Market-leading Brevini® motion systems from Dana optimize machine performance while maximizing yields. Products designed to meet requirements for the most diverse areas for Industrial Port applications.
The port equipment market evolves according to the constant growth of global needs and to the different goods that must be handled.

Dana has a complete range of advanced drive and motion products for port handling equipment that address the market trends and is leading it. We design and manufacture fully integrated drive and motion products for all types of harbor cranes and any other equipment used within the port handling sector.

**Dedicated gearbox**

for harbor crane hoisting mechanisms

Dana Off-highway Drive and Motion Technologies will meet your port handling equipment requirements.

Dana’s innovative products improve the performance and efficiency of port handling equipment.

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**Market-Driven Innovations**

We deliver innovative technologies to meet worldwide customer demands. By anticipating market trends, Dana uses industry expertise to deliver product solutions to help customers achieve their goals.
A ship-to-shore crane is a large dockside gantry crane found at container terminals for loading and unloading intermodal containers from container ships. STS Cranes are generally classified by their lifting capacity and the size of the container ships they can load and unload; additional parameters for the cranes are the traveling and lifting speeds where the market is always looking to be faster and faster in order to decrease the "deadtime" and be more efficient and profitable.

Brevini® Helical Bevel Helical Gearboxes – Posired 2 Series
- Dedicated design for single drum drive
- Shape and cost customization
- Auxiliary drive system on board
- Marine painting
- Extensive ratio range
- Supports torque range up to 1300 kNm
- Spheroidal graphite cast iron housing
- High efficiency
- Diverse low speed shaft options
- Premium sealing
- Reliable operation

Brevini® Helical Bevel Helical Gearboxes – Posired N Series
- Dedicated design for ENLARGED shaft center distance specific for hoisting application
- Shape and cost customization
- Auxiliary drive system on board
- Marine painting
- Two and 3 stage executions
- Supports torque range up to 1300 kNm
- Spheroidal graphite cast iron housing
- High efficiency
- Diverse low speed shaft options
- Premium sealing
- Reliable operation

GWB® Industrial Driveshafts
- Complete product range featuring flange/swing diameter from 120 to 1300 mm
- Superior bearing life
- High torque capacity
- Designed for ease of maintenance with service-free option
- Engineered to withstand harsh conditions, proven with a 70-year history on the market
- Minimized total cost of ownership

Brevini® Helical Bevel Helical Gearboxes – Posired D Series
- Dedicated design for compact drive including motor adapter specific for gantry application
- Shape and cost customization
- No need of expansion tank for upright mounting position
- Marine painting
- Spheroidal graphite cast iron housing
- High efficiency
- Hollow low speed shaft execution
- Premium sealing
- Reliable operation

Dana offers customized solutions to meet a range of customer needs, including modular designs and add-on accessories.
Mobile Harbor Cranes were developed due to technological improvements from static harbor cranes. The cranes have been modernized and made mobile, which makes them a critical type of crane within ports able to handle every type of goods. Efficient, mobile and versatile, the harbor mobile crane can be used in any port for the handling of bulk materials, steel or scrap metal, general cargo, heavy load and containers.

Brevini® Winch Drives
- Single (for electric motor) or multiple input (for hydraulic motors) available
- Ratio range up to 6.000:1
- Max torque up to 850 kNm
- Integrated hydraulic failsafe negative brake

Spicer® Wheel Drives
- Internal multidisc parking brake
- Manual disengagement device for towing
- High radial and axial load capacity bearings
- Cartridge hydraulic motors for compact layouts
- Motion control valves with different options available
- Bevel gear unit at the input for electric motor and/or cardan shaft connection available
- Special sealing system designed for severe environmental conditions
- Hub and spindles made of strength material

Brevini® Planetary Gearboxes
- 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)
- Fail-safe negative brakes
- Input flange for hydraulic and electric prime motor
- Compact, light solutions for a perfect fit on machine frame
- Flexible output pinion to meet customer needs
- Product marine/offshore class certification available
- Special solutions to meet requirements for low climate and ATEX certifications

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 l/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

Dana offers customized solutions to meet a range of customer needs, including modular designs and add-on accessories.
Handling Area: Rubber Tyred Gantry (RTG) Crane

With the advantage of wheels providing easy mobility, RTG cranes are pivot handling equipment used in intermodal operations to ground or stack containers. They are located in the stock-handling areas of the terminal.

With RTG cranes, inbound containers are stored for future pickup and outbound containers are stored for future loading onto vessels. These cranes typically straddle multiple lanes, with one lane reserved for container transfers.

**Brevini® Helical Bevel Helical Gearboxes – Posired 2 Series**
- Main host
- Dedicated design for single-drum drive
- Shape and cost customization
- Auxiliary drive system on board
- Marine painting
- Extensive ratio range
- Supports torque range up to 1300 kNm
- Spheroidal graphite cast iron housing
- High efficiency
- Diverse low speed shaft options
- Premium sealing
- Reliable operation
- Low noise

**Spicer® Wheel Drives**
- Wheel drive and driven
- Customized solution
- Developed for highly efficient electric drivetrain
- Benefit in cost in the area of electric consumption

**GWB® Industrial Driveshafts**
- Complete product range featuring flange/swing diameter from 120 to 1300 mm
  - Superior bearing life
  - High torque capacity
  - Designed for ease of maintenance with service-free option
  - Engineered to withstand harsh conditions, proven with a 70-year history on the market
  - Minimalized total cost of ownership

**Dana** offers customized solutions to meet a range of customer needs, including modular designs and add-on accessories.
Handling and Stocking Area: **Port Mobile Vehicles**

Dana also provides mobile vehicle solutions for handling containers and material in port areas. We support the main OEMs with our transmission, hydraulic, mechanical and electronic products. In this segment Dana is able to support customers with a full selection of components.

Reach Stackers and Forklifts are the most common means used in this area due to their flexibility and easy management, both of the vehicles and the goods requiring handling. Such vehicles are designed to move containers from one place to another within and between the stocking and handling areas and they are one of the faster ways to achieve this.
Pioneering electrification, protecting the environment

As a key issue facing port operators and one of the key drivers behind Dana investment in research and development for the coming decades, electrification of port handling services is seen as a major benefit to the environment. Global port authorities are seriously addressing the environmental issue and financing projects to ensure reduced emissions of greenhouse gases and NOx. Projects for zero-emission cranes and other cargo-handling equipment for seaports are underway in advanced nations and will undoubtedly set the trend for greener solutions that electrification can offer.

Switching to zero-emission equipment also saves on costly diesel fuel consumption.

Dana is pioneering a series of initiatives in keeping with the electrification trends. Initial solutions in the form of hydraulic forklift trucks and mobile electric cranes are already available, with performance standards fully in line with handling requirements.

Further developments are in the pipeline and 2019 will see the implementation of a broad range of eco-friendly systems set to raise the bar in a fast-evolving market.
Dedicated gearbox
for Port handling equipment hoisting mechanisms

Dana works with the main OEMs in the Port handling equipment industry around the world. Dana is integral to the development of new solutions for all applications. Dana’s wide range of Brevini® planetary products and expertise, we are able to provide a new solution for the main hoist of the harbour cranes.

The planetary drive solution offers our customers and end users all the advantages required to optimize the hoisting system.

Planetary gearbox in rotating housing version direct installed plug-in into the drum
Nominal ratio 45
Monitoring Vibration sensor on input bearing as standard for maintenance control
External disk brake mounted on elastic coupling on input shaft
Lifetime according to FEM class T7
Option for External cooling system if needed

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Technologies Customized to Every Part of the Globe

With a global presence in 33 countries, Dana Incorporated boasts more than 100 engineering, manufacturing, and distribution facilities. Our worldwide network of local service centers provides assurance that each customer will benefit from the local proximity and responsiveness that they need.

About Dana Incorporated
Dana is an integral partner for virtually every major vehicle and engine manufacturer worldwide. We are a leading supplier of drivetrain, sealing, and thermal technologies to the global automotive, commercial-vehicle, and off-highway markets. Founded in 1904, we employ thousands of people across six continents.

About Dana Off-Highway Drive and Motion Technologies
Dana delivers fully optimized Spicer® drivetrain systems and individual product solutions to customers in construction, agriculture, material-handling, underground mining, and forestry markets, plus Brevini® motion systems for machine working functions.

Learn more about Dana’s drivetrain and motion systems at dana.com/offhighway.

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.

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