

Tabel Lampiran1.1

Harga X_0 dan Y_0 untuk beberapa Bantalan

No.	Type of Bearing	Single Row Bearing		Double Row Bearing	
		X_0	Y_0	X_0	Y_0
1.	Radial contact groove ball bearings	0.60	0.50	0.60	0.50
2.	Self aligning ball bearing and tapered roller bearing	0.50	$0.22 \cot \theta$	1	$0.44 \cot \theta$
3.	Angular contact groove bearing :				
	$\theta = 15^\circ$	0.50	0.46	1	0.92
	$\theta = 20^\circ$	0.50	0.42	1	0.84
	$\theta = 25^\circ$	0.50	0.38	1	0.76
	$\theta = 30^\circ$	0.50	0.33	1	0.66
	$\theta = 35^\circ$	0.50	0.29	1	0.58
	$\theta = 40^\circ$	0.50	0.26	1	0.52
	$\theta = 45^\circ$	0.50	0.22	1	0.44

Tabel Lampiran1.2 Harga Faktor Service (K_s)

S.No.	Type of service	Service factor (K_s) for radial ball bearings
1.	Uniform and steady load	1.0
2.	Light shock load	1.5
3.	Moderate shock load	2.0
4.	Heavy shock load	2.5
5.	Extreme shock load	3.0

Tabel Lampiran 1.3 Harga X_r dan Y_a untuk Beban Dinamis

Type of bearing	Specifications	$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$		e	
		X_r	Y_a	X_r	Y_a		
Deep groove ball bearing	$\frac{F_a}{C_0} = 0,025$ = 0,04 = 0,07 = 0,13 = 0,25 = 0,50	1	0	0,56	2,0	0,22	
					1,8	0,24	
					1,6	0,27	
					1,4	0,31	
					1,2	0,37	
Angular contact ball bearing	Single row Two rows in tandem Two rows back to back Double row	1	0	0,35	0,57	1,14	
			0,55	0,57	0,93	1,14	
			0,73	0,62	1,17	0,86	
Self aligning bearings	Light series, for bores : 10 – 20 mm 25 – 35 mm 40 – 45 mm 50 – 65 mm 70 – 100 mm 105 – 110 mm	1	1,3	0,65	2,0	0,50	
			1,7		2,6	0,37	
			2,0		3,1	0,31	
			2,3		3,5	0,28	
			2,4		3,8	0,26	
	Medium series for bores : 12 mm 15 – 20 mm 25 – 50 mm 55 – 90 mm			1,0	0,65	1,6	0,63
				1,2	1,9	0,52	
				1,5	2,3	0,43	
				1,6	2,5	0,39	
Spherical roller bearings	For bores : 25 – 35 mm 40 – 45 mm 50 – 100 mm 100 – 200 mm	1	2,1	0,67	3,1	0,32	
			2,5		3,7	0,27	
			2,9		4,4	0,23	
			2,6		3,9	0,26	
Taper roller bearings	For bores : 20 – 40 mm 45 – 110 mm 120 – 150 mm	1	0	0,4	1,60	0,37	
					1,45	0,44	
					1,35	0,41	

Tabellampiran 1.4 Umur Pakai Bantalan.

<i>S. No.</i>	<i>Application of bearing</i>	<i>Life of bearing, in hours</i>
1.	Instruments and apparatus that are rarely used (a) Demonstratiion apparatus, mechanism for operating sliding doors. (b) Aircraft engines.	500 1000 – 2000
2.	Machines used for short periods or intermittently and whose breakdown would not have serious consequences <i>e.g.</i> , hand tools, lifting tackle in workshops, and operated machines, agricultural machines, cranes in erecting shops, domestic machines.	4000 – 8000
3.	Machines working intermittently whose breakdown would have serious consequences <i>e.g.</i> , auxillary machinery in power stations, conveyor plant for flow production, lifts, cranes for piece goods, machine tools used frequently.	8000 – 12 000
4.	Machines working 8 hours per day and not always fully utilised <i>e.g.</i> , stationary electric motors, general purpose gear units.	12 000 – 20 000
5.	Machines working 8 hours per day and fully utilised <i>e.g.</i> , machines for the engineering industry, cranes for bulk goods, ventilating fans, counter shafts.	20 000 – 30 000
6.	Machines working 24 hours per day <i>e.g.</i> , separators, compressors, pumps, mine hoists, naval vessels.	40 000 – 60 000
7.	Machines required to work with high degree of reliability 24 hours per day <i>e.g.</i> , pulp and paper making machinery, public power plants, mine-pumps, water works.	100 000 – 200 000

Tabellampiran 1.5 Beberapa nomor Bantalan Standard

<i>Bearing no</i>	<i>Bore (mm)</i>	<i>Outside diameter</i>	<i>Width (mm)</i>
200	10	30	9
300		35	11
201	12	32	10
301		37	12
202	15	35	11
203		42	13
203	17	40	12
303		47	14
403		62	17
204	20	47	14
304		52	15
404		72	19
205	25	52	15

305		62	17
405		80	21
206	30	62	16
306		72	19
406		90	23
207	35	72	17
307		80	21
407		100	25
208	40	80	18
308		90	23
408		110	27
209	45	85	19
309		100	25
409		120	29
210	50	90	20
310		110	27
410		130	31
211	55	100	21
311		120	29
411		140	33
212	60	110	22
312		130	31
412		150	35
213	65	120	23
313		140	33
413		160	37
214	70	125	24
314		150	35
414		180	42
215	75	130	25
315		160	37
415		190	45
216	80	140	26
316		170	39
416		200	48
217	85	150	28

317		180	41
417		210	52
218	90	160	30
318		190	43
418		225	54

Tabel Lampiran 1.6 Beban Statik dan Dinamik Beberapa Bantalan

<i>Bearing No.</i>	<i>Basic Capacities in KN</i>							
	<i>Single row deep groove ball bearing</i>		<i>Single row angular contact ball bearing</i>		<i>Double row angular contact ball bearing</i>		<i>Self-aligning ball bearing</i>	
<i>(1)</i>	<i>Static (C₀)</i>	<i>Dynamic (C)</i>	<i>Static (C₀)</i>	<i>Dynamic (C)</i>	<i>Static (C₀)</i>	<i>Dynamic (C)</i>	<i>Static (C₀)</i>	<i>Dynamic (C)</i>
	<i>(2)</i>	<i>(3)</i>	<i>(4)</i>	<i>(5)</i>	<i>(6)</i>	<i>(7)</i>	<i>(8)</i>	<i>(9)</i>
200	2.24	4	-	-	4.55	7.35	1.80	5.70
300	3.60	6.3	-	-	-	-	-	-
201	3	5.4	-	-	5.6	8.3	2.0	5.85
301	4.3	7.65	-	-	-	-	3.0	9.15
202	3.55	6.10	3.75	6.30	5.6	8.3	2.16	6
302	5.20	8.80	-	-	9.3	14	3.35	9.3
203	4.4	7.5	4.75	7.8	8.15	11.6	2.8	7.65
303	6.3	10.6	7.2	11.6	12.9	19.3	4.15	11.2
403	11	18	-	-	-	-	-	-
204	6.55	10	6.55	10.4	11	16	3.9	9.8
304	7.65	12.5	8.3	13.7	14	19.3	5.5	14
404	15.6	24	-	-	-	-	-	-
205	7.1	11	7.8	11.6	13.7	17.3	4.25	9.8
305	10.4	16.6	12.5	19.3	20	26.5	7.65	19
405	19	28	-	-	-	-	-	-
206	10	15.3	11.2	16	20.4	25	5.6	12
306	14.6	22	17	24.5	27.5	35.5	10.2	24.5
406	23.2	33.5	-	-	-	-	-	-
207	13.7	20	15.3	21.2	28	34	8	17
307	17.6	26	20.4	28.5	36	45	13.2	30.5
407	30.5	43	-	-	-	-	-	-
208	16	22.8	19	25	32.5	39	9.15	17.6
308	22	32	25.5	35.5	45.5	55	16	35.5
408	37.5	50	-	-	-	-	-	-
209	18.3	25.5	21.6	28	37.5	41.5	10.2	18
309	30	41.5	34	45.5	56	67	19.6	42.5
409	44	60	-	-	-	-	-	-
210	21.2	27.5	23.6	29	43	47.5	10.8	18
310	25.5	48	40.5	53	73.5	81.5	24	50
410	50	68	-	-	-	-	-	-
211	26	37	30	36.5	49	53	12.7	20.8
311	42.5	56	47.5	62	80	88	28.5	58.5
411	60	78	-	-	-	-	-	-
212	32	40.5	35.5	44	63	65.5	16	26.5
312	48	64	55	71	96.5	102	33.5	68
412	67	85	-	-	-	-	-	-
213	35.5	44	43	50	69.5	69.5	20.4	34
313	55	72	63	80	112	118	39	75

413	76.5	93	-	-	-	-	-	-
214	39	48	47.5	54	71	69.5	21.6	34.5
314	63	81.5	73.5	90	129	137	45	85
414	102	112	-	-	-	-	-	-
215	42.5	52	50	56	80	76.5	22.4	34.5
315	72	90	81.5	98	140	143	52	95
415	110	120	-	-	-	-	-	-
216	45.5	57	57	63	96.5	93	25	38
316	80	96.5	92.5	106	160	163	58.5	106
416	120	127	-	-	-	-	-	-
217	55	65.5	65.5	71	100	106	30	45.5
317	88	104	102	114	180	180	62	110
417	132	134	-	-	-	-	-	-
218	63	75	76.5	83	127	118	26	55
318	98	112	114	122	-	-	69.5	118
418	146	146	-	-	-	-	-	-
219	72	85	88	95	150	137	43	65.5
319	112	120	125	132	-	-	-	-
220	81.5	96.5	93	102	160	146	51	76.5
320	132	137	153	150	-	-	-	-
221	93	104	104	110	-	-	56	85
321	143	143	166	160	-	-	-	-
222	104	112	116	120	-	-	64	98
322	166	160	193	176	-	-	-	-

