Product Selection

To ensure that LN Series Jaw-Flex Couplings provide backlash-free operation over a long period, selected products must have a sufficient margin of safety for the spider's normal-use torque. Accordingly, use the procedure below to select products.
Spiders are consumable parts, so must be replaced periodically to maintain backlash-free operation.

1. Apply the drive's transmitted power P [kW] and the coupling's operating rotation speed n [min⁻¹] to the formula below to calculate the torque T [N·m] that will be applied to the coupling.

$$T = 9550 \cdot P/n$$

2. Use the operation conditions to determine the service factors St and Sd, and calculate the correction torque Tr [N·m] that will be applied to the coupling.

$$Tr = T \cdot St \cdot Sd$$

T : Temperature coefficient
P : Torsional stiffness factor

Select a product size that will result in the coupling's normal-use torque Tn being greater than or equal to the correction torque Tr.

$$Tn \geq Tr$$

3. Check that the maximum torque Ts [N·m] generated from the drive, load, or both the drive and load will be less than or equal to the coupling's normal-use torque Tn.

Maximum torque from drive: $Ts = Tas \cdot Ma \cdot Sa$
Maximum torque from load: $Ts = T\ell s \cdot M\ell \cdot S\ell$
$Tn \geq Ts \cdot St \cdot Sd$

Tas : Maximum drive torque [N·m] Sa : Shock load factor (drive)
$T\ell s$: Maximum load torque [N·m] $S\ell$: Shock load factor (load)
Ma : Drive's moment of inertia ratio $Ma = J\ell /(Ja + J\ell)$ Ja : Drive's moment of inertia
$M\ell$: Load's moment of inertia ratio $M\ell = Ja/(Ja + J\ell)$ $J\ell$: Load's moment of inertia

4. Check that the mounted shaft is within the coupling's range of mountable shaft diameters. The shaft coupling torque varies according to the shaft diameter, so may be lower than the spider's normal-use torque in some cases.
   Check that the shaft coupling torque for the selected coupling size is greater than or equal to the maximum torque Ts applied to the coupling.

Temperature coefficient

Operating temperature ℃	Temperature coefficient St
−30 to +30	1.0
−30 to +40	1.2
−30 to +60	1.4
−30 to +80	1.8

Torsional stiffness factor

Application	Torsional stiffness factor Sd
Machine tool spindle	2~5
Positioning	3~8
Encoder	10 or more

Shock load factor

Load type	Shock load factor Sa (Sℓ)
Uniform load	1.0
Low fluctuation	1.4
High fluctuation	1.8

Handling

Centering

The more accurate the initial centering of the coupling, the less eccentric rotational stress it will experience during operation.
Changes during operation caused by factors such as bearing wear, mounting surface subsidence, temperature-induced state changes, and vibrations can reduce the life of the coupling or your equipment. Center the coupling periodically.
The coupling's allowable angular misalignment and parallel misalignment are correlated to each other. Increasing one factor decreases the other, so the factors need to be considered together.

Allowable misalignment

Model No.	Spider hardness	Allowable misalignment		
		Angular misalignment deg	Parallel misalignment mm	End play (shaft direction displacement) mm
LN24	98A	0.9	0.10	−0.5 to +1.4
	64D	0.8	0.07	
LN28	98A	0.9	0.11	−0.7 to +1.5
	64D	0.8	0.08	
LN38	98A	0.9	0.12	−0.7 to +1.8
	64D	0.8	0.09	

Each angular misalignment value shown is the value applicable when the corresponding parallel misalignment value is 0, and vice-versa.

Relationship between angular misalignment and parallel misalignment
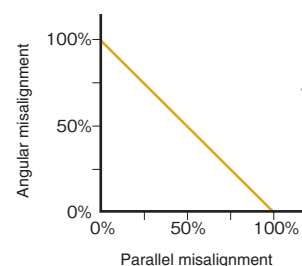
Operating environment

Note that the spiders will gradually deteriorate over time due to humidity, atmospheric gases, heat, and ultraviolet rays.
• Use the couplings in a well-ventilated location with an ambient temperature of −30 to 80°C and low humidity and dust.
• Avoid use in locations with exposure to corrosive liquids or gases, or locations with the possibility of fires or explosions.
• Avoid outdoor use as the couplings are not water- or corrosion-resistant.

Inspection

Re-check the angular misalignment and parallel misalignment one or two hours after starting actual operation.
Also check for problem parts and spider wear periodically (such as every six months to one year).
Spiders are wear parts. Replace them periodically.