
*Anders Haugaard*



## Declaration of Conformity

DK: EU-Overensstemmelseserklæring  
 GB: Declaration of Conformity  
 DE: EU-Konformitätserklärung  
 FR: Déclaration de conformité de l'Union Européenne  
 NO: EU-Samsvarserklæring  
 PL: EU Deklaracja zgodności

NL: EU-Conformiteits verklaring  
 SE: EU-Överensstämmedeklaration  
 FI: EU-Vaatimustenmukaisuusvakuutus  
 IS: ESS-Samræmisstaðfesting  
 IT: Dichiarazione di Conformità Unione Europea

**Exodraft a/s**  
**Industrivej 10**  
**DK-5550 Langeskov**

Erklærer på eget ansvar, at følgende produkter:  
 Hereby declares that the following products:  
 Erklärt hierdurch auf eigene Verantwortung, daß folgende Produkte:  
 Déclare, sous sa propre responsabilité, que les produits suivants:  
 Erklærer på eget ansvar at følgende produkter:  
 Niniejszym oświadczam, że następujące produkty:

Veklaart dat onderstaande producten:  
 Deklarerar på eget ansvar, att följande produkter:  
 Vastaa siltä, että seuraava tuote:  
 Staðfesti à eigin àbyrgð, að eftirfarandi vörur:  
 Dichiaro con la presente che i seguenti prodotti:

### SP80, SP120, SP250, SP375, SP500

Som er omfattet af denne erklæring, er i overensstemmelse med følgende standarder:  
 Were manufactured in conformity with the provisions of the following standards:  
 Die von dieser Erklärung umfaßt sind, den folgenden Normen:  
 Auxquels s'applique cette déclaration sont en conformité avec les normes ci-contre:  
 Som er omfattet av denne erklæring, er i samsvar med følgende standarder:  
 Zostały wyprodukowane zgodnie z warunkami określonymi w następujących normach:

Zijn vervaardigd in overeenstemming met de voorschriften uit de hieronder genoemde normen en standaards:  
 Som omfattas av denna deklaration, överensstämmer med följande standarder:  
 Jota tämä selvitys koskee, on seuraavien standardien mukainen:  
 Sem eru meðtalin í staðfestingu Pessari, eru í fullu samræmi við eftirtalda staðla:  
 Sono stati fabbricati in conformità con le norme degli standard seguenti:

### EN 60335-1, EN 60335-2-80, DS/EN ISO 12100: 2011

I.h.t bestemmelser i direktiv:  
 In accordance with  
 Entsprechen gemäß den Bestimmungen der folgenden Richtlinien:  
 Suivant les dispositions prévues aux directives:  
 I.h.t bestemmelser i direktiv:  
 Zgodnie z:

En voldoen aan de volgende richtlijnen:  
 Enligt bestämmelserna i följande direktiv:  
 Seuraavien direktiivien määräysten mukaan:  
 Med tilvisun til ákvarðana eftirlits:  
 In conformità con le direttive:

Maskindirektivet:  
 The Machinery Directive:  
 Richtlinie Maschinen:  
 Directive Machines:  
 Maskindirektivet:  
 Dyrektywę maszynową:

De machinerichtlijn:  
 Maskindirektivet  
 Konedirektiivi:  
 Vælaeftirlitið:  
 Direttiva Macchinari:

### 2006/42/EF-EEC/-EWG/-CEE

Lavspændingsdirektiv:  
 The Low Voltage Directive:  
 Niederspannungsrichtlinie:  
 Directive Basse Tension:  
 Lavspændingsdirektivet:  
 Dyrektywę Niskonapięciową

De laagspanningsrichtlijn:  
 Lågspänningsdirektivet:  
 Pienjännitedirektiivi:  
 Smáspennueftirlitið:  
 Direttiva Basso Voltaggio:

### 2014/35/EC

EMC-direktivet:  
 And the EMC Directive:  
 EMV-Richtlinie:  
 Directive Compatibilité Electromagnétique:  
 EMC-direktivet:  
 Dyrektywę EMC – kompatybilności elektromagnetycznej

En de EMC richtlijn:  
 EMC-direktivet:  
 EMC-direktiivi:  
 EMC-efirlitið:  
 Direttiva Compatibilità Elettromagnetica:

### 2014/30/EC

**Langeskov, 01-11-2022**  
 Adm. direktør  
 Managing Director  
 Anders Haugaard

Algemeen directeur  
 Geschäftsführender Direktor  
 Président Directeur Général  
 Verkställande direktör  
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Your energy. Optimized.

The logo for Exodraft, featuring the word "exodraft" in a bold, lowercase sans-serif font. The letter "x" is stylized with a curved line that loops around the top and right sides of the letter.