

KOP-FLEX®

***Announces Additional
Series and Sizes of
Flanged Universal Joints...***



***...In Addition To Our
MAXXUS®
Universal Joints***



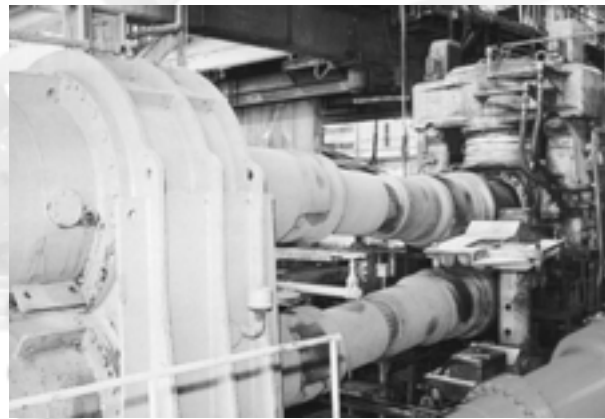
FLANGED UNIVERSAL JOINTS

- In Stock

- Quick Delivery

- Unique Features & Benefits

- One Stop Shop for All Couplings, Spindles & Universal Joints



Index:

	Page
Application Experience	264
Features and Benefits	265
Types of Universal Joints and Terminology	266
Nomenclature and Interchange Chart	267
Selection Procedure and Service Factors	268 - 269
ULS Series (Light Duty SAE Flange)	270 - 271
ULDT Series (Light Duty DIN Flange)	272 - 273
ULDF Series (Light Duty Fixed Length)	274 - 275
ULDS Series (Light Duty Short Telescope)	276 - 277
ULDZ Series (Light Duty Super Short Telescope)	278
UMDT Series (Medium Duty Standard Telescope)	279
UMDF Series (Medium Duty Standard Telescope)	280
UMKT Series (Medium Duty Standard Telescope with Face Key)	281
UMKF Series (Medium Duty Fixed Length with Face Key)	282
Rigid Tabulation	283
Jumbo Rigid Tabulation	284
Cross & Bearing Assembly Dimensional Data	285
Design Options	286
Flanged Universal Joint Repair Service	287
Coupling Comments	288 - 289



Visit www.kopflex.com



Additional sizes and series have been added to the Flanged Universal Joints carrying the KOP-FLEX® brand coupling name; a well-recognized company known for product excellence in power transmission.

Designed for the rigorous requirements of the Steel, Aluminum, and Pulp and Paper Industries, along with hundreds of other Industrial applications, our flanged universal joints give you the name you trust and the quality you need for your application. Ten series of light, medium and heavy universal joints provide the proper selection for your specific needs. Made in SAE and DIN standard flanges, many of our universal joints are available from stock to replace existing competitive universal joints, to give you the reliance of a trusted name in power transmission.

KOP-FLEX® brand flanged universal joints are available in sizes from 58mm to 620mm swing (2.3" to 24.4") diameter with dozens of bolting patterns, both SAE inch and DIN metric flanges. Telescoping, or sliding, center shafts are available as standard, or fixed length shafts can be supplied.

Flanged universals are also commonly known as yoke style universal joints, a derivative of automotive universal joints introduced originally as off-road vehicle and agricultural devices. The industrial standard flanged universal joints were modified for industrial applications that we have adopted for various applications. Universal joints are designed for applications that require high misalignment under high torque. Our typical universal joints are designed for 15° misalignment, but the selection is based on torque requirements and bearing life (B10 hours) as required per application. Consult KOP-FLEX to confirm your selection.

Typical Applications for Universal Joints

Steel and Aluminum Mills:

- Bridles
- Casters
- Levelers
- Pinch Rolls
- Rolling Mills - Bar, Rod, Structural, Wire, Hot Strip and Cold Strip
- Straighteners
- Tension Reel

Pulp and Paper Industry

- Barker
- Calenders
- Couch/Press/Suction Rolls
- Dryers
- Process Pumps
- Sizing Rolls

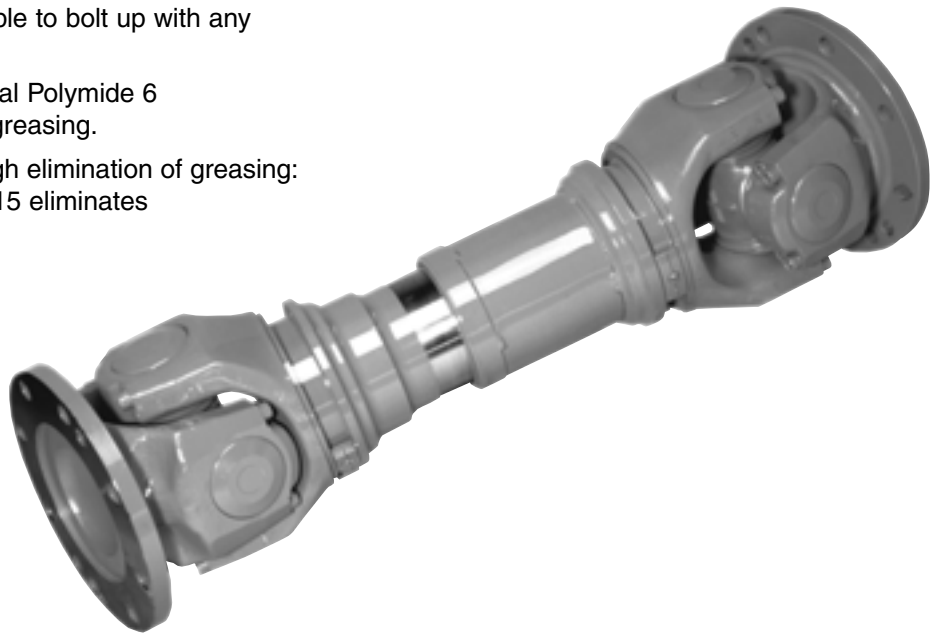
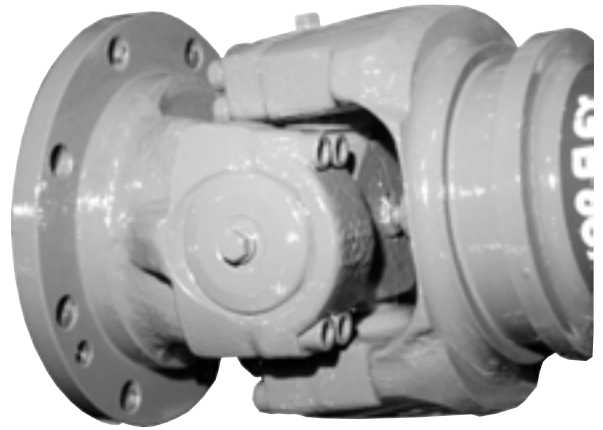
Other applications

- Conveyors
- Crushers
- Marine Propulsion Drive
- Pumps: Sewage, Water Treatment, Process Pumps
- Lumber
- Large Mobile Equipment, Such as Mine Trucks



KOP-FLEX flanged universal joints offer unique features that are not widely available in the market - all designed to increase life and reduce your maintenance cost. KOP-FLEX offers a full range of couplings, spindles, power transmission products, and now flanged universal joints. KOP-FLEX offers the broadest line of coupling products with unmatched technical assistance and service. The following are the highlights of the features our flanged universal joints offer:

- Available from stock, custom-assembled per order, with shipments within 24 hours to five weeks depending on application and need.
- Most major components are interchangeable with components commonly available in the market.
- Industry standard flanges available to bolt up with any competitive yoke style flanges.
- All splines are treated with special Polyamide 6 coating for long life and reduce greasing.
- Maintenance cost savings through elimination of greasing: standard telescopic up to size 215 eliminates greasing of splines in the field.
- For ease of lubrication and access: grease lube fittings on individual caps on sizes 215 and larger.
- Only North American manufacturer to offer full range of universal joints available in the market - sizes range from 58 mm (2.3 inches) to 1200 mm (47 inches) swing diameter.
- Technical sales and engineering supported plants in U.S. and Canada.
- State of the art repair facilities in U.S. and Canada.
- **A single source for all of your shaft coupling, spindle and universal joint needs - KOP-FLEX® Brand Couplings.**



Visit www.kopflex.com

Types of Universal Joints and Terminology

KOP-FLEX offers flanged as well as MAXXUS block style universal joints, both widely used in the industry. The flanged (or “yoke”) style is more commonly known, while the MAXXUS block style has some unique features most suitable for certain applications. KOP-FLEX offers both.

Three different styles of universal joints are available in the market today. Solid (closed) eye, split eye, and block type as shown below. KOP-FLEX offers solid eye type in the ULS and ULD series, and split eye in UMD and UMK series, whereas the MAXXUS is our block style.

FIGURE 1 SOLID EYE DESIGN

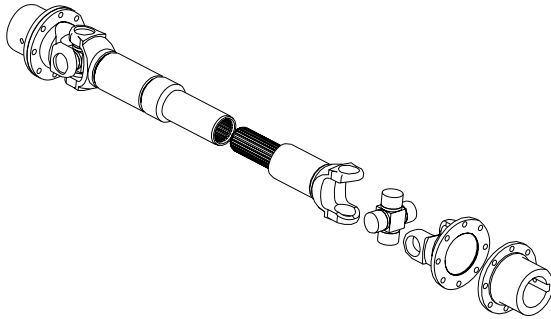


FIGURE 2 SPLIT EYE DESIGN

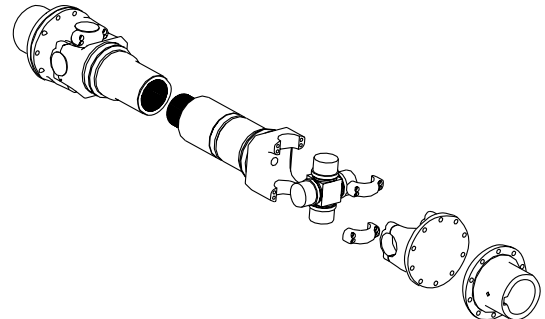
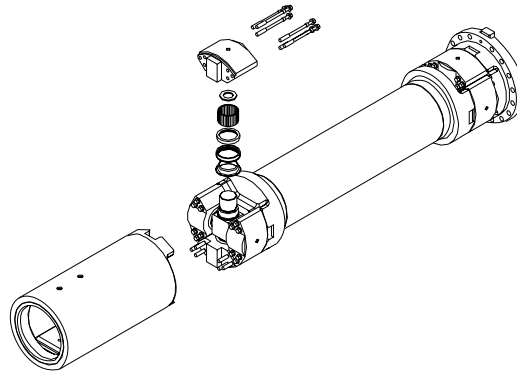
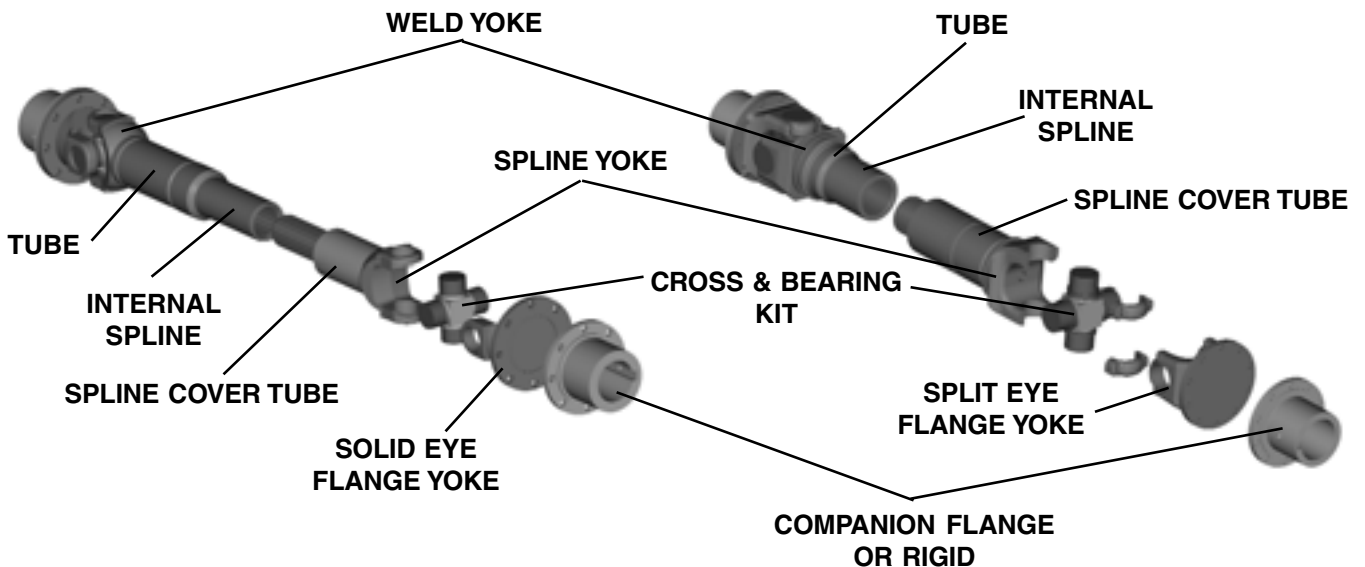


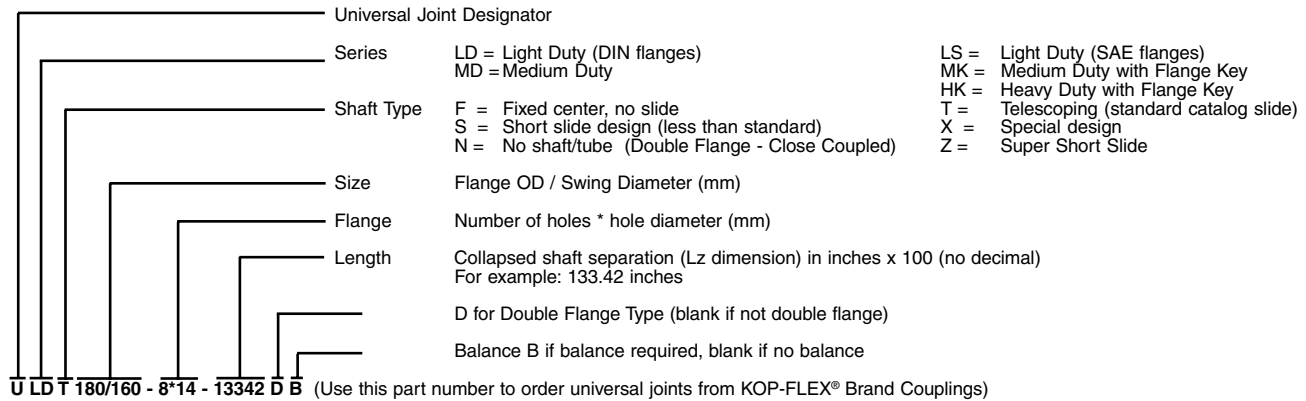
FIGURE 3 BLOCK STYLE DESIGN



FLANGED UNIVERSAL JOINT TERMINOLOGY



Flanged Universal Joint Part Number:



Interchange Chart

Supplier Series/Size	KOP-FLEX® Brand FLANGE ONLY INTERCHANGEABLE	KOP-FLEX® Brand REPLACEMENT CROSS& BEARING ONLY INTERCHANGEABLE	KOP-FLEX® Brand FLANGE & BEARING INTERCHANGEABLE
LIGHT SERIES SAE FLANGE			
SPICER* 128/131	ULS100/98		
SPICER* 135/137/141	ULS116/115		
SPICER* 148/155	ULS150/125		
SPICER* 161	ULS174/155		
SPICER* 171	USL203/160		
SPICER* 181	ULS203/170		
SPICER*188	ULS245/178		
LIGHT SERIES			
GWB* 473.10	ULDT58/60-4*5		
GWB* 473.20	ULDT65/60-4*6	ULCBK62	
GWB* 473.30	ULDT75/90-6*6		
GWB* 287.00	ULDT90/90-4*8	ULCBK88	
GWB* 287.10	ULDT100/98-6*8	ULCBK97	
GWB* 287.20	ULDT120/115-8*10	ULCBK115	ULDT120/115-8*10
GWB* 587.10	ULDT120/115-8*10	ULCBK115	ULDT120/115-8*10
	ULDT150/115-8*12		ULDT150/115-8*12
GWB* 587.15	ULDT120/125-8*10	ULCBK125	ULDT120/125-8*10
	ULDT150/125-8*12		ULDT150/125-8*12
GWB* 587.20	ULDT150/155-8*12	ULCBK138	
	ULDT180/155-8*14		
GWB* 587.30	ULDT150/160-8*12	ULCBK160	ULDT150/160-8*12
	ULDT180/160-8*14		ULDT180/160-8*14
GWB* 587.35	ULDT180/170-8*14	ULCBK170	ULDT180/170-8*14
	ULDT225/170-8*16		ULDT225/170-8*16
GWB* 587.42	ULDT180/178-10*16	ULCBK178	ULDT180/178-10*16
	ULDT225/178-8*16		ULDT225/178-8*16
GWB* 587.48	ULDT180/204-10*16	ULCBK204	ULDT180/204-10*16
	ULDT225/204-8*16		ULDT225/204-8*16
GWB* 587.50	ULDT225/215-8*16	ULCBK215	ULDT225/215-8*16
	ULDT250/215-8*18		ULDT250/215-8*18
GWB* 587.55	ULDT285/250-8*20	ULCBK250	
GWB* 587.60	ULDT285/265-8*20	ULCBK265	
GWB* 687.15	ULDT100/98-6*8	ULCBK90-1	
GWB* 687.20	ULDT120/115-8*10		
GWB* 687.25	ULDT120/125-8*10		
GWB* 687.30	ULDT120/125-8*10	ULCBK127	
	ULDT150/125-8*12		
GWB* 687.35	ULDT150/155-8*12	ULCBK144	
	ULDT180/155-8*14		
GWB* 687.40	ULDT150/160-8*12	ULCBK160-1	
	ULDT180/160-8*14		
GWB* 687.45	ULDT225/174-8*16	ULCBK174	ULDT225/174-8*16
GWB* 687.55	ULDT180/178-10*16	ULCBK178	ULDT180/178-10*16
	ULDT225/178-8*16		ULDT225/178-8*16
GWB* 687.65	ULDT180/204-10*16	ULCBK204	ULDT180/204-10*16
	ULDT225/204-8*16		ULDT225/204-8*16
MEDIUM/HEAVY SERIES			
GWB* 190.50	UMDT225/204-8*16	UMCBK225-1	
GWB* 190.55	ULDT250/215-8*18	UMCBK250-1	
GWB* 190.60	UMDT285/250-8*20	UMCBK285-1	
GWB* 190.65	UMDT315/285-8*22	UMCBK315-1	
GWB* 190.70	UMDT350/285-10*22	UMCBK350-1	
GWB* 390.60	UMDT285/250-8*20	UMCBK240	
GWB* 390.65	UMDT315/285-8*22	UMCBK265	
GWB* 390.70	UMDT350/315-10*22	UMCBK300	
GWB* 292.50/392.50	UMKT225/225-8*16	UMCBK225	UMKT225/225-8*16
GWB* 292.55/392.55	UMKT250/250-8*18	UMCBK250	UMKT250/250-8*18
GWB* 292.60/392.60	UMKT285/285-8*20	UMCBK285	UMKT285/285-8*20
GWB* 292.65/392.65	UMKT315/315-10*22	UMCBK315	UMKT315/315-10*22
GWB* 292.70/392.70	UMKT350/350-10*22	UMCBK350	UMKT350/350-10*22
GWB* 292.75/392.75	UHKT390/390-10*25		
GWB* 292.80/392.80	UHKT440/440-16*28		
GWB* 292.85/392.85	UHKT490/490-16*31		
GWB* 292.90/392.90	UHKT550/550-16*31		

*GWB and *SPICER are trademarks of Dana Corporation. These trade names, trademarks and/or registered trademarks of others are used herein for product comparison purposes only, are the property of their respective owners and are not owned or controlled by Emerson Power Transmission Corporation (EPT). EPT does not represent or warrant the accuracy of this document.

Selection of universal joints is different from other types of coupling products like gear or disc couplings. Universal joints require additional steps, such as bearing life calculations that are not a requirement for other coupling products.

For selection provide: power (HP), speed and application.

The following series of calculations will help you choose the right universal joint, but it is a preliminary guide. Please take advantage of our expertise throughout the selection process and confirm all selections with us. Use the step by step approach illustrated below.

1. Calculate application (operating) torque (T_A)
 $T_A = (HP \times 63025) / \text{Speed (rpm)}$ for lb-in.
2. Determine peak torque of the application (T_p)
3. Determine the suggested selection factor (SF) required from the table at the right.
4. Compare application torque (T_A) with the driveshaft torque capacities listed on pages 270 through 282, depending on application torque. Torque capacity listed in the catalog must exceed application torque with selection factor as shown here.

Endurance Limit Check - Non Reversing Application

$T_N > T_A \times SF$ (Non-Reversing Endurance Torque must be greater than Application Torque times Selection Factor).

Endurance Limit Check - Fully Reversing Application

$T_R > T_A \times SF$ (Non-Reversing Endurance Torque must be greater than Application Torque times Selection Factor).

Yield Limit Check

$T_Y > T_p \times 1.25$ (Peak or Yield Torque must be greater than Peak Torque of the application times 1.25)

It is important to understand key considerations in selecting universal joints. Following is an education or guide on key universal joint design and selection criterion.

Torque Ratings

There are three types of torque limits that are commonly referred to in the industry. See catalog pages for 270 through 282 for the following torque limits or capacities.

Non-Reversing Endurance Torque Limit (T_N) is the normal torque limit for one way torque based on the endurance limit of the weak link (the torque transmitting part that has the lowest factor of safety) of the driveshaft.

Reversing Endurance Torque Limit (T_R) is the normal limit for fully reversing torque based on the endurance limit of the weak link of the driveshaft.

Peak Torque Limit (T_Y) is the maximum limit torque based on the yield limit of the weak link of the driveshaft.

Bearing Life (B_{10})

B_{10} (defined in hours) is defined as the life expectancy for a 90% probability of survival of the bearing. This is based on empirical data, typically the average actual operating life of the bearings is five times the calculated B_{10} life.

Suggested Service Factor (SF)

APPLICATION	SF
General Purpose	
Agitators	1
Blowers	1
Compressors	1.25
Conveyers	1.25
Cranes	2
Generators	1
Large Fans	2
Mixers	2
Pumps (Centrifugal)	1
Pumps (Reciprocating)	2
Paper	
Calander/Press Roll Drives	2
Others	1.5
Printing Machines	1.5
Suction/Couch Drives	1.75
Special Applications	
Balance Machines	1
Car Chrusers/shredders	5
Farming Equipment	1.5
Locomotive	2.5
Machine Tools	1.25
Marine Transmission	2.5
Melt Pumps***	1.5
Mining Equipment	2
Woodworking Equipment	1.25
Steel Mills	
Auxiliary Equipment	
Coilers	1.5
Coilers Hot	2
Continuous Roller Tables	2
Continuous Casters	2
Levelers	1.5
Levelling Rolls	2
Pickle lines	1.5
Pinch Rolls	1.5
Reversing Roller Tables	3
Straighteners	3
Tinning Lines	1.5
Transport Rolls	2
Rolling Mills	
Cold Mills (non-reversing)	2
Cold Mills (reversing)	3
Light Section Mills	1.75
Medium Bar & Rod	1.75
Medium Section Mills (Finishing Stands)	1.75
Medium Section Mills (Roughing Stands)	2
Small Bar & Rod	1.5
Small Tube Mills	2
Tube Mills	2.5
Wire	1.5

KOP-FLEX uses specialized computer programs that will select universal joints custom-designed to suit your application.



Visit www.kopflex.com

U-Joint Selection Consideration

Bearing Life (B₁₀ or L_n) calculation

A. For constant speed and operating angle conditions.

$$L_h = \frac{1.5 \times 10^6}{a \times N} \left[\frac{L_f}{T_A} \right]^{\frac{10}{3}}$$

L_h = Bearing (B₁₀) Life (hours)
 a = Operating angle (degree)
 N = Maximum operating speed (RPM)
 L_f = Life Factor (See chart)
 T_A = Application Torque (lb-in)

B. Duty Cycle B₁₀ calculation. (usually mill type applications)

In applications where the torque, speed, and operating angle occur predictably during a operating load cycle. For these applications the B-10 life should be based on this duty cycle.

$$L_E = \frac{1}{\frac{N_1}{L_1} + \frac{N_2}{L_2} + \frac{N_3}{L_3} + \dots} + \dots$$

L_E = Cumulative B₁₀ life for the Duty cycle (hours)

L₁ = Life expectancy at operating condition 1 and so on for L₂, L₃,... (hours)

N₁ = Speed for condition 1 (rpm) and so on for N₂, N₃,... (rpm)

If the duty cycle is not known, the normal expected B₁₀ life will be calculated assuming the following duty cycle:

Face Key Selection

Face Keys should used on the medium-duty series where high cyclic loads or reversing loads may be seen, such as for feed roll drives, runout tables, and main mill drives.

Telescoping splines (slip sections) Splines are required to accommodate length change due to angular misalignment/parallel offset of the driveshaft, unless one of the universal joint rigid (or companion flange) has a clearance fit on the connected equipment. A clearance fit allows the rigid to "pull out" or slide under misalignment. The amount of pull out can be calculated by multiplying the centerline to centerline (Length from Face to Face {L} - 2 x M) by one minus the cosine of the operating angle.

$$P = (L - 2 \times M) \times (1 - \cos(a))$$

P = Pull Out or Slide Required (inches)

L = Length of Driveshaft Flange to Flange or distance between shaft ends (inches)

M = Distance from Flange Face to center of bearing (see tabulation on pages 270 through 282)

a = Misalignment (degrees)

Axial Force from Telescoping Spline. Sliding splines under torque results in a axial forces (F_A) that is reacted back into the equipment. These forces are a function of the spline coefficient of friction, torque, operating angle, and the pitch diameter of the spline.

$$F_A = \frac{2T_u(\cos a)}{PD} = \text{lbs}$$

u = Coefficient of Friction

a = Operating angle

PD = Pitch diameter of Spline = Approximately 0.8 x Tube OD (dimension "S" on pages 270 through 282).

L_f (Bearing Life Factor)

SIZE/PART NUMBER	L _f (lb-in.)
LIGHT SERIES	
ULCBK60	2,250
ULCBK90	7,850
ULDCBK98	12,800
ULCBK115	18,000
ULCBK125	27,700
ULCBK155	41,150
ULCBK160	53,500
ULCBK170	69,600
ULCBK174	70,000
ULCBK178	75,000
ULCBK204	113,500
ULCBK215	145,000
ULCBK250	200,000
ULCBK265	315,000
MEDIUM SERIES	
UMCBK225	208,000
UMCBK250	265,000
UMCBK285	434,000
UMCBK315	648,000
UMCBK350	910,000

Balancing Requirements

All driveshafts supplied that operate over 500 RPM are supplied balanced to 120W/N oz-in/plane.

Where W is weight in pounds per plane
 N = Maximum operating speed

For driveshafts that operate over 1800 RPM consult KOP-FLEX for balancing requirements.

Torque (Lb-in)	Speed (rpm)	Expected (% of time)
Maximum	Minimum	33.3%
Average	Average	33.3%
Minimum	Maximum	33.3%

Lateral Critical Speed

The operating speed of universal joint should never exceed the lateral (whirling) speed. At lateral critical speed the universal joint goes through high level of vibration and could result in failure and damage to the surrounding equipment. It is critical to check lateral critical speed specially on high speed applications. The maximum operating speed should not exceed the lateral (whirling) speed. To calculate the maximum safe operating speed use the following equations.

$$N_M = N_C / 1.5$$

$$N_C = \frac{4,000,000}{L^2} \sqrt{OD^2 + ID^2}$$

N_M = Maximum Safe Operating Speed (revolutions per minute - rpm)

N_C = Tube lateral critical speed (rpm)

L = Length of the driveshaft from flange face to flange face or distance between shaft ends (in.)

OD = Tube OD (see dimension "S" charts on pages 270 through 282) (in.)

ID = Tube ID = S-2T (see dimensions "S" & "T" charts on pages 270 through 282) (in.)

With all the above given factors and considerations as background information, the following section is a guide on actual selection procedure of the driveshaft based on the data provided on pages 270 through 282 of this catalog.

There are other conditions that can determine the size of a driveshaft (Contact KOP-FLEX).

- Operating temperature (>120° F)
- OD restriction (larger than on page 270 through 282)
- Bore Size (larger than on page 283)
- Restriction on reactionary loads back into equipment

Example for selection procedure:

Assuming operating conditions: Cold Mill (one way) with motor 1650 HP at 175 RPM. Assuming a 50-50 split in torque. Maximum operating angle 3.5 degrees, allowable 12" maximum OD, 96" Flange to Flange (Lz), with 8" Bore, required service factor of two (from table on page 268), Peak Torque is 2.25 x continuous operating torque and required B10 Life of 5000 hours minimum.

Steps:

- T_A = 1650 x 63025 x 0.5 / 175 = 297,118 lb-in.
- T_P = 297,118 x 2.25 = 668,518
- SF = 2
- Selection of: UMK-285/285
- 4A. T_N = 619,500 lb-in > 297,118 x 2 (T_A x SF) = 594,236 lb-in.
- 4B. T_V = 867,000 lb-in > 668,518 x 1.25 (T_P x 1.25) = 835,647 lb-in.

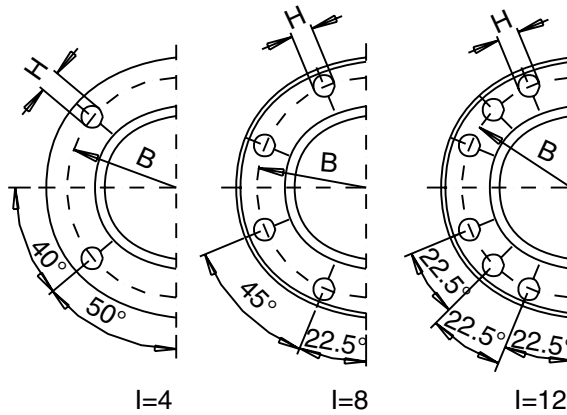
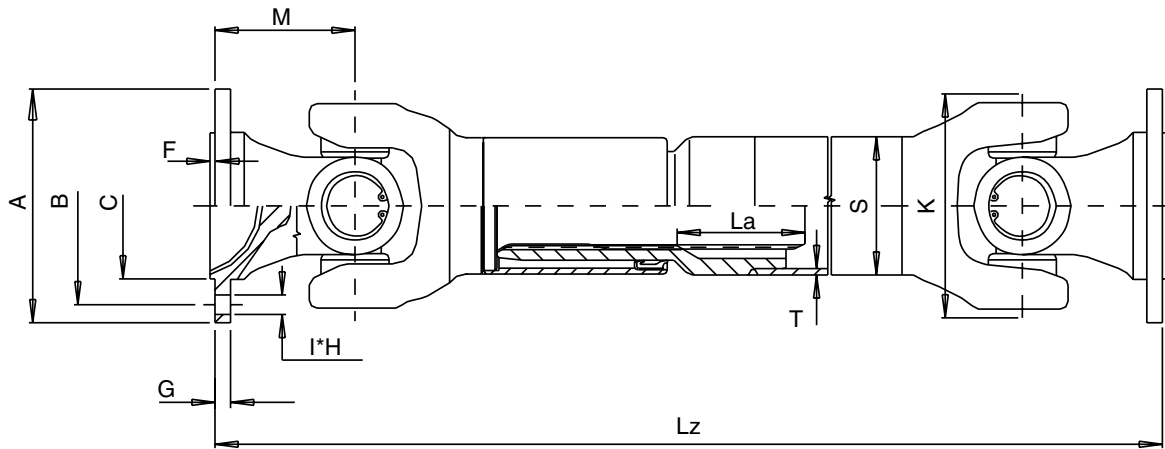
Other Considerations

B₁₀ Life @ 3.5 degrees is 5649 hours

The drive shaft does not need to be balanced

Safe operating speed based for critical speed (N_c) is 3933 vs 175 RPM

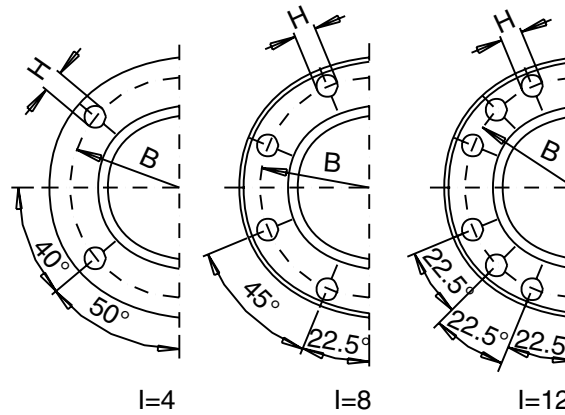
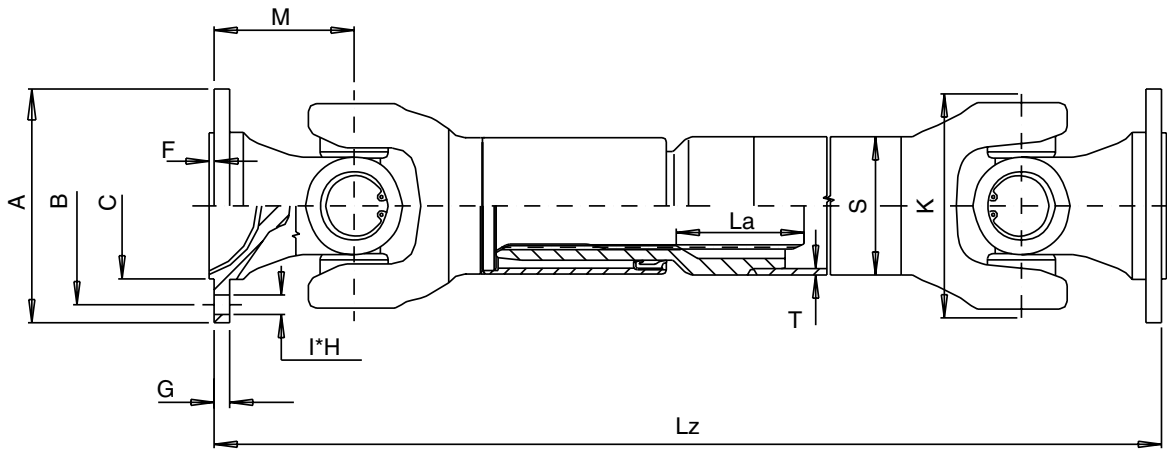
Main mill application therefore should have face Keys



Imperial (inch) Dimensions

Size	Non-Reversing Endurance Torque (T _N)	Reversing Endurance Torque (T _R)	Peak Torque (T _P)	Max Angle	K	A	Lz Min.	La	S	T	I * H	B	G	C	F	M
	(lb-in.)	(lb-in.)	(lb-in.)	(Degree)	(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	H (mm)	(in.)	(in.)	(in.)	(in.)	(in.)
ULS90/90-4*8	4,248	2,832	9,735	30	3.54	3.54	14.96	1.97	1.97	0.08	4*31	2.75	0.24	2.25	0.08	1.85
ULS97/90-4*10				20		3.82	14.41				4*38	3.13		2.37		1.57
ULS90/98-4*8	13,275	8,850	21,240	20	3.86	3.54	17.32	4.33	2.36	0.12	4*31	2.75	0.24	2.25	0.08	1.89
ULS97/98-4*10				35		3.82	18.11				4*38	3.13		0.26		2.37
ULS116/98-4*11	17,258	11,505	37,170	20	4.53	4.57	17.32	4.33	2.76	0.12	4*44	3.75	0.31	2.75	0.08	1.89
ULS116/115-4*12				35		4.57	20.47				4*44	3.75		0.31		2.75
ULS150/115-4*14	22,568	15,045	54,870	20	4.92	5.91	19.37	4.33	3.15	0.14	4*50	4.75	0.39	3.75	0.08	3.15
ULS150/125-4*14				35		5.91	22.24				4*50	4.75		3.75		3.15
ULS175/125-8*10	38,498	25,665	77,880	30	6.10	6.87	25.20	4.33	3.94	0.12	8*38	6.12	0.47	6.62	0.12	3.54
ULS175/155-8*10				6.87		25.20					8*38	6.12		0.47		6.62
ULS203/155-8*10	53,100	35,400	101,775	35	6.30	8.00	25.59	4.33	3.62	0.26	8*38	7.25	0.43	7.75	0.12	3.74
ULS203/155-12*10				8.00		25.59	8*38				7.25	0.43		7.75		3.74
ULS203/160-8*10	67,703	45,135	150,450	25	6.85	8.00	23.62	4.33	4.72	0.16	12*44	7.25	0.45	7.75	0.12	3.74
ULS203/160-8*10				6.87		23.62	12*44				7.25	0.45		7.75		3.74
ULS203/160-12*11	67,703	45,135	185,850	33	7.01	8.00	27.56	4.33	4.09	0.31	12*44	7.25	0.45	7.75	0.12	3.94
ULS203/174-12*11				6.69		27.56	12*44				7.25	0.45		7.75		3.94
ULS203/178-12*10	86,288	57,525	221,250	25	7.01	8.00	27.56	4.33	4.39	0.27	12*38	7.25	0.45	7.75	0.12	3.94
ULS203/178-12*11				6.69		27.56	12*44				7.25	0.45		7.75		3.94
ULS245/178-8*16	119,475	79,650	247,800	25	8.03	9.63	27.36	4.33	5.67	0.28	8*62	8.25	0.59	7.00	0.13	4.33
ULS245/204-8*16				9.63		27.36	8*62				8.25	0.59		7.00		4.33
ULS245/215-8*16	172,575	115,050	292,050	24	8.46	9.63	28.94	4.33	5.67	0.28	8*62	8.25	0.71	7.00	0.13	4.25
ULS245/250-8*16				9.63		28.94	8*62				8.25	0.71		7.00		4.25
ULS245/250-8*16	238,950	159,300	354,000	20	9.84	9.63	33.86	4.33	6.38	0.39	8*62	8.25	0.71	7.00	0.13	4.92

Notes:
For high speed applications or special requirements, consult KOP-FLEX.

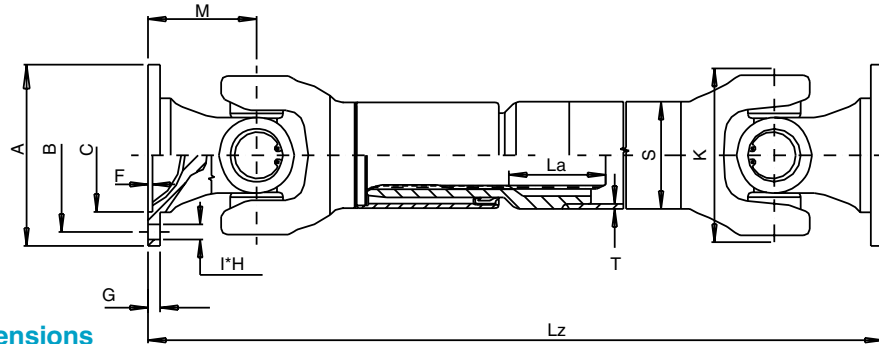


Metric Dimensions

Size	Non-Reversing Endurance Torque (T _N)	Reversing Endurance Torque (T _R)	Peak Torque (T _v)	Max Angle	K	A	Lz Min.	La	S	T	I*H	B	G	C	F	M
	(N-m)	(N-m)	(N-m)	(Degree)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
ULS90/90-4*8	480	320	1,100	30	90	90	380	50	50	2	4*31	69.9	6	57.15	2	47
ULS97/90-4*10				97		366	4*38				79.4	60.32		40		
ULS90/98-4*8	1,500	1,000	2,400	20	98	90	440	110	60	3	4*31	69.9	6	57.15	2	48
ULS97/98-4*10				97		460	4*38				79.4	6.5		60.32		58
ULS116/98-4*11	1,950	1,300	4,200	20	115	116	440	110	70	3	4*44	95.25	8	69.85	2	48
ULS116/115-4*12				97		460	4*44				95.25	7		69.85		70
ULS150/115-4*14	2,550	1,700	6,200	35	125	150	565	110	80	3.5	4*50	120.65	10	95.25	2	80
ULS150/125-4*14				116		440	4*44				95.25	7		69.85		48
ULS175/125-8*10	4,350	2,900	8,800	35	155	174.6	640	110	100	3	8*38	155.52	12	168.23	3	90
ULS175/155-8*10				203.2		650	8*38				155.52	11		196.82		95
ULS203/155-8*10	6,000	4,000	11,500	35	160	203.2	670	110	92	6.5	8*38	184.15	11	196.82	3	95
ULS203/155-12*10				174.6		640	8*38				155.52	10		168.23		90
ULS175/160-8*10	7,650	5,100	17,000	25	174	203.2	600	110	120	4	12*44	184.15	11.5	196.82	3	95
ULS203/160-8*10				203.2		670	8*38				184.15	11		196.82		95
ULS203/160-12*11	9,750	6,500	25,000	33	178	203.2	700	110	112	6.75	12*44	184.15	11.5	196.82	3	100
ULS203/178-12*10				12*38		184.15	11				196.82	95				
ULS203/178-12*11	13,500	9,000	28,000	25	204	244.5	695	110	144	7	8*62	209.55	15	177.8	3.4	110
ULS245/178-8*16				244.5		735	8*62				209.55	18		177.8		108
ULS245/204-8*16	19,500	13,000	33,000	24	215	244.5	735	110	144	7	8*62	209.55	18	177.8	3.4	108
ULS245/215-8*16				244.5		860	8*62				209.55	18		177.8		125
ULS245/250-8*16	27,000	18,000	40,000	20	250	244.5	860	110	162	9.85	8*62	209.55	18	177.8	3.4	125

Notes:
For high speed applications or special requirements, consult KOP-FLEX.

ULDT (Light Duty) Standard Telescope Series



Imperial (inch) Dimensions

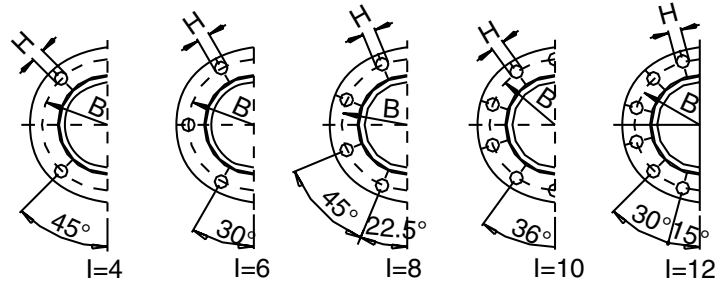
Size	Non-Reversing Endurance Torque (T _N) (lb-in)	Reversing Endurance Torque (T _R) (lb-in)	Peak Torque (T _P) (lb-in)	Max. Angle (deg)	K (in)	A (in)	Lz Min. (in)	La (in)	S (in)	T (in)	I * H (in)	B (in)	G (in)	C (in)	F (in)	M (in)					
ULDT58/60-4*5	1,328	885	3,098	25	2.36	2.28	10.83	0.98	1.18	0.10	4*5	1.85	0.18	1.18	0.08	1.26					
ULDT65/60-4*6						2.56					4*6	2.05		1.38							
ULDT75/90-6*6	4,248	2,832	9,735	30	3.54	2.95	14.96	1.97	1.97	0.08	6*6	2.44	0.20	1.65	0.08	1.85					
ULDT90/90-4*8						3.54					4*8	2.93		0.24			1.85				
ULDT90/90-6*8						3.94	6*8	3.31	0.26	2.24	0.12	1.57									
ULDT100/90-6*8						3.54	4*8	2.93	1.85	1.89											
ULDT90/98-4*8	13,275	8,850	21,240	35	3.86	3.94	18.11	4.33	2.36	0.12	6*8	3.31	0.26	2.24	0.12	2.28					
ULDT100/98-6*8						3.54					4*8	2.93		1.85							
ULDT100/98-8*8						4.72	8*8	4.00	0.28	2.95	1.89										
ULDT120/98-8*8						4.72	8*10	4.00	0.28	2.95	1.89										
ULDT120/98-8*10						4.72	6*8	3.31	0.31	2.24	2.56										
ULDT100/115-6*8						3.94	6*10	3.31	0.31	2.24											
ULDT100/115-6*10	17,258	11,505	37,170	25	4.53	4.72	20.08	4.33	2.76	0.12	8*10	4.00	0.31	2.95	0.12	2.76					
ULDT100/115-8*10						5.91					8*10			5.12		0.39	3.54	2.20			
ULDT120/115-8*10						4.72	8*12	5.12	0.39	3.54	2.95										
ULDT150/115-8*10						4.72	8*10	4.00	0.31	2.95		2.95									
ULDT150/125-8*10	22,568	15,045	54,870	35	4.92	5.91	22.24	4.33	3.15	0.14	8*10	5.12	0.39	3.54	0.12	3.15					
ULDT150/125-8*12						6.50					8*12	5.12		0.39			3.54				
ULDT165/125-8*14						7.09	8*14	5.51	0.47	3.74	3.15										
ULDT180/125-8*14						7.09	8*14	6.12	0.47	4.33											
ULDT150/155-8*10						38,498	25,665	77,880	35	6.10	5.91	25.20	4.33	3.94	0.12	8*10	5.12	0.39	3.54	0.12	3.54
ULDT150/155-8*12											6.50					8*12	5.51		0.47		
ULDT150/155-8*14	7.09	8*14	6.12	0.47	4.33						3.54										
ULDT165/155-8*14	7.09	8*14	6.12	0.47	4.33																
ULDT180/155-8*14	7.09	8*14	6.12	0.47	4.33						3.54										
ULDT150/160-8*12	5.91	8*12	5.12	0.47	3.74							3.74									
ULDT165/160-8*14	6.50	8*14	5.51	0.47	3.74																
ULDT180/160-8*12	7.09	8*12	6.12	0.47	4.33						3.74										
ULDT180/160-8*14	7.09	8*14	6.12	0.47	4.33																
ULDT180/160-8*16	7.09	8*16	6.12	0.47	4.33	3.74															
ULDT180/160-10*16	7.09	10*16	6.12	0.47	4.33																
ULDT225/174-8*16	67,703	45,135	150,450	25	6.85	8.86	23.62	4.33	4.72	0.16	8*16	7.72	0.59	5.51	0.20	3.74					
ULDT180/170-8*14	67,703	45,135	185,850	33	6.69	7.09	27.56	4.33	4.09	0.31	8*14	6.12	0.47	4.33	0.12	3.94					
ULDT180/170-8*16						8.86					8*16			7.72			0.59	5.51	0.20		
ULDT180/170-10*16						8.86	10*16	7.72	0.59	5.51	0.20										
ULDT225/170-8*16						8.86	8*16	7.72	0.59	5.51	0.20										
ULDT180/178-8*16	86,288	57,525	221,250	33	7.01	7.09	27.56	4.33	4.39	0.27	8*16	6.12	0.59	4.33	0.12	3.94					
ULDT180/178-10*16						8.66					10*16			7.72			0.59	5.51	0.20		
ULDT225/178-8*14						8.86	8*14	7.72	0.59	5.51	0.20										
ULDT225/178-8*16						8.86	8*16	7.72	0.59	5.51	0.20										
ULDT225/178-10*16						8.86	10*16	7.72	0.59	5.51	0.20										
ULDT250/178-8*18						8.86	8*18	8.58	0.71	6.89	0.28										
ULDT180/204-8*16	119,475	79,650	247,800	25	8.03	7.09	27.36	4.33	5.67	0.28	8*16	6.12	0.59	4.33	0.12	4.33					
ULDT180/204-10*16						8.86					10*16			7.72			0.59	5.51	0.20		
ULDT225/204-8*16						9.84	8*16	7.72	0.59	5.51	0.20										
ULDT250/204-8*18						9.84	8*18	8.58	0.71	6.89	0.28										
ULDT225/215-8*16	172,575	115,050	292,050	24	8.46	8.86	28.94	4.33	5.67	0.28	8*16	7.72	0.59	5.51	0.20	4.25					
ULDT250/215-8*18						9.84					8*18			8.58			0.71	6.89	0.28		
ULDT285/215-8*20						11.22	8*20	9.65	0.79	6.89	0.28										
ULDT250/250-8*18						9.84	8*18	8.58	0.71	6.89	0.28										
ULDT285/250-8*20	11.22	8*20	9.65	0.79	6.89	0.28															
ULDT285/265-8*20	305,325	203,550	486,750	20	10.43	11.22	35.43	4.33	6.38	0.39	8*20	9.65	0.79	6.89	0.28	5.31					

Notes:

For high speed applications or special requirements, consult KOP-FLEX.

Standard offering when flange is not specified.

ULDT (Light Duty) Standard Telescope Series



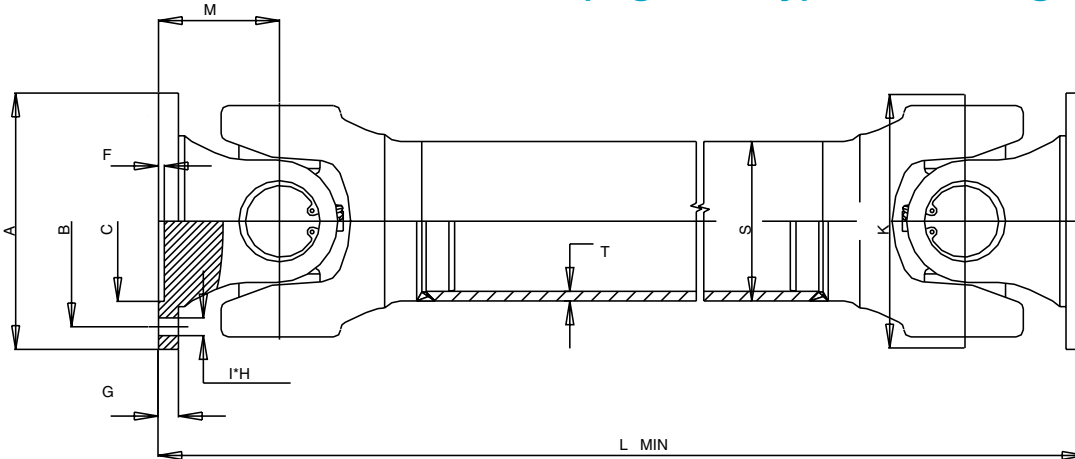
Metric Dimensions

Size	Non-Reversing Endurance Torque (T _N)	Reversing Endurance Torque (T _R)	Peak Torque (T _P)	Max. Angle	K	A	Lz Min.	La	S	T	I * H	B	G	C	F	M		
	(N-m)	(N-m)	(N-m)	(deg)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	H (mm)	(mm)	(mm)	(mm)	(mm)	(mm)		
ULDT58/60-4*5	150	100	350	25	60	58	275	25	30	2.5	4*5	47	4.5	30	2	32		
ULDT65/60-4*6						65					52	35						
ULDT75/90-6*6						75					62	42						
ULDT90/90-4*8	480	320	1,100	30	90	90	380	50	50	2	4*8	74.5	6	47	3	47		
ULDT90/90-6*8						6*8					57							
ULDT100/90-6*8						6*8					84			6.5			57	
ULDT90/98-4*8	1,500	1,000	2,400	20	98	90	440	110	60	3	4*8	74.5	6.5	47	3	58		
ULDT100/98-6*8						6*8					57							
ULDT100/98-8*8						8*8					84			6.5			57	
ULDT120/98-8*8	1,950	1,300	4,200	20	115	120	440	110	70	3	8*8	101.5	7	75	3	48		
ULDT120/98-8*10						8*10					57							
ULDT100/115-6*8						6*8					84			8			57	
ULDT100/115-6*10	2,550	1,700	6,200	25	125	100	510	110	80	3.5	6*10	84	8	57	3	65		
ULDT100/115-8*10						8*10					57							
ULDT120/115-8*8						8*8					101.5			7.5			70	
ULDT120/115-8*10	2,550	1,700	6,200	35	125	150	492	110	80	3.5	8*10	130	10	90	3	56		
ULDT150/115-8*10						8*10					57							
ULDT150/115-8*12						8*12					101.5			8			75	
ULDT120/125-8*10	4,350	2,900	8,800	20	155	120	555	110	80	3.5	8*10	101.5	8	75	3	75		
ULDT150/125-8*10						8*10					57							
ULDT150/125-8*12						8*12					130			10			90	
ULDT165/125-8*14	6,000	4,000	11,500	30	160	165	565	110	80	3.5	8*14	140	12	95	3	80		
ULDT180/125-8*14						8*14					155.5			110				
ULDT150/155-8*10						8*10					101.5			8			75	
ULDT150/155-8*12	7,650	5,100	17,000	35	155	150	640	110	100	3	8*10	130	10	90	3	90		
ULDT150/155-8*14						8*14					155.5			110				
ULDT165/155-8*14						8*14					140			12			95	
ULDT165/155-8*16	7,650	5,100	21,000	35	160	165	670	110	92	6.5	8*16	140	12	90	3	95		
ULDT180/155-8*12						8*12					130			10			90	
ULDT180/155-8*14						8*14					155.5			10			110	
ULDT150/160-8*12	9,750	6,500	25,000	150	174	150	670	110	92	6.5	8*12	130	12	90	3	95		
ULDT165/160-8*14						8*14					140			12			95	
ULDT165/160-8*16						8*16					155.5			10			110	
ULDT180/160-8*12	7,650	5,100	21,000	35	160	180	670	110	92	6.5	8*16	140	12	90	3	95		
ULDT180/160-8*14						8*14					155.5			10			110	
ULDT180/160-8*16						8*16					155.5			10			110	
ULDT180/160-10*16	9,750	6,500	25,000	25	174	225	600	110	120	4	8*16	196	15	140	5	95		
ULDT225/174-8*16						8*16					155.5			12			110	3
ULDT180/170-8*14						8*14					155.5			14			110	3
ULDT180/170-8*16	7,650	5,100	21,000	33	170	180	700	110	104	8	8*16	196	15	140	5	100		
ULDT225/170-8*16						8*16					155.5			12			110	3
ULDT225/170-10*16						10*16					196			15			140	5
ULDT180/178-8*16	9,750	6,500	25,000	33	178	225	700	110	112	6.75	8*16	196	15	140	5	100		
ULDT180/178-10*16						10*16					196			15			140	5
ULDT225/178-8*14						8*14					155.5			14			110	3
ULDT225/178-8*16	13,500	9,000	28,000	20	204	220	700	110	112	6.75	8*16	196	15	140	5	100		
ULDT225/178-10*16						10*16					196			15			140	5
ULDT250/178-8*18						8*18					218			18			140	6
ULDT180/204-8*16	19,500	13,000	33,000	25	215	180	695	110	144	7	8*16	196	15	110	3	110		
ULDT180/204-10*16						10*16					196			15			140	5
ULDT225/204-8*16						8*16					196			15			140	5
ULDT250/204-8*18	27,000	18,000	40,000	20	250	225	735	110	144	7	8*18	218	18	140	6	108		
ULDT225/215-8*16						8*16					196			15			140	5
ULDT250/215-8*18						8*18					218			18			140	6
ULDT285/215-8*20	27,000	18,000	40,000	20	250	285	860	110	162	9.85	8*20	245	20	175	7	125		
ULDT250/250-8*18						8*18					196			15			140	5
ULDT285/250-8*20						8*20					245			20			175	7
ULDT285/265-8*20	34,500	23,000	55,000	20	265	285	900	110	162	9.85	8*20	245	20	175	7	135		

Notes:

For high speed applications or special requirements, consult KOP-FLEX.

Standard offering when flange is not specified.



Imperial (inch) Dimensions

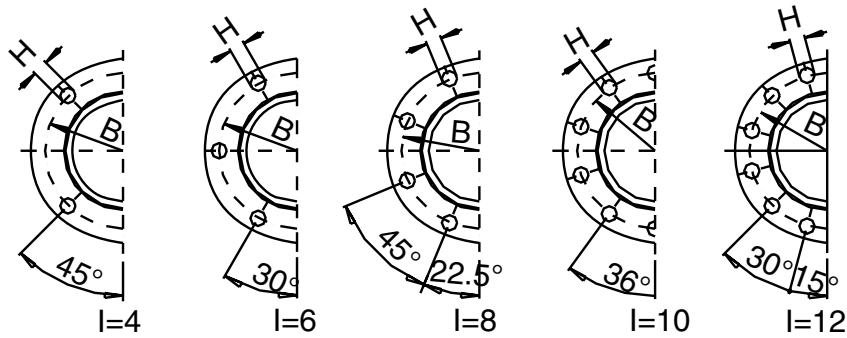
Size	Non-Reversing Endurance Torque	Reversing Endurance Torque	Peak Torque	Max Angle	K	A	L Min.	S	T	I * H	B	G	C	F	M
	(T _N) (lb-in)	(T _R) (lb-in)	(T _P) (lb-in)	(deg)											
ULDF58/60-4*5	1,328	885	3,098	25	2.36	2.28	6.50	1.18	0.10	4*5	1.85	0.18	1.18	0.08	1.26
ULDF65/60-4*6						2.56				4*6	2.05		1.38		
ULDF75/90-6*6	4,248	2,832	9,735	30	3.54	2.95	9.06	1.97	0.08	6*6	2.44	0.20	1.65	0.08	1.85
ULDF90/90-4*8						3.54				8.50	4*8		2.93		
ULDF90/90-6*8											3.94	10.63		6*8	
ULDF100/90-6*8						3.54				10.63			4*8	2.93	
ULDF90/98-4*8	13,275	8,850	21,240	35	3.86	3.94	11.42	2.36	0.12	6*8	3.31	0.26	2.24		0.12
ULDF100/98-6*8						3.94				10.63			8*8	3.31	
ULDF100/98-8*8											4.72	10.63	8*8		4.00
ULDF120/98-8*8						4.72				10.63			8*10	4.00	
ULDF120/98-8*10											3.94	12.40	6*8		3.31
ULDF100/115-6*8						3.94				12.40			6*10	3.31	
ULDF100/115-6*10	4.72	12.80	8*10	4.00	0.31		2.95								
ULDF100/115-8*10			5.91			11.69	8*8	5.12	0.39	3.54					
ULDF120/115-8*8	4.72	13.98		8*10	4.00		0.31			2.95					
ULDF120/115-8*10			5.91	14.37		8*10		5.12	0.39	3.54					
ULDF150/115-8*10	6.50	7.09			8*14	5.51	0.47			3.74					
ULDF150/115-8*12			7.09	7.09	8*14			6.12	0.47	4.33					
ULDF120/125-8*10	5.91	15.045			54,870	35	4.92			14.37	3.15	0.14	8*10	4.00	0.31
ULDF150/125-8*10			5.91	15.045				54,870	35				4.92		
ULDF150/125-8*12	6.50	15.045			54,870	30	4.92			14.37	3.15	0.14		8*14	5.51
ULDF165/125-8*14			7.09	15.045				54,870	30				4.92	14.37	
ULDF180/125-8*14	5.91	25,665			77,880	35	6.10			16.54	3.94	0.12			8*10
ULDF150/155-8*12			6.50	25,665				77,880	35				6.10	16.54	3.94
ULDF165/155-8*14	7.09	25,665			77,880	35	6.10			16.54	3.94	0.12			
ULDF180/155-8*12			5.91	25,665				77,880	35				6.10	16.54	3.94
ULDF150/160-8*12	6.50	35,400			101,775	35	6.30			18.11	3.62	0.26			
ULDF165/160-8*14			7.09	35,400				101,775	35				6.30	18.11	3.62
ULDF180/160-8*12	5.91	35,400			101,775	25	6.85			8.86	16.93	4.72			
ULDF225/174-8*16			7.09	45,135				150,450	25				6.85	8.86	16.93
ULDF180/170-8*14	8.86	45,135			185,850	33	6.69			18.11	4.09	0.31			
ULDF180/170-8*16			8.86	45,135				185,850	33				6.69	18.11	4.09
ULDF225/170-8*16	7.09	57,525			221,250	33	7.01			18.11	4.39	0.27			
ULDF180/178-8*16			8.86	57,525				221,250	33				7.01	18.11	4.39
ULDF225/178-8*14	8.86	57,525			221,250	33	7.01			18.11	4.39	0.27			
ULDF225/178-8*16			8.86	57,525				221,250	33				7.01	18.11	4.39
ULDF225/178-10*16	8.86	57,525			221,250	33	7.01			18.11	4.39	0.27			
ULDF250/178-8*18			7.09	79,650				247,800	25				8.03	19.49	5.67
ULDF180/204-8*16	8.86	79,650			247,800	25	8.03			19.49	5.67	0.28			
ULDF225/204-8*16			9.84	79,650				247,800	25				8.03	19.49	5.67
ULDF250/204-8*18	8.86	79,650			247,800	25	8.03			19.49	5.67	0.28			
ULDF225/215-8*16			9.84	115,050				292,050	24				8.46	22.05	5.67
ULDF250/215-8*18	11.22	115,050			292,050	24	8.46			22.05	5.67	0.28			
ULDF285/215-8*20			9.84	159,300				354,000	20				9.84	24.02	6.38
ULDF250/250-8*18	11.22	159,300			354,000	20	9.84			24.02	6.38	0.39			
ULDF285/250-8*20			10.43	203,550				486,750	20				10.43	11.22	25.20
ULDF285/265-8*20	10.43	203,550			486,750	20	10.43			11.22	25.20	6.38			

Notes:

For high speed applications or special requirements, consult KOP-FLEX.

Standard offering when flange is not specified.

ULDF (Light Duty) Fixed Length Series



Metric Dimensions

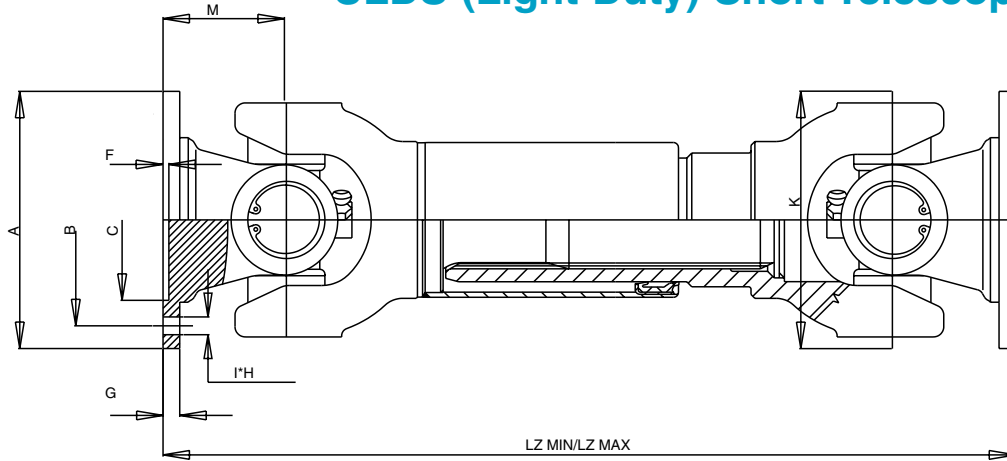
Size	Non-Reversing Endurance Torque (T _N)	Reversing Endurance Torque (T _R)	Peak Torque (T _P)	Max Angle	K	A	L Min.	S	T	I * H	B	G	C	F	M
	(N-m)	(N-m)	(N-m)	(Degree)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
ULDF58/60-4*5	150	100	350	25	60	58	165	30	2.5	4*5	47	4.5	30	2	32
ULDF65/60-4*6						65				4*6	52		35		
ULDF75/90-6*6	480	320	1,100	30	90	75	230	50	2	6*6	62	5	42	2	47
ULDF90/90-4*8						4*8				74.5	6		47		
ULDF90/90-6*8						6*8				74.5	6		47		
ULDF100/90-6*8						6*8				84	6.5		57		
ULDF90/98-4*8	1,500	1,000	2,400	20	98	90	290	60	3	4*8	74.5	6.5	47	3	48
ULDF100/98-6*8						6*8				84	57				
ULDF100/98-8*8						8*8				84	57				
ULDF120/98-8*8						8*8				101.5	7		75		
ULDF120/98-8*10	1,950	1,300	4,200	20	115	120	270	70	3	8*10	101.5	8	75	3	48
ULDF100/115-6*8						6*8				84	57				
ULDF100/115-8*10						8*10				84	57				
ULDF120/115-8*8						8*8				101.5	7		75		
ULDF120/115-8*10	2,550	1,700	6,200	35	125	150	365	80	3.5	8*10	130	10	90	3	80
ULDF150/115-8*10						8*10				130	90				
ULDF150/115-8*12						8*12				130	10		90		
ULDF120/125-8*10						8*10				101.5	8		75		
ULDF150/125-8*10	4,350	2,900	8,800	30	155	120	420	100	3	8*10	130	10	90	3	90
ULDF150/125-8*12						8*12				130	10		90		
ULDF165/125-8*14						8*14				140	12		95		
ULDF180/125-8*14						8*14				155.5	12		110		
ULDF150/155-8*10	6,000	4,000	11,500	35	160	150	460	92	6.5	8*10	130	12	90	3	95
ULDF150/155-8*12						8*12				130	10		90		
ULDF165/155-8*14						8*14				140	12		95		
ULDF180/155-8*14						8*14				155.5	10		110		
ULDF150/160-8*12	7,650	5,100	17,000	25	174	150	430	120	4	8*12	130	15	140	5	95
ULDF165/160-8*14						8*14				140	12		95		
ULDF180/160-8*14						8*14				155.5	10		110		
ULDF150/160-8*16						8*16				155.5	10		110		
ULDF180/170-8*14	7,650	5,100	21,000	33	170	180	460	104	8	8*14	130	15	140	3	100
ULDF180/170-8*16						8*16				155.5	12		110		
ULDF225/170-8*16						8*16				196	15		140		
ULDF225/170-10*16						10*16				196	15		140		
ULDF180/178-8*16	9,750	6,500	25,000	33	178	180	460	112	6.75	8*16	130	15	140	5	100
ULDF180/178-10*16						10*16				155.5	14		110		
ULDF225/178-8*14						8*14				196	15		140		
ULDF225/178-8*16						8*16				196	15		140		
ULDF225/178-10*16	13,500	9,000	28,000	24	215	225	560	144	7	10*16	196	15	140	6	110
ULDF250/178-8*18						8*18				218	18		140		
ULDF180/204-8*16						8*16				155.5	15		110		
ULDF180/204-10*16						10*16				196	15		140		
ULDF225/204-8*18	19,500	13,000	33,000	20	250	225	610	162	9.85	8*18	218	18	140	6	108
ULDF250/204-8*18						8*18				218	18		140		
ULDF225/215-8*16						8*16				196	15		140		
ULDF250/215-8*18						8*18				218	18		140		
ULDF285/215-8*20	27,000	18,000	40,000	20	250	250	610	162	9.85	8*20	245	20	175	7	125
ULDF250/250-8*18						8*18				218	18		140		
ULDF285/250-8*20						8*20				245	20		175		
ULDF285/265-8*20						8*20				245	20		175		
ULDF285/265-8*20	34,500	23,000	55,000	20	265	285	640	162	9.85	8*20	245	20	175	7	135

Notes:

For high speed applications or special requirements, consult KOP-FLEX.

Standard offering when flange is not specified.

ULDS (Light Duty) Short Telescope Series

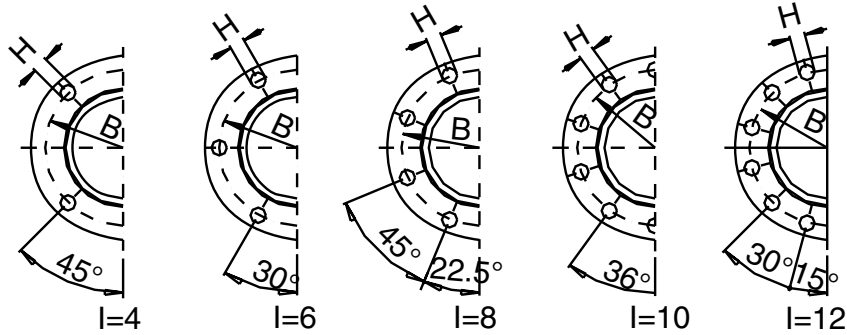


Imperial (inch) Dimensions

Size	Non-Reversing Endurance Torque (T _N)	Reversing Endurance Torque (T _R)	Peak Torque (T _P)	Max Angle	K	A	Lz Min.	La Min.	Lz Max.	La Max.	I * H	B	G	C	F	M			
	(lb-in)	(lb-in)	(lb-in)	(deg)	(in)	(in)	(in)	(in)	(in)	(in.)	(mm)	(in)	(in)	(in)	(in)	(in)			
ULDS58/60-4*5	1,328	885	3,098	25	2.36	2.28	8.86	0.79	9.84	0.98	4*5	1.85	0.18	1.18	0.08	1.26			
ULDS65/60-4*6						2.56					4*6	2.05		1.38					
ULDS75/90-6*6	4,248	2,832	9,735	30	3.54	2.95	9.65	0.59	12.40	2.56	6*6	2.44	0.20	1.65	0.08	1.85			
ULDS90/90-4*8						3.54					4*8	2.93		1.85			0.12		
ULDS90/90-6*8						3.94					6*8	3.31		0.26			2.24	1.57	
ULDS100/90-6*8						3.54					4*8	2.93		1.85			1.89		
ULDS90/98-4*8	13,275	8,850	21,240	20	3.86	11.02	11.81	0.98	15.75	2.36	6*8	3.31	0.26	2.24	0.12	2.28			
ULDS100/98-8*8						3.94					8*8	4.00		0.28		2.95	1.89		
ULDS120/98-8*8						4.72					8*10	4.00		0.28		2.95	1.89		
ULDS120/98-8*10						4.72					8*10	4.00		0.28		2.95	1.89		
ULDS100/115-6*8	17,258	11,505	37,170	25	4.53	13.98	13.98	4.33	19.29	3.35	6*8	3.31	0.31	2.24	0.12	2.56			
ULDS100/115-8*10						4.72					8*10	4.00		0.31		2.95	2.76		
ULDS120/115-8*8						5.91					8*10	4.00		0.31		2.95	2.76		
ULDS120/115-8*10						4.72					8*10	4.00		0.31		2.95	2.76		
ULDS150/115-8*10	22,568	15,045	54,870	35	4.92	13.27	15.35	1.38	21.26	4.33	8*10	5.12	0.39	3.54	0.12	2.20			
ULDS150/115-8*12						4.72					8*10	4.00		0.31		2.95	2.95		
ULDS120/125-8*10						5.91					8*12	5.12		0.39		3.54	3.15		
ULDS150/125-8*10						6.50					8*12	5.12		0.39		3.54	3.15		
ULDS165/125-8*14	38,498	25,665	77,880	30	6.10	15.75	18.11	0.79	23.03	4.33	8*14	5.51	0.47	3.74	0.12	3.54			
ULDS180/125-8*14						7.09					8*14	6.12		0.47		4.33	3.15		
ULDS150/155-8*10						5.91					8*10	5.12		0.39		3.54	3.15		
ULDS150/155-8*12						5.91					8*12	5.12		0.39		3.54	3.15		
ULDS150/155-8*14	53,100	35,400	101,775	35	6.30	18.11	18.11	1.57	25.59	4.33	8*14	5.51	0.47	3.74	0.12	3.54			
ULDS165/155-8*14						6.50					8*14	6.12		0.39		4.33	3.15		
ULDS180/155-8*12						7.09					8*12	6.12		0.39		4.33	3.15		
ULDS180/155-8*14						7.09					8*14	6.12		0.39		4.33	3.15		
ULDS150/160-8*12	67,703	45,135	150,450	25	6.85	18.31	21.65	1.57	25.59	4.33	8*12	5.12	0.47	3.54	0.12	3.74			
ULDS165/160-8*14						6.50					8*14	6.12		0.39		4.33	3.15		
ULDS180/160-8*12						7.09					8*12	6.12		0.39		4.33	3.15		
ULDS180/160-8*14						7.09					8*14	6.12		0.39		4.33	3.15		
ULDS180/160-10*16	67,703	45,135	185,850	33	6.69	18.31	21.65	1.57	25.59	4.33	10*16	6.12	0.59	5.51	0.20	3.74			
ULDS225/174-8*16						7.09					8*16	6.12		0.47		4.33	3.15		
ULDS180/170-8*14						8.86					8*16	6.12		0.47		4.33	3.15		
ULDS180/170-8*16						8.86					10*16	7.72		0.59		5.51	0.20	3.93	
ULDS225/170-8*16	86,288	57,525	221,250	33	7.01	21.26	21.26	1.57	26.77	4.33	8*16	6.12	0.55	4.33	0.12	3.94			
ULDS225/170-10*16						8.86					10*16	7.72		0.59			5.51	0.20	3.94
ULDS180/178-8*16						7.09					8*16	6.12		0.55			4.33	0.12	3.94
ULDS180/178-10*16						8.86					10*16	7.72		0.59			5.51	0.20	3.94
ULDS225/178-8*14	119,475	79,650	247,800	25	8.03	21.26	23.23	2.36	27.17	4.33	8*16	6.12	0.59	4.33	0.12	4.33			
ULDS225/178-8*16						7.09					8*16	6.12		0.59			5.51	0.20	4.33
ULDS225/178-10*16						8.86					10*16	7.72		0.59			5.51	0.20	4.33
ULDS250/178-8*18						9.84					8*18	8.58		0.71			5.51	0.24	4.25
ULDS180/204-8*16	172,575	115,050	292,050	24	8.46	22.05	22.05	1.18	28.74	4.33	8*16	7.72	0.59	5.51	0.20	4.25			
ULDS180/204-10*16						8.86					8*18	8.58		0.71			5.51	0.24	4.25
ULDS225/204-8*16						9.84					8*16	7.72		0.59			5.51	0.20	4.25
ULDS250/204-8*18						11.22					8*18	8.58		0.71			5.51	0.24	4.25
ULDS225/215-8*16	238,950	159,300	354,000	20	9.84	27.56	27.56	2.36	33.66	4.33	8*16	7.72	0.59	5.51	0.20	4.92			
ULDS250/215-8*18						9.84					8*18	8.58		0.71			5.51	0.24	4.92
ULDS285/215-8*20						11.22					8*20	9.65		0.79			6.89	0.28	4.92
ULDS250/250-8*18						11.22					8*18	8.58		0.71			5.51	0.24	4.92
ULDS285/250-8*20	305,325	203,550	486,750	20	10.43	28.94	28.94	2.36	35.24	4.33	8*20	9.65	0.79	6.89	0.28	5.31			
ULDS285/265-8*20						11.22					8*20	9.65		0.79			6.89	0.28	5.31

Notes:
 For high speed applications or special requirements, consult KOP-FLEX.
 Standard offering when flange is not specified.

ULDS (Light Duty) Short Telescope Series



Metric Dimensions

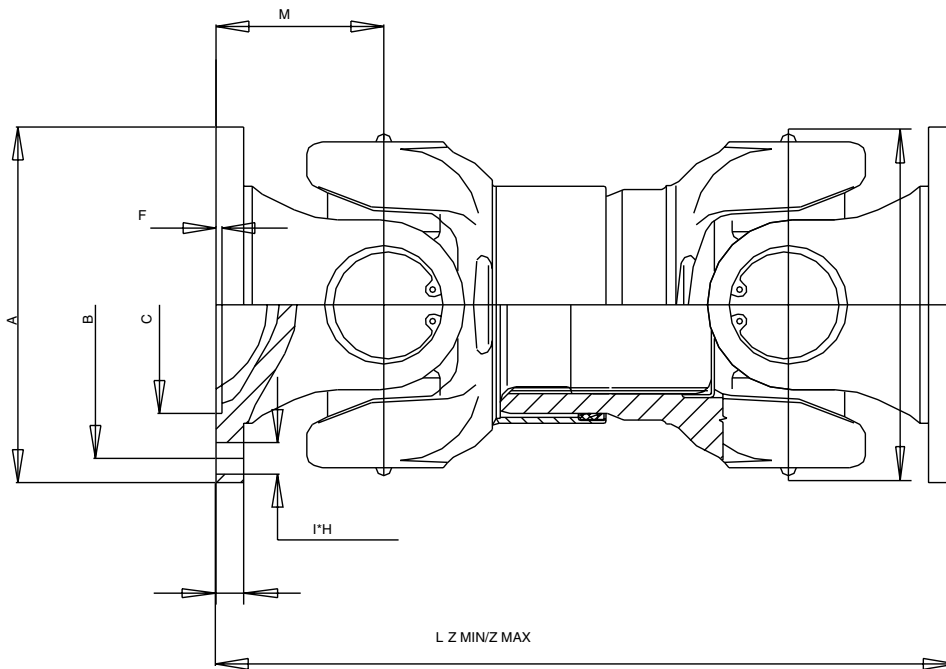
Size	Non-Reversing Endurance Torque (T _N)	Reversing Endurance Torque (T _R)	Peak Torque (T _V)	Max Angle	K	A	Lz Min.	La Min.	Lz Max.	La Max.	I * H	B	G	C	F	M									
	(N-m)	(N-m)	(N-m)	(Degree)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	H (mm)	(mm)	(mm)	(mm)	(mm)	(mm)									
ULDS58/60-4*5	150	100	350	25	60	58	225	20	250	25	4*5	47	4.5	30	2	32									
ULDS65/60-4*6						65					4*6	52		35											
ULDS75/90-6*6	480	320	1,100	30	90	75	245	15	315	65	6*6	62	5	42	2	47									
ULDS90/90-4*8						90					4*8	74.5	6	47											
ULDS90/90-6*8						90					6*8	74.5	6	47											
ULDS100/90-6*8	1,500	1,000	2,400	20	98	100	231	25	301	60	6*8	84	6.5	57	3	40									
ULDS90/98-4*8						90	280		400		4*8	74.5	6	47		48									
ULDS100/98-6*8						100	300		420		6*8	84	6.5	57	58										
ULDS100/98-8*8						120	280		400		8*8	101.5	7	75	48										
ULDS120/98-8*10	1,950	1,300	4,200	20	115	120	365	110	500	85	8*10	101.5	7	75	3	48									
ULDS100/115-6*8						100					355						490	8	57	65					
ULDS100/115-8*10						120					365										6*10	84	8	57	65
ULDS120/115-8*8						150					337										8*8	101.5	7	75	70
ULDS120/115-8*10						150					390										8*10	130	10	90	56
ULDS150/115-8*10	120	400	540	8*10	101.5	8	75	75																	
ULDS150/115-8*12	2,550	1,700	6,200	35	125	150	400	35	550	110	8*12	130	10	90	3	80									
ULDS150/125-8*10						165					8*10						101.5	8	75						
ULDS150/125-8*12						180					8*12						130	10	90						
ULDS165/125-8*14						180					8*14						140	12	95						
ULDS180/125-8*14	4,350	2,900	8,800	30	155	165	460	20	585	110	8*14	155.5	12	110	3	90									
ULDS150/155-8*10											8*10						130	10	90						
ULDS150/155-8*12											8*12						130	10	90						
ULDS150/155-8*14											8*14						140	12	95						
ULDS165/155-8*14											8*14						155.5	10	110						
ULDS165/155-8*16											8*16						140	12	95						
ULDS180/155-8*12											8*12						155.5	10	110						
ULDS180/155-8*14											8*14						155.5	10	110						
ULDS180/155-8*16											8*16						155.5	10	110						
ULDS180/155-8*18											8*18						155.5	10	110						
ULDS150/160-8*12	6,000	4,000	11,500	35	160	150	465	40	650	110	8*12	130	12	90	3	95									
ULDS165/160-8*14						165					8*14						140	12	95						
ULDS165/160-8*16						180					8*16						140	12	95						
ULDS180/160-8*12						180					8*12						130	10	90						
ULDS180/160-8*14						180					8*14						140	12	95						
ULDS180/160-8*16						180					8*16						140	12	95						
ULDS180/160-10*16	180	10*16	140	12	95																				
ULDS225/174-8*16	7,650	5,100	17,000	25	174	225	550	90	570	110	8*16	196	15	140	5	95									
ULDS180/170-8*14	7,650	5,100	21,000	33	170	180	540	40	680	110	8*14	155.5	12	110	3	100									
ULDS180/170-8*16											8*16						155.5	12	110						
ULDS225/170-8*16											225						8*16	155.5	12	110					
ULDS225/170-10*16											225						10*16	155.5	12	110					
ULDS180/178-8*16	9,750	6,500	25,000	33	178	180	540	40	680	110	8*16	155.5	14	110	3	100									
ULDS180/178-10*16											10*16						155.5	14	110						
ULDS225/178-8*14											225						8*14	155.5	14	110					
ULDS225/178-8*16											225						8*16	155.5	14	110					
ULDS225/178-10*16											225						10*16	155.5	14	110					
ULDS250/178-8*18											250						8*18	155.5	14	110					
ULDS180/204-8*16	13,500	9,000	28,000	25	204	180	590	60	690	110	8*16	155.5	15	110	3	110									
ULDS180/204-10*16						10*16					155.5						15	110							
ULDS225/204-8*16						225					8*16						155.5	15	110						
ULDS250/204-8*18						250					8*18						155.5	15	110						
ULDS225/215-8*16						225					8*16						155.5	15	110						
ULDS250/215-8*18	19,500	13,000	33,000	24	215	250	560	30	730	110	8*18	218	18	140	6	108									
ULDS285/215-8*20						285					8*20						245	20	175	7					
ULDS250/250-8*18						250					8*18						218	18	140	6					
ULDS285/250-8*20	27,000	18,000	40,000	20	250	285	700	60	855	110	8*20	245	20	175	7	125									
ULDS285/265-8*20						285					8*20						245	20	175	7					

Notes:

For high speed applications or special requirements, consult KOP-FLEX.

Standard offering when flange is not specified.

ULDZ (Light Duty) Super Short Telescope Series



Imperial (inch) Dimensions

Size	Non-Reversing Endurance Torque (T _N)	Reversing Endurance Torque (T _R)	Peak Torque (T _Y)	Max Angle	K	A	Lz Min.	La Min.	Lz Max.	La Max.	I * H	B	G	C	F	M
	(lb-in)	(lb-in)	(lb-in)	(deg)	(in)	(in)	(in)	(in)	(in)	H(mm)	(in)	(in)	(in)	(in)	(in)	(in)
ULDZ180/178-10*16	86,288	57,525	221,250	10	7.01	7.09	14.37	0.59	18.70	2.76	10*16	6.12	0.55	4.33	0.12	3.35
ULDZ225/215-8*16	172,575	115,050	292,050	5	8.46	8.86	19.09	1.38	23.03	3.35	8*16	7.72	0.59	5.51	0.20	4.25
ULDZ348/285-10*18	305,325	203,550	486,750	5	11.22	13.70	21.46	1.57	23.43	3.15	10*18	12.36	0.71	6.89	0.28	4.33
ULDZ360/315-10*18	345,150	230,100	557,550	5	12.40	14.17	23.62	1.57	27.56	4.33	10*18	12.91	0.71	6.89	0.28	4.13

Metric Dimensions

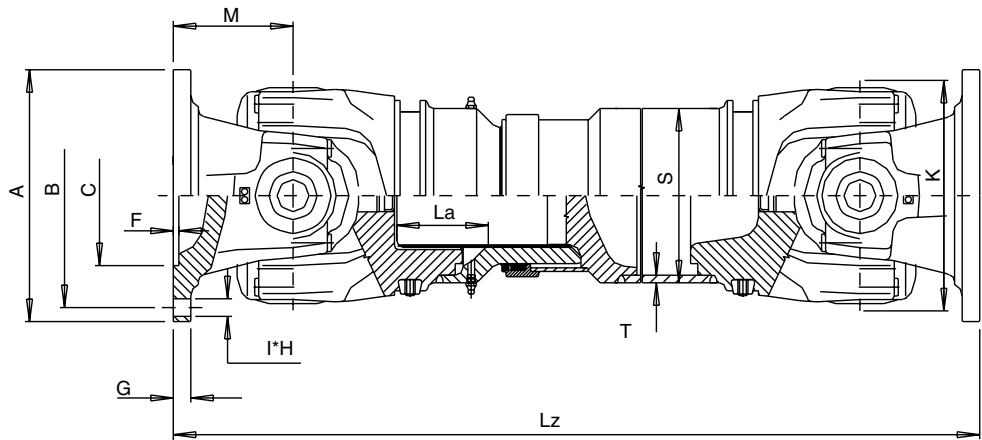
Size	Non-Reversing Endurance Torque (T _N)	Reversing Endurance Torque (T _R)	Peak Torque (T _Y)	Max Angle	K	A	Lz Min.	La Min.	Lz Max.	La Max.	I * H	B	G	C	F	M
	(N-m)	(N-m)	(N-m)	(Degree)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	H (mm)	(mm)	(mm)	(mm)	(mm)	(mm)
ULDZ180/178-10*16	9,750	6,500	25,000	10	178	180	365	15	475	70	10*16	155.5	14	110	3	85
ULDZ225/215-8*16	19,500	13,000	33,000	5	215	225	485	35	585	85	8*16	196	15	140	5	108
ULDZ348/285-10*18	34,500	23,000	55,000	5	285	348	545	40	595	80	10*18	314	18	175	7	110
ULDZ360/315-10*18	39,000	26,000	63,000	5	315	360	600	40	700	110	10*18	328	18	175	7	105



Visit www.kopflex.com

Notes:
For high speed applications or special requirements, consult KOP-FLEX.

UMDT (Medium Duty) Standard Telescope Series



I=8

I=10

Imperial (inch) Dimensions

Size	Non-Reversing Endurance Torque (T _N) (lb-in.)	Reversing Endurance Torque (T _R) (lb-in.)	Peak Torque (T _P) (lb-in.)	Max Angle (deg)	K	A	Lz Min.	La	S	T	I * H	B	G	C	F	M
					(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	H (mm)	(in.)	(in.)	(in.)	(in.)	(in.)
UMDT225/225-8*16	305,325	203,550	477,900	15	8.86	8.86	35.04	3.94	6.50	0.49	8*16	7.72	0.79	4.13	0.18	5.71
UMDT250/250-8*18	318,600	212,400	513,300	15	9.84	9.84	39.76	5.31	6.50	0.49	8*18	8.58	0.98	4.13	0.20	6.50
UMDT285/250-8*20						11.22	35.63	4.33			8*20	9.65	0.79	6.89	0.28	5.12
UMDT315/250-8*22	12.40	8*22	11.02	0.87												
UMDT285/285-8*20	597,375	398,250	1,062,000	15	11.22	11.22	39.57	5.31	8.58	0.41	8*20	9.65	0.79	6.89	0.28	5.91
UMDT315/285-8*22						12.40					8*22	11.02	0.87			
UMDT350/285-10*22	769,950	513,300	1,548,750	15	12.40	13.78	43.50	5.31	8.62	0.59	10*22	12.20	0.98	8.66	0.31	6.69
UMDT315/315-8*22						12.40					8*22	11.02	0.87	6.89	0.28	
UMDT350/315-10*22						13.78					10*22	12.20	0.98	8.66	0.31	
UMDT390/315-10*24	1,354,050	902,700	1,991,250	15	13.78	15.35	51.57	6.69	10.75	0.75	10*24	13.58	1.10	9.84	0.31	8.86
UMDT350/350-10*22						13.78					10*22	12.20	1.38	6.10	0.28	
UMDT390/350-10*24						15.35					10*24	13.58	1.10	9.84	0.31	

Metric Dimensions

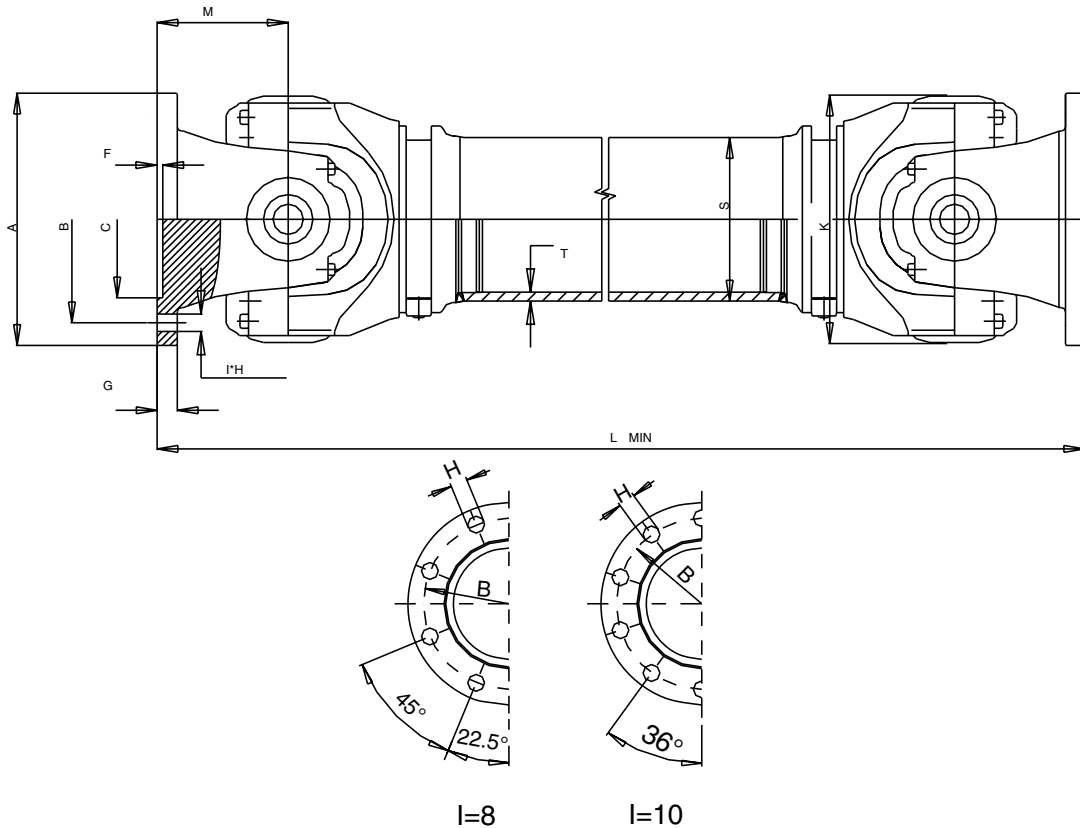
Size	Non-Reversing Endurance Torque (T _N) (N-m)	Reversing Endurance Torque (T _R) (N-m)	Peak Torque (T _P) (N-m)	Max Angle (deg)	K	A	Lz Min.	La	S	T	I * H	B	G	C	F	M
					(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	H (mm)	(mm)	(mm)	(mm)	(mm)	(mm)
UMDT225/225-8*16	34500	23000	54000	15	225	225	890	100	165	12.5	8*16	196	20	105	4.5	145
UMDT250/250-8*18	36000	24000	58000	15	250	250	1010	135	165	12.5	8*18	218	25	105	5	165
UMDT285/250-8*20						285	905	110			8*20	245	20	175	7	130
UMDT315/250-8*22	315	8*22	280	22												
UMDT285/285-8*20	67500	45000	120000	15	285	285	1005	135	218	10.5	8*20	245	20	175	7	150
UMDT315/285-8*22						315					8*22	280	22			
UMDT350/285-10*22	87000	58000	175000	15	315	350	1105	135	219	15	10*22	310	25	220	8	170
UMDT315/315-8*22						315					8*22	280	22	175	7	
UMDT350/315-10*22						350					10*22	310	25	220	8	
UMDT390/315-10*24	153000	102000	225000	15	350	390	1310	170	273	19	10*24	345	28	250	8	225
UMDT350/350-10*22						350					10*22	310	35	155	7	
UMDT390/350-10*24						390					10*24	345	28	250	8	

Notes:

For high speed applications or special requirements, consult KOP-FLEX.

Standard offering when flange is not specified.

UMDF (Medium Duty) Standard Telescope Series



Imperial (inch) Dimensions

Size	Non-Reversing Endurance Torque (T _N) (lb-in.)	Reversing Endurance Torque (T _R) (lb-in.)	Peak Torque (T _V) (lb-in.)	Max Angle (Degree)	K	A	L Min.	S	T	I * H	B	G	C	F	M
UMDF225/225-8*16	305,325	203,550	477,900	15	8.86	8.86	26.38	6.50	0.49	8*16	7.72	0.79	4.13	0.18	5.71
UMDF250/250-8*18	318,600	212,400	513,300	15	9.84	9.84	29.53	6.50	0.49	8*20	8.58	0.58	4.13	0.20	6.50
UMDF285/250-8*20						11.22	25.59			8*20	9.65	0.79	6.89	0.28	5.12
UMDF315/250-8*22						12.40	11.02			0.87	6.89	0.28	5.12		
UMDF285/285-8*20	597,375	398,250	1,062,000	15	11.22	11.22	28.35	8.58	0.41	8*20	9.65	0.79	6.89	0.28	5.91
UMDF315/285-8*22						12.40	11.02			0.87	6.89	0.28	5.91		
UMDF350/285-10*22						13.78	12.20			0.98	8.66	0.31	6.69		
UMDF315/315-8*22	769,950	513,300	1,548,750	15	12.40	12.40	31.50	8.62	0.59	8*22	11.02	0.87	6.89	0.28	6.69
UMDF350/315-10*22						13.78	13.78			10*22	12.20	0.98	8.66	0.31	6.69
UMDF390/315-10*24						15.35	13.78			10*24	13.58	1.10	9.84	0.31	8.86
UMDF350/350-10*22	1,354,050	902,700	1,991,250	15	13.78	13.78	39.37	10.75	0.75	10*22	12.20	1.38	6.10	0.28	8.86
UMDF390/350-10*24						15.35	13.78			10*24	13.58	1.10	9.84	0.31	8.86

Metric Dimensions

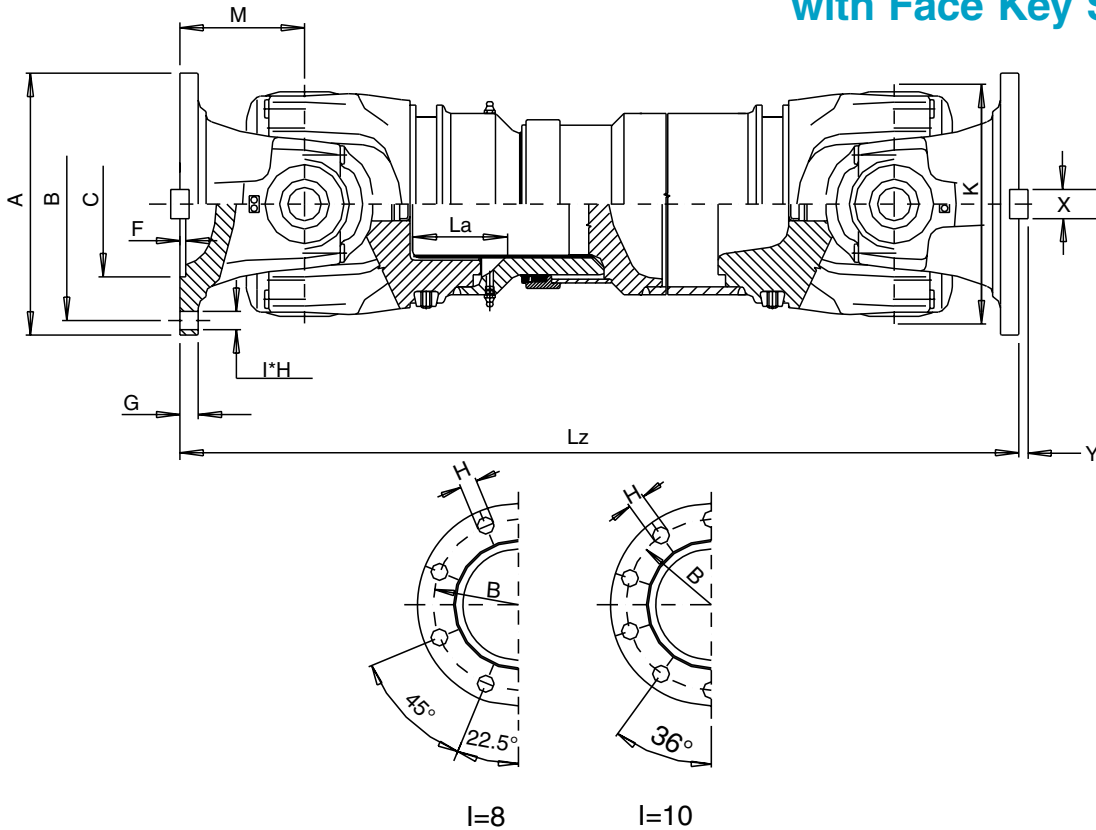
Size	Non-Reversing Endurance Torque (T _N) (N-m)	Reversing Endurance Torque (T _R) (N-m)	Peak Torque (T _V) (N-m)	Max Angle (deg)	K	A	L Min.	S	T	I * H	B	G	C	F	M
UMDF225/225-8*16	34500	23000	54000	15	225	225	670	165	12.5	8*16	196	20	105	4.5	145
UMDF250/250-8*18	36000	24000	58000	15	250	250	750	165	12.5	8*18	218	25	105	5	165
UMDF285/250-8*20						285	650			8*20	245	20	175	7	130
UMDF315/250-8*22						315	650			8*22	280	22	175	7	130
UMDF285/285-8*20	67500	45000	120000	15	285	285	720	218	10.5	8*20	245	20	175	7	150
UMDF315/285-8*22						315	720			8*22	280	22	175	7	150
UMDF350/285-10*22						350	720			10*22	310	25	220	8	170
UMDF315/315-8*22	87000	58000	175000	15	315	315	800	219	15	8*22	280	22	175	7	170
UMDF350/315-10*22						350	800			10*22	310	25	220	8	170
UMDF390/315-10*24						390	800			10*24	345	28	250	8	170
UMDF350/350-10*22	153000	102000	225000	15	350	350	1000	273	19	10*22	310	35	155	7	225
UMDF390/350-10*24						390	1000			10*24	345	28	250	8	225

Notes:

For high speed applications or special requirements, consult KOP-FLEX.

Standard offering when flange is not specified.

UMKT (Medium Duty) Standard Telescope with Face Key Series



Imperial (inch) Dimensions

Size	Non-Reversing Endurance Torque (T _N) (lb-in.)	Reversing Endurance Torque (T _R) (lb-in.)	Peak Torque (T _P) (lb-in.)	Max Angle (deg)	K	A	Lz Min.	La	X	Y	I * H	B	G	C	F	M		
					(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	H (mm)	(in.)	(in.)	(in.)	(in.)	(in.)		
UMKT225/225-8*16	305,325	203,550	477,900	15	8.86	8.86	35.04	3.94	1.26	0.35	8*16	7.72	0.79	4.13	0.18	5.71		
UMKT250/250-8*18	318,600	212,400	513,300	15	9.84	9.84	38.39	5.31	1.57	0.59	8*18	8.58	0.98	4.13	0.20	6.50		
UMKT285/250-8*20						11.22	35.62	4.33			8*20	9.65	0.79	6.89	0.28	5.12		
UMKT315/250-8*22						12.40					8*22	11.02	0.87					
UMKT285/285-8*20	597,375	398,250	1,062,000	15	11.22	11.22	39.57	5.31	1.57	0.59	8*20	9.65	0.79	6.89	0.28	5.91		
UMKT315/285-8*22						12.40							8*22	11.02	0.87			
UMKT350/285-10*22						13.78							10*22	12.20	0.98		8.66	0.31
UMKT315/315-8*22	769,950	513,300	1,548,750	15	12.40	12.40	43.50	5.31	1.57	0.59	8*22	11.02	0.87	6.89	0.28	6.69		
UMKT350/315-10*22						13.78							10*22	12.20	0.98		8.66	0.31
UMKT390/315-10*24						15.35							10*24	13.58	1.10		9.84	0.31
UMKT350/350-10*22						13.78							10*22	12.20	1.38		6.10	0.28
UMKT390/350-10*24	1,354,050	902,700	1,991,250	15	13.78	15.35	51.57	6.69	2.76	0.71	10*24	13.58	1.10	9.84	0.31	8.86		

Metric Dimensions

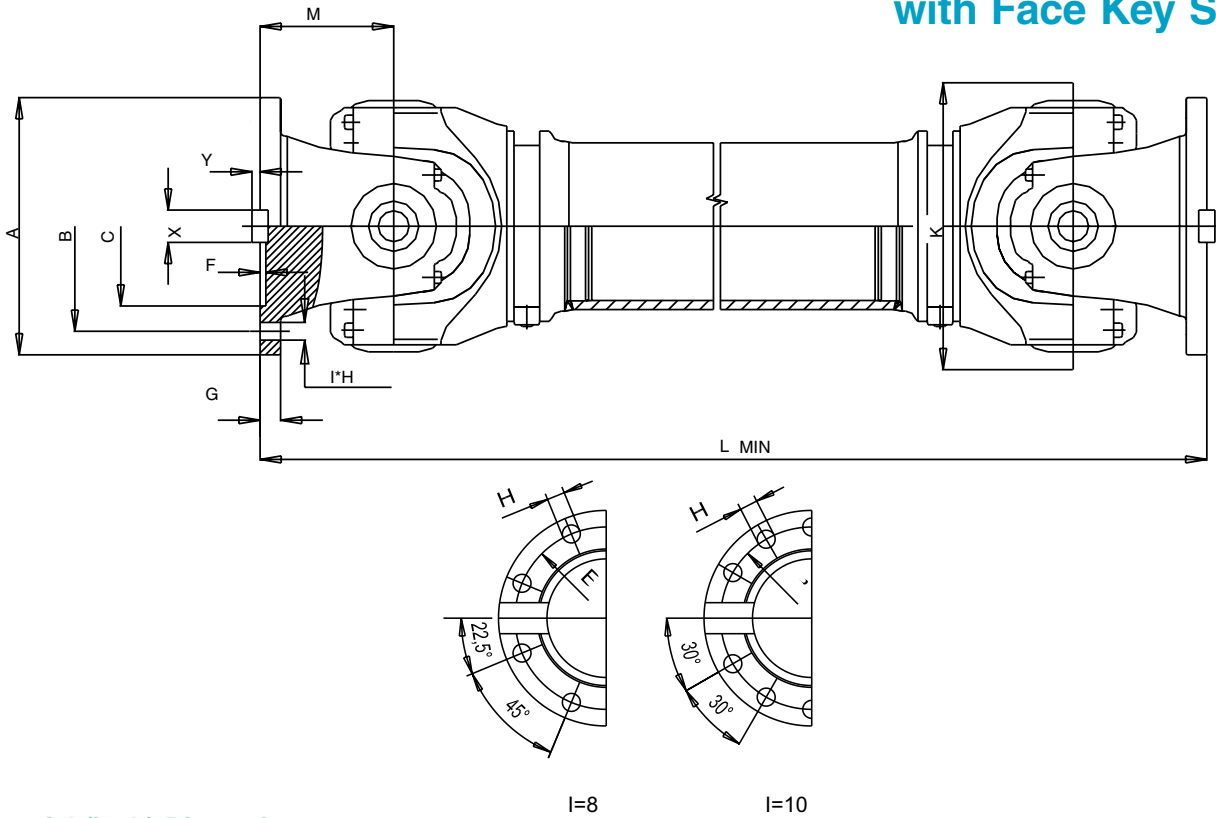
Size/ Part Number	Non-Reversing Endurance Torque (T _N) (N-m)	Reversing Endurance Torque (T _R) (N-m)	Peak Torque (T _P) (N-m)	Max Angle (deg)	K	A	Lz Min.	La	X	Y	I * H	B	G	C	F	M		
					(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	H (mm)	(mm)	(mm)	(mm)	(mm)	(mm)		
UMKT225/225-8*16	34500	23000	54000	15	225	225	890	100	32	9	8*16	196	20	105	4.5	145		
UMKT250/250-8*18	36000	24000	58000	15	250	250	975	135	40	15	8*18	218	25	105	5	165		
UMKT285/250-8*20						285	905	110			8*20	245	20	175	7	130		
UMKT315/250-8*22						315					8*22	280	22					
UMKT285/285-8*20	67500	45000	120000	15	285	285	1005	135	40	15	8*20	245	20	175	7	150		
UMKT315/285-8*22						315							8*22	280	22			
UMKT350/285-10*22						350							10*22	310	25		220	8
UMKT315/315-8*22	87000	58000	175000	15	315	315	1105	135	40	15	8*22	280	22	175	7	170		
UMKT350/315-10*22						350							10*22	310	25		220	8
UMKT390/315-10*24						390							10*24	345	28		250	8
UMKT350/350-10*22						350							10*22	310	35		155	7
UMKT390/350-10*24	153000	102000	225000	15	350	390	1310	170	70	18	10*24	345	28	250	8	225		

Notes:

For high speed applications or special requirements, consult KOP-FLEX.

Standard offering when flange is not specified.

UMKF (Medium Duty) Fixed Length with Face Key Series



Imperial (inch) Dimensions

Size	Non-Reversing Endurance Torque (T _N) (lb-in.)	Reversing Endurance Torque (T _R) (lb-in.)	Peak Torque (T _V) (lb-in.)	Max Angle (deg)	K	A	L Min.	S	T	I * H H (mm)	B	G	C	F	M
UMKF225/225-8*16	305,325	203,550	477,900	15	8.86	8.86	26.38	1.26	0.35	8*16	7.72	0.79	4.13	0.18	5.71
UMKF250/250-8*18	318,600	212,400	513,300	15	9.84	9.84	29.53	1.57	0.49	8*18	8.58	0.98	4.13	0.20	6.50
UMKF285/250-8*20						11.22	25.59			8*20	9.65	0.79	6.89	0.28	5.12
UMKF315/250-8*22	597,375	398,250	1,062,000	15	11.22	12.40		28.35	1.57	0.59	8*22	11.02	0.87	6.89	0.28
UMKF285/285-8*20						11.22	8*20				9.65	0.79	6.89	0.28	5.91
UMKF315/285-8*22	769,950	513,300	1,548,750	15	12.40	13.78	31.50	1.97	0.63	10*22	12.20	0.98	8.66	0.31	6.69
UMKF350/285-10*22						12.40				8*22	11.02	0.87	6.89	0.28	5.91
UMKF350/315-10*22	1,354,050	902,700	1,991,250	15	13.78	15.35	39.37	2.76	0.71	10*22	12.20	1.38	6.10	0.28	8.86
UMKF390/315-10*24						13.78				10*24	13.58	1.10	9.84	0.31	8.86
UMKF350/350-10*22	1,354,050	902,700	1,991,250	15	13.78	15.35	39.37	2.76	0.71	10*22	12.20	1.38	6.10	0.28	8.86
UMKF390/350-10*24						13.78				10*24	13.58	1.10	9.84	0.31	8.86

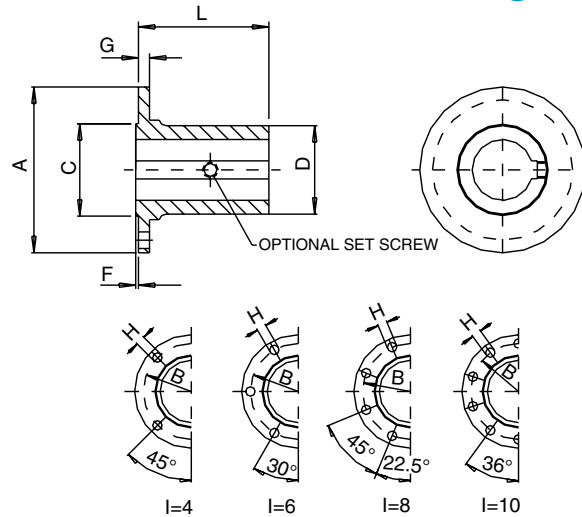
Metric Dimensions

Size	Non-Reversing Endurance Torque (T _N) (N-m)	Reversing Endurance Torque (T _R) (N-m)	Peak Torque (T _V) (N-m)	Max Angle (deg)	K	A	L Min.	X	Y	I * H H (mm)	B	G	C	F	M
UMKF225/225-8*16	34500	23000	54000	15	225	225	670	32	9	8*16	196	20	105	4.5	145
UMKF250/250-8*18	36000	24000	58000	15	250	250	750	40	15	8*18	218	25	105	5	165
UMKF285/250-8*20						285	650			8*20	245	20	175	7	130
UMKF315/250-8*22	67500	45000	120000	15	285	315		720	50	16	8*22	280	22	175	7
UMKF285/285-8*20						285	8*20				245	20	175	7	130
UMKF315/285-8*22	87000	58000	175000	15	315	315	800	50	16	8*22	310	25	220	8	170
UMKF350/285-10*22						350				10*22	310	25	220	8	170
UMKF315/315-8*22	87000	58000	175000	15	315	315	800	50	16	8*22	280	22	175	7	170
UMKF350/315-10*22						350				10*22	310	25	220	8	170
UMKF390/315-10*24	153000	102000	225000	15	350	390	1000	70	18	10*24	345	28	250	8	225
UMKF350/350-10*22						350				10*22	310	35	155	7	225
UMKF390/350-10*24	390	10*24	345	28	250	8	225								

Notes:

For high speed applications or special requirements, consult KOP-FLEX.

Standard offering when flange is not specified.

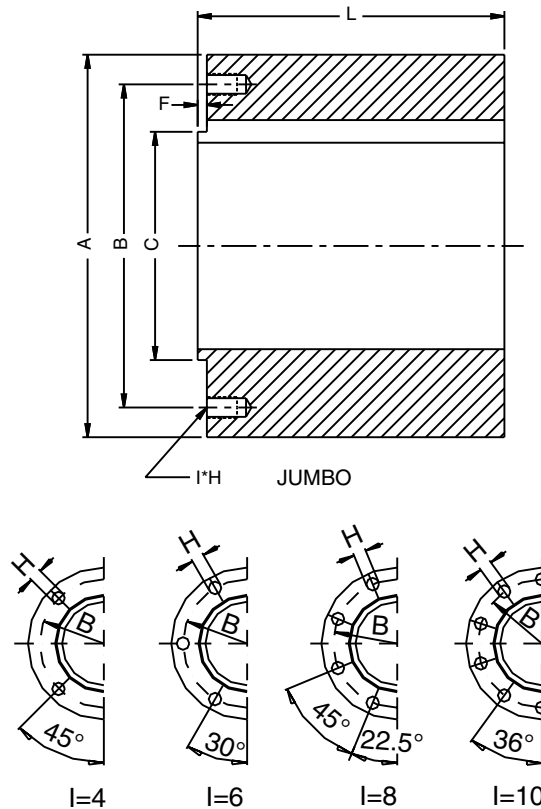


Imperial (inch) Dimensions

Size/Part Number	A (in.)	B (in.)	C (in.)	Max Bore (in.)	D (in.)	F (in.)	G (in.)	H (in.)	I (in.)	L (in.)
UR58-4*5	2.28	1.85	1.18	0.87	1.50	0.06	0.18	0.20	4	1.57
UR65-4*6	2.56	2.05	1.38	1.13	1.61	0.06	0.18	0.24	4	1.57
UR75-6*6	2.95	2.44	1.65	1.31	1.89	0.06	0.20	0.24	6	1.81
UR90-4*8	3.54	2.93	1.85	1.44	2.05	0.09	0.24	0.31	4	2.16
UR100-6*8	3.94	3.31	2.24	1.69	2.36	0.09	0.24	0.31	6	2.44
UR120-6*8	4.72	4.00	2.95	2.25	3.15	0.09	0.24	0.31	6	2.75
UR120-8*8	4.72	4.00	2.95	2.25	3.15	0.09	0.24	0.31	8	2.75
UR120-8*10	4.72	4.00	2.95	2.25	3.15	0.09	0.31	0.39	8	2.75
UR150-8*10	5.91	5.12	3.54	2.63	3.94	0.09	0.39	0.39	8	3.35
UR150-8*12(125)	5.91	5.12	3.54	2.63	3.94	0.09	0.39	0.47	8	3.35
UR150-8*12(155 & 160)	5.91	5.12	3.54	2.63	3.94	0.09	0.47	0.47	8	3.94
UR150-12*12	5.91	5.12	3.54	2.63	3.94	0.09	0.47	0.47	12	3.94
UR180-8*12	7.09	6.12	4.33	3.37	4.72	0.09	0.47	0.47	8	4.72
UR180-8*14	7.09	6.12	4.33	3.37	4.72	0.09	0.47	0.55	8	4.72
UR180-8*16	7.09	6.12	4.33	3.37	4.72	0.09	0.47	0.63	8	4.72
UR180-10*16	7.09	6.12	4.33	3.37	4.72	0.09	0.47	0.63	10	4.72
UR225-8*16	8.86	7.72	5.51	4.50	6.30	0.18	0.59	0.63	8	5.91
UR225-10*16	8.86	7.72	5.51	4.50	6.30	0.18	0.59	0.63	10	5.91
UR250-8*18	9.84	8.58	5.51	4.50	7.40	0.20	0.71	0.71	8	6.30
UR285-8*20	11.22	9.65	6.89	5.50	8.27	0.24	0.79	0.79	8	7.09
UR315-8*22	12.40	11.02	6.89	5.50	8.27	0.24	0.87	0.87	8	7.09
UR350-8*22	13.78	12.20	8.66	6.50	8.66	0.28	0.98	0.87	10	7.88

Metric Dimensions

Size/Part Number	A (mm)	B (mm)	C (mm)	Max Bore (mm)	D (mm)	F (mm)	G (mm)	H (mm)	I (mm)	L (mm)
UR58-4*5	58	47	30	22.2	38	1.6	4.5	5	4	40
UR65-4*6	65	52	35	28.6	41	1.6	4.5	6	4	40
UR75-6*6	75	62	42	33.3	48	1.6	5	6	6	46
UR90-4*8	90	74.5	47	36.5	52	2.3	6	8	4	55
UR100-6*8	100	84	57	42.9	60	2.3	6	8	6	62
UR120-6*8	120	101.5	75	57.2	80	2.3	6	8	6	70
UR120-8*8	120	101.5	75	57.2	80	2.3	6	8	8	70
UR120-8*10	120	101.5	75	57.2	80	2.3	8	10	8	70
UR150-8*10	150	130	90	66.7	100	2.3	10	10	8	85
UR150-8*12(125)	150	130	90	66.7	100	2.3	10	12	8	85
UR150-8*12(155 & 160)	150	130	90	66.7	100	2.3	12	12	8	100
UR150-12*12	150	130	90	66.7	100	2.3	12	12	12	100
UR180-8*12	180	155.5	110	85.7	120	2.3	12	12	8	120
UR180-8*14	180	155.5	110	85.7	120	2.3	12	14	8	120
UR180-8*16	180	155.5	110	85.7	120	2.3	12	16	8	120
UR180-10*16	180	155.5	110	85.7	120	2.3	12	16	10	120
UR225-8*16	225	196	140	114.3	160	4.5	15	16	8	150
UR225-10*16	225	196	140	114.3	160	4.5	15	16	10	150
UR250-8*18	250	218	140	114.3	188	5	18	18	8	160
UR285-8*20	285	245	175	139.7	210	6	20	20	8	180
UR315-8*22	315	280	175	139.7	210	6	22	22	8	180
UR350-8*22	350	310	220	165.1	220	7	25	22	10	200



Imperial (inch) Dimensions

Size/Part Number	Max. Bore (in)	A (in)	B (in)	C (in)	F (in)	I	H (mm)	L (in)
URJ75-6*6	1.500	2.95	2.44	1.65	0.06	6	6	1.97
URJ90-4*8	1.750	3.54	2.93	1.85	0.09	4	8	2.44
URJ100-6*8	2.125	3.94	3.31	2.24	0.09	6	8	2.44
URJ120-8*10	2.750	4.72	4.00	2.95	0.09	8	10	2.95
URJ150-8*12	3.375	5.91	5.12	3.54	0.09	8	12	3.94
URJ180-8*14	4.125	7.09	6.12	4.33	0.09	8	14	4.53
URJ180-10*16	4.125	7.09	6.12	4.33	0.09	10	16	4.53
URJ225-8*16	5.375	8.86	7.72	5.51	0.18	8	16	7.28
URJ250-8*18	5.375	9.84	8.58	5.51	0.20	8	18	8.27
URJ285-8*20	6.813	11.22	9.65	6.89	0.24	8	20	9.45
URJ315-8*22	6.813	12.40	11.02	6.89	0.24	8	22	10.24
URJ350-10*22	8.500	13.78	12.20	8.66	0.28	10	22	11.22

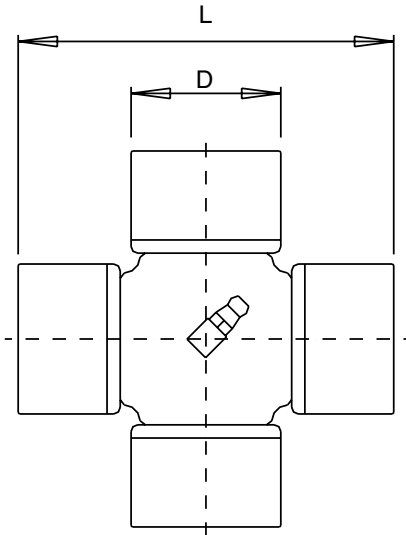
Other sizes available upon request

Metric Dimensions

Size/Part Number	Max. Bore (mm)	A (mm)	B (mm)	C (mm)	F (in)	I	H (mm)	L (mm)
URJ75-6*6	38.1	75	62	42	1.6	6	6	50
URJ90-4*8	44.5	90	74.5	47	2.3	4	8	62
URJ100-6*8	54.0	100	84	57	2.3	6	8	62
URJ120-8*10	69.9	120	101.5	75	2.3	8	10	75
URJ150-8*12	85.7	150	130	90	2.3	8	12	100
URJ180-8*14	104.8	180	155.5	110	2.3	8	14	115
URJ180-10*16	104.8	180	155.5	110	2.3	10	16	115
URJ225-8*16	136.5	225	196	140	4.5	8	16	185
URJ250-8*18	136.5	250	218	140	5	8	18	210
URJ285-8*20	173.1	285	245	175	6	8	20	240
URJ315-8*22	173.1	315	280	175	6	8	22	260
URJ350-10*22	215.9	350	310	220	7	10	22	285

Other sizes available upon request

Cross & Bearing Assembly Dimensional Data UL Series



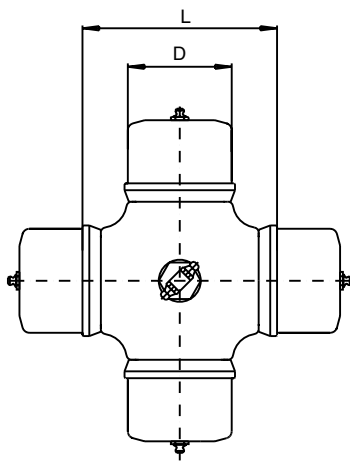
Imperial Dimensions

Size/ Part Number	D (in.)	L (in.)
ULCBK60	0.79	1.75
ULCBK62	0.75	1.94
ULCBK88	1.02	2.75
ULCBK90	1.02	2.84
ULCBK90-1	1.06	2.93
ULCBK97	1.18	3.22
ULDCBK98	1.18	3.24
ULCBK115	1.38	3.81
ULCBK125	1.65	4.11
ULCBK127	1.37	4.19
ULCBK138	1.89	4.59
ULCBK144	1.65	4.70
ULCBK155	1.89	5.20
ULCBK160	2.05	5.24
ULCBK160-1	1.87	5.32
ULCBK170	2.24	5.67
ULCBK174	2.05	5.80
ULCBK178	2.24	5.98
ULCBK204	2.56	6.77
ULCBK215	2.83	7.28
ULCBK250	2.91	8.54
ULCBK265	3.27	9.11

Metric Dimensions

Size/ Part Number	D (mm)	L (mm)
ULCBK60	20.0	44.34
ULCBK62	19.0	49.20
ULCBK88	26.0	69.80
ULCBK90	26.0	72.1
ULCBK90-1	27.0	74.5
ULCBK97	30.0	81.8
ULDCBK98	30.0	82.4
ULCBK115	35.0	96.85
ULCBK125	42.0	104.5
ULCBK127	34.9	106.4
ULCBK138	48.0	116.5
ULCBK144	42.0	119.4
ULCBK155	48.0	132.2
ULCBK160	52.0	133.1
ULCBK160-1	47.6	135.17
ULCBK170	57.0	144.0
ULCBK174	52.0	147.2
ULCBK178	57.0	152.0
ULCBK204	65.0	172.0
ULCBK215	72.0	185.0
ULCBK250	74.0	217.0
ULCBK265	83.0	231.4

Flanged Universal Joints Cross & Bearing Assembly Dimensional Data UM Series



UM Series Imperial Dimensions

Size/ Part Number	D (in.)	L (in.)
UMCBK225	2.91	5.08
UMCBK225-1	2.56	5.63
UMCBK240	3.27	5.08
UMCBK250	3.27	5.47
UMCBK250-1	2.91	6.06
UMCBK265	3.74	5.47
UMCBK285	3.74	6.30
UMCBK285-1	3.27	6.89
UMCBK300	4.33	6.30
UMCBK315	4.33	6.93
UMCBK315-1	3.74	7.48
UMCBK350	4.72	7.72
UMCBK350-1	4.33	8.27

UM Series Metric Dimensions

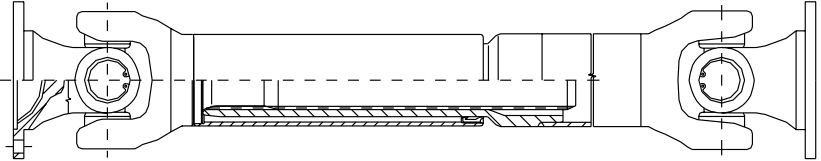
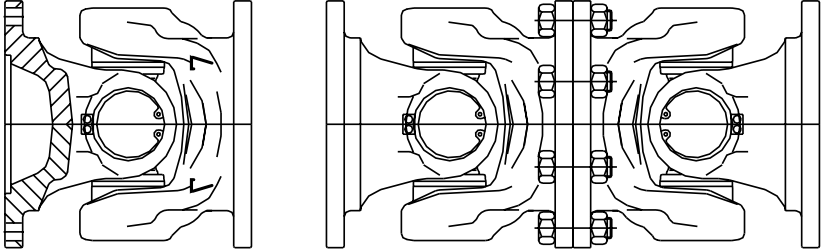
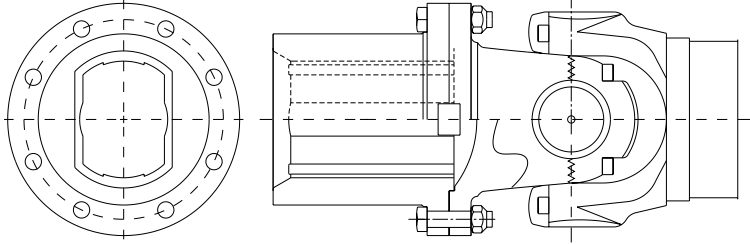
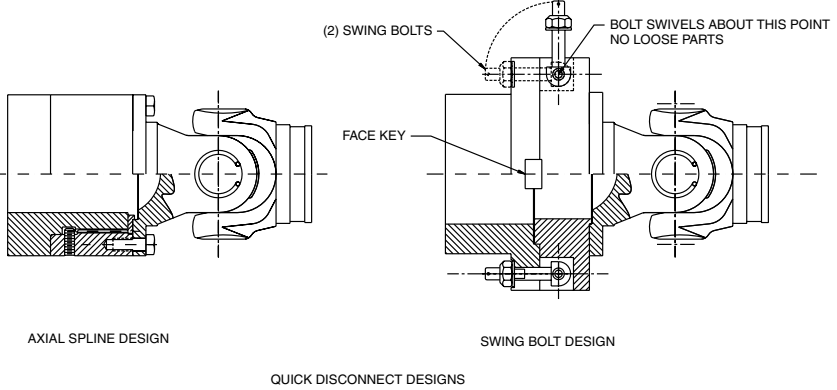
Size/ Part Number	D (mm)	L (mm)
UMCBK225	74	129
UMCBK225-1	65	143
UMCBK240	83	129
UMCBK250	83	139
UMCBK250-1	74	154
UMCBK265	95	139
UMCBK285	95	160
UMCBK285-1	83	175
UMCBK300	110	160
UMCBK315	110	176
UMCBK315-1	95	190
UMCBK350	120	196
UMCBK350-1	110	210



Only cross and bearing is available.

Visit www.kopflex.com

KOP-FLEX offers various custom-design as well as standard-design variations to suit most applications. Following are some commonly used design options available from KOP-FLEX® Brand Couplings. Contact us for any special design conditions or to customize to your application.

Shaft Type	<p>Long Telescope (special design) Used in applications where longer than standard telescope is required to accommodate the slide in the application like bar/rod/section mill main drive spindles.</p>	
Shaft Type	<p>Double Flange Primarily used in caster type applications and applications where ease of maintenance is required.</p>	
Special Rigid (Companion Flange)	<p>Shaped bore for mill application Used in applications where quick and easy removal of roll is required. Also available with replaceable wear keys.</p>	
Special Rigid (Companion Flange)	<p>Quick Disconnect Where production requirement dictates quick disconnection of the roll end for roll or stand change.</p>	

Gear spindles, universal joints and couplings are at the heart of steel, paper, cement and many other types of mills. A sound design and solid service support from a world-class manufacturer will help provide the performance you need.

Inspection Process

Depending on the application, a spindle or universal joint should be completely disassembled and inspected annually.

KOP-FLEX benefits:

- Saves you time and trouble. As one steel mill maintenance manager puts it:
“Mills are in the business of rolling steel - not maintaining spindles”
- A comprehensive expert-prepared condition report including recommendations for repair or replacement and any relevant price quotations
- If your spindle is in satisfactory condition, we will reassemble it with new hardware (as needed)
- We will serialize and maintain record of repair, inventory, and parts usage for periodic future review and evaluation

“Like New” for Less

Gear teeth, cross & bearing and yokes are replaced or repaired/returned to original specifications. Worn pilot areas are plated or welded and machined to their original dimensions. Roll end bores are returned to their original dimensions. If needed, accessories and hardware are replaced. All this in about half the time it takes to manufacture a new spindle and at a much lower price.



A universal joint, as received from a customer, at our service center for inspection and rebuilding

- **Like New for Less... convert used to almost new**
- **Savings from 30% to 90%**
- **Documented inspection process**
- **Inventory management program**
- **Maintenance management program**

Universal joint after refurbishment, serialized for tracking



Visit www.kopflex.com

Where to Look for Flanged Universal Joints

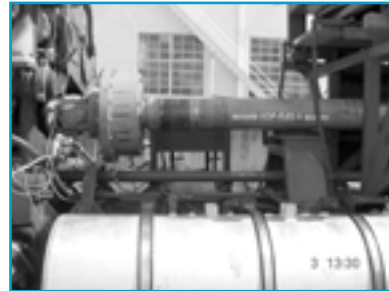
Flanged universal joints are used in most industrial markets – from small sizes in automobiles to the largest of industrial applications. We concentrate on industrial and some off-highway applications (not automotive). Wherever you have high misalignments, you need a universal joint.



Dump Truck in Mines
Low & High speed u-joints for flywheels & differentials

Outside of steel and paper plants, there seems to be endless applications that incorporate universal joints. Some of these applications are: car/metal crushers/shredders like those offered by DAVID J. JONES* Company, conveyors and large dump trucks in mines, general purpose pumps, oil & drilling rigs as with oil pumping trucks mounted with pumps, wastewater/sewage treatment pumps, large conveyors, marine propulsion, street sweepers and lumber, to name a few.

We have supplied many specialty universal joints for a variety of applications, see the pictures below. Some of them are Hybrid solutions – universal joint with a MAX-C® resilient coupling or KD® coupling, for instance. If you can imagine an application we can provide a coupling for it.

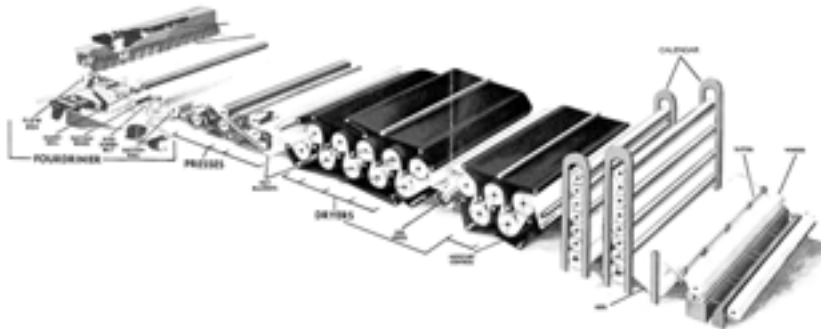


U-Joint with MAX-C® resilient coupling on a truck-mounted pump/transmission system for an oil patch application.

Typically, universal joints are associated with paper and steel plants. Universal joints, however, are commonly used in a wide variety of industrial applications.

The following tables show typical steel and paper plant applications into which KOP-FLEX products have been installed. Note that this list is by no means comprehensive but illustrates the wide applicability of KOP-FLEX products.

PAPER MILL



Paper Industry Typical Drives Motor to Gearbox Gearbox to Roll Motor to Roll Vertical Pumps	Applications	SHAFTS IN SERVICE	
		Type	Swing
	1st press bottom	UMD, UMK	285, 250, 315
	2nd press	UMD, UHD	390, 350
	2nd NIP Roll	UMK	285
	Calendar Spreader Roll	ULS	98
	Center Roll	UMK	285
	Couch Roll	UMD, ULS	315, 215
	Couching Roll	UMD	250
	Dryer Lead-in Roll	ULD	98
	Forward Drive Roll	UMK	350
	Lumpbreaker Roll	UMD, ULD	250, 215
	Pick-up Roll	UMK	285
	Printing Machine	ULD	090, 098
	Suction Couching Roll	UMD	250
	Suction Pick-up Roll	ULS	160
	Vertical Press Roll	ULD	098
	Winder	ULD	250
	Wire Turning Roll	UMD, UHD	350, 390

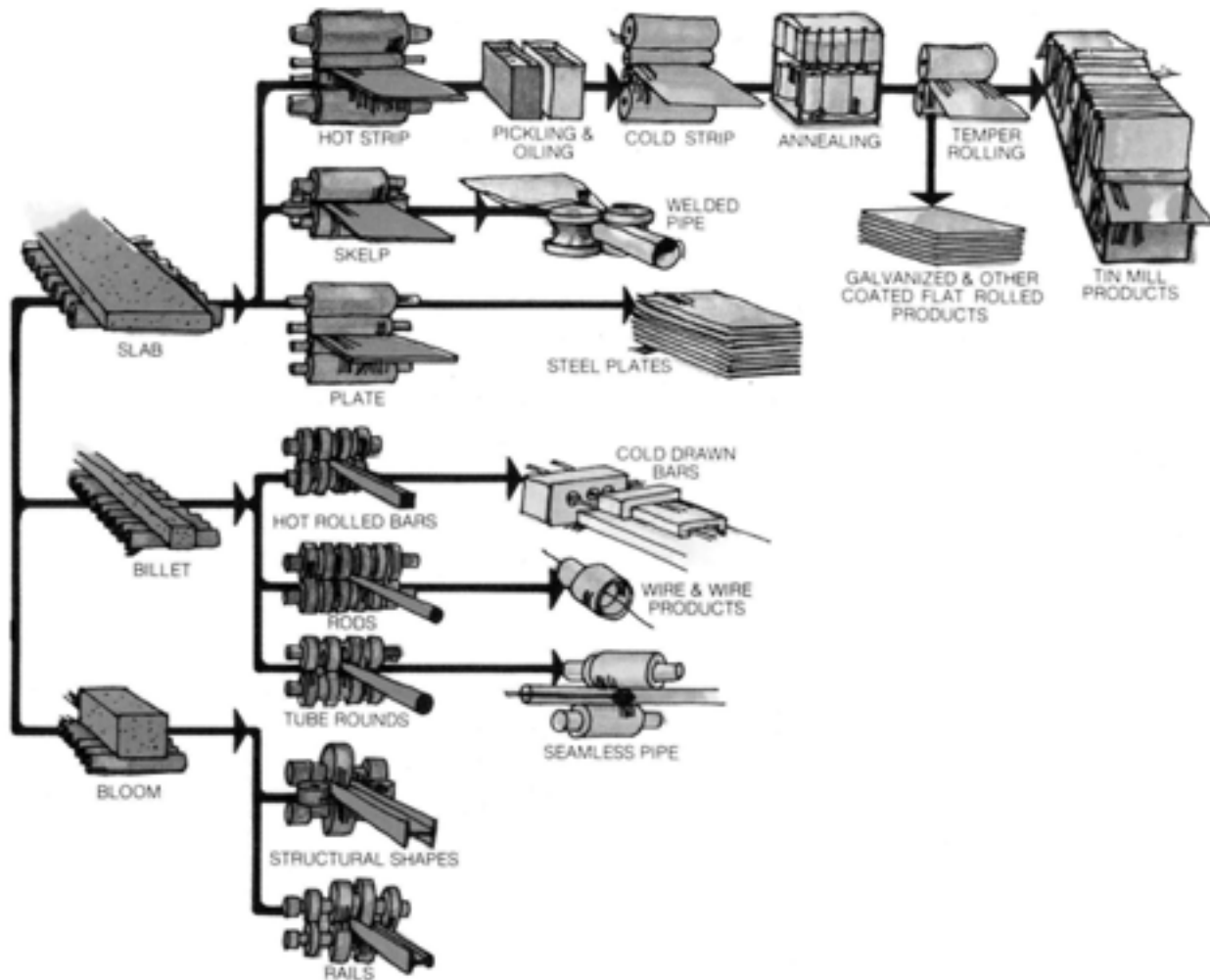
*DAVID J. JONES Company is a trademark of David J. Jones Company.
This trade name, trademark and/or registered trademark is used herein for product comparison purposes only, is the property of its respective owner and is not owned or controlled by Emerson Power Transmission Corporation (EPT). EPT does not represent or warrant the accuracy of this document.

Where to Look for Flanged Universal Joints

Small finishing mills, in addition to the larger, better-known plants are significant users of universal joints. KOP-FLEX can be a valuable source of information and solutions to all plants, but particularly to those that may not have unlimited engineering resources.

For universal joint descriptor designations and a competitive interchange chart, please see the universal joint sales data sheet located at www.kopflex.com.

STEEL MILL – BAR, STRIP, PLATE, TIN, GALVANIZE



Steel Industry	Applications	SHAFTS IN SERVICE	
		Type	Swing
Typical Drives Pinion to Roll Gearbox to Roll Motor to Roll	Bar Mill	ULDX, UMKX	215, 285
	Cradle Roll	UMD, UMK	250, 285, 315
	Feed Roll Drive	ULD	204
	Exit Table Drive	ULD	178
	Car Lifting Trans Shaft	ULD	125
	Temper Mill - Pinch Roll	UMD	315
	Casting - Pinch Roll	ULD	170
	Temper Mill - Main Drive	UMK	285
	Aluminum Caster	UHK	390
	Bending Roll	UMK	315
	Pinch Roll	ULD,UMK	115, 160, 285, 315
	Skin Pass Mill	UMK	285
	Reel and Drive	UMD	285
	Tandem Mill - Deflector Roll	ULD	125
	Tandem Mill - Exit Pinch Roll	ULD	30

For any assistance call customer service or engineering at 410-768-2000 or email coupling specialists at coupling-engineering@emerson-ept.com.