

## Harsh Environment: Offshore

It is generally understood that the industry specifications used in the Chemical, Oil and Gas Industries (IEEE841, API541, API547, and API546) are the result of practical experience in the field to improve reliability. These standards form the basis for almost all user specifications in this segment. Special consideration must be given for specifications for offshore applications.

Although offshore applications are similar to onshore operations, there are many new challenges for oil companies when operating offshore. To increase motor reliability it is common to find features added beyond the industry standard, specific to the harsh environment of an offshore platform. In addition to the harsh environment, offshore locations are also remote and have a limited storage area for motors and spare parts. When considering all factors relating to motors on a production platform, complete reliability of product is a key factor, including the coating specified for the harsh environment.



For low voltage motors, in addition to the requirements of IEEE841, specifications may include:

- High or lower ambient temperatures
- Reduced sound level
- C1 Div2 T3 (part of IEEE841) or other hazardous area classifications
- Anti-fungal treatment of insulation systems
- 316 stainless steel hardware, shafts, and connection boxes
- Extreme paint systems
- Space heaters with separate connection boxes
- Temperature monitoring devices, such as RTD's
- Connection boxes with terminal posts
- For extremely low ambients, grease, seals, fans and shaft special material may be specified

For medium voltage motors (API541, API546, and API547) all above features are likely to be specified in the data sheet. In addition:

- Heat exchanger tubes made of 316 stainless steel
- Mounting shims of 316 stainless steel
- Low inrush current designs
- No flexible conduit (as might be used to run control wire to a termination point)



For either LV or MV if ABS (American Bureau of Shipping) compliance is required, electrical performance may change, as well as some testing requirements. Additionally, customers may ask that the motors meet specific motion withstand requirements of the floating structure, as an example:

- 22.5 degree list and 10 degree trim
- Pitch and roll angle of 20 degrees
- Predominant motion period of 9-11 seconds
- Lateral acceleration factor of .65G
- Vertical acceleration factor of 1.2G

When Baldor is engaged by our customers to supply motors for any offshore installation, it is important to acknowledge the very stringent requirements. Careful and complete review of project specifications and data sheets for every motor are a necessity.



P.O. Box 2400 • Fort Smith, AR 72902-2400 U.S.A. • Ph: (1) 479.646.4711

**Baldor - Dodge**

6040 Ponders Court • Greenville, SC 29615-4617 U.S.A. • Ph: (1) 864.297.4800

[www.baldor.com](http://www.baldor.com)