



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

### A new era of mobility is upon us.

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

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

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

# Why should you rely on Dana? Solutions designed, engineered, and manufactured for maximum efficiency.

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

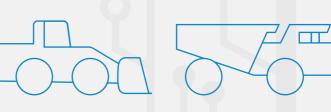
A component is only as good as the system in which it operates. That's why we take a systems-focused approach, seamlessly integrating our components into complete electrified systems.

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

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



**Light Vehicle Drive Systems** Commercial Vehicle **Drive and Motion Systems** Off-Highway





**OFF-HIGHWAY VEHICLES** 







WEIGHT REDUCTION For additional payload

or battery capacity



Reduced energy consumption means increased range and cost savings



Improved vehicle integration for optimized packaging space



**COOLING SOLUTIONS** Capability to integrate

# Off-Highway Drive and Motion Systems As an innovation leader in off-highway drive and motion systems, Dana continuously improves the performance

# Enhanced Brand Portfolio Off-Highway brands

**Drivetrain Systems** 



and efficiency of vehicles and machines worldwide.

We aim to be the global technology pacesetter in efficient

power conveyance and energy-management solutions.











**Motion Systems** 



**BREVINI** 







Gears and Shifting Solutions



**GRAZIANO** 





**Thermal Management** 





**Sealing** 





# Leading the Charge in Vehicle Electrification

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

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

Electrification. **Delivered.**™

Fully integrated e-Drive and e-Motion systems

e-Drive Systems





e-Motion Systems













# Off-Highway Segments

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



### Industrial

# **Bulk Materials**

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



# Heavy Industry: Steel, Sugar, and Cement

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









### Agriculture

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



### **Onshore and Offshore Marine**

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





### **Material Handling**

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



# **Environment - Renewable Energy**

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





# Mining

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



# **Industrial and Stationary Equipment**

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





### **Construction and Forestry**

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





### **Plastic and Rubber**

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



# **Drive and Motion**Solutions

The drivetrain solutions you need, backed by global expertise and support.

## Spicer® Axles and Drives

Spicer® axles are engineered to improve performance, tractive effort, and operator comfort in harsh working environments while also supporting on-road mobility through high torque density, high reliability, and robustness.

Our power-dense designs deliver maximum performance in a compact package that improves reliability, durability, stability, and safety.

Dana has a broad range of dedicated solutions matching the different application needs like torque density, specific duty cycle, braking performances, safety standard and robustness.



### Spicer® Driveshafts

Built to withstand the roughest terrains and heaviest loads, Spicer driveshafts efficiently and reliably manage input torque to improve productivity, reduce operating costs, and simplify maintenance. They can be customized with a complete set of end fittings, flanges, and service options for any requirement.



### Spicer® Transmissions with Electronic Controls

From basic gearboxes to leading-edge powersplit configurations, Dana supplies a wide range of powerful, efficient transmissions and electronic controls that improve fuel efficiency, handling, tractive effort, and operator comfort while reducing noise and ensuring easy maintenance.

Our advanced electronic controls provide multiple smart operating modes that optimize productivity, monitoring and efficiency at every stage of the work cycle.



### **Graziano™ Custom Gears and Shifting Solutions**

Our custom-designed high-precision gears and shafts improve the performance, reliability, and durability of final reduction components. We also support technically challenging and complex vehicle applications by leveraging our engineering expertise to supply customized crown wheel and pinion sets.

We offer a range of heavy-duty synchronizers and other shifting solutions that help vehicle and transmission manufacturers overcome the limited availability of engineering resources while giving vehicle operators better control, shifting performance and improved productivity.

Additionally, we leverage our in-house design, prototype, and validation capabilities to produce custom drive assemblies for highly specialized applications with accelerated development timelines.





### **Brevini™ Motion Systems**

We serve OEMs as a single supplier for the wide variety of components that maximize the productivity and efficiency of vehicle work functions.

Our comprehensive selection of Brevini<sup>TM</sup> motion products includes slewing drives, winches, and a complete range of field-proven gear solutions such as gear units, gear motors, and gearboxes.

Additionally, we provide full array of reliable hydraulic pumps, motors, valves, powerpacks and controls.

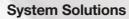




### e-Drive and e-Motion Solutions

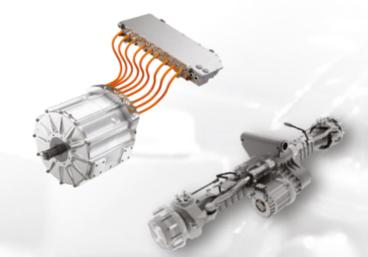
We leverage our complete portfolio of e-Propulsion Systems — e-Axles, e-Drive Units, and e-Hub Drives — as well as e-Powertrains, e-Motion Systems, and electrodynamic modules to enable vehicles to meet the highest standards for efficiency, reliability, and performance.

We can help OEMs adapt current ICE-driven applications with effective, low-risk, quick-to-market drive solutions today as we plan for future vehicle configurations with fully integrated systems that deliver superior productivity while reducing manufacturing complexity and total cost of ownership.



Vehicle intelligence, autonomous driving systems, Al, electrodynamics, telematics, cybersecurity, and other digital innovations are enabling quantum leaps in vehicle performance and efficiency.

Dana's multi-disciplinary team of system solutions engineers provides turnkey solutions for electric vehicle integration by collaborating with customers. Our holistic approach helps OEMs seamlessly integrate transformative digital technologies with Dana's proven drive and motion systems for the next generation of vehicles.





# Spicer® Axles





# **Tractors**



Spicer® Independent Front Suspension Axle

| Range |     |     |
|-------|-----|-----|
| 970   | 980 | 990 |



Spicer® Standard Suspension Axle

| Range |     |     |     |  |
|-------|-----|-----|-----|--|
| 730   | 740 | 750 | 770 |  |



Spicer® Portal Axle

| Range |     |     |  |  |
|-------|-----|-----|--|--|
| P71   | P72 | P73 |  |  |



Spicer® Modular Axle

| Rang | е   |     |     |     |     |
|------|-----|-----|-----|-----|-----|
| M20  | M30 | M40 | M50 | M60 | 770 |

# **Combines and Harvesters**



Axle

| Range |     |
|-------|-----|
| N07   | N09 |



**Container Handlers** 

145 147

Spicer® Planetary Non-Steering Axle

**Ground Support Equipments** 

Spicer® Planetary Non-Steering Axle

111 112 123 113

Spicer® Rear Standard

| Range |     |     |
|-------|-----|-----|
| 730   | 740 | 750 |



Adjustable Axle

| Range |
|-------|
| 733   |



Spicer® Rear

| Range |
|-------|
| 733   |

# Mining



Spicer® Planetary

| Non-Steering Axle |
|-------------------|
| Range             |

| Range | е   |     |     |     |
|-------|-----|-----|-----|-----|
| 182   | 183 | 17D | 20D | 53R |

**Mining Trucks** 

Spicer® Planetary Non-Steering Axle

182 183 17D 20D 53R

**Drill Rigs** 

Spicer® Planetary Non-Steering Axle

111 112 113 1

Spicer® Planetary Steering Axle

213 223

**Single Drum Rollers** 

Spicer® Planetary

Non-Steering Axle

192 193 194

|    |     |     |     |     |     | c |
|----|-----|-----|-----|-----|-----|---|
| 14 | 115 | 116 | 123 | 125 | 126 |   |



Suspension Axle

| Range |     |     |  |  |
|-------|-----|-----|--|--|
| 730   | 740 | 750 |  |  |



# **Telehandlers**



Spicer® Planetary Steering Axle

| Range |     |     |     |     |
|-------|-----|-----|-----|-----|
| 211   | 212 | 223 | 213 | 214 |
|       |     |     |     |     |

**Forklift Trucks** 

Spicer® Planetary Non-Steering Axle

137 138 139 144

211 212 213 223 214 246

Spicer® Planetary Steering Axle

# & Forestry

# **Compact Wheel Loaders**



Construction

Spicer® Planetary Non-Steering Axle

| Range |     |     |     |     |     |
|-------|-----|-----|-----|-----|-----|
| 109   | 111 | 112 | 123 | 113 | 114 |
|       |     |     |     |     |     |



### **Wheeled Excavators**



Spicer® Planetary Steering Axle

|       | 5   |     |     |
|-------|-----|-----|-----|
| Range |     |     |     |
| 162   | 262 | 163 | 263 |



Spicer® Planetary Non-Steering Axle

| Range |     |     |     |
|-------|-----|-----|-----|
| 111   | 211 | 112 | 212 |

# **Motor Graders**



Spicer® Bogie Axle

| Range |      |      |      |      |      |  |
|-------|------|------|------|------|------|--|
| GA10  | GA14 | GA17 | GA15 | GA20 | FG65 |  |

**Large Wheel Loaders** 



Spicer® Planetary Non-Steering Axle

| 115 110 105 100 | Range |     |     |     |  |  |  |
|-----------------|-------|-----|-----|-----|--|--|--|
| 115 116 125 126 | 115   | 116 | 125 | 126 |  |  |  |

# **Telehandlers**



Spicer® Planetary Steering Axle

| Range |     |     |     |     |  |  |
|-------|-----|-----|-----|-----|--|--|
| 211   | 212 | 223 | 213 | 214 |  |  |

| 211 | 212 | 223 | 213 | 214 |
|-----|-----|-----|-----|-----|
|     |     |     | -4  | 747 |

# **Forestry Applications**



Spicer® Rear Axle

| Range |     |     |     |     |     |
|-------|-----|-----|-----|-----|-----|
| 113   | 114 | 115 | 116 | 125 | 126 |

# Material Handling

# **Small Forklifts & AGVs**

Spicer® Planetary Steering Axle



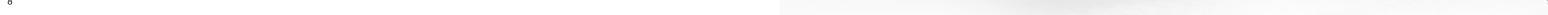
**Rough Terrain Cranes** 



Spicer® Planetary Steering Axles







# Spicer® Wheel and Track Drives

# Agriculture



# Construction & Forestry

# **Sprayers**



Spicer Torque-Hub™ CT Series

(\*) = under development

Range



| 0     | y.    | 9     | 1     |   |
|-------|-------|-------|-------|---|
| Spice | er To | orque | -Hub" | м |

C0 Series

|   | 7  |   |  |
|---|----|---|--|
|   |    | 6 |  |
| 0 | Z. |   |  |
| - |    |   |  |

Spicer Torque-Hub™ C0 Series

Range

C024 HW5

Windrowers



Spicer Torque-Hub™

HW5 Series

# **Compact Track Loaders**



Spicer Torque-Hub™ CT Series

| Range |      |      |      |
|-------|------|------|------|
| CT05  | CT07 | CT11 | CT17 |

**Forestry Applications** 



Spicer Torque-Hub™ RCT Series

| Range   |         |         |
|---------|---------|---------|
| RCT9083 | RCT9103 | RCT9133 |

# Material Handling

CT11 C016(\*) C021 C024 C030(\*) C036



# **Rubber-Tire Gantry Cranes**



Spicer Torque-Hub™ **RCT Series** 

| Range   |         |         |
|---------|---------|---------|
| RCT9083 | RCT9103 | RCT9133 |
|         |         |         |

Spicer Torque-Hub™ PHC and TH Series

| Range   |       |
|---------|-------|
| PHC3850 | TH510 |
|         |       |

### **Crawler Cranes**



CTU Series



Range CTU3500.1 CTU3700.1



Spicer Torque-Hub™ RCT Series

| Range   |         |         |
|---------|---------|---------|
| RCT9083 | RCT9103 | RCT9133 |

# **MEWPs**



Spicer Torque-Hub™ H Series Hydraulic



| Rang | e  |    |     |     |     | Ra  |
|------|----|----|-----|-----|-----|-----|
| 4H   | 7H | 8H | 11H | 13H | 18H | eS. |



|        |        | 2.     |        | 110    |
|--------|--------|--------|--------|--------|
| Range  |        |        |        |        |
| eSAW04 | eSAW07 | eSAW11 | eSAW13 | eSAW17 |





Spicer Electrified™ e-Drive Drop Box, Spindle and Hub Output

|  | Range |       |       |       |       |
|--|-------|-------|-------|-------|-------|
|  | eS04D | eS05D | eS08D | eS10S | eS10H |

# Mining



# **Drill Rigs / Mobile Crushers and Screeners**



Spicer Torque-Hub **CTU Series** 



Spicer Torque-Hub™ **RCT Series** 



| Range   |         |         |
|---------|---------|---------|
| RCT9083 | RCT9103 | RCT9133 |

### **Road Equipment**



Spicer Torque-Hub™ **RCT Series** 





Spicer Torque-Hub™

| The state of the s | Range |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|



**CTU Series** 

|        | - 45 |        |
|--------|------|--------|
|        | 2    | $\sim$ |
| VIII - | 10/  |        |
| 48     |      |        |
| - 4    |      |        |

Spicer Torque-Hub™ CTU Series



Spicer Torque-Hub™ **RCT Series** 

| Range     |           |           |           |           | Range   |         |   |
|-----------|-----------|-----------|-----------|-----------|---------|---------|---|
| CTU3150.1 | CTU3200.1 | CTU3300.1 | CTU3500.1 | CTU3700.1 | RCT9083 | RCT9103 | F |

**Track Undercarriages** 

| nange   |         |         |
|---------|---------|---------|
| RCT9083 | RCT9103 | RCT9133 |

# Spicer® Transmissions





# **Telehandlers**

HVT1



Powersplit Transmission Range

Powershift Transmission

| Range |       |            |
|-------|-------|------------|
| PS09  | PSR09 | T/VDT12000 |

**Sprayers** 



**Powersplit Transmission** 

Range HVT2

# Construction & Forestry



### **Wheel Loaders**



Hydrostatic Transmission

| Range |     |     |     | Ra |
|-------|-----|-----|-----|----|
| 312   | 315 | 318 | 319 | 3  |



Double Speed 358 367

Hydrostatic

Powershift



Transmission

| Range |      |
|-------|------|
| TE32  | TE50 |
| TLOZ  | 1200 |



Powershift Transmission

|   | Range |
|---|-------|
| 1 | TE18  |
|   |       |



TZL16 TZL18

Range HVT2

Powersplit

Transmission

# **Mobile Elevated Work Platforms**



Hydrostatic Transmission







Powershift Transmission





Powersplit Transmission





Hydrostatic Transmission





Hydrostatic Transmission





Hvdrostatic **Two-Speed Transmission** 

**Motor Graders** 

| Range |     |     |
|-------|-----|-----|
| 358   | 367 | 368 |

# **Forestry Equipments**



HVT2

Powersplit Transmission

# **Wheeled Excavators**

Two-Speed Transmission



Hydrostatic Transmission

Range 342 343

# Range TMG14

Powershift Transmission

# **Material Handling**



Powershift Transmission

| Range  |        |      |      |        |      |      |
|--------|--------|------|------|--------|------|------|
| T/TE08 | T12000 | TE08 | TE10 | T/TE14 | TE17 | TE30 |



Powershift Transmission

| 2000 | TE08 | TE10 | T/TE14 | TE17 | TE30 |
|------|------|------|--------|------|------|



Powersplit

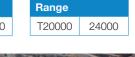
Transmission

**Container Handlers** 

Range T/TE14 TE17 TE30

Powershift

Transmission



Powershift

Transmission

**Rough-Terrain Cranes** 

Powershift

Range

T/TE14

Transmission



# **Underground Mining Loaders and Trucks**

C8000 + 8000



Range

Powershift

T20000 36000

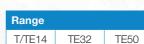


Powershift Transmission Transmission





Powershift Transmission



Powershift Transmission



Range

Transmission

**Utility Vehicles** 



| Powershift   |
|--------------|
| Transmission |
|              |

Range T12000 T20000 24000

T/TE14

# **Underground Mining Drill Rigs**



Powershift Transmission Range T20000 24000 T/TE14

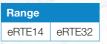
**Mining Electrified** 



Powershift Electrified Transmission



Long Drop **Powershift Transmission** 





Transmission Range

eSP502

# Graziano™ Custom Gears and Shifting Solutions

## **Synchronizers**



Graziano™ Synchronizer DC 95/100



Graziano<sup>™</sup> Synchronizer



Graziano™ Synchronizer TC 102/110/118



Graziano™ Synchronizer

### **Gears and Shafts**



Graziano™ Gears



Graziano™ Shaft

# **Ring Gears**



Graziano™ Ring Gears

### **Powershift Clutches**



Graziano™ Powershift Clutches



Graziano™ Powershift Units

# **Bevel Sets**



Graziano™ Crown Wheel and Pinion



Graziano™ Bevel Gear

### **Custom Gears**



Fairfield® Custom Gears

# Drive Systems

# Spicer® Driveshafts

### **Tractors**



Spicer® SPL55



Spicer® Wing™ Series 8.5C



Spicer® Centered Double Cardan

# **Combine Harvesters**



Spicer® Double

Universal Joint 93B35 Wing™ Series 7C

### **Reach Stackers**



Spicer® Wing™ Series 6C



Wing<sup>™</sup> Series 7C

**AGVs** 



Spicer® Wing™ Series 5C

### **Forklifts**



Spicer® Wing™ Series 5C

# **Telehandlers**



Spicer® Double



Spicer® 10-Series Universal Joint 82B30

# **Motor Graders**



Spicer® Wing™ Series 7C

# **Compact Wheel Loaders**







Double Cardan 2015-CDC

Spicer® SPL55

# **Large Wheel Loaders**



Spicer® Wing™ Series Spicer Compact Plus 2045+

**Underground Mining Loaders** 

Spicer<sup>®</sup> Wing<sup>™</sup> Series

# **Wheeled Excavators**



Spicer® 10-Series 1410





7C with Bearing



Support

Spicer® Wing™ Series Spicer® Wing™ Series

### **Drill Rigs**



Spicer® Wing™ Series 9C

# **Mining Trucks**



Spicer® Wing™ Series 14C

# Motion Systems

With global expertise in the design and manufacturing of high-efficiency technologies for industrial and stationary equipment applications, Motion Systems fully integrates into Dana offer Brevini™ gearboxes, winches and hydraulic solutions, PIV™ extruders drives, GWB™ industrial driveshafts, Fairfield® custom gears. Supported applications include on- and offshore equipment, green technologies, mining, heavy industries, and earthmoving.

# **Brevini**<sup>™</sup> **Planetary Gearboxes**



S-Range

| Range       | Nominal Torque [Nm] |
|-------------|---------------------|
| S300-S20000 | 34,000-2,170,000    |



Industrial Slewing Drives

| Range          | Nominal Torque [Nm] |
|----------------|---------------------|
| RPR030-RPR2050 | 5,000-24,000        |
| SLS300-SLS850  | 34,000-200,000      |



Industrial and E-Range Planetary Gearboxes

| Range         | Nominal Torque [Nm] |
|---------------|---------------------|
| E10-E260      | 1,300-25,000        |
| EM1010-EM1320 | 1,000-24,000        |

### Brevini<sup>™</sup> Helical and Bevel Helical Gearboxes



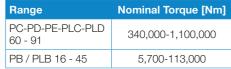
Brevini EvoMax™ Gearbox

| Range                                   | Nominal Torque [Nm] |
|-----------------------------------------|---------------------|
| E2H-E3H-<br>E4H-E3B-<br>E4B-E3C-<br>E4C | 10,000-290,000      |



 $\mathsf{Posired}^{\scriptscriptstyle{\mathsf{TM}}}\, 2$ 

| Range                                   | Nominal Torque [Nm] |  |
|-----------------------------------------|---------------------|--|
| E2H-E3H-<br>E4H-E3B-<br>E4B-E3C-<br>E4C | 10,000-290,000      |  |





| Range       | Nominal Torque [Nm] |
|-------------|---------------------|
| TS18 - TS63 | 8,200-400,000       |



| Range           | Nominal Torque [Nm] |
|-----------------|---------------------|
| II C14 - II C25 | 3.100-22.800        |



| Range         | Nominal Torque [Nm] |
|---------------|---------------------|
| ND-NE 18 - 56 | 8,200-286,000       |

# Brevini<sup>™</sup> Gearboxes



30-55

6-12

| Gearboxes |           | 0        |
|-----------|-----------|----------|
|           | Range     | Power [k |
|           | ML32 - 52 | 10-100   |

B580 - 602

RD33 -52

### Brevini<sup>™</sup> Plano Helical Gearboxes





High Power

Nominal Torque [Nm] Range SL2PLB85016 SL2PLB200031 90,000-2,170,000

Posiplan

| Range         | Nominal Torque [Nm |
|---------------|--------------------|
| PH, BPH 13-28 | 3,900-35,000       |

### **Brevini** Gearmotors



Gearmotors

| Range            | Nominal Torque [Nm] |
|------------------|---------------------|
| M, N, K, D 00-97 | 50-18,000           |

# **Brevini**<sup>™</sup> Winches





**Hoisting Winches** 

| Range       | Max Line Pull<br>at First Layer [kg] |
|-------------|--------------------------------------|
| DW 050-090  | 500-900                              |
| BWE 015-160 | 1.500-16.000                         |

Recovery Winches

| Range |                   | Max Line Pull<br>at First Layer [kg] |
|-------|-------------------|--------------------------------------|
|       | BWT 10.000-30.000 | 10,000-30,000                        |

Winch Drives

| Range          | Max Output Torque<br>[Nm] |
|----------------|---------------------------|
| PWD 2100-31100 | 10,000-110,000            |
| SLW 300-850    | 85,000-190,000            |
| SMW 1200-3500  | 300,000-850,000           |
| RCW 908-913    | 80,000-130,000            |

### **GWB** Industrial Driveshaft





Driveshafts for Industrial Applications

| Range               | Torque Range Tcs<br>[Nm] | Flange Diameter<br>[mm] |
|---------------------|--------------------------|-------------------------|
| 687/688-598         | 35 up to 21,500          | 00-225 / 600-1,300      |
| 687-688             | 2,400-35,000             | 100-225                 |
| 587                 | 43,000-57,000            | 225-285                 |
| 390/392/<br>393/492 | 60,000-1,170,000         | 225-550                 |
| 498/598             | 210,000-15,000,000       | 600-1,200               |

Keep Driveshaft - Special Design super short coupling, tunnel shaft, high speed design, carbon fiber tube electrical insulation, remote lubrication, automatic lubrication, condition monitoring

# **Brevini** Pump Drives



| Range | Nominal Power [Kw] |
|-------|--------------------|
| BZ265 | 110-130            |
| BZ290 | 170-190            |
| BZ340 | 220-240            |
| BZ470 | 380-480            |

### **PIV**<sup>™</sup> Extruder Drives







Posirex

| Range               | Nominal<br>Torque [Nm] |
|---------------------|------------------------|
| XC-XD-XE<br>16 - 80 | 5,100-720,000          |

Positwin

|                 |                    | TOT I TUSTIC & TTUSDET |
|-----------------|--------------------|------------------------|
| Range           | Centre<br>Distance | Torque / Shaft<br>[Nm] |
| 15B2N<br>146B2N | 15-146             | 40-35,000              |

# Motion Systems

# Brevini<sup>™</sup> Pumps



Axial Piston Pumps, Variable Displacement, Closed Loop

| Range | Displacement<br>[cc/rev] | Max Pressure<br>[bar] |
|-------|--------------------------|-----------------------|
| MD10V | 14-64                    | 250                   |
| HD1   | 55                       | 450                   |
| S6CV  | 75-128                   | 400                   |



Axial Piston Pumps, Variable Displacement, Open Loop

| Range | Displacement [cc/rev] | Max Pressure<br>[bar] |
|-------|-----------------------|-----------------------|
| S5AV  | 32-93.8               | 350                   |
| H1V   | 54.8-225.1            | 350                   |



Axial Piston Pumps, Fixed Displacement, Open Loop

| Range | Displacement<br>[cc/rev] | Max Pressure<br>[bar] |
|-------|--------------------------|-----------------------|
| H1C   | 6.1-225.1                | 350                   |
| SH11C | 10.3-178.1               | 430                   |



Gear Pumps, Fixed displacement, Open Loop

| Range              | Displacement<br>[cc/rev] | Max Pressure<br>[bar] |
|--------------------|--------------------------|-----------------------|
| OT series 1 - 2 -3 | 0.73 – 90                | 270                   |
| Hercules gr 2      | 4.1 – 30                 | 270                   |
| Silent plus gr 2   | 4.1 – 30                 | 250                   |





Pre-Compensated Directional Control Valves

| Range             | Inlet Flow<br>[l/min]:     | Max Pressure<br>[bar] |
|-------------------|----------------------------|-----------------------|
| HPV 41-<br>77-310 | 160-250-600 <sup>(*)</sup> | 370-370-370           |





Bankable Valves

| Range                             | Max Flow [l/min] | Туре         |
|-----------------------------------|------------------|--------------|
| CDC3 - CD3M - CD3 -<br>CDH3 - CD5 | 80               | ON/OFF       |
| CX3 - CXQ3 - CXDH3 -<br>CFS3      | 55               | Proportional |



**CETOP Valves** 

| Range                           | Inlet<br>Flow        | Max Pressure<br>[bar] |
|---------------------------------|----------------------|-----------------------|
| Size 2 (NG4) –<br>Size 8 (NG25) | up to 600<br>[I/min] | up to 400 bar         |

# Brevini<sup>™</sup> Motors



Axial Piston Motors, Variable Displacement, Bent Axis

| Range   | Displacement [cc/rev] | Max Pressure<br>[bar] |
|---------|-----------------------|-----------------------|
| SH7V/VR | 61-216                | 430                   |
| SH9V    | 62-216                | 430                   |



Axial Piston Motors, Variable Displacement, Swashplate

| Ra  | nge | Displacement [cc/rev] | Max Pressure<br>[bar] |
|-----|-----|-----------------------|-----------------------|
| B5' | VR  | 25-45                 | 400                   |



Axial Piston Motors, Fixed Displacement, Bent Axis

| Range    | Displacement [cc/rev] | Max Pressure<br>[bar] |
|----------|-----------------------|-----------------------|
| H1C      | 6.1-225.1             | 350                   |
| SH11C/CR | 10.3-178.1            | 430                   |



Orbital Motors, Gerotor and Roller

| Range        | Displacement [cc/rev] | Max Pressure<br>[bar] |
|--------------|-----------------------|-----------------------|
| BGM, BG      | 13-400                | 225 / 165             |
| AR, BR, BRZV | 50-400                | 175                   |
| HR, HT       | 80-500                | 210                   |



Gear Motors, Fixed Displacement

| Range                  | Displacement [cc/rev] | Max Pressure<br>[bar] |
|------------------------|-----------------------|-----------------------|
| OT groups<br>1 - 2 - 3 | 0.73 – 90             | 260                   |
| Hercules gr 2          | 4.1 – 30              | 270                   |

# **Brevini**<sup>™</sup> **Power Units**



Mini Powerpacks

| Range | Туре                                                                                            |  |
|-------|-------------------------------------------------------------------------------------------------|--|
| MC    | With 4 cavities<br>for single and double<br>acting circuits                                     |  |
| FP    | With flexible design<br>thanks to multiple valve<br>seats. Several circuits<br>layout available |  |
| DTR   | Custom Mini<br>Powerpacks for<br>telescopic dock levellers                                      |  |
| MK    | Custom Mini Powerpack<br>for hanged/swing lip<br>dock levellers                                 |  |
|       |                                                                                                 |  |



Motorpumps

| Туре                                                 | Range | Туре                                  |
|------------------------------------------------------|-------|---------------------------------------|
| 4 cavities<br>le and double                          | EP    | With Ø115 motors and gr. 1 gear pumps |
| ng circuits                                          | MD    | With Ø80 motors and gr.               |
| exible design                                        | MP    | 0.5 gear pumps                        |
| o multiple valve<br>Several circuits<br>ut available |       |                                       |
| stom Mini<br>erpacks for                             |       |                                       |



Micro Powerpacks

| Range | Туре                                                                                                           |
|-------|----------------------------------------------------------------------------------------------------------------|
| MR    | Micro Powerpack<br>for space demanding<br>applications, 3 cavities<br>for single and double<br>acting circuits |
| MW    | Micro Powerpacks<br>for double acting circuits<br>with reversible pump                                         |
|       |                                                                                                                |

# Fairfield Custom Drives



Jacking System Drives



Tram System Drives



Transfer Case



**Custom Drive Components** 

| Range      | Max Jacking Torque [Nm] |
|------------|-------------------------|
| S60A-S2000 | 82,000-2,260,00         |

# Electrification Capabilities

Dana's comprehensive portfolio of drive and motion technologies helps OEMs efficiently transition toward electrification.

Our multi-disciplinary team of engineers develops turnkey solutions ranging from plug-and-play components to fully integrated systems.



# **EV** Components









Low-Voltage Motors

Low-Voltage Inverters

On-engine Generators

High-Voltage Traction Systems

## e-Drive













High Efficiency Transmission High Efficiency Transmission

e-Powershift Transmission

High-Voltage Motors

High-Voltage Inverters

e-Software







e-Hub Drive Compact

e-Powershift Transmission



e-Hub Drive Heavy

e-Axle Compact

e-Axle Heavy

# Electronics and Mechatronics

# e-Motion



e-Slew Drive **EHPS System** 



**Electronic Control Units** 



**Position Sensors** 



CTIS





Angle Transducer





**Force Sensors** 

# System Solutions Dana is a world-class collaborator with OEMs in delivering innovative, best-in-class engineering solutions. With resources located near our customers, we can leverage our core competencies in systems development to produce ground-breaking technologies that boost business performance.

Our systems approach is combined with our industry-leading portfolio of advanced technologies to help OEMs maximize the value of their offerings and find a better way forward.

# **System Thinking**

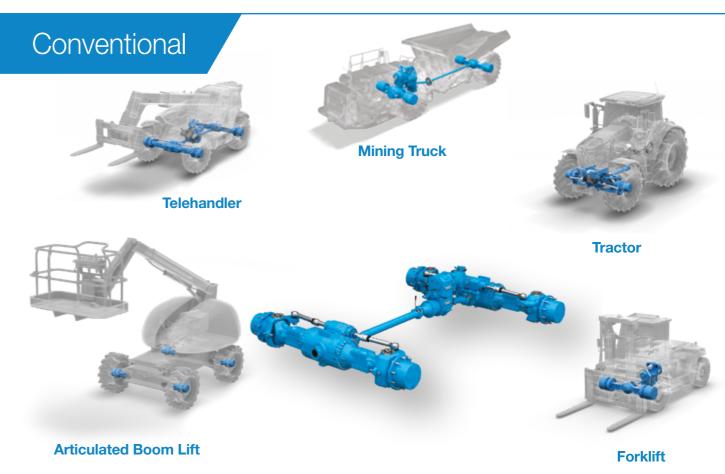
We adopt a **holistic perspective** to systems that fortifies our offerings

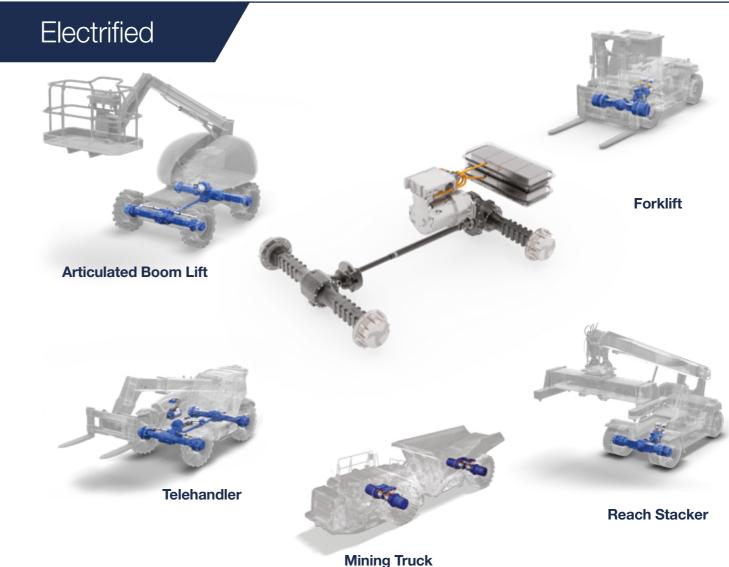
# **System Contents**

We develop
systems
by using our
deep portfolio
of innovations
to address our
customers'
needs

# Knowledge sharing

Our culture
of continuous
improvement
enables our
systems
engineering
teams to share
best practices
across markets
and geographies





Think Why, Think Wider, Think Systems

# Global Strength One of the ways we create value is by positioning our technical and manufacturing resources where

# Today, that's 31 countries on six continents.

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

customers need us globally.

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



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

# **Aftermarket Services**

Our global expertise is delivered to customers at a local level through a constantly growing and improving aftermarket network.

Strategically placed service centers provide solutions tailored to individual specifications by an experienced on-the-ground support team. We meet customer needs in every region, on every platform.



# Genuine parts

Dana service parts are manufactured by Dana to the same high standards as original equipment (OE), because they are OE genuine parts.

When a part is replaced a complete interchangeability with existing parts provides total product compatibility, with no change in part numbers.

A non-original component can lead to significant vehicle costs down the road. We protect your vehicle durability and performance.

# Dana Distribution Centers

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

# Danaaftermarket.com

### **E-Commerce Platform**

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

Using Danaaftermarket.com you can quickly:

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

### Spicer® Drivetrain catalog

The new online Spicer® product catalog features the extensive off-highway axles and driveshaft portfolio.

Quickly and conveniently locate products by model type or part number through the search functionality and access to usage descriptions and technical details to select optimal products for every aftermarket need.

The product database is always updated as new technologies become available.

# Market-Driven Innovation

# Off-Highway Performance Expectations

Safety

Productivity

Maneuverability

Durability

Serviceability

**Total Cost of Ownership** 

### **About Dana Incorporated**

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

The company is shaping sustainable progress through its conventional and clean-energy solutions that support nearly every vehicle manufacturer with drive and motion systems, electrodynamic technologies, including software and controls and thermal, sealing, and digital solutions.

# About Dana Off-Highway Drive and Motion Systems

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



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

### Application Policy

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

