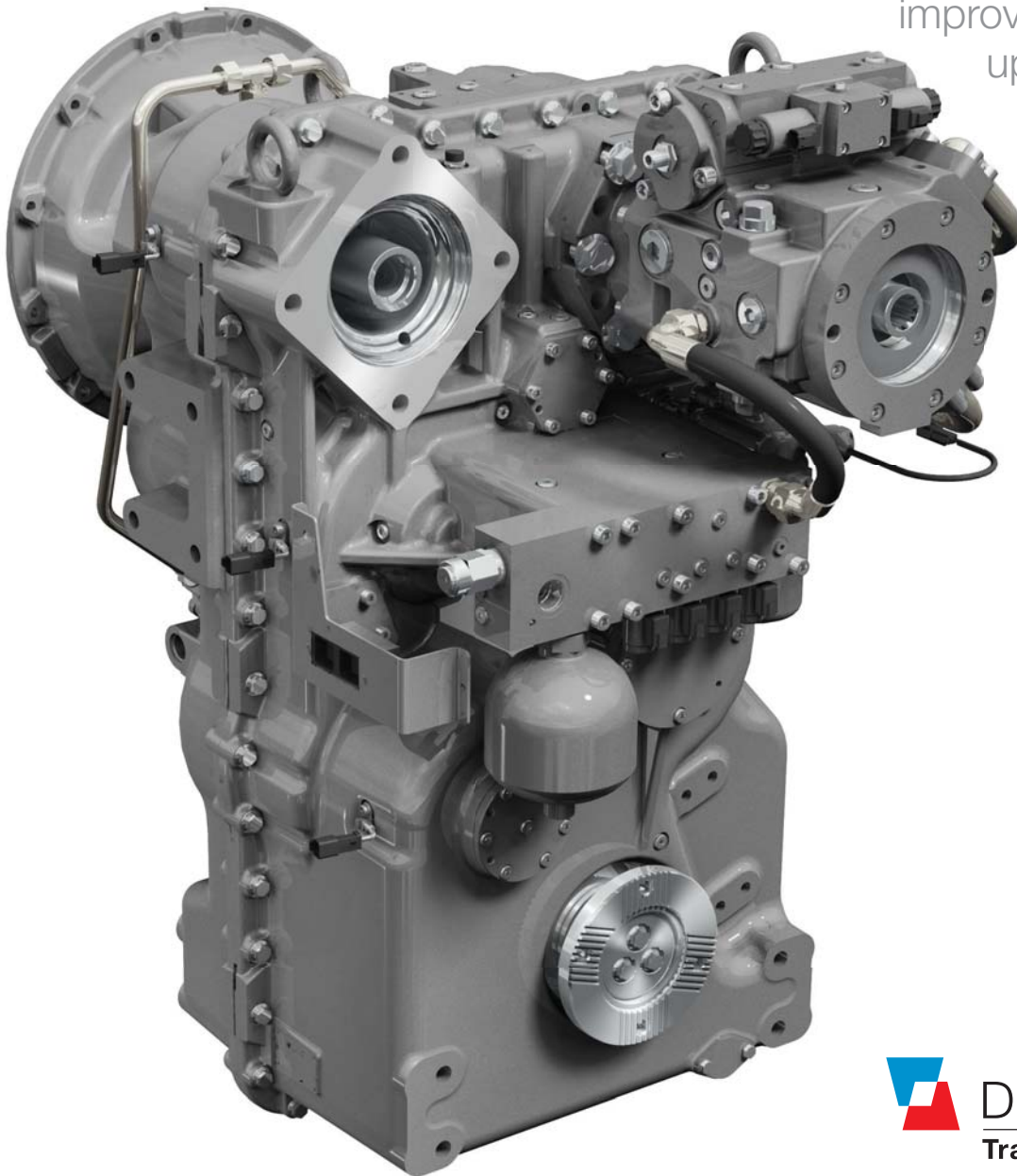


## HVT R2 Hydromechanical Variable Transmission

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The Dana Rexroth hydromechanical variable transmission (HVT) improves fuel savings up to 25 percent compared with standard torque converter transmissions.



 Dana Rexroth  
Transmission Systems

# HVT R2 Hydromechanical Variable Transmission

## 135–195 kW Input Power

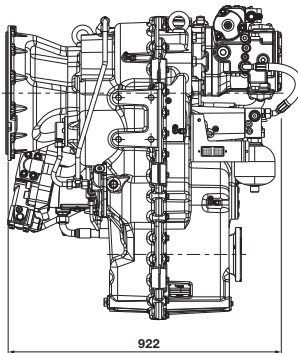
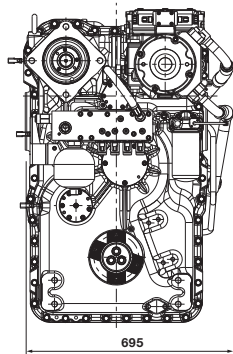


Ideal for front end loaders, motor graders, heavy material handling, and forestry skidders, Dana Rexroth HVTs allow drive characteristics to be adjusted over the entire speed range, while they provide optimal handling and the highest possible throughput with maximum fuel savings.

### Features and benefits:

- Stepless drive with no interrupted acceleration enhances comfort
- Space compatible with standard torque converter transmissions

- Power-specific fuel optimization – Diesel engine speed can be decoupled from drive speed to meet the best fuel consumption point and support TIER IV introduction
- Hydrostatic braking and wear-free reverse shuttling help reduce service costs
- Three-range concept – The HVT has one hydrostatic drive range and two input-coupled power-split ranges
- Precise, dynamic, and adjustable tractive effort management control at low engine speeds enables efficient digging
- Modular design to meet different application requirements



Specifications	
<b>Drive Ranges</b>	3 Forward, 2 Reverse
<b>3 Pump Drives</b>	PTO 1 SAE "D" or "C" PTO 2 SAE "C" or "B" PTO 3 SAE "B"
<b>Mounting</b>	Direct on Diesel Engine/Remote
<b>Standard Ratios</b>	CVT
Weight – Dimensions – Oil Capacity	
<b>Weight (Dry) Kg</b>	850
<b>Maximum Length mm</b>	922
<b>Maximum Width mm</b>	695
<b>Drop mm</b>	540
<b>Oil Capacity L</b>	25



Zona Industriale, Arco, Italy 38062  
[info@danarexroth.com](mailto:info@danarexroth.com)  
[www.danarexroth.com](http://www.danarexroth.com)

# Spicer® Compact™ Series Driveshafts

For Light Vehicle Applications



**SPICER®**

*Drivetrain Products*



Spicer® Compact™ Series driveshafts are available in a range of configurations and offer multiple benefits including improved fuel economy and higher torque capacity.



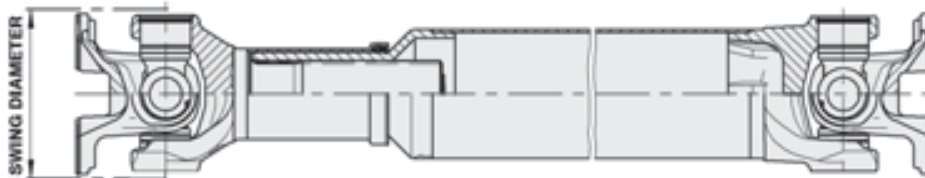
# Spicer® Compact™ Series Driveshafts

## For Sport-Utility Vehicles, Pickups, and Light Commercial Vehicle Applications

From the industry standard in Europe, Spicer® Compact™ Series is available in a wide range of configurations and end fittings. Reduced swing diameter joints offer higher torque density together with smaller packaging benefits without compromising Spicer's proven strength and durability. The Spicer Compact

Series offers a range of light vehicular driveshafts with torque capacities extending to 5,000 Nm, ideally suited for the rigorous demands of sport-utility vehicles, pickups, and light commercial vehicle applications requiring improved fuel economy, higher torque capacity, and extended durability in a compact package.

Features	Benefits
Service-free sealing system	No maintenance
Multiple-lip bearing seals	Improved environmental protection and durability
Thrust washers	Superior needle bearing retention and improved life at higher speeds and joint angles
Involute splines	Extended life and low slip effort
High strength, lightweight parts and tubing	Less overall drivetrain weight for improved fuel economy and payload
System balanced 2-piece Midship Integrated Slip (MIS) designs	Reduced driveline angles for improved noise, vibration, and harshness (NVH)



Torsional Rating		
Driveshaft Series	Functional Torque Limit	Swing Diameter
	Nm	mm
2015	2,400	90.0
2020	3,500	98.0
2025	5,000	113.0

**For additional configurations, contact Dana Application Engineering for specific application information.**

#### Available on Request

- Paint
- Special Types
- DIN Flanges
- SAE Flanges
- Permanent Lubrication for High and Low Temperatures

**Definition of Functional Torque Limit:** The torque to which the driveshaft can be loaded without yielding or creating plastic deformation of any of the parts that adversely affect the driveshaft kinematics or durability.

Dana Holding Corporation  
3939 Technology Drive  
Maumee, Ohio, USA 43537  
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F: 419.887.5961  
[www.dana.com](http://www.dana.com)



**SPICER®**  
Drivetrain Products

All applications must be approved by the Dana Application Engineering Department. Specifications and/or design are subject to change without notice or obligation.



### SPICER®

Drivetrain Products

Axles  
Driveshafts  
Off-Highway Transmissions

### VICTOR REINZ®

Sealing Products

Gaskets and Seals  
Cylinder-Head Cover Modules  
Thermal-Acoustic Protective Shielding

### LONG®

Thermal Products

Transmission Oil Coolers  
Engine Oil Coolers  
Battery Coolers



#### About Dana Holding Corporation

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

#### About Dana Off-Highway Driveline Technologies

Dana Off-Highway Driveline Technologies includes research and development, manufacturing, and assembly operations in Belgium, Brazil, China, Hungary, India, Italy, Mexico, the United Kingdom, and the United States. We design, manufacture, assemble, and market Spicer® axles and transaxles, driveshafts and end-fittings, transmissions, torque converters, electronic controls, and brakes. We also provide genuine replacement parts and service.

Dana Off-Highway Driveline Technologies serves more than 1,000 vehicle assembly and manufacturing facilities in 30 countries. Construction, agriculture, forestry, underground mining, material handling, outdoor power, leisure/utility vehicles, and industrial equipment are just some of the markets that demand the quality found in Spicer products and genuine service parts.

## Underground Mining Vehicles Innovative Drivetrain Solutions

Complete Systems | Transmissions | Controls | Driveshafts | Axles



Construction



Agriculture



Mining



Forestry



Material Handling

Sales Office – Europe  
Zona Industriale  
Arco, Italy 38062

Sales Office – North America  
3939 Technology Drive  
Maumee, Ohio, USA 43537

Sales Office – Asia-Pacific  
7th Floor, Tower B  
Hongwell International Plaza  
1602 Zhongshan Road West  
Shanghai, China 200235



### SPICER®

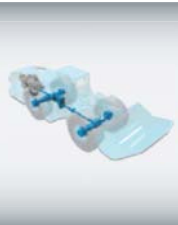
Off-Highway Systems

[www.dana.com/offhighway](http://www.dana.com/offhighway)

#### APPLICATION POLICY

Capacity ratings, features, and specifications vary depending upon the model and type of service. Application approvals must be obtained from Dana Off-Highway Driveline Technologies. We reserve the right to change or modify our product specifications, configurations, or dimensions at any time without notice.

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**Drivetrain Systems** With a comprehensive line of Spicer® brand products designed specifically for mining vehicles – including scoops, shuttles, mine trucks, load haul dumpers (LHDs), personnel carriers, self-propelled blast-hole drills, and site utility vehicles – Dana can provide you with the most innovative and flexible drivetrain solutions in the industry. At Dana, we offer everything from a complete driveline system to individual components that work within your specified designs. Whatever your requirements are, you can rely on more than 100 years of Dana innovation to provide products that work continuously and efficiently in challenging environments where vehicle performance, efficiency, reliability, and operating costs are key considerations.

Spicer® drivetrain systems for underground mining vehicles are designed to improve traction, positioning, braking, and reliability, as well as providing unique features that maximize productivity. And, every Spicer drivetrain component is designed, tested, and manufactured to meet your exacting standards.

**Spicer® Transmissions**

The Spicer transmission range offers a variety of options to provide vehicle designers with complete flexibility. Converter and transmission packages are available with integral, mid-mount, and remote configurations. Spicer transmissions deliver smooth shift characteristics, driver comfort, and enhanced vehicle performance. They also feature advanced charge pump systems, providing increased oil flows to maximize performance in high-energy duty cycles, as well as cold temperature environments.



*A remote-mounted transmission is available for the underground mining market to allow for installation flexibility.*

**Spicer® Electronic Controls**

Spicer electronic controls provide improved shift quality and reduced acceleration jerk while supplying seamless transitions for the entire range of maneuvers.

**Spicer® Axles**

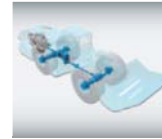
Spicer axles offer a range of differential designs that supply excellent torque-bias performance and required traction for varying ground conditions. One example is the Hydraloc™ torque-biasing differential, which provides optimum maneuverability and traction on widely varying ground conditions found at mining sites.

**Spicer® Driveshafts**





















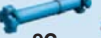
















Spicer driveshafts offer design flexibility and the durability to work reliably on varied and uneven terrains found at mining sites. More than a century of quality and innovation is reflected in every Spicer driveshaft, ranging from 400 to 15,000,000 Nm. At Dana, we continuously develop new designs, materials, and processes for Spicer driveshafts, providing more power, greater efficiency, and better overall performance.

**Braking Systems**

Simple and reliable liquid-cooled braking systems increase stopping power and decrease brake temperatures by distributing the braking effort over a high percentage of the axle surface envelope. Posi-Stop™ fail-safe service brakes predominantly used in ramp mining vehicles are world-renowned for delivering high-integrity, high-reliability performance through spring-applied hydraulic-release (SAHR) actuation.



**Mining Load Haul Dumpers (LHDs)**

BUCKET LIFT CAPACITY	TRANSMISSIONS	AXLES	DRIVESHAFTS
<b>3–4 Tonnes</b> (3–4 Tons)	 <b>T20000</b>	 <b>14D</b>  <b>113</b>	 <b>4C/5C/6C Wing Series*</b>  <b>7C Wing Series*</b>  <b>1480/1550/1710 10 Series*</b>
<b>4.5–6.5 Tonnes</b> (5–7 Tons)	 <b>32000</b>  <b>33000</b>	 <b>14-16D</b>  <b>114</b>  <b>37RM116</b>	 <b>6C Wing Series*</b>  <b>7C Wing Series*</b>  <b>1550/1710 10 Series*</b>
<b>8–9 Tonnes</b> (9–10 Tons)	 <b>32000</b>  <b>33000</b>	 <b>19D</b>  <b>43RM175</b>	 <b>7C Wing Series*</b>  <b>8C/8.5C Wing Series*</b>  <b>9C Wing Series*</b>  <b>1710 10 Series*</b>
<b>11–13 Tonnes</b> (12–14 Tons)	 <b>TE27</b>  <b>6000</b>	 <b>19D</b>	 <b>8.5C Wing Series*</b>
<b>14–15.5 Tonnes</b> (15–17 Tons)	 <b>TE32</b>  <b>6000</b>	 <b>53R</b>	 <b>8C/8.5C Wing Series*</b>  <b>9C Wing Series*</b>  <b>1880 10 Series*</b>
<b>16.5–20 Tonnes</b> (18–22 Tons)	 <b>8000</b>	 <b>53R</b>	 <b>8C/8.5C Wing Series*</b>  <b>9C Wing Series*</b>  <b>1880 10 Series*</b>

\*Other driveshaft series and end-fitting designs available.

*The Spicer® APC120 controller features state-of-the-art design, ensuring high reliability and seamless integration.*



*The RD.120 remote display is available for the APC120 and provides basic operating information and diagnostic codes.*



## Mining Trucks

PAYLOAD CAPACITY	TRANSMISSIONS	AXLES	DRIVESHAFTS
<b>15 – 20 Tonnes</b> (16.5 – 22 Tons)	 32000 C5000	 114 14D	 6C Wing Series* 7C Wing Series* 1550/1610 10 Series*
<b>25 – 30 Tonnes</b> (28 – 33 Tons)	 6000	 37RM116 16D 19D	 6C Wing Series* 7C Wing Series* 8.5C Wing Series* 1710 10 Series*
<b>35 – 40 Tonnes</b> (39 – 44 Tons)	 8000	 43RM175 19D 21D	 7C Wing Series* 8.5C Wing Series* 1710 10 Series*
<b>45 – 50 Tonnes</b> (50 – 55 Tons)	 8000	 53R300	 8C Wing Series* 9C Wing Series* 1880 10 Series*

\*Other driveshaft series and end-fitting designs available.



## Mining Drill Carriers

CURB WEIGHT	TRANSMISSIONS	AXLES	DRIVESHAFTS
<b>15 – 20 Tonnes</b> (16.5 – 22 Tons)	 T20000	 123	 5C/6C Wing Series* 7C Wing Series* 1480 10 Series*
<b>25 – 30 Tonnes</b> (28 – 33 Tons)	 T20000	 113	 5C/6C Wing Series* 7C Wing Series* 1480 10 Series*
<b>35 – 40 Tonnes</b> (39 – 44 Tons)	 T20000 T24000	 37R 113 114	 6C Wing Series* 7C Wing Series* 8.5C Wing Series*
<b>45 – 50 Tonnes</b> (50 – 55 Tons)	 32000 33000	 37R 114	 6C Wing Series* 7C Wing Series* 8.5C Wing Series*
<b>60 Tonnes</b> (67 Tons)	 T36000	 37R 43R	 6C Wing Series* 7C Wing Series* 8.5C Wing Series* 1710 10 Series*
<b>70 Tonnes</b> (77 Tons)	 T36000	 43R	 7C Wing Series* 8.5C Wing Series* 1710 10 Series*

\*Other driveshaft series and end-fitting designs available.

### AXLES

Product	Dynamic Load (Kg)	Maximum Output Torque (Nm)	Planetary Ratio	Ratio Range	Input Speed (RPM)	Flange to Flange (mm)	OHBCD (mm)
123	12,000	58,000	6	From 14 up to 25	4,000	From 1,660 up to 1,920	335
113	15,000	65,000	6	From 15 up to 25	4,000	From 1,080 up to 2,050	425
114	20,000	110,000	6	From 20 up to 22	4,000	From 1,920 up to 2,180	425
14D2149	18,160	67,800	4.941	From 19 up to 31	4,000	From 1,155 up to 2,514	511
37RM116	18,500	116,000	6	From 22 up to 31	4,000	From 1,235 up to 1,472	511
37R118	33,000	118,000	6	From 22 up to 31	4,000	2,134	500
16D2149	19,068	111,600	4.941	From 23 up to 31	4,000	From 1,472 up to 2,768	511
19D2748	24,955	150,500	4.765	From 26 up to 33	4,000	From 1,702 up to 2,768	511
21D	27,000	211,000	4.667	From 19 up to 31	4,000	From 2,329 up to 2,748	495
43RM175	46,100	175,000	6	From 25 up to 34	3,500	1,997	511
43R183	47,200	175,000	6	From 26 up to 35	3,500	2,852	508
53R300	49,890	282,000	6.25	From 26 up to 41	3,000	From 1,893 up to 3,196	500 or 508
53R312	54,420	312,000	6.833	From 28 up to 45	3,000	From 2,721 up to 3,330	500 or 508

### POWERSHIFT TRANSMISSIONS

Product	Power Range	Speed Number	Vertical Drop	Installation	Input Speed (RPM)	Disconnect	Parking Brake	ECU
T20000	Up to 100 Kw	2 or 3 or 6	IL-ID-LD	HR-MHR-R	3,100	YES	YES	OPTIONAL
T24000	Up to 120 Kw	3 or 4 or 6	SD-LD	HR-MHR-R	3,100	YES	YES	OPTIONAL
32000/33000	Up to 170 Kw	3 or 4 or 6	SD-LD	HR-MHR-R	3,100	YES	YES	OPTIONAL
T36000	Up to 240 Kw	3 or 4 or 6	SD-LD	HR-MHR-R	2,800	YES	YES	OPTIONAL
TE27	Up to 275 Kw	4	LD	H	3,100	YES	—	YES
TE32	Up to 320 Kw	4	SD-LD	H-MT	2,550	—	YES	YES
6000	Up to 300 Kw	4	LD	R	2,800	YES	NO	OPTIONAL
8000	Up to 400 Kw	4 or 8	LD	R	2,800	YES	NO	OPTIONAL

### SPICER® WING™ SERIES DRIVESHAFTS

Driveshaft	Functional Torque Limit		Swing Diameter	
	Nm	ft-lb	mm	in
4C	3,300	2,434.1	116.0	4.570
5C	5,600	4,180.3	123.0	4.840
6C	7,200	5,310.0	150.0	5.910
7C	10,700	7,892.0	158.0	6.220
8C	15,500	11,432.0	216.0	8.500
8.5C	20,300	14,972.0	175.0	6.890
9C	27,400	20,206.0	223.0	8.730

### SPICER® 10 SERIES DRIVESHAFTS

Driveshaft	Functional Torque Limit		Swing Diameter	
	Nm	ft-lb	mm	in
1480	5,500	4,000	134.9	5.310
1550	7,000	5,100	152.4	6.000
1610	Use Spicer Life Series® (SPL® 100)			
1710	15,700	11,500	200.2	7.880
1880	Use Spicer® Wing™ Series (9C and above) Use Spicer® Compact 2000™ (2060 or 2065)			

For additional configurations, contact Spicer Driveshaft Engineering for specific application information.

## Dana Power Technologies

In addition to our established global position in drivetrain products, we offer a line of sealing and thermal-management technologies for the engine and transmissions of mining vehicles.

### Victor Reinz® Sealing Products

We offer a comprehensive range of innovative sealing solutions for gasoline, diesel, and alternative-fuel underground mining vehicles.

Our product offerings include:

- Cylinder-head gaskets
- Cylinder-head cover modules
- Exhaust gaskets
- Valve stem seals
- Heat shields
- Secondary gaskets
- Cam covers

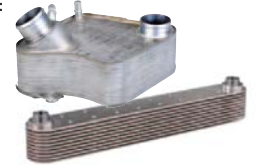


### Long® Thermal-Management Products

We provide heat-transfer solutions that are uniquely engineered for the specific needs of underground mining vehicles.

Our product offerings include:

- Engine oil coolers
- Transmission oil coolers
- Charge-air coolers
- Special coolers for thermal management of batteries and electronic components



## Dana Global Replacement Parts and Service

We are proud to operate global service parts distribution centers and more than 60 authorized Spicer Service Centers for our customers in more than 100 countries. This global presence ensures that you get local access to the parts and technical support that you need. We also provide a single source for Long thermal-management and Victor Reinz sealing system replacement parts. Precision-engineered and rigorously tested, only these genuine parts can provide the reliable performance required to minimize downtime and costs.



The torsional durability test validates original design calculations and exemplifies the constant pursuit of quality at every stage of systems development.

Every Spicer® drivetrain component is designed, tested, and manufactured to meet your exacting standards.



AXLES							
Product	Dynamic Load (Kg)	Maximum Output Torque (Nm)	Planetary Ratio	Ratio Range	Input Speed (RPM)	Flange to Flange (mm)	BCD (mm)
211	5,500	20,000	4.2 or 6	From 10 up to 26	4,000	From 1,270 up to 1,920	205 or 275
212	7,000	38,000	4.2 or 6	From 10 up to 26	4,000	From 1,660 up to 2,180	275 or 335
223	12,000	58,000	6	From 14 up to 22	4,000	From 2,050 up to 2,180	335
213	15,000	65,000	6	From 15 up to 22	4,000	From 2,050 up to 2,310	335

POWERSHIFT TRANSMISSIONS								
Product	Power Range	Speed Number	Vertical Drop	Lateral Drop	Input Speed	Disconnect	Parking Brake	ECU
T12000	Up to 75 Kw	3 or 4 or 6	SD-ID-LD	—	3,000	YES	YES	OPTIONAL
VDT12000	Up to 75 Kw	3 or 4 or 6	VDT	YES	3,000	NO	YES	OPTIONAL
T13000	Up to 105 Kw	3 or 4 or 6	ID	—	3,000	YES	YES	OPTIONAL
VDT13000	Up to 105 Kw	3 or 4 or 6	VDT	YES	3,000	NO	YES	OPTIONAL
T20000	Up to 100 Kw	2 or 3 or 6	IL-ID-LD	—	3,000	YES	YES	OPTIONAL

HYDROSTATIC TRANSMISSIONS							
Product	Motor Displacement (cc)	Speed Number	Maximum Ratio	Shifting	Input Speed (RPM)	ECU	
311	170	1	2.46	NO	5,000	NO	
357	115	2	4.53	Stand Still	5,000	NO	
367	115	2	4.53	Shift-On-Fly	5,000	YES	
360	170	2	7.08	Stand Still	5,000	NO	
318	115	CVT	3.56	CVT	5,000	OPTIONAL	
319	170	CVT	3.84	CVT	5,000	OPTIONAL	

SPICER® WING™ SERIES DRIVESHAFTS				
Driveshaft	Functional Torque Limit		Swing Diameter	
	Nm	ft-lb	mm	in
4C	3,300	2,434.1	116.0	4.570
5C	5,600	4,180.3	123.0	4.840
6C	7,200	5,310.0	150.0	5.910

SPICER® 10 SERIES DRIVESHAFTS				
Driveshaft	Functional Torque Limit		Swing Diameter	
	Nm	ft-lb	mm	in
1410	3,600	2,600	125.5	4.940
1480	5,500	4,000	134.9	5.310
1550	7,000	5,100	152.4	6.000

### Dana Power Technologies

In addition to our established global position in drivetrain products, we offer a line of sealing and thermal-management technologies for the engine and transmissions of construction vehicles.

#### Victor Reinz® Sealing Products

We offer a comprehensive range of innovative sealing solutions for gasoline, diesel, and alternative-fuel construction vehicles.

Our product offerings include:

- Cylinder-head gaskets
- Cylinder-head cover modules
- Exhaust gaskets
- Valve stem seals
- Heat shields
- Secondary gaskets
- Cam covers

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- Special coolers for thermal management of batteries and electronic components

Sales Office – Europe  
Zona Industriale  
Arco, Italy 38062

Sales Office – North America  
3939 Technology Drive  
Maumee, Ohio, USA 43537

Sales Office – Asia-Pacific  
7th Floor, Tower B  
Hongwell International Plaza  
1602 Zhongshan Road West  
Shanghai, China 200235



## Teleboom Handlers

### Innovative Drivetrain Solutions

Complete Systems | Transmissions | Controls | Driveshafts | Axles



Construction



Agriculture



Mining



Forestry



Material Handling

[www.dana.com/offhighway](http://www.dana.com/offhighway)

#### APPLICATION POLICY

Capacity ratings, features, and specifications vary depending upon the model and type of service. Application approvals must be obtained from Dana Off-Highway Driveline Technologies. We reserve the right to change or modify our product specifications, configurations, or dimensions at any time without notice.

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**Drivetrain Systems** With a comprehensive line of Spicer® brand products designed specifically for material-handling vehicles, Dana can provide you with the most innovative and flexible drivetrain solutions in the industry. At Dana, we offer everything from a complete driveline system to individual components that work within your specified designs. Whatever your requirements are, you can rely on more than 100 years of Dana innovation to provide products that work continuously and efficiently in challenging environments where vehicle performance, efficiency, reliability, and operating costs are key considerations.

Spicer® drivetrain systems for material-handling vehicles and teleboom handlers are equipped with the power to handle any load. At Dana, our drivetrain system engineers continue to develop technologies for teleboom handlers with a lift capacity of 4 to 12K (1.8 to 5.4 tonnes). And, every Spicer drivetrain component is designed, tested, and manufactured to meet your exacting standards.

**Spicer® Transmissions**

Spicer transmissions deliver smooth shift characteristics, driver comfort, and enhanced vehicle performance. With integrated gear sets, Spicer transmissions offer a compact solution to the teleboom handler market with a unique design that is available with modulation and inching features. Spicer also offers a transmission solution for every weight range variation to suit your need, whether it be conventional or VDT lateral offset. The Spicer transmission features Powershift with both central and side mounting, Powershuttle, or Interchangeable Powershift/Powershuttle.

**Spicer® Electronic Controls**

Spicer electronic controls provide electronically controlled modulation (ECM), electronically controlled inching (ECI), and safety inhibit protection to engage, lift, and transport heavy loads. They have been developed to provide safe, finite control of the vehicle while your operator is in the basket or on an aerial platform. This is accomplished through complete integration of the vehicle engine, brakes, transmission, and hydraulic controls.

**Spicer® Axles**

Spicer axles for teleboom handler vehicles deliver the high turning angle required for precise placement of the handler and deep planetary reduction ratios. The wet disc braking system utilizes a fully enclosed design to eliminate contaminants such as water and dirt that are present at work sites. The wet brakes also help your equipment and operators work at peak efficiency for extended periods of time by reducing brake wear and noise.

**Spicer® Driveshafts**

Spicer driveshafts offer design flexibility and the durability to work reliably on varied and uneven terrains in countless environments. More than a century of quality and innovation is reflected in every Spicer driveshaft, ranging from 400 to 15,000,000 Nm. At Dana, we continuously develop new designs, materials, and processes for Spicer driveshafts, providing more power, greater efficiency, and better overall performance.

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**Teleboom Handlers**

LIFT CAPACITY	TRANSMISSIONS		AXLES	DRIVESHAFTS
	POWERSHIFT	HYDROSTATIC		
<b>4-5K</b> (1.8-2.3 Tonnes)	 <b>T12000</b>	 <b>311</b>	 <b>211</b>	 <b>4C/5C/6C Wing Series*</b>  <b>1410/1480/1550 10 Series*</b>
<b>6-7K</b> (2.7-3.1 Tonnes)	 <b>T/VDT12000</b>	 <b>311</b>  <b>318</b>  <b>357</b>  <b>367</b>	 <b>212</b>	 <b>4C/5C/6C Wing Series*</b>  <b>1410/1480/1550 10 Series*</b>
<b>7-8K</b> (3.1-3.6 Tonnes)	 <b>T/VDT12000</b>	 <b>311</b>  <b>318</b>  <b>357</b>  <b>367</b>	 <b>212</b>	 <b>4C/5C/6C Wing Series*</b>  <b>1410/1480/1550 10 Series*</b>
<b>9-10K</b> (4.0-4.5 Tonnes)	 <b>T/VDT13000</b>  <b>T20000</b>	 <b>311</b>  <b>318</b>  <b>367</b>	 <b>223</b>	 <b>5C/6C Wing Series*</b>  <b>1480/1550 10 Series*</b>
<b>11-12K</b> (4.9-5.4 Tonnes)	 <b>T/VDT13000</b>  <b>T20000</b>	 <b>319</b>  <b>360</b>	 <b>213</b>	 <b>5C/6C Wing Series*</b>  <b>1480/1550 10 Series*</b>

\*Other driveshaft series and end-fitting designs available.

The Spicer® APC120 controller features state-of-the-art design, ensuring high reliability and seamless integration.



The RD.120 remote display is available for the APC120 and provides basic operating information and diagnostic codes.

AXLES							
Product	Dynamic Load (Kg)	Maximum Output Torque (Nm)	Planetary Ratio	Ratio Range	Input Speed (RPM)	Flange to Flange (mm)	BCD (mm)
111/211	5,500	20,000	4.2 or 6	From 12.8 up to 26	4,000	From 1,270 up to 1,920	205 or 275
112/212	7,000	34,000	6	From 12.8 up to 26	4,000	From 1,660 up to 1,920	275 or 335
162LD/262LD	7,000	34,000	6	From 12.8 up to 26	4,000	1,920	275 or 335
162/262 HD	8,000	34,000	6	From 12.8 up to 26	4,000	1,920	335
163/263	12,000	53,000	6	From 14 up to 22	4,000	1,850	335

HYDROSTATIC TRANSMISSIONS						
Product	Motor Displacement (cc)	Speed Number	Maximum Ratio	Shifting	Input Speed (RPM)	ECU
315	115	1	2.56	NO	5,000	NO
311	170	1	2.46	NO	5,000	NO
357	115	2	4.53	Stand Still	5,000	NO
367	115	2	4.53	Shift-On-Fly	5,000	YES
360	170	2	7.08	Stand Still	5,000	NO
368	170	2	5.00	Shift-On-Fly	5,000	YES

SPICER® WING™ SERIES DRIVESHAFTS				
Driveshaft	Functional Torque Limit		Swing Diameter	
	Nm	ft-lb	mm	in
6C	7,200	5,310.0	150.0	5.910
7C	10,700	7,892.0	158.0	6.220
8C	15,500	11,432.0	216.0	8.500

SPICER® 10 SERIES DRIVESHAFTS				
Driveshaft	Functional Torque Limit		Swing Diameter	
	Nm	ft-lb	mm	in
1410	3,600	2,600	125.5	4.940
1480	5,500	4,000	134.9	5.310

For additional configurations, contact Spicer Driveshaft Engineering for specific application information.

### Dana Power Technologies

In addition to our established global position in drivetrain products, we offer a line of sealing and thermal-management technologies for the engine and transmissions of construction vehicles.

#### Victor Reinz® Sealing Products

We offer a comprehensive range of innovative sealing solutions for gasoline, diesel, and alternative-fuel construction vehicles.

Our product offerings include:

- Cylinder-head gaskets
- Cylinder-head cover modules
- Exhaust gaskets
- Valve stem seals
- Heat shields
- Secondary gaskets
- Cam covers

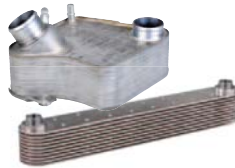


#### Long® Thermal-Management Products

We provide heat-transfer solutions that are uniquely engineered for the specific needs of construction vehicles.

Our product offerings include:

- Engine oil coolers
- Transmission oil coolers
- Charge-air coolers
- Special coolers for thermal management of batteries and electronic components



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Shanghai, China 200235



**SPICER®**  
Off-Highway Systems

## Wheeled Excavators Innovative Drivetrain Solutions

Complete Systems | Transmissions | Controls | Driveshafts | Axles



Construction



Agriculture



Mining



Forestry



Material Handling

[www.dana.com/offhighway](http://www.dana.com/offhighway)

#### APPLICATION POLICY

Capacity ratings, features, and specifications vary depending upon the model and type of service. Application approvals must be obtained from Dana Off-Highway Driveline Technologies. We reserve the right to change or modify our product specifications, configurations, or dimensions at any time without notice.

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**Drivetrain Systems** With a comprehensive line of Spicer® brand products designed specifically for construction vehicles and wheeled excavators, Dana can provide you with the most innovative and flexible drivetrain solutions in the industry. At Dana, we offer everything from a complete driveline system to individual components that work within your specified designs. Whatever your requirements are, you can rely on more than 100 years of Dana innovation to provide products that work continuously and efficiently in challenging environments where vehicle performance, efficiency, reliability, and operating costs are key considerations.

Spicer® drivetrain systems for wheeled excavators are designed with internal, fade- and maintenance-free, liquid-cooled brakes and lube-for-life driveshafts. These features, along with many other innovations, help minimize your equipment downtime and your operating and maintenance costs. And, every Spicer drivetrain component is designed, tested, and manufactured to meet your exacting standards.

**Spicer® Transmissions**

The Spicer transmission range provides options for excellent ratio coverage and enhanced vehicle performance. Spicer single- or two-speed transfer cases provide installation flexibility with the option of fixing directly to the axle, or remotely where a high mount is preferred. Designed for direct mounting of the hydrostatic motor, full power shifting is offered with electronically controlled modulation (ECM) to ensure smooth shifting with downshift protection.

**Spicer® Electronic Controls**

Spicer electronic controls provide improved shift quality and reduced acceleration jerk while supplying seamless transitions for the entire range of maneuvers. The controls for the transfer cases can be completely integrated by the OEM into the vehicle engine, hydraulic controls, and braking systems.

**Spicer® Axles**

Designed for construction vehicles from 3.6 to 50 tonnes (4 to 55 tons), Spicer axles deliver the required tractive effort for your specific needs. The wet disc brakes for wheeled excavators are mounted inboard for vehicles up to 8 tonnes (8.5 tons) and outboard from 10 to 22 tonnes (11 to 24 tons). The outboard brake designs eliminate jerking while the vehicle digs to ensure smooth operation. A spring-applied hydraulic-release (SAHR) parking brake is an option on the axles with inboard brakes.

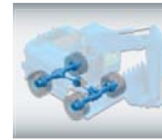
**Spicer® Driveshafts**

Spicer driveshafts offer design flexibility and the durability to work reliably on varied and uneven terrains found on construction sites.






















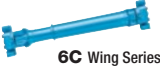












More than a century of quality and innovation is reflected in every Spicer driveshaft, ranging from 400 to 15,000,000 Nm. At Dana, we continuously develop new designs, materials, and processes for Spicer driveshafts, providing more power, greater efficiency, and better overall performance.

**Dana Global Replacement Parts and Service**

We are proud to operate global service parts distribution centers and more than 60 authorized Spicer Service Centers for our customers in more than 100 countries. This global presence ensures that you get local access to the parts and technical support that you need. We also provide a single source for Long® thermal-management and Victor Reinz® sealing system replacement parts. Precision-engineered and rigorously tested, only these genuine parts can provide the reliable performance required to minimize downtime and costs.



**Wheeled Excavators**

CARRIER WEIGHT	HYDROSTATIC TRANSMISSIONS	AXLES	DRIVESHAFTS
<b>8 Tonnes</b> (8.5 Tons)	 <b>315</b>	 <b>111</b>  <b>211</b>	 <b>1410 10 Series*</b>
<b>10 Tonnes</b> (11 Tons)	 <b>311</b>  <b>357</b>  <b>367</b>	 <b>112</b>  <b>212</b>  <b>162</b>  <b>262</b>	 <b>1480 10 Series*</b>
<b>14 Tonnes</b> (15 Tons)	 <b>357</b>  <b>367</b>	 <b>162HD</b>  <b>262HD</b>	 <b>1480 10 Series*</b>
<b>16.5 Tonnes</b> (18 Tons)	 <b>360</b>  <b>368</b>	 <b>163</b>  <b>263</b>	 <b>6C Wing Series*</b>  <b>7C Wing Series*</b>
<b>19 Tonnes</b> (21 Tons)	 <b>360</b>  <b>368</b>	 <b>163</b>  <b>263</b>	 <b>6C Wing Series*</b>  <b>7C Wing Series</b>
<b>22 Tonnes</b> (24 Tons)	 <b>360</b>  <b>368</b>	 <b>164</b>  <b>264</b>	 <b>8C Wing Series*</b>

\*Other driveshaft series and end-fitting designs available.

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