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:

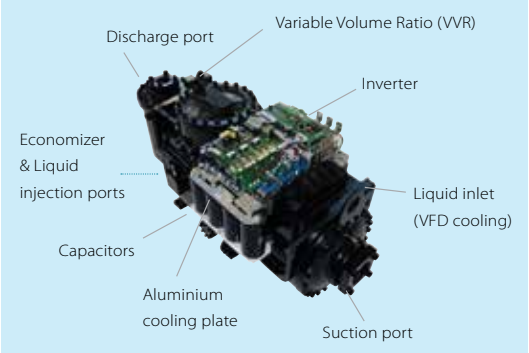
EER up to 3.6
ESEER up to 5.5

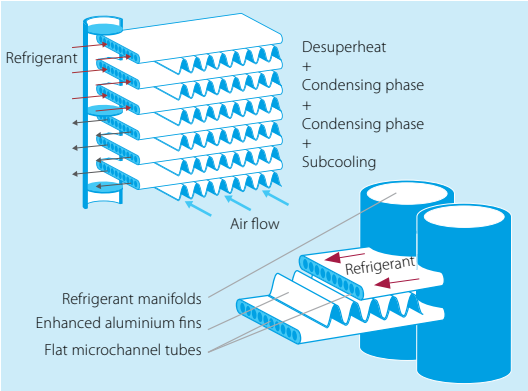
Best choice for every application

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

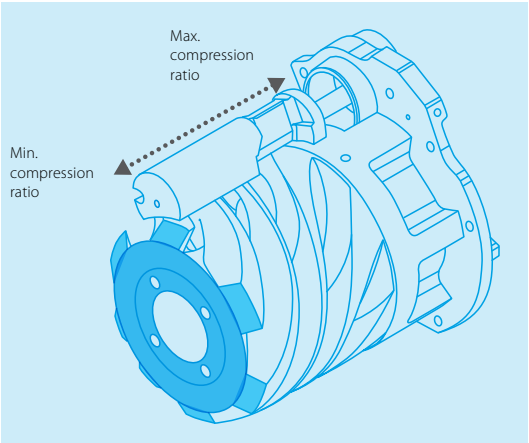
› High thermal efficiency
› Small volume, resulting in a small refrigerant charge
› Light & durable design
› Easy cleaned

☑ 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.

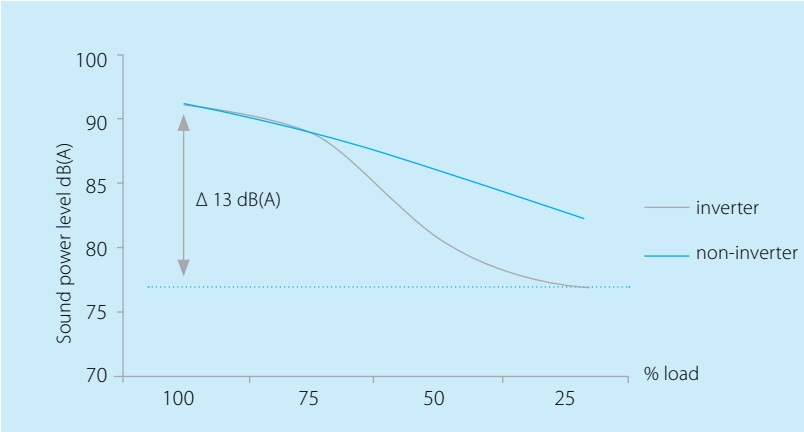
Daikin compressors can modify their own geometry thanks to variable volume ratio (VVR).
The volume ratio will change by moving the sliding valves. VVR changes the point at which the gas leaves the compressor, and therefore changes the pressures at discharge which will be optimal at any condition.



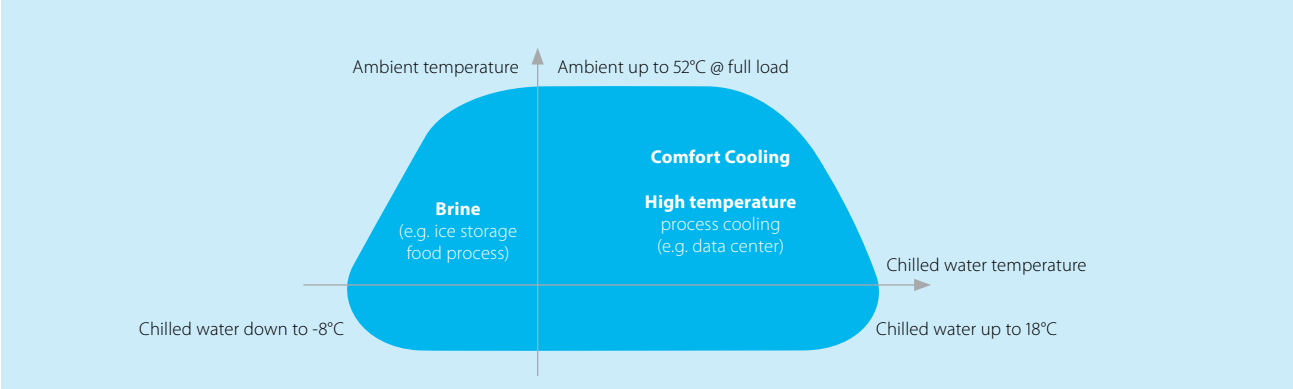
2 Silent operation – for distraction-free work

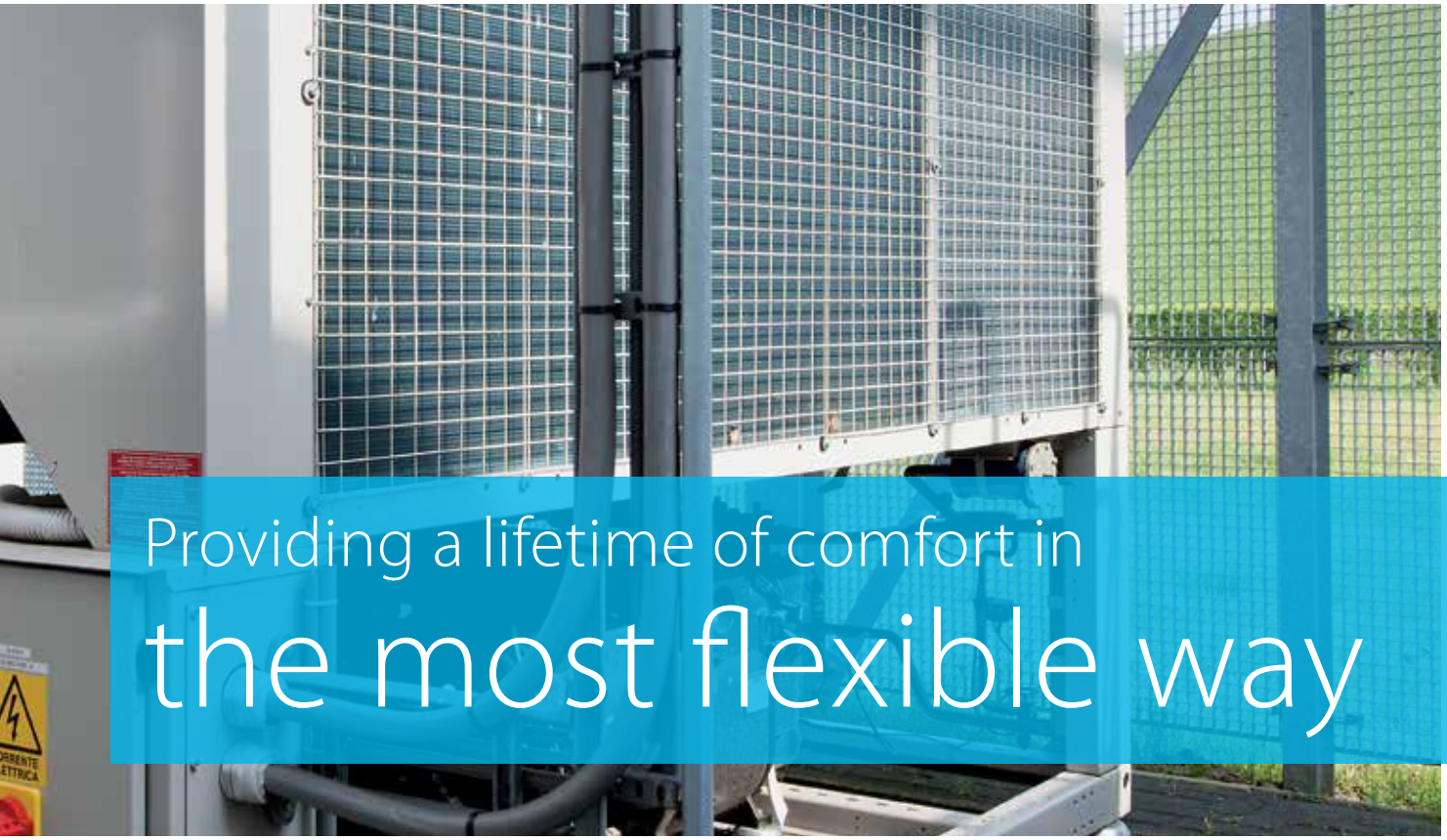
Nothing disrupts the workplace more than the sound of machinery. So our engineers have brought the sound power levels right down to just 90 dB(A)* at full load operating conditions - and even lower at part load conditions. Thanks to the special acoustic executions on the compressor and a custom Daikin 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 capbility** - 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.			kW		169	200	235	268	306	351	394	455	499	569	612	660	700
Power input	Cooling	Nom.		kW		56.5	69.9	83.0	89.9	108	119	139	163	174	198	217	239	249
EER						2.99	2.87	2.83	2.99	2.82	2.95	2.83	2.78	2.86	2.88	2.81	2.76	2.81
ESEER						4.55	4.61	4.41	4.59	4.57	4.65	4.61	4.62	4.71	4.83	4.80	4.81	4.89
Dimensions	Unit	Height		mm		2,483												
		Width		mm		2,258												
		Depth		mm		2,283			3,183			4,083		4,983		5,883		6,783
Weight (SSB)	Unit			kg		2,066	2,091	2,149	2,375	2,422	2,771	4,044	4,060	4,317	4,603	4,780	4,804	5,074
	Operation weight			kg		2,086	2,117	2,187	2,401	2,460	2,821	4,202	4,224	4,475	4,761	5,050	5,059	5,329
Weight (SLB)	Unit			kg		2,081	2,106	2,164	2,390	2,437	2,786	4,074	4,090	4,347	4,633	4,810	4,834	5,104
	Operation weight			kg		2,101	2,132	2,202	2,416	2,475	2,836	4,232	4,254	4,505	4,791	5,080	5,089	5,359
Water heat exchanger	Type					Plate heat exchanger						Single pass shell & tube						
	Water flow rate	Cooling	Nom.	l/s		8.1	9.6	11.2	12.9	14.6	16.8	18.9	21.8	23.9	27.3	29.3	31.6	33.5
	Water pressure drop	Cooling	Nom.	kPa		25.0	19.3	15.4	32.6	25.2	25.9		32.4	44.0	55.7	38.8	32.3	36.0
	Water volume			l		20.2	26.1	37.3	26.1	37.3	49.5	158	164	158		270	255	
Air heat exchanger	Type					Microchannel												
Compressor	Type					Inverter driven single screw compressor												
	Quantity					1						2						
Fan	Type					Direct propeller												
	Quantity					4		6			8			10	12			14
	Air flow rate	Cooling	Nom.	l/s		15,109		22,664			30,219			37,774	45,328			52,883
Sound power level (SSB)	Cooling	Nom.		dBA		96		97	98		99				100	101	102	105
Sound pressure level (SSB)	Cooling	Nom.		dBA		77			78		79				80		82	84
Sound power level (SLB)	Cooling	Nom.		dBA		90	90.5		91.5	92.5	93.5			94	94.5	95.5	96.5	98.5
Sound pressure level (SLB)	Cooling	Nom.		dBA		71	72			73	74					75	76	77
Operation range	Air side	Cooling	Min.~Max.	°CDB		-18~47												
	Water side	Cooling	Min.~Max.	°CDB		-8~18												
Refrigerant	Type / GWP					R-134a / 1,430												
	Circuits	Quantity				1						2						
Refrigerant charge	Per circuit			kg		27	29	33	38	41	52	29	29.5	34	37.5	38.5	41.5	45
				TCO_2eq		39	41	47	54	59	74	41	42	49	54	55.0	59	64
Power supply	Phase/Frequency/Voltage			Hz/V		3~/50/400												

Cooling only					EWAD-TZSRB	160	190	240	270	300	360	380	450	495	570	610	660	700
Cooling capacity	Nom.			kW		169	200	235	268	306	351	394	454	499	568	610	659	699
Power input	Cooling	Nom.		kW		56.5	69.9	83	89.9	108	119	140	164	175	199	218	240	250
EER						2.99	2.87	2.83	2.99	2.82	2.95	2.81	2.76	2.85	2.86	2.80	2.74	2.80
ESEER						4.55	4.61	4.41	4.59	4.57	4.65	4.59	4.60	4.69	4.81	4.82	4.78	4.88
Dimensions	Unit	Height		mm		2,483												
		Width		mm		2,258												
		Depth		mm		2,283			3,183			4,083		4,983		5,883		6,783
Weight	Unit			kg		2,166	2,191	2,249	2,475	2,522	2,871	4,244	4,260	4,517	4,803	4,980	5,004	5,274
	Operation weight			kg		2,186	2,217	2,287	2,501	2,560	2,921	4,402	4,424	4,675	4,961	5,250	5,259	5,529
Water heat exchanger	Type					Plate heat exchanger						Single pass shell & tube						
	Water flow rate	Cooling	Nom.	l/s		8.1	9.6	11.2	12.9	14.6	16.8	18.8	21.7	23.9	27.2	29.2	31.5	33.5
	Water pressure drop	Cooling	Nom.	kPa		25.0	19.3	15.4	32.6	25.2	25.9	25.8	32.2	43.9	55.5	38.6	32.2	35.9
	Water volume			l		20.2	26.1	37.3	26.1	37.3	49.5	158	164	158		270	255	
Air heat exchanger	Type					Microchannel												
Compressor	Type					Inverter driven single screw compressor												
	Quantity					1						2						
Fan	Type					Direct propeller												
	Quantity					4		6			8			10	12			14
	Air flow rate	Cooling	Nom.	l/s		15,109		22,664			30,219	29,650		36,920	44,475			51,745
	Speed			rpm		700												
Sound power level	Cooling	Nom.		dBA		86	87		88			90			91		92	94
Sound pressure level	Cooling	Nom.		dBA		67	68			69	70	70		70			71	73
Operation range	Air side	Cooling	Min.~Max.	°CDB		-18~47												
	Water side	Cooling	Min.~Max.	°CDB		-8~18												
Refrigerant	Type / GWP					R-134a / 1,430												
	Circuits	Quantity				1									2			
Refrigerant charge	Per circuit			kg		27	29	33	38	41	52	29	29.5	34	37.5	38.5	41.5	45
				TCO_2eq		39	41	47	54	59	74	41	42	49	54	55	59	64
Power supply	Phase/Frequency/Voltage			Hz/V		3~/50/400												

Cooling only					EWAD-TZXSB/XLB	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	529	563	599	639	678
Power input	Cooling	Nom.		kW		52.1	63.2	72.5	83.9	100	109	132	144	163	181	191	202	219
EER						3.46	3.34	3.30		3.13	3.30	3.16	3.26	3.24	3.11	3.13	3.16	3.09
ESEER						5.28	5.20	5.15	5.25	5.32	5.39	5.31	5.26	5.31	5.35	5.29	5.36	5.31
Dimensions	Unit	Height		mm		2,483												
		Width		mm		2,258												
		Depth		mm		3,183			4,083		4,983			5,883		6,783		7,683
Weight (XSB)	Unit			kg		2,362	2,409	2,421	2,770		4,292		4,602	4,800		5,072		5,425
	Operation weight			kg		2,388	2,447	2,459	2,820		4,450		4,760	5,055		5,327		5,680
Weight (XLB)	Unit			kg		2,377	2,424	2,436	2,785		4,322		4,632	4,830		5,102		5,455
	Operation weight			kg		2,403	2,462	2,474	2,835		4,480		4,790	5,085		5,357		5,710
Water heat exchanger	Type					Plate heat exchanger					Single pass shell & tube							
	Water flow rate	Cooling	Nom.	l/s		8.6	10.1	11.5	13.2	15.0	17.3	20.0	22.6	25.3	27.0	28.7	30.6	32.4
	Water pressure drop	Cooling	Nom.	kPa		16.4	13.2	16.2	17.1	21.0	34.3	31.2	39.7	36.7	41.1	27.1	30.5	33.3
	Water volume			l		26.1	37.3		49.5		158			255				
Air heat exchanger	Type					Microchannel												
Compressor	Type					Inverter driven single screw compressor												
	Quantity					1					2							
Fan	Type					Direct propeller												
	Quantity					6		8			10		12			14	16	
	Air flow rate	Nom.		l/s		22,664		30,219			37,774		45,328			52,883	60,438	
	Speed			rpm		700												
Sound power level (XSB)	Cooling	Nom.		dBA		96	97	96	97	98	99				100		101	
Sound pressure level (XSB)	Cooling	Nom.		dBA		77			78		79						80	
Sound power level (XLB)	Cooling	Nom.		dBA		91	91.5	91	91.5	92.5	93.5		94		94.5	95	95.5	
Sound pressure level (XLB)	Cooling	Nom.		dBA		72		72		73		74	73		74			
Operation range	Air side	Cooling	Min.~Max.	°CDB		-18~50												
	Water side	Cooling	Min.~Max.	°CDB		-8~18												
Refrigerant	Type / GWP					R-134a / 1,430												
	Circuits	Quantity				1					2							
Refrigerant charge	Per circuit			kg		36	39	40	51		32		37	40		44.5	48	
				TCO_2eq		51	56	57	73		46		53	57		64	69	
Power supply	Phase/Frequency/Voltage			Hz/V		3~/50/400												

Cooling only				**EWAD-TZXRB**	**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	562	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												
		Width		mm	2,258												
		Depth		mm	3,183			4,083		4,983			5,883		6,783	7,683	
Weight	Unit			kg	2,462	2,509	2,521	2,870		4,492		4,802	5,000		5,272	5,625	
	Operation weight			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					Single pass shell & tube							
	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	Type				Inverter driven single screw compressor												
	Quantity				1					2							
Fan	Type				Direct propeller												
	Quantity				6			8		10			12		14	16	
	Air flow rate	Nom.		l/s	22,664			30,219		36,920	37,774		44,475		51,745	59,299	
	Speed			rpm	700												
Sound power level	Cooling	Nom.		dBA	88			89		90			91			92	
Sound pressure level	Cooling	Nom.		dBA	68			69		70						71	
Operation range	Air side	Cooling	Min.~Max.	°CDB	-18~50												
	Water side	Cooling	Min.~Max.	°CDB	-8~18												
Refrigerant	Type / GWP				R-134a / 1,430												
	Circuits	Quantity			1					2							
Refrigerant charge	Per circuit			kg	36	39	40	51		32		37	40.0		44.5	48	
				TCO_2eq	51	56	57	73		46		53	57		64	69	
Piping connections	Evaporator water inlet/outlet (OD)				3"		4"			5"			6"				
Unit	Starting current	Max		A	77	89	101	118	137	184	211	237	256	275	300	321	342
	Running current	Cooling	Nom.	A	110	113	186		192	226	231	373.0	385	393	391	389	396
		Max		A	130	149	166	198	225	256	292	333	358	385	417	450	478
Power supply	Phase/Frequency/Voltage			Hz/V	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							
		Width		mm	2,258							
		Depth		mm	4,083				4,983	5,883	6,783	
Weight (PSB)	Unit			kg	2,758		2,769	2,770	3,020	4,735	5,069	5,077
	Operation weight			kg	2,808		2,819	2,820	3,070	4,990	5,324	5,332
Weight (PLB)	Unit			kg	2,773		2,784	2,785	3,035	4,765	5,099	5,107
	Operation weight			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	Type				Inverter driven single screw compressor							
	Quantity				1					2		
Fan	Type				Direct propeller							
	Quantity				8				10	12	14	16
	Air flow rate	Cooling	Nom.	l/s	29,610				37,013	44,415	51,818	59,220
	Speed			rpm	700							
Sound power level (PSB)	Cooling	Nom.		dBA	97				98	99		100
Sound pressure level (PSB)	Cooling	Nom.		dBA	77					78	77	78
Sound power level (PLB)	Cooling	Nom.		dBA	91	91.5	91	91.5	92	93.5		94
Sound pressure level (PLB)	Cooling	Nom.		dBA	71	72	71	72		73	72	73
Operation range	Air side	Cooling	Min.~Max.	°CDB	-18~52							
	Water side	Cooling	Min.~Max.	°CDB	-8~18							
Refrigerant	Type / GWP				R-134a / 1,430							
	Circuits	Quantity			1					2		
Refrigerant charge	Per circuit			kg	49		50	51	58	38.5	43	47
				TCO_2eq	70		72	73	83	55	61	67
Power supply	Phase/Frequency/Voltage			Hz/V	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							
		Width		mm	2,258							
		Depth		mm	4,083				4,983	5,883	6,783	
Weight	Unit			kg	2,858		2,869	2,870	3,120	4,935	5,269	5,277
	Operation weight			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	Type				Inverter driven single screw compressor							
	Quantity				1					2		
Fan	Type				Direct propeller							
	Quantity				8				10	12	14	16
	Air flow rate	Cooling	Nom.	l/s	29,610				37,013	43,369	50,423	57,826
	Speed			rpm	700							
Sound power level	Cooling	Nom.		dBA	87	88	87	88		89	90	
Sound pressure level	Cooling	Nom.		dBA	67	68	67	68				69
Operation range	Air side	Cooling	Min.~Max.	°CDB	-18~52							
	Water side	Cooling	Min.~Max.	°CDB	-8~18							
Refrigerant	Type / GWP				R-134a / 1,430							
	Circuits	Quantity			1					2		
Refrigerant charge	Per circuit			kg	49		50	51	58	38.5	43	47
				TCO_2eq	70		72	73	83	55	61	67
Power supply	Phase/Frequency/Voltage			Hz/V	3~/50/400							

The full range includes units up to 1,100 kW

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ECPEN17-404 xxx · 09/16

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