



PAI und PAIR-Serie Planetengetriebe



PAII Planetengetriebe

Technische Daten

Einfache Montage

Geringes Laufgeräusch

Schutzklasse IP 65

Kompakte Bauweise

Nenn-Abtriebsdrehmoment

T2N: 8 – 459 Nm

Untersetzungen

1-stufig: 3 / 4 / 5 / 7 / 10

2-stufig: 15 / 16 / 20 / 25 / 30 / 35 / 40 / 50 / 70 / 100

Geringes Verdrehspiel

1-stufig: 6 – 8 Winkelminuten

2-stufig: 8 – 10 Winkelminuten

Hoher Wirkungsgrad

1-stufig: $\geq 97\%$

2-stufig: $\geq 94\%$

Arbeitstemperatur

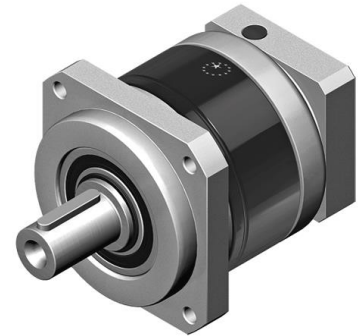
0°C bis 90°C mit Standardfett

Baugrößen

PAII 042 / PAII 060 / PAII 090 / PAII 115 / PAII 142

Verwendung

Anwendungen im Maschinenbau, bei denen kostengünstige und gleichzeitig hochwertige Planetengetriebe gefordert sind.



PAIR Winkelplanetengeräte

Technische Daten

Einfache Montage

Geringes Laufgeräusch

Schutzklasse IP 65

Kompakte Bauweise

Nenn-Abtriebsdrehmoment

T_{2N}: 8 – 459 Nm

Untersetzungen

1-stufig: 3 / 4 / 5 / 7 / 9 / 10

2-stufig: 15 / 16 / 20 / 25 / 30 / 35 / 40 / 50 / 70 / 81 / 100

Geringes Verdrehspiel

1-stufig: 10 – 12 Winkelminuten

2-stufig: 12 – 14 Winkelminuten

Hoher Wirkungsgrad

1-stufig: $\geq 93\%$

2-stufig: $\geq 90\%$

Arbeitstemperatur

0°C bis 90°C mit Standardfett

Baugrößen

PAIR 042 / PAIR 060 / PAIR 090 / PAIR 115 / PAIR 142

Verwendung

Anwendungen im Maschinenbau, bei denen kostengünstige und gleichzeitig hochwertige Planetengetriebe gefordert sind.



PAII / PAIR Spezifikationen

Model No.	Stages	Ratio ⁽¹⁾	Type	PAII 042	PAII 060	PAII 090	PAII 115	PAII 142	
				PAIR 042	PAIR 060	PAIR 090	PAIR 115	PAIR 142	
Nominal Output Torque T_{2N}	1	3	AII	16	42	110	217	430	
		4		16	42	113	223	440	
		5		15	40	118	220	435	
		7		12	35	96	198	366	
		9		8	24	60	125	273	
		10		10	27	68	155	295	
	2	15		15	40	109	213	424	
		16		16	42	116	228	452	
		20		16	42	116	230	454	
		25		15	40	123	228	450	
		30		15	40	108	212	422	
		35		12	35	100	206	382	
		40		16	43	117	232	459	
		50		15	40	123	228	450	
		70		12	35	100	206	382	
		81		8	24	59	131	285	
		100		10	27	70	162	308	
		Emergency Stop Torque T_{2NOT}		Nm	1,2	3~100	AII 3 times T_{2N}		
Max. Acceleration Torque T_{2B}	Nm	1,2	3~100	AII $T_{2B} = 60\%$ of T_{2NOT}					
No Load Running Torque ⁽⁴⁾	1	3~10	PAII	0.05	0.10	0.40	0.80	2.50	
			PAIR	0.10	0.15	0.45	0.85	2.55	
	2	15~100	PAII	0.05	0.10	0.30	0.40	0.80	
			PAIR	0.10	0.15	0.35	0.45	0.85	
Backlash ⁽²⁾	1	3~10	PAII	≤ 8	≤ 7	≤ 6	≤ 6	≤ 6	
			PAIR	≤ 12	≤ 11	≤ 10	≤ 10	≤ 10	
	2	15~100	PAII	≤ 10	≤ 9	≤ 8	≤ 8	≤ 8	
			PAIR	≤ 14	≤ 13	≤ 12	≤ 12	≤ 12	
Torsional Rigidity	Nm/arcmin	1,2	3~100	AII	0.9	2.2	8	12	16
Nominal Input Speed n_{1N}	rpm	1,2	3~100	AII	4,500	4,000	3,600	3,600	2,500
Max. Input Speed n_{1B}	rpm	1,2	3~100	AII	8,000	6,000	6,000	4,800	3,600
Max. Radial Load F_{2rB} ⁽³⁾	N	1,2	3~100	AII	810	1,150	1,530	3,470	4,640
Max. Axial Load F_{2aB} ⁽³⁾	N	1,2	3~100	AII	405	575	765	1,735	2,320
Service Life ⁽⁵⁾	hr	1,2	3~100	AII 20,000					
Operating Temp	°C	1,2	3~100	AII 0° C ~ +90° C					
Degree of Gearbox Protection		1,2	3~100	AII IP65					
Lubrication		1,2	3~100	AII Synthetic lubrication grease					
Mounting Position		1,2	3~100	AII All directions					
Running Noise ⁽⁴⁾	dB(A)	1,2	3~100	PAII	≤ 60	≤ 62	≤ 64	≤ 66	≤ 68
				PAIR	≤ 70	≤ 72	≤ 74	≤ 75	≤ 77
Max. bending moment based on the gearbox input flange M_b ⁽⁶⁾	Nm	1,2	3~100	PAII	5	12	22	45	54
				PAIR	3	6	10	17	19
Efficiency η	%	1	3~10	PAII	≥ 97%				
				PAIR	≥ 93%				
	2	15~100	PAII	≥ 94%					
			PAIR	≥ 90%					

(1) Ratio ($i = N_{in} / N_{out}$).

(2) Backlash is measured at 2% of Nominal Output Torque T_{2N} .

(3) Applied to the output shaft center at 100 rpm.

(4) These values are measured by gearbox with ratio = 10 (1-stage) or ratio = 100 (2-stage) at 3,000 rpm without load, By ratio smaller than 10, the noise value would be 3-5dB higher.

(5) For continuous operation, the service life time is less than 10,000 hrs.

(6) Max. motor weight* (kg) = $\frac{0.1 \times M_b}{\text{motor length (m)}}$

*with symmetrically distributed motor weight

*with horizontal and stationary mounting

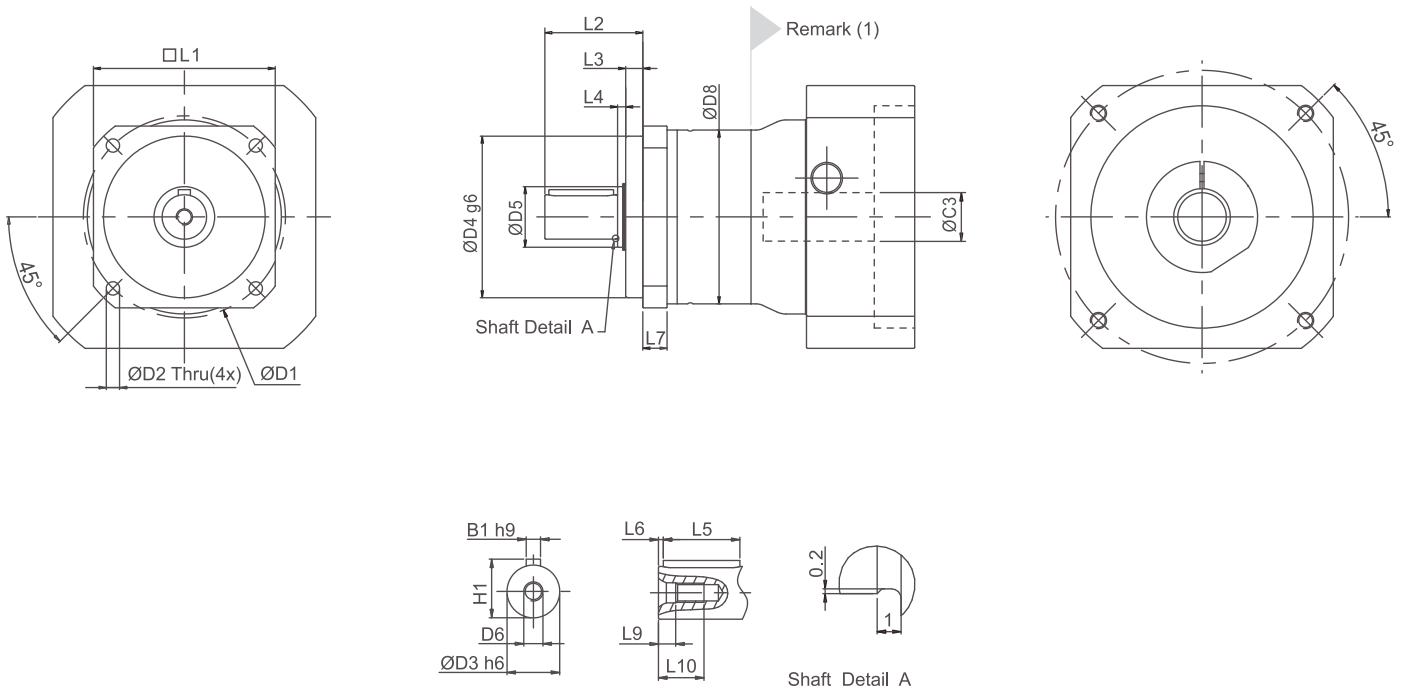
Massenträgheitsmoment PAII

Model No.	PAII 042		PAII 060		PAII 090		PAII 115		PAII 142	
$\varnothing^{(A)}$ (c3)	1-stage	2-stage	1-stage	2-stage	1-stage	2-stage	1-stage	2-stage	1-stage	2-stage
8	0.10	0.10	0.12	0.10	-	-	-	-	-	-
11	0.16	0.16	0.19	0.16	-	-	-	-	-	-
14	-	-	0.22	0.20	0.36	0.24	-	-	-	-
19	-	-	1.53	1.51	1.70	1.58	2.20	1.73	-	2.18
24	-	-	-	-	2.24	2.12	2.74	2.27	4.52	2.73
28	-	-	-	-	2.68	2.55	3.17	2.70	4.94	3.15
32	-	-	-	-	-	-	7.77	7.30	9.70	7.91
35	-	-	-	-	-	-	10.80	10.30	12.80	11.00
38	-	-	-	-	-	-	14.00	13.50	16.00	14.20
42	-	-	-	-	-	-	-	-	24.50	-

Massenträgheitsmoment PAIIR

Model No.	PAIIR 042		PAIIR 060		PAIIR 090		PAIIR 115		PAIIR 142	
$\varnothing^{(A)}$ (c3)	1-stage	2-stage	1-stage	2-stage	1-stage	2-stage	1-stage	2-stage	1-stage	2-stage
8	0.18	0.18	0.36	0.36	-	-	-	-	-	-
11	0.20	0.20	0.39	0.39	-	-	-	-	-	-
14	-	-	0.43	0.43	1.87	1.87	-	-	-	-
19	-	-	1.24	1.24	2.67	2.67	6.80	6.80	-	13.57
24	-	-	-	-	2.97	2.97	7.10	7.10	13.87	13.87
28	-	-	-	-	3.47	3.47	7.59	7.59	14.36	14.36
32	-	-	-	-	-	-	10.56	10.56	17.33	17.33
35	-	-	-	-	-	-	11.97	11.97	18.74	18.74
38	-	-	-	-	-	-	13.95	13.95	20.79	20.79
42	-	-	-	-	-	-	-	-	26.54	-

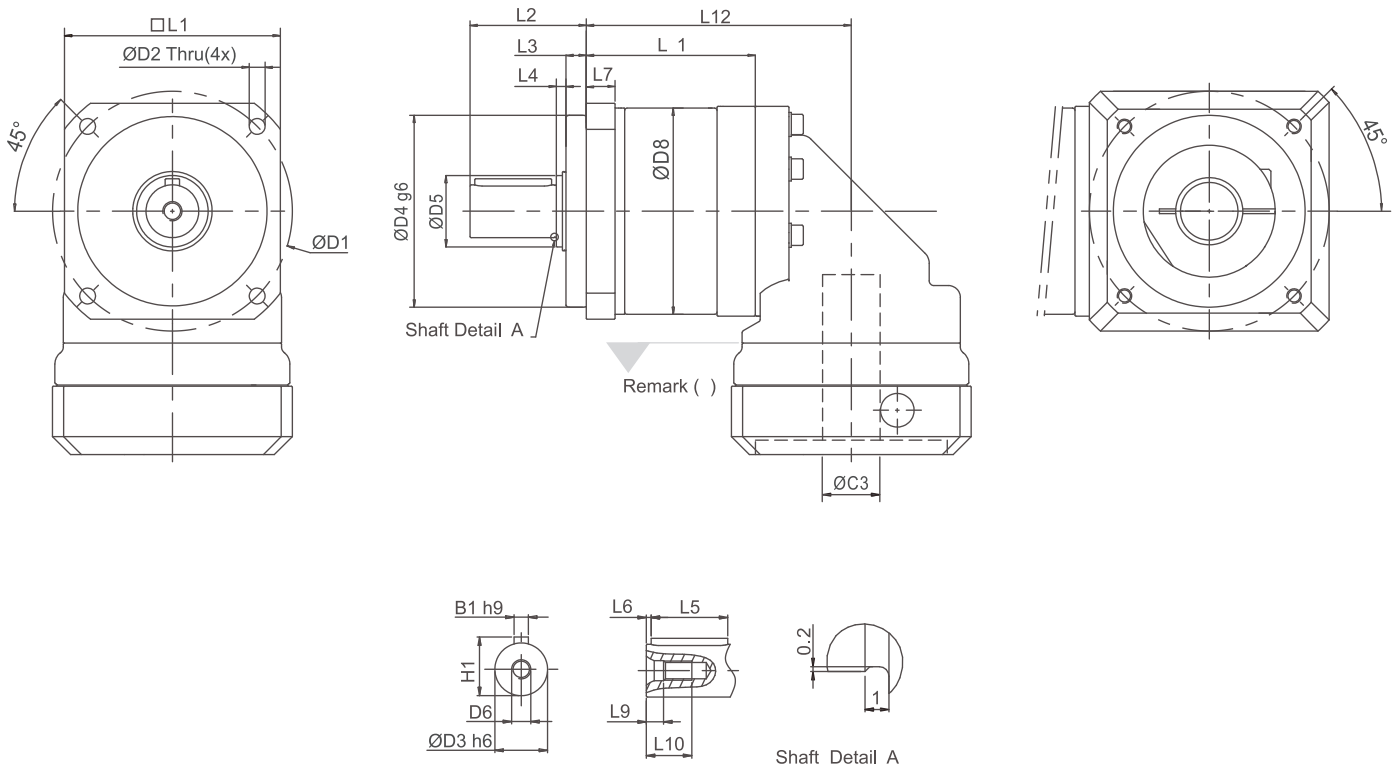
PAII Abmessungen



Dimension	PAII 042		PAII 060		PAII 090		PAII 115		PAII 142	
	1-stage	2-stage	1-stage	2-stage	1-stage	2-stage	1-stage	2-stage	1-stage	2-stage
D1	50		70		100		130		165	
D2	3.4		5.5		6.6		9		11	
D3	h6	13	16		22		32		40	
D4	g6	35	50		80		110		130	
D5	17		22		30		40		55	
D6	M4X0.7P		M5X0.8P		M8X1.25P		M12X1.75P		M16X2P	
D8	44		60		86		114		140	
L1	42		60		90		115		142	
L2	26		37		48.5		65		97	
L3	5.5		5.5		8.5		10		12.5	
L4	2.5		3.5		4		5		5.5	
L5	14		25		32		40		63	
L6	2		2		2		5		5	
L7	6.5		10		12		16		20	
L9	4.5		4.8		7.2		10		12	
L10	10		12.5		19		28		36	
B1	h9	5	5		6		10		12	
H1	15		18		24.5		35		43	

(1) Dimensions are related to motor interface.

PAIR Abmessungen



Dimension	PAIR 042		PAIR 060		PAIR 090		PAIR 115		PAIR 142	
	1-stage	2-stage	1-stage	2-stage	1-stage	2-stage	1-stage	2-stage	1-stage	2-stage
D1	50		70		100		130		165	
D2	3.4		5.5		6.6		9		11	
D3	h6	13	16	22	32	40				
D4	g6	35	50	80	110	130				
D5	17		22		30		40		55	
D6	M4X0.7P		M5X0.8P		M8X1.25P		M12X1.75P		M16X2P	
D8	44		60		86		114		140	
L1	42		60		90		115		142	
L2	26		37		48.5		65		97	
L3	5.5		5.5		8.5		10		12.5	
L4	2.5		3.5		4		5		5.5	
L5	14		25		32		40		63	
L6	2		2		2		5		5	
L7	6.5		10		12		16		20	
L9	4.5		4.8		7.2		10		12	
L10	10		12.5		19		28		36	
L11	48	63	59	79	70.5	97	98	134	118	165.5
L12	73	88	88.5	108.5	110.5	137	149	185	175	222.5
B1	h9	5	5	6	10	12				
H1	15		18		24.5		35		43	

(1) Dimensions are related to motor interface.