

**ASAHI**

Cat.No.BE14



JQA-1973  
JQA-EM4783

# PLASTIC SERIES INSERT BALL BEARING UNITS

**NEW**

**STAINLESS STEEL INSERT  
BALL BEARINGS MOUNTED IN  
THERMOPLASTIC HOUSINGS!**

**ANTI-CORROSIVE  
WATER / CHEMICAL  
RESISTANT  
LIGHT-WEIGHT HOUSINGS**

FOR CHEMICAL APPARATUS  
TEXTILE, PACKAGING,  
FOOD PROCESSING MACHINERY



**ASAHI SEIKO CO., LTD.**

# Plastic Series INSERT BEARING UNITS

This plastic series unit is consisted of the stainless steel insert bearing and the thermoplastic housing. It is self-aligning and anti-corrosive. The insert bearing is factory-lubricated with FD grease.

**Feature 1 Highly anti-corrosive**

The stainless steel insert bearing and the thermoplastic housing are highly anti-corrosive and water/chemical resistant. The solid base housing does not easily allow bacteria to propagate and keeps good hygienic condition.

**Feature 2 Applicable to food processing machinery**

The MB series stainless steel insert bearing is filled with food grease, which conforms to RoHS Directive, and it meets the food processing application. The bearing unit can be equipped with open and closed covers for safety as well as to prevent dust.

**Feature 3 Back-seal is available**

Back seal can be accommodated to the back side of the flange type bearing units for a prevention against dust and humidity.



## 1. MATERIAL

Table 1

Parts		Materials	
Bearing	Inner & outer rings	Stainless steel	SUS440C (equiv.)
	Ball		SUS440C
	Set-screw		SUS304
	Retainer	Nylon	—
	Rubber seal	Nitril rubber	—
Housing	Housing	Thermoplastic	—
	Bolt hole bushing	Stainless steel	SUS304
	Grease nipple holder		SUS303
	Grease nipple	Copper alloy (nickel plated)	—

## 2. NOMENCLATURE

Part number explanation

**MBFPL 205C-BGA-FD**

- with food grade grease
- with a grease hole and a locking pin
- with an open cover
- Inside diameter (25mm bore)
- 200 series
- Housing (Thermoplastic square flange)
- Stainless steel insert ball bearing

### 3. ANTI-CORROSION

**Table 2**

◎very good ○good △no good ▲bad ×very bad

Unit No.	Material	Environment						
		Dry	Humid	Fresh water	Salt water	Nitric acid	Sulfuric acid	Hydrochloric acid
MBPPL	Stainless steel <b>SUS440C</b> (equiv.)	○	△	△	▲	▲	×	×
	Stainless steel <b>SUS304</b>	◎	◎	◎	○	◎	○	△
	Thermoplastic	◎	◎	◎	◎	▲	○	○
UCP (for comp.)	High carbon chromium bearing steel <b>SUJ2</b>	△	▲	▲	×	×	×	×
	Grey cast iron <b>FC200</b>	△	×	×	×	×	×	×

### 4. TOLERANCE

**Table 3**

Unit :  $\mu\text{m}$

Bearing No. (MB)	Bearing inner ring					Housing	
	Deviation of mean bore diameter in plane of inner ring $\Delta\text{dmp}$		Variation of bore diameter in plane of inner ring $\text{Vdsp}$	Deviation of inner ring width $\Delta\text{Bs}$ (Ref.)		Housing No. (PPL)	Deviation of distance between mounting base and spherical-seat center for pillow block $\Delta\text{Hs}$
	High	Low	High	Low	Max.		
4~6	+ 18	0	12	0	-120	204~208	$\pm 300$
7~8	+ 21	0	14	0	-120		

### 5. TIGHTENING TORQUES

**Table 4**

Bearing			Housing			
Bearing No. (MB)	Spanner No.	Tightening torque (N · m)	Housing No. (PPL,FPL,NFL,FBL)	Fixing bolt		Tightening torque (N · m)
				PPL	FPL,NFL,FBL	
4	2.5	2.4	204 205	M10	M10	17.7
5						24.5
6	3	3.9	206 207 208	M12	M12	29.4
7						35.3
8						45.1

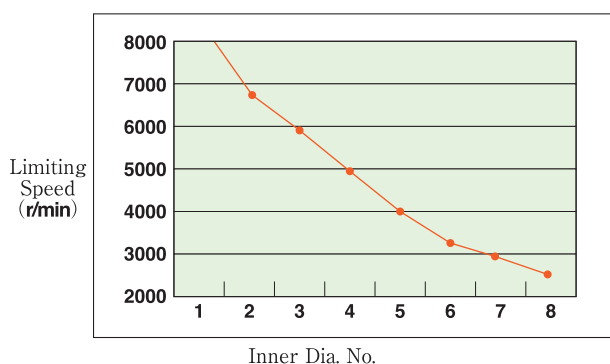
### 6. STATIC BREAKING STRENGTH OF HOUSING

**Table 5**

Unit : kN

Type	PPL			FPL		NFL	FBL	HPL	TPL	TBL		
Size												
	$W_u, W_b$	$W_s$	$W_t$	$W_b$	$W_t$	$W_b$	$W_p$	$W_p$	$W_p$	$W_u, W_b$	$W_s$	$W_t$
204	7.7	8.8	5	15.9	3.6	8.5	9.2	14.8	14.8	6.9	8.2	3
205	10	13.7	8.1	13	3.3	11.1	11.1	15.5	15.5	7	8.5	2.8
206	10.6	12.6	5.7	18	3.3	14.2	11.8	15.8	15.8	6.6	10.4	4.9
207	10.8	12.7	7.5	18.5	3.5	14.9	11.9	16.5	16.5	8.1	12.1	8.1
208	11.1	13.1	8.5	19.1	3.8	15.1	—	17.3	17.3	9.1	12.2	9.8

### 7. LIMITING SPEED

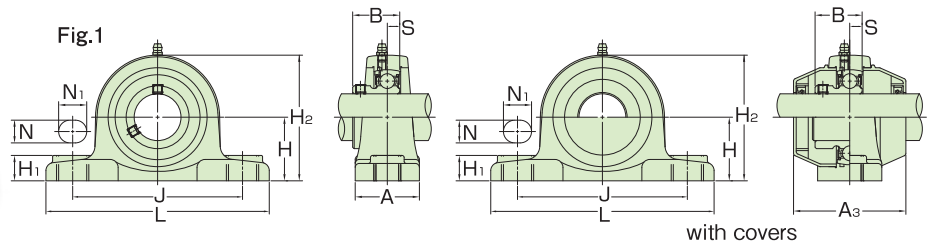
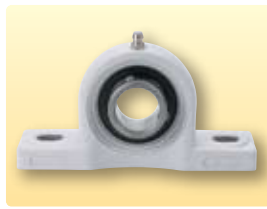


### 8. RANGE OF OPERATING TEMPERATURE

- 12 to + 80 °C

# Plastic Series INSERT BEARING UNITS

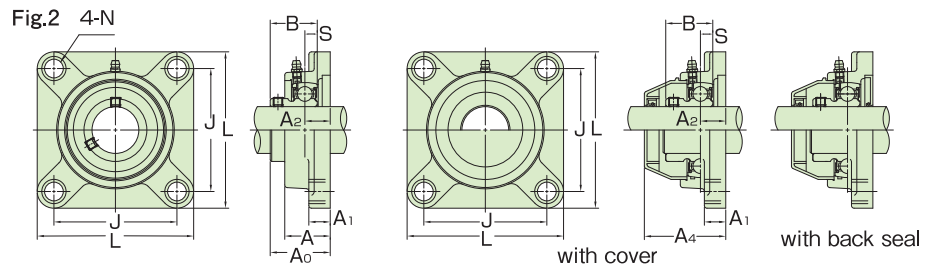
## 9. DIMENSIONS PILLOW BLOCKS MBPPL200BGA-FD



Shaft Dia. (mm)	Unit No.	Dimensions (mm)											Bolt Size
		H	L	J	A	N	N <sub>1</sub>	H <sub>1</sub>	H <sub>2</sub>	B	S	A <sub>3</sub>	
20	MBPPL204BGA-FD	33.3	127	95	38	11	14	14.2	65.5	24.7	7	63	M10
25	MBPPL205BGA-FD	36.5	140.5	105	38	11	14	14.5	71	27	7.5	67	M10
30	MBPPL206BGA-FD	42.9	163	119	46	14	18	17.8	84	30.3	8	79	M12
35	MBPPL207BGA-FD	47.6	168	127	48	14	18	18	94.5	32.9	8.5	88	M12
40	MBPPL208BGA-FD	49.2	184	137	54	14	18	19.5	99	35.5	9	103	M12

Shaft Dia. (mm)	Bearing		Housing No.	Unit No. with Cover		Weight (kg)		
	No.	Basic Load Rating (kN)		Open Cover	Closed Cover	Standard	with Covers	
								Cr
20	MB4BGA-FD	10.9	5.3	PPL204	MBPPL204C-BGA-FD	MBPPL204E-BGA-FD	0.24	0.27
25	MB5BGA-FD	11.9	6.3	PPL205	MBPPL205C-BGA-FD	MBPPL205E-BGA-FD	0.3	0.33
30	MB6BGA-FD	16.7	9	PPL206	MBPPL206C-BGA-FD	MBPPL206E-BGA-FD	0.46	0.5
35	MB7BGA-FD	22	12.3	PPL207	MBPPL207C-BGA-FD	MBPPL207E-BGA-FD	0.63	0.68
40	MB8BGA-FD	24.9	14.3	PPL208	MBPPL208C-BGA-FD	MBPPL208E-BGA-FD	0.8	0.86

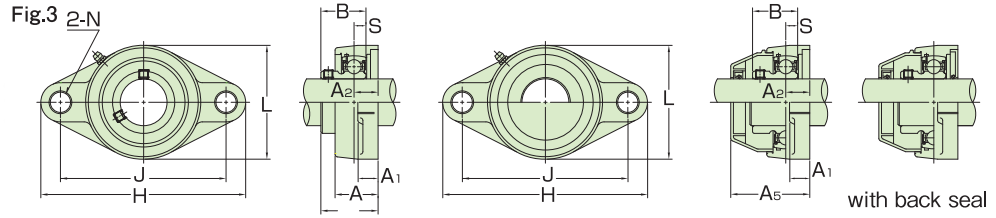
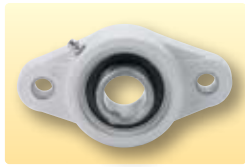
## SQUARE FLANGE UNITS MBFPL200BGA-FD



Shaft Dia. (mm)	Unit No.	Dimensions (mm)										Bolt Size
		L	J	A <sub>2</sub>	A <sub>1</sub>	A	N	A <sub>0</sub>	B	S	A <sub>4</sub>	
20	MBFPL204BGA-FD	87	63.5	18	13.4	27.8	11	35.7	24.7	7	48	M10
25	MBFPL205BGA-FD	95	70	17	14.3	28	11	36.5	27	7.5	49	M10
30	MBFPL206BGA-FD	107	83	19.2	14.3	31.5	11	41.5	30.3	8	58	M10
35	MBFPL207BGA-FD	118	92	21.5	15.5	34.8	13	45.9	32.9	8.5	62	M12
40	MBFPL208BGA-FD	130	102	23	17	37.5	14	49.5	35.5	9	71	M12

Shaft Dia. (mm)	Bearing		Housing No.	Unit No. with Cover		Weight (kg)		
	No.	Basic Load Rating (kN)		Open Cover	Closed Cover	Standard	with Cover	
								Cr
20	MB4BGA-FD	10.9	5.3	FPL204	MBFPL204C-BGA-FD	MBFPL204E-BGA-FD	0.19	0.22
25	MB5BGA-FD	11.9	6.3	FPL205	MBFPL205C-BGA-FD	MBFPL205E-BGA-FD	0.27	0.3
30	MB6BGA-FD	16.7	9	FPL206	MBFPL206C-BGA-FD	MBFPL206E-BGA-FD	0.38	0.42
35	MB7BGA-FD	22	12.3	FPL207	MBFPL207C-BGA-FD	MBFPL207E-BGA-FD	0.55	0.6
40	MB8BGA-FD	24.9	14.3	FPL208	MBFPL208C-BGA-FD	MBFPL208E-BGA-FD	0.74	0.8

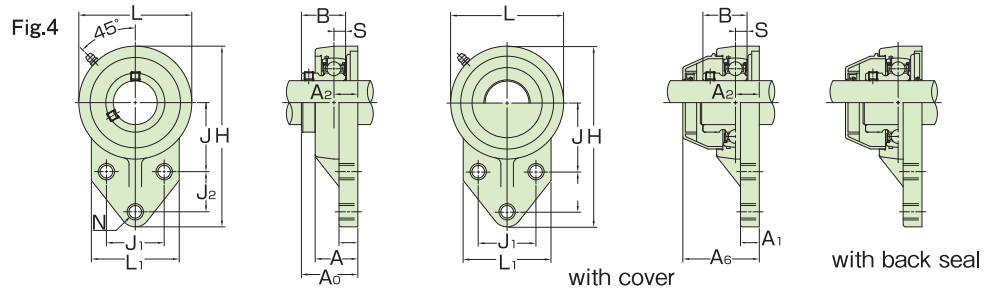
## TWO-BOLT FLANGE UNITS MBNFL200BGA-FD



Shaft Dia. (mm)	Unit No.	Dimensions (mm)											Bolt Size
		H	J	A <sub>2</sub>	A <sub>1</sub>	A	N	L	A <sub>0</sub>	B	S	A <sub>5</sub>	
20	MBNFL204BGA-FD	114	90	15.4	11.4	26.5	11	65	33.1	24.7	7	47	M10
25	MBNFL205BGA-FD	131	99	17	13.5	29.1	11	69.5	36.5	27	7.5	50	M10
30	MBNFL206BGA-FD	148	117	19	13.3	30.5	11	80	41.3	30.3	8	57	M10
35	MBNFL207BGA-FD	164	130	18	16.1	32.8	13	90	42.4	32.9	8.5	60	M12
40	MBNFL208BGA-FD	176	144	21.5	20	37.5	14	100	48	35.5	9	71	M12

Shaft Dia. (mm)	Bearing			Housing No.	Unit No. With Cover		Weight (kg)	
	No.	Basic Load Rating (kN)			Open Cover	Closed Cover	Standard	With Cover
		Cr	Cor					
20	MB4BGA-FD	10.9	5.3	NFL204	MBNFL204C-BGA-FD	MBNFL204E-BGA-FD	0.19	0.22
25	MB5BGA-FD	11.9	6.3	NFL205	MBNFL205C-BGA-FD	MBNFL205E-BGA-FD	0.27	0.3
30	MB6BGA-FD	16.7	9	NFL206	MBNFL206C-BGA-FD	MBNFL206E-BGA-FD	0.38	0.42
35	MB7BGA-FD	22	12.3	NFL207	MBNFL207C-BGA-FD	MBNFL207E-BGA-FD	0.55	0.6
40	MB8BGA-FD	24.9	14.3	NFL208	MBNFL208C-BGA-FD	MBNFL208E-BGA-FD	0.74	0.8

## **NEW** BRACKET FLANGE UNITS MBFBL200BGA-FD



Shaft Dia. (mm)	Unit No.	Dimensions (mm)														Bolt Size
		H	L	J	J <sub>1</sub>	J <sub>2</sub>	A <sub>1</sub>	A	N	L <sub>1</sub>	A <sub>2</sub>	A <sub>0</sub>	B	S	A <sub>6</sub>	
20	MBFBL204BGA-FD	108	63.5	42.9	38.1	22.2	11.4	26.5	10.7	62	15.4	33.1	24.7	7	47	M10
25	MBFBL205BGA-FD	120.6	70	46	41.3	28.6	11.4	34	10.7	63.5	21.5	41	27	7.5	55	M10
30	MBFBL206BGA-FD	138.5	83	52.4	47.6	31.8	13.3	32	10.7	76	19.3	41.6	30.3	8	58	M10
35	MBFBL207BGA-FD	157	95	60.3	50.8	31.8	16.1	36.5	13.1	89	21.7	46.1	32.9	8.5	64	M12

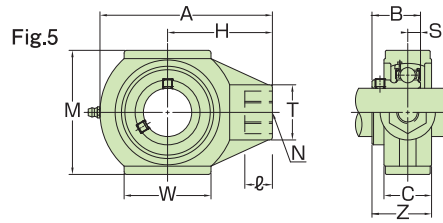
Shaft Dia. (mm)	Bearing			Housing No.	Unit No. With Cover		Weight (kg)	
	No.	Basic Load Rating (kN)			Open Cover	Closed Cover	Standard	With Cover
		Cr	Cor					
20	MB4BGA-FD	10.9	5.3	FBL204	MBFBL204C-BGA-FD	MBFBL204E-BGA-FD	0.21	0.24
25	MB5BGA-FD	11.9	6.3	FBL205	MBFBL205C-BGA-FD	MBFBL205E-BGA-FD	0.27	0.3
30	MB6BGA-FD	16.7	9	FBL206	MBFBL206C-BGA-FD	MBFBL206E-BGA-FD	0.4	0.44
35	MB7BGA-FD	22	12.3	FBL207	MBFBL207C-BGA-FD	MBFBL207E-BGA-FD	0.56	0.61

Please note that the dimensions are different from those of cast iron housing FK200 series.

# Plastic Series INSERT BALL BEARING UNIT

**NEW**

## HANGER UNITS MBHPL200BGA-FD

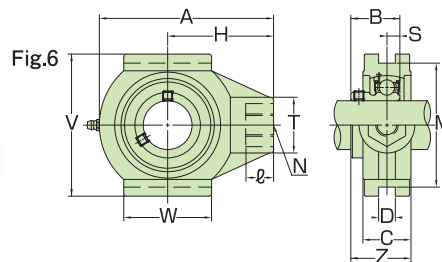


Shaft Dia. (mm)	Unit No.	Dimensions (mm)											Bearing			Housing No.	Weight (kg)
		A	M	C	H	T	W	B	S	Z	N	l	No.	Basic Load Rating (kN)			
		Cr	Cor														
20	MBHPL204BGA-FD	99	65	27.5	63.5	36	47	24.7	7	31.5	M16x2	21	MB4BGA-FD	10.9	5.3	HPL204	0.31
25	MBHPL205BGA-FD	99	74	27.5	63.5	36	47	27	7.5	33.3	M16x2	21	MB5BGA-FD	11.9	6.3	HPL205	0.37
30	MBHPL206BGA-FD	125	90	34.5	76	40	63	30.3	8	39.6	M16x2	21	MB6BGA-FD	16.7	9	HPL206	0.49
35	MBHPL207BGA-FD	125	90	34.5	76	40	63	32.9	8.5	41.7	M16x2	21	MB7BGA-FD	22	12.3	HPL207	0.70
40	MBHPL208BGA-FD	140	100	34.5	85	40	80	35.5	9	43.8	M16x2	21	MB8BGA-FD	24.9	14.3	HPL208	0.82

\* Thermoplastic covers are available. Please let us know when needed.

**NEW**

## TAKE-UP UNITS MBTPL200BGA-FD

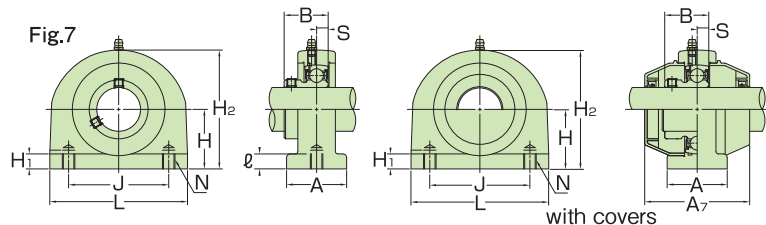


Shaft Dia. (mm)	Unit No.	Dimensions (mm)											Bearing			Housing No.	Weight (kg)		
		A	V	C	D	H	M	T	W	B	S	Z	N	l	No.			Basic Load Rating (kN)	
		Cr	Cor																
20	MBTPL204BGA-FD	99	89	27.5	12	64	76	36	47	24.7	7	31.5	M16x2	21	MB4BGA-FD	10.9	5.3	TPL204	0.31
25	MBTPL205BGA-FD	99	89	27.5	12	64	76	36	47	27	7.5	33.3	M16x2	21	MB5BGA-FD	11.9	6.3	TPL205	0.37
30	MBTPL206BGA-FD	125	102.5	34.5	12	76	89	40	63	30.3	8	39.6	M16x2	21	MB6BGA-FD	16.7	9	TPL206	0.49
35	MBTPL207BGA-FD	125	102.5	34.5	12	76	89	40	63	32.9	8.5	41.7	M16x2	21	MB7BGA-FD	22	12.3	TPL207	0.70
40	MBTPL208BGA-FD	140	113	34.5	16	85	102	40	80	35.5	9	43.8	M16x2	21	MB8BGA-FD	24.9	14.3	TPL208	0.82

\* Thermoplastic covers are available. Please let us know when needed.

**NEW**

## PILLOW BLOCKS MBTBL200BGA-FD



Shaft Dia. (mm)	Unit No.	Dimensions (mm)										
		H	L	A	J	N	l	H <sub>1</sub>	H <sub>2</sub>	B	S	A <sub>7</sub>
20	MBTBL204BGA-FD	33.3	72.8	34.5	50.8	M8x1.25	12	13	66	24.7	7	64
25	MBTBL205BGA-FD	36.5	76.2	39.5	50.8	M10x1.5	12	14	73.5	27	7.5	68
30	MBTBL206BGA-FD	42.9	101	42.5	76.2	M10x1.5	12	16	84	30.3	8	80
35	MBTBL207BGA-FD	47.6	110	47.5	82.6	M10x1.5	15.5	18.5	95	32.9	8.5	87
40	MBTBL208BGA-FD	49.2	120	48	88.9	M12x1.75	16	22.5	100.5	35.5	9	102

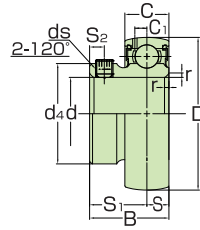
Shaft Dia. (mm)	Bearing		Housing No.	Unit No. With Covers		Weight (kg)		
	No.	Basic Load Rating (kN)		Open Cover	Closed Cover	Standard	with covers	
								Cr
20	MB4BGA-FD	10.9	5.3	TBL204	MBTBL204C-BGA-FD	MBTBL204E-BGA-FD	0.32	0.35
25	MB5BGA-FD	11.9	6.3	TBL205	MBTBL205C-BGA-FD	MBTBL205E-BGA-FD	0.37	0.4
30	MB6BGA-FD	16.7	9	TBL206	MBTBL206C-BGA-FD	MBTBL206E-BGA-FD	0.49	0.53
35	MB7BGA-FD	22	12.3	TBL207	MBTBL207C-BGA-FD	MBTBL207E-BGA-FD	0.7	0.75
40	MB8BGA-FD	24.9	14.3	TBL208	MBTBL208C-BGA-FD	MBTBL208E-BGA-FD	0.82	0.88

\* The dimensions are different from those of cast iron housing PA200 series.

## INSERT BALL BEARINGS MB0BGA-FD



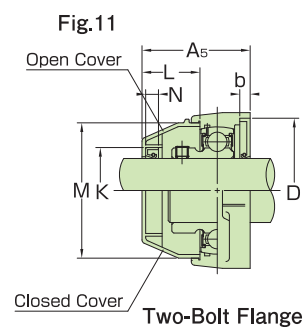
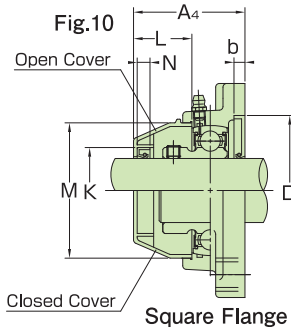
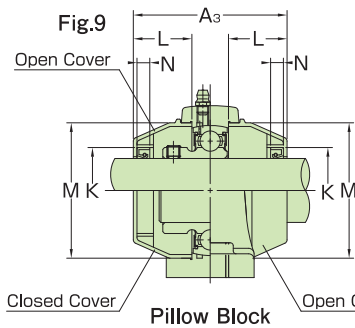
Fig.8



Shaft Dia. (mm)	Bearing No.	Dimensions (mm)											Basic Load Rating		Weight (kg)
		d	D	B	C	r <sub>sm</sub>	S	S <sub>1</sub>	S <sub>2</sub>	ds	C <sub>1</sub>	d <sub>4</sub>	Cr	Cor	
20	MB4BGA-FD	20	47	24.7	14	1	7	17.7	4.5	M5×0.8	4.1	29	10.9	5.3	0.12
25	MB5BGA-FD	25	52	27	15	1	7.5	19.5	5	M6×0.75	4.1	34	11.9	6.3	0.16
30	MB6BGA-FD	30	62	30.3	16	1	8	22.3	5	M6×0.75	4.9	40.5	16.7	9	0.25
35	MB7BGA-FD	35	72	32.9	17	1.5	8.5	24.4	6	M8×1	5.4	48	22	12.3	0.38
40	MB8BGA-FD	40	80	35.5	18	1.5	9	26.5	8	M8×1	5.9	53	24.9	14.3	0.49

1.Dimension "r<sub>sm</sub>"is the minimum allowable value of chamfer dimension "r".

## THERMOPLASTIC COVER



Shaft Dia. (mm)	Open Cover	Closed Cover	Back Seal	Dimensions (mm)								
				K	N	L	M	D	b	A <sub>3</sub>	A <sub>4</sub>	A <sub>5</sub>
20	204PLC	204PLE	BS204	32	7	23	50	52	6	63	48	47
25	205PLC	205PLE	BS205	37	7	25	55	62	6	67	49	50
30	206PLC	206PLE	BS206	42	7	30	64	72	6	79	58	57
35	207PLC	207PLE	BS207	47	7	32	74.5	82	6	88	62	60
40	208PLC	208PLE	BS208	52	7	37	84	88	6	103	71	71

## Important

1. The Table 6 shows the average values of the static breaking strength of the thermoplastic housings measured in the normal temperature. Therefore, they can vary to the operating temperature and the load type and direction. Also, the housing must not be hit strongly as it can be damaged or broken as long as it is made of polyester resin.
2. The plastic series bearing unit may generate static electricity. So, we recommend to electrically ground it. It cannot be used for such applications that never allow the static electricity generation.
3. The MB type insert bearings are factory-lubricated with FD grease (See the suffix 'FD' to the bearing number), which is Food Grade grease authorized by USDA (United States Department of Agriculture) and approved as USDA H-1 grade grease. The grease is safe, but be careful not to let it touch the food if the grease flows out of the bearing.
4. Back seal is available with the flange type units like MBFPL, MBNFL and MBFBL series. Please consult with us when needed.
5. The MB type insert bearing can be replaced by another stainless steel insert bearing series MUC type. In this case, the back seal, which is applicable to flange type bearing units, cannot be equipped due to the difference of design between MB and MUC type bearings.
6. Tighten properly two set-screws evenly with the recommended tightening torque as shown as per the Table 5 just in order to prevent the set-screws from being loosened due to vibration during operation and also to prevent the inner ring crack due to the over-tightening of the set-screws.
7. Tighten properly the fixing bolts evenly with the recommended tightening torque also as shown as per the Table 5 just in order to prevent the housing deformation that may be caused by over-tightening of the fixing bolt.
8. Some of the bolt sizes are different from those of the cast iron housing bearing units.
9. Specifications may change without prior notice.

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# ASAHI SEIKO CO., LTD.

<http://www.asahiseiko.co.jp>

**FOREIGN TRADE DEPARTMENT** : 570-1, Otori-Higashi-machi 6-cho, Nishi-ku, Sakai City,  
Osaka 593-8324, Japan

Tel : +81-72-272-6900

Fax : +81-72-272-6903

e-mail address : [info@asahiseiko.co.jp](mailto:info@asahiseiko.co.jp)

**U.S.A. OFFICE** : 570 North Wheeling Road, Mount Prospect, Illinois 60056 U.S.A.

Tel : +1-847-759-0620

Fax : +1-847-759-0630

**CHINA OFFICE** : Room # 20C, Secondary Building, Lvjingguangchang,  
Chegongmiao, Shennan Road, Futian District, Shenzhen City,  
Guangdong Province, China.518048

Tel : +86-755-23902930 23605690 23605700

Fax : +86-755-23607911

**HEAD OFFICE & FACTORY** : 570-1, Otori-Higashi-machi 6-cho, Nishi-ku, Sakai City,  
Osaka 593-8324, Japan

Tel : +81-72-271-1221

Fax : +81-72-273-0058