

Technical data

REVOLUX® KX Technical data												
Size	Torque [Nm] NBR 80Sh-A			Max. speed [rpm] bei V = 35 m/s	Max. bore [mm]	Dyn. Torsion spring stiffness				Max. permissible misalignment [mm] ¹⁾		
	Nominal T _{KN}	Max. T _{Kmax}	Alternating T _{KW}			0,25xT _{KN} [Nm/rad]	0,50xT _{KN} [Nm/rad]	0,75xT _{KN} [Nm/rad]	1,00xT _{KN} [Nm/rad]	Axiale ΔKa	Radiale ΔKr	Angular ΔKw
KX 105	6485	12970	2594	2000	110/125	1,053x10 ⁶	1,545x10 ⁶	2,225x10 ⁶	3,060x10 ⁶	±2,0	0,25	0,45
KX 120	10080	20160	4032	1800	125/145	1,242x10 ⁶	1,675x10 ⁶	2,350x10 ⁶	3,167x10 ⁶	±2,0	0,3	0,6
KX 135	14030	28060	5612	1600	140/150	1,728x10 ⁶	2,331x10 ⁶	3,270x10 ⁶	4,407x10 ⁶	±2,0	0,3	0,6
KX 150	17960	35920	7184	1450	160	2,213x10 ⁶	2,985x10 ⁶	4,187x10 ⁶	5,643x10 ⁶	±2,0	0,3	0,6
KX 170	26360	52720	10544	1250	180	3,250x10 ⁶	4,480x10 ⁶	7,500x10 ⁶	9,970x10 ⁶	±2,5	0,3	0,9
KX 190	36160	72320	14464	1100	205	4,458x10 ⁶	6,145x10 ⁶	1,029x10 ⁷	1,367x10 ⁷	±2,5	0,4	0,9
KX 215	48160	96320	19264	1000	230	5,938x10 ⁶	8,185x10 ⁶	1,370x10 ⁷	1,822x10 ⁷	±2,5	0,4	0,9
KX 240	65740	131480	26296	900	250	7,850x10 ⁶	1,075x10 ⁷	2,575x10 ⁷	3,465x10 ⁷	±2,5	0,5	1,2
KX 265	91480	182960	36592	800	285	1,092x10 ⁷	2,331x10 ⁷	3,583x10 ⁷	4,822x10 ⁷	±2,5	0,5	1,2
KX 280	123530	247060	49412	720	315	1,475x10 ⁷	3,147x10 ⁷	4,838x10 ⁷	6,511x10 ⁷	±2,5	0,5	1,2
KX 305	152840	305680	61136	675	330	1,830x10 ⁷	3,904x10 ⁷	6,002x10 ⁷	8,076x10 ⁷	±2,5	0,6	1,6
KX 330	186470	372940	75388	625	355	2,250x10 ⁷	4,802x10 ⁷	7,382x10 ⁷	9,934x10 ⁷	±4,0	0,75	2,2
KX 355	230110	460220	92044	575	380	2,748x10 ⁷	5,863x10 ⁷	9,013x10 ⁷	1,213x10 ⁸	±4,0	0,75	2,2
KX 370	302500	605000	121000	535	450	3,614x10 ⁷	7,712x10 ⁷	1,186x10 ⁸	1,595x10 ⁸	±4,0	0,75	2,2

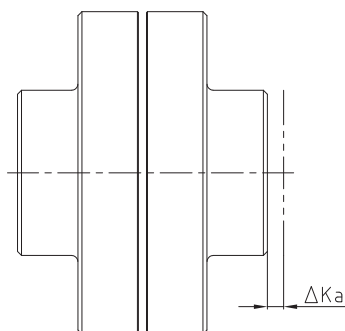
REVOLUX® KX-D Technical data												
Size	Torque [Nm] NBR 80Sh-A			Max. speed [rpm] bei V = 35 m/s	Max. bore [mm]	Dyn. Torsion spring stiffness				Max. permissible misalignment [mm] ¹⁾		
	Nominal T _{KN}	Max. T _{Kmax}	Alternating T _{KW}			0,25xT _{KN} [Nm/rad]	0,50xT _{KN} [Nm/rad]	0,75xT _{KN} [Nm/rad]	1,00xT _{KN} [Nm/rad]	Axiale ΔKa	Radiale ΔKr	Angular ΔKw
KX-D 105	8650	17300	3460	2000	110	1,404x10 ⁶	2,060x10 ⁶	2,967x10 ⁶	4,081x10 ⁶	±2,0	0,25	0,45
KX-D 120	14110	28220	5640	1800	125	1,742x10 ⁶	2,350x10 ⁶	3,297x10 ⁶	4,443x10 ⁶	±2,0	0,3	0,6
KX-D 135	18690	37380	7476	1600	140	2,304x10 ⁶	3,108x10 ⁶	4,360x10 ⁶	5,876x10 ⁶	±2,0	0,3	0,6
KX-D 150	23100	46200	9240	1450	160	2,880x10 ⁶	3,885x10 ⁶	5,450x10 ⁶	7,345x10 ⁶	±2,0	0,3	0,6
KX-D 170	36900	73800	14760	1250	180	4,550x10 ⁶	6,272x10 ⁶	1,050x10 ⁷	1,396x10 ⁷	±2,5	0,3	0,9
KX-D 190	48210	96420	19284	1100	205	5,980x10 ⁶	8,243x10 ⁶	1,380x10 ⁷	1,834x10 ⁷	±2,5	0,4	0,9
KX-D 215	61900	123800	24760	1000	230	7,634x10 ⁶	1,052x10 ⁷	1,762x10 ⁷	2,342x10 ⁷	±2,5	0,4	0,9
KX-D 240	92030	184060	36812	900	250	1,101x10 ⁷	2,350x10 ⁷	3,613x10 ⁷	4,861x10 ⁷	±2,5	0,5	1,2
KX-D 265	121900	243800	48760	800	285	1,456x10 ⁷	3,108x10 ⁷	4,778x10 ⁷	6,429x10 ⁷	±2,5	0,5	1,2
KX-D 280	158800	317600	63520	720	315	1,896x10 ⁷	4,047x10 ⁷	6,221x10 ⁷	8,371x10 ⁷	±2,5	0,5	1,2
KX-D 305	191060	382120	76424	675	330	2,287x10 ⁷	4,880x10 ⁷	7,502x10 ⁷	1,009x10 ⁸	±2,5	0,6	1,6
KX-D 330	251200	502400	100480	625	355	3,001x10 ⁷	6,403x10 ⁷	9,843x10 ⁷	1,324x10 ⁸	±4,0	0,75	2,2
KX-D 355	299100	598200	119640	575	380	3,572x10 ⁷	7,622x10 ⁷	1,172x10 ⁸	1,577x10 ⁸	±4,0	0,75	2,2
KX-D 370	377800	755600	151120	535	450	4,518x10 ⁷	9,640x10 ⁷	1,482x10 ⁸	1,994x10 ⁸	±4,0	0,75	2,2

¹⁾ Misalignment at n = 500 rpm.

Angular and radial misalignment can occur at the same time. The sum of all misalignments must not exceed the figures set forth in the table. Couplings may be dynamically balanced on request (semi-spline balancing G 6,3 with 500 rpm). For peripheral speeds exceeding V = 30 m/sec., we would recommend only steel or nodular iron, respectively. Dynamic balancing required. For circumferential speeds exceeding 35 m/s please consult with KTR's engineering department.

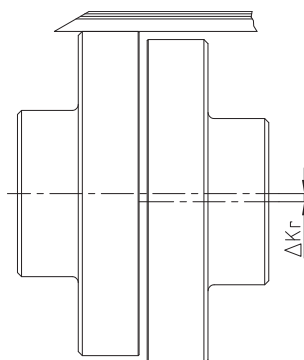
Misalignment

Axial misalignment ΔKa

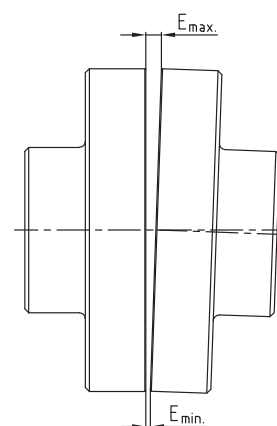


$$L_{\max./\min} = L + \Delta K_a \text{ [mm]}$$

Radial misalignment ΔKr



Angular misalignment ΔKw



$$\Delta K_w = E_{\max.} - E_{\min.} \text{ [mm]}$$

Assembly instructions

The permissible misalignment figures of the flexible REVOLUX® 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 operating speed n = 500 1/min as well as 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.

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.

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 $T_{K \max}$.

1.1 Load by rated torque

Determination of the actual rated torque T_N of the machine.

$$T_N [\text{Nm}] = 9550 \cdot \frac{P_{AN/LN} [\text{kW}]}{n [\text{rpm}]}$$

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 start-up or braking of drives two times the rated torque of the coupling is admitted for up to 10 times an hour.

$$T_{K \max} \geq 2 \cdot T_{KN}$$

1.3 Determination of the necessary 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 (p. 57)
- 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	$T_{K \max}$	Torque that can be transmitted as dynamic load $\geq 10^5$ times or 5×10^4 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 hub

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

Cast iron EN-GJL-250 (GG 25)	225 N/mm ²
material nodular iron EN-GJS-400-15 (GGG 40)	225 N/mm ²
material steel S355J2G3 (St 52.3)	250 N/mm ²
for other steel materials $p_{zul} =$	$0,9 \cdot R_e (R_{p0.2})$

Example of calculation:

Kneading machine drive with rotary current motor

Details of machine on driving side:

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

General details:

Ambient temperature $= +40 \text{ °C}$

Coupling selection:

Load by rated torque:

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

Operating factor $S_B = 1,75$ (see page 59)
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

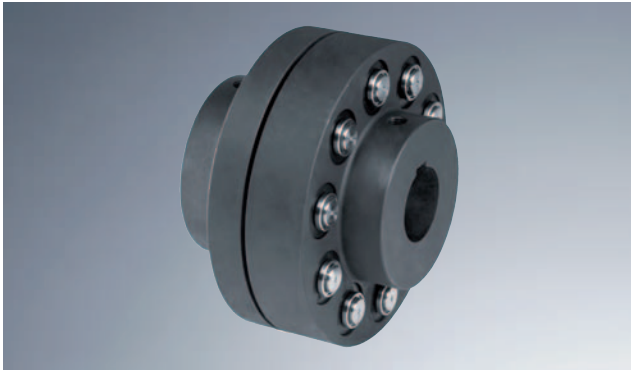
Coupling selection

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	
Agitator	
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
Compressors	
Rotary compressors	1,00
Rotary compressors	1,25
Construction machines	
Manoeuvre winches	1,25
Swing gears	1,25
Miscellaneous winches	1,50
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 machines	1,25
Conveyors	
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 (piece goods)	1,75
Inclined lifts	1,75
Shaking slides	2,00
Fans, ventilators and blowers	
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
Filters	
Screening drums	1,50
Food-processing industry	
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
Generators	
Frequency converters	1,75
Generators	1,75
Lifters/cranes	
Luffing gears	1,00
Swing and sliding gears	1,25
Running gears	1,75
Lifting gears	1,75
Machine tools	
Scissors	1,25
Dressing rollers	1,50
Bending machines	1,50
Hole punching machines	1,75

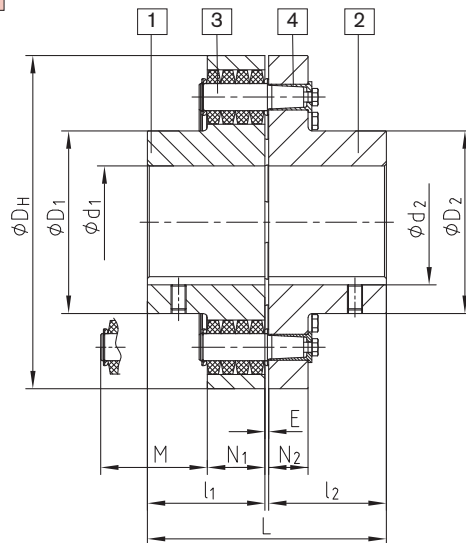
Operating factor S_B	
Machine tools	
Levelling machines	1,75
Hammers	1,75
Presses	1,75
Forging presses	1,75
Metal industry	
Plate tilters	1,25
Wire pulls	1,25
Winders	1,25
Crawlers	1,25
Roller levellers	1,25
Winding drums	1,50
Wire drawing machines	1,75
Roller tables (light)	1,75
Plate shears	1,75
Block 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
Roller tables (heavy)	2,00
Mills	
Centrifugal mills	1,75
Beater mills	1,75
Autogenous mills	1,75
Hammer and ball mills	2,00
Mixers	
Constant density	1,50
Variable density	1,75
Oil industry	
Filter presses for paraffin	1,50
Rotary furnaces	1,75
Paper machines	
Couch rolls	1,75
Calenders	1,75
Wet presses	1,75
Pumps	
Rotary pumps (light liquid)	1,00
Rotary 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
Rubber & nylon	
Rubber calenders and rolling mills	1,75
Mixers	1,75
Extruders	1,75
Kneading machines	1,75
Sewage plants	
Rakes	1,00
Spiral pumps	1,25
Concentrators	1,25
Mixers	1,25
Aerators	1,75
Textile industry	
Winders	1,25
Printing and dyeing machines	1,25
Tanning barrels	1,25
Shredders	1,50
Woodworking machinery	
Planing machines	1,25
Barking machines	1,75
Saw frames	1,75

Standard type KX



- Torsionally flexible, maintenance free
- Vibration-reducing
- Radial assembly/disassembly
- Axial plug-in, failsafe
- All-side machining → good dynamical features
- Short design
- Protected surfacees
- Elastomers made of NBR
- Standard hub material EN-GJL-250, (EN-GJS-400-15 or steel on request)
- Approved according to EC Standard 94/9/EC (Explosion Certificate ATEX 95)

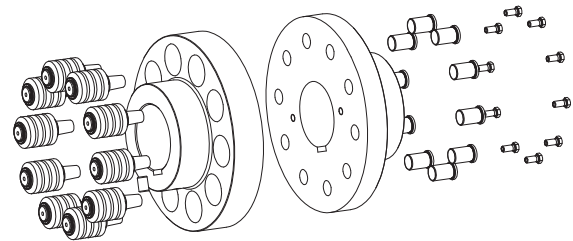
Components



Components

Type KX

- 1 = Hub part 1 (Bush)
- 2 = Hub part 2 (Pin)
- 3 = Complete pin
- 4 = KX sleeve



REVOLEX® KX

Size	Torques ¹⁾ [Nm]		max. speed ²⁾ [rpm]	Finish bore [min. - max.]		Dimensions [mm]										Moment of inertia ³⁾ [kgm²]	Approx. weight ³⁾ [kg]
	T _{KN}	T _{Kmax.}		d ₁	d ₂	L	l ₁ ; l ₂	E	D _H	D ₁	D ₂	N ₁	N ₂	M*			
KX 105	6485	12970	2000	34-110	34-125	237	117	3	330	180	202	56	30	15	0,771	61,5	
KX 120	10080	20160	1800	50-125	50-145	270	132	6	370	206	232	76	46	40	1,611	96,3	
KX 135	14030	28060	1600	70-140	70-150	300	147	6	419	230	240	76	46	30	2,685	123	
KX 150	17960	35920	1450	82-160		336	165	6	457	256	260	76	46	10	3,887	162	
KX 170	26360	52720	1250	95-180		382	188	6	533	292	292	92	63	35	9,165	273	
KX 190	36160	72320	1100	110-205		428	211	6	597	330	330	92	63	10	14,765	360	
KX 215	48160	96320	1000	125-230		480	237	6	660	368	368	92	63	0	22,771	465	
KX 240	65740	131480	900	140-250		534	264	6	737	407	407	122	76	25	43,484	695	
KX 265	91480	182960	800	160-285		590	292	6	826	457	457	122	76	0	70,143	910	
KX 280	123530	247060	720	180-315		628	311	6	927	508	508	122	76	0	112,637	1183	
KX 305	152840	305680	675	180-330		654	324	6	991	533	533	122	76	0	146,974	1369	
KX 330	188470	376940	625	200-355		666	330	6	1067	572	572	122	76	0	198,005	1598	
KX 355	230110	460220	575	225-380		718	356	6	1156	610	610	122	76	0	293,894	2069	
KX 370	302500	605000	535	225-450		770	382	6	1250	720	720	122	76	4	433,554	2629	

* Drop-out center dimension

¹⁾ Standard material NBR 80 Shore A

²⁾ Higher speeds on request

³⁾ Relating to max. bore

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

= with pilot bore available from stock

Order form:

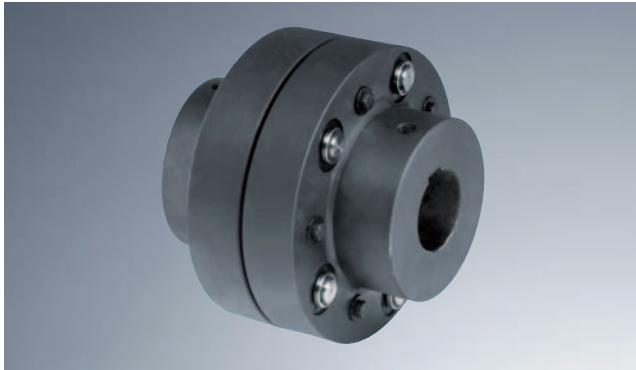
REVOLEX® KX 170	Teil 1 Ø120	Teil 2 Ø150
Coupling type/size	Finish bore Bush	Finish bore Pin

REVOLEX® KX

Torsionally flexible pin & bush coupling

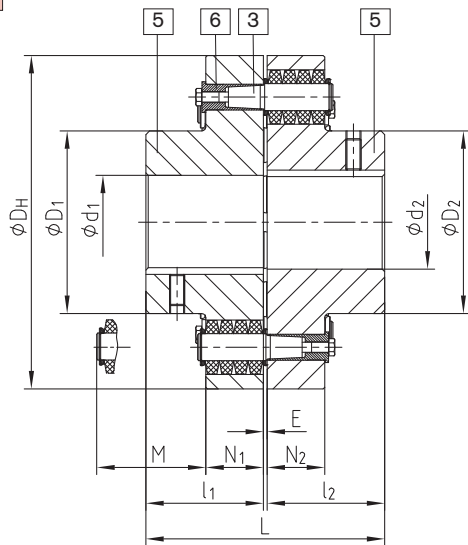


Type KX-D



- Pins are arranged alternately
- Increase of transmittable torque by up to 40 % compared to REVOLEX® KX
- Symmetrischer Aufbau der Bolzen- und Buchsennabe
- Approved according to EC Standard 94/9/EC (Explosion Certificate ATEX 95)

Components



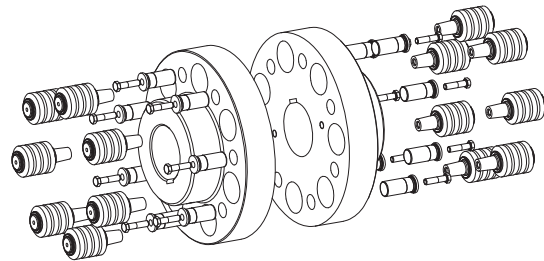
Components

Type KX-D

5 = Hub part 5

3 = Complete pin

6 = KX-D sleeve



REVOLEX® KX-D

Size	Torque ¹⁾ [Nm]		max. Speed ²⁾ [rpm]	Finish bore [min. - max.]	Dimensions [mm]							Moment of inertia ³⁾ [kgm²]	Approx. weight ³⁾ [kg]
	T _{KN}	T _{Kmax.}			d ₁	L	l ₁ ; l ₂	E	D _H	D ₁ ; D ₂	N ₁ ; N ₂	M*	
KX-D 105	8650	17300	2000	34-110	237	117	3	330	180	56	15	0,907	69,2
KX-D 120	14110	28220	1800	50-125	270	132	6	370	206	76	45	1,867	109
KX-D 135	18690	37380	1600	70-140	300	147	6	419	230	76	30	3,144	147
KX-D 150	23100	46200	1450	82-160	336	165	6	457	256	76	15	4,573	182
KX-D 170	36900	73800	1250	95-180	382	188	6	533	292	92	43	10,259	296
KX-D 190	48210	96420	1100	110-205	428	211	6	597	330	92	10	16,601	390
KX-D 215	61900	123800	1000	125-230	480	237	6	660	368	92	0	25,495	504
KX-D 240	92030	184060	900	140-250	534	264	6	737	407	122	20	50,147	768
KX-D 265	121900	243800	800	160-285	590	292	6	826	457	122	0	80,796	1006
KX-D 280	158800	317600	720	180-315	628	311	6	927	508	122	0	129,979	1311
KX-D 305	191060	382120	675	180-330	654	324	6	991	533	122	0	170,016	1521
KX-D 330	251200	502400	625	200-355	666	330	6	1067	572	122	0	227,451	1769
KX-D 355	299100	598200	575	225-380	718	356	6	1156	610	122	0	338,145	2291
KX-D 370	377800	755600	535	225-450	770	382	6	1250	720	122	0	492,353	2869

* Drop-out center dimension

¹⁾ Standard material NBR 80 Shore A

²⁾ Higher speeds on request

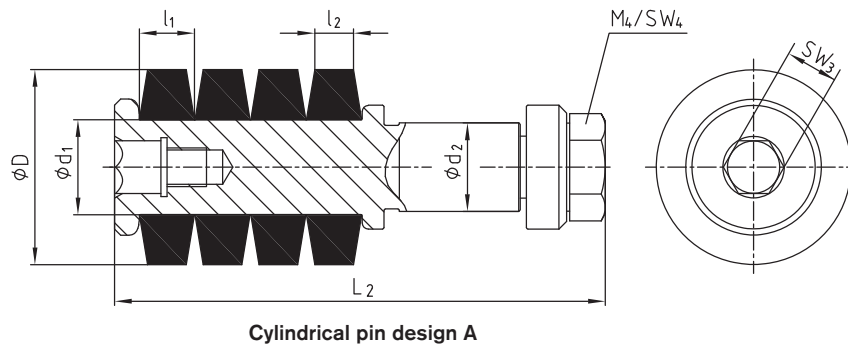
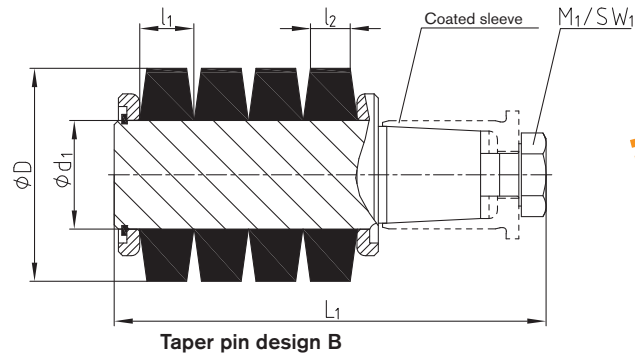
³⁾ Relating to max. bore

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

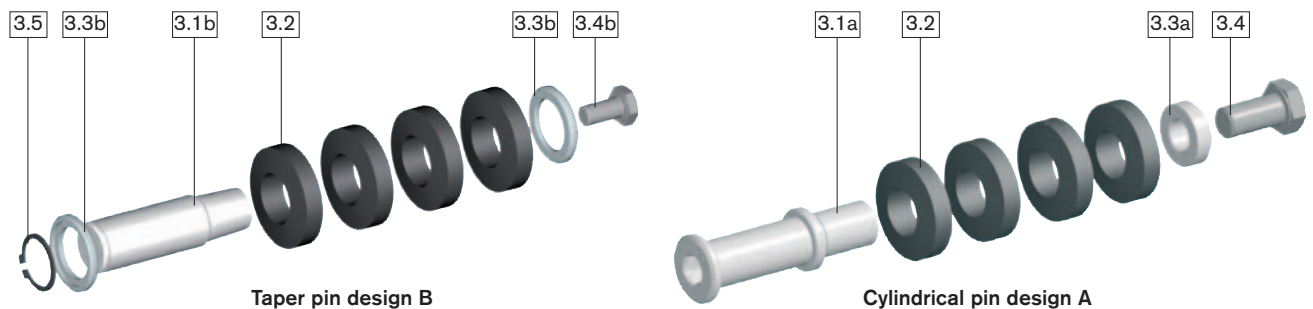
Order form:

REVOLEX® KX-D 170	Ø120	Ø150
Coupling type/size	Finish bore	Finish bore

Technical data pin



Technical data															
Size	Pin			Component 3.2			Component 3.1a / 3.1b					Component 3.4/3.4b			
	Size	Number		Elastomer ring NBR 80 Shore A			Pin					Screw DIN EN ISO 4017			
		KX	KX-D	D	l ₁	l ₂	d ₁	d ₂	L ₁	L ₂	SW ₃	M ₁	SW ₁	M4	SW ₄
KX 105	3	12	16	50,0	12,7	9,0	25,40	25,40	101	116	17	M10	16	M16	24
KX 120	4	10	14												
KX 135	4	12	16	63,0	17,8	12,5	30,60	28,57	147,5	158,5	17	M12	18	M20	30
KX 150	4	14	18												
KX 170	5	10	14												
KX 190	5	12	16	85,5	22,9	15,2	43,20	41,30	190	205	17	M16	24	M24	36
KX 215	5	14	18												
KX 240	6	10	14												
KX 265	6	12	16												
KX 280	6	14	18												
KX 305	6	16	20	113,7	30,5	20,3	58,40	57,20	242	255	17	M24	36	M27	41
KX 330	6	18	24												
KX 355	6	20	26												
KX 370	6	24	30												



Tightening torque				
REVOLEX® KX Size	3	4	5	6
Tightening torque T_A [Nm] 3.1a	290	560	970	1450
Tightening torque T_A [Nm] 3.4b	67	115	290	970