Couplings

High Positioning Accuracy / High Rigidity Disc Clamping

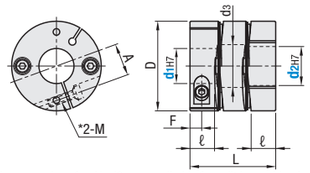
⚠ The stainless steel discs of this product have sharp edges that may cause injuries. Use of thick protective gloves is recommended.

For Servo Motors

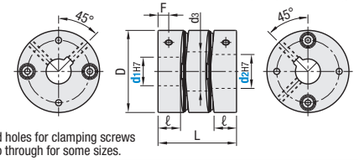
Couplings – High Positioning Accuracy

RoHS10

SCXW (Double Disc Type)



SCXWK (Double Disc – Keywayed Bore) (Keywayed Bore d_1, d_2)



*Tapped holes for clamping screws may go through for some sizes.

- Tolerance values for d1, d2, are applied before slit is machined.
- The lateral, angular, and axial misalignment values shown are for each occurring individually. When more than one misalignments are occuring simultaneously, the allowable maximum value of each will be reduced by 1/2.
- For the selection criteria and alignment procedures, see **P.1091, 1093**.

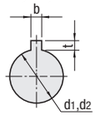
Type	Material			Surface Treatment			Accessories
	Body	Disc	Screw	Body	Disc	Screw	
SCXW SCXWK	Aluminum Alloy	Stainless Steel	4137 Alloy Steel	Clear Anodize	—	Trivalent Chromate	Hex Socket Head Cap Screw, Set Screw

Part Number Type	No.	d_1, d_2 ($d_1 \le d_2$) ⓘ Only the dimensions marked with * are selectable for Keywayed Bore Type	D	d_3	L	ℓ	F SCXW	F SCXWK	A	Clamp Screw M	Clamp Screw Tightening Torque (N·m)
Double Disc Type SCXW	21	4 5 6 8*	21	9.5	24.5	7	3.5	3	7	M2.6	1.2
	28	5 6 8* 10*	28	12	32	9	4	4	9.5	M3	1.5
Double Disc Type – Keywayed Bore SCXWK	34	6 8* 10* 12* 14*	34	17	35	9.8	5	4.5	12	M3	1.5
	46	8 10* 12* 14* 15 17 19	46	22	44	12.6	6	6	16.5	M4	3.5
	55	12 14 15 17 19 20 22 24 25	54.5	26	55	16	7	—	20.5	M5	7

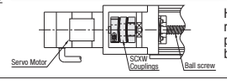
- SCXWK not available for No. 55.
- Static torsional spring constant, inertia moment, and mass values are for cases of maximum shaft diameter.

Part Number Type	No.	Allowable Torque (N·m)	Ang. Misalign. (°)	Lat. Misalign. (mm)	Static Torsional Spring Const. (N·m/rad)	Max Rot. Speed (r/min)	Moment of Inertia ($Kg·m^2$)	Allowable Axial Misalign. (mm)	Comp. Factor	Mass (g)
SCXW SCXWK	21	1.2	1.0	0.10	900	10000	1.20×10^{-6}	±0.20	1.5	18
	28	1.6	1.2	0.15	3600		4.68×10^{-6}			42
	34	4.0	1.5	0.20	5700		1.10×10^{-5}			65
	46	10.0		0.25	14500		4.70×10^{-5}	±0.30		151
	55	25.0			23000		1.19×10^{-4}			260

Keyway Dimension



Shaft Bore Dia. d_1, d_2	b Dim.	b Tol.	t Dim.	t Tol.	Key Nominal Dim. b x h	Set Screw Size	Set Screw Tightening Torque (N·m)
8, 10	3	±0.0125	1.4	+0.1 0	3 x 3	M2	0.3
12	4	±0.0150	1.8		4 x 4	M3	0.7
14	5		2.3		5 x 5	M4	1.7

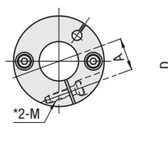


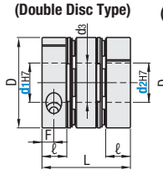
Highly suitable for applications requiring high speeds and high positioning accuracies, such as ball screw drives.

Couplings – High Rigidity Disc Clamping

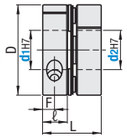
RoHS10

SCPW (Double Disc Type)





SCPS (Single Disc Type)



- Tolerances for d_1, d_2 are values before slit machining.
- The lateral, angular, and axial misalignment values shown are for each occurring individually. When more than one misalignments are occuring simultaneously, the allowable maximum value of each will be reduced by 1/2.
- For the selection criteria and alignment procedures, see **P.1091, 1093**.

*Tapped hole for clamp screw might go through for some sizes.

Type	Material			Surface Treatment			Accessories
	Body	Disc	Screw	Body	Disc	Screw	
SCPW SCPS	Aluminum Alloy	Stainless Steel	4137 Alloy Steel	Clear Anodize	—	Black Oxide	Hex Socket Head Cap Screw

Part Number Type	No.	d_1, d_2 select (must be $d_1 \le d_2$)	D	d_3	L SCPW	L SCPS	ℓ	F	A	Clamp Screw M	Clamp Screw Tightening Torque (N·m)
Double Disc Type SCPW	16	*3 4 5 6	16.6	6.5	23	16.6	7.2	3	5.3	M2.6	1.0
	21	4 5 6 8 9	21	9.5	24.5	16.7	7	3.5	7	M2.6	1.2
	28	5 6 8 9 10	28	12	32.2	21.5	9	4	9.5	M3	1.5
Single Disc Type SCPS	34	6 8 9 10 11 12 14	34	15	35	23.3	9.8	5	12	M3	1.5
	46	8 9 10 11 12 14 15 17 19	46	22	44	29.8	12.6	6	16.5	M4	3.5
	55	12 14 15 17 19 20 22 24 25	54.5	26	55	37.2	16	7	20.5	M5	6.0

- For * marked d_1, d_2, use with the load torque 60% or less than shown in the table to prevent slipping.

Double Discs Type (High Rigidity Type)

Part No. Type	No.	Allowable Torque (N·m)	Angular Misalign. (°)	Lateral Misalign. (mm)	Static Torsional Spring Constant (N·m/rad)	Max Rot. Speed (r/min)	Moment of Inertia ($Kg·m^2$)	Allowable Axial Misalign. (mm)	Comp. Factor	Mass (g)
SCPW	16	1.0	1.0	0.10	500	10000	4.22×10^{-7}	±0.20	1.5	11
	21	1.2			800		1.11×10^{-6}			17
	28	1.6	1.2	0.15	3000		4.68×10^{-6}			42
	34	4.0	1.5	0.20	4800		1.10×10^{-5}			65
	46	10.0		0.25	11500		4.70×10^{-5}	±0.30		151
	55	25.0			19000		1.19×10^{-4}			260

- Static torsional spring constant, inertia moment, and mass values are for cases of maximum shaft diameter.

Single Disc Type (High Rigidity Type)

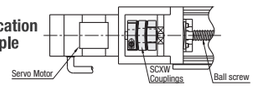
Part No. Type	No.	Allowable Torque (N·m)	Ang. Misalign. (°)	Static Torsional Spring Constant (N·m/rad)	Max Rot. Speed (r/min)	Moment of Inertia ($Kg·m^2$)	Allowable Axial Misalign. (mm)	Comp. Factor	Mass (g)
SCPS	16	1.0	1.0	1000	10000	3.16×10^{-7}	±0.10	1.5	8
	21	1.2		1700		7.90×10^{-7}			12
	28	1.6	1.2	6000		3.24×10^{-6}			30
	34	4.0	1.5	8000		7.60×10^{-6}			45
	46	10.0		20000		3.23×10^{-5}	±0.15		105
	55	25.0		33000		8.19×10^{-5}			180

- Single Disc Type cannot tolerate lateral misalignment.

Part Number Example

Part Number	-	Shaft Bore Dia. d_1	-	Shaft Bore Dia. d_2
SCXW46	-	10	-	14
SCXWK46	-	12	-	14
SCPW34	-	8	-	12

Application Example



Highly suitable for applications requiring high speeds and high positioning accuracies, such as ball screw drives.

Couplings

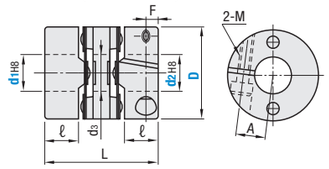
Ultra High Torque Disc Clamping

For Servo Motors

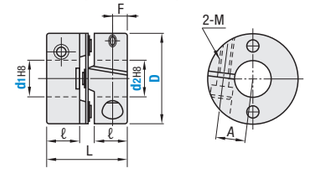
Couplings – Ultra High Torque Disc Clamping

RoHS10

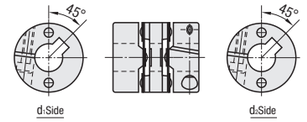
MCSLC (Standard Bore)



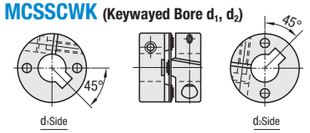
MCSSC (Standard Bore)



MCSLCLK (Keywayed Bore d_1)
MCSLCRK (Keywayed Bore d_1)
MCSLCWK (Keywayed Bore d_1, d_2)



MCSSCWK (Keywayed Bore d_1, d_2)



- Tolerance values for d1, d2, are applied before slit is machined.
- The lateral, angular, and axial misalignment values shown are for each occurring individually. When more than one misalignments are occuring simultaneously, the allowable maximum value of each will be reduced by 1/2.
- For the selection criteria and alignment procedures, see **P.1091, 1093**.

Standard Bore	Keywayed Bore d_1 (One Side)	Keywayed Bore d_2 (One Side)	Keywayed Bore d_1, d_2 (Both Sides)	MMaterial Body	MMaterial Disc	Surface Treatment Body	Accessories
MCSLC	MCSLCLK	MCSLCRK	MCSLCWK	Aluminum Diecast	Stainless Steel	Electroless Nickel Plating	Hex Socket Head Cap Screw
MCSSC	—	—	MCSSCWK				

- For Keyway dimension, refer to the following.

Part Number Type	D	d_1, d_2 Selection (must be $d_1 \le d_2$) ⓘ Keywayed Bore Type is selectable for diameter 6 or larger	d_3	L	ℓ	A	F	Clamp Screw M	Clamp Screw Tightening Torque (N·m)
Clamping MCSLC MCSLCLK MCSLCRK MCSLCWK	16	*4 5 6	6.8	23.2	7	5	3	M2.5	1
	20	*4 5 6 6.35 7 8	8.1	26	7.5	6.5	3.7		
	25	*5 6 6.35 7 8 9.53 10	10.4	30.2	9	8.5	4	M3	1.7
	32	8 9.53 10 11 12 14	15	41	12.4	10	6	M4	2.5
	40	8 9.53 10 11 12 14 15 16 18	19.5	47	15.5	13.1	7.8	M5	7
	50	14 15 16 18 20 22 24	25	53	18	16.7	9	M6	12

Part Number Type	D	d_1, d_2 Selection (must be $d_1 \le d_2$) ⓘ Keywayed Bore Type is selectable for diameter 6 or larger	L	ℓ	A	F	Clamp Screw M	Clamp Screw Tightening Torque (N·m)
Clamping MCSSC MCSSCWK	16	*4 5 6	16.5	7	5	3	M2.5	1
	20	*4 5 6 6.35 7 8	18.4	7.5	6.5	3.7		
	25	*5 6 6.35 7 8 9.53 10	21.6	9	8.5	4	M3	1.7
	32	8 9.53 10 11 12 14	29	12.4	10	6	M4	2.5
	40	8 9.53 10 11 12 14 15 16 18	35	15.5	13.1	7.8	M5	7
	50	14 15 16 18 20 22 24	41	18	16.7	9	M6	12

- When d1, d2 is *4, *5, use with load torque 50% or less than shown in the table to prevent slipping.

Characteristic Values

Part Number Type	D	Allow. Torque (N·m)	Angular Misalign. (°)	Lateral Misalign. (mm)	Static Torsional Spring Constant (N·m/rad)	Max Rot. Speed (r/min)	Moment of Inertia ($kg·m^2$)	Allowable Axial Misalign. (mm)	Comp. Factor	Mass (g)
MCSLC MCSLCLK MCSLCRK MCSLCWK	16	0.9	2	0.15	450	6000	2.7×10^{-7}	±0.2	5–10	10
	20	1.3			700	5500	8.0×10^{-7}			16
	25	2.8			950	5000	2.5×10^{-6}	±0.3		30
	32	5			1100	4000	6.6×10^{-6}	±0.4		62
	40	9		0.2	2800	3800	1.9×10^{-5}	±0.5		110
	50	16			3400	3500	5.0×10^{-5}	±0.6		220

Part Number Type	D	Allow. Torque (N·m)	Angular Misalign. (°)	Lateral Misalign. (mm)	Static Torsional Spring Constant (N·m/rad)	Max Rot. Speed (r/min)	Moment of Inertia ($kg·m^2$)	Allowable Axial Misalign. (mm)	Comp. Factor	Mass (g)
MCSSC MCSSCWK	16	0.9	1	—	650	6000	2.2×10^{-7}	±0.1	5–10	8
	20	1.3			950	5500	7.0×10^{-7}			13
	25	2.8			1300	5000	2.2×10^{-6}	±0.2		24
	32	5			1400	4000	5.6×10^{-6}			53
	40	9			3300	3800	1.5×10^{-5}			90
	50	16			4000	3500	3.9×10^{-5}	±0.3		180

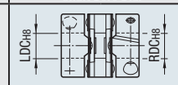
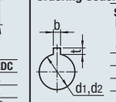
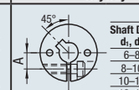
- Single disc type cannot tolerate lateral misalignment.
- For selection criteria and alignment procedures **P.1091, 1093**.

Part Number Example

Part Number	-	Shaft Bore Dia. d_1	-	Shaft Bore Dia. d_2
MCSLC40	-	10	-	15
MCSSCWK32	-	8	-	10

Part Number Alterations

Part Number	-	Shaft Bore Dia. d_1	-	Shaft Bore Dia. d_2	- (KLH, KRL, LK, RK)
MCSLC40	-	LDC9.5	-	RDC10.5	
MCSLCWK40	-	8	-	10	- KRH4

Alterations	Shaft Bore Dia.	Keyway Width	Keyway
Spec.	 0.1mm Inc. **Ordering Code:** LDC7.8 RDC9.3	Keyway Width (b) is changed as table below. **Ordering Code:** KLH4 KRH4  ⊗ Cannot be combined with shaft bore changes (LDC, RDC) alterations ⓘ Applicable to Keywayed Bores only	 **Ordering Code:** LK3 RK4 ⓘ Keyway machining available for Ø6 or greater ⓘ See right for keyway dimensions
Code	LDC (Left Shaft) RDC (Right Shaft)	KLH (Left Shaft) KRH (Right Shaft)	LK (Left Shaft) RK (Right Shaft)

Shaft Bore Dia. LDCh8 / RDCh9

D	LDC, RDC
16	4–6
20	4–8
25	5–10
32	8–14
40	8–18
50	14–24

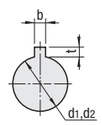
Keyway Width (b) KLH, KRH

Shaft Bore Dia. d_1, d_2	Ref. Dia.	Tol.	t Dim.	t Tol.
8	2	±0.0125	1.0	+0.1 0
10	4	±0.0150	1.8	
12	5		2.3	
22	8	±0.0180	3.3	+0.2 0

Keyway LK, RK

Shaft Dia. d_1, d_2	LK, RK
6–8	2
8–10	3
10–12	4
12–17	5
17–22	6
22–24	8

Keyway Dimension



Shaft Bore Dia. d_1, d_2	b Dim.	b Tol.	t Dim.	t Tol.	Key Nom. Dim. b x h
6–7.9	2	±0.0125	1.0	+0.1 0	2 x 2
8–10	3		1.4		3 x 3
10.1–12	4	±0.0150	1.8		4 x 4
12.1–17	5		2.3		5 x 5
17.1–22	6		2.8		6 x 6
22.1–24	8	±0.0180	3.3	+0.2 0	8 x 7