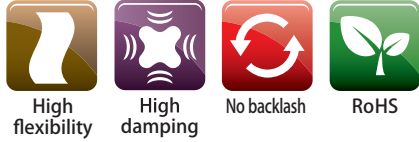


# Plastic Bellows Couplings

## BELLOWFLEX



Max. nominal torque [N·m]	1.5
Bore ranges [mm]	φ 3 ~ 12
Operating temperature [°C]	-20 ~ 60
Driver	Induction motor, stepper motor, encoder
Application	Automated teller machines, inspection equipment, printing machinery

### Plastic Bellows Coupling Ideal for Stepper Motors and Encoders



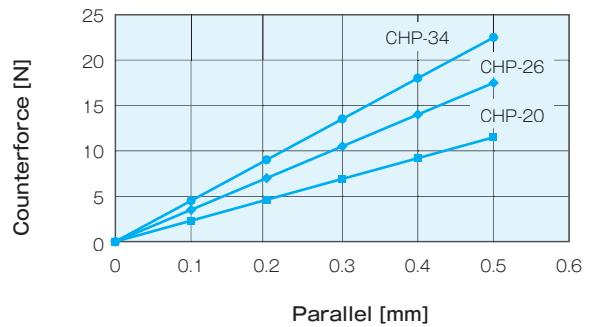
Bellows couplings that use a plastic (polyester resin) boot with plenty of elasticity in order to achieve high damping performance and extremely small counterforce from mounting misalignment. A compact design that unitizes an aluminum alloy hub and plastic boot means there is no backlash.

#### Main Features

Allows Angular Deflection up to 10°

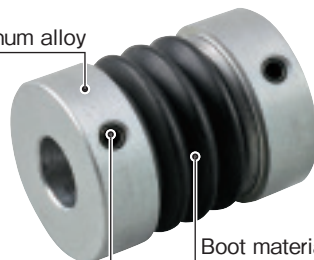


Extremely Small Counterforce due to Misalignment



#### Structure and Materials

Hub material: Aluminum alloy



Boot material: Polyester resin

Hexagon head set screw material:  
Alloy steel for machine structural use  
Surface finishing: Black coating

# CHP Models

COUPLINGS

ETP BUSHINGS

ELECTROMAGNETIC CLUTCHES & BRAKES

SPEED CHANGERS & REDUCERS

INVERTERS

LINEAR SHAFT DRIVES

TORQUE LIMITERS

ROSTA

SERIES

Metal Couplings	Metal Disc Couplings SERVOFLEX	
	High-rigidity Couplings SERVORIGID	
	Metal Slit Couplings HELI-CAL	
	Metal Coil Spring Couplings BAUMANNFLEX	
	Pin Bushing Couplings PARAFLEX	
	Link Couplings SCHMIDT	
	Rubber and Plastic Couplings	Dual Rubber Couplings STEPFLEX
		Jaw Couplings MIKI PULLEY STARFLEX
		Jaw Couplings SPRFLEX
		Plastic Bellows Couplings BELLOWFLEX
Rubber and Plastic Couplings CENTAFLEX		

MODELS

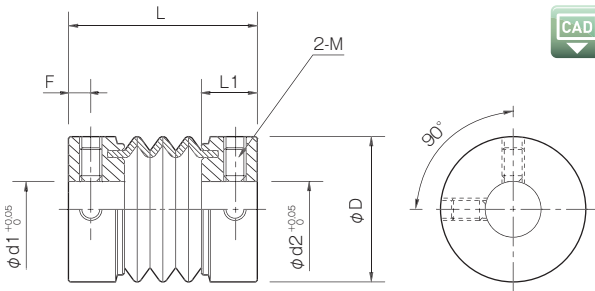
CHP

## Specifications

Model	Torque		Misalignment			Max. rotation speed [min <sup>-1</sup> ]	Static torsional stiffness [N-m/rad]	Moment of inertia [kg-m <sup>2</sup> ]	Mass [kg]
	Nominal [N-m]	Max. [N-m]	Parallel [mm]	Angular [°]	Axial [mm]				
CHP-20	0.4	0.8	0.5	10	± 0.5	9000	5.9	6.30 × 10 <sup>-7</sup>	0.012
CHP-26	0.7	1.4	0.5	10	± 0.5	7000	12.5	2.40 × 10 <sup>-6</sup>	0.026
CHP-34	1.5	3.0	0.5	10	± 0.5	5500	32.8	7.90 × 10 <sup>-6</sup>	0.051

\* Static torsional stiffness values given are from measurements taken at 20°C  
\* The moment of inertia and mass are measured for the minimum bore diameter.

## Dimensions



Model	d1 · d2		D	L	L1	F	M
	Min.	Max.					
CHP-20	3	8	20	28	8	3	M3
CHP-26	6	13	26	34	10	4	M4
CHP-34	8	18	34	40	12	5	M5

\* For combination with a CHP-20 that has a bore diameter of ø3, open the set screw to an angle of 120°.

Model	Standard bore diameter d1-d2 [mm]					
	3-3	5-5	6-6	8-8	10-10	12-12
CHP-20	●	●	●			
CHP-26			●	●	●	
CHP-34				●	●	●

\* The recommended processing tolerance for paired mounting shafts is the h8 class.  
\* Non-standard bore diameters require additional processing.

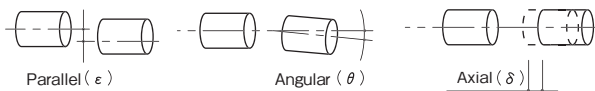
### How to Place an Order

CHP-26 8-8  
Size ——— Bore diameter d1 - d2

## Items Checked for Design Purposes

### Precautions for Handling

- Couplings can be used within a temperature range of -20°C to 60°C. Although BELLOWFLEX couplings are designed to be waterproof and oilproof, do not subject them to excessive amounts of water or oil as these may cause deterioration. Use and storage in direct sunlight may shorten coupling service life, so cover couplings appropriately.
- Be careful, when working on the bore, to not change the shape of the hub or get cutting residue inside the boot.
- To get full coupling performance, mount couplings so that differences between coupling centers during operation are within the misalignment shown in the specifications table. However, this misalignment is the maximum value when each occurs independently, so make the allowable value when they combine 50% or less of this value.



- Remove any rust, dust, oil or the like from the inner diameter surfaces of the shaft and coupling.
- Be careful not to place more bending, tensile, or compressive load on the coupling than necessary when inserting a shaft into a coupling. Also, the length of insertion of the shaft into the coupling should be the dimension L1 on the dimensions table.
- Tighten set screws with hex socket heads to the tightening torques shown below using a calibrated torque screwdriver.

Size of hex-socket-head set screw	M3	M4	M5
Tightening torque [N-m]	0.7	1.7	3.6

### Selection Procedures

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

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

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

$$T_d \text{ [N-m]} = T_a \times K_1 \times K_2$$

#### Service factor based on load property: K1

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

#### Service factor based on operating temperature: K2

Temperature [°C]	- 20	0	+ 20	+ 40	+ 60
K2		1.0		1.2	1.3

- Set the size so that the nominal torque of the coupling Tn is at least equal to the corrected torque Td.

$$T_n \geq T_d$$

- Select a size that results in a maximum torque, Tm, for the coupling that is at least equal to the peak torque, Ts, generated by the driver, follower or both. Maximum torque 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.

$$T_m \geq T_s$$

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