

Thrust Needle Roller Bearings

Thrust needle roller bearings offer high reliability for a wide range of applications, from automobile drive trains to industrial machinery, featuring compact sizes, high load capacity, and high limiting speed.



A wide selection of high-quality series and cage-roller assemblies available for a variety of applications.

Thrust Needle Roller Bearings



1. Compact Design

Offer same cross-section height as conventional thrust washers.

2. Wear resistant and highly rigid

Surface-hardened cage provides both wear resistance and high rigidity.

3. Economical

Simple design suited for mass production makes these bearings highly economical.

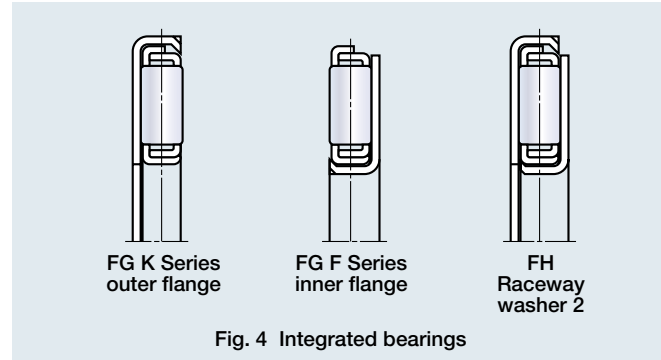
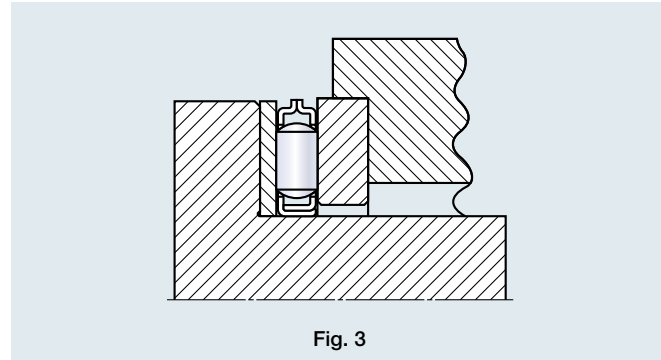
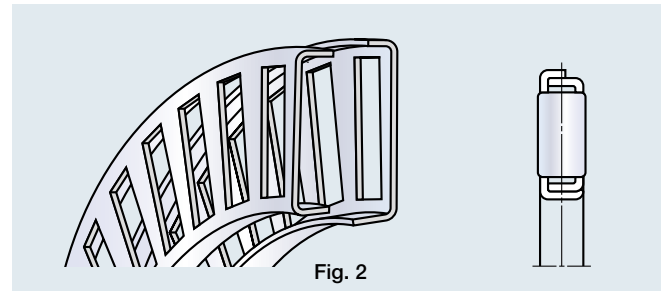
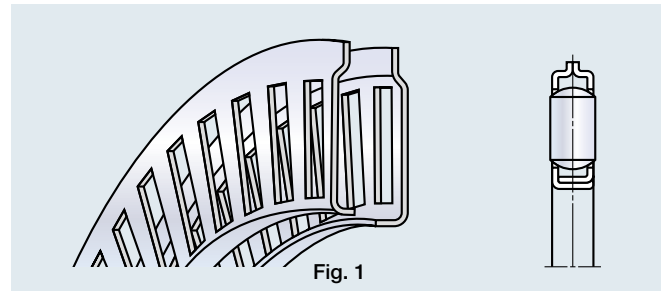
4. Easy handling

Unitization of needle roller assemblies (integrated-type and cage-roller assemblies) facilitates the positioning and mounting of bearings in space-limited areas.

Thrust needle roller bearings are a type of needle roller bearing with a cage. They are compact and offer large load capacity and high limiting speed. The two-piece cage, consisting of precision-pressed steel, guides the rollers accurately (see Figs. 1 and 2). The surface-hardened cage offers superior wear resistance and strength.

Our integrated-type bearings with raceway washer are designed for applications where a low profile is desired and can easily replace conventional thrust washers. Different thicknesses of various types of raceway washers are available for these bearings, which allow selection of the appropriate thickness suited to bearing mounting conditions (see Fig. 3).

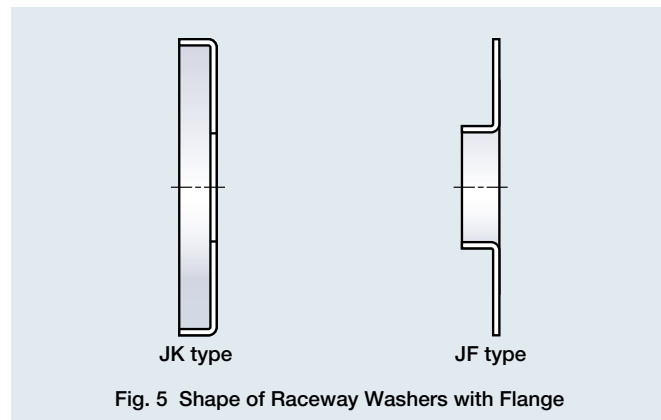
An integrated (unitized) bearing, which consists of a cage, rollers, and raceway, is also available (see Fig. 4). These bearings are widely used in automobile drive trains, compressors, hydraulic pumps, machine tools, and industrial machinery.



1. Types

Several types of thrust bearings are shown in Table 1. For inch bearings, the dimension number is expressed in integers in units of 1/16. Raceway washers are available for use when the raceway surface cannot be hardened by heat treatment and ground to the proper finish.

Types of raceway washers used for cage and roller assemblies in thrust needle roller bearings are shown in Table 2.



Code	Description
FNTA ZNTA NTA FA	Cage and roller assemblies for thrust needle roller bearings
FG (K Series)	Integrated type with raceway washer Raceway washer: JK type (with outer flange)
FG (F Series)	Integrated type with raceway washer Raceway washer: JF type (with inner flange)
FH	Integrated type with raceway washer Raceway washer: JK type + JF type

Shape symbol	Description
FTRA, FTRB, FTRC, FTRD, FTRE	Raceway washers without flange
TRA, TRB, TRC, TRD, TRE	
JDU	
JD	

2. Specification Number

The composition of bearing numbers is as follows:

Example (Metric): **FNTA - 20 35**

Type Code: FNTA
Bore diameter (mm): 20
Outside diameter (mm): 35

Example (Inch): **FH 503405**

Type Code: FH
Unique number: 503405

* For inch bearings, each dimension is expressed with whole numbers in units of 1/16 of an inch. Integrated bearings have their own unique bearing number configuration.

3. Accuracy Standards

The metric FNTA type conforms to ISO standards. The fitting tolerance of the inner dimension of the cage is class E11, and the outside diameter is class c12 (see Table 3). The inch NTA type and dimension tolerance for thrust raceways of both systems of measurement are provided in the dimension table. Roller precision is equivalent to grade 3 of ISO 3096. For details on precision of integrated bearings and raceways with flange, contact NSK.

Table 3 Dimension Tolerance for Bore Diameter and Outside Diameter

Classification of nominal dimensions of outside diameter and bore diameter (mm)		Inner bore tolerance E11 (μm)	Outer bore tolerance c12 (μm)
over	incl.		
10	18	+142 +32	-95 -275
18	30	+170 +40	-110 -320
30	40	+210 +50	-120 -370
40	50	+250 +60	-130 -380
50	65	+292 +72	-140 -440
65	80	+335 +85	-150 -450
80	100	+390 +100	-170 -520
100	120		-180 -530
120	140		-200 -600
140	160		-210 -610
160	180		-230 -630
180	200		-240 -700

4. Applications for Optimal Performance

■ Mounting

When using a bearing with cage and roller assembly, a separate raceway washer is not needed if the gear side is used as a raceway. This saves space and allows the bearing to be more compact. With a housing that will not allow the gear side to be used as a raceway, using an integrated bearing facilitates handling and mounting (see Fig. 6).

In general, the accuracy, surface roughness, and hardness of the raceway components should satisfy the specifications shown in Table 4.

When a cage and roller assembly cannot be used alone, a thrust raceway washer should be selected according to the washer support face and the volume of the load. The thrust raceway washer should be set to prevent sliding between the contact surfaces.

When the area supporting the raceway washer is sufficiently large and rigid, a thin raceway washer, such as FTRA or TRA type, can be used. Even if washers are warped, an axial load of more than approximately 196 N (20 kgf) will flatten them.

When the support face of the shaft or housing is small, thick-wall raceway washers (FTRE or TRD type), or one of the other thicker types should be used (see Fig. 7).

When using raceway washers, the accuracy, shape, and size of the support face affect performance of the bearing. For squareness of the raceway washer support face, the values given in Table 4 must be applied and the support face must be sufficiently large. Please contact NSK regarding shape and accuracy.

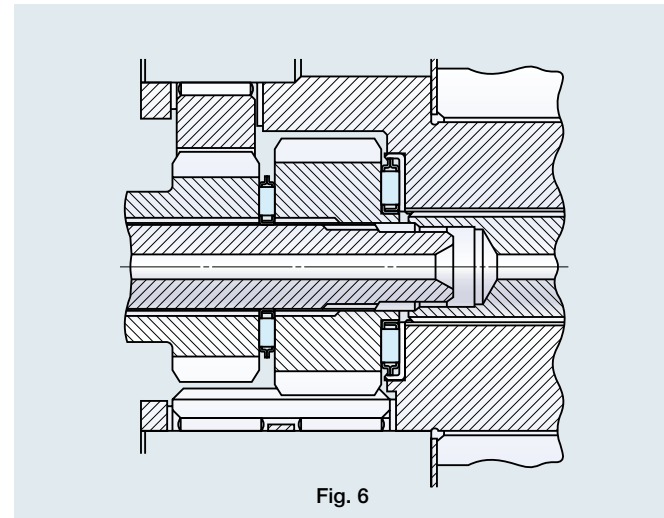


Fig. 6

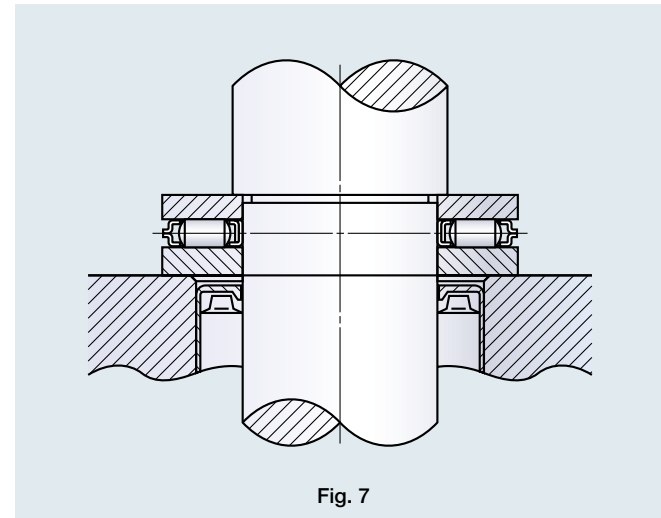


Fig. 7

Table 4 Specifications of Thrust Bearing Raceway Surface

Classification	Type	Cage or raceway guide	Tolerance class or dimension tolerance	
			Shaft	Housing
Cage and roller assembly for thrust needle roller bearing	FNTA	Bore Outside	h8 —	$D_c + \text{over } 1.0$ H10
	NTA	Bore	0 -0.075	$D_c + \text{over } 1.0$
Outside		—	H10	
Raceway washer for thrust needle roller bearing	FTRA~FTRE	Bore	h8	$D_c + \text{over } 1.0$
		Outside	—	H10
	TRA~TRF	Bore	0 -0.075	$D_c + \text{over } 1.0$
Outside		—	H10	

■ Bearing guide

Thrust needle roller bearings often use the bore guiding method, as relative speed at the guide face may be slow. If used for particularly high speeds, bore guiding is required. If design requires an outer guide, it is necessary to harden the outer guide surface to prevent wear of the housing guide.

The various FG types for integrated bearings use the raceway flange surface of the guide. The FH type can use either bore and outside surface as a guide surface, but it is important to keep one side free. Fig. 8 shows the guide methods for the various types.

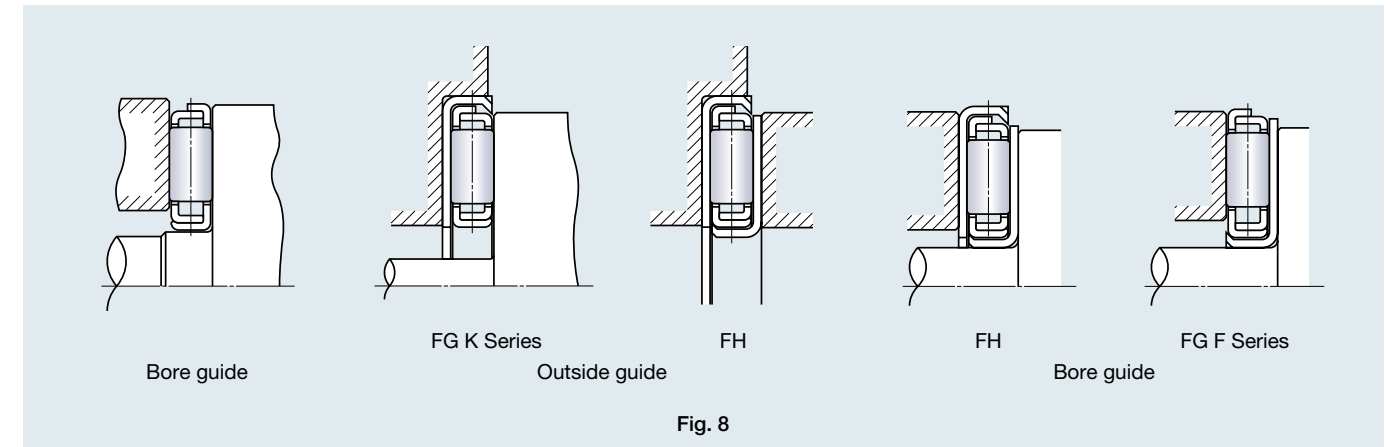


Fig. 8

■ Fitting

Table 5 shows the recommended fittings for cages, roller assemblies, and raceways for thrust needle bearings. For each type of integrated bearing, the table gives recommended mounting dimensions.

Table 5 Recommended Fittings for Thrust Needle Roller Bearings

Units: mm

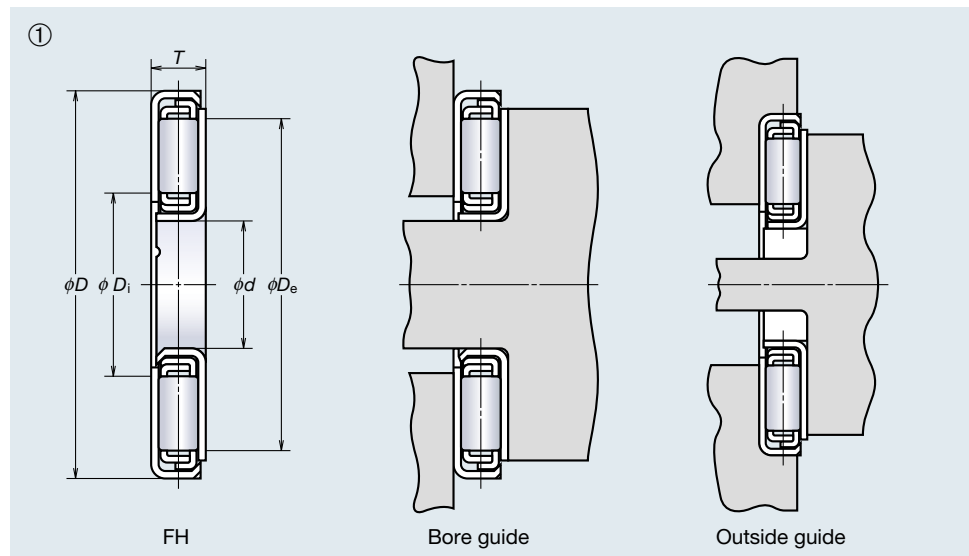
Classification	Type	Cage or raceway guide	Tolerance class or dimension tolerance	
			Shaft	Housing
Cage and roller assembly for thrust needle roller bearing	FNTA	Bore Outside	h8 —	$D_c + \text{over } 1.0$ H10
	NTA	Bore	0 -0.075	$D_c + \text{over } 1.0$
Outside		—	H10	
Raceway washer for thrust needle roller bearing	FTRA~FTRE	Bore	h8	$D_c + \text{over } 1.0$
		Outside	—	H10
	TRA~TRF	Bore	0 -0.075	$D_c + \text{over } 1.0$
Outside		—	H10	

■ Mounting

Observe the following precautions when mounting:

- (1) Mount so the shape of the cage is not distorted.
- (2) Remove contamination from the raceway and support surface.
- (3) Check the squareness of the raceway and support face.
- (4) If using a raceway, check the guide type.
- (5) Make sure that clearance of the guide is not too large.

FH



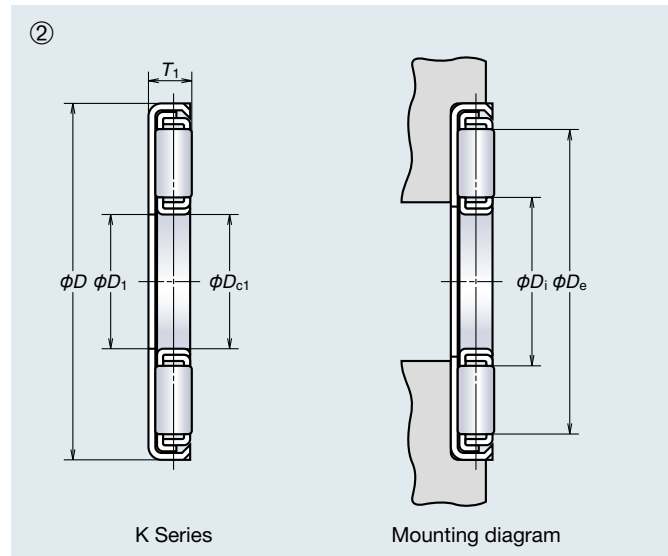
Bearing Numbers	Boundary Dimensions (mm)						Basic Load Ratings (N)		Drawing
	d	D	D_e	D_1	T	Roller Diameters	C_a	C_{0a}	
FH501602	16.05	31.5	27.2	20.2	3.604	1.984	8 100	27 500	①
FH501802A	18.58	33.1	28.7	22.6	3.604	1.984	7 950	27 500	①
FH501802B	18.58	33.1	28.7	22.6	3.604	1.984	7 950	27 500	①
FH502006A	20.5	38	32.6	26.0	4	2	9 450	35 500	①
FH502204	22.05	43.4	38.8	26.8	3.62	2	16 400	75 000	①
FH502204B	22.05	43.4	38.8	26.8	3.62	2	16 400	75 000	①
FH502206	22.75	43.4	38.7	27.9	3.62	2	14 600	65 000	①
FH502306A	23.8	45.8	41.2	29.2	3.62	2	16 500	77 500	①
FH502510	25.6	42.6	37.2	30.8	3.51	1.5	8 650	41 000	①
FH502702A	27.7	45.9	42.1	31.5	3.604	1.984	15 300	71 000	①
FH502805	28	46	41.5	35.4	4.31	2	10 000	42 000	①
FH502807B-1	28.5	48	40.9	33.4	4.11	2	12 100	53 000	①
FH502807B-4	28.5	48	40.9	33.4	4.7	2	12 100	53 000	①
FH502807B-5	28.5	48	40.9	33.4	4.9	2	12 100	53 000	①
FH502909	29	45	40.4	32.9	3.2	2	9 850	40 000	①
FH503003B	30	47	42.7	33.7	3.81	2	13 100	59 000	①
FH503003C	30	47	42.7	33.7	3.81	2	13 100	59 000	①
FH503006E	30	45	40.7	34.3	2.7	1.5	7 050	32 000	①
FH503012-1	30	46.2	40.7	34.3	3.4	1.5	7 050	32 000	①
FH503012-2	30	46.6	40.7	34.3	3.6	1.5	7 050	32 000	①
FH503105	31.5	45.87	41.2	35.6	3.62	2	5 800	20 200	①
FH503211A	32.9	48.5	42.2	36.5	3.62	2	9 500	39 500	①
FH503301C	33.5	48	43.5	37.3	3.604	1.984	9 500	40 000	①
FH503306D-2	33.2	49.5	44.9	38.2	3.1	1.5	7 200	34 000	①
FH503310B	33.85	52.2	45.9	38.4	3.994	1.984	12 800	59 500	①
FH503405	34.7	53	48.6	39.6	4	2	13 800	66 000	①
FH503405C	34.7	53	48.6	39.6	4.01	2	13 800	66 000	①
FH503411	34	57.3	52.7	38.7	3.62	2	21 000	115 000	①

Bearing Numbers	Boundary Dimensions (mm)						Basic Load Ratings (N)		Drawing
	d	D	D_e	D_1	T	Roller Diameters	C_a	C_{0a}	
FH503412	34	49.5	44.9	38.2	2.7	1.5	7 200	34 000	①
FH503604-2	36	53	48.6	40.2	4	2	13 700	66 000	①
FH503604-7	36	53	48.6	40.2	5	2	13 700	66 000	①
FH503606	36	53	48.6	40.2	3.8	2	13 700	66 000	①
FH503709	37.9	53	48.9	41.5	3.21	1.8	12 100	61 000	①
FH503710	37.7	62.15	56.0	42.8	5	3	26 900	122 000	①
FH503810C	38.5	57	52.6	42.6	4.12	2.5	18 300	83 000	①
FH503810D	38.5	57	52.6	42.6	4.12	2.5	18 300	83 000	①
FH503901A	39.35	54.02	50.4	43.1	3.604	1.984	11 400	52 500	①
FH504003B	40.5	55	50.5	44.5	3.81	2	11 100	51 000	①
FH504009B	40	61	49.9	43.8	3.81	2	7 650	31 000	①
FH504011	40.7	56.7	52.1	45.7	2.7	1.5	10 200	57 000	①
FH504114A	41	61	55.6	46.6	5	3	20 200	85 500	①
FH504308A	43.2	62	57.2	47.4	3.62	2	16 100	85 000	①
FH504502	45	60	55.4	49.3	3.604	1.984	10 600	50 000	①
FH504502A	45	60	55.4	49.3	3.604	1.984	10 600	50 000	①
FH504507A	45.1	65.1	59.8	49.4	4.62	3	24 300	110 000	①
FH504509A	45	60	55.4	49.8	3.604	1.984	10 600	50 000	①
FH504801	48.8	70	65.3	53.6	4	2	20 300	120 000	①
FH504801B	48.8	70	65.3	53.6	4	2	20 300	120 000	①
FH505007	50.65	71	65.9	55.9	3.31	1.5	13 400	86 000	①
FH505603	56.2	82	76.0	63.9	6	3	31 000	165 000	①
FH505603A	56.2	82	76.0	63.9	6	3	31 000	165 000	①
FH505802	58.5	78	73.4	62.6	4	2	20 400	125 000	①
FH506001	60	85	79.2	65.2	4	1.984	26 600	181 000	①
FH507301	73.5	89	84.7	78.6	3.604	1.984	12 400	70 500	①
FH508801A	88.5	108	102.4	94.9	4.01	2	20 200	140 000	①

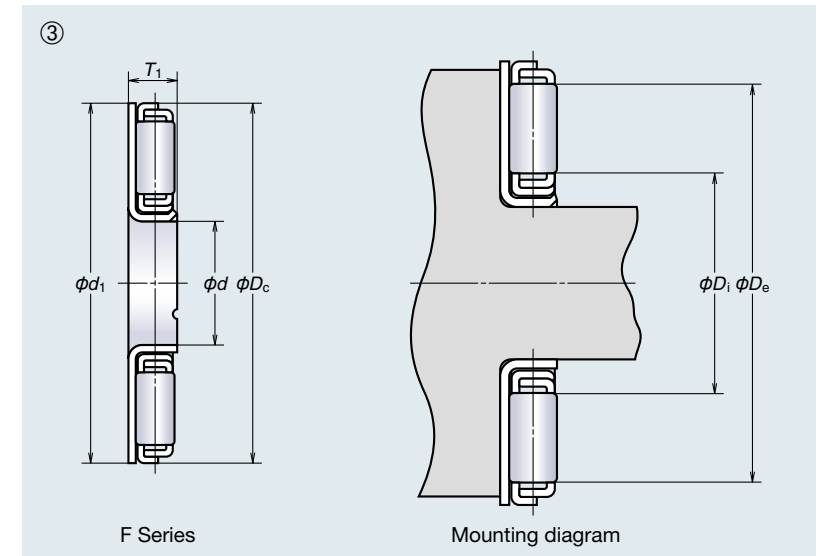
Thrust Needle Roller Bearings

Thrust Needle Roller Bearings

FG (K Series)



FG (F Series)



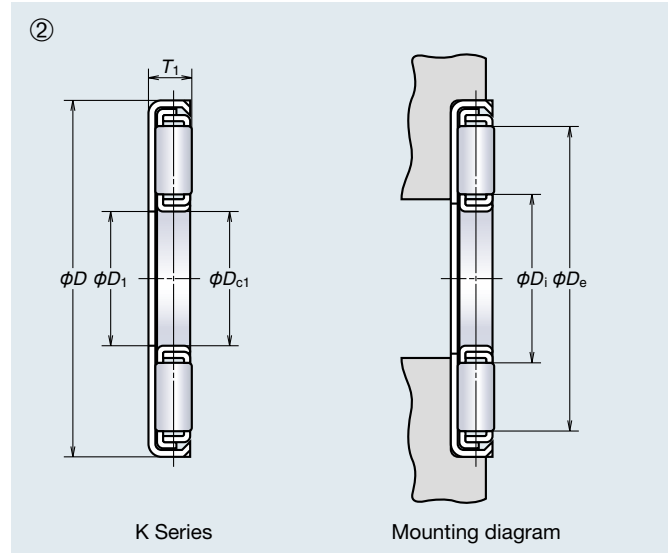
Bearing Numbers	Boundary Dimensions (mm)								Basic Load Ratings (N)		Drawing
	d, D_1	D_{c1}	D, d_1	D_c	T_1	D_i	D_e	Roller Diameters	C_a	C_{0a}	
FG501703	17.8	—	30.2	30.2	2.81	21.7	27.3	2	6 650	21 300	③
FG501803A	19	18.8	32.5	—	2.794	21.3	28.3	1.984	8 300	28 700	②
FG501804A	18.58	—	29.7	31.23	2.794	22.6	28.7	1.984	7 950	27 500	③
FG502004	21.2	20.08	35	—	2.81	22.3	30.8	2	9 750	36 000	②
FG502009B	20.7	—	33.9	34.8	2.81	25.8	31.9	2	8 500	31 000	③
FG502203	22.1	—	37.55	37.59	2.794	27.3	34.9	1.984	10 600	42 500	③
FG502205	22.5	—	37.5	38.7	2.794	27.3	35.7	1.984	11 500	47 500	③
FG502305A	23	—	44	44	3.6	27.1	40.2	3	21 300	80 000	③
FG502307	23.2	—	35.4	37.4	2.81	28.7	34.3	2	6 500	22 300	③
FG502407A	26	24.2	48	—	4.1	27.5	42.6	3.5	27 000	98 000	②
FG502601	26	26.5	42.6	—	2.81	28.7	38.3	2	12 800	55 000	②
FG502605C	26.2	27.5	46.4	—	3.81	30.2	41.4	3	18 700	69 000	②
FG502609	26	26	38.7	—	2.1	28.5	32.9	1.5	5 150	20 200	②
FG502610	26.97	—	43	43	2.81	34.0	40.1	2	5 550	18 800	③
FG502702	27.5	—	44.2	44.2	2.81	32.5	41.7	2	13 200	59 000	③
FG502705B	27.5	—	40	40	2.3	31.0	37.1	1.7	8 800	38 500	③
FG502801	28	—	52	52	2.81	38.2	50.4	2	17 200	88 000	③
FG502807	28.6	—	41.8	41.38	2.81	32.1	39.5	2	10 600	44 000	③
FG502808	31	28.8	50.4	—	3.43	32.8	46.8	1.984	19 600	101 000	②
FG502809	28.1	—	45	45	2.81	34.6	42.2	2	11 800	51 500	③
FG502909	29	29	47	—	2.8	32.5	41.5	1.984	13 800	63 000	②
FG502913	29.78	—	42	42	2.81	33.5	39.1	2	8 900	35 500	③
FG503006	30	30	47	—	2.824	32.2	41.7	1.984	12 700	56 500	②
FG503012	30	30	47	—	3.3	32.3	41.7	2	13 700	62 000	②
FG503117	31	31	53.1	—	4.81	33.6	47.6	4	30 500	109 000	②

Bearing Numbers	Boundary Dimensions (mm)								Basic Load Ratings (N)		Drawing
	d, D_1	D_{c1}	D, d_1	D_c	T_1	D_i	D_e	Roller Diameters	C_a	C_{0a}	
FG503206	34.5	32.5	46.9	—	2.81	35.0	42.5	2	10 800	46 500	②
FG503209	32	—	47	46.97	2.81	36.0	42.4	2	10 300	43 500	③
FG503214	32.5	32.5	46	—	2.794	35.0	41.1	1.984	8 350	33 000	②
FG503218	32.4	—	54.2	54.2	3.5	40.8	51.2	2.5	18 700	84 500	③
FG503221	32.4	—	56.48	56.62	3.31	41.2	52.8	2.5	22 000	105 000	③
FG503301A	33.5	—	47.8	48	2.794	37.6	46.3	1.984	13 400	63 000	③
FG503315	33.3	—	46.5	46.5	2.81	38.0	43.6	2	8 100	32 500	③
FG503502	35	35	53	—	2.824	37.4	47.5	1.984	15 600	77 000	②
FG503503A	35	35	53.75	—	2.794	37.6	46.3	1.984	13 400	63 000	②
FG503516	35.1	—	50	50	2.8	40.4	45.9	2	10 200	44 500	③
FG503517	35	35	48.7	—	3.31	37.1	44.1	2.5	13 000	51 000	②
FG503518	35.8	35.8	49.2	—	2.81	37.9	43.5	2	9 950	42 500	②
FG503607	36.5	37.4	56.1	—	2.81	39.5	46.1	2	11 500	51 500	②
FG503708A	37	37	57.7	—	4.31	39.9	52.3	3.5	27 900	112 000	②
FG503709	37.7	—	56.3	56.3	3.31	43.6	53.4	2.5	18 200	83 500	③
FG503806A	38	42	61.88	—	3.81	44.7	56.8	3	24 700	110 000	②
FG503806C	38	42	61.88	—	3.81	44.7	56.8	3	24 700	110 000	②
FG503814E	38.5	—	53.9	55.4	3.31	42.6	52.6	2.5	18 300	83 000	③
FG503818	38.45	—	57	57	4.31	43.0	53.0	3.5	23 400	90 500	③
FG503820	38	42	62.05	—	3.31	44.9	56.5	2.5	22 100	108 000	②
FG503912	39.2	39.2	52.6	—	2.81	41.3	46.9	2	10 300	45 500	②
FG504002	41	40	60	—	3	42.5	55.3	2	19 800	108 000	②
FG504101	43.5	41	58	—	2.81	46.0	53.4	2	12 700	62 000	②
FG504116	42.75	41.55	54	—	2.6	43.6	49.7	2	11 300	52 000	②
FG504211	42	42.7	59.2	—	4	46.2	53.8	3	16 700	66 000	②

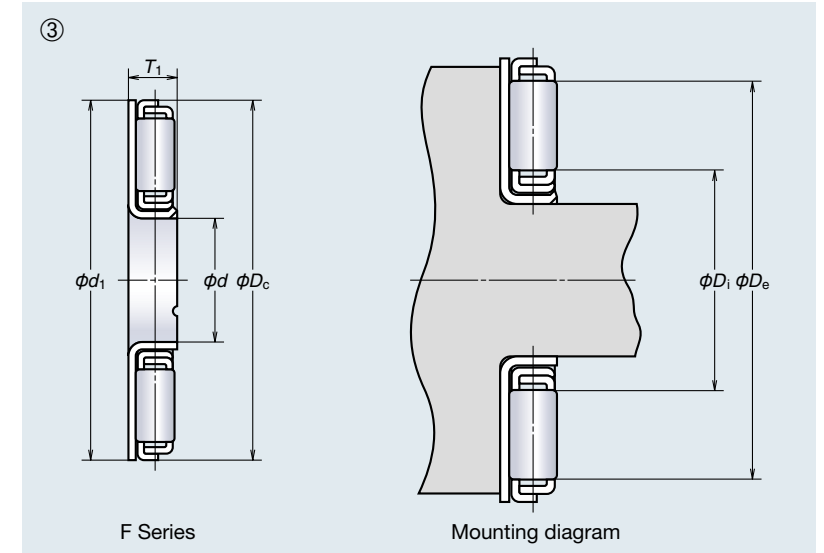
Thrust Needle Roller Bearings

Thrust Needle Roller Bearings

FG (K Series)



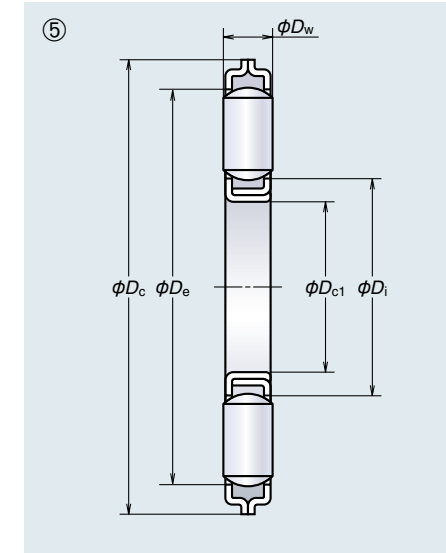
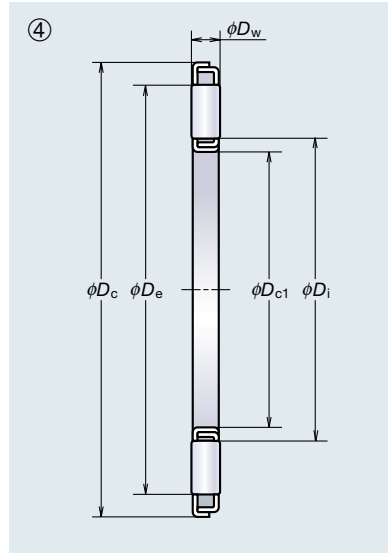
FG (F Series)



Bearing Numbers	Boundary Dimensions (mm)								Basic Load Ratings (N)		Drawing
	d, D_1	D_{c1}	D, d_1	D_c	T_1	D_i	D_e	Roller Diameters	C_a	C_{0a}	
FG504220	42.35	—	62.6	62.6	4.5	49.5	60.1	3	23 200	104 000	③
FG504221	42.5	50	65.97	—	2.81	52.4	61.4	2	16 400	89 500	②
FG504302	43	—	59.5	60.05	3.43	48.2	58.5	1.984	16 900	91 500	③
FG504306	43.7	—	61.3	61.3	4.31	48.6	57.6	3.5	22 900	91 000	③
FG504403A	44	48.4	68.48	—	3.81	52.5	64.2	3	25 000	117 000	②
FG504403B	44	48.4	68.48	—	3.81	52.5	64.2	3	25 000	117 000	②
FG504406	44	48.4	72.48	—	3.81	51.1	67.3	3	35 000	182 000	②
FG504406A	44	48.4	72.48	—	3.81	51.1	67.3	3	35 000	182 000	②
FG504501	45	45	64	—	2.8	47.3	59.5	1.984	20 400	117 000	②
FG504506	45.4	45.4	58.9	—	2.1	47.9	54.3	1.5	10 600	60 500	②
FG504604A	46.7	—	66.4	66.4	3.81	52.5	64.2	3	25 000	117 000	③
FG504704	47.1	—	65.2	65.2	3.31	53.3	62.3	2.5	16 200	75 500	③
FG504705	47	47	61.9	—	3.31	49.5	57.3	2.5	15 800	71 500	②
FG504707	47.5	—	65.9	67.9	3.81	51.9	63.9	3	27 800	134 000	③
FG504806-1	48.4	—	62.5	63.5	3.2	53.0	59.9	2	13 900	72 500	③
FG504806-2	48	—	62.5	63.5	3.4	53.0	59.9	2	13 900	72 500	③
FG504806-3	48	—	62.5	63.5	3.6	53.0	59.9	2	13 900	72 500	③
FG504806-4	48	—	62.5	63.5	3.8	53.0	59.9	2	13 900	72 500	③
FG504806-5	48	—	62.5	63.5	4	53.0	59.9	2	13 900	72 500	③
FG504806-6	48	—	62.5	63.5	4.2	53.0	59.9	2	13 900	72 500	③
FG504902	52.5	49.5	70.11	—	3	56.7	66.3	2	16 400	92 000	②
FG504905	49.7	—	64.7	64.7	2.794	54.5	62.1	1.984	13 700	72 000	③
FG505004	50	50	70	—	2.81	53.6	65.3	2	20 300	120 000	②
FG505007A	50	50	65.97	—	2.81	52.4	61.4	2	16 400	89 500	②
FG505008	50	—	65	65	2.794	55.1	61.6	1.984	12 600	64 500	③

Bearing Numbers	Boundary Dimensions (mm)								Basic Load Ratings (N)		Drawing
	d, D_1	D_{c1}	D, d_1	D_c	T_1	D_i	D_e	Roller Diameters	C_a	C_{0a}	
FG505009	50	50	70	—	2.81	53.5	65.4	2	20 500	121 000	②
FG505009A	50	50	70	—	2.81	53.5	65.4	2	20 500	121 000	②
FG505106	51.75	—	73	75	5	57.8	71.0	3	31 000	160 000	③
FG505203	52	52	72.1	—	2.81	55.5	67.4	2	21 000	126 000	②
FG505307	60	53	78.2	—	3.31	62.5	73.5	2.5	24 300	134 000	②
FG505506	62.5	55.35	79	—	3.81	64.5	73.6	3	23 200	112 000	②
FG505507	57	55	77.15	—	4	57.8	71.0	3	31 000	160 000	②
FG505507A	57	55	77.15	—	4	57.8	71.0	3	31 000	160 000	②
FG505508	55.7	55.7	76.4	—	2.81	57.9	70.7	2	23 500	148 000	②
FG505602	56.4	—	78	78	4.31	61.3	74.3	3.5	34 500	167 000	③
FG505603A	56	56	79	—	4	59.1	73.1	3	34 000	180 000	②
FG505703	57	—	71.45	71.45	2.81	62.4	68.5	2	13 400	72 000	③
FG505801	58	58	78	—	2.8	61.0	73.2	1.984	23 300	149 000	②
FG505806	58.9	—	77.3	77.3	3.31	66.3	74.3	2.5	18 400	95 000	③
FG506103	61.6	67.6	87.68	—	3.31	69.9	81.5	2.5	28 300	169 000	②
FG506202	64.3	62.66	85	—	2.8	65.2	79.2	1.984	26 600	181 000	②
FG506603	66	66	90.8	—	4.81	68.7	84.8	4	46 000	228 000	②
FG506604	66	66	80	—	2.8	68.7	75.3	2	15 300	88 500	②
FG506801	69	68.1	83.5	—	2.794	70.6	79.0	1.984	15 400	90 000	②
FG506802	68.6	68.6	84	—	3	71.0	78.5	2	13 800	77 000	②
FG506802A	68.6	68.6	84	—	3	71.0	78.5	2	13 800	77 000	②
FG506905A	69	69	87	—	3.4	71.7	81.2	2	19 600	124 000	②
FG506907	69	69	87	—	3.4	71.7	81.2	2.4	22 200	128 000	②
FG507103	71.2	—	84.5	84.5	2.81	75.4	81.5	2	14 400	84 500	③
FG507901	79.9	79.9	98.15	—	3.31	82.1	93.1	2.5	28 100	176 000	②

Cage and Roller Assemblies



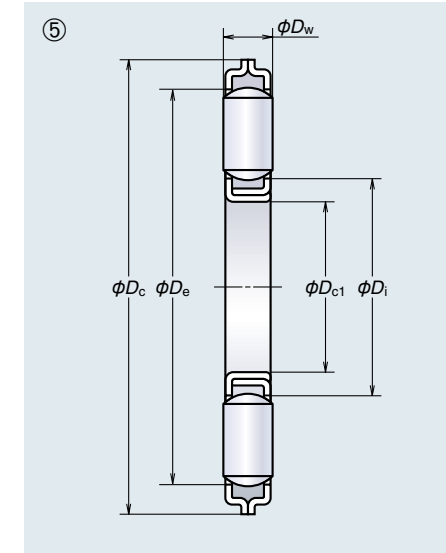
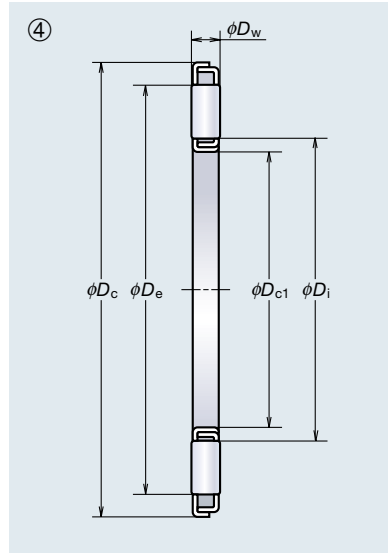
Bearing Numbers	Boundary Dimensions (mm)						Basic Load Ratings (N)			Roller Contact Surfaces		Drawing
	D _{c1}	Tolerance		D _c	Tolerance		D _w	C _a	C _{0a}	D _i	D _e	
		high	low		high	low						
NTA-411	6.35	0.18	0.05	17.45	-0.25	-0.52	1.984	4 400	9 900	8.6	14.7	⑤
NTA-613	9.525	0.18	0.05	20.625	-0.25	-0.52	1.984	5 200	13 200	11.8	17.9	⑤
FNTA-1024	10	0.115	0.025	24	-0.11	-0.32	2	7 750	23 000	12.2	21.2	⑤
FNTA-1226	12	0.142	0.032	26	-0.11	-0.32	2	8 350	26 300	14.2	23.2	⑤
NTA-815	12.7	0.18	0.05	23.8	-0.25	-0.52	1.984	6 150	17 600	15.0	21.0	⑤
FNTA-1326	13	0.142	0.032	26	-0.11	-0.32	2	8 050	25 400	15.3	23.2	⑤
FA501404	14	0.14	0.03	28	-0.11	-0.32	2	8 650	28 400	16.4	24.8	④
FNTA-1528	15	0.142	0.032	28	-0.11	-0.32	2	7 950	25 800	17.6	25.2	⑤
FNTA-1629	16	0.142	0.032	29	-0.11	-0.32	2	8 200	27 100	18.6	26.2	⑤
FNTA-1730	17	0.142	0.032	30	-0.11	-0.32	2	8 400	28 400	19.6	27.2	⑤
FA501709	17.2	0.17	0.04	29	-0.02	-0.27	1.984	7 200	23 100	19.1	25.1	④
ZNTA-1737Z	17.4	0.23	0.1	37.36	0	-0.25	1.984	13 100	54 500	23.6	34.6	⑤
FNTA-1831	18	0.142	0.032	31	-0.12	-0.37	2	8 600	29 700	20.6	28.2	⑤
FA501809	18.1	0.17	0.04	29.6	-0.11	-0.32	2	7 950	26 600	20.6	26.7	④
NTA-1220	19.05	0.18	0.05	31.75	-0.25	-0.52	1.984	9 000	32 000	21.3	28.9	⑤
FA17445	19.1	0.13	0	37.36	0	-0.25	1.984	13 100	54 500	23.6	34.6	⑤
FNTA-2035	20	0.17	0.04	35	-0.12	-0.37	2	11 900	47 000	22.3	32.2	⑤
FA502023	20.8	0.17	0.04	38.7	-0.12	-0.37	2.5	14 600	54 000	25.9	35.7	④
FA502024	20.8	0.17	0.04	38.7	-0.12	-0.37	3.5	16 100	48 500	25.9	34.9	④
FA502106	21.4	0.17	0.04	46.3	-0.13	-0.38	2.5	19 500	81 500	28.5	41.5	④
FA502109	21.94	0.17	0.04	36	-0.12	-0.37	2	7 750	26 900	24.4	32.8	④
NTA-1423	22.225	0.18	0.05	36.5	-0.25	-0.52	1.984	11 600	46 500	24.5	33.6	⑤

Bearing Numbers	Boundary Dimensions (mm)						Basic Load Ratings (N)			Roller Contact Surfaces		Drawing
	D _{c1}	Tolerance		D _c	Tolerance		D _w	C _a	C _{0a}	D _i	D _e	
		high	low		high	low						
FA502210	22.5	0.17	0.04	37.3	-0.12	-0.37	1.984	10 600	41 000	24.8	32.3	④
FA502307	23	0.17	0.04	41.7	0	-0.15	1.984	18 100	85 000	25.5	39.6	④
FA502312	23	0.17	0.04	41.7	0	-0.15	3	19 200	68 500	25.8	37.9	④
FA46076	23.34	0.13	0	37.59	0	-0.25	1.984	10 600	42 500	27.3	34.9	⑤
FA502316	23.34	0.17	0.04	37.59	-0.12	-0.37	2.5	13 200	47 500	25.8	34.7	④
FAH502302	23.86	0.13	0	44	-0.13	-0.38	3	21 000	78 500	26.8	41.6	④
FA502402	24	0.17	0.04	37.59	0	-0.25	1.984	10 600	42 500	27.3	34.9	⑤
FA502419	24.25	0.17	0.04	43.8	-0.13	-0.38	3.5	20 500	69 000	29.1	40.1	④
FA502401	24.85	0.13	0	37.59	0	-0.25	1.984	10 600	42 500	27.9	36.0	④
FNTA-2542	25	0.17	0.04	42	-0.13	-0.38	2	14 800	66 000	27.3	39.2	⑤
FA502527D	25	0.43	0.3	46.8	-0.13	-0.38	4.5	29 100	92 000	29.8	43.0	⑤
FA502534	25	0.43	0.3	48.8	-0.13	-0.38	5	34 000	105 000	29.8	45.0	⑤
FA502517	25.1	0.17	0.04	43.6	-0.13	-0.38	4	21 500	66 500	29.6	39.6	④
NTA-1625	25.4	0.18	0.05	39.675	-0.25	-0.52	1.984	12 000	50 000	27.7	36.8	⑤
FA502505	25.9	0.17	0.04	46.8	0	-0.13	1.984	14 100	62 500	28.1	38.0	⑤
FA502616	26.4	0.17	0.04	42.9	-0.13	-0.38	3	17 500	62 000	29.3	39.1	④
FA502709	27	0.17	0.04	40	-0.12	-0.37	2	9 300	36 500	31.0	37.1	④
FA502720	27.9	0.17	0.04	50.9	-0.14	-0.44	4.5	33 000	111 000	32.3	47.1	④
FA46659-R	28.3	0.13	0	46.48	0	-0.25	1.984	15 300	71 000	30.8	41.8	⑤
FA502822	28.7	0.17	0.04	52.3	-0.14	-0.44	4.5	35 000	121 000	33.3	48.5	④
FNTA-3047	30	0.17	0.04	47	-0.13	-0.38	2	16 500	79 000	32.3	44.2	⑤
FA503003	30	0.17	0.04	45	-0.13	-0.38	2	11 800	51 500	34.6	42.2	⑤

Thrust Needle Roller Bearings

Thrust Needle Roller Bearings

Cage and Roller Assemblies



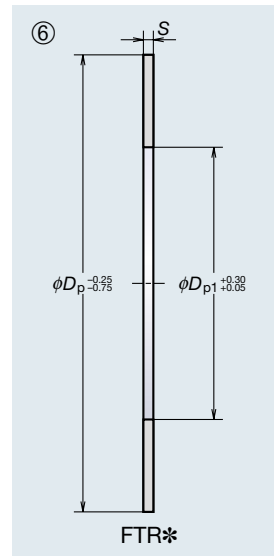
Bearing Numbers	Boundary Dimensions (mm)						Basic Load Ratings (N)		Roller Contact Surfaces		Drawing	
	D_{c1}	Tolerance		D_c	Tolerance		D_w	C_a	C_{0a}	D_i		D_e
		high	low		high	low						
FA503034	30	0.17	0.04	49.3	-0.13	-0.38	2	12 900	59 000	36.3	46.3	④
FA503014	30.1	0.21	0.05	41.38	0	-0.14	2	10 600	44 000	32.1	39.5	④
FA503133	31.6	0.21	0.05	43.5	-0.13	-0.38	2	11 000	47 000	33.7	40.3	④
FA503107	31.8	0.21	0.05	45.05	0	-0.15	2	13 100	59 000	33.7	42.7	④
FA503205	32	0.21	0.05	50	-0.13	-0.38	1.984	14 200	66 500	35.2	44.3	⑤
FA503316	33.9	0.21	0.05	52	-0.14	-0.44	2.5	15 000	63 000	40.0	49.0	④
FA503405	34.6	0.08	-0.08	51.2	0.1	-0.1	2	17 700	90 000	36.8	48.7	⑤
NTA-2233	34.925	0.18	0.05	52.375	-0.25	-0.52	1.984	18 700	98 000	37.2	49.4	⑤
FNTA-3552	35	0.21	0.05	52	-0.14	-0.44	2	17 300	88 000	37.5	49.2	⑤
FA503503	35.4	0.21	0.05	48	-0.13	-0.38	1.984	13 400	63 000	37.6	46.3	④
FA503518	35.4	0.21	0.05	48	-0.13	-0.38	2.5	14 400	59 000	37.4	46.3	④
FA503617	36.1	0.21	0.05	52.5	-0.14	-0.44	3.5	21 100	77 000	39.1	48.2	④
NTA-2435	38.1	0.18	0.05	55.55	-0.25	-0.52	1.984	20 400	112 000	40.4	52.5	⑤
FA503815	38.6	0.21	0.05	60	-0.14	-0.44	3	25 900	117 000	44.0	56.0	④
FNTA-4060	40	0.21	0.05	60	-0.14	-0.44	3	26 900	122 000	42.8	56.0	⑤
FA504020A	40.7	0.21	0.05	57	-0.14	-0.44	2	16 400	85 000	44.0	54.0	④
FA504202	42	0.21	0.05	60	-0.14	-0.44	3	24 700	110 000	44.7	56.8	⑤
FA504202A	42	0.21	0.05	60	-0.14	-0.44	3	24 700	110 000	44.7	56.8	⑤
FA504202B	42	0.21	0.05	60	-0.14	-0.44	3	24 700	110 000	44.7	56.8	⑤
FA504207	42.67	0.13	0	59.81	0	-0.25	3	25 100	113 000	45.8	57.6	④
FA504309A	43.5	0.21	0.05	59.8	-0.05	-0.2	2.5	20 900	101 000	46.2	58.0	④

Bearing Numbers	Boundary Dimensions (mm)						Basic Load Ratings (N)		Roller Contact Surfaces		Drawing	
	D_{c1}	Tolerance		D_c	Tolerance		D_w	C_a	C_{0a}	D_i		D_e
		high	low		high	low						
NTA-2840	44.45	0.18	0.05	63.5	-0.25	-0.52	1.984	20 400	117 000	46.7	58.9	⑤
FNTA-4565	45	0.21	0.05	65	-0.14	-0.44	3	28 700	137 000	47.8	61.0	⑤
FA504702	47.09	0.13	0	59.59	0	-0.25	1.984	14 000	72 000	49.3	56.9	⑤
FA504816	48.8	0.21	0.05	68.6	-0.15	-0.45	4	34 500	146 000	52.8	64.8	④
FNTA-5070	50	0.21	0.05	70	-0.15	-0.45	3	30 500	152 000	52.8	66.0	⑤
NTA-3244	50.8	0.18	0.05	69.85	-0.25	-0.52	1.984	21 100	126 000	53.1	65.2	⑤
NTA-3446	53.975	0.18	0.05	73.025	-0.25	-0.52	1.984	21 400	131 000	56.2	68.4	⑤
FNTA-5578	55	0.25	0.06	78	-0.15	-0.45	3	37 000	201 000	57.8	74.0	⑤
FA505507C	55	0.25	0.06	75	-0.15	-0.3	3	31 000	160 000	57.8	71.0	④
NTA-3648	57.15	0.18	0.05	76.2	-0.25	-0.52	1.984	21 800	135 000	59.4	71.6	⑤
FNTA-6085	60	0.25	0.06	85	-0.17	-0.52	3	43 000	252 000	62.8	81.1	⑤
NTA-4052	63.5	0.18	0.05	82.55	-0.25	-0.52	1.984	22 400	145 000	65.8	77.9	⑤
FA506305	63.5	0.18	0.05	82.55	-0.25	-0.52	1.984	22 200	145 000	68.0	80.7	④
FNTA-6590	65	0.25	0.06	90	-0.17	-0.52	3	45 500	274 000	67.8	86.1	⑤
FNTA-7095	70	0.25	0.06	95	-0.17	-0.52	4	59 000	320 000	72.8	91.1	⑤
FNTA-75100	75	0.25	0.06	100	-0.17	-0.52	4	60 000	335 000	77.8	96.1	⑤
NTA-4860	76.2	0.18	0.05	95.25	-0.25	-0.52	1.984	23 700	163 000	78.5	90.6	⑤
FNTA-80105	80	0.25	0.06	105	-0.18	-0.53	4	63 000	365 000	82.8	101.1	⑤
NTA-5266	82.55	0.25	0.05	104.775	-0.25	-0.64	3.175	46 000	287 000	85.4	100.6	⑤
FNTA-90120	90	0.292	0.072	120	-0.18	-0.53	4	80 000	515 000	92.8	116.1	⑤
FNTA-100135	100	0.292	0.072	135	-0.2	-0.6	4	98 500	695 000	102.9	131.2	⑤

Thrust raceway washers

FTRA (S = 1.0)
 FTRB (S = 1.5)
 FTRC (S = 2.0)
 FTRD (S = 2.5)
 FTRE (S = 3.0)

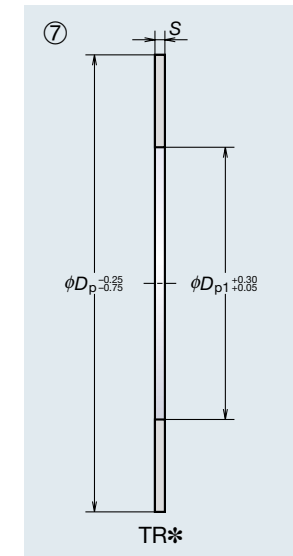
JD
 JDU



Thrust raceway washers

TRA (S = 0.81)
 TRB (S = 1.6)
 TRC (S = 2.4)
 TRD (S = 3.2)

JD
 JDU



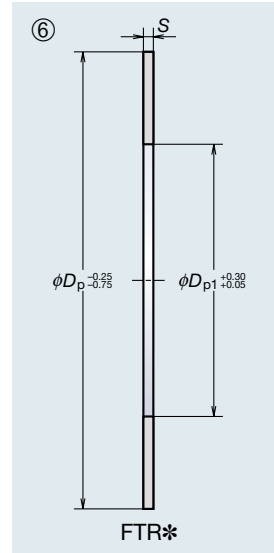
Bearing Numbers	Boundary Dimensions (mm)						Drawing	
	D_{p1}	Tolerance		D_p	Tolerance			S
		high	low		high	low		
TRA-411	6.35	—	—	17.45	—	—	0.81	⑦
TRC-411	6.35	—	—	17.45	—	—	2.4	⑦
TRA-613	9.525	—	—	20.62	—	—	0.81	⑦
TRB-613	9.525	—	—	20.62	—	—	1.6	⑦
TRC-613	9.525	—	—	20.62	—	—	2.4	⑦
FTRA-1024	10	0.175	0.025	24	-0.04	-0.37	1	—
FTRB-1024	10	—	—	24	—	—	1.5	⑥
FTRA-1226	12	—	—	26	—	—	1	⑥
TRC-815	12.7	—	—	23.8	—	—	2.4	⑦
FTRB-1326	13	—	—	26	—	—	1.5	⑥
JDU501301	13.5	0.3	0.05	41	-0.05	-0.3	0.81	—
FTRA-1528	15	—	—	28	—	—	1	⑥
FTRC-1528	15	—	—	28	—	—	2	⑥
FTRE-1528	15	—	—	28	—	—	3	⑥
TRA-1018	15.875	—	—	28.57	—	—	0.81	⑦
FTRA-1629	16	—	—	29	—	—	1	⑥
FTRA-1730	17	—	—	30	—	—	1	⑥
JDU501714	17	0.3	0.15	37	0.1	-0.1	2.08	—
JDU501717	17	0.35	0.15	32	0.2	-0.2	1.78	—
JDU501725	17	0.3	0.15	37	0.1	-0.1	2.28	—
JDU501726	17	0.3	0.15	34	0.1	-0.1	2.33	—
JDU501727-6	17	0.3	0.05	42.6	0	-0.35	2.5	—
JDU501727-7	17	0.3	0.05	42.6	0	-0.35	2.52	—
JDU501727-8	17	0.3	0.05	42.6	0	-0.35	2.54	—
JDU501728-25	17	0.3	0.05	42.6	0	-0.35	2.505	—
JDU501737	17	0.25	0.1	33	0.18	0	2.03	—
JDU501742A-10	17	0.25	0.1	34	0.1	-0.1	2.225	—
JDU501742A-11	17	0.25	0.1	34	0.1	-0.1	2.23	—
JDU501742A-12	17	0.25	0.1	34	0.1	-0.1	2.235	—
JDU501742A-13	17	0.25	0.1	34	0.1	-0.1	2.24	—
JDU501742A-14	17	0.25	0.1	34	0.1	-0.1	2.245	—
JDU501742A-15	17	0.25	0.1	34	0.1	-0.1	2.25	—
JDU501742A-17	17	0.25	0.1	34	0.1	-0.1	2.26	—
JDU501742A-18	17	0.25	0.1	34	0.1	-0.1	2.265	—
JDU501742A-8	17	0.25	0.1	34	0.1	-0.1	2.215	—

Bearing Numbers	Boundary Dimensions (mm)						Drawing	
	D_{p1}	Tolerance		D_p	Tolerance			S
		high	low		high	low		
JDU501742A-9	17	0.25	0.1	34	0.1	-0.1	2.22	—
FTRA-1831	18	—	—	31	—	—	1	⑥
FTRB-1831	18	—	—	31	—	—	1.5	⑥
FTRC-1831	18	—	—	31	—	—	2	⑥
JDU501809	18.1	0.3	0.05	28.2	0	-0.5	2	—
TRC-1220	19.05	—	—	31.75	—	—	2.4	⑦
JDU501924A	19.3	0.3	0.05	30.6	-0.05	-0.4	2	—
FTRA-2035	20	—	—	35	—	—	1	⑥
FTRC-2035	20	—	—	35	—	—	2	⑥
FTRE-2035	20	—	—	35	—	—	3	⑥
JDU502011	20	0.25	0.04	57	-0.06	-0.52	1.3	—
JDU502009	20.3	0.3	0.05	33.8	-0.05	-0.3	0.81	—
JDU502034	20.5	0.3	0.05	32.6	-0.05	-0.3	2.5	—
JDU502033-5B	20.6	0.25	0	46	0	-0.5	2.98	—
JDU502033-6	20.6	0.25	0	46	0	-0.5	3	—
JDU502033-6A	20.6	0.25	0	46	0	-0.5	2.99	—
JDU502033-6B	20.6	0.25	0	46	0	-0.5	3	—
JDU502033-7A	20.6	0.25	0	46	0	-0.5	3.01	—
JDU502111	21.4	0.3	0.05	46.1	0	-0.3	2	—
JDU502105	21.5	0.25	0	33.4	-0.05	-0.3	2	—
JDU502204	22.2	0.1	-0.1	43	0.25	-0.25	4	—
JDU502205	22.2	0.1	-0.1	43	0.25	-0.25	6	—
JDU502210	22.2	0.1	-0.1	52	0.25	-0.25	4	—
TRA-1423	22.225	—	—	36.5	—	—	0.81	⑦
JDU502307-1	23	0.5	0	38	-0.1	-0.5	2	—
JDU502307-2	23	0.5	0	38	-0.1	-0.5	2.2	—
JDU502307-3	23	0.5	0	38	-0.1	-0.5	2.4	—
JDU502307-4	23	0.5	0	38	-0.1	-0.5	2.6	—
JDU502307-5	23	0.5	0	38	-0.1	-0.5	2.8	—
JDU502307-6	23	0.5	0	38	-0.1	-0.5	3	—
JDU502305	23.5	0.3	0.05	37.3	-0.05	-0.3	0.81	—
JDU502303-1	23.86	0.25	0	44	0	-0.5	3	—
JDU502303-6	23.86	0.25	0	44	0	-0.5	2.98	—
JDU502401	24.9	0.25	0	37.6	0	-0.5	0.81	—
FTRA-2542	25	—	—	42	—	—	1	⑥

Thrust raceway washers

FTRA (S = 1.0)
 FTRB (S = 1.5)
 FTRC (S = 2.0)
 FTRD (S = 2.5)
 FTRE (S = 3.0)

JD
 JDU

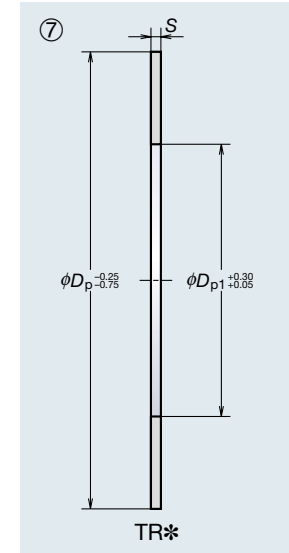


Bearing Numbers	Boundary Dimensions (mm)							Drawing
	D_{p1}	Tolerance		D_p	Tolerance		S	
		high	low		high	low		
FTRB-2542	25	—	—	42	—	—	1.5	⑥
FTRC-2542	25	—	—	42	—	—	2	⑥
FTRE-2542	25	—	—	42	—	—	3	⑥
JDU502510A	25	0.3	0.05	45.8	0	-0.3	1	—
JDU502512A	25	0.3	0.05	45.8	0	-0.3	1.5	—
JDU502514	25	0.3	0.05	47.8	0	-0.3	1.5	—
JD502513-1	25	0.25	0.04	36	0.1	-0.1	3.925	—
JD502513-2	25	0.25	0.04	36	0.1	-0.1	3.95	—
JD502513-3	25	0.25	0.04	36	0.1	-0.1	3.975	—
JD502513-4	25	0.25	0.04	36	0.1	-0.1	4	—
JD502513-6	25	0.25	0.04	36	0.1	-0.1	4.05	—
JD502513-7	25	0.25	0.04	36	0.1	-0.1	4.075	—
JD502513-8	25	0.25	0.04	36	0.1	-0.1	4.15	—
JD502513-9	25	0.25	0.04	36	0.1	-0.1	3.85	—
JDU502513-1	25.1	0.2	-0.2	40.7	-0.03	-0.18	1.5	—
JDU502516	25.1	0.3	0.05	42.6	0	-0.3	0.81	—
JD502519	25.4	0.3	0.1	39.67	-0.25	-0.75	3.2	—
JDU502611	26.4	0.3	0.05	42.2	0	-0.3	1.5	—
JDU502704	27	0.3	0.05	40	-0.05	-0.3	0.81	—
JD502702	27.9	0.3	0	42.9	-0.05	-0.3	3.5	—
TRA-1828	28.575	—	—	44.45	—	—	0.81	⑦
JD502810	28.7	0.3	0.05	50.4	0	-0.3	4	—
JDU502902	29.8	0.3	0.05	41.8	0	-0.3	0.81	—
FTRA-3047	30	—	—	47	—	—	1	⑥
FTRB-3047	30	—	—	47	—	—	1.5	⑥
FTRC-3047	30	—	—	47	—	—	2	⑥
FTRE-3047	30	—	—	47	—	—	3	⑥
JDU503003	30	0.3	0.05	41.8	0	-0.5	0.81	—
JD503101	31	0.3	0.05	42	-0.02	-0.12	2	—
TRA-2031	31.75	—	—	49.2	—	—	0.81	⑦
JDU503204-1	32	0.2	-0.2	54	-0.03	-0.13	1.7	—
JDU503204-2	32	0.2	-0.2	54	-0.03	-0.13	1.9	—
JDU503204-3	32	0.2	-0.2	54	-0.03	-0.13	2.1	—
JD503216	32.1	0.3	0.05	49	0	-0.3	3	—
JD503212	32.5	0.3	0	46.5	-0.05	-0.3	1.5	—

Thrust raceway washers

TRA (S = 0.81)
 TRB (S = 1.6)
 TRC (S = 2.4)
 TRD (S = 3.2)

JD
 JDU

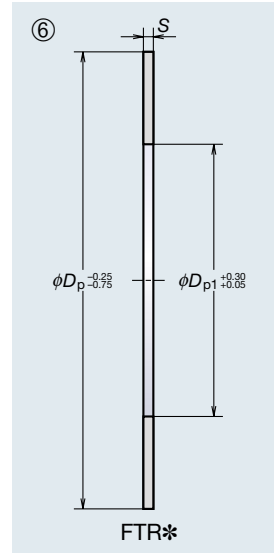


Bearing Numbers	Boundary Dimensions (mm)							Drawing
	D_{p1}	Tolerance		D_p	Tolerance		S	
		high	low		high	low		
JDU503214	32.6	0.3	0	43.6	-0.05	-0.3	1.5	—
JDU503302-1	33	0.2	-0.2	48	-0.05	-0.25	0.6	—
JDU503302-2	33	0.2	-0.2	48	-0.05	-0.25	0.8	—
JDU503302-3	33	0.2	-0.2	48	-0.05	-0.25	1	—
JDU503302-4	33	0.2	-0.2	48	-0.05	-0.25	1.2	—
JDU503310	33	0.3	0.05	65	0.2	-0.2	1.4	—
JD503302	33	0	-0.025	50	0.3	-0.3	5	—
JD503303-1	33	0.2	-0.2	48	-0.05	-0.21	1.4	—
JDU503312	33.2	0.3	0.05	45.6	0	-0.3	0.81	—
JDU503410	34.3	0.15	-0.15	62	0.25	-0.25	1	—
JDU503412	34.3	0.15	-0.15	70	0.25	-0.25	1	—
JDU503413	34.65	0.3	0.05	46	0	-0.3	1.5	—
TRB-2233	34.925	—	—	52.37	—	—	1.6	⑦
FTRA-3552	35	—	—	52	—	—	1	⑥
FTRB-3552	35	—	—	52	—	—	1.5	⑥
FTRC-3552	35	—	—	52	—	—	2	⑥
FTRD-3552	35	—	—	52	—	—	2.5	⑥
FTRE-3552	35	—	—	52	—	—	3	⑥
JDU503504	35	0.2	0.05	51.5	0.1	-0.1	1	—
JDU503510	35.2	0.3	0	47	-0.05	-0.3	1.5	—
JDU503602-2	36	0.2	-0.2	51	-0.06	-0.31	1	—
JDU503602-3	36	0.2	-0.2	51	-0.06	-0.31	1.2	—
JDU503602-5	36	0.2	-0.2	51	-0.06	-0.31	1.1	—
JDU503602-6	36	0.2	-0.2	51	-0.06	-0.31	1.3	—
JDU503602-7	36	0.2	-0.2	51	-0.06	-0.31	1.4	—
JDU503605	36	0.2	-0.2	51	-0.06	-0.41	1.5	—
JDU503609	36.1	0.3	0.05	49.7	0.2	-0.2	0.81	—
JD503609-1	36.1	0.3	0.05	51	0	-0.5	3.7	—
JD503609-2	36.1	0.3	0.05	51	0	-0.5	3.8	—
JD503609-3	36.1	0.3	0.05	51	0	-0.5	3.9	—
JDU503702	37	0	-0.5	51	-0.05	-0.25	0.81	—
JD503706	37.5	0.3	0	51.9	-0.05	-0.3	3	—
TRA-2435	38.1	—	—	55.55	—	—	0.81	⑦
JDU503818-1	38.25	0.2	-0.2	56.2	-0.03	-0.13	1.8	—
JDU503818-2	38.25	0.2	-0.2	56.2	-0.03	-0.13	2	—

Thrust raceway washers

FTRA (S = 1.0)
 FTRB (S = 1.5)
 FTRC (S = 2.0)
 FTRD (S = 2.5)
 FTRE (S = 3.0)

JD
 JDU

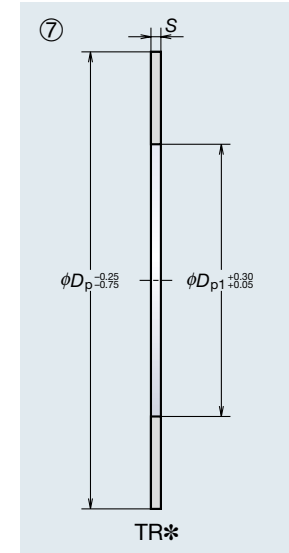


Bearing Numbers	Boundary Dimensions (mm)							Drawing
	D_{p1}	Tolerance		D_p	Tolerance		S	
		high	low		high	low		
JDU503818-3	38.25	0.2	-0.2	56.2	-0.03	-0.13	2.2	—
JDU503815	38.6	0.3	0.05	58	0	-0.5	0.81	—
JDU503801	38.7	0.1	-0.1	54	0	-0.2	0.81	—
JDU503808	38.7	0.1	-0.1	54	0	-0.2	1.6	—
FTRA-4060	40	—	—	60	—	—	1	⑥
FTRC-4060	40	—	—	60	—	—	2	⑥
FTRE-4060	40	—	—	60	—	—	3	⑥
JDU504103	41.5	0.5	0	60	-0.06	-0.36	1	—
JDU504201	42.3	0.15	-0.15	70	0.25	-0.25	1	—
TRC-2840	44.45	—	—	63.5	—	—	2.4	⑦
FTRA-4565	45	—	—	65	—	—	1	⑥
FTRA-4565A	45	—	—	65	—	—	1	⑥
FTRC-4565	45	—	—	65	—	—	2	⑥
FTRE-4565	45	—	—	65	—	—	3	⑥
JD504516-4	45	0.3	0.05	65	-0.25	-0.75	2	—
JD504507	45.2	0.3	0	63.5	-0.3	-0.45	2.4	—
JDU504701	47	0.4	0.2	76	0.25	-0.25	1	—
JD504905	49	0.3	0.05	72	-0.25	-0.75	2	—
JDU504906	49.33	0.15	-0.15	84	0.2	-0.2	1	—
JDU504902	49.5	0.21	0.05	70	0.3	-0.3	1	—
FTRA-5070	50	—	—	70	—	—	1	⑥
FTRC-5070	50	—	—	70	—	—	2	⑥
TRC-3244B	50.8	—	—	69.85	-0.25	-0.77	2.4	⑦
TRD-3244	50.8	—	—	69.85	—	—	3.2	⑦
JD505101	51.5	0.3	0	69.85	-0.3	-0.45	2.4	—
JD505205-1	52.1	0.3	0.05	75.5	-0.25	-0.75	3.5	—
JD505205-2	52.1	0.3	0.05	75.5	-0.25	-0.75	3.8	—
JDU505303	53	0.45	0.2	84	0.25	-0.25	1	—
JD505303	53.7	0.3	0.05	74	0	-0.3	2	—
JDU505405	54	0.3	0.05	78	0.2	-0.2	0.81	—
FTRA-5578	55	—	—	78	—	—	1	⑥
FTRC-5578	55	—	—	78	—	—	2	⑥
FTRE-5578	55	—	—	78	—	—	3	⑥
JDU505502A	55	0.3	0.05	78	-0.25	-0.75	2	—
JDU505504	55.35	0.3	0.05	75	0.2	-0.2	2	—

Thrust raceway washers

TRA (S = 0.81)
 TRB (S = 1.6)
 TRC (S = 2.4)
 TRD (S = 3.2)

JD
 JDU



Bearing Numbers	Boundary Dimensions (mm)							Drawing
	D_{p1}	Tolerance		D_p	Tolerance		S	
		high	low		high	low		
JDU505601-1	56.8	0.5	0	80	0.3	-0.3	0.8	—
JDU505601-2	56.8	0.5	0	80	0.3	-0.3	1	—
JDU505601-3	56.8	0.5	0	80	0.3	-0.3	1.2	—
JDU505601-4	56.8	0.5	0	80	0.3	-0.3	1.4	—
JD505707	57	0.3	0.05	78	-0.25	-0.75	2	—
TRC-3648	57.15	—	—	76.2	—	—	2.4	⑦
TRD-3648	57.15	—	—	76.2	—	—	3.2	⑦
JDU505803	58.3	0.15	-0.15	89	0.2	-0.2	1	—
FTRB-6085	60	—	—	85	—	—	1.5	⑥
FTRC-6085	60	—	—	85	—	—	2	⑥
FTRE-6085	60	—	—	85	—	—	3	⑥
TRC-4052	63.5	0.43	0.05	82.55	—	—	2.4	⑦
TRD-4052	63.5	0.43	0.05	82.55	—	—	3.2	⑦
FTRC-6590	65	—	—	90	—	—	2	⑥
JDU506603	66.3	0.15	-0.15	102	0.2	-0.2	1	—
TRC-4458	69.85	0.43	0.05	92.07	—	—	2.4	⑦
FTRA-6590	65	—	—	90	—	—	1	⑥
FTRA-7095	70	—	—	95	—	—	1	⑥
FTRC-7095	70	—	—	95	—	—	2	⑥
FTRE-7095	70	—	—	95	—	—	3	⑥
JD507002	70	0.3	0.05	95	-0.25	-0.75	5.25	—
JDU507102	71.3	0.15	-0.15	112	0.25	-0.25	1	—
FTRC-75100	75	—	—	100	—	—	2	⑥
FTRE-75100	75	—	—	100	—	—	3	⑥
JDU507501	75	0.3	0.05	105	-0.25	-0.75	2	—
JD507607-2	76	0.4	0.1	95	-0.05	-0.3	1.7	—
JD507607-3	76	0.4	0.1	95	-0.05	-0.3	1.8	—
TRD-4860	76.2	0.43	0.05	95.25	—	—	3.2	⑦
JD507605	76.2	0.43	0.05	96.25	0	-0.2	3.2	—
FTRA-80105	80	—	—	105	—	—	1	⑥
TRD-5266	82.55	0.43	0.05	104.77	—	—	3.2	⑦
FTRC-85110	85	—	—	110	—	—	2	⑥
JD508702	87.2	0.5	0	99	-0.05	-0.55	1.7	—
FTRE-90120	90	—	—	120	—	—	3	⑥
FTRA-1001335	100	—	—	135	—	—	1	⑥