

# Product Reference Guide



INA USA CORPORATION



# SHAFT GUIDANCE SYSTEMS

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This product section has been excerpted from our full Product Reference Guide to reduce download time. Our complete Product Reference Guide is available in print and on CD-ROM. To receive the full version, please contact your nearest INA Sales Office listed on the last page of this file.



# FOREWORD

This publication was designed to serve as a quick reference to the standard product series offered by INA USA Corporation (INA) for its domestic market. The guide provides a current overview of INA products, including basic envelope dimensions and capacities, in one publication – it is not an engineering design guide intended to replace INA engineering catalogs. Consequently, the metric and inch conversions are listed to 3 decimal places for easy reference and rapid identification of correct replacement part(s), not 4 decimal places as necessary for quality control purposes.

This publication can be used to narrow the choices between the many different INA product lines and series for new designs. Detailed engineering information for new designs can be found in our traditional catalogs or by contacting the INA Engineering Department.

A significant portion of INA sales are special production sizes. The identification of those parts is sometimes difficult since a comprehensive listing is beyond the intent of this publication. Special part numbers take as many different forms as the series listed here, but the basic system is to use sequential numbers for each new design. Usually the prefix is F or FC but can include VH, INA or the bearing type such as NA. INA maintains a technical help desk to identify sizes not known or to match competitors' parts.

The toll free 800 numbers listed will give you access to INA Customer Service representatives. These representatives can tap into INA Worldwide resources to provide the bearings you need.

## Storage Life

Lubricants age naturally due to environmental influences. It is therefore the user's responsibility to follow the directions given by the lubricant manufacturer.

The greases used in INA rolling bearings have a mineral oil base and experience shows that they can be stored for up to 3 years without deteriorating providing the following important conditions are met.

- Closed storage room
- Temperature between 0°C and 40°C
- Relative atmospheric humidity 65% or less
- Security from chemical agents (vapors, gases, fluids)
- Sealed rolling bearings

The frictional torque can be considerably higher after longer storage periods than in freshly greased bearings and the lubricity of the grease can also have deteriorated.

INA bearings have many optional features available including:

- ISO series of bearings generally include the standard clearance options CN, C2, C3 and C4.
- ISO bearing series include PN, P6 and P5 precision classes.

- Corrotect™ plating is available for most bearing designs. Corrotect is a patented process for zinc–iron and zinc–iron–cobalt plating in a thin layer which can be applied to standard components. The protection exceeds stainless steel and the cost is half. Add suffix RR.
- All sealed bearings are supplied pregreased. In most cases the standard lubricant is Shell Alvania 2 or equivalent. Other greases are available, some at extra cost.
- Unsealed bearings may not be greased when shipped.
- Speed limits as published, are based on oil lubrication for open bearings or grease lubrication for sealed bearings. The speed limits are calculated based on a nominal load and heat balance equation. Higher speeds may be allowed depending on the application.
- Dynamic capacities are published based on INA standard usage of ISO and ABMA formulas. New life theory threshold values are published in other INA publications.
- Life calculations and evaluations can be made from INA engineering based catalogs which are available from your INA Sales Representative.
- Other features are available based on current production volumes including heat stabilization of the rings, matched bearing sets, with oil holes and grooves, etc.

ABMA American Bearing Manufacturers Association

ASTM American Society Of Testing And Materials

DIN Deutsches Institut für Normung e.V.

ISO International Standards Organization

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INA USA Corporation reserves the right to make changes / revisions to specifications contained herein without notice.

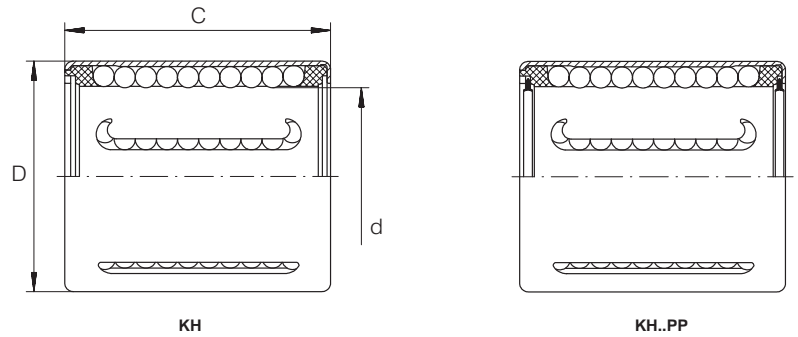
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# Linear Ball Bearings

## KH SERIES

- Compact Range
- With Relubrication Facility



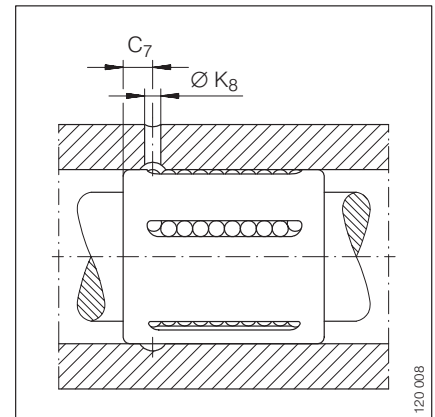
For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm											
SHAFT DIA.	PART NUMBER <sup>1)</sup>	MASS g	DIMENSIONS			MOUNTING DIMENSIONS		BASIC LOAD RATINGS <sup>2)</sup>			
			d	D	C	C <sub>7</sub>	K <sub>8</sub>	dyn. C <sub>min</sub> N	stat. C <sub>0 min</sub> N	dyn. C <sub>max</sub> N	stat. C <sub>0 max</sub> N
6	KH 0622	7	6	12	22	4	2	340	239	390	340
8	KH 0824	12	8	15	24	6	2	410	280	475	400
10	KH 1026	14.5	10	17	26	6	2.5	510	370	590	520
12	KH 1228	18.5	12	19	28	6	2.5	670	510	800	740
14	KH 1428	20.5	14	21	28	6	2.5	690	520	830	760
16	KH 1630	27.5	16	24	30	7	2.5	890	620	1,060	910
20	KH 2030	32.5	20	28	30	7	2.5	1,110	790	1,170	1,010
25	KH 2540	66	25	35	40	8	2.5	2,280	1,670	2,420	2,130
30	KH 3050	95	30	40	50	8	2.5	3,300	2,700	3,300	3,100
40	KH 4060	182	40	52	60	9	2.5	5,300	4,450	5,300	4,950
50	KH 5070	252	50	62	70	9	2.5	6,800	6,300	6,800	7,000

1) Linear ball bearings sealed on both sides: suffix "PP".

2) The basic load ratings are only valid for hardened (670 to 840 HV) and ground shaft raceways.





# Linear Ball Bearing And Housing Units KGHK..B PP AS SERIES

- Compact Range
- Sealed, Greased, With Relubrication Facility

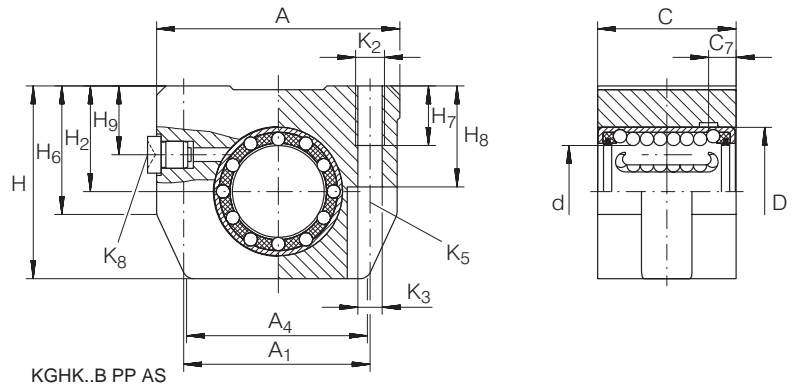
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DIMENSION TABLE - Dimensions in mm									
SHAFT DIAMETER	PART NUMBER	MASS kg	DIMENSIONS				MOUNTING DIMENSIONS		
			d	A	C	H	A <sub>1</sub> ±0.15	A <sub>4</sub>	C <sub>7</sub>
6	KGHK 06 B PP AS	0.04	6	32	22	27	23	25	4
8	KGHK 08 B PP AS	0.05	8	32	24	27	23	25	5
10	KGHK 10 B PP AS	0.07	10	40	26	33	29	32	5
12	KGHK 12 B PP AS	0.08	12	40	28	33	29	32	5.5
14	KGHK 14 B PP AS	0.1	14	43	28	36.5	34	34	5.5
16	KGHK 16 B PP AS	0.11	16	43	30	36.5	34	34	6
20	KGHK 20 B PP AS	0.15	20	53	30	42.5	40	40	6
25	KGHK 25 B PP AS	0.27	25	60	40	52.5	48	44	8
30	KGHK 30 B PP AS	0.4	30	67	50	60	53	49.5	9
40	KGHK 40 B PP AS	0.75	40	87	60	73.5	69	63	10
50	KGHK 50 B PP AS	1.25	50	103	70	92	82	74	12

- 1) For fixing screws to DIN 912-8.8 and spring washer to DIN 7980.
- 2) Lubrication nipple.
- 3) The basic load ratings are only valid for hardened (670 to 840 HV) and ground shaft raceways.





D	H <sub>2</sub> +0.010 -0.014	H <sub>6</sub>	H <sub>7</sub>	H <sub>8</sub>	H <sub>9</sub>	K <sub>2</sub>	K <sub>3</sub> <sup>1)</sup>	K <sub>5</sub> <sup>1)</sup>	K <sub>8</sub> <sup>2)</sup>	BASIC LOAD RATINGS <sup>3)</sup>		SHAFT DIAMETER
										dyn. C N	stat. C <sub>0</sub> N	
12	13	19.5	9	13	9	M4	3.4	M3	NIP A1	340	239	6
15	14	19.5	9	13	9	M4	3.4	M3	NIP A1	410	280	8
17	16	24	11	16	11	M5	4.3	M4	NIP A1	510	370	10
19	17	24	11	16	11	M5	4.3	M4	NIP A1	670	510	12
21	18	26.8	11	18	13	M5	4.3	M4	NIP A1	690	520	14
24	19	26.8	11	18	13	M5	4.3	M4	NIP A1	890	620	16
28	23	28.5	13	22	15	M6	5.3	M5	NIP A2	1,110	790	20
35	27	35.5	18	26	17.5	M8	6.6	M6	NIP A2	2,280	1,670	25
40	30	41.5	18	29	18	M8	6.6	M6	NIP A2	3,300	2,700	30
52	39	48	22	38	23	M10	8.4	M8	NIP A2	5,300	4,450	40
62	47	61	26	46	28	M12	10.5	M10	NIP A2	6,800	6,300	50

# Linear Ball Bearing And Housing Units KTHK..B PP AS SERIES

- Compact Range
- Sealed, Greased, With Relubrication Facility

For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

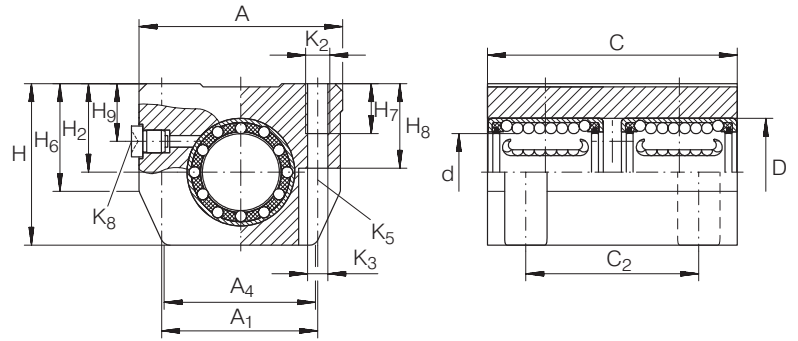
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DIMENSION TABLE - Dimensions in mm									
SHAFT DIAMETER	PART NUMBER	MASS kg	DIMENSIONS				MOUNTING DIMENSIONS		
			d	A	C	H	A <sub>1</sub> ±0.15	A <sub>4</sub>	C <sub>2</sub> <sup>1)</sup> ±0.15
12	KTHK 12 B PP AS	0.17	12	40	60	33	29	32	35
16	KTHK 16 B PP AS	0.23	16	43	65	36.5	34	34	40
20	KTHK 20 B PP AS	0.32	20	53	65	42.5	40	40	45
25	KTHK 25 B PP AS	0.58	25	60	85	52.5	48	44	55
30	KTHK 30 B PP AS	0.85	30	67	105	60	53	49.6	70
40	KTHK 40 B PP AS	1.6	40	87	125	73.5	69	63	85
50	KTHK 50 B PP AS	2.7	50	103	145	92	82	74	100

- 1) Dimension C<sub>2</sub> and lubrication hole centered on bearing width C.
- 2) For fixing screws to DIN 912-8.8 and spring washer to DIN 7980.
- 3) Lubrication nipple.
- 4) The basic load ratings are only valid for hardened (670 to 840 HV) and ground shaft raceways and uniform loading on both the linear ball bearings.







KTHK..B PP AS

D	H <sub>2</sub> +0.010 -0.014	H <sub>6</sub>	H <sub>7</sub>	H <sub>8</sub>	H <sub>9</sub>	K <sub>2</sub>	K <sub>3</sub> <sup>2)</sup>	K <sub>5</sub> <sup>2)</sup>	K <sub>6</sub> <sup>3)</sup>	BASIC LOAD RATINGS <sup>4)</sup>		SHAFT DIAMETER
										dyn. C N	stat. C <sub>0</sub> N	
19	17	24	11	16	11	M5	4.3	M4	NIP A1	1,090	1,020	12
24	19	26.8	11	18	13	M5	4.3	M4	NIP A1	1,440	1,240	16
28	23	28.5	13	22	15	M6	5.3	M5	NIP A2	1,800	1,580	20
35	27	35.5	18	26	17.5	M8	6.6	M6	NIP A2	3,700	3,350	25
40	30	41.5	18	29	18	M8	6.6	M6	NIP A2	5,400	5,400	30
52	39	48	22	38	22	M10	8.4	M8	NIP A2	8,600	8,900	40
62	47	61	26	46	26	M12	10.5	M10	NIP M8x1	11,000	12,600	50

# Linear Ball Bearing And Housing Units KGHW..PP SERIES

- Adjusting Range
- Sealed, Greased

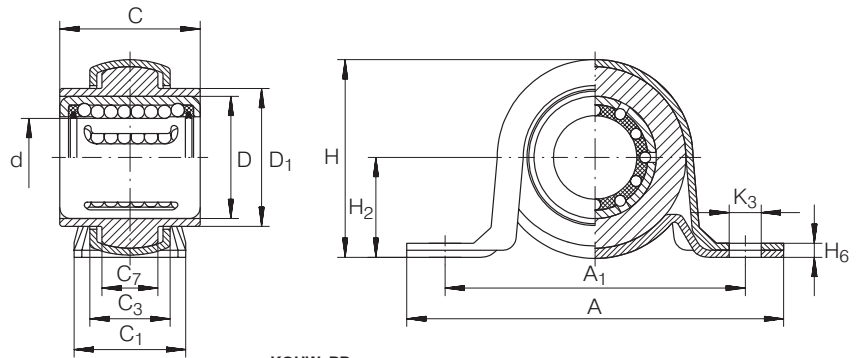
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DIMENSION TABLE - Dimensions in mm						
SHAFT DIAMETER	PART NUMBER	MASS  kg	DIMENSIONS			
			d	A ±0.5	C	H
16	KGHW 16 PP	0.2	16	85.7	30	43.2
20	KGHW 20 PP	0.25	20	85.7	30	43.2
25	KGHW 25 PP	0.39	25	108	40	56.5

1) The basic load ratings are only valid for hardened (670 to 840 HV) and ground shaft raceways.





MOUNTING DIMENSIONS									BASIC LOAD RATINGS <sup>1)</sup>		SHAFT DIAMETER
A <sub>1</sub> ± 0.25	C <sub>1</sub>	C <sub>3</sub>	C <sub>7</sub>	D	D <sub>1</sub>	H <sub>2</sub> ± 0.2	H <sub>6</sub>	K <sub>3</sub>	dyn. C N	stat. C <sub>0</sub> N	
68.3	25.4	18.8	13.2	24	32	22.2	3	9.5	890	620	16
68.3	25.4	18.8	13.2	28	32	22.2	3	9.5	1,110	790	20
86	32	23.5	14.5	35	39.5	28.6	4	11.5	2,280	1,670	25

# Linear Ball Bearing And Housing Units KGHWT..PP SERIES

- Adjusting Range
- Sealed, Greased

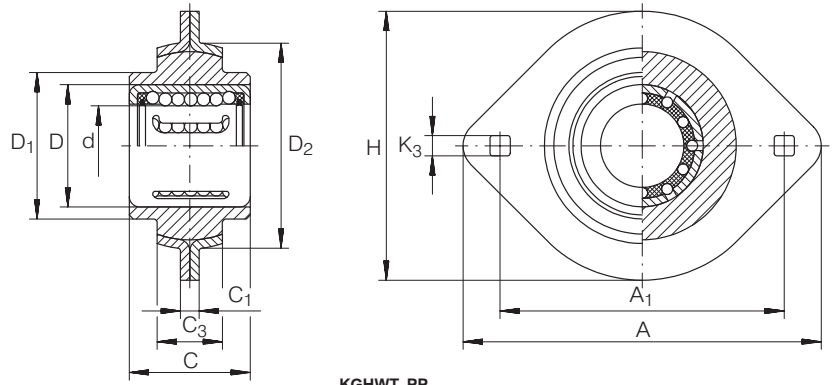
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DIMENSION TABLE - Dimensions in mm						
SHAFT DIAMETER	PART NUMBER	MASS  kg	DIMENSIONS			
			d	A	C	H
16	KGHWT 16 PP	0.19	16	81	30	58.7
20	KGHWT 20 PP	0.18	20	81	30	58.7
25	KGHWT 25 PP	0.28	25	90.5	40	66

1) The basic load ratings are only valid for hardened (670 to 840 HV) and ground shaft raceways.





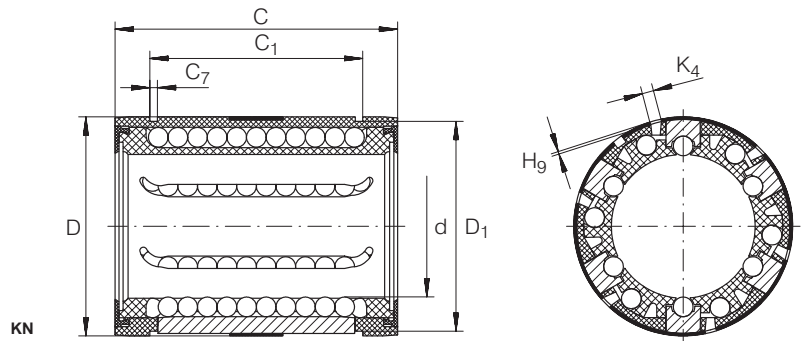
KGHWT..PP

MOUNTING DIMENSIONS							BASIC LOAD RATINGS <sup>1)</sup>		SHAFT DIAMETER
A <sub>1</sub> ±0.15	C <sub>1</sub> ±0.5	C <sub>3</sub> +1	D	D <sub>1</sub>	D <sub>2</sub>	K <sub>3</sub>	dyn. C N	stat. C <sub>0</sub> N	
63.5	4	14	24	30	44	7	890	620	16
63.5	4	14	28	32	44	7	1,110	790	20
71.5	4.4	16	35	40	51	8.7	2,280	1,670	25

# Linear Ball Bearings

## KN, KNO SERIES

- Light Range
- With Relubrication Facility

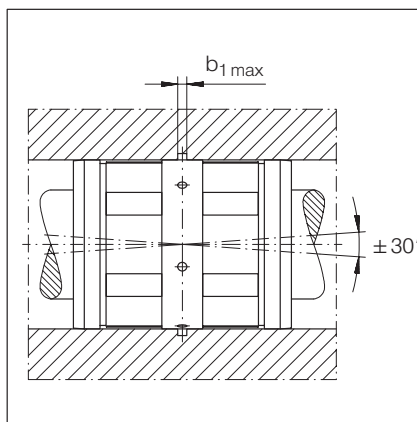


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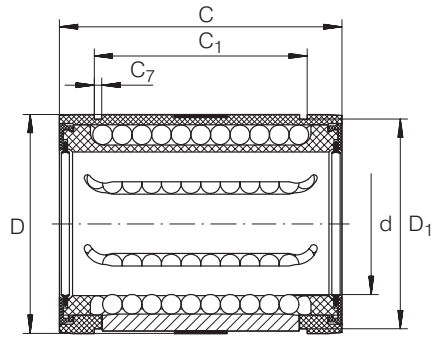
DIMENSION TABLE - Dimensions in mm										
SHAFT DIAMETER	PART NUMBER		MASS	DIMENSIONS			MOUNTING DIMENSIONS			
				d	D	C	A <sub>6</sub> <sup>2)</sup>	C <sub>1</sub> H13	C <sub>7</sub>	D <sub>1</sub>
12	KN 1232	KNO 1232	0.02	12	22	32	—	22.6	1.3	21
			0.02	12	22	32	6.5	—	—	—
16	KN 1636	KNO 1636	0.03	16	26	36	—	24.6	1.3	25
			0.02	16	26	36	9	—	—	—
20	KN 2045	KNO 2045	0.06	20	32	45	—	31.2	1.6	30.7
			0.05	20	32	45	9	—	—	—
25	KN 2558	KNO 2558	0.13	25	40	58	—	43.7	1.85	38
			0.11	25	40	58	11.5	—	—	—
30	KN 3068	KNO 3068	0.19	30	47	68	—	51.7	1.85	44.7
			0.16	30	47	68	14	—	—	—
40	KN 4080	KNO 4080	0.35	40	62	80	—	60.3	2.15	59.4
			0.3	40	62	80	19	—	—	—
50	KN 50100	KNO 50100	0.56	50	75	100	—	77.3	2.65	71.4
			0.47	50	75	100	22.5	—	—	—

- 1) Linear ball bearings sealed on both sides: suffix "PP".
- 2) Dimension A<sub>6</sub> on diameter d.
- 3) Hole position centered on bearing width C.
- 4) The basic load ratings are only valid for hardened (670 to 840 HV) and ground shaft raceways.
- 5) Basic load rating in main load direction.

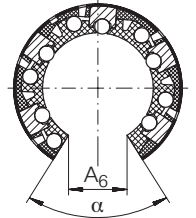


Misalignment compensation  $\pm 30'$



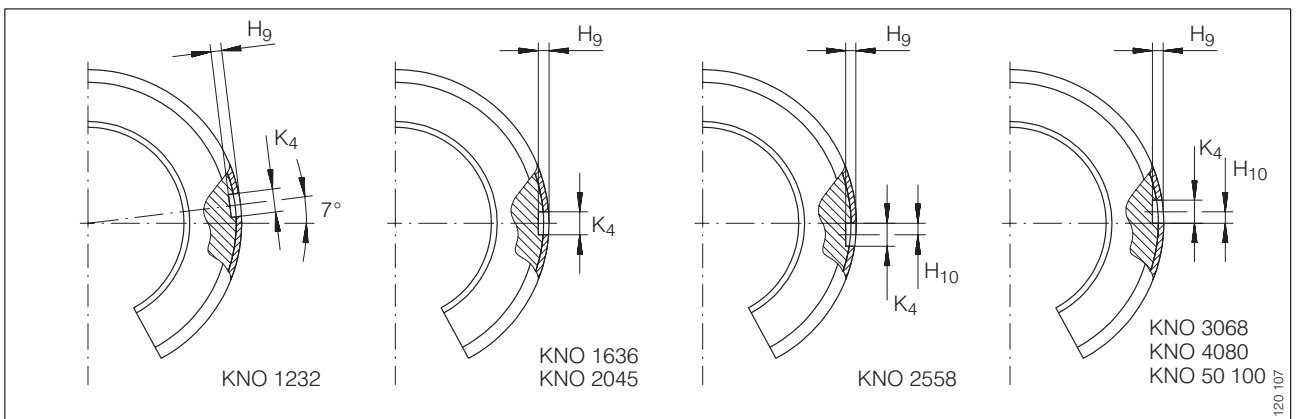


KN..PP



KNO, KNO..PP

										ACCESSORIES	
				MOUNTING DIMENSION	BALL ROWS	BASIC LOAD RATINGS <sup>4)</sup>				SUITABLE CIRCLIPS TO DIN 471	SHAFT DIAMETER
H <sub>9</sub>	H <sub>10</sub>	K <sub>4</sub> <sup>3)</sup>	α Grad	b <sub>1</sub> max.	NUMBER	dyn. C <sub>min</sub> N	stat. C <sub>0min</sub> N	dyn. C <sub>max</sub> N	stat. C <sub>0max</sub> N		
0.7	-	3	-	1.5	5	730	510	870	740	22 × 1.2	12
0.7	-	3	66	1.5	4	-	-	840 <sup>5)</sup>	640 <sup>5)</sup>	-	-
0.7	-	3	-	1.5	5	870	620	1,040	910	26 × 1.2	16
0.7	-	3	68	1.5	4	-	-	1,000 <sup>5)</sup>	750 <sup>5)</sup>	-	-
0.9	-	3	-	2.5	6	1,730	1,230	1,830	1,570	32 × 1.5	20
0.9	-	3	55	2.5	5	-	-	1,740 <sup>5)</sup>	1,240 <sup>5)</sup>	-	-
1.4	-	3	-	2.5	6	3,100	2,220	3,250	2,850	42 × 1.75	25
1.4	1.5	3	57	2.5	5	-	-	3,100 <sup>5)</sup>	2,260 <sup>5)</sup>	-	-
2.2	-	3	-	2.5	6	3,750	2,850	3,950	3,650	48 × 1.75	30
2.2	2	3	57	2.5	5	-	-	3,750 <sup>5)</sup>	2,850 <sup>5)</sup>	-	-
2.2	-	3	-	3	6	6,900	4,900	7,300	6,300	63 × 2	40
2.2	1.5	3	56	3	5	-	-	6,900 <sup>5)</sup>	4,900 <sup>5)</sup>	-	-
2.3	-	5	-	3	6	10,000	7,200	10,600	9,200	75 × 2.5	50
2.3	2.5	5	54	3	5	-	-	10,000 <sup>5)</sup>	7,200 <sup>5)</sup>	-	-



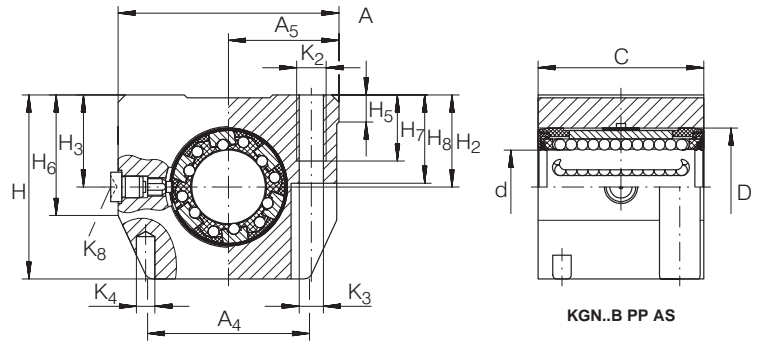
Fixing holes



# Linear Ball Bearing And Housing Units

## KGN..B PP AS, KGNS..B PP AS SERIES

- Light range
- Sealed, Greased, With Relubrication Facility



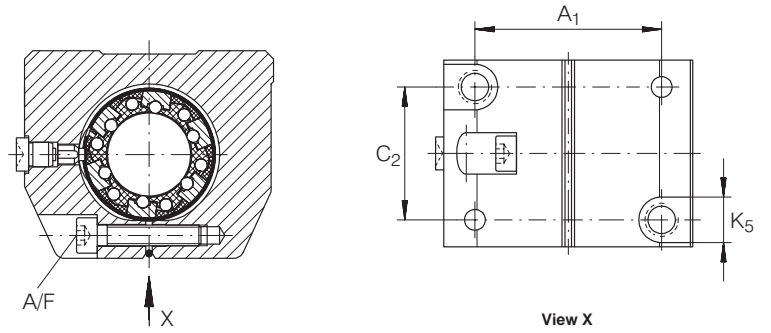
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DIMENSION TABLE - Dimensions in mm											
SHAFT DIAMETER	PART NUMBER	MASS kg	Dimensions				MOUNTING DIMENSIONS				
			d	A	C	H	A <sub>1</sub>	A <sub>4</sub>	A <sub>5</sub> ±0.01	C <sub>2</sub> <sup>1)</sup>	D
12	KGN 12 B PP AS	0.1	12	43	32	35	32±0.15	34	21.5	23±0.15	22
	KGNS 12 B PP AS	0.1	12	43	32	35	32±0.15	34	21.5	23±0.15	22
16	KGN 16 B PP AS	0.17	16	53	37	42	40±0.15	40	26.5	26±0.15	26
	KGNS 16 B PP AS	0.17	16	53	37	42	40±0.15	40	26.5	26±0.15	26
20	KGN 20 B PP AS	0.27	20	60	45	50	45±0.15	44	30	32±0.15	32
	KGNS 20 B PP AS	0.27	20	60	45	50	45±0.15	44	30	32±0.15	32
25	KGN 25 B PP AS	0.56	25	78	58	60	60±0.15	59.5	39	40±0.15	40
	KGNS 25 B PP AS	0.56	25	78	58	60	60±0.15	59.5	39	40±0.15	40
30	KGN 30 B PP AS	0.83	30	87	68	70	68±0.15	63	43.5	45±0.15	47
	KGNS 30 B PP AS	0.83	30	87	68	70	68±0.15	63	43.5	45±0.15	47
40	KGN 40 B PP AS	1.55	40	108	80	90	86±0.15	76	54	58±0.15	62
	KGNS 40 B PP AS	1.55	40	108	80	90	86±0.15	76	54	58±0.15	62
50	KGN 50 B PP AS	2.7	50	132	100	105	108±0.2	90	66	50±0.2	75
	KGNS 50 B PP AS	2.7	50	132	100	105	108±0.2	90	66	50±0.2	75

- 1) Dimension C<sub>2</sub> and lubrication hole centered on bearing width C.
- 2) For fixing screws to DIN 912-8.8 and spring washer to DIN 7 980.
- 3) Centring for dowel hole.
- 4) Lubrication nipple.
- 5) The basic load ratings are only valid for hardened (670 to 840 HV) and ground shaft raceways.





KGNS..B PP AS

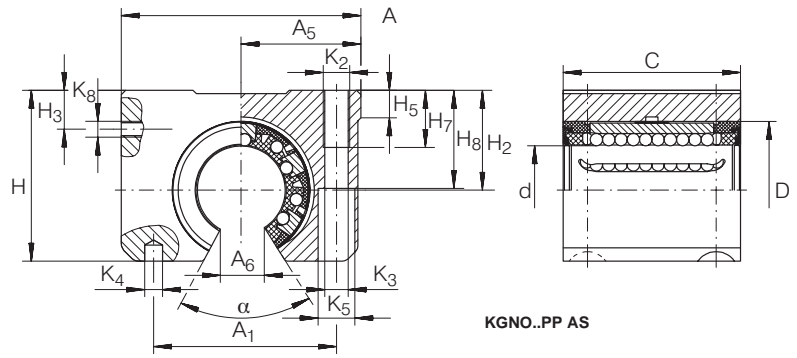
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H <sub>2</sub> +0.008 -0.016	H <sub>3</sub>	H <sub>5</sub>	H <sub>6</sub>	H <sub>7</sub>	H <sub>8</sub>	K <sub>2</sub>	K <sub>3</sub> <sup>2)</sup>	K <sub>4</sub> <sup>3)</sup>	K <sub>5</sub> <sup>2)</sup>	K <sub>6</sub> <sup>1)4)</sup>	A/F	BALL ROWS	BASIC LOAD RATINGS <sup>5)</sup>		SHAFT DIAMETER
												NUMBER	dyn. C N	stat. C <sub>0</sub> N	
18	18	6	25.5	11	16.5	M5	4.3	4	8	NIP A1	-	5	780	560	12
18	18	6	25.5	11	16.5	M5	4.3	4	8	NIP A1	2.5	5	780	560	12
22	22	7	28	13	21	M6	5.3	4	10	NIP A1	-	5	1,000	750	16
22	22	7	28	13	21	M6	5.3	4	10	NIP A1	3	5	1,000	750	16
25	25	7.5	33	18	24	M8	6.6	5	11	NIP A1	-	6	1,740	1,240	20
25	25	7.5	33	18	24	M8	6.6	5	11	NIP A1	4	6	1,740	1,240	20
30	30	8.5	40	22	29	M10	8.4	6	15	NIP A2	-	6	3,100	2,230	25
30	30	8.5	40	22	29	M10	8.4	6	15	NIP A2	5	6	3,100	2,230	25
35	35	9.5	44.5	22	34	M10	8.4	6	15	NIP A2	-	6	3,800	2,900	30
35	35	9.5	44.5	22	34	M10	8.4	6	15	NIP A2	5	6	3,800	2,900	30
45	45	11	56	26	44	M12	10.5	8	18	NIP A2	-	6	6,900	4,950	40
45	45	11	56	26	44	M12	10.5	8	18	NIP A2	6	6	6,900	4,950	40
50	50	11	60	35	49	M16	13.5	10	20	NIP A2	-	6	10,100	7,300	50
50	50	11	60	35	49	M16	13.5	10	20	NIP A2	8	6	10,100	7,300	50

# Linear Ball Bearing And Housing Units

## KGNO..PP AS, KGNOS..PP AS SERIES

- Light Range
- Sealed, Greased, With Relubrication Facility



KGNO..PP AS

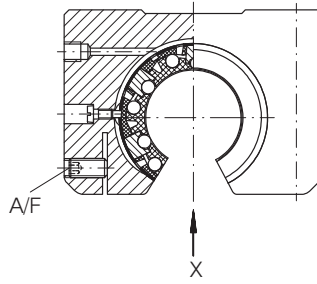
For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

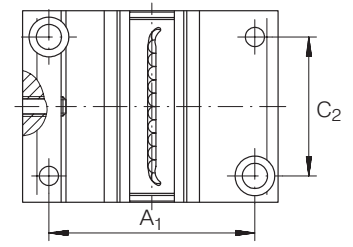
DIMENSION TABLE - Dimensions in mm												
SHAFT DIAMETER	PART NUMBER	MASS kg	DIMENSIONS				MOUNTING DIMENSIONS					H <sub>2</sub> +0.008 -0.016
			d	A	C	H	A <sub>1</sub>	A <sub>5</sub> ±0.01	A <sub>6</sub> <sup>1)</sup>	C <sub>2</sub> <sup>2)</sup>	D	
12	KGNO 12 PP AS	0.09	12	43	32	28	32±0.15	21.5	6.5	23±0.15	22	18
	KGNOS 12 PP AS	0.09	12	43	32	28	32±0.15	21.5	6.5	23±0.15	22	18
16	KGNO 16 PP AS	0.15	16	53	37	35	40±0.15	26.5	9	26±0.15	26	22
	KGNOS 16 PP AS	0.15	16	53	37	35	40±0.15	26.5	9	26±0.15	26	22
20	KGNO 20 PP AS	0.25	20	60	45	42	45±0.15	30	9	32±0.15	32	25
	KGNOS 20 PP AS	0.25	20	60	45	42	45±0.15	30	9	32±0.15	32	25
25	KGNO 25 PP AS	0.52	25	78	58	51	60±0.15	39	11.5	40±0.15	40	30
	KGNOS 25 PP AS	0.52	25	78	58	51	60±0.15	39	11.5	40±0.15	40	30
30	KGNO 30 PP AS	0.76	30	87	68	60	68±0.15	43.5	14	45±0.15	47	35
	KGNOS 30 PP AS	0.76	30	87	68	60	68±0.15	43.5	14	45±0.15	47	35
40	KGNO 40 PP AS	1.4	40	108	80	77	86±0.15	54	19	58±0.15	62	45
	KGNOS 40 PP AS	1.4	40	108	80	77	86±0.15	54	19	58±0.15	62	45
50	KGNO 50 PP AS	2.4	50	132	100	88	108±0.2	66	22.5	50±0.2	75	50
	KGNOS 50 PP AS	2.4	50	132	100	88	108±0.2	66	22.5	50±0.2	75	50

In the interim, linear ball bearing and housing units KGNO..PP AS and KGNOS..PP AS with profile grooves will still be supplied.

- 1) Dimension A<sub>6</sub> on diameter d.
- 2) Dimension C<sub>2</sub> and lubrication hole centered on bearing width C.
- 3) For fixing screws to DIN 912-8.8 and spring washer to DIN 7980.
- 4) Centring for dowel hole.
- 5) The basic load ratings are only valid for hardened (670 to 840 HV) and ground shaft raceways.



KG NOS..PP AS

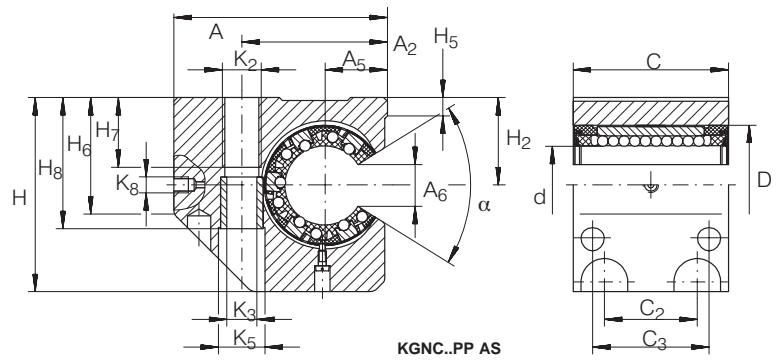


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											BALL ROWS	BASIC LOAD RATINGS <sup>5)</sup>		SHAFT DIAMETER
H <sub>3</sub>	H <sub>5</sub>	H <sub>7</sub>	H <sub>8</sub>	K <sub>2</sub>	K <sub>3</sub> <sup>3)</sup>	K <sub>4</sub> <sup>4)</sup>	K <sub>5</sub> <sup>3)</sup>	K <sub>8</sub> <sup>2)</sup>	A/F	α Grad	NUMBER	dyn. C N	stat. C <sub>0</sub> N	
8	6	11	16.5	M5	4.3	4	8	M6	–	66	4	840	640	12
8	6	11	16.5	M5	4.3	4	8	M6	2.5	66	4	840	640	
10	7.5	13	21	M6	5.3	4	10	M6	–	68	4	1,000	750	16
10	7.5	13	21	M6	5.3	4	10	M6	2.5	68	4	1,000	750	
11	8	18	24	M8	6.6	5	11	M6	–	55	5	1,740	1,240	20
11	8	18	24	M8	6.6	5	11	M6	2.5	55	5	1,740	1,240	
12.5	9	22	29	M10	8.4	6	15	M8×1	–	57	5	3,100	2,260	25
12.5	9	22	29	M10	8.4	6	15	M8×1	3	57	5	3,100	2,260	
14	9.5	22	34	M10	8.4	6	15	M8×1	–	57	5	3,750	2,850	30
14	9.5	22	34	M10	8.4	6	15	M8×1	3	57	5	3,750	2,850	
17.5	12	26	44	M12	10.5	8	18	M8×1	–	56	5	6,900	4,900	40
17.5	12	26	44	M12	10.5	8	18	M8×1	4	56	5	6,900	4,900	
17.5	12	35	49	M16	13.5	10	20	M8×1	–	54	5	10,000	7,200	50
17.5	12	35	49	M16	13.5	10	20	M8×1	5	54	5	10,000	7,200	

# Linear Ball Bearing And Housing Units KGNC..PP AS, KGNCs..PP AS SERIES

- Light Range
- Sealed, Greased, With Relubrication Facility



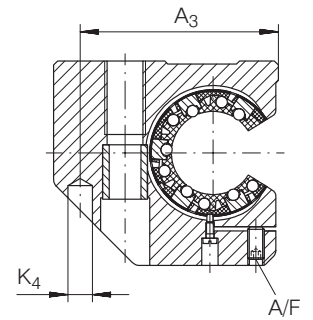
For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm													
SHAFT DIAMETER	PART NUMBER	MASS kg	DIMENSIONS				MOUNTING DIMENSIONS						
			d	A	C	H	A <sub>2</sub> ±0.15	A <sub>3</sub>	A <sub>5</sub> ±0.01	A <sub>6</sub> <sup>1)</sup>	C <sub>2</sub> <sup>2)</sup> ±0.15	C <sub>3</sub> <sup>2)</sup>	D
20	KGNC 20 PP AS	0.35	20	60	47	60	39	51	17	9	30	36	32
	KGNCs 20 PP AS	0.35	20	60	47	60	39	51	17	9	30	36	32
25	KGNC 25 PP AS	0.68	25	75	58	72	49	64	21	11.5	36	45	40
	KGNCs 25 PP AS	0.68	25	75	58	72	49	64	21	11.5	36	45	40
30	KGNC 30 PP AS	1	30	86	68	82	59	76	25	14	42	52	47
	KGNCs 30 PP AS	1	30	86	68	82	59	76	25	14	42	52	47
40	KGNC 40 PP AS	1.8	40	110	80	100	75	97	32	19	48	60	62
	KGNCs 40 PP AS	1.8	40	110	80	100	75	97	32	19	48	60	62
50	KGNC 50 PP AS	2.9	50	127	100	115	88	109	38	22.5	62	80	75
	KGNCs 50 PP AS	2.9	50	127	100	115	88	109	38	22.5	62	80	75

In the interim, linear ball bearing and housing units KGNC..PP AS and KGNCs..PP AS with profile grooves will still be supplied.

- 1) Dimension A<sub>6</sub> on diameter d.
- 2) Dimension C<sub>2</sub>, C<sub>3</sub> and lubrication hole centered on bearing width C.
- 3) Centring for dowel hole.
- 4) For fixing screws to DIN 912-8.8 and spring washer to DIN 7.980.
- 5) The basic load ratings are only valid for hardened (670 to 840 HV) and ground shaft raceways.



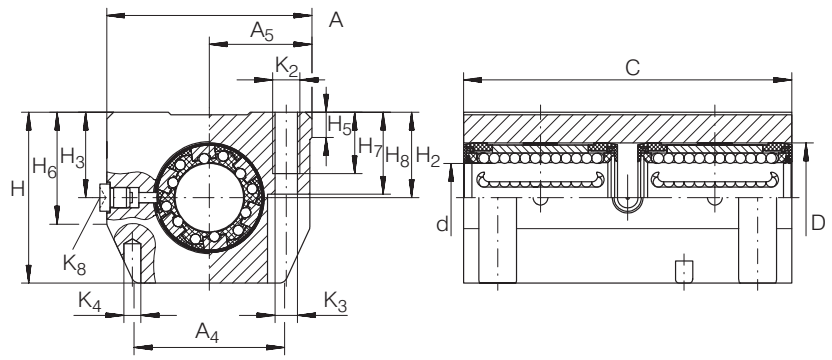
KGNS..PP AS

H <sub>2</sub> +0.008 -0.016	H <sub>5</sub>	H <sub>6</sub>	H <sub>7</sub>	H <sub>8</sub>	K <sub>2</sub>	K <sub>3</sub> <sup>3)</sup>	K <sub>4</sub> <sup>4)</sup>	K <sub>5</sub> <sup>3)</sup>	K <sub>6</sub> <sup>2)</sup>	A/F	α Grad	BALL ROWS	BASIC LOAD RATINGS <sup>5)</sup>		SHAFT DIAMETER
												NUMBER	dyn. C N	stat. C <sub>0</sub> N	
30	8	37.5	18	42.5	M10	8.4	6	15	M6	—	55	5	1,740	1,240	20
30	8	37.5	18	42.5	M10	8.4	6	15	M6	2.5	55	5	1,740	1,240	
35	8	45	22	50.5	M12	10.5	8	18	M8 × 1	—	57	5	3,100	2,269	25
35	8	45	22	50.5	M12	10.5	8	18	M8 × 1	3	57	5	3,100	2,260	
40	9	52	29	55.5	M16	13.5	10	20	M8 × 1	—	57	5	3,750	2,850	30
40	9	52	29	55.5	M16	13.5	10	20	M8 × 1	3	57	5	3,750	2,850	
45	9	60	36	67.5	M20	15.5	12	24	M8 × 1	—	56	5	6,900	4,900	40
45	9	60	36	67.5	M20	15.5	12	24	M8 × 1	4	56	5	6,900	4,900	
50	9	70	36	79	M20	17.5	12	26	M8 × 1	—	54	5	10,000	7,200	50
50	9	70	36	79	M20	17.5	12	26	M8 × 1	5	54	5	10,000	7,200	

# Linear Ball Bearing And Housing Units

## KTN..B PP AS, KTNS..B PP AS SERIES

- Light Range
- Sealed, Greased, With Relubrication Facility



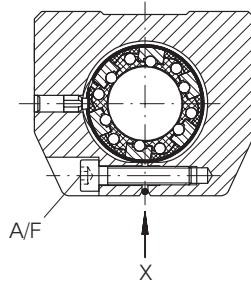
For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

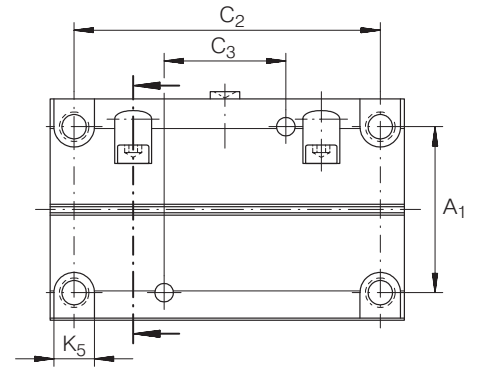
DIMENSION TABLE - Dimensions in mm												
SHAFT DIAMETER	PART NUMBER	MASS kg	DIMENSIONS				MOUNTING DIMENSIONS					
			d	A	C	H	A <sub>1</sub>	A <sub>4</sub>	A <sub>5</sub> ±0.01	C <sub>2</sub> <sup>1)</sup>	C <sub>3</sub> <sup>1)</sup>	D
12	KTN 12 B PP AS	0.21	12	43	70	35	32±0.15	34	21.5	56±0.15	24	22
	KTNS 12 B PP AS	0.21	12	43	70	35	32±0.15	34	21.5	56±0.15	24	22
16	KTN 16 B PP AS	0.35	16	53	78	42	40±0.15	40	26.5	64±0.15	26	26
	KTNS 16 B PP AS	0.35	16	53	78	42	40±0.15	40	26.5	64±0.15	26	26
20	KTN 20 B PP AS	0.56	20	60	96	50	45±0.15	44	30	76±0.15	33	32
	KTNS 20 B PP AS	0.56	20	60	96	50	45±0.15	44	30	76±0.15	33	32
25	KTN 25 B PP AS	1.15	25	78	122	60	60±0.15	59.5	39	94±0.2	44	40
	KTNS 25 B PP AS	1.15	25	78	122	60	60±0.15	59.5	39	94±0.2	44	40
30	KTN 30 B PP AS	1.7	30	87	142	70	68±0.15	63	43.5	106±0.2	54	47
	KTNS 30 B PP AS	1.7	30	87	142	70	68±0.15	63	43.5	106±0.2	54	47

In the interim, linear ball bearing and housing units KTN..B PP AS and KTNS..B PP AS with profile grooves will still be supplied.

- 1) Dimension C<sub>2</sub>, C<sub>3</sub> and lubrication hole centered on bearing width C.
- 2) For fixing screws to DIN 912-8.8 and spring washer to DIN 7 980.
- 3) Centring for dowel hole.
- 4) Lubrication nipple.
- 5) The basic load ratings are only valid for hardened (670 to 840 HV) and ground shaft raceways.



KTNS..B PP AS



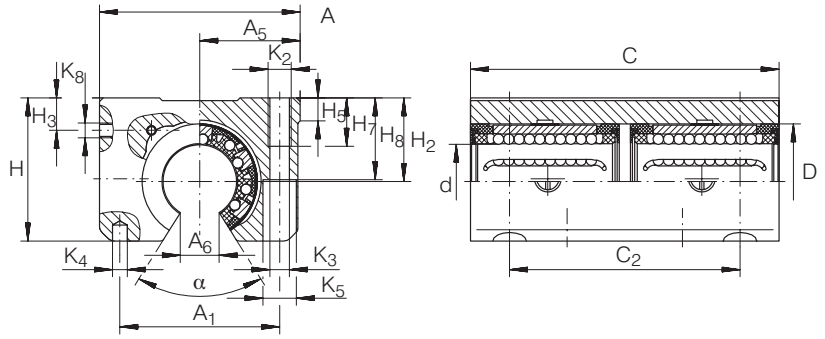
View X (rotated through 90°)

H <sub>2</sub> +0.008 -0.016	H <sub>3</sub>	H <sub>5</sub>	H <sub>6</sub>	H <sub>7</sub>	H <sub>8</sub>	K <sub>2</sub>	K <sub>3</sub> <sup>2)</sup>	K <sub>4</sub> <sup>3)</sup>	K <sub>5</sub> <sup>2)</sup>	K <sub>6</sub> <sup>4)</sup>	A/F	BALL ROWS	BASIC LOAD RATINGS <sup>5)</sup>		SHAFT DIAMETER
												NUMBER	dyn. C N	stat. C <sub>0</sub> N	
18	18	6	25.6	11	16.5	M5	4.3	4	8	NIP A1	-	5	1,270	1,110	12
18	18	6	25.6	11	16.5	M5	4.3	4	8	NIP A1	2.5	5	1,270	1,110	
22	22	7	28	13	21	M6	5.3	4	10	NIP A1	-	5	1,620	1,500	16
22	22	7	28	13	21	M6	5.3	4	10	NIP A1	3	5	1,620	1,500	
25	25	7.5	33	18	24	M8	6.6	5	11	NIP A1	-	6	2,850	2,480	20
25	25	7.5	33	18	24	M8	6.6	5	11	NIP A1	4	6	2,850	2,480	
30	30	8.5	40	22	29	M10	8.4	6	15	NIP A2	-	6	5,000	4,450	25
30	30	8.5	40	22	29	M10	8.4	6	15	NIP A2	5	6	5,000	4,450	
35	35	9.5	44.5	22	34	M10	8.4	6	15	NIP A2	-	6	6,100	5,800	30
35	35	9.5	44.5	22	34	M10	8.4	6	15	NIP A2	5	6	6,100	5,800	

# Linear Ball Bearing And Housing Units

## KTNO..PP AS, KTNOS..PP AS SERIES

- Light Range
- Sealed, Greased, With Relubrication Facility



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

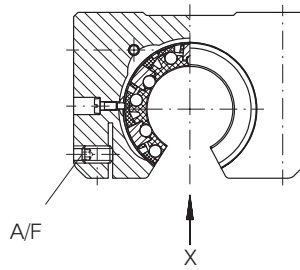
For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm													
SHAFT DIAMETER	PART NUMBER	MASS kg	DIMENSIONS				MOUNTING DIMENSIONS						
			d	A	C	H	A <sub>1</sub>	A <sub>5</sub> ±0.01	A <sub>6</sub> <sup>1)</sup>	C <sub>2</sub> <sup>2)</sup>	C <sub>3</sub> <sup>2)</sup>	D	H <sub>2</sub> +0.008 -0.016
12	KTNO 12 PP AS	0.19	12	43	70	28	32±0.15	21.5	6.5	56±0.15	24	22	18
	KTNOS 12 PP AS	0.19	12	43	70	28	32±0.15	21.5	6.5	56±0.15	24	22	18
16	KTNO 16 PP AS	0.31	16	53	78	35	40±0.15	26.5	9	64±0.15	26	26	22
	KTNOS 16 PP AS	0.31	16	53	78	35	40±0.15	26.5	9	64±0.15	26	26	22
20	KTNO 20 PP AS	0.52	20	60	96	42	45±0.15	30	9	76±0.15	33	32	25
	KTNOS 20 PP AS	0.52	20	60	96	42	45±0.15	30	9	76±0.15	33	32	25
25	KTNO 25 PP AS	1.06	25	78	122	51	60±0.15	39	11.5	94±0.2	44	40	30
	KTNOS 25 PP AS	1.06	25	78	122	51	60±0.15	39	11.5	94±0.2	44	40	30
30	KTNO 30 PP AS	1.55	30	87	142	60	68±0.15	43.5	14	106±0.2	54	47	35
	KTNOS 30 PP AS	1.55	30	87	142	60	68±0.15	43.5	14	106±0.2	54	47	35

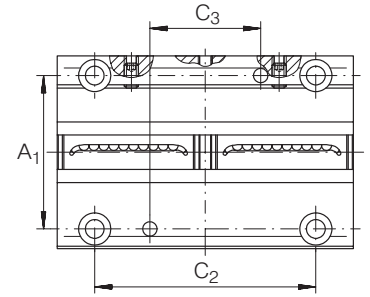
In the interim, linear ball bearing and housing units KTNO..PP AS and KTNOS..PP AS with profile grooves will still be supplied.

- 1) Dimension A<sub>6</sub> on diameter d.
- 2) Dimension C<sub>2</sub>, C<sub>3</sub> and lubrication hole centered on bearing width C.
- 3) For fixing screws to DIN 912-8.8 and spring washer to DIN 7 980.
- 4) Centring for dowel hole.
- 5) The basic load ratings are only valid for hardened (670 to 840 HV) and ground shaft raceways.





KTNOS..PP AS



View X (rotated through 90°)

H <sub>3</sub>	H <sub>5</sub>	H <sub>7</sub>	H <sub>8</sub>	K <sub>2</sub>	K <sub>3</sub> <sup>3)</sup>	K <sub>4</sub> <sup>4)</sup>	K <sub>5</sub> <sup>3)</sup>	K <sub>6</sub> <sup>2)</sup>	A/F	α Grad	BALL ROWS	BASIC LOAD RATINGS <sup>5)</sup>		SHAFT DIAMETER
											NUMBER	dyn. C N	stat. C <sub>0</sub> N	
8	6	11	16.5	M5	4.3	4	8	M6	–	66	4	1,370	1,270	12
8	6	11	16.5	M5	4.3	4	8	M6	2.5	66	4	1,370	1,270	
10	7.5	13	21	M6	5.3	4	10	M6	–	68	4	1,620	1,500	16
10	7.5	13	21	M6	5.3	4	10	M6	2.5	68	4	1,620	1,500	
11	8	18	24	M8	6.6	5	11	M6	–	55	5	2,850	2,480	20
11	8	18	24	M8	6.6	5	11	M6	2.5	55	5	2,850	2,480	
12.5	9	22	29	M10	8.4	6	15	M8 × 1	–	57	5	5,100	4,550	25
12.5	9	22	29	M10	8.4	6	15	M8 × 1	3	57	5	5,100	4,550	
14	9.5	22	34	M10	8.4	6	15	M8 × 1	–	57	5	6,100	5,700	30
14	9.5	22	34	M10	8.4	6	15	M8 × 1	3	57	5	6,100	5,700	

# Linear Ball Bearing And Housing Units KTFN..PP AS SERIES

- Light Range
- Sealed, Greased, With Relubrication Facility

For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

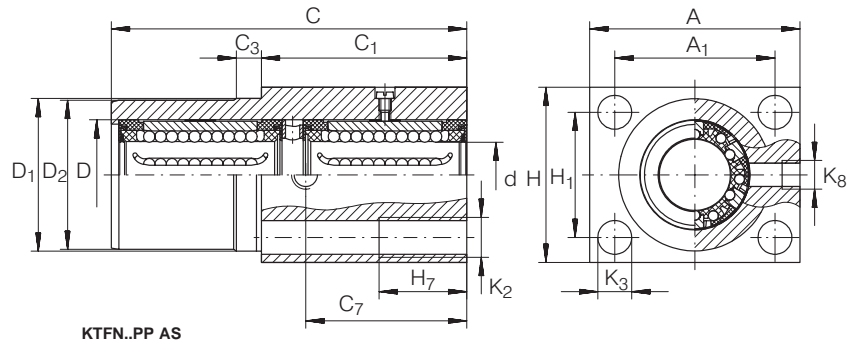
For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm										
SHAFT DIAMETER	PART NUMBER	MASS kg	DIMENSIONS				MOUNTING DIMENSIONS			
			d	A	C	H	A <sub>1</sub> ±0.15	C <sub>1</sub>	C <sub>3</sub>	C <sub>7</sub>
12	KTFN 12 PP AS	0.2	12	42	70	34	32	46	10	35
16	KTFN 16 PP AS	0.3	16	50	78	40	38	50	10	39
20	KTFN 20 PP AS	0.5	20	60	96	50	45	60	10	48
25	KTFN 25 PP AS	1	25	74	122	60	56	73	10	61
30	KTFN 30 PP AS	1.4	30	84	142	70	64	82	10	71

1) Recommended tolerance for housing bore: D<sub>1</sub> H7.

2) The basic load ratings are only valid for hardened (670 to 840 HV) and ground shaft raceways.





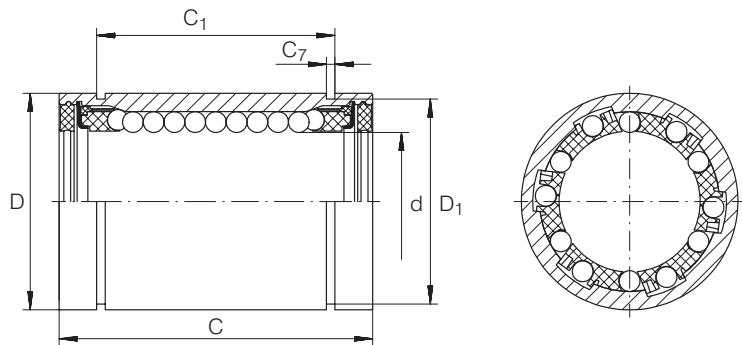
KTFN..PP AS

D	D <sub>1</sub> <sup>1)</sup> g7	D <sub>2</sub> -0.1 -0.3	H <sub>1</sub> ± 0.15	H <sub>7</sub>	K <sub>2</sub>	K <sub>3</sub>	K <sub>8</sub>	BALL ROWS	BASIC LOAD RATINGS <sup>2)</sup>		SHAFT DIAMETER
								NUMBER	dyn. C N	stat. C <sub>0</sub> N	
22	30	30	24	13	M6	5.3	M8 × 1	5	1,270	1,110	12
26	35	35	28	18	M8	6.6	M8 × 1	5	1,620	1,500	16
32	42	42	35	22	M10	8.4	M8 × 1	6	2,850	2,480	20
40	52	52	42	26	M12	10.5	M8 × 1	6	5,000	4,450	25
47	61	61	50	35	M16	13.5	M8 × 1	6	6,100	5,800	30

# Linear Ball Bearings

## KB, KBS, KBO SERIES

• Heavy Range

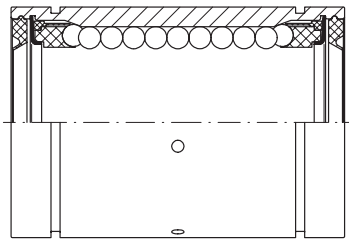


For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

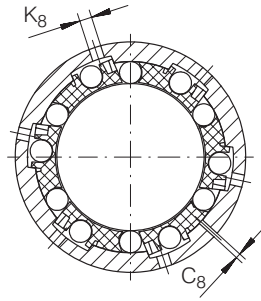
For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm									
SHAFT DIAMETER	PART NUMBER			MASS kg	DIMENSIONS			MOUNTING DIMENSIONS	
					d Deviations <sup>2)</sup>	D <sup>2)</sup> h5	C h12	A <sub>6</sub> <sup>3)</sup>	C <sub>1</sub> H13
12	KB 1232	—	—	0.04	12 <sup>+0.008</sup>	22	32	—	22.6
	—	KBS 1232	—	0.04		22	32	—	22.6
	—	—	KBO 1232	0.03		22	32	7.7	22.6
16	KB 1636	—	—	0.05	16 <sup>+0.009</sup> -0.001	26	36	—	24.6
	—	KBS 1636	—	0.05		26	36	—	24.6
	—	—	KBO 1636	0.04		26	36	10.1	24.6
20	KB 2045	—	—	0.09	20 <sup>+0.009</sup> -0.001	32	45	—	31.2
	—	KBS 2045	—	0.09		32	45	—	31.2
	—	—	KBO 2045	0.07		32	45	10	31.2
25	KB 2558	—	—	0.19	25 <sup>+0.011</sup> -0.001	40	58	—	43.7
	—	KBS 2558	—	0.19		40	58	—	43.7
	—	—	KBO 2558	0.15		40	58	12.5	43.7
30	KB 3068	—	—	0.3	30 <sup>+0.011</sup> -0.001	47	68	—	51.7
	—	KBS 3068	—	0.3		47	68	—	51.7
	—	—	KBO 3068	0.24		47	68	13.6	51.7
40	KB 4080	—	—	0.6	40 <sup>+0.013</sup> -0.002	62	80	—	60.3
	—	KBS 4080	—	0.6		62	80	—	60.3
	—	—	KBO 4080	0.52		62	80	18.2	60.3
50	KB 50100	—	—	1	50 <sup>+0.013</sup> -0.002	75	100	—	77.3
	—	KBS 50100	—	1		75	100	—	77.3
	—	—	KBO 50100	0.85		75	100	22.7	77.3

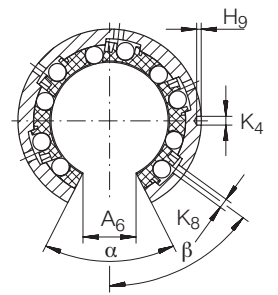
- 1) Linear ball bearings sealed on both sides: suffix "PP".  
Linear ball bearings with relubrication facility: suffix "AS".
- 2) The tolerances are valid for series KB.
- 3) Dimension A<sub>6</sub> on diameter d.
- 4) Groove dimensions suitable for circlips to DIN 471.
- 5) Bore position centered on bearing width C.
- 6) The basic load ratings are only valid for hardened (670 to 840 HV) and ground shaft raceways.
- 7) Basic load rating in main load direction.



KB..PP AS



KBS..AS, KBS..PP AS



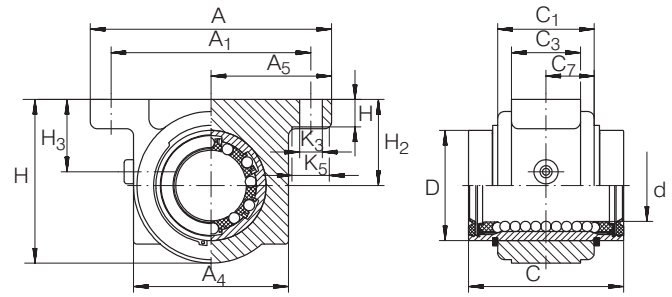
KBO..AS, KBO..PP AS

C <sub>7</sub> <sup>4)</sup>	C <sub>8</sub>	D <sub>1</sub> <sup>4)</sup>	H <sub>9</sub>	K <sub>4</sub> <sup>5)</sup>	K <sub>8</sub>	α Grad	β Grad	BALL ROWS	BASIC LOAD RATINGS <sup>6)</sup>				SHAFT DIAMETER
								NUMBER	dyn. C <sub>0 min</sub> N	stat. C <sub>0 min</sub> N	dyn. C <sub>0 max</sub> N	stat. C <sub>0 max</sub> N	
1.3	-	21	-	-	1.5	-	-	5	540	385	640	570	12
1.3	1	21	-	-	1.5	-	-	5	540	385	640	570	
1.3	-	21	1.2	2.2	1.5	78	64	4	-	-	600 <sup>7)</sup>	445 <sup>7)</sup>	
1.3	-	24.9	-	-	2	-	-	5	710	530	840	780	
1.3	1	24.9	-	-	2	-	-	5	710	530	840	780	
1.3	-	24.9	1.2	2.2	2	78	64	4	-	-	800 <sup>7)</sup>	620 <sup>7)</sup>	
1.6	-	30.3	-	-	2	-	-	6	1,570	1,230	1,660	1,570	20
1.6	1	30.3	-	-	2	-	-	6	1,570	1,230	1,660	1,570	
1.6	-	30.3	1.2	2.2	2	60	52	5	-	-	1,600 <sup>7)</sup>	1,280 <sup>7)</sup>	
1.85	-	37.5	-	-	2.5	-	-	6	2,800	2,220	2,950	2,850	
1.85	1	37.5	-	-	2.5	-	-	6	2,800	2,220	2,950	2,850	
1.85	-	37.5	1.5	3	2.5	60	53	5	-	-	2,850 <sup>7)</sup>	2,330 <sup>7)</sup>	
1.85	-	44.5	-	-	2.5	-	-	6	3,600	2,850	3,800	3,600	30
1.85	1	44.5	-	-	2.5	-	-	6	3,600	2,850	3,800	3,600	
1.85	-	44.5	1.5	3	2.5	54	55	5	-	-	3,700 <sup>7)</sup>	3,000 <sup>7)</sup>	
2.15	-	59	-	-	3	-	-	6	6,000	4,400	6,400	5,600	
2.15	1	59	-	-	3	-	-	6	6,000	4,400	6,400	5,600	
2.15	-	59	1.5	3	3	54	54	5	-	-	6,100 <sup>7)</sup>	4,600 <sup>7)</sup>	
2.65	-	72	-	-	4	-	-	6	8,700	6,300	9,200	8,000	50
2.65	1	72	-	-	4	-	-	6	8,700	6,300	9,200	8,000	
2.65	-	72	1.5	3	4	54	54	5	-	-	8,900 <sup>7)</sup>	6,600 <sup>7)</sup>	

# Linear Ball Bearing And Housing Units

## KGB..PP AS, KGBS..PP AS, KGBO..PP AS SERIES

- Heavy Range
- Sealed, Greased, With Relubrication Facility



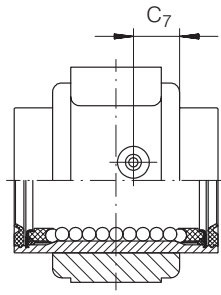
KGB..PP AS

For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

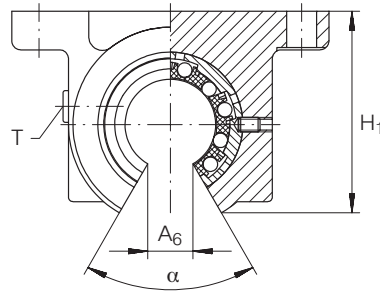
For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm											
SHAFT DIAMETER	PART NUMBER			MASS kg	DIMENSIONS			MOUNTING DIMENSIONS			
					d Deviations <sup>1)</sup>	A	C h12	H	A <sub>1</sub>	A <sub>4</sub>	A <sub>5</sub>
12	KGB 1232 PP AS	—	—	0.1	12 <sup>+0.008</sup>	52	32	35.8	42 ± 0.15	31.6	26 ± 0.02
	—	KGBS 1232 PP AS	—	0.1		52	32	35.8	42 ± 0.15	31.6	26 ± 0.02
	—	—	KGBO 1232 PP AS	0.09		52	32	—	42 ± 0.15	31.6	26 ± 0.02
16	KGB 1636 PP AS	—	—	0.14	16 <sup>+0.009</sup> -0.001	56	36	37.5	46 ± 0.15	35	28 ± 0.02
	—	KGBS 1636 PP AS	—	0.14		56	36	37.5	46 ± 0.15	35	28 ± 0.02
	—	—	KGBO 1636 PP AS	0.12		56	36	—	46 ± 0.15	35	28 ± 0.02
20	KGB 2045 PP AS	—	—	0.3	20 <sup>+0.009</sup> -0.001	70	45	48	58 ± 0.15	46	35 ± 0.02
	—	KGBS 2045 PP AS	—	0.3		70	45	48	58 ± 0.15	46	35 ± 0.02
	—	—	KGBO 2045 PP AS	0.25		70	45	—	58 ± 0.15	46	35 ± 0.02
25	KGB 2558 PP AS	—	—	0.58	25 <sup>+0.011</sup> -0.001	80	58	58	68 ± 0.15	56	40 ± 0.02
	—	KGBS 2558 PP AS	—	0.58		80	58	58	68 ± 0.15	56	40 ± 0.02
	—	—	KGBO 2558 PP AS	0.49		80	58	—	68 ± 0.15	56	40 ± 0.02
30	KGB 3068 PP AS	—	—	0.9	30 <sup>+0.011</sup> -0.001	88	68	67	76 ± 0.2	64	44 ± 0.02
	—	KGBS 3068 PP AS	—	0.9		88	68	67	76 ± 0.2	64	44 ± 0.02
	—	—	KGBO 3068 PP AS	0.78		88	68	—	76 ± 0.2	64	44 ± 0.02
40	KGB 4080 PP AS	—	—	1.43	40 <sup>+0.013</sup> -0.002	108	80	83.5	94 ± 0.2	77	54 ± 0.02
	—	KGBS 4080 PP AS	—	1.43		108	80	83.5	94 ± 0.2	77	54 ± 0.02
	—	—	KGBO 4080 PP AS	1.28		108	80	—	94 ± 0.2	77	54 ± 0.02
50	KGB 50100 PP AS	—	—	2.78	50 <sup>+0.013</sup> -0.002	135	100	98	116 ± 0.2	96	67.5 ± 0.05
	—	KGBS 50100 PP AS	—	2.78		135	100	98	116 ± 0.2	96	67.5 ± 0.05
	—	—	KGBO 50100 PP AS	2.46		135	100	—	116 ± 0.2	96	67.5 ± 0.05

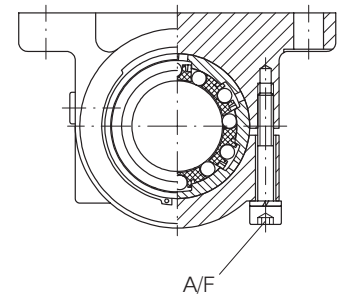
- 1) The tolerances are valid for series KGB..PP AS only.
- 2) Dimension A<sub>6</sub> on diameter d.
- 3) For fixing screws to DIN 912-8.8 and spring washer to DIN 7 980.
- 5) The basic load ratings are only valid for hardened (670 to 840 HV) and ground shaft raceways.



KGBO..PP AS



KGBO, KGBO..PP AS



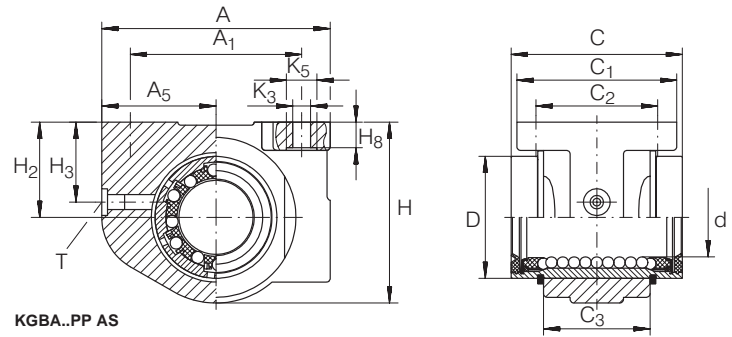
KGBS, KGBS..PP AS

A <sub>6</sub> <sup>2)</sup>	C <sub>1</sub>	C <sub>3</sub>	C <sub>7</sub>	D <sup>1)</sup> h5	H <sub>1</sub>	H <sub>2</sub> ±0.015	H <sub>3</sub>	H <sub>8</sub>	K <sub>3</sub> <sup>3)</sup>	K <sub>5</sub> <sup>3)</sup>	α Grad	A/F	INA LUBRICATION NIPPLE <sup>4)</sup> T	BALL ROWS	BASIC LOAD RATINGS <sup>5)</sup>		SHAFT DIAMETER
														NUMBER	dyn. C N	stat. C <sub>0</sub> N	
-	20	12	10	22	-	20	15	6	5.5	10	-	-	NIP A1	5	540	385	12
-	20	12	10	22	-	20	15	6	5.5	10	-	2	NIP A1	5	540	385	12
7.7	20	12	7	22	32	20	15	6	5.5	10	78	-	NIP A1	4	600	445	16
-	22	15	11	26	-	20	15	6	5.5	10	-	-	NIP A1	5	710	530	16
-	22	15	11	26	-	20	15	6	5.5	10	-	2	NIP A1	5	710	530	16
10.1	22	15	7	26	33.5	20	15	6	5.5	10	78	-	NIP A1	4	800	620	16
-	28	20	14	32	-	25	21	8	6.6	11	-	-	NIP A1	6	1,570	1,230	20
-	28	20	14	32	-	25	21	8	6.6	11	-	3	NIP A1	6	1,570	1,230	20
10	28	20	10	32	45	25	21	8	6.6	11	60	-	NIP A1	5	1,600	1,280	20
-	40	28	20	40	-	30	23	10	6.6	11	-	-	NIP A1	6	2,800	2,220	25
-	40	28	20	40	-	30	23	10	6.6	11	-	3	NIP A1	6	2,800	2,220	25
12.5	40	28	15	40	54.5	30	23	10	6.6	11	60	-	NIP A1	5	2,850	2,330	25
-	48	32	24	47	-	35	25	10	6.6	11	-	-	NIP A2	6	3,600	2,850	30
-	48	32	24	47	-	35	25	10	6.6	11	-	4	NIP A2	6	3,600	2,850	30
13.6	48	32	19	47	63.5	35	25	10	6.6	11	54	-	NIP A2	5	3,700	3,000	30
-	56	40	28	62	-	45	30	12	9	15	-	-	NIP A2	6	6,000	4,400	40
-	56	40	28	62	-	45	30	12	9	15	-	4	NIP A2	6	6,000	4,400	40
18.2	56	40	23	62	79.5	45	30	12	9	15	54	-	NIP A2	5	6,100	4,600	40
-	72	52	36	75	-	50	34	14	11	18	-	-	NIP A2	6	8,700	6,300	50
-	72	52	36	75	-	50	34	14	11	18	-	5	NIP A2	6	8,700	6,300	50
22.7	72	52	28	75	93	50	34	14	11	18	54	-	NIP A2	5	8,900	6,600	50

# Linear Ball Bearing And Housing Units

## KGBA..PP AS, KGBAS..PP AS, KGBAO..PP AS SERIES

- Heavy Range
- Sealed, Greased, With Relubrication Facility



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm										
SHAFT DIAMETER	PART NUMBER			MASS kg	DIMENSIONS			MOUNTING DIMENSIONS		
					d Deviations <sup>1)</sup>	A	C h12	H	A <sub>1</sub>	A <sub>5</sub>
12	KGBA 1232 PP AS	—	—	0.08	12 <sup>+0.008</sup>	42	32	34	32±0.15	21±0.01
	—	KGBAS 1232 PP AS	—	0.08		42	32	34	32±0.15	21±0.01
	—	—	KGBAO 1232 PP AS	0.07		42	32	—	32±0.15	21±0.01
16	KGBA 1636 PP AS	—	—	0.12	16 <sup>+0.009</sup> -0.001	50	36	41	40±0.15	25±0.01
	—	KGBAS 1636 PP AS	—	0.12		50	36	41	40±0.15	25±0.01
	—	—	KGBAO 1636 PP AS	0.1		50	36	—	40±0.15	25±0.01
20	KGBA 2045 PP AS	—	—	0.2	20 <sup>+0.009</sup> -0.001	60	45	47.5	45±0.15	30±0.01
	—	KGBAS 2045 PP AS	—	0.2		60	45	47.5	45±0.15	30±0.01
	—	—	KGBAO 2045 PP AS	0.17		60	45	—	45±0.15	30±0.01
25	KGBA 2558 PP AS	—	—	0.41	25 <sup>+0.011</sup> -0.001	74	58	60	60±0.2	37±0.01
	—	KGBAS 2558 PP AS	—	0.41		74	58	60	60±0.2	37±0.01
	—	—	KGBAO 2558 PP AS	0.35		74	58	—	60±0.2	37±0.01
30	KGBA 3068 PP AS	—	—	0.61	30 <sup>+0.011</sup> -0.001	84	68	67	68±0.2	42±0.01
	—	KGBAS 3068 PP AS	—	0.61		84	68	67	68±0.2	42±0.01
	—	—	KGBAO 3068 PP AS	0.53		84	68	—	68±0.2	42±0.01
40	KGBA 4080 PP AS	—	—	1.2	40 <sup>+0.013</sup> -0.002	108	80	87	86±0.2	54±0.015
	—	KGBAS 4080 PP AS	—	1.2		108	80	87	86±0.2	54±0.015
	—	—	KGBAO 4080 PP AS	1.07		108	80	—	86±0.2	54±0.015
50	KGBA 50100 PP AS	—	—	1.88	50 <sup>+0.013</sup> -0.002	130	100	98	108±0.2	65±0.015
	—	KGBAS 50100 PP AS	—	1.88		130	100	98	108±0.2	65±0.015
	—	—	KGBAO 50100 PP AS	1.65		130	100	—	108±0.2	65±0.015

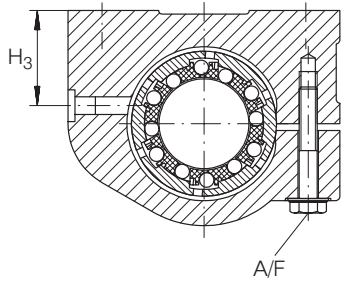
1) The tolerances are valid for series KGBA..PP AS only.

2) Dimension A<sub>6</sub> on diameter d.

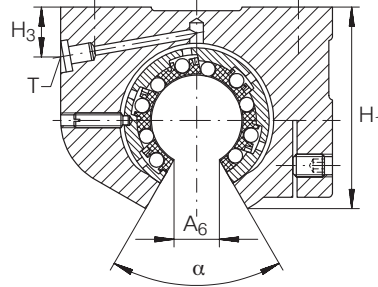
3) For fixing screws to DIN 912-8.8 and spring washer to DIN 7 980.

5) The basic load ratings are only valid for hardened (670 to 840 HV) and ground shaft raceways.

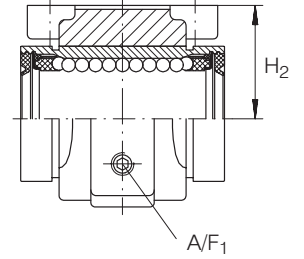




KGBAS..PP AS



KGBAO..PP AS

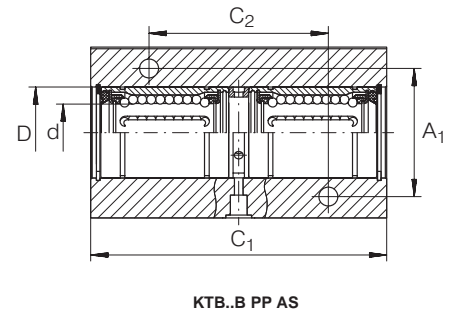
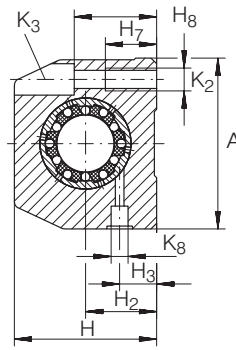


KGBAO..PP AS

A <sub>6</sub> <sup>2)</sup>	C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	D <sup>1)</sup> h5	H <sub>1</sub>	H <sub>2</sub> <sup>1)</sup>	H <sub>3</sub>	H <sub>8</sub> -0.5	K <sub>3</sub> <sup>3)</sup>	K <sub>5</sub> <sup>3)</sup>	α Grad	A/F	A/F <sub>1</sub>	INA LUBRICATION NIPPLE T	BALL ROWS NUMBER	BASIC LOAD RATINGS <sup>5)</sup>		SHAFT DIAMETER
																dyn. C N	stat. C <sub>0</sub> N	
-	32	23±0.15	20	22	-	18±0.01	15	4.8	4.7	8	-	-	-	NIP A1	5	540	385	12
-	32	23±0.15	20	22	-	18±0.01	15	4.8	4.7	8	-	7	-	NIP A1	5	540	385	12
7.7	32	23±0.15	20	22	30.5	18±0.01	7.8	4.8	4.7	8	78	-	2	NIP A1	4	600	445	16
-	35	26±0.15	22	26	-	22±0.01	15	5.4	4.7	8	-	-	-	NIP A1	5	710	530	16
-	35	26±0.15	22	26	-	22±0.01	15	5.4	4.7	8	-	7	-	NIP A1	5	710	530	16
10.1	35	26±0.15	22	26	37	22±0.01	10	5.4	4.7	8	78	-	2.5	NIP A1	4	800	620	16
-	42	32±0.15	28	32	-	25±0.01	21	6.7	4.7	8	-	-	-	NIP A1	6	1,570	1,230	20
-	42	32±0.15	28	32	-	25±0.01	21	6.7	4.7	8	-	7	-	NIP A1	6	1,570	1,230	20
10	42	32±0.15	28	32	44.5	25±0.01	11	6.7	4.7	8	60	-	2.5	NIP A1	5	1,600	1,280	20
-	54	40±0.2	40	40	-	30±0.01	23	7.8	5.7	10	-	-	-	NIP A1	6	2,800	2,220	25
-	54	40±0.2	40	40	-	30±0.01	23	7.8	5.7	10	-	8	-	NIP A1	6	2,800	2,220	25
12.5	54	40±0.2	40	40	56	30±0.01	13	7.8	5.7	10	60	-	3	NIP A1	5	2,850	2,330	25
-	60	45±0.2	48	47	-	35±0.01	25	8.7	6.8	11	-	-	-	NIP A2	6	3,600	2,850	30
-	60	45±0.2	48	47	-	35±0.01	25	8.7	6.8	11	-	10	-	NIP A2	6	3,600	2,850	30
13.6	60	45±0.2	48	47	63.5	35±0.01	14	8.7	6.8	11	54	-	3	NIP A2	5	3,700	3,000	30
-	78	58±0.2	56	62	-	45±0.01	30	11	9.2	15	-	-	-	NIP A2	6	6,000	4,400	40
-	78	58±0.2	56	62	-	45±0.01	30	11	9.2	15	-	13	-	NIP A2	6	6,000	4,400	40
18.2	78	58±0.2	56	62	82.5	45±0.01	18	11	9.2	15	54	-	4	NIP A2	5	6,100	4,600	40
-	70	50±0.2	72	75	-	50±0.015	34	12.5	9.2	15	-	-	-	NIP A2	6	8,700	6,300	50
-	70	50±0.2	72	75	-	50±0.015	34	12.5	9.2	15	-	13	-	NIP A2	6	8,700	6,300	50
22.7	70	50±0.2	72	75	93	50±0.015	19	12.5	9.2	15	54	-	4	NIP A2	5	8,900	6,600	50

# Linear Ball Bearing And Housing Units KTB..B PP AS, KTBO..PP AS SERIES

- Heavy Range
- Sealed, Greased, With Relubrication Facility

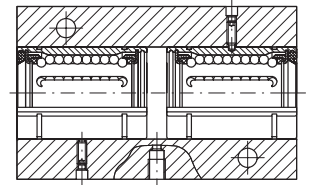
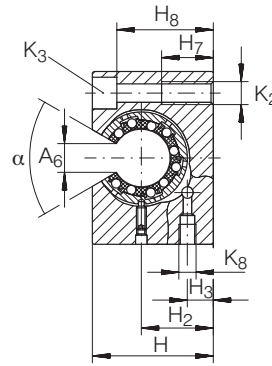


For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.  
For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm											
SHAFT DIAMETER	PART NUMBER		MASS	DIMENSIONS			MOUNTING DIMENSIONS				
				d Deviations <sup>1)</sup>	A	H	A <sub>1</sub>	A <sub>6</sub> <sup>2)</sup>	C <sub>1</sub>	C <sub>2</sub>	D
12	KTB 12 B PP AS	–	0.31	12 <sup>+0.008</sup>	43	35	30 <sup>±0.15</sup>	–	76	40 <sup>±0.15</sup>	22
	–	KTBO 12 PP AS	0.26		42	30	30 <sup>±0.15</sup>	7.7	76	40 <sup>±0.15</sup>	22
16	KTB 16 B PP AS	–	0.46	16 <sup>+0.009</sup> –0.001	53	42	36 <sup>±0.15</sup>	–	84	45 <sup>±0.15</sup>	26
	–	KTBO 16 PP AS	0.36		50	35	36 <sup>±0.15</sup>	10.1	84	45 <sup>±0.15</sup>	26
20	KTB 20 B PP AS	–	0.8	20 <sup>+0.009</sup> –0.001	60	50	45 <sup>±0.15</sup>	–	104	55 <sup>±0.15</sup>	32
	–	KTBO 20 PP AS	0.62		60	42	45 <sup>±0.15</sup>	10	104	55 <sup>±0.15</sup>	32
25	KTB 25 B PP AS	–	1.49	25 <sup>+0.011</sup> –0.001	78	60	54 <sup>±0.15</sup>	–	130	70 <sup>±0.2</sup>	40
	–	KTBO 25 PP AS	1.18		74	51	54 <sup>±0.15</sup>	12.5	130	70 <sup>±0.2</sup>	40
30	KTB 30 B PP AS	–	2.3	30 <sup>+0.011</sup> –0.001	87	70	62 <sup>±0.15</sup>	–	152	85 <sup>±0.2</sup>	47
	–	KTBO 30 PP AS	1.84		84	60	62 <sup>±0.15</sup>	13.6	152	85 <sup>±0.2</sup>	47

- 1) The tolerances are valid for series KTB..B PP AS only.
- 2) Dimension A<sub>6</sub> on diameter d.
- 3) The basic load ratings are only valid for hardened (670 to 840 HV) and ground shaft raceways and uniform loading on both the linear ball bearings.





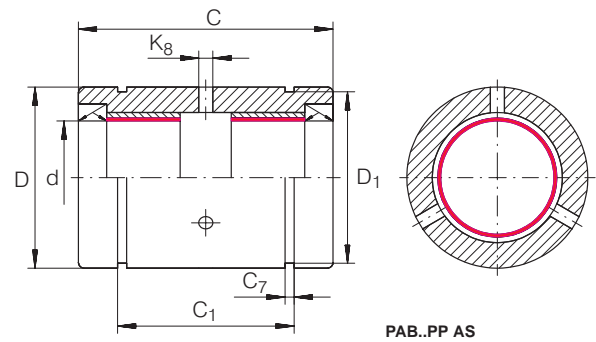
KTBO..PP AS

							K <sub>3</sub> FOR FIXING SCREWS		BASIC LOAD RATINGS <sup>3)</sup>		SHAFT DIAMETER
H <sub>2</sub> ±0.015	H <sub>3</sub>	H <sub>7</sub>	H <sub>8</sub>	K <sub>2</sub>	K <sub>8</sub>	α Grad	DIN 912	DIN 6 912	dyn. C N	stat. C <sub>0</sub> N	
18	10	13	28	M6	NIP A1	–	M5	–	880	770	12
18	6	13	24.5	M6	M6	78	–	M5	980	890	
22	12	13	35	M6	NIP A1	–	M5	–	1,150	1,060	16
22	8	13	29.5	M6	M6	78	–	M5	1,290	1,240	
25	13	18	37	M8	NIP A1	–	M6	–	2,550	2,450	20
25	9	18	35.5	M8	M6	60	–	M6	2,600	2,550	
30	15	22	49	M10	NIP A2	–	M8	–	4,550	4,450	25
30	9	22	43	M10	M8×1	60	–	M8	4,650	4,650	
35	16	26	52	M12	NIP A2	–	M10	–	5,900	5,700	30
35	11	26	50.5	M12	M8×1	54	–	M10	6,000	6,000	

# Permaglide® Linear Plain Bearings

## PAB..PP AS, PABO..PP AS SERIES

- Plain Bearing Range
- Sealed, Greased, With Relubrication Facility

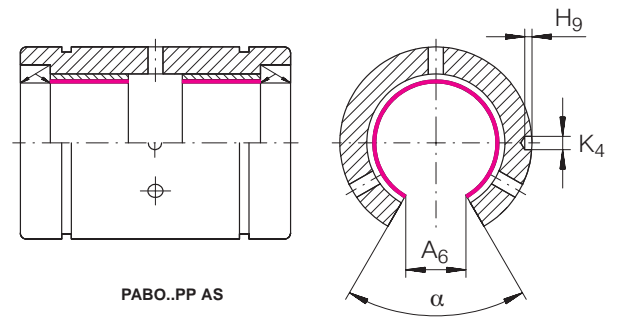


For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm						
SHAFT DIAMETER	PART NUMBER		MASS kg	DIMENSIONS		
				d	D <sup>1)</sup> h7	C h12
12	PAB 1232 PP AS	PABO 1232 PP AS	0.026	12	22	32
		PABO 1232 PP AS	0.021	12	22	32
16	PAB 1636 PP AS	PABO 1636 PP AS	0.034	16	26	36
		PABO 1636 PP AS	0.028	16	26	36
20	PAB 2045 PP AS	PABO 2045 PP AS	0.068	20	32	45
		PABO 2045 PP AS	0.058	20	32	45
25	PAB 2558 PP AS	PABO 2558 PP AS	0.132	25	40	58
		PABO 2558 PP AS	0.113	25	40	58
30	PAB 3068 PP AS	PABO 3068 PP AS	0.169	30	47	68
		PABO 3068 PP AS	0.143	30	47	68
40	PAB 4080 PP AS	PABO 4080 PP AS	0.426	40	62	80
		PABO 4080 PP AS	0.362	40	62	80
50	PAB 50100 PP AS	PABO 50100 PP AS	0.773	50	75	100
		PABO 50100 PP AS	0.657	50	75	100

- 1) The tolerances are valid for series PAB..PP AS only.
- 2) Bores and grooves centered on bearing width C.
- 3) Groove dimensions suitable for circlips to DIN 471.
- 4) Dimension A<sub>6</sub> on diameter d.
- 5) The basic static load ratings stated here are not valid if the above elements are fitted in housings – as shown on the following pages.



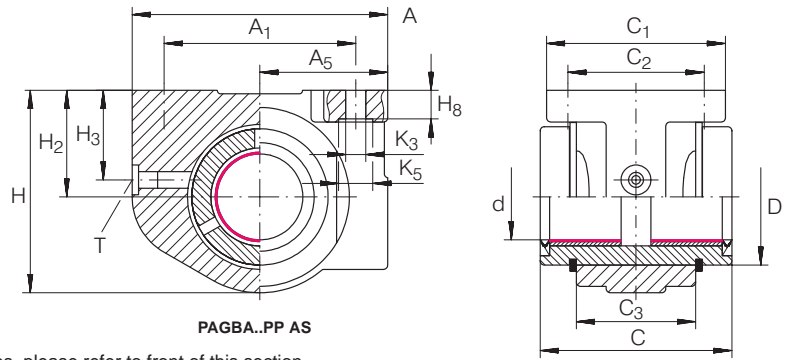
PABO..PP AS

MOUNTING DIMENSIONS								BASIC LOAD RATINGS <sup>5)</sup> stat. C <sub>0</sub> N	SHAFT DIAMETER
C <sub>1</sub> <sup>2)</sup> H13	C <sub>7</sub> <sup>3)</sup> H13	D <sub>1</sub>	A <sub>6</sub> <sup>4)</sup>	H <sub>9</sub>	K <sub>4</sub> <sup>3)</sup>	K <sub>8</sub> <sup>3)</sup> H13	α Grad		
22.6	1.3	21	–	–	–	2.5	–	60,000	12
22.6	1.3	21	7.7	1.2	2.2	2.5	78	60,000	
24.6	1.3	24.9	–	–	–	2.5	–	96,000	16
24.6	1.3	24.9	10.1	1.2	2.2	2.5	78	96,000	
31.2	1.6	30.3	–	–	–	2.5	–	150,000	20
31.2	1.6	30.3	10	1.2	2.2	2.5	60	150,000	
43.7	1.85	37.5	–	–	–	2.5	–	250,000	25
43.7	1.85	37.5	12.5	1.5	3	2.5	60	250,000	
51.7	1.85	44.5	–	–	–	3	–	375,000	30
51.7	1.85	44.5	13.6	1.5	3	3	54	375,000	
60.3	2.15	59	–	–	–	3	–	600,000	40
60.3	2.15	59	18.2	1.5	3	3	54	600,000	
77.3	2.65	72	–	–	–	4	–	1,000,000	50
77.3	2.65	72	22.7	1.5	3	4	54	1,000,000	

# Permaglide® Linear Plain Bearing Units

## PAGBA..PP AS, PAGBAO..PP AS SERIES

- Plain Bearing Range
- Sealed, Greased, With Relubrication Facility



PAGBA..PP AS

For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

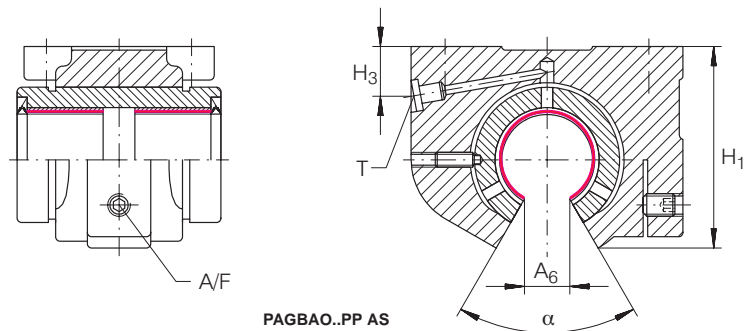
For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm										
SHAFT DIAMETER	PART NUMBER		MASS	DIMENSIONS				MOUNTING DIMENSIONS		
				d	A	C	H	A <sub>1</sub>	A <sub>5</sub>	A <sub>6</sub> <sup>1)</sup>
			kg			h12				
12	PAGBA 1232 PP AS	–	0.07	12	42	32	34	32±0.15	21±0.01	–
	–	PAGBAO 1232 PP AS	0.06	12	42	32	–	32±0.15	21	7.7
16	PAGBA 1636 PP AS	–	0.1	16	50	36	41	40±0.15	25±0.01	–
	–	PAGBAO 1636 PP AS	0.09	16	50	36	–	40±0.15	25	10.1
20	PAGBA 2045 PP AS	–	0.18	20	60	45	47.5	45±0.15	30±0.01	–
	–	PAGBAO 2045 PP AS	0.16	20	60	45	–	45±0.15	30	10
25	PAGBA 2558 PP AS	–	0.35	25	74	58	60	60±0.2	37±0.01	–
	–	PAGBAO 2558 PP AS	0.31	25	74	58	–	60±0.2	37	12.5
30	PAGBA 3068 PP AS	–	0.48	30	84	68	67	68±0.2	42±0.01	–
	–	PAGBAO 3068 PP AS	0.43	30	84	68	–	68±0.2	42	13.6
40	PAGBA 4080 PP AS	–	1.07	40	108	80	87	86±0.2	54±0.015	–
	–	PAGBAO 4080 PP AS	0.91	40	108	80	–	86±0.2	54	18.2
50	PAGBA 50100 PP AS	–	1.65	50	130	100	98	108±0.2	65±0.015	–
	–	PAGBAO 50100 PP AS	1.46	50	130	100	–	108±0.2	65	22.7

1) Dimension A<sub>6</sub> on diameter d.

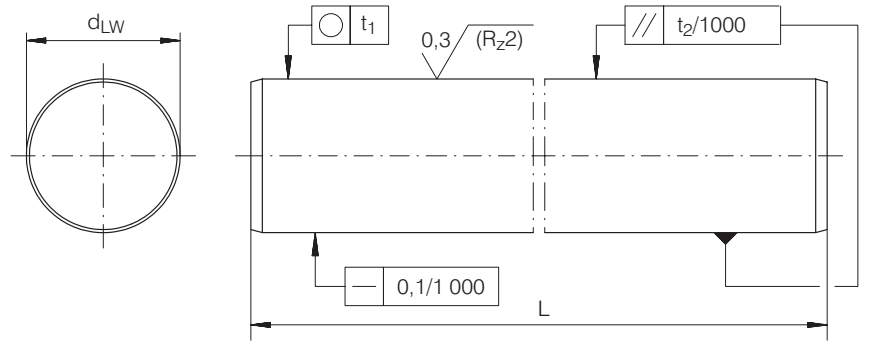
2) The tolerances are valid for series PAGBA..PP AS only.

3) For fixing screws to DIN 912-8.8 and spring washer to DIN 7 980.



C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	D <sup>2)</sup> h7	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	H <sub>8</sub> -0.5	K <sub>3</sub> <sup>3)</sup>	K <sub>5</sub> <sup>3)</sup>	A/F	α Grad	INA LUBRICATION NIPPLE <sup>4)</sup>	SHAFT DIAMETER
												T	
32	23±0.15	20	22	-	18±0.01	15	4.8	4.7	8	-	-	NIP A1	12
32	23±0.15	20	22	30.5	18	7.8	4.8	4.7	8	2	78	NIP A1	
35	26±0.15	22	26	-	22±0.01	15	5.4	4.7	8	-	-	NIP A1	
35	26±0.15	22	26	36.8	22	10	5.4	4.7	8	2.5	78	NIP A1	
42	32±0.15	28	32	-	25±0.01	21	6.7	4.7	8	-	-	NIP A1	20
42	32±0.15	28	32	44.5	25	11	6.7	4.7	8	2.5	60	NIP A1	
54	40±0.2	40	40	-	30±0.01	23	7.8	5.7	10	-	-	NIP A1	
54	40±0.2	40	40	56	30	13	7.8	5.7	10	3	60	NIP A1	
60	45±0.2	48	47	-	35±0.01	25	8.7	6.8	11	-	-	NIP A2	30
60	45±0.2	48	47	63.5	35	14	8.7	6.8	11	3	54	NIP A2	
78	58±0.2	56	62	-	45±0.01	30	11	9.2	15	-	-	NIP A2	
78	58±0.2	56	62	82.4	45	18	11	9.2	15	4	54	NIP A2	
70	50±0.2	72	75	-	50±0.015	34	12.5	9.2	15	-	-	NIP A2	50
70	50±0.2	72	75	92.8	50	19	12.5	9.2	15	4	54	NIP A2	

# Shafts W SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm									
SHAFT DIAMETER  $d_{LW}$	PART NUMBER	MASS  kg/m	LENGTH  $L_{max}$	TOLERANCES IN $\mu m$			ROUNDNESS  $t_1$  $\mu m$	PARALLELISM  $t_2^{2)}$  $\mu m$	SURFACE HARDNESS DEPTH RHT <sup>3)</sup>  min.
				STANDARD TOLERANCE  h6	SPECIAL TOLERANCES <sup>1)</sup>				
					j5	f7			
5	W 5	0.15	3,600	0-8	-	-	4	5	0.4
6	W 6	0.22	4,000	0-8	-	-	4	5	0.4
8	W 8	0.39	4,000	0-9	-	-	4	6	0.4
10	W 10	0.61	6,000	0-9	-	-	4	6	0.4
12	W 12	0.89	6,000	0-11	+5-3	-16-34	5	8	0.6
14	W 14	1.21	6,000	0-11	+5-3	-16-34	5	8	0.6
15	W 15	1.37	6,000	0-11	-	-16-34	5	8	0.6
16	W 16	1.57	6,000	0-11	+5-3	-16-34	5	8	0.6
18	W 18	1.98	6,000	0-11	-	-16-34	5	8	0.6
20	W 20	2.45	6,000	0-13	+5-4	-20-41	6	9	0.9
24	W 24	3.55	6,000	0-13	-	-	6	9	0.9
25	W 25	3.83	6,000	0-13	+5-4	-20-41	6	9	0.9
30	W 30	5.51	6,000	0-13	+5-4	-20-41	6	9	0.9
32	W 32	6.3	6,000	0-16	-	-25-50	7	11	1.5
40	W 40	9.8	6,000	0-16	+6-5	-	7	11	1.5
50	W 50	15.3	6,000	0-16	+6-5	-	7	11	1.5
60	W 60	22.1	6,000	0-19	-	-	8	13	2.2
80	W 80	39.2	6,000	0-19	-	-	8	13	2.2

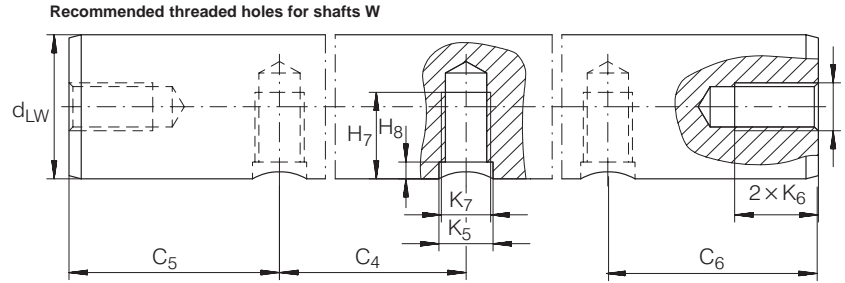
1) Only for shafts made from quenched and tempered steel.

2) Measured diameter variation.

3) According to DIN 6 773, Part 3.



# Recommended Threaded Holes

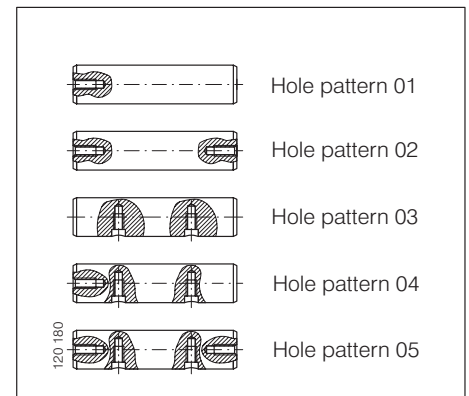


For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm																					
PART NUMBER <sup>1)</sup>	AXIAL THREAD									RADIAL THREAD											
	K <sub>6</sub>									DIMENSIONS											
										C <sub>4</sub>		C <sub>5min</sub> , C <sub>6min</sub> <sup>2)</sup> HOLE PATTERN		H <sub>7</sub>	H <sub>8</sub>	K <sub>5</sub>	K <sub>7</sub>				
03	04-05																				
W 5	M3	M4	M5	M6	M8	M10	M12	M16	M20	M24	M24	100	200	300	20	3 x K <sub>6</sub> + K <sub>7</sub>	19	4	11	M10	
W 6																					
W 8																					
W 10																					
W 12																					
W 14	M4	M5	M6																		
W 15			M5	M6	M8																
W 16			M5	M6	M8																
W 18				M6	M8	M10															
W 20					M8	M10	M12														
W 24				M6	M8	M10	M12														
W 25					M8	M10	M12														
W 30						M10	M12	M16													
W 32						M10	M12	M16													
W 40						M10	M12	M16													
W 50						M10	M12	M16													
W 60						M12	M16	M20													
W 80						M12	M16	M20	M24												

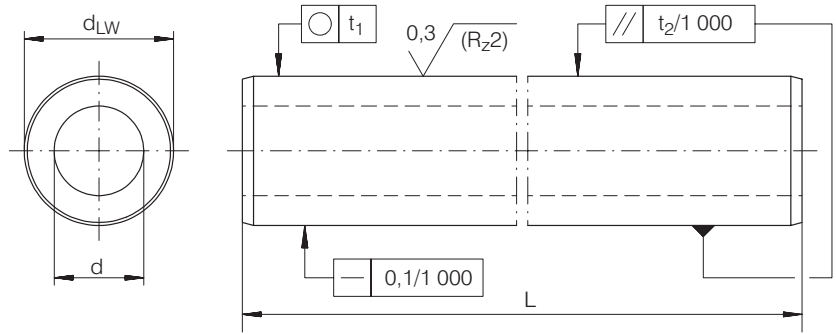
2) The dimensions C<sub>5</sub> and C<sub>6</sub> are dependent on the length of the shaft.  
The axial threaded holes should be taken into consideration when using hole patterns 04 and 05.



# Shafts

## WH SERIES

- Hollow shafts



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm								
SHAFT DIAMETER $d_{LW}$	PART NUMBER	MASS  kg/m	Length  L	INSIDE DIAMETER  $d^1)$	TOLERANCES IN MM D h7	ROUNDNESS  $t_1$ $\mu\text{m}$	PARALLELISM  $t_2^2)$ $\mu\text{m}$	SURFACE HARDNESS DEPTH  $R_{ht}^3)$ min.
20	WH 20	1.25	6,000	14	0-21	6	9	0.9
25	WH 25	2.35	6,000	15.6	0-21	6	9	0.9
30	WH 30	3.5	6,000	18.2	0-21	6	9	0.9
40	WH 40	4.99	6,000	28.1	0-25	7	11	1.5
50	WH 50	9.97	6,000	29.7	0-25	7	11	1.5
60	WH 60	14.2	6,000	36	0-30	8	13	2.2
80	WH 80	19.5	6,000	56.9	0-30	8	13	2.2

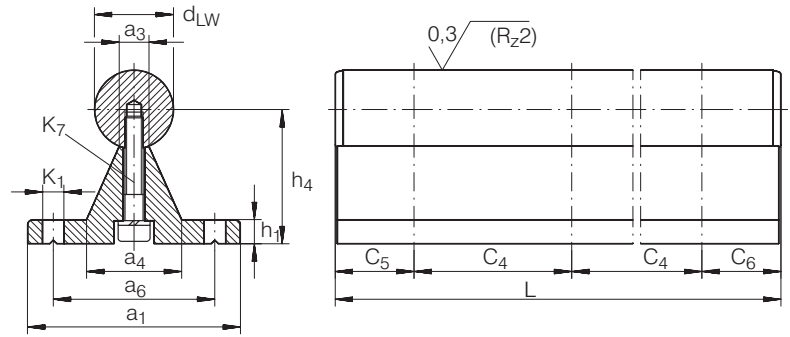
1) Wall thickness tolerance of initial material:  $\pm 4\%$ .

2) Measured diameter variation.

3) According to DIN 6 773. Part 3.

# Shaft And Support Rail Units

## TSWW, TSNW SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

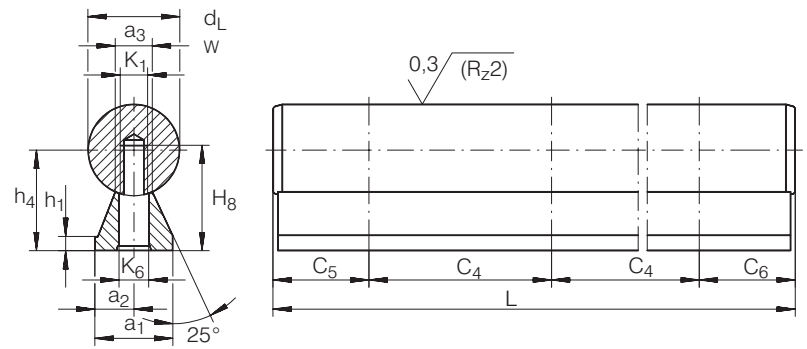
For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm														
SHAFT DIAMETER $d_{LW}$	PART NUMBER	MASS kg/m	DIMENSIONS			MOUNTING DIMENSIONS								
			$a_1$	$h_4^{1)}$ $\pm 0.02$	$L^{2)}$ $\pm 3$	$a_3$	$a_4$	$a_6$	$C_4$	$C_5/C_6^{3)}$ min.	$C_5/C_6^{3)}$ max.	$h_1$	$K_1^{4)}$	$K_7$ DIN 6 912
12	TSWW 12	1.67	40	22	6,000	6	19.5	29	120	20	114	5	4.5	M4 × 20
	TSNW 12	1.67	40	22	6,000	5.4	15	29	75	20	69	5	4.5	M4 × 20
16	TSWW 16	3.15	54	32	6,000	7.5	24.2	41	150	20	143	6	5.5	M5 × 30
	TSNW 16	2.95	45	26	6,000	7	19	33	100	20	93	5	5.5	M5 × 20
20	TSWW 20	4.03	54	34.02	6,000	7.5	24.2	41	150	20	143	6	5.5	M5 × 30
	TSNW 20	3.95	52	32	6,000	8.1	23	37	100	20	92	6	6.6	M6 × 25
25	TSWW 25	5.9	65	39.66	6,000	10	29.8	51	150	20	142	6	6.6	M6 × 35
	TSNW 25	5.6	57	36	6,000	10.3	26	42	120	20	110	6	6.6	M8 × 30
30	TSWW 30	7.58	65	42.19	6,000	10	29.8	51	150	20	142	6	6.6	M6 × 35
	TSNW 30	7.88	69	42	6,000	11	29	51	150	20	139	7	9	M10 × 35
40	TSWW 40	14.25	85	60	6,000	17	46	65	150	20	139	10	9	M10 × 50
	TSNW 40	12.83	73	50	6,000	15	36	55	200	20	189	8	9	M10 × 40
50	TSWW 50	19.75	85	65.05	6,000	17	46	65	150	20	139	10	9	M10 × 50
	TSNW 50	19.38	84	60	6,000	19	40	63	200	20	188	9	11	M12 × 45

- 1) With reference to the nominal shaft diameter, measured while clamped.
- 2) Maximum length of single piece shaft and support rail units:  
Depending on the length of the shaft and support rail unit,  
the rail is composed of several individual sections.
- 3) The dimensions  $C_5$  and  $C_6$  are dependent on the length of the shaft and support rail unit.
- 4) TSWW: for fixing screws to DIN 912 or DIN 933 (TSWW 12, DIN 6 912)  
and spring washer or washer to DIN 7 980 or DIN 125.  
TSNW: for fixing screws to DIN 6 912 and spring washer to DIN 7 980.

# Shaft And Support Rail Unit

## TSUW SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

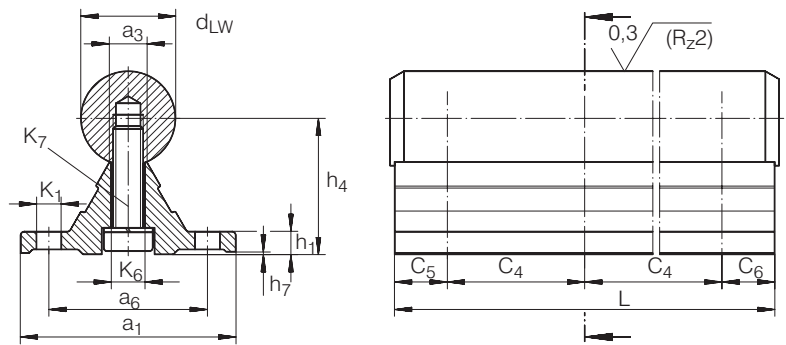
For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm														
SHAFT DIAMETER $d_{LW}$	PART NUMBER	MASS  kg/m	DIMENSIONS			MOUNTING DIMENSIONS								
			$a_1$	$h_4^{1)}$ $\pm 0.02$	$L^2)$ $\pm 3$	$a_2^{3)}$	$a_3$	$C_4$	$C_5/C_6^{4)}$ min.	$C_5/C_6^{4)}$ max.	$h_1$	$K_1$	$K_6$	$H_8$
12	TSUW 12	1.1	11	14.5	6,000	5.5	5.4	75	20	70	3	M4	4.5	16
16	TSUW 16	1.88	14	18	6,000	7	7	75	20	70	3	M5	5.5	19
20	TSUW 20	2.92	17	22	6,000	8.5	8.1	75	20	69	3	M6	6.6	23
25	TSUW 25	4.42	21	26	6,000	10.5	10.3	75	20	68	3	M8	9	28.5
30	TSUW 30	6.22	23	30	6,000	11.5	11	100	20	92	3	M10	11	32
40	TSUW 40	11.03	30	39	6,000	15	15	100	20	91	4	M12	13.5	39.5
50	TSUW 50	16.98	35	46	6,000	17.5	19	100	20	90	5	M14	15.5	46

- 1) With reference to the nominal shaft diameter, measured while clamped.
- 2) Maximum length of single piece shaft and support rail units (TSUW 12:  $L = 1,600 \pm 1.2$  mm);  
Depending on the length of the shaft and support rail unit,  
the rail is composed of several individual sections.
- 3) Available on request with  $a_2 \pm 0.02$ .
- 4) The dimensions  $C_5$  and  $C_6$  are dependent on the length of the shaft and support rail unit.

# Shaft And Support Rail Units

TSNW..G4  $d \leq 25$  mm,  
TSNW..G5  $d > 25$  mm SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

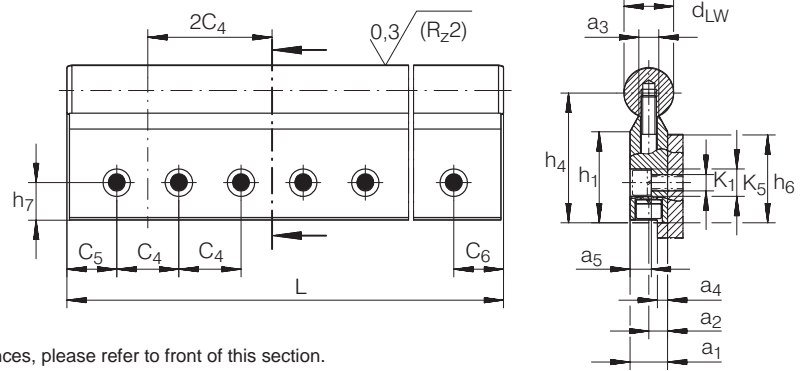
For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm																	
SHAFT DIAMETER $d_{LW}$	PART NUMBER	MASS  kg/m	DIMENSIONS			MOUNTING DIMENSIONS											ACCURACY CLASS <sup>5)</sup>
			$a_1$	$h_4$ <sup>1)</sup>	$L$ <sup>2)</sup>	$a_3$	$a_6$	$C_4$	$C_5/C_6$ <sup>3)</sup>	$C_5/C_6$ <sup>3)</sup>	$h_1$	$h_7$	$K_1$ <sup>4)</sup>	$K_6$	$K_7$		
$h_6$					$\pm 2$				min.	max.					DIN 6 912		
12	TSNW 12 G4	1.6	40	$22 \pm 0.1$	4,000	5	29	75	20	69	5	0.2	4.5	4.5	M4 × 18	G4 0.03	
16	TSNW 16 G4	2.5	45	$26 \pm 0.1$	4,000	6.8	33	100	20	93	5	0.2	5.5	5.5	M5 × 20	G4 0.03	
20	TSNW 20 G4	3.8	52	$32 \pm 0.1$	4,000	7.8	37	100	20	92	6	0.2	6.6	6.6	M6 × 25	G4 0.03	
25	TSNW 25 G4	5.3	57	$36 \pm 0.1$	4,000	9.8	42	120	20	110	6	0.3	6.6	9	M8 × 30	G4 0.03	
30	TSNW 30 G5	7.5	69	$42 \pm 0.15$	4,000	11	51	150	20	139	7	0.3	9	11	M10 × 35	G5 0.04	
40	TSNW 40 G5	12.4	73	$50 \pm 0.15$	4,000	14.5	55	200	20	189	8	0.3	9	11	M10 × 40	G5 0.04	
50	TSNW 50 G5	18.9	84	$60 \pm 0.15$	4,000	18.5	63	200	20	188	9	0.3	11	13.5	M12 × 45	G5 0.05	

- 1) With reference to the nominal shaft diameter, measured while clamped.
- 2) Maximum length of single piece shaft and support rail units: the shaft is longer than the support rail by 2.5 mm at each end.
- 3) The dimensions  $C_5$  and  $C_6$  are dependent on the length of the shaft and support rail unit.
- 4) For fixing screws to DIN 6 912 and spring washer to DIN 7 980.
- 5) Maximum variation of dimension  $h_4$ , measured on the same rail over a distance of 1,000 mm.

# Shaft And Support Rail Unit

## TSSW SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm																	
SHAFT DIAMETER $d_{LW}$	PART NUMBER	MASS  kg/m	DIMENSIONS			MOUNTING DIMENSIONS											
			$a_1$	$h_4^{1)}$ $\pm 0.01$	$L^2)$ $\pm 3$	$a_2^1)$ $\pm 0.012$	$a_3$	$a_4$	$a_5^3)$	$C_4$	$C_5/C_6^4)$ min.	$C_5/C_6^4)$ max.	$h_1$	$h_6$	$h_7$ $\pm 0.15$	$K_1^3)$	$K_5^3)$
20	TSSW 20	4.12	15	52	6,000	7.5	8.1	4	8.5	50	20	42	36.5	30	15	6.6	11
25	TSSW 25	5.98	20	62	6,000	10	10.3	5.5	11	60	20	50	38.5	36	18	9	15
30	TSSW 30	8.68	25	72	6,000	12.5	11	7	13.5	75	20	64	43	42	21	11	18
40	TSSW 40	14.3	30	88	6,000	15	15	8.5	16	100	20	88	53	50	25	13.5	20
50	TSSW 50	21.47	35	105	6,000	17.5	19	9	18.5	100	20	86	64.5	60	30	15.5	24

1) With reference to the nominal shaft diameter, measured while clamped.

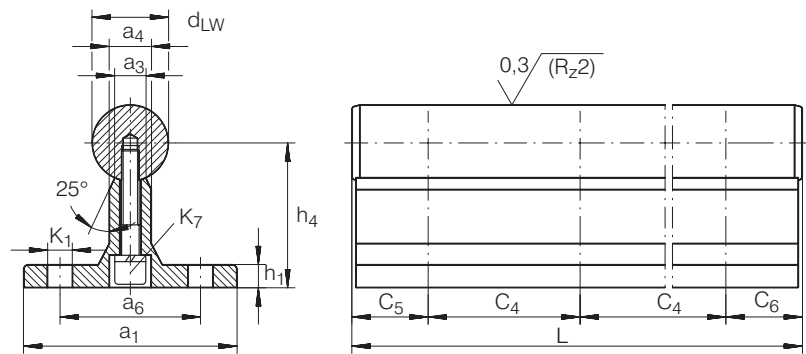
2) Maximum length of single piece shaft and support rail units.  
Depending on the length of the shaft and support rail unit, the rail is composed of several individual sections.

3) For fixing screws to DIN 912-8.8 and spring washer to DIN 7980.

4) The dimensions  $C_5$  and  $C_6$  are dependent on the length of the shaft and support rail unit.

# Shaft And Support Rail Unit

## TSWWA SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm													
SHAFT DIAMETER $d_{LW}$	PART NUMBER	MASS  kg/m	DIMENSIONS			MOUNTING DIMENSIONS							
			$a_1$	$h_4^{1)}$ $\pm 0.02$	$L^{2)}$ $\pm 3$	$a_3$	$a_4$	$a_6$	$C_4$	$C_5/C_6^{3)}$ min.	$C_5/C_6^{3)}$ max.	$h_1$	$K_1^{4)}$
12	TSWWA 12	1.93	43	28	6,000	5.4	9	29	75	20	69	5	4.5
16	TSWWA 16	2.8	48	30	6,000	7	10	33	100	20	93	5	5.5
20	TSWWA 20	4.12	56	38	6,000	8.1	11	37	100	20	92	6	6.6
25	TSWWA 25	5.83	60	42	6,000	10.3	14	42	120	20	110	6	6.6
30	TSWWA 30	8.5	74	53	6,000	11	14	51	150	20	139	8	9
40	TSWWA 40	13.33	78	60	6,000	15	18	55	200	20	189	8	9
50	TSWWA 50	20.33	90	75	6,000	19	22	63	200	20	188	10	11

1) With reference to the nominal shaft diameter, measured while clamped.

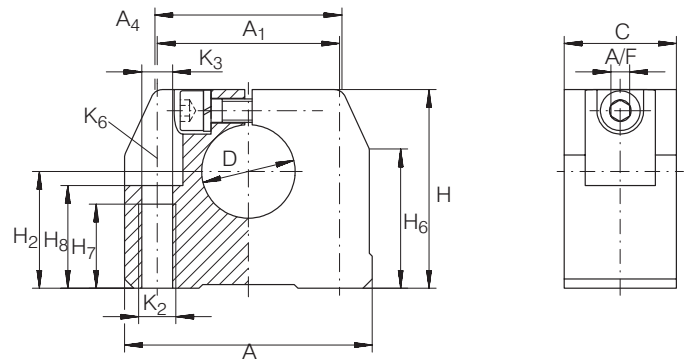
2) Maximum length of single piece shaft and support rail units.  
Depending on the length of the shaft and support rail unit, the rail is composed of several individual sections.

3) The dimensions  $C_5$  and  $C_6$  are dependent on the length of the shaft and support rail unit.

4) For fixing screws to DIN 912 or DIN 933  
and spring washer or washer to DIN 7 980 or DIN 125.

# Shaft Support Blocks

## GWH..B SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm																
SHAFT DIAMETER	PART NUMBER	MASS kg	DIMENSIONS				MOUNTING DIMENSIONS									
			D H8	A	C	H	A <sub>1</sub> ±0.15	A <sub>4</sub>	H <sub>2</sub> ±0.01	H <sub>6</sub>	H <sub>7</sub>	H <sub>8</sub>	K <sub>2</sub>	K <sub>3</sub> <sup>1)</sup>	K <sub>6</sub> <sup>1)</sup>	A/F
6	GWH 06 B	0.03	6	32	16	27	22	25	15	19.5	11	13	M5	4.3	M4	2.5
8	GWH 08 B	0.03	8	32	16	27	22	25	16	19.5	11	13	M5	4.3	M4	2.5
10	GWH 10 B	0.05	10	40	18	33	27	32	18	24	13	16	M6	5.3	M5	3
12	GWH 12 B	0.05	12	40	18	33	27	32	19	24	13	16	M6	5.3	M5	3
14	GWH 14 B	0.07	14	43	20	36.5	32	34	20	25.5	13	18	M6	5.3	M5	3
16	GWH 16 B	0.07	16	43	20	36.5	32	34	22	25.5	13	18	M6	5.3	M5	3
20	GWH 20 B	0.12	20	53	24	42.5	39	40	25	28	18	22	M8	6.6	M6	4
25	GWH 25 B	0.17	25	60	28	52.5	44	44	31	33	22	26	M10	8.4	M8	5
30	GWH 30 B	0.22	30	67	30	60	49	49.5	34	41.5	22	29	M10	8.4	M8	5
40	GWH 40 B	0.48	40	87	40	79.5	66	63	42	44.5	26	38	M12	10.5	M10	6
50	GWH 50 B	0.82	50	103	50	92	80	74	50	61	34	46	M16	13.5	M12	8

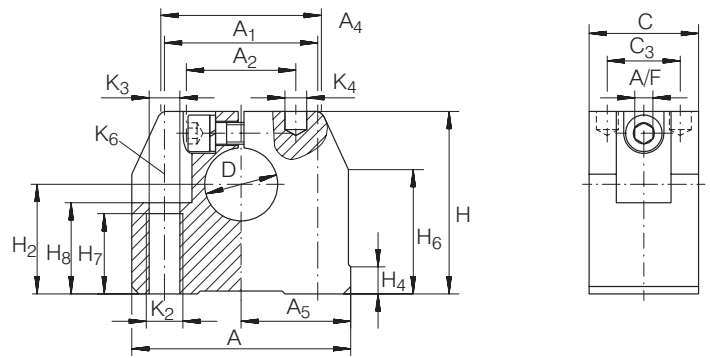
In the interim, shaft support blocks GWH..B with profile grooves will still be supplied.

1) For fixing screws to DIN 912-8.8 and spring washer to DIN 7 980.



# Shaft Support Blocks

## GWN..B SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

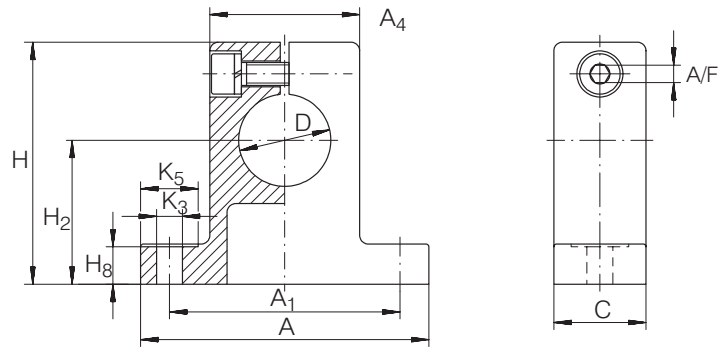
DIMENSION TABLE - Dimensions in mm																					
SHAFT DIAMETER	PART NUMBER	MASS kg	DIMENSIONS				MOUNTING DIMENSIONS														
			D H8	A	C	H	A <sub>1</sub>	A <sub>2</sub>	A <sub>4</sub>	A <sub>5</sub> ±0.01	C <sub>3</sub>	H <sub>2</sub> ±0.01	H <sub>4</sub>	H <sub>6</sub>	H <sub>7</sub>	H <sub>8</sub>	K <sub>2</sub>	K <sub>3</sub>	K <sub>4</sub>	K <sub>6</sub> <sup>1)</sup>	A/F
12	GWN 12 B	0.06	12	43	20	35	30±0.15	20	34	21.5	13	20	5.5	26.5	13	16.5	M6	5.3	4	M5	3
16	GWN 16 B	0.1	16	53	24	42	38±0.15	26	40	26.5	16	25	7	29.5	18	21	M8	6.6	5	M6	4
20	GWN 20 B	0.17	20	60	30	50	42±0.15	30	44	30	20	30	7.5	34	22	25	M10	8.4	6	M8	5
25	GWN 25 B	0.33	25	78	38	60	56±0.15	40	59.5	39	25	35	8.5	41.5	26	30	M12	10.5	8	M10	6
30	GWN 30 B	0.45	30	87	40	70	64±0.15	45	63	43.5	26	40	9.5	46	26	34	M12	10.5	8	M10	6
40	GWN 40 B	0.85	40	108	48	90	82±0.15	65	76	54	32	50	11	57.5	34	44	M16	13.5	10	M12	8
50	GWN 50 B	1.4	50	132	58	105	100±0.2	70	90	66	36	60	11	62	43	49	M20	17.5	12	M16	10

In the interim, shaft support blocks GWN..B with profile grooves will still be supplied.

<sup>1)</sup> For fixing screws to DIN 912-8.8 and spring washer to DIN 7 980.

# Shaft Support Blocks

## GW, GWA SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm													
SHAFT DIAMETER	PART NUMBER	MASS kg	DIMENSIONS				MOUNTING DIMENSIONS						
			D	A	C	H	A <sub>1</sub>	A <sub>4</sub>	H <sub>2</sub> ±0.015	H <sub>8</sub>	K <sub>3</sub> <sup>1)</sup>	K <sub>5</sub> <sup>1)</sup>	A/F
10	GW 10	0.03	10	37	11	30	28±0.15	18	17	5	3.4	8	2.5
	GWA 10	0.03	10	37	11	30	28±0.15	18	17	5	4.5	9	2.5
12	GW 12	0.04	12	42	12	35	32±0.15	20	20	5.5	4.5	10	3
	GWA 12	0.04	12	42	12	35	32±0.15	20	20	5.5	5.5	11	3
14	GW 14	0.06	14	46	14	38	36±0.15	23	22	6	4.5	10	3
	GWA 14	0.06	14	46	14	38	36±0.15	23	22	6	5.5	11	3
16	GW 16	0.08	16	50	16	42	40±0.15	26	25	6.5	4.5	10	3
	GWA 16	0.08	16	50	16	42	40±0.15	26	25	6.5	5.5	11	3
20	GW 20	0.15	20	60	20	50	45±0.15	32	30	7.5	4.5	10	3
	GWA 20	0.15	20	60	20	50	45±0.15	32	30	8	5.5	11	3
25	GW 25	0.26	25	74	25	58	60±0.15	38	35	8.5	5.5	11	4
	GWA 25	0.26	25	74	25	58	60±0.15	38	35	9	6.6	13	4
30	GW 30	0.38	30	84	28	68	68±0.2	45	40	9.5	6.6	13	5
	GWA 30	0.38	30	84	28	68	68±0.2	45	40	10	9	18	5
40	GW 40	0.67	40	108	32	86	86±0.2	56	50	12	9	18	6
	GWA 40	0.67	40	108	32	86	86±0.2	56	50	12	11	22	6
50	GW 50	1.38	50	130	40	100	108±0.2	80	60	14	9	18	6
	GWA 50	1.38	50	130	40	100	108±0.2	80	60	14	11	22	6

1) For fixing screws to DIN 912-8.8 and spring washer to DIN 7980.

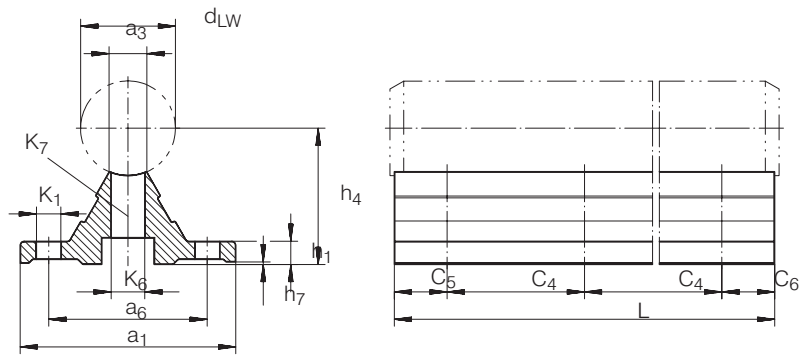
# Support Rails

TSN..G G4  $d \leq 25$  mm,

TSN..G G5  $d > 25$  mm,

TSN..G4  $d \leq 25$  mm,

TSN..G5  $d > 25$  mm SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

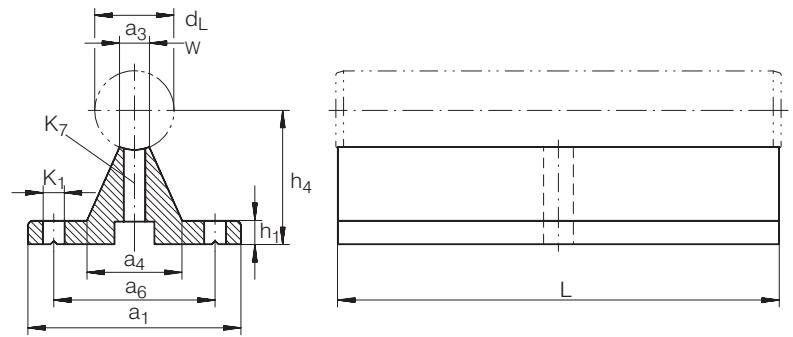
For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

DIMENSION TABLE - Dimensions in mm																
SHAFT DIAMETER $d_{LW}$	PART NUMBER	MASS	DIMENSIONS			MOUNTING DIMENSIONS										
			$a_1$	$h_4^{1)}$	$L^{2)}$	$a_3$	$a_6$	$C_4$	$C_5/C_6^{3)}$		$h_1$	$h_7$	$K_1^{4)}$	$K_6$	$K_7$	ACCURACY CLASS <sup>5)</sup>
$h_6$		kg/m			$\pm 2$				min.	max.					DIN 6 912	
12	TSN 12 G G4	0.72	40	$22 \pm 0.1$	4,000	5	29	75	20	69	5	0.2	4.5	4.5	M4 × 18	G4 0.03
	TSN 12 G4	0.72	40	$22 \pm 0.1$	4,000	5	-	-	-	-	5	0.2	-	-	M4 × 18	G4 0.03
16	TSN 16 G G4	0.88	45	$26 \pm 0.1$	4,000	6.8	33	100	20	93	5	0.2	5.5	5.5	M5 × 20	G4 0.03
	TSN 16 G4	0.93	45	$26 \pm 0.1$	4,000	6.8	-	-	-	-	5	0.2	-	-	M5 × 20	G4 0.03
20	TSN 20 G G4	1.28	52	$32 \pm 0.1$	4,000	7.8	37	100	20	92	6	0.2	6.6	6.6	M6 × 25	G4 0.03
	TSN 20 G4	1.35	52	$32 \pm 0.1$	4,000	7.8	-	-	-	-	6	0.2	-	-	M6 × 25	G4 0.03
25	TSN 25 G G4	1.43	57	$36 \pm 0.1$	4,000	9.8	42	120	20	110	6	0.3	6.6	9	M8 × 30	G4 0.03
	TSN 25 G4	1.47	57	$36 \pm 0.1$	4,000	9.8	-	-	-	-	6	0.3	-	-	M8 × 30	G4 0.03
30	TSN 30 G G5	1.9	69	$42 \pm 0.15$	4,000	11	51	150	20	119	7	0.3	9	11	M10 × 35	G5 0.04
	TSN 30 G5	1.99	69	$42 \pm 0.15$	4,000	11	-	-	-	-	7	0.3	-	-	M10 × 35	G5 0.04
40	TSN 40 G G5	2.53	73	$50 \pm 0.15$	4,000	14.5	55	200	20	189	8	0.3	9	11	M10 × 40	G5 0.04
	TSN 40 G5	2.6	73	$50 \pm 0.15$	4,000	14.5	-	-	-	-	8	0.3	-	-	M10 × 40	G5 0.04
50	TSN 50 G G5	3.46	84	$60 \pm 0.15$	4,000	18.5	63	200	20	188	9	0.3	11	13.5	M12 × 45	G5 0.05
	TSN 50 G5	3.6	84	$60 \pm 0.15$	4,000	18.5	-	-	-	-	9	0.3	-	-	M12 × 45	G5 0.05

- 1) With reference to the nominal shaft diameter, measured while clamped.
- 2) Maximum length of support rail.
- 3) The dimensions  $C_5$  and  $C_6$  are dependent on the length of the shaft and support rail unit.
- 4) For fixing screws to DIN 6 912 and spring washer to DIN 7 980.
- 5) Maximum variation of dimension  $h_4$ , measured on the same rail over a distance of 1,000 mm.

# Support Rails

## TSN..G SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

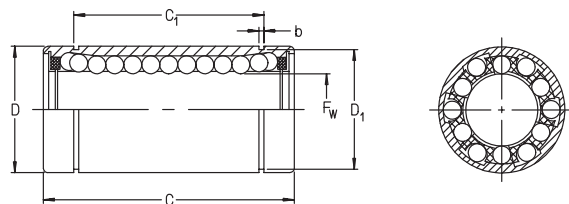
DIMENSION TABLE - Dimensions in mm										
SHAFT DIAMETER $d_{LW}$	PART NUMBER	MASS	DIMENSIONS		MOUNTING DIMENSIONS					
			$a_1$	$h_4^{1)}$	$a_3$	$a_6$	L	$h_1$	$K_1^{2)}$	$K_7$
$h_6$		kg								DIN 6 912
12	TSN 1250 G	0.04	40	$22 \pm 0.02$	5.4	29	50	5	4.5	M4 × 20
16	TSN 1660 G	0.07	45	$26 \pm 0.02$	7	33	60	5	5.5	M5 × 20
20	TSN 2070 G	0.1	52	$32 \pm 0.02$	8.1	37	70	6	6.6	M6 × 25
25	TSN 2580 G	0.15	57	$36 \pm 0.02$	10.3	42	80	6	6.6	M8 × 30
30	TSN 3090 G	0.19	69	$42 \pm 0.02$	11	51	90	7	9	M10 × 35
40	TSN 40120 G	0.3	73	$50 \pm 0.02$	15	55	120	8	9	M10 × 40
50	TSN 50150 G	0.6	84	$60 \pm 0.02$	19	63	150	9	11	M12 × 45

1) With reference to the nominal shaft diameter, measured while clamped.

2) For fixing screws to DIN 6 912 and spring washer to DIN 7 980.

# Linear Ball Bearings

## KBZ..(PP) SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

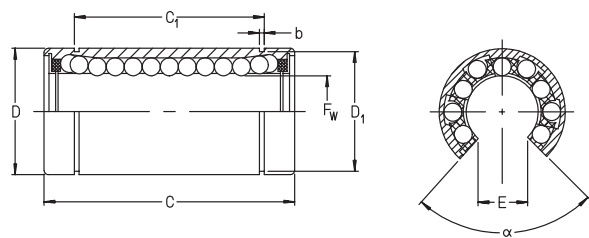
For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

PART NUMBER <sup>576</sup>	SEAL SUFFIX	SHAFT DIA. inch	WGT. lbs.	$F_w$ inch	D inch	C inch	$D_1$ inch	b inch	$C_1$ inch	NO. BALL ROWS	LOAD RATINGS dyn. lbf.
KBZ 04	PP	1/4	0.02	0.250	0.500	0.750	0.469	0.039	0.511	4	48
KBZ 06	PP	3/8	0.03	0.375	0.625	0.875	0.588	0.039	0.636	4	54
KBZ 08	PP	1/2	0.08	0.500	0.875	1.250	0.821	0.046	0.963	4	158
KBZ 10	PP	5/8	0.17	0.625	1.125	1.500	1.059	0.056	1.104	4	231
KBZ 12	PP	3/4	0.21	0.750	1.250	1.625	1.176	0.056	1.166	5	287
KBZ 16	PP	1	0.66	1.000	1.563	2.250	1.469	0.068	1.755	6	417
KBZ 20	PP	1-1/4	0.97	1.250	2.000	2.625	1.886	0.068	2.005	6	668
KBZ 24	PP	1-1/2	1.48	1.500	2.375	3.000	2.239	0.086	2.412	6	972
KBZ 32	PP	2	2.51	2.000	3.000	4.000	2.838	0.103	3.192	6	1800

The dynamic load rating is based on a travel life expectancy of  $2 \times 10^6$  inches.

# Linear Ball Bearings

## KBZ..OP (PP) SERIES



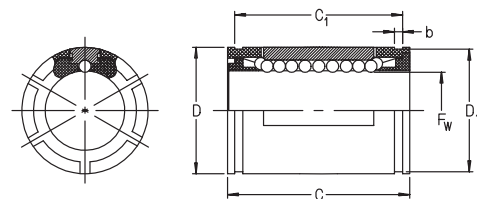
For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

PART NUMBER	SEAL SUFFIX	SHAFT DIA.	WGT.	F <sub>w</sub>	D	C	D <sub>1</sub>	b	C <sub>1</sub>	E	a	NO. BALL ROWS	LOAD RATINGS
		inch	lbs.	Nom. Dim. inch	Nom. Dim. inch	Nom. Dim. inch	inch	inch	inch	inch	deg		dyn. lbf.
KBZ 08 OP	PP	1/2	0.06	0.500	0.875	1.250	0.821	0.046	0.963	0.313	80	3	158
KBZ 10 OP	PP	5/8	0.13	0.625	1.125	1.500	1.059	0.056	1.104	0.375	80	3	231
KBZ 12 OP	PP	3/4	0.17	0.750	1.250	1.625	1.176	0.056	1.166	0.438	60	4	259
KBZ 16 OP	PP	1	0.37	1.000	1.563	2.250	1.469	0.068	1.755	0.563	50	5	346
KBZ 20 OP	PP	1-1/4	1.26	1.250	2.000	2.625	1.886	0.068	2.005	0.625	50	5	555
KBZ 24 OP	PP	1-1/2	1.26	1.500	2.375	3.000	2.239	0.086	2.412	0.750	50	5	817
KBZ 32 OP	PP	2	2.16	2.000	3.000	4.000	2.838	0.103	3.192	1.000	50	5	1490

The dynamic load rating is based on a travel life expectancy of  $2 \times 10^6$  inches.

# Self Aligning Linear Ball Bearings KNZ..(PP) SERIES



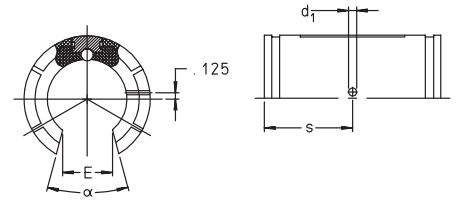
For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

PART NUMBER	SEAL SUFFIX	SHAFT DIA. inch	WGT. lbs.	F <sub>w</sub> inch	D inch	C inch	D <sub>1</sub> inch	b inch	C <sub>1</sub> inch	NO. BALL ROWS	LOAD RATINGS dyn. lbf.	LOAD RATINGS stat. lbf.
KNZ 04	PP	1/4	0.008	0.250	0.500	0.750	0.469	0.039	0.515	4	50	30
KNZ 06	PP	3/8	0.013	0.375	0.625	0.875	0.588	0.039	0.703	4	80	40
KNZ 08	PP	1/2	0.042	0.500	0.875	1.250	0.821	0.046	1.032	4	200	110
KNZ 10	PP	5/8	0.101	0.625	1.125	1.500	1.059	0.056	1.112	5	340	190
KNZ 12	PP	3/4	0.123	0.750	1.250	1.625	1.176	0.056	1.272	6	480	270
KNZ 16	PP	1	0.265	1.000	1.563	2.250	1.469	0.068	1.886	6	840	490
KNZ 20	PP	1-1/4	0.485	1.250	2.000	2.625	1.886	0.068	2.011	6	1270	710
KNZ 24	PP	1-1/2	0.750	1.500	2.375	3.000	2.239	0.086	2.422	6	1600	850
KNZ 32	PP	2	1.400	2.000	3.000	4.000	2.838	0.103	3.206	6	2600	1460

The dynamic load rating is based on a travel life expectancy of  $2 \times 10^6$  inches.

# Self Aligning Linear Ball Bearings KNZ..OP (PP) SERIES

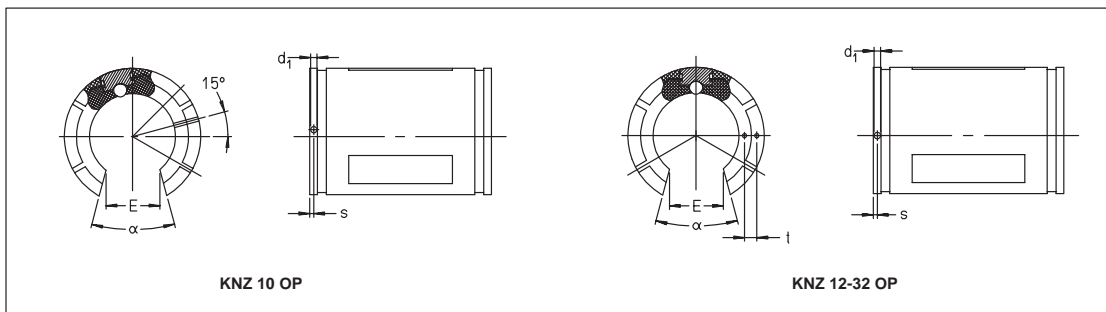


KNZ 08 OP

For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

PART NUMBER	SEAL SUFFIX	SHAFT DIA. inch	WGT. lbs.	F <sub>w</sub> inch	D inch	C inch	D <sub>1</sub> inch	b inch	C <sub>1</sub> inch	C <sub>2</sub> inch	E inch	a deg	d <sub>1</sub> inch	t inch	s inch	NO. BALL ROWS	LOAD RTGS. dyn. lbf.	LOAD RTGS. stat. lbf.
KNZ 08 OP	PP	1/2	0.033	0.500	0.875	1.250	0.821	0.046	1.032	0.063	0.313	30	0.136	—	0.625	3	200	110
KNZ 10 OP	PP	5/8	0.082	0.625	1.125	1.500	1.059	0.056	1.112	0.125	0.375	30	0.105	0.039	0.125	4	390	230
KNZ 12 OP	PP	3/4	0.101	0.750	1.250	1.625	1.176	0.056	1.272	0.125	0.438	30	0.136	0.059	0.125	5	480	280
KNZ 16 OP	PP	1	0.220	1.000	1.563	2.250	1.469	0.068	1.886	0.125	0.563	30	0.136	0.047	0.125	5	870	500
KNZ 20 OP	PP	1-1/4	0.400	1.250	2.000	2.625	1.886	0.068	2.011	0.188	0.625	30	0.201	0.090	0.188	5	1300	730
KNZ 24 OP	PP	1-1/2	0.620	1.500	2.375	3.000	2.239	0.086	2.422	0.188	0.750	30	0.201	0.090	0.188	5	1630	870
KNZ 32 OP	PP	2	1.158	2.000	3.000	4.000	2.838	0.103	3.206	0.312	1.000	30	0.265	—	0.312	5	2650	1490



KNZ 10 OP

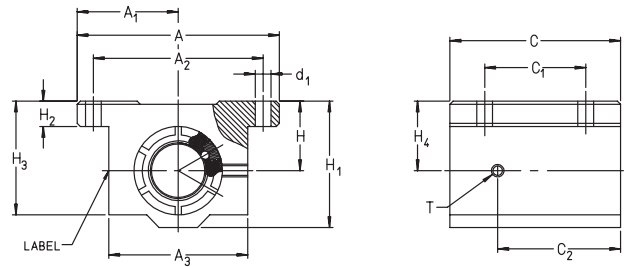
KNZ 12-32 OP





# Self Aligning Mounted Units

## KGZ..PP SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

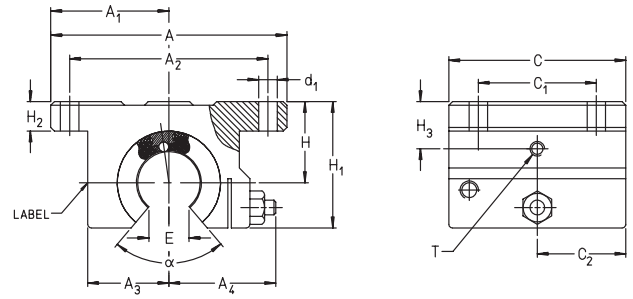
For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

PART NUMBER	SEAL SUFFIX	SHAFT DIA. inch	WGT. lbs.	d inch	A inch	C inch	A <sub>1</sub> ±.001 inch	H ±.001 inch	A <sub>3</sub> inch	H <sub>1</sub> inch	H <sub>2</sub> inch
KGNZ 04	PP	1/4	0.1	0.25	1.63	1.188	0.813	0.437	1.000	0.813	0.188
KGNZ 06	PP	3/8	0.14	0.375	1.75	1.313	0.875	0.500	1.125	0.938	0.188
KGNZ 08	PP	1/2	0.29	0.500	2.00	1.688	1.000	0.687	1.375	1.250	0.250
KGNZ 10	PP	5/8	0.53	0.625	2.50	1.938	1.250	0.875	1.750	1.625	0.281
KGNZ 12	PP	3/4	0.64	0.750	2.75	2.063	1.375	0.937	1.875	1.750	0.313
KGNZ 16	PP	1	1.36	1.000	3.25	2.813	1.625	1.187	2.375	2.188	0.375
KGNZ 20	PP	1-1/4	2.86	1.250	4.00	3.625	2.000	1.500	3.000	2.813	0.437
KGNZ 24	PP	1-1/2	4.19	1.500	4.75	4.000	2.375	1.750	3.500	3.250	0.500
KGNZ 32	PP	2	7.92	2.000	6.00	5.000	3.000	2.125	4.500	4.063	0.625

PART NUMBER	SEAL SUFFIX	SHAFT DIA. inch	H <sub>3</sub> inch	C <sub>2</sub> inch	H <sub>4</sub> inch	T inch	A <sub>2</sub> ±.01 inch	C <sub>1</sub> ±.01 inch	d <sub>1</sub> inch	DYN. LOAD C lbf	STAT. LOAD C <sub>0</sub> lbf
KGNZ 04	PP	1/4	0.750	0.590	0.437	NIP A1	1.312	0.750	0.156	50	30
KGNZ 06	PP	3/8	0.875	0.660	0.500	NIP A1	1.437	0.875	0.156	80	40
KGNZ 08	PP	1/2	1.125	0.844	0.690	NIP A1	1.688	1.000	0.156	200	110
KGNZ 10	PP	5/8	1.437	1.260	0.700	1/4-28	2.125	1.125	0.188	340	190
KGNZ 12	PP	3/4	1.563	1.340	0.937	1/4-28	2.375	1.250	0.188	480	270
KGNZ 16	PP	1	1.938	1.950	1.187	1/4-28	2.875	1.750	0.218	840	490
KGNZ 20	PP	1-1/4	2.500	2.430	1.500	1/4-28	3.500	2.000	0.218	1270	710
KGNZ 24	PP	1-1/2	2.875	2.750	1.750	1/4-28	4.125	2.500	0.281	1600	850
KGNZ 32	PP	2	3.625	3.420	2.125	1/4-28	5.250	3.250	0.406	2600	1460

# Self Aligning Mounted Units

## KGNZ..OP PP SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

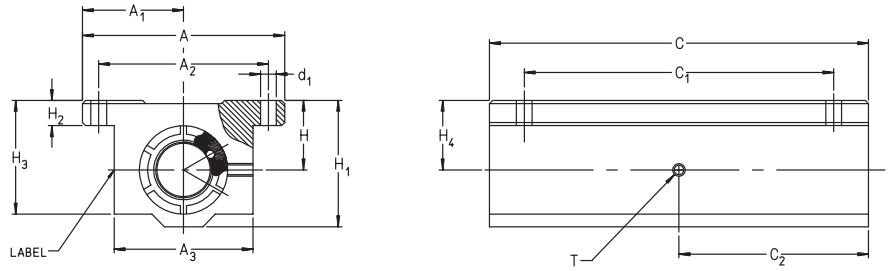
For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

PART NUMBER	SEAL SUFFIX	SHAFT DIA. inch	WGT. lbs.	d inch	A inch	C inch	A <sub>1</sub> ±.001 inch	H ±.001 inch	A <sub>3</sub> inch	A <sub>4</sub> inch	H <sub>1</sub> inch	H <sub>2</sub> inch
KGNZ OP 08	PP	1/2	0.22	0.500	2.000	1.500	1.000	0.687	0.688	0.905	1.100	0.250
KGNZ OP 10	PP	5/8	0.41	0.625	2.500	1.750	1.250	0.875	0.875	1.095	1.375	0.281
KGNZ OP 12	PP	3/4	0.52	0.750	2.750	1.875	1.375	0.937	0.937	1.161	1.535	0.313
KGNZ OP 16	PP	1	1.17	1.000	3.250	2.625	1.625	1.187	1.188	1.457	1.975	0.375
KGNZ OP 20	PP	1-1/4	2.38	1.250	4.000	3.375	2.000	1.500	1.500	1.831	2.485	0.437
KGNZ OP 24	PP	1-1/2	3.57	1.500	4.750	3.750	2.375	1.750	1.750	2.087	2.910	0.500
KGNZ OP 32	PP	2	6.38	2.000	6.000	4.750	3.000	2.125	2.250	2.638	3.660	0.625

PART NUMBER	SEAL SUFFIX	SHAFT DIA. inch	H <sub>3</sub> inch	C <sub>2</sub> inch	T inch	E inch	∞ deg	A <sub>2</sub> ±.01 inch	C <sub>1</sub> ±.01 inch	d <sub>1</sub> inch	DYN. LOAD C lbf	STAT. LOAD C <sub>0</sub> lbf
KGNZ OP 08	PP	1/2	0.370	0.520	NIP A1	0.313	30	1.688	1.00	0.156	200	110
KGNZ OP 10	PP	5/8	0.450	0.875	1/4-28	0.375	30	2.125	1.13	0.188	390	230
KGNZ OP 12	PP	3/4	0.510	0.937	1/4-28	0.438	30	2.375	1.25	0.188	480	280
KGNZ OP 16	PP	1	0.730	1.312	1/4-28	0.563	30	2.875	1.75	0.218	870	500
KGNZ OP 20	PP	1-1/4	0.800	1.688	1/4-28	0.625	30	3.500	2.00	0.218	1300	730
KGNZ OP 24	PP	1-1/2	0.840	1.875	1/4-28	0.750	30	4.125	2.50	0.281	1630	870
KGNZ OP 32	PP	2	1.100	2.375	1/4-28	1.000	30	5.250	3.25	0.406	2650	1490



# Self Aligning Tandem Mounted Units KTNZ..PP SERIES



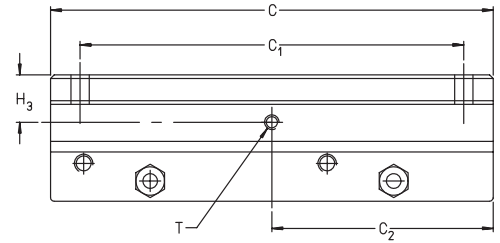
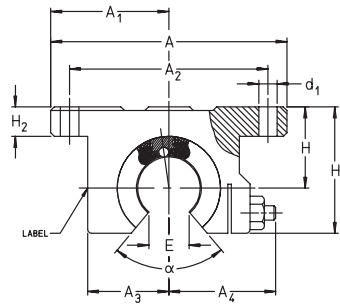
For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

PART NUMBER	SEAL SUFFIX	SHAFT DIA. inch	WGT. lbs.	d inch	A inch	C inch	A <sub>1</sub> ±.001 inch	H ±.001 inch	A <sub>3</sub> inch	H <sub>1</sub> inch	H <sub>2</sub> inch
KTNZ 04	PP	1/4	0.21	0.250	1.63	2.50	0.813	0.437	1.000	0.813	0.188
KTNZ 06	PP	3/8	0.27	0.375	1.75	2.75	0.875	0.500	1.125	0.938	0.188
KTNZ 08	PP	1/2	0.51	0.500	2.00	3.50	1.000	0.687	1.375	1.250	0.250
KTNZ 10	PP	5/8	0.97	0.625	2.50	4.00	1.250	0.875	1.750	1.625	0.281
KTNZ 12	PP	3/4	1.25	0.750	2.75	4.50	1.375	0.937	1.875	1.750	0.313
KTNZ 16	PP	1	2.58	1.000	3.25	6.00	1.625	1.187	2.375	2.188	0.375
KTNZ 20	PP	1-1/4	4.94	1.250	4.00	7.50	2.000	1.500	3.000	2.813	0.437
KTNZ 24	PP	1-1/2	7.73	1.500	4.75	9.00	2.375	1.750	3.500	3.250	0.500

PART NUMBER	SEAL SUFFIX	SHAFT DIA. inch	H <sub>3</sub> inch	C <sub>2</sub> inch	H <sub>4</sub> inch	T inch	A <sub>2</sub> ±.01 inch	C <sub>1</sub> ±.01 inch	d <sub>1</sub> inch	DYN. LOAD C lbf	STAT. LOAD C <sub>0</sub> lbf
KTNZ 04	PP	1/4	0.750	1.250	0.437	NIP A1	1.312	2.000	0.156	80	60
KTNZ 06	PP	3/8	0.875	1.375	0.500	NIP A1	1.437	2.250	0.156	130	80
KTNZ 08	PP	1/2	1.125	1.750	0.687	NIP A1	1.688	2.500	0.156	320	220
KTNZ 10	PP	5/8	1.437	2.000	0.875	1/4-28	2.125	3.000	0.188	550	380
KTNZ 12	PP	3/4	1.563	2.250	0.937	1/4-28	2.375	3.500	0.188	780	540
KTNZ 16	PP	1	1.938	3.000	1.187	1/4-28	2.875	4.500	0.218	1360	980
KTNZ 20	PP	1-1/4	2.500	3.750	1.500	1/4-28	3.500	5.500	0.218	2060	1420
KTNZ 24	PP	1-1/2	2.875	4.500	1.750	1/4-28	4.125	6.500	0.281	2600	1700

# Self Aligning Tandem Mounted Units KTNZ..OP PP SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

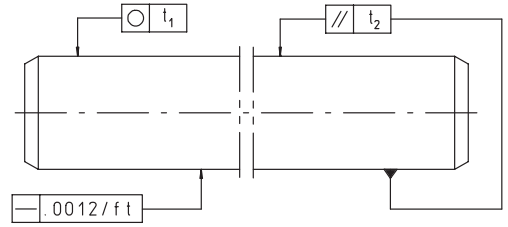
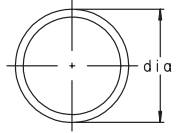
PART NUMBER	SEAL SUFFIX	SHAFT DIA. inch	WGT. lbs.	d inch	A inch	C inch	A <sub>1</sub> ±.001 inch	H ±.001 inch	A <sub>3</sub> inch	A <sub>4</sub> inch	H <sub>1</sub> inch	H <sub>2</sub> inch
KTNZ 08 OP	PP	1/2	0.49	0.500	2.000	3.50	1.000	0.687	0.688	0.905	1.100	0.250
KTNZ 10 OP	PP	5/8	0.90	0.625	2.500	4.00	1.250	0.875	0.875	1.095	1.375	0.281
KTNZ 12 OP	PP	3/4	1.15	0.750	2.750	4.50	1.375	0.937	0.937	1.161	1.535	0.313
KTNZ 16 OP	PP	1	2.38	1.000	3.250	6.00	1.625	1.187	1.188	1.457	1.975	0.375
KTNZ 20 OP	PP	1-1/4	4.61	1.250	4.000	7.50	2.000	1.500	1.500	1.831	2.485	0.437
KTNZ 24 OP	PP	1-1/2	7.28	1.500	4.750	9.00	2.375	1.750	1.750	2.087	2.910	0.500

PART NUMBER	SEAL SUFFIX	SHAFT DIA. inch	H <sub>3</sub> inch	C <sub>2</sub> inch	T inch	E inch	∞ deg	A <sub>2</sub> ±.01 inch	C <sub>1</sub> ±.01 inch	d <sub>1</sub> inch	DYN. LOAD C lbf	STAT. LOAD C <sub>0</sub> lbf
KTNZ 08 OP	PP	1/2	0.370	1.75	NIP A1	0.313	30	1.688	2.50	0.156	320	220
KTNZ 10 OP	PP	5/8	0.450	2.00	1/4-28	0.375	30	2.125	3.00	0.188	630	460
KTNZ 12 OP	PP	3/4	0.510	2.25	1/4-28	0.438	30	2.375	3.50	0.188	780	560
KTNZ 16 OP	PP	1	0.730	3.00	1/4-28	0.563	30	2.875	4.50	0.218	1410	1000
KTNZ 20 OP	PP	1-1/4	0.800	3.75	1/4-28	0.625	30	3.500	5.50	0.218	2110	1460
KTNZ 24 OP	PP	1-1/2	0.800	4.50	1/4-28	0.750	30	4.125	6.50	0.281	2650	1740



# Precision Ground Shafts

## WZ, WZ..X46CR13 SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

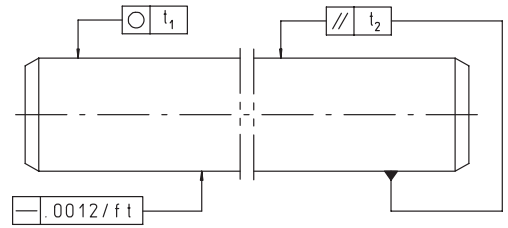
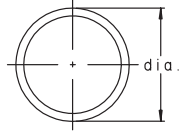
For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

PART NUMBER STANDARD "L" CLASS	PART NUMBER STANDARD "S" CLASS	PART NUMBER STAINLESS STEEL	SHAFT DIA. nom inch	ROUNDNESS $t_1$ inch	TAPER $t_2$ <sup>1)</sup> inch	HARDNESS DEPTH min inch	SURFACE FINISHING max
WZ1/4"L	WZ1/4"S	—	1/4	0.0002	0.0002	0.016	RMS 12
WZ3/8"L	WZ3/8"S	WZ3/8"X46CR13L	3/8	0.0002	0.0002	0.016	RMS 12
WZ1/2"L	WZ1/2"S	WZ1/2"X46CR13L	1/2	0.0002	0.0002	0.024	RMS 12
WZ5/8"L	WZ5/8"S	WZ5/8"X46CR13L	5/8	0.0002	0.0003	0.024	RMS 12
WZ3/4"L	WZ3/4"S	WZ3/4"X46CR13L	3/4	0.0002	0.0004	0.035	RMS 12
WZ1"L	WZ1"S	WZ1"X46CR13L	1	0.0002	0.0004	0.035	RMS 12
WZ1-1/8"L	—	—	1-1/8	0.0002	0.0004	0.035	RMS 12
WZ1-1/4"L	WZ1-1/4"S	—	1-1/4	0.0002	0.0004	0.059	RMS 12
WZ1-1/2"L	WZ1-1/2"S	WZ1-1/2"X46CR13L	1-1/2	0.0002	0.0004	0.059	RMS 12
WZ2"L	WZ2"S	—	2	0.0003	0.0004	0.087	RMS 12

1) Measurement of diameter difference

# Precision Ground Shafts

## WZ..PDT, WZ..X46CR13 PDT SERIES

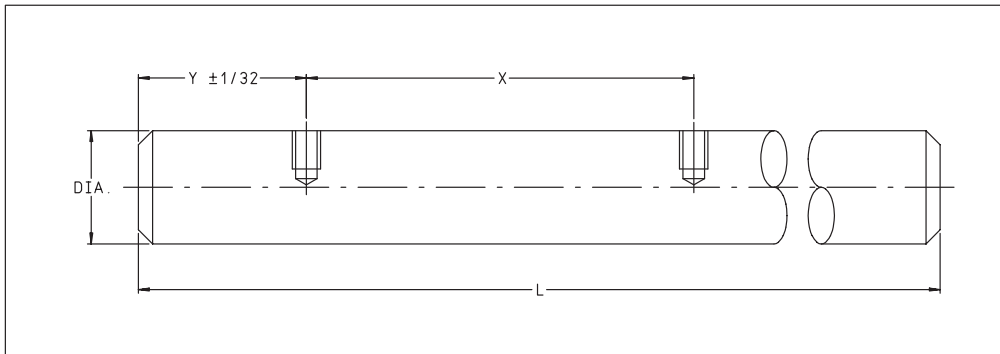


For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

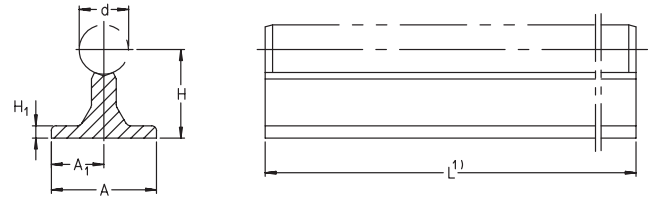
PART NUMBER STANDARD	PART NUMBER STAINLESS STEEL	SHAFT DIA. nom inch	HOLE SPACING X	THREAD SIZE d
WZ1/2" PDT	WZ1/2" X46CR13PDT	1/2	4	6-32
WZ5/8" PDT	—	5/8	4	8-32
WZ3/4" PDT	WZ0-3/4" X46CR13PDT	3/4	6	10-32
WZ1" PDT	WZ1-0/0" X46CR13PDT	1	6	1/4-20
WZ1-1/4" PDT	—	1-1/4	6	5/16-18
WZ1-1/2" PDT	WZ1-1/2" X46CR13PDT	1-1/2	8	3/8-16
WZ2" PDT	—	2	8	1/2-13

Please specify distance from shaft end to first hole with order



# Shaft Support Rails

## TSWZ SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

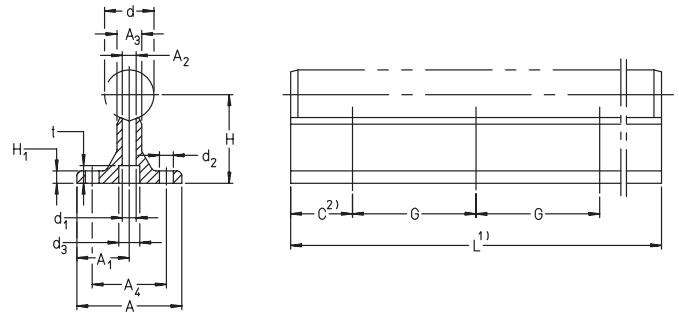
PART NUMBER	SHAFT DIA. inch	WGT. lbsft	A inch	H <sup>2)</sup> ± .002 inch	H <sub>1</sub> inch	A <sub>1</sub> <sup>3)</sup> ± .002 inch
TSWZ 08	1/2	0.60	1.50	1.125	0.188	0.750
TSWZ 10	5/8	0.78	1.63	1.125	0.250	0.813
TSWZ 12	3/4	1.01	1.75	1.500	0.250	0.875
TSWZ 16	1	1.37	2.13	1.750	0.250	1.063
TSWZ 20	1-1/4	1.98	2.50	2.125	0.313	1.250
TSWZ 24	1-1/2	3.03	3.00	2.500	0.375	1.500
TSWZ 32	2	4.80	3.75	3.250	0.500	1.875

1) Maximum length L = 48 inches

2) With reference to the nominal shaft diameter, measured while clamped.

# Shaft Support Rails

## TSWZ..PD SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

PART NUMBER	SHAFT DIA. inch	WGT. lbs.	A inch	H <sub>3</sub> <sup>3)</sup> inch	H <sub>1</sub> inch	A <sub>2</sub> inch	A <sub>3</sub> inch	A <sub>1</sub> inch	d <sub>3</sub> inch	t inch	d <sub>1</sub> inch	d <sub>2</sub> inch	A <sub>4</sub> inch	G inch
TSWZ 08 PD	1/2	0.60	1.50	1.125	0.188	0.208	0.250	0.750	0.281	0.134	0.169	0.169	1.000	4
TSWZ 10 PD	5/8	0.78	1.63	1.125	0.250	0.251	0.313	0.813	0.312	0.159	0.193	0.193	1.125	4
TSWZ 12 PD	3/4	1.01	1.75	1.500	0.250	0.294	0.375	0.875	0.375	0.185	0.221	0.221	1.250	6
TSWZ 16 PD	1	1.37	2.13	1.750	0.250	0.379	0.500	1.063	0.437	0.244	0.281	0.281	1.500	6
TSWZ 20 PD	1-1/4	1.98	2.50	2.125	0.313	0.465	0.563	1.250	0.531	0.306	0.343	0.343	1.875	6
TSWZ 24 PD	1-1/2	3.03	3.00	2.500	0.375	0.550	0.688	1.500	0.625	0.368	0.406	0.343	2.250	8
TSWZ 32 PD	2	4.80	3.75	3.250	0.500	0.721	0.875	1.875	0.812	0.492	0.531	0.406	2.750	8

1) Maximum length L = 48 inches

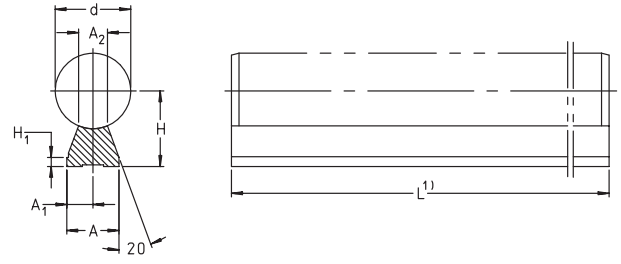
2) The dimension C is dependent on the length of the support rail. It should always be equal at both ends.

3) With reference to the nominal shaft diameter, measured while clamped.



# Shaft Support Rails

## TSUZ SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

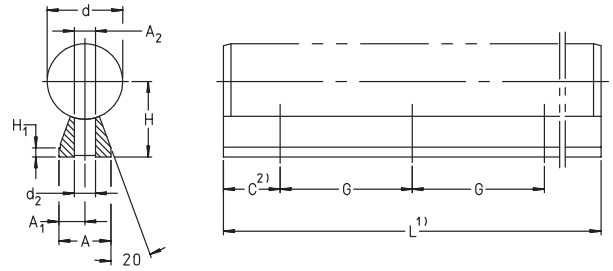
PART NUMBER	SHAFT DIA. inch	WGT. lbsft	d inch	A inch	H <sup>2)</sup> ± .002 inch	H <sub>1</sub> inch	A <sub>1</sub> <sup>3)</sup> ± .002 inch	A <sub>2</sub> inch
TSUZ 08	1/2	0.11	0.50	0.37	0.562	0.120	0.185	0.216
TSUZ 10	5/8	0.17	0.63	0.45	0.687	0.120	0.225	0.269
TSUZ 12	3/4	0.20	0.75	0.51	0.750	0.120	0.225	0.317
TSUZ 16	1	0.35	1.00	0.69	1.000	0.120	0.345	0.422
TSUZ 20	1-1/4	0.44	1.25	0.78	1.187	0.200	0.390	0.523
TSUZ 24	1-1/2	0.58	1.50	0.93	1.375	0.200	0.465	0.625
TSUZ 32	2	0.89	2.00	1.18	1.750	0.250	0.590	0.824

1) Maximum length L = 48 inches.

2) With reference to the nominal shaft diameter, measured while clamped.

# Shaft Support Rails

## TSUZ..PD SERIES



For details on part numbers, descriptive suffixes and various technical references, please refer to front of this section.

For engineering or technical information contact your local sales representative or call Distributor Sales (800)523-6572 or Linear Sales (800)462-3399.

PART NUMBER	SHAFT DIA. inch	WGT. lbs/ft	d inch	A inch	H <sub>3</sub> inch	H <sub>1</sub> inch	A <sub>1</sub> <sup>4)</sup> inch	A <sub>2</sub> inch	d <sub>2</sub> inch	G inch
TSUZ 08 PD	1/2	0.11	0.50	0.37	0.562	0.120	0.185	0.216	0.169	4
TSUZ 10 PD	5/8	0.17	0.63	0.45	0.687	0.120	0.225	0.269	0.193	4
TSUZ 12 PD	3/4	0.20	0.75	0.51	0.750	0.120	0.255	0.317	0.221	6
TSUZ 16 PD	1	0.35	1.00	0.69	1.000	0.120	0.345	0.422	0.281	6
TSUZ 20 PD	1-1/4	0.44	1.25	0.78	1.187	0.200	0.390	0.523	0.343	6
TSUZ 24 PD	1-1/2	0.58	1.50	0.93	1.375	0.200	0.465	0.623	0.406	8
TSUZ 32 PD	2	0.89	2.00	1.18	1.750	0.250	0.590	0.824	0.531	8

1) Maximum length L = 48 inches.

2) The dimension C is dependent on the length of the support rail. It should always be equal at both ends.

3) With reference to the nominal shaft diameter, measured while clamped.



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Fax: 843-537-8751

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