TZ Chiller series

Screw inverter chiller

High efficiency chiller for comfort
and process cooling

TZ
CHILLER SERIES

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.

Now also available with HFO refrigerant R-1234ze(E).

ALSO WITH HFO R-1234ze

The selection of R-1234ze(E) allows to minimize the global warming impact of screw compressor chillers thanks to low Global Warming Potential in combination with high energy efficiency.

R-1234ze(E) is a HFO refrigerant (Hydro Fluoro Olefins). Its Ozone Depletion Potential (ODP) is equal to zero (0) and the Global Warming Potential (GWP) is 7.

TZ Chiller series

Energy efficient cooling that does not compromise on comfort or performance

Why choose
TZ chiller series?

1 Top class efficiency:

R-134a
EER up to 3.93
ESEER up to 5.59

R-1234ze(E)
EER up to 3.86
ESEER up to 5.54

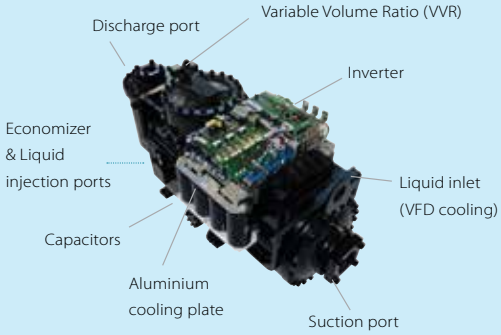
Best choice for every application

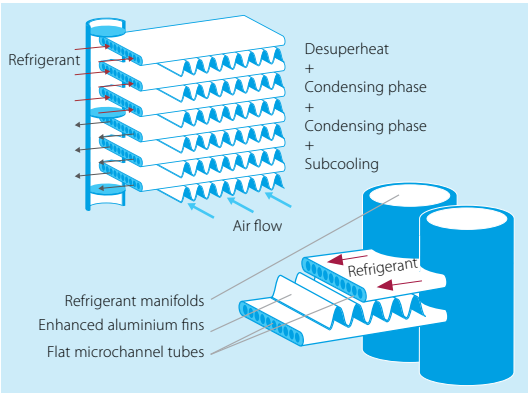
Rapid payback: 1 year for process cooling and 3 years for comfort cooling applications

INVERTER +VVR

☑ New generation of Daikin inverter screw compressors

› Integrated inverter, refrigerant cooled
› Variable volume ratio technology





☑ Microchannel condenser coils

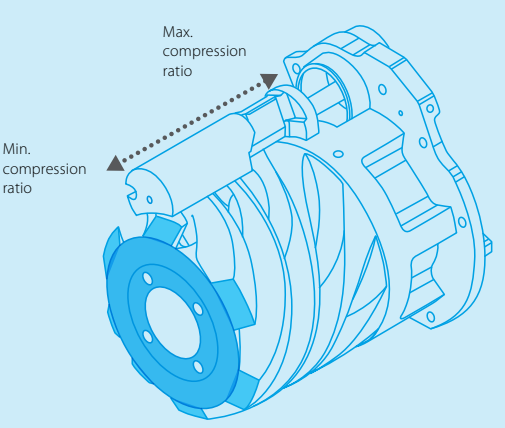
› High thermal efficiency
› Small volume, resulting in a small refrigerant charge
› Light & durable design
› Easy cleaned

☑ 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.

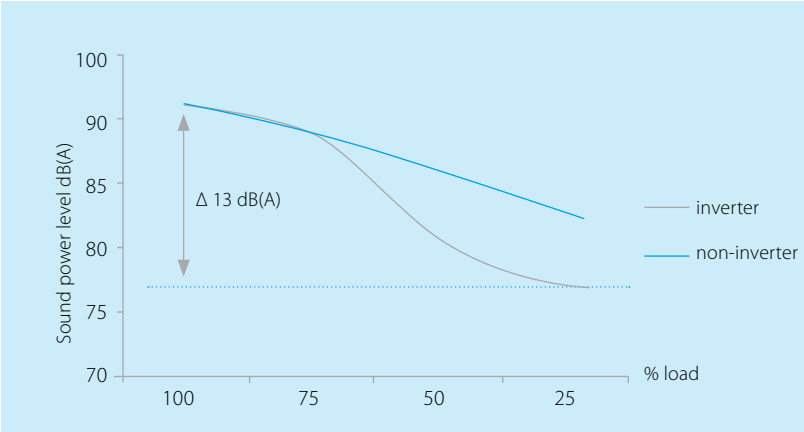
Daikin compressors can modify their own geometry thanks to variable volume ratio (VVR).
The volume ratio will change by moving the sliding valves. VVR changes the point at which the gas leaves the compressor, and therefore changes the pressures at discharge which will be optimal at any condition.



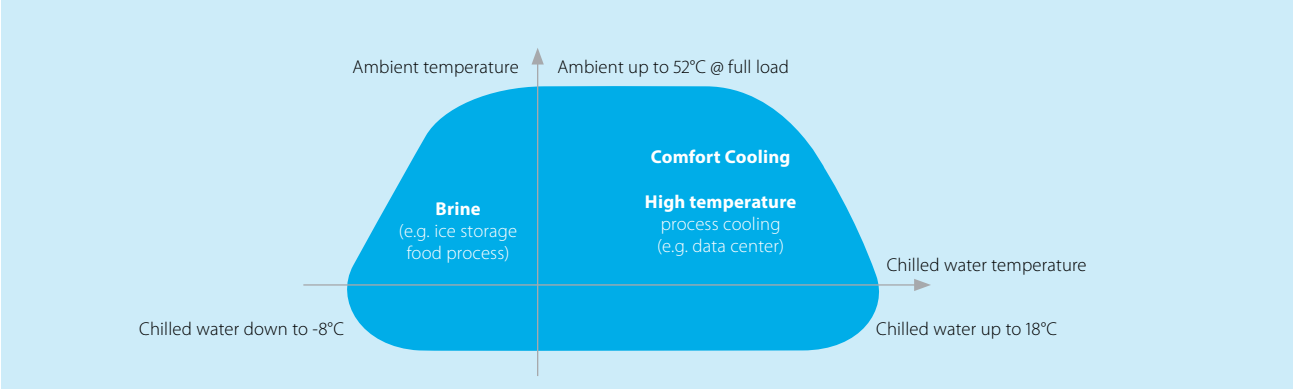
2 Silent operation – for distraction-free work

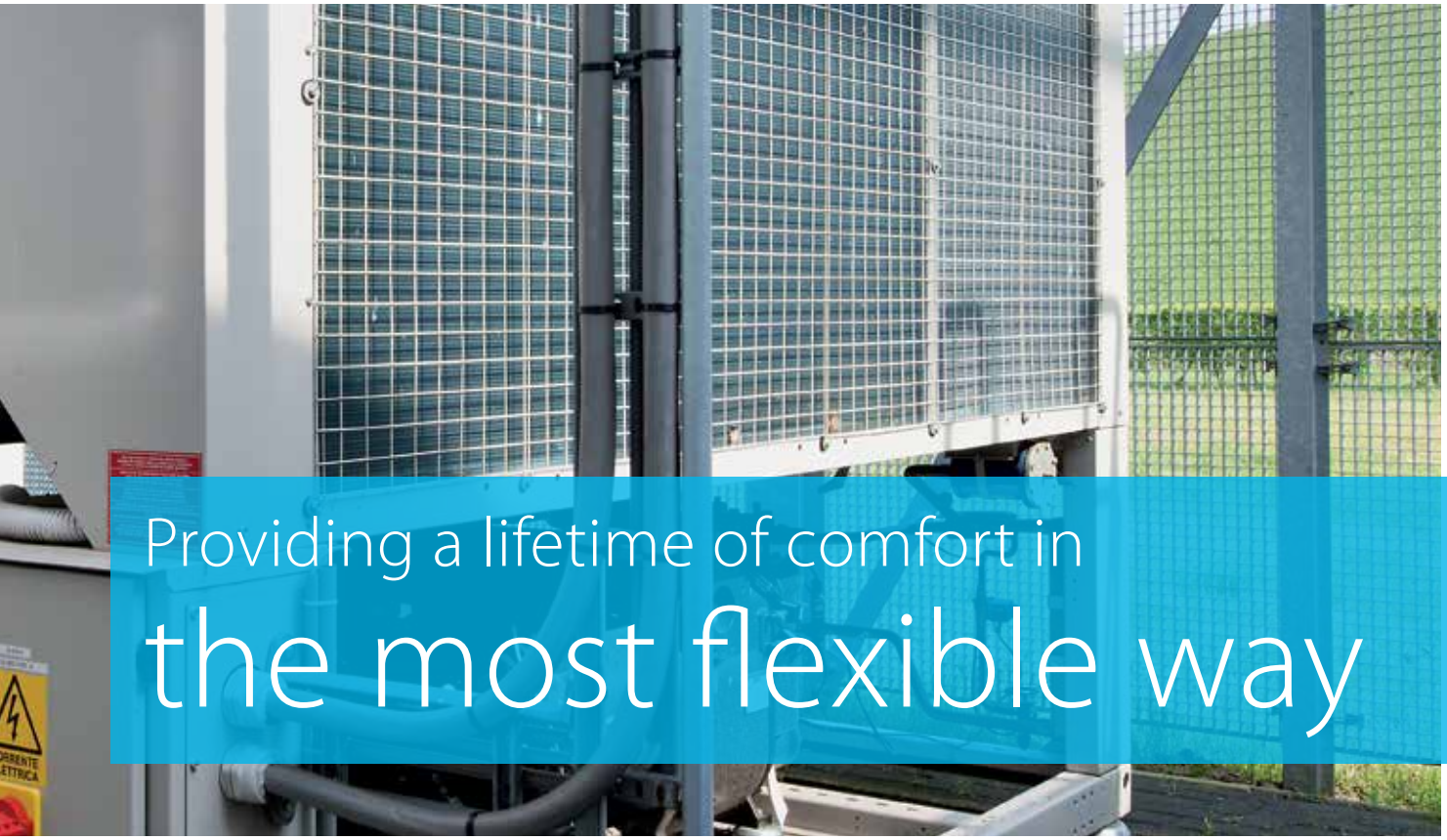
Nothing disrupts the workplace more than the sound of machinery. So our engineers have brought the sound power levels right down to just 90 dB(A)* at full load operating conditions - and even lower at part load conditions. Thanks to the special acoustic executions on the compressor and a custom Daikin 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.

R-1234ze(E)

Cooling Only				EWAH-TZXSB/XLB	180	220	270	300	350	390	430	480	580	620	670	710	760	820	930	990
Space cooling	ηs,c			%	188.68	195.84	194.04	203.08	196.16	196.4	203.28	206.2	214.96	217.88	216.48	220.72	226.8	227.72	227.88	223.6
SEER					4.792	4.971	4.926	5.152	4.979	4.985	5.157	5.23	5.449	5.522	5.487	5.593	5.745	5.768	5.772	5.665
Cooling capacity	Nom.			kW	180	225	271	300	355	392	428	482	574	620	673	714	759	825	926	988
Power input	Cooling	Nom.		kW	51.8	66.3	79	89.6	103	114	125	144	164	181	194	209	224	243	274	307
EER					3.49	3.39	3.43	3.35	3.44	3.42		3.33	3.5	3.41	3.45	3.4	3.38	3.39	3.37	3.22
ESEER					5.14	5.21	4.95	5.16	4.94	4.95	5.06	5.05		5.08	4.96	5.13	5.23	5.26	5.32	5.08
Dimensions	Unit	Height		mm	2,537															
		Width		mm	2,258															
		Depth		mm	3,183	4,083	3,183	4,083	5,883		6,783	7,776	6,783	7,683		8,583	9,483	10,383	11,283	
Weight	Unit			kg	2,447	2,813	2,557	2,923	4,445.2	4,629.2	5,004.6	5,748.6	5,720	6,364.8		7,140.2	7,431	7,879	8,178.2	
	Operation weight			kg	2,484.35	2,862.5	2,606.5	2,972.5	4,598.2	4,870.2	5,237.6	5,981.6	6,021	6,656.8	6,647.8	7,625.2	7,884	8,343	8,631.2	
Water heat exchanger	Type				Plate heat exchanger				Shell and tube											
	Water volume			l	37	50			153	241	233		301	292	283	485	453	464	453	
	Water flow rate	Cooling	Nom.	l/s	8.6	10.7	12.9	14.3	17	18.7	20.4	23	27.4	29.6	32.2	34.1	36.3	39.4	44.2	47.3
	Water pressure drop	Cooling	Nom.	kPa	10.2	11.2	15.7	18.9	23.2	16.7	34.2	26.3	24.7	31.1	39.8	25.6	57	40.5	27	56.2
Air heat exchanger	Type				Microchannel															
Compressor	Type				Driven vapour compressor															
	Quantity				1				2											
Fan	Type				Direct propeller															
	Quantity				6	8	6	8	12		14	16	14	16		18	20	22	24	
	Air flow rate	Nom.		l/s	26,172	34,896	26,172	34,896	52,344		61,068	69,792	61,068	69,792		78,516	87,240	95,964	104,688	
	Speed			rpm	760															
Sound power level (XSB)	Cooling	Nom.		dBA	97.19	98.16	101.14	96.57	100.19	100.4	100.7	101.94	99.44	104.19		104.21	104.22	104.34	105.79	106.49
Sound power level (XLB)					92.14	93.15	96.44	96.57	95.14	95.3	95.68	96.78	99.44	99.57		99.63	99.65	98.92	100.3	100.93
Sound pressure level (XSB)	Cooling	Nom.		dBA	77.7	78.20	81.70	76.60	79.40	79.60		80.40	78.70	82.70		82.40	82.20	82.3	83.20	83.90
Sound pressure level (XLB)					72.65	73.19	76.96	76.62	74.36	74.53	74.55	75.29	78.67	78.12		77.86	77.6	76.87	77.73	78.36
Operation range	Air side	Cooling	Min.~Max.	°CDB	-18~55															
	Water side	Cooling	Min.~Max.	°CDB	-8~18															
Refrigerant	Type/GWP				R-1234(ze)/7															
	Charge			kg	39	52	39	52	73.2		84.6	97.6	102	116.8		131.2	146	160	175.2	
	Circuits	Quantity			1				2											
Power supply	Phase/Frequency/Voltage			Hz/V	3~/50/400															

Cooling Only				EWAH-TZXRB	180	220	270	300	350	390	430	480	580	620	670	710	760	820	930	990
Space cooling	ηs,c			%	188.68	195.84	194.04	203.08	195.44	195.76	202.72	205.68	213.64	217.16	215.52	219.4	226.04	226.28	227.08	222.8
SEER					4.792	4.971	4.926	5.152	4.961	4.969	5.143	5.217	5.416	5.504	5.463	5.56	5.726	5.732	5.752	5.645
Cooling capacity	Nom.			kW	180	225	271	300	355	392	427	482	574	619	672	713	759	824	925	987
Power input	Cooling	Nom.		kW	51.8	66.3	79	89.6	103	115	125	145	164	182	195	210	225	244	275	308
EER					3.49	3.39	3.43	3.35	3.42	3.41		3.32	3.48	3.39	3.44	3.39	3.36	3.38	3.36	3.2
ESEER					5.14	5.21	4.95	5.16	4.93	4.94	5.03		5.02	5.06	4.95	5.09	5.21	5.24	5.31	5.07
Dimensions	Unit	Height		mm	2,537															
		Width		mm	2,258															
		Depth		mm	3,183	4,083	3,183	4,083	5,883		6,783	7,776	6,783	7,683		8,583	9,483	10,383	11,283	
Weight	Unit			kg	2,547	2,913	2,717	3,083	4,645.2	4,829.2	5,204.6	5,948.6	6,040	6,684.8		7,460.2	7,751	8,199	8,498.2	
	Operation weight			kg	2,584.35	2,962.5	2,766.5	3,132.5	4,798.2	5,070.2	5,437.6	6,181.6	6,341	6,976.8	6,967.8	7,945.2	8,204	8,663	8,951.2	
Water heat exchanger	Type				Plate heat exchanger				Shell and tube											
	Water volume			l	37	50			153	241	233		301	292	283	485	453	464	453	
	Water flow rate	Cooling	Nom.	l/s	8.6	10.7	12.9	14.3	16.9	18.7	20.4	23	27.4	29.6	32.1	34.1	36.3	39.4	44.2	47.2
	Water pressure drop	Cooling	Nom.	kPa	10.2	11.2	15.7	18.9	23.2	16.6	34.1	26.3	24.7	31.1	39.7	25.6	56.9	40.4	26.9	56
Air heat exchanger	Type				Microchannel															
Compressor	Type				Driven vapour compressor															
	Quantity				1				2											
Fan	Type				Direct propeller															
	Quantity				6	8	6	8	12		14	16	14	16		18	20	22	24	
	Air flow rate	Nom.		l/s	26,172	34,896	26,172	34,896	51,324		59,709	68,433	59,709	68,433		76,817	85,541	93,925	102,649	
	Speed			rpm	760															
Sound power level	Cooling	Nom.		dBA	88.63	89.73	92.27	92.6	91.63	91.73	92.25	93.09	95.27	95.6		95.73	95.8	94.66	95.89	96.34
Sound pressure level	Cooling	Nom.		dBA	69.20	69.80	72.80	72.60	70.90	71.00	71.10	71.6	74.5	74.20		74.00	73.80	72.60	73.30	73.80
Operation range	Air side	Cooling	Min.~Max.	°CDB	-18~55															
	Water side	Cooling	Min.~Max.	°CDB	-8~18															
Refrigerant	Type/GWP				R-1234(ze)/7															
	Charge			kg	39	52	39	52	73.2		84.6	97.6	102	116.8		131.2	146	160	175.2	
	Circuits	Quantity			1				2											
Power supply	Phase/Frequency/Voltage			Hz/V	3~/50/400															

R-1234ze(E)

Cooling Only				EWAH-TZPSB/PLB	370	440	530	610	690	770
Space cooling	ηs,c			%	206.56	213.68	220.48	224.96	231.2	232.04
SEER					5.239	5.417	5.587	5.699	5.855	5.876
Cooling capacity	Nom.			kW	371	435	532	606	692	779
Power input	Cooling	Nom.		kW	102	121	137	163	186	217
EER					3.62	3.58	3.86	3.7	3.72	3.58
ESEER					5.18	5.46	5.23	5.34		5.54
Dimensions	Unit	Height		mm	2,537					
		Width		mm	2,258					
		Depth		mm	7,683	9,483	7,683	8,583	9,483	11,283
Weight	Unit			kg	5,741.4	6,722	6,364.8	7,140.2	7,804.4	8,208.2
	Operation weight			kg	5,982.4	7,023	6,656.8	7,636.2	8,289.4	8,661.2
Water heat exchanger	Type				Shell and tube					
	Water volume			l	241	301	292	496	485	453
	Water flow rate	Cooling	Nom.	l/s	17.7	20.8	25.4	29	33.1	37.2
	Water pressure drop	Cooling	Nom.	kPa	24.4	15	15.3	18	24.3	19.7
Air heat exchanger	Type				Microchannel					
Compressor	Type				Driven vapour compression					
	Quantity				2					
Fan	Type				Direct propeller					
	Quantity				16	20	16	18	22	24
	Air flow rate	Nom.		l/s	251,251.0	314,064	251,251.0	282,658.0	345,470.0	376,877.0
	Speed			rpm	760					
Sound power level (PSB)	Cooling	Nom.		dBA	100.3	100.8	103.24	104.21	104.24	103.7
Sound power level (PLB)	Cooling	Nom.		dBA	95.48	96	98.71	99.63	99.73	98.5
Sound pressure level (PSB)	Cooling	Nom.		dBA	78.80		81.80	82.40	82.2	81.10
Sound pressure level (PLB)	Cooling	Nom.		dBA	74.03	73.96	77.25	77.86	77.68	75.93
Operation range	Air side	Cooling	Min.~Max.	°CDB	-18~55					
	Water side	Cooling	Min.~Max.	°CDB	-8~18					
Refrigerant	Type/GWP				R-1234(ze)/7					
	Circuits	Quantity			2					
Refrigerant circuit	Charge			kg	90.4	113	116.8	131.2	160.4	175.2
Power supply	Phase/Frequency/Voltage			Hz/V	3~/50/400					

Cooling Only				EWAH-TZPRB	370	440	530	610	690	770
Space cooling	ηs,c			%	206.04	213.28	219.28	223.8	229.96	231.24
SEER					5.226	5.407	5.557	5.67	5.824	5.856
Cooling capacity	Nom.			kW	371	435	532	606	692	778
Power input	Cooling	Nom.		kW	102	122	138	164	186	218
EER					3.61	3.57	3.84	3.69	3.7	3.57
ESEER					5.17	5.44	5.22	5.31		5.53
Dimensions	Unit	Height		mm	2,537					
		Width		mm	2,258					
		Depth		mm	7,683	9,483	7,683	8,583	9,483	11,283
Weight	Unit			kg	5,941.4	6,922	6,684.8	7,460.2	8,124.4	8,528.2
	Operation weight			kg	6,182.4	7,223	6,976.8	7,956.2	8,609.4	8,981.2
Water heat exchanger	Type				Shell and tube					
	Water volume			l	241	301	292	496	485	453
	Water flow rate	Cooling	Nom.	l/s	17.7	20.8	25.4	28.9	33	37.1
	Water pressure drop	Cooling	Nom.	kPa	24.4	14.9	15.3	18	24.2	19.7
Air heat exchanger	Type				Microchannel					
Compressor	Type				Driven vapour compression					
	Quantity				2					
Fan	Type				Direct propeller					
	Quantity				16	20	16	18	22	24
	Air flow rate	Nom.		l/s	246,359.0	307,948.0	246,359.0	276,541.0	338,130	369,536.0
	Speed			rpm	760					
Sound power level	Cooling	Nom.		dBA	92.37	92.94	94.94	95.73	95.97	94.72
Sound pressure level	Cooling	Nom.		dBA	70.90		73.50	74.00	73.90	72.20
Operation range	Air side	Cooling	Min.~Max.	°CDB	-18~55					
	Water side	Cooling	Min.~Max.	°CDB	-8~18					
Refrigerant	Type/GWP				R-1234(ze)/7					
	Circuits	Quantity			2					
Refrigerant circuit	Charge			kg	90.4	113	116.8	131.2	160.4	175.2
Power supply	Phase/Frequency/Voltage			Hz/V	3~/50/400					

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