

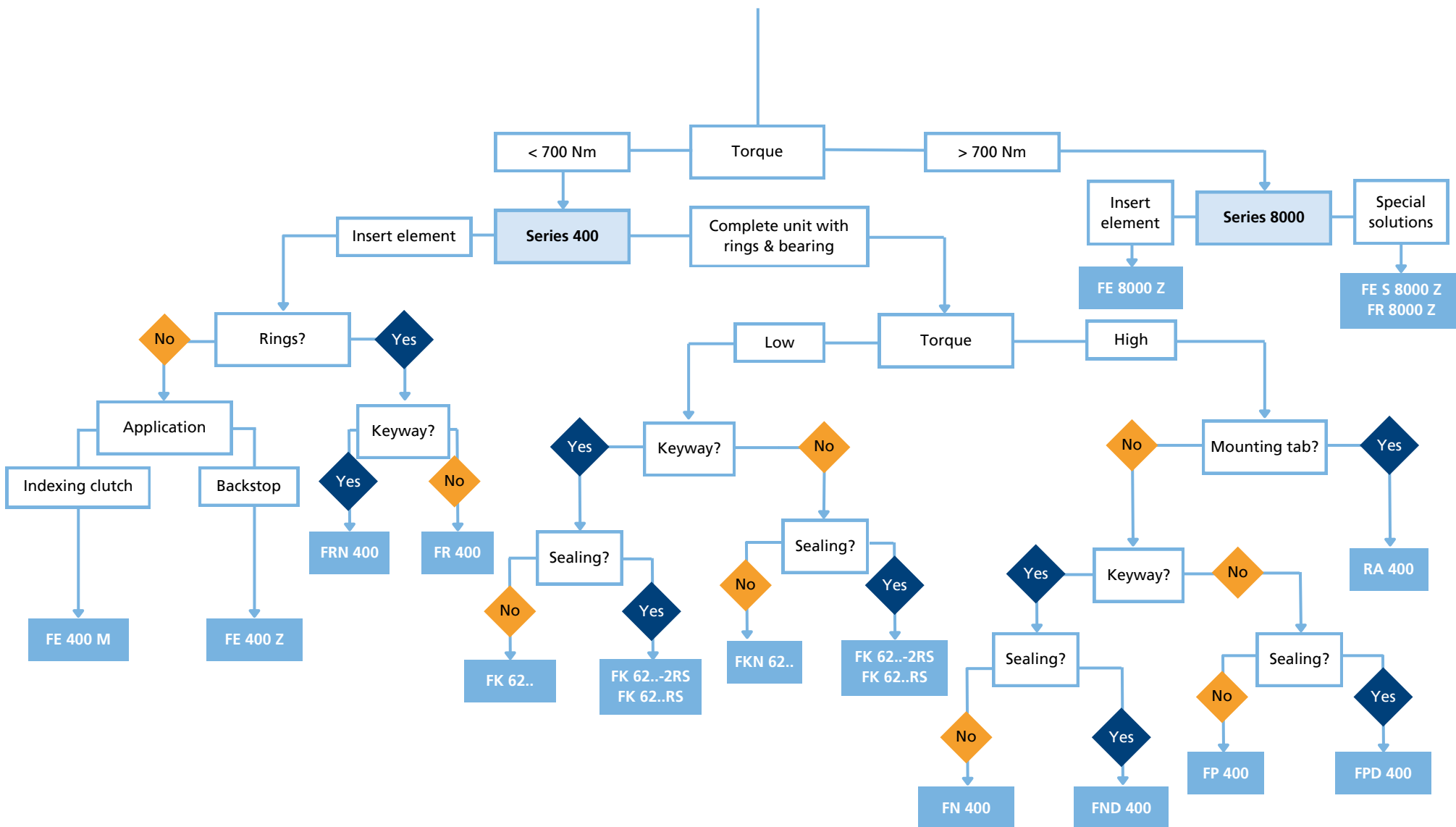
Easily
Find the Sprag
Clutch That's
Right for You



GMN
BEARING USA

Sprag Clutch Choice Flowchart

START HERE



FN Series

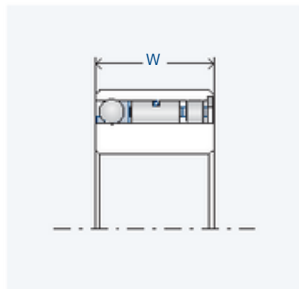
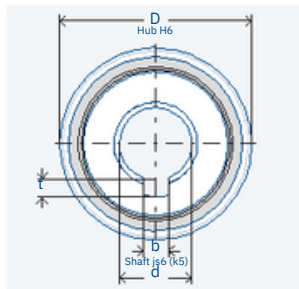
COMPLETE SPRAG CLUTCH UNITS

Stats-at-a-Glance

- RPM: 2,500-4,800
- Width: 27 mm
- Inner Diameter: 15-45 mm
- Outer Diameter: 41-78 mm
- Torque: 160-588 Nm
- Operating Temp: 284°F / 140°C



Product Specs



Drawing legend

- d = inner diameter
- D = outer diameter
- W = width
- T = torque
- n = rotation speed
- C = load capacity
- b = keyway width
- t = keyway depth

Designation	d [mm]	D [mm]	W [mm]	T _{nom} [Nm]	n _{max} [rpm]	C _{dyn.} [N]	C _{stat.} [N]	Weight [kg]	b [mm]	t [mm]
FN 437 M	15	41	27	176	4,800	8,962	8,661	0.19	15	2.3
FN 437 Z	15	41	27	160	4,800	8,962	8,661	0.19	15	2.3
FN 442 M	20	46	27	223	4,200	10,247	10,708	0.22	20	2.8
FN 442 Z	20	46	27	208	4,200	10,247	10,708	0.22	20	2.8
FN 453 M	25	58	27	343	3,400	11,417	13,577	0.36	25	3.3
FN 453 Z	25	58	27	314	3,400	11,417	13,577	0.36	25	3.3
FN 459 M	30	64	27	411	3,000	12,691	16,320	0.43	30	3.3
FN 459 Z	30	64	27	381	3,000	12,691	16,320	0.43	30	3.3
FN 463 M	35	68	27	461	2,900	13,070	17,063	0.47	35	3.3
FN 463 Z	35	68	27	427	2,900	13,070	17,063	0.47	35	3.3
FN 470 M	40	75	27	550	2,600	14,050	19,840	0.54	40	3.3
FN 470 Z	40	75	27	509	2,600	14,050	19,840	0.54	40	3.3
FN 473 M	45	78	27	588	2,500	14,128	19,896	0.58	45	3.8
FN 473 Z	45	78	27	544	2,500	14,128	19,896	0.58	45	3.8

FND Series

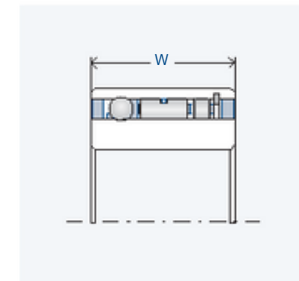
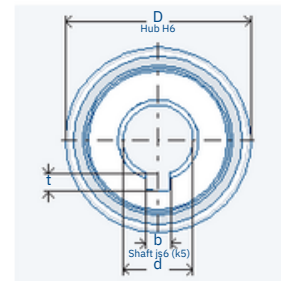
COMPLETE SPRAG CLUTCH UNITS

Stats-at-a-Glance

- RPM: 1,000-1,700
- Width: 34 mm
- Inner Diameter: 15-45 mm
- Outer Diameter: 41-78 mm
- Torque: 161-588 Nm
- Operating Temp: 212°F / 100°C



Product Specs



Drawing legend

- d = inner diameter
- D = outer diameter
- W = width
- T = torque
- n = rotation speed
- C = load capacity
- b = keyway width
- t = keyway depth

Designation	d [mm]	D [mm]	W [mm]	T _{nom} [Nm]	n _{max} [rpm]	C _{dyn.} [N]	C _{stat.} [N]	Weight [kg]	b [mm]	t [mm]
FND 437 M	15	41	34	176	1,700	8,962	8,661	0.24	5	2.3
FND 437 Z	15	41	34	161	1,700	8,962	8,661	0.24	5	2.3
FND 442 M	20	46	34	223	1,500	10,247	10,708	0.28	6	2.8
FND 442 Z	20	46	34	208	1,500	10,247	10,708	0.28	6	2.8
FND 453 M	25	58	34	343	1,200	11,417	13,577	0.46	8	3.3
FND 453 Z	25	58	34	314	1,200	11,417	13,577	0.46	8	3.3
FND 459 M	30	64	34	411	1,100	12,691	16,320	0.55	8	3.3
FND 459 Z	30	64	34	381	1,100	12,691	16,320	0.55	8	3.3
FND 463 M	35	68	34	462	1,100	13,070	17,063	0.60	10	3.3
FND 463 Z	35	68	34	428	1,100	13,070	17,063	0.60	10	3.3
FND 470 M	40	75	34	550	1,000	14,050	19,840	0.69	12	3.3
FND 470 Z	40	75	34	509	1,000	14,050	19,840	0.69	12	3.3
FND 473 M	45	78	34	588	1,000	14,128	19,896	0.73	14	3.8
FND 473 Z	45	78	34	543	1,000	14,128	19,896	0.73	14	3.8



FP Series

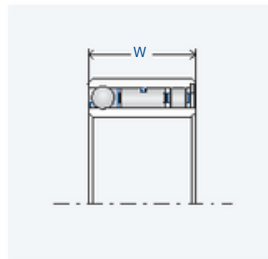
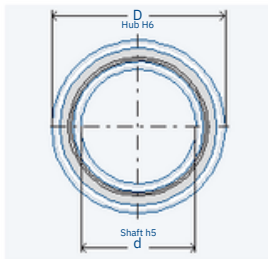
COMPLETE SPRAG CLUTCH UNITS



Stats-at-a-Glance

- RPM: 2,500-10,100
- Width: 27 mm
- Inner Diameter: 10-60 mm
- Outer Diameter: 26-78 mm
- Torque: 53-588 Nm
- Operating Temp: 284°F / 140°C

Product Specs



Drawing legend

- d = inner diameter
- D = outer diameter
- W = width
- T = torque
- n = rotation speed
- C = load capacity

Designation	d [mm]	D [mm]	W [mm]	T _{nom} [Nm]	n _{max} [rpm]	C _{dyn.} [N]	C _{stat.} [N]	Weight [kg]
FP 422 M	10	26	27	60	10,100	6,013	4,380	0.07
FP 422 Z	10	26	27	53	10,100	6,013	4,380	0.07
FP 427 M	15	31	27	94	7,400	7,679	6,397	0.08
FP 427 Z	15	31	27	84	7,400	7,679	6,397	0.08
FP 432 M	20	36	27	133	5,900	8,104	7,241	0.10
FP 432 Z	20	36	27	121	5,900	8,104	7,241	0.10
FP 437 M	25	41	27	176	4,800	9,201	8,142	0.12
FP 437 Z	25	41	27	160	4,800	9,201	8,142	0.12
FP 442 M	30	46	27	223	4,200	10,247	10,708	0.14
FP 442 Z	30	46	27	208	4,200	10,247	10,708	0.14
FP 448 M	35	53	27	286	4,300	11,642	13,440	0.19
FP 448 Z	35	53	27	262	4,300	11,642	13,440	0.19
FP 453 M	40	58	27	343	3,400	11,417	13,577	0.21
FP 453 Z	40	58	27	314	3,400	11,417	13,577	0.21
FP 463 M	50	68	27	461	2,900	13,070	17,063	0.25
FP 463 Z	50	68	27	428	2,900	13,070	17,063	0.25
FP 473 M	60	78	27	588	2,500	14,128	19,896	0.30
FP 473 Z	60	78	27	543	2,500	14,128	19,896	0.30

FPD Series

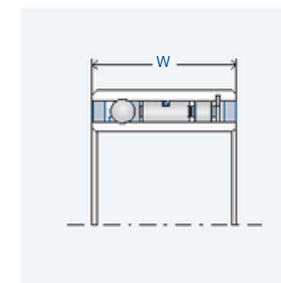
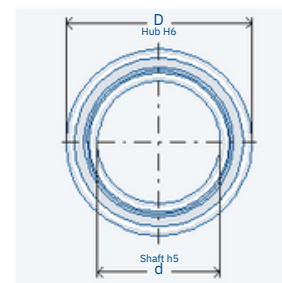
COMPLETE SPRAG CLUTCH UNITS



Stats-at-a-Glance

- RPM: 1,000-2,000
- Width: 34 mm
- Inner Diameter: 15-60 mm
- Outer Diameter: 31-78 mm
- Torque: 84-588 Nm
- Operating Temp: 212°F / 100°C

Product Specs



Drawing legend

- d = inner diameter
- D = outer diameter
- W = width
- T = torque
- n = rotation speed
- C = load capacity

Designation	d [mm]	D [mm]	W [mm]	T _{nom} [Nm]	n _{max} [rpm]	C _{dyn.} [N]	C _{stat.} [N]	Weight [kg]
FPD 427 M	15	31	34	94	2,000	7,679	6,397	0.09
FPD 427 Z	15	31	34	84	2,000	7,679	6,397	0.09
FPD 432 M	20	36	34	133	1,800	8,104	7,241	0.12
FPD 432 Z	20	36	34	121	1,800	8,104	7,241	0.12
FPD 437 M	25	41	34	176	1,700	9,201	8,142	0.15
FPD 437 Z	25	41	34	160	1,700	9,201	8,142	0.15
FPD 442 M	30	46	34	223	1,500	10,247	10,708	0.18
FPD 442 Z	30	46	34	208	1,500	10,247	10,708	0.18
FPD 448 M	35	53	34	286	1,300	11,642	13,440	0.23
FPD 448 Z	35	53	34	262	1,300	11,642	13,440	0.23
FPD 453 M	40	58	34	343	1,200	11,417	13,577	0.26
FPD 453 Z	40	58	34	314	1,200	11,417	13,577	0.26
FPD 463 M	50	68	34	461	1,100	13,070	17,063	0.34
FPD 463 Z	50	68	34	428	1,100	13,070	17,063	0.34
FPD 473 M	60	78	34	588	1,000	14,128	19,896	0.41
FPD 473 Z	60	78	34	543	1,000	14,128	19,896	0.41



RA Series

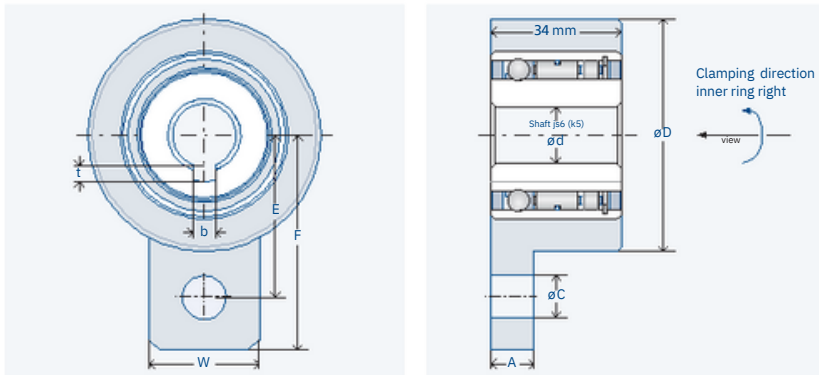
COMPLETE SPRAG CLUTCH UNITS

Stats-at-a-Glance

- RPM: 1,000-1,700
- Width: 34 mm
- Torque: 161-543 Nm
- Inner Diameter: 15-45 mm
- Outer Diameter: 65-110 mm
- Operating Temp: 212°F / 100°C



Product Specs



Designation	d [mm]	D [mm]	A [mm]	W [mm]	C [mm]	E [mm]	F [mm]	T _{nom} [Nm]	n _{max} [rpm]	C _{dyn.} [N]	C _{stat.} [N]	Weight [kg]	b [mm]	t [mm]	Item no.
RA 437 Z	15	65	12	32	10	47	62	161	1,700	8,962	8,661	0.81	5	2.3	301026
RA 442 Z	20	75	16	36	12	54	72	208	1,500	10,247	10,708	1.08	6	2.8	301030
RA 453 Z	25	90	16	45	16	62	84	314	1,200	11,417	13,577	1.50	8	3.3	301043
RA 459 Z	30	100	16	50	16	68	92	381	1,100	12,691	16,320	1.81	8	3.3	301048
RA 463 Z	35	100	16	50	16	68	92	428	1,100	13,070	17,063	1.75	10	3.3	306681
RA 470 Z	40	110	20	50	20	85	115	509	1,000	14,050	19,840	2.28	12	3.3	301056
RA 473 Z	45	110	20	50	20	85	115	543	1,000	14,128	19,896	2.2	14	3.8	306682

Inner ring clamping direction left available on request. Rotation speed n = shaft speed
The specified nominal torque refers to the integrated freewheel clutch insert element, not the key way.

Drawing legend	d = inner diameter
E = bore spacing	b = keyway width
F = support lever length	t = keyway depth
T = torque	D = outer diameter
n = rotation speed	B = mounting tab width
C = mounting tab bore	A = mounting tab thickness

FK Series

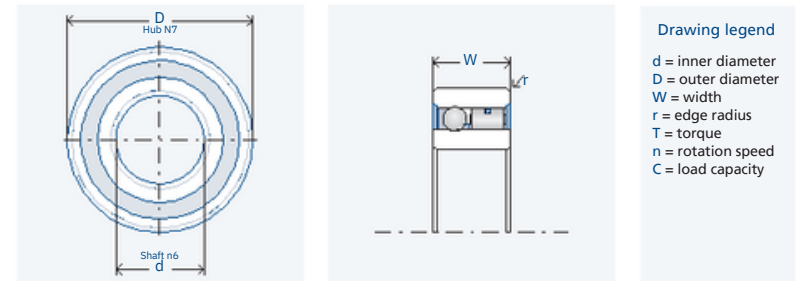
BALL BEARING SPRAG CLUTCH

Stats-at-a-Glance

- RPM: 3,700-10,800
- Width: 12-18 mm
- Inner Diameter: 17-40 mm
- Outer Diameter: 40-80 mm
- Torque: 53-267 Nm
- Operating Temp: 284°F / 140°C



Product Specs



Drawing legend
d = inner diameter
D = outer diameter
W = width
r = edge radius
T = torque
n = rotation speed
C = load capacity

Designation	d [mm]	D [mm]	W [mm]	T _{nom} [Nm]	n _{max} [rpm]	C _{dyn.} [N]	C _{stat.} [N]	r [mm]	Weight [kg]
FK 6203	17	40	12	53	10,800	6,245	3,441	1.0	0.07
FK 6203-RS	17	40	12	53	3,700	6,245	3,441	1.0	0.07
FK 6204	20	47	14	60	7,500	6,869	4,268	1.5	0.12
FK 6204-2RS	20	47	14	60	3,200	6,869	4,268	1.5	0.12
FK 6205	25	52	15	104	5,400	7,448	5,146	1.5	0.15
FK 6205-2RS	25	52	15	104	2,800	7,448	5,146	1.5	0.15
FK 6206	30	62	16	148	5,100	7,859	6,066	1.5	0.23
FK 6206-2RS	30	62	16	148	2,400	7,859	6,066	1.5	0.23
FK 6207	35	72	17	265	3,700	8,902	7,819	2.7	0.34
FK 6207-2RS	35	72	17	265	1,900	8,902	7,819	2.7	0.34
FK 6208	40	80	18	267	3,700	8,902	7,752	2.7	0.45
FK 6208-2RS	40	80	18	267	1,900	8,902	7,752	2.7	0.45
FK 6304-2RS	20	52	15	104	2,800	7,448	5,146	1.5	0.17



FK 2RS Series

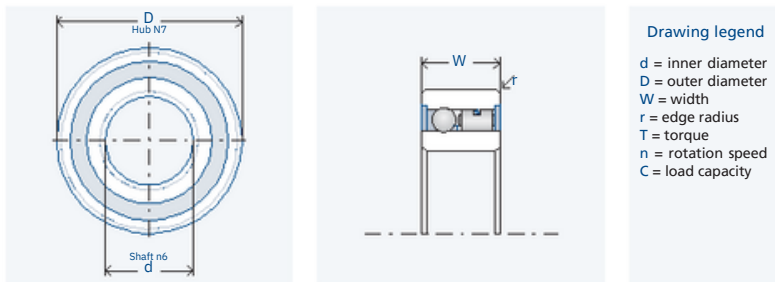
BALL BEARING SPRAG CLUTCH

Stats-at-a-Glance

- RPM: 1,900-3,700
- Width: 12-18 mm
- Inner Diameter: 17-40 mm
- Outer Diameter: 40-80 mm
- Torque: 53-267 Nm
- Operating Temp: 230°F / 110°C
- Rubber seals



Product Specs



Designation	d [mm]	D [mm]	W [mm]	T _{nom} [Nm]	n _{max} [rpm]	C _{dyn.} [N]	C _{stat.} [N]	r [mm]	Weight [kg]
FK 6203	17	40	12	53	10,800	6,245	3,441	1.0	0.07
FK 6203-RS	17	40	12	53	3,700	6,245	3,441	1.0	0.07
FK 6204	20	47	14	60	7,500	6,869	4,268	1.5	0.12
FK 6204-2RS	20	47	14	60	3,200	6,869	4,268	1.5	0.12
FK 6205	25	52	15	104	5,400	7,448	5,146	1.5	0.15
FK 6205-2RS	25	52	15	104	2,800	7,448	5,146	1.5	0.15
FK 6206	30	62	16	148	5,100	7,859	6,066	1.5	0.23
FK 6206-2RS	30	62	16	148	2,400	7,859	6,066	1.5	0.23
FK 6207	35	72	17	265	3,700	8,902	7,819	2.7	0.34
FK 6207-2RS	35	72	17	265	1,900	8,902	7,819	2.7	0.34
FK 6208	40	80	18	267	3,700	8,902	7,752	2.7	0.45
FK 6208-2RS	40	80	18	267	1,900	8,902	7,752	2.7	0.45
FK 6304-2RS	20	52	15	104	2,800	7,448	5,146	1.5	0.17

FKN Series

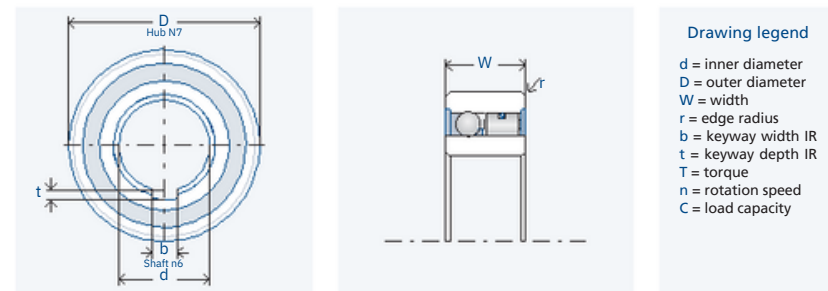
BALL BEARING SPRAG CLUTCH

Stats-at-a-Glance

- RPM: 3,700-10,800
- Width: 12-18 mm
- Inner Diameter: 17-40 mm
- Outer Diameter: 40-80 mm
- Torque: 53-267 Nm
- Operating Temp: 284°F / 140°C



Product Specs



Designation	d [mm]	D [mm]	W [mm]	r [mm]	b [mm]	t [mm]	T _{nom} [Nm]	n _{max} [rpm]	C _{dyn.} [N]	C _{stat.} [N]	Weight [kg]
FKN 6203	17	40	12	1	5	12	53	10,800	6,245	3,441	0.07
FKN 6203-RS	17	40	12	1	5	1.2	53	3,700	6,245	3,441	0.07
FKN 6204	20	47	14	1.5	6	1.6	60	7,500	6,869	4,268	0.12
FKN 6204-2RS	20	47	14	1.5	6	1.6	60	3,200	6,869	4,268	0.12
FKN 6205	25	52	15	1.5	8	2	104	5,400	7,448	5,146	0.15
FKN 6205-2RS	25	52	15	1.5	8	2	104	2,800	7,448	5,146	0.15
FKN 6206	30	62	16	1.5	8	2	148	5,100	7,859	6,066	0.23
FKN 6206-2RS	30	62	16	1.5	8	2	148	2,400	7,859	6,066	0.23
FKN 6207	35	72	17	1.5	10	3.3	265	3,700	8,902	7,819	0.33
FKN 6207-2RS	35	72	17	1.5	10	3.3	265	1,900	8,902	7,819	0.33
FKN 6208	40	80	18	1.5	12	3.3	267	3,700	8,902	7,752	0.45
FKN 6208-2RS	40	80	18	1.5	12	3.3	267	1,900	8,902	7,752	0.45



FKN 2RS Series

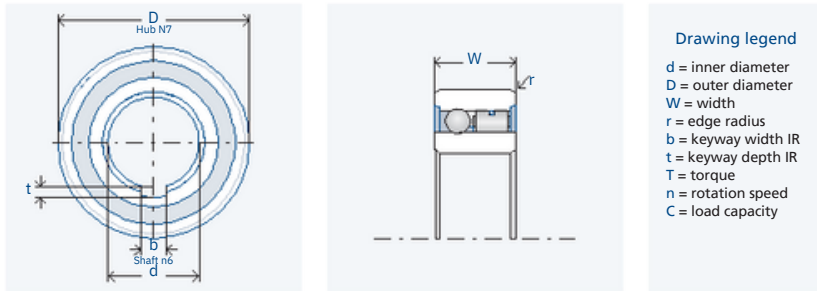
BALL BEARING SPRAG CLUTCH

Stats-at-a-Glance

- RPM: 1,900-3,700
- Width: 12-18 mm
- Inner Diameter: 17-40 mm
- Outer Diameter: 40-80 mm
- Torque: 53-267 Nm
- Operating Temp: 230°F / 110°C
- Rubber seals



Product Specs



Drawing legend

d = inner diameter
 D = outer diameter
 W = width
 r = edge radius
 b = keyway width IR
 t = keyway depth IR
 T = torque
 n = rotation speed
 C = load capacity

Designation	d [mm]	D [mm]	W [mm]	r [mm]	b [mm]	t [mm]	T _{nom} [Nm]	n _{max} [rpm]	C _{dyn.} [N]	C _{stat.} [N]	Weight [kg]
FKN 6203	17	40	12	1	5	12	53	10,800	6,245	3,441	0.07
FKN 6203-RS	17	40	12	1	5	1.2	53	3,700	6,245	3,441	0.07
FKN 6204	20	47	14	1.5	6	1.6	60	7,500	6,869	4,268	0.12
FKN 6204-2RS	20	47	14	1.5	6	1.6	60	3,200	6,869	4,268	0.12
FKN 6205	25	52	15	1.5	8	2	104	5,400	7,448	5,146	0.15
FKN 6205-2RS	25	52	15	1.5	8	2	104	2,800	7,448	5,146	0.15
FKN 6206	30	62	16	1.5	8	2	148	5,100	7,859	6,066	0.23
FKN 6206-2RS	30	62	16	1.5	8	2	148	2,400	7,859	6,066	0.23
FKN 6207	35	72	17	1.5	10	3.3	265	3,700	8,902	7,819	0.33
FKN 6207-2RS	35	72	17	1.5	10	3.3	265	1,900	8,902	7,819	0.33
FKN 6208	40	80	18	1.5	12	3.3	267	3,700	8,902	7,752	0.45
FKN 6208-2RS	40	80	18	1.5	12	3.3	267	1,900	8,902	7,752	0.45

FKNN Series

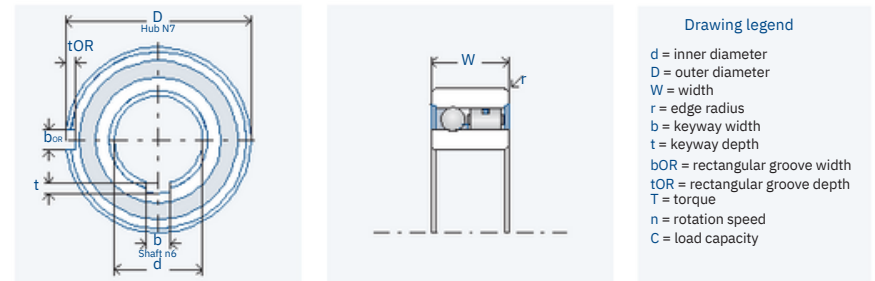
BALL BEARING SPRAG CLUTCH

Stats-at-a-Glance

- Available w/ Seals (RS or 2RS) or w/out Seals
- RPM: 1,900 - 10,800
- Width: 12-18 mm
- Inner Diameter: 17-40 mm
- Outer Diameter: 40-80 mm
- Torque: 53-267 Nm
- Operating Temp: w/out Seals: 284°F / 140°C | w/ Seals: 230°F / 110°C



Product Specs



Drawing legend

d = inner diameter
 D = outer diameter
 W = width
 r = edge radius
 b = keyway width
 t = keyway depth
 bOR = rectangular groove width
 tOR = rectangular groove depth
 T = torque
 n = rotation speed
 C = load capacity

Designation	d [mm]	D [mm]	W [mm]	r [mm]	b [mm]	t [mm]	bOR [mm]	tOR [mm]	T _{nom} [Nm]	n _{max} [rpm]	C _{dyn.} [N]	C _{stat.} [N]	Weight [kg]
FKNN 6203	17	40	12	1	5	1.2	2	1	53	10,800	6,245	3,441	0.07
FKNN 6203-RS	17	40	12	1	5	1.2	2	1	53	3,700	6,245	3,441	0.07
FKNN 6204	20	47	14	1.5	6	1.6	3	1.5	60	7,500	6,869	4,268	0.12
FKNN 6204-2RS	20	47	14	1.5	6	1.6	3	1.5	60	3,200	6,869	4,268	0.12
FKNN 6205	25	52	15	1.5	8	2	6	2	104	5,400	7,448	5,146	0.14
FKNN 6205-2RS	25	52	15	1.5	8	2	6	2	104	2,800	7,448	5,146	0.14
FKNN 6206	30	62	16	1.5	8	2	6	2	148	5,100	7,859	6,066	0.22
FKNN 6206-2RS	30	62	16	1.5	8	2	6	2	148	2,400	7,859	6,066	0.22
FKNN 6208	40	80	18	1.5	12	3.3	10	3	267	3,700	8,902	7,752	0.44
FKNN 6208-2RS	40	80	18	1.5	12	3.3	10	3	267	1,900	8,902	7,752	0.44
FKNN 6304-2RS	20	52	15	1.5	6	2	6	2	104	2,800	7,448	5,146	0.15

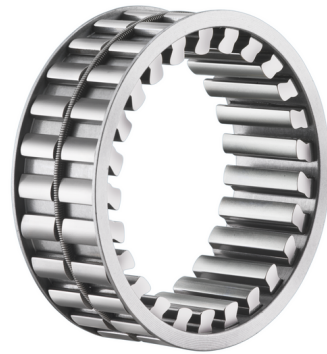


FE 800Z Series

SPRAG CLUTCH ELEMENT

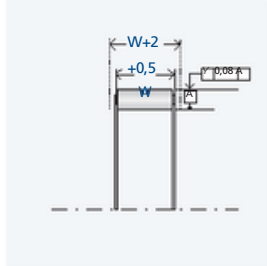
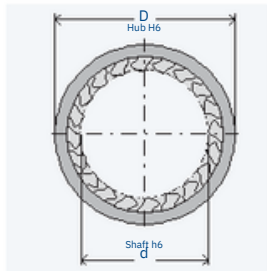
Stats-at-a-Glance

- RPM: Unlimited
- Indexing Freq: 5 Hz
- Width: 16, 19, 25 mm
- Inner Diameter: 38.09 - 220 mm
- Outer Diameter: 54.75 - 236.66 mm
- Torque: 609 - 14,060 Nm
- Operating Temp: 338°F / 170°C



Product Specs

Data



Drawing legend

- d = inner diameter
- D = outer diameter
- W = width
- T = torque

Designation	d [mm]	D [mm]	W [mm]	T _{nom} [Nm]	Weight [kg]
FE 8038 Z 16	38.09	54.75	16	609	0.082
FE 8038 Z 19	38.09	54.75	19	801	0.096
FE 8040 Z 16	40.00	56.66	16	668	0.084
FE 8040 Z 19	40.00	56.66	19	880	0.102
FE 8044 Z 16	44.45	61.11	16	799	0.091
FE 8044 Z 19	44.45	61.11	19	1,052	0.112
FE 8049 Z 16	49.72	66.38	16	923	0.100
FE 8049 Z 19	49.72	66.38	19	1,201	0.118
FE 8050 Z 16	50.00	66.66	16	942	0.100
FE 8050 Z 25	50.00	66.66	19	1,237	0.123
FE 8054 Z 16	54.76	71.42	16	1,080	0.107
FE 8054 Z 19	54.76	71.42	19	1,424	0.128
FE 8054 Z 25	54.76	71.42	25	2,015	0.172
FE 8060 Z 16	60.00	76.66	16	1,243	0.113
FE 8060 Z 19	60.00	76.66	19	1,560	0.141
FE 8060 Z 25	60.00	76.66	25	2,111	0.188
FE 8072 Z 16	72.21	88.87	16	1,740	0.135
FE 8072 Z 19	72.21	88.87	19	2,145	0.163
FE 8072 Z 25	72.21	88.87	25	2,918	0.220
FE 8079 Z 25	79.69	96.36	25	3,295	0.227
FE 8080 Z 16	80.00	96.66	16	1,848	0.141
FE 8080 Z 19	80.00	96.66	19	2,278	0.176
FE 8080 Z 25	80.00	96.66	25	3,101	0.235
FE 8083 Z 25	83.34	100.00	25	3,640	0.245
FE 8100 Z 16	100.00	116.66	16	2,632	0.188
FE 8100 Z 19	100.00	116.66	19	3,303	0.228
FE 8100 Z 25	100.00	116.66	25	4,535	0.306
FE 8103 Z 16	103.23	119.89	16	2,887	0.184
FE 8103 Z 19	103.23	119.89	19	3,582	0.290
FE 8103 Z 25	103.23	119.89	25	4,920	0.300
FE 8123 Z 25	123.34	140.00	25	6,600	0.370
FE 8100 Z 25	123.88	140.54	25	6,604	0.370
FE 8126 Z 25	126.22	142.88	25	6,744	0.375
FE 8140 Z 25	140.00	156.66	25	7,388	0.410
FE 8150 Z 25	150.00	166.66	25	8,272	0.440
FE 8160 Z 25	160.00	176.66	25	9,096	0.470
FE 8180 Z 25	180.00	196.66	25	10,463	0.520
FE 8220 Z 25	220.00	236.66	25	14,060	0.640

FE 400Z Series

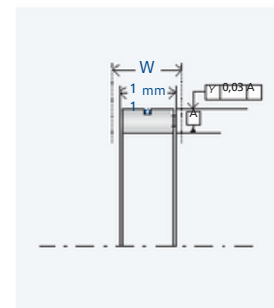
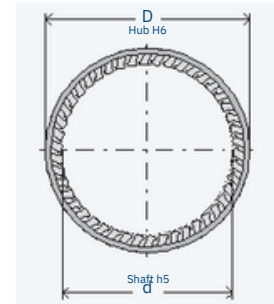
SPRAG CLUTCH ELEMENT

Stats-at-a-Glance

- RPM: 800 - 27,000
- Indexing Freq: 10 Hz
- Width: 12 mm
- Inner Diameter: 4-240 mm
- Outer Diameter: 12-248 mm
- Torque: 4-2,673 Nm
- Operating Temp: 284°F / 140°C



Product Specs



Drawing legend

- d = inner diameter
- D = outer diameter
- W = width
- T = torque
- n = rotation speed

Designation	d [mm]	D [mm]	B [mm]	T _{nom} [Nm]	n _{max} [rpm]	Weight [kg]
FE 412 Z	4	12	12	4	27,000	0.003
FE 416 Z	8	16	12	16	19,200	0.006
FE 420 Z	12	20	12	35	12,500	0.007
FE 422 Z	14	22	12	53	10,100	0.008
FE 423 Z	15	23	12	62	9,200	0.009
FE 425 Z	17	25	12	72	8,100	0.011
FE 427 Z	19	27	12	83	7,400	0.013
FE 428 Z	20	28	12	93	7,500	0.013
FE 430 Z	22	30	12	107	6,300	0.014
FE 432 Z	24	32	12	117	5,900	0.016
FE 433 Z	25	33	12	128	6,000	0.016
FE 435 Z	27	35	12	143	5,100	0.017
FE 437 Z	29	37	12	154	4,800	0.018
FE 438 Z	30	38	12	166	4,900	0.019
FE 442 Z	34	42	12	198	4,400	0.018
FE 443 Z	35	43	12	207	4,300	0.022
FE 448 Z	40	48	12	248	4,200	0.024
FE 453 Z	45	53	12	293	3,400	0.022
FE 455 Z	47	55	12	313	3,300	0.026
FE 458 Z	50	58	12	344	3,100	0.029
FE 459 Z	51	59	12	353	3,000	0.030
FE 463 Z	55	63	12	393	2,900	0.032
FE 468 Z	60	68	12	444	2,700	0.034
FE 470 Z	62	70	12	465	2,600	0.035
FE 473 Z	65	73	12	495	2,500	0.037
FE 478 Z	70	78	12	548	2,600	0.039
FE 488 Z	80	88	12	657	2,100	0.045
FE 508 Z	100	108	12	889	1,700	0.055
FE 528 Z	120	128	12	1,127	1,300	0.066
FE 648 Z	240	248	12	2,673	800	0.131

FE 400M Series

SPRAG CLUTCH ELEMENT

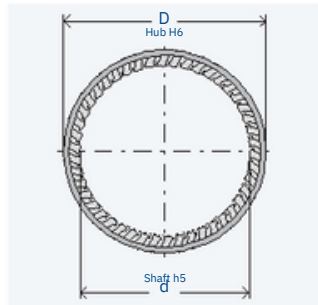


Stats-at-a-Glance

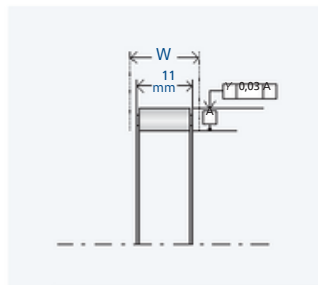
- RPM: 2,100 - 10,100
- Indexing Freq: 60 Hz
- Width: 12 mm
- Inner Diameter: 14-80 mm
- Outer Diameter: 22-88 mm
- Torque: 59-715 Nm
- Operating Temp: 338°F / 170°C

Data

Product Specs



Designation	d [mm]	D [mm]	W [mm]	T _{nom} [Nm]	n _{max} [rpm]	Weight [kg]
FE 422 M	14	22	12	59	10,100	0.011
FE 423 M	15	23	12	66	9,200	0.012
FE 425 M	17	25	12	79	8,100	0.013
FE 427 M	19	27	12	92	7,400	0.014
FE 428 M	20	28	12	99	7,500	0.014
FE 430 M	22	30	12	114	6,300	0.016
FE 432 M	24	32	12	128	5,900	0.016
FE 433 M	25	33	12	140	6,000	0.017
FE 435 M	27	35	12	153	5,100	0.018
FE 437 M	29	37	12	169	4,800	0.019
FE 438 M	30	38	12	178	4,900	0.020
FE 442 M	34	42	12	213	4,200	0.022
FE 443 M	35	43	12	224	4,300	0.023
FE 448 M	40	48	12	271	4,300	0.025
FE 453 M	45	53	12	321	3,400	0.028
FE 458 M	50	58	12	372	3,400	0.031
FE 459 M	51	59	12	381	3,000	0.032
FE 463 M	55	63	12	426	2,900	0.035
FE 468 M	60	68	12	481	2,700	0.036
FE 470 M	62	70	12	505	2,600	0.037
FE 473 M	65	73	12	538	2,500	0.040
FE 478 M	70	78	12	596	2,600	0.043
FE 488 M	80	88	12	715	2,100	0.048



Drawing legend

d = inner diameter
D = outer diameter
W = width
T = torque
n = rotation speed

FE 400Z2 Series

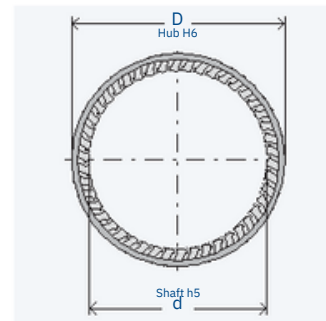
SPRAG CLUTCH ELEMENT



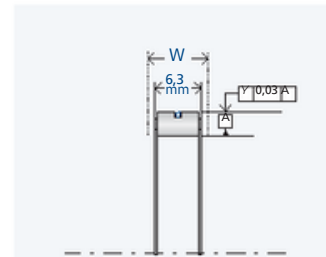
Stats-at-a-Glance

- RPM: 3,500 - 52,600
- Indexing Freq: 10 Hz
- Width: 7 mm
- Inner Diameter: 2-60 mm
- Outer Diameter: 10-68 mm
- Torque: 1-277 Nm
- Operating Temp: 284°F / 140°C

Product Specs



Designation	d [mm]	D [mm]	W [mm]	T _{nom} [Nm]	n _{max} [rpm]	Weight [kg]
FE 410 Z2	2	10	7	0,6	52,600	0.001
FE 412 Z2	4	12	7	2,5	40,900	0.002
FE 413 Z2	5	13	7	4	34,900	0.003
FE 414 Z2	6	14	7	6	31,200	0.003
FE 416 Z2	8	16	7	10	27,200	0.004
FE 418 Z2	10	18	7	16	18,900	0.005
FE 422 Z2	14	22	7	30	13,200	0.006
FE 423 Z2	15	23	7	40	13,200	0.006
FE 425 Z2	17	25	7	43	10,600	0.007
FE 428 Z2	20	28	7	55	9,700	0.008
FE 433 Z2	25	33	7	78	7,700	0.010
FE 437 Z2	29	37	7	97	6,100	0.011
FE 438 Z2	30	38	7	105	6,400	0.011
FE 442 Z2	34	42	7	125	5,400	0.012
FE 443 Z2	35	43	7	131	5,600	0.013
FE 448 Z2	40	48	7	156	5,500	0.014
FE 453 Z2	45	53	7	185	4,400	0.016
FE 458 Z2	50	58	7	216	4,400	0.017
FE 463 Z2	55	63	7	246	3,700	0.019
FE 468 Z2	60	68	7	277	3,500	0.020



Drawing legend

d = inner diameter
D = outer diameter
W = width
T = torque
n = rotation speed



FR Series

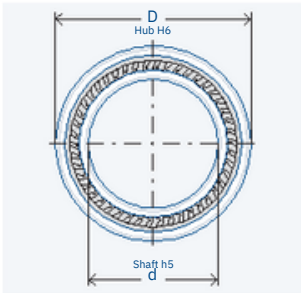
SPRAG CLUTCH ELEMENT

Stats-at-a-Glance

- RPM: 2,500 - 10,100
- Width: 12 mm
- Inner Diameter: 10-60 mm
- Outer Diameter: 26-78 mm
- Torque: 53-539 Nm
- Operating Temp: 284°F / 140° C
- Available w/ meander spring (M) or tension spring (Z)



Product Specs



Designation	d [mm]	D [mm]	W [mm]	T _{nom} [Nm]	n _{max} [rpm]	Weight [kg]
FR 422 M	10	26	12	60	10,100	0.03
FR 422 Z	10	26	12	53	10,100	0.03
FR 427 M	15	31	12	92	7,400	0.04
FR 427 Z	15	31	12	83	7,400	0.04
FR 432 M	20	36	12	128	5,900	0.05
FR 432 Z	20	36	12	117	5,900	0.05
FR 437 M	25	41	12	169	4,800	0.06
FR 437 Z	25	41	12	154	4,800	0.06
FR 442 M	30	46	12	212	4,200	0.07
FR 442 Z	30	46	12	198	4,200	0.07
FR 448 M	35	53	12	272	4,300	0.09
FR 448 Z	35	53	12	248	4,300	0.09
FR 453 M	40	58	12	321	3,400	0.10
FR 453 Z	40	58	12	294	3,400	0.10
FR 463 M	50	68	12	427	2,900	0.12
FR 463 Z	50	68	12	394	2,900	0.12
FR 473 M	60	78	12	539	2,500	0.14
FR 473 Z	60	78	12	496	2,500	0.14

Drawing legend

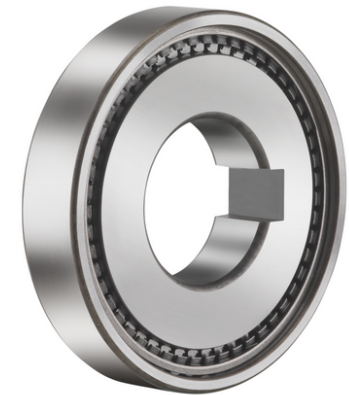
- d = inner diameter
- D = outer diameter
- W = width
- T = torque
- n = rotation speed

FRN Series

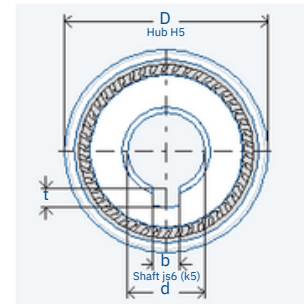
SPRAG CLUTCH ELEMENT

Stats-at-a-Glance

- RPM: 2,500 - 7,400
- Width: 12 mm
- Inner Diameter: 10-45 mm
- Outer Diameter: 31-78 mm
- Torque: 83-539 Nm
- Operating Temp: 284°F / 140°C
- Available w/ meander spring (M) or tension spring (Z)



Product Specs



Designation	d [mm]	D [mm]	W [mm]	T _{nom} [Nm]	n _{max} [rpm]	Weight [kg]	b [mm]	t [mm]
FRN 427 M	10	31	12	92	7,400	0.05	3	1.4
FRN 427 Z	10	31	12	83	7,400	0.05	3	1.4
FRN 432 M	12	36	12	128	5,900	0.07	4	1.8
FRN 432 Z	12	36	12	117	5,900	0.07	4	1.8
FRN 437 M	15	41	12	169	4,800	0.08	5	2.3
FRN 437 Z	15	41	12	154	4,800	0.08	5	2.3
FRN 442 M	20	46	12	212	4,200	0.10	6	2.8
FRN 442 Z	20	46	12	198	4,200	0.10	6	2.8
FRN 453 M	25	58	12	321	3,400	0.17	8	3.3
FRN 453 Z	25	58	12	294	3,400	0.17	8	3.3
FRN 459 M	30	64	12	332	3,000	0.20	8	3.3
FRN 459 Z	30	64	12	353	3,000	0.20	8	3.3
FRN 463 M	35	68	12	427	2,900	0.21	10	3.3
FRN 463 Z	35	68	12	393	2,900	0.21	10	3.3
FRN 470 M	40	75	12	506	2,600	0.25	12	3.3
FRN 470 Z	40	75	12	466	2,600	0.25	12	3.3
FRN 473 M	45	78	12	539	2,500	0.26	14	3.8
FRN 473 Z	45	78	12	496	2,500	0.26	14	3.8

Drawing legend

- d = inner diameter
- D = outer diameter
- W = width
- T = torque
- n = rotation speed
- b = keyway width



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