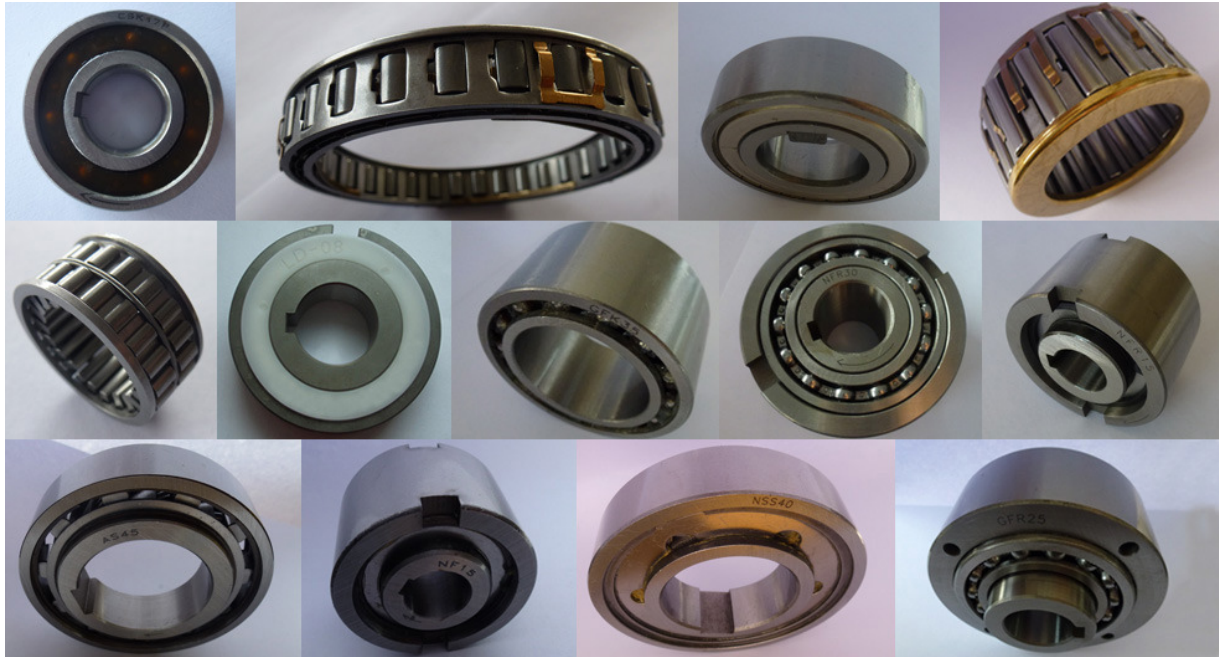


## Freewheel Clutches(Sprag Clutch, Overrunning Clutches, Cam Clutches, One Way Clutches)



**Overview:** Freewheels(also called Overrunning Clutches, Cam Clutches, Sprag Clutches, One Way Clutches) are directional couplings, which means they are engaged and disengaged automatically, depending on the relative direction of rotation of the driving nad driven sides. Practical applications of this principle:

1: Overrunning Clutch

For multiple-machine drives or to separate the inertia of masses of a driven machine from the driving machine after it has been switched off.

2: Indexing Clutch

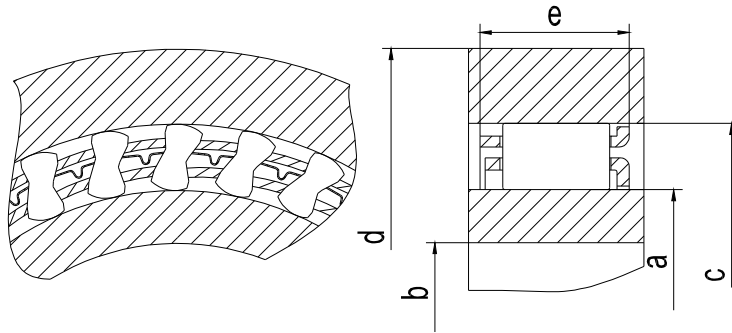
Which turns a shaft step by step, thus achieving indexed material feed or a variable speed.

3: Backstop

To prevent a machine shaft turning backwards. In this case the freewheels acts as a brake.

**Application:** Backstopping, Overrunning, Indexing, Marine Lifting, Food Conveyor Indexing Drive, Assembly Line Conveyor, Two Speed Conveyor Drive, Engine Drives, Conveyor Belts, Packing Machine, Pumps, Gear Drives

**Types:** CSK, CSK..P, CSK..PP, CSK..2RS, CSK..P-2RS, DC, BWX FE400, FE400Z, FE400Z2, GFK, KI, AS, ASNU, AE, AA, NF, NFR, B200, MZ, GRF, RSBW



## DC, BWX, BW, BWC, X, KW, KX, GP, K, REGP

Type	Dimension(mm)					Torque (N.m)	Weight Kg
	a	c	e min	d	b		
DC2222G	22.225	38.885	10	50	15	63	0.03
DC2776	27.762	44.422	13.5	58	18	119	0.055
DC3034	30.34	47	13.5	62	20	124	0.06
DC3175(3C)	31.75	48.41	13.5	63	21	159	0.06
DC3809A	38.092	54.752	16	71	25	275	0.085
DC4127(3C)	41.275	57.935	13.5	75	27	224	0.09
DC4445A	44.45	61.11	16	79	29	363	0.095
DC4972(4C)	49.721	66.381	13.5	86	33	306	0.1
DC5476A	54.765	71.425	16	92	36	525	0.11
DC5476A(4C)	54.765	71.425	16	92	36	525	0.13
DC5476B(4C)	54.765	71.425	21	92	36	769	0.18
DC5476C(4C)	54.765	71.425	25.4	92	36	990	0.2
DC5776A	57.76	74.42	16	98	38	604	0.11
DC6334B	63.34	80	21	104	42	806	0.175
DC7221(5C)	72.217	88.877	13.5	115	48	675	0.14
DC7221B	72.217	88.877	21	115	48	1279	0.185
DC7221B(5C)	72.217	88.877	21	115	48	1279	0.21
DC7969C(5C)	79.698	96.358	25.4	124	53	2038	0.28
DC8334C	83.34	100	25.4	132	55	2055	0.27
DC8729A	87.29	103.96	16	134	58	1250	0.165
DC10323A(5C)	103.231	119.891	16	155	68	1612	0.205
DC12334C	123.34	140	25.4	184	80	4800	0.4
DC12388C(11C)	123.881	142.88	25.4	186	80	4875	0.4

**Remark: Other types like BWX, REGP, X, BW, BWC, KW, KX, GP and K are also workable.**

Part Number	Dimensions(mm)			Torque (N.m)	Weight(g)
	a	c	e min		
BWX133590A	22.225	38.887	10	63	30
BWX13143A	27.767	44.425	13.5	120	55
BWX133392	38.092	54.75	16	280	85
BWX1310145	41.275	57.937	13.5	180	70
BWX132909A	44.45	61.112	16	360	95
BWX133339	49.721	66.383	13.5	310	100
BWX1310003	49.721	66.383	13.5	310	85
BWX137222	49.721	66.383	19	570	120
BWX1310445	54.765	71.427	13.5	400	90
BWX1310172	54.765	71.427	16	540	110
BWX1310226	54.765	71.427	16	520	115

**Freewheel Clutches(Sprag Clutch, Overrunning Clutches, Cam Clutches, One Way Clutches)**

BWX136709	54.765	71.427	21	770	160
BWX1310147	54.765	71.427	25.4	1000	195
BWX136324	57.76	74.427	19	600	190
BWX1310299	59.537	76.2	28.5	1418	240
BWX1310080	72.217	88.882	13.5	670	120
BWX13168	72.217	88.882	21	1300	200
BWX134012	72.217	88.882	21	1300	200
BWX137322	79.698	96.363	25.4	2000	280
BWX138316	83.597	102.596	25.4	2960	300
BWX134008A	85.776	104.776	25.4	3073	335
BWX13261A	103.231	119.893	16	1600	185
BWX13236	117.391	136.391	16	1700	250
BWX133403	123.881	142.88	25.4	4900	460

**Remark: Other types like DC, REGP, X, BW, BWC, KW, KX, GP and K are also workable.**

Part Number	Dimensions(mm)			Torque (N.m)	Weight(g)
	a	c	e min		
X-133818T	20.345	37.008	10	49	30
X-134939	22.225	38.887	10	75	35
BWC-13219A	27.762	44.425	13.5	139	60
BW-13252	27.762	44.425	19.1	233	90
X-135052	31.881	48.548	13.5	154	65
X-135014	37.317	53.98	12	185	65
X-133399	37.317	53.98	15.9	309	90
BW-13161	38.092	54.75	13.5	251	75
BWC-13230	38.092	54.75	15.9	323	90
X-135005	38.568	55.207	20.5	422	110
X-133400	40.485	57.15	22.3	534	135
BW-13244	41.275	57.937	13.5	212	75
X-1350567	41.275	57.937	17.4	343	105
X-135041	44.45	61.112	13.5	226	100
X-135349	47.325	63.987	13.5	343	90
X-135036	47.408	64.075	22.3	667	150
X-134398	49.72	66.383	19.1	667	135
X-135006	54.572	71.211	20.5	799	150
BW-13231	54.765	71.427	13.5	402	95
BW-13214	54.765	71.427	15.9	363	105
BW-13167	54.765	71.427	15.9	569	120
BW-13209	57.76	74.427	13.5	554	105
BWC-13239B	57.76	74.427	15.9	711	125
BW-13238	57.76	74.427	21	1050	175
X-133401	59.538	76.2	25.4	1350	220
BW-13243	72.217	88.882	13.5	637	120
BWC-13168	72.217	88.882	21	1510	210
BWC-13229	72.217	88.882	21.6	1325	190
BW-13255	72.217	88.882	26.7	1920	255
X-133614C	83.596	102.555	25.4	3040	350
X-133402	85.776	104.775	25.4	3090	350
BWC-13251	103.231	119.944	15.4	789	180
BWC-13261	103.231	119.944	15.4	1580	200
X-133639	103.231	122.23	25.4	4410	410
X-133403	123.881	142.88	25.4	5740	480
X-134935B	27.762	44.425	13.5	139	60

**Freewheel Clutches(Sprag Clutch, Overrunning Clutches, Cam Clutches, One Way Clutches)**

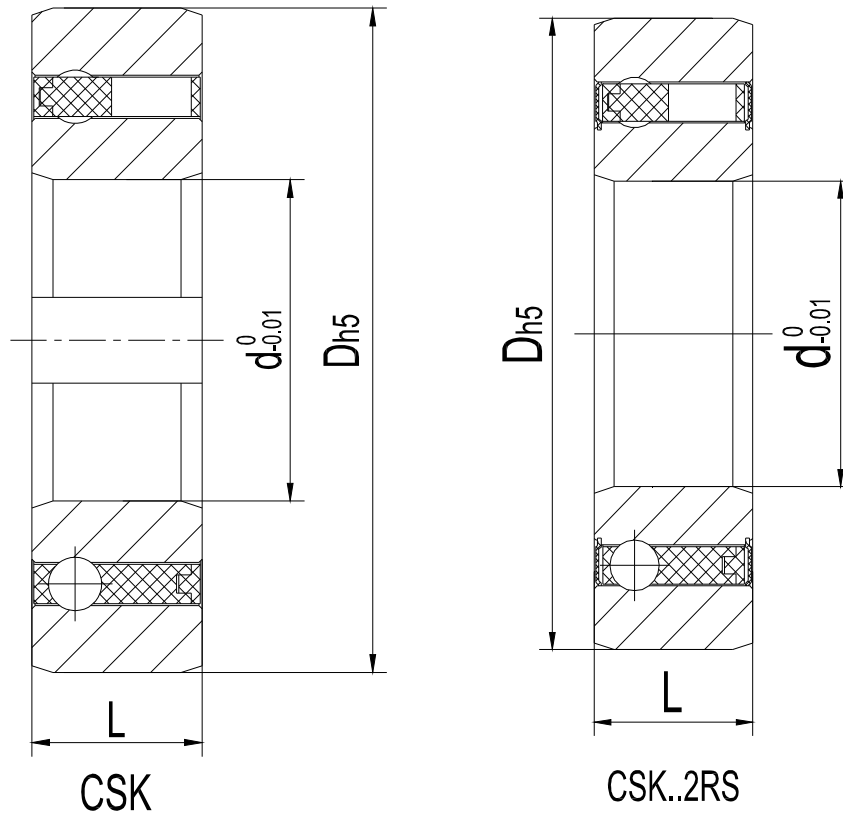
X-133399M	37.317	53.98	15.9	309	90
BWC-13230M	38.092	54.75	15.9	323	90
X-133400M	40.485	57.15	22.3	534	135
X-133401M	59.538	76.2	25.4	1350	220
X-134908C	72.217	88.882	21	1430	200
X-134944	72.217	88.882	21	1430	260
X-134943	72.217	88.882	26.7	1920	330
X-133614M	83.596	102.555	25.4	3040	340
X-137032	83.596	102.555	25.4	2680	450
X-133402M	85.776	104.775	25.4	3090	350
X-134951	103.231	122.23	25.4	3970	550
X-133639M	103.231	122.23	25.4	4410	410
X-134954	121.53	140.53	30	5380	730
X-133403M	123.881	142.88	25.4	5740	480

**Remark: Other types like DC, BWX, REGP, KW, KX, GP and K are also workable.**

Part Number	Dimensions(mm)			Torque (N.m)	Weight(g)
	a	c	e min		
KW0341200	34.475	51.137	13	133	60
KW0371100	37.318	53.98	13.5	123	70
KW0371101	37.318	53.98	13.5	185	80
KW0371400	37.318	53.98	15.5	221	75
KW0401100	40.485	57.147	11.5	202	60
KW0411300	41.275	57.937	13.5	212	70
KW0411302	41.275	57.937	13.5	275	75
KW0442200	44.45	61.112	24.7	626	165
KW0491300	49.721	66.383	13.5	378	85
KW0541500	54.765	71.427	17.5	575	115
KW0571301	57.71	74.427	16.1	546	135
KW0571300	57.76	74.427	15.1	540	130
KW0621600	62.884	79.603	18.5	810	165
KW0622200	62.935	79.6	24.1	1130	220
KX0681100	68.6	85.262	13.5	478	105
KW0681100	68.6	85.262	13.5	587	130
KW0721300	72.217	88.882	13.5	637	150
KW0741800	74.228	90.89	18.5	1220	170
KW0791500	79.118	95.777	16.1	1210	160
KW0831300	83.147	102.147	15.5	918	130
KX0901200	90.5	107.162	14.6	460	120
KX0901202	90.5	107.162	14.6	920	140
KX0941200	94.562	111.224	14.8	1040	145
KW1031303	103.5	122.5	15.8	550	205
KW1031300	103.5	122.5	15.8	740	220
KW1031301	103.5	122.5	15.8	1100	230
KX1191101	118.983	135.645	13.7	760	150
KW1091300	109.5	128.5	15.7	1240	240
KX1321100	131.983	148.645	13.9	1780	200
KX1321200	131.983	148.645	14.9	1070	170
KX1411102	140.99	157.652	13.7	1050	175

**Remark: Other types like DC, BWX, REGP, BW, BWC, X, GP and K are also workable.**

**Freewheel Clutches(Sprag Clutch, Overrunning Clutches, Cam Clutches, One Way Clutches)**



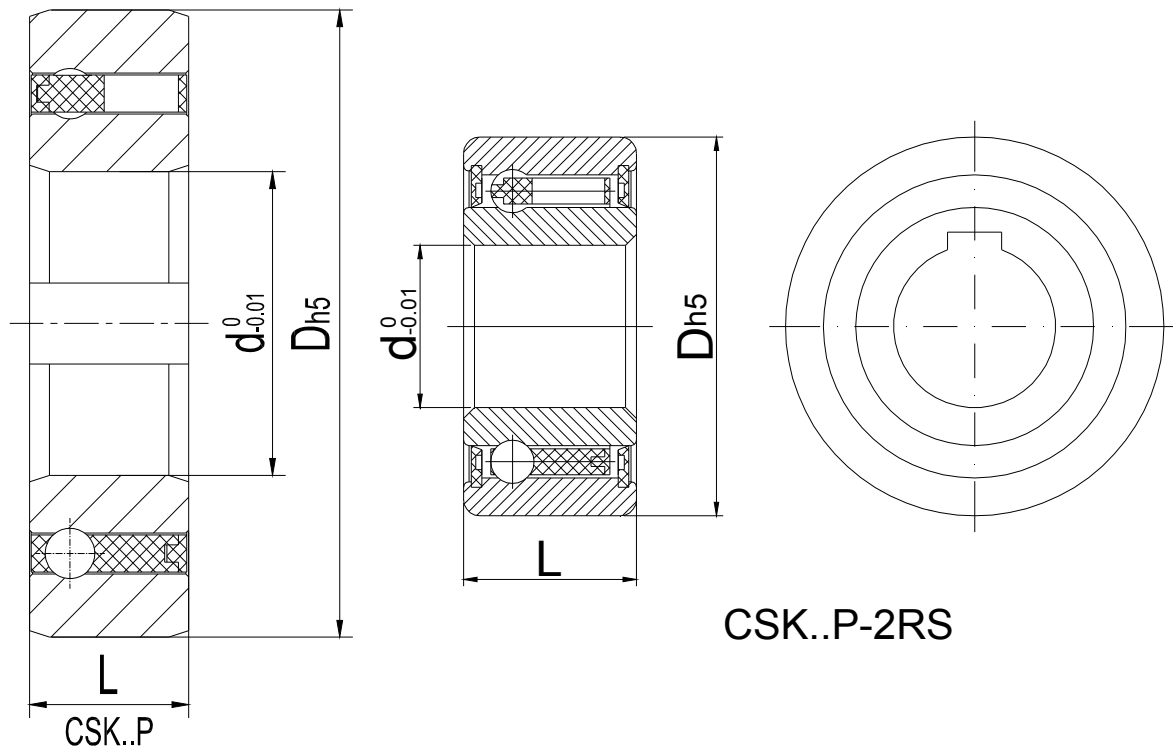
Type	Dimension(mm)			Torque N.m	Limiting Speed(RPM)	Load Rating(KN)		Weight Kg
	d	D	L			Dynamic(C)	Static(Co)	
CSK8	8	22	9	2.5	15000	3.28	0.86	0.015
CSK12	12	32	10	9.3	10000	6.1	2.77	0.04
CSK15	15	35	11	17	8400	7.4	3.42	0.06
CSK17	17	40	12	30	7350	7.9	3.8	0.07
CSK20	20	47	14	50	6000	9.4	4.46	0.11
CSK25	25	52	15	85	5200	10.7	5.46	0.14
CSK30	30	62	16	138	4200	11.7	6.45	0.21
CSK35	35	72	17	175	3600	12.6	7.28	0.3
CSK40	40	80	22	325	3000	15.54	12.25	0.5
CSK6003	17	35	10	15				0.055
CSK6004	20	42	12	28				0.065
CSK6005	25	47	14	78				0.1
CSK6304	20	52	15	85				0.18
CSK6305	25	62	17	145				0.26
CSK6306	30	72	19	205				0.415

**Remark: Other types like BB, KK, FK, ZZ, UK..ZZ and REUK..ZZ are also workable.**

Type	Dimension(mm)			Torque N.m	Limiting Speed(RPM)	Load Rating(KN)		Weight Kg
	d	D	L			Dynamic(C)	Static(Co)	
CSK8-2RS	8	22	9	2.5	15000	3.28	0.86	0.015
CSK12-2RS	12	32	14	9.3	10000	6.1	2.77	0.05
CSK15-2RS	15	35	16	17	8400	7.4	3.42	0.07
CSK17-2RS	17	40	17	30	7350	7.9	3.8	0.09
CSK20-2RS	20	47	19	50	6000	9.4	4.46	0.145
CSK25-2RS	25	52	20	85	5200	10.7	5.46	0.175
CSK30-2RS	30	62	21	138	4200	11.7	6.45	0.27
CSK35-2RS	35	72	22	175	3600	12.6	7.28	0.4
CSK40-2RS	40	80	27	325	3000	15.54	12.25	0.6

**Remark: Other types like BB-2GD, KK-2GD, FK-2RS and ZZ-2RS are also workable.**

**Freewheel Clutches(Sprag Clutch, Overrunning Clutches, Cam Clutches, One Way Clutches)**

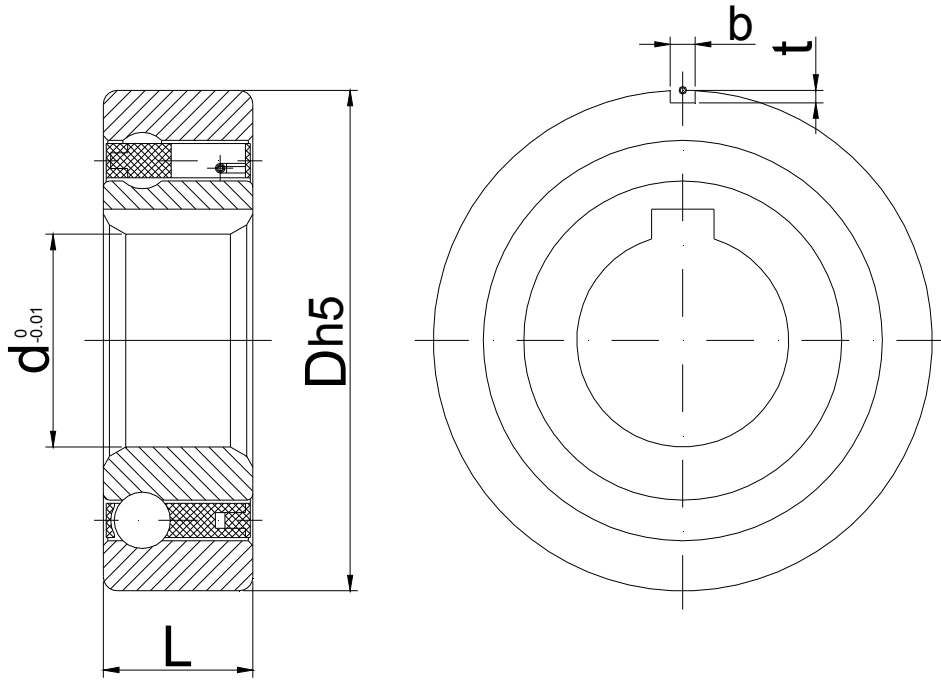


Type	Dimension(mm)			Torque N.m	Limiting Speed(RPM)	Load Rating(KN)		Weight Kg
	d	D	L			Dynamic(C)	Static(Co)	
CSK12P	12	32	10	9.3	10000	6.1	2.77	0.04
CSK15P	15	35	11	17	8400	7.4	3.42	0.06
CSK17P	17	40	12	30	7350	7.9	3.8	0.07
CSK20P	20	47	14	50	6000	9.4	4.46	0.11
CSK25P	25	52	15	85	5200	10.7	5.46	0.14
CSK30P	30	62	16	138	4200	11.7	6.45	0.21
CSK35P	35	72	17	175	3600	12.6	7.28	0.3
CSK40P	40	80	22	325	3000	15.54	12.25	0.5

Remark: Other types like BB..1K, KK..1K, FKN, ZZ..P, UKC..ZZ and REUKC..ZZ are also workable.

Type	Dimension(mm)			Torque N.m	Limiting Speed(RPM)	Load Rating(KN)		Weight Kg
	d	D	L			Dynamic(C)	Static(Co)	
CSK12P-2RS	12	32	14	9.3	10000	6.1	2.77	0.05
CSK15P-2RS	15	35	16	17	8400	7.4	3.42	0.07
CSK17P-2RS	17	40	17	30	7350	7.9	3.8	0.09
CSK20P-2RS	20	47	19	50	6000	9.4	4.46	0.145
CSK25P-2RS	25	52	20	85	5200	10.7	5.46	0.175
CSK30P-2RS	30	62	21	138	4200	11.7	6.45	0.27
CSK35P-2RS	35	72	22	175	3600	12.6	7.28	0.4
CSK40P-2RS	40	80	27	325	3000	15.54	12.25	0.6

Remark: Other types like BB-2GD-1K, KK-2GD-1K, FKN-2RS and ZZ-P-2RS are also workable.

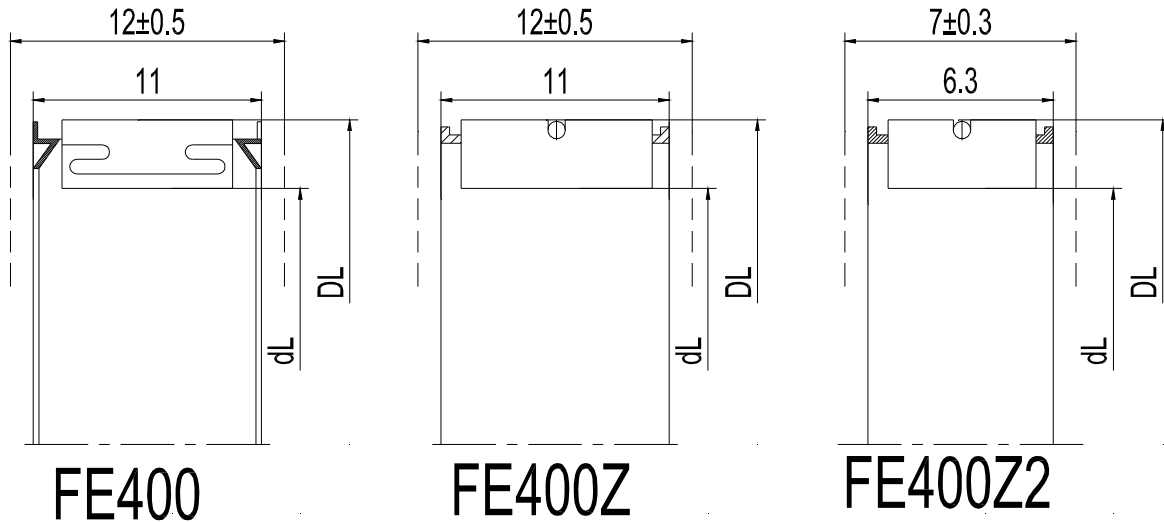


**CSK..PP**

Type	Dimension(mm)					Torque N.m
	d	D	L	b	t	
CSK15PP	15	35	11	2	0.6	17
CSK17PP	17	40	12	2	1	30
CSK20PP	20	47	14	3	1.5	50
CSK25PP	25	52	15	6	2	85
CSK30PP	30	62	16	6	2	138
CSK35PP	35	72	17	8	2.5	175
CSK40PP	40	80	22	10	3	325
Type	Limiting Speed(RPM)	Load Rating(KN)		Weight		
		Dynamic(C)	Static(Co)	Kg		
CSK15PP	8400	7.4	3.42	0.06		
CSK17PP	7350	7.9	3.8	0.07		
CSK20PP	6000	9.4	4.46	0.11		
CSK25PP	5200	10.7	5.46	0.14		
CSK30PP	4200	11.7	6.45	0.21		
CSK35PP	3600	12.6	7.28	0.3		
CSK40PP	3000	15.54	12.25	0.5		

**Remark: Other types like BB..2K, KK..2K, ZZ..PP, UKCC..ZZ and REUKCC..ZZ are also workable.**

**Freewheel Clutches(Sprag Clutch, Overrunning Clutches, Cam Clutches, One Way Clutches)**

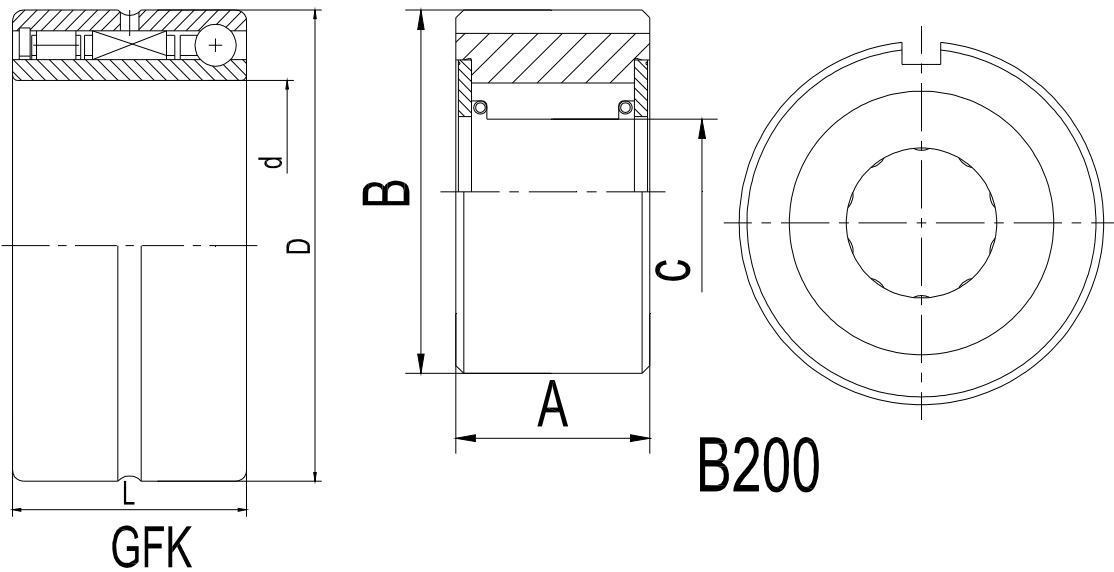


FE 400		FE 400Z		FE400 Z2		Dimension(mm)		Idling Speed Clutch(RPM)
Part Number	Torque(N.m)	Part Number	Torque(N.m)	Part Number	Torque(N.m)	dL	DL	
--	--	--	--	FE410Z2	0.3	2	10	10000
--	--	FE412Z	3	FE412Z2	1.8	4	12	10000
--	--	--	--	FE413Z2	2.9	5	13	9000
--	--	FE414Z	7	FE414Z2	2.6	6	14	8500
--	--	FE416Z	12	FE416Z2	7.6	8	16	7500
FE422	48	FE422Z	44	FE422Z2	21	14	22	5300
FE423	55	FE423Z	48	FE423Z2	24	15	23	5200
FE425	68	FE425Z	58	FE425Z2	30	17	25	4700
FE427	80	FE427Z	66	FE427Z2	36	19	27	4400
FE428	87	FE428Z	75	FE428Z2	39	20	28	4200
FE430	101	FE430Z	87	FE430Z2	46	22	30	4000
FE432	116	FE432Z	97	FE432Z2	52	24	32	3700
FE433	124	FE433Z	107	FE433Z2	56	25	33	3600
FE435	141	FE435Z	121	FE435Z2	64	27	35	3400
FE437	158	FE437Z	137	FE437Z2	71	29	37	3200
FE438	168	FE438Z	144	FE438Z2	76	30	38	3100
FE442	207	FE442Z	178	FE442Z2	93	34	42	2800
FE443	217	FE443Z	187	FE443Z2	98	35	43	2700
FE448	272	FE448Z	235	FE448Z2	122	40	48	2500
FE453	333	FE453Z	281	FE453Z2	146	45	53	2200
FE458	400	FE458Z	345	FE458ZS	178	50	58	2000
FE459	414	FE459Z	357	--	--	51	59	1900
FE463	472	FE463Z	407	FE463Z2	202	55	63	1750
FE468	550	FE468Z	474	FE468Z2	243	60	68	1700
FE470	583	FE470Z	502	--	--	62	70	1600
FE473	633	FE473Z	545	--	--	65	73	1500
FE478	722	FE478Z	622	--	--	70	78	--
FE488	914	FE488Z	788	--	--	80	88	1300

Remark: Other type like GM is also workable.



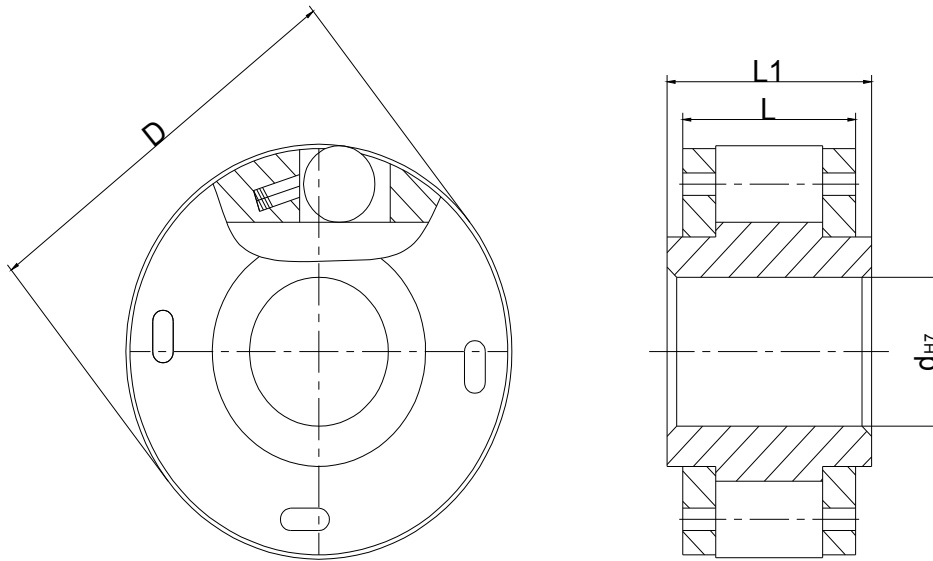
**Freewheel Clutches(Sprag Clutch, Overrunning Clutches, Cam Clutches, One Way Clutches)**



Type	Dimension(mm)			Torque (N.m)	Loads (N)		Loads (N)	
	d	D	L		Roller Dyn.(C)	Balls Dyn.(C)	Rollers Stat.(Co)	Balls Stat.(Co)
GFK20	20	37	23	51	5600	4400	2900	2750
GFK25	25	42	23	65	6300	5300	3450	3350
GFK30	30	47	23	95	7700	5500	4600	3650
GFK35	35	55	27	204	8200	8500	5200	5700
GFK40	40	62	30	315	8650	9300	5750	6700
GFK45	45	68	30	370	9200	9700	6350	7300
GFK50	50	72	30	460	9650	10000	6950	7800

**Remark: Other types like FP and FGK are also workable.**

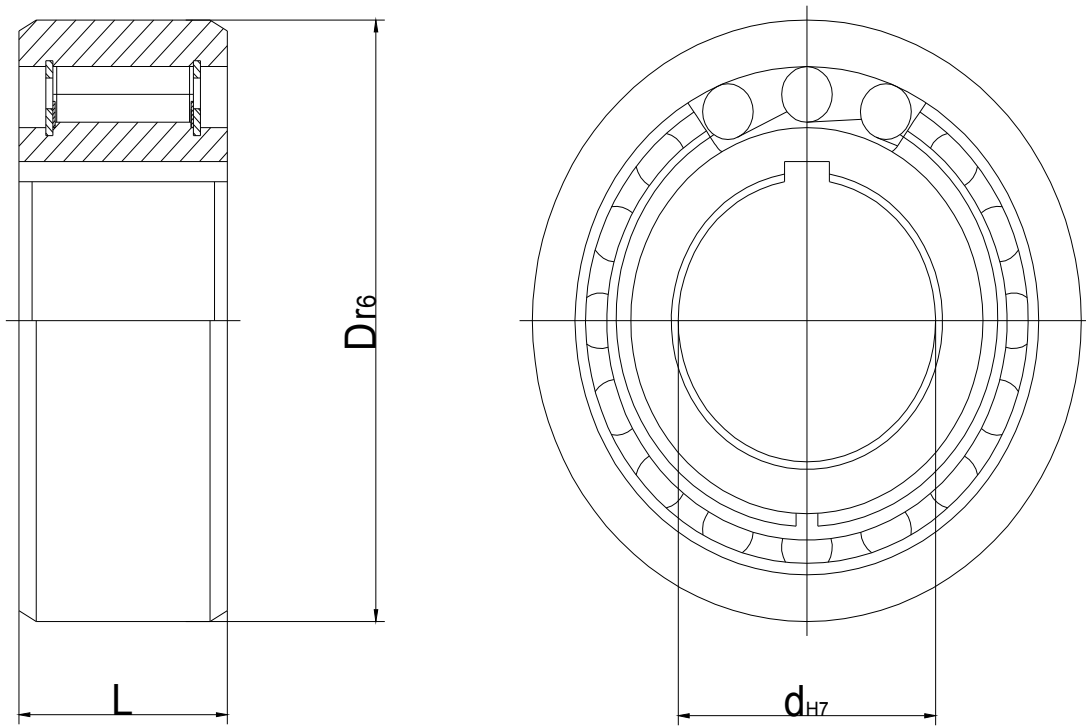
Type	Dimension(mm)			Max. Torque (N.m)	Keyway	Weight Kg
	C	B	A			
B203	16.51	40	25	39.2	4X2.5	0.23
B204	18.796	47	25	58.8	5X3	0.34
B205	23.622	52	25	98	5X3	0.45
B206	32.766	62	28	235	7X4	0.68
B207	42.088	72	28	372	7X4	0.8
B208	46.761	80	32	549	10X4.5	0.91
B209	46.761	85	32	549	10X4.5	0.95
B210	56.109	90	32	784	10X4.5	1
B211	56.109	100	32	784	10X4.5	1.4
B212	70.029	110	42	1230	10X4.5	1.8
B213	70.029	120	42	1230	10X4.5	2.3
B214	79.356	125	42	1390	12X4.5	2.4



**KI**

Type	Dimension(mm)				Torque (N.m)	Overrunning Speed		Weight Kg
	d (H7)	D (H7)	L	L1		n imax(min-1)	n amax(min-1)	
KI164	4	16	9	10	0.8	8000	10000	0.008
KI165	5	16	9	10	0.8	8000	10000	0.007
KI194	4	19	9	10	0.9	7000	9000	0.012
KI195	5	19	9	10	0.9	7000	9000	0.011
KI196	6	19	9	10	0.9	7000	9000	0.01
KI268	8	26	13	14	2.9	5000	6000	0.023
KI269	9	26	13	14	2.9	5000	6000	0.021
KI2610	10	26	13	14	2.9	5000	6000	0.019

\*: n imax means Inner Race Overruns, while n amax means Outer Race Overruns



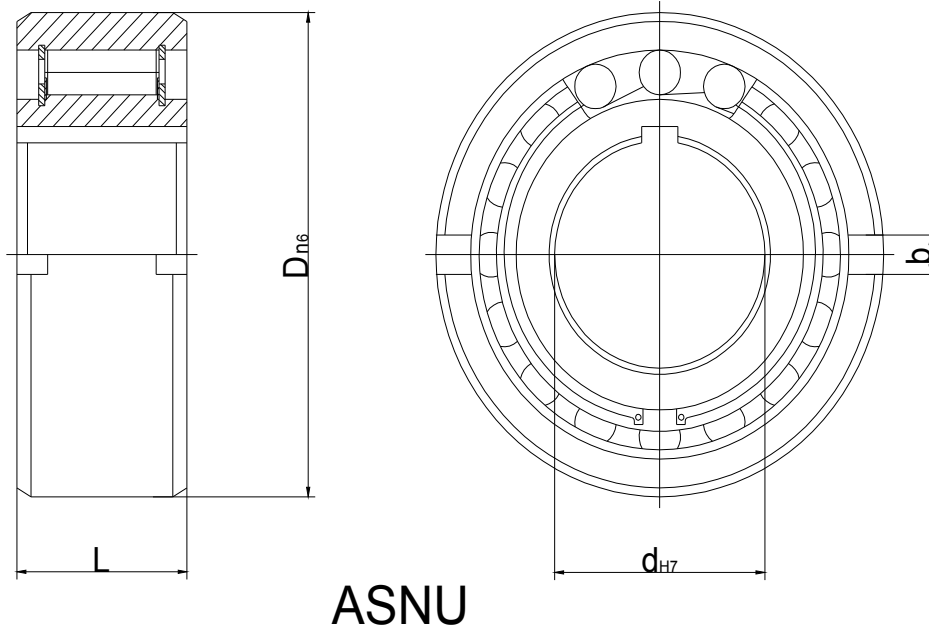
# AS

Type	Dimension(mm)			Torque (N.m)	Overrunning Speed		Weight Kg
	d (H7)	D (r6)	L		n imax(min-1)	n amax(min-1)	
AS6	6	19	6	2.1	5000	7500	0.01
AS8	8	24	8	3.8	4300	6500	0.02
AS10	10	30	9	6.8	3500	5200	0.03
AS12	12	32	10	13	3200	4800	0.04
AS15	15	35	11	14	2800	4300	0.05
AS20	20	47	14	40	2200	3300	0.12
AS25	25	52	15	56	1900	2900	0.14
AS30	30	62	16	90	1600	2400	0.22
AS35	35	72	17	143	1300	2000	0.31
AS40	40	80	18	185	1200	1800	0.39
AS45	45	85	19	218	1000	1600	0.44
AS50	50	90	20	230	950	1500	0.49
AS55	55	100	21	308	800	1300	0.66
AS60	60	110	22	508	700	1100	0.81
AS80	80	140	26	1063	600	900	1.41

\*: n imax means Inner Race Overruns, while n amax means Outer Race Overruns

**Remark: Other types like NSS, VS, FCN, BSS, US and TSS are also workable.**

**Freewheel Clutches(Sprag Clutch, Overrunning Clutches, Cam Clutches, One Way Clutches)**

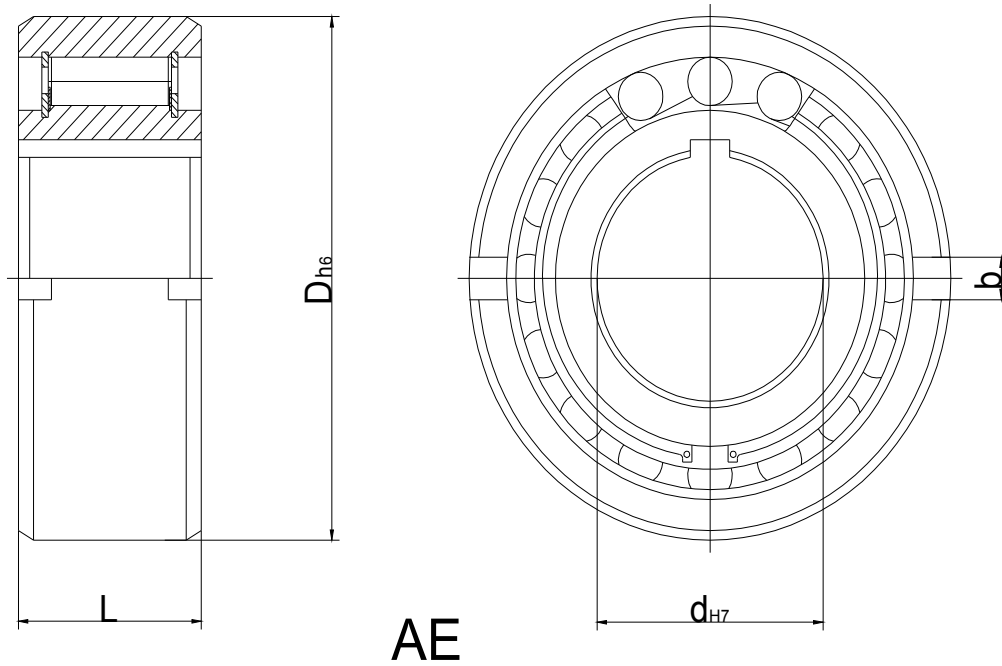


Type	Dimension(mm)				Torque (N.m)	Overrunning Speed		Weight Kg
	d (H7)	D (n6)	L	b		n imax(min-1)	n amax(min-1)	
ASNU8	8	35	13	4	12	3300	5000	0.07
ASNU12	12	35	13	4	12	3300	5000	0.06
ASNU15	15	42	18	5	30	2400	3600	0.11
ASNU17	17	47	19	5	49	2300	3400	0.15
ASNU20	20	52	21	6	78	2100	3100	0.19
ASNU25	25	62	24	8	125	1700	2600	0.38
ASNU30	30	72	27	10	255	1400	2200	0.54
ASNU35	35	80	31	12	383	1200	1900	0.74
ASNU40	40	90	33	12	538	1100	1700	0.92
ASNU45	45	100	36	14	780	1000	1600	1.31
ASNU50	50	110	40	14	1013	850	1350	1.74
ASNU60	60	130	46	18	1825	750	1050	2.77
ASNU70	70	150	51	20	2300	600	950	4.16
ASNU80	80	170	58	20	3275	550	850	6.09
ASNU90	90	190	64	20	5325	500	750	8.2
ASNU100	100	215	73	24	7250	450	680	12.6
ASNU120	120	260	86	28	13500	370	550	22
ASNU150	150	320	108	32	26625	300	460	42
ASNU200	200	420	138	45	44500	230	350	93

\*: n imax means Inner Race Overruns, while n amax means Outer Race Overruns

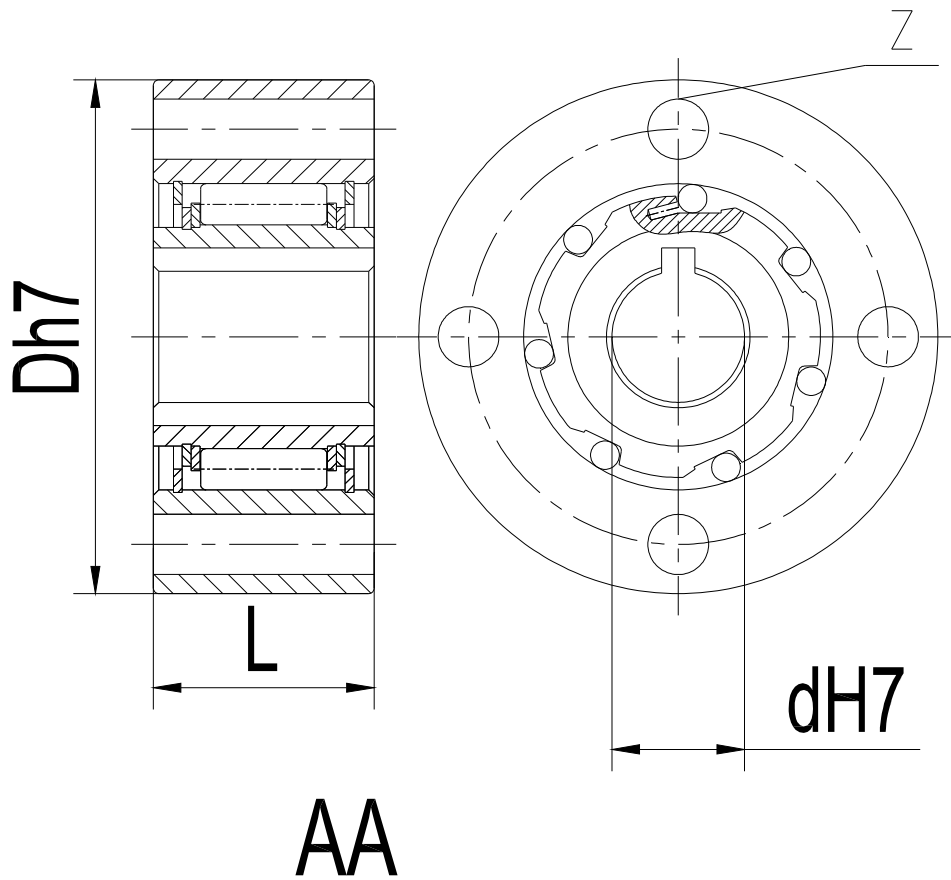
**Remark: Other types like NFS, VSNU, FSN, BFS, USNU and TFS are also workable.**

**Freewheel Clutches(Sprag Clutch, Overrunning Clutches, Cam Clutches, One Way Clutches)**



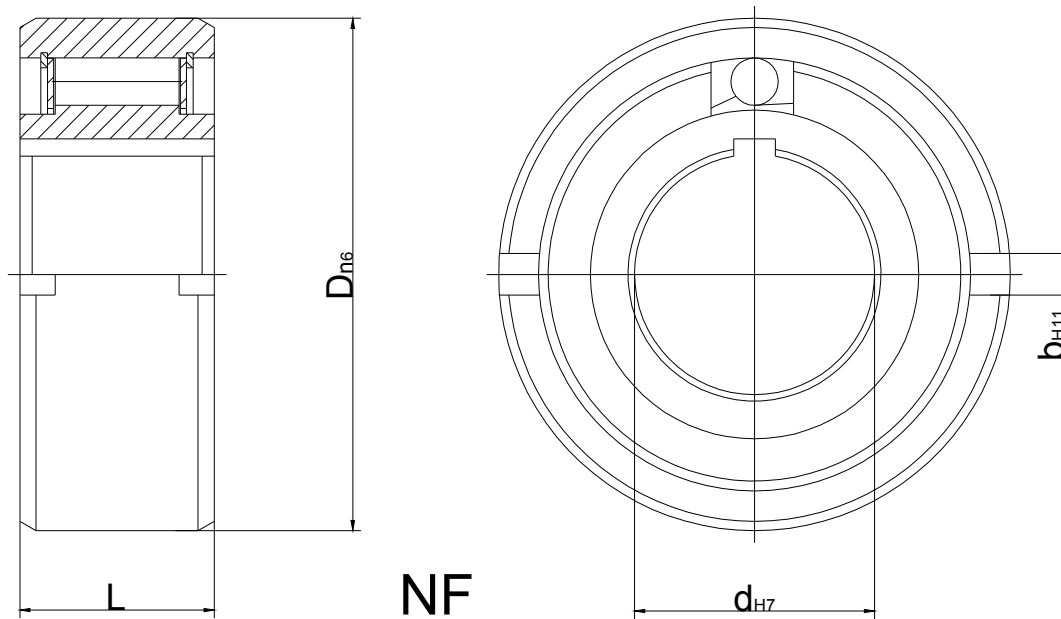
Type	Dimension(mm)				Torque (N.m)	Overrunning Speed		Weight Kg
	d (H7)	D (h6)	L	b		n imax(min-1)	n amax(min-1)	
AE12	12	37	20	6	17	3100	6000	0.11
AE15	15	47	30	7	55	2300	5400	0.3
AE20	20	62	34	8	146	2000	3600	0.55
AE25	25	80	37	9	285	1700	2600	0.98
AE30	30	90	44	12	500	1500	2100	1.5
AE35	35	100	48	13	720	1300	1950	2
AE40	40	110	56	15	1030	1200	1700	2.8
AE45	45	120	56	16	1125	1050	1600	3.3
AE50	50	130	63	17	2150	950	1300	4.2
AE55	55	140	67	18	2675	850	1200	5.2
AE60	60	150	78	18	3500	800	1100	6.8
AE70	70	170	95	20	5813	650	900	10.5

\*: n imax means Inner Race Overruns, while n amax means Outer Race Overruns



Type	Dimension(mm)			Torque (N.m)	z	Weight Kg
	d (H7)	D (h7)	L			
AA12	12	47	20	17	3	0.21
AA15	15	55	30	55	3	0.44
AA20	20	68	34	146	4	0.7
AA25	25	90	37	285	6	1.3
AA30	30	100	44	500	6	2
AA35	35	110	48	720	6	2.6
AA40	40	125	56	1030	6	3.9
AA45	45	130	56	1125	8	4
AA50	50	150	63	2150	8	6
AA55	55	160	67	2675	8	7.2
AA60	60	170	78	3500	10	9.2
AA70	70	190	95	5813	10	11.8

**Freewheel Clutches(Sprag Clutch, Overrunning Clutches, Cam Clutches, One Way Clutches)**

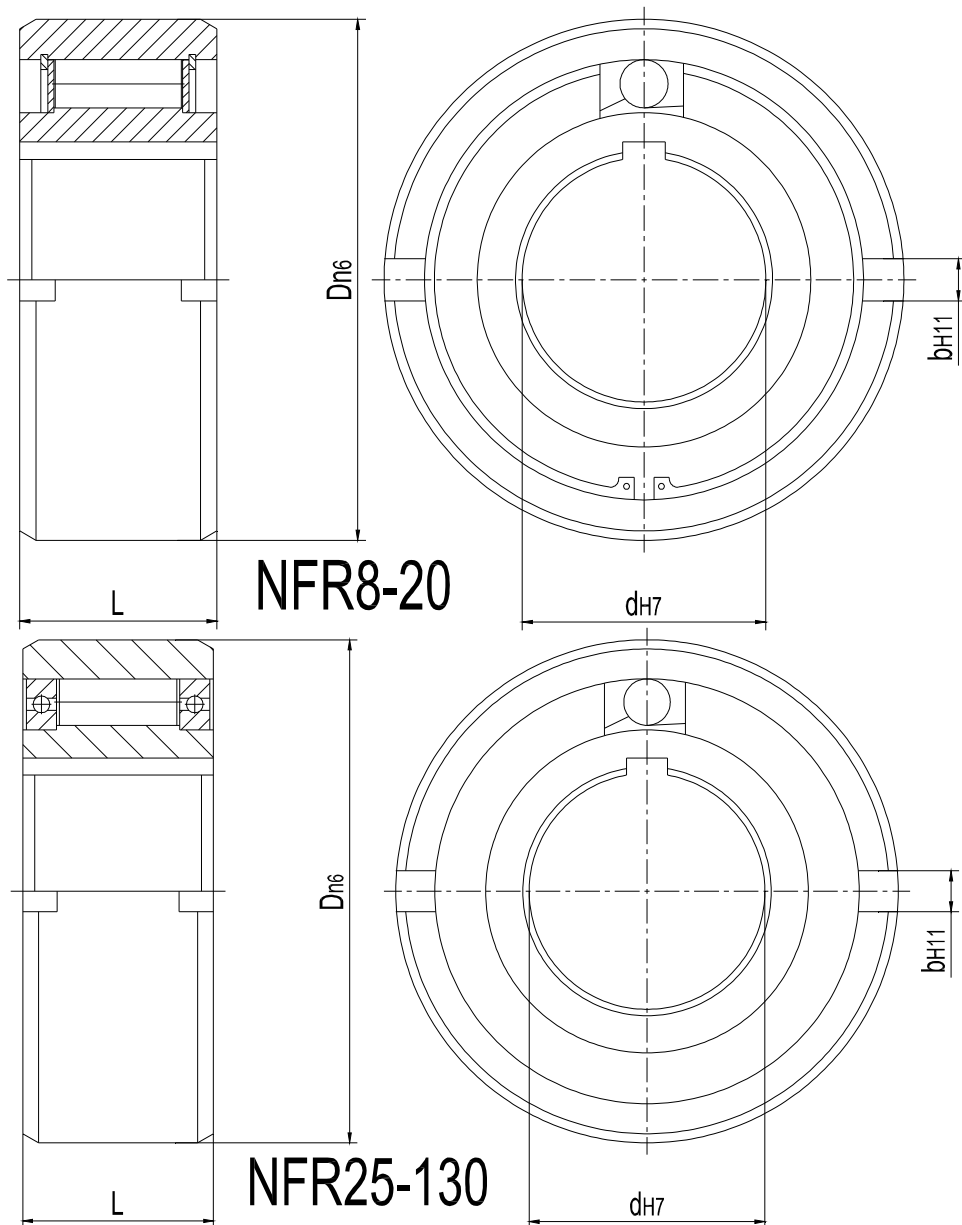


Type	Dimension(mm)				Torque (N.m)	Overrunning Speed		Weight Kg
	d (H7)	D (n6)	L	b (H11)		n imax(min-1)	n amax(min-1)	
NF8	8	37	20	6	20	5000	6000	0.1
NF12	12	37	20	6	20	5000	6000	0.1
NF15	15	47	30	7	78	4500	5400	0.3
NF20	20	62	36	8	188	3000	3600	0.6
NF25	25	80	40	9	250	2200	2600	1.1
NF30	30	90	48	12	500	1800	2100	1.6
NF35	35	100	53	13	663	1600	1950	2.3
NF40	40	110	63	15	1100	1250	1700	3.1
NF45	45	120	63	16	1500	1100	1500	3.7
NF50	50	130	80	17	2375	850	1300	5.4
NF55	55	140	80	18	2500	800	1200	6.1
NF60	60	150	95	18	4250	700	1100	8.5
NF70	70	170	110	20	5875	620	900	13
NF80	80	190	125	20	10000	550	800	18
NF90	90	215	140	24	17250	480	700	25.3
NF100	100	260	150	28	19625	400	600	42.1
NF130	130	300	180	32	34750	300	480	65
NF150	150	320	180	32	44375	250	400	95

\*: n imax means Inner Race Overruns, while n amax means Outer Race Overruns

**Remark: Other types like UF, VF and BNF are also workable.**

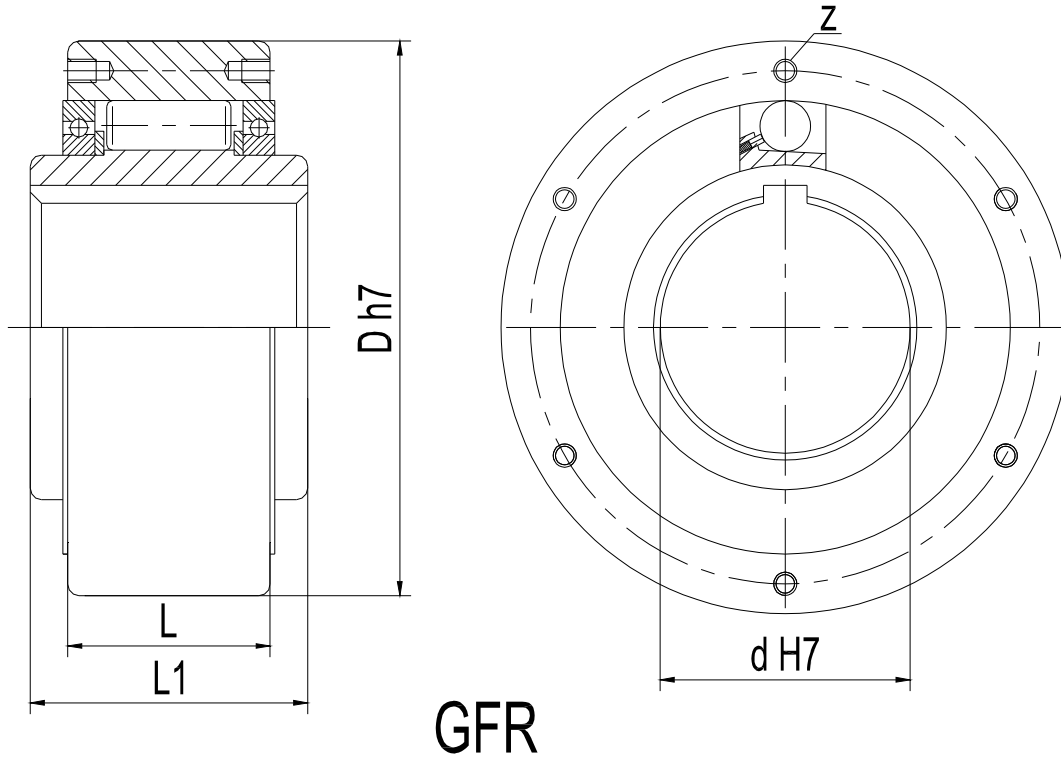
**Freewheel Clutches(Sprag Clutch, Overrunning Clutches, Cam Clutches, One Way Clutches)**



Part number	Dimension (mm)			Torque (N.m)	Overrunning Speed		Weight Kg
	d(H7)	D(n6)	L		n imax(min-1)	n max(min-1)	
NFR8	8	37	20	20	1000	1000	0.1
NFR12	12	37	20	20	1000	1000	0.1
NFR15	15	47	30	78	850	850	0.3
NFR20	20	62	36	188	650	650	0.6
NFR25	25	80	40	250	2100	3600	1.2
NFR30	30	90	48	500	1700	3200	1.8
NFR35	35	100	53	663	1550	3000	2.4
NFR40	40	110	63	1100	1150	2600	3.3
NFR45	45	120	63	1500	1000	2400	4
NFR50	50	130	80	2375	800	2150	5.7
NFR55	55	140	80	2550	750	2000	6.5
NFR60	60	150	95	4250	650	1900	8.9
NFR70	70	170	110	5875	550	1750	13.5
NFR80	80	190	125	10000	500	1600	19
NFR90	90	215	140	17250	450	1450	27.2
NFR100	100	260	150	19625	350	1250	44.5
NFR130	130	300	180	34750	250	1000	68

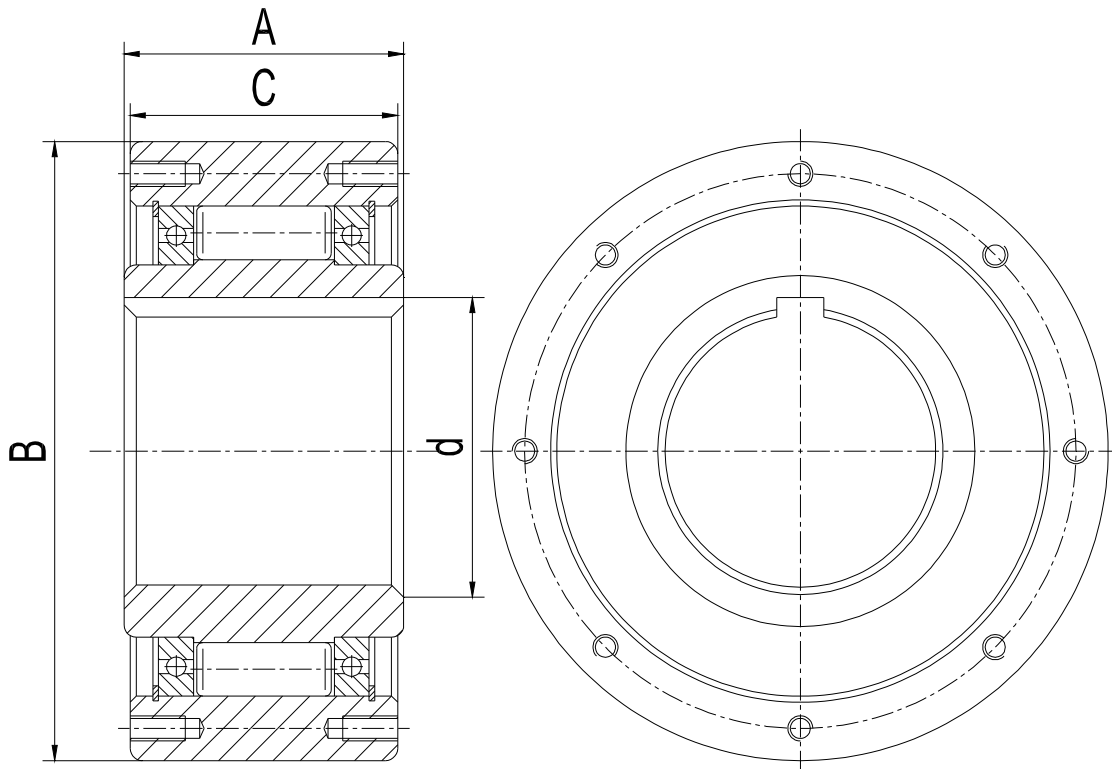
Remark: Other types like VGF, BNFR, GF, ANR and ANG are also workable.





Type	Dimension(mm)				Number	Torque (N.m)	Weight Kg
	d (H7)	D (h7)	L	L1			
GFR12	12	62	20	42	3	55	0.5
GFR15	15	68	28	52	3	125	0.8
GFR20	20	75	34	57	4	181	1
GFR25	25	90	35	60	4	288	1.5
GFR30	30	100	43	68	6	500	2.2
GFR35	35	110	45	74	6	725	3
GFR40	40	125	53	86	6	1025	4.6
GFR45	45	130	53	86	8	1125	4.7
GFR50	50	150	64	94	8	2125	7.2
GFR55	55	160	66	104	8	2625	8.6
GFR60	60	170	78	114	10	3500	10.5
GFR70	70	190	95	134	10	5750	13.5
GFR80	80	210	100	144	10	8500	18.2
GFR90	90	230	115	158	10	14500	28.5
GFR100	100	270	120	182	10	20000	42.5
GFR130	130	310	152	212	12	31250	65
GFR150	150	400	180	246	12	70000	138

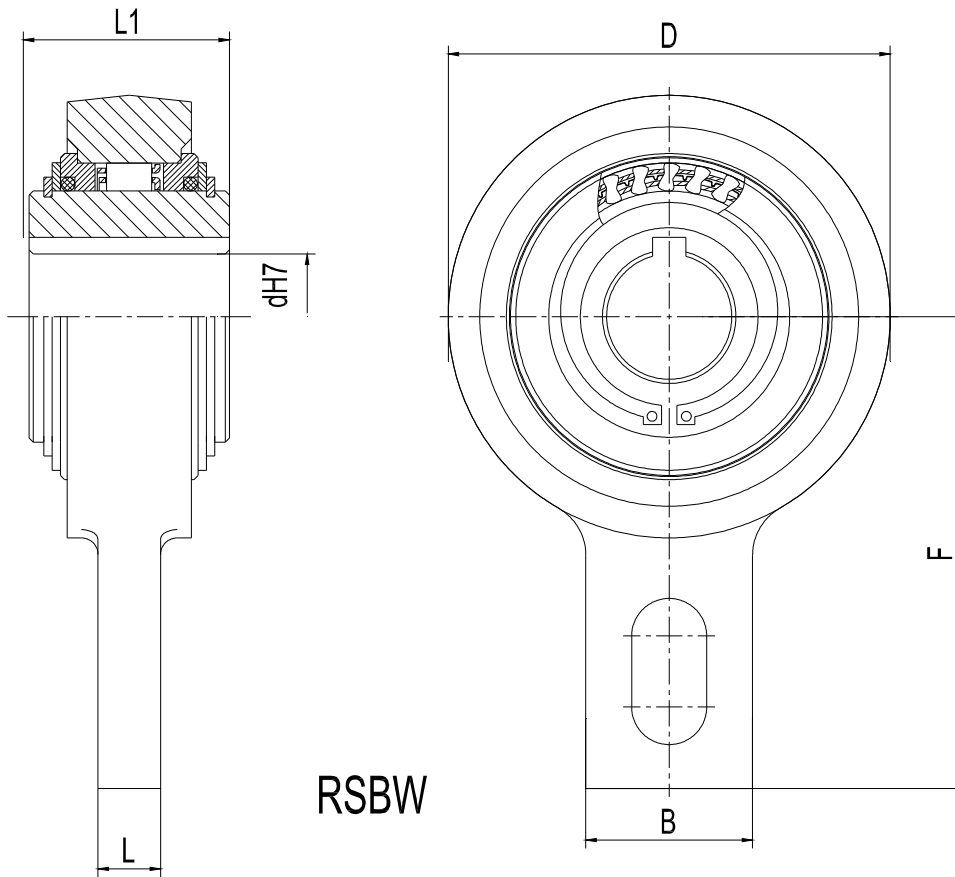
**Remark: Other types like VGL, FGR, ALCP, GFRS, GL and MZEU are also workable.**



**MZ**

Type	Dimension(mm)				Torque (N.m)	Weight Kg
	d	B	C	A		
MZ15	15	68	60	62	186	1.4
MZ17	17	75	64	66	215	1.8
MZ20	20	80	65	67	323	2
MZ30-22	22	100	80	82	735	3.7
MZ30-25	25	100	80	82	735	3.7
MZ30	30	100	80	82	735	3.7
MZ35	35	110	85	87	1080	4.8
MZ45-40	40	125	90	92	1620	6.2
MZ45	45	125	90	92	1620	6.2
MZ60-50	50	155	100	102	2110	10.2
MZ60-55	55	155	100	102	2110	10.2
MZ60	60	155	100	102	2110	10.2
MZ70-65	65	175	103	105	3040	13.2
MZ70	70	175	103	105	3040	13.2

**Freewheel Clutches(Sprag Clutch, Overrunning Clutches, Cam Clutches, One Way Clutches)**



Type	Dimension(mm)						Torque (N.m)	Weight Kg
	d (H7)	D	F	L	L1	B		
RSBW20	20	106	113	15	35	40	375	2
RSBW25	25	106	113	15	48	40	606	2.6
RSBW30	30	106	113	15	48	40	606	2.5
RSBW35M	35	106	113	15	35	40	375	2
RSBW35	35	106	113	15	48	40	606	2.4
RSBW40	40	132	125	15	52	60	1295	4.6
RSBW45	45	132	125	15	52	60	1295	4.5
RSBW50	50	132	125	15	52	60	1295	4.5
RSBW55	55	132	125	15	52	60	1295	4.4
RSBW60	60	161	140	15	54	70	2550	6.5
RSBW70	70	161	140	15	54	70	2550	6.4
RSBW80	80	190	165	20	70	70	4875	9.9
RSBW90	90	190	165	20	70	70	4875	9.8