Special properties of LDK® all plastic Rod End Bearings

- Body and ball made of special plastic polymer (Patent ZL 2009 2 0031919.1)
- Maintenance free, self lubricating.
- High strength under impact loads.
- High tensile strength for varying loads.
- Compensation for alignment errors.
- Resistant to dirt and dust.
- Resistant to corrosion of chemicals.
- High vibration dampening capacity.
- Suitable for rotating, oscillating and linear movements.
- Very low weight.

Application Temperatures

LDK® bearing elements can be used in temperatures from - 30°C to + 80°C .Table1 shows the effect of temperature on the loading capacity of the LDK® bearing elements.

Application Temperatures

Minimum	- 30°C
Maximum,long term	+ 80°C
Maximum,short term	+ 120°C

Table 1:Applications temperatures

Chemical Resistance

The moisture absorption of LDK® is approximately 1.3% of weight standard atmosphere.The saturation limit in water is 6.5%. This must be taken into account for these types of applications. LDK® all plastic polymer are resistant to weak alkalines, weak acids and fuels, as well as all types of lubricants.

Medium	Resistance
Alcohol	Resistant
Chlorinated hydrocarbons	Resietant
Ester	Not Resistant
Greases, oils	Resistant
Ketones	Conditionally Resistant
Fuels	Resistant
Weak acids	Conditionally Resistant
Strong acids	Not Resistant
Weak alkalines	Resistant
Strong alkalines	Conditionally Resistant

Table 2:Chemical resistance

UV Resistance

The corrosion resistance of the LDK® bearings give them special value for outside applications.
LDK® bearing elements are permanently resistant to UV radiation. A small change in colour (dark coloration) of the spherical ball due to UV radiation does not effect the mechanical, electrical or thermal properties.

Picture 1: Some models of the LDK® product line

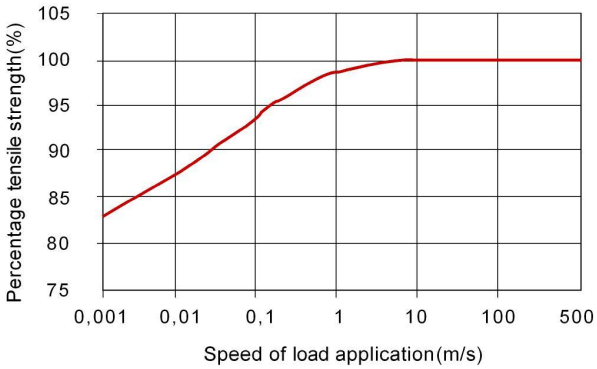


Table 3: Effect of the speed of load application on the maximum tensile strength of LDK® rod end bearings

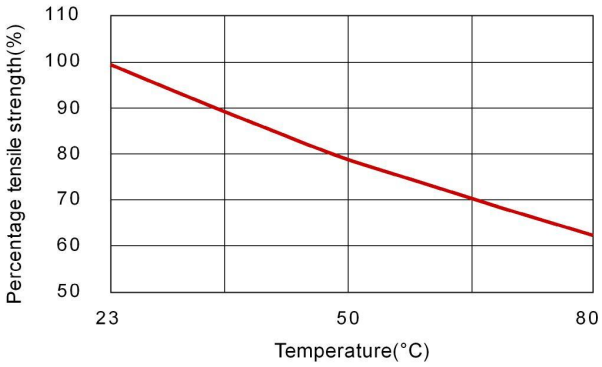


Table 4: Effect of the temperature on the maximum tensile strength of LDK® rod end bearings

Thread Name	Pitch [mm]
M2	0.40
M3	0.50
M4	0.70
M5	0.80
M6	1.00
M8	1.25
M10	1.50
M10F	1.25
M12	1.75
M12F	1.25
M14	2.00
M16	2.00
M16F	1.50
M18	1.50
M20	2.50
M20 M20	1.50
M22	1.50
M24	2.00
M27	2.00
M30	2.00

Table 5:Thread pitches of the LDK® rod end bearings

Loads

The load capacity of the maintenance free LDK® bearing elements is very high at normal ambient temperatures. LDK® bearing elements absorb high forces and weigh only a fifth of traditional, metal bearing housings. The excellent dampening properties are based on the fact that the polymer material of the two part bearing can absorb vibrations differently than steel.

However, plastic specific properties, such as dependence on temperature and behaviour under long term stress, must be taken into consideration when using LDK® bearings.The load capacity of the rod end bearing should therefore be checked in a per formance test, particularly if they are to be used under continuous high loads and at elevated temperatures.

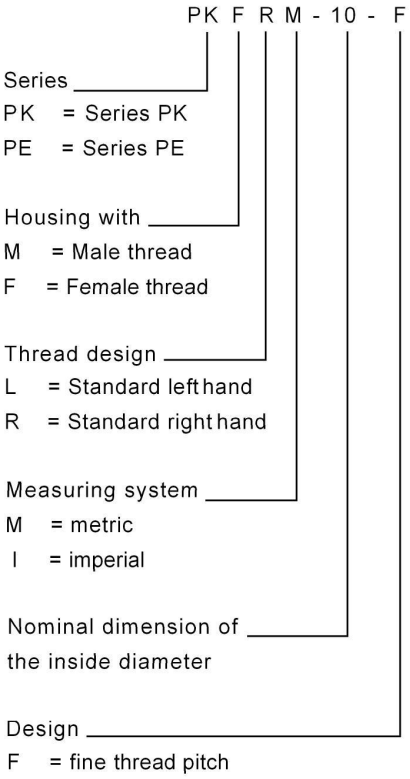
Coefficients of Sliding Friction and Speed

One important advantage of LDK® spherical bearings is that rapid, rotary movements of a mounted shaft take place directly in the spherical portion, made of specail plastic polymer. in metallic rod ends, rotary motion takes place between the race and the spherical bearing.High speeds can be achieved with LDK® bearings.

LDK® bearings area used in such a way that the angular movements of the spherical bearings takes place at the outer diameter. in contrast,rotations of the shaft are supported directly in the I.D. of the spherical portion. The advantage, therefore,lies in the polymer vs.steel relationship. Polymer produces lower friction and permits high speeds, even when running dry.

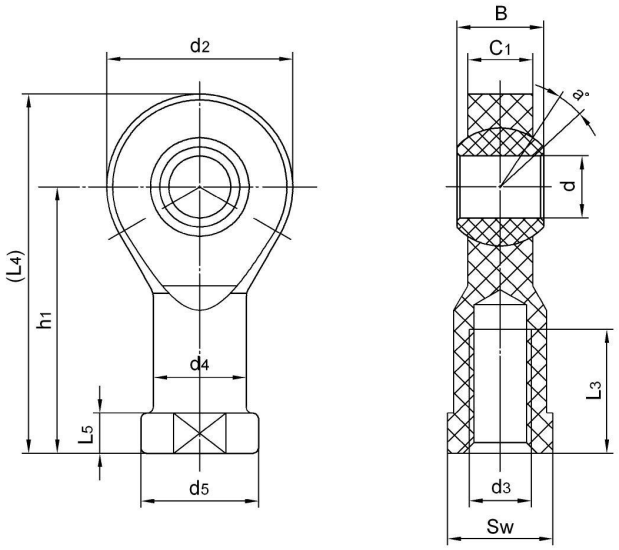
Structure for Part Numbers for LDK® Rod End Bearings

The part numbers of LDK® rod end bearings are designed according to the following system:



The example given is the number for a rod end bearing of the dimensional series PK with metric female right hand thread. The inner diameter of the spherical ball is 10 mm.

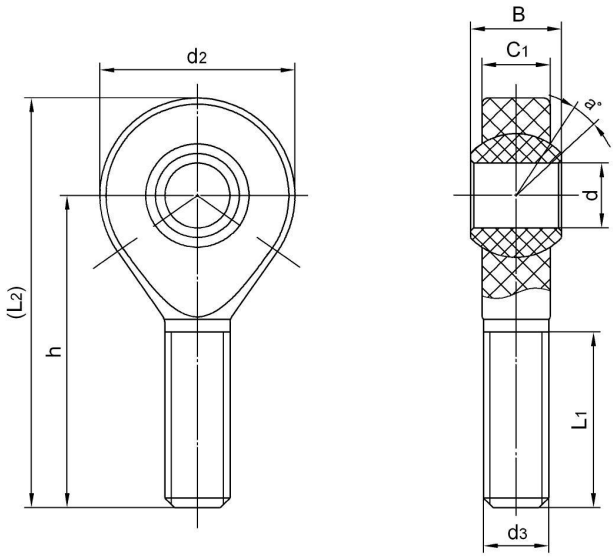
PKFM..



Bearing No.	Dimensions(mm)												Ball dia	a° mis. angle	Maximum Static Tensile Strength Short-term(N)	weight ≈ g
	d E10	d2	d3	d4	d5	C1	B	h1	L3	(L4)	L5	SW				
PKF(L)M-02	2	9	M2	4	4.6	3	4	12.5	6	17	2.5	4	5.2	15	200	1.8
PKF(L)M-03	3	13	M3	6.5	8	4.5	6	18.5	8	25	3	7	7.9	14	800	2.46
PKF(L)M-05M4	5	18	M4	9	12	6	8	27	10	36	4	9	11.1	13	1000	3.64
PKF(L)M-05	5	18	M5	9	12	6	8	27	10	36	4	9	11.1	13	1000	3.52
PKF(L)M-06	6	20	M6	10	13	7	9	30	12	40	5	11	12.7	11	1400	5.03
PKF(L)M-08	8	24	M8	13	16	9	12	36	16	48	5	14	15.8	14	2100	9.18
PKF(L)M-10	10	30	M10	15	19	10.5	14	43	20	58	6.5	17	19	13	3100	15.68
PKF(L)M-10 F	10	30	M10x1.25	15	19	10.5	14	43	20	58	6.5	17	19	13	3100	15.68
PKF(L)M-12	12	34	M12	18	22	12	16	50	22	67	6.5	19	22.2	13	3600	23.75
PKF(L)M-12 F	12	34	M12x1.25	18	22	12	16	50	22	67	6.5	19	22.2	13	3600	23.75
PKF(L)M-14	14	38	M14	20	25	13.5	19	57	25	76	8	22	25.25	16	4000	33.06
PKF(L)M-16	16	42	M16	22	27	15	21	64	28	85	8	22	28.3	15	4200	41.76
PKF(L)M-16 F	16	42	M16x1.5	22	27	15	21	64	28	85	8	22	28.3	15	4200	41.76
PKF(L)M-18	18	46	M18x1.5	25	31	16.5	23	71	32	94	10	27	31.35	15	4600	58.92
PKF(L)M-20	20	50	M20	28	34	18	25	77	33	102	10	30	34.9	14	5400	78.1
PKF(L)M-20 M20	20	50	M20x1.5	28	34	18	25	77	33	102	10	30	34.9	14	5400	76.95
PKF(L)M-22	22	56	M22x1.5	30	37	20	28	84	37	112	12	32	38.1	15	7000	102.3
PKF(L)M-25	25	60	M24x2.0	32	41	22	31	94	42	124	12	36	42.8	15	8500	129
PKF(L)M-30	30	70	M30x2.0	37	50	25	37	110	51	145	15	41	51	15	10500	197.5

For left-hand thread, suffix"L" is added to bearing numbers. eg.: PKFLM20 M20x1.5L

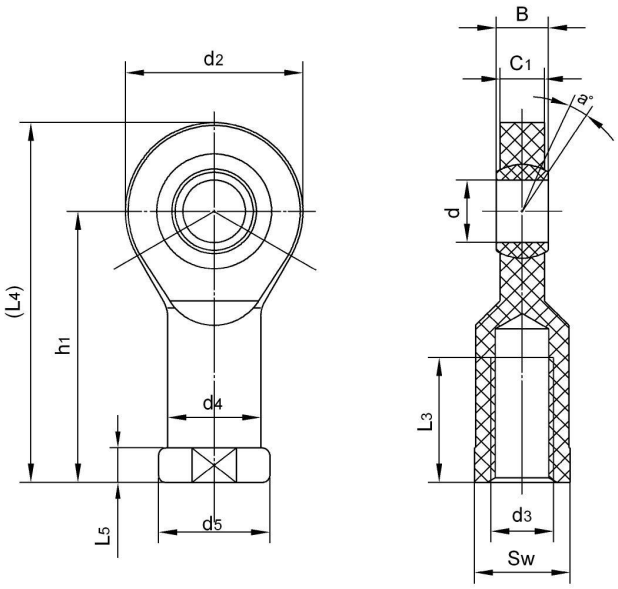
PKMM..



Bearing No.	Dimensions(mm)								Ball dia	a° mis. angle	Maximum Static Tensile Strength Short-term(N)	weight ≈ g
	d E10	d2	d3	C1	B	h	L1	L2				
PKM(L)M-05	5	18	M05	6	8	33	19	42	11.1	13	800	2.64
PKM(L)M-06	6	20	M06	7	9	36	21	46	12.7	11	1000	3.87
PKM(L)M-08	8	24	M08	9	12	42	25	54	15.8	14	1700	7.2
PKM(L)M-10	10	30	M10	10.5	14	48	28	63	19	13	2500	13
PKM(L)M-10 F	10	30	M10x1.25	10.5	14	48	28	63	19	13	2500	13.11
PKM(L)M-12	12	34	M12	12.0	16	54	32	71	22.2	13	2700	19.2
PKM(L)M-12 F	12	34	M12x1.25	12.0	16	54	32	71	22.2	13	2700	19.4
PKM(L)M-14	14	38	M14	13.5	19	61	36	80	25.25	16	3400	27.4
PKM(L)M-16	16	42	M16	15.0	21	66	37	87	28.3	15	3900	37.4
PKM(L)M-16 F	16	42	M16x1.5	15.0	21	66	37	87	28.3	15	3900	38
PKM(L)M-18	18	46	M18x1.5	16.5	23	72	41	95	31.35	15	4200	49.8
PKM(L)M-20	20	50	M20x2.5	18	25	78	45	103	34.9	14	6000	64.5
PKM(L)M-20 M20	20	50	M20x1.5	18	25	78	45	103	34.9	14	6000	65.78
PKM(L)M-22	22	56	M22x1.5	20	28	84	48	112	38.1	15	7200	89.84
PKM(L)M-25	25	60	M24x2.0	22	31	94	55	124	42.8	15	7500	114.1
PKM(L)M-30	30	70	M30x2.0	25	37	110	66	145	51	15	8800	188.1

For left-hand thread, suffix"L" is added to bearing numbers. eg.: PKMLM20 M20x1.5L

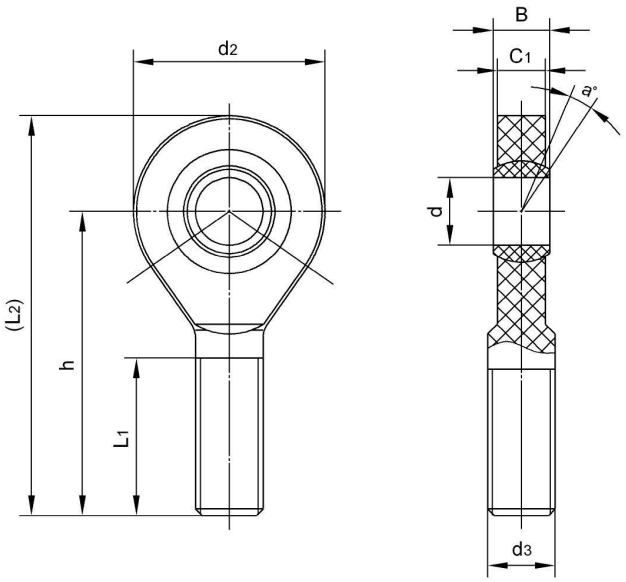
PEFM..



Bearing No.	Dimensions(mm)												Ball dia	a° mis. angle	Maximum Static Tensile Strength Short-term(N)	weight ≈ g
	d E10	d2	d3	d4	d5	C1	B	h1	L3	(L4)	L5	SW				
PEF(L)M-04	4	15	M4	8	9.2	3.5	5	22.5	9.5	30	4	8	8.2	12	800	1.85
PEF(L)M-05	5	19	M5	9	11	4.4	6	30	12	39.5	5	9	10.2	10	1300	3.44
PEF(L)M-06	6	21	M6	11	13	4.4	6	30	12	40.5	5	11	10.2	10	1500	4.41
PEF(L)M-08	8	24	M8	13	16	6	8	36	16	48	5	14	13.2	10	2000	7.4
PEF(L)M-10	10	29	M10	15	19	7	9	43	18	57.5	6.5	17	16	8	2300	12.1
PEF(L)M-10 F	10	29	M10x1.25	15	19	7	9	43	18	57.5	6.5	17	16	8	2300	12
PEF(L)M-12	12	34	M12	18	22	8	10	50	20	67	7	19	18	7	3300	19
PEF(L)M-12 F	12	34	M12x1.25	18	22	8	10	50	20	67	7	19	18	7	3300	18.7
PEF(L)M-15	15	40	M14	21	26	10	12	61	26	81	8	22	22	6	4800	32.7
PEF(L)M-17	17	46	M16	24	30	11	14	67	27	90	10	27	25.4	7	5300	46.8
PEF(L)M-17 F	17	46	M16x1.5	24	30	11	14	67	27	90	10	27	25.4	7	5300	46.4
PEF(L)M-20	20	53	M20x2.5	27	34	13	16	77	31	103.5	10	30	28.9	6	7200	68.9
PEF(L)M-20 M-20	20	53	M20x1.5	27	34	13	16	77	31	103.5	10	30	28.9	6	7200	67.9
PEF(L)M-25	25	64	M24x2.0	34	41	17	20	94	38	126	12	36	35.5	5	10000	130
PEF(L)M-30	30	73	M30x2.0	41	48	19	22	110	47	146.5	15	41	40.9	4	10500	195.1

For left-hand thread, suffix"L" is added to bearing numbers. eg.: PEFLM20 M20x1.5L

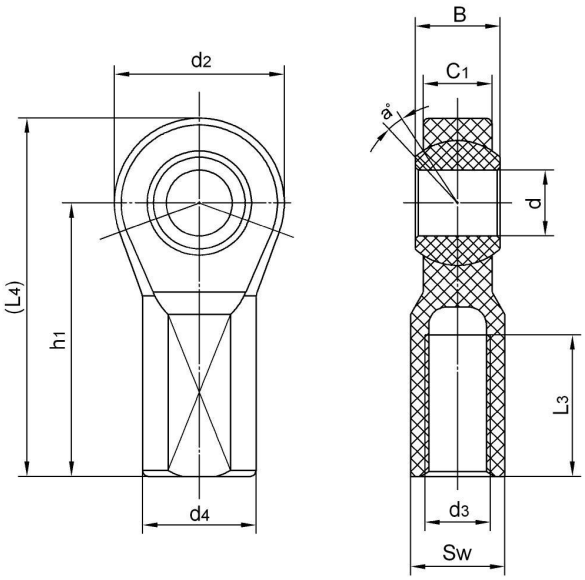
PEMM..



Bearing No.	Dimensions(mm)								Ball dia	a° mis. angle	Maximum Static Tensile Strength Short-term(N)	weight ≈ g
	d E10	d2	d3	C1	B	h	L1	L2				
PEM(L)M-05	5	19	M5	4.4	6	36	20	45.5	10.2	10	550	2.24
PEM(L)M-06	6	21	M6	4.4	6	36	20	46.5	10.2	10	850	2.65
PEM(L)M-08	8	24	M8	6.0	8	41	24	53.0	13.2	10	1600	2.98
PEM(L)M-10	10	29	M10	7.0	9	47.5	27	62.0	16	8	2600	9.12
PEM(L)M-10 F	10	29	M10x1.25	7.0	9	47.5	27	62.0	16	8	2600	9.2
PEM(L)M-12	12	34	M12	8.0	10	54	29	71.0	18	7	3000	14.3
PEM(L)M-12 F	12	34	M12x1.25	8.0	10	54	29	71.0	18	7	3000	14.7
PEM(L)M-15	15	40	M14	10.0	12	63	34	83.0	22	6	4500	23.9
PEM(L)M-17	17	46	M16	11.0	14	69	37	92.0	25.4	7	5000	34.87
PEM(L)M-17 F	17	46	M16x1.5	11.0	14	69	37	92.0	25.4	7	5000	35.4
PEM(L)M-20	20	53	M20x2.5	13.0	16	80	43	106.5	28.9	6	6500	57.04
PEM(L)M-20 M20	20	53	M20x1.5	13.0	16	80	43	106.5	28.9	6	6500	58.24
PEM(L)M-25	25	64	M24x2.0	17.0	20	97	53	129.0	35.5	5	8500	107.1
PEM(L)M-30	30	73	M30x2.0	19.0	22	113	65	149.5	40.9	4	10000	169.3

For left-hand thread, suffix"L" is added to bearing numbers. eg.: PEMLM20 M20x1.5L

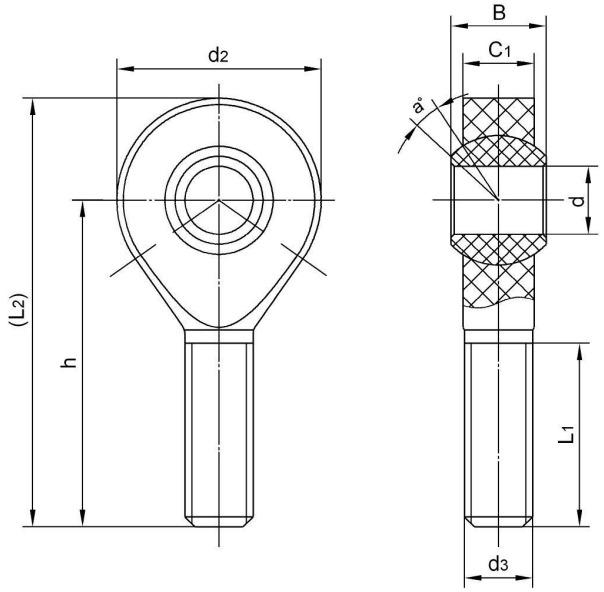
PKFI..



Bearing No.	Dimensions(mm/inch)										Ball dia	a° mis. angle	Maximum Static Tensile Strength Short-term(N)	weight ≈ g
	d E10	d2	d3	d4	C1	B	h1	L3	(L4)	SW				
PKF(L)I-03	4.826	15.88	10-32	10.31	6.25	7.93	26.97	12.7	34.9	7.92	11.28	10	900	3.3
	0.1900	0.625		0.406	0.246	0.312	1.062	0.500	1.374	0.312	0.444			
PKF(L)I-04	6.35	19.05	1/4-28	11.91	6.9	9.27	33.33	17.45	42.85	9.53	13.1	13	1100	5.3
	0.2500	0.750		0.469	0.272	0.365	1.312	0.687	1.687	0.375	0.516			
PKF(L)I-05	7.937	22.23	5/16-24	12.7	8.64	11.1	34.93	17.45	46.05	11.1	15.88	11	1700	7.3
	0.3125	0.875		0.500	0.340	0.437	1.375	0.687	1.813	0.437	0.625			
PKF(L)I-06	9.525	25.4	3/8-24	17.45	10	12.7	41.28	20.63	53.98	14.27	18.24	10	2000	13.2
	0.3750	1.000		0.687	0.394	0.500	1.625	0.812	2.125	0.562	0.718			
PKF(L)I-07	11.112	28.58	7/16-20	19.05	11.58	14.27	46.02	23.8	60.3	15.88	21.03	9	2300	18.1
	0.4375	1.125		0.750	0.456	0.562	1.812	0.937	2.374	0.625	0.828			
PKF(L)I-08	12.7	33.33	1/2-20	22.23	12.37	15.88	56.26	26.97	72.93	19.05	24.96	9	2600	29.2
	0.5000	1.312		0.875	0.487	0.625	2.215	1.062	2.781	0.750	0.938			
PKF(L)I-10	15.875	38.1	5/8-18	25.4	13.84	19.05	63.5	34.93	82.55	22.23	28.58	12	4900	40.1
	0.6250	1.500		1.000	0.545	0.750	2.500	1.375	3.250	0.875	1.125			
PKF(L)I-12	19.05	44.45	3/4-16	28.58	17.17	22.23	73.03	39.67	95.25	25.4	33.33	10	5600	61.2
	0.7500	1.750		1.125	0.676	0.875	2.875	1.562	3.750	1.000	1.312			
PKF(L)I-16	25.4	69.85	1-12	41.28	25.4	34.93	104.78	53.98	139.7	38.1	50.8	13	6000	223.1
	1.0000	2.750		1.625	1.000	1.375	4.125	2.125	5.500	1.500	2.000			

For left-hand thread, suffix"L" is added to bearing numbers. eg.: PKFLM20 M20x1.5L

PKMI..



Bearing No.	Dimensions(mm/inch)								Ball dia	a° mis. angle	Maximum Static Tensile Strength Short-term(N)	weight ≈ g
	d E10	d2	d3	C1	B	h	L1	L2				
PKM(L)I-03	4.826	15.88	10-32	5.94	7.93	31.75	19.05	39.7	11.28	12	390	2.2
	0.1900	0.625		0.234	0.312	1.250	0.750	1.563	0.444			
PKM(L)I-04	6.35	19.05	1/4-28	6.35	9.27	39.68	25.4	49.2	13.1	16	900	3.7
	0.2500	0.750		0.250	0.365	1.562	1.000	1.937	0.516			
PKM(L)I-05	7.937	22.23	5/16-24	7.92	11.1	47.63	31.75	58.75	15.88	14	1100	6.4
	0.3125	0.875		0.312	0.437	1.875	1.250	2.313	0.625			
PKM(L)I-06	9.525	25.4	3/8-24	9.12	12.7	49.23	31.75	61.93	18.24	14	1500	9.5
	0.3750	1.000		0.359	0.500	1.938	1.250	2.438	0.718			
PKM(L)I-07	11.112	28.58	7/16-20	10.31	14.27	53.98	34.93	68.28	21.03	13	2000	13.6
	0.4375	1.125		0.406	0.562	2.125	1.375	2.688	0.828			
PKM(L)I-08	12.7	33.33	1/2-20	11.51	15.88	61.67	38.1	78.34	24.96	12	2500	20.7
	0.5000	1.250		0.453	0.625	2.428	1.500	3.084	0.938			
PKM(L)I-10	15.875	38.1	5/8-18	12.3	19.05	66.68	41.28	85.73	28.58	16	3500	29.9
	0.6250	1.500		0.484	0.750	2.625	1.625	3.375	1.125			
PKM(L)I-12	19.05	44.45	3/4-16	15.06	2.23	73.03	44.45	95.25	33.33	14	3900	48.8
	0.7500	1.750		0.539	0.875	2.875	1.750	3.750	1.312			
PKM(L)I-16	25.4	69.85	1-12	25.4	34.93	104.78	59.7	139.7	50.8	13	4400	170.6
	1.0000	2.750		1.000	1.375	4.125	2.350	5.500	2.000			

For left-hand thread, suffix"L" is added to bearing numbers. eg.: PKMLI12 3/4-16L