

# AE series

## Overview



- Special design for continuous (S1) or cyclic (S5) duty operation
- Stainless steel round housing, aluminum black anodized motor adapter flange
- Stainless steel output shaft, with key
- Helical gear technology
- Nominal torques:
  - $T_{2N}$  : 14 Nm – 2000 Nm
- Ratios
  - 1-stage : 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10
  - 2-stage : 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 60 / 70 / 80 / 90 / 100
- Low backlash
  - 1-stage :  $\leq 8$  arcmin
  - 2-stage :  $\leq 12$  arcmin
- High efficiency
  - 1-stage :  $\geq 97\%$
  - 2-stage :  $\geq 94\%$
- Easy mount
- Low noise
- Compact structure
- Sizes available: AE050 / AE070 / AE090 / AE120 / AE155 / AE205 / AE235

# Specifications

Model No.	Stage	Ratio <sup>1</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 $T_{2NOT-3}$	Nm	1,2	3~100	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	3,000	2,000	
Max. Input Speed $N_{1B}$	rpm	1,2	3~100	10,000	10,000	8,000	8,000	6,000	6,000	4,000	
Backlash	arcmin	1	3~10	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8	
		2	15~100	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12	
Torsional Rigidity	Nm/ arcmin	1,2	3~100	3	7	14	25	50	145	225	
Max. Radial load $F_{2rB-2}$	N	1,2	3~100	702	1,377	2,985	6,100	8,460	13,050	8,700	
Max. Axiale load	$F_{2a1B-2}$	N	1,2	3~100	350	630	1,300	2,400	4,000	6,200	4,800
	$F_{2a2B-2}$	N	1,2	3~100	390	765	1,625	3,350	4,700	7,250	18,000
Service Life	hr	1,2	3~100	20,000 *							
Efficiency	%	1	3~10	≥ 97 %							
		2	15~100	≥ 94 %							
Weight	kg	1	3~10	0.6	1.4	3.3	6.9	13	31	53	
		2	15~100	0.9	1.6	4.7	8.7	17	35	66	
Operating Temperature	°C	1,2	3~100	-10°C ~+ 90°C							
Lubrication		1,2	3~100	synthetic gear grease (NYOGEL 792D)							
Degree of Gearbox Protection		1,2	3~100	IP65							
Mounting Position		1,2	3~100	all directions							
Noise Level ( $n_1=3000$ rpm, No Load)	dB(A)	1,2	3~100	≤ 56	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70	

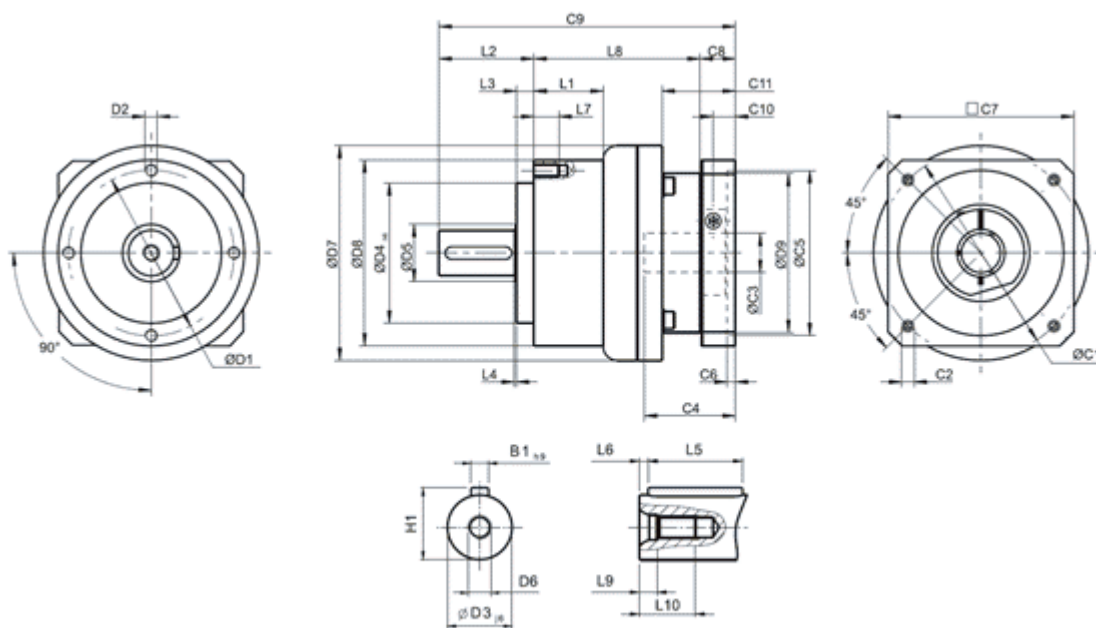
1. Ratio ( $i=N$  in /  $N$  out )
  2. Applied to the output shaft center @ 100 rpm
  3. Maximum acceleration torque  $T_{2B} = 60\%$  van  $T_{2NOT}$
- \* S1 service life 10,000 hrs.

# Inertia

Model No.	Stage	Ratio <sup>1</sup>	AE050	AE070	AE090	AE120	AE155	AE205	AE235	
Massa Moment of inertia J <sub>i</sub>	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			

# Sizes

AE series 1-stage, ratio  $i = 3 \sim 10$



	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>3</sup>	46	70	100	130	165	215	235
C2 <sup>3</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>3</sup>	≤11	*≤14 / ≤16	≤19 / ≤24	≤32	≤38	≤48	≤55
C4 <sup>3</sup>	30	34	40	50	60	85	116
C5 <sup>3</sup> <sub>G6</sub>	30	50	80	110	130	180	200
C6 <sup>3</sup>	3.5	8	4	5	6	6	6
C7 <sup>3</sup>	48	60	90	115	142	190	220
C8 <sup>3</sup>	19.5	19	17	19.5	22.5	29	63
C9 <sup>3</sup>	91	117	143.5	186.5	239	288	364.5

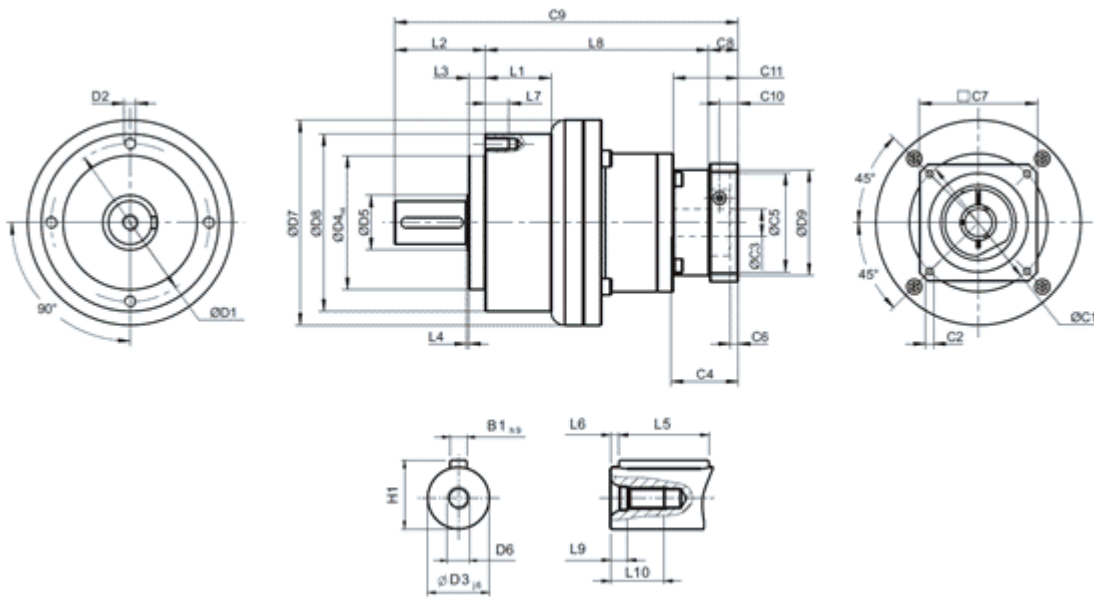
C10 <sup>3</sup>	13.25	13.5	10.75	13	15	20.75	53.5
C11 <sup>3</sup>	19.5	37	35.5	46	53.5	79.5	106.5
B1 <sub>h9</sub>	4	5	6	10	12	16	20
H1	14	18	24.5	35	43	59	79.5

3. C1~C10 are motor specific dimensions.

\* AE070M1 ratio 5,10 offers C3 =16 option.

\* AE090M1 offers C3 =24 option.

### AE series 2-stage, ratio i = 15 ~ 100



	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>4</sup>	46	46	70	100	130	165	215
C2 <sup>4</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>4</sup>	≤11	*≤11 / ≤12	* ≤14 / ≤15.875 / ≤16	≤19 / ≤24	≤32	≤38	≤48
C4 <sup>4</sup>	30	30	34	40	50	60	85
C5 <sup>4</sup> <sub>G6</sub>	30	30	50	80	110	130	180
C6 <sup>4</sup>	3.5	3.5	8	4	5	6	6
C7 <sup>4</sup>	48	48	60	90	115	142	190
C8 <sup>4</sup>	19.5	19.5	19	17	19.5	22.5	29
C9 <sup>4</sup>	118	143	178.5	225.5	292.5	337	415
C10 <sup>4</sup>	13.25	13.25	13.5	10.75	13	15	20.75
C11 <sup>4</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

4. C1~C10 are motor specific dimensions.

\* AE070M1 ratio 15~50 offers C3 =12 option.

\* AE090M1 ratio 15~50 offers C3 =16 option.

\* AE090M2 ratio 15~50 offers C3 =15.875 option.

\* AE120M1 offers C3 =24 option.