

Instructions

HERU 180 / HERU 180 S



ÖSTBERG
THE FAN COMPANY

Description of unit HERU 180/ HERU 180 S

Heat recovery unit Heru is designed for ventilation of both inlet and outlet air for private houses, offices and other spaces where temperature efficiency, low energy consumption, low sound-level and high reliability is required.

The unit casing is made from double galvanized steel plate with 50 mm interleaving mineral wool. The hinged door has a blocking device and an Allen key lock.

The circular channel connectors are fitted with sealing rings.

The revolving heat exchanger device is non-hygroscopic, made from aluminium and has a temperature efficiency of up to 84 %.

The two radial fans has backward curved impellar and maintenance free outer rotating motors with permanently lubricated enclosed ball bearings.

The fans are electrically connected with automatic couplings and can easily be removed from the unit for cleaning. They are swing out design fans to facilitate cleaning.

Bag filter class EU5 or EU7, for both in- and outlet air.

Control equipment HERU 180

The control equipment consists of an operating unit with an on/off switch for the heat recovery unit, and rotating motor, display for operation and filter exchange.

The heat recovery unit consists of:

Programmable timer for full time and part time operation

Adjustable thermostat for starting and stopping the rotor.

Stops the rotor at set value 0 - +40°C. (Positioned in the duct for outlet air)

Adjustable thermostat for stopping the unit when the temperature of the inlet air is too low. (Positioned in the duct for inlet air)

Pressure guard over the filters.

Seven-stage transformer for individual adjustment of the fan speed.

Control equipment HERU 180S

The control equipment consists of a microprocessor-controlled regulator via a control unit with the following features:

Full/half speed operation via time channel

Constant inlet air or room control

1/Rotor on/off,

2/Rotor on/off and duct post heat in sequence

3/Rotor on/off, duct post heat, and cooling water battery in sequence

Post heat as a duct battery for electricity or heating water.

Cooling as duct located cooling water battery.

Seven-stage transformer for individual adjustment of the fan speed.

Setting of values

Reading of temperatures and temperature efficiency.

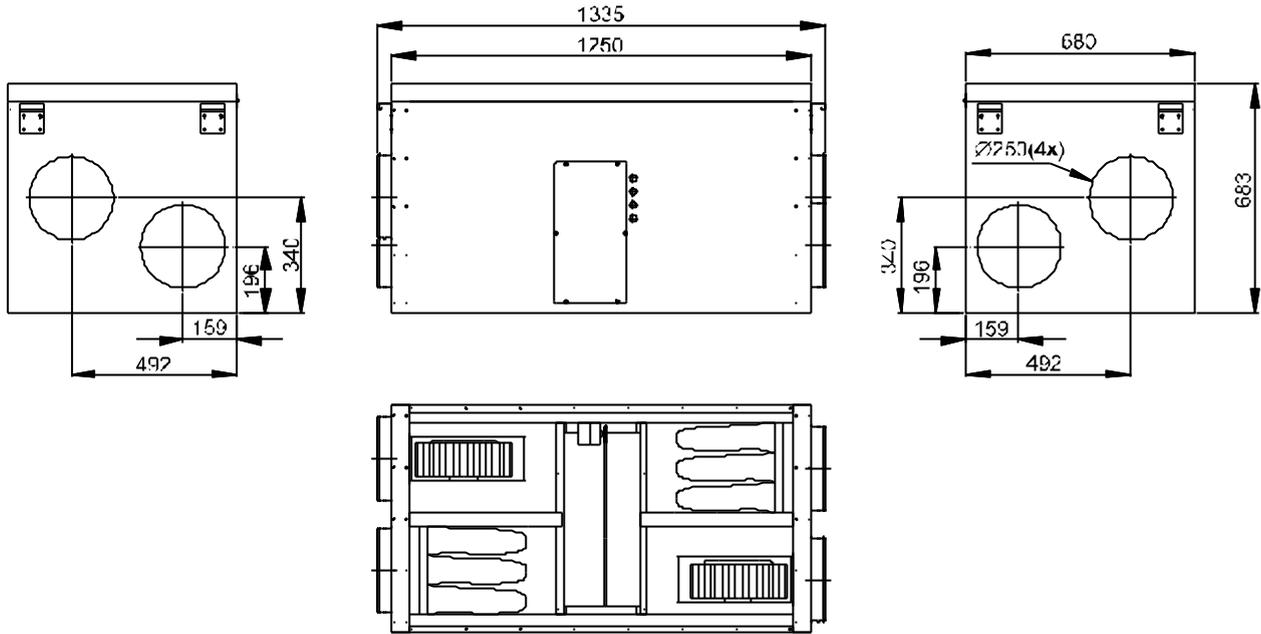
Connection for extended day operation.

Connection for smoke detector that stops the unit and shuts the air valves.

Alarm for filter monitor and freeze protection.

Outlet for external buzzer alarm.

Measurements HERU 180/180S

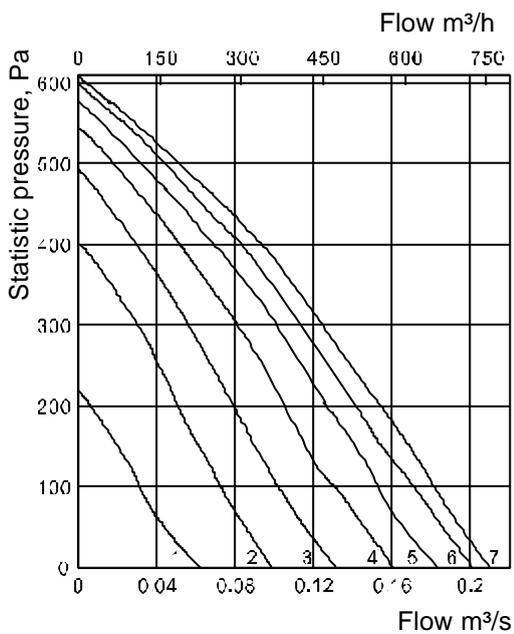


Technical Data Heru 180 / 180S

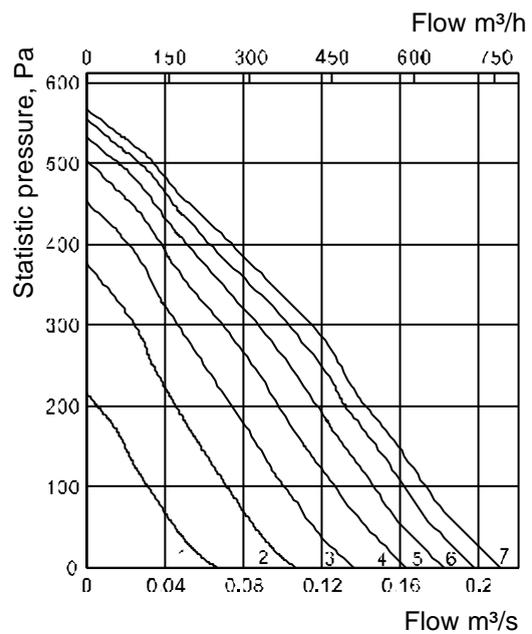
Voltage/Frequency	230 V / 50Hz
Power	403 W
Current	1,87 A
Weight	130 kg
Connections	Ø 250 mm

Pressure and flow diagram

HERU 180 F5-filter



HERU 180 F7-filter



Transformer curves Heru 180 / 180S

Curve	1	2	3	4	5	6	7
	100V	130V	150V	170V	190V	210V	230V

Sounddata HERU 180

Duct	Lwa tot								
	dB(A)	63	125	250	500	1K	2K	4K	8K
Inlet 230 V									
180 l/s 110 Pa	75	61	67	68	71	66	60	55	45
155 l/s 200 Pa	74	57	66	68	71	65	60	55	44
125 l/s 300 Pa	76	55	67	69	73	66	60	55	45

Duct	Lwa tot								
	dB(A)	63	125	250	500	1K	2K	4K	8K
Outlet 230 V									
180 l/s 110 Pa	60	47	55	54	55	47	39	25	9
155 l/s 200 Pa	61	47	54	56	57	48	40	26	9
125 l/s 300 Pa	62	46	57	57	58	48	41	27	11

To environment	Lpa	Lwa tot								
		dB(A)	63	125	250	500	1K	2K	4K	8K
230 V 100 Pa	45	52	39	42	46	47	42	44	41	39
190 V 100 Pa	45	52	37	40	45	47	41	43	40	38
170 V 100 Pa	43	50	36	41	44	45	40	41	39	38
150 V 100 Pa	42	49	36	39	43	46	37	37	37	37

The sound data have been compiled by means of sound measurement method as follows:

Pressure and flow: ISO 5801

Determination of acoustic sound level in duct: ISO 5136

Determination of acoustic sound level in reverberation room: ISO 3741

Designations

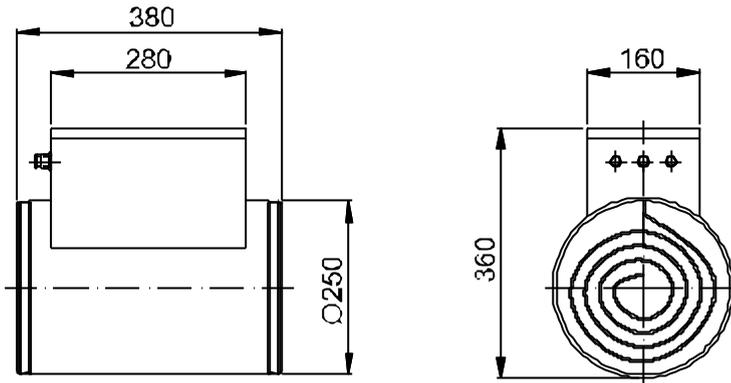
LwA tot: Total A-weighted sound power level dB(A) (ref 10^{-12} W) = the sum of the sound power level in the octave ranges.

LwA: A-weighted sound power level in octave range dB(A) (ref 10^{-12} W).

LpA: A-weighted sound pressure level in dB(A) according to normed A-weighting correction and relating to an effective absorption area of 20m^2 with half spherical translation at 3 m. distance.

Accessories

Duct heater Electrical 2,1 and 5kW .

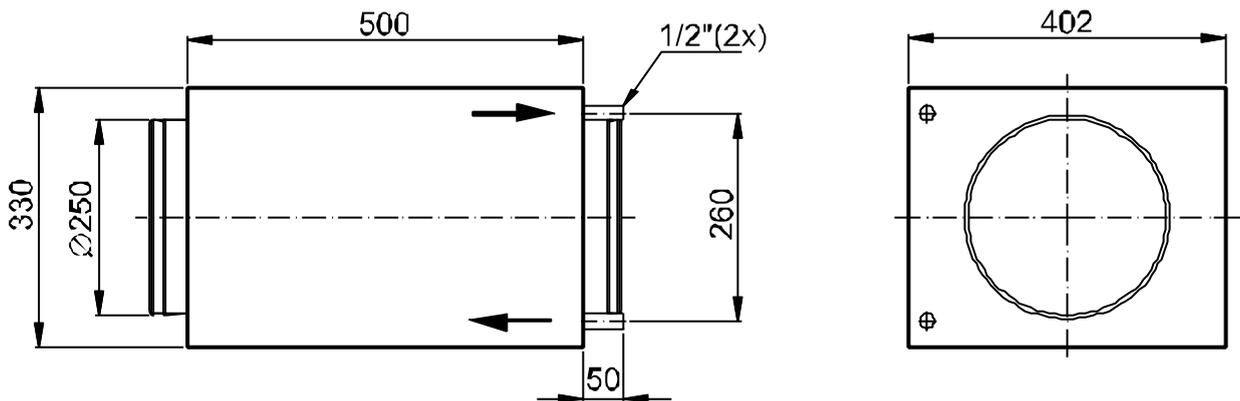


Power : 2,1 or 5,0 Kw

Min.airflow : 75l/s

Heru 180S is prepared for control by extern pulser 0-10V.

Water battery - Cooling water (2,5kW)



Data for Water battery - Cooling water

Air

Flow	Speed	Input temp.	Output temp.	Power
0,2m ³ /s	2,2 m/s	25°C, 50%Rh	14,4°C	2,5kW

Cooling water

Flow	Speed	Input temp.	Output temp.	Pressure drop
0,16 l/s	0,8m/s	7°C	12°C	12,4kPa

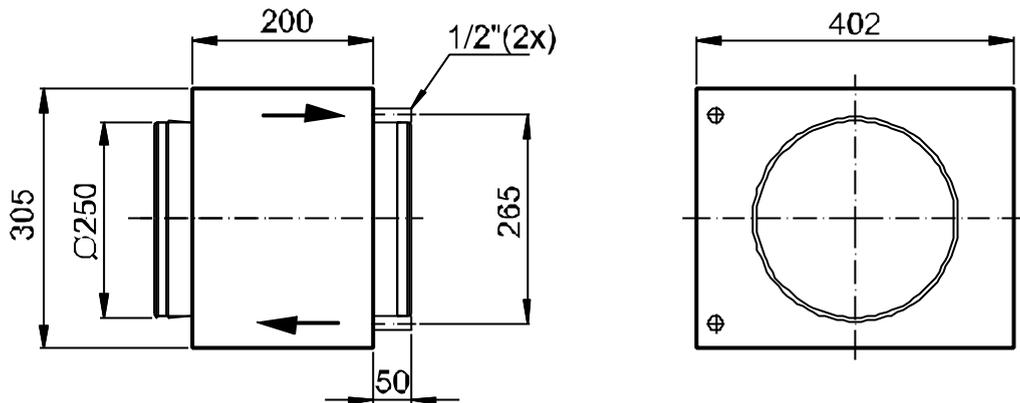
Air

Flow	Speed	Input temp.	Output temp,	Power
0,15m ³ /s	1,7 m/s	25°C, 50%Rh	13,5°C	2kW

Cooling water

Flow	Speed	Input temp.	Output temp.	Pressure drop
0,13 l/s	0,6m/s	7°C	12°C	8,8kPa

Water battery - Hot water(5 kW)



Data Water battery - Hot water

Air

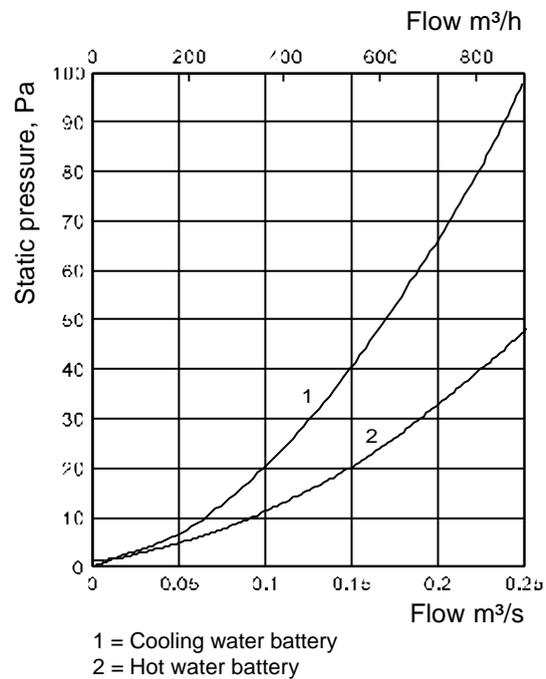
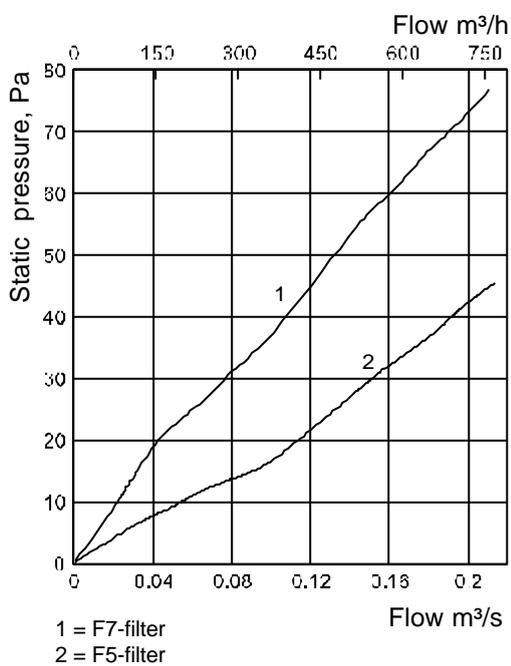
Flow	Speed	Input temp.	Output temp.	Power
0,2m ³ /s	2,2 m/s	10°C	30,5°C	5kW

Hot water

Flow	Speed	Input temp.	Output temp.	Pressure drop
0,1 l/s	0,86m/s	60°C	40°C	15kPa

Pressure

over filter / hot and cooling battery



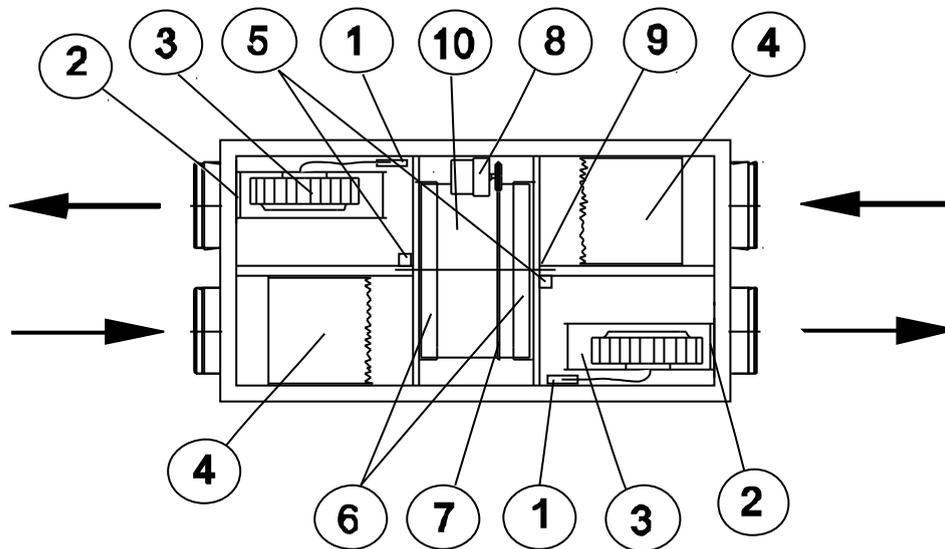
We recommend adding 50Pa to the charted pressure drop value.

Instructions

Cleaning

Always break the current and make sure it cannot be reconnected by mistake.
Open the lid by twisting the two door locks anti-clockwise using an 8 mm Allen key.
When the filter change indicator signals time for change, change filters immediately, otherwise there is a risk that the required set flow cannot be reached.
The filters are removed by pulling straight out of their retaining flanges.
When exchanging the filters, also check if the fans are dirty.
The fans are removed after pulling out the automatic coupling by unscrewing the Philips screw located on the top part of the fan casing, and lift it straight out of the lower fan flange.
Unscrew the screws on the motor plate and open this with motor and fan impeller.
Wipe the fan casing and impeller with a damp cloth.
Clean the inside of the casing of the heat recovery unit when necessary

Instructions for exchange of belt/sealing



Dismounting:

1. Loosen the electric connections (1) and remove the retaining screws of the fans (2), pull out the fans (3).
2. Take out the filter holders (4).
3. Dismantle the sealing edgings (5), 2 long ones and 2 short using a screwdriver PH1.
4. Dismantle the rotor motor covering.
Remove the tape holding rotor sealing, (6) (2 pcs) and move them towards the middle of the motor.
5. Unhook the belt (7) from the motor (8) and the screw (2 pcs M5) holding the motor.
Place the motor by the edge of the unit casing.
6. Loosen the screws (9) (2 pcs) using an Allen key. Lift up the rotor.(10)

Assembly:

1. Exchange the rotor sealing and belt.
2. Lift the rotor in the box by the new belt. Assemble by using an Allen key and spacers.
3. Slide the rotor sealing over the middle wall and against the wall. Mount using new tape.
4. Assemble the motor and lift the belt on the belt pulley.
5. Exchange the brush border on the holders and remount.
6. Mount the filters and the fans (be careful not to hurt the flanges)
7. Mount the electric connections.
Check all features, functions, fans and rotor before replacing the motor covering.

CONTROL EQUIPMENT HERU 180S

Start-up

Study the "User manual nova 240" for the hand unit before operation.

The heat recovery unit must be completely connected at start-up, including all sensors and possible post heater, cooling battery and valve actuator.

Connect hand unit.

When the heat recovery unit is running the control unit can be disconnected without disturbing the function.

To make changes in the "Command" and "Values" menus, state a valid password, move to Menu1. "Password" menu (see attachment) the code set at delivery is 0000, finish by "specify".

(if no button has not been pressed in 7.5 minutes the hand unit will return to the security mode and a new entry must be entered to enable changes).

Note!

At the delivery the heat recovery unit is in the OFF position.

The unit will not start if alarms are activated, except for the filter indicator guards.

Alarms must be attended to and reset.

Setting various operating options:

Commands

Constant inlet air
or room temperatur

The control unit setting is for a constant inlet air temperature. If constant temperature is required this must be specified under Menu1/ commands, move using the arrow key up/ down to "Room sensor" and specify "to".

A condition for this is that you are installing a room unit with the required value adjustment feature. (+/- 4°C).

Left / Right

If the heat recovery unit is installed in the reversed mode, set the mode for "H" (Höger=Right) on "Menu1"/"Command, move between the alternatives using the arrow key up/ down to "Change" to get the correct sensor measuring values for temperature efficiency.

When the heat recovery unit is delivered the setting is for Left (V=Vänster=Left)

The inlet air is located on the left hand side if you are standing in front of the unit.

Required values

Temperature of inlet air

This is where you set the required temperature. To change this, set the desired temperature under Menu2/Required temperature/Set values.

The temperature range is limited to +17°C - +25°C

Setting at delivery = +21°C

DAY AND NIGHT OPERATION

When the unit is delivered the setting is constant 1/2 (Night) speed and no time channel has been set.

If no time channel is needed set the operating mode to 1/1 (Day) speed by moving through the alternatives to "Menu1"/"Command" and move to "Time channel" and change the setting to "Day"

If the unit requires a time channel it needs to be programmed under "Menu2"/"Time channels". Move through the alternative to "Time channel", then on to "Processing" (Study the "Help"-menu for assistance).

These are the parameters to set:

Move to	Description	Set	Ex.	Ex.
FreePos	Address	00...01...02...	00	01
YY	Year	XX=every year	XX	XX
MM	Month	PV=Every week	PV	PV
DD	Day	XX=Every day	XX	XX
tt	Time/Hour	Time on/off	06	20
mm	Time/Minutes	Time on/off	00	00
Command	Day/Night	Day or night operation	Day	Night

(The example above is set for day operation 06:00 and night operation 20:00 every day.)

When the setting is completed, check the operating time by going back using the "Esc" key to "Menu2" and then enter the time channel menu and move between the alternatives to "Time channel" and set the cursor on "Pos" and move up and down to display the time when the time channel changes from Day / Night Operation.

The setting at delivery = Constant 1/2 speed (Night).

START / STOP THE HEAT RECOVERY UNIT

The heat recovery unit is started and stopped by moving to "Menu1"/ "Command" and then moving between the alternatives to "Fan switch" and choose the "On" mode.

The setting at delivery = "Off".

If the heat recovery unit is stopped using the hand unit after operation the heating battery temperature is +25°C.

ELECTRIC BATTERY

If the unit contains an electric post heating battery this is entered in Menu1 "Command" by moving the cursor to "On".

WATER BATTERY, HEATING

If the unit contains a water powered post-heating battery this is entered in Menu1 "Command" by moving the cursor to "On". The freeze protection feature is activated and a sensor must be installed on the battery return.

WATER BATTERY, COOLING

If the unit contains a water powered cooling battery this is entered in Menu1 "Command" by moving the cursor to "On".

WARNING FEATURES

All the alarm devices are described in “Menu1”/”Alarm features” in the hand unit. Reset in “Menu1”/”Command”/”Alarm reset”.

Outlet for external buzzer alarm/LED on the control board.

SMOKE DETECTOR, Alarm

The alarm is set off when the smoke detector device signals.

Activated= the unit operation stops, the valves close and the freeze protection feature is activated, the buzzer alarm sounds and the alarm LED in the Alarm menu is switched on.

FREEZE PROTECTION FEATURE, Alarm

The freeze protection feature is activated when the temperature of the sensor is below is below +8°C

Activated = The unit operation stops, the valves close, the buzzer alarm sounds and the alarm LED in the Alarm menu is switched on and the heater sets in until the temperature reaches +12°C, then the unit stops.

PRESSURE GUARD, Alarm

The pressure guards are activated when the filter pressure gets too high.

The alarm limit can be set on the pressure guards.

Activated = the unit operation continues but the buzzer alarm sounds.

Reset after pressure returns to normal (after filter exchange).

STATUS

The heat recovery unit operating status is displayed in “Menu1”/”Status” in the hand unit

HEAT RECOVERY UNIT	Stop / Operating
ROTOR	Inactive / Active
HEATING, WATER BATTERY	Inactive / Active
ELECTRIC BATTERY	Inactive / Active
COOLING WATER BATTERY	Inactive / Active
EXTENDED DAY OPERATION	Inactive / Active
1/2 SPEED OPERATION	Inactive / Active
1/1 FULL SPEED OPERATION	Inactive / Active

VALUES

All measuring values are displayed in "Menu1"/"Values" in the hand unit

REQUIRED VALUE, INLET AIR	°C
OPERATING TIME	HOURS
EFFICIENCY OF VVXL	%
ACTUAL VALUE, FREEZE PROTECTION	°C
ACTUAL VALUE CHANNEL INLET AIR	°C
ACTUAL VALUE OUTSIDE AIR	°C
ACTUAL VALUE INLET AIR after rotor	°C
ACTUAL VALUE OUTLET AIR	°C
ACTUAL VALUE ROOM SENSOR	°C
ACTUAL VALUE REQUIRED VALUE CHANGING	°C

ADDITIONAL INFORMATION

There are connections for "Extended Day Operation" and when this is activated it gives two more hours of "Day Operation" if the unit has moved to "Night Operation" mode, and "Day operation" which gives the same result but without a time limit. There is a connection for a smoke detector that will stop operation and close the valves when activated.

There is a connection for buzzer alarm/LED.

Connection for valve actuators, 24V item no1220380

Adjustment

HERU 180 /180S is provided with a seven step transformer for the inlet air fan and one for the fan for outlet air for adjustment of both full and half speed flow. Change the voltage setting to half speed by moving the orange or grey cable respectively to the required voltage setting on the transformer. (Voltage setting at delivery 170 V)

Change the voltage setting to full speed by moving the purple or green cable respectively to the required voltage setting on the transformer. (Voltage setting at delivery 210 V)

Spareparts:

Components for heat recovery unit HERU 180 / 180S

Description	Item no
Filter EU5, same for in & outlet air	1250134
Filter EU7, same for in & outlet air	1250138
Driving-belt	1220311
Rotor sealing for rotor (2)	1220307
Rotor sealing brush border, long (4)	1220312
Rotor sealing brush border, short (4)	1220313
Heat exchanger (rotor)	1220310
Motor and impeller, same for in & outlet air	3091882
Driving motor (rotor)	1220316
Filter pressure guard	9500001

Spareparts HERU 180

Complete external control unit	6000125
Switch for rotor (0 I)	4020135
Switch for fan speed (I II III)	4020210
Operation LED (white or green)	4020048
Filter change LED (red)	4020134

Spareparts HERU 180S

Control board NovaFlex	1220354
Hand control unit	1220355
Temperature sensor, cable 1m	1220357
Temperature sensor, cable 3m	1220358
Duct sensor	1220359
Hand control unit, Cable	1220356

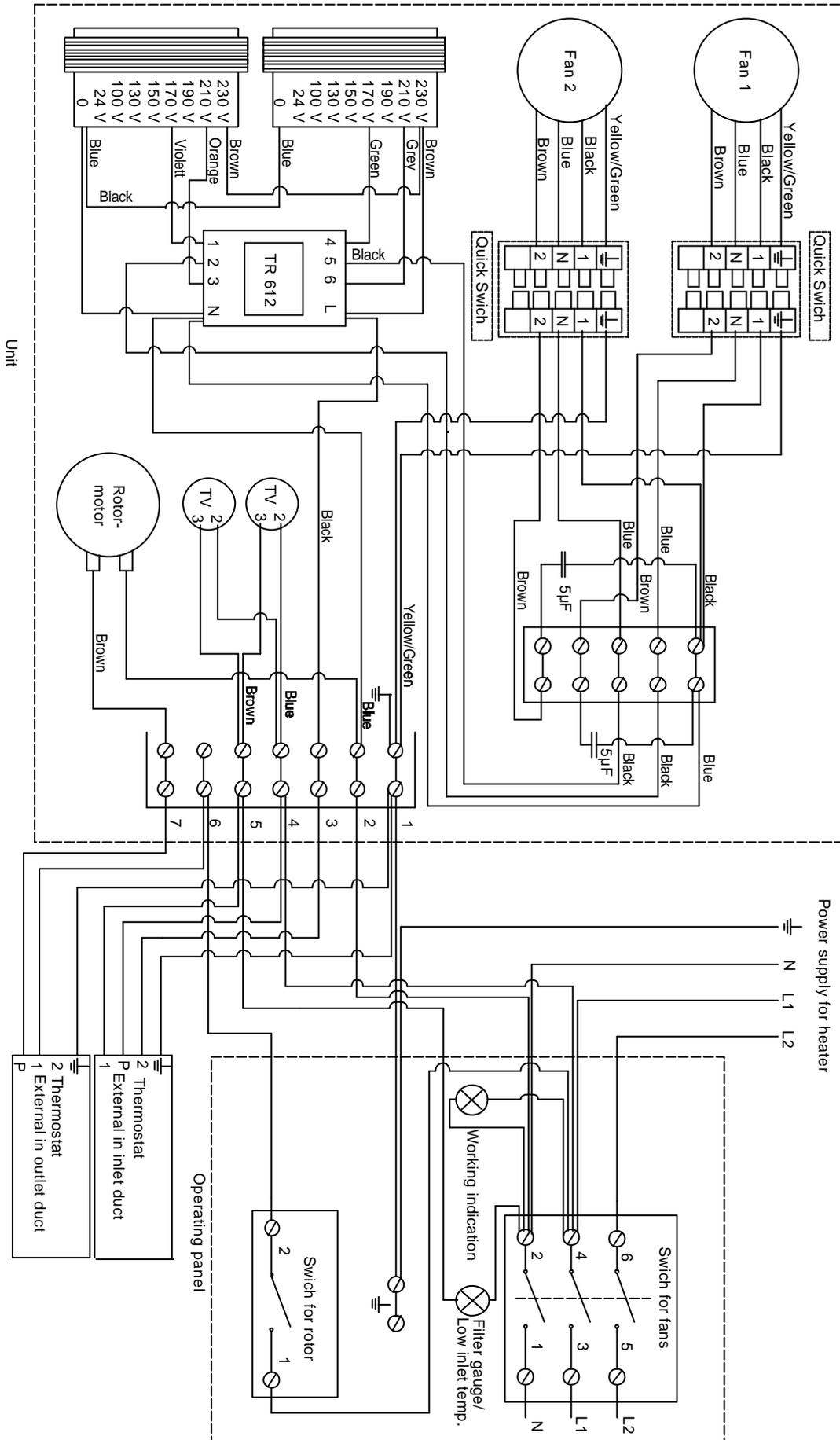
Additional components for heat recovery unit HERU 180

Description	Item no
Shuttervalve motor, incl. 24V transformer	8010021
Ductheater, Electric 2,1 kW, incl. pulser and clamping device.	8010022
Ductheater, Electric 5 kW, incl. pulser and clamping device.	8010008
Duct heater, water 5kW incl. 2-way valve and shuttervalve motor.	8010012
Duct heater, water 5kW incl. 3-way valve and shuttervalve motor.	8010013
Cold waterbattery, incl. 2-way valve.	8010014
Cold waterbattery, incl. 3-way valve.	8010015

Additional components for heat recovery unit HERU 180S:

Description	Item no
Shuttervalve motor 24V	1220380
Ductheater, Electric 2,1 kW, incl. pulser and clamping device.	8010023
Ductheater, Electric 5 kW, incl. pulser and clamping device.	8010016
Duct heater, water incl. 2-way valve and shuttervalve motor.	8010017
Duct heater, water incl. 3-way valve and shuttervalve motor.	8010018
Cold waterbattery, incl. 2-way valve and shuttervalve motor.	8010014
Cold waterbattery, incl. 3-way valve and shuttervalve motor.	8010015

Wiring diagram HERU 180



Wiringdiagram HERU 180S

