

ABB hybrid drive for harsh environments HES880, 55 kW to 510 kW

The ABB heavy duty electric drive, HES880, is a robust and portable solution for deck machinery where maximum efficiency, redundancy, weight and size are critical.



The all-compatible drive for harsh environments

With its high vibration tolerance and IP67 rating, the HES880 heavy duty electric drive offers the rugged, reliable performance demanded by arduous and hostile environments. When used in inverter mode, the drive controls the torque and speed of the motor. When used in generator mode, it can control the DC-link voltage in an electrical drive-train. Using the motor control platform, direct torque control (DTC), the drive controls induction, permanent magnet, synchronous reluctance and internal permanent magnet motors. DTC also extends the same control benefits to generator mode.

On board for all weathers

The drive's sealed IP67 protection repels moisture and corrosive agents and can be operated from -40 to +85°C including 100 percent humidity.

The drive is liquid cooled, using water glycol or *oil which is supplied by standard or existing cooling systems enabling input temperatures as high as 70°C. The HES880 is an ideal solution for skid or deck mount.

*Oil cooling is possible with de-rating, please contact your local ABB representative for further guidance

Accurate control without an encoder

ABB's proven DTC brings open loop control which reduces the need for external encoders. This reduces maintenance risk and costs.

Optimised for efficiency, energy recovery and storage

The drive's active supply unit allows for full power flow during motoring and generating. No external brake resistor is needed and its low harmonic footprint exceeds marine requirements. The drive has the ability to boost motor voltage during supply dips without interruption to the process.

The HES880 can locally store and release energy via batteries or super-capacitors. This provides peak power supply in active heave applications, greatly reducing power required from the vessel, or in a "blackship" incident, where safe and controlled stop can be achieved using energy stored locally.

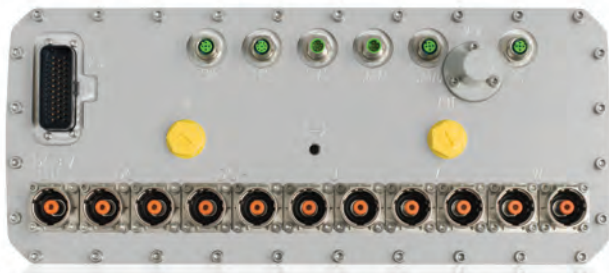


HES880 key features:

- High protection class, IP67
- Withstands wide temperature range and heavy vibration and shocks
- High power density
- Significantly reduced weight and footprint
- Suitable for strongly cyclic loads
- Liquid cooling with high liquid input temperature, up to 70°C
- Silent operation
- Marine grade aluminium enclosure
- Fully regenerative drive system
- Total harmonic distortion < 5 percent
- Optional in-built brake chopper
- DC/DC module for local energy storage
- IEC 61131-3 standard programming
- Same hardware for line converter, inverter and DC/DC converter
- Maintenance free

Commissioning and Maintenance

The drive can be programmed from the intuitive and high resolution control panel or through a USB port with the PC tool, Drive Composer. All of this can be done off site. Once commissioned all data is stored to the removable memory unit for ease of replacement and recommissioning.



IP67 quick connectors for power and control cables with removable memory unit

For more information please contact your local ABB representative:
 Ryan Reilly
 Mobile: 07713068122
 Email: gb-decksystems@abb.com

Technical data

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|---------------------------------|--|
| Supply connection | |
| Power range | Size H3i: 233 A continuous and 350 A peak. Size H6i: 400 A continuous and 600 A peak. Size H9i: 600 A continuous and 900 A peak. |
| Voltage range | 3-phase, 230 to 500 V ±10% |
| Frequency | 48 to 63 Hz when grid connected |
| Connections | |
| Motor types | Asynchronous induction, permanent magnet, synchronous reluctance and Internal permanent magnet motors (IPM) |
| Frequency | 0 to 1,000 Hz |
| Type of control | Direct torque control (DTC) and scalar control |
| Inputs and outputs | Two analogue inputs, three digital inputs, two digital outputs |
| Motor temperature | Isolated Pt100, NTC and PTC input |
| Communication | CANopen® |
| Options | |
| Hardware | Chokes for DC/DC converter and LCL-filter for grid connection Brake chopper, Resolver or HTL Encoder interface |
| PC tools | Drive composer |
| Environmental limits | |
| Degree of protection | IP67 |
| Coolant temperature | -40 to +70 °C (-40 to +160 °F) |
| Ambient temperature | -40 to +85 °C (-40 to +185 °F) |
| Altitude | Max. 4000 m |
| Product compliance | |
| Directives and standards | Low Voltage Directive 2006/95/EC, Machinery Directive 2006/42/EC, EMC according to EN 61800-3, 2 nd environment, unrestricted distribution category C3, CE, RoHS, Quality assurance system ISO 9001 |
| Vibration | IEC 60068-2, 4g constant and 30g shocks |
| Safety | Safe torque off (STO), SIL3 |

Notes:

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