

Front End Loaders

Innovative Drivetrain Solutions

Complete Systems | Transmissions | Controls | Driveshafts | Axles



SPICER[®]
Off-Highway Systems



Construction



Agriculture



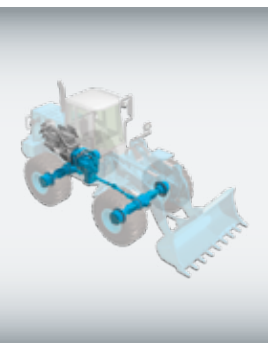
Mining



Forestry



Material Handling



Drivetrain Systems With a comprehensive line of Spicer® brand products designed specifically for construction vehicles and front end loaders, 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 front end loaders combine required force with precise control to supply power on demand in vehicles ranging from 4 to 50 tonnes (4 to 55 tons). 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

Spicer axles for construction vehicles deliver the required tractive effort for your specific needs. The wet disc brakes for front end loaders are mounted inboard for vehicles from 4 to 25 tonnes (4 to 28 tons) and outboard for machines from 26 to 50 tonnes (29 to 55 tons). The outboard brake designs provide easy-to-service brakes and ensure precise operator control. A spring-applied hydraulic-release (SAHR) parking brake is an option on the axles for vehicles from 4 to 18.5 tonnes (4 to 20 tons). For compact front end loaders, a dry disc brake layout is also available.

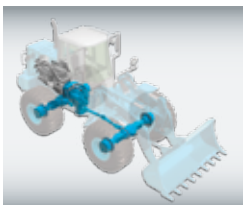
Spicer® Driveshafts

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.


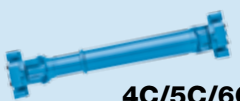









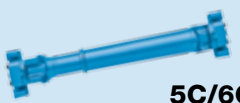

▶
The Spicer® APC120 controller features state-of-the-art design, ensuring high reliability and seamless integration.



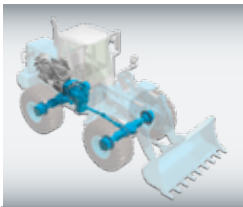
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The RD.120 remote display is available for the APC120 and provides basic operating information and diagnostic codes.








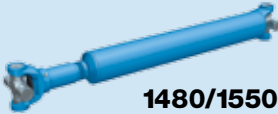



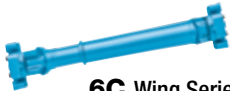












Compact Front End Loaders

CURB WEIGHT	TRANSMISSIONS		AXLES		DRIVESHAFTS
	Powershift	Hydrostatic	Front	Rear	
4 – 4.5 Tonnes (4 – 5 Tons)		 311	 111 Front	 4C/5C/6C Wing Series*	
		 315	 111 Rear	 1410/1480/1550 10 Series*	
5.5 – 8 Tonnes (6 – 9 Tons)	 T20000	 318	 112 Front	 4C/5C/6C Wing Series*	
		 357**	 112 Rear	 1410/1480/1550 10 Series*	
		 367			
9 – 11 Tonnes (10 – 12 Tons)	 T24000	 319	 113 Front	 5C/6C Wing Series*	
		 360***	 123 Rear	 1480/1550 10 Series*	

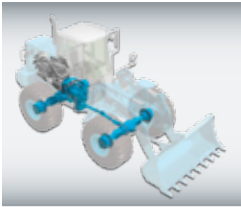
*Other driveshaft series and end-fitting designs available. **One or two speeds available. ***Two speeds available.












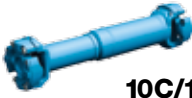

Mid-Range Front End Loaders

CURB WEIGHT	TRANSMISSIONS		AXLES		DRIVESHAFTS
	Powershift	Hydrostatic	Front	Rear	
12 – 14 Tonnes (13 – 15 Tons)	 32000LD	 319	 114 Front	 5C/6C Wing Series*	
			 113 Rear	 1480/1550 10 Series*	
15 – 18.5 Tonnes (16.5 – 20 Tons)	 32000LD	 HSE 2+3	 37R Front	 6C Wing Series*	
	 TZL16		 114 Rear	 7C Wing Series*	
20 – 25 Tonnes (22 – 28 Tons)	 TZL18	 HSE 2+3	 43R Front	 7C Wing Series*	
	 TE32LD		 37R Rear	 8C Wing Series*	
				 9C Wing Series*	
				 1710/1760/1810 10 Series*	

*Other driveshaft series and end-fitting designs available.






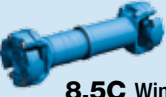
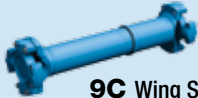



Large Front End Loaders

CURB WEIGHT	TRANSMISSIONS		AXLES		DRIVESHAFTS
	Powershift	Hydrostatic	Front	Rear	
25 – 32 Tonnes (28 – 35 Tons)	 TE32	 HSE 2+3 HD	 53R Front	 9C Wing Series*	
	 6000		 43R Rear		 10C Wing Series*
35 – 50 Tonnes (39 – 55 Tons)	 8000		 58R Front	 10C/11C Wing Series*	
			 58R Rear		

Hydromechanical Variable Transmission (HVT)

HVT combines the mechanical and hydrostatic travel drive to join the best features of both technologies. Our Dana Rexroth Transmission Systems offer a convenient HVT for mobile machines; and by integrating the travel and working hydraulics, they provide even greater potential for this advanced technology.

CURB WEIGHT	HYDROMECHANICAL VARIABLE TRANSMISSION	AXLES		DRIVESHAFTS
		Front	Rear	
20 – 25 Tonnes (22 – 28 Tons)	 HVT R3 	 43R Front	 7C Wing Series*	
		 37R Rear		 8.5C Wing Series*
			 9C Wing Series*	
			 1710/1760/1810 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)	BCD (mm)
111	5,500	20,000	4,2 or 6	From 10 up to 26	4,000	From 1,010 up to 1,920	205 or 275
112	7,000	38,000	4,2 or 6	From 10 up to 26	4,000	From 1,400 up to 1,920	275 or 335
123	12,000	58,000	6	From 14 up to 22	4,000	From 1,660 up to 1,920	335
113	15,000	65,000	6	From 15 up to 22	4,000	From 1,530 up to 2,050	335
114	20,000	110,000	6	From 20 up to 22	4,000	From 1,920 up to 2,180	425
37R	20,000	118,000	6	From 22 up to 30	4,000	From 2,050 up to 2,515	425 or 500
43R	27,000	183,000	6 or 6,25	From 25 up to 35	4,000	From 2,134 up to 2,852	500 or 508
53R	54,000	300,000	6,25 or 6,474	From 25 up to 42	4,000	From 2,433 up to 2,957	508 or 610 or 695
58R	54,000	397,000	6.474	From 30 up to 35	4,000	2,721	695

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	H-M-R	3,000	YES	YES	OPTIONAL
T24000	Up to 120 Kw	3 or 4 or 6	SD-LD	H-M-R	3,100	YES	YES	OPTIONAL
32000/33000	Up to 170 Kw	3 or 4 or 6	SD-LD	H-M-R	3,100	YES	YES	OPTIONAL
TZL16	Up to 180 Kw	4 or 5	LD	H-M	2,800	NO	YES	YES
TZL18	Up to 190 Kw	4 or 5	LD	H-M	2,800	NO	YES	YES
TE32	Up to 320 Kw	4	SD-LD	H-MT	2,550	—	YES	YES
6000	Up to 300 Kw	4 or 8	LD	R	3,100	YES	—	OPTIONAL
8000	Up to 400 Kw	4 or 8	LD	R	3,100	YES	—	OPTIONAL

HYDROSTATIC TRANSMISSIONS

Product	Motor Displacement (Maximum 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
318	56/115	CVT	3.56	CVT	5,000	OPTIONAL
319	107/170	CVT	3.84	CVT	5,000	OPTIONAL
HSE 2+3	107/140	3	6.1	CVT	5,000	YES

HYDROMECHANICAL VARIABLE TRANSMISSION

Product	Speed Number	Maximum Ratio	Shifting	Input Speed (RPM)	ECU
HVT R3	CVT	2.30	CVT	1,800	YES

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
10C	39,700	29,284.0	225.0	8.860
11C	41,600	30,668.0	235.0	8.860

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
1710	15,700	11,500	200.2	7.880
1760	Use Spicer Life Series® (SPL® 170)			
1810	Use Spicer Life Series® (SPL® 250)			
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 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

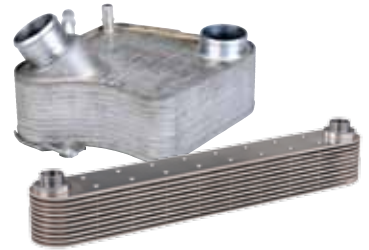


Long® Thermal-Management Products

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

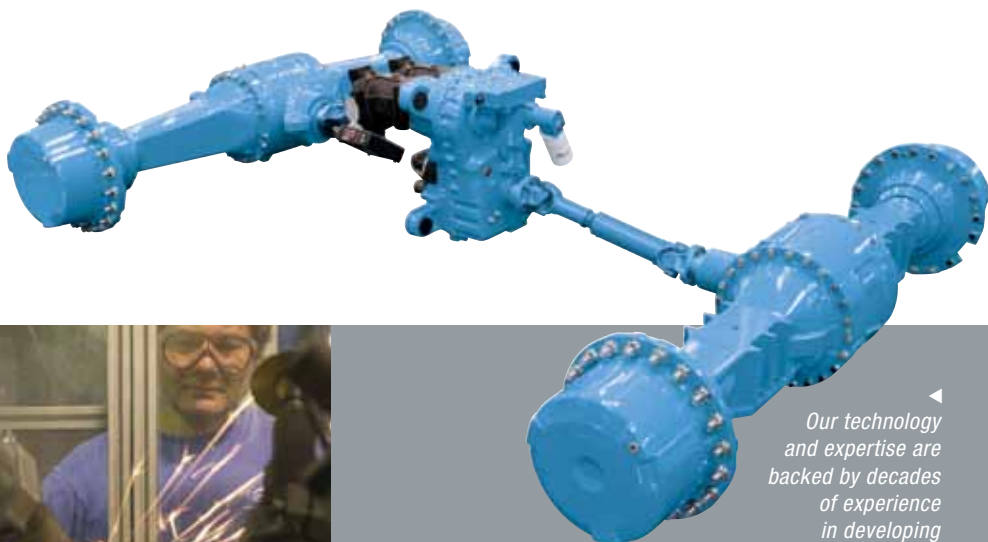
Our product offerings include:

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



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.



▶
Our commitment to operational excellence ensures the production of high-quality, reliable drivetrains wherever they are manufactured.



◀
Our technology and expertise are backed by decades of experience in developing drivetrain solutions.



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.

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

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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