SUPREME
ENGINEERS

UNIVERSAL JOINTS

Smooth Articulation and Unmatched Performance

Quality, Precision, Reliability

High Shock & Overload Capacity

Heat Treated Alloy Steel Components

Minimal Lubricants Required

Virtually Backlash Free

Quick Delivery

Long Life

SUPREME - UNIVERSAL JOINTS

ABOUT

Universal Joint provides a simple method to connect two shafts, whose axes are inclined at an angle, extendable type joints are used, when the angle varies during rotation. (Shaft is moving up & down)

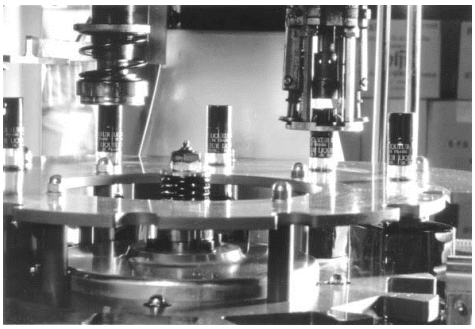
Misalignment between two coupled shafts, would not only damage the coupling but also damage the bearing and the total drive system's failure, while universal joints absorb the misalignment and save the drive system. Thus, universal joints avoid the need of precise alignment & reduce the assembly cost.

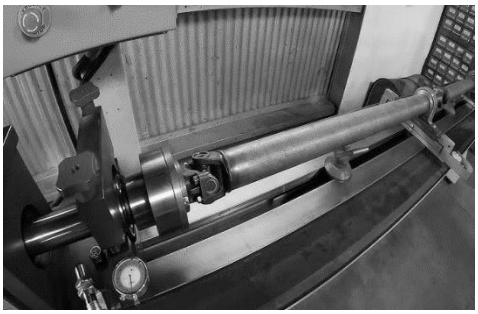
ADVANTAGES

- Domestic manufacture
- High torque capacity
- Long bearing life
- High operating angle capability
- One piece yoke and bearing housing construction
- Eliminates unnecessary bolted connections and serrations in yokes
- Heat treated alloy steel components
- Ideal loading across entire bearing length due to balanced deflection between yokes and cross
- Available in four basic types
- Technical support and engineering services available
- Extensive repair facility
- Special sizes and designs available upon request
- Large sizes available

SUPREME JOINT - APPLICATION

Supreme universal joints satisfy a broad spectrum of system design requirements and should be considered when engineers are faced with the complicated challenges of today's manufacturing demands. The Supreme universal joint has become recognized as the most precise and reliable universal joint on the worldwide market today. Supreme's team of professional design engineers are able to create and manufacture universal joints to fill almost any and every application, including:





- ✓ Textile Machinery Manufactures
- ✓ Plastic Machinery Manufactures
- ✓ Paper printing Machinery Manufactures
- ✓ Glass Machinery Manufactures
- ✓ Indoor-outdoor conveyors Manufactures
- ✓ Rubber Machinery Manufactures
- ✓ Special purpose mcs auto.
- ✓ Standard cnc Machinery Manufactures
- ✓ Pumps & valves & gearbox
- ✓ Corrugated box Machinery Manufactures
- ✓ Packaging machinery (food, pharma, general)
- ✓ Pharma Machinery Manufactures
- ✓ Bottle & pharma packing & printing & labeling Machinery Manufactures
- ✓ Tiles & stone Machinery Manufactures
- ✓ Cnc machines Manufactures
- ✓ Dairy Machinery Manufactures
- ✓ Ice cream packing/labeling Machinery Manufactures

Universal Joints

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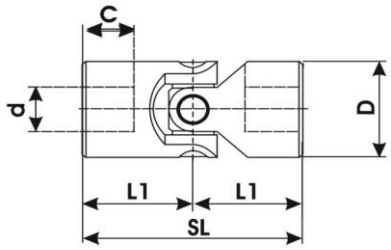
Single Universal Joint

- High grade-alloy steel
- Standard operating angels up to 35°
- Wide choice of hub configurations and finishes

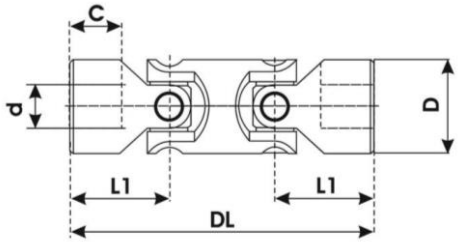
The Supreme single pin & block universal joint is manufactured from high-grade alloy steel for increased durability and better performance than standard industrial-grade models. All components are heat treated, precision machined and ground to close tolerances. The Heavy Duty, High Strength or Leveler Strength universal joint provide exceptional service life in the most demanding applications. All joints are available with or without a lubricant retaining boot.



Double Universal Joint

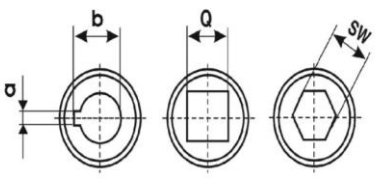
- High grade-alloy steel
- Standard operating angels up to 70°
- Uniform speed ratio between driving and driven shafts (with parallel output shafts

The Supreme double universal joint provides the same reliability and service life as the single universal joint with a maximum combined working angle of 70°. Double Universal Joints provide accurate positioning and flexibility under higher operating angels. Supreme double universal joints are available in a wide variety of materials and finishes. Lubricant retaining boots are recommended for operation in corrosive environments.



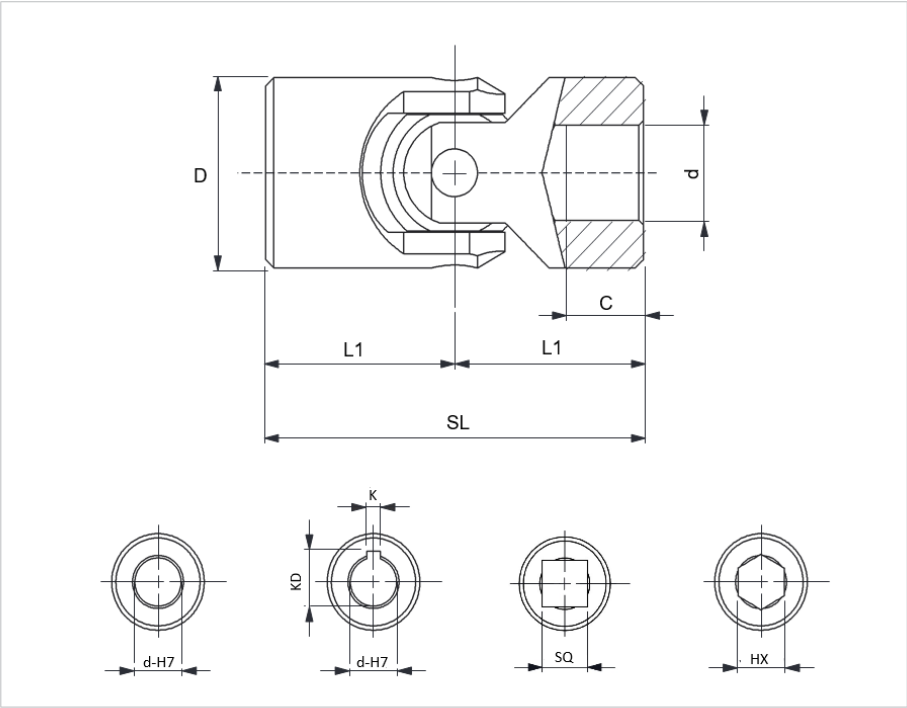
DIA	BORE	SINGLE	DOUBLE	C	L1	a	b
D	d	SL	DL				
20 to 25	10	70	105	14	35	4	13.80
26 to 35	14	90	135	18	45	6	18.30
36 to 45	18	110	165	23	55	6	22.80
46 to 55	22	124	195	30	62	8	28.30
56 to 65	28	144	225	34	72	10	33.30

FINISH BORE



SUPREME ENGINEERS

SINGLE JOINT



Code	d-H7	D	SL	C	L1	K x KD	SQ	HX	Weight
	Bore	Dia	Length			Width x Deep	Square Bore	Hex Bore	KG
S-16	6	16	40	11	20	2 x 9	8	8	0.05
S-22	10	22	48	12	24	3 x 11.4	10	10	0.10
S-25	12	25	56	13	28	4 x 13.8	12	12	0.16
S-28	14	28	60	14	30	5 x 16.3	14	14	0.20
S-32	16	32	68	16	34	5 x 18.3	16	16	0.30
S-36	18	36	74	17	37	6 x 20.8	18	18	0.45
S-42	20	42	82	18	41	6 x 22.8	20	20	0.60
S-45	22	45	95	22	47	6 x 24.8	22	22	0.95
S-50	25	50	108	26	54	8 x 28.3	25	25	1.20
S-58	30	58	125	32	63	10 x 35.3	30	30	2.00
S-70	35	70	140	35	70	10 x 38.3	-	-	3.15
S-80	40	80	160	40	80	12 x 43.3	-	-	4.60
S-95	50	95	190	46	95	14 x 53.8	-	-	7.60

Ordering Example:

S - 32 - 16 - 68 - K

Single Dia Bore Length Keyway

Type	Dia	Bore	Length	Profile
S	32	16	68	K

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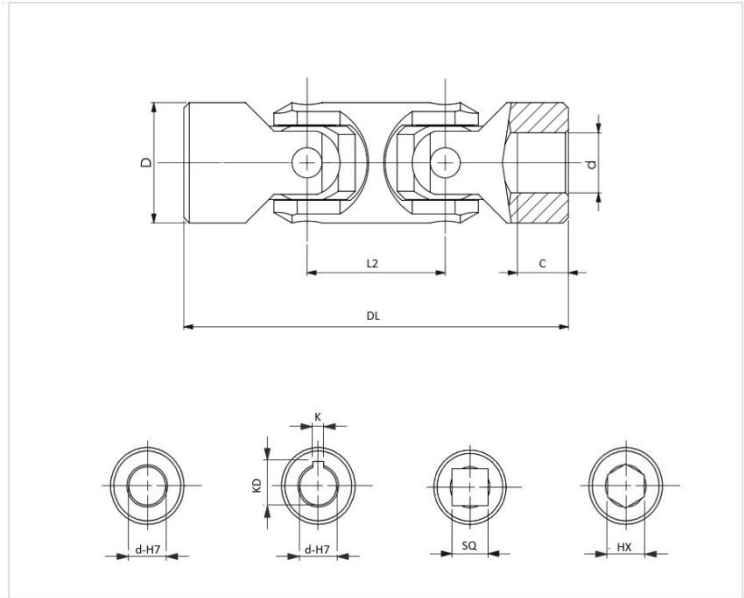
DOUBLE JOINT



Code	d-H7	D	DL	C	L2	K x KD	S-H8	H-H8	Weight
	Bore	Dia	Length			Width x Deep	Square Bore	Hex Bore	KG
D-16	6	16	62	11	22	2 x 9	8	8	0.08
D-22	10	22	74	12	26	3 x 11.4	10	10	0.15
D-25	12	25	86	13	30	4 x 13.8	12	12	0.25
D-28	14	28	96	14	36	5 x 16.3	14	14	0.40
D-32	16	32	104	16	36	5 x 18.3	16	16	0.45
D-36	18	36	114	17	40	6 x 20.8	18	18	0.70
D-42	20	42	128	18	46	6 x 22.8	20	20	1.00
D-45	22	45	145	22	50	6 x 24.8	22	22	1.55
D-50	25	50	163	26	55	8 x 28.3	25	25	2.00
D-58	30	58	195	32	68	10 x 35.3	30	30	3.00
D-70	35	70	212	35	72	10 x 38.3	-	-	4.75
D-80	40	80	245	40	85	12 x 43.3	-	-	7.20
D-95	50	95	290	46	100	14 x 53.8	-	-	12.00

Ordering Example:

D - 32 - 16 - 104 - K

Double Dia Bore Length Keyway

Type	Dia	Bore	Length	Profile
D	32	16	104	K

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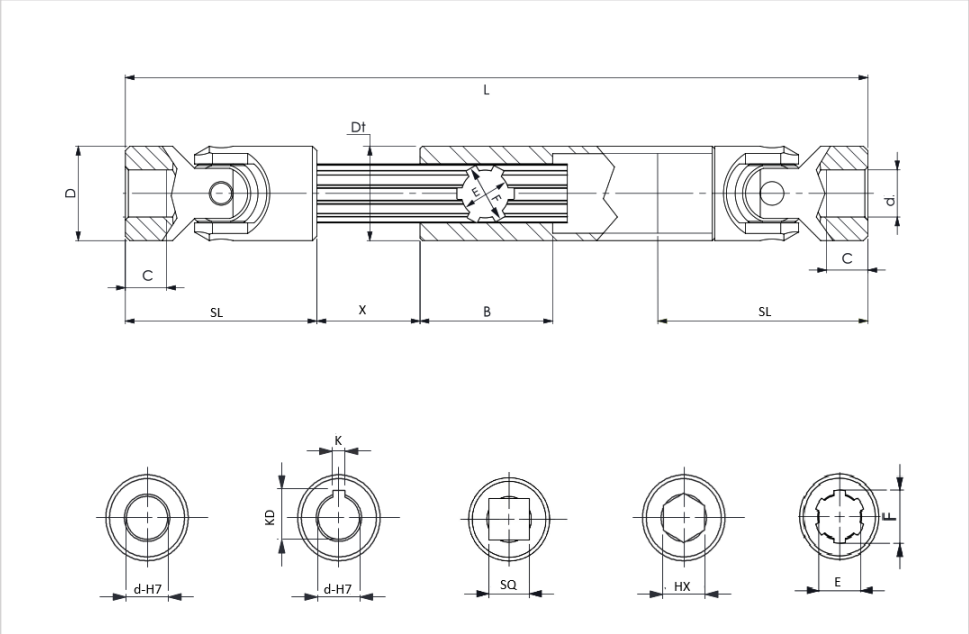
TELESCOPIC JOINT



Code	d-H7	D	SL	L		C	B	K X KD	S-H8	H-H8	E/F
	Bore	Dia	Single Joint	Close Length	Open Length			Width x Deep	Square Bore	Hex Bore	
T-16	6	16	40			11	25	2 x 9	8	8	9/12
T-22	10	22	48	140	170	12	30	3 x 11.4	10	10	11/14
T-25	12	25	56	160	190	13	40	4 x 13.8	12	12	13/16
T-28	14	28	60	170	200	14	40	5 x 16.3	14	14	13/16
T-32	16	32	68	190	220	16	40	5 x 18.3	16	16	16/20
T-36	18	36	74	230	280	17	40	6 x 20.8	18	18	16/20
T-42	20	42	82	250	300	18	45	6 x 22.8	20	20	18/22
T-45	22	45	95	250	280	22	45	6 x 24.8	22	22	21/25
T-50	25	50	108	295	345	26	45	8 x 28.3	25	25	23/28
T-58	30	58	125	330	380	32	50	10 x 35.3	30	30	26/32
T-70	35	70	140	350	420	35	70	10 x 38.3	-	-	-
T-80	40	80	160	370	455	40	80	12 x 43.3	-	-	-
T-95	50	95	190	400	510	46	90	14 x 53.8	-	-	-

x = on request*

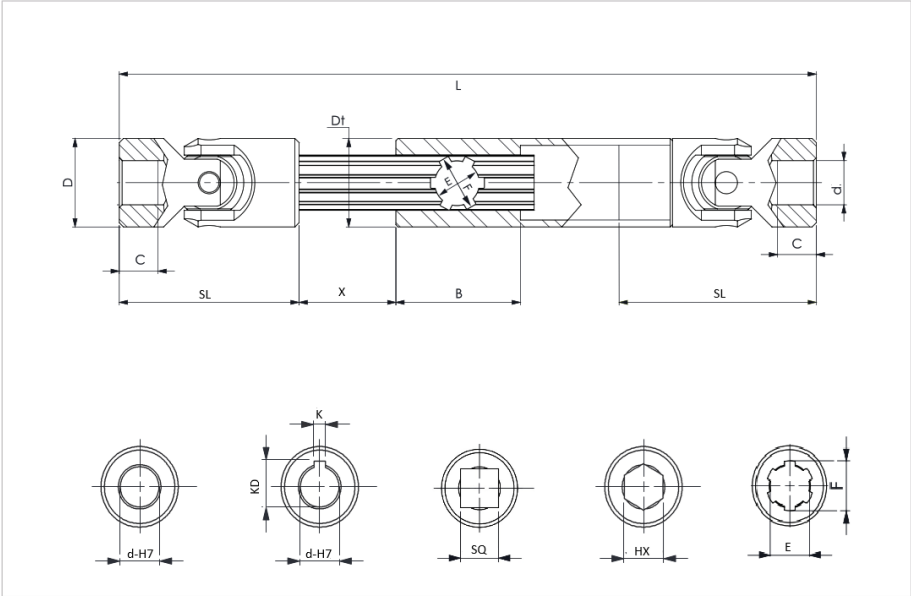
Ordering Example:

T - 32 - 16 - 190 - K

Telescopic Dia Bore Length Keyway

Type	Dia	Bore	Length- Close	Length- Open	Profile
T	32	16	190	220	K

TELESCOPIC JOINT

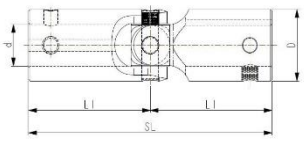
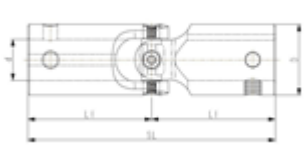
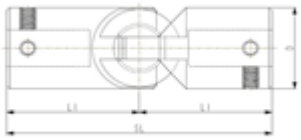


Preferred Lengths (L)										
Size	**Length**	**Dimensions [mm] (L-min. / L-max.)**								
T-22	min	140	160	180	230					
	max	170	200	240	330					
T-25	min	160	180	200	220	250	280	300		
	max	190	225	270	300	355	420	450		
T-28	min	170	180	200	220	250	280	300	350	400
	max	200	220	260	300	350	420	450	550	650
T-32	min	190	210	240	250	275	300	380	400	
	max	220	250	320	350	390	430	590	630	
T-36	min	230	250	270	290	300	400	500		
	max	280	320	370	400	415	620	820		
T-42	min	250	270	290	320	380	420	500		
	max	300	340	380	440	560	640	800		
T-45	min	250	270	290	330	350	470			
	max	280	320	350	430	470	710			
T-50	min	295	310	350	380	420	460	500		
	max	345	375	450	500	590	660	745		
T-58	min	330	350	370	400	450	500	540		
	max	380	420	455	510	620	720	795		

Example:

Type	Dia	Bore	Length (min/max)	Profile
T	32	16	190/220	K

Locking Options

Pin Type	Bearing Type	Ball Type
		
		
		
		

Universal Joint Video:

No	Universal Joint Types	Video Link
1	Ball Type Joint	https://youtu.be/lF3Fys07xbQ
2	Big Small Pin Type Joint	https://youtu.be/IXfrc6Nj-II
3	Offset Type Joint	https://youtu.be/s3f0KBg5WDQ
4	Pin Type Joint	https://youtu.be/ycvcvZ71P-k
5	Bearing Type Joint	https://youtu.be/Ez5HMW-XJ0M

Custom Universal Joints & Drive Shaft

- Uniform speed ratio between driving and driven shafts
- Quick-change feature available
- Custom designed to meet customer specifications

Supreme design engineers can specify a universal joint assembly to meet the most unique requirements. In addition to the high-quality alloy steel standard of Supreme universal joints, assemblies can be manufactured from a variety of materials, including various grades of stainless steel. Supreme's capabilities allow us to provide precise, reliable and durable universal joints for customers' exact application specifications.

Quick/Change Feature

A quick-change feature is available on our custom universal joint drive shaft assembly which allows the universal joint to be quickly removed and replaced without tools. This is an essential feature when machine downtime is crucial. The quick-change universal joint consists of two back-to-back single universal joints connected with a spring-loaded intermediate shaft. Pinning of outer yokes is not required because the spring tension on the intermediate shaft holds the quick-change universal joint

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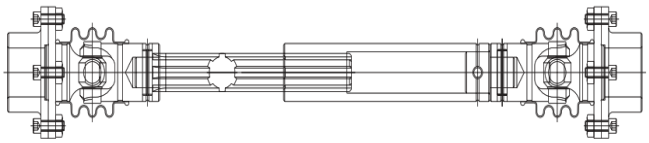
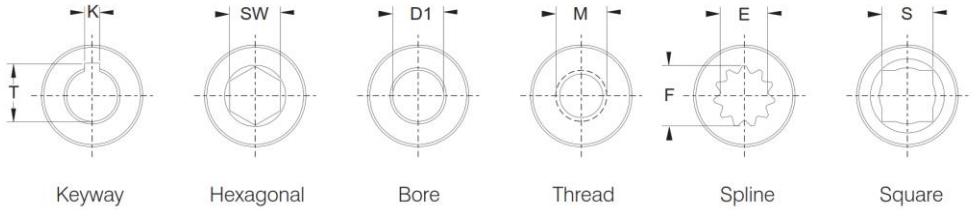


End Hub Configurations

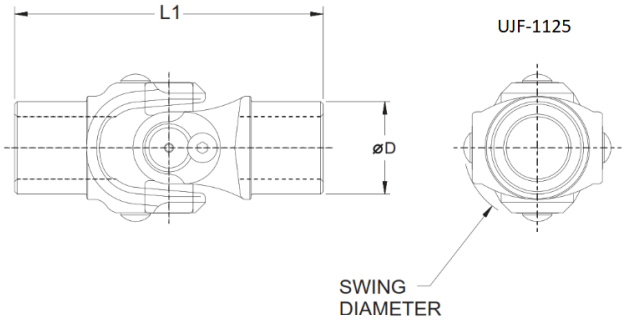
Supreme offers a wide variety of end hub configurations. The six most conventional hub types, in either male or female, are available in metric or inch sizes. Solid hubs are also available. Custom universal joints and drive shaft assemblies are our specialty.

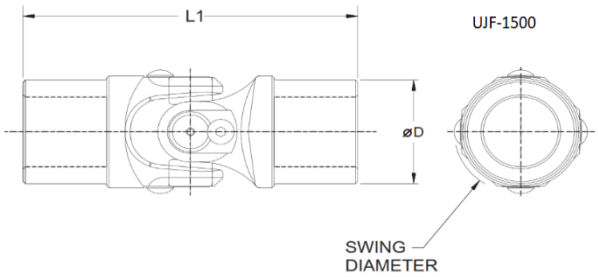


Forged Cross + Bearing Joints

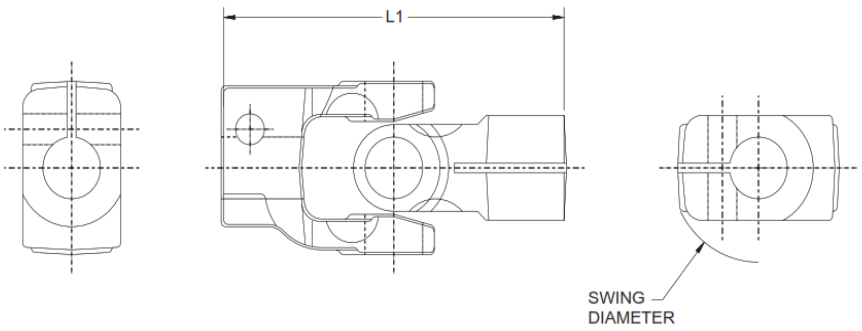
- Handles tough applications
- Finished machined hubs
- Operates at high RPM

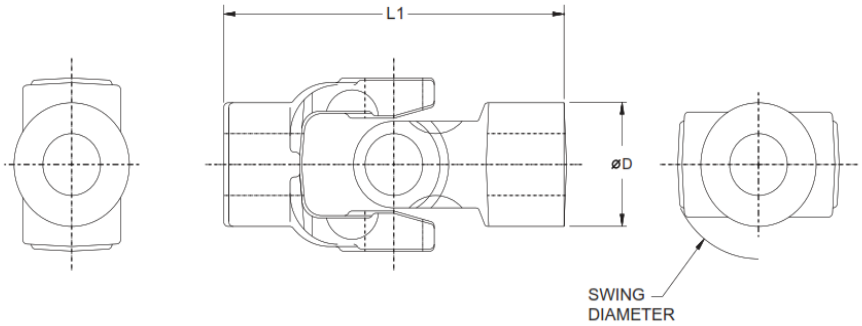
Supreme's extensive line of universal joints include various sizes of Forged Universal Joints commonly sold throughout the automotive market. Other applications typical for this style of universal joint are agriculture steering and linkages, industrial and recreational vehicles and irrigation equipment.





Forged Needle Bearing Joints			
PART NO.	Dia (mm)	L1 (mm)	Swing Diameter (mm)
UJF-1125	28.6	95.3	45.5
UJF-1500	38.1	114.3	45.5



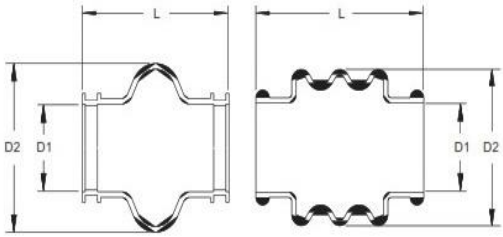


Medium Duty Forged Joints			
PART NO.	Dia (mm)	L1 (mm)	Swing Diameter (mm)
Plain Hub	38.1	96.0	29.97
Split Hub	40.1	114.3	25.40

Universal Joint Boot Covers

- Added protection in adverse conditions

If the universal joint assembly is going to operate in an atmosphere that is polluted with chips, dirt, acids/or other abrasives, it is highly recommended that boots be specified on the original assembly. Boots play an important role in protecting the joint and keeping it fully lubricated. Proper lubrication will prolong the useful life on an assembly by a factor of as much as five.



Material of Universal Joints

	**Chroming** This surface refinement method provides excellent protection against corrosion. A chromed part exhibits outstanding visual appearance through its shiny surface alone.		**Zinc-Plating** This surface refinement method allows to achieve outstanding protection against corrosion.
	**Chromating – olive** Chromate coating on zinc plating are used to enhance appearance and corrosion resistance.		**Chromating (yellow)** Chromate coatings on zinc plating are used to enhance appearance and corrosion resistance.
	**Phosphating** To obtain efficient lasting protection, additional treatment processes that are matched with the intended use of the phosphate metal surface are required, e.g. application of anti-corrosion oil or wax or coating with paint materials.		

Torque capacity of double joints as a function of deflection angle

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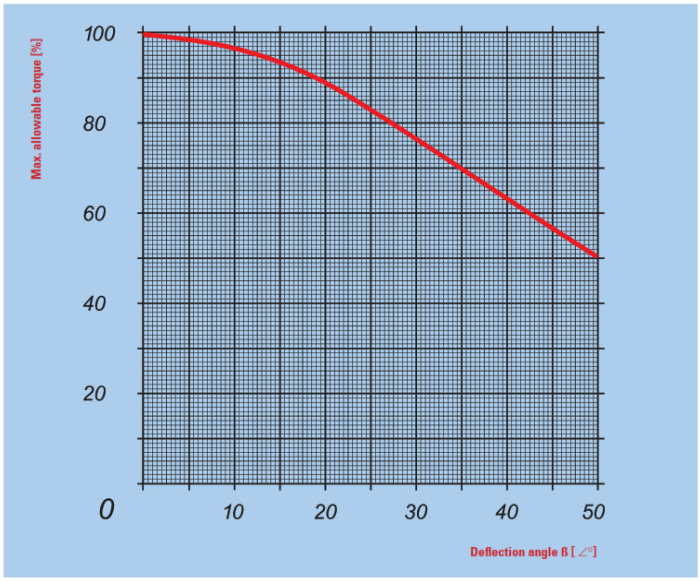


Under torque, different force conditions exist at the joint spider pins and center piece with the double joint in an angled position than in a straight position. The reason for this is that the torque to be transmitted is not distributed evenly over the joint spider pins any longer. This additional moment must be combined with the torque to be transmitted.

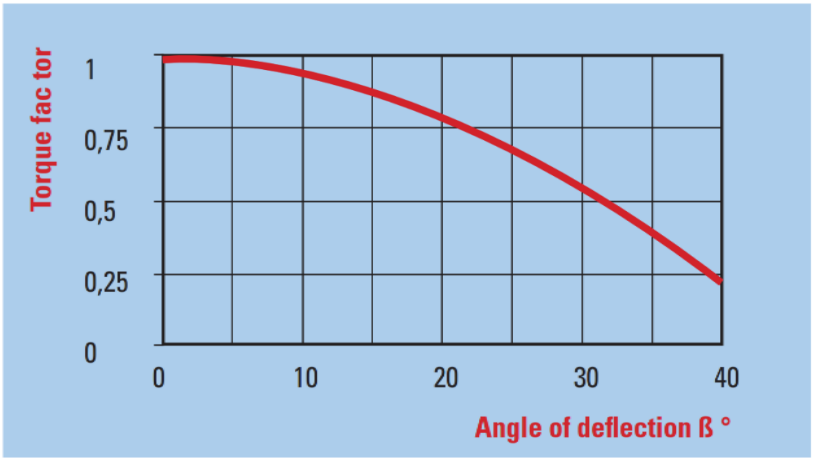
This resulting moment leads to higher compression loads and to a larger bending stress within the joint spider pins. The diagram below allows to take these factors into account. It shows the percentage the maximum allowable torque must be reduced in relation to the deflection angle.

The application of pin and block cardan joints, ball and socket cardan joints

Torque calculation for needle bearing equipped precision cardan shafts, pin and block cardan joints, ball and socket cardan joints, single

The values Mdmax listed in the diagram represent limit values that may not be exceeded. They are admissible to the full extent only at small rotation speed and minor angle of deflection respectively during intermittent operation.

The transmissible torque varies depending on the size of the angle of deflection.



Pin and Block cardan joint, Ball and socket cardan joint, single

The empirical formula in the right can be used for the rolled calculation of the required joint size.	At	Mdmax	Spped x bending angle < 500
	At .05 x	Mdmax	Speed x bending angle < 5000

Needle bearing equipped precision cardan joints

Permitted max. operation moments of the needle bearing equipped precision cardan joints (torque in Nm)

Speed - in RPM							
Type	**250**	**500**	**1000**	**2000**	**3000**	**4000**	**5000**
0.616	11	10	8	6	5.5	5.1	4.8
0.620	28	25	19	15	14	12.5	12
0.625	35	30	25	20	18.5	17	16
0.632	70	60	50	40	37	34	32
0.640	150	130	100	80	74	68	64
0.650	220	190	150	120	110	100	95
0.663	450	400	310	250	220	200	190

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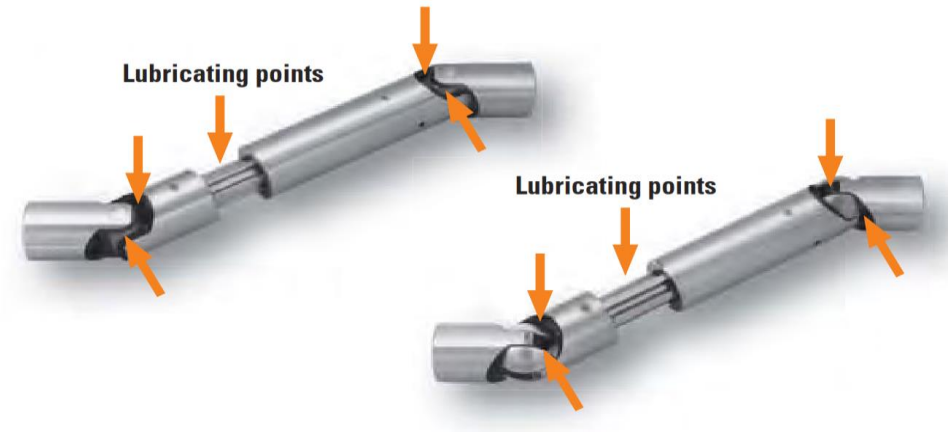
Recommendations for maintenance



An adequate lubrication shall be ensured for universal and ball-socket joints in permanent operation. Where drip oiling is not feasible, the joints have to be once daily lubricated (for lubricating points see arrow). Joints may also be enveloped in bellows; such bellows for these tow joint types may be ordered from us.

For utilization of cardan shafts under extreme climatical conditions (high and low temperatures) consult us first.

Universal Joints – Available

Single Joint	Universal Joint	Ball Type Joint
Double Joint	Carden Shaft	Ball Type Joint
Extendable Joint	Bearing Type Joint	Ball Type Joint
Telescopic Joint	Needle Bearing Type Joint	Big-Small Pin Type Joint

SUPREME
ENGINEERS

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