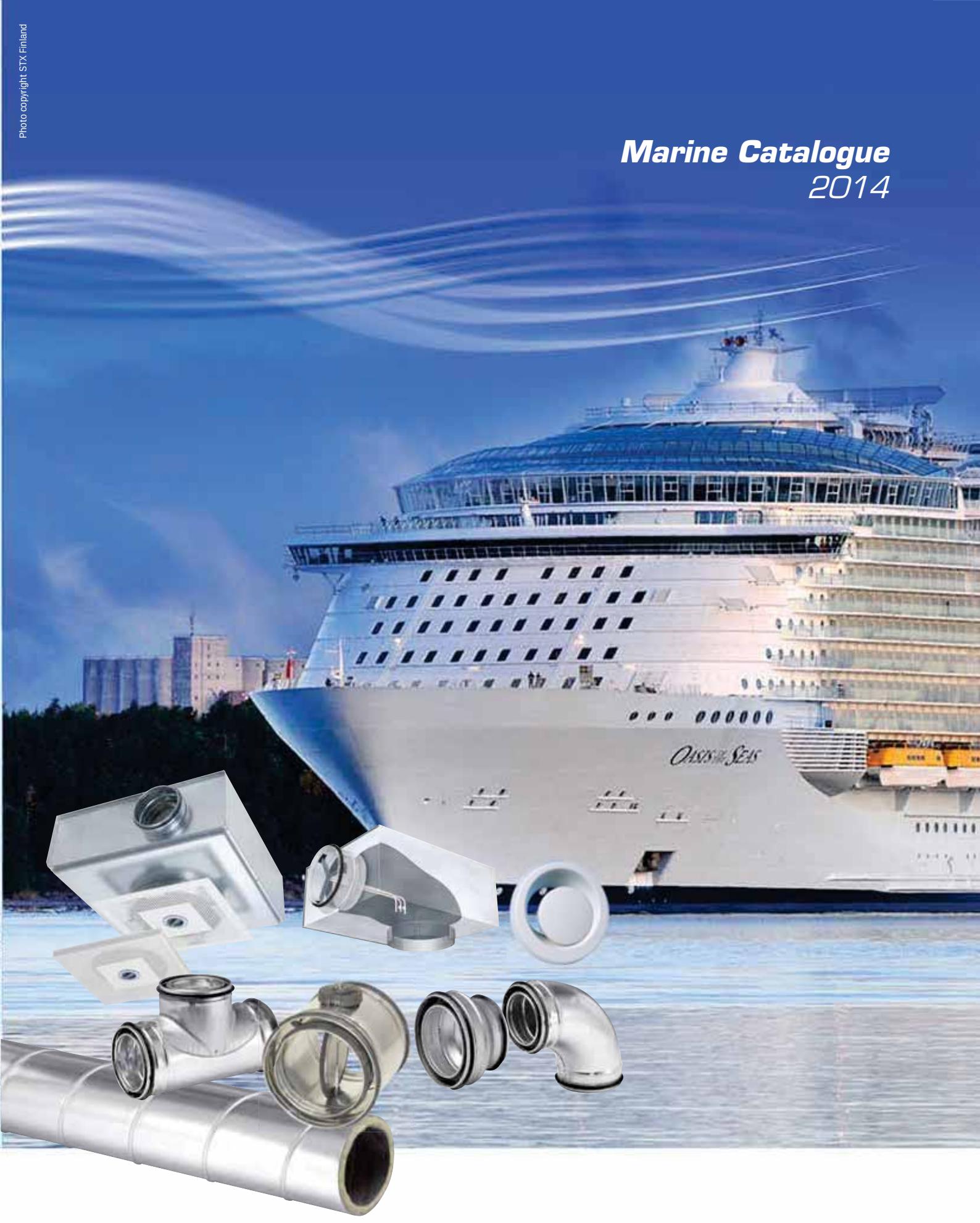
Marine Catalogue
2014



FläktWoods

FläktWoods

www.flaktwoods.com

Content

Content

Accessories

Accessories

1) F = "fit-on" dimension
   I = insertion dimension
2) BDPK – heat-insulated
   BDPR – heat and sound insulated and with the inner duct wall perforated for sound absorption.
3) "Fit-on" dimension in one end and insertion dimension in the other.
4) Non-insulated.
5) Insertion dimension in both ends.
6) Insulated.

Content

Accessories

FläktWoods

Veloduct

Veloduct® reduces operating costs, simplifies adjustments, permits rapid, easy and clean installation and can be installed in any climate. All duct fittings are equipped with a sealing ring, made of EPDM rubber.

www.flaktwoods.com

MINIDUCT Circular ducting

Duct components for marine applications are available for the following types of ventilation ducts to the international size standard (European Standard EN1506).

Type BDE Uninsulated spiral tubes and fittings, sizes 008–063, see pages 6-11.

Type BDA Spiral tubes and fittings, with thermal insulation or thermal and sound insulation, sizes 010–031 (80–250 mm nominal diameter of inner tube) see pages 12-23.

Duct components of different types can also be combined as shown in the installation examples. In the MINIDUCT system, components with "insertion sizes" are provided with factory-fitted double rubber seals, thus ensuring tight and strong ducts which can be assembled very quickly.

Materials and finish

Uninsulated components: Made of galvanised sheet steel.

Airinsulated components: Made of galvanised sheet steel.

Insulated tubes: Made of galvanised sheet steel with glass wool insulation.

Steel tube components (BDGG, and BDPG): Weldable steel.

Dimensions

All dimensions in this catalogue section are given in mm, unless otherwise stated.

Weights

See pages 10-11 and 21-23.

Pressure drop

See pages 24-29.

Tightness

The ducts and fittings are manufactured to tightness class C of the Eurovent standard 2/2, when assembled in accordance with installation and assembly instructions.

Instructions

Installation and assembly instructions can be requisitioned from Fläkt Woods Oy.

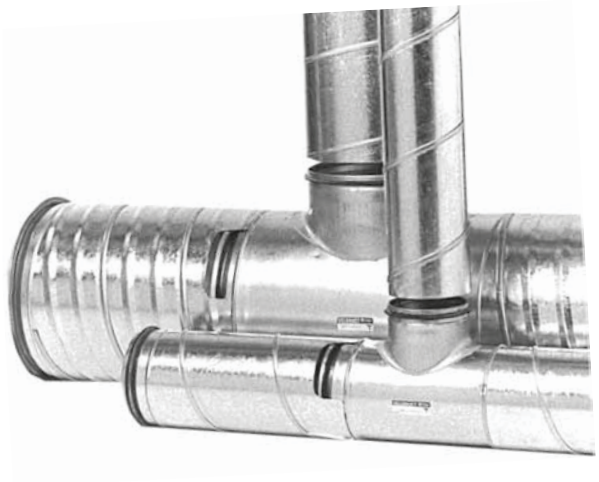
Fig. 1. Type BDE uninsulated spiral tubes.

VELODUCT® System of ducting

The VELODUCT system is a complete system of round ducting for which type approval for tightness class D has been granted.
All duct fittings are equipped with a sealing ring made of EPDM rubber.

VELODUCT

- has been granted certificate of approval 1718/88 by SITAC/Swedish Institute for Technical Approval in Construction
  - for tightness class D
  - in terms of tensile strength
- permits rapid, easy and clean installation
- can be installed in any climate

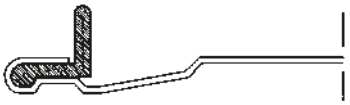


Tube and fittings are marked with a type approval label.

The seal

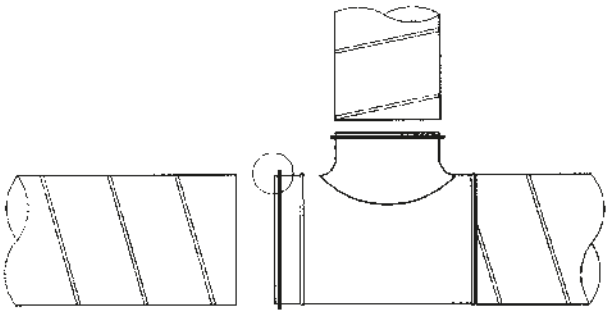
The sealing principle is illustrated in the drawings below. These show an insertion fitting and a fit-on (tube) fitting. The seal is made of solid EPDM rubber and is fixed to the end of the fitting.
The seal is highly resistant to moisture, airborne pollutants and solar radiation and can withstand continuous exposure to temperatures between -30°C and +80°C with an unimpaired function.

Design



Sizes 008–063

Sizes 006, 080–125



Content

Components

Type BDE
Uninsulated

Type BDE – uninsulated ducting components

Design

A complete duct is assembled from BDEK spiral tubes and a number of duct fittings for jointing, branching-off, etc. Jointing takes place by the tubes and certain other components with "fit-on" ends being fitted with other jointing components with "insertion ends".

Insertion components are provided with factory-fitted seals of non-ageing EPDM rubber. The grade of rubber used for seals is characterized by excellent resistance against ozone and ultraviolet light. This grade of rubber is generally used when strict demands are made on good ageing and settlement properties. The seals are reliably secured to the ends of the duct components and eliminate entirely all manual sealing procedures in the assembly of duct components. The "fit-on" and insertion components are locked to each other by means of self-tapping screws or pop rivets.

The principle of sealing is illustrated in Fig. 3 and 4, which show an insertion component and a fit-on component (tube) before and after assembly.

The joints can withstand a pressure of 3 kPa , without the seal being impaired. Vacuum in the duct improves sealing.

Sizes

The size designation specifies the diameter of the tube or tube fitting in cm. In the case of T-pieces, crosses and transition pieces, the size designation consists of two part designations (see the corresponding duct components).

Before assembly

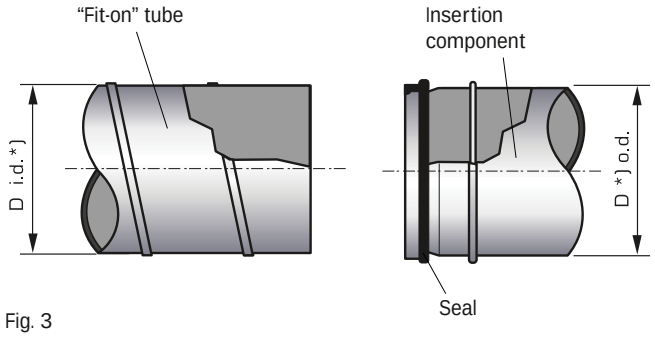


Fig. 3

After assembly

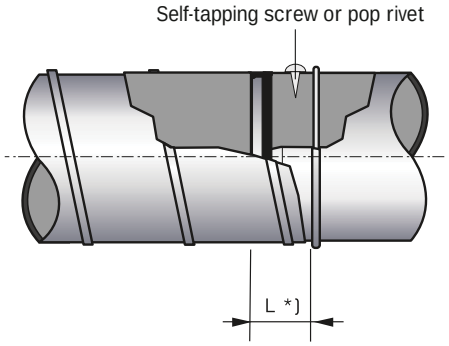


Fig. 4

*) The insertion or fit-on dimension L and the tolerances on D and d are specified in the table below (dimension D max – D min or d max – d min).

Pressure drop

See charts on pages 24–29.

Dimensions and tolerances according to European standard EN1506

General dimensions and weights (see also Fig. 3 and 4)

Size designation		008	010	012	016	020	025	031	040	050	063
Dimensions, mm:											
Tube	D max	80.5	100.5	125.5	160.6	200.7	250.8	315.9	401.0	501.1	631.2
	D min (nom. dia.)	80.0	100.0	125.0	160.0	200.0	250.0	315.0	400.0	500.0	630.0
Fitting	d max	79.3	99.3	124.3	159.3	199.3	249.3	314.3	399.3	499.3	629.3
	d min	78.8	98.8	123.8	158.7	198.6	248.5	313.4	398.3	498.2	628.1
Insertion length L_i Tolerance +0 / -5		35	35	35	35	35	40	40	60	60	60
Fit-on length L_p											
Weights: kg / m, Tube		1.2	1.3	1.7	2.1	2.7	3.2	3.9	7.7	9.7	12.2

Weights

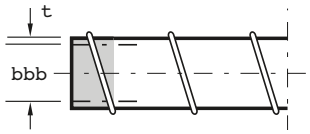
See pages 10–11.

Type BDE – range, dimensions

The range is indicated by the shaded areas.

bbb and ccc indicate the size as well as the dimensions (cm). Other dimensions in mm. Insertion connections are marked , and fit-on connections are marked . The dimensions for insertion and fit-on lengths are common, and are shown for the BDEN joint and the BDEM joint.

Tube, type BDEK -a -bbb*



Height of spiral joint ~3 mm

Main tube, code suffix bbb

	008	010	012	016	020	025	031	040	050	063

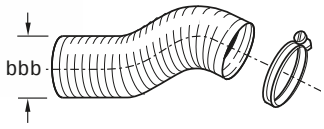
Code suffix a indicates the tube length: 3.00 m (a = 3), 6.00 m (a = 6), random length (a = 4), although 6 m max.

Nom. dia., mm	80	100	125	160	200	250	315	400	500	630
Wall thickness t, mm	0.5								0.7	

*) In the case of code suffix a = 4, specify the total length in m (to 2 decimals) the number of tubes and the cut lengths in cm (although 600 cm max.)
Example: 24.32 m of BDEK-4-0215 tube, 8 tubes of 304 cm each.
Tolerance of length ± 0 – 10 mm.

Flexible tube, BDES-6-bbb

Clip, type BDEZ-01-bbb



Main tube, code suffix bbb

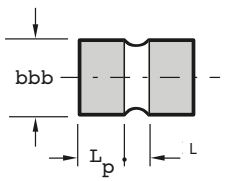
bbb	008	010	012	016	020	025	031	040	050	063

Tube length

compressed: 0,15 m

expanded: 6,00 m

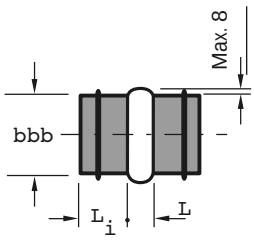
Joint, type BDEM-1-bbb



Main tube, code suffix bbb

bbb	008	010	012	016	020	025	031	040	050	063
L_p	35					45		75		
L	10							12		

Insertion joint, type BDEN-1-bbb



Main tube, code suffix bbb

bbb	008	010	012	016	020	025	031	040	050	063
L_i	35					40		60		
L	5	5	5	5	5	5	5	25	25	25

Type BDE – range, dimensions

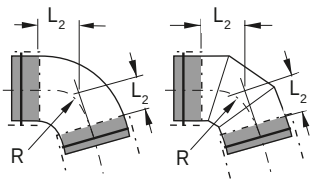
For explanatory text to the table, see page 7.

Bend, type BDEB-aa-bbb

aa = angle as tubulated below (90, 45, 30 or 15)

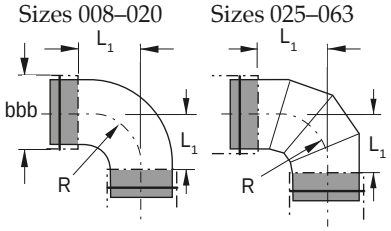
45°, 30° and 15° bends

Sizes 008–020 Sizes 025–063



90° bend

Sizes 008–020 Sizes 025–063



Main tube, code suffix bbb

bbb		008	010	012	016	020	025	031	040	050	063
L1	90°	100	100	125	160	200	250	315	400	500	630
L2	45°	40	40	50	65	80	100	130	165	205	260
L2	30°	25	40	40	40	40	70	85	110	124	156
L2	15°	15	15	15	15	15	56	59			
R	90°	100	100	125	160	200	250	315	400	500	630
R	45°	100	100	125	160	200	250	315	400	500	630
R	30°	100	100	125	160	200	250	315	400	500	630
R	15°	100	100	125	160	200	250	315	400		630

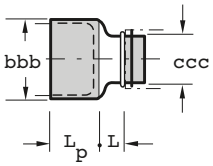
Concentric reducer, type BDED-a-bbb-ccc

a: 1 and 3

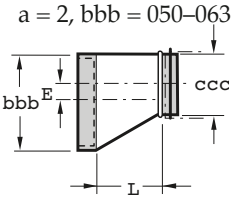
Eccentric reducer, type BDKF-a-bbb-ccc

a: 2 and 4

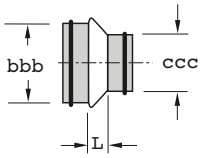
a = 1, bbb = 010–040



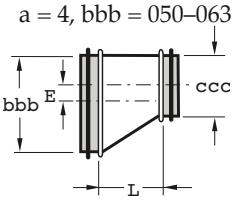
a = 2, bbb = 050–063



a = 3, bbb = 010–040



a = 4, bbb = 050–063



Main tube, code suffix bbb

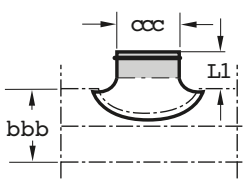
bbb	008	010	012	016	020	025	031	040	050	063
ccc	BDED Concentric design a =1 and 3								BDKF Eccentric design a = 2 and 4	
008		25 20	40 40	15 70						
010			22 25	42 49	70 70					
012				28 33	54 55	80 80				
016					35 35	59 59	98 97			
020						45 35	75 78	115 110		
025							43 43	90 70	125	
031								60 40	92	157
040									50	115
050										65
L for BDKF									250	315

Dimension E

Dimension L
Upper figure denotes a = 1
Lower figure denotes a = 3

Branch, type BDEA-1-bbb-ccc

For use on round ducts



Main tube, code suffix bbb

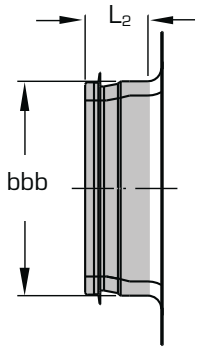
bbb	008	010	012	016	020	025	031	040	050	063
008	40	43	45	45	45	45	45			
010		50	55	55	55	55	55	60	60	60
012			55	55	55	55	55	55	55	55
016				60	60	65	60	60	60	60
020					65	65	65	70	70	70
025						70	70	70	70	70
031							75	75	75	75

Dimension L1

Type BDE – range, dimensions

For explanatory text to the table, see page 7.

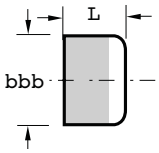
Branch, type BDEA-5-bbb



Main tube, code suffix bbb

bbb	008	010	012	016	020	025	031	040	050	063
L2	40	40	40	40	40	40	40	60	70	70

Lid, type BDEG-1-bbb

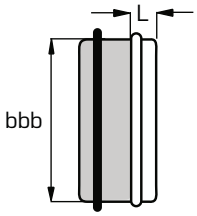


Used to blank off duct components with insertion dimensions.

Main tube, code suffix bbb

bbb	008	010	012	016	020	025	031	040	050	063
L	40	41	41	41	41	50	50	105	105	105

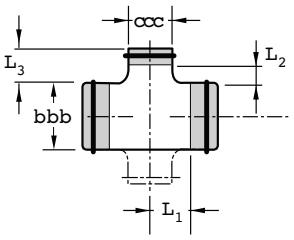
Lid, type BDEG-4-bbb

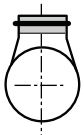


Main tube, code suffix bbb

bbb	008	010	012	016	020	025	031	040	050	063
L	17	20	20	20	22	25	30	30	30	30

T-piece, type BDET-a-bbb-ccc
Cross, type BDEX-a-bbb-ccc





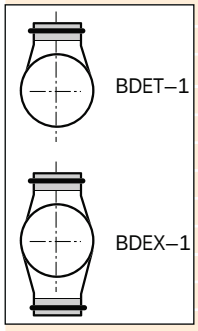
a = 1
concentric
bbb = 008–063

Branch size, code suffix ccc

Concentric version, code suffix a = 1

Main tube, code suffix bbb

bbb		008	010	012	016	020	025	031	040	050	063
008	L1	75	73	73	73	73	68				
	L3	40	45	45	45	45	45				
010	L1		83	83	90	90	85	90	100	90	95
	L3		30*	33*	55	55	55	55	50	50	50
012	L1			96	103	100	95	95	115	110	110
	L3			33*	55	55	55	55	45	45	45
016	L1				125	125	133	120	140	120	130
	L3				60	60	65	60	55	55	55
020	L1					155	150	150	150	145	140
	L3					65	65	65	65	65	65
025	L1						185	185	180	170	175
	L2						30	30	30	30	30
031	L1							210	240	225	225
	L2							35	35	35	35
040	L1								300	300	300
	L2								100	100	100
050	L1									350	350
	L2									110	110
063	L1										450
	L2										140



*= L2 size

T-pieces and crosses with code suffixes bbb = 008 to 063 (all sizes) are available only in concentric versions.

Sizes 008–020 without a stop ring, sizes 025 up to 063 with a stop ring

Type BDE – range, weights

Weights: [kg]

Main tube, code suffix bbb

			008	010	012	016	020	025	031	040	050	063
Tube	BDEK	weight / meter	1,2	1,3	1,7	2,1	2,7	3,2	3,9	7,7	9,7	12,2
Flexible Tube	BDES	weight / meter	0,15	0,17	0,2	0,27	0,39					
Joint	BDEM -1	weight / pc	0,06	0,08	0,1	0,12	0,16	0,26	0,34	0,84	1,08	1,34
Insertion Joint	BDEN -1	weight / pc	0,08	0,1	0,12	0,14	0,18	0,34	0,42	1,24	1,24	1,58
Lid	BDEG -1	weight / pc	0,08	0,1	0,12	0,18	0,28	0,46	0,66	1,28	1,84	2,66
Lid	BDEG -4	weight / pc	0,12	0,14	0,16	0,26	0,32	0,56	0,76	1,34	1,9	2,7
Bend 90°	BDEB -90	weight / pc	0,26	0,3	0,5	0,9	1,32	1,56	2,3	5,5	8,12	12,3
Bend 45°	BDEB -45	weight / pc	0,22	0,24	0,34	0,56	0,82	1,06	1,38	3,3	4,74	6,9
Bend 30°	BDEB -30	weight / pc	0,18	0,2	0,26	0,48	0,56	0,74	1,02	2,46	3,5	5,08
Bend 15°	BDEB -15	weight / pc	0,12	0,16	0,18	0,32	0,4	0,6	0,86	1,8	2,4	3,4
Branch	BDEA -5	weight / pc	0,08	0,14	0,18	0,28	0,36	0,52	0,68	0,96	1,2	1,5

Main tube, code suffix bbb

Branch BDEA-1-bbb-ccc	Weight / pc	ccc	008	010	012	016	020	025	031	040	050	063
		008	0,1	0,1	0,1	0,1	0,1	0,08				
		010		0,18	0,14	0,14	0,18	0,16	0,14	0,14	0,14	0,14
		012			0,22	0,22	0,22	0,22	0,2	0,2	0,2	0,2
		016				0,38	0,36	0,34	0,32	0,28	0,3	0,3
		020					0,56	0,44	0,42	0,42	0,42	0,42
		025						0,78	0,7	0,64	0,6	0,58
		031							0,92	0,88	0,84	0,78

Main tube, code suffix bbb

Reducer BDED-1-bbb-ccc	Weight / pc	ccc	008	010	012	016	020	025	031	040	050	063
		008		0,16	0,18	0,26						
		010			0,18	0,28	0,42					
		012				0,28	0,36	0,6				
		016					0,38	1,58	0,94		BDKF-2	
		020						0,5	0,8	1,54		
		025							0,72	1,34	2,8	
		031								1,2	2,96	4,18
		040									3,48	4,64
		050										4,7

Type BDE – range, weights

Weights: [kg]

Main tube, code suffix bbb

Reducer BDED-3-bbb-ccc	Weight / pc	ccc	008	010	012	016	020	025	031	040	050	063
		008		0,16	0,18	0,26						
		010			0,18	0,28	0,42					
		012				0,28	0,34	0,58				
		016					0,36	1,56	0,92		BDKF-4	
		020						0,46	0,76	1,48		
		025							0,68	1,28	2,8	
		031								1,16	2,96	4,1
		040									3,4	4,52
		050										4,58

Main tube, code suffix bbb

T-Piece BDET-1-bbb-ccc	Weight / pc	ccc	008	010	012	016	020	025	031	040	050	063
		008	0,28	0,41	0,55	0,65	0,75	0,90				
		010		0,48	0,66	0,72	0,84	1,01	1,23	2,76	3,33	4,07
		012			0,68	0,81	0,94	1,14	1,38	2,91	3,51	4,31
		016				1,06	1,16	1,42	1,66	3,25	3,96	4,86
		020					1,46	1,77	2,08	3,65	4,44	5,42
		025						2,23	2,58	4,40	5,33	6,53
		031							2,86	4,91	5,93	7,25
		040								5,10	6,50	8,90
		050									8,60	10,0
		063										12,0

Main tube, code suffix bbb

§	Weight / pc	ccc	008	010	012	016	020	025	031	040	050	063
		008	0,40	0,50	0,71	0,81	0,88	1,00				
		010		0,63	0,75	0,86	0,95	1,10	1,40	3,20	3,80	4,50
		012			0,93	0,98	1,10	1,40	1,70	3,30	3,90	4,60
		016				1,40	1,40	1,70	1,90	3,60	4,30	5,20
		020					1,70	2,10	2,40	3,70	4,70	5,80
		025						2,70	2,90	4,40	5,70	6,90
		031							3,30	5,20	6,20	7,50
		040								6,30	7,50	9,50
		050									9,50	11,0
		063										13,0

Content

Components

Type BDA
Insulated

Insulated

Type BD(A,P), insulated ducting components

Design

A complete duct consists of type BDPK (heat insulated)

or type BDPR (heat and sound insulated) spiral tubes and fittings for jointing, branching-off, etc. Type BDPK and BDPR tubes consist of an outer tube and an inner tube with intervening glass wool insulation (non combustible).

The thickness of insulation depends on sizes of outer and inner tubes. There is two ranges of sizes: recommended sizes, which have thicker insulation and additional sizes, which have thinner insulation. Look at sizes and diameters beneath. Good sound absorbtion (on the type BDPR) is obtained by the inner tube being perforated.

Duct fittings are of double -wall design with intervening

air insulation and with double sealing (sealing on both outer and inner tube). In other respects, the particulars

are the same as for type BDE duct components.

Fig. 5

Sizes

Recommended sizes: 010, 012, 016, 020, 025, 031. Both outer and inner diameters are according to European standard EN 1506. We recommend these sizes.

Additional sizes (outer/inner): 015/012, 016/014, 018/016, 020/018, 022/020, 022/018, 025/022, 028/025, 031/028.

The size designation specifies the diameter of the outside tube in cm. The inner tube is one size smaller concerning recommended sizes (EN 1506).

When choosing additional sizes look at diameters and extra designations in chapter C. “Sizes and Codes”, in the table, on page 13.

In case of T-pieces and reducers, the size designation consists of two sub-designation (see the relevant duct fitting)

Pressure drops

The pressure drops across BDA-fittings are the same as those across the BDE-fitting with the diameter of inner tube, see pages 24-29.

Sealing principle

Insertion fitting to duct, sizes 010–031

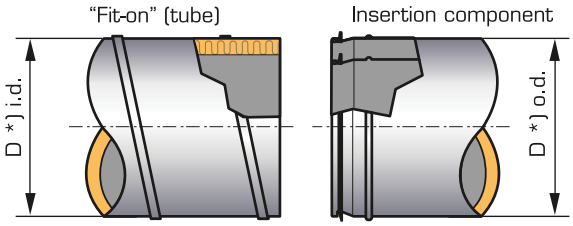


Fig. 6. Before assembly

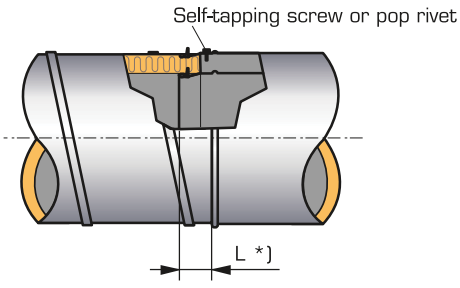


Fig. 7. After assembly

*) Insertion dimension / fit-on dimension L and the tolerances on D and d are specified in the table below (dimensions D max – D min and d max – d min).

Type BD(A,P), insulated ducting components

General dimensions

A. Recommended range of sizes:

To European standard EN1506		Size 010	012	016	020	025	031
		Dimensions, mm					
Tube,	D max	100.5	125.5	160.6	200.7	250.8	315.9
	D min (nom. dia.)	100.0	125.0	160.0	200.0	250.0	315.0
Fitting,	d max	99.3	124.3	159.3	199.3	249.3	314.3
	d min	98.8	123.8	158.7	198.6	248.5	313.4
Insertion / fit-on length, L $^{+0\ /\ -5}$		40	40	40	40	40	40
Inner tube (nom. dia.)		80	100	125	160	200	250
Weights: kg / m, Tube		2.5	3.2	4.1	5.2	6.3	8.2

B. Additional range of sizes:

To European standar EN1506		Size 015-1	016-4	018-1	020-4	022-1	022-4	025-4	028-1	031-4
Tube,	D max	150,6	160,6	180,7	200,7	224,8	224,8	250,8	280,9	315,9
	D min (nom. dia.)	150,0	160,0	180,0	200,0	224,0	224,0	250,0	280,0	315,0
Fitting,	d max	149,3	159,3	179,3	199,3	223,3	223,3	249,3	279,3	314,3
	d min	148,7	158,7	178,6	198,6	222,5	222,5	248,5	278,4	313,4
Insertion / fit-on length, L $^{+0\ /\ -5}$		40	40	40	40	40	40	40	40	40
Inner tube (nom. dia.)		125	140	160	180	200	180	224	250	280
Weights: kg / m, Tube		4,0	3,9	4,6	5,3	6,1	6,0	6,4	7,3	8,4

C. Sizes and codes

Main Tube, code suffix bbb / diam. of inner tube

Branch, code suffix ccc / diam. of innertube
Minor end, code suffix ccc / diam. of innertube
Second end of main tube / diam. of innertube

	010 / 008	012 / 010	015 / 012	016 / 012	016 / 014	018 / 016	020 / 016	020 / 018	022 / 020	022 / 018	025 / 020	025 / 022	028 / 025	031 / 025	031 / 028
010 / 008			-1		-2	-1		-1	-1	-2		-1	-1		-1
012 / 010			-1		-2	-1		-1	-1	-2		-1	-1		-1
015 / 012			-1	-1	-2	-1	-1	-2	-1	-2	-1	-2	-1	-1	-2
016 / 012					-3	-1		-1	-1	-2		-1	-1		-2
016 / 014				-2	-4	-2	-2	-4	-3	-4	-2	-4	-2	-3	-4
018 / 016						-1	-1	-2	-1	-2	-1	-2	-1	-1	-2
020 / 016								-3	-1	-3		-3	-1		-3
020 / 018							-2	-4	-2	-4	-2	-4	-2	-2	-4
022 / 020									-1	-3	-1	-3	-1	-1	-3
022 / 018									-2	-4	-2	-4	-2	-2	-4
025 / 020												-3	-1		-3
025 / 022											-2	-4	-2	-2	-4
028 / 025													-1	-1	-2
031 / 025															-3
031 / 028														-2	-4

- Recommended range of sizes, white cells
- Additional range of sizes, cells with codes -c or -d = -1, -2, -3 or -4

Table: Extra code suffix (-c, -d) for additional range of sizes

Codes: example

Recommended range of sizes		Additional range of sizes	
	BDAN - a - bbb	BDAN - a - bbb - c	(-c, look at the table)
	BDAT - a - bbb - ccc	BDAT - a - bbb - ccc - d	(-d, look at the table)

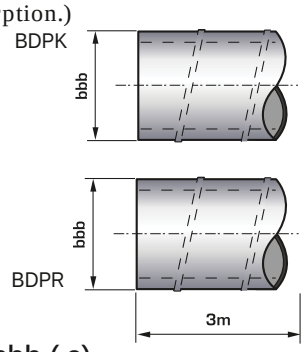
Type BD(A,P) range, dimensions

The range is indicated by the shaded areas.

bbb and ccc indicate the size as well as the dimensions (cm). Other dimensions in mm. Insertion connections are marked ⊏, and fit-on connections are marked ⊐. The dimensions for insertion and fit-on lengths are shown in the table on page 12.

Tube, type BDPK-3-bbb (-c)(heat insulated)
Tube, type BDPR-3-bbb (-c)

(heat and sound insulated and with the inner duct wall perforated for sound absorption.)



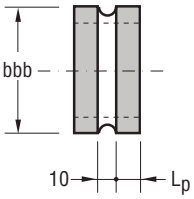
Main tube, code suffix bbb

Recommended sizes	010	012	016	020	025	031
Outer tube, nom. diameter	100	125	160	200	250	315
Inner tube	80	100	125	160	200	250

Main tube, code suffix bbb -c

Additional sizes	015-1	016-4	018-1	020-4	022-1	022-4	025-4	028-1
Outer tube, nom. diameter	150	160	180	200	224	224	250	280
Inner tube	125	140	160	180	200	180	224	250

Joint, type BDAM-1-bbb (-c)



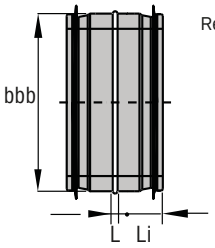
Main tube, code suffix bbb

Recommended sizes	008	010	012	016	020	025	031
L_p	35					45	

Main tube, code suffix bbb -c

Additional sizes	015-1	016-4	018-1	020-4	022-1	022-4	025-4	028-1	031-4
L_p	35						45		

Insertion joint, BDAN-1-bbb (-c)



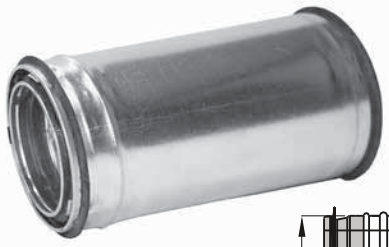
Main tube, code suffix bbb

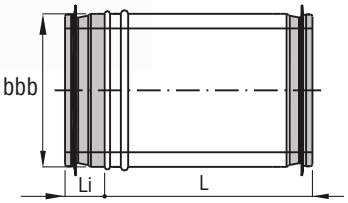
Recommended sizes	008	010	012	016	020	025	031
L_i	35					40	
L	5	5	5	5	5	5	5

Main tube, code suffix bbb -c

Additional sizes	015-1	016-4	018-1	020-4	022-1	022-4	025-4	028-1	031-4
L_i	35						40		
L	5	5	5	5	5	5	5	5	5

Insertion joint, BDAN-4-bbb (-c)





Main tube, code suffix bbb

Recommended sizes	008	010	012	016	020	025	031
L_i	35					45	
L	265						

Main tube, code suffix bbb -c

Additional sizes	015-1	016-4	018-1	020-4	022-1	022-4	025-4	028-1	031-4
L_i	35						40		
L	260								

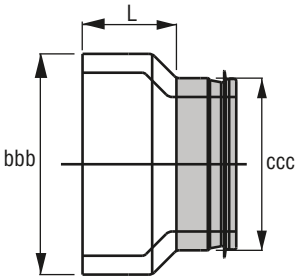
Insulated

Type BD(A,P) range, dimensions

Reducer, type BDAD-1-bbb-ccc (-d) and type BDAD-10-bbb-ccc (-d)

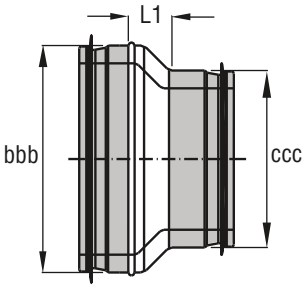
bbb = 012–031

BDAD-1



Application:
The small end is connected to a BDPK or BDPR tube and the large end to a duct fitting with a fit-on dimension such as the BDAT T-piece.

BDAD-10



Application:
The both ends are connected to a BDPK or BDPR tube.

Recommended sizes Code suffix ccc	Main tube, code suffix bbb				
	012	016	020	025	031
010	67 / 25	80 / 49			
012		67 / 33	85 / 55		
016			75 / 35	100 / 59	
020				75 / 35	101 / 78
025					81 / 43

Dimension L / L1

Additional sizes Code suffix ccc / Inner diameter	Main tube, code suffix bbb / inner diameter								
	015 / 012	016 / 014	018 / 016	020 / 018	022 / 020	022 / 018	025 / 022	028 / 025	031 / 028
010 / 008	1 / 80 / 45								
012 / 010	1 / 67 / 30	2 / 75 / 30							
015 / 012		2 / 65 / 15	1 / 65 / 20						
016 / 012			1 / 66 / 25	1 / 75 / 34					
016 / 014			2 / 60 / 15	4 / 25 / 34					
018 / 016				1 / 60 / 25	1 / 75 / 35	2 / 60 / 35			
020 / 016					1 / 80 / 25	3 / 60 / 25	3 / 85 / 35		
020 / 018					2 / 70 / 22	4 / 70 / 25	4 / 80 / 35		
022 / 020							3 / 70 / 30		
022 / 018							4 / 80 / 30		
025 / 020									
025 / 022									
028 / 025									
031 / 025									
031 / 028									

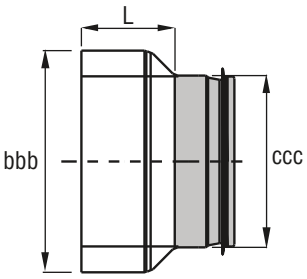
Code suffix -d / L / L1

Type BD(A,P) range, dimensions

Penetration reducer, type BDAD-3-bbb-ccc (-d) and type BDAD-30-bbb-ccc (-d)

bbb = 012–031

BDAD-3

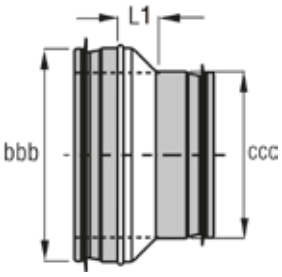


Main tube, code suffix bbb

Recommended sizes	012	016	020	025	031
Diam. ccc					
010	67 / 25				
012	75 / 33				
016		75 / 35			
020	Dimension L / L1		82 / 35		
025				81 / 45	

Application:
For connection of BDAB and BDAT insulated fittings to BDGG-1.

BDAD-30

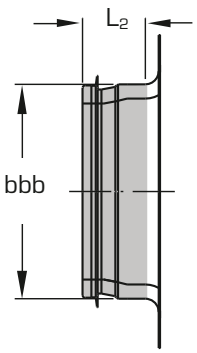


Main tube, code suffix bbb -d

Additional sizes	015-1	016-4	018-1	020-4	022-1	022-4	025-4
Diam. ccc							
012	75 / 30						
014		65 / 20					
016			60 / 25				
018				70 / 25			
020					70 / 25		
018	Dimensions L / L1					80 / 30	
022							80 / 30

Application:
For connection of BDPK or BDPR to BDGG-1.

Branch, BDAA -5 -bbb (-c)



Main tube, code suffix bbb

Recommended sizes	010	012	016	020	025	031
L_2	40					

Main tube, code suffix bbb -c

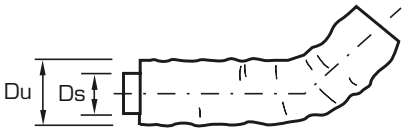
Additional sizes	015-1	016-4	018-1	020-4	022-1	022-4	025-4	028-1	031-4
L_2	40								

Type BD(A,P) range, dimensions

For explanatory text to the table, see page 13.

Preinsulated, flexible tube, type BDPS-3-bbb

** Clip, type BDEZ-01-bbb, see page 7.
**) bbb according to Ds if not otherwise ordered.



bbb = Ds

*) Main tube, code suffix bbb

	010	012	016	020	025	031
Ds / Du	102/152	127/178	160/229	203/254	254/318	

*) Note! Main tube bbb here denotes inner diameter, opposite of the other Miniduct fittings.

Tube length:
compressed: 350 mm
expanded: 500 mm

Tube material: wire reinforced, plastic coated glass fibre fabric

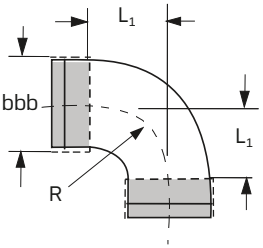
Insulation: Mineral wool

Bend, type BDAB-aa-bbb (-c)

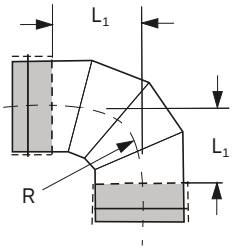
aa = angle as tubulated below (90, 45, 30 or 15)

90° bend

Sizes 010–020



Sizes 025–031

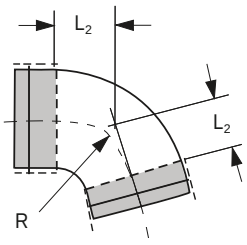


Main tube, code suffix bbb

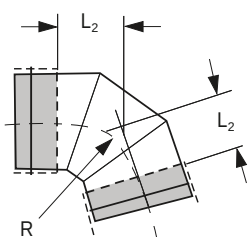
Recommended sizes	008	010	012	016	020	025	031
L 1, 90°	100	100	125	160	200	250	315
L 2, 45°	40	40	50	65	80	100	130
L 2, 30°	25	25	40	40	40	70	85
L 2, 15°	15	15	15	15	15	50	60
R, 90°	100	100	125	160	200	250	315
R, 45°	100	100	125	160	200	250	315
R, 30°	100	100	125	160	200	250	315
R, 15°	100	100	125	160	200	250	315

45°, 30° and 15° bends

Sizes 010–020



Sizes 025–031



Main tube, code suffix bbb -c

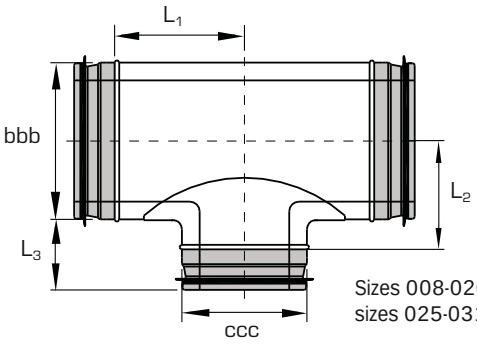
Additional sizes	015-1	016-4	018-1	020-4	022-1	022-4	025-4	028-1	031-4
L1, 90°	150	160	180	200	224	224	250	280	315
L2, 45°	57	65	80	83	80	80	105	107	130
L2, 30°	40	40	40	40	40	40	70	72	85
L2, 15°	20	13	13	13	20	30	32	37	42
R, 90°	150	160	180	200	224	224	250	280	315
R, 45°	150	160	180	200	224	224	250	280	315
R, 30°	150	160	180	200	224	224	250	280	315
R, 15°	150	160	180	200	224	224	250	280	315

Type BD(A,P) range, dimensions

For explanatory text to the table, see page 13.

T-piece, type BDAT-1-bbb-ccc (-d)

bbb = 012–031



Sizes 008-020 outer diameter without a stop ring,
sizes 025-031 outer diameter with a stop ring.

Main tube, code suffix bbb

Recommended sizes		010	012	016	020	025	031
Code suffix ccc							
010	L_1	90	90	90	90		
	L_3	50	55	55	55		
012	L_1		100	100	100		
	L_3		55	55	55		
016	L_1			125	125	120	
	L_3			60	60	65	
020	L_1				153	148	148
	L_3				65	65	65
025	L_1					185	185
	L_3					70	70
031	L_1						200
	L_3						75

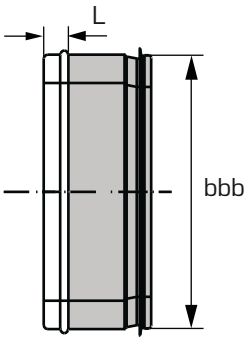
Main tube, code suffix bbb / inner diameter

Additional sizes		015 / 012	016 / 014	018 / 016	020 / 018	022 / 020	022 / 018	025 / 022	028 / 025	031 / 028
Code suffix ccc / inner diameter										
010 / 008	L1 / -d	90 / -1	90 / -2	90 / -1						
	L2	101	104	115						
012 / 010	L1 / -d	100 / -1	100 / -2	100 / -1						
	L2	96	100	110						
015 / 012	L1 / -d	125 / -1	125 / -2	125 / -1						
	L2	101	115	125						
016 / 012	L1 / -d		125 / -3	127,5 / -1	125 / -1	125 / -1	125 / -2	125 / -1		
	L2		105	115	125	137	137	150		
016 / 014	L1 / -d		125 / -4	125 / -2	125 / -4	125 / -3	125 / -4	125 / -4		
	L2		105	115	125	137	137	150		
018 / 016	L1 / -d			155 / -1	153 / -2	154 / -1	153 / -2	153 / -2		
	L2			115	130	142	142	155		
020 / 016	L1 / -d				153 / -3	153 / -1	153 / -3	153 / -3	153 / -1	153 / -3
	L2				135	147	152	160	175	193
020 / 018	L1 / -d				153 / -4	153 / -2	153 / -4	153 / -4	153 / -2	153 / -4
	L2				135	147	147	160	175	193
022 / 020	L1 / -d					191 / -1	-	190 / -3	190 / -1	190 / -3
	L2						-	155	180	187
022 / 018	L1 / -d					190 / -2	190 / -4	190 / -4	190 / -2	190 / -4
	L2						150	155	180	187
025 / 020	L1 / -d							190 / -3	190 / -1	190 / -3
	L2							160	175	193
025 / 022	L1 / -d							190 / -4	190 / -2	190 / -4
	L2							160	175	193
028 / 025	L1 / -d								215 / -1	215 / -2
	L2								180	183
031 / 025	L1 / -d									210 / -3
	L2									198
031 / 028	L1 / -d									210 / -4
	L2									198

Type BD(A,P) range, dimensions

Lid, type BDAG-40-bbb (-c)

bbb =010 - 031



Main tube, code suffix bbb

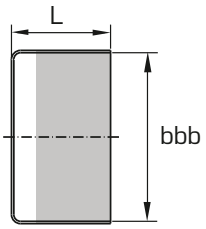
Recommended sizes	010	012	016	020	025	031
L	45				55	

Main tube, code suffix bbb -c

Additional sizes	015-1	016-4	018-1	020-4	022-1	022-4	025-4	028-1	031-4
L	45		37	45	37	45	55		

Lid, type BDAG-10-bbb (-c)

bbb = 012–031



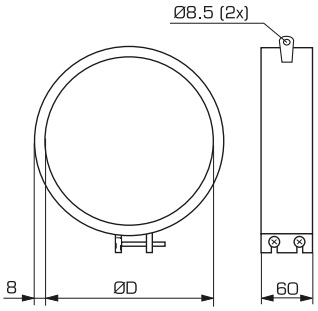
Main tube, code suffix bbb

Recommended sizes	010	012	016	020	025	031
L	70				77	

Main tube, code suffix bbb -c

Additional sizes	015-1	016-4	018-1	020-4	022-1	022-4	025-4	028-1	031-4
L	70	70	76	70	76	70	77		

Tubular shell, type BDPC-1-bbb



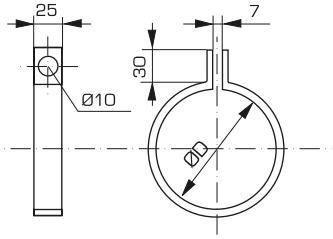
for joining in cases where the insertion method cannot be used, e.g. when axial insertion is impossible or when a separable joint is desired.

Main tube, code suffix bbb

bbb	008	010	012	016	020	025	031
D		100	125	160	200	250	315

Clip, type BDSK-bbb

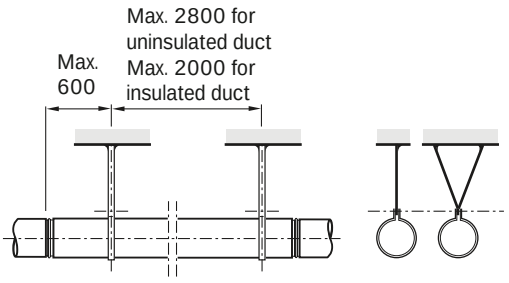
for suspending ducts



Pendants made of flat bar steel are welded to the deck or to beams. Every second or every third pendant is V-shaped to prevent the duct from swaying.

Main tube, code suffix bbb

bbb	008	010	012	016	020	025	031
D	83	103	128	163	203	250	314



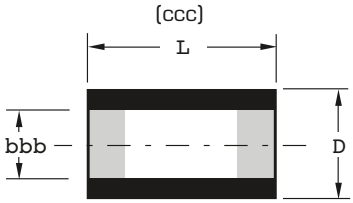
Insulated

Type BD(A,P) range, dimensions

For explanatory text to the table, see page 13.

Penetration piece, type SD-1-bbb-ccc

for passage through deck or bulkhead, where insulation from the deck or bulkhead is not necessary.

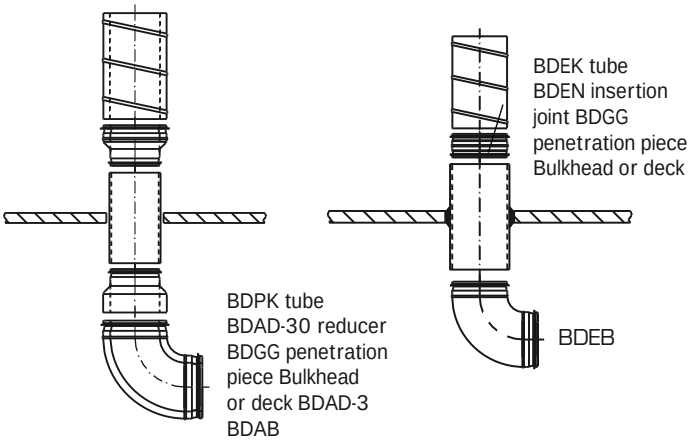


Recommended sizes	Main tube, code suffix bbb						
	008	010	012	016	020	025	031
L / Code suffix ccc							
200 / 020							
250 / 025							
900 / 090							
1800 / 180							
D	89	108	133	168	206	256	

Additional sizes: Please ask for an offer

BDA components

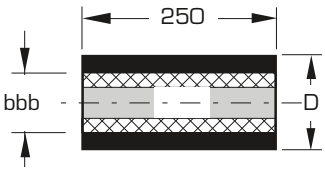
BDE components



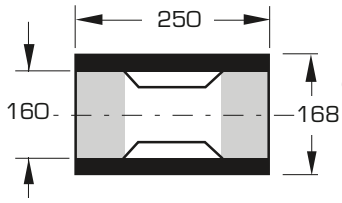
Penetration piece, type BDPG-1-bbb-c

for passage through the deck or bulkhead.

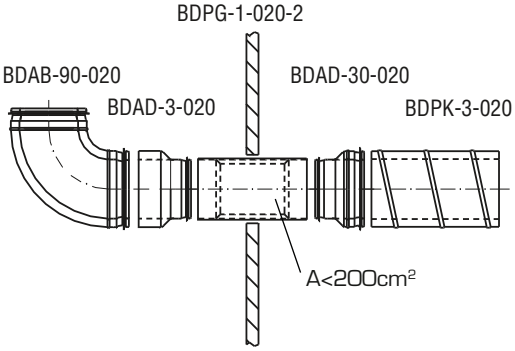
bbb	Main tube, code suffix bbb						
	008	010	012	016	020	025	031
D		106	131	166	206		



bbb = 010, 012, 016, 020
c = 1 (Heat insulated)



bbb = 020
c = 2 (A<200cm2)



Note. No special fire preventive measures are necessary, since the internal tube area is less than 200 cm^2

Type BD(A,P) range, weights

Weights: [kg]

Recommended sizes

			Main tube*, code suffix bbb					
			010	012	016	020	025	031
Tube	BDPK -3	weight / meter	2,47	3,17	4,07	5,17	6,17	8,20
Tube, sound insulated	BDPR -3	weight / meter	2,30	2,80	3,40	4,30	5,20	7,40
Flexible Tube	BDPS -3	weight / meter	0,35	0,38	0,48	0,68		
Joint	BDAM -1	weight / pc	0,16	0,2	0,28	0,38	0,54	0,65
Insertion joint	BDAN -1	weight / pc	0,18	0,26	0,32	0,42	0,58	0,90
Insertion joint, long	BDAN -4	weight / pc	0,74	0,92	1,16	1,47	1,86	2,36
Lid	BDAG -10	weight / pc	0,18	0,22	0,30	0,46	0,74	1,12
Lid	BDAG -40	weight / pc	0,26	0,30	0,42	0,58	0,88	1,32
Bend 90°	BDAB -90	weight / pc	0,60	0,90	1,55	2,40	2,73	4,27
Bend 45°	BDAB -45	weight / pc	0,45	0,60	1,00	1,50	1,92	2,65
Bend 30°	BDAB -30	weight / pc	0,27	0,55	0,80	0,95	1,34	1,95
Bend 15°	BDAB -15	weight / pc	0,28	0,33	0,50	0,70	1,00	1,46
Penetration reducer	BDAD -3	weight / pc	0,26	0,4	0,52	0,72	0,71	0,97
Penetration reducer	BDAD -30	weight / pc	0,28	0,42	0,54	0,74	0,85	1,15
Tubular shell	BDPC -1	weight / pc	0,2	0,22	0,3	0,34		
Clip	BDSK	weight / pc	0,06	0,1	0,16	0,18	0,28	0,36
Penetration	BDPG -1 -bbb -1	weight / pc	2,3	2,9	3,7	4,8		
Penetration	BDPG -1 -bbb -2	weight / pc				3,5		
Branch	BDAA -5	weight / pc	0,26	0,35	0,47	0,62	0,85	1,21

				Main tube*, code suffix bbb						
Penetration	BDGG -1 -bbb -ccc	weight / pc	ccc	L	080	010	012	016	020	025	031
			020	200	1,2	1,5	1,9	2,4	3,0		
			025	250	1,5	1,9	2,4	3,0	3,8		
			090	900		6,8	8,5	10,9	13,6	17	
			180	1800		14	17	22	27	34	

			Main tube*, code suffix bbb					
Reducer	BDAD -1 -bbb -ccc	weight / pc	ccc	010	012	016	020	025	031
			010		0,32	0,5			
			012			0,48	0,68		
			016				0,66	0,85	
			020					0,94	1,30
			025						1,22

*) outer duct

Type BD(A,P) range, weights

Weights: [kg]

Recommended sizes

Reducer	BDAD -10 -bbb -ccc	weight / pc	ccc	Main tube*, code suffix bbb 010	012	016	020	025	031
			010		0,34	0,48			
			012			0,46	0,64		
			016				0,66	1	
			020					0,88	1,37
			025						1,37

T-Piece	BDAT -1 -bbb -ccc	weight / pc	ccc	Main tube*, code suffix bbb 010	012	016	020	025	031
			010	0,76	0,88	1,06	1,30		
			012		1,06	1,30	1,55		
			016			1,62	1,88	2,32	
			020				2,40	2,88	3,57
			025					2,94	3,96
			031						4,66

Weights: [kg]

Additional sizes

		Additional sizes	Main tube*, code suffix bbb -c 015-1	016-4	018-1	020-4	022-1	022-4	025-4	028-1	031-4
Tube	BDPK	weight / meter	3,97	3,90	4,67	5,30	6,07	6,03	6,43	7,27	8,40
Tube, sound insulated	BDPR	weight / meter	3,63	3,77	4,57	4,90	5,67	5,60	6,06	6,73	7,63
Joint	BDAM-1	weight / pc	0,27	0,28	0,33	0,36	0,39	0,39	0,55	0,62	0,69
Insertion joint	BDAN-1	weight / pc	0,35	0,38	0,43	0,54	0,60	0,58	0,74	0,83	0,95
Insertion join, long	BDAN-4	weight / pc	1,12	1,22	1,38	1,55	1,74	1,65	1,96	2,18	2,46
Lid	BDAG-10	weight / pc	0,39	0,39	0,54	0,61	0,72	0,69	0,87	1,11	1,35
Lid	BDAG-40	weight / pc	0,46	0,50	0,71	0,79	0,92	0,87	1,15	1,20	1,55
Bend 90°	BDAB-90	weight / pc	1,40	1,52	1,89	2,60	2,92	2,60	3,07	4,13	4,49
Bend 45°	BDAB-45	weight / pc	0,79	1,02	1,44	1,40	1,78	1,55	2,04	2,50	2,82
Bend 30°	BDAB-30	weight / pc	0,58	0,75	0,94	1,02	1,38	1,35	1,42	1,82	2,07
Bend 15°	BDAB-15	weight / pc	0,45	0,56	0,66	0,75	0,85	0,79	1,12	1,30	1,56
Penetration reducer	BDAD-3	weight / pc	0,41	0,38	0,41	0,51	0,62	0,64	0,76	-	-
Penetration reducer	BDAD-30	weight / pc	0,44	0,43	0,43	0,49	0,65	0,71	0,79	-	-
Branch	BDAA-5	weight / pc	0,45	0,50	0,58	0,66	0,77	0,75	0,93	1,11	1,30

*) outer duct

Type BD(A,P) range, weights

Weights: [kg]

Additional sizes

Main tube*, code suffix bbb / inner diameter

T-Piece BDAT-a-bbb-ccc-d** Additional sizes Code suffix ccc / inner diameter	015 / 012	016 / 014	018 / 016	020 / 018	022 / 020	022 / 018	025 / 022	028 / 025	031 / 028
010 / 008	1,19	1,27	1,38						
012 / 010	1,33	1,47	1,55						
015 / 012	1,68	1,80	1,81						
016 / 012		1,76	1,82	2,02	2,24	2,17	2,46		
016 / 014		1,82	1,88	2,04	2,26	2,21	2,66		
018 / 016			2,38	2,39	2,61	2,54	2,91		
020 / 016				2,44	2,71	2,65	3,07	3,30	3,68
020 / 018				2,45	2,72	2,66	3,05	3,28	3,67
022 / 020					2,97		3,30	3,68	3,98
022 / 018					2,89	2,82	3,17	3,54	3,81
025 / 020							3,31	3,64	4,02
025 / 022							3,45	3,73	4,18
028 / 025								4,42	4,79
031 / 025									4,78
031 / 028									4,96

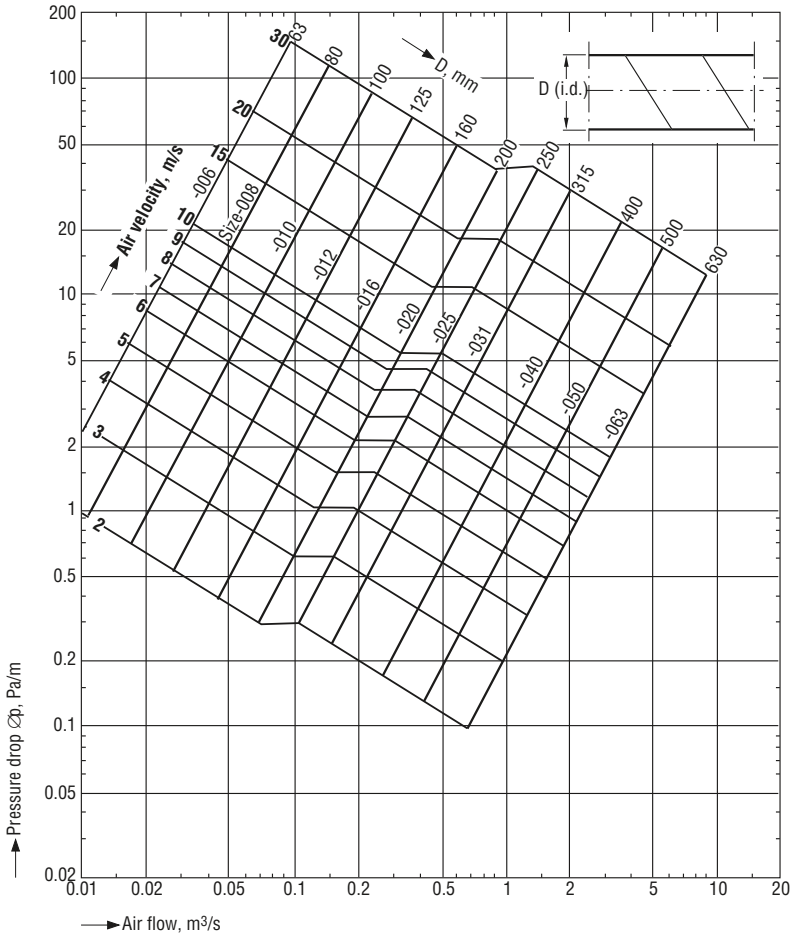
Main tube*, code suffix bbb / inner diameter

Reducer BDAD -1-bbb-ccc-d** BDAD -10-bbb-ccc-d ** Additional sizes Code suffix ccc / inner diameter	015 / 012	016 / 014	018 / 016	020 / 018	022 / 020	022 / 018	025 / 022	028 / 025	031 / 028
010 / 008	0,48 / 0,56								
012 / 010	0,46 / 0,53	0,50 / 0,53					BDAD -1 / BDAD -10		
015 / 012		0,53 / 0,53	0,53 / 0,60						
016 / 012			0,52 / 0,61	0,64 / 0,62					
016 / 014			0,55 / 0,55	0,63 / 0,64					
018 / 016				0,60 / 0,64	0,81 / 0,82	0,73 / 0,80			
020 / 016					0,78 / 0,85	0,70 / 0,75	0,99 / 1,11		
020 / 018					0,76 / 0,76	0,69 / 0,70	0,96 / 1,01		
022 / 020							0,94 / 1,01		
022 / 018								0,97 / 0,97	
025 / 020									
025 / 022									
028 / 025									
031 / 025									
031 / 028									

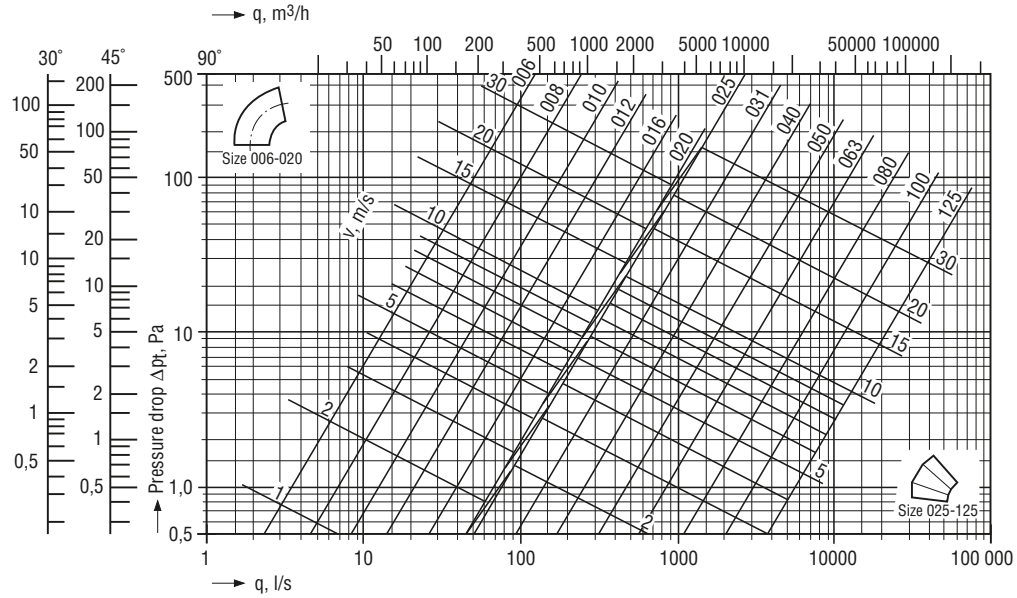
*) outer duct
**) code suffix d look at table on page 13

Pressure drop charts

Type BDEK spiral tube



Type BDEB circular bend



Pressure drop charts

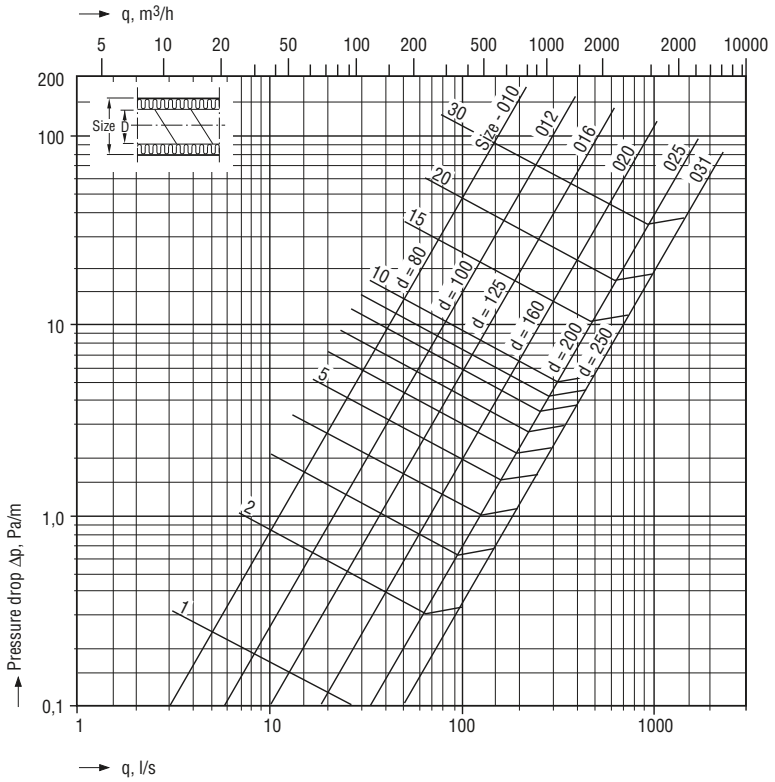
Type BDPK spiral tube, insulated

Type BDPR [1] spiral tube,

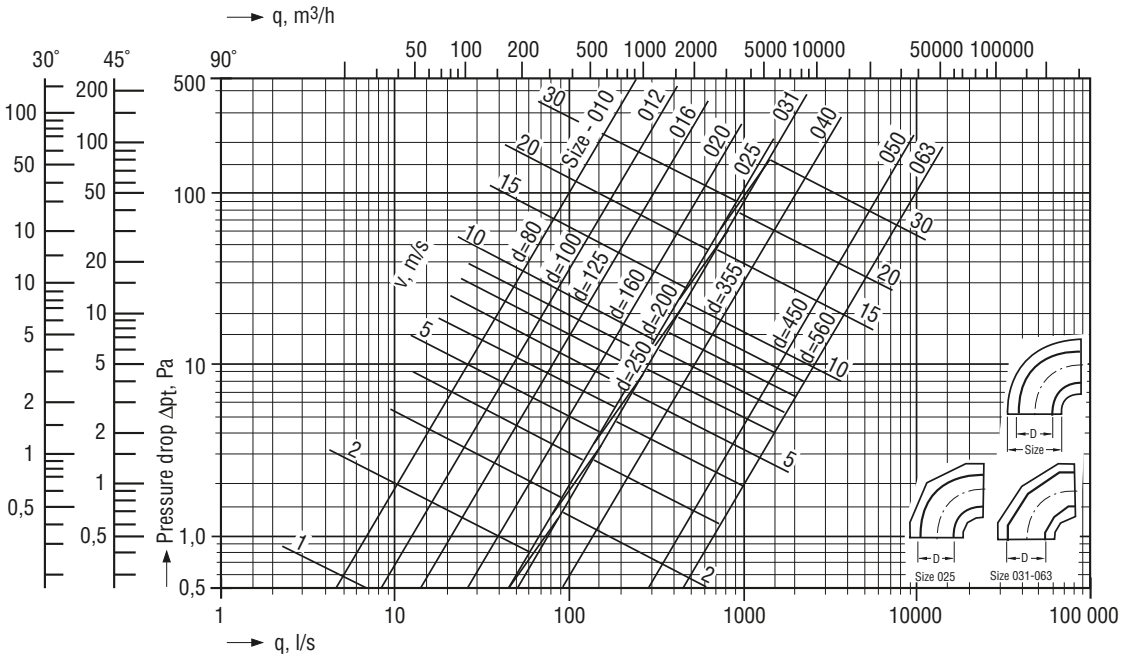
heat and sound insulated

Pressure drop in the BDPR tube is 25% higher than in a tube type BDPK.

[1] The inner tube is perforated.



Type BDAB circular bend, insulated



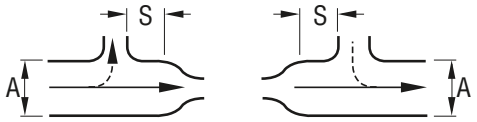
Uninsulated and insulated

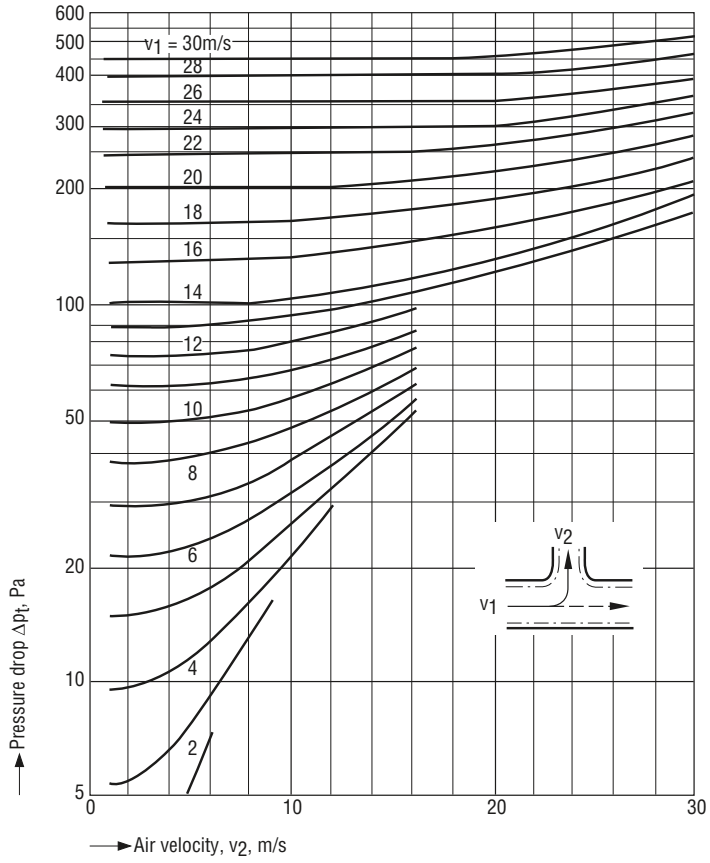
Pressure drop charts

Circular, T-piece, cross

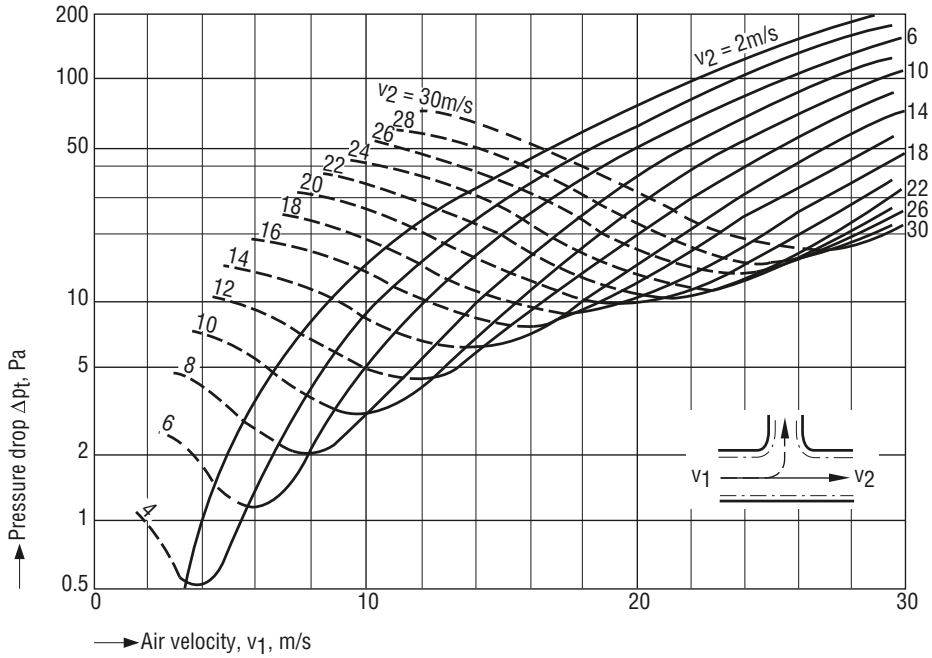
The charts are applicable generally to branches, T-pieces and crosses. The pressure drops include any reductions in diameters in accordance with the figures, provided that S < 3 A.

T-piece BDET and BDAT (insulated)





T-piece BDET and BDAT (insulated)

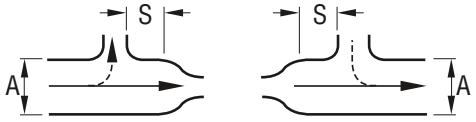


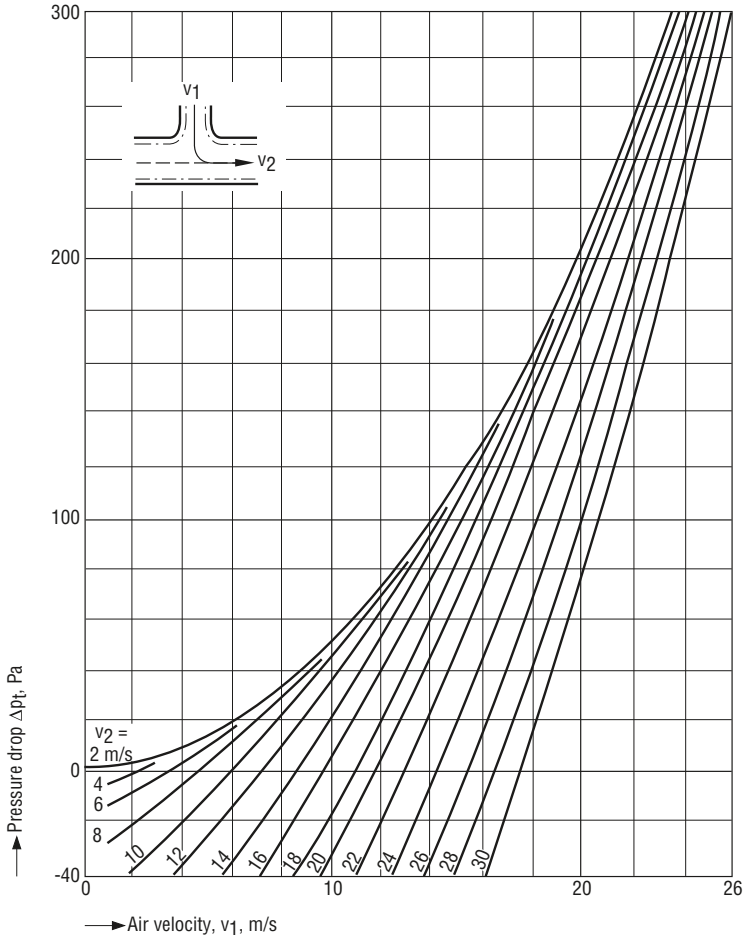
Pressure drop charts

Circular, T-piece, cross

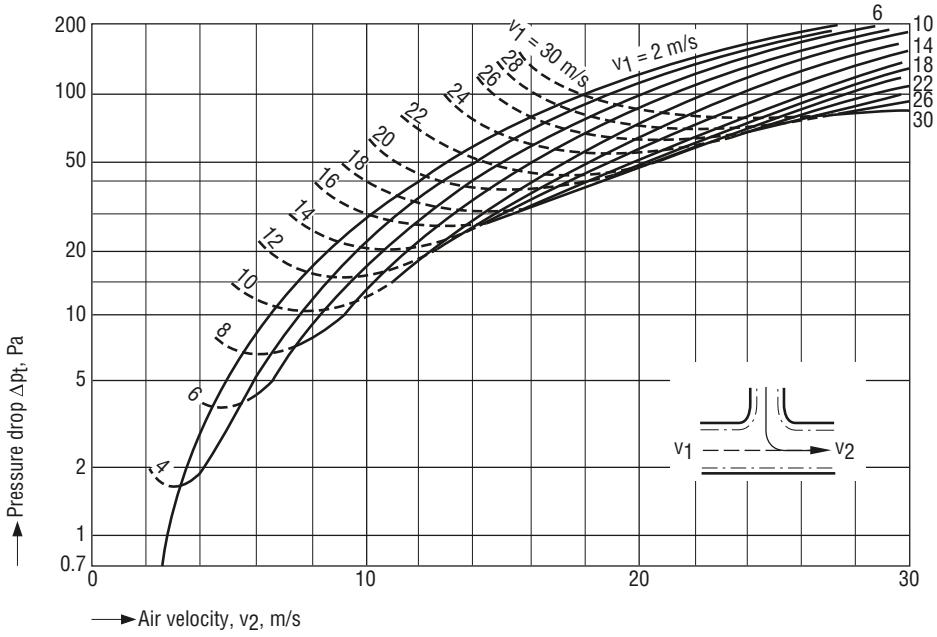
The charts are applicable generally to branches, T-pieces and crosses. The pressure drops include anyreductions in diameters in accordance with the figures, provided that S < 3 A.

Branch BDEA and BDAA (insulated)





T-piece BDET and BDAT (insulated)

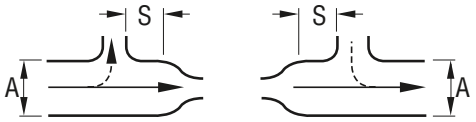


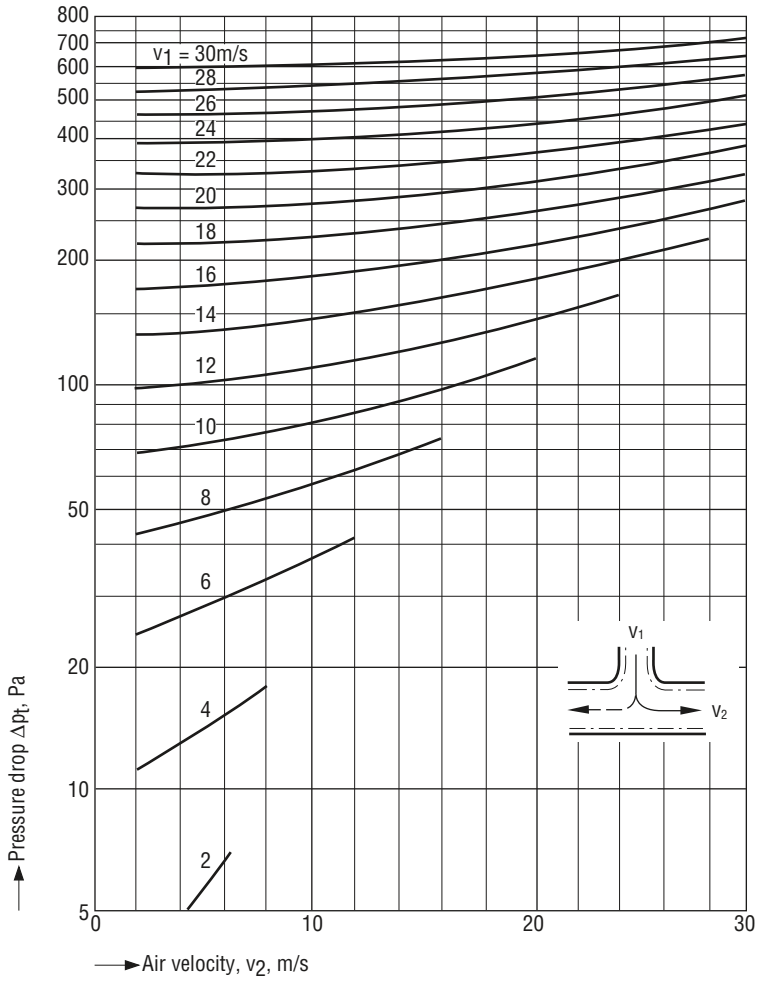
Pressure drop charts

Circular, T-piece, cross

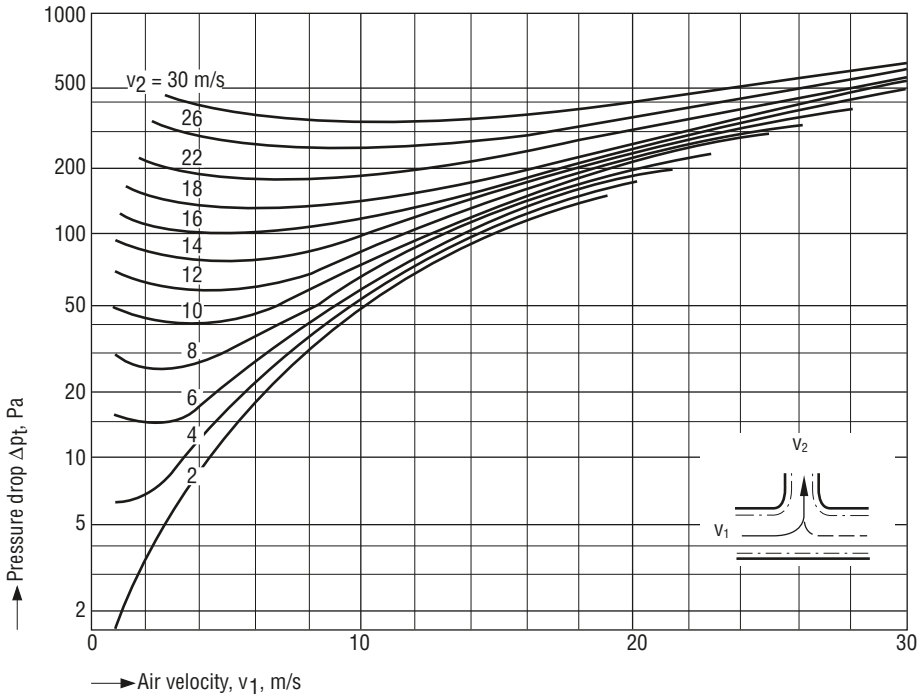
The charts are applicable generally to branches, T-pieces and crosses. The pressure drops include any reductions in diameters in accordance with the figures, provided that S < 3 A.

T-piece BDET and BDAT (insulated)





T-piece BDET and BDAT (insulated)

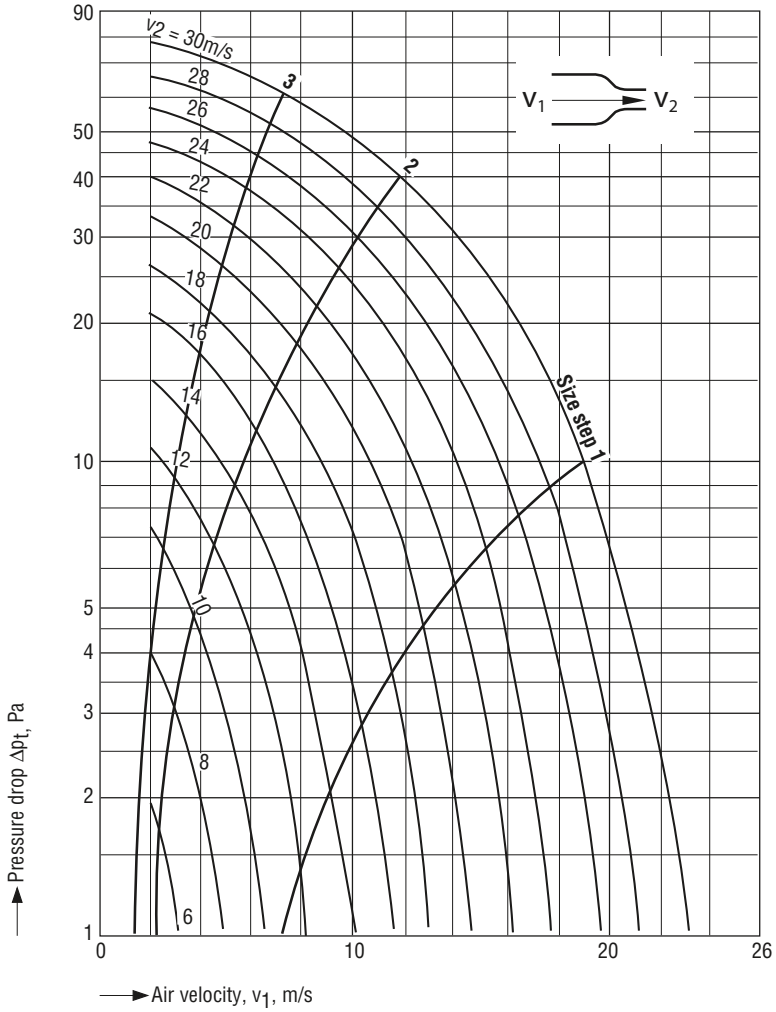


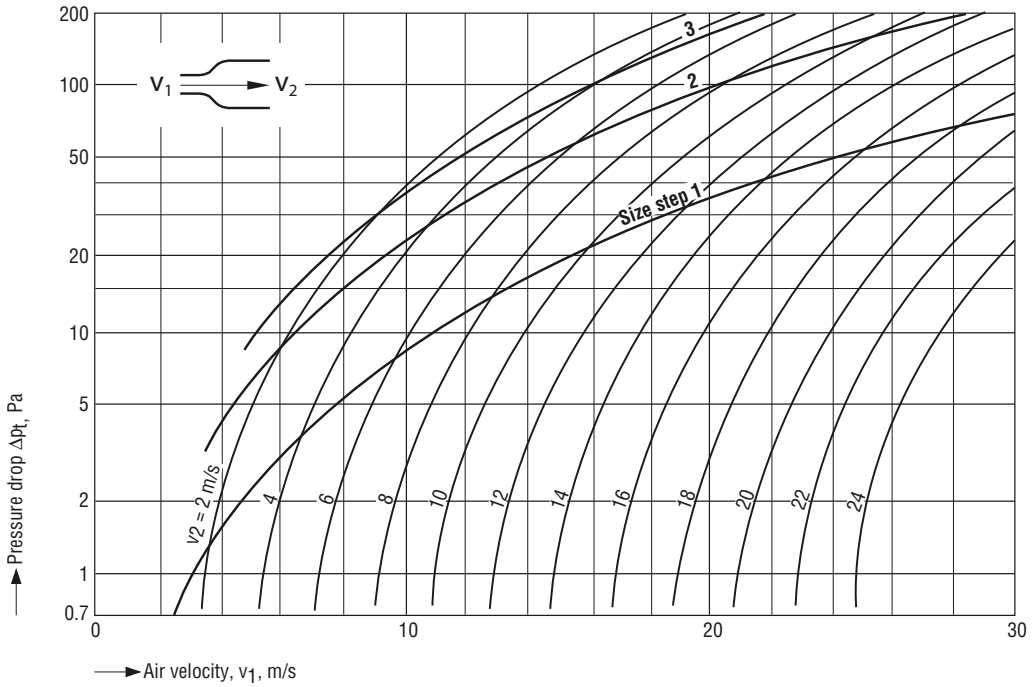
Pressure drop charts

Reducer BDED and BDAD (insulated)

Example:

Size reduction from 020 to 016 = 1 size step.

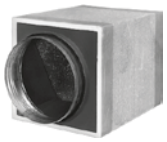




Uninsulated and insulated

Content

Accessories

		Type BDE Uninsulated			Type BDA Insulated		
		Joint	Designation	Page	Joint	Designation	Page
	Non-return damper	I	BDGP-2 [6]	44	I	BDGP-2	44
	Damper, adjustment and shut-off	I	BDEP	45	I	BDAP	45

Accessories

		Joint	Designation	Page
	Sound absorber	I	BDER	43
	Damper regulation and measuring	I	IRIS IRIS-H	52
	Damper, regulation and shut-off		SPB SPC	53
	Plenum box		ATTC	61
	Ceiling diffusers		RMKO RMKP	64

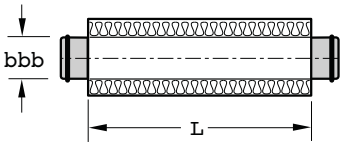
1) F = "fit-on" dimension
I = insertion dimension
2) BDPK – heat-insulated
BDPR – heat and sound insulated and with the inner duct wall perforated for sound absorption.
3) "Fit-on" dimension in one end and insertion dimension in the other.
4) Non-insulated.
5) Insertion dimension in both ends.
6) Insulated.

Content

Accessories

Accessories

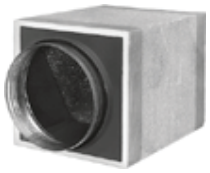
Sound absorber, type BDER-aa-bbb-ccc

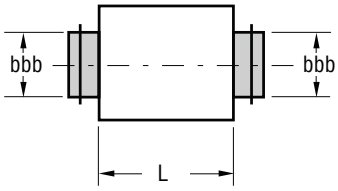


Main tube, code suffix bbb

bbb	008	010	012	016	020	025	031	040	050	063
	For further particulars, see page 35.									
L	L=ccc, see the table on page 35.									

Non-return damper, type BDGP-2-bbb

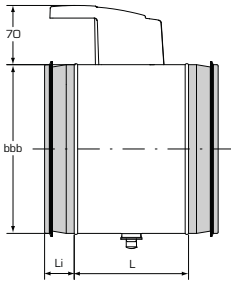




Main tube, code suffix bbb

bbb	008	010	012	016	020	025	031
	For further particulars, see page 36.						
L	185	205	235	275	320		

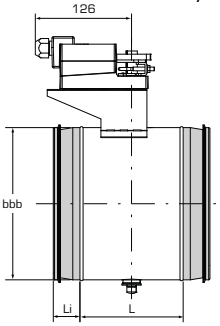
Air flow adjustment damper, type BDEP-1-bbb-1
Air flow adjustment and shut-off damper, type BDEP-4-bbb-1



Main tube, code suffix bbb

bbb	008	010	012	016	020	025	031	040	050	063
	For further particulars, see page 37.									
L			135			125			160	

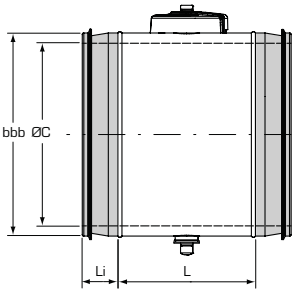
Adjustment or shut off damper with motor, type BDEP-13-bbb-ccc, BDEP-19-bbb-ccc, BDEP-10-bbb-ccc



Main tube, code suffix bbb

bbb	008	010	012	016	020	025	031	040	050	063
	For further particulars, see page 41.									
L			135			125			160	

Air insulated adjustment and shut off damper, type BDAP-1 -bbb, BDAP-4 -bbb



Recommended sizes

Main tube*, code suffix bbb

bbb	008	010	012	016	020	025	031
	For further particulars, see page 43.						
L			135			125	

Additional sizes

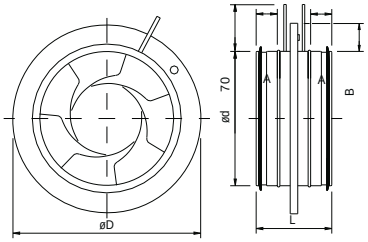
Main tube*, code suffix bbb-c

bbb	015-1	016-4	018-1	020-1	022-1	022-4	025-4	028-1	031-4
L			135					125	

*) outer tube

Accessories

IRIS Regulation and measuring damper



Main tube, code suffix bbb

bbb	008	010	012	016	020	025	031	040	050	063
	For further particulars, see page 44.									
L	120	110	110	110	110	132	132	155	170	170

SPB, SPC Regulation and shut off damper

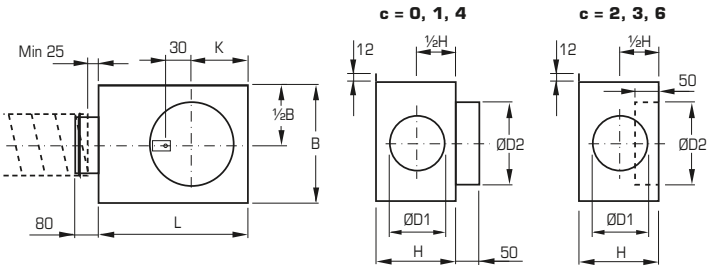
SPB	For further particulars, see page 45.
Width W	200 - 2500 mm
Height H	200 - 2600 mm
W x H	max, 5m²

SPC	For further particulars, see page 50.
Width W	200 - 1400 mm
Height H	200 - 1000 mm

Accessories

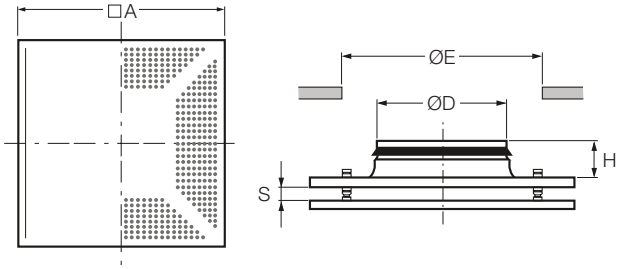
ATTC Plenum box

ATTC	For further particulars, see page 75.
Width L	320 - 700 mm
Height B	320 - 570 mm



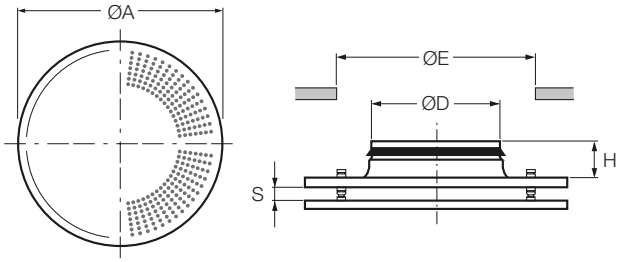
RMKO, RMKP Ceiling diffusers

RMKO, RMKP	For further particulars, see page 78.
□ A	230, 280, 370, 480, 595 mm
ØD	125 - 400 mm



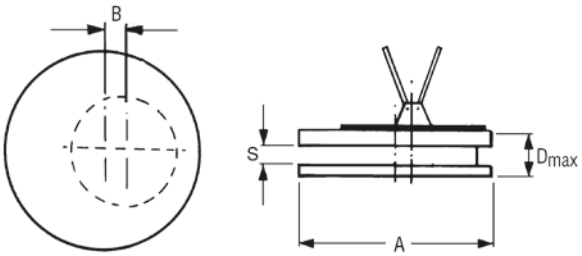
RMRO, RMRP Ceiling diffusers

RMRO, RMRP	For further particulars, see page 84.
ØA	210 - 550 mm
ØD	125 - 400 mm



CTPB Ceiling diffuser

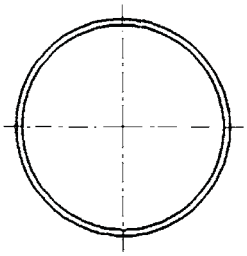
CTPB	For further particulars, see page 90.
Size	125, 160 mm
ØA	200, 250 mm

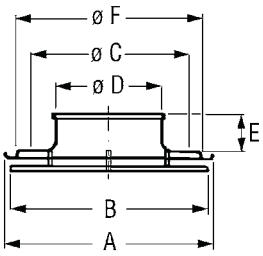


Accessories

CTUR Air diffuser

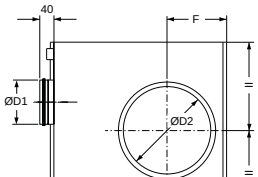
CTPB	For further particulars, see page 94.
ØA	230 - 570 mm
ØD	125 - 500 mm

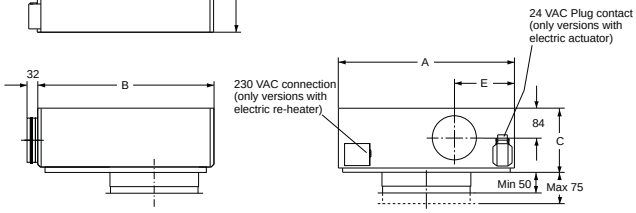




MCSA Air supply unit

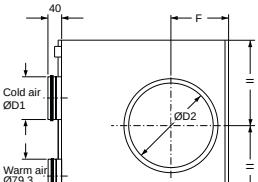
MCSA	For further particulars, see page 98.
A x B	425x425 / 495x495 mm
Height C	180 mm

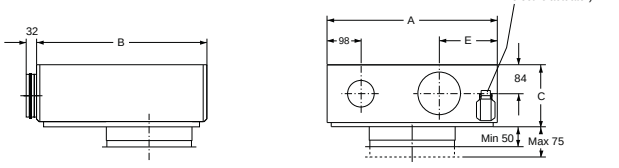




MCDA Air supply unit

MCDA	For further particulars, see page 105.
A x B	425x425 / 495x495 mm
Height C	180 mm





FläktWoods

Cleanvent

The unique Cleanvent coating keeps dirt away!

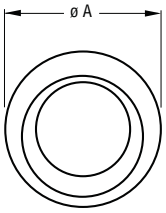
Fläkt Woods proudly presents the unique Cleanvent –nanocoated air terminal devices. The crystal clear choice when cleanliness and energy savings are essential.

- Reduces the need for cleaning
- Easy to clean
- Hygienic ventilation
- Better life cycle cost

www.flaktwoods.com

Accessories

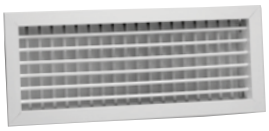
KGEB Exhaust valve

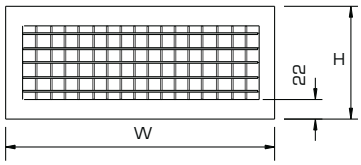


Main tube, code suffix bbb

bbb	008	010	012	016	020	025	031	040	050	063
	For further particulars, see page 112.									
A		130	155	190						

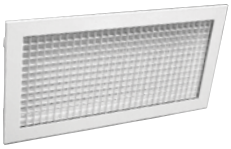
SV2 Grille

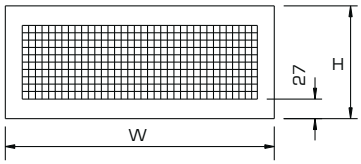




SV2	For further particulars, see page 116.
Width W	200 - 1200 mm
Height H	100 - 500 mm

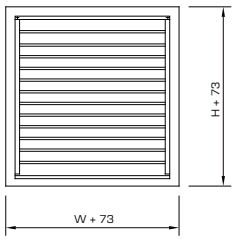
USR Grille

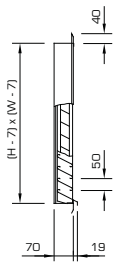




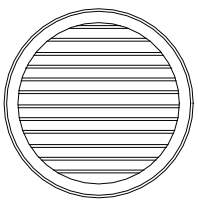
USR	For further particulars, see page 120.
Width W	200 - 1000 mm
Height H	100, 150, 200 mm

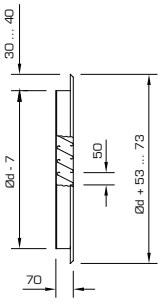
RIS External louvre





RIS	For further particulars, see page 124.
Width W	200 - 1600 mm
Height H	200 - 1200 mm





BDER tubular sound absorber

The BDER tubular sound absorber is designed for connection to round spiral tubes and tube fittings with standard dimensions. The sound absorber has an insertion dimension at both ends. Higher sound attenuation is available by connecting two or more sound absorbers in series.

Fig. 8

Sound attenuation, dimensions and weights

aa	BDER Size– length bbb–ccc	Thick-ness of wall	Attenuation, dB Mid-frequency, Hz								Dimension in mm			Wgt.
											conn. diam.	ext. diam.	length	
	cm	t, mm	63	125	250	500	1000	2000	4000	8000	d	D	L	kg
30	008–030	50	6	4	9	20	24	28	35	17	80	200	300	1,7
	–060		9	5	13	31	38	41	41	23	80	200	600	3,0
30	010–030	50	4	5	8	17	20	26	30	16	100	200	300	1,8
	–060		11	7	12	29	37	45	42	23	100	200	600	3,0
	–090		11	9	17	39	44	47	45	29	100	200	900	4,7
	–120		11	11	21	40	49	48	46	31	100	200	1200	5,9
60	010–030	100	10	2	11	14	17	24	29	17	100	300	300	3,4
	–060		16	12	20	27	33	43	44	24	100	300	600	6,0
	–090		18	16	27	35	44	47	46	27	100	300	900	8,6
	–120		18	21	30	36	43	47	45	32	100	300	1200	12,7
30	012–030	50	3	5	6	14	16	21	21	14	125	225	300	2,2
	–060		4	7	10	25	30	39	36	19	125	225	600	3,9
	–090		6	8	13	35	44	47	45	24	125	225	900	5,5
	–120		5	9	17	40	47	48	47	31	125	225	1200	7,0
60	012–030	100	3	7	8	12	15	20	22	14	125	315	300	4,1
	–060		8	11	15	23	29	38	37	21	125	315	600	7,5
	–090		10	14	21	33	42	49	45	26	125	315	900	10,7
	–120		13	17	27	39	49	49	48	32	125	315	1200	13,3
30	016–030	50	1	2	4	11	13	20	16	12	160	260	300	2,5
	–060		3	5	7	21	24	35	27	17	160	260	600	4,6
	–090		6	6	9	30	36	46	33	21	160	260	900	6,2
	–120		6	6	12	33	42	45	40	25	160	260	1200	8,2
60	016–030	100	2	5	6	9	12	19	17	13	160	355	300	4,8
	–060		5	7	13	17	22	33	28	18	160	355	600	9,0
	–090		9	10	21	28	34	47	34	21	160	355	900	12,3
	–120		11	13	24	34	43	49	42	26	160	355	1000	16,0
30	020–060	50	3	3	6	19	22	30	20	16	200	300	600	5,2
	–090		7	5	9	26	29	42	27	20	200	300	900	7,7
	–120		7	6	11	34	37	50	33	23	200	300	1200	10,0
60	020–060	100	7	6	13	17	20	29	21	16	200	400	600	10,1
	–090		9	9	20	23	29	43	26	19	200	400	900	14,3
	–120		11	11	25	31	36	48	33	23	200	400	1200	18,9
30	025–060	50	7	2	4	15	18	25	17	16	250	355	600	6,5
	–090		6	3	6	21	26	34	21	19	250	355	900	9,1
	–120		6	4	8	28	34	41	25	22	250	355	1200	12,0
60	025–060	100	9	4	10	12	15	25	19	17	250	450	600	11,7
	–090		8	7	15	19	24	34	22	20	250	450	900	16,3
	–120		10	8	19	25	30	38	26	22	250	450	1200	21,8
30	031–060	50	1	2	4	12	16	19	15	14	315	415	600	7,9
	–090		3	3	5	18	24	25	17	16	315	415	900	11,0
	–120		3	3	7	20	26	30	20	17	315	415	1200	17,3
60	031–060	100	2	5	8	12	16	19	15	14	315	515	600	13,5
	–090		4	6	12	17	23	26	18	16	315	515	900	19,8
	–120		5	7	16	19	27	30	21	17	315	515	1200	25,9
30	040–090	50	2	2	6	20	22	21	18	15	400	500	900	18,0
	–120		3	2	7	25	29	25	21	17	400	500	1200	22,8
60	040–090	100	4	7	11	19	22	21	19	15	400	630	900	29,0
	–120		5	9	15	24	27	25	21	17	400	630	1200	36,2
30	050–090	50	3	1	5	19	19	13	15	11	500	630	900	24,2
	–120		3	2	7	23	24	17	17	12	500	630	1200	31,2
60	050–090	100	4	6	8	16	18	15	16	11	500	711	900	33,4
	–120		4	8	11	21	23	18	18	13	500	711	1200	42,6
60	063–090	100	3	3	6	13	13	12	7	7	630	812	900	38,0
	–120		5	5	8	16	16	14	9	9	630	812	1200	48,2

Design

The sound absorber consists of a tube of perforated sheet steel enclosed in a casing and end plates made of sheet steel. The space between the tube and the casing is filled with mineral wool.

Materials and finish

The sound absorber is made of galvanised sheet steel.

Pressure drop

The pressure drop is calculated as for a straight duct of the same diameter.

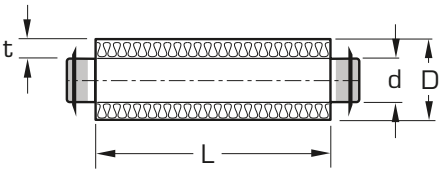


Fig. 9

Product code

Tubular sound absorber

BDER-aa-bbb-ccc

30 (t = 50 mm)
60 (t = 100 mm)

Connection dimension, cm (bbb):
See table of dimensions

Length, cm (ccc):
See table of dimensions

BDGP-2 non-return damper

The non-return damper is made of galvanised sheet steel. The outside of the damper is provided with glass woll thermal insulation. The damper is provided with circular connection branches with factory-fitted rubber seals. The damper blade is made of aluminium. The underside of the casing is in the form of an inspection cover.

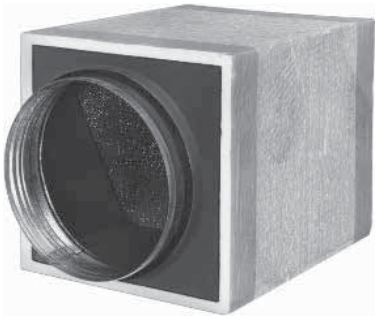


Fig. 10

Size bbb	A	B	C [1]	D	Weight, kg
008	185	140	80	120	0.9
010	205	160	100	140	1.2
012	235	185	125	165	1.5
016	275	220	160	200	2.0
020	320	260	200	240	2.8

[1] Nominal diameter
[2] Thickness of insulation

Product code

Non-return damper **BDGP-2-bbb**

Size (bbb)
See table of dimensions

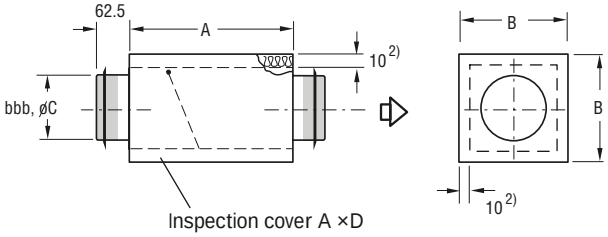


Fig. 11

BDEP damper

The type BDEP damper is designed for connection to spiral tubes and is equipped with VELODUCT seals. The damper has insertion dimensions in accordance with European Standard EN 1506. The damper is available in the following versions:

BDEP-1 Adjustment damper, leakage class 0
BDEP-4 Adjustment and shut-off damper, leakage class 4

Design

The damper consists of a cylindrical casing and a damper blade. The blade damper is manually operated and is equipped with a graduated scale for indicating the damper blade angle.

On dampers up to and including size 031, a knob is provided for adjusting the damper blade angle, on larger sizes a lever is provided. The blade angle can be locked by means of a screw.

Also motorized versions are available for the BDEP-1 and -4 dampers (see under "Motorized damper"). The torque necessary for operating sizes 008–012 dampers is 2 Nm, and that for other sizes is 8 Nm.

Size 040 - 063 dampers are suitable as standard for ducts with 50 mm thick external insulation. For sizes 008 - 031 there is snap-on extension handle BDEZ-06 available for ordering when insulation is needed.

Materials and finish

Shaft bearings, knobs and levers:	Glass-fibre reinforced nylon.
Other parts:	Galvanized sheet steel.

Packaging

The damper is delivered in unpacked condition.

BDEP-1 and -4 Sizes 008–031

BDEP-1 and -4 Sizes 040–063

Fig. 12

Product code

Damper **BDEP-a-bbb-1**

Version (a)

1 = Adjustment damper
4 = Adjustment and shut-off damper

Sizes (bbb)

008, 010, 012, 016, 020, 025, 031, 040, 050, 063

Accessories

Extension handle **BDEZ-06**

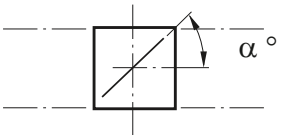
for sizes 008–031 with 50 mm external insulation

BDEP damper

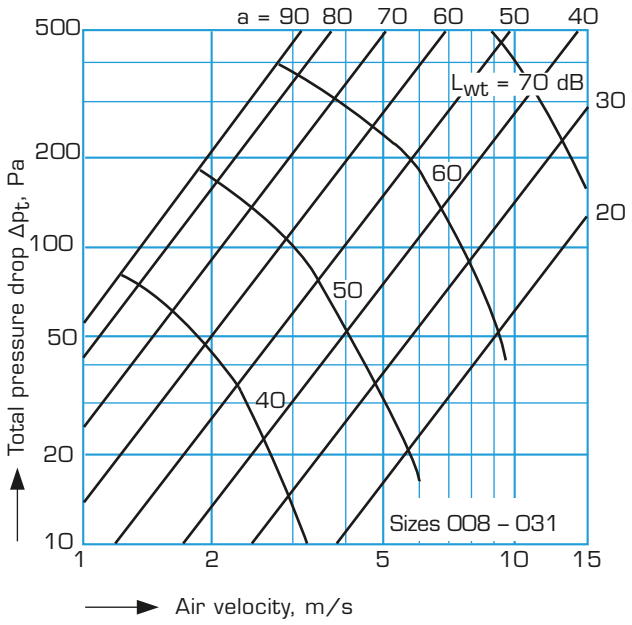
Pressure drop and sound data

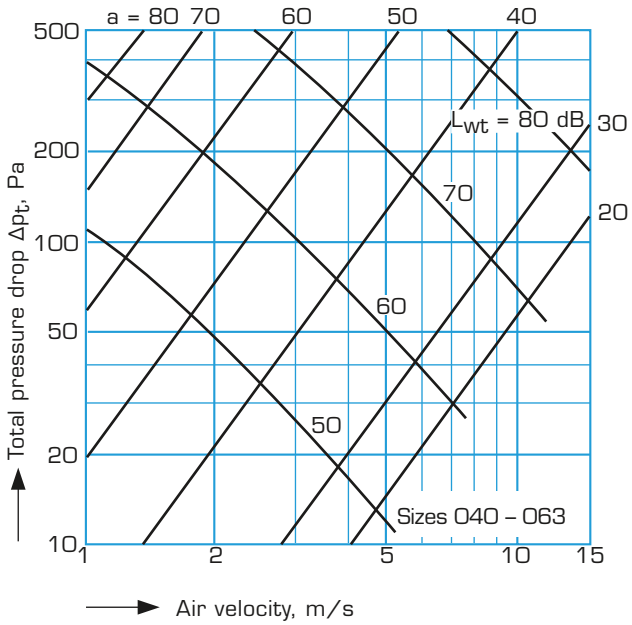
General

α = blade angle



BDEP-1 adjusting damper





Sound data

The sound power level, L_W, emitted to the connected duct can be converted to octave bands as follows:

$$L_W = L_{Wt} + K_1 + K_2$$

where L_{Wt}, K_1 and K_2 can be read from the tables and the charts below.

K_1 as a function of size

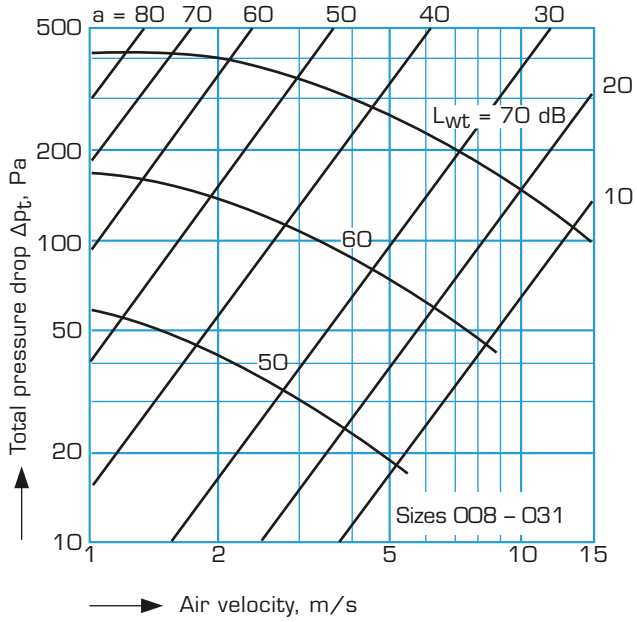
Size	008	010	012	016	020	025	031	040	050	063
K_1, dB	–2	–2	–1	0	+1	+2	+3	+4	+5	+6

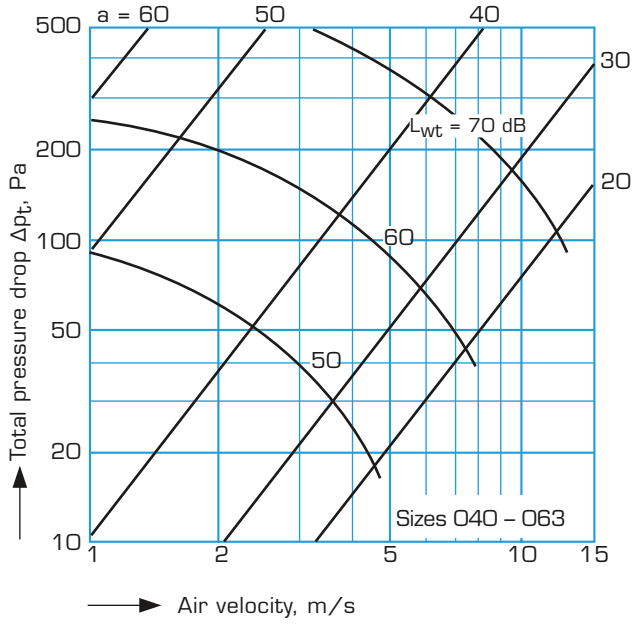
K_2 as a function of the blade angle

Size	Blade angle	K_2, dB Octave band, mid-frequency, Hz						
	α °	125	250	500	1000	2000	4000	8000
	20	–1	–10	–16	–18	–22	–26	–31
	30	0	–9	–15	–17	–20	–24	–30
	40	–1	–8	–13	–14	–13	–14	–21
008–031	50	–3	–6	–11	–12	–10	–11	–17
	60	–5	–4	–8	–10	–13	–14	–19
	70	–4	–5	–8	–10	–13	–15	–21
	80	–4	–5	–9	–11	–14	–17	–23
	90	–3	–6	–9	–11	–14	–18	–25
	20	0	–15	–19	–21	–25	–29	–33
	30	0	–15	–19	–21	–24	–28	–32
	40	–4	–14	–16	–15	–18	–21	–25
040–063	50	–7	–13	–14	–11	–11	–14	–18
	60	–11	–12	–11	–6	–5	–8	–11
	70	–14	–13	–12	–6	–5	–8	–12
	80	–17	–15	–12	–5	–5	–8	–12

BDEP damper

BDEP-4 adjusting and shut-off dampers





K_2 as a function of the blade angle

Size	Blade angle	K_2, dB Octave band, mid-frequency, Hz						
	α °	125	250	500	1000	2000	4000	8000
008–031	10	0	–12	–15	–22	–27	–32	–37
	20	0	–9	–14	–20	–26	–30	–36
	30	–2	–7	–12	–17	–20	–23	–29
	40	–4	–7	–12	–15	–12	–8	–8
	50	–4	–6	–8	–12	–14	–17	–22
	60	–6	–4	–10	–16	–18	–22	–25
	70	–7	–2	–13	–23	–27	–35	–42
	80	–13	–1	–16	–24	–28	–36	–45
040–063	20	0	–16	–18	–24	–27	–31	–33
	30	0	–13	–16	–20	–21	–26	–29
	40	–1	–10	–13	–17	–16	–20	–24
	50	–5	–11	–12	–13	–11	–15	–19
	60	–12	–13	–13	–9	–6	–11	–13

BDEP damper

Dimensions and weights

BDEP-1, -4

Sizes 008–031

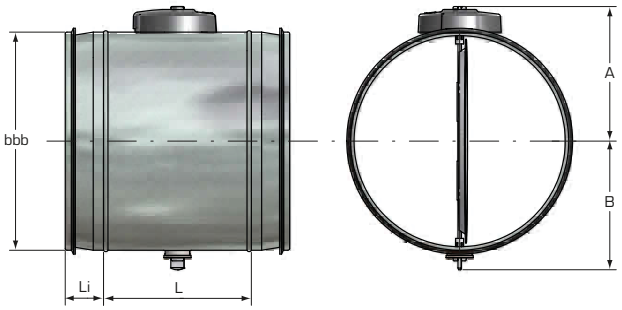


Fig. 13

Sizes 040–063

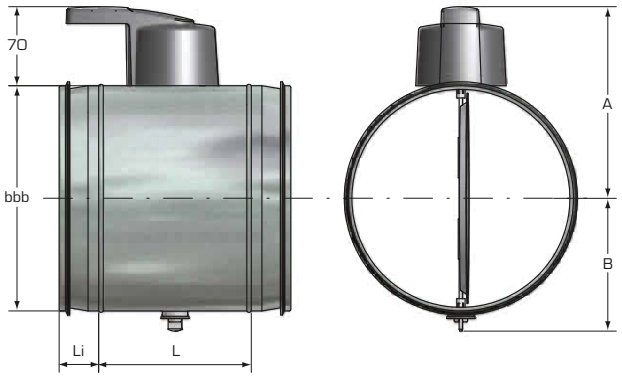


Fig. 14

Size bbb	L	A	B	Weight, kg
008	135	65	40	0.30
010	135	75	50	0.34
012	135	85	65	0.42
016	135	105	100	0.46
020	135	125	120	0.82
025	125	150	145	1.2
031	125	180	175	1.5
040	160	270	220	2.7
050	160	320	270	3.9
063	160	385	335	5.2

BDEZ-06 Extension handle

for sizes 008-031 with 50 mm external insulation

Fig. 15

BDEP Motorized damper

The damper is available in the following versions with respect to the tightness classes in accordance with the European standard EN 1751.

Adjusting dampers, leakage class 0

BDEP-10 Motor mounting bracket, universal
Motor shaft Ø15, excl. motor
BDEP-13 Type LM...A ON/OFF motor
BDEP-19 Type SM...A ON/OFF motor

Shut-off dampers, leakage class 4

BDEP-40 Motor mounting bracket, universal
Motor shaft Ø15, excl. motor
BDEP-43 Type LM...A ON/OFF motor
BDEP-49 Type SM...A ON/OFF motor
BDEP-46 Type AF motor with spring return

Fig. 16

Type LM...A and SM...A motors are reversible ON/OFF units. The motor stops automatically when the adjustable stop on the damper motor is reached. The motor is provided with overload protection which eliminates the neccessity of installing limit switches. On delivery, the adjustible stop on the motor is set for a damper opening of 90°. Type SM230A and SM24A as well as LM230A and LM24A motors may be disenggaged by means of a pushbutton on the casing. The type AF motor is a reversible ON/OFF unit with a pretensioned return spring which operates on loss of power supply. The spring is retensioned when the supply is restored. This unit is delivered with the motor preset to close the damper on loss of power.

Code suffix ccc

Supply voltage
000= no motor, ready for fitting a motor
024= with motor, 24 V
230= with motor, 230 V

Version
aa=10, 13 and 19, see the chart for BDEP-1, on page 36
aa=40, 43, 49 and 46, see the chart for BDEP-4, on page 37

Product code

Damper **BDEP -aa-bbb-ccc**

Version (aa)
Size (bbb)
Supply voltage (ccc)

BDEP Motorized damper

Dimensions and weights

Type LM...A Belimo motor, versions aa = 13 and 43

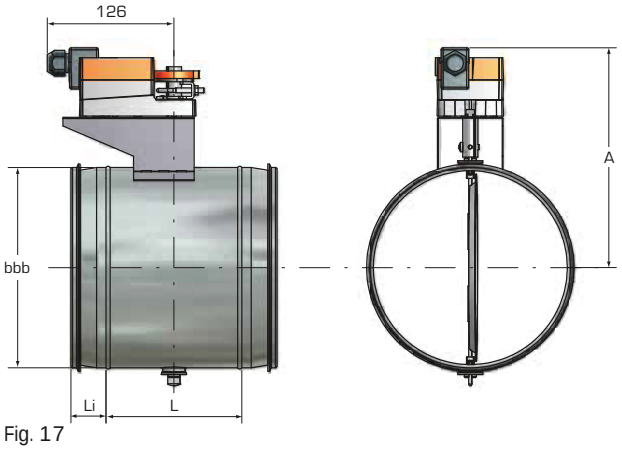


Fig. 17

Size	L	A	Weight, kg	
bbb			Incl.motor	Excl.motor
008	135	160	1.1	0.60
010	135	170	1.2	0.65
012	135	180	1.3	0.75
016	135	200	1.4	1.0
020	135	220	2.0	1.2
025	125	245	2.4	1.6
031	125	280	2.8	2.0

Type SM...A Belimo motor, versions aa = 19 and 49

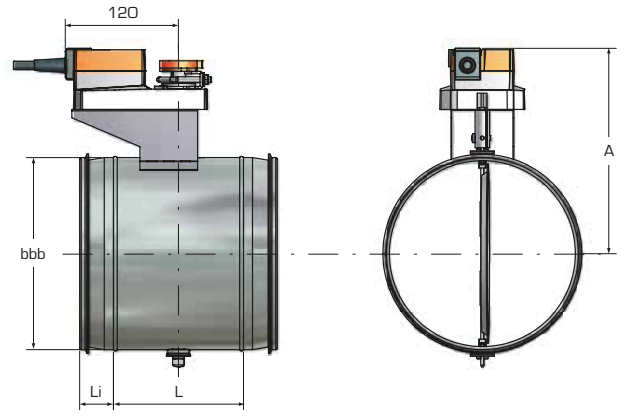


Fig. 18

Size	L	A	Weight, kg	
bbb			Incl.motor	Excl.motor
040	160	315	4.1	3.7
050	160	365	5.5	5.0
063	160	430	6.5	6.0

Type AF Belimo motor, versions aa = 46

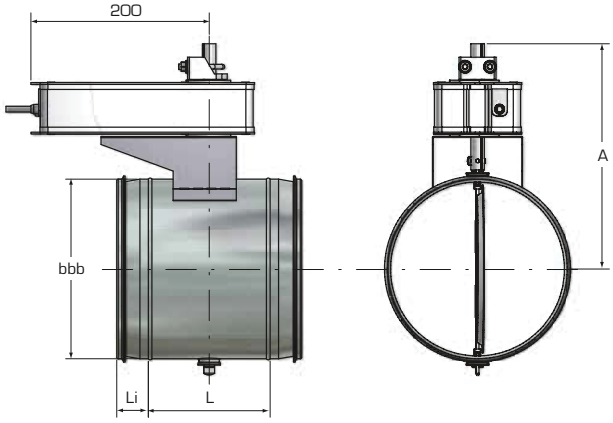


Fig. 19

Size	L	A	Weight, kg	
bbb			Incl.motor	Excl.motor
040	160	350	7.0	3.7
050	160	400	8.3	5.0
063	160	465	9.3	6.0

Damper with motor bracket, universal excl. motor, versions aa = 10 and 40

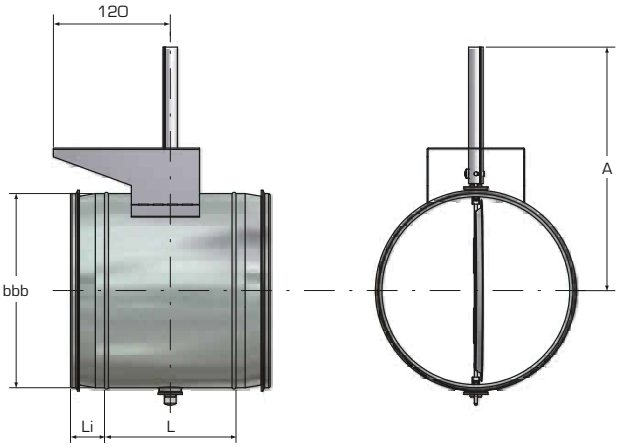


Fig. 20

Size, bbb	L	A	Weight, kg
008	135	190	0,60
010	135	200	0,65
012	135	210	0,75
016	135	230	1,0
020	135	250	1,2
025	125	275	1,6
031	125	310	2,0
040	160	350	3,7
050	160	400	5,0
063	160	465	6,0

BDAP Adjustment and shut off damper

The type BDAP damper is designed for connection to douple-wall spiral tubes, MINIDUCT. The damper is douple-wall design with intervening air insulation and equipped with VELODUCT seals on both outer and inner wall.

BDAP-1 Adjustment damper, leakage class 0 (EN 1751)

BDAP-4 Adjustment and shut-off damper, leakage class 4 (EN 1751)

Fig. 21

Sizes

Recommended sizes: 010, 012, 016, 020, 025, 031.

Both outer and inner diameters are according to European standard EN 1506. We recommend these sizes.

Additional sizes (outer/inner):
015/012, 016/014, 018/016, 020/018, 022/020, 022/018, 025/022,, 028/025, 031/028.

The size designation specifies the diameter of the outside tube in cm. The inner tube is one size smaller concerning recommended sizes (EN 1506).

When choosing additional sizes look at diameters and extra designations in chapter C. “Sizes and Codes”, in the table, on page 13.

Pressure drop and sound data

BDAP-1, see the chart for BDEP-1 on page 36.

BDAP-4, see the chart for BDEP-4 on page 37.

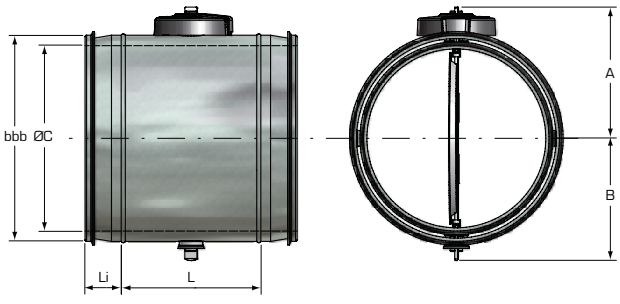


Fig. 22

Dimensions and weights

Recommended sizes

Size	Inner diameter				Weight
bbb	C	L	A	B	kg
010	80	135	75	40	0,6
012	100	135	75	65	0,7
016	125	135	85	80	0,9
020	160	135	105	100	1,3
025	200	125	150	145	2,0
031	250	125	180	175	2,7

Additional sizes

Size	Inner diameter				Weight
bbb - c	C	L	A	B	kg
015-1	125	135	100	75	0,9
016-4	140	135	105	100	1,0
018-1	160	135	115	110	1,2
020-4	180	135	125	120	1,5
022-1	200	135	135	130	1,7
022-4	180	135	135	130	1,6
025-4	224	125	150	145	2,2
028-1	250	125	165	160	2,5
031-4	280	125	180	175	2,8

IRIS Regulation and measuring damper

Construction

The IRIS is composed of regulation plates, regulating nut or handle (size 80) and regulation scale plus manometer connections and casing.

The casing and regulation plates are made of hot-galvanized steel (standard IRIS) or acid-proof steel AISI 316 L (IRIS-aaa-H), other components of plastic. The joining collars are supplied with rubber sealing gasket.

Use

IRIS is an ideal solution for the exact and quick air flow measuring and regulation.

Because of its acid proof material, the IRIS-aaa-H is best suited for premises, where acid proof ducts are used.

Installation

The IRIS damper is secured to the ducting with rivets. For vertical mounting ensure the weight of the interconnecting ductwork is fully supported.

Product code

Regulation and measuring device IRIS-aaa-b

Diameter in mm (aaa)
80 - 800

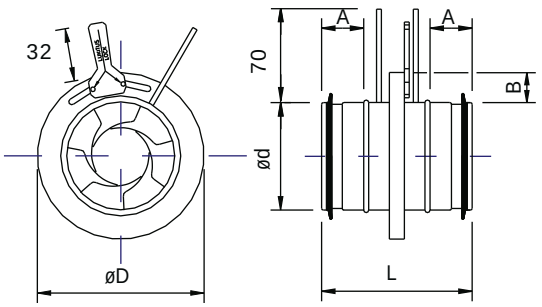
Equipment (b)

1 = IRIS + unit package + spanner (sizes 80–400 mm)
2 = IRIS + spanner (sizes 400–800 mm)

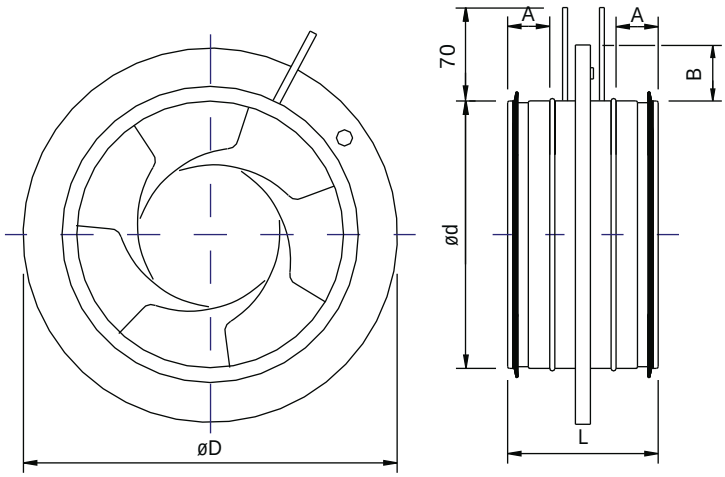
Regulation and measuring device, acid-roof IRIS-aaa-H

Diameter in mm (aaa)
100 - 800

Size 80



Sizes 100...800



Size	ød	øD	L	A	B	Weight kg
80	79	125	120	35	22	0,5
100	99	165	110	30	32	0,5
125	124	188	110	30	32	0,7
150	149	230	110	30	40	0,9
160	159	230	110	30	35	0,9
200	199	285	110	30	42	1,4

Size	ød	øD	L	A	B	Weight kg
250	249	335	132	40	42	2,1
315	314	410	132	40	47	3,5
400	398	525	150	50	62	6,4
500	498	655	150	50	77	9,6
630	628	815	150	50	92	15,6
800	798	1015	285	100	107	25,0

SPB Regulation and shut-off damper

Area of application

Multi leaf dampers are used as regulation, shut-off and mixing dampers in air handling systems and units.

Properties

- SPB-1 regulation damper for balancing air flows
  - leakage class: 1 (CEN)
  - leakage class of casing: B
- SPB-3 regulation and shut-off damper to be used where low leakage is required
  - leakage class: 3 (CEN)
  - leakage class of casing: C
- SPB-3L shut-off damper to be used where low leakage and effective thermal insulation are required
  - leakage class: 3 (CEN)
  - leakage class of casing: C
  - heat transmission Um = 4 W/m^{2}K
- SPB-3LE shut-off damper to be used where low leakage and effective thermal insulation are required also through the casing (dimensions B+160, H+60)
  - leakage class: 3 (CEN)
  - leakage class of casing: C
  - heat transmission Um = 4 W/m^{2}K
- SPB-4L shut-off damper to be used where low leakage and effective thermal insulation are of great importance
  - leakage class: 4 (CEN)
  - leakage class of casing: C
  - heat transmission Um = 4 W/m^{2}K
- SPB-4LE like 3LE, to be used where low leakage is of great importance
  - leakage class: 4 (CEN)
  - leakage class of casing: C
  - heat transmission Um = 4 W/m^{2}K

Installation

The multi leaf dampers are mounted to air handling units and rectangular ducts by means of a slip joint or a flange joint, and to circular ducts with sealed spigots. The drive shaft is the third shaft from the bottom; in two-blade dampers the upper shaft is the driving one.

If the face surface is larger than 5 m^2, the multi leaf damper is put together of two or more units with each having its own actuator.

Note! Regulation and shut off dampers SPB and SPC must be installed so that they are not directly exposed to sea air.

Construction

The casing and blades of a multi leaf damper are made of hot-galvanized steel sheet. The width of the SPB body is 220 mm. The blades are profiled and mechanically jointed and they are linked with a lever mechanism to achieve opposite actions.

The bearings and edges of the blades are made of polyamide, the seals are profiled PVC and EPDM. The material used for thermal insulation is mineral wool. Multi leaf dampers are equipped with a base for motor and an external position indicator.

The normal operating temperature of multi leaf dampers of standard construction varies between -40 °C and +80 °C.

All multi leaf damper types are also available in acid-proof steel or with joint flange.

SPB Regulation and shut-off damper

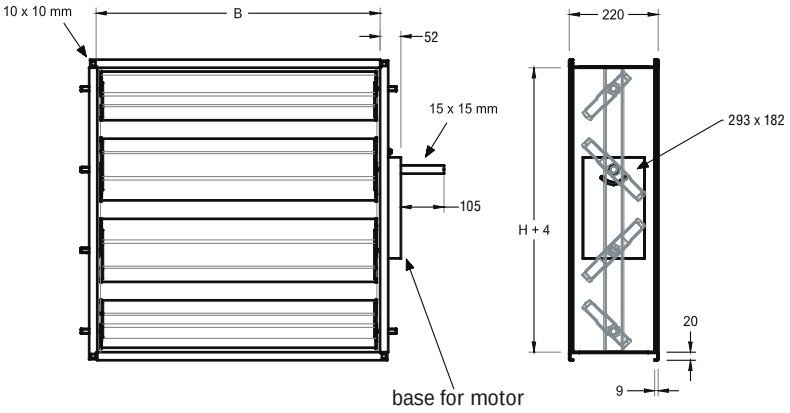
Dimensions

Width	B	200 - 2500 mm
Height	H	200 - 2600 mm
	B x H	max 5 m²

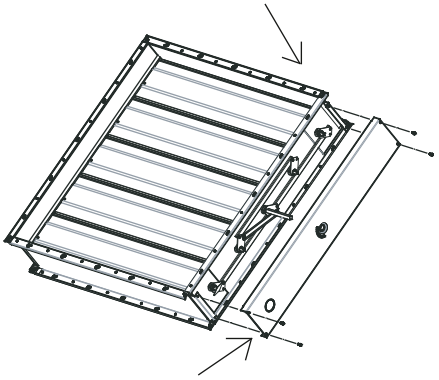
The difference between widths and heights of available damper sizes is 10 mm.

If the face surface is larger than 5 m², the damper is put together of two or more units. Construction and dimensions are agreed on separately.

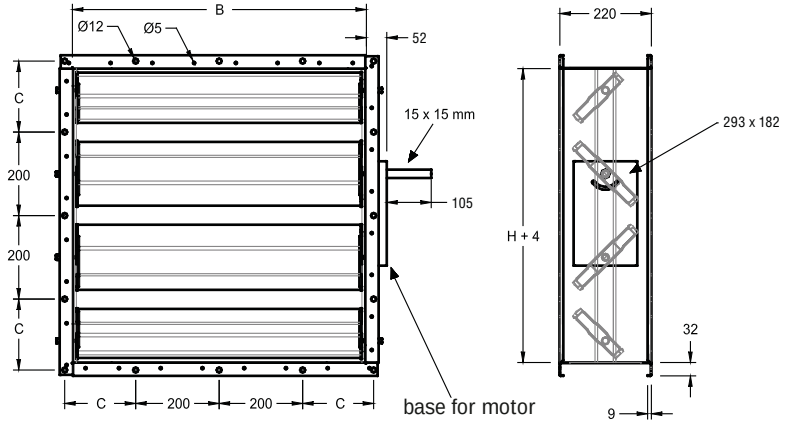
Slip joint



Dampers with flange joints are equipped with Ø5 mm screw holes with 200 mm spacing to enable the mounting e.g. to wall surface without a counterflange.



Flange joint

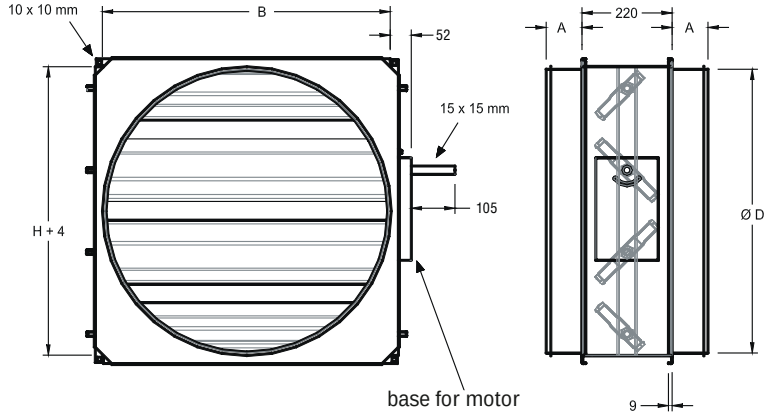


The multi leaf damper is also available with a protective cover for the lever mechanism. The protective cover is attached to the damper with screws, so that it can easily be detached e.g. for installation. The protective cover also serves as base for motor.

C = 120 when H = 200, 400, etc.
C = 170 when H = 300, 500, etc.

Circular joints

Joints to ducts in accordance with SFS 3282.



øD	B x H	A
160	200 x 200	35
200	200 x 200	35
250	300 x 300	45
315	400 x 400	45
400	400 x 400	85
500	500 x 500	70
630	630 x 630	80
800	800 x 800	140
1000	1000 x 1000	140
1250	1250 x 1250	140

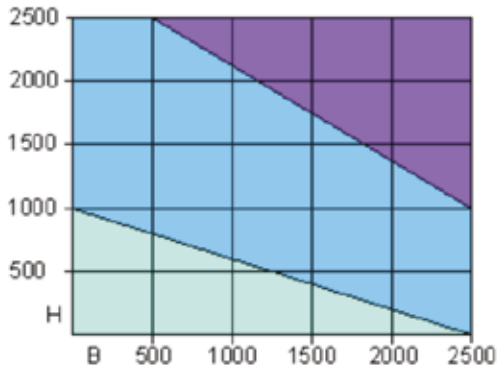
SPB Regulation and shut-off damper

Motor torque

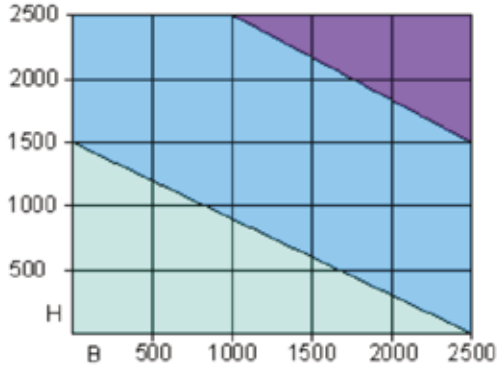
The torque used depends e.g. on the type, width and length of the multi leaf damper, the total length of the sealing surfaces and the mounting method.

The motor torque required for the shut-off function of SPB-3 and SPB-4 and the recommended motor type are shown in the tables below.

SPB4



SPB3



10 Nm ACTUATOR

20 Nm ACTUATOR

30 Nm ACTUATOR

Product code

SPB-XXX - AAA - BBB - C - D - E - F

Product
SPB-1
SPB-3
SPB-3L
SPB-3LE
SPB-4L
SPB-4LE

Nominal size
AAA = nominal width mm
BBB = nominal height mm

Joint
0 = slip joint
1 = flange joint
2 = circular joint (D1)
3 = circular joint on both sides (D2)

Material
0 = galvanized steel
1 = acid-proof steel

Equipment
0 = standard base for motor
1 = protective cover for lever mechanism

Operation
0 = without accessories
1 = manual regulator
2 = regulator with extension, length 1500 mm
3 = damper motor installed (the motor must be ordered on a separate line)

Example

SPB - 3L - 1400 - 1800 - 0 - 0 - 0 - 3

Damper with slip joint, nominal size 1400x1800, hot-galvanized, tightness class CEN 3 (blades thermally insulated), motor base of standard type, damper motor mounted

SPB - 1 - 800 - 1500 - 1 - 1 - 1 - 1

Damper with flange joint, nominal size 800x1500, acid-proof steel, tightness class CEN 1, with control lever casing and manual regulator

SPB Regulation and shut-off damper

Sound power level L_W

CORRECTION K_{oct} (dB)

Medium frequency of octave band (Hz)

SPB	63	125	250	500	1000	2000	4000	8000
	9	4	1	2	-1	-3	-8	-12
Toler.±	5	5	5	4	4	4	4	4

CORRECTION K_A (dB)

Face surface area of damper (m^2)

0,1	0,15	0,25	0,4	0,6	1,0	1,6	2,5	4,0
-10	-8	-6	-4	-2	0	2	4	6

The sound power levels of the duct for every octave band are obtained by adding the corrections K_{oct} of octave bands and K_A of the face surface (see tables above) to the total sound pressure level L_{p10A}, dB(A), according to the following formula:

$$L_{Woct} = L_{p10A} + K_{oct} + K_A$$

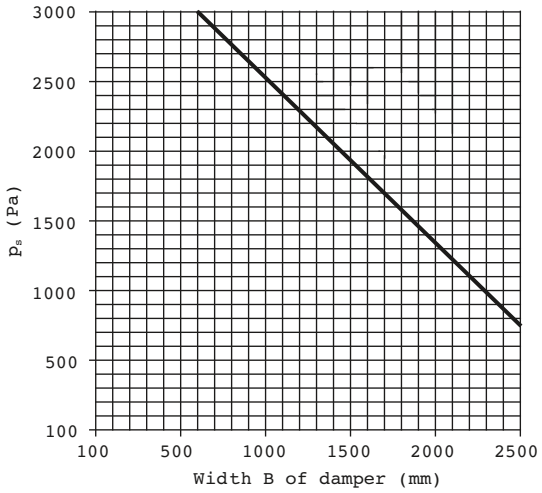
Correction K_{oct} is the average in the area of application of SPB.

Sound power level L_W in duct when damper closed

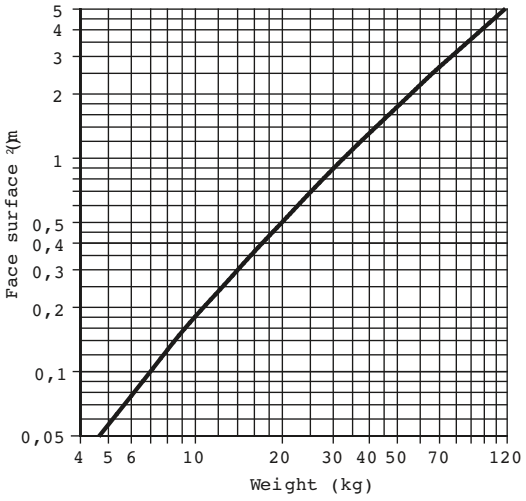
(SPB-3, SPB-3L, SPB-3LE)

Δp	L_W (A = 1 m^2)							
(Pa)	Medium frequency of octave band (Hz)							
	63	125	250	500	1000	2000	4000	8000
500	43	38	43	47	50	53	62	69
1000	43	41	48	52	56	60	67	70

Max. allowable pressure difference



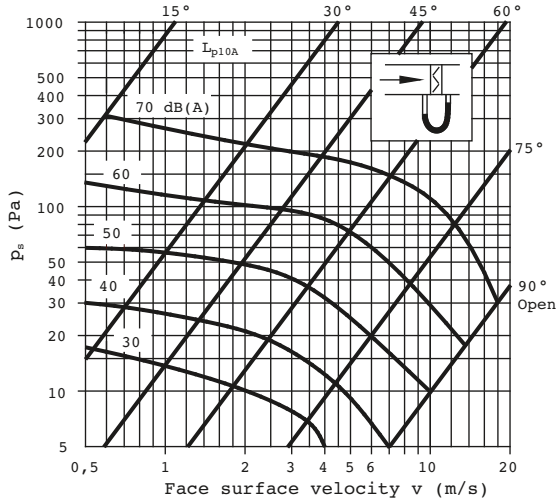
Damper weight



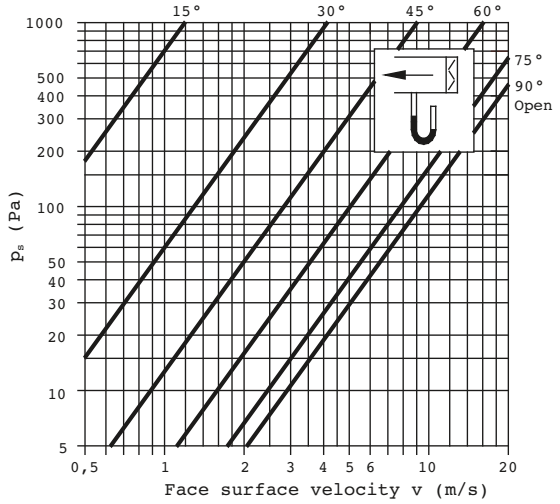
SPB Regulation and shut-off damper

Pressure drop and sound data

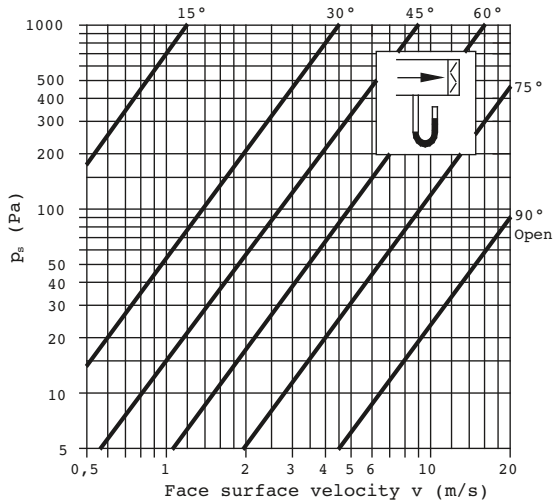
In duct



Duct end, extract



Duct end, supply



SPC Regulation and shut-off damper

Properties

SPC-3

- leakage class: 3 (CEN)
- leakage class of casing: C
- no thermal insulation

SPC-3L

- leakage class: 3 (CEN)
- leakage class of casing: C
- blades thermally insulated with mineral wool
- heat transmission $U_m = 4{,}5\ W/m^2K$

SPC-3LE

- leakage class: 3 (CEN)
- leakage class of casing: C
- blades and casing thermally insulated with mineral wool (outer dimensions B+120, H+60)
- heat transmission $U_m = 4{,}5\ W/m^2K$

SPC-4

- leakage class: 4 (CEN)
- leakage class of casing: C
- no thermal insulation

SPC-4L

- leakage class: 4 (CEN)
- leakage class of casing: C
- blades thermally insulated with mineral wool
- heat transmission $U_m = 4{,}5\ W/m^2K$

SPC-4LE

- leakage class: 4 (CEN)
- leakage class of casing: C
- blades and casing thermally insulated with mineral wool (outer dimensions B+120, H+60)
- heat transmission $U_m = 4{,}5\ W/m^2K$

Area of application

Due to its moderate need for space and its excellent mixing performance, SPC is very well suited e.g. for the mixing damper of an air hamdling unit.

Installation

The damper is mounted to air handling units and ducts by means of a slip joint or a flange joint. The top shaft is the drive shaft.

Construction

The casing and blades are made of hot-galvanised steel sheet. The width of the SPC body is 120 mm with a slip joint and 130 mm with a flange joint. The blades are profiled and mechanically jointed to achieve high strength and they are linked with a lever mechanism to achieve opposite actions. The bearings and edges of the blades are made of polyamide, the seals are profiled PVC and EPDM. The material used for thermal insulation is mineral wool.

The normal operating temperature varies between -40 °C and +80 °C.

This multi leaf damper type is also available in acid-proof steel or with joint flange.

The dampers are equipped with a screw-on cover plate that protects and supports the total length of the gear unit.

The motor base is fixedly installed on the cover plate.

NOTE! Dampers are never delivered without the protective plate.

SPC Regulation and shut-off damper

Product code

SPC-XXX - AAA - BBB - C - D - E - F

Product
SPC-3
SPC-3L
SPC-3LE
SPC-4
SPC-4L
SPC-4LE

Nominal size
AAA = nominal width mm
BBB = nominal height mm

Joint
0 = slip joint
1 = flange joint
2 = circular joint (D1)
3 = circular joint on both sides (D2)

Material
0 = galvanized steel
1 = acid-proof steel

Equipment
1 = protective cover for gear unit + base for motor

Operation
0 = without accessories
1 = manual regulator
2 = regulator with extension, length 1500 mm
3 = damper motor installed (the motor must be ordered on a separate line)

Example

SPC - 3L - 400 - 800 - 0 - 0 - 1 - 3

damper with slip joint, nominal size 400x800, hot-galvanized, tightness class CEN 3 (blades thermally insulated), protective cover for gear unit and base for motor, damper motor mounted

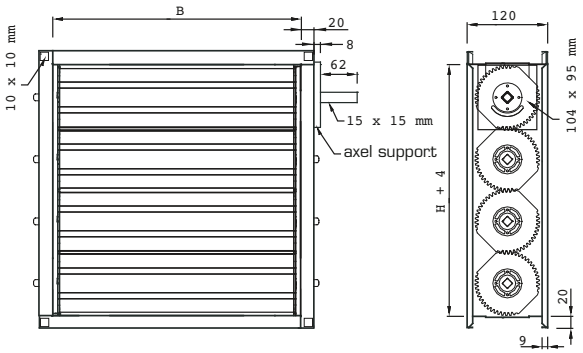
Note!

SPC dampers are always delivered with protective cover for gear unit. Base for motor is mounted on protective cover.

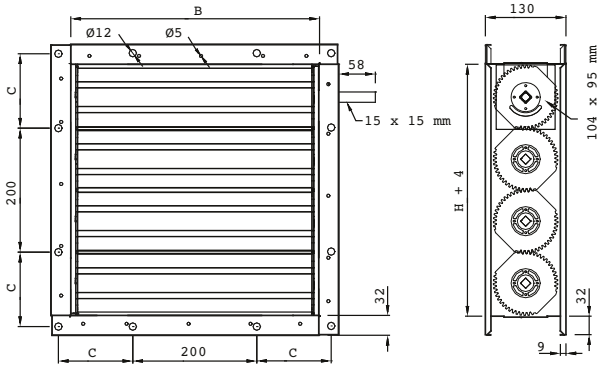
Dimension

Width	B	200 - 1400 mm	in steps of 10 mm
Height	H	200 - 1000 mm	in steps of 10 mm

Slip joint



Flange joint



C = 120 when H = 200, 400, etc.
C = 170 when H = 300, 500, etc.

SPC Regulation and shut-off damper

Sound power level L_W

CORRECTION K_{oct} (dB)

Medium frequency of octave band (Hz)

SPC	63	125	250	500	1000	2000	4000	8000
	6	5	3	1	0	-4	-8	-15
Toler.±	5	5	5	4	4	4	4	4

CORRECTION K_A (dB)

Face surface area of damper (m^2)

0,04	0,06	0,1	0,15	0,25	0,4	0,65	1,0	1,6
-10	-8	-6	-4	-2	0	2	4	6

The sound power levels of the duct for every octave band are obtained by adding the corrections K_{oct} of octave bands and K_A of the face surface (see tables above) to the total sound pressure level L_{p10A}, dB(A), according to the following formula:

$$L_{Woct} = L_{p10A} + K_{oct} + K_A$$

Correction K_{oct} is the average in the area of application of SPC.

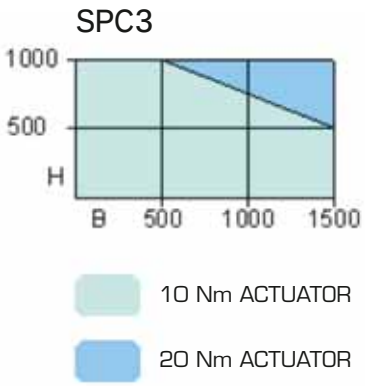
Sound power level L_W in duct when damper closed

Δp	L_W (A = 1 m^2)							
(Pa)	Medium frequency of octave band (Hz)							
	63	125	250	500	1000	2000	4000	8000
500	34	37	41	49	54	56	59	54
1000	43	41	45	53	59	62	65	64

Motor torque

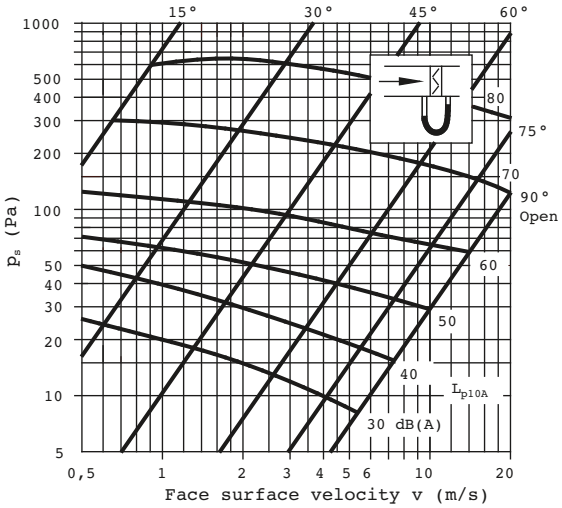
The torque used depends e.g. on the type, width and length of the multi leaf damper, the total length of the sealing surfaces and the mounting method.

The motor torque required for the shut-off function of SPC and the recommended motor type are shown in the table beside.

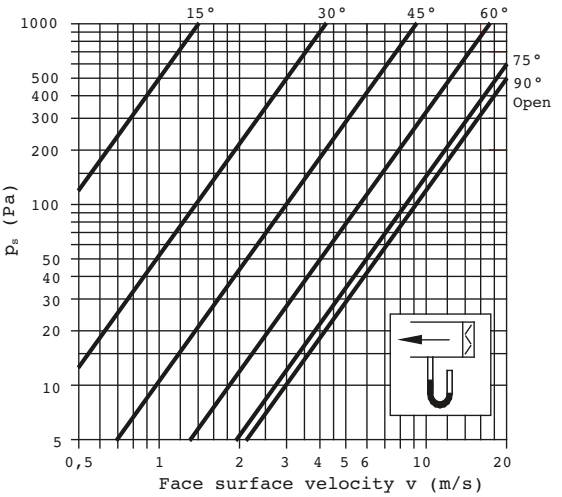


Pressure drop and sound data

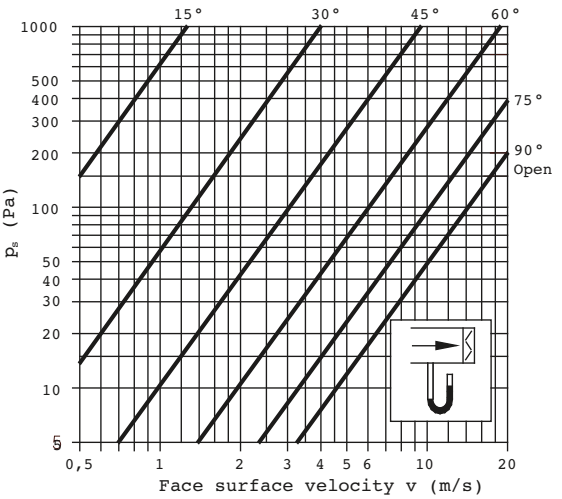
In duct



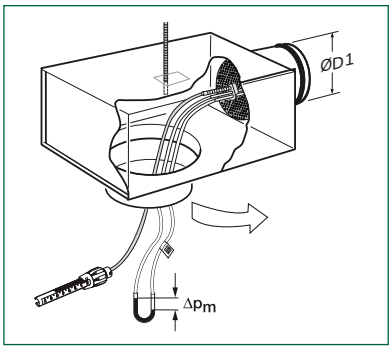
Duct end, extract

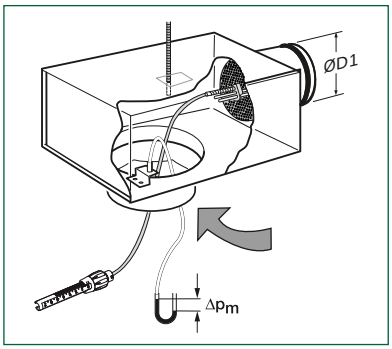


Duct end, supply



ATTC Plenum box





ATTC is a range of plenum boxes for all types of air diffuser. The diffuser connection collar is either inwards or outwards in the plenum box and, thus, the plenum box needs less space. The same ATTC plenum box is applicable for supply and exhaust air alike. In exhaust air use, the position of the measuring hose is changed to the measuring connector inside the box. ATTC is available in two models, insulated and uninsulated. The insulation material used in the insulated box is polyester fibre or glass wool (marine versions). Patented insulation profiles are designed to direct air flow in order to provide an air distribution that is as uniform as possible. They are easy to remove for cleaning.

The patented multipoint measuring of the measurement and adjustment damper enables balanced and accurate values. The adjustment handle of the measurement and adjustment damper has a position indicator and a locking device. For minor damper openings the measurement and adjustment damper features a fine tuning function that is operated by turning the adjustment ring on the adjustment handle. With larger openings the sliding adjustment provides fast settings. The setting is locked by turning the adjustment ring to the locking position. The measurement and adjustment damper can be easily dismantled for inspection and cleaning without changing the setting of the damper. The adjusting cable has k-factors for different installations (supply air) so that the box can be connected directly to an elbow. For k-factors for exhaust air, see adjustment instructions for the respective device.

For installation purposes, the plenum box is provided with a quick bracket for a threaded bar. The range of duct connection diameters for the plenum box is 100-315 mm. The range of connection diameters for diffusers is 100–500 mm.

Product facts

Includes measurement and adjustment damper ZAEE.

The damper is easily dismantled without changing the settings.

The insulation profiles of an insulated box can be easily removed for cleaning K-factors on adjusting cable (supply air)

Made of galvanized sheet metal.

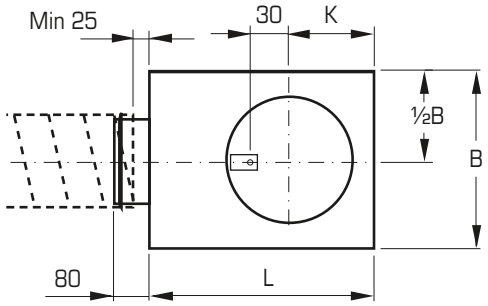
Product code example:

Insulated plenum box, diffuser collar outwards, marine insulated

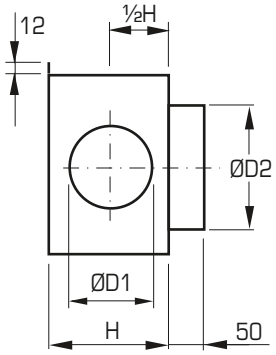
ATTC-125-200-4

ATTC Plenum box

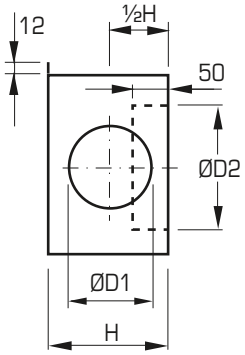
Dimensions and weights



c = 0, 1, 4



c = 2, 3, 6



Model 1:1

ATTC	ØD1 mm	ØD2 mm	H mm	L mm	B mm	K mm	Weight kg
100-100	99,3	100	170	320	320	120	2,1
125-125	124,3	125	170	470	320	140	3,0
160-160	159,3	160	205	500	440	170	4,0
200-200	199,3	200	245	650	480	195	5,5
250-250	249,3	250	295	700	570	225	6,9
315-315	314,3	315	360	700	570	225	8,1

Model 1:2

ATTC	ØD1 mm	ØD2 mm	H mm	L mm	B mm	K mm	Weight kg
100-125	99,3	125	170	320	320	120	2,1
125-160	124,3	160	170	470	320	140	3,0
160-200	159,3	200	205	500	440	170	4,0
200-250	199,3	250	245	650	480	195	5,5
250-315	249,3	315	295	700	570	225	6,9
315-400	314,3	400	360	700	570	225	8,0

Model 1:3

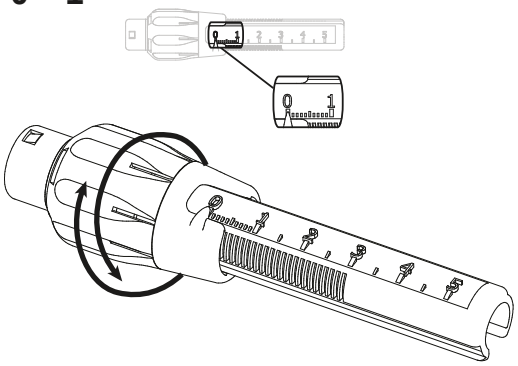
ATTC	ØD1 mm	ØD2 mm	H mm	L mm	B mm	K mm	Weight kg
100-160	99,3	160	170	320	320	120	2,3
125-200	124,3	200	170	470	320	160	2,9
160-250	159,3	250	205	500	440	160	4,0
200-315	199,3	315	245	650	480	207	5,4
250-400	249,3	400	295	700	570	225	6,9
315-500	314,3	500	360	700	570	270	7,9

Function

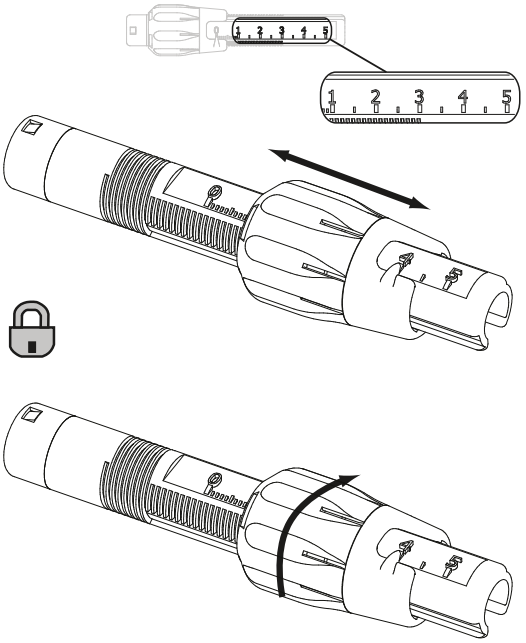
ATTC is a range of plenum boxes for all types of air diffuser. The range of duct connection diameters for the plenum box is 100-315 mm. The range of connection diameters for diffusers is 100-500 mm.

For settings 0-1 the adjustment handle is operated by turning the adjustment ring and for settings 1-4 (sizes 100-125) or 1-5 (sizes 160-315) by sliding. The setting is locked in position by turning the adjustment ring approx. 45° clockwise

0 - 1



1 - 4 (100 - 125)
1 - 5 (160 - 315)



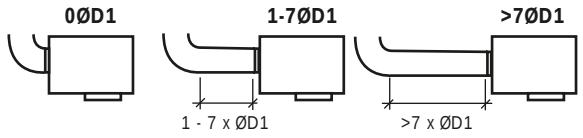
ATTC Plenum box

Material

Made of galvanized sheet steel. Sound insulation material is polyester fibre and marine insulation material is glass wool.

K-factor for supply air

K-factor for exhaust air, see adjustment instruction for the respective device.



ØD1	0ØD1	1-7ØD1	>7ØD1
100	6,0	6,3	5,9
125	10,1	10,6	10,1
160	17,1	19,9	17,3
200	27,0	30,8	27,9
250	47,1	48,8	39,9
315	65,9	67,2	64,1

Product code

Plenum box 1:1

ATTC-aaa-bbb-c
Size, mm (aaa-bbb)
100-100, 125-125, 160-160,
200-200, 250-250, 315-315
(Box connection diameter - diffuser connection diameter)

Type (c)
0 = uninsulated
1 = sound insulated
2 = low, uninsulated
3 = low, sound insulated
4 = marine insulated
6 = low, marine insulated

The plenum boxes 1:1 have the same inlet and outlet diameters. The damper can be detached from the connection, but cannot be taken out of the plenum box.

Plenum box 1:2

ATTC-aaa-bbb-c
Size, mm (aaa-bbb)
100-125, 125-160, 160-200,
200-250, 250-315, 315-400
(Box connection diameter - diffuser connection diameter)

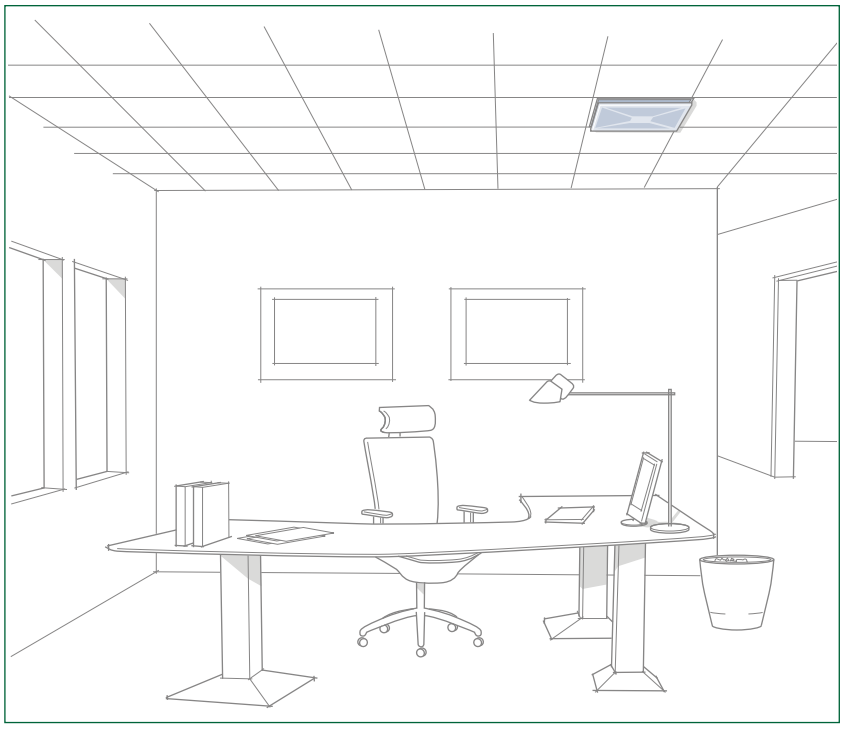
Type (c)
0 = uninsulated
1 = sound insulated
2 = low, uninsulated
3 = low, sound insulated
4 = marine insulated
6 = low, marine insulated

Plenum box 1:3

ATTC-aaa-bbb-c
Size, mm (aaa-bbb)
100-160, 125-200, 160-250,
200-315, 250-400, 315-500
(Box connection diameter - diffuser connection diameter)

Type (c)
0 = uninsulated
1 = sound insulated
2 = low, uninsulated
3 = low, sound insulated
4 = marine insulated
6 = low, marine insulated

RMKO and RMKP Ceiling diffusers



RMK(P,O) is a range of quiet ceiling air diffusers with good mixing of room air. The diffusers can cope with large undertemperatures (12 °C).

RMKP - Square perforated diffuser without / with plenum box ATTC.

RMKO - Square unperforated diffuser without / with plenum box ATTC

Quick selection (4-way diffusion, 25 mm slot, supply air at 50 Pa)

RMKO, RMKP with insulated plenum box

	Air diffuser Size	Plenum box ATTC inlet, mm	Air flow l / s (m3 / h) at sound level 25dB	30 dB	35 dB
RMK(O,P)-160	100	31	40	(144)	-
RMK(O,P)-200	125	65	-	-	-
RMK(O,P)-250	160	75	98	(353)	-
RMK(O,P)-315	200	110	138	(497)	-
RMK(O,P)-400	250	135	175	(630)	205

RMKO, RMKP with uninsulated plenum box

	Air diffuser Size	Plenum box ATTC inlet, mm	Air flow l / s (m3 / h) at sound level 25dB	30 dB	35 dB
RMK(O,P)-125	100	27	36	(130)	-
RMK(O,P)-160	125	35	47	(169)	56
RMK(O,P)-200	160	57	80	(288)	99
RMK(O,P)-250	200	80	110	(396)	140
RMK(O,P)-315	250	110	158	(569)	182
RMK(O,P)-400	315	152	190	(684)	232

- = outside working area

Product facts

Adjustable diffusion pattern
Safety line on diffuser lower part

Plenum box ATTC

Measurement and adjustment damper easily removable without disturbing the setting
K-factors on measurement hoses

Product code example:

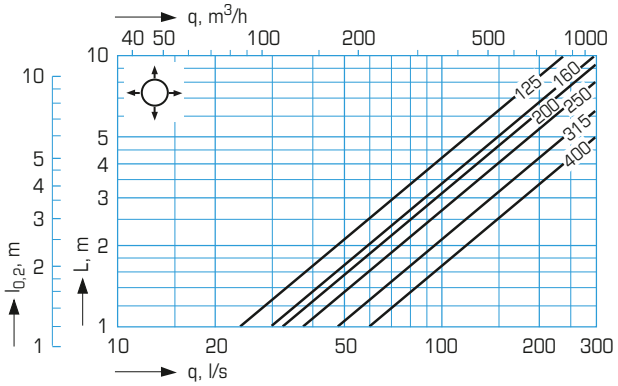
Square perforated ceiling diffuser RMRP-200 with insulated plenum box ATTC-125-200-4.

RMKO and RMKP Ceiling diffusers

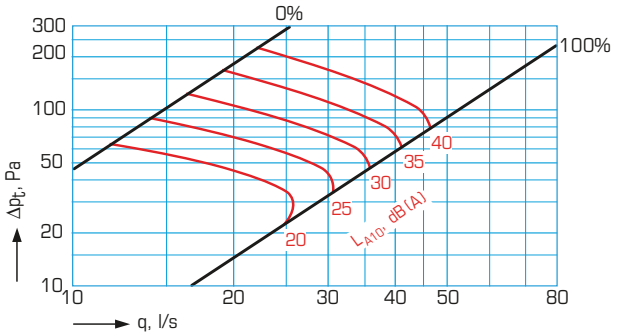
Air diffuser with plenum box, 4-way diffusion and nominal slot 25 mm

Zone length L and throw $l_{0,2}$

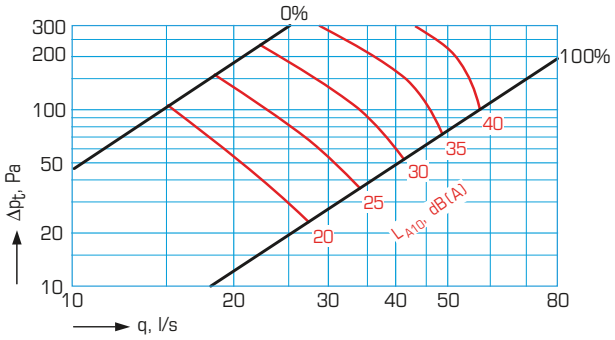
The size designation in the zone and throw graph indicates the air diffuser connection in mm.



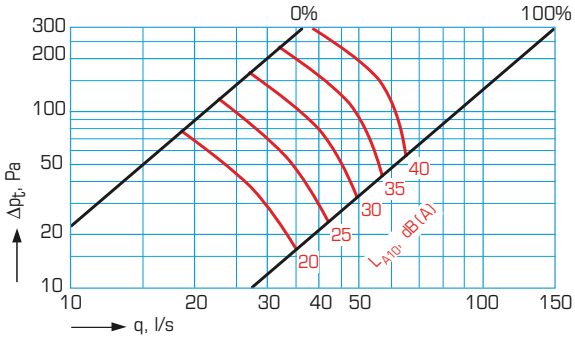
RMK(0, P) 125 + ATTC-100-125-0



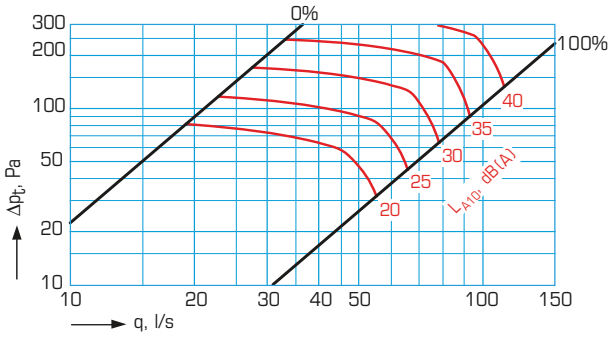
RMK(0, P) 160 + ATTC-100-160-4



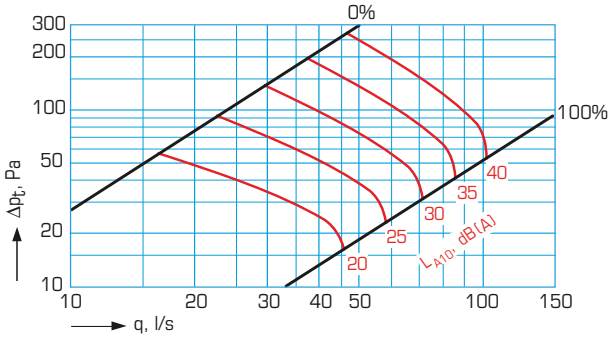
RMK(0, P) 160 + ATTC-125-160-0



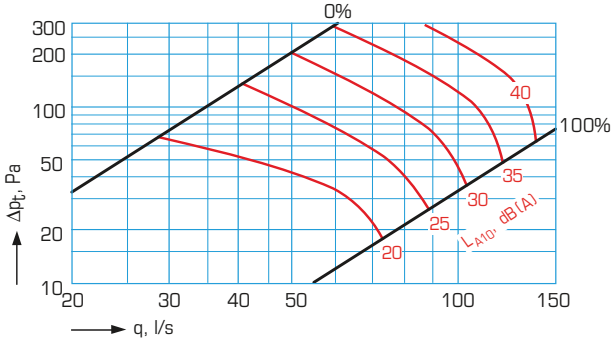
RMK(0, P) 200 + ATTC-125-200-4



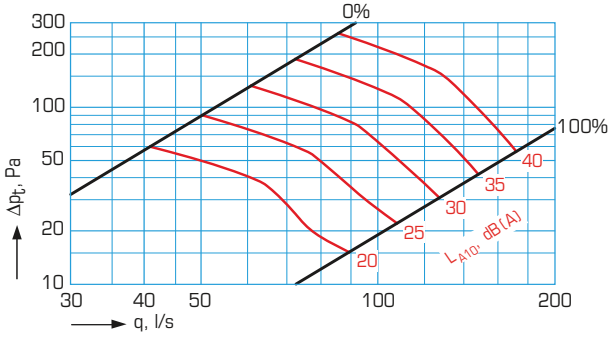
RMK(0, P) 200 + ATTC-160-200-0



RMK(0, P) 250 + ATTC-160-250-4

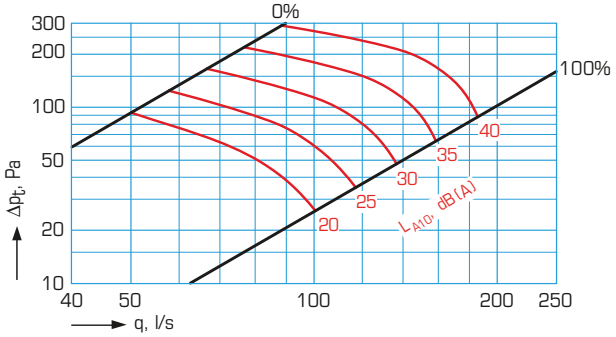


RMK(0, P) 250 + ATTC-200-250-0

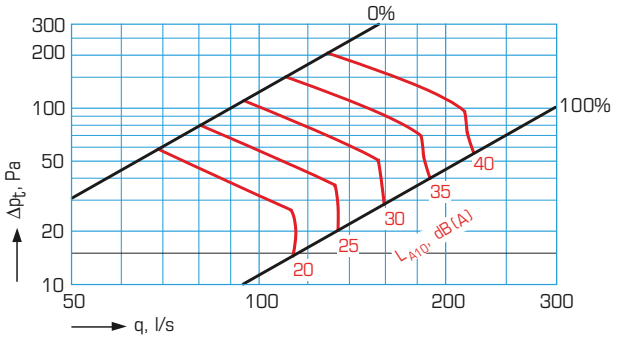


RMKO and RMKP Ceiling diffusers

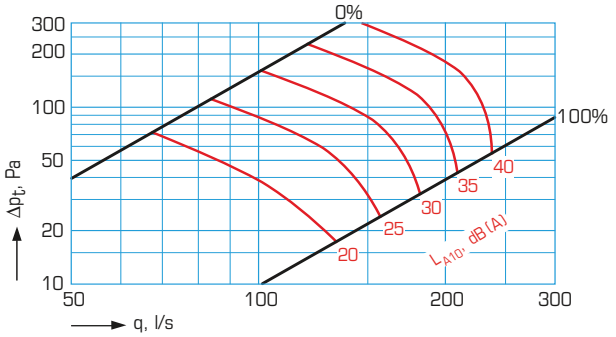
RMK(0, P) 315 + ATTC-200-315-4



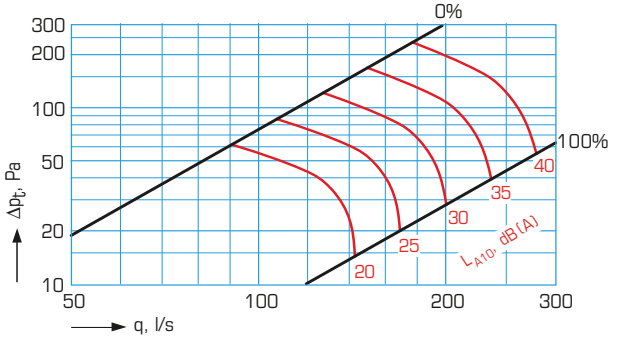
RMK(0, P) 315 + ATTC-250-315-0



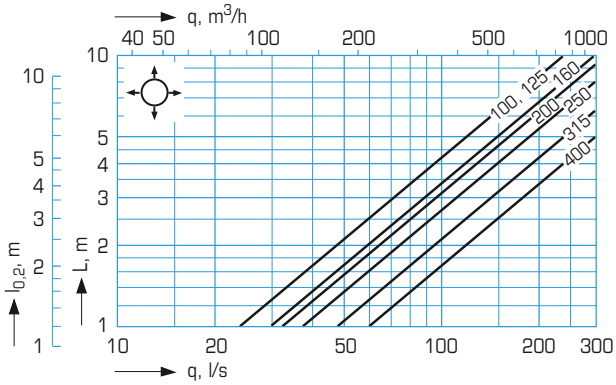
RMK(0, P) 400 + ATTC-250-400-4

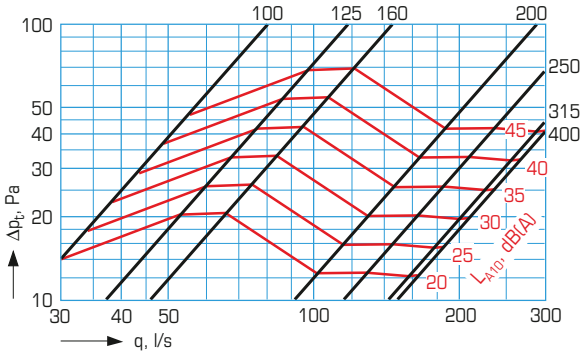


RMK(0, P) 400 + ATTC-315-400-0



Supply air diffuser without plenum box, 4-way diffusion and nominal slot 25 mm





Conversion factors

Throw $l_{0,2}$, zone length L and noise generation L_{A10} are indicated for normal 4-way diffusion. When setting other diffusion patterns, these are changed on the basis of conversion with the following factors.

Diffusion pattern	Throw $l_{0,2}$, m	Zone length L, m	Noise generation L_{A10}, dBA)
3-way	1,4	1,4	+ 2
2-way	1,9	1,9	+ 4
1-way	2,4	2,4	+ 6

Ceiling diffusers RMKO, RMKP can also be set with a narrow slot (15 mm) and a wide slot (35 mm). Pressure and sound data for narrow and wide slots are included in our product selection program and on the Internet at

www.flaktwoods.com.

For complete dimensioning details, please see Fläkt Woods product selection program.

RMKO and RMKP Ceiling diffusers

Sound power level L_w

Subdivision into frequency-divided sound power L_w is done on the basis of the L_{A10} values in the graphs and the correction K_{oct} below.

$$L_w = L_{A10} + K_{oct}$$

RMK(O,P) with insulated plenum box

Size	Correction of sound level K_{oct} (dB)							
	63	125	250	500	1000	2000	4000	8000 Hz
160	9	9	6	-2	-3	-3	-11	-13
200	10	10	6	-1	-3	-5	-12	-13
250	10	11	5	1	-4	-6	-13	-14
315	13	12	5	1	-3	-7	-13	-14
400	15	13	6	1	-5	-11	-14	-14
Tolerance ±	6	3	2	2	2	2	2	3

RMK(O,P) with uninsulated plenum box

Size	Correction of sound level K_{oct} (dB)							
	63	125	250	500	1000	2000	4000	8000 Hz
125	16	9	4	-1	-1	-6	-14	-13
160	5	6	3	2	-3	-4	-11	-18
200	10	9	3	1	-1	-9	-14	-13
250	8	10	5	1	-3	-8	-13	-14
315	10	9	4	1	-3	-4	-8	-12
400	11	8	4	1	-4	-4	-6	-10
Tolerance ±	6	3	2	2	2	2	2	3

RMK(O,P) without plenum box

Size	Correction of sound level K_{oct} (dB)							
	63	125	250	500	1000	2000	4000	8000 Hz
125	9	12	7	1	-1	-1	-15	-20
160	8	12	5	1	0	-10	-15	-20
200	7	8	4	2	0	-8	-15	-20
250	8	7	2	4	-1	-9	-15	-20
315	7	12	3	2	-2	-6	-15	-20
400	14	13	4	2	-2	-12	-15	-20
Tolerance ±	6	3	2	2	2	2	2	3

Sound attenuation ΔL

RMK(O,P) with insulated plenum box

Size	Sound attenuation ΔL (dB)							
	63	125	250	500	1000	2000	4000	8000 Hz
160	15	16	12	15	18	11	10	15
200	15	10	8	11	7	11	11	14
250	15	9	9	8	9	8	10	13
315	10	7	6	5	10	8	12	15
400	12	5	5	3	8	9	10	14
Tolerance ±	6	3	2	2	2	2	2	3

RMK(O,P) with uninsulated plenum box

Size	Sound attenuation ΔL (dB)							
	63	125	250	500	1000	2000	4000	8000 Hz
125	14	15	13	11	14	8	6	8
160	19	9	11	12	4	7	6	8
200	17	10	10	8	4	4	6	8
250	17	8	9	7	5	5	6	9
315	9	6	6	3	5	5	6	10
400	7	6	4	3	3	3	4	6
Tolerance ±	6	3	2	2	2	2	2	3

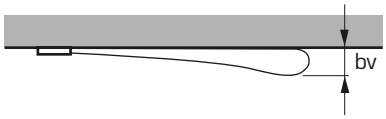
RMK(O,P) without plenum box

Size	Sound attenuation ΔL (dB)							
	63	125	250	500	1000	2000	4000	8000 Hz
125	20	15	10	4	3	2	3	4
160	18	12	8	4	3	2	4	5
200	16	8	7	5	3	1	3	4
250	14	8	5	5	3	3	5	6
315	12	7	6	6	2	3	4	5
400	10	5	7	4	2	2	4	7
Tolerance ±	6	3	2	2	2	2	2	3

Air stream diffusion

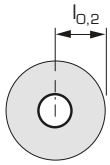
Vertical

$bv = 0{,}07 \times l_{0,2}$

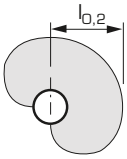


Horizontal

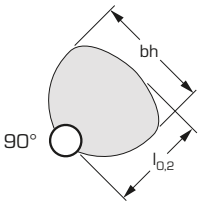
4-way diffusion radial diffusion 360°

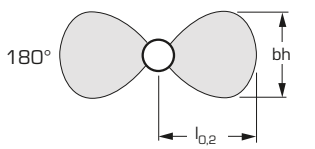


3-way diffusion radial diffusion ca 270°

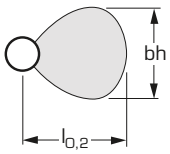


2-way diffusion $bh = 0{,}85 \times l_{0,2}$ (diffusion pattern 180°)
$bh = 1{,}20 \times l_{0,2}$ (diffusion pattern 90°)





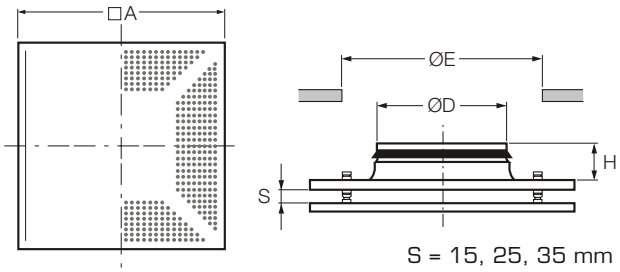
1-way diffusion $bh = 0{,}85 \times l_{0,2}$



RMKO and RMKP Ceiling diffusers

Dimensions and weights

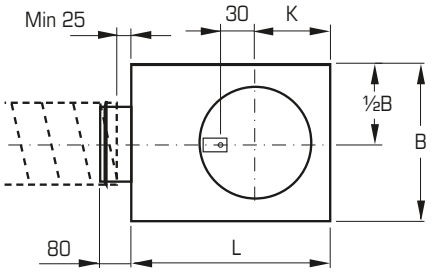
Ceiling diffusers RMKO, RMKP



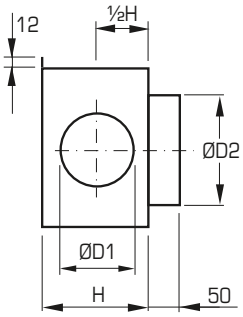
Koko	□A	ØD	ØE[1]	H	Weight, kg
125	230x230	124,3	160	60	0,6
160	280x280	159,3	200	60	0,9
200	370x370	199,3	300	45	1,1
250	480x480	249,3	400	45	1,6
315	595x595	314,3	500	60	2,2
400	595x595	399,3	500	60	2,3

[1] Assembly opening

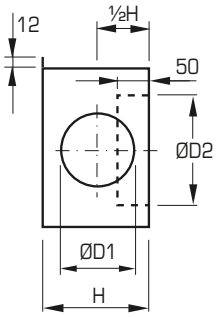
Plenum box ATTC



c = 0, 1, 4

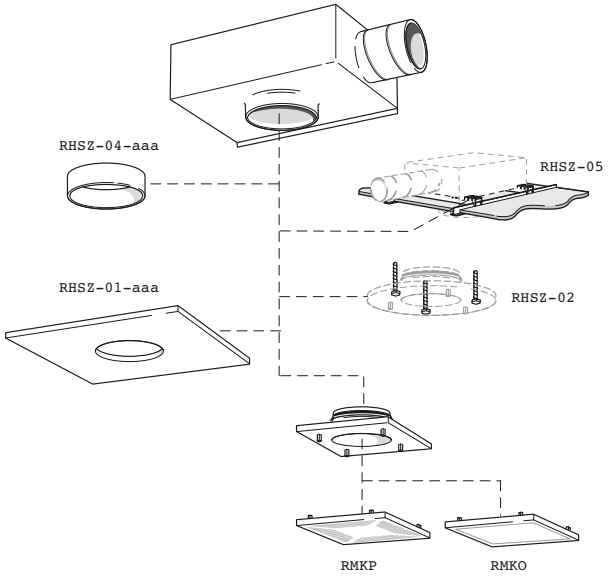


c = 2, 3, 6



Size	ØD1 mm	ØD2 mm	H mm	L mm	B mm	K mm	Weight kg
100-125	99,3	125	170	320	320	123	2,3
100-160	99,3	160	170	320	320	140	2,9
125-160	124,3	160	170	470	320	140	2,9
125-200	124,3	200	170	470	320	160	3,0
160-200	159,3	200	205	500	440	170	4,2
160-250	159,3	250	205	500	440	195	4,2
200-250	199,3	250	245	650	520	195	5,7
200-315	199,3	315	245	650	520	228	6,0
250-315	249,3	315	295	700	570	228	7,6
250-400	249,3	400	295	700	570	255	7,8
315-400	314,3	400	360	700	570	255	8,0

Product summary



Application and function

RMK(O, P) are ceiling air diffusers with good technical characteristics.
Diffusion directions and throw can be changed easily, and a measurement socket is provided on the terminal to facilitate access when balancing and measuring the air flow.
The plenum box ATTC has a combined measurement and adjustment damper with very low noise generation.
The measurement and adjustment damper can be easily dismantled for inspection and cleaning without changing the setting of the damper.
The plenum box is insulated or uninsulated and its airtightness class is C.
The perforated diffuser RMKP can also be used as an exhaust air terminal.

Material and surface finish

Air diffusers RMKO, RMKP and plenum box ATTC are made from hot-dip galvanized steel sheet. The diffusers are powder coated for a high surface finish and good impact and scratch resistance.
Standard colour RAL-9010. Other colours on request.

Instructions

Instructions for installation, adjustment and maintenance are supplied with every product. The instructions are also available on www.flaktwoods.com.

Technical data and dimensioning

For complete dimensioning details, please see Fläkt Woods product selection program. Contact our nearest sales office for further information.

RMKO and RMKP Ceiling diffusers

Product code

Ceiling diffuser **RMK(P,O)-aaa**

Execution
P = perforated air diffuser
O = unperforated air diffuser

Size (diffuser connection in mm)
125, 160, 200, 250, 315, 400

Plenum box **ATTC-aaa-bbb-c**

Duct connection in mm (aaa)
Diffuser connection in mm (bbb)

Type (c)
0 = uninsulated
4 = marine insulated

Accessories

False ceiling plate, painted **RHSZ-01-aaa-b**
595x595

Size of diffuser connection in mm (aaa)
125,160, 200, 250

Diffuser type (b)
2 = for square terminal

Screw kit **RHSZ-02**
For fine adjustment of the diffuser's vertical position

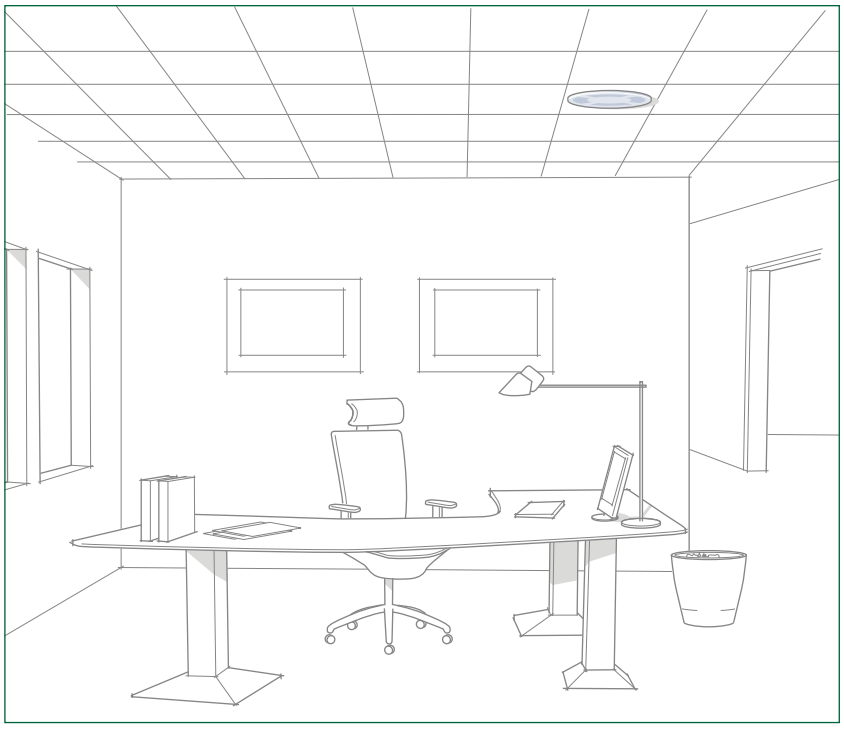
Extension sleeve **RHSZ-04-aaa**
Height 70 mm.

Size of diffuser connection in mm (aaa)
125,160, 200, 250, 315, 400
An extension sleeve is used to take up differences in height between the connection box and the ceiling

Profiles for installation in a false ceiling (kit) RHSZ-05

The profiles are adapted for false ceilings with c - c 600 mm between the ceiling profiles and are used for centring the air diffuser in the false ceiling plate. The profiles are provided with grooves for the respective size of connection box.

RMRO and RMRP Ceiling diffusers



RMR(P,O) is a range of quiet ceiling air diffusers with good mixing of room air.

The diffusers can cope with large undertemperatures (12 °C).

RMRP - Round perforated diffuser without/with plenum box ATTC.

RMRO - Round unperforated diffuser without/with plenum box ATTC

Quick selection (4-way diffusion, 25 mm slot, supply air at 50 Pa)

RMRO, RMRP with insulated plenum box

Air diffuser Size	Plenum box ATTC inlet, mm	Air flow l/s (m³/h) at sound level 25dB	30 dB	35 dB	
RMR(O,P)-160	100	31	40	(144)	-
RMR(O,P)-200	125	65	-	-	-
RMR(O,P)-250	160	75	98	(353)	-
RMR(O,P)-315	200	110	138	(497)	-
RMR(O,P)-400	250	135	175	(630)	205

RMRO, RMRP with uninsulated plenum box

Air diffuser Size	Plenum box ATTC inlet, mm	Air flow l/s (m³/h) at sound level 25dB	30 dB	35 dB	
RMR(O,P)125	100	27	36	(130)	-
RMR(O,P)-160	125	35	47	(169)	56
RMR(O,P)-200	160	57	80	(288)	99
RMR(O,P)-250	200	80	110	(396)	140
RMR(O,P)-315	250	110	158	(569)	182
RMR(O,P)-400	315	152	190	(684)	232

- = outside working area

Product facts

Adjustable diffusion pattern
Safety line on diffuser lower part

Plenum box ATTC

Measurement and adjustment damper easily removable without disturbing the setting
K-factors on measurement hoses

Product code example:

Circular perforated ceiling diffuser

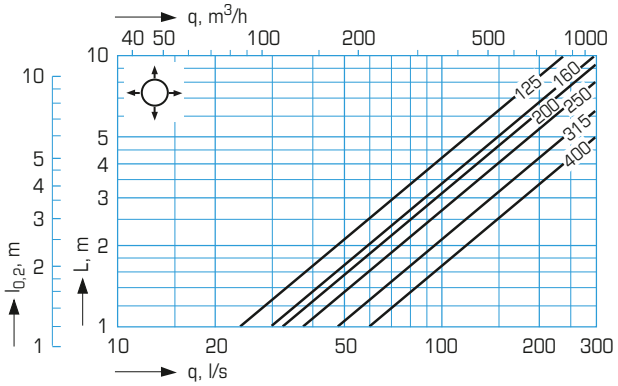
RMRP-200 with insulated plenum box ATTC-125-200-4.

RMRO and RMRP Ceiling diffusers

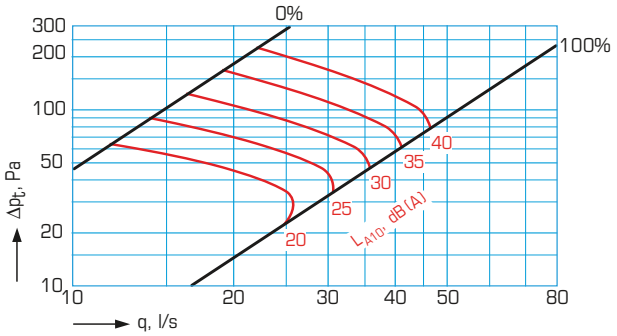
Air diffuser with plenum box, 4-way diffusion and nominal slot 25 mm

Zone length L and throw $l_{0,2}$

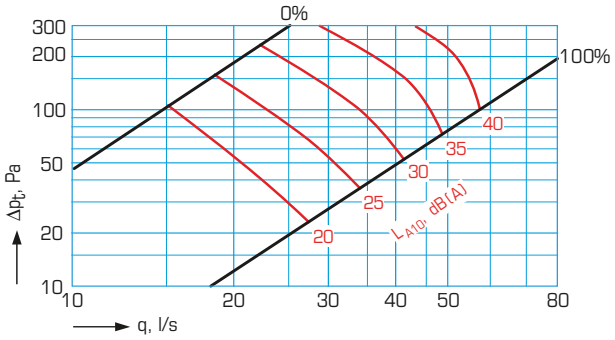
The size designation in the zone and throw graph indicates the air diffuser connection in mm.



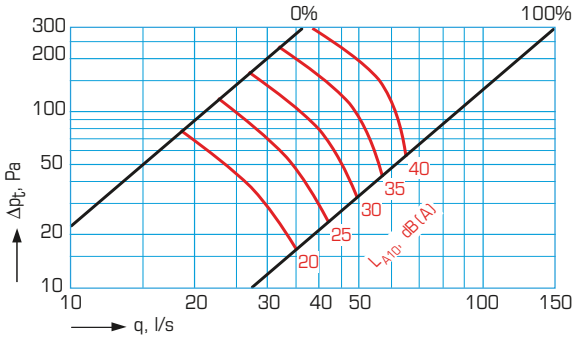
RMR(0, P) 125 + ATTC-100-125-0



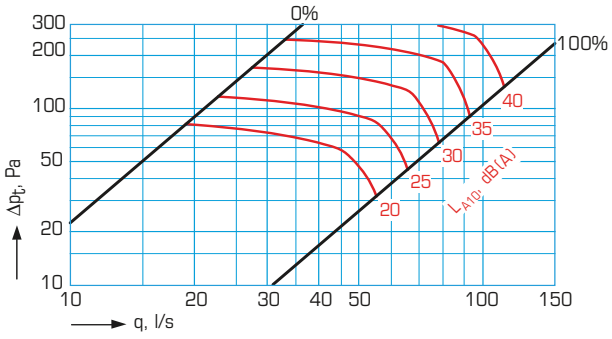
RMR(0, P) 160 + ATTC-100-160-4



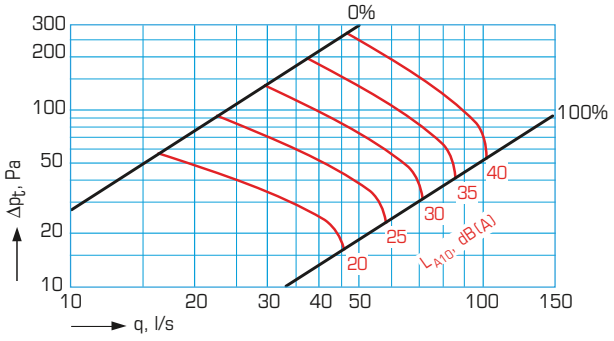
RMR(0, P) 160 + ATTC-125-160-0



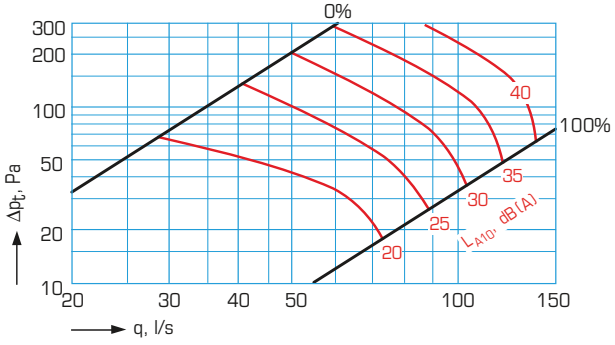
RMR(0, P) 200 + ATTC-125-200-4



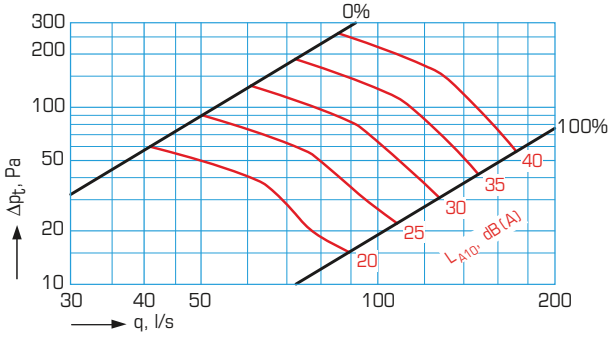
RMR(0, P) 200 + ATTC-160-200-0



RMR(0, P) 250 + ATTC-160-250-4

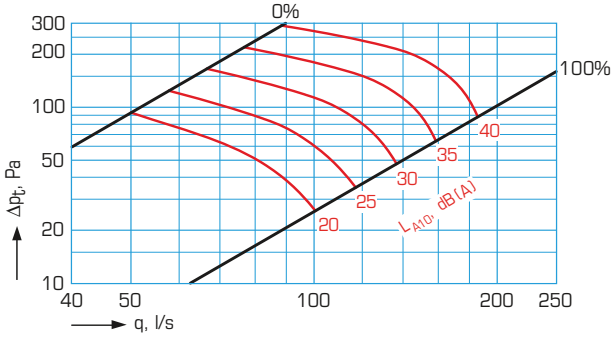


RMR(0, P) 250 + ATTC-200-250-0

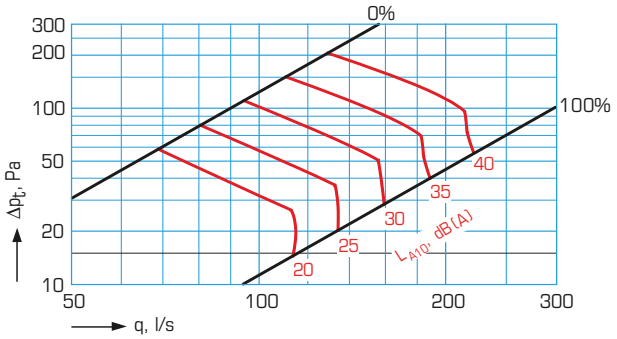


RMRO and RMRP Ceiling diffusers

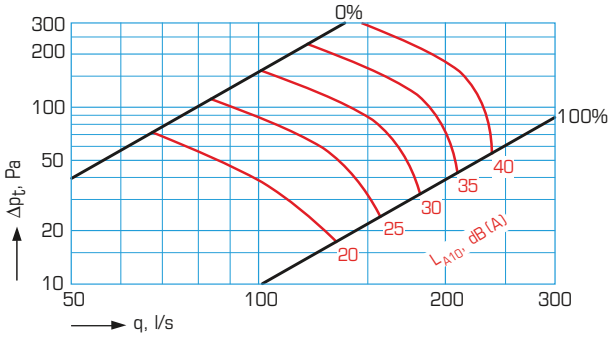
RMR(0, P) 315 + ATTC-200-315-4



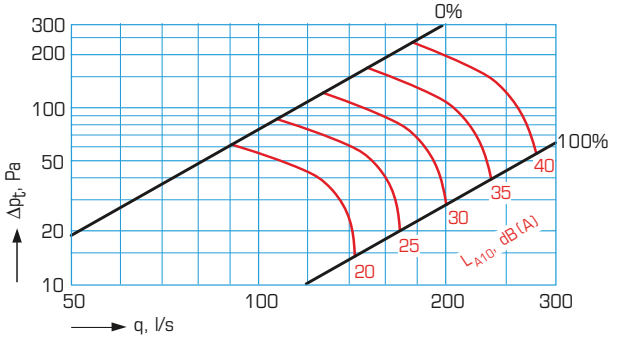
RMR(0, P) 315 + ATTC-250-315-0



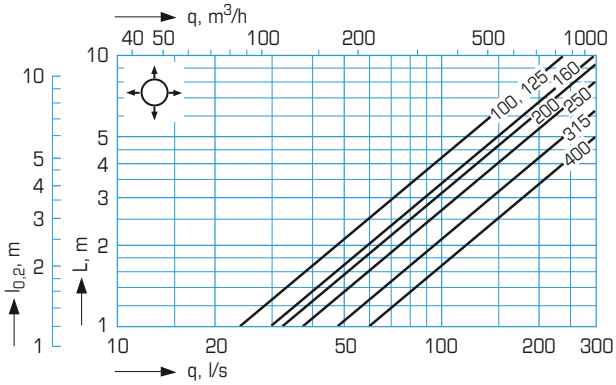
RMR(0, P) 400 + ATTC-250-400-4

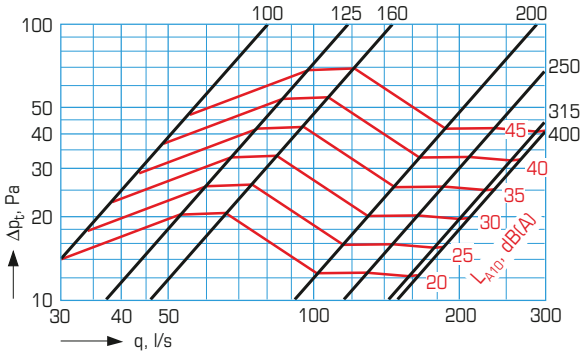


RMR(0, P) 400 + ATTC-315-400-0



Supply air diffuser without plenum box, 4-way diffusion and nominal slot 25 mm





Conversion factors

Throw $l_{0,2}$, zone length L and noise generation L_{A10} are indicated for normal 4-way diffusion. When setting other diffusion patterns, these are changed on the basis of conversion with the following factors.

Diffusion pattern	Throw $l_{0,2}$, m	Zone length L, m	Noise generation L_{A10}, dBA)
3-way	1,4	1,4	+ 2
2-way	1,9	1,9	+ 4
1-way	2,4	2,4	+ 6

Ceiling diffusers RMRO, RMRP can also be set with a narrow slot (15 mm) and a wide slot (35 mm). Pressure and sound data for narrow and wide slots are included in our product selection program and on the Internet at

www.flaktwoods.com.

For complete dimensioning details, please see Fläkt Woods product selection program.

RMRO and RMRP Ceiling diffusers

Sound power level L_w

Subdivision into frequency-divided sound power L_w is done on the basis of the L_{A10} values in the graphs and the correction K_{oct} below.

$$L_w = L_{A10} + K_{oct}$$

RMR(O,P) with insulated plenum box

Size	Correction of sound level K_{oct} (dB)							
	63	125	250	500	1000	2000	4000	8000 Hz
160	9	9	6	-2	-3	-3	-11	-13
200	10	10	6	-1	-3	-5	-12	-13
250	10	11	5	1	-4	-6	-13	-14
315	13	12	5	1	-3	-7	-13	-14
400	15	13	6	1	-5	-11	-14	-14
Tolerance ±	6	3	2	2	2	2	2	3

RMR(O,P) with uninsulated plenum box

Size	Correction of sound level K_{oct} (dB)							
	63	125	250	500	1000	2000	4000	8000 Hz
125	16	9	4	-1	-1	-6	-14	-13
160	5	6	3	2	-3	-4	-11	-18
200	10	9	3	1	-1	-9	-14	-13
250	8	10	5	1	-3	-8	-13	-14
315	10	9	4	1	-3	-4	-8	-12
400	11	8	4	1	-4	-4	-6	-10
Tolerance ±	6	3	2	2	2	2	2	3

RMR(O,P) without plenum box

Size	Correction of sound level K_{oct} (dB)							
	63	125	250	500	1000	2000	4000	8000 Hz
125	9	12	7	1	-1	-1	-15	-20
160	8	12	5	1	0	-10	-15	-20
200	7	8	4	2	0	-8	-15	-20
250	8	7	2	4	-1	-9	-15	-20
315	7	12	3	2	-2	-6	-15	-20
400	14	13	4	2	-2	-12	-15	-20
Tolerance ±	6	3	2	2	2	2	2	3

Sound attenuation ΔL

RMR(O,P) with insulated plenum box

Size	Sound attenuation ΔL (dB)							
	63	125	250	500	1000	2000	4000	8000 Hz
160	15	16	12	15	18	11	10	15
200	15	10	8	11	7	11	11	14
250	15	9	9	8	9	8	10	13
315	10	7	6	5	10	8	12	15
400	12	5	5	3	8	9	10	14
Tolerance ±	6	3	2	2	2	2	2	3

RMR(O,P) with uninsulated plenum box

Size	Sound attenuation ΔL (dB)							
	63	125	250	500	1000	2000	4000	8000 Hz
125	14	15	13	11	14	8	6	8
160	19	9	11	12	4	7	6	8
200	17	10	10	8	4	4	6	8
250	17	8	9	7	5	5	6	9
315	9	6	6	3	5	5	6	10
400	7	6	4	3	3	3	4	6
Tolerance ±	6	3	2	2	2	2	2	3

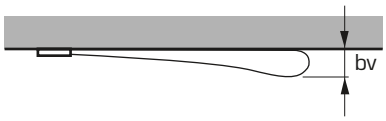
RMR(O,P) without plenum box

Size	Sound attenuation ΔL (dB)							
	63	125	250	500	1000	2000	4000	8000 Hz
125	20	15	10	4	3	2	3	4
160	18	12	8	4	3	2	4	5
200	16	8	7	5	3	1	3	4
250	14	8	5	5	3	3	5	6
315	12	7	6	6	2	3	4	5
400	10	5	7	4	2	2	4	7
Tolerance ±	6	3	2	2	2	2	2	3

Air stream diffusion

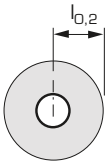
Vertical

$bv = 0{,}07 \times l_{0,2}$

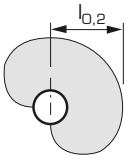


Horizontal

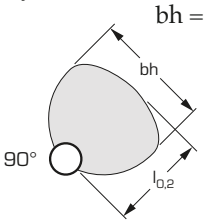
4-way diffusion radial diffusion 360°

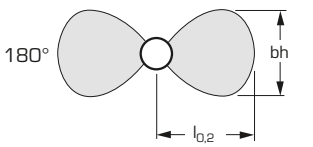


3-way diffusion radial diffusion ca 270°

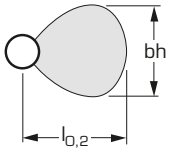


2-way diffusion $bh = 0{,}85 \times l_{0,2}$ (diffusion pattern 180°)
$bh = 1{,}20 \times l_{0,2}$ (diffusion pattern 90°)





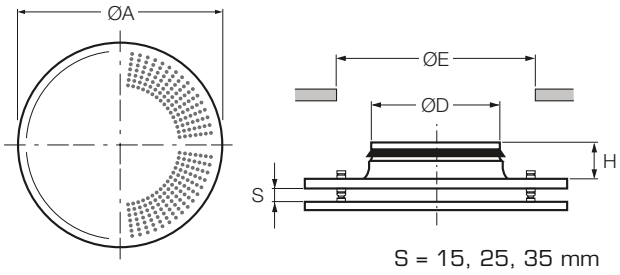
1-way diffusion $bh = 0{,}85 \times l_{0,2}$



RMRO and RMRP Ceiling diffusers

Dimensions and weights

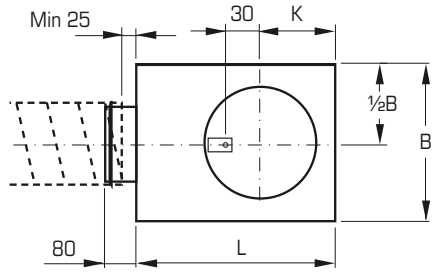
Ceiling diffusers RMRO, RMRP



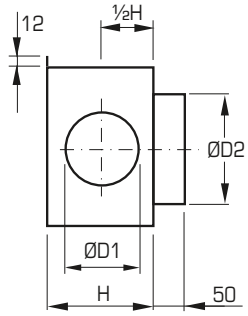
Size	ØA	ØD	ØE[1)]	H	Weight kg
125	210	124,3	160	60	0,6
160	250	159,3	200	60	0,9
200	350	199,3	300	45	1,1
250	450	249,3	400	45	1,6
315	550	314,3	500	60	2,2
400	550	399,3	500	60	2,3

[1)] Assembly opening

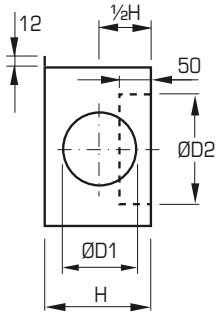
Plenum box ATTC



c = 0, 1, 4

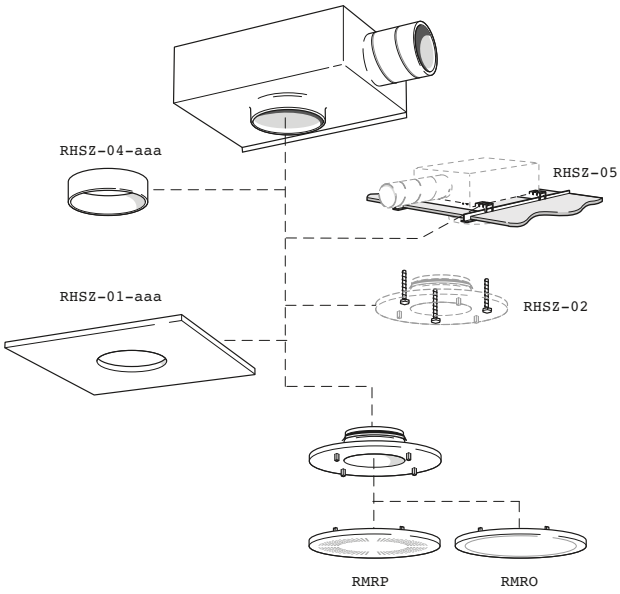


c = 2, 3, 6



Size	ØD1 mm	ØD2 mm	H mm	L mm	B mm	K mm	Weight kg
100-125	99,3	125	170	320	320	123	2,3
100-160	99,3	160	170	320	320	140	2,9
125-160	124,3	160	170	470	320	140	2,9
125-200	124,3	200	170	470	320	160	3,0
160-200	159,3	200	205	500	440	170	4,2
160-250	159,3	250	205	500	440	195	4,2
200-250	199,3	250	245	650	520	195	5,7
200-315	199,3	315	245	650	520	228	6,0
250-315	249,3	315	295	700	570	228	7,6
250-400	249,3	400	295	700	570	255	7,8
315-400	314,3	400	360	700	570	255	8,0

Product summary



Application and function

RMR(O, P) are ceiling air diffusers with good technical characteristics.
Diffusion directions and throw can be changed easily, and a measurement socket is provided on the terminal to facilitate access when balancing and measuring the air flow.
The plenum box ATTC has a combined measurement and adjustment damper with very low noise generation. The measurement and adjustment damper can be easily dismantled for inspection and cleaning without changing the setting of the damper.
The plenum box is insulated or uninsulated and its airtightness class is C.
The perforated diffuser RMRP can also be used as an exhaust air terminal.

Material and surface finish

Air diffusers RMRO, RMRP and plenum box ATTC are made from hot-dip galvanized steel sheet. The diffusers are powder coated for a high surface finish and good impact and scratch resistance.
Standard colour RAL-9010. Other colours on request.

Instructions

Instructions for installation, adjustment and maintenance are supplied with every product. The instructions are also available on www.flaktwoods.com.

Technical data and dimensioning

For complete dimensioning details, please see Fläkt Woods product selection program. Contact our nearest sales office for further information.

RMRO and RMRP Ceiling diffusers

Product code

Ceiling diffuser **RMR(P,O)-aaa**

Execution
P = perforated air diffuser
O = unperforated air diffuser

Size (diffuser connection in mm)
125, 160, 200, 250, 315, 400

Plenum box **ATTC-aaa-bbb-c**

Duct connection in mm (aaa)
Diffuser connection in mm (bbb)

Type (c)
0 = uninsulated
4 = marine insulated

Accessories

False ceiling plate, painted **RHSZ-01-aaa-b**
595x595

Size of diffuser connection in mm (aaa)
125,160, 200, 250, 315, 400

Diffuser type (b)
1 = for circular terminal

Screw kit **RHSZ-02**

For fine adjustment of the diffuser's vertical position

Extension sleeve **RHSZ-04-aaa**

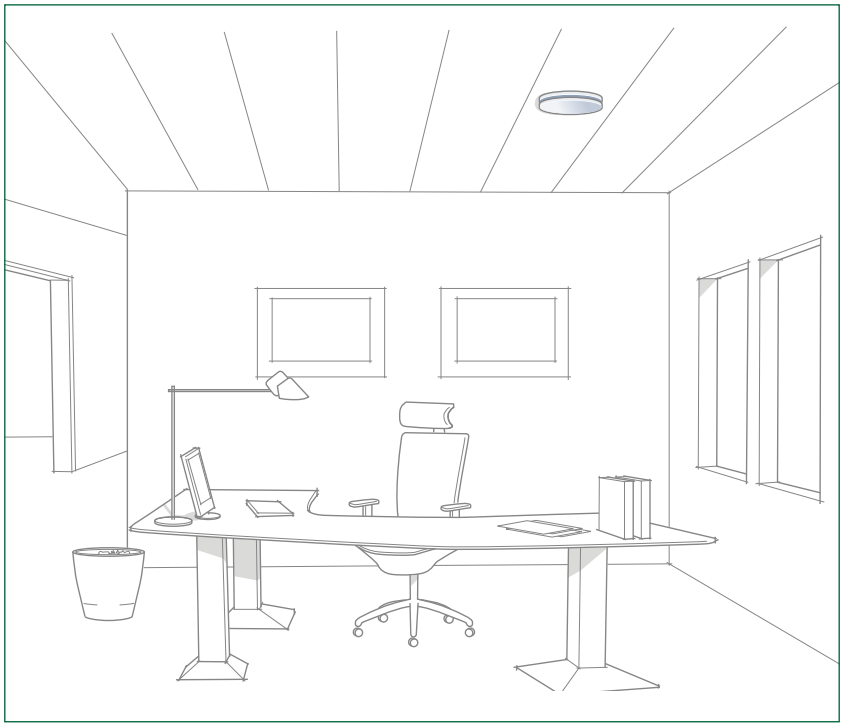
Height 70 mm.

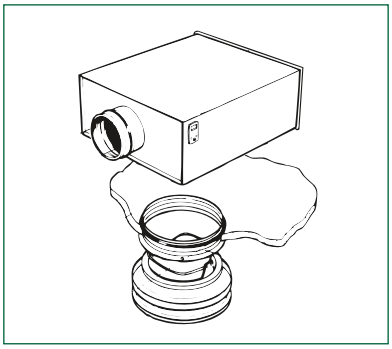
Size of diffuser connection in mm (aaa)
125,160, 200, 250, 315, 400
An extension sleeve is used to take up differences in height between the connection box and the ceiling.

Profiles for installation in a false ceiling (kit) **RHSZ-05**

The profiles are adapted for false ceilings with c - c 600 mm between the ceiling profiles and are used for centring the air diffuser in the false ceiling plate. The profiles are provided with grooves for the respective size of connection box.

CTPB Ceiling diffuser





CTPB is a quiet 1-way air diffuser, which is normally positioned in a ceiling, although it can also be positioned on a wall. The air gap is variable, and the desired air diffusion direction can be set by rotating the diffuser. The diffuser is easily installed on the mounting ring with mounting brackets and is easy to keep clean thanks to its large, smooth surfaces. CTPB is available in two sizes, with connections 125 and 160.

Quick selection at 50 Pa

Air diffuser Size	Connection, mm Diffuser with box	Air flow l/s (m³/h) at sound level		
		25 dB	30 dB	35 dB
CTPB-125	100-125	33	38 (119)	-
CTPB-160	125-160	48	56 (202)	-

- = outside working area

Product facts

High sound attenuation

Easy to install

Product code example:

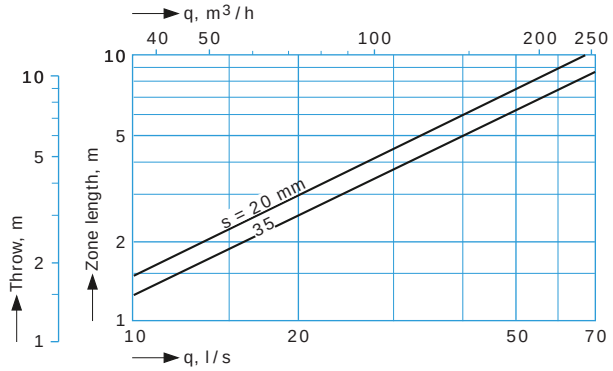
Ceiling diffuser CTPB-125

Plenum box ATTC-100-125-4

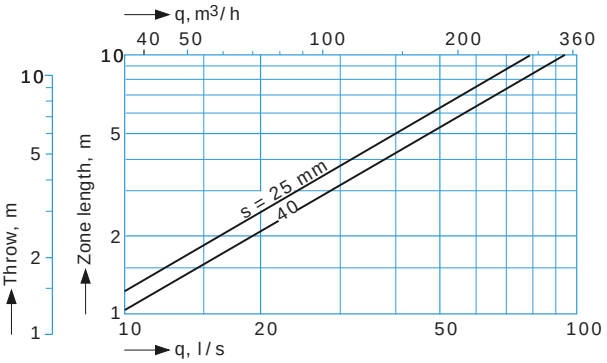
Mounting ring KGEZ-01

CTPB Ceiling diffuser

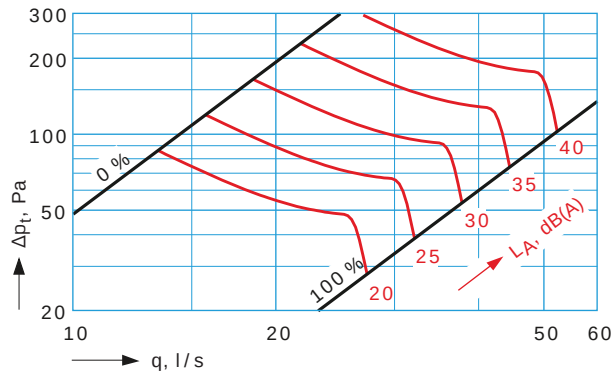
Size 125



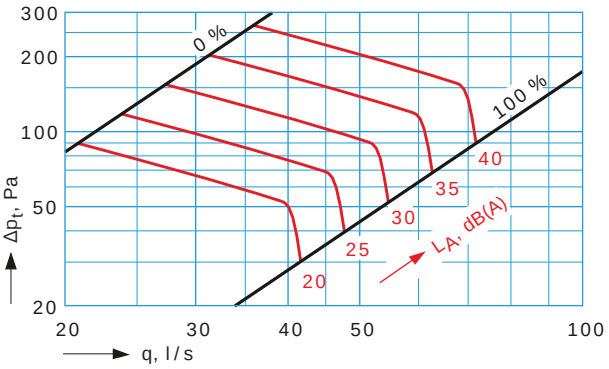
Size 160



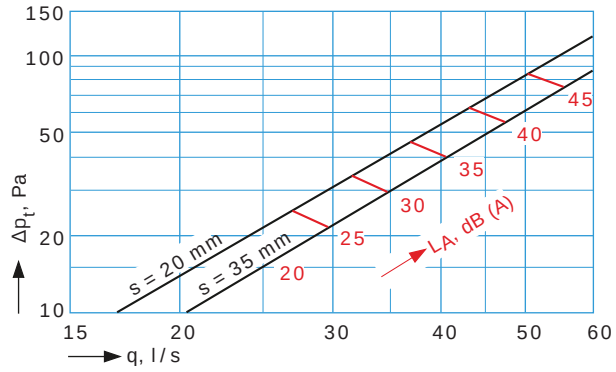
Size 125 with plenum box ATTC-100-125-4



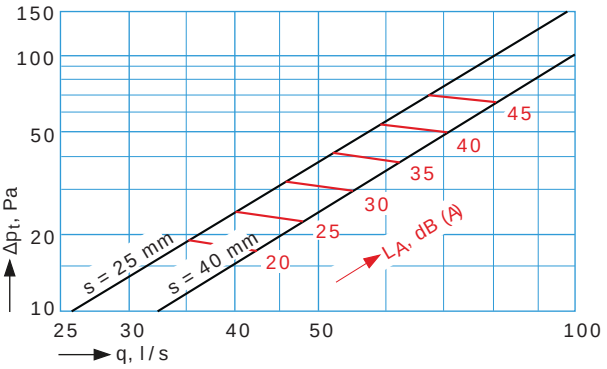
Size 160 with plenum box ATTC-125-160-4



Size 125 without plenum box

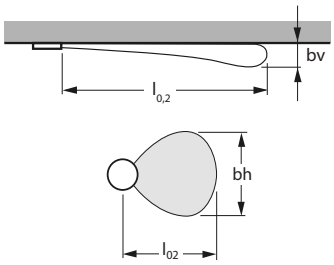


Size 160 without plenum box



CTPB Ceiling diffuser

Air stream diffusion



	1-way
bv = $l_{0,2}$ x	0,1
bh = $l_{0,2}$ x	1,5

Sound power level

Subdivision into frequency-divided sound power L_w is done on the basis of the L_{A10} values in the graphs and the correction K_{oct} below.:

$$L_w = L_{A10} + K_{oct}$$

Ceiling diffuser without plenum box

Size	Correction of sound level, K_{oct} in dB at							
	63	125	250	500	1000	2000	4000	8000 Hz
125	10	4	4	3	-2	-8	-14	-14
160	10	8	3	2	-2	-6	-14	-14

Ceiling diffuser with plenum box

Size	Correction of sound level, K_{oct} in dB at							
	63	125	250	500	1000	2000	4000	8000 Hz
125 / 100-125	9	8	6	1	-2	-7	-8	-8
160 / 125-160	10	9	5	2	-4	-7	-8	-7

Sound attenuation

Ceiling diffuser without plenum box

Size	Sound attenuation in dB at							
	63	125	250	500	1000	2000	4000	8000 Hz
125	20	16	12	10	7	6	8	8
160	19	14	11	16	12	8	10	8

Ceiling diffuser with plenum box

Size	Sound attenuation in dB at							
	63	125	250	500	1000	2000	4000	8000 Hz
125 / 100-125	21	16	12	16	16	11	9	8
160 / 125-160	19	14	11	16	12	8	10	8

Instructions

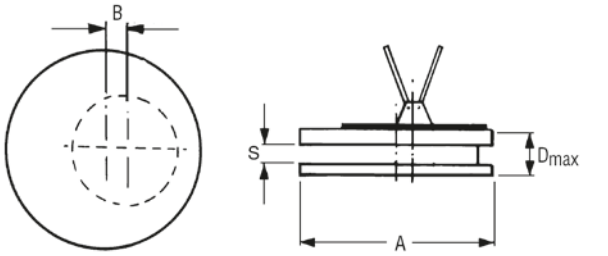
Directions for installation, adjustment and care are set out in detail in our technical instruction which accompanies each product. The instruction is also accessible on www.flaktwoods.com.

Packaging

The air diffuser is supplied as standard in a carton containing:

Size	Quanitity	Weight, kg	Volume, m³
CTPB-125	20	12	0,10
CTPB-160	20	24	0,12

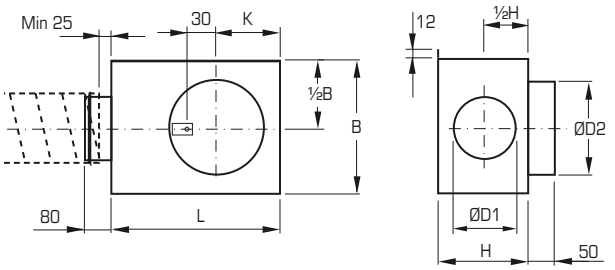
Dimensions and weights
Ceiling diffuser CTPB



Size	A	B	Smin	Smax	Dmax	Weight, kg
125	200	17,5	20	35	54	0,55
160	250	25,0	25	40	59	0,80

B = eccentricity

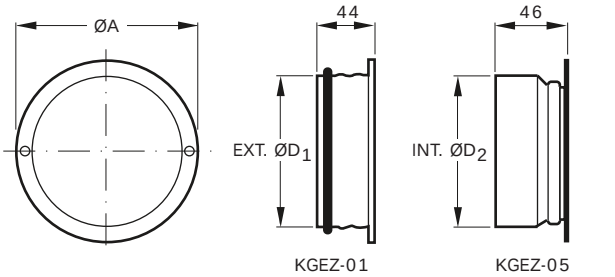
Plenum box ATTC



Size	ØD1	ØD2	H	L	B	K	W
100-125	99,3	125	170	320	320	123	2,3
125-160	124,3	160	170	470	320	140	2,9

W = Weight, kg Hole dimensions = D2 + 10 ± 5 mm

Mounting rings KGEZ-01, KGEZ-05



Size	A	D1	D2	Weight, kg	Holes [1]
125	150	124,3	125	0,10	Ø 135
160	185	159,3	160	0,16	Ø 170

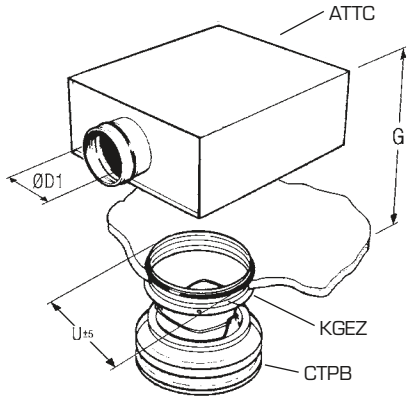
[1] Tolerance ± 5 mm

Accessories

CTPB Ceiling diffuser

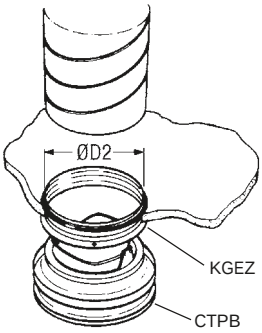
Installation

Air diffuser connected via plenum box



Size	ØD1	ØD2	U	G_{min}	G_{max}	ØU
125	99,3	125	135	220	240	135
160	124,3	160	170	220	240	170

Air diffuser connected directly to the duct



Application and function

CTPB is a quiet 1-way air diffuser, which is normally positioned in a ceiling, although it can also be positioned on a wall. The air gap is variable, and the desired diffusion direction can be set by rotating the diffuser. The diffuser is easy to install with clamps to the valve frame and is easy to keep clean thanks to its large, smooth surfaces.

CTPB is available in two sizes, with connections 125 and 160. The diffuser is also shown with plenum box ATTC.

The plenum box ATTC has a combined measurement and adjustment damper with very low noise generation. The patented multipoint measuring of the measurement and adjustment damper enables balanced and accurate values. The measurement and adjustment damper can be easily dismantled for inspection and cleaning without changing the setting of the damper. The plenum box is insulated or uninsulated and its air tightness class is C.

Material and surface finish

Air diffuser CTPB is made from hot-dip galvanized steel sheet and meets the requirements for corrosivity class C2 in accordance with SS-EN ISO 12944-2.

The diffusers are powder-coated for a high surface finish and good impact and scratch resistance.

Standard colour White RAL-9010. Other colours on request.

The plenum box is supplied as standard in hot-dip galvanized steel sheet.

Technical data and dimensioning

For complete dimensioning details, please see Fläkt Woods product selection program. Contact our nearest sales office for further information.

Descriptive text

Air diffuser CTPB manufactured by Fläkt Woods, for example in size 125, with a plenum box with a removable damper and mounting ring.

Product code

Ceiling diffuser **CTPB-aaa**

Size – connection dimension in mm
125, 160

Plenum box [1] **ATTC-aaa-bbb-c**

Size
100–125, 125–160
Connection dimension in mm to duct (aaa)
Connection dimension in mm to diffuser (bbb)

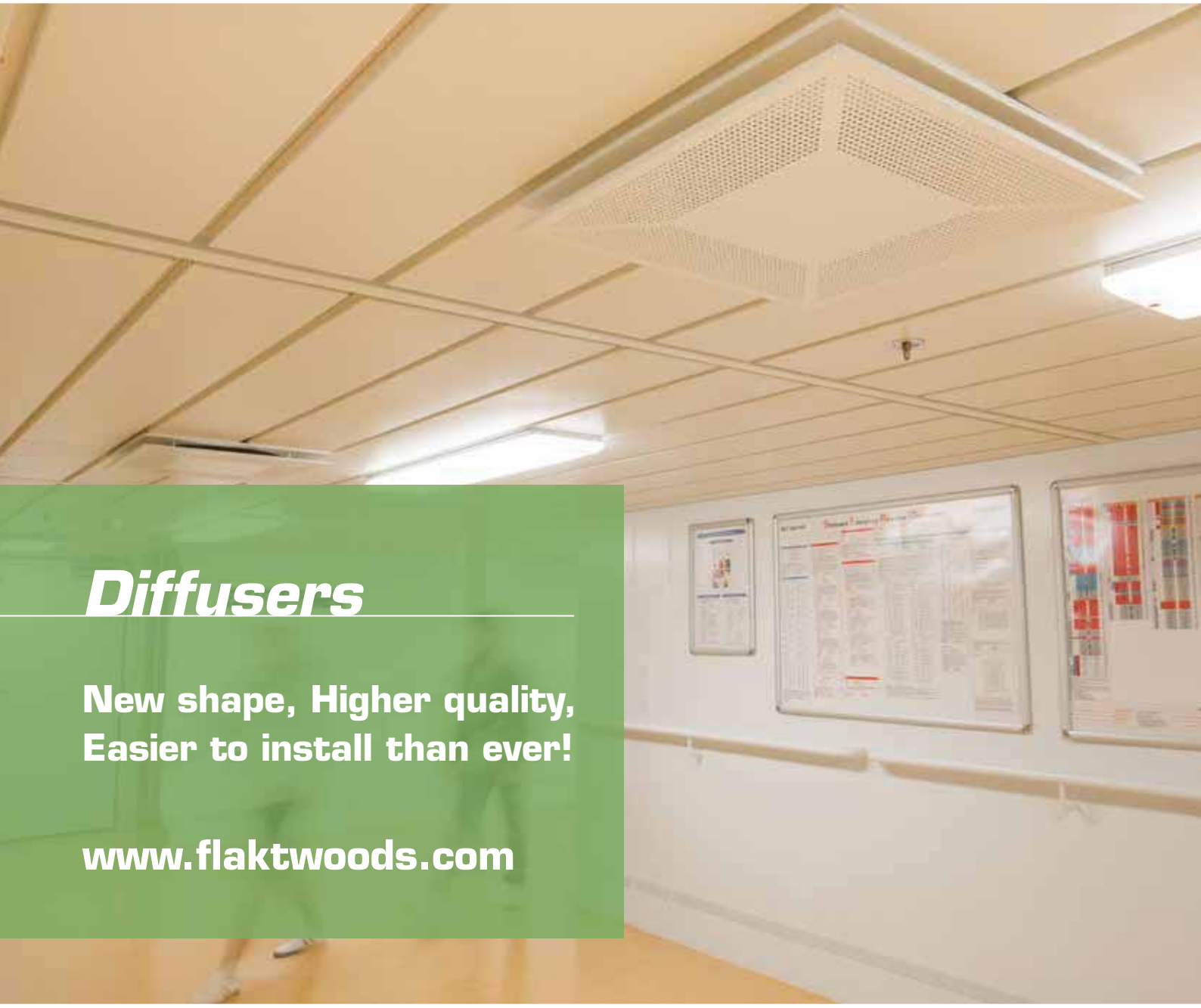
Type (c)
0 = uninsulated
4 = marine insulated

Mounting ring - insertion connection **KGEZ-01-bbb**
Mounting ring - fit-on connection **KGEZ-05-bbb**

Size
125, 160

[1] For a complete supply, mounting ring KGEZ-01 must be ordered for plenum box ATTC.

FläktWoods

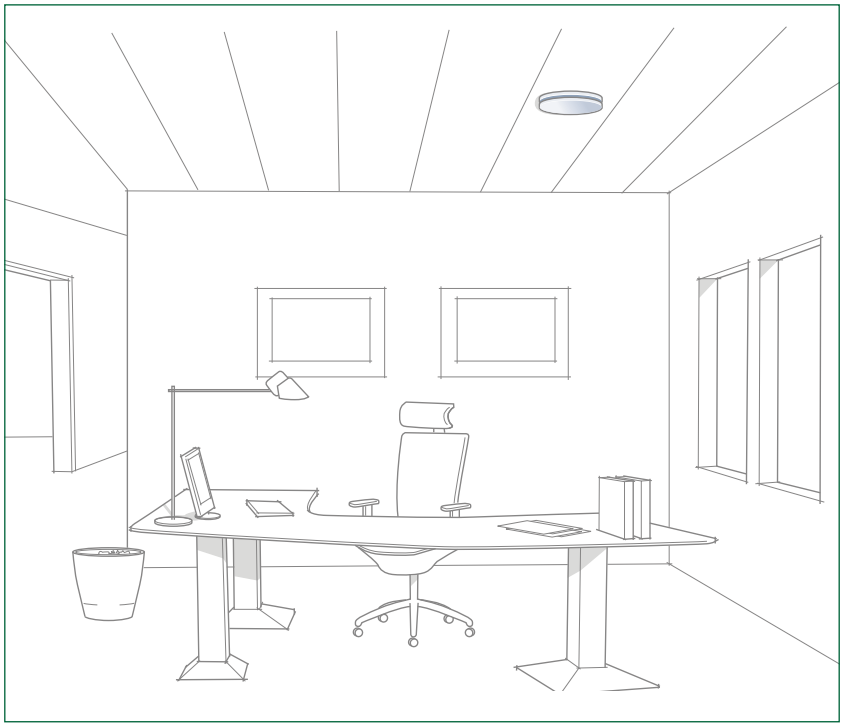


Diffusers

New shape, Higher quality,
Easier to install than ever!

www.flaktwoods.com

CTUR Air diffuser



CTUR air diffuser is especially well-suited for installation in galleys, istitutional kitchens and in laboratories in which the hygienic requirements and the demands on corrosion resistance are high.

The CTUR is also suitable for use in comfort environments in which unique design solutions are important.

The air diffuser is completely made of stainless steel and has, in all respects, the same appearance as diffusers with plenum box ATTC.

The CTUR has smooth surfaces both inside and out, and has no sharp edges. These features make the air diffuser very easy to clean.

The air diffuser is available in two versions with or without rim bolt nuts and six sizes for air flows up to and including 150 l/s and is available with connection diameter ranging from 125 mm up to 500 mm. The CTUR can be connected dirctly to the ducting or across a plenum box.

Product facts

High sound attenuation

Easy to install

Made of stainless steel

Product code example:

Air diffuser CTUR-125-0
Plenum box ATTC-100-125-4

FläktWoods

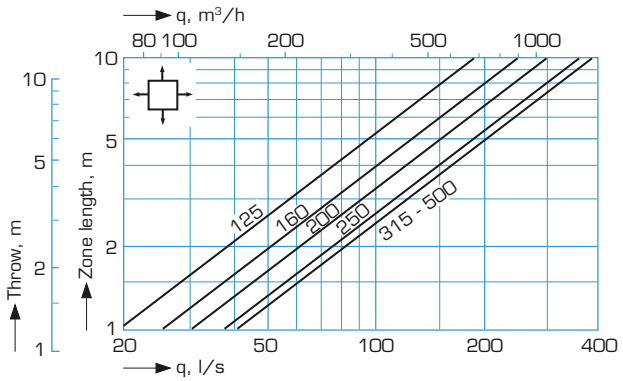
CTUR

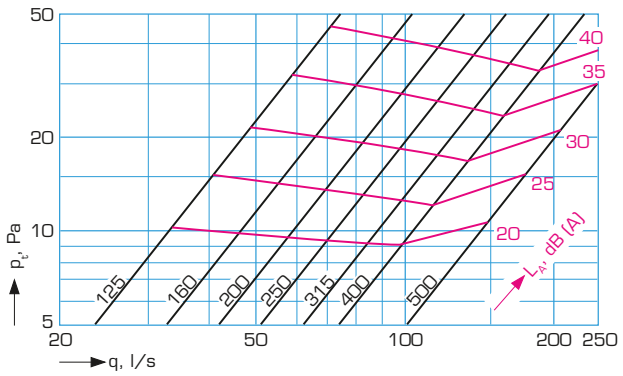
- Made of stainless steel
- Easy to install
- High sound attenuation
- Hygienic

www.flaktwoods.com

CTUR Air diffuser

Air flow, zone length, throw, pressure drop, sound level





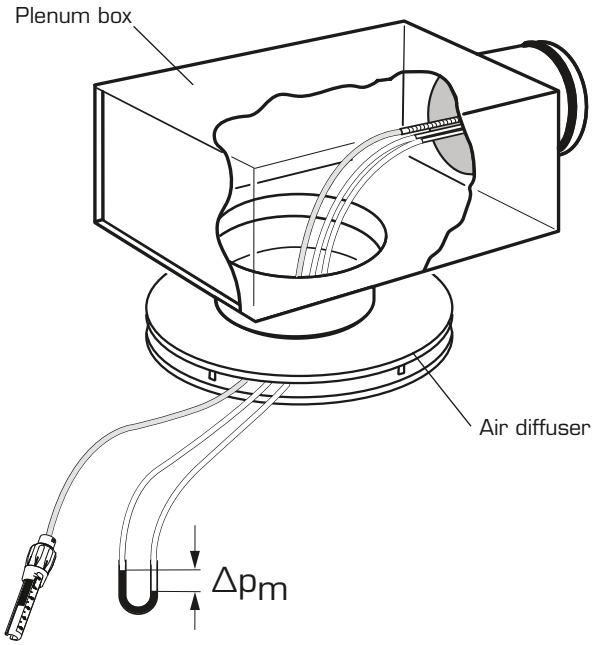
The air diffuser is normally supplied preset for 4-way diffusion however it can be easily modified for other air diffusion patterns.

Design

The visible parts of the diffuser consists of two concentric discs. The upper disc has a connection spigot fitted with a seal. The diffuser is normally used together with the ATTC plenum box. However it can also be connected directly to the duct.

Accessories

The ATTC plenum box is used for connection to horizontal circular ducts. The ATTC plenum box has internal anti-condensation insulation on all sides.



Materials and finish

Diffuser: Stainless steel SS 2333.

Connection box: Galvanised sheet steel.

Packaging

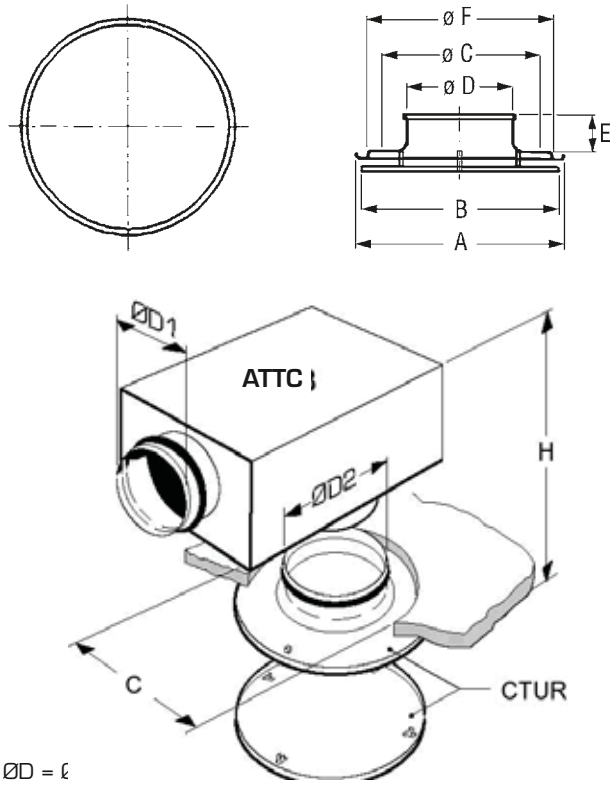
Diffuser: Carton and shrink-film packaging.

Plenum box: Carton or shrink-film packaging, if larger quantities are delivered.

CTUR Air diffuser

Dimensions

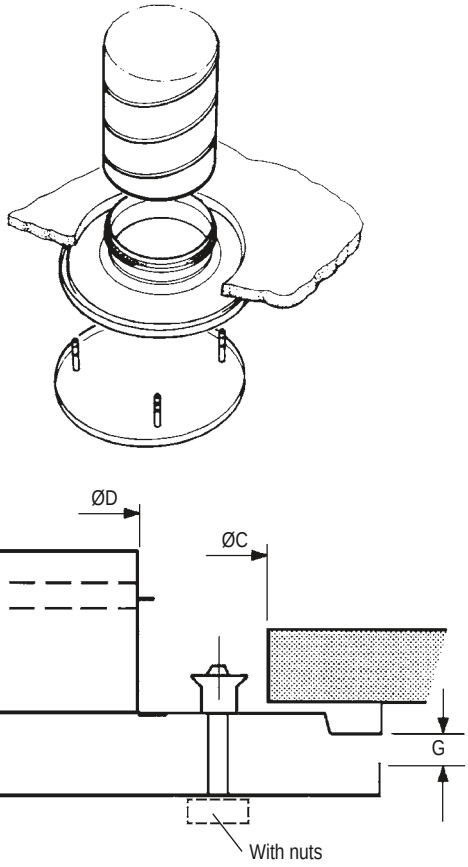
All dimensions in mm.



ØD = ø

Installation

air diffuser connected directly to the ducting



CTUR (aaa)	ATTC (aaa-bbb)	A	B	C [1]	D1	D2	E [1]	F	H_{min}	H_{max}
125	100-125	230	210	130	99	124	90	190	215	260
160	100-160	275	250	165	99	159	90	235	215	260
	125-160	275	250	165	124	159	90	235	215	260
200	125-200	370	350	205	124	199	90	330	215	260
	160-200	370	350	250	159	199	90	330	250	295
250	160-250	470	450	255	159	249	90	430	250	295
	200-250	470	450	255	199	249	90	430	290	335
315	200-315	570	550	320	199	314	90	530	290	335
	250-315	570	550	320	249	314	90	530	340	385
400	250-400	570	550	405	149	399	90	530	340	385
	315-400	570	550	405	314	399	90	530	405	450
500	315-500	600	700	506	314	499	90	550	405	450

[1] min measurement for cut-out when b = 1 or 2

[2] when b = 1 or 2

CTUR Air diffuser

Product code

Air diffuser **CTUR-aaa-b**

Size (aaa)
connection diameter in mm:
125, 160, 200, 250, 315, 400, 500

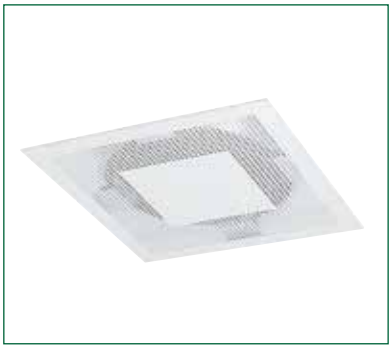
Version (b)
0 = without nuts (G = 34 mm)
1 = with nuts (G = 30 mm)
2 = with nuts (G = 100 mm) - only at size 500

Plenum box **ATTC-aaa-bbb-c**

Duct connection in mm (aaa)
Diffuser connection in mm (bbb)

Type (c)
0 = uninsulated
4 = marine insulated

MCSA Air supply unit
for the REGOVENT single duct system



The air supply unit is a single duct unit and designed for ceiling mounting above the false ceiling. The air supply unit is intended for climate control in spaces onboard ship, such as cabins, offices, messes and utility spaces.

The MCSA unit consists of an internally insulated casing with a throttling device for airflow control. The maximum and minimum airflow is adjustable with adjusting screws inside the unit.

The MCSA units should be used together with a CTGA or a CTLM supply air diffuser.

Product facts

Provides good thermal comfort.

Offers individual temperature control by manual or automatic adjustment of the supply air flow.

Is available with electrical re-heater.

Offers simple and quick installation and commissioning.

The internal insulation satisfies the criteria of IMO Resolution A.799 (19) as well as IMO FTPC Part 1 for classification as non-combustible.

Conforms to the provisions of IMO Resolution A.754 (18) for false ceilings with fire resistance rating B15.

Satisfies the vibration and temperature requirements specified by Det Norske Veritas.

Product code example:

Air supply unit MCSA-2-1-0-00-0-1

Supply air diffuser CTGA-2-1-2

MCSA Air supply unit

All MCSA units

The MCSA unit is designed for ceiling mounting and consists of an internally insulated casing with a throttling device for airflow control.

The maximum and minimum airflow is adjustable with adjusting screws inside the unit.

The MCSA units should be used together with a CTGA or a CTLM supply air diffuser.

The supply air diffusers are available with or without knob. Supply air diffusers with knob should be used together with units with manual control. Supply air diffusers without knob should be used with units for constant air volume, CAV, or controlled by electric or pneumatic actuator.

All supply air diffusers have a bayonet mounting for fast and secure connection to the outlet of the unit.

The pattern of diffusion of the supply air can be adjusted to suit the requirements, by blanking of 1, 2 or 3 directions of discharge.

For the CTGA supply air diffuser, this is carried out by means of a CTGZ-01 cover strip for blanking off part of the perforated surface of the diffuser, and the CTGZ-02 edge-sealing gasket for blanking off the gap between the diffuser and the surface of the ceiling. The CTGA is delivered without cover strip or edge sealing gasket.

On the CTLM supply air diffuser, blanking off is carried out by means of CTLZ-12-035 cover plates. The CTLM is delivered without cover plates.

The MCSA unit with supply air diffuser with knob for manual control

Supply air diffuser without knob for Constant Air Volume, CAV, or with electric or pneumatic actuator

Supply air temperature at the unit outlet

Maximum: 50°C.

Minimum: 10°C below the room temperature.

Minimum air flows

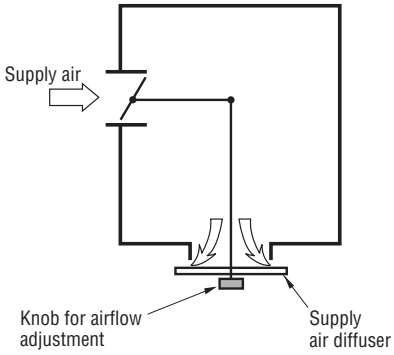
The table below shows the minimum airflows that are allowed in versions with electrical re-heater

Output kW	Min airflow l / s
0,3	20
0,6	25
0,9	25
1,2	30
1,5	35

MCSA Air supply unit

Air supply unit with manual control

The supply airflow can be adjusted manually by means of a knob in the diffuser.

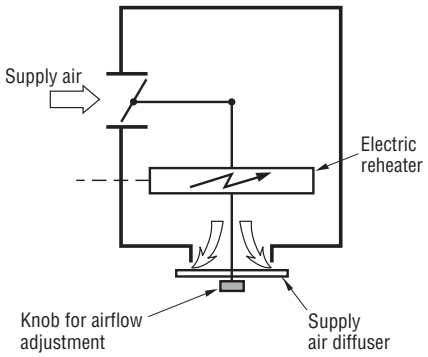


Air supply unit designed for manual control with an electric re-heater

The supply airflow can be adjusted manually by means of a knob in the diffuser.

The electric re-heater is designed for a 120V, 230V or 400V 50/60 Hz power supply. Other voltage supplies are available on request.

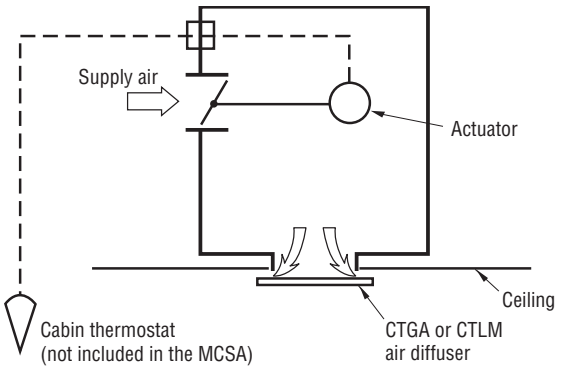
The unit has two overheat thermostats, one of which must be reset manually, the other resets automatically when the heater has cooled down.



Air supply unit designed for automatic control with an electric actuator

The airflow is controlled via an electrical actuator. The actuator is designed for 3-point control at 24V AC.

The temperature in the cabin is controlled via a thermostat (not included in the MCSA) by changing the supply air via the electrical actuator



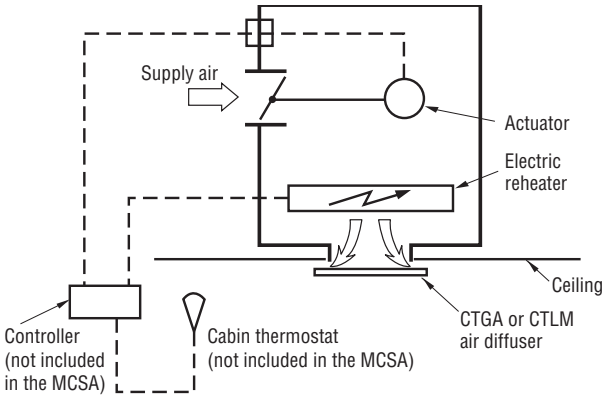
Air supply unit designed for automatic control with an electric actuator and an electric re-heater

The airflow is controlled via an electrical actuator. The actuator is designed for 3-point control at 24V AC.

The temperature in the cabin is controlled via a thermostat (not included in the MCSA) by changing the supply air via the electrical actuator and the output of the electrical re-heater.

The electric re-heater is designed for a 120V, 230V or 400V 50/60 Hz power supply. Other voltage supplies are available on request.

The unit has two overheat thermostats, one of which must be reset manually, the other resets automatically when the heater has cooled down.



MCSA Air supply unit

Charts

The charts are applicable under the following conditions:

Total pressure drop: At an air density of 1.2 kg/m^3.

Sound level: Flow-generated sound, dB(A).

The specified sound levels are applicable at a room attenuation of 4 dB, which corresponds to the attenuation in a room with an equivalent sound absorption area of 10 m^2.

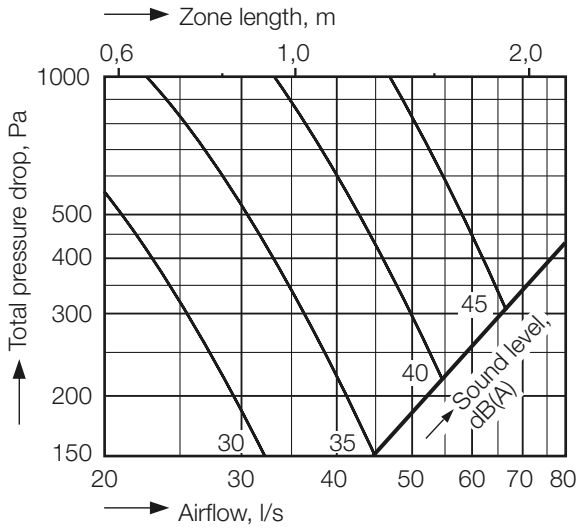
The specified sound levels are subject to a tolerance of ± 2 dB.

Zone length

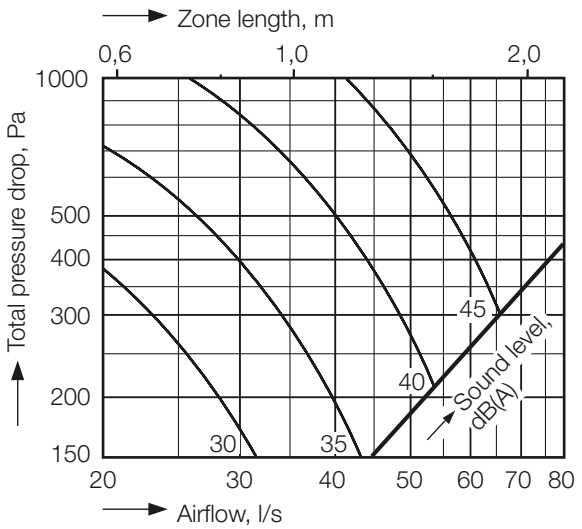
Zone length is the distance between the air supply unit and the wall, or half the distance between two adjacent units.

All particulars are applicable to a unit with four-way diffusion.

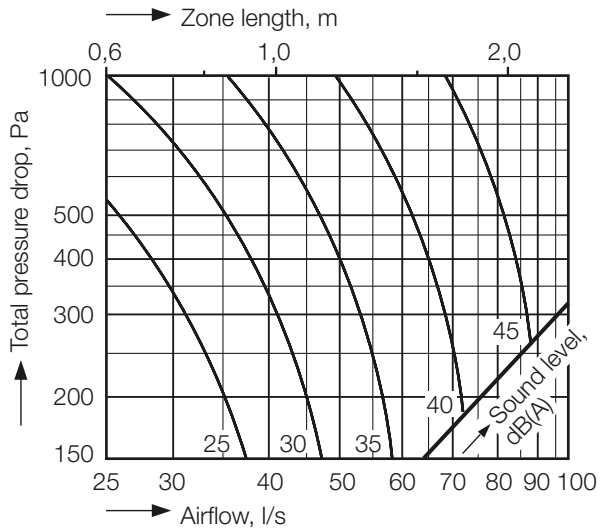
MCSA size 2, without electrical re-heater, with supply air diffuser CTGA or CTLM



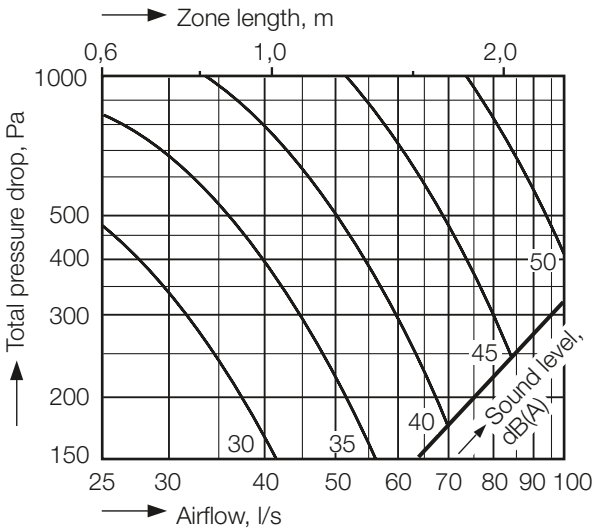
MCSA size 2, with electrical re-heater and supply air diffuser CTGA or CTLM



MCSA size 3, without electrical re-heater, with supply air diffuser CTGA or CTLM



MCSA size 3, with electrical re-heater and supply air diffuser CTGA or CTLM



MCSA Air supply unit

Sound power level

The sound power level L_w in dB can be calculated by adding the correction value K_{oct} to the value of L_A obtained from the charts on previous page in accordance with the following formula:

$$L_w = L_A + K_{oct}$$

K_{oct} is a mean value for the entire normal operating range.

Size	Electrical re-heater	Correction values K_{oct}, dB Octave band, mid-frequency, Hz							
		63	125	250	500	1000	2000	4000	8000
2	without	6	14	8	2	-6	-10	-16	-22
3	without	5	12	6	1	-1	-8	-16	-22
2	with	4	11	7	2	-4	-11	-17	-23
3	with	3	9	6	2	-2	-10	-17	-23

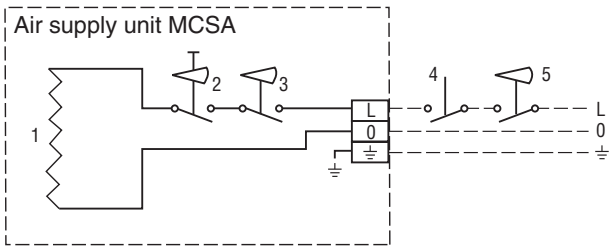
Sound attenuation

The specified sound attenuation is the reduction in the sound power level between the duct and the room.

Size	Sound attenuation, dB Octave band, mid-frequency, Hz							
	63	125	250	500	1000	2000	4000	8000
2	22	19	19	20	26	25	21	23
3	20	17	18	19	24	23	19	21

Wiring diagram

MCSA-a-1-0-dd-2-1 (dd should not be 0)
Air supply unit designed for manual control with an electric re-heater



1. Electrical re-heater element
2. Manually reset overheat protection
3. Automatic reset overheat protection
4. Interlocking of airflow (fan) with pressure switch.
5. Room thermostat. *Not included in the MCSA unit.*

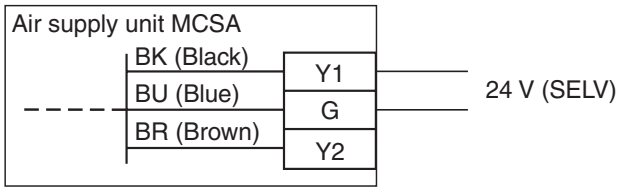
MCSA-a-2-0-00-0-1

Air supply unit designed for automatic control with an electric motor-driven actuator for three-position control.

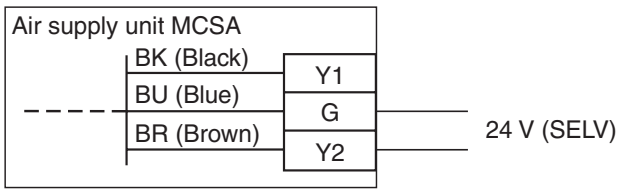
The 24 V cable from the cabin thermostat must be connected to the plug connector supplied. The plug connector is located at the inlet end wall of the unit.

Operate the actuators only on safety extra-low voltage AC 24 V (SELV).

The damper will open to maximum cold airflow



The damper will close to minimum cold airflow



MCSA-a-2-0-dd-2-1 (dd should not be 0)

Air supply unit designed for automatic control with an electric actuator and an electric re-heater.

See wiring diagram and function above.

Materials and finish

Casing: Galvanised sheet steel, aluminium on request
Throttling device: PVC-coated felt
Control mechanism: Galvanised steel, brass and nylon.
Insulation: Glass wool panels, with the exposed side covered with glass fibre fabric.
Electric re-heater element: Stainless steel.
Supply air diffuser: Galvanised sheet steel, powder painted white with colour NCS 0502-Y-08-R (which corresponds to RAL9010, BS 00 EE 55 and Munsell N 95, gloss 30%).
Knob: Grey ABS plastic

Swing down door and frame: Galvanised sheet steel, powder painted white with colour NCS 0502-Y-08-R (which corresponds to RAL9010, BS 00 EE 55 and Munsell N 95, gloss 30%).

Packaging

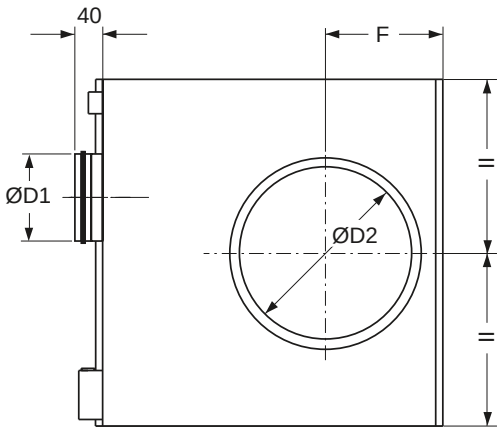
The MCSA is delivered on a pallet, with common cardboard packaging.

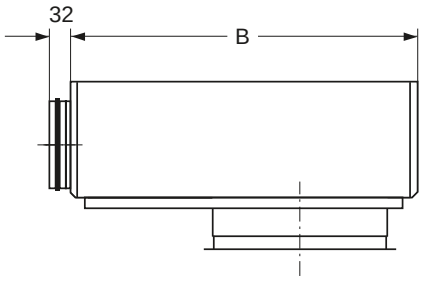
The CTGA and CTLM are delivered in cartons.

MCSA Air supply unit

Dimensions and weights

All dimensions in mm.





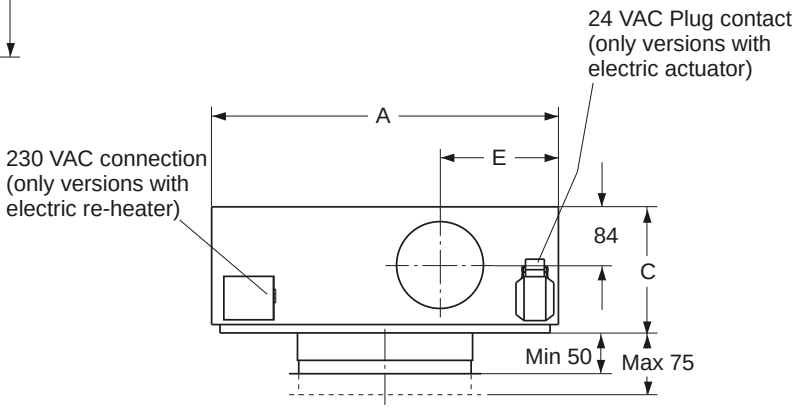
Slze	A	B	C	D1	D2	E	F
2	425	425	180	99,3	250	132	158
3	495	495	180	124,3	250	169	220
4	425	425	180	79,3	200	132	158

Weight, kg

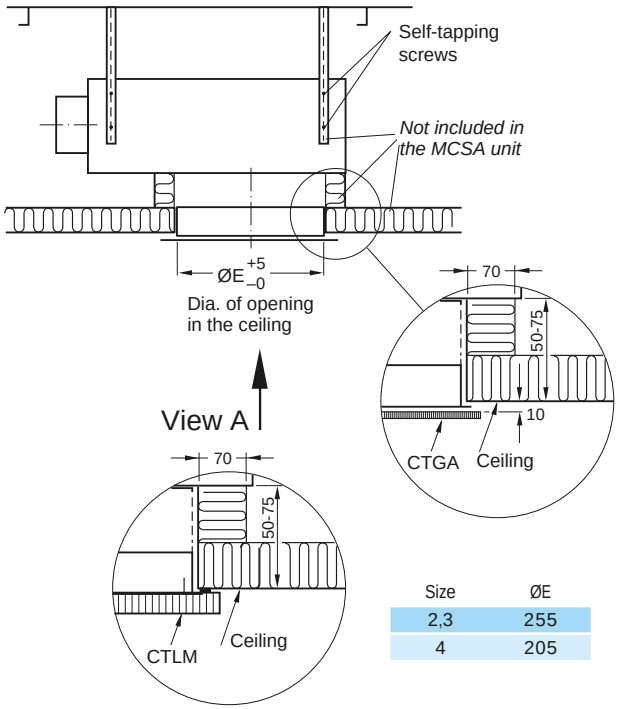
Size	a	b	c	d	CTGA	CTLM
2, 4	6,5	7,2	7,5	8,2	1,3	1,6
3	8,5	9,2	9,5	10,2	1,3	1,6

a = Versions without actuator and re-heater
b = Versions with actuator
c = Versions with re-heater
d = Versions with actuator and re-heater

Swing down door and frame: 4,5 kg

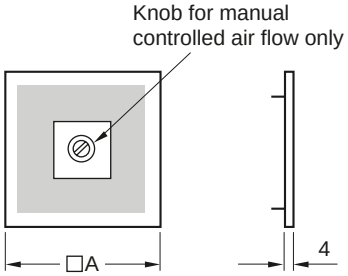


Example of installation in the space above the false ceiling



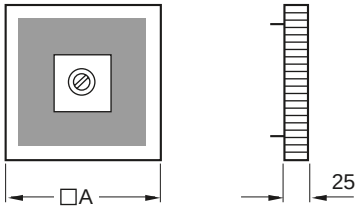
Size	ØE
2,3	255
4	205

CTGA air diffuser (View A)



Size	□A
2,3	340
4	260

CTLM air diffuser



Size	□A
2,3	352
4	275

MCSA Air supply unit

Specification

Air supply unit **MCSA-a-b-c-dd-e-f**

Size (a)
2 = Ø250 6 = Aluminium*
3 = Ø250 7 = Aluminium*
4 = Ø200

Control - airflow (b)
0 = CAV, constant air volume without knob
1 = manual with knob
2 = electrical
4 = electrical (modbus)
5 = pneumatic*

Suspension (c)
0 = without
1 = with U-brackets (as shock proof)
2 = with L-brackets
3 = swing down door, frame fitted
4 = swing down door, frame delivered separate as accessory

Heating coil, effect (dd)
00 = without heating coil
03 = 0,3 kW (only where a=2, 4)
06 = 0,6 kW
09 = 0,9 kW
12 = 1,2 kW
15 = 1,5 kW (only where a =3, 5)

Current (e)

	Offshore
0 = without heating coil	
1 = 120 V	7 = 120 V
2 = 230 V	8 = 230 V
4 = 400 V	9 = 400 V

Options (f)
1 = standard
2 = pressure switch for fan interlocking (not Offshore)

MCSZ-aa

Accessories (aa)
01 = suspension profile, swing down
02 = swing down frame
03 = swing down door with frame fitted
the above are accessories for separate delivery

*) On request

Supply air diffuser **CTGA-a-b-2**

(to be ordered separately) **CTLM-a-b-1**

Size (a)
1 = Ø200
2 = Ø250

Version (b)
1 = with knob for MCSA with manual airflow
3 = without knob for MCSA with CAV and/or electric or pneumatic motor

Accessories for the CTGA

Cover strip set, 5 × 2 m **CTGZ-01**

Edge-sealing gasket set, 5 × 2 m **CTGZ-02**

Spare part kit **CTGA-99-01**

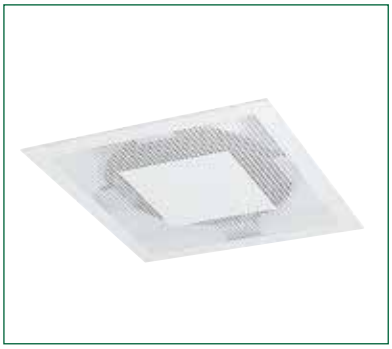
Contents: Control knob, shaft & signs
Set of 10 pcs

Spare part kit **CTGA-99-02**
Contents: Driving gear wheels
Set of 10 pcs

Accessories for the CTLM

Cover plate set, for one discharge side **CTLZ-12-035**

MCDA Air supply unit
for the DUOVENT dual duct system



The air supply unit MCDA is a dual duct unit and designed for ceiling mounting above the false ceiling. The air supply unit is intended for climate control in spaces onboard ship, such as cabins, offices, messes and utility spaces.

The MCDA unit consists of an internally insulated casing with two throttling devices for controlling the cold and warm air. The two airflows are mixed in the unit before being discharged through a supply air diffuser.

The MCDA units should be used together with a CTGA or a CTLM supply air diffuser.

Product facts

Provides good thermal comfort.

Offers individual temperature control of both the supply air temperature and the supply air flow.

Is available for manual or automatic control by means of a pneumatic or electric motor.

Offers simple and quick installation and commissioning.

The internal insulation satisfies the criteria of IMO Resolution A.799 (19) as well as IMO FTPC Part 1 for classification as non-combustible.

Conforms to the provisions of IMO Resolution A.754 (18) for false ceilings with fire resistance rating B15.

Product code example:

Air supply unit MCDA-2-2-0-1

Supply air diffuser CTGA-2-3-2

MCDA Air supply unit

All MCDA units

The MCDA unit is designed for ceiling mounting and consists of an internally insulated casing with two throttling devices for controlling the cold and warm air. The two airflows are mixed in the unit before being discharged through a supply air diffuser.

The MCDA units should be used together with a CTGA or a CTLM supply air diffuser

The supply air diffusers exist with or without knob. Supply air diffusers with knob should be used together with units with manual control. Supply air diffusers without knob should be used with units controlled by an electric or pneumatic actuator.

All supply air diffusers have a bayonet mounting for fast and secure connection to the outlet of the unit.

The pattern of diffusion of the supply air can be adjusted to suit the requirements, by blanking of 1, 2 or 3 directions of discharge.

For the CTGA supply air diffuser, this is carried out by means of a CTGZ-01 cover strip for blanking of part of the perforated surface of the diffuser, and the CTGZ-02 edge-sealing gasket for blanking of the gap between the diffuser and the surface of the ceiling. The CTGA is delivered without cover strip or edge sealing gasket.

On the CTLM supply air diffuser, blanking off is carried out by means of CTLZ-12-035 cover plates. The CTLM is delivered without cover plates.

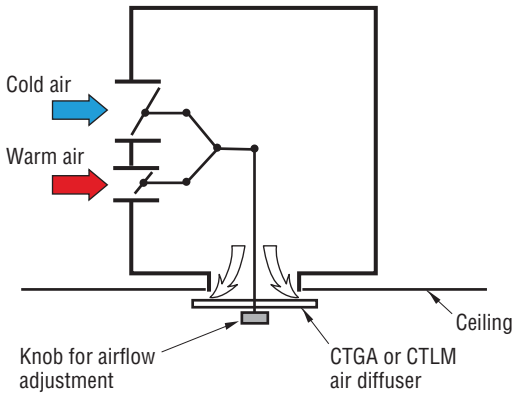
The MCDA unit with supply air diffuser with knob for manual control

Supply air diffuser without knob for electrical or pneumatic control

MCDA Air supply unit

Air supply unit designed for manual control

The mix of the cold and the warm supply airflow can be adjusted manually by means of a knob in the diffuser.

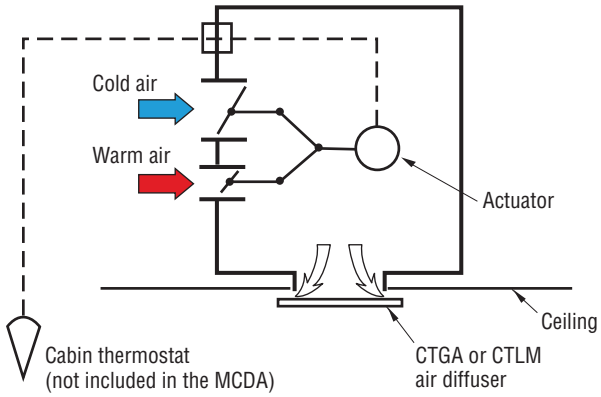


Air supply unit designed for automatic control with an electric actuator

The mix of the cold and the warm supply airflow is controlled via an electrical actuator. The actuator is designed for 3-point control at 24V AC.

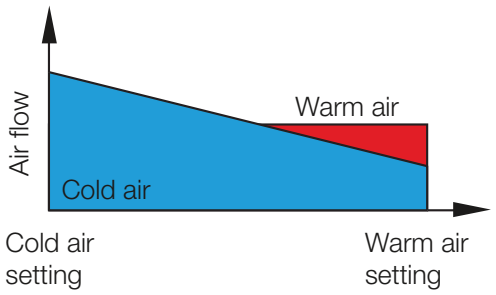
The temperature in the cabin is controlled via a thermostat (not included in the MCDA) by changing the mix of the cold and the warm supply air flow via the electrical actuator.

Air supply unit designed for automatic control can also be equipped with a pneumatic actuator instead of an electric actuator.



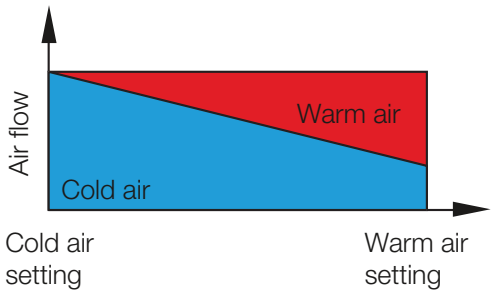
Operation

The MCDA can be preset and employed for either constant or variable total airflow, as shown in the charts below.



Variable supply air flow

Constant supply air flow



Supply air temperature at the unit outlet

Maximum: 50°C.

Minimum: 10°C below the room temperature.

MCDA Air supply unit

Charts

The charts are applicable under the following conditions:

Total pressure drop: At an air density of 1.2 kg/m^3.

Sound level: Flow-generated sound, dB(A).

The specified sound levels are applicable at a room attenuation of 4 dB, which corresponds to the attenuation in a room with an equivalent sound absorption area of 10 m^2.

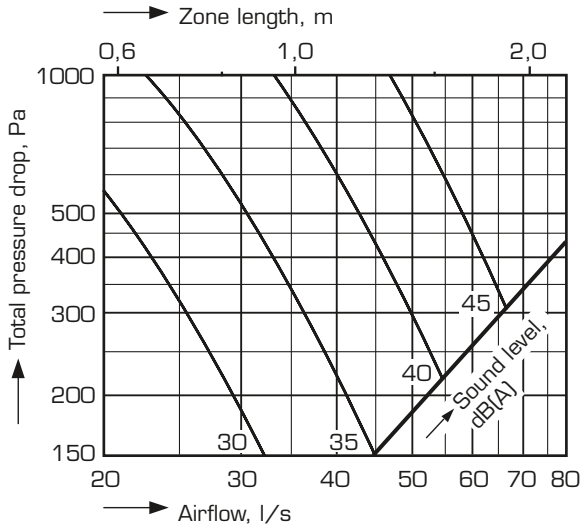
The specified sound levels are subject to a tolerance of ± 2 dB.

Zone length

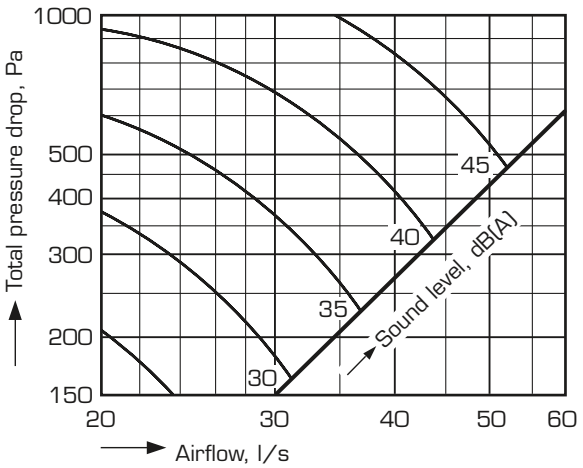
Zone length is the distance between the air supply unit and the wall, or half the distance between two adjacent units.

All particulars are applicable to a unit with four-way diffusion.

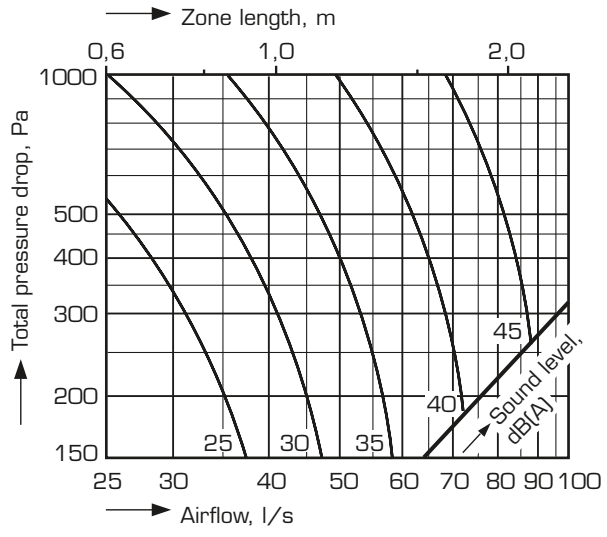
MCDA size 2, Cold air with CTGA or CTLM



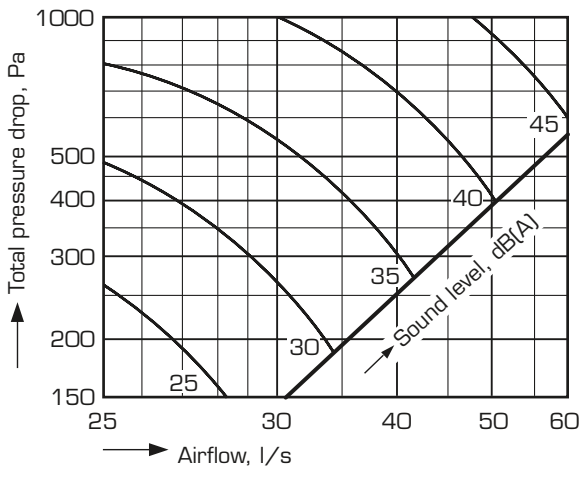
MCDA size 2, Warm air with CTGA or CTLM



MCDA size 3, Cold air with CTGA or CTLM



MCDA size 3, Warm air with CTGA or CTLM



MCDA Air supply unit

Sound power level

The sound power level L_w in dB can be calculated by adding the correction value K_{oct} to the value of L_A obtained from the charts on previous page in accordance with the following formula:

$$L_w = L_A + K_{oct}$$

K_{oct} is a mean value for the entire normal operating range.

Size	Correction values K_{oct}, dB Octave band, mid-frequency, Hz							
	63	125	250	500	1000	2000	4000	8000
2	6	14	8	2	-6	-10	-16	-22
3	5	12	6	1	-1	-8	-16	-22

Sound attenuation

The specified sound attenuation is the reduction in the sound power level between the duct and the room.

Size	Sound attenuation, dB Octave band, mid-frequency, Hz							
	63	125	250	500	1000	2000	4000	8000
2	22	19	19	20	26	25	21	23
3	20	17	18	19	24	23	19	21

Wiring diagram

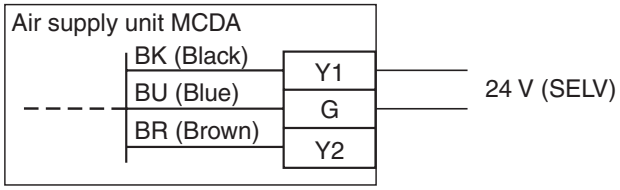
MCDA-a-2-0-1

Air supply unit designed for automatic control with an electric motor-driven actuator for three-position control.

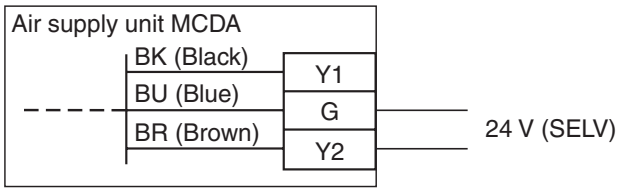
The 24 V cable from the cabin thermostat must be connected to the plug connector supplied. The plug connector is located at the inlet end wall of the unit.

Operate the actuators only on safety extra-low vol-tage AC 24V (SELV)

The damper will open to maximum cold airflow



The damper will close to minimum cold airflow



MCDA-a-3-0-1

Air supply unit designed for automatic control with a pneumatic motor-driven actuator.

The damper will open to maximum cold airflow at a air control pressure of 0,2 bar and close to minimum cold air flow at air pressure of 1,2 bar.

Materials and finish

Casing: Galvanised sheet steel
Throttling device: PVC-coated felt
Control mechanism: Galvanised steel, brass and nylon.
Insulation: Glass wool panels, with the exposed side covered with glass fibre fabric.
Supply air diffuser: Galvanised sheet steel, powder painted white with colour RAL9010.
Knob: Grey ABS plastic

Packaging

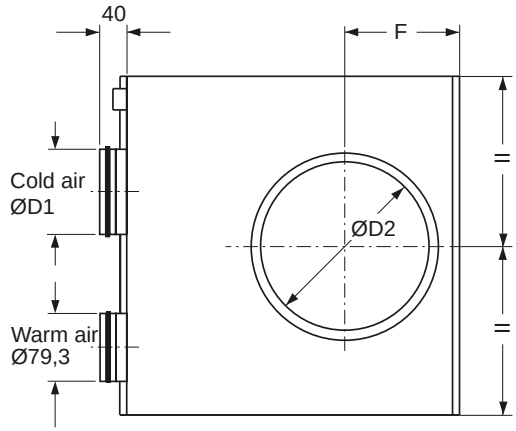
The MCDA is delivered on a pallet, with common cardboard packaging.

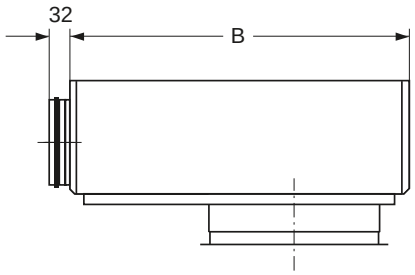
The CTGA and CTLM are delivered in cartons.

MCDA Air supply unit

Dimensions and weights

All dimensions in mm.



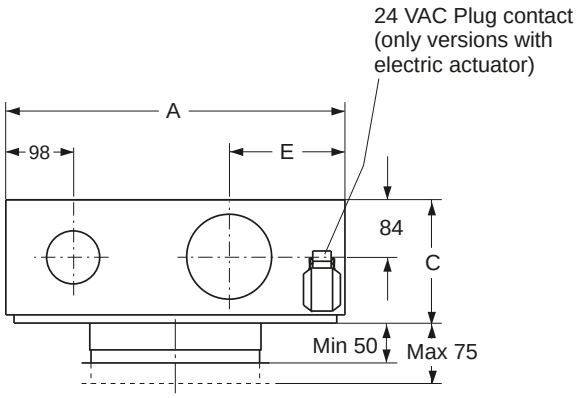


Size	A	B	C	D1	D2	E	F
2	425	425	180	99,3	250	132	158
3	495	495	180	124,3	250	169	220
4	425	425	180	79,3	200	132	158

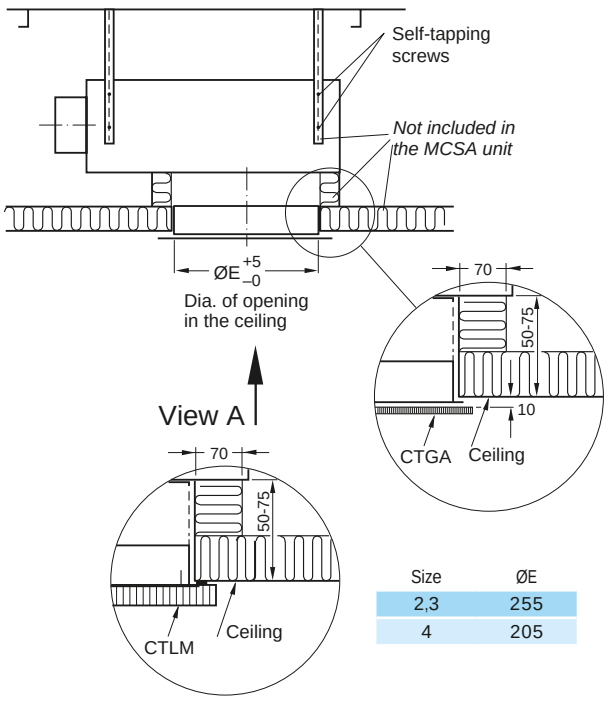
Weight, kg

Size	a	b	CTGA	CTLM
2, 4	7,0	7,6	1,3	1,6
3	9,0	9,6	1,3	1,6

a = Versions without actuator
b = Versions with actuator

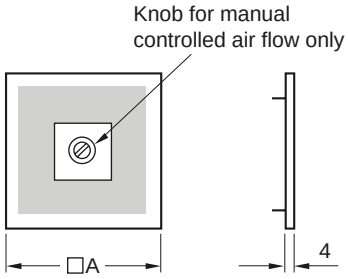


Example of installation in the space above the false ceiling



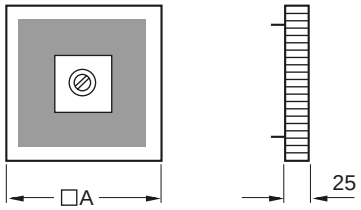
Size	ØE
2,3	255
4	205

CTGA air diffuser (View A)



Size	□A
2,3	340
4	260

CTLM air diffuser



Size	□A
2,3	352
4	275

MCDA Air supply unit

Specification

Air supply unit **MCDA-a-b-c-d**

Size (a)
2 = Ø250 6 = Aluminium*
3 = Ø250 7 = Aluminium*
4 = Ø200

Control - airflow (b)
1 = manual with knob
2 = electrical
4 = electrical (modbus)
5 = pneumatic*

Suspension (c)
0 = without
1 = with U-brackets (as shock proof)
2 = with L-brackets
3 = swing down door, frame fitted
4 = swing down door, frame delivered separate as accessory

Options (d)
1 = standard

MCSZ-aa

Accessories (aa)
01 = suspension profile, swing down
02 = swing down frame
03 = swing down door, frame fitted the above are accessories for separate delivery

*) On request

Supply air diffuser **CTGA-a-b-2**
(to be ordered separately) **CTLM-a-b-1**

Size (a)
1 = Ø200
2 = Ø250

Version (b)
2 = with knob for MCDA with manual airflow
3 = without knob for MCDA with electric or pneumatic motor

Accessories for the CTGA

Cover strip set, 5 × 2 m **CTGZ-01**

Edge-sealing gasket set, 5 × 2 m **CTGZ-02**

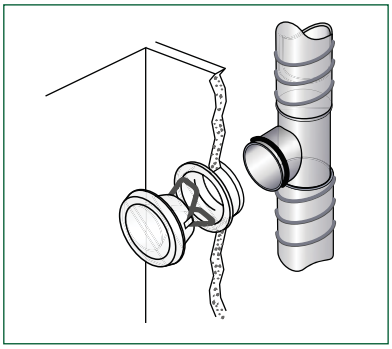
Spare part kit **CTGA-99-01**
Contents: Control knob, shaft & signs
Set of 10 pcs

Spare part kit **CTGA-99-02**
Contents: Driving gear wheels
Set of 10 pcs

Accessories for the CTLM

Cover plate set, for one discharge side **CTLZ-12-035**

KGEB Exhaust valve



The KGEB exhaust valve is suitable for use in mechanical ventilation systems. The valve can be wall mounted or ceiling mounted and its air flow is simple to adjust. The KGEB has a low noise level, even if the pressure drop is high, and it has good natural sound attenuation.

Quick selection

Size	Connection alternative	Air flow l / s (m³ / h) at sound level			
		25 dB	30 dB		35 dB
KGEB-100	T-piece	16	19	(68)	23
	Mounting ring	20	24	(86)	27
	Angle duct	14	16	(58)	19
KGEB-125	T-piece	22	25	(90)	28
	Mounting ring	29	34	(122)	38
	Angle duct	16	20	(72)	23
KGEB-160	T-piece	42	50	(180)	58
	Mounting ring	47	55	(198)	64

Product facts

Low noise level, even if the pressure drop is high

Good natural sound attenuation

Both for new installation and renovation

Manufactured of steel

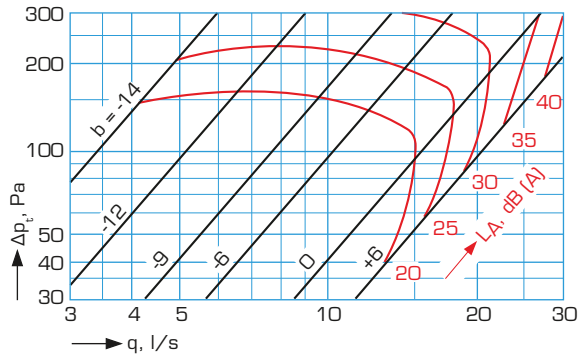
Product code example:

Exhaust valve KGEB-100-C

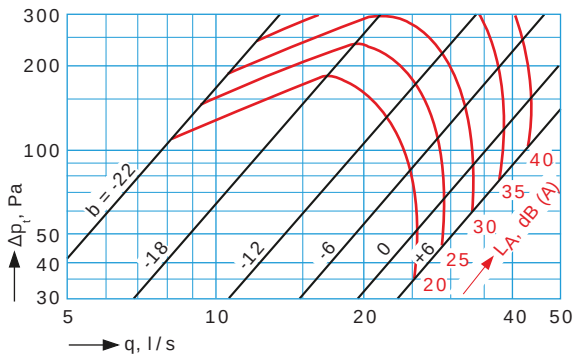
Mounting frame KGEZ-20

KGEB Exhaust valve

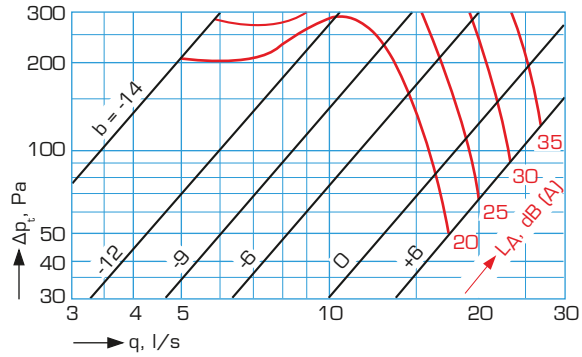
Size 100 with T-piece



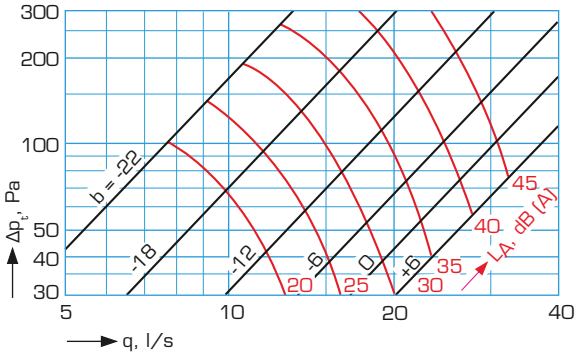
Size 125 with mounting ring



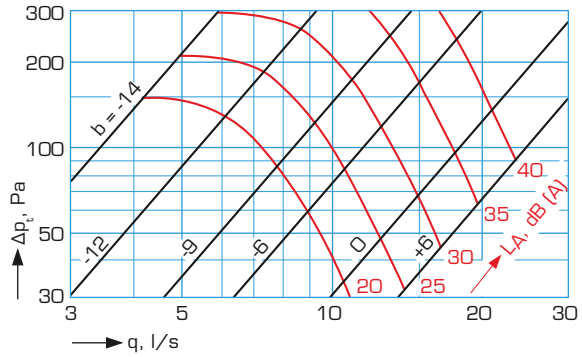
Size 100 with mounting ring



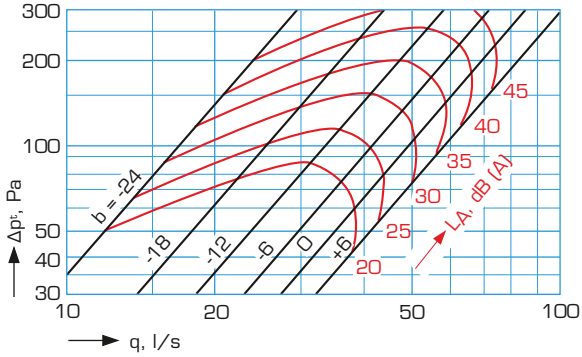
Size 125 with angle duct



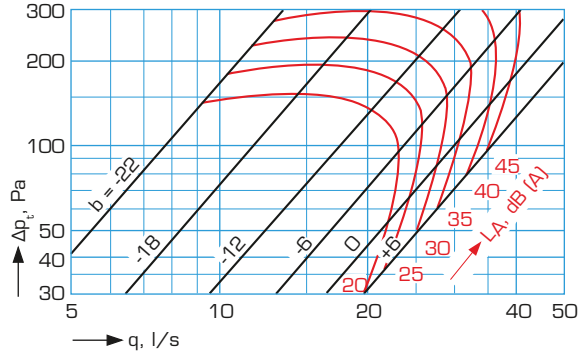
Size 100 with angle duct



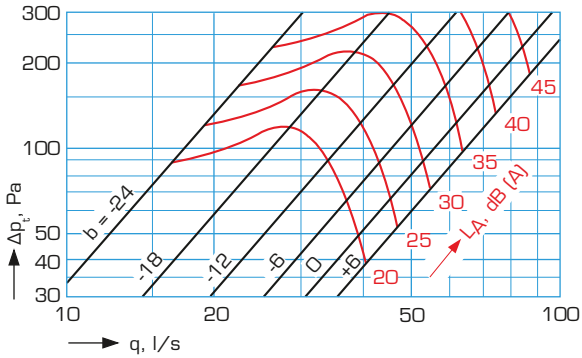
Size 160 with T-piece



Size 125 with T-piece



Size 160 with mounting ring



KGEB Exhaust valve

Sound power level

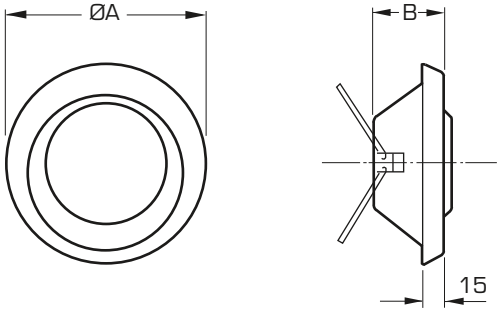
KGEB	Correction of sound level (dB) at							
	63	125	250	500	1000	2000	4000	8000
100	10	6	5	1	-2	-4	-7	-12
125	17	2	3	-1	-1	-4	-8	-12
160	18	4	3	0	1	-4	-12	-14

Sound attenuation

KGEB	Connection fitting	Sound attenuation (dB) at							
		63	125	250	500	1000	2000	4000	8000
100	KGEZ-01-100	25	22	21	20	14	18	9	10
	KGEZ-05-100	25	22	21	20	14	18	9	10
	KGEZ-43-100	30	27	23	17	16	19	12	13
125	KGEZ-01-125	24	20	17	15	11	12	7	7
	KGEZ-05-125	24	20	17	15	11	12	7	7
	KGEZ-43-125	29	25	19	12	13	13	10	10
160	KGEZ-01-160	22	18	16	12	14	10	9	8
	KGEZ-05-160	22	18	16	12	14	10	9	8

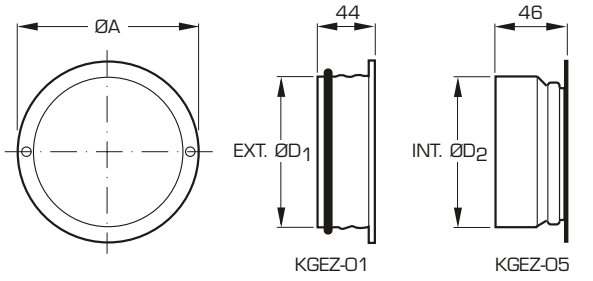
Dimensions and weights

Exhaust valve KGEB



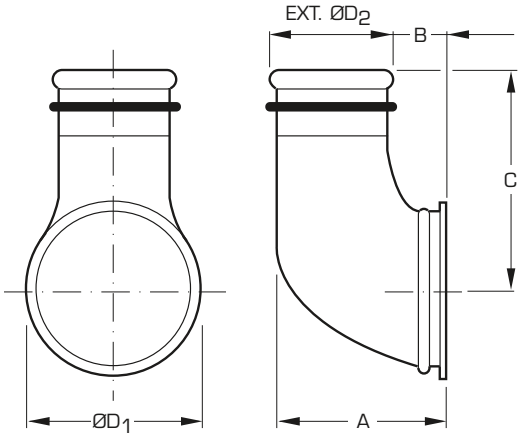
Size	A	B	Weight, kg
100	130	45	0,3
125	155	56	0,4
160	190	65	0,6

Mounting ring KGEZ-01, insertion conn. / Mounting ring KGEZ-05, fit-on conn.



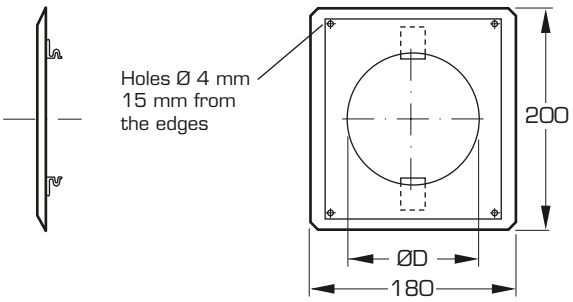
Size	A	D_1	D_2	Weight, kg	Hole size
100	123	99,3	100	0,10	Ø110
125	149	124,3	125	0,10	Ø135
160	185	159,3	160	0,16	Ø170

Angle duct KGEZ-43



Size	A	B	C	D_1	D_2	Weight, kg
100-080	120	39	148	125	79,3	0,4
100-100	140	39	98	125	99,3	0,4
125-080	115	36	161,5	131	79,3	0,35
125-100	146	45	120	140	99,3	0,5

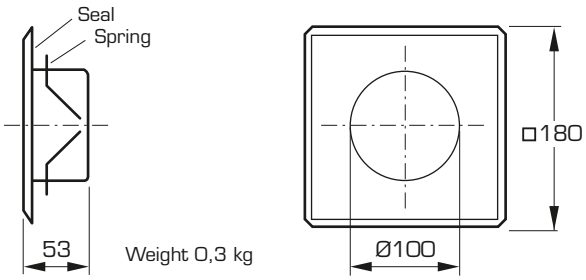
Mounting frame KGEZ-12



Size	D	Weight, kg
100	100	0,2
125	125	0,2

Used to replace earlier types of valves by KGEB-100 and KGEB-125 respectively.

Mounting frame KGEZ-20



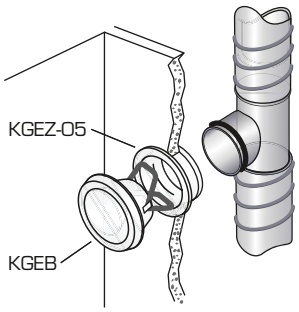
Used when old KGD valves are replaced with KGEB-100 or KGFC-1-010.

KGEB Exhaust valve

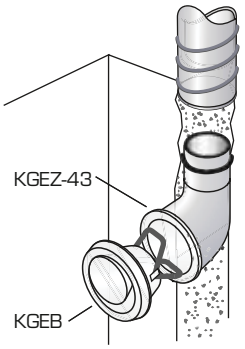
Installation, adjustment and maintenance

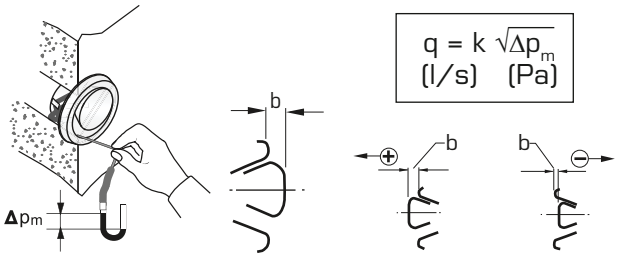
Instructions for installation, adjustment and maintenance are described in detail in our technical instructions, also available on the Internet at: www.flaktwoods.com.

Valve KGEB connected to a mounting ring



Valve KGEB connected to an angle duct





100	b	-11	-9	-6	0	+6	+9
	k-factor	0,39	0,56	0,82	1,36	1,9	2,2
125	b	-22	-18	-12	-6	0	+6
	k-factor	0,88	1,3	1,8	2,4	2,9	3,4
160	b	-24	-18	-12	-6	0	+6
	k-factor	1,8	2,5	3,1	3,9	4,6	5,4

* Applicable for KGEB produced after 01.01.2003

Packing

Delivery in cartons containing 10 pc.

Application

The KGEB exhaust valve is suitable for use in all type of air treatment installation. The valve can be wall or ceiling mounted and the air flow is easy to adjust.

KGEB has a low noise level, even if the pressure drop is high, and it has good natural sound attenuation. The valve has accessories adapted to different kinds of installations.

Exhaust valves in sizes 125 and 160 fit renovationconstructions in older KGEZ-branches in equivalent sizes.

Material and surface finish

The valve is manufactured from hot galvanized steel sheet.

The grille is powder coated for a high surface finish and good impact and scratch resistance. Standard colour White RAL-9010. CleanVent coating as standard..

Technical data and dimensioning

For complete dimensioning details, please see Fläkt Woods product selection program. Contact our nearest sales office for further information.

Descriptive text

KGEB exhaust valve manufactured by Fläkt Woods in size 10, with fit-on type mounting ring/insertion type mounting ring/angle duct.

Product code

Exhaust valve **KGEB-aaa-C**
Size
100, 125, 160

Mounting ring - insertion connection **KGEZ-01-bbb**
Size
100, 125, 160

Mounting ring - fit-on connection **KGEZ-05-bbb**
Size
100, 125, 160

Mounting frame **KGEZ-12-bbb**
Size
100, 125

Mounting frame (for KGD-frames) **KGEZ-20**

Angle duct **KGEZ-43-bbb-ccc**
Size
Connection dimension in mm to valve – to duct:
100–080, 100–100, 125-080, 125–100

SV2, SV1 Grilles

SV1

SV2

SV2 and SV1 grilles are designed for use as supply air devices for e.g. in offices and commercial premises. They are also suitable for exhaust and transfer air and have adjustable spread patterns and throws. The grilles which are intended for mounting on a wall or in the ceiling, can be completed with mounting frame K or connection box TG/TGE, which has a silent measurement damper. As accessory there is also adjusting device S which makes it possible to adjust the air flow.

Quick selection supply air without connection box

Grille model	Air flow range l/s (m³/h) at sound level			
	25 dB(A)	30 dB(A)		35 dB(A)
SVn-aaaa-100	58 - 230	77 - 280	(277 - 1008)	95 - 350
SVn-aaaa-150	100 - 300	130 - 390	(468 - 1404)	160 - 490
SVn-aaaa-200	130 - 360	160 - 470	(576 - 1692)	200 - 580
SVn-aaaa-300	230 - 460	290 - 600	(1044 - 2160)	360 - 750
SVn-aaaa-500	420 - 650	550 - 850	(1980 - 3060)	700 - 1100

Product facts

Low sound level
Can be mounted without mounting frame
Easy to adjust

Product code example:

Grille SV2-1000-100

Connection box supply air

TG-1000-100-A

Connection box exhaust air

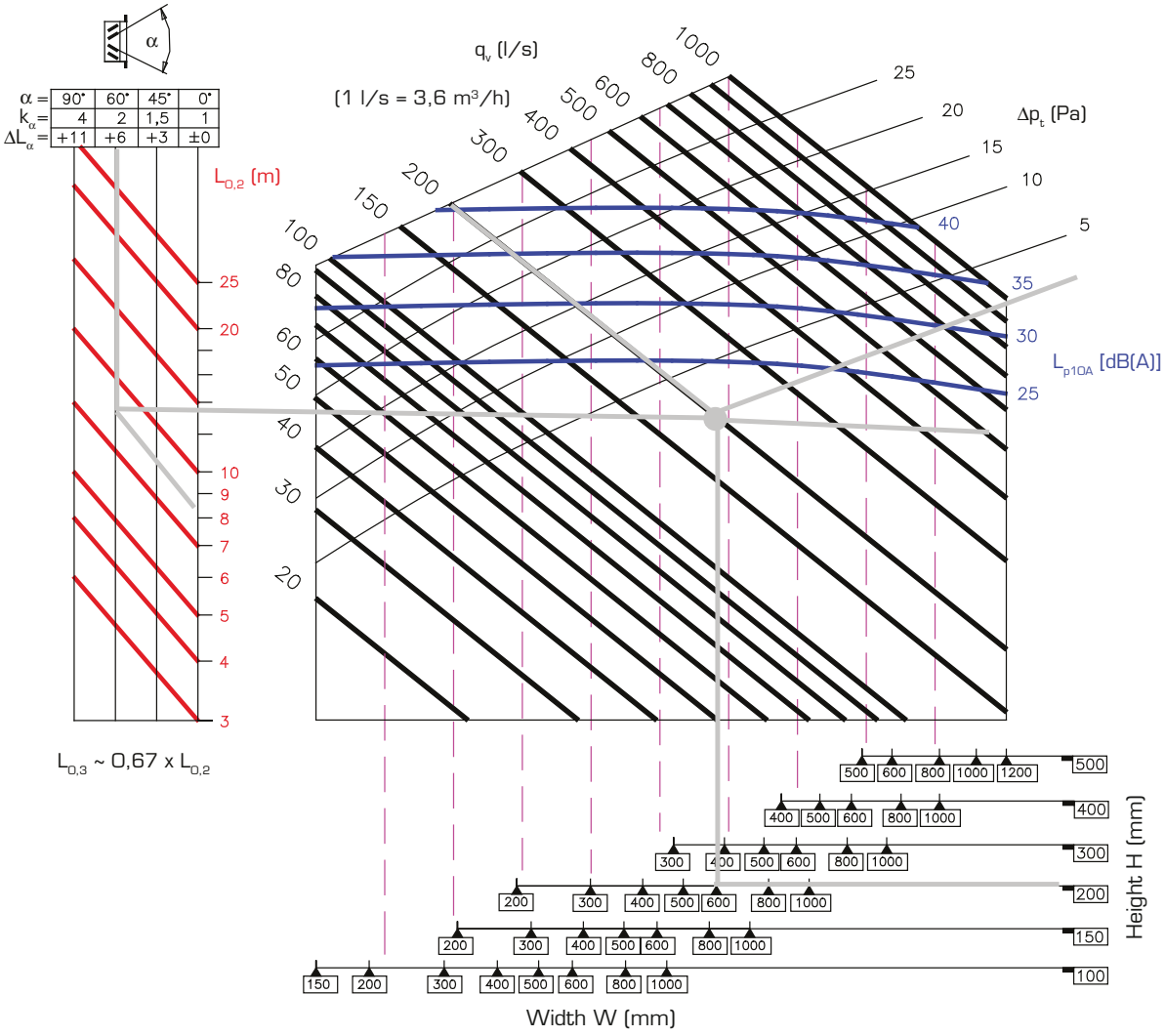
TGE-1000-100-B

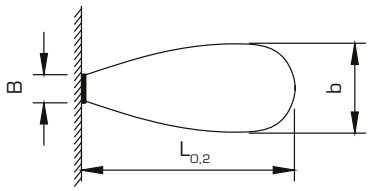
Mounting frame K-1000-100

Adjusting device S-1000-100

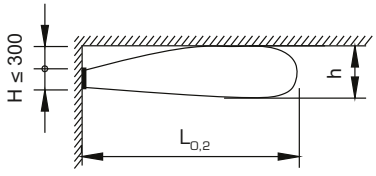
SV2, SV1 Grilles

Air flow, pressure drop, sound level

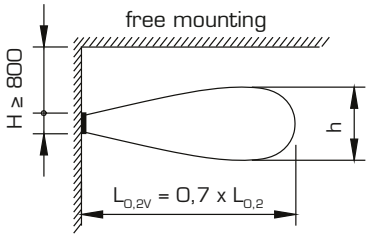




b ≈ 0,25 x $L_{0,2}$ α = 0°
0,6 x $L_{0,2}$ 45°
0,7 x $L_{0,2}$ 60°
1,2 x $L_{0,2}$ 90°



h ≈ 0,06 x $L_{0,2}$
Δt = 0°C



h ≈ 0,1 x $L_{0,2}$
Δt = 0°C

Exhaust air

The diagrams are valid for supply air. When used for exhaust air the sound level grows approx. 5 dB and the pressure drop falls with 10%.

Supply air

When using chilled air, recommended height H is ≤ 200 mm and max chilled air Δt = approx. -5 °C.
Increase in sound level and pressure drop caused by back blades:

$L_{p10A(tot)} = L_{p10A} + ΔL_α$

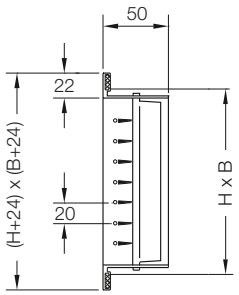
$Δp_{t(tot)} = K_α \times Δp_t$

When connection box TG or TGE is used, see acoustical and pressure data for each product

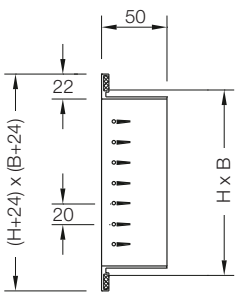
SV2, SV1 Grilles

Dimensions

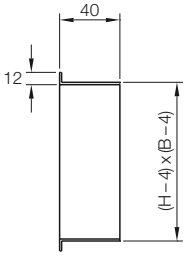
Grille SV2



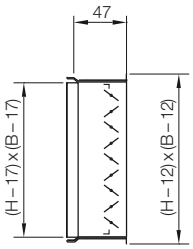
Grille SV1



Mounting frame K

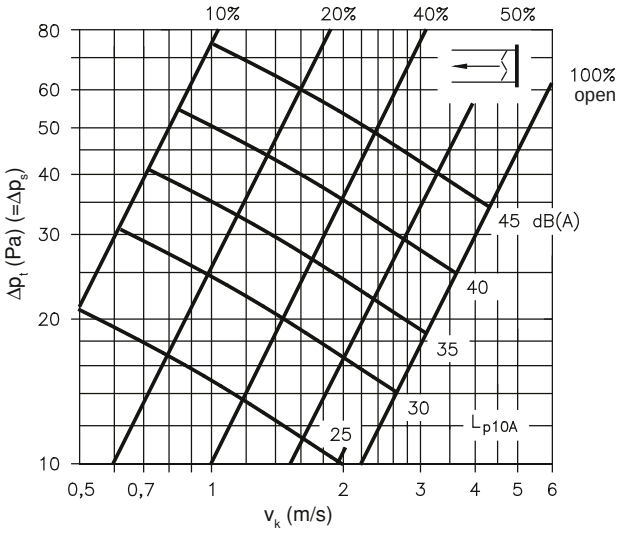


Adjusting device S



For dimensions H and W see heading "Dimensioning" on previous page.

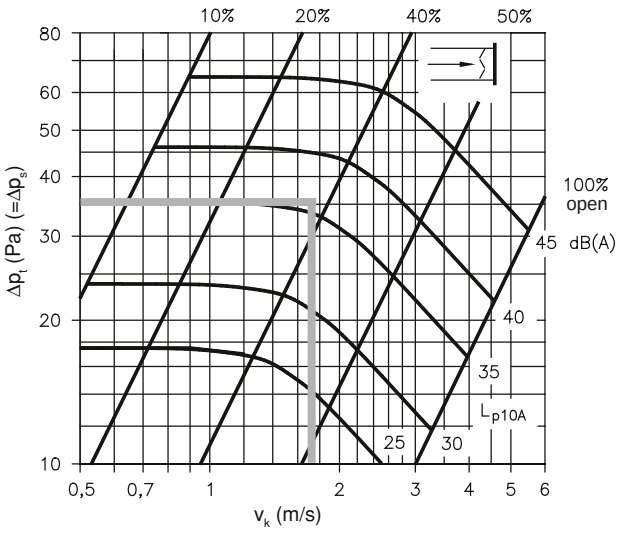
Adjusting device S, exhaust air



Total sound level of grille and adjusting device:

Difference of sound levels between grille and adjus ting device	0 - 1	2 - 3	4 - 9	≥10	dB
Addition to the higher sound pressure level	3	2	1	0	dB

Adjusting device S, supply air



Sound level of adjusting device: $L_{p10As} = L_{p10A} + K_A$

Velocity of the face area: $v_k = \frac{q_v}{B \times H} \left[\frac{m^3/s}{m^2}\right]$

Influence of the face area (A_k) to the sound pressure level:

A_k = B x H	0,03	0,06	0,12	0,2	0,4	m^2
K_A	±0	+3	+8	+11	+15	dB

Calculation example

1. The required isothermal supply air q_v to room is 200 l/s.
2. Throw suitable for the size of the room is $L_{0,2}$ ~ 8 m.
3. Required sound pressure level in the room L_{p10A} = 50 dB(A).
4. Ensure that the duct system can be adjusted.

Solution:

1. SV2-600-200 is selected.
2. With angle α = 60° of the back blades is $L_{0,2}$ ~ 8 m,
   $L_{p10A(tot)} \approx 20 + 6 = 26$ dB(A) and $\Delta p_{t(tot)} \sim 2 \times 2 = 4$ Pa.
3. Allowed sound pressure level L_{p10A}, paying attention to the real room attenuation, the influence of the number of supply and exhaust devices etc., is f.ex. 44 dB(A).
4. When using the adjusting device S the adjustment is:

$$v_k = \frac{0{,}2\ m^3/s}{0{,}6 \times 0{,}2\ m^2} \sim 1{,}7\ m/s\ ;\ A_k = 0{,}12\ m^2$$

$$\Rightarrow K_A = +8\ dB$$

Allowed sound pressure $L_{p10A} = 44 - 8 = 36$ dB(A).

Difference of sound pressure levels of the grille and adjusting device = 36 – 26 ≥ 10 dB (the grille does not raise the total sound pressure level in this case).

The adjustment range achieved with the adjusting device Δp_t ~ 35 Pa.

The adjustment range achieved with connection box TG is 200 Pa in this case.

SV2, SV1 Grilles

Construction

SV2: horizontal, directional front blades (flow pattern can be steplessly directed upwards and downwards) and vertical directional back blades (flow pattern and throw can be regulated steplessly

SV1: horizontal, directional front blades (exhaust air use)

Grilles, larger than width W>2000 and/or height H>1200 are available with modular construction. In case of modular construction the dimensions of the installation hole (WxH in mm) should be stated. Max. height of the adjusting device S is 600 mm. Adjusting devices, larger than width W>600 are available with modular construction.

Material and surface finish

The grilles are manufactured from aluminium profiles. Mounting frame K and adjusting device S are manufactured from hot galvanized sheet steel. The regulation blades are manufactured from aluminium.

The devices are powder coated for a high surface finish and good impact and scratch resistance.

Standard colour white RAL-9010, gloss 70. Other colours on request.

Installation

The grilles are fitted into mounting frame K or connection box TG with springs or screwed directly on the wall or ceiling. If the grille is screwed on the ceiling, this should be stated in the order.

The springs are ready in all sizes, screw holes in sizes W>600 mm or H>300 mm. If screw holes are needed for a smaller grille, this should be stated in the order.

Placement	SV2	SV1
Wall, supply and exhaust	●	●
Ceiling, supply and exhaust	●	●

Instructions

Instructions for installation, adjustment and maintenance are described in detail in our technical instructions also available on the internet at www.flaktwoods.com.

Technical data and dimensioning

For complete dimensioning, please see Fläkt Woods product selection program. This is applicable especially when connection box TG/TGE is in use because device and box is not accounted for in the catalogue material. Contact our nearest sales office for further information.

Product code

Grille (supply, exhaust, transfer air) **SV2-aaaa-bbb**
SV1-aaaa-bbb

Width, mm
Height, mm

Grille with mounting frame **SV2-aaaa-bbb-K**
SV1-aaaa-bbb-K

Width, mm
Height, mm
Mounting frame installed

Accessories

Connection box supply air **TG-aaaa-bbb-c**
Connection box exhaust air **TGE-aaaa-bbb-c**

Length of grille connection, mm
Height of grille connection, mm
Connection alternative
A = from the side
B = from the rear
C = from above / from below

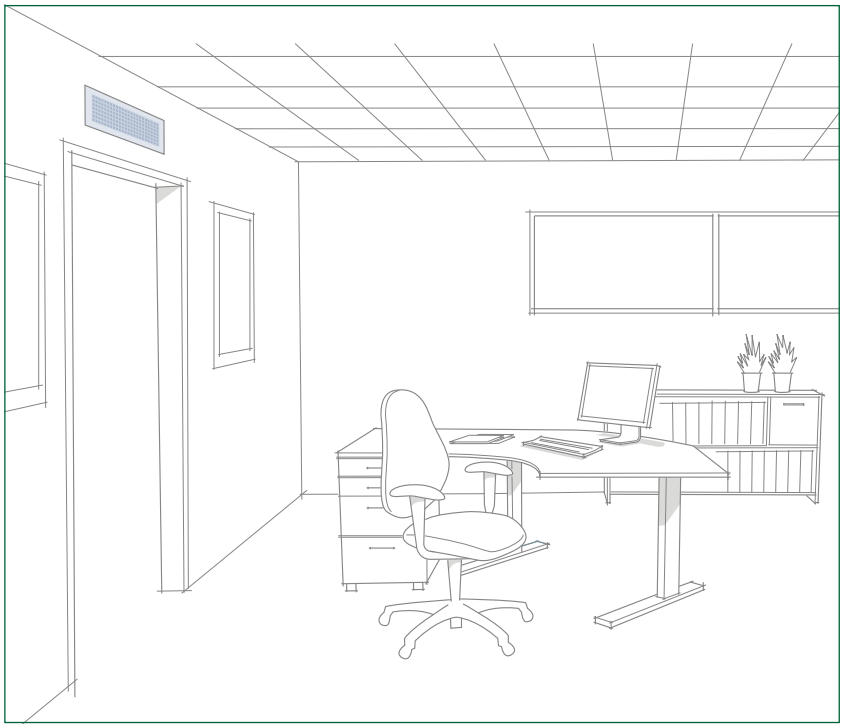
Mounting frame **K-aaaa-bbb**

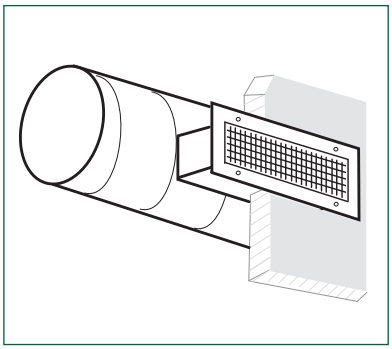
Size, grille
Width in mm
Height in mm

Adjusting frame **S-aaaa-bbb**

Size, grille
Width in mm
Height in mm

USR Grille





The grille USR is designed for use as exhaust air terminal device. It can be mounted into a wall or onto a ceiling. It may also be mounted into a connection box TGE. The adjusting device S is also available as an additional accessory.

Quick selection exhaust air without connection box

Size (B - H)	Connection TGE against duct, Ø mm	Air flow l / s (m³ / h) at sound level 25 dB(A)	30 dB(A)	35 dB(A)
USR-200-100	125	50	58 (209)	67
USR-300-100	160	85	98 (353)	120
USR-400-100	160	100	120 (432)	140
USR-500-100	200	130	150 (540)	170
USR-600-100	250	175	200 (720)	225
USR-800-100	250	220	250 (900)	290
USR-1000-100	250	290	330 (1188)	375
USR-300-150	200	130	150 (540)	170
USR-400-150	250	175	200 (720)	225
USR-500-150	250	220	250 (900)	290
USR-600-150	250	250	280 (1008)	330
USR-800-150	315	400	400 (1440)	450
USR-1000-150	315	480	480 (1728)	540
USR-400-200	250	250	280 (1008)	330
USR-500-200	315	290	330 (1188)	375
USR-600-200	315	350	400 (1440)	450
USR-800-200	315	420	480 (1728)	540
USR-1000-200	315	500	580 (1980)	760

Product facts

Designed for use as exhaust air terminal device

With or without connection box

Adjusting device as accessory

Product code example:

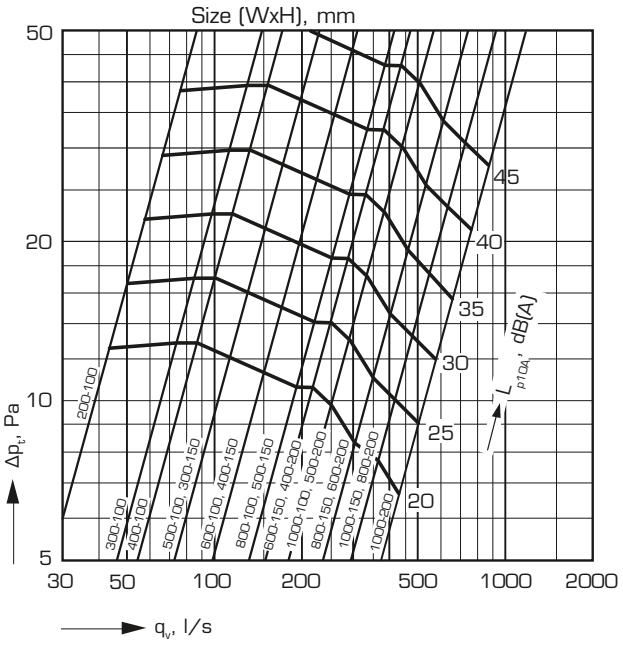
Grille USR-600-100

Connection box TGE-600-100-A

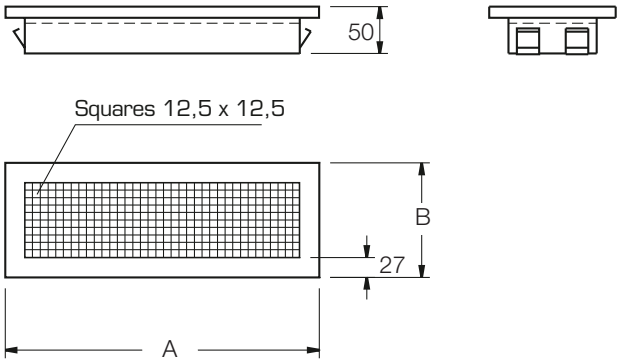
Adjusting device S-600-100

USR Grille

Selection diagram



Dimensions and weights



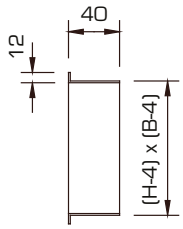
Size	A	B	Weight, kg
200-100	221	121	0,36
300-100	321		0,45
400-100	421		0,54
500-100	521		0,63
600-100	621		0,72
800-100	821		0,90
1000-100	1021		1,09
300-150	321	171	0,53
400-150	421		0,63
500-150	521		0,74
600-150	621		0,85
800-150	821		1,06
1000-150	1021		1,27
400-200	421	221	0,72
500-200	521		0,85
600-200	621		0,97
800-200	821		1,21
1000-200	1021		1,46

Sound attenuation

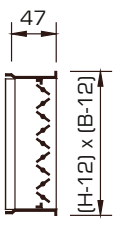
Grille without a connection box / check plate

Size	Sound attenuation ΔL (dB) Octave bands, mean frequency (Hz)						
	125	250	500	1000	2000	4000	8000
200-100	10	6	2	-	-	-	-
300-100	9	4	2	-	-	-	-
400-100	8	4	1	-	-	-	-
500-100	7	3	1	-	-	-	-
600-100	6	3	1	-	-	-	-
800-100	5	2	-	-	-	-	-
1000-100	4	1	-	-	-	-	-
300-150	8	4	1	-	-	-	-
400-150	7	3	1	-	-	-	-
500-150	6	3	1	-	-	-	-
600-150	5	2	-	-	-	-	-
800-150	4	1	-	-	-	-	-
1000-150	3	1	-	-	-	-	-
400-200	5	2	-	-	-	-	-
500-200	5	2	-	-	-	-	-
600-200	4	1	-	-	-	-	-
800-200	3	1	-	-	-	-	-
1000-200	3	1	-	-	-	-	-
Tol. ±	3	2	2	2	2	2	3

Mounting frame K

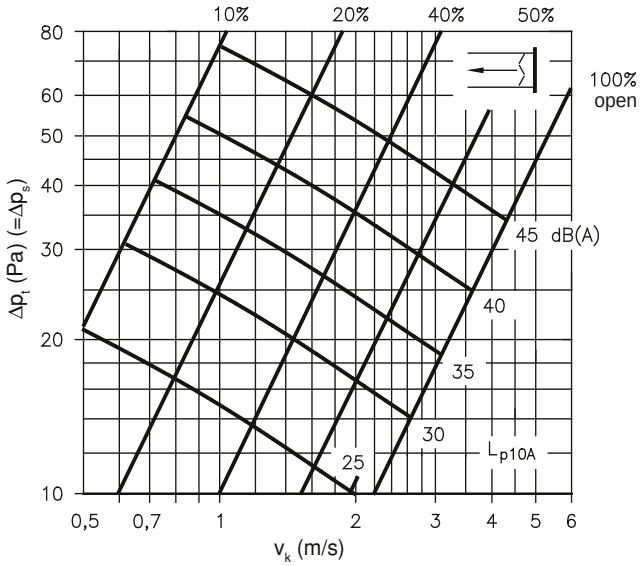


Adjusting device S



USR Grille

Adjusting device S, exhaust air



Sound level of adjusting device: $L_{p10As} = L_{p10A} + K_A$

Velocity of the face area: $v_k = \frac{q_v}{B \times H} \left[\frac{m^3/s}{m^2} \right]$

Influence of the face area (Ak) to the sound pressure level:

A_k = B x H	0,03	0,06	0,12	0,2	0,4	m^2
K_A	±0	+3	+8	+11	+15	dB

Total sound level of grille and adjusting device:

Difference of sound levels between grille and adjus ting device	0 - 1	2 - 3	4 - 9	≥10	dB
Addition to the higher sound pressure level	3	2	1	0	dB

Calculation example

1. The need for the air flow is 150 l/s.
2. The requirement for the sound attenuation of the room is $L_{pA} \leq 50$ dB(A).
4. Check that the ducts are adjustable.

Solution:

1. Select the grille USR-600-100.
2. Calculate the permitted sound level L_{A10} in consideration of the actual room attenuation and other devices of the room, for example 44 dB(A).
3. When using the adjusting device S it is to be calculated as follows:

$$v_k = \frac{0{,}15\ m^3/s}{0{,}6 \times 0{,}10\ m^2} \sim 2{,}5\ m/s\ ;\ A_k = 0{,}06\ m^2$$

$$\Rightarrow K_A = +3\ dB$$

Permitted sound level for the adjusting device is $L_{A10} = 44 - 3 = 41$ dB(A).

Sound level difference of the grille and adjusting device is 41 – 21 = 20 dB (in this case the grille doesn't increase the total sound level).

The pressure control area when using the adjusting device S is $\Delta p_t = 35$ Pa.

USR Grille

Construction

The USR grille is designed for use as exhaust air terminal device. It can be mounted on a wall or in a ceiling. It may also be mounted into connection box TGE. The adjusting device S is also available as an additional accessory. USR has a frame and grid blades of fixed regulation blades.

The dimensions of the installation hole (WxH in mm) are given with the order. The gradation of the grilles in width is 100 mm and in height 50 mm, in the design of 200x100 to 1000x200. Bigger sizes are also available. Grilles, larger than width W>1200 and/or height H>600 are available with modular construction. Max. height of the adjusting device S is 600 mm. Adjusting devices, larger than width W>600 are available with modular construction.

Material and surface finish

The USR grilles (frame and grid blades) are manufactured from aluminium. The mounting frame K and the adjusting device S are manufactured from hot galvanized steel sheet. The regulation blades are manufactured from aluminium.

The grille is powder coated for a high surface finish and good impact and scratch resistance. Standard colour is white, RAL-9010, gloss 30.

Installation

The grille is fitted into a mounting frame K or into a connection box TGE by using springs (all sizes) or screw holes (sizes W ≥ 600 mm or H ≥ 300 mm).

Instructions

Instructions for installation, adjustment and maintenance are described in detail in our technical instructions which are supplied with every product. The instructions are also available on the internet at www.flaktwoods.com.

Technical data and dimensioning

For complete dimensioning, please see Fläkt Woods product selection program. Contact our nearest sales office for further information.

Product code

Grille **USR-aaaa-bbb**

Width in mm

Height in mm

Connection box **TGE-aaaa-bbb-c**

Length of grille connection, mm

Height of grille connection, mm

Connection alternative
A = from the side
B = from the rear
C = from above / from below

Mounting frame **K-aaaa-bbb**

Width in mm

Height in mm

Adjusting device **S-aaaa-bbb**

Width in mm

Height in mm

RIS External louvres

General

RIS external weather louvre of robust design for air intake and discharge.

- meets the requirements of standard EUROVENT 2/5 for water penetration,
- low pressure drop,
- well shaped to prevent particles from being built up,
- can easily be removed from the ventilation frame,
- genuine surface finish.

Construction

The RIS external louvre consists of louvre, installation frame and protective mesh. Large louvres are made as modul construction. Louvres can be continuous with active and non-active sections.

RIS-aaa-bbb:

General louvre for air intake or discharge.
Minimum size for single louvre (width B x height H) is 200 x 200 mm and maximum is 1600 x 1200 mm. Larger louvres are made of moduls.

Width and height can be supplied in 50 mm increments. The actual size for fitting is 7 mm less than the nominal size.

RIS-aaa-bbb-J:

Outer grille for exhaust air. Same as RIS, but the louvres are formed especially for exhaust air and directed upwards.

Exhaust air louvre is designed to be used in equipment for continuous operation. For equipment for intermittent operation, the recommended installation includes either a rain cover above the grille or a drain in the connecting duct, leading out the possibly accumulated water during standstill periods.

RISD-aaa:

Circular RIS-type louvre. Rigid construction.
Sizes from ø 200 up to ø 1400 mm as a single louvre (10 mm increments). Larger louvres are made of moduls.

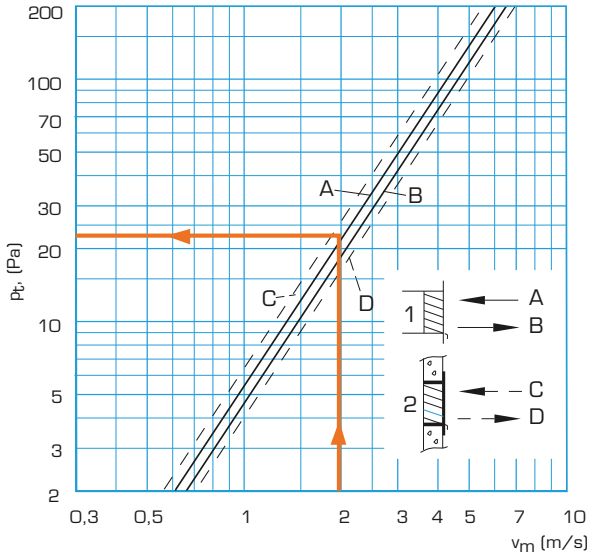
RISV-aaa / RISV-aaa-J:
Louvre assembled with circular Veloduct jointing collars supplied with rubber sealing gaskets.

RIS

RISD

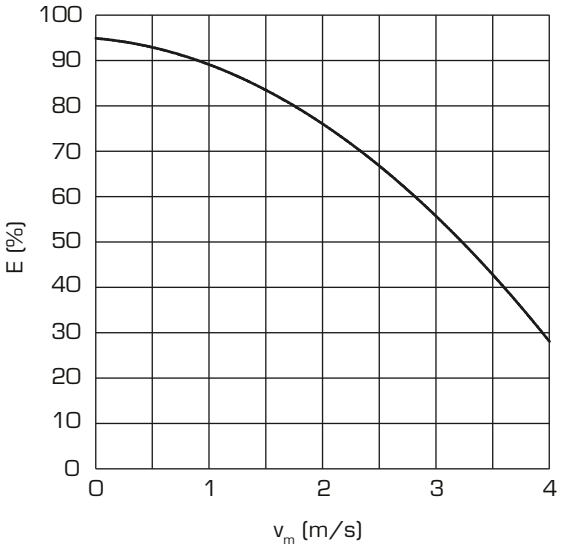
RIS External louvres

Pressure drop RIS, RISD

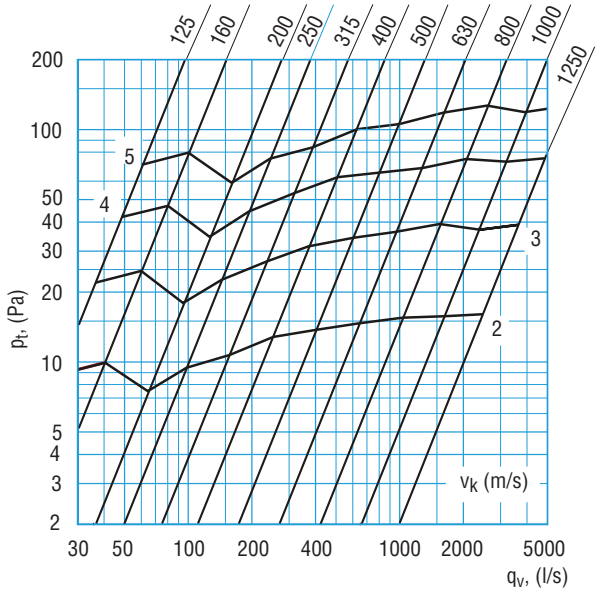


1 = installed in duct 2 = application without duct

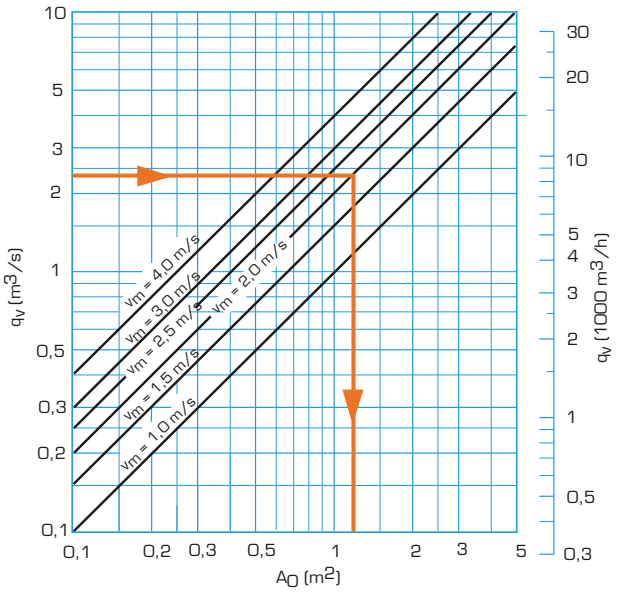
The efficiency of rainwater rejection RIS, RISD



Pressure drop RISV



Selection diagram



Pressure drop for RIS-aaa-bbbJ is half of pressure drop for RIS.

Rainwater rejection performance and air flow performance characteristics are determined based on EN 13030:2001

Selection example

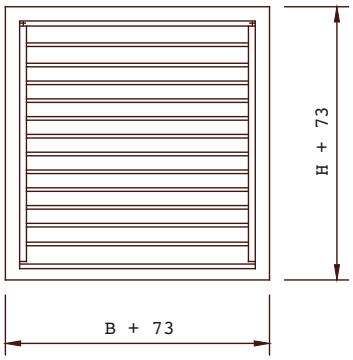
Air volume $q_v = 2{,}3\ m^3/s$, specified face velocity $v_m = 2\ m/s$.
From above diagrams can be read pressure drop $\Delta p_t = 23$ Pa and E = 76%.
From selection diagram can be read the required face area $A_0 = 1{,}2\ m^2$.
Selection examples are RIS-1100-1100 or RIS-1200-1000 etc.

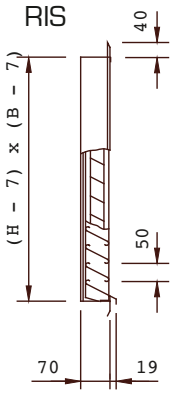
Definitions

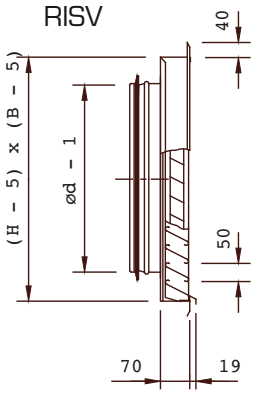
vm	average velocity	(m/s)
Δpt	total pressure drop	(Pa)
qv	air flow	(l/s)
vk	velocity in duct	(m/s)
E	efficiency of rainwater rejection	%

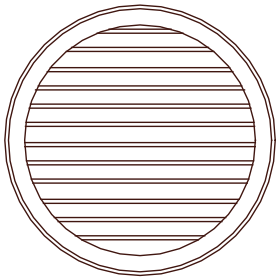
RIS External louvres

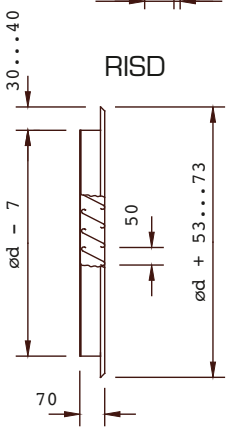
Dimensions











RISV	Veloduct-joint Ød
200 x 200	125
200 x 200	160
250 x 250	200
300 x 300	250
350 x 350	315
450 x 450	400
550 x 550	500
650 x 350	630
850 x 850	800
1050 x 1050	1000
1300 x 1300	1250

Material and surface finish

Hot dip galvanized steel	SFe (standard)
Aluminium profile	An
(no surface treatment, anodized or stove enamelled)	
Acid proof steel	Hst

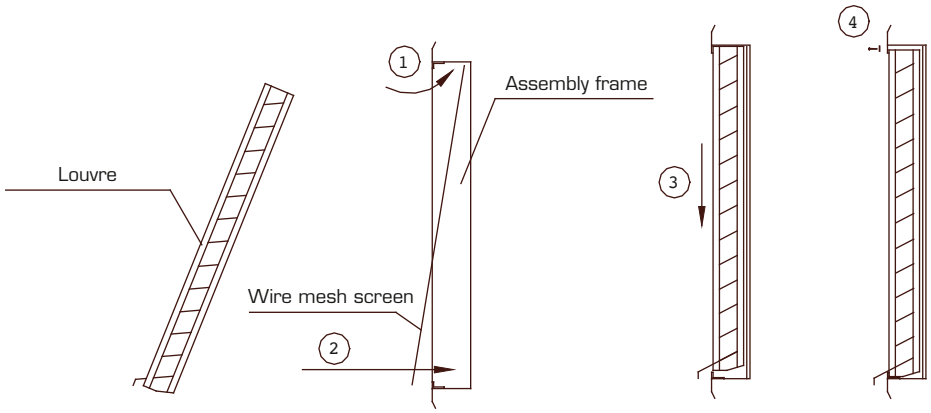
Model RISD is available in hot dip galvanized steel only.

Standard colour is grey RAL 7000 (stove enamelled), other colours as special order.

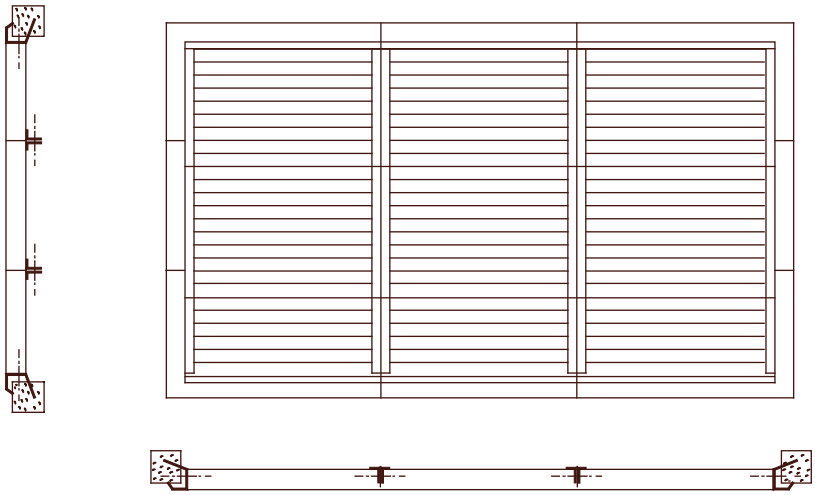
RIS External louvres

Installation

The louvre frame is attached with screws on steel and wooden structure. On brick and concrete structures the louvre is fitted by means of fix arms in the frame. The assembly of the louvre is made according to the picture below.



Modular construction



The modular construction is used when the dimension of the louvre exceeds the maximum dimension of a separate louvre.

Fitting margin is the same as with a single louvre.

RIS External louvres

Product code

Standard external louvre, hot dip galvanized steel
RIS-aaa-bbb

External louvre, aluminium profile
RIS-aaa-bbb-A

External louvre, acid proof steel
RIS-aaa-bbb-H

External louvre for exhaust air
RIS-aaa-bbb-J

Width, mm (aaa)
Height, mm (bbb)

Circular external louvre
RISD-aaa

Size, mm
200 - 1400

External louvre with Veloduct joint
RISV-aaa

External louvre with Veloduct joint for exhaust air
RISV-aaa-J

Size, mm
125 - 1250

FläktWoods

MCDA
Air supply unit

The air supply unit MCDA is a dual duct unit which provides good thermal comfort. The MCDA is simple to install and quick to comission.

www.flaktwoods.com

We Bring Air to Life

Fläkt Woods is a global leader in air management. We specialise in the design and manufacture of a wide rande of air climate and air movement solutions. And our collective experience is unrivalled.

Our constant aim is to provide systems that precisely deliver required functions and performance, as well as maximise energy efficiency.

Solutions for all your air climate and air movement needs

Fläkt Woods is providing solutions for ventilation and air climate for buildings as well as fan solutions for industry and infrastructure.

- **Air Handling Units (AHUs)**

  Modular, compact and small AHU units. Designed to ensure optimisation of indoor air quality, operational performance and service life.

- **Air Terminal Devices and Ducts**

  Supply and exhaust diffusers and valves for installation on walls, ceiling or floor are all included in our large range and fit all types of applications.

- **Chilled Beams**

  Active induction beams for ventilation, cooling and heating, and passive convection beams for cooling. For suspended or flush-mounted ceiling installation - and multi-service configuration. With unique Comfort Control and Flow Pattern Control features.

- **Residential ventilation**

  A complete range of products for residential ventilation. Consists of ventilation units, exhaust air fans and cooker hoods, designed to optimise indoor comfort and save energy.

- **Fans**

  Advanced axial, centrifugal and boxed fans for general and specialist applications. Comprehensive range including high temperature and ATEX compliant options. Engineered for energy efficiency and minimised life cycle cost.

- **Chillers**

  Air-cooled and water-cooled chillers with cooling capacity up to 1800 kW. Designed to minimise annual energy consumption in all types of buildings.

- **Controls and drives**

  Variable speed drives and control systems, all tested to ensure total compatibility with our products. Specialist team can advise on energy saving and overall system integration.

Fläkt Woods representative:

FläktWoods