



overview of HRV units,
accessories
and air ducts



Heat Recovery Ventilation

A heat recovery ventilation system is intended for optimum air exchange in a building with minimum heat loss from ventilation. Thermal loss caused by ventilation in current family houses ventilated by micro-ventilation or semi-opened windows makes up to 40% of the total heat loss of a building. Heat recovery ventilation has become an integral part of recent ventilation systems. Thanks to heat transfer between the outgoing and incoming air, a house is ventilated sufficiently without suffering from high heat loss.

More and more strict requirements regarding the airtightness of the building envelope and other construction elements bring about insufficient air exchange inside the buildings, causing problems with dampness, mold and growth of microorganisms like e.g. mite, which often lead even to health problems.

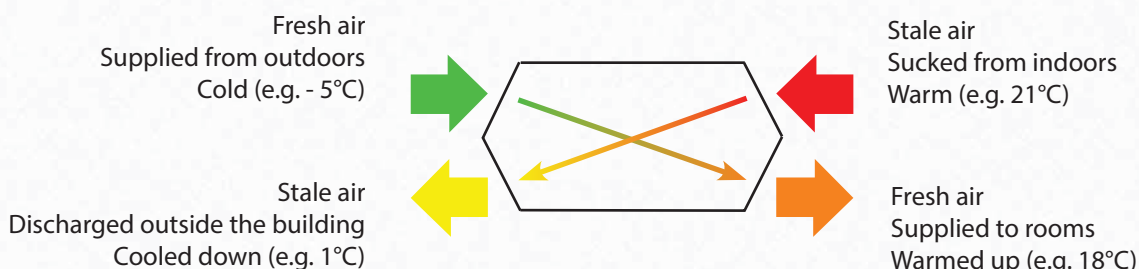
These problems cease when a ventilation system is installed. The building is ventilated mechanically also at times when nobody is present, then with lower ventilation intensity.

A heat exchanger has become a crucial component in recent Heat Recovery Ventilation (HRV) systems. It transfers heat from the outgoing stale warm air to the incoming fresh cold air.

However, it shall be noted that this is no heating appliance, just a ventilation unit ensuring the necessary air exchange. For this reason the building in question shall be equipped with an independent heating system and a heat source. HRV systems for detached houses require neither a detailed design nor complicated calculations.

The principle and design of a Heat Recovery Ventilation system is very simple. Just a couple of principles shall be maintained during design and installation that are described on the following pages.

Working principle



Fresh air is sucked into the HRV unit either through an outer wall or through a vent duct termination in a roof. The incoming fresh air flows into the HRV unit where it is preheated in a heat exchanger by heat taken from the warm stale exhaust air.

The preheated fresh air is distributed to individual rooms like bedrooms, living room, study etc. while the stale air is exhausted from wet rooms like a toilet, bathroom or kitchen. This way the incoming fresh air flows through the entire house and adequate whole house ventilation is secured. It is not advisable to connect an exhaust hood to such a ventilation system because of a risk of air ducts becoming contaminated with oil and grease.

The cooled stale air is discharged either through an outer wall again or through a roof, however a minimum distance from the intake orifice shall be secured.

Single room HRV units are installed in a peripheral wall, no air ducts are needed.

Heat recovery ventilation

Code



HR30W - for walls up to 280mm thick
Single-room heat recovery ventilation unit

6 954



HR100W - for walls up to 280mm thick
Single-room heat recovery ventilation unit

6 955



HR 100R - ducted HRV unit for single-bedroom apartments

7 483

HR 100RS - ducted HRV unit for single-bedroom apartments, for suspended ceiling

10 308

Sentinel Kinetic B

Ducted heat recovery ventilation unit with integrated controller and summer bypass, air extraction 275 m³/hr max.

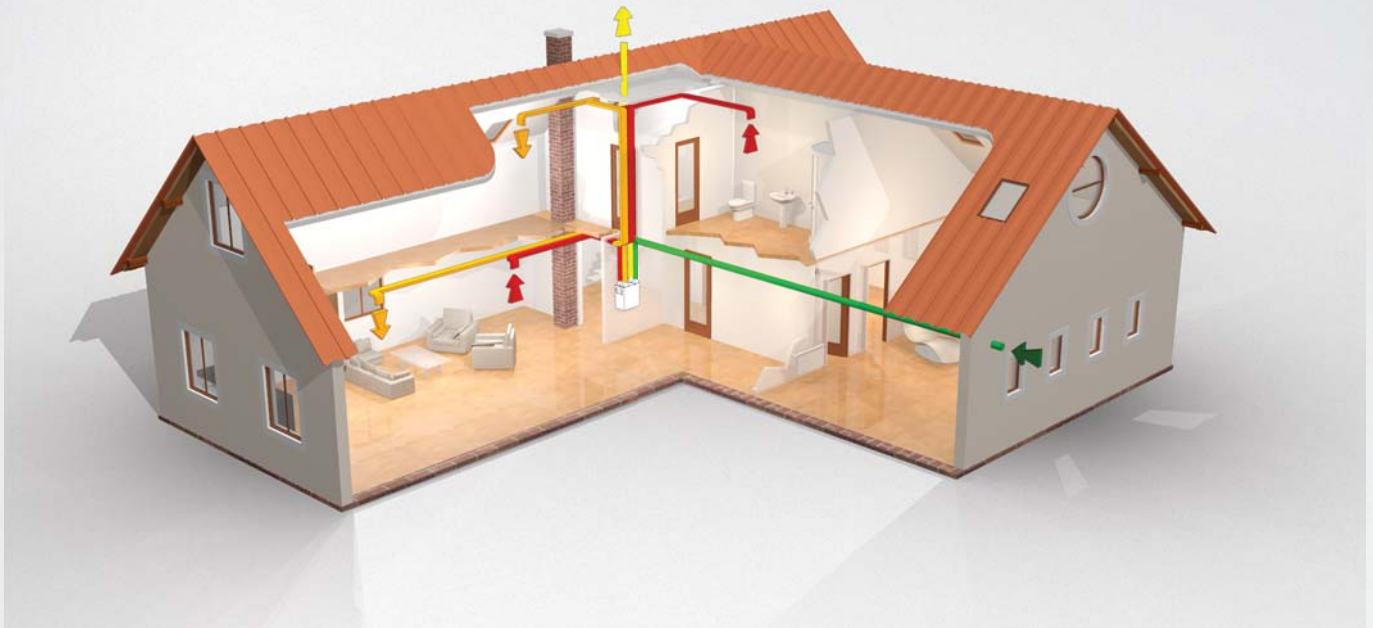
10 176

Sentinel Kinetic B Plus

Ducted heat recovery ventilation unit with integrated controller and summer bypass, air extraction 490 m³/hr max.

10 335

■ The whole-house ventilation system is shown in the picture below



■ System design

HRV system design is simple, requiring no complicated calculations.

First of all, a suitably sized unit shall be selected depending on the size of the building and number of inhabitants. Sentinel Kinetic B is the best for single-family houses with living area up to 200 sqm.

Then, the duct routes and positions of air disks shall be considered.

Ideally, both supply and exhaust air disks should be located in a ceiling. If this is not possible, air can be supplied through grilles above the floor. In any case, stale air intake shall not be located less than 150 cm above floor.

Air ducts are routed from the unit to individual rooms. Regulus ventilation systems use 3 basic types of air ducts. Either round flexible aluminium ducts, or rigid rectangular plastic ducts 60×200 mm, or flexible highly resistant PE pipes with antibacterial treatment. For newly built houses it is recommended to consult the ducting layout with the building designer.

In case of a house remodelling, our engineers are ready to help you with ducting design.



Sentinel Kinetic B

A whole-house heat recovery ventilation unit with integrated summer by-pass, designed for ventilation of family homes of living area up to 200 sqm.

An integrated air bypass permits air to bypass the heat exchanger in the summer. Its control is automatic, based on both the outdoor and indoor temperatures.

The unit control is very simple, different ventilation intensity can be programmed for different times. It shall be installed on the wall in a utility room or on the floor in the attic.

The unit is fitted with a condensate discharge point that should be connected to a sanitary sewer.

The unit involves replaceable G3 class air filters (for fine dust).

As a result of the unit's high efficiency, during periods of extreme frost the heat exchanger might suffer from freezing; for this reason the unit is equipped with an automatic defrosting function. The heat exchanger freezing can be prevented by installing an air duct heater on the intake air duct – see the Air Duct Heaters chapter.

A compact size and a very low noise level are the big advantages of this unit.

Code: 10 176

Performance modes

3 performance modes (speeds) are preset in the unit. Preset values can be changed freely in relation to the space to be ventilated. Switching between low and medium speed modes is automatic following the preset time program. High speed mode (boost) can be switched on either periodically, or by schedule, or by pressing a key. The boost mode start can be also automatic, e.g. by turning on the light in toilet.

Technical Data

PERFORMANCE DATA

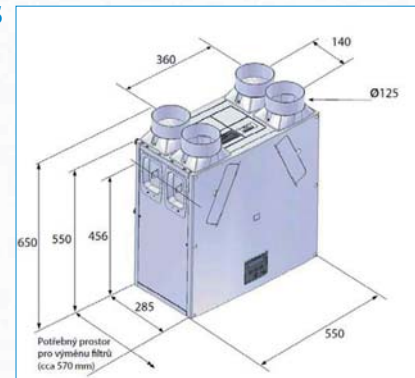
Max. air flow rate *	275 m ³ /h
Heat recovery efficiency	max. 92 %
Energy Efficiency Class	A
Low air flow	20 % (preset)
Medium air flow	30 % (preset)
High air flow	50 % (preset)
Purge	100 %

*flow rates for specific installations shall be modified by performance diagrams

ACOUSTIC DATA

Sound level (at 3 m distance)	20 dB(A) for medium air flow 36 dB(A) for high air flow
----------------------------------	--

Dimensions



Accessories

The inbuilt control panel permits connection of external control elements, e.g. a humidity sensor or a carbon dioxide sensor. A remote control panel can be connected as well which is suitable in installations where the unit is located at a not easily accessible place.

Air flow settings with respect to the total floor area of ventilated rooms.

Max. ventilated room		Low air flow		Medium air flow		High air flow (boost)	
living area	space volume	setting	[m ³ /h]	setting	[m ³ /h]	setting	[m ³ /h]
80 m ²	200 m ³	25%	40	40%	70	60%	130
100 m ²	250 m ³	30%	50	50%	100	70%	160
120 m ²	300 m ³	35%	60	60%	130	80%	200
150 m ²	375 m ³	40%	70	70%	160	100%	240



Sentinel Kinetic B Plus

A whole-house heat recovery ventilation unit with integrated summer by-pass, designed for ventilation of family homes of living area up to 350 sqm.

An integrated air bypass permits air to bypass the heat exchanger in the summer. Its control is automatic, based on both the outdoor and indoor temperatures.

The unit control is very simple, different ventilation intensity can be programmed for different times. It shall be installed on the wall in a utility room or on the floor in the attic.

The unit is fitted with a condensate discharge point that should be connected to a sanitary sewer.

The unit involves replaceable G3 class air filters (for fine dust).

As a result of the unit's high efficiency, during periods of extreme frost the heat exchanger might suffer from freezing; for this reason the unit is equipped with an automatic defrosting function. The heat exchanger freezing can be prevented by installing an air duct heater on the intake air duct – see the Air Duct Heaters chapter.

A compact size and a very low noise level are the big advantages of this unit.

Code: 10 335

Performance modes

3 performance modes (speeds) are preset in the unit. Preset values can be changed freely in relation to the space to be ventilated. Switching between low and medium speed modes is automatic following the preset time program. High speed mode (boost) can be switched on either periodically, or by schedule, or by pressing a key. The boost mode start can be also automatic, e.g. by turning on the light in toilet.

Air flow settings with respect to the total floor area of ventilated rooms.

Max. ventilated room		Low air flow		Medium air flow		High air flow (boost)	
living area	space volume	setting	[m ³ /h]	setting	[m ³ /h]	setting	[m ³ /h]
150 m ²	375 m ³	10%	40	40%	150	60%	250
170 m ²	425 m ³	15%	60	45%	170	70%	280
200 m ²	500 m ³	25%	90	50%	200	80%	330
230 m ²	575 m ³	30%	120	60%	250	100%	380

Technical Data

PERFORMANCE DATA

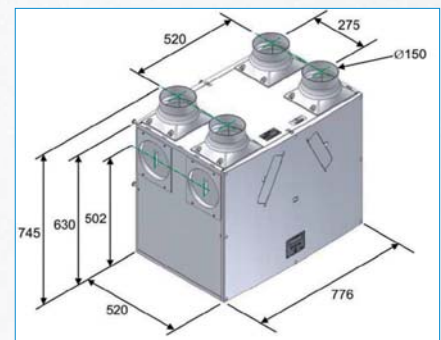
Max. air flow rate *	490 m ³ /h
Heat recovery efficiency	max. 92%
Energy Efficiency Class	A+
Low air flow	20% (preset)
Medium air flow	30% (preset)
High air flow	50% (preset)
Purge	100%

*flow rates for specific installations shall be modified by performance diagrams

ACOUSTIC DATA

Sound level (at 3 m distance)	24 dB(A) for medium air flow
	34 dB(A) for high air flow

Dimensions



Accessories

The inbuilt control panel permits connection of external control elements, e.g. a humidity sensor or a carbon dioxide sensor. A remote control panel can be connected as well which is suitable in installations where the unit is located at a not easily accessible place.



HR 100 R and HR 100 RS

Central HRV units intended for ventilation of small flats or single rooms, featuring 2 speed modes – low and high. They need an external switch for control, mostly a plain rocker switch on a wall or a humidistat.

Both the HRV unit and air ducts are usually installed into a ceiling void or unused attic.

HR 100 R is suitable for attic-room installations. The service panel is located on its upper side.

Code: 7 483

HR 100 RS is suitable for ceiling void installations or for ceiling mount. The service panel is located on its bottom.

Code: 10 308

Technical Data

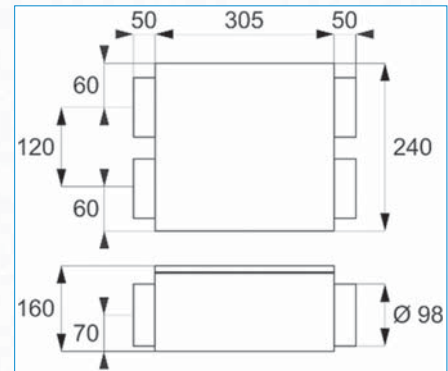
PERFORMANCE DATA

Air flow	66 m ³ /h (max. air flow) 48 m ³ /h (current air flow)
Heat recovery efficiency	max. 70%

ACOUSTIC DATA

Sound level (at 3 m distance)	20 dB(A) for current air flow 30 dB(A) for max. air flow
----------------------------------	---

Dimensions



Accessories

G3 class air filters (fine dust) and insulation kits for heat loss reduction are available as accessories.

SINGLE-ROOM HRV UNITS



HR 100 W and HR 30 W

Single-room HRV units intended for ventilation of single rooms (living rooms, kitchens, bathrooms, toilets etc.). They feature 2 speed modes – low and high, and an external switch is needed for control, mostly a plain rocker switch on a wall or a humidistat.

This unit is designed to be installed in a wall, its suitable thickness is between 220 and 280 mm (up to 500 mm with an extension, see Accessories).

Code:

HR 100 W 6955

HR 30 W 6954

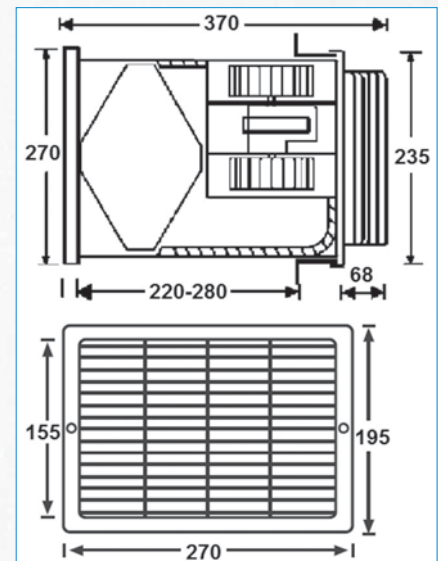
Technical Data

PERFORMANCE DATA	HR 100W	HR 30W
Low air flow - intake	38 m ³ /h	30 m ³ /h
Low air flow - exhaust	43 m ³ /h	35 m ³ /h
High air flow - intake	69 m ³ /h	40 m ³ /h
High air flow - exhaust	77 m ³ /h	50 m ³ /h
Heat recovery efficiency	max. 70%	max. 70%

ACOUSTIC DATA

Sound level (at 3 m distance)	20 dB(A) for low air flow	
	35 dB(A) for high air flow	28 dB(A) for high air flow

Dimensions



Accessories

EXT100 Extension is available that permits installation into thicker walls, 280-500 mm.

ROUND FLEXIBLE HOSES

Ducting can be bent easily so no elbows are needed. These hoses are delivered in one- or two-layer versions, with 25 cm thick insulation.

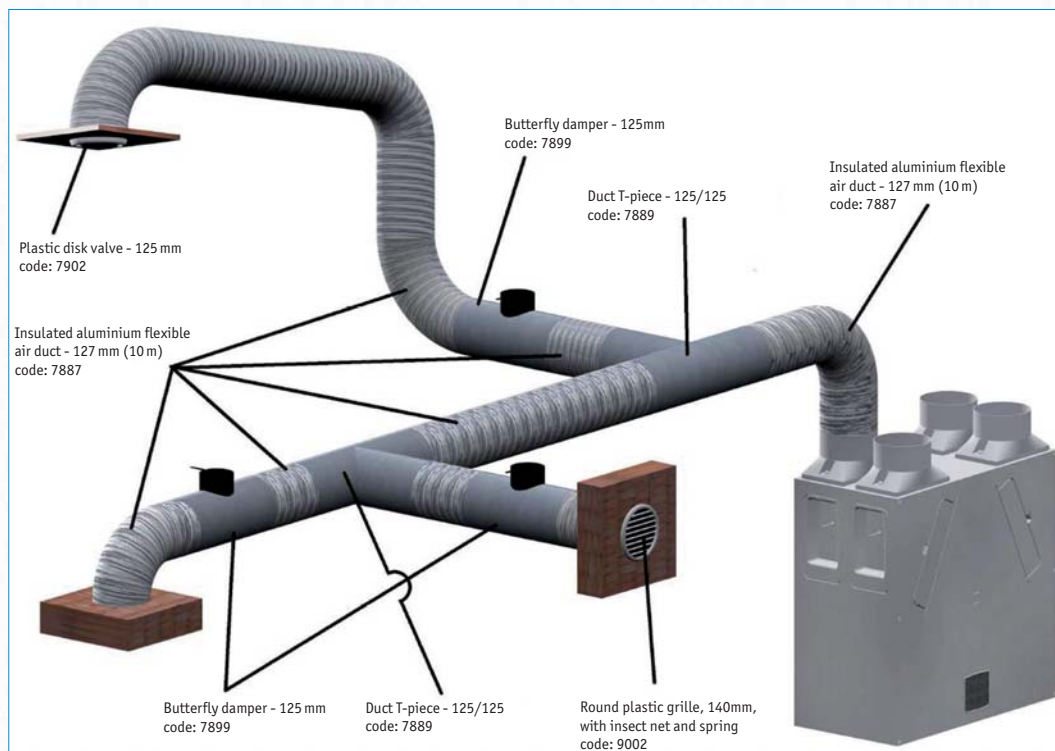
The duct size depends on the air volume to be transported (unit size):

HR100R.....	DN 100 mm
Sentinel Kinetic B.....	DN 125 mm
Sentinel Kinetic B Plus.....	DN 150 mm-backbone duct, for branches 125mm is sufficient

For HR 100R and in confined spaces also for Sentinel models, the ducts supplying air to small rooms under 15 sqm can be reduced even to 100mm in diameter.

Metal adapters are used to make branches or transitions. A flexible duct shall be shifted onto the adapter and fixed with a stainless-steel hose band or an aluminium foil tape.

Installation example with round air ducts



Through the wall ducts

Round plastic duct shall be fitted into a wall and fixed with mortar. Its outer diameter shall correspond to the hose diameter. About 3 cm of the rigid duct shall protrude from the wall, enabling the flexible duct be shifted on it and fixed with metal hose band.



ROUND FLEXIBLE AIR DUCTS




Round hoses

Code

	Single layer aluminium flexible air duct, 100 mm x 5 m	7 743
	Single layer aluminium flexible air duct, 125 mm x 5 m	7 589
	Single layer aluminium flexible air duct, 150 mm x 5 m	7 886
	Insulated aluminium flexible air duct, 102 mm x 10 m	8 000
	Insulated aluminium flexible air duct, 127 mm x 10 m	7 887
	Insulated aluminium flexible air duct, 152 mm x 10 m	7 888
	Insulated aluminium flexible air duct, 203 mm x 10 m	8 037



Fittings

Code

	Duct coupler, 100 mm	8 854
	Duct coupler, 125 mm	7 894
	Duct coupler, 150 mm	7 895
	Duct reducer 125/100	7 896
	Duct reducer 150/125	7 897
	Duct reducer 200/150	7 904
	Duct T-connector 100/100	7 769
	Duct T-connector 125/100	7 721
	Duct T-connector 125/125	7 889
	Duct T-connector 150/100	7 890
	Duct T-connector 150/125	7 908
	Duct T-connector 150/150	7 891

Components

Code

	Butterfly damper, 100 mm	7 898
	Butterfly damper, 125 mm	7 899
	Butterfly damper, 150 mm	7 900
	Airtight butterfly damper, 100 mm	7 771
	Airtight butterfly damper, 125 mm	10 872
	Airtight butterfly damper, 150 mm	11 565


SANIFLEX FLEXIBLE ROUND ANTIBACTERIAL DUCTS

Saniflex is flexible round antibacterial thermally insulated ducting. The inner air duct is a foil made of self-extinguishing poly-olefin resins with silver ions that prevent growth of a wide range of microorganisms. The next layer is formed by a 25 mm thick thermal insulation of mineral wool with a plastic outside jacket that offers excellent vapour barrier, preventing moisture condensation.

Saniflex is suitable also for more demanding applications in air distribution, air conditioning and heating.

Air ducts

Code

	Thermally insulated antibacterial air duct 127 mm x 10 m	16 068
---	--	--------

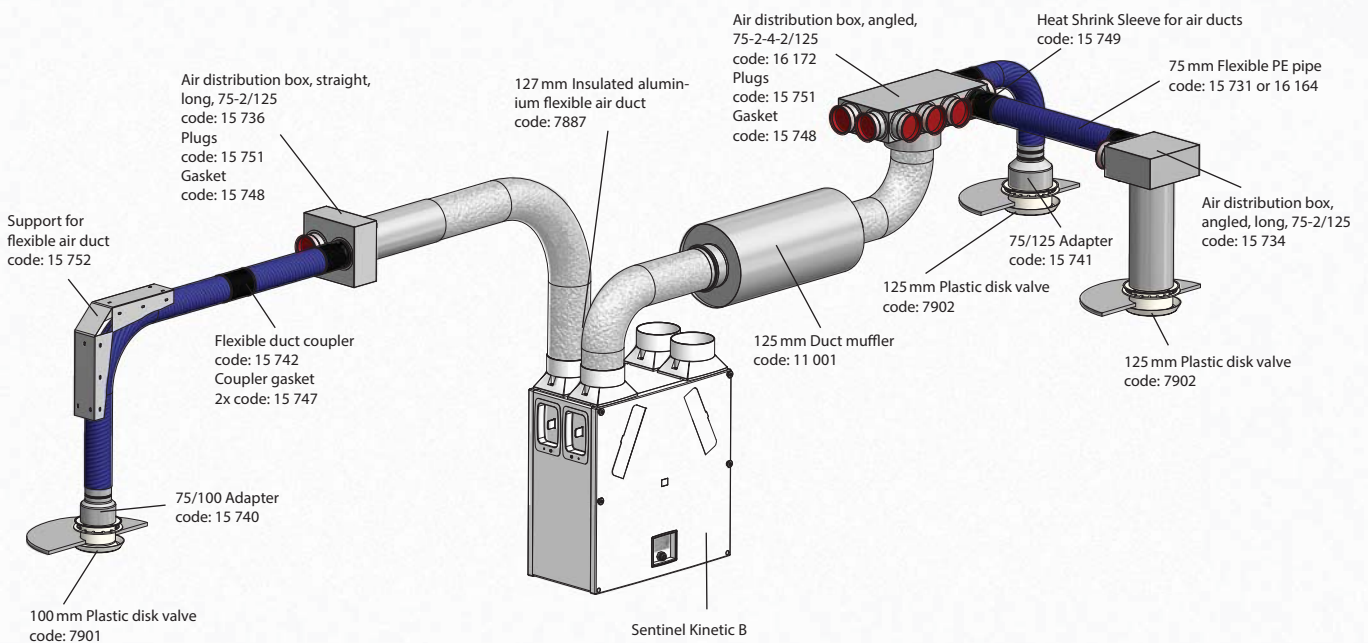
HIGHLY RESISTANT FLEXIBLE PE AIR DUCTS

Air ducting made of special polyethylene, its inner wall with smooth surface offers low pressure drop for air transport and easy cleaning. Its small diameter (75 mm) permits easy installation into suspended ceiling. High mechanical resistance enables also installation into floors, to concrete screed. The duct material contains ions of silver that ensure antistatic, antibacterial and antifungal protection.

Advantages:

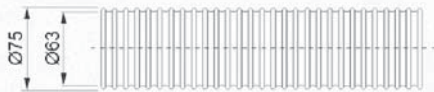
- minimum pressure drop
- easy cleaning
- simple handling and installation
- noise suppression
- hygienic protection
- long service life

Installation example with round ducting



Flexible pipes

Delivered in 10 or 50m bulk pack, ends plugged.



Distribution boxes


Designed as connection parts for separate branches of FLX-HDPE-A ducts, connection for flexible aluminium air ducts.



HIGHLY RESISTANT FLEXIBLE PIPING


Round air pipes

Code

	ø 75 Air Duct, antibacterial - 50 m (FLX-HDPE-A-75)	15 731
	ø 75 Air Duct, antibacterial - 10 m (FLX-HDPE-A-75-10)	16 164


Air distribution boxes

Code

	Air Distribution Box, angled, 2x75/125 (FLX-PRO-75-2)	15 732
	Air Distribution Box, angled, 3x75/125 (FLX-PRO-75-3)	15 733
	Air Distribution Box, angled, (2+4+2)x75/125 (FLX-PRO-75-2-4-2)	16 172
	Air Distribution Box, angled, long, 2x75/125 (FLX-PRO-L-75-2)	15 734
	Air Distribution Box, angled, long, 3x75/125 (FLX-PRO-L-75-3)	15 735
	Air distribution box, straight, long, 2x75/125 (FLX-PRO-PL-75-2)	15 736
	Air distribution box, straight, long, 3x75/125 (FLX-PRO-PL-75-3)	15 737

Plastic Air Disc Valves

Code

	Plastic Ceiling Outlet, 125/75	16 173
	Plastic air duct disk valve, 100 mm	7 901
	Plastic air duct disk valve, 125 mm	7 902

Accessories

Code

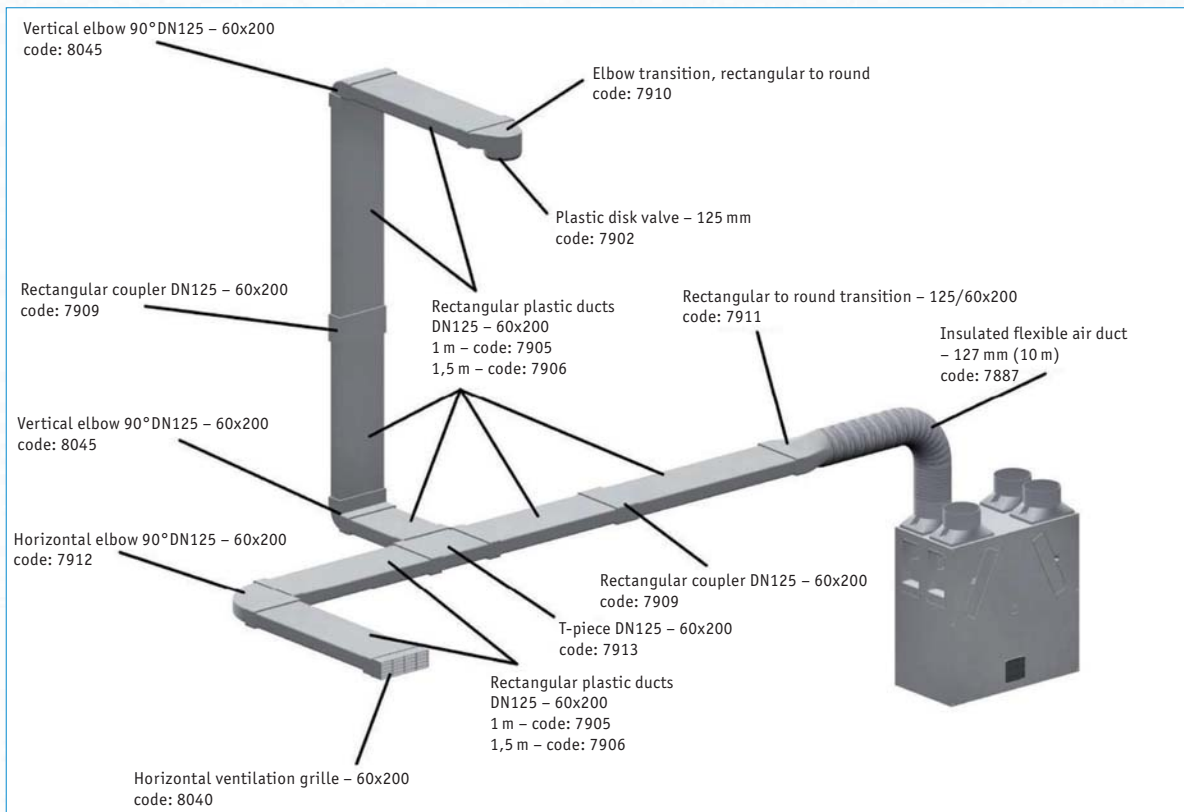
	90° Bend (FLX-BP-75)	15 739
	100/75 Adapter (FLX-RPC-100-75)	15 740
	125/75 Adapter (FLX-RPC-125-75)	15 741
	Support for flexible air duct (FLX-FAX-75)	15 752
	Flexible Duct Coupler (FLX-MSF-75)	15 742
	Heat Shrink Sleeve (FLX-UST-75)	15 749
	Gasket between flexible duct and box (FLX-USC-75)	15 748
	Gasket between flexible duct and coupler (FLX-USZ-75)	15 747
	Air Distribution Box Plug (FLX-CF-PVC-75)	15 751
	Flexible Duct Plug (FLX-CS-PVC-75)	15 750

■ RECTANGULAR PLASTIC DUCTS

Plastic ducting of 60x200 mm cross section. It is so flat that it can be installed even into constrained ceiling voids or floors. The plastic ducts are rigid so transitions are needed to change the direction or divide the air flow - bends or T-pieces. This plastic ducting is not insulated. When installed into an unheated space (attic), additional insulation is needed.

Rectangular plastic ducting connects through so called sockets. Straight sections are slid into the sockets of shaped transitions, and two transitions cannot be connected directly, only through a section of a straight duct.











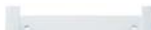
■ Installation example with rectangular plastic air ducts



RECTANGULAR PLASTIC DUCTS

Rectangular plastic ducts

Code



	Rectangular plastic ducts DN125, 60x200, 1 m	7 905
	Rectangular plastic ducts DN125, 60x200, 1,5 m	7 906
	Rectangular coupler DN125, 60x200 mm	7 909
	Elbow transition, rectangular to round, 60x200/125 mm	7 910
	Elbow transition, rectangular to round, 60x200/100 mm	8 243
	Rectangular to round transition, 125/60x200 mm	7 911
	Horizontal elbow 90° DN125, 60x200 mm	7 912
	Horizontal elbow 45°, with divisible segments, 60x200 mm	9 744
	Vertical elbow 90° DN125, 60x200 mm	8 045
	T-piece T DN125, 60x200 mm	7 913
	Horizontal ventilation grille, 60x204 mm	11 754
	Round plastic duct 100 mm x 1 m	8 852
	Round plastic duct 125 mm x 1 m	8 039
	Rectangular duct clip, 204x60 mm	14 255

Air duct heaters

Air duct heaters install directly into round ducts. They are intended primarily for preventing the unit from entering defrost mode, i.e. from creating a slight negative pressure inside a building. These air duct heaters shall be installed into the air intake piping, upstream of the heat recovery unit.

Air duct heaters

Code

	Electric air duct heater, 0.4 kW DN 125, incl. an adjustable and safety thermostats, 3m cable	14 059
	Electric air duct heater, 0.6 kW DN 150, incl. an adjustable and safety thermostats, 3m cable	14 769
	Hot water air duct heater 1.2 kW DN200	9 215

Duct noise muffler

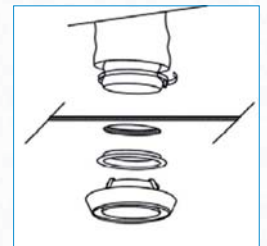
Insulated flexible ducts have very good soundproofing properties. Should there be less than 3m from the unit to the closest outlet, it is advisable to install a duct muffler. *Code 11001*



Plastic air disk valves




It is advisable to use plastic disk valves for easy installation and right air distribution in a room. They are user-adjustable from inside the ventilated room and can be mounted into a ceiling or a suspended ceiling, fitted on a round plastic duct or on a flexible aluminum one. The valve diameter depends on the diameter of the ducting and on the size of the ventilated room.

Round grilles may be fitted into walls.



Plastic air disk valves

Code

	Supply and exhaust plastic air disk valve, 100 mm	7 901
	Supply and exhaust plastic air disk valve, 125 mm	7 902
	Round plastic grille, insect net, 80-125 mm	9 002
	Vertical terminal 125 mm	175
	Pitched-roof flashing, malleable Al sheet	8 014

INSTALLATION COMPONENTS

Stainless-steel hose band and clamp

In order to fix round ducts to their mating adaptors, stainless steel hose band is used. The hose band is available in 30m coils. Any desired portion of the hose band can be cut off and fitted with a clamp. *Hose band code: 9209. Clamp code: 9210.*











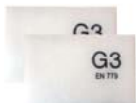
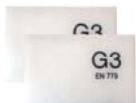




Duct cleaning spray

Air ducts cleaning is often not easy, for this reason we recommend using a chemical spray for duct cleaning - see Accessories. The frequency of chemical treatment depends on the quality of air supplied from outside as well as inside the building. The minimum cleaning interval is once a year. *Code 10686*



Installation components

Code

	Humidity sensor for Sentinel Kinetic	10 177
	CO ₂ sensor for Sentinel Kinetic	11 852
	Remote control, 15m cable, for Sentinel Kinetic	10 757
	Wireless boost switch for Sentinel Kinetic	10 756
	Humidistat HR-S – mechanical, 35-99% RH	14 334
	Aluminum foil tape 50 mm x 50 m	11 515
	Insulation for HR100R HRV unit	11 767
	Insulation for HR100RS HRV unit	11 768
	Set of 2 G3 filters for Sentinel Kinetic HRV unit	13 323
	Set of 2 G3 filters for Sentinel Kinetic B Plus HRV unit	13 325
	Set of 2 F5 pollen filters for Sentinel Kinetic HRV unit	13 324
	Set of 2 F5 pollen filters for Sentinel Kinetic B Plus HRV unit	13 326
	Spare filter fabric for HR30W and HR100W	9 001
	Spare filter fabric for HR100R	8 136

