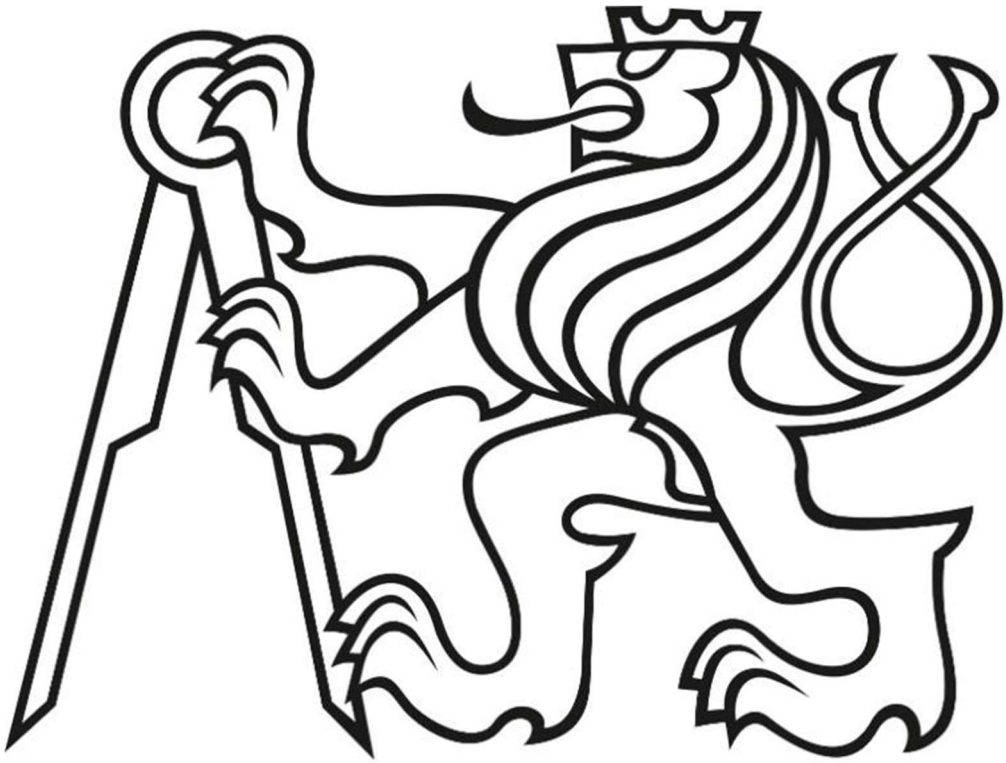
ČESKÉ VYSOKÉ UČENÍ TECHNICKÉ V PRAZE
FAKULTA STAVEBNÍ

Katedra technických zařízení budov



Projekt vzduchotechniky knihovny a knihkupectví

Bakalárska práca – Príloha č. 5
Technické podklady k použitým prvkom

125BAPC –2020/2021

Vypracoval: Štefan Planeta

Vedúci bakalárskej práce: Ing. Daniel Adamovský, Ph.D.

1 Technická dokumentácia k prvkom od firmy trox

Technická dokumentácia k prvkom od firmy Trox udáva detailné informácie o navrhnutých prvkoch, sú delené podľa miestností a sú pri nich navrhnuté parametre. Pri tanierových ventiloch je odpovedajúci iba prietok, nakoľko nešlo voliť v návrhovom programe viacero nastavení ventilu. Podrobné nastavenia ventilu je možné vidieť vo výkresoch. Taktiež prikladám technický list s grafom, podľa ktorého som navrhoval konkrétne nastavenia.

Project Structure

Bakalárska práca - - - - - - - - - - - - - - - - -

1.01.02	- -	DID632-LR-4-M-LR/1200x1200x593/LE
1.01.03	- -	LVS/100
1.01.08	- -	DID632-LR-4-M-LR/1200x1200x593/LE
1.01.08'	- -	LVS/100
1.01.09	- -	DID632-LR-4-M-LR/1800x1800x593/LE
1.01.09'	- -	LVS/100
1.01.16	- -	DID632-LR-4-M-LR/1800x1800x593/LE
1.01.17	- -	DID632-LR-4-M-LR/1200x1200x593/LE
1.01.18	- -	LVS/100
1.01.20	- -	LVS/100
1.01.24	- -	DID632-LR-4-M-LR/1800x1800x593/LE
1.02.01	- -	DID632-LR-4-M-LR/1800x1800x593/LE
1.02.15	- -	DID632-LR-4-M-LR/1200x1200x593/LE
1.02.16	- -	DID632-LR-4-M-LR/1200x1200x593/LE
1.02.17	- -	DID632-LR-4-M-LR/1200x1200x593/LE
1.02.19	- -	LVS/100
2.01.02	- -	DID632-LR-4-M-LR/1800x1800x593/LE
2.01.04	- -	DID632-LR-4-M-LR/1200x1200x593/LE
2.01.05	- -	LVS/100
2.01.10	- -	DID632-LR-4-M-LR/1200x1200x593/LE
2.01.11	- -	LVS/100
2.02.01	- -	DID632-LR-4-M-LR/1800x1800x593/LE
2.02.02	- -	DID632-LR-4-M-LR/1800x1800x593/LE
2.02.02'	- -	LVS/100
2.02.03	- -	DID632-LR-4-M-LR/1200x1200x593/LE
Odvod 1.01.02	- - - - - - - - - - - - - - - - - -	LVS/100
Odvod 1.01.03	- - - - - - - - - - - - - - - - - -	LVS/100
Odvod 1.01.04	- - - - - - - - - - - - - - - - - -	LVS/100
Odvod 1.01.08	- - - - - - - - - - - - - - - - - -	LVS/100
Odvod 1.01.09	- - - - - - - - - - - - - - - - - -	LVS/100
Odvod 1.01.10	- - - - - - - - - - - - - - - - - -	LVS/100
Odvod 1.01.11	- - - - - - - - - - - - - - - - - -	LVS/100
Odvod 1.01.12	- - - - - - - - - - - - - - - - - -	LVS/100
Odvod 1.01.13	- - - - - - - - - - - - - - - - - -	LVS/100
Odvod 1.01.14	- - - - - - - - - - - - - - - - - -	LVS/100
Odvod 1.01.15	- - - - - - - - - - - - - - - - - -	LVS/100
Odvod 1.01.17	- - - - - - - - - - - - - - - - - -	LVS/100
Odvod 1.01.18	- - - - - - - - - - - - - - - - - -	LVS/100
Odvod 1.01.19	- - - - - - - - - - - - - - - - - -	LVS/100

Project Structure

Odvod 1.01.20 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 1.01.21 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 1.01.22 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 1.01.24 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 1.02.01 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 1.02.05 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 1.02.06 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 1.02.07 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 1.02.08 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 1.02.09 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 1.02.10 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 1.02.15 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 1.02.16 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 1.02.17 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 1.02.18 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 1.02.19 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 1.02.20 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 2.01.02 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 2.01.04 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 2.01.05 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 2.01.06 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 2.01.07 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 2.01.08 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 2.01.10 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 2.01.11 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 2.01.12 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 2.01.13 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 2.02.01 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 2.02.02 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 2.02.03 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 2.02.04 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 2.02.06 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 2.02.07 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 2.02.08 - - - - - - - - - - - - - - - - - - LVS/100
Odvod 2.02.09 - - - - - - - - - - - - - - - - - - LVS/100
2.02.02 VFC250 Silencer - - - - - - - - - - - - VFC/250
2.02.02 VFC250 Silencer.01 - - - - - - - - - - CS050/250x1000
2.02.03 - VFC/125
2.02.03.01 - CS050/125x500
2.01.05 - VFC/125

Project Structure

2.01.10 Vertik	VFC/160
2.01.10 Vertik.01	CS050/160x500
2.01.11	VFC/80
1.01.02	VFC/160
1.01.10menšia	VFC/100
1.01.10menšia.01	CS050/100x500
1.01.10	VFC/250
1.01.10.01	CS050/250x500
1.01.16	VFC/160
1.01.16.01	CS050/160x500
1.01.16 125ka	VFC/125
1.01.17	VFC/125
1.01.18;20	VFC/100
1.01.18;20.01	CS050/100x500
1.02.15	VFC/125
1.02.16	VFC/125
1.02.17	VFC/125
1.02.19	VFC/100
1.03.19	VFC/100
1.04.17	VFC/125
1.04.19	VFC/100
Mriežka	AGS-T/625x225

DID632-LR-4-M-LR/1200x1200x593/LE

Induced air grille	LR	Perforated metal, circular holes
Heat exchanger	4	For 4-pipe systems
Nozzle variant	M	Medium
Arrangement of casings and connections	LR	Casing left side, Water connections right side
Total length	1200	
Nominal length	1200	
Width of front frame	593	
Air control blades	LE	With air control blades
Total amount	2	

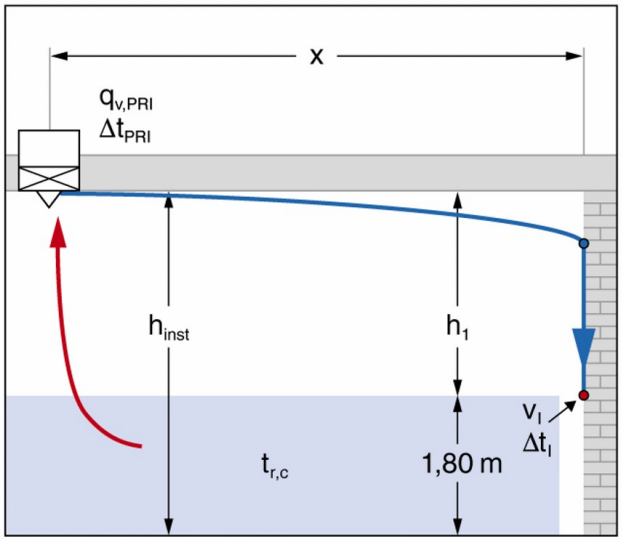
Input Data

Strategy: Single arrangement, cooling	
Primary air volume flow rate $q_{v,PRI}$	38 m3/h
Distance x	4,0 m
Installation height h_{inst}	3,8 m
Primary air temperature $t_{PRI,c}$	20,0 °C
Room temperature $t_{r,c}$	26,0 °C
Relative humidity of the air ϕ_p	50
Water flow temperature $t_{w,s,c}$	16,0 °C
Water flow rate $q_{v,w,c}$	55 l/h
Primary air temperature $t_{PRI,h}$	18,0 °C
Room temperature $t_{r,h}$	22,0 °C
Water flow temperature $t_{w,s,h}$	50,0 °C
Water flow rate $q_{v,w,h}$	50 l/h

Results

Distance h_1	2,0 m
Total thermal output – cooling $\Phi_{t,c}$	-347 W
Thermal output - primary air $\Phi_{PRI,c}$	-76 W
Thermal output - water $\Phi_{w,c}$	-271 W
Dew point t_{dp}	14,8 °C
Water return temperature $t_{w,r,c}$	20,2 °C
Pressure drop, water side $\Delta p_{w,c}$	0,6 kPa
Total thermal output – heating $\Phi_{t,h}$	353 W
Thermal output - primary air $\Phi_{PRI,h}$	-51 W
Thermal output - water $\Phi_{w,h}$	404 W
Water return temperature $t_{w,r,h}$	43,1 °C
Pressure drop, water side $\Delta p_{w,h}$	0,2 kPa
Throw distance l_s	1,1 m
Velocity at l v_l	N.A. m/s
Temperature difference at l Δt_l	N.A. K
Velocity at l_s v_s	0,10 m/s
Temperature difference at l_s Δt_s	-0,60 K
Air density ρ	1,2 kg/m³ *)

Functional diagram



Notes *)

Air density ρ — All aerodynamic, acoustic and capacity calculations are based on this air density value.

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
Active part	57	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Active chilled beams of Type DID632, with twoway air discharge and high thermal output, providing high thermal comfort levels. For installation flush with the ceiling, preferably in rooms with a height up to 4.0 m. The units consist of a casing with suspension points, a spigot, noncombustible nozzles, and a horizontal heat exchanger. Nozzles in four sizes to optimise induction based on demand.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 30 m3/h

Results

Gap width s -4,5 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	19	< 15	29	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

DID632-LR-4-M-LR/1200x1200x593/LE

Induced air grille	LR	Perforated metal, circular holes
Heat exchanger	4	For 4-pipe systems
Nozzle variant	M	Medium
Arrangement of casings and connections	LR	Casing left side, Water connections right side
Total length	1200	
Nominal length	1200	
Width of front frame	593	
Air control blades	LE	With air control blades
Total amount	2	

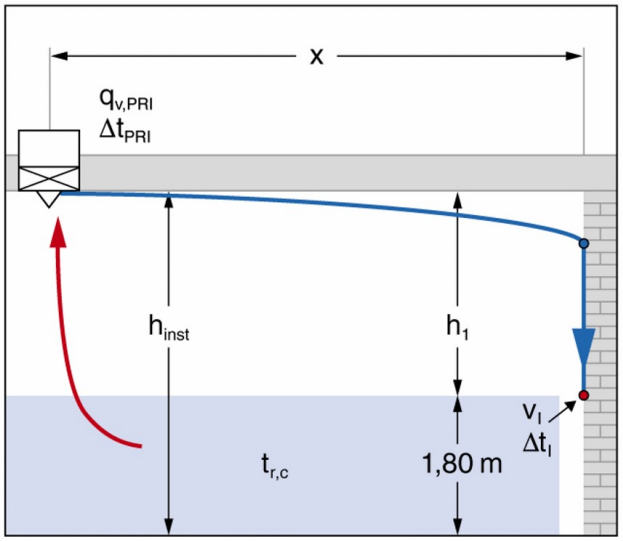
Input Data

Strategy: Single arrangement, cooling	
Primary air volume flow rate $q_{v,PRI}$	45 m3/h
Distance x	1,0 m
Installation height h_{inst}	4,0 m
Primary air temperature $t_{PRI,c}$	20,0 °C
Room temperature $t_{r,c}$	26,0 °C
Relative humidity of the air ϕ_p	50
Water flow temperature $t_{w,s,c}$	15,0 °C
Water flow rate $q_{v,w,c}$	30 l/h
Primary air temperature $t_{PRI,h}$	18,0 °C
Room temperature $t_{r,h}$	22,0 °C
Water flow temperature $t_{w,s,h}$	50,0 °C
Water flow rate $q_{v,w,h}$	40 l/h

Results

Distance h_1	2,2 m
Total thermal output – cooling $\Phi_{t,c}$	-345 W
Thermal output - primary air $\Phi_{PRI,c}$	-90 W
Thermal output - water $\Phi_{w,c}$	-255 W
Dew point t_{dp}	14,8 °C
Water return temperature $t_{w,r,c}$	22,3 °C
Pressure drop, water side $\Delta p_{w,c}$	0,2 kPa
Total thermal output – heating $\Phi_{t,h}$	374 W
Thermal output - primary air $\Phi_{PRI,h}$	-60 W
Thermal output - water $\Phi_{w,h}$	434 W
Water return temperature $t_{w,r,h}$	40,7 °C
Pressure drop, water side $\Delta p_{w,h}$	0,1 kPa
Throw distance l_s	1,5 m
Velocity at l v_l	0,20 m/s
Temperature difference at l Δt_l	-0,82 K
Velocity at l_s v_s	N.A. m/s
Temperature difference at l_s Δt_s	N.A. K
Air density ρ	1,2 kg/m³ *)

Functional diagram



Notes *)

Air density ρ — All aerodynamic, acoustic and capacity calculations are based on this air density value.

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
Active part	80	< 15	16	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Active chilled beams of Type DID632, with twoway air discharge and high thermal output, providing high thermal comfort levels. For installation flush with the ceiling, preferably in rooms with a height up to 4.0 m. The units consist of a casing with suspension points, a spigot, noncombustible nozzles, and a horizontal heat exchanger. Nozzles in four sizes to optimise induction based on demand.

LVS/100

Nominal size	100
Total amount	2

Input Data

Strategy: General

Volume flow q_v 80 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	41	25	30	19	25	23	19	16	< 15	< 15	18	19

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

DID632-LR-4-M-LR/1800x1800x593/LE

Induced air grille	LR	Perforated metal, circular holes
Heat exchanger	4	For 4-pipe systems
Nozzle variant	M	Medium
Arrangement of casings and connections	LR	Casing left side, Water connections right side
Total length	1800	
Nominal length	1800	
Width of front frame	593	
Air control blades	LE	With air control blades
Total amount	3	

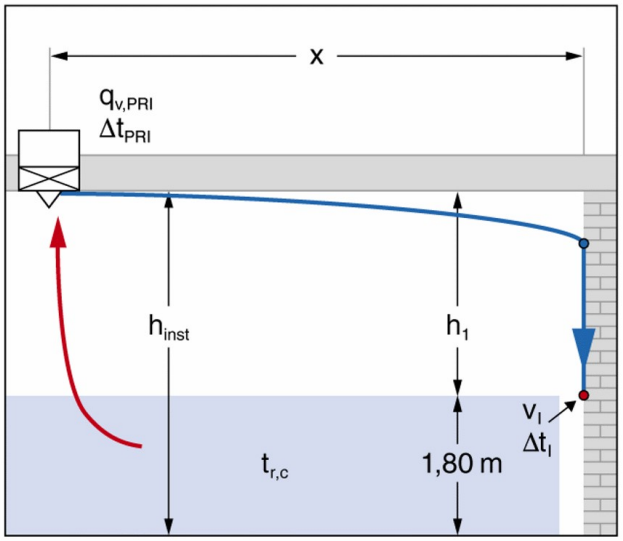
Input Data

Strategy: Single arrangement, cooling	
Primary air volume flow rate $q_{v,PRI}$	73 m3/h
Distance x	1,0 m
Installation height h_{inst}	4,0 m
Primary air temperature $t_{PRI,c}$	20,0 °C
Room temperature $t_{r,c}$	26,0 °C
Relative humidity of the air ϕ_p	50
Water flow temperature $t_{w,s,c}$	15,0 °C
Water flow rate $q_{v,w,c}$	30 l/h
Primary air temperature $t_{PRI,h}$	18,0 °C
Room temperature $t_{r,h}$	22,0 °C
Water flow temperature $t_{w,s,h}$	50,0 °C
Water flow rate $q_{v,w,h}$	30 l/h

Results

Distance h_1	2,2 m
Total thermal output – cooling $\Phi_{t,c}$	-490 W
Thermal output - primary air $\Phi_{PRI,c}$	-147 W
Thermal output - water $\Phi_{w,c}$	-344 W
Dew point t_{dp}	14,8 °C
Water return temperature $t_{w,r,c}$	24,9 °C
Pressure drop, water side $\Delta p_{w,c}$	0,4 kPa
Total thermal output – heating $\Phi_{t,h}$	466 W
Thermal output - primary air $\Phi_{PRI,h}$	-98 W
Thermal output - water $\Phi_{w,h}$	564 W
Water return temperature $t_{w,r,h}$	33,8 °C
Pressure drop, water side $\Delta p_{w,h}$	0,1 kPa
Throw distance l_s	2,3 m
Velocity at l v_l	0,23 m/s
Temperature difference at l Δt_l	-0,80 K
Velocity at l_s v_s	N.A. m/s
Temperature difference at l_s Δt_s	N.A. K
Air density ρ	1,2 kg/m³ *)

Functional diagram



Notes *)

Air density ρ — All aerodynamic, acoustic and capacity calculations are based on this air density value.

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
Active part	96	16	18	< 15	16	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Active chilled beams of Type DID632, with twoway air discharge and high thermal output, providing high thermal comfort levels. For installation flush with the ceiling, preferably in rooms with a height up to 4.0 m. The units consist of a casing with suspension points, a spigot, noncombustible nozzles, and a horizontal heat exchanger. Nozzles in four sizes to optimise induction based on demand.

LVS/100

Nominal size 100
Total amount 1

Input Data

Strategy: General

Volume flow q_v 80 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	41	25	30	19	25	23	19	16	< 15	< 15	18	19

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

DID632-LR-4-M-LR/1800x1800x593/LE

Induced air grille	LR	Perforated metal, circular holes
Heat exchanger	4	For 4-pipe systems
Nozzle variant	M	Medium
Arrangement of casings and connections	LR	Casing left side, Water connections right side
Total length	1800	
Nominal length	1800	
Width of front frame	593	
Air control blades	LE	With air control blades
Total amount	1	

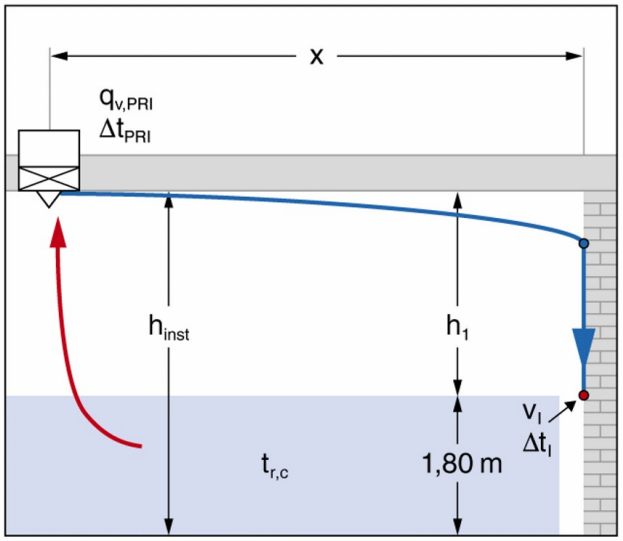
Input Data

Strategy: Single arrangement, cooling	
Primary air volume flow rate $q_{v,PRI}$	75 m3/h
Distance x	1,0 m
Installation height h_{inst}	4,0 m
Primary air temperature $t_{PRI,c}$	20,0 °C
Room temperature $t_{r,c}$	26,0 °C
Relative humidity of the air ϕ_p	50
Water flow temperature $t_{w,s,c}$	15,0 °C
Water flow rate $q_{v,w,c}$	65 l/h
Primary air temperature $t_{PRI,h}$	18,0 °C
Room temperature $t_{r,h}$	22,0 °C
Water flow temperature $t_{w,s,h}$	50,0 °C
Water flow rate $q_{v,w,h}$	50 l/h

Results

Distance h_1	2,2 m
Total thermal output – cooling $\Phi_{t,c}$	-709 W
Thermal output - primary air $\Phi_{PRI,c}$	-151 W
Thermal output - water $\Phi_{w,c}$	-558 W
Dew point t_{dp}	14,8 °C
Water return temperature $t_{w,r,c}$	22,4 °C
Pressure drop, water side $\Delta p_{w,c}$	1,2 kPa
Total thermal output – heating $\Phi_{t,h}$	634 W
Thermal output - primary air $\Phi_{PRI,h}$	-100 W
Thermal output - water $\Phi_{w,h}$	734 W
Water return temperature $t_{w,r,h}$	37,4 °C
Pressure drop, water side $\Delta p_{w,h}$	0,2 kPa
Throw distance l_s	2,0 m
Velocity at l v_l	0,24 m/s
Temperature difference at l Δt_l	-1,13 K
Velocity at l_s v_s	N.A. m/s
Temperature difference at l_s Δt_s	N.A. K
Air density ρ	1,2 kg/m³ *)

Functional diagram



Notes *)

Air density ρ	All aerodynamic, acoustic and capacity calculations are based on this air density value.

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
Active part	102	17	19	< 15	17	15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Active chilled beams of Type DID632, with twoway air discharge and high thermal output, providing high thermal comfort levels. For installation flush with the ceiling, preferably in rooms with a height up to 4.0 m. The units consist of a casing with suspension points, a spigot, noncombustible nozzles, and a horizontal heat exchanger. Nozzles in four sizes to optimise induction based on demand.

DID632-LR-4-M-LR/1200x1200x593/LE

Induced air grille	LR	Perforated metal, circular holes
Heat exchanger	4	For 4-pipe systems
Nozzle variant	M	Medium
Arrangement of casings and connections	LR	Casing left side, Water connections right side
Total length	1200	
Nominal length	1200	
Width of front frame	593	
Air control blades	LE	With air control blades
Total amount	1	

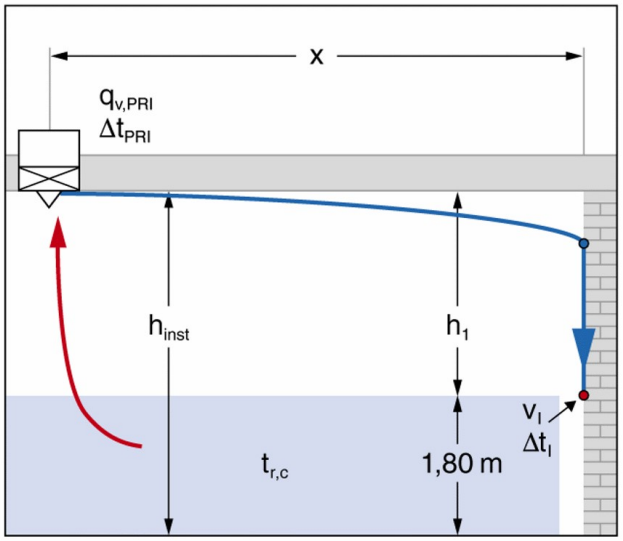
Input Data

Strategy: Single arrangement, cooling	
Primary air volume flow rate $q_{v,PRI}$	45 m3/h
Distance x	1,0 m
Installation height h_{inst}	4,0 m
Primary air temperature $t_{PRI,c}$	20,0 °C
Room temperature $t_{r,c}$	26,0 °C
Relative humidity of the air ϕ_p	50
Water flow temperature $t_{w,s,c}$	16,0 °C
Water flow rate $q_{v,w,c}$	65 l/h
Primary air temperature $t_{PRI,h}$	18,0 °C
Room temperature $t_{r,h}$	22,0 °C
Water flow temperature $t_{w,s,h}$	50,0 °C
Water flow rate $q_{v,w,h}$	50 l/h

Results

Distance h_1	2,2 m
Total thermal output – cooling $\Phi_{t,c}$	-442 W
Thermal output - primary air $\Phi_{PRI,c}$	-90 W
Thermal output - water $\Phi_{w,c}$	-351 W
Dew point t_{dp}	14,8 °C
Water return temperature $t_{w,r,c}$	20,6 °C
Pressure drop, water side $\Delta p_{w,c}$	0,8 kPa
Total thermal output – heating $\Phi_{t,h}$	422 W
Thermal output - primary air $\Phi_{PRI,h}$	-60 W
Thermal output - water $\Phi_{w,h}$	482 W
Water return temperature $t_{w,r,h}$	41,7 °C
Pressure drop, water side $\Delta p_{w,h}$	0,2 kPa
Throw distance l_s	1,3 m
Velocity at l v_l	0,20 m/s
Temperature difference at l Δt_l	-1,05 K
Velocity at l_s v_s	N.A. m/s
Temperature difference at l_s Δt_s	N.A. K
Air density ρ	1,2 kg/m³ *)

Functional diagram



Notes *)

Air density ρ	All aerodynamic, acoustic and capacity calculations are based on this air density value.

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
Active part	80	< 15	16	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Active chilled beams of Type DID632, with twoway air discharge and high thermal output, providing high thermal comfort levels. For installation flush with the ceiling, preferably in rooms with a height up to 4.0 m. The units consist of a casing with suspension points, a spigot, noncombustible nozzles, and a horizontal heat exchanger. Nozzles in four sizes to optimise induction based on demand.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 30 m3/h

Results

Gap width s -4,5 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	19	< 15	29	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 30 m3/h

Results

Gap width s -4,5 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	19	< 15	29	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

DID632-LR-4-M-LR/1800x1800x593/LE

Induced air grille	LR	Perforated metal, circular holes
Heat exchanger	4	For 4-pipe systems
Nozzle variant	M	Medium
Arrangement of casings and connections	LR	Casing left side, Water connections right side
Total length	1800	
Nominal length	1800	
Width of front frame	593	
Air control blades	LE	With air control blades
Total amount	6	

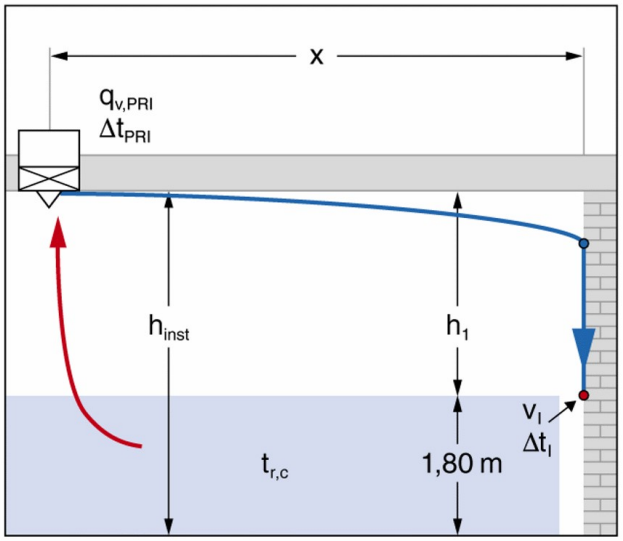
Input Data

Strategy: Single arrangement, cooling	
Primary air volume flow rate $q_{v,PRI}$	83 m3/h
Distance x	1,0 m
Installation height h_{inst}	4,0 m
Primary air temperature $t_{PRI,c}$	20,0 °C
Room temperature $t_{r,c}$	26,0 °C
Relative humidity of the air ϕ_p	50
Water flow temperature $t_{w,s,c}$	16,0 °C
Water flow rate $q_{v,w,c}$	58 l/h
Primary air temperature $t_{PRI,h}$	18,0 °C
Room temperature $t_{r,h}$	22,0 °C
Water flow temperature $t_{w,s,h}$	50,0 °C
Water flow rate $q_{v,w,h}$	50 l/h

Results

Distance h_1	2,2 m
Total thermal output – cooling $\Phi_{t,c}$	-667 W
Thermal output - primary air $\Phi_{PRI,c}$	-167 W
Thermal output - water $\Phi_{w,c}$	-500 W
Dew point t_{dp}	14,8 °C
Water return temperature $t_{w,r,c}$	23,4 °C
Pressure drop, water side $\Delta p_{w,c}$	1,0 kPa
Total thermal output – heating $\Phi_{t,h}$	678 W
Thermal output - primary air $\Phi_{PRI,h}$	-111 W
Thermal output - water $\Phi_{w,h}$	789 W
Water return temperature $t_{w,r,h}$	36,4 °C
Pressure drop, water side $\Delta p_{w,h}$	0,2 kPa
Throw distance l_s	2,4 m
Velocity at l v_l	0,26 m/s
Temperature difference at l Δt_l	-0,96 K
Velocity at l_s v_s	N.A. m/s
Temperature difference at l_s Δt_s	N.A. K
Air density ρ	1,2 kg/m³ *)

Functional diagram



Notes *)

Air density ρ	All aerodynamic, acoustic and capacity calculations are based on this air density value.

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
Active part	125	20	21	15	19	18	16	< 15	< 15	< 15	< 15	16

Description

Active chilled beams of Type DID632, with twoway air discharge and high thermal output, providing high thermal comfort levels. For installation flush with the ceiling, preferably in rooms with a height up to 4.0 m. The units consist of a casing with suspension points, a spigot, noncombustible nozzles, and a horizontal heat exchanger. Nozzles in four sizes to optimise induction based on demand.

DID632-LR-4-M-LR/1800x1800x593/LE

Induced air grille	LR	Perforated metal, circular holes
Heat exchanger	4	For 4-pipe systems
Nozzle variant	M	Medium
Arrangement of casings and connections	LR	Casing left side, Water connections right side
Total length	1800	
Nominal length	1800	
Width of front frame	593	
Air control blades	LE	With air control blades
Total amount	30	

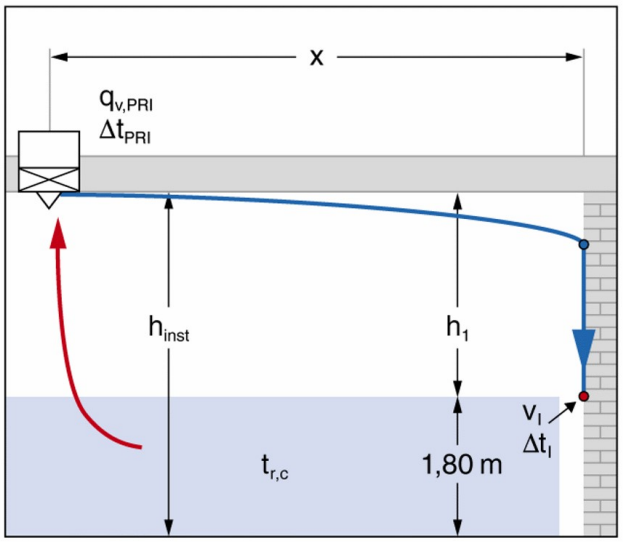
Input Data

Strategy: Single arrangement, cooling	
Primary air volume flow rate $q_{v,PRI}$	75 m3/h
Distance x	1,0 m
Installation height h_{inst}	3,5 m
Primary air temperature $t_{PRI,c}$	20,0 °C
Room temperature $t_{r,c}$	26,0 °C
Relative humidity of the air ϕ_p	49
Water flow temperature $t_{w,s,c}$	16,0 °C
Water flow rate $q_{v,w,c}$	38 l/h
Primary air temperature $t_{PRI,h}$	18,0 °C
Room temperature $t_{r,h}$	22,0 °C
Water flow temperature $t_{w,s,h}$	50,0 °C
Water flow rate $q_{v,w,h}$	50 l/h

Results

Distance h_1	1,7 m
Total thermal output – cooling $\Phi_{t,c}$	-513 W
Thermal output - primary air $\Phi_{PRI,c}$	-151 W
Thermal output - water $\Phi_{w,c}$	-362 W
Dew point t_{dp}	14,5 °C
Water return temperature $t_{w,r,c}$	24,2 °C
Pressure drop, water side $\Delta p_{w,c}$	0,5 kPa
Total thermal output – heating $\Phi_{t,h}$	634 W
Thermal output - primary air $\Phi_{PRI,h}$	-100 W
Thermal output - water $\Phi_{w,h}$	734 W
Water return temperature $t_{w,r,h}$	37,4 °C
Pressure drop, water side $\Delta p_{w,h}$	0,2 kPa
Throw distance l_s	2,3 m
Velocity at l v_l	0,26 m/s
Temperature difference at l Δt_l	-0,89 K
Velocity at l_s v_s	N.A. m/s
Temperature difference at l_s Δt_s	N.A. K
Air density ρ	1,2 kg/m³ *)

Functional diagram



Notes *)

Air density ρ — All aerodynamic, acoustic and capacity calculations are based on this air density value.

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
Active part	102	17	19	< 15	17	15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Active chilled beams of Type DID632, with twoway air discharge and high thermal output, providing high thermal comfort levels. For installation flush with the ceiling, preferably in rooms with a height up to 4.0 m. The units consist of a casing with suspension points, a spigot, noncombustible nozzles, and a horizontal heat exchanger. Nozzles in four sizes to optimise induction based on demand.

DID632-LR-4-M-LR/1200x1200x593/LE

Induced air grille	LR	Perforated metal, circular holes
Heat exchanger	4	For 4-pipe systems
Nozzle variant	M	Medium
Arrangement of casings and connections	LR	Casing left side, Water connections right side
Total length	1200	
Nominal length	1200	
Width of front frame	593	
Air control blades	LE	With air control blades
Total amount	3	

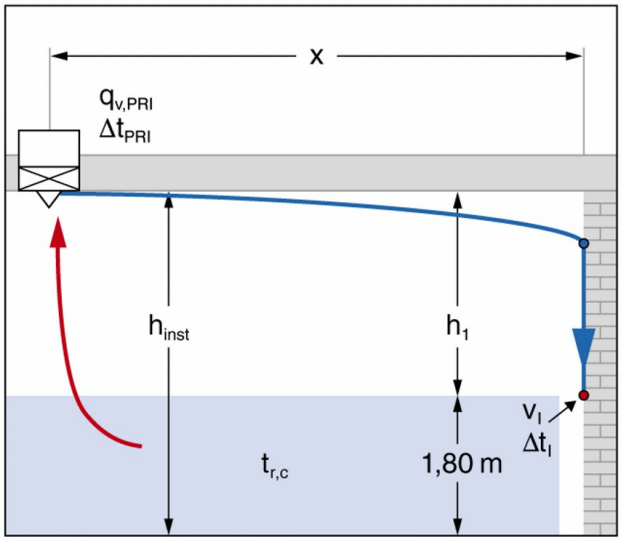
Input Data

Strategy: Single arrangement, cooling	
Primary air volume flow rate $q_{v,PRI}$	36 m3/h
Distance x	1,0 m
Installation height h_{inst}	3,5 m
Primary air temperature $t_{PRI,c}$	20,0 °C
Room temperature $t_{r,c}$	26,0 °C
Relative humidity of the air ϕ_p	50
Water flow temperature $t_{w,s,c}$	16,0 °C
Water flow rate $q_{v,w,c}$	70 l/h
Primary air temperature $t_{PRI,h}$	18,0 °C
Room temperature $t_{r,h}$	22,0 °C
Water flow temperature $t_{w,s,h}$	50,0 °C
Water flow rate $q_{v,w,h}$	50 l/h

Results

Distance h_1	1,7 m
Total thermal output – cooling $\Phi_{t,c}$	-365 W
Thermal output - primary air $\Phi_{PRI,c}$	-72 W
Thermal output - water $\Phi_{w,c}$	-293 W
Dew point t_{dp}	14,8 °C
Water return temperature $t_{w,r,c}$	19,6 °C
Pressure drop, water side $\Delta p_{w,c}$	0,9 kPa
Total thermal output – heating $\Phi_{t,h}$	329 W
Thermal output - primary air $\Phi_{PRI,h}$	-48 W
Thermal output - water $\Phi_{w,h}$	377 W
Water return temperature $t_{w,r,h}$	43,5 °C
Pressure drop, water side $\Delta p_{w,h}$	0,2 kPa
Throw distance l_s	1,0 m
Velocity at l v_l	0,17 m/s
Temperature difference at l Δt_l	-1,18 K
Velocity at l_s v_s	N.A. m/s
Temperature difference at l_s Δt_s	N.A. K
Air density ρ	1,2 kg/m³ *)

Functional diagram



Notes *)

Air density ρ — All aerodynamic, acoustic and capacity calculations are based on this air density value.

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
Active part	51	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Active chilled beams of Type DID632, with twoway air discharge and high thermal output, providing high thermal comfort levels. For installation flush with the ceiling, preferably in rooms with a height up to 4.0 m. The units consist of a casing with suspension points, a spigot, noncombustible nozzles, and a horizontal heat exchanger. Nozzles in four sizes to optimise induction based on demand.

DID632-LR-4-M-LR/1200x1200x593/LE

Induced air grille	LR	Perforated metal, circular holes
Heat exchanger	4	For 4-pipe systems
Nozzle variant	M	Medium
Arrangement of casings and connections	LR	Casing left side, Water connections right side
Total length	1200	
Nominal length	1200	
Width of front frame	593	
Air control blades	LE	With air control blades
Total amount	3	

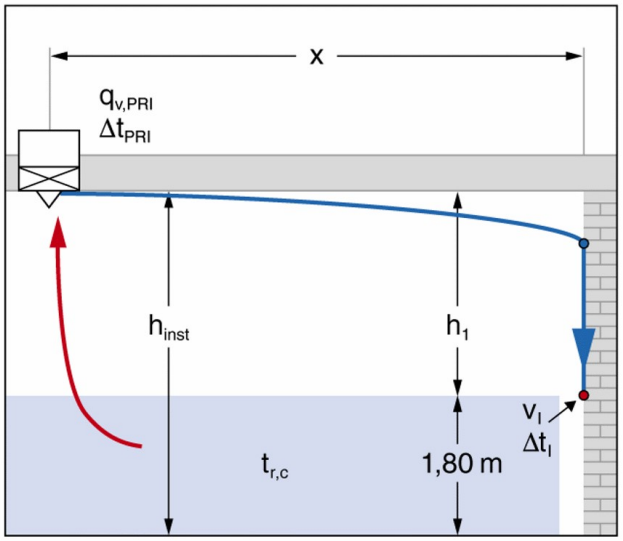
Input Data

Strategy: Single arrangement, cooling	
Primary air volume flow rate $q_{v,PRI}$	36 m3/h
Distance x	1,0 m
Installation height h_{inst}	3,5 m
Primary air temperature $t_{PRI,c}$	20,0 °C
Room temperature $t_{r,c}$	26,0 °C
Relative humidity of the air ϕ_p	50
Water flow temperature $t_{w,s,c}$	16,0 °C
Water flow rate $q_{v,w,c}$	61 l/h
Primary air temperature $t_{PRI,h}$	18,0 °C
Room temperature $t_{r,h}$	22,0 °C
Water flow temperature $t_{w,s,h}$	50,0 °C
Water flow rate $q_{v,w,h}$	50 l/h

Results

Distance h_1	1,7 m
Total thermal output – cooling $\Phi_{t,c}$	-343 W
Thermal output - primary air $\Phi_{PRI,c}$	-72 W
Thermal output - water $\Phi_{w,c}$	-271 W
Dew point t_{dp}	14,8 °C
Water return temperature $t_{w,r,c}$	19,8 °C
Pressure drop, water side $\Delta p_{w,c}$	0,7 kPa
Total thermal output – heating $\Phi_{t,h}$	329 W
Thermal output - primary air $\Phi_{PRI,h}$	-48 W
Thermal output - water $\Phi_{w,h}$	377 W
Water return temperature $t_{w,r,h}$	43,5 °C
Pressure drop, water side $\Delta p_{w,h}$	0,2 kPa
Throw distance l_s	1,0 m
Velocity at l v_l	0,17 m/s
Temperature difference at l Δt_l	-1,11 K
Velocity at l_s v_s	N.A. m/s
Temperature difference at l_s Δt_s	N.A. K
Air density ρ	1,2 kg/m³ *)

Functional diagram



Notes *)

Air density ρ	All aerodynamic, acoustic and capacity calculations are based on this air density value.

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
Active part	51	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Active chilled beams of Type DID632, with twoway air discharge and high thermal output, providing high thermal comfort levels. For installation flush with the ceiling, preferably in rooms with a height up to 4.0 m. The units consist of a casing with suspension points, a spigot, noncombustible nozzles, and a horizontal heat exchanger. Nozzles in four sizes to optimise induction based on demand.

DID632-LR-4-M-LR/1200x1200x593/LE

Induced air grille	LR	Perforated metal, circular holes
Heat exchanger	4	For 4-pipe systems
Nozzle variant	M	Medium
Arrangement of casings and connections	LR	Casing left side, Water connections right side
Total length	1200	
Nominal length	1200	
Width of front frame	593	
Air control blades	LE	With air control blades
Total amount	3	

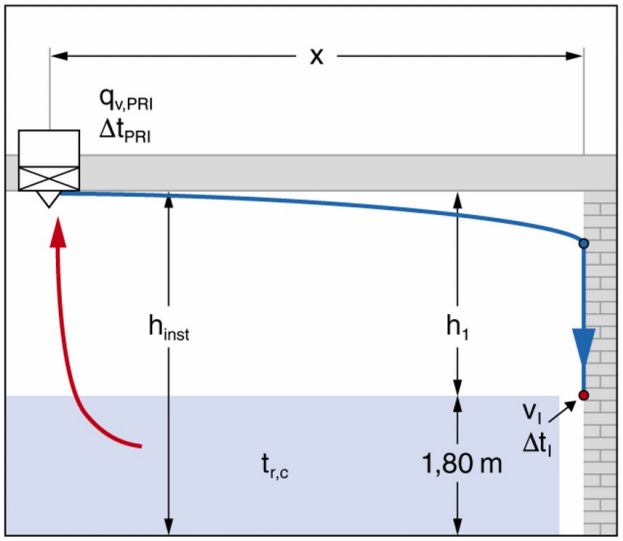
Input Data

Strategy: Single arrangement, cooling	
Primary air volume flow rate $q_{v,PRI}$	36 m3/h
Distance x	1,0 m
Installation height h_{inst}	3,5 m
Primary air temperature $t_{PRI,c}$	20,0 °C
Room temperature $t_{r,c}$	26,0 °C
Relative humidity of the air ϕ_p	50
Water flow temperature $t_{w,s,c}$	16,0 °C
Water flow rate $q_{v,w,c}$	115 l/h
Primary air temperature $t_{PRI,h}$	18,0 °C
Room temperature $t_{r,h}$	22,0 °C
Water flow temperature $t_{w,s,h}$	50,0 °C
Water flow rate $q_{v,w,h}$	50 l/h

Results

Distance h_1	1,7 m
Total thermal output – cooling $\Phi_{t,c}$	-445 W
Thermal output - primary air $\Phi_{PRI,c}$	-72 W
Thermal output - water $\Phi_{w,c}$	-373 W
Dew point t_{dp}	14,8 °C
Water return temperature $t_{w,r,c}$	18,8 °C
Pressure drop, water side $\Delta p_{w,c}$	2,3 kPa
Total thermal output – heating $\Phi_{t,h}$	329 W
Thermal output - primary air $\Phi_{PRI,h}$	-48 W
Thermal output - water $\Phi_{w,h}$	377 W
Water return temperature $t_{w,r,h}$	43,5 °C
Pressure drop, water side $\Delta p_{w,h}$	0,2 kPa
Throw distance l_s	0,9 m
Velocity at l v_l	0,17 m/s
Temperature difference at l Δt_l	-1,44 K
Velocity at l_s v_s	N.A. m/s
Temperature difference at l_s Δt_s	N.A. K
Air density ρ	1,2 kg/m³ *)

Functional diagram



Notes *)

Air density ρ	All aerodynamic, acoustic and capacity calculations are based on this air density value.

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
Active part	51	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Active chilled beams of Type DID632, with twoway air discharge and high thermal output, providing high thermal comfort levels. For installation flush with the ceiling, preferably in rooms with a height up to 4.0 m. The units consist of a casing with suspension points, a spigot, noncombustible nozzles, and a horizontal heat exchanger. Nozzles in four sizes to optimise induction based on demand.

LVS/100

Nominal size	100
Total amount	3

Input Data

Strategy: General

Volume flow q_v 30 m3/h

Results

Gap width s -4,5 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	19	< 15	29	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

DID632-LR-4-M-LR/1800x1800x593/LE

Induced air grille	LR	Perforated metal, circular holes
Heat exchanger	4	For 4-pipe systems
Nozzle variant	M	Medium
Arrangement of casings and connections	LR	Casing left side, Water connections right side
Total length	1800	
Nominal length	1800	
Width of front frame	593	
Air control blades	LE	With air control blades
Total amount	4	

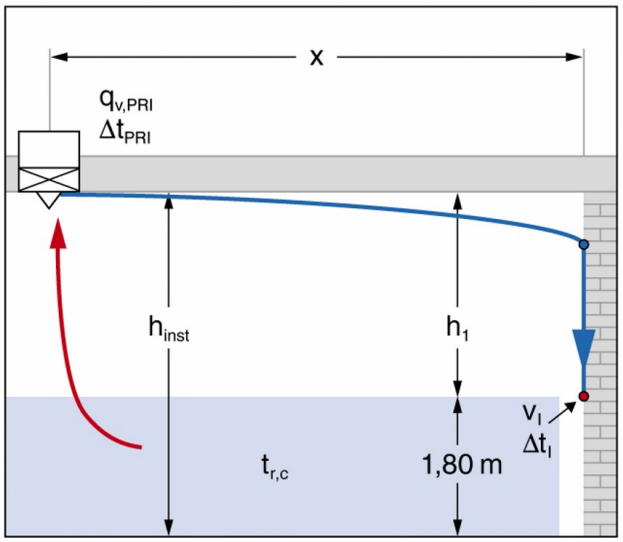
Input Data

Strategy: Single arrangement, cooling	
Primary air volume flow rate $q_{v,PRI}$	105 m3/h
Distance x	1,0 m
Installation height h_{inst}	4,0 m
Primary air temperature $t_{PRI,c}$	20,0 °C
Room temperature $t_{r,c}$	26,0 °C
Relative humidity of the air ϕ_p	50
Water flow temperature $t_{w,s,c}$	16,0 °C
Water flow rate $q_{v,w,c}$	56 l/h
Primary air temperature $t_{PRI,h}$	18,0 °C
Room temperature $t_{r,h}$	22,0 °C
Water flow temperature $t_{w,s,h}$	50,0 °C
Water flow rate $q_{v,w,h}$	50 l/h

Results

Distance h_1	2,2 m
Total thermal output – cooling $\Phi_{t,c}$	-760 W
Thermal output - primary air $\Phi_{PRI,c}$	-211 W
Thermal output - water $\Phi_{w,c}$	-549 W
Dew point t_{dp}	14,8 °C
Water return temperature $t_{w,r,c}$	24,4 °C
Pressure drop, water side $\Delta p_{w,c}$	0,9 kPa
Total thermal output – heating $\Phi_{t,h}$	769 W
Thermal output - primary air $\Phi_{PRI,h}$	-141 W
Thermal output - water $\Phi_{w,h}$	909 W
Water return temperature $t_{w,r,h}$	34,4 °C
Pressure drop, water side $\Delta p_{w,h}$	0,2 kPa
Throw distance l_s	3,3 m
Velocity at l v_l	0,33 m/s
Temperature difference at l Δt_l	-0,86 K
Velocity at l_s v_s	N.A. m/s
Temperature difference at l_s Δt_s	N.A. K
Air density ρ	1,2 kg/m³ *)

Functional diagram



Notes *)

Air density ρ — All aerodynamic, acoustic and capacity calculations are based on this air density value.

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
Active part	199	28	26	21	25	24	23	21	18	< 15	22	24

Description

Active chilled beams of Type DID632, with twoway air discharge and high thermal output, providing high thermal comfort levels. For installation flush with the ceiling, preferably in rooms with a height up to 4.0 m. The units consist of a casing with suspension points, a spigot, noncombustible nozzles, and a horizontal heat exchanger. Nozzles in four sizes to optimise induction based on demand.

DID632-LR-4-M-LR/1200x1200x593/LE

Induced air grille	LR	Perforated metal, circular holes
Heat exchanger	4	For 4-pipe systems
Nozzle variant	M	Medium
Arrangement of casings and connections	LR	Casing left side, Water connections right side
Total length	1200	
Nominal length	1200	
Width of front frame	593	
Air control blades	LE	With air control blades
Total amount	1	

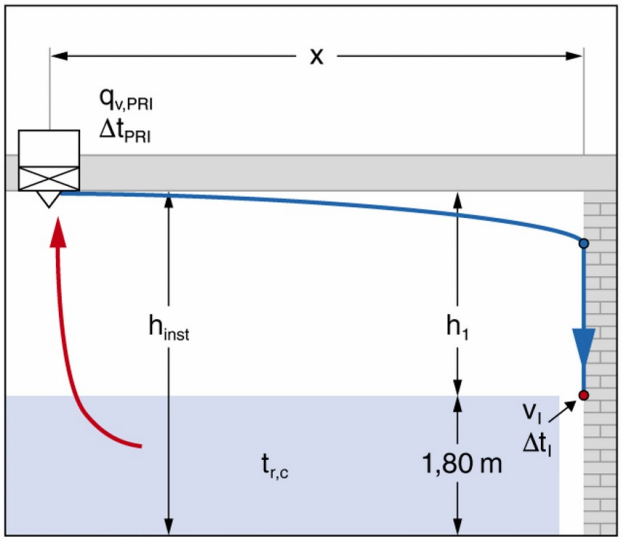
Input Data

Strategy: Single arrangement, cooling	
Primary air volume flow rate $q_{v,PRI}$	50 m3/h
Distance x	1,0 m
Installation height h_{inst}	4,0 m
Primary air temperature $t_{PRI,c}$	20,0 °C
Room temperature $t_{r,c}$	26,0 °C
Relative humidity of the air ϕ_p	50
Water flow temperature $t_{w,s,c}$	16,0 °C
Water flow rate $q_{v,w,c}$	88 l/h
Primary air temperature $t_{PRI,h}$	18,0 °C
Room temperature $t_{r,h}$	22,0 °C
Water flow temperature $t_{w,s,h}$	50,0 °C
Water flow rate $q_{v,w,h}$	50 l/h

Results

Distance h_1	2,2 m
Total thermal output – cooling $\Phi_{t,c}$	-556 W
Thermal output - primary air $\Phi_{PRI,c}$	-100 W
Thermal output - water $\Phi_{w,c}$	-456 W
Dew point t_{dp}	14,8 °C
Water return temperature $t_{w,r,c}$	20,5 °C
Pressure drop, water side $\Delta p_{w,c}$	1,4 kPa
Total thermal output – heating $\Phi_{t,h}$	462 W
Thermal output - primary air $\Phi_{PRI,h}$	-67 W
Thermal output - water $\Phi_{w,h}$	529 W
Water return temperature $t_{w,r,h}$	40,9 °C
Pressure drop, water side $\Delta p_{w,h}$	0,2 kPa
Throw distance l_s	1,3 m
Velocity at l v_l	0,22 m/s
Temperature difference at l Δt_l	-1,19 K
Velocity at l_s v_s	N.A. m/s
Temperature difference at l_s Δt_s	N.A. K
Air density ρ	1,2 kg/m³ *)

Functional diagram



Notes *)

Air density ρ	All aerodynamic, acoustic and capacity calculations are based on this air density value.

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
Active part	99	15	19	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Active chilled beams of Type DID632, with twoway air discharge and high thermal output, providing high thermal comfort levels. For installation flush with the ceiling, preferably in rooms with a height up to 4.0 m. The units consist of a casing with suspension points, a spigot, noncombustible nozzles, and a horizontal heat exchanger. Nozzles in four sizes to optimise induction based on demand.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 30 m3/h

Results

Gap width s -4,5 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	19	< 15	29	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

DID632-LR-4-M-LR/1200x1200x593/LE

Induced air grille	LR	Perforated metal, circular holes
Heat exchanger	4	For 4-pipe systems
Nozzle variant	M	Medium
Arrangement of casings and connections	LR	Casing left side, Water connections right side
Total length	1200	
Nominal length	1200	
Width of front frame	593	
Air control blades	LE	With air control blades
Total amount	2	

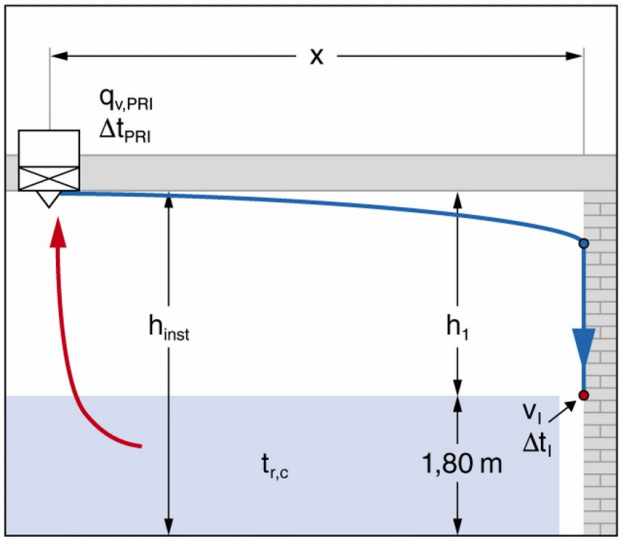
Input Data

Strategy: Single arrangement, cooling	
Primary air volume flow rate $q_{v,PRI}$	88 m3/h
Distance x	1,0 m
Installation height h_{inst}	4,0 m
Primary air temperature $t_{PRI,c}$	20,0 °C
Room temperature $t_{r,c}$	26,0 °C
Relative humidity of the air ϕ_p	50
Water flow temperature $t_{w,s,c}$	16,0 °C
Water flow rate $q_{v,w,c}$	38 l/h
Primary air temperature $t_{PRI,h}$	18,0 °C
Room temperature $t_{r,h}$	22,0 °C
Water flow temperature $t_{w,s,h}$	50,0 °C
Water flow rate $q_{v,w,h}$	50 l/h

Results

Distance h_1	2,2 m
Total thermal output – cooling $\Phi_{t,c}$	-547 W
Thermal output - primary air $\Phi_{PRI,c}$	-177 W
Thermal output - water $\Phi_{w,c}$	-370 W
Dew point t_{dp}	14,8 °C
Water return temperature $t_{w,r,c}$	24,4 °C
Pressure drop, water side $\Delta p_{w,c}$	0,3 kPa
Total thermal output – heating $\Phi_{t,h}$	638 W
Thermal output - primary air $\Phi_{PRI,h}$	-118 W
Thermal output - water $\Phi_{w,h}$	756 W
Water return temperature $t_{w,r,h}$	37,0 °C
Pressure drop, water side $\Delta p_{w,h}$	0,2 kPa
Throw distance l_s	3,5 m
Velocity at l v_l	0,38 m/s
Temperature difference at l Δt_l	-0,67 K
Velocity at l_s v_s	N.A. m/s
Temperature difference at l_s Δt_s	N.A. K
Air density ρ	1,2 kg/m³ *)

Functional diagram



Notes *)

Air density ρ — All aerodynamic, acoustic and capacity calculations are based on this air density value.

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
Active part	307	33	30	24	26	27	27	27	26	22	29	32

Description

Active chilled beams of Type DID632, with twoway air discharge and high thermal output, providing high thermal comfort levels. For installation flush with the ceiling, preferably in rooms with a height up to 4.0 m. The units consist of a casing with suspension points, a spigot, noncombustible nozzles, and a horizontal heat exchanger. Nozzles in four sizes to optimise induction based on demand.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 30 m3/h

Results

Gap width s -4,5 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	19	< 15	29	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

DID632-LR-4-M-LR/1800x1800x593/LE

Induced air grille	LR	Perforated metal, circular holes
Heat exchanger	4	For 4-pipe systems
Nozzle variant	M	Medium
Arrangement of casings and connections	LR	Casing left side, Water connections right side
Total length	1800	
Nominal length	1800	
Width of front frame	593	
Air control blades	LE	With air control blades
Total amount	4	

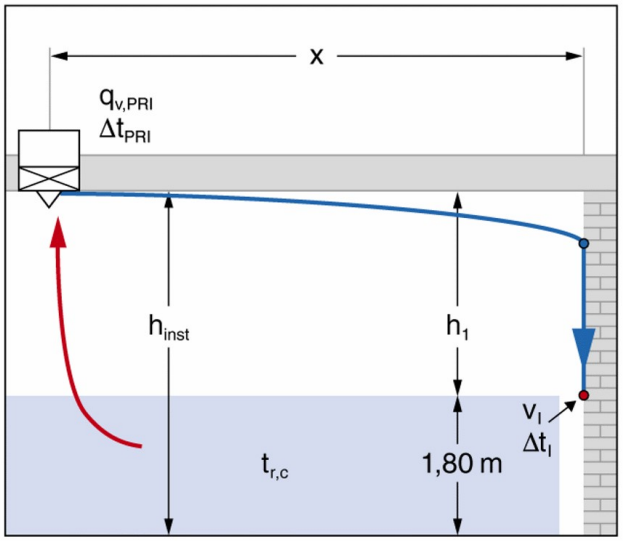
Input Data

Strategy: Single arrangement, cooling	
Primary air volume flow rate $q_{v,PRI}$	105 m3/h
Distance x	1,0 m
Installation height h_{inst}	4,0 m
Primary air temperature $t_{PRI,c}$	20,0 °C
Room temperature $t_{r,c}$	26,0 °C
Relative humidity of the air ϕ_p	50
Water flow temperature $t_{w,s,c}$	16,0 °C
Water flow rate $q_{v,w,c}$	48 l/h
Primary air temperature $t_{PRI,h}$	18,0 °C
Room temperature $t_{r,h}$	22,0 °C
Water flow temperature $t_{w,s,h}$	50,0 °C
Water flow rate $q_{v,w,h}$	50 l/h

Results

Distance h_1	2,2 m
Total thermal output – cooling $\Phi_{t,c}$	-705 W
Thermal output - primary air $\Phi_{PRI,c}$	-211 W
Thermal output - water $\Phi_{w,c}$	-494 W
Dew point t_{dp}	14,8 °C
Water return temperature $t_{w,r,c}$	24,9 °C
Pressure drop, water side $\Delta p_{w,c}$	0,7 kPa
Total thermal output – heating $\Phi_{t,h}$	769 W
Thermal output - primary air $\Phi_{PRI,h}$	-141 W
Thermal output - water $\Phi_{w,h}$	909 W
Water return temperature $t_{w,r,h}$	34,4 °C
Pressure drop, water side $\Delta p_{w,h}$	0,2 kPa
Throw distance l_s	3,5 m
Velocity at l v_l	0,33 m/s
Temperature difference at l Δt_l	-0,80 K
Velocity at l_s v_s	N.A. m/s
Temperature difference at l_s Δt_s	N.A. K
Air density ρ	1,2 kg/m³ *)

Functional diagram



Notes *)

Air density ρ	All aerodynamic, acoustic and capacity calculations are based on this air density value.

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
Active part	199	28	26	21	25	24	23	21	18	< 15	22	24

Description

Active chilled beams of Type DID632, with twoway air discharge and high thermal output, providing high thermal comfort levels. For installation flush with the ceiling, preferably in rooms with a height up to 4.0 m. The units consist of a casing with suspension points, a spigot, noncombustible nozzles, and a horizontal heat exchanger. Nozzles in four sizes to optimise induction based on demand.

DID632-LR-4-M-LR/1800x1800x593/LE

Induced air grille	LR	Perforated metal, circular holes
Heat exchanger	4	For 4-pipe systems
Nozzle variant	M	Medium
Arrangement of casings and connections	LR	Casing left side, Water connections right side
Total length	1800	
Nominal length	1800	
Width of front frame	593	
Air control blades	LE	With air control blades
Total amount	2	

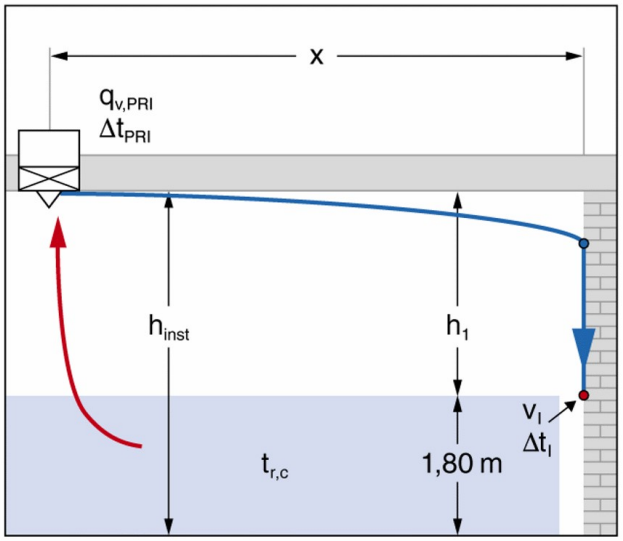
Input Data

Strategy: Single arrangement, cooling	
Primary air volume flow rate $q_{v,PRI}$	90 m3/h
Distance x	1,0 m
Installation height h_{inst}	4,0 m
Primary air temperature $t_{PRI,c}$	20,0 °C
Room temperature $t_{r,c}$	26,0 °C
Relative humidity of the air ϕ_p	50
Water flow temperature $t_{w,s,c}$	16,0 °C
Water flow rate $q_{v,w,c}$	42 l/h
Primary air temperature $t_{PRI,h}$	18,0 °C
Room temperature $t_{r,h}$	22,0 °C
Water flow temperature $t_{w,s,h}$	50,0 °C
Water flow rate $q_{v,w,h}$	50 l/h

Results

Distance h_1	2,2 m
Total thermal output – cooling $\Phi_{t,c}$	-604 W
Thermal output - primary air $\Phi_{PRI,c}$	-181 W
Thermal output - water $\Phi_{w,c}$	-424 W
Dew point t_{dp}	14,8 °C
Water return temperature $t_{w,r,c}$	24,7 °C
Pressure drop, water side $\Delta p_{w,c}$	0,5 kPa
Total thermal output – heating $\Phi_{t,h}$	712 W
Thermal output - primary air $\Phi_{PRI,h}$	-120 W
Thermal output - water $\Phi_{w,h}$	832 W
Water return temperature $t_{w,r,h}$	35,7 °C
Pressure drop, water side $\Delta p_{w,h}$	0,2 kPa
Throw distance l_s	2,9 m
Velocity at l v_l	0,28 m/s
Temperature difference at l Δt_l	-0,80 K
Velocity at l_s v_s	N.A. m/s
Temperature difference at l_s Δt_s	N.A. K
Air density ρ	1,2 kg/m³ *)

Functional diagram



Notes *)

Air density ρ — All aerodynamic, acoustic and capacity calculations are based on this air density value.

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
Active part	146	23	23	17	21	20	18	15	< 15	< 15	17	18

Description

Active chilled beams of Type DID632, with twoway air discharge and high thermal output, providing high thermal comfort levels. For installation flush with the ceiling, preferably in rooms with a height up to 4.0 m. The units consist of a casing with suspension points, a spigot, noncombustible nozzles, and a horizontal heat exchanger. Nozzles in four sizes to optimise induction based on demand.

LVS/100

Nominal size	100
Total amount	3

Input Data

Strategy: General

Volume flow q_v 80 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	41	25	30	19	25	23	19	16	< 15	< 15	18	19

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

DID632-LR-4-M-LR/1200x1200x593/LE

Induced air grille	LR	Perforated metal, circular holes
Heat exchanger	4	For 4-pipe systems
Nozzle variant	M	Medium
Arrangement of casings and connections	LR	Casing left side, Water connections right side
Total length	1200	
Nominal length	1200	
Width of front frame	593	
Air control blades	LE	With air control blades
Total amount	1	

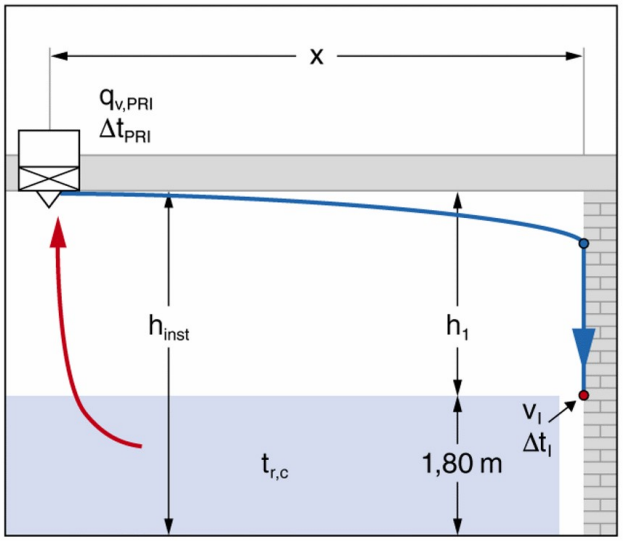
Input Data

Strategy: Single arrangement, cooling	
Primary air volume flow rate $q_{v,PRI}$	36 m3/h
Distance x	1,0 m
Installation height h_{inst}	4,0 m
Primary air temperature $t_{PRI,c}$	20,0 °C
Room temperature $t_{r,c}$	26,0 °C
Relative humidity of the air ϕ_p	50
Water flow temperature $t_{w,s,c}$	16,0 °C
Water flow rate $q_{v,w,c}$	62 l/h
Primary air temperature $t_{PRI,h}$	18,0 °C
Room temperature $t_{r,h}$	22,0 °C
Water flow temperature $t_{w,s,h}$	50,0 °C
Water flow rate $q_{v,w,h}$	50 l/h

Results

Distance h_1	2,2 m
Total thermal output – cooling $\Phi_{t,c}$	-346 W
Thermal output - primary air $\Phi_{PRI,c}$	-72 W
Thermal output - water $\Phi_{w,c}$	-273 W
Dew point t_{dp}	14,8 °C
Water return temperature $t_{w,r,c}$	19,8 °C
Pressure drop, water side $\Delta p_{w,c}$	0,7 kPa
Total thermal output – heating $\Phi_{t,h}$	329 W
Thermal output - primary air $\Phi_{PRI,h}$	-48 W
Thermal output - water $\Phi_{w,h}$	377 W
Water return temperature $t_{w,r,h}$	43,5 °C
Pressure drop, water side $\Delta p_{w,h}$	0,2 kPa
Throw distance l_s	1,0 m
Velocity at l v_l	0,16 m/s
Temperature difference at l Δt_l	-1,03 K
Velocity at l_s v_s	N.A. m/s
Temperature difference at l_s Δt_s	N.A. K
Air density ρ	1,2 kg/m³ *)

Functional diagram



Notes *)

Air density ρ	All aerodynamic, acoustic and capacity calculations are based on this air density value.

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
Active part	51	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Active chilled beams of Type DID632, with twoway air discharge and high thermal output, providing high thermal comfort levels. For installation flush with the ceiling, preferably in rooms with a height up to 4.0 m. The units consist of a casing with suspension points, a spigot, noncombustible nozzles, and a horizontal heat exchanger. Nozzles in four sizes to optimise induction based on demand.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 30 m3/h

Results

Gap width s -4,5 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	19	< 15	29	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 30 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	6	< 15	23	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 30 m3/h

Results

Gap width s -4,5 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	19	< 15	29	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 50 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	16	< 15	28	< 15	15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	2

Input Data

Strategy: General

Volume flow q_v 35 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	8	< 15	25	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 30 m3/h

Results

Gap width s -4,5 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	19	< 15	29	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 90 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	52	28	30	21	28	25	22	19	< 15	< 15	21	23

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	2

Input Data

Strategy: General

Volume flow q_v 75 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	36	23	30	18	24	21	18	< 15	< 15	< 15	16	18

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 50 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	16	< 15	28	< 15	15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 90 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	52	28	30	21	28	25	22	19	< 15	< 15	21	23

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	2

Input Data

Strategy: General

Volume flow q_v 88 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	49	27	30	21	27	25	22	19	< 15	< 15	20	22

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 45 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	13	< 15	27	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 40 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	10	< 15	26	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size 100
Total amount 1

Input Data

Strategy: General

Volume flow q_v 50 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	16	< 15	28	< 15	15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 40 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	10	< 15	26	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 50 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	16	< 15	28	< 15	15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 50 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	16	< 15	28	< 15	15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	4

Input Data

Strategy: General

Volume flow q_v 58 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	21	17	29	< 15	18	15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	24

Input Data

Strategy: General

Volume flow q_v 40 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	10	< 15	26	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	3

Input Data

Strategy: General

Volume flow q_v 30 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	6	< 15	23	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	3

Input Data

Strategy: General

Volume flow q_v 30 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	6	< 15	23	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	3

Input Data

Strategy: General

Volume flow q_v 75 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	36	23	30	18	24	21	18	< 15	< 15	< 15	16	18

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	3

Input Data

Strategy: General

Volume flow q_v 50 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	16	< 15	28	< 15	15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	6

Input Data

Strategy: General

Volume flow q_v 50 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	16	< 15	28	< 15	15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	3

Input Data

Strategy: General

Volume flow q_v 30 m3/h

Results

Gap width s -4,5 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	19	< 15	29	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	3

Input Data

Strategy: General

Volume flow q_v 30 m3/h

Results

Gap width s -4,5 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	19	< 15	29	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	3

Input Data

Strategy: General

Volume flow q_v 30 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	6	< 15	23	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size 100
Total amount 3

Input Data

Strategy: General

Volume flow q_v 25 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	4	< 15	19	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	3

Input Data

Strategy: General

Volume flow q_v 30 m3/h

Results

Gap width s -4,5 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	19	< 15	29	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size 100
Total amount 3

Input Data

Strategy: General

Volume flow q_v 50 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	16	< 15	28	< 15	15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	3

Input Data

Strategy: General

Volume flow q_v 80 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	41	25	30	19	25	23	19	16	< 15	< 15	18	19

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	2

Input Data

Strategy: General

Volume flow q_v 65 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	27	20	29	15	21	18	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 80 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	41	25	30	19	25	23	19	16	< 15	< 15	18	19

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 30 m3/h

Results

Gap width s -4,5 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	19	< 15	29	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size 100
Total amount 2

Input Data

Strategy: General

Volume flow q_v 90 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	52	28	30	21	28	25	22	19	< 15	< 15	21	23

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 50 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	16	< 15	28	< 15	15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 30 m3/h

Results

Gap width s -4,5 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	19	< 15	29	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 60 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	23	18	29	< 15	19	16	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 30 m3/h

Results

Gap width s -4,5 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	19	< 15	29	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 80 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	41	25	30	19	25	23	19	16	< 15	< 15	18	19

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 30 m3/h

Results

Gap width s -4,5 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	19	< 15	29	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	4

Input Data

Strategy: General

Volume flow q_v 75 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	36	23	30	18	24	21	18	< 15	< 15	< 15	16	18

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	4

Input Data

Strategy: General

Volume flow q_v 70 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	31	21	29	16	22	20	16	< 15	< 15	< 15	< 15	16

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 25 m3/h

Results

Gap width s -4,5 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	13	< 15	27	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 30 m3/h

Results

Gap width s -4,5 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	19	< 15	29	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 30 m3/h

Results

Gap width s -4,5 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	19	< 15	29	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 80 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	41	25	30	19	25	23	19	16	< 15	< 15	18	19

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	1

Input Data

Strategy: General

Volume flow q_v 30 m3/h

Results

Gap width s -4,5 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	19	< 15	29	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

LVS/100

Nominal size	100
Total amount	2

Input Data

Strategy: General

Volume flow q_v 50 m3/h

Results

Gap width s 5,0 mm

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	LWNC [dB]	LWNR [dB]
General	16	< 15	28	< 15	15	< 15	< 15	< 15	< 15	< 15	< 15	< 15

Description

Circular disc valves as extract air devices, preferably for small rooms. For installation into walls and suspended ceilings. Ready-to-install component which consists of a valve casing with cross bar, a valve disc with threaded spindle, and an installation subframe. The valve disc can be turned for volume flow rate balancing. The valve setting can be fixed with a lock nut. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

VFC/250

Nominal size	250
Total amount	1

Input Data

Strategy: Operating values to calculate	
Volume flow q_v	420 m3/h
Static differential pressure Δp_{st}	60 Pa

Results

Airflow velocity v	2,42 m/s
Static differential pressure, minimum $\Delta p_{st,min}$	31 Pa
Air-regenerated noise $L_{p,A}$	23 dB(A) *)
Case-radiated noise $L_{p,A}$	20 dB(A)
System attenuation for air-regenerated noise ΔL_1	8 dB *)
System attenuation for case-radiated noise ΔL_2	9 dB *)
Volume flow rate tolerance $_{[\pm\%]}\ \Delta q_v$	0

Notes *)

Air-regenerated noise $L_{p,A}$	The air-regenerated noise already reflects the noise reduction achieved with the additional silencer.
System attenuation for air-regenerated noise ΔL_1	The sound pressure level of air-regenerated noise is calculated based on system attenuation values achieved under real conditions. These system attenuation values are the combined correction values for change of direction, distribution in the ductwork, end reflection and room attenuation.

Acoustic results

	$L_{W,A}$ [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	$L_{W,NC}$ [dB]	$L_{W,NR}$ [dB]
Air-regenerated noise, sound power level	33	52	41	36	23	< 15	22	22	17	24	27
Case-radiated noise, sound power level	29	38	28	27	28	24	22	< 15	< 15	23	25

Description

Circular volume flow controllers for constant and variable air volume systems with low airflow velocities, mechanical self-powered, without external power supply, suitable for supply or extract air, available in 6 nominal sizes. Ready-to-commission unit consists of the casing containing a damper blade with low-friction bearings, bellows, leaf spring, and a rotary knob to set the volume flow rate setpoint.

CS050/250x1000

Insulation thickness	050
Nominal size	250
Nominal length	1000
Total amount	1

Input Data

Strategy: Silencer without pod	
Volume flow q_v	420 m3/h

Results

Airflow velocity v	2,42 m/s
Static differential pressure Δp_{st}	< 5 Pa
Air-regenerated noise $L_{W,A}$	< 15 dB(A)
Air-regenerated noise $L_{W,NC}$	< 15 dB
Air-regenerated noise $L_{W,NR}$	< 15 dB
Weight m	6 kg

Acoustic results

	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]
Air-regenerated noise, sound power level	17	< 15	< 15	< 15	< 15	< 15	< 15	< 15
Insertion Loss	2	3	7	21	30	16	8	7

Description

Circular silencers for air conditioning systems, rigid construction, available in 8 nominal sizes. Insertion loss measured according to ISO 7235. Casing with acoustic and thermal insulation. Spigot with groove for lip seal, suitable for circular connecting ducts to EN 1506 or EN 13180. Casing air leakage to EN 15727, class D.

VFC/125

Nominal size	125
Total amount	1

Input Data

Strategy: Operating values to calculate	
Volume flow q_v	36 m3/h
Static differential pressure Δp_{st}	169 Pa

Results

Airflow velocity v	0,84 m/s
Static differential pressure, minimum $\Delta p_{st,min}$	31 Pa
Air-regenerated noise $L_{p,A}$	18 dB(A) *)
Case-radiated noise $L_{p,A}$	20 dB(A)
System attenuation for air-regenerated noise ΔL_1	8 dB *)
System attenuation for case-radiated noise ΔL_2	9 dB *)
Volume flow rate tolerance $_{[\pm\%]}\ \Delta q_v$	0

Notes *)

Air-regenerated noise $L_{p,A}$	The air-regenerated noise already reflects the noise reduction achieved with the additional silencer.
System attenuation for air-regenerated noise ΔL_1	The sound pressure level of air-regenerated noise is calculated based on system attenuation values achieved under real conditions. These system attenuation values are the combined correction values for change of direction, distribution in the ductwork, end reflection and room attenuation.

Acoustic results

	$L_{W,A}$ [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	$L_{W,NC}$ [dB]	$L_{W,NR}$ [dB]
Air-regenerated noise, sound power level	27	47	33	27	19	< 15	< 15	18	22	26	29
Case-radiated noise, sound power level	29	38	26	25	26	24	20	19	20	23	27

Description

Circular volume flow controllers for constant and variable air volume systems with low airflow velocities, mechanical self-powered, without external power supply, suitable for supply or extract air, available in 6 nominal sizes. Ready-to-commission unit consists of the casing containing a damper blade with low-friction bearings, bellows, leaf spring, and a rotary knob to set the volume flow rate setpoint.

CS050/125x500

Insulation thickness	050
Nominal size	125
Nominal length	500
Total amount	1

Input Data

Strategy: Silencer without pod	
Volume flow q_v	36 m3/h

Results

Airflow velocity v	0,84 m/s
Static differential pressure Δp_{st}	< 5 Pa
Air-regenerated noise $L_{W,A}$	< 15 dB(A)
Air-regenerated noise $L_{W,NC}$	< 15 dB
Air-regenerated noise $L_{W,NR}$	< 15 dB
Weight m	2 kg

Acoustic results

	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]
Air-regenerated noise, sound power level	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15
Insertion Loss	3	4	9	19	26	25	13	10

Description

Circular silencers for air conditioning systems, rigid construction, available in 8 nominal sizes. Insertion loss measured according to ISO 7235. Casing with acoustic and thermal insulation. Spigot with groove for lip seal, suitable for circular connecting ducts to EN 1506 or EN 13180. Casing air leakage to EN 15727, class D.

VFC/125

Nominal size	125
Total amount	1

Input Data

Strategy: Operating values to calculate	
Volume flow q_v	80 m3/h
Static differential pressure Δp_{st}	120 Pa

Results

Airflow velocity v	1,87 m/s
Static differential pressure, minimum $\Delta p_{st,min}$	30 Pa
Air-regenerated noise $L_{p,A}$	36 dB(A)
Case-radiated noise $L_{p,A}$	23 dB(A)
System attenuation for air-regenerated noise ΔL_1	8 dB *)
System attenuation for case-radiated noise ΔL_2	9 dB *)
Volume flow rate tolerance $_{[\pm\%]}\ \Delta q_v$	0

Notes *)

System attenuation for air-regenerated noise ΔL_1	The sound pressure level of air-regenerated noise is calculated based on system attenuation values achieved under real conditions. These system attenuation values are the combined correction values for change of direction, distribution in the ductwork, end reflection and room attenuation.

Acoustic results

	$L_{W,A}$ [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	$L_{W,NC}$ [dB]	$L_{W,NR}$ [dB]
Air-regenerated noise, sound power level	44	54	47	43	42	39	34	30	29	37	39
Case-radiated noise, sound power level	32	42	35	31	30	27	22	18	17	25	27

Description

Circular volume flow controllers for constant and variable air volume systems with low airflow velocities, mechanical self-powered, without external power supply, suitable for supply or extract air, available in 6 nominal sizes. Ready-to-commission unit consists of the casing containing a damper blade with low-friction bearings, bellows, leaf spring, and a rotary knob to set the volume flow rate setpoint.

VFC/160

Nominal size	160
Total amount	1

Input Data

Strategy: Operating values to calculate	
Volume flow q_v	200 m3/h
Static differential pressure Δp_{st}	60 Pa

Results

Airflow velocity v	2,83 m/s
Static differential pressure, minimum $\Delta p_{st,min}$	31 Pa
Air-regenerated noise $L_{p,A}$	25 dB(A) *)
Case-radiated noise $L_{p,A}$	24 dB(A)
System attenuation for air-regenerated noise ΔL_1	8 dB *)
System attenuation for case-radiated noise ΔL_2	9 dB *)
Volume flow rate tolerance $_{[\pm\%]}\ \Delta q_v$	0

Notes *)

Air-regenerated noise $L_{p,A}$	The air-regenerated noise already reflects the noise reduction achieved with the additional silencer.
System attenuation for air-regenerated noise ΔL_1	The sound pressure level of air-regenerated noise is calculated based on system attenuation values achieved under real conditions. These system attenuation values are the combined correction values for change of direction, distribution in the ductwork, end reflection and room attenuation.

Acoustic results

	$L_{W,A}$ [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	$L_{W,NC}$ [dB]	$L_{W,NR}$ [dB]
Air-regenerated noise, sound power level	34	51	47	37	24	< 15	< 15	16	16	28	29
Case-radiated noise, sound power level	33	43	40	35	31	26	20	15	< 15	25	26

Description

Circular volume flow controllers for constant and variable air volume systems with low airflow velocities, mechanical self-powered, without external power supply, suitable for supply or extract air, available in 6 nominal sizes. Ready-to-commission unit consists of the casing containing a damper blade with low-friction bearings, bellows, leaf spring, and a rotary knob to set the volume flow rate setpoint.

CS050/160x500

Insulation thickness	050
Nominal size	160
Nominal length	500
Total amount	1

Input Data

Strategy: Silencer without pod	
Volume flow q_v	200 m3/h

Results

Airflow velocity v	2,83 m/s
Static differential pressure Δp_{st}	< 5 Pa
Air-regenerated noise $L_{W,A}$	< 15 dB(A)
Air-regenerated noise $L_{W,NC}$	< 15 dB
Air-regenerated noise $L_{W,NR}$	< 15 dB
Weight m	2 kg

Acoustic results

	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]
Air-regenerated noise, sound power level	17	< 15	< 15	< 15	< 15	< 15	< 15	< 15
Insertion Loss	2	3	7	16	23	19	10	8

Description

Circular silencers for air conditioning systems, rigid construction, available in 8 nominal sizes. Insertion loss measured according to ISO 7235. Casing with acoustic and thermal insulation. Spigot with groove for lip seal, suitable for circular connecting ducts to EN 1506 or EN 13180. Casing air leakage to EN 15727, class D.

VFC/80

Nominal size	80
Total amount	1

Input Data

Strategy: Operating values to calculate	
Volume flow q_v	25 m3/h
Static differential pressure Δp_{st}	100 Pa

Results

Airflow velocity v	1,45 m/s
Static differential pressure, minimum $\Delta p_{st,min}$	30 Pa
Air-regenerated noise $L_{p,A}$	33 dB(A)
Case-radiated noise $L_{p,A}$	17 dB(A)
System attenuation for air-regenerated noise ΔL_1	8 dB *)
System attenuation for case-radiated noise ΔL_2	9 dB *)
Volume flow rate tolerance $_{[\pm\%]}\ \Delta q_v$	0

Notes *)

System attenuation for air-regenerated noise ΔL_1: The sound pressure level of air-regenerated noise is calculated based on system attenuation values achieved under real conditions. These system attenuation values are the combined correction values for change of direction, distribution in the ductwork, end reflection and room attenuation.

Acoustic results

	$L_{W,A}$ [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	$L_{W,NC}$ [dB]	$L_{W,NR}$ [dB]
Air-regenerated noise, sound power level	41	58	45	41	38	36	30	25	26	34	36
Case-radiated noise, sound power level	26	43	30	26	23	21	15	< 15	< 15	19	21

Description

Circular volume flow controllers for constant and variable air volume systems with low airflow velocities, mechanical self-powered, without external power supply, suitable for supply or extract air, available in 6 nominal sizes. Ready-to-commission unit consists of the casing containing a damper blade with low-friction bearings, bellows, leaf spring, and a rotary knob to set the volume flow rate setpoint.

VFC/160

Nominal size	160
Total amount	1

Input Data

Strategy: Operating values to calculate	
Volume flow q_v	105 m3/h
Static differential pressure Δp_{st}	50 Pa

Results

Airflow velocity v	1,49 m/s
Static differential pressure, minimum $\Delta p_{st,min}$	30 Pa
Air-regenerated noise $L_{p,A}$	29 dB(A)
Case-radiated noise $L_{p,A}$	18 dB(A)
System attenuation for air-regenerated noise ΔL_1	8 dB *)
System attenuation for case-radiated noise ΔL_2	9 dB *)
Volume flow rate tolerance $_{[\pm\%]}\ \Delta q_v$	0

Notes *)

System attenuation for air-regenerated noise ΔL_1	The sound pressure level of air-regenerated noise is calculated based on system attenuation values achieved under real conditions. These system attenuation values are the combined correction values for change of direction, distribution in the ductwork, end reflection and room attenuation.

Acoustic results

	$L_{W,A}$ [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	$L_{W,NC}$ [dB]	$L_{W,NR}$ [dB]
Air-regenerated noise, sound power level	37	49	44	39	36	31	25	21	20	30	32
Case-radiated noise, sound power level	27	39	34	29	26	21	15	< 15	< 15	19	22

Description

Circular volume flow controllers for constant and variable air volume systems with low airflow velocities, mechanical self-powered, without external power supply, suitable for supply or extract air, available in 6 nominal sizes. Ready-to-commission unit consists of the casing containing a damper blade with low-friction bearings, bellows, leaf spring, and a rotary knob to set the volume flow rate setpoint.

VFC/100

Nominal size	100
Total amount	1

Input Data

Strategy: Operating values to calculate	
Volume flow q_v	80 m3/h
Static differential pressure Δp_{st}	90 Pa

Results

Airflow velocity v	2,95 m/s
Static differential pressure, minimum $\Delta p_{st,min}$	31 Pa
Air-regenerated noise $L_{p,A}$	25 dB(A) *)
Case-radiated noise $L_{p,A}$	27 dB(A)
System attenuation for air-regenerated noise ΔL_1	8 dB *)
System attenuation for case-radiated noise ΔL_2	9 dB *)
Volume flow rate tolerance $_{[\pm\%]}\ \Delta q_v$	0

Notes *)

Air-regenerated noise $L_{p,A}$	The air-regenerated noise already reflects the noise reduction achieved with the additional silencer.
System attenuation for air-regenerated noise ΔL_1	The sound pressure level of air-regenerated noise is calculated based on system attenuation values achieved under real conditions. These system attenuation values are the combined correction values for change of direction, distribution in the ductwork, end reflection and room attenuation.

Acoustic results

	$L_{W,A}$ [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	$L_{W,NC}$ [dB]	$L_{W,NR}$ [dB]
Air-regenerated noise, sound power level	35	53	48	38	24	< 15	< 15	15	16	29	29
Case-radiated noise, sound power level	36	45	41	37	34	30	25	19	16	29	30

Description

Circular volume flow controllers for constant and variable air volume systems with low airflow velocities, mechanical self-powered, without external power supply, suitable for supply or extract air, available in 6 nominal sizes. Ready-to-commission unit consists of the casing containing a damper blade with low-friction bearings, bellows, leaf spring, and a rotary knob to set the volume flow rate setpoint.

CS050/100x500

Insulation thickness	050
Nominal size	100
Nominal length	500
Total amount	1

Input Data

Strategy: Silencer without pod	
Volume flow q_v	80 m3/h

Results

Airflow velocity v	2,95 m/s
Static differential pressure Δp_{st}	< 5 Pa
Air-regenerated noise $L_{W,A}$	< 15 dB(A)
Air-regenerated noise $L_{W,NC}$	< 15 dB
Air-regenerated noise $L_{W,NR}$	< 15 dB
Weight m	2 kg

Acoustic results

	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]
Air-regenerated noise, sound power level	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15
Insertion Loss	3	5	11	22	29	30	16	12

Description

Circular silencers for air conditioning systems, rigid construction, available in 8 nominal sizes. Insertion loss measured according to ISO 7235. Casing with acoustic and thermal insulation. Spigot with groove for lip seal, suitable for circular connecting ducts to EN 1506 or EN 13180. Casing air leakage to EN 15727, class D.

VFC/250

Nominal size	250
Total amount	1

Input Data

Strategy: Operating values to calculate	
Volume flow q_v	470 m3/h
Static differential pressure Δp_{st}	40 Pa

Results

Airflow velocity v	2,70 m/s
Static differential pressure, minimum $\Delta p_{st,min}$	31 Pa
Air-regenerated noise $L_{p,A}$	25 dB(A) *)
Case-radiated noise $L_{p,A}$	17 dB(A)
System attenuation for air-regenerated noise ΔL_1	8 dB *)
System attenuation for case-radiated noise ΔL_2	9 dB *)
Volume flow rate tolerance $_{[\pm\%]}\ \Delta q_v$	0

Notes *)

Air-regenerated noise $L_{p,A}$	The air-regenerated noise already reflects the noise reduction achieved with the additional silencer.
System attenuation for air-regenerated noise ΔL_1	The sound pressure level of air-regenerated noise is calculated based on system attenuation values achieved under real conditions. These system attenuation values are the combined correction values for change of direction, distribution in the ductwork, end reflection and room attenuation.

Acoustic results

	$L_{W,A}$ [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	$L_{W,NC}$ [dB]	$L_{W,NR}$ [dB]
Air-regenerated noise, sound power level	34	51	40	36	29	18	26	20	< 15	26	29
Case-radiated noise, sound power level	26	37	26	24	25	20	18	< 15	< 15	19	21

Description

Circular volume flow controllers for constant and variable air volume systems with low airflow velocities, mechanical self-powered, without external power supply, suitable for supply or extract air, available in 6 nominal sizes. Ready-to-commission unit consists of the casing containing a damper blade with low-friction bearings, bellows, leaf spring, and a rotary knob to set the volume flow rate setpoint.

CS050/250x500

Insulation thickness	050
Nominal size	250
Nominal length	500
Total amount	1

Input Data

Strategy: Silencer without pod	
Volume flow q_v	470 m3/h

Results

Airflow velocity v	2,70 m/s
Static differential pressure Δp_{st}	< 5 Pa
Air-regenerated noise $L_{W,A}$	< 15 dB(A)
Air-regenerated noise $L_{W,NC}$	< 15 dB
Air-regenerated noise $L_{W,NR}$	< 15 dB
Weight m	3 kg

Acoustic results

	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]
Air-regenerated noise, sound power level	19	< 15	< 15	< 15	< 15	< 15	< 15	< 15
Insertion Loss	1	1	4	12	18	9	5	4

Description

Circular silencers for air conditioning systems, rigid construction, available in 8 nominal sizes. Insertion loss measured according to ISO 7235. Casing with acoustic and thermal insulation. Spigot with groove for lip seal, suitable for circular connecting ducts to EN 1506 or EN 13180. Casing air leakage to EN 15727, class D.

VFC/160

Nominal size	160
Total amount	1

Input Data

Strategy: Operating values to calculate	
Volume flow q_v	105 m3/h
Static differential pressure Δp_{st}	90 Pa

Results

Airflow velocity v	1,49 m/s
Static differential pressure, minimum $\Delta p_{st,min}$	31 Pa
Air-regenerated noise $L_{p,A}$	23 dB(A) *)
Case-radiated noise $L_{p,A}$	24 dB(A)
System attenuation for air-regenerated noise ΔL_1	8 dB *)
System attenuation for case-radiated noise ΔL_2	9 dB *)
Volume flow rate tolerance $_{[\pm\%]}\ \Delta q_v$	0

Notes *)

Air-regenerated noise $L_{p,A}$	The air-regenerated noise already reflects the noise reduction achieved with the additional silencer.
System attenuation for air-regenerated noise ΔL_1	The sound pressure level of air-regenerated noise is calculated based on system attenuation values achieved under real conditions. These system attenuation values are the combined correction values for change of direction, distribution in the ductwork, end reflection and room attenuation.

Acoustic results

	$L_{W,A}$ [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	$L_{W,NC}$ [dB]	$L_{W,NR}$ [dB]
Air-regenerated noise, sound power level	32	49	43	35	24	< 15	< 15	20	21	25	28
Case-radiated noise, sound power level	33	41	37	32	31	27	22	20	19	26	27

Description

Circular volume flow controllers for constant and variable air volume systems with low airflow velocities, mechanical self-powered, without external power supply, suitable for supply or extract air, available in 6 nominal sizes. Ready-to-commission unit consists of the casing containing a damper blade with low-friction bearings, bellows, leaf spring, and a rotary knob to set the volume flow rate setpoint.

CS050/160x500

Insulation thickness	050
Nominal size	160
Nominal length	500
Total amount	1

Input Data	
Strategy: Silencer without pod	
Volume flow q_v	105 m3/h

Results	
Airflow velocity v	1,49 m/s
Static differential pressure Δp_{st}	< 5 Pa
Air-regenerated noise $L_{W,A}$	< 15 dB(A)
Air-regenerated noise $L_{W,NC}$	< 15 dB
Air-regenerated noise $L_{W,NR}$	< 15 dB
Weight m	2 kg

Acoustic results

	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]
Air-regenerated noise, sound power level	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15
Insertion Loss	2	3	7	16	23	19	10	8

Description

Circular silencers for air conditioning systems, rigid construction, available in 8 nominal sizes. Insertion loss measured according to ISO 7235. Casing with acoustic and thermal insulation. Spigot with groove for lip seal, suitable for circular connecting ducts to EN 1506 or EN 13180. Casing air leakage to EN 15727, class D.

VFC/125

Nominal size	125
Total amount	1

Input Data

Strategy: Operating values to calculate	
Volume flow q_v	75 m3/h
Static differential pressure Δp_{st}	40 Pa

Results

Airflow velocity v	1,75 m/s
Static differential pressure, minimum $\Delta p_{st,min}$	30 Pa
Air-regenerated noise $L_{p,A}$	26 dB(A)
Case-radiated noise $L_{p,A}$	< 15 dB(A)
System attenuation for air-regenerated noise ΔL_1	8 dB *)
System attenuation for case-radiated noise ΔL_2	9 dB *)
Volume flow rate tolerance $_{[\pm\%]}\ \Delta q_v$	0

Notes *)

System attenuation for air-regenerated noise ΔL_1	The sound pressure level of air-regenerated noise is calculated based on system attenuation values achieved under real conditions. These system attenuation values are the combined correction values for change of direction, distribution in the ductwork, end reflection and room attenuation.

Acoustic results

	$L_{W,A}$ [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	$L_{W,NC}$ [dB]	$L_{W,NR}$ [dB]
Air-regenerated noise, sound power level	34	49	38	34	33	27	19	< 15	< 15	27	28
Case-radiated noise, sound power level	22	37	26	22	21	15	< 15	< 15	< 15	< 15	16

Description

Circular volume flow controllers for constant and variable air volume systems with low airflow velocities, mechanical self-powered, without external power supply, suitable for supply or extract air, available in 6 nominal sizes. Ready-to-commission unit consists of the casing containing a damper blade with low-friction bearings, bellows, leaf spring, and a rotary knob to set the volume flow rate setpoint.

VFC/125

Nominal size	125
Total amount	1

Input Data

Strategy: Operating values to calculate	
Volume flow q_v	45 m3/h
Static differential pressure Δp_{st}	70 Pa

Results

Airflow velocity v	1,05 m/s
Static differential pressure, minimum $\Delta p_{st,min}$	30 Pa
Air-regenerated noise $L_{p,A}$	27 dB(A)
Case-radiated noise $L_{p,A}$	< 15 dB(A)
System attenuation for air-regenerated noise ΔL_1	8 dB *)
System attenuation for case-radiated noise ΔL_2	9 dB *)
Volume flow rate tolerance $_{[\pm\%]}\ \Delta q_v$	0

Notes *)

System attenuation for air-regenerated noise ΔL_1	The sound pressure level of air-regenerated noise is calculated based on system attenuation values achieved under real conditions. These system attenuation values are the combined correction values for change of direction, distribution in the ductwork, end reflection and room attenuation.

Acoustic results

	$L_{W,A}$ [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	$L_{W,NC}$ [dB]	$L_{W,NR}$ [dB]
Air-regenerated noise, sound power level	35	48	36	33	34	29	23	19	16	28	30
Case-radiated noise, sound power level	23	36	24	21	22	17	< 15	< 15	< 15	16	17

Description

Circular volume flow controllers for constant and variable air volume systems with low airflow velocities, mechanical self-powered, without external power supply, suitable for supply or extract air, available in 6 nominal sizes. Ready-to-commission unit consists of the casing containing a damper blade with low-friction bearings, bellows, leaf spring, and a rotary knob to set the volume flow rate setpoint.

VFC/100

Nominal size	100
Total amount	1

Input Data

Strategy: Operating values to calculate	
Volume flow q_v	60 m3/h
Static differential pressure Δp_{st}	65 Pa

Results

Airflow velocity v	2,21 m/s
Static differential pressure, minimum $\Delta p_{st,min}$	31 Pa
Air-regenerated noise $L_{p,A}$	22 dB(A) *)
Case-radiated noise $L_{p,A}$	23 dB(A)
System attenuation for air-regenerated noise ΔL_1	8 dB *)
System attenuation for case-radiated noise ΔL_2	9 dB *)
Volume flow rate tolerance $_{[\pm\%]}\ \Delta q_v$	0

Notes *)

Air-regenerated noise $L_{p,A}$	The air-regenerated noise already reflects the noise reduction achieved with the additional silencer.
System attenuation for air-regenerated noise ΔL_1	The sound pressure level of air-regenerated noise is calculated based on system attenuation values achieved under real conditions. These system attenuation values are the combined correction values for change of direction, distribution in the ductwork, end reflection and room attenuation.

Acoustic results

	$L_{W,A}$ [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	$L_{W,NC}$ [dB]	$L_{W,NR}$ [dB]
Air-regenerated noise, sound power level	32	52	43	34	21	< 15	< 15	< 15	< 15	23	24
Case-radiated noise, sound power level	32	43	36	33	31	27	20	< 15	< 15	25	27

Description

Circular volume flow controllers for constant and variable air volume systems with low airflow velocities, mechanical self-powered, without external power supply, suitable for supply or extract air, available in 6 nominal sizes. Ready-to-commission unit consists of the casing containing a damper blade with low-friction bearings, bellows, leaf spring, and a rotary knob to set the volume flow rate setpoint.

CS050/100x500

Insulation thickness	050
Nominal size	100
Nominal length	500
Total amount	1

Input Data

Strategy: Silencer without pod	
Volume flow q_v	60 m3/h

Results

Airflow velocity v	2,21 m/s
Static differential pressure Δp_{st}	< 5 Pa
Air-regenerated noise $L_{W,A}$	< 15 dB(A)
Air-regenerated noise $L_{W,NC}$	< 15 dB
Air-regenerated noise $L_{W,NR}$	< 15 dB
Weight m	2 kg

Acoustic results

	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]
Air-regenerated noise, sound power level	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15
Insertion Loss	3	5	11	22	29	30	16	12

Description

Circular silencers for air conditioning systems, rigid construction, available in 8 nominal sizes. Insertion loss measured according to ISO 7235. Casing with acoustic and thermal insulation. Spigot with groove for lip seal, suitable for circular connecting ducts to EN 1506 or EN 13180. Casing air leakage to EN 15727, class D.

VFC/125

Nominal size	125
Total amount	1

Input Data

Strategy: Operating values to calculate	
Volume flow q_v	36 m3/h
Static differential pressure Δp_{st}	65 Pa

Results

Airflow velocity v	0,84 m/s
Static differential pressure, minimum $\Delta p_{st,min}$	30 Pa
Air-regenerated noise $L_{p,A}$	24 dB(A)
Case-radiated noise $L_{p,A}$	< 15 dB(A)
System attenuation for air-regenerated noise ΔL_1	8 dB *)
System attenuation for case-radiated noise ΔL_2	9 dB *)
Volume flow rate tolerance $_{[\pm\%]}\ \Delta q_v$	0

Notes *)

System attenuation for air-regenerated noise ΔL_1	The sound pressure level of air-regenerated noise is calculated based on system attenuation values achieved under real conditions. These system attenuation values are the combined correction values for change of direction, distribution in the ductwork, end reflection and room attenuation.

Acoustic results

	$L_{W,A}$ [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	$L_{W,NC}$ [dB]	$L_{W,NR}$ [dB]
Air-regenerated noise, sound power level	32	47	32	31	31	27	20	16	< 15	26	27
Case-radiated noise, sound power level	20	35	20	19	19	15	< 15	< 15	< 15	< 15	15

Description

Circular volume flow controllers for constant and variable air volume systems with low airflow velocities, mechanical self-powered, without external power supply, suitable for supply or extract air, available in 6 nominal sizes. Ready-to-commission unit consists of the casing containing a damper blade with low-friction bearings, bellows, leaf spring, and a rotary knob to set the volume flow rate setpoint.

VFC/125

Nominal size	125
Total amount	1

Input Data

Strategy: Operating values to calculate	
Volume flow q_v	36 m3/h
Static differential pressure Δp_{st}	80 Pa

Results

Airflow velocity v	0,84 m/s
Static differential pressure, minimum $\Delta p_{st,min}$	30 Pa
Air-regenerated noise $L_{p,A}$	26 dB(A)
Case-radiated noise $L_{p,A}$	< 15 dB(A)
System attenuation for air-regenerated noise ΔL_1	8 dB *)
System attenuation for case-radiated noise ΔL_2	9 dB *)
Volume flow rate tolerance $_{[\pm\%]}\ \Delta q_v$	0

Notes *)

System attenuation for air-regenerated noise ΔL_1	The sound pressure level of air-regenerated noise is calculated based on system attenuation values achieved under real conditions. These system attenuation values are the combined correction values for change of direction, distribution in the ductwork, end reflection and room attenuation.

Acoustic results

	$L_{W,A}$ [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	$L_{W,NC}$ [dB]	$L_{W,NR}$ [dB]
Air-regenerated noise, sound power level	34	48	34	32	33	29	23	20	18	27	29
Case-radiated noise, sound power level	22	36	22	20	21	17	< 15	< 15	< 15	15	17

Description

Circular volume flow controllers for constant and variable air volume systems with low airflow velocities, mechanical self-powered, without external power supply, suitable for supply or extract air, available in 6 nominal sizes. Ready-to-commission unit consists of the casing containing a damper blade with low-friction bearings, bellows, leaf spring, and a rotary knob to set the volume flow rate setpoint.

VFC/125

Nominal size	125
Total amount	1

Input Data

Strategy: Operating values to calculate	
Volume flow q_v	36 m3/h
Static differential pressure Δp_{st}	80 Pa

Results

Airflow velocity v	0,84 m/s
Static differential pressure, minimum $\Delta p_{st,min}$	30 Pa
Air-regenerated noise $L_{p,A}$	26 dB(A)
Case-radiated noise $L_{p,A}$	< 15 dB(A)
System attenuation for air-regenerated noise ΔL_1	8 dB *)
System attenuation for case-radiated noise ΔL_2	9 dB *)
Volume flow rate tolerance $_{[\pm\%]}\ \Delta q_v$	0

Notes *)

System attenuation for air-regenerated noise ΔL_1	The sound pressure level of air-regenerated noise is calculated based on system attenuation values achieved under real conditions. These system attenuation values are the combined correction values for change of direction, distribution in the ductwork, end reflection and room attenuation.

Acoustic results

	$L_{W,A}$ [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	$L_{W,NC}$ [dB]	$L_{W,NR}$ [dB]
Air-regenerated noise, sound power level	34	48	34	32	33	29	23	20	18	27	29
Case-radiated noise, sound power level	22	36	22	20	21	17	< 15	< 15	< 15	15	17

Description

Circular volume flow controllers for constant and variable air volume systems with low airflow velocities, mechanical self-powered, without external power supply, suitable for supply or extract air, available in 6 nominal sizes. Ready-to-commission unit consists of the casing containing a damper blade with low-friction bearings, bellows, leaf spring, and a rotary knob to set the volume flow rate setpoint.

VFC/100

Nominal size	100
Total amount	1

Input Data

Strategy: Operating values to calculate	
Volume flow q_v	30 m3/h
Static differential pressure Δp_{st}	30 Pa

Results

Airflow velocity v	1,10 m/s
Static differential pressure, minimum $\Delta p_{st,min}$	30 Pa
Air-regenerated noise $L_{p,A}$	27 dB(A)
Case-radiated noise $L_{p,A}$	< 15 dB(A)
System attenuation for air-regenerated noise ΔL_1	8 dB *)
System attenuation for case-radiated noise ΔL_2	9 dB *)
Volume flow rate tolerance $_{[\pm\%]}\ \Delta q_v$	0

Notes *)

System attenuation for air-regenerated noise ΔL_1	The sound pressure level of air-regenerated noise is calculated based on system attenuation values achieved under real conditions. These system attenuation values are the combined correction values for change of direction, distribution in the ductwork, end reflection and room attenuation.

Acoustic results

	$L_{W,A}$ [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	$L_{W,NC}$ [dB]	$L_{W,NR}$ [dB]
Air-regenerated noise, sound power level	35	51	37	35	34	30	22	15	< 15	29	30
Case-radiated noise, sound power level	23	39	25	23	22	18	< 15	< 15	< 15	16	18

Description

Circular volume flow controllers for constant and variable air volume systems with low airflow velocities, mechanical self-powered, without external power supply, suitable for supply or extract air, available in 6 nominal sizes. Ready-to-commission unit consists of the casing containing a damper blade with low-friction bearings, bellows, leaf spring, and a rotary knob to set the volume flow rate setpoint.

VFC/100

Nominal size	100
Total amount	1

Input Data

Strategy: Operating values to calculate	
Volume flow q_v	30 m3/h
Static differential pressure Δp_{st}	40 Pa

Results

Airflow velocity v	1,10 m/s
Static differential pressure, minimum $\Delta p_{st,min}$	30 Pa
Air-regenerated noise $L_{p,A}$	30 dB(A)
Case-radiated noise $L_{p,A}$	17 dB(A)
System attenuation for air-regenerated noise ΔL_1	8 dB *)
System attenuation for case-radiated noise ΔL_2	9 dB *)
Volume flow rate tolerance $_{[\pm\%]}\ \Delta q_v$	0

Notes *)

System attenuation for air-regenerated noise ΔL_1	The sound pressure level of air-regenerated noise is calculated based on system attenuation values achieved under real conditions. These system attenuation values are the combined correction values for change of direction, distribution in the ductwork, end reflection and room attenuation.

Acoustic results

	$L_{W,A}$ [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	$L_{W,NC}$ [dB]	$L_{W,NR}$ [dB]
Air-regenerated noise, sound power level	38	52	39	37	36	32	25	19	< 15	31	32
Case-radiated noise, sound power level	26	40	27	25	24	20	< 15	< 15	< 15	19	20

Description

Circular volume flow controllers for constant and variable air volume systems with low airflow velocities, mechanical self-powered, without external power supply, suitable for supply or extract air, available in 6 nominal sizes. Ready-to-commission unit consists of the casing containing a damper blade with low-friction bearings, bellows, leaf spring, and a rotary knob to set the volume flow rate setpoint.

VFC/125

Nominal size	125
Total amount	1

Input Data

Strategy: Operating values to calculate	
Volume flow q_v	36 m3/h
Static differential pressure Δp_{st}	90 Pa

Results

Airflow velocity v	0,84 m/s
Static differential pressure, minimum $\Delta p_{st,min}$	30 Pa
Air-regenerated noise $L_{p,A}$	27 dB(A)
Case-radiated noise $L_{p,A}$	< 15 dB(A)
System attenuation for air-regenerated noise ΔL_1	8 dB *)
System attenuation for case-radiated noise ΔL_2	9 dB *)
Volume flow rate tolerance $_{[\pm\%]}\ \Delta q_v$	0

Notes *)

System attenuation for air-regenerated noise ΔL_1	The sound pressure level of air-regenerated noise is calculated based on system attenuation values achieved under real conditions. These system attenuation values are the combined correction values for change of direction, distribution in the ductwork, end reflection and room attenuation.

Acoustic results

	$L_{W,A}$ [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	$L_{W,NC}$ [dB]	$L_{W,NR}$ [dB]
Air-regenerated noise, sound power level	35	48	34	33	34	30	24	21	20	29	30
Case-radiated noise, sound power level	23	36	22	21	22	18	< 15	< 15	< 15	16	18

Description

Circular volume flow controllers for constant and variable air volume systems with low airflow velocities, mechanical self-powered, without external power supply, suitable for supply or extract air, available in 6 nominal sizes. Ready-to-commission unit consists of the casing containing a damper blade with low-friction bearings, bellows, leaf spring, and a rotary knob to set the volume flow rate setpoint.

VFC/100

Nominal size	100
Total amount	1

Input Data

Strategy: Operating values to calculate	
Volume flow q_v	30 m3/h
Static differential pressure Δp_{st}	50 Pa

Results

Airflow velocity v	1,10 m/s
Static differential pressure, minimum $\Delta p_{st,min}$	30 Pa
Air-regenerated noise $L_{p,A}$	31 dB(A)
Case-radiated noise $L_{p,A}$	18 dB(A)
System attenuation for air-regenerated noise ΔL_1	8 dB *)
System attenuation for case-radiated noise ΔL_2	9 dB *)
Volume flow rate tolerance $_{[\pm\%]}\ \Delta q_v$	0

Notes *)

System attenuation for air-regenerated noise ΔL_1	The sound pressure level of air-regenerated noise is calculated based on system attenuation values achieved under real conditions. These system attenuation values are the combined correction values for change of direction, distribution in the ductwork, end reflection and room attenuation.

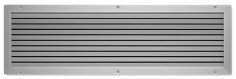
Acoustic results

	$L_{W,A}$ [dB(A)]	63Hz [dB]	125Hz [dB]	250Hz [dB]	500Hz [dB]	1kHz [dB]	2kHz [dB]	4kHz [dB]	8kHz [dB]	$L_{W,NC}$ [dB]	$L_{W,NR}$ [dB]
Air-regenerated noise, sound power level	39	53	40	39	38	34	27	22	18	33	34
Case-radiated noise, sound power level	27	41	28	27	26	22	15	< 15	< 15	21	22

Description

Circular volume flow controllers for constant and variable air volume systems with low airflow velocities, mechanical self-powered, without external power supply, suitable for supply or extract air, available in 6 nominal sizes. Ready-to-commission unit consists of the casing containing a damper blade with low-friction bearings, bellows, leaf spring, and a rotary knob to set the volume flow rate setpoint.

AGS-T/625x225



Rear assemblies	T	Matching rear frame for door installation
Length	625	
Height	225	
Total amount	49	

Input Data

Strategy: Air transfer	
Volume flow q_v	116 m3/h

Results

Geometric air velocity v_{geo}	0,59 m/s
Geometric area A_{geo}	0,0551 m2

Acoustic results

	Δp_t [Pa]	LWA [dB(A)]
damper blade position open	1	< 15

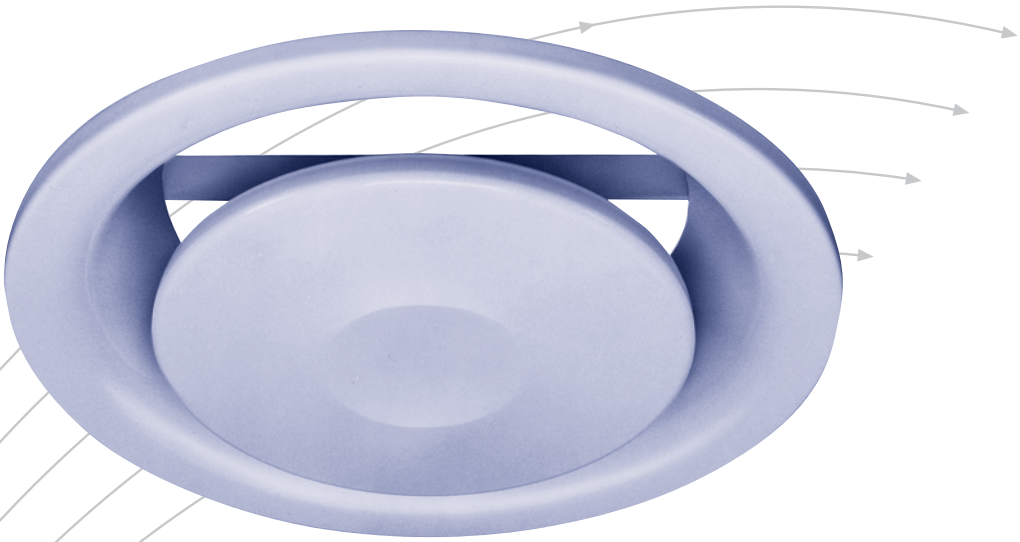
Description

Non-vision ventilation grille, made of aluminium, rectangular, suitable for air transfer applications. Rectangular profile border. Preferably for wall and door installation. Ready-to-install component which consists of a
border and fixed horizontal blades. Fixing holes for screw-fixing the grille to the installation surface. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

Talířové ventily

Série LVS

pro přívodní a odvodní vzduch



TROX® TECHNIK

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Obsah • Popis • Provedení • Materiál

Popis _____ 2
Provedení • Materiál _____ 2
Rozměry • Montáž _____ 3
Tabulka rychlého výběru _____ 3
Definice • Vzduchotechnické údaje _____ 4
Akustické údaje _____ 5
Informace k objednání _____ 6

LVS

Z-LVS

Popis

Talířové ventily série LVS jsou vhodné pro všechny větrací systémy. Vyznačují se odpovídajícím designem a vyhovují tím zvýšeným nárokům na komfort.
V závislosti na konkrétních způsobech použití se může volit mezi provedením pro přívod vzduchu (typ Z-LVS) a provedením pro odvod vzduchu (typ LVS).

Nastavení průtoku vzduchu je možné pootočením talíře ventilu. Tím se docílí různých akustických hodnot a tlakových ztrát.

Provedení

Talířové ventily sestávají z kruhového rámečku ventilu a talíře ventilu.

Aby se zajistilo dokonalé usazení, je kruhový rámeček ventilu vybaven těsněním.

Nastavení průtoku vzduchu se provádí pootočením talíře ventilu, čímž se může stanovit odpovídající velkost šířky štěrbiny – zajištění kontramatkou.

Materiál

Čelní díly z ocelového plechu s elektrostaticky nanesenou práškovou barvou (RAL 9010, tloušťka vrstvy 60 µm), šroub se závitem a matice z pozinkované oceli, montážní rám z pozinkovaného ocelového plechu.

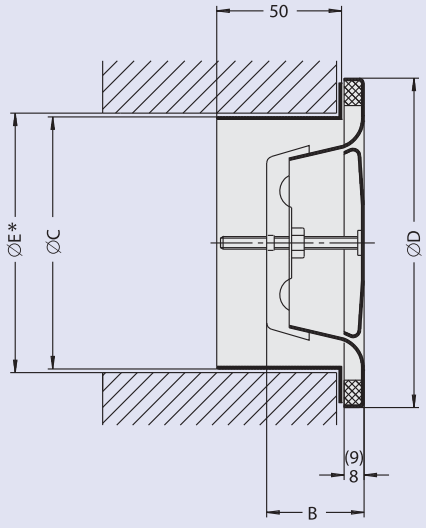
Rozměry • Montáž • Tabulka rychlého výběru

Rozměry							
Typ	Velik.	B	ØC	ØD	$ØD_1$	ØE *	hmotnost v kg
LVS	100	40	99	132	125	104	0.200
	125	46	124	162	150	129	0.290
	160	54	159	205	185	164	0.440
	200	61	199	245	225	204	0.590
Z-LVS	100	40	99	132	125	104	0.230
	125	46	124	162	150	129	0.320
	160	54	159	205	185	164	0.500
	200	61	199	245	225	204	0.670

Tabulka rychlého výběru (Definice viz strana 4)						
Typ	Velik.	$\dot{V}$ v m^3/h	$\dot{V}$ v l/s	Δpt v Pa	L_{WA} v dB(A)	L in m
LVS s = 0 mm	100	115	32	130	40	–
	125	180	50	135	40	–
	160	260	72	125	40	–
	200	350	97	110	40	–
Z-LVS s = 12 mm	100	100	28	37	40	1.7
	125	155	43	77	40	2.5
	160	235	65	90	40	4.0
	200	290	81	90	40	4.6

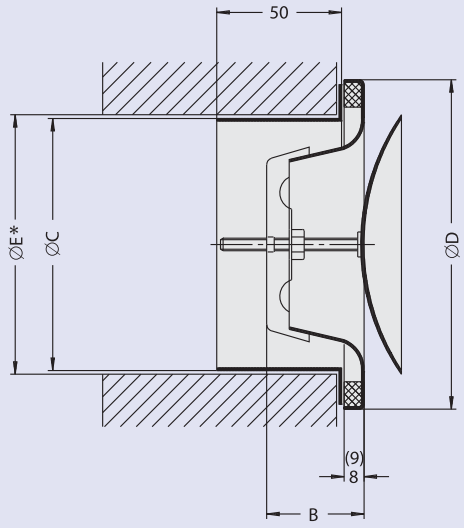
* Rozměr „E“ se musí přizpůsobit podle použitého potrubí!

LVS



( ) – NW 160/200

Z-LVS

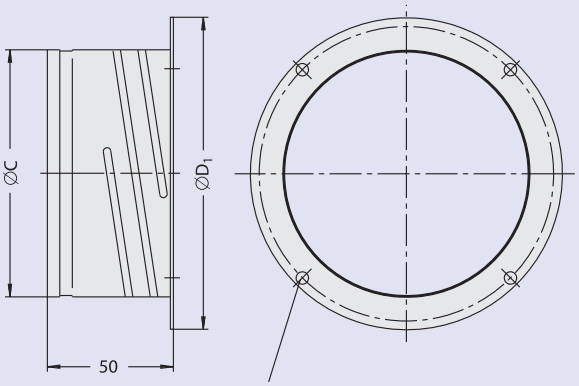


( ) – NW 160/200

Montáž

Montáž talířových ventilů s montážním rámem se provádí pomocí bajonetového uzávěru. talířové ventily se dodávají s montážním rámem.

Montážní rám pro LVS a Z-LVS



Upevnění montážního rámu se šrouby do otvorů, připravených v přírubě.

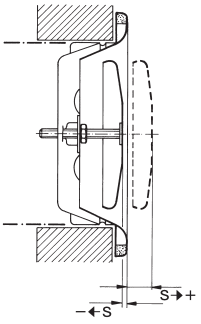
Definice • Vzduchotechnické údaje

Definice

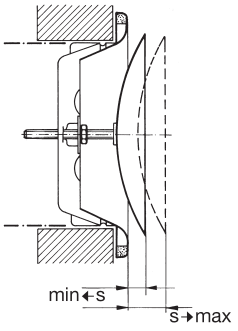
$\dot{V}$ v l/s nebo m³/h: průtok vzduchu na talířový ventil
L v m: dosah proudu vztažený na $\bar{v}_L$ = 0.2 m/s
s v mm: šířka štěrbiny
$\bar{v}_L$ v m/s: časově střední rychlost proudění u stěny
Δp_t v Pa: celková tlaková ztráta
L_{WA} v dB(A): A-hodnota hladiny akustického výkonu
L_{WNC} : dodržená mezní křivka spektra akustického výkonu
L_{WNR} : $L_{WNR} = L_{WNC} + 3$
L_{pA}, L_{pNC} : A-hodnota popř. NC-křivka hladiny akustického tlaku v místnosti

$L_{pA} \approx L_{WA} - 8$ dB
$L_{pNC} \approx L_{WNC} - 8$ dB

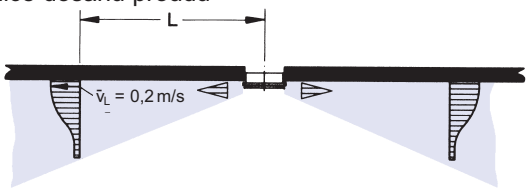
LVS



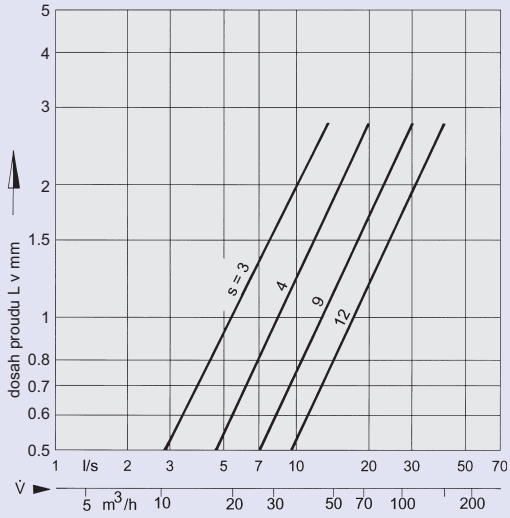
Z-LVS



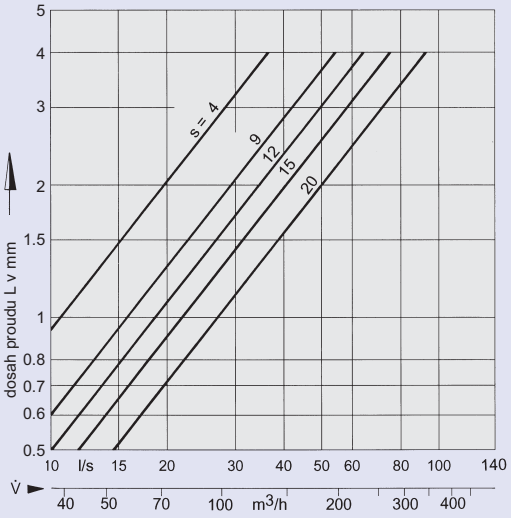
Definice dosahu proudu



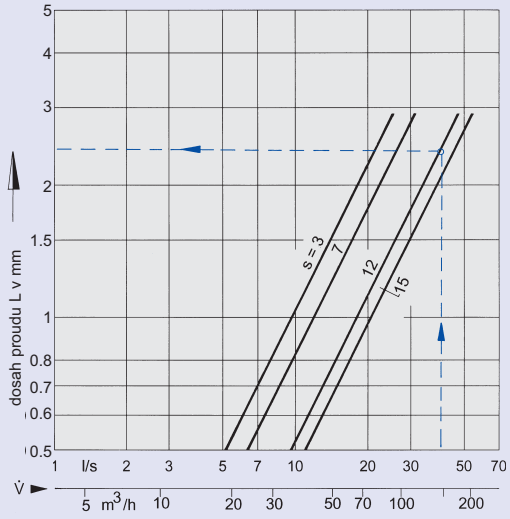
1 Dosah proudu velikost 100



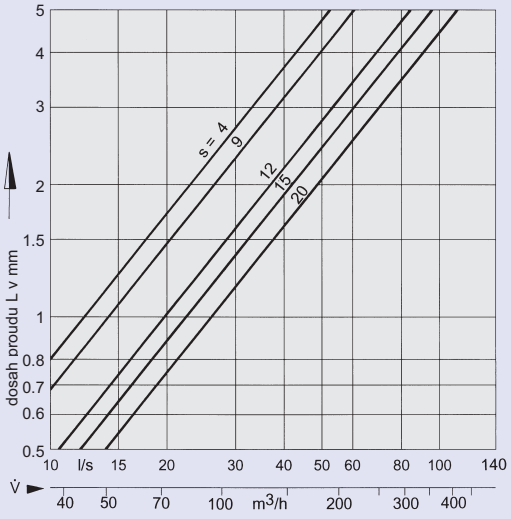
3 Dosah proudu velikost 160



2 Dosah proudu velikost 125



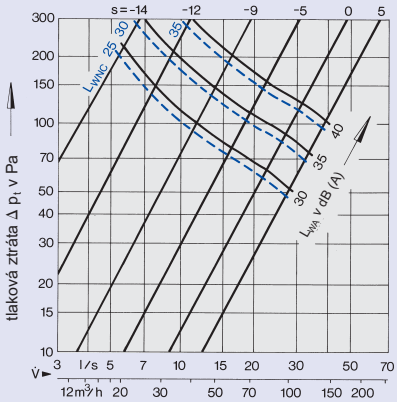
4 Dosah proudu velikost 200



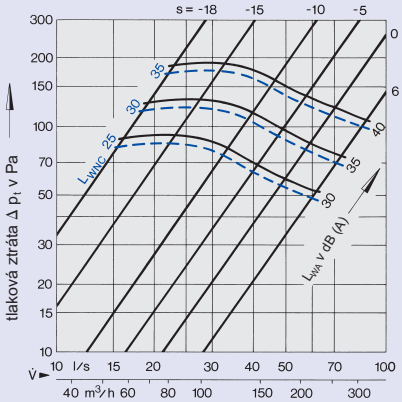
Akustické údaje – Odvodní vzduch • Přívodní vzduch

Odvodní vzduch – akustický výkon a tlaková ztráta – **Typ LVS**

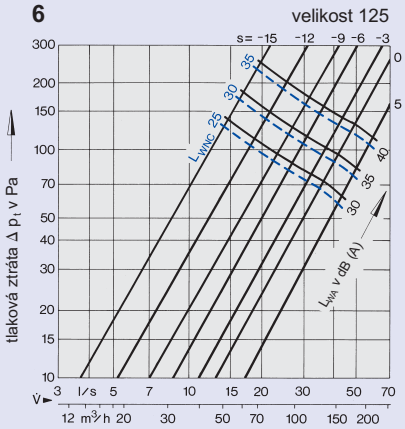
5 velikost 100



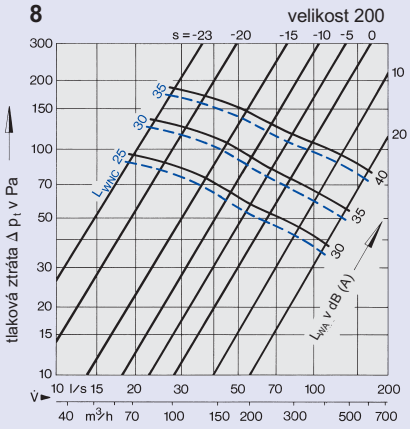
7 velikost 160



6 velikost 125

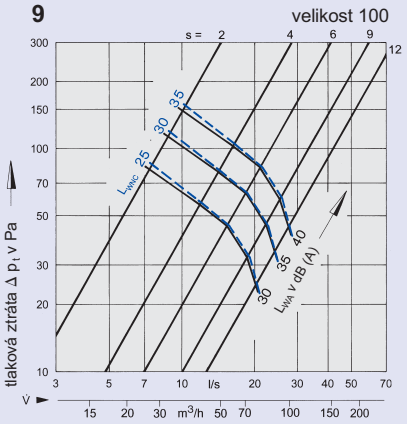


8 velikost 200

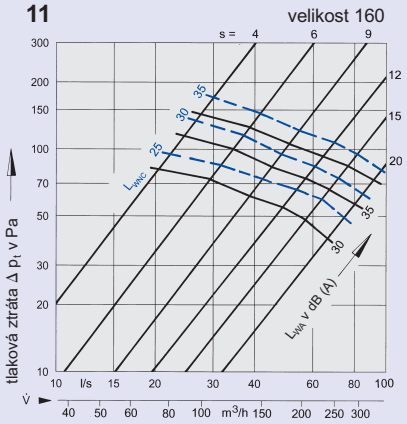


Přívodní vzduch – akustický výkon a tlaková ztráta – **Typ Z-LVS**

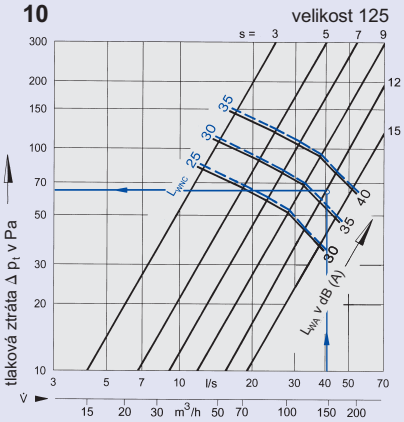
9 velikost 100



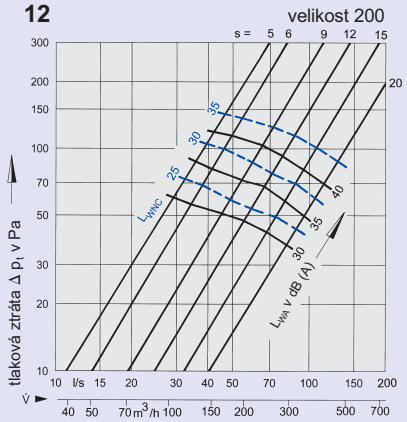
11 velikost 160



10 velikost 125



12 velikost 200



Příklad

zadané údaje:
Z-LVS / velikost 125
průtok vzduchu
na talířový ventil $\dot{V}$ = 40 l/s
šířka štěrbiny s = 12 mm

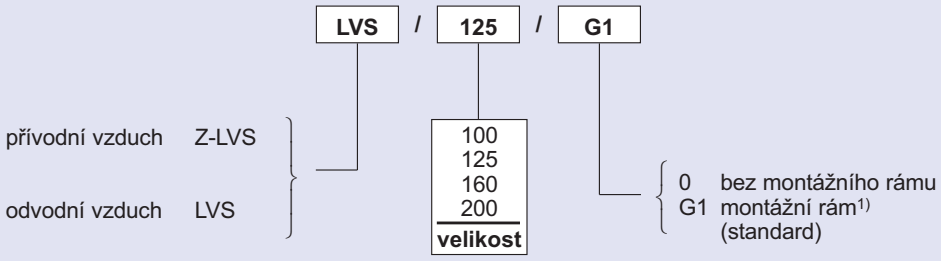
Diagram 10:
akustický výkon a tlaková ztráta
L_{WA} = 37 dB(A) (L_{WNC} = 32 NC)
Δp_t = 65 Pa

Diagram 2: Dosah proudu
L = 2.4 m

Při vzdálenosti L obnáší střední rychlost proudění $\bar{v}_L$ = 0.2 m/s.

Informace pro objednání

Objednací klíč



1) Když není nic udáno při objednávce, bude dodána objednávka s montážním rámem (G1).

Stručný popis

Talířový ventil v kruhovém provedení, použitelný pro přívodní a odvodní vzduch, sestávající z kruhového rámečku ventilu s utěsněním okraje, talíř ventilu se šroubem se závitem k nastavení průtoku vzduchu jeho otáčením a z kontramatky k zajištění nastavení jakož i z montážního rámu.

Materiál
Čelní díly z ocelového plechu opatřeného práškovou barvou (RAL 9010, tloušťka vrstvy 60 µm); šroub se závitem a matice z pozinkované oceli, montážní rám z pozinkovaného ocelového plechu.

Příklad objednávky

Výrobek: TROX
Typ: LVS / 125 / G1

2 Technická dokumentácia k VZT jednotkám

Vzduchotechnické jednotky sú od firmy ATREA, a na ich návrh som použil návrhový program od tejto spoločnosti.

Technická specifikace

Nabídka č.:

Akce:

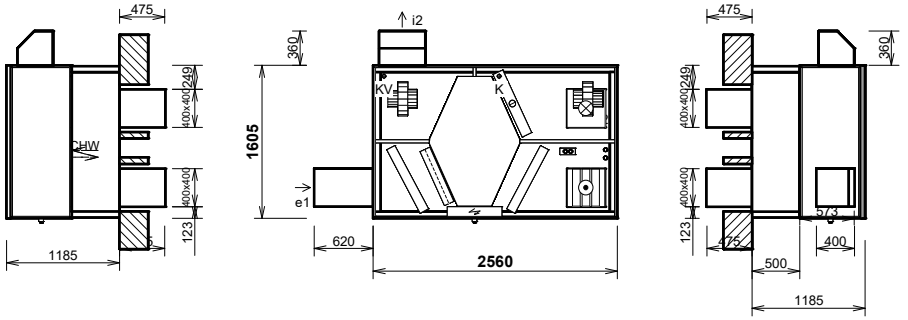
Technický popis
Nominální hodnoty
Nabídka č.:
Akce:
Pozice: Jednotka 1

Jednotka **DUPLEX 2500 Multi Eco-N** Specifikace: DUPLEX 2500 Multi Eco-N / 3/neurčeno - Me.109.EC3 - Mi.109.EC3 - S7.C - Fe.K5 - Fi.K5 - B.LM24A - CHW.3.U - Ke.LM24A - Ki.LM24A - R-CHW3.TR 24-SR - H.400/400.DE - He1.KZ - Hi2.KZ - BF.500 - HINGLESS-RD5 - RD4-IO - PFe - PFi - SW - CM.i.s - CPTOUCH.B.Wh - ErP 2016, 2018

Typ jednotky
- Nástřešní s protiproudým rekuperátorem
- Jednotka splňuje ErP (Ecodesign) - nařízení EU 1253/2014, platné od 1.1.2016 i 1.1.2018.

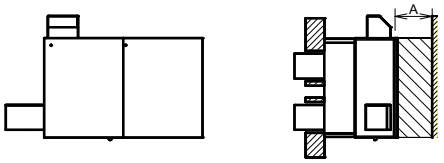
Provedení **3/neurčeno** nástřešní ležaté pohled shora (ze strany dveří)

Hmotnost: cca 496 kg, Dodávka jednotky vcelku



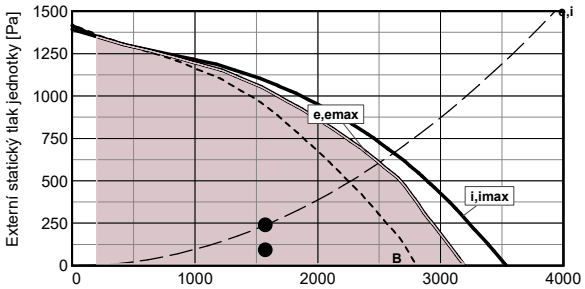
hrdlo	druh	rozměr	příslušenství
e1	e1 - venkovní vzduch (ODA)		uzavírací klapka, eliminátor kapek
e2	e2 - přiváděný vzduch (SUP)	400 x 400 mm	potrubní nástavec
i1	i1 - odváděný vzduch (ETA)	400 x 400 mm	uzavírací klapka, potrubní nástavec
i2	i2 - odpadní vzduch (EHA)		
K	výstup kondenzátu	Ø 32/40 mm	sifon
KV	výstup kondenzátu vyhřívaný	Ø 32/40 mm	sifon
CHW	Vodní chladič	5/4" vnitřní	připojovací rozměr - regulační uzel

Manipulační prostor



A	otvírání dveří	min. 600 mm

Výkonová charakteristika jednotky:



Zimní provoz:
e-přívod (400 V), i-odvod (400 V), B-by-pass
emax-přívod (400 V), imax-odvod (400 V)

Jednotka obsahuje ventilátory vybavené EC technologií. Tyto ventilátory jsou plynule regulovatelné v celé vyznačené oblasti.

Akustické parametry:

Hladina akustického výkonu LwA (dB)

Frekvence [Hz]	Total dB (A)	63 dB(A)	125 dB(A)	250 dB(A)	500 dB(A)	1 k dB(A)	2 k dB(A)	4 k dB(A)	8 k dB(A)
sání e1 do okolí	50	<25	32	49	36	41	33	<25	<25
výtlak e2	76	53	64	72	68	69	65	61	53
sání i1	44	<25	35	43	29	33	25	<25	<25
výtlak i2 do okolí	66	<25	59	60	60	60	56	53	43
plášť do okolí	55	38	46	50	52	43	39	28	<25

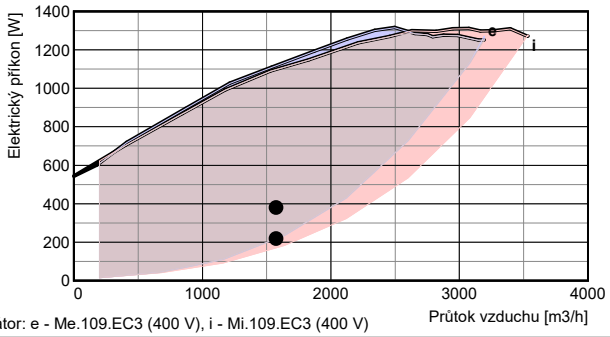
*Akustický výkon do okolí je vypočten pro současný provoz **obou ventilátorů** a je změřen podle normy ISO 3744. Akustický výkon na hrdlech je změřen podle normy ISO 5136.*

Hladina akustického tlaku LpA (dB)

sání e1 do okolí	30	<25	<25	29	<25	<25	<25	<25	<25
výtlak i2 do okolí	46	<25	38	39	39	39	35	32	<25
plášť do okolí	35	<25	25	29	31	<25	<25	<25	<25

*Hladina akustického tlaku do okolí je uváděna ve vzdálenosti 3 m pro současný provoz **obou ventilátorů** a je změřena podle normy ISO 3744.*

Ventilátory		přívod	odvod
Vzduchové množství	m3/h	1575	1575
Externí statický tlak jednotky	Pa	241	94
Napětí (jmenovité)	V	400	400
Příkon (v pracovním bodě)	kW	0,38	0,22
Počet otáček (v pracovním bodě)	1/min	1944	1608
Max. příkon (pro dimenzování)	kW	2,50	2,50
Max. proud (pro dimenzování)	A	4	4
SFP	W.h/m3	0,242	0,140
Typ ventilátorů		Me.109	Mi.109
Druh ventilátoru (s proměnlivými otáčkami)		EC3	EC3



Ventilátor: e - Me.109.EC3 (400 V), i - Mi.109.EC3 (400 V)

Technický popis

Nominální hodnoty

Nabídka č.:

Akce:

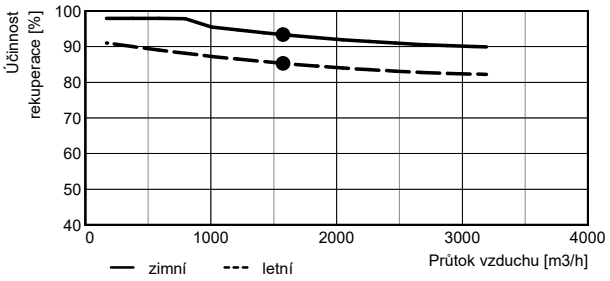
Pozice: Jednotka 1

Jednotka **DUPLEX 2500 Multi Eco-N** Specifikace: DUPLEX 2500 Multi Eco-N / 3/neurčeno - Me.109.EC3 - Mi.109.EC3 - S7.C - Fe.K5 - Fi.K5 - B.LM24A - CHW.3.U - Ke.LM24A - Ki.LM24A - R-CHW3.TR 24-SR - H.400/400.DE - He1.KZ - Hi2.KZ - BF.500 - HINGLESS-RD5 - RD4-IO - PFe - PFi - SW - CM.i.s - CPTOUCH.B.Wh - ErP 2016, 2018

Připojovací prvky		přívod	odvod
Vstupní hrdlo i1	mm	-	400x400
připojení		-	pevné
Výstupní hrdlo e2	mm	400x400	-
připojení		pevné	-
Odvod kondenzátu K	mm	2 x Ø32/40	

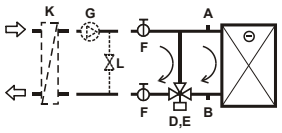
Regulační a uzavírací klapky	Typ servopohonu
Uzavírací klapka e1 (součást jednotky)	LM24A
Uzavírací klapka i1 (součást jednotky)	LM24A
By-passová klapka (integrovaná v jednotce)	LM24A

Rekuperační výměník		přívod	odvod
Vzduchové množství	m3/h	1575	1575
Vstupní teplota	°C	-12	20
Výstupní teplota	°C	18	-3
Vstupní vlhkost	% r.h.	90	40
Výstupní vlhkost	% r.h.	9	100
Účinnost rekuperace zimní (letní)	%	93 (85)	
Výkon výměníku zimní (letní)	kW	16,3 (2,8)	
Tvorba kondenzátu	l/h	5,5	
Typ rekuperačního výměníku		S7.C rekuperační	



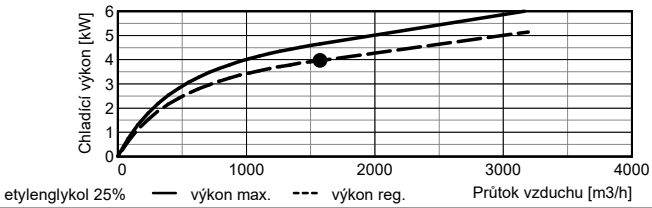
Vodní chladič		přívod
Chladící médium		etylenglykol 25%
Vzduchové množství	m3/h	1575
Vstupní teplota (za rekuperací)	°C	27
Výstupní teplota (za chladičem)	°C	19
Vstupní vlhkost (za rekuperací)	% r.h.	47
Výstupní vlhkost (za chladičem)	% r.h.	74
Chladící výkon	kW	4,0
Tvorba kondenzátu	l/h	0
Teplotní spád vody	°C	6 / 12
Průtok média (při max. výkonu)	l/h	710
Tlaková ztráta média		
ve výměníku	kPa	3,16
ve ventilu	kPa	0,11
Připojovací rozměr		5/4" vnitřní
Objem výměníku	l	2,3
Typ chladiče		W 2500 3R / typ 1
		vestavěný
Omezení		viz poznámka

Příslušenství (součástí dodávky)



A	odvzdušňovací ventil	automatický	2)
B	odkalovací ventil	zátka	2)
Regulační uzel: R-CHW3.TR 24-SR			
D	třícestný kulový kohout	R3020-B1	2)
E	servopohon	TR 24-SR	2)
F	kulový ventil	5/4" vnitřní	2)
Ostatní:			
G	čerpadlo		3)
L	zkratový obtok		3)
K	výměník voda/ etylenglykol		3)

1 - dodáváno samostatně
2 - osazeno a připojeno
3 - není součástí dodávky



Filtrace		přívod	odvod	Příslušenství (součástí dodávky)
Typ		kazetový	kazetový	Manostat PFe pro signalizaci zanesení přívodního filtru
Třída filtrace		ePM10 50% (M5)	ePM10 50% (M5)	Manostat PFi pro signalizaci zanesení odvodního filtru
Počet filtrů	ks	1	1	
Rozměr kazety	mm	750x495x96	750x495x96	

Jednotka **DUPLEX 2500 Multi Eco-N** Specifikace: DUPLEX 2500 Multi Eco-N / 3/neurčeno - Me.109.EC3 - Mi.109.EC3 - S7.C - Fe.K5 - Fi.K5 - B.LM24A - CHW.3.U - Ke.LM24A - Ki.LM24A - R-CHW3.TR 24-SR - H.400/400.DE - He1.KZ - Hi2.KZ - BF.500 - HINGLESS-RD5 - RD4-IO - PFe - PFi - SW - CM.i.s - CPTOUCH.B.Wh - ErP 2016, 2018

Regulace: Digitální regulace		**Čidla (součástí dodávky)**	
Základní funkce jednotky	RD5 400V-EC / 400V-EC	Čidlo teploty venkovního vzduchu (ODA)	ADS TEa
Umístění regulačního modulu	uvnitř jednotky	Čidlo teploty odváděného vzduchu (ETA)	ADS TEb
Celkový příkon (v pracovním bodě)	0,61 kW	Čidlo teploty odpadního vzduchu (EHA)	ADS TU2
Expandery	RD4-IO	Čidlo teploty přiváděného vzduchu (SUP)	ADS TU1
Ovládání	CP Touch barva bílá		
Hlavní vypínač	SW		

Jednotka **DUPLEX 2500 Multi Eco-N** Specifikace: DUPLEX 2500 Multi Eco-N / 3/neurčeno - Me.109.EC3 - Mi.109.EC3 - S7.C - Fe.K5 - Fi.K5 - B.LM24A - CHW.3.U - Ke.LM24A - Ki.LM24A - R-CHW3.TR 24-SR - H.400/400.DE - He1.KZ - Hi2.KZ - BF.500 - HINGLESS-RD5 - RD4-IO - PFe - PFi - SW - CM.i.s - CPTOUCH.B.Wh - ErP 2016, 2018

ErP (NRVU)

Informace o větracích jednotkách pro jiné než obytné budovy podle NAŘÍZENÍ KOMISE (EU) č. 1253/2014, čl. 4 odst. 2

Název nebo ochranná známka výrobce:	ATREA s.r.o.
Identifikační značka modelu:	DUPLEX 2500 Multi Eco-N
Typ jednotky:	Větrací jednotka pro jiné než obytné budovy (NRVU) Obousměrná větrací jednotka (BVU)
Typ pohonu:	s proměnlivými otáčkami
Typ systému pro zpětné získávání tepla:	deskový rekuperační výměník
Tepelná účinnost zpětného získávání tepla:	85 %
Jmenovitý průtok vzduchu:	0,44 m3/s
Efektivní elektrický příkon:	0,52 kW
SFP int:	422 Ws/m3
Účinná nátoková rychlost:	1,2 / 1,2 m/s (přívod / odvod)
Jmenovitý vnější tlak:	241 / 94 Pa (přívod / odvod)
Vnitřní tlaková ztráta větracích součástí:	74 / 103 Pa (přívod / odvod)
Statická účinnost ventilátorů (dle 327/2011):	66,5 / 66,5 % (přívod / odvod)
Max. vnější netěsnost:	1,1 %
Max. vnitřní netěsnost:	2,4 %
Energetická klasifikace filtrů:	Zvolené filtry nepodléhají klasifikaci.
Upozornění na výměnu filtrů:	V jednotce je nutno pravidelně měnit filtry vzduchu. Zanesené vzduchové filtry způsobují snížení výkonu a celkové účinnosti větrací jednotky.
Internetová adresa návodu na demontáž:	www.atrea.cz/erp

Jednotka splňuje ErP (Ecodesign) - nařízení EU 1253/2014, platné od 1.1.2016 i 1.1.2018.
(ve výpočtu zahrnuta korekce filtru)

Upozornění:

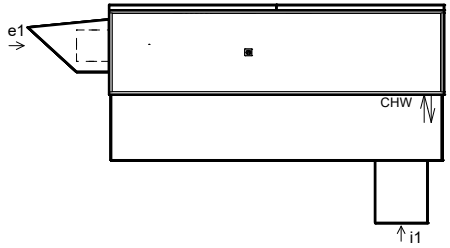
Okruh vodního chladiče je nutné dostatečně tepelně chránit použitím nemrznoucí náplně s dostatečnou teplotní odolností.

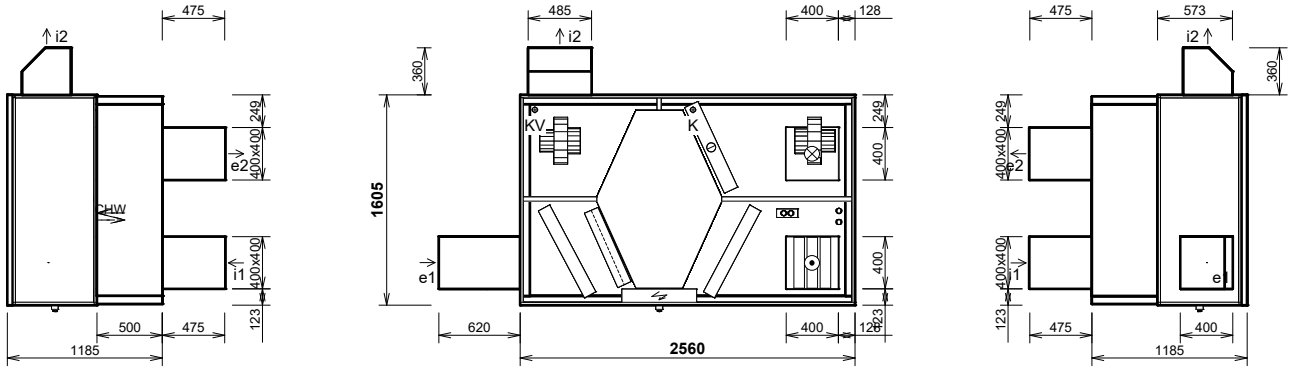
Rozměrový nákres

Nabídka č.:
Akce:
Pozice: Jednotka 1

Jednotka **DUPLEX 2500 Multi Eco-N** Specifikace: DUPLEX 2500 Multi Eco-N / 3/neurčeno - Me.109.EC3 - Mi.109.EC3 - S7.C - Fe.K5 - Fi.K5 - B.LM24A - CHW.3.U - Ke.LM24A - Ki.LM24A - R-CHW3.TR 24-SR - H.400/400.DE - He1.KZ - Hi2.KZ - BF.500 - HINGLESS-RD5 - RD4-IO - PFe - PFi - SW - CM.i.s - CPTOUCH.B.Wh - ErP 2016, 2018

Provedení **3/19** nástřešní ležaté pohled shora (ze strany dveří)
Hmotnost: cca **496 kg**

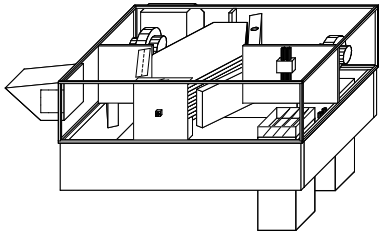




Při osazování jednotky dbejte na minimální manipulační prostor - viz technický popis.

hrdlo	druh	rozměr	příslušenství
e1	e1 - venkovní vzduch (ODA)		uzavírací klapka, eliminátor kapek
e2	e2 - přiváděný vzduch (SUP)	400 x 400 mm	potrubní nástavec
i1	i1 - odváděný vzduch (ETA)	400 x 400 mm	uzavírací klapka, potrubní nástavec
i2	i2 - odpadní vzduch (EHA)		
K	výstup kondenzátu	Ø 32/40 mm	sifon
KV	výstup kondenzátu vyhřívaný	Ø 32/40 mm	sifon
CHW	Vodní chladič	5/4" vnitřní	připojovací rozměr - regulační uzel

Poznámky:
- Připojovací svorkovnice umístěna uvnitř jednotky
- Schéma je určeno pouze pro základní informaci, závazné rozměry obdržíte s dodávkou zařízení, případně na vyžádání od výrobce.
- Otvory pro šrouby pro připojení potrubí (pro jedno hrdlo): 4x M6
- včetně: základový rám výšky 500 mm
  potrubní nástavec e2
  potrubní nástavec i1



Vzduchotechnické schéma

Nominální hodnoty

Nabídka č.:

Akce:

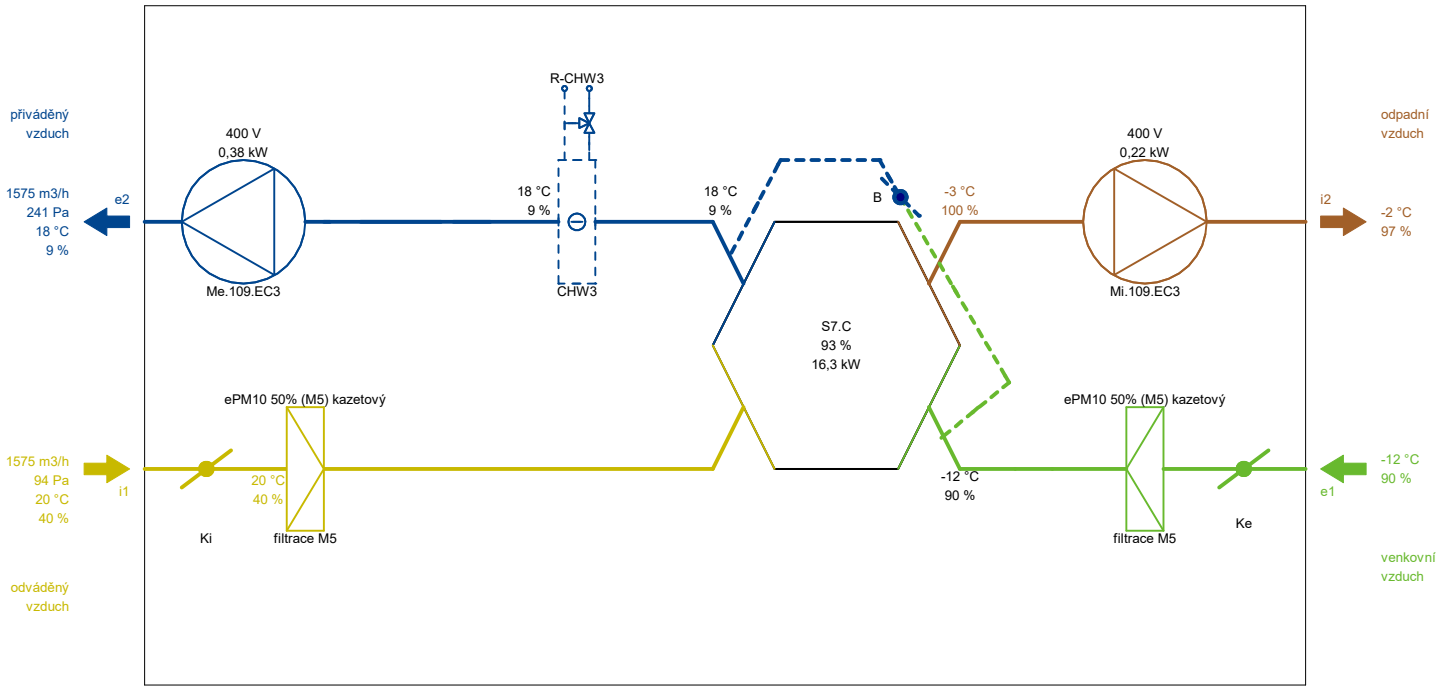
Pozice: Jednotka 1

Jednotka **DUPLEX 2500 Multi Eco-N** Specifikace: DUPLEX 2500 Multi Eco-N / 3/neurčeno - Me.109.EC3 - Mi.109.EC3 - S7.C - Fe.K5 - Fi.K5 - B.LM24A - CHW.3.U - Ke.LM24A - Ki.LM24A - R-CHW3.TR 24-SR - H.400/400.DE - He1.KZ - Hi2.KZ - BF.500 - HINGLESS-RD5 - RD4-IO - PFe - PFi - SW - CM.i.s - CPTOUCH.B.Wh - ErP 2016, 2018

Zimní provoz

e1 - venkovní vzduch (ODA) **e2 - přiváděný vzduch (SUP)**

i1 - odváděný vzduch (ETA) **i2 - odpadní vzduch (EHA)**

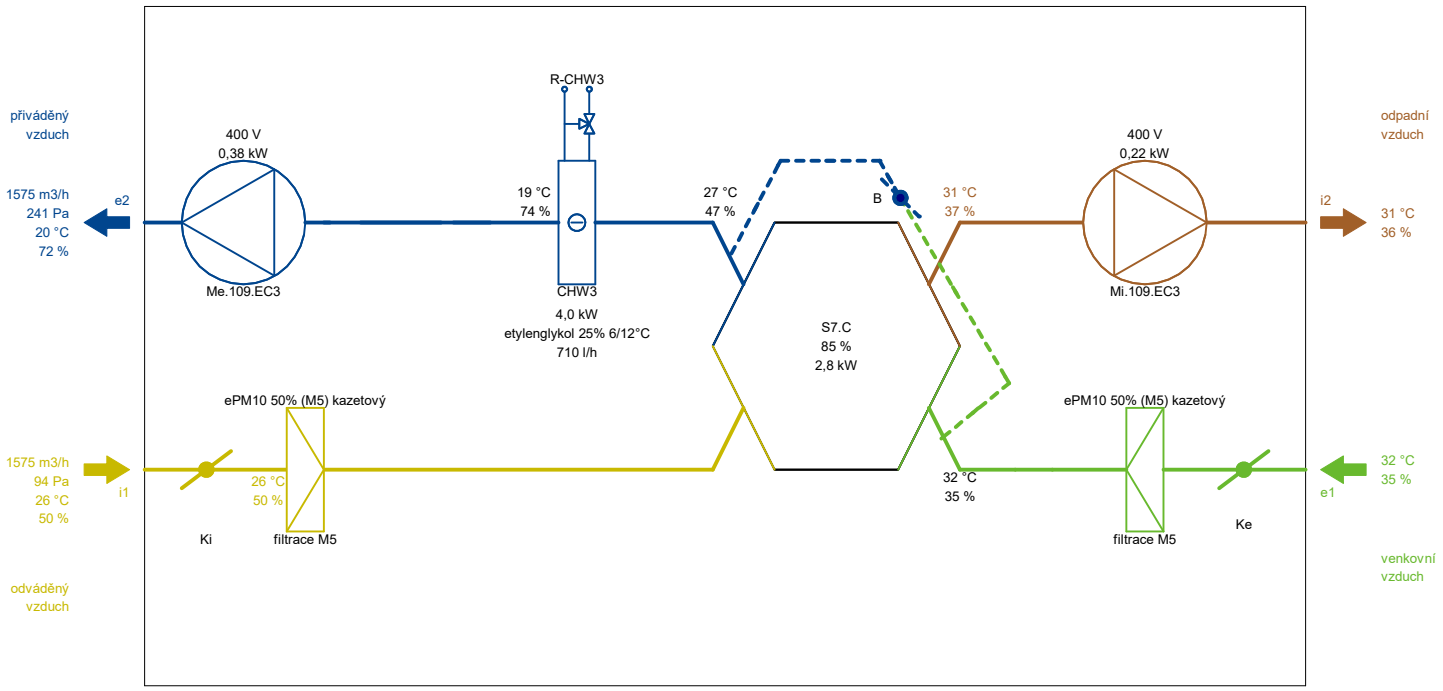


Poznámka: Schématické znázornění funkcí jednotky. Umístění vstupů a výstupů nemusí přesně souhlasit se skutečným provedením a konfigurací hrdel.

Letní provoz

e1 - venkovní vzduch (ODA) **e2 - přiváděný vzduch (SUP)**

i1 - odváděný vzduch (ETA) **i2 - odpadní vzduch (EHA)**

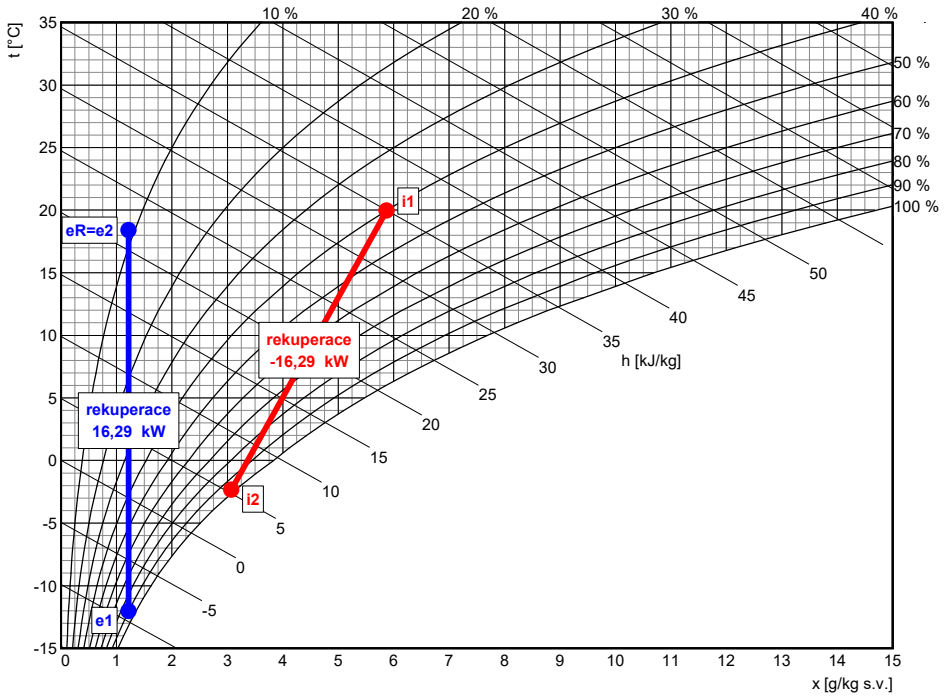


Poznámka: Schématické znázornění funkcí jednotky. Umístění vstupů a výstupů nemusí přesně souhlasit se skutečným provedením a konfigurací hrdel.

h-x diagram
Nominální hodnoty
Nabídka č.:
Akce:
Pozice: Jednotka 1

Jednotka **DUPLEX 2500 Multi Eco-N** Specifikace: DUPLEX 2500 Multi Eco-N / 3/neurčeno - Me.109.EC3 - Mi.109.EC3 - S7.C - Fe.K5 - Fi.K5 - B.LM24A - CHW.3.U - Ke.LM24A - Ki.LM24A - R-CHW3.TR 24-SR - H.400/400.DE - He1.KZ - Hi2.KZ - BF.500 - HINGLESS-RD5 - RD4-IO - PFe - PFi - SW - CM.i.s - CPTOUCH.B.Wh - ErP 2016, 2018

Zimní provoz



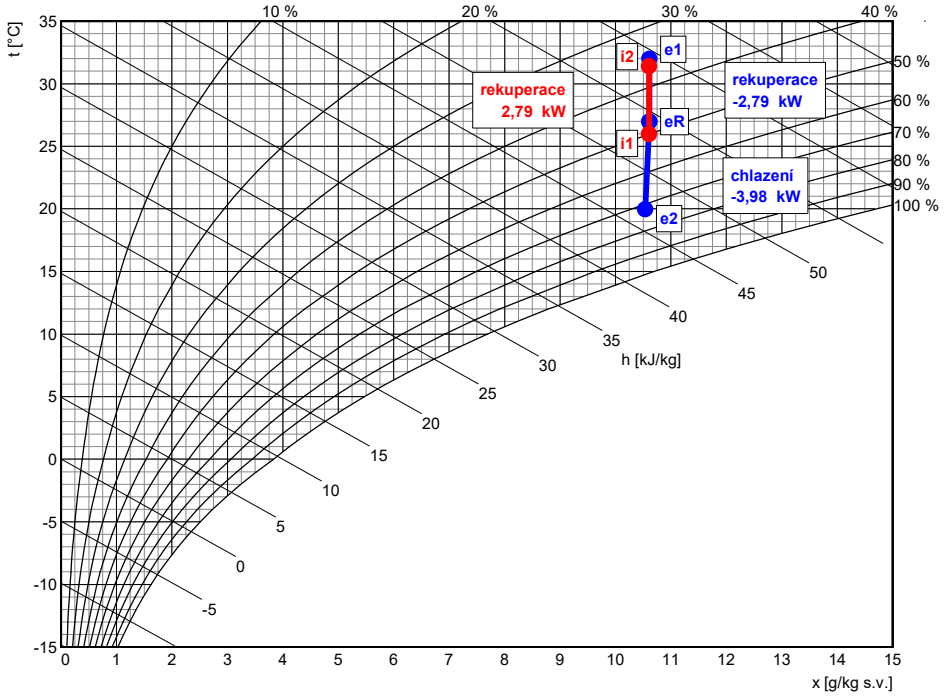
Přívod

	popis	t [°C]	rh [%]
e1	venkovní vzduch	-12,0	90
eR	rekuperace	18,4	9

Odvod

	popis	t [°C]	rh [%]
i1	odváděný vzduch	20,0	40
i2	rekuperace	-2,3	97

Letní provoz



Přívod

	popis	t [°C]	rh [%]
e1	venkovní vzduch	32,0	35
eR	rekuperace	27,0	47
e2	chlazení	20,0	72

Odvod

	popis	t [°C]	rh [%]
i1	odváděný vzduch	26,0	50
i2	rekuperace	31,4	36

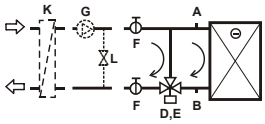
Požadavky na stavbu pro instalaci jednotky

Nabídka č.:
Akce:
Pozice: Jednotka 1

Jednotka **DUPLEX 2500 Multi Eco-N** Specifikace: DUPLEX 2500 Multi Eco-N / 3/neurčeno - Me.109.EC3 - Mi.109.EC3 - S7.C - Fe.K5 - Fi.K5 - B.LM24A - CHW.3.U - Ke.LM24A - Ki.LM24A - R-CHW3.TR 24-SR - H.400/400.DE - He1.KZ - Hi2.KZ - BF.500 - HINGLESS-RD5 - RD4-IO - PFe - PFi - SW - CM.i.s - CPTOUCH.B.Wh - ErP 2016, 2018

Elektro		
Napětí	400 V	
Proud	8 A	
Doporučené odjištění	3x 16A (char. C)	
Typ a dimenze kabelů	viz schéma el. zapojení	

Chlazení (vodní chladič)		**Příslušenství (součástí dodávky)**
Chladící médium	etylenglykol 25%	
Chladící výkon	3,98 kW	
Průtok média (při max. výkonu)	710 l/h	
Teplota média ze zdroje / Teplota zpátečky	6 / 12 °C	
Tlaková ztráta výměníku	3,16 kPa	
Připojovací rozměr (regulační uzel)	5/4" vnitřní	



A	odvzdušňovací ventil	automatický	2)
B	odkalovací ventil	zátka	2)
Regulační uzel: R-CHW3.TR 24-SR			
D	třícestný kulový kohout	R3020-B1	2)
E	servopohon	TR 24-SR	2)
F	kulový ventil	5/4" vnitřní	2)
Ostatní:			
G	čerpadlo		3)
L	zkratový obtok		3)
K	výměník voda/ etylenglykol		3)

1 - dodáváno samostatně
2 - osazeno a připojeno
3 - není součástí dodávky

Zdravotní technika		
Odvod kondenzátu počet	2	Umístění odvodů kondenzátu viz rozměrový nákres
Odvod kondenzátu průměr potrubí	DN 32/40	vyhřívaný (v sektoru i2)
Tvorba kondenzátu (letní)	0,1 l/h	
Tvorba kondenzátu (zimní)	5,5 l/h	

Požadavky na stavbu pro instalaci jednotky

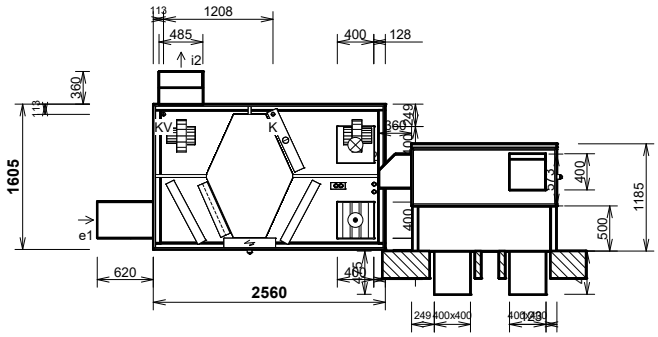
Nabídka č.:
Akce:
Pozice: Jednotka 1

Jednotka **DUPLEX 2500 Multi Eco-N** Specifikace: DUPLEX 2500 Multi Eco-N / 3/neurčeno - Me.109.EC3 - Mi.109.EC3 - S7.C - Fe.K5 - Fi.K5 - B.LM24A - CHW.3.U - Ke.LM24A - Ki.LM24A - R-CHW3.TR 24-SR - H.400/400.DE - He1.KZ - Hi2.KZ - BF.500 - HINGLESS-RD5 - RD4-IO - PFe - PFi - SW - CM.i.s - CPTOUCH.B.Wh - ErP 2016, 2018

Stavba			
Rozměry jednotky	délka	2560 mm	
	výška (bez základového rámu)	685 mm	
	hloubka	1605 mm	
Hmotnost		cca 496 kg	

Rozměrový nákres:

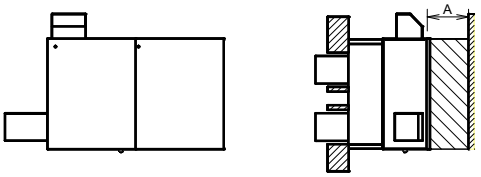
Provedení **3/19** nástřešní ležaté pohled shora (ze strany dveří)



hrdlo	druh	rozměr	příslušenství
e1	e1 - venkovní vzduch (ODA)		uzavírací klapka, eliminátor kapek
e2	e2 - přiváděný vzduch (SUP)	400 x 400 mm	potrubní nástavec
i1	i1 - odváděný vzduch (ETA)	400 x 400 mm	uzavírací klapka, potrubní nástavec
i2	i2 - odpadní vzduch (EHA)		
K	výstup kondenzátu	Ø 32/40 mm	sifon
KV	výstup kondenzátu vyhřívaný	Ø 32/40 mm	sifon
CHW	Vodní chladič	5/4" vnitřní	připojovací rozměr - regulační uzel

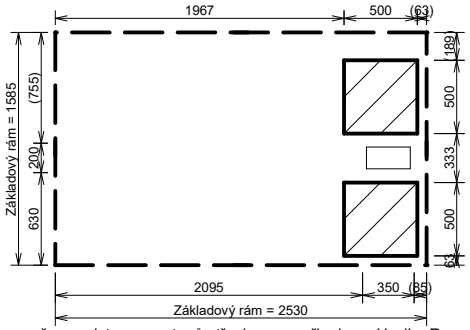
Manipulační prostor

- dveře bez pantů



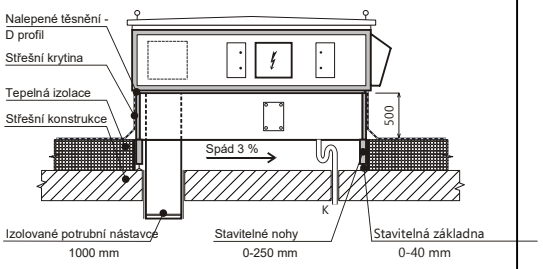
A	otvírání dveří	min. 600 mm

Prostupy střechou - půdorys



Poznámka: Schéma zobrazuje rozměry a odstupy prostupů střechou pro připojovací hrdla. Rozměry a umístění připojovacích hrdel jsou uvedeny v rozměrovém nákresu jednotky.

Detail kotvení jednotky ke střešní kontrukci



Kotvení základového rámu - půdorys

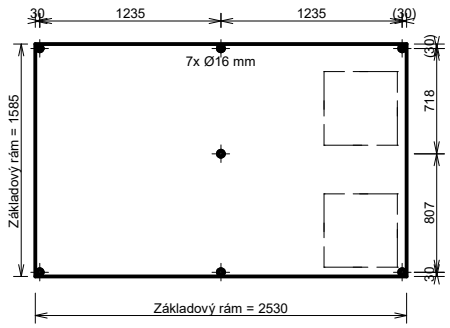


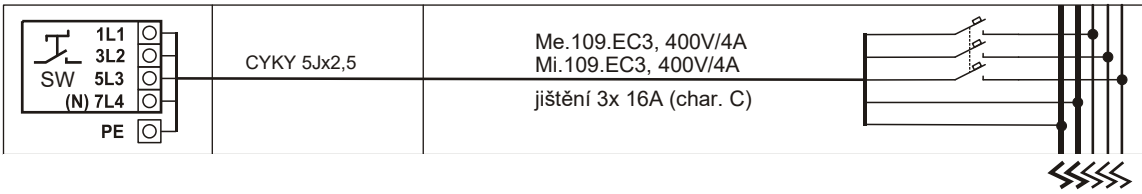
Schéma zapojení

Nabídka č.:
Akce:
Pozice: Jednotka 1

Jednotka **DUPLEX 2500 Multi Eco-N** Specifikace: DUPLEX 2500 Multi Eco-N / 3/neurčeno - Me.109.EC3 - Mi.109.EC3 - S7.C - Fe.K5 - Fi.K5 - B.LM24A - CHW.3.U - Ke.LM24A - Ki.LM24A - R-CHW3.TR 24-SR - H.400/400.DE - He1.KZ - Hi2.KZ - BF.500 - HINGLESS-RD5 - RD4-IO - PFe - PFi - SW - CM.i.s - CPTOUCH.B.Wh - ErP 2016, 2018

svorky regulace	kabel	použití	kontrola	

Silové napájení



1L1, 3L2, SW 5L3, (N) 7L4, PE	CYKY 5Jx2,5	Me.109.EC3, 400V/4A Mi.109.EC3, 400V/4A jištění 3x 16A (char. C)	.....	☐

Ovládání a komunikace

PW CANH CANL GND	SYKFY 2x2x0,5	PW CANH CANL GND	***Ovladač CP Touch*** paralelní zapojení více ovladačů - viz uživatelský návod maximální délka kabelu - 50 m	..... ☐
D1 N1	CYKY 2Ox1,5	L N	Osvětlení, Tlačítko (WC, Koupelna)	..... ☐
D2 N2	CYKY 2Ox1,5	L N	Osvětlení, Tlačítko (WC, Koupelna)	..... ☐
D3 N3	CYKY 2Ox1,5	L N	Osvětlení, Tlačítko (WC, Koupelna)	..... ☐
D4 N4	CYKY 2Ox1,5	L N	Spínač	..... ☐
			Externí vstupy (pro signály 230 V)	
STP GND	SYKFY 2x2x0,5		Havarijní STOP kontakt	..... ☐
RJ45	UTP CAT 5e		Ethernet rozhraní, TCP/IP, vč. Modbus TCP protokolu - z výroby nastavena IP adresa 172.20.20.20 - volitelně: "https://control.atrea.eu"	..... ☐
7L4 8T4	CYKY 3Ox1,5		Přídavný kontakt hlavního vypínače SW (spínací kontakt, max. 8 A)	..... ☐
SDB GND	SYKFY 2x2x0,5		Univerzální poruchový výstup (24V DC, max. 100mA)	..... ☐
SM GND	SYKFY 2x2x0,5		Výstup informace o provozu ventilátorů (24V DC, max. 100mA)	..... ☐

Ohřívače a chladiče

SC C	CYKY 3Ox1,5		Povolení chodu chladiče - sepnuto (spínací kontakt, max. 8 A)	..... ☐

Externí čidla

IN1 GND	SYKFY 2x2x0,5		Čidlo 0-10V (CO2, vlhkost, diferenční tlak a pod.) nebo beznapěťový spínací kontakt	..... ☐

Schéma zapojení

Nabídka č.:
Akce:
Pozice: Jednotka 1

Jednotka **DUPLEX 2500 Multi Eco-N** Specifikace: DUPLEX 2500 Multi Eco-N / 3/neurčeno - Me.109.EC3 - Mi.109.EC3 - S7.C - Fe.K5 - Fi.K5 - B.LM24A - CHW.3.U - Ke.LM24A - Ki.LM24A - R-CHW3.TR 24-SR - H.400/400.DE - He1.KZ - Hi2.KZ - BF.500 - HINGLESS-RD5 - RD4-IO - PFe - PFi - SW - CM.i.s - CPTOUCH.B.Wh - ErP 2016, 2018

svorky regulace	kabel	použití	kontrola	
IN2 GND	SYKFY 2x2x0,5	Čidlo 0-10V (CO2, vlhkost, diferenční tlak a pod.) nebo beznapěťový spínací kontakt	.....	☐

Schéma zapojení uvádí pouze svorky pro připojení externích vodičů a zařízení.
Svorky zapojené z výroby uváděné nejsou.
Slaboporudé kabely se nesmí vést v souběhu se silovými ! (viz příslušné normy).

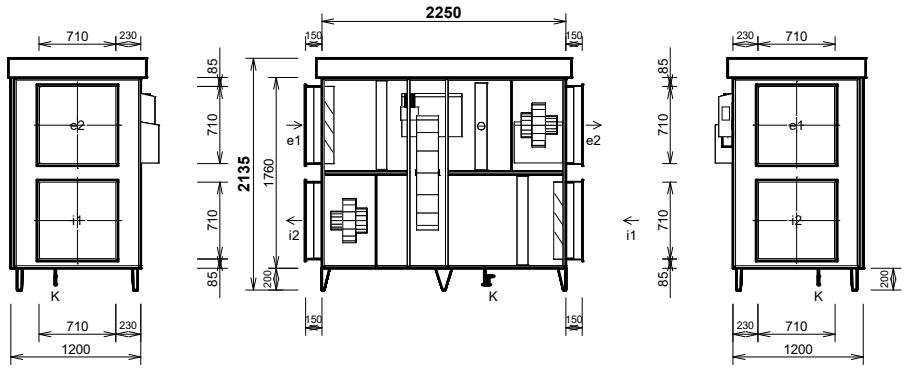
Technický popis
Nominální hodnoty
Nabídka č.:
Akce:
Pozice: Jednotka 2

Jednotka **DUPLEX 5000 Roto-N** Specifikace: DUPLEX 5000 Roto-N / 60/0 - Me.110.EC3 - Mi.110.EC3 - RT - Fe.K5 - Fi.K5 - CHW.3 - Ke.LM24A - Ki.LM24A - R-CHW3.TR 24-SR - H.710/710.P - He1.710/710.P - Hi2.710/710.P-RD5 - RD4-IO - PFe - PFi - SW - CM.s - CPTOUCH.B.Wh - ErP 2016, 2018

Typ jednotky
- Nástřešní s rotačním rekuperátorem
- Jednotka splňuje ErP (Ecodesign) - nařízení EU 1253/2014, platné od 1.1.2016 i 1.1.2018.

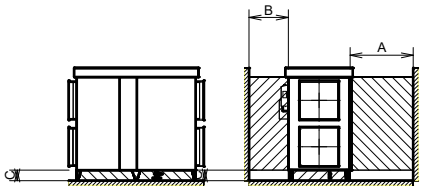
Provedení **60/0** nástřešní svislé pohled z čela (ze strany dveří)

Hmotnost: cca 655 kg, Dodávka jednotky vcelku



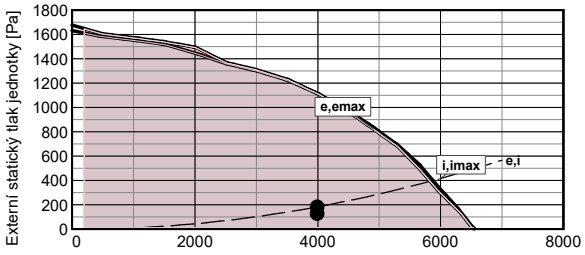
hrdlo	druh	rozměr	příslušenství
e1	e1 - venkovní vzduch (ODA)	710 x 710 mm	uzavírací klapka, pružná manžeta
e2	e2 - přiváděný vzduch (SUP)	710 x 710 mm	pružná manžeta
i1	i1 - odváděný vzduch (ETA)	710 x 710 mm	uzavírací klapka, pružná manžeta
i2	i2 - odpadní vzduch (EHA)	710 x 710 mm	pružná manžeta
K	výstup kondenzátu	Ø 32/40 mm	sifon
CHW	Vodní chladič	1" vnitřní	připojovací rozměr - regulační uzel

Manipulační prostor



A	otvírání dveří	min. 1200 mm
B	regulační modul	min. 740 mm
C	odvod kondenzátu	min. 200 mm

Výkonová charakteristika jednotky:



Zimní provoz:
e-přívod (400 V), i-odvod (400 V)
emax-přívod (400 V), imax-odvod (400 V)

Jednotka obsahuje ventilátory vybavené EC technologií. Tyto ventilátory jsou plynule regulovatelné v celé vyznačené oblasti.

Akustické parametry:

Hladina akustického výkonu LwA (dB)

Frekvence [Hz]	Total dB (A)	63 dB(A)	125 dB(A)	250 dB(A)	500 dB(A)	1 k dB(A)	2 k dB(A)	4 k dB(A)	8 k dB(A)
sání e1	62	40	56	58	54	53	50	42	<25
výtlak e2	86	59	68	79	84	79	74	68	59
sání i1	61	44	56	57	53	51	49	40	<25
výtlak i2	87	58	69	81	85	77	71	65	56
plášť do okolí	62	41	46	58	58	52	39	32	<25

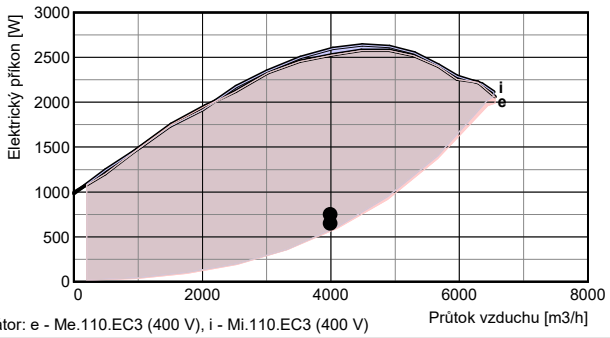
*Akustický výkon do okolí je vypočten pro současný provoz **obou ventilátorů** a je změřen podle normy ISO 3744. Akustický výkon na hrdlech je změřen podle normy ISO 5136.*

Hladina akustického tlaku LpA (dB)

plášť do okolí	41	<25	25	38	38	31	<25	<25	<25

*Hladina akustického tlaku do okolí je uváděna ve vzdálenosti 3 m pro současný provoz **obou ventilátorů** a je změřena podle normy ISO 3744.*

Ventilátory		přívod	odvod
Vzduchové množství	m3/h	3990	3990
Externí statický tlak jednotky	Pa	185	130
Napětí (jmenovité)	V	400	400
Příkon (v pracovním bodě)	kW	0,8	0,7
Počet otáček (v pracovním bodě)	1/min	2108	2053
Max. příkon (pro dimenzování)	kW	2,5	2,5
Max. proud (pro dimenzování)	A	3,8	3,8
SFP	W.h/m3	0,189	0,163
Typ ventilátorů		Me.110	Mi.110
Druh ventilátoru (s proměnlivými otáčkami)		EC3	EC3



Ventilátor: e - Me.110.EC3 (400 V), i - Mi.110.EC3 (400 V)

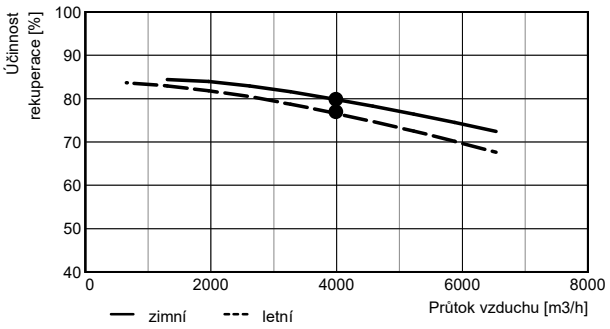
Technický popis
Nominální hodnoty
Nabídka č.:
Akce:
Pozice: Jednotka 2

Jednotka **DUPLEX 5000 Roto-N** Specifikace: DUPLEX 5000 Roto-N / 60/0 - Me.110.EC3 - Mi.110.EC3 - RT - Fe.K5 - Fi.K5 - CHW.3 - Ke.LM24A - Ki.LM24A - R-CHW3.TR 24-SR - H.710/710.P - He1.710/710.P - Hi2.710/710.P-RD5 - RD4-IO - PFe - PFi - SW - CM.s - CPTOUCH.B.Wh - ErP 2016, 2018

Připojovací prvky		přívod	odvod
Vstupní hrdlo i1	mm	-	710x710
připojení		-	pružné
Výstupní hrdlo e2	mm	710x710	-
připojení		pružné	-
Odvod kondenzátu K	mm	1 x Ø32/40	

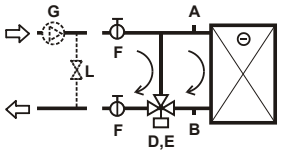
Regulační a uzavírací klapky	Typ servopohonu
Uzavírací klapka e1 (součást jednotky)	LM24A
Uzavírací klapka i1 (součást jednotky)	LM24A

Rekuperační výměník		přívod	odvod
Vzduchové množství	m3/h	3990	3990
Vstupní teplota	°C	-12	20
Výstupní teplota	°C	14	-2
Vstupní vlhkost	% r.h.	90	40
Výstupní vlhkost	% r.h.	36	100
Teplotní účinnost rekuperace zimní (letní)	%	80 (77)	
Vlhkostní účinnost rekuperace zimní (letní)	%	50 (0)	
Tepelný zisk celkový zimní (letní)	kW	42,3 (7,9)	
Tepelný zisk citelný zimní (letní)	kW	34,4 (6)	
Tepelný zisk vázaný zimní (letní)	kW	7,9 (2)	
Otáčky rekuperátoru	ot/min	10-13	
Typ rekuperačního výměníku		R.T.K 1050 kondenzační regenerační	



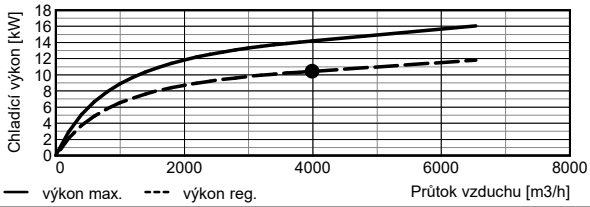
Vodní chladič		přívod
Chladící médium		voda
Vzduchové množství	m3/h	3990
Vstupní teplota (za rekuperací)	°C	27
Výstupní teplota (za chladičem)	°C	20
Vstupní vlhkost (za rekuperací)	% r.h.	45
Výstupní vlhkost (za chladičem)	% r.h.	72
Chladící výkon	kW	10,5
Tvorba kondenzátu	l/h	0
Teplotní spád vody	°C	6 / 12
Průtok média (při max. výkonu)	l/h	2030
Tlaková ztráta média		
ve výměníku	kPa	17,08
ve ventilu	kPa	0,45
Připojovací rozměr		1" vnitřní
Objem výměníku	l	3,9
Typ chladiče		W 5000 3R / typ 2
		vestavěný
Omezení		viz poznámka

Příslušenství (součástí dodávky)



A	odkalovací ventil	zátka	2)
B	odkalovací ventil	zátka	2)
Regulační uzel: R-CHW3.TR 24-SR			
D	třícestný kulový kohout	R3020-B1	2)
E	servopohon	TR 24-SR	2)
F	kulový ventil	1" vnitřní	2)
Ostatní:			
G	čerpadlo		3)
L	zkratový obtok		3)

1 - dodáváno samostatně
2 - osazeno a připojeno
3 - není součástí dodávky



Filtrace		přívod	odvod	Příslušenství (součástí dodávky)
Typ		kazetový	kazetový	Manostat PFe pro signalizaci zanesení přívodního filtru
Třída filtrace		ePM10 50% (M5)	ePM10 50% (M5)	Manostat PFi pro signalizaci zanesení odvodního filtru
Počet filtrů	ks	2	2	
Rozměr kazety	mm	750x495x96	750x495x96	

Technický popis

Nominální hodnoty

Nabídka č.:

Akce:

Pozice: Jednotka 2

Jednotka **DUPLEX 5000 Roto-N** Specifikace: DUPLEX 5000 Roto-N / 60/0 - Me.110.EC3 - Mi.110.EC3 - RT - Fe.K5 - Fi.K5 - CHW.3 - Ke.LM24A - Ki.LM24A - R-CHW3.TR 24-SR - H.710/710.P - He1.710/710.P - Hi2.710/710.P-RD5 - RD4-IO - PFe - PFi - SW - CM.s - CPTOUCH.B.Wh - ErP 2016, 2018

Regulace: Digitální regulace		**Čidla (součástí dodávky)**	
Základní funkce jednotky	RD5 400V-EC / 400V-EC	Čidlo teploty venkovního vzduchu (ODA)	ADS TEa
Umístění regulačního modulu	na jednotce standardní poloha	Čidlo teploty odváděného vzduchu (ETA)	ADS TEb
		Čidlo teploty odpadního vzduchu (EHA)	ADS TU2
Celkový příkon (v pracovním bodě)	1,4 kW	Čidlo teploty přiváděného vzduchu (SUP)	ADS TU1
Expandery	RD4-IO		
Ovládání	CP Touch barva bílá		
Hlavní vypínač	SW		

Jednotka **DUPLEX 5000 Roto-N** Specifikace: DUPLEX 5000 Roto-N / 60/0 - Me.110.EC3 - Mi.110.EC3 - RT - Fe.K5 - Fi.K5 - CHW.3 - Ke.LM24A - Ki.LM24A - R-CHW3.TR 24-SR - H.710/710.P - He1.710/710.P - Hi2.710/710.P-RD5 - RD4-IO - PFe - PFi - SW - CM.s - CPTOUCH.B.Wh - ErP 2016, 2018

ErP (NRVU)

Informace o větracích jednotkách pro jiné než obytné budovy podle NAŘÍZENÍ KOMISE (EU) č. 1253/2014, čl. 4 odst. 2

Název nebo ochranná známka výrobce:	ATREA s.r.o.
Identifikační značka modelu:	DUPLEX 5000 Roto-N
Typ jednotky:	Větrací jednotka pro jiné než obytné budovy (NRVU) Obousměrná větrací jednotka (BVU)
Typ pohonu:	s proměnlivými otáčkami
Typ systému pro zpětné získávání tepla:	rotační regenerační výměník
Tepelná účinnost zpětného získávání tepla:	77 %
Jmenovitý průtok vzduchu:	1,11 m3/s
Efektivní elektrický příkon:	1,3 kW
SFP int:	558 Ws/m3
Účinná nátoková rychlost:	1,5 / 1,5 m/s (přívod / odvod)
Jmenovitý vnější tlak:	185 / 130 Pa (přívod / odvod)
Vnitřní tlaková ztráta větracích součástí:	117 / 159 Pa (přívod / odvod)
Statická účinnost ventilátorů (dle 327/2011):	68,6 / 68,6 % (přívod / odvod)
Max. vnější netěsnost:	0,8 %
Max. vnitřní netěsnost:	2,3 %
Energetická klasifikace filtrů:	A
Upozornění na výměnu filtrů:	V jednotce je nutno pravidelně měnit filtry vzduchu. Zanesené vzduchové filtry způsobují snížení výkonu a celkové účinnosti větrací jednotky.
Internetová adresa návodu na demontáž:	www.atrea.cz/erp

Jednotka splňuje ErP (Ecodesign) - nařízení EU 1253/2014, platné od 1.1.2016 i 1.1.2018.
(ve výpočtu zahrnuta korekce filtru)

Upozornění:

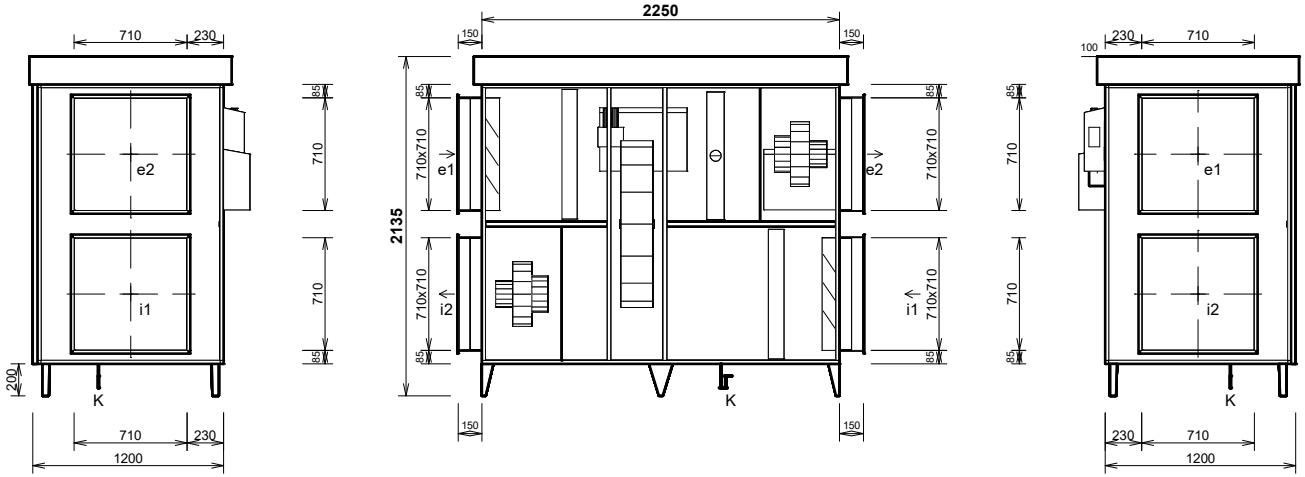
Na hrdle i2 musí být připojení potrubí o minimální délce 3 m !
Okruh vodního chladiče je nutné dostatečně tepelně chránit použitím nemrznoucí náplně s dostatečnou teplotní odolností.

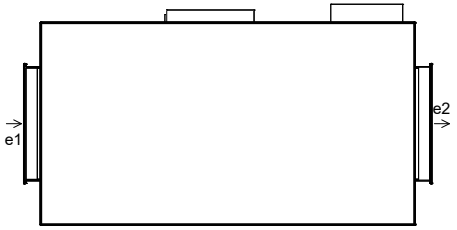
Rozměrový nákres

Nabídka č.:
Akce:
Pozice: Jednotka 2

Jednotka **DUPLEX 5000 Roto-N** Specifikace: DUPLEX 5000 Roto-N / 60/0 - Me.110.EC3 - Mi.110.EC3 - RT - Fe.K5 - Fi.K5 - CHW.3 - Ke.LM24A - Ki.LM24A - R-CHW3.TR 24-SR - H.710/710.P - He1.710/710.P - Hi2.710/710.P-RD5 - RD4-IO - PFe - PFi - SW - CM.s - CPTOUCH.B.Wh - ErP 2016, 2018

Provedení **60/0** nástřešní svislé pohled z čela (ze strany dveří)
Hmotnost: cca **655 kg**

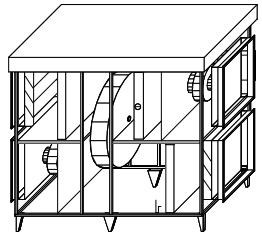




Při osazování jednotky dbejte na minimální manipulační prostor - viz technický popis.

hrdlo	druh	rozměr	příslušenství
e1	e1 - venkovní vzduch (ODA)	710 x 710 mm	uzavírací klapka, pružná manžeta pro přírubu 20
e2	e2 - přiváděný vzduch (SUP)	710 x 710 mm	pružná manžeta pro přírubu 20 mm
i1	i1 - odváděný vzduch (ETA)	710 x 710 mm	uzavírací klapka, pružná manžeta pro přírubu 20
i2	i2 - odpadní vzduch (EHA)	710 x 710 mm	pružná manžeta pro přírubu 20 mm
K	výstup kondenzátu	Ø 32/40 mm	sifon
CHW	Vodní chladič	1" vnitřní	připojovací rozměr - regulační uzel

Poznámky:
- Schéma je určeno pouze pro základní informaci, závazné rozměry obdržíte s dodávkou zařízení, případně na vyžádání od výrobce.
- Otvory pro šrouby pro připojení potrubí (pro jedno hrdlo): 4x M6
- včetně: základový rám výšky 200 mm



Vzduchotechnické schéma

Nominální hodnoty

Nabídka č.:

Akce:

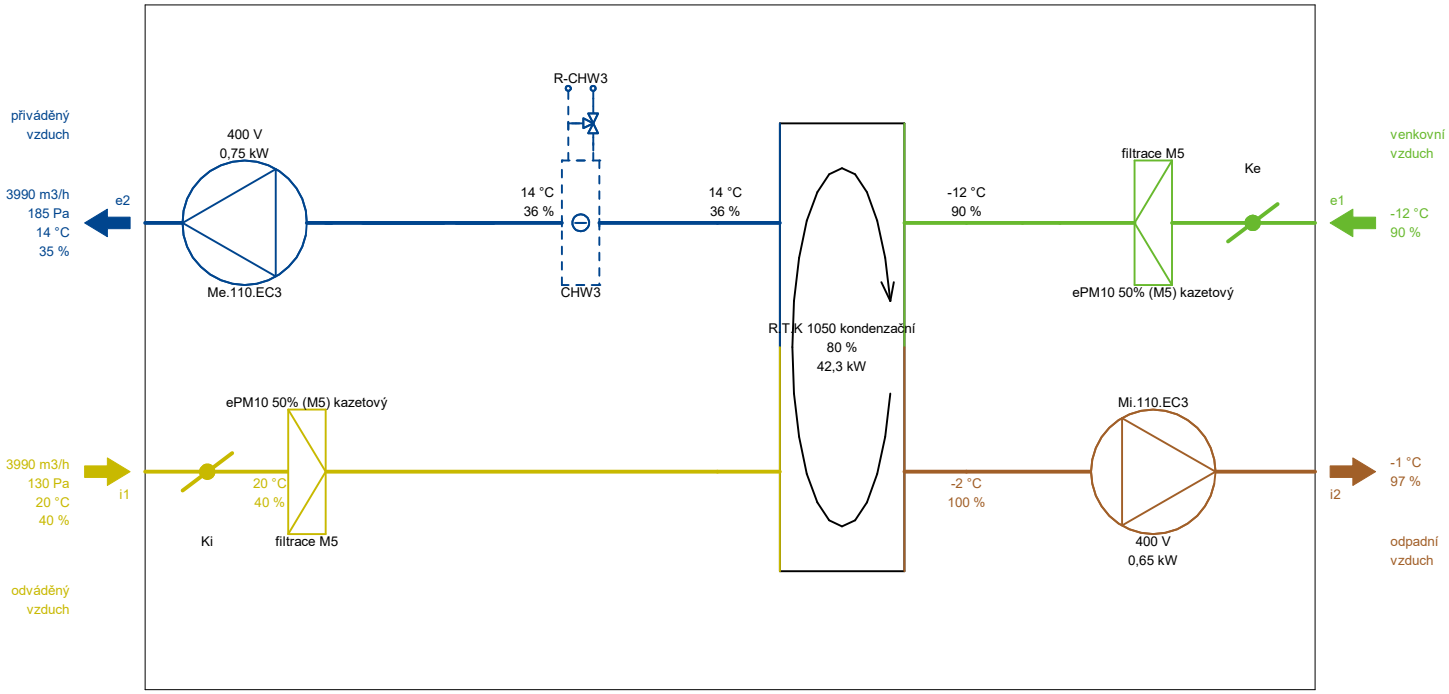
Pozice: Jednotka 2

Jednotka **DUPLEX 5000 Roto-N** Specifikace: DUPLEX 5000 Roto-N / 60/0 - Me.110.EC3 - Mi.110.EC3 - RT - Fe.K5 - Fi.K5 - CHW.3 - Ke.LM24A - Ki.LM24A - R-CHW3.TR 24-SR - H.710/710.P - He1.710/710.P - Hi2.710/710.P-RD5 - RD4-IO - PFe - PFi - SW - CM.s - CPTOUCH.B.Wh - ErP 2016, 2018

Zimní provoz

e1 - venkovní vzduch (ODA) **e2 - přiváděný vzduch (SUP)**

i1 - odváděný vzduch (ETA) **i2 - odpadní vzduch (EHA)**

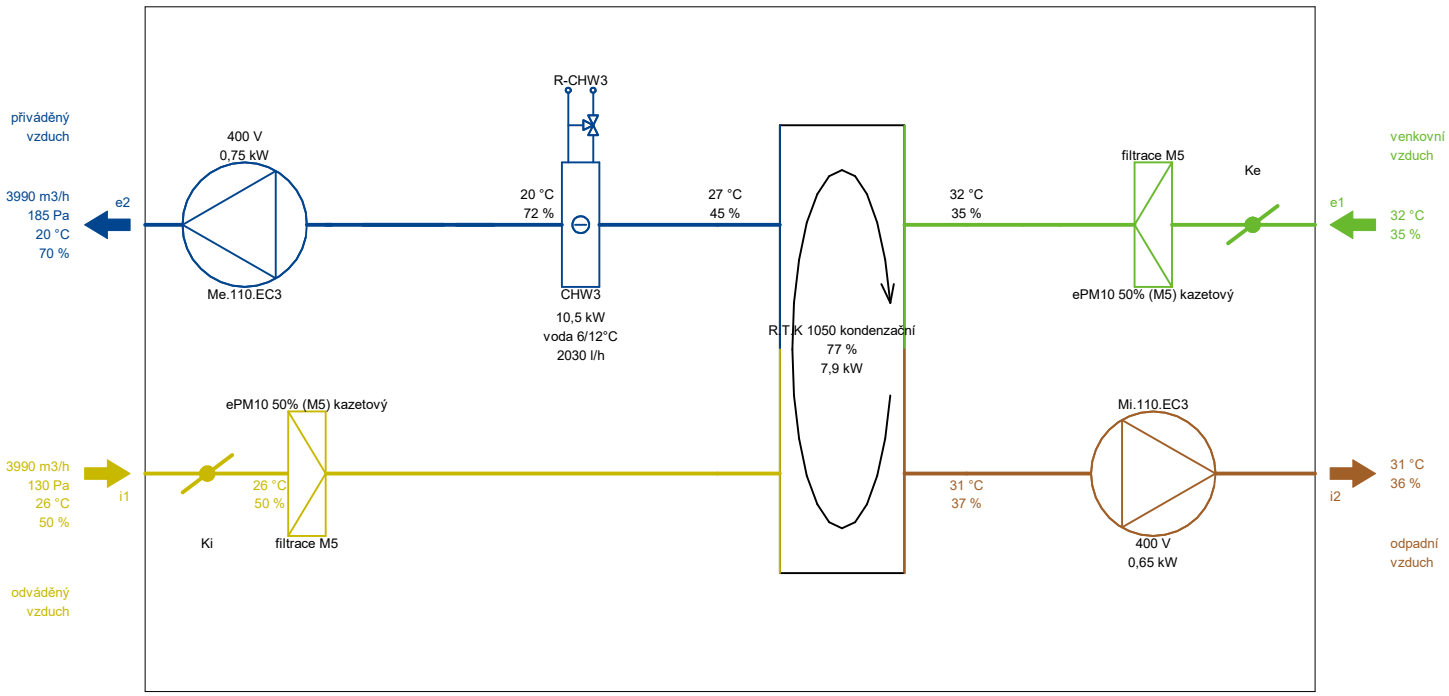


Poznámka: Schématické znázornění funkcí jednotky. Umístění vstupů a výstupů nemusí přesně souhlasit se skutečným provedením a konfigurací hrdel.

Letní provoz

e1 - venkovní vzduch (ODA) **e2 - přiváděný vzduch (SUP)**

i1 - odváděný vzduch (ETA) **i2 - odpadní vzduch (EHA)**

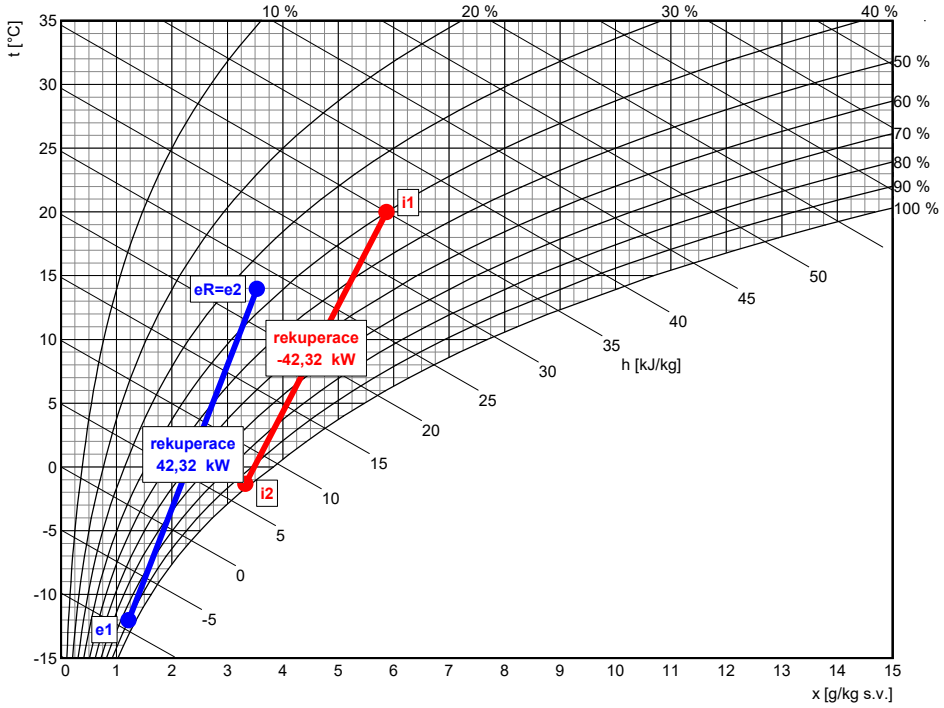


Poznámka: Schématické znázornění funkcí jednotky. Umístění vstupů a výstupů nemusí přesně souhlasit se skutečným provedením a konfigurací hrdel.

h-x diagram
Nominální hodnoty
Nabídka č.:
Akce:
Pozice: Jednotka 2

Jednotka **DUPLEX 5000 Roto-N** Specifikace: DUPLEX 5000 Roto-N / 60/0 - Me.110.EC3 - Mi.110.EC3 - RT - Fe.K5 - Fi.K5 - CHW.3 - Ke.LM24A - Ki.LM24A - R-CHW3.TR 24-SR - H.710/710.P - He1.710/710.P - Hi2.710/710.P-RD5 - RD4-IO - PFe - PFi - SW - CM.s - CPTOUCH.B.Wh - ErP 2016, 2018

Zimní provoz



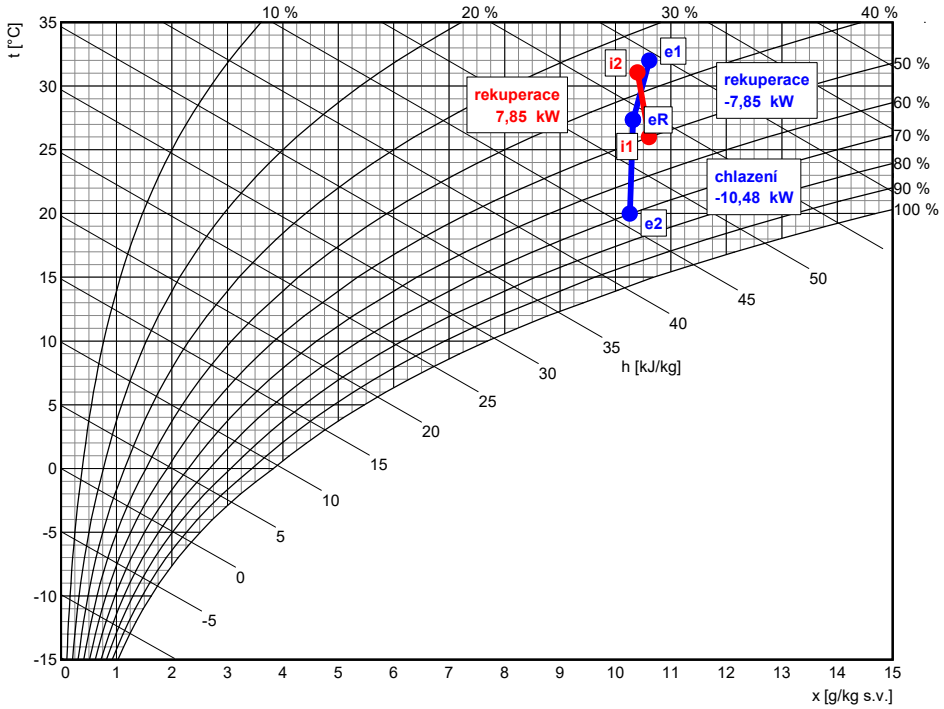
Přívod

	popis	t [°C]	rh [%]
e1	venkovní vzduch	-12,0	90
eR	rekuperace	14,0	35

Odvod

	popis	t [°C]	rh [%]
i1	odváděný vzduch	20,0	40
i2	rekuperace	-1,3	97

Letní provoz



Přívod

	popis	t [°C]	rh [%]
e1	venkovní vzduch	32,0	35
eR	rekuperace	27,4	45
e2	chlazení	20,0	70

Odvod

	popis	t [°C]	rh [%]
i1	odváděný vzduch	26,0	50
i2	rekuperace	31,1	36

Požadavky na stavbu pro instalaci jednotky

Nabídka č.:
Akce:
Pozice: Jednotka 2

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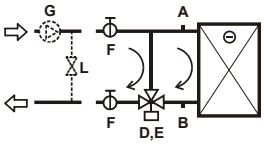
Elektro		
Napětí	400 V	
Proud	7,6 A	
Doporučené odjištění	3x 16A (char. C)	
Typ a dimenze kabelů	viz schéma el. zapojení	

Chlazení (vodní chladič)	
Chladící médium	voda
Chladící výkon	10,48 kW
Průtok média (při max. výkonu)	2030 l/h
Teplota média ze zdroje / Teplota zpátečky	6 / 12 °C
Tlaková ztráta výměníku	17,08 kPa
Připojovací rozměr (regulační uzel)	1" vnitřní

Příslušenství (součástí dodávky)



A	odkalovací ventil	zátka	2)
B	odkalovací ventil	zátka	2)
Regulační uzel: R-CHW3.TR 24-SR			
D	třícestný kulový kohout	R3020-B1	2)
E	servopohon	TR 24-SR	2)
F	kulový ventil	1" vnitřní	2)
Ostatní:			
G	čerpadlo		3)
L	zkratový obtok		3)

1 - dodáváno samostatně
2 - osazeno a připojeno
3 - není součástí dodávky

Zdravotní technika		
Odvod kondenzátu počet	1	Umístění odvodů kondenzátu viz rozměrový nákres
Odvod kondenzátu průměr potrubí	DN 32/40	
Tvorba kondenzátu (letní)	0,8 l/h	
Tvorba kondenzátu (zimní)	12,4 l/h	

Požadavky na stavbu pro instalaci jednotky

Nabídka č.:
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Pozice: Jednotka 2

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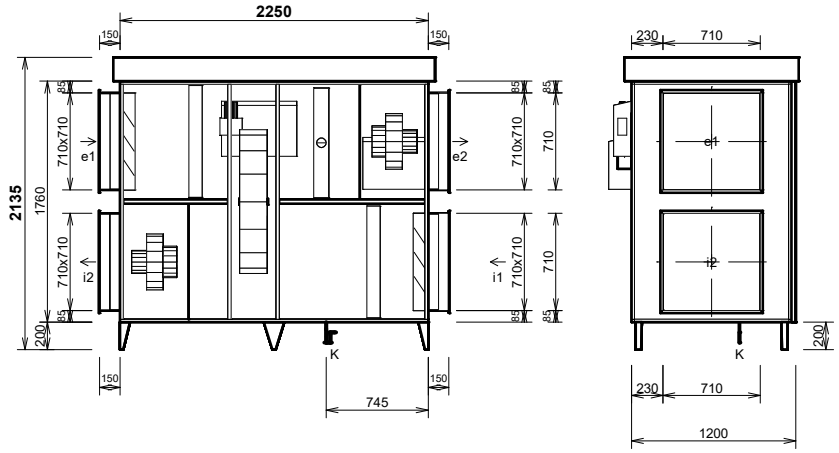
Stavba			
Rozměry jednotky	délka	2250 mm	
	výška (bez podstavných noh)	1760 mm	
	hloubka	1200 mm	
Hmotnost		cca 655 kg	

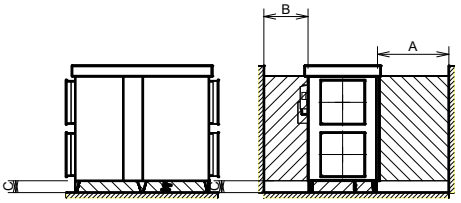
Rozměrový nákres:

Provedení **60/0** nástřešní svislé pohled z čela (ze strany dveří)

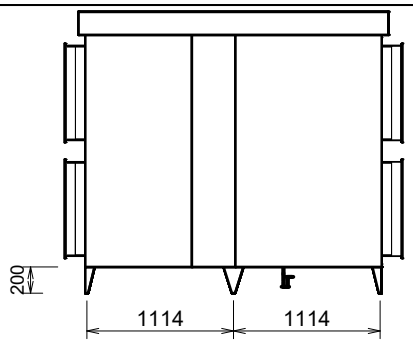


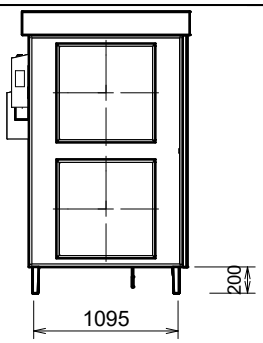
hrdlo	druh	rozměr	příslušenství
e1	e1 - venkovní vzduch (ODA)	710 x 710 mm	uzavírací klapka, pružná manžeta
e2	e2 - přiváděný vzduch (SUP)	710 x 710 mm	pružná manžeta
i1	i1 - odváděný vzduch (ETA)	710 x 710 mm	uzavírací klapka, pružná manžeta
i2	i2 - odpadní vzduch (EHA)	710 x 710 mm	pružná manžeta
K	výstup kondenzátu	Ø 32/40 mm	sifon
CHW	Vodní chladič	1" vnitřní	připojovací rozměr - regulační uzel

Manipulační prostor

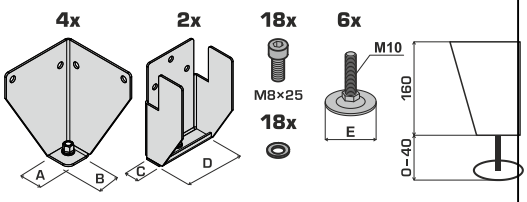


A	otvírání dveří	min. 1200 mm
B	regulační modul	min. 740 mm
C	odvod kondenzátu	min. 200 mm





Detail kotvení jednotky ke střešní kontrukci



A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
40	40	40	112	ø 46

Schéma zapojení

Nabídka č.:
Akce:
Pozice: Jednotka 2

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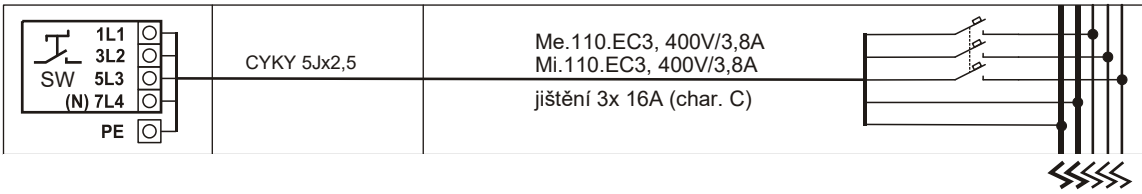
svorky regulace	kabel	použití	kontrola	

Silové napájení



Ovládání a komunikace

PW CANH CANL GND	SYKFY 2x2x0,5	PW CANH CANL GND ***Ovladač CP Touch*** paralelní zapojení více ovladačů - viz uživatelský návod maximální délka kabelu - 50 m		☐
D1 N1	CYKY 2Ox1,5	L N Osvětlení, Tlačítko (WC, Koupelna)		☐
D2 N2	CYKY 2Ox1,5	L N Osvětlení, Tlačítko (WC, Koupelna)	Externí vstupy (pro signály 230 V)	☐
D3 N3	CYKY 2Ox1,5	L N Osvětlení, Tlačítko (WC, Koupelna)		☐
D4 N4	CYKY 2Ox1,5	L N Spínač		☐
STP GND	SYKFY 2x2x0,5	Havarijní STOP kontakt		☐
RJ45	UTP CAT 5e	Ethernet rozhraní, TCP/IP, vč. Modbus TCP protokolu - z výroby nastavena IP adresa 172.20.20.20 - volitelně: "https://control.atrea.eu"		☐
SDB GND	SYKFY 2x2x0,5	Univerzální poruchový výstup (24V DC, max. 100mA)		☐
SM GND	SYKFY 2x2x0,5	Výstup informace o provozu ventilátorů (24V DC, max. 100mA)		☐

Ohřívače a chladiče

SC C	CYKY 3Ox1,5	Povolení chodu chladiče - sepnuto (spínací kontakt, max. 8 A)		☐

Externí čidla

IN1 GND	SYKFY 2x2x0,5	Čidlo 0-10V (CO2, vlhkost, diferenční tlak a pod.) nebo beznapěťový spínací kontakt		☐
IN2 GND	SYKFY 2x2x0,5	Čidlo 0-10V (CO2, vlhkost, diferenční tlak a pod.) nebo beznapěťový spínací kontakt		☐

Schéma zapojení

Nabídka č.:
Akce:
Pozice: Jednotka 2

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svorky regulace	kabel	použití	kontrola	

Schéma zapojení uvádí pouze svorky pro připojení externích vodičů a zařízení.
Svorky zapojené z výroby uváděné nejsou.
Slaboporudé kabely se nesmí vést v souběhu se silovými ! (viz příslušné normy).