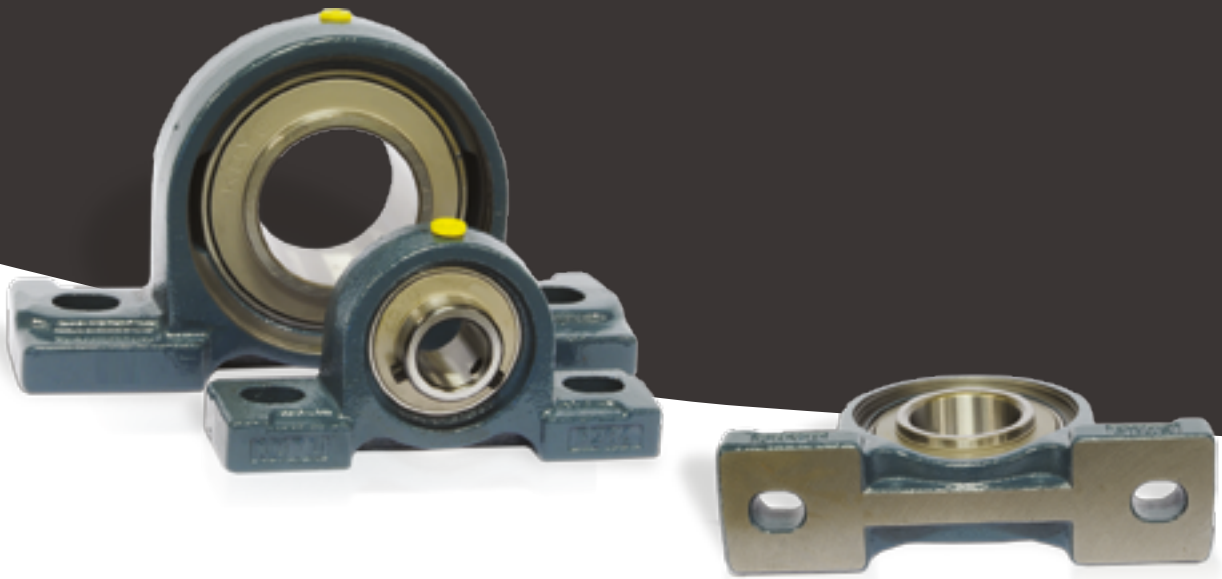


New

Koyo



JHS-3i New Pillow Blocks

JHS-3i Pillow Blocks

3 improvements...

- ✓ Optimized Performance Design – No Vibration + 30% stronger + 7% lighter
- ✓ New Seal Design – for High Performance Lubrication + extending Bearing Life
- ✓ Lithium Grease – High Load + Extreme Pressure + Water Resistant

Introduction

With a legacy of Quality & Performance, Koyo Ball Bearing Units are the most reliable products when it comes to accuracy and excellent load resistance. Ball bearing units consist of a housing with an installed bearing. They are available in a variety of materials and housings allowing easy handling and installation. With the introduction of our new JHS-3i Pillow Block Housing you can experience the quality.

Our new JHS-3i Pillow Block Housing offers very high load capacity and accuracy, self-aligning mechanism and optimal fit, superior sealing performance, easy lubrication, high rigid and strong housing and last but not least simple installation and handling. When customers experience our products, they experience quality.

3 Major Improvements → 3i

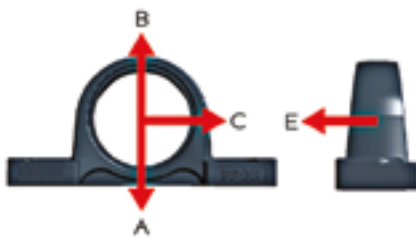
With 3 major improvements in the performance design, sealing and grease, we can ensure that our JHS-3i Pillow Block Housing will have a:

- ✓ High load capacity and accuracy
- ✓ Easy lubrication
- ✓ Self-aligning mechanism and optimal fit
- ✓ Highly rigid and strong housing
- ✓ Superior sealing performance
- ✓ Simple installation and handling

1. New Optimized Performance design

Pillow Block Housing with Flat Bottom Face Containing No Recess
The optimized performance design ensures a more secure and firm mounting of the pillow block on a frame. No vibration occurs because there is no clearance between the housing and the frame. The removal of conventional ribs of both sides and the increase of bolt area improved the workability. This is an epoch-making new housing that has enabled a 30% increase in strength despite of the removal of the ribs and a 7% lower weight.

Pillow Block Structural Strength Comparison



New design



Old design



Fig. 1: pillow block optimized design

Pillow Block Static Fracture Load comparison (KN)					
	A	B	C	E	Wt(g)
NEW P205	145	53	52	25	615
OLD P205	108	53	38	19	660

Fig. 2: Pillow block structural strength rating comparison

2. New Seal Design for high performance lubrication



Fig. 3: New seal design for lubrication

The new pressed seals have an inward facing lip which allows grease to flow back towards the balls and raceway during operation thereby improving lubrication performance and extending bearing life.

Unit/Insert Bearings, subject to new seal		
UC201~UC218	UCX05~UCX20	NA201~NA215
UK205~UK218	UKX05~UKX20	NC204~NC212

3. Upgrade in Lithium Bearing Grease

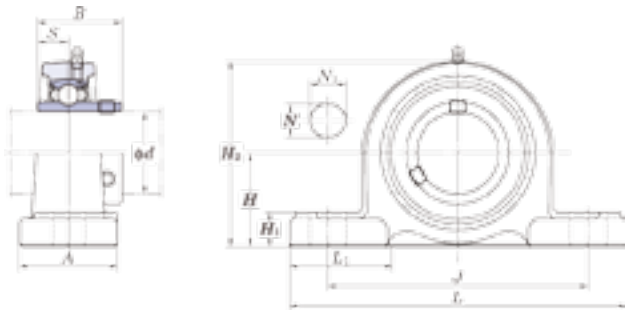
Upgrade in Lithium Bearing Grease → → → High Load - Extreme pressure - Water Resistant

Our ball bearing units are supplied with high quality Lithium Bearing grease and seals. The NLGI 2 lithium complex grease provides substantial improvements over general lithium soap based lubricants. It functions extremely well under a variety of high demanding operating conditions including wide temperature ranges, variable speeds, water contamination, vibration, extreme pressure, heavy -and shock loads. This Lithium grease is also compatible with the existing grease formula.

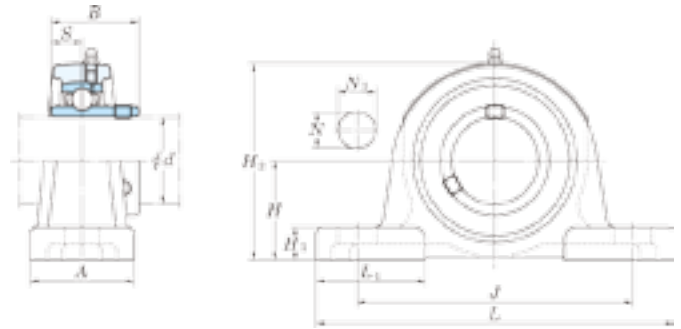


Comparison New and Old Pillow Blocks

Comparison Table of New and Old Pillow Block Bearing Units Dimensions



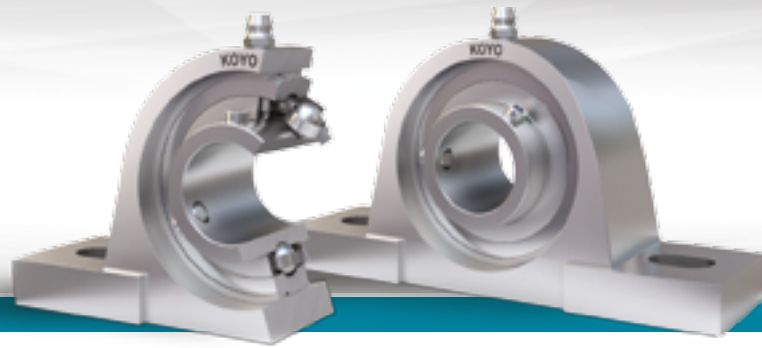
New (after the change)



Old (current version)

Unit No.	Type	Shaft diameter (mm)			Dimension (mm)								
		<i>d</i>	<i>H</i>	<i>L</i>	<i>A</i>	<i>J</i>	<i>N</i>	<i>N₁</i>	<i>H₁</i>	<i>H₂</i>	<i>L₁</i>	<i>B</i>	<i>S</i>
UCP201	New	12	30.2	127	38	95	13	18	16	60	36	31	12.7
	Old		30.2	127	38	95	13	18	12	60	38	31	12.7
UCP202	New	15	30.2	127	38	95	13	18	16	60	36	31	12.7
	Old		30.2	127	38	95	13	18	12	60	38	31	12.7
UCP203	New	17	30.2	127	38	95	13	18	16	60	36	31	12.7
	Old		30.2	127	38	95	13	18	12	60	38	31	12.7
UCP204	New	20	33.3	127	38	95	13	18	16	65	36	31	12.7
	Old		33.3	127	38	95	13	18	13	64	38	31	12.7
UCP205	New	25	36.5	140	38	105	13	18	16	70	38	34.1	14.3
	Old		36.5	140	38	105	13	18	13	71	43	34.1	14.3
UCP206	New	30	42.9	165	48	121	17	21	17	84	48	38.1	15.9
	Old		42.9	165	48	121	17	21	15	84	53	38.1	15.9
UCP207	New	35	47.6	167	48	127	17	21	18	95	47	42.9	17.5
	Old		47.6	167	48	127	17	21	16	93	51	42.9	17.5
UCP208	New	40	49.2	184	54	137	17	21	18	98	53	49.2	19
	Old		49.2	184	54	137	17	21	17	98	57	49.2	19
UCP209	New	45	54	190	54	146	17	21	20	106	55	49.2	19
	Old		54	190	54	146	17	21	17	106	60	49.2	19
UCP210	New	50	57.2	206	60	159	20	22	21	113	60	51.6	19
	Old		57.2	206	60	159	20	22	19	113	63	51.6	19
UCP211	New	55	63.5	219	60	171	20	22	23	125	65	55.6	22.2
	Old		63.5	219	60	171	20	22	19	125	70	55.6	22.2
UCP212	New	60	69.8	241	70	184	20	25	25	138	73	65.1	25.4
	Old		69.8	241	70	184	20	25	22	138	76	65.1	25.4
UCP213	New	65	76.2	265	70	203	25	30	27	150	78	65.1	25.4
	Old		76.2	265	70	203	25	30	25	150	78	65.1	25.4
UCP214	New	70	79.4	266	72	210	25	30	27	157	75	74.6	30.2
	Old		79.4	266	72	210	25	30	28	156	78	74.6	30.2
UCP215	New	75	82.6	275	74	217	25	30	28	162	78	77.8	33.3
	Old		82.6	275	74	217	25	30	28	162	80	77.8	33.3
UCP216	New	80	88.9	292	78	232	25	35	30	174	83	82.6	33.3
	Old		88.9	292	78	232	25	35	32	174	86	82.6	33.3
UCP217	New	85	95.2	310	83	247	25	40	32	185	87	85.7	34.1
	Old		95.2	310	83	247	25	40	32	185	90	85.7	34.1
UCP218	New	90	101.6	327	88	262	27	45	33	198	94	96	39.7
	Old		101.6	327	88	262	27	45	34	198	104	96	39.7

* Different dimension are indicated in red



Test Results “New Seal Design”

1. Dust resistance test

1.1 Test conditions

- (1) Test unit: UCFL205
- (2) Seal: Lip of new shape
- (3) Rotational speed: 510 r/min
- (4) Load: Belt tension
- (5) Fine particle: Abrasive

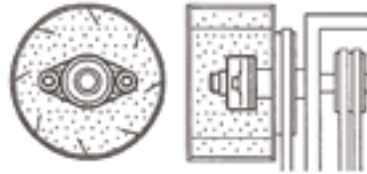


Fig. 4: Dust resistance test

1.2 Test results

Test	Test hours	Results
Product with a lip of new shape	1.000	After the test we have been investigating if fine particle has entered inside of the seal. It can be concluded that hardly any fine particle have been found. Moreover, significant degradation of grease or abrasion of raceway grooves on the inner/outer rings and balls have not been found.
	>2.000	No abnormality in the bearings have been found.
Current product	500	Unusual noise generation and dust has entered

2. Heat generation and torque test

2.1 Test conditions

- (1) Test unit: UC208
- (2) Seal: Lip of new shape
- (3) Rotational speed: Various speeds (start to 3.300 r/min.)
- (4) Load: No load

2.2 Test results

Table: Test results (rotating torque)

Unit: mNm

Spec.	Rotational speed (r/min.)							
	start	500	1.000	1.500	2.000	2.500	3.000	3.300
Current product	70	170	180	210	200	200	210	210
Product with a lip of new shape	50	120	130	170	170	180	180	190

→ The test results show that the rotational torque of the new design is reduced compared to the old design.

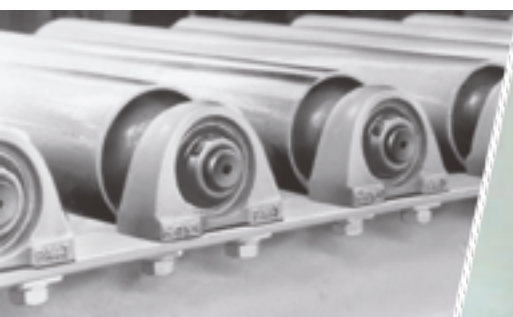
3. Conclusion

(1) Dust resistance test

An effect due to the design change is considered to be obtained because the test results shows the dust resistance is over two times larger than that of the current product.

(2) Rotating torque

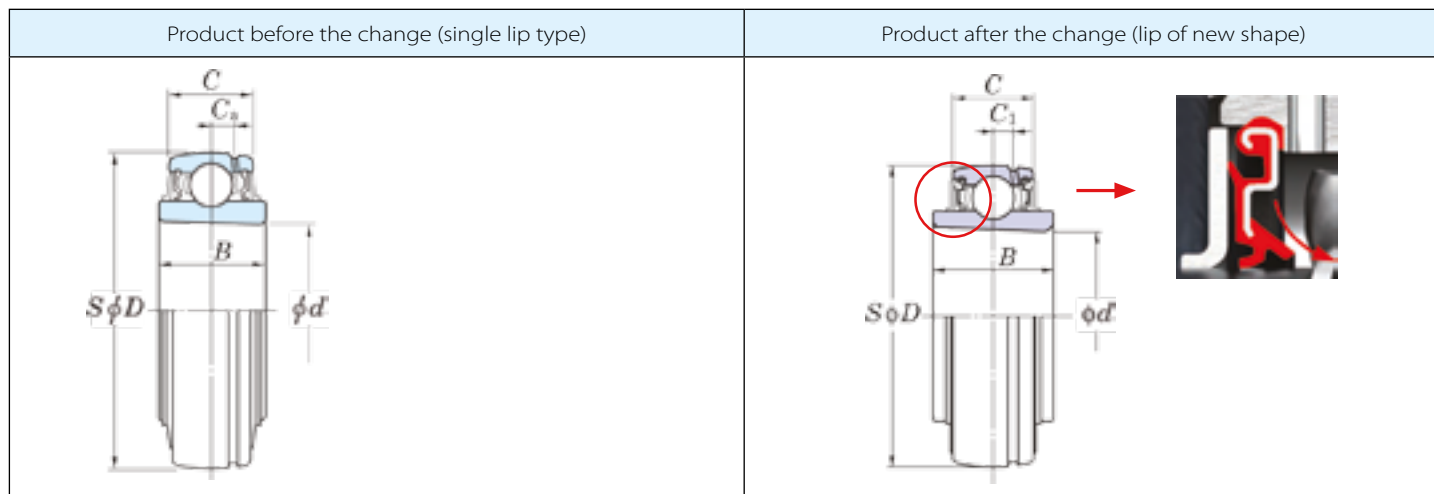
The change of the seal design has resulted in a lower rotating torque.



UK - UKX Series

1. Changing shape of seal

1.1 Changes made in the shape of the seal (applicable on UK series)



1.2 Changes made in the width of the inner ring and abolishment of H3 series of adapters subject to this design change

Table 2 shows the changing points in our UK series. (width and adapter)

Before the change				After the change			
Bearing number	Width B	Applicable adapter No.		Bearing number	Width B	Applicable adapter No.	
		(H23 series)	(H3 series)			(H23 series)	(H3 series)
UK205	21	H2305X	H305X	UK205	24	H2305X	-
UK206	23	H2306X	H306X	UK206	27	H2306X	-
UK207	26	H2307X	H307X	UK207	30	H2307X	-
UK208	27	H2308X	H308X	UK208	34	H2308X	-
UK209	29	H2309X	H309X	UK209	36	H2309X	-
UK210	29	H2310X	H310X	UK210	36	H2310X	-
UK211	31	H2311X	H311X	UK211	40	H2311X	-
UK212	33	H2312X	H312X	UK212	47	H2312X	-
UK213	36	H2313X	H313X	UK213	47	H2313X	-
UK215	40	H2315X	H315X	UK215	51	H2315X	-
UK216	42	H2316X	H316X	UK216	55	H2316X	-
UK217	44	H2317X	H317X	UK217	57	H2317X	-
UK218	48	H2318X	H318X	UK218	63	H2318X	-
UKX05	23	H2305X	-	UKX05	27	H2305X	-
UKX06	26	H2306X	-	UKX06	30	H2306X	-
UKX07	27	H2307X	-	UKX07	34	H2307X	-
UKX08	29	H2308X	-	UKX08	36	H2308X	-
UKX09	29	H2309X	-	UKX09	36	H2309X	-
UKX10	31	H2310X	-	UKX10	40	H2310X	-
UKX11	33	H2311X	-	UKX11	47	H2311X	-
UKX12	36	H2312X	-	UKX12	47	H2312X	-
UKX13	40	H2313X	-	UKX13	51	H2313X	-
UKX15	42	H2315X	-	UKX15	55	H2315X	-
UKX16	44	H2316X	-	UKX16	57	H2316X	-
UKX17	48	H2317X	-	UKX17	63	H2317X	-
UKX18	50	H2318X	-	UKX18	65	H2318X	-
UKX20	54	H2320X	-	UKX20	69	H2320X	-

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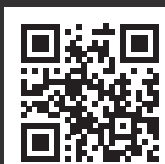
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