MISCELLNEOUS ROTATION-TRANSMITTING UNITS

Insulating coupling

Micro coupling

Composite coupling

Guarantee

This brochure was prepared for the purpose of providing you with performance and size data for FORM-FLEX COUPLINGS in order that you may better select the most appropriate type. We accept requests for consultation regarding application of selected types shown in this brochure, as well as special designs and uses, but it is impossible for us to actually test our couplings with each piece of equipment under actual operating conditions. Therefore, we regret that we are unable to guarantee the performance of our couplings in practical operation after purchase. We do, however, gurantee that our products have been manufactured and shipped under proper quality control. We guarantee our products against defects in manufacture and materials for one year after shipping. If such defect should appear, please return the part in question for inspection, based on which we will determine whether the guarantee is applicable. If we agree that the part is defective, our responsibility is limited to repairing or replacing the part in question. Defects arising from secondary working without our express agreement, replacement of parts with parts other than those designated by us, repairs, improper hahdling, or accidents are excluded from this guarantee. Manufacture of products shown in this brochure may be discontinued and/or the contents of this brochure changed without notice.

Daido Precision Industries Ltd.

3 Fl. Nishi-Ikebukuro TS BLDG.,1-15 Nishi-Ikebukuro 3-Chome,
Toshima-ku, Tokyo 171-0021, Japan
Tel. 03-5956-9176　　Fax. 03-5956-9177
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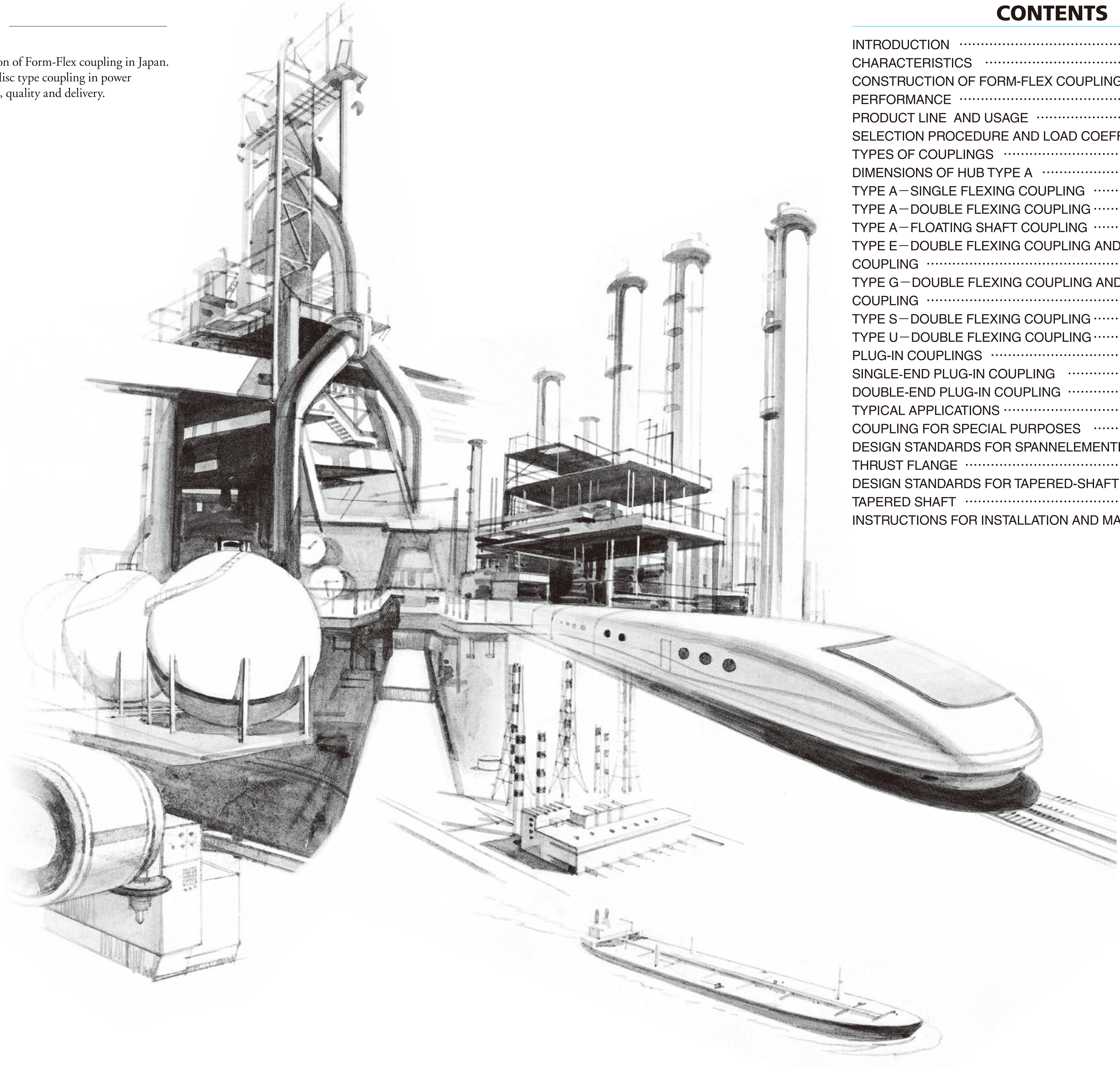
DSL-1200-R3

FORM-FLEX® COUPLINGS

Daido Precision Industries Ltd.

INTRODUCTION

In 1975, Daido Steel Group started license production of Form-Flex coupling in Japan. Since then, Form-Flex is a leading brand of flexible disc type coupling in power transmission domain etc. with superior performance, quality and delivery.



CONTENTS

CHARACTERISTICS

1 No Lubricating Oil Necessary

Lubricating oil is unnecessary because the FORM-FLEX COUPLING has no sliding, frictional, or moving parts. Therefore, there is no friction or noise, and energy loss is low, with no dirty oil to cope with. For most high-speed gear couplings, an expensive filter and guard are needed for forced lubrication and oil recovery, but these are not required for FORM-FLEX COUPLINGS.

2 Fit and Forget

When properly installed and if initial conditions remain unchanged, FORM-FLEX COUPLINGS have an unlimited service life. Required maintenance consists of a visual inspection of the condition of the element (flexible plate) and of the bolts and nuts when operation is stopped.

3 Light Weight with High Torque

FORM-FLEX COUPLINGS are available in a wide range of specifications to meet various operating conditions. Requirements for lighter weight can be met by using a type whose main body is made of a light material such as alloyed aluminum.

4 Great Range of Misalignment Allowable

These couplings are applicable for a wide variety of systems because of their great range of allowable misalignment. Special designs for even larger allowances are possible.

5 Lower Thrust Load and Bending Moment

Flexible couplings prevent problems by absorbing shaft misalignment while transmitting torque; this puts an opposing load on the shaft. With FORM-FLEX COUPLINGS, however, this load is much lower than with other types of couplings.

6 Higher Torsional Stiffness and No Backlash

For equipment such as machine tools with numerical controllers, indexing systems, and printing machines requiring accurate shaft rotation and phase control, FORM-FLEX COUPLINGS are best suited because of their high torsional stiffness.

7 Superior Resistance to Environmental Conditions

Since no lubricating oil is required, FORM-FLEX COUPLINGS made of standard materials operate satisfactorily, even at high ambient temperatures. Further, the use of special materials and/or coatings makes operation under any environmental condition possible.

8 Rugged Construction and Small Load Stress

Load stress on FORM-FLEX COUPLINGS is maintained at very low levels, except in special cases. Therefore, the service life of these couplings is practically unlimited when operated within the acceptable range of allowable misalignment.

9 Easy Mounting and Dismounting

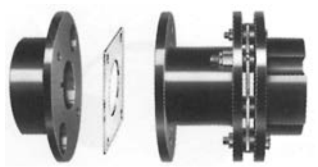
Couplings can be mounted and unmounted quickly and easily due to their compactness and small number of parts. Excellent reassembly characteristics provide superior speed. The use of spacers with the coupling permits easy mounting and dismounting without the necessity of moving heavy machinery. This is helpful in the replacement of seals and bearings in pumps and other equipment.

10 Fail-Safe Mechanism

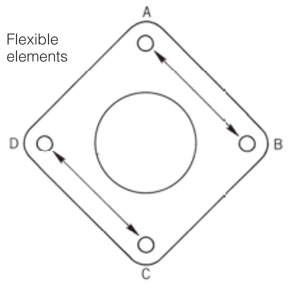
Should the element be damaged due to overload or accident, a fail-safe mechanism transmitting rotation via washers becomes operational.

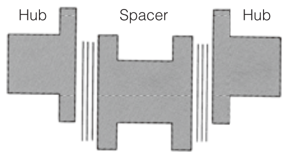
CONSTRUCTION OF FORM-FLEX COUPLINGS

Construction



FORM-FLEX COUPLING





● Simple construction ensures good durability

FORM-FLEX double flexing couplings are made of three principal components : hubs, spacer, and flexible elements. Their very simple construction results in extra-high torque capability and practically unlimited durability.

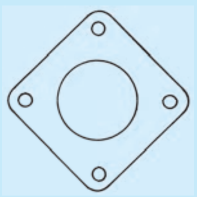
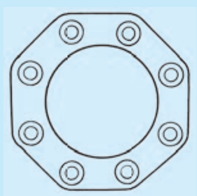
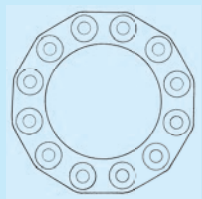
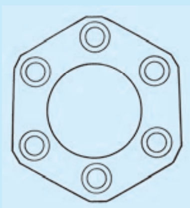
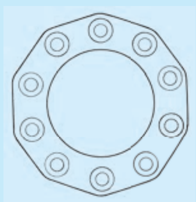
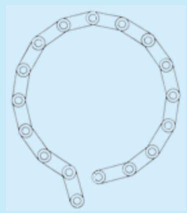
● Power transmission mechanism produces high torque

A significant feature of the FORM-FLEX COUPLINGS is its flexible element, which is laminated with thin square stainless steel sheets. The holes A, C and B, D in the diagram are bolted at the hub and spacer, respectively. The torque is directly transmitted as tension from A to B and C to D through the straight side of the flexible element. Complex stress is not generated at the square flexible element, and the torque transmission capacity of FORM-FLEX COUPLINGS therefore increases.

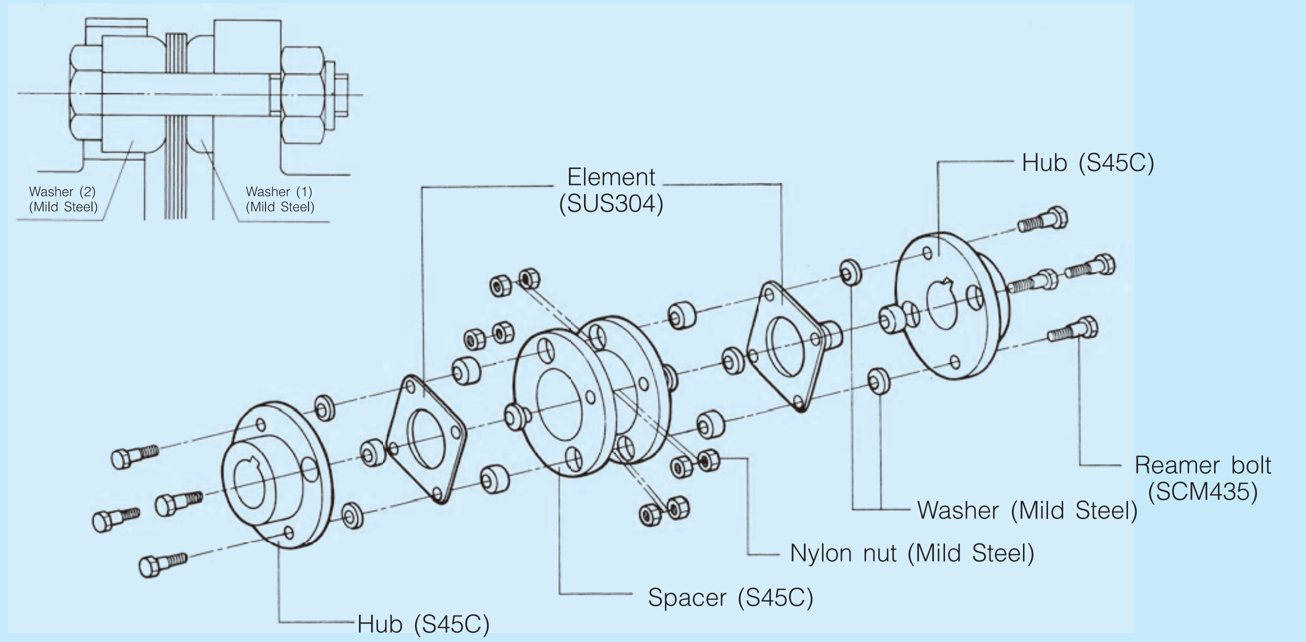
● Driving mechanism with less occurrence of bending stress

The arrangement of the minimum of four driving and driven reamer bolts on a common radius minimizes the bending stress on the flexible element when operated under axial and/or angular misalignment. Cyclic stress is also reduced.

Types of Flexible Elements

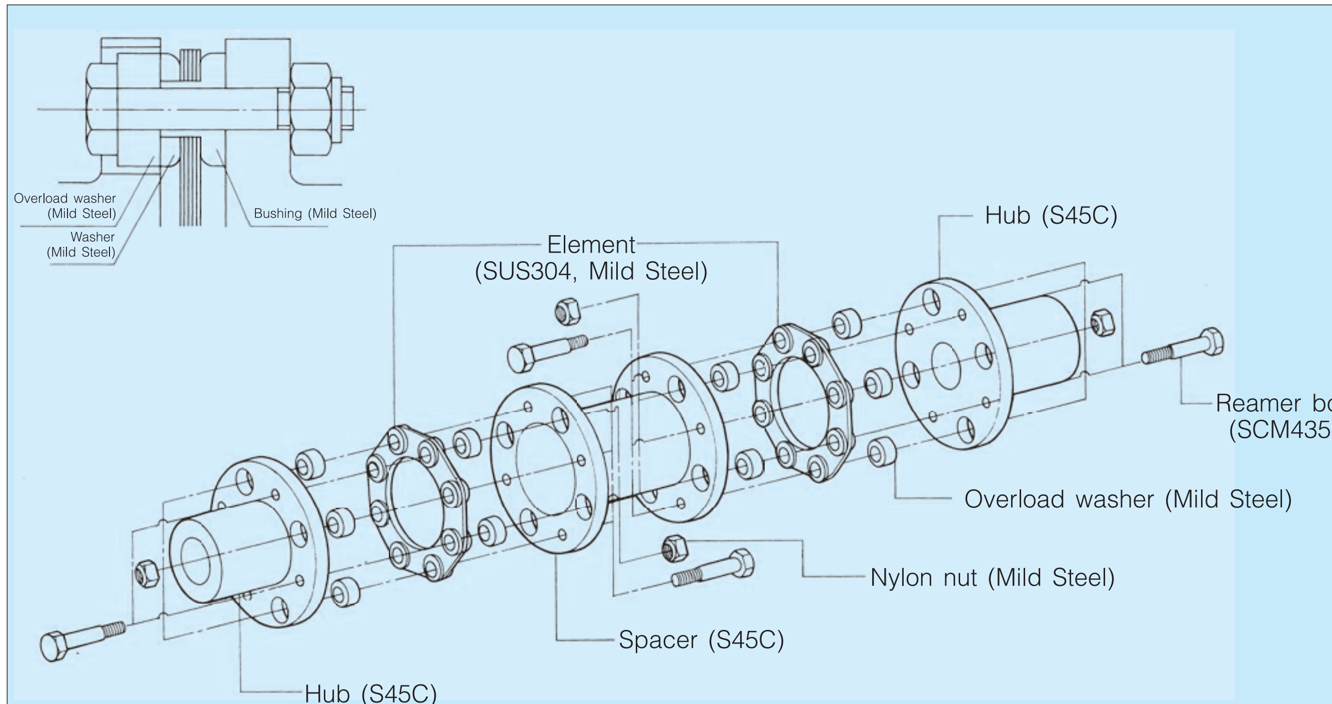
Performance	Performance	Performance
Max. angular misalignment: 1° Allowable torque: 33-6,370 N·m	Max. angular misalignment: 0.5° Allowable torque: 3,840-178,000 N·m	Max. angular misalignment: 0.25° Allowable torque: 16,400-313,000 N·m
Shape	Shape	Shape
Type A 	Type G 	Type U 
Performance	Performance	Performance
Max. angular misalignment: 0.7° Allowable torque: 569-128,000 N·m	Max. angular misalignment: 0.35° Allowable torque: 13,500-256,000 N·m	Number of bolts: 10-20. Number is determined based on service conditions. Consult us for further information. Max. torque: 1,962×10³ N·m
Shape	Shape	Shape
Type E 	Type S 	Type W 

Design features of 4-bolt coupling



Standard materials are shown in parentheses.

Design features of 6-12-bolt coupling

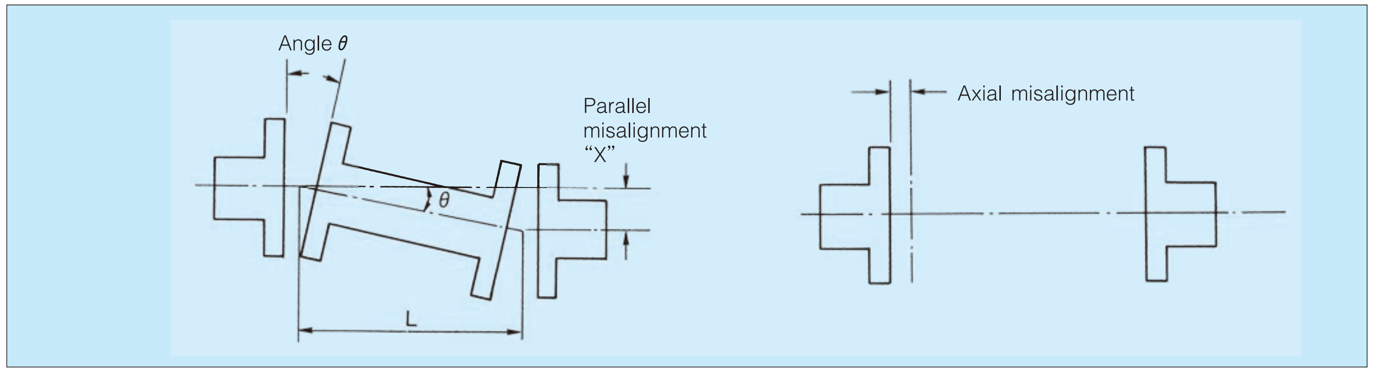


※Install bolts in an easy-to-insert direction.

Standard materials are shown in parentheses.

PERFORMANCE

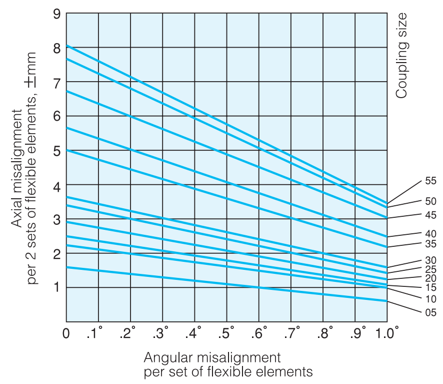
Allowances for axial and parallel misalignment of couplings depend on the number of bolts in the flexible element and operating speed. Axial and parallel misalignment are in inverse proportion; in other words, when one increases, the other decreases. Therefore, the two should be taken into consideration concurrently. The parallel misalignment between the driving and driven shafts is absorbed by the angle (θ) of the flexible element, as shown in the following diagram.



Maximum parallel misalignment=L×tan θ L: distance between element centers

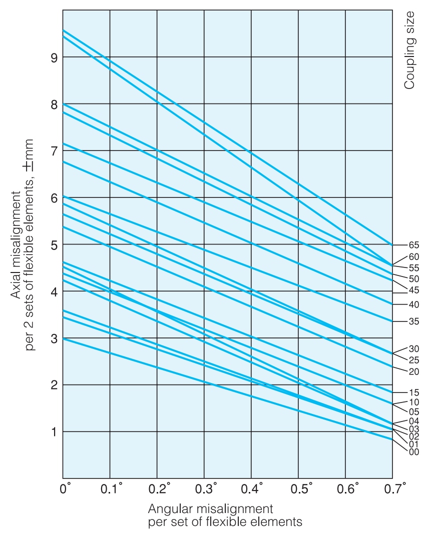
End Float

Type A

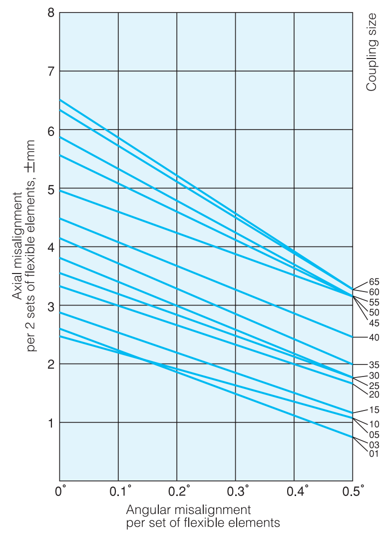


Most driving equipment requires the absorption of axial misalignment (end float). FORM-FLEX COUPLINGS permit great axial misalignment with minimum end thrust. The graphs show the degrees of maximum allowable axial misalignment in relation to various amounts of angular misalignment. Good durability of the couplings is secured by working within the indicated limits. FORM-FLEX COUPLINGS can satisfy NEMA Standards MG1-14.37 without the use of a button or shoulder, which restricts axial misalignment. (FORM-FLEX COUPLINGS do not require any accessory equipment to correct misalignment in the thrust direction when the motor starts.)

Type E



Type G

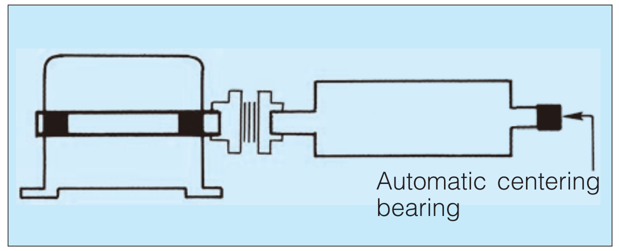


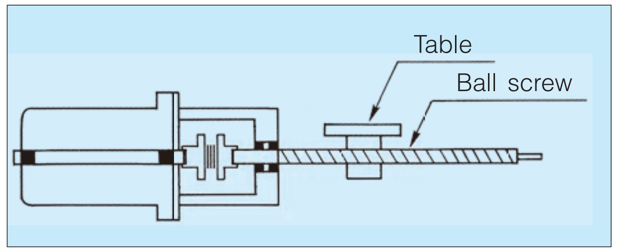
PRODUCT LINE AND USAGE

● Single Flexing Couplings

A3 E3 G3

The single flexing coupling is for use in the case where shafts are supported by three bearings. The coupling shown in the diagram on the right above is suitable for use in cases subject to great radial loads. To connect the servo-motor used in NC machine tools with the ball screw, an exceptional usage of the coupling as shown in the diagram below on the right is possible.
In this case, parallel misalignment is controlled by fitting the motor in a line with the casing; the coupling is used mainly for the absorption of angular and axial misalignment. This may overload the element; therefore, in this case, it is necessary to use a square element which absorbs misalignment, such as that in the FORM-FLEX COUPLING.

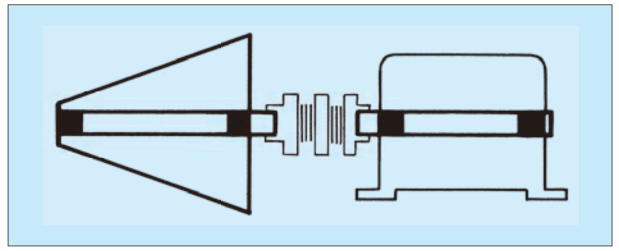




● Double Flexing Couplings

AX A4 AB E4 EB G4 GB

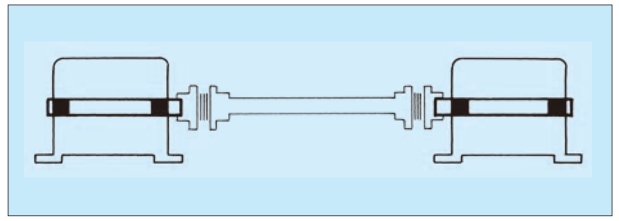
These are required for mounting between two pieces of equipment having two bearings each. The two inner bearings must be positioned at an appropriate distance from the hub.



● Full Floating Shaft Couplings

A5 A6 E5 E6 G5 G6

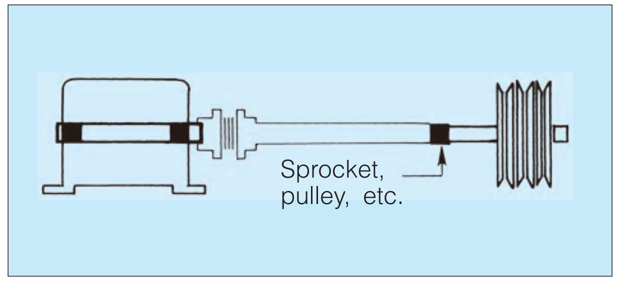
These couplings are preferred in cases where power is transmitted between machines separated by some distance.



● Semi-floating Shaft Couplings

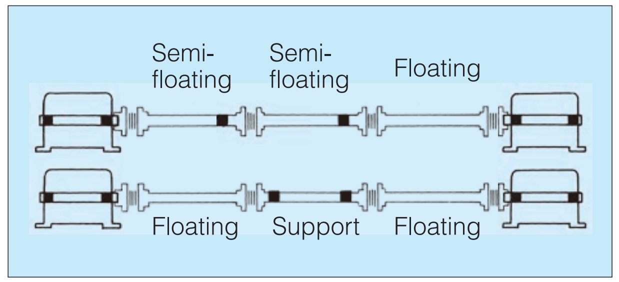
A7 E7 G7

A reference for the usage of these couplings is shown in the left illustraion. In this case, the shaft of the coupling is supported with a single bearing, arranged as closely as possible to the outer sprocket or pulley. The flex elements permit radial loads as does A3.



● Twin Shaft Coupling

A semi-floating shaft coupling is combined with a floating shaft coupling to make the twin shaft coupling, which is suitable for a long-span connection between two pieces of equipment.



METHOD OF SELECTION

1. Determine the length of the spacer and select the most suitable type for this length.
2. Precisely determine the load torque (refer to the equation below).
3. Determine the load coefficient (refer to Table 1.)
4. Calculate the design torque by multiplying the load torque by the load coefficient.
5. Select a coupling size equal to or greater than the design torque.
6. Verify that the shaft diameter is within the E-max. (maximum shaft bore diameter) limits.
7. Check for the existence of space limitations.
8. Check the end-float.
9. For floating-type couplings, verify that the distance between the shaft ends is less than D-max. (maximum distance between shafts) at dangerous rotation speeds.
10. Check whether dynamic balancing is necessary.

Equation: $T = 9550 \cdot \frac{KW}{min^{-1}}$ (N·m)

Torque : T
Power : KW
Speed : min^{-1}

LOAD COEFFICIENT

Load coefficient is an important consideration when selecting a coupling. Standard load coefficients for comparatively smoothly operating drives such as electric motors, and steam and gas turbines are as given below. These load coefficients may change depending on the application and/or conditions under which the equipment is operated. Therefore, the load coefficients should be used strictly as general criteria.

Table 1. Load coefficient according to type of machinery

Application	Load coefficient
Compressor	
Centrifugal	1.5
Reciprocating (multi-cylinder)	3.0
Printing machine	2.0
Elevator	
Escalator	1.5
Freight	2.0
Extrusion press	
For plastic	2.0
For metal	2.5
Agitator	
Pure liquid	1.0
Liquid with variable concentration	1.5
Canning machine	1.0
Metal-working machine	
Bending roll	2.0
Planer	2.0
Punch press (gear-driven)	3.0
Machine tool	
Main drive	2.0
Auxiliary drive	1.5
Draw bench (carriage)	3.0
Draw bench (main drive)	3.0
Forming machine	3.0
Slitter	2.0
Table conveyor	
Non-reversing	3.0
Reversing	4.0
Wire-drawing machine	3.0
Wire-winding machine	2.5
Conveyor	
Apron	2.0
Belt	2.0
Disk	2.0
Bucket (on floor)	1.5
Chain	2.0
Reciprocating	3.0
Screw	2.0
Water supply & sewage disposal equipment	
Pump	1.5
Tractor	1.5
Rubber industry	
Mixer (Banbury)	3.0
Rubber calender	2.0
Rubber mill	3.0
Sheeter	2.0
Tire-building machine	3.0
Tire-tube press opener	1.0
Tuber and strainer	2.0
Dredge	
Cable reel	2.0
Conveyor	2.0
Cutter-head drive	3.0
Jig drive	3.0
Maneuvering winch	2.0
Pump	2.0
Screen drive	2.0
Stacker	2.0
Utility winch	2.0
Food industry	
Beet slicer	2.0
Cereal cooker	1.5
Dough mixer	2.0
Meat grinder	2.0
Screen	
Air washing	1.0
Rotary (stone or gravel)	1.5
Vibrating	3.0
Lumber industry	
Barker (drum type)	2.5
Edger feed	2.0
Live roll	2.0
Log conveyor	2.0
Off-bearing roll	2.0
Planer	2.0
Slab conveyor	2.0
Sorting table	1.5
Deburring machine	2.0
Paper mill	
Barker	2.5
Beater and pulper	2.0
Bleacher	1.5
Calender	2.0
Couch	2.5
Cylinder	2.5
Dryer	2.5
Felt stretcher	1.5
Felt whipper	2.5
Jordan	2.0
Press	2.5
Reel	2.0
Stock chest	2.0
Suction roll	2.5
Washer and thickener	2.0
Winder	2.0
Iron and steel making equipment	
Bloom or slab shear	3.0
Chain transfer	2.0
Cold rolling mill (tandem)	3.0
Continuous casting oscillation	3.0
Cooling bed	2.0
Crop shear	3.0
Descaler	3.0
Medium & small-size rolling mill (tandem)	3.0
Manipulator	3.0
Roller table (high load)	3.0
Roller table (low load)	2.0
Pipe welding machine	3.0
Oil industry	
Chiller	1.5
Oil well pump	2.0
Paraffin filter press	2.0
Rotary kiln	2.0
Cutter (for plant stems)	2.0
Textile industry	
Batcher	1.5
Calender	2.0
Carding machine	1.5
Cloth finishing machine	1.5
Dry can	2.0
Dryer	2.0
Washing machine	
Reversing type	2.0
Crusher	
Ore	3.5
Stone	3.5
Generator (for general use)	1.5
Hammer mill	3.0
Fan and blower	
Centrifugal	1.0–1.5
Cooling tower (forced draft)	2.0
Induced draft	2.0
Lobe	1.5
Vane	1.5
Briquetting machine	2.0
Crusher (powder)	
Ball mill	2.5
Cement kiln	2.0
Dryer and cooler	2.0
Kiln	2.0
Pebble	2.0
Rod mill	2.0
Tumbling barrel	2.0
Pump	
Centrifugal	1.0–2.0
Reciprocating	
Double-action	2.5
Single-action	
1 or 2 cylinders	3.0
3 or more cylinders	2.5
Rotary (gear, lobe, vane)	1.5
Winch	2.0
Mixer	
Concrete mixer	2.0
Drum	2.0

Table 2. Coefficient for fluctuating loads

For machines with fluctuating torques, add the values shown below to the appropriate load coefficient given in Table 1.

Medium fluctuating load	Torque fluctuates frequently during operation (motor starts and stops are frequent).	0.5
Heavy fluctuating load	Shock loads and heavy torque fluctuations occur frequently.	1.0
Impact load	Impact loads are frequently imposed (gap between torque and counter-torque is large).	1.5 or more

TYPES OF COUPLINGS

Usage / Type of hub and spacer \ Number of bolts		4	6	8	10	12	10～20
Single flexing		A 3	E 3	G 3	S 3	U 3	W 3
Double flexing	With minimum length spacer	A X	——	——	——	——	——
	With standard length spacer	A 4	E 4	G 4	S 4	U 4	W 4
	With custom length spacer	A B	E B	G B	S B	U B	W B
Floating shaft	Horizontal use	A 5	E 5	G 5	S 5	U 5	W 5
	Vertical use	A 6	E 6	G 6	S 6	U 6	W 6
Semi-floating shaft		A 7	E 7	G 7	S 7	U 7	W 7
Range of torque (N·m)		33～ 6,370	569～ 128,000	3,840～ 178,000	13,500～ 256,000	16,400～ 313,000	Max. $1,962\times10^3$

AB—45—ZN—100K／60S68—275

Type symbol (refer to above table)

Size

Type of hub

N: Standard P: Elongated boss
Z: Enlarged boss diameter
K: Combination of P and Z
S: Specially designed
The above items are indicated in order of driving side followed by driven side.

State of shaft bore

Numbers denote shaft bore diameter (mm)
K: With key groove
S: Spannelement used
The above items are indicated in order of driving side followed by driven side.

When the rough bore is of the standard size shown in the brochure, this item is omitted.

Distance between shaft ends (mm)

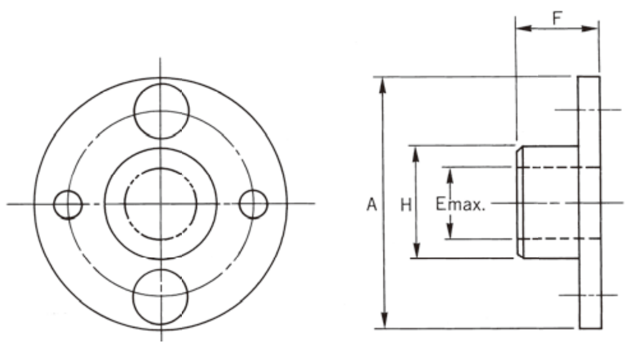
DIMENSIONS OF HUB TYPE A

Hubs are available in several different types for various applications. Hub designations are indicated as “H”(hub), “Z”, “P”, “K”, or “Y” (denoting hub type), and part number (i.e. HY04, HK10).

Features:

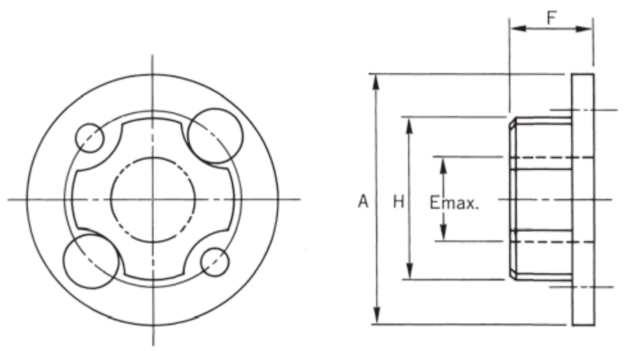
- HN: standard hub
- HZ: enlarged boss diameter H for enlarged shaft bore
- HP: longer boss length F
- HK: combination of HP and HZ
- HY: enlarged shaft bore and particularly large hub clearance angle for easy handling; convenient for installation in small spaces.

Dimensions of HN and HP



Size No.	Part No.	A (mm)	F (mm)		H (mm)	E max. (mm)	Rough Bore Size (mm)
			HN	HP			
05	01	67	25.4	40	33	23	8
10	02	81	25.4	40	46	32	10
15	03	93	28.7	45	51	35	10
20	04	104	33.5	50	61	42	10
25	05	126	41.1	60	71	50	16
30	06	143	47.8	70	84	58	16
35	07	168	57.2	85	106	74	25
40	08	194	63.5	100	119	83	25
45	09	214	76.2	115	137	95	45
50	10	246	88.9	135	157	109	50
55	11	276	101.6	150	170	118	50

Dimensions of HZ, HK, and HY



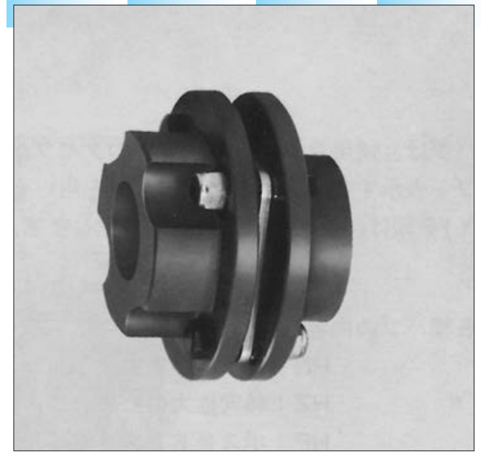
Size No.	Part No.	A (mm)	F (mm)		H (mm)		E max. (mm)		Rough Bore Size (mm)
			HZ	HK	HZ, HK	HY	HZ, HK	HY	
05	01	67	25.4	40	47		28		10
10	02	81	25.4	40	58		40		10
15	03	93	28.7	45	66	66	HK-42	40	13
20	04	104	33.5	50	77	73	48	44	16
25	05	126	41.1	60	92		60		16
30	06	143	47.8	70	104		70		16
35	07	168	57.2	85	129		85		25
40	08	194	63.5	100	147		95		25
45	09	214	76.2	115	166		110		50
50	10	246	88.9	135	191		120		50
55	11	276	101.6	150	209		130		50

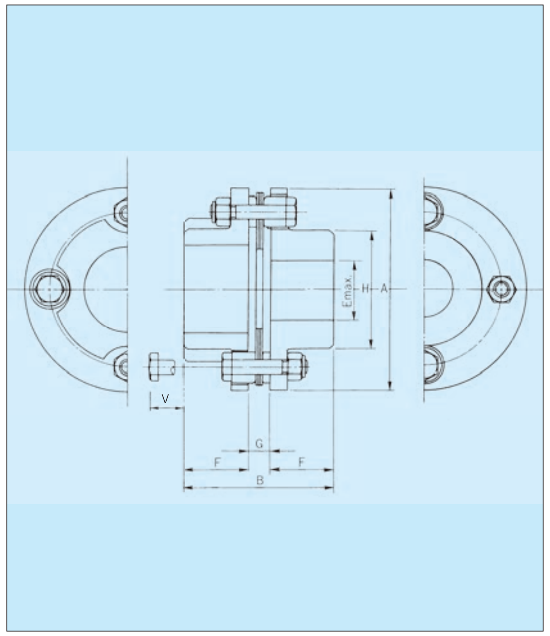
Notes) 1. HY is available in sizes 15 and 20 only.
2. HZ size 15 is out of production; it has been superseded by HY size 15.

TYPE A
4-Bolt
A3

SINGLE FLEXING COUPLING

The single flexing coupling is designed to compensate for an angular misalignment of up to 1° maximum. It can operate at high speeds and under heavy loads while supporting radial loads. Typical installations include coupling of shafts, one of which is supported by bearings at two points and the other supported by only one bearing, as seen in motor generator sets.





Size (standard hub)

Size No.	Part No.	A (mm)	B (mm)	Emax (mm)	F (mm)	G (mm)	H (mm)	V (mm)	Rough Bore Size (mm)
05	01	67	56.9	23	25.4	6.1	33	13	8
10	02	81	57.4	32	25.4	6.6	46	16	10
15	03	93	65.8	35	28.7	8.4	51	22	10
20	04	104	78.2	42	33.5	11.2	61	20	10
25	05	126	93.9	50	41.1	11.7	71	25	16
30	06	143	107.3	58	47.8	11.7	84	28	16
35	07	168	131.2	74	57.2	16.8	106	23	25
40	08	194	144.0	83	63.5	17.0	119	30	25
45	09	214	174.0	95	76.2	21.6	137	22	45
50	10	246	201.7	109	88.9	23.9	157	23	50
55	11	276	230.4	118	101.6	27.2	170	40	50

Specifications (standard hub)

Size No.	Allowable Torque (N·m)				Maximum Allowable Radial Load (N)	(1) Maximum Rotation (min^{-1})	Mass (kg)	Morment of Inertia J (kg·m^2)	Torsional Stiffness (N·m/rad)	(2) Axial Spring Constant (N/mm)
	No Radial Load	1/2 Radial Load	2/2 Radial Load	Maximum Radial Load						
05	33	15	12	8	147	47,000	0.6	0.0002	2.2×10^4	40
10	90	40	31	23	245	39,000	1.1	0.0006	6.2×10^4	59
15	177	79	62	44	549	34,000	1.7	0.0012	14.7×10^4	141
20	245	111	85	59	814	30,000	2.5	0.0020	23.5×10^4	168
25	422	189	157	108	1180	25,000	4.3	0.0056	42.2×10^4	219
30	775	348	271	196	1770	22,000	6.9	0.0110	68.6×10^4	307
35	1270	574	446	319	2650	19,000	11.3	0.0270	127.5×10^4	355
40	2060	927	720	515	3730	16,000	16.7	0.0520	205.9×10^4	440
45	3330	1500	1170	834	4410	15,000	22.7	0.0880	294.2×10^4	470
50	4900	2210	1680	1230	5980	13,000	35.4	0.1800	431.5×10^4	537
55	6370	2860	2230	1600	7550	11,000	52.0	0.3200	578.6×10^4	561

(1) Maximum rotation speeds are based on rim stress with no consideration given to requirements for dynamic balancing.
(2) Values become linear when torque changes while within the zone of maximum allowable torque specified in this catalogue.

Bolt fastening torque

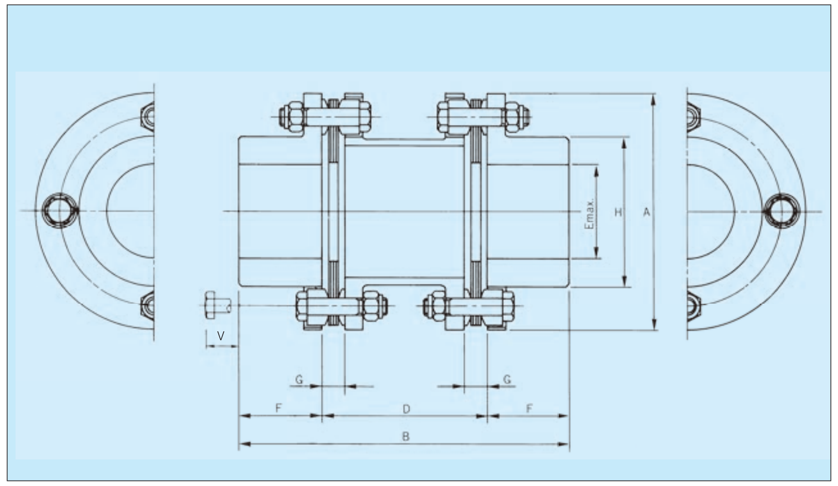
Size No.	05	10	15	20	25	30	35	40	45	50	55
Bolt Head Diameter (mm)	10	10	13	13	17	19	19	24	24	27	36
Fastening Torque (N·m)	9	9	22	22	41	72	72	160	160	220	570

TYPE A
4-Bolt

DOUBLE FLEXING COUPLING

AX (with minimum length spacer)
AB (with custom length spacer)
A4 (with standard length spacer)

Angular misalignment of up to 1° on one side is allowable.



The standard dynamic balance of this coupling is in accordance with JIS G-6.3 (1,800 rpm).

Size

Sizes are the same as those shown on the previous page.

Specifications

Common Factors AX, A4, AB				AX				A4				AB		
Size No.	Torque (N·m)	(1) Maximum Rotation (min^{-1})	(2) Axial Spring Constant (N/mm)	D (mm)	Mass (kg)	Morment of Inertia J (kg·m^2)	Torsional Stiffness (N·m/rad)	D (mm)	Mass (kg)	Morment of Inertia J (kg·m^2)	Torsional Stiffness (N·m/rad)	B (mm)	(3) D (mm)	D max (mm)
05	33	47,000	21	36	1.1	0.00045	1.1×10^4	88.9	1.2	0.00045	0.9	2F+D	Desired Distance between shaft ends	200
10	90	39,000	29	39	1.7	0.00103	3.0×10^4	88.9	1.9	0.00110	2.7			200
15	177	34,000	71	47	2.7	0.00198	7.1×10^4	101.6	2.9	0.00210	6.1			250
20	245	30,000	83	53	3.7	0.00340	11.4×10^4	127.0	4.1	0.00370	9.3			250
25	422	25,000	109	62	6.6	0.00943	20.2×10^4	127.0	7.1	0.00990	17.1			250
30	775	22,000	153	69	10.3	0.01938	32.5×10^4	127.0	10.8	0.02000	27.7			300
35	1270	19,000	178	78	15.6	0.04070	61.4×10^4	127.0	16.3	0.04200	55.1			300
40	2060	16,000	220	89	24.0	0.08293	97.7×10^4	139.7	24.7	0.08500	87.2			350
45	3330	15,000	234	97	31.5	0.13570	141.6×10^4	152.4	32.5	0.14000	128.8			350
50	4900	13,000	269	109	48.4	0.27163	207.5×10^4	177.8	50.0	0.28000	185.9			350
55	6370	11,000	280	134	73.9	0.50318	274.9×10^4	177.8	75.0	0.51000	255.5			400

(1) Maximum rotation speeds are based on rim stress.
(2) Values become linear when torque changes while within the zone of maximum allowable torque specified in this catalog.
(3) Spacers in accordance with ISO standards are available; extra-short spacers under the minimum length spacer are also available.

AB-type spacer availability

	ISO Type Spacer D (mm)					Special Stock D (mm)			
Size No.	100	140	180	200	250	80	110	127	130
10	○	○				○		○	
15	○	○							
20	○	○						●	
25	○	○	○	○	○		○	●	
30		○	○	○	○		○	●	
35		○	○	○	○			●	○
40		○	○	○					○
45			○	○					

○: standard stock

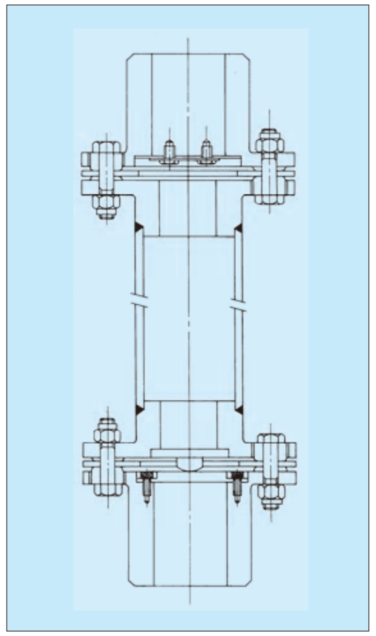
TYPE A
4-Bolt
A5 A7
A6

FLOATING SHAFT COUPLING

The floating shaft coupling transmits power between widely separated machines or where large parallel misalignment exists. Allowable rotation speed is determined according to the span and balance of the couplings. Balancing is necessary for high-speed operation and/or for long shafts. Floating shaft couplings are available in the following type designations for various applications.

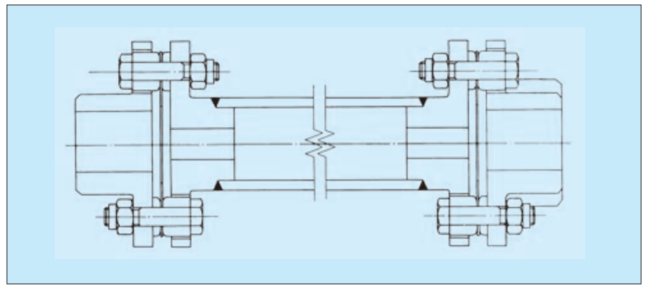
Application	Type Designaion
Horizontal floating shaft coupling	5
Vertical floating shaft coupling	6
Semi-floating shaft coupling	7

A6 Vertical floating shaft coupling



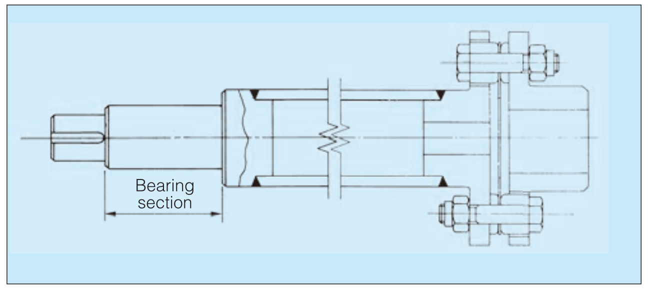
Basically the same as A5, but a thrust-absorbing mechanism (thrust button) which bears the floating shaft weight may be required.

A5 Horizontal floating shaft coupling



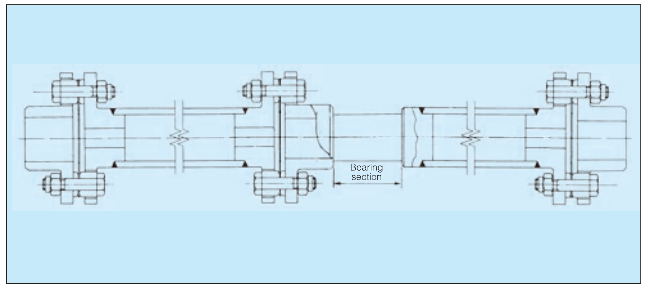
This is a long-span coupling welded to a hollow shaft. The hub should be positioned appropriately close to the bearing. The intermediate floating shaft must not be supported by the bearing.

A7 Semi-floating shaft coupling



This coupling is joined with one solid shaft end and one hollow shaft end mounted with a single flexing unit. The use of this coupling for a line drive having multiple shaft spans allows a reduced number of bearings. Moreover, the flexibility of the flexible element minimizes the load on the bearings. For a multiple-shaft span system, at least one A5 or one A6 should be used. Let us know complete size requirements when placing your order.

A5/A7 Twin shaft coupling



This type is a combination of the semi-floating shaft coupling and A5 or A6. When it is necessary to install an intermediate bearing because of rotation speed and span, use of this type eliminates the need for a design using large sizes.

Specifications for floating coupling

Size No.	S (cm)	(1) Mass (kg) M_1S	(1) Mass (kg) M_2 Addition	(2) Morment of Inertia J (kg·m²) J_1S	(2) Morment of Inertia J (kg·m²) J_2 Addition	(3) Torsional Stiffness Coefficient K	(3) Torsional Stiffness Coefficient Y
10	7.22	1.9	0.029	12.5	0.00001	0.3	11.0
15	7.58	3.0	0.032	24.5	0.00001	0.8	14.8
20	8.84	4.3	0.039	42.0	0.00003	1.2	28.1
25	9.94	7.5	0.075	110.5	0.00007	2.2	70.3
30	11.14	11.7	0.110	230.5	0.00015	3.4	151.0
35	14.16	18.7	0.139	508.0	0.00031	6.4	307.9
40	15.40	28.3	0.161	959.8	0.00048	10.3	479.5
45	18.32	38.3	0.186	1714.3	0.00074	14.7	740.4
50	21.18	58.2	0.250	3409.8	0.00132	21.6	1316.1
55	23.44	81.9	0.310	6388.0	0.00191	28.9	1909.4

(1) Total mass M (kg) should be calculated using the following equation:
$M = M_1S + L \times (M_2 \text{ Addition})$
L: D − S (cm)

(2) Total morment of inertia J ($kg \cdot m^2$) should be calculated using the following equation:
$J = J_1S + L \times (J_2 \text{ Addition})$

(3) Total torsional stiffness of the coupling T/θ (N·m/rad) should be calculated using the following equation:

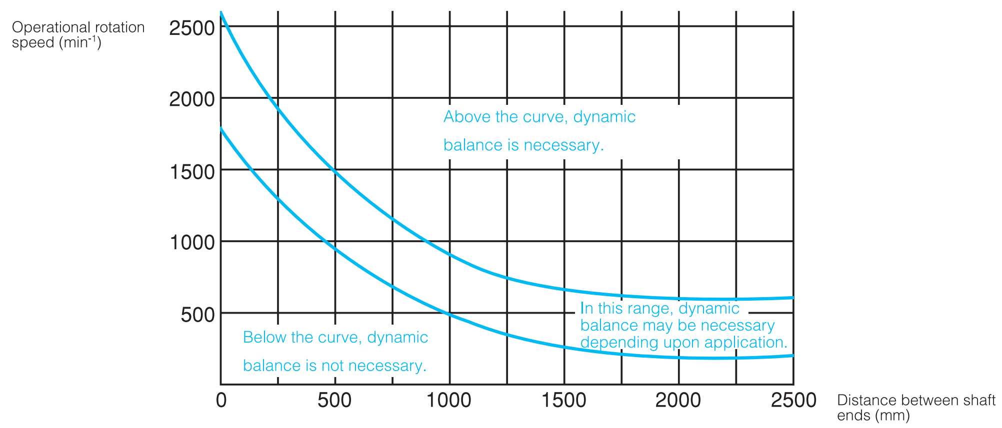
$$T/\theta = \left(\frac{K \times Y}{L \times K + Y} \right) \times 10^5$$

Rotation limitations for standard floating shaft coupling

Size No.	Maximum Shaft Diameter (mm) Standard Hub	Maximum Shaft Diameter (mm) Z (K) Hub	Maximum Span D max (mm) for Various Speed (min^{-1}) 1800 (min^{-1})	1500 (min^{-1})	1200 (min^{-1})	1000 (min^{-1})	900 (min^{-1})	750 (min^{-1})	720 (min^{-1})	600 (min^{-1})	500 (min^{-1})
10	32	40	1610	1760	1970	2160	2280	2500	2550	2790	3060
15	35	40	1690	1850	2070	2270	2390	2620	2670	2930	3210
20	42	48	1880	2050	2300	2520	2650	2910	2970	3250	3560
25	50	60	2010	2210	2470	2700	2850	3120	3190	3490	3830
30	58	70	2220	2430	2720	2980	3140	3440	3510	3850	4210
35	74	85	2500	2740	3060	3350	3540	3870	3950	4330	4750
40	83	95	2690	2950	3300	3610	3800	4180	4250	4660	5120
45	95	110	2890	3170	3540	3880	4090	4490	4570	5010	5500
50	109	120	3100	3400	3800	4160	4390	4820	4910	5370	5900
55	118	130	3230	3540	3960	4330	4560	5010	5100	5590	

Notes:
1. Do not use floating shaft couplings with long, overhanging shafts. Please consult us when D dimension exceeds 6,000 mm.
2. Rotation speed limits shown in the table refer to couplings using our standard pipe. For rotation speeds over this limit, please consult us.

Dynamic balance



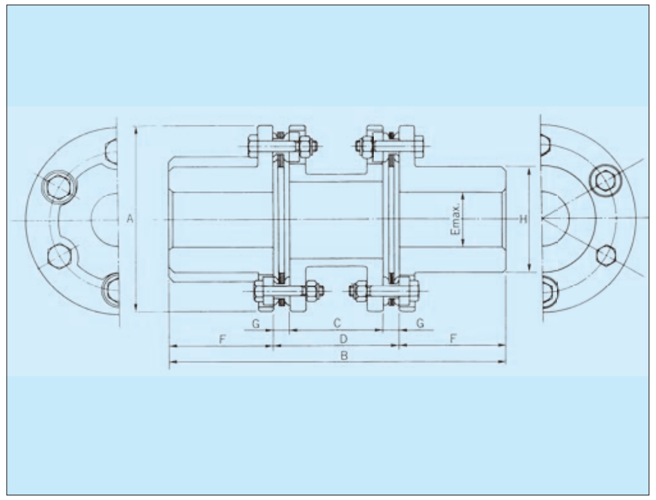
TYPE E
6-Bolt

E4 EB
E5 E6

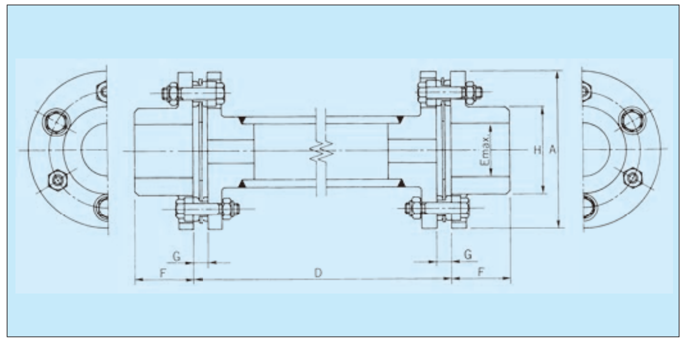
DOUBLE FLEXING COUPLING AND FLOATING SHAFT COUPLING

Angular misalignment of up to 0.7° on one side is allowable.

E 4 (with standard length spacer)
E B (with custom length spacer)



E 5 (horizontal floating shaft type)
E 6 (vertical floating shaft type)



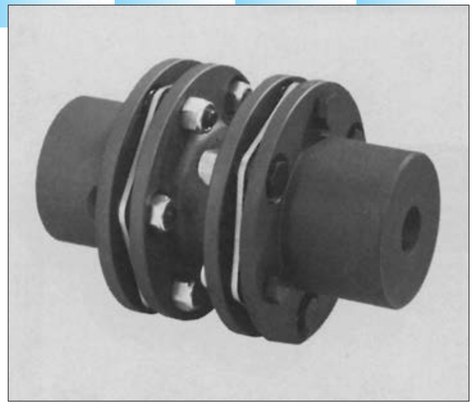
Size data for standard length spacer coupling (with standard hub)

Size No.	Part No.	Torque (N·m)	A (mm)	B (mm)	C (mm)	(1) D (mm)	E max (mm)	F (mm)	G (mm)	H (mm)	Max (min⁻¹)	Mass (kg)	Morment of Inertia J (kg·m²)	Torsional Stiffness (N·m/rad)	(2) Allowable End Float (±mm)	(3) Axial Spring Constant (N/mm)
00	12	569	119	168	39.4	60	51	54	10.3	74	26000	6.0	0.01	4.4×10^5	3.0	162
01	13	922	137	198	50.0	72	55	63	11.0	81	23000	9.1	0.02	6.8×10^5	3.4	207
02	14	1710	161	238	67.2	90	67	74	11.4	97	19000	16.9	0.04	9.2×10^5	3.6	275
03	16	3340	180	269	82.4	109	72	80	13.3	104	17000	21.6	0.07	15.8×10^5	4.2	448
04	18	6210	212	308	87.6	118	85	95	15.2	124	15000	35.1	0.15	30.8×10^5	4.5	594
05	21	6080	276	377	118	153	111	112	17.5	161	11600	65.1	0.5	39.0×10^5	3.9	414
10	22	8240	276	377	115	153	111	112	19.0	161	11600	66.1	0.5	48.5×10^5	3.9	583
15	23	10700	308	440	134	172	133	134	19.0	193	10300	107.8	0.9	72.0×10^5	4.2	559
20	24	17800	346	497	148	191	152	153	21.5	218	9200	156.1	1.7	119.6×10^5	4.9	747
25	25	26400	375	553	175	223	165	165	24.0	240	8500	211.8	2.7	166.7×10^5	5.2	840
30	26	33400	410	610	195	254	178	178	29.5	258	7800	274.5	4.1	212.8×10^5	5.4	973
35	27	39900	445	646	211	270	187	188	29.5	272	7200	333.3	6.0	239.3×10^5	5.6	1010
40	28	46300	470	686	212	274	205	206	31.0	297	6800	399.2	7.7	293.2×10^5	6.3	1000
45	29	59800	511	749	223	287	231	231	32.0	334	6200	525.3	12.0	378.5×10^5	6.7	986
50	30	74700	556	800	227	292	254	254	32.5	364	5700	676.3	18.2	470.7×10^5	7.3	1110
55	31	92600	587	839	243	311	263	264	34.0	382	5400	803.4	25.2	597.2×10^5	7.8	1210
60	32	107000	629	895	274	343	275	276	34.5	399	5000	954.1	34.4	647.2×10^5	8.7	1280
65	33	128000	654	934	285	356	289	289	35.5	419	4800	1095.3	44.2	782.6×10^5	8.9	1360

(1) D is available in optional lengths upon request (Type EB).
(2) Figures in the table indicate conditions of maximum rotation speed and a parallel misalignment of 2/1,000.
(3) Values given are for maximum torque conditions.

Specifications for floating coupling

Size No.	S (cm)	(1) Mass (kg) M_1S	M_2 Addition	(2) Morment of Inertia J (kg·m²) J_1S	J_2 Addition	(3) Torsional Stiffness Coefficient K	Y
00	9.7	5.0	0.075	0.01	0.0001	5.0	70.6
01	11.0	8.1	0.110	0.02	0.0002	8.1	151.0
02	12.9	14.5	0.139	0.04	0.0003	13.1	307.9
03	14.1	19.5	0.161	0.07	0.0005	25.1	479.5
04	15.0	29.5	0.161	0.15	0.0005	38.8	479.5
05	25.5	81	0.25	0.5	0.001	33.6	1316.1
10	25.8	82	0.25	0.5	0.001	40.5	1316.1
15	27.8	128	0.31	1.1	0.002	56.7	1909.4
20	28.3	200	0.42	2.0	0.005	148.2	4552.2
25	30.8	254	0.42	3.1	0.005	193.9	4552.2
30	31.9	300	0.64	4.7	0.007	164.6	6618.5
35	33.9	395	0.59	6.7	0.010	223.4	9847.8
40	34.2	463	0.59	8.5	0.010	263.4	9847.8
45	36.4	643	0.78	13.0	0.019	341.3	18566.9
50	36.5	788	0.94	19.6	0.029	412.9	27943.1
55	40.8	910	0.94	26.9	0.029	495.4	27943.1
60	40.9	1,049	0.94	36.1	0.029	531.4	27943.1
65	43.1	1,307	1.23	45.6	0.048	712.9	47717.2



(1) Total mass M (kg) should be calculated using the following equation:
$M=M_1S+L\times(M_2\text{ Addition})$
L: D−S (cm)
(2) Total morment of inertia J (kg·m²) should be calculated using the following equation:
$J=J_1S+L\times(J_2\text{ Addition})$
(3) Total torsional stiffness of the coupling T/θ (N·m/rad) should be calculated using the following equation:
$$T/\theta=\left(\frac{K\times Y}{L\times K+Y}\right)\times10^5$$

Rotation limitations for standard floating shaft coupling

Size No.	Maximum Shaft Diameter (mm)	Maximum distance between shaft ends D max (mm) for various speeds (min⁻¹) 1800 (min⁻¹)	1500 (min⁻¹)	1200 (min⁻¹)	1000 (min⁻¹)	900 (min⁻¹)	750 (min⁻¹)	720 (min⁻¹)	600 (min⁻¹)	500 (min⁻¹)
00	51	2010	2210	2470	2700	2850	3120	3190	3490	3830
01	55	2220	2430	2720	2980	3140	3440	3510	3850	4210
02	67	2500	2740	3060	3350	3540	3870	3950	4330	4750
03	72	2890	3170	3540	3880	4090	4490	4570	5010	5500
04	85	3100	3400	3800	4160	4390	4820	4910	5370	5900
05	111	3100	3400	3800	4160	4390	4820	4910	5370	5900
10	111	3100	3400	3800	4160	4390	4820	4910	5370	5900
15	133	3230	3540	3960	4330	4560	5010	5100	5590	
20	152	3720	4070	4560	4990	5250	5770	5880		
25	165	3720	4070	4560	4990	5250	5770	5880		
30	178	3680	4030	4510	4940	5200	5710	5810		
35	187	4140	4540	5070	5560	5850				
40	205	4140	4540	5070	5560	5850				
45	231	4530	4960	5540						
50	254	4790	5240	5860						
55	263	4790	5240	5860						
60	275	4790	5240	5860						
65	289	5120	5600							

Please consult us when D dimension exceeds 6,000 mm.

Notes: 1. Do not use floating shaft couplings with long, overhanging shafts. Please consult us when D exceeds 6,000 mm.
2. Rotation speed limits shown in the table refer to couplings using our standard pipe. For rotation speeds over this limit, please consult us.

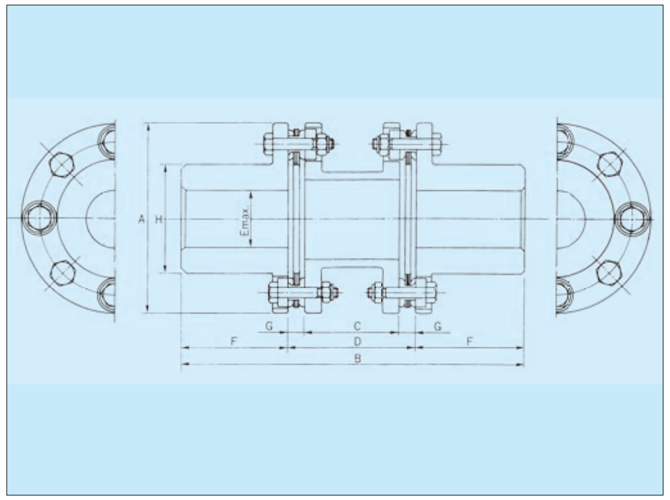
Bolt fastening torque

Size No.	00	01	02	03	04	05	10	15	20	25	30	35	40	45	50	55	60	65
Bolt-head Diameter (mm)	13	17	19	24	27	27	27	32	36	46	50	55	55	60	65	70	75	80
Fastening Torque (N·m)	22	41	72	160	220	220	220	440	570	1100	1500	1700	1700	1700	3000	3500	3700	4000

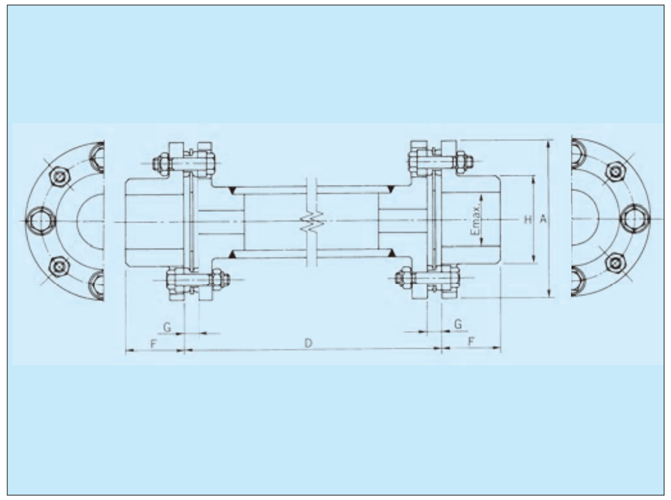
DOUBLE FLEXING COUPLING AND FLOATING COUPLING

Angular misalignment of up to 0.5° on one side are allowable.

G 4 (with standard length spacer)
G B (with custom length spacer)



G 5 (horizontal floating shaft type)
G 6 (vertical floating shaft type)



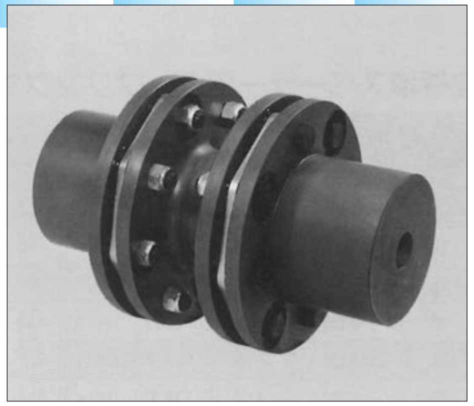
Size data for standard length spacer coupling (with standard hub)

Size No.	Part No.	Torque (N·m)	A (mm)	B (mm)	C (mm)	(1) D (mm)	E max (mm)	F (mm)	G (mm)	H (mm)	Max (min⁻¹)	Mass (kg)	Morment of Inertia J (kg·m²)	Torsional Stiffness (N·m/rad)	(2) Allowable End Float (±mm)	(3) Axial Spring Constant (N/mm)
01	37	3840	214	333	92.6	117	95	108	12.2	137	15000	38.0	0.16	34.4×10^5	2.1	421
03	39	7120	246	369	99.6	127	108	121	13.7	156	13000	55.5	0.31	60.9×10^5	2.1	578
05	41	8970	276	421	118	153	111	134	17.5	161	11600	72.2	0.45	55.5×10^5	2.1	840
10	42	11800	276	421	115	153	111	134	19.0	161	11600	73.3	0.45	69.8×10^5	2.1	1140
15	43	15400	308	492	134	172	133	160	19.0	193	10300	119.7	0.93	108.9×10^5	2.4	1130
20	44	25600	346	557	148	191	152	183	21.5	218	9200	174.3	1.70	178.5×10^5	2.9	1490
25	45	37800	375	619	175	223	165	198	24.0	240	8500	233.8	2.70	249.1×10^5	3.1	1830
30	46	47800	410	682	195	254	178	214	29.5	258	7800	305.3	4.18	309.9×10^5	3.3	1960
35	47	57100	445	720	211	270	187	225	29.5	272	7200	367.4	6.25	353.0×10^5	3.6	2090
40	48	64400	470	768	212	274	205	247	31.0	297	6800	447.5	7.78	447.2×10^5	4.0	1930
45	49	83700	511	843	223	287	231	278	32.0	334	6200	591.6	12.00	582.5×10^5	4.5	2080
50	50	103000	556	902	227	292	254	305	32.5	364	5700	761.4	18.68	738.4×10^5	5.0	2040
55	51	128000	587	945	243	311	263	317	34.0	382	5400	901.9	25.40	946.3×10^5	5.2	2260
60	52	149000	629	1005	274	343	275	331	34.5	399	5000	1067.6	34.65	1000.3×10^5	5.6	2450
65	53	178000	654	1050	285	356	289	347	35.5	419	4800	1230.7	44.60	1216.0×10^5	5.7	2670

(1) D is available in optional lengths upon request (Type GB).
(2) Figures in the table indicate conditions of maximum rotation speed and a parallel misalignment of 2/1,000.
(3) Values given are for maximum torque conditions.

Specifications for floating coupling

Size No.	S (cm)	(1) Mass (kg) M₁S	(1) Mass (kg) M₂ Addition	(2) Morment of Inertia J (kg·m²) J₁S	(2) Morment of Inertia J (kg·m²) J₂ Addition	(3) Torsional Stiffness Coefficient K	(3) Torsional Stiffness Coefficient Y
01	24.0	47	0.19	0.19	0.001	28.8	740.4
03	26.9	65	0.25	0.38	0.001	48.7	1316.1
05	25.5	88	0.25	0.50	0.001	45.2	1316.1
10	25.8	89	0.25	0.50	0.001	54.2	1316.1
15	27.8	140	0.31	1.05	0.002	77.4	1909.4
20	28.3	217	0.42	2.00	0.005	105.2	4552.2
25	30.8	279	0.64	3.13	0.007	185.4	6618.5
30	31.9	330	0.64	4.73	0.007	217.2	6618.5
35	33.9	432	0.94	6.73	0.029	319.7	14969.9
40	34.2	511	0.94	8.65	0.029	394.8	14969.9
45	36.4	700	1.30	12.95	0.030	498.7	29313.1
50	36.5	872	1.58	20.05	0.045	605.5	44906.6
55	40.8	1,005	1.58	27.15	0.045	714.0	44906.6
60	40.9	1,160	1.58	36.35	0.045	760.5	44906.6
65	43.1	1,435	2.03	45.93	0.075	1055.7	75346.5



(1) Total mass M (kg) should be calculated using the following equation:
$M=M_1S+L\times(M_2 \text{ Addition})$
L: D−S (cm)
(2) Total morment of inertia J ($kg\cdot m^2$) should be calculated using the following equation:
$J=J_1S+L\times(J_2 \text{ Addition})$
(3) Total torsional stiffness of the coupling T/θ ($N\cdot m/rad$) should be calculated using the following equation:

$$T/\theta=\left(\frac{K\times Y}{L\times K+Y}\right)\times10^5$$

Rotation limitations for standard floating shaft coupling

Size No.	Maximum Shaft Diameter (mm)	Maximum distance between shaft ends D max (mm) for various speeds (min⁻¹) 1800 (min⁻¹)	1500 (min⁻¹)	1200 (min⁻¹)	1000 (min⁻¹)	900 (min⁻¹)	750 (min⁻¹)	720 (min⁻¹)	600 (min⁻¹)	500 (min⁻¹)
01	95	2890	3170	3540	3880	4090	4490	4570	5010	5500
03	108	3100	3400	3800	4160	4390	4820	4910	5370	5900
05	111	3100	3400	3800	4160	4390	4820	4910	5370	5900
10	111	3100	3400	3800	4160	4390	4820	4910	5370	5900
15	133	3230	3540	3960	4330	4560	5010	5100	5590	
20	152	3720	4070	4560	4990	5250	5770	5880		
25	165	3680	4030	4510	4940	5200	5710	5810		
30	178	3680	4030	4510	4940	5200	5710	5810		
35	187	4100	4490	5020	5500	5790				
40	205	4100	4490	5020	5500	5790				
45	231	4480	4900	5480	6010					
50	254	4730	5180	5800						
55	263	4730	5180	5800						
60	275	4730	5180	5800						
65	289	5060	5540							

Please consult us when D dimension exceeds 6,000 mm.

Notes: 1. Do not use floating shaft couplings with long, overhanging shafts.
2. Rotation speed limits shown in the table refer to couplings using our standard pipe. For rotation speeds over this limit, please consult us.

Bolt fastening torque

Size No.	01	03	05	10	15	20	25	30	35	40	45	50	55	60	65
Bolt-head Diameter (mm)	19	24	27	27	32	36	46	50	55	55	60	65	70	75	80
Fastening Torque (N·m)	72	160	220	220	440	570	1100	1500	1700	1700	1700	3000	3500	3700	4000

TYPE S 10-Bolt DOUBLE FLEXING COUPLING

S4 (with standard length spacer)

Angular misalignments of up to 0.35° on one side are allowable.

Size data for standard length spacer coupling (with standard hub)

Size No.	Allowable Torque (N·m)	A (mm)	B (mm)	C (mm)	(1) D (mm)	E max (mm)	F (mm)	G (mm)	H (mm)	Maximum Rotation Speed (min^{-1})	Mass (kg)	Morment of Inertia J ($kg·m^2$)	Torsional Stiffness (N·m/rad)	Allowable End Float (2) (±mm)	Axial Spring Constant (3) (N/mm)
05	13500	276	452.4	117.6	152.4	111	150	17.4	161	11,600	83.6	0.54	7.6×10^6	3.2	1160
10	17800	276	452.4	114.6	152.4	111	150	18.9	161	11,600	85.9	0.55	10.5×10^6	3.1	1560
15	22800	308	531.5	133.6	171.5	133	180	18.9	193	10,300	139.0	1.15	13.9×10^6	3.5	1490
20	32700	346	602.5	151.9	190.5	152	206	19.3	218	9,200	196.0	2.05	21.4×10^6	4.0	1670
25	48400	375	668.3	179.1	222.3	165	223	21.6	240	8,500	260.0	3.27	29.6×10^6	4.5	2050
30	64100	410	734.0	198.4	254.0	178	240	27.8	258	7,800	336.0	5.10	34.2×10^6	4.6	2340
35	81900	445	775.2	210.6	269.2	187	253	29.3	272	7,200	406.0	7.32	44.0×10^6	5.5	2530
40	99700	470	827.8	209.3	271.8	206	278	31.2	297	6,800	501.0	9.84	59.1×10^6	6.1	2660
45	120000	511	911.0	224.5	287.0	231	312	31.2	334	6,200	676.0	15.70	74.5×10^6	6.7	2600
50	140000	556	978.1	229.6	292.1	254	343	31.2	364	5,700	866.0	23.60	93.9×10^6	7.2	2590
55	169000	587	1021.9	245.1	309.9	264	356	32.4	382	5,400	1011.0	31.30	114.1×10^6	7.6	2790
60	221000	629	1086.9	272.8	342.9	276	372	35.1	399	5,000	1195.0	42.10	133.9×10^6	8.0	3280
65	256000	654	1135.6	284.0	355.6	289	390	35.8	419	4,800	1385.0	53.20	159.6×10^6	8.5	3470

Floating shaft type is also availabe.

TYPE U 12-Bolt DOUBLE FLEXING COUPLING

U4 (with standard length spacer)

Angular misalignments of up to 0.25° on one side are allowable.

Size data for standard length spacer coupling (with standard hub)

Size No.	Allowable Torque (N·m)	A (mm)	B (mm)	C (mm)	(1) D (mm)	E max (mm)	F (mm)	G (mm)	H (mm)	Maximum Rotation Speed (min^{-1})	Mass (kg)	Morment of Inertia J ($kg·m^2$)	Torsional Stiffness (N·m/rad)	Allowable End Float (2) (±mm)	Axial Spring Constant (3) (N/mm)
05	16400	276	452.4	117.6	152.4	111	150	17.4	161	11,600	85.0	0.54	9.6×10^6	2.2	1720
10	22100	276	452.4	114.6	152.4	111	150	18.9	161	11,600	87.7	0.56	13.4×10^6	2.3	2310
15	28500	308	531.5	133.6	171.5	133	180	18.9	193	10,300	141.0	1.17	17.9×10^6	2.5	2230
20	39900	346	602.5	147.3	190.5	152	206	19.3	218	9,200	198.0	2.07	25.9×10^6	2.9	2450
25	59100	375	668.3	174.5	222.3	165	223	21.6	240	8,500	263.0	3.30	35.9×10^6	3.3	3020
30	78300	410	734.0	198.4	254.0	178	240	27.8	258	7,800	343.0	5.04	45.5×10^6	3.1	3470
35	99700	445	775.2	210.6	269.2	187	253	29.3	272	7,200	416.0	7.46	59.0×10^6	4.0	3740
40	122000	470	827.8	209.3	271.8	206	278	31.2	297	6,800	510.0	10.00	76.7×10^6	4.6	3920
45	142000	511	911.0	244.5	287.0	231	312	31.2	334	6,200	683.0	15.80	92.5×10^6	5.1	3840
50	171000	556	978.1	229.6	292.1	254	343	31.2	364	5,700	874.0	23.80	117.7×10^6	5.4	3800
55	206000	587	1021.9	245.1	309.9	264	356	32.4	382	5,400	1021.0	31.60	143.0×10^6	5.7	4140
60	268000	629	1086.9	272.8	342.9	276	372	35.1	399	5,000	1211.0	42.60	172.4×10^6	5.9	4830
65	313000	654	1135.6	284.0	355.6	289	390	35.8	419	4,800	1402.0	53.90	202.1×10^6	6.0	5110

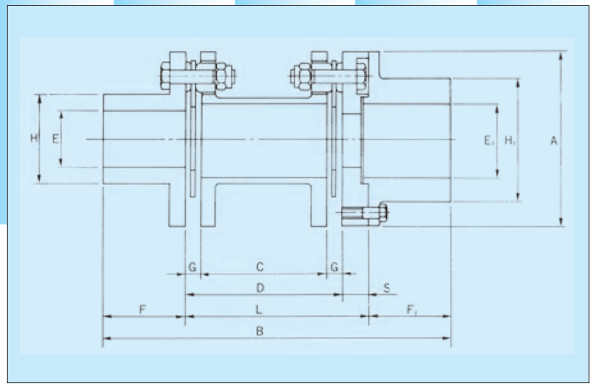
Floating shaft type is also availabe.

(1) D is available in optional lengths upon request.
(2) Figures in the table indicate conditions of maximum rotation speed and a parallel misalignment of 2/1,000.
(3) Values given are for maximum torque conditions.

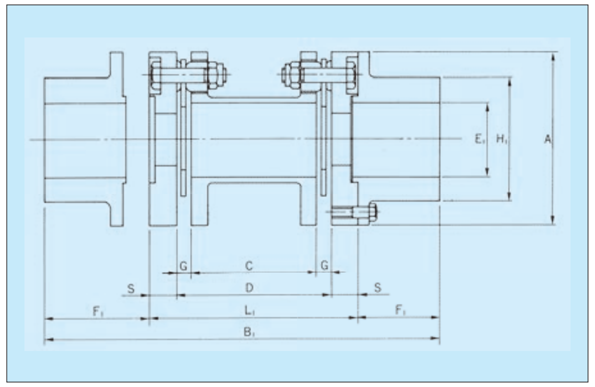
PLUG-IN COUPLINGS

4-Bolt

Please request approval drawings when placing your order.



The plug-in coupling offers excellent high-speed performance and is designed for easy, rational maintenance. It comprises two hubs and one spacer permitting quick and accurate installation.



Size data

Size No.	Allowable Torque (N·m)	Maximum Rotation Speed (min^{-1})	(2) Mass (kg)	(2) Morment of Inertia J ($kg·m^2$)	Torsional Stiffness (N·m/rad)	Axial Spring Constant (N/mm)	(1) Allowable End Float (±mm)	Allowable Parallel Misalignment (mm)
05	33	47,000	1.7	0.00078	0.9×10^4	21	1.6	1.4
10	90	39,000	2.7	0.00185	2.7×10^4	29	2.2	1.4
15	177	34,000	4.1	0.00363	6.1×10^4	71	2.5	1.6
20	245	30,000	5.1	0.00608	9.3×10^4	83	2.8	2.0
25	422	25,000	9.8	0.01575	17.1×10^4	109	3.4	2.0
30	775	22,000	14.4	0.03250	27.7×10^4	153	3.6	2.0
35	1270	19,000	21.9	0.06500	55.1×10^4	178	5.0	1.9
40	2060	16,000	33.4	0.13250	87.2×10^4	220	5.6	2.1
45	3330	15,000	44.2	0.21250	128.5×10^4	234	6.6	2.2
50	4900	13,000	65.6	0.43250	186.3×10^4	269	7.6	2.6

(1) Figures in the table indicate conditions of maximum rotation speed and a parallel misalignment of 2/1,000.
(2) Values given are for cases in which both ends are plug-in type.

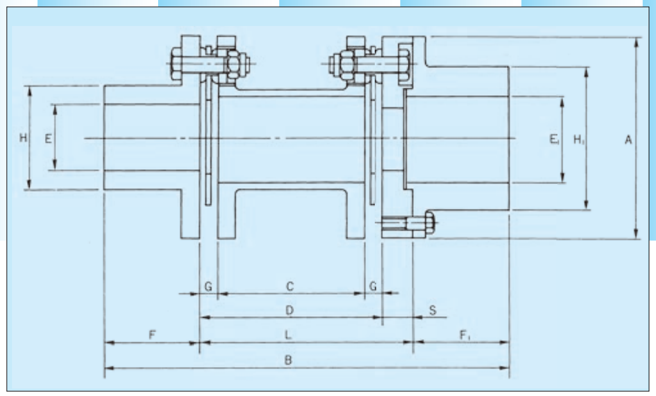
Size data

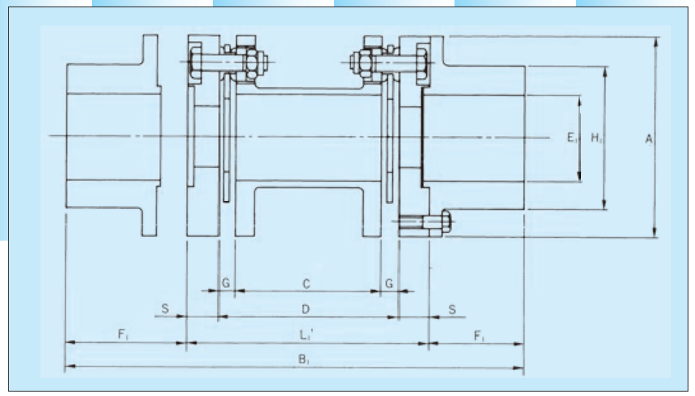
Size No.	Size (mm)													
	A	B_1	B	D	G	C	L_1	S	F_1	F	H_1	H	E_1 max	E max (Z hub)
05	67	168.9	154.3	88.9	6.1	76.7	112.9	12	28	25.4	41	33	28	23 (32)
10	81	190.9	165.3	88.9	6.6	75.7	114.9	13	38	25.4	55	46	38	32 (40)
15	93	213.6	186.3	101.6	8.4	84.8	133.6	16	40	28.7	59	51	40	35 (40) Y hub
20	104	255.0	224.5	127.0	11.2	104.6	159.0	16	48	33.5	71	61	48	42 (48)
25	126	295.0	252.1	127.0	11.7	103.6	167.0	20	64	41.1	92	71	64	50 (60)
30	143	309.0	265.8	127.0	11.7	103.6	173.0	23	68	47.8	100	84	68	58 (70)
35	168	345.0	293.2	127.0	16.8	93.5	173.0	23	86	57.2	126	106	86	74 (85)
40	194	395.7	331.2	139.7	17.0	105.7	195.7	28	100	63.5	144	119	100	83 (95)
45	214	436.4	370.6	152.4	21.6	109.2	208.4	28	114	76.2	164	137	114	95 (110)
50	246	489.8	422.7	177.8	23.9	130.0	241.8	32	124	88.9	180	157	124	109 (120)

1. This coupling permits dismounting and assembling of the spacer without disassembling the element section.
2. Adapters and spacers in different lengths are available. Indicate required length taking face pressure of key into consideration.
3. Daido Precision's exclusive design permits easy dismounting of spacer assembly from shafts.
4. A larger-diameter flange permits use of an enlarged adaptor/boss diameter (H_1), allowing for use of a larger shaft diameter.
5. Fastening torque for coupling bolt (fastening spacer with flange) is in accordance with the table on page 15.

PLUG-IN COUPLINGS

Please request approval drawings when placing your order.





6-Bolt

Size No.	Allowable Torque (N·m)	Maximum Rotation Speed (min^{-1})	(2) Mass (kg)	(2) Morment of Inertia J ($kg·m^2$)	Torsional Stiffness (N·m/rad)	Axial Spring Constant (N/mm)	(1) Allowable End Float (± mm)	Allowable Parallel Misalignment (mm)	A	B_1	B	D	G	C	L_1	S	F_1	F	H_1	H	E_1 max	E max（Z hub）
									Dimensions (mm)													
00	569	26,000	8.4	0.00018	4.4×10^5	162	3.0	0.6	124	225.7	196.7	59.7	10.3	39.1	89.7	15	68	54	100	74	68	51 (60)
01	922	23,000	11.5	0.00032	6.8×10^5	207	3.4	0.7	144	264.0	231.0	72.0	11.0	50.0	108.0	18	78	63	112	81	78	55 (65)
02	1710	19,000	21.4	0.00085	9.2×10^5	275	3.6	0.9	170	324.0	281.0	90.0	11.4	67.2	132.0	21	96	74	138	97	96	67 (78)
03	3340	17,000	33.7	0.00171	15.8×10^5	448	4.2	1.1	198	368.6	318.6	108.6	13.3	82.0	160.6	26	104	80	150	104	104	72 (84)
04	6210	15,000	51.7	0.00355	30.8×10^5	594	4.5	1.2	226	423.6	365.6	117.6	15.2	87.2	177.6	30	123	95	178	124	123	85 (98)
05	6080	11,600	96.8	0.01023	39.0×10^5	414	3.9	1.6	282	535.0	456.0	153.0	17.5	118.0	215.0	31	160	112	232	161	160	111 (130)
10	8240	11,600	100.0	0.01220	48.5×10^5	583	3.9	1.6	294	535.0	456.0	153.0	19.0	115.0	215.0	31	160	112	228	161	158	111 (130)
15	10700	10,300	152.9	0.02238	72.0×10^5	559	4.2	1.8	330	612.0	526.0	172.0	19.0	134.0	248.0	38	182	134	264	193	182	133 (148)
20	17800	9,200	215.9	0.03810	119.6×10^5	747	4.9	2.0	366	685.0	591.0	191.0	21.5	148.0	273.0	41	206	153	300	218	206	152 (166)
25	26400	8,500	308.6	0.07668	166.7×10^5	840	5.2	2.4	422	769.0	661.0	223.0	24.0	175.0	321.0	49	224	165	324	240	224	165 (180)
30	33400	7,800	395.2	0.10883	212.8×10^5	973	5.4	2.7	452	852.0	731.0	254.0	29.5	195.0	364.0	55	244	178	354	258	244	178 (194)
35	39900	7,200	504.7	0.17538	239.3×10^5	1010	5.6	2.9	498	910.0	777.8	270.0	29.5	211.0	390.0	60	260	188	376	272	260	187 (206)
40	46300	6,800	576.2	0.22078	293.2×10^5	1000	6.3	2.9	522	946.0	816.0	274.0	31.0	212.0	394.0	60	276	206	400	297	276	205 (222)
45	59800	6,200	748.7	0.32975	378.5×10^5	986	6.7	3.1	564	1025.0	887.0	287.0	32.0	223.0	417.0	65	304	231	442	334	304	231 (249)

8-Bolt

Size No.	Allowable Torque (N·m)	Maximum Rotation Speed (min^{-1})	(2) Mass (kg)	(2) Morment of Inertia J ($kg·m^2$)	Torsional Stiffness (N·m/rad)	Axial Spring Constant (N/mm)	(1) Allowable End Float (± mm)	Allowable Parallel Misalignment (mm)	A	B_1	B	D	G	C	L_1	S	F_1	F	H_1	H	E_1 max	E max
									Dimensions (mm)													
03	7120	13,000	69.9	0.00648	60.9	578	2.1	1.0	258	467	418	127.0	13.7	99.6	179	26	144	121	208	156	144	108
05	8970	11,600	96.8	0.01023	55.5	840	2.1	1.1	282	535	478	153.0	17.5	118.0	215	31	160	134	232	161	160	111
10	11800	11,600	100.0	0.01220	69.8	1140	2.1	1.1	294	535	478	153.0	19.0	115.0	215	31	160	134	228	161	158	111
15	15400	10,300	152.9	0.02238	108.9	1130	2.4	1.3	330	612	526	172.0	19.0	134.0	248	38	182	160	264	193	182	133
20	25600	9,200	215.9	0.03810	178.5	1490	2.9	1.4	366	685	598	191.0	21.5	148.0	273	41	206	183	300	218	206	152
25	37800	8,500	308.6	0.07668	249.1	1830	3.1	1.7	422	769	679	223.0	24.0	175.0	321	49	224	198	324	240	224	165
30	47800	7,800	395.2	0.10883	309.9	1960	3.3	1.9	452	852	751	254.0	29.5	195.0	364	55	244	214	354	258	244	178
35	57100	7,200	504.7	0.17538	353.0	2090	3.6	2.1	498	910	804	270.0	29.5	211.0	390	60	260	225	376	272	260	187
40	64400	6,800	576.2	0.22078	447.2	1930	4.0	2.1	522	946	835	274.0	31.0	212.0	394	60	276	247	400	297	276	205
45	83700	6,200	748.7	0.32975	582.5	2080	4.5	2.2	564	1025	903	287.0	32.0	223.0	417	65	304	278	442	334	304	231

1. This coupling permits dismounting and assembling of the spacer without disassembling the element section.
2. Adapters and spacers in different lengths are available. Indicate required length taking face pressure of key into consideration.
3. Daido Precision's exclusive design permits easy dismounting of spacer assembly from shafts.
4. A larger-diameter flange permits use of an enlarged adaptor/boss diameter (H1), allowing for use of a larger shaft diameter.
5. Fastening torque for coupling bolt (fastening spacer with flange) is in accordance with the table on page 26.

(1) Figures in the table indicate conditions of maximum rotation speed and a parallel misalignment of 2/1,000.
(2) Values given are for cases in which both ends are plug-in type.

Bolt fastening torque

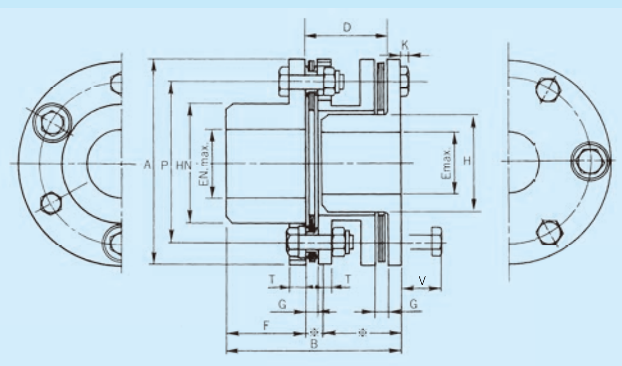
Size No.	00	01	02	03	04	05	10	15	20	25	30	35	40	45	50	55	60	65
Bolt-head Diameter (mm)	13	17	19	24	27	27	27	32	36	46	50	55	55	60	65	70	75	80
Fastening Torque (N·m)	22	41	72	160	220	220	220	440	570	1100	1500	1700	1700	1700	3000	3500	3700	4000

SINGLE-END PLUG-IN COUPLINGS

6-Bolt. 8-Bolt

Please request approval drawings when placing your order.

1. This coupling is suitable for use in cases where the distance between shafts is short, even approaching the "0" level.
2. In principle, the HN and HS hubs are used for the driving and driven sides respectively, making independent operation of the driving side possible.
3. Elongated hubs and spacers are available. Indicate required length taking face pressure of key into consideration.



* These dimensions are to be determined by purchasing specifications.

Size data

	Size No.	Allowable Torque (N·m)	Maximum Rotation Speed (min^{-1})	(2) Mass (kg)	(2) Morment of Inertia J ($kg·m^2$)	Torsional Stiffness (N·m/rad)	Axial Spring Constant (N/mm)	(1) Allowable End Float (±mm)	Allowable Parallel Misalignment (mm)	Dimensions (mm)												
										A	B	D	G	F	HN	H	T	P	K	ENmax	Emax	V
EB	00	569	26,000	6.2	0.01	4.9×10^5	162	3.0	0.5	119	116.3	55.2	10.3	54	74	58	7.1	95	5.5	51	40	42
	01	922	23,000	9.5	0.02	7.5×10^5	207	3.4	0.6	137	134.0	62.1	11.0	63	81	67	8.9	108	7.0	56	46	46
	02	1710	19,000	16.2	0.03	9.8×10^5	275	3.6	0.7	161	153.4	69.0	11.4	74	97	76	10.4	127	8.0	67	52	55
	03	3340	17,000	21.6	0.07	18.6×10^5	448	4.2	0.9	180	183.3	89.6	13.3	80	104	81	13.7	140	10.0	72	56	72
	04	6210	15,000	35.8	0.15	35.3×10^5	594	4.5	1.0	212	210.2	100.0	15.2	95	124	96	15.2	165	12.0	85	66	81
GB	01	3840	15,000	29.8	0.15	38.2×10^5	421	2.1	0.5	214	198.2	76.2	12.2	108	137	122	14.0	171	8.0	95	84	61
	03	7120	13,000	45.2	0.28	66.7×10^5	578	2.1	0.6	246	222.7	86.4	13.7	121	156	142	15.3	197	10.0	108	98	67
	05	8970	11,600	60.7	0.40	60.8×10^5	840	2.1	0.7	276	253.5	101.7	17.5	134	161	147	17.8	216	12.0	111	101	82
	10	11800	11,600	65.1	0.40	76.5×10^5	1140	2.1	0.8	276	265.0	113.2	19.0	134	161	147	17.8	216	12.0	111	101	83
	15	15400	10,300	98.8	0.83	117.7×10^5	1130	2.4	0.8	308	301.0	118.1	19.0	160	193	171	22.9	247	14.0	133	118	97
	20	25600	9,200	141.5	1.50	196.1×10^5	1490	2.9	0.9	346	336.5	128.1	21.5	183	218	197	25.4	279	15.0	152	136	110
	25	37800	8,500	200.6	2.48	274.6×10^5	1830	3.1	1.0	375	374.0	146.8	24.0	198	240	213	29.2	304	19.0	165	147	124
	30	47800	7,800	259.2	3.80	343.2×10^5	1960	3.3	1.2	410	415.5	168.5	29.5	214	258	231	33.0	330	21.0	178	159	141
	35	57100	7,200	315.4	5.78	392.3×10^5	2090	3.6	1.2	445	436.5	175.9	29.5	225	272	245	35.6	355	23.0	187	170	155
	40	64400	6,800	378.3	7.23	490.3×10^5	1930	4.0	1.3	470	470.0	187.4	31.0	247	297	271	35.6	381	23.0	205	187	155
	45	83700	6,200	488.6	10.53	637.4×10^5	2080	4.5	1.4	511	510.0	192.6	32.0	278	334	302	39.4	419	25.0	231	208	165
	50	103000	5,700	614.8	16.35	814.0×10^5	2040	5.0	1.4	556	547.5	200.6	32.5	305	364	338	41.9	457	26.0	254	233	176
	55	128000	5,400	739.3	22.53	1078.7×10^5	2260	5.2	1.6	587	581.0	217.0	34.0	317	382	348	47.0	482	28.0	263	240	193
	60	149000	5,000	882.2	31.13	1078.7×10^5	2450	5.6	1.6	629	607.5	227.0	34.5	331	399	364	49.5	508	30.0	275	251	201
	65	178000	4,800	1022.7	40.28	1372.9×10^5	2670	5.7	1.7	654	640.5	240.2	35.5	347	419	382	53.3	533	33.0	289	263	211

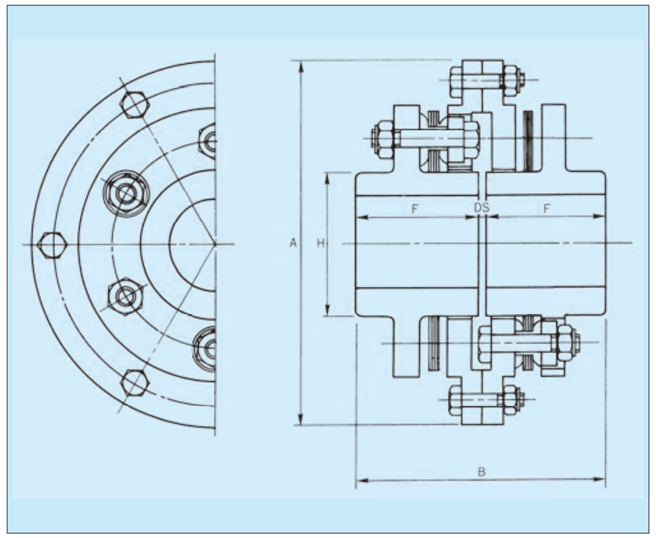
(1) Figures in the table indicate conditions of maximum rotation speed and a parallel misalignment of 2/1,000.
(2) In cases where plugging side hub is the same size as "F".

DOUBLE-END PLUG-IN COUPLINGS

6-Bolt. 8-Bolt

Please request approval drawings when placing your order.

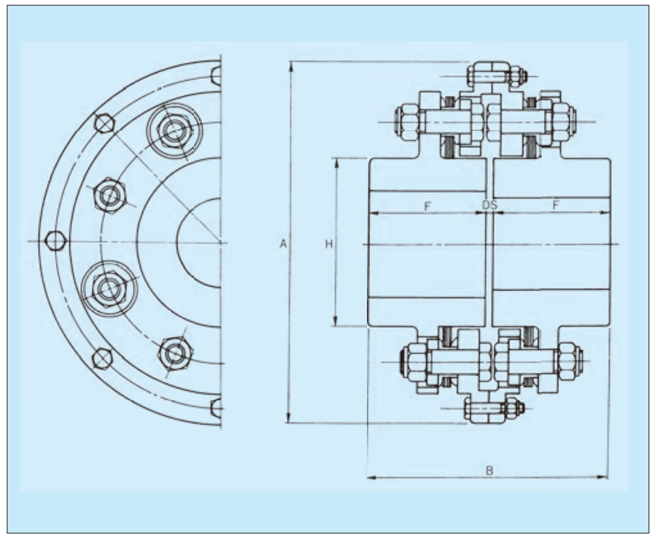
EB—Special type (double-end plug-in)



1. This coupling is suitable for use in cases where the distance between shafts is short, even approaching the "0" level.
2. Elongated hubs and spacers are available. Indicate required length taking face pressure of key into consideration.

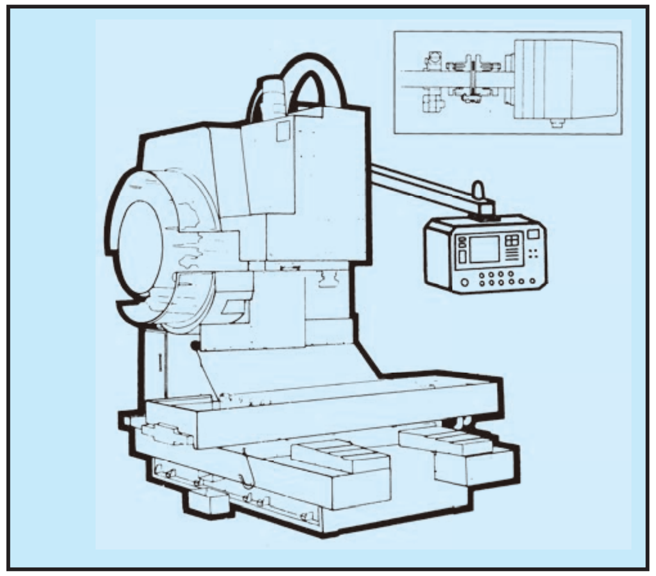
Type/ Size	Allowable Torque (N·m)	Maximum Shaft Diameter (mm)	Dimensions (mm)					Mass (kg)
			A	B	DS	F	H	
EB-00	569	40	148	105.8	8	48.9	58	6
EB-01	922	46	176	131	8	61.5	67	9
EB-02	1710	52	208	146.6	8	69.3	76	17
EB-03	3340	56	232	186.8	10	88.4	81	22

GB—Special type (double-end plug-in)

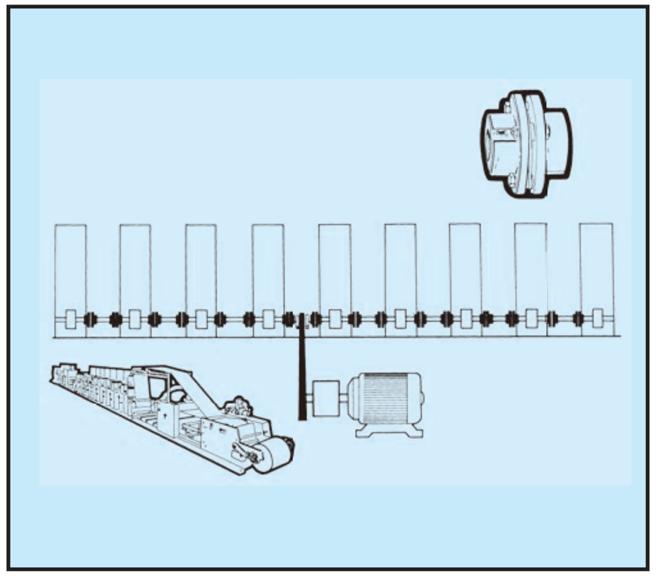


Type/ Size	Allowable Torque (N·m)	Maximum Shaft Diameter (mm)	Dimensions (mm)					Mass (kg)
			A	B	DS	F	H	
GB-01	3840	84	250	207.8	10	98.9	122	38
GB-03	7120	98	296	234.4	12	111.2	142	55
GB-05	8970	101	334	255	12	121.5	147	72
GB-15	15400	118	380	289	14	137.5	171	120
GB-20	25600	136	420	350.6	16	167.3	197	174
GB-25	37800	147	462	388	16	186.0	213	234
GB-30	47800	159	506	406.6	18	194.3	231	258

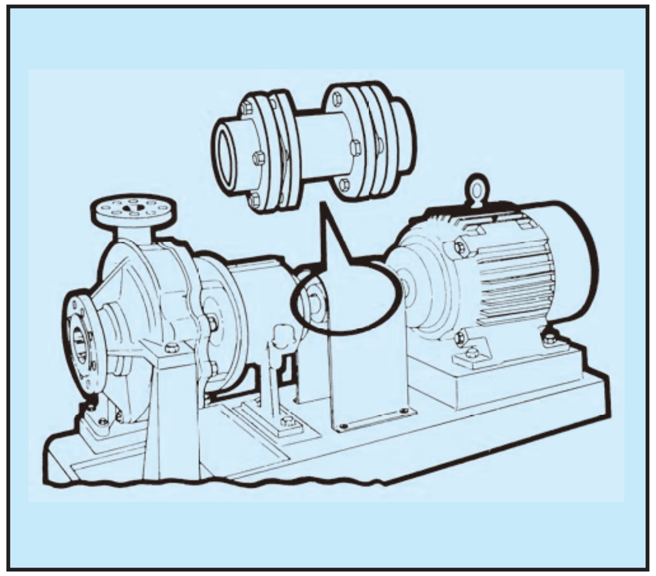
TYPICAL APPLICATIONS



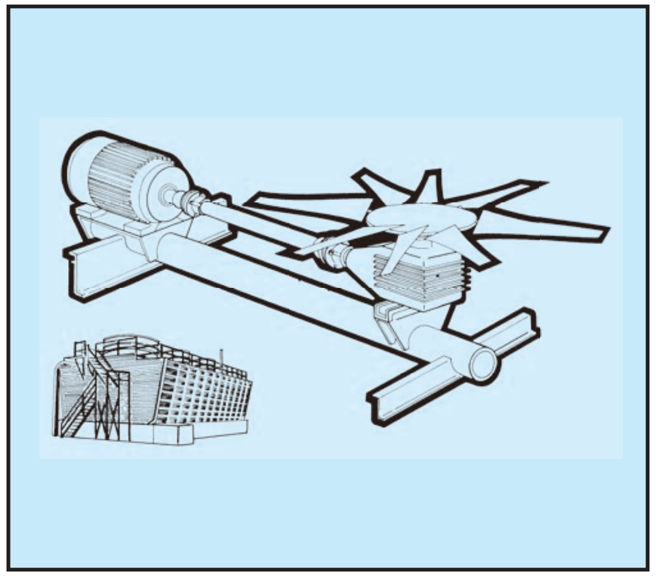
For machine tools:
Used to couple the servo-motor with the ball screw of NC lathes or machining centers, and the motor shaft with the main shaft.



For printing machines:
Used to couple the units of rotary press machines. Shear-pin type couplings are used to protect against overload.



For pumps:
The spacer-type coupling is necessary for easy maintenance. For use in heated water and oil pumps, types with larger misalignment absorption capacity are more advantageous.

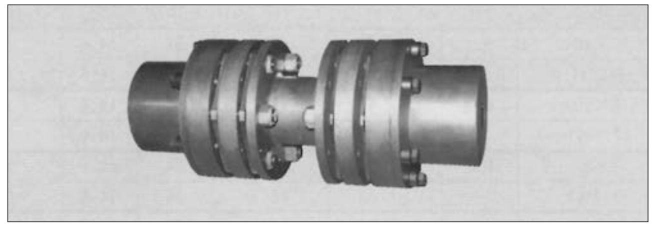


For cooling towers:
The motor is isolated from the humid, corrosive atmosphere and is coupled with the gear box below the fan via a floating shaft coupling. If the fan diameter is large, a twin-shaft coupling may be used.

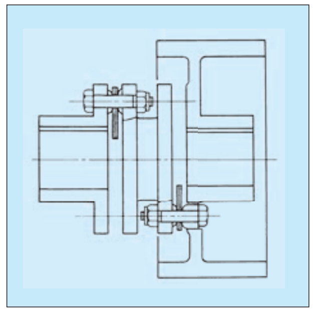
COUPLINGS FOR SPECIAL PURPOSES

Spline type coupling:
Absorbs large axial misalignment occurring in turbines and hot-gas fans. The spline is coated to give lower sliding resistance.

Double-element coupling:
Absorbs large axial misalignment occurring in turbines.

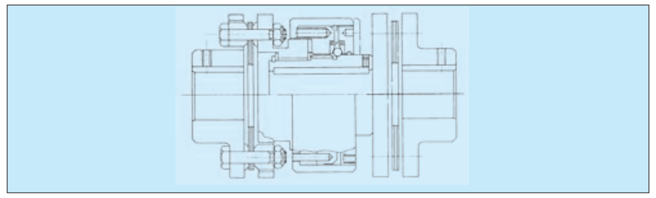


Coupling with brake drum:
This space-saving type has a built-in brake drum. A type with a built-in brake disk is also available.

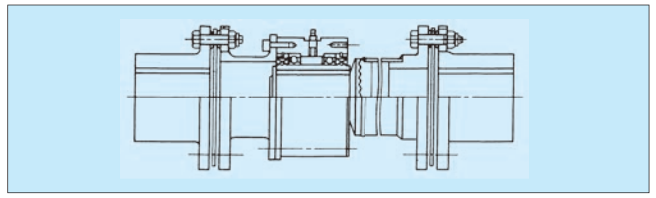


Shear-pin type coupling:
Used in press-forging machines, generators, etc. It is backlash-free, resulting in excellent fracture accuracy.

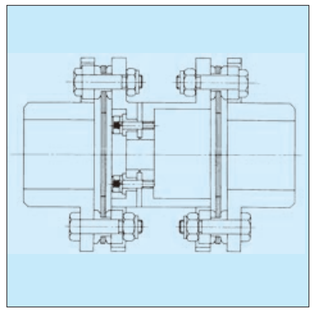
Coupling with torque relay:
Used with press-forging machines and paper-working machines to prevent overload.



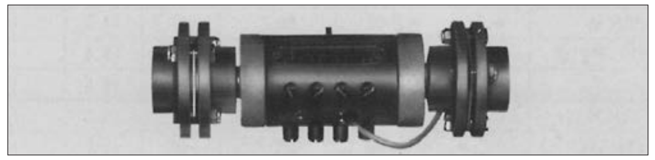
Clutch coupling:
Used for dual drive of turbine and motor blowers, etc., and for stand-by drive.



Insulating coupling:
Used to protect large-scale generators from damage due to shaft current.

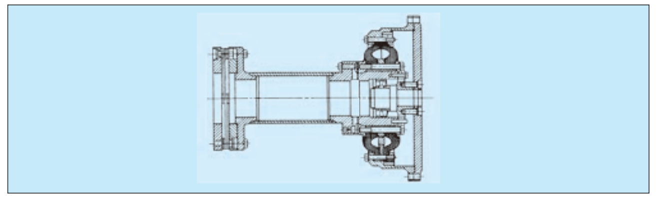


Coupling with torque sensor:
A torque meter is built into the coupling; used for testing equipment.



Coupling for fly-wheels:
Features construction capable of withstanding the reversal and vibration torques of engine drives and reciprocal compressors.

Combination using highly elastic coupling:
Used in marine engines (from VULKAN catalogue).



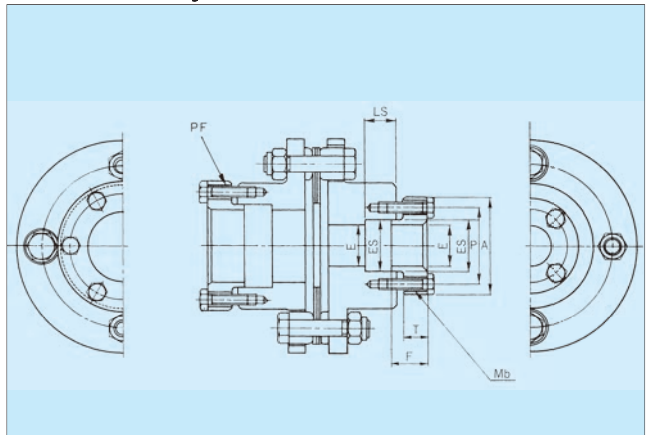
DESIGN STANDARDS FOR SPANNELEMENTE HUB AND THRUST FLANGE

Design standards (when spectacle wrench is used)

SE (Transmission Torque)		SE Hub Design Dimensions					Thrust Flange Dimensions							
E×Es	Is (mm)	Minimum Applicable Hub Size (mm)	Minimum Applicable H (mm)	PCD (mm)	Ls (mm)	Minimum Bolt Fastening Torque (N·m)	A (mm)	E (H7) (mm)	ES-0.1 -0.2 (mm)	PCDs (mm)	F (mm)	T (mm)	Mb (mm)	Bolt Used
15×19	6.3	HZ 01	41	32	14.6	10	44	15	19	32	13	8	6.6	4-M6×20
(64N·m)		HN 02	41	32	14.6	10	44	15	19	32	13	8	6.6	4-M6×20
16×20	6.3	HZ 01	42	33	14.6	10	44	16	20	33	13	8	6.6	4-M6×20
(70N·m)		HN 02	42	33	14.6	10	44	16	20	33	13	8	6.6	4-M6×20
17×21	6.3	HZ 01	43	34	14.6	10	44	17	21	34	13	8	6.6	4-M6×20
(76N·m)		HN 02	43	34	14.6	10	44	17	21	34	13	8	6.6	4-M6×20
18×22	6.3	HZ 01	44	35	14.6	10	47	18	22	35	13	8	6.6	4-M6×20
(81N·m)		HN 02	44	35	14.6	10	47	18	22	35	13	8	6.6	4-M6×20
19×24	6.3	HZ 01	45	36	14.6	14	47	19	24	36	13	8	6.6	4-M6×20
(122N·m)		HN 02	45	36	14.6	14	47	19	24	36	13	8	6.6	4-M6×20
20×25	6.3	HZ 01	46	37	14.6	14	47	20	25	37	15	10	6.6	4-M6×20
(129N·m)		HN 02	46	37	14.6	14	47	20	25	37	15	10	6.6	4-M6×20
		HN 03	46	37	15.6	14	47	20	25	37	16	10	6.6	4-M6×20
22×26	6.3	HZ 02	48	39	14.6	14	51	22	26	39	15	10	6.6	4-M6×20
(154N·m)		HN 03	48	39	15.6	14	51	22	26	39	16	10	6.6	4-M6×20
24×28	6.3	HZ 02	50	41	14.6	14	53	24	28	41	15	10	6.6	4-M6×20
(171N·m)		HN 03	50	41	15.6	14	53	24	28	41	16	10	6.6	4-M6×20
		HN 04	50	41	15.6	14	53	24	28	41	16	10	6.6	4-M6×20
25×30	6.3	HZ 02	51	42	14.6	14	53	25	30	42	15	10	6.6	4-M6×20
(172N·m)		HN 03	51	42	15.6	14	53	25	30	42	16	10	6.6	4-M6×20
		HN 04	51	42	15.6	14	53	25	30	42	16	10	6.6	4-M6×20
28×32	6.3	HZ 02	54	45	14.6	14	55	28	32	45	15	10	6.6	4-M6×20
(204N·m)		HY 03	54	45	15.6	14	55	28	32	45	16	10	6.6	4-M6×20
		HN 04	54	45	15.6	14	55	28	32	45	16	10	6.6	4-M6×20
30×35	6.3	HZ 02	56	47	14.6	14	59	30	35	47	17	12	6.6	4-M6×25
(213N·m)		HY 03	56	47	15.6	14	59	30	35	47	18	12	6.6	4-M6×25
		HN 04	56	47	15.6	14	59	30	35	47	18	12	6.6	4-M6×25
32×36	6.3	HY 03	58	49	15.6	14	59	32	36	49	18	12	6.6	4-M6×25
(230N·m)		HN 04	58	49	15.6	14	59	32	36	49	18	12	6.6	4-M6×25
35×40	7	HY 04	67.7	56	17	25	71	35	40	56	18	12	9	4-M8×25
(332N·m)		HZ 04	67.7	56	17	25	71	35	40	56	18	12	9	4-M8×25
		HN 05	67.7	56	17	25	71	35	40	56	18	12	9	4-M8×25
36×42	7	HY 04	68.7	57	17	25	71	36	42	57	18	12	9	4-M8×25
(333N·m)		HZ 04	68.7	57	17	25	71	36	42	57	18	12	9	4-M8×25
		HN 05	68.7	57	17	25	71	36	42	57	18	12	9	4-M8×25
38×44	7	HY 04	72.7	59	17	25	74	38	44	59	20	14	9	4-M8×30
(356N·m)		HZ 04	72.7	59	17	25	74	38	44	59	20	14	9	4-M8×30
		HN 05	72.7	59	17	25	74	38	44	59	20	14	9	4-M8×30
40×45	8	HZ 04	72.7	61	19	25	74	40	45	61	21	14	9	4-M8×30
(355N·m)		HZ 05	72.7	61	19	25	74	40	45	61	21	14	9	4-M8×30
		HN 06	72.7	61	19	25	74	40	45	61	21	14	9	4-M8×30
42×48	8	HZ 04	74.7	63	19	29	78	42	48	63	21	14	9	4-M8×30
(455N·m)		HZ 05	74.7	63	19	29	78	42	48	63	21	14	9	4-M8×30
		HN 06	74.7	63	19	29	78	42	48	63	21	14	9	4-M8×30
45×52	10	HZ 05	77.7	66	23	29	81	45	52	66	22	15	9	4-M8×30
(492N·m)		HN 06	77.7	66	23	29	81	45	52	66	22	15	9	4-M8×30
48×55	10	HZ 05	90.3	75	23	59	95	48	55	75	22	15	11	4-M10×35
(843N·m)		HZ 06	90.3	75	23	59	95	48	55	75	22	15	11	4-M10×35
		HN 07	90.3	75	23	59	95	48	55	75	22	15	11	4-M10×35
50×57	10	HZ 06	92.3	77	23	59	95	50	57	77	22	15	11	4-M10×35
(888N·m)		HN 07	92.3	77	23	59	95	50	57	77	22	15	11	4-M10×35
55×62	10	HZ 06	97.3	82	23	59	100	55	62	82	22	15	11	4-M10×35
(992N·m)		HN 07	97.3	82	23	59	100	55	62	82	22	15	11	4-M10×35

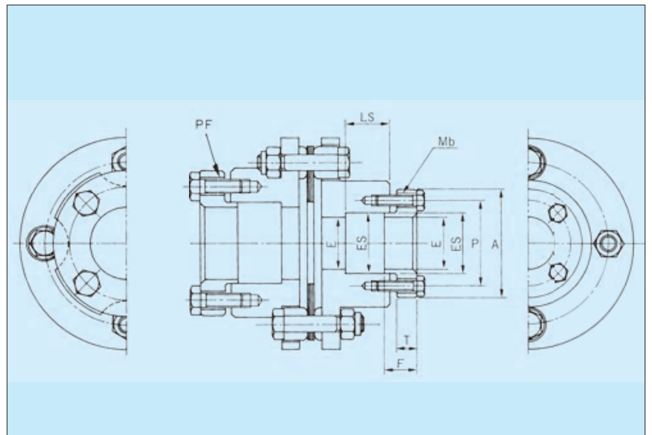
Notes: SE denotes Spannelemente.

Use of HN only



PF: Thrust Flange

Use of HZ and HY



PF: Thrust Flange

SE (Transmission Torque)		SE Hub Design Dimensions					Thrust Flange Dimensions							
E×Es	Is (mm)	Minimum Applicable Hub Size (mm)	Minimum Applicable H (mm)	PCD (mm)	Ls (mm)	Minimum Bolt Fastening Torque (N·m)	A (mm)	E (H7) (mm)	ES-0.1 -0.2 (mm)	PCDs (mm)	F (mm)	T (mm)	Mb (mm)	Bolt Used
56×64	12	HZ 06	98.7	83	27	59	100	56	64	83	22	15	11	4-M10×35
(938N·m)	12	HN 07	98.7	83	27	59	100	56	64	83	22	15	11	4-M10×35
60×68	12	HZ 07	111.1	90	27	98	117	60	68	90	22	15	13.5	4-M12×40
(1551N·m)	12	HN 08	111.1	90	27	98	117	60	68	90	22	15	13.5	4-M12×40
63×71	12	HZ 07	114.1	93	27	98	117	63	71	93	22	15	13.5	4-M12×40
(1187N·m)	12	HN 08	114.1	93	27	98	117	63	71	93	22	15	13.5	4-M12×40
65×73	12	HZ 07	116.1	95	27	98	117	65	73	95	22	15	13.5	4-M12×40
(1702N·m)	12	HN 08	116.1	95	27	98	117	65	73	95	22	15	13.5	4-M12×40

Notes: SE denotes Spannelemente.

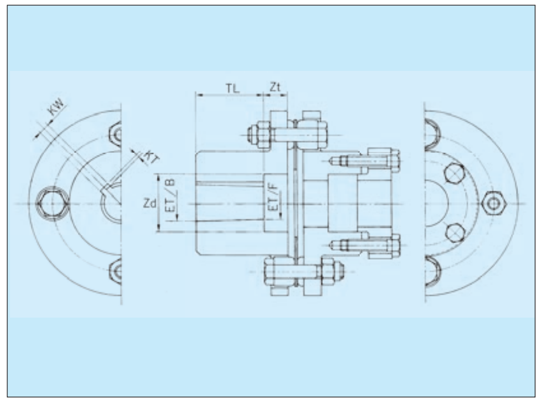
Design standards (when wrench is used)

SE (Transmission Torque)		SE Hub Design Dimensions					Thrust Flange Dimensions							
E×Es	Is (mm)	Minimum Applicable Hub Size (mm)	Minimum Applicable H (mm)	PCD (mm)	Ls (mm)	Minimum Bolt Fastening Torque (N·m)	A (mm)	E (H7) (mm)	ES-0.1 -0.2 (mm)	PCDs (mm)	F (mm)	T (mm)	Mb (mm)	Bolt Used
22×26	6.3	HZ 01	45	37	14.6	14	48	22	26	37	15	10	6.6	4-M6×20
(154N·m)		HN 02	45	37	14.6	14	48	22	26	37	15	10	6.6	4-M6×20
28×32	6.3	HN 03	51	42	15.6	14	53	28	32	42	16	10	6.6	4-M6×20
(204N·m)														
32×36	6.3	HZ 02	55	49	15.6	14	60	32	36	49	18	12	6.6	4-M6×25
(230N·m)														
35×40														
(238N·m)	7	HY 03	59	52	17	14	63	35	40	52	18	12	6.6	4-M6×25
(388N·m)	7	HN 04	59	52	17	14	63	35	40	52	18	12	6.6	6-M6×25
36×42	7	HN 04	61	52	17	14	63	36	42	52	18	12	6.6	6-M6×25
(390N·m)														
40×45														
(355N·m)	8	HY 04	70	61	19	25	74	40	45	61	21	14	9	4-M8×30
(581N·m)	8	HN 05	70	59	19	25	74	40	45	59	21	14	9	6-M8×30
48×55	10	HN 06	80	72	23	25	87	48	55	72	22	15	9	8-M8×35
(878N·m)														
50×57														
(888N·m)	10	HZ 05	88	77	23	59	97	50	57	77	22	15	11	4-M10×35
(924N·m)	10	HN 06	82	72	23	25	87	50	57	72	22	15	9	8-M8×35

Notes: SE denotes Spannelemente.

DESIGN STANDARDS FOR TAPERED-SHAFT BORES

Designation	Dimensions						
	ET/B	ET/F	TI	KW	KT	Zd	Zt
HN01-11T04-SI-Z	11	9.4	16	4H7	1.2	21	9.4
HN02-11T04-SI-Z	11	9.4	16	4H7	1.2	21	9.4
HP01-16T05-SI-Z	16	13.05	29.5	5F7	1.5	25	10.5
HP02-16T05-SI-Z	16	13.05	29.5	5F7	1.5	25	10.5
HN03-16T05-SI-Z	15.46	13.05	24.1	5F7	1.8	25	4.6
HP03-16T05-SI-Z	16	13.05	29.5	5F7	1.5	25	15.5
HN04-16T05-SI-Z	16	13.05	29.5	5F7	1.5	25	4
HN05-16T05-SI-Z	16	13.05	29.5	5F7	1.5	25	11.6



SHAFT BORE

Shaft bore and tolerance and chamfer standards (according to JIS B-0903, 0401, and 1301)

Shaft Bore				
Standard Bore	Bore Tolerance			Chamfering of Boss End
	Interference Fit	Transition Fit I (H7)	Toransition Fit II (G7)	
10		+0.018 −0	+0.024 +0.006	0.5
11				
12				
14				
16				
18				
19	(M7) +0 −0.021	+0.021 −0	+0.028 +0.007	
20				
22				
24				
25				
28				1.0
30				
32	(M7) +0 −0.025	+0.025 −0	+0.034 +0.009	
35				
38				
40				
42	(N7) −0.008 −0.033			
45				
48				
50				
55	(N7) −0.009 −0.039	+0.030 −0	+0.040 +0.010	
56				
60				
63				
65				
70				
71				
75				
80				
85	(P7) −0.024 −0.059	+0.035 −0	+0.047 +0.012	
90				
95				
100				
110				
120				2.0
125	(P7) −0.028 −0.068	+0.040 −0	+0.054 +0.014	
130				
140				
150				
160				
170				
180				

Note: Flange face should be thread-chamfered.

SHAFT BORE

Standard dimensions of shaft bore, key and key way

Shaft bore dia. (mm)	Nominal size of key	Size of key way							
		Flute width (mm)	Shaft tolerance (mm)			Core R (mm)	Depth of flute on shaft (mm)	Depth of flute on bore (mm)	Depth tolerance (mm)
			Precision class	Ordinary class					
			Bore side Shaft side P9	Shaft side N9	Bore side Js9				
10～12	4×4	4	−0.012 −0.042	0 −0.030	±0.0150	0.08 ～0.16	2.5	1.8	+0.1 0
12～17	5×5	5				0.16 ～0.25	3.0	2.3	
17～22	6×6	6					3.5	2.8	
20～25	(7×7)	7	−0.015 −0.051	0 −0.036	±0.0180		4.0	3.0	+0.2 0
22～30	8×7	8					4.0	3.3	
30～38	10×8	10				0.25 ～0.40	5.0	3.3	
38～44	12×8	12	−0.018 −0.061	0 −0.043	±0.0215		5.0	3.3	
44～50	14×9	14					5.5	3.8	
50～55	(15×10)	15					5.0	5.0	
50～58	16×10	16					6.0	4.3	
58～65	18×11	18					7.0	4.4	
65～75	20×12	20	−0.022 −0.074	0 −0.052	±0.0260	0.40 ～0.60	7.5	4.9	
75～85	22×14	22					9.0	5.4	
80～90	(24×16)	24					8.0	8.0	
85～95	25×14	25					9.0	5.4	
95～110	28×16	28					10.0	6.4	
110～130	32×18	32	−0.026 −0.088	0 −0.062	±0.0310		11.0	7.4	
125～140	(35×22)	35				0.70 ～1.00	11.0	11.0	+0.3 0
130～150	36×20	36	−0.026 −0.088	0 −0.062	±0.0310	0.70 ～1.00	12.0	8.4	+0.3 0
140～160	(38×24)	38					12.0	12.0	
150～170	40×22	40					13.0	9.4	
160～180	(42×26)	42					13.0	13.0	
170～200	45×25	45					15.0	10.4	
200～230	50×28	50					17.0	11.4	
230～260	56×32	56	−0.032 −0.106	0 −0.074	±0.0370	1.20 ～1.60	20.0	12.4	
260～290	63×32	63					20.0	12.4	
290～330	70×36	70					22.0	14.4	

Notes:
1. Use of keys of sizes in parenthesis is not recommended.
2. Key way should be positioned so that the radius passing through the center of the key way is equidistant from the radii passing through the centers of reamer bolt and through holes.

Standards for set-screw hole (Type A)

Size / Type of Hub		Standard (HN:HZ)		Elongated boss type (HP:HK)		Elongated boss type (HO)	
Hub Size	Set-screw Size	Over Hub Length (F) (mm)	Position of Set-screw Hole (L) (mm)	Overall Hub Length (mm)	Position of Set-screw Hole (L) (mm)	Overall Hub Length (F) (mm)	Position of Set-screw Hole (L) (mm)
01	M 6	25.4	8	40	14		
02	M 6	25.4	8	40	14	45	16
03	M 8	28.7	10	45	16	50	18
04	M 8	33.5	12	50	18	60	20
05	M 8	41.1	14	60	20	70	25
06	M 10	47.8	16	70	25	80	28
07	M 10	57.2	20	85	30	100	35
08	M 10	63.5	22	100	35	115	40
09	M 12	76.2	26	115	40	130	45
10	M 16	88.9	30	135	48	150	53
11	M 16	101.6	36	150	53	175	60

Note:
1. Set-screw hole position is indicated by distance in mm from boss end of hub.
2. Set-screw is a metric coarse-thread screw.
3. Set-screw is positioned at a point approx. 35% of the overall hub length away from the boss end L≒0.35F.
4. Angular position of set-screws is on top of keyway.
5. Use of 2 or 3 set screws does not double or triple shaft holding power.

INSTRUCTIONS FOR INSTALLATION AND MAINTENANCE

Initial assembly and centering

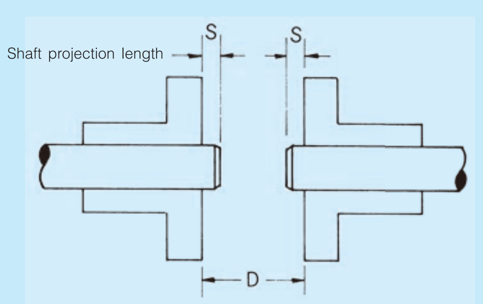


Fig. 1

Correct, careful assembly and centering at the initial stage enables couplings to provide maximum performance, compensates for misalignment, and increases service life.

1. Confirm that shaft and bore have been completely deburred and that key is properly fitted with shaft and hub.

When the distance between shaft ends is less than dimension "D" of the coupling used, adjust shaft to required dimension "D" by making the shaft project (Fig.1). When shaft diameter is larger than the coupling bore, adjust shaft projection to within the range "S" indicated on the chart below.

Size No.		00	01	02	03	04	05	10	15	20	25	30	35	40	45	50	55	60	65
Type A	Element Bore (mm)	—	—	—	—	—	25	30	32	40	45	51	69	76	89	101	108	—	—
	S (mm)	—	—	—	—	—	2	2	2	3	3	3	4	4	5	5	6	—	—
Type E	Element Bore (mm)	60	69	78	83	98	142	142	163	184	200	216	231	253	280	307	322	338	354
	S (mm)	2	2	2	2	2	3	3	3	3	3	5	5	5	5	5	5	5	5
Type G	Element Bore (mm)	—	124	—	143	—	155	155	178	201	218	235	252	275	304	343	350	368	384
	S (mm)	—	2	—	2	—	4	4	4	4	4	6	6	6	6	6	6	3	6

S: Allowable length of shaft projection when shaft diameter is smaller than element bore at a maximum of 2mm.

Note: When hub has been fabricated by interference fit, heat it in a 90-120℃ oil bath and fit it to the shaft. Never apply heat locally; it may cause distortion.

Angular misalignment and parallel misalignment

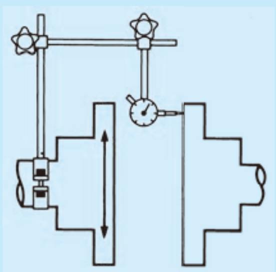


Fig. 2

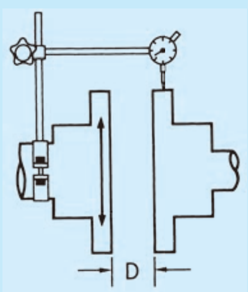


Fig. 3

2. Distance between shaft ends

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

3. Angular misalignment (Fig.2)

(a) Fix a dial gauge on one side of hub, rotate hub, find minimum reading on dial gauge, and set gauge at zero.
(b) Rotate coupling side with dial gauge 360° and readjust dial gauge so it shows smallest deflection reading. Peripheral face deflection for an angular misalignment of 0.1° is as shown in the table below.
(c) Peripheral section of dial gauge may show abnormal deflection at through-hole area of hub. This is due to flaring of flange during working. Avoid this area when reading gauge.

Size No.		00	01	02	03	04	05	10	15	20	25	30	35	40	45	50	55	60	65
Gauge Reading (TIR mm)	Type A	—	—	—	—	—	0.12	0.15	0.16	0.20	0.22	0.25	0.29	0.34	0.37	0.43	0.48	—	—
	Type E	0.21	0.24	0.28	0.32	0.37	0.48	0.48	0.53	0.60	0.65	0.71	0.77	0.81	0.88	0.96	1.02	1.09	1.13
	Type G	—	0.37	—	0.43	—	0.48	0.48	0.53	0.60	0.65	0.71	0.77	0.81	0.88	0.96	1.02	1.09	1.13

4. Parallel misalignment (Fig.3)

(a) To measure parallel misalignment of shafts, fix a dial gauge on the driving side hub and, while rotating the driving shaft, read the dial gauge at the periphery of the driven hub. A parallel misalignment of 2 mm per 1,000 mm distance between flange faces (D) results in an angular misalignment of 0.1°.
(b) Recheck angular misalignment and verify that it is sufficiently small.

5. Assemble the coupling using the exploded diagrams on page 6 as a guide

Special note: To assure the unlimited service life of the coupling, recheck it for parallel and angular misalignment after a short period (1-2 hours) of actual operation. At that time, refasten bolts and nuts using the rated torque.
Test results indicate that the permissible maximum number of times nylon nuts may be unfastened and refastened is 15, but it is recommended that the number of times not exceed 10. If this process is repeated 10 times or more, spare nuts should be prepared.

For the requirement of replacing all the parts, elements, bolts, nuts and washers are available as a package.

Name: Pack kit
Designation: KN○○
(○○: part no.)

6. Emergency repair using spacers in stock (Fig.4).

When coupling sections incur accidental damage during installation, emergency repair is possible using spacers in stock (see Fig.4)

Note:
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. Bolts may be inserted in the direction which makes the job easiest.

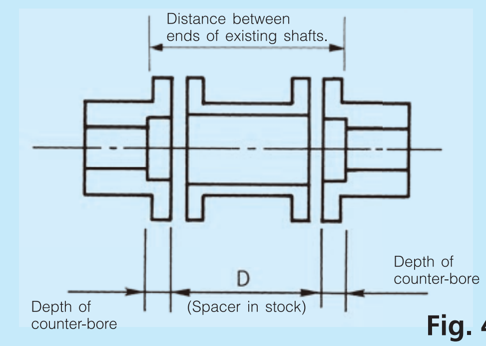
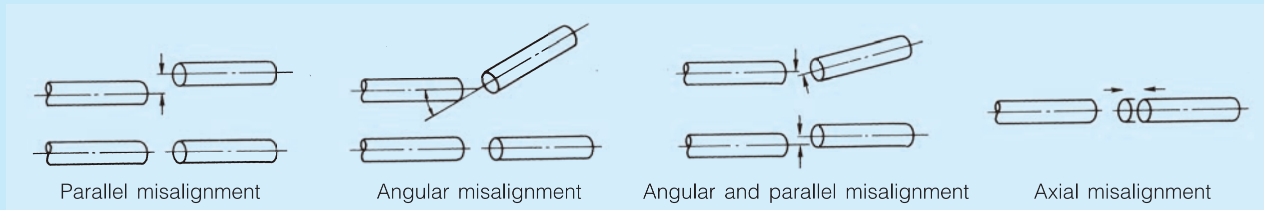


Fig. 4

P or K hubs are generally used.

Misalignment



There are many possible causes for misalignment of shafts. Initial alignment may be altered by temperature variations, bearing wear, foundation settling, etc. In general, however, careful initial alignment of shafts increases coupling life. When initial alignment is incorrect and the coupling is heavily stressed due to torque or other forces, it will have little reserve for absorption of misalignment stress; this may result in reduced coupling service life.
The above diagram shows various types of shaft misalignment. In parallel misalignment, two shafts have parallel axes, but are not coaxial. In angular misalignment, the axes of the two shafts intersect. The state occurring due to axial misalignment is called "end float".

In many cases, the misalignment in FORM-FLEX COUPLINGS is the result of a complex combination of these types of misalignment. The FORM-FLEX COUPLING permits angular misalignment of up to 1° per flexible element (in the case of a four-bolt coupling). The allowance for end float depends on the size of the coupling; however, the FORM-FLEX COUPLING permits sufficient end float to cause only a small degree of thrust.
When the occurrence of misalignment during operation is inevitable, it may be necessary to offset the coupling.