



# AE und AER Planetengetriebe



## AE Planetengetriebe

### Technische Daten

Einfache Montage  
Geringes Laufgeräusch  
Schutzklasse IP 65 (optional IP67 bei AE)

Kompakte Bauweise

Große Radiallast

### Nenn-Abtriebsdrehmoment

T2N: 14 – 2000 Nm

### Untersetzungen

1-stufig: 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10

2-stufig: 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 60 / 70 / 80 /  
90 / 100

### Geringes Verdrehspiel

1-stufig:  $\leq 8$  Winkelminuten

2-stufig:  $\leq 12$  Winkelminuten

### Hoher Wirkungsgrad

1-stufig:  $\geq 97\%$

2-stufig:  $\geq 94\%$

### Arbeitstemperatur

-10°C bis 90°C mit Standardfett

### Baugrößen

AE 050 / AE 070 / AE 090 / AE 120 / AE 155 / AE 205 /  
AE 255

### Verwendung

Werkzeugmaschinen, Textilmaschinen,  
Verpackungsmaschinen, Handhabungssysteme,  
Druckmaschinen



*\*auch in Edelstahl erhältlich*



## AER Winkelplanetengeräte

### Technische Daten

Einfache Montage

Geringes Laufgeräusch

Schutzklasse IP 65 (optional IP 67 bei AER)

Kompakte Bauweise

Große Radiallast (Nur ALR und AFR)

### Nenn-Abtriebsdrehmoment

T<sub>2N</sub>: 14 – 2000 Nm

### Untersetzung

1-stufig: 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 / 14 / 20

2-stufig: 15\* / 20\* / 25 / 30 / 35 / 40 / 45 / 50 / 60 / 70 / 80 / 90 / 100 / 120 / 140 / 160 / 180 / 200

### Geringes Verdrehspiel

1-stufig: ≤ 10 Winkelminuten

2-stufig: ≤ 14 Winkelminuten

### Hoher Wirkungsgrad

1-stufig: ≥ 95%

2-stufig: ≥ 92%

### Arbeitstemperatur

-10°C bis 90°C mit Standardfett

### Baugrößen

AER 050\* / AER 070 / AER 090 / AER 120 / AER 155 /  
AER 205 / AER 255

### Verwendung

Gleiches Einsatzspektrum wie bei Planetengetrieben (Werkzeugmaschinen, Textilmaschinen, Verpackungsmaschinen, Handhabungssysteme, Druckmaschinen, usw.) jedoch mit eingeschränktem Bauraum



*\*nur die AER050 Serie bietet Untersetzung 15 und 20 in 2-stufiger Ausführung*



# AE Spezifikationen

## Gearbox Performance

Model No.	Stage	Ratio <sup>A</sup>	AE050	AE070	AE090	AE120	AE155	AE205	AE235	
Nominal output torque $T_{2N}$	1	3	20	55	130	208	342	588	1,140	
		4	19	50	140	290	542	1,050	1,700	
		5	22	60	160	330	650	1,200	2,000	
		6	20	55	150	310	600	1,100	1,900	
		7	19	50	140	300	550	1,100	1,800	
		8	17	45	120	260	500	1,000	1,600	
		9	14	40	100	230	450	900	1,500	
		10	14	40	100	230	450	900	1,500	
		2	15	20	55	130	208	342	588	1,140
			20	19	50	140	290	542	1,050	1,700
	25		22	60	160	330	650	1,200	2,000	
	30		20	55	150	310	600	1,100	1,900	
	35		19	50	140	300	550	1,100	1,800	
	40		17	45	120	260	500	1,000	1,600	
	45		14	40	100	230	450	900	1,500	
	50		22	60	160	330	650	1,200	2,000	
	60		20	55	150	310	600	1,100	1,900	
	70		19	50	140	300	550	1,100	1,800	
	80	17	45	120	260	500	1,000	1,600		
	90	14	40	100	230	450	900	1,500		
100	14	40	100	230	450	900	1,500			
Emergency Stop Torque $T_{2NOT}^B$	Nm	1,2	3 times of nominal output torque							
Nominal input speed $n_{1N}$	rpm	1,2	3~100	5,000	5,000	4,000	4,000	3,000	2,000	
Max. input speed $n_{1B}$	rpm	1,2	3~100	10,000	10,000	8,000	8,000	6,000	4,000	
Backlash	arcmin	1	3~10	≤8	≤8	≤8	≤8	≤8	≤8	
		2	15~100	≤12	≤12	≤12	≤12	≤12	≤12	
Torsional rigidity	Nm/arcmin	1,2	3~100	3	7	14	25	50	145	
Max. Radial Load $F_{2RB}^C$	N	1,2	3~100	702	1,377	2,985	6,100	8,460	13,050	
Max. Axial Load $F_{2AB}^C$	N	1,2	3~100	390	765	1,625	3,350	4,700	7,250	
Service Life <sup>D</sup>	hr	1,2	3~100	20,000						
Efficiency $\eta$	%	1	3~10	≥97%						
		2	15~100	≥94%						
Weight	kg	1	3~10	0.6	1.4	3.3	6.9	13	31	
		2	15~100	0.9	1.6	4.7	8.7	17	35	
Operating temp	°C	1,2	3~100	-10°C~90°C						
Lubrication				Synthetic lubrication						
Degree of gearbox protection		1,2	3~100	IP65						
Mounting position		1,2	3~100	all directions						
Noise ( $n_i=3000\text{rpm}, i=10, \text{No load}$ ) <sup>E</sup>	dB(A)	1,2	3~100	≤56	≤58	≤60	≤63	≤65	≤67	

## Massenträgheitsmoment AE

Model No.	Stage	Ratio <sup>A</sup>	AE050	AE070	AE090	AE120	AE155	AE205	AE235	
Mass moments of inertia $J_i$	1	3	0.03	0.16	0.61	3.25	9.21	28.98	69.61	
		4	0.03	0.14	0.48	2.74	7.54	23.67	54.37	
		5	0.03	0.13	0.47	2.71	7.42	23.29	53.27	
		6	0.03	0.13	0.45	2.65	7.25	22.75	51.72	
		7	0.03	0.13	0.45	2.62	7.14	22.48	50.97	
		8	0.03	0.13	0.44	2.58	7.07	22.59	50.84	
		9	0.03	0.13	0.44	2.57	7.04	22.53	50.63	
		10	0.03	0.13	0.44	2.57	7.03	22.51	50.56	
		2	15	0.03	0.03	0.13	0.47	2.71	7.42	23.29
			20	0.03	0.03	0.13	0.47	2.71	7.42	23.29
	25		0.03	0.03	0.13	0.47	2.71	7.42	23.29	
	30		0.03	0.03	0.13	0.47	2.71	7.42	23.29	
	35		0.03	0.03	0.13	0.47	2.71	7.42	23.29	
	40		0.03	0.03	0.13	0.47	2.71	7.42	23.29	
	45		0.03	0.03	0.13	0.47	2.71	7.42	23.29	
	50		0.03	0.03	0.13	0.44	2.57	7.03	22.51	
	60		0.03	0.03	0.13	0.44	2.57	7.03	22.51	
	70		0.03	0.03	0.13	0.44	2.57	7.03	22.51	
	80	0.03	0.03	0.13	0.44	2.57	7.03	22.51		
	90	0.03	0.03	0.13	0.44	2.57	7.03	22.51		
100	0.03	0.03	0.13	0.44	2.57	7.03	22.51			

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

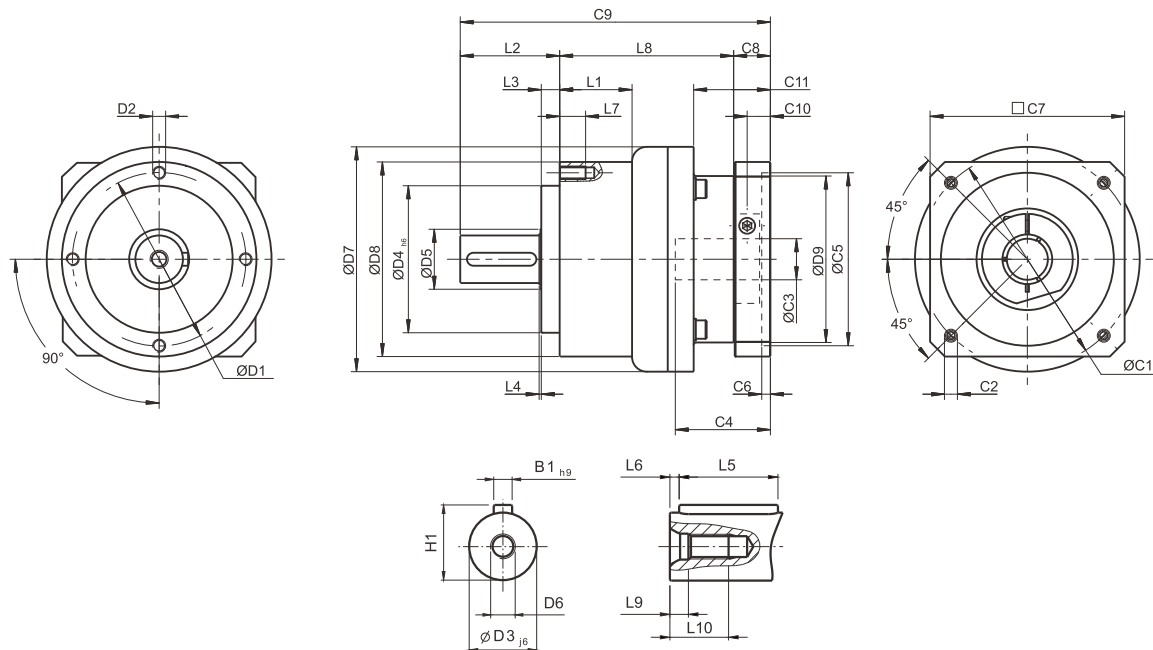
B. Max. acceleration torque  $T_{2B} = 60\%$  of  $T_{2NOT}$

C. Applied to the output shaft center at 100 rpm

D. For continuous operation, the service life time is less than 10,000 hrs

E. These values are measured by gearbox with ratio = 10 (1-stage) or ratio = 100 (2-stage) at 3,000 rpm no loading. By less smaller than 10, the noise value would be 3~5 dB higher

# AE Abmessungen, 1-stufig, i=3~10

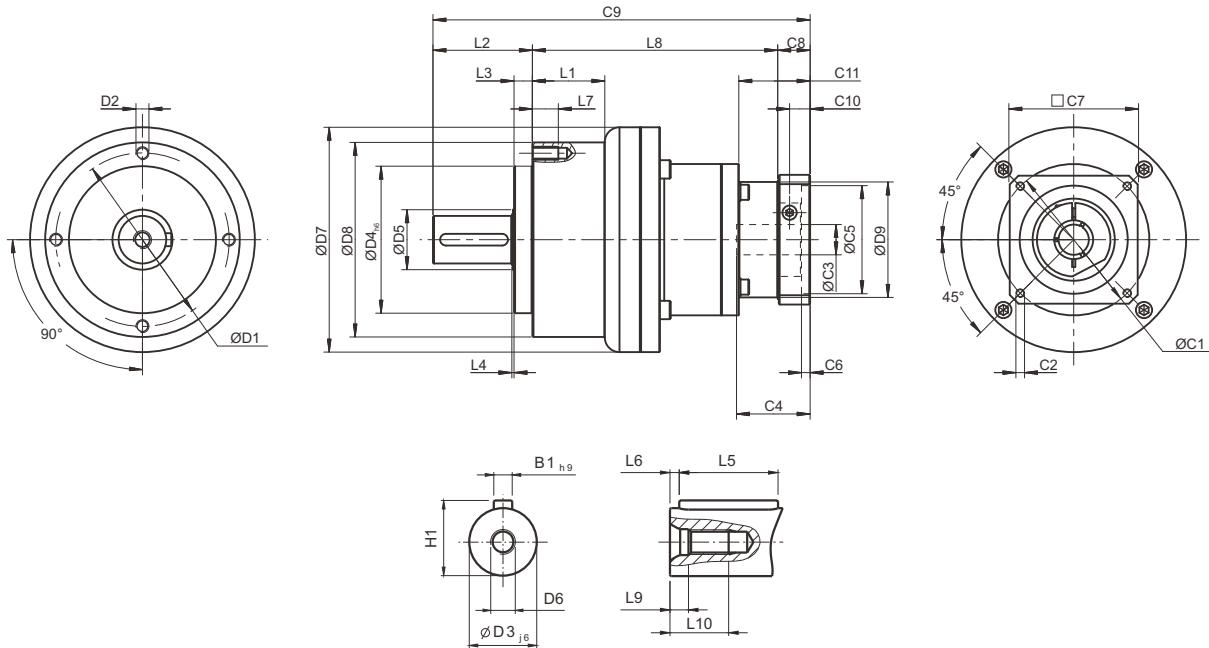


[unit: mm]

Dimension	AE050	AE070	AE090	AE120	AE155	AE205	AE235
D1	44	62	80	108	140	184	210
D2	M4 x 0.7P	M5 x 0.8P	M6 x 1P	M8 x 1.25P	M10 x 1.5P	M12 x 1.75P	M16 x 2P
D3 <sub>j6</sub>	12	16	22	32	40	55	75
D4 <sub>h6</sub>	35	52	68	90	120	160	180
D5	22	22	30	40	75	95	115
D6	M4 x 0.7P	M5 x 0.8P	M8 x 1.25P	M12 x 1.75P	M16 x 2P	M20 x 2.5P	M20 x 2.5P
D7	53	70	104	130	162	205	260
D8	50	70	90	120	155	205	235
D9	45.5	53.4	77	102	125	160	205
L1	--	--	33.5	38	50	--	70
L2	24.5	36	46	70	97	100	126
L3	4	6.5	8.5	17.5	15	15	18
L4	1	1	1	1.5	3	3	3
L5	14	25	32	40	63	70	90
L6	2	2	3	5	5	6	7
L7	8	10	12	16	20	22	28
L8	47	62	80.5	97	119.5	159	175.5
L9	4.5	4.8	7.2	10	12	15	15
L10	10	12.5	19	28	36	42	42
C1 <sup>1</sup>	46	70	100	130	165	215	235
C2 <sup>1</sup>	M4 x 0.7P	M5 x 0.8P	M6 x 1P	M8 x 1.25P	M10 x 1.5P	M12 x 1.75P	M12 x 1.75P
C3 <sup>1</sup>	≤ 11 / ≤ 12 <sup>2</sup>	≤ 14 / ≤ 16 <sup>2</sup>	≤ 19 / ≤ 24	≤ 32	≤ 38	≤ 48	≤ 55
C4 <sup>1</sup>	30	34	40	50	60	85	116
C5 <sup>1</sup>	30	50	80	110	130	180	200
C6 <sup>1</sup>	3.5	8	4	5	6	6	6
C7 <sup>1</sup>	48	60	90	115	142	190	220
C8 <sup>1</sup>	19.5	19	17	19.5	22.5	29	63
C9 <sup>1</sup>	91	117	143.5	186.5	239	288	364.5
C10 <sup>1</sup>	13.25	13.5	10.75	13	15	20.75	53.5
C11 <sup>1</sup>	19.5	37	35.5	46	53.5	79.5	106.5
B1 <sub>h9</sub>	4	5	6	10	12	16	20
H1	14	18	24.5	35	43	59	79.5

1. C1~C11 are motor specific dimensions (metric std shown). 2. AE050 ratio 5, 10 offers C3 ≤ 12 option; AE070 ratio 5, 10 offers C3 ≤ 16 option.

# AE Abmessungen, 2-stufig, i=15~100



[unit: mm]

Dimension	AE050	AE070	AE090	AE120	AE155	AE205	AE235
D1	44	62	80	108	140	184	210
D2	M4 x 0.7P	M5 x 0.8P	M6 x 1P	M8 x 1.25P	M10 x 1.5P	M12 x 1.75P	M16 x 2P
D3 <sub>j6</sub>	12	16	22	32	40	55	75
D4 <sub>h6</sub>	35	52	68	90	120	160	180
D5	22	22	30	40	75	95	115
D6	M4 x 0.7P	M5 x 0.8P	M8 x 1.25P	M12 x 1.75P	M16 x 2P	M20 x 2.5P	M20 x 2.5P
D7	53	70	104	130	162	205	260
D8	50	70	90	120	155	205	235
D9	45.5	45.5	53.4	77	102	125	160
L1	--	--	33.5	38	50	--	70
L2	24.5	36	46	70	97	100	126
L3	4	6.5	8.5	17.5	15	15	18
L4	1	1	1	1.5	3	3	3
L5	14	25	32	40	63	70	90
L6	2	2	3	5	5	6	7
L7	8	10	12	16	20	22	28
L8	74	87.5	113.5	138.5	176	214.5	260
L9	4.5	4.8	7.2	10	12	15	15
L10	10	12.5	19	28	36	42	42
C1 <sup>3</sup>	46	46	70	100	130	165	215
C2 <sup>3</sup>	M4 x 0.7P	M4 x 0.7P	M5 x 0.8P	M6 x 1P	M8 x 1.25P	M10 x 1.5P	M12 x 1.75P
C3 <sup>3</sup>	≤11 / ≤12	≤11 / ≤12	≤14/≤15.875/≤16	≤19 / ≤24	≤32	≤38	≤48
C4 <sup>3</sup>	30	30	34	40	50	60	85
C5 <sup>3</sup>	30	30	50	80	110	130	180
C6 <sup>3</sup>	3.5	3.5	8	4	5	6	6
C7 <sup>3</sup>	48	48	60	90	115	142	190
C8 <sup>3</sup>	19.5	19.5	19	17	19.5	22.5	29
C9 <sup>3</sup>	118	143	178.5	225.5	292.5	337	415
C10 <sup>3</sup>	13.25	13.25	13.5	10.75	13	15	20.75
C11 <sup>3</sup>	19.5	19.5	37	35.5	46	53.5	79.5
B1 <sub>h9</sub>	4	5	6	10	12	16	20
H1	14	18	24.5	35	43	59	79.5

3. C1-C11 are motor specific dimensions (metric std shown).

# AER Spezifikationen

## Gearbox Performance

Model No.		Stage	Ratio <sup>A</sup>	AER050	AER070	AER090	AER120	AER155	AER205	AER235	
Nominal output torque $T_{2N}$	Nm	1	3	9	36	90	195	342	588	1,140	
			4	12	48	120	260	520	1,040	1,680	
			5	15	60	150	325	650	1,200	2,000	
			6	18	55	150	310	600	1,100	1,900	
			7	19	50	140	300	550	1,100	1,800	
			8	17	45	120	260	500	1,000	1,600	
			9	14	40	100	230	450	900	1,500	
			10	14	60	150	325	650	1,200	2,000	
			14	-	42	140	300	550	1,100	1,800	
			20	-	40	100	230	450	900	1,500	
		2	15	-	-	-	-	-	-	-	-
			20	14	-	-	-	-	-	-	-
			25	15	60	150	325	650	1,200	2,000	
			30	20	55	150	310	600	1,100	1,900	
			35	19	50	140	300	550	1,100	1,800	
			40	17	45	120	260	500	1,000	1,600	
			45	14	40	100	230	450	900	1,500	
			50	14	60	100	230	650	1,200	2,000	
			60	20	55	150	310	600	1,100	1,900	
			70	19	50	140	300	550	1,100	1,800	
			80	17	45	120	260	500	1,000	1,600	
			90	14	40	100	230	450	900	1,500	
			100	14	40	100	230	450	900	1,500	
			120	-	-	150	310	600	1,100	1,900	
140	-	-	140	300	550	1,100	1,800				
160	-	-	120	260	550	1,000	1,600				
180	-	-	100	230	450	900	1,500				
200	-	-	100	230	450	900	1,500				
Emergency Stop Torque $T_{2NOT}^B$	Nm	1,2	3~200	3 times of nominal output torque							
Nominal Input Speed $n_{1N}$	rpm	1,2	3~200	5,000	5,000	4,000	4,000	3,000	3,000	2,000	
Max. Input Speed $n_{1B}$	rpm	1,2	3~200	10,000	10,000	8,000	8,000	6,000	6,000	4,000	
Backlash	arcmin	1	3~20	≤10	≤10	≤10	≤10	≤10	≤10	≤10	
		2	25~200	≤14	≤14	≤14	≤14	≤14	≤14	≤14	
Torsional Rigidity	Nm/arcmin	1,2	3~200	3	7	14	25	50	145	225	
Max. Radial Load <sup>C</sup>	N	1,2	3~200	702	1,377	2,985	6,100	8,460	13,050	8,700	
Max. Axial Load $F_{zAB}^C$	N	1,2	3~200	390	765	1,625	3,350	4,700	7,250	5,400	
Service Life <sup>D</sup>	hr	1,2	3~200	20,000*							
Efficiency $\eta$	%	1	3~20	≥95%							
		2	25~200	≥92%							
Weight	kg	1	3~20	1.0	2.1	5.8	11.2	22.4	46.8	78.0	
		2	25~200	1.3	2.0	4.6	11.1	21.8	43.7	81.9	
Operating temp	°C	1,2	3~200	-10°C~90°C							
Lubrication				Synthetic lubrication oils							
Degree of gearbox protection		1,2	3~200	IP65							
Mounting position		1,2	3~200	all directions							
Noise ( $n_1=3000\text{rpm}, i=10, \text{No load}$ ) <sup>E</sup>	dB(A)	1,2	3~200	≤61	≤63	≤65	≤68	≤70	≤72	≤74	

## Massenträgheitsmoment AER

Model No.		Stage	Ratio <sup>A</sup>	AER050	AER070	AER090	AER120	AER155	AER205	AER235	
Mass Moments of Inertia $J_1$	kg · cm <sup>2</sup>	1	3~10	0.09	0.35	2.25	6.84	23.4	68.9	135.4	
			14	-	0.07	1.87	6.25	21.8	65.6	119.8	
			20	-	0.07	1.87	6.25	21.8	65.6	119.8	
		2	15	0.09	-	-	-	-	-	-	-
			20	0.09	-	-	-	-	-	-	-
			25~100	0.09	0.09	0.35	2.25	6.84	23.4	68.9	135.4
			120~200	9-	-	-	0.31	1.87	6.25	21.8	65.6

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

B. Max. acceleration torque  $T_{2B} = 60\%$  of  $T_{2NOT}$

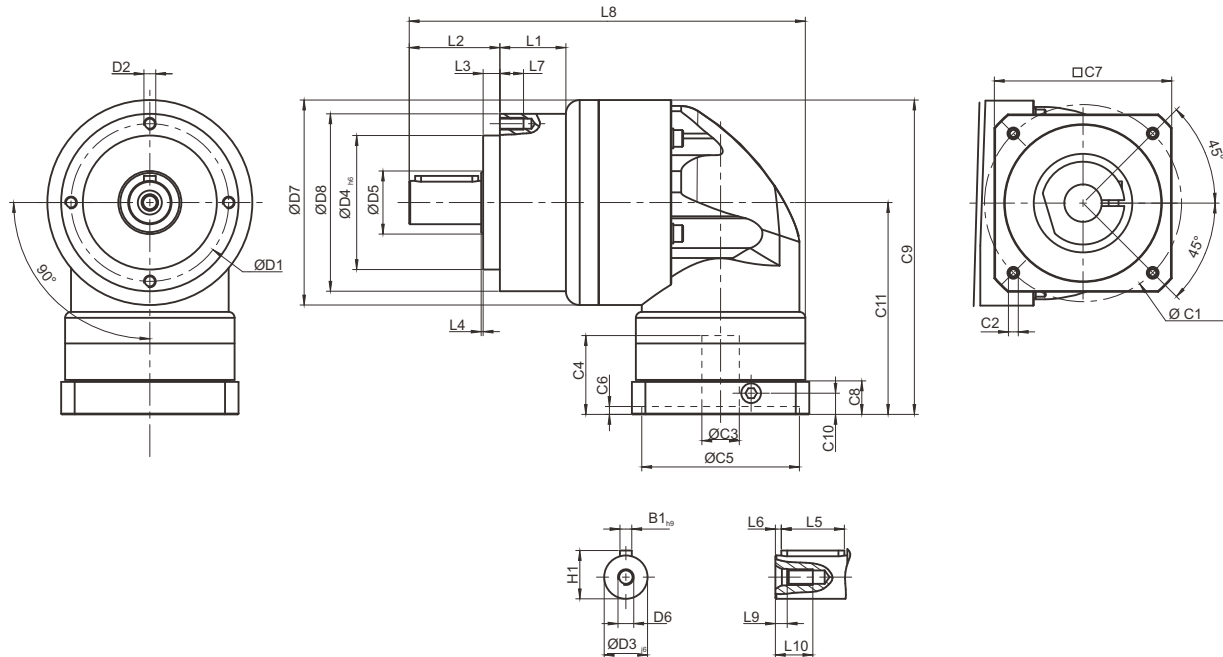
C. Applied to the output shaft center at 100 rpm

D. For continuous operation, the service life time is less than 10,000 hrs

E. These values are measured by gearbox with ratio = 10 (1-stage) or ratio = 100 (2-stage) at 3,000 rpm no loading. By less smaller than 10, the noise value would be 3~5 dB higher



# AER Abmessungen, 1-stufig, i=3~20



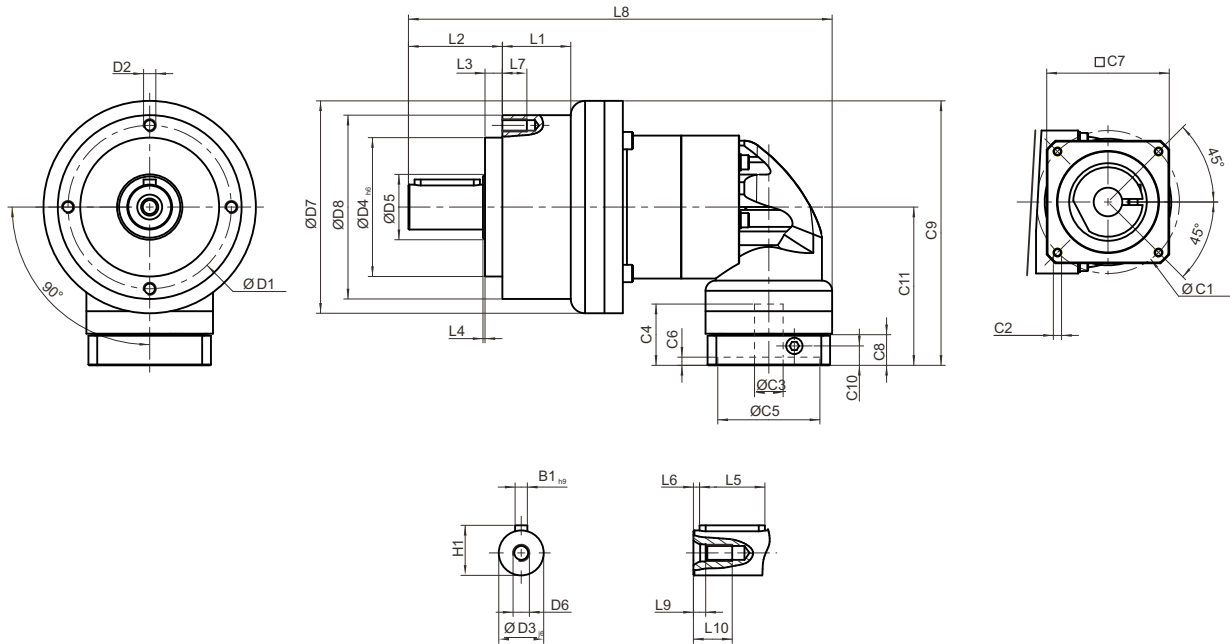
[unit: mm]

Dimension	AER050	AER070	AER090	AER120	AER155	AER205	AER235
D1	44	62	80	108	140	184	210
D2	M4 x 0.7P	M5 x 0.8P	M6 x 1P	M8 x 1.25P	M10 x 1.5P	M12 x 1.75P	M16 x 2P
D3 <sub>j6</sub>	12	16	22	32	40	55	75
D4 <sub>h6</sub>	35	52	68	90	120	160	180
D5	22	22	30	40	75	95	115
D6	M4 x 0.7P	M5 x 0.8P	M8 x 1.25P	M12 x 1.75P	M16 x 2P	M20 x 2.5P	M20 x 2.5P
D7	53	70	104	130	162	205	260
D8	50	70	90	120	155	205	235
L1	--	--	33.5	38	50	--	70
L2	24.5	36	46	70	97	100	126
L3	4	6.5	8.5	17.5	15	15	18
L4	1	1	1	1.5	3	3	3
L5	14	25	32	40	63	70	90
L6	2	2	3	5	5	6	7
L7	8	10	12	16	20	22	28
L8	115.5	146	201	252	324.5	379.5	461.5
L9	4.5	4.8	7.2	10	12	15	15
L10	10	12.5	19	28	36	42	42
C1 <sup>1</sup>	46	70	100	130	165	215	235
C2 <sup>1</sup>	M4 x 0.7P	M5 x 0.8P	M6 x 1P	M8 x 1.25P	M10 x 1.5P	M12 x 1.75P	M12 x 1.75P
C3 <sup>1</sup>	≤11 / ≤12	≤14 / ≤16	≤19 / ≤24	≤32	≤38	≤48	≤55
C4 <sup>1</sup>	30	34	40	50	60	85	116
C5 <sup>1</sup>	30	50	80	110	130	180	200
C6 <sup>1</sup>	3.5	8	4	5	6	6	6
C7 <sup>1</sup>	48	60	90	115	142	190	220
C8 <sup>1</sup>	19.5	19	17	19.5	22.5	29	63
C9 <sup>1</sup>	100.5	116.5	159.5	199	245.5	316	398.5
C10 <sup>1</sup>	13.25	13.5	10.75	13	15	20.75	53.5
C11 <sup>1</sup>	74	81.5	107.5	134	164.5	213.5	268.5
B1 <sub>h9</sub>	4	5	6	10	12	16	20
H1	14	18	24.5	35	43	59	79.5

1. C1~C11 are motor specific dimensions (metric std shown).



# AER Abmessungen, 2-stufig, $i=15\sim 200$



Dimension	AER050	AER070	AER090	AER120	AER155	AER205	AER235
D1	44	62	80	108	140	184	210
D2	M4 x 0.7P	M5 x 0.8P	M6 x 1P	M8 x 1.25P	M10 x 1.5P	M12 x 1.75P	M16 x 2P
D3 <sub>j6</sub>	12	16	22	32	40	55	75
D4 <sub>h6</sub>	35	52	68	90	120	160	180
D5	22	22	30	40	75	95	115
D6	M4 x 0.7P	M5 x 0.8P	M8 x 1.25P	M12 x 1.75P	M16 x 2P	M20 x 2.5P	M20 x 2.5P
D7	53	70	104	130	162	205	260
D8	50	70	90	120	155	205	235
L1	--	--	33.5	38	50	--	70
L2	24.5	36	46	70	97	100	126
L3	4	6.5	8.5	17.5	15	15	18
L4	1	1	1	1.5	3	3	3
L5	14	25	32	40	63	70	90
L6	2	2	3	5	5	6	7
L7	8	10	12	16	20	22	28
L8	142.5	167.5	207.5	283	358	422.5	506.5
L9	4.5	4.8	7.2	10	12	15	15
L10	10	12.5	19	28	36	42	42
C1 <sup>2</sup>	46	46	70	100	130	165	215
C2 <sup>2</sup>	M4 x 0.7P	M4 x 0.7P	M5 x 0.8P	M6 x 1P	M8 x 1.25P	M10 x 1.5P	M12 x 1.75P
C3 <sup>2</sup>	≤11 / ≤12	≤11 / ≤12	≤14 / ≤15.875 / ≤16	≤19 / ≤24	≤32	≤38	≤48
C4 <sup>2</sup>	30	30	34	40	50	60	85
C5 <sup>2</sup>	30	30	50	80	110	130	180
C6 <sup>2</sup>	3.5	3.5	8	4	5	6	6
C7 <sup>2</sup>	48	48	60	90	115	142	190
C8 <sup>2</sup>	19.5	19.5	19	17	19.5	22.5	29
C9 <sup>2</sup>	100.5	109	133.5	172.5	215	267	343.5
C10 <sup>2</sup>	13.25	13.25	13.5	10.75	13	15	20.75
C11 <sup>2</sup>	74	74	81.5	107.5	134	164.5	213.5
B1 <sub>h9</sub>	4	5	6	10	12	16	20
H1	14	18	24.5	35	43	59	79.5