

# SAD SERIES

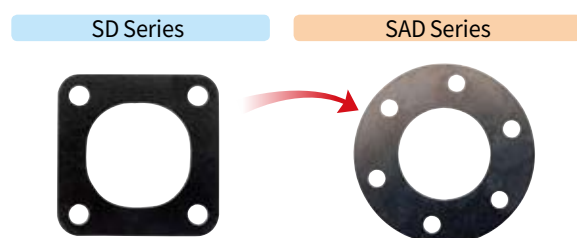


## Advanced Disk Coupling

### SAD vs SD

SAD Series is an advanced version of general Disk type Coupling (SD series), with its plate-spring structure modified to make the coupling more durable and stiff. SAD series uses 3-point fixation method for its plate spring rather than 2-point as in general SD Series, which allows users to use smaller sized product but keep the similar performance level.

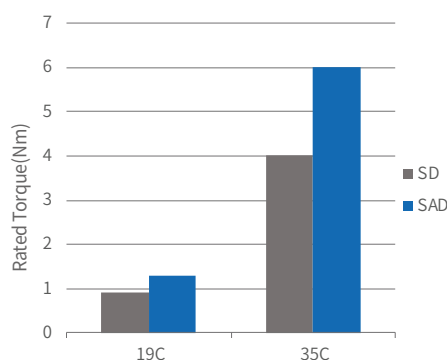
### 1. Advanced version of Plate Spring shape



- The advanced plate spring with 6 assembly holes and these holes have narrower distance than 4-hole structure (SD series). Thus, SAD series is less flexible than SD series. On the other hand, increasing the number of assembly holes helps to disperse stress and it makes its module more durable and stiff. This advanced disk coupling is suitable for the purpose of enhanced performance, being able to replace similar small sized disk couplings.

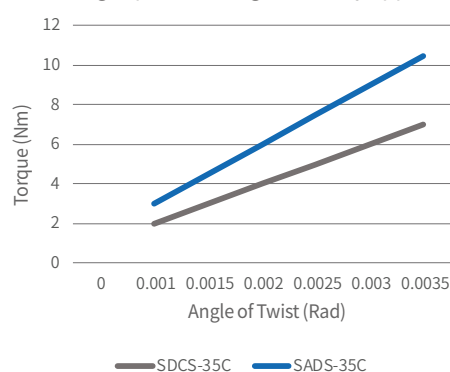
### 2. Maximized Torque Transmission

The rated torque values (transmittable torque) of SAD series are higher compared to the similar sized general SD series.



### 3. High Torsional Stiffness

SAD Series helps to obtain faster response time (excellent for high speed and high accuracy applications)

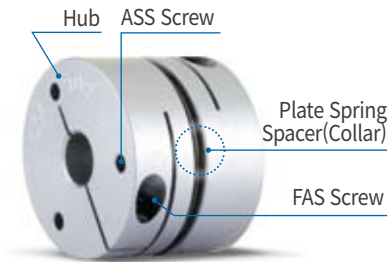


### Classification: SAD Series

Model	Type	Plate-spring Modules	Clamping Methods	Feature	Transmission level of Torque	Shape
SADS-C	Single Disk	1	Side-clamp	More stiff More durable	SADS-C = SADW-C Both types have higher level than similar sized SD series	
SADW-C	Double Disk	2		More flexible (compared to SADS-C)		

# SAD SERIES (SADS)

## Advanced Single Disk Type Coupling



### 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
SUS/ASS	Stainless Steel	-



No mark



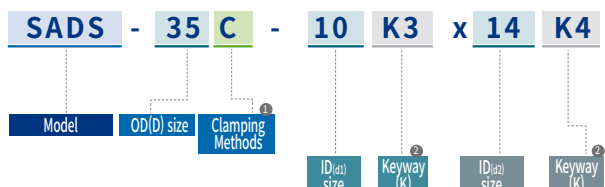
SUS/ASS

- 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	X
	With Keyway	X
Side-clamp (C)	General	○
	Hub Split	X
	With Keyway	○
Taper-ring (T)		X

### How to Order



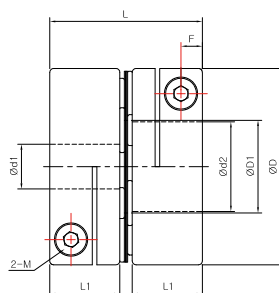
- Clamping Methods  
C General Side-clamp

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

# SAD SERIES (SADS)

## Advanced Single Disk Type Coupling

### Side-clamp



### Dimensions / Performance

Model	Size ( $\pm 0.3\text{mm}$ )					Screw		Rated Torque (N·m)	Max. Torque (N·m)	Max. rpm ( $\text{min}^{-1}$ )	Moment of Inertia ( $\text{kg}\cdot\text{m}^2$ )	Static Torsional Stiffness (N·m/rad)	Mass (g)	Permissible Misalignment			Side-clamp Hub Split (W)
	D	D <sub>1</sub>	L	L <sub>1</sub>	F	Size	Fastening Torque (N·m)							Angular (°)	Parallel (mm)	End-play (mm)	
SADS-19C	19	8.5	18.9	8.5	2.6	M2	0.5	1.3	2.6	14,000	$6.2 \times 10^{-7}$	800	12	1	0.02	$\pm 0.1$	X
SADS-27C	27	14.5	24.2	11	3.3	M2.6	1	3	6	10,000	$3.3 \times 10^{-6}$	1,800	28	1	0.02	$\pm 0.15$	X
SADS-32C	32	15.5	26.2	12	3.6	M3	1.7	4.5	9	9,000	$7.2 \times 10^{-6}$	2,800	46.4	1	0.02	$\pm 0.2$	X
SADS-35C	35	16.5	27.2	12.5	3.8	M3	1.7	6	12	8,500	$1.1 \times 10^{-5}$	3,000	58	1	0.02	$\pm 0.2$	X
SADS-40C	40	20.5	33.2	15.5	4.5	M4	3.5	12	24	8,500	$2.2 \times 10^{-5}$	5,500	90.1	1	0.02	$\pm 0.2$	X
SADS-44C	44	22.5	33.2	15.5	4.5	M4	3.5	14	28	8,000	$3.5 \times 10^{-5}$	7,500	112	1	0.02	$\pm 0.3$	X

- 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.

### Standard Inner Diameter (ID)

Model	Standard Inner Diameter (d <sub>1</sub> , d <sub>2</sub> ) (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	22
SADS-19C		●	●	●	●	●	●	●															
SADS-27C		●	●	●	●	●	●	●	●	●	●	●	●	★	★								
SADS-32C				●	●	●	●	●	●	●	●	●	●	●	★	★							
SADS-35C				●	●	●	●	●	●	●	●	●	●	●	●	●	★	★					
SADS-40C					●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	★	★	★	
SADS-44C								●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

- 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)
- Regarding IDs with ★ mark, we ask you to check with our customer support team for availability in advance.

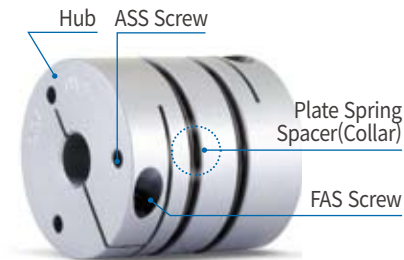
### Slip Torque

- 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 <sub>1</sub> , d <sub>2</sub> )													
		3	4	4.5	5	6	6.35	7	8	9	9.525	10	11	12	12.7
SADS-19C	2.6	0.7	1.3	1.5	1.9	2.3	2.4								
SADS-27C	6		2.1	2.5	2.6	3	3.5	3.7	4.8						
SADS-32C	9				3.1	3.9	4.1	4.5	5.3	6	7	8.8			
SADS-35C	12				3.3	4.5	6.9	6.9	8.6	9.3	10.4	11.1			
SADS-40C	24					4.8	6.5	7.5	8.3	9	10.2	14.2	15.5	17.6	19.4
SADS-44C	28								8	10	12	13	17	24	25

# SAD SERIES (SADW)

## Advanced Double Disk Type Coupling



### Structure and Material

Structure	Material	Surface Treatment
Hub	High Strength Aluminum Alloy	Anodizing
Middle 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
SUS/ASS	Stainless Steel	-



No mark



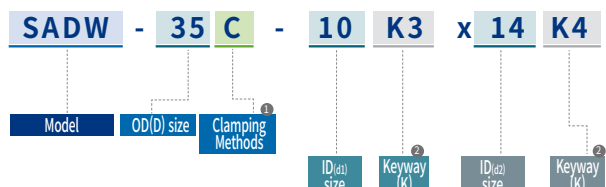
SUS/ASS

- 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	X
	With Keyway	X
Side-clamp (C)	General	○
	Hub Split	X
	With Keyway	○
Taper-ring (T)		X

### How to Order



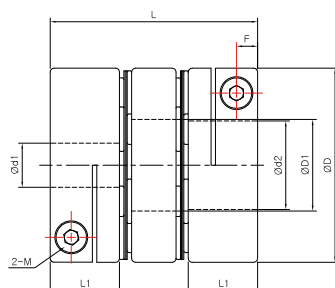
- Clamping Methods  
C General Side-clamp

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

# SAD SERIES (SADW)

## Advanced Double Disk Type Coupling

### Side-clamp



### Dimensions / Performance

Model	Size (±0.3mm)					Screw		Rated Torque (N·m)	Max. Torque (N·m)	Max. rpm (min <sup>-1</sup> )	Moment of Inertia (kg·m <sup>2</sup> )	Static Torsional Stiffness (N·m/rad)	Mass (g)	Permissible Misalignment			Side-clamp Hub Split (W)
	D	D <sub>1</sub>	L	L <sub>1</sub>	F	Size	Fastening Torque (N·m)							Angular (°)	Parallel (mm)	End-play (mm)	
SADW-19C	19	8.5	26.8	8.5	2.6	M2	0.5	1.3	2.6	14,000	9.1 × 10 <sup>-7</sup>	600	18	2	0.1	±0.2	X
SADW-27C	27	14.5	34.4	11	3.3	M2.6	1	3	6	10,000	4.8 × 10 <sup>-6</sup>	1,300	42	2	0.15	±0.3	X
SADW-32C	32	15.5	40	12	3.6	M3	1.7	4.5	9	9,000	1.1 × 10 <sup>-5</sup>	2,000	72.6	2	0.2	±0.4	X
SADW-35C	35	16.5	37.4	12.5	3.8	M3	1.7	6	12	8,500	1.5 × 10 <sup>-5</sup>	2,200	83	2	0.2	±0.4	X
SADW-40C	40	20.5	46.9	15.5	4.5	M4	3.5	12	24	8,500	3.3 × 10 <sup>-5</sup>	4800	132.6	2	0.2	±0.4	X
SADW-44C	44	22.5	46.9	15.5	4.5	M4	3.5	14	28	8,000	5.0 × 10 <sup>-5</sup>	6,000	161	2	0.2	±0.6	X

- 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.

### Standard Inner Diameter (ID)

Model	Standard Inner Diameter (d <sub>1</sub> , d <sub>2</sub> ) (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	22
SADW-19C	●	●	●	●	●	●	●	●															
SADW-27C		●	●	●	●	●	●	●	●	●	●	●	●	●★	●★								
SADW-32C				●	●	●	●	●	●	●	●	●	●	●	●★	●★							
SADW-35C				●	●	●	●	●	●	●	●	●	●	●	●	●	●★	●★					
SADW-40C					●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●★	●★	●★	
SADW-44C								●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

- 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)
- Regarding IDs with ★ mark, we ask you to check with our customer support team for availability in advance.

### 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.

제품 번호	Max. Torque (N.m)	Slip Torque (N.m) by Inner Diameter (d <sub>1</sub> , d <sub>2</sub> )													
		3	4	4.5	5	6	6.35	7	8	9	9.525	10	11	12	12.7
SADW-19C	2.6	0.7	1.3	1.5	1.9	2.3	2.4								
SADW-27C	6		2.1	2.5	2.6	3	3.5	3.7	4.8						
SADW-32C	9				3.1	3.9	4.1	4.5	5.3	6	7	8.8			
SADW-35C	12				3.3	4.5	6.9	6.9	8.6	9.3	10.4	11.1			
SADW-40C	24					4.8	6.5	7.5	8.3	9	10.2	14.2	15.5	17.6	19.4
SADW-44C	28								8	10	12	13	17	24	25

## SHD SERIES

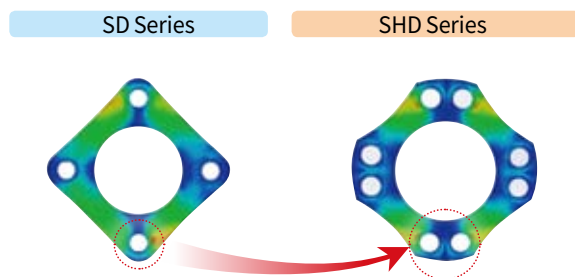


## High Torque Disk Coupling

## SHD vs SD

SHD Series is an advanced version of SD series with revised shape of its plate springs to disperse stress concentration and to enhance the stiffness and strength of the plate spring modules. In response to the advanced strength of SHD series, AL-7075-T6 material (Ultra high strength Aluminum Alloy) has been adopted as the body material to increase the overall durability.

## 1. Advanced version of Plate Spring shape



- Sung-il developed the improved version of plate spring with doubled assembly holes to disperse stress concentration, and it enhances both strength and stiffness to the higher extent.

## 2. Improved durability with advanced body material

SD Series	AL2024
SHD Series	AL7075
Ratio (= AL7075 / AL2024)	
Yield Strength	1.7 ~ 1.8
Tensile Strength	1.3 ~ 1.4
Shearing Strength	1.15 ~ 1.2
Fatigue Strength	1.15 ~ 1.2

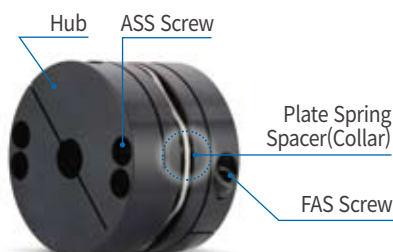
## Index

Size (OD)	Body Material	Plate-Spring Modules	Clamping Methods		
			Set-screw	Side-clamp	Taper-ring
56 ~ 110	Al-7075-T6	Single Disk (SHDS)			
		Double Disk (SHDW)			
126 ~ 144	Steel	Single Disk (SHDS)			-
		Double Disk (SHDW)			-



# SHD SERIES (SHDS)

## Single Disk High Torque Disk Coupling



### Structure and Material Size : 56 ~ 110

Structure	Material	Surface Treatment
Hub	Al-7075-T6	Anodizing
Plate Spring	Stainless Steel	-
Spacer(Collar)	Steel	Black Oxide
Assembly Screw	SCM435	Black Oxide
Fastening Screw	SCM435	Black Oxide

### Structure and Material Size : 126 ~ 144

Structure	Material	Surface Treatment
Hub	Steel	Black Oxide (Standard)
Plate Spring	Stainless Steel	-
Spacer(Collar)	Steel	Black Oxide
Assembly Screw	SCM435	Black Oxide
Fastening Screw	SCM435	Black Oxide

※ Please contact Sung-il Customer Service team for eletroless nickel plating surface treatment option.

### Product Features & Application

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

**Application :** Cartesian Robot, Belt Drive, Machine tools, Index Table, Logistics facilities, Servo Press etc.

### 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
SUS/ASS	Stainless Steel	-



No mark



SUS/ASS

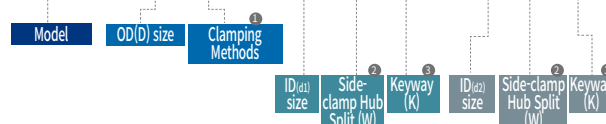
- Caution: Slip torque would become lower if the body material or surface treatment of screws are changed from the standard version.

### Clamping Methods

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

### How to Order

**SHDS - 56 CW - 20 W K6 x 25 W K8**



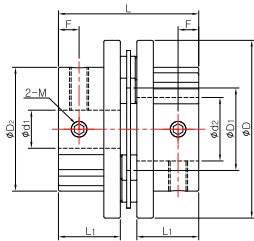
1 Clamping Methods		No mark	Set-screw
		C	General Side-clamp
		CW	Side-clamp Hub Split
		T	Taper-ring
2 Side-clamp Hub Split		3 Keyway	
		No mark	No Keyway
		W	Split (Only applicable on Side-clamp Type)
		K(b size)	Keyway processed according to the indicated b size. (Keyway is not applicable on Taper-ring type)

# SHD SERIES (SHDS)

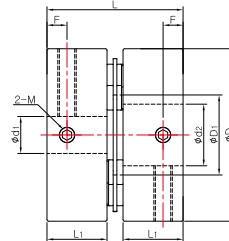
## Single Disk High Torque Disk Coupling

### Set-Screw

#### Flange-shaped



#### Cylinder-shaped



Size (OD)	56	66	88	110
Flange-shaped	< ID 22mm	< ID 26mm	< ID 32mm	< ID 48mm

Size (OD)	56	66	88	110
Cylinder-shaped	≥ ID 22mm	≥ ID 26mm	≥ ID 32mm	≥ ID 48mm

- Only flange-shaped products are available for OD126 and OD144

### Dimensions / Performance

Model	Size (±0.3mm)						Screw		Rated Torque (N·m)	Max. Torque (N·m)	Max. rpm (min <sup>-1</sup> )	Moment of Inertia (kg·m <sup>2</sup> )	Static Torsional Stiffness (N·m/rad)	Mass (g)	Permissible Misalignment		
	D	D <sub>1</sub>	D <sub>2</sub>	L	L <sub>1</sub>	F	Size	Fastening Torque (N·m)							Angular (°)	Parallel (mm)	End-play (mm)
SHDS-56	56	30.6	39	44.2	19.5	6.5	M6	7	35	70	7,700	2.9×10 <sup>-5</sup>	2.0×10 <sup>4</sup>	150	0.7	0.02	±0.3
SHDS-66	66	35.6	46	56.5	24.5	7.5	M8	15	60	120	7,000	8.0×10 <sup>-5</sup>	3.0×10 <sup>4</sup>	300	0.7	0.02	±0.3
SHDS-88	88	46	63	69.9	30	9.5	M8	15	180	360	5,500	2.9×10 <sup>-4</sup>	7.0×10 <sup>4</sup>	600	0.7	0.02	±0.3
SHDS-110	108	60.5	77	77.7	34.5	13	M10	30	280	560	4,000	2.0×10 <sup>-3</sup>	1.4×10 <sup>5</sup>	1190	0.7	0.02	±0.5
SHDS-126	126	65	78/*92	91.2	40	12	M10	30	360	720	3,500	4.4×10 <sup>-3</sup>	4.4×10 <sup>5</sup>	3200	1	0.02	±1.6
SHDS-144	144	75	88/*104	101.7	45	15	M10	30	530	1,060	3,000	8.4×10 <sup>-3</sup>	7.8×10 <sup>5</sup>	4700	1	0.02	±1.8

- 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. (Set-screw type is usually less durable than other clamping method, thus please consider it has a complementary option e.g. keyway along with.)
- OD 126 & 144: Please refer to \* marked values for D<sub>2</sub> when ID is over 55mm (OD126) and 66mm (OD144)

### Standard Inner Diameter (ID)

Model	Standard Inner Diameter (d <sub>1</sub> , d <sub>2</sub> ) (mm)																											
	10	11	12	14	15	16	18	19	20	22	24	25	26	28	30	32	35	38	40	42	45	48	50	55	60	65	70	
SHDS-56	●	●	●	●	●	●	●	●	●	●	●	●																
SHDS-66					●	●	●	●	●	●	●	●	●	●	●	●												
SHDS-88									●	●	●	●	●	●	●	●	●	●	●	●	●							
SHDS-110															●	●	●	●	●	●	●	●	●	●	●			
SHDS-126								●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
SHDS-144										●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	

- 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)

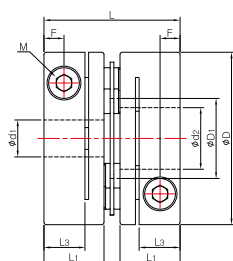


# SHD SERIES (SHDS)

## Single Disk High Torque Disk Coupling

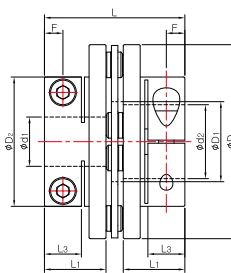
### Side-clamp

Cylinder-shaped



Size: 56C ~ 110C

Flange-shaped (Low-inertia)



Size: 126C

### Dimensions / Performance

Model	Size ( $\pm 0.3\text{mm}$ )							Screw		Rated Torque (N·m)	Max. Torque (N·m)	Max. rpm ( $\text{min}^{-1}$ )	Moment of Inertia ( $\text{kg}\cdot\text{m}^2$ )	Static Torsional Stiffness (N·m/rad)	Mass (g)	Permissible Misalignment			Side-clamp Hub Split (W)
	D	D <sub>1</sub>	D <sub>2</sub>	L	L <sub>1</sub>	L <sub>2</sub>	F	Size	Fastening Torque (N·m)							Angular (°)	Parallel (mm)	End-play (mm)	
SHDS-56C	56	30.6	-	44.2	19.5	13.3	6.5	M6	13	35	70	7,000	$4.0 \times 10^{-5}$	$2.0 \times 10^4$	210	0.7	0.02	$\pm 0.3$	○
SHDS-66C	66	35.6	-	56.5	24.5	15.5	7.5	M6	13	60	120	6,500	$1.0 \times 10^{-4}$	$3.0 \times 10^4$	380	0.7	0.02	$\pm 0.3$	○
SHDS-88C	88	46	-	69.9	30	19	10	M8	30	180	360	5,500	$4.3 \times 10^{-4}$	$7.0 \times 10^4$	900	0.7	0.02	$\pm 0.3$	○
SHDS-110C	108	60.5	-	77.7	34.5	21	10.5	M10	50	280	560	4,000	$2.3 \times 10^{-3}$	$1.4 \times 10^5$	1,350	0.7	0.02	$\pm 0.5$	○
SHDS-126C	126	65	84/*100	91.2	40	24	12	M10	50	360	720	3,500	$6.0 \times 10^{-3}$	$4.4 \times 10^5$	4,000	1	0.02	$\pm 1.6$	○

- 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.
- For OD 126C products, please refer to D<sub>2</sub> values with \* mark when inner diameters are bigger than 45mm.

### Standard Inner Diameter (ID)

Model	Standard Inner Diameter (d <sub>1</sub> , d <sub>2</sub> ) (mm)																			
	10	11	12	14	15	16	18	19	20	22	24	25	26	28	30	32	35	38	40	42
SHDS-56C	●	●	●	●	●	●	●	●	●	●	●	●								
SHDS-66C					●	●	●	●	●	●	●	●	●	●	●	●				
SHDS-88C									●	●	●	●	●	●	●	●	●	●	●	●
SHDS-110C															●	●	●	●	●	●
SHDS-126C															●	●	●	●	●	●

- 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)

# SHD SERIES (SHDS)

## Single Disk High Torque Disk Coupling

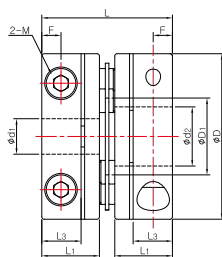
### Slip Torque

- 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 <sub>1</sub> , d <sub>2</sub> )																			
		10	11	12	14	15	16	18	19	20	22	24	25	26	28	30	32	35	38	40	42
SHDS-56C	70	22	24	30	30	32	40	45	55	61											
SHDS-66C	120					40	40	45	60	62	64	68	70	97	100	104	117				
SHDS-88C	360									76	83	98	104	130	136	162	169	188	193	208	215
SHDS-110C	560															162	170	182	199	221	235
SHDS-126C	720															191	209	232	268	305	323

### 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.
- The no. of fastening screws for OD 56~110 products is only 1 each, however we provide 2 screws for Side-clamp Split (W) type according to the below drawing.



### Electroless Nickel Plating for Steel-body Products

- The standard surface treatment (finish) for steel-body product is **Black Oxide**.
- If corrosion is highly concerned, there is another surface treatment option of 'Electroless Nickel Plating' adding an additional code "NI" next to the part no. as shown below.

**SHDS - 126C - NI - 30 - 40**

- All other parts (collars, ASS screws and FAS screws) will be Electroless Nickel Plated as well.

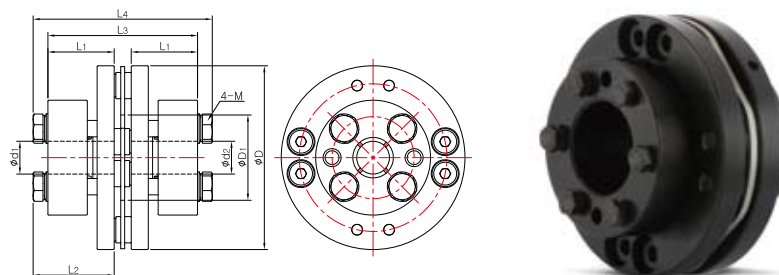


- Caution: Slip torque would become lower if the body material or surface treatment of screws are changed from the standard version.

# SHD SERIES (SHDS)

## Single Disk High Torque Disk Coupling

### Taper-ring



### Dimensions / Performance

Model	Size ( $\pm 0.3\text{mm}$ )						Screw		Permissible Torque (N·m)	Max. rpm ( $\text{min}^{-1}$ )	Moment of Inertia ( $\text{kg}\cdot\text{m}^2$ )	Static Torsional Stiffness (N·m/rad)	Mass (g)	Permissible Misalignment		
	D	D <sub>1</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	Size	Fastening Torque (N·m)						Angular (°)	Parallel (mm)	End-play (mm)
SHDS-56T	56	30.6	20.2	24.7	45.6	54.6	M5	8	60	7,700	$3.6 \times 10^{-5}$	$2.0 \times 10^4$	190	0.7	0.02	$\pm 0.3$
SHDS-66T	66	35.6	25	30	57.5	67.5	M6	13	120	7,000	$8.6 \times 10^{-5}$	$3.0 \times 10^4$	320	0.7	0.02	$\pm 0.3$
SHDS-88T	88	46	30	35.2	69.9	80.3	M6	13	200	6,000	$3.2 \times 10^{-4}$	$7.0 \times 10^4$	670	0.7	0.02	$\pm 0.3$
SHDS-110T	108	60.5	30.7	35.9	70.1	80.5	M6	13	350	4,500	$1.6 \times 10^{-3}$	$1.4 \times 10^5$	980	0.7	0.02	$\pm 0.5$

- The Moment of Inertia and Mass values are based on products with max. Inner diameter.
- Due to the structure of Taper-ring, it's not allowed to have other complementary options to enhance clamping force such as keyway etc. This is the reason why the above-mentioned permissible torques are based on the slip torque at the min. standard inner diameter. (The bigger inner diameter, the higher permissible torque.)

### Standard Inner Diameter (ID)

Model	Standard Inner Diameter (d <sub>1</sub> , d <sub>2</sub> ) (mm)																			
	10	11	12	14	15	16	18	19	20	22	24	25	26	28	30	32	35	38	40	42
SHDS-56T	●	●	●	●	●	●	●	●	●	●	●	●								
SHDS-66T					●	●	●	●	●	●	●	●	●	●	●	●				
SHDS-88T									●	●	●	●	●	●	●	●	●	●	●	●
SHDS-110T															●	●	●	●	●	●

- 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 **NOT** available

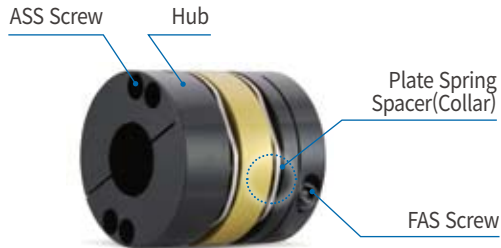
### Slip Torque

- 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 different kind of fastening screw is used. Therefore, we recommend you test under the same conditions before mounting.

Model	Permissible Torque (N·m)	Slip Torque (N·m) by Inner Diameter (d <sub>1</sub> , d <sub>2</sub> )															
		10	11	12	14	15	16	18	19	20	22	24	25	26	28	30	32
SHDS-56T	60	45	50	55													
SHDS-66T	120					80	90	100	110								
SHDS-88T	200									140	168	180					
SHDS-110T	350															250	280

# SHD SERIES (SHDW)

## Double Disk High Torque Disk Coupling



### Structure and Material Size : 56 ~ 110

Structure	Material	Surface Treatment
Hub	Al-7075-T6	Anodizing
Middle Hub	Al-7075-T6	
Plate Spring	Stainless Steel	-
Spacer(Collar)	Steel	Black Oxide
Assembly Screw	SCM435	Black Oxide
Fastening Screw	SCM435	Black Oxide

### Structure and Material Size : 126 ~ 144

Structure	Material	Surface Treatment
Hub	Steel	Black Oxide (Standard)
Middle Hub	Steel	
Plate Spring	Stainless Steel	-
Spacer(Collar)	Steel	Black Oxide
Assembly Screw	SCM435	Black Oxide
Fastening Screw	SCM435	Black Oxide

※ Please contact Sung-il Customer Service team for electroless nickel plating surface treatment option.

### Product Features & Application

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

**Application :** Cartesian Robot, Belt Drive, Machine tools, Index Table, Logistics facilities, Servo Press etc.

### 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
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.

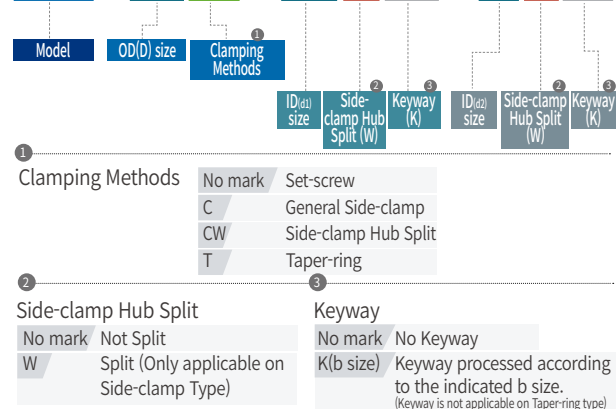
### Clamping Methods

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

※ 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

**SHDW - 56 CW - 20 W K6 x 25 W K8**

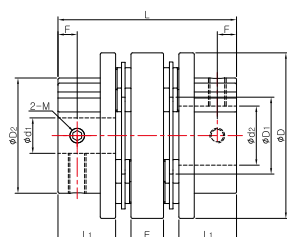


# SHD SERIES (SHDW)

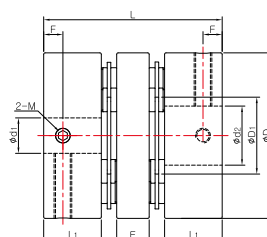
## Double Disk High Torque Disk Coupling

### Set-Screw

#### Flange-shaped



#### Cylinder-shaped



Size (OD)	56	66	88	110
Flange-shaped	< ID 22mm	< ID 26mm	< ID 32mm	< ID 48mm

Size (OD)	56	66	88	110
Cylinder-shaped	≥ ID 22mm	≥ ID 26mm	≥ ID 32mm	≥ ID 48mm

- Only flange-shaped products are available for OD126 and OD144

### Dimensions / Performance

Model	Size (±0.3mm)							Screw		Rated Torque (N·m)	Max. Torque (N·m)	Max. rpm (min <sup>-1</sup> )	Moment of Inertia (kg·m <sup>2</sup> )	Static Torsional Stiffness (N·m/rad)	Mass (g)	Permissible Misalignment		
	D	D <sub>1</sub>	D <sub>2</sub>	L	L <sub>1</sub>	F	E	Size	Fastening Torque (N·m)							Angular (°)	Parallel (mm)	End-play (mm)
SHDW-56	56	28.6	39	60.4	19.5	6.5	11	M6	7	35	70	7,700	4.6×10 <sup>-5</sup>	1.0×10 <sup>4</sup>	240	1	0.2	±0.6
SHDW-66	66	35.6	46	80	24.5	7.5	16	M8	15	60	120	7,000	1.2×10 <sup>-4</sup>	1.5×10 <sup>4</sup>	440	1	0.2	±0.6
SHDW-88	88	46	63	99.8	30	9.5	20	M8	15	180	360	5,500	4.3×10 <sup>-4</sup>	3.5×10 <sup>4</sup>	900	1	0.2	±0.6
SHDW-110	108	60.5	77	111	34.5	13	24.6	M10	30	280	560	4,000	3.2×10 <sup>-3</sup>	7.0×10 <sup>4</sup>	1,750	1	0.25	±1
SHDW-126	126	65	78/*92	127.4	40	12	25	M10	30	360	720	3,500	1.0×10 <sup>-2</sup>	2.2×10 <sup>5</sup>	5,150	1	0.6	±3.2
SHDW-144	144	75	88/*104	143.4	45	15	30	M10	30	530	1,060	3,000	1.9×10 <sup>-2</sup>	3.9×10 <sup>5</sup>	7,600	1	0.6	±3.6

- 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. (Set-screw type is usually less durable than other clamping method, thus please consider it has a complementary option e.g. keyway along with.)
- Please refer to \* marked value for D<sub>2</sub> of OD 126 & OD 144 products when ID is over 55mm.

### Standard Inner Diameter (ID)

Model	Standard Inner Diameter (d <sub>1</sub> , d <sub>2</sub> ) (mm)																			
	10	11	12	14	15	16	18	19	20	22	24	25	26	28	30	32	35	38	40	42
SHDW-56	●	●	●	●	●	●	●	●	●	●	●	●								
SHDW-66					●	●	●	●	●	●	●	●	●	●	●	●				
SHDW-88									●	●	●	●	●	●	●	●	●	●	●	●
SHDW-110															●	●	●	●	●	●
SHDW-126								●	●	●	●	●	●	●	●	●	●	●	●	●
SHDW-144										●	●	●	●	●	●	●	●	●	●	●

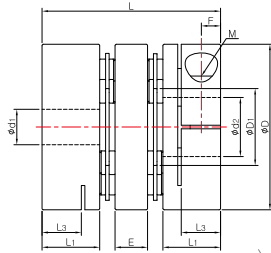
- The recommended shaft tolerance is h7.
- Custom process (e.g. non-standard Inner diameter, special tolerance etc.) is also available upon a special request in prior to order placement.
- Keyway is available. (Optional)

# SHD SERIES (SHDW)

## Double Disk High Torque Disk Coupling

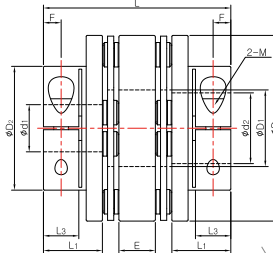
### Side-clamp

Cylinder-shaped



Size: 56C~110C

Flange-shaped (Low-inertia)



Size: 126C

### Dimensions / Performance

Model	Size ( $\pm 0.3\text{mm}$ )								Screw		Rated Torque (N·m)	Max. Torque (N·m)	Max. rpm	Moment of Inertia (kg·m <sup>2</sup> )	Static Torsional Stiffness (N·m/rad)	Mass (g)	Permissible Misalignment			Side-clamp Hub Split (W)
	D	D <sub>1</sub>	D <sub>2</sub>	L	L <sub>1</sub>	L <sub>3</sub>	F	E	Size	Fastening Torque (N·m)							Angular (°)	Parallel (mm)	End-play (mm)	
SHDW-56C	56	28.6	-	60.4	19.5	13.3	6.5	11	M6	13	35	70	7,000	$5.8 \times 10^{-5}$	$1.0 \times 10^4$	300	1	0.2	$\pm 0.6$	○
SHDW-66C	66	35.6	-	80	24.5	15.5	7.5	16	M6	13	60	120	6,500	$1.4 \times 10^{-4}$	$1.5 \times 10^4$	520	1	0.2	$\pm 0.6$	○
SHDW-88C	88	46	-	99.8	30	19	10	20	M8	30	180	360	5,500	$5.7 \times 10^{-4}$	$3.5 \times 10^4$	1,200	1	0.2	$\pm 0.6$	○
SHDW-110C	108	60.5	-	111	34.5	21	10.5	24.6	M10	50	280	560	4,000	$3.7 \times 10^{-3}$	$7.0 \times 10^4$	1,920	1	0.25	$\pm 1$	○
SHDW-126C	126	65	84/*100	127.4	40	24	12	25	M10	50	360	720	3,500	$1.3 \times 10^{-2}$	$2.2 \times 10^5$	5,800	1	0.6	$\pm 3.2$	○

- 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 126C products, please refer to D<sub>2</sub> values with \* mark when inner diameters are bigger than 45mm.

### Standard Inner Diameter (ID)

Model	Standard Inner Diameter (d <sub>1</sub> , d <sub>2</sub> ) (mm)																								
	10	11	12	14	15	16	18	19	20	22	24	25	26	28	30	32	35	38	40	42	45	48	50	55	60
SHDW-56C	●	●	●	●	●	●	●	●	●	●	●	●													
SHDW-66C					●	●	●	●	●	●	●	●	●	●	●	●									
SHDW-88C									●	●	●	●	●	●	●	●	●	●	●	●	●				
SHDW-110C															●	●	●	●	●	●	●	●	●	●	●
SHDW-126C															●	●	●	●	●	●	●	●	●	●	●

- 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)

# SHD SERIES (SHDW)

## Double Disk High Torque Disk Coupling

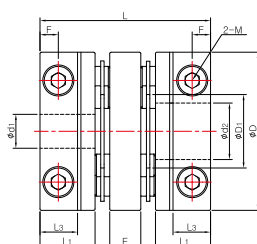
### Slip Torque

- 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 different kind of fastening screw is used. Therefore, we recommend you test under the same conditions before mounting.

Model	Max. Torque (N.m)	Slip Torque (N.m) by Inner Diameter (d <sub>1</sub> , d <sub>2</sub> )																								
		10	11	12	14	15	16	18	19	20	22	24	25	26	28	30	32	35	38	40	42	45	48	50	55	60
SHDW-56C	70	22	24	30	30	32	40	45	55	61																
SHDW-66C	120					40	40	45	60	62	64	68	70	97	100	104	117									
SHDW-88C	360									76	83	98	104	130	136	162	169	188	193	208	215	220				
SHDW-110C	560															162	170	182	199	221	235	247	253	273	299	273
SHDW-126C	720															191	209	232	268	305	323	355	379	385	400	400

### 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.
- The no. of fastening screws for OD 56~110 products is only 1 each, however we provide 2 screws for Side-clamp Split (W) type according to the below drawing.



### Electroless Nickel Plating for Steel-body Products

- The standard surface treatment (finish) for steel-body product is **Black Oxide**.
- If corrosion is highly concerned, there is another surface treatment option of 'Electroless Nickel Plating' adding an additional code "NI" next to the part no. as shown below.

**SHDW - 126C - NI - 30 - 40**

- All other parts (collars, ASS screws and FAS screws) will be Electroless Nickel Plated as well.



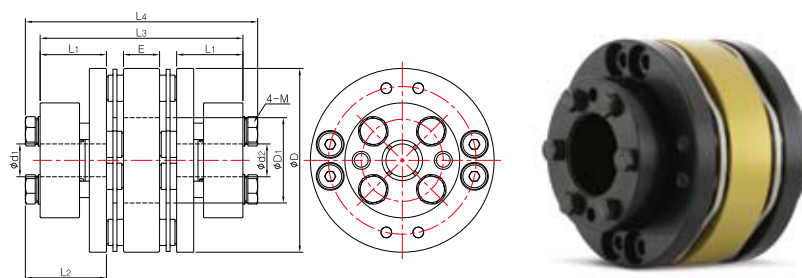
- Caution: Slip torque would become lower if the body material or surface treatment of screws are changed from the standard version.



# SHD SERIES (SHDW)

## Double Disk High Torque Disk Coupling

### Taper-ring



### Dimensions / Performance

Model	Size ( $\pm 0.3\text{mm}$ )							Screw		Permissible Torque (N·m)	Max. rpm ( $\text{min}^{-1}$ )	Moment of Inertia ( $\text{kg}\cdot\text{m}^2$ )	Static Torsional Stiffness (N·m/rad)	Mass (g)	Permissible Misalignment		
	D	D <sub>1</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	E	Size	Fastening Torque (N·m)						Angular (°)	Parallel (mm)	End-play (mm)
SHDW-56T	56	28.6	20.2	24.7	61.8	70.8	11	M5	8	60	7,700	$5.4 \times 10^{-5}$	$1.0 \times 10^4$	280	1	0.2	$\pm 0.6$
SHDW-66T	66	35.6	25	30	81	91	16	M6	13	120	7,000	$1.2 \times 10^{-4}$	$1.5 \times 10^4$	460	1	0.2	$\pm 0.6$
SHDW-88T	88	46	30	35.2	99.8	110.2	20	M6	13	200	6,000	$4.6 \times 10^{-4}$	$3.5 \times 10^4$	970	1	0.2	$\pm 0.6$
SHDW-110T	108	60.5	30.7	35.9	103.4	113.8	24.6	M6	13	350	4,500	$3.7 \times 10^{-3}$	$7.0 \times 10^4$	1530	1	0.25	$\pm 1$

- The Moment of Inertia and Mass values are based on products with max. Inner diameter.
- Due to the structure of Taper-ring, it's not allowed to have other complementary options to enhance clamping force such as keyway etc. This is the reason why the above-mentioned permissible torques are based on the slip torque at the min. standard inner diameter. (The bigger inner diameter, the higher permissible torque.)

### Standard Inner Diameter (ID)

Model	Standard Inner Diameter ( $d_1, d_2$ ) (mm)																			
	10	11	12	14	15	16	18	19	20	22	24	25	26	28	30	32	35	38	40	42
SHDW-56T	●	●	●	●	●	●	●	●	●	●	●	●								
SHDW-66T					●	●	●	●	●	●	●	●	●	●	●	●				
SHDW-88T									●	●	●	●	●	●	●	●	●	●	●	●
SHDW-110T															●	●	●	●	●	●

- 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 **NOT** available

### 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 different kind of fastening screw is used. Therefore, we recommend you test under the same conditions before mounting.

Model	Max. Torque (N·m)	Slip Torque (N·m) by Inner Diameter ( $d_1, d_2$ )																
		10	11	12	14	15	16	18	19	20	22	24	25	26	28	30	32	35
SHDW-56T	60	45	50	55														
SHDW-66T	120					80	90	100	110									
SHDW-88T	200									140	168	180						
SHDW-110T	350															250	280	312