ONLINE SELECTION TOOL
www.airselect.nl

SLIDE IN REHEAT COIL (HOT WATER | ELECTRIC)

FOR CAV & VAV TERMINALS

NOOO.OO TYPE

BARCOL-AIR
AIR DISTRIBUTION

Type designation

Composition type designation:

N - O - O - O - E - O - O

N Position 1: **Product group**

N = air volume control terminals

O Position 2: **Function**

. = For code, use specified CAV / VAV type designation

O Position 3: **Controls (manufacturer)**

O = without controls
For controls, contact our sales staff

O Position 4: **Distribution plenum**

. = For code, use specified CAV / VAV type designation

E Position 5: **Reheat coil**

A = 1-row hot water reheat coil
B = 2-row hot water reheat coill
D = 4-row hot water reheat coil
E = 1-stage 230VAC/1-phase electric reheat coil
F = 2-stage 230VAC/1-phase electric reheat coil
G = 3-stage 230VAC/1-phase electric reheat coil
H = 1-stage 400VAC/3-phase electric reheat coil
J = 2-stage 400VAC/3-phase electric reheat coil
T = 230VAC-1Ph Modulating control (Thyristor)
V = 400VAC-3Ph Modulating control (Thyristor)
1 = non standard, specify separately

O Position 6: **Controls (type & function)**

O = without controls
For controls, contact our sales staff

O Position 7: **Sensor**

O = not applicable

Ordering example 1: unit with hot water reheat coil

N	B	O	J	D	O	B		1	6	0	R		0	0	0	0
Type								Model			Handing controls		Capacity hot water reheat coil (Watt)			

(if applicable)

Ordering example 2: unit with electric reheat coil

N	S	O	R	E	O	B		2	0	0	R		1	0	0	0
Type								Model			Handing controls		Capacity electric reheat coil (Watt)			

(if applicable)

The slide in electric and hot-water reheat coils are applicable for all Barcol-Air CAV / VAV air terminals.

Ordering information:

Standard terminals:

- quantity of terminals
- complete 7 digit code
- terminal size or model
- air volume setting (V_{max}, V_{min} etc)
- control handing (standard right side)
- if applicable, electric reheat coil capacity
- supply or return air

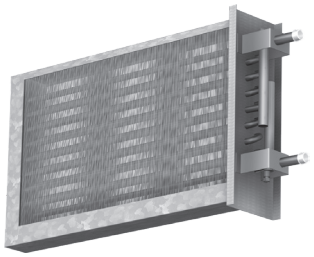
Non standard terminals:

- for non standard terminals a full description and/or drawing are requested.

Slide in reheat coil (hot water / electric)

Technical data

Type N...A.. / N...B.. / N...D..



Application

Types NOOOAOO, NOOOBOO and NOOODOO hot water reheat coils are suitable for incorporation in the HC Barcol-Air VAV and CAV terminals. The dimensions of these ”slide in” reheat coils are adapted to the dimensions and the airflow range of the corresponding VAV or CAV terminal size.

Technical information

Features:
- Factory fitted into the corresponding VAV or CAV terminal which saves valuable mounting time at site.
- High heat exchange efficiency.
- Available in 1-, 2- or 4-row design.
- Low air side pressure drop.

Construction:
- Copper tubes with aluminium fins.
- Test pressure 30 bar.
- Max. operating pressure (PN) 12,5 bar.
- Copper tube connections 12 or 15 mm.
- Suitable for all standard controls such as; 2- or 3-Way valves with Thermal-, 3-point or 0-10 VDC actuators.

Delivery format:
- The reheat coils are factory fitted into the corresponding CAV or VAV terminal.
- The connections are located, as standard, on the right hand side of the terminal when looking in the direction of air flow, unless otherwise requested.
- Coil connections are closed and protected with plastic caps.

Specify as:

The reheat coils are specified with the corresponding VAV or CAV terminals.

Selection example:

Given:
1. Reheat coil size: 160
2. Air flow: V = 0.097 m^3/s
3. Primary(entering) air temp.: EAT = 15°C
4. Hot water entering temp. : EWT = 65°C
5. Required capacity : P= 1400 W

Requested:
1. Capacity factor: W/°C
2. Water flow: Qw (l/h)
3. Water side pressure drop: Δ Pw (KPa)
4. Water side temp.difference: ΔTw (°C)
5. Water leaving temperature: LWT (°C)
6. Air side temp. difference: ΔTA (°C)
7. Air leaving temperature: LAT (°C)

Calculation:

1.*Capacity factor (see tabel Pn)*
C = EWT - EAT = 65 - 15 = 50°C
W/C = 1400 / 50 = 28 W

2.*Water flow (Q_W)*
The required capacity can be achieved by a 1-row coil.
100 l/h results in 26.4 W
175 l/h results in 30 W
By interpolation the final water quantity can be calculated:

$$Q_W = 100 + \frac{(28 - 26.4)}{(30 - 26.4)} \times (175-100) = 133.3 \text{ l/h}$$

3.Water-side pressure drop Δ Pw
At 100 l/h Δ Pw = 1.46 kPa, the pressure drop is related to the water flow to the 1.8th:

$$\Delta Pw = \left(\frac{133.3}{100}\right)^{1.8} \times 1.46 = 2.3 \text{ kPa}$$

4.Water side temperature difference (ΔT_W)

$$\mathbf{\Delta Tw = \frac{Q_W}{1.16}} = \frac{1400}{133.3 \times 1.16} = 9°C$$

5. Hot water leaving temperature (LWT)

$$\mathbf{LWT = EWT - \Delta T_W} = 65 - 9 = 56°C.$$

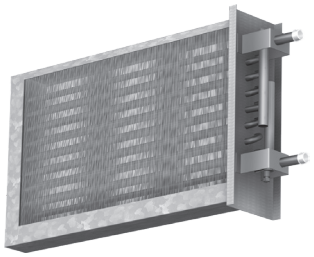
6.Air side temperature difference (ΔT_A)

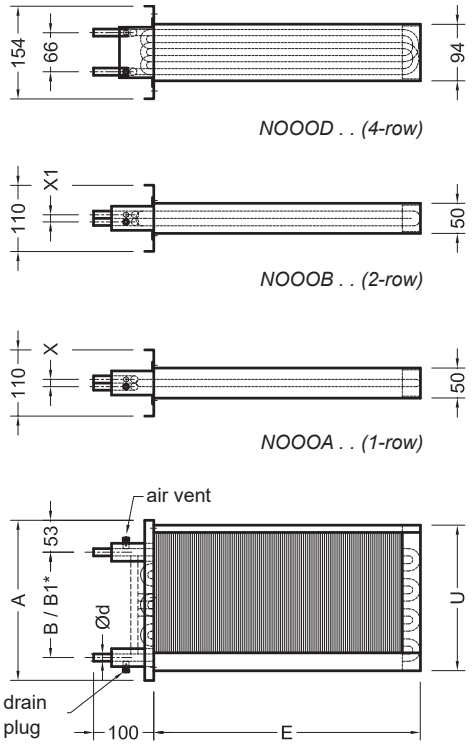
$$\Delta \mathbf{T_A = \frac{P}{V \times 1200}} = \frac{1400}{0.097 \times 1200} = 12°C$$

7. Air leaving temperature LAT

$$\mathbf{LAT = EAT + \Delta TA} = 15 + 12 = 27°C$$

Type N...A.. / N...B.. / N...D..





Type NOOOAOO, NOOOBOO, NOOODOO

Dimensions

Model	100	125	160	200	250	315	355	400
A	226	226	246	266	311	406	406	456
B	125	125	125	175	175	275	275	375
B1*	137.5	137.5	137.5	137.5	187.5	287.5	287.5	375
Ød	12	12	12	12	15	15	15	15
E	320	320	390	490	590	730	810	900
U	202	202	222	242	287	382	382	432
X	0	0	0	12	15	15	15	15
X1	12	12	12	12	15	15	15	15

Notes:
1. Dimensions in mm.
2. Different sizes available on request.
*3. * Size B1 applicable for 2-row and 4-row version.*

Slide in reheat coil (hot water / electric)

Selection table

Type N...A.. (1-row)
N...B.. (2-row)
N...D.. (4-row)

Selection; capacity factor (Pn), water flow (Qw) and pressure drop (ΔP) **8.7 - 466.5 W/1°CΔT**

Model	Air velocity at inlet m/s	Air volume l/s	CFM	m^3/h		1-row (NOOOAOO) heating capacity in W/1°CΔT (ΔT = EWT - EAT)				2-row (NOOOBOO) heating capacity in W/1°CΔT (ΔT = EWT - EAT)				4-row (NOOODOO) heating capacity in W/1°CΔT (ΔT = EWT - EAT)			
					Qw in l/h	**50**	**75**	**100**	**150**	**75**	**150**	**250**	**300**	**75**	**150**	**250**	**300**
					ΔPw in kPa	0.4	0.8	1.3	2.7	0.3	1.0	2.4	3.3	0.8	2.6	6.3	8.6
	2	15	32	54		9	9	10	10	13	14	15	15	17	17	18	18
	3	22	46	79		11	11	12	12	17	18	19	19	23	24	25	25
100	4	29	61	104		12	13	14	15	20	22	23	23	27	30	31	31
	5	37	78	133		13	15	16	17	22	25	27	28	32	36	37	38
	6	44	93	158		14	16	17	18	24	28	30	31	35	40	43	43
					Qw in l/h	**50**	**75**	**100**	**175**	**75**	**150**	**250**	**350**	**75**	**150**	**300**	**350**
					ΔP in kPa	0.4	0.8	1.3	3.6	0.3	1.0	2.4	4.4	0.8	2.6	8.6	11.3
	2	23	49	83		11	12	12	13	17	19	20	20	23	25	26	26
	3	35	74	126		13	14	15	16	21	25	26	27	31	34	36	37
125	4	47	99	169		15	16	18	19	25	29	31	33	36	42	45	46
	5	58	123	209		16	18	19	21	27	32	35	37	40	48	53	54
	6	70	148	252		17	19	21	23	29	35	39	41	43	53	60	61
					Qw in l/h	**50**	**75**	**100**	**175**	**75**	**150**	**250**	**350**	**75**	**150**	**300**	**350**
					ΔPw in kPa	0.4	0.9	1.5	3.9	0.3	1.1	2.7	4.8	0.8	2.8	9.6	12.6
	2	39	82	140		15	17	18	19	25	28	30	31	35	39	41	42
	3	58	123	209		18	20	21	24	30	35	39	40	43	51	56	57
160	4	77	163	277		20	22	24	27	33	41	45	47	48	61	68	69
	5	97	205	349		21	24	26	30	36	45	51	54	52	68	79	81
	6	116	246	418		22	26	28	33	38	49	55	59	55	74	88	91
					Qw in l/h	**50**	**100**	**150**	**200**	**75**	**200**	**300**	**400**	**75**	**200**	**300**	**400**
					ΔPw in kPa	0.1	0.3	0.6	1.0	0.5	2.7	5.4	9.0	1.3	7.1	14.4	23.9
	2	62	131	223		20	25	27	29	36	45	47	49	49	61	64	65
	3	91	193	328		23	29	33	35	42	56	60	63	58	80	85	88
200	4	122	258	439		25	33	37	40	46	65	71	74	64	95	103	108
	5	152	322	547		26	36	41	44	49	72	80	84	68	106	118	125
	6	183	388	659		27	38	44	48	52	78	88	93	70	116	131	140
					Qw in l/h	**75**	**125**	**175**	**225**	**150**	**250**	**350**	**450**	**150**	**250**	**350**	**450**
					ΔPw in kPa	0.2	0.5	0.9	1.4	1.8	4.4	8.0	12.4	4.8	11.8	21.3	33.1
	2	95	201	342		31	36	39	41	60	67	70	72	84	92	96	98
	3	144	305	518		35	42	46	49	72	83	89	92	103	120	128	132
250	4	192	406	691		38	46	52	55	81	95	103	108	115	139	152	159
	5	239	506	860		40	50	56	60	87	104	114	121	122	154	171	181
	6	287	608	1033		41	52	59	64	91	112	124	132	128	165	186	200
					Qw in l/h	**75**	**125**	**200**	**300**	**150**	**250**	**400**	**600**	**150**	**250**	**400**	**600**
					ΔPw in kPa	0.3	0.8	1.9	3.9	0.5	1.1	2.5	5.2	1.2	3.0	6.8	13.9
	2	153	324	551		46	56	64	70	85	99	110	116	116	137	150	157
	3	229	485	824		51	65	76	84	98	120	136	147	133	169	194	209
315	4	306	648	1102		55	71	85	96	106	134	156	172	142	189	227	251
	5	382	809	1375		57	75	92	105	112	144	172	192	147	203	251	284
	6	459	972	1652		58	79	97	112	116	152	184	209	150	213	270	312
					Qw in l/h	**100**	**200**	**300**	**400**	**175**	**300**	**450**	**650**	**175**	**300**	**450**	**650**
					ΔPw in kPa	0.6	2.1	4.2	7.0	0.6	1.7	3.4	6.4	1.7	4.5	9.1	17.3
	2	195	413	702		59	74	82	86	102	121	132	140	139	168	183	193
	3	292	618	1051		66	87	98	104	116	144	162	175	158	205	233	253
355	4	389	824	1400		70	96	110	118	126	161	184	203	168	229	269	299
	5	487	1031	1753		73	103	119	130	132	173	202	225	174	245	296	336
	6	584	1237	2102		76	109	127	139	137	183	216	244	178	257	317	366
					Qw in l/h	**150**	**250**	**350**	**450**	**200**	**350**	**550**	**700**	**200**	**350**	**550**	**700**
					ΔPw in kPa	0.3	0.6	1.2	1.8	1.2	3.1	6.8	10.4	3.1	8.4	18.5	28.3
	2	248	525	893		79	94	103	109	131	158	174	181	174	215	237	245
	3	371	786	1336		90	111	123	132	150	191	218	229	195	263	306	323
400	4	495	1048	1782		97	123	138	149	163	214	250	267	206	294	355	382
	5	619	1311	2228		102	131	150	163	171	231	276	297	213	314	393	429
	6	743	1574	2675		106	139	160	175	177	245	297	322	217	329	422	467

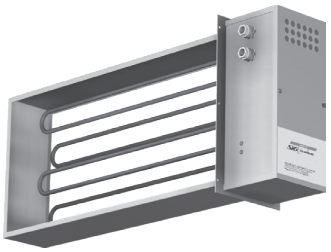
1. The selection above is to calculate the heating capacity per 1 degree temperature difference between entering water temperature (EWT) and entering air temperature (EAT).

2. To calculate water pressure drop (ΔPw) and leaving water temperature (LWT) see selection on page 4.

3. 4-Row coils can not be exchanged by 1- or 2-row coils.

4. When using ceiling diffusers or elevated wall grills, we recommend to not use a supply air temp. warmer than 35°C.

Type N...E.. / N...F.. / N...G..
N...H.. / N...J..



Application

Types N...E.., N...F.., N...G.., N...H.. and N...J.. electrical heating coils are suitable for incorporation in the Barcol-Air VAV and CAV terminals. The dimensions of these “slide in” reheat coils are adapted to the dimensions and the airflow range of the corresponding VAV or CAV terminal size.

Technical information

Features:
- Standard available from 500 to 9000 watt capacity.
- Factory fitted into the corresponding VAV or CAV terminal which saves valuable mounting time at site.
- Low air-side pressure loss.
- Available in 1 to 3 stage control type.
- 230VAC/1-phase or 400VAC/3-phase.
- 230VAC/1-phase or 400VAC/3-phase, Thyristor modulating control.

Construction:
- Heater element: stainless steel, CrNi (1.4541) 8 mm diameter.
- thermal ‘cut-out’: bimetal disc thermostat, auto reset (55ºC) (optional manual reset 70ºC).
- Controls enclosure: galvanized sheet steel.

Delivery format

Delivery format:
- The reheat coils are factory fitted into the corresponding CAV or VAV terminal.
- The connections are located, as standard, on the right hand side of the terminal when looking in the direction of air flow, unless otherwise requested.
- Standard supplied with 12A relays, suitable for control signal of 24VAC, optional solid state relays or thyristor controls are available.

Specify as:

Given:
Reheat coil size 200
Air flow: V = 0.122 m^3/s
Primary (entering) air temperature:
EAT = 15ºC
Required supply (leaving) air temperature
LAT = 35ºC

Requested:
The capacity of the electric reheat coil?

Calculation:
The required coil capacity can also be calculated using the formula:

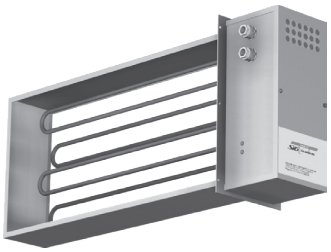
P = 1200 x V x ΔT

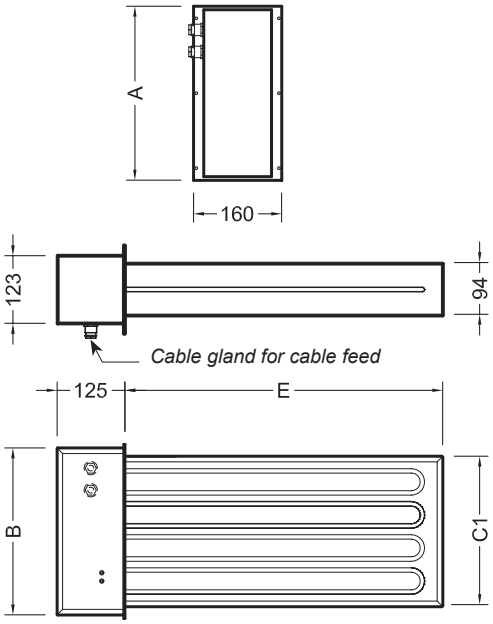
P = 1200 x 0.122 x 20 = 2928 W

Slide in reheat coil (hot water / electric)

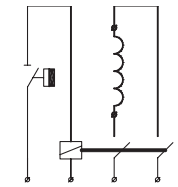
Dimensions

Type N...E.. / N...F.. / N...G..
N...H.. / N...J..

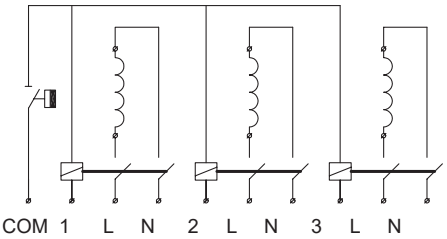




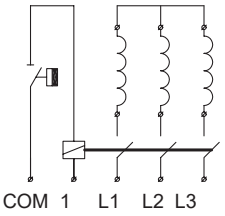
Type NOOOEOO



Wiring diagram, 1-stage, 230VAC/1-phase



Wiring diagram, 3-stage, 230VAC/1-phase



Wiring diagram, 1-stage, 400VAC/3-phase

Legend:

= *clixon*
= *relais*
N = *neutral*
COM = *common*
L 1/2/3 = *load*
= *coil*

Dimensions

Model	100	125	160	200	250	315	355	400
A	226	226	246	266	316	406	406	456
B	203	203	203	203	303	303	303	303
C1	183	183	203	223	273	363	363	413
E	307	307	377	477	577	717	797	887

Notes:
1. Dimensions in mm.
2. Other sizes available on request.

Type N...E.. / N...F.. / N...G.. N...H.. / N...J..

Selection table **53 - 4456 m³/h**

Model	Air velocity at inlet	Air volume			temperature increase due to electric reheat coil								
					1phase/230 VAC (maximum 12 A)						3phase/400 VAC (star)		
					0.5 KW	1 KW	1.5 KW	2 KW	2.5 KW	3 KW	4,5 KW	6 KW	9 KW
	m/s	l/s	CFM	m³/h	Δ T ºC	Δ T ºC	Δ T ºC	Δ T ºC	Δ T ºC	Δ T ºC	Δ T ºC	Δ T ºC	Δ T ºC
	2	15	31	53	28								
	4	29	62	106	14	28							
100	6	44	94	160	9	19	28						
	8	59	125	213	7	14	21	28					
	10	74	156	266	6	11	17	22					
	2	23	49	84	18								
	4	47	99	168	9	18	27						
125	6	70	149	253	6	12	18	24					
	8	94	198	337	4	9	13	18					
	10	117	248	421	4	7	11	14					
	2	39	82	139	11	21	32						
	4	78	164	279	5	11	16	21	27				
160	6	116	246	418	4	7	11	14	18	21			
	8	155	328	558	3	5	8	11	13	16			
	10	194	410	697		4	6	9	11	13			
	2	61	129	219		14	20	27					
	4	122	258	439		7	10	14	17	20			
200	6	183	387	658		5	7	9	11	14			
	8	244	516	878		3	5	7	9	10			
	10	305	645	1097		3	4	5	7	8			
	2	96	203	345			13	17	22	26			
	4	192	406	690			6	9	11	13	19		
250	6	288	609	1035			4	6	7	9	13		
	8	383	812	1380			3	4	5	6	10		
	10	479	1015	1725			3	3	4	5	8		
	2	153	324	550				11	14	16	24		
	4	306	648	1101				5	7	8	12	16	24
315	6	459	971	1651				4	5	5	8	11	16
	8	612	1295	2202				3	3	4	6	8	12
	10	764	1619	2752					3	3	5	7	10
	2	195	412	701				9	11	13	19	26	
	4	389	824	1401				4	5	6	10	13	19
355	6	584	1236	2102				3	4	4	6	9	13
	8	779	1649	2803					3	3	5	6	10
	10	973	2061	3503						3	4	5	8
	2	248	524	891				7	8	10	15	20	30
	4	495	1049	1783				3	4	5	8	10	15
400	6	743	1573	2674					3	3	5	7	10
	8	990	2097	3565							4	5	8
	10	1238	2621	4456							3	4	6

1. The maximum recommended supply air temperature is 35ºC. At this temperatue room heigth, supply air velocity, diffuser type and location has to be taken into account.

2. To calculate the capacity of an electric reheat coil, see selection example on page 5.

3. See price list for standard configurations and capacities.

BARCOL-AIR
AIR DISTRIBUTION

OUR TECHNOLOGY | YOUR WELLBEING

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