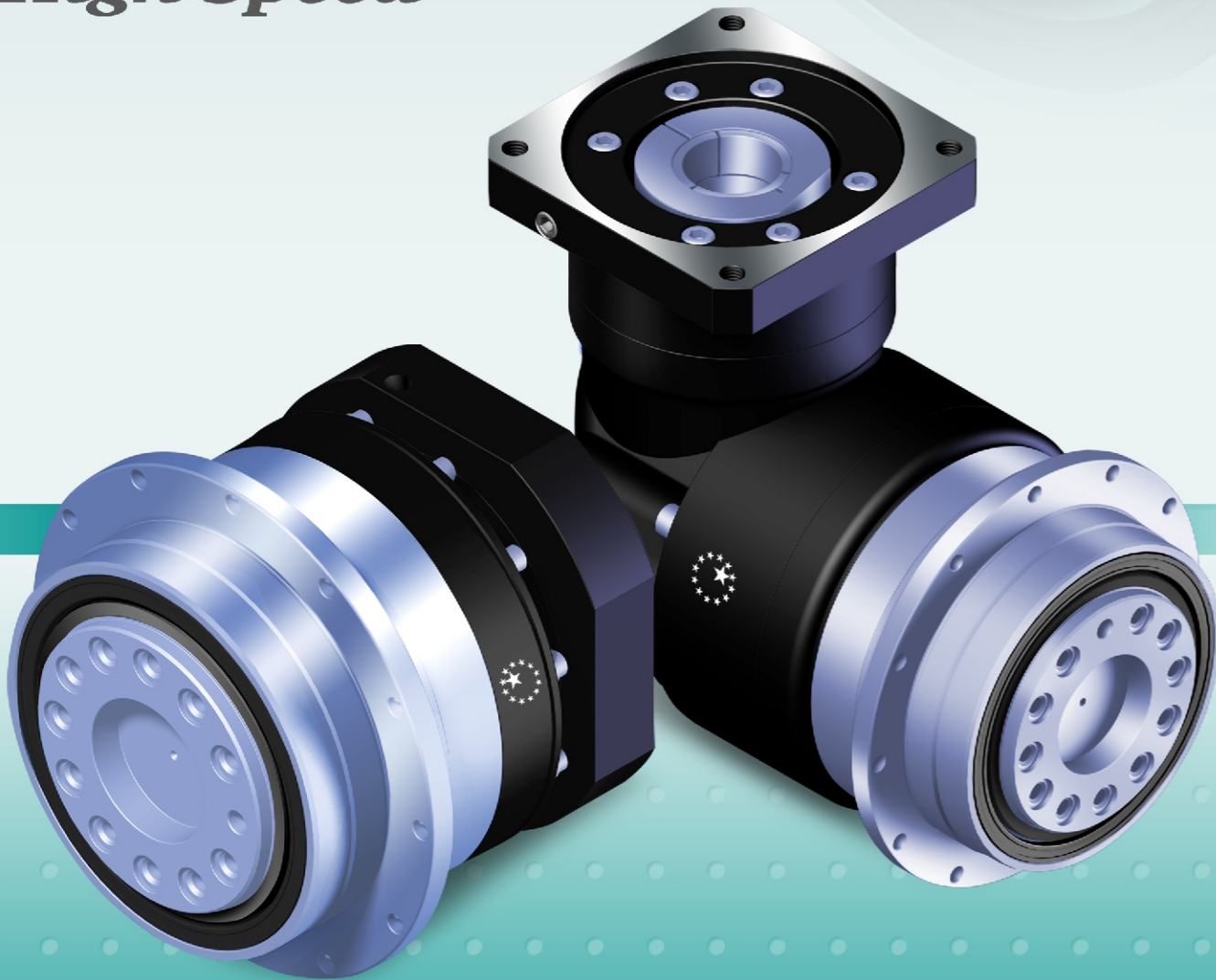


# AD / ADR / ADS Series

*Planetary Gearboxes*  
*High Precision*  
*High Speed*



출력단 테이퍼 롤러 베어링 적용  
 (AD/ADR/ADS047~110 : 앵글러 볼베어링 적용)

# Stainless

### Gearbox Performance

Model No.	Stage	Ratio <sup>1</sup>	AD047	AD064	AD090	AD110	AD140	AD200	AD255	
Nominal Output Torque $T_{2N}$	1	4	19	48	130	270	560	1,100	1,700	
		5	22	60	160	330	650	1,200	2,000	
		7	19	50	140	300	550	1,100	1,800	
		10	14	40	100	230	450	900	1,500	
		20	19	48	130	270	560	1,100	1,700	
		25	22	60	160	330	650	1,200	2,000	
		35	19	50	140	300	550	1,100	1,800	
	2	40	19	48	130	270	560	1,100	1,700	
		50	22	60	160	330	650	1,200	2,000	
		70	19	50	140	300	550	1,100	1,800	
		100	14	40	100	230	450	900	1,500	
		16	19	48	130	270	560	1,100	1,700	
		21	22	60	160	330	650	1,200	2,000	
		31	19	50	140	300	550	1,100	1,800	
Max. Output Torque $T_{2B}$	Nm	1,2	3 times of Nominal Output Torque							
			4~100	5,000	5,000	4,000	4,000	3,000	3,000	2,000
Nominal Input Speed $n_{1N}$	rpm	1,2	4~100	10,000	10,000	8,000	8,000	6,000	6,000	4,000
Max. Input Speed $n_{1B}$	rpm	1,2	4~100	-	-	≤1	≤1	≤1	≤1	≤1
Micro Backlash $P_0$	arcmin	1	4~10	-	-	≤1	≤1	≤1	≤1	≤1
		2	20~100	-	-	≤3	≤3	≤3	≤3	≤3
Reduced Backlash $P_1$	arcmin	1	4~10	≤3	≤3	≤3	≤3	≤3	≤3	≤3
		2	20~100	≤5	≤5	≤5	≤5	≤5	≤5	≤5
Standard Backlash $P_2$	arcmin	1	4~10	≤5	≤5	≤5	≤5	≤5	≤5	≤5
		2	20~100	≤7	≤7	≤7	≤7	≤7	≤7	≤7
Torsional Rigidity	Nm/arcmin	1,2	4~100	7	13	31	82	151	440	1,006
Max. Bending moment $M_{2KB}^2$	Nm	1,2	4~100	42.5	125	235	430	1,300	3,064	5,900
Max. Axial Load $F_{2B}^2$	N	1,2	4~100	1,080	2,110	2,310	4,800	6,200	5,450	10,600
Service Life	hr	1,2	4~100	30,000*						
		1	4~10	≥97%						
Efficiency $\eta$	%	2	20~100	≥94%						
		1	4~10	0.7	1.2	3.0	5.6	11.9	31.6	56.1
Weight	kg	2	20~100	1.0	1.6	3.7	7.3	15.9	36.9	70.4
		16~91	1.0	1.4	3.5	6.5	15.5	34.2	67.2	
Operating Temp <sup>3</sup>	°C	1,2	4~100	-10°C~+90°C						
Lubrication		1,2	4~100	synthetic gear grease (NYOGEL 792D)						
Degree of Gearbox Protection		1,2	4~100	IP65						
Mounting Position		1,2	4~100	all directions						
Noise Level ( $n_1=3000rpm$ )	dB	1,2	4~100	≤56	≤58	≤60	≤63	≤65	≤67	≤70

### Gearbox Inertia

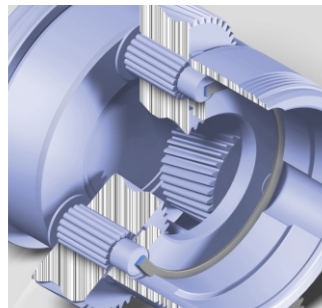
Model No.	Stage	Ratio <sup>1</sup>	AD047	AD064	AD090	AD110	AD140	AD200	AD255
Mass Moments of Inertia $J_1$	1	4	0.03	0.14	0.51	2.87	7.54	25.03	58.31
		5	0.03	0.13	0.47	2.71	7.42	23.29	53.27
		7	0.03	0.13	0.45	2.62	7.14	22.48	50.97
		10	0.03	0.13	0.44	2.57	7.03	22.51	50.56
		20	0.03	0.03	0.13	0.47	2.71	7.42	23.29
		25	0.03	0.03	0.13	0.47	2.71	7.42	23.29
		35	0.03	0.03	0.13	0.47	2.71	7.42	23.29
	2	40	0.03	0.03	0.13	0.44	2.57	7.03	22.51
		50	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
		100	0.03	0.03	0.13	0.44	2.57	7.03	22.51
		16	0.03	0.03	0.13	0.47	2.71	7.42	23.29
		21	0.03	0.03	0.13	0.47	2.71	7.42	23.29
		31	0.03	0.03	0.13	0.44	2.57	7.03	22.51
61	0.03	0.03	0.13	0.44	2.57	7.03	22.51		
91	0.03	0.03	0.13	0.44	2.57	7.03	22.51		

1. Ratio ( $i=N_1/N_{out}$ ). 2. 기준 : 출력속도 100rpm 이하  
 3. 감속기 작동온도 : -10~90도, 감속기 주변온도 0~40도

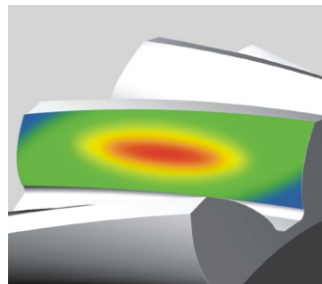
\* S1 service life 15,000 hrs (S1 : 연속운전조건)

# AD / ADR / ADS Series

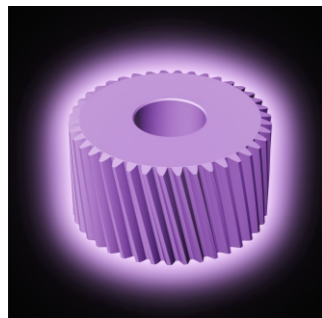
## Characteristic Highlights



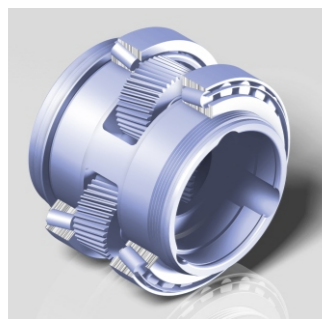
**Solid uncaged needle roller bearings**을 적용  
일정한 공간에 최대한 많은수의 니들베어링을 적용  
고강성, 고토크, 저소음의 장점을 가짐



**HeliTopo technology**을 적용하여 높은 기어성능을 가짐  
기어 **Crowning**을 통해 기어 맞물림율과 오버랩을  
최적화시킴. 이로인해 기어 표면 접촉율을  
극대화시켜 토크용량 증대



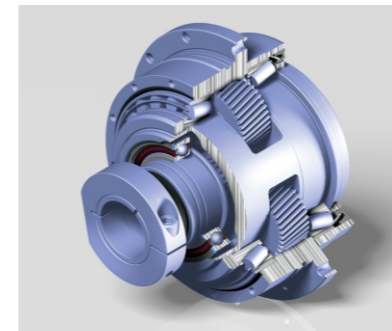
당사에 **Plasma nitriding** 열처리 장비를 직접보유  
기어 심부경도는 **30 HRC**로 유지하면서 기어표면경도를  
**840Hv**까지 높여 내마모성 및 내충격성을 동시에 증대시킴  
또한 저온 열처리 방식이라 열처리후 변형이 극히 적음



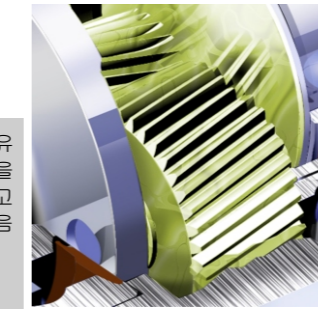
**One piece planet carrier with extended bearing design**  
레이디얼 하중 용량을 극대화 시키고 시스템의 정도와  
강성을 극대화 시킴



**True Helical Gear Design**  
기어간 접촉율이 스퍼기어 대비  
**33%이상** 높아 토크용량을 높일수  
있음. 이 헬릭스 앵글구조는  
백래쉬를 낮추면서도  
정속하고 조용한 운전가능  
**backlash ( less than 1 arc-minutes and ≤ 56dB )**.



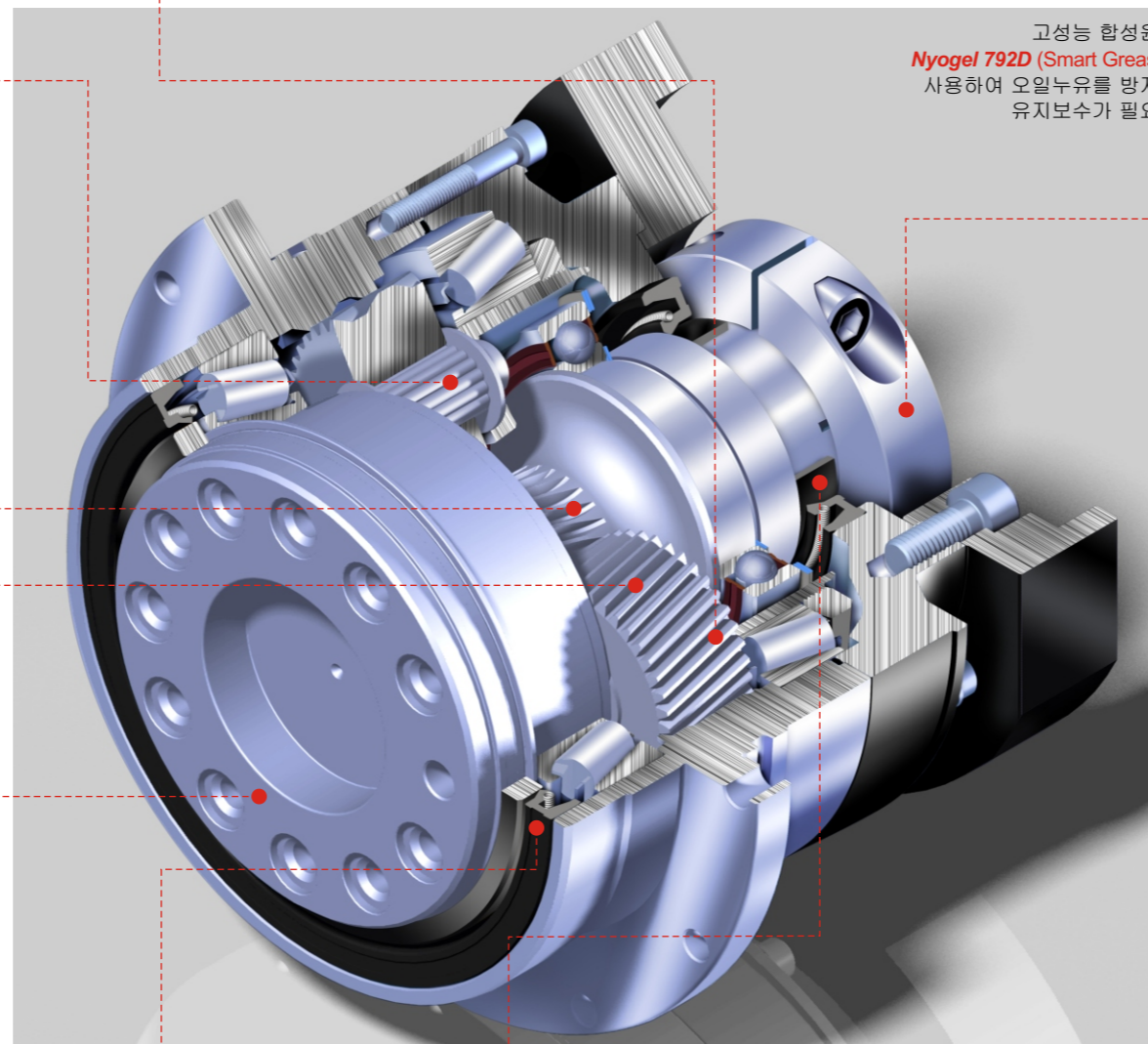
**Patented planet carrier design**  
선기어 베어링을 플래닛 캐리어안에  
위치시킴으로서 기어의 오배열을  
줄여 높은 정밀도를 얻음.



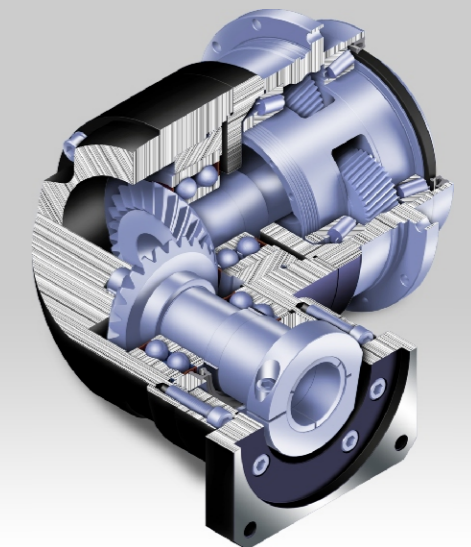
고성능 합성윤활유  
**Nyogel 792D (Smart Grease)**을  
사용하여 오일누유를 방지하고  
유지보수가 필요없음



**Triple split collet with dynamic balanced set  
collar clamping system**은 백래쉬 발생없는  
동력을 전달하고 슬립현상은 완전히 제거함  
또한 **100%**의 동심도 확보로  
높은입력속도에서도 정속한 운전을 보장함.

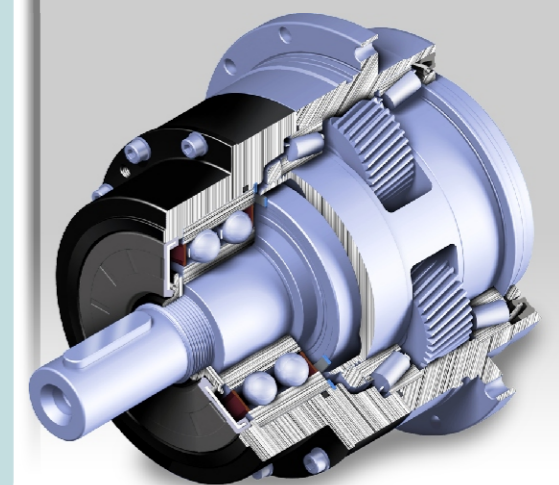


### ADR Series

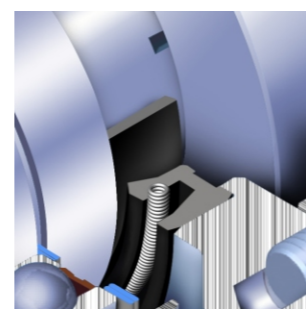
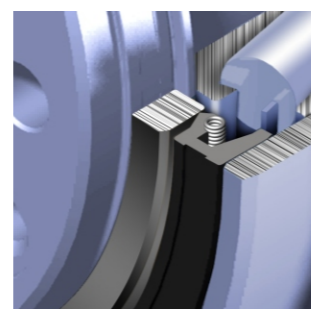


**ADR** 모델은 스파이럴 베벨  
기어를 적용한 **Angle** 구조  
로 길이를 짧게하였고 어떤  
모터에 대응할수 있는  
고강성 하우징을 사용

### ADS Series



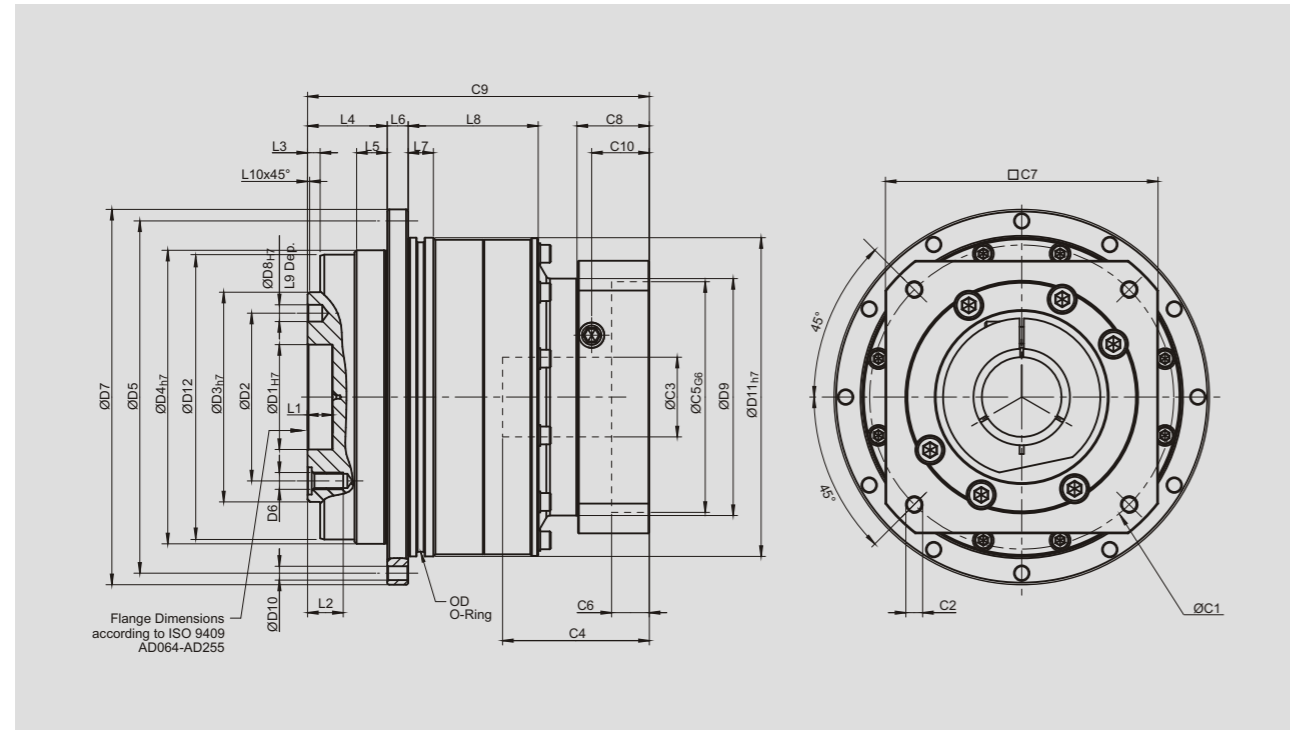
**ADS** 모델은 입력부에 샤프트가  
나와 있어 감속기와 모터를 병렬로  
연결할때나 모터와 감속기를 Key  
방식으로 체결하고자 할때 적합한  
구조입니다.



**Patented sealing system**  
오일씰과 맞닿는 부분에 **TICN** 코팅처리를  
하여 마찰과 발열을 줄여 오일리크를 방지  
하고 수명을 극대화함  
(경도 : **3700 Hv**, 조도 : **R<sub>a</sub> 0.2 μm**).

# AD Series

Dimensions (1단 감속, 감속비(Ratio) i=4~10)



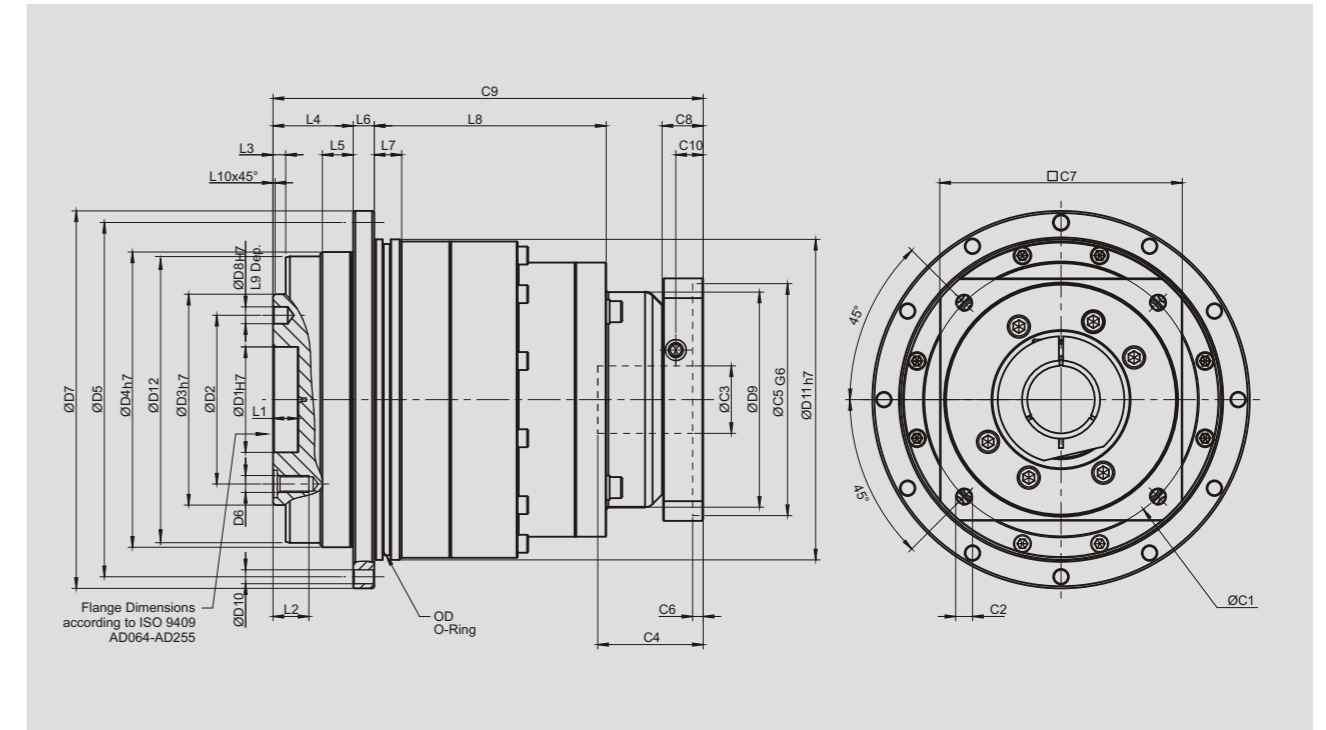
[unit: mm]

Dimension	AD047	AD064	AD090	AD110	AD140	AD200	AD255
D1 <sub>H7</sub>	12	20	31.5	40	50	80	100
D2	20	31.5	50	63	80	125	140
D3 <sub>H7</sub>	28	40	63	80	100	160	180
D4 <sub>H7</sub>	47	64	90	110	140	200	255
D5	67	79	109	135	168	233	280
D6	4 x M3 x 0.5P	7 x M5 x 0.8P	7 x M6 x 1P	11 x M6 x 1P	11 x M8 x 1.25P	11 x M10 x 1.5P	12 x M16 x 2P
D7	72	86	118	145	179	247	300
D8 <sub>H7</sub>	3	5	6	6	8	10	12
D9	45.5	55	77	90	113	138	175
D10	8 x 3.4	8 x 4.5	8 x 5.5	8 x 5.5	12 x 6.6	12 x 9	16 x 13.5
D11 <sub>H7</sub>	60	70	95	120	152	212	255
D12	46.2	63.2	89.2	109.2	139.2	199.2	254.2
L1	4	8	12	12	12	16	20
L2	6.5	8	13.5	13.5	17	22.5	30.5
L3	3	3	6	6	6	8	12
L4	19.5	19.5	30	29	38	50	66
L5	7	7	10	10	14.6	15	20
L6	4	4	7	8	10	12	18
L7	5	7.7	8	10	12	15	20
L8	18.5	28.5	27	37	62	69.5	82
L9	4	6	7	7	7	10	10
L10	0.5	0.5	1	1	1	1	1
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	<sup>1)</sup> ≤14 / ≤16	<sup>2)</sup> ≤19 / ≤24	≤32	≤38	≤48	≤55
C4 <sup>3</sup>	30	34	40	50	60	85	116
C5 <sup>3 G6</sup>	30	50	80	110	130	180	220
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>	70	82.5	99.5	121.5	151	199.5	256.5
C10 <sup>3</sup>	13.25	13.5	10.75	13	15	20.75	53.5
OD	56 x 2	56 x 2	90 x 3	110 x 3	145 x 3	200 x 5	238 x 5

1. AD 064 감속비 1/5 와 1/10에 한정해 C3 = 16mm을 optional로 제공 2. AD090에서 C3 = 24mm을 optional로 제공. 단 연속운전조건(S1 condition)에서는 사용상 주의를 요함  
3. C1-C10은 적용모터에 따라 다릅니다. 당사 홈페이지 [www.apexdynakorea.co.kr](http://www.apexdynakorea.co.kr)로 접속하신후 Design Tool을 이용하여 치수를 확인할수 있습니다

# AD Series

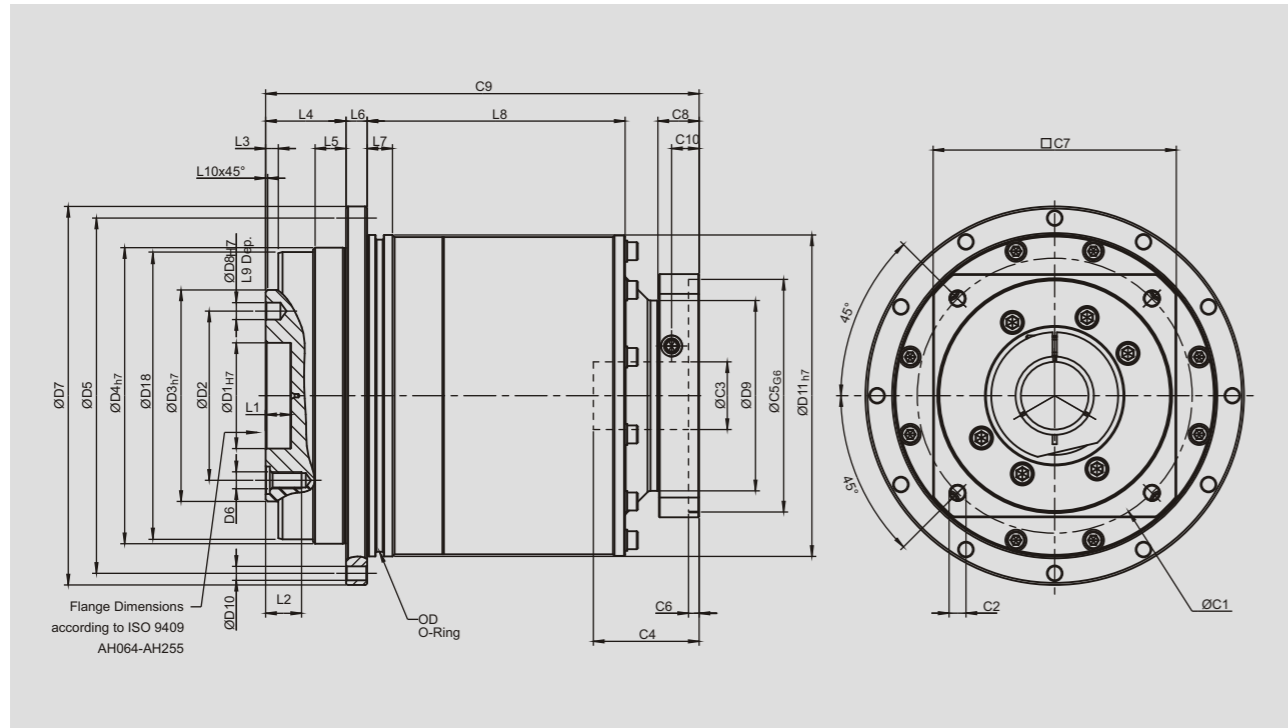
Dimensions (2단 감속, 감속비(Ratio) i=20~100)



[unit: mm]

Dimension	AD047	AD064	AD090	AD110	AD140	AD200	AD255
D1 <sub>H7</sub>	12	20	31.5	40	50	80	100
D2	20	31.5	50	63	80	125	140
D3 <sub>H7</sub>	28	40	63	80	100	160	180
D4 <sub>H7</sub>	47	64	90	110	140	200	255
D5	67	79	109	135	168	233	280
D6	4 x M3 x 0.5P	7 x M5 x 0.8P	7 x M6 x 1P	11 x M6 x 1P	11 x M8 x 1.25P	11 x M10 x 1.5P	12 x M16 x 2P
D7	72	86	118	145	179	247	300
D8 <sub>H7</sub>	3	5	6	6	8	10	12
D9	45.5	55	77	90	113	138	175
D10	8 x 3.4	8 x 4.5	8 x 5.5	8 x 5.5	12 x 6.6	12 x 9	16 x 13.5
D11 <sub>H7</sub>	60	70	95	120	152	212	255
D12	46.2	63.2	89.2	109.2	139.2	199.2	254.2
L1	4	8	12	12	12	16	20
L2	6.5	8	13.5	13.5	17	22.5	30.5
L3	3	3	6	6	6	8	12
L4	19.5	19.5	30	29	38	50	66
L5	7	7	10	10	14.6	15	20
L6	4	4	7	8	10	12	18
L7	5	7.7	8	10	12	15	20
L8	54.5	65	60	87.5	110	132.5	148
L9	4	6	7	7	7	10	10
L10	0.5	0.5	1	1	1	1	1
C1 <sup>4</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>4</sup>	≤11	<sup>1)</sup> ≤11 / ≤12	<sup>2)</sup> ≤14 / ≤15.875 / ≤16	<sup>3)</sup> ≤19 / ≤24	≤32	≤38	≤48
C4 <sup>4</sup>	30	30	34	40	50	60	85
C5 <sup>4 G6</sup>	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>	97.5	108	134	160	204	248	311.5
C10 <sup>4</sup>	13.25	13.25	13.5	10.75	13	15	20.75
OD	56 x 2	66 x 2	90 x 3	110 x 3	145 x 3	200 x 5	238 x 5

1. AD 064 감속비 1/20~1/50에 한정해 C3 = 12mm을 optional로 제공 2. AD090 감속비 1/20~1/50에 한정해 C3 = 15.875 & C3 = 16을 optional로 제공  
3. AD 110 감속비 1/20~1/100에 대해 C3 = 24mm을 optional로 제공. 단 연속운전조건(S1 condition)에서는 사용상 주의를 요함  
4. C1-C10은 적용모터에 따라 다릅니다. 당사 홈페이지 [www.apexdynakorea.co.kr](http://www.apexdynakorea.co.kr)로 접속하신후 Design Tool을 이용하여 치수를 확인할수 있습니다



[unit: mm]

Dimension	AD047	AD064	AD090	AD110	AD140	AD200	AD255
D1 <sub>H7</sub>	12	20	31.5	40	50	80	100
D2	20	31.5	50	63	80	125	140
D3 <sub>H7</sub>	28	40	63	80	100	160	180
D4 <sub>H7</sub>	47	64	90	110	140	200	255
D5	67	79	109	135	168	233	280
D6	4 x M3 x 0.5P	7 x M5 x 0.8P	7 x M6 x 1P	11 x M6 x 1P	11 x M8 x 1.25P	11 x M10 x 1.5P	12 x M16 x 2P
D7	72	86	118	145	179	247	300
D8 <sub>H7</sub>	3	5	6	6	8	10	12
D9	45.5	45.5	55	77	90	113	138
D10	8 x 3.4	8 x 4.5	8 x 5.5	8 x 5.5	12 x 6.6	12 x 9	16 x 13.5
D11 <sub>H7</sub>	60	70	95	120	152	212	255
D18	46.2	63.2	89.2	109.2	139.2	199.2	254.2
L1	4	8	12	12	12	16	20
L2	6.5	8	13.5	13.5	17	22.5	30.5
L3	3	3	6	6	6	8	12
L4	19.5	19.5	30	29	38	50	66
L5	7	7	10	10	14.6	15	20
L6	4	4	7	8	10	12	18
L7	5	7.7	8	10	12	15	20
L8	52.5	28.5	32	37	122	79.5	82
L9	4	6	7	7	7	10	10
L10	0.5	0.5	1	1	1	1	1
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	<sup>1)</sup> ≤11 / ≤12	<sup>2)</sup> ≤14 / ≤15.875 / ≤16	<sup>3)</sup> ≤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>	100	106	130.5	149	205	247.5	323
C10 <sup>4</sup>	13.25	13.25	13.5	10.75	13	15	20.75
OD	56 x 2	66 x 2	90 x 3	110 x 3	145 x 3	200 x 5	238 x 5

1. AD 064 C3 = 12mm을 optional로 제공 2. AD 090 C3=15.875 & C3=16을 optional로 제공  
 3. AD 110 감속비 1/16~1/91에 대해 C3 = 24mm을 optional로 제공, 단 연속운전조건(S1 condition)에서는 사용상 주의를 요함  
 4. C1~C10은 적용모터에 따라 다릅니다. 당사 홈페이지 [www.apexdynakorea.co.kr](http://www.apexdynakorea.co.kr)로 접속하신후 Design Tool을 이용하여 치수를 확인하실 수 있습니다

## Gearbox Performance

Model No.	Stage	Ratio <sup>1</sup>	ADR047	ADR064	ADR090	ADR110	ADR140	ADR200	ADR255	
Nominal Output Torque T <sub>2N</sub>	1	4	19	48	130	270	560	1,100	1,700	
		5	22	60	160	330	650	1,200	2,000	
		7	19	50	140	300	550	1,100	1,800	
		10	14	40	100	230	450	900	1,500	
		14	-	42	140	300	550	1,100	1,800	
		20	-	40	100	230	450	900	1,500	
	2	20	19	-	-	-	-	-	-	
		25	22	60	160	330	650	1,200	2,000	
		35	19	50	140	300	550	1,100	1,800	
		40	19	48	130	270	560	1,100	1,700	
		50	22	60	160	330	650	1,200	2,000	
		70	19	50	140	300	550	1,100	1,800	
		100	14	40	100	230	450	900	1,500	
		140	-	-	140	300	550	1,100	1,800	
200	-	-	100	230	450	900	1,500			
Max. Output Torque T <sub>2B</sub>	Nm	1,2	4~200	3 times of Nominal Output Torque						
Nominal Input Speed n <sub>1N</sub>	rpm	1,2	4~200	5,000	5,000	4,000	4,000	3,000	3,000	2,000
Max. Input Speed n <sub>1B</sub>	rpm	1,2	4~200	10,000	10,000	8,000	8,000	6,000	6,000	4,000
Micro Backlash P0	arcmin	1	4~20	-	-	≤2	≤2	≤2	≤2	≤2
		2	25~200	-	-	≤4	≤4	≤4	≤4	≤4
Reduced Backlash P1	arcmin	1	4~20	≤4	≤4	≤4	≤4	≤4	≤4	≤4
		2	25~200	≤7	≤7	≤7	≤7	≤7	≤7	≤7
Standard Backlash P2	arcmin	1	4~20	≤6	≤6	≤6	≤6	≤6	≤6	≤6
		2	25~200	≤9	≤9	≤9	≤9	≤9	≤9	≤9
Torsional Rigidity	Nm/arcmin	1,2	4~200	7	13	31	82	151	440	1,006
Max. Bending moment M <sub>2KB</sub> <sup>2</sup>	Nm	1,2	4~200	42.5	125	235	430	1,300	3,064	5,900
Max. Axial Load F <sub>2B</sub> <sup>2</sup>	N	1,2	4~200	1,080	2,110	2,310	4,800	6,200	5,450	10,600
Service Life	hr	1,2	4~200	30,000*						
Efficiency η	%	1	4~20	≥95%						
		2	25~200	≥92%						
Weight	kg	1	4~20	1.1	2.1	5.9	10.5	21.9	50.9	85.4
		2	25~200	1.4	1.9	4.5	9.8	20.1	45.4	85.9
Operating Temp <sup>3</sup>	°C	1,2	4~200	-10°C~+90°C						
Lubrication		1,2	4~200	synthetic gear grease (NYOGEL 792D)						
Degree of Gearbox Protection		1,2	4~200	IP65						
Mounting Position		1,2	4~200	all directions						
Noise Level (n=3000rpm)	dB	1,2	4~200	≤61	≤63	≤65	≤68	≤70	≤72	≤74

## Gearbox Inertia

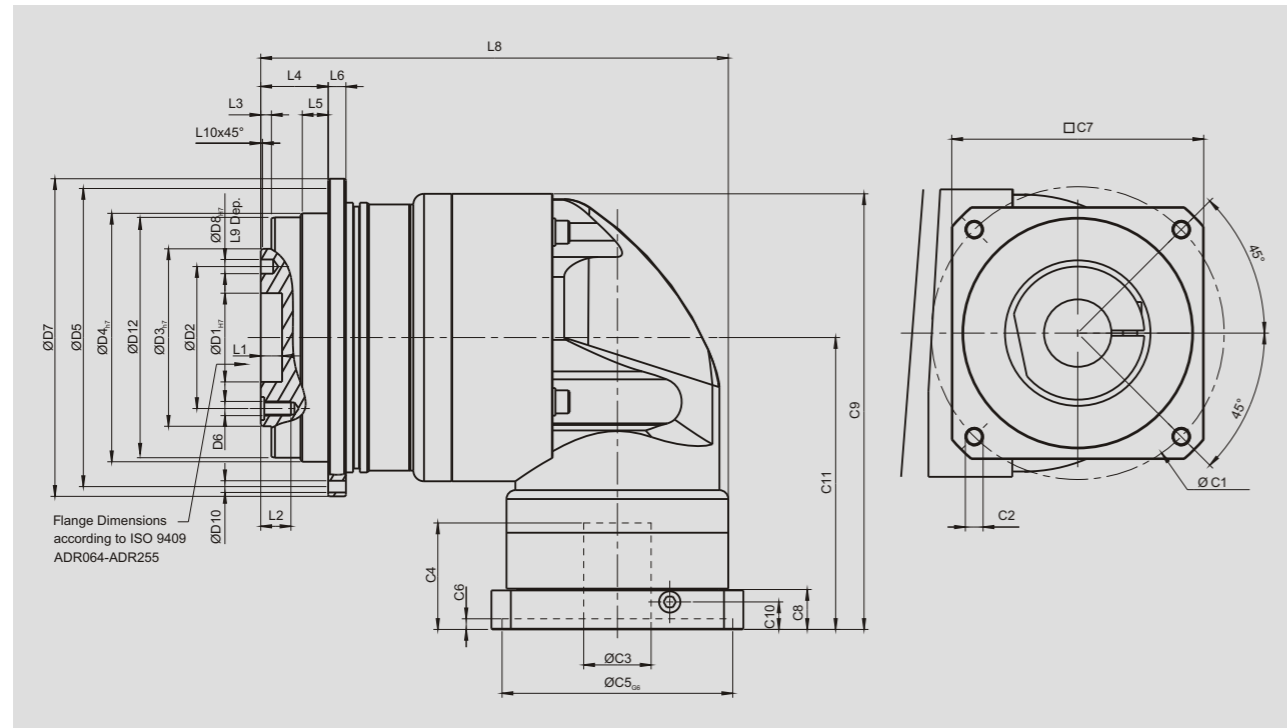
Model No.	Stage	Ratio <sup>1</sup>	ADR047	ADR064	ADR090	ADR110	ADR140	ADR200	ADR255
Mass Moments of Inertia J <sub>i</sub>	1	4~10	0.09	0.35	2.25	6.84	23.4	68.9	135.4
		14	-	0.07	1.87	6.25	21.8	65.6	119.8
		20	-	0.07	1.87	6.25	21.8	65.6	119.8
	2	20	0.09	-	-	-	-	-	-
		25~100	0.09	0.09	0.35	2.25	6.84	23.4	68.9
		140~200	-	-	0.31	1.87	6.25	21.8	65.6

1. Ratio (i=N<sub>in</sub>/N<sub>out</sub>). 2. 기준 : 출력속도 100rpm 이하  
 3. 감속기 작동온도 : -10~90도, 감속기 주변온도 0~40도

\*S1 service life 15,000 hrs (S1 : 연속운전조건)

# ADR Series

Dimensions (1단 감속, 감속비(Ratio) i=4~20)



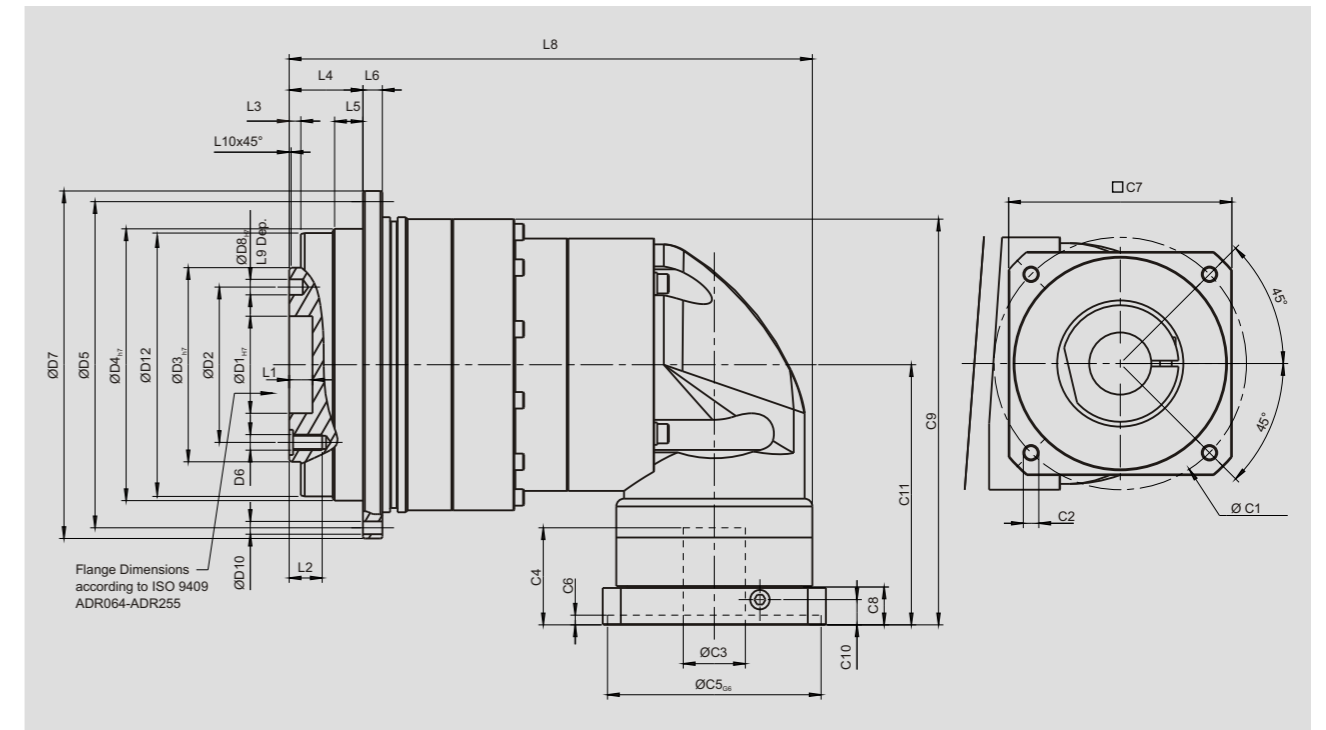
[unit: mm]

Dimension	ADR047	ADR064	ADR090	ADR110	ADR140	ADR200	ADR255
D1 <sub>H7</sub>	12	20	31.5	40	50	80	100
D2	20	31.5	50	63	80	125	140
D3 <sub>H7</sub>	28	40	63	80	100	160	180
D4 <sub>H7</sub>	47	64	90	110	140	200	255
D5	67	79	109	135	168	233	280
D6	4 x M3 x 0.5P	7 x M5 x 0.8P	7 x M6 x 1P	11 x M6 x 1P	11 x M8 x 1.25P	11 x M10 x 1.5P	12 x M16 x 2P
D7	72	86	118	145	179	247	300
D8 <sub>H7</sub>	3	5	6	6	8	10	12
D10	8 x 3.4	8 x 4.5	8 x 5.5	8 x 5.5	12 x 6.6	12 x 9	16 x 13.5
D12	46.2	63.2	89.2	109.2	139.2	199.2	254.2
L1	4	8	12	12	12	16	20
L2	6.5	8	13.5	13.5	17	22.5	30.5
L3	3	3	6	6	6	8	12
L4	19.5	19.5	30	29	38	50	66
L5	7	7	10	10	14.6	15	20
L6	4	4	7	8	10	12	18
L8	107.5	126	172.5	201	263.5	334.5	392
L9	4	6	7	7	7	10	10
L10	0.5	0.5	1	1	1	1	1
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	<sup>1)</sup> ≤14 / ≤16	<sup>2)</sup> ≤19 / ≤24	≤32	≤38	≤48	≤55
C4 <sup>3</sup>	30	34	40	50	60	85	116
C5 <sup>3 G6</sup>	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>	104.25	116.5	159.5	199	245.5	316	398.5
C10 <sup>3</sup>	13.25	13.5	10.75	13	15	20.75	53.5
C11 <sup>3</sup>	74	77.5	107.5	134	164.5	241.5	268.5

1. ADR 064 C3 = 16mm을 optional로 제공 2. ADR 090 C3=24mm을 optional로 제공, 단 연속운전조건(S1 condition)에서는 사용상 주의를 요망  
3. C1-C11은 적용모터에 따라 다릅니다. 당사 홈페이지 [www.apexdynakorea.co.kr](http://www.apexdynakorea.co.kr)로 접속하신후 Design Tool을 이용하여 치수를 확인하실 수 있습니다

# ADR Series

Dimensions (2단 감속, 감속비(Ratio) i=25~200)



[unit: mm]

Dimension	ADR047	ADR064	ADR090	ADR110	ADR140	ADR200	ADR255
D1 <sub>H7</sub>	12	20	31.5	40	50	80	100
D2	20	31.5	50	63	80	125	140
D3 <sub>H7</sub>	28	40	63	80	100	160	180
D4 <sub>H7</sub>	47	64	90	110	140	200	255
D5	67	79	109	135	168	233	280
D6	4 x M3 x 0.5P	7 x M5 x 0.8P	7 x M6 x 1P	11 x M6 x 1P	11 x M8 x 1.25P	11 x M10 x 1.5P	12 x M16 x 2P
D7	72	86	118	145	179	247	300
D8 <sub>H7</sub>	3	5	6	6	8	10	12
D10	8 x 3.4	8 x 4.5	8 x 5.5	8 x 5.5	12 x 6.6	12 x 9	16 x 13.5
D12	46.2	63.2	89.2	109.2	139.2	199.2	254.2
L1	4	8	12	12	12	16	20
L2	6.5	8	13.5	13.5	17	22.5	30.5
L3	3	3	6	6	6	8	12
L4	19.5	19.5	30	29	38	50	66
L5	7	7	10	10	14.6	15	20
L6	4	4	7	8	10	12	18
L8	122	132.5	163	217.5	269.5	333.5	403
L9	4	6	7	7	7	10	10
L10	0.5	0.5	1	1	1	1	1
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	<sup>1)</sup> ≤11 / ≤12	<sup>2)</sup> ≤14 / ≤15.875 / ≤16	<sup>3)</sup> ≤19 / ≤24	≤32	≤38	≤48
C4 <sup>4</sup>	30	30	34	40	50	60	85
C5 <sup>4 G6</sup>	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>	103.25	108.25	128.25	166.5	209	269.5	340
C10 <sup>4</sup>	13.25	13.25	13.5	10.75	13	15	20.75
C11 <sup>4</sup>	74	74	77.5	107.5	134	164.5	241.5

1. ADR 064 C3 = 12mm을 optional로 제공 2. ADR090 C3 = 15.875 & C3 = 16을 optional로 제공  
3. ADR 110 C3 = 24mm을 optional로 제공, 단 연속운전조건(S1 condition)에서는 사용상 주의를 요망  
4. C1-C11은 적용모터에 따라 다릅니다. 당사 홈페이지 [www.apexdynakorea.co.kr](http://www.apexdynakorea.co.kr)로 접속하신후 Design Tool을 이용하여 치수를 확인하실 수 있습니다

### Gearbox Performance

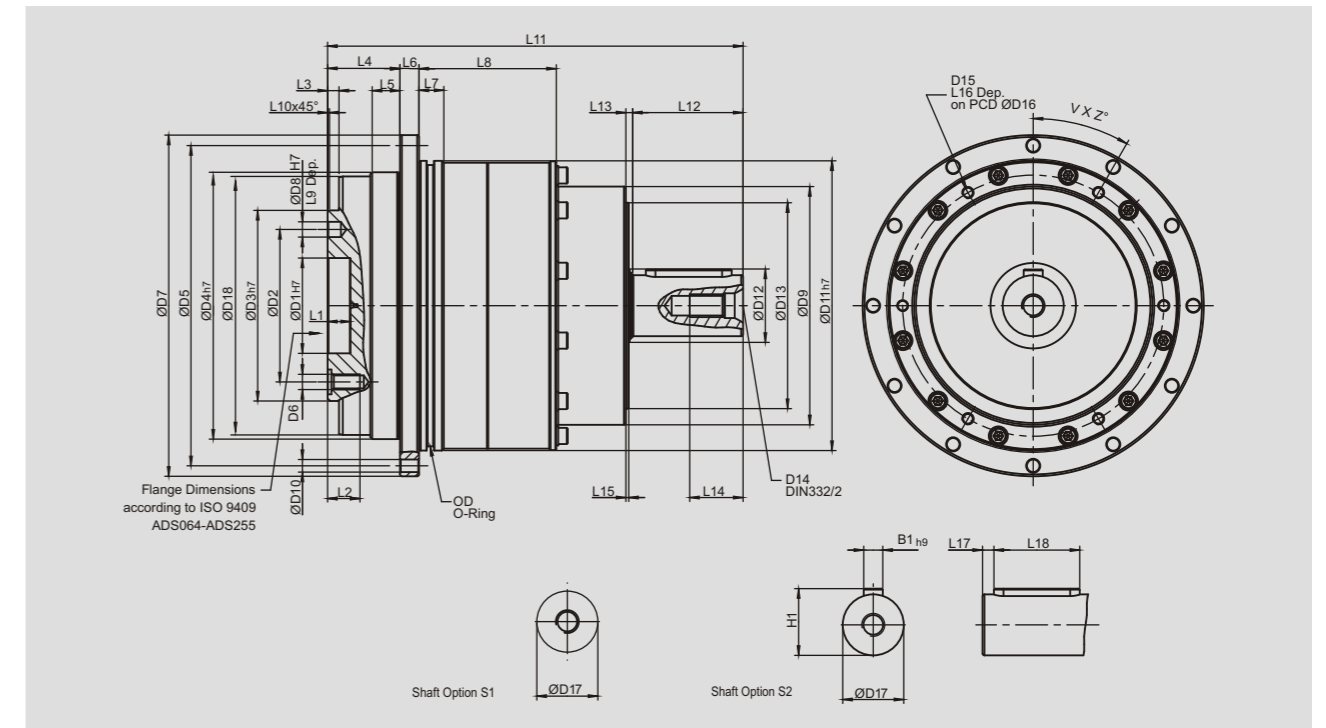
Model No.	Stage	Ratio <sup>1</sup>	ADS047	ADS064	ADS090	ADS110	ADS140	ADS200	ADS255	
Nominal Output Torque T <sub>2N</sub>	1	4	19	48	130	270	560	1,100	1,700	
		5	22	60	160	330	650	1,200	2,000	
		7	19	50	140	300	550	1,100	1,800	
		10	14	40	100	230	450	900	1,500	
	2	16	19	48	130	270	560	1,100	1,700	
		21	22	60	160	330	650	1,200	2,000	
		31	19	50	140	300	550	1,100	1,800	
Max. Output Torque T <sub>2B</sub>	Nm	1,2	3 times of Nominal Output Torque							
		1,2	4~91	5,000	5,000	4,000	4,000	3,000	3,000	2,000
Nominal Input Speed n <sub>1N</sub>	rpm	1,2	4~91	10,000	10,000	8,000	7,500	4,500	4,500	3,800
Max. Input Speed n <sub>1B</sub>	rpm	1,2	4~91	-	-	≤1	≤1	≤1	≤1	≤1
Micro Backlash P0	arcmin	1	4~10	≤3	≤3	≤3	≤3	≤3	≤3	≤3
		2	16~91	≤5	≤5	≤5	≤5	≤5	≤5	≤5
Reduced Backlash P1	arcmin	1	4~10	≤5	≤5	≤5	≤5	≤5	≤5	≤5
		2	16~91	≤7	≤7	≤7	≤7	≤7	≤7	≤7
Standard Backlash P2	arcmin	1	4~10	3	7	14	25	50	145	225
		2	16~91	42.5	125	235	430	1,300	3,064	5,900
Torsional Rigidity	Nm/arcmin	1,2	4~91	1,080	2,110	2,310	4,800	6,200	5,450	10,600
Max. Bending moment	N	1,2	4~91	165	395	1,300	1,525	2,800	4,500	12,500
Input Max. Radial Load F <sub>2RB</sub> <sup>2</sup>	N	1,2	4~91	580	1,000	1,100	980	2,700	4,700	8,000
Input Max. Axial Load F <sub>2AB</sub> <sup>2</sup>	N	1,2	4~91	30,000 *						
Service Life	hr	1,2	4~10	≥97%						
Efficiency η	%	1	16~91	≥94%						
		2	0.8	1.4	3.4	6.7	13.5	35.0	63.8	
Weight	kg	1	16~91	1.1	1.6	4.0	7.3	16.6	36.4	74.7
		2	4~91	-10°C~+90°C						
Operating Temp <sup>3</sup>	°C	1,2	4~91	synthetic gear grease (NYOGEL 792D)						
Lubrication		1,2	4~91	IP65						
Degree of Gearbox Protection		1,2	4~91	all directions						
Mounting Position		1,2	4~91	≤56	≤58	≤60	≤63	≤65	≤67	≤70
Noise Level (n <sub>i</sub> =3000rpm)	dB	1,2	4~91							

### Gearbox Inertia

Model No.	Stage	Ratio <sup>1</sup>	ADS047	ADS064	ADS090	ADS110	ADS140	ADS200	ADS255
Mass Moments of Inertia J <sub>i</sub>	1	4	0.06	0.21	0.87	3.65	10.27	43.05	102.68
		5	0.06	0.21	0.83	3.53	10.17	41.76	99.12
		7	0.06	0.21	0.82	3.47	9.99	41.15	97.41
		10	0.06	0.21	0.81	3.45	9.93	40.97	97.03
	2	16	0.06	0.06	0.21	0.83	3.53	10.17	41.76
		21	0.06	0.06	0.21	0.83	3.53	10.17	41.76
		31	0.06	0.06	0.21	0.83	3.53	10.17	41.76
		61	0.06	0.06	0.21	0.81	3.45	9.93	40.97
		91	0.06	0.06	0.21	0.81	3.45	9.93	40.97

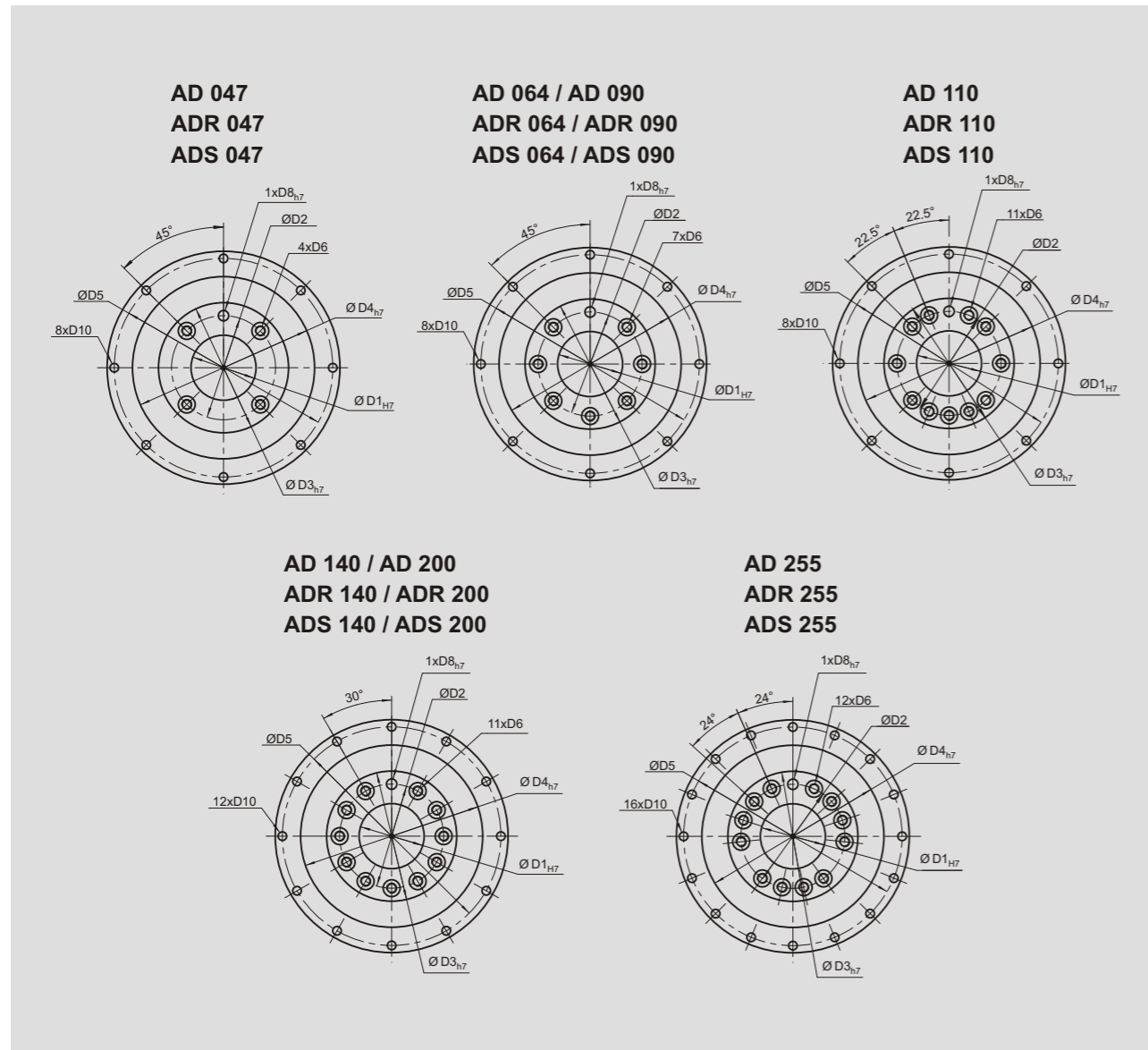
1. Ratio (i=N<sub>in</sub>/N<sub>out</sub>). 2. 기준 : 출력속도 100rpm 이하  
3. 감속기 작동온도 : -10~90도, 감속기 주변온도 0~40도

\* S1 service life 15,000 hrs (S1 : 연속운전조건)



[unit: mm]

Dimension	ADS047	ADS064	ADS090	ADS110	ADS140	ADS200	ADS255
D1 <sub>H7</sub>	12	20	31.5	40	50	80	100
D2	20	31.5	50	63	80	125	140
D3 <sub>H7</sub>	28	40	63	80	100	160	180
D4 <sub>H7</sub>	47	64	90	110	140	200	255
D5	67	79	109	135	168	233	280
D6	4 x M3 x 0.5P	7 x M5 x 0.8P	7 x M6 x 1P	11 x M6 x 1P	11 x M8 x 1.25P	11 x M10 x 1.5P	12 x M16 x 2P
D7	72	86	118	145	179	247	300
D8 <sub>H7</sub>	3	5	6	6	8	10	12
D9	43	55	78	100	125	175	210
D10	8 x 3.4	8 x 4.5	8 x 5.5	8 x 5.5	12 x 6.6	12 x 9	16 x 13.5
D11 <sub>H7</sub>	60	70	95	120	152	212	255
D12	31	22	22	30	40	75	95
D13	37	50	62	82	109	145	172
D14	M4 x 0.7P	M4 x 0.7P	M5 x 0.8P	M8 x 1.25P	M12 x 1.75P	M16 x 2P	M20 x 2.5P
D15	M3 x 0.5P	M3 x 0.5P	M4 x 0.7P	M5 x 0.8P	M6 x 1P	M8 x 1.25P	M8 x 1.25P
D16	51.5	61.5	84	107	137	193	235
D17 <sub>K6</sub>	11	14	16	22	32	40	55
D18	46.2	63.2	89.2	109.2	139.2	199.2	254.2
L1	4	8	12	12	12	16	20
L2	6.5	8	13.5	13.5	17	22.5	30.5
L3	3	3	6	6	6	8	12
L4	19.5	19.5	30	29	38	50	66
L5	7	7	10	10	14.6	15	20
L6	4	4	7	8	10	12	18
L7	5	7.7	8	10	12	15	20
L8	32.5	43.5	47	62	72	89.5	112
L9	4	6	7	7	7	10	10
L10	0.5	0.5	1	1	1	1	1
L11	89.5	110.5	138.5	170	218	296	372.5
L12	18	22	28	36	58	82	115
L13	2.5	2.5	3.5	3.5	3.5	4.5	4.5
L14	10	10	12.5	19	28	36	42
L15	1.5	1.5	1.5	1.5	1.5	1.5	1.5
L16	5.5	5.5	7	9	11	14	14
L17	2	2	3	3	6	6	7
L18	14	18	22	28	45	70	90
B1 <sub>H9</sub>	4	5	5	6	10	12	16
H1	12.5	16	18	24.5	35	43	59
OD	56 x 2	66 x 2	90 x 3	110 x 3	145 x 3	200 x 5	238 x 5
V	4	4	4	4	6	6	6
Z	45	45	45	45	30	30	30



[unit: mm]

Dimension	AD047	AD064	AD090	AD110	AD140	AD200	AD255
	ADR047	ADR064	ADR090	ADR110	ADR140	ADR200	ADR255
	ADS047	ADS064	ADS090	ADS110	ADS140	ADS200	ADS255
D1 <sub>H7</sub>	12	20	31.5	40	50	80	100
D2	20	31.5	50	63	80	125	140
D3 <sub>H7</sub>	28	40	63	80	100	160	180
D4 <sub>H7</sub>	47	64	90	110	140	200	255
D5	67	79	109	135	168	233	280
D6	M3 x 0.5P	M5 x 0.8P	M6 x 1P	M6 x 1P	M8 x 1.25P	M10 x 1.5P	M16 x 2P
D8 <sub>H7</sub>	3	5	6	6	8	10	12
D10	3.4	4.5	5.5	5.5	6.6	9	13.5

## AD Series

**AD047** - **010** - **P1** / **MOTOR**

<b>Gearbox Size:</b> AD047, AD064, AD090 AD110, AD140, AD200, AD255	<b>Backlash:</b> P0: Micro Backlash P1: Reduced Backlash P2: Standard Backlash
<b>Ratio:</b> 1 Stage: 4, 5, 7, 10 2 Stage: 20, 25, 35, 40, 50, 70, 100 16, 21, 31, 61, 91	<b>Motor Designation:</b> Manufacturer Type And Model

Ordering Example: **AD047-010-P1 / SIEMENS 1FT6 041-4AF71**

## ADR Series

**ADR047** - **010** - **P1** / **MOTOR**

<b>Gearbox Size:</b> ADR047, ADR064, ADR090 ADR110, ADR140, ADR200, ADR255	<b>Backlash:</b> P0: Micro Backlash P1: Reduced Backlash P2: Standard Backlash
<b>Ratio:</b> 1 Stage: 4, 5, 7, 10, 14, 20 2 Stage: 20, 25, 35, 40, 50, 70, 100, 140, 200	<b>Motor Designation:</b> Manufacturer Type And Model

\* ADR047에는 적용 안됨  
 \*\* ADR047, ADR064에는 적용 안됨

Ordering Example: **ADR047-010-P1 / SIEMENS 1FT5 034-OAK71**

## ADS Series

**ADS047** - **010** - **S1** - **P1**

<b>Gearbox Size:</b> ADS047, ADS064, ADS090 ADS110, ADS140, ADS200, ADS255	<b>Shaft Option:</b> S1: Smooth Input Shaft S2: Input Shaft with Key
<b>Ratio:</b> 1 Stage: 4, 5, 7, 10 2 Stages: 16, 21, 31, 61, 91	<b>Backlash:</b> P0: Micro Backlash P1: Reduced Backlash P2: Standard Backlash

Ordering Example: **ADS090-010-S1-P1**