GREEN SPARK AUTOMATION
Solutions for a Better Tomorrow
Smart Energy and Sustainable Growth

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BALDOR-RELIANCE®

IEEE 841 motor line

Designed for severe duty applications in the most demanding industries

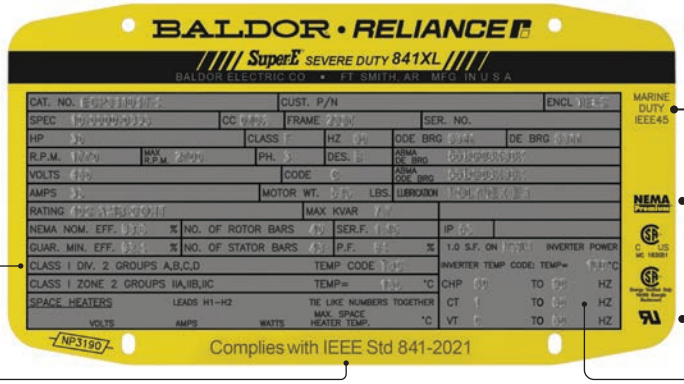
BALDOR • RELIANCE

Certified solutions
for severe duty applications

When you specify a Baldor-Reliance IEEE 841 motor, you can trust that it meets the IEEE 841 - 2021 standard to the letter.

All our IEEE 841 rated motors come standard with a PLS® (Positive Lubrication System) bearing lubrication system, inverter-ready nameplate and ship with an IEEE 841 test report. All designs meet the efficiency requirements for North America and are backed by a 5-year warranty.

Every IEEE 841 comes with an embossed, stainless steel nameplate.



Class I, Division 2
Groups A, B, C, D

IEEE 841-2021

IEEE 45
Marine duty

Certifications

Inverter duty
capabilities

Other certifications:

International Association of Oil & Gas Producers

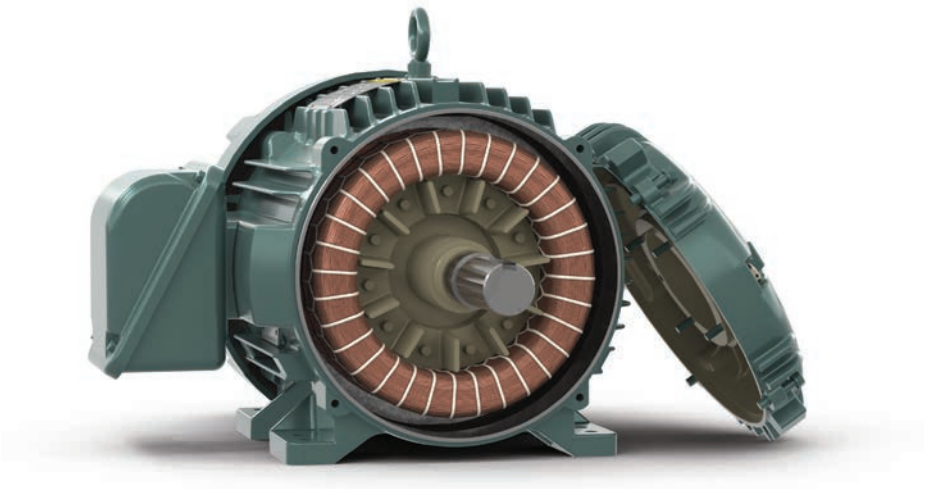
IEEE

JIP33

IEEE 841 motors

Designed for severe duty applications in the most demanding industries

Our line of 841XL motors are designed to meet and exceed the requirements of IEEE Std. 841. This industry standard was created for the petroleum and chemical industry to improve the reliability, efficiency and performance of severe duty motors used in those applications. Other severe process industries like pulp and paper, cement and mining have also adopted the IEEE 841 standard to help users specify motors for severe duty applications.



IEEE 841XL

IEEE 841XL
vertical p-base

IEEE 841 / 661XL

Reliable
The rugged design and extra-tough features of the 841XL minimize vibration, and our patented PLS lubrication system allows the motor to run cooler, providing low-maintenance service in moist, contaminated or harsh environments.

Easy to install
From oversized conduit boxes, lead separators, colored leads, foot flatness, vertical jack screw holes, dowel pin holes, embossed stainless steel nameplates, this motor has it all.

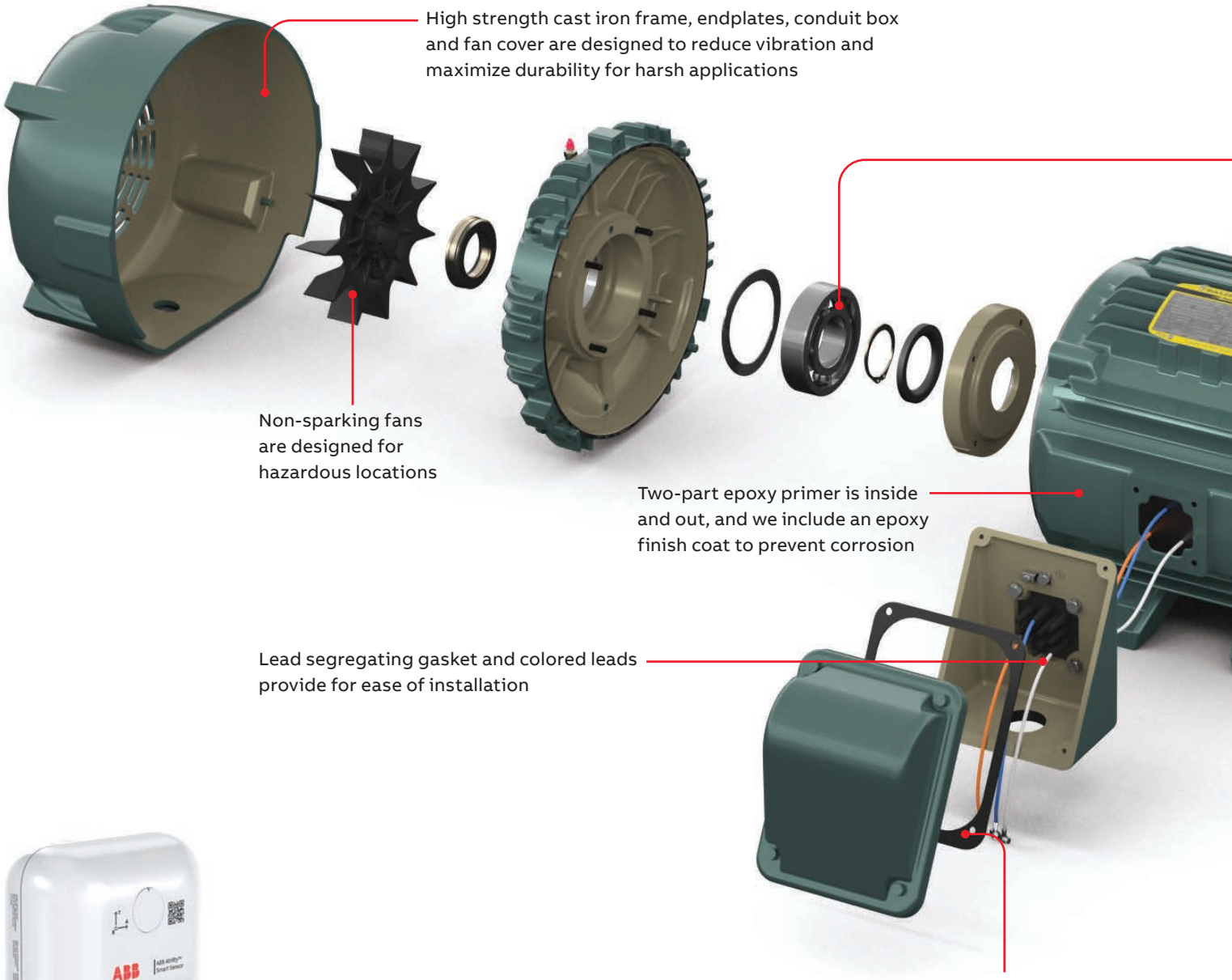
Safety
From ease of installation to safe and reliable operation, these motors are certified to be used in hazardous locations (Class I, Division 2).

Protection
Used in some of the harshest environments, the IEEE 841XL has all the protection a motor needs with premium sealing and IP56 protection.

Rugged
Heavy-duty cast-iron construction, corrosion resistant epoxy finish and premium efficient electrical designs are backed by a 5-year warranty.

Globally recognized standards
Baldor-Reliance IEEE 841XL motors exceed the IEEE standard 841 and meet NEMA Premium efficiency standards.

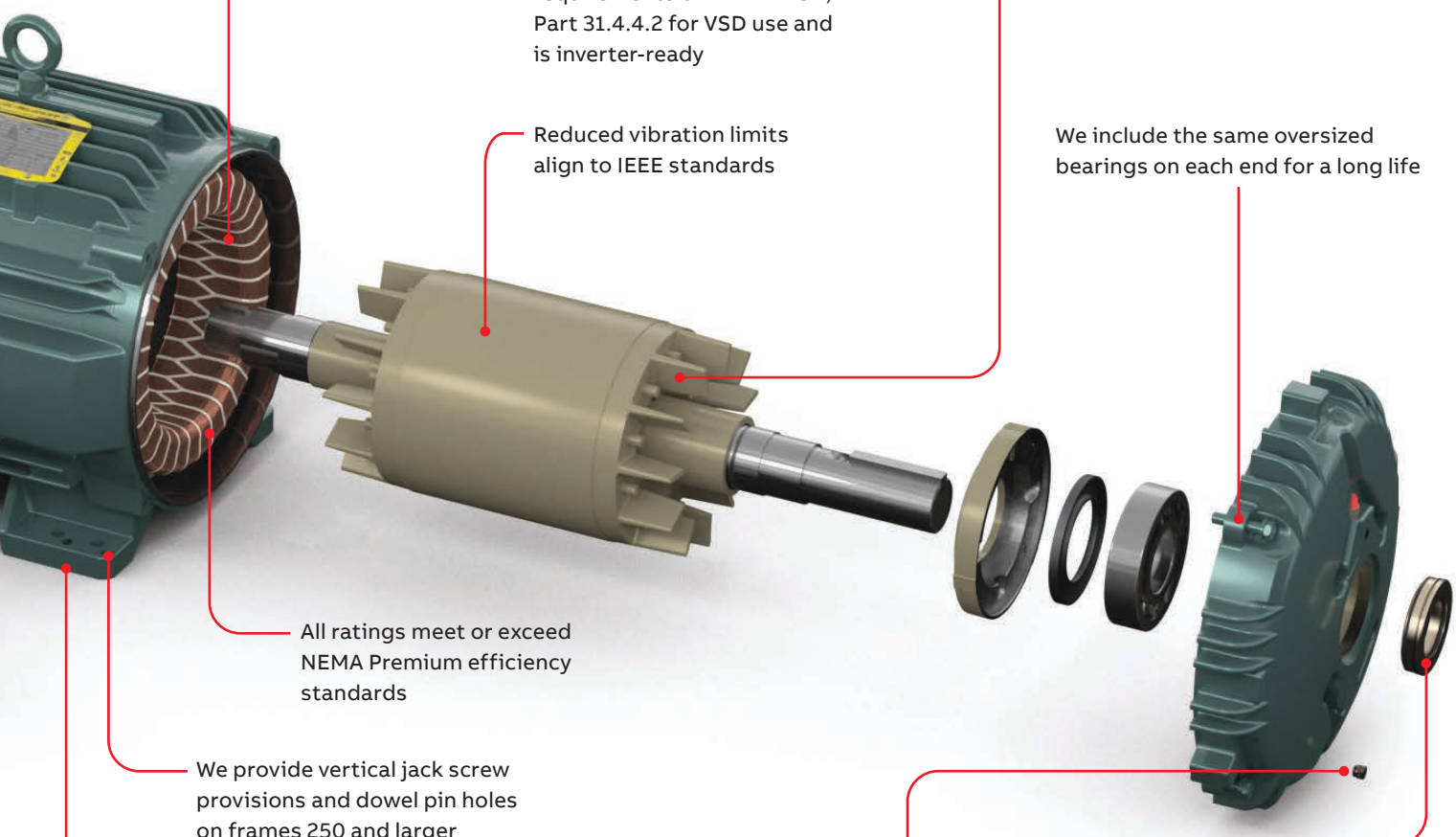
Baldor-Reliance IEEE 841 motor design for demanding industries



The optional ABB Ability™ Smart Sensor for hazardous locations allows you to remotely monitor the condition of your motor and move from time-based to condition-based maintenance

IP55

IP56



Exclusive PLS ensures proper bearing lubrication in all mounting positions. Open bearings provide better lubrication and cooler running temperatures for a longer life

The insulation system meets requirements of NEMA MG 1, Part 31.4.4.2 for VSD use and is inverter-ready

Reduced vibration limits align to IEEE standards

All internal rotor, stator, and shaft surfaces are epoxy coated to prevent corrosion

We include the same oversized bearings on each end for a long life

All ratings meet or exceed NEMA Premium efficiency standards

We provide vertical jack screw provisions and dowel pin holes on frames 250 and larger

Foot flatness within 0.005 inches provides precision alignment

Auto-drain ensures no harmful accumulation of moisture with no maintenance required

Bearing isolators at both ends ensure IP66 bearing housing ingress protection

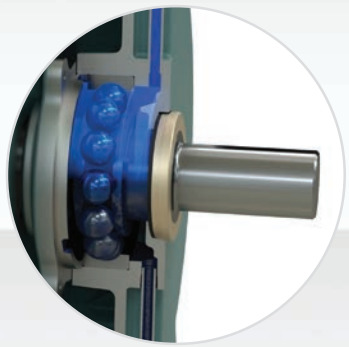
IEEE 841 specification
in demanding industries

Specifications	
Power range	1 thru 500 Hp
Voltage	60Hz 460 and 575 volt (50Hz and other voltages are available)
Mounting	Foot mounted, C-face (foot mounted and footless) and vertical P-base
Ingress protection	IP56 for 841XL and 661XL, IP55 for 841XL vertical P-base (Bearing isolators provide IP66 ingress protection)
Bearings and lubrication	Open bearings and patented PLS lubrication system for bearing longevity
Sealing	Non-contact, rotating labyrinth seal – DE & ODE
Mechanical design	Durable cast-iron end-shields are machined to close tolerances for exacting alignment of bearings and rotor
	All hardware is hex head, high strength and corrosion resistant SAE
	Vertical jacking provisions. NEMA 250 frame and above
	Dowel pin holes. NEMA 250 frame and above
	Grounding: drilled and tapped in frame and ground lug in terminal box
	Grease inlet and auto relief fittings
	All frame sizes come standard with an epoxy protection against tropical environments
Electrical design	Inverter ready per NEMA MG1 Part 31.4.4.2
	Class F insulation with Class B rise @1.0 service factor on sine wave power
	NEMA Design B
	Lead lugs
Certification and tests	Class I, Division 2, Groups A, B, C, D with T3
	Meets and exceeds IEEE Std. 841-2021
	Meets and exceeds IEEE 45 on nameplate
	Complies with JIP33 requirements
	Documented final motor test – ships with motor
	Epoxy paint system exceeds 300+ hour salt fog test per ASTMB117
Other IEEE 841 requirements	Foot flatness within 0.005 inches for precision alignment to driven equipment
	Draft angle on top of mounting feet is 1.5° or less to make proper mounting easier
	Low noise
	Vibration limits 0.08 in/s peak velocity or less
	All internal rotor, stator and shaft surfaces are epoxy coated
	Embossed stainless steel nameplates include all required NEMA data plus actual motor weight and guaranteed minimum efficiency
	5-year warranty
Only from ABB	Optional ABB Ability smart sensor for condition monitoring
	Designed and built in the USA

Red text = sspecifications exceed IEEE 841-2021 requirements

ABB offers custom Baldor-Reliance IEEE motor designs to meet your performance needs. Contact your local ABB sales office for more information.

Features that matter
to extend motor performance



Exclusive PLS (Positive Lubrication System) is a patented bearing lubrication design that was developed 40 years ago to ensure proper bearing lubrication in all mounting configurations. Grease is channeled directly into the rolling elements. Easily accessible lubrication fittings are positioned on both endplates and come standard on all Baldor-Reliance IEEE 841 motors.

PLS design allows the bearings to run 5-7°C cooler.

Scan to see how it works

Bearing Isolator

- Provides permanent IP66-rated protection against contamination ingress.
- Contamination chamber collects contaminants trying to enter the bearing housing and expels them through the expulsion port through centrifugal force and gravity.
- Blocks the transfer of vapor contamination created by heating/cooling of the bearing enclosure.

Lead segregating gaskets

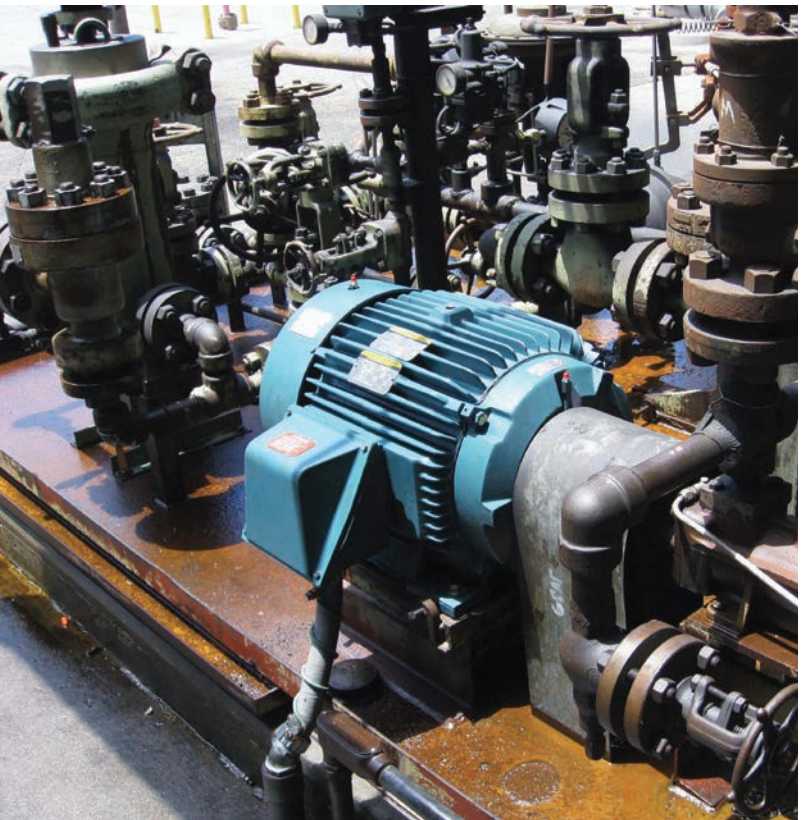
Colored leads (up to 320 frame), which are permanently labeled and numbered, provide two-factor identification for easier and safer connections.

IEEE 841XL
Exceeding the IEEE standard

Our line of 841XL motors are designed to meet or exceed the requirements of IEEE Std. 841-2021. This industry standard was created for the petroleum and chemical industry to improve the reliability, efficiency and performance of severe duty motors used in those applications. Other severe process industries like forest products have also adopted the use of the IEEE 841 standard as it helps promote uniform motor specification and reduce total cost of ownership.

Typical industries:
- Oil & gas
- Petroleum and chemical
- Pulp & paper
- Metals & foundries
- Cement, aggregate and above ground mining

Common applications:
- Compressors
- Pumps
- Fans
- Conveyors



IEEE 841XL vertical P-base

Pumping applications requiring IEEE performance

The P-base vertical motor, designed to provide outstanding performance, reliability and ease of maintenance, is the most cost effective solution for applications in wastewater; chemical; oil and gas; and pulp and paper applications. The features of IEEE 841XL motors make them an excellent choice for any application that would benefit from longer service life and reduced maintenance. They have been designed to suit your vertical turbine pump needs and provide years of uninterrupted service.

Both medium and high thrust load requirements are available from stock. (Medium thrust LP, High thrust VP)

Available custom options:
- API 610 compliant construction
- Non-stock Hp and speeds
- Bearing isolation
- Custom shaft
- Custom mounting face
- Anti-rotation ratchet

Typical industries:
- Oil & gas
- Petroleum and chemical
- Wastewater
- Mining
- Pulp and paper
- Other harsh duty environments

Common applications:
- Vertical turbine pump

IEEE 661XL

Belt-driven, air-cooled heat exchanger motors

Baldor-Reliance 661XL was specifically designed to meet the belt-driven, air cooled heat exchanger specifications of API Standard 661 in vertical mounting configurations. These motors are used in petrochemical facilities to cool process fluids.

661XL meets and exceeds all the requirements of IEEE Std. 841-2021 and the motor requirements of API 661 including 40,000 hr L_{10} life for belted applications. We take it one step further with enhanced features such as our patented PLS bearing lubrication system, IP56 enclosure that includes dome shaft slinger, anti-condensation auto-drains, drilled and tapped shaft with vertical lifting provisions, bronze labyrinth shaft seal, and gasketed conduit box and cover. All motors are inverter-ready and ship with an IEEE 841 test report.

Typical industries:
- Oil & gas
- Petroleum and chemical

Common applications:
- Belt drive, ACHE (air cooled heat exchanger)

ABB Ability condition monitoring
For hazardous locations

The ABB Ability Smart Sensor for hazardous areas monitors the health and performance of rotating machines operating in hazardous locations.

Predictive maintenance for motors:
In the past, permanently installed condition monitoring was too expensive to use with the majority of motors. As a result, most of the motors were run until they failed. ABB's cost-effective solution changes all that. With payback time estimated at less than one year, Smart Sensor brings wireless, remote condition monitoring to a much wider range of motors – plants can even implement condition monitoring for entire motor fleets. Condition monitoring means that maintenance activities can be planned in advance, which reduces downtime and supports longer motor life.

Certified for hazardous areas
The Smart Sensor's enclosure withstands high vibration levels, protects the sensor from dust and water ingress and is rated IP67. The sensor is certified for ATEX, IECEx and NEC500, making it compliant with the strictest requirements for equipment operating in hazardous locations.

(For more information on ABB Ability smart sensors)

Health checks
ABB's advanced algorithms are used to analyze the data and produce meaningful information such as temperature, vibration, load, number of starts and more. The sensor sends this information directly to a smartphone, gateway, or dedicated portal. Data is also tracked over time for trend analysis.

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