

DISC COUPLINGS

DESCRIPTION



DISC couplings are free from rotational backlash, provide uniform and smooth at constant angular velocity. This coupling has given outstanding service for instance in regulating and control drives. For equipment such as machine tools with numerical controllers, indexing systems, and printing machine, **DISC** couplings are better than other couplings.

DISC couplings have no sliding, frictional, or moving parts. Therefore there is no friction or noise and they are not subject to wear and require no maintenance, no lubrication. With proper selection and careful installation, an unlimited working life may be expected from this compact, robust constructed all steel couplings.

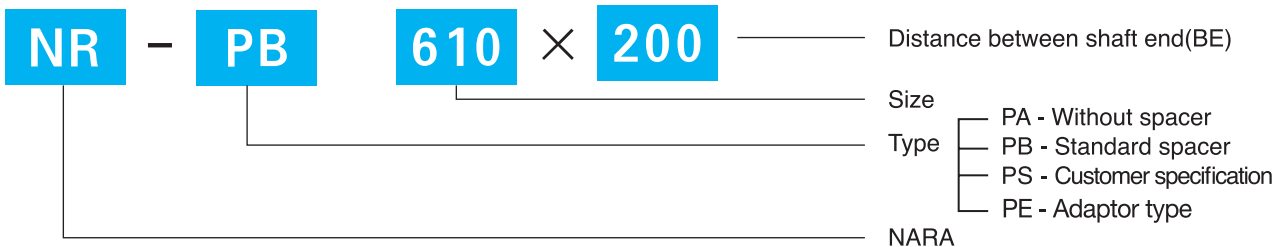
The flexible element plate packs (Stainless steel) are integral components easily visible, readily inspected and can be installed without difficulty.

DISC couplings are manufactured for torque from 3.4kg·m to 8530kgf·m, in various sizes available and they are applicable for a wide variety of their great range of allowable displacement.

DISC couplings are suitable for both directions of rotation and adaptable for vertical installation with integral support.

DISC couplings are used in all types of industries and temperature to 280°C are permissible.(above 150°C, consult NARA)

SELECTION



To select the suitable size, follow these steps

- ① Select service factor F_1 from page 43.
 - Use next higher S.F for a starting frequency per hour above 5.
 - In case of both way rotation. $S.F \times 1.5$.
- ② Calculate the operating torque T. refer to below

$$T_o(\text{N}\cdot\text{m}) = \frac{9550 \times \text{kw}}{\text{rpm}}$$

$$\text{Operating torque}(T) = \text{Transmitting torque}(T_o) \times \text{service factor}(F_1)$$

- ③ Select a coupling size from dimension's tables.
 - Find the nearest exceeding rating torque
 - Check the required maximum speed.
 - Check the maximum bore.
- ④ Consult NARA when the coupling is mounted on special condition.

MOUNTING

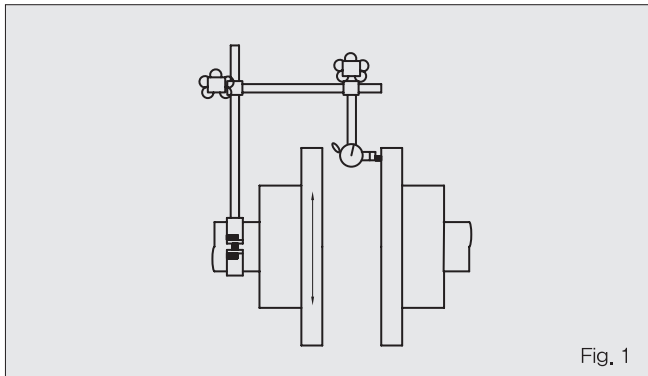


Fig. 1

When hub has been fabricated by interference fit, heat in a 90~120°C oil bath and fit it to the shaft. Never apply heat locally it may cause distortion.

Shift equipment units to permit coupling in the correct position. Set both flange faces(G dimensions) within $\pm 0.25\text{mm}$, except in special cases.(page 5,6,7)

[Angular misalignment (Fig.1)]

- Fix a dial gauge on one side of hub, rotate hub, find minimum reading on dial gauge, and set gauge at zero.
- Rotate coupling side with dial gauge 360° and re-adjust alignment so dial gauge shows smallest deflection reading. Peripheral face deflection for an angular displacement is as shown in the Tab. 2.

[Parallel misalignment (Fig.2)]

To measure parallel displacement of shafts, fix a dial gauge on the driving side hub end. While rotation the driving shaft, read the dial gauge at the periphery of the driven hub.

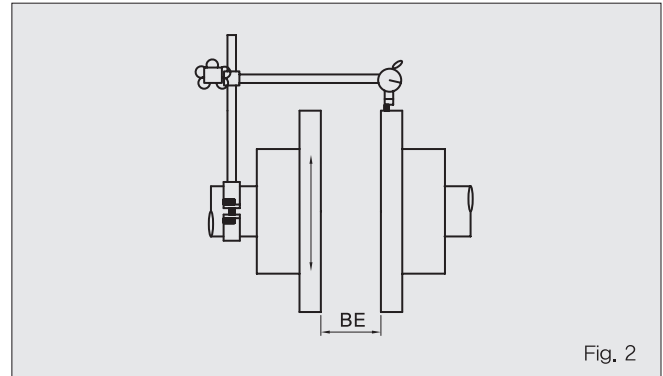


Fig. 2

A parallel displacement of 2mm per 1,000mm distance between flange faces(BE) results in an angular displacement of 0.1°.

When inserting bolt, do not force it, or the thick washer may intrude into the large hole on the flange.

Fasten all nylon nuts using the rated torque as shown on Tab 3.

note) To assure long service life, recheck Alignment after 2hours of actual operation

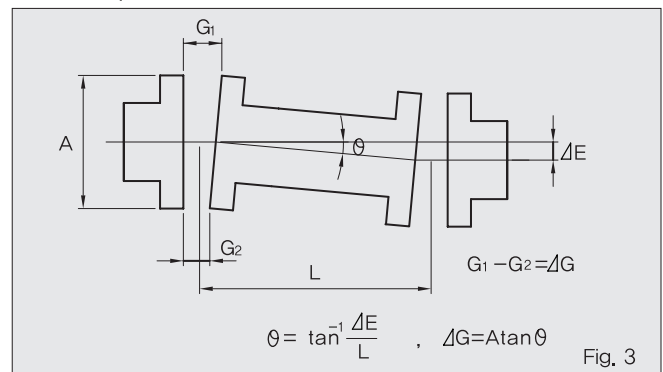


Fig. 3

■ Peripheral Face Deflection For An Angular Displacement

Tab,2

Type	Angular displacement	Content	Dial gauge reading value(TIR mm)										
4Bolt	0.1	Size	405	410	415	420	425	430	435	440	445	450	455
		Value(mm)	0.12	0.15	0.16	0.20	0.22	0.25	0.29	0.34	0.37	0.43	0.48
6Bolt	0.07	Size	601	602	603	604	605	-	-	-	-	-	-
		Value(mm)	0.15	0.17	0.19	0.22	0.26	-	-	-	-	-	-
6Bolt	0.07	Size	-	610	615	620	625	630	635	640	645	-	-
		Value(mm)	-	0.33	0.37	0.42	0.45	0.50	0.54	0.57	0.62	-	-
8Bolt	0.05	Size	801	803	805	810	815	820	825	830	835	840	845
		Value(mm)	0.18	0.22	0.23	0.23	0.26	0.30	0.32	0.35	0.38	0.41	0.44
10Bolt	0.035	Size	1010	1015	1020	1025	1030	1035	1040	1045	-	-	-
		Value(mm)	0.16	0.18	0.21	0.23	0.25	0.27	0.28	0.31	-	-	-

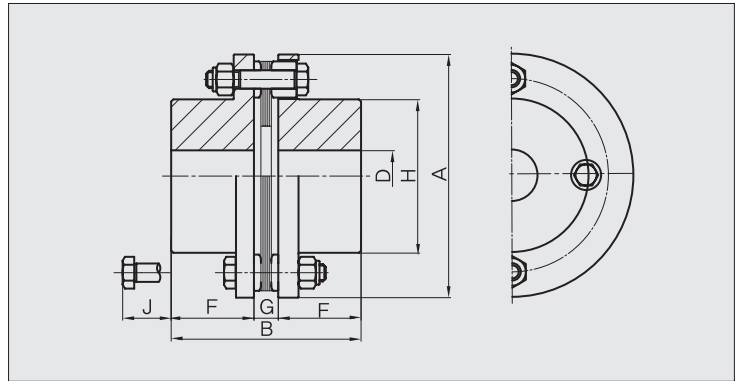
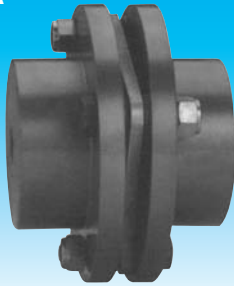
■ Fastening Torque For Bolt

Tab,3

Size	405	410	415	420	425,601	430,602	435	440	445	450	455
Bolt head diameter(mm)	10	10	13	13	17	19	19	24	24	27	36
Fastening torque (N·m)	9	9	22	22	41	72	72	160	160	220	570
Size	603,801	603,803	604,605,805	610,810	615,815	620,820	625,825	630,830	635,835	640,840	645,845
Bolt head diameter(mm)	19	24	27	27	32	36	46	50	55	55	60
Fastening torque (N·m)	72	160	220	220	440	570	1100	1500	1700	1700	1700

DIMENSIONS

4Bolts PA

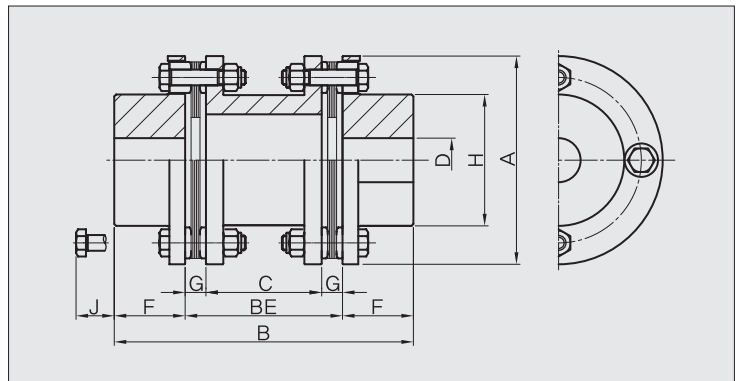


■ 4 Bolt

Size	Rating torque (N·m)	Max. speed (rpm)	Dimensions(mm)								Mass (kg)	J (kg·m ²)
			Dmax.	Dmin.	A	B	F	G	H	J		
405	33	15,000	23	8	67	56,9	25,4	6,1	33	13	0,62	0,000125
410	90	15,000	32	10	81	57,4	25,4	6,6	46	16	1,1	0,000325
415	177	15,000	35	10	93	65,8	28,7	8,4	51	22	1,7	0,00065
420	245	15,000	42	10	104	78,2	33,5	11,2	61	20	2,5	0,0012
425	422	12,000	50	16	126	93,9	41,1	11,7	71	25	4,3	0,0030
430	775	10,000	58	16	143	107,3	47,8	11,7	84	28	6,8	0,0063
435	1270	9,300	74	25	168	131,2	57,2	16,8	106	23	11,5	0,014
440	2060	8,000	83	25	194	144,0	63,5	17,0	119	30	16,82	0,028
445	3330	7,300	95	45	214	174,0	76,2	21,6	137	22	24,5	0,048
450	4900	6,300	109	50	246	201,7	88,9	23,9	157	23	37	0,093
455	6370	5,600	118	50	276	230,4	101,6	27,2	170	40	53	0,17

※ If higher speed than max. speed is required, consult NARA. (GD² = 4J)

4Bolts PB



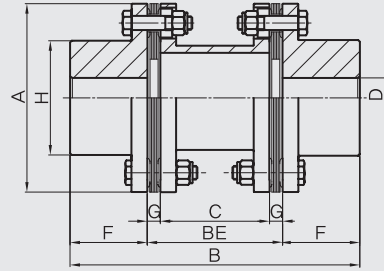
■ 4 Bolt

Size	Rating torque (N·m)	Max. speed (rpm)	BE (mm)	C (mm)	Weight (kgf)	GD ² (kgf·m ²)	Size	Rating torque (kgf·m)	Max. speed (rpm)	BE (mm)	C (mm)	Mass (kg)	J (kg·m ²)
405	33	15,000	88,9	76,7	1,2	0,0015	435	130,0	6,200	127,0	93,4	18,3	0,036
410	90	15,000	88,9	75,7	2	0,0039	440	210,0	5,400	139,7	105,7	27,2	0,073
415	177	15,000	101,6	84,8	3,06	0,0078	445	340,0	4,900	152,4	109,2	37,8	0,118
420	245	15,000	127,0	104,6	4,6	0,0138	450	500,0	4,200	177,8	130	54	0,218
425	422	12,000	127,0	103,6	7,6	0,035	455	650,0	3,800	177,8	123,4	78,9	0,42
430	775	10,000	127,0	103,6	11,7	0,07							

※ If higher speed than max. speed is required, consult NARA. (GD² = 4J) ※ "BE" is available in optional lengths upon request.

DIMENSIONS

PB (6,8,10Bolt)



Size	Rating torque (N·m)	Max. speed (rpm)	Dimensions(mm)								Mass (kg)	J (kg·m ²)
			Dmax.	A	B	C	BE	F	G	H		
601	569	13,000	51	119	168	39,4	60	54	10,3	74	6	0,008
602	922	11,000	55	137	198	50,0	72	63	11,0	81	9,1	0,015
603	1710	9,700	67	161	238	67,2	90	74	11,4	97	16,9	0,025
604	3340	8,700	72	180	269	82,4	109	80	13,3	104	21,6	0,05
605	6210	7,300	85	212	308	87,6	118	95	15,2	124	35,1	0,10
610	8240	5,600	111	276	377	115	153	112	19,0	161	66	0,33
615	10700	5,000	133	308	440	134	172	134	19,0	193	102	0,63
620	17800	4,500	152	346	497	148	191	153	21,5	218	150	1,2
625	26400	4,100	165	375	553	175	223	165	24,0	240	191	1,7
630	33400	3,750	178	410	610	195	254	178	29,5	258	251	2,8
635	39900	3,450	187	445	646	211	270	188	29,5	272	310	4,2
640	46300	3,300	205	470	686	212	274	206	31,0	297	375	5,4
645	59800	3,000	231	511	749	223	287	231	32,0	334	490	7,9

※ If higher speed than max. speed is required, consult NARA. (GD² = 4J) ※ "BE" is available in optional lengths upon request.

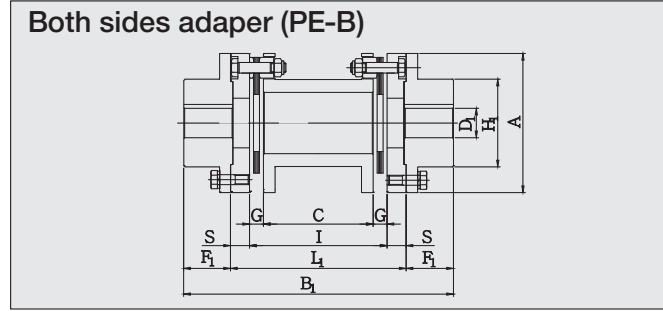
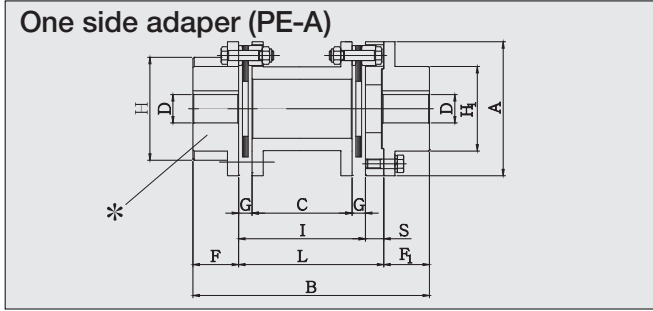
Size	Rating torque (N·m)	Max. speed (rpm)	Dimensions(mm)								Mass (kg)	J (kg·m ²)
			Dmax.	A	B	C	BE	F	G	H		
801	3840	7,200	95	214	333	92,6	117	108	12,2	137	37,2	0,10
803	7120	6,300	108	246	369	99,6	127	121	13,7	156	54,7	0,18
805	8970	5,600	111	276	421	118,2	153	134	17,4	161	70,1	0,33
810	11800	5,600	111	276	421	115	153	134	19,0	161	72,6	0,33
815	15400	5,000	133	308	492	134	172	160	19,0	193	112,2	0,64
820	25600	4,500	152	346	557	148	191	183	21,5	218	165	1,2
825	37800	4,000	165	375	619	175	223	198	24,0	240	210,1	1,8
830	47800	3,750	178	410	682	195	254	214	29,5	258	276,1	2,9
835	57100	3,450	187	445	720	211	270	225	29,5	272	341	4,3
840	68400	3,300	205	470	768	212	274	247	31,0	297	412,5	5,6
845	83700	3,000	231	511	843	223	287	278	32,0	334	539	8,4

※ If higher speed than max. speed is required, consult NARA. (GD² = 4J) ※ "BE" is available in optional lengths upon request.

Size	Rating torque (N·m)	Max. speed (rpm)	치 수(mm)								Mass (kg)	J (kg·m ²)
			Dmax.	A	B	C	BE	F	G	H		
1010	17800	5,600	111	276	452,4	114,6	152,4	150	18,9	161	85,9	0,55
1015	22800	5,000	133	308	531,5	133,7	171,5	180	18,9	193	139,0	1,15
1020	32700	4,500	152	346	602,5	151,9	190,5	206	19,3	218	196,0	2,05
1025	48400	4,100	165	375	668,3	179,1	222,3	223	21,6	240	260,0	3,27
1030	64100	3,750	178	410	734,0	198,4	254,0	240	27,8	258	336,0	5,10
1035	81900	3,450	187	445	775,2	210,6	269,2	253	29,3	272	406,0	7,32
1040	99700	3,300	206	470	827,8	209,4	271,8	278	31,2	297	501,0	9,84
1045	120000	3,000	231	511	911,0	224,6	287,0	312	31,2	334	676,0	15,70

※ If higher speed than max. speed is required, consult NARA. (GD² = 4J) ※ "BE" is available in optional lengths upon request.

DIMENSIONS



Size	Rating torque (N·m)	Max. speed (rpm)	Dimensions(mm)													Mass (kg)	J (kg·m²)	
			Dmax.	D1 max.	A	B	B1	I	G	C	L1	S	F	F1	H			H1
405	33	13,000	28	28	67	154,3	168,9	88,9	6,1	76,7	112,9	12	25,4	28	47	41	1,7	0,00078
410	90	13,000	40	38	81	165,3	190,9	88,9	6,6	75,7	114,9	13	25,4	38	58	55	2,7	0,00185
415	177	13,000	42	40	93	186,3	213,6	101,6	8,4	84,8	133,6	16	28,7	40	66	59	4,1	0,00363
420	245	12,000	48	48	104	224,5	255,0	127,0	11,2	104,6	159,0	16	33,5	48	77	71	5,1	0,00608
425	422	10,000	60	64	126	252,1	295,0	127,0	11,7	103,6	167,0	20	41,1	64	92	92	9,8	0,01575
430	775	9,300	70	68	143	265,8	309,0	127,0	11,7	103,6	173,0	23	47,8	68	104	100	14,4	0,03250
435	1270	7,900	85	86	168	293,2	345,0	127,0	16,8	93,4	173,0	23	57,2	86	129	126	21,9	0,06500
440	2060	6,800	95	100	194	331,2	395,7	139,7	17,0	105,7	195,7	28	63,5	100	147	144	33,4	0,13250
445	3330	6,200	110	114	214	370,6	436,4	152,4	21,6	109,2	208,4	28	76,2	114	166	164	44,2	0,21250
450	4900	5,400	120	124	246	422,7	489,8	177,8	23,9	130,0	241,8	32	88,9	124	191	180	65,6	0,43250

Size	Rating torque (N·m)	Max. speed (rpm)	Dimensions(mm)													Mass (kg)	J (kg·m²)	
			Dmax.	D1 max.	A	B	B1	I	G	C	L1	S	F	F1	H			H1
601	569	10,000	60	68	124	196,7	225,7	59,7	10,3	39,1	89,7	15	54	68	100	100	8,4	0,00018
602	922	9,200	65	78	144	231,0	264,0	72,0	11,0	50,0	108,0	18	63	78	108	112	11,5	0,00032
603	1710	7,800	78	96	170	281,0	324,0	90,0	11,4	67,2	132,0	21	74	96	130	138	21,4	0,00085
604	3340	6,700	84	104	198	318,6	368,6	108,6	13,3	82,0	160,6	26	80	104	140	150	33,7	0,00171
605	6210	5,900	98	123	226	365,6	423,6	117,6	15,2	87,2	177,6	30	95	123	160	178	51,7	0,00355
610	8240	4,500	130	158	294	456,0	535,0	153,0	19,0	115,0	215,0	31	112	160	200	228	100,0	0,01220
615	10700	4,000	148	182	330	526,0	612,0	172,0	19,0	134,0	248,0	38	134	182	230	264	152,9	0,02238
620	17800	3,600	166	206	366	591,0	685,0	191,0	21,5	148,0	273,0	41	153	206	260	300	215,9	0,03810
625	26400	3,100	180	224	422	661,0	769,0	223,0	24,0	175,0	321,0	49	165	224	290	324	308,6	0,07668
630	33400	2,900	194	244	452	731,0	852,0	254,0	29,5	195,0	364,0	55	178	244	320	354	395,2	0,10883
635	39900	2,600	206	260	498	777,8	910,0	270,0	29,5	211,0	390,0	60	188	260	340	376	504,7	0,17538
640	46300	2,500	222	276	522	816,0	946,0	274,0	31,0	212,0	394,0	60	206	276	360	400	576,2	0,22078
645	59800	2,300	249	304	564	887,0	1025	287,0	32,0	223,0	417,0	65	231	304	400	443	748,7	0,32975

Size	Rating torque (N·m)	Max. speed (rpm)	Dimensions(mm)													Mass (kg)	J (kg·m²)	
			Dmax.	D1 max.	A	B	B1	I	G	C	L1	S	F	F1	H			H1
803	7120	5,100	108	144	258	418	467	127,0	13,7	99,6	179	26	121	144	156	208	69,9	0,00648
805	8970	4,700	111	160	282	478	535	153,0	17,4	118,2	215	31	134	160	161	232	96,8	0,01023
810	11800	4,500	111	158	294	478	535	153,0	19,0	115,0	215	31	134	160	161	228	100,0	0,01220
815	15400	4,000	133	182	330	552	612	172,0	19,0	134,0	248	38	160	182	193	264	152,9	0,02238
820	25600	3,600	152	206	366	621	685	191,0	21,5	148,0	273	41	183	206	218	300	215,9	0,03810
825	37800	3,100	165	224	422	694	769	223,0	24,0	175,0	321	49	198	224	240	324	308,6	0,07668
830	47800	2,900	178	244	452	767	852	254,0	29,5	195,0	364	55	214	244	258	354	395,2	0,10883
835	57100	2,600	187	260	498	815	910	270,0	29,5	211,0	390	60	225	260	272	376	504,7	0,17538
840	64400	2,500	205	276	522	857	946	274,0	31,0	212,0	394	60	247	276	297	400	576,2	0,22078
845	83700	2,300	231	304	564	934	1025	287,0	32,0	223,0	417	65	278	304	334	412	748,7	0,3975

1. The mass and J in the above table is for "Both sides adapter" type

* Enlarged Boss diameter H for enlarged shaft Bore D (for 4 and 6 bolts) is as shown.
When required Standard Boss, refer to the dimensions shown on page 5 & 6