

# **The Mobile Elevated Work Platforms** E-FACTOR



# The unique solution **partner** for MEWP

We design and manufacture drive and motion solutions for Mobile Elevated Work Platforms

# The unique solution solution partner for MEWP

The best solutions

Excellent, reliable solutions

Extended multi-technology solutions portfolio

Best engineering capabilities

A reliable partner close to the customer



# **The unique solution partner** for MEWP

Dana designs and manufactures **a complete range** of **best-in-class drive** and **motion products** for Mobile Elevated Work Platforms (MEWPs). Expertise, global reach, and systems know-how will support the manufacture's needs **world wide** with dedicated and **customized solutions**.

The best solutions

Excellent, reliable solutions

Extended multi-technology solutions portfolio

Best engineering capabilities

A reliable partner close to the customer

# The unique solution solution partner for MEWP

The best solutions

**Excellent, reliable solutions** 

Extended multi-technology solutions portfolio

Best engineering capabilities

A reliable partner close to the customer

Thanks to **excellent quality products** manufactured with high Dana standards, we offer **highly engineered solutions** which are tailored, flexible, and reliable to cover all types, sizes, technologies of **articulated**, **telescopic booms** and **scissor lifts, conventional and electrified.** 

# **The unique solution partner** for MEWP

The best solutions

Excellent, reliable solutions

**Extended multi-technology solutions portfolio** 

Best engineering capabilities

A reliable partner close to the customer

Dana is the **unique provider** which can supply a complete **broader class solutions portfolio** for MEWP, featuring **Spicer Torque-Hub**<sup>™</sup> combined with electric or hydraulic motor and **Brevini® B5VR** as added value combination with **axles and wheel drives**, **Brevini® electronic sensors**, **slew drives**, pump-motors, system pumps, proportional valves guaranteeing **best-in-class performances**.

# The unique solution solution for MEWP

The best solutions

Excellent, reliable solutions

Extended multi-technology solutions portfolio

#### **Best engineering capabilities**

A reliable partner close to the customer

Dana's engineering capabilities as the global technology leader in efficient power conveyance allows Dana to customize the right solution for MEWP, ensuring the maximum operational excellence. Thanks to its robust certification process while developing products, Dana can manufacture different solutions, perform internal tests, and support first installation up to field validation of the product. Dana has built its own experience on electrified solutions starting from vehicle transformation from conventional to electric version.



# **The unique solution partner** for MEWP

The best solutions

Excellent, reliable solutions

Extended multi-technology solutions portfolio

Best engineering capabilities

A reliable partner close to the customer

As a single source **reliable partner**, Dana can **help optimize supply chains** to **serve the overall performance needs** of the customer. Dana's worldwide **capability** is able to guarantee the customer **localized** region-specific support for **all development phases anywhere in the world** from initial design engineering, localized manufacturing and assembly, all the way through to after-sale support.



Electrification. Delivered.

Dana is able to partner with and support as a leading drivetrain and e-Propulsion technologies provider. To enable our customers to achieve their sustainability objectives, Dana has taken a leading position in MEWP electrification providing **solutions** at the highest level, as **Spicer Torque-Hub**<sup>™</sup> combined with **electric motor**, **e-Propulsion systems** and **electronic sensors**.

Electrification. **Delivered.** 

Fully integrated electrified systems for MEWP

Total Cost of Ownership

Emissions savings

50 years of expertise in electrification

# Leading

Electrification. Delivered.

Dana's e-Hub drives for MEWPs features an **electro-mechanical configuration** in a compact package that includes enhanced gear geometries for quieter operation. Meanwhile, its power-dense motor design delivers high efficiency and best-in-class torque performance. Based on our customers' needs we can offer different solution in order to meet the requested performances which can be efficiency or cost or the best compromize between the two.

**Fully integrated electrified systems for MEWP** 

Total Cost of Ownership

Emissions savings

50 years of expertise in electrification

Electrification. Delivered.

Electrified solutions for Dana MEWPs make it possible to streamline the driveline and increase productivity. Thanks to the internal permanent magnet motor efficiency, the battery range and overall battery life is extended in order to bring down the machine's total cost of ownership.

Fully integrated electrified systems for MEWP

**Total Cost of Ownership** 

Emissions savings

50 years of expertise in electrification

Electrification. **Delivered.** 

Electrification involves a **reduction of CO**<sub>2</sub> emissions into the atmosphere, making an important contribution to the fight against climate change and global warming.

Fully integrated electrified systems for MEWP

Total Cost of Ownership

**Emissions savings** 

50 years of expertise in electrification

Electrification. **Delivered.** 

Dana has been building **critical electrification** expertise, resources, and technologies for **more than 50 years.** 

This past experience gives us the know-how necessary to address our customers' electrification needs both today and in the future.

Fully integrated electrified systems for MEWP

Total Cost of Ownership

Emissions savings

50 years of expertise in electrification



## **Electric-Driven** MEWP Demonstrator

Dana High-Efficiency Electrified Mobile Elevator Working Platform with an 18-meter (60-foot) height is a non-traditional four-wheel-drive MEWP demonstrator designed to show the range and effectiveness of Dana's e-Mobility capabilities, featuring more than 30 of Dana's drive and motion products designed to enhance the productivity, mobility, and efficiency of electric-powered vehicles.

More than 30 drive and motion products

# Full-System Solutions

#### **Telescopic Boom**

DANA

**Articulated Boom** 

DANA

**Slab Scissor** 



DANA

# Full-System Solutions

#### **Telescopic Boom**

DANA

#### **Articulated Boom**

Conventional

Electrified

#### **Slab Scissor**



DANA

# Articulated Boom

Conventional \ Electrified

#### 4 Wheel Drives

Propelling machines with two or four individual compact wheel drives that combine Spicer Torque-Hub<sup>™</sup> planetary gearboxes with Dana TM4<sup>™</sup> electric motors to provide optimum traction control when working on a job site.



Discover



#### **Central** Drive

By combining Spicer<sup>®</sup> axles and centralized high efficiency gearboxes with Dana TM4<sup>™</sup> electric motors. Our axle solutions can deliver the tractive effort required while maintaining axle supported machine designs.





**Telescopic Boom** 

# Articulated Boom

Conventional \ Electrified

O CENTRAL DRIVE • 4 WHEEL DRIVE

Sensors

An electro-mechanical system solution for drive, with electronic sensors, for greater efficiency with less size and weight and long-life performance.









# Articulated Boom

Conventional \ Electrified

• 4 WHEEL DRIVE CENTRAL DRIVE

Drive \ Sensors

Spicer Electrified e-Drive Torque Hub eS-AW Series

Sensors

Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
e-Drive Torque Hub	eSAW04	eSAW07	eSAW13	eSAW13	eSAW17
Dana TM4 <sup>™</sup>	200-33	200-50	200-50	200-50	TBD

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Drive

#### **RT** Scissor



O CENTRAL DRIVE

• 4 WHEEL DRIVE

# Articulated Boom

Conventional \ Electrified

Drive \ Sensors

**Key features and benefits** 

4 sizes with torque outputs from 4kNm to 17kNm engineered to fulfill industry targets for performance, serviceability and durability

Improves the performance of e-boom lifts with hybrid and fully electric drive systems

Fully integrated electro-mechanical system

Internal integrated electric parking brake design for maximum holding power

Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
e-Drive Torque Hub	eSAW04	eSAW07	eSAW13	eSAW13	eSAW17
Dana TM4 <sup>™</sup>	200-33	200-50	200-50	200-50	TBD

#### **Drive**

Sensors



O CENTRAL DRIVE

• 4 WHEEL DRIVE

# Articulated Boom

Conventional \ Electrified

Drive \ Sensors

#### **Key features and benefits**

Dana TM4<sup>™</sup> IPM and ACIM Integrated advanced motor technologies for greater efficiency with compact size and weight

- Compact three-stage planetary gear design provides superior gradeability
- IP67 motor protection from environmental hazards

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Integrated motor options for design flexibility

Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
e-Drive Torque Hub	eSAW04	eSAW07	eSAW13	eSAW13	eSAW17
Dana TM4 <sup>™</sup>	200-33	200-50	200-50	200-50	TBD

#### **Drive**

Sensors



**Telescopic Boom** 

O CENTRAL DRIVE

• 4 WHEEL DRIVE

# Articulated Boom

Conventional \ Electrified Drive \ <u>Sensors</u>

**Brevini<sup>®</sup> electronic sensors Boom Extension Transducer** 



**Key features and benefits** 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

**Sensors** 



O CENTRAL DRIVE

• 4 WHEEL DRIVE

## Articulated Boom

Conventional \ Electrified Drive \ <u>Sensors</u>

**Brevini<sup>®</sup> electronic sensors Digital Inclinometer** 

**Key features and benefits** Waterproof robust plastic body

- 1 or 2 axis measurement
- Dual\redundant outputs available for PLd EN13849 safety systems
- Optional thermal compensation available

**Sensors** 



**Telescopic Boom** 

O CENTRAL DRIVE

• 4 WHEEL DRIVE

# Articulated Boom

Conventional \ Electrified  $Drive \setminus \underline{Sensors}$ 

**Brevini<sup>®</sup> electronic sensors Digital Inclinometer** 

**Key features and benefits** Customizable signal filtration

Customizable hardness on demand



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**Telescopic Boom** 

O CENTRAL DRIVE

• 4 WHEEL DRIVE

## Articulated Boom

Conventional \ Electrified  $Drive \setminus \underline{Sensors}$ 

**Brevini<sup>®</sup> electronic sensors** Load Sensor

#### **Key features and benefits**

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

**Sensors** 



# Articulated Boom

**Conventional** \ Electrified

#### 4 Wheel Drives

Propelling machines with two or four individual compact wheel drives that combine Spicer Torque-Hub<sup>™</sup> planetary gearboxes with Brevini<sup>®</sup> B5VR hydraulic motors to provide optimum traction control when working on a job site.



Discover



Slab Scissor

#### **Central** Drive

By combining Spicer® axles and centralized high efficiency gearboxes with Brevini® B5VR hydraulic motors. Our axle solutions can deliver the tractive effort required while maintaining axle supported machine designs.





Drive

O CENTRAL DRIVE

## Articulated Boom

**Conventional** \ Electrified • 4 WHEEL DRIVE

Sensors

A hydraulic system solution for <u>drive</u> and <u>motion</u>, combined with electronic sensors, for greater efficiency and performance.





Mar Maria

# Articulated Boom

**Conventional** \ Electrified

CENTRAL DRIVE • 4 WHEEL DRIVE

Drive \ Motion \ Sensors

Spicer Torque-Hub<sup>™</sup> H Series Wheel Drive

Sensors

Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
Spicer Torque-Hub <sup>™</sup>	4H	7H	13H	18H	18H

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Drive





## Articulated Boom

Conventional \ Electrified

O CENTRAL DRIVE • 4 WHEEL DRIVE

**Drive** \ Motion \ Sensors

#### Key features and benefits

Product range engineered for best-Inclass efficiency

Torque ratings from 4kNm to 18kNm engineered to maximize efficiency and reliability

Deliver exceptional maneuverability and proven robustness to final drive Pressure up to 420 bar

Low maintenance requirements and easy to service

Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
Spicer Torque-Hub <sup>™</sup>	4H	7H	13H	18H	18H

#### **Drive**

Sensors





## Articulated Boom

**Conventional** \ Electrified

O CENTRAL DRIVE • 4 WHEEL DRIVE

**Drive** \ Motion \ Sensors

#### Key features and benefits

Sealing system, hub and spindle designed for severe environmental conditions

Integrated parking brake to meet safety standards

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Complete drive package with B5VR motor for smooth operations

Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
Spicer Torque-Hub <sup>™</sup>	4H	7H	13H	18H	18H

**Drive** 

Sensors





Mar Maria

# Articulated Boom

**Conventional** \ Electrified

CENTRAL DRIVE • 4 WHEEL DRIVE

Drive \ Motion \ Sensors

**Brevini<sup>®</sup> Hydraulic Motor B5VR Series** 



Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
Brevini <sup>®</sup> Hydraulic Motor	B5VR25*	B5VR30	B5VR35 B5VR38	B5VR45	B5VR45

Drive

\* coming soon







**Drive** 

## Articulated Boom

**Conventional** \ Electrified

O CENTRAL DRIVE • 4 WHEEL DRIVE

**Drive** \ Motion \ Sensors

Key features and benefits For closed and open loop circuits

State-of-the-art 9-piston rotating kit

Designed for maximum efficiency and smooth functioning

- Pressure up to 420 bar
- Twin rear and side ports

Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
Brevini <sup>®</sup> Hydraulic Motor	B5VR25*	B5VR30	B5VR35 B5VR38	B5VR45	B5VR45

\* coming soon







## Articulated Boom

**Conventional** \ Electrified

O CENTRAL DRIVE • 4 WHEEL DRIVE

**Drive** \ Motion \ Sensors

#### Key features and benefits

Reduced max displacements available

Multiple minimum displacement options including null displacement

Speed sensor with null speed signal

#### Embedded flushing valve for closed loop circuit

Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
Brevini <sup>®</sup> Hydraulic Motor	B5VR25*	B5VR30	B5VR35 B5VR38	B5VR45	B5VR45

**Drive** 

\* coming soon







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## Articulated Boom

Conventional \ Electrified

CENTRAL DRIVE • 4 WHEEL DRIVE

Drive \ <u>Motion</u> \ Sensors

**Brevini<sup>®</sup> Slew Drive P Series** with Brevini<sup>®</sup> Orbital Motor **BS** Series



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Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
Brevini <sup>®</sup> Slew Drive	Only motor	P1A	P1A	2 X P1A	2 X P1A
Brevini <sup>®</sup> Hydraulic Motor	BS130	BS130	BS130	BS130	BS130



## Articulated Boom

Conventional \ Electrified

O CENTRAL DRIVE • 4 WHEEL DRIVE

Drive \ Motion \ Sensors

#### Key features and benefits

Complete solution with hydraulic orbital motor BS Series offering all-in-one solution for slew drives

- Plug and play assembly complete with lifting lugs
- 2-stage reduction with multiple ratios available
- Many pinion options available, custom pinion upon request

Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
Brevini <sup>®</sup> Slew Drive	Only motor	P1A	P1A	2 X P1A	2 X P1A
Brevini <sup>®</sup> Hydraulic Motor	BS130	BS130	BS130	BS130	BS130




**Conventional** \ Electrified

O CENTRAL DRIVE • 4 WHEEL DRIVE

Drive \ Motion \ Sensors

### Key features and benefits

Spring applied, hydraulically released holding brake

Convenient backlash adjustment feature between pinion and slew bearing

Orbital Motor with High-performance roller for improved efficiency and life

Counterbalance valve included with various pressure and pilot setting available

Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
Brevini <sup>®</sup> Slew Drive	Only motor	P1A	P1A	2 X P1A	2 X P1A
Brevini <sup>®</sup> Hydraulic Motor	BS130	BS130	BS130	BS130	BS130

Sensors



**Conventional** \ Electrified

O CENTRAL DRIVE • 4 WHEEL DRIVE

Drive \ <u>Motion</u> \ Sensors

### Key features and benefits

Built in check valves to relieve case pressure to the low-pressure side of the motor.

Orbital Motor with spool valve integrated in the output shaft with optimized geometry to minimize leakage

Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
Brevini <sup>®</sup> Slew Drive	Only motor	P1A	P1A	2 X P1A	2 X P1A
Brevini <sup>®</sup> Hydraulic Motor	BS130	BS130	BS130	BS130	BS130

Sensors



Electrified **Conventional** \

CENTRAL DRIVE • 4 WHEEL DRIVE

Drive \ Motion \ Sensors

**Brevini<sup>®</sup> electronic sensors Boom Extension Transducer** 



**Key features and benefits** 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

**Sensors** 



Electrified **Conventional** \

O CENTRAL DRIVE • 4 WHEEL DRIVE

Drive \ Motion \ Sensors

**Brevini<sup>®</sup> electronic sensors Digital Inclinometer** 

Key features and benefits Waterproof robust plastic body

- 1 or 2 axis measurement
- Dual\redundant outputs available for PLd EN13849 safety systems
- Optional thermal compensation available

**Sensors** 





**Conventional** \ Electrified

O CENTRAL DRIVE • 4 WHEEL DRIVE

Drive \ Motion \ <u>Sensors</u>

**Brevini<sup>®</sup> electronic sensors Digital Inclinometer** 

**Key features and benefits** Customizable signal filtration

Customizable hardness on demand

Sensors





Electrified **Conventional** \

O CENTRAL DRIVE • 4 WHEEL DRIVE

Drive \ Motion \ <u>Sensors</u>

**Brevini<sup>®</sup> electronic sensors** Load Sensor

### **Key features and benefits**

- Waterproof robust and compact body
- Dual\Redundant output available for PLd EN13849 safety systems

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Optional thermal compensation available





**Telescopic Boom** 

Drive

# Articulated Boom

Conventional \ Electrified

0 4 WHEEL DRIVE CENTRAL DRIVE

Sensors

An electro-mechanical system solution for drive, with electronic sensors, for greater efficiency with less size and weight and long-life performance.





Telescopic Boom

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CENTRAL DRIVE

# Articulated Boom

0 4 WHEEL DRIVE

Conventional \ Electrified

Spicer<sup>®</sup> Front axle 211, 212, 212HD

Sensors

Platform Size	Small	Medium	Large
Working Height [m]	9 to 16	18 to 21	22 to 30
Working Weight [ton]	up to 8	8 to 12	12 to 17
Spicer <sup>®</sup> Front axle	211	212	212HD

Drive

Sensors

# Articulated Boom

0 4 WHEEL DRIVE

Conventional \ <u>Electrified</u> Drive \ Sensors

Key features and benefits Planetary steering axle

High driveline efficiency

Minimal impact on vehicle frame

Easy, low-cost service, and maintenance

Different hub reduction sizes

Platform Size	Small	Medium	Large
Working Height [m]	9 to 16	18 to 21	22 to 30
Working Weight [ton]	up to 8	8 to 12	12 to 17
Spicer <sup>®</sup> Front axle	211	212	212HD

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Drive

# Articulated Boom

Conventional \ Electrified

 $\underline{\text{Drive}} \setminus \text{Sensors}$ 

Spicer Electrified<sup>™</sup> Rear e-Axle eS111, eS112, eS112HD with Spicer<sup>®</sup> eSG001 Dropbox and DanaTM4<sup>™</sup> Electric Motor

0 4 WHEEL DRIVE

Sensors

Platform Size	Small	Medium	Large
Working Height [m]	9 to 16	18 to 21	22 to 30
Working Weight [ton]	up to 8	8 to 12	12 to 17
Spicer Electrified <sup>™</sup> Rear e-Axle	eS111	eS112	eS112HD
Dropbox	eSG001	eSG001	eSG001
Dana TM4 <sup>™</sup>	SRIPM200-150	SRIPM200-200	SRIPM200-250

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Drive

0 4 WHEEL DRIVE

# Articulated Boom

Conventional \ <u>Electrified</u> Drive \ Sensors

### Key features and benefits

Planetary rigid axles, based on modular axle, driven by electric motor

Available in a variety of configurations and ratios

Single speed dropbox directly flanged to Spicer<sup>®</sup> axles, designed to enhance vehicle mobility and allow for quick deployment from worksite to worksite

Platform Size	Small	Medium	Large
Working Height [m]	9 to 16	18 to 21	22 to 30
Working Weight [ton]	up to 8	8 to 12	12 to 17
Spicer Electrified <sup>™</sup> Rear e-Axle	eS111	eS112	eS112HD
Dropbox	eSG001	eSG001	eSG001
Dana TM4 <sup>™</sup>	SRIPM200-150	SRIPM200-200	SRIPM200-250

**Drive** 

Sensors

0 4 WHEEL DRIVE

# Articulated Boom

Conventional \ <u>Electrified</u> Drive \ Sensors

### Key features and benefits

Optimized NVH and efficiency for electric applications

Four-wheel drive engagement

Optional electromagnetic spring applied parking brake

Different electric motors technologies to meet performance requirements

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DC voltage range: 48 V to 96 V

Platform Size	Small	Medium	Large
Working Height [m]	9 to 16	18 to 21	22 to 30
Working Weight [ton]	up to 8	8 to 12	12 to 17
Spicer Electrified <sup>™</sup> Rear e-Axle	eS111	eS112	eS112HD
Dropbox	eSG001	eSG001	eSG001
Dana TM4 <sup>™</sup>	SRIPM200-150	SRIPM200-200	SRIPM200-250

**Drive** 

Sensors

Telescopic Boom

Drive

CENTRAL DRIVE

4 WHEEL DRIVE

# Articulated Boom

Conventional \ <u>Electrified</u> Drive \ Sensors

Spicer<sup>®</sup> Driveshaft 10 Series

Sensors

Platform Size	Small	Medium	Large
Working Height [m]	9 to 16	18 to 21	22 to 30
Working Weight [ton]	up to 8	8 to 12	12 to 17
Spicer <sup>®</sup> Driveshaft	10 Series	10 Series	10 Series

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**Drive** 

CENTRAL DRIVE

0 4 WHEEL DRIVE

Sensors

# Articulated Boom

Conventional \ <u>Electrified</u> Drive \ Sensors

Key features and benefits Extended Spline Life

Reduced Thrust Load under Pressure

- Lower Friction under Load
- Superior Needle Bearing Retention
- Easy to Service Universal Joints
- Extended or Permanent Lubrication available on request

Platform Size	Small	Medium	Large
Working Height [m]	9 to 16	18 to 21	22 to 30
Working Weight [ton]	up to 8	8 to 12	12 to 17
Spicer <sup>®</sup> Driveshaft	10 Series	10 Series	10 Series

Telescopic Boom

Drive

**CENTRAL DRIVE** 

0 4 WHEEL DRIVE

# Articulated Boom

Conventional \ <u>Electrified</u> Drive \ <u>Sensors</u>

**Brevini<sup>®</sup> electronic sensors Boom Extension Transducer** 



Key features and benefitsWaterproof 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

Sensors

0 4 WHEEL DRIVE

# Articulated Boom

Conventional \ Electrified Drive \ <u>Sensors</u>

**Brevini<sup>®</sup> electronic sensors Digital Inclinometer** 

**Key features and benefits** Waterproof robust plastic body

- 1 or 2 axis measurement
- Dual\redundant outputs available for PLd EN13849 safety systems
- Optional thermal compensation available

**Sensors** 



**Telescopic Boom** 

**CENTRAL DRIVE** 

# Articulated Boom

0 4 WHEEL DRIVE

Conventional \ Electrified  $Drive \setminus \underline{Sensors}$ 

**Brevini<sup>®</sup> electronic sensors Digital Inclinometer** 

**Key features and benefits** Customizable signal filtration

Customizable hardness on demand

Sensors

Drive



Telescopic Boom

CENTRAL DRIVE

# Articulated Boom

0 4 WHEEL DRIVE

Conventional \ <u>Electrified</u> Drive \ <u>Sensors</u>

**Brevini<sup>®</sup> electronic sensors** Load Sensor

### Key features and benefits

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

Drive

**Sensors** 

Electrified **Conventional** \

04 WHEEL DRIVE

**CENTRAL DRIVE** 

Sensors

A hydraulic system solution for <u>drive</u> and <u>motion</u>, combined with electronic sensors, for greater efficiency and performance.





Mar Maria

### Articulated Boom

**Conventional** \ Electrified

04 WHEEL DRIVE CENTRAL DRIVE

Drive \ Motion \ Sensors

Spicer® Front axle 211, 212, 212HD

Sensors

all Medium	Large
16 18 to 21	22 to 30
8 8 to 12	12 to 17
212	212HD
	All Medium   16 18 to 21   98 8 to 12   212

Drive





() 4 WHEEL DRIVE

### Articulated Boom

**Conventional** \ Electrified Drive \ Motion \ Sensors

Key features and benefits Planetary steering axle

High driveline efficiency

Minimal impact on vehicle frame

Easy, low-cost service, and maintenance

Different hub reduction sizes

Small	Medium	Large
9 to 16	18 to 21	22 to 30
up to 8	8 to 12	12 to 17
211	212	212HD
	Small 9 to 16 up to 8 211	Small Medium   9 to 16 18 to 21   up to 8 8 to 12   211 212

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**Drive** 





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### Articulated Boom

**Conventional** \ Electrified

0 4 WHEEL DRIVE

**CENTRAL DRIVE** 

Drive \ Motion \ Sensors

Spicer<sup>®</sup> Rear axle 111, 112, 112HD with Spicer<sup>®</sup> 301 Dropbox and Brevini<sup>®</sup> Hydraulic Motor **B5VR Series** 

Sensors

Platform Size	Small	Medium	Large
Working Height [m]	9 to 16	18 to 21	22 to 30
Working Weight [ton]	up to 8	8 to 12	12 to 17
Spicer <sup>®</sup> Rear axle	211	212	212HD
Dropbox	301	301	301
Brevini <sup>®</sup> Hydraulic Motor	B5VR38	B5VR38	2X B5VR38

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Drive





**Drive** 

### Articulated Boom

**Conventional** \ Electrified

CENTRAL DRIVE 0 4 WHEEL DRIVE

Drive \ Motion \ Sensors

### Key features and benefits

Planetary rigid axles, based on modular axle, driven by hydraulic motor

Available in a variety of configurations and ratios

Single speed dropbox directly flanged to Spicer<sup>®</sup> axles, designed to enhance vehicle mobility and allow for quick deployment from worksite to worksite

### Optimized NVH and efficiency

Platform Size	Small	Medium	Large
Working Height [m]	9 to 16	18 to 21	22 to 30
Working Weight [ton]	up to 8	8 to 12	12 to 17
Spicer <sup>®</sup> Rear axle	211	212	212HD
Dropbox	301	301	301
Brevini <sup>®</sup> Hydraulic Motor	B5VR38	B5VR38	2X B5VR38





**Conventional** \ Electrified

#### 0 4 WHEEL DRIVE CENTRAL DRIVE

**Drive** \ Motion \ Sensors

### Key features and benefits Four-wheel drive engagement

Optional electromagnetic spring applied parking brake

Integrated Brevini<sup>®</sup> Hydraulic Motor B5VR designed for maximum efficiency and smooth functioning

- Multiple displacements available
- Speed sensor with null speed signal

Platform Size	Small	Medium	Large
Working Height [m]	9 to 16	18 to 21	22 to 30
Working Weight [ton]	up to 8	8 to 12	12 to 17
Spicer <sup>®</sup> Rear axle	211	212	212HD
Dropbox	301	301	301
Brevini <sup>®</sup> Hydraulic Motor	B5VR38	B5VR38	2X B5VR38

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**Drive** 





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CENTRAL DRIVE

# Articulated Boom

**Conventional** \ Electrified

Drive \ Motion \ Sensors

04 WHEEL DRIVE

Spicer<sup>®</sup> Driveshaft 10 Series

Sensors

Platform Size	Small	Medium	Large
Working Height [m]	9 to 16	18 to 21	22 to 30
Working Weight [ton]	up to 8	8 to 12	12 to 17
Spicer <sup>®</sup> Driveshaft	10 Series	10 Series	10 Series

Drive



**Drive** 

CENTRAL DRIVE

() 4 WHEEL DRIVE

### Articulated Boom

Conventional \ Electrified **Drive** \ Motion \ Sensors

Key features and benefits Extended Spline Life

Reduced Thrust Load under Pressure

- Lower Friction under Load
- Superior Needle Bearing Retention
- Easy to Service Universal Joints
- Extended or Permanent Lubrication available on request

Platform Size	Small	Medium	Large
Working Height [m]	9 to 16	18 to 21	22 to 30
Working Weight [ton]	up to 8	8 to 12	12 to 17
Spicer <sup>®</sup> Driveshaft	10 Series	10 Series	10 Series



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### Articulated Boom

Conventional \ Electrified

**CENTRAL DRIVE** 04 WHEEL DRIVE

Drive \ <u>Motion</u> \ Sensors

**Brevini<sup>®</sup> Slew Drive P Series** with Brevini<sup>®</sup> Orbital Motor **BS** Series

Sensors

Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
Brevini <sup>®</sup> Slew Drive	Only motor	P1A	P1A	2 X P1A	2 X P1A
Brevini <sup>®</sup> Hydraulic Motor	BS130	BS059	BS059	BS059	BS059

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**Conventional** \ Electrified

0 4 WHEEL DRIVE CENTRAL DRIVE

Drive \ Motion \ Sensors

### Key features and benefits

Complete solution with hydraulic orbital motor BS Series offering all-in-one solution for slew drives

- Plug and play assembly complete with lifting lugs
- 2-stage reduction with multiple ratios available
- Many pinion options available, custom pinion upon request

Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
Brevini <sup>®</sup> Slew Drive	Only motor	P1A	P1A	2 X P1A	2 X P1A
Brevini <sup>®</sup> Hydraulic Motor	BS130	BS059	BS059	BS059	BS059

Sensors



**Conventional** \ Electrified

#### CENTRAL DRIVE 0 4 WHEEL DRIVE

Drive \ Motion \ Sensors

### Key features and benefits

Spring applied, hydraulically released holding brake

Convenient backlash adjustment feature between pinion and slew bearing

Orbital Motor with High-performance roller for improved efficiency and life

Counterbalance valve included with various pressure and pilot setting available

Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
Brevini <sup>®</sup> Slew Drive	Only motor	P1A	P1A	2 X P1A	2 X P1A
Brevini <sup>®</sup> Hydraulic Motor	BS130	BS059	BS059	BS059	BS059



**Conventional** \ Electrified

0 4 WHEEL DRIVE CENTRAL DRIVE

Drive \ <u>Motion</u> \ Sensors

### Key features and benefits

Built in check valves to relieve case pressure to the low-pressure side of the motor.

Orbital Motor with spool valve integrated in the output shaft with optimized geometry to minimize leakage

Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
Brevini <sup>®</sup> Slew Drive	Only motor	P1A	P1A	2 X P1A	2 X P1A
Brevini <sup>®</sup> Hydraulic Motor	BS130	BS059	BS059	BS059	BS059

Sensors



Electrified **Conventional** \

0 4 WHEEL DRIVE CENTRAL DRIVE

Drive \ Motion \ Sensors

**Brevini<sup>®</sup> electronic sensors Boom Extension Transducer** 



**Key features and benefits** 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

**Sensors** 



0 4 WHEEL DRIVE

### Articulated Boom

Electrified **Conventional** \ Drive \ Motion \ Sensors

**Brevini<sup>®</sup> electronic sensors Digital Inclinometer** 

Key features and benefits Waterproof robust plastic body

- 1 or 2 axis measurement
- Dual\redundant outputs available for PLd EN13849 safety systems
- Optional thermal compensation available

**Sensors** 





0 4 WHEEL DRIVE

### Articulated Boom

**Conventional** \ Electrified Drive \ Motion \ <u>Sensors</u>

**Brevini<sup>®</sup> electronic sensors Digital Inclinometer** 

**Key features and benefits** Customizable signal filtration

Customizable hardness on demand







() 4 WHEEL DRIVE

### Articulated Boom

Electrified **Conventional** \ Drive \ Motion \ <u>Sensors</u>

**Brevini<sup>®</sup> electronic sensors** Load Sensor

### **Key features and benefits**

- Waterproof robust and compact body
- Dual\Redundant output available for PLd EN13849 safety systems

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Optional thermal compensation available

**Sensors** 





# **Telescopic** Boom

Conventional \ Electrified

### 4 Wheel Drives

Propelling machines with two or four individual compact wheel drives that combine Spicer Torque-Hub<sup>™</sup> planetary gearboxes with Dana TM4<sup>™</sup> electric motors to provide optimum traction control when working on a job site.



Discover

### **Central** Drive By combining Spicer<sup>®</sup> axles and centralized high efficiency gearboxes with Dana TM4<sup>™</sup> electric motors. Our axle solutions can deliver the tractive effort required while maintaining axle supported machine designs. $\bigcirc$ Discover





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Sensors

# **Telescopic** Boom

Conventional \ Electrified

• 4 WHEEL DRIVE OCENTRAL DRIVE

An electro-mechanical system solution for <u>drive</u>, with electronic <u>sensors</u>, for greater efficiency with less size and weight and long-life performance.


# **Telescopic** Boom

Conventional \ Electrified

• 4 WHEEL DRIVE OCENTRAL DRIVE

Drive \ Sensors

Spicer Electrified<sup>™</sup> e-Drive Torque Hub eSAW Series



Small	Medium	Large	X-Large	XX-Large
9 to 16	18 to 21	22 to 30	32 to 40	> 40
up to 8	8 to 12	12 to 17	17 to 22	> 22
eSAW04	eSAW07	eSAW13	eSAW13	eSAW17
200-33	200-50	200-50	200-50	TBD
	Small           9 to 16           up to 8           eSAW04           200-33	Small         Medium           9 to 16         18 to 21           up to 8         8 to 12           eSAW04         eSAW07           200-33         200-50	SmallMediumLarge9 to 1618 to 2122 to 30up to 88 to 1212 to 17eSAW04eSAW07eSAW13200-33200-50200-50	SmallMediumLargeX-Large9 to 1618 to 2122 to 3032 to 40up to 88 to 1212 to 1717 to 22eSAW04eSAW07eSAW13eSAW13200-33200-50200-50200-50

Drive



## **Telescopic** Boom

Conventional \ Electrified

• 4 WHEEL DRIVE OCENTRAL DRIVE

Drive \ Sensors

#### Key features and benefits

4 sizes with torque outputs from 4kNm to 17kNm engineered to fulfill industry targets for performance, serviceability and durability

Improves the performance of e-boom lifts with hybrid and fully electric drive systems

Fully integrated electro-mechanical system

Internal integrated electric parking brake design for maximum holding power

Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
e-Drive Torque Hub	eSAW04	eSAW07	eSAW13	eSAW13	eSAW17
Dana TM4 <sup>™</sup>	200-33	200-50	200-50	200-50	TBD

Drive



## **Telescopic** Boom

Conventional \ Electrified

• 4 WHEEL DRIVE OCENTRAL DRIVE

Drive \ Sensors

#### Key features and benefits

Dana TM4<sup>™</sup> IPM and ACIM Integrated advanced motor technologies for greater efficiency with compact size and weight

Compact three-stage planetary gear design provides superior gradeability

IP67 motor protection from environmental hazards

Integrated motor options for design flexibility

Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
e-Drive Torque Hub	eSAW04	eSAW07	eSAW13	eSAW13	eSAW17
Dana TM4 <sup>™</sup>	200-33	200-50	200-50	200-50	TBD

Drive



### **Telescopic** Boom

Conventional \ Electrified

• 4 WHEEL DRIVE O CENTRAL DRIVE

 $\mathsf{Drive} \setminus \underline{\mathsf{Sensors}}$ 

**Brevini<sup>®</sup> electronic sensors Boom Extension Transducer** 



Key features and benefitsWaterproof 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

**Sensors** 



### **Telescopic** Boom

Conventional \ Electrified

• 4 WHEEL DRIVE O CENTRAL DRIVE

 $\mathsf{Drive} \setminus \underline{\mathsf{Sensors}}$ 

**Brevini<sup>®</sup> electronic sensors Digital Inclinometer** 

Key features and benefitsWaterproof robust plastic body

1 or 2 axis measurement

Dual\redundant outputs available for PLd EN13849 safety systems

Optional thermal compensation available

**Sensors** 



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## **Telescopic** Boom

Conventional \ Electrified

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• 4 WHEEL DRIVE OCENTRAL DRIVE

 $\mathsf{Drive} \setminus \underline{\mathsf{Sensors}}$ 

**Brevini<sup>®</sup> electronic sensors Digital Inclinometer** 

Key features and benefitsCustomizable signal filtration

Customizable hardness on demand

Sensors



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### **Telescopic** Boom

Conventional \ Electrified

• 4 WHEEL DRIVE OCENTRAL DRIVE

 $\mathsf{Drive} \setminus \underline{\mathsf{Sensors}}$ 

**Brevini<sup>®</sup> electronic sensors** Load Sensor

#### Key features and benefits

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



## **Telescopic** Boom

**Conventional** \ Electrified

#### 4 Wheel Drives

Propelling machines with two or four individual compact wheel drives that combine Spicer Torque-Hub<sup>™</sup> planetary gearboxes with Brevini<sup>®</sup> B5VR hydraulic motors to provide optimum traction control when working on a job site.



Discover

#### **Central** Drive By combining Spicer<sup>®</sup> axles and centralized high efficiency gearboxes with Brevini<sup>®</sup> B5VR hydraulic motors. Our axle solutions can deliver the tractive effort required while maintaining axle supported machine designs. $\bigcirc$ Discover



#### **RT** Scissor

Sensors

### **Telescopic** Boom

**Conventional** \ Electrified

• 4 WHEEL DRIVE O CENTRAL DRIVE

A hydraulic system solution for <u>drive</u> and <u>motion</u>, combined with electronic <u>sensors</u>, for greater efficiency and performance.



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Sensors

## **Telescopic** Boom

**Conventional** \ Electrified

• 4 WHEEL DRIVE OCENTRAL DRIVE

Drive \ Motion \ Sensors

Spicer Torque-Hub<sup>™</sup> H Series Wheel Drive

Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
Spicer Torque-Hub <sup>™</sup>	4H	7H	13H	18H	18H





### **Telescopic** Boom

**Conventional** \ Electrified

• 4 WHEEL DRIVE OCENTRAL DRIVE

Drive \ Motion \ Sensors

#### Key features and benefits

Product range engineered for best-Inclass efficiency

Torque ratings from 4kNm to 18kNm engineered to maximize efficiency and reliability

Deliver exceptional maneuverability and proven robustness to final drive Pressure up to 420 bar

Low maintenance requirements and easy to service

Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
Spicer Torque-Hub <sup>™</sup>	4H	7H	13H	18H	18H

Sensors



### **Telescopic** Boom

**Conventional** \ Electrified

• 4 WHEEL DRIVE OCENTRAL DRIVE

Drive \ Motion \ Sensors

#### Key features and benefits

Sealing system, hub and spindle designed for severe environmental conditions

Integrated parking brake to meet safety standards

Complete drive package with B5VR motor for smooth operations

Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
Spicer Torque-Hub <sup>™</sup>	4H	7H	13H	18H	18H

Sensors



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Sensors

## **Telescopic** Boom

**Conventional** \ Electrified

• 4 WHEEL DRIVE OCENTRAL DRIVE

Drive \ Motion \ Sensors

#### **Brevini<sup>®</sup> Hydraulic Motor B5VR Series**

Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
Brevini <sup>®</sup> Hydraulic Motor	B5VR25*	B5VR30	B5VR35 B5VR38	B5VR45	B5VR45

\* coming soon





### **Telescopic** Boom

**Conventional** \ Electrified

• 4 WHEEL DRIVE OCENTRAL DRIVE

Drive \ Motion \ Sensors

Key features and benefits For closed and open loop circuits

State-of-the-art 9-piston rotating kit

Designed for maximum efficiency and smooth functioning

Pressure up to 420 bar

Twin rear and side ports

Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
Brevini <sup>®</sup> Hydraulic Motor	B5VR25*	B5VR30	B5VR35 B5VR38	B5VR45	B5VR45

\* coming soon







### **Telescopic** Boom

**Conventional** \ Electrified

• 4 WHEEL DRIVE OCENTRAL DRIVE

Drive \ Motion \ Sensors

#### Key features and benefits

Reduced max displacements available

Multiple minimum displacement options including null displacement

Speed sensor with null speed signal

#### Embedded flushing valve for closed loop circuit

Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
Brevini <sup>®</sup> Hydraulic Motor	B5VR25*	B5VR30	B5VR35 B5VR38	B5VR45	B5VR45

\* coming soon



Drive



### **Telescopic** Boom

**Conventional** \ Electrified

• 4 WHEEL DRIVE OCENTRAL DRIVE

 $Drive \setminus \underline{Motion} \setminus Sensors$ 

Brevini<sup>®</sup> Slew Drive P Series with Brevini<sup>®</sup> Orbital Motor BS Series

**Platform Size** Medium XX-Large Small Large X-Large Working Height [m] 9 to 16 18 to 21 22 to 30 32 to 40 > 40 Working Weight [ton] up to 8 8 to 12 17 to 22 > 22 12 to 17 2 X P1A 2 X P1A **Brevini<sup>®</sup> Slew Drive** Only motor P1A P1A BS059 **Brevini<sup>®</sup> Hydraulic Motor** BS059 **BS130** BS059 **BS059** 

Drive



### **Telescopic** Boom

**Conventional** \ Electrified

• 4 WHEEL DRIVE OCENTRAL DRIVE

 $Drive \setminus \underline{Motion} \setminus Sensors$ 

#### Key features and benefits

Complete solution with hydraulic orbital motor BS Series offering all-in-one solution for slew drives

Plug and play assembly complete with lifting lugs

2-stage reduction with multiple ratios available

Many pinion options available, custom pinion upon request

Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
Brevini <sup>®</sup> Slew Drive	Only motor	P1A	P1A	2 X P1A	2 X P1A
Brevini <sup>®</sup> Hydraulic Motor	BS130	BS059	BS059	BS059	BS059

Drive



### **Telescopic** Boom

**Conventional** \ Electrified

• 4 WHEEL DRIVE OCENTRAL DRIVE

Drive  $\setminus$  Motion  $\setminus$  Sensors

#### Key features and benefits

Spring applied, hydraulically released holding brake

Convenient backlash adjustment feature between pinion and slew bearing

Orbital Motor with High-performance roller for improved efficiency and life

Counterbalance valve included with various pressure and pilot setting available

Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
Brevini <sup>®</sup> Slew Drive	Only motor	P1A	P1A	2 X P1A	2 X P1A
Brevini <sup>®</sup> Hydraulic Motor	BS130	BS059	BS059	BS059	BS059





### **Telescopic** Boom

**Conventional** \ Electrified

• 4 WHEEL DRIVE OCENTRAL DRIVE

 $\mathsf{Drive} \setminus \underline{\mathsf{Motion}} \setminus \mathsf{Sensors}$ 

#### Key features and benefits

Built in check valves to relieve case pressure to the low-pressure side of the motor.

Orbital Motor with spool valve integrated in the output shaft with optimized geometry to minimize leakage

Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
Brevini <sup>®</sup> Slew Drive	Only motor	P1A	P1A	2 X P1A	2 X P1A
Brevini <sup>®</sup> Hydraulic Motor	BS130	BS059	BS059	BS059	BS059



### **Telescopic** Boom

**Conventional** \ Electrified

• 4 WHEEL DRIVE O CENTRAL DRIVE

 $\mathsf{Drive} \setminus \mathsf{Motion} \setminus \underline{\mathsf{Sensors}}$ 

**Brevini<sup>®</sup> electronic sensors Boom Extension Transducer** 



Key features and benefitsWaterproof 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



### **Telescopic** Boom

**Conventional** \ Electrified

• 4 WHEEL DRIVE O CENTRAL DRIVE

 $\mathsf{Drive} \setminus \mathsf{Motion} \setminus \underline{\mathsf{Sensors}}$ 

**Brevini<sup>®</sup> electronic sensors Digital Inclinometer** 

Key features and benefitsWaterproof robust plastic body

1 or 2 axis measurement

Dual\redundant outputs available for PLd EN13849 safety systems

Optional thermal compensation available



### **Telescopic** Boom

**Conventional** \ Electrified

• 4 WHEEL DRIVE OCENTRAL DRIVE

 $\mathsf{Drive} \setminus \mathsf{Motion} \setminus \underline{\mathsf{Sensors}}$ 

**Brevini<sup>®</sup> electronic sensors Digital Inclinometer** 

**Sensors** 

Key features and benefitsCustomizable signal filtration

Customizable hardness on demand



### **Telescopic** Boom

**Conventional** \ Electrified

• 4 WHEEL DRIVE OCENTRAL DRIVE

 $\mathsf{Drive} \setminus \mathsf{Motion} \setminus \underline{\mathsf{Sensors}}$ 

**Brevini<sup>®</sup> electronic sensors** Load Sensor

#### Key features and benefitsWaterproof robust and compact body

Dual\Redundant output available for PLd EN13849 safety systems

Optional thermal compensation available



Sensors

## **Telescopic** Boom

Conventional \ Electrified

0 4 WHEEL DRIVE

CENTRAL DRIVE

An electro-mechanical system solution for <u>drive</u>, with electronic <u>sensors</u>, for greater efficiency with less size and weight and long-life performance.



CENTRAL DRIVE

Sensors

# **Telescopic** Boom

0 4 WHEEL DRIVE

Conventional \ Electrified  $\underline{\text{Drive}} \setminus \text{Sensors}$ 

Spicer® Front axle 211, 212, 212HD

Platform Size	Small	Medium	Large
Working Height [m]	9 to 16	18 to 21	22 to 30
Working Weight [ton]	up to 8	8 to 12	12 to 17
Spicer <sup>®</sup> Front axle	211	212	212HD



**CENTRAL DRIVE** 

0 4 WHEEL DRIVE

Sensors

## **Telescopic** Boom

Conventional \ Electrified  $\underline{\text{Drive}} \setminus \text{Sensors}$ 

Key features and benefits Planetary steering axle High driveline efficiency Minimal impact on vehicle frame Easy, low-cost service, and maintenance Different hub reduction sizes

Platform Size	Small	Medium	Large
Working Height [m]	9 to 16	18 to 21	22 to 30
Working Weight [ton]	up to 8	8 to 12	12 to 17
Spicer <sup>®</sup> Front axle	211	212	212HD



Sensors

## **Telescopic** Boom

Conventional \ Electrified

**CENTRAL DRIVE** 0 4 WHEEL DRIVE

 $\underline{\text{Drive}} \setminus \text{Sensors}$ 

**Spicer Electrified**<sup>™</sup> Rear e-Axle eS111, eS112, eS112HD with Spicer<sup>®</sup> eSG001 Dropbox and DanaTM4<sup>™</sup> Electric Motor

Platform Size	Small	Medium	Large
Working Height [m]	9 to 16	18 to 21	22 to 30
Working Weight [ton]	up to 8	8 to 12	12 to 17
Spicer Electrified <sup>™</sup> Rear e-Axle	eS111	eS112	eS112HD
Dropbox	eSG001	eSG001	eSG001
Dana TM4 <sup>™</sup>	SRIPM200-150	SRIPM200-200	SRIPM200-250



Sensors

## **Telescopic** Boom

Conventional \ Electrified

CENTRAL DRIVE 0 4 WHEEL DRIVE

Drive \ Sensors

#### Key features and benefits

Planetary rigid axles, based on modular axle, driven by electric motor

Available in a variety of configurations and ratios

Single speed dropbox directly flanged to Spicer<sup>®</sup> axles, designed to enhance vehicle mobility and allow for quick deployment from worksite to worksite

Platform Size	Small	Medium	Large
Working Height [m]	9 to 16	18 to 21	22 to 30
Working Weight [ton]	up to 8	8 to 12	12 to 17
Spicer Electrified <sup>™</sup> Rear e-Axle	eS111	eS112	eS112HD
Dropbox	eSG001	eSG001	eSG001
Dana TM4 <sup>™</sup>	SRIPM200-150	SRIPM200-200	SRIPM200-250



**CENTRAL DRIVE** 

Sensors

## **Telescopic** Boom

Conventional \ Electrified

Drive \ Sensors

Key features and benefits

Optimized NVH and efficiency for electric applications

Four-wheel drive engagement

Optional electromagnetic spring applied parking brake

Different electric motors technologies to meet performance requirements

DC voltage range: 48 V to 96 V

Platform Size	Small	Medium	Large
Working Height [m]	9 to 16	18 to 21	22 to 30
Working Weight [ton]	up to 8	8 to 12	12 to 17
Spicer Electrified <sup>™</sup> Rear e-Axle	eS111	eS112	eS112HD
Dropbox	eSG001	eSG001	eSG001
Dana TM4 <sup>™</sup>	SRIPM200-150	SRIPM200-200	SRIPM200-250

0 4 WHEEL DRIVE



CENTRAL DRIVE

Sensors

# **Telescopic** Boom

0 4 WHEEL DRIVE

Conventional \ Electrified  $\underline{\text{Drive}} \setminus \text{Sensors}$ 

Spicer<sup>®</sup> Driveshaft 10 Series

Platform Size	Small	Medium	Large
Working Height [m]	9 to 16	18 to 21	22 to 30
Working Weight [ton]	up to 8	8 to 12	12 to 17
Spicer <sup>®</sup> Driveshaft	10 Series	10 Series	10 Series



**CENTRAL DRIVE** 

Sensors

### **Telescopic** Boom

0 4 WHEEL DRIVE

Conventional \ <u>Electrified</u> Drive \ Sensors

Key features and benefits
Extended Spline Life
Reduced Thrust Load under Pressure
Lower Friction under Load
Superior Needle Bearing Retention
Easy to Service Universal Joints

Extended or Permanent Lubrication available on request

Platform Size	Small	Medium	Large
Working Height [m]	9 to 16	18 to 21	22 to 30
Working Weight [ton]	up to 8	8 to 12	12 to 17
Spicer <sup>®</sup> Driveshaft	10 Series	10 Series	10 Series



**CENTRAL DRIVE** 

### **Telescopic** Boom

0 4 WHEEL DRIVE

Conventional \ Electrified

Drive \ <u>Sensors</u>

Brevini<sup>®</sup> electronic sensors Boom Extension Transducer



Key features and benefitsWaterproof 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



**CENTRAL DRIVE** 

### **Telescopic** Boom

0 4 WHEEL DRIVE

Conventional \ Electrified

 $\mathsf{Drive} \setminus \underline{\mathsf{Sensors}}$ 

**Brevini<sup>®</sup> electronic sensors Digital Inclinometer** 

Key features and benefitsWaterproof robust plastic body

1 or 2 axis measurement

Dual\redundant outputs available for PLd EN13849 safety systems

Optional thermal compensation available



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CENTRAL DRIVE

0 4 WHEEL DRIVE

# **Telescopic** Boom

Conventional \ Electrified

 $Drive \setminus \underline{Sensors}$ 

**Brevini<sup>®</sup> electronic sensors Digital Inclinometer** 

Key features and benefits Customizable signal filtration

Customizable hardness on demand



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## **Telescopic** Boom

Conventional \ Electrified

0 4 WHEEL DRIVE **CENTRAL DRIVE** 

 $Drive \setminus \underline{Sensors}$ 

**Brevini<sup>®</sup> electronic sensors Load Sensor** 

#### **Key features and benefits**

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



Sensors

### **Telescopic** Boom

**Conventional** \ Electrified

0 4 WHEEL DRIVE

EL DRIVE **CENTRAL DRIVE** 

A hydraulic system solution for <u>drive</u> and <u>motion</u>, combined with electronic <u>sensors</u>, for greater efficiency and performance.


Sensors

### **Telescopic** Boom

**Conventional** \ Electrified

0 4 WHEEL DRIVE CENTRAL DRIVE

Drive \ Motion \ Sensors

Spicer® Front axle 211, 212, 212HD

Platform Size	Small	Medium	Large
Working Height [m]	9 to 16	18 to 21	22 to 30
Working Weight [ton]	up to 8	8 to 12	12 to 17
Spicer <sup>®</sup> Front axle	211	212	212HD



Sensors

### **Telescopic** Boom

**Conventional** \ Electrified

0 4 WHEEL DRIVE

**CENTRAL DRIVE** 

Drive \ Motion \ Sensors

- Key features and benefits Planetary steering axle
- High driveline efficiency
- Minimal impact on vehicle frame
- Easy, low-cost service, and maintenance
- Different hub reduction sizes

Platform Size	Small	Medium	Large
Working Height [m]	9 to 16	18 to 21	22 to 30
Working Weight [ton]	up to 8	8 to 12	12 to 17
Spicer <sup>®</sup> Front axle	211	212	212HD



Sensors

### **Telescopic** Boom

**Conventional** \ Electrified

0 4 WHEEL DRIVE

CENTRAL DRIVE

Drive \ Motion \ Sensors

Spicer<sup>®</sup> Rear axle 111, 112, 112HD with Spicer<sup>®</sup> 301 Dropbox and Brevini<sup>®</sup> Hydraulic Motor **B5VR Series** 

Platform Size	Small	Medium	Large
Working Height [m]	9 to 16	18 to 21	22 to 30
Working Weight [ton]	up to 8	8 to 12	12 to 17
Spicer <sup>®</sup> Rear axle	211	212	212HD
Dropbox	301	301	301
Brevini <sup>®</sup> Hydraulic Motor	B5VR38	B5VR38	2X B5VR38



Sensors

### **Telescopic** Boom

Conventional \ Electrified

() 4 WHEEL DRIVE CENTRAL DRIVE

Drive \ Motion \ Sensors

### Key features and benefits

Planetary rigid axles, based on modular axle, driven by hydraulic motor

Available in a variety of configurations and ratios

Single speed dropbox directly flanged to Spicer<sup>®</sup> axles, designed to enhance vehicle mobility and allow for quick deployment from worksite to worksite

### Optimized NVH and efficiency

Platform Size	Small	Medium	Large
Working Height [m]	9 to 16	18 to 21	22 to 30
Working Weight [ton]	up to 8	8 to 12	12 to 17
Spicer <sup>®</sup> Rear axle	211	212	212HD
Dropbox	301	301	301
Brevini <sup>®</sup> Hydraulic Motor	B5VR38	B5VR38	2X B5VR38



Sensors

### **Telescopic** Boom

**Conventional** \ Electrified

0 4 WHEEL DRIVE

**CENTRAL DRIVE** 

**Drive** \ Motion \ Sensors

### Key features and benefits

Four-wheel drive engagement

Optional electromagnetic spring applied parking brake

Integrated Brevini<sup>®</sup> Hydraulic Motor B5VR designed for maximum efficiency and smooth functioning

- Multiple displacements available
- Speed sensor with null speed signal

Platform Size	Small	Medium	Large
Working Height [m]	9 to 16	18 to 21	22 to 30
Working Weight [ton]	up to 8	8 to 12	12 to 17
Spicer <sup>®</sup> Rear axle	211	212	212HD
Dropbox	301	301	301
Brevini <sup>®</sup> Hydraulic Motor	B5VR38	B5VR38	2X B5VR38



Sensors

### **Telescopic** Boom

**Conventional** \ Electrified

0 4 WHEEL DRIVE CENTRAL DRIVE

Drive \ Motion \ Sensors

Spicer<sup>®</sup> Driveshaft 10 Series

Platform Size	Small	Medium	Large
Working Height [m]	9 to 16	18 to 21	22 to 30
Working Weight [ton]	up to 8	8 to 12	12 to 17
Spicer <sup>®</sup> Driveshaft	10 Series	10 Series	10 Series



Sensors

### **Telescopic** Boom

Conventional \ Electrified

0 4 WHEEL DRIVE

**CENTRAL DRIVE** 

**Drive** \ Motion \ Sensors

Key features and benefits Extended Spline Life

Reduced Thrust Load under Pressure

Lower Friction under Load

Superior Needle Bearing Retention

Easy to Service Universal Joints

Extended or Permanent Lubrication available on request

Platform Size	Small	Medium	Large
Working Height [m]	9 to 16	18 to 21	22 to 30
Working Weight [ton]	up to 8	8 to 12	12 to 17
Spicer <sup>®</sup> Driveshaft	10 Series	10 Series	10 Series



### **Telescopic** Boom

Conventional \ Electrified

0 4 WHEEL DRIVE **CENTRAL DRIVE** 

Drive \ Motion \ Sensors

**Brevini<sup>®</sup> Slew Drive P Series** with Brevini<sup>®</sup> Orbital Motor **BS** Series

**Platform Size** Small Medium X-Large **XX-Large** Large Working Height [m] 22 to 30 32 to 40 9 to 16 18 to 21 > 40 17 to 22 Working Weight [ton] > 22 up to 8 8 to 12 12 to 17 **Brevini<sup>®</sup> Slew Drive** P1A Only motor P1A 2 X P1A 2 X P1A **Brevini<sup>®</sup> Hydraulic Motor** BS130 **BS059** BS059 **BS059 BS059** 

Sensors





Sensors

### **Telescopic** Boom

**Conventional** \ Electrified

**CENTRAL DRIVE** 0 4 WHEEL DRIVE

Drive \ Motion \ Sensors

### Key features and benefits

Complete solution with hydraulic orbital motor BS Series offering all-in-one solution for slew drives

Plug and play assembly complete with lifting lugs

2-stage reduction with multiple ratios available

Many pinion options available, custom pinion upon request

Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
Brevini <sup>®</sup> Slew Drive	Only motor	P1A	P1A	2 X P1A	2 X P1A
Brevini <sup>®</sup> Hydraulic Motor	BS130	BS059	BS059	BS059	BS059





Sensors

### **Telescopic** Boom

Conventional \ Electrified

0 4 WHEEL DRIVE CENTRAL DRIVE

Drive \ Motion \ Sensors

### Key features and benefits

Spring applied, hydraulically released holding brake

Convenient backlash adjustment feature between pinion and slew bearing

Orbital Motor with High-performance roller for improved efficiency and life

Counterbalance valve included with various pressure and pilot setting available

Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
Brevini <sup>®</sup> Slew Drive	Only motor	P1A	P1A	2 X P1A	2 X P1A
Brevini <sup>®</sup> Hydraulic Motor	BS130	BS059	BS059	BS059	BS059





Sensors

### **Telescopic** Boom

**Conventional** \ Electrified

**CENTRAL DRIVE** 0 4 WHEEL DRIVE

 $\mathsf{Drive} \setminus \underline{\mathsf{Motion}} \setminus \mathsf{Sensors}$ 

### Key features and benefits

Built in check valves to relieve case pressure to the low-pressure side of the motor.

Orbital Motor with spool valve integrated in the output shaft with optimized geometry to minimize leakage

Platform Size	Small	Medium	Large	X-Large	XX-Large
Working Height [m]	9 to 16	18 to 21	22 to 30	32 to 40	> 40
Working Weight [ton]	up to 8	8 to 12	12 to 17	17 to 22	> 22
Brevini <sup>®</sup> Slew Drive	Only motor	P1A	P1A	2 X P1A	2 X P1A
Brevini <sup>®</sup> Hydraulic Motor	BS130	BS059	BS059	BS059	BS059





**Sensors** 

### **Telescopic** Boom

**Conventional** \ Electrified

∅ 4 WHEEL DRIVE ○ CENTI

CENTRAL DRIVE

 $\mathsf{Drive} \setminus \mathsf{Motion} \setminus \underline{\mathsf{Sensors}}$ 

**Brevini<sup>®</sup> electronic sensors Boom Extension Transducer** 



Key features and benefitsWaterproof 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



### **Telescopic** Boom

**Conventional** \ Electrified

∅ 4 WHEEL DRIVE ○ CEN

CENTRAL DRIVE

 $\mathsf{Drive} \setminus \mathsf{Motion} \setminus \underline{\mathsf{Sensors}}$ 

**Brevini<sup>®</sup> electronic sensors Digital Inclinometer** 

**Sensors** 

Key features and benefitsWaterproof robust plastic body

1 or 2 axis measurement

Dual\redundant outputs available for PLd EN13849 safety systems

Optional thermal compensation available



### **Telescopic** Boom

**Conventional** \ Electrified

∅ 4 WHEEL DRIVE ○ CENTRAL DRIVE

 $\mathsf{Drive} \setminus \mathsf{Motion} \setminus \underline{\mathsf{Sensors}}$ 

**Brevini<sup>®</sup> electronic sensors Digital Inclinometer** 

Sensors

Key features and benefitsCustomizable signal filtration

Customizable hardness on demand



### **Telescopic** Boom

**Conventional** \ Electrified

∅ 4 WHEEL DRIVE CENTRAL DRIVE

 $\mathsf{Drive} \setminus \mathsf{Motion} \setminus \underline{\mathsf{Sensors}}$ 

**Brevini<sup>®</sup> electronic sensors** Load Sensor

Key features and benefitsWaterproof robust and compact body

Dual\Redundant output available for PLd EN13849 safety systems

Optional thermal compensation available

**Sensors** 



### Articulated Boom

### **RT** Scissor

Conventional \ Electrified

### 4 Wheel Drives

Propelling machines with two or four individual compact wheel drives that combine Spicer Torque-Hub<sup>™</sup> planetary gearboxes with Dana TM4<sup>™</sup> electric motors to provide optimum traction control when working on a job site.



Discover

### **Central** Drive

By combining Spicer<sup>®</sup> axles and centralized high efficiency gearboxes with Dana TM4<sup>™</sup> electric motors. Our axle solutions can deliver the tractive effort required while maintaining axle supported machine designs.







Conventional \ Electrified

Articulated Boom

Telescopic Boom

• 4 WHEEL DRIVE OCENTRAL DRIVE

An electro-mechanical system solution for drive, with electronic sensors, for greater efficiency with less size and weight and long-life performance. Drive

Sensors



Conventional \ Electrified

• 4 WHEEL DRIVE O CENTRAL DRIVE

 $\underline{\text{Drive}} \setminus \text{Sensors}$ 

Spicer Electrified<sup>™</sup> e-Drive Torque Hub eSAW Series



Drive



Sensors



Conventional \ Electrified

• 4 WHEEL DRIVE O CENTRAL DRIVE

Drive \ Sensors

### Key features and benefits

2 sizes with torque outputs of 4kNm and 7kNm engineered to fulfill industry targets for performance, serviceability and durability

Improves the performance with hybrid and fully electric drive systems

Fully integrated electro-mechanical system

Internal integrated electric parking brake design for maximum holding power

Platform Size	Medium	Large
Working Height [m]	9 to 12	12 to 18
Working Weight [ton]	3 to 8	8 to 12
e-Drive Torque Hub	eSAW04	eSAW07
Dana TM4 <sup>™</sup>	200-33	200-50

Drive



Sensors



Conventional \ Electrified

• 4 WHEEL DRIVE O CENTRAL DRIVE

Drive \ Sensors

### Key features and benefits

Dana TM4<sup>™</sup> IPM and ACIM Integrated advanced motor technologies for greater efficiency with compact size and weight

Compact three-stage planetary gear design provides superior gradeability

IP67 motor protection from environmental hazards

Integrated motor options for design flexibility

Platform Size	Medium	Large
Working Height [m]	9 to 12	12 to 18
Working Weight [ton]	3 to 8	8 to 12
e-Drive Torque Hub	eSAW04	eSAW07
Dana TM4 <sup>™</sup>	200-33	200-50

Drive

Sensors

Articulated Boom



Conventional \ Electrified

• 4 WHEEL DRIVE OCENTRAL DRIVE

Drive \ <u>Sensors</u>

### **Brevini<sup>®</sup> electronic sensors Digital Inclinometer**

**Key features and benefits** Waterproof robust plastic body

- 1 or 2 axis measurement
- Dual\redundant outputs available for PLd EN13849 safety systems
- Optional thermal compensation available

Articulated Boom



Sensors

Telescopic Boom



Conventional \ Electrified

• 4 WHEEL DRIVE OCENTRAL DRIVE

 $\mathsf{Drive} \setminus \underline{\mathsf{Sensors}}$ 

**Brevini<sup>®</sup> electronic sensors Digital Inclinometer** 

Key features and benefits Customizable signal filtration

Customizable hardness on demand



Sensors

Articulated Boom



Conventional \ Electrified

• 4 WHEEL DRIVE OCENTRAL DRIVE

Drive \ <u>Sensors</u>

**Brevini<sup>®</sup> electronic sensors** Load Sensor

Key features and benefits Waterproof robust and compact body

Dual\Redundant output available for PLd EN13849 safety systems

Optional thermal compensation available

Articulated Boom



Sensors



**Conventional** \ Electrified

### 4 Wheel Drives

Propelling machines with two or four individual compact wheel drives that combine Spicer Torque-Hub<sup>™</sup> planetary gearboxes with Brevini<sup>®</sup> B5VR hydraulic motors to provide optimum traction control when working on a job site.



Discover

### **Central** Drive

Articulated Boom

By combining Spicer® axles and centralized high efficiency gearboxes with Brevini® B5VR hydraulic motors. Our axle solutions can deliver the tractive effort required while maintaining axle supported machine designs.







**Conventional** \ Electrified

• 4 WHEEL DRIVE OCENTRAL DRIVE

A hydraulic system solution for <u>drive</u>, combined with electronic sensors, for greater efficiency and performance.

Articulated Boom



Drive

Sensors





**Conventional** \ Electrified

• 4 WHEEL DRIVE O CENTRAL DRIVE

 $\underline{\text{Drive}} \setminus \text{Sensors}$ 

### Spicer Torque-Hub<sup>™</sup> H Series Wheel Drive

Platform Size	Medium	Large
Working Height [m]	9 to 12	12 to 18
Working Weight [ton]	3 to 8	8 to 12
Spicer Torque-Hub <sup>™</sup>	4H	7H

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Drive

Sensors





**Conventional** \ Electrified

• 4 WHEEL DRIVE O CENTRAL DRIVE

Drive \ Sensors

### Key features and benefits

Product range engineered for best-Inclass efficiency

Torque ratings from 4kNm to 7kNm engineered to maximize efficiency and reliability

Deliver exceptional maneuverability and proven robustness to final drive Pressure up to 420 bar

Low maintenance requirements and easy to service

Platform Size	Medium	Large
Working Height [m]	9 to 12	12 to 18
Working Weight [ton]	3 to 8	8 to 12
Spicer Torque-Hub <sup>™</sup>	4H	7H

Drive

Sensors

Articulated Boom





**Conventional** \ Electrified

• 4 WHEEL DRIVE OCENTRAL DRIVE

 $\underline{\text{Drive}} \setminus \text{Sensors}$ 

### Key features and benefits

Sealing system, hub and spindle designed for severe environmental conditions

Integrated parking brake to meet safety standards

Complete drive package with B5VR motor for smooth operations

Platform Size	Medium	Large
Working Height [m]	9 to 12	12 to 18
Working Weight [ton]	3 to 8	8 to 12
Spicer Torque-Hub <sup>™</sup>	4H	7H

Drive

Sensors

Articulated Boom





**Conventional** \ Electrified

• 4 WHEEL DRIVE O CENTRAL DRIVE

 $\underline{\text{Drive}} \setminus \text{Sensors}$ 

### **Brevini<sup>®</sup> Hydraulic Motor B5VR Series**

Platform Size	Medium	Large
Working Height [m]	9 to 12	12 to 18
Working Weight [ton]	3 to 8	8 to 12
Brevini <sup>®</sup> Hydraulic Motor	B5VR25*	B5VR30

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\* coming soon

Drive

Articulated Boom



Sensors



**Conventional** \ Electrified

• 4 WHEEL DRIVE OCENTRAL DRIVE

 $\underline{\text{Drive}} \setminus \text{Sensors}$ 

### Key features and benefits

- For closed and open loop circuits
- State-of-the-art 9-piston rotating kit

Designed for maximum efficiency and smooth functioning

Pressure up to 420 bar

Twin rear and side ports

Platform Size	Medium	Large
Working Height [m]	9 to 12	12 to 18
Working Weight [ton]	3 to 8	8 to 12
Brevini <sup>®</sup> Hydraulic Motor	B5VR25*	B5VR30

\* coming soon

Drive

Sensors

Articulated Boom





**Conventional** \ Electrified

• 4 WHEEL DRIVE OCENTRAL DRIVE

 $\underline{\text{Drive}} \setminus \text{Sensors}$ 

### Key features and benefits

- Reduced max displacements available
- Multiple minimum displacement options including null displacement
- Speed sensor with null speed signal

### Embedded flushing valve for closed loop circuit

Platform Size	Medium	Large
Working Height [m]	9 to 12	12 to 18
Working Weight [ton]	3 to 8	8 to 12
Brevini <sup>®</sup> Hydraulic Motor	B5VR25*	B5VR30

\* coming soon

Drive

Sensors

Articulated Boom





**Conventional** \ Electrified

• 4 WHEEL DRIVE OCENTRAL DRIVE

Drive \ <u>Sensors</u>

### **Brevini<sup>®</sup> electronic sensors Digital Inclinometer**

**Key features and benefits** Waterproof robust plastic body

- 1 or 2 axis measurement
- Dual\redundant outputs available for PLd EN13849 safety systems
- Optional thermal compensation available

Drive

Sensors





**Conventional** \ Electrified

• 4 WHEEL DRIVE OCENTRAL DRIVE

 $\mathsf{Drive} \setminus \underline{\mathsf{Sensors}}$ 

**Brevini<sup>®</sup> electronic sensors Digital Inclinometer** 

Key features and benefits Customizable signal filtration

Customizable hardness on demand

Drive

Articulated Boom

Sensors





**Conventional** \ Electrified

• 4 WHEEL DRIVE OCENTRAL DRIVE

 $\mathsf{Drive} \setminus \underline{\mathsf{Sensors}}$ 

**Brevini<sup>®</sup> electronic sensors** Load Sensor

### **Key features and benefits** Waterproof robust and compact body

Dual\Redundant output available for PLd EN13849 safety systems

Optional thermal compensation available

Drive

Articulated Boom









Conventional \ Electrified

Articulated Boom

Telescopic Boom

CENTRAL DRIVE 0 4 WHEEL DRIVE

An electro-mechanical system solution for drive, with electronic sensors, for greater efficiency with less size and weight and long-life performance. Drive

Sensors



Conventional \ Electrified  $\underline{\text{Drive}} \setminus \text{Sensors}$ 

0 4 WHEEL DRIVE

### Spicer<sup>®</sup> Front axle 211, 212

Medium	Large
9 to 12	12 to 18
3 to 8	8 to 12
211	212
	Medium   9 to 12   3 to 8   211

Articulated Boom

CENTRAL DRIVE

Telescopic Boom

Drive

Sensors


Conventional \ <u>Electrified</u> Drive \ Sensors

### Key features and benefits Planetary steering axle

- High driveline efficiency
- Minimal impact on vehicle frame
- Easy, low-cost service, and maintenance
- Different hub reduction sizes

Platform Size	Medium	Large
Working Height [m]	9 to 12	12 to 18
Working Weight [ton]	3 to 8	8 to 12
Spicer <sup>®</sup> Front axle	211	212

Articulated Boom

**CENTRAL DRIVE** 

0 4 WHEEL DRIVE



Drive



Sensors

Conventional \ Electrified

**CENTRAL DRIVE** 0 4 WHEEL DRIVE

 $\underline{\text{Drive}} \setminus \text{Sensors}$ 

Spicer Electrified Rear e-Axle eS111, eS112 with Spicer<sup>®</sup> eSG001 Dropbox and DanaTM4<sup>™</sup> Electric Motor

Platform Size	Medium	Large
Working Height [m]	9 to 12	12 to 18
Working Weight [ton]	3 to 8	8 to 12
Spicer Electrified <sup>™</sup> Rear e-Axle	eS111	eS112
Dropbox	eSG001	eSG001
Dana TM4 <sup>™</sup>	SRIPM200-150	SRIPM200-200

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Drive

Sensors

Articulated Boom



Drive \ Sensors

Conventional \ Electrified

Key features and benefits

Planetary rigid axles, based on modular axle, driven by electric motor

Available in a variety of configurations and ratios

Single speed dropbox directly flanged to Spicer<sup>®</sup> axles, designed to enhance vehicle . mobility and allow for quick deployment from worksite to worksite

Platform Size	Medium	Large
Working Height [m]	9 to 12	12 to 18
Working Weight [ton]	3 to 8	8 to 12
Spicer Electrified <sup>™</sup> Rear e-Axle	eS111	eS112
Dropbox	eSG001	eSG001
Dana TM4 <sup>™</sup>	SRIPM200-150	SRIPM200-200

Articulated Boom

CENTRAL DRIVE

0 4 WHEEL DRIVE

Drive

Sensors



Drive \ Sensors

Conventional \ Electrified

### Key features and benefits

Optimized NVH and efficiency for electric applications

Four-wheel drive engagement

Optional electromagnetic spring applied parking brake

Different electric motors technologies to meet performance requirements

DC voltage range: 48 V to 96 V

Platform Size	Medium	Large
Working Height [m]	9 to 12	12 to 18
Working Weight [ton]	3 to 8	8 to 12
Spicer Electrified <sup>™</sup> Rear e-Axle	eS111	eS112
Dropbox	eSG001	eSG001
Dana TM4 <sup>™</sup>	SRIPM200-150	SRIPM200-200

Articulated Boom

Telescopic Boom

**CENTRAL DRIVE** 0 4 WHEEL DRIVE

Drive



Sensors



Conventional \ Electrified  $\underline{\text{Drive}} \setminus \text{Sensors}$ 

0 4 WHEEL DRIVE

### Spicer<sup>®</sup> Driveshaft 10 Series

Platform Size	Medium	Large
Working Height [m]	9 to 12	12 to 18
Working Weight [ton]	3 to 8	8 to 12
Spicer <sup>®</sup> Driveshaft	10 Series	10 Series

Articulated Boom

CENTRAL DRIVE

Telescopic Boom

Drive

Sensors



Conventional \ Electrified  $\underline{\text{Drive}} \setminus \text{Sensors}$ 

0 4 WHEEL DRIVE

### Key features and benefits Extended Spline Life Reduced Thrust Load under Pressure Lower Friction under Load Superior Needle Bearing Retention

Easy to Service Universal Joints

Extended or Permanent Lubrication available on request

Platform Size	Medium	Large
Working Height [m]	9 to 12	12 to 18
Working Weight [ton]	3 to 8	8 to 12
Spicer <sup>®</sup> Driveshaft	10 Series	10 Series

Articulated Boom

**CENTRAL DRIVE** 

Telescopic Boom

Drive



Sensors



Drive \ <u>Sensors</u>

Conventional \ Electrified

**Brevini<sup>®</sup> electronic sensors Digital Inclinometer** 

**Key features and benefits** Waterproof robust plastic body

1 or 2 axis measurement

Dual\redundant outputs available for PLd EN13849 safety systems

Optional thermal compensation available

Articulated Boom

Telescopic Boom

**CENTRAL DRIVE** 0 4 WHEEL DRIVE

Sensors



Conventional \ Electrified

**CENTRAL DRIVE** 0 4 WHEEL DRIVE

 $\mathsf{Drive} \setminus \underline{\mathsf{Sensors}}$ 

**Brevini<sup>®</sup> electronic sensors Digital Inclinometer** 

Key features and benefits Customizable signal filtration

Customizable hardness on demand



Sensors



Conventional \ Electrified Drive \ <u>Sensors</u>

**Brevini<sup>®</sup> electronic sensors** Load Sensor

Key features and benefits Waterproof robust and compact body

Dual\Redundant output available for PLd EN13849 safety systems

Optional thermal compensation available

Articulated Boom

Telescopic Boom

**CENTRAL DRIVE** 0 4 WHEEL DRIVE

Sensors

Drive



**Conventional** \ Electrified 0 4 WHEEL DRIVE

CENTRAL DRIVE

A hydraulic system solution for <u>drive</u>, combined with electronic sensors, for greater efficiency and performance.

Articulated Boom

Telescopic Boom

Drive

Sensors









**Conventional** \ Electrified

0 4 WHEEL DRIVE

CENTRAL DRIVE

 $\underline{\text{Drive}} \setminus \text{Sensors}$ 

### Spicer<sup>®</sup> Front axle 211, 212

Platform Size	Medium	Large
Working Height [m]	9 to 12	12 to 18
Working Weight [ton]	3 to 8	8 to 12
Spicer <sup>®</sup> Front axle	211	212

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Drive



Sensors





**Conventional** \ Electrified

CENTRAL DRIVE 0 4 WHEEL DRIVE

 $\underline{\text{Drive}} \setminus \text{Sensors}$ 

### Key features and benefits

- Planetary steering axle
- High driveline efficiency
- Minimal impact on vehicle frame
- Easy, low-cost service, and maintenance
- Different hub reduction sizes

Platform Size	Medium	Large
Working Height [m]	9 to 12	12 to 18
Working Weight [ton]	3 to 8	8 to 12
Spicer <sup>®</sup> Front axle	211	212

Drive

Sensors

Articulated Boom





**Conventional** \ Electrified

CENTRAL DRIVE 0 4 WHEEL DRIVE

 $\underline{\text{Drive}} \setminus \text{Sensors}$ 

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Spicer<sup>®</sup> Rear axle 111, 112 with Spicer<sup>®</sup> 301 Dropbox and Brevini<sup>®</sup> Hydraulic Motor **B5VR Series** 

Platform Size	Medium	Large
Working Height [m]	9 to 12	12 to 18
Working Weight [ton]	3 to 8	8 to 12
Spicer <sup>®</sup> Rear axle	111	112
Dropbox	301	301
Brevini <sup>®</sup> Hydraulic Motor	B5VR38	B5VR38

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Drive

Articulated Boom



Sensors



### **Conventional** \ Electrified

CENTRAL DRIVE 0 4 WHEEL DRIVE

Drive \ Sensors

### Key features and benefits

Planetary rigid axles, based on modular axle, driven by hydraulic motor

Available in a variety of configurations and ratios

Single speed dropbox directly flanged to Spicer<sup>®</sup> axles, designed to enhance vehicle mobility and allow for quick deployment from worksite to worksite

### Optimized NVH and efficiency

Platform Size	Medium	Large
Working Height [m]	9 to 12	12 to 18
Working Weight [ton]	3 to 8	8 to 12
Spicer <sup>®</sup> Rear axle	111	112
Dropbox	301	301
Brevini <sup>®</sup> Hydraulic Motor	B5VR38	B5VR38

Drive

Sensors





**Conventional** \ Electrified

**CENTRAL DRIVE** 0 4 WHEEL DRIVE

Drive \ Sensors

### Key features and benefits

- Four-wheel drive engagement
- Optional electromagnetic spring applied parking brake
- Integrated Brevini<sup>®</sup> Hydraulic Motor B5VR designed for maximum efficiency and smooth functioning
- Multiple displacements available
- Speed sensor with null speed signal

Platform Size	Medium	Large
Working Height [m]	9 to 12	12 to 18
Working Weight [ton]	3 to 8	8 to 12
Spicer <sup>®</sup> Rear axle	111	112
Dropbox	301	301
Brevini <sup>®</sup> Hydraulic Motor	B5VR38	B5VR38

Drive

Sensors

Articulated Boom





**Conventional** \ Electrified

0 4 WHEEL DRIVE CENTRAL DRIVE

 $\underline{\text{Drive}} \setminus \text{Sensors}$ 

### Spicer<sup>®</sup> Driveshaft 10 Series

Platform Size	Medium	Large
Working Height [m]	18 to 21	22 to 30
Working Weight [ton]	8 to 12	12 to 17
Spicer <sup>®</sup> Driveshaft	10 Series	10 Series

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Drive

Sensors





**Conventional** \ Electrified

CENTRAL DRIVE 04 WHEEL DRIVE

 $\underline{\text{Drive}} \setminus \text{Sensors}$ 

### Key features and benefits

- Extended Spline Life
- Reduced Thrust Load under Pressure
- Lower Friction under Load
- Superior Needle Bearing Retention
- Easy to Service Universal Joints
- Extended or Permanent Lubrication available on request

Platform Size	Medium	Large
Working Height [m]	18 to 21	22 to 30
Working Weight [ton]	8 to 12	12 to 17
Spicer <sup>®</sup> Driveshaft	10 Series	10 Series

Drive

Sensors





**Conventional** \ Electrified

0 4 WHEEL DRIVE **CENTRAL DRIVE** 

Drive \ <u>Sensors</u>

### **Brevini<sup>®</sup> electronic sensors Digital Inclinometer**

**Key features and benefits** Waterproof robust plastic body

- 1 or 2 axis measurement
- Dual\redundant outputs available for PLd EN13849 safety systems
- Optional thermal compensation available

Drive





Sensors



**Conventional** \ Electrified

CENTRAL DRIVE 0 4 WHEEL DRIVE

 $\mathsf{Drive} \setminus \underline{\mathsf{Sensors}}$ 

**Brevini<sup>®</sup> electronic sensors Digital Inclinometer** 

Key features and benefits Customizable signal filtration

Customizable hardness on demand

Drive





Sensors



**Conventional** \ Electrified

CENTRAL DRIVE 0 4 WHEEL DRIVE

Drive  $\$  Sensors

**Brevini<sup>®</sup> electronic sensors** Load Sensor

**Key features and benefits** Waterproof robust and compact body

Dual\Redundant output available for PLd EN13849 safety systems

Optional thermal compensation available

Drive



Sensors

Telescopic Boom



Electrified

2 WHEEL DRIVE

Articulated Boom

An electro-mechanical system solution for drive, with electronic sensors, for greater efficiency with less size and weight and long-life performance.



#### **RT Scissor**



### Electrified

**2** WHEEL DRIVE

 $\underline{\mathsf{Drive}} \setminus \mathsf{Sensors}$ 

Spicer Electrified<sup>™</sup> e-Drive Spindle and Hub output

Platform Size	Micro	Small	Medium	Large
Working Height [m]	< 5	5 to 6	6 to 10	10 to 15
Working Weight [ton]	< 1,5	1,5	1,5 to 3	3 to 8
e-Drive Torque Hub	eS10S	eS10S	eS10H	eS10H
Dana TM4 <sup>™</sup>	125 Series AC Induction	125 Series AC Induction	125 Series AC Induction	125 Series AC Induction
	120 Series IPM	120 Series IPM	120 Series IPM	120 Series IPM

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Drive

Articulated Boom



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Sensors

### RT Scissor

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### Electrified

**2 WHEEL DRIVE** 

Drive \ Sensors

### Key features and benefits

2 sizes with torque output of 1 kNm engineered to fulfill industry targets for performance, serviceability and durability

Specifically designed for electrically driven high-efficiency Scissor MEWPs

Fully integrated electro-mechanical system for scissor lifts

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Platform Size	Micro	Small	Medium	Large
Working Height [m]	< 5	5 to 6	6 to 10	10 to 15
Working Weight [ton]	< 1,5	1,5	1,5 to 3	3 to 8
e-Drive Torque Hub	eS10S	eS10S	eS10H	eS10H
Dana TM4 <sup>™</sup>	125 Series AC Induction	125 Series AC Induction	125 Series AC Induction	125 Series AC Induction
	120 Series IPM	120 Series IPM	120 Series IPM	120 Series IPM

Drive

Sensor



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#### **RT Scissor**

### Electrified

**2 WHEEL DRIVE** 

Drive \ Sensors

### Key features and benefits

Dana TM4<sup>™</sup> IPM and ACIM Integrated advanced motor technologies for greater efficiency with compact size and weight

Internal integrated electric parking brake design for maximum holding power

IP67 motor protection from environmental hazards

Platform Size	Micro	Small	Medium	Large
Working Height [m]	< 5	5 to 6	6 to 10	10 to 15
Working Weight [ton]	< 1,5	1,5	1,5 to 3	3 to 8
e-Drive Torque Hub	eS10S	eS10S	eS10H	eS10H
Dana TM4 <sup>™</sup>	125 Series AC Induction	125 Series AC Induction	125 Series AC Induction	125 Series AC Induction
	120 Series IPM	120 Series IPM	120 Series IPM	120 Series IPM

Drive

Sensor



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#### **RT Scissor**

### Electrified

2 WHEEL DRIVE

Drive \ Sensors

### Key features and benefits

Integrated motor options for design flexibility

Compact design that enables exceptional design flexibility and weight

Platform Size	Micro	Small	Medium	Large
Working Height [m]	< 5	5 to 6	6 to 10	10 to 15
Working Weight [ton]	< 1,5	1,5	1,5 to 3	3 to 8
e-Drive Torque Hub	eS10S	eS10S	eS10H	eS10H
Dana TM4 <sup>™</sup>	125 Series AC Induction	125 Series AC Induction	125 Series AC Induction	125 Series AC Induction
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Drive

Sensor



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#### **RT Scissor**

### Electrified

2 WHEEL DRIVE

 $\mathsf{Drive} \setminus \underline{\mathsf{Sensors}}$ 

**Brevini<sup>®</sup> electronic sensors Digital Inclinometer** 

**Key features and benefits** Waterproof robust plastic body

- 1 or 2 axis measurement
- Dual\redundant outputs available for PLd EN13849 safety systems
- Optional thermal compensation available

Articulated Boom

**Telescopic Boom** 

Sensors



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#### **RT Scissor**

### Electrified

**2** WHEEL DRIVE

 $\mathsf{Drive} \setminus \underline{\mathsf{Sensors}}$ 

**Brevini**<sup>®</sup> electronic sensors **Digital Inclinometer** 

Key features and benefits Customizable signal filtration

Customizable hardness on demand

Sensors

Articulated Boom

Telescopic Boom



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#### **RT Scissor**

### Electrified

2 WHEEL DRIVE

 $\mathsf{Drive} \setminus \underline{\mathsf{Sensors}}$ 

**Brevini**<sup>®</sup> electronic sensors Load Sensor

### **Key features and benefits**

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

Articulated Boom

**Telescopic Boom** 



Sensors



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#### **RT Scissor**

# A complete range of best-in-class drive and motion products for Mobile Elevated Work Platforms

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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 epresentative 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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### Expertise, global reach, and systems know-how support each manufacture's needs worldwide with dedicated and customized solutions

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