



EWAD-TZB

Screw inverter chiller



High efficiency chiller for comfort and process cooling

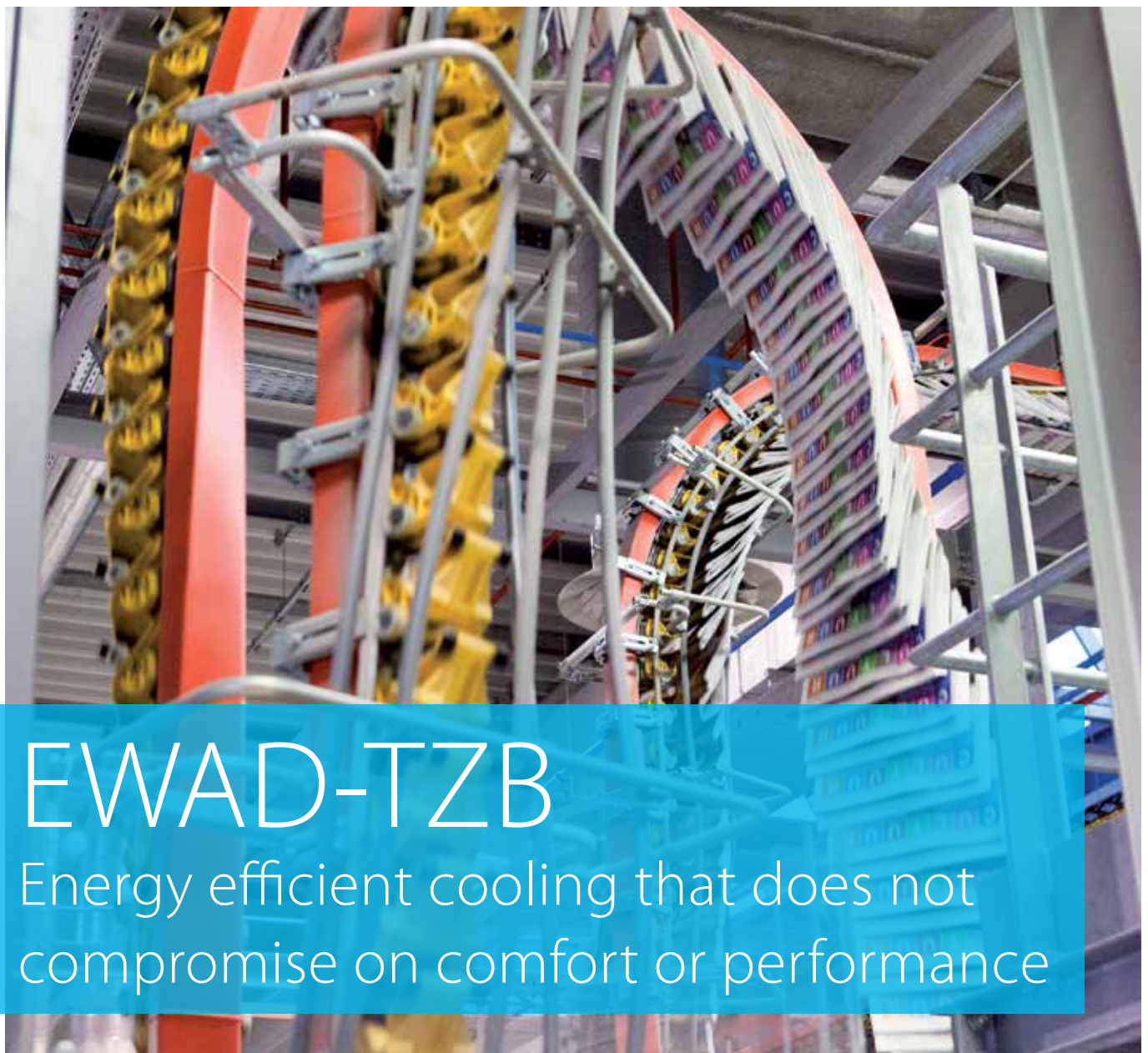
Why choose Daikin?

Daikin were the among first to pioneer the use of inverters in air cooled screw chillers. And today, our next generation of inverter technology makes both comfort and process cooling even more efficient and cost-effective.

With the highest efficiency at both partial and full load, installers and building owners can give end-users better results all year round comfort – with lower noise levels and higher energy efficiency than ever before.

For over a decade, hundreds of sites around the world have relied on Daikin inverter driven single screw compressors to reduce their running costs without compromising on climate comfort or performance.

With the EWAD-TZB chiller, Daikin has once again improved the chiller performances by increasing the efficiency of the in-house developed compressor with integrated inverter: VVR technology, DC motors,... Further improvements are made by introducing new technologies as microchannel condenser coils and advanced electronic expansion valves.



EWAD-TZB

Energy efficient cooling that does not compromise on comfort or performance

Why choose EWAD-TZB chiller series?

1 Top class efficiency:

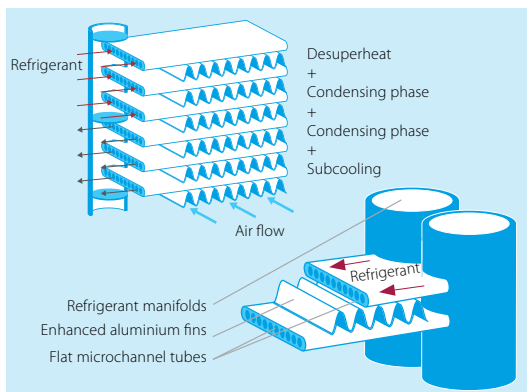
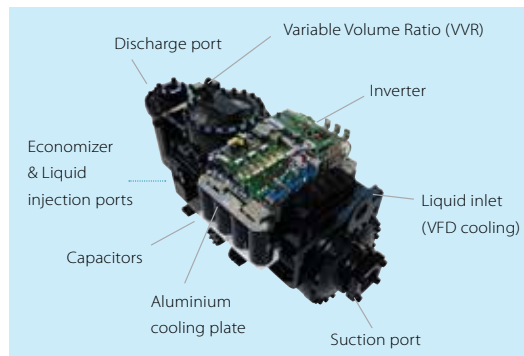
EER up to 3.6
ESEER up to 5.5

Best choice for every application

Rapid payback: 1 year for process cooling and 3 years for comfort cooling applications

✓ New generation of Daikin inverter screw compressors

- › Integrated inverter, refrigerant cooled
- › Variable volume ratio technology



✓ Microchannel condenser coils

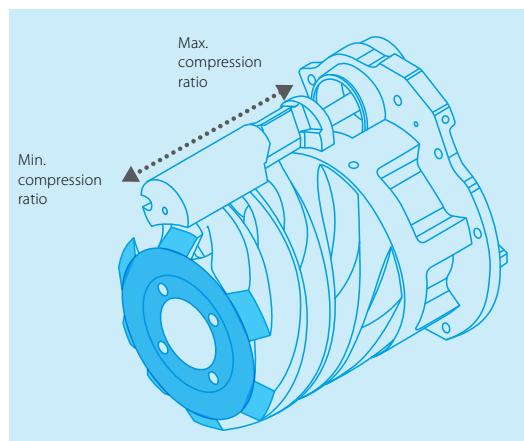
- › High thermal efficiency
- › Small volume, resulting in a small refrigerant charge
- › Light & durable design
- › Easy cleaned

✓ VVR (Variable Volume Ratio)

The operating conditions of a chiller are subjected to sensible changes due to the variation of ambient temperature and load request from the plant.

Screw compressors increase the pressure of the refrigerant by forcing it into a progressive smaller volume, from the suction to the discharge port. Once that the geometry of the compressor is defined the volume ratio is also defined.

Daikin compressors can modify their own geometry thanks to variable volume ratio (VVR). The volume ratio will change by moving the sliding valves. VVR changes the point at which the gas leaves the compressor, and therefore changes the pressures at discharge which will be optimal at any condition.

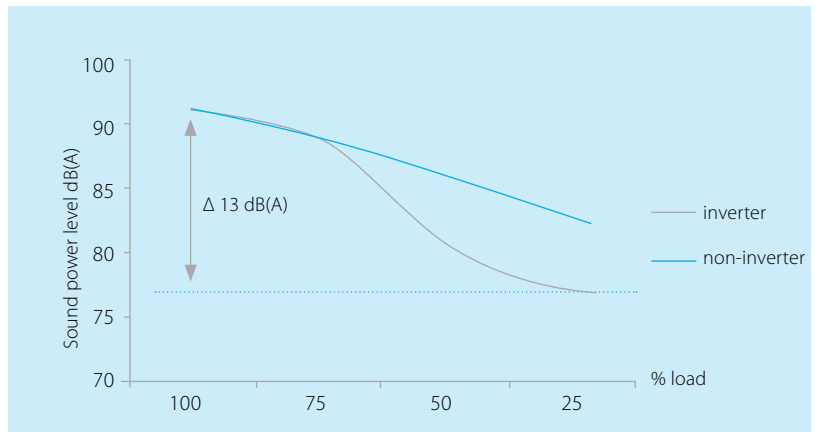




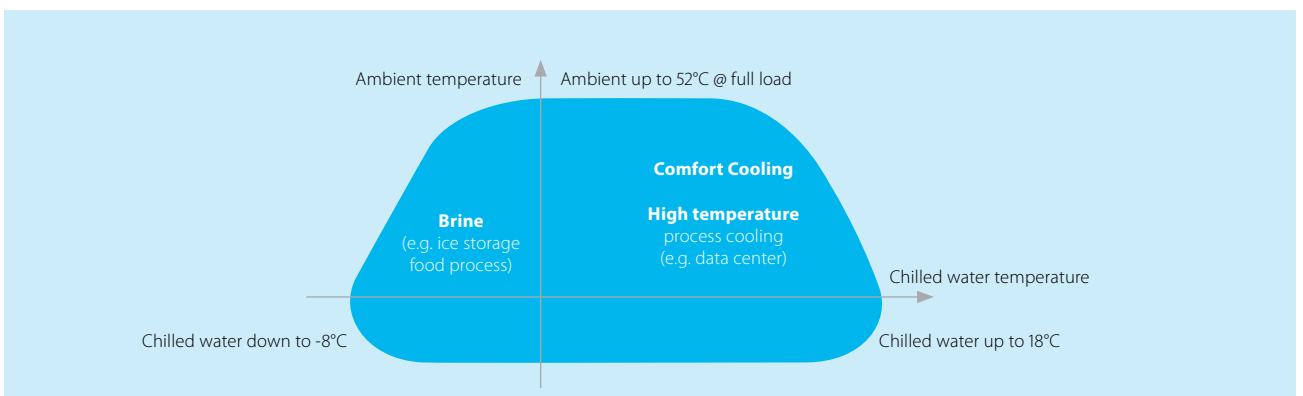
2 Silent operation – for distraction-free work

Nothing disrupts the workplace more than the sound of machinery. So our engineers have brought the sound power levels right down to just 90 dB(A)* at full load operating conditions - and even lower at part load conditions. Thanks to the special acoustic executions on the compressor and a custom Daikin fan design with reduced noise impact and vibration, the EWAD-TZB is ideal for even the most sound-sensitive environment.

*400 kW size



3 Application flexibility





Providing a lifetime of comfort in the most flexible way

4 Compact design

The EWAD-TZ keeps installation space at a minimum, so it's ideal for both new and retrofit projects. In particular, the highly efficient compressor with its integrated inverter allows us to mount more compact heat exchangers in the frame and, combined with the integrated compact control panel, deliver more power from a reduced footprint.

5 Simple to install. Even simpler to maintain

Our chillers are wired at the factory and are also pre-commissioned, with the unit's software tuned and set points already established. They also integrate easily with existing building management systems. So on site, all that is required is to plug the unit into the power supply, connect any pipes and wires, and switch the unit on.

6 Proven reliability

All our chillers and compressors are subjected to intensive performance, acoustic, endurance and vibration tests in Daikin factories and at selected job-sites - even at extreme working conditions. To ensure maximum reliability in every component - and the right, lifelong technical solution for your application.

7 Extensive options list

- › **Rapid restart** - when a loss of cooling would be catastrophic, the chiller can restart within 30 seconds of the power being restored and reach full-load cooling capacity in less than 6 minutes.
- › **VFD pumps** - variable frequency pumps can be used to optimise the working efficiency of the chiller and thus maximise energy savings, also in primary only variable flow systems.
- › **Refrigerant leak detection** - rapid advanced warning of trouble, so you can avoid any environmentally harmful and potentially costly leaks in the refrigerant system.
- › **Heat recovery** - a plate to plate heat exchanger for each refrigerant circuit is installed in series to the condenser coil. 15 to 85 % of the total heat rejection of the chiller can be recovered
- › **Partial heat recovery** - a plate to plate heat exchanger for each refrigerant circuit is installed in series to the air condenser coil. The plant manager controls the operation of the pump on the recovery circuit. 15 to 20 % of the total heat rejection of the chiller can be recovered
- › **Smart sequencing capability** - master/slave sequencing function up to 4 units connected together for system optimisation and without the need of external control systems.

Technical details - TZB Range up to 700 kW

Cooling only				EWAD-TZSSB/SLB										160	190	240	270	300	360	380	450	495	570	610	660	700	
Cooling capacity	Nom.																										
Power input	Cooling		Nom.																								
EER																											
ESEER																											
Dimensions	Unit	Height	Nom.																								
				Width																							
				Depth																							
Weight (SSB)	Unit																										
		Operation weight																									
Weight (SLB)	Unit																										
		Operation weight																									
Water heat exchanger	Type																										
		Water flow rate	Cooling	Nom.																							
		Water pressure drop	Cooling	Nom.																							
		Water volume																									
Air heat exchanger	Type																										
Compressor	Type																										
	Quantity																										
Fan	Type																										
	Quantity																										
Sound power level (SSB)	Cooling	Nom.	Nom.																								
				Air flow rate	Cooling	Nom.																					
Sound pressure level (SSB)	Cooling	Nom.	Nom.																								
				Speed																							
Sound power level (SLB)	Cooling	Nom.	Nom.																								
				Speed																							
Sound pressure level (SLB)	Cooling	Nom.	Nom.																								
				Speed																							
Operation range	Air side	Cooling	Min.-Max.																								
				Water side	Cooling	Min.-Max.																					
Refrigerant	Type / GWP																										
		Circuits																									
Refrigerant charge	Per circuit																										
		TCO _{eq}																									
Power supply	Phase/Frequency/Voltage																										
		Hz/V																									

Cooling only				EWAD-TZSRB										160	190	240	270	300	360	380	450	495	570	610	660	700	
Cooling capacity	Nom.																										
Power input	Cooling		Nom.																								
EER																											
ESEER																											
Dimensions	Unit	Height	Nom.																								
				Width																							
				Depth																							
Weight	Unit																										
		Operation weight																									
Water heat exchanger	Type																										
		Water flow rate	Cooling	Nom.																							
		Water pressure drop	Cooling	Nom.																							
		Water volume																									
Air heat exchanger	Type																										
Compressor	Type																										
	Quantity																										
Fan	Type																										
	Quantity																										
Sound power level	Cooling	Nom.	Nom.																								
				Air flow rate	Cooling	Nom.																					
Sound pressure level	Cooling	Nom.	Nom.																								
				Speed																							
Sound power level (SLB)	Cooling	Nom.	Nom.																								
				Speed																							
Sound pressure level (SLB)	Cooling	Nom.	Nom.																								
				Speed																							
Operation range	Air side	Cooling	Min.-Max.																								
				Water side	Cooling	Min.-Max.																					
Refrigerant	Type / GWP																										
		Circuits																									
Refrigerant charge	Per circuit																										
		TCO _{eq}																									
Power supply	Phase/Frequency/Voltage																										
		Hz/V																									

Cooling only				EWAD-TZXS/SLB										190	220	240	290	320	360	420	450	540	570	610	660	680	
Cooling capacity	Nom.																										
Power input	Cooling		Nom.																								
EER																											
ESEER																											
Dimensions	Unit	Height	Nom.																								
				Width																							
				Depth																							
Weight (XSB)	Unit																										
		Operation weight																									
Weight (XLB)	Unit																										
		Operation weight																									
Water heat exchanger	Type																										
		Water flow rate	Cooling	Nom.																							
		Water pressure drop	Cooling	Nom.																							
		Water volume																									
Air heat exchanger	Type																										
Compressor	Type																										
	Quantity																										
Fan	Type																										
	Quantity																										
Sound power level (XSB)	Cooling	Nom.	Nom.																								
				Air flow rate	Cooling	Nom.																					
Sound pressure level (XSB)	Cooling	Nom.	Nom.																								
				Speed																							
Sound power level (XLB)	Cooling	Nom.	Nom.																								
				Speed																							
Sound pressure level (XLB)	Cooling	Nom.	Nom.																								
				Speed																							
Operation range	Air side	Cooling	Min.-Max.																								
				Water side	Cooling	Min.-Max.																					
Refrigerant	Type / GWP																										
		Circuits																									
Refrigerant charge	Per circuit																										
		TCO _{eq}																									
Power supply	Phase/Frequency/Voltage																										
		Hz/V																									

Cooling only				EWAD-TZXR8	190	220	240	290	320	360	420	450	540	570	610	660	680												
Cooling capacity	Nom.			kW	180	211	239	276	313	360	417	472	528	598	638	677													
Power input	Cooling	Nom.		kW	52.1	63.2	72.5	83.9	100	109	132	145	164	181	192	203	220												
Capacity control	Method				Stepless																								
	Minimum capacity			%	34	29	34	29	25	17	16	17	16	15	14		13												
EER					3.46	3.34		3.30		3.13	3.29	3.16	3.24	3.22	3.09	3.11	3.15	3.07											
ESEER					5.28	5.20	5.15	5.25	5.32	5.37	5.31	5.24	5.29	5.33	5.32	5.34	5.29												
Dimensions	Unit	Height		mm	2,483																								
				mm	2,258																								
				mm	3,183			4,083			4,983			5,883			6,783			7,683									
Weight	Unit	Operation weight		kg	2,462	2,509	2,521	2,870			4,492		4,802		5,000		5,272		5,625										
				kg	2,488	2,547	2,559	2,920			4,650		4,960		5,255		5,527		5,880										
Water heat exchanger	Type				Plate heat exchanger																								
		Water flow rate	Cooling	Nom.	l/s	8.6	10.1	11.5	13.2	15.0	17.2	20.0	22.6	25.3	26.9	28.6	30.5	32.4											
		Water pressure drop	Cooling	Nom.	kPa	16.4	13.2	16.2	17.1	21.0	34.2	31.2	39.7	36.6	41.0	27.1	30.4	33.2											
		Water volume			l	26.1	37.3			49.5			158			255													
Air heat exchanger	Type				Microchannel																								
		Compressor				Inverter driven single screw compressor																							
Fan	Type				Direct propeller																								
		Quantity				1						2																	
Sound power level	Cooling	Nom.		dB(A)	6			8			10			12			14			16									
					Air flow rate	Cooling	Nom.	l/s	22,664			30,219			36,920			37,774			44,475			51,745			59,299		
					Speed				700																				
Sound pressure level	Cooling	Nom.		dB(A)	88			89			90			91			92												
Operation range	Air side	Cooling	Min.-Max.	°CDB	68			69			70			71			71												
Refrigerant	Type / GWP				R-134a / 1,430																								
		Circuits				1						2																	
Refrigerant charge	Per circuit			kg	36	39	40	51			32		37		40.0		44.5		48										
				TCO _{eq}	51	56	57	73			46		53		57		64		69										
Piping connections	Evaporator water inlet/outlet (OD)				3"			4"			5"			6"															
Unit	Starting current	Max	Running current	Cooling	Nom.	A	77	89	101	118	137	184	211	237	256	275	300	321	342										
							110	113	186			192	226	231	373.0	385	393	391	389	396									
							130	149	166	198	225	256	292	333	358	385	417	450	478										
Power supply	Phase/Frequency/Voltage				3~/50/400																								

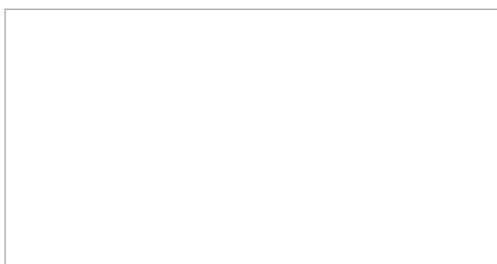
Cooling only				EWAD-TZPSB/PLB	190	220	240	290	300	350	420	495											
Cooling capacity	Nom.			kW	183	216	244	281	323	379	435	501											
Power input	Cooling	Nom.		kW	50.5	60.7	68.7	83.4	95.9	104	123	139											
EER					3.64	3.56	3.55	3.38	3.37	3.62	3.53	3.60											
ESEER					5.70	5.66	5.58	5.59	5.55	5.67	5.69	5.71											
Dimensions	Unit	Height		mm	2,483																		
				mm	2,258																		
				mm	4,083			4,983			5,883			6,783									
Weight (PSB)	Unit	Operation weight		kg	2,758		2,769		2,770		3,020		4,735		5,069		5,077						
				kg	2,808		2,819		2,820		3,070		4,990		5,324		5,332						
Weight (PLB)	Unit	Operation weight		kg	2,773		2,784		2,785		3,035		4,765		5,099		5,107						
				kg	2,823		2,834		2,835		3,085		5,020		5,354		5,362						
Water heat exchanger	Type				Plate heat exchanger							Single pass shell & tube											
		Water flow rate	Cooling	Nom.	l/s	8.8	10.3	11.7	13.5	15.5	18.1	20.8	24.0										
		Water pressure drop	Cooling	Nom.	kPa	10.6	11.0	13.4	17.1	21.5	20.4	26.3	33.3										
		Water volume			l	49.5							255										
Air heat exchanger	Type				Microchannel																		
		Compressor				Inverter driven single screw compressor																	
Fan	Type				Direct propeller																		
		Quantity				1						2											
Sound power level (PSB)	Cooling	Nom.		dB(A)	8			10			12			14			16						
					Air flow rate	Cooling	Nom.	l/s	29,610			37,013			44,415			51,818			59,220		
					Speed				700														
Sound power level (PLB)	Cooling	Nom.		dB(A)	97			98			99			100									
Operation range	Air side	Cooling	Min.-Max.	°CDB	91			91.5			92			93.5			94						
Refrigerant	Type / GWP				R-134a / 1,430																		
		Circuits				1						2											
Refrigerant charge	Per circuit			kg	49		50		51		58		38.5		43		47						
				TCO _{eq}	70		72		73		83		55		61		67						
Power supply	Phase/Frequency/Voltage				3~/50/400																		

Cooling only				EWAD-TZPRB	190	220	240	290	300	350	420	495											
Cooling capacity	Nom.			kW	187	218	246	279	317	382	435	505											
Power input	Cooling	Nom.		kW	50.5	60.7	68.7	83.4	95.9	105	123	139											
EER					3.71		3.59	3.35	3.31	3.64	3.52	3.62											
ESEER					5.70	5.66	5.42	5.33	5.39	5.50	5.41	5.63											
Dimensions	Unit	Height		mm	2,483																		
				mm	2,258																		
				mm	4,083			4,983			5,883			6,783									
Weight	Unit	Operation weight		kg	2,858		2,869		2,870		3,120		4,935		5,269		5,277						
				kg	2,908		2,919		2,920		3,170		5,190		5,524		5,532						
Water heat exchanger	Type				Plate heat exchanger							Single pass shell & tube											
		Water flow rate	Cooling	Nom.	l/s	9.0	10.4	11.8	13.3	15.2	18.3	20.8	24.2										
		Water pressure drop	Cooling	Nom.	kPa	10.6	11.0	13.4	17.1	21.5	20.4	26.2	33.2										
		Water volume			l	49.5							255										
Air heat exchanger	Type				Microchannel																		
		Compressor				Inverter driven single screw compressor																	
Fan	Type				Direct propeller																		
		Quantity				1						2											
Sound power level	Cooling	Nom.		dB(A)	8			10			12			14			16						
					Air flow rate	Cooling	Nom.	l/s	29,610			37,013			43,369			50,423			57,826		
					Speed				700														
Sound pressure level	Cooling	Nom.		dB(A)	87			88			89			90									
Operation range	Air side	Cooling	Min.-Max.	°CDB	67			68			68			69									
Refrigerant	Type / GWP				R-134a / 1,430																		
		Circuits				1						2											
Refrigerant charge	Per circuit			kg	49		50		51		58		38.5		43		47						
				TCO _{eq}	70		72		73		83		55		61		67						
Power supply	Phase/Frequency/Voltage				3~/50/400																		

The full range includes units up to 1,100 kW



Daikin Europe N.V. Naamloze Vennootschap Zandvoordestraat 300 · 8400 Oostende · Belgium · www.daikin.eu · BE 0412 120 336 · RPR Oostende (Responsible Editor)



ECPEN17-404 xxx · 09/16



Daikin Europe N.V. participates in the Eurovent Certification programme for Liquid Chilling Packages (LCP), Air handling units (AHU) and Fan coil units (FCU). Check ongoing validity of certificate online: www.eurovent-certification.com or using: www.certiflash.com

The present publication is drawn up by way of information only and does not constitute an offer binding upon Daikin Europe N.V. Daikin Europe N.V. has compiled the content of this publication to the best of its knowledge. No express or implied warranty is given for the completeness, accuracy, reliability or fitness for particular purpose of its content and the products and services presented therein. Specifications are subject to change without prior notice. Daikin Europe N.V. explicitly rejects any liability for any direct or indirect damage, in the broadest sense, arising from or related to the use and/or interpretation of this publication. All content is copyrighted by Daikin Europe N.V.

The present publication supersedes ECPEN15-404. Printed on non-chlorinated paper.