

Under floor units

Type BID



Spigot with lip seal



Levelling foot



Eurovent certification



Tested to VDI 6022

Under floor induction unit in nominal lengths of 900 to 1500 mm, with horizontal heat exchanger

Underfloor induction unit with 2-pipe or 4-pipe heat exchanger for installation in raised floors

- High heating and cooling capacity with a low conditioned primary air volume flow rate and low sound power level
- High comfort levels due to low airflow velocity in the occupied zone
- Four nozzle variants to optimise induction based on demand
- Levelling feet
- Continuous linear arrangement if required

Optional equipment and accessories

- Control equipment
- Choice of walk-on floor grille from our portfolio
- Heat exchanger powder-coated black
- Powder coating in many different colours, e.g. RAL CLASSIC

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Application

Application

- Underfloor induction units of Type BID for installation in raised floors
- Under floor induction units allow for floor-to-ceiling glazing
- 2-pipe or 4-pipe heat exchangers enable good comfort levels with a low conditioned primary air volume flow rate
- Energy-efficient solution since water is used for heating and cooling

- Supply air discharge as inducing displacement flow
- Horizontal heat exchanger as 2-pipe or 4-pipe system
- 4 levelling feet
- Water connections at the narrow side, Ø12 mm Cu pipe, with plain tails or with G $\frac{1}{2}$ " external thread, or with a G $\frac{1}{2}$ " union nut; with flat seal

Nominal length

- 900, 1050, 1200, 1350, 1500 mm

Special characteristics

Description

Variants

- E: Single unit
- B: Unit for continuous linear arrangement, i.e. open at the narrow sides

Heat exchanger

- 2: 2-pipe systems
- 4: 4-pipe systems

Nozzle variants

- M: Medium
- G: Large
- U: Extra large
- 2U: Two nozzle rows, extra large nozzles

Construction

- Galvanised
- P1: Powder-coated RAL 9005, black, or in any other RAL colour, gloss level 70 %

Attachments

- Water connection A1: G $\frac{1}{2}$ " external thread and flat seal
- Water connection A2: G $\frac{1}{2}$ " union nut and flat seal

Useful additions

- Connecting hoses
- Control equipment consisting of a control panel including a controller with integral room temperature sensor; valves and valve actuators; and lockshields
- Choice of floor grille from our portfolio
- X-AIRCONTROL control system

Construction features

- Spigot is suitable for circular ducts to EN 1506 or EN 13180
- Four nozzle variants to optimise induction based on demand
- Recess for floor grille
- Vent valves on the heat exchanger

Materials and surfaces

- Casing, nozzle plate and primary air plenum made of galvanised sheet steel
- Heat exchanger with copper tubes and aluminium fins
- Exposed surfaces either untreated or powder-coated in any RAL colour, e.g. RAL 9005, black
- Heat exchanger also in black (RAL 9005)

Standards and guidelines

- Products are certified by Eurovent (no. 09.12.432) and listed on the Eurovent website
- Declaration of hygiene conformity to VDI 6022

Maintenance

- No moving parts, hence low maintenance
- The heat exchanger can be vacuumed with an industrial vacuum cleaner if necessary
- VDI 6022, Part 1, applies (Hygiene requirements for ventilation and air-conditioning systems and units)

Functional description

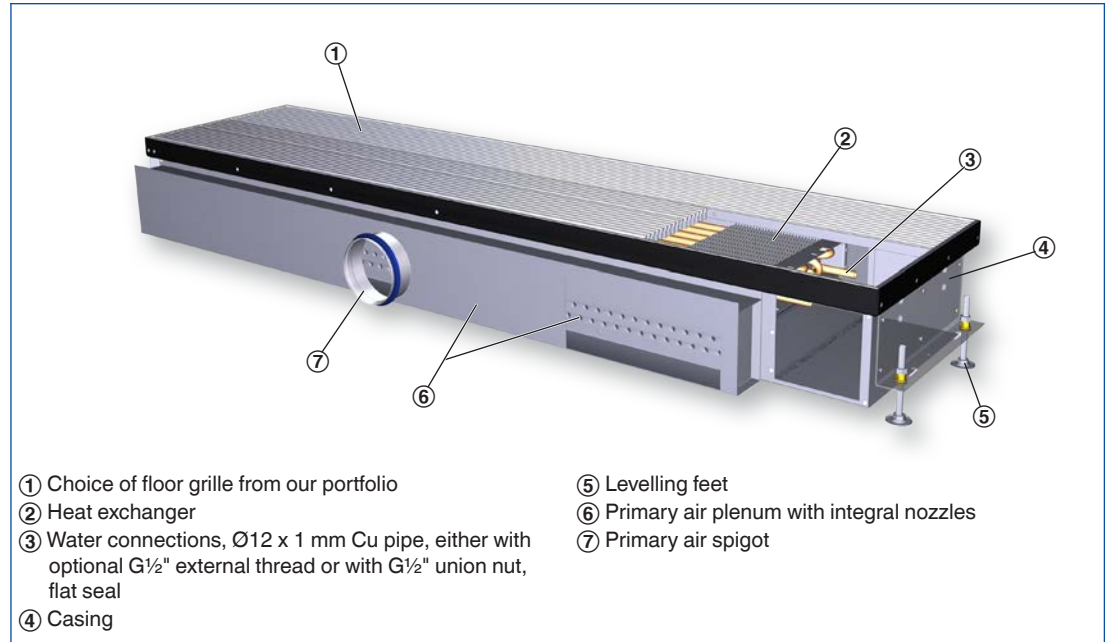
Under floor induction units provide centrally conditioned primary air (fresh air) to the room and use heat exchangers for additional cooling and/or heating.

The primary air is discharged through nozzles

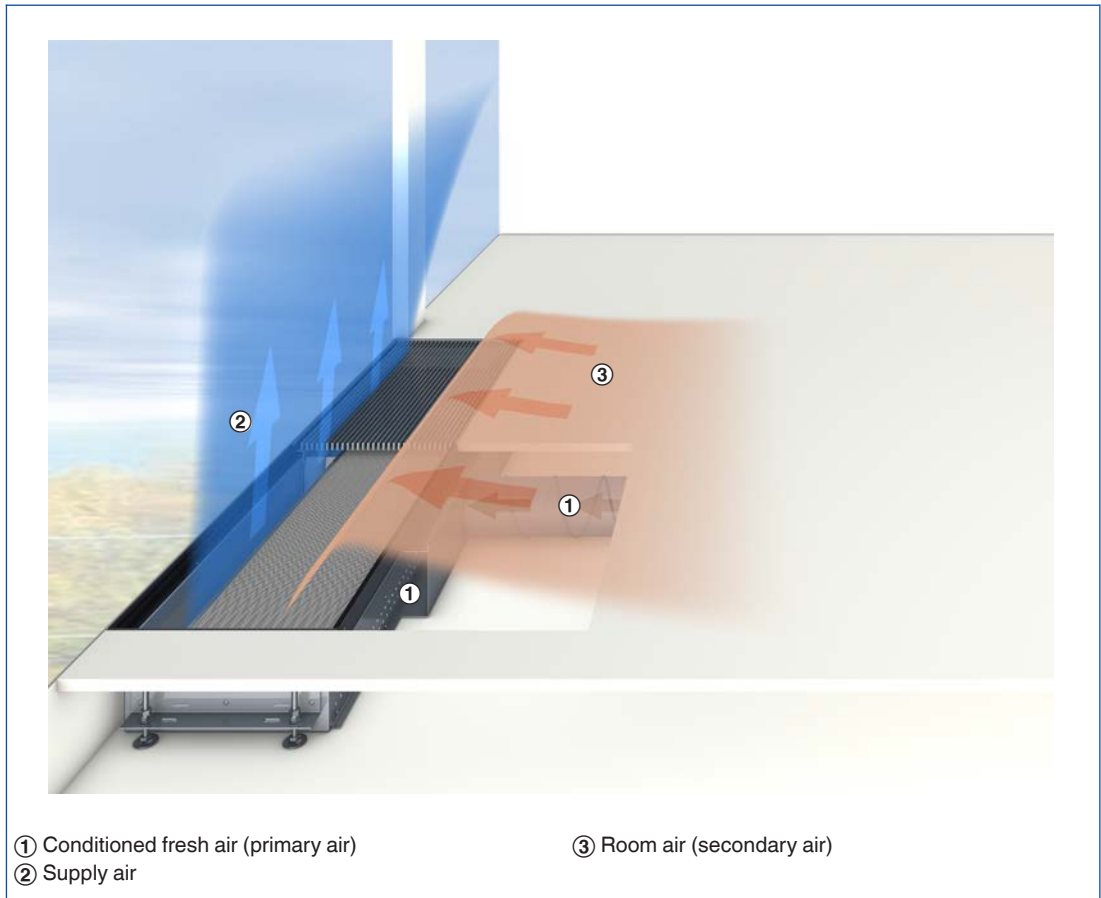
(four variants are available).

As a result of this, secondary air (room air) is induced and passes through the heat exchanger. Primary and secondary air mix and are then supplied to the room as an inducing displacement flow.

Schematic illustration of BID



Principle of operation – BID



Nominal length	900, 1050, 1200, 1350, 1500 mm
Total length	1100 – 1849 mm
Height	191 mm
Width	403 mm
Primary air volume flow rate	4 – 40 l/s or 14 – 144 m ³ /h
Cooling capacity	Up to 1030 W
Heating capacity	Up to 1225 W
Max. operating pressure, water side	6 bar
Max. operating temperature, water side	75 °C

The quick sizing table contains operating points for defined reference units. For other operating points you may use the Easy Product Finder design software.

Quick sizing

L _N	①	Primary air				②		Cooling				Heating		
		V̇ _{Pr}	V̇ _{Pr}	Δp _t		L _{WA}		2-pipe and 4-pipe systems				4-pipe system		
				Ø98 mm	Ø123 mm	Ø98 mm	Ø123 mm	Q _{tot}	Q _{WK}	Δt _w	Δp _w	Q _{WH} = Q _t ot	Δt _w	Δp _w
		l/s	m ³ /h	Pa		dB(A)		W		K		kPa		
900	M	4	14	52	52	<20	<20	229	181	1.4	3.1	244	4.2	0.24
		6	22	117	117	<20	<20	303	230	1.8	3.1	311	5.4	0.24
		9	32	264	264	27	23	400	291	2.3	3.1	395	6.8	0.24
	G	8	29	58	58	<20	<20	324	228	1.8	3.1	308	5.3	0.24
		12	43	130	129	23	<20	435	290	2.3	3.1	394	6.8	0.24
		17	61	262	260	33	28	560	355	2.8	3.1	483	8.3	0.24
	U	15	54	64	63	22	<20	457	276	2.2	3.1	374	6.4	0.24
		20	72	114	111	30	23	570	328	2.6	3.1	446	7.7	0.24
		30	108	256	250	42	35	778	417	3.3	3.1	569	9.8	0.24
	2U	23	83	43	40	34	20	540	263	2.1	3.1	310	5.3	0.24
		32	115	84	79	43	29	708	322	2.5	3.1	382	6.6	0.24
		41	148	138	126	50	36	867	373	2.9	3.1	445	7.7	0.24
1050	M	4	14	38	38	<20	<20	238	190	1.5	3.5	256	4.4	0.26
		8	29	151	151	20	<20	381	285	2.2	3.5	387	6.6	0.26
		11	40	285	285	29	25	474	341	2.7	3.5	468	8.0	0.26
	G	10	36	66	65	<20	<20	393	272	2.1	3.5	375	6.4	0.26
		15	54	148	146	27	21	526	345	2.7	3.5	466	8.0	0.26
		20	72	263	260	35	30	646	405	3.2	3.5	533	9.5	0.26
	U	15	54	47	46	20	<20	468	287	2.2	3.5	391	6.7	0.26
		25	90	131	126	35	27	691	389	3.0	3.5	513	9.0	0.26
		35	126	256	248	44	36	893	471	3.7	3.5	647	11.1	0.26
	2U	27	97	45	40	41	23	627	302	2.4	3.5	357	6.1	0.26
		37	133	85	76	50	32	811	364	2.8	3.5	435	7.5	0.26
		47	169	137	122	57	39	985	419	3.3	3.5	503	8.6	0.26
1200	M	5	18	45	45	<20	<20	286	226	1.8	3.8	306	5.3	0.29
		9	32	145	144	21	<20	425	317	2.5	3.8	431	7.4	0.29
		12	43	257	256	29	25	516	372	2.9	3.8	506	8.7	0.29
	G	10	36	50	49	<20	<20	403	282	2.2	3.8	383	6.6	0.29
		15	54	113	111	24	<20	538	357	2.8	3.8	486	8.4	0.29
		24	86	288	284	38	32	752	463	3.6	3.8	634	10.9	0.29
	U	16	58	41	40	21	<20	501	308	2.4	3.8	419	7.2	0.29
		24	86	93	89	32	23	682	392	3.1	3.8	535	9.2	0.29
		36	130	208	200	44	35	927	493	3.9	3.8	676	11.6	0.29
	2U	31	112	48	41	49	27	713	339	2.7	3.8	403	6.9	0.29
		39	140	76	65	55	34	858	388	3.0	3.8	464	8.0	0.29
		47	169	110	95	61	39	999	432	3.4	3.8	519	8.9	0.29

① Nozzle variant

② Air-regenerated noise

Reference values

Parameter	Cooling	Heating
t _R	26 °C	22 °C
t _{AN}	24 °C	22 °C
t _{WV}	16 °C	50 °C
V̇ _w	110 l/h	50 l/h
Δt _{pr} = t _{pr} - t _R	-10 K	-
Δt _{RWV} = t _{WV} - t _R	-10 K	-28 K

Quick sizing

L _N	①	Primary air				②		Cooling				Heating		
		V̇ _{Pr}	V̇ _{Pr}	Δp _t		L _{WA}		2-pipe and 4-pipe systems				4-pipe system		
				Ø98 mm	Ø123 mm	Ø98 mm	Ø123 mm	Q _{tot}	Q _{WK}	Δt _w	Δp _w	Q _{WH} = Q _t	Δt _w	Δp _w
		l/s	m ³ /h	Pa		dB(A)		W	K	kPa	W	K	kPa	
1350	M	5	18	35	35	<20	<20	295	234	1.8	4.2	317	5.5	0.31
		10	36	140	139	21	<20	468	348	2.7	4.2	473	8.1	0.31
		13	47	237	236	29	24	558	401	3.1	4.2	547	9.4	0.31
	G	10	36	39	39	<20	<20	412	292	2.3	4.2	396	6.8	0.31
		15	54	89	87	22	<20	550	369	2.9	4.2	502	8.6	0.31
		25	90	246	242	37	30	789	487	3.8	4.2	668	11.5	0.31
	U	17	61	38	36	22	<20	535	330	2.6	4.2	448	7.7	0.31
		25	90	80	76	33	23	715	413	3.2	4.2	564	9.7	0.31
		40	144	205	194	46	36	1018	536	4.2	4.2	736	12.7	0.31
	2U	35	126	51	42	57	32	797	375	2.9	4.2	448	7.7	0.31
		41	148	70	58	61	36	905	411	3.2	4.2	493	8.5	0.31
		47	169	91	76	65	40	1011	444	3.5	4.2	535	9.2	0.31
1500	M	6	22	41	40	<20	<20	341	269	2.1	4.5	365	6.3	0.33
		11	40	137	136	21	<20	510	378	3.0	4.5	515	8.9	0.33
		15	54	254	252	30	26	626	445	3.5	4.5	609	10.5	0.33
	G	14	50	63	61	<20	<20	534	365	2.9	4.5	497	8.5	0.33
		22	79	154	151	31	25	733	468	3.7	4.5	640	11.0	0.33
		28	101	250	244	38	32	868	531	4.1	4.5	729	12.5	0.33
	U	20	72	42	40	27	<20	614	372	2.9	4.5	507	8.7	0.33
		33	119	115	107	41	29	893	495	3.9	4.5	678	11.7	0.33
		40	144	169	158	46	35	1031	549	4.3	4.5	754	13.0	0.33
	2U	39	140	54	44	65	36	880	409	3.2	4.5	491	8.4	0.33
		43	155	66	53	68	39	951	433	3.4	4.5	520	9.0	0.33
		47	169	78	63	70	41	1022	455	3.6	4.5	549	9.4	0.33

① Nozzle variant

② Air-regenerated noise

Reference values

Parameter	Cooling	Heating
t _R	26 °C	22 °C
t _{AN}	24 °C	22 °C
t _{WV}	16 °C	50 °C
V̇ _w	110 l/h	50 l/h
Δt _{pr} = t _{pr} - t _R	-10 K	-
Δt _{RWV} = t _{WV} - t _R	-10 K	-28 K

This specification text describes the general properties of the product. Texts for variants can be generated with our Easy Product Finder design programme.

Description

Under floor induction units of Type BID, with one-way air discharge and high thermal output. For installation in false floors. The units consist of a casing with primary air plenum, non-combustible nozzles, and a horizontal heat exchanger. Four nozzle variants to optimise induction based on demand.

Special characteristics

- Supply air discharge as inducing displacement flow
- Horizontal heat exchanger as 2-pipe or 4-pipe system
- 4 levelling feet
- Water connections at the narrow side, Ø12 mm Cu pipe, with plain tails or with G½" external thread, or with a G½" union nut; with flat seal

Materials and surfaces

- Casing, nozzle plate and primary air plenum made of galvanised sheet steel
- Heat exchanger with copper tubes and aluminium fins

- Exposed surfaces either untreated or powder-coated in any RAL colour, e.g. RAL 9005, black
- Heat exchanger also in black (RAL 9005)

Construction

- Galvanised
- P1: Powder-coated RAL 9005, black, or in any other RAL colour, gloss level 70 %

Technical data

- Nominal length: 900, 1050, 1200, 1350, 1500 mm
- Total length: 1100 – 1849 mm
- Height: 191 mm
- Width: 403 mm
- Primary air volume flow rate: 4 – 40 l/s or 14 – 144 m³/h
- Cooling capacity: up to 1030 W
- Heating capacity: up to 1225 W
- Max. operating pressure: 6 bar
- Max. operating temperature: 75 °C

BID

BID – 2 – M – R – E / 1197 × 900 × 98 / K00 / P1 / G3 / VS										
1	2	3	4	5	6	7	8	9	10	11

1 Type

BID Underfloor induction unit

2 Heat exchanger

2 2-pipe

4 4-pipe

3 Nozzle variants

M Medium

G Large

U Extra large

2U 2 rows, extra large

4 Casing arrangement

R Right side

L Left side

5 Unit variant

E Single unit with perimeter frame

B Unit for continuous linear arrangement, i.e. open at the narrow sides

6 Total length (diffuser face) × nominal size [mm]

1100 – 1249 × 900

1250 – 1399 × 1050

1400 – 1549 × 1200

1550 – 1699 × 1350

1700 – 1849 × 1500

7 Spigot diameter [mm]

98

123

8 Water connection

No entry: Ø12 mm pipe with plain tails

E00 Ø12 mm pipe with plain tails and vent valve

A00 With G½" external thread and flat seal

K00 With G½" external thread and flat seal and vent valve

9 Surface of casing

No entry: untreated, galvanised steel

P1 Powder-coated RAL 9005, black, gloss level 70 %

10 Surface of heat exchanger

No entry: heat exchanger untreated

G3 RAL 9005, black

11 Valves and actuators

No entry: none

VS With

Order examples

BID-2-M-R-E/1350x1050x98

Heat exchanger	2-pipe
Nozzle variant	Medium
Casing arrangement	Right side
Unit variant	Single unit
Total length (diffuser face) × nominal length	1350 × 1050 mm
Spigot diameter	Ø98 mm
Water connections	Ø12 mm pipe, plain tails
Surface	Galvanised steel
Surface of heat exchanger	Untreated
Valves and actuators	Without

BID-4-U-L-E/1350x1050x123/A00/P1 RAL 9005/G3/VS

Heat exchanger	4-pipe
Nozzle variant	Extra large
Casing arrangement	Left side
Unit variant	Single unit
Total length (diffuser face) × nominal length	1350 × 1050 mm
Spigot diameter	Ø123 mm
Water connections	G½" external thread
Surface	P1 RAL 9005, black
Surface of heat exchanger	RAL 9005, black
Valves and actuators	With

Product examples

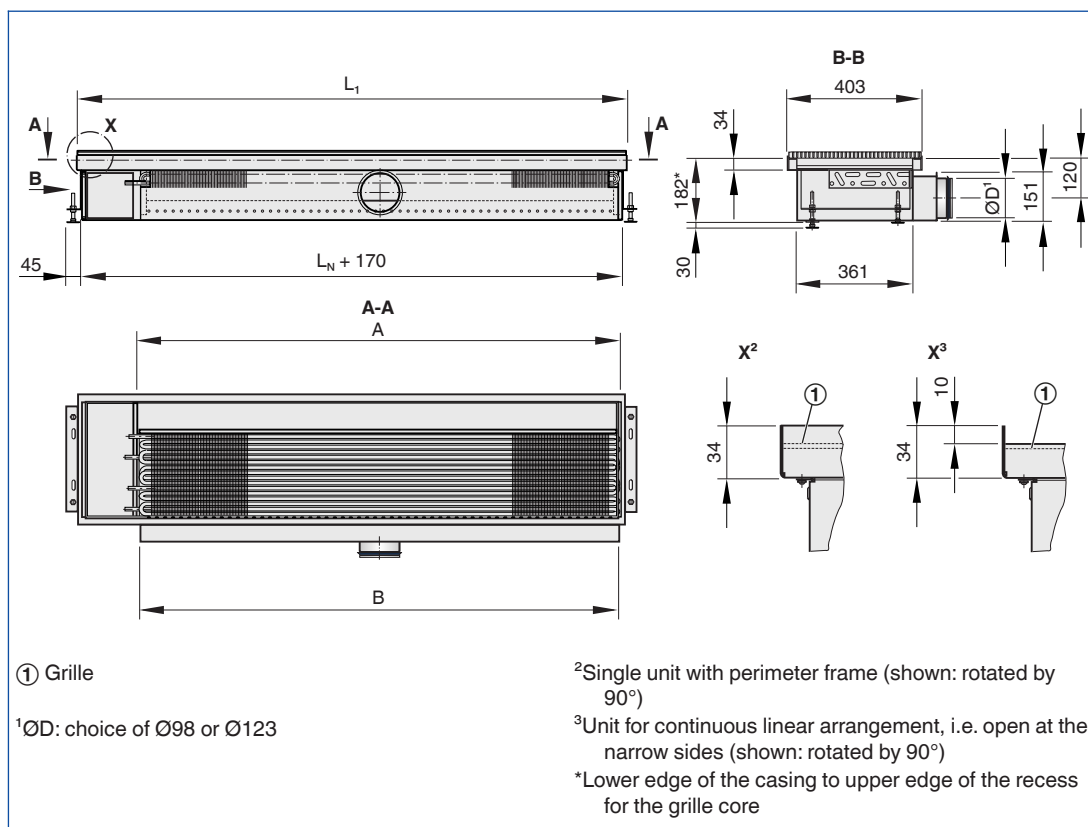
BID with ARR20 roll down grille



BID with AFN linear grille



BID



Dimensions [mm]

L_1	L_N	A	B
1100 – 1249	900	895	875
1250 – 1399	1050	1045	1025
1400 – 1549	1200	1195	1175
1550 – 1699	1350	1345	1325
1700 – 1849	1500	1495	1475

Weights

L_N	mm	900	1050	1200	1350	1500					
L_1	mm	1100	1249	1250	1399	1400	1549	1550	1699	1700	1849
Unit	kg/piece	26	28	30	32	34	36	38	40	42	44
Contained water (max.)	kg	1.8	1.8	2.1	2.1	2.4	2.4	2.7	2.7	3	3

min $L_1 = L_N + 200$ mm

Installation example



Installation and commissioning

- Installation in false floors
- Side entry primary air spigot
- Total length 1100 – 1849 mm, width 403 mm, height 191 mm
- Installation and connections to be performed by others; fixing, connection and sealing material to be provided by others
- The induction unit has 4 levelling feet
- Heat exchangers are fitted with water flow and water return connections at the narrow side

L_N [mm]

Nominal length

L_{WA} [dB(A)]

Sound power level

t_{Pr} [°C]

Primary air temperature

t_{WV} [C°]

Water flow temperature – cooling/heating

t_R [C°]

Room temperature

t_R [C°]

Room temperature

t_{AN} [C°]

Secondary air intake temperature

Q_{Pr} [W]

Thermal output – primary air

Q_{tot} [W]

Thermal output – total

Q_w [W]

Thermal output – water side, cooling/heating

\dot{V}_{Pr} [l/s]

Primary air volume flow rate

\dot{V}_{Pr} [m³/h]

Primary air volume flow rate

\dot{V}_w [l/h]

Water flow rate – cooling/heating

\dot{V} [l/h]

Volume flow rate

Δt_w [K]

Temperature difference – water

Δp_w [kPa]

Pressure drop, water side

Δp_t [Pa]

Total pressure drop, air side

$\Delta t_{Pr} = t_{Pr} - t_R$ [K]

Difference between primary air temperature and room temperature

$\Delta t_{RWV} = t_{WV} - t_R$ [K]

Difference between water flow temperature and room temperature

Δt_{Wm-Ref} [K]

Difference between mean water temperature and reference temperature

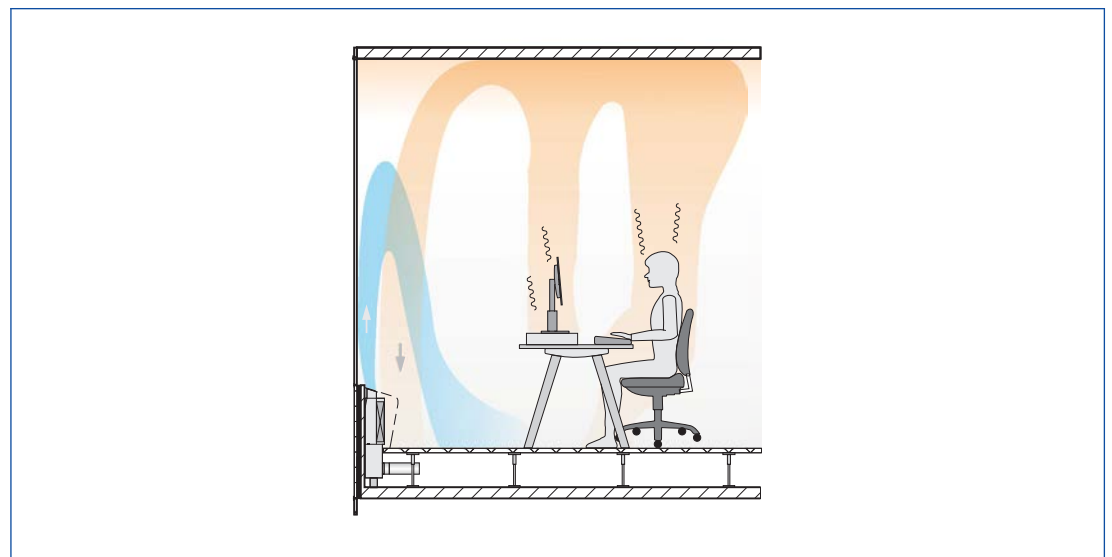
L_N [mm]

Nominal length

Inducing displacement flow

The supply air is discharged near the external wall and with a medium velocity between 1.0 and 1.5 m/s. Due to the induction effect the supply air velocity is rapidly reduced such that, in cooling mode, the supply air displaces the room air over the entire floor area. The convection from people and other heat sources causes the fresh air from the pool to rise and create comfortable conditions in the occupied zone.

Schematische Darstellung Misch-Quell-Lüftung



Heat exchanger

The maximum water-side operating pressure for all heat exchangers is 6 bar.

The maximum water flow temperature (heating circuit) for all heat exchangers is 75 °C; if flexible hoses are used, the water flow temperature should not exceed 55 °C. Units for other pressures

and temperatures are available on request.

The water flow temperature (cooling circuit) should be at least 16 °C such that it does not permanently fall below the dew point. For units with a condensate drip tray the water flow temperature may be reduced to 15 °C.

Heat exchanger as 2-pipe system

Air-water systems with a 2-pipe heat exchanger may be used for either heating or cooling. In

changeover mode it is possible to use all units within a water circuit exclusively for cooling in summer and exclusively for heating in winter.

Wärmeübertrager 2-Leiter-System



Heat exchanger as 4-pipe system

Air-water systems with a 4-pipe heat exchanger may be used for both heating and cooling. Depending on the season, i.e. especially in spring

and autumn, it may be possible that an office has to be heated in the morning and cooled in the afternoon.

Wärmeübertrager 4-Leiter-System

