

Spicer® Compact™ Series PLUS Driveshafts for Commercial Vehicle Applications



SPICER®
Compact™ Series PLUS



Specifications Guide

Table of Contents

3 Industry Leadership

4 Commercial Vehicle Driveshaft Product Lines

6 Spicer® Compact™ Series PLUS Features

8 Connection Variants

9 Driveshaft Variants and Combinations

10 Standard Variant 0.02

11 HPD Variant 0.02

12 Standard Variant 0.04

13 Standard Variant 8.06

14 Standard Variant 9.01

15 Standard Variant 9.03

16 Standard Variant 0.06

17 Standard Variant 0.08

18 Global Support

20 About Dana

All rights reserved.

Any reproduction of this publication or parts thereof is subject to the explicit authorization of the copyright-holder.

Regulation concerning Copyright,
Productliability and Safety-Directions see STD 1016-000.

This catalogue supersedes all former editions.
We reserve the right to make alterations.

Printed in Germany 08/2018

Leading the industry with driveline innovations for the commercial vehicle market that increase fuel efficiency, reduce maintenance, and lower lifecycle costs.

Industry Leadership

For more than a century, we have developed the Spicer® brand and product portfolio to be the global benchmark in performance, quality, and reliability, meeting our customers' needs in a wide range of applications – from passenger cars to freight-hauling highway trucks to agriculture and construction machines. We are a world leader in the supply of axles, driveshafts, off-highway transmissions, sealing and thermal-management products, and genuine service parts. Global resources and many of the best engineering minds in the industry allow us to relentlessly design and develop new systems, while also continuing to improve the performance of established product lines. At Dana, we stand behind every one of our products with a dedicated team of expert service professionals, industry-leading warranties, localised inventory, training resources, a dedicated call centre, and other enhanced customer interfaces.

Commercial Vehicle Driveshaft Product Lines



Spicer® Compact™ Series PLUS Driveshafts

Spicer® Compact™ Series PLUS driveshafts set the standard for the global commercial vehicle industry. For maximum performance and reliability, our comprehensive range of driveshafts offer the best in high power density driveline solutions available for truck and SUV driveshafts. Plus, service-free designs are available.

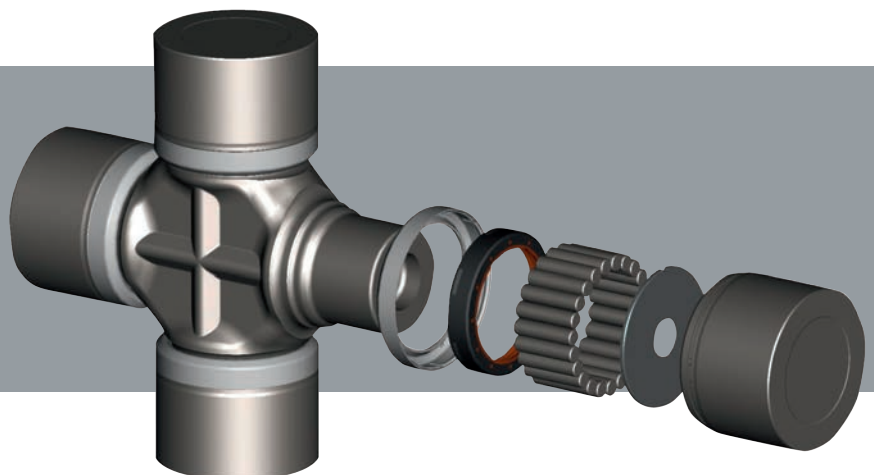
- Best-in-class torque capacity
- Compact and lightweight
- Environmentally friendly manufacturing process and design
- Industry-proven durability



Compact™ High Power Density™ (HPD™) Series Model 75 Driveshaft

The Spicer® Compact™ High Power Density™ (HPD™) driveshaft series brings together industry-proven features from across the Spicer family of propshafts to deliver the highest power density available.

- For heavy-duty driveshaft applications
- Industry standard XS 200 flange
- Highest power density available





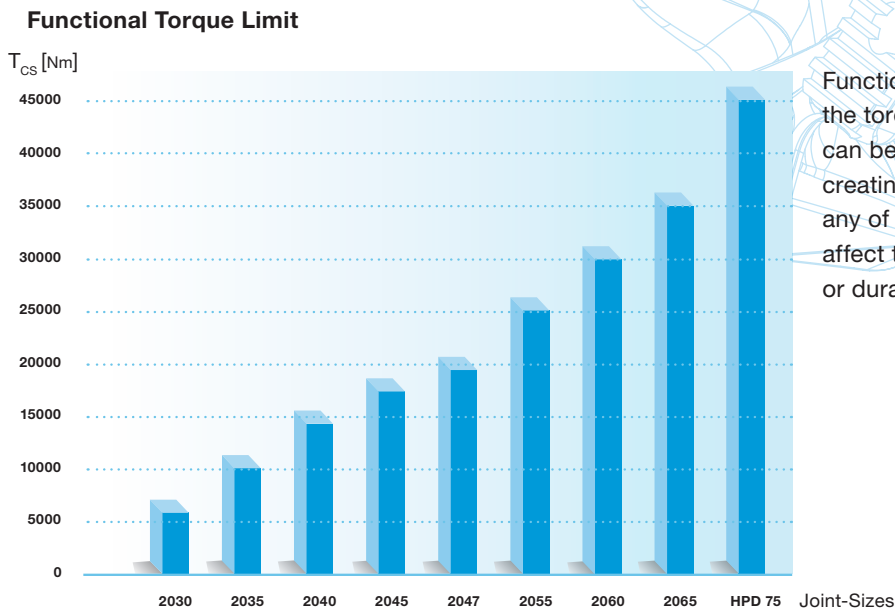
Spicer® Life Series™ Driveshafts

Our Spicer® Life Series™ heavy-duty driveshafts make handling heavy loads over the long haul easier and more efficient than ever. Enhanced to offer even greater torque, durability, and savings, our latest Spicer driveshaft product line offers 70 percent more power density and a 40 percent increase in bearing life.

- Designed for heavy-duty and high-efficiency truck applications
- Increased torque and more durability
- Service-free designs with extended warranty

Designed and tested for maximum durability and reliability, they can withstand even the most demanding commercial vehicle applications.

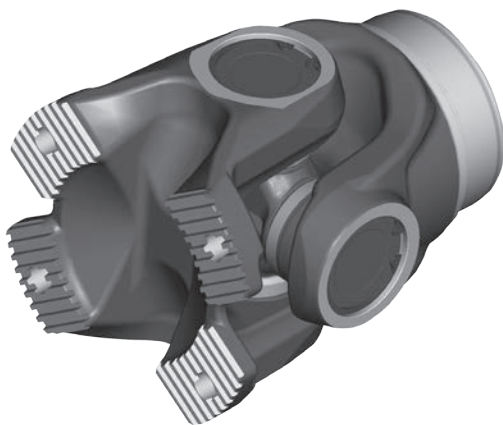
Spicer® Compact™ Series PLUS Features



Functional Torque Limit means 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.

Main Features

Using the most advanced engineering, the Spicer® Compact™ Series driveshaft was designed to meet the requirements of commercial vehicle manufacturers including:



Capacity

- Transmission of static torque
- Resistance to alternating and pulsating stresses

Bearing Life

- Well-matched dynamic and static load bearing capacity

Dynamic Behaviour

- Reduced mass moment of inertia
- Longer single-piece driveshaft for a given speed
- Reduced residual unbalance by lighter shaft weight
- Improved/repeatable balance due to accurate centering of cross-serration flanges

Operating Temperature

- Driveshafts are available for operating temperatures between -50 °C (-58 °F) to $+90\text{ °C}$ (194 °F), or special types for peak temperatures up to $+120\text{ °C}$ (248 °F).

Weight

- Weight of the driveshaft is less, given the static and dynamic torque limits

Environmental Protection

- Reduced noise emissions
- Maintenance-free options
- Optimised grease amount
- Enhanced sealing to reduce grease loss
- Solvent-free paint

Component Features and Additional Options

Universal Joints

- Optimised stress distribution
- System-matched rigidity

Service-Free Unit Pack

- Structural dynamic characteristics and dimensions same as regreaseable type
- Highly effective sealing system
- Improved journal cross geometry

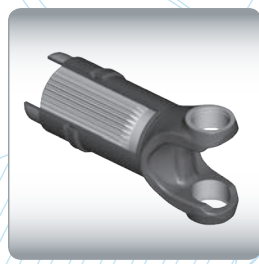
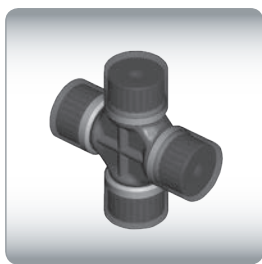
Sliding Joint

- Refined involute profile guarantees optimised performance
- Functional separation of torque transmission and centring features
- Plastic-coated muff

Centre Bearing

The bearing unit in the reverse-slip construction consists of the following component parts:

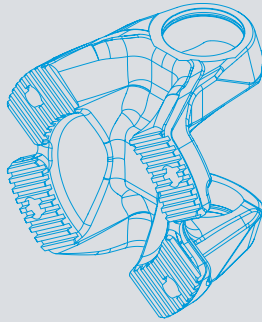
- Stub shaft with bearing seat and companion flange
- Groove ball bearings featuring dual sealing and service-free grease to keep out dirt and moisture
- Laterally arranged flingers to prevent splash water from impinging directly on the bearing
- Rubber cushion for:
 - Damping and isolation
 - Cushioning axial movements
 - Cushioning angular movements and positions



Connection Variants

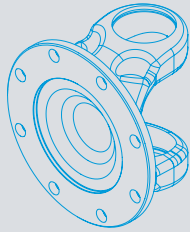
X-Serration Flange

- XS

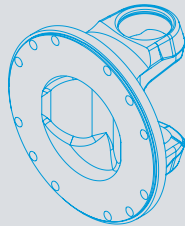


Friction Type Flange

- DIN



- SAE



Attaching driveshafts to various transmissions and axle assemblies calls for different types of connections. The following types (ISO standard) are available:

XS

The XS flange is the preferred flange because of its technical and economical advantages, including:

- International standardisation
- Fewer variants
- Form fitting
- Clearly defined mounting position
- Less time required for assembly
- Simplified bolting
- X-serration (XS) – corresponding to ISO 8667 for gearbox flanges and ISO 12667 for driveshaft flanges

Friction Type

DIN and SAE connection on request

- DIN, corresponding to ISO 7646
- SAE, corresponding to ISO 7647

Driveshaft Variants and Combinations



0.02

Driveshaft with length compensation
Variant 0.02



HPD 0.02

Driveshaft without length compensation
with midship bearing (fixed and mid)
Variant 0.04

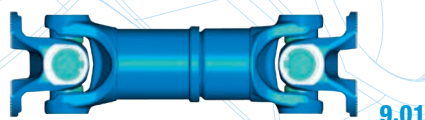


0.04



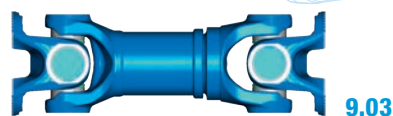
8.06

Shaft assembly with length compensation
in midship bearing position (MIS)
Variant 8.06



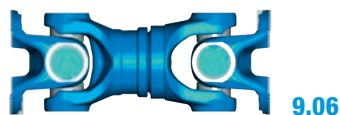
9.01

Short coupled driveshaft with length
compensation variant with sleeve muff
Variant 9.01



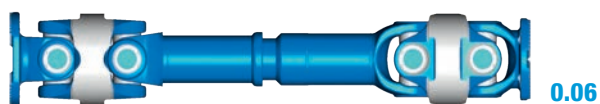
9.03

Short coupled driveshaft with length
compensation variant with sleeve yoke
Variant 9.03



9.06

Super short coupled driveshaft with length
compensation variant with sleeve yoke
Available on request
Variant 9.06



0.06

Driveshaft with length compensation and
centred double joints on both sides.
Variant 0.06



0.08

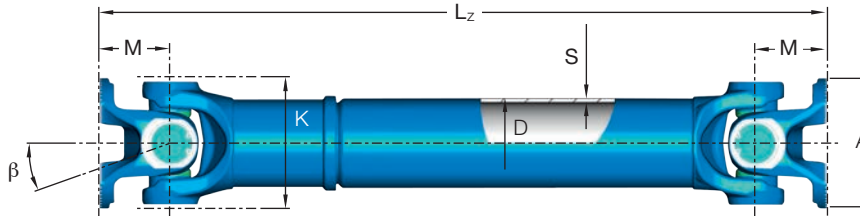
Driveshaft with length compensation and
centred double joint on one side
Variant 0.08

Data Sheet Standard Variant 0.02

Driveshaft

with Length Compensation

Design



Shaft size			2030	2035	2040	2045	2047	2055	2060	2065				
Functional limit torque	T_{cs}	kNm	6,5	10,0	14,0	17,0	19,0	25,0	30,0	35,0				
Connection		-	KV 120	KV 150	KV 150	KV 180	KV 180	KV 180	KV 180	KV 180				
Optional			KV 150	KV 120	KV 180	KV 150	KV 150							
Flange-ø	A	mm	120	155	155	180	180	180	180	180				
Max. Joint angle	β	°	25	25	35	25	44	25	44	30	25			
Max. Rotation-ø	K	mm	127	144	160	174	174	178	196	206				
Standout	M	mm	63,5	75	88	82	102	87	108	87	92	108	100	105
Compressed length	L_z min.	mm	475	542	667	550	695	582	730	582	619	742	641	677
Sliding movement	L_a	mm	110	110	180	110	180	110	180	110	110	180	110	110
Tube	D x S	mm	90 x 3	100 x 3	85 x 5	119,4 x 2,7	99,2 x 4,1	118,8 x 3,4	108,2 x 4,1	118,2 x 4,1	118,4 x 5,2	128,4 x 5,2	128,4 x 5,2	140,2 x 5,1
Weight of 1m-shaft	G_w	kg	17,6	23,3	27,0	29,3	33,7	35,4	40,9	35,8	44,3	51,8	50,5	62,9
Weight of 1m-tube	G_R	kg	6,4	7,2	9,9	7,8	9,6	9,7	10,5	11,5	14,5	15,8	15,8	17,0

Recommended connection

Companion flanges
- XS: Cross serration according to ISO 8667

Driveshaft flange yokes
- XS: Cross serration according to ISO 12667

Please note:

All values given are nominal. Exact information should only be obtained from drawing.

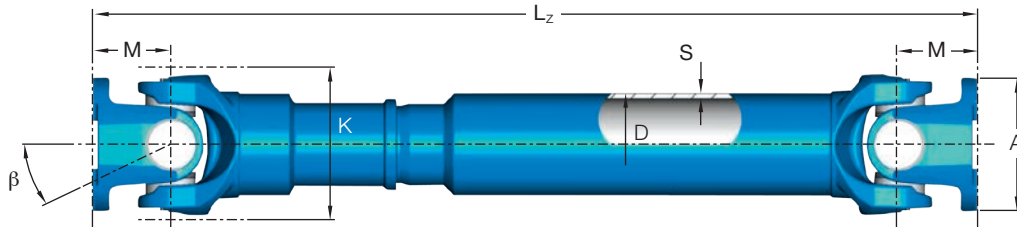
Capacity ratings, features, and specifications vary depending upon the model and type of service. Application approvals must be obtained from Dana, contact your representative for application approval. We reserve the right to change or modify our product specifications, configurations, or dimensions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

Data Sheet HPD Variant 0.02

Driveshaft

with Length Compensation

Design



Shaft size		75	
Functional limit torque	T_{CS}	kNm	45,0
Connection		-	KV 200 (KV180)
Flange- ϕ	A	mm	200 (180)
Max. Joint angle	β	$^{\circ}$	25
Max. Rotation- ϕ	K	mm	208
Standout	M	mm	108
Compressed length	$L_{z \text{ min.}}$	mm	795
Sliding movement	L_a	mm	110
Tube	D x S	mm	144 x 7
Weight of 1m-shaft	G_W	kg	85,2
Weight of 1m-tube	G_R	kg	23,4

Recommended connection

Companion flanges
- XS: Cross serration according to ISO 8667

Driveshaft flange yokes
- XS: Cross serration according to ISO 12667

Please note:

All values given are nominal. Exact information should only be obtained from drawing.

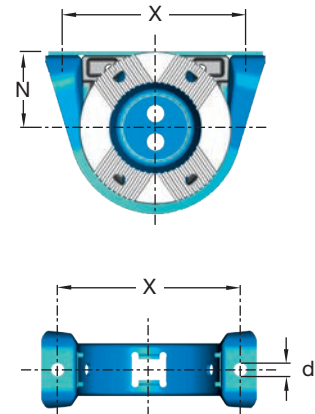
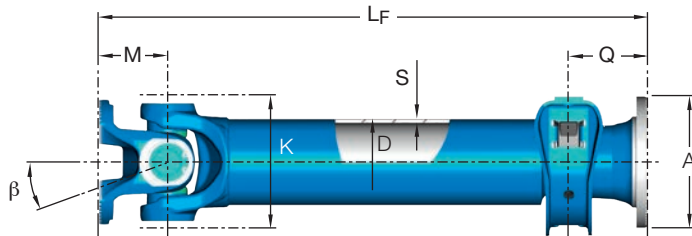
Capacity ratings, features, and specifications vary depending upon the model and type of service. Application approvals must be obtained from Dana, contact your representative for application approval. We reserve the right to change or modify our product specifications, configurations, or dimensions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

Data Sheet Standard Variant 0.04

Driveshaft

without Length Compensation, with Midship Bearing

Design



Shaft size			2030	2035	2040	2045	2047	2055	2060	2065
Funktional limit torque	T_{CS}	kNm	6,5	10,0	14,0	17,0	19,0	25,0	30,0	35,0
Connection		-	KV 120	KV 150	KV 150	KV 180	KV 180	KV180	KV 180	KV 180
Optional			KV 150	KV 120	KV 180	KV 150	KV 150			
Flange- ϕ	A	mm	120	155	155	180	180	180	180	180
Max. Joint angle	β	$^{\circ}$	25	25	25	25	25	25	30	25
Max. Rotation- ϕ	K	mm	127	144	160	174	174	178	196	206
Standout	M	mm	63,5	75	82	87	87	92	100	105
Compressed length	$L_{F \text{ min.}}$	mm	325	324	359	371	371	410	425	433
Tube	DxS	mm	90x3	100x3	119,4x2,7	118,8x3,4	118,2x4,1	118,4x5,2	128,4x5,2	140,2x5,1
Joint overhang	Q	mm	80	73	80	73	80	80	107	107
Joint overhang optional	Q	mm				84	84	84	84	
Hole distance	x	mm	220	193,5	220	193,5	220	220	220	220
Drop height	N	mm	90	69	90	69	90	90	90	90
Hole- ϕ	d	mm	15	13	15	13	15	15	15	15
Weight of 1m-shaft	G_W	kg	18,8	22,6	27,3	29,6	31,3	37,6	40,4	47,45
Weight of 1m-tube	G_R	kg	6,4	7,2	7,8	9,7	11,5	14,5	15,8	17,0

Recommended connection

Companion flanges

- XS: Cross serration according to ISO 8667

Driveshaft flange yokes

- XS: Cross serration according to ISO 12667

Please note:

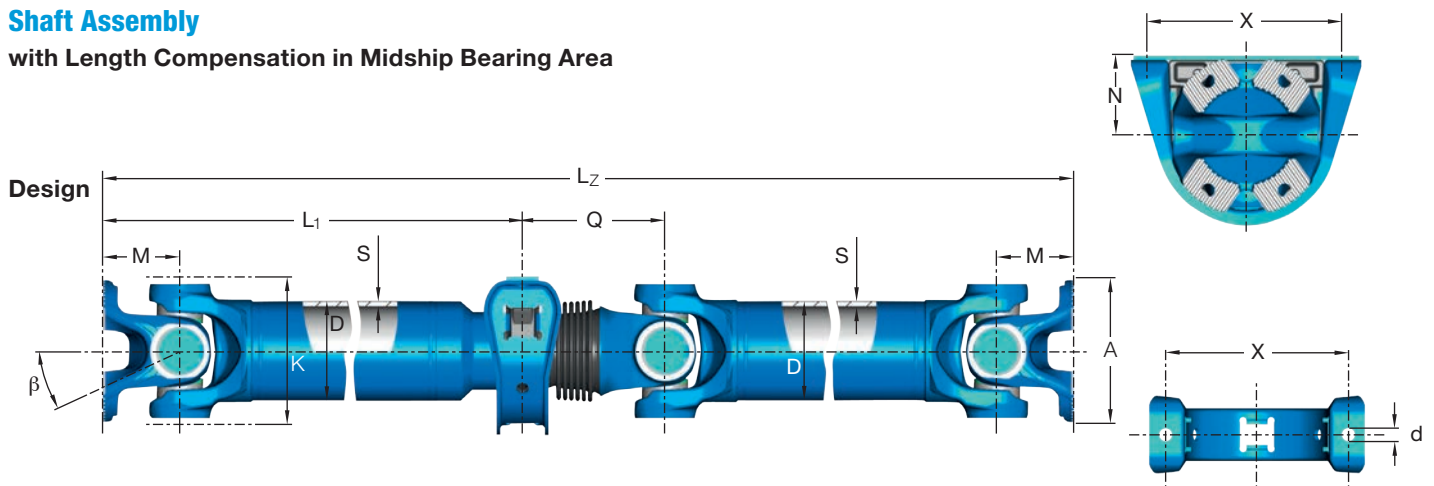
All values given are nominal. Exact information should only be obtained from drawing.

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.

Data Sheet Standard Variant 8.06

Shaft Assembly

with Length Compensation in Midship Bearing Area



Shaft size			2030	2035	2040	2045	2055	
Funktional limit torque	T_{CS}	kNm	6,5	10,0	14,0	17,0	25,0	
Connection		-	KV 120	KV 150	KV 150	KV 180	KV 180	
Optional			KV 150	KV 120	KV 180	KV 150		
Flange- ϕ	A	mm	120	155	155	180	180	
Max. Joint angle	β	$^{\circ}$	25	25	25	25	25	
Max. Rotation- ϕ	K	mm	127	144	160	174	178	
Standout	M	mm	63,5	75	82	87	92	
Compressed length	L_z min.	mm	632	720	777	825	881	
length 1	L_1 min.	mm	266,5	318	317	338	364	
Sliding movement	L_a	mm	110	110	110	110	110	
Tube	DxS	mm	90x3	100x3	119,4 x2,7	118,8x3,4	118,4x5,2	
Joint overhang	Q min.	mm	142	146	156	164	174	
Hole distance	X	mm	220	193,5	220	193,5	220	220
Drop height	N	mm	90	69	90	69	90	90
Hole- ϕ	d	mm	15	13	15	13	15	15
Weight of 2m-shaft	G_w	kg	32,3	39,8	50,9	59,1	74,1	
Weight of 1m-tube	G_R	kg	6,4	7,2	7,8	9,7	14,5	

Recommended connection

Companion flanges

- XS: Cross serration according to ISO 8667

Driveshaft flange yokes

- XS: Cross serration according to ISO 12667

Please note:

All values given are nominal. Exact information should only be obtained from drawing.

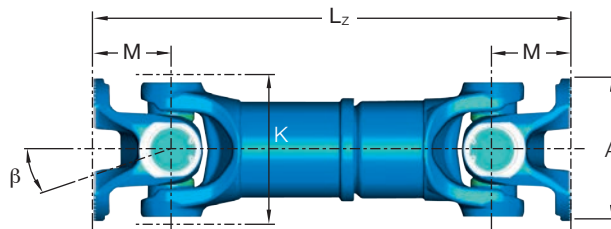
Capacity ratings, features, and specifications vary depending upon the model and type of service. Application approvals must be obtained from Dana, contact your representative for application approval. We reserve the right to change or modify our product specifications, configurations, or dimensions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

Data Sheet Standard Variant 9.01

Short Coupled Driveshaft

Sleeve-Muff-Design

Design



Shaft size			2030	2035	2040	2045	2055	2060	2065
Functional limit torque	T_{CS}	kNm	6,5	10,0	14,0	17,0	25,0	30,0	35,0
Connection		-	KV 120	KV 150	KV 150	KV 180	KV 180	KV 180	KV 180
Optional		-	KV 150	KV 120	KV 180	KV 150			
Flange- ϕ	A	mm	120	155	155	180	180	180	180
Max. Joint angle	β	$^{\circ}$	25	25	25 44	25 44	25 44	30	25
Max. Rotation- ϕ	K	mm	127	144	160	174	178	196	206
Standout	M	mm	63,5	75	82 102	87 108	92 108	100	105
Compressed length/ Sliding movement	$L_z / L_{a,110}$	mm/mm	436/110	510/110	500/110	540/110	571/110	590/110	631/110
Compressed length/ Sliding movement	$L_z / L_{a,min}$	mm/mm	371/45	470/70	460/70	500/70	531/70	550/70	591/70
Shaft weight ($L_a=100$)	$G_W, L_a 110$	kg	15,2	20,5	24,6	30,2	36,8	42	54,7
Shaft weight ($L_a=70$)	$G_W, L_a 70$	kg	13,5	19,3	23,3	28,6	34,9	39,9	52,5

Recommended connection

Companion flanges

- XS: Cross serration according to ISO 8667

Driveshaft flange yokes

- XS: Cross serration according to ISO 12667

Please note:

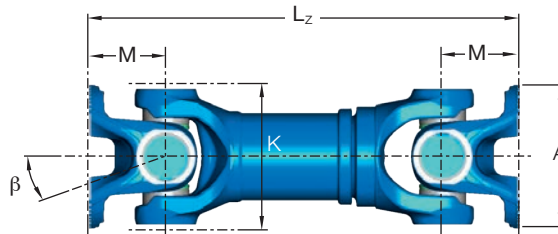
All values given are nominal. Exact information should only be obtained from drawing.

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.

Data Sheet Standard Variant 9.03

Short Coupled Driveshaft Sleeve-Yoke-Design

Design



Shaft size			2030	2035	2040	2045	2055	2065
Functional limit torque	T_{CS}	kNm	6,5	10,0	14,0	17,0	25,0	35,0
Connection		-	KV 120	KV 150	KV 150	KV 180	KV 180	KV 180
Optional			KV 150	KV 120	KV 180	KV 150		
Flange- ϕ	A	mm	120	155	155	180	180	180
Max. Joint angle	β	$^{\circ}$	25	25	25	25	25	25
Max. Rotation- ϕ	K	mm	127	144	160	174	178	206
Standout	M	mm	63,5	75	82	87	92	105
Compressed length/ Sliding movement	$L_z \text{ max./}L_a$	mm/mm	380/95	444/110	466/110	491/110	517/110	574/110
Compressed length/ Sliding movement	$L_z \text{ min./}L_a$	mm/mm	321/36	384/50	411/55	430/50	457/50	514/50
Max. Weight	$G_W \text{ max.}$	kg	13,9	19,2	23,1	30,2	38,2	54,7
Min. Weight	$G_W \text{ min.}$	kg	12,0	17,4	21,0	27,3	34,9	49,9

Recommended connection

Companion flanges

- XS: Cross serration according to ISO 8667

Driveshaft flange yokes

- XS: Cross serration according to ISO 12667

Please note:

All values given are nominal. Exact information should only be obtained from drawing.

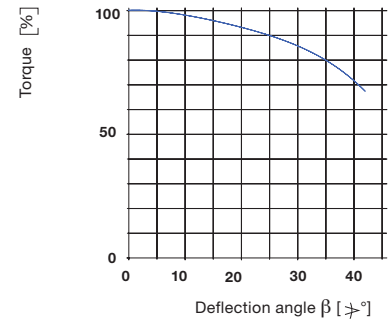
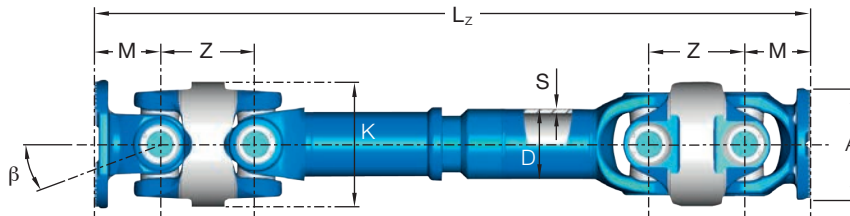
Capacity ratings, features, and specifications vary depending upon the model and type of service. Application approvals must be obtained from Dana, contact your representative for application approval. We reserve the right to change or modify our product specifications, configurations, or dimensions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

Data Sheet Standard Variant 0.06

Driveshaft

with Length Compensation and Centred Double Joint on Both Sides

Design



Transmission capacity dependent on deflection angle for a centred double joint

Shaft size			687.30		587.20 / 687.35		587.35 / 687.45
Functional limit torque	T_{CS}	kNm	3,9	6,5	7,4	8,3	17,0
Connection		-	DIN 120	DIN 150	DIN 150	KV 150	DIN 180
Flange- ϕ	A	mm	120	150	150	155	180
Max. Joint angle	β	°	42		20/42		20/42
Max. Rotation- ϕ	K	mm	140		152		182
Standout	M	mm	72	70	75	78	90
Compressed length	L_z min.	mm	829	825	797	803	1040
Sliding movement	L_a	mm	190		110		150
Standout	Z	mm	102		115		140
Tube	DxS	mm	90x3		85x5		100x6
Weight of 1m-shaft	G_W	kg	36,1 kg	37,0 kg	40,2	41,0	75
Weight of 1m-tube	G_R	kg	6,4		9,9		13,9

Recommended connection

Companion flanges

- DIN: according to ISO 7646
- SAE: according to ISO 7647
- XS: Cross serration according to ISO 8667

Driveshaft flange yokes

- XS: Cross serration according to ISO 12667

Please note:

All values given are nominal. Exact information should only be obtained from drawing.

Attention:

Not all DIN/SAE-flange-connection can transmit the function-limit-torque of the corresponding driveshaft size by friction.

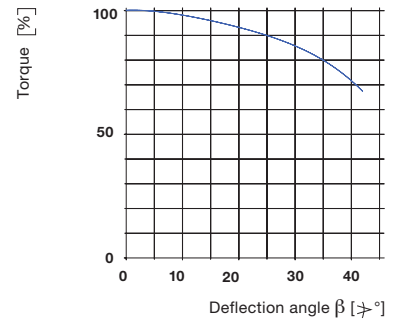
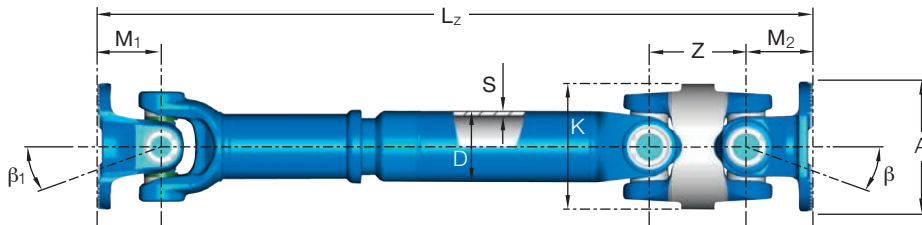
Capacity ratings, features, and specifications vary depending upon the model and type of service. Application approvals must be obtained from Dana, contact your representative for application approval. We reserve the right to change or modify our product specifications, configurations, or dimensions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

Data Sheet Standard Variant 0.08

Driveshaft

with Length Compensation and Centred Double Joint on One Side

Design



Transmission capacity dependent on deflection angle for a centred double joint

Shaft size			687.30		587.20 / 687.35		587.35 / 687.45
Functional limit torque	T_{CS}	kNm	3,9	6,5	7,4	8,3	17,0
Connection		-	DIN 120	DIN 150	DIN 150	KV 150	DIN 180
Flange- ϕ	A	mm	120	150	150	150	180
Max. Joint angle	β	°	42		42		42
Max. Joint angle	β_1	°	25		35	25	25
Max. Rotation- ϕ	K	mm	140		150		180
Standout	M_1	mm	72	78	95	75	90
Standout	M_2	mm	72	70	75	78	95
Compressed length	L_z min.	mm	600	604	766	749	725
Sliding movement	L_a	mm	110		190		110
Standout	Z	mm	102		115		140
Tube	D x S	mm	90 x 3		85 x 5		120 x 4
Weight of 1m-shaft	G_W	kg	24,4 kg	25,7 kg	35,0	36,0	55,2
Weight of 1m-tube	G_R	kg	6,4		9,9		11,4

Recommended connection

- Companion flanges
 - DIN: according to ISO 7646
 - SAE: according to ISO 7647
 - XS: Cross serration according to ISO 8667

Driveshaft flange yokes

- XS: Cross serration according to ISO 12667


Please note:

All values given are nominal. Exact information should only be obtained from drawing.

Attention:

Not all DIN/SAE-flange-connection can transmit the function-limit-torque of the corresponding driveshaft size by friction.

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.



Global Support Dana brings industry-leading innovation and proven technology to our customers through a network of technical centres located across four continents. We design, develop, and manufacture world-class, high-performance, commercial vehicle products that reduce the total cost of ownership and increase productivity. For the most demanding commercial vehicle applications and the heaviest loads, we offer a full range of the most durable, reliable, and efficient driveline products in the industry. And, no matter what you need, our extensive, highly trained service and support network is here to assist you, no matter where you are or when you need us.



Aftermarket Service and Support At Dana, we offer a range of solutions that leverage top-tier Spicer® aftermarket products, adhering to the demanding OE manufacturing specs for optimal performance and reliability. We also offer solutions to support your specific maintenance needs, as well as the expert support you need to maximise the return on investment for your commercial vehicle. With a long-term strategic plan in place that helps us closely monitor market trends, we are staying in tune with the needs of fleet operators while maintaining a focus on being the world's driveline technology forerunner.



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

BREVINI®

Motion Systems

High Torque Planetary Gearboxes
Industrial Planetary Gearboxes
Mobile Planetary Drives
Shaft Mounted Gearboxes



About Dana Incorporated

Dana is a world leader in highly engineered solutions for improving the efficiency, performance, and sustainability of powered vehicles and machinery. Dana supports the passenger vehicle, commercial truck, and off-highway markets, as well as industrial and stationary equipment applications. Founded in 1904, Dana employs more than 30,000 people in 33 countries on six continents who are committed to delivering long-term value to customers.

About Dana Commercial Vehicle Systems

Dana serves commercial vehicle customers worldwide with over 40 facilities and five technical centers in 11 countries that design, market, and manufacture complete systems for medium and heavy-duty trucks. We continuously illustrate our commitment to the commercial vehicle industry by introducing new products with enhanced, award-winning technologies, including Spicer® axles, driveshafts, and tire management solutions; Victor Reinz® sealing systems; and Long® thermal-management products. We back our offerings with world-class after-sales support and genuine service parts manufactured to the same high standards as original-equipment products to maximize the return on investment for your commercial vehicle.

For Spicer Driveshaft application guidelines including the application approval form, please visit our website www.dana.com.

Spicer Gelenkwellenbau GmbH

Westendhof 5-9
45143 Essen / Germany

Phone: 00 49 (0) 201 - 81 24-0
Fax: 00 49 (0) 201 - 81 24-455
vehicle@dana.com

www.dana.com/cv



SPICER®

Drivetrain Products

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.