



Marine Offshore **Off-Highway Drive and Motion Systems**

Market-leading motion systems by Brevini® and Fairfield® optimize machine performance while maximizing yields. Our products meet requirements for the most diverse marine applications.





People Finding A Better Way[®]

Established in **1904**. Employing **38,000** people across **141** major facilities in **33** countries. Shipping to **14,000** customers in **141** countries. Leveraging a global network of technology centers across **9** countries.

Our Vision

Powering Innovation
To Move Our World

Our Mission

This mission is embodied in our company theme: People Finding A Better Way. Driving stakeholder value by:

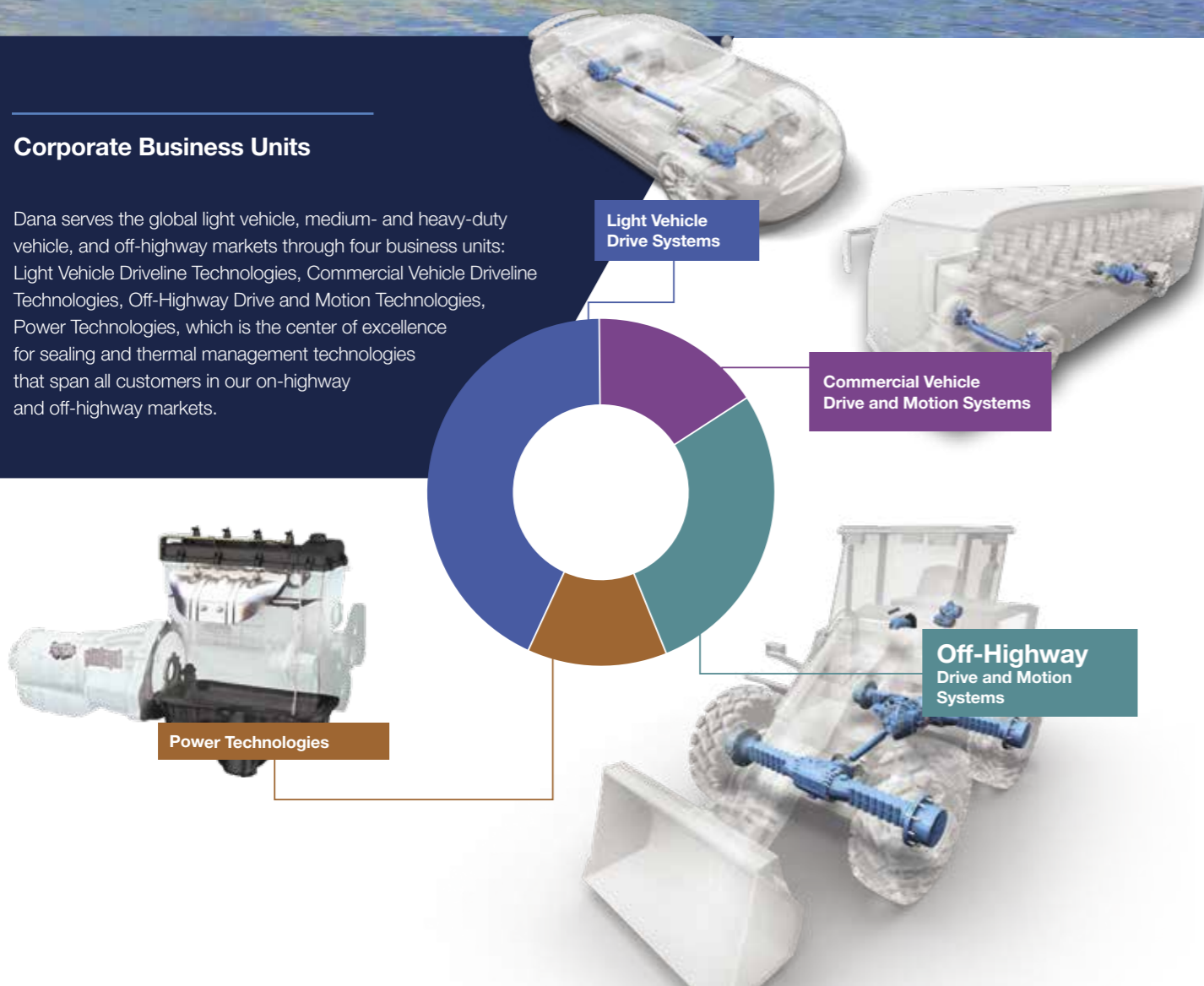
- powering vehicles and machines around the world
- shaping sustainable progress through invention and execution
- making the amazing happen wherever people live, work, and play.

Our Values

- Value Others
- Inspire Innovation
- Grow Responsibly
- Win Together

Corporate Business Units

Dana serves the global light vehicle, medium- and heavy-duty vehicle, and off-highway markets through four business units: Light Vehicle Driveline Technologies, Commercial Vehicle Driveline Technologies, Off-Highway Drive and Motion Technologies, Power Technologies, which is the center of excellence for sealing and thermal management technologies that span all customers in our on-highway and off-highway markets.



Where there is a need, Dana finds a better way.

A new era of mobility is upon us.

Emissions regulations and government policies are manifesting at an ever-increasing pace, and visions of vehicles that reduce operating costs while enhancing productivity and safety are accelerating the need for alternative propulsion solutions.

For over 20 years, our group of highly focused engineers has been dedicated to research and development of new technology solutions aimed at electrification.

We have built a broad portfolio of award-winning, patented technologies, making us a leader in electrification.

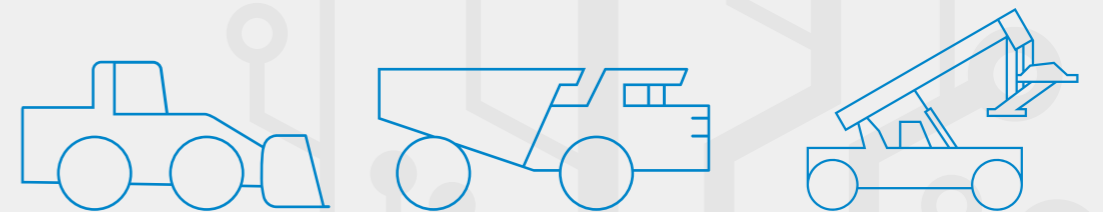
Why should you rely on Dana?

Solutions designed, engineered, and manufactured for maximum efficiency.

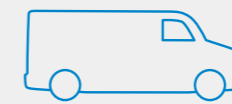
We approach electrification with a trained eye and an insightful, innovative perspective, utilizing market synergies to provide an advantage in electrifying offerings across multiple applications.

A component is only as good as the system in which it operates. That's why we take a systems-focused approach, seamlessly integrating our components into complete electrified systems.

We have an in-house, multi-disciplinary team of system solutions engineers who provide turnkey software and controls for our entire portfolio of technologies. This in-house knowledge and integration produces solutions that provide enhanced performance, packaging optimization, and reduced system weight. All of which results in savings to your bottom line.



OFF-HIGHWAY VEHICLES



LIGHT VEHICLE



COMMERCIAL VEHICLE



WEIGHT REDUCTION
For additional payload or battery capacity



EFFICIENCY
Reduced energy consumption means increased range and cost savings



PACKAGING
Improved vehicle integration for optimized packaging space



COOLING SOLUTIONS
Capability to integrate thermal-management solutions with power sources

Off-Highway Drive and Motion Systems

As an innovation leader in off-highway drive and motion systems, Dana continuously improves the performance and efficiency of vehicles and machines worldwide. We aim to be the global technology pacesetter in efficient power conveyance and energy-management solutions.

Enhanced Brand Portfolio Off-Highway brands

Drivetrain Systems



Motion Systems



Gears and Shifting Solutions



Thermal Management



Sealing



Leading the Charge in Vehicle Electrification

Dana is a leading drivetrain and motion systems provider for electrified off-highway applications.

Supported by a legacy of innovation in conventional drivetrains, Dana is at the forefront of integrating mechanical and electrical components for alternative propulsion applications. We embrace evolution to be a step ahead in supporting new applications as they emerge and collaborating with customers as they develop tomorrow's vehicles.

Electrification. **Delivered.**TM

Fully integrated e-Drive and e-Motion systems

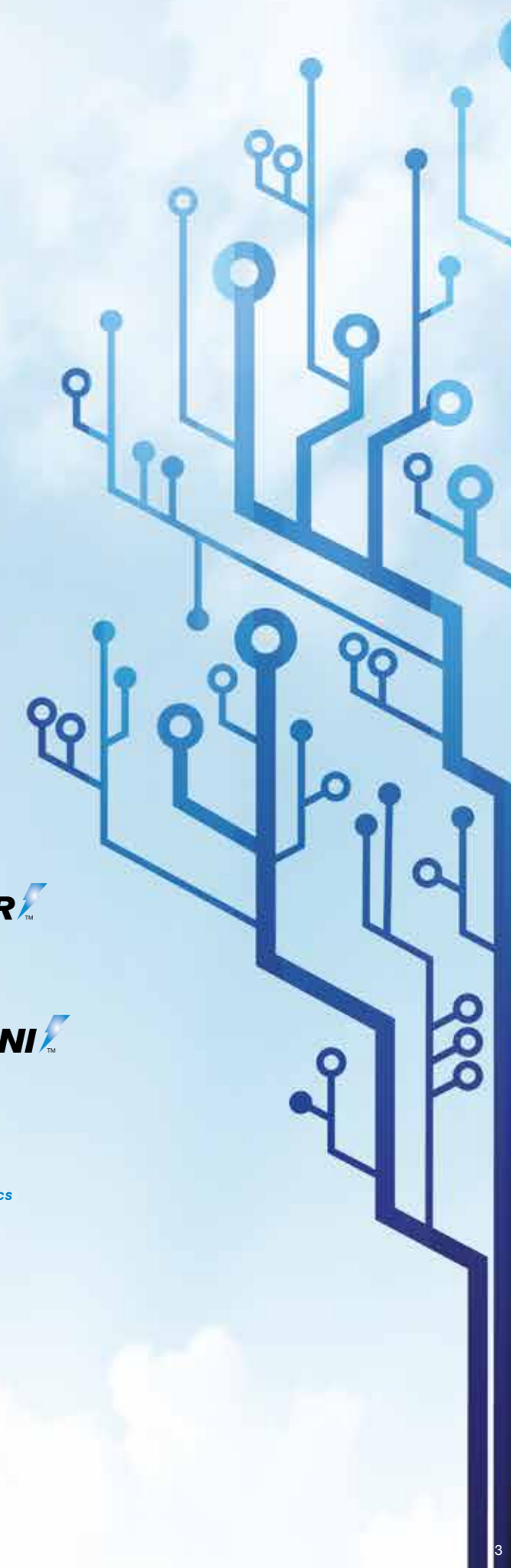
e-Drive Systems



e-Motion Systems



Electric and Hybrid e-Drive Systems



Off-Highway Segments

Dana leverages our global expertise to engineer the most advanced, customized product solutions for developed and emerging markets. Our drive and motion products serve a wide range of demanding industries, including applications for equipment with wheel and track drives as well as stationary machines.

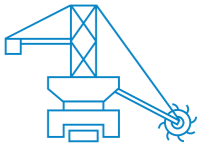


Industrial



Bulk Materials

Dana has an extensive range of gearboxes with torque ratings of up to 3 million Nm. Our qualified, experienced engineers provide optimum solutions for heavy-duty applications, and our service team delivers support for the entire life cycle after delivery.



Heavy Industry and Steel

Brevini™ gearboxes have been used in heavy-duty operations from mines to steel production for more than 50 years. Our portfolio of advanced technologies has been engineered to support increased productivity and reliability, improved operator safety, and reduced total cost of ownership.



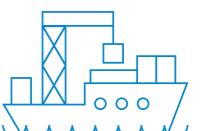
Industrial and Stationary Equipment

Our range of gearboxes and hydraulic products offers reliable solutions for all equipment within the industrial and stationary sectors. Our products enable high productivity and low maintenance costs backed by our aftermarket support and service.



Marine

Brevini™ planetary gearboxes have supported the exacting specifications and certifications of winches and cranes in the marine and offshore market for many years. We also offer a wide range of fluid power solutions that deliver safe and reliable solutions for OEM applications.



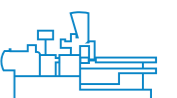
Environment - Renewable Energy

Brevini™ gearboxes for yaw and pitch drives are used by many of the major wind turbine OEMs. We provide engineering input offering sustainable and reliable solutions to meet customer requirements, while our service division has extensive experience in optimizing the performance of gearboxes over the long term.



Plastic and Rubber

Brevini™ and PIV™ brand products include single- and twin-screw extruder drives, rack and pinion drives, rack and pinion drives for injection molding machines, planetary gearboxes, and helical and bevel helical gearboxes.

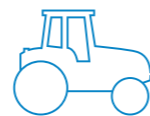


Mobile



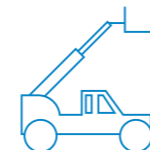
Agriculture

Our products are engineered to support increased crop yields, optimized harvesting operations, lower emissions, improved operator safety and comfort, and reduced total cost of ownership while complying with evolving emissions standards.



Material Handling

Our customized drive and motion systems enhance material-handling vehicle performance, productivity, and power. Spicer® transmissions, axles, and driveshafts are designed to work seamlessly in any vehicle to allow operators to engage, lift, and transport heavy loads with more precision.



Mining

Dana designs complete drive and motion systems to meet increasing industry demands for automation and productivity, coupled with high safety standards. Our solutions are specially engineered to maximize vehicle performance in extremely harsh environments.



Construction and Forestry

Integrated drive and motion systems from Dana enhance construction equipment performance, efficiency, and productivity with a range of solutions for vehicles ranging from 3 to 50 tonnes (4 to 55 tons). Spicer® axles, wheel drives, transmissions, driveshafts, and Brevini™ motion products are integrated with the most advanced technologies for improved machine operation on any job site, in any condition.



Marine Applications

Dana works with customers in the marine industry around the world, offering solutions for both industrial applications and self-propelled machines.

Dana's offering includes consulting, systems design, engineering, procurement, manufacturing, and aftermarket support for turnkey projects, new equipment, upgrades, and modernizations.



Marine equipment varies from onshore port applications to offshore marine environments. Onshore includes industrial and mobile applications such as ship-to-shore (STS) cranes, rubber tyre gantry (RTG) cranes, rail-mounted gantry (RMG) cranes, harbor cranes (MHC and GHC), ship lift systems, reach stackers, and straddle carriers. Offshore applications include Jack-Up systems, cable- and pipe-laying vessels, cargo ships, subsea systems, oil platform equipment, remotely operated vehicle (ROV) launch and recovery systems, and more.



Covering the needs of ports, shipyards and all offshore requirements, Dana is a one-stop opportunity for the marine industry worldwide.

Industrial and mobile solutions, including those for Reach Stackers and Forklift Trucks, are available thanks to the vast array of Brevini® motion systems and Spicer® drivetrain systems.

Moreover, with the recent acquisition of Fairfield®, providing custom gears and drives, Dana has increased its product portfolio and is even better to serve the marine industry today.

Cable- and Pipe-Laying Tensioners and Azimuth Thrusters

Cable and Pipe Layer and Tensioner

Cable- and pipe-laying ships are designed for offshore applications. Cable-laying ships lay cable for electric power transmission and telecommunications. Pipe-laying ships are used in the construction of subsea infrastructure for the oil and gas industry. A grapple system (tensioner) assures that the cable or pipe is laid properly. It can also retrieve damaged or misplaced cable/pipe from the ocean floor.

Azimuth Thrusters

A propulsion system with a rudder steering function, an azimuth thruster delivers precise accuracy and maneuverability combined with efficient speed control. These advantages make the thruster a perfect propulsion solution for cruise ships, mega yachts, ferries, and other offshore vessels. The thruster is one of the most important systems for safe and reliable navigation. Consequently, all components must comply with stringent IACS requirements.

Brevini® Helical and Bevel Helical Gearboxes

Carousel drives
Supports torque range up to 2200 kNm
Extensive ratio range
Special output shaft and bearing
Forced lubrication system with double motor pump and bypass
Integrated electromagnetic brake



Brevini® Industrial Planetary Gearboxes – S Series

Tensioner drive with integrated output support
Nominal torques up to 2,170 kNm
Multiple output shaft options
Inline and right angle configurations available
Suitable for both hydraulic and electric motors
Negative multidisc brake

Brevini® Winch Drives

Winch drive for auxiliary hoist system
Ratio range up to 6.000:1
Maximum torque up to 850 kNm
Inline and right angle configuration versions available
Electric motor connection available
ATEX certification
Integrated hydraulic failsafe negative brake and electromagnetic brake available
Safety devices available as back stop, torque limiter, and sensors



Brevini® Industrial Planetary Gearboxes

Pipe handling drives
Nominal torques up to 26,000 Nm
Inline and right angle configurations available
Suitable for both hydraulic and electric motors
Integrated motor adaptor
Negative multidisc brake

Brevini® Industrial Planetary Gearboxes – S Series

Ratio range up to 5.000:1
Modular design
Input flange for hydraulic or electric prime motor
Compact, light solutions for a perfect fit on machine frames



Brevini® Axial Piston Motor

Main hoist drive motor
Fixed and variable displacement up to 216 cc/rev
Seven or nine piston options
Wide control valve range
ATEX certification
Environmentally Acceptable Lubricants (EAL fluids)
Suitable for working in harsh and aggressive environments

Brevini® Evolution™ Series Winches

Winches for auxiliary hoist system
Line pull up to 30 tons
Wide range of safety controls
Equipped with Brevini® high speed axial piston motor
Man-lifting capabilities



Pipe Tensioner

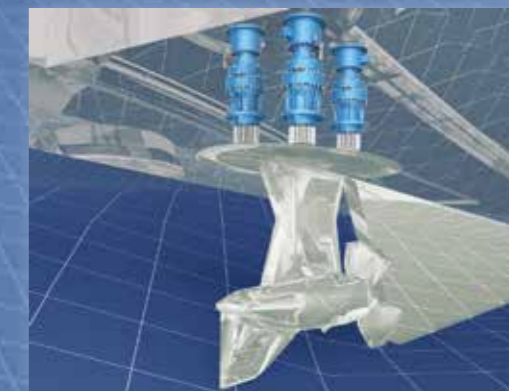


Horizontal Carousel



Brevini® Planetary Gearboxes – Slewing Drives

Steering drive with integrated output pinion; high quality and special toothing profile
Output support with eccentricity for a very accurate teeth backlash adjustment
Integrated safety device options (torque limiter, switches, sensors)
Environmentally Acceptable Lubricants (EAL fluids)
Pollution free regulations



Dana offers customized solutions to meet a range of customer needs, including modular designs and add-on accessories, **marine painting** cycle and **full third party marine certification**.

Full-System Solutions for Deck Cranes

Deck cranes – cranes installed on the deck of a ship – come in a wide variety of types and sizes, and are often classified by the specific application for which they are designed. All deck cranes share similar basic functions – lifting, lowering, and positioning a load from one site to another. However, functionality varies greatly depending on where the crane is being used.

Deck cranes designed to move loads when a ship is docked in the quay handle much smaller loads than deck cranes for offshore

applications, which need to manage several hundred tons, often while ships are floating in a stormy sea.

Customizable design options include hydraulic and electric drivelines; telescopic, knuckle, or lattice booms; a range of control system features to improve accuracy; and environmental features to optimize performance based on worksite conditions. Dana works with customers to ensure that all local standards are met, as well as regulations set by the International Association of Classification Societies (IACS).

Main Hoist System



Active Heat Compensation Main Hoist Drive



Brevini® Axial Piston Pumps

- Displacement up to 226 cc
- Medium- and high-pressure options
- Fixed and variable displacement available
- Open or closed loop circuit
- ATEX certification
- Environmentally Acceptable Lubricants (EAL fluids)
- Suitable for working in harsh and aggressive environments



Brevini® Proportional Directional Valves

- Oil flow up to 1,000 lt/min
- High modularity
- ATEX certification
- Remote control, electronic operation
- Smooth control to improve operation functionality and accuracy



Brevini® Axial Piston Motors

- Main hoist drive motors
- Marine painting cycle
- Fixed and variable displacement
- displacement up to 216 cc/rev
- Seven or nine piston options technologies
- Wide range of control valves
- Third-parties marine and ATEX certification
- Environmentally acceptable lubricants (EAL fluids)
- Suitable for working in harsh and aggressive environments



Brevini® Industrial Planetary Gearboxes – S Series

- Main winch drives
- Ratio range up to 5,000:1
- Modular design
- Input flange for hydraulic or electric prime motor
- Compact, light solutions for a perfect fit on machine frames
- Marine painting cycle
- Third-parties marine certification available



Brevini® Winch Drives

- Winch drive for auxiliary hoist system
- Ratio range up to 6,000:1
- Maximum torque up to 850 kNm
- Third-parties marine certification available
- Inline and right angle configuration versions available
- Electric motor connection available
- ATEX certification
- Integrated hydraulic failsafe negative brake and electromagnetic brake available
- Safety devices available as back stop, torque limiter, and sensors



Brevini® Evolution™ Series Winches

- Winches for auxiliary hoist system
- Line pull up to 30 tons
- Third-parties marine certification available
- Wide range of safety controls
- Equipped with Brevini® high speed axial piston motor
- Man-lifting capabilities



Brevini® Planetary Gearboxes - Slewing Drives

- Torque range up to 370 kNm
- Modular design, inline or right angle configuration
- Range of output support configurations (low angle, long and short support with eccentricity)
- Failsafe negative brakes
- Input flange for hydraulic and electric prime motor
- Compact, light solutions for a perfect fit on machine frames
- Flexible output pinion to meet customer needs
- Product marine/offshore class certification available
- Special solutions to meet requirements for low climate and ATEX certifications



Dana offers customized solutions to meet a range of customer needs, including modular designs and add-on accessories.

Full-System Solutions for **Jacking Drives**

For more than 40 years, Dana's Fairfield® brand has been engineering and building gearboxes for jacking machinery used on offshore platforms.

A complete line of solutions covers a broad range of applications, from lift boats to the largest jack-up platforms. Each drive is designed to meet application-specific requirements and can be driven by electric or hydraulic motors. Features such as customized input configurations, output configurations and specific ratios suited to the application make Dana an ideal partner for your project.

Extensive engineering experience ensures the best solution for each vessel, implementing precision gearing for smooth jacking and unbeatable reliability, even in the most demanding applications.

Certified by the American Bureau of Shipping (ABS) and Det Norske Veritas (DNV), our products benefit from marine-specific coatings and treatments and possess 124K to 3000KNm storm holding capabilities.



Fairfield® Jacking System Drive

Products certified by the American Bureau of Shipping (ABS) and Det Norske Veritas (DNV)

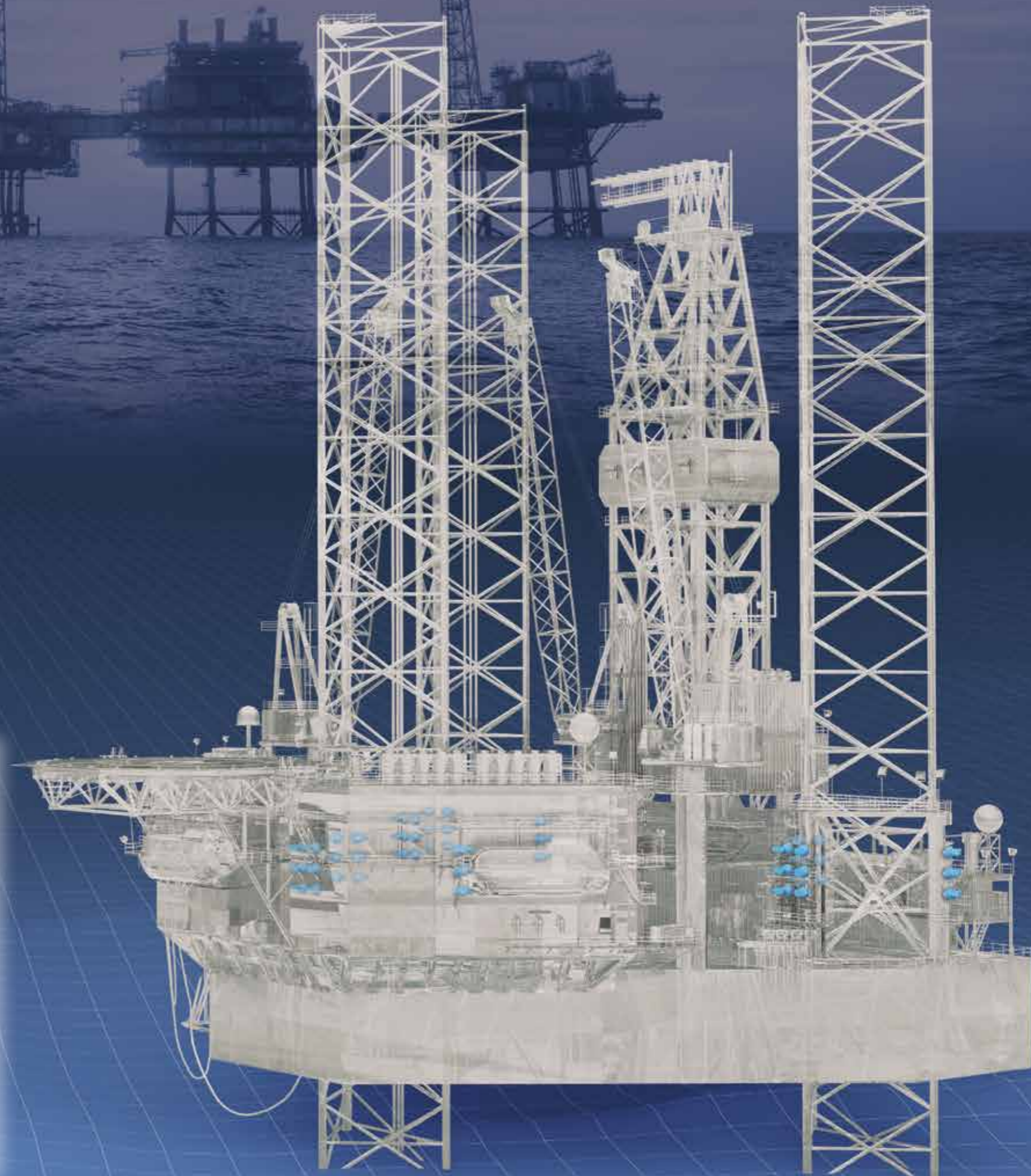
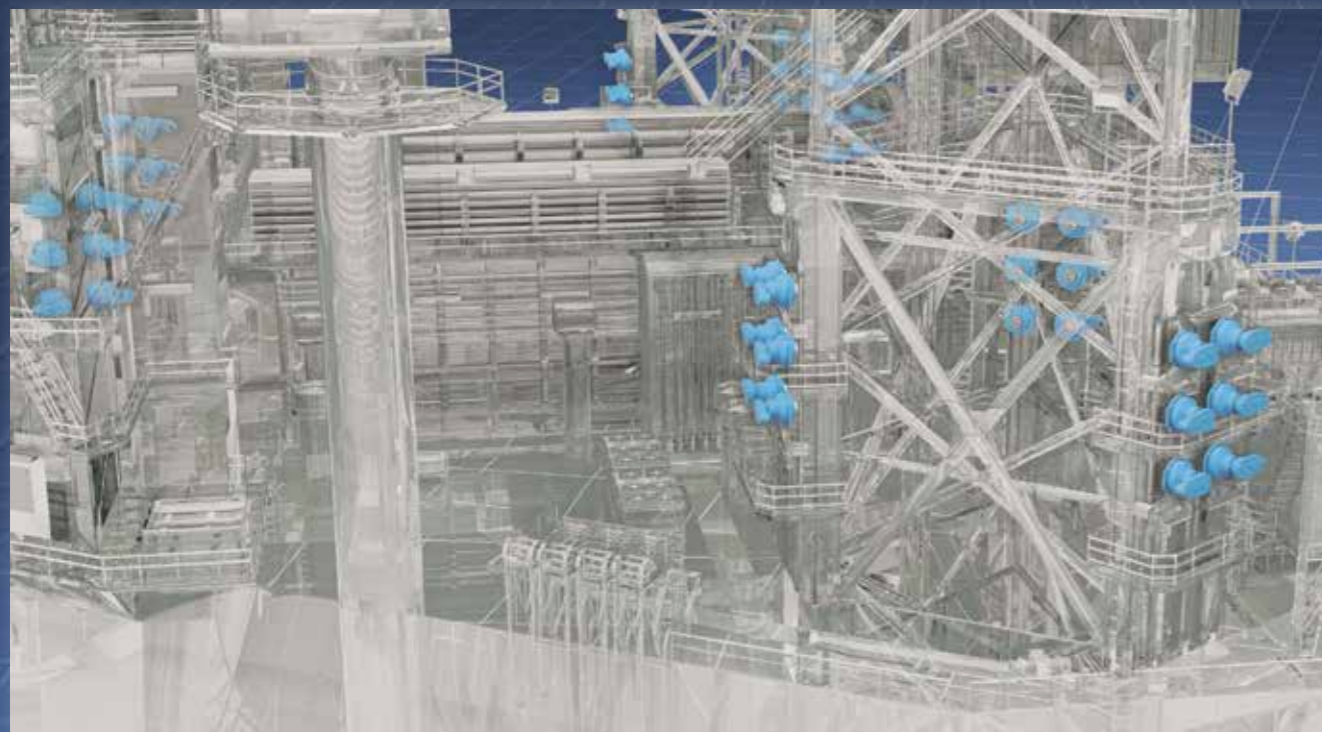
The industry's most complete size range for jack-ups and lift boats

124K Nm to 3000KNm storm holding capabilities

Over 40 years application and design experience

Marine-specific coatings and treatments

Custom interfaces and gear ratios



Offshore Marine

Dana supplies a wide portfolio of products for lifting, pulling, and slewing machinery. These solutions are designed for cranes, dredgers, gangways, anchor and mooring winches, and hatch covers. Dana also offers Brevini® gearboxes designed for the lifesaving equipment used on life boats, and recent acquisition of Fairfield® enables Dana to cater for a broader range of offshore needs. These include large gearboxes for jack-ups and life boats in offshore oil production, as well as vessels used to erect offshore wind turbines.

The proven reliability and strength of Brevini® planetary gearboxes is matched by Brevini® slewing gear drives that deliver optimal performance in all temperatures and climatic conditions. Dana offers additional Brevini® motion products such as axial piston motors and pumps, and proportional valves developed to perform with high-efficiency working functions. Custom gearboxes by Fairfield® are built specially for offshore winches and cranes.

Dredgers

Embarking gangways

Embarking stairs

Anchor and mooring winches/windlasses

Capstans for cable-laying equipment

Deck cranes and machinery

Jack-up systems

Hatch covers

Winches for life boats/pipe handling davits

Pods/azimuths/thrusters

Trawling winches

Umbilical reel winches

Pilot house/steering equipment

Offshore machinery

Offshore platform cranes



Jack-up System for Offshore Drilling Platform



Crane Vessel



Oil and Gas Industry

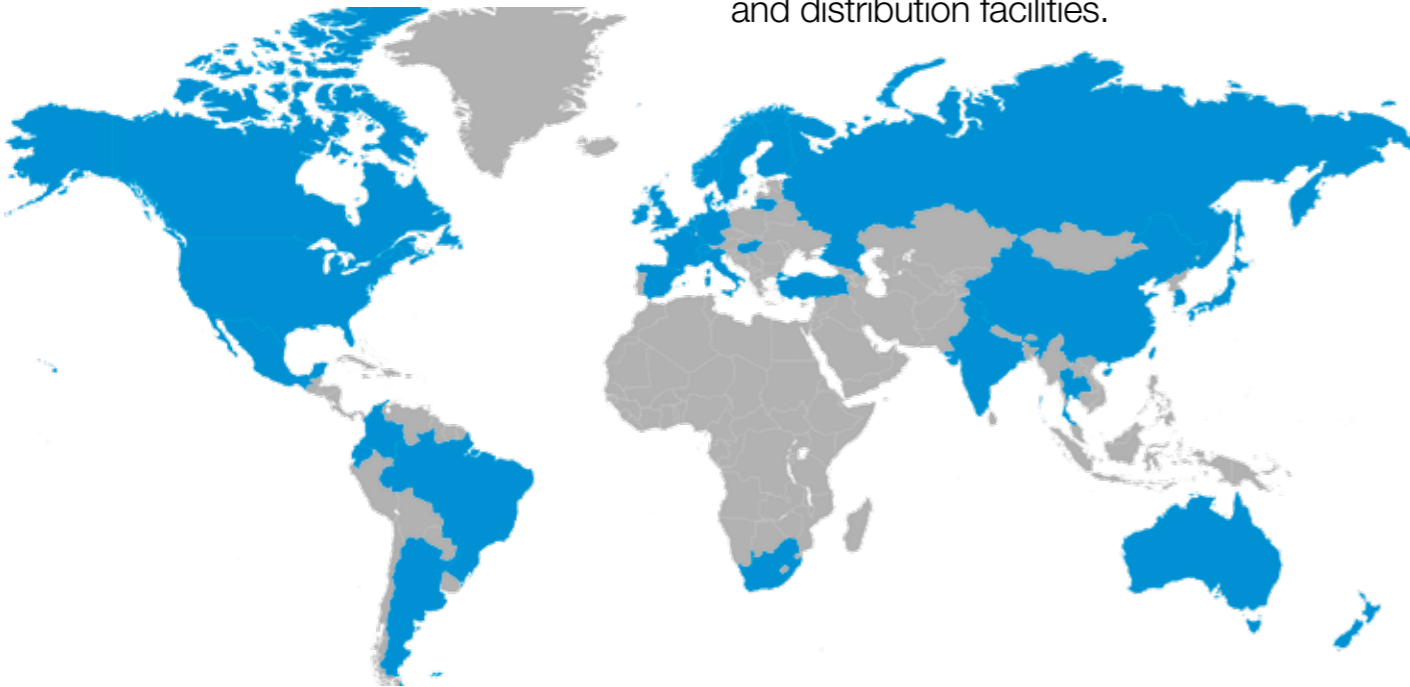
Global Strength

One of the ways we create value is by **positioning** our technical and manufacturing resources where customers need us globally.

Today, that's **33 countries** on **six continents**.

To help customers achieve success, top-tier suppliers must have a global perspective that can be adapted to meet local requirements and end-user expectations.

Dana's **worldwide leadership** is the key to serving clients around the world. We bring our global expertise to the local level with technologies customized to individual requirements through a network of strategically placed technology centers, manufacturing locations, service and assembly centers and distribution facilities.



Our strength is being over six continents thanks to our global logistic network.

Aftermarket Services

Our global expertise is delivered to customers at a local level through a constantly growing and improving aftermarket network. Strategically placed service centers provide solutions tailored to individual specifications by an experienced on-the-ground support team. We meet customer needs in every region, on every platform.



Genuine parts

Dana service parts are manufactured by Dana to the same high standards as original equipment (OE), because they are OE genuine parts. When a part is replaced a complete interchangeability with existing parts provides total product compatibility, with no change in part numbers. A non-original component can lead to significant vehicle costs down the road. We protect your vehicle durability and performance.

Dana Distribution Centers

Dana's global network of distribution centers, located in Europe, Americas, Asia and Australia, offer efficient service points supporting regional customer service, inventory, logistics and packaging operations.

Danaaftermarket.com

E-Commerce Platform

A technology enabled e-commerce platform that brings Dana's global off highway network of distribution centers, products, services and premium brands to your device 24/7 to make better decisions, speed up your operations and ease doing business with Dana.

Using Danaaftermarket.com you can quickly:

- Search for part level detail
- View global availability in real time
- Place orders from your phone, desktop or tablet
- Access educational brochures, videos and training
- Order management documentation communicated in real time
- API developer portal enables cross platform integration and real time data exchange

Spicer® Drivetrain catalog

The new online Spicer® product catalog features the extensive off-highway axles and driveshaft portfolio. Quickly and conveniently locate products by model type or part number through the search functionality and access to usage descriptions and technical details to select optimal products for every aftermarket need. The product database is always updated as new technologies become available.

Market-Driven **Innovation**

Off-Highway Performance Expectations

Safety

Productivity

Maneuverability

Durability

Serviceability

Total Cost of Ownership

About Dana Incorporated

Dana is a leader in the design and manufacture of highly efficient propulsion and energy-management solutions for all mobility markets across the globe.

The company's conventional and clean-energy solutions support nearly every vehicle manufacturer with drive and motion systems, electrodynamic technologies, thermal, sealing, and digital solutions.

About Dana Off-Highway Drive and Motion Systems

Dana delivers fully optimized solutions to customers in the construction, agriculture, material handling, mining, and industrial markets.



Dana.com/oh
Dana-industrial.com/contact-us

Application Policy

Capacity ratings, features, and specifications vary depending upon the model and type of service. Application approvals must be obtained from Dana; contact your representative for application approval. We reserve the right to change or modify our product specifications, configurations, or dimensions at any time without notice.

