

# LK15 系列

LK15 Series

## 使用注意事项:

### CAUTIONS:

1. 请务必遵守偏心, 偏角, 轴向的允许公差。
  2. 螺栓类请务必以指定的扭矩拧紧。
  3. 联轴器左右内径的同心度通过使用专用夹具实现高精度组装。万一联轴器受到强烈冲击时, 可能会无法保持组装精度而在使用中发生破损, 请在操作过程中加以留意。
  4. 使用环境范围为-30°C-120°C。虽具备耐水性和耐油性, 但极度粘附的环境也会导致产品劣化, 请避免此类情况。
  5. 弹性元件由薄薄的不锈钢膜片组成, 使用时注意避免划伤。
  6. 插入安装轴前, 请勿拧紧加压螺栓。
1. Be sure to observe allowable tolerances of eccentricity, deflection and axis.
  2. Bolts must be tightened with specified torque.
  3. The concentricity of the left and right inner diameters of the coupling can be assembled accurately by using special fixtures. In case of strong impact on the coupling, the assembly accuracy may not be maintained and the coupling may be damaged in use, please pay attention to it during operation.
  4. The use range is - 30°C - 120°C. Despite water and oil resistance, extreme adhesion can also lead to deterioration of the product, avoid this kind of situation.
  5. Plate springs consist of thin stainless steel diaphragms, when using, care should be taken to avoid scratches.
  6. Do not tighten the clamping bolt before inserting the installation shaft.

## 安装方式:

### INSTALLATION:

1. 确认联轴器的夹紧螺栓有无松动, 去除轴及联轴器内径面的锈迹, 灰尘及油等。特别是, 对联轴器摩擦系数有显著影响的各类润滑脂, 绝不可有粘附。

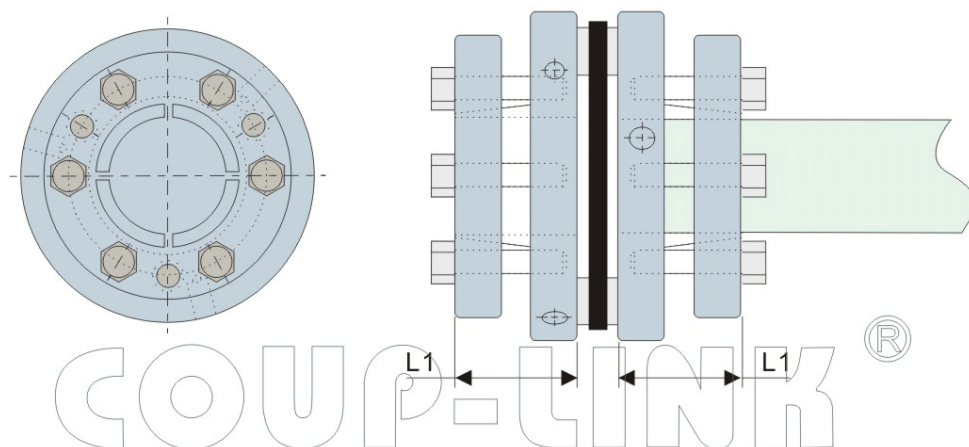
Confirm whether the clamping bolt of the coupling is loose or not, remove rust, dust and oil on the inner diameter surface of the shaft and coupling. In particular, all kinds of greases which have a significant impact on the friction coefficient of the coupling must not have adhesion.

2. 请将联轴器插入电动机轴。插入时, 请勿在联轴器的弹性元件上施加过大的压缩和拉伸力, 特别是在把联轴器安装至电动机后将联轴器插入从动轴时, 可能会因错误操作而施加过大的压缩力, 请注意。

Please insert the coupling into the motor shaft. When inserting, do not apply excessive compression and tension force on the elastic components of the coupling, especially when inserting the coupling into the driven shaft after installing the coupling to the motor, excessive compression force may be exerted due to incorrect operation, please note.

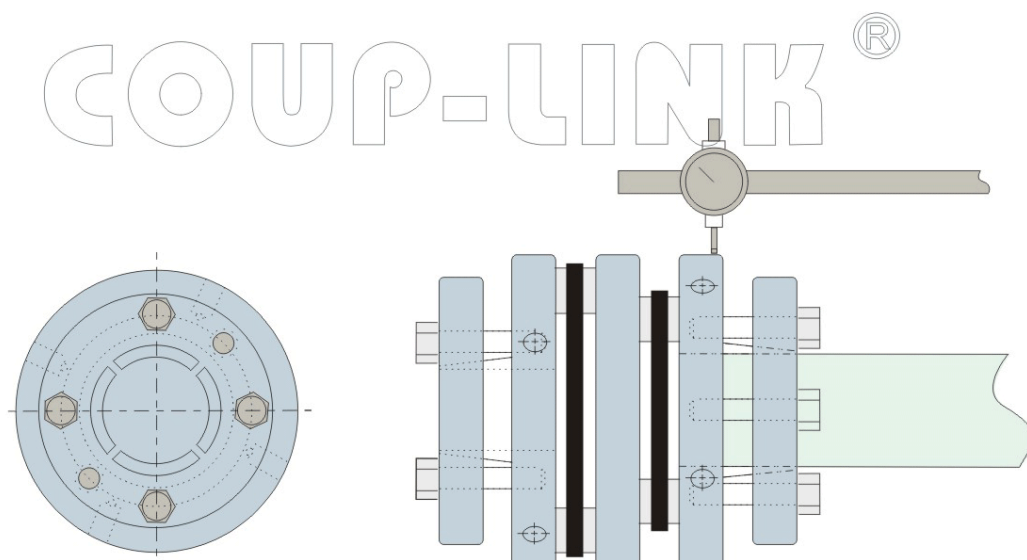
3. 联轴器插入电动机轴的长度如下图所示, 贯穿边节法兰全长(L1尺寸)并与轴联接, 且不得与弹性元件及另一边的轴干涉, 并保持在该位置。

The length of the coupling inserted into the motor shaft is shown in the figure below. The full length of the flange running through the side section (L1 size) is connected with the shaft, and it is not allowed to interfere with the elastic element and the axis on the other side, and is kept in this position.



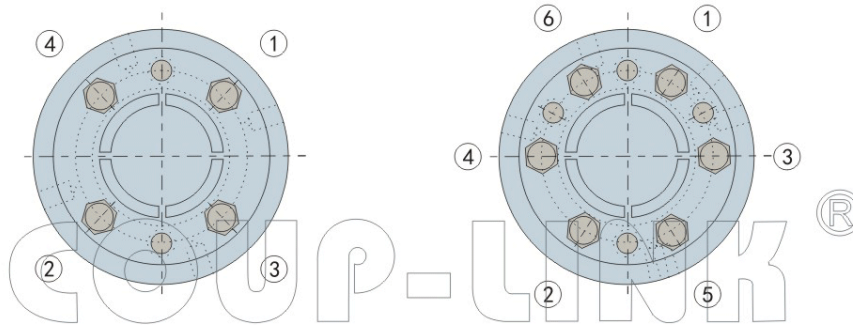
4.利用孔将加压螺栓按对角轻轻拧紧。  
Use the hole to tighten the pressure bolt diagonally.

5.使千分表与电动机轴一侧的法兰端面或外径接触，在用手轻轻旋转电动机轴的同时，通过锤击调整法兰外圈部份及端面，使跳动尽可能接近零。  
Make the micrometer contact with the flange end face or outer diameter of one side of the motor shaft, while gently rotating the motor shaft by hand, adjust the flange outer ring part and end face by hammering, so as to make the jump as close as possible to zero.



6. 锤击调整的同时按顺序拧动加压螺栓，最后使用经过校准的扭力扳手将所有加压螺栓均按下面的正确紧固扭矩拧紧。请参照下面图的加压螺栓拧紧顺序，将其均匀拧紧。

While hammering adjustment, the pressure bolts are screwed in sequence. Finally, all the pressure bolts are tightened according to the correct tightening torque below by using the calibrated torsion plate hand. Please refer to the tightening sequence of pressure bolts shown below and tighten them evenly.



螺栓尺寸 Bolt size	拧紧力矩 Tightening torque (N.m)
M6	14-15
M8	27-30

7. 请确认电动机轴的加压螺栓已按规定的扭矩拧紧，且跳动值较小。

Make sure that the compression bolt of the motor shaft has been tightened according to the specified torque, and the jump value is small.

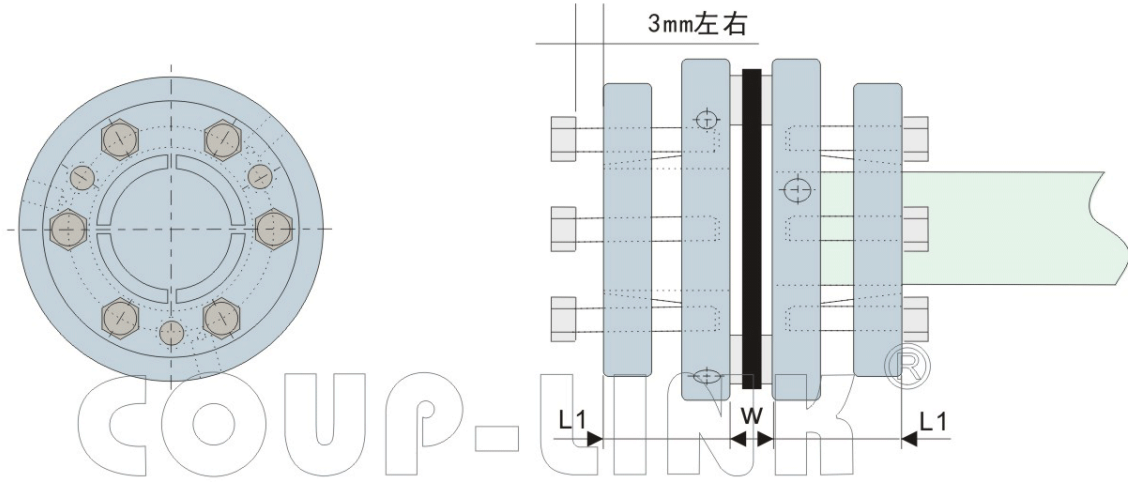


8. 将安装了联轴器的电动机安装至机身。安装时，将联轴器插入从动轴（滚珠丝杆等）的同时调整电动机的安装位置（定心接口），并注意切勿使弹性元件变形。并且从动轴的长度也要贯穿法兰的全长（L1尺寸）与轴相接，保持于该位置。

The motor with coupling is installed on the fuselage. When installing, insert the coupling into the driven shaft (ball screw, etc.) and adjust the installation position (centring interface) of the motor, and pay attention to the deformation of the elastic element. And the length of the driven shaft should also run through the full length of the flange (L1 dimension) and be connected with the shaft to maintain the position.

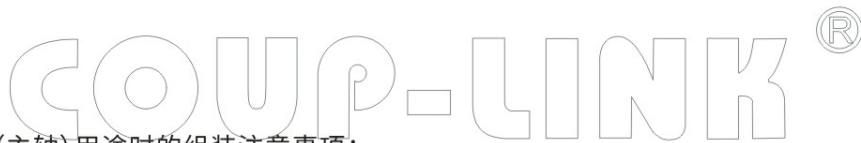
9. 请将法兰面到面尺寸（W尺寸）控制在标准值的轴向位移允许误差范围内。该值为假设偏心，偏角为零时的允许值，请尽量调小。

Please control the flannel-to-surface dimension (W dimension) within the allowable error range of the axial displacement of the standard value. This value is the allowable value when the eccentricity is assumed and the deflection angle is zero. Please adjust it as small as possible.



10. 请按照与电动机轴侧的加压螺栓相同的顺序, 将从动侧的加压螺栓依次紧固, 最后以正确的紧固扭矩将螺栓拧紧。  
 In the same order as the compression bolts on the shaft side of the motor, tighten the compression bolts on the driven side in turn, and tighten the bolts with the correct tightening torque.

11. 作为加压螺栓的初期防松措施, 建议运行一段时间后, 再次使用正确紧固扭矩进行再拧紧。  
 As an initial anti-loosening measure of pressure bolt, it is suggested that after a period of operation, the correct tightening torque should be used again for tightening.



12. 用于高速旋转(主轴)用途时的组装注意事项:  
 Matters needing attention in assembling for high-speed rotating (spindle) applications:

- i. 用于加工中心的主轴等高速旋转用途时, 可能会有振动的问题。  
 Vibration problems may occur when spindles are used for high-speed rotating purposes such as machining centers.
- ii. 高速旋转时产生的振动原因之一, 是因为主轴电机与主轴组装时产生的轴心偏离, 即使联轴本身修正了平衡仍然会有振动。  
 One of the reasons for vibration caused by high-speed rotation is that the spindle motor deviates from the axis when it is assembled with the spindle. Even if the coupling itself corrects the balance, there will still be vibration.
- iii. 联轴器可允许偏心, 偏角, 轴向位移等的轴心偏离, 但特别是用于高速旋转的用途时, 就必注意轴心的偏离, 务必在组装时进行轴心调整及组装后进行现场平衡调整。  
 Coupling can allow eccentricity, deviation angle, axial displacement and other axis deviation, but especially for high-speed rotating purposes, we must pay attention to the axis deviation, it is necessary to adjust the axis when assembling and balance after assembling.

**拆卸方法:**

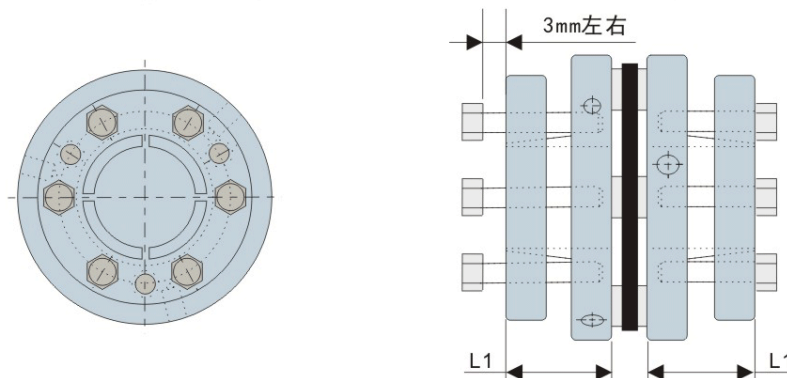
**DISASSEMBLY METHOD:**

1. 确认联轴器未承受扭矩以及轴向负载。特别是在安全制动装置等工作状态下, 联轴器可能正承受扭矩。拆除前请务必进行确认。

Confirm that the coupling does not withstand torque and axial load. Especially under the working condition of safety brake device, the coupling may be bearing torque. Be sure to confirm before demolition.

2. 请松开所有的加压螺栓。(加压螺栓松开至支承面与套筒之间的间隙3mm左右)

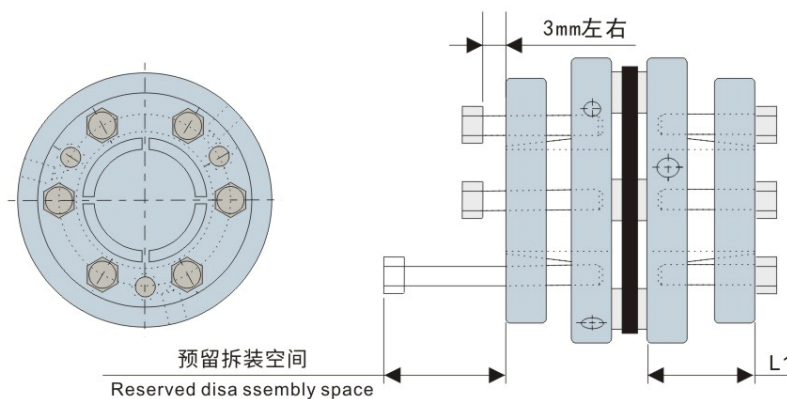
Please loosen all the pressure bolts. (Pressure bolt loosened to about 3mm clearance between supporting surface and sleeve)



3. 因这种固定结构套筒具有自锁作用, 因此, 只是松开加压螺栓是无法解除法兰与轴的紧固的(有些情况下松开加压螺栓可解除紧固, 因此须注意)。所以, 设计装置时, 请务必留一个位置, 用于插入拆除用的螺丝。

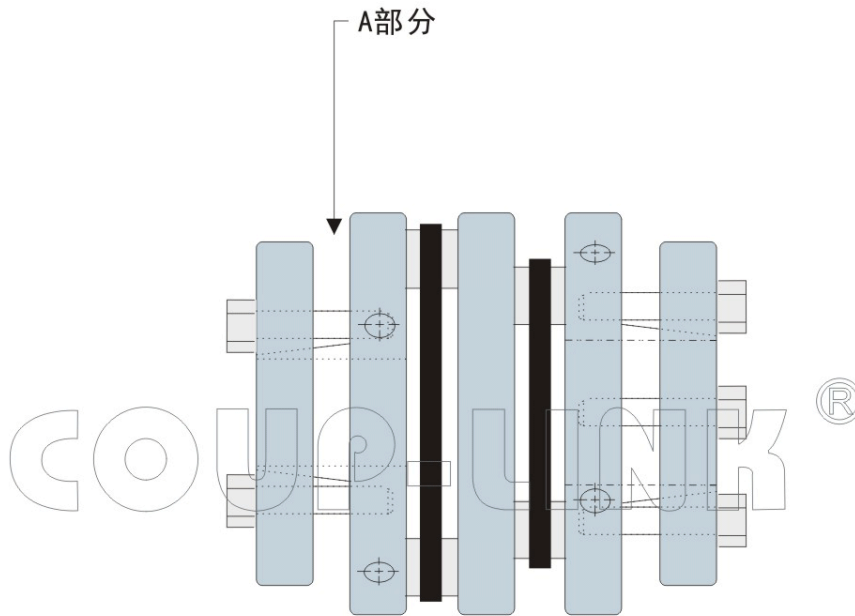
Because the sleeve of this fixed structure has self-locking function, only loosening the pressure bolt can not release the flange and shaft tightening (in some cases loosening the pressure bolt can release the tightening, so we should pay attention to it).

Therefore, when designing the device, be sure to leave a place for inserting the screw for demolition.



4.将2所松开的加压螺栓中的3根拔出,插入套筒上的拆卸用的螺丝孔内,依次一点点的拧紧,紧固就会解除。  
Pull out three of the two loosened pressure bolts and insert them into the screw hole for disassembly on the sleeve.  
Tighten them one by one, and the tightening will be relieved.

5.另一方法,将一字螺丝刀等的前端插入至A部(最好间隔180°两边同时插入),两边从垂直方向轻轻敲打轴,或者利用杠杆原理,解除紧固。此方法可能会损伤联轴器主体或者加压螺栓,因此请充分注意。  
Another way is to insert the front end of a screwdriver and so on into the A part (preferably at 180 degrees on both sides simultaneously), and gently tap the sides of the shaft from the vertical direction, or use the lever principle to relieve the fastening. This method may damage the main body of the coupling or the pressure bolt, so please pay attention to it.



# LK15

## 系列

II.多节胀套膜片联轴器

LK15 Series II.Locking Assemblies Coupling (Double Spring Plates)

### 特点 Features

- 利用胀套联接的膜片型联轴器
- 零回转间隙, 拆装方便
- 高灵敏度, 传递力矩大
- 顺时针与逆时针回转特性完全相同
- 不锈钢膜片补偿径向、角向和轴向偏差
- 常用于伺服电机、步进电机联接

- Using locking assemblies connect, spring plate coupling
- Zero backlash
- Excellent response and high torque capacity
- Identical clockwise and anticlockwise rotational characteristics
- Stainless steel spring plate absorb angular misalignment and shaft end-play
- For servo motor, step motor connection



一体化膜片组  
LK15-90~LK15-144  
LK15-90L~LK15-144L



主体:45#钢  
Body:C45 steel

LK15-56WP~LK15-144WP

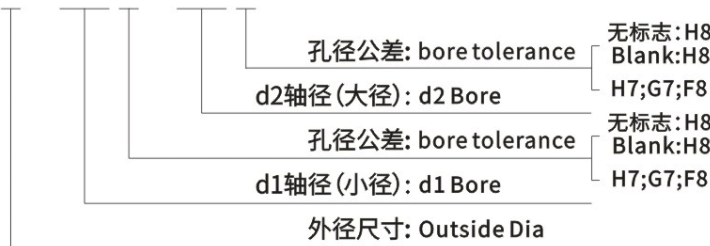


主体:45#钢  
Body:C45 steel

LK15-70LWP~LK15-144LWP

### 选型举例: Ordering Information

LK15 - □ - □□□ - □□□ WP



一体化膜片组  
LK15-56~LK15-80  
LK15-70L~LK15-80L

### 例: LK15-80-19-20WP

LK15: 系列号, 材料为45#钢

80: 外径尺寸: 80mm

19: d1孔径为: 19mm,孔公差H8

20: d2孔径为: 20mm, 孔公差H8

WP: 双膜片

孔径公称请按照d1(小径)-d2(大径)的顺序标示

#### Example: LK15-80-19-20WP

LK15: Series NO, material:C45steel

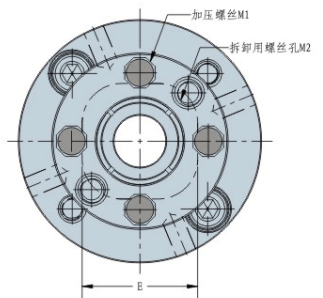
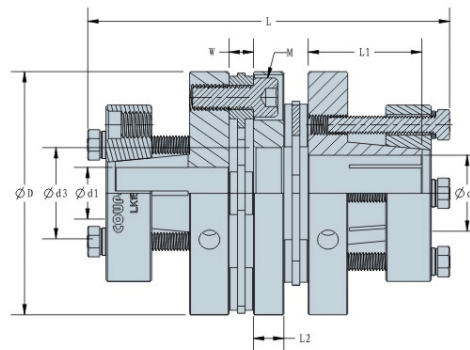
80: Outside Diam: 80mm

19: d1 Bore:19mm, H8

20: d2 Bore :20mm, H8

WP: Double spring plate

Please mark the bore diameter in the order of d1 (minor diameter) - d2 (major diameter)



## 外型尺寸 Dimensions

单位 (unit): mm

型号 Model	d1 · d2		ΦD	L	L1	L2	W	d3	E	M	M1	M2	拧紧力矩 Tightening Torque (N · m)
	最小孔径 Min · Bore	最大孔径 Max · Bore											
LK15-56-□□□-□□□WP	11	24	56	84	23.5	8	7	26.5	26	M5	4-M6	2-M8	10
LK15-70-□□□-□□□WP	14	35	70	84	23.5	8	7	35.5	31	M6	4-M6	2-M8	10
LK15-70L-□□□-□□□WP	14	35	70	108	35.5	8	7	35.5	31	M6	4-M6	2-M8	10
LK15-80-□□□-□□□WP	18	35	80	95	25	10	8	38.5	38	M8	4-M6	2-M8	10
LK15-80L-□□□-□□□WP	18	35	80	118	37.5	10	8	38.5	38	M8	4-M6	2-M8	10
LK15-90-□□□-□□□WP	28	48	90	96	25	10	8.5	48.5	43	M8	6-M6	3-M8	10
LK15-90L-□□□-□□□WP	28	48	90	133	44.5	10	8.5	48.5	43	M8	6-M6	3-M8	10
LK15-100-□□□-□□□WP	32	60	100	99	25	10	10	55.5	50	M8	6-M6	3-M8	10
LK15-100L-□□□-□□□WP	32	60	100	149	51	10	10	55.5	50	M8	6-M6	3-M8	10
LK15-126-□□□-□□□WP	35	65	126	137	38	13	12.5	70.5	60	M10	6-M8	3-M8	24
LK15-126L-□□□-□□□WP	35	65	126	187	64	13	12.5	70.5	60	M10	6-M8	3-M8	24
LK15-144-□□□-□□□WP	35	75	144	150	44	13	13	78.5	70	M12	6-M8	3-M10	24
LK15-144L-□□□-□□□WP	35	75	144	200	70	13	13	78.5	70	M12	6-M8	3-M10	24
LK15-152-□□□-□□□WP	40	80	152	158.7	46	18	13.5	82	85	M12	6-M8	3-M10	26
LK15-178-□□□-□□□WP	45	90	178	171.2	50	18	14	92	90	M12	6-M10	3-M12	40

说明:

1. 对于上表以外的孔径, 如需定货, 可另行提供服务, 请向本公司洽询。
2. 对方安装轴公差为h7, h8级, 如轴公差为其他公差, 请提供公差要求由厂家定做。

Note:

1. For other bore sizes which are not listed above, customized ones are available, please consult us.
2. Standard bore tolerance is for the shaft with tolerance h7 or h8, if other tolerance is required, please consult us.

## 标准孔径 Standard Bore Diameter

单位 (unit): mm

型号 Model	标准孔径 Standard Bore Diameter · d1 · d2 (mm)																														
	11	12	14	15	16	18	19	20	22	24	25	28	30	32	35	38	40	42	45	48	50	55	60	65	70	75	80	85	90		
LK15-56-□□□-□□□WP	●	●	●	●	●	●	●	●	●	●																					
LK15-70-□□□-□□□WP			●	●	●	●	●	●	●	●	●	●	●	●	●																
LK15-70L-□□□-□□□WP			●	●	●	●	●	●	●	●	●	●	●	●	●																
LK15-80-□□□-□□□WP						●	●	●	●	●	●	●	●	●	●																
LK15-80L-□□□-□□□WP						●	●	●	●	●	●	●	●	●	●																
LK15-90-□□□-□□□WP											●	●	●	●	●	●	●	●	●	●											
LK15-90L-□□□-□□□WP											●	●	●	●	●	●	●	●	●	●											
LK15-100-□□□-□□□WP														●	●	●	●	●	●	●	●	●	●	●							
LK15-100L-□□□-□□□WP														●	●	●	●	●	●	●	●	●	●	●							
LK15-126-□□□-□□□WP															●	●	●	●	●	●	●	●	●	●	●						
LK15-126L-□□□-□□□WP															●	●	●	●	●	●	●	●	●	●	●						
LK15-144-□□□-□□□WP															●	●	●	●	●	●	●	●	●	●	●	●	●	●			
LK15-144L-□□□-□□□WP															●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
LK15-152-□□□-□□□WP																	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
LK15-178-□□□-□□□WP																		●	●	●	●	●	●	●	●	●	●	●	●	●	●



# 技术参数 Specifications

单位 (unit): mm

型号 Model	额定扭矩 Rated Torque (N.m)	最高转速 Max. Rotational Frequency (rpm)	惯性力矩 Moment of Inertia (Kg.m <sup>2</sup> )	静态扭矩刚性 Static Torsional Stiffness (N.m/rad)	容许径向偏差 Errors of Eccentricity (mm)	容许角向偏差 Errors of Angularity (°)	容许轴向偏差 Errors of shaft End-play (mm)	重量 N.W. (g)
LK15-56-□□□-□□□WP	50	15000	$3.48 \times 10^{-4}$	22000	0.20	2	±1.0	780
LK15-70-□□□-□□□WP	70	13000	$8.65 \times 10^{-4}$	30000	0.25	2	±1.0	1200
LK15-70L-□□□-□□□WP	70	13000	$1.06 \times 10^{-3}$	34000	0.25	2	±1.0	1480
LK15-80-□□□-□□□WP	125	11000	$1.31 \times 10^{-3}$	32000	0.32	2	±1.0	1540
LK15-80L-□□□-□□□WP	125	11000	$1.58 \times 10^{-3}$	37000	0.32	2	±1.0	1890
LK15-90-□□□-□□□WP	180	10000	$2.52 \times 10^{-3}$	68000	0.32	2	±1.2	2070
LK15-90L-□□□-□□□WP	180	10000	$3.46 \times 10^{-3}$	78000	0.32	2	±1.2	2810
LK15-100-□□□-□□□WP	280	8000	$3.52 \times 10^{-3}$	79000	0.38	2	±1.3	2420
LK15-100L-□□□-□□□WP	280	8000	$5.91 \times 10^{-3}$	91000	0.38	2	±1.3	3660
LK15-126-□□□-□□□WP	450	10000	$1.23 \times 10^{-2}$	216000	0.38	2	±1.6	5300
LK15-126L-□□□-□□□WP	450	7000	$1.57 \times 10^{-2}$	248000	0.38	2	±1.6	5730
LK15-144-□□□-□□□WP	760	8000	$2.19 \times 10^{-2}$	380000	0.44	2	±2.0	7610
LK15-144L-□□□-□□□WP	760	6500	$2.95 \times 10^{-2}$	437000	0.44	2	±2.0	10100
LK15-152-□□□-□□□WP	860	6000	$2.92 \times 10^{-2}$	510000	0.53	2	±2.0	8670
LK15-178-□□□-□□□WP	1400	5000	$5.94 \times 10^{-2}$	575000	0.55	2	±2.0	13305

说明:

1. 惯性力矩和重量按最大孔径计算。
2. 扭矩刚性为单个元件的实测值。
3. 最高转速未考虑动平衡。

Note:

1. Moment of inertia and mass figures based on the maximum shaft bores.
2. Torque rigidity is the measured value of a single element.
3. The maximum speed does not consider dynamic balance.