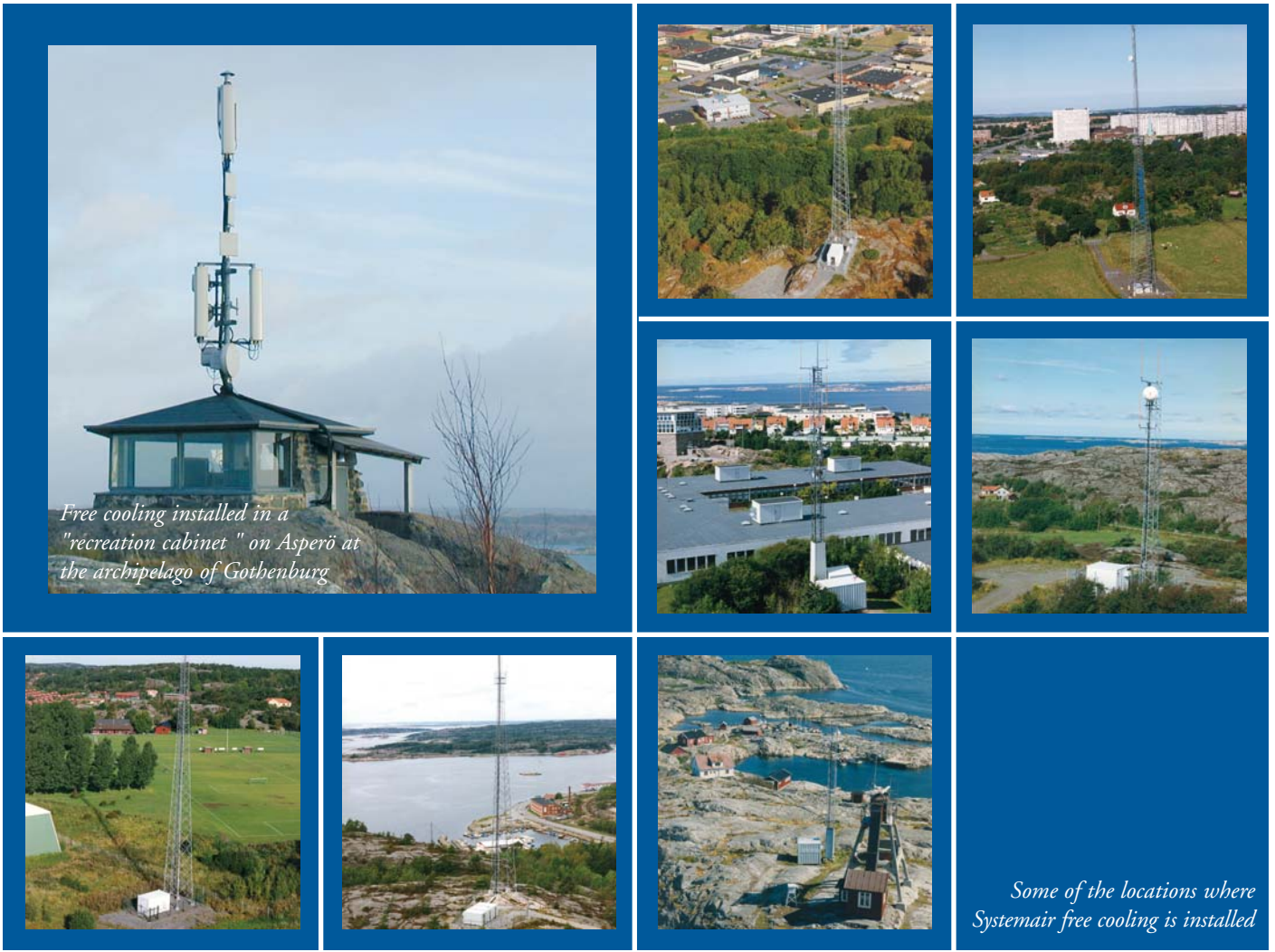


Systemair Free Cooling

Efficient, energy saving and environmentally protective cooling





Free cooling installed in a "recreation cabinet" on Asperö at the archipelago of Gothenburg

Some of the locations where Systemair free cooling is installed

Systemair Free Cooling, efficient, energy saving and environmentally protective cooling

- Economic operation
- Freon free
- Energy saving
- Long service intervals

Systemair free cooling is designed for easy installation in the existing opening of a container wall.

We have the simple solution

It's no longer necessary to have energy- and maintenance demanding cooling machines for the Telecom cabinets. Our energy-saving system of free cooling is easy to handle and ensures an economic operation. Apart from that it's also a Freon free system.

The principle is easy - instead of cooling the warm air the system makes sure that the heat is transported out. A supply air fan pressurises a pressure cham-

ber with fresh outside air, which is then introduced via a couple of filter hoses.

The cool outdoor air is forced through the filter hoses displacing the hot air in the cabin to the ceiling, where it is transported out through an exhaust grill, a very reliable operating system.

Easiest possible installation

The FTVB unit is delivered ready for operation. Unpack the unit, mount it on the wall and plug it in. Install the exhaust and start up the unit. FTVC and FTVD are delivered without wiring.

Supervision over the internet or via a modem

Systemair free cooling has a control unit, which enables communication with TCP/IP and a modem, through an additional module, which is placed beside the supply air unit.

The control unit with LCD-display and function buttons is easy to use.

The correct cooling all the time

A room temperature sensor controls the air volume steplessly in regards to the temperature. The fans are efficient with a high coefficient of utilization and low power consumption. The result is that the air inside the container maintains a temperature, which 1.5 m above the floor, is maximum 2-5K higher than the outside air. The service is easy, the filters are easily accessible, and the time between filter changes is long and does not require any specialists to perform.

A new generation of mobile phones need new masts with small cabinets. Bigger already existing technical buildings with active cooling machinery can be converted to- or combined with a Systemair free cooling system. In a subtropical climate the temperature peaks less than 10% of the year.

During that period a DX cooling machine would be required. The remaining 90% of the time the free cooling principle with all its advantages is sufficient.



FTVB 2002

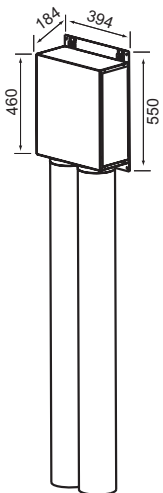
Free cooling unit designed for installation through external wall of technical buildings, attics etc. FTVB 2002 is available in 3 different versions, 24V, 48V or 230V mains supply.

Both the supply air- and control unit are plug and play. See page 7 for explanations regarding alarm functions, running indication, heating, cooling, fire and communication functions.

Contents

- Galvanized sheet-steel unit housing
- Condensation and acoustic insulation
- EC-fan with external rotor motor (Electric Commutated)
- 2 hose clamps, $\varnothing 160$ mm
- 2 F5-160-1500 filter bags
- 2 plastic hoses for filter monitor
- T08 control equipment encapsulated for wall mounting, complete with internal wiring
- 1 room sensor with 8 m cable
- 1 outdoor sensor with 8 m cable

Electrical data	FTVB 2002	FTVB 2002	FTVB 2002
	24 EC	48 EC	230 EC
Voltage	24V DC	48V DC	230V AC
Rated power, W	101	94	166
Rated current, A	4,6	2,3	1,15
Capacitor	–	–	–
Min/max amb. temp °C	-25/60	-25/60	-25/60
IP class	23	23	23
Motor protection	–	–	–
Filter class	F5	F5	F5



FTVB 2006-3

Free cooling unit designed for installation through external wall of technical buildings etc.

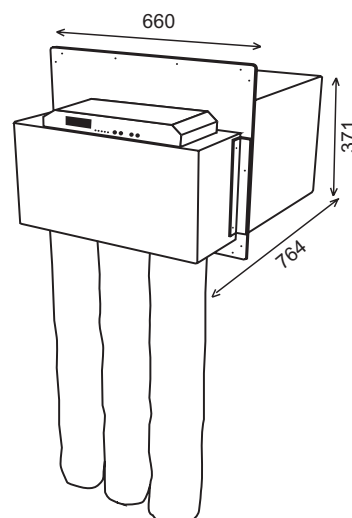
FTVC should be used in the case where the wall thickness is more than 100 mm). FTVB 2006-3 is available in 2 different versions, 48V or 230V mains supply. Both the supply air- and control unit are plug and play.

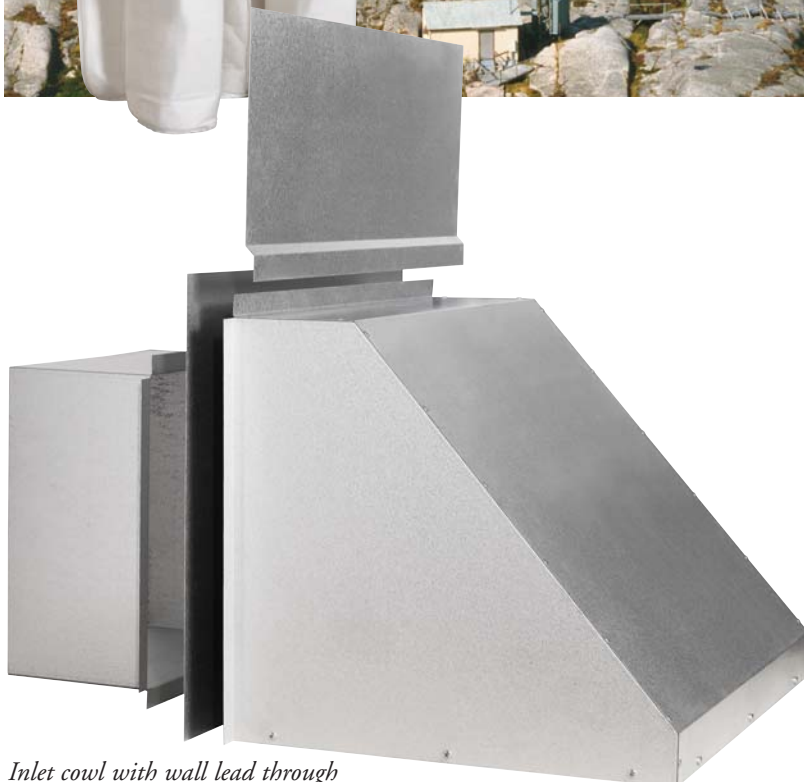
See page 7 for explanations regarding alarm functions, running indication, heating, cooling, fire and communication functions.

Contents

- Galvanized sheet-steel unit housing
- Condensation and acoustic insulation
- Fan with external rotor motor
- 3 pcs hose clamps, $\varnothing 160$ mm
- 3 pcs F5-160-1500 filter bags
- 1 pcs plastic hose for filter monitor
- T07 control equipment complete with internal wiring
- 1 room sensor with 8 m cable
- 1 outdoor sensor with 1,5 m cable

Electrical data	FTVB 2006	FTVB 2006
	3 230 AC	3 48 EC
Voltage	230V AC	48V DC
Rated power, W	550	274
Rated current, A	2,42	5,74
Capacitor	12 μ F	–
Min/max amb. temp °C	-25/60	-25/60
IP class	23	23
Motor protection	Automatic	Automatic
Filter class	F5	F5





Inlet cowl with wall lead through

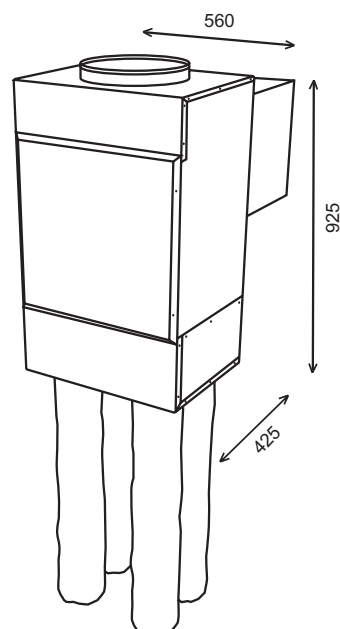
FTVC 2006

Designed for installation in technical buildings, attics and basements. The unit can be duct connected to 315 mm connection on the rear or on the side, alternatively a 400 x 400mm opening can be cut open in the back of the unit and connected to a wall sleeve of 400 x 400 mm through the outside wall. FTVC 2006 is available in 2 different versions, 48V or 230V mains supply. Both the supply air - and control unit are plug and play. See page 7 for explanations regarding alarm functions, running indication, heating, cooling, fire and communication functions.

Contents

- Galvanized sheet-steel unit housing
- Condensation and acoustic insulation
- Fan with 230V AC, alt. 48V EC-motor
- 4 pcs hose clamps, \varnothing 160 mm
- 4 pcs F5-160-1500 filter bags
- 1 pcs plastic hose for filter monitor
- T07/T08 control equipment complete with internal wiring
- 1 room sensor with 8 m cable
- 1 outdoor sensor with 1,5 m cable

Electrical data	FTVC 2006	FTVC 2006
	3 230 AC	3 48 EC
Voltage	230V AC	48V DC
Rated power, W	55	274
Rated current, A	2,42	5,74
Capacitor	12 μ F	-
Min/max amb. temp °C	-25/60	-25/60
IP class	23	23
Motorprotection	Automatic	Automatic
Filter class	F5	F5
Control unit	T07	T08





FTVD 2010 230 AC

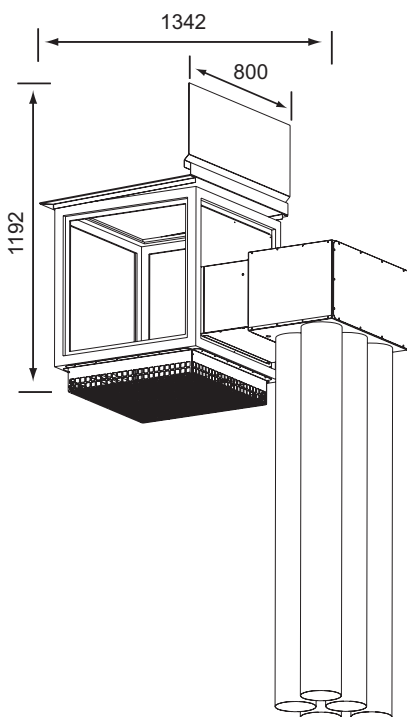
Designed for mounting against an outside wall. A wall sleeve connects the supply air unit with a distribution (plenum) box located on the inside of the external wall.

Contents

1 pc supply air fan with an aluminium profile frame, sturdy plastic corners and coated side panels of galvanized sheet-steel. Roof and outside rain covers. The panels are lined with 20 mm acoustic and condensation insulation.

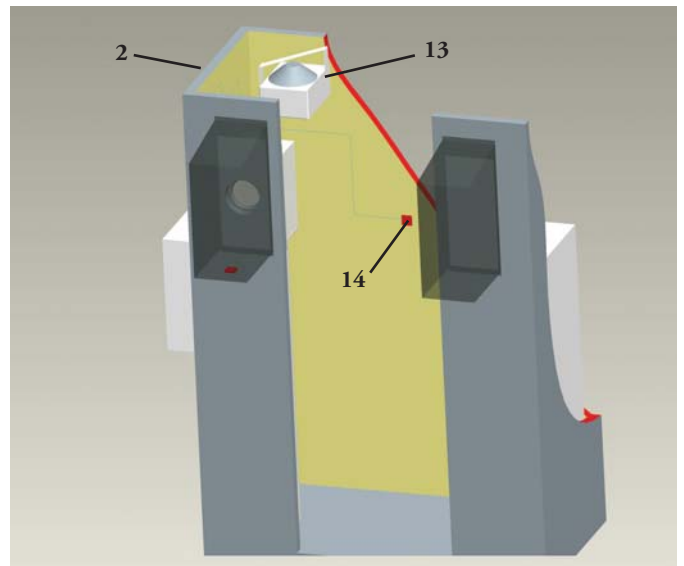
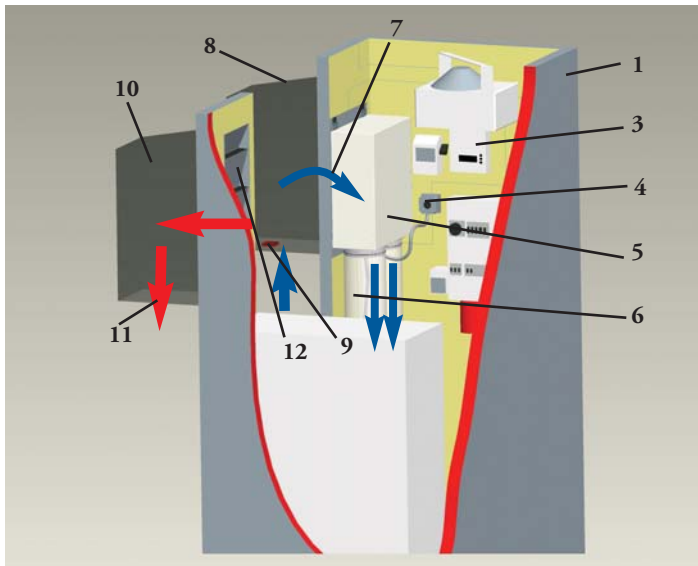
- 1 pc wall lead through and distribution box for 5 pcs of supply air filter hoses F5-I60-I500
- 5 pcs hose clamps, \varnothing 160 mm
- 5 pcs F5-I60-I500 filter bags
- 1 pc plastic hose for filter monitor
- T07 control equipment complete with internal wiring
- 1 room sensor with 8 m cable
- 1 outdoor sensor with 1,5 m cable

Electrical data	FTVD 2010 230 AC
Fan description	MUB 042 450 E4-A2
Voltage	230V AC, 1-fas
Rated power, W	740
Rated current, A	3,34
Capacitor	16 μ F
Min/max amb. temp °C	-25/60
IP class	54
Motor protection	Automatic
Filter class	F5



Exhaust cowl and lower shutter

Free cooling unit



- 1) Out door enclosure, side view
- 2) Out door enclosure, front view
- 3) T08 Control unit
- 4) P233A Pressure guard
- 5) FTVB 2002 fan casing
- 6) Supply air filter bags
- 7) Air intake direction
- 8) Air intake cowl
- 9) Outdoor air temperature sensor
- 10) Exhaust air cowl
- 11) Exhaust air direction
- 12) Exhaust air Back draught shutter, alt.motorized damper
- 13) C1 Electric fan heater
- 14) Indoor air temperature sensor



Technical data: FTVB, FTVC, FTVD

	Airflow (l/s)	Static pressure (Pa)	Cooling cap. dt=5°C 1,5 m from floor level	Sound power level	Sound pressure level 5 meter	With insulated grill sound pressure level 5m
FTVB 2002 24 EC	230 l/s	100 Pa	2,5 kW	71 dB(A)	49 dB(A)	–
FTVB 2002 48 EC	230 l/s	100 Pa	2,5 kW	71 dB(A)	49 dB(A)	–
FTVB 2002 230 AC	270 l/s	100 Pa	3 kW	71 dB(A)	49 dB(A)	–
FTVC 2006 3 48 EC	550 l/s	150 Pa	5,5 kW	74 dB(A)	54 dB(A)	30 dB(A)
FTVB 2006 3 48 EC	550 l/s	150 Pa	5,5 kW	74 dB(A)	54 dB(A)	–
FTVB 2006-3-230	600 l/s	150 Pa	6 kW	74 dB(A)	52 dB(A)	–
FTVC 2006-3-230	600 l/s	150 Pa	6 kW	74 dB(A)	52 dB(A)	30 dB(A)
FTVD 2010 AC	870 l/s	–	10 kW	72 dB(A)	54 dB(A)	–

Function description T07, T08

Fan control

The fan is regulated with PI control connected to a sensor, which measures the indoor temperature.

Heater

The outdoor temperature is measured by means of a sensor mounted in the air intake of the unit. The electric fan heater starts when the outside temperature falls below 5°C or when the indoor temperature falls below 17°C. When the indoor temperature falls below 15°C (adjustable) the electrical heater is also activated.

Air conditioning mode

The connection of the AC cooling is selected by a switch on the circuit board.

Air condition run via indoor-temp (Mode A)

AC starts when the indoor temp is higher than the reference value+P-band+dead zone.

Air condition run via outdoor temperature (Mode B)

This mode requires the outdoor sensor to be placed on the outside wall. Air conditioner mode starts when outdoor temperature is above the set temp. In case of a malfunctioning outdoor sensor, the AC is then controlled by the inside temperature. In both A and B modes the fan unit is stopped when the AC is employed.

High temperature

The fan runs at maximum speed in case of high temperature alarm.

Fire alarm

Fan unit and AC are shut down when the input is activated. Requires smoke detector with potential free output, which closes when triggered. Damper motors will close automatically when the fan unit is stopped.

Thermal protection (only T07)

Only one of the fan models has the need for thermal protection safety (TS), FTVD 2010 230 AC. For that reason the TS terminal is bridged on delivery. If TS cuts out the fan will stop running but the AC cooling machine (if any) will continue to run.

Power failure

The inside temp. set point increases with 12K to save energy for the backup batteries. If AC is used the air conditioner is shut down and the free cooling fan unit is employed. High temp. alarm for the room is disconnected at power failure.

Alarm and operation indicators

Light emitting diode indicators show the course of events at e.g. heating, cooling and fire.

Service timer

During normal operation, should the function button be pressed in for about 5 seconds, the fan will switch off for 15 minutes (adjustable). If the button is pressed again before the time has expired, the fan restarts.

Test mode

During normal operation, should the function button be pressed in for about 10 seconds the four step test sequence starts.

Display

The display shows the software version when the power is first connected.

Normally the indoor and outdoor temperatures are shown. At the pressing of the Function button, the set value, limit setting for high temperature value, alarm list, service stop and test mode can be seen.

Damper

The damper has 4 function settings.

Mains supply

24V DC/230V AC, 48V DC/230V AC or 230V AC

Motor type

24VEC, 48VEC and 230VEC

Settings

Directly on the control unit with help of the push buttons.

Serial connection to PC Visual Siox.

Connection to external modem

Connection to TCP/IP with external gateway.

Connections for T08: Direct connection to TCP/IP (using the correct variant).

Software

T07: Sysair 0725

T08: Sysair 0825



RBS Wall lead through

All sizes

Dimensions: 460x240 mm. Galvanized sheet-steel

RBS Exhaust cowl

All sizes



Dimensions 465x300 mm. Uninsulated cowl manufactured in Alu-zink FZ185 which corresponds to class C4 according to EN ISO 12944-2. Covering plate for rain protection.

RBS-damper with motor

All sizes



Fitting to Ericsson UMTS stand 3202. Outlet for excess heat during summer time. The damper is manufactured from galvanized sheet-steel corresponding to class C2 according to EN ISO 12944-2. Brass bearings and softened silicone seals. Belimo damper motor LM230 for 230V.

Aerotemper CI

All sizes



Electrical data
Voltage 1~ 230V
Temp. increase 9°C
Rated power 1kW
Airflow 91 l/s
Rated current 4,5 A

Dim. and weight
Width 335 mm
Height 255 mm
Depth 275 mm

Filter guard

All sizes



P233A

Exhaust/Intake cowl

FTVB 2002



Cowl 465x300 mm with protective mesh. Uninsulated cowl manufactured in Alu-zink FZ185, which corresponds to class C4 according to EN ISO 12944-2. Covering plate for rain protection.

Exhaust back draught shutter

FTVB 2002



Back draught shutter 300x300 mm. Complete with wall lead through and 10 mm protective mesh. Telescopic wall lead through 100-190 mm.

Damper

FTVB 2002



Damper 300x300 mm with motor LM24A
Damper 300x300 mm with motor LM48A
Damper 300x300 mm with motor LM230A
The damper is manufactured from galvanized sheet-steel corresponding to class C3 according to EN ISO 12944-2.

Exhaust back draught shutter FTVB, FTVC 2006



Back draught shutter 500x400 mm & 900x250 mm. Complete with wall sleeve and 10 mm protective mesh. Telescopic wall sleeve 100-190mm.

Exhaust Cowl

FTVB, FTVC 2006



Exhaust cowl with dimensions 500x400 mm, 650x450 mm & 900x250mm. Uninsulated cowl manufactured in Alu-zink FZ185, which corresponds to class C4 according to EN ISO 12944-2.

Damper

FTVB, FTVC 2006



Damper 900x250 mm & 500x400 mm with motor LM230. Is to be used in case of problems with snow and cold conditions. The damper is manufactured from galvanized sheet-steel corresponding to class C2 according to EN ISO 12944-2. Brass bearings and softened silicone seals. Belimo damper motor NM230 for 230V.

Inlet Cowl

FTVB, FTVC 2006



Uninsulated cowl manufactured in Alu-zink FZ185, which corresponds to class C4 according to EN ISO 12944-2. Covering plate for rain protection.

Exhaust back draught shutter

FTVD



Dimensions 600x800 mm. Complete with wall lead through and 10 mm protective mesh. Telescopic wall lead through 100-190 mm.

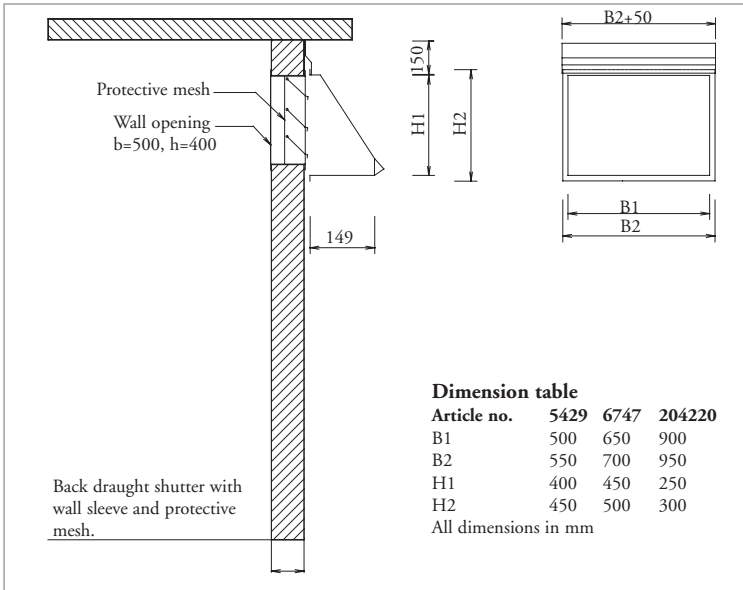
Exhaust Cowl

FTVD

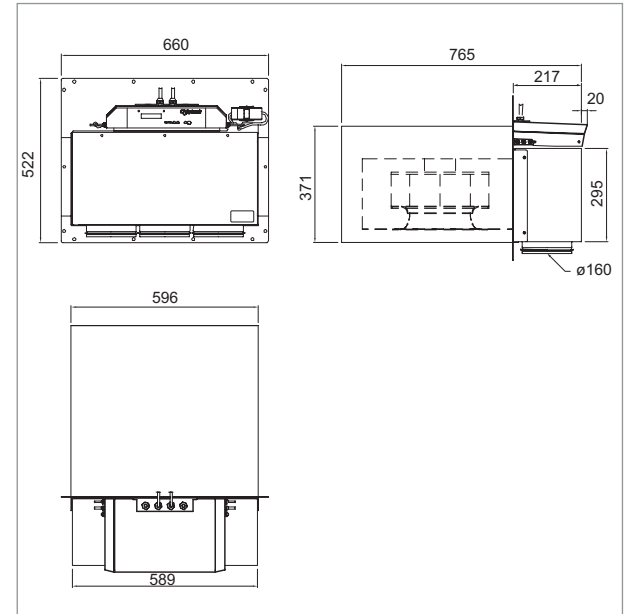


Dimensions 680x900 mm. Uninsulated cowl manufactured in Alu-zink FZ185, which corresponds to class C4 according to EN ISO 12944-2. Covering plate for rain protection.

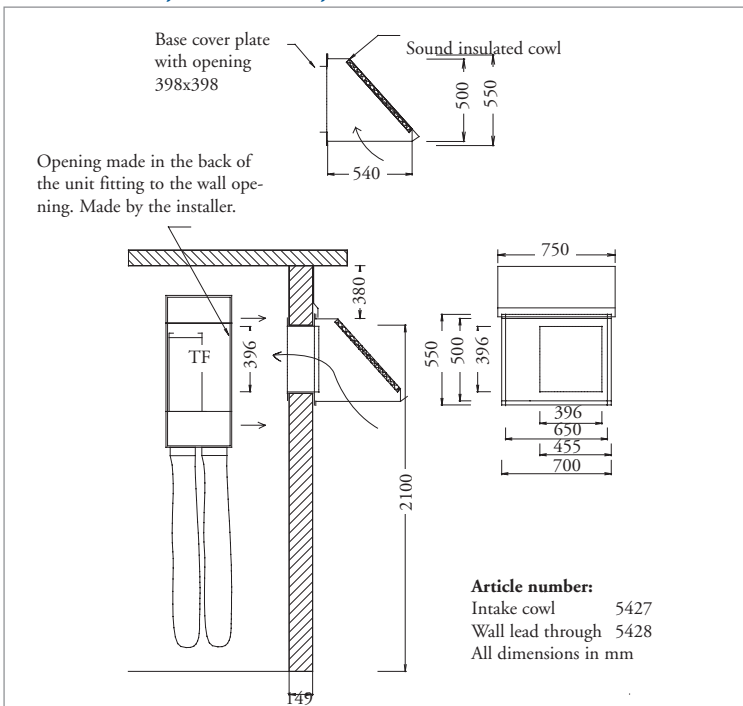
Exhaust cowl, back draught shutter FTVB, FTVC



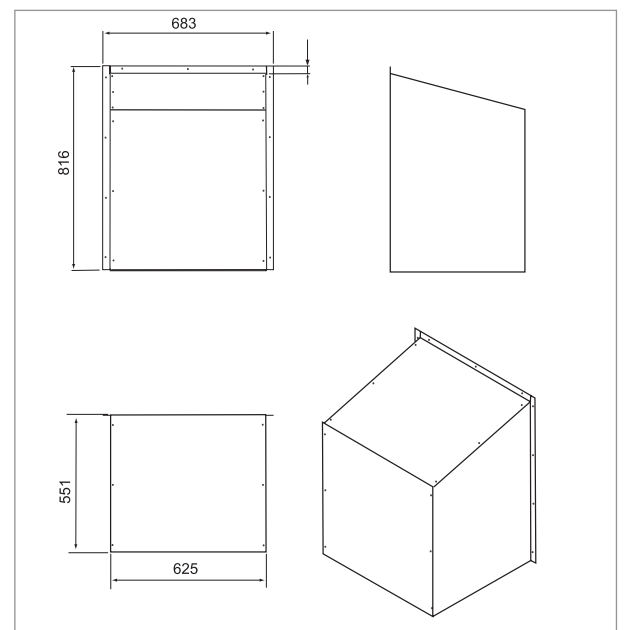
FTVB 2006



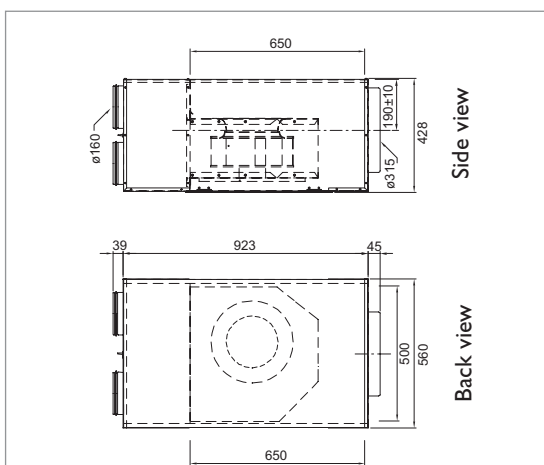
Intake cowl, wall sleeve, FTVC



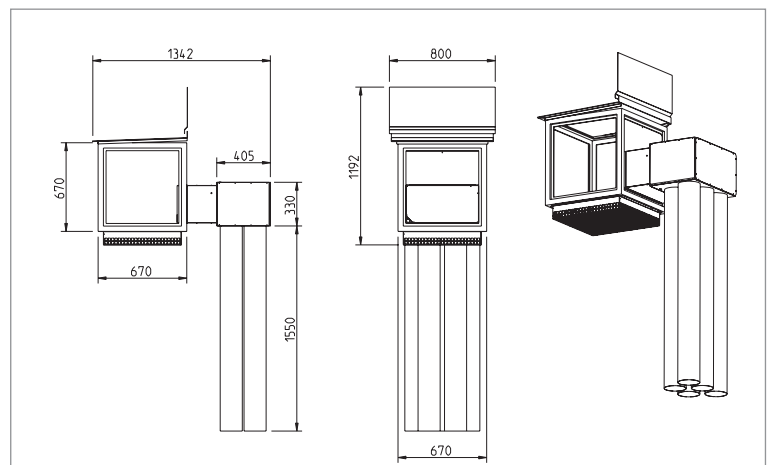
Intake cowl FTVB 2006



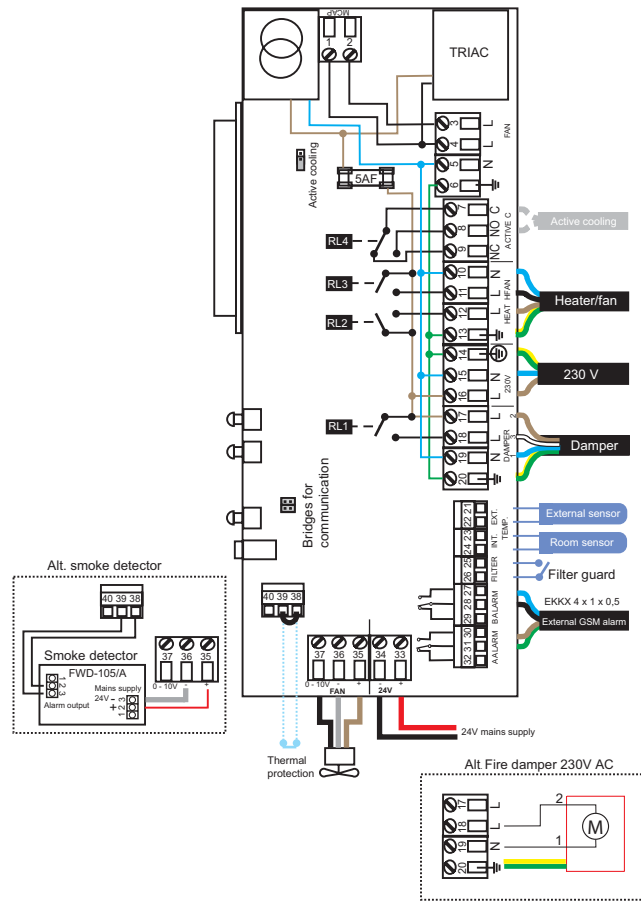
FTVC 2006



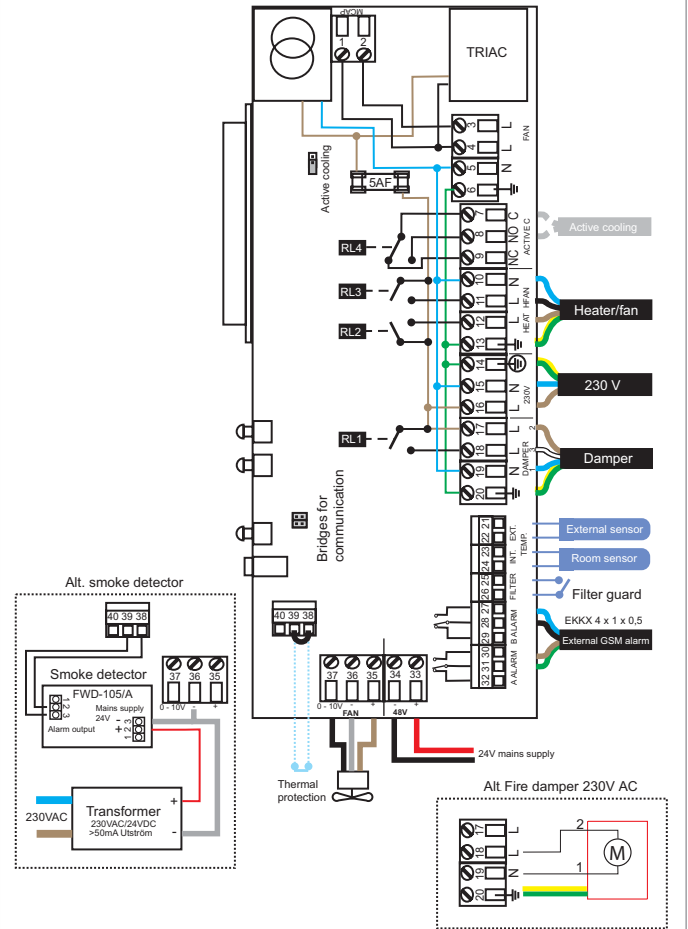
FTVD 2010



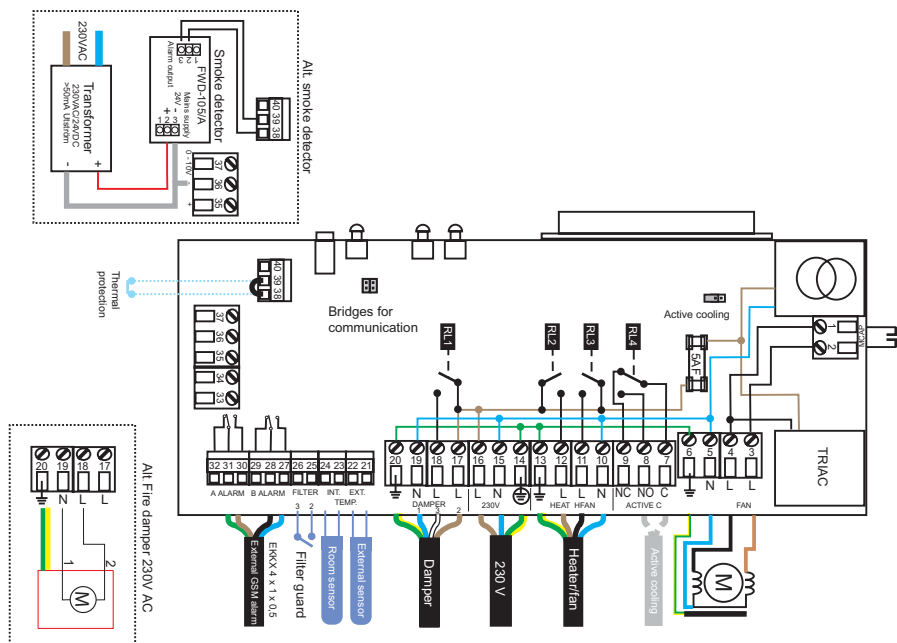
Wiring of T07 with 24V DC fan motor



Wiring of T07 for 48V DC fan motor

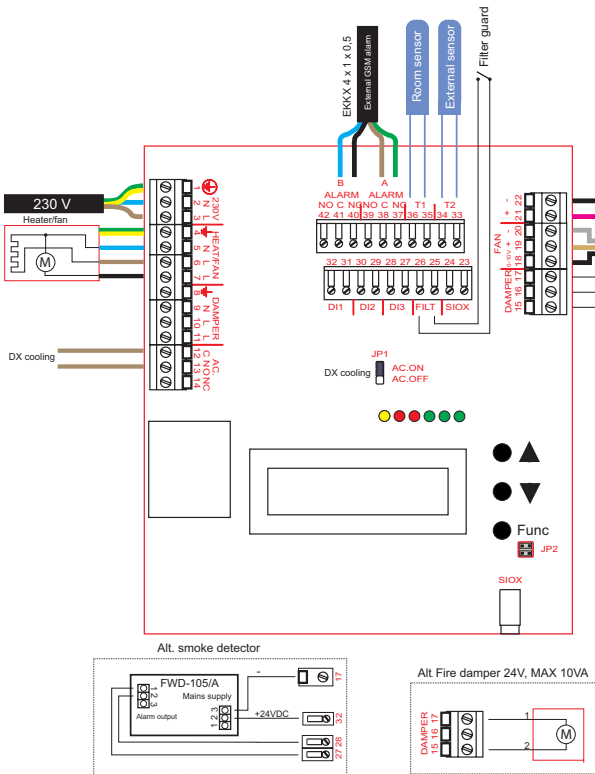


Wiring of T07 for 230V AC fan motor

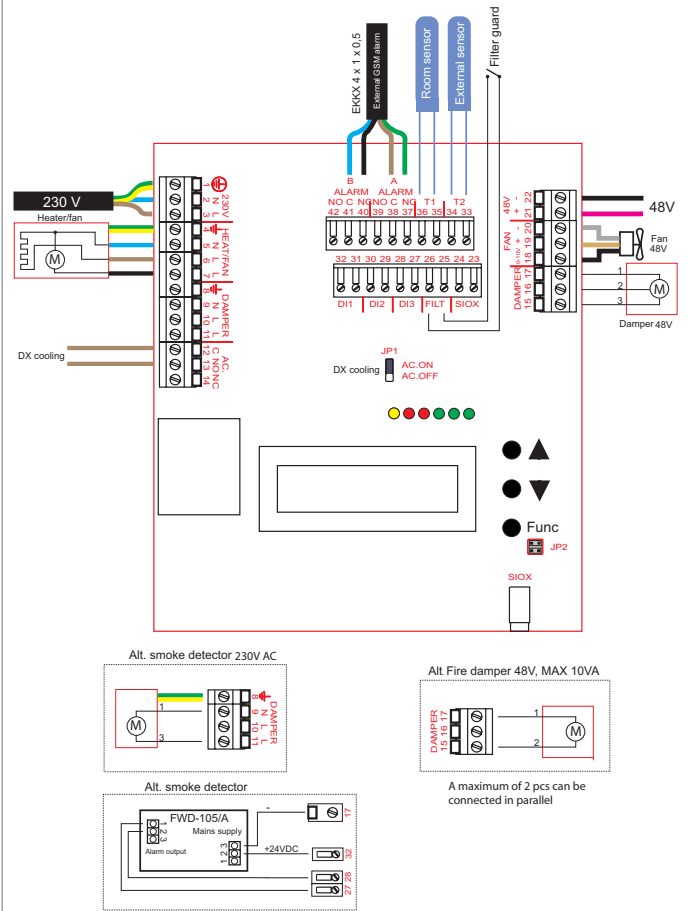


Wiring diagram T08

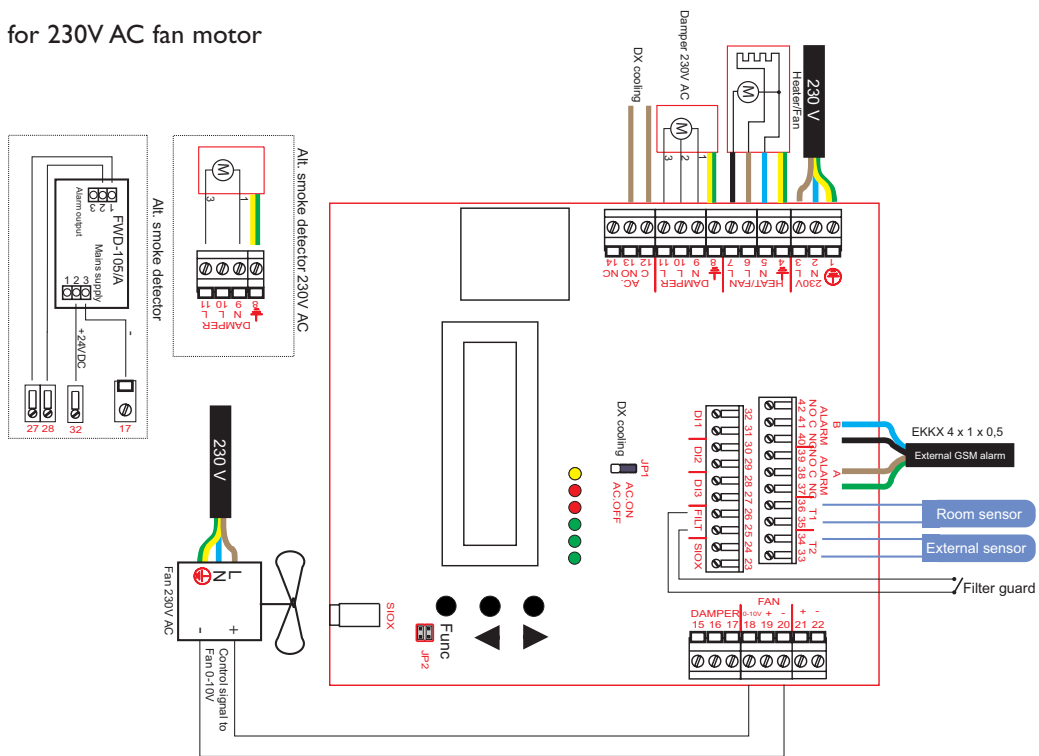
Wiring of T08 for 24V DC fan motor



Wiring of T08 for 48V DC fan motor



Wiring of T08 for 230V AC fan motor





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