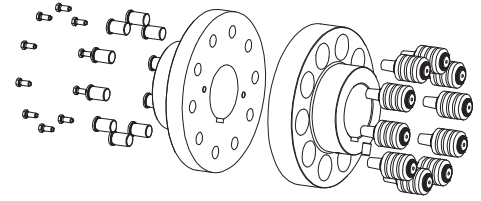


### Description of coupling

#### General description




REVOLEX® KX is a torsionally flexible, fail-safe pin & bush coupling. It can be plugged in axially and is characterized by its short design. In addition, REVOLEX® KX allows for an easy disassembly of the elastomer rings including the pins while being assembled. Taking into account the transmittable torque, REVOLEX® KX is based on the POLY-NORM® coupling. The REVOLEX® KX coupling compensates for every kind of shaft misalignment while transmitting the torque safely.



#### Operation/Arrangement

The coupling consists of two hubs. The torque is transmitted via the steel pins with their taper elastomer rings. As a result all kinds of shaft misalignment, for example caused by inaccurate alignment of the driving or driven elements, is compensated for reliably and vibrations and shocks are compensated for excellently. The coupling is maintenance-free and is used in general engineering and the pump industry, materials handling technology technology, etc. For an optimum adjustment to the different applications, 21-off sizes are available covering torques up to 1.220.000 Nm. Apart from the standard programme customized solutions are available.



General information on the elastomer rings			
Material	Perbunan (NBR)	Natural rubber (NR)	Perbunan (NBR)
Hardness	80 Shore A	80 Shore A	80 Shore A
Permanent temperature range [°C]	- 30 to + 80	- 50 to + 70	- 30 to + 80
Max. temperature (short-term) [°C]	- 50 to +120	-	-
Colour	black	black	blue
Applications	STANDARD	Temperatures below zero	Electrically insulating and backlash-free, e. g. ropeway drives
			

#### Use in explosion-proof areas

REVOLEX® KX couplings are suitable for the use on drives in hazardous areas. The couplings are certified according to EC Standard 94/9/EC (ATEX 95) and belong to category 2G/2D, are confirmed and thus suitable for the use in hazardous areas of zone 1, 2, 21 and 22. Please read our information in the respective Type Examination Certificate and the operating and mounting instructions at [www.ktr.com](http://www.ktr.com).

In addition to ATEX marking an inspection certificate by DNV can be ordered for REVOLEX® KX couplings.



### Coupling selection

The selection of the REVOLEX® KX coupling has to be dimensioned in a way that the permissible coupling load is not exceeded with any operating condition. For this purpose a comparison between the loads that arise and the permissible coupling parameters has to be performed. The torques  $T_{KN}/T_{Kmax}$  mentioned refer to the connection of pins. The shaft-hub-connection needs to be investigated by the customer.

#### 1. Drives without periodical torsional vibrations

e. g. centrifugal pumps, fans, screw compressors, etc. The coupling is selected taking into account the rated torques  $T_{KN}$  and maximum torque  $T_{Kmax}$ .

##### 1.1 Load by rated torque

Determination of the actual rated torque  $T_N$  of the machine.

$$T_N [\text{Nm}] = 9550 \cdot P [\text{kW}] / n [\text{rpm}]$$

Taking into account the operating factor  $S_B$  and the temperature factor  $S_t$ , the permissible rated torque  $T_{KN}$  of the coupling has to be at least as high as the rated torque  $T_N$  of the machine.

$$T_{KN} \geq T_N \cdot S_B \cdot S_t$$

##### 1.2 Taking into account short-term shocks

As an example: for the startup or braking of drives two times the rated torque of the coupling is admitted for up to 10 times an hour.

$$T_{Kmax} \geq 2 \cdot T_{KN}$$

##### 1.3 Determination of the required operating factor $S_B$

see table

It is necessary to consult with the engineering department of KTR if:

- the operating speed is close to the critical speed (see page 65)
- the ambient temperature exceeds 80 °C
- more than 10 starts per hour are performed

#### 2. Drives with periodical torsional vibrations.

For drives subject to high torsional vibrations, e. g. diesel engines, piston compressors, piston pumps, generators, etc., it is necessary to perform a torsional vibration calculation to ensure a safe operation. If requested, we perform the torsional vibration calculation and the coupling selection in our company. For necessary details please see KTR standard 20004.

Description	Symbol	Definition or explanation
Rated torque of coupling	$T_{KN}$	Torque that can continuously be transmitted over the entire permissible speed range
Maximum torque of coupling	$T_{Kmax}$	Torque that can be transmitted as dynamic load $\geq 10^5$ times or $5 \times 10^4$ as vibratory load, respectively, during the entire operating life of the coupling
Vibratory torque of coupling	$T_{KW}$	Torque amplitude of the permissible periodical torque fluctuation with a frequency of 10 Hz and a basic load of $T_{KN}$ or dynamic load up to $T_{KN}$ , respectively
Rated torque of machine	$T_N$	Stationary rated torque on the coupling

Service factor $S_t$ for temperature				
	-30 °C +30 °C	+40 °C	+60 °C	+80 °C
$S_t$	1,0	1,2	1,4	1,8

### Permissible load on feather key of the coupling hubs

The shaft-hub-connection has to be verified by the customer. Permissible surface pressure according to DIN 6892 (method C).

Cast iron GJL 225 N/mm<sup>2</sup>  
Nodular iron GJS 225 N/mm<sup>2</sup>  
Steel 250 N/mm<sup>2</sup>

#### Example of calculation:

Kneading machine drive with rotary current motor

#### Details of machine on driving side:

Rotary current motor size 560  
Motor power  $P = 1000$  kW  
Speed  $n = 991$  rpm

#### General details:

Ambient temperature = +40 °C

#### Coupling selection:

##### Load by rated torque:

$$T_N [\text{Nm}] = 9550 \cdot 1000 [\text{kW}] / 991 \text{ rpm} = 9636,7 \text{ Nm}$$

Operating factor  $S_B = 1,75$  (see page 64)

Temperature factor  $S_t = 1,2$  (see table)

##### Calculation of coupling torque:

$$T_{KN} \geq T_N \cdot 1,75 \cdot 1,2 = 20237 \text{ Nm}$$

→ Selected: REVOLEX® KX-170

## Coupling selection

The operating factors listed are based on experiences estimating the operating behaviour of driving and driven combinations. For a periodic impulse of the machine or driving or braking of big masses it is necessary to perform a selection in accordance with DIN 740.

Operating factor $S_B$	
<b>Construction machines</b>	1,25
Manoeuvre winches	1,25
Swing gears	1,50
Miscellaneous winches	1,75
Filters, cable winches	1,75
Multi-bucket excavators	1,75
Running gears (caterpillars)	1,75
Impellers	1,75
Cutter heads	1,75
Cutter drives	2,00
Construction lifts	1,25
Concrete mixers	1,25
Road construction machines	1,25
<b>Conveyors</b>	
Bucket elevators	1,50
Freight lifts	1,75
Hauling winches	1,25
Apron conveyors	1,25
Rubber belt conveyors (bulk)	1,25
Boom plate bucket conveyors	1,25
Rotary conveyors	1,25
Steel plate conveyors	1,25
Worm conveyors	1,25
Steel belt conveyors	1,25
Conveyors	1,75
Rubber belt conveyor (bulk)	1,75
Inclined lifts	1,75
Shaking slides	2,00
<b>Generators</b>	
Frequency converters	1,75
Generators	1,75
<b>Rubber &amp; nylon industry</b>	
Rubber calenders and rolling mills	1,75
Mixers	1,75
Extruders	1,75
Kneading machines	1,75
<b>Lifters/cranes</b>	
Luffing gears	1,00
Swing and sliding gears	1,25
Running gears	1,75
Lifting gears	1,75
<b>Woodworking machinery</b>	
Planing machines	1,25
Barking machines	1,75
Saw frames	1,75
<b>Compressors</b>	
Centrifugal compressors	1,00
Rotary compressors	1,25
<b>Metal industry</b>	
Plate tilters	1,25
Wire pulls	1,25
Winders	1,25
Crawlers	1,25
Roller levellers	1,25
Winding drums	1,50
Wire drawing machines	1,75
Roller tables (light-weight)	1,75
Plate shears	1,75
Block pushers	1,75
Blooming and slabbing	1,75
De-scalers	1,75
Cold rolling mills	1,75
Billet shears	1,75
Plugging machines	1,75
Continuous casting machines	1,75
Shifting devices	1,75

Operating factor $S_B$	
<b>Metal industry</b>	
Roller tables (heavy-weight)	2,00
<b>Mixers</b>	
Constant density	1,50
Variable density	1,75
<b>Mills</b>	
Centrifugal mills	1,75
Beater mills	1,75
Autogenous mills	1,75
Hammer and ball mills	2,00
<b>Food-processing industry</b>	
Sugarcane harvesters	1,25
Sugar-beet harvesters	1,25
Sugar-beet washing	1,25
Kneading machines	1,75
Sugarcane breakers	1,75
Sugarcane mills	1,75
<b>Oil industry</b>	
Filter presses for paraffin	1,50
Rotary furnaces	1,75
<b>Paper machines</b>	
Couch rolls	1,75
Calenders	1,75
Wet presses	1,75
<b>Pumps</b>	
Centrifugal pumps (light liquid)	1,00
Centrifugal pumps (viscous liquid)	1,25
Gear and vane pumps	1,25
Screw type pumps	1,50
Piston pumps, plunger pumps and press pumps	2,00
<b>Agitator</b>	
Light liquid	1,00
Viscous liquid	1,25
Liquid with constant density	1,25
Liquid with variable density	1,50
Liquid mixed with solids	1,75
<b>Filters</b>	
Screening drums	1,50
<b>Textile industry</b>	
Winders	1,25
Printing and dyeing machines	1,25
Tanning barrels	1,25
Shredders	1,50
<b>Fans, ventilators and blowers</b>	
Centrifugal fans	1,75
Industrial fans	1,75
Rotary blowers	1,75
Fans (axial / radial)	1,75
Fans for cooling towers	1,75
Induced draught ventilators	1,75
<b>Sewage plants</b>	
Rakes	1,0
Worm pumps	1,25
Concentrators	1,25
Mixers	1,25
Aerators	1,75
<b>Machine tools</b>	
Scissors	1,25
Dressing rollers	1,50
Bending machines	1,50
Hole punching machines	1,75
Levelling machines	1,75
Hammers	1,75
Presses	1,75
Forging presses	1,75

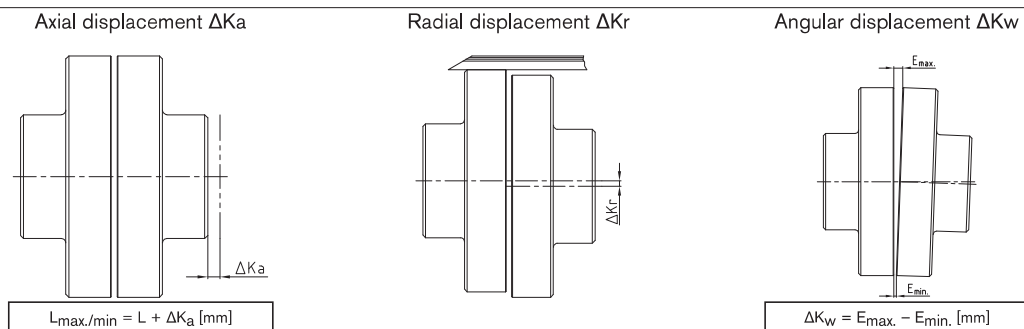
### Technical data

REVOLEX® KX Technical data											
Size	Torque [Nm] NBR 80 Sh-A			Casted material		Steel		Dyn. torsion spring stiffness [Nm/rad]			
	Nominal TKN	Max. TKmax.	Vibratory TKW	Max. speed [rpm] with V = 35 m/s	Max. bore [mm]	Max. speed [rpm] with V = 60 m/s	Max. bore [mm]	0,25xTKN	0,50xTKN	0,75xTKN	1,00xTKN
KX 105	6485	12970	2594	2000	110/125	3475	120/135	1,053x10 <sup>6</sup>	1,545x10 <sup>6</sup>	2,225x10 <sup>6</sup>	3,060x10 <sup>6</sup>
KX 120	10080	20160	4032	1800	125/145	3100	140/155	1,242x10 <sup>6</sup>	1,675x10 <sup>6</sup>	2,350x10 <sup>6</sup>	3,167x10 <sup>6</sup>
KX 135	14030	28060	5612	1600	140/150	2725	160/165	1,728x10 <sup>6</sup>	2,331x10 <sup>6</sup>	3,270x10 <sup>6</sup>	4,407x10 <sup>6</sup>
KX 150	17960	35920	7184	1450	160	2500	185	2,213x10 <sup>6</sup>	2,985x10 <sup>6</sup>	4,187x10 <sup>6</sup>	5,643x10 <sup>6</sup>
KX 170	26360	52720	10544	1250	180	2150	220	3,250x10 <sup>6</sup>	4,480x10 <sup>6</sup>	7,500x10 <sup>6</sup>	9,970x10 <sup>6</sup>
KX 190	36160	72320	14464	1100	205	1900	245	4,458x10 <sup>6</sup>	6,145x10 <sup>6</sup>	1,029x10 <sup>7</sup>	1,367x10 <sup>7</sup>
KX 215	48160	96320	19264	1000	230	1725	275	5,938x10 <sup>6</sup>	8,185x10 <sup>6</sup>	1,370x10 <sup>7</sup>	1,822x10 <sup>7</sup>
KX 240	65740	131480	26296	900	250	1550	310	7,850x10 <sup>6</sup>	1,675x10 <sup>7</sup>	2,575x10 <sup>7</sup>	3,465x10 <sup>7</sup>
KX 265	91480	182960	36592	800	285	1375	350	1,092x10 <sup>7</sup>	2,331x10 <sup>7</sup>	3,583x10 <sup>7</sup>	4,822x10 <sup>7</sup>
KX 280	123530	247060	49412	720	315	1225	385	1,475x10 <sup>7</sup>	3,147x10 <sup>7</sup>	4,838x10 <sup>7</sup>	6,511x10 <sup>7</sup>
KX 305	152840	305680	61136	675	330	1150	405	1,830x10 <sup>7</sup>	3,904x10 <sup>7</sup>	6,002x10 <sup>7</sup>	8,076x10 <sup>7</sup>
KX 330	188470	376940	75388	625	355	1075	435	2,250x10 <sup>7</sup>	4,802x10 <sup>7</sup>	7,382x10 <sup>7</sup>	9,934x10 <sup>7</sup>
KX 355	230110	460220	92044	-	-	975	465	2,748x10 <sup>7</sup>	5,863x10 <sup>7</sup>	9,013x10 <sup>7</sup>	1,213x10 <sup>8</sup>
KX 370	302500	605000	121000	-	-	900	550	3,614x10 <sup>7</sup>	7,712x10 <sup>7</sup>	1,186x10 <sup>8</sup>	1,595x10 <sup>8</sup>

REVOLEX® KX-D Technical data											
Size	Torque [Nm] NBR 80 Sh A			Casted material		Steel		Dyn. torsion spring stiffness [Nm/rad]			
	Nominal TKN	Max. TKmax.	Vibratory TKW	Max. speed [rpm] with V = 35 m/s	Max. bore [mm]	Max. speed [rpm] with V = 60 m/s	Max. bore [mm]	0,25xTKN	0,50xTKN	0,75xTKN	1,00xTKN
KX-D 75	3800	7600	1520	-	-	4500	90	0,641x10 <sup>6</sup>	0,941x10 <sup>6</sup>	1,355x10 <sup>6</sup>	1,864x10 <sup>6</sup>
KX-D 85	5000	10000	2000	-	-	4175	100	0,834x10 <sup>6</sup>	1,224x10 <sup>6</sup>	1,763x10 <sup>6</sup>	2,425x10 <sup>6</sup>
KX-D 95	6600	13200	2640	-	-	3845	110	1,077x10 <sup>6</sup>	1,580x10 <sup>6</sup>	2,277x10 <sup>6</sup>	3,131x10 <sup>6</sup>
KX-D 105	8650	17300	3460	2000	110	3475	120	1,404x10 <sup>6</sup>	2,060x10 <sup>6</sup>	2,967x10 <sup>6</sup>	4,081x10 <sup>6</sup>
KX-D 120	14110	28220	5640	1800	125	3100	140	1,742x10 <sup>6</sup>	2,350x10 <sup>6</sup>	3,297x10 <sup>6</sup>	4,443x10 <sup>6</sup>
KX-D 135	18690	37380	7476	1600	140	2725	160	2,304x10 <sup>6</sup>	3,108x10 <sup>6</sup>	4,360x10 <sup>6</sup>	5,876x10 <sup>6</sup>
KX-D 150	23100	46200	9240	1450	160	2500	185	2,880x10 <sup>6</sup>	3,885x10 <sup>6</sup>	5,450x10 <sup>6</sup>	7,345x10 <sup>6</sup>
KX-D 170	36900	73800	14760	1250	180	2150	220	4,550x10 <sup>6</sup>	6,272x10 <sup>6</sup>	1,050x10 <sup>7</sup>	1,396x10 <sup>7</sup>
KX-D 190	48210	96420	19284	1100	205	1900	245	5,980x10 <sup>6</sup>	8,243x10 <sup>6</sup>	1,380x10 <sup>7</sup>	1,834x10 <sup>7</sup>
KX-D 215	61900	123800	24760	1000	230	1725	275	7,634x10 <sup>6</sup>	1,052x10 <sup>7</sup>	1,762x10 <sup>7</sup>	2,342x10 <sup>7</sup>
KX-D 240	92030	184060	36812	900	250	1550	310	1,101x10 <sup>7</sup>	2,350x10 <sup>7</sup>	3,613x10 <sup>7</sup>	4,861x10 <sup>7</sup>
KX-D 265	121900	243800	48760	800	285	1375	350	1,456x10 <sup>7</sup>	3,108x10 <sup>7</sup>	4,778x10 <sup>7</sup>	6,429x10 <sup>7</sup>
KX-D 280	158800	317600	63520	720	315	1225	385	1,896x10 <sup>7</sup>	4,047x10 <sup>7</sup>	6,221x10 <sup>7</sup>	8,371x10 <sup>7</sup>
KX-D 305	191060	382120	76424	675	330	1150	405	2,287x10 <sup>7</sup>	4,880x10 <sup>7</sup>	7,502x10 <sup>7</sup>	1,009x10 <sup>8</sup>
KX-D 330	251200	502400	100480	625	355	1075	435	3,001x10 <sup>7</sup>	6,403x10 <sup>7</sup>	9,843x10 <sup>7</sup>	1,324x10 <sup>8</sup>
KX-D 355	300000	600000	120000	575	380	975	450	3,572x10 <sup>7</sup>	7,622x10 <sup>7</sup>	1,172x10 <sup>8</sup>	1,577x10 <sup>8</sup>
KX-D 370	400000	800000	160000	535	450	900	530	4,518x10 <sup>7</sup>	9,640x10 <sup>7</sup>	1,482x10 <sup>8</sup>	1,994x10 <sup>8</sup>
KX-D 470	510000	1020000	204000	-	-	855	520	6,325x10 <sup>7</sup>	1,350x10 <sup>8</sup>	2,075x10 <sup>8</sup>	2,208x10 <sup>8</sup>
KX-D 520	715000	1430000	286000	-	-	740	acc. to customer's request	8,832x10 <sup>7</sup>	1,885x10 <sup>8</sup>	2,897x10 <sup>8</sup>	3,083x10 <sup>8</sup>
KX-D 590	950000	1900000	380000	-	-	660	acc. to customer's request	1,177x10 <sup>8</sup>	2,5107x10 <sup>8</sup>	3,859x10 <sup>8</sup>	4,107x10 <sup>8</sup>
KX-D 650	1220000	2440000	488000	-	-	590	acc. to customer's request	1,512x10 <sup>8</sup>	3,226x10 <sup>8</sup>	4,959x10 <sup>8</sup>	5,277x10 <sup>8</sup>

Couplings can be dynamically balanced on request (semi-key balancing G 6,3 with speed acc. customer's specifications). For peripheral speeds exceeding V = 30 m/s, we would recommend dynamically balancing.

### Displacements



Displacements																						
Size (KX and KX-D)	75	85	95	105	120	135	150	170	190	215	240	265	280	305	330	355	370	470	520	590	650	
Max. axial displacement $\Delta K_a$ [mm]	±1,5	±1,5	±1,5	±2	±2	±2	±2	±2,5	±2,5	±2,5	±2,5	±2,5	±2,5	±2,5	±4	±4	±4	±4	±4	±4	±4	±4
Max. radial displacement $\Delta K_r$ [mm] or max. angular displacement $\Delta K_w$ [mm] with speed n	250 rpm	0,95	1,1	1,1	1,2	1,3	1,4	1,5	1,7	1,9	2,0	2,2	2,5	2,7	2,9	3,1	3,3	3,5	3,8	4,4	4,9	5,4
	500 rpm	0,70	0,80	0,80	0,9	0,9	1,0	1,1	1,2	1,3	1,4	1,6	1,7	1,9	2,0	2,2	2,3	2,5	2,8	3,1	3,5	3,8
	750 rpm	0,60	0,65	0,65	0,7	0,8	0,8	0,9	1,0	1,1	1,2	1,3	1,4	1,6	1,7	1,8	1,9	2,0	2,2	2,4	-	-
	1000 rpm	0,50	0,55	0,55	0,6	0,7	0,7	0,8	0,9	0,9	1,0	1,1	1,2	1,4	1,4	1,5	1,7	1,8	-	-	-	-
	1500 rpm	0,40	0,45	0,45	0,5	0,5	0,6	0,6	0,7	0,8	0,8	0,9	1,0	-	-	-	-	-	-	-	-	-
2000 rpm	0,35	0,40	0,40	0,4	0,5	0,5	0,5	0,6	0,7	-	-	-	-	-	-	-	-	-	-	-	-	
3000 rpm	0,30	0,35	0,35	0,4	0,4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

### Assembly instructions

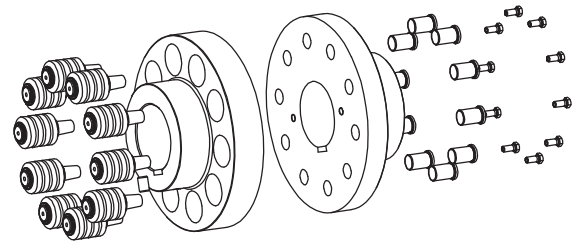
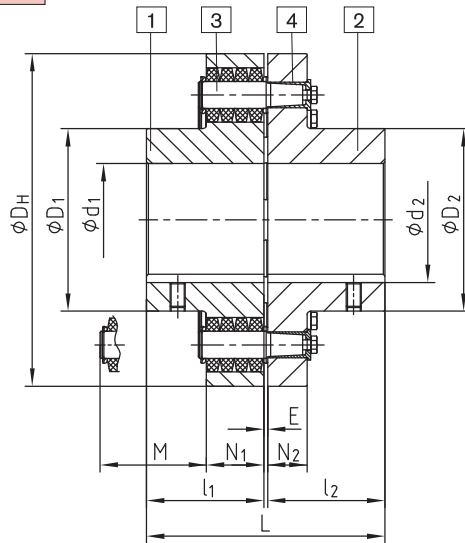
The permissible misalignment figures of the flexible REVOLEX® KX couplings mentioned are general standard values, taking into account the coupling load up to the rated torque  $T_{KN}$  of the coupling and an ambient temperature of + 30° C. The displacement figures may only be used separately - if various kinds of displacement arise in parallel, the displacement figures may only be used proportionately. For the assembly of the coupling please make sure that the distance dimension E is adhered to accurately to make sure that the coupling remains flexible during operation. See KTR assembly instructions, KTR standard 49410 at our homepage [www.ktr.com](http://www.ktr.com).

### Type KX – casted material –



- Vibration-reducing, short design
- Radial assembly/disassembly
- Axial plug-in, fail-safe
- All-over machining → good dynamic properties
- Protected surfaces
- Standard hub material GJL (GJS or steel available on request)
-  Approved and certified according to EC Standard 94/9/EC

### Components



- Components  
Type KX  
1 = Hub part 1  
2 = Hub part 2  
3 = Complete pin  
4 = KX sleeve (hardened and corrosion-resistant)

REVOLEX® KX																
Size	Torque <sup>1)</sup> [Nm]		Max. speed <sup>2)</sup> [rpm]	Finish bore [min. - max.]		Dimensions [mm]									Mass moments of inertia <sup>3)</sup> [kgm <sup>2</sup> ]	Approx. weight <sup>3)</sup> [kg]
	T <sub>KN</sub>	T <sub>Kmax</sub>		d <sub>1</sub>	d <sub>2</sub>	L	l <sub>1</sub> ; l <sub>2</sub>	E	D <sub>H</sub>	D <sub>1</sub>	D <sub>2</sub>	N <sub>1</sub>	N <sub>2</sub>	M*		
KX 105	6485	12970	2000	34-110	34-125	237	117	3	330	180	202	56	30	76	0,771	62
KX 120	10080	20160	1800	50-125	50-145	270	132	6	370	206	225	76	46	100	1,611	96
KX 135	14030	28060	1600	70-140	70-150	300	147	6	419	230	240	76	46	100	2,685	123
KX 150	17960	35920	1450	82-160		336	165	6	457	256	260	76	46	100	3,887	162
KX 170	26360	52720	1250	95-180		382	188	6	533	292	292	92	63	130	9,165	273
KX 190	36160	72320	1100	110-205		428	211	6	597	330	330	92	63	130	14,765	360
KX 215	48160	96320	1000	125-230		480	237	6	660	368	368	92	63	145	22,771	465
KX 240	65740	131480	900	140-250		534	264	6	737	407	407	122	76	167	43,484	695
KX 265	91480	182960	800	160-285		590	292	6	826	457	457	122	76	170	70,143	910
KX 280	123530	247060	720	180-315		628	311	6	927	508	508	122	76	189	112,637	1183
KX 305	152840	305680	675	180-330		654	324	6	991	533	533	122	76	202	146,974	1369
KX 330	188470	376940	625	200-355		666	330	6	1067	572	572	122	76	208	198,005	1598

\* Drop-out center dimension

<sup>1)</sup> Standard material NBR 80 Shore-A, selection see page 63

<sup>2)</sup> Higher speeds on request

<sup>3)</sup> Referring to max. bore

Finish bore acc. to ISO tolerance H7, feather keyway acc. to DIN 6885 sheet 1 - JS9.

If requested, coupling is dynamically balanced (semi-key balancing G 6,3; speed as per customer's details). For circumferential speeds exceeding 30 m/s we would recommend dynamic balancing.

### Ordering example:

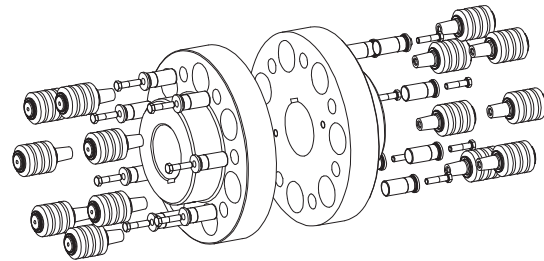
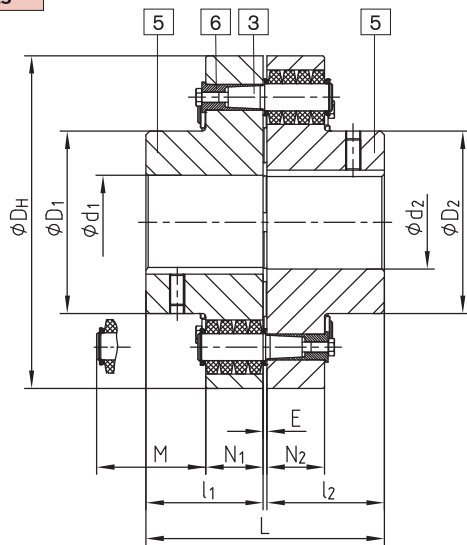
REVOLEX® KX 170	GJL	Part 1 Ø120	Part 2 Ø150
Size and type of coupling	Material	Finish bore	Finish bore

### Type KX-D – casted material –



- Vibration-reducing, short design
- Radial assembly/disassembly
- Axial plug-in, fail-safe
- All-over machining → good dynamic properties
- Standard hub material GJL (GJS on request)
- Pins are arranged alternately
- Increase of transmittable torque by up to 40 % compared to REVOLEX® KX
- Approved and certified according to EC Standard 94/9/EC

#### Components



Components Type KX-D  
5 = Hub part 5  
3 = Complete pin  
6 = KX-D sleeve (hardened and corrosion-resistant)

#### REVOLEX® KX-D

Size	Torque <sup>1)</sup> [Nm]		Max. speed <sup>2)</sup> [rpm]	Finish bore [min. - max.] d <sub>1</sub> ; d <sub>2</sub>	Dimensions [mm]							Mass moments of inertia <sup>3)</sup> [kgm <sup>2</sup> ]	Approx weight <sup>3)</sup> [kg]
	T <sub>KN</sub>	T <sub>Kmax.</sub>			L	l <sub>1</sub> ; l <sub>2</sub>	E	D <sub>H</sub>	D <sub>1</sub> ; D <sub>2</sub>	N <sub>1</sub> ; N <sub>2</sub>	M*		
KX-D 105	8650	17300	2000	34-110	237	117	3	330	180	56	76	0,907	68
KX-D 120	14110	28220	1800	50-125	270	132	6	370	206	76	100	1,867	108
KX-D 135	18690	37380	1600	70-140	300	147	6	419	230	76	100	3,144	145
KX-D 150	23100	46200	1450	82-160	336	165	6	457	256	76	100	4,573	180
KX-D 170	36900	73800	1250	95-180	382	188	6	533	292	92	130	10,259	291
KX-D 190	48210	96420	1100	110-205	428	211	6	597	330	92	130	16,601	385
KX-D 215	61900	123800	1000	125-230	480	237	6	660	368	92	130	25,495	498
KX-D 240	92030	184060	900	140-250	534	264	6	737	407	122	170	50,147	760
KX-D 265	121900	243800	800	160-285	590	292	6	826	457	122	170	80,796	997
KX-D 280	158800	317600	720	180-315	628	311	6	927	508	122	170	129,979	1301
KX-D 305	191060	382120	675	180-330	654	324	6	991	533	122	170	170,016	1509
KX-D 330	251200	502400	625	200-355	666	330	6	1067	572	122	170	227,451	1755
KX-D 355	300000	600000	575	225-450	721	356	9	1156	610	164	220	415,259	2263
KX-D 370	400000	800000	535	225-530	773	382	9	1250	720	164	220	586,686	2701

\* Drop-out center dimension

<sup>1)</sup> Standard material NBR 80 Shore-A, selection see page 63

<sup>2)</sup> Higher speeds on request

<sup>3)</sup> Referring to max. bore

Finish bore acc. to ISO tolerance H7, feather keyway acc. to DIN 6885 sheet 1 - JS9.

If requested, coupling is dynamically balanced (semi-key balancing G 6,3; speed as per customer's details). For circumferential speeds exceeding 30 m/s we would recommend dynamic balancing.


= with pilot bore available from stock

#### Ordering example:

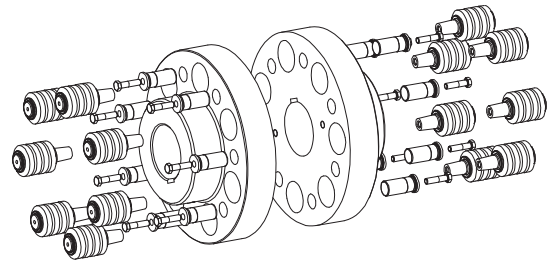
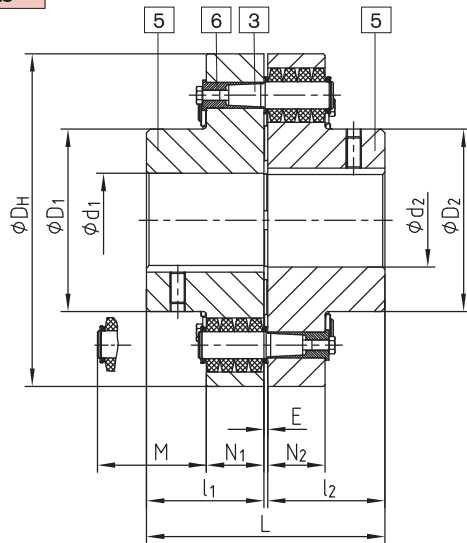
REVOLEX® KX-D 170	GJL	Ø120	Ø150
Size and type of coupling	Material	Finish bore	Finish bore

### Type KX-D – material steel –



- Reducing vibrations, short design
- Radial assembly/disassembly
- Axial plug-in, fail-safe
- All-over machining → good dynamic properties
- Hub material steel, specifically suitable for drive elements subject to high loads or high circumferential speeds
- Pins are arranged alternately
- Increase of transmittable torque by up to 40 % compared to REVOLUX® KX
-  Approved and certified according to EC Standard 94/9/EC

### Components



Components  
Type KX-D  
5 = Hub part 5  
3 = Complete pin  
6 = KX-D sleeve (hardened and corrosion-resistant)

REVOLUX® KX-D													
Size	Torque <sup>1)</sup> [Nm]		Max. speed <sup>2)</sup> [rpm]	Finish bore [min. - max.] d <sub>1</sub> ; d <sub>2</sub>	Dimensions [mm]						Mass moments of inertia <sup>3)</sup> [kgm <sup>2</sup> ]	Approx. weight <sup>3)</sup> [kg]	
	T <sub>KN</sub>	T <sub>Kmax.</sub>			L	l <sub>1</sub> ; l <sub>2</sub>	E	D <sub>H</sub>	D <sub>1</sub> ; D <sub>2</sub>	N <sub>1</sub> ; N <sub>2</sub>			M*
KX-D 75	3800	7600	4500	0-90	193	95	3	255	136	56	76	0,325	39
KX-D 85	5000	10000	4175	0-100	213	105	3	274	152	56	76	0,440	46
KX-D 95	6600	13200	3825	0-110	227	112	3	298	168	56	76	0,624	56
KX-D 105	8650	17300	3475	0-120	237	117	3	330	180	56	76	0,907	80
KX-D 120	14110	28220	3100	0-140	270	132	6	370	206	76	100	1,867	124
KX-D 135	18690	37380	2725	70-160	300	147	6	419	230	76	100	3,144	165
KX-D 150	23100	46200	2500	82-185	336	165	6	457	256	76	100	4,573	205
KX-D 170	36900	73800	2150	95-220	382	188	6	533	292	92	130	10,259	322
KX-D 190	48210	96420	1900	110-245	428	211	6	597	330	92	130	16,601	431
KX-D 215	61900	123800	1725	125-275	480	237	6	660	368	92	130	25,495	559
KX-D 240	92030	184060	1550	140-310	534	264	6	737	407	122	170	50,147	833
KX-D 265	121900	243800	1375	160-350	590	292	6	826	457	122	170	80,796	1099
KX-D 280	158800	317600	1225	180-385	628	311	6	927	508	122	170	129,979	1436
KX-D 305	191060	382120	1150	180-405	654	324	6	991	533	122	170	170,016	1669
KX-D 330	251200	502400	1075	200-435	666	330	6	1067	572	122	170	227,451	1954
KX-D 355	300000	600000	975	225-450	721	356	9	1156	610	164	220	415,259	2451
KX-D 370	400000	800000	900	225-530	773	382	9	1250	720	164	220	584,686	2925
KX-D 470	510000	1020000	855	240-520	969 <sup>4)</sup>	480 <sup>4)</sup>	9	1340	705 <sup>4)</sup>	164	220	785,489	3631
KX-D 520	715000	1430000	760	240-520 <sup>4)</sup>	1089 <sup>4)</sup>	540 <sup>4)</sup>	9	1540	780 <sup>4)</sup>	164	220	1264,725	5155
KX-D 590	950000	1900000	680	260-590 <sup>4)</sup>	1212 <sup>4)</sup>	600 <sup>4)</sup>	12	1735	885 <sup>4)</sup>	164	220	2081,885	6895
KX-D 650	1220000	2440000	610	280-650 <sup>4)</sup>	1332 <sup>4)</sup>	660 <sup>4)</sup>	12	1935	975 <sup>4)</sup>	164	220	3228,297	8893

\* Drop-out center dimension required

<sup>1)</sup> Standard material NBR 80 Shore-A, selection see page 63


<sup>2)</sup> Higher speeds on request

<sup>3)</sup> Referring to max. bore

<sup>4)</sup> Variable according to customer's requests

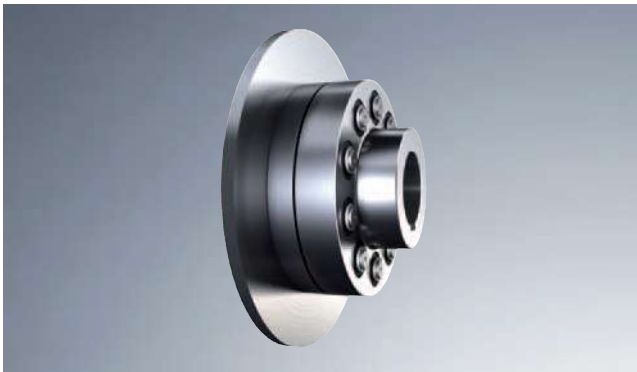
Finish bore acc. to ISO tolerance H7, feather keyway acc. to DIN 6885 sheet 1 - JS9.

If requested, coupling is dynamically balanced (semi-key balancing G 6,3; speed as per customer's details). For circumferential speeds exceeding 30 m/s we would recommend dynamic balancing.

 = with pilot bore available from stock

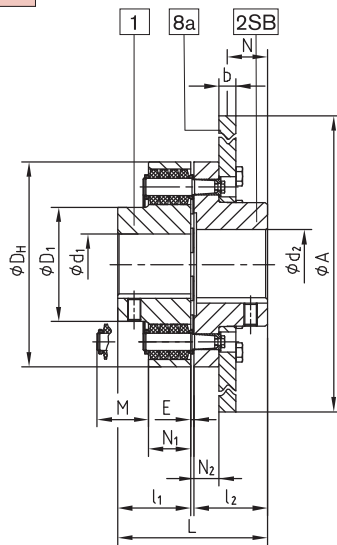
Ordering example:	REVOLUX® KX-D 170	Steel	Ø120	Ø150
	Size and type of coupling	Material	Finish bore	Finish bore

### Type KX and KX-D with brake disk

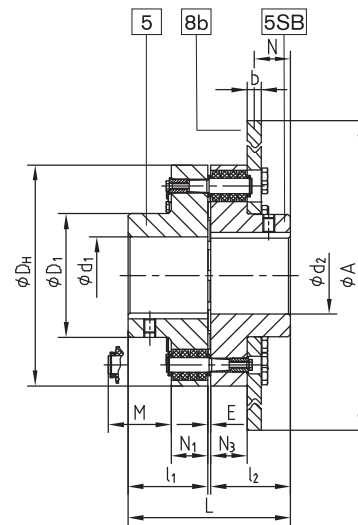


- Shaft coupling with brake disk
- The maximum braking torque must not exceed the maximum torque of the coupling
- The brake disk has to be placed onto the shaft end with the biggest mass moment of inertia
- Radial assembly/disassembly
- Axial plug-in, fail-safe
- Pins can be replaced while being assembled
- All-over machining → good dynamic properties
- Examples of applications are large fans, turbine drives, belt conveyor drives, etc.

### Components



KX



KX-D

### REVOLEX® KX and KX-D type SB

Size	Torque <sup>1)</sup> [Nm] KX		Torque <sup>1)</sup> [Nm] KX-D		Finish bore KX GJL [min. - max.]		Finish bore KX-D [min. - max.]		Dimensions [mm]								
	T <sub>KN</sub>	T <sub>Kmax.</sub>	T <sub>KN</sub>	T <sub>Kmax.</sub>	d <sub>1</sub>	d <sub>2</sub>	GJL d <sub>1</sub> ; d <sub>2</sub>	Steel d <sub>1</sub> ; d <sub>2</sub>	L	l <sub>1</sub> ; l <sub>2</sub>	E	D <sub>H</sub>	D <sub>1</sub>	N <sub>1</sub>	N <sub>2</sub>	N <sub>3</sub>	M*
105	6485	12970	8650	17300	34-110	34-125	34-110	0-120	237	117	3	330	180	56	29	55	76
120	10080	20160	14110	28220	50-125	50-145	50-125	0-140	270	132	6	370	206	76	45	75	100
135	14030	28060	18690	37380	70-140	70-150	70-140	70-160	300	147	6	419	230	76	45	75	100
150	17960	35920	23100	46200	82-160		82-160	82-185	336	165	6	457	256	76	45	75	100
170	26360	52720	36900	73800	95-180		95-180	95-220	382	188	6	533	292	92	62	91	130
190	36160	72320	48210	96420	110-205		110-205	110-245	428	211	6	597	330	92	62	91	130
215	48160	96320	61900	123800	125-230		125-230	125-275	480	237	6	660	368	92	62	91	145
240	65740	131480	92030	184060	140-250		140-250	140-310	534	264	6	737	407	122	75	121	167

### Selection of coupling/disk brake dimension "N"

Size	Brake disk ØA x b <sup>3)</sup>											
	Ø560x30		Ø630x30		Ø710x30		Ø800x30		Ø900x30		Ø1000x30	
	KX	KX-D	KX	KX-D	KX	KX-D	KX	KX-D	KX	KX-D	KX	KX-D
105	73	47	73	47								
120	72	42	72	42								
135			87	57	87	57						
150					105	75	105	75				
170					111	82	111	82				
190							134	105	134	105		
215							160	131	160	131	160	131
240							174	128	174	128	174	128

\* Drop-out center dimension required

<sup>1)</sup> Standard material NBR 80 Shore-A, selection see page 63

<sup>2)</sup> Higher speeds on request

<sup>3)</sup> Maximum circumferential speed = 60 m/s referring to maximum outside diameter.

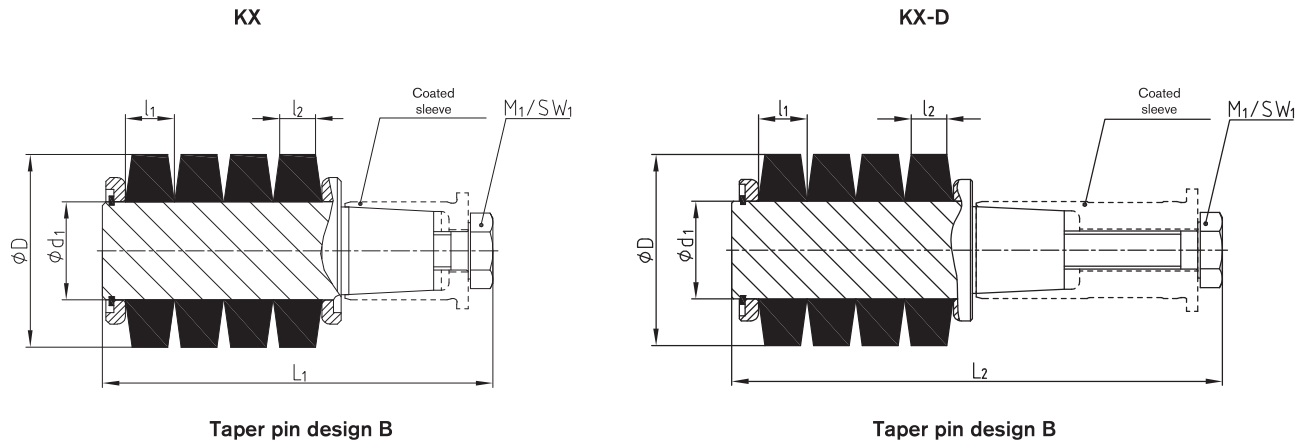
Finish bore according to ISO fit H7, feather keyway according to DIN 6885 sheet 1 - JS9.

If requested, coupling is dynamically balanced (semi-key balancing G 6,3; speed as per customer's details). For circumferential speeds exceeding 30 m/s (referring to outside diameter ØA) we would recommend dynamic balancing.

### Ordering example:

REVOLEX® KX 170	SB	Ø710x30	1 - Ø120	2SB - Ø150
Size and type of coupling	Type	Brake disk	Finish bore	Finish bore

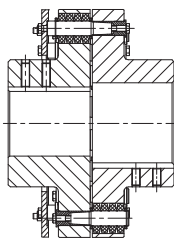
### Technical data of pin



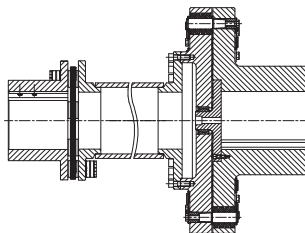
Technical data												
Size	Pin			Component 3.2			Component 3.1b			Component 3.4b		Tightening torque $T_A$ [Nm]
	Size	Number		Elastomer ring NBR 80 Shore A			Pin			Screw DIN 931/933		
		KX	KX-D	D	$l_1$	$l_2$	$d_1$	$L_1$	$L_2$	$M_1$	$SW_1$	
KX 75	3	-	10									
KX 85	3	-	12	50,0	12,7	9,0	25,40	103	129	M10	16	67
KX 95	3	-	14									
KX 105	3	12	16									
KX 120	4	10	14									
KX 135	4	12	16	63,0	17,8	12,5	30,60	147,5	178	M12	18	115
KX 150	4	14	18									
KX 170	5	10	14									
KX 190	5	12	16	85,5	22,9	15,2	43,20	191	220	M16	24	290
KX 215	5	14	18									
KX 240	6	10	14									
KX 265	6	12	16									
KX 280	6	14	18	113,7	30,5	20,3	58,40	244	290	M24	36	970
KX 305	6	16	20									
KX 330	6	18	24									
KX 355	7	-	16									
KX 370	7	-	20	150	41	28	75	-	387	M30	46	1950
KX 470	7	-	22									

### Further types

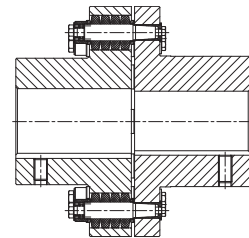
Type AB  
with limited axial backlash



Intermediate shaft type  
with RADEX®-N

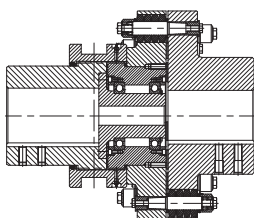


Backlash-free type

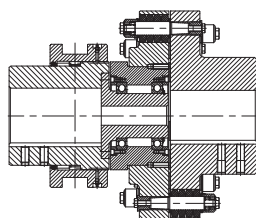


Type KX-D SD  
shiftable

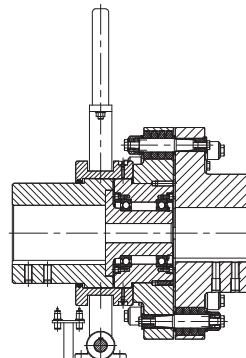
connected



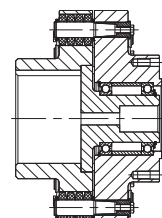
separated



Type KX-D SD  
shiftable with shiftable linkage



Type KX-D  
with cardan shaft connection

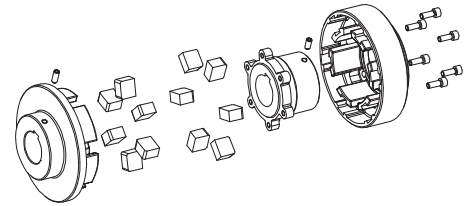


### Description of coupling

#### General description

The POLY coupling is a torsionally flexible, not fail-safe coupling for general machinery. It is assembled by axial plug-in and is characterized by excellent dampening properties. Its unique features are the flexible elastomeric elements (sets) that are located in both coupling halves.

The benefit of POLY – A much greater number of flexible elements and thus a larger effective mass of the elastomer to accept vibration and to dissipate the heat caused by torsional vibrations when compared to similar competitive couplings with elements only in one half.



#### Coupling selection

The coupling selection must be done on the base of POLY-NORM® or ROTEX®.

#### Operation/Design

The coupling consists of two hubs with fingers that are separated by elastomeric elements which are assembled by axial blind plug-in to each other. Elastomer elements are placed into the slots of both coupling hubs.

All kinds of shaft misalignments, for example generated by inaccurate alignment of the driving or driven components, are effectively absorbed in this way.

The coupling is maintenance-free and used in general engineering, the pump industry and in compressors. It handles torque ranges of up to 6100 Nm and is stocked in 15 different sizes and 3 designs which can be optimally adapted to the respective application. In addition to our standard coupling models, a variety of drop out center couplings are available.



#### Explosion-proof use

POLY couplings are suitable for power transmission in drives in hazardous areas. The couplings are certified according to EC Standard 94/9/EC (ATEX 95) and belong to category 2G/2D, are confirmed and thus suitable for the use in hazardous areas of zone 1, 2, 21 and 22. Please read our information in the respective Type Examination Certificate and the operating and mounting instructions at [www.ktr.com](http://www.ktr.com).



#### Variation of components

The coupling can be adapted to many applications due to the many options that are possible with the building block arrangement. The POLY components of a given model can be mixed and matched with each other to obtain different shaft distances using the same basic component.



#### General information on the elastomer set

Material/Hardness	Perbunan [NBR]/92 Shore A
Permanent temperature range [°C]	- 30 to + 80
Max. temperature (short time) [°C]	- 50 to + 120
Applications	General machine construction Pump industry ATEX applications Chemical industry Standard applications of average elasticity
Resistant to	Gasoline, diesel Acids, bases Tropics (Salt) Water (hot/cold) Oils, greases Propane, butane Natural gas, city gas