



VZ Chiller series

Water cooled Inverter chiller
for Marine



The highest peak in chiller technology





Single compressor

410 kW - 970 kW*



Full inverter water cooled chiller



Dual compressor & dual circuit unit

1,080 kW – 1,910 kW*

› 2 of everything:
2 compressors,
2 expansion valves,
2 condensers,...



New condenser design with integral oil separator

VZ
CHILLER SERIES
FOR MARINE

Highest efficiency in the market in its category

High efficient flooded heat exchangers

Unique Daikin single screw compressor technology



*Marine operating conditions
Chilled Water IN/OUT: 12/6°C
Sea Water IN/OUT: 32/36°C

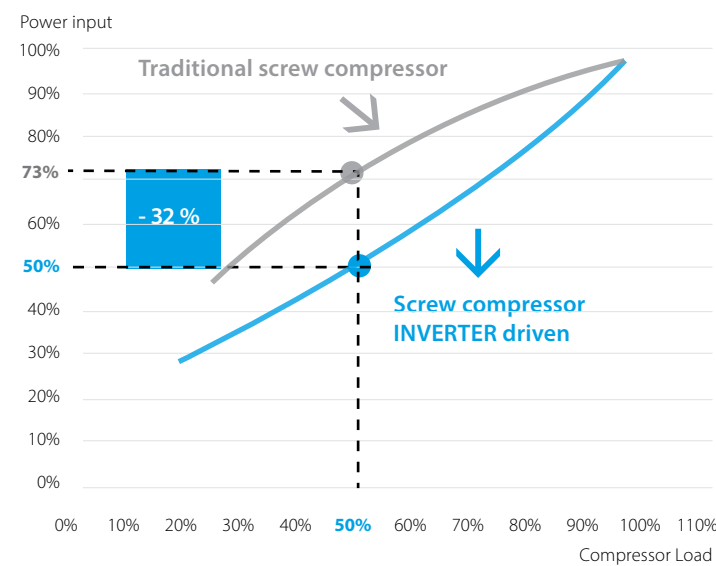
Why choose EWWD-VZ chiller series for marine?

1 Top class efficiency:

Full Load Efficiency up to 5.09* - SEER up to 9.08**

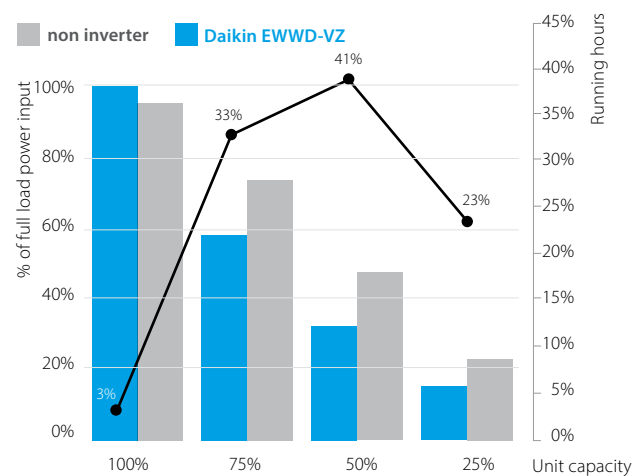
✓ New generation Daikin inverter single screw compressors

Importance of part load efficiency
Power consumption significantly reduced at part loads where the machine will run for 97% of the operation hours (Eurovent load profile)



Why choose an inverter chiller?

- › -25% energy consumption
- › -25% CO₂ emissions
- › -25% running costs
- › Return on investment < 2 years vs non-inverter chiller

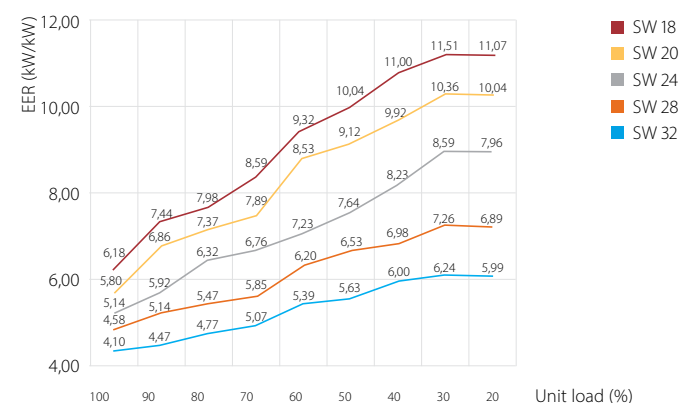


Why are we better than others?

- › Full inverter capacity control down to 20%
- › No inefficient mechanical unloading slides



Energy analysis



Optimized for cold sea water temperature and low lift operation

✓ New generation high efficiency heat exchangers

- › Flooded type technology allowing maximizing unit performances
- › Latest technology enhanced surface tubes

Evaporator tubes:

- › Outside: Cavities for optimized nucleate boiling
- › Inside: Helical structure

Condenser tubes:

- › Outside: Optimized for condensation
- › Inside: Helical structure



✓ Condenser specifically designed for Marine application thanks to:

- › Copper Nickel tubes and tube sheets cladding in Cu-Ni 90-10;
- › Ceramic coating on water heads;
- › Cathodic protection with sacrificial anodes.

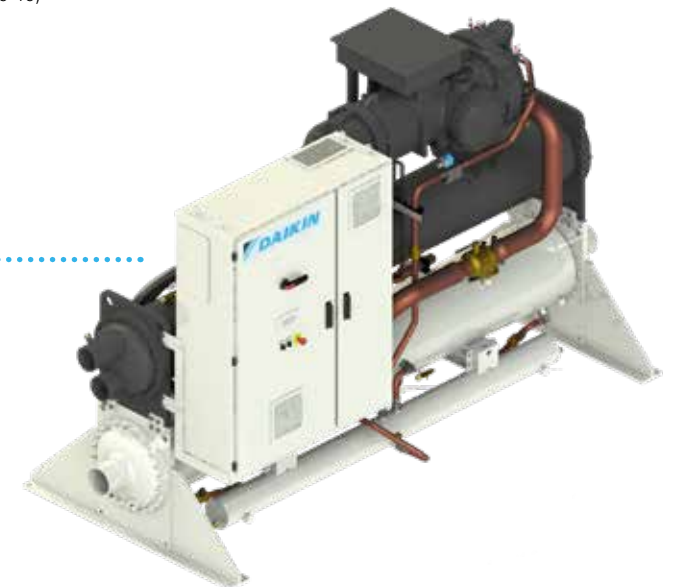
✓ Optimized design

Pressure drops reduced by half

- › meaning 1°C lower condensing temperature
- › + 3.5 % efficiency

✓ Oil designed for extreme pitching and rolling operation:

- › Oil injection for high reliability
- › Angle of inclination (degrees):
 - Aftships: ±15 static; ±22 dynamic
 - Fore and aft: ±5 static; ±7.5 dynamic



2 Compact unit

› Small footprint, ideal for replacement projects



1. New single pass condenser technology

- › High heat exchange performances thanks to Special cross-flow design
- › Low water pressure drops < 30 kPa

2. New integrated oil separator technology

- › Low oil carry over
- › Low refrigerant pressure drops



3 Future readiness: Choose for today's best solution and be ready for the future!



R-134a refrigerant, still today the best possible choice:

- › Still most efficient refrigerant.
- › Availability in high quantities and at competitive prices.
- › No phase out planned in F-gas Regulation.
- › Classified as non flammable

All VZ units are 'new refrigerant ready!'

Possibility to retrofit them in the future with lower GWP refrigerants.

VZ Marine solutions



VZ Marine is fitted with a set of solutions in order to be compliant to Marine regulations [i.e. Lloyd's, DNV-GL, BV, RINA, ecc...]:

- › Special cross-flow condenser specifically designed to operate in pitch and roll conditions;
- › Oil reservoir to ensure proper oil return, in pitch and roll operation;
- › Accelerometers activating dedicated EEXV control specifically designed for marine applications;

In addition to the above mentioned features, further customization is feasible in order to meet every customer needs:

- › Cu-Ni condenser tubes to operate with sea water application
- › Halogen free cables and insulation;
- › Most common marine power supply 690V/60Hz, 690V/50Hz, 440V/60Hz, and others...
- › IT-system for the Inverter;
- › Holding charge for long term storage necessities before operation
- › Marine certification for heat exchangers (i.e. DNVGL, Lloyd's, RINA, Bureau Veritas, ecc...);
- › Heat exchangers suitability for Marine thanks to Marine water box, hinged covers, flanged water connections.
- › Heat pump application

Test stand capabilities

- › 11 MW capacity test stand AHRI approved

Power supply flexibility

- › Voltage (V): 380 - 400 - 460 - 480 - 690
- › Frequency (Hz): 50 - 60

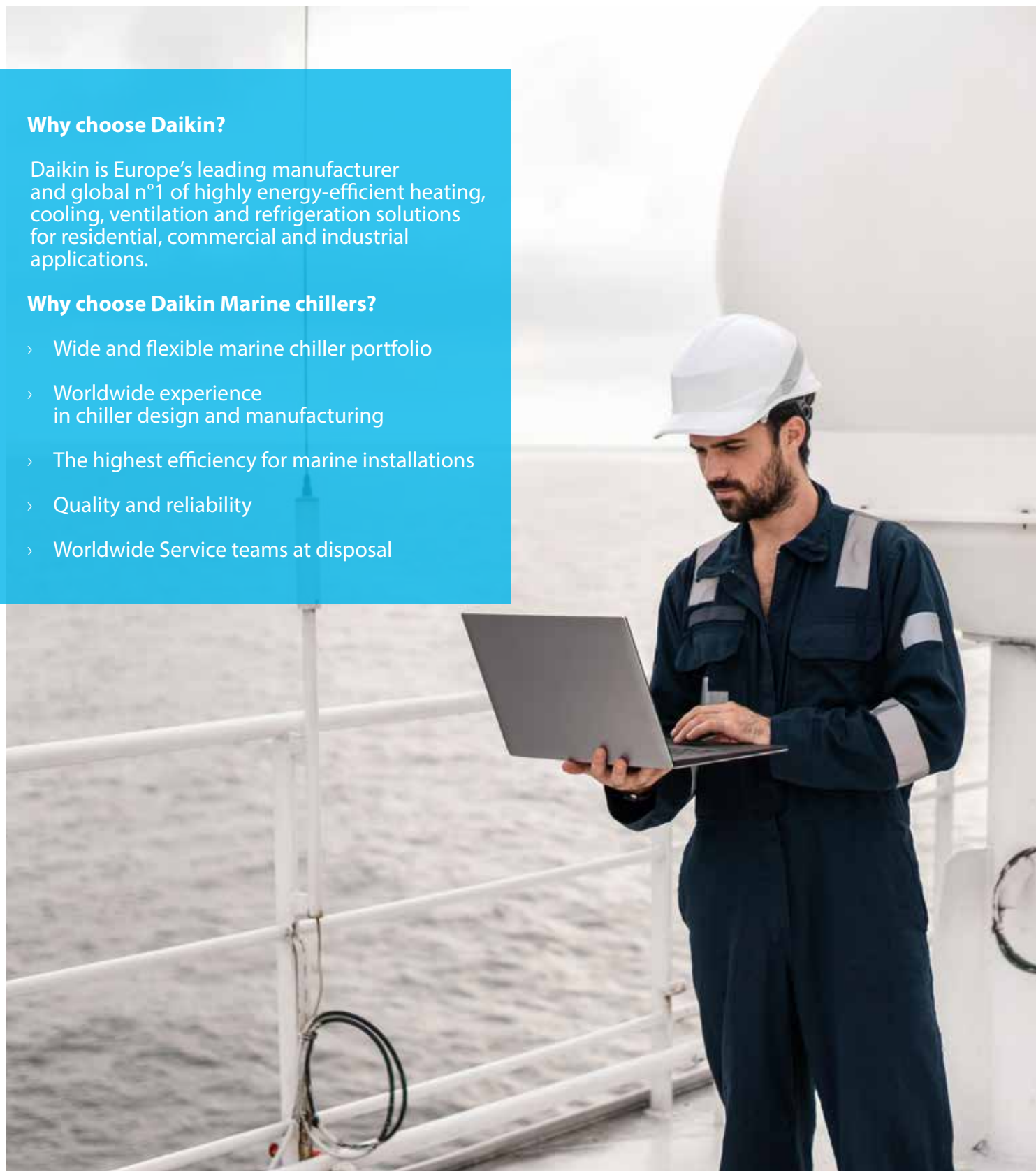
Please contact the sales representative for assistance.

Why choose Daikin?

Daikin is Europe's leading manufacturer and global n°1 of highly energy-efficient heating, cooling, ventilation and refrigeration solutions for residential, commercial and industrial applications.

Why choose Daikin Marine chillers?

- › Wide and flexible marine chiller portfolio
- › Worldwide experience in chiller design and manufacturing
- › The highest efficiency for marine installations
- › Quality and reliability
- › Worldwide Service teams at disposal



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