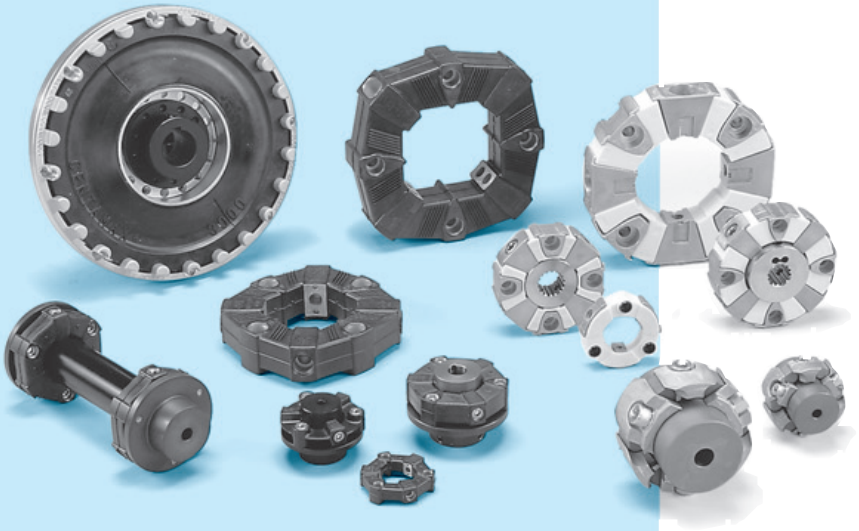
CENTAFLEX COUPLING

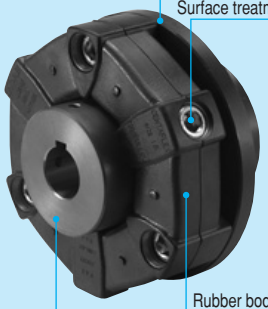
Centaflex coupling



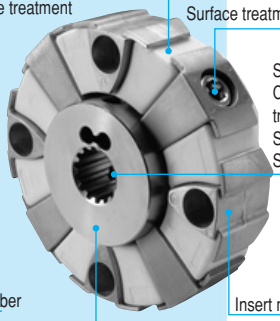
The CENTAFLEX is a coupling for damping and absorbing vibrations and shocks by using elasticity of rubber or plastic, featuring high flexibility, low noise, easy maintenance without lubrication, simple construction and long operating life. The appropriate model can be selected from a large variety of products.

Structure and Material

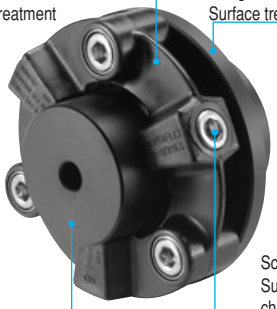
■CF-A



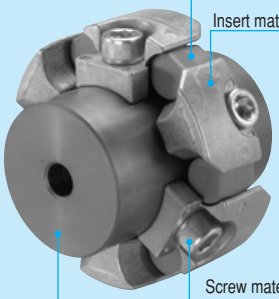
■CF-H



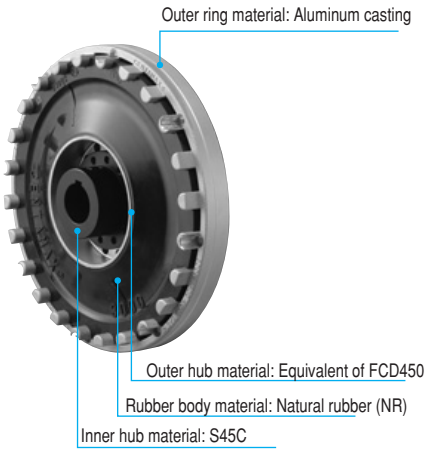
■CF-X



■CF-B



■CM (Available by special order)

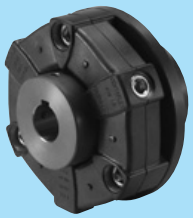
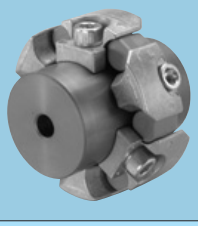


Centaflex

A list of CENTAFLEX COUPLING series

The CENTAFLEX couplings have linear torsional performance.
A wide choice of elements with different rubber hardness enables an optimal design.

Note: ● ◎ ○ △ ×
Existence (large) ⟷ Nonexistence (small)

Model	Transmittable torque [N·m]	Torsional angle under rated torque[°]	Element material	Operational temp. [℃]	Oil resistance	Permissible misalignment: Parallel offset	Permissible misalignment: Angular misalignment	Permissible misalignment: Axial displacement	Feature/Application
CF-A 	10 ～ 4000	3 ～ 6	Natural rubber (NR)	−30 ～ +85	×	●	●	●	Vibrations and shocks are absorbed. High flexibility High oil resistance (Application) Construction machinery, vessel, generator, compressor, general industrial machinery
CF-H 	100 ～ 2500	0.2 ～ 0.3	Polyester resin	−40 ～ +120	●	○	△	●	Vibrations and shocks are absorbed. High heat resistance and oil resistance Easy to mount and dismount (Application) Construction machinery
CF-X 	15 ～ 370	0.12	Nylon resin	−30 ～ +90	●	△	△	○	No backlash High torsional stiffness, high strength Flexibility in the bending direction (Application) Compressor, machine tool, printing machinery and general industrial machinery
CF-B 	30 ～ 1400	2.5	Polyurethane resin	−40 ～ +80	●	●	○	○	Vibrations and shocks are absorbed. Axial insertion assembly Simple construction (Application) General industrial machinery, engine/electric motor use and pump
		4	Polyester resin	−40 ～ +120					
CM (Available by special order) 	120 ～ 14000	12	Natural rubber (NR)	−30 ～ +80	×	◎	△	●	Vibrations and shocks are absorbed. Flexible torsional stiffness prevents resonances. Direct mounting in flywheels is possible. (Application) Vessel, construction machinery, compressor and generator

CF-A

Centaflex model A

General-purpose motor | Stepping motor | Servo motor | Detector | Engine

■Vibrations and shocks are absorbed

Elasticity-rich rubber transmits power and absorbs vibrations and shocks. Noise of machinery is also reduced.

■Compactness

It is short in axial direction. Less space is needed.

■Excellent durability

A longer operating life is assured by the heat-resistance rubber and rubber precompressed construction. Maintenance is almost unnecessary.

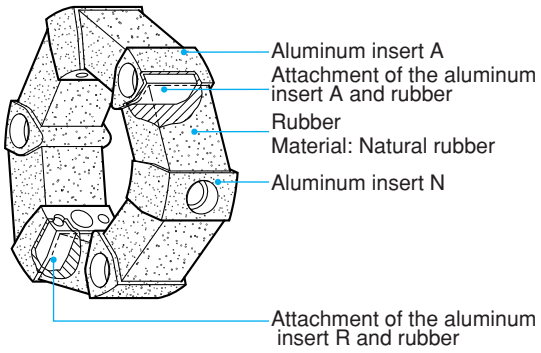
■Mounting and dismounting

Rubber parts are available in two types, bolt mounted type (OO) and bayonet mounted type (SO), in axial direction. Both types allow easy centering.
It can be detached completely by removing the bolts.

Normal operating torque [N·m]		10 ～ 4000
Pilot bore/Additional machining range [mm]		φ9 ～ 130
Operational temp. [℃]		−30 ～ +85
Backlash		Zero
Max. permissible misalignment	**Parallel offset [mm]**	0.5 ～ 1.5
	Angular misalignment [°]	2 ～ 3
	Axial displacement [mm}	±2 ～ ±5

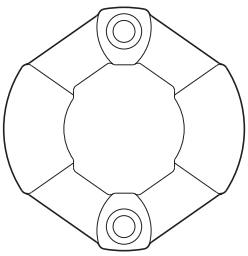
■ Structure and Material

■Type: $\overset{oh}{O}O$ (rubber body)

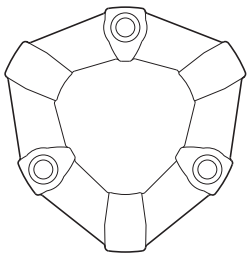


It consists of polygon rubbers and aluminum inserts inserted at the top. Each part is completely adhered by vulcanizing.

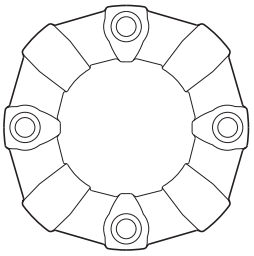
■Configuration by type



Size 001, 002

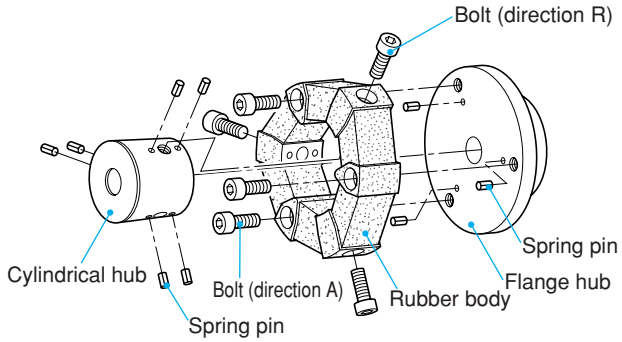


Size 004, 008, 016
025, 030, 090



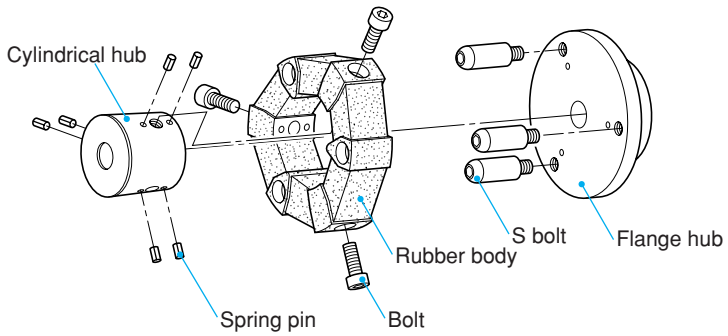
Size 012, 022, 028, 050
080, 140, 200, 250,400

■Type: ^{oh}02

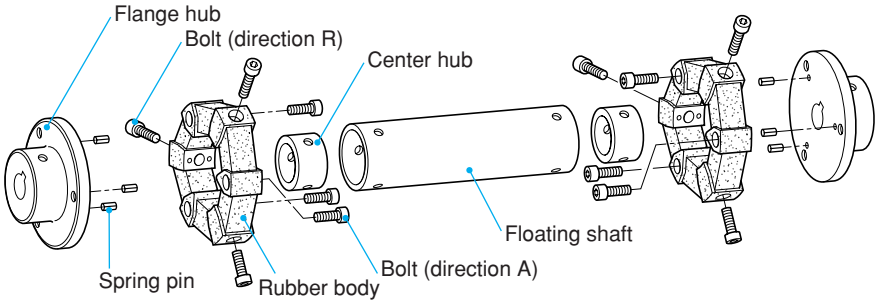


The rubber body is automatically precompressed by tightening the radial (direction R) bolts.

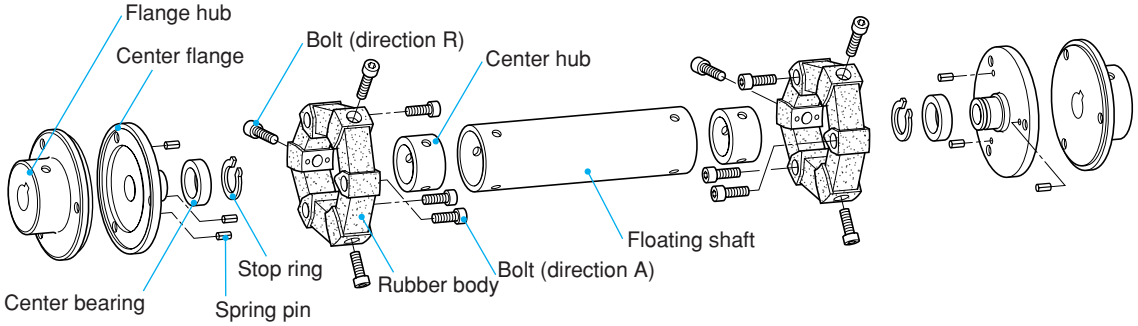
■Type: S2



■Type: ^{oh}0G



■Type: ^{oh}0Z



Specification

Model	Torque			Max. rotation speed [min⁻¹]	Dynamic torsional spring constant [N·m/rad]	Price							
	Normal [N·m]	Max. [N·m]	Max. permissible fluctuating torque [N·m/10Hz]			Type O0	Type O1	Type O2	Type S0	Type S1	Type S2	Type OG	Type OZ
CF-A-001	10	25	±4	10000	1.47×10^{2}	—	—	—	—	—	—	—	—
CF-A-002	20	50	±8	8000	2.92×10^{2}	—	—	—	—	—	—	—	—
CF-A-004	40	100	±16	7000	7.59×10^{2}	—	—	—	—	—	—	—	—
CF-A-008	80	200	±32	6500	1.44×10^{3}	—	—	—	—	—	—	—	—
CF-A-012	120	300	±48	6500	4.38×10^{3}	—	—	—	—	—	—	—	—
CF-A-016	160	400	±64	6000	3.28×10^{3}	—	—	—	—	—	—	—	—
CF-A-022	220	550	±88	6000	8.26×10^{3}	—	—	—	—	—	—	—	—
CF-A-025	250	630	±100	5000	4.12×10^{3}	—	—	—	—	—	—	—	—
CF-A-028	350	880	±140	5000	1.05×10^{4}	—	—	—	—	—	—	—	—
CF-A-030	400	1000	±160	4000	6.40×10^{3}	—	—	—	—	—	—	—	—
CF-A-050	600	1500	±240	4000	1.48×10^{4}	—	—	—	—	—	—	—	—
CF-A-080	800	2000	±320	4000	2.17×10^{4}	—	—	—	—	—	—	—	—
CF-A-090	900	2250	±360	3600	1.37×10^{4}	—	—	—	—	—	—	—	—
CF-A-140	1400	3500	±560	3600	2.90×10^{4}	—	—	—	—	—	—	—	—
CF-A-200	2000	5000	±800	3200	6.08×10^{4}	—	—	—	—	—	—	—	—
CF-A-250	2500	6250	±1000	3000	8.28×10^{4}	—	—	—	—	—	—	—	—
CF-A-400	4000	10000	±1600	2800	1.25×10^{5}	—	—	—	—	—	—	—	—

* The above specification is based on standard pars [Rubber material: NR (Natural rubber), rubber hardness: 60Hs].
* Dynamic torsional spring constant (≒) static torsional spring constant x1.3
* Refer to page 100 for permissible misalignment.
* The indicated prices of types OG and OZ are applied up to L= 600mm.

Model	Type O0, O1, O2						Type S0, S1, S2					
	Moment of inertia [kg · m²]			Mass [kg]			Moment of inertia [kg · m²]			Mass [kg]		
	O0	O1	O2	O0	O1	O2	S0	S1	S2	S0	S1	S2
CF-A-001	2.5×10^{-5}	5.8×10^{-5}	1.3×10^{-4}	0.08	0.3	0.5	1.9×10^{-5}	6.0×10^{-5}	1.4×10^{-4}	0.07	0.3	0.5
CF-A-002	1.3×10^{-4}	2.5×10^{-4}	6.3×10^{-4}	0.2	0.5	1.1	1.2×10^{-4}	2.8×10^{-4}	6.6×10^{-4}	0.1	0.5	1.1
CF-A-004	2.8×10^{-4}	5.4×10^{-4}	1.3×10^{-3}	0.2	0.6	1.5	2.6×10^{-4}	5.8×10^{-4}	1.4×10^{-3}	0.2	0.7	1.5
CF-A-008	7.6×10^{-4}	1.6×10^{-3}	3.7×10^{-3}	0.3	1.3	3.0	7.2×10^{-4}	1.8×10^{-3}	3.9×10^{-3}	0.3	1.4	3.1
CF-A-012	8.3×10^{-4}	1.8×10^{-3}	3.9×10^{-3}	0.3	1.3	3.1	7.6×10^{-4}	2.0×10^{-3}	4.1×10^{-3}	0.3	1.4	3.2
CF-A-016	2.5×10^{-3}	4.3×10^{-3}	1.1×10^{-2}	0.7	2.3	5.5	2.4×10^{-3}	4.7×10^{-3}	1.1×10^{-2}	0.6	2.5	5.6
CF-A-022	2.7×10^{-3}	4.8×10^{-3}	1.1×10^{-2}	0.7	2.4	5.6	2.6×10^{-3}	5.4×10^{-3}	1.2×10^{-2}	0.7	2.6	5.8
CF-A-025	4.2×10^{-3}	8.5×10^{-3}	2.1×10^{-2}	0.8	3.6	8.5	4.0×10^{-3}	9.2×10^{-3}	2.2×10^{-2}	0.8	3.8	8.7
CF-A-028	4.6×10^{-3}	9.6×10^{-3}	2.2×10^{-2}	1.0	3.8	8.7	4.3×10^{-3}	1.1×10^{-2}	2.3×10^{-2}	0.9	4.0	8.9
CF-A-030	1.1×10^{-2}	2.1×10^{-2}	4.7×10^{-2}	1.5	6.0	13.8	1.0×10^{-2}	2.2×10^{-2}	4.9×10^{-2}	1.4	6.3	14.2
CF-A-050	1.2×10^{-2}	2.3×10^{-2}	5.0×10^{-2}	1.7	6.3	14.2	1.1×10^{-2}	2.5×10^{-2}	5.2×10^{-2}	1.7	6.8	14.6
CF-A-080	1.5×10^{-2}	2.6×10^{-2}	5.4×10^{-2}	2.3	7.6	15.5	1.5×10^{-2}	2.9×10^{-2}	5.6×10^{-2}	2.3	8.1	16.0
CF-A-090	3.8×10^{-2}	6.7×10^{-2}	0.15	3.2	11.8	26.1	3.6×10^{-2}	7.1×10^{-2}	0.16	3.1	12.4	26.6
CF-A-140	4.2×10^{-2}	7.4×10^{-2}	0.16	3.7	12.6	26.8	3.8×10^{-2}	7.9×10^{-2}	0.17	3.4	13.3	27.5
CF-A-200	7.8×10^{-2}	0.14	0.30	5.5	17.8	39.4	7.5×10^{-2}	0.15	0.32	5.3	18.5	40.1
CF-A-250	0.14	0.24	0.50	7.8	24.5	52.3	0.14	0.25	0.50	7.0	24.5	52.3
CF-A-400	0.24	0.44	0.97	11.5	37.6	85.0	0.22	0.49	1.00	10.7	39.5	86.9

* The above values are based on the cylindrical and flange hubs with pilot bores.

Ordering Information

CF - A - 001 - O2 - 13 60

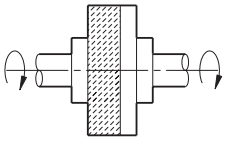
- Size: 001
- Type: O2
  - O0, S0 : Rubber body only
  - OB, SB : O0, S0 + bolt
  - O1, S1 : OC, SC + cylindrical hub
  - OP, SP : O0, S0 + spring pi
  - OC, SC : OB, SB + spring pi
  - O2, S2 : O1, S1 + flange hub
- Rubber material: 13
  - 13: NR natural rubber
- Rubber hardness: 60
  - 60: 60Hs
  - 50: 50Hs (Available by special order)

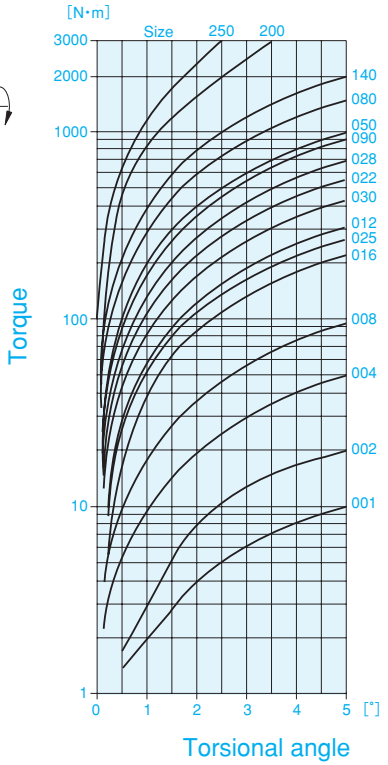
CF - A - 001 - OG - 13 60 L= □ mm

- Size: 001
- Type: OG
  - OG, OZ : Floating shaft type
- Rubber material: 13
  - 13: NR natural rubber
- Rubber hardness: 60
  - 60: 60Hs
  - 50: 50Hs (Available by special order)
- Floating length
  - Refer to page 95 and 96.

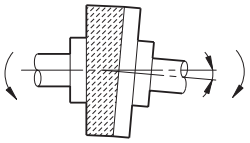
Static spring characteristics

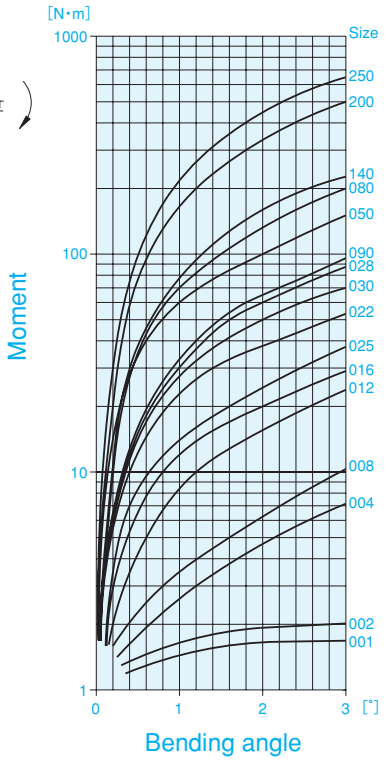
■Torsional angle- Torque curve



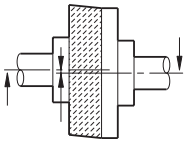


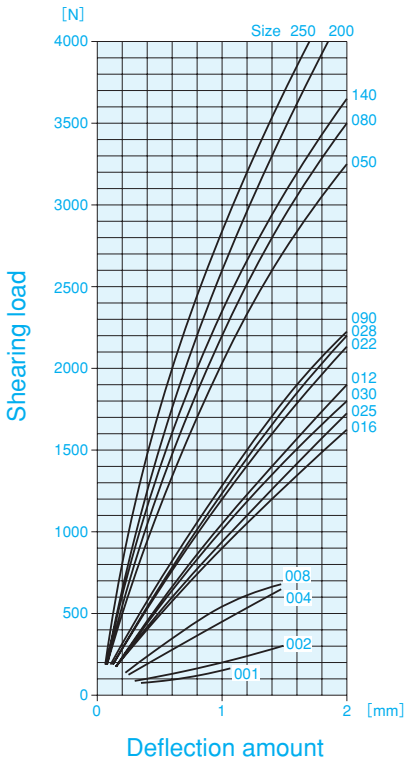
■Bending angle- Moment curve



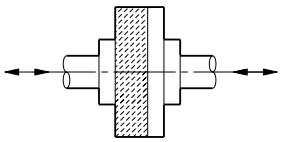


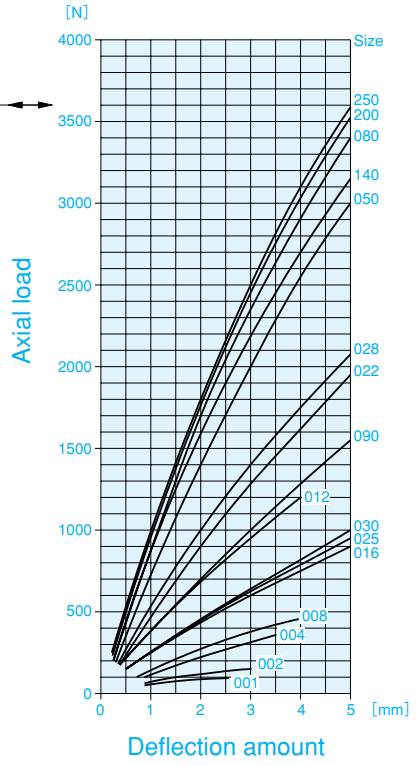
■Shearing load- Deflection curve





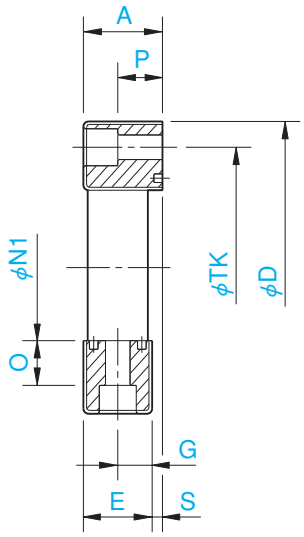
■Axial load- Deflection curve





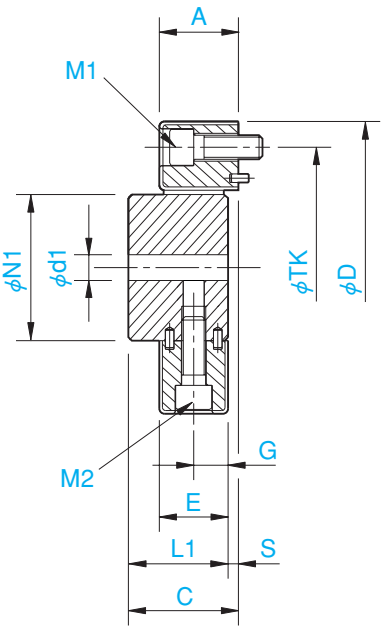
Dimensions

■Type: O0



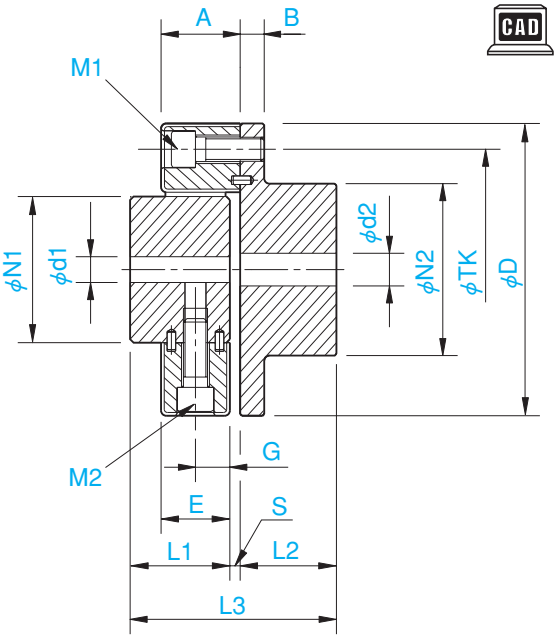
CF-A-O0

■Type: O1



CF-A-O1

■Type: O2



CF-A-O2

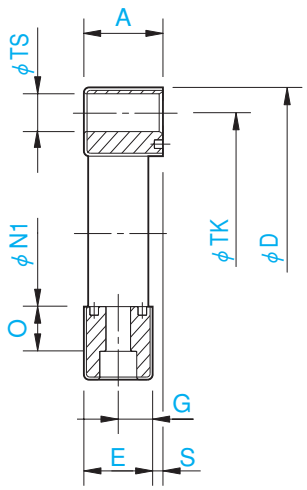
■Bolt mounted type

Unit [mm]

Model	d1		d2		D	N1	N2	L1	L2	L3	A	B	C	E	G	O	P	S	TK	M1=M2	CAD file No.
	Pilot bore	Max.	Pilot bore	Max.																	
CF-A-001	8	19	8	22	56	30	36	32	24	58	24	7	34	22	11	5	18	2	44	2-M6	CF-A11
CF-A-002	10	28	9	30	85	40	45	30	28	62	24	8	34	20	10	14	12	4	68	2-M8	CF-A12
CF-A-004	12	30	11	36	100	45	55	34	30	68	28	8	38	24	12	18	17	4	80	3-M8	CF-A13
CF-A-008	12	38	15	46	120	60	70	40	42	86	32	10	44	28	14	20	20	4	100	3-M10	CF-A14
CF-A-012	12	38	15	46	120	60	70	40	42	86	32	10	44	28	14	20	20	4	100	4-M10	CF-A15
CF-A-016	15	48	19	56	150	70	85	52	50	108	42	12	58	36	18	25	24	6	125	3-M12	CF-A16
CF-A-022	15	48	19	56	150	70	85	52	50	108	42	12	58	36	18	25	24	6	125	4-M12	CF-A17
CF-A-025	15	55	19	65	170	85	100	58	56	120	46	14	64	40	20	26	26	6	140	3-M14	CF-A18
CF-A-028	15	55	19	65	170	85	100	58	56	120	46	14	64	40	20	26	26	6	140	4-M14	CF-A19
CF-A-030	20	65	28	80	200	100	120	68	66	142	58	16	76	50	25	33	35	8	165	3-M16	CF-A21
CF-A-050	20	65	28	80	200	100	120	68	66	142	58	16	76	50	25	33	35	8	165	4-M16	CF-A22
CF-A-080	20	65	28	80	205	100	120	80	66	150	65	16	84	61	30.5	33	35	4	165	4-M16	CF-A23
CF-A-090	30	85	30	95	260	125	140	84	80	172	70	19	92	62	31	46	45	8	215	3-M20	CF-A24
CF-A-140	30	85	30	95	260	125	140	84	80	172	70	19	92	62	31	46	45	8	215	4-M20	CF-A25
CF-A-200	35	105	35	110	300	145	160	94	90	192	80	19	102	72	36	46	45	8	250	4-M20	CF-A27
CF-A-250	40	115	40	120	340	160	180	100	100	208	85	19	108	77	22.5 54.5	60	60	8	280	M1=4-M20 M2=8-M20	CF-A26
CF-A-400	40	115	40	130	370	170	200	125	125	260	105	29	135	95	28.5 66.5	70.5	67	10	300	M1=4-M24 M2=8-M20	CF-A28

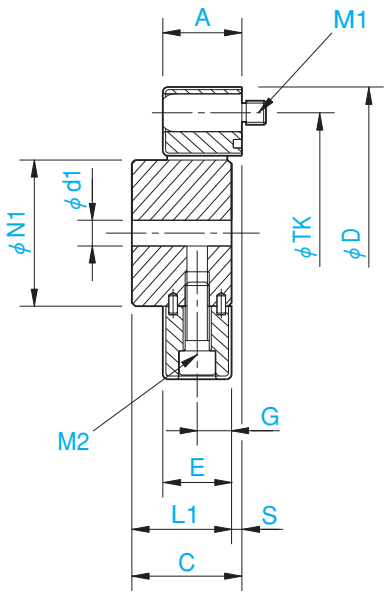
* The above values indicate the dimensions when the rubber parts are assembled. Dimensions N1, TK and D before assembling the rubber parts differ from the values given above.
* Dimension TK is the pitch diameter of bolts to mount flange hubs or mating parts.
* When using hexagon socket head cap screws for CF-A-400, a special plain washer is required.
* Eight bolts (2 bolts x 4 places) are required as radial bolts of CF-A-250 and 400.
* Use CF-A-O2 data as CAD data.

■Type: S0



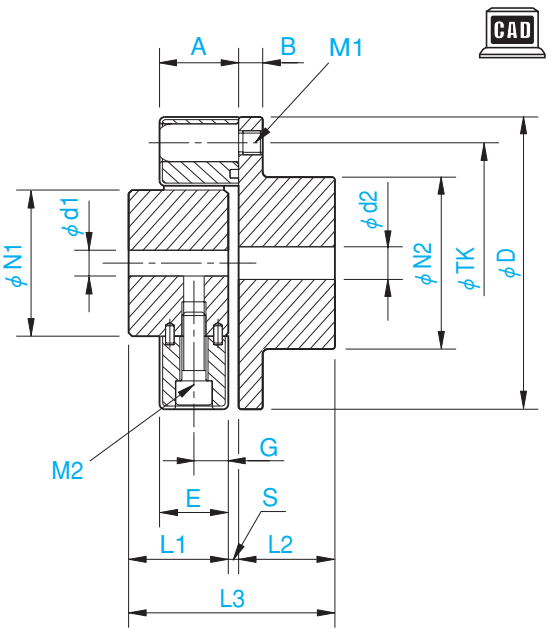
CF-A-S0

■Type: S1



CF-A-S1

■Type: S2



CF-A-S2

■Bayonet mounting type

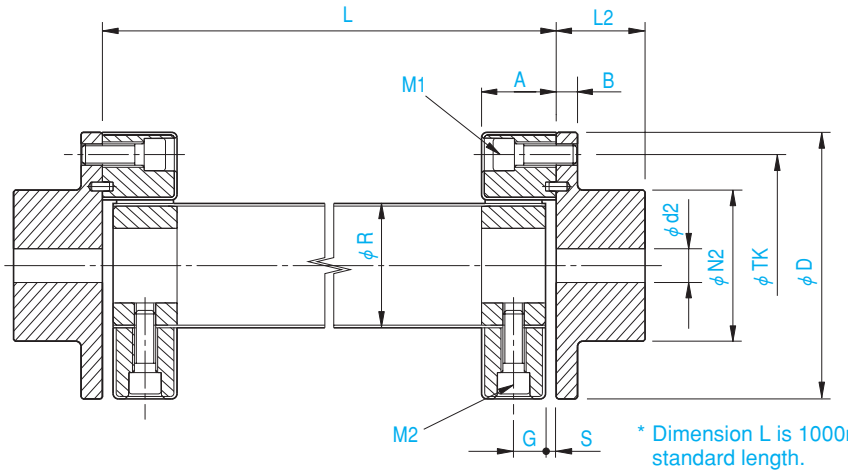
Unit [mm]

Model	d1		d2		D	N1	N2	L1	L2	L3	A	B	C	E	G	O	S	TS	TK	M1=M2	CAD file No.
	Pilot bore	Max.	Pilot bore	Max.																	
CF-A-001	8	19	8	22	56	30	36	32	24	58	24	7	34	22	11	5	2	10	44	2-M6	CF-AS1
CF-A-002	10	28	9	30	85	40	45	30	28	62	24	8	34	20	10	14	4	14	68	2-M8	CF-AS2
CF-A-004	12	30	11	36	100	45	55	34	30	68	28	8	38	24	12	18	4	14	80	3-M8	CF-AS3
CF-A-008	12	38	15	46	120	60	70	40	42	86	32	10	44	28	14	20	4	17	100	3-M10	CF-AS4
CF-A-012	12	38	15	46	120	60	70	40	42	86	32	10	44	28	14	20	4	17	100	4-M10	CF-AS5
CF-A-016	15	48	19	56	150	70	85	52	50	108	42	12	58	36	18	25	6	19	125	3-M12	CF-AS6
CF-A-022	15	48	19	56	150	70	85	52	50	108	42	12	58	36	18	25	6	19	125	4-M12	CF-AS7
CF-A-025	15	55	19	65	170	85	100	58	56	120	46	14	64	40	20	26	6	22	140	3-M14	CF-AS8
CF-A-028	15	55	19	65	170	85	100	58	56	120	46	14	64	40	20	26	6	22	140	4-M14	CF-AS9
CF-A-030	20	65	28	80	200	100	120	68	66	142	58	16	76	50	25	33	8	25	165	3-M16	CF-AS10
CF-A-050	20	65	28	80	200	100	120	68	66	142	58	16	76	50	25	33	8	25	165	4-M16	CF-AS11
CF-A-080	20	65	28	80	205	100	120	80	66	150	65	16	84	61	30.5	33	4	25	165	4-M16	CF-AS12
CF-A-090	30	85	30	95	260	125	140	84	80	172	70	19	92	62	31	46	8	32	215	3-M20	CF-AS13
CF-A-140	30	85	30	95	260	125	140	84	80	172	70	19	92	62	31	46	8	32	215	4-M20	CF-AS14
CF-A-200	35	105	35	110	300	145	160	94	90	192	80	19	102	72	36	46	8	32	250	4-M20	CF-AS15
CF-A-250	40	115	40	120	340	160	180	100	100	208	85	19	108	77	22.5 54.5	60	8	32	280	M1=4-M20 M2=8-M20	CF-AS16
CF-A-400	40	115	40	130	370	170	200	125	125	260	105	29	135	95	28.5 66.5	70.5	10	45	300	M1=4-M24 M2=8-M20	CF-AS17

* The above values indicate the dimensions when the rubber parts are assembled. Dimensions N1, TK and D before assembling the rubber parts differ from the values given above.
* Dimension TK is the pitch diameter of bolts to mount flange hubs or mating parts.
* Dimension TS indicates the basic dimension of H8 plug gauge. However, the tolerance is ($^{+0.1}_{0}$) for size 001 and ($^{+0.15}_{0}$) for size 002 and 004.
* When using hexagon socket head cap screws for CF-A-400, a special plain washer is required.
* Eight bolts (2 bolts x 4 places) are required as radial bolts of CF-A-250 and 400.
* Use CF-A-S2 data as CAD data.

For low-speed rotation

■Type: OG

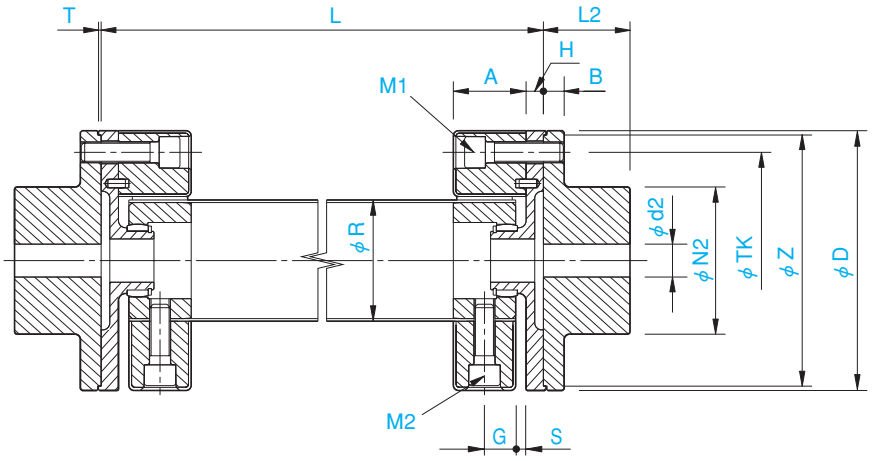


* Dimension L is 1000mm or less in standard length.

CF-A-OG

For high-speed rotation

■Type: OZ



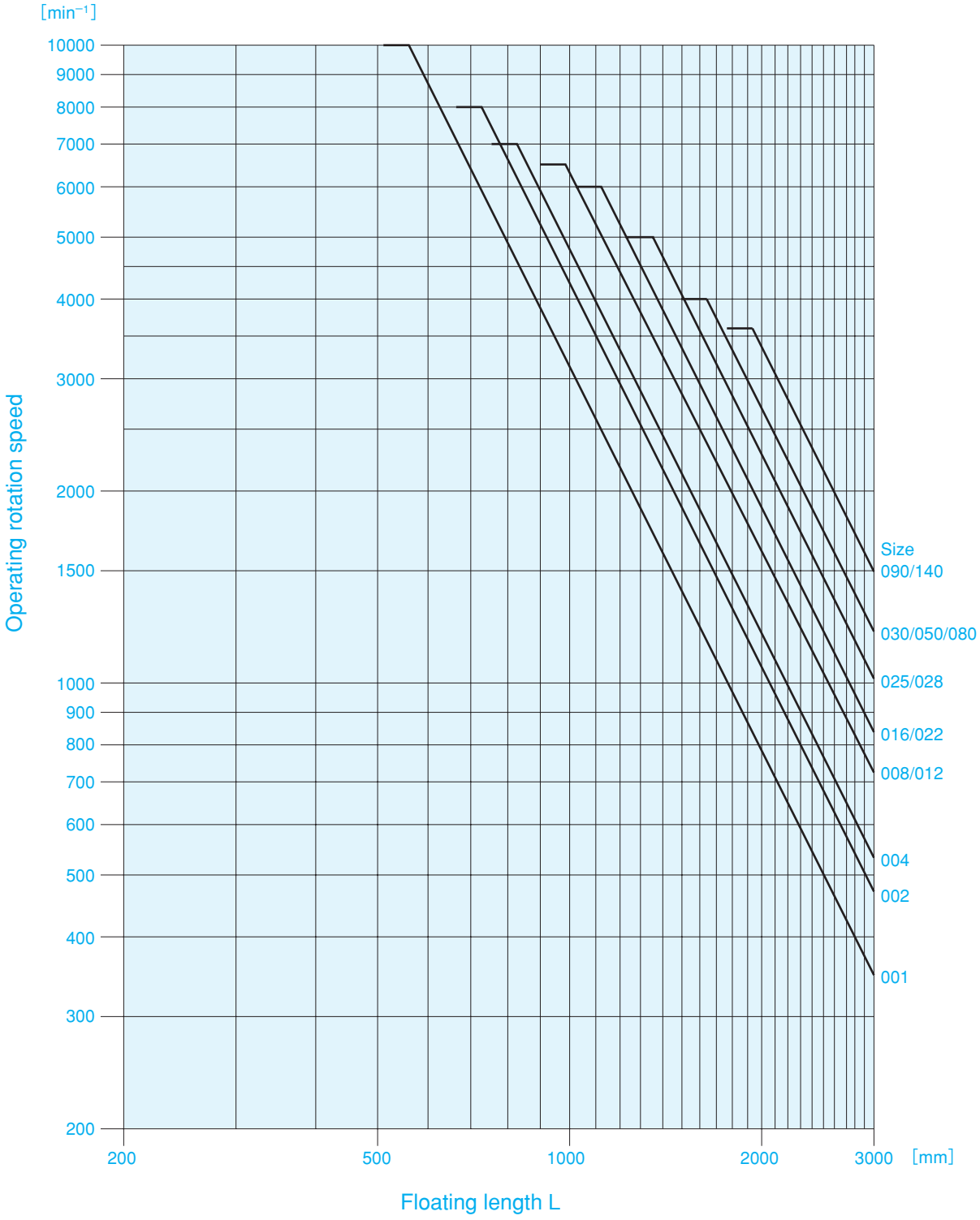
CF-A-OZ

Unit [mm]

Model	d2		D	N2	L	L2	A	B	H	R	T	G	S	TK	Z (H8)	M1=M2	CAD file No.	
	Pilot bore	Max.															For OG	For OZ
CF-A-001	8	22	56	36	See next page for Type OZ.	24	24	7	5	30	1.5	11	2	44	52	2-M6	CF-AG1	CF-AZ1
CF-A-002	9	30	85	45		28	24	8	5	40	1.5	10	4	68	80	2-M8	CF-AG2	CF-AZ2
CF-A-004	11	36	100	55		30	28	8	5	45	1.5	12	4	80	95	3-M8	CF-AG3	CF-AZ3
CF-A-008	15	46	120	70		42	32	10	10	60	1.5	14	4	100	115	3-M10	CF-AG4	CF-AZ4
CF-A-012	15	46	120	70		42	32	10	10	60	1.5	14	4	100	115	4-M10	CF-AG5	CF-AZ5
CF-A-016	19	56	150	85		50	42	12	10	70	1.5	18	6	125	145	3-M12	CF-AG6	CF-AZ6
CF-A-022	19	56	150	85		50	42	12	10	70	1.5	18	6	125	145	4-M12	CF-AG7	CF-AZ7
CF-A-025	19	65	170	100		56	46	14	10	85	1.5	20	6	140	165	3-M14	CF-AG8	CF-AZ8
CF-A-028	19	65	170	100		56	46	14	10	85	1.5	20	6	140	165	4-M14	CF-AG9	CF-AZ9
CF-A-030	28	80	200	120		66	58	16	10	100	1.5	25	8	165	195	3-M16	CF-AG10	CF-AZ10
CF-A-050	28	80	200	120		66	58	16	10	100	1.5	25	8	165	195	4-M16	CF-AG11	CF-AZ11
CF-A-080	28	80	205	120		66	65	16	10	100	1.5	30.5	4	165	195	4-M16	CF-AG12	CF-AZ12
CF-A-090	30	95	260	140		80	70	19	10	125	2	31	8	215	250	3-M20	CF-AG13	CF-AZ13
CF-A-140	30	95	260	140		80	70	19	10	125	2	31	8	215	250	4-M20	CF-AG14	CF-AZ14

* Dimension L of type OG is 1000mm or less in standard length.
* For Dimension L of type OZ, refer to the graph of floating length on page 96.
* For Dimension L of type OG and OZ, a space that is enough for mounting a M1 bolt is minimally required.
* Use Type OG at 1000min^{-1} or less.
* Consult Miki Pulley for design types and dimensions of CF-A-200-OG/OZ to CF-A-400-OG/OZ.

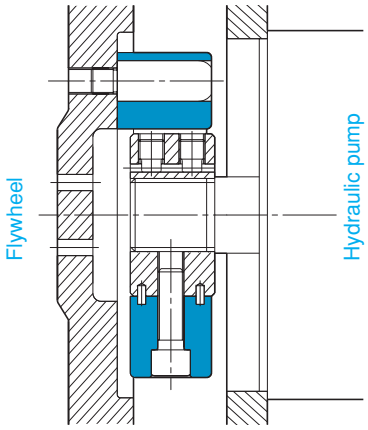
Critical operating rotation speed of Type OZ



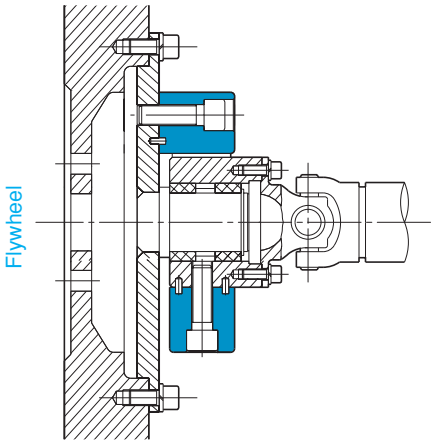
The vertical axis indicates operating revolution speed, and the horizontal axis indicates floating length. The maximum operating floating length is determined by the operating revolution speed.

Mounting example

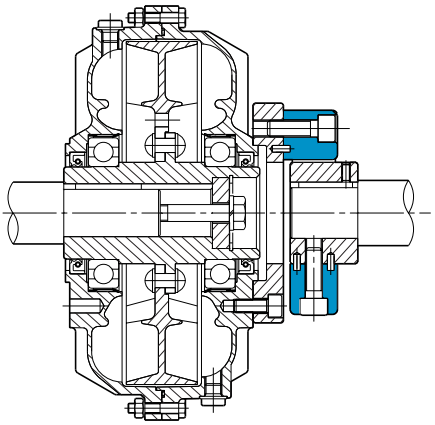
For connecting an engine and pressure pump



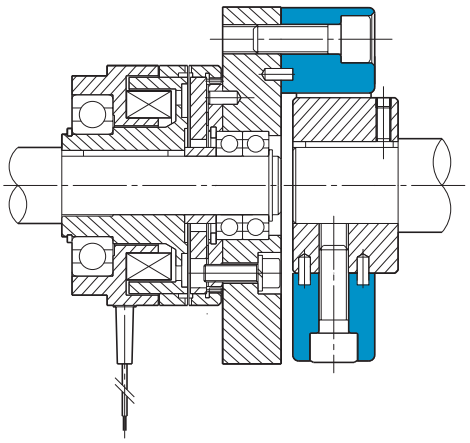
For connecting an engine and drive together with a universal joint



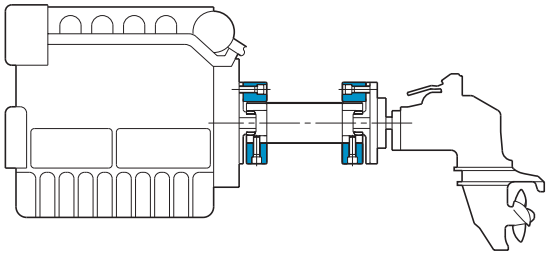
For connecting with a fluid (hydraulic) coupling



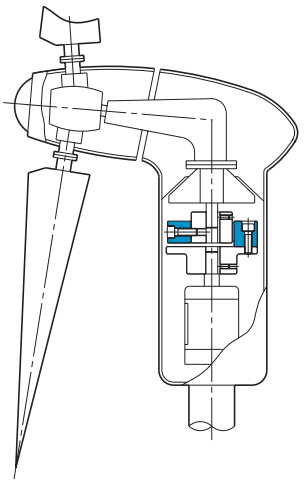
For connecting with an electromagnetic clutch



For connecting an engine and propelling machinery as a marine intermediate shaft



For connecting a blade of a wind power generator and electric generator



Design check items

Design of cylindrical and flange hubs

1 Material

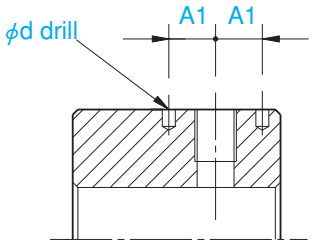
	Size	Material	Tensile strength
Cylindrical hub	All size	S 45 C	569N/mm² or more
Flange hub	001 ~ 004	FC 200	200N/mm² or more
	008 ~ 250	FCD 450	450N/mm² or more

- The standard products are made of the materials shown on the left.
- When newly designing cylindrical and flange hubs, use materials which have strengths higher than those of the standard products.
- The material of the CF-A-400 flange hubs is FCD450 or S45C.

2 Dimensions of spring pin bores

Refer to the table below for the dimensions of spring pin bores of cylindrical and flange hubs (Sizes 008 or more).

Cylindrical hub

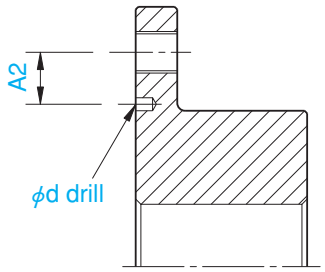


Unit [mm]

Size	A1±0.1	d	Depth	Spring pin specification
008	10.0	4	5.5	6-ϕ4×8
012	10.0	4	5.5	8-ϕ4×8
016	13.5	5	6.5	6-ϕ5×10
022	13.5	5	6.5	8-ϕ5×10
025	14.0	5	6.5	6-ϕ5×10
028	14.0	5	6.5	8-ϕ5×10
030	18.0	5	6.5	6-ϕ5×10
050	18.0	5	6.5	8-ϕ5×10
080	18.0	5	6.5	8-ϕ5×10
090	22.5	8	13.0	6-ϕ8×16
140	22.5	8	13.0	8-ϕ8×16
200	22.5	8	13.0	8-ϕ8×16

* Spring pin bores are not needed on the cylindrical hub side of Sizes 250 and 400.

Flange hub (Flywheel side)



Unit [mm]

Size	A2±0.1	d	Depth	Spring pin specification
008	12	4	5.5	3-ϕ4×8
012	12	4	5.5	4-ϕ4×8
016	18	5	6.5	3-ϕ5×10
022	18	5	6.5	4-ϕ5×10
025	18	5	6.5	3-ϕ5×10
028	18	5	6.5	4-ϕ5×10
030	20	5	6.5	3-ϕ5×10
050	20	5	6.5	4-ϕ5×10
080	20	5	6.5	4-ϕ5×10
090	25	8	13.0	3-ϕ8×16
140	25	8	13.0	4-ϕ8×16
200	25	8	13.0	4-ϕ8×16
250	30	10	13.0	4-ϕ10×18
400	40	10	13.0	4-ϕ10×18

3 Coupling of pump shaft (spline shaft) and a cylindrical hub

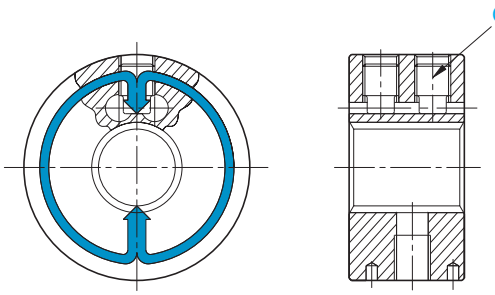
❶ Movable spline

Make sure to heat-treat (carburized hardening or other process) the spline teeth of cylindrical hub. Contact Miki Pulley concerning materials, heat treatment hardness, or other items.

The rubber part of movable spline must always be Type O0.

❷ Fixed spline

Design of clamping hubs to completely fix a cylindrical hub and spline shaft by the center locking action is available. Contact Miki Pulley for further information. Clamping hubs are available by special order.



Center-lock action of clamping hub

Recommended spline shaft fit class

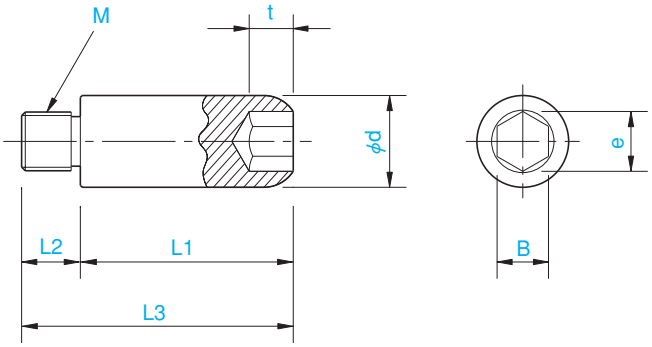
Standard	Class of fit
JIS	Class b
SAE J498b	Class 2
ANSI B92.1	Class 5

■Bolt specification and tightening torque

Size	Bolt specification				Tightening torque[N·m]
	Class of strength	Radial direction	Axial direction		
		All type No. of bolts- nominal dia.x length under head	Type O1,O2,OG No. of bolts- nominal dia.x length under head	Type OZ No. of bolts- nominal dia.x length under head	
001	8.8 or more	2-M6×10	2-M6×25	2-M6×30	9 ～ 11
002		2-M8×20	2-M8×20	2-M8×25	24 ～ 27
004		3-M8×25	3-M8×25	3-M8×30	24 ～ 27
008		3-M10×30	3-M10×30	3-M10×40	49 ～ 54
012		4-M10×30	4-M10×30	4-M10×40	49 ～ 54
016		3-M12×35	3-M12×35	3-M12×45	85 ～ 94
022		4-M12×35	4-M12×35	4-M12×45	85 ～ 94
025		3-M14×40	3-M14×40	3-M14×50	130 ～ 150
028		4-M14×40	4-M14×40	4-M14×50	130 ～ 150
030		3-M16×50	3-M16×50	3-M16×60	210 ～ 230
050		4-M16×50	4-M16×50	4-M16×60	210 ～ 230
080		4-M16×50	4-M16×50	4-M16×60	210 ～ 230
090	10.9 or more	3-M20×65	3-M20×65	3-M20×75	440 ～ 490
140		4-M20×65	4-M20×65	4-M20×75	440 ～ 490
200		4-M20×65	4-M20×65	——	440 ～ 490
250		8-M20×80	4-M20×80	——	440 ～ 490
400		8-M20×100	4-M24×100	——	M20 440 ～ 490 M24 850 ～ 900

* Consult Miki Pulley when using bolts other than those specified above.

- The bolts conform to JIS B1176 hexagon socket head cap screws and are treated by colored chromate and microcapsule coating (slack preventive). Dedicated S bolts are required as axial bolts used for Type S□. Refer to the following figure and table on the right.



- Do not use any liquid anaerobic adhesive (screw lock agent). It may damage the rubber parts.

S bolt dimensions

Unit [mm]

Size	d	L1	L2	L3	t	B	e	M [Nominal dig. x pitch]
001	10	24	7	31	5.0	5	5.9	M 6×1
002 · 004	14	24	8	32	6.0	6	7.0	M 8×1.25
008 · 012	17	32	10	42	9.0	8	9.4	M10×1.5
016 · 022	19	42	12	54	9.0	10	11.7	M12×1.75
025 · 028	22	46	14	60	10.5	12	14.0	M14×2
030 · 050 080	25	58	16	74	12.0	14	16.3	M16×2
090 · 140 200 · 250	32	70	20	90	14.0	17	19.8	M20×2.5

* Size 400 uses a spacer method. S bolts are not used.

■Operating environment

- Store the rubber parts in a cool and dry place avoiding direct sunshine. If exposed to direct sunshine, the life of rubber parts will be shortened. Provide suitable covers on the rubber parts.
- The rubber parts are not fully resistant to oil and grease. Avoid having the rubber parts contact oil or grease. If contacted, wipe off immediately with alcohol or acetone.
- Store the bolts with microcapsule coating in a dry and airy place. For not to degrade its performance, make sure not to put any oil content.

■Max. permissible misalignment

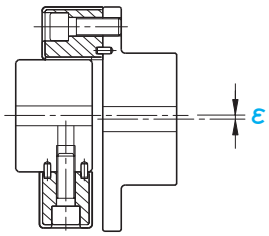
Centering must be below the Max. permissible misalignment of the table below.

Size	Parallel offset [mm]	Angular misalignment [°]	Axial displacement [mm]
001	0.5	3	±2
002	1.0	3	±3
004	1.0	3	±3
008	1.0	3	±4
012	1.0	2	±4
016	1.5	3	±5
022	1.5	2	±5
025	1.5	3	±5
028	1.5	2	±5

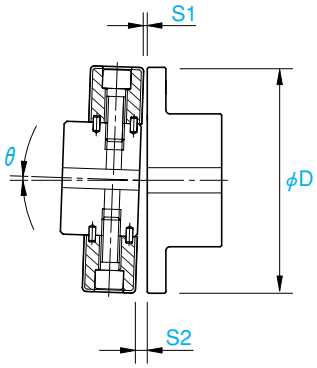
Size	Parallel offset [mm]	Angular misalignment [°]	Axial displacement [mm]
030	1.5	3	±5
050	1.5	2	±5
080	1.5	2	±4
090	1.5	3	±5
140	1.5	2	±5
200	1.5	2	±5
250	1.5	2	±5
400	1.5	2	±5

- If the rotation speed exceeds (1000min^{-1}), parallel offset below 0.5mm and angular misalignment below 1° are recommended.

Parallel offset

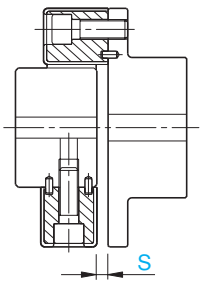


Angular misalignment

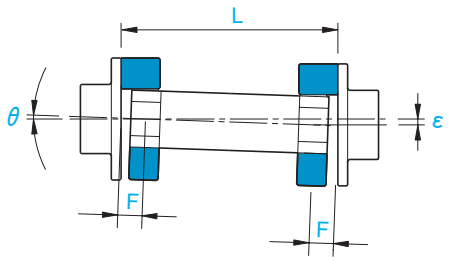


$$\theta = \sin^{-1}\frac{S2-S1}{D}$$

Axial displacement



■Calculation of parallel offset and angular misalignment of Types OG and OZ



$\varepsilon = \tan\theta\,(L-2F)$

Dimension F in this case is:
Type OG F= G+ S
Type OZ F= G+ S+ H

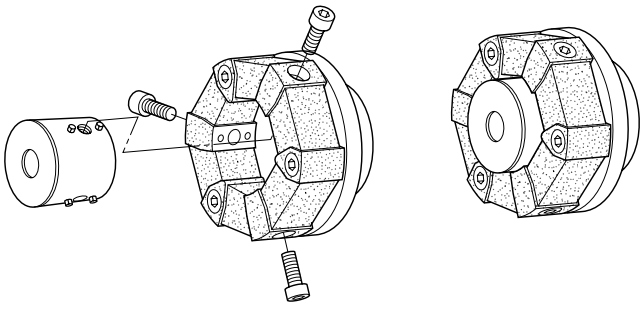
ε: Parallel offset of two shafts
θ: Coupling angular misalignment
L: Floating length

* Refer to the dimensional drawing on page 95 for each dimensional signs.

■Assembling procedure

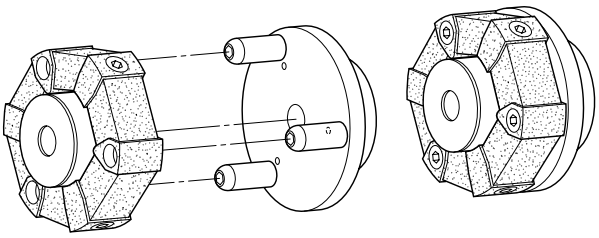
Type O□

- Drive the spring pins into the cylindrical and flange hubs. Mount the rubber part in the flange hub first and then cylindrical hub. (Spring pins are used for Sizes 008 or more.)



Type S□

- Drive the spring pins into the cylindrical hub and fix the S bolts on the flange hub. Mount the rubber part in the cylindrical hub first and then push them into the S bolts to assemble. (Spring pins are used for Sizes 008 or more.)



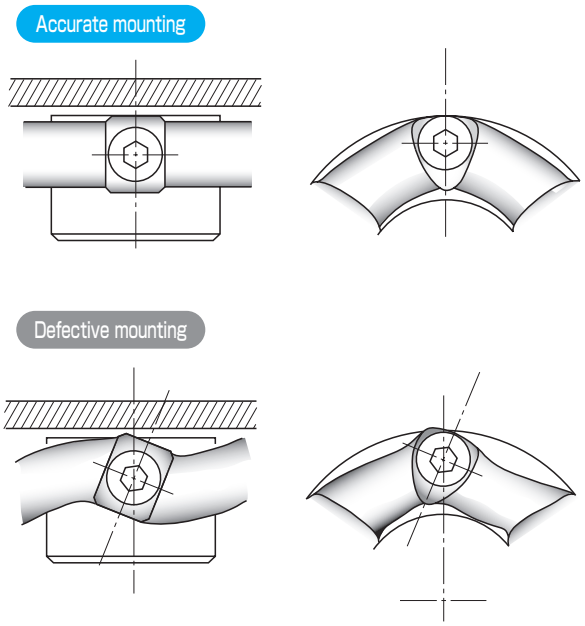
■Check items in assembly

❶ Tighten the bolts at the specified torque by using a torque wrench when mounting the rubber parts in the cylindrical and flange hubs. At this time, coat a little grease onto the bearing surface of the bolt to achieve reliable tightening. (Do not coat any grease on the screw part of the bolt.) In addition, do not use liquid anaerobic adhesive (screw lock agent). It may damage the rubber parts.

❷ When the rubber parts are mounted in the cylindrical hubs after flange hubs, tighten the bolts while the cylindrical hubs are fixed to avoid a deformation caused by the frictional force of the bolt bearing surface.

❸ When mounting the rubber parts in the cylindrical hubs, screw in each bolt by two threads each and then tighten completely.

❹ When assembly is finished, refer to the figure on the right to reconfirm the mounting condition.



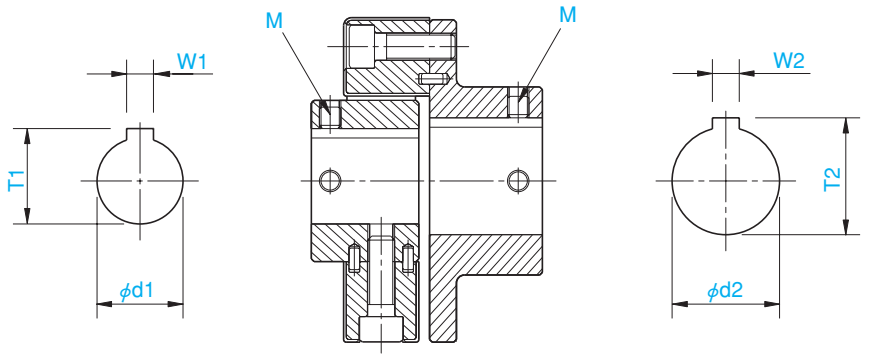
■ General-purpose motor specification and simplified selection

Motor		50Hz：3000min⁻¹ / 60Hz：3600min⁻¹				50Hz：1500min⁻¹ / 60Hz：1800min⁻¹			
		Bipolar (2-pole) motor		Centaflex		Quadrupolar (4-pole) motor		Centaflex	
Output [kW]	Frequency [Hz]	Shaft dia. [mm]	Torque [N·m]	Model	Nominal bore dia.	Shaft dia. [mm]	Torque [N·m]	Model	Nominal bore dia.
0.4	50	14	1.3	CF-A-001	14N	14	2.6	CF-A-001	14N
	60	14	1.1	CF-A-001	14N	14	2.2	CF-A-001	14N
0.75	50	19	2.4	CF-A-001	19N	19	4.9	CF-A-001	19N
	60	19	2	CF-A-001	19N	19	4.1	CF-A-001	19N
1.5	50	24	4.9	CF-A-002	24N	24	9.7	CF-A-002	24N
	60	24	4.1	CF-A-002	24N	24	8.1	CF-A-002	24N
2.2	50	24	7.1	CF-A-002	24N	28	14	CF-A-004	28N
	60	24	6	CF-A-002	24N	28	12	CF-A-004	28N
3.7	50	28	12	CF-A-002	28N	28	24	CF-A-008	28N
	60	28	10	CF-A-002	28N	28	20	CF-A-004	28N
5.5	50	38	18	CF-A-008	38N	38	36	CF-A-008	38N
	60	38	15	CF-A-008	38N	38	30	CF-A-008	38N
7.5	50	38	24	CF-A-008	38N	38	49	CF-A-012	38N
	60	38	20	CF-A-008	38N	38	41	CF-A-008	38N
11	50	42	36	CF-A-008	42N	42	71	CF-A-016	42N
	60	42	30	CF-A-008	42N	42	59	CF-A-012	42N
15	50	42	49	CF-A-012	42N	42	97	CF-A-022	42N
	60	42	41	CF-A-008	42N	42	81	CF-A-016	42N
18.5	50	42	60	CF-A-012	42N	48	120	CF-A-025	48N
	60	42	50	CF-A-012	42N	48	100	CF-A-022	48N
22	50	48	71	CF-A-016	48N	48	143	CF-A-028	48N
	60	48	59	CF-A-012	48N	48	119	CF-A-022	48N
30	50	55	97	CF-A-022	55N	55	195	CF-A-030	55N
	60	55	81	CF-A-016	55N	55	162	CF-A-028	55N
37	50	55	120	CF-A-025	55N	60	240	CF-A-050	60N
	60	55	100	CF-A-022	55N	60	200	CF-A-030	60N
45	50	55	146	CF-A-028	55N	60	292	CF-A-050	60N
	60	55	122	CF-A-025	55N	60	243	CF-A-050	60N

* The above table indicates the adaptive sizes of couplings when used in general-purpose motor drives.
* The motor rotation speed and output torque indicates calculated values (reference values).

Standard bore processing specification

- Bore processing is available upon request. Products are stored with pilot bores.
- Bores are machined based on the following specification.
- Assign as described below when ordering.
  Ex) CF-A-050-02-1360 42N-50H
  (d1) (d2)
- The positions of setscrews will not be on the same plane.
- Spline machining is also available. Contact us for further information.



Previous JIS (Second class) correspondence					New JIS correspondence					New standard motor correspondence				
Nominal bore dia.	Bore dia. (d1-d2)	Keyway width (W1·W2)	Keyway height (T1·T2)	Setscrew bore (M)	Nominal bore dia.	Bore dia. (d1-d2)	Keyway width (W1·W2)	Keyway height (T1·T2)	Setscrew bore (M)	Nominal bore dia.	Bore dia. (d1-d2)	Keyway width (W1·W2)	Keyway height (T1·T2)	Setscrew bore (M)
Tolerance	H7, H8	E9	$^{+0.3}_{0}$	—	Tolerance	H7	H9	$^{+0.3}_{0}$	—	Tolerance	G7, F7	H9	$^{+0.3}_{0}$	—
9	9 $^{+0.022}_{0}$	—	—	2-M4	—	—	—	—	—	—	—	—	—	—
10	10 $^{+0.022}_{0}$	—	—	2-M4	—	—	—	—	—	—	—	—	—	—
11	11 $^{+0.018}_{0}$	—	—	2-M4	—	—	—	—	—	—	—	—	—	—
12	12 $^{+0.018}_{0}$	4 $^{+0.050}_{+0.020}$	13.5	2-M4	**12H**	12 $^{+0.018}_{0}$	4 $^{+0.030}_{0}$	13.8	2-M4	—	—	—	—	—
14	14 $^{+0.018}_{0}$	5 $^{+0.050}_{+0.020}$	16.0	2-M4	**14H**	14 $^{+0.018}_{0}$	5 $^{+0.030}_{0}$	16.3	2-M4	**14N**	14 $^{+0.024}_{+0.006}$	5 $^{+0.030}_{0}$	16.3	2-M4
15	15 $^{+0.018}_{0}$	5 $^{+0.050}_{+0.020}$	17.0	2-M4	**15H**	15 $^{+0.018}_{0}$	5 $^{+0.030}_{0}$	17.3	2-M4	—	—	—	—	—
16	16 $^{+0.018}_{0}$	5 $^{+0.050}_{+0.020}$	18.0	2-M4	**16H**	16 $^{+0.018}_{0}$	5 $^{+0.030}_{0}$	18.3	2-M4	—	—	—	—	—
17	17 $^{+0.018}_{0}$	5 $^{+0.050}_{+0.020}$	19.0	2-M4	**17H**	17 $^{+0.018}_{0}$	5 $^{+0.030}_{0}$	19.3	2-M4	—	—	—	—	—
18	18 $^{+0.018}_{0}$	5 $^{+0.050}_{+0.020}$	20.0	2-M4	**18H**	18 $^{+0.018}_{0}$	6 $^{+0.030}_{0}$	20.8	2-M5	—	—	—	—	—
19	19 $^{+0.021}_{0}$	5 $^{+0.050}_{+0.020}$	21.0	2-M4	**19H**	19 $^{+0.021}_{0}$	6 $^{+0.030}_{0}$	21.8	2-M5	**19N**	19 $^{+0.028}_{+0.007}$	6 $^{+0.030}_{0}$	21.8	2-M5
20	20 $^{+0.021}_{0}$	5 $^{+0.050}_{+0.020}$	22.0	2-M4	**20H**	20 $^{+0.021}_{0}$	6 $^{+0.030}_{0}$	22.8	2-M5	—	—	—	—	—
22	22 $^{+0.021}_{0}$	7 $^{+0.061}_{+0.025}$	25.0	2-M6	**22H**	22 $^{+0.021}_{0}$	6 $^{+0.030}_{0}$	24.8	2-M5	—	—	—	—	—
24	24 $^{+0.021}_{0}$	7 $^{+0.061}_{+0.025}$	27.0	2-M6	**24H**	24 $^{+0.021}_{0}$	8 $^{+0.036}_{0}$	27.3	2-M6	**24N**	24 $^{+0.028}_{+0.007}$	8 $^{+0.036}_{0}$	27.3	2-M6
25	25 $^{+0.021}_{0}$	7 $^{+0.061}_{+0.025}$	28.0	2-M6	**25H**	25 $^{+0.021}_{0}$	8 $^{+0.036}_{0}$	28.3	2-M6	—	—	—	—	—
28	28 $^{+0.021}_{0}$	7 $^{+0.061}_{+0.025}$	31.0	2-M6	**28H**	28 $^{+0.021}_{0}$	8 $^{+0.036}_{0}$	31.3	2-M6	**28N**	28 $^{+0.028}_{+0.007}$	8 $^{+0.036}_{0}$	31.3	2-M6
30	30 $^{+0.021}_{0}$	7 $^{+0.061}_{+0.025}$	33.0	2-M6	**30H**	30 $^{+0.021}_{0}$	8 $^{+0.036}_{0}$	33.3	2-M6	—	—	—	—	—
32	32 $^{+0.025}_{0}$	10 $^{+0.061}_{+0.025}$	35.5	2-M8	**32H**	32 $^{+0.025}_{0}$	10 $^{+0.036}_{0}$	35.3	2-M8	—	—	—	—	—
35	35 $^{+0.025}_{0}$	10 $^{+0.061}_{+0.025}$	38.5	2-M8	**35H**	35 $^{+0.025}_{0}$	10 $^{+0.036}_{0}$	38.3	2-M8	—	—	—	—	—
38	38 $^{+0.025}_{0}$	10 $^{+0.061}_{+0.025}$	41.5	2-M8	**38H**	38 $^{+0.025}_{0}$	10 $^{+0.036}_{0}$	41.3	2-M8	**38N**	38 $^{+0.050}_{+0.025}$	10 $^{+0.036}_{0}$	41.3	2-M8
40	40 $^{+0.025}_{0}$	10 $^{+0.061}_{+0.025}$	43.5	2-M8	**40H**	40 $^{+0.025}_{0}$	12 $^{+0.043}_{0}$	43.3	2-M8	—	—	—	—	—
42	42 $^{+0.025}_{0}$	12 $^{+0.075}_{+0.032}$	45.5	2-M8	**42H**	42 $^{+0.025}_{0}$	12 $^{+0.043}_{0}$	45.3	2-M8	**42N**	42 $^{+0.050}_{+0.025}$	12 $^{+0.043}_{0}$	45.3	2-M8
45	45 $^{+0.025}_{0}$	12 $^{+0.075}_{+0.032}$	48.5	2-M8	**45H**	45 $^{+0.025}_{0}$	14 $^{+0.043}_{0}$	48.8	2-M10	—	—	—	—	—
48	48 $^{+0.025}_{0}$	12 $^{+0.075}_{+0.032}$	51.5	2-M8	**48H**	48 $^{+0.025}_{0}$	14 $^{+0.043}_{0}$	51.8	2-M10	**48N**	48 $^{+0.050}_{+0.025}$	14 $^{+0.043}_{0}$	51.8	2-M10
50	50 $^{+0.025}_{0}$	12 $^{+0.075}_{+0.032}$	53.5	2-M8	**50H**	50 $^{+0.025}_{0}$	14 $^{+0.043}_{0}$	53.8	2-M10	—	—	—	—	—
55	55 $^{+0.030}_{0}$	15 $^{+0.075}_{+0.032}$	60.0	2-M10	**55H**	55 $^{+0.030}_{0}$	16 $^{+0.043}_{0}$	59.3	2-M10	**55N**	55 $^{+0.060}_{+0.030}$	16 $^{+0.043}_{0}$	59.3	2-M10
56	56 $^{+0.030}_{0}$	15 $^{+0.075}_{+0.032}$	61.0	2-M10	**56H**	56 $^{+0.030}_{0}$	16 $^{+0.043}_{0}$	60.3	2-M10	—	—	—	—	—
60	60 $^{+0.030}_{0}$	15 $^{+0.075}_{+0.032}$	65.0	2-M10	**60H**	60 $^{+0.030}_{0}$	18 $^{+0.043}_{0}$	64.4	2-M10	**60N**	60 $^{+0.060}_{+0.030}$	18 $^{+0.043}_{0}$	64.4	2-M10
63	63 $^{+0.030}_{0}$	18 $^{+0.075}_{+0.032}$	69.0	2-M10	**63H**	63 $^{+0.030}_{0}$	18 $^{+0.043}_{0}$	67.4	2-M10	—	—	—	—	—
65	65 $^{+0.030}_{0}$	18 $^{+0.075}_{+0.032}$	71.0	2-M10	**65H**	65 $^{+0.030}_{0}$	18 $^{+0.043}_{0}$	69.4	2-M10	**65N**	65 $^{+0.060}_{+0.030}$	18 $^{+0.043}_{0}$	69.4	2-M10

* Below ϕ11 of New JIS correspondence and below ϕ11 of New standard motor correspondence have the same contents as Previous JIS correspondence (Second class).

Distance from the edge surface of setscrew

Size	Cylindrical hub					Flange hub					
	001 002 004	008 012	016 022 025 028	030 050 080	090 140 200 250 400	001	002 004	008 012	016 022 025 028	030 050 080 090 140	200 250 400
Distance [mm]	6	7	10	11	13	6	7	9	10	15	16

CF-H-O1 · O2

Centaflex-H model

Vibrations and shocks are absorbed

A polyester resin (Hytrel) that has elasticity like that of rubber absorbs vibrations and shocks during power transmission.

Excellent resistance to environmental conditions

This material especially excels in resistance to heat, low temperature and oil.

Excellent durability

A long operating life is assured by the polyester resin and compressed torque transmission construction. Hub and spline shaft are completely fixed by a clamping mechanism. No fretting of wear is caused. Maintenance is almost never required.

Compactness

It is short in axial direction to save a space.

Easy mounting and dismounting

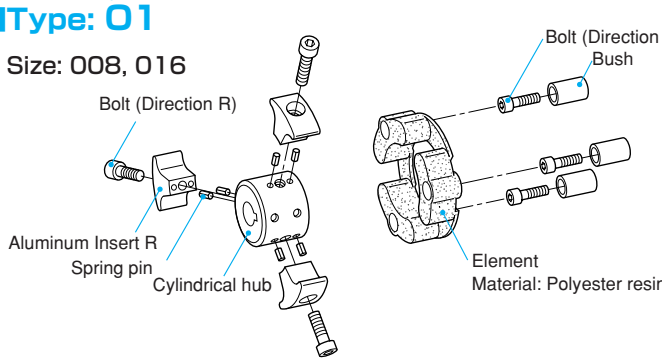
Input and output can be connected and disconnected easily merely by moving axially.

Normal operating torque [N·m]		100 ～ 2500
Pilot bore/Additional machining range [mm]		φ13 ～ 115
Operational temp. [℃]		−40 ～ +120
Backlash		Yes
Max. permissible misalignment	**Parallel offset** [mm]	0.3 ～ 0.4
	Angular misalignment [°]	0.5
	Axial displacement [mm]	±3

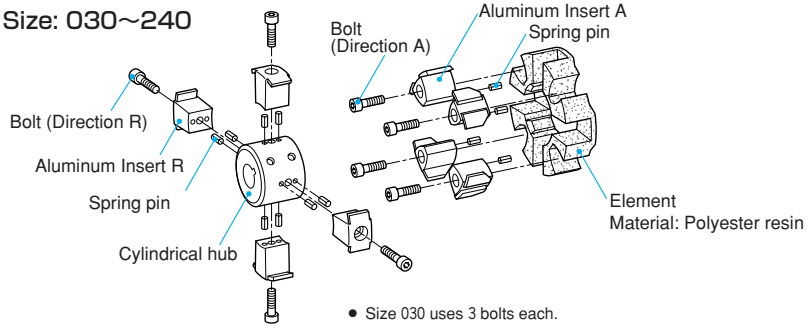
Structure and Material

Type: O1

Size: 008, 016

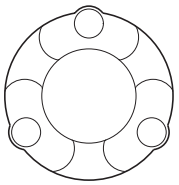


Size: 030～240

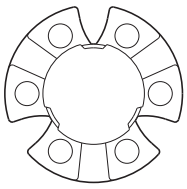


● Size 030 uses 3 bolts each.

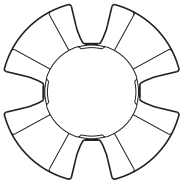
Element shapes of each size



Size 008, 016



Size 030



Size 040, 050, 090
110, 160, 240

Ordering information

CF - H - 008 - O1

Size

Type

O0 : Element + aluminum insert (bush)
OP : O0 + Spring pin
OB : O0 + Bolt
OC : OB + Spring pin
O1 : OC + Cylindrical hub
O2 : O1 + Flange hub

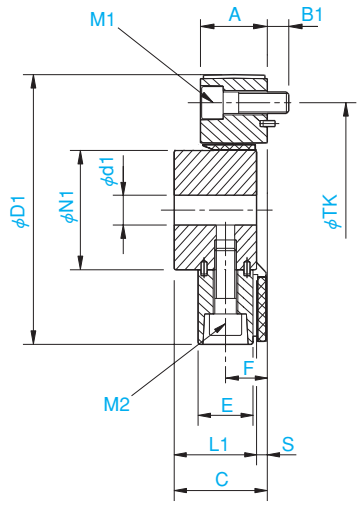
Specification

Model	Torque		Max. permissible misalignment			Max. rotation speed [min⁻¹]	Dynamic torsional spring constant [N·m/rad]
	Normal [N·m]	Max. [N·m]	Parallel offset [mm]	Angular misalignment [°]	Axial displacement [mm]		
CF-H-008	100	200	0.3	0.5	±3	6500	1.27×10^{4}
CF-H-016	200	400	0.3	0.5	±3	5500	2.46×10^{4}
CF-H-030	400	800	0.4	0.5	±3	4000	5.91×10^{4}
CF-H-040	600	1200	0.4	0.5	±3	4000	1.87×10^{5}
CF-H-050	800	1600	0.4	0.5	±3	4000	1.91×10^{5}
CF-H-090	950	1900	0.4	0.5	±3	4000	2.69×10^{5}
CF-H-110	1100	2200	0.4	0.5	±3	4000	2.79×10^{5}
CF-H-160	1600	3200	0.4	0.5	±3	3600	5.11×10^{5}
CF-H-240	2500	5000	0.4	0.5	±3	3000	5.10×10^{5}

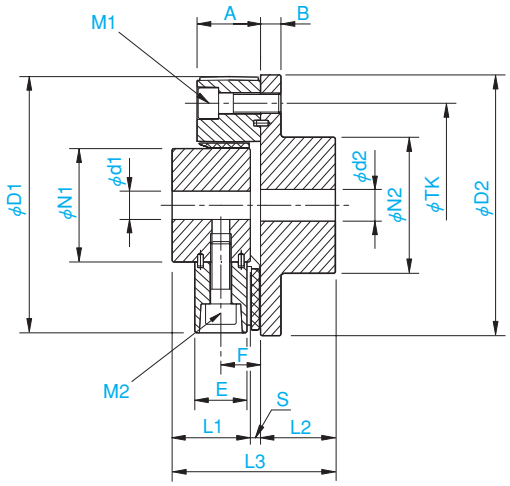
Model	Moment of inertia [kg·m²]			Mass [kg]			Price		
	Type O0	Type O1	Type O2	Type O0	Type O1	Type O2	Type O0	Type O1	Type O2
CF-H-008	9.4×10^{-4}	1.8×10^{-3}	3.9×10^{-3}	0.4	1.3	3.1	—	—	—
CF-H-016	3.0×10^{-3}	4.9×10^{-3}	1.1×10^{-2}	0.8	2.5	5.6	—	—	—
CF-H-030	9.2×10^{-3}	1.9×10^{-2}	4.6×10^{-2}	1.5	6.0	13.9	—	—	—
CF-H-040	6.9×10^{-3}	1.3×10^{-2}	2.8×10^{-2}	1.4	4.4	9.8	—	—	—
CF-H-050	1.2×10^{-2}	2.3×10^{-2}	5.0×10^{-2}	1.8	6.5	14.4	—	—	—
CF-H-090	1.5×10^{-2}	2.6×10^{-2}	5.3×10^{-2}	2.3	6.9	14.8	—	—	—
CF-H-110	2.3×10^{-2}	3.7×10^{-2}	8.2×10^{-2}	2.8	9.7	18.3	—	—	—
CF-H-160	3.6×10^{-2}	7.0×10^{-2}	0.16	3.4	11.9	26.1	—	—	—
CF-H-240	1.02×10^{-1}	1.78×10^{-1}	3.94×10^{-1}	5.8	20.9	48.8	—	—	—

* Dynamic torsional spring characteristics are non-linear. Dynamic torsional spring constant should be set at about 20 % of the rated torque or higher.
* Dynamic torsional spring constant (≒) static torsional spring constant x 1.3
* The values in moment of inertia and mass are based on the cylindrical and flange hubs with pilot bores.
* As a basic mounting method, inlay alignment is suggested.
* The indicated prices in Type O1 and O2 are applied to the cylindrical and flange hubs with pilot bores.

Dimensions



CF-H-O1



CF-H-O2

Unit [mm]

Model	d1		d2		D1	D2	N1	N2	L1	L2	L3	A	B	B1	C	E	F	S	TK	M1=M2
	Pilot bore	Max.	Pilot bore	Max.																
CF-H-008	12	38	15	46	125	120	60	70	40	42	88	32	10	10	46	25	20	6	100	3-M10
CF-H-016	15	48	19	56	155	150	70	85	52	50	110	41	12	12	60	34	26	8	125	3-M12
CF-H-030	20	65	28	80	205	200	100	120	68	66	144	56	16	15	78	46	35	10	165	3-M16
CF-H-040	22	50	22	65	175	180	85	100	58	56	124	50	16	16	68	42	31	10	140	4-M16
CF-H-050	20	65	28	80	205	200	100	120	68	66	144	56	16	15	78	46	35	10	165	4-M16
CF-H-090	20	65	28	80	215	200	100	120	68	66	144	56	16	15	78	46	35	10	165	4-M16
CF-H-110	25	63	28	80	225	230	100	120	68	66	144	56	18	18	78	46	35	10	180	4-M18
CF-H-160	30	85	30	95	270	260	125	140	84	80	177	59	19	20	97	48	37	13	215	4-M20
CF-H-240	40	115	40	120	330	320	160	180	100	100	213	65	19	20	113	54	40	13	260	4-M20

* Dimension TK will be the pitch diameter of bolts to mount flange hubs or mating parts.

Design check items

Design of cylindrical and flange hubs

1 Material

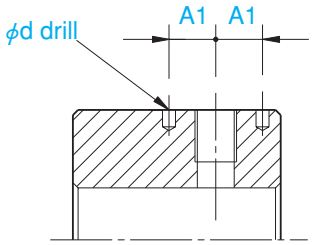
	Size	Material	Tensile strength
Cylindrical hub	All size	S 45 C	569N/mm² or more
Flange hub	All size	FCD 450	450N/mm² or more

- The standard products are made of the materials shown on the left.
- When newly designing cylindrical and flange hubs, use materials which have strengths higher than those of the standard products.
- A material strength shortage on the flywheel side can be solved by changing the bolt length. Contact us for further information.

2 Dimensions of spring pin bores

Refer to the table below for the dimensions of spring pin bores of cylindrical and flange hubs (Sizes 016 or more).

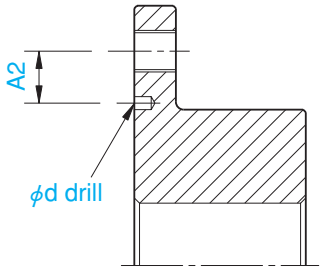
Cylindrical hub



Unit [mm]

Size	A1±0.1	d	Depth	Spring pin specification
016	13.5	5	6.5	6-ϕ5×10
030	18.0	5	6.5	6-ϕ5×10
040	14.0	5	6.5	8-ϕ5×10
050	18.0	5	6.5	8-ϕ5×10
090	18.0	5	6.5	8-ϕ5×10
110	18.0	5	6.5	8-ϕ5×10
160	17.5	8	13.0	8-ϕ8×16
240	20.0	8	13.0	8-ϕ8×16

Flange hub (Flywheel side)



Unit [mm]

Size	A2±0.1	d	Depth	Spring pin specification
030	20	5	6.5	3-ϕ5×10
040	17	5	6.5	4-ϕ5×10
050	20	5	6.5	4-ϕ5×10
090	20	5	6.5	4-ϕ5×10
110	17.5	5	6.5	4-ϕ5×10
160	25	8	13.0	4-ϕ8×16
240	30	8	13.0	4-ϕ8×16

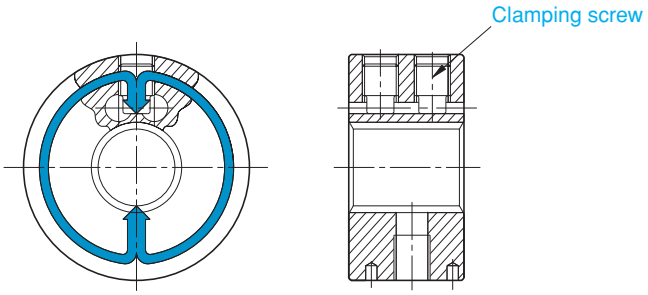
* Spring pin bores are not needed on the cylindrical hub side of Size 016.

3 Coupling of pump shaft (spline shaft) and a cylindrical hub

Design of clamping hubs to completely fix a cylindrical hub and spline shaft by the center locking action is available. Contact Miki Pulley for further information. Clamping hubs are available by special order.

Recommended spline shaft fit class

Standard	Class of fit
JIS	Class b
SAE J498b	Class 2
ANSI B92.1	Class 5



Center-lock action of clamping hub

■Bolt and clamping screw specification and tightening torque

Size	Bolt specification				Clamping screw	
	Class of strength	Radial direction No. of bolts- nominal dia. x length under head	Axial direction No. of bolts- nominal dia. x length under head	Tightening torque [N·m]	No. of bolts-nominal dia.	Tightening torque [N·m]
008	8.8 or more	3-M10×30	3-M10×30	49 ～ 54	2-M10	25 ～ 30
016		3-M12×35	3-M12×35	85 ～ 94	2-M12	40 ～ 50
030		3-M16×50	3-M16×50	210 ～ 230	2-M16	100 ～ 120
040		4-M16×45	4-M16×45	210 ～ 230	2-M16	100 ～ 120
050		4-M16×50	4-M16×50	210 ～ 230	2-M16	100 ～ 120
090		4-M16×50	4-M16×50	210 ～ 230	2-M16	100 ～ 120
110	10.9 or more	4-M18×55	4-M18×55	310 ～ 330	2-M16	100 ～ 120
160		4-M20×50	4-M20×50	440 ～ 490	2-M20	200 ～ 220
240		4-M20×65	4-M20×65	440 ～ 490	2-M20	200 ～ 220

* The bolts conform to JIS B1176 hexagon socket head cap screws and are treated by colored chromate and microcapsule coating (slack preventive).
* The clamping screws conform to JIS B1177 hexagon socket setscrews.
* Consult Miki Pulley when using bolts other than those specified above.

■Operating environment

Store the bolts with microcapsule coating in a dry and airy place.
For top performance, do not oil bolts.

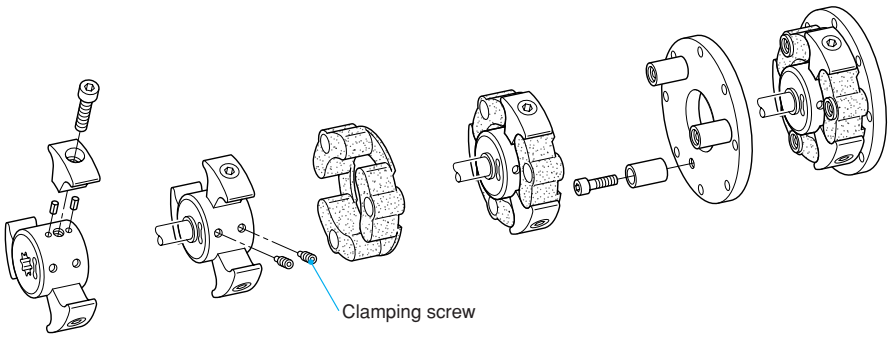
■Assembling procedure

❶ Drive the spring pins into the cylindrical hub (except the size 008) and fix the aluminum insert R on the cylindrical hub.
❷ Mount the cylindrical hub in a spline shaft and fix them by tightening the clamping screws.

<When center lock is used>

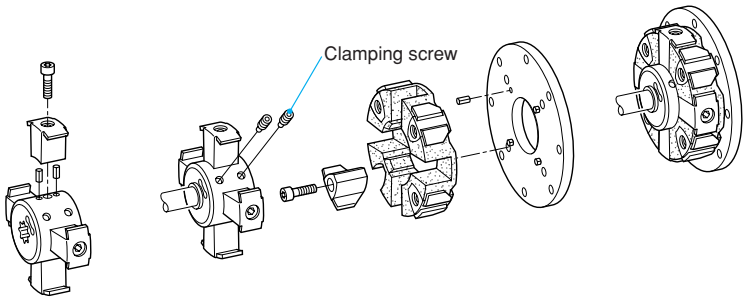
❸ **a. For Sizes 008 and 016**

Fix the bushes on the flange hub (flywheel side), then push the element into the cylindrical hub.



b. For Sizes 030, 040, 050, 090, 110, 160 and 240

Drive the spring pins into the flange hub (flywheel side). Attach the aluminum insert A to the element and fix them on the flange hub (flywheel side).



❹ Integrate each component by moving the drive or the driven parts in the axial direction.

■Check items in assembly

Tighten the bolts at the specified torque by using a torque wrench when mounting the rubber parts in the cylindrical and flange hubs. At this time, coat a little grease onto the bearing surface of the bolt to achieve a reliable tightening. (Do not coat any grease on the screw part of the bolt.)

■Bore processing

The cylindrical and flange hubs are stored with pilot bores.
Bore processing is available upon request. For the standard bore processing specification, refer to page 102. Contact us also for an involute spline bore processing.

CF-X-O1 · O2

Centaflex-X model

General-purpose motor | Stepping motor | Servo motor | Detector | Engine

High rigidity/High strength

High-quality special plastic material (Zeitel) is used for the cushioning material. It is hard in a torsional direction and has excellent flexibility in bending and axial directions. Maintenance is almost unnecessary.

Compactness

It is shorter in axial direction to save a space.

Easy dismounting

Removing the axial bolts separates power completely. The type OG can be detached without moving the drive by removing axial bolts.

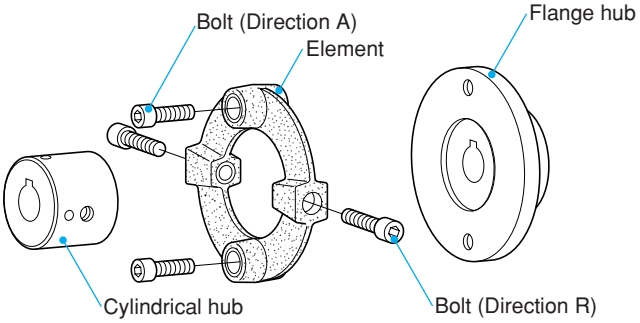
Uniform rotation with zero backlash

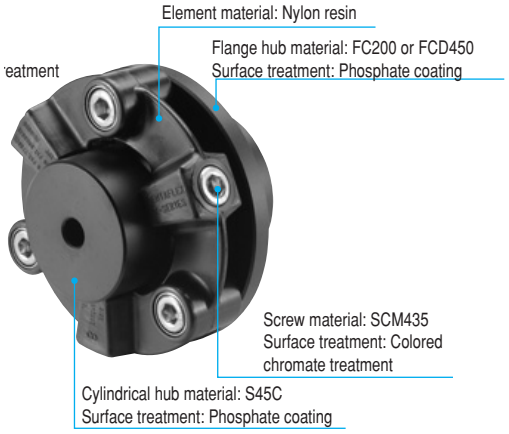
Constant-velocity rotation without backlash is ensured.

Normal operating torque [N·m]		15 ～ 370
Pilot bore/Additional machining range [mm]		φ9 ～ 65
Operational temp. [℃]		−30 ～ +90
Backlash		Zero
Max. permissible misalignment	Parallel offset [mm]	0.1
	Angular misalignment [°]	1
	Axial displacement [mm]	±0.5

Structure and Material

- The element is fixed between the cylindrical and flange hubs by bolts. Motive power is transmitted through the element.





Ordering information

CF - X - 008 - O1

Size

Type
O0 : Element only
OB : O0 + bolts
O1 : OB + cylindrical hub
O2 : 01 + flange hub
OG : Floating shaft type

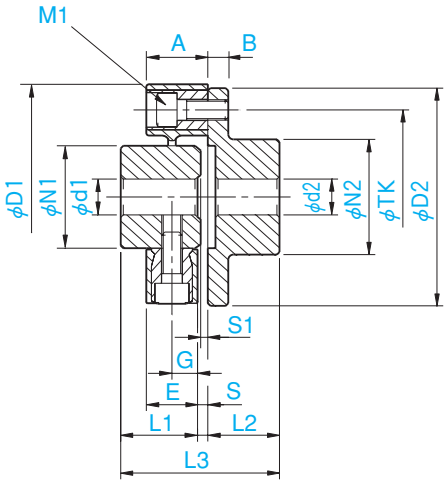
Specification

Model	Torque		Max. permissible misalignment			Max. rotation speed [min⁻¹]	Static torsional spring constant (at 20℃) [N·m/rad]	TypeO2		Price			
	Normal [N·m]	Max. [N·m]	Parallel offset [mm]	Angular misalignment [°]	Axial displacement [mm]			Moment of inertia [kg·m²]	Mass [kg]	Type O0	Type O1	Type O2	Type OG
CF-X-001	15	30	0.1	1	±0.5	10000	3.0×10^{3}	1.22×10^{-4}	0.5	—	—	—	—
CF-X-002	30	60	0.1	1	±0.5	10000	6.0×10^{3}	5.74×10^{-4}	0.9	—	—	—	—
CF-X-004	60	120	0.1	1	±0.5	8000	2.3×10^{4}	1.19×10^{-3}	1.4	—	—	—	—
CF-X-008	120	250	0.1	1	±0.5	7000	5.8×10^{4}	3.49×10^{-3}	2.9	—	—	—	—
CF-X-016	240	500	0.1	1	±0.5	6000	1.1×10^{5}	9.20×10^{-3}	5.0	—	—	—	—
CF-X-025	370	800	0.1	1	±0.5	5000	1.7×10^{5}	1.83×10^{-2}	7.9	—	—	—	—

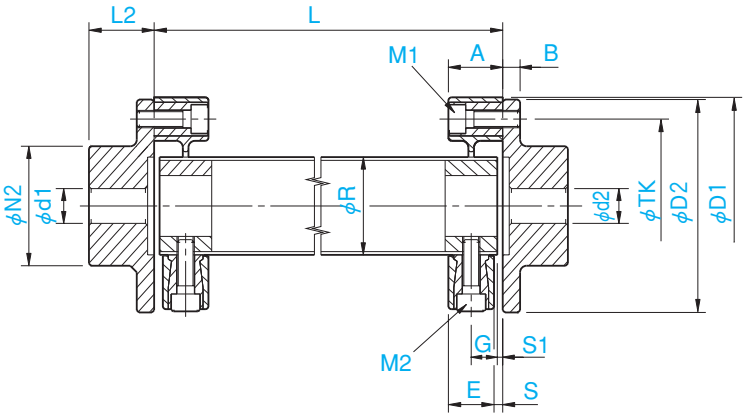
* The values in moment of inertia and mass are based on the cylindrical and flange hubs with pilot bores.
* If the rotation speed exceeds (2000min⁻¹), misalignment must be less than 50% of the specification.
* The indicated prices in Type O1 and O2 are applied to the cylindrical and flange hubs with pilot bores.
* The indicated prices of type OG are applied up to L= 600mm.

Dimensions

CAD



CF-X-O2



CF-X-OG

Unit [mm]

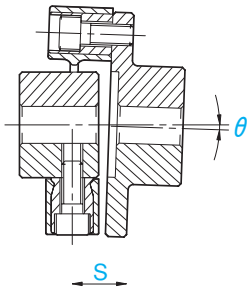
Model	d1		d2		D1	D2	N1	N2	L1	L2	L3	A	B	E	G	S	S1	M1=M2	R	TK	CAD file No.
	Pilot bore	Max.	Pilot bore	Max.																	
CF-X-001	8	19	8	22	57	56	30	36	32	24	57	24	7	18	11	3	1	2-M6	30	44	CF-X1
CF-X-002	10	26	9	30	88	85	40	45	30	28	62	24	8	20	10	4	4	2-M8	40	68	CF-X2
CF-X-004	12	30	11	36	100	100	45	55	34	30	66.5	25	8	21	12	4	2.5	3-M8	45	80	CF-X3
CF-X-008	12	38	15	46	125	120	60	70	40	42	85	30	10	26	14	4	3	3-M10	60	100	CF-X4
CF-X-016	15	48	19	56	155	150	70	85	52	50	105	35	12	28	18	7	3	3-M12	70	125	CF-X5
CF-X-025	15	55	19	65	175	170	85	100	58	56	117	40	14	34	20	6	3	3-M14	85	140	CF-X6

* Dimension L of Type OG must be 1000mm or less and the rotation speed must be (2000min⁻¹) or less.
* CAD data is the data for CF-X-02.

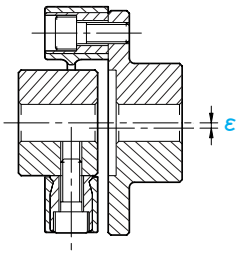
Design check items

Misalignment

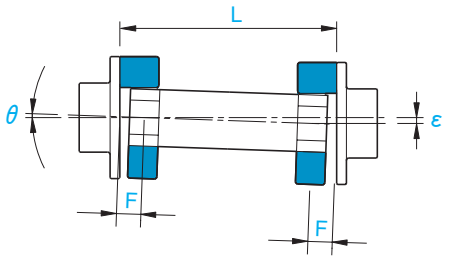
Angular misalignment (θ)
Axial displacement (S)



Parallel offset (ε)



■ Calculation of parallel offset and angular misalignment of Type OG



$\varepsilon = \tan\theta\,(L-2F)$ $\quad F=G+S1$

ε: Parallel offset of two shafts
θ: Coupling angular misalignment
L: Floating length

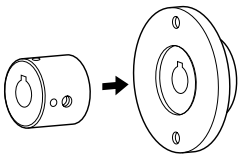
Calculate the parallel offset of Type OG by the formula above.

* Refer to the dimensional drawing on page 108 for each dimensional signs.

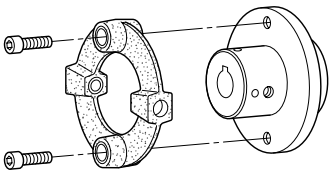
Assembling procedure

Tighten the bolts at the specified torque by using a torque wrench when mounting the rubber parts in the cylindrical and flange hubs. At this time, coat a little grease onto the bearing surface of the bolt to achieve a reliable tightening. (Do not coat any grease on the screw part of the bolt.)

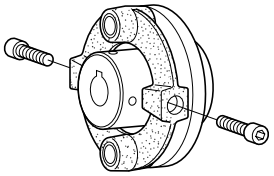
❶ Insert the cylindrical hub into the inlay part of the flange hub to adjust centering of the coupling.



❷ Tighten Direction-A bolts to attach the element to the flange hub while the cylindrical hub is mounted in the inlay part of the flange hub.

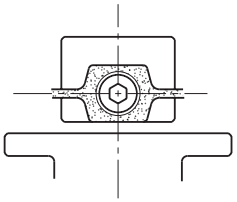


❸ Pull up the cylindrical hub a little bit and tighten Direction R bolts to attach the element to the cylindrical hub.

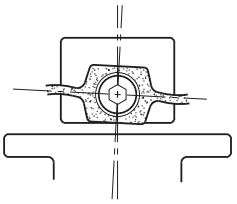


When assembly is finished, refer to the figure below to reconfirm the mounting condition.

Accurate mounting



Defective mounting



Operating environment

- The element excels in oil, yet excessive attachment degrades its performance. Avoid having the element contact oil.
- If exposed to direct sunshine, the life of the element may be shortened. Provide a suitable cover.

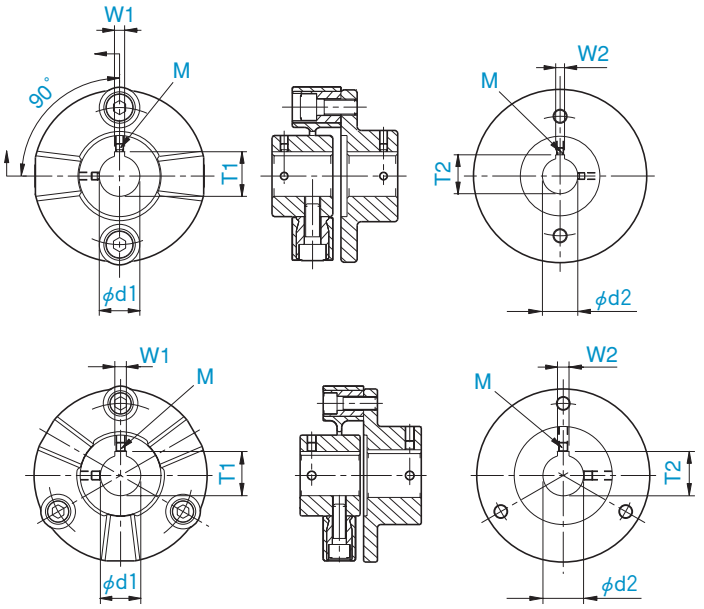
Bolt specification and tightening torque

Size	Bolt				Tightening torque [N·m]
	Radial direction		Axial direction		
	Nominal designation	No. of bolts	Nominal designation	No. of bolts	
001	M6×10	2	M6×25	2	9 ~ 11
002	M8×20	2	M8×20	2	24 ~ 27
004	M8×25	3	M8×25	3	24 ~ 27
008	M10×30	3	M10×30	3	49 ~ 54
016	M12×35	3	M12×35	3	85 ~ 94
025	M14×40	3	M14×40	3	130 ~ 150

* The bolts conform to JIS B1176 hexagon socket head cap screws and are treated by colored chromate and microcapsule coating (slack preventive).

Standard bore processing specification

- Bore processing is available upon request. Products are stored with pilot bores.
- Bores are machined based on the following specification.
- Assign as described below when ordering.
  Ex) CF-X-008-02 19N-20H
  (d1) (d2)
- The positions of setscrews will not be on the same plane.



Unit [mm]

Previous JIS (Second class) correspondence					New JIS correspondence					New standard motor correspondence				
Nominal bore dia.	Bore dia (d1-d2)	Keyway width (W1・W2)	Keyway height (T1・T2)	Setscrew bore (M)	Nominal bore dia.	Bore dia (d1-d2)	Keyway width (W1・W2)	Keyway height (T1・T2)	Setscrew bore (M)	Nominal bore dia.	Bore dia (d1-d2)	Keyway width (W1・W2)	Keyway height (T1・T2)	Setscrew bore (M)
Tolerance	H7, H8	E9	$^{+0.3}_{0}$	—	Tolerance	H7	H9	$^{+0.3}_{0}$	—	Tolerance	G7, F7	H9	$^{+0.3}_{0}$	—
9	$9^{+0.022}_{0}$	—	—	2-M4	—	—	—	—	—	—	—	—	—	—
10	$10^{+0.022}_{0}$	—	—	2-M4	—	—	—	—	—	—	—	—	—	—
11	$11^{+0.018}_{0}$	—	—	2-M4	—	—	—	—	—	—	—	—	—	—
12	$12^{+0.018}_{0}$	$4^{+0.050}_{+0.020}$	13.5	2-M4	12H	$12^{+0.018}_{0}$	$4^{+0.030}_{0}$	13.8	2-M4	—	—	—	—	—
14	$14^{+0.018}_{0}$	$5^{+0.050}_{+0.020}$	16.0	2-M4	14H	$14^{+0.018}_{0}$	$5^{+0.030}_{0}$	16.3	2-M4	14N	$14^{+0.024}_{+0.006}$	$5^{+0.030}_{0}$	16.3	2-M4
15	$15^{+0.018}_{0}$	$5^{+0.050}_{+0.020}$	17.0	2-M4	15H	$15^{+0.018}_{0}$	$5^{+0.030}_{0}$	17.3	2-M4	—	—	—	—	—
16	$16^{+0.018}_{0}$	$5^{+0.050}_{+0.020}$	18.0	2-M4	16H	$16^{+0.018}_{0}$	$5^{+0.030}_{0}$	18.3	2-M4	—	—	—	—	—
17	$17^{+0.018}_{0}$	$5^{+0.050}_{+0.020}$	19.0	2-M4	17H	$17^{+0.018}_{0}$	$5^{+0.030}_{0}$	19.3	2-M4	—	—	—	—	—
18	$18^{+0.018}_{0}$	$5^{+0.050}_{+0.020}$	20.0	2-M4	18H	$18^{+0.018}_{0}$	$6^{+0.030}_{0}$	20.8	2-M5	—	—	—	—	—
19	$19^{+0.021}_{0}$	$5^{+0.050}_{+0.020}$	21.0	2-M4	19H	$19^{+0.021}_{0}$	$6^{+0.030}_{0}$	21.8	2-M5	19N	$19^{+0.028}_{+0.007}$	$6^{+0.030}_{0}$	21.8	2-M5
20	$20^{+0.021}_{0}$	$5^{+0.050}_{+0.020}$	22.0	2-M4	20H	$20^{+0.021}_{0}$	$6^{+0.030}_{0}$	22.8	2-M5	—	—	—	—	—
22	$22^{+0.021}_{0}$	$7^{+0.061}_{+0.025}$	25.0	2-M6	22H	$22^{+0.021}_{0}$	$6^{+0.030}_{0}$	24.8	2-M5	—	—	—	—	—
24	$24^{+0.021}_{0}$	$7^{+0.061}_{+0.025}$	27.0	2-M6	24H	$24^{+0.021}_{0}$	$8^{+0.036}_{0}$	27.3	2-M6	24N	$24^{+0.028}_{+0.007}$	$8^{+0.036}_{0}$	27.3	2-M6
25	$25^{+0.021}_{0}$	$7^{+0.061}_{+0.025}$	28.0	2-M6	25H	$25^{+0.021}_{0}$	$8^{+0.036}_{0}$	28.3	2-M6	—	—	—	—	—
28	$28^{+0.021}_{0}$	$7^{+0.061}_{+0.025}$	31.0	2-M6	28H	$28^{+0.021}_{0}$	$8^{+0.036}_{0}$	31.3	2-M6	28N	$28^{+0.028}_{+0.007}$	$8^{+0.036}_{0}$	31.3	2-M6
30	$30^{+0.021}_{0}$	$7^{+0.061}_{+0.025}$	33.0	2-M6	30H	$30^{+0.021}_{0}$	$8^{+0.036}_{0}$	33.3	2-M6	—	—	—	—	—
32	$32^{+0.025}_{0}$	$10^{+0.061}_{+0.025}$	35.5	2-M8	32H	$32^{+0.025}_{0}$	$10^{+0.036}_{0}$	35.3	2-M8	—	—	—	—	—
35	$35^{+0.025}_{0}$	$10^{+0.061}_{+0.025}$	38.5	2-M8	35H	$35^{+0.025}_{0}$	$10^{+0.036}_{0}$	38.3	2-M8	—	—	—	—	—
38	$38^{+0.025}_{0}$	$10^{+0.061}_{+0.025}$	41.5	2-M8	38H	$38^{+0.025}_{0}$	$10^{+0.036}_{0}$	41.3	2-M8	38N	$38^{+0.050}_{+0.025}$	$10^{+0.036}_{0}$	41.3	2-M8
40	$40^{+0.025}_{0}$	$10^{+0.061}_{+0.025}$	43.5	2-M8	40H	$40^{+0.025}_{0}$	$12^{+0.043}_{0}$	43.3	2-M8	—	—	—	—	—
42	$42^{+0.025}_{0}$	$12^{+0.075}_{+0.032}$	45.5	2-M8	42H	$42^{+0.025}_{0}$	$12^{+0.043}_{0}$	45.3	2-M8	42N	$42^{+0.050}_{+0.025}$	$12^{+0.043}_{0}$	45.3	2-M8
45	$45^{+0.025}_{0}$	$12^{+0.075}_{+0.032}$	48.5	2-M8	45H	$45^{+0.025}_{0}$	$14^{+0.043}_{0}$	48.8	2-M10	—	—	—	—	—
48	$48^{+0.025}_{0}$	$12^{+0.075}_{+0.032}$	51.5	2-M8	48H	$48^{+0.025}_{0}$	$14^{+0.043}_{0}$	51.8	2-M10	48N	$48^{+0.050}_{+0.025}$	$14^{+0.043}_{0}$	51.8	2-M10
50	$50^{+0.025}_{0}$	$12^{+0.075}_{+0.032}$	53.5	2-M8	50H	$50^{+0.025}_{0}$	$14^{+0.043}_{0}$	53.8	2-M10	—	—	—	—	—
55	$55^{+0.030}_{0}$	$15^{+0.075}_{+0.032}$	60.0	2-M10	55H	$55^{+0.030}_{0}$	$16^{+0.043}_{0}$	59.3	2-M10	55N	$55^{+0.060}_{+0.030}$	$16^{+0.043}_{0}$	59.3	2-M10
56	$56^{+0.030}_{0}$	$15^{+0.075}_{+0.032}$	61.0	2-M10	56H	$56^{+0.030}_{0}$	$16^{+0.043}_{0}$	60.3	2-M10	—	—	—	—	—
60	$60^{+0.030}_{0}$	$15^{+0.075}_{+0.032}$	65.0	2-M10	60H	$60^{+0.030}_{0}$	$18^{+0.043}_{0}$	64.4	2-M10	60N	$60^{+0.060}_{+0.030}$	$18^{+0.043}_{0}$	64.4	2-M10
63	$63^{+0.030}_{0}$	$18^{+0.075}_{+0.032}$	69.0	2-M10	63H	$63^{+0.030}_{0}$	$18^{+0.043}_{0}$	67.4	2-M10	—	—	—	—	—
65	$65^{+0.030}_{0}$	$18^{+0.075}_{+0.032}$	71.0	2-M10	65H	$65^{+0.030}_{0}$	$18^{+0.043}_{0}$	69.4	2-M10	65N	$65^{+0.060}_{+0.030}$	$18^{+0.043}_{0}$	69.4	2-M10

* Below ϕ11 of New JIS correspondence and below ϕ11 of New standard motor correspondence have the same contents as Previous JIS correspondence (Second class).

Distance from the edge surface of setscrew

Size	Cylindrical hub						Flange hub					
	001	002	004	008	016	025	001	002	004	008	016	025
Distance [mm]	6	6	6	7	10	10	6	7	7	9	10	10

CF-B

Centaflex-B model

General-purpose motor | Stepping motor | Servo motor | Detector | Engine

Vibrations and shocks are absorbed

Elasticity-rich plastic used for the cushioning material as an element absorbs vibrations and shocks during power transmission. Noise is also reduced.

High durability

Elasticity-rich plastic (polyurethane or polyester) ensures a long operating life. Polyester resin excels in resistance to heat and low temperature and has over twice the torsional stiffness of polyurethane resin. Maintenance is very minimal.

Center deviation

If there is a center deviation between two shafts, power is smoothly transmitted.

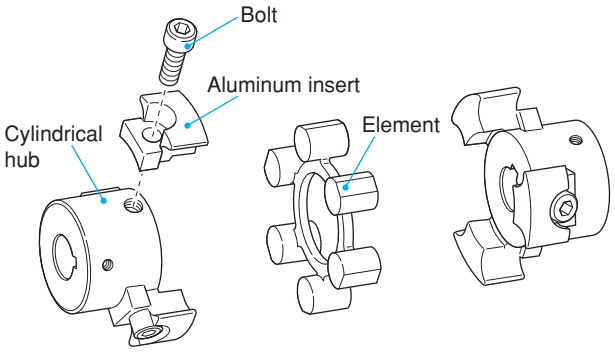
Easy mounting and dismounting

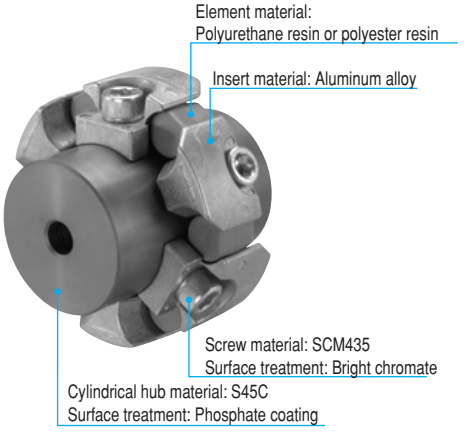
Due to the compact and simple design with an element between two hubs, mounting and dismounting are easy.

Normal operating torque [N·m]		30 ～ 1400
Pilot bore/Additional machining range [mm]		φ10 ～ 80
Operational temp. [℃]		CF-B：−40 ～ +80 CF-B-H：−40 ～ +120
Backlash		Little
Max. permissible misalignment	**Parallel offset** [mm]	CF-B：0.5 CF-B-H：0.3
	Angular misalignment [°]	CF-B：1 CF-B-H：0.5
	Axial displacement [mm]	±1

Structure and Material

- There are 2～3 aluminum inserts previously fixed on the hubs by bolts. Power is transmitted through the element put in the aluminum inserts.





Ordering information

CF - B - 100 - H

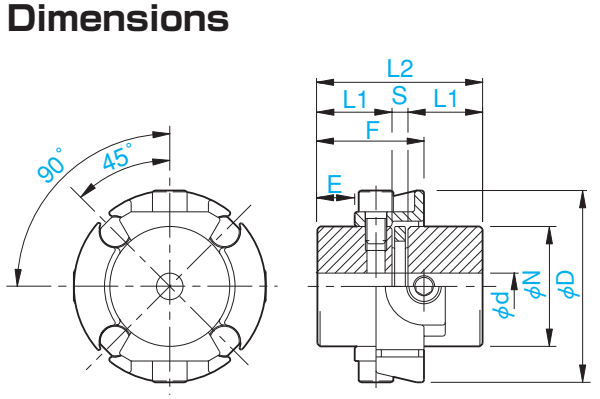
- 100: Size
- H: Element material
  - Blank: Polyurethane resin (green)
  - H: Polyester resin (yellow)

Specification

Model	Torque		Max. permissible misalignment			Max. rotation speed [min^{-1}]	Static torsional spring constant (at 20℃) [N·m/rad]	Moment of inertia [$kg·m^2$]	Mass [kg]	Price
	Normal [N·m]	Max. [N·m]	Parallel offset [mm]	Angular misalignment [°]	Axial displacement [mm]					
CF-B-070	30	60	0.5	1.0	±1	10000	1.30×10^{3}	2.80×10^{-4}	0.7	—
CF-B-070-H	45	60	0.3	0.5	±1	10000	2.76×10^{3}	2.80×10^{-4}	0.7	—
CF-B-080	60	120	0.5	1.0	±1	9000	1.53×10^{3}	3.39×10^{-4}	0.8	—
CF-B-080-H	85	120	0.3	0.5	±1	9000	4.15×10^{3}	3.39×10^{-4}	0.8	—
CF-B-100	120	240	0.5	1.0	±1	7500	3.51×10^{3}	1.34×10^{-3}	2.0	—
CF-B-100-H	170	240	0.3	0.5	±1	7500	9.49×10^{3}	1.34×10^{-3}	2.0	—
CF-B-120	250	500	0.5	1.0	±1	6000	7.90×10^{3}	3.34×10^{-3}	3.4	—
CF-B-120-H	350	500	0.3	0.5	±1	6000	2.03×10^{4}	3.34×10^{-3}	3.4	—
CF-B-140	400	800	0.5	1.0	±1	5000	1.34×10^{4}	7.02×10^{-3}	5.4	—
CF-B-140-H	560	800	0.3	0.5	±1	5000	3.44×10^{4}	7.02×10^{-3}	5.4	—
CF-B-165	600	1200	0.5	1.0	±1	4000	2.36×10^{4}	1.78×10^{-2}	8.7	—
CF-B-165-H	850	1200	0.3	0.5	±1	4000	5.24×10^{4}	1.78×10^{-2}	8.7	—
CF-B-185	1000	2000	0.5	1.0	±1	3600	1.02×10^{5}	3.67×10^{-2}	13.8	—
CF-B-185-H	1400	2000	0.3	0.5	±1	3600	2.53×10^{5}	3.67×10^{-2}	13.8	—

* The values in moment of inertia and mass are based on the cylindrical hubs with pilot bores.
* If the rotation speed exceeds ($2000min^{-1}$), misalignment must be less than 50% of the specification.
* The table indicates the prices based on prepared bores.

Dimensions



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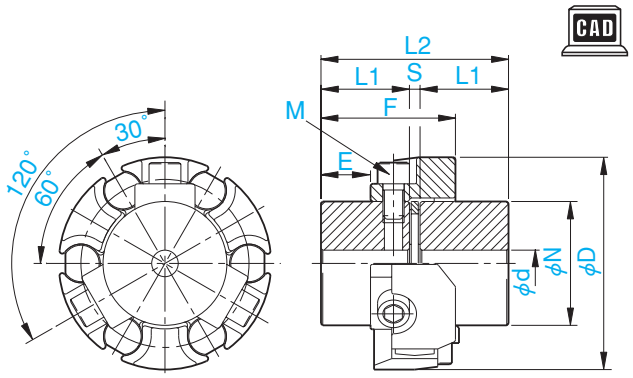


Size: 080～185

Unit [mm]

Model	d		D	N	L1	L2	S	E	F	M	CAD file No.
	Pilot bore	Max.									
CF-B-070	9	30	72	45	28	62	6	14	40	4-M8	CF-B1
CF-B-080	12	30	76	45	30	66	6	16	42	6-M8	CF-B2
CF-B-100	12	38	98	60	42	90	6	24	64.5	6-M10	CF-B3
CF-B-120	15	48	120	70	50	106	6	28	76	6-M12	CF-B4
CF-B-140	15	55	138	85	55	116	6	30	83	6-M14	CF-B5
CF-B-165	19	60	165	100	65	138	8	36	99	6-M16	CF-B6
CF-B-185	29	80	187	115	80	170	10	45	123	6-M20	CF-B7

* There is no dimensional difference by element materials.

Design check items

- The aluminum inserts are fixed on the cylindrical hub by bolts before shipping. Do not loosen the bolts.
- When bore should be machined, chuck the cylindrical hub, not other parts.
- The element excels in oil, yet excessive attachment degrades its performance. Avoid having the element contact oil.
- If exposed to direct sunshine, the life of the element may be shortened. Provide a suitable cover.

Bolt specification and tightening torque

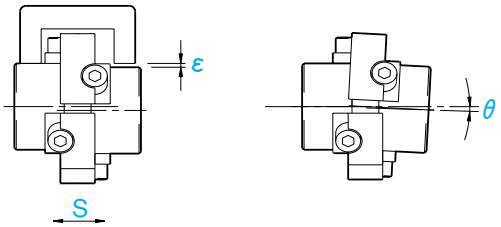
Size	Nominal designation	No. of bolts	Tightening torque [N·m]
070	M8×12	4	25
080	M8×12	6	25
100	M10×18	6	50
120	M12×20	6	90
140	M14×25	6	140
165	M16×30	6	220
185	M20×32	6	470

* The bolts conform to JIS B1176 hexagon socket head cap screws and are treated by bright chromate and microcapsule coating (slack preventive).

Misalignment

Parallel offset (ε)
Axial displacement (S)

Angular misalignment (θ)



- Check centering at two points, which are about 90° apart from each other, by applying a jig onto the outer periphery of the cylindrical hub. Adjust Axial displacement S based on L2 (full length).

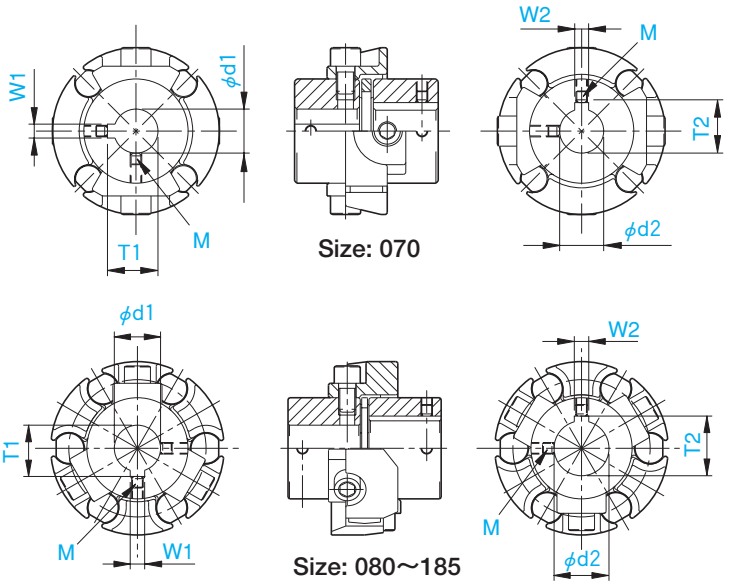
General-purpose motor specification and simplified selection

Motor		50Hz : 3000min⁻¹ / 60Hz : 3600min⁻¹				50Hz : 1500min⁻¹ / 60Hz : 1800min⁻¹			
		Bipolar (2-pole) motor		Centaflex		Quadrupolar (4-pole) motor		Centaflex	
Output [kW]	Frequency [Hz]	Shaft dia. [mm]	Torque [N·m]	Model	Nominal bore dia.	Shaft dia. [mm]	Torque [N·m]	Model	Nominal bore dia.
0.4	50	14	1.3	CF-B-070	14N	14	2.6	CF-B-070	14N
	60	14	1.1	CF-B-070	14N	14	2.2	CF-B-070	14N
0.75	50	19	2.4	CF-B-070	19N	19	4.9	CF-B-070	19N
	60	19	2	CF-B-070	19N	19	4.1	CF-B-070	19N
1.5	50	24	4.9	CF-B-070	24N	24	9.7	CF-B-070	24N
	60	24	4.1	CF-B-070	24N	24	8.1	CF-B-070	24N
2.2	50	24	7.1	CF-B-070	24N	28	14	CF-B-070	28N
	60	24	6	CF-B-070	24N	28	12	CF-B-070	28N
3.7	50	28	12	CF-B-070	28N	28	24	CF-B-080	28N
	60	28	10	CF-B-070	28N	28	20	CF-B-080	28N
5.5	50	38	18	CF-B-100	38N	38	36	CF-B-100	38N
	60	38	15	CF-B-100	38N	38	30	CF-B-100	38N
7.5	50	38	24	CF-B-100	38N	38	49	CF-B-100	38N
	60	38	20	CF-B-100	38N	38	41	CF-B-100	38N
11.0	50	42	36	CF-B-120	42N	42	71	CF-B-120	42N
	60	42	30	CF-B-120	42N	42	59	CF-B-120	42N
15.0	50	42	49	CF-B-120	42N	42	97	CF-B-120	42N
	60	42	41	CF-B-120	42N	42	81	CF-B-120	42N
18.5	50	42	60	CF-B-120	42N	48	120	CF-B-120	48N
	60	42	50	CF-B-120	42N	48	100	CF-B-120	48N
22.0	50	48	71	CF-B-120	48N	48	143	CF-B-120	48N
	60	48	59	CF-B-120	48N	48	119	CF-B-120	48N
30.0	50	55	97	CF-B-140	55N	55	195	CF-B-140	55N
	60	55	81	CF-B-140	55N	55	162	CF-B-140	55N
37.0	50	55	120	CF-B-140	55N	60	240	CF-B-165	60N
	60	55	100	CF-B-140	55N	60	200	CF-B-165	60N
45.0	50	55	146	CF-B-140	55N	60	292	CF-B-165	60N
	60	55	122	CF-B-140	55N	60	243	CF-B-165	60N

* The above table indicates the adaptive sizes of couplings when used in general-purpose motor drives.
* The motor rotation speed and output torque indicate calculated values (reference values).

Standard bore processing specification

- Bore processing is available upon request. Products are stored with pilot bores.
- Bores are machined based on the following specification.
- Assign as described below when ordering.
  Ex) CF-B-100 19N-20H
- The positions of setscrews will not be on the same plane.



Unit [mm]

Previous JIS (Second class) correspondence					New JIS correspondence					New standard motor correspondence				
Nominal bore dia.	Bore dia (d1-d2)	Keyway width (W1-W2)	Keyway height (T1-T2)	Setscrew bore (M)	Nominal bore dia.	Bore dia (d1-d2)	Keyway width (W1-W2)	Keyway height (T1-T2)	Setscrew bore (M)	Nominal bore dia.	Bore dia (d1-d2)	Keyway width (W1-W2)	Keyway height (T1-T2)	Setscrew bore (M)
Tolerance	H7, H8	E9	$^{+0.3}_{0}$	—	Tolerance	H7	H9	$^{+0.3}_{0}$	—	Tolerance	G7, F7	H9	$^{+0.3}_{0}$	—
9	9 $^{+0.022}_{0}$	—	—	2-M4	—	—	—	—	—	—	—	—	—	—
10	10 $^{+0.022}_{0}$	—	—	2-M4	—	—	—	—	—	—	—	—	—	—
11	11 $^{+0.018}_{0}$	—	—	2-M4	—	—	—	—	—	—	—	—	—	—
12	12 $^{+0.018}_{0}$	4 $^{+0.050}_{+0.020}$	13.5	2-M4	12H	12 $^{+0.018}_{0}$	4 $^{+0.030}_{0}$	13.8	2-M4	—	—	—	—	—
14	14 $^{+0.018}_{0}$	5 $^{+0.050}_{+0.020}$	16.0	2-M4	14H	14 $^{+0.018}_{0}$	5 $^{+0.030}_{0}$	16.3	2-M4	14N	14 $^{+0.024}_{+0.006}$	5 $^{+0.030}_{0}$	16.3	2-M4
15	15 $^{+0.018}_{0}$	5 $^{+0.050}_{+0.020}$	17.0	2-M4	15H	15 $^{+0.018}_{0}$	5 $^{+0.030}_{0}$	17.3	2-M4	—	—	—	—	—
16	16 $^{+0.018}_{0}$	5 $^{+0.050}_{+0.020}$	18.0	2-M4	16H	16 $^{+0.018}_{0}$	5 $^{+0.030}_{0}$	18.3	2-M4	—	—	—	—	—
17	17 $^{+0.018}_{0}$	5 $^{+0.050}_{+0.020}$	19.0	2-M4	17H	17 $^{+0.018}_{0}$	5 $^{+0.030}_{0}$	19.3	2-M4	—	—	—	—	—
18	18 $^{+0.018}_{0}$	5 $^{+0.050}_{+0.020}$	20.0	2-M4	18H	18 $^{+0.018}_{0}$	6 $^{+0.030}_{0}$	20.8	2-M5	—	—	—	—	—
19	19 $^{+0.021}_{0}$	5 $^{+0.050}_{+0.020}$	21.0	2-M4	19H	19 $^{+0.021}_{0}$	6 $^{+0.030}_{0}$	21.8	2-M5	19N	19 $^{+0.028}_{+0.007}$	6 $^{+0.030}_{0}$	21.8	2-M5
20	20 $^{+0.021}_{0}$	5 $^{+0.050}_{+0.020}$	22.0	2-M4	20H	20 $^{+0.021}_{0}$	6 $^{+0.030}_{0}$	22.8	2-M5	—	—	—	—	—
22	22 $^{+0.021}_{0}$	7 $^{+0.061}_{+0.025}$	25.0	2-M6	22H	22 $^{+0.021}_{0}$	6 $^{+0.030}_{0}$	24.8	2-M5	—	—	—	—	—
24	24 $^{+0.021}_{0}$	7 $^{+0.061}_{+0.025}$	27.0	2-M6	24H	24 $^{+0.021}_{0}$	8 $^{+0.036}_{0}$	27.3	2-M6	24N	24 $^{+0.028}_{+0.007}$	8 $^{+0.036}_{0}$	27.3	2-M6
25	25 $^{+0.021}_{0}$	7 $^{+0.061}_{+0.025}$	28.0	2-M6	25H	25 $^{+0.021}_{0}$	8 $^{+0.036}_{0}$	28.3	2-M6	—	—	—	—	—
28	28 $^{+0.021}_{0}$	7 $^{+0.061}_{+0.025}$	31.0	2-M6	28H	28 $^{+0.021}_{0}$	8 $^{+0.036}_{0}$	31.3	2-M6	28N	28 $^{+0.028}_{+0.007}$	8 $^{+0.036}_{0}$	31.3	2-M6
30	30 $^{+0.021}_{0}$	7 $^{+0.061}_{+0.025}$	33.0	2-M6	30H	30 $^{+0.021}_{0}$	8 $^{+0.036}_{0}$	33.3	2-M6	—	—	—	—	—
32	32 $^{+0.025}_{0}$	10 $^{+0.061}_{+0.025}$	35.5	2-M8	32H	32 $^{+0.025}_{0}$	10 $^{+0.036}_{0}$	35.3	2-M8	—	—	—	—	—
35	35 $^{+0.025}_{0}$	10 $^{+0.061}_{+0.025}$	38.5	2-M8	35H	35 $^{+0.025}_{0}$	10 $^{+0.036}_{0}$	38.3	2-M8	—	—	—	—	—
38	38 $^{+0.025}_{0}$	10 $^{+0.061}_{+0.025}$	41.5	2-M8	38H	38 $^{+0.025}_{0}$	10 $^{+0.036}_{0}$	41.3	2-M8	38N	38 $^{+0.050}_{+0.025}$	10 $^{+0.036}_{0}$	41.3	2-M8
40	40 $^{+0.025}_{0}$	10 $^{+0.061}_{+0.025}$	43.5	2-M8	40H	40 $^{+0.025}_{0}$	12 $^{+0.043}_{0}$	43.3	2-M8	—	—	—	—	—
42	42 $^{+0.025}_{0}$	12 $^{+0.075}_{+0.032}$	45.5	2-M8	42H	42 $^{+0.025}_{0}$	12 $^{+0.043}_{0}$	45.3	2-M8	42N	42 $^{+0.050}_{+0.025}$	12 $^{+0.043}_{0}$	45.3	2-M8
45	45 $^{+0.025}_{0}$	12 $^{+0.075}_{+0.032}$	48.5	2-M8	45H	45 $^{+0.025}_{0}$	14 $^{+0.043}_{0}$	48.8	2-M10	—	—	—	—	—
48	48 $^{+0.025}_{0}$	12 $^{+0.075}_{+0.032}$	51.5	2-M8	48H	48 $^{+0.025}_{0}$	14 $^{+0.043}_{0}$	51.8	2-M10	48N	48 $^{+0.050}_{+0.025}$	14 $^{+0.043}_{0}$	51.8	2-M10
50	50 $^{+0.025}_{0}$	12 $^{+0.075}_{+0.032}$	53.5	2-M8	50H	50 $^{+0.025}_{0}$	14 $^{+0.043}_{0}$	53.8	2-M10	—	—	—	—	—
55	55 $^{+0.030}_{0}$	15 $^{+0.075}_{+0.032}$	60.0	2-M10	55H	55 $^{+0.030}_{0}$	16 $^{+0.043}_{0}$	59.3	2-M10	55N	55 $^{+0.060}_{+0.030}$	16 $^{+0.043}_{0}$	59.3	2-M10
56	56 $^{+0.030}_{0}$	15 $^{+0.075}_{+0.032}$	61.0	2-M10	56H	56 $^{+0.030}_{0}$	16 $^{+0.043}_{0}$	60.3	2-M10	—	—	—	—	—
60	60 $^{+0.030}_{0}$	15 $^{+0.075}_{+0.032}$	65.0	2-M10	60H	60 $^{+0.030}_{0}$	18 $^{+0.043}_{0}$	64.4	2-M10	60N	60 $^{+0.060}_{+0.030}$	18 $^{+0.043}_{0}$	64.4	2-M10
63	63 $^{+0.030}_{0}$	18 $^{+0.075}_{+0.032}$	69.0	2-M10	63H	63 $^{+0.030}_{0}$	18 $^{+0.043}_{0}$	67.4	2-M10	—	—	—	—	—
65	65 $^{+0.030}_{0}$	18 $^{+0.075}_{+0.032}$	71.0	2-M10	65H	65 $^{+0.030}_{0}$	18 $^{+0.043}_{0}$	69.4	2-M10	65N	65 $^{+0.060}_{+0.030}$	18 $^{+0.043}_{0}$	69.4	2-M10

* Below φ11 of New JIS correspondence and below φ11 of New standard motor correspondence have the same contents as Previous JIS correspondence (Second class).

Distance from the edge surface of setscrew

Size	070	080	100	120	140	165	185
Distance [mm]	7	8	10	10	10	15	15

CM
CentaMax

Available by special order

Vibrations and shocks are absorbed
The elasticity-rich rubber transmits power and absorbs vibrations and shocks.

Resonance avoidance
It is flexible in a torsional direction and downs a resonance point caused by torsional vibration to below engine low idling.

Compactness
It is short in axial direction to save a space.

Excellent durability
This coupling excels in durability, which assures a long operating life. Maintenance is very minimal.

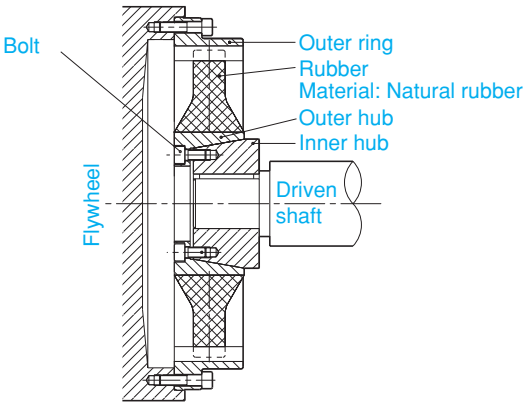
Easy mounting and dismounting
Input and output can be connected and disconnected easily merely by moving axially.
It can be mounted directly in SAE J620 engine flywheel.

Normal operating torque [N·m]		120 ～ 14000
Pilot bore/Additional machining range [mm]		φ11 ～ 180
Operational temp. [℃]		−30 ～ +80
Backlash		Yes
Max. permissible misalignment	Parallel offset [mm]	0.5
	Angular misalignment [°]	0.5
	Axial displacement [mm]	See table of dimensions

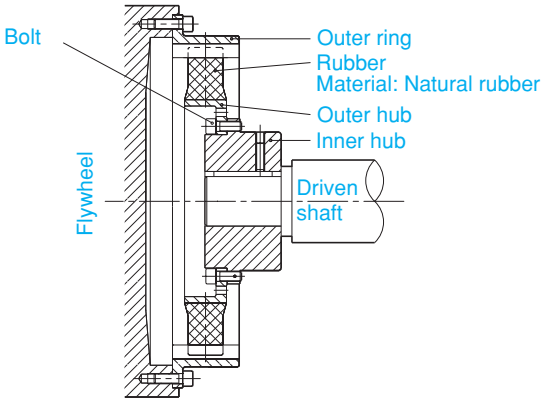
Structure and Material

- Power is transmitted from an engine flywheel to the flexible rubber part, inner hub bolted from outer hub and driven shaft through the outer ring.
  Vent bores are provided for heat dissipation.

Type: S1



Size: 120～2400



Size: 2600～12000

Ordering information

CM - 1200 - S1 - 50 - 14

Size

Type
- O0 : Rubber body
- S0 : O0 + Outer ring
- SB : S0 + bolt
- S1 : SB + inner hub

Rubber hardness
- 50 : 50Hs
- 60 : 60Hs

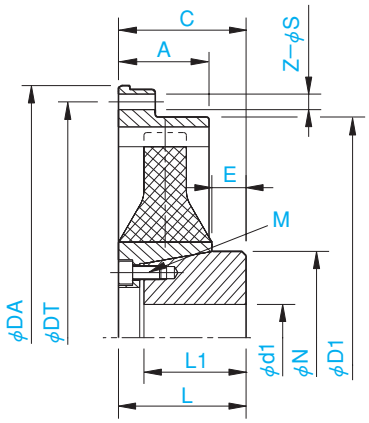
Flange sizze
- 6: $6\frac{1}{2}$, 7: $7\frac{1}{2}$, 8: 8, 10: 10, 11: $11\frac{1}{2}$
- 14: 14, 16: 16, 18: 18, 21: 21, 24: 24

Specification

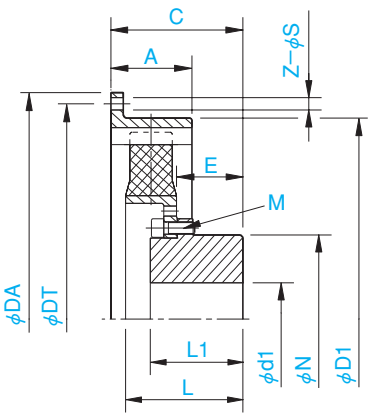
Model	Rubber hardness [Hs]	Torque		Max. permissible misalignment		Max. rotation speed [min^{-1}]	Static torsional spring constant [N·m/rad]	Price
		Normal [N·m]	Max. [N·m]	Parallel offset [mm]	Angular misalign-ment [°]			
CM-120	50	120	300	0.5	0.5	5000	3.00×10^{2}	—
	60	140	350	0.5	0.5	5000	5.00×10^{2}	—
CM-240	50	200	400	0.5	0.5	4000	9.25×10^{2}	—
	60	240	480	0.5	0.5	4000	1.40×10^{3}	—
CM-400	50	320	640	0.5	0.5	3600	1.60×10^{3}	—
	60	400	800	0.5	0.5	3600	2.50×10^{3}	—
CM-800	50	650	1300	0.5	0.5	3600	2.80×10^{3}	—
	60	800	1600	0.5	0.5	3600	4.20×10^{3}	—
CM-1200	50	1000	2000	0.5	0.5	3500	5.30×10^{3}	—
	60	1200	2400	0.5	0.5	3500	8.40×10^{3}	—
CM-1600	50	1300	2600	0.5	0.5	3200	5.50×10^{3}	—
	60	1600	3200	0.5	0.5	3200	8.40×10^{3}	—
CM-2400	50	2000	4000	0.5	0.5	3000	1.00×10^{4}	—
	60	2400	4800	0.5	0.5	3000	1.50×10^{4}	—
CM-2600	50	2500	5000	0.5	0.5	3000	7.50×10^{3}	—
	60	2700	6000	0.5	0.5	3000	1.15×10^{4}	—
CM-2800	50	2800	6000	0.5	0.5	3000	2.15×10^{4}	—
	60	3000	7500	0.5	0.5	3000	3.27×10^{4}	—
CM-3000	50	3000	6000	0.5	0.5	3000	1.00×10^{4}	—
	60	3000	6000	0.5	0.5	3000	1.51×10^{4}	—
CM-3500	50	3200	6500	0.5	0.5	3000	1.60×10^{4}	—
	60	3500	8000	0.5	0.5	3000	2.40×10^{4}	—
CM-4000	50	4000	8000	0.5	0.5	3000	3.40×10^{4}	—
	60	4500	11000	0.5	0.5	3000	5.00×10^{4}	—
CM-5000	50	4000	8000	0.5	0.5	3000	1.90×10^{4}	—
	60	4500	9000	0.5	0.5	3000	2.80×10^{4}	—
CM-6000	50	5400	11000	0.5	0.5	2300	2.80×10^{4}	—
	60	6000	12000	0.5	0.5	2300	4.30×10^{4}	—
CM-8000	50	8000	16000	0.5	0.5	2000	5.00×10^{4}	—
	60	9000	22000	0.5	0.5	2000	7.50×10^{4}	—
CM-12000	50	12500	25000	0.5	0.5	1800	7.80×10^{4}	—
	60	14000	28000	0.5	0.5	1800	1.15×10^{5}	—

* If the rotation speed exceeds ($1500min^{-1}$), misalignment must be less than 50% of the specification.
* The table indicates the prices for Type S1 with prepared bores.

Dimensions



CM-120～2400-S1



CM-2600～12000-S1

Unit [mm]

Model	Flange size SAE J620	A	C	d1		D1	E	L	L1	N	M
				Pilot bore	Max.						
CM-120	6 1/2	43	64±2	10	42	220	20	56	42	67	6-M6
	7 1/2										
	8										
CM-240	8	46	75±9	13	50	225	27	75	60	73	6-M8
	10										
CM-400	10	45	75±7	18	60	313	25	80	65	90	8-M8
CM-800	10	50	82±2	18	70	316	18	84	66	107	8-M10
	11 1/2	39	71±3			318					
	14	46	74±6								
CM-1200	11 1/2	39	65±4	18	70	318	18	84	66	107	8-M10
	14	46	74±1								
CM-1600	14	61	97±11	28	105	417	26	106	85	150	8-M12
	16										
	18										
CM-2400	14	61	97±6	28	105	417	26	106	85	150	8-M12
	16										
	18										
CM-2600	14	70	96±6	35	110	465	59	139	100	162	8-M16
	16										
	18										
CM-2800	14	61	135±4	33	110	417	76	131	105	162	8-M16
	16										
	18										
CM-3000	14	70	135±8	19	65	465	53	135	105	100	12-M12
	16										
	18										
CM-3500	14	70	135±8	33	110	465	60	140	105	162	8-M16
	16										
	18										
CM-4000	14	70	161±6	48	140	465	94	159	125	218	12-M16
	16										
	18										
CM-5000	14	70	147±2	35	110	465	64	159	105	162	12-M16
	16										
	18										
CM-6000	18	80	159±9	48	140	540	76	161	125	218	12-M16
CM-8000	18	106	197±5	68	180	600	110	195	150	248	12-M20
	21	90				584					
	24	90									
CM-12000	21	156	310±9	70	180	680	176	306	200	248	24-M20
	24	137									

* The configuration of Size 120 is slightly different from the drawing above.

■Mounting dimensions

The driving-side outer ring is designed to mount directly in the SAE standard J620 flywheel.

Unit [mm]

Flange size SAE J620	DA	DT	Z	S
6 1/2	215.9	200.0	6×60°	9
7 1/2	241.3	222.3	8×45°	9
8	263.5	244.5	6×60°	11
10	314.3	295.3	8×45°	11
11 1/2	352.4	333.4	8×45°	11

Unit [mm]

Flange size SAE J620	DA	DT	Z	S
14	466.7	438.2	8×45°	13
16	517.5	489.0	8×45°	13
18	571.5	542.9	6×60°	17
21	673.1	641.4	12×30°	17
24	733.4	692.2	12×30°	19

■ Design check items

■Designing inner hub

When newly designing inner hubs consult Miki Pulley regarding materials and dimensions of mounted portion with rubber parts.

■Bolt specification and tightening torque (For fixing inner hubs)

Size	Bolt specification			Tightening torque [N·m]
	No. of bolts	Nominal dia. x length under head	Class of strength	
120	6	M6×20	8.8 or more	10
240	6	M8×20		25
400	8	M8×20		25
800	8	M10×20		50
1200	8	M10×20		50
1600	8	M12×25		85
2400	8	M12×25		85
2600	8	M16×40	10.9 or more	310
2800	8	M16×40		310
3000	12	M12×30		85
3500	8	M16×40		310
4000	12	M16×40		310
5000	12	M16×40		310
6000	12	M16×40		310
8000	12	M20×50		600
12000	24	M20×80		600

* The bolts conform to JIS B1176 hexagon socket head cap screws.
* Consult Miki Pulley when using bolts other than those specified above.

■Operating environment

- Store the rubber parts in a cool place avoiding direct sunshine.
- The rubber parts are not fully resistant to oil and grease. Avoid having the rubber parts contact oil or grease. If contacted, wipe off immediately with alcohol or acetone.
- Do not use any liquid anaerobic adhesive (screw lock agent). It may damage the rubber parts.

■Max. permissible misalignment

As a basic mounting method, inlay alignment is suggested.

■Check items in assembly

Tighten the bolts at the specified torque by using a torque wrench when mounting the rubber parts in the inner hubs. At this time, coat a little grease onto the bearing surface of the bolt to achieve reliable tightening. (Do not coat any grease on the screw part of the bolt.)

Selection
(For CF-A, CF-H, CF-X, CF-B and CM)

Selection Procedure

❶ Calculate torque Ta applied to the coupling based on the motor output P and coupling operating rotation speed n.

$$Ta\ [N\cdot m] = 9550 \times \frac{P[kW]}{n[min^{-1}]}$$

❷ Calculate corrected torque Td applied to the coupling after deciding the service factor K (1, 2, 3 and 4).

$$Td\ [N\cdot m] = Ta \cdot K1 \cdot K2 \cdot K3 \cdot K4$$

K1: Operating coefficient by load character
K2: Corrected coefficient by operating hours
K3: Corrected coefficient by misalignment
K4: Corrected coefficient by ambient temperature

❸ Select the size in order that the coupling permissible torque Tn becomes greater than the corrected torque Td.

$$Tn \geqq Td$$

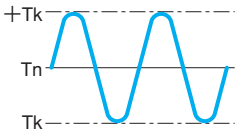
❹ Select the size in order that the maximum torque of the coupling Tm becomes greater than the peak torque Ts generated by the motor or driven machine, or both. Maximum torque is defined as torque which can be temporarily applied. For 8-hour operating time per day, it is about 10 times.

$$Tm \geqq Ts$$

❺ Calculate the corrected fluctuating torque Tkw1 of the coupling using the formula below.
(For CF-A and CM)

$$Tkw1 = Tk \cdot Sf \cdot St$$

Tk: Torque fluctuation magnitude
Sf: Period (fluctuation) coefficient
St: Temperature coefficient (=K4)



Tn shall be below normal operating torque.

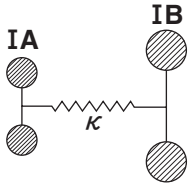
f[Hz]	≦10	>10
Sf	1	$\sqrt{\frac{f}{10}}$

Confirm if the corrected fluctuating torque Tkw1 calculated by the formula above is less than the permissible fluctuating torque Tkw of the selected size.

❻ If the required shaft diameter is over the maximum bore diameter of the selected size, select a coupling suiting it.
When using with machines whose load torque fluctuates drastically on periodic basis, a study of torsional vibration is necessary in addition to the procedure mentioned above. Make sure that frequency of torque fluctuations does not coincide with the resonance frequency fe of the shaft system. Generally, eigenfrequency fe is calculated by approximating the shaft system as shown below.

$$fe = \frac{60}{2\pi}\sqrt{\kappa\left(\frac{1}{IA}+\frac{1}{IB}\right)}\ [cpm]$$

κ : Dynamic torsional spring constant of coupling [N·m/rad]
IA : Inertial moment of driving side [kg·m²]
IB : Inertial moment of driven side [kg·m²]



Service factor

●Use factor: K1

● Printing machinery	1.5
● Winches	1.5
● Escalators	1.0
● Elevators	
Bucket centrifugal gravity discharge type, for cargo	1.25
For flights or passengers	2.0
● Car dampers	2.5
● Car pullers	1.5
● Agitators	
Rectifying and lateral screws, propellers, paddles	1.0
● Steering gears	1.5
● Metal forming machine	
Draw benches, main drives, extruders, forming machines	2.0
Slitters	1.0
Wire drawing machines or rolling machines	1.75
Copper wire drawing and coiling machines	1.5
● Cranes and hoists	
Main hoists	2.0
Skip hoists, Bridge trolleys	1.75
Slopes	1.5
● Machine tools	
Auxiliary drives, moving equipment	1.0
Bending rolls, notch presses, punch presses	1.75
Planar, plate reversing	1.75
Main drives	1.5
● Conveyers	
Aprons, assemblies and belts	1.0
Chains, flats, screws	1.0
Buckets	1.25
Rib rolls, shakers, reciprocating type	3.0
● Compressors	
Centrifugal system	1.0
Rope or rotary	1.25
Reciprocating type	
For direct coupling	*
Without flywheel	*
Flywheel between compressor and motor With gear	
Less than 2 cylinders and less than 2 cycles	3.0
Less than 3 cylinders and less than 1 cycle	3.0
Less than 3 cylinders and less than 2 cycles	2.0
More than 4 cylinders and less than 2 cycles	1.75
● Pug mills (Ceramics)	1.75
● Purifiers or classifiers	1.0
● Screens	
Air purifiers, intake type	1.0
Coal and gravel rotary presses	1.5
Vibrating type	2.5

● Washers or rotary polishing machines	2.0
● Ship pullers	2.0
● Blowers	
Centrifugal type	1.0
Blade type	1.25
● Tumbling barrels	1.75
● Dynamometers	1.0
● Generators(Exciting machines)	
Constant force	1.0
Hoists or railways	1.5
Load fluctuations (Welders)	2.0
● Hammer mills	2.0
● Pulverizers	2.0
Hammer mills, hogs	1.75
Rollers	1.5
● Fan	
Centrifugal type	1.0
Cooling towers	2.0
For forced ventilation	
Across line start	1.5
Fluids or with electromagnetic clutch	1.0
Gas circulator	
Tumbler control or with blade cleaner	1.25
Without control	2.0
● Feeders	
Aprons, belts, discs, screws	1.0
Reciprocating	2.5
● Plastic extruders	1.25
● Pumps	
Centrifugal type	1.0
Gears, rotary or blade type	1.25
Reciprocating	
1 cylinder 1 or 2 cycles	2.0
2 cylinders 1 cycle	2.0
2 cylinders 2 cycles	1.75
More than 3 cylinders	1.5
● Winches	1.5
● Mixers	
Concrete	1.75
Crushing	1.5
● Woodworking machines	1.0

* Items marked * require consultation.
* The indicated values are general recommended values.
* The indicated values are applicable to motors, stream turbines and internal combustion engines with more than four cylinders.
* Add 0.7 to the indicated values for internal combustion engine drive with single cylinder. Add 0.3 to the indicated values for internal combustion engine drive with two or three cylinders.

●Corrected coefficient by operating hours: K2

Hours/per day	8≧	10	12	14	16	18	20	22	24
K2	1.0	1.1	1.2		1.3		1.4		1.5

●Corrected coefficient by misalignment: K3 (=K ε ×K θ)

(1) CENTAFLEX CF-A

Parallel offset [mm]	0.3	0.5	0.8	1.0	1.5		Size
K ε	1.0	1.0	1.3	1.5	2.0		016～400
	1.0	1.2	1.5	2.0	—		001～012
Angular misalignment [°]	0.5	1.0	1.5	2.0	2.5	3.0	Size
K θ	1.0	1.1	1.3	1.5	1.8	2.0	All sizes excluding the following sizes
	1.0	1.2	1.5	2.0	—	—	012, 022, 028, 050, 080, 140, 250, 400

(2) CENTAFLEX CF-H

Parallel offset [mm]	0.3 or less	0.4
K ε	1.0	1.1
Angular misalignment [°]	0.5 or less	
K θ	1.0	

(3) CENTAFLEX CF-X

Parallel offset [mm]	0.05 or less	0.1
K ε	1.0	1.5
Angular misalignment [°]	0.5 or less	1.0
K θ	1.0	1.5

(4) CENTAFLEX CF-B

Corrected coefficient		CF-B	CF-B-H
K ε Parallel offset [mm]	0.2	1.0	1.1
	0.3	1.1	1.2
	0.5	1.2	—
K θ Angular misalignment [°]	0.25	1.0	1.0
	0.5	1.0	1.1
	1	1.1	—

(5) CENTAMAX

Parallel offset [mm]	0.5 or less
K ε	1.0
Angular misalignment [°]	0.5 or less
K θ	1.0

●Corrected coefficient by ambient temp.: K4 (=St)

Temp. [℃]		-20	-10	0	10	20	30	40	50	60	70	80	90	100
Centaflex	**CF-A**	1.0								1.1	1.2	1.4	1.6	—
	CF-H	1.0												
	CF-X	1.3		1.2		1.0		1.2		1.5			1.8	
	CF-B	1.0							1.1		1.3		—	
	CF-B-H	1.0									1.1			
Centa-Max		1.0								1.1	1.2	1.4	—	