

SD SERIES



Disk Type Coupling

Classification: SD Series

The plate springs in the middle part of SD Series transmit motion & power and absorb the misalignment. SD Series is usually adopted for high-precision applications thanks to its excellent static torsional stiffness and the backlash-free full metal structure.

Body Material	Plate-Spring Modules	Clamping Methods			
		Set-screw	Side-clamp		
High Strength Aluminum Alloy	Single Disk (SDS)				
	Double Disk (SDW, SDA)				
Stainless Steel	Single Disk (SDSS)	-	-		
	Double Disk (SDWS)	-	-		

Single Module vs Double Module

	Single Disk	Double Disk
Plate-Spring Modules	1	2
Transmission Level of Torque (Max./Rated Torque)	Identical	
Static Torsional Stiffness	High	Low
Absorption of Misalignment	Low	High

- SD Series absorbs the misalignment through the plate springs in the middle part. Therefore, the double module is better at absorption of misalignment than the single module.
- On the other hand, the single module has higher stiffness and precise positioning feature as well as it saves space in terms of shorter length(L).

Custom Service : Extra plate springs Reinforcement

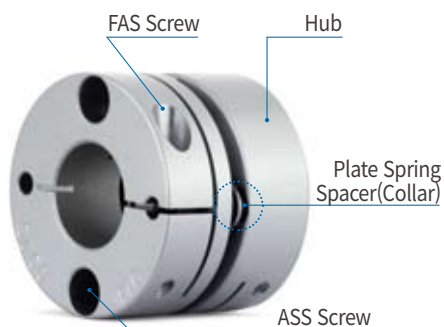
- The most important part that determines the performance of SD coupling is assembly set of Plate-Springs.
- As a customized service, Sung-il Machinery provides extra quantity of plate springs added according to customer's special requests.
- However, please be aware that this process makes strength of product enhanced, at the same time it may increase reaction force on shafts and would give negative effects on the connected devices.



- Please contact Sung-il Customer Service team for more details.

SD SERIES (SDS)

Single Disk Type Coupling (High Strength Aluminum Alloy Body)



Structure and Material

Structure	Material	Surface Treatment
Hub	High Strength Aluminum Alloy	Anodizing
Plate Spring	Stainless Steel	-
Spacer(Collar)	Steel	Black Oxide
Assembly Screw	SCM435	Black Oxide
Fastening Screw	SCM435	Black Oxide

Product Features & Application

Backlash free (Precision)		☆
High Torque (Durability)		○
Torsional Stiffness		☆
Vibration Absorption		-
Misalignment Absorption		△
Applicable Motors	Servo	○
	Stepping	○
	Encoder	○
	General	-

Application : Semi-conductor manufacturing machine, SMT, Cartesian Robot, UVW Stage, Machine tools, Index Table

Parts with Alternative Material Options

- Sung-il Machinery provides alternative material options for Coupling parts for customers who are worried about corrosion on Black oxide finish. Please see the below table for more details.

Mark	Material	Surface Treatment
No mark	Steel	Black Oxide
NI/ASS	Steel	Electroless Nickel Plating
SUS/ASS	Stainless Steel	-



- Caution: Slip torque would become lower if the body material or surface treatment of screws are changed from the standard version.

Clamping Methods

Set-screw (No mark)	General	○
	With Keyway	○
Side-clamp (C)	General	○
	Hub Split	△
	With Keyway	○
Taper-ring (T)		X

※ You may check the sizes that Side-clamp Hub Split type is applicable from the “Dimensions / Performance” tables in the following pages.

How to Order

SDS - 80 CW - 20 W K6 x 35 W K10

Model OD(D) size Clamping Methods ID(d1) size Side-clamp Hub Split (W) Keyway (K) ID(d2) size Side-clamp Hub Split (W) Keyway (K)

1 Clamping Methods No mark Set-screw
C General Side-clamp
CW Side-clamp Hub Split

2 Side-clamp Hub Split No mark Not Split Keyway
W Split (Only applicable on Side-clamp Type)

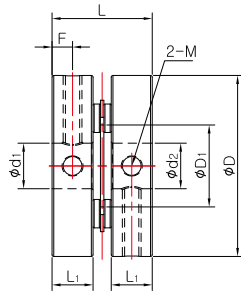
3 Keyway No mark No Keyway
K(b size) Keyway processed according to the indicated b size.

SD SERIES (SDS)

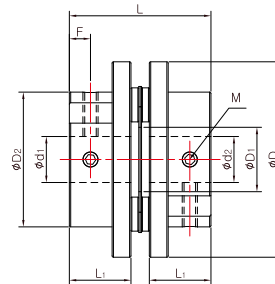
Single Disk Type Coupling (High Strength Aluminum Alloy Body)

Set-Screw

Cylinder-shaped



Flange-shaped



Dimensions / Performance

Model	Shape	Size (±0.3mm)						Screw		Rated Torque (N·m)	Max. Torque (N·m)	Max. rpm (min ⁻¹)	Moment of Inertia (kg·m ²)	Static Torsional Stiffness (N·m/rad)	Mass (g)	Permissible Misalignment		
		D	D ₁	D ₂	L	L ₁	F	Size	Fastening Torque (N·m)							Angular (°)	Parallel (mm)	End-play (mm)
SDS-16	Cylinder	16	6.7	-	12	5.1	2.5	M2.5	0.5	0.5	1	16,000	1.8×10 ⁻⁷	270	5	0.5	0.02	±0.1
SDS-19	Cylinder	19	8.5	-	14.05	6.1	3	M3	0.7	0.9	1.8	16,000	3.0×10 ⁻⁷	600	6	1	0.02	±0.1
SDS-22	Cylinder	22.2	10	-	14.8	6.2	3	M3	0.7	1.1	2.2	12,000	6.9×10 ⁻⁷	600	10	1	0.02	±0.1
SDS-26	Cylinder	26.6	12.2	-	17.6	7.4	3.6	M4	1.7	1.5	3	12,000	2.0×10 ⁻⁶	900	20	1	0.02	±0.15
SDS-31	Cylinder	31.8	14.4	-	17.6	7.2	3.6	M4	1.7	3	6	10,000	4.4×10 ⁻⁶	1,700	30	1	0.02	±0.2
SDS-42	Flange	42.5	18	29.3	30.8	13.4	4.6	M4	1.7	7	14	8,000	1.7×10 ⁻⁵	2,800	65	1	0.02	±0.25
SDS-47	Flange	47	20.4	33	31.4	13.9	4.5	M5	4	12	24	8,000	2.7×10 ⁻⁵	6,000	91	1	0.02	±0.25
SDS-54	Flange	54	25	38.5	42.3	19	5.8	M5	4	22	44	7,500	4.9×10 ⁻⁵	11,000	130	1	0.02	±0.25
SDS-64	Flange	64	25.8	48	58.2	26	8	M8	15	31	62	7,000	1.8×10 ⁻⁴	20,000	292	1	0.02	±0.25

- The Moment of Inertia and Mass values are based on products with max. Inner diameter.
- Max. torque/rated torque is the value regarding to a coupling's self-durability and is not related to slip-torque between the coupling bore and the shaft. (In general, the clamping force on set-screw type is weaker, therefore it is recommended that an additional keyway is processed for the enhanced clamping force.)

Standard Inner Diameter (ID)

Model	Standard Inner Diameter (d ₁ , d ₂) (mm)																													
	3	4	4.5	5	6	6.35	7	8	9	9.525	10	11	12	12.7	14	15	15.875	16	17	18	19	20	21	22	24	25	26	28	30	
SDS-16	●	●	●	●																										
SDS-19	●	●	●	●	●																									
SDS-22	●	●	●	●	●	●	●	●	●★	●★																				
SDS-26		●	●	●	●	●	●	●	●	●	●																			
SDS-31				●	●	●	●	●	●	●	●	●	●	●	●	●★														
SDS-42					●	●	●	●	●	●	●	●	●	●	●	●														
SDS-47								●	●	●	●	●	●	●	●	●	●	●	●	●	●	●								
SDS-54											●	●	●	●	●	●	●	●	●	●	●	●	●							
SDS-64													●	●	●	●	●	●	●	●	●	●	●	●	●	●	●★	●★	●★	●★

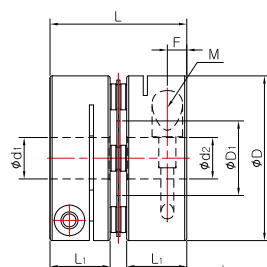
- The recommended shaft tolerance is h7.
- Custom process (e.g. non-standard Inner diameter, special tolerance etc.) is also available upon a special request in prior to order placement.
- Keyway is available. (Optional)
- Due to interference of the middle parts, make sure the shaft is only inserted into L₁ depth for IDs with ★ mark.

SD SERIES (SDS)

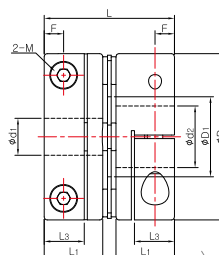
Single Disk Type Coupling (High Strength Aluminum Alloy Body)

Side-clamp

Cylinder-shaped



Size : 12C ~ 47C, 80C & 90C



Size : 54C, 64C & 100C

Dimensions / Performance

Model	Size (±0.3mm)						Screw		Rated Torque (N·m)	Max. Torque (N·m)	Max. rpm (min ⁻¹)	Moment of Inertia (kg·m ²)	Static Torsional Stiffness (N·m/rad)	Mass (g)	Permissible Misalignment			Side-clamp Hub Split (W)
	D	D ₁	L	L ₁	L ₃	F	Size	Fastening Torque (N·m)							Angular (°)	Parallel (mm)	End-play (mm)	
SDS-12C	12	5.5	12.3	5.9	-	1.9	M1.6	0.25	0.2	0.4	14,000	6.9×10 ⁻⁸	170	3	0.5	0.01	±0.04	X
SDS-16C	16	6.7	17.4	7.8	-	2.5	M2	0.5	0.5	1	14,000	2.6×10 ⁻⁷	270	7	1	0.02	±0.1	X
SDS-19C	19	8.5	19.3	8.7	-	2.9	M2.6	1	0.9	1.8	14,000	4.0×10 ⁻⁷	500	8	1	0.02	±0.1	X
SDS-22C	22.2	10	19.7	8.7	-	2.8	M2.6	1	1.1	2.2	10,000	1.0×10 ⁻⁶	600	15	1	0.02	±0.1	X
SDS-26C	26.6	12.2	24.1	10.6	-	3.4	M3	1.7	1.5	3	10,000	2.4×10 ⁻⁶	900	25	1	0.02	±0.15	X
SDS-31C	31.8	14.4	26.4	11.6	-	3.7	M3	1.7	3	6	9,000	5.8×10 ⁻⁶	1,700	40	1	0.02	±0.2	X
SDCS-35C	35	16.2	28	12.7	-	4.4	M4	3.5	4	8	8,500	1.0×10 ⁻⁵	2,000	57	1	0.02	±0.2	X
SDS-39C	39	17	31.3	13.7	-	4.3	M4	3.5	5	10	8,000	1.6×10 ⁻⁵	2,300	70	1	0.02	±0.25	X
SDCS-42C	42.5	18	31.4	13.7	-	4.3	M4	3.5	7	14	8,000	3.4×10 ⁻⁵	2,800	95	1	0.02	±0.25	X
SDCS-47C	47	20.5	35.6	16	-	5.2	M4	3.5	12	24	7,500	5.4×10 ⁻⁵	6,000	140	1	0.02	±0.25	X
SDCS-54C	54	25	42.3	19	13	6.3	M5	8	22	44	7,500	9.8×10 ⁻⁵	11,000	200	1	0.02	±0.25	○
SDCS-64C	64	25.8	58.2	26	15.2	7.5	M6	13	31	62	7,000	2.2×10 ⁻⁴	20,000	355	1	0.02	±0.25	○
SDS-80C	80	35.8	66.1	29.7	19	9.4	M8	30	75	150	7,000	6.4×10 ⁻⁴	40,000	690	1	0.02	±0.4	○
SDS-90C	94.5	41.6	68.9	30.4	19	9.3	M8	30	150	300	6,000	1.3×10 ⁻³	60,000	960	1	0.02	±0.5	○
SDS-100C	104.5	47.7	71.7	30.7	19	9.3	M8	30	220	440	6,000	2.2×10 ⁻³	70,000	1,300	1	0.02	±0.6	○

- The Moment of Inertia and Mass values are based on products with max. Inner diameter.
- Max. torque/rated torque is the value regarding to a coupling's self-durability and is not related to slip-torque between the coupling bore and the shaft.
- Specially-designed split hubs are used for the size of 80C & 90C. (with 2 screws)

Standard Inner Diameter (ID) 12C ~ 47C

Model	Standard Inner Diameter (d ₁ , d ₂) (mm)																					
	3	4	4.5	5	6	6.35	7	8	9	9.525	10	11	12	12.7	14	15	15.875	16	17	18	19	20
SDS-12C	●	●		●																		
SDS-16C	●	●	●	●																		
SDS-19C	●	●	●	●	●																	
SDS-22C	●	●	●	●	●	●	●	●	★	★												
SDS-26C		●	●	●	●	●	●	●	●	●	●											
SDS-31C				●	●	●	●	●	●	●	●	●	●	●	●	★						
SDCS-35C				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
SDS-39C				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
SDCS-42C					●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	★	★
SDCS-47C								●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

- The recommended shaft tolerance is h7.
- Custom process (e.g. non-standard Inner diameter, special tolerance etc.) is also available upon a special request in prior to order placement.
- Keyway is available. (Optional)
- Due to interference of the middle parts, make sure the shaft is only inserted into L₁ depth for IDs with ★ mark.

SD SERIES (SDS)

Single Disk Type Coupling (High Strength Aluminum Alloy Body)

Standard Inner Diameter (ID) 54C~100C

Model	Standard Inner Diameter (d ₁ , d ₂) (mm)																							
	10	11	12	12.7	14	15	15.875	16	17	18	19	20	22	24	25	26	28	30	32	35	40	45	50	
SDCS-54C	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●									
SDCS-64C			●	●	●	●	●	●	●	●	●	●	●	●	●	●★	●★	●★	●★					
SDS-80C						●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
SDS-90C												●	●	●	●	●	●	●	●	●	●	●	●★	
SDS-100C												●	●	●	●	●	●	●	●	●	●	●	●★	

- The recommended shaft tolerance is h7.
- Custom process (e.g. non-standard Inner diameter, special tolerance etc.) is also available upon a special request in prior to order placement.
- Keyway is available. (Optional)
- Side-clamp Hub Split is available (Optional)
- Due to interference of the middle parts, make sure the shaft is only inserted into L₁ depth for IDs with ★ mark.

Slip Torque

- The below table shows the actual permissible torque values when the slip torque value is lower than the coupling's max. torque value.
- If the slip torque value is lower than the coupling's max. torque value, please check and compare between the slip torque in the below table and the operating torque value of the connected motor. It is safer to size up the coupling or use a key/keyway when the slip torque value is lower than the motor's operating torque.
- The below slip torque values may be subject to change according to different testing conditions. (e.g. shaft tolerance, Surface roughness, or acceleration/deceleration of driving shafts). On the other hand, the values could be affected when a different kind of fastening screw is used (body material or surface treatment). Therefore, we recommend you test under the same conditions before mounting.

Model	Max. Torque (N.m)	Slip Torque (N.m) by Inner Diameter (d ₁ , d ₂)																					
		3	4	4.5	5	6	6.35	7	8	9	9.525	10	11	12	12.7	14	15	15.875	16				
SDS-16C	1	0.6	0.7	0.8	0.9																		
SDS-19C	1.8	1	1.3	1.4	1.5	1.7																	
SDS-22C	2.2	1.1	1.4	1.5	1.7	2	2.1																
SDS-26C	3		2	2	2.9																		
SDS-31C	6				3	3.3	3.9	4.6	5.6														
SDCS-35C	8				3.2	3.5	3.8	6	7														
SDS-39C	10				4	4.5	5	6.5	8	9													
SDCS-42C	14					4.5	5.5	8	10	11	11	12	12.5										
SDCS-47C	24								9	10	11	12	12.5	13.6	14	17.6	22	22	23.6				

Model	Max. Torque (N.m)	Slip Torque (N.m) by Inner Diameter (d ₁ , d ₂)																					
		10	11	12	12.7	14	15	16	18	19	20	22	24	25	28	30	32	35	40	45	50		
SDCS-54C	44	25	27	30	34	42																	
SDCS-64C	62			36	38	45	50	55	60														
SDS-80C	150						80	85	101	109	128	149											
SDS-90C	300										128	135	150	160	180	200	210	220	230	240			
SDS-100C	440										136	140	144	152	180	185	192	216	230	240	250		

Side-clamp Hub Split(W) Option is available

- From certain outer diameter(OD) sizes, we can provide Side-clamp Hub Split products.
- Please refer to "HOW TO ORDER" page for more details.

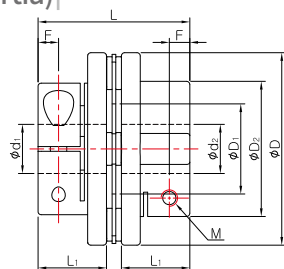


SD SERIES (SDS)

Single Disk Type Coupling (High Strength Aluminum Alloy Body)

Side-clamp

Flange-shaped (Low-inertia)



Dimensions / Performance

Model	Size ($\pm 0.3\text{mm}$)						Screw			Rated Torque (N·m)	Max. Torque (N·m)	Max. rpm (min^{-1})	Moment of Inertia ($\text{kg}\cdot\text{m}^2$)	Static Torsional Stiffness (N·m/rad)	Mass (g)	Permissible Misalignment		
	D	D ₁	D ₂	L	L ₁	F	Size	Fastening Torque (N·m)	Angular (°)							Parallel (mm)	End-play (mm)	
SDS-35C	35	16.2	21.5	28	12.7	4.4	M3	1.7	4	8	8,500	4.6×10^{-6}	2,000	35	1	0.02	± 0.2	
SDS-42C	42.5	18	29.3	30.8	13.4	3.8	M3	1.7	7	14	8,000	1.7×10^{-5}	2,800	65	1	0.02	± 0.25	
SDS-47C	47	20.5	33/*38	37	16.7	5	M4	3.5	12	24	8,000	3.2×10^{-5}	6,000	108	1	0.02	± 0.25	
SDS-54C	54	25	38.5	47.1	21.4	6.1	M5	8	22	44	8,000	5.5×10^{-5}	11,000	145	1	0.02	± 0.25	
SDS-64C	64	25.8	48	58.2	26	7.5	M6	13	31	62	7,000	1.8×10^{-4}	20,000	292	1	0.02	± 0.25	

- The Moment of Inertia and Mass values are based on products with max. Inner diameter.
- Max. torque/rated torque is the value regarding to a coupling's self-durability and is not related to slip-torque between the coupling bore and the shaft.
- For OD 47C products, please refer to D₂ values with * mark when inner diameters are bigger than 18mm.

Standard Inner Diameter (ID)

Model	Standard Inner Diameter (d ₁ , d ₂) (mm)																						
	5	6	6.35	7	8	9	9.525	10	11	12	12.7	14	15	15.875	16	17	18	19	20	22	24	25	
SDS-35C	●	●	●	●	●	●	●	●															
SDS-42C		●	●	●	●	●	●	●	●	●	●	●	●										
SDS-47C				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
SDS-54C								●	●	●	●	●	●	●	●	●	●	●	●				
SDS-64C										●	●	●	●	●	●	●	●	●	●	●	●	●	★

- The recommended shaft tolerance is h7.
- Custom process (e.g. non-standard Inner diameter, special tolerance etc.) is also available upon a special request in prior to order placement.
- Keyway is available. (Optional)
- Due to interference of the middle parts, make sure the shaft is only inserted into L₁ depth for IDs with ★ mark.

Slip Torque

- The below table shows the actual permissible torque values when the slip torque value is lower than the coupling's max. torque value.
- If the slip torque value is lower than the coupling's max. torque value, please check and compare between the slip torque in the below table and the operating torque value of the connected motor. It is safer to size up the coupling or use a key/keyway when the slip torque value is lower than the motor's operating torque.
- The below slip torque values may be subject to change according to different testing conditions. (e.g. shaft tolerance, Surface roughness, or acceleration/deceleration of driving shafts). On the other hand, the values could be affected when a different kind of fastening screw is used (body material or surface treatment). Therefore, we recommend you test under the same conditions before mounting.

Model	Max. Torque (N·m)	Slip Torque (N·m) by Inner Diameter (d ₁ , d ₂)																				
		5	6	6.35	7	8	9	9.525	10	11	12	12.7	14	15	15.875	16	17	18	19	20	21	
SDS-35C	8	3.2	3.5	3.8	6	7																
SDS-42C	14		4	4.5	5	6.4	7	7	7.5	8	10.4	11	12									
SDS-47C	24					4.9	6	7	7.8	8.4	11.3	12.2	13.9	17.6	19	22						
SDS-54C	44								20	25	30	32	35	38	40							
SDS-64C	62										36	37	41	42	42	43	44	50	52	58	60	