

## PKPLN Series ---

### Servo Planetary Gearbox



Processed and manufactured by the high precision German engineered gear grinding craft, the PKPLN is one of the best servo planetary gearbox in the world.

#### Product Key Features

- ▶ High precision: backlash <math>< 3 \text{ arc-min}</math>.
- ▶ Processing by ultra precision machine and advanced gear grinding craft, the gear precision can be controlled under ISO4 to ensure the gearboxes high precision and efficiency.
- ▶ Choosing low-carbon alloy forged steel as the raw material of the gear, the hardness can reach HRC60 by deepen harden of carburizing heat treatment to ensure gear strength and lifetime.
- ▶ With integrated design of caged planet carrier and output shaft to realize high rigidity and high precision.
- ▶ Planet-gear bearings use full needle roller bearing cage to increase gearboxes output torque and rigidity.
- ▶ Can be connected with any servo motor around the world.
- ▶ No grease leakage and miantenance free by using synthetic lubricating grease and IP65 protection design.

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## Servo Planetary Gearbox Technical Data

Model		PKPLN050	PKPLN070	PKPLN090	PKPLN120	PKPLN160	PKPLN205	PKPLN235	Ratio	Stage
Rated Output Torque	Nm	20	46	125	210	450	650	1200	3	1
		21	52	145	300	550	1250	1800	4	
		21	55	155	320	650	1200	2050	5	
		20*	50*	145*	300*	610*	1000*	1850*	6	
		19	50*	135	290*	540	1000	1750*	7	
		18*	45	115	255	510*	1000*	1550	8	
		14	42	105*	220*	440	910	1500*	9	
		14	42	105	220	440	910	1500	10	
		20	56	125	310	500	650	1200	12	2
		21	52	145	300	550	1250	1800	16	
		21	55	145	300	650	1200	2050	20	
		21	55	155	320	650	1200	2050	25	
		--	52	145	305	550*	1250*	1800*	32	
		21	55*	155	320*	650	1200	2050	35	
		--	55	155	320	550*	1200*	2050*	40	
		21	55*	155	320*	650	1200	2050	45	
		21	55	155	320	650	1200	2050	50	3
		18/63	45	115	255	510/63	1000/63	1550	64	
		21	52	155	320	650	1200	2050	80	
		21	52	155	320	650	1200	2050	100	
		21	52	155	320	650	1200	2050	125	
		21/140	52	155	320	650	1200/140	2050/140	160	
		21/180	52	155	320	650	1200/180	2050/180	200	
		21/252	52	155	320	650/224	1200/252	2050/252	256	
21/315	52	155	320	650/280	1200/315	2050/315	320			
18/441	45	115	255	510/504	1000/441	1550/504	512			
Emergency Stop Torque	Nm	Triple rated output torque								
Max Radial Force <sup>1</sup>	N	770	1500	3200	6700	9600	14000	16000		
Max Axial Force <sup>1</sup>	N	380	760	1600	3300	4800	7000	8000		
Full Loading Efficiency	%	97								1
		95								2
		93								3
Average lifetime	h	20000								
Weight	kg	0.5	1.3	3.1	5.1	19	30	51		1
		0.8	1.5	4.2	7.5	24	38	64		2
		1	1.7	5.3	9.5	29	47	72		3

The subscript "1" in the output speed of 100RPM, in the center of the output shaft position (L/2) permissible radial force and axial force.

Note : with "\*" is not commonly used speed ratio, in the table there are 2 groups of digital representation of the torque corresponding to the actual speed ratio.

The maximum acceleration torque is equal to 180% of the rated torque.

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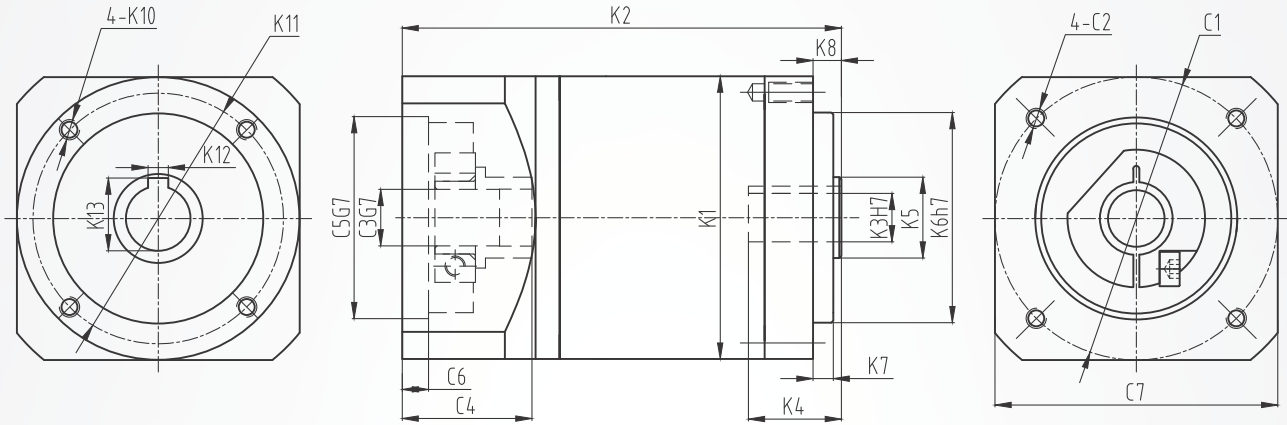
## Servo Planetary Gearbox Technical Data

Model		PKPLN050	PKPLN070	PKPLN090	PKPLN120	PKPLN160	PKPLN205	PKPLN235	Ratio	Stage			
Rotational Inertia	kgcm <sup>2</sup>	0.031	0.16	0.61	3.25	12.31	28.98	69.61	3	1			
		0.022	0.14	0.48	2.74	7.54	23.67	54.37	4				
		0.019	0.13	0.47	2.71	7.42	22.75	53.27	5				
		0.017	0.13	0.47	2.62	7.25	22.48	50.84	6				
		0.017	0.13	0.47	2.62	7.25	22.48	50.84	7				
		0.017	0.13	0.45	2.62	7.14	22.59	50.84	8				
		0.017	0.13	0.44	2.62	7.14	22.59	50.84	9				
		0.017	0.13	0.44	2.57	7.14	22.55	50.56	10				
		0.029	0.127	0.44	2.56	12.35	12.35	28.98	12		2		
		0.022	0.12	0.43	1.75	7.47	7.54	23.67	16				
		0.019	0.075	0.44	1.5	6.65	7.42	22.75	20				
		0.017	0.075	0.44	1.49	5.81	7.54	22.75	25				
		--	0.064	0.39	1.3	6.34	7.14	22.59	32				
		0.016	0.064	0.39	1.3	5.36	7.14	22.59	35				
		--	0.064	0.39	1.3	4.08	7.14	22.59	40				
		0.016	0.064	0.39	1.3	5.36	7.14	22.59	45				
		0.016	0.064	0.39	1.3	4.08	7.14	22.59	50				
		0.016	0.075	0.39	1.5	7.5	7.54	22.59	64				
		0.019	0.075	0.44	1.49	7.4	7.54	22.75	80	3			
		0.019	0.064	0.44	1.45	7.3	7.42	22.59	100				
		0.019	0.064	0.44	1.3	7.3	7.42	22.75	125				
		0.016	0.064	0.39	1.3	6.5	7.14	22.75	160				
		0.016	0.064	0.39	1.3	6.2	7.14	22.75	200				
		0.016	0.064	0.39	1.3	5.7	7.14	22.75	256				
		0.016	0.064	0.39	1.3	5.4	7.14	22.75	320				
		0.016	0.064	0.39	1.3	5.4	7.14	22.59	512				
		Backlash	arcmin	--	≤3	≤3	≤3	≤3	≤3		≤3	High Precision	1
				≤6	≤6	≤6	≤6	≤6	≤6		≤6	Standard Precision	
--	≤5			≤5	≤5	≤5	≤5	≤5	≤5	High Precision	2		
≤8	≤8			≤8	≤8	≤8	≤8	≤8	≤8	Standard Precision			
--	≤7			≤7	≤7	≤7	≤7	≤7	≤7	High Precision	3		
≤12	≤10			≤10	≤10	≤10	≤10	≤10	≤10	Standard Precision			
Torsional Rigidity	Nm/arcmin	3	7	14	25	50	140	220					
Noise <sup>2</sup>	dB(A)	56	58	60	63	65	67	70					
Max Input Speed <sup>1</sup>	min <sup>-1</sup>	8000	6000	6000	6000	6000	4000	4000					
Rated Input Speed <sup>1</sup>	min <sup>-1</sup>	4000	3000	3000	3000	3000	3000	2000					

The subscript "1" the environment temperature is 20°C.  
The subscript "2" sound in n1 < 3000min<sup>-1</sup>, measured at 1 m.

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## Servo Planetary Gearbox Standard Size



Model	PKPLN070			PKPLN090			PKPLN120			PKPLN160			PKPLN205		
Stage	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
K1	φ70			φ89			φ120			φ160			φ205		
K2	85	108.7	132.4	102	133.3	164.6	148	189.8	198	195.5	256.5	276	208	268	327
K3	φ12			φ18			φ25			φ38			M2XZ24XP30XH6		
K4	23			25			36			45			48		
K5	φ20			φ30			φ40			φ60			φ60		
K6	φ52			φ68			φ90			φ130			φ160		
K7	5			10			12			15			15		
K8	7			12			15			17			20		
K10	M5X11			M6X15			M8X19			M12X20			M12X22		
K11	φ62			φ80			φ108			φ145			φ184		
K12	4			6			8			10			GB/T3478.1		
K13	13.8			20.8			28.3			41.3			GB/T3478.1		
C1	φ70			φ90			φ145		φ90	φ200		φ145	φ215		φ200
C2	M5X12			M6X15			M8X20		M6X15	M12X25		M8X20	M12X25		M12X25
C3	φ14			φ19			φ24		φ19	φ35		φ24	φ42		φ35
C4	32.1			41.6			61.3		41.6	82		56.3	82.5		82
C5	φ50			φ70			φ110		φ70	φ114.3		φ110	φ180		φ114.3
C6	6.5			6.5			8		6.5	8		8	8		8
C7	70			89			120		89	175		120	190		175