



**SPICER®** | **BREVINI®**

# Drive and Motion Systems for **Mobile Elevated Work Platforms**



Dana's Spicer® and Brevini®  
lines of drive and motion system  
solutions for MEWPs

# Your Single-Source Provider of MEWP Drive and Motion Systems

The mobile elevated work platform (MEWP) market is transforming rapidly. OEMs must respond to more stringent emissions regulations, while end-users are looking to lower noise levels and environmental impact.

Dana has a complete range of advanced drive and motion products for MEWPs that address these trends while boosting productivity. We design and manufacture fully integrated drive and motion products for many types of MEWPs,

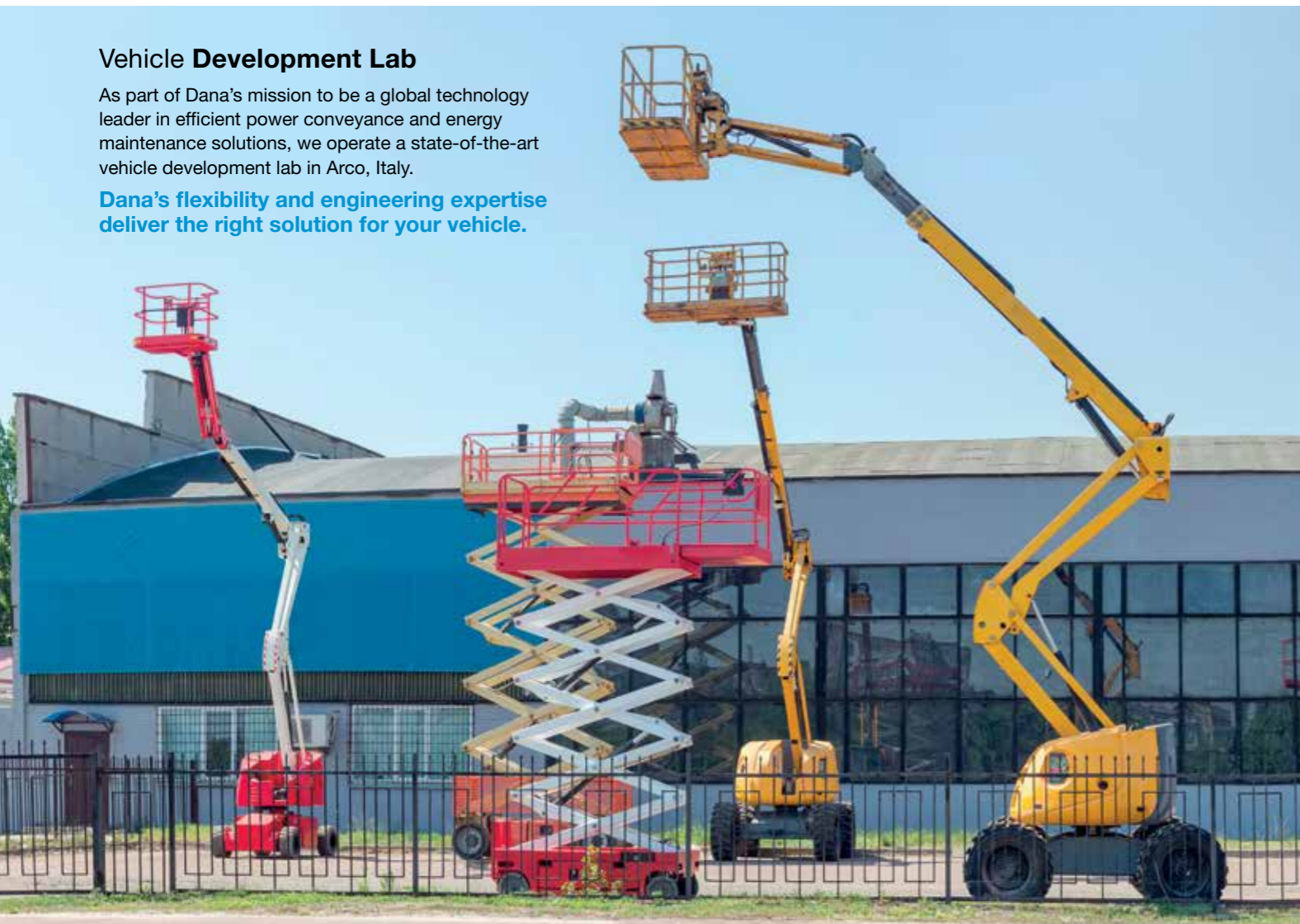
including scissor lifts, vertical mast lifts, articulating and telescopic boom lifts, crawler lifts, and truck-mounted lifts.

By adding Brevini® motion systems to its Spicer® drive systems, Dana has a full array of mechanical, hydraulic, and electronic advanced technologies to support customer application designs.

## Vehicle Development Lab

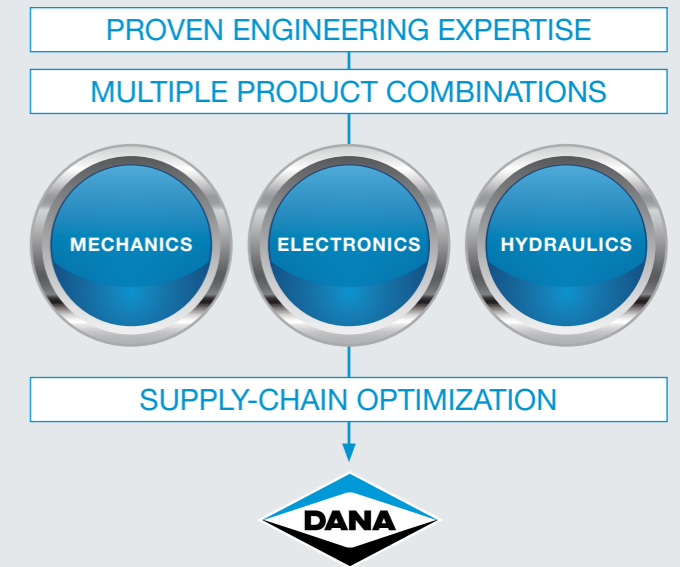
As part of Dana's mission to be a global technology leader in efficient power conveyance and energy maintenance solutions, we operate a state-of-the-art vehicle development lab in Arco, Italy.

**Dana's flexibility and engineering expertise deliver the right solution for your vehicle.**



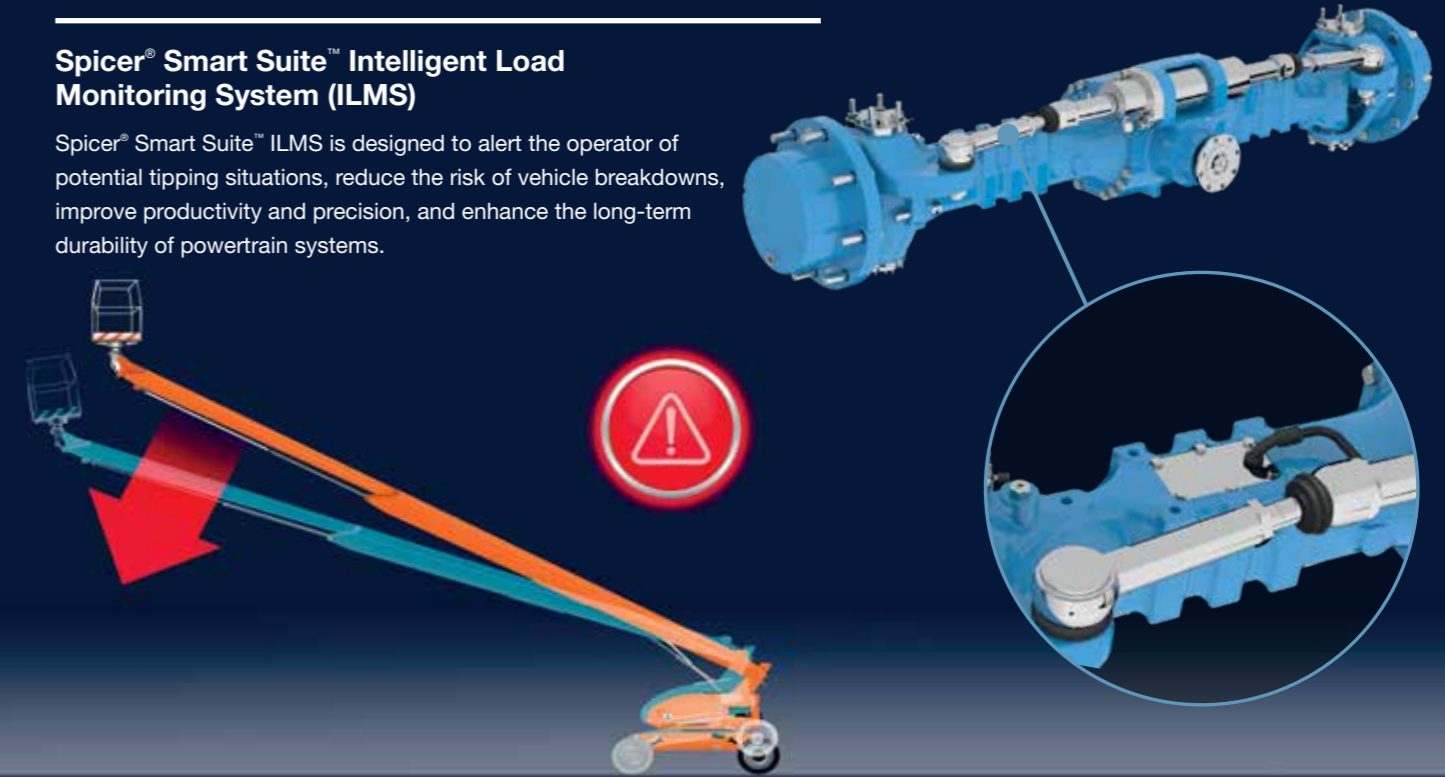
# The Right Partner for Your MEWP

Dana's engineering capabilities and broad portfolio allow us to team with our customers to provide optimal solutions. Our integrated solutions deliver the performance necessary to support high levels of efficiency. Meanwhile, as a single supplier, we can help optimize supply chains and serve the overall performance needs of our customers.



## Spicer® Smart Suite™ Intelligent Load Monitoring System (ILMS)

Spicer® Smart Suite™ ILMS is designed to alert the operator of potential tipping situations, reduce the risk of vehicle breakdowns, improve productivity and precision, and enhance the long-term durability of powertrain systems.



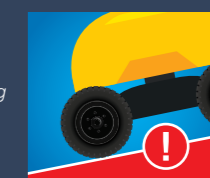
### Monitors Load Weight

Utilizes proprietary data-collecting technologies across the vehicle to proactively estimate static loads.



### Prevents Boom Overextension

Detects improper operating maneuvers that may lead to tip-over incidents.



### Assists with Sloped Surfaces

Autonomously monitors and adapts to various operating conditions and shifts in weight.

## Market-Driven Innovations

We deliver innovative technologies that meet customer demands worldwide. By anticipating market trends, Dana uses its industry expertise to deliver product solutions that achieve customer goals.



Emissions Reduction



Noise, Vibration, and Harshness (NVH)



Cost of Ownership



Hybridization



Mobility and Performance



Emerging Markets

# Full-System Solutions for Mobile Elevated Work Platforms

Reliability, durability and optimal cost of ownership are the common expectations from both rental fleets and individual machine purchasers in the construction market. Dana has the expertise, global reach and systems know-how to support Mobile Elevated Work Platforms (MEWPs) manufacturer's needs worldwide.



## Spicer® Torque-Hub® Wheel Drive H Series

1 Product range engineered for best-in-class efficiency  
Torque ratings from 7,000 Nm to 18,000 Nm  
Deliver exceptional maneuverability and proven robustness to final drive  
Low maintenance requirements and easy to service  
Sealing system, hub and spindle designed for severe environmental conditions



## Brevini® Slewing Drive

Plug and play assembly complete with lifting lugs  
3390 Nm (30,000 in.-lbs.) torque output  
2-stage reduction with multiple ratios available  
Spring applied, hydraulically released holding brake  
Convenient backlash adjustment feature between pinion and slew bearing



## Brevini® Proportional High Efficiency Bankable Valve

Compact design electro-proportional directional flow sharing valve  
Energy saving: low pressure drop  
No need for relief valves to avoid zero flow with actuators at end of stroke  
Regulated flow up to 60 l/m @ 310 bar



## Brevini® Combined Bankable Valves

Suitable for several applications, offering directional control with a single or double solenoid  
Modular design for flexible assemblies  
Coil protection level IP66 standard  
Valve body is cast iron with zinc plating



## Brevini® Gear Pump

Up to 90 cc/rev  
Very high mechanical and volumetric efficiencies  
Low noise level  
Long life and reliability



## Brevini® Programmable Control Unit ECU

Redundant logic architecture, to achieve PLd according to EN 13849-1  
Easy to program through intuitive software suite  
Rugged-waterproof for harsh mobile off highway environments  
Bootloading and runtime diagnostic available via CANbus



## Brevini® Digital Inclinerometers TAC Series

Waterproof robust plastic body  
1 or 2 axis measurement  
Dual/redundant outputs available for PLd EN13849 safety systems  
Optional thermal compensation available  
Customizable signal filtration  
Customizable hardness on demand



## Brevini® Shear Beam Load Sensor TT Series

Waterproof robust and compact body  
Dual/Redundant output available for PLd EN13849 safety systems  
Optional thermal compensation available



## Brevini® Angle – Transducer TLx and Asx Series

Waterproof robust and compact body  
1 or 2 axis integrated inclinometer available  
Dual/redundant outputs available for PLd EN13849 safety systems  
Length up to 12.5 meter



## Brevini® Graphic Display Opus Series

Large size panel up to 12"  
Bright TFT screen for outdoor usage  
Waterproof robust plastic body  
With and without touchscreen and/or physical keyboard  
Cable to display camera



## Brevini® Joystick BJ200

Waterproof robust plastic body  
Bright TFT screen for outdoor usage  
Waterproof robust plastic body  
With and without touchscreen and/or physical keyboard  
Cable to display camera



# Market-Driven Electrified Innovations

The Dana family of products continues to deliver solutions for mobile elevated work platform OEMs.

## 20 Years of Proof

For two decades, Dana products have solved electrification challenges for mobile elevated work platform (MEWP) manufacturers. These solutions have been proven effective time and again in enhancing efficiency and reducing total cost of ownership.

*Market-proven electric drives for propulsion*



## World-class capabilities and expertise for wherever you are in your electrification journey

- Electrified solutions for both drive and motion systems
- Engineered for the challenges of a wide range of MEWP applications, including the requirements of urban worksites
- Dana's expanded product line includes motors engineered to support a wide range of input voltage.



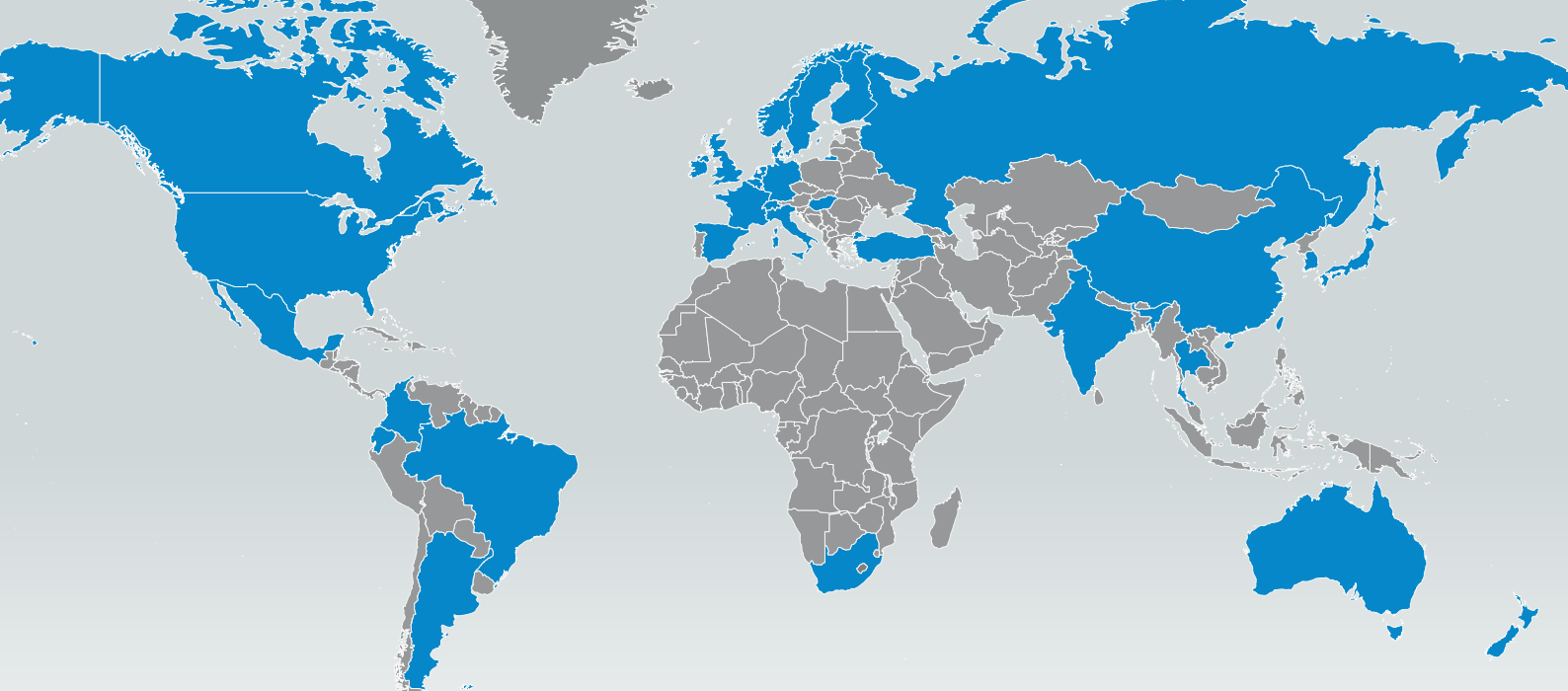
REDUCES OPERATING COSTS

IMPROVES EQUIPMENT SAFETY

COMPLIANCE HEALTH AND SAFETY DIRECTIVES

REDUCES EMISSIONS INTO THE ATMOSPHERE

INCREASES PRODUCTIVITY



# Technologies Customized to **Every Part of the Globe**

With a presence in 33 countries, Dana Incorporated boasts more than 145 engineering, manufacturing, and distribution facilities. Our worldwide network of local service centers provides assurance that each customer will benefit from our proximity and responsiveness.

## **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 Systems**

Dana delivers fully optimized Spicer® drivetrain and Brevini® motion systems to customers in construction, agriculture, material handling, mining, and industrial markets. We bring our global expertise to the local level with technologies customized to individual requirements through a network of strategically located technology centers, manufacturing locations, and distribution facilities.

Learn more about Dana's drivetrain and motion systems at [dana.com/offhighway](https://dana.com/offhighway).

## **Dana.com/oh/contact**

### **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.

