



Morse

**KK™ Cam Clutches
Product
Specification
Guide**



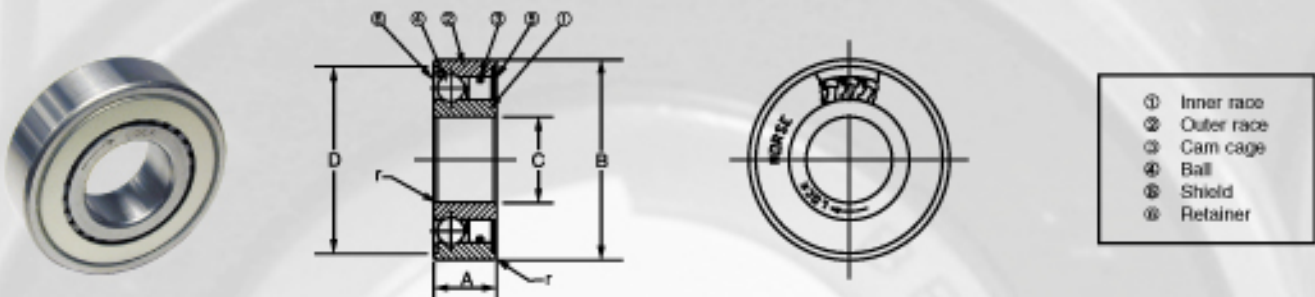
EMERSON. CONSIDER IT SOLVED.™



KK Series Cam Clutches

Morse® brand KK clutches incorporate a compact cam clutch with built-in bearing support. This unique construction combines a cam clutch with a 6200 Series metric ball bearing for use in applications ranging from exercise equipment to industrial machinery. This general purpose clutch is intended for backstopping, indexing and overrunning applications and can be utilized with both oil and grease lubrication. When selecting a brand of clutches, consider our broad product offering combined with the following online selection tools: Smart Interchange, eCatalog and downloadable 2D and 3D CAD drawings. To learn more about Morse clutches or to use our selection tools, visit www.emerson-ept.com.

KK Series Clutches



Dimensions and Capacities

Size	A		B		C		D		r		Weight	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	g	lb
15	11	0.433	35	1.378	15	0.591	32.6	1.283	0.6	0.024	50	0.1
17	12	0.472	40	1.575	17	0.669	36.1	1.421	0.6	0.024	80	0.2
20	14	0.551	47	1.850	20	0.787	41.7	1.642	1.0	0.039	120	0.3
25	15	0.591	52	2.047	25	0.984	47.1	1.854	1.0	0.039	150	0.3
30	16	0.630	62	2.441	30	1.181	56.6	2.228	1.0	0.039	230	0.5
35	17	0.669	72	2.835	35	1.378	64.0	2.520	1.1	0.043	320	0.7
40	22	0.866	80	3.150	40	1.575	71.0	2.795	1.1	0.043	400	0.9

Size	Torque Capacity		Max. Overrunning Speed		Drag Torque		Radial Load Capacity			
	N-m	Ft-lb	Inner Race r/min	Outer Race r/min	N-m	Ft-lb	Dynamic		Static	
							N	lb	N	lb
15	29	21.4	3,600	2,000	0.010	0.0074	5,950	1337.6	3,230	726.1
17	43	31.7	3,500	1,900	0.010	0.0074	7,000	1573.7	3,700	831.8
20	61	45.0	3,000	1,600	0.014	0.0103	8,500	1910.9	4,900	1101.6
25	78	57.5	2,500	1,400	0.017	0.0125	10,700	2405.5	6,300	1416.3
30	140	103.3	2,000	1,100	0.030	0.0221	11,900	2675.2	7,900	1776.0
35	173	127.6	1,800	1,000	0.034	0.0251	13,500	3034.9	9,700	2180.6
40	260	191.8	1,800	900	0.040	0.0295	14,500	3259.7	11,700	2630.3

Shaft Tolerance

Size	Shaft Diameter			
		mm	inch	
15	15	+0.023 +0.012	0.5906	+0.0009 +0.0005
17	17	+0.023 +0.012	0.6693	+0.0009 +0.0005
20	20	+0.028 +0.015	0.7874	+0.0011 +0.0006
25	25	+0.028 +0.015	0.9843	+0.0011 +0.0006
30	30	+0.033 +0.017	1.1811	+0.0011 +0.0006
35	35	+0.033 +0.017	1.3780	+0.0013 +0.0007
40	40	+0.033 +0.017	1.5748	+0.0013 +0.0007

Housing Tolerance

Size	Housing Diameter			
		mm	inch	
15	35	-0.012 -0.028	1.3779	-0.0005 -0.0011
17	40	-0.012 -0.028	1.5748	-0.0005 -0.0011
20	47	-0.012 -0.028	1.8504	-0.0005 -0.0011
25	52	-0.014 -0.033	2.0472	-0.0008 -0.0013
30	62	-0.014 -0.033	2.4409	-0.0008 -0.0013
35	72	-0.014 -0.033	2.8346	-0.0008 -0.0013
40	80	-0.014 -0.033	3.1496	-0.0008 -0.0013

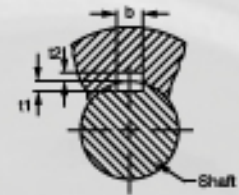
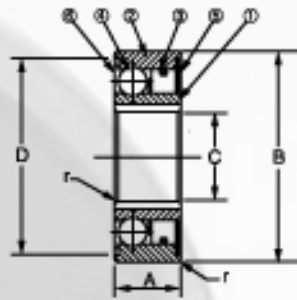
Nomenclature

KK = Series
15 = Bore size
1K = Keyed inner
2K = Keyed inner & outer
2GD = Incorporates 2 seals

KK-1K and KK-2K Series Clutches



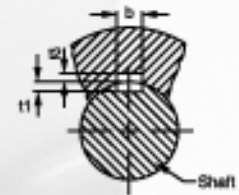
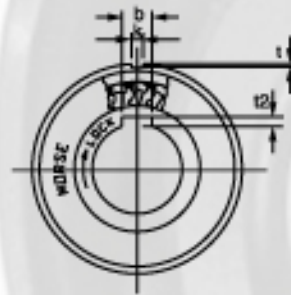
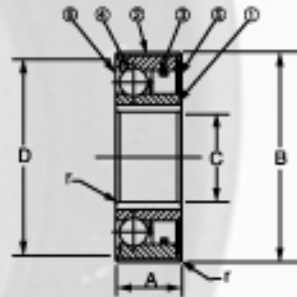
KK-1K



- ① Inner race ④ Ball
- ② Outer race ⑤ Shield
- ③ Cam cage ⑥ Retainer



KK-2K



Dimensions and Capacities

Size	A		B		C		D		r		Weight	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	g	lb
15	11	0.433	35	1.378	15	0.591	32.6	1.283	0.6	0.024	50	0.1
17	12	0.472	40	1.575	17	0.669	36.1	1.421	0.6	0.024	80	0.2
20	14	0.551	47	1.850	20	0.787	41.7	1.642	1.0	0.039	120	0.3
25	15	0.591	52	2.047	25	0.984	47.1	1.854	1.0	0.039	150	0.3
30	16	0.630	62	2.441	30	1.181	56.6	2.228	1.0	0.039	230	0.5
35	17	0.669	72	2.835	35	1.378	64.0	2.520	1.1	0.043	320	0.7
40	22	0.866	80	3.150	40	1.575	71.0	2.795	1.1	0.043	400	0.9

Size	Torque Capacity		Max. Overrunning Speed		Drag Torque		Radial Load Capacity			
	N-m	Ft-lb	Inner Race r/min	Outer Race r/min	N-m	Ft-lb	Dynamic		Static	
							N	lb	N	lb
15	29	21.4	3,600	2,000	0.010	0.0074	5,950	1337.6	3,230	726.1
17	43	31.7	3,500	1,900	0.010	0.0074	7,000	1573.7	3,700	831.8
20	61	45.0	3,000	1,600	0.014	0.0103	8,500	1910.9	4,900	1101.6
25	78	57.5	2,500	1,400	0.017	0.0125	10,700	2405.5	6,300	1416.3
30	140	103.3	2,000	1,100	0.030	0.0221	11,900	2675.2	7,900	1776.0
35	173	127.6	1,800	1,000	0.034	0.0251	13,500	3034.9	9,700	2180.6
40	260	191.8	1,800	900	0.040	0.0295	14,500	3259.7	11,700	2630.3

Note: Model No. marked on the inner race is only "K" for both "1K" and "2K". (I.R. the marked "KK17-K" for both KK-17-1K and KK-17-2K)

Shaft Tolerance

Size	Shaft Diameter		
	mm	Inches	
15	-0.008	0.6906	-0.0003
	-0.028		-0.0011
17	-0.008	0.6693	-0.0003
	-0.028		-0.0011
20	-0.010	0.7874	-0.0004
	-0.031		-0.0012
25	-0.010	0.9843	-0.0004
	-0.031		-0.0012
30	-0.010	1.1811	-0.0004
	-0.031		-0.0012
35	-0.012	1.3790	-0.0005
	-0.037		-0.0015
40	-0.012	1.5748	-0.0005
	-0.037		-0.0015

Housing Tolerance

Model	Housing Diameter			Model	Housing Diameter		
	mm	Inches			mm	Inches	
KK15-1K	-0.012	1.3779	-0.0005	KK15-2K	-0.002	1.3779	-0.0001
	-0.028		-0.0011		-0.018		-0.0007
KK17-1K	-0.012	1.5748	-0.0005	KK17-2K	-0.002	1.5748	-0.0001
	-0.028		-0.0011		-0.018		-0.0007
KK20-1K	-0.012	1.8504	-0.0005	KK20-2K	-0.003	1.8504	-0.0001
	-0.028		-0.0011		-0.022		-0.0009
KK25-1K	-0.014	2.0472	-0.0005	KK25-2K	-0.003	2.0472	-0.0001
	-0.033		-0.0013		-0.022		-0.0009
KK30-1K	-0.014	2.4409	-0.0006	KK30-2K	-0.003	2.4409	-0.0001
	-0.033		-0.0013		-0.022		-0.0009
KK35-1K	-0.014	2.8346	-0.0006	KK35-2K	-0.006	2.8346	-0.0002
	-0.033		-0.0013		-0.025		-0.0010
KK40-1K	-0.014	3.1496	-0.0006	KK40-2K	-0.006	3.1496	-0.0002
	-0.033		-0.0013		-0.025		-0.0010

Keyway Dimensions

Model	b js 10	t1	t2*	k js 9	t
KK15-1K	5.0	+0.024	1.9	1.2	-
KK15-2K	5.0	2.0	+0.0125	0.8	-
KK17-1K	6.0	+0.024	1.9	1.2	-
KK17-2K	6.0	2.0	+0.0125	1.0	-
KK20-1K	6.0	+0.024	2.5	1.6	-
KK20-2K	6.0	3.0	+0.0150	1.6	-
KK25-1K	8.0	+0.029	3.6	1.5	-
KK25-2K	8.0	6.0	+0.0150	2.0	-
KK30-1K	8.0	+0.029	3.1	2.0	-
KK30-2K	8.0	8.0	+0.0150	2.0	-
KK35-1K	10.0	+0.029	3.7	2.4	-
KK35-2K	10.0	8.0	+0.0180	2.5	-
KK40-1K	12.0	+0.035	3.3	5.0	-
KK40-2K	12.0	10.0	+0.0180	3.0	-

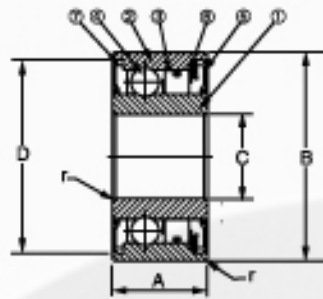
Dimensions in mm

* The dimension of t2 for KK25-1K and KK25-2K is 0.5 mm shallow compared to DIN 6885. 3. Process the keyway on the shaft 0.5 mm deeper to use DIN.

KK-2GD and KK-2GD 1K Series Clutches



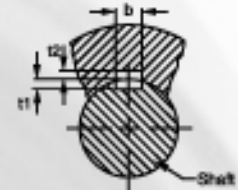
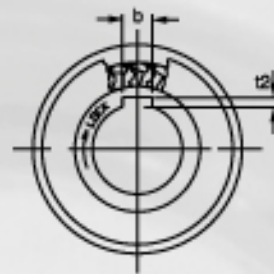
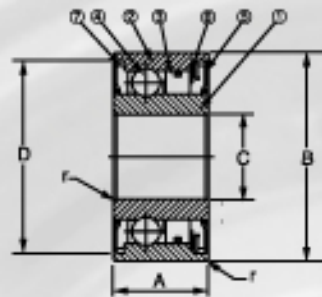
KK-2GD



- ① Inner race
- ② Outer race
- ③ Cam cage
- ④ Ball
- ⑤ Seal
- ⑥ Side plate
- ⑦ Retainer



KK-2GD 1K



Dimensions and Capacities

Size	A		B		C		D		r		Weight	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	g	lb
15	16	0.630	35	1.378	15	0.591	32.45	1.278	0.6	0.024	70	0.2
17	17	0.669	40	1.575	17	0.669	36.45	1.435	0.6	0.024	100	0.2
20	19	0.748	47	1.850	20	0.787	42.35	1.667	1.0	0.039	150	0.3
25	20	0.787	52	2.047	25	0.984	47.05	1.852	1.0	0.039	200	0.4
30	21	0.827	62	2.441	30	1.181	55.60	2.189	1.0	0.039	280	0.6
35	22	0.866	72	2.835	35	1.378	64.60	2.543	1.1	0.043	410	0.9
40	27	1.063	80	3.150	40	1.575	71.60	2.819	1.1	0.043	600	1.3

Size	Torque Capacity		Max. Overrunning Speed		Drag Torque		Radial Load Capacity			
	N-m	Ft-lb	Inner Race r/min	Outer Race r/min	N-m	Ft-lb	Dynamic		Static	
							N	lb	N	lb
15	29	21.4	3,600	2,000	0.040	0.0295	5,950	1337.8	3,230	726.1
17	43	31.7	3,500	1,900	0.050	0.0369	7,000	1573.7	3,700	831.8
20	61	45.0	3,000	1,600	0.055	0.0406	8,500	1910.9	4,900	1101.6
25	78	57.5	2,500	1,400	0.055	0.0406	10,700	2405.5	6,300	1416.3
30	140	103.3	2,000	1,100	0.058	0.0428	11,900	2675.2	7,900	1776.0
35	173	127.6	1,800	1,000	0.060	0.0443	13,500	3034.9	9,700	2180.6
40	260	191.8	1,800	900	0.080	0.0590	14,500	3259.7	11,700	2630.3

Shaft Tolerance

Model	Shaft Diameter		Model	Shaft Diameter	
	mm	inches		mm	inches
KK15-2GD	15 +0.023 -0.012	0.5906 +0.0009 -0.0005	KK15-2GD 1K	15 -0.008 -0.028	0.5906 -0.0008 -0.0011
KK17-2GD	17 +0.023 +0.012	0.6693 +0.0009 +0.0005	KK17-2GD 1K	17 -0.008 -0.028	0.6693 -0.0009 -0.0011
KK20-2GD	20 +0.028 +0.015	0.7874 +0.0011 +0.0006	KK20-2GD 1K	20 -0.010 -0.031	0.7874 -0.0004 -0.0012
KK25-2GD	25 +0.028 +0.015	0.9843 +0.0011 +0.0006	KK25-2GD 1K	25 -0.010 -0.031	0.9843 -0.0004 -0.0012
KK30-2GD	30 +0.033 +0.017	1.1811 +0.0011 +0.0006	KK30-2GD 1K	30 -0.010 -0.031	1.1811 -0.0004 -0.0012
KK35-2GD	35 +0.033 +0.017	1.3780 +0.0013 +0.0007	KK35-2GD 1K	35 -0.012 -0.037	1.3780 -0.0006 -0.0015
KK40-2GD	40 +0.033 +0.017	1.5748 +0.0013 +0.0007	KK40-2GD 1K	40 -0.012 -0.037	1.5748 -0.0006 -0.0015

Housing Tolerance

Size	Housing Diameter	
	mm	inch
15	35 -0.012 -0.028	1.3770 -0.0006 -0.0011
17	40 -0.012 -0.028	1.5748 -0.0006 -0.0011
20	47 -0.012 -0.028	1.8504 -0.0006 -0.0011
25	52 -0.014 -0.033	2.0472 -0.0006 -0.0013
30	62 -0.014 -0.033	2.4409 -0.0006 -0.0013
35	72 -0.014 -0.033	2.8346 -0.0006 -0.0013
40	80 -0.014 -0.033	3.1496 -0.0006 -0.0013

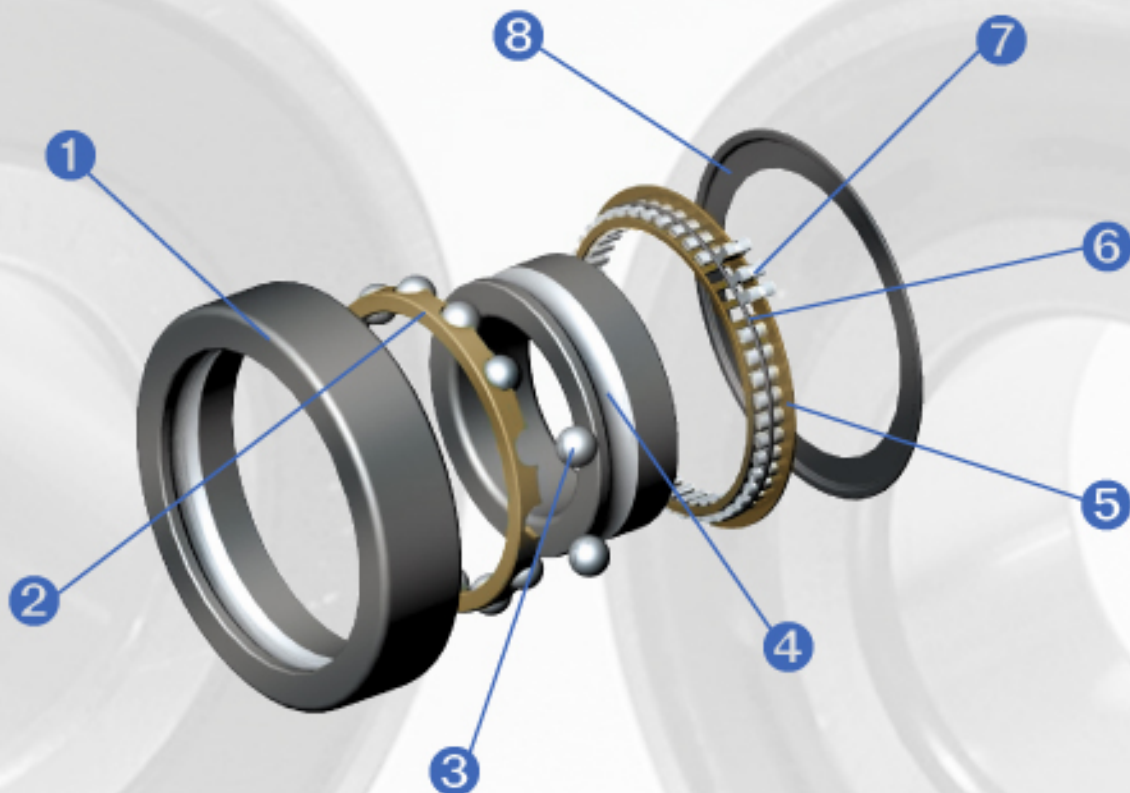
Keyway Dimensions

Model	b	js 10	t1	t2
KK15-2GD 1K	5.0	+0.024	1.9	1.2
KK17-2GD 1K	5.0	+0.024	1.9	1.2
KK20-2GD 1K	6.0	+0.024	2.5	1.6
KK25-2GD 1K	8.0	+0.029	3.6	1.6
KK30-2GD 1K	8.0	+0.029	3.1	2.0
KK35-2GD 1K	10.0	+0.029	3.7	2.4
KK40-2GD 1K	12.0	+0.035	3.3	5.0

Dimensions in mm

* The dimension of t2 for KK25-2GD 1K is 0.5 mm shallow compared to DIN 6885. 3. Process the keyway on the shaft 0.5 mm deeper to use DIN.

Features



- 1 - **High-Strength Outer Race** - Made from high carbon alloy steel, our precision-ground outer race provides fatigue life reliability.
- 2 - **Rotating Bearing Retainer** - Located flush with the outer race, this retainer contains evenly spaced, hardened steel balls to provide equal distribution of load for optimized concentricity between the inner and outer races.
- 3 - **Hardened Steel Ball Bearings** - Individually formed from hardened chrome alloy steel, the balls are secured within the retainer to provide concentricity and equal distribution of radial load within the clutch.
- 4 - **Precision-Ground Inner Race** - Similar to a 6000 Series metric bearing, the ball pathway and cam wear surface are hardened and ground to enable rapid cam engagement and low drag operation.
- 5 - **Durable Cam-Cage** - Made from molded nylon, the cam-cage provides equal spacing between each cam. When cams articulate within the cage, cam engagement is uniform providing equal distribution of load and more uniform stress on the cams and inner race.
- 6 - **Heavy-Duty Garter Spring** - Located within the cam cage, the energizing garter spring creates the drag torque needed for accuracy of cam engagement.
- 7 - **Profiled Cams** - Manufactured from high carbon steel, the cams carry high compressive loads when the clutch is locked and transmitting torque.
- 8 - **Lightweight Retaining Endplate/Dust Shield** - Attached to the outer race, the end plate helps retain lubrication and protect components within the clutch assembly. Felt and contact lip seal designs are available.



Reliable Clutches

Continuous Enhancements

Morse is constantly adding features to our mechanical clutches to make it easier to select the perfect clutch for your application. We have recently expanded our line of KK clutches by adding more sizes, sealing options and keyway configurations. The CB series of holdback clutches can now accommodate load ratings of up to 500K foot-pounds, with additional smaller sizes added. These added features position Morse clutches as your single source supplier for all your clutch product needs.

The new enhancements include:

KK Series

- New sizes added
- New sealing and shielding options
- Both inner and outer race keyway options

CB Series

- New sizes added: CB-90, CB-200, CB-375 and CB-500
- Assemble-to-order center for rapid delivery

Smart Interchange (www.emerson-ept.com/clutches)

- An online tool that identifies the differences between Morse and competitor designs.



In addition to our highly featured cataloged products, our engineering and R&D teams can help you develop solutions for your mechanical clutch needs. Whether it's simple product selection or managing new product development, let our experience help you make the selection decision that is best for your application. To get your project started, contact the Emerson Power Transmission technical services department at 800-626-2093 or visit www.emerson-ept.com/clutches.

www.emerson-ept.com/clutches

Connect Here to Be Part of Something Bigger

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customer service at 1-800-626-2120**

APPLICATION CONSIDERATIONS

The proper selection and application of power transmission products and components, including the related area of product safety, is the responsibility of the customer. Operating and performance requirements and potential associated issues will vary appreciably depending upon the use and application of such products and components. The scope of the technical and application information included in this publication is necessarily limited. Unusual operating environments and conditions, lubrication requirements, loading supports, and other factors can materially affect the application and operating results of the products and components and the customer should carefully review its requirements. Any technical advice or review furnished by Emerson Power Transmission Corporation and its divisions with respect to the use of products and components is given in good faith and without charge, and Emerson assumes no obligation or liability for the advice given, or results obtained, all such advice and review being given and accepted at customer's risk.

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Emerson Power Transmission

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