OPTIMA-GO

Air volume the smart way

systemair

SystemairTrust

-We work to gain your trust

We consider your trust in us as a supplier an important goal. It is always included in our work on all levels and in all areas whether it is a question of cooperation, quality, deliveries or documentation. This catalogue is of course a part of this work.

With this catalogue, which features the new Optima Series Air Volume Control Units, we want to give you as a customer a general overview of what Systemair can offer within this field. More detailed information is available in our Online catalogue at www.systemair.com and as downloadable software. Systemair's range of fans, air distribution products and accessories also appears in our printed main catalogue.

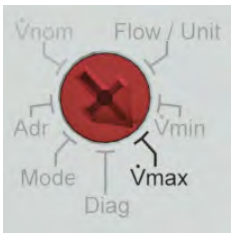
Our product development leads the field - latest technologies in unit design, fans, motors and heat recovery interact to give high efficiency and with that low power consumption. Systemair has grown each year since the start and we aim to continue with this trend.

Systemair strives to be a reliable supplier of quality products. We help our customers to focus on their own business. Reliable deliveries give the customer greater possibilities to quickly complete a job, and move on to the next project.

At Systemair we call this Trust.

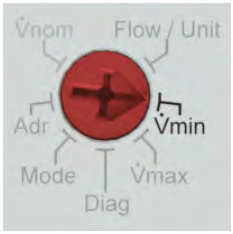
Setting up a VAV has never been easier!

Select Vmax 4



Set air volume 3

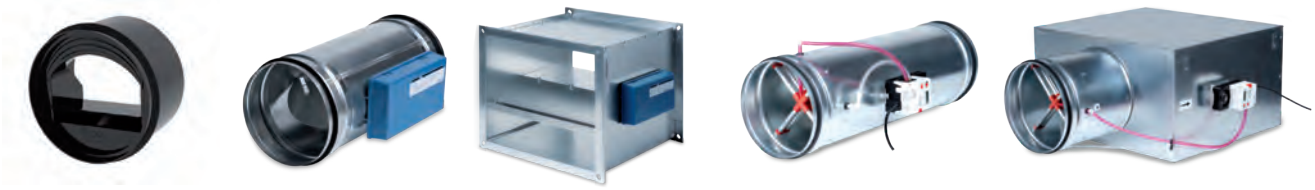
Select Vmin 2



Set air volume 1

GO!

systemair



General Description

In Variable Air Volume (VAV) systems, supply of cool air increases as the cooling load increases, and the air supply decreases as the load decreases.

VAV systems are the most modern, energy efficient all air systems available for comfort air conditioning. VAV systems require less fan capacity than a comparable constant volume system because with VAV only the required air is used. Typically a VAV system fan volume is 60% of a CAV system.

Control of air flow in a VAV system is accomplished through an electronic device, which regulate the amount of supply air to the space in response to a proportional room/space temperature controller.

Pressure Independent

Systemair VAV units are pressure independent.
The accurate volume control achieved by pressure independent VAV units results in substantial energy savings as well as increased comfort to the occupant. Conditioned air volume is precisely regulated according to demand. A maximum air volume setting avoids drafty air distribution; a minimum air volume setting avoids cold air dumping and stuffiness.

Minimum and Maximum air flow requirements are set to suit the space application. “Pressure independent units have controls consisting of an inlet duct sensor, damper, controller/actuator and room temperature controller”. The VAV device controls the air supply volume through the inlet duct velocity pressure sensor to maintain air flow, as the air-conditioning load in the space changes the thermostat signal will reset the VAV controller to change the supply air volume to suit the space requirements. At any given setting, the controller will maintain the required air volume regardless of inlet static pressure changing. This mode of operation is called “Pressure Independent”.

Variable Air Volume units allow the design to take full advantage of shifting loads from lights, occupancy, solar and equipment diversity, which typically leads up to a 40% saving in the total air volume required. Consequently, the central plant and ducting would cost less, thus compensating for the additional cost of VAV terminal units and fan speed controls.

Systemair offers complete range of VAV’s factory tested and calibrated. The VAV range offered are as following:

1. Round single skin VAV units (Optima-R), used in installations for return or supply air in low pressure systems as single-zone control
2. Round double skin VAV units (Optima-R-I), used in installations for return or supply air in medium to high pressure systems as single-zone control
3. Round to rectangular single skin insulated VAV units (Optima-R-S), used in installations for return or supply air in medium to high pressure systems as multi-zone control

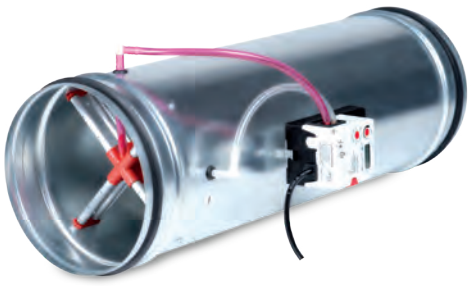
Benefits

The VAV system offers some advantage and benefits over conventional systems as given below

1. Fan energy savings from longhour usage at reduced volumes, also installed fan horsepower reductions.
2. Greater flexibility in respect to varying loads, which are easier zoned, resulting in occupancy controlled comfort and energy saving.
3. Reduced installation and set-up cost.
4. Reduced system energy consumption cost.
5. Single unit for easy mounting.
6. Integrated high efficiency sound attenuator.
7. Suited for mounting of all controls according to customer specification.
8. Accurate air volume control with centre averaging multi-point airflow differential cross velocity pressure sensor.

OPTIMA-R-GO

Circular variable air volume unit



Description

The OPTIMA-R-GO terminal units are equipped with compact controller which includes digital display. The units minimum and maximum air volume, control voltage, units, VAV / CAV mode and tests can be set on site using only a screwdriver. The controller doesn't have any communication module and is to be used as stand alone or in master and slave setting. Compact controllers are factory calibrated prior to dispatch.

Highlights

- Blade tightness class 4 according to EN 1751
- Casing tightness class C according to EN 1751
- ILH Hygienic certification VDI 6022 & VDI 3803 for Standard climatisation & Hospitals
- Very high accuracy of 5 %
- Air speed from 1 to 13 m/s
- Works up to 1000 Pa pressure difference

Function

Systemair circular VAV terminal units are available in two versions:
Single skin OPTIMA-R-GO & Double skin OPTIMA-R-I-GO
Single skin circular VAV terminal units are commonly used for return air applications or for supply applications at low system pressures. Double skin circular VAV terminal units are commonly used for supply or for return air applications at medium to high system pressures. Terminal units are ideal for single zone control with supply and return in Master and Slave setup such as offices, hotel rooms or meeting rooms where the required cooling and heating load will vary on demand.

Design

VAV unit housing constructed of galvanized steel sheet. In OPTIMA-R-I-GO the external acoustic insulation of fiber glass material is designed to absorb sound generated by the damper assembly. The insulation is once again covered by a secondary galvanized sheet steel to protect the insulation and to keep the low frequency sound in high pressure systems down. Special design of centre averaging multi-point airflow differential cross velocity pressure sensor assures an accurate air flow readings even in difficult installations.

Available Sizes

Inlet/outlet : from ø 80 to ø 630 mm

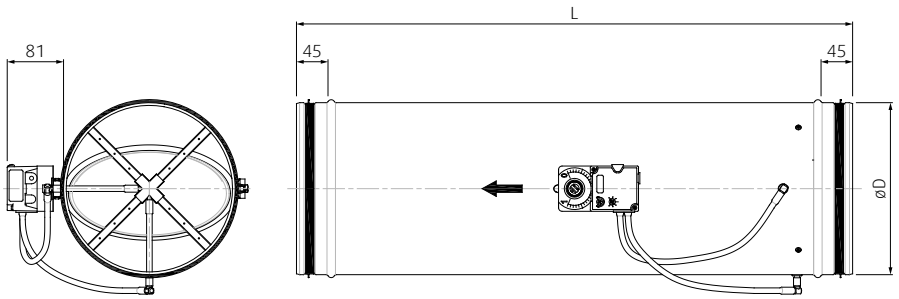
Ordering codes

OPTIMA-R-GO-I-100-MOD

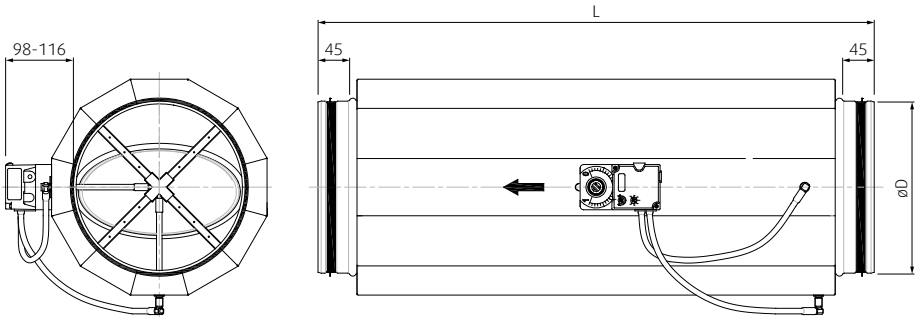
I - insulation
MOD - Modbus communication

Controls

The VAV terminal units are as standard equipped with compact controller without any communication capability to be used as stand alone or in Master and Slave setting. The compact controllers which are supplied with modbus communication capability, can be connected later in time to building managment systems. Compact controllers are factory calibrated prior to dispatch.



OPTIMA-R-GO

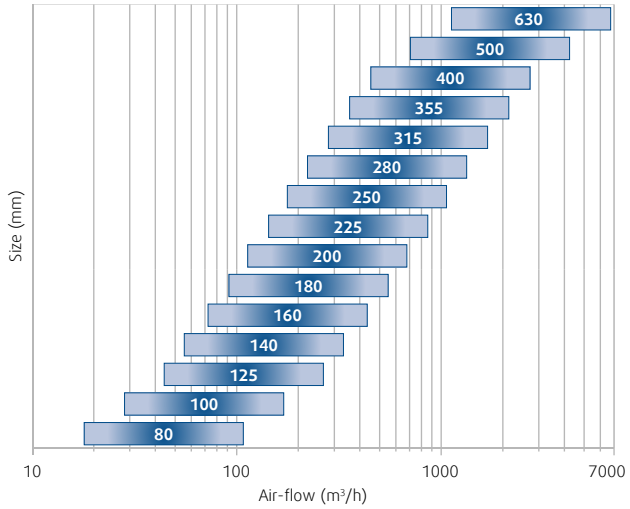


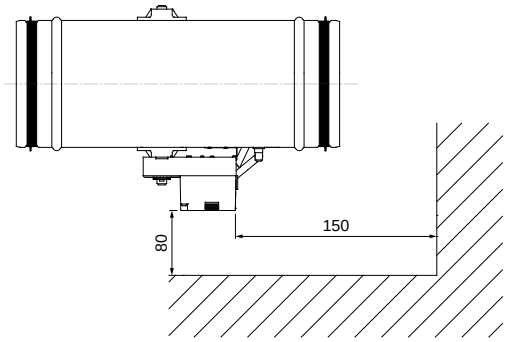
OPTIMA-R-I-GO

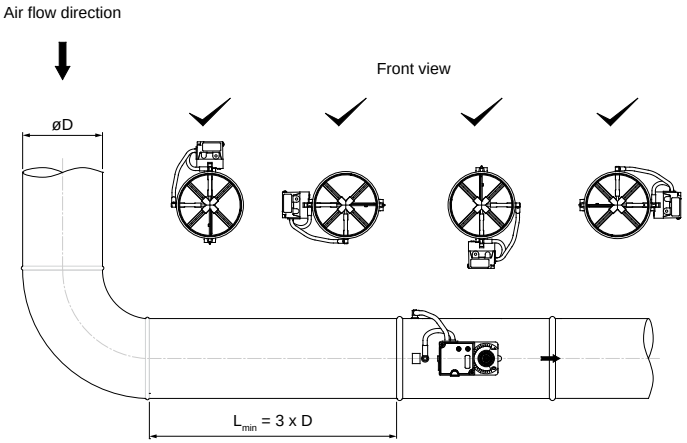
OPTIMA-R-GO, -R-I-GO	øD	L	V_{min} *	V_{min} **
	(mm)		(m^3/h)	
100	97	400	28	170
125	122	400	44	265
140	137	400	55	333
160	157	400	72	434
180	177	600	92	550
200	197	600	113	679
225	222	600	143	859
250	247	800	177	1060
280	277	800	222	1330
315	312	800	281	1683
355	352	800	356	2138
400	397	800	452	2714
500	497	1000	707	4241
630	627	1000	1122	6733

Air flow OPTIMA-R-GO, -R-I-GO
All dimensions given in mm in accordance to EN 1506 øD are the Inlet-Outlet dimension

* V_{min} is minimal value, which can be adjusted for the dimension, and it is 1 m/s
** V_{max} is maximal value, which can be adjusted for the dimension, and it is 9 m/s.







OPTIMA-R-GO installation

OPTIMA-RS-GO

Variable air volume unit - with circular input and square output

Highlights

- Blade tightness class 4 according to EN 1751
- Casing tightness class C according to EN 1751
- Very high accuracy of 5 %
- Inlet air speed from 1 to 6 m/s
- Works up to 1000 Pa pressure difference
- Inside 30 mm noise insulation with anti abrasive layer

Function

Single skin round to square VAV terminal units is commonly used for supply air applications or for return air applications at low to medium system pressures. Optima-RS VAV terminal units are ideal for multizone control with supply and return in master and slave setup such as offices, hotel rooms or meeting rooms where the required cooling and heating load will vary on demand.

Design

VAV unit housing constructed of galvanized steel sheet, large surface pleated for extra stiffness. Internal thermal acoustic insulation of fibre glass material, dual density insulation cover tissue is used to protect the fiberglass insulation to protect the deterioration of the insulation for air speeds of 20-25m/s. Acoustic insulation in the housing has aerodynamic flow for extra low sound level.Double skin low leakage elliptical damper with airtight neoprene gasket seal. Special design of centre averaging multi-point airflow differential cross velocity pressure sensor assures an accurate air flow readings even in difficult installations. Rectangular outlet with M8 riveted nuts, suited for connecting to duct flange. 12 mm aluminium shaft with nylon bearings

Available Sizes

Inlet: from ø 100 to ø 400 mm

Ordering codes

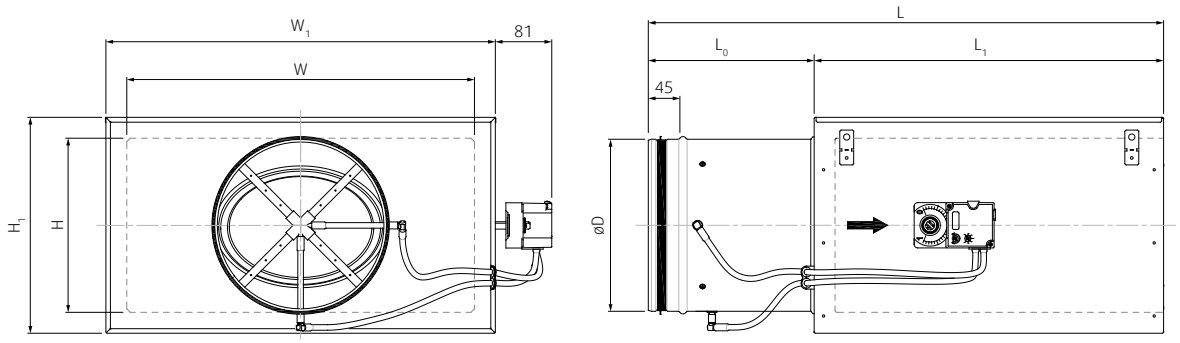
OPTIMA-RS-I-GO-100-MOD

I - insulation

MOD - Modbus communication

Controls:

The VAV terminal units are as standard equipped with compact controller without any communication capability to be used as stand alone or in Master and Slave setting. The compact controllers which are supplied with modbus communication capability, can be connected later in time to building managment systems. Compact controllers are factory calibrated prior to dispatch.

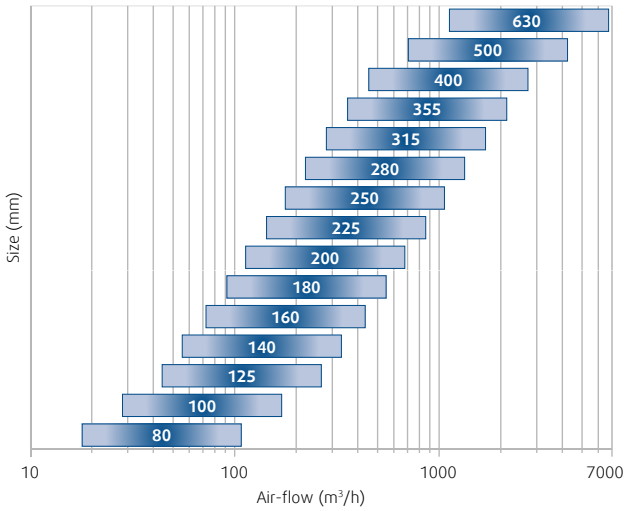


OPTIMA-RS-GO

OPTIMA-RS-GO, -RS-I-GO	øD	W	H	L	L_0	L_1	W_1	H_1	V_{min} *	V_{min} **
	(mm)								(m^3/h)	
100	97	200	200	450	150	300	260	260	28	170
125	122	200	200	450	150	300	260	260	44	265
140	137	200	200	450	150	300	260	260	55	333
160	157	250	200	600	200	400	310	260	72	434
180	177	250	200	600	200	400	310	260	92	550
200	197	400	200	700	200	500	460	260	113	679
250	247	500	250	750	250	500	560	310	177	1060
315	312	600	350	950	250	700	660	410	281	1683
400	397	700	400	950	250	700	760	460	452	2714

Air flow OPTIMA-RS-GO
All dimensions given in mm in accordance to EN 1505 ØD are the Inlet dimensions

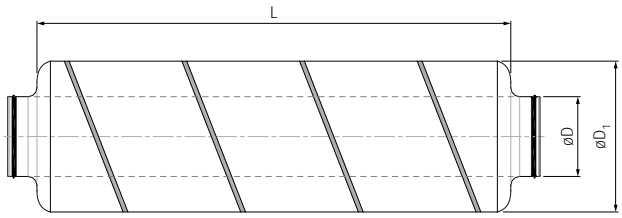
* V_{min} is minimal value, which can be adjusted for the dimension, and it is 1 m/s
** V_{max} is maximal value, which can be adjusted for the dimension, and it is 9 m/s.



ACCESSORIES

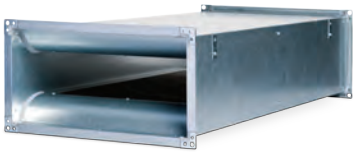
LDC - Circular attenuator

Easily-fitted silencer for circular ducts, fitted with a connection that complies with the spiral duct standard. The LDC effectively reduces noise in the duct. Two silencers can be used together in installations where noise reduction is a particularly strong requirement. This is very effective. For the most effective noise reduction, the silencer should be fitted immediately behind a fan or bend. The silencer should be used together with an insulated fan where there is a requirement for noise reduction both in the duct and in the surroundings as a whole. The silencer is delivered with two separate spigots. Insulation thickness 100 mm.



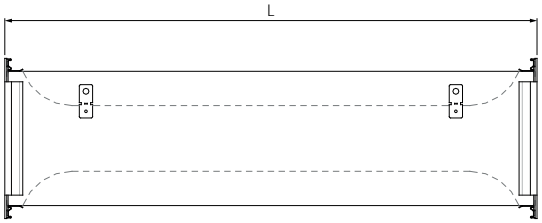
LDC	øD	L_{nom}	$øD_1$	L	m
	(mm)				(kg)
100-300	97	300	200	360	2,28
100-600	97	600	200	660	4,09
100-900	97	900	200	960	5,18
100-1200	97	1200	200	1260	6,46
125-600	122	600	224	665	4,39
125-900	122	900	224	965	6,2
125-1200	122	1200	224	1265	7,47
150-600	147	600	250	600	5,37
160-600	157	600	260	670	5,37
160-900	157	900	260	970	7,48
200-600	197	600	300	685	6,9
200-900	197	900	300	985	9,74
250-600	247	600	355	600	8,55
250-900	247	900	355	900	11,7
315-600	312	600	415	600	11,8
315-900	312	900	415	900	16,3
355-900	352	900	560	900	25,2
400-900	397	900	600	900	24,3

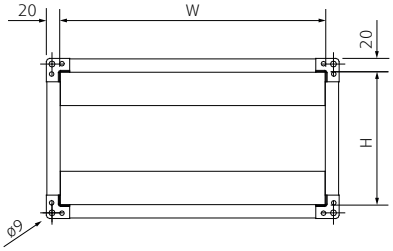
OPTIMA-A - Square attenuator



OPTIMA-A silencer effectively absorbs the noise which is transferred through a pipe. A special fillet on the silencer's facing edge prevents the turbulence from being formed, thus avoiding further creation of noise. The best results can be achieved when placing the silencer right behind the source of the noise or the curve. If there is a need to absorb the noise in the pipe, as well as around it, the silencer should be used combined with an isolated type of controller.

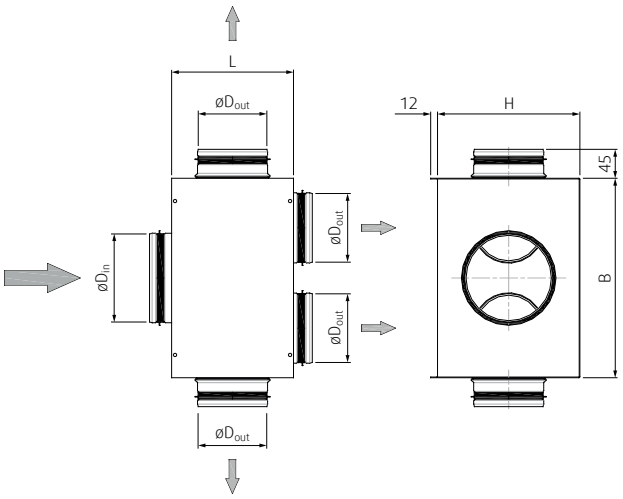
OPTIMA-A	W	H	L	m
	(mm)			(kg)
200x200-1000	200	200	1000	9,1
250x200-1000	250	200	1000	10,2
400x200-1000	400	200	1000	13,4
500x250-1000	500	250	1000	19,1
600x350-1000	600	350	1000	22,7
700x400-1000	700	400	1000	26,4



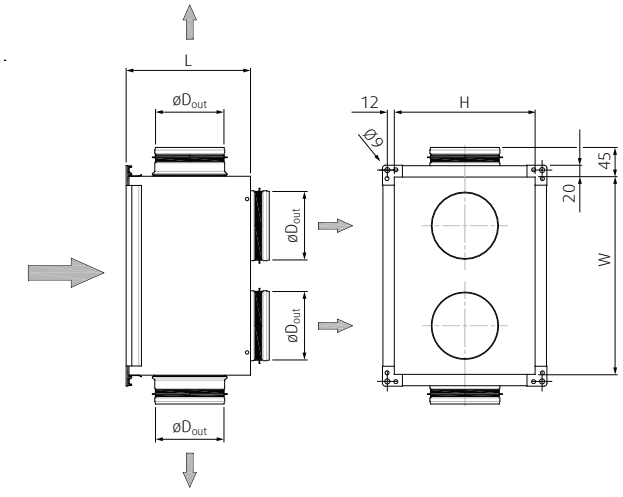


OPTIMA-M - multioutlet box

OPTIMA-M is a multioutlet non-insulated box with four equally sized or smaller dimensions of the outlet pipe than the inlet pipe. It is manufactured from a galvanized sheet and the connecting pipes include a rubber sealing. The box is ideal to use as an embranchment of air among four different rooms which have the same requirements.



OPTIMA-M-RR



OPTIMA-M-SR

OPTIMA-M-RR	$øD_{in}$ (mm)	$øD_{out}$	B	H	L
100-80	97	78	250	190	150
100-100	97	97	300	190	170
125-100	122	97	300	210	170
125-125	122	122	350	210	190
140-100	137	97	300	230	170
140-140	137	137	380	230	210
160-125	157	122	350	250	190
160-160	157	157	420	250	230
180-140	177	137	380	270	210
180-180	177	177	460	270	250
200-160	197	157	420	290	230
200-200	197	197	500	290	270
225-180	222	177	460	320	250
225-225	222	222	560	320	300
250-200	247	197	500	340	270
250-250	247	247	610	340	330
280-225	277	222	560	370	300
280-280	277	277	670	370	370
315-250	312	247	610	410	330
315-315	312	312	740	410	390
355-280	352	277	670	450	370
355-355	352	352	820	450	430
400-315	397	312	740	480	390
400-400	397	397	910	480	470

OPTIMA-M-RR dimensions

OPTIMA-M-SR	W (mm)	H	$øD_{out}$	L
200 x 200 - 80	200	200	78	190
200 x 200 - 100	200	200	98	190
250 x 200 - 100	250	200	98	190
250 x 200 - 125	250	200	122	190
400 x 200 - 125	400	200	122	190
400 x 200 - 140	400	200	137	210
400 x 200 - 160	400	200	157	210
400 x 200 - 180	400	200	177	250
500 x 250 -160	500	250	157	250
500 x 250 -180	500	250	177	330
500 x 250 -200	500	250	197	330
600 x 350 - 200	600	350	197	330
600 x 350 - 250	600	350	247	370
700 x 400 - 250	700	400	247	370
700 x 400 - 315	700	400	312	390

OPTIMA-M-SR dimensions

ACCESSORIES

ELECTRICAL ~~DUCT~~ HEATERS

The heaters have integral overheating protection with a manual reset function. The min. air volume is based on a min. air velocity of 1.5 m/s. These duct heaters are designed for a max. output air temperature of 50°C (CB and CBM) / 40°C (RB).

CB (for circular ducts)

Suitable for control by room thermostat or Pulser.

CBM (for circular ducts)

Time-proportional Pulse/ Pause technology provides extremely precise temperature control. Delivered with TG-K330 duct sensor.

RB (for rectangular ducts)

Suitable for control by room thermostat or TTC

~~DUCT~~ WATER HEATING COILS

The water-heating coil can be installed in a horizontal duct.
Anti-corosion coating, heat transmission element with copper tubes and aluminium fins

VBC (for circular ducts)

Max operating temperature 150°C. Max operating pressure 1.6 MPa (16 Bar) 2- and 3-rows batteries.

CWK (for circular ducts)

Max operating temperature 150 °C. Max operating pressure 1,6 MPa (16Bar)

VBR (for rectangular ducts)

In cold conditions, a frost protection device with sensor should be fitted to reduce the risk of damage from freezing.

~~DUCT~~ COOLING COILS

Max. working pressure:
PGK - 1.6 MPa (16 Bar)
DXRE - 2.4 MPa (24 Bar).
Easy approach system for cleaning and maintenance

PGK (for rectangular ducts)

Water cooling coil for left/ right water connection. Air vent and drain valve included.

DXRE (for rectangular ducts)

Gas cooling coil for central/ decentral (zones) cooling of individual rooms. Same model for left/right-hand installation (reversible coil)

DE

Droplet separator for duct cooling coil DXRE prevents water droplets being entrained by the air flow out into the duct system

VALVES

text?

RVAZ4 Valve actuator

24 Actuator 3points
24A Actuator 0-10 V

ZTV

2-way valve

ZTR

3-way valve

SENSORS

Detectors which give a signal when someone is present in the room under supervision. The detectors have a pulse detecting function that minimizes the risk for false alarm. Settable output on/off delay. Intended for wall or ceiling mounting.

Presence detector/IR24-P

- designed for automatic ventilation control of HVAC systems.

Presence detector/IR24-PC

- designed for automatic ventilation control of HVAC systems.

PRE-PROGRAMMED ROOM CONTROLLERS

A system consists of different control units and a relay box. The control units are pre-programmed, but can be configured for a specific application by using the display and switches. The control units have built-in temperature sensors.
An external temperature sensor can also be connected

Argur-RC

The stand-alone version, designed for control of heating and cooling in a single zone or a room

Argus Midi (with communication)

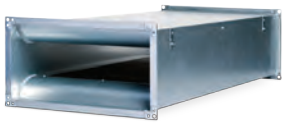
Every individual zone system in every room can be connected to a bus line enabling communication with a central SCADA system via RS485 using EXOline or Modbus

ATTENUATORS

The attenuators effectively reduce noise which is transferred through a pipe.
If noise reduction both in the duct and in the surroundings as a whole is required, then should be the LDC used together with an insulated fan / the OPTIMA-A together with an isolated type of controller.

LDC (circular attenuator)

Easily-fitted silencer, delivered with 2 separate spigots. Two silencers can be used together in installations where noise reduction is a particularly strong requirement.



OPTIMA-A (rectangular attenuator)

A special fillet on the silencer's facing edge prevents the turbulence from being formed, thus avoiding further creation of noise.

MULTIOUTLET BOXES

The multioutlet boxes are ideal to use as an embranchment of air among four different rooms which have the same requirements.
The multioutlet boxes have four equally sized or smaller dimensions of the outlet pipe than the inlet pipe

OPTIMA-M

Non-insulated box manufactured from a galvanized sheet.
The connecting pipes include a rubber sealing

ELECTRICAL DUCT HEATERS

The heaters have integral overheating protection with a manual reset function.
The min. air volume is based on a min. air velocity of 1.5 m/s. These duct heaters are designed for a max. output air temperature of 50°C (CB and CBM) / 40°C (RB).

CB (for circular ducts)

Suitable for control by room thermostat or Pulser.

CBM (for circular ducts)

Time-proportional Pulse/ Pause technology provides extremely precise temperature control. Delivered with TG-K330 duct sensor.

RB (for rectangular ducts)

Suitable for control by room thermostat or TTC

DUCT WATER HEATING COILS

The water-heating coil can be installed in a horizontal duct.
Anti-corosion coating, heat transmission element with copper tubes and aluminium fins

VBC (for circular ducts)

Max operating temperature 150°C. Max operating pressure 1.6 MPa (16 Bar) 2- and 3-rows batteries.

CWK (for circular ducts)

Max operating temperature 150 °C. Max operating pressure 1,6 MPa (16Bar)

VBR (for rectangular ducts)

In cold conditions, a frost protection device with sensor should be fitted to reduce the risk of damage from freezing.

DUCT COOLING COILS

Max. working pressure:
PGK - 1.6 MPa (16 Bar)
DXRE - 2.4 MPa (24 Bar).
Easy approach system for cleaning and maintenance

PGK (for rectangular ducts)

Water cooling coil for left/ right water connection. Air vent and drain valve included.

DXRE (for rectangular ducts)

Gas cooling coil for central/ decentral (zones) cooling of individual rooms. Same model for left/right-hand installation (reversible coil)

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Droplet separator for duct cooling coil DXRE prevents water droplets being entrained by the air flow out into the duct system

VALVES

text?

RVAZ4 Valve actuator

24 Actuator 3points
24A Actuator 0-10 V

ZTV

2-way valve

ZTR

3-way valve

SENSORS

Detectors which give a signal when someone is present in the room under supervision. The detectors have a pulse detecting function that minimizes the risk for false alarm. Settable output on/off delay. Intended for wall or ceiling mounting.

Presence detector/IR24-P

- designed for automatic ventilation control of HVAC systems.

Presence detector/IR24-PC

- designed for automatic ventilation control of HVAC systems.

PRE-PROGRAMMED ROOM CONTROLLERS

A system consists of different control units and a relay box. The control units are pre-programmed, but can be configured for a specific application by using the display and switches. The control units have built-in temperature sensors.
An external temperature sensor can also be connected

Argur-RC

The stand-alone version, designed for control of heating and cooling in a single zone or a room

Argus Midi (with communication)

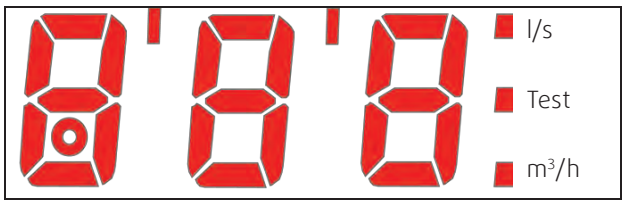
Every individual zone system in every room can be connected to a bus line enabling communication with a central SCADA system via RS485 using EXOline or Modbus

Systemair VAV Optima GO controller

A – Declutch button.
B – 3 digit display, test & unit indicator
C – Value selector (Δ10° / Edit)
D – Function selector

A – Declutch button

Manual declutch button is used if the blade inside the damper needs to be moved manually for example for inspection. However the actuator will control to the desired VAV (or pressure) according to the external reference signal.

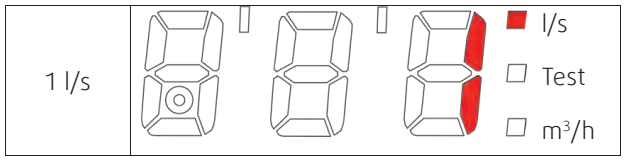


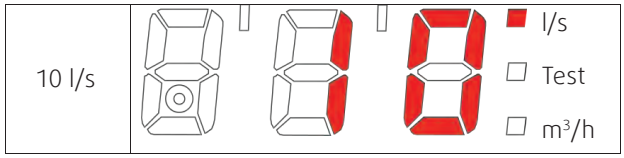
3-digit 7-segment display

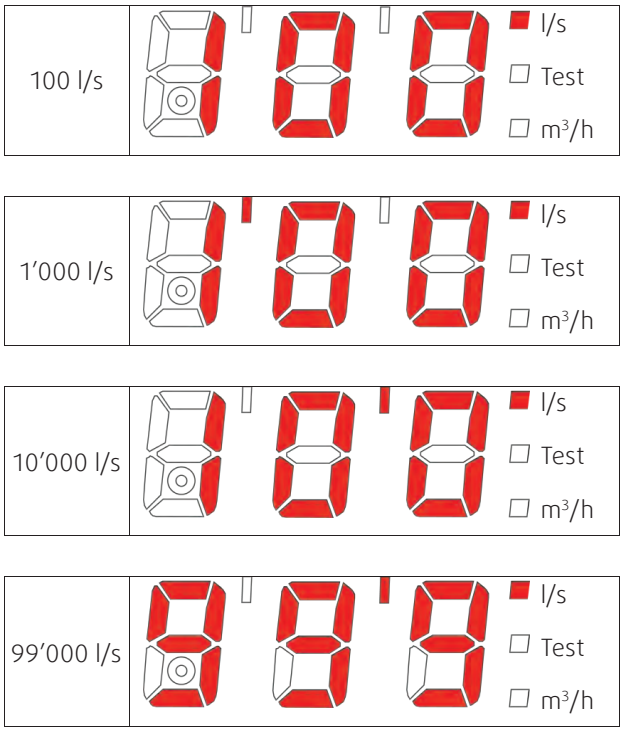
B – Display

The display uses 7-segment numbers in full 3-digits. Additional signs include a small circle, three square dots and two rectangular slashes.
The square dots are used with the printed text to visualize units (l/s, m³/h) or if test is ongoing.
An overflow (differential pressure above 250Pa or 1.0inWC) is indicated in the display by a small circle at the first digit.
If the controller tries to match reference and actual flow then this is shown as flashing dot of the chosen unit.
If the controller cannot meet reference and actual flow and therefore hits an end stop the complete display starts flashing to indicate this problem.
If the actuator is turned on and the damper position feedback is activated the display will show REF. The actuator travels from one end-stop to the other in order to learn the maximum angle.

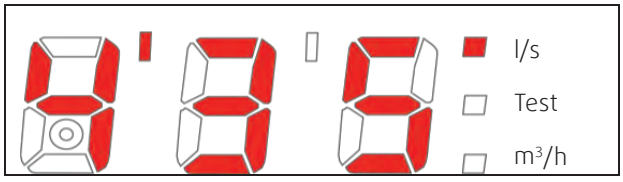
The rectangular slashes are used to define the thousand separators. In this case the display would show numbers as followed:



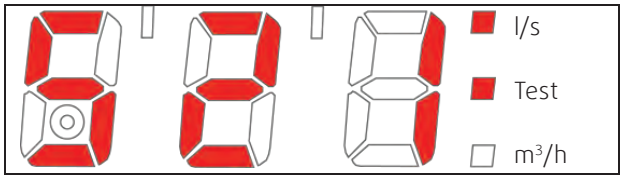




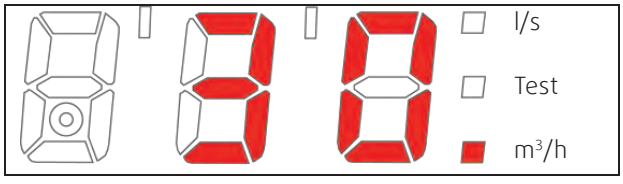
Examples for the display
Display of actual flow (or V_{min} or V_{max} according to functional selector)



The display shows the flow in 4'350 l/s.



The display shows the flow in 521 l/s and the diagnose mode is turned on.



The display shows the flow in 30 m³/h.

C – Value selector (Δ10° / Edit)

The value selector allows the changing of values. The position of the arrow shows the value set. The changes are displayed as soon as the selector is moved ±10° from its position.
By turning the selector left or right the corresponding values are shown. For change Vmin or Vmax one can select the appropriate thousand separators.

e.g. if Vmax is set to 100 and has to be set to 1'000 one has to turn the selector clockwise toward + until the separator appears in the display. After that it is necessary to adjust to the desired value.

e.g. if Vmin is set to 60 and has to be set to 50 one has to turn the selector counter clockwise toward - until a change appears in the display.

After the selection the new value is saved and the display flashes two times for indication. The value is always saved after the selection and the usage of the function selector.

D – Function selector

The function selector allows choosing the function depending on its position. If there is no function selected the display will show three dashes (- - -).

Flow/Unit
Turning the value selector (C) allows unit selection and changes the actual flow to m³/h or l/s. The appropriate dot serves as indicator. The units are automatically converted.
This display matches with the feedback signal U.
The display starts flashing if the servo drive hits an end stop before matching actual to reference flow.
An overflow (higher pressure as 250Pa = 1.0inWC) is indicated in the display by a small circle.

V_{min}
Allows to set the desired minimum flow for the external reference signal Y=0V or Y=2V directly in m³/h or l/s.

V_{max}
Allows to set the desired maximum flow for the external reference signal Y=10V directly in m³/h or l/s.

Diag
Opens the diagnostic menu. All outside input signals on Y are neglected and the controller only operates accord-ing to the selected override function. All override functions

are disabled after a time-out of 10 hours.
The display toggles after the selection of the function between the actual flow (8s showing time) and the function (2s showing time).
Selecting another function will disable the diagnose function and set it automatically to OFF

oP(en) opens the damper
cL(ose) closes the damper
Hi(gh) forces the actuator to V_{max}
Lo(w) forces the actuator to V_{min}
On Test mode is switched on. The actuator stays in the current position.
oFF Test mode is switched off. The actuator starts controlling according to external signal Y.
123 Showing the software version V123. After 3s showing the display shows oFF again.

Mode
Allows to set the direction of rotation (normal and reverse) and the input signal range (0...10V or 2...10V). The feedback signal range U corresponds to Y.
0-n ... 0-10V, normal
2-n ... 2-10V, normal

V_{nom}
This setting can be changed only by a Systemair technician.

Setup of VAV actuator

Step by step set-up procedure

1. Connect the actuator to the power supply.
2. Set the function selector (D) and set to Mode, then use the value selector (C) to choose the right analog input signal Y to control the air flow Vmin can be $0...10V_{DC}$ or $2...10V_{DC}$
3. Set the function selector (D) and set to Flow / Unit, then use the value selector (C) to choose the right unit. The l/s is pre-selected. The values set are converted between the different units. The display also shows the current flow detected by the controller.
4. Set the function selector (D) and set to Vmax, then use the value selector (C) to choose the desired maximum flow.
   The values that can be selected in the range from 0 to V_{nom} in 255 steps.
   So in the given example from:
   0...251 l/s with increments of 0.98 l/s
   The controller always takes the next smallest integer for the display. It is not possible to set any value smaller than the increments.
   If one needs V_{max} = 175 l/s the value 175 has to be set. [175]
5. Set the function selector (D) and set to Vmin, then use the value selector (C) to choose the desired minimum flow

   The values that can be selected range from 0 to V_{nom} in 255 steps. The setting is similar to V_{max} and the controller always takes the next smallest integer for the display. It is not possible to set any value smaller than the increments.

   If one needs V_{min} = 50 l/s the value 50 has to be set [50]

Step by step Test procedure

1. Set the function selector (D) and set to Flow/Unit.
   The display shows the actual flow.
   If the display flashes this number it means that the controller is unable to reach the de-sired air flow. This can result in either too much air (turbulences) or too little air.

   e.g. the display flashes 50 l/s

2. Set the function selector (D) and set to Diag.
   One should read in the display oFF and the actuator is controlling according to external signal Y. This signal Y shall be shown in the range of 0...10 V. This is to see the external reference signal.
   Using value selector (C) it is possible to set the following diagnostic functions:
   cL this closes the damper and keeps it close.
   oP this opens the damper and keeps it open.
   Hi this forces the controller to Vmax.
   Lo this forces the controller to Vmin.
   On this turns the test function on.
   oFF this turns the test function off.

   If any diagnostic cL, oP or on, Hi, Lo function is selected, the display shows the Test dot.

   e.g. set diagnostic function to Lo

3. The display starts toggling between actual flow and the selected function.
4. Set the function selector (D) to Flow / Unit. This turns off the diagnostic function automatically. If the diagnostic function is not turned off the controller resets this setting after 16 hours.

Setting the controller to a constant air flow

The controller can be set to a constant air flow neglecting all analog inputs Y. This functionality can be used as an advanced diagnostic function.
To activate this function one needs to set Vmax to 0. In this case the Test dot in the display starts flashing and the controller uses V_{min} as the constant air flow to control to.

The input signal Y allows to control the VAV actuator according to the selected mode of operation.

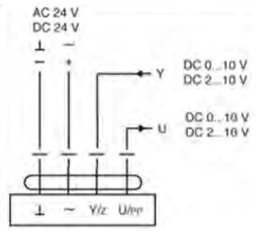
Schematic diagram for external override commands

Specialty of input mode 2...10V_{DC}:
In the range of Y = 0...0.8 V the override command Close will be detected. The upper value of 0.8V is subject to change by Systemair. Several fixed settings are available for choice (0.8 V / 1.0 V / 1.2 V / 1.4 V / 1.6 V / 1.8 V). In the range of Y = 0.8...2 V the controller detects V_{min}.

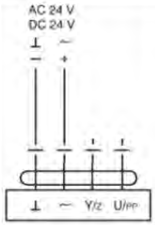
Specialties of both input modes (0)2...10 V_{DC}:
In both modes it is possible to define a Zero value of air-flow. This allows the controller the programming of an air-flow value which is used as zero. If e.g. the zero value is set to V_{Null} = 1,2 % of V_{nom} the controller will read all air flows smaller as V_{Null} as zero flow. If the value V_{min} = 0 is set the zero value allows the setting of a threshold for closing the damper.

Forced operations

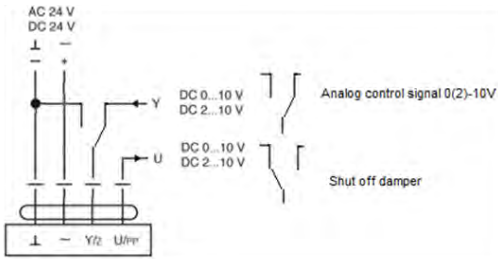
Standard operation, Vmin corresponds to 0V (2V) and Vmax to 10V. if 0,5V is reached the damper will close



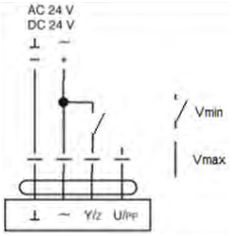
Forced operation, CAV mode; Vmin is the constant value



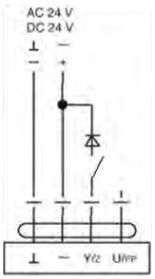
Forced operation, 0(2)-10V control signal, switch will close the damper



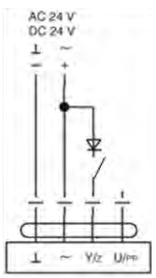
Forced operation, Vmin & Vmax. Vmin during normal operation, Vmax is forced via a switch



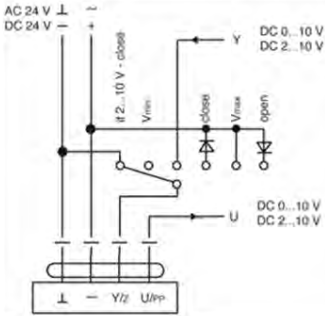
Forced operation, switch closes the damper



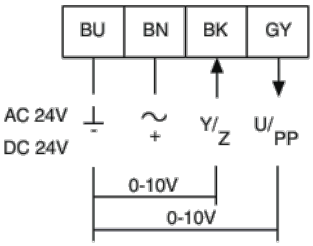
Forced operation, switch opens the damper



Forced operations in overview (The contacts are mutually interlocking):



Connection scheme



BU = blau, blue
BN = braun, brown
BK = schwarz, black
GY = grau, grey

BU-BN	Betriebsspannung	24 VAC / DC
BU-BK	Regelspannung	0...10 V / 2...10 V
BU-GY	Rückführsignal	0...10 V / 2...10 V
Last für Ausgang GY:		max. 0,5 mA
BU-BN	operating voltage	24 VAC / DC
BU-BK	control signal	0...10 V / 2...10 V
BU-GY	feedback signal	0...10 V / 2...10 V
load for output GY:		max. 0.5 mA

Actuators are provided with color coded wires. Associated to the color you find numbers as follows BU = 1, BN = 2, BK = 3 and GY = 4.

Running time	100 s / 90° (5 Nm)
Connection	24 VAC/DC
Control	0 / 2...10V proportional [V_{min}...V_{max}]
Feedback	0 / 2...10V proportional
Temperature operation	0...+50°C
Temperature storage	-20...+80°C
Humidity	5...95% r.H. non condensing

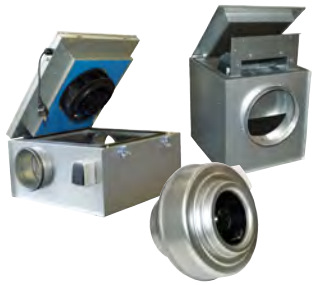
Approvals / Standards
CE (2004/108/EG, 2006/95/EG)
EN 60730-1 and EN 60730-2-14

Product range

Systemair has an extensive range of ventilation products. These products are installed in a variety of locations, including homes, offices, healthcare premises, shops, industrial buildings, tunnels, parking garages, training facilities, sports centres.

FANS

Systemair is one of the world's largest suppliers of fans for use in various types of property.
These fans can be supplied in sizes suitable for everything from ducts with a diameter of just 100 mm to large road tunnel fans. All our fans have been developed to comply with stringent requirements and are characterised by userfriendliness, a high level of quality and a long service life.



Circular duct fans

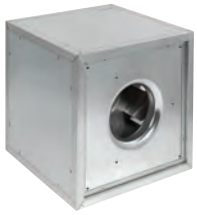
Duct fans with a circular connection.

Rectangular duct fans

Duct fans with a rectangular connection.

Radial fans

Single-inlet radial fans.



Box fans

For extract air systems that transport normal or high temperature media.

Axial fans

Axial fans for duct connection or wall mounting.

Roof fans

Roof fans with a circular or square connection.

Explosion-proof fans

Explosion-proof fans for duct, roof and axial installations.

Jet fans

The jet fan range includes products for garages and road and rail tunnels.

Thermo fans

Systemair supplies high temperature fans that can withstand conditions of up to 600°C for 120 minutes.

FIRE SAFETY VENTILATION

Systemair produces fans, dampers and control equipment for protection against smoke and fire certified for use during normal operation and in the event of a fire. The axial fans are certified for installation inside or outside fire risk areas.

Smoke gas fans

High-capacity fans for evacuation of smoke gases.

Fire dampers

Dampers that reduce the spread of smoke and fire.

RESIDENTIAL VENTILATION

Complete energy-efficient air handling units with heat recovery and built-in control systems. Designed to be mounted over the cooker, on walls or horizontally in attics.

Residential units

For homes with living areas of 60-320 m^2.

Cooker hoods

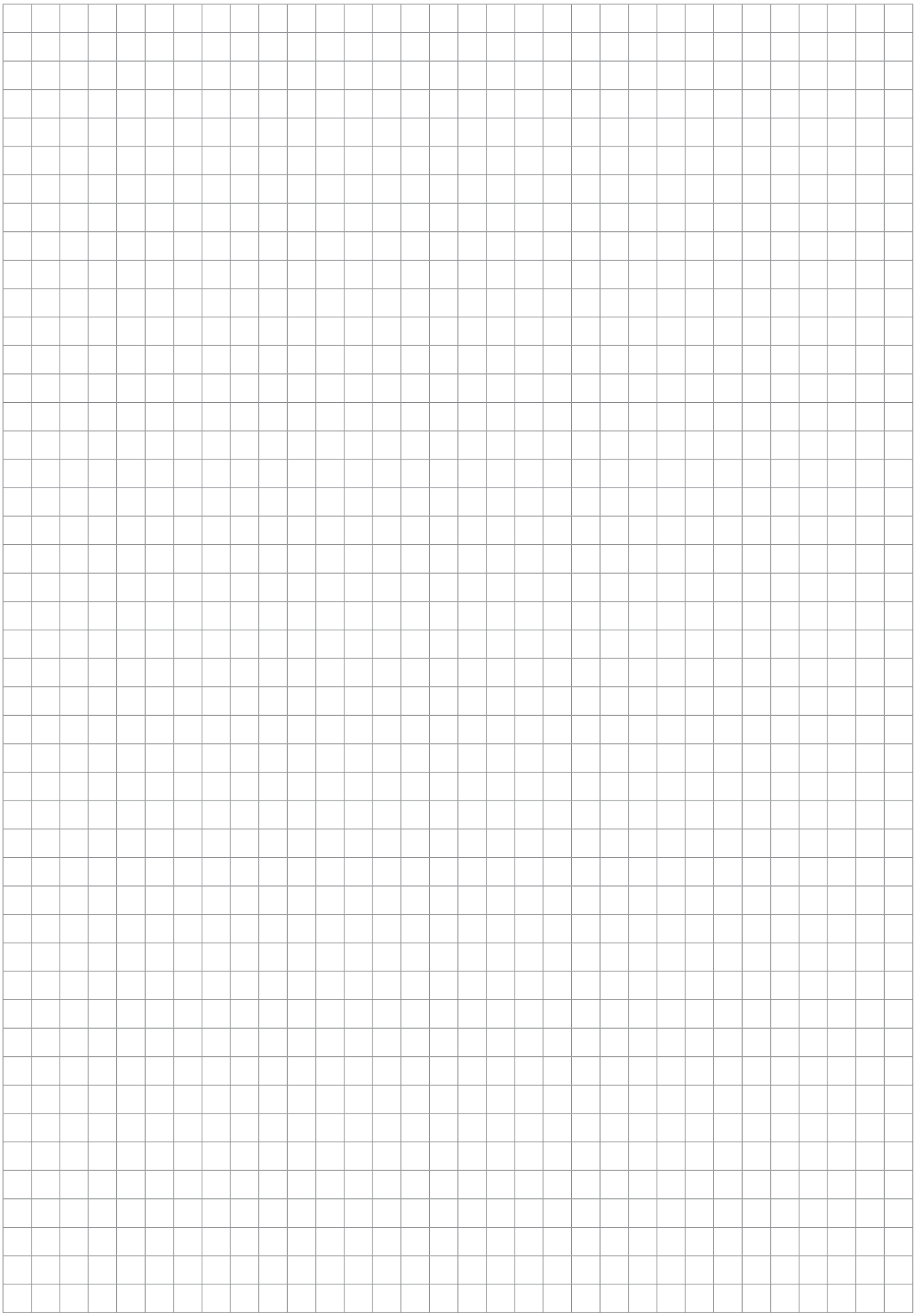
Good at capturing odours even at low airflows.

AIR HANDLING UNITS

Systemair's range also includes a wide range of air handling units for various applications. Development and manufacture by Systemair group in more than 5 manufacturing sites throughout Europe.

Modular and compact air handling units

For all kind of buildings like for instance offices and shopping centres.



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