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# Active Chilled Beam

## ACB40

600mm Wide

2-way discharge cassette style Active Chilled Beam

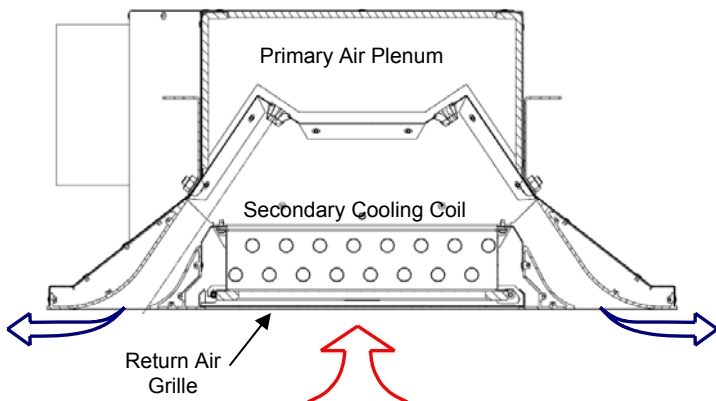
Product Information Release V.4 - January, 2012



# General Information

## ACB40

Dadanco ACB40 2-way Active Chilled Beams incorporate new patented technologies to deliver a breakthrough for higher energy efficiency perimeter and centre zone air conditioning using lower air quantities. Dadanco Active Chilled Beams provide efficient, effective and whisper-quiet air conditioning for almost any application.



ACB40 incorporates 2-way supply air discharge with a one piece perforated return air grille and a single 2-row horizontal secondary cooling coil.

Secondary room air is induced directly from the conditioned space to deliver localised secondary cooling and eliminate cross contamination between rooms or units.

### Advantages of Active Chilled Beams

- Dadanco Active Chilled Beams supply cooling, heating and the outdoor air required for ventilation in the conditioned space.
- Compact dimensions and intrinsically smaller duct sizes offer real savings in ceiling space requirements for new construction and HVAC refurbishment project.
- Fan power is dramatically reduced. The low primary air quantity is treated by the AHU and distributed at low pressure. The primary air is typically only 30-35% of the total air supplied by Dadanco Active Chilled Beams due to the use of efficient induction technology.
- Secondary air from the conditioned space is induced over the secondary heat exchanger, delivering localised sensible cooling, for **NO FAN ENERGY REQUIREMENT**
- ACB40 Active Chilled Beams provide 2-way supply air distribution for perimeter or internal zone applications
- ACB40 Active Chilled Beams are designed for 'Lay-In' installation in ceiling tile systems or in plasterboard ceilings using builders' ceiling frames
- ACB40 Active Chilled Beams deliver more cooling capacity using less treated air than any all-air system.
- Active Chilled Beams offer 2-stage capacity control through control of secondary water flow separate from primary air control.
- Noise radiated from Dadanco Active Chilled Beams is very low...

### Application Data – ACB40

COOLING	40 to 250 W/m <sup>2</sup>
LENGTH	Nominal 600 x 1200mm grille to suit standard suspended ceiling tile systems or plasterboard ceilings using a T-Bar style ceiling frame.  Unit lengths from 600mm to 1800mm available on request for any application
FEATURE	Standard Side or optional End entry primary air spigot connections  2-Pipe or 4-Pipe coil configurations
HEIGHT	281mm
INSULATION	Thermal insulation for the primary air plenum is standard
GRILLE	2-way discharge aluminium extrusion supply air grilles with one piece hinged centre return air grille
CONTROL	ACB40 units can be controlled in groups of units or individually as required

#### APPLICATIONS:

Dadanco Active Chilled Beam ACB40 is suited for either perimeter or internal zone in-ceiling installations in:

- Office Buildings
- New Construction & HVAC Refurbishment Projects
- Hospitals, Healthcare Facilities & Laboratories
- Schools and Institutional Buildings
- Airports

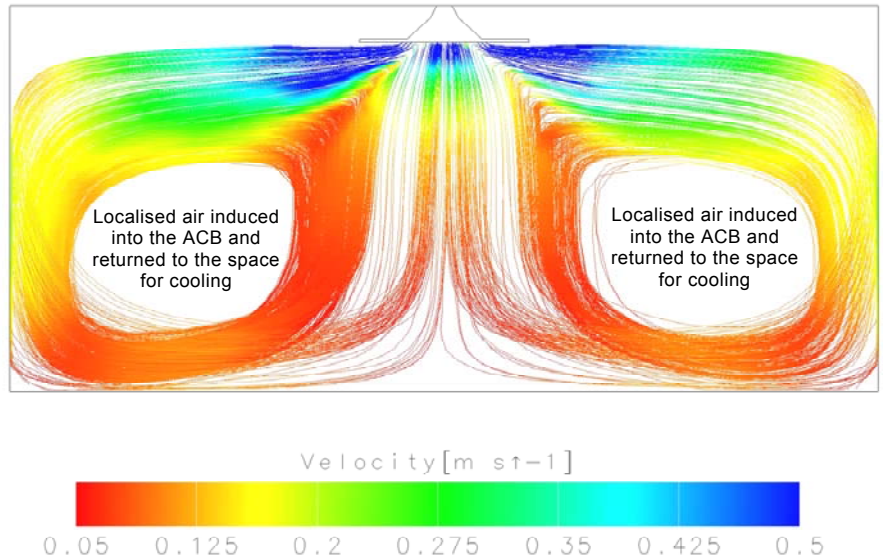
# General Information ACB40

## Typical ACB40 Air Distribution

The 2-way discharge air flow characteristics of Active Chilled Beam ACB40, created by the induction of secondary air through the centre of the unit, produces a unique air flow pattern resulting in thorough purging of air in the occupied space compared to most conventional all-air diffusion characteristics.

Entrainment of secondary air from within the conditioned space reduces the potential for cross-contamination between different zones within the building.

Relatively low terminal velocities can be maintained in the conditioned space.



## Eurovent Certified Product to Rating Standard EN15116

### General Product Technical Data

ACB40 2-Way Discharge Active Chilled Beam				
	ACB40-0450	ACB40-1050	ACB40-1350	ACB40-1650
Nominal Grille Face Size:	600 x 600mm	600 x 1200mm	600 x 1500	600 x 1800mm
Nominal Active Coil Length	450mm	1050mm	1350mm	1650mm
Primary Air Range $\leq 125\text{Pa}$ :	10 ~ 25 L/s	20 ~ 48 L/s	25 ~ 65 L/s	30 ~ 79 L/s
Nominal Cooling Capacity Range:	397 ~ 715 Watts	861 ~ 1616 Watts	796 ~ 1892 Watts	978 ~ 2353 Watts
Configuration:	2-Pipe only	2-Pipe or 4-Pipe	2-Pipe or 4-Pipe	2-Pipe or 4-Pipe

NOTE: Nominal cooling capacities based on 2-pipe coil @ 24°C room air, 12°C primary air, 14°C Entering Secondary Water Temperature and Secondary Water Flow Rate to achieve average Leaving Water Temperature of 17°C ( $\Delta T = 3^\circ\text{C}$ ) or minimum water flow of 0.03 L/s.

Primary Air Pressure  $\leq 125\text{Pa}$ .

Different performance results can be achieved for varying secondary water flow rates, entering water temperatures, primary air conditions and primary air pressures.

For selections at conditions and unit sizes other than those above please refer to selection tables or contact DADANCO for further assistance.

## New Technologies

Dadanco's Starline™ multi-lobe high performance induction nozzles and superior fluid dynamics design are combined into Dadanco ACB40 Active Chilled Beams for improved performance and lower noise characteristics.

Rather than relying on natural convection as with passive chilled beams, Dadanco ACB40 Active Chilled Beams use primary air to deliver ventilation air and induce secondary room air through the secondary cooling coil within the unit, delivering enhanced performance in one simple ceiling mounted package.

All Dadanco Active Chilled Beams utilize modern Computational fluid dynamics (CFD) analysis in product design and development.

#### DISCLAIMER

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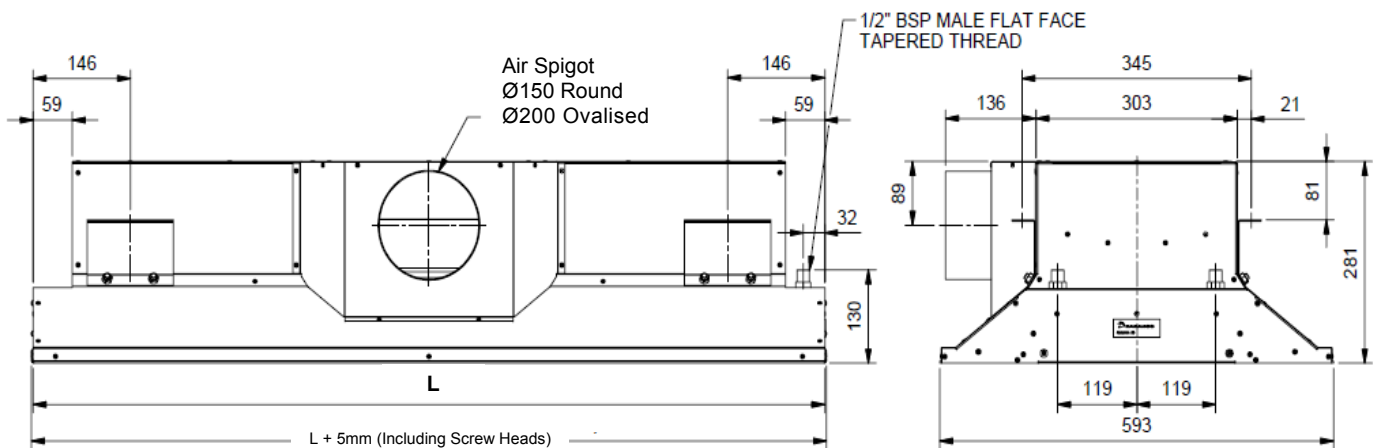


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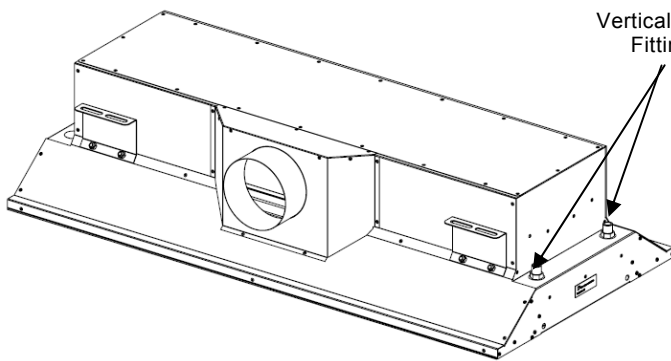
## DIMENSIONS

Standard ACB40 Active Chilled Beams are dimensioned as below based on active coil length to determine overall length

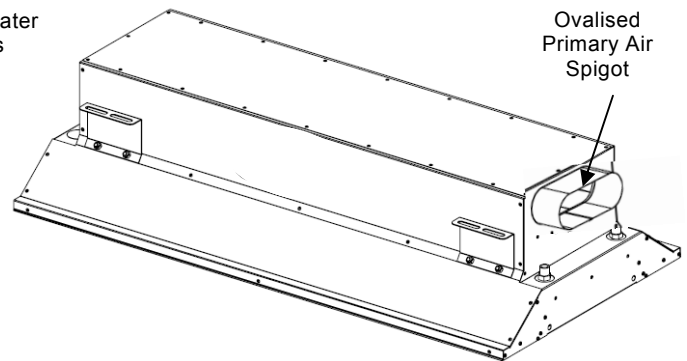
Nominal Length	Active Coil Length	Overall Grille Length (L)	Unit Weight
600mm	450mm	592mm	17 Kg
1200mm	1050mm	1192mm	31 Kg
1500mm	1350mm	1492mm	42 Kg
1800mm	1650mm	1792mm	52 Kg



## PRIMARY AIR CONNECTION OPTIONS



**Side Entry Primary Air with Right Hand Water Fittings**



**End Entry Primary Air**

## WATER HANDING OPTIONS

- Side Entry Primary Air — 150mm Round Spigot & Left or Right Hand fittings as viewed from the primary air spigot side
- Side Entry Primary Air — 200mm Ovalised Spigot & Left or Right Hand fittings as viewed from the primary air spigot side
- End Entry Primary Air — Ovalised Spigot & Same End or Opposite End fittings as viewed from the primary air spigot end

## STANDARD FEATURES

- 1/2" BSP male flat face tapered thread fittings
- Vertical water fittings
- One-piece perforated metal return air grille
- Ø150mm round or Ø200mm ovalised primary air spigot
- Insulated primary air plenum
- Interpon MA124A 'Satin White' Powdercoated Grille finish

## OPTIONAL FEATURES

- End entry primary air spigot
- Plain copper connections or other brass fittings
- 'Swing Down' accessible cooling coil for healthcare installations
- Ø100mm primary air spigot
- Un-Insulated primary air plenum
- Non-standard grille colors (on request)

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# ACB40 Guide Specification

## GUIDE SPECIFICATION ACB40

### Scope

Provide Dadanco Multi-directional (2-way discharge) ACB40, in-ceiling Active Chilled Beam units; fitted with low-noise, high efficiency patented Starline™ nozzles, with capacities as listed in the equipment schedule. The configuration of the units is shown on the drawings.

### Construction

Construct the active chilled beam casing(s) from 0.8mm galvanised steel panels to provide a compact unit with a primary air plenum, secondary air cooling coil, two air entrainment and discharge chambers and mounting support provisions.

Plenum: Fit two rows of the specified number and size of STARLINE™ induction nozzles to the primary air plenum, to discharge primary air into the air entrainment chambers. Provide an ovalised 150mm-diameter sheetmetal spigot located centrally on the longitude of the primary air plenum, or at one end of the primary air plenum, to permit connection of primary air flexible ductwork to the unit plenum.

Insulation (*Standard*): Self adhesive, fire retardant thermal insulation to the interior of the primary air plenum to prevent condensation forming on the outside of the unit.

Nozzles: Fit multi-lobed patented Starline™ induction nozzles of pliable fire-retardant polymer, designed for low noise generation and rapid secondary air entrainment. Provide the number and size of nozzles required to provide the primary airflow capacity specified for each unit.

Secondary cooling coil: Fit a single two-row (2-Pipe or 4-Pipe) secondary air coil of the specified length as required to achieve the specified secondary cooling capacity. Coil shall be constructed of galvanised steel end plates and frames with ½" copper tubes mechanically expanded into 0.145mm thickness rippled edge aluminium fins.

Provide ½" BSP male flat face tapered thread fittings on all coil connections. Water fittings are to be in a vertical arrangement to ensure no water pipes or connections overhang the overall length or width dimension of the unit.

Secondary coil maximum recommended site test pressure not to exceed 2500 kPa (25 Bar) with continuous maximum recommended operating pressure of 1680 kPa (16.8 Bar). Coil to be factory pressure tested to 2500 kPa and conform to a burst pressure rating of 13,000 kPa (130 Bar) at 50°C.

Grille: Provide an integral powder coat satin white finished combination supply/return air grille for each unit. The supply air grilles are to be 1-active slot smooth radiused aluminium extrusion grille along each longitudinal side and a pivot hinged one-piece perforated metal return air grille panel in the centre to provide ready access to the lint screen (*if required*) and secondary cooling coil. Provide for a captive return air grille panel openable by swinging the grille panel down on hinge pins secured to the unit return air opening frame.

The unit shall incorporate a commissioning tube to measure the static pressure in the plenum. The tube is to be made from flexible plastic, sealed air tight into the plenum and accessible through the return air grille opening for commissioning purposes.

Lint screen (*if required*): Fit a serviceable lint screen with frame to the face of the secondary heat exchanger above the openable return air grille. Fabricate the lint screen from fine plastic fabric mesh retained in a rectangular aluminium extrusion frame. Provide fixing clips to secure the lint screen frame to the secondary coil.

### Installation

To ensure the performance of the Active Chilled Beam, allow for the following:

- Ensure that the unit is level and the fixing is secure. Do not support weight of unit on T-Bar ceiling members.
- Connect to the main primary air duct with straight or gently radiused flexible duct. Make all joints airtight.
- Connect the secondary chilled water flow and return piping to the secondary air coil, including the supply and installation of the isolating and control valves as shown on the piping schematic.

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# ACB40 Active Chilled Beam Selection Tables

The following tables provide selection data for ACB40 unit sensible cooling performance across a range of primary air pressures and air quantities, primary air  $\Delta T$  and secondary air to entering water  $\Delta T$  for fixed value secondary water  $\Delta T$  of 3K or 4K.

**Selections where primary air quantity and operating parameters are known**

**Step 1:** Choose 2-Pipe or 4-Pipe ACB40 Active Chilled Beam and locate the correct table for the preferred unit size

**Step 2:** Determine the design secondary chilled water temperature differential (3K or 4K) — locate tables based on this value

**Step 3:** Determine the design primary air quantity and choose the value from one of the selection tables

**Step 4:** Determine the design primary air  $\Delta T_{PA}$  (Room Air—Primary Air) from the Primary Air Cooling header row and select the value where primary air quantity from Step 3 and primary air  $\Delta T_{PA}$  from Step 4 intersect.

Steps 3 & 4 will determine the primary air sensible cooling capacity (W)

**Step 5:** Determine the value where primary air quantity from Step 3 and primary air  $\Delta T_{PA}$  from Step 4 intersect.

Step 5 will determine the primary air sensible cooling capacity (W)

**Step 6:** Determine the design Room Air—Entering Secondary Water  $\Delta T_{SCA}$  from the correct water  $\Delta T$  table header row.

Move vertically from the selected water  $\Delta T_{SCA}$  value to the horizontal row corresponding to the primary air quantity and sensible cooling capacity selections in Steps 3 and 5 to determine Secondary Air Sensible Cooling (Coil Cooling) at that value.

NOTE: Secondary chilled water flow rate appears below the coil cooling capacity as the value in smaller font

**Chilled Beam sensible cooling is the sum of Primary Air Cooling and Secondary Coil Cooling (267 + 388 = 655W)**

**Example:**

**ACB40-0450.282 600x600 2 way Active Chilled Beam 2-pipe Step 1**

Primary Air	Supply Air	Static Pressure	Step 2												$Q_s$ (W)	Secondary Water $\Delta T = 3K$					$Q_s$ (W)
			Primary Air Cooling (W)						Secondary Air Cooling (W)							Secondary Air Cooling (W)					
			$\Delta T_{PA}$ ( $T_{Room} - T_{Primary Air}$ )						$\Delta T_{SCA}$ ( $T_{Room} - T_{Entering Secondary Water}$ )							$\Delta T_{SCA}$ ( $T_{Room} - T_{Entering Secondary Water}$ )					
L/s	L/s	Pa	8	9	10	11	12	13	14	8	9	10	11	12	8	9	10	11	12		
Configuration: 26-SN																					
10	39	59	-97	-109	-121	-133	-146	-158	-170	-148	-171	-194	-217	-240	<b>-340</b>	-137	-160	-183	-205	-228	<b>-329</b>
										0.03*	0.03*	0.03*	0.03*	0.03*		0.03*	0.03*	0.03*	0.03*	0.03*	
15	61	128	-146	-164	-182	-200	-218	-237	-255	-226	-261	-295	-330	-365	<b>-513</b>	-209	-243	-278	-313	-348	<b>-496</b>
										0.03*	0.03*	0.03*	0.03*	0.03*		0.03*	0.03*	0.03*	0.03*	0.03*	
Configuration: 34-SN																					
15	53	76	-146	-164	-182	-200	-218	-237	-255	-195	-225	-255	-285	-315	<b>-473</b>	-180	-210	-240	-270	-300	<b>-458</b>
										0.03*	0.03*	0.03*	0.03*	0.03*		0.03*	0.03*	0.03*	0.03*	0.03*	
20	73	133	-194	-218	-248	-267	-291	-315	-340	-251	-289	-328	-366	-417	<b>-619</b>	-231	-270	-309	-347	-386	<b>-600</b>
										0.03*	0.03*	0.03*	0.03*	0.033		0.03*	0.03*	0.03*	0.03*	0.03*	
Configuration: 34-MN																					
15	41	41	-146	-164	-182	-200	-218	-237	-255	-130	-150	-170	-190	-210	<b>-388</b>	-120	-140	-160	-180	-200	<b>-378</b>
										0.03*	0.03*	0.03*	0.03*	0.03*		0.03*	0.03*	0.03*	0.03*	0.03*	
20	58	71	-194	-218	-243	-267	-291	-315	-340	-197	-227	-258	-288	-318	<b>-549</b>	-182	-212	-243	-273	-303	<b>-534</b>
										0.03*	0.03*	0.03*	0.03*	0.03*		0.03*	0.03*	0.03*	0.03*	0.03*	
25	76	108	-243	-273	-303	-334	-364	-394	-425	-246	-283	-321	-359	-406	<b>-685</b>	-227	-264	-302	-340	-378	<b>-666</b>
										0.03*	0.03*	0.03*	0.03*	0.032		0.03*	0.03*	0.03*	0.03*	0.03*	

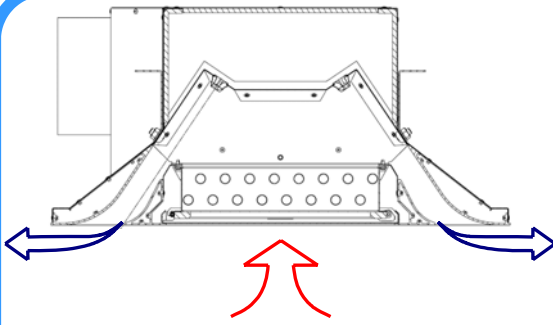
Water flow value of 0.03\* = minimum allowed water flow rate for all ACB models

Quick Select Values

$Q_s$  value in bold font = Quick Select value based on Room Air—Primary Air  $\Delta T$  of 12°C & Room Air - Entering Secondary Water  $\Delta T$  of 10°C for the corresponding primary air quantity and secondary water design  $\Delta T$  of 3K or 4K

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2-Way Discharge Active Chilled Beam



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### ACB40-0450.282 600x600 2-way Active Chilled Beam 2-pipe

Primary Air	Supply Air	Static Pressure	Primary Air Cooling (W)							Secondary Water $\Delta T = 3K$					$Q_s$ (W)	Secondary Water $\Delta T = 4K$					$Q_s$ (W)
			$\Delta T_{PA} (T_{Room} - T_{Primary Air})$							Secondary Air Cooling (W)						Secondary Air Cooling (W)					
L/s	L/s	Pa	8	9	10	11	12	13	14	Secondary Water Flow (L/s)					$\Delta T_{SCA} (T_{Room} - T_{Entering Secondary Water})$	Secondary Water Flow (L/s)					
										8	9	10	11	12			8	9	10	11	12
<b>Configuration: 16-SN</b>																					
10	50	149	-97	-109	-121	-133	-146	-158	-170	-202	-234	-265	-296	-327	<b>-411</b>	-187	-218	-249	-280	-311	<b>-395</b>
										0.03*	0.03*	0.03*	0.03*	0.03*		0.03*	0.03*	0.03*	0.03*	0.03*	
<b>Configuration: 26-SN</b>																					
10	39	59	-97	-109	-121	-133	-146	-158	-170	-148	-171	-194	-217	-240	<b>-340</b>	-137	-160	-183	-205	-228	<b>-329</b>
										0.03*	0.03*	0.03*	0.03*	0.03*		0.03*	0.03*	0.03*	0.03*	0.03*	
15	61	128	-146	-164	-182	-200	-218	-237	-255	-226	-261	-295	-330	-365	<b>-513</b>	-209	-243	-278	-313	-348	<b>-496</b>
										0.03*	0.03*	0.03*	0.03*	0.03*		0.03*	0.03*	0.03*	0.03*	0.03*	
<b>Configuration: 34-SN</b>																					
15	53	76	-146	-164	-182	-200	-218	-237	-255	-195	-225	-255	-285	-315	<b>-473</b>	-180	-210	-240	-270	-300	<b>-458</b>
										0.03*	0.03*	0.03*	0.03*	0.03*		0.03*	0.03*	0.03*	0.03*	0.03*	
20	73	133	-194	-218	-243	-267	-291	-315	-340	-251	-289	-328	-366	-417	<b>-619</b>	-231	-270	-309	-347	-386	<b>-600</b>
										0.03*	0.03*	0.03*	0.03*	0.033		0.03*	0.03*	0.03*	0.03*	0.03*	
<b>Configuration: 34-MN</b>																					
15	41	41	-146	-164	-182	-200	-218	-237	-255	-130	-150	-170	-190	-210	<b>-388</b>	-120	-140	-160	-180	-200	<b>-378</b>
										0.03*	0.03*	0.03*	0.03*	0.03*		0.03*	0.03*	0.03*	0.03*	0.03*	
20	58	71	-194	-218	-243	-267	-291	-315	-340	-197	-227	-258	-288	-318	<b>-549</b>	-182	-212	-243	-273	-303	<b>-534</b>
										0.03*	0.03*	0.03*	0.03*	0.03*		0.03*	0.03*	0.03*	0.03*	0.03*	
25	76	108	-243	-273	-303	-334	-364	-394	-425	-246	-283	-321	-359	-406	<b>-685</b>	-227	-264	-302	-340	-378	<b>-666</b>
										0.03*	0.03*	0.03*	0.03*	0.032		0.03*	0.03*	0.03*	0.03*	0.03*	

Water flow value of 0.03\* = minimum allowed water flow rate for all ACB models

$Q_s$  value in bold font = Quick Select value based on Room Air—Primary Air  $\Delta T$  of 12°C & Room Air - Entering Secondary Water  $\Delta T$  of 10°C for the corresponding primary air quantity and secondary water design  $\Delta T$  of 3K or 4K

NOTE 1: Higher or lower secondary coil capacities can be achieved for all ACB models for higher or lower secondary water flow rates and resulting changes in water  $\Delta T$ . For alternative or more detailed selections at different conditions, primary air quantities or secondary water flow rates; contact Dadanco for assistance.

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## ACB40-1050.282 1200x600 2-way Active Chilled Beam 2-pipe

Primary Air L/s	Supply Air L/s	Static Pressure Pa	Primary Air Cooling (W)							Secondary Water $\Delta T = 3K$					Secondary Water $\Delta T = 4K$											
			$\Delta T_{PA} (T_{Room} - T_{Primary Air})$							Secondary Air Cooling (W)					Secondary Air Cooling (W)											
			8	9	10	11	12	13	14	Secondary Water Flow (L/s)					Secondary Water Flow (L/s)											
														$\Delta T_{SCA} (T_{Room} - T_{Entering Secondary Water})$					$\Delta T_{SCA} (T_{Room} - T_{Entering Secondary Water})$							
														$Q_s$					$Q_s$							
														(W)					(W)							
<b>Configuration: 38-SN</b>																										
20	94	107	-194	-218	-243	-267	-291	-315	-340	-390	-475	-559	-643	-725	-850	-356	-415	-475	-548	-633	-766					
										0.031	0.038	0.045	0.051	0.058						0.03*	0.03*	0.03*	0.033	0.038		
25	122	165	-243	-273	-303	-334	-364	-394	-425	-540	-646	-751	-854	-957	-1115	-453	-540	-648	-755	-862	-1012					
										0.043	0.052	0.06	0.068	0.076						0.03*	0.032	0.039	0.045	0.052		
<b>Configuration: 44-SN</b>																										
20	88	81	-194	-218	-243	-267	-291	-315	-340	-351	-417	-494	-571	-647	-785	-324	-378	-432	-486	-556	-723					
										0.03*	0.033	0.04	0.046	0.052						0.03*	0.03*	0.03*	0.03*	0.033		
25	113	124	-243	-273	-303	-334	-364	-394	-425	-487	-587	-685	-781	-877	-1049	-419	-489	-583	-683	-783	-947					
										0.039	0.047	0.055	0.062	0.07						0.03*	0.03*	0.035	0.041	0.047		
<b>Configuration: 52-SN</b>																										
20	81	59	-194	-218	-243	-267	-291	-315	-340	-311	-358	-419	-488	-556	-710	-287	-335	-382	-430	-478	-673					
										0.03*	0.03*	0.034	0.039	0.044						0.03*	0.03*	0.03*	0.03*	0.03*		
25	104	90	-243	-273	-303	-334	-364	-394	-425	-427	-518	-608	-696	-784	-972	-380	-443	-509	-600	-690	-873					
										0.034	0.041	0.049	0.056	0.063						0.03*	0.03*	0.03*	0.036	0.041		
30	128	128	-291	-328	-364	-400	-437	-473	-509	-545	-652	-758	-862	-965	-1195	-456	-546	-655	-763	-870	-1092					
										0.044	0.052	0.061	0.069	0.077						0.03*	0.033	0.039	0.046	0.052		
<b>Configuration: 60-SN</b>																										
25	97	68	-243	-273	-303	-334	-364	-394	-425	-375	-457	-539	-621	-702	-903	-346	-404	-461	-527	-609	-825					
										0.03*	0.037	0.043	0.05	0.056						0.03*	0.03*	0.03*	0.032	0.037		
30	119	97	-291	-328	-364	-400	-437	-473	-509	-491	-591	-689	-787	-882	-1126	-421	-492	-588	-688	-788	-1025					
										0.039	0.047	0.055	0.063	0.07						0.03*	0.03*	0.035	0.041	0.047		
35	141	131	-340	-382	-425	-467	-509	-552	-594	-589	-702	-813	-923	-1032	-1322	-485	-593	-709	-823	-936	-1218					
										0.047	0.056	0.065	0.074	0.082						0.03*	0.036	0.042	0.049	0.056		
<b>Configuration: 70-SN</b>																										
30	111	72	-291	-328	-364	-400	-437	-473	-509	-437	-529	-620	-710	-799	-1057	-387	-451	-521	-614	-706	-958					
										0.035	0.042	0.05	0.057	0.064						0.03*	0.03*	0.031	0.037	0.042		
35	131	97	-340	-382	-425	-467	-509	-552	-594	-536	-642	-747	-850	-952	-1256	-450	-536	-643	-750	-856	-1152					
										0.043	0.051	0.06	0.068	0.076						0.03*	0.032	0.039	0.045	0.051		
40	152	126	-388	-437	-485	-534	-582	-631	-679	-621	-739	-854	-969	-1082	-1436	-508	-629	-749	-868	-985	-1331					
										0.05	0.059	0.068	0.077	0.086						0.03*	0.038	0.045	0.052	0.059		
45	174	158	-437	-491	-546	-600	-655	-710	-764	-695	-823	-948	-1072	-1196	-1603	-578	-710	-840	-969	-1097	-1495					
										0.056	0.066	0.076	0.086	0.096						0.035	0.043	0.05	0.058	0.066		
<b>Configuration: 78-SN</b>																										
35	124	79	-340	-382	-425	-467	-509	-552	-594	-492	-591	-690	-787	-883	-1199	-422	-492	-588	-689	-789	-1097					
										0.039	0.047	0.055	0.063	0.071						0.03*	0.03*	0.035	0.041	0.047		
40	144	102	-388	-437	-485	-534	-582	-631	-679	-578	-689	-799	-908	-1015	-1381	-477	-581	-695	-808	-919	-1277					
										0.046	0.055	0.064	0.073	0.081						0.03*	0.035	0.042	0.048	0.055		
45	164	128	-437	-491	-546	-600	-655	-710	-764	-653	-774	-894	-1013	-1130	-1549	-538	-663	-788	-911	-1033	-1443					
										0.052	0.062	0.071	0.081	0.09						0.032	0.04	0.047	0.055	0.062		
50	185	157	-485	-546	-606	-667	-728	-788	-849	-719	-850	-979	-1106	-1233	-1707	-601	-736	-870	-1002	-1133	-1598					
										0.057	0.068	0.078	0.088	0.098						0.036	0.044	0.052	0.06	0.068		
<b>Configuration: 60-MN</b>																										
35	117	70	-340	-382	-425	-467	-509	-552	-594	-444	-537	-630	-720	-810	-1139	-391	-456	-530	-623	-716	-1039					
										0.036	0.043	0.05	0.058	0.065						0.03*	0.03*	0.032	0.037	0.043		
40	137	90	-388	-437	-485	-534	-582	-631	-679	-540	-646	-751	-855	-957	-1333	-453	-540	-648	-756	-862	-1230					
										0.043	0.052	0.06	0.068	0.076						0.03*	0.032	0.039	0.045	0.052		
45	157	113	-437	-491	-546	-600	-655	-710	-764	-621	-739	-854	-969	-1082	-1509	-508	-629	-749	-868	-985	-1404					
										0.05	0.059	0.068	0.077	0.086						0.03*	0.038	0.045	0.052	0.059		
50	177	138	-485	-546	-606	-667	-728	-788	-849	-688	-814	-939	-1062	-1185	-1667	-571	-702	-832	-959	-1086	-1560					
										0.055	0.065	0.075	0.085	0.095						0.034	0.042	0.05	0.057	0.065		
55	196	165	-534	-600	-667	-734	-801	-867	-934	-746	-880	-1013	-1144	-1276	-1814	-626	-766	-904	-1040	-1174	-1705					
										0.06	0.07	0.081	0.091	0.102						0.038	0.046	0.054	0.062	0.07		

Water flow value of 0.03\* = minimum allowed water flow rate for all ACB models

NOTE: Higher or lower secondary coil capacities can be achieved for all ACB models for higher or lower secondary water flow rates and resulting changes in water  $\Delta T$ . For alternative or more detailed selections at different conditions, primary air quantities or secondary water flow rates; contact Dadanco for assistance.



## ACB40-1350.282 1500x600 2-way Active Chilled Beam 2-pipe

Primary Air L/s	Supply Air L/s	Static Pressure Pa	Primary Air Cooling (W)							Secondary Water $\Delta T = 3K$					$Q_s$ (W)	Secondary Water $\Delta T = 4K$					$Q_s$ (W)
			$\Delta T_{PA} (T_{Room} - T_{Primary Air})$							Secondary Air Cooling (W)						Secondary Air Cooling (W)					
			8	9	10	11	12	13	14	$\Delta T_{SCA} (T_{Room} - T_{Entering Secondary Water})$						$\Delta T_{SCA} (T_{Room} - T_{Entering Secondary Water})$					
L/s	L/s	Pa	8	9	10	11	12	13	14	8	9	10	11	12	8	9	10	11	12		
<b>Configuration: 50-SN</b>																					
25	91	97	-243	-273	-303	-334	-364	-394	-425	-310	-358	-419	-487	-556	-783	-287	-334	-382	-430	-478	-746
										0.03*	0.03*	0.034	0.039	0.044		0.03*	0.03*	0.03*	0.03*	0.03*	
30	112	138	-291	-328	-364	-400	-437	-473	-509	-446	-539	-631	-722	-812	-1068	-392	-457	-531	-625	-718	-968
										0.036	0.043	0.05	0.058	0.065		0.03*	0.03*	0.032	0.037	0.043	
<b>Configuration: 62-SN</b>																					
25	81	64	-243	-273	-303	-334	-364	-394	-425	-228	-263	-298	-333	-368	-662	-210	-245	-280	-315	-350	-644
										0.03*	0.03*	0.03*	0.03*	0.03*		0.03*	0.03*	0.03*	0.03*	0.03*	
30	100	91	-291	-328	-364	-400	-437	-473	-509	-343	-404	-479	-554	-629	-916	-316	-369	-422	-474	-538	-859
										0.03*	0.032	0.038	0.044	0.05		0.03*	0.03*	0.03*	0.03*	0.032	
35	120	123	-340	-382	-425	-467	-509	-552	-594	-467	-564	-659	-753	-846	-1168	-406	-474	-559	-655	-752	-1068
										0.037	0.045	0.053	0.06	0.068		0.03*	0.03*	0.034	0.039	0.045	
40	141	159	-388	-437	-485	-534	-582	-631	-679	-586	-699	-810	-920	-1029	-1392	-483	-591	-706	-820	-932	-1288
										0.047	0.056	0.065	0.073	0.082		0.03*	0.035	0.042	0.049	0.056	
<b>Configuration: 70-SN</b>																					
40	133	126	-388	-437	-485	-534	-582	-631	-679	-534	-640	-744	-847	-948	-1326	-449	-534	-641	-748	-853	-1223
										0.043	0.051	0.059	0.068	0.076		0.03*	0.032	0.038	0.045	0.051	
45	153	158	-437	-491	-546	-600	-655	-710	-764	-637	-757	-874	-991	-1106	-1529	-523	-646	-768	-890	-1009	-1423
										0.051	0.06	0.07	0.079	0.088		0.031	0.039	0.046	0.053	0.06	
<b>Configuration: 78-SN</b>																					
35	110	79	-340	-382	-425	-467	-509	-552	-594	-374	-456	-538	-620	-700	-1047	-345	-403	-461	-526	-608	-970
										0.03*	0.036	0.043	0.05	0.056		0.03*	0.03*	0.03*	0.032	0.036	
40	128	102	-388	-437	-485	-534	-582	-631	-679	-490	-590	-688	-785	-881	-1270	-421	-491	-587	-687	-787	-1169
										0.039	0.047	0.055	0.063	0.07		0.03*	0.03*	0.035	0.041	0.047	
45	146	128	-437	-491	-546	-600	-655	-710	-764	-592	-706	-818	-928	-1038	-1473	-487	-597	-713	-828	-942	-1368
										0.047	0.056	0.065	0.074	0.083		0.03*	0.036	0.043	0.05	0.056	
50	165	157	-485	-546	-606	-667	-728	-788	-849	-683	-808	-932	-1055	-1177	-1660	-566	-696	-825	-952	-1078	-1553
										0.055	0.065	0.074	0.084	0.094		0.034	0.042	0.049	0.057	0.065	
<b>Configuration: 88-SN</b>																					
50	154	124	-485	-546	-606	-667	-728	-788	-849	-614	-730	-845	-958	-1071	-1573	-501	-621	-740	-857	-974	-1468
										0.049	0.058	0.068	0.077	0.086		0.03*	0.037	0.044	0.051	0.058	
55	172	149	-534	-600	-667	-734	-801	-867	-934	-695	-823	-948	-1072	-1196	-1749	-578	-710	-841	-970	-1097	-1642
										0.056	0.066	0.076	0.086	0.096		0.035	0.043	0.05	0.058	0.066	
<b>Configuration: 96-SN</b>																					
55	161	126	-534	-600	-667	-734	-801	-867	-934	-622	-739	-855	-970	-1083	-1656	-509	-629	-750	-869	-986	-1551
										0.05	0.059	0.068	0.077	0.086		0.03*	0.038	0.045	0.052	0.059	
60	178	149	-582	-655	-728	-801	-873	-946	-1019	-698	-826	-952	-1076	-1200	-1825	-581	-713	-844	-973	-1101	-1717
										0.056	0.066	0.076	0.086	0.096		0.035	0.043	0.051	0.058	0.066	
<b>Configuration: 76-MN</b>																					
45	125	72	-437	-491	-546	-600	-655	-710	-764	-423	-513	-603	-691	-778	-1258	-378	-441	-505	-595	-685	-1160
										0.034	0.041	0.048	0.055	0.062		0.03*	0.03*	0.03*	0.036	0.041	
50	141	88	-485	-546	-606	-667	-728	-788	-849	-513	-616	-717	-817	-916	-1445	-435	-511	-615	-718	-821	-1343
										0.041	0.049	0.057	0.065	0.073		0.03*	0.031	0.037	0.043	0.049	
55	157	105	-534	-600	-667	-734	-801	-867	-934	-594	-708	-820	-931	-1040	-1621	-488	-599	-715	-830	-944	-1516
										0.047	0.057	0.066	0.074	0.083		0.03*	0.036	0.043	0.05	0.057	
60	173	124	-582	-655	-728	-801	-873	-946	-1019	-667	-791	-912	-1033	-1153	-1785	-551	-679	-806	-931	-1054	-1679
										0.053	0.063	0.073	0.083	0.092		0.033	0.041	0.048	0.056	0.063	
65	189	145	-631	-710	-788	-867	-946	-1025	-1104	-733	-866	-997	-1126	-1256	-1943	-614	-752	-888	-1022	-1154	-1834
										0.059	0.069	0.08	0.09	0.1		0.037	0.045	0.053	0.061	0.069	
70	205	167	-679	-764	-849	-934	-1019	-1104	-1189	-794	-935	-1074	-1213	-1351	-2093	-673	-819	-964	-1106	-1246	-1983
										0.063	0.075	0.086	0.097	0.108		0.04	0.049	0.058	0.066	0.075	
<b>Configuration: 82-MN</b>																					
50	134	76	-485	-546	-606	-667	-728	-788	-849	-463	-559	-653	-747	-839	-1381	-403	-470	-553	-649	-745	-1281
										0.037	0.045	0.052	0.06	0.067		0.03*	0.03*	0.033	0.039	0.045	
55	150	91	-534	-600	-667	-734	-801	-867	-934	-544	-651	-757	-861	-964	-1558	-456	-545	-653	-762	-869	-1454
										0.044	0.052	0.06	0.069	0.077		0.03*	0.033	0.039	0.046	0.052	
60	165	107	-582	-655	-728	-801	-873	-946	-1019	-619	-736	-851	-965	-1078	-1724	-506	-626	-746	-865	-981	-1619
										0.049	0.059	0.068	0.077	0.086		0.03*	0.038	0.045	0.052	0.059	
65	181	125	-631	-710	-788	-867	-946	-1025	-1104	-687	-813	-937	-1061	-1183	-1883	-570	-701	-830	-958	-1084	-1776
										0.055	0.065	0.075	0.085	0.094		0.034	0.042	0.05	0.057	0.065	
70	197	144	-679	-764	-849	-934	-1019	-1104	-1189	-749	-883	-1016	-1148	-1280	-2035	-629	-769	-907	-1043	-1178	-1926
										0.06	0.071	0.081	0.092	0.102		0.038	0.046	0.054	0.063	0.071	

## ACB40-1650.282 1800x600 2-way Active Chilled Beam 2-pipe

Primary Air	Supply Air	Static Pressure	Primary Air Cooling (W)							Secondary Water $\Delta T = 3K$					Secondary Water $\Delta T = 4K$							
										Secondary Air Cooling (W)					$Q_s$	Secondary Air Cooling (W)					$Q_s$	
			$\Delta T_{PA} (T_{Room} - T_{Primary Air})$							$\Delta T_{SCA} (T_{Room} - T_{Entering Secondary Water})$						$\Delta T_{SCA} (T_{Room} - T_{Entering Secondary Water})$						
L/s	L/s	Pa	8	9	10	11	12	13	14	8	9	10	11	12	(W)	8	9	10	11	12	(W)	
<b>Configuration: 60-SN</b>																						
30	109	97	-291	-328	-364	-400	-437	-473	-509	-368	-446	-526	-606	-686	-963	-340	-396	-453	-513	-594	-890	
										0.03*	0.036	0.042	0.048	0.055		0.03*	0.03*	0.03*	0.031	0.036		
35	131	131	-340	-382	-425	-467	-509	-552	-594	-534	-640	-744	-847	-948	-1253	-449	-534	-641	-748	-853	-1150	
										0.043	0.051	0.059	0.068	0.076		0.03*	0.032	0.038	0.045	0.051		
<b>Configuration: 70-SN</b>																						
30	101	72	-291	-328	-364	-400	-437	-473	-509	-302	-349	-404	-471	-537	-841	-279	-326	-372	-419	-465	-809	
										0.03*	0.03*	0.032	0.038	0.043		0.03*	0.03*	0.03*	0.03*	0.03*		
35	121	97	-340	-382	-425	-467	-509	-552	-594	-440	-532	-624	-714	-803	-1133	-388	-453	-524	-617	-709	-1033	
										0.035	0.043	0.05	0.057	0.064		0.03*	0.03*	0.031	0.037	0.043		
40	141	126	-388	-437	-485	-534	-582	-631	-679	-585	-698	-809	-918	-1027	-1391	-482	-589	-704	-818	-931	-1286	
										0.047	0.056	0.065	0.073	0.082		0.03*	0.035	0.042	0.049	0.056		
<b>Configuration: 78-SN</b>																						
40	134	102	-388	-437	-485	-534	-582	-631	-679	-515	-618	-720	-820	-919	-1302	-437	-513	-618	-721	-824	-1200	
										0.041	0.049	0.058	0.066	0.073		0.03*	0.031	0.037	0.043	0.049		
45	153	128	-437	-491	-546	-600	-655	-710	-764	-643	-763	-882	-999	-1115	-1537	-528	-652	-775	-897	-1017	-1430	
										0.051	0.061	0.07	0.08	0.089		0.032	0.039	0.046	0.054	0.061		
<b>Configuration: 88-SN</b>																						
45	146	102	-437	-491	-546	-600	-655	-710	-764	-585	-697	-808	-917	-1026	-1463	-482	-589	-703	-817	-930	-1358	
										0.047	0.056	0.065	0.073	0.082		0.03*	0.035	0.042	0.049	0.056		
50	165	124	-485	-546	-606	-667	-728	-788	-849	-696	-823	-949	-1074	-1198	-1677	-579	-711	-842	-971	-1098	-1570	
										0.056	0.066	0.076	0.086	0.096		0.035	0.043	0.05	0.058	0.066		
55	185	149	-534	-600	-667	-734	-801	-867	-934	-795	-936	-1076	-1214	-1353	-1877	-673	-820	-965	-1108	-1248	-1766	
										0.064	0.075	0.086	0.097	0.108		0.04	0.049	0.058	0.066	0.075		
<b>Configuration: 96-SN</b>																						
45	141	86	-437	-491	-546	-600	-655	-710	-764	-541	-648	-753	-857	-959	-1408	-454	-541	-650	-758	-864	-1305	
										0.043	0.052	0.06	0.068	0.077		0.03*	0.032	0.039	0.045	0.052		
50	160	105	-485	-546	-606	-667	-728	-788	-849	-652	-774	-894	-1012	-1130	-1622	-537	-663	-788	-911	-1032	-1516	
										0.052	0.062	0.071	0.081	0.09		0.032	0.04	0.047	0.055	0.062		
55	178	126	-534	-600	-667	-734	-801	-867	-934	-751	-886	-1020	-1152	-1284	-1821	-631	-772	-911	-1047	-1182	-1712	
										0.06	0.071	0.081	0.092	0.103		0.038	0.046	0.055	0.063	0.071		
60	197	149	-582	-655	-728	-801	-873	-946	-1019	-840	-988	-1133	-1279	-1425	-2006	-717	-870	-1021	-1170	-1317	-1894	
										0.067	0.079	0.091	0.102	0.114		0.043	0.052	0.061	0.07	0.079		
<b>Configuration: 106-SN</b>																						
55	169	104	-534	-600	-667	-734	-801	-867	-934	-684	-810	-934	-1057	-1179	-1735	-567	-698	-827	-954	-1080	-1628	
										0.055	0.065	0.075	0.084	0.094		0.034	0.042	0.05	0.057	0.065		
60	186	123	-582	-655	-728	-801	-873	-946	-1019	-774	-912	-1048	-1183	-1319	-1921	-653	-797	-938	-1078	-1216	-1811	
										0.062	0.073	0.084	0.095	0.105		0.039	0.048	0.056	0.065	0.073		
65	204	144	-631	-710	-788	-867	-946	-1025	-1104	-855	-1004	-1152	-1300	-1448	-2098	-731	-886	-1039	-1190	-1339	-1985	
										0.068	0.08	0.092	0.104	0.116		0.044	0.053	0.062	0.071	0.08		
<b>Configuration: 114-SN</b>																						
55	160	91	-534	-600	-667	-734	-801	-867	-934	-611	-728	-842	-955	-1067	-1643	-499	-618	-737	-854	-970	-1538	
										0.049	0.058	0.067	0.076	0.085		0.03*	0.037	0.044	0.051	0.058		
60	176	107	-582	-655	-728	-801	-873	-946	-1019	-704	-832	-959	-1084	-1209	-1832	-586	-719	-851	-981	-1109	-1724	
										0.056	0.066	0.077	0.087	0.097		0.035	0.043	0.051	0.059	0.066		
65	194	125	-631	-710	-788	-867	-946	-1025	-1104	-787	-927	-1066	-1203	-1341	-2012	-666	-812	-955	-1097	-1236	-1901	
										0.063	0.074	0.085	0.096	0.107		0.04	0.049	0.057	0.066	0.074		
<b>Configuration: 88-MN</b>																						
65	189	109	-631	-710	-788	-867	-946	-1025	-1104	-754	-889	-1022	-1155	-1288	-1968	-633	-775	-913	-1050	-1185	-1859	
										0.06	0.071	0.082	0.092	0.103		0.038	0.046	0.055	0.063	0.071		
70	205	126	-679	-764	-849	-934	-1019	-1104	-1189	-828	-973	-1117	-1261	-1405	-2136	-705	-856	-1005	-1152	-1298	-2024	
										0.066	0.078	0.089	0.101	0.112		0.042	0.051	0.06	0.069	0.078		
75	221	144	-728	-819	-910	-1001	-1092	-1183	-1274	-896	-1051	-1204	-1358	-1514	-2296	-770	-931	-1090	-1246	-1401	-2182	
										0.072	0.084	0.096	0.108	0.121		0.046	0.056	0.065	0.075	0.084		
<b>Configuration: 94-MN</b>																						
70	199	111	-679	-764	-849	-934	-1019	-1104	-1189	-789	-930	-1068	-1206	-1344	-2087	-668	-814	-958	-1100	-1240	-1977	
										0.063	0.074	0.085	0.096	0.107		0.04	0.049	0.057	0.066	0.074		
75	215	127	-728	-819	-910	-1001	-1092	-1183	-1274	-859	-1008	-1157	-1305	-1454	-2249	-735	-891	-1044	-1195	-1345	-2136	
										0.069	0.081	0.092	0.104	0.116		0.044	0.053	0.063	0.072	0.081		
80	231	143	-776	-873	-970	-1067	-1164	-1262	-1359	-922	-1081	-1239	-1397	-1557	-2403	-796	-961	-1123	-1283	-1442	-2287	
										0.074	0.086	0.099	0.112	0.124		0.048	0.058	0.067	0.077	0.086		
<b>Configuration: 100-MN</b>																						
70	192	99	-679	-764	-849	-934	-1019	-1104	-1189	-741	-874	-1006	-1137	-1268	-2025	-621	-760	-897	-1033	-1166	-1916	
										0.059	0.07	0.08	0.091	0.101		0.037	0.046	0.054	0.062	0.07		
75	207	113	-728	-819	-910	-1001	-1092	-1183	-1274	-810	-954	-1095	-1236	-1377	-2187	-688	-837	-984	-1129	-1271	-2076	
										0.065	0.076	0.087	0.099	0.11		0.041	0.05	0.059	0.068	0.076		
80	223	127	-776	-873	-970	-1067	-1164	-1262	-1359	-876	-1028	-1179	-1330	-1482	-2343	-751	-910	-1065	-1219	-1371	-2229	
										0.07	0.082	0.094	0.106	0.118		0.045	0.055	0.064	0.073	0.082		

## ACB40 2-Pipe Secondary Cooling Coil water pressure drop, kPa

Unit	Water Flow in L/s												
	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.1	0.11	0.12	0.13	0.14	0.15
ACB40-0450.282 (600x600mm)	1.4	2.2	3.3	4.5	5.8	7.3	8.9	10.7	12.6	14.6	16.8	19.1	21.5
ACB40-1050.282 (1200x600mm)	2.2	3.6	5.3	7.3	9.6	12.1	14.8	17.9	21.1	24.6	28.3	32.3	36.4
ACB40-1350.282 (1500x600mm)	2.6	4.3	6.3	8.7	11.4	14.5	17.8	21.4	25.4	29.6	34.1	38.9	43.9
ACB40-1650.282 (1800x600mm)	3.0	4.9	7.3	10.1	13.3	16.8	20.7	25.0	29.6	34.6	39.8	45.4	51.4

### Acoustic Data

ACB40 Summary - September 2011										
	63	125	250	500	1K	2K	4K	8K	Guidance Lp	
									NR	dB(A)
<b>1050mm coil length - 150mm spigot</b>	<b>Lw - Sound Power level (zero weighted) dB</b>									
Primary Air - L/s										
30		44	36	33	32	20	24	26	26	<b>32</b>
35		45	40	34	32	21	25	26	26	<b>32</b>
40		44	37	35	35	22	25	26	29	<b>33</b>
45		44	41	36	36	27	25	26	30	<b>34</b>
50		45	40	39	37	30	25	26	31	<b>35</b>
55		44	44	41	38	31	27	26	32	<b>37</b>
60		44	45	44	43	35	30	26	37	<b>41</b>
65		45	45	45	44	37	32	26	38	<b>42</b>
<b>1650mm coil length - 200mm spigot</b>	<b>Lw - Sound Power level (zero weighted) dB</b>									
Primary Air - L/s										
30		44	36	33	32	20	24	26	26	<b>32</b>
35		45	40	34	32	21	25	26	26	<b>32</b>
40		44	37	35	35	22	25	26	29	<b>33</b>
45		40	36	35	36	25	25	25	30	<b>32</b>
50		40	39	38	37	27	25	25	31	<b>34</b>
55		40	40	40	37	29	25	25	31	<b>35</b>
60		40	41	41	38	31	25	25	32	<b>36</b>
65		42	43	42	38	33	27	25	32	<b>37</b>
70		47	44	43	40	34	29	26	34	<b>38</b>
75		47	45	44	42	36	30	27	36	<b>40</b>
80		48	47	46	44	38	33	27	38	<b>42</b>
85		50	48	48	45	40	35	29	39	<b>44</b>
90		50	50	49	46	42	37	29	40	<b>45</b>
Measured Reverberation Time (Sec)		0.77	0.93	1.15	1.15	1.19	1.11	0.65		

Date: 28th June 2011

Room Dimensions: 8.72 x 3.92 x 2.7 (92.3m<sup>3</sup>)

Room Conditions: 23C, 42% RH, 1013 hPa

All measurements recorded in position "A" 1.2 m from both rear and side wall with microphone position 1.2m above floor level.

Sound Level Meter CEL 621C s/n 471171

Microphone CEL 251 s/n 877

Last calibration: 28th June 2011

#### DISCLAIMER

While every effort is made to ensure the details contained herein are kept up to date, in the interests of ongoing product development, Dadanco reserves the right to alter the information without notice

## ACB40 Active Chilled Beam 4-Pipe Cooling & Heating Selection Tables

The following tables provide selection data for ACB40 4-Pipe unit sensible cooling and heating performance across a range of primary air pressures and air quantities, primary air  $\Delta T$  and secondary air to entering water  $\Delta T$  for fixed value secondary water  $\Delta T$  of 3K and heating water  $\Delta T$  of 10K.

### Selections where primary air quantity and operating parameters are known

**Step 1:** Choose 4-Pipe ACB40 Active Chilled Beam selection table for the preferred unit length

**Step 2:** Determine the design primary air quantity and choose the value from the selection tables

**Step 3:** Determine the design primary air  $\Delta T_{PA}$  (Room Air—Primary Air) from the Primary Air Cooling header row. and move vertically from the  $\Delta T_{PA}$  value to the value where primary air quantity from Step 3 and primary air  $\Delta T_{PA}$  from Step 4 intersect. Steps 3 & 4 will determine the primary air sensible cooling capacity (W)

**Step 4:** Move vertically from Step 3  $\Delta T_{PA}$  value to the value where primary air quantity from Step 2 and primary air  $\Delta T_{PA}$  from Step 3 intersect.

Step 4 will determine the primary air sensible cooling capacity (W)

**NOTE:** For 4-pipe cooling selections the 4-Pipe selection tables contain cooling capacity de-rates and must be used. Do not use cooling capacity values from 2-Pipe selection tables where 4-pipe cooling & heating operation is being selected.

**Step 5:** For Cooling Selection: Determine the design Room Air—Entering Secondary Cooling Water  $\Delta T_{SCA}$  from the Secondary Water  $\Delta T$  table header row.

Move vertically from the selected  $\Delta T_{SCA}$  value to the horizontal row corresponding to the primary air quantity in Step 2 to determine Secondary Air Sensible Cooling Capacity at that primary air quantity.

**NOTE:** Secondary chilled water flow rate appears below the coil cooling capacity as the value in smaller font size

**Step 6:** For Heating Selection: Determine the design Entering Heating Water—Room Air  $\Delta T_{SHA}$  from the Heating Water  $\Delta T$  table header row.

Move vertically from the selected  $\Delta T_{SHA}$  value to the horizontal row corresponding to the primary air quantity in Step 2 to determine Air Heating (Coil Heating) at that primary air quantity.

**NOTE 1:** Heating selections assume primary air temperature is thermally neutral to room air temperature. If heating room air to primary air temperature differential exists, calculate primary air heating or cooling offset value and add or subtract that value to or from heating coil capacity value to determine unit total heating performance.

**NOTE 2:** Heating water flow rates appear below the coil heating capacity as the value in smaller font size

**Chilled Beam sensible cooling is the sum of Primary Air Cooling and Secondary Coil Cooling (267 + 408 = 675W)**

**Chilled Beam heating is the sum of Coil Heating and any Primary Air offset value (730 + 0 = 730W)**

### Example:

#### ACB40-1050.482 1200x600 2-way Active Chilled Beam 4-pipe Step 1

Primary Air	Supply Air	Static Pressure	Secondary Water $\Delta T = 3K$												Heating Water $\Delta T = 10K$						
			Primary Air Cooling (W)												Secondary Air Cooling (W)		Secondary Air Heating (W)		Qs		
			$\Delta T_{PA} (T_{Room} - T_{Primary Air})$												$\Delta T_{SCA} (T_{Room} - T_{Entering Secondary Water})$		$\Delta T_{SHA} (T_{Entering Heating Water} - T_{Room})$		Qs		
L/s	L/s	Pa	8	9	10	11	12	13	14	8	9	10	11	12	(W)	20	25	30	35	40	(W)
Configuration: 38-SN			Step 3						Step 5						Step 6						
20	94	107	-194	-218	-243	-267	-291	-315	-340	-344	-406	-432	-557	-632	-773	478	637	796	1023	1280	796
										0.03*	0.032	0.039	0.045	0.05		0.02*	0.02*	0.02*	0.024	0.031	
25	122	165	-243	-273	-303	-334	-364	-394	-425	-498	-599	-699	-797	-893	-1063	598	797	1038	1411	1736	1088
										0.04	0.048	0.056	0.064	0.071		0.02*	0.02*	0.026	0.034	0.042	
Configuration: 44-SN			Step 4						Step 5						Step 6						
20	88	81	-194	-218	-243	-267	-291	-315	-340	-305	-352	-408	-476	-542	-699	438	584	730	897	1128	730
										0.03*	0.03*	0.033	0.038	0.043		0.02*	0.02*	0.02*	0.021	0.027	
25	113	124	-243	-273	-303	-334	-364	-394	-425	-440	-532	-624	-714	-803	-988	556	741	977	1274	1577	977
										0.035	0.043	0.05	0.057	0.064		0.02*	0.02*	0.023	0.03	0.038	

Quick Select Values



# ACB40 Active Chilled Beam 4-Pipe Cooling & Heating Selection Tables



Dadanco Pty Ltd participates in the ECC programme for Active Chilled Beams. Check ongoing validity of the certificate: [www.eurovent-certification.com](http://www.eurovent-certification.com) or [www.certiflash.com](http://www.certiflash.com)



## ACB40-0450.482 600x600 2-way Active Chilled Beam 4-pipe

Primary Air L/s	Supply Air L/s	Static Pressure Pa	Primary Air Cooling (W)							Secondary Water $\Delta T = 3K$					$Q_s$ (W)	Heating Water $\Delta T = 10K$					$Q_H$ (W)
			$\Delta T_{PA} (T_{Room} - T_{Primary Air})$							Secondary Air Cooling (W)						Secondary Air Heating (W)					
			8	9	10	11	12	13	14	Secondary Water Flow (L/s)						Heating Water Flow (L/s)					
8	9	10	11	12	13	14	$\Delta T_{SCA} (T_{Room} - T_{Entering Secondary Water})$					$\Delta T_{SHA} (T_{Entering Heating Water} - T_{Room})$									
L/s	L/s	Pa	8	9	10	11	12	13	14	8	9	10	11	12		20	25	30	35	40	
Configuration: 16-SN																					
10	50	149	-97	-109	-121	-133	-146	-158	-170	-189	-218	-247	-276	-306	<b>-393</b>	247	330	412	495	577	<b>412</b>
										0.03*	0.03*	0.03*	0.03*	0.03*		0.02*	0.02*	0.02*	0.02*	0.02*	
Configuration: 26-SN																					
10	39	59	-97	-109	-121	-133	-146	-158	-170	-128	-148	-168	-188	-207	<b>-314</b>	185	247	309	371	432	<b>309</b>
										0.03*	0.03*	0.03*	0.03*	0.03*		0.02*	0.02*	0.02*	0.02*	0.02*	
15	61	128	-146	-164	-182	-200	-218	-237	-255	-215	-249	-282	-315	-348	<b>-500</b>	274	366	457	548	640	<b>457</b>
										0.03*	0.03*	0.03*	0.03*	0.03*		0.02*	0.02*	0.02*	0.02*	0.02*	
Configuration: 34-SN																					
15	53	76	-146	-164	-182	-200	-218	-237	-255	-181	-208	-236	-264	-292	<b>-454</b>	239	318	398	477	557	<b>398</b>
										0.03*	0.03*	0.03*	0.03*	0.03*		0.02*	0.02*	0.02*	0.02*	0.02*	
20	73	133	-194	-218	-243	-267	-291	-315	-340	-243	-281	-318	-355	-400	<b>-609</b>	302	403	504	605	706	<b>504</b>
										0.03*	0.03*	0.03*	0.03*	0.032		0.02*	0.02*	0.02*	0.02*	0.02*	
Configuration: 34-MN																					
15	41	41	-146	-164	-182	-200	-218	-237	-255	-108	-125	-141	-158	-174	<b>-359</b>	165	219	274	329	384	<b>274</b>
										0.03*	0.03*	0.03*	0.03*	0.03*		0.02*	0.02*	0.02*	0.02*	0.02*	
20	58	71	-194	-218	-243	-267	-291	-315	-340	-183	-211	-239	-268	-296	<b>-530</b>	241	322	402	482	563	<b>402</b>
										0.03*	0.03*	0.03*	0.03*	0.03*		0.02*	0.02*	0.02*	0.02*	0.02*	
25	76	108	-243	-273	-303	-334	-364	-394	-425	-237	-274	-311	-347	-387	<b>-675</b>	297	395	494	593	692	<b>494</b>
										0.03*	0.03*	0.03*	0.03*	0.031		0.02*	0.02*	0.02*	0.02*	0.02*	

### Notes for all 4-Pipe ACB Selection Tables

Cooling Water flow value of 0.03\* = minimum allowed cooling water flow rate for all ACB models

Heating Water flow value of 0.02\* = minimum allowed heating water flow rate for all ACB models

$Q_s$  value in bold font = Cooling Quick Select value based on Room Air—Primary Air  $\Delta T$  of 12°C & Room Air - Entering Secondary Water  $\Delta T$  of 10°C for the corresponding primary air quantity and secondary cooling water design  $\Delta T$  of 3K

$Q_H$  value in bold font = Heating Quick Select value based on thermally neutral Primary Air & Entering Heating Water—Room Air  $\Delta T_{SHA}$  of 30°C for the corresponding primary air quantity and heating water design  $\Delta T$  of 10K

NOTE 1: Higher or lower secondary coil cooling and heating capacities can be achieved for all ACB models for higher or lower secondary water flow rates and resulting changes in water  $\Delta T$ . For alternative or more detailed selections at different conditions, primary air quantities or secondary water flow rates; contact Dadanco for assistance.

NOTE 2: Heating values are coil heating values only and DO NOT include any primary air positive or negative heating contribution. Determine any positive or negative primary air heating contribution based on room air to primary air temperature differential and add or subtract that value to or from coil heating value to determine total unit heating performance.

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## ACB40-1050.482 1200x600 2-way Active Chilled Beam 4-pipe

Primary Air	Supply Air	Static Pressure	Primary Air Cooling (W)												Secondary Water $\Delta T = 3K$					Heating Water $\Delta T = 10K$											
			$\Delta T_{PA} (T_{Room} - T_{Primary Air})$												Secondary Air Cooling (W)					$Q_s$	Secondary Air Heating (W)					$Q_H$					
			8	9	10	11	12	13	14	8	9	10	11	12	8	9	10	11	12		(W)	20	25	30	35		40	(W)			
L/s	L/s	Pa	8	9	10	11	12	13	14	8	9	10	11	12	8	9	10	11	12	(W)	20	25	30	35	40	(W)					
Configuration: 38-SN																															
20	94	107	-194	-218	-243	-267	-291	-315	-340	-344	-406	-482	-557	-632	-773	478	637	796	1023	1280	796	0.03*	0.032	0.039	0.045	0.05	0.02*	0.02*	0.02*	0.024	0.031
25	122	165	-243	-273	-303	-334	-364	-394	-425	-498	-599	-699	-797	-893	-1063	598	797	1088	1411	1736	1088	0.04	0.048	0.056	0.064	0.071	0.02*	0.02*	0.026	0.034	0.042
Configuration: 44-SN																															
20	88	81	-194	-218	-243	-267	-291	-315	-340	-305	-352	-408	-476	-542	-699	438	584	730	897	1128	730	0.03*	0.03*	0.033	0.038	0.043	0.02*	0.02*	0.02*	0.021	0.027
25	113	124	-243	-273	-303	-334	-364	-394	-425	-440	-532	-624	-714	-803	-988	556	741	977	1274	1577	977	0.035	0.043	0.05	0.057	0.064	0.02*	0.02*	0.023	0.03	0.038
Configuration: 52-SN																															
20	81	59	-194	-218	-243	-267	-291	-315	-340	-260	-300	-340	-382	-439	-631	392	523	654	784	959	654	0.03*	0.03*	0.03*	0.03*	0.035	0.02*	0.02*	0.02*	0.02*	0.023
25	104	90	-243	-273	-303	-334	-364	-394	-425	-373	-454	-536	-618	-698	-900	508	677	852	1118	1393	852	0.03*	0.036	0.043	0.049	0.056	0.02*	0.02*	0.02*	0.027	0.033
30	128	128	-291	-328	-364	-400	-437	-473	-509	-505	-606	-706	-805	-903	-1143	602	803	1099	1424	1752	1099	0.04	0.048	0.056	0.064	0.072	0.02*	0.02*	0.026	0.034	0.042
Configuration: 60-SN																															
25	97	68	-243	-273	-303	-334	-364	-394	-425	-332	-386	-459	-532	-605	-823	466	621	776	984	1232	776	0.03*	0.031	0.037	0.043	0.048	0.02*	0.02*	0.02*	0.024	0.029
30	119	97	-291	-328	-364	-400	-437	-473	-509	-444	-537	-629	-720	-809	-1066	559	745	985	1284	1587	985	0.035	0.043	0.05	0.058	0.065	0.02*	0.02*	0.024	0.031	0.038
35	141	131	-340	-382	-425	-467	-509	-552	-594	-554	-662	-769	-874	-978	-1278	637	858	1194	1540	1886	1194	0.044	0.053	0.061	0.07	0.078	0.02*	0.021	0.029	0.037	0.045
Configuration: 70-SN																															
30	111	72	-291	-328	-364	-400	-437	-473	-509	-383	-467	-551	-634	-715	-988	516	688	872	1144	1424	872	0.031	0.037	0.044	0.051	0.057	0.02*	0.02*	0.021	0.027	0.034
35	131	97	-340	-382	-425	-467	-509	-552	-594	-495	-595	-694	-791	-888	-1203	595	793	1080	1402	1725	1080	0.04	0.048	0.055	0.063	0.071	0.02*	0.02*	0.026	0.034	0.041
40	152	126	-388	-437	-485	-534	-582	-631	-679	-590	-704	-815	-925	-1034	-1397	664	912	1265	1625	1984	1265	0.047	0.056	0.065	0.074	0.083	0.02*	0.022	0.03	0.039	0.048
45	174	158	-437	-491	-546	-600	-655	-710	-764	-674	-798	-921	-1042	-1163	-1576	724	1039	1429	1822	2210	1429	0.054	0.064	0.074	0.083	0.093	0.02*	0.025	0.034	0.044	0.053
Configuration: 78-SN																															
35	124	79	-340	-382	-425	-467	-509	-552	-594	-444	-537	-630	-720	-810	-1139	559	745	985	1285	1589	985	0.036	0.043	0.05	0.058	0.065	0.02*	0.02*	0.024	0.031	0.038
40	144	102	-388	-437	-485	-534	-582	-631	-679	-541	-648	-753	-857	-959	-1335	628	839	1169	1511	1851	1169	0.043	0.052	0.06	0.068	0.077	0.02*	0.02*	0.028	0.036	0.044
45	164	128	-437	-491	-546	-600	-655	-710	-764	-626	-744	-860	-975	-1089	-1515	689	965	1335	1709	2080	1335	0.05	0.059	0.069	0.078	0.087	0.02*	0.023	0.032	0.041	0.05
50	185	157	-485	-546	-606	-667	-728	-788	-849	-700	-828	-955	-1080	-1204	-1683	744	1081	1483	1886	2283	1483	0.056	0.066	0.076	0.086	0.096	0.02*	0.026	0.036	0.045	0.055
Configuration: 60-MN																															
35	117	70	-340	-382	-425	-467	-509	-552	-594	-391	-476	-561	-645	-728	-1070	521	695	887	1161	1445	887	0.031	0.038	0.045	0.052	0.058	0.02*	0.02*	0.021	0.028	0.035
40	137	90	-388	-437	-485	-534	-582	-631	-679	-499	-600	-699	-797	-894	-1281	598	797	1089	1411	1736	1089	0.04	0.048	0.056	0.064	0.071	0.02*	0.02*	0.026	0.034	0.042
45	157	113	-437	-491	-546	-600	-655	-710	-764	-590	-704	-815	-925	-1034	-1470	664	912	1265	1625	1984	1265	0.047	0.056	0.065	0.074	0.083	0.02*	0.022	0.03	0.039	0.048
50	177	138	-485	-546	-606	-667	-728	-788	-849	-665	-789	-910	-1030	-1150	-1638	718	1026	1412	1803	2188	1412	0.053	0.063	0.073	0.082	0.092	0.02*	0.025	0.034	0.043	0.052
55	196	165	-534	-600	-667	-734	-801	-867	-934	-731	-863	-993	-1123	-1252	-1794	766	1128	1544	1958	2366	1544	0.058	0.069	0.079	0.09	0.1	0.02*	0.027	0.037	0.047	0.057

NOTE 2: Heating values are coil heating values only and DO NOT include any primary air positive or negative heating contribution. Determine any positive or negative primary air heating contribution based on room air to primary air temperature differential and add or subtract that value to or from coil heating value to determine total unit heating performance.

## ACB40-1350.482 1500x600 2-way Active Chilled Beam 4-pipe

Primary Air L/s	Supply Air L/s	Static Pressure Pa	Primary Air Cooling (W)										Secondary Water $\Delta T = 3K$					Heating Water $\Delta T = 10K$						
			$\Delta T_{PA} (T_{Room} - T_{Primary Air})$										Secondary Air Cooling (W)					$Q_S$ (W)	Secondary Air Heating (W)					$Q_H$ (W)
			8	9	10	11	12	13	14	8	9	10	11	12	20	25	30		35	40				
<b>Configuration: 50-SN</b>																								
25	91	97	-243	-273	-303	-334	-364	-394	-425	-234	-270	-307	-343	-380	-671	402	537	671	805	997	671			
										0.03*	0.03*	0.03*	0.03*	0.03*		0.02*	0.02*	0.02*	0.02*	0.024				
30	112	138	-291	-328	-364	-400	-437	-473	-509	-362	-436	-516	-595	-673	-953	533	710	917	1199	1489	917			
										0.03*	0.035	0.041	0.048	0.054		0.02*	0.02*	0.022	0.029	0.036				
<b>Configuration: 62-SN</b>																								
25	81	64	-243	-273	-303	-334	-364	-394	-425	-142	-163	-185	-207	-229	-549	308	410	513	615	718	513			
										0.03*	0.03*	0.03*	0.03*	0.03*		0.02*	0.02*	0.02*	0.02*	0.02*				
30	100	91	-291	-328	-364	-400	-437	-473	-509	-270	-312	-354	-404	-463	-791	439	586	732	902	1134	732			
										0.03*	0.03*	0.03*	0.032	0.037		0.02*	0.02*	0.02*	0.022	0.027				
35	120	123	-340	-382	-425	-467	-509	-552	-594	-381	-464	-548	-630	-712	-1057	550	734	963	1256	1556	963			
										0.03*	0.037	0.044	0.05	0.057		0.02*	0.02*	0.023	0.03	0.037				
40	141	159	-388	-437	-485	-534	-582	-631	-679	-515	-618	-720	-820	-919	-1302	646	876	1218	1569	1918	1218			
										0.041	0.049	0.058	0.066	0.073		0.02*	0.021	0.029	0.038	0.046				
<b>Configuration: 70-SN</b>																								
40	133	126	-388	-437	-485	-534	-582	-631	-679	-456	-551	-644	-737	-828	-1226	604	805	1103	1430	1758	1103			
										0.036	0.044	0.051	0.059	0.066		0.02*	0.02*	0.026	0.034	0.042				
45	153	158	-437	-491	-546	-600	-655	-710	-764	-572	-683	-793	-900	-1007	-1448	687	960	1328	1702	2072	1328			
										0.046	0.055	0.063	0.072	0.08		0.02*	0.023	0.032	0.041	0.05				
<b>Configuration: 78-SN</b>																								
35	110	79	-340	-382	-425	-467	-509	-552	-594	-306	-353	-411	-478	-545	-920	475	634	792	1015	1270	792			
										0.03*	0.03*	0.033	0.038	0.044		0.02*	0.02*	0.02*	0.024	0.03				
40	128	102	-388	-437	-485	-534	-582	-631	-679	-407	-494	-581	-667	-752	-1163	569	758	1010	1316	1625	1010			
										0.032	0.04	0.046	0.053	0.06		0.02*	0.02*	0.024	0.031	0.039				
45	146	128	-437	-491	-546	-600	-655	-710	-764	-522	-626	-729	-830	-930	-1384	651	885	1231	1584	1936	1231			
										0.042	0.05	0.058	0.066	0.074		0.02*	0.021	0.029	0.038	0.046				
50	165	157	-485	-546	-606	-667	-728	-788	-849	-624	-742	-858	-973	-1086	-1586	724	1039	1430	1823	2211	1430			
										0.05	0.059	0.069	0.078	0.087		0.02*	0.025	0.034	0.044	0.053				
55	185	188	-534	-600	-667	-734	-801	-867	-934	-715	-845	-974	-1101	-1227	-1775	791	1181	1611	2038	2458	1611			
										0.057	0.068	0.078	0.088	0.098		0.02*	0.028	0.039	0.049	0.059				
<b>Configuration: 88-SN</b>																								
50	154	124	-485	-546	-606	-667	-728	-788	-849	-546	-654	-759	-863	-967	-1487	668	921	1277	1641	2001	1277			
										0.044	0.052	0.061	0.069	0.077		0.02*	0.022	0.031	0.039	0.048				
55	172	149	-534	-600	-667	-734	-801	-867	-934	-638	-758	-876	-992	-1108	-1677	735	1061	1458	1857	2249	1458			
										0.051	0.061	0.07	0.079	0.088		0.02*	0.025	0.035	0.045	0.054				
<b>Configuration: 96-SN</b>																								
55	161	126	-534	-600	-667	-734	-801	-867	-934	-555	-664	-771	-876	-981	-1572	675	935	1295	1662	2026	1295			
										0.044	0.053	0.062	0.07	0.078		0.02*	0.022	0.031	0.04	0.049				
60	178	149	-582	-655	-728	-801	-873	-946	-1019	-641	-761	-880	-997	-1113	-1753	737	1065	1464	1863	2258	1464			
										0.051	0.061	0.07	0.08	0.089		0.02*	0.025	0.035	0.045	0.054				
<b>Configuration: 76-MN</b>																								
45	125	72	-437	-491	-546	-600	-655	-710	-764	-345	-408	-484	-559	-634	-1139	515	687	872	1143	1422	872			
										0.03*	0.033	0.039	0.045	0.051		0.02*	0.02*	0.021	0.027	0.034				
50	141	88	-485	-546	-606	-667	-728	-788	-849	-432	-524	-614	-704	-792	-1342	587	782	1059	1376	1695	1059			
										0.035	0.042	0.049	0.056	0.063		0.02*	0.02*	0.025	0.033	0.041				
55	157	105	-534	-600	-667	-734	-801	-867	-934	-524	-628	-731	-832	-932	-1532	652	888	1234	1589	1941	1234			
										0.042	0.05	0.058	0.066	0.074		0.02*	0.021	0.03	0.038	0.047				
60	173	124	-582	-655	-728	-801	-873	-946	-1019	-606	-722	-836	-948	-1059	-1709	712	1013	1395	1782	2164	1395			
										0.048	0.058	0.067	0.076	0.085		0.02*	0.024	0.033	0.043	0.052				
65	189	145	-631	-710	-788	-867	-946	-1025	-1104	-681	-807	-931	-1053	-1175	-1877	766	1128	1544	1958	2366	1544			
										0.054	0.064	0.074	0.084	0.094		0.02*	0.027	0.037	0.047	0.057				
70	205	167	-679	-764	-849	-934	-1019	-1104	-1189	-750	-885	-1018	-1150	-1282	-2037	817	1236	1681	2120	2551	1681			
										0.06	0.071	0.081	0.092	0.102		0.02*	0.03	0.04	0.051	0.061				
<b>Configuration: 82-MN</b>																								
50	134	76	-485	-546	-606	-667	-728	-788	-849	-376	-459	-541	-623	-704	-1269	547	729	952	1244	1541	952			
										0.03*	0.037	0.043	0.05	0.056		0.02*	0.02*	0.023	0.03	0.037				
55	150	91	-534	-600	-667	-734	-801	-867	-934	-467	-564	-659	-753	-846	-1460	612	816	1126	1457	1790	1126			
										0.037	0.045	0.053	0.06	0.068		0.02*	0.02*	0.026	0.035	0.043				
60	165	107	-582	-655	-728	-801	-873	-946	-1019	-552	-660	-766	-871	-975	-1639	672	930	1289	1654	2017	1289			
										0.044	0.053	0.061	0.07	0.078		0.02*	0.022	0.031	0.04	0.048				
65	181	125	-631	-710	-788	-867	-946	-1025	-1104	-629	-747	-864	-979	-1093	-1810	728	1047	1439	1834	2224	1439			
										0.05	0.06	0.069	0.078	0.087		0.02*	0.025	0.035	0.044	0.053				
70	197	144	-679	-764	-849	-934	-1019	-1104	-1189	-699	-826	-952	-1077	-1202	-1971	779	1156	1578	1999	2413	1578			
										0.056	0.066	0.076	0.086	0.096		0.02*	0.028	0.038	0.048	0.058				

## ACB40-1650.482 1800x600 2-way Active Chilled Beam 4-pipe

Primary Air L/s	Supply Air L/s	Static Pressure Pa	Primary Air Cooling (W)								Secondary Water $\Delta T = 3K$					$Q_s$ (W)	Heating Water $\Delta T = 10K$					$Q_H$ (W)			
			$\Delta T_{PA} (T_{Room} - T_{Primary Air})$								Secondary Air Cooling (W)						Secondary Air Heating (W)								
			8	9	10	11	12	13	14	8	9	10	11	12	8		9	10	11	12	20		25	30	35
<b>Configuration: 60-SN</b>																									
30	109	97	-291	-328	-364	-400	-437	-473	-509	-273 0.03*	-316 0.03*	-358 0.03*	-410 0.033	-470 0.038	<b>-795</b>	478 0.02*	638 0.02*	797 0.02*	1026 0.025	1282 0.031	<b>797</b>				
35	131	131	-340	-382	-425	-467	-509	-552	-594	-420 0.034	-509 0.041	-598 0.048	-686 0.055	-772 0.062	<b>-1107</b>	614 0.02*	819 0.02*	1132 0.027	1465 0.035	1798 0.043	<b>1132</b>				
<b>Configuration: 70-SN</b>																									
30	101	72	-291	-328	-364	-400	-437	-473	-509	-200 0.03*	-231 0.03*	-262 0.03*	-292 0.03*	-323 0.03*	<b>-699</b>	404 0.02*	538 0.02*	673 0.02*	807 0.02*	1001 0.024	<b>673</b>				
35	121	97	-340	-382	-425	-467	-509	-552	-594	-332 0.03*	-387 0.031	-460 0.037	-533 0.043	-605 0.048	<b>-969</b>	539 0.02*	718 0.02*	931 0.022	1218 0.029	1511 0.036	<b>931</b>				
40	141	126	-388	-437	-485	-534	-582	-631	-679	-478 0.038	-576 0.046	-672 0.054	-768 0.061	-862 0.069	<b>-1254</b>	656 0.02*	896 0.021	1243 0.03	1599 0.038	1954 0.047	<b>1243</b>				
<b>Configuration: 78-SN</b>																									
40	134	102	-388	-437	-485	-534	-582	-631	-679	-398 0.032	-485 0.039	-570 0.046	-655 0.052	-739 0.059	<b>-1152</b>	599 0.02*	799 0.02*	1090 0.026	1415 0.034	1741 0.042	<b>1090</b>				
45	153	128	-437	-491	-546	-600	-655	-710	-764	-543 0.043	-650 0.052	-755 0.06	-859 0.069	-962 0.077	<b>-1410</b>	702 0.02*	993 0.024	1370 0.033	1752 0.042	2129 0.051	<b>1370</b>				
<b>Configuration: 88-SN</b>																									
45	146	102	-437	-491	-546	-600	-655	-710	-764	-477 0.038	-575 0.046	-671 0.054	-766 0.061	-860 0.069	<b>-1326</b>	655 0.02*	893 0.021	1241 0.03	1598 0.038	1951 0.047	<b>1241</b>				
50	165	124	-485	-546	-606	-667	-728	-788	-849	-604 0.048	-719 0.057	-832 0.066	-944 0.075	-1055 0.084	<b>-1560</b>	746 0.02*	1085 0.026	1489 0.036	1892 0.045	2291 0.055	<b>1489</b>				
55	185	149	-534	-600	-667	-734	-801	-867	-934	-716 0.057	-847 0.068	-975 0.078	-1102 0.088	-1229 0.098	<b>-1776</b>	828 0.02*	1261 0.03	1712 0.041	2157 0.052	2594 0.062	<b>1712</b>				
<b>Configuration: 96-SN</b>																									
45	141	86	-437	-491	-546	-600	-655	-710	-764	-428 0.034	-519 0.041	-609 0.049	-697 0.056	-785 0.063	<b>-1264</b>	620 0.02*	827 0.02*	1147 0.028	1483 0.036	1820 0.044	<b>1147</b>				
50	160	105	-485	-546	-606	-667	-728	-788	-849	-554 0.044	-663 0.053	-769 0.061	-875 0.07	-979 0.078	<b>-1497</b>	710 0.02*	1009 0.024	1391 0.033	1777 0.043	2158 0.052	<b>1391</b>				
55	178	126	-534	-600	-667	-734	-801	-867	-934	-666 0.053	-790 0.063	-912 0.073	-1032 0.082	-1152 0.092	<b>-1713</b>	792 0.02*	1182 0.028	1612 0.039	2040 0.049	2460 0.059	<b>1612</b>				
60	197	149	-582	-655	-728	-801	-873	-946	-1019	-767 0.061	-905 0.072	-1040 0.083	-1175 0.094	-1309 0.105	<b>-1913</b>	883 0.021	1344 0.032	1814 0.044	2277 0.055	2731 0.065	<b>1814</b>				
<b>Configuration: 106-SN</b>																									
55	169	104	-534	-600	-667	-734	-801	-867	-934	-590 0.047	-703 0.056	-814 0.065	-925 0.074	-1034 0.083	<b>-1615</b>	736 0.02*	1064 0.025	1461 0.035	1861 0.045	2254 0.054	<b>1461</b>				
60	186	123	-582	-655	-728	-801	-873	-946	-1019	-692 0.055	-819 0.065	-944 0.075	-1068 0.085	-1191 0.095	<b>-1817</b>	810 0.02*	1223 0.029	1663 0.04	2099 0.05	2527 0.061	<b>1663</b>				
65	204	144	-631	-710	-788	-867	-946	-1025	-1104	-784 0.063	-923 0.074	-1061 0.085	-1198 0.096	-1335 0.107	<b>-2007</b>	901 0.022	1370 0.033	1846 0.044	2316 0.056	2776 0.067	<b>1846</b>				
<b>Configuration: 114-SN</b>																									
55	160	91	-534	-600	-667	-734	-801	-867	-934	-507 0.041	-609 0.049	-710 0.057	-809 0.065	-907 0.072	<b>-1511</b>	677 0.02*	939 0.022	1301 0.031	1669 0.04	2033 0.049	<b>1301</b>				
60	176	107	-582	-655	-728	-801	-873	-946	-1019	-612 0.049	-729 0.058	-843 0.067	-956 0.076	-1068 0.085	<b>-1716</b>	752 0.02*	1098 0.026	1506 0.036	1913 0.046	2314 0.055	<b>1506</b>				
65	194	125	-631	-710	-788	-867	-946	-1025	-1104	-707 0.057	-836 0.067	-964 0.077	-1090 0.087	-1215 0.097	<b>-1910</b>	821 0.02*	1248 0.03	1694 0.041	2136 0.051	2569 0.062	<b>1694</b>				
<b>Configuration: 88-MN</b>																									
65	189	109	-631	-710	-788	-867	-946	-1025	-1104	-669 0.053	-793 0.063	-915 0.073	-1036 0.083	-1156 0.092	<b>-1861</b>	793 0.02*	1186 0.028	1618 0.039	2046 0.049	2467 0.059	<b>1618</b>				
70	205	126	-679	-764	-849	-934	-1019	-1104	-1189	-753 0.06	-888 0.071	-1022 0.082	-1154 0.092	-1287 0.103	<b>-2041</b>	867 0.021	1320 0.032	1786 0.043	2243 0.054	2693 0.065	<b>1786</b>				
75	221	144	-728	-819	-910	-1001	-1092	-1183	-1274	-830 0.066	-976 0.078	-1120 0.089	-1264 0.101	-1408 0.112	<b>-2212</b>	955 0.023	1445 0.035	1939 0.046	2424 0.058	2899 0.069	<b>1939</b>				
<b>Configuration: 94-MN</b>																									
70	199	111	-679	-764	-849	-934	-1019	-1104	-1189	-710 0.057	-839 0.067	-967 0.077	-1093 0.087	-1219 0.097	<b>-1986</b>	823 0.02*	1252 0.03	1699 0.041	2142 0.051	2576 0.062	<b>1699</b>				
75	215	127	-728	-819	-910	-1001	-1092	-1183	-1274	-788 0.063	-928 0.074	-1066 0.085	-1204 0.096	-1342 0.107	<b>-2158</b>	906 0.022	1377 0.033	1855 0.044	2326 0.056	2787 0.067	<b>1855</b>				
80	231	143	-776	-873	-970	-1067	-1164	-1262	-1359	-860 0.069	-1010 0.081	-1159 0.093	-1307 0.104	-1456 0.116	<b>-2323</b>	990 0.024	1494 0.036	2000 0.048	2496 0.06	2981 0.071	<b>2000</b>				
<b>Configuration: 100-MN</b>																									
70	192	99	-679	-764	-849	-934	-1019	-1104	-1189	-655 0.052	-777 0.062	-897 0.072	-1015 0.081	-1133 0.091	<b>-1916</b>	783 0.02*	1164 0.028	1589 0.038	2012 0.048	2427 0.058	<b>1589</b>				
75	207	113	-728	-819	-910	-1001	-1092	-1183	-1274	-734 0.059	-866 0.069	-997 0.08	-1127 0.09	-1256 0.1	<b>-2089</b>	844 0.02*	1289 0.031	1746 0.042	2197 0.053	2640 0.063	<b>1746</b>				
80	223	127	-776	-873	-970	-1067	-1164	-1262	-1359	-807 0.065	-950 0.076	-1091 0.087	-1232 0.098	-1372 0.11	<b>-2255</b>	929 0.022	1408 0.034	1894 0.045	2371 0.057	2839 0.068	<b>1894</b>				

# ACB40 Active Chilled Beam 4-Pipe Cooling & Heating Selection Tables

## Notes for all 4-Pipe ACB Selection Tables

Cooling Water flow value of 0.03\* = minimum allowed cooling water flow rate for all ACB models

Heating Water flow value of 0.02\* = minimum allowed heating water flow rate for all ACB models

**Q<sub>s</sub>** value in bold font = Cooling Quick Select value based on Room Air—Primary Air  $\Delta T$  of 12°C & Room Air - Entering Secondary Water  $\Delta T$  of 10°C for the corresponding primary air quantity and secondary cooling water design  $\Delta T$  of 3K

**Q<sub>H</sub>** value in bold font = Heating Quick Select value based on thermally neutral Primary Air & Entering Heating Water—Room Air  $\Delta T_{SHA}$  of 30°C for the corresponding primary air quantity and heating water design  $\Delta T$  of 10K

NOTE 1: Higher or lower secondary coil cooling and heating capacities can be achieved for all ACB models for higher or lower secondary water flow rates and resulting changes in water  $\Delta T$ . For alternative or more detailed selections at different conditions, primary air quantities or secondary water flow rates; contact Dadanco for assistance.

NOTE 2: Heating values are coil heating values only and DO NOT include any primary air positive or negative heating contribution. Determine any positive or negative primary air heating contribution based on room air to primary air temperature differential and add or subtract that value to or from coil heating value to determine total unit heating performance.

### ACB40 4-Pipe Secondary Coil (Cooling Circuit) water pressure drop, kPa

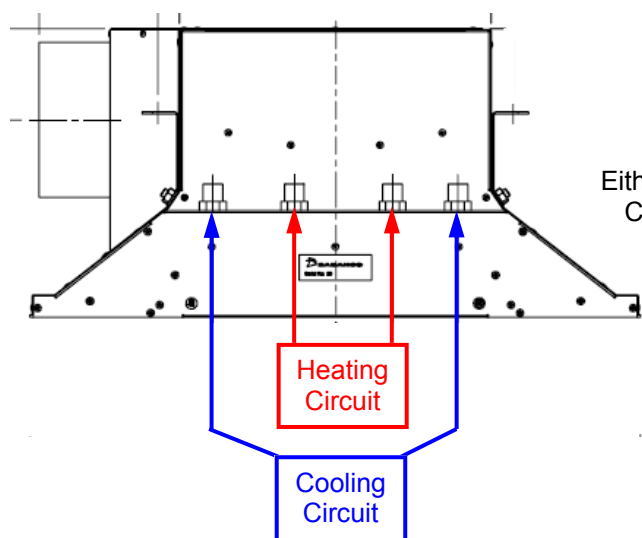
Unit	Water Flow in L/s												
	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.1	0.11	0.12	0.13	0.14	0.15
ACB40-0450.482 (600x600mm)	1.0	1.7	2.5	3.4	4.4	5.5	6.7	8.0	9.5	11.0	12.6	14.3	16.1
ACB40-1050.482 (1200x600mm)	1.6	2.7	4.0	5.5	7.2	9.1	11.1	13.4	15.8	18.5	21.2	24.2	27.3
ACB40-1350.482 (1500x600mm)	1.9	3.2	4.7	6.5	8.6	10.8	13.3	16.1	19.0	22.2	25.6	29.1	32.9
ACB40-1650.482 (1800x600mm)	2.2	3.7	5.5	7.6	10.0	12.6	15.6	18.8	22.2	25.9	29.9	34.1	38.5

### ACB40 4-Pipe Secondary Coil (Heating Circuit) water pressure drop, kPa

Unit	Water Flow in L/s												
	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14
ACB40-0450.482 (600x600mm)	0.2	0.3	0.6	0.8	1.1	1.5	1.8	2.2	2.7	3.2	3.7	4.2	4.8
ACB40-1050.482 (1200x600mm)	0.3	0.5	0.9	1.3	1.8	2.4	3.0	3.7	4.5	5.3	6.2	7.1	8.1
ACB40-1350.482 (1500x600mm)	0.3	0.6	1.1	1.6	2.2	2.9	3.6	4.4	5.4	6.3	7.4	8.5	9.7
ACB40-1650.482 (1800x600mm)	0.4	0.7	1.2	1.8	2.5	3.3	4.2	5.2	6.3	7.4	8.6	10.0	11.4

Acoustic Data—See page 11

### Water Circuit Connections



Either fitting on Cooling or Heating Circuits can be Flow or Return

DISCLAIMER

While every effort is made to ensure the details contained herein are kept up to date, in the interests of ongoing product development, Dadanco reserves the right to alter the information without notice



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