Selection Guide

STEP 1
Select a coupling type

A coupling type is selected mainly according to characteristic chart and types of connected motors. In case it is going to be used in a special environment e.g. vacuum, high-temperature, cleanroom facilities etc., please contact Sung-il Customer Service team in advance. As Sung-il Machinery manufactures products with various types of material, we may suggest an appropriate coupling considering the circumstance it is to be used.

STEP 2
Select a coupling's outer diameter (OD) size

The coupling's outer diameter (OD) size is determined mainly by torque. The rated torque of a coupling has to be higher than the operation torque of a motor. The safety factor could be differently calculated by case/customer. The operation torque information can be easily found on the motor's specification.

In case the operation torque should be calculated with operational P(Power Output) and N(rpm) values, please refer to the below formula.

$$T = 9550 \text{ x } \frac{\mathrm{P(kW)}}{\mathrm{N(rpm)}}$$ T=9550xP(kW)N(rpm)

In case a coupling includes plastic sort material (SHR, SJC, SOH, SFC series), the rated torque of a coupling has to be modified according to temperature ranges. Please refer to the below table.

Temperature range	-20 ℃ ~ 30 ℃	30 ℃ ~ 40 ℃	40 ℃ ~ 60 ℃	60 ℃ ~ 120 ℃
Correction factor	1.0	0.8	0.7	0.55

STEP 3
Check the max. inner diameter (ID)

Both inner diameters (ID) of driving and driven shafts have to be within the range of maximum ID of a coupling. If either ID of driving shaft or driven shaft is out of range from the selected coupling, the coupling has to be sized up. For instance, SDS-19C is selected at the Step 2, however the ID of shaft is 8mm, it is out of range as the max. ID on SDS-19C is 6mm. In this case, the coupling should be one sized up to SDS-22C.

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
SDS-16C	●	●	●	●												
SDS-19C	●	●	●	●	●											
SDS-22C	●	●	●	●	●	●	●	●	●★	●★						
SDS-26C	●	●	●	●	●	●	●	●	●	●	●					

However, the coupling size cannot be adjusted due to space matter, please check with us for the alternative option of non-standard ID supply by re-boring ID sizes over the range. In this inevitable case, re-boring inner diameters itself may not be so difficult, however there is high possibility that the durability of product drops down to a greater extent thus, this process is only implemented under customer's full responsibility. Besides, the lead-time could be somewhat longer than usual.

STEP 4

'Slip Torque of selected ID(shaft)' > 'Operating torque'

Check slip torque

Please compare slip torque values of each selected inner diameters with the operational torque referring to the information in the "Dimensions / Performance" pages. (See the example table below.)

Let's suppose the coupling SDS-22C-4mmx8mm is selected through step.1 to step.3. According to the slip torque table, the max. torque of SDS-22C is 2.2N·m. The slip torque at the ID 8mm is higher than 2.2N·m (The specific slip torque values higher than the max. torque of couplings are not stated in the table.) and at the ID 4mm 1.4N·m respectively. Since the slip torque at the ID 8mm is higher than max. torque of the coupling, there is no further concern about slips at the ID 8mm. However, the slip torque at the ID 4mm must be compared with the operating torque, concerning its slip torque(1.4N·m) is lower than the max. torque of the coupling. In any case the slip torque is lower than the operating torque like this, a larger sized coupling must be selected or an additional supplement e.g. key/keyway has to be along with for safer use.

The 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)

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
SD□□-16C	1	0.6	0.7	0.8	0.9														
SD□□-19C	1.8	1	1.3	1.4	1.5	1.7													
SD□□-22C	2.2	1.1	1.4	1.5	1.7	2	2.1												
SD□□-26C	3		2	2	2.9														

STEP 5

Check other points

Clamping Methods, Permissible misalignment, Torsional stiffness, Max. rpm, etc.