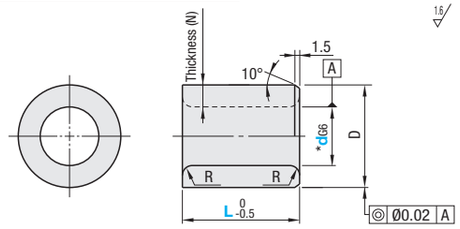
Bushings for Locating Pins
Copper Alloy, Straight / Flanged

Features: Suitable for preventing pin abrasion and rust since it is softer than steel.

Copper Alloy, Straight

Material	Type Dp6	Type Dm6
CAC304 (High-tensile Brass)	JBAD	JBADM



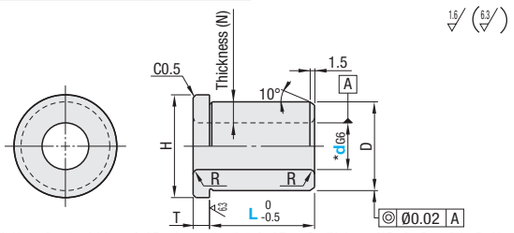
RoHS10

* For hole machining, please note that inner diameter shrinkage of p6 Type is more than that of m6 Type. (See "Variance of I.D. after Press-fitting Bushings for Locating Pins" below.)

Part Number Type	d	D Tolerance	L Selection	Thickness (N)	R	D	D Tolerance p6	D Tolerance m6	Unit Price JBAD	Unit Price JBADM
(Dp6) JBAD	5	G6 +0.012 +0.004	5 6 8 10 12 15	2.5	0.5	10	+0.024 +0.015	+0.015 +0.006		
	6		5 6 8 10 12 15 16	2						
	8	+0.014 +0.005	5 6 8 10 12 15 16 20	2		12	+0.029 +0.018	+0.018 +0.007		
	10		6 8 10 12 15 16 20 25	2.5		15				
	12		8 10 12 15 16 20 25 30	3	1	18				
(Dm6) JBADM	13	+0.017 +0.006	10 12 15 16 20 25 30	4.5		22	+0.035 +0.022	+0.021 +0.008		
	15		12 15 16 20 25 30	5		25				
	16		12 15 16 20 25 30	5		26				
	20	+0.020 +0.007	12 15 16 20 25 30	5	2	30				
	25		16 20 25 30 35	5		35	+0.042 +0.026	+0.025 +0.009		

Copper Alloy, Flanged

Material	Type Dp6	Type Dm6
CAC304 (High-tensile Brass)	JBHD	JBHDM



RoHS10

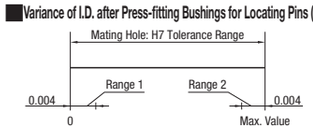
* For hole machining, please note that inner diameter shrinkage of p6 Type is more than that of m6 Type. (See "Variance of I.D. after Press-fitting Bushings for Locating Pins" below.)

Part Number Type	d	D Tolerance	L Selection	Thickness (N)	R	H	T	D	D Tolerance p6	D Tolerance m6	Unit Price JBHD	Unit Price JBHDM
(Dp6) JBHD	5	G6 +0.012 +0.004	5 6 8 10 12	2.5	0.5	14	3	10	+0.024 +0.015	+0.015 +0.006		
	6		5 6 8 10 12 15	2								
	8	+0.014 +0.005	5 6 8 10 12 15 16 20	2		16	4	12	+0.029 +0.018	+0.018 +0.007		
	10		6 8 10 12 15 16 20 25	2.5		19		15				
	12		8 10 12 15 16 20 25 30	3	1	22		18				
(Dm6) JBHDM	13	+0.017 +0.006	10 12 15 16 20 25 30	4.5		26	5	22				
	15		12 15 16 20 25 30	5		30		25	+0.035 +0.022	+0.021 +0.008		
	16		12 15 16 20 25 30	5				26				
	20	+0.020 +0.007	12 15 16 20 25 30	5	2	35	6	30				
	25		16 20 25 30 35	5		40		35	+0.042 +0.026	+0.025 +0.009		

Ordering Example

Part Number	-	L
JBAD6	-	10
JBHDM10	-	20

Variance of I.D. after Press-fitting Bushings for Locating Pins (Reference)



Housing Bore Diameter Tolerance: in Range 1

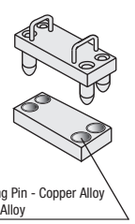
D Tolerance m6	D Tolerance p6
99.90%	99.83%

Housing Bore Diameter Tolerance: in Range 2

D Tolerance m6	D Tolerance p6
99.99%	99.92%

Data above are not guaranteed but experimental values.

Example



Bushing for Locating Pin - Copper Alloy
Bushings - Copper Alloy

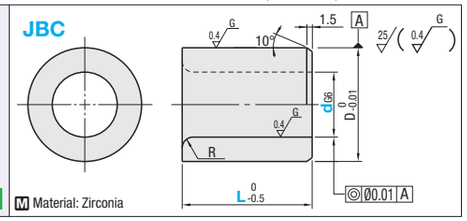
Bushings for Locating Pins
Ceramic / Inner Groove Straight / Shouldered

Features: Bushings for Locating Pins - Ceramics - excel in heat resistance, insulation, and abrasion resistance.

Ceramics

RoHS10

JBC



Material: Zirconia

Ordering Example

Part Number	-	L
JBC16	-	20

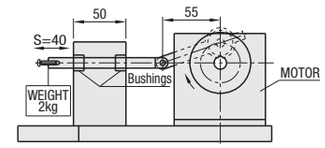
Part Number Type	dG6		L Selection	R	D	Unit Price JBC
JBC	6	+0.012 +0.004	8 10	1	10	
	8	+0.014 +0.005	10 12	2	12	
	10				15	
	12	+0.017 +0.006	10 12 16		18	
	13				22	
	15		16 20		25	
	16				26	
	20	+0.020 +0.007	20	3	30	

Avoid pressing Ceramic Bushing in. It may crack when struck hard. Use of Loctite is recommended.
Strength may degrade when used at the temperature over 100°C for extended durations, or when operating temperature varies from normal to high repeatedly.
For orders larger than indicated quantity, please request a quotation.

Properties

Item	Unit	Part Number JBC
Specific Gravity	g/cm²	6.0
Moisture Absorption Ratio	%	0
Vickers Hardness	HV	1300
Flexural Strength	kg/mm²	100
Linear Expansion Coefficient	x10⁻⁶/°C	10.0
Thermal Conductivity	cal/cm·sec·°C	0.007
Volume Inherent Resistivity	Ω·cm	3x10¹²

Bushings for Locating Pins - Ceramic Abrasion Data



Sample	Inner Diameter (Before Test)	Inner Diameter (After Test)	Difference
Ceramic JBC10-10	10.011	10.012	0.001
Steel JBA10-10	10.008	10.037	0.029

Test Conditions

<Measuring Method>
Apply load on the bush by reciprocating Ø10 round shaft with 40mm stroke with a 2kg weight on the end in the crank mechanism (left diagram).

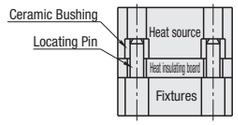
<Measuring Instrument Overview>
- Cranking Speed: 150rpm
- Round Shaft Stroke : 40mm
- Temperature : 25~27°C
- Operation Hours : 60 hours each
- Lubricant: JIS Machine Oil (Tellus 32) * drip-feed every 2 hours
- Ø10 Round Shaft Material: SK3 (No Heat Treatment)

Testing Results

Ceramics excel in abrasion resistance compared to steel. Suitable for long-term use with locating pins insertion and extraction, maintaining an excellent abrasion resistance.

Example

Automotive parts welding machine



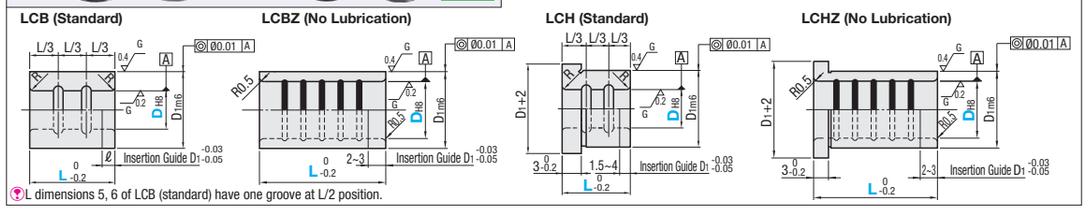
How to Mount: Set a plastic board. Using a plastic hammer, press Ceramic Bushing slightly in.
Circumstance: Set it between heat source and fixtures with high accuracy but transfer minimum heat to fixtures.

Straight

Shouldered

RoHS10

Material	Hardness	Type Straight	Type Shouldered
SUJ2	58HRC~	LCB	LCH
FC250 (Special Solid Lubricant)	-	LCBZ	LCHZ



L dimensions 5, 6 of LCB (standard) have one groove at L/2 position.

Straight

Part Number Type	DH8		L Selection	D1m6		ℓ	R	Unit Price LCB	Unit Price LCBZ
(Standard) LCB	5	+0.018 0	*5 *6 *8 *10 *12 *16	10	0.021	1.5	0.5		-
	6		6 8 10 *12 *16	12	0.025	2			
	8	+0.022 0	8 10 12 16 20	14		3	1		
	10			16					
	12	+0.027 0	10 12 16 20 25	18			1.2		
	13			22					
(No Lubrication) LCBZ	15		16 *20 25 30	25		4	1.5		
	16		16 20 25 30	26	0.029				
	20	+0.033 0		30			2		
	25		20 25 30 35	35	0.034				

L Dimensions marked with * are available for LCB only. For orders larger than indicated quantity, please check with WOS.

Shouldered

Part Number Type	DH8		L Selection	D1m6		ℓ	R	Unit Price LCH	Unit Price LCHZ
(Standard) LCH	5	+0.018 0	*8 *10 *12 *16	10	0.021	1.5	0.5		-
	6		8 10 *12 *16	12	0.025	2			
	8	+0.022 0	8 10 12 16 20	14		3	1		
	10			16					
	12	+0.027 0	10 12 16 20 25	18			1.2		
	13			22					
(No Lubrication) LCHZ	15		16 20 25 30	25		4	1.5		
	16		16 20 25 30	26	0.029				
	20	+0.033 0		30			2		
	25		20 25 30 35	35	0.034				

L Dimensions marked with * are available for LCH only. For orders larger than indicated quantity, please check with WOS.

Ordering Example

Part Number	-	L
LCB10	-	12
LCBZ12	-	20
LCH25	-	30
LCHZ25	-	35