# INVITE NATURE INSIDE

TX 250A

TX 500A

TX 750A

TX 1000A

TURBOVEX

~ fresh air for everyone

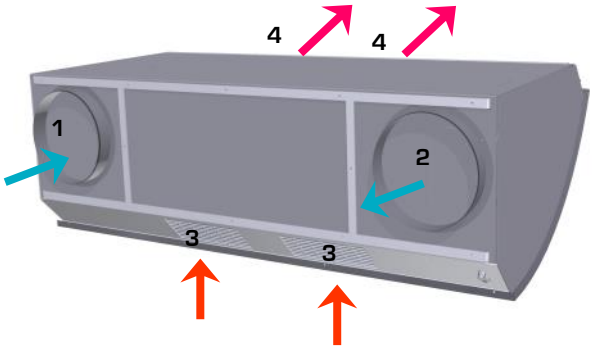
NOVEMBER 2016

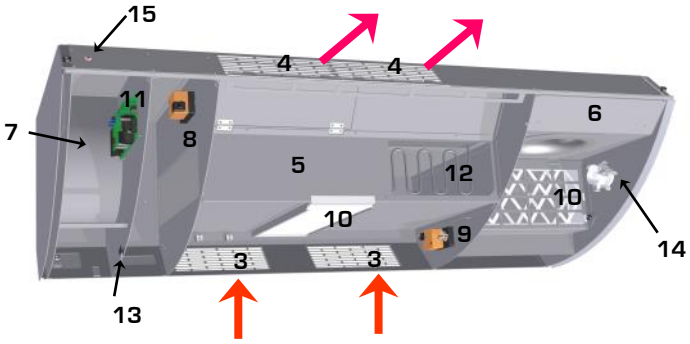
# TX COMFORT

A Decentralized ventilation system with a capacity from 250 to 1000 $m^3/h$, can be used in the following locations:

- Schools
- Offices
- Meeting rooms
- Canteens
- Institutions

# OPERATING PRINCIPLE




Turbovex TX Comfort is a decentralized ventilation system with built-in heat recovery for ventilation of comfort rooms, particular in indoor living spaces.

TX Comfort operates with an aluminium counter flow heat exchanger (5) to ensure maximum heat recovery. The unit utilizes warm indoor air to heat up inflowing fresh outdoor air. The counter flow heat exchanger´s sole function is for heat retention.

Airflow:

The air supply ventilator (6) creates inflow of fresh outdoor air through the filter (10) leading the inflow through the heat exchanger (5) and further through the air supply grate (4) and out into the room. At the same time the air exhaust ventilator (7) creates outflow of indoor air leading it through the exhaust pipe (2) and further out to the open air outside.

The desired temperature of the air supply is regulated on the control panel. A sensor records the actual temperature of the flowing air supply. If the temperature is lower than the setpoint, the control system reduces the flow of the air supply warming it as it flows through the heat

# MAIN COMPONENTS

| | | | |
|---|---|---|---|
| 1. | Air supply | 9. | Damper motor |
| 2. | Air exhaust | 10. | Filter |
| 3. | Air exhaust grate | 11. | Control board |
| 4. | Air supply grate | 12. | Heating surface (option) |
| 5. | Counterflow exchanger | 13. | Power switch |
| 6. | Ventilator air supply | 14. | Filter guard |
| 7. | Ventilator air exhaust | 15. | Filter alarm |
| 8. | Bypass engine | | |

# TECHNICAL SPECIFICATIONS

| Unit: | TX 250A | TX 500A | TX 750A | TX 1000A | Unit |
|---|---|---|---|---|---|
| Dimension: | | | | | |
| Length | 1200 | 1550 | 1800 | 2100 | mm |
| Depth | 595 | 828 | 895 | 1050 | mm |
| Height | 403 | 493 | 565 | 665 | mm |
| Duct: | 2 x 160 | 2 x 250 | 2 x 315 | 2 x 315 | mm |
| Weight: | 35 | 57 | 99 | 122 | Kg |
| Capacity: | | | | | |
| Min | 100 | 300 | 350 | 500 | m3/h |
| Max | 250 | 500 | 750 | 1000 | m3/h |
| Forced | 480 | 800 | 1100 | 1600 | m3/h |
| Sound: | | | | | |
| Min | 26 | 25 | 25 | 27 | dB(A) |
| Max | 35 | 35 | 35 | 35 | dB(A) |
| Forced | 50 | 53 | 50 | 48 | dB(A) |
| Filter: | ePM10≥50% | ePM10≥50% | ePM10≥50% | ePM10≥50% | Filter class |
| Energy consumption (motor): | | | | | |
| Min | 12,6 | 9,8 | 28,5 | 14 | Watts |
| | 454 | 118 | 293 | 101 | J/m3 |
| Max | 28 | 65 | 78 | 150 | Watts |
| | 403 | 468 | 374 | 540 | J/m3 |
| Forced | 110 | 113,6 | 185 | 199 | Watts |
| | 825 | 511 | 605 | 448 | J/m3 |
| Output (motor): | 2 x 71 | 2 x 90 | 2 x 170 | 2 x 175 | Watts |
| Power supply: | 1 x 230/50 | 1 x 230/50 | 1 x 230/50 | 1 x 230/50 | Volt/Hz |
| Temperature efficiency: | 80,6 | 84,5 | 78 | 80,6 | % |
| Electric heating surface (option): | 400 | 650 | 1000 | 1250 | Watt |
| Water heating surface (option): | 340 | 670 | 1260 | 1340 | Watt |

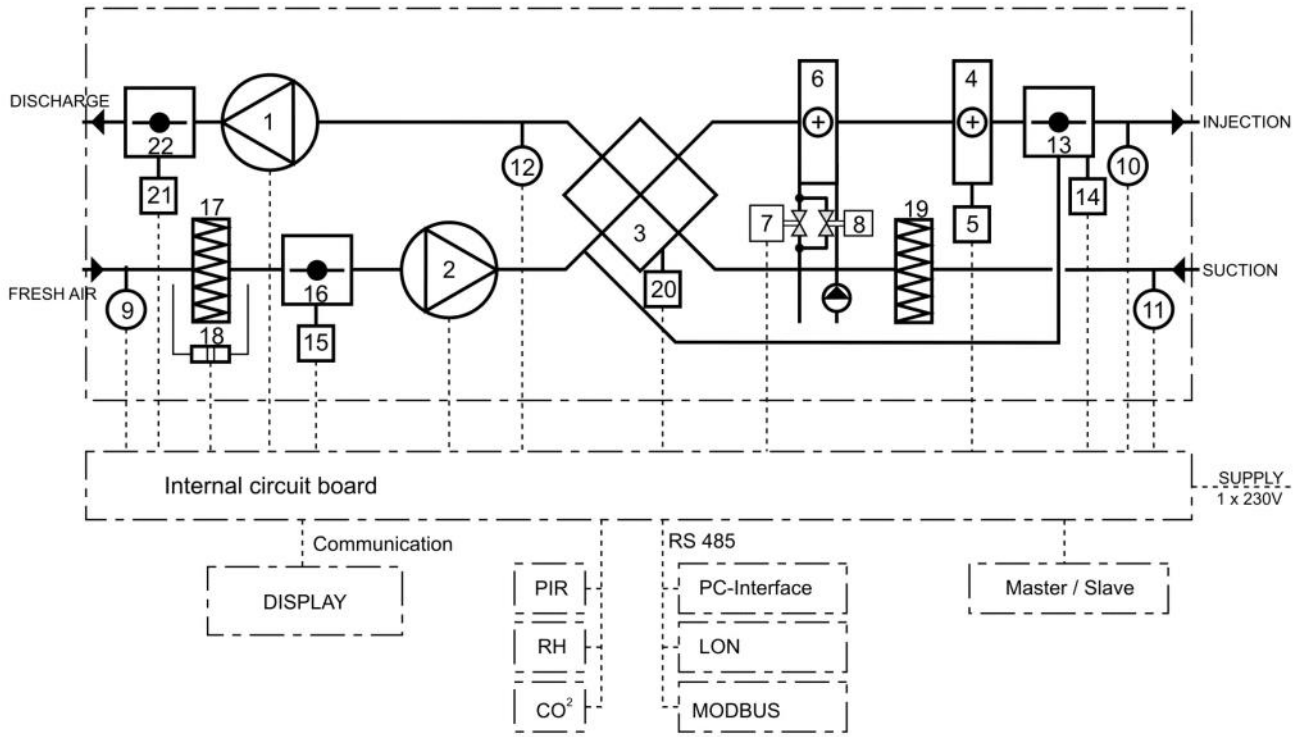
**Air flow indicates the balanced air renewal in relation to the motor voltage and is stated as m3/h. Contact the distributor if the unit is to be used with forced operation.**

**The sound level is indicated in decibels (dB) in relation to the air renewal, measured at a distance of 1 meter in front of and 1 meter directly below the air supply grate. By way of comparison it may be mentioned that whispering corresponds to 30 dBA, ordinary spoken conversation corresponds to 60 dB and street traffic to about 90 dBA.**

**The temperature efficiency on the exchanger is indicated as a percentage (%) and is expressed as the ratio between the obtained temperature difference and the maximum achievable temperature difference.**

# FLOWCHART

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

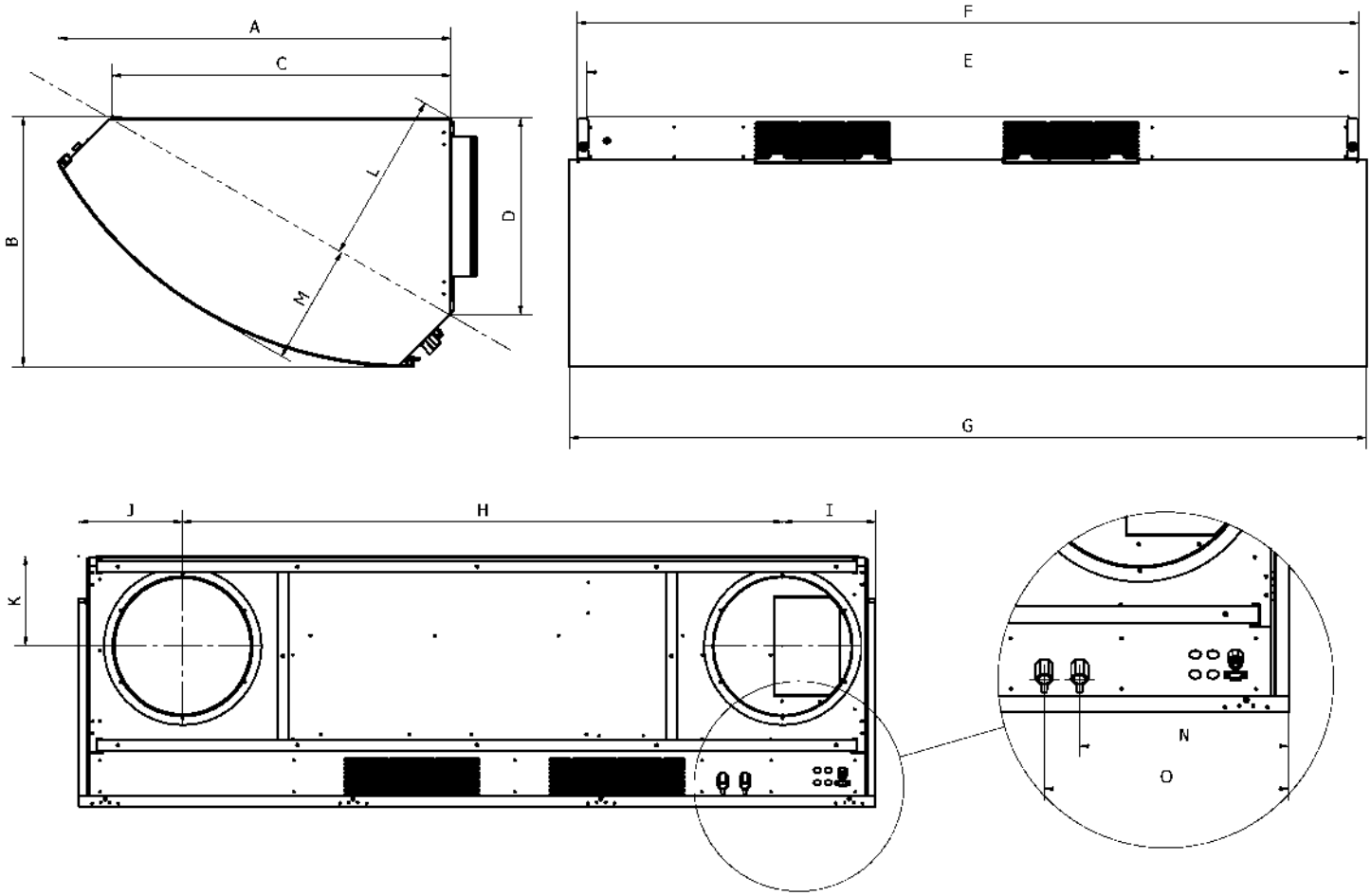



● STANDARD ○ OPTION

| 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 | | | | | ● |

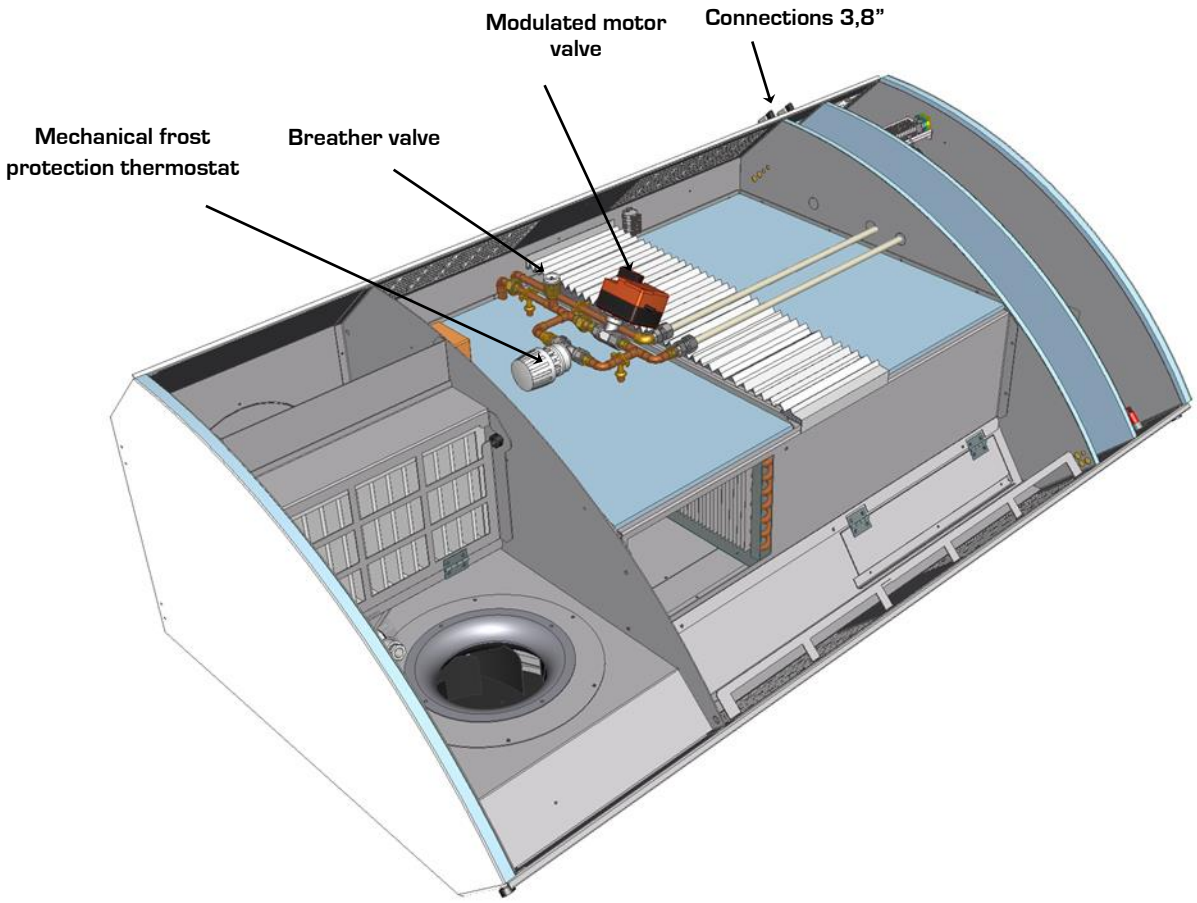
TURBOVEX
- Fresh air for everyone

# DIMENSIONAL DRAWING

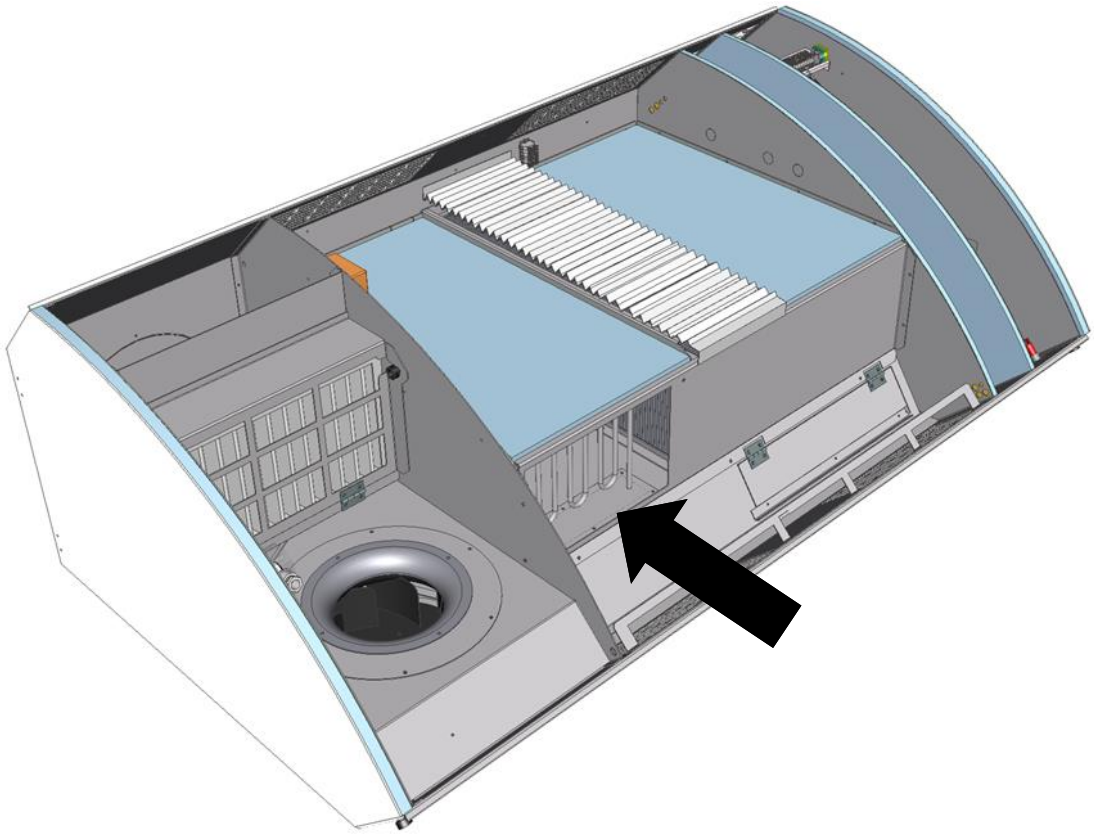



| SIZE | TX 250A | TX 500A | TX 750A | TX 1000A |
|---|---|---|---|---|
| A | 595 | 828 | 895 | 1050 |
| B | 403 | 493 | 565 | 665 |
| C | 500 | 710 | 766 | 917 |
| D | 313 | 382 | 442 | 542 |
| E | 1156 | 1506 | 1767 | 2067 |
| F | 1141 | 1491 | 1750 | 2050 |
| G | 1200 | 1550 | 1800 | 2100 |
| H | 906 | 1156 | 1355 | 1630 |
| I | 135 | 189 | 210 | 235 |
| J | 160 | 205 | 235 | 235 |
| K | 137 | 187 | 203 | 253 |
| L | 280 | 350 | 390 | 465 |
| M | 185 | 245 | 280 | 310 |
| N | 180 | 224 | 293 | 360 |
| O | 220 | 274 | 340 | 410 |

# WATER HEATING SURFACE (OPTION)



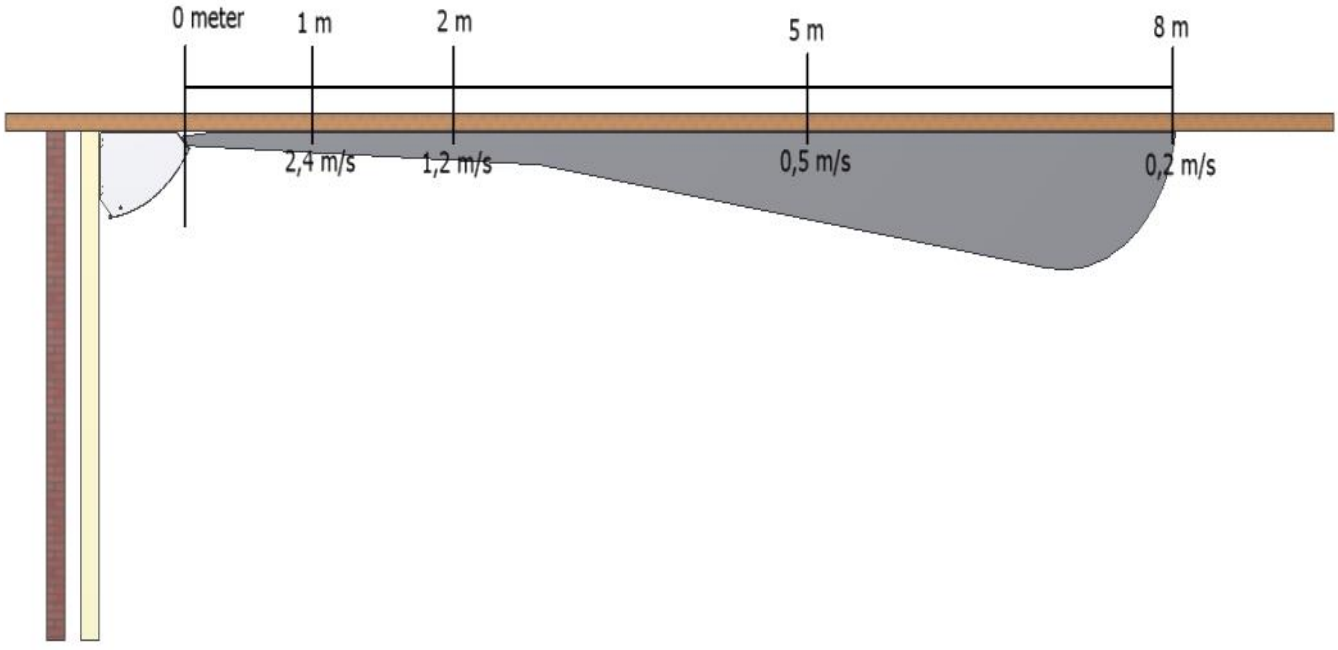

# ELECTRIC HEATING SURFACE (OPTION)



# TX 250A

# FLOW-SOUND-ENERGY

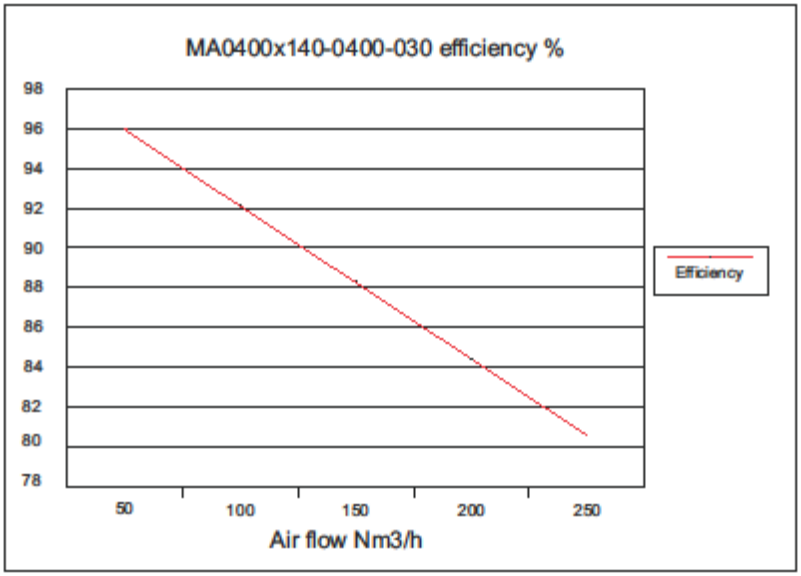

# SUPPLY LENGHT

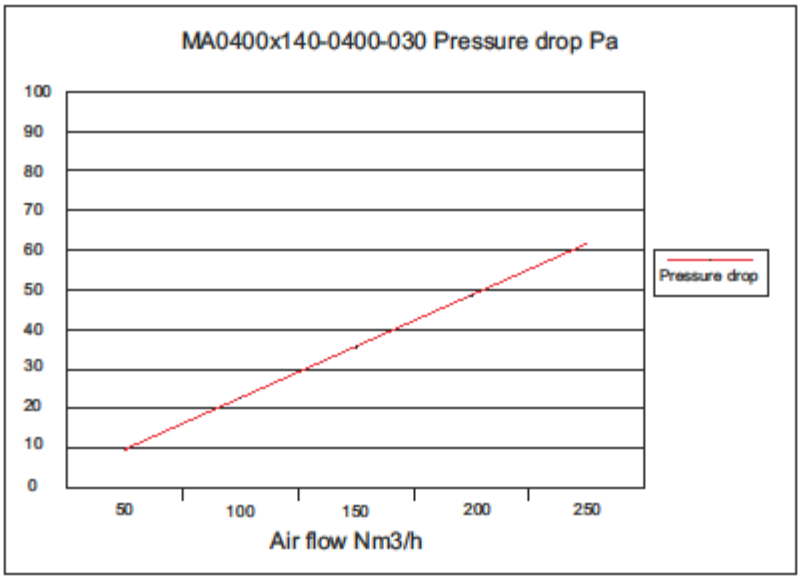


# COUNTERFLOW EXCHANGER

HEATEX

## TX 250A




The calculations are made in accordance with the European norm EN 308 and its sub documents.

# EXCHANGER

**Heatex AB Sweden, Fax: +46-410-363529**
2009-10-26

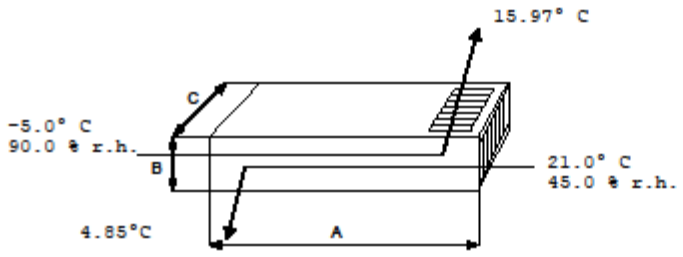
Customer:
Object:

## DESCRIPTION

| | | | |
|---|---|---|---|
| Heat Exchanger: | M?0400x140-0400-030-2AOO-2-0-0-3 | | |
| Plates: | Aluminium or epoxycoated aluminium with turbulence surface. | | |
| Sealing: | Silicone free (max 90°C) | | |
| Consists of: | 1 Module | Nominal plate distance: | 3.0 mm |
| Number of steps: | 1 | Total Width: | 400 mm |
| Total Exchanger Weight: | 6.2 kg | | |

## RESULT (Winter)

| | Exhaust Air | Supply Air |
|---|---|---|
| Air flow: | 250 Nm3/h | 250 Nm3/h |
| Pressure drop: | 59 Pa | 61 Pa |
| Efficiency: | 62.1 % | 80.6 % |
| Transferred Power: | 1.74 kW | |




A = 400 mm
B = 140 mm
C = 400 mm

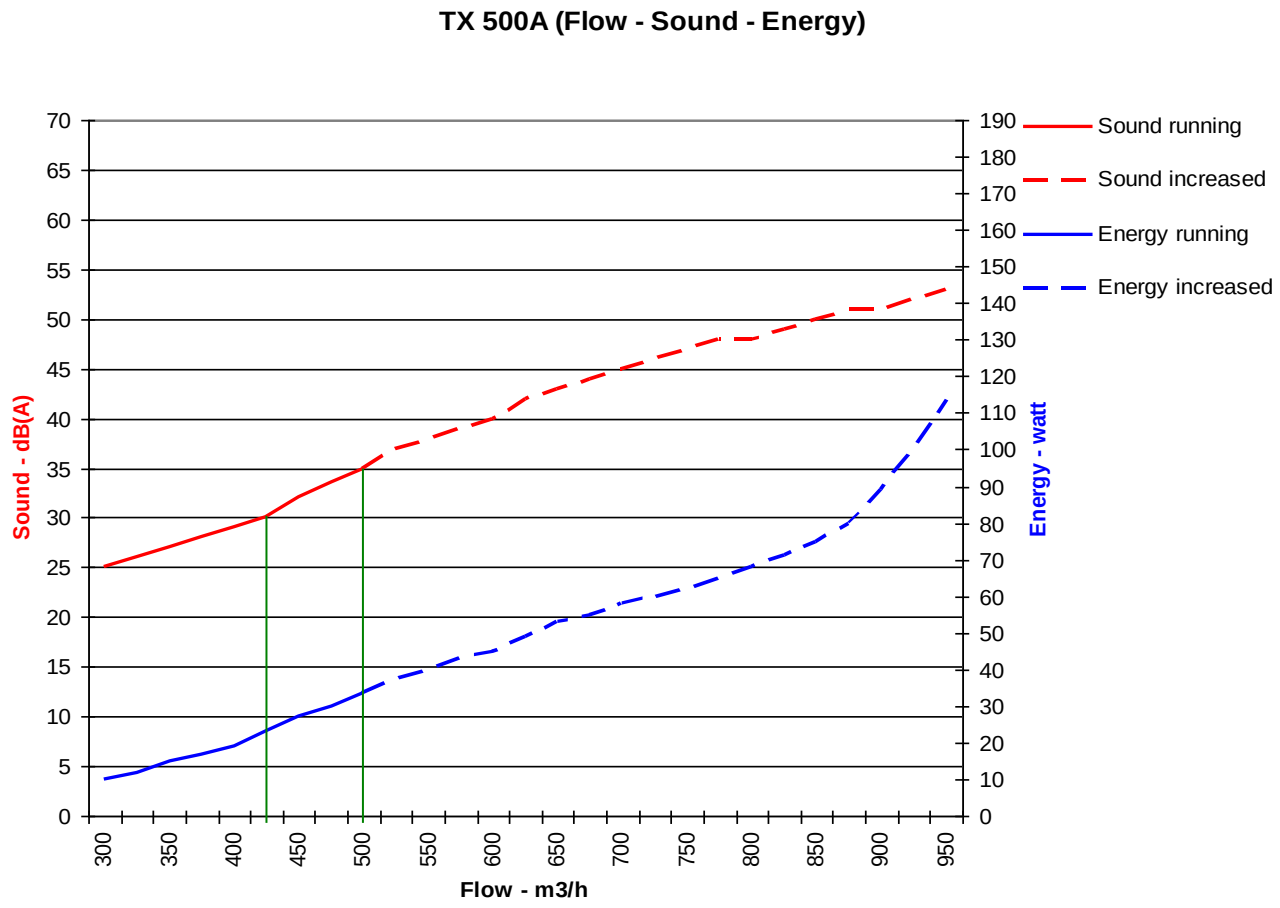
Inlet Pressure: 101325 Pa

Regarding the heat dissipation (transferred power), please take a safety margin of 15 % into consideration, due to uneven airflow

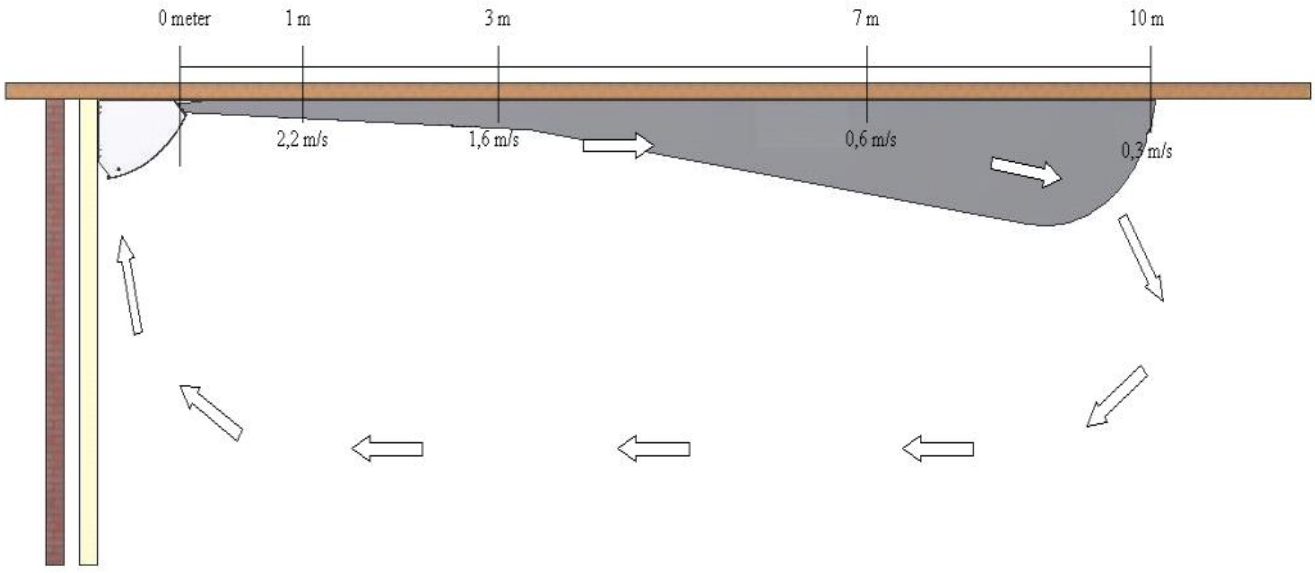
The calculations are made in accordance with the European norm EN 308 and its sub documents.
Owing to continued product development Heatex AB reserves the right to introduce alterations both in design and prices without prior notice.

# TX 500A

# FLOW-SOUND-ENERGY



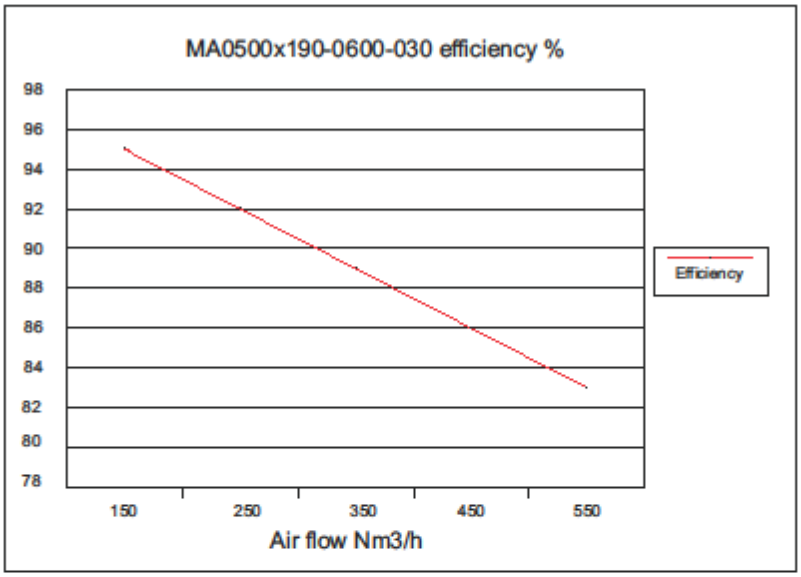

# SUPPLY LENGHT

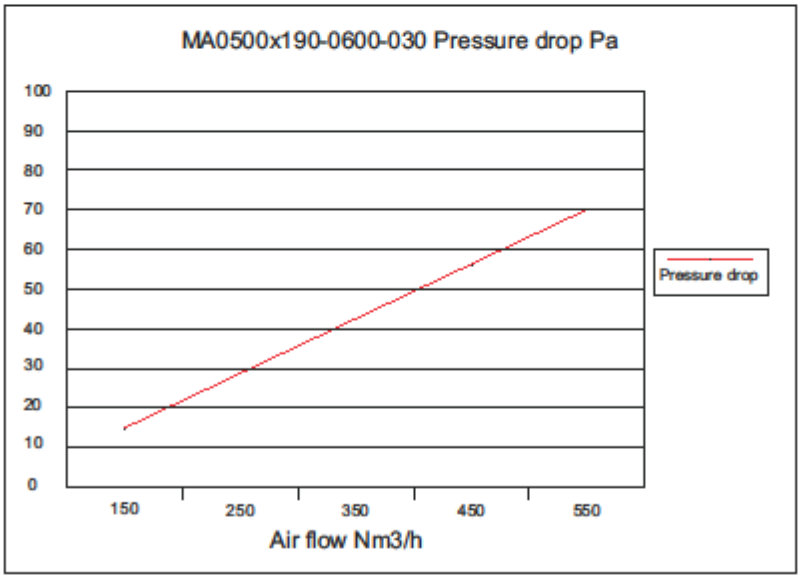


# COUNTERFLOW EXCHANGER

HEATEX

## TX 500A




The calculations are made in accordance with the European norm EN 308 and its sub documents.

# EXCHANGER

**Heatex AB Sweden, Fax: +46-410-363529**
2009-12-03

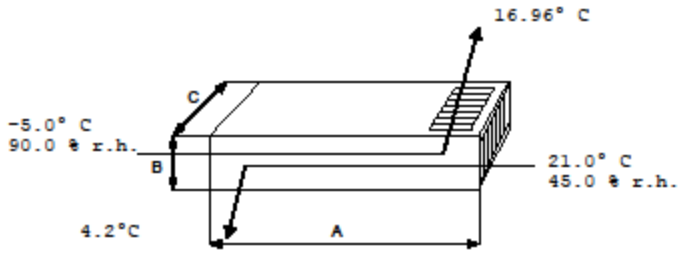
Customer:
Object:

## DESCRIPTION

| | | | |
|---|---|---|---|
| Heat Exchanger: | M?0500x190-0600-030-2AOO-2-0-0-0 | | |
| Plates: | Aluminium or epoxycoated aluminium with turbulence surface. | | |
| Sealing: | Silicone free (max 90°C) | | |
| Consists of: | 1 Module | Nominal plate distance: | 3.0 mm |
| Number of steps: | 1 | Total Width: | 600 mm |
| Total Exchanger Weight: | 12.6 kg | | |

## RESULT(Winter)

| | Exhaust Air | Supply Air |
|---|---|---|
| Air flow: | 500 Nm3/h | 500 Nm3/h |
| Pressure drop: | 71 Pa | 73 Pa |
| Efficiency: | 64.6 % | 84.5 % |
| Transferred Power: | 3.65 kW | |




A = 500 mm
B = 190 mm
C = 600 mm

Inlet Pressure: 101325 Pa

Regarding the heat dissipation (transferred power), please take a safety margin of 15 % into consideration, due to uneven airflow

The calculations are made in accordance with the European norm EN 308 and its sub documents.
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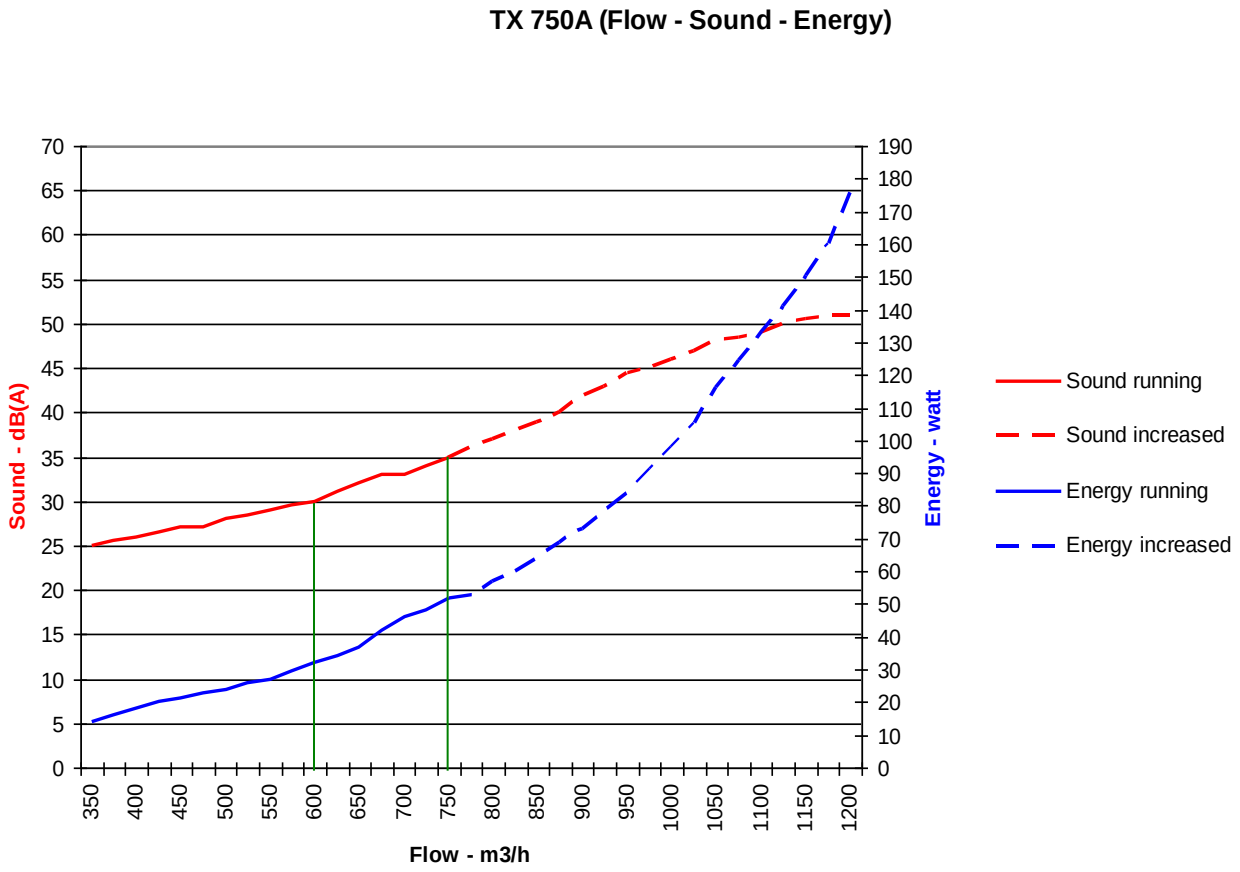
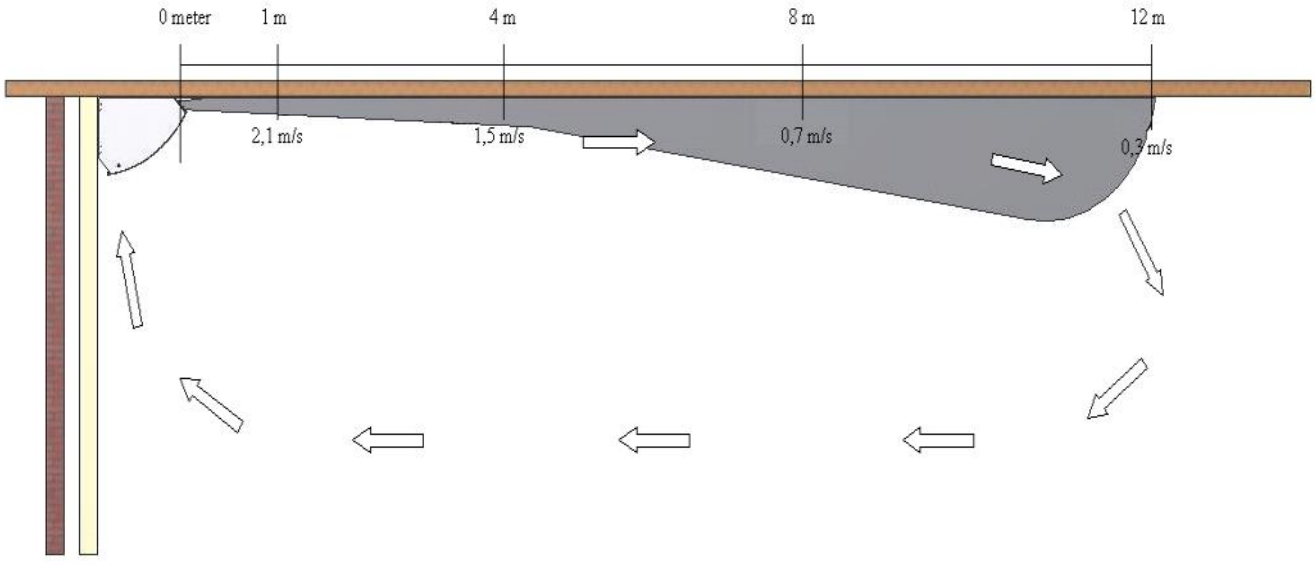
# TX 750A

# FLOW-SOUND-ENERGY



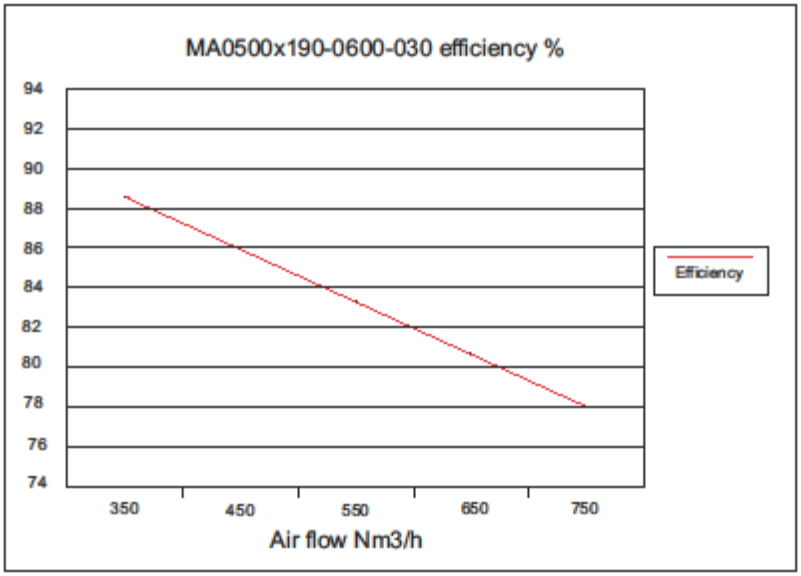

# SUPPLY LENGHT

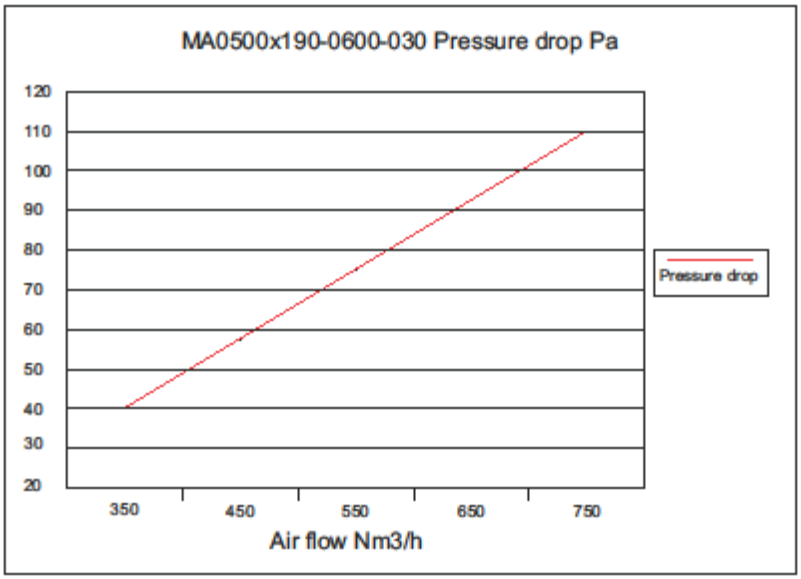


# COUNTERFLOW EXCHANGER

HEATEX

## TX 750A




The calculations are made in accordance with the European norm EN 308 and its sub documents.

# EXCHANGER

**Heatex AB Sweden, Fax: +46-410-363529**
2009-12-03

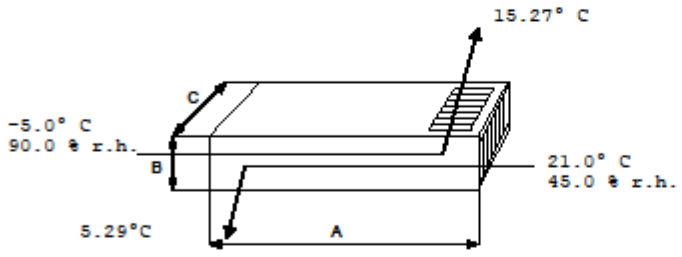
Customer:
Object:

## DESCRIPTION

| | | | |
|---|---|---|---|
| Heat Exchanger: | M?0500x190-0600-030-2AOO-2-0-0-0 | | |
| Plates: | Aluminium or epoxycoated aluminium with turbulence surface. | | |
| Sealing: | Silicone free (max 90°C) | | |
| Consists of: | 1 Module | Nominal plate distance: | 3.0 mm |
| Number of steps: | 1 | Total Width: | 600 mm |
| Total Exchanger Weight: | 12.6 kg | | |

## RESULT (Winter)

| | Exhaust Air | Supply Air |
|---|---|---|
| Air flow: | 750 Nm3/h | 750 Nm3/h |
| Pressure drop: | 116 Pa | 119 Pa |
| Efficiency: | 60.4 % | 78.0 % |
| Transferred Power: | 5.06 kW | |




A = 500 mm
B = 190 mm
C = 600 mm

Inlet Pressure: 101325 Pa

Regarding the heat dissipation (transferred power), please take a safety margin of 15 % into consideration, due to uneven airflow

The calculations are made in accordance with the European norm EN 308 and its sub documents.
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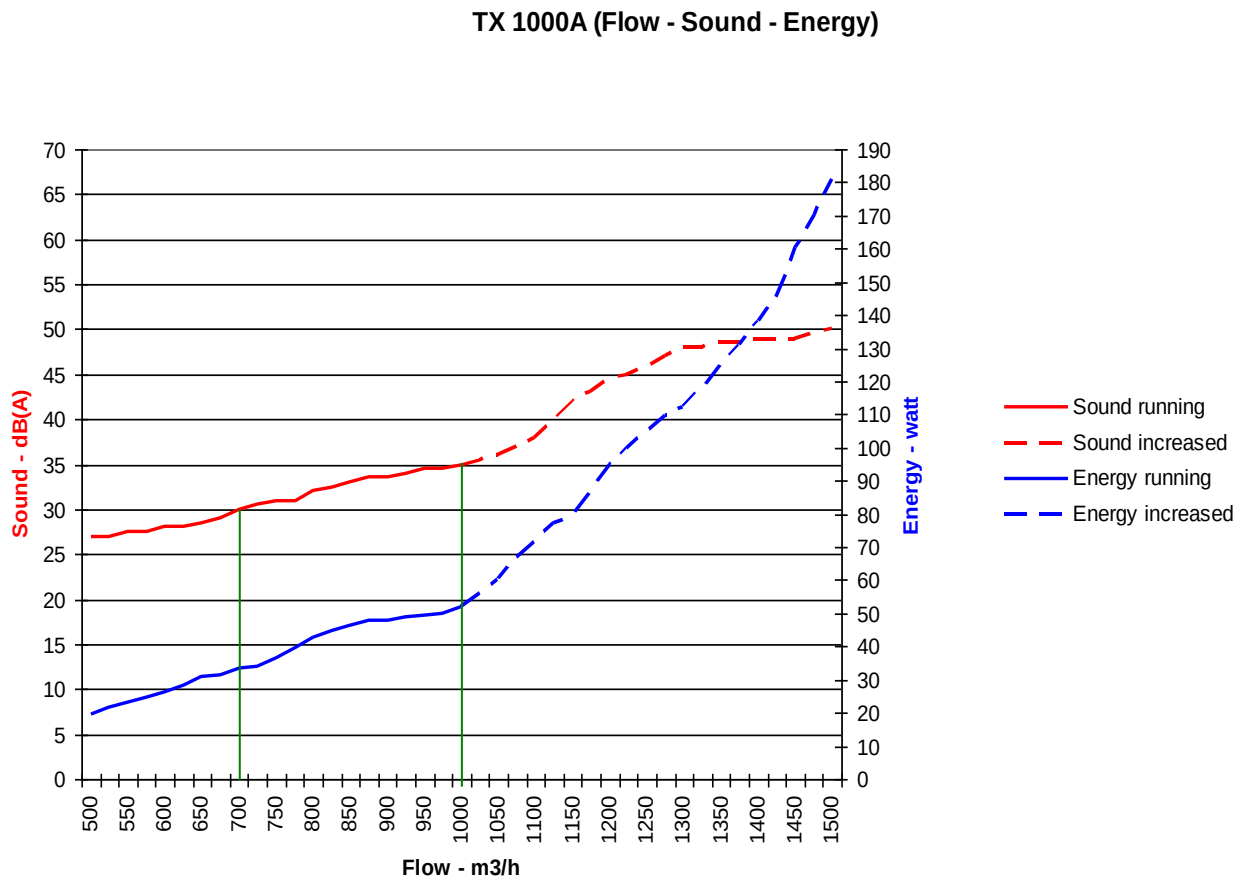
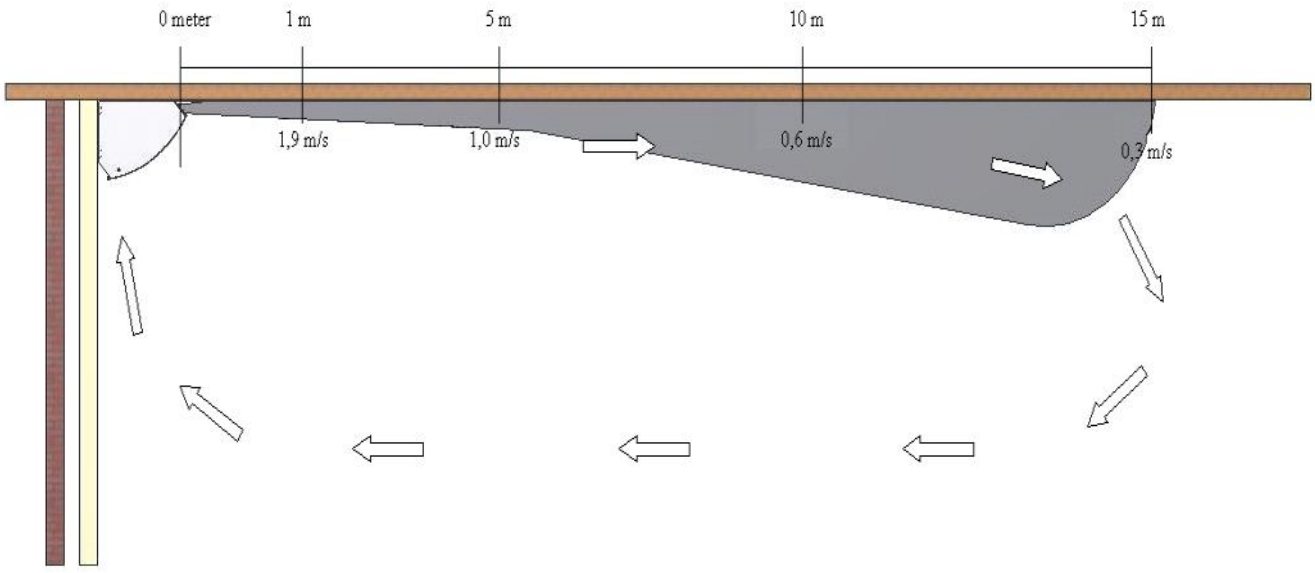
# TX 1000A

# FLOW-SOUND-ENERGY



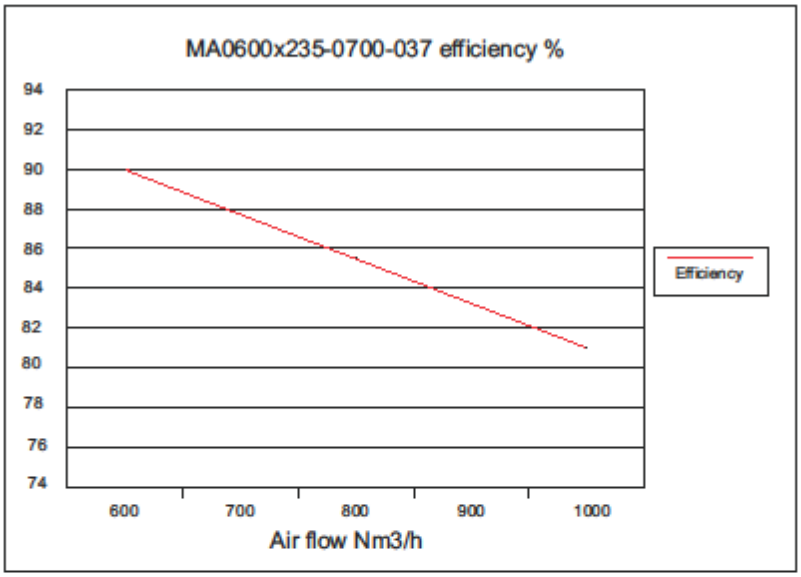

# SUPPLY LENGHT

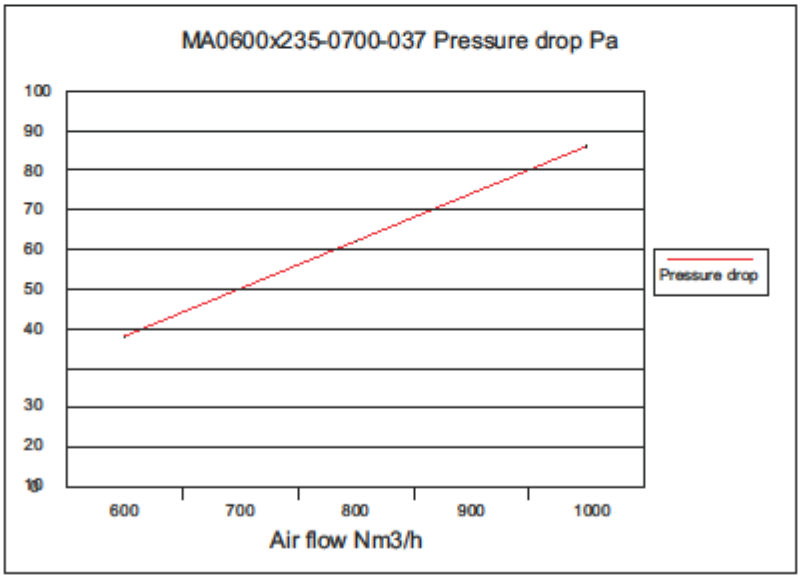


# COUNTERFLOW EXCHANGER

HEATEX

## TX 1000A




The calculations are made in accordance with the European norm EN 308 and its sub documents.

# EXCHANGER

HEATEX

Heatex AB Sweden, Fax: +46-410-363529
2010-12-08

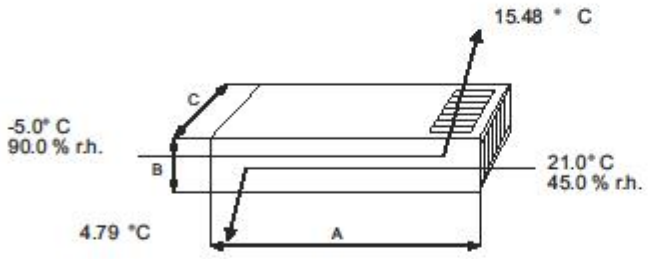
Customer:
Object:

## DESCRIPTION

| | | | |
|---|---|---|---|
| Heat Exchanger: | MA0600x235-0700-037-2AOO-2-0-0-0 | | |
| Plates: | Aluminium or epoxycoated aluminium with turbulence surface. | | |
| Sealing: | Silicone free (max 90°C) | | |
| Consists of: | 1 Module | Nominal plate distance: | 3.7 mm |
| Number of steps: | 1 Total Width: | | 700 mm |
| Total Exchanger Weight: | 18.0 kg | | |

## RESULT(Winter)

| | Exhaust Air | Supply Air |
|---|---|---|
| Air flow: | 1000 Nm3/h | 1000 Nm3/h |
| Pressure drop: | 86 Pa | 86 Pa |
| Efficiency: | 63.5 % | 80.9 % |
| Transferred Power: | 6.48 kW | |




A = 600 mm
B = 235 mm
C = 700 mm

Inlet Pressure: 101325 Pa

Regarding the heat dissipation (transferred power), please take a safety margin of 15 % into consideration, due to uneven airflow

The calculations are made in accordance with the European norm EN 308 and its sub documents.
Owing to continued product development Heatex AB reserves the right to introduce alterations both in design and prices without prior notice.

# 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
- Tecnical 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.**

**• 16 parameters can be written, 17 parameters can be read**

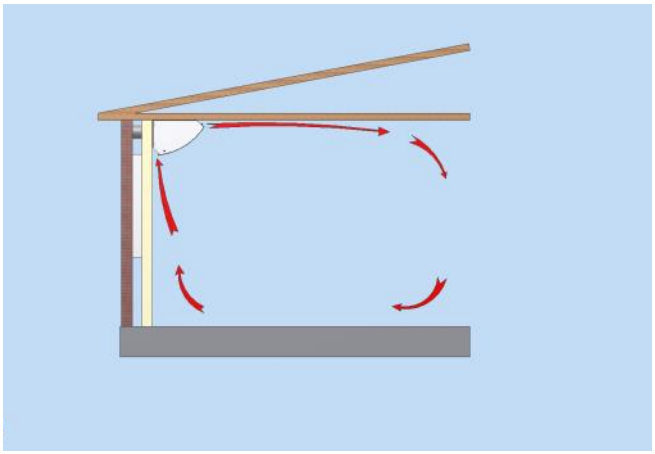
## MODbus m/converter og pc-software

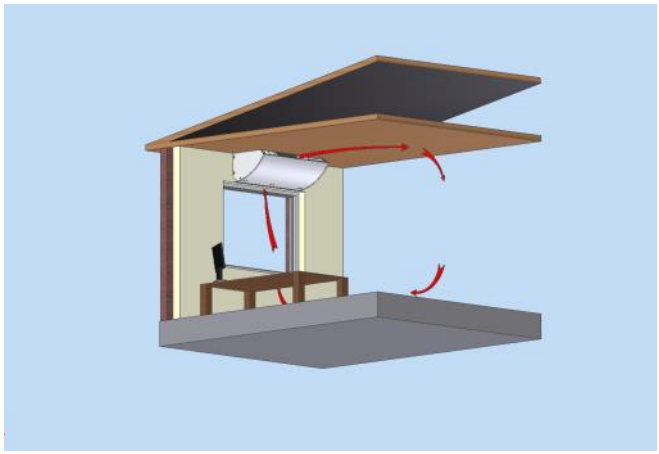
**MODbus is an industrial standard of serial communication for use in client/server communication between devices that can be connected through different networks. 200 TX units can be installed in the same MODbus network and cable length can be up to 500 meters, extended up to 1000 meters at low speed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

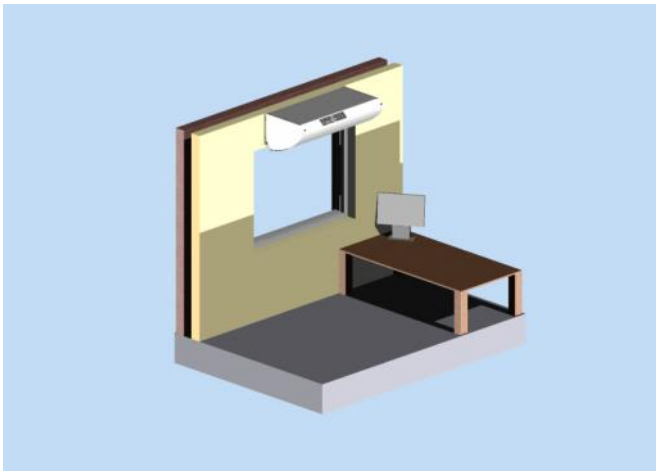
**• 38 parameters can be read and written**

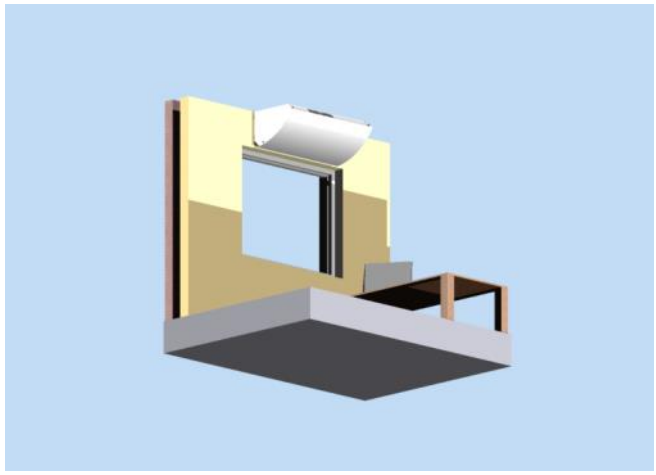
# LOCATION

**The unit is generally placed on a wall directly under the ceiling. This location best exploits the coanda effect as it leads the air further into the room along the surface of the ceiling. In this way inflowing air can mix with the room's existing air for a longer period of time and thereby prevent draught. This location, as the point for supply and exhaust airflow, provides optimal circulation within a room.**



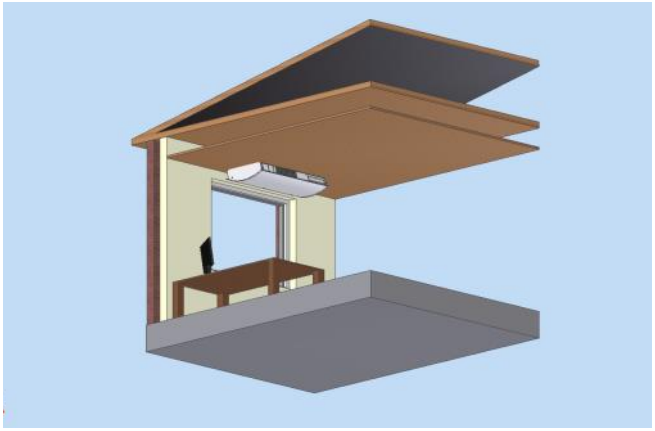


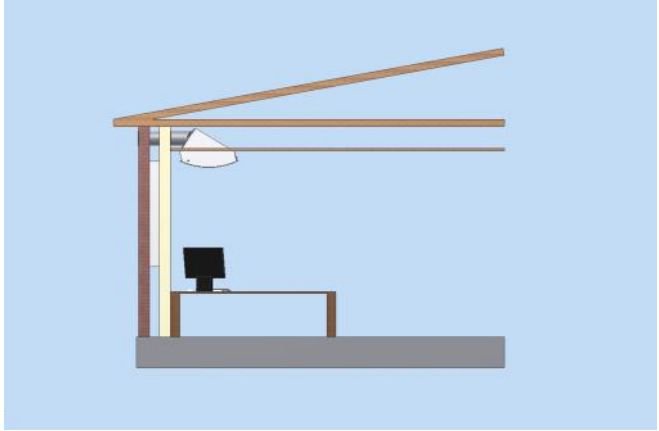




# LOCATION IN A FALSE CELING

**The TX Comfort series also has the possibility of locating the unit in false ceilings. In this way, the unit is less visible.**





# OPTION FOR TX COMFORT

| | TX 250A | TX 500A | TX 750A | TX 1000A |
|---|---|---|---|---|
| TX Electronic Controller | ○ | ○ | ○ | ○ |
| $CO_2$ sensor T8100-E-D with display | ○ | ○ | ○ | ○ |
| $CO_2$ sensor T8031 built in | ○ | ○ | ○ | ○ |
| Hygrostat | ○ | ○ | ○ | ○ |
| PIR Sensor | ○ | ○ | ○ | ○ |
| Temperature Sensor | ● | ● | ● | ● |
| LON Interface | ○ | ○ | ○ | ○ |
| Master/Slave print | ○ | ○ | ○ | ○ |
| MODbus print | ○ | ○ | ○ | ○ |
| MODbus Converter incl. Software | ○ | ○ | ○ | ○ |
| ePM10≥50% | ● | ● | ● | ● |
| ePM1≥55% | ○ | ○ | ○ | ○ |
| Fittings for installation in false celling | ○ | ○ | ○ | ○ |
| Angle brackets for install. in false celling | ○ | ○ | ○ | ○ |
| Combi Right/Left | ○ | ○ | ○ | ○ |
| Condensation pump | ○ | ○ | ○ | ○ |
| Condensation tray | ○ | ○ | ○ | ○ |
| Automatisk by-pass | ● | ● | ● | ● |
| Modulating by-pass | ○ | ○ | ○ | ○ |
| Motorized back draft shutter-return | ○ | ○ | ○ | ○ |
| Electric heater | ○ | ○ | ○ | ○ |
| Water heating battery | ○ | ○ | ○ | ○ |
| Counter flow heat exchanger (alu) | ● | ● | ● | ● |
| Mounting Brackets | ● | ● | ● | ● |
| Tubes | ○ | ○ | ○ | ○ |
| Gratings | ○ | ○ | ○ | ○ |
| Color RAL 9010 | ● | ● | ● | ● |
| Other RAL color | ○ | ○ | ○ | ○ |
| Filter Alarm | ● | ● | ● | ● |

- ● Standard
- ○ Option
- – Not possible

SEE MORE DETAILS ON www.turbovex.dk

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