

Steadiness & Innovation in Motion control

SUNG-IL MACHINERY

COMPANY PROFILE



COUPLING

CONNECTING SHAFT

SAFETY COUPLING

TIMING PULLEY

A.P. LOCK


SUPPORT UNIT FOR BALL-SCREW

SPM



Company Introduction

Company Overview

Company name		Sung-il Machinery Co., Ltd.	
Year founded		March 1991	Year Incorporated February 2008
CEO		Kim, Sung-Muk 	Capital 500 million KRW
Location	HQ (KOREA)	25, Seounsandanro-1gil, Gyeyang-gu, Incheon Korea 21072	
	Chinese branch	No.229 Chengnan Road, new Wu District, Wuxi, Jiangsu, China. 214028	
	Japanese branch	8F, OnarimonPREX, 14-3 Shimbashi-6 Minato-ku, Tokyo JAPAN 105-0004	



Milestones

2005.12	ISO 9001 achieved
2007.10	Awarded a prize for : Development of excellent capital goods
2012.09	Awarded a prize for : Technology innovation
2014.10	Awarded a prize for : Government R&D assignment
2015.08	CEO appointed as the Korea Master Technicians of the month
2015.09	ISO 14001 achieved
2016.09	CEO appointed as one of Korea Master Hand for Machining assembly
2017.03	“Small Giant Company” authorized
2019.07	Relocation of business premises by combining manufacturing and sales offices (in Incheon city)
2022.11	World-Class Product authorized [High Precision Shaft Coupling]



Steadiness & Innovation in Motion Control

Company Identity (CI)



The new CI emphasizes SUNG-IL MACHINERY's English initials. It is expected that this simplified logo will bring better branding effect while the name "SUNG-IL MACHINERY" under Korean language is kept in used.

Apart from this, S.I.M is the abbreviation for "Steadiness & Innovation in Motion Control" which well-describes the primary motto of SUNG-IL MACHINERY.

World-Class Product Certified



S.I.M's High Precision Shaft Coupling is certified as a **World-Class Product** in recognition of present development of the product, outstanding technology, expertise and dedicated commitment to Korea's exports and national competitiveness.

Mission, Vision and Core Values

Mission & Vision

Mission

To bring happiness to our customer and employees through high-value-added FA products.

Vision

To become a specialized No.1 FA product maker with sustainable growth factors.

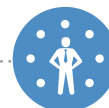
Core Value



Customer Satisfaction



Speed



Ownership



Innovation

Global Network



Certificates



ONE STEP CLOSER TO THE CUSTOMER SIDE

 GLOBAL SALES TERRITORY

CHN	JPN	SGP	IDN	TWN	MYS	THA	IND
VNM	HKG	TUR	IRN	ISR	JOR	OMN	EGY
DEU	ITA	ESP	RUS	SWE	FIN	GBR	POL
BEL	SWZ	CZE	EST	HUN	MDA	SRB	SVK
	UKR	ROU	USA	MEX	ARG	NZL	AUS

Awards



Korea Master Hand



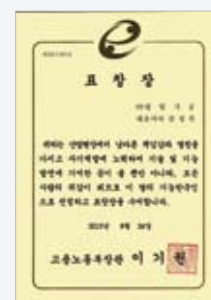
Excellent Capital Goods
(President)



Technology Innovation
(Prime minister)



Machinery & Robotic
Industry Innovation (MoTIE)



Korea Master Technicians of
the month (MoEL)



Silver Tower Medal



Honor-Badge
(Korea Red-cross)



Exemplary Taxpayer (MoSF)



Government R&D Assignment
(Seoul City Council)



Job Creation Enterprise
(Incheon)

STAY CONNECTED



Youtube

https://www.youtube.com/channel/UCd48AcciTi_xkj5lSxmQM5Q



Kakaotalk

https://pf.kakao.com/_aYTaT



Facebook

<https://business.facebook.com/ensungilfa/>



Linked-in

<https://www.linkedin.com/company/sungil-machinery-co-ltd-sim-korea/>



Major Products

01 Ultra Precision Coupling



02 Connecting Shaft



03 Safety Coupling



04 Timing Pulley



05 A.P. Lock



06 Support Unit for Ball Screw



1) Coupling

- Transmitting torque (Power)
- Absorbing misalignment
- Absorbing vibration and noise
- Electrical insulation
- Enhance the performance of the devices



SHR Series (High Performance Rubber Coupling)

SHR series is excellent for vibration absorption and helps to enhance efficiency of application allowing higher Gain figure on the servo motors.



SHR

Backlash free	☆	Applicable Motors	Servo	☆
High Torque (Durability)	☆		Stepping	☆
Torsional Stiffness	○		Encoder	○
Vibration Absorption	☆		General	-
Misalignment Absorption	○	Permissible Temperature		-20°C ~ 80°C

Application : Semi-conductor machine, SMT, Cartesian Robot, UVW Stage

SD Series (Disk Coupling)

SD series is excellent for absorbing misalignment by plate springs and is widely used on servo/step motors.



SDS



SDSS



SDW



SDWS

High Strength Aluminum Alloy

Stainless Steel

	SDS	SDW	SDSS	SDWS
Backlash free	☆	☆	☆	☆
High Torque (Durability)	○	○	△	△
Torsional Stiffness	☆	☆	○	○
Vibration Absorption	-	-	-	-
Misalignment Absorption	△	○	○	△
Corrosion resistance	-	-	☆	☆
Applicable Motors	Servo	○	○	○
	Stepping	○	○	○
	Encoder	○	○	○
	General	-	-	-

Application : Semi-conductor machine, SMT, Cartesian Robot, UVW Stage, Machining tool, Index Table

SAD Series (Advanced Disk Coupling)

SAD Series is more stiff and durable compared to similar sized general disk couplings (SD series) with the advanced structure in the plate springs. We provide SAD series in small/compact sizes.



SADS



SADW



SD Series



SAD Series

	SADS	SADW
Backlash free	☆	☆
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

PRODUCTS COUPLING

SHD Series (High Torque Disk Coupling)

SHD Series is designed to transmit high torque by adopting harder material and the advanced structure in the plate springs. We provide SHD series in mid/large sizes.



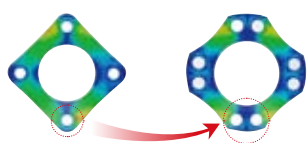
SHDS

SHDW

1. Advanced version of Plate Spring shape

SD Series

SHD Series



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

2. Improved durability with advanced body material

SD series Body material AL2024

SHD Series Body material 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

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

SCD Series (Concentricity Disk Coupling)

SCD Series is designed to be well-concentric with higher torsional stiffness by processing inner and outer diameter simultaneously, which enables users to install the coupling in a more precise way.

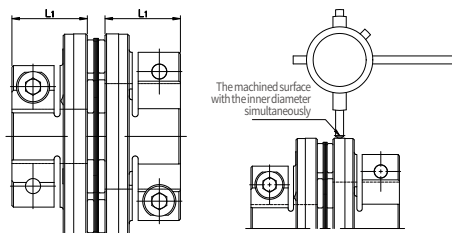


SCDS

	SCDS
Backlash free (Precision)	☆
High Torque (Durability)	☆
Torsional Stiffness	☆
Vibration Absorption	-
Misalignment Absorption	○

Application : Machine tools, Chip mounters, Cartesian Robot, Solar energy equipment

How to Install



1. Remove dust or oil substances from the surface of both the coupling and the shaft.
2. Insert the shaft up to L1. Make sure the plate spring doesn't get pressed by excessive force.
3. After the shaft is inserted, pre-tighten two fastening screws alternately with limited torque, in order not to make it too loose.
4. Place a dial gauge right on the surface which is machined with the inner diameter simultaneously (see figure), and fasten the screws alternately observing the gauge variation (run-out) is less than 0.02.
5. Lastly, fasten the screws with full of fastening torque by using a torque wrench.
6. Insert the opposite shaft while paying attention to the excessive force on the plate spring and fasten screws according to the above instruction.

※ We recommend you only use the provided screws which are lubricated.

SJC Series (Jaw Coupling)

SJC series is the most excellent coupling for transmitting high torque and is durable for vibration/impact.

GR (Hytrell, Sh 98A)

RD (Hytrell, Sh 63D)



BL (TPU, Sh98A)



GR (Hytrell, Sh98A)



RD (Hytrell, Sh63D)



High Absorption of misalignment

High Mechanical Strength
High Mechanical Stiffness

High Damping capacity

High Torsional Stiffness
High Heat Resistance

Sleeve Material	Hytrell	TPU
	(RD/GR)	(BL)
Backlash free (Precision)	○	○
High Torque (Durability)	☆	☆
Torsional Stiffness	△	△
Vibration Absorption	△	○
Misalignment Absorption	△	△
Insulation of Electric Current	○	○
Applicable Motors	Servo	○
	Stepping	○
	Encoder	△
	General	☆
Permissible Temperature	-20°C ~ 120°C	-20°C ~ 70°C

Application : Machine tools, Press machine, Injection Molding machine, Pneumatic machine, Pump, Cartesian Robot, Belt Drive, Logistics facilities etc.

SOH Series (Oldham Coupling)

SOH series is excellent for absorption of parallel misalignment and enables reaction force on the shaft to be reduced. It is simple for self-maintenance.



SOH

SOHMP

SOHSHV

	SOH	SOHMP	SOHSHV
Spacer Material	Polyacetal	PEEK	VESPEL (PI)
High Torque (Durability)	○	○	○
Torsional Stiffness	△	△	△
Vibration Absorption	○	○	○
Misalignment Absorption	○	○	○
Insulation of Electric Current	○	☆	☆
Minimized Reaction Force	☆	☆	☆
Minimized Out Gas	-	☆	☆
Applicable Motors	Servo	△	
	Stepping	○	
	Encoder	○	
	General	☆	
Permissible Temperature	-20°C ~ 80°C	-20°C ~ 120°C	-20°C ~ 200°C

SRB Series (Radial Beam Coupling)

SRB series is good for both angular/parallel misalignment absorption however it is relatively less-durable.



SRB

SRBS

SRBM

SRBMS

AL 7075-T6

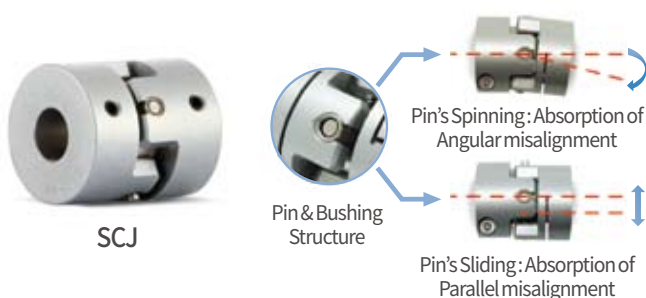
Stainless Steel

	SRB	SRBM	SRBS	SRBMS
Backlash free	☆	☆	☆	☆
High Torque (Durability)	△	△	△	△
Torsional Stiffness	○	○	○	○
Vibration Absorption	-	-	-	-
Misalignment Absorption	○	△	○	△
Corrosion resistance	-	-	☆	☆
Applicable Motors	Servo	○	○	○
	Stepping	○	○	○
	Encoder	○	○	○
	General	-	-	-

Application : UVW Stage, XY Stage, Part feeder, Encoder

SCJ Series (Cross-Joint Coupling)

SCJ series is excellent for absorbing both angular/parallel misalignment, and it minimizes reaction force on the shaft.



SCJ

Pin & Bushing Structure

Pin's Sliding: Absorption of Parallel misalignment

High Torque (Durability)		△
Torsional Stiffness		○
Vibration Absorption		△
Misalignment Absorption		☆
Minimized Reaction Force		☆
Applicable Motors	Servo	○
	Stepping	○
	Encoder	○
	General	-

Application : UVW Stage, Cartesian Robot, Index Table

SRG Series (Rigid Coupling)

SRG series is excellent for using at highly-precise applications, however it has no ability to absorb misalignment.

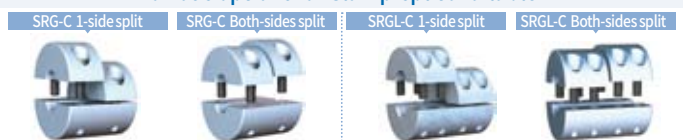


SRG

SRGL

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

Various options for Clamp-split available



※ We also offer standard products with a stainless steel body (SRGS series; heat/corrosion resistant) and a steel body (SRGP series; better durability/precision installation).

PRODUCTS COUPLING

SFC Series (Urethane Flexible Coupling)

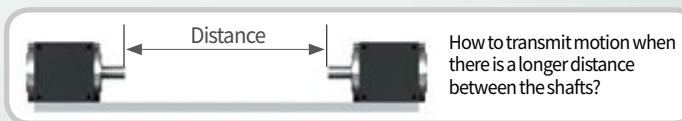
SFC series is flexible with Urethane material and is excellent for absorbing misalignment, however it is relatively less-durable.



SFC

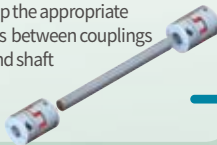
Vibration Absorption	○	Applicable Motors	Servo	-
Misalignment Absorption	○		Stepping	-
Insulation of Electric Current	○		Encoder	○
			General	○

4) Connecting Shaft



Combined set of coupling+Ground shaft

- 3 different parts (2 Couplings, 1 ground shaft) are separately needed.
- Bigger laboring required
- Hard to keep the appropriate straightness between couplings and a ground shaft



Connecting Shaft ✓

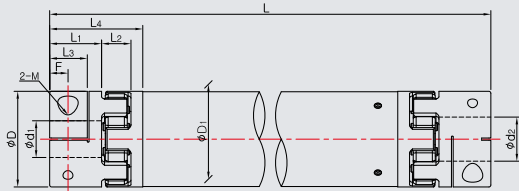
- 1 Whole piece structure
- Simple installation
- Easy and handy maintenance
- The pipe (middle shaft) with high stiffness

Better



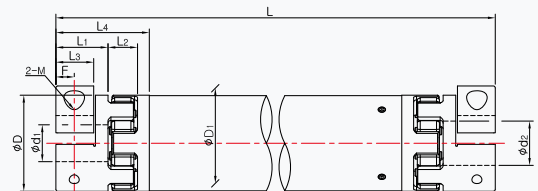
How to determine the proper length(L)

General Side-clamp Type



$$L(\text{Total Length}) = L_3(\text{distance between shafts}) + 2L_1$$

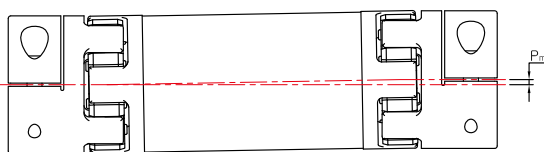
Side-clamp Hub Split Type



$$L(\text{Total Length}) = L_3(\text{distance between shafts}) + 2L_3$$

※ Side-clamp Hub Split type is commonly used for connecting shaft in regards to an easier maintenance.

How to calculate permissible parallel misalignment



$$P_m = (L - 2(L_1 + L_2)) \times \tan \frac{A_m}{2}$$

P_m = Permissible parallel misalignment

L = Total length

A_m = Permissible angular misalignment of connecting shaft
(= 2 x coupling's value)

- The value calculated by the above formula is maximum permissible parallel misalignment in the allowable range of motion transmission, which means sleeves of SJCL and plate spring of SHDL may still get worn down even within the range of permissible parallel misalignment.
- The P_m value shrinks by $\frac{1}{2}$ when there are both angular and parallel misalignment at the same time.
- It is recommended to use at the $\frac{1}{3}$ value L of P_m for longer lifespan, as well as keep the shafts located in line as straight as possible.
- If you need any further assistance, please contact Sung-il Customer Service team for more details.

3) Safety Coupling

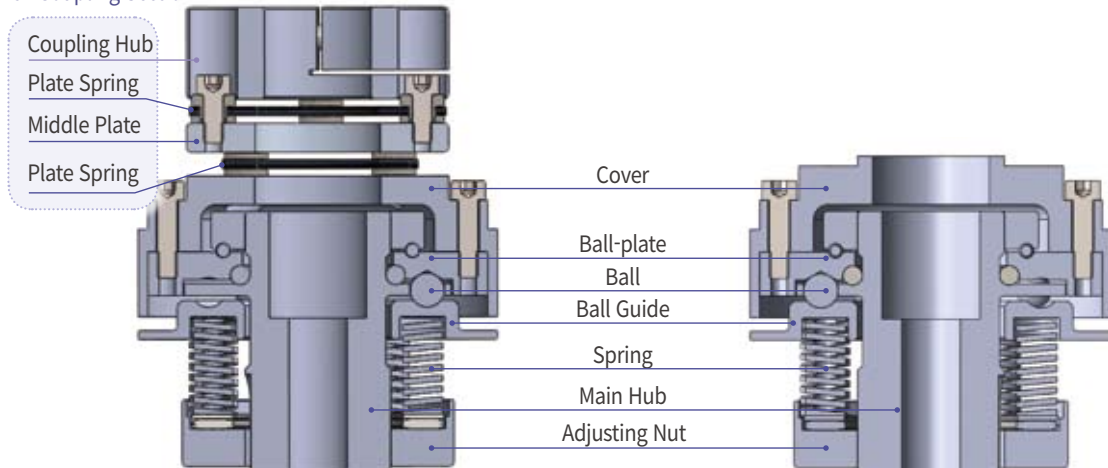


Structure

Disk Coupling Attached Type (STL)

Flange Type (STL-F)

Disk Coupling Section



Product Features








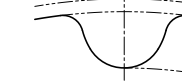
- 1. Wide range of standard preset torque values
- 2. Absorption of misalignment by plate springs. (Disk Coupling attached type Only)
- 3. Easier torque adjustment with an adjusting nut and an indicator of spring pressure amount
- 4. Various assembly options according to each clamping objects

High Accuracy

High Torque

High Speed Rotation

Tooth Profile

 <p>3S3M (Pitch: 3.0mm)</p>	 <p>2GT (Pitch: 2.0mm)</p>
 <p>5S5M (Pitch: 5.0mm)</p>	 <p>3GT (Pitch: 3.0mm)</p>
 <p>8S8M (Pitch: 8.0mm)</p>	 <p>5GT (Pitch: 5.0mm)</p>
 <p>1.5GT (Pitch: 1.5mm)</p>	 <p>8YU (Pitch: 8.0mm)</p>

Made-To-Order Process

Various Tooth Profile Shapes

Trapezoidal	MXL, XL, L, H AT5, AT10, (D)T5, (D)T10
Curvilinear	1.5GT, 2GT, 3GT, 5GT, 8YU, 8MGT, 14MGT
	S2M, S3M, S5M, S8M, S14M
	P3M, P5M, P8M
	RPP5, RPP8
	MA3, MA5, MA8 HTD5M, HTD8M, HTD14M

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5) A.P. Lock

- High transmittable torque than similar sized Couplings
- Excellent space utilization with parallel installation
- Self-centering function
- Various options of material / surface treatment available



PRODUCT INDEX

Series	SAPL-A Series			SAPL-B Series	SAPL-C Series
Model	SAPL-A	SAPL-AK	SAPL-AS	SAPL-B	SAPL-C
Body Material	STEEL	S45C (Electroless Nickel Plating)	SUS304	STEEL	STEEL
Shape					

Series	SAPL-C Series		SAPL-D Series		
Model	SAPL-CK	SAPL-CS	SAPL-D1	SAPL-D2	SAPL-D3
Body Material	STEEL (Electroless Nickel Plating)	SUS304	STEEL	STEEL	STEEL
Shape					

Series	SAPL-D Series	SAPL-T Series	SAPL-R Series	SAPC Series	SAPA Series
Model	SAPL-D4	SAPL-T	SAPL-R	SAPC	SAPA
Body Material	STEEL	STEEL	STEEL	AL-7075-T6	AL-7075-T6
Shape					

3) Support Unit for Ball-screw

- High accuracy, no need of additional adjustment
- Handy application design by standardized bearings
- Easy installation even at small and narrow areas
- With the inner oil seal ring, it prevents foreign material and leak of grease



PRODUCT INDEX

Motor Bracket Unit

Series	C-SBU	O-SBU	E-SBU	S-SBU
Use for	FIXED SIDE (CLEAN)	FIXED SIDE (OPEN)	FIXED SIDE (ECONOMY)	SUPPORTED SIDE
Shape				

Ball Screw Support Unit

Series	EK	EF	BK	BF	BK-G
Use for	FIXED SIDE	SUPPORTED SIDE	FIXED SIDE	SUPPORTED SIDE	FIXED SIDE
Shape					

Ball Screw Support Unit

Series	AK	AF	FK	FF	FK-G
Use for	FIXED SIDE	SUPPORTED SIDE	FIXED SIDE	SUPPORTED SIDE	FIXED SIDE
Shape					

Ball Screw Support Unit

Series	CK	CF	WBK	SWBK	SWBK-G
Use for	FIXED SIDE	SUPPORTED SIDE	FIXED SIDE (MINIATURE)	FIXED SIDE (HIGH LOAD)	FIXED SIDE (HIGH LOAD)
Shape					

Lock-Nut

Bearing Unit

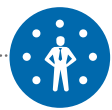
Series	RN	RNSS	RNSB	ZN	HLRN	SBS	SBD
Shape							



Customer Satisfaction



Speed



Ownership



Innovation



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