

# INVITE NATURE INSIDE

TX 3100A

Juni 2022

**TURBOVEX**   
- *fresh air* for everyone





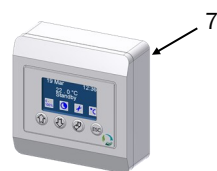
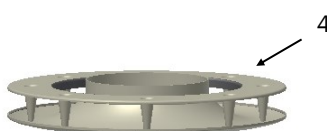
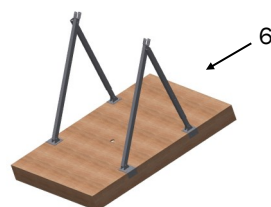
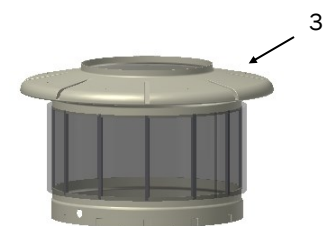
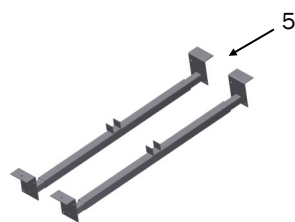
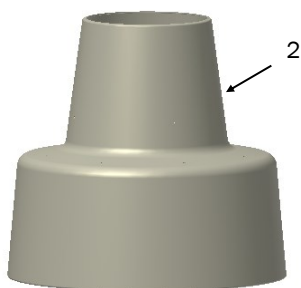
# TX 3100A



A Decentral Ventilation with a capacity from 1400 to 3000 m<sup>3</sup>/h, can be used in the following locations:

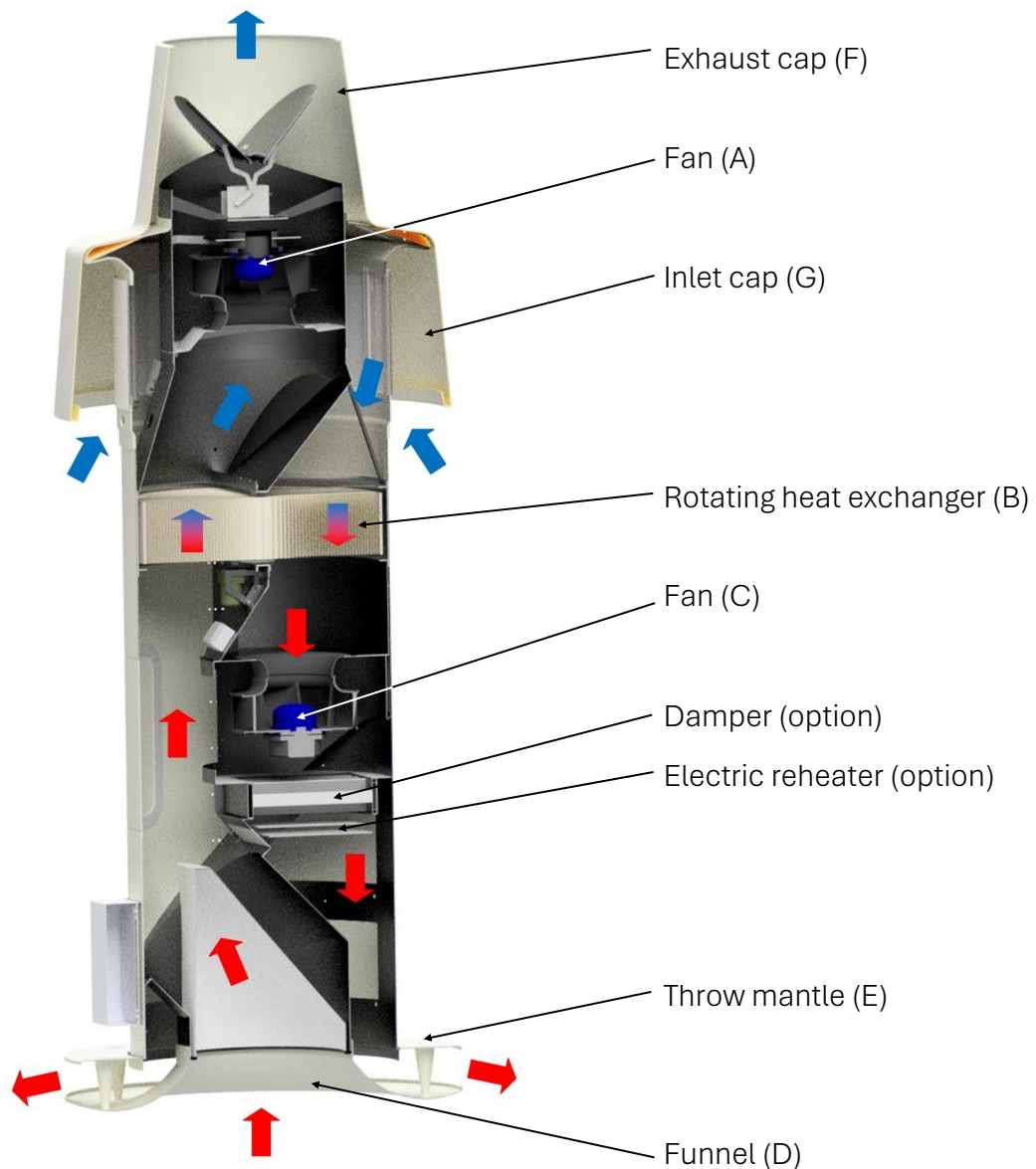
- Auto repair shops
- Production companies
- Sports halls
- Shopping centres

# MAIN COMPONENTS - TX 3100A



- 1.TX 3100A unit
- 2.Top cone
- 3.Filter holder
- 4.Inlet ring
- 5.Standard mounting brackets
- 6.Special mounting brackets (optional)
- 7.TX Electronic Control Display

# FUNCTION OF THE UNIT



The principle of the heat recovery in the TX3100A is based on the rotating heat exchanger (B). The exhaust fan (A) extracts the warm room air from the funnel (D) through half of the heat exchanger (B), and send it through the exhaust cap (F).

Simultaneously the inlet fan will (C) suck air from the inlet cap (G) and send it through the other half of the heat exchanger.

The heated fresh air is sent to (E), and diffused in the room.

One half of the rotating heat exchanger will heat up in the warm flow of the exhaust air. When the heated material in the heat exchanger is in the cool flow of the inlet air, it will deliver heat from the material to the fresh air.

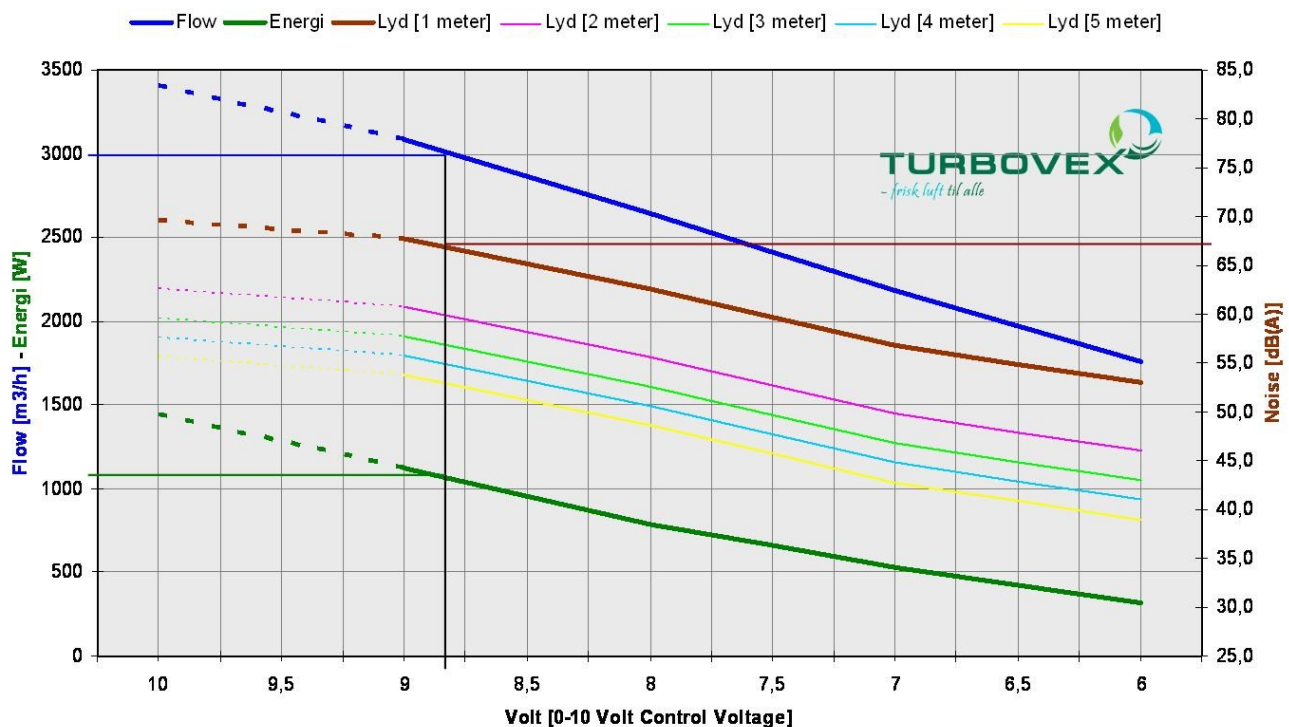
The process is regenerative as the heat exchanger rotates at low rpm.

The heat exchanger is equipped with a cleaning sector creating a low pressure to eliminate the possibility of undesirable leaks.

# TECHNICAL SPECIFICATIONS

Dimensions L x B:	3393x1300 mm
Capacity :	1400-3000 m <sup>3</sup> /h
Heat recovery (3000 m <sup>3</sup> /h) :	74 %
Filter:	F5
Weight:	224 Kg
Power supply:	1 x 230 V/50Hz
Output (motor):	2 x 750Watt
Energy consumption (3000 m <sup>3</sup> /h) :	1044 Watts—1,25 Kj/m <sup>3</sup>
Current:	4,5 A
Sound:	46-60 dbA
Pipe thickness of the lead-through	870 mm
Electric reheater (option)	6 kW

## TX 3100A



TX 3100A is tested in cooperation with Ziehl-abegg – [www.ziehl-abegg.com](http://www.ziehl-abegg.com)

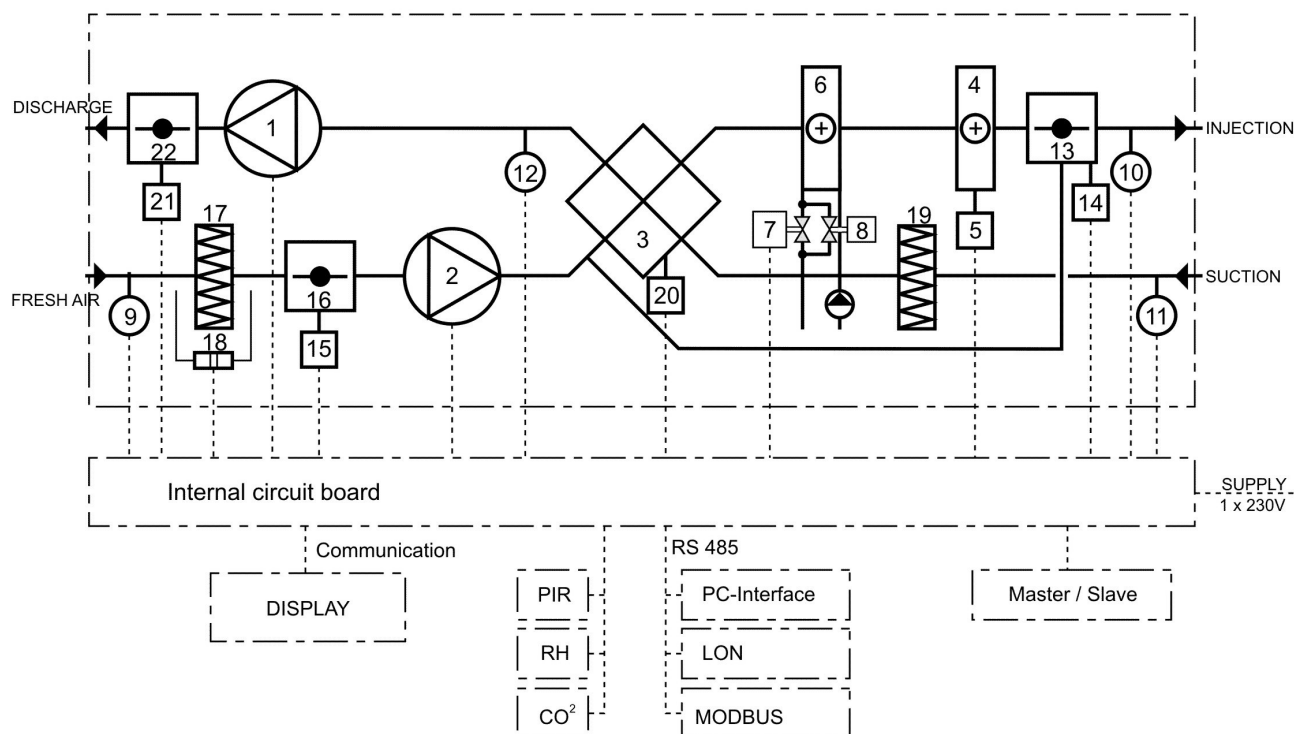
The airflow indicates the balanced air exchange in relation to the control voltage. (0-10 volt) and is shown in m<sup>3</sup>/h. The unit can be adjusted manually to suit your required air exchange.

The sound level is shown in decibel – dB (A) in relation to air exchange.

The sound is measured in 1 to 5 meters from the unit under normal conditions.

# FLOWCHART

## FLOWCHART F. TURBOVEX DECENTRAL VENTILATION W. ELECTRONIC CONTROL



● STANDARD

○ OPTION

Pos. No	Components	TX 250A	TX 500A	TX 750A	TX 1000A	TX 3100A
1	Suction fan EC	●	●	●	●	●
2	Blower fan EC	●	●	●	●	●
3	Heat exchanger (air - air)	●	●	●	●	●
4	Heating surface	○	○	○	○	○
5	Fire-protection thermostat	○	○	○	○	
6	Heating coil	○	○	○	○	
7	Frost-protection thermostat	○	○	○	○	
8	Control-valve	○	○	○	○	
9	Freshair temperature-sensor	●	●	●	●	●
10	Injection temperature-sensor	●	●	●	●	●
11	Suction temperature-sensor	●	●	●	●	●
12	Discharge temperature-sensor	●	●	●	●	●
13	By-pass damper	●	●	●	●	
14	Motor f. automatic By-pass	●	●	●	●	
15	Motor f. internal damper	●	●	●	●	○
16	Internal damper	●	●	●	●	○
17	Filter Freshair M5	●	●	●	●	●
	Filter Freshair F7	○	○	○	○	
18	Filter-alarm	●	●	●	●	●
19	Filter Discharge M5	●	●	●	●	●
20	Motor f. rotating exchanger / by-pass					●
21	Motor f. internal damper					●
22	Internal damper					●

**TURBOVEX**  
- Fresh air for everyone



# EXCHANGER

ST1-LL-WH-0820-CS-V1-FR-5

Condensation wheel

Date: 18.10.2016

## ErP 2018 Ready

Thermal performances			Heating	
			Supply air	Extract air
Temperature efficiency	$\eta_t$	%	74,0	
Humidity efficiency	$\eta_x$	%	38,6	
Enthalpy efficiency	$\eta_h$	%	64,0	
Temperature effectiveness	$\varepsilon_t$	%	74,0	
Humidity effectiveness	$\varepsilon_x$	%	38,6	
Total effectiveness	$\varepsilon_h$	%	64,0	
Thermal efficiency (ErP)	$\eta_{t,nrvu}$	%	74,0	

Actual volume flow	V	m <sup>3</sup> /h	3 000	3 000
Mass flow	m	kg/h	3 600	3 600

## Capacity of the heat recovery system

Sensible	$Q_{sensible}$	kW	19,4	-19,4
Latent	$Q_{latent}$	kW	3,9	-3,9
Total	$Q_{HRS}$	kW	23,3	-23,3
Mass transfer humidity	m	kg/h	0	5

## Pressure drop

Actual pressure drop	$\Delta p_2 / \Delta p_1$	Pa	159	175
Press. drop @ std. density	$\Delta p$	Pa	174	174
Face velocity @ std. density	v	m/s	3,2	3,2

## In

Nominal flow rate	V	m <sup>3</sup> /h	3 000	3 000
Temperature DB	$t_{21} / t_{11}$	°C	-5,0	21,0
Rel. humidity	RH	%	90,0	40,0
Abs. humidity	x	g/kg	2,2	6,2
Density	$\rho$	kg/m <sup>3</sup>	1,20	1,20
Enthalpy	h	kJ/kg	0,5	36,9

## Out

Nominal flow rate	V	m <sup>3</sup> /h	3 000	3 000
Temperature DB	$t_{22} / t_{12}$	°C	14,2	1,8
Rel. humidity	RH	%	37,4	99,0
Abs. humidity	x	g/kg	3,7	4,2
Density	$\rho$	kg/m <sup>3</sup>	1,20	1,20
Enthalpy	h	kJ/kg	23,8	12,4

Efficiency / Efficiency class (EN 13053)	$\eta_e$	%	71,5	H1
Leakage data complies with Eurovent	@ $\Delta p_{22-11}$	Pa	250	
	EATR	%	0,00	OACF 1,16
Altitude / Air pressure	m		0	mbar 1 013

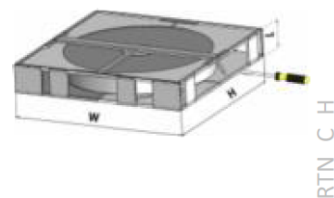
## Technical description

Condensation rotor type ST1; humidity is only transferred in cases when the dew point of one of the air streams is reached during winter conditions.

ST1 is built with an untreated aluminum foil is a cost-efficient solution to recover heat for standard applications.

CS is a slide-in casing for one piece rotors Ø300 – 2600 mm which fit into air handling units.

Rotor		
Ø	820	mm
Wave height	1,70	mm
Rotor width	200	mm
One piece (W)		
Orientation	Horizontal (H)	
Rotor speed	12,0	1/min

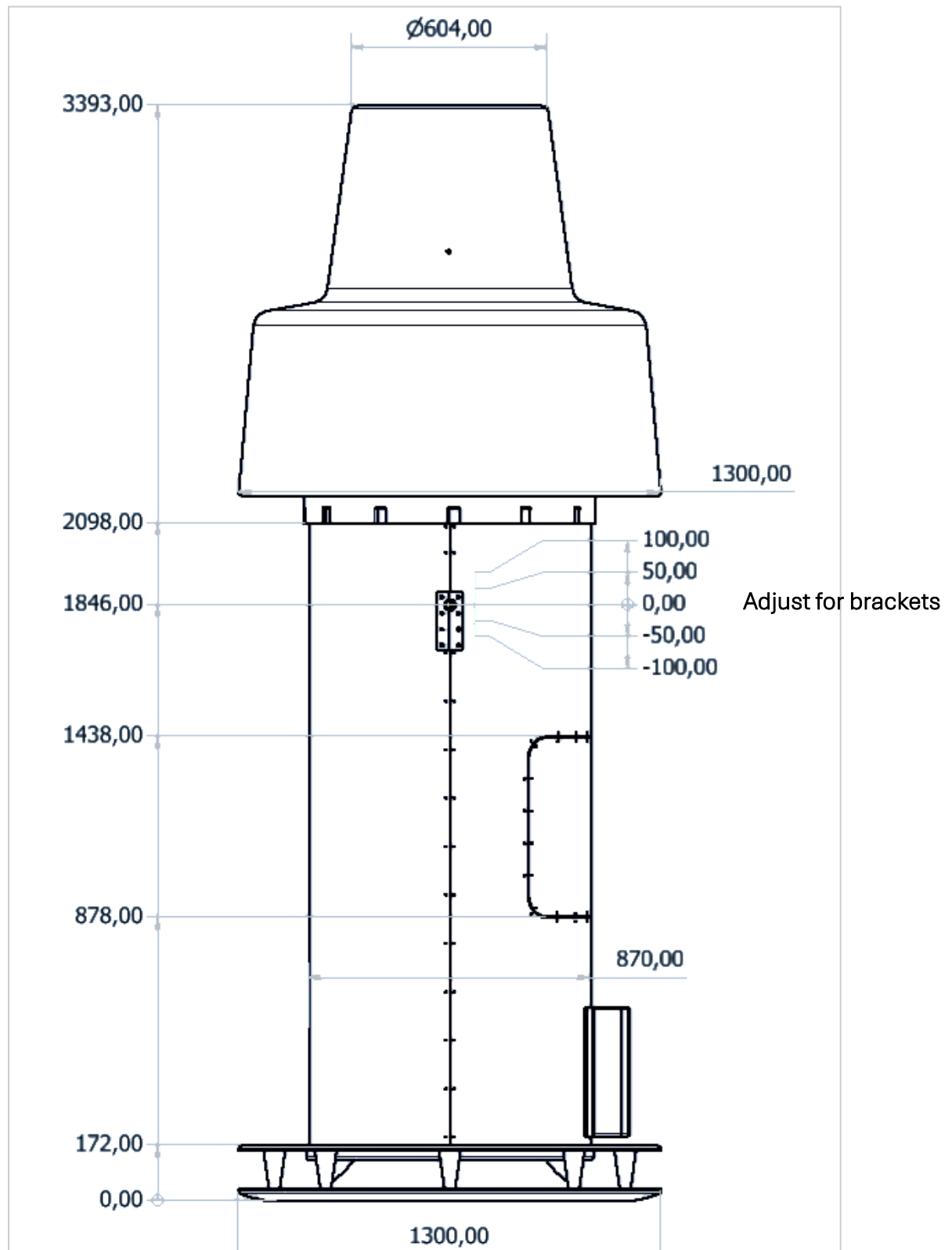


Casing		
Weight appr.	53	kg
H	920	mm
W	920	mm
L	290	mm
Purge sector	5	°

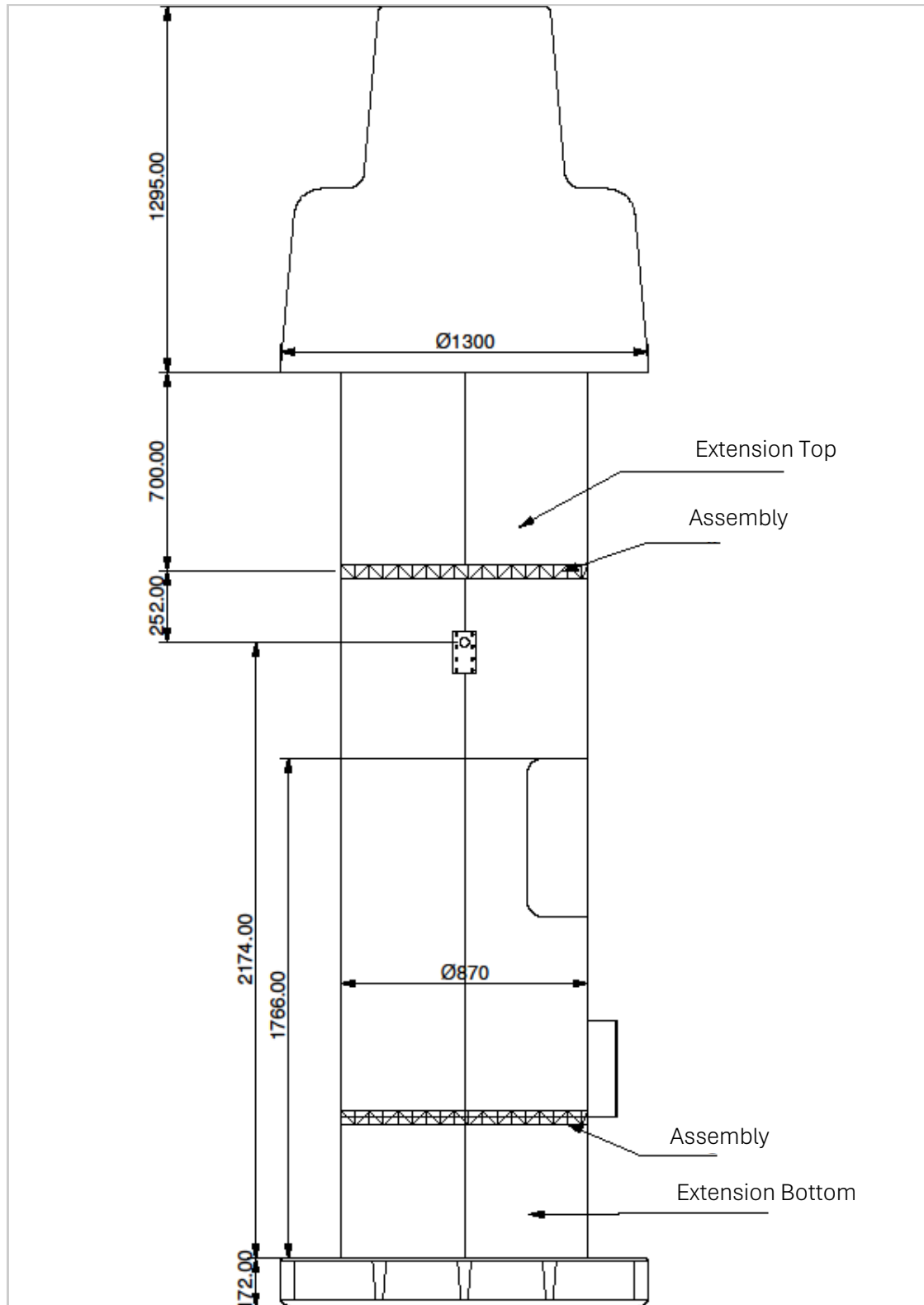




# DIMENSIONAL DRAWING — STANDARD

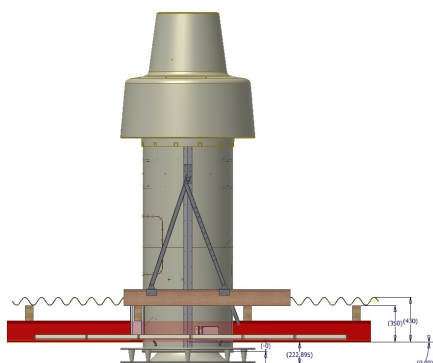


# DIMENSIONAL DRAWING-with extensions



# PROPOSAL FOR INSTALLATION

## Pitch 0°



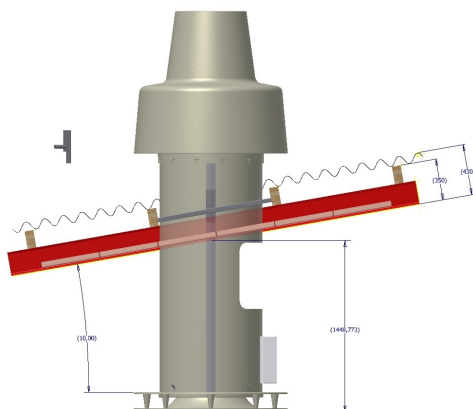
### STANDARD:

TX 3100A unit  
TX Electronic Control  
Soft flashing sheet

### OPTION:

Flashing frame for outside mounting  
Extension Top (700 mm)  
Extension Bottom (500 mm)  
Adjustable brackets for the flashing frame (set)  
Long brackets for adjustment of the suspension + - 18 cm

## Pitch 10°



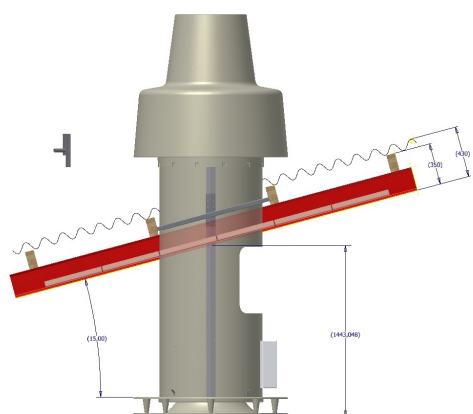
### STANDARD:

TX 3100A unit  
TX Electronic Control  
Soft flashing sheet

### OPTION:

Flashing frame for outside mounting  
Extension Top (700 mm)  
Extension Bottom (500 mm)  
Adjustable brackets for the flashing frame (set)  
Long brackets for adjustment of the suspension + - 18 cm

## Pitch 15°



### STANDARD:

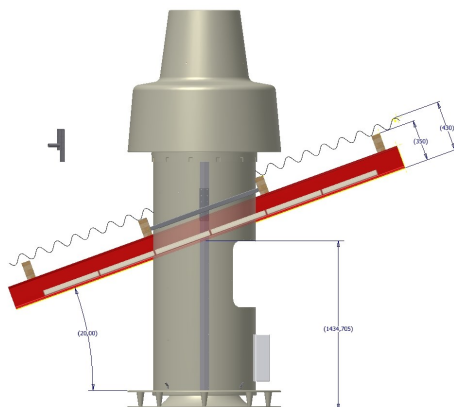
TX 3100A unit  
TX Electronic Control  
Soft flashing sheet

### OPTION:

Flashing frame for outside mounting  
Extension Top (700 mm)  
Extension Bottom (500 mm)  
Adjustable brackets for the flashing frame (set)

# PROPOSAL FOR INSTALLATION

## Pitch 20°



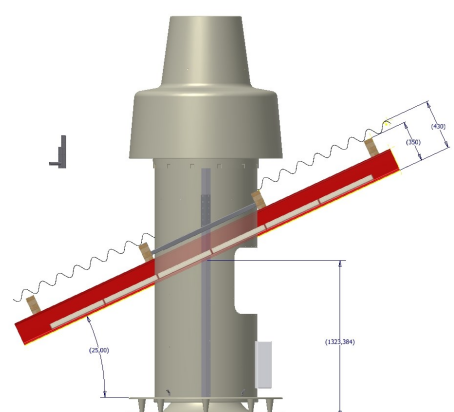
### STANDARD:

TX 3100A unit  
TX Electronic Control  
Soft flashing sheet

### OPTION:

Flashing frame for outside mounting  
Extension Top (700 mm)  
Extension Bottom (500 mm)  
Adjustable brackets for the flashing frame (set)

## Pitch 25°



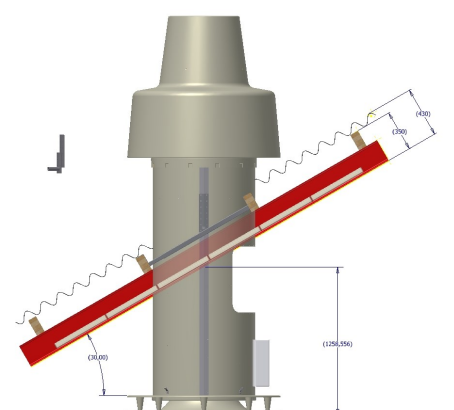
### STANDARD:

TX 3100A unit  
TX Electronic Control  
Soft flashing sheet

### OPTION:

Flashing frame for outside mounting  
Extension Top (700 mm)  
Extension Bottom (500 mm)  
Adjustable brackets for the flashing frame (set)

## Pitch 30°



### STANDARD:

TX 3100A unit  
TX Electronic Control  
Soft flashing sheet

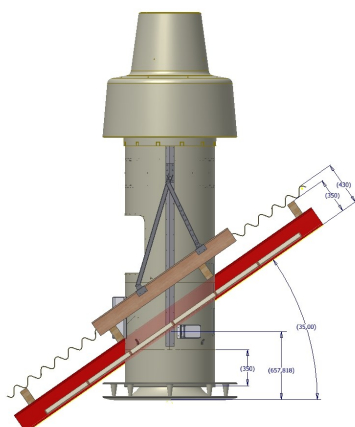
### OPTION:

Flashing frame for outside mounting  
Extension Top (700 mm)  
Extension Bottom (500 mm)  
Adjustable brackets for the flashing frame (set)



# PROPOSAL FOR INSTALLATION

## Pitch 35° (external service hatch)



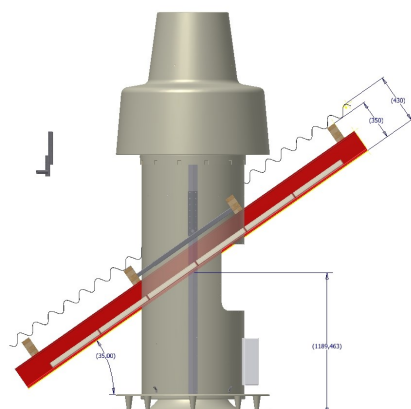
### STANDARD:

TX 3100A unit  
TX Electronic Control  
Soft flashing sheet

### OPTION:

Flashing frame for outside mounting  
Extension Top (700 mm)  
Extension Bottom (500 mm)  
Adjustable brackets for the flashing frame (set)

## Pitch 35° (internal service hatch)



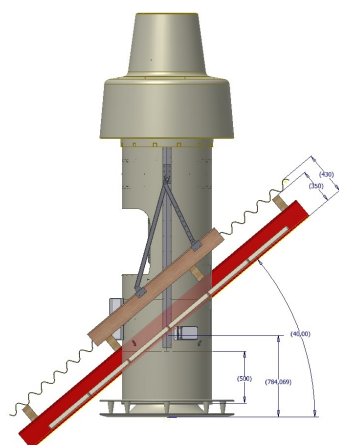
### STANDARD:

TX 3100A unit  
TX Electronic Control  
Soft flashing sheet

### OPTION:

Flashing frame for outside mounting  
Extension Top (700 mm)  
Extension Bottom (500 mm)  
Adjustable brackets for the flashing frame (set)

## Pitch 40°



### STANDARD:

TX 3100A unit  
TX Electronic Control  
Soft flashing sheet

### OPTION:

Flashing frame for outside mounting  
Extension Top (700 mm)  
Extension Bottom (500 mm)  
Adjustable brackets for the flashing frame (set)

# SMOKE TESTS

Kjeldbjergvejens Auto, DK-Skive

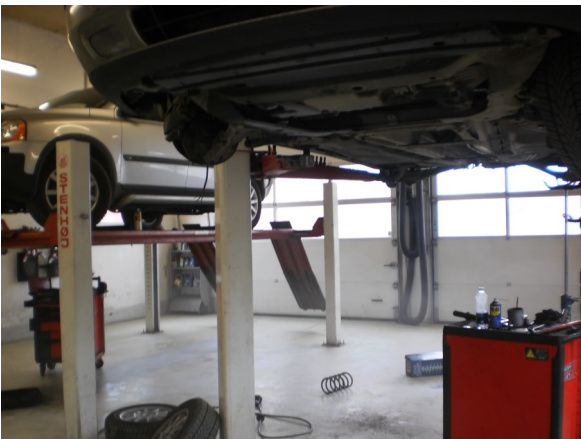
1. 0 minuttet



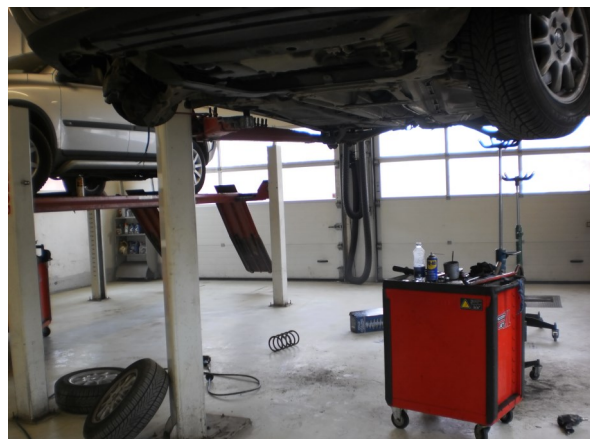
2. 4 minuttet later



3. 8 minuttet later



4. 12 minuttet later



5. 16 minuttet later



6. 20 minuttet later



# CONTROL / OPERATION

## TX Electronic Control

With TX Electronic Control / display panel , there are many opportunities for individual setup parameters.

- Forced Mode
- Prolonged Mode
- Temperature Setpoints
- Keypad Lock in 4 levels
- Alarm menu
- Software stop
- Day Mode
- Night Mode
- Calendar
- Clock/day/date
- DST Off/on
- Language
- Standby
- PIR
- Technical Menu
- System Info
- others

## Master / Slave

The master / slave function allows communication between a unit (master) and up to 5 additional units (slaves 1-5). The master controls the slaves so that all 6 units run in exactly the same way.

The slaves send information back to the master. Any error that might arise in a slave unit will be displayed on the master with an error message and specification of the defective unit. Consequently, all units must be numbered.

This particular master / slave function requires an extra small circuit board for each unit. This small circuit board should be mounted on the existing main circuit board of each unit.

## LON

LON (Local Operating Network) is a network where the intelligence is distributed to the devices connected to the system, and not concentrated in a control station as in a traditional network. Thousands of TX plants can be set up on the same network and the wiring can be several kilometers long. In order to use the LON network, install an additional small circuit board on the main board of each unit.

- 4 parameters can be written, 14 parameters can be read

## MODbus / RS-485

MODbus is an industrial standard of serial communication for use in client/server communication between devices that can be connected through different networks. 247 TX units can be installed in the same MODbus network and cable length can be up to 500 meters, extended up to 1000 meters at low speed data communication. In order to use the MODbus network, install an additional circuit board on the main board of each plant.

## MODbus m/converter and pc-software

MODbus is an industrial standard of serial communication for use in client/server communication between devices that can be connected through different networks. 200 TX units can be installed in the same MODbus network and cable length can be up to 500 meters, extended up to 1000 meters at low speed data communication. In order to use the MODbus network, install an additional circuit board on the main board of each plant.



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