

# BOWMAN

## BEARINGS AND COMPONENTS



See also: **BOWMAN** Oilite® Sintered Bearings Catalogue

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## Introduction

We pride ourselves in giving excellent service which includes:

- **Full design aid service**
- **Competitive pricing and payment terms**
- **Large stocks**
- **Overnight delivery**
- **Just-in-time/kan ban scheduling**
- **Full technical and design service**
- **Machining facility for special sizes of bearings and carbon products**

Bowman was founded in 1972 and in 1984 the manufacture of certain products commenced. As well as its own manufacture, the company holds exclusive agencies of other manufacturer's products, which complement Bowman's range.

Bowman International Limited was first approved for ISO 9001: 1994 in 1999 and in 2010 was approved to the later approval BS EN ISO 9001: 2008 (Certificate No. 960929).

Bowman is recognised as a leading supplier to original equipment manufacturers, stockists and distributors across a wide range of industries and is one of the leading companies in Europe specialising in the design, supply and manufacture of plain bearings, sintered components and brushes for electric motors.

In 2003 ball and needle bearings were introduced to our range. Bowman is now expanding into exporting throughout the world.

In 2009, the assets of Oilite Bearings Ltd and MPC Ltd (formerly known as Eagersinter) were acquired, which

greatly expanded our ranges of sintered bearings and our sintered component capabilities.

A new automated warehouse was opened in 2008 which stores more than £2,000,000 of stock.

Bowman's product range covers:-

- **Oilite® " Oilube®" bronze and iron sintered bearings**
- **Sintered components**
- **Wrapped bearings**
- **White metal bearings**
- **Solid bronze bearings**
- **Plastic bearings**
- **Composite bearings**
- **Carbon bearings**
- **Special designed bearings**
- **Brushes for electric motors & slip rings**
- **Carbon seals & products**
- **Flexible shaft couplings**
- **Ball bearings**
- **Needle bearings**

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Other products are being added to our range as the market dictates.



# Company objectives

To continue to offer our customers the highest standard of service in our Industry. It is our intention to remain at the forefront of bearing supply and design and to continue our development into new bearing materials and lubricants.

We will also continue to tailor our range of products and services in line with our customers' changing aspirations and requirements.



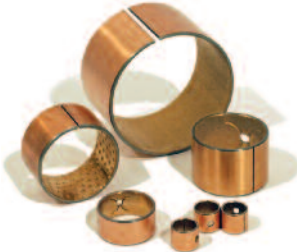
## WMX™ ACETAL LINED

### Lubricated Sliding Bearings



Oil or grease lubricated bearings. Carbon steel shell with sintered bronze layer with a co- acetal polymer layer. Available in metric and imperial sizes from stock.

### Standard Wrapped Bearings



Oil or grease lubricated bearings. Carbon Steel shell with sintered bronze lining. Various metric and imperial sizes available from stock.

## WMU™ PTFE LINED

### Dry Sliding Bearings



Self lubricated plain & flanged bearings & strip. Carbon steel shell with sintered bronze layer filled with PTFE. Available in metric and imperial sizes from stock. Also bronze shell versions can be supplied to order.

### Cast Bronze Bearings with Solid Graphite Lubrication



Various material specifications are offered. Standard and special shapes are available.

## WMT™ Ball Bearings



Ball bearings in chrome or stainless steel. ABEC 1, 3 or 5. With or without seals. Various ranges available from stock.

### White Metal Bearings



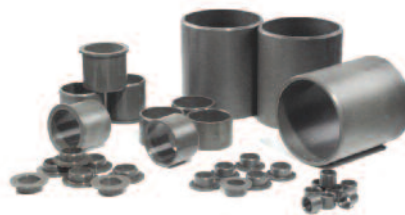
White metal bearings can be manufactured to order in various material grades.

### Machined Parts



Standard bearings modified. Custom shafts and bearings manufactured in cast bronze, plastic and other materials.

### Plastic Bearings Moulded & Machined



Can be manufactured in many different types of plastic material to suit various applications. Machined for small quantities and moulded for large quantities.

### CuSn8 Hard Bronze Bearings



Offered with lubrication pockets, grooves or thru holes. Used for heavy load applications.

### Electric Motor Brushes



Carbon bearings, brushes, seals and components in various grades can be manufactured for very high temperature and hostile environments, to suit customers different applications.

### Couplings



Flexible K-Couplings for high misalignment. Metric and imperial ranges. Key ways available. Stainless steel available.

### Carbon Bearings & Seals



For very high temperatures and hostile environments.

## W/MU™ and W/MLF Self Lubricated Bearings

## W/MX™ Externally Lubricated Bearings



(Dimensions and tolerances to ISO 3547)

### Stock range includes

- Metric plain
- Metric flanged
- Metric washers
- Metric strip
- Imperial plain
- Imperial washers
- Imperial strip\*

### W/MU and W/MLF Technical Data – Summary

Structure	Steel support strip S.A.E 1010. Sintered Bronze layer. PTFE.
Static load	250 N/mm <sup>2</sup>
Dynamic load	140 N/mm <sup>2</sup>
Maximum sliding speed	2.5 m/s dry 5.0 m/s with oil
Operating temperature	-200°C to +280°C
Thermal conductivity	46 W/mK
Coefficient of friction	
W/MU Dry	0.02 to 0.20
W/MU Oiled	0.02 to 0.15
W/MLF Dry	0.04 to 0.30
W/MLF Oiled	0.02 to 0.10
Recommended housing tolerance	4.5mm/5.5mm H6 7.0mm/305mm H7
Recommended shaft tolerance	3.0mm/4.0mm h6 5.0mm/75mm f7 80mm/300mm h8
Recommended shaft finish	Ra ≤ 0.4um (N5)
Recommended shaft hardness	HB > 200



(Dimensions and tolerances to ISO 3547)

### Stock range includes

- Metric plain
- Metric washers
- Metric strip
- Imperial plain\*
- Imperial washers\*
- Imperial strip\*

\* Supplied to order only, minimum order quantity may apply.

### W/MX Technical Data – Summary

Structure	Steel support strip S.A.E 1010. Sintered Bronze layer. Co-Acetal polymer.
Static load	140 N/mm <sup>2</sup>
Dynamic load	70 N/mm <sup>2</sup>
Maximum sliding speed	2.5 m/s with grease
Operating temperature	-40°C to +110°C
Intermittent maximum temperature	130°C
Thermal conductivity	2W/mK
Coefficient of friction	0.05 to 0.12 with grease
Recommended housing tolerance	H7
Recommended shaft tolerance	h8
Recommended shaft finish	HB > 200
Recommended shaft hardness	HB > 200

### W/MUB Bronze Support Strip instead of Steel

Has greater resistance to corrosion than standard W/MU product.

Range, dimensions and tolerances are as standard W/MU product.

### Fitting Guidelines

1. Always use a fitting pin and fitting collar. See our fitting data sheet.
2. Lubricate back of bearing prior to assembly.
3. Chamfer lead in on housing to assist with assembly.

This data gives typical values and are not intended to represent specification. Their aim is to guide the user towards a material choice.

The warranties given by Bowman International Ltd ("Bowman") are as set out in their Conditions of Business, subject to which the products referred to in this brochure are offered. Copies of our conditions are available on request.

The suitability of the proposed use of any of the products for any particular purpose is the responsibility of the customer.

Bowman International Limited reserve the right to change specifications without prior notice. E & OE





### Wrapped Metric Plain Bearings. PTFE U Type

Reference	I.D.	O.D.	Recommended Tolerances						Bearing Size when fitted		Standard Length Options (L)					
	(mm)	Housing			Shaft			Bore		Tolerance +/- 0.25 mm						
		(mm)								(mm)						
TFP03 x L	3	4.5	H6	0	+0.006	h6	0	-0.008	3.000	3.048	3	4	5	6		
TFP04 x L	4	5.5	H6	0	+0.008	h6	0	-0.008	4.000	4.048	3	4	6	10		
TFP05 x L	5	7	H7	0	+0.015	f7	-0.010	-0.022	4.990	5.055	5	8	10			
TFP06 x L	6	8	H7	0	+0.015	f7	-0.010	-0.022	5.990	6.055	6	8	10			
TFP07 x L	7	9	H7	0	+0.015	f7	-0.013	-0.028	6.990	7.055	10					
TFP08 x L	8	10	H7	0	+0.015	f7	-0.013	-0.028	7.990	8.055	8	12				
TFP10 x L	10	12	H7	0	+0.018	f7	-0.013	-0.028	9.990	10.058	8	10	12	15	20	
TFP12 x L	12	14	H7	0	+0.018	f7	-0.016	-0.034	11.990	12.058	12	15	20	25		
TFP13 x L	13	15	H7	0	+0.018	f7	-0.016	-0.034	12.990	13.058	10	20				
TFP14 x L	14	16	H7	0	+0.018	f7	-0.016	-0.034	13.990	14.058	10	12	15	20	25	
TFP15 x L	15	17	H7	0	+0.018	f7	-0.016	-0.034	14.990	15.058	10	12	15	20	20	25
TFP16 x L	16	18	H7	0	+0.018	f7	-0.016	-0.034	15.990	16.058	10	12	15	20	25	
TFP17 x L	17	19	H7	0	+0.018	f7	-0.016	-0.034	16.990	17.061	15	20				
TFP18 x L	18	20	H7	0	+0.018	f7	-0.016	-0.034	17.990	18.061	15	20	25			
TFP20 x L	20	22	H7	0	+0.021	f7	-0.025	-0.046	19.990	20.061	10					
TFP20 x L	20	23	H7	0	+0.021	f7	-0.025	-0.046	19.990	20.071	10	15	20	25	30	
TFP22 x L	22	25	H7	0	+0.021	f7	-0.025	-0.046	21.990	22.071	15	20	25	30		
TFP24 x L	24	27	H7	0	+0.021	f7	-0.025	-0.046	23.990	24.071	20	25	30			
TFP25 x L	25	28	H7	0	+0.021	f7	-0.025	-0.046	24.990	25.071	12	15	20	25	30	50
TFP28 x L	28	32	H7	0	+0.025	f7	-0.025	-0.050	27.990	28.085	20	25	30			
TFP30 x L	30	34	H7	0	+0.025	f7	-0.025	-0.050	29.990	30.085	15	20	25	30	40	
TFP32 x L	32	36	H7	0	+0.025	f7	-0.025	-0.050	31.990	32.085	20	30	40			
TFP35 x L	35	39	H7	0	+0.025	f7	-0.025	-0.050	34.990	35.085	20	30	35	40	50	
TFP36 x L	36	40	H7	0	+0.025	f7	-0.025	-0.050	35.990	36.085	15	35				
TFP40 x L	40	44	H7	0	+0.025	f7	-0.025	-0.050	39.990	40.085	20	30	40	50		
TFP45 x L	45	50	H7	0	+0.025	f7	-0.025	-0.050	44.990	45.105	20	30	40	45	50	
TFP50 x L	50	55	H7	0	+0.030	f7	-0.025	-0.050	49.990	50.110	20	30	40	50	60	
TFP55 x L	55	60	H7	0	+0.030	f7	-0.030	-0.060	54.990	55.110	20	25	30	40	50	60
TFP60 x L	60	65	H7	0	+0.030	f7	-0.030	-0.060	59.990	60.110	20	30	40	60	70	
TFP65 x L	65	70	H7	0	+0.030	f7	-0.030	-0.060	64.990	65.110	30	50	60	70		
TFP70 x L	70	75	H7	0	+0.030	f7	-0.030	-0.060	69.990	70.110	70					
TFP75 x L	75	80	H7	0	+0.030	f7	-0.030	-0.060	74.990	75.110	40	50	60	80		
TFP80 x L	80	85	H7	0	+0.035	h8	-0.030	-0.060	80.020	80.155	60	100				
TFP85 x L	85	90	H7	0	+0.035	h8	-0.036	-0.071	85.020	85.155	60	100				
TFP90 x L	90	95	H7	0	+0.035	h8	-0.036	-0.071	90.020	90.155	60	100				
TFP95 x L	95	100	H7	0	+0.035	h8	-0.036	-0.071	95.020	95.155	60	100				
TFP100 x L	100	105	H7	0	+0.035	h8	-0.036	-0.071	100.020	100.155	60	70	80	115		
TFP105 x L	105	110	H7	0	+0.035	h8	-0.036	-0.071	105.020	105.155	60	115				
TFP110 x L	110	115	H7	0	+0.035	h8	-0.036	-0.071	110.020	110.155	60	115				
TFP115 x L	115	120	H7	0	+0.035	h8	-0.036	-0.071	115.020	115.155	50	60	70			
TFP120 x L	120	125	H7	0	+0.040	h8	-0.036	-0.071	120.070	120.210	60	100				
TFP125 x L	125	130	H7	0	+0.040	h8	-0.043	-0.083	125.070	125.210	60	100				
TFP130 x L	130	135	H7	0	+0.040	h8	-0.043	-0.083	130.070	130.210	60	100				
TFP135 x L	135	140	H7	0	+0.040	h8	-0.043	-0.083	135.070	135.210	60	100				
TFP140 x L	140	145	H7	0	+0.040	h8	-0.043	-0.083	140.070	140.210	60	100				
TFP145 x L	145	150	H7	0	+0.040	h8	-0.043	-0.083	145.070	145.210	60	100				
TFP150 x L	150	155	H7	0	+0.040	h8	-0.043	-0.083	150.070	150.210	100					
TFP155 x L	155	160	H7	0	+0.040	h8	-0.043	-0.083	155.070	155.210	60	100				
TFP160 x L	160	165	H7	0	+0.040	h8	-0.043	-0.083	160.070	160.210	60	100				
TFP165 x L	165	170	H7	0	+0.040	h8	-0.043	-0.083	165.070	165.210	60	100				
TFP170 x L	170	175	H7	0	+0.040	h8	-0.043	-0.083	170.070	170.210	60	100				
TFP175 x L	175	180	H7	0	+0.040	h8	-0.043	-0.083	175.070	175.210	60	100				
TFP180 x L	180	185	H7	0	+0.046	h8	-0.043	-0.083	180.070	180.216	60	100				
TFP200 x L	200	205	H7	0	+0.046	h8	-0.050	-0.096	200.070	200.216	100					
TFP220 x L	220	225	H7	0	+0.046	h8	-0.050	-0.096	220.070	220.216	60	100				
TFP250 x L	250	255	H7	0	+0.052	h8	-0.050	-0.096	250.070	250.222	60	100				
TFP280 x L	280	285	H7	0	+0.052	h8	-0.056	-0.108	280.070	280.222	60	100				
TFP300 x L	300	305	H7	0	+0.052	h8	-0.056	-0.108	300.070	300.222	60	100				

Non-standard lengths can be supplied. If the size you require is not listed please contact our sales dept. We also offer a specialised machining service for low volume non-standard sizes and tolerances.

Bowman International Limited reserve the right to change specifications without prior notice E & OE



### Wrapped Metric Flanged Bearings. PTFE U Type

Reference	I.D. O.D.		Recommended Tolerances			Bearing Size when fitted		Flange		Standard Length Options (L)				
	(mm)		Housing		Shaft	Bore		Diameter		Tolerance +/- 0.25mm				
						(mm)		(mm)		(mm)				
TFF06 x L	6	8	0	+0.015	-0.010	-0.022	5.990	6.055	11.5	12.5	4	7	8	
TFF08 x L	8	10	0	+0.015	-0.013	-0.028	7.990	8.055	14.5	15.5	5.5	7.5	9.5	
TFF10 x L	10	12	0	+0.018	-0.013	-0.028	9.990	10.058	17.5	18.5	7	9	12	17
TFF12 x L	12	14	0	+0.018	-0.016	-0.034	11.990	12.058	19.5	20.5	7	9	12	17
TFF14 x L	14	16	0	+0.018	-0.016	-0.034	13.990	14.058	21.5	22.5	12	17		
TFF15 x L	15	17	0	+0.018	-0.016	-0.034	14.990	15.058	22.5	23.5	9	12	17	
TFF16 x L	16	18	0	+0.018	-0.016	-0.034	15.990	16.058	23.5	24.5	12	17		
TFF18 x L	18	20	0	+0.021	-0.016	-0.034	17.990	18.061	25.5	26.5	12	17	22	
TFF20 x L	20	23	0	+0.021	-0.020	-0.041	19.990	20.071	29.5	30.5	11.5	16.5	21.5	
TFF25 x L	25	28	0	+0.021	-0.020	-0.041	24.990	25.071	34.5	35.5	11.5	16.5	21.5	
TFF30 x L	30	34	0	+0.025	-0.020	-0.041	29.990	30.085	41.5	42.5	16	26		
TFF35 x L	35	39	0	+0.025	-0.025	-0.050	34.990	35.085	46.5	47.5	16	26		
TFF40 x L	40	44	0	+0.025	-0.025	-0.050	39.990	40.085	52.5	53.5	16	26		
TFF45 x L	45	50	0	+0.025	-0.025	-0.050	44.990	45.105	57.5	58.5	16	26		

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### Strip. PTFE U Type

Reference	Strip Sizes		
	Length	Width	Thickness
	(mm)		
TFS07150	500	150	0.704 0.744
TFS10200	500	215	0.950 0.990
TFS15240	500	245	1.470 1.510
TFS20240	500	245	1.960 2.000
TFS25240	500	245	2.460 2.500
TFS30240	500	245	3.020 3.060



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### Washers. Metric. PTFE U Type

Reference	I.D. O.D.		Washer Sizes						Dowell hole		Dowell hole	
	(mm)		Bore			O.D.	Thickness		Diameter		PCD	
			(mm)			(mm)			(mm)		(mm)	
TFW10	10	20	10.00	10.25	19.75	20.00	1.45	1.50	no hole	17.88	18.12	
TFW12	12	24	12.00	12.25	23.75	24.00	1.45	1.50	1.625 1.875	17.88	18.12	
TFW14	14	26	14.00	14.25	25.75	26.00	1.45	1.50	2.125 2.375	19.88	20.12	
TFW16	16	30	16.00	16.25	29.75	30.00	1.45	1.50	2.125 2.375	21.88	22.12	
TFW18	18	32	18.00	18.25	31.75	32.00	1.45	1.50	2.125 2.375	24.88	25.12	
TFW20	20	36	20.00	20.25	35.75	36.00	1.45	1.50	3.125 3.375	27.88	28.12	
TFW22	22	38	22.00	22.25	37.75	38.00	1.45	1.50	3.125 3.375	29.88	30.12	
TFW24	24	42	24.00	24.25	41.75	42.00	1.45	1.50	3.125 3.375	32.88	33.12	
TFW26	26	44	26.00	26.25	43.75	44.00	1.45	1.50	3.125 3.375	34.88	35.12	
TFW28	28	48	28.00	28.25	47.75	48.00	1.45	1.50	4.125 4.375	37.88	38.12	
TFW32	32	54	32.00	32.25	53.75	54.00	1.45	1.50	4.125 4.375	42.88	43.12	
TFW38	38	62	38.00	38.25	61.75	62.00	1.45	1.50	4.125 4.375	49.88	50.12	
TFW42	42	66	42.00	42.25	65.75	66.00	1.45	1.50	4.125 4.375	53.88	54.12	
TFW48	48	74	48.00	48.25	73.75	74.00	1.95	2.00	4.125 4.375	60.88	61.12	
TFW52	52	78	52.00	52.25	77.75	78.00	1.95	2.00	4.125 4.375	64.88	65.12	
TFW62	62	90	62.00	62.25	90.75	90.00	1.95	2.00	4.125 4.375	64.88	65.12	
TFW95	95	115	95.00	95.25	115.00	114.75	1.95	2.00	4.125 4.375	105.87	106.12	



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## Wrapped Imperial Plain Bearings. PTFE U Type

Reference	Bore		Recommended Tolerances				Bearing Size when fitted		Standard Length Options (L)			
	(inch)		Housing		Shaft		Bore		Tolerance +/- 0.010"			
			(inch)				(inch)		(inch)			
TFPI03TH x L	3/16	1/4	0.2497	0.2503	0.1858	0.1865	0.1867	0.1893	3/16	1/4	3/8	
TFPI04TH x L	1/4	5/16	0.3122	0.3128	0.2481	0.2490	0.2492	0.2518	1/4	3/8		
TFPI05TH x L	5/16	3/8	0.3747	0.3753	0.3106	0.3115	0.3117	0.3143	3/8	1/2		
TFPI06TH x L	3/8	15/32	0.4684	0.4691	0.3731	0.3740	0.3742	0.3769	3/8	1/2	5/8	3/4
TFPI07TH x L	7/16	17/32	0.5309	0.5316	0.4355	0.4365	0.4367	0.4394	1/2	3/4		
TFPI08TH x L	1/2	19/32	0.5934	0.5941	0.4980	0.4990	0.4992	0.5019	3/8	1/2	5/8	7/8
TFPI09TH x L	9/16	21/32	0.6559	0.6566	0.5605	0.5615	0.5617	0.5644	1/2	3/4		
TFPI10TH x L	5/8	23/32	0.7184	0.7192	0.6230	0.6240	0.6242	0.6270	1/2	5/8	3/4	7/8
TFPI11TH x L	11/16	25/32	0.7809	0.7817	0.6855	0.6865	0.6867	0.6895	7/8			
TFPI12TH x L	3/4	7/8	0.8747	0.8755	0.7479	0.7491	0.7493	0.7525	1/2	3/4	1	
TFPI14TH x L	7/8	1	0.9997	1.0005	0.8729	0.8741	0.8743	0.8775	3/4	7/8	1	
TFPI16TH x L	1	1 1/8	1.1246	1.1256	0.9979	0.9991	0.9992	1.0026	3/4	1	1 1/4	1 1/2
TFPI18TH x L	1 1/8	1 9/32	1.2808	1.2818	1.1226	1.1238	1.1240	1.1278	3/4	1		
TFPI20TH x L	1 1/4	1 13/32	1.4058	1.4068	1.2472	1.2488	1.2490	1.2528	3/4	1	1 1/4	1 3/4
TFPI22TH x L	1 3/8	1 17/32	1.5308	1.5318	1.3722	1.3738	1.3740	1.3778	1	1 3/8	1 3/4	
TFPI24TH x L	1 1/2	1 21/32	1.6558	1.6568	1.4972	1.4988	1.4990	1.5028	1	1 1/4	1 1/2	2
TFPI26TH x L	1 5/8	1 25/32	1.7808	1.7818	1.6222	1.6238	1.6240	1.6278	1	1 1/2		
TFPI28TH x L	1 3/4	1 15/16	1.9371	1.9381	1.7471	1.7487	1.7489	1.7535	1	1 1/2	1 3/4	2
TFPI30TH x L	1 7/8	2 1/16	2.0621	2.0633	1.8721	1.8737	1.8739	1.8787	1	1 7/8	2 1/4	
TFPI32TH x L	2	2 3/16	2.1871	2.1883	1.9969	1.9987	1.9989	2.0037	1	1 1/2	2	2 1/2
TFPI36TH x L	2 1/4	2 7/16	2.4365	2.4377	2.2489	2.2507	2.2509	2.2573	2	2 1/4	2 1/2	3
TFPI40TH x L	2 1/2	2 11/16	2.6869	2.6881	2.4993	2.5011	2.5013	2.5077	2	2 1/2	3	3 1/2
TFPI44TH x L	2 3/4	2 15/16	2.9358	2.9370	2.7482	2.7500	2.7502	2.7566	2	2 1/2	3	3 1/2
TFPI48TH x L	3	3 3/16	3.1858	3.1872	2.9982	3.0000	3.0002	3.0068	2	3	3 3/4	
TFPI56TH x L	3 1/2	3 11/16	3.6858	3.6872	3.4978	3.5000	3.5002	3.5068	2 1/2	3	3 3/4	
TFPI64TH x L	4	4 3/16	4.1858	4.1872	3.9978	4.0000	4.0002	4.0068	3	3 3/4	4 3/4	
TFPI80TH x L	5	5 3/16	5.1844	5.1860	4.9961	4.9986	4.9988	5.0056	3	3 3/4		
TFPI96TH x L	6	6 3/16	6.1858	6.1874	5.9975	6.0000	6.0002	6.0070	3	3 3/4		
TFPI112TH x L	7	7 3/16	7.1812	7.1830	6.9929	6.9954	6.9956	7.0026	3 3/4			

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## Washers. Imperial. PTFE U Type

Reference	I.D.	O.D.	Washer Sizes					Dowell hole		Dowell hole		
	(inch)		Bore		O.D.		Thickness		Diameter		PCD	
					(inch)				(inch)		(inch)	
TFWTH06	0.500	0.875	0.500	0.510	0.865	0.875	0.061	0.063	0.067	0.077	0.682	0.692
TFWTH07	0.562	1.000	0.562	0.572	0.990	1.000	0.061	0.063	0.067	0.077	0.776	0.786
TFWTH08	0.625	1.125	0.625	0.635	1.115	1.125	0.061	0.063	0.099	0.109	0.870	0.880
TFWTH09	0.687	1.187	0.687	0.697	1.177	1.187	0.061	0.063	0.099	0.109	0.932	0.942
TFWTH10	0.750	1.250	0.750	0.760	1.240	1.250	0.061	0.063	0.099	0.109	0.995	1.005
TFWTH11	0.812	1.375	0.812	0.822	1.365	1.375	0.061	0.063	0.099	0.109	1.089	1.099
TFWTH12	0.875	1.500	0.875	0.885	1.490	1.500	0.061	0.063	0.130	0.140	1.182	1.192
TFWTH14	1.000	1.750	1.000	1.010	1.740	1.750	0.061	0.063	0.130	0.140	1.370	1.380
TFWTH16	1.125	2.000	1.125	1.135	1.990	2.000	0.061	0.063	0.161	0.171	1.557	1.567
TFWTH18	1.250	2.125	1.250	1.260	2.115	2.125	0.061	0.063	0.161	0.171	1.682	1.692
TFWTH20	1.375	2.250	1.375	1.385	2.240	2.250	0.061	0.063	0.161	0.171	1.807	1.817
TFWTH22	1.500	2.500	1.500	1.510	2.490	2.500	0.061	0.063	0.192	0.202	1.995	2.005
TFWTH24	1.625	2.625	1.625	1.635	2.615	2.625	0.061	0.063	0.192	0.202	2.120	2.130
TFWTH26	1.750	2.750	1.750	1.760	2.740	2.750	0.061	0.063	0.192	0.202	2.245	2.255
TFWTH28	2.000	3.000	2.000	2.010	2.990	3.000	0.091	0.093	0.192	0.202	2.495	2.505
TFWTH30	2.125	3.125	2.125	2.135	3.115	3.125	0.091	0.093	0.192	0.202	2.620	2.630
TFWTH32	2.250	3.250	2.250	2.260	3.240	3.250	0.091	0.093	0.192	0.202	2.745	2.755

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## Wrapped Metric Plain Bearings. Acetal X Type

Reference	I.D.	O.D.	Recommended Tolerances				Bearing Size when fitted		Oil hole	Standard Length Options (L)					
	(mm)	(mm)	Housing		Shaft		Bore		Diameter	Tolerance +/- 0.25mm					
			(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
TPX08 x L	8	10	0	+0.015	0	-0.022	8.040	8.107	no hole	8	10	12			
TPX10 x L	10	12	0	+0.018	0	-0.022	10.040	10.110	4	10	12	15	20		
TPX12 x L	12	14	0	+0.018	0	-0.027	12.040	12.110	4	10	12	15	20	25	
TPX14 x L	14	16	0	+0.018	0	-0.027	14.040	14.110	4	15	20	25			
TPX15 x L	15	17	0	+0.018	0	-0.027	15.040	15.108	4	10	12	15	25		
TPX16 x L	16	18	0	+0.018	0	-0.027	16.040	16.110	4	15	20	25			
TPX18 x L	18	20	0	+0.021	0	-0.027	18.040	18.111	4	15	20	25			
TPX20 x L	20	23	0	+0.021	0	-0.033	20.050	20.131	4	10	15	20	25	30	
TPX22 x L	22	25	0	+0.021	0	-0.033	22.050	22.131	6	15	20	25	30		
TPX24 x L	24	27	0	+0.021	0	-0.033	24.050	24.131	6	15	20	25	30		
TPX25 x L	25	28	0	+0.021	0	-0.033	25.050	25.131	6	15	20	25	30		
TPX28 x L	28	32	0	+0.025	0	-0.033	28.060	28.155	6	20	25	30			
TPX30 x L	30	34	0	+0.025	0	-0.033	30.060	30.155	6	20	30	40			
TPX32 x L	32	36	0	+0.025	0	-0.039	32.060	32.155	6	20	30	35	40		
TPX35 x L	35	39	0	+0.025	0	-0.039	35.060	35.155	6	20	30	35	50		
TPX40 x L	40	44	0	+0.025	0	-0.039	40.060	40.155	8	20	30	40	50		
TPX45 x L	45	50	0	+0.025	0	-0.039	45.080	45.195	8	20	30	40	45	50	
TPX50 x L	50	55	0	+0.030	0	-0.039	50.080	50.200	8	40	50	60			
TPX55 x L	55	60	0	+0.030	0	-0.046	55.080	55.200	8	20	25	30	40	50	60
TPX60 x L	60	65	0	+0.030	0	-0.046	60.080	60.200	8	30	40	60	70		
TPX65 x L	65	70	0	+0.030	0	-0.046	65.100	65.262	8	40	50	60	70		
TPX70 x L	70	75	0	+0.030	0	-0.046	70.100	70.262	8	25	40	50	65	70	80
TPX75 x L	75	80	0	+0.030	0	-0.046	75.100	75.262	9.5	40	60	80			
TPX80 x L	80	85	0	+0.035	0	-0.046	80.100	80.267	9.5	40	60	80	100		
TPX85 x L	85	90	0	+0.035	0	-0.054	85.100	85.267	9.5	30	40	60	80	100	
TPX90 x L	90	95	0	+0.035	0	-0.054	90.100	90.267	9.5	25	40	60	80	90	100
TPX95 x L	95	100	0	+0.035	0	-0.054	95.100	95.267	9.5	60	100				
TPX100 x L	100	105	0	+0.035	0	-0.054	100.100	100.267	9.5	50	60	80	95	115	
TPX105 x L	105	110	0	+0.035	0	-0.054	105.100	105.267	9.5	60	115				
TPX110 x L	110	115	0	+0.035	0	-0.054	110.100	110.267	9.5	60	110	115			
TPX115 x L	115	120	0	+0.035	0	-0.054	115.100	115.267	9.5	50	70				
TPX120 x L	120	125	0	+0.040	0	-0.054	120.100	120.272	9.5	60	100	110			
TPX125 x L	125	130	0	+0.040	0	-0.063	125.100	125.272	9.5	60	100	110			
TPX130 x L	130	135	0	+0.040	0	-0.063	130.130	130.280	no hole	50	60	80	100		
TPX135 x L	135	140	0	+0.040	0	-0.063	135.130	135.280	no hole	60	80				
TPX140 x L	140	145	0	+0.040	0	-0.063	140.130	140.280	no hole	50	60	80	100		
TPX145 x L	145	150	0	+0.040	0	-0.063	145.130	145.280	no hole	100					
TPX150 x L	150	155	0	+0.040	0	-0.063	150.130	150.280	no hole	50	60	80	100		
TPX160 x L	160	165	0	+0.040	0	-0.063	160.130	160.280	no hole	50	60	80	100		
TPX170 x L	170	175	0	+0.040	0	-0.063	170.130	170.280	no hole	50	60	80	100		
TPX180 x L	180	185	0	+0.046	0	-0.063	180.130	180.286	no hole	50	60	80	100		
TPX190 x L	190	195	0	+0.046	0	-0.072	190.130	190.286	no hole	50	60	80	100	120	
TPX200 x L	200	205	0	+0.046	0	-0.072	200.130	200.286	no hole	50	60	80	100	120	
TPX220 x L	220	225	0	+0.046	0	-0.072	220.130	220.286	no hole	50	60	80	100	120	
TPX240 x L	240	245	0	+0.046	0	-0.072	240.130	240.286	no hole	50	60	80	100	120	
TPX250 x L	250	255	0	+0.052	0	-0.072	250.130	250.292	no hole	50	60	80	100	120	
TPX260 x L	260	265	0	+0.052	0	-0.081	260.130	260.292	no hole	50	60	80	100	120	
TPX280 x L	280	285	0	+0.052	0	-0.081	280.130	280.292	no hole	50	60	80	100	120	
TPX300 x L	300	305	0	+0.052	0	-0.081	300.130	300.292	no hole	60	80	100	120		

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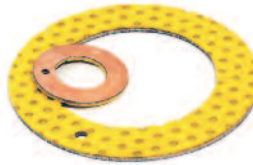
## Wrapped Imperial Plain. Acetal X Type

Reference	I.D.	O.D.	Recommended Tolerances				Bearing Size when fitted		Oil hole	Standard Length Options (L)				
	Nominal		Housing		Shaft	Bore		Diameter	Tolerance +/- 0.010"					
	(inch)		(inch)				(inch)		(inch)	(inch)				
TFPI06TX x L	$\frac{3}{8}$	$\frac{15}{32}$	0.4694	0.4687	0.3648	0.3639	0.3694	0.3667	$\frac{5}{32}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$		
TFPI07TX x L	$\frac{7}{16}$	$\frac{17}{32}$	0.5319	0.5312	0.4273	0.4263	0.4319	0.4292	$\frac{5}{32}$	$\frac{1}{2}$	$\frac{3}{4}$			
TFPI08TX x L	$\frac{1}{2}$	$\frac{19}{32}$	0.5944	0.5937	0.4897	0.4887	0.4944	0.4917	$\frac{5}{32}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{7}{8}$	
TFPI09TX x L	$\frac{9}{16}$	$\frac{21}{32}$	0.6569	0.6562	0.5522	0.5512	0.5569	0.5542	$\frac{5}{32}$	$\frac{1}{2}$	$\frac{3}{4}$			
TFPI10TX x L	$\frac{5}{8}$	$\frac{23}{32}$	0.7195	0.7187	0.6146	0.6136	0.6195	0.6167	$\frac{5}{32}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	
TFPI11TX x L	$\frac{11}{16}$	$\frac{25}{32}$	0.7820	0.7812	0.6770	0.6760	0.6820	0.6792	$\frac{5}{32}$	$\frac{7}{8}$				
TFPI12TX x L	$\frac{3}{4}$	$\frac{7}{8}$	0.8758	0.8750	0.7390	0.7378	0.7444	0.7412	$\frac{5}{32}$	$\frac{1}{2}$	$\frac{3}{4}$	1		
TFPI14TX x L	$\frac{7}{8}$	1	1.0008	1.0000	0.8639	0.8627	0.8694	0.8662	$\frac{1}{4}$	$\frac{3}{4}$	$\frac{7}{8}$	1		
TFPI16TX x L	1	$1\frac{1}{8}$	1.1258	1.1250	0.9888	0.9876	0.9944	0.9912	$\frac{1}{4}$	$\frac{3}{4}$	1	$1\frac{1}{2}$		
TFPI18TX x L	$1\frac{1}{8}$	$1\frac{9}{32}$	1.2822	1.2812	1.1138	1.1126	1.1202	1.1164	$\frac{1}{4}$	$\frac{3}{4}$	1			
TFPI20TX x L	$1\frac{1}{4}$	$1\frac{13}{32}$	1.4072	1.4062	1.2387	1.2371	1.2452	1.2414	$\frac{1}{4}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{3}{4}$	
TFPI22TX x L	$1\frac{3}{8}$	$1\frac{17}{32}$	1.5322	1.5312	1.3635	1.3619	1.3702	1.3664	$\frac{1}{4}$	1	$1\frac{3}{8}$	$1\frac{3}{4}$		
TFPI24TX x L	$1\frac{1}{2}$	$1\frac{21}{32}$	1.6572	1.6562	1.4884	1.4868	1.4952	1.4914	$\frac{5}{16}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	
TFPI26TX x L	$1\frac{5}{8}$	$1\frac{25}{32}$	1.7822	1.7812	1.6133	1.6117	1.6202	1.6164	$\frac{5}{16}$	1	$1\frac{1}{2}$			
TFPI28TX x L	$1\frac{3}{4}$	$1\frac{15}{16}$	1.9385	1.9375	1.7393	1.7367	1.7461	1.7415	$\frac{5}{16}$	1	$1\frac{1}{2}$	$1\frac{3}{4}$	2	
TFPI30TX x L	$1\frac{7}{8}$	$2\frac{1}{16}$	2.0637	2.0625	1.8632	1.8616	1.8713	1.8665	$\frac{5}{16}$	1	$1\frac{7}{8}$	$2\frac{1}{4}$		
TFPI32TX x L	2	$2\frac{3}{16}$	2.1887	2.1875	1.9881	1.9863	1.9963	1.9915	$\frac{5}{16}$	1	$1\frac{1}{2}$	2	$2\frac{1}{2}$	
TFPI36TX x L	$2\frac{1}{4}$	$2\frac{7}{16}$	2.4387	2.4375	2.2378	2.2360	2.2463	2.2415	$\frac{5}{16}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$		
TFPI40TX x L	$2\frac{1}{2}$	$2\frac{11}{16}$	2.6887	2.6875	2.4875	2.4857	2.4963	2.4915	$\frac{5}{16}$	2	$2\frac{1}{2}$			
TFPI44TX x L	$2\frac{3}{4}$	$2\frac{15}{16}$	2.9387	2.9395	2.7351	2.7333	2.7457	2.7393	$\frac{5}{16}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	
TFPI48TX x L	3	$3\frac{3}{16}$	3.1889	3.1875	3.9849	3.9831	2.9959	2.9893	$\frac{3}{8}$	2	3	$3\frac{3}{4}$		
TFPI56TX x L	$3\frac{1}{2}$	$3\frac{11}{16}$	3.6889	3.6875	3.4844	3.4822	3.4959	3.4893	$\frac{3}{8}$	$2\frac{1}{2}$	3	$3\frac{3}{4}$		
TFPI64TX x L	4	$4\frac{3}{16}$	4.1889	4.1872	4.9839	4.9817	3.9959	3.9893	$\frac{3}{8}$	3	$3\frac{3}{4}$	$4\frac{3}{4}$		

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### Washers. Metric. Acetal X Type

Reference	I.D.	O.D.	Washer Sizes						Dowell hole		Dowell hole	
			Bore		O.D.		Thickness		Diameter		PCD	
	(mm)		(mm)						(mm)		(mm)	
TXW12	12	24	12.00	12.25	23.75	24.00	1.487	1.577	1.625	1.875	17.88	18.12
TXW14	14	26	14.00	14.25	25.75	26.00	1.487	1.577	2.125	2.375	19.88	20.12
TXW16	16	30	16.00	16.25	29.75	30.00	1.487	1.577	2.125	2.375	21.88	22.12
TXW18	18	32	18.00	18.25	31.75	32.00	1.487	1.577	2.125	2.375	24.88	25.12
TXW20	20	36	20.00	20.25	35.75	36.00	1.487	1.577	3.125	3.375	27.88	28.12
TXW22	22	38	22.00	22.25	37.75	38.00	1.487	1.577	3.125	3.375	29.88	30.12
TXW24	24	42	24.00	24.25	41.75	42.00	1.487	1.577	3.125	3.375	32.88	33.12
TXW26	26	44	26.00	26.25	43.75	44.00	1.487	1.577	3.125	3.375	34.88	35.12
TXW28	28	48	28.00	28.25	47.75	48.00	1.487	1.577	4.125	4.375	37.88	38.12
TXW32	32	54	32.00	32.25	53.75	54.00	1.487	1.577	4.125	4.375	42.88	43.12
TXW38	38	62	38.00	38.25	61.75	62.00	1.487	1.577	4.125	4.375	49.88	50.12
TXW42	42	66	42.00	42.25	65.75	66.00	1.487	1.577	4.125	4.375	53.88	54.12
TXW48	48	74	48.00	48.25	73.75	74.00	2.510	2.600	4.125	4.375	60.88	61.12
TXW52	52	78	52.00	52.25	77.75	78.00	2.510	2.600	4.125	4.375	64.88	65.12

Non-standard thicknesses can be supplied. If the size you require is not listed please contact our sales dept. We also offer a specialised machining service for low volume non-standard sizes and tolerances.

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### Strip. Acetal X Type

Reference	Strip Sizes			
	Length	Width	Thickness	
	(mm)			
TXS10070	460	70	1.03	1.07
TXS15100	460	100	1.52	1.56
TXS20100	460	100	2.01	2.05
TXS25100	460	100	2.52	2.57
TXS30200	500	200	3.02	3.09



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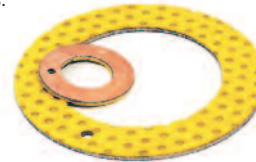


### Washers. Imperial. Acetal X Type

Reference	I.D.	O.D.	Washer Sizes						Dowell hole		Dowell hole	
			Bore		O.D.		Thickness		Diameter		PCD	
	(inch)		(inch)						(inch)		(inch)	
TFWTX06	1/2	7/8	0.500	0.510	0.865	0.875	0.0625	0.0660	0.067	0.077	0.682	0.692
TFWTX07	9/16	1	0.562	0.572	0.990	1.000	0.0625	0.0660	0.067	0.077	0.776	0.786
TFWTX08	5/8	1 1/8	0.625	0.635	1.115	1.125	0.0625	0.0660	0.090	0.109	0.870	0.880
TFWTX09	11/16	1 3/16	0.687	0.697	1.177	1.187	0.0625	0.0660	0.090	0.109	0.932	0.942
TFWTX10	3/4	1 1/4	0.750	0.760	1.240	1.250	0.0625	0.0660	0.090	0.109	0.995	1.005
TFWTX11	13/16	1 5/8	0.812	0.822	1.365	1.375	0.0625	0.0660	0.090	0.109	1.089	1.099
TFWTX12	7/8	1 1/2	0.875	0.885	1.490	1.500	0.0625	0.0660	0.130	0.140	1.182	1.192
TFWTX14	1	1 3/4	1.000	1.010	1.740	1.750	0.0625	0.0660	0.130	0.140	1.370	1.380
TFWTX16	1 1/8	2	1.125	1.135	1.990	2.000	0.0625	0.0660	0.161	0.171	1.557	1.567
TFWTX18	1 1/4	2 1/8	1.250	1.260	2.115	2.125	0.0625	0.0660	0.161	0.171	1.682	1.692
TFWTX20	1 3/8	2 1/4	1.375	1.385	2.240	2.250	0.0625	0.0660	0.161	0.171	1.807	1.817
TFWTX22	1 1/2	2 1/2	1.500	1.510	2.490	2.500	0.0625	0.0660	0.192	0.202	1.995	2.005
TFWTX24	1 5/8	2 5/8	1.625	1.635	2.615	2.625	0.0625	0.0660	0.192	0.202	2.120	2.130
TFWTX26	1 3/4	2 3/4	1.750	1.760	2.740	2.750	0.0625	0.0660	0.192	0.202	2.245	2.255
TFWTX28	2	3	2.000	2.010	2.990	3.000	0.0935	0.0970	0.192	0.202	2.495	2.505
TFWTX30	2 1/8	3 1/8	2.125	2.135	3.115	3.125	0.0935	0.0970	0.192	0.202	2.620	2.630
TFWTX32	2 1/4	3 1/4	2.250	2.260	3.240	3.250	0.0935	0.0970	0.192	0.202	2.745	2.755

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## Metric Plain Standard Wrapped Bearings

Bush Bore Diameter	General Outside diameter of Bush	Bore of Bush When in Housing H8	Journal Diameter e8	Bore of Bush When in Housing H8	Bush Length (+/- 0.13 mm)								Wall Thickness as supplied	Lining Thickness as supplied	
					10	15	20	25	30	40	50	60			
10	12	12 H8	10 e8	10 H8	TFPSWB 1010M	TFPSWB 1010M	TFPSWB 1010M							1.056 - 1.007	0.3 minimum
12	14	14 H8	12 e8	12 H8	TFPSWB 1210M	TFPSWB 1215M	TFPSWB 1220M							1.056 - 1.007	0.3 minimum
13	15	15 H8	13 e8	13 H8	TFPSWB 1310M	TFPSWB 1315M	TFPSWB 1320M	TFPSWB 1325M						1.056 - 1.007	0.3 minimum
14	16	16 H8	14 e8	14 H8	TFPSWB 1410M	TFPSWB 1415M	TFPSWB 1420M	TFPSWB 1425M						1.056 - 1.007	0.3 minimum
15	17	17 H8	15 e8	15 H8	TFPSWB 1510M	TFPSWB 1515M	TFPSWB 1520M	TFPSWB 1525M						1.056 - 1.007	0.3 minimum
16	18	18 H8	16 e8	16 H8		TFPSWB 1615M	TFPSWB 1620M	TFPSWB 1625M						1.056 - 1.007	0.3 minimum
18	20	20 H8	18 e8	18 H8		TFPSWB 1815M	TFPSWB 1820M	TFPSWB 1825M						1.056 - 1.007	0.3 minimum
19	22	22 H8	19 e8	19 H8		TFPSWB 1915M		TFPSWB 1925M	TFPSWB 1930M					1.559 - 1.507	0.3 minimum
20	23	23 H8	20 e8	20 H8		TFPSWB 2015M	TFPSWB 2020M	TFPSWB 2025M	TFPSWB 2030M					1.559 - 1.507	0.3 minimum
22	25	25 H8	22 e8	22 H8		TFPSWB 2215M	TFPSWB 2220M	TFPSWB 2225M	TFPSWB 2230M					1.559 - 1.507	0.3 minimum
24	27	27 H8	24 e8	24 H8		TFPSWB 2415M	TFPSWB 2420M	TFPSWB 2425M	TFPSWB 2430M					1.559 - 1.507	0.3 minimum
25	28	28 H8	25 e8	25 H8		TFPSWB 2515M	TFPSWB 2520M	TFPSWB 2525M	TFPSWB 2530M					1.559 - 1.507	0.3 minimum
26	30	30 H8	26 e8	26 H8			TFPSWB 2620M	TFPSWB 2625M	TFPSWB 2630M	TFPSWB 2640M				2.059 - 2.010	0.3 minimum
28	32	32 H8	28 e8	28 H8			TFPSWB 2820M	TFPSWB 2825M	TFPSWB 2830M	TFPSWB 2840M				2.059 - 2.010	0.3 minimum
30	34	34 H8	30 e8	30 H8			TFPSWB 3020M	TFPSWB 3025M	TFPSWB 3030M	TFPSWB 3040M				2.059 - 2.010	0.3 minimum
32	36	36 H8	32 e8	32 H8			TFPSWB 3220M	TFPSWB 3225M	TFPSWB 3230M	TFPSWB 3240M	TFPSWB 3250M			2.059 - 2.010	0.3 minimum
34	38	38 H8	34 e8	34 H8			TFPSWB 3420M	TFPSWB 3425M	TFPSWB 3430M	TFPSWB 3440M	TFPSWB 3450M			2.059 - 2.010	0.3 minimum
35	39	39 H8	35 e8	35 H8			TFPSWB 3520M	TFPSWB 3525M	TFPSWB 3530M	TFPSWB 3540M	TFPSWB 3550M			2.059 - 2.010	0.3 minimum
36	40	40 H8	36 e8	36 H8			TFPSWB 3620M	TFPSWB 3625M	TFPSWB 3630M	TFPSWB 3640M	TFPSWB 3650M			2.059 - 2.010	0.3 minimum
38	42	42 H8	38 e8	38 H8			TFPSWB 3820M	TFPSWB 3825M	TFPSWB 3830M	TFPSWB 3840M	TFPSWB 3850M			2.059 - 2.010	0.3 minimum
40	44	44 H8	40 e8	40 H8			TFPSWB 4020M	TFPSWB 4025M	TFPSWB 4030M	TFPSWB 4040M	TFPSWB 4050M			2.059 - 2.010	0.3 minimum
42	46	46 H8	42 e8	32 H8			TFPSWB 4220M	TFPSWB 4225M	TFPSWB 4230M	TFPSWB 4240M	TFPSWB 4250M			2.059 - 2.010	0.3 minimum
44	48	48 H8	44 e8	44 H8			TFPSWB 4420M	TFPSWB 4425M	TFPSWB 4430M	TFPSWB 4440M	TFPSWB 4450M			2.059 - 2.010	0.3 minimum
45	50	50 H8	45 e8	45 H8					TFPSWB 4530M	TFPSWB 4540M	TFPSWB 4550M	TFPSWB 4560M		2.562 - 2.513	0.3 minimum
46	51	51 H8	46 e8	46 H8					TFPSWB 4630M	TFPSWB 4640M	TFPSWB 4650M	TFPSWB 4660M		2.562 - 2.513	0.3 minimum
48	53	53 H8	48 e8	48 H8					TFPSWB 4830M	TFPSWB 4840M	TFPSWB 4850M	TFPSWB 4860M		2.562 - 2.513	0.3 minimum
50	55	55 H8	50 e8	50 H8					TFPSWB 5030M	TFPSWB 5040M	TFPSWB 5050M	TFPSWB 5060M		2.562 - 2.513	0.3 minimum
52	57	57 H8	52 e8	52 H8					TFPSWB 5230M	TFPSWB 5240M	TFPSWB 5250M	TFPSWB 5260M		2.562 - 2.513	0.3 minimum
55	60	60 H8	55 e8	55 H8					TFPSWB 5530M	TFPSWB 5540M	TFPSWB 5550M	TFPSWB 5560M		2.562 - 2.513	0.3 minimum
58	63	63 H8	58 e8	58 H8					TFPSWB 5830M	TFPSWB 5840M	TFPSWB 5850M	TFPSWB 5860M		2.562 - 2.513	0.3 minimum

No oil hole or oil groove is present in metric size

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## Imperial Plain Standard Wrapped Bearings

Bush Bore Diameter	General Outside diameter of Bush	Bore of Bush When in Housing H8	Journal Diameter e8	Bore of Bush When in Housing H8	Oil Hole diameters															Wall Thickness as supplied	Lining Thickness as supplied
					5/32 Oil Hole diameter					1/4 Oil Hole dia		1/4 or 5/16 Oil Hole			3/8 Oil Hole diameter						
					3/8	1/2	5/8	3/4	7/8	1	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	2 3/4	3			
3/8	15/32	0.4697-0.4687	0.3740-0.3731	0.3759-0.3750	TFPSWB 1203	TFPSWB 1204	TFPSWB 1205	TFPSWB 1206											0.049 - 0.047	0.012 minimum	
7/16	17/32	0.5322-0.5312	0.4363-0.4353	0.4385-0.4375	TFPSWB 1403	TFPSWB 1404		TFPSWB 1406											0.049 - 0.047	0.012 minimum	
1/2	19/32	0.5947-0.5937	0.4988-0.4978	0.5010-0.5000	TFPSWB 1603	TFPSWB 1604	TFPSWB 1605	TFPSWB 1606	TFPSWB 1607										0.049 - 0.047	0.012 minimum	
9/16	21/32	0.6572-0.6562	0.5613-0.5603	0.5635-0.5625		TFPSWB 1804	TFPSWB 1805	TFPSWB 1806	TFPSWB 1807										0.049 - 0.047	0.012 minimum	
5/8	23/32	0.7199-0.7187	0.6238-0.6228	0.6260-0.6250	TFPSWB 2003	TFPSWB 2004	TFPSWB 2005	TFPSWB 2006	TFPSWB 2007	TFPSWB 2008									0.049 - 0.047	0.012 minimum	
11/16	25/32	0.7824-0.7812	0.6863-0.6853	0.6885-0.6875			TFPSWB 2205	TFPSWB 2206	TFPSWB 2207										0.049 - 0.047	0.012 minimum	
3/4	7/8	0.8762-0.8750	0.7484-0.7472	0.7512-0.7500		TFPSWB 2404	TFPSWB 2405	TFPSWB 2406		TFPSWB 2408	TFPSWB 2410								0.065 - 0.063	0.012 minimum	
13/16	15/16	0.9387-0.9375	0.8109-0.8097	0.8137-0.8125				TFPSWB 2606		TFPSWB 2608									0.065 - 0.063	0.012 minimum	
7/8	1	1.0012-1.0000	0.8734-0.8097	0.8762-0.8750		TFPSWB 2804		TFPSWB 2806		TFPSWB 2808	TFPSWB 2810								0.065 - 0.063	0.012 minimum	
15/16	1 1/16	1.0637-1.0625	0.8734-0.8722	0.9387-0.9375		TFPSWB 3004		TFPSWB 3006		TFPSWB 3008	TFPSWB 3010								0.065 - 0.063	0.012 minimum	
1	1 1/8	1.1262-1.1250	0.9359-0.9347	1.0012-1.0000		TFPSWB 3204		TFPSWB 3206		TFPSWB 3208	TFPSWB 3210	TFPSWB 3212							0.065 - 0.063	0.012 minimum	
1 1/8	1 1/4	1.2828-1.2812	0.9984-0.9972	1.1262-1.1250				TFPSWB 3606		TFPSWB 3608	TFPSWB 3610	TFPSWB 3612							0.080 - 0.078	0.012 minimum	
1 1/4	1 3/8	1.4078-1.4062	1.1234-1.1222	1.2516-1.2500				TFPSWB 4006		TFPSWB 4008	TFPSWB 4010	TFPSWB 4012	TFPSWB 4014						0.080 - 0.078	0.012 minimum	
1 3/8	1 7/8	1.5328-1.5312	1.2480-1.2464	1.3766-1.3750				TFPSWB 4406		TFPSWB 4408	TFPSWB 4410	TFPSWB 4412	TFPSWB 4414						0.080 - 0.078	0.012 minimum	
1 1/2	1 5/8	1.6578-1.6562	1.3730-1.3714	1.5016-1.5000				TFPSWB 4806		TFPSWB 4808	TFPSWB 4810	TFPSWB 4812	TFPSWB 4814	TFPSWB 4816					0.080 - 0.078	0.012 minimum	
1 5/8	1 5/4	1.7828-1.7812	1.4980-1.4964	1.6266-1.6250				TFPSWB 5206		TFPSWB 5208	TFPSWB 5210	TFPSWB 5212	TFPSWB 5214	TFPSWB 5216					0.080 - 0.078	0.012 minimum	
1 3/4	1 11/8	1.9391-1.9375	1.7480-1.7464	1.7516-1.7500						TFPSWB 5608	TFPSWB 5610 *	TFPSWB 5612 *	TFPSWB 5614 *	TFPSWB 5616 *					0.096 - 0.094	0.012 minimum	
1 7/8	2 1/16	2.0643-2.0625	1.8730-1.8714	1.8766-1.8750						TFPSWB 6008	TFPSWB 6010 *	TFPSWB 6012 *	TFPSWB 6014 *	TFPSWB 6016 *	TFPSWB 6018				0.096 - 0.094	0.012 minimum	
2	2 3/16	2.1893-2.1875	1.9975-1.9957	2.0018-2.0000						TFPSWB 6408	TFPSWB 6410 *	TFPSWB 6412 *	TFPSWB 6414 *	TFPSWB 6416 *	TFPSWB 6418	TFPSWB 6420			0.096 - 0.094	0.012 minimum	
2 1/4	2 1/8	2.4393-2.4375	2.2475-2.2457	1.8766-1.8750						TFPSWB 7208	TFPSWB 7210 *	TFPSWB 7212 *	TFPSWB 7214 *	TFPSWB 7216 *	TFPSWB 7218	TFPSWB 7220			0.096 - 0.094	0.012 minimum	
2 1/2	2 1/4	2.6893-2.6875	2.4975-2.4957	2.5018-2.5000							TFPSWB 8010 *	TFPSWB 8012 *	TFPSWB 8014 *	TFPSWB 8016 *	TFPSWB 8018	TFPSWB 8020	TFPSWB 8022		0.096 - 0.094	0.012 minimum	
2 3/4	2 5/8	2.9393-2.9375	2.7475-2.7457	2.7518-2.7500										TFPSWB 8816 *	TFPSWB 8818	TFPSWB 8820	TFPSWB 8822	TFPSWB 8824	0.096 - 0.094	0.012 minimum	
3	3 1/8	3.1897-3.1875	2.9975-2.9957	3.0018-3.0000										TFPSWB 9616 *	TFPSWB 9618	TFPSWB 9620	TFPSWB 9622	TFPSWB 9624	0.096 - 0.094	0.012 minimum	

\* denotes larger of the 2 oil holes quoted is present in imperial sizes

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## Metric Plain Wrapped Bronze CuSn8

Part numbers shown in table are for diamond pockets.  
If thru holes type are required, add "holes" after the part number.

Bush Bore Diameter	General Outside diameter of Bush	Journal Diameter	Housing Diameter	Bore of Bush in Housing	Standard Lengths					
					L (+0.25)					
10	12	9.987 9.972	12.000 12.018	10.000 10.043	10 BPF 1010	15 BPF 1015	20 BPF 1020			
12	14	11.984 11.966	14.000 14.018	12.000 12.043	10 BPF 1210	15 BPF 1215	20 BPF 1220			
13	15	12.984 12.966	15.000 15.018	13.000 13.043	15 BPF 1315	20 BPF 1320				
14	16	13.984 13.966	16.000 16.018	14.000 14.043	10 BPF 1410	15 BPF 1415	20 BPF 1420	25 BPF 1425		
15	17	14.984 14.966	17.000 17.018	15.000 15.043	10 BPF 1510	15 BPF 1515	20 BPF 1520	25 BPF 1525		
16	18	15.984 15.966	18.000 18.018	16.000 16.043	10 BPF 1610	15 BPF 1615	20 BPF 1620			
17	19	16.984 16.966	19.000 19.021	17.000 17.043	15 BPF 1715	20 BPF 1720				
18	20	17.984 17.966	20.000 20.021	18.000 18.043	15 BPF 1815	20 BPF 1820	25 BPF 1825			
20	22	19.980 19.959	22.000 22.021	20.000 20.052	10 BPF 202210	15 BPF 202215	20 BPF 202220	25 BPF 202225		
20	23	19.980 19.959	23.000 23.021	20.000 20.052	10 BPF 2010	15 BPF 2015	20 BPF 2020	25 BPF 2025	30 BPF 2030	
22	25	21.980 21.959	25.000 25.021	22.000 22.052	15 BPF 2215	20 BPF 2220	25 BPF 2225	30 BPF 2230		
24	27	23.980 23.959	27.000 27.021	24.000 24.052	15 BPF 242715	20 BPF 242720	25 BPF 242725	30 BPF 242730		
24	28	23.980 23.959	28.000 28.021	24.000 24.052	15 BPF 2415	20 BPF 2420	25 BPF 2425	30 BPF 2430		
25	28	24.980 24.959	28.000 28.021	25.000 25.052	15 BPF 2515	20 BPF 2520	25 BPF 2525	30 BPF 2530	50 BPF 2550	
28	31	27.980 27.959	31.000 31.025	28.000 28.052	15 BPF 283115	20 BPF 283120	25 BPF 283125	30 BPF 283130		
28	32	27.980 27.959	32.000 32.025	28.000 28.052	15 BPF 2815	20 BPF 2820	25 BPF 2825	30 BPF 2830		
30	34	29.980 29.959	34.000 34.025	30.000 30.062	15 BPF 3015	20 BPF 3020	25 BPF 3025	30 BPF 3030	40 BPF 3040	
32	36	31.975 31.950	36.000 36.025	32.000 32.062	20 BPF 3220	30 BPF 3230	40 BPF 3240			
35	39	34.975 34.950	39.000 39.025	35.000 35.062	20 BPF 3520	30 BPF 3530	35 BPF 3535	40 BPF 3540	50 BPF 3550	
40	44	39.975 39.950	44.000 44.062	40.000 40.062	20 BPF 4020	30 BPF 4030	40 BPF 4040	50 BPF 4050		
45	50	44.975 44.950	50.000 50.025	45.000 45.062	20 BPF 4520	30 BPF 4530	40 BPF 4540	50 BPF 4550		
50	55	49.975 49.950	55.000 55.030	50.000 50.062	20 BPF 5020	25 BPF 5025	30 BPF 5030	40 BPF 5040	50 BPF 5050	60 BPF 5060
55	60	54.970 54.940	60.000 60.030	55.000 55.074	20 BPF 5520	25 BPF 5525	30 BPF 5530	40 BPF 5540	50 BPF 5550	60 BPF 5560
60	65	59.970 59.940	65.000 65.030	60.000 60.074	25 BPF 6025	30 BPF 6030	40 BPF 6040	50 BPF 6050	60 BPF 6060	70 BPF 6070
65	70	64.970 64.940	70.000 70.030	65.000 65.074	30 BPF 6530	40 BPF 6540	50 BPF 6550	60 BPF 6560	70 BPF 6570	80 BPF 6580
70	75	69.970 69.940	75.000 75.030	70.000 70.074	40 BPF 7040	50 BPF 7050	60 BPF 7060	70 BPF 7070	80 BPF 7080	90 BPF 7090
75	80	74.970 74.940	80.000 80.030	75.000 75.074	30 BPF 7530	40 BPF 7540	50 BPF 7550	60 BPF 7560	70 BPF 7570	80 BPF 7580
80	85	79.964 79.929	85.000 85.035	80.000 80.074	30 BPF 8030	40 BPF 8040	60 BPF 8060	80 BPF 8080	100 BPF 80100	
85	90	84.964 84.929	90.000 90.035	85.000 85.087	30 BPF 8530	40 BPF 8540	60 BPF 8560	80 BPF 8580	100 BPF 85100	

Other sizes and lengths available to order

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## Metric Plain Wrapped Bronze CuSn8

Bush Bore Diameter	General Outside diameter of Bush	Journal Diameter	Housing Diameter	Bore of Bush in Housing	Standard Lengths L (+0.25)				
					40	60	90	100	
90	95	89.964 89.929	95.000 90.035	90.008 90.087	40 BFP 9040	60 BFP 9060	90 BFP 9090	100 BFP 90100	
95	100	94.964 94.929	100.000 100.035	95.000 95.087	60 BFP 9560	100 BFP 95100			
100	105	99.964 99.929	105.000 105.035	100.000 100.087	40 BFP 10040	50 BFP 10050	60 BFP 10060	95 BFP 10095	100 BFP 100100
105	110	104.964 104.929	110.000 110.035	105.000 105.087	60 BFP 10560	100 BFP 105100			
110	115	109.964 109.929	115.000 115.035	110.000 110.087	60 BFP 11060	100 BFP 110100			
115	120	114.964 114.929	120.000 120.035	115.000 115.087	60 BFP 11560	100 BFP 115100			
120	125	119.964 119.929	125.000 125.040	120.000 120.087	60 BFP 12060	100 BFP 120100			
125	130	124.957 124.917	130.000 130.040	125.000 125.100	60 BFP 12560	100 BFP 125100			
130	135	129.957 129.917	135.000 135.040	130.000 130.100	60 BFP 13060	100 BFP 130100			
135	140	134.957 134.917	140.000 140.040	135.000 135.100	60 BFP 13560	100 BFP 135100			
140	145	139.957 139.917	145.000 145.040	140.000 140.100	60 BFP 14060	100 BFP 140100			
145	150	144.957 144.917	150.000 150.040	145.000 145.100	60 BFP 14560	100 BFP 145100			
150	155	149.957 149.917	155.000 155.040	150.000 150.100	60 BFP 15060	100 BFP 150100			
155	160	154.957 154.917	160.000 160.040	155.000 155.100	60 BFP 15560	100 BFP 155100			
160	165	159.957 159.917	165.000 165.040	160.000 160.100	60 BFP 16060	100 BFP 160100			
165	170	164.957 164.917	170.000 170.040	165.000 165.100	60 BFP 16560	100 BFP 165100			
170	175	169.957 169.917	175.000 175.040	170.000 170.100	60 BFP 17060	100 BFP 170100			
175	180	174.957 174.917	180.000 180.040	175.000 175.100	60 BFP 17560	100 BFP 175100			
180	185	179.957 179.917	185.000 185.046	180.000 180.115	60 BFP 18060	100 BFP 180100			
185	190	184.950 184.904	190.000 195.046	185.000 185.115	60 BFP 18560	100 BFP 185100			
190	195	189.950 189.904	195.000 195.046	190.000 190.115	60 BFP 19060	100 BFP 190100			
195	200	194.950 194.904	200.000 200.046	195.000 195.115	60 BFP 19560	100 BFP 195100			
200	205	199.950 199.904	205.000 205.046	200.000 200.115	60 BFP 20060	100 BFP 200100			
205	210	204.950 204.904	210.000 210.046	205.000 205.115	60 BFP 20560	100 BFP 205100			
210	215	209.950 209.904	215.000 215.046	210.000 210.115	60 BFP 21060	100 BFP 210100			
215	220	214.950 214.904	220.000 220.046	215.000 215.115	60 BFP 21560	100 BFP 215100			
220	225	219.950 219.904	225.000 225.046	220.000 220.115	60 BFP 22060	100 BFP 220100			
225	230	224.950 224.904	230.000 230.046	225.000 225.115	60 BFP 22560	100 BFP 225100			
230	235	229.950 229.904	235.000 235.046	230.000 230.115	60 BFP 23060	100 BFP 230100			

Other sizes and lengths available to order

Bowman International Limited reserve the right to change specifications without prior notice. E & OE.



## Metric Flanged Wrapped Bronze CuSn8

Bush Bore Diameter	General Outside diameter of Bush	Flanged Diameter +/- 0.5	Journal Diameter	Housing Diameter	Bore of Bush in Housing	Standard Lengths L (+0.25)	
						15	25
25	28	35	24.980 24.959	28.000 28.021	25.000 25.052	15 BFF 2515	25 BFF 2525
30	34	45	29.980 29.959	34.000 34.025	30.000 30.062	20 BFF 3020	30 BFF 3030
35	39	50	34.975 34.950	39.000 39.025	35.000 35.062	20 BFF 3520	35 BFF 3535
40	44	55	39.975 39.950	44.000 44.025	40.000 40.062	25 BFF 4025	40 BFF 4040
45	50	60	44.975 44.950	50.000 50.025	45.000 45.062	30 BFF 4530	45 BFF 4545
50	55	65	49.975 49.950	55.000 55.030	50.000 50.062	30 BFF 5030	50 BFF 5050
55	60	70	54.970 54.940	60.000 60.030	55.000 55.074	30 BFF 5530	50 BFF 5550
60	65	75	59.970 59.940	65.000 65.030	60.000 60.074	30 BFF 6030	60 BFF 6060
65	70	80	64.970 64.940	70.000 70.030	65.000 65.074	30 BFF 6530	60 BFF 6560
70	75	85	69.970 69.940	75.000 75.030	70.000 70.074	40 BFF 7040	70 BFF 7070
75	80	90	74.970 74.940	80.000 80.030	75.000 75.074	40 BFF 7540	70 BFF 7570
80	85	100	79.964 79.929	85.000 85.035	80.000 80.074	40 BFF 8040	80 BFF 8080
90	95	110	89.964 89.929	95.000 95.035	90.000 90.087	50 BFF 9050	90 BFF 9090
100	105	120	99.964 99.929	105.000 105.035	100.000 100.087	50 BFF 10050	90 BFF 10090
110	115	130	109.964 109.929	115.000 115.035	110.000 110.087	50 BFF 11050	90 BFF 11090
120	125	140	119.964 119.929	125.000 125.040	120.000 120.087	50 BFF 12050	90 BFF 12090
130	135	155	129.957 129.917	135.000 135.040	130.000 130.100	60 BFF 13060	90 BFF 13090
140	145	165	139.957 139.917	145.000 145.040	140.000 140.100	60 BFF 14060	90 BFF 14090
150	155	180	149.957 149.917	155.000 155.040	150.000 150.100	60 BFF 15060	90 BFF 15090
160	165	190	159.957 159.917	165.000 165.040	160.000 160.100	60 BFF 16060	90 BFF 16090
170	175	200	169.957 169.917	175.000 175.040	170.000 170.100	60 BFF 17060	90 BFF 17090
180	185	215	179.957 179.917	185.000 185.046	180.000 180.115	60 BFF 18060	90 BFF 18090
190	195	225	189.950 189.904	195.000 195.046	190.000 190.115	60 BFF 19060	90 BFF 19090
200	205	235	199.950 199.904	205.000 205.046	200.000 200.115	60 BFF 20060	90 BFF 20090
225	230	260	224.950 224.904	230.000 230.046	225.000 225.115	60 BFF 22560	90 BFF 22590
250	255	290	249.950 249.904	255.000 255.052	250.000 250.115	60 BFF 25060	90 BFF 25090
265	270	305	264.944 264.892	270.000 270.052	265.000 265.130	60 BFF 26560	90 BFF 26590
285	290	325	284.944 284.892	290.000 290.052	285.000 285.130	60 BFF 28560	90 BFF 28590
300	305	340	299.944 299.892	305.000 305.052	300.000 300.130	60 BFF 30060	90 BFF 30090

Part numbers shown in table are for diamond pockets.  
If thru holes type are required, add "holes" after the part number.

Other sizes and lengths available to order

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## Mechanical properties WMG series (Thermoplastic composite bushes)



Min / Max operating temperature	-40°C to +130 °C
Tensile strength	210 MPa
Compressive strength	205 MPa (80N/mm <sup>2</sup> )
Maximum load	80 MPa
Shore D hardness	80
Coefficient of friction	0.08 – 0.15
Material nominal density	1.45 g/cm <sup>3</sup>
Modulus of elasticity	7800 MPa
Recommended shaft finish	Ra ≤ 0.4 m (N5)
Recommended Shaft Hardness	HRC60
Maximum sliding velocity - constant	1 m/s
Maximum sliding velocity - short period (Rotational)	2 m/s
Maximum sliding velocity (Linear)	4 m/s

### Material

Thermoplastic with Fibres and solid lubricants  
PA66 + GF + PTFE

### Recommended Fitting Data for WMG plain and flanged bushes

*(Dimensions and tolerances to Din 1494)*

Housing	H7
Shaft Size	h9
Bore of bush once fitted	E10
Flange outside diameter	d13
Flange thickness	+0/-0.14

### Recommended Fitting Data for WMG washers

Shaft Size	h9
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### Fitting Guidelines

Always use a fitting pin  
Chamfer lead in on housing to assist with assembly

### RoHS compliant

Suitable for food industry machinery

All testing carried out at 20°C

All dimensions and clearances are based on steel housings being used, Small allowances must be made for softer housing materials such as Aluminium.

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## WMG Metric Plain Plastic Bearings

Reference	Bore	Outside Diameter	Length (L)
WMG 0103 x L	1	3	02
WMG 0203 x L	2	3	03
WMG 02504 x L	2.5	4	05
WMG 0304 x L	3	4	03 05 06
WMG 0405 x L	4	5	04 06
WMG 04.5 06 x L	4.5	6	08
WMG 0407 x L	4	7	05
WMG 0506 x L	5	6	05 07
WMG 0507 x L	5	7	05 08 10
WMG 0607 x L	6	7	06 17.5
WMG 0608 x L	6	8	04 05 05.5 06 08 09 10 11 12 13 15 25
WMG 0708 x L	7	8	10 19
WMG 0709 x L	7	9	08 09 10 12
WMG 0809 x L	8	9	05 06 08 12
WMG 0810 x L	8	10	05 06 07 08 10 12 13 15 16 20 22
WMG 0911 x L	9	11	06
WMG 1011 x L	10	11	06 10 25
WMG 1012 x L	10	12	04 04.5 05 06 07 08 09 10 12 14 15 17 20
WMG 1213 x L	12	13	12 15
WMG 1214 x L	12	14	04 05 06 08 10 12 14 15 20 25
WMG 1215 x L	12	15	06 22
WMG 1216 x L	12	16	10 20
WMG 1315 x L	13	15	070 075
WMG 1315 x L	13	15	10 15 20 25
WMG 1416 x L	14	16	03 06 08 10 12 15 20 25
WMG 1516 x L	15	16	15
WMG 1517 x L	15	17	04 10 12 15 20 25
WMG 1618 x L	16	18	05.5 08 10 12 13.5 15 20 25 30 50
WMG 1820 x L	18	20	10 12 15 20 25 45
WMG 1922 x L	19	22	06 28 35
WMG 2021 x L	20	21	20
WMG 2022 x L	20	22	15 20 22 30
WMG 2023 x L	20	23	10 15 20 23 24 25 30
WMG 2224 x L	22	24	10 15 17 20 30
WMG 2225 x L	22	25	15 20 25 30
WMG 2427 x L	24	27	06 15 20 25 30
WMG 2526 x L	25	26	25
WMG 2528 x L	25	28	15 20 24 25 30 35 50
WMG 2630 x L	26	30	16
WMG 2730 x L	27	30	05
WMG 2832 x L	28	32	10.5 12 15 20 23 25 30
WMG 3031 x L	30	31	12 30
WMG 3034 x L	30	34	15 20 24 25 30 35 40 52.5
WMG 3236 x L	32	36	30 40
WMG 3539 x L	35	39	14 20 25 30 40 50
WMG 3640 x L	36	40	20
WMG 3741 x L	37	41	20
WMG 4044 x L	40	44	10 16 20 30 40 50

Larger plain sizes available data upon request

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## WMFG Flanged Plastic Bearings

Reference	Bore	Outside Diameter	Length (L)	Flange Outside diameter	Flange Thickness
WMFG 0304-02 x L	3	4	02	7.5	0.5
WMFG 03040-277-05 x L	3	4	02 0275 03 05	7	0.75
WMFG 0405-03 x L	4	5	03 04 06	9.5	0.75
WMFG 04050-04 x L	4	5	04 06	9.5	0.75
WMFG 040508-10 x L	4	5	10	8	1
WMFG 0506-035 x L	5	6	035 04 05 06 15	10	0.5
WMFG 0507-03 x L	5	7	03 04 05 30	11	1
WMFG 050709-05 x L	5	7	05	9.5	1
WMFG 050715-04 x L	5	7	04	15	1
WMFG 0607-024 x L	6	7	024	11	0.5
WMFG 0607-045 x L	6	7	045 06 10	11	0.5
WMFG 0607-06 x L	6	7	06 10	11	0.5
WMFG 0608-04 x L	6	8	025 04 048 05 06 07 08 10 25 35	12	1
WMFG 060814-12 x L	6	8	12 028	14	1
WMFG 0708-03 x L	7	8	03 08	12	0.5
WMFG 0709-06 x L	7	9	06 10 12	15	1
WMFG 070919-10 x L	7	9	10	19	1
WMFG 0809-03 x L	8	9	03 055 08 12	15	0.5
WMFG 0810-03 x L	8	10	03 04 0 065 07 09 10 15 25 30	15	1
WMFG 081012-125 x L	8	10	125	12	1
WMFG 081013-08 x L	8	10	8	13	1
WMFG 081014-06 x L	8	10	06 08 10	14	1
WMFG 081016-11 x L	8	10	11 155	16	1.5
WMFG 081017-15 x L	8	10	15	17	1
WMFG 0910-17 x L	9	10	065 17	15	0.5
WMFG 1011-10 x L	10	11	026 044 10	15	0.5
WMFG 1012-035 x L	10	12	035 04 05 06 07 09 10 12 15 17	18	1
WMFG 101214-07 x L	10	12	07	14	1
WMFG 101215-12 x L	10	12	06 09 12 15	16	1
WMFG 1213-03 x L	12	13	03 12	17	0.5
WMFG 1214-03 x L	12	14	03 06 07 09 10 11 12 15 17 20 24	20	1
WMFG 121418-04 x L	12	14	04 08 10 12 15 20	18	1
WMFG 1315-06 x L	13	15	06	22	1
WMFG 1416-03 x L	14	16	03 04 06 08 10 12 17 21	22	1
WMFG 1516-02 x L	15	16	02 025 03 15	20	0.5
WMFG 1517-04 x L	15	17	04 045 05 09 12 17 20	23	1
WMFG 151824-32 x L	15	18	32	24	1.5
WMFG 1618-04 x L	16	18	04 06 09 12 17 21	24	1
WMFG 1719-25 x L	17	19	09 25	25	1
WMFG 1820-04 x L	18	20	04 06 09 11 12 17 22 30 32	26	1
WMFG 182022-06 x L	18	20	6	22	1
WMFG 1822-28 x L	18	22	28	26	2
WMFG 2021-20 x L	20	21	20	25	0.5
WMFG 2023-07 x L	20	23	07 11 16 21	30	1.5
WMFG 202326-215 x L	20	23	21.5	26	1.5
WMFG 202328-15 x L	20	23	15	28	1.5
WMFG 222535-315 x L	22	25	315	35	1.5
WMFG 2427-07 x L	24	27	07 10	32	1.5
WMFG 2526-25 x L	25	26	25	30	0.5
WMFG 2527-48 x L	25	27	48	32	1
WMFG 2528-11 x L	25	28	11 16 21	35	1.5
WMFG 2830-10 x L	28	30	10 36	36 35	1
WMFG 283239-20 x L	28	32	20	39	2
WMFG 3031-20 x L	30	31	20 30	36 35	0.5
WMFG 3032-04 x L	30	32	04 12 17 22	37	1
WMFG 3034-09 x L	30	34	09 16 20 26 37	42	2
WMFG 3236-16 x L	32	36	16 26	40	2
WMFG 3438-50-35 x L	34	38	35	50	2
WMFG 3539-058 x L	35	39	058 07 16 26 36	47	2
WMFG 3842-22 x L	38	42	22	54	2
WMFG 4044-07 x L	40	44	07 14 20 30 40 50	52	2

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### WMWG Thrust Washers (Metric)

Reference	Bore	Outside Diameter	Washer Thickness (T)	Location hole diameter (mm)
WMWG 0509 x T	5	9	0.6	no location hole
WMWG 0615 x T	6	15	1.5	no location hole
WMWG 0620 x T	6	20	1.5	1.5
WMWG 0713 x T	7	13	0.5	no location hole
WMWG 0815 x T	8	15	0.5 (1.5 *)	1.5
WMWG 0818 x T	8	18	0.5 (1.5 *)	1.5
WMWG 0918 x T	9	18	1.5	1.5
WMWG 1018 x T	10	18	1.0 2.0	no location hole
WMWG 1224 x T	12	24	1.5	1.5
WMWG 1420 x T	14	20	1.5	no location hole
WMWG 1426 x T	14	26	1.5	2
WMWG 1522 x T	15	22	0.8	no location hole
WMWG 1524 x T	15	24	(1.5 *) 2.75	1.5
WMWG 1630 x T	16	30	1.5	2
WMWG 1832 x T	18	32	1.5	2
WMWG 2036 x T	20	36	1.5	3
WMWG 2238 x T	22	38	1.5	3
WMWG 2442 x T	24	42	1.5	3
WMWG 2644 x T	26	44	1.5	3
WMWG 2835 x T	28	35	0.5	no location hole
WMWG 2848 x T	28	48	1.5	4
WMWG 3254 x T	32	54	1.5	4
WMWG 3862 x T	38	62	1.5	4
WMWG 4266 x T	42	66	1.5	4
WMWG 4874 x T	48	74	2.0	4
WMWG 5278 x T	52	78	2.0	4
WMWG 6290 x T	62	90	2.0	4
WMWG 6881 x T	68	81	2.0	no location hole

\* denotes location hole is only standard in this washer thickness

Minimum order quantities and production lead times may apply to certain sizes

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## TWP Range of Acetal Copolymer Thrust Washers



- Good sliding properties
- Good temperature range
- Lightweight
- No maintenance
- Very good dimensional stability
- High impact strength
- Physiologically inert
- Good chemical resistance ( $4 < \text{pH} < 13$ )
- Excellent resilience
- Ideal for food industry

## Other Plastic Materials Available to Special Order

## Material Properties

### Acetal Copolymer (POM C)

Acetal Copolymer has a good combination of properties, including low moisture absorption, good dimensional stability, and low friction, making it suitable for Bearing applications.

### Technical Specification

Property	ASTM Methods	Units	ACETAL Copolymer
Colour	-	-	White
Specific Gravity	D792	-	1.41
Water Absorption			
Saturation in water	-	%	0.85
Tensile Strength	D638	N/mm <sup>2</sup>	70
Tensile Modulus	D638	N/mm <sup>2</sup>	3000
Elongation	D638	%	30
Flexural Strength	D790	N/mm <sup>2</sup>	-
Flexural Modulus	D790	N/mm <sup>2</sup>	-
Impact - Izod Notched	D256	J/m	80
Hardness	Rockwell Shore D	- -	M86 -
Melt Point	D2117	°C	165
Max allowable service temp in air			
for short periods	-	°C	140
continuously for 20,000hrs	-	°C	100
Linear thermal expansion coefficient	D696	K <sup>-1</sup> x10 <sup>-5</sup>	12.5
Thermal Conductivity	C117	W/K.m	0.31
Flammability	UL	-	HB
Volume Resistivity	D257	Ohm.cm	10 <sup>14</sup>
Dielectric Strength	D149	kV/mm	20
Coefficient of friction (dryVs steel) dynamic		μ	0.25-0.30
Limiting PV (V= 0.1 m/s) unlubricated		N/mm <sup>2</sup>	m/s 0.16
(V= 1.0 m/s) unlubricated		N/mm <sup>2</sup>	m/s 0.10
continuously lubricated		N/mm <sup>2</sup>	m/s 0.50
Maximum long term static load		N/mm <sup>2</sup>	22
Maximum velocity (sliding dry)		m/s	2
Outside applications - UV resistance	-	-	C/B
Acids - Strong (pH <3)	-	-	C
Alkalis - Strong (pH >11)	-	-	A
Chlorinated Hydrocarbons	-	-	A/B
Hot Water	-	-	A

'A' - No attack; 'B' - Mild attack by absorption; 'C' - Dimensional change due to absorption, 'D' - Decomposition in short time.

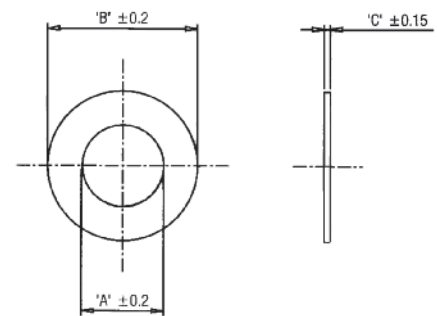
This data gives typical values and are not intended to represent specification. Their aim is to guide the user towards a material choice.

The warranties given by Bowman International Ltd ("Bowman") are as set out in their Conditions of Business, subject to which the products referred to in this brochure are offered. Copies of our conditions are available on request.

The suitability of the proposed use of any of the products for any particular purpose is the responsibility of the customer.

### Metric Stock Sizes

DIM 'A'	DIM 'B'	DIM 'C'	PART No.
10.7	24	1.5	TWP 24
12.7	26	1.5	TWP 26
16.7	30	1.5	TWP 30
16.7	32	1.5	TWP 32
18.7	36	1.5	TWP 36
20.7	38	1.5	TWP 38
24.7	42	1.5	TWP 42
24.7	44	1.5	TWP 44
25.7	48	1.5	TWP 48
28.7	48	1.5	TWP 48-A
30.7	54	1.5	TWP 54
36.2	62	1.5	TWP 62
41.2	66	1.5	TWP 66
46.2	74	2	TWP 74
51.2	78	2	TWP 78



### Metric Stock Sizes

DIM 'A'	DIM 'B'	DIM 'C'	PART No.
12	20	1.5	TWP 20-1
12	24	1.5	TWP 24-1
14	26	1.5	TWP 26-1
16	30	1.5	TWP 30-1
18	32	1.5	TWP 32-1
20	36	1.5	TWP 36-1
22	38	1.5	TWP 38-1
24	42	1.5	TWP 42-1
26	44	1.5	TWP 44-1
28	48	1.5	TWP 48-1
32	54	1.5	TWP 54-1
38	62	1.5	TWP 62-1
42	66	1.5	TWP 66-1
48	74	2	TWP 74-1
52	78	2	TWP 78-1

Inch and special sizes can be produced promptly to order.

Bowman International Limited reserve the right to change specifications without prior notice E & OE



## Carbon bearings, seals and components for very high temperature and hostile environments

### Material Specification

Grade	Specific Gravity (g/cm <sup>3</sup> )	Specific Resistance (μΩm)	Flexural Strength (Kg/cm <sup>2</sup> ) (Mpa)		Shore Hardness (RH)	CTE *	Thermal Conductivity (kcal) (W/mk)		Operating Temperature (°C)	Application
ETT	1-8	11	310	30.0	55	2-2	118	125	† -50 to +600	Bearings low loads and speeds
KE25	1-75	8	250	24.5	35	3-3	150	174	† -50 to +600	Very high temperature components
KE K1	1-85	11	500	49.0	58	5-5	100	116	† -50 to +600	Bearings high loads and speeds
KE Hz2	1-9	20	360	35.0	45	3-7	24	28	† -50 to +600	Seals

All carbon products are produced to customers specific requirements. Other grades can be supplied upon request.

\* CTE = coefficient of thermal expansion.

† These materials can operate up to 2000°C but oxidation will start to occur at 500°C.

This data gives typical values and are not intended to represent specification. Their aim is to guide the user towards a material choice.

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The suitability of the proposed use of any of the products for any particular purpose is the responsibility of the customer.

Bowman International Limited reserve the right to change specifications without prior notice E & OE



## Cast bronze bearings with solid graphite lubrication



### All these bearings are made to order. Other shapes can be offered.

Graphite loaded bearings can withstand very high temperatures up to 425 °C (800 °F) as well as cryogenic temperatures down to -200 C (-400 °F) depending on the bronze material and graphite selected. This makes them ideal where conventional lubricants would carbonise. Please contact our technical department to ascertain which would be the most suitable combination to suit your application.

Typical applications are ovens, kilns, dryers, injection moulding machines, dust collectors, louvers and hot conveyors.

These bearings are also ideal in dry environments where contamination is undesirable. Typical applications would be printing, textile, and food machinery, as well as machines for making pills and cosmetic products.

They are also used extensively for wet applications where there is high humidity, or in submersed pumps, textile finishing machinery, lock gates, water turbines, chemical processing and plating applications.

This type of bearing is also useful where the bearings are in an inaccessible location, as they are lubricated for life.

#### Cast bronze specification.

Cu 65%, Zn 25%, Ai 6%, Mn 4%.

Density 8 g/cm<sup>3</sup>, Hardness HB >210, Tensile strength N/mm<sup>2</sup> >750.

Elongation % > 12, Linear expansion 1.9-10<sup>-5</sup>/ °C. Max temp 300 °C (570 °F).

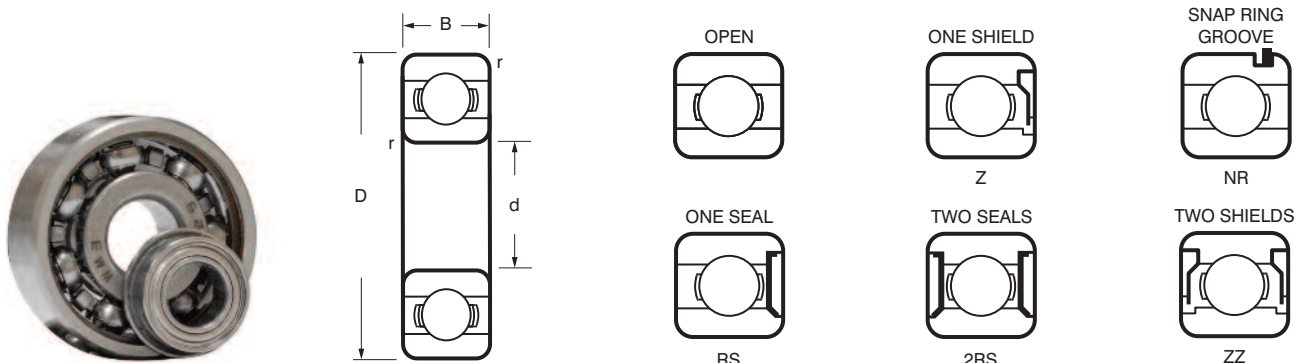
Max load N/mm<sup>2</sup> 100, Max speed m/min 15, PV N/mm<sup>2</sup>-m/min 200.

Other cast bronze specifications are available which can operate up to 425 °C.

Different shapes can be manufactured to suit customer requirements.

*Bowman International Limited reserve the right to change specifications without prior notice E & OE*





### Ball Bearings 6000 Series

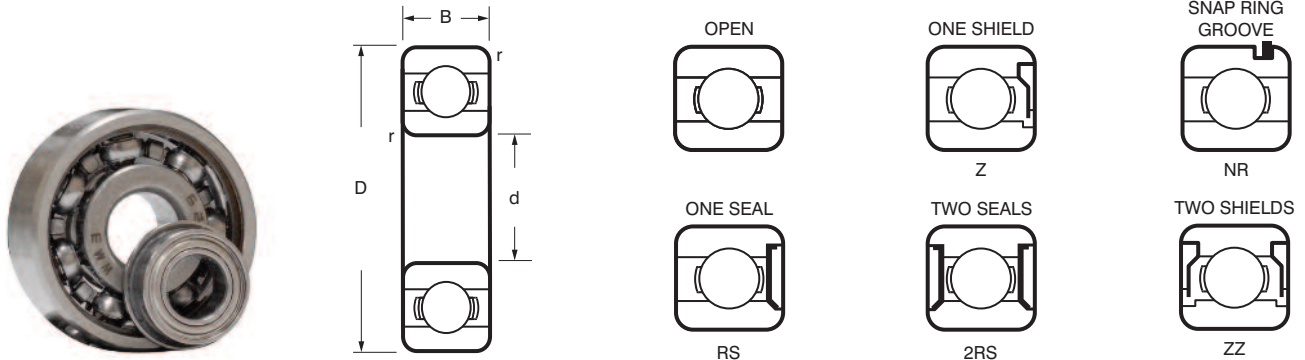
Bearing Number	Nominal Dimensions			Basic load ratings		Limiting speeds	
	d	D (mm)	B	Dynamic (N)	Static	Grease (RPM)	Oil
WM 6000*	10	26	8	4620	1960	30000	36000
WM 6001*	12	28	8	5070	2360	26000	32000
WM 6002*	15	32	9	5590	2850	22000	28000
WM 6003*	17	35	10	6050	3250	19000	24000
WM 6004*	20	42	12	9360	5000	17000	20000
WM 6005*	25	47	12	11200	6550	15000	18000
WM 6006*	30	55	13	13300	8300	12000	15000
WM 6007*	35	62	14	15900	10200	10000	13000
WM 6008*	40	68	15	16800	11600	9500	12000
WM 6009*	45	75	16	20800	14600	9000	11000
WM 6010*	50	80	16	21600	16000	8500	10000
WM 6011*	55	90	18	28100	21200	7500	9000
WM 6012	60	95	18	29600	23200	6700	8000
WM 6013	65	100	18	30700	25000	6300	7500
WM 6014	70	110	20	37700	31000	6000	7000
WM 6015	75	115	20	39700	33500	5600	6700
WM 6016	80	125	22	47500	40000	5300	6300
WM 6017	85	130	22	49400	43000	5000	6000
WM 6018	90	140	24	58500	50000	4800	5600
WM 6019	95	145	24	60500	54000	4500	5300
WM 6020	100	150	24	60500	54000	4300	5000

\*These bearings are also available in 440 c stainless steel.

Various changes can be made to these bearings including:

- Circlip grooves
- Modified bores
- Modified O/D's
- Modified lengths
- Anti-rotation slots
- Different radial play
- Taper bores
- Special cages
- Wire grooves "v" or radius

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### Ball Bearings 6200 Series

Bearing Number	Nominal Dimensions			Basic load ratings		Limiting speeds	
	d	D (mm)	B	Dynamic (N)	Static	Grease (RPM)	Oil
WM 6200*	10	30	9	5070	2360	24000	30000
WM 6201*	12	32	10	6890	3100	22000	28000
WM 6202*	15	35	11	7800	3750	19000	24000
WM 6203*	17	40	12	9560	4750	17000	20000
WM 6204*	20	47	14	12700	6550	15000	18000
WM 6205*	25	52	15	14000	7800	12000	15000
WM 6206*	30	62	16	19500	11200	10000	13000
WM 6207*	35	72	17	25500	15300	9000	11000
WM 6208*	40	80	18	30700	19000	8500	10000
WM 6209*	45	85	19	33200	21600	7500	9000
WM 6210*	50	90	20	35100	23200	7000	8500
WM 6211*	55	100	21	43600	29000	6300	7500
WM 6212	60	110	22	47500	32500	6000	7000
WM 6213	65	120	23	55900	40500	5300	6300
WM 6214	70	125	24	60500	45000	5000	6000
WM 6215	75	130	25	66300	49000	4800	5600
WM 6216	80	140	26	70200	55000	4500	5300
WM 6217	85	150	28	83200	64000	4300	5000
WM 6218	90	160	30	95600	73500	3800	4500
WM 6219	95	170	32	10800	81500	3600	4300
WM 6220	100	180	34	124000	93000	3400	4000

\*These bearings are also available in 440 c stainless steel.

### Ball Bearings 6300 Series

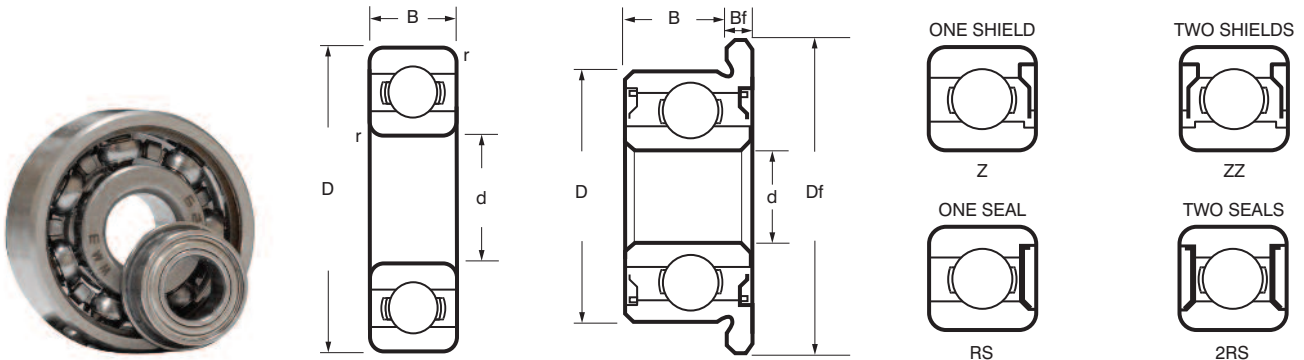
Bearing Number	Nominal Dimensions			Basic load ratings		Limiting speeds	
	d	D (mm)	B	Dynamic (N)	Static	Grease (RPM)	Oil
WM 6300*	10	35	11	8060	3400	20000	26000
WM 6301*	12	37	12	9750	4150	19000	24000
WM 6302*	15	42	13	11400	5400	17000	20000
WM 6303*	17	47	14	13500	6550	16000	19000
WM 6304*	20	52	15	15900	7800	13000	16000
WM 6305*	25	62	17	22500	11600	11000	14000
WM 6306*	30	72	19	28100	16000	9000	11000
WM 6307*	35	80	21	33200	19000	8500	10000
WM 6308*	40	90	23	41000	24000	7500	9000
WM 6309*	45	100	25	52700	31500	6700	8000
WM 6310*	50	110	27	61800	38000	6300	7500
WM 6311*	55	120	29	71500	45000	5600	6700
WM 6312	60	130	31	81900	52000	5000	6000
WM 6313	65	140	33	92300	60000	4800	5600
WM 6314	70	150	35	104000	68000	4500	5300
WM 6315	75	160	37	114000	76500	4300	5000

\*These bearings are also available in 440 c stainless steel.

Various changes can be made to these bearings including:

- Circlip grooves
- Modified bores
- Modified O/D's
- Modified lengths
- Anti-rotation slots
- Different radial play
- Taper bores
- Special cages
- Wire grooves "v" or radius

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### Metric Miniature Bearings

Bearing Number	Nominal Dimensions				Basic load		Flange Diameter Df (mm)	Flange Width Bf		Weight	
	d	D	B		Dynamic	Static		Open	Sealed	Open	Sealed
	(mm)				(N)		(mm)		(g)		
WM MR106	6	10	2.5	3.0	496	218	11.2	0.6	0.6	0.55	0.70
WM MR126	6	12	3.0	4.0	714	295	13.2	0.6	0.8	1.25	1.66
WM 686	6	13	3.5	5.0	1082	442	15.0	1.0	1.1	1.87	2.68
WM 696	6	15	5.0	5.0	1340	523	17.0	1.2	1.2	3.85	3.65
WM 606	6	17	6.0	6.0	2263	846	19.0	1.2	1.2	5.94	6.89
WM 626	6	19	6.0	6.0	2336	896	22.0	1.5	1.5	8.12	8.65
WM 636	6	22	7.0	7.0	3333	1423	25.0	1.5	1.5	13.90	14.50
WM MR117	7	11	2.5	3.0	455	202	12.2	0.6	0.6	0.59	0.71
WM MR137	7	13	3.0	4.0	541	276	14.2	0.6	0.8	1.52	2.01
WM 687	7	14	3.5	5.0	1173	613	16.0	1.0	1.1	2.03	2.95
WM 697	7	17	5.0	5.0	1605	719	19.0	1.2	1.2	5.26	6.01
WM 607	7	19	6.0	6.0	2336	896	22.0	1.5	1.5	7.80	8.24
WM 627	7	22	7.0	7.0	3287	1379	25.0	1.5	1.5	12.70	13.10
WM 637	7	26	9.0	9.0	4563	1983	29.0	2.0	2.0	24.20	25.80
WM MR128	8	12	2.5	3.5	543	274	13.2	0.6	0.8	0.70	0.99
WM MR148	8	14	3.5	4.0	817	386	15.6	0.8	0.8	1.90	2.19
WM 688	8	16	4.0	5.0	1252	592	18.0	1.0	1.1	3.11	4.05
WM 698	8	19	6.0	6.0	2237	917	22.0	1.5	1.5	7.12	7.57
WM 608	8	22	7.0	7.0	3293	1379	25.0	1.5	1.5	11.80	12.90
WM 628	8	24	8.0	8.0	3333	1423				17.10	18.50
WM 638	8	28	9.0	9.0	4563	1983				28.10	30.30
WM 679	9	14	3.0	4.5	919	468	15.5	0.8	0.8	1.35	1.98
WM 689	9	17	4.0	5.0	1327	668	19.0	1.0	1.1	3.41	4.38
WM 699	9	20	6.0	6.0	2467	1081	23.0	1.5	1.5	8.38	8.54
WM 609	9	24	7.0	7.0	3356	1444	27.0	1.5	1.5	14.70	16.00
WM 629	9	26	8.0	8.0	4575	1983				19.00	21.80
WM 639	9	30	10.0	10.0	4659	2080				36.20	37.10

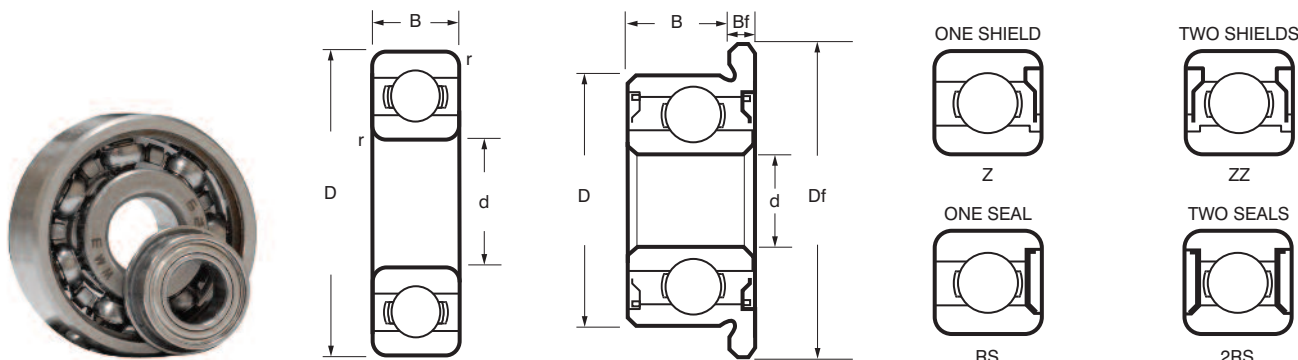
All bearings are also available in 440 c stainless steel.

All bearings are also available with ceramic balls.

Various changes can be made to these bearings including:

- Circlip grooves
- Modified bores
- Modified O/D's
- Modified lengths
- Anti-rotation slots
- Different radial play
- Taper bores
- Special cages
- Wire grooves "v" or radius

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### Metric Miniature Bearings

Bearing Number	Nominal Dimensions				Basic load		Flange Diameter Df (mm)	Flange Width Bf (mm)		Weight (g)	
	d	D	B		Dynamic	Static		Open	Sealed	Open	Sealed
	(mm)				(N)		(mm)		(g)		
WM 682	2	5	1.5	2.3	169	50	6.1	0.5	0.6	0.15	0.20
WM MR52	2	5	2.0	2.5	169	50	6.2	0.6	0.6	0.14	0.20
WM 692	2	6	2.3	3.0	330	99	7.5	0.6	0.8	0.28	0.35
WM MR62	2	6	2.5	2.5	330	99	7.2	0.6	0.6	0.28	0.33
WM MR72	2	7	2.5	3.0	386	129	8.2	0.6	0.6	0.43	0.53
WM 602	2	7	2.8	3.5	386	129	8.5	0.7	0.9	0.50	0.60
WM MR63	3	6	2.0	2.5	209	74	7.2	0.6	0.6	0.20	0.28
WM 683	3	7	2.0	3.0	311	112	8.1	0.5	0.8	0.32	0.45
WM MR83	3	8	2.5	3.0	395	141	9.2	0.6	0.6	0.51	0.67
WM 693	3	8	3.0	4.0	558	180	9.5	0.7	0.9	0.60	0.80
WM MR93	3	9	2.5	4.0	571	189	10.2	0.6	0.8	0.75	1.30
WM 603	3	9	3.0	5.0	571	189	10.5	0.7	1.0	0.84	1.43
WM 623	3	10	4.0	4.0	631	219	11.5	1.0	1.0	1.45	1.65
WM 633	3	13	5.0	5.0	1301	488	15.0	1.0	1.0	3.27	3.43
WM MR74	4	7	2.0	2.5	311	115	8.2	0.6	0.6	0.23	0.33
WM MR84	4	8	2.0	3.0	395	141	9.2	0.6	0.6	0.39	0.56
WM 684	4	9	2.5	4.0	641	227	10.3	0.6	1.0	0.65	1.00
WM MR104	4	10	3.0	4.0	711	272	11.2	0.6	0.8	0.96	1.33
WM 694	4	11	4.0	4.0	957	350	12.5	1.0	1.0	1.69	1.75
WM 604	4	12	4.0	4.0	957	350	13.5	1.0	1.0	2.19	2.34
WM 624	4	13	5.0	6.0	1301	488	15.0	1.0	1.0	3.10	3.20
WM 634	4	16	5.0	6.0	1340	523	18.0	1.0	1.0	5.24	5.44
WM MR85	5	8	2.0	2.5	308	120	9.2	0.6	0.6	0.25	0.34
WM MR95	5	9	2.5	3.0	431	169	10.2	0.6	0.6	0.54	0.58
WM MR105	5	10	3.0	4.0	431	169	11.2	0.6	0.8	0.91	1.26
MR115	5	11		4.0	716	282	12.6		0.8		0.62
WM 685	5	11	3.0	5.0	716	282	12.5	0.8	1.0	1.16	1.93
WM 695	5	13	4.0	4.0	1077	432	15.0	1.0	1.0	2.39	2.31
WM 605	5	14	5.0	5.0	329	507	16.0	1.0	1.0	3.46	3.75
WM 625	5	16	5.0	5.0	1729	675	18.0	1.0	1.0	4.95	5.10
WM 635	5	19	5.0	5.0	2336	896	22.0	1.5	1.5	8.50	8.89

All bearings are also available in 440 c stainless steel.

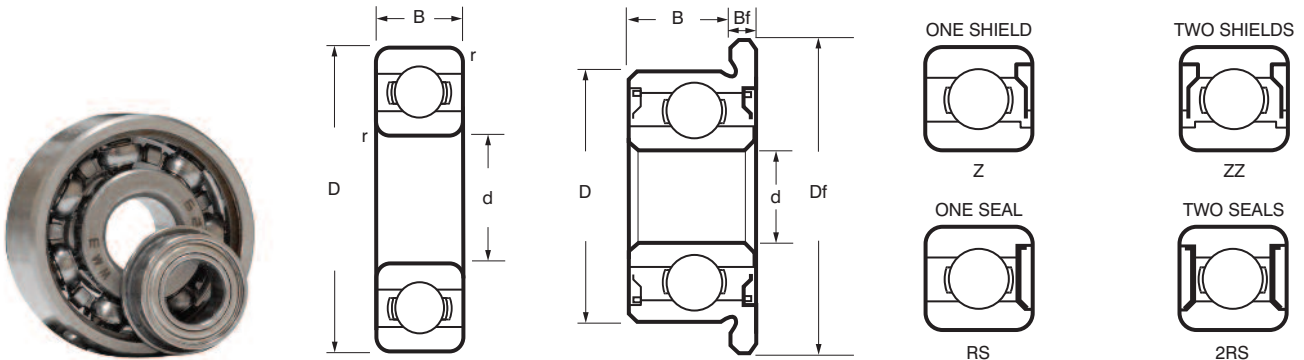
All bearings are also available with ceramic balls.

Various changes can be made to these bearings including:

- Circlip grooves
- Modified lengths
- Taper bores
- Modified bores
- Anti-rotation slots
- Special cages
- Modified O/D's
- Different radial play
- Wire grooves "v" or radius

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### Imperial Miniature Bearings

Bearing Number	Nominal Dimensions				Basic load		Flange Diameter Df (mm)	Flange Width Bf		Weight	
	d	D	B		Dynamic	Static		Open	Sealed	Open	Sealed
	(mm)				(N)		(mm)		(g)		
WM R133	0.0937	0.1875	0.0625	0.0937	189	60	0.2340	0.0180		0.10	0.15
WM RI.5	0.0937	0.3125	0.1094	0.1406	552	176	0.3590	0.0230	0.0310	0.60	1.15
WM R144	0.1250	0.2500	0.0937	0.1094	284	96	0.2960	0.0230	0.0310	0.27	0.40
WM R2.5	0.1250	0.3125	0.1094	0.1406	558	180	0.3590	0.0230	0.0310	0.50	0.74
WM R2.6	0.1250	0.3750	0.1094	0.1406	640	227	0.4220	0.0230	0.0310	0.96	1.23
WM R2	0.1250	0.3750	0.1562	0.1562	631	219	0.4400	0.0300	0.0300	1.04	1.37
WM R2A	0.1250	0.5000	0.1719	0.1719	640	227				3.30	3.30
WM R155	0.1562	0.3125	0.1094	0.1250	359	150	0.3590	0.0230	0.0360	0.51	0.61
WM R156	0.1875	0.3125	0.1094	0.1250	359	150	0.3590	0.0230	0.0360	0.40	0.45
WM R166	0.1875	0.3750	0.1250	0.1250	709	272	0.4220	0.0230	0.0310	0.81	0.85
WM R3	0.1875	0.5000	0.1562	0.1960	1301	488	0.5650	0.0420	0.0420	2.21	2.95
WM R3A	0.1875	0.6250	0.1960	0.1960	1480	621				4.75	5.08
WM R168	0.2500	0.3750	0.1250	0.1250	373	172	0.4220	0.0230	0.0360	0.57	0.60
WM R188	0.2500	0.5000	0.1250	0.1875	1082	442	0.5470	0.0230	0.0450	1.60	2.32
WM R4	0.2500	0.6250	0.1960	0.1960	1480	621	0.6900	0.0420	0.0420	4.46	4.54
WM R4A	0.2500	0.7500	0.2188	0.2812	2336	896				7.48	10.00
WM R1810	0.3125	0.5000	0.1562	0.1562	542	276	0.5470	0.0310	0.0310	1.39	1.57
WM R6	0.3750	0.8750	0.2188	0.2812	3332	1422	0.9690	0.0620	0.0620	9.02	11.70
WM R8	0.5000	1.1250	0.2500	0.3125	5108	2413	1.2252	0.0620	0.0620	11.60	24.10

All bearings are also available in 440 c stainless steel.

All bearings are also available with ceramic balls.

Various changes can be made to these bearings including:

- Circlip grooves
- Modified bores
- Modified O/D's
- Modified lengths
- Anti-rotation slots
- Different radial play
- Taper bores
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## K-Couplings® Metric

### Construction

The K-Coupling® is made of double-loop ELASTACAST® polyurethane elastomeric material assembled to zinc plated steel hubs. The crimping process is done by specialized equipment which guarantees the perfect crimp required for long life and excellent performance. The hubs mount to shafts using Allen screws. Keyed hubs are available in the 5803 and 5804 series.

### Hub Features

- Annealed steel for maximum strength
- Stainless steel also available
- Zinc plated to resist corrosion
- Inside hub placement decreases overall length on Series 5802, 5803 and 5804
- Rounded corners prevent cutting
- Precision swaged mechanical crimp
- Makes use of standard size set screws
- AGMA class 2 bore tolerance:  
-0 +0.05mm
- Keyways available to order

### Element Features

- Polyurethane material is cut and tear resistant
- Unique design configuration provides maximum flexibility
- Generous radius for added strength
- Full wrap-around design holds securely to hub

## Easy to Select, Even Easier to Mount Steps to follow in selecting your K-Coupling®

1. Determine the horsepower (torque) requirement of your application. Allow for peak start/stop torque. Make sure the torque requirement is within the K-Coupling® rating limits. See tables.
2. Determine the amount of space available for installing the coupling. Compare this with the hub-to-hub and outside loop dimensions shown.
3. Consider the shaft sizes involved and the amount of space between them, because the required bore size on one hub sometimes differs from the other.
4. Predetermine the maximum degree of angular and parallel misalignment for which the coupling will have to compensate. Be sure your requirements are within the recommended limits.
5. Decide whether a keyway will really be necessary. If so, they are available at extra cost on series 5803 and 5804.
6. Standard keyways:  
3mm for 12mm shafts and 5mm for 14mm, 15mm and 16mm shafts.
7. Recommended continuous operating temperature for the K-Coupling® is 18°C to 83°C in many atmospheres, however consideration must be given to exposure to solvents, chemicals, acids and gases.





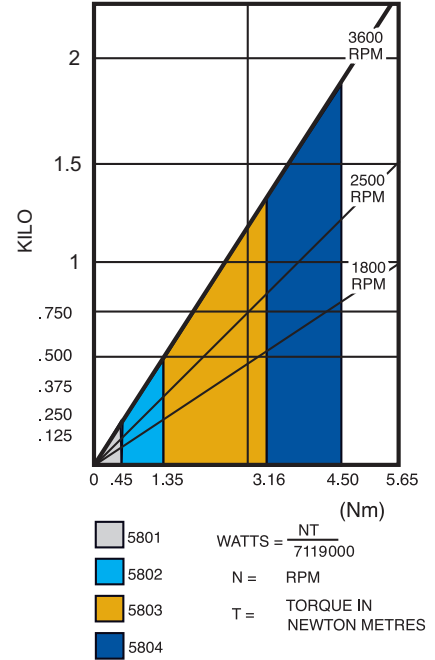
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### K-Coupling® Metric

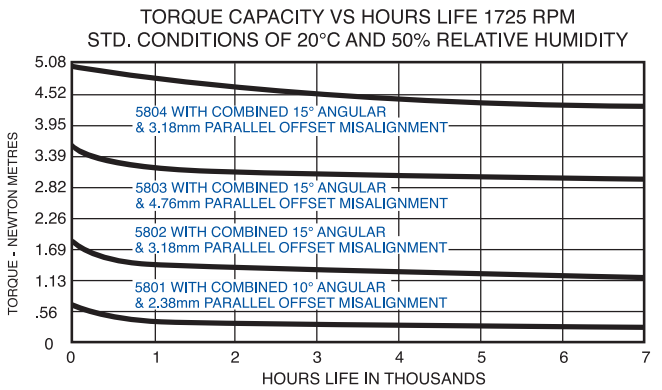
Series	Bore Sizes		Part No.
5801	3mm	3mm	50133A1
	4mm	4mm	50144A1
		5mm	50145A1
		6mm	50146A1
	5mm	5mm	50155A1
	6mm	6mm	50166A1
		8mm	50168A1
		8mm	50188A1
5802	4mm	4mm	50244A1
	6mm	6mm	50266A1
		8mm	50268A1
	8mm	8mm	50288A1
		10mm	50208A2
	10mm	10mm	50200A3
		12mm	50202A3
		11mm	50211A3
	12mm	50222A3	

Series	Bore Sizes		Part No.
5803	6mm	6mm	50366A1
		8mm	50368A1
		8mm	50388A3
		10mm	50308A7
	10mm	10mm	50300A8
		12mm	50302A8
	12mm	12mm	50322A8
		14mm	50344A8
5804		15mm	50345A8
	16mm	16mm	50366A8
	6mm	6mm	50466A5
	8mm	8mm	50488A5
		10mm	50408A7
	10mm	10mm	50400A8
		12mm	50402A7
	12mm	12mm	50422A8
		14mm	50444A8
		15mm	50455A8
		16mm	50466A8

### KILO WATTS - TORQUE



Part No.	A	B	C	D	Set Screw	Capacity
Series 5801	28mm	28mm	17.5mm	1.5mm	M3.5	.34Nm Max. misalignment 10° Angular 2.38mm Parallel
	AVAILABLE IN BORE SIZES OF 4mm, 5mm, 6mm, 8mm, 10mm					
Series 5802	47.5mm	44.5mm	25.5mm	9.5mm	M.5	1.36Nm Max. misalignment 15° Angular 3mm Parallel
	AVAILABLE IN BORE SIZES OF 6mm, 8mm, 10mm, 12mm, 14mm					
Series 5803	54mm	54mm	28.58mm	11mm	M.6	3.16Nm Max. misalignment 15° Angular 4.75mm Parallel
AVAILABLE IN BORE SIZES OF 10mm, 12mm, 14mm, 16mm						
Series 5804	54mm	60mm	28.58mm	9.5mm	M.6	4.52Nm Max. misalignment 15° Angular 3mm Parallel
AVAILABLE IN BORE SIZES OF 12mm, 14mm, 16mm						



NOTE: Service factors should be applied when calculating torque capacity requirements

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LRQ 0960929

## K-Couplings® Imperial

### Construction

The K-Coupling® is made of double-loop ELASTACAST® polyurethane elastomeric material assembled to zinc plated steel hubs. The crimping process is done by specialized equipment which guarantees the perfect crimp required for long life and excellent performance. The hubs mount to shafts using Allen screws. Keyed hubs are available in the 5803 and 5804 series.

### Hub Features

- Annealed steel for maximum strength
- Stainless steel also available
- Zinc plated to resist corrosion
- Inside hub placement decreases overall length on Series 5802, 5803 and 5804
- Rounded corners prevent cutting
- Precision swaged mechanical crimp
- Makes use of standard size set screws
- AGMA class 2 bore tolerance: -.000/+ .002" (-0 +0.05mm)
- Keyways available to order

### Element Features

- Polyurethane material is cut and tear resistant
- Unique design configuration provides maximum flexibility
- Generous radius for added strength
- Full wrap-around design holds securely to hub

## Easy to Select, Even Easier to Mount Steps to follow in selecting your K-Coupling®

1. Determine the horsepower (torque) requirement of your application. Allow for peak start/stop torque. Make sure the torque requirement is within the K-Coupling® rating limits. See tables.
2. Determine the amount of space available for installing the coupling. Compare this with the hub-to-hub and outside loop dimensions shown.
3. Consider the shaft sizes involved and the amount of space between them, because the required bore size on one hub sometimes differs from the other.
4. Predetermine the maximum degree of angular and parallel misalignment for which the coupling will have to compensate. Be sure your requirements are within the recommended limits.
5. Decide whether a keyway will really be necessary. If so, they are available at extra cost on series 5803 and 5804.
6. Standard keyways:  
1/8" for 1/2" shafts and 3/16" for 9/16" and 5/8" shafts.
7. Recommended continuous operating temperature for the K-Coupling® is 0°F (18°C) to 180°F (83°C) in many atmospheres, however consideration must be given to exposure to solvents, chemicals, acids and gases.



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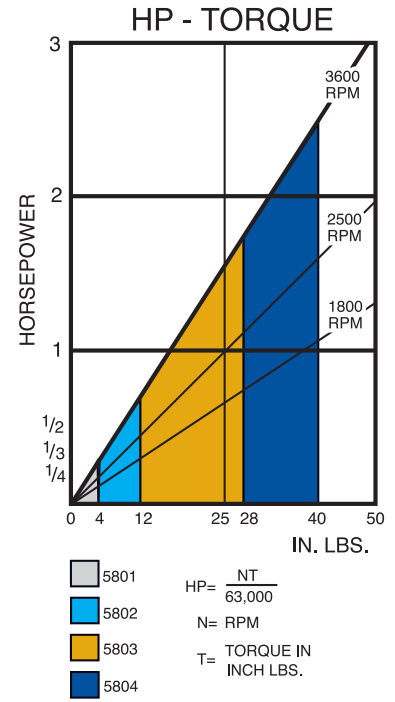


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## K-Coupling® Imperial

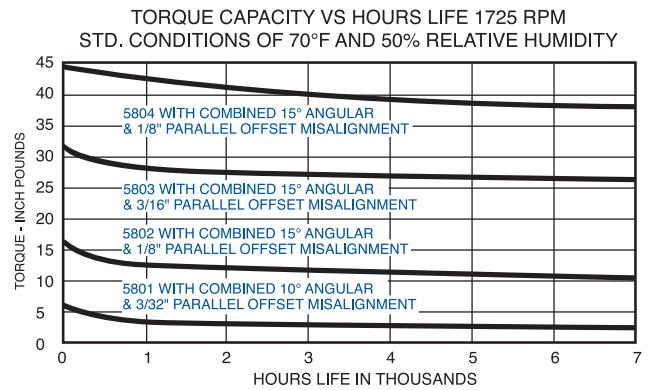
Series	Bore Sizes	Part No.
5801	3/16	58133T3
	1/4	58134T3
	5/16	58135T3
	3/8	58136T3
	1/4	58144T3
	5/16	58145T3
	3/8	58146T3
	5/16	58155T3
	3/8	58156T3
	3/8	58166T3
5802	1/4	58244M3
	5/16	58245M3
	3/8	58246M3
	7/16	58247M3
	1/2	58248M3
	5/16	58255M3
	3/8	58256M3
	7/16	58257M3
	1/2	58258M3
	3/8	58266M3
	7/16	58267M3
	1/2	58268M3
	7/16	58277M3
	1/2	58278M3
	1/2	58288M3

Series	Bore Sizes	Part No.
5803	3/8	58366M3
	7/16	58367M3
	1/2	58368M3
	9/16	58369M3
	5/8	58360M3
	7/16	58377M3
	1/2	58378M3
	9/16	58379M3
	5/8	58370M3
	1/2	58388M3
	9/16	58389M3
	5/8	58380M3
	9/16	58399M3
	5/8	58390M3
5804	1/2	58488M3
	9/16	58489M3
	5/8	58480M3
	9/16	58499M3
	5/8	58490M3
	5/8	58400M3



Part No.	A	B	C	D	Set Screw	Capacity
Series 5801	7/8"	1 1/8"	1 1/16"	1/16"	6-32	3 inch pounds Max. misalignment 10° Angular 3/32" Parallel
	AVAILABLE IN BORE SIZES OF 3/16", 1/4", 5/16", 3/8"					
Series 5802	1 7/8"	1 3/4"	1"	3/8"	10-24	12 inch pounds Max. misalignment 15° Angular 1/8" Parallel
	AVAILABLE IN BORE SIZES OF 1/4", 5/16", 3/8", 7/16", 1/2"					
Series 5803	2 1/8"	2 1/8"	1 1/8"	7/16"	1/4 - 20	28 inch pounds Max. misalignment 15° Angular 3/16" Parallel
	AVAILABLE IN BORE SIZES OF 3/8", 7/16", 1/2", 9/16", 5/8"					
Series 5804	2 1/8"	2 3/8"	1 1/4"	3/8"	1/4 - 20	40 inch pounds Max. misalignment 15° Angular 1/8" Parallel
	AVAILABLE IN BORE SIZES OF 1/2", 9/16", 5/8"					

\* Dimension at widest diagonal points



NOTE: Service factors should be applied when calculating torque capacity requirements



## Inspection Room



Bowmans new inspection room has been equipped with the latest state of the art Mitutoyo inspection equipment and other supporting equipment.

### On the right is the **Mitutoyo Coordinate Measuring Machine QM-M 333**

This machine is a fast, precise and flexible instrument for making manual 3D measurements.

- Fast, simple menu-based measuring procedures allow workpiece features to be measured directly without needing to deal with co-ordinates.
- High measuring precision with fast, direct processing of measurement data.
- Unique 'open space' design permits easy loading and unloading with obstructed access for the operator.
- Integrated thermal-effect compensation system for instrument and workpiece, effective over the temperature range 15 to 30°C.
- Complete with printer

### On the left is the **Mitutoyo Form Measurement Roundtest Machine RA-114**

Compact, stand-alone equipment for precise, effective and easy form measurement. The large, easy to read display shows measurement results at a glance. Excellent for checking concentricity and roundness.

- Stand-alone machine with built-in processor and display
- Simple manual alignment of workpiece
- Large centring range
- Built-in printer

### In the centre is the **Mitutoyo Quick Scope**

Manual vision system for reliable, non-contact precision measurement. A compact, economical desktop instrument for uncomplicated measurements of single parts.

- Objective 2.5X as standard
- Power zoom allows for fast and easy magnification change

In addition to supplying inspection equipment, Mitutoyo also offers Bowman comprehensive support and training delivered by highly skilled engineers, along with a calibration service to ensure that high levels of accuracy are maintained.

This equipment enables Bowman to maintain their high quality standards.

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## Oilite® Sintered Bearings and Structural Parts

### A leading force in precision component manufacturing

For more than 80 years OILITE® has been at the forefront of precision engineering component manufacture.

OILITE® products range from pump components, sprockets, ABS rings, gears, exhaust flanges to tooth belt pulleys. Service for the European market is handled from our headquarters in the United Kingdom.

Innovative problem solving combined with our strong manufacturing and technical expertise puts us in the best possible position to service our markets.

Our flexible manufacturing approach and technical competence allows for tight deadlines, competitive pricing and comparatively small volumes as our systems are designed with our customers most pragmatic needs in mind. Our organisation is geared so that small volumes aren't a limiting factor and provide extremely cost-effective solutions.

Bowman, working in partnership with our customers, deliver the best possible solutions to suit their needs. Our dedicated design, production, engineering and sales teams aim is to provide a personal service which will exceed our customers expectations.



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