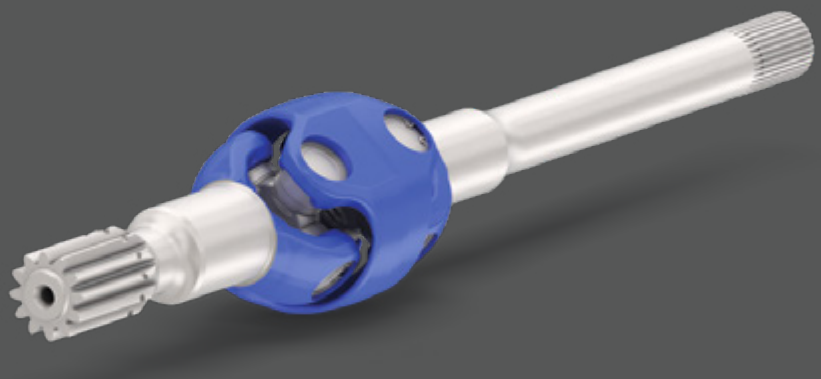
WALTERSCHEID

DOUBLE UNIVERSAL JOINT (DUJ) shafts

For driven steering axles, marine stern drive and special applications



WALTERSCHEID
POWERTRAIN GROUP

www.walterscheid-group.com

Content

DRIVESHAFTS PRODUCT RANGE

DOUBLE UNIVERSAL JOINT (DUJ) SHAFTS

The DUJ range for the off-highway sector include DUJ shafts for vehicles with driven steering axles, DUJ shafts for sterndrives for boats and Universal-joint shafts for special applications.

CARDAN SHAFTS

Our application-matched cardan shafts are rugged assemblies that withstand the requirements of today's more powerful engines and transmissions. Precision balancing assures smooth, vibration-free operation.

Our wide range of cardan shafts are backed by years of proven performance in some of the most extreme applications. They have set the industry standard for quality for years, and are backed by the technology, systems and people to meet even the highest expectations.

CONSTANT VELOCITY (CV) SHAFTS

The CV-sideshafts with Constant Velocity ball joints are used in vehicles with independent suspension. These driveshafts represent an alternative to conventional sideshafts with centered double cardan joints. A wide range of different joint sizes are available.

CENTRED DOUBLE CARDAN (CDC) SHAFTS

The sideshafts with centered double cardan joints are especially developed for extreme working conditions and allow high continuous angles at high speed. The joints are robustly designed, and also have a maximum deflection angle of 50°, thereby guaranteeing maneuverability of the vehicle. These shafts are predestined for the use in all-terrain vehicles.

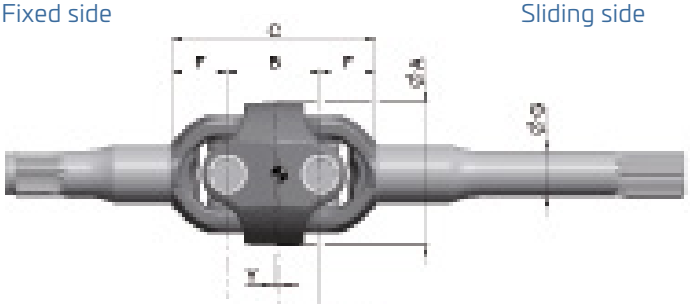
PTO SHAFTS

We also design and manufacture an extensive range of Power Take Off (PTO) shafts for the agricultural industry under the Walterscheid brand.

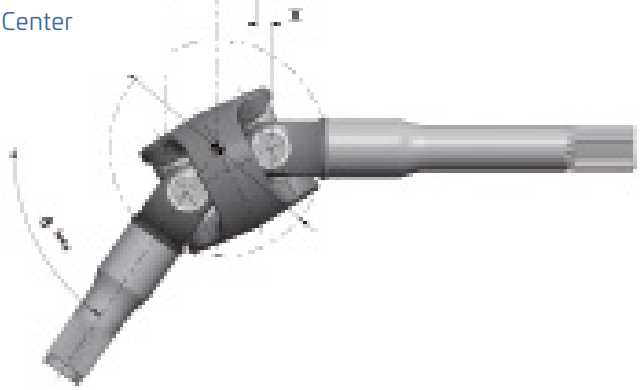
B300-SERIES

Fixed side

Sliding side

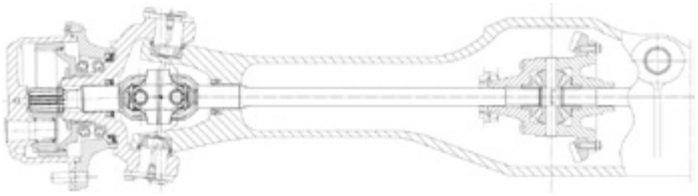


Pivot Center



Axle for agricultural tractors and construction machines

DUJ B-SERIES



Y = offset from pivot centre

For reducing the nonuniformity of the rotation and for reaching the maximum deflection angle the centre of the joint must be shifted by the distance Y to the fixed side. Constant velocity reached at β_{max}.

X = Displacement at β_{max}

During deflection of the double cardan joint an axial displacement of the driveshaft occurs. This displacement X must be considered, when dimensioning the spline length and the bearing seat.

Size	T_{max}	β_{max}	Ø A_{max}	B	C_{min}	F_{min}	Ø G_{min}	Ø D	Y	X
	[Nm]	[deg]	[mm]							
B300	1550	52° 55° 60°	85.8	56 57 57	120 123 127	32 33 35	27	128 131 134	3.15 3.63 4.41	6.30 7.26 8.82
B310	2300	52° 55° 60°	96.3	62 64 64	134 138 142	36 37 39	31	145 148 151	3.49 4.07 4.95	6.98 8.15 9.90
B320	3400	52° 55°	110.3	70 72	152 156	41 42	35	163 166	3.94 4.58	7.88 9.17
B330	5100	52° 55°	127.5	81 83	173 177	46 47	40	186 190	4.56 5.28	9.12 10.57
B340	7500	52° 55° 60°	142	92 94 94	198 204 208	53 55 57	45	212 216 220	5.17 5.98 7.27	10.35 11.97 14.54

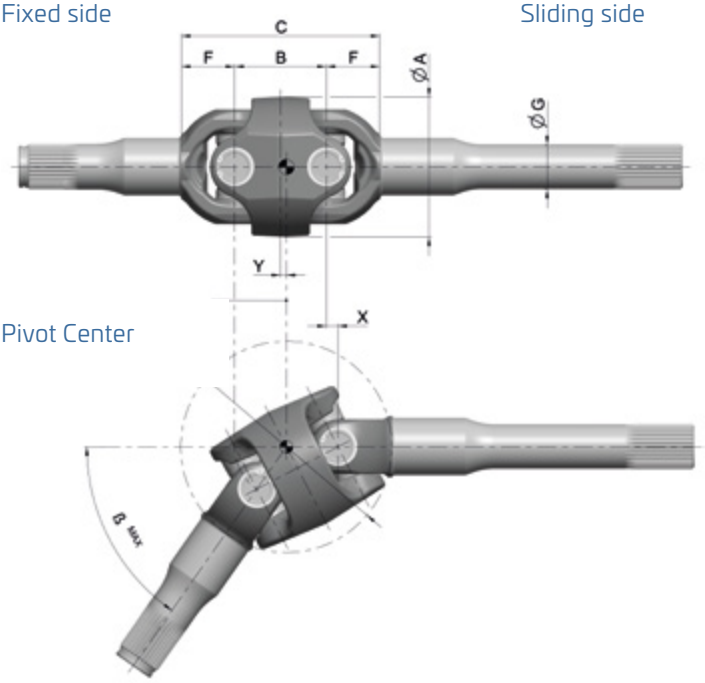
$T_{max.}$ = Functional limit torque of joint components without shafts
G = Equivalent shaft diameter for QT-steel Rm ≧ 930 N/mm²
D = Required space at max. deflection angle
ß = max. deflection angle

The transmission capacity of a double cardan joint decreases as the deflection angle becomes greater. Our engineers should be consulted. See diagram 'Transmission Capacity / Deflection Angle'!

B3000-SERIES

Fixed side

Sliding side



Double Universal Joints B3000:

Significantly more torque without additional space requirements

More torque, same space: New B3000 Double Universal Joints

The Double Universal Joint (DUJ) B3000 series allows the transmission of significantly more torque – up to 20 percent – without increasing space requirements. Transmitting higher torque in the same space as the previous B300 series can result in substantial weight savings when new B3000 series DUJs are integrated into an axle, as the axle structure can be smaller and lighter than previously required for the given torque.

Reducing the structural weight makes vehicles more responsive to the operator's inputs for acceleration and deceleration. Whilst vehicle manufacturers aim at increasing the available torque, there are limitations when more torque requires larger and heavier components. This can result in weight increases of both the DUJ and the axle.

As the torque capacity of the DUJ B3000 series was increased within the same space requirements, however, there is no need for a larger axle, thus avoiding additional weight and cost.

Size	T_{max}	ß max	Ø A_{max}	B	C_{min}	F_{min}	Ø G_{min}	Ø D	Y	X
	[Nm]	[deg]	[mm]							
B3300	1900	55° 60°	85.8	57 57	123 127	33 35	29	131 134	3.63 4.41	7.26 8.82
B3310	2800	55° 60°	96.3	64 64	138 142	37 39	33	148 151	4.07 4.95	8.15 9.90
B3320	4100	55°	110.3	72	156	42	37	166	4.58	9.17
B3330	6000	55°	127.5	83	177	47	42	190	5.28	10.57

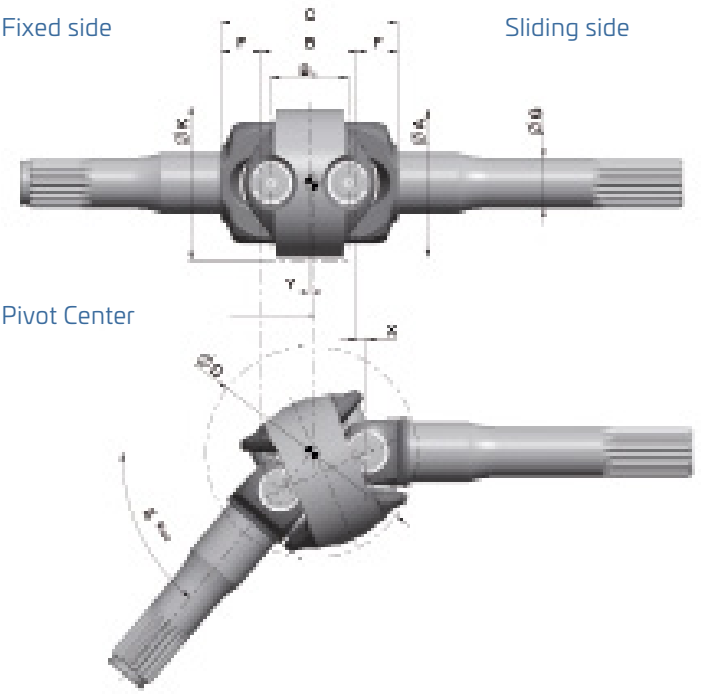
$T_{max.}$ = Functional limit torque of joint components without shafts
G = Equivalent shaft diameter for QT-steel Rm ≧ 930 N/mm²
D = Required space at max. deflection angle
ß = max. deflection angle

The transmission capacity of a double cardan joint decreases as the deflection angle becomes greater. Our engineers should be consulted. See diagram 'Transmission Capacity / Deflection Angle'!

T-SERIES

Fixed side

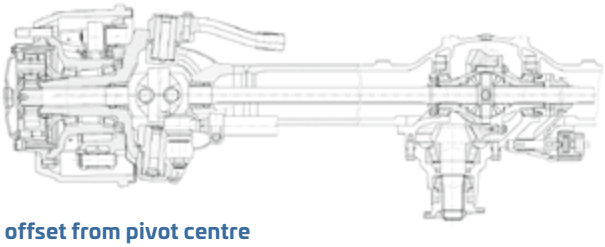
Sliding side



Pivot Center

Axle for trucks and special off-road machines

DUJ T-SERIES



Y = offset from pivot centre

For reducing the nonuniformity of the rotation and for reaching the maximum deflection angle the centre of the joint must be shifted by the distance Y to the fixed side.

X = Displacement at ß $_{max}$

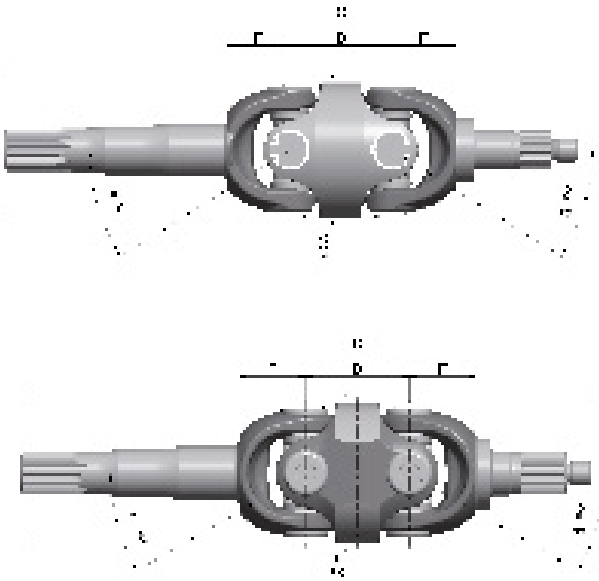
During deflection of the double cardan joint an axial displacement of the driveshaft occurs. This displacement X must be considered, when dimensioning the spline length and the bearing seat.

Size	T $_{max}$	ß $_{max}$	Ø A	B	B1	C $_{min}$	F $_{min}$	Ø G $_{min}$	Ø K	Ø D	Y	X
	[Nm]	[deg]	[mm]									
569.10	4000	50°	112	72	58	134	31	35	115	163	1.7	7.42
569.20	6700	42° 50°	128	76 82	60 66	138 153	31 35.5	42	131 131.5	173 187	1.8 2.0	5.40 8.45
569.30	8000	42° 50°	138	84 90	66 72	152 167	34 38.5	44	141 142	187 201	2.1 2.2	5.97 9.28
569.32	9000	42° 50°	138	84 90	68 74	152 167	34 38.5	46	141 142	187 200	2.1 2.2	5.97 9.28
569.36	11500	42° 50°	152	90 97	72 79	164 181	37 42	50	155.5 156.5	200 215	2.2 2.3	6.40 10.00
569.38	14300	42° 50°	160	95 103	75 83	172 190	38,5 43,5	54	164 165	212 228	2.3 2.5	6.76 10.62
569.40	16000	42°	168	100	80	185	42,5	56	172	226	2.4	7.11

T $_{max.}$ = Functional limit torque of joint components without shafts
G = Equivalent shaft diameter for QT-steel Rm ≧1.200 N/mm²
K = Rotational diameter at max. deflection angle
D = Required space at max. deflection angle
ß = max. deflection angle

The transmission capacity of a double cardan joint decreases as the deflection angle becomes greater. Our engineers should be consulted. See diagram 'Transmission Capacity / Deflection Angle'!

M-SERIES



Stern drive

DUJ M-SERIES

X = Displacement at ß max

During deflection of the double cardan joint an axial displacement of the driveshaft occurs. This displacement X must be considered, when dimensioning the spline length and the bearing seat.

Size	T_{max}	T_{cont}	ß max	Ø A	B	C_{min}	F_{min}	X
	[Nm]	[Nm]	[deg]	[mm]				
B210	1500	390	2x32° (64°)	89	67	151	42	12.0
M2185	2000	700	2x30° (60°)	93	68.5	156.5	44	10.6

$T_{max.}$ = Functional limit torque of joint components without shafts
T_{cont} = These continuous torques will provide approximately 1000 hours operations at a speed of 3500RPM and at angle of 6° (2x3°)
ß = max. deflection angle

The transmission capacity of a double cardan joint decreases as the deflection angle becomes greater. Our engineers should be consulted. See diagram 'Transmission Capacity / Deflection Angle'!

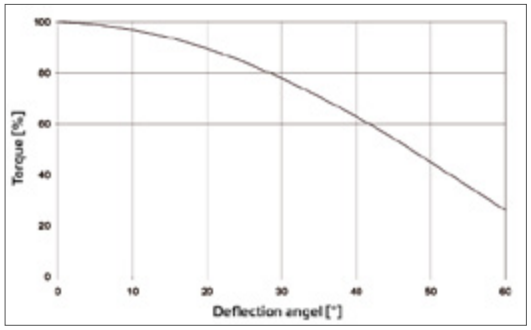


Diagram: Transmission Capacity / Deflection Angle

Walterscheid Welsberg AG
Industriezone Ost 1
39035 Welsberg-Taisten
Italy

E-Mail: welsberg@walterscheid.com

Walterscheid Powertrain (China) Co. Ltd.
7 Liu Tai Road
Liuzhou Guangxi
545007
China

WALTERSCHEID

WALTERSCHEID INSIDE –

our driveline, hitch and attachment systems for higher efficiency and performance.

Innovations and technologies from Walterscheid such as the new B3000 double universal joints increase the efficiency of mobile machinery. In addition, our products improve comfort and reliability, thus contributing to a sustained increase in productivity.

- THINK THE **FUTURE**.
- DEVELOP THE **IDEAS**.
- LIVE THE **TECHNOLOGY**.
- MASTER THE **CHALLENGES**.

Walterscheid
– the original

WALTERSCHEID
POWERTRAIN GROUP

www.walterscheid-group.com