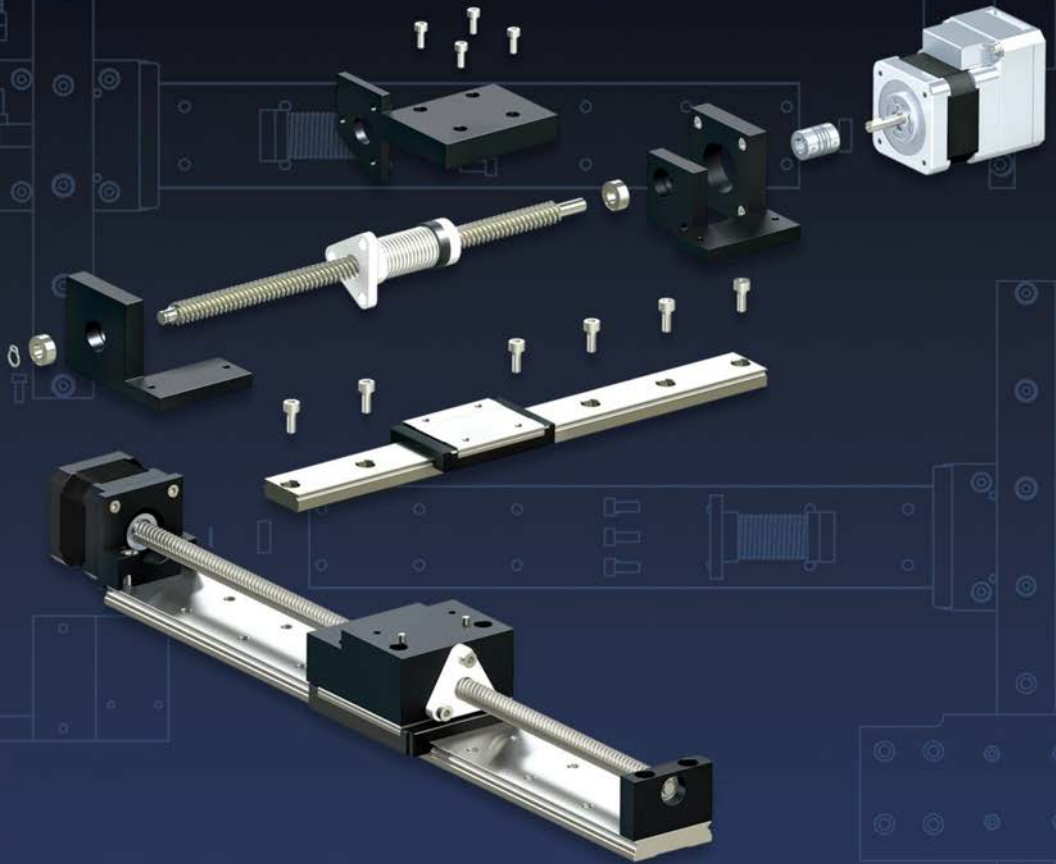




# RELIANCE™

P R E C I S I O N



Precise Motion Control Solutions  
*Bearings and Spacers*



## Section Contents

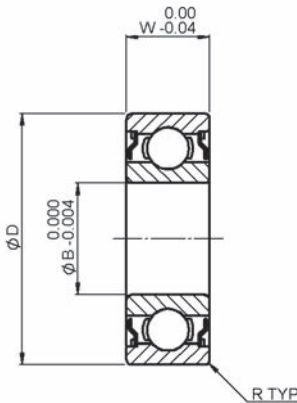
Ball Bearings - P4.....	Page 12-2
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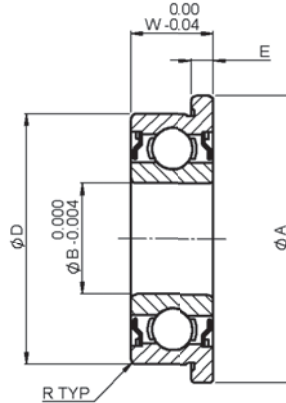
All dimensions in mm  
 Generally in accordance with ISO 492,  
 tolerance class 4  
 Material: X65Cr13 stainless steel

### Associated Products

Shafts: [page 11-2](#)  
 Bearing pre-load washers: [page 12-5](#)  
 Bearing spacers: [page 12-6](#)



Plain



Flanged

## Part number selection table

Part Number		Dimensions									Specification		
Plain	Flanged	Bore Dia ØB	O/D ØD		Width W	Radii R (min)		Flange Dia ØA		Flange Width E		Load Ratings N	
			Max	Min		Max	Min	Max	Min	Max	Min	Dynamic C	Static Co
<a href="#">B1-102-S-P4</a>	<a href="#">B2-102-S-P4</a>	2	5	4.996	2.3	0.08	6.15	6.05	0.6	0.56	192	59	
<a href="#">B1-103-S-P4</a>	<a href="#">B2-103-S-P4</a>	3	7	6.996	3.0	0.10	8.15	8.05	0.8	0.76	432	149	
<a href="#">B1-104-S-P4</a>	<a href="#">B2-104-S-P4</a>	4	9	8.996	4.0	0.10	10.35	10.25	1.0	0.96	658	226	
<a href="#">B1-105-S-P4</a>	<a href="#">B2-105-S-P4</a>	5	11	10.996	5.0	0.15	12.55	12.45	1.0	0.92	734	282	
<a href="#">B1-106-S-P4</a>	<a href="#">B2-106-S-P4</a>	6	13	12.996	5.0	0.15	15.05	14.95	1.1	1.02	1096	437	
<a href="#">B1-108-S-P4</a>	<a href="#">B2-108-S-P4</a>	8	16	15.996	6.0	0.20	18.05	17.95	1.3	1.22	1795	776	
<a href="#">B1-110-S-P4</a>	<a href="#">B2-110-S-P4</a>	10	19	18.995	7.0	0.30	21.05	20.95	1.5	1.38	1922	915	

Bearings and Spacers

### **i** Features and options

- Operating temperature range: -73°C to +121°C
- Lubricant: grease to MIL-G-21164 and MIL-G-23827
- Double shielded
- Imperial sizes available

### **?** Technical support

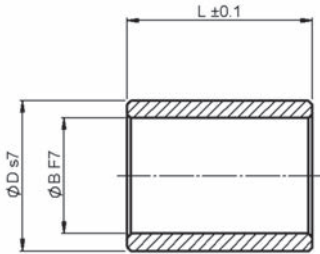
- Spur gear and bearing load calculation - see [page T12-1](#)
- Bearing force sharing - see [page T12-3](#)
- Bearing installation and housing considerations - see [page T12-4](#)



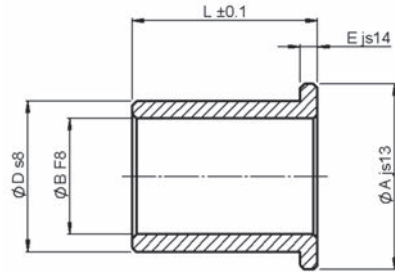


Associated Products  
Shafts: page 11-2

All dimensions in mm  
General tolerances  $\pm 0.13$  mm  
Material: Bronze ASTM B 438  
Type 2, Grade 1



**Plain**



**Flanged**

### Part number selection table

Part Number		Bore $\phi B^1$	O/D $\phi D$	Length L	Flange Dia $\phi A$	Flange Width E
Plain	Flanged					
<b>BBM1-3</b>	<b>BBM2-3</b>	3	6	6	9	1.5
<b>BBM1-4</b>	<b>BBM2-4</b>	4	8	12	12	2.0
<b>BBM1-5</b>	<b>BBM2-5</b>	5	8	12	--	--
<b>BBM1-6</b>	<b>BBM2-6</b>	6	10	12	14	2.0
<b>BBM1-8</b>	<b>BBM2-8</b>	8	12	12	16	2.0
<b>BBM1-10</b>	<b>BBM2-10</b>	10	13	16	16	1.5

<sup>1</sup>Bearing bore tolerances after assembly are: plain bearings H7, flanged bearings H8.  
Recommended housing bore H7

### **i** Features and options

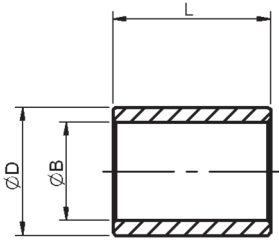
- Operating temperature range:  $-20^{\circ}\text{C}$  to  $+100^{\circ}\text{C}$
- Oil impregnated
- Max speed 30,000 rpm
- p.v (@0.5 m/s) = 1.75 N/mm<sup>2</sup>.m/s
- $p_{\text{max}}$  = 13.8 N/mm
- $v_{\text{max}}$  = 6.1 m/s (rotational)
- Imperial sizes available



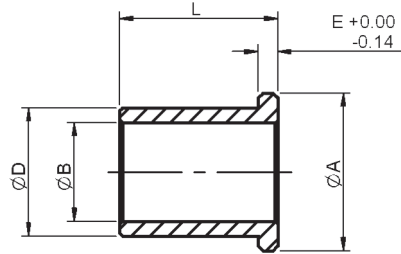


All dimensions in mm  
 General tolerances  $\pm 0.13$  mm  
 Material: Self lubricating moulded thermo-plastic

**Associated Products**  
 Shafts: page 11-2  
 Leadscrews: page 7-1  
 Bearing spacers: page 12-6



**Plain**



**Flanged**

## Part number selection table

Part Number		Bore ØB #	O/D ØD	Length L	Flange Dia ØA	Flange Width E
Plain	Flanged					
<b>BM8-2</b>	-----	2.054 2.014	3.5	3.00 2.86	-----	-----
<b>BM8-3</b>	<b>BM9-3</b>	3.054 3.014	4.5	3.00 2.86	7.46 7.24	0.75
<b>BM8-4</b>	<b>BM9-4</b>	4.068 4.020	5.5	4.00 3.82	9.46 9.24	0.75
<b>BM8-5</b>	-----	5.040 5.010	7.0	5.00 4.82	-----	-----
-----	<b>BM9-5</b>	5.068 5.020	7.0	5.00 4.82	10.95 10.68	1.00
<b>BM8-6</b>	<b>BM9-6</b>	6.068 6.020	8.0	6.00 5.82	11.95 11.68	1.00
<b>BM8-8</b>	-----	8.083 8.025	10.0	8.00 7.78	-----	-----
-----	<b>BM9-8</b>	8.083 8.025	10.0	9.50 9.28	14.95 14.68	1.00
<b>BM8-10</b>	<b>BM9-10</b>	10.083 10.025	12.0	10.00 9.78	17.95 17.68	1.00
<b>BM8-12</b>	<b>BM9-12</b>	12.102 12.032	14.0	12.00 11.73	19.93 19.61	1.00

# Tolerance for ØB is after press fitting into a housing bore of tolerance H7

### **i** Features and options

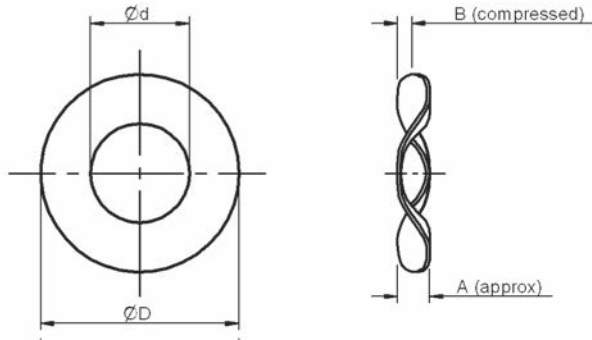
- Operating temperature range: -40°C to +130°C
- $(p.v)_{max} = 1.0$  N/mm<sup>2</sup>.m/s
- $p_{max} = 80$  N/mm<sup>2</sup>
- $v_{max} = 1.0$  m/s (rotational) or 4.0 m/s (linear)
- Imperial sizes available





**Associated Products**  
 Internal circlips: page 13-21  
 Bearings: page 12-2

All dimensions in mm  
 General tolerances  $\pm 0.13$  mm  
 Material: Stainless steel 300 series  
 Treatment: Spring tempered



### Part number selection table

Part Number	Housing Bore (nominal)	O/D ØD	Bore Ød	Free Height A	Compressed Height B	Load in N to Deflect to B
<a href="#">EPL-1</a>	10	9.5	4.5	1.2	1.0	15
<a href="#">EPL-2</a>	13	12.5	7.5	1.5		19
<a href="#">EPL-4</a>	16	15.5	10.5	1.5		19
<a href="#">EPL-8</a>	19	18.5	13.0	1.5		29
<a href="#">EPL-10</a>	21	20.5	15.0	1.8		29

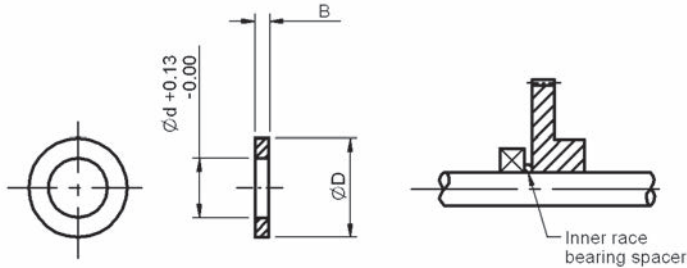
### **i** Features and options

- Imperial bearing pre-load washers
- Available in spring steel, add **-ST** to part number eg [EPL-4-ST](#)



All dimensions in mm  
 General tolerances  $\pm 0.13$  mm  
 Material: Stainless steel 300 series

**Associated Products**  
 Shafts: page 11-2  
 Leadscrews: page 7-1  
 Bearings: page 12-2



## Dimensions

Shaft Nominal	Spacer Bore $\varnothing d$	Spacer O/D $\varnothing D$
2	2	3.0
3	3	4.1
4	4	5.3
5	5	6.7
6	6	7.9
8	8	10.2
10	10	12.3

## Part number selection table

Nominal Shaft Dia $\varnothing d$	Thickness B							
	$\pm 0.025$							
	0.05	0.10	0.15	0.20	0.25	0.30	0.40	0.50
2	SS1-117	SS1-118	SS1-119	SS1-120	SS1-121	SS1-122	SS1-123	SS1-124
3	SS1-125	SS1-126	SS1-127	SS1-128	SS1-129	SS1-130	SS1-131	SS1-132
4	SS1-133	SS1-101	SS1-102	SS1-134	SS1-103	SS1-135	SS1-104	SS1-136
5	SS1-137	SS1-138	SS1-139	SS1-140	SS1-141	SS1-142	SS1-143	SS1-144
6	SS1-145	SS1-105	SS1-106	SS1-146	SS1-107	SS1-147	SS1-108	SS1-148
8	SS1-149	SS1-109	SS1-110	SS1-150	SS1-111	SS1-151	SS1-112	SS1-152
10	SS1-153	SS1-113	SS1-114	SS1-154	SS1-115	SS1-155	SS1-116	SS1-156

### **i** Product options

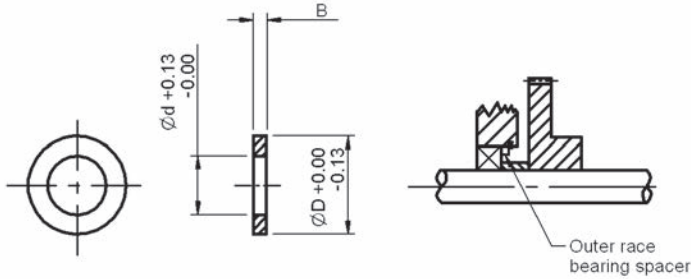
- Imperial sizes available





Associated Products  
Internal circlips: page 13-21  
Bearings: page 12-2

All dimensions in mm  
General tolerances  $\pm 0.13$  mm  
Material: Stainless steel 300 series



## Dimensions

Bearing OD Nominal	Spacer O/D $\varnothing D$	Spacer Bore $\varnothing d$
5	5	4.2
7	7	5.7
9	9	7.8
11	11	9.7
13	13	11.1
16	16	13.8
19	19	16.6

## Part number selection table













Bearing <sup>1</sup>		Thickness B							
Bore (nom)	OD (nom)	$\pm 0.025$							
		0.05	0.10	0.15	0.20	0.25	0.30	0.40	0.50
2	5	SS3-113	SS3-114	SS3-115	SS3-116	SS3-117	SS3-118	SS3-119	SS3-120
3	7	SS3-121	SS3-122	SS3-123	SS3-124	SS3-125	SS3-126	SS3-127	SS3-128
4	9	SS3-129	SS3-130	SS3-101	SS3-131	SS3-102	SS3-132	SS3-103	SS3-133
5	11	SS3-134	SS3-135	SS3-136	SS3-137	SS3-138	SS3-139	SS3-140	SS3-141
6	13	SS3-142	SS3-143	SS3-104	SS3-144	SS3-105	SS3-145	SS3-106	SS3-146
8	16	SS3-147	SS3-148	SS3-107	SS3-149	SS3-108	SS3-150	SS3-109	SS3-151
10	19	SS3-152	SS3-153	SS3-110	SS3-154	SS3-111	SS3-155	SS3-112	SS3-157

<sup>1</sup> Applies to standard Reliance bearing sizes

## **i** Product options

- Imperial sizes available



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PRECISION

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