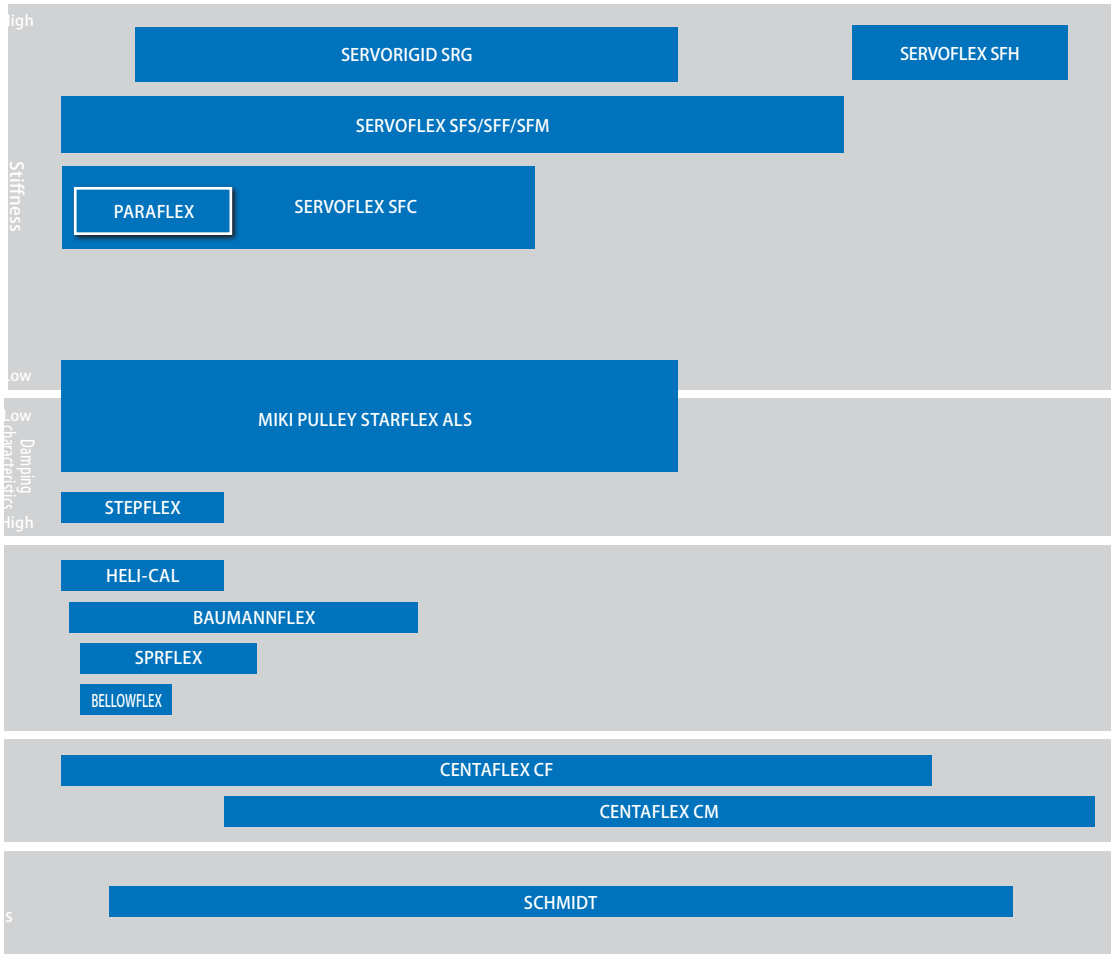
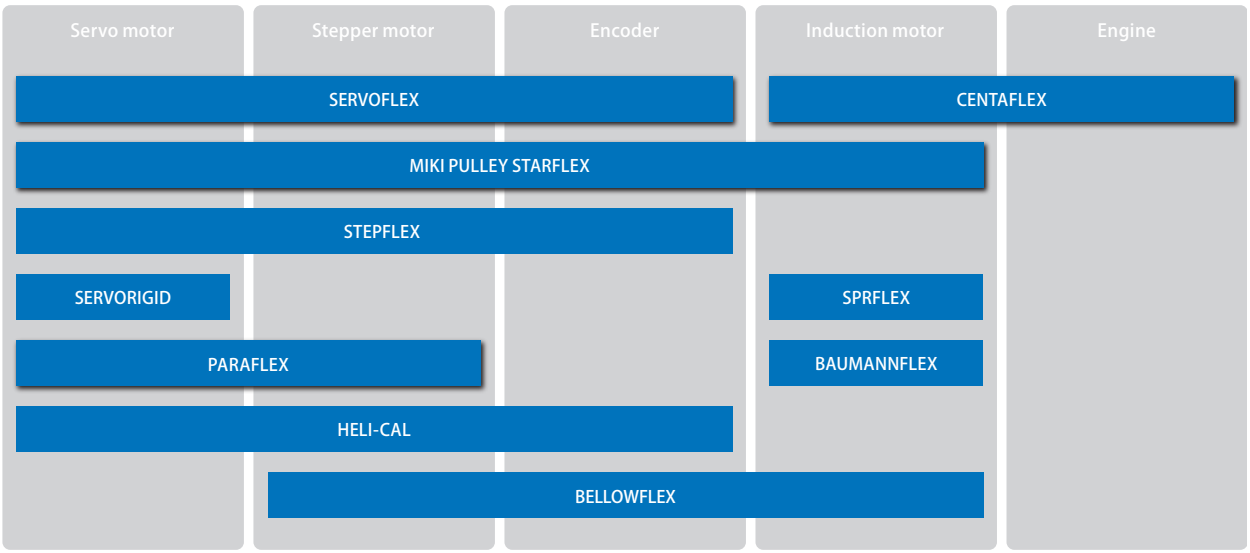
Select by Product Characteristics

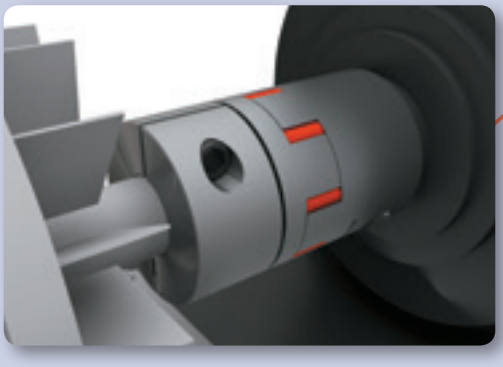


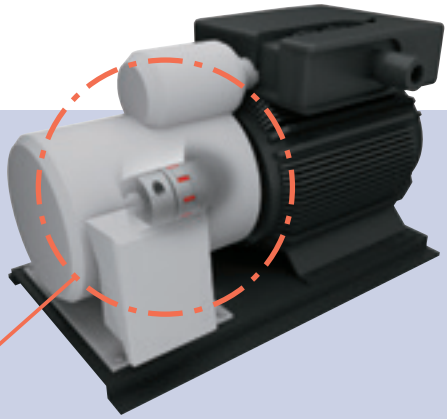
Select by Drive



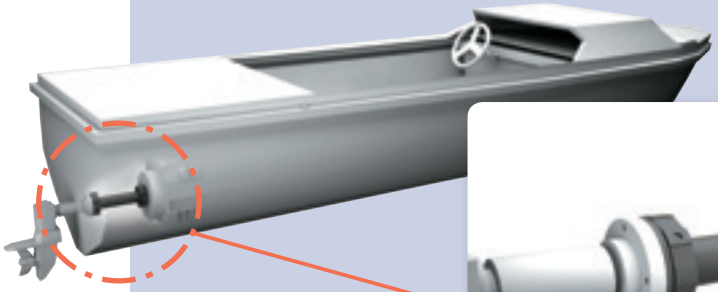
Applications

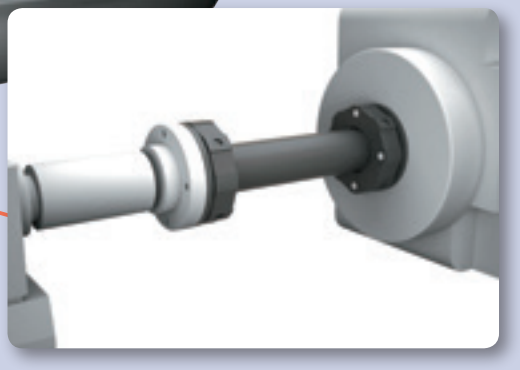
Product model ALS R
Employed device Vacuum Pump





MIKI PULLEY STARFLEX coupling for connecting the drive unit.
Simple structure and easy maintenance.



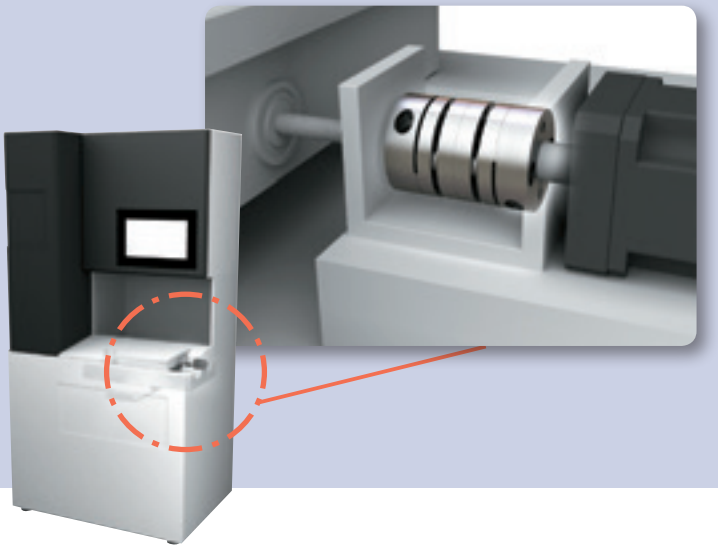


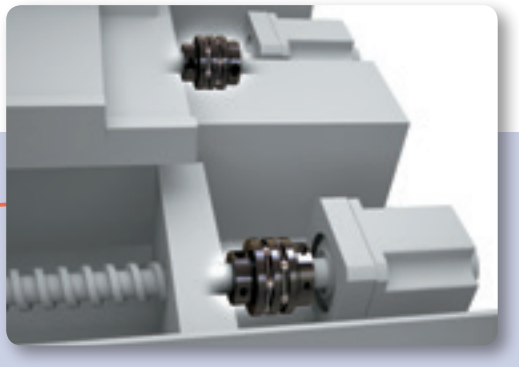
Product model CF-A OZ
Employed device Pleasure Boat

CENTAFLEX coupling and floating shaft (for high-speed rotation) are used to connect the engine and the propeller.

Product model SFC
Employed device Dicing Saw

SERVOFLEX for connecting the servo motor and ball screw. It is used for ultra-precision machining of semiconductor wafers.



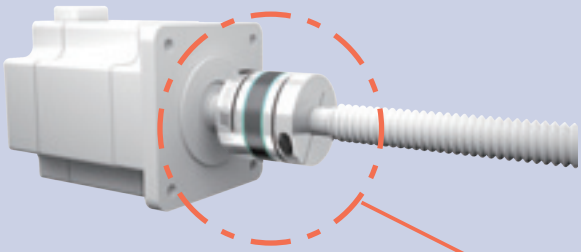


Ultra-high stiffness coupling SFF model for connecting the servo motor and feed shaft. The rated torque is higher than the conventional models, and the coupling size and the moment of inertia can be reduced.

Product model SFF
Employed device CNC Lathe

SERVOFLEX coupling for the head of a chip mounter.

Product model SFC
Employed device Chip Mounter



Product model STF
Employed device General-purpose Feed Shaft

The high damping performance STEPFLEX coupling is used to connect the stepper motor and the ball screw.

Pin Bushing Couplings
PARAFLEX

High stiffness | High flexibility | High damping | Easy to mount and remove

Max. nominal torque [N·m]	25
Bore ranges [mm]	ϕ 3 ~ 22
Operating temperature [℃]	−30 ~ 100
Backlash	Extremely small size
Driver	Servo motor, stepper motor, induction motor
Application	Chip mounters, electric discharge machines, automated teller machines, winders

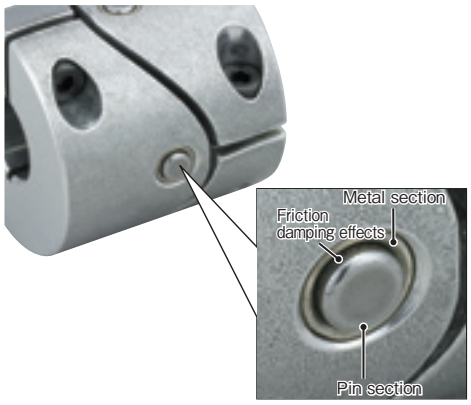
Pin bushing Couplings That Keep Shaft Reaction Force from Mounting Misalignment Extremely Low

Pin/bushing style couplings that use aluminum alloy as their primary material. This system makes shaft reaction force due to mounting misalignment extremely small. There is also a damping effect from sliding at the friction surface between the pin and dry metal.

RoHS

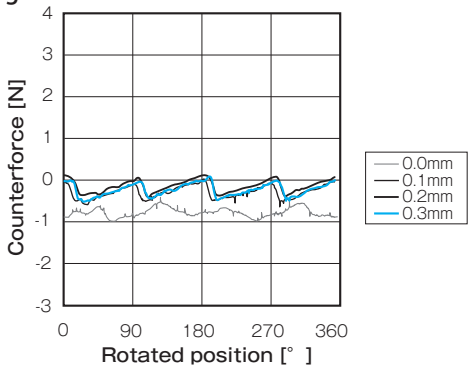
Main Features

Friction Damping Effect of Pin and Metal Bushing



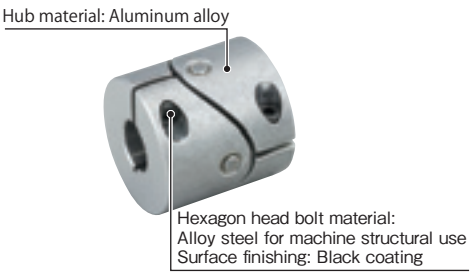
Counterforce from Parallel Misalignment and Angular Deflection is Extremely Small

■ CPU-36-A: Counterforce due to parallel misalignment

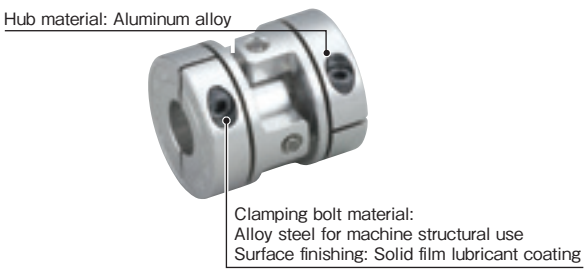


Structure and Materials

■ CPE



■ CPU



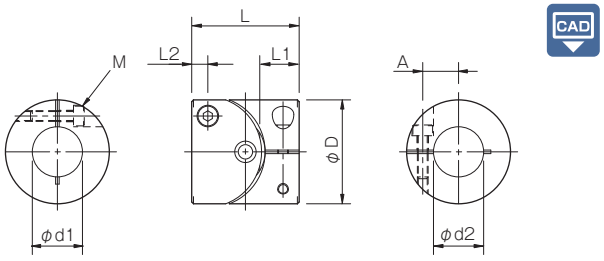
CPE Models

Specifications

Model	Torque		Misalignment		Max. rotation speed [min^{-1}]	Torsional stiffness [N·m/rad]	Moment of inertia [kg·m^2]	Mass [kg]
	Nominal [N·m]	Max. [N·m]	Parallel [mm]	Angular [°]				
CPE-19	0.7	1.4	0.2	1	6000	500	0.69×10^{-6}	0.015
CPE-29	2	4	0.2	1	6000	700	5.80×10^{-6}	0.050
CPE-39	5	10	0.2	1	6000	1900	18.50×10^{-6}	0.080

* Torques for CPE-19 are values when the bore diameter is at least equal to 4 mm.
* Max. rotation speed does not take into account dynamic balance.
* The moment of inertia and mass are measured for the maximum bore diameter.

Dimensions



Unit [mm]

Model	d1 • d2		D	L	L1	L2	M	A
	Min.	Max.						
CPE-19	3	8	19	19.4	6	3	M2.5	6
CPE-29	6	14	29	30	9.5	4.5	M3	10
CPE-39	8	20	39	40	12.5	6	M4	14

* Insert the shaft to at least the dimension L1. (Note that the shaft cannot go all the way through.)
* The recommended processing tolerance for paired mounting shafts is the h7 class.

Standard Bore Diameter

Model	Standard bore diameter d1, d2 [mm]																
	3	4	5	6	6.35	7	8	9.525	10	11	12	14	15	16	18	19	20
CPE-19	○	●	●	●	●	●	●										
CPE-29				●	●	●	●	●	●	●	●	●					
CPE-39							●	●	●	●	●	●	●	●	●	●	●

* Torque on the CPE-19 with a bore diameter of 3 mm is limited by holding force in the shaft coupling component, so nominal torque is 0.4 N·m and maximum torque is 0.8 N·m.
* Bore diameters between the minimum and maximums shown in the dimensions table are compatible, but bore diameters other than those shown in the above table require a separate bore drilling charge.

How to Place an Order

CPE-19-6B-6B

Size

Bore diameter: d1 (Small diameter) - d2 (Large diameter)
B: Clamping hub

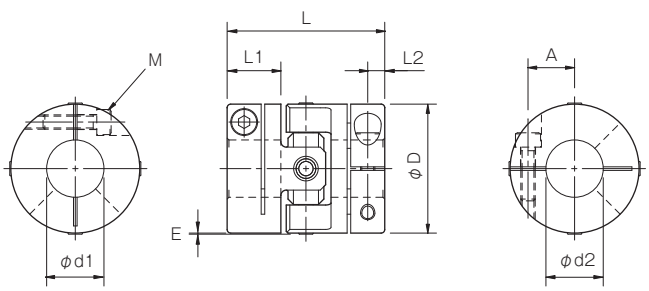
CPU Models

Specifications

Model	Rated torque [N·m]	Misalignment		Max. rotation speed [min⁻¹]	Torsional stiffness [N·m/rad]	Moment of inertia [kg·m²]	Mass [kg]
		Parallel [mm]	Angular [°]				
CPU-26-A	2.2	0.3	4	4000	600	3.57×10^{-6}	0.04
CPU-36-A	10	0.4	4	3500	1350	1.64×10^{-5}	0.09
CPU-46-A	25	0.5	4	3000	1650	5.33×10^{-5}	0.19

* Max. rotation speed does not take into account dynamic balance.
* The moment of inertia and mass are measured for the maximum bore diameter.

Dimensions



Unit [mm]

Model	d1 • d2		D	E	L	L1	L2	M	A
	Min.	Max.							
CPU-26-A	6	12	26	0.3	36	12	4	M3	9
CPU-36-A	8	18	36	0.3	44	15	4.75	M4	13
CPU-46-A	10	22	46	0.3	54	18	6.5	M5	16

* Insert the shaft to at least the dimension L1. (Note that the shaft cannot go all the way through.)
* The recommended processing tolerance for paired mounting shafts is the h7 class.

Standard Bore Diameter

Model	Standard bore diameter d1, d2 [mm]															
	6	6.35	7	8	9	9.525	10	11	12	14	15	16	18	19	20	22
CPU-26-A	●	●	●	●	●	●	●	●	●							
CPU-36-A				●	●	●	●	●	●	●	●	●	●			
CPU-46-A							●	●	●	●	●	●	●	●	●	●

* Bore diameters between the minimum and maximums shown in the dimensions table are compatible, but bore diameters other than those shown in the above table require a separate bore drilling charge.

How to Place an Order

CPU-36-A-12B-12B

- Size
- Type A: Aluminum type
- Bore diameter: d1 (Small diameter) - d2 (Large diameter)
  B: Clamping hub

Items Checked for Design Purposes

Special Items to Take Note of

You should note the following to prevent any problems.

(1) Always be careful of parallel and angular misalignment.

(2) Always tighten bolts with the specified torque.

Precautions for Handling

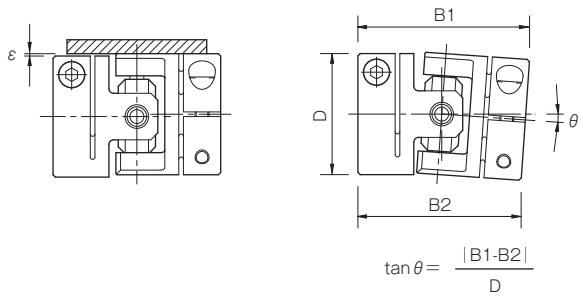
(1) Couplings are designed for use within an operating temperature range of -30℃ to 100℃ . PARAFLEX couplings are water and oil resistant, but should not be used in extreme atmospheres.

(2) Never tighten the clamping bolt (hex-socket-head bolt) prior to inserting the shaft into the coupling.

(3) Remove any rust, dust, oil residue, etc. from the inner diameter surfaces of the shaft and couplings. In particular, never allow oil or grease containing antifriction or other agent (molybdenum-, silicon-, or fluorine-based), which would dramatically affect the friction coefficient, to contact the surface.

(4) Mount couplings after checking, by the following sort of method, that differences between coupling centers during operation are within the misalignment shown in the specifications table. CPU models allow angular deflection of up to 4° at this time, but it should be kept within 1.5° if it is important that the coupling be isokinetic. The angular velocity ratio at an angular deflection of 1.5° is 1.0007.

■ Parallel misalignment ■ Angular deflection



$$\tan\theta = \frac{|B1-B2|}{D}$$

(5) PARAFLEX couplings are not structurally able to absorb axial displacement, so do not place tensile or compressive loads on them during use.

(6) The length of insertion of the shaft into the coupling should be the dimension L1 on the dimensions table. The shaft cannot go all the way through.

(7) Tighten clamping bolts (hex-socket-head bolt) to the tightening torques shown below using a calibrated torque wrench.

Model	CPE-19	CPE-29	CPE-39
Bolt with hex socket head for clamping	M2.5	M3	M4
Tightening torque [N·m]	1.0	1.5	3.4

Model	CPU-26-A	CPU-36-A	CPU-46-A
Clamping bolts	M3	M4	M5
Tightening torque [N·m]	1.5	3.4	7.0

(8) Do not use any clamping bolt (hex-socket-head bolt) other than those specified by Miki Pulley. Do not apply oil, grease, fixatives (adhesives) or the like to the clamping bolt (hex-socket-head bolt).

Selection Procedures

(1) Find the torque, Ta, applied to the coupling using the output capacity, P, of the driver and the usage rotation speed, n.

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

(2) Determine the service factor K from the usage and operating conditions, and find the corrected torque, Td, applied to the coupling.

$$Td\ [N{\cdot}m] = Ta \times K1 \times K2 \times K3 \times K4 \times K5$$

■ Service factor based on load property: K1

Load properties	Constant	Vibrations: Small	Vibrations: Medium	Vibrations: Large
				
K1	1.0	1.25	1.75	2.25

■ Service factor based on amount of parallel misalignment: K2

Parallel misalignment [mm]	0	0.1	0.2
K2	1.0	1.1	1.2

■ Service factor based on amount of angular deflection: K3

Amount of angular deflection [°]	0	0.5	1.0
K3	1.0	1.06	1.12

■ Service factor based on operating temperature: K4

Atmospheric temperature [℃]	60 or below	80 or below	100 or below
K4	1.0	1.4	1.8

■ Service factor based on rotation speed: K5

Max. rotation speed [min⁻¹]	1500 or below	2500 or below	2500 or below	3000 or below	3500 or below	4000 or below	5000 or below	6000 or below
K5	1.0	1.3	1.7	2.0	2.4	2.7	3.3	4.0

(3) Select the size so that the nominal torque (CPE models) or rated torque (CPU models) Tn is at least equal to the corrected torque, Td.

$$Tn \geqq Td$$

(4) Select a size that results in a maximum torque (CPE models) or rated torque (CPU models) Tm that is at least equal to the peak torque, Ts, generated by the driver, follower or both. Maximum torque (CPE models) refers to the maximum amount of torque that can be applied for a set amount of time, considering eight hours of operation per day and up to around ten instances.

$$Tm \geqq Ts \times K4$$

(5) When the required shaft diameter exceeds the maximum bore diameter of the selected size, select a suitable coupling.