



정밀 유성감속기
PRECISION PLANETARY REDUCER
SM SERIES



PRECISION PLANETARY REDUCER SM SERIES (국문)

 **SPG Co., Ltd.**
<http://www.spg.co.kr>

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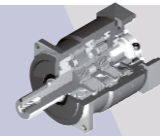
2025.05 Rev.02

 **SPG Co., Ltd.**

적용 분야(Applications)

01

SMB 시리즈(SMB Series)



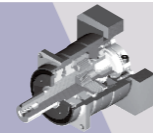
02-23

SMT 시리즈(SMT Series)



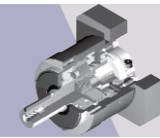
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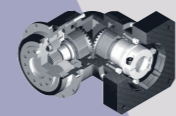
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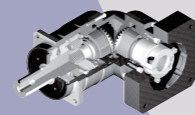
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SMET 시리즈(SMET Series)



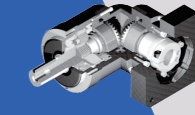
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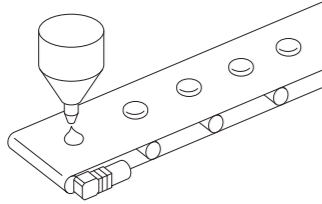
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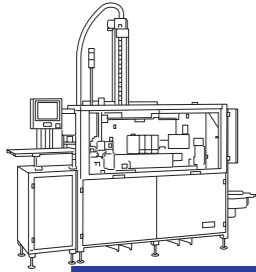
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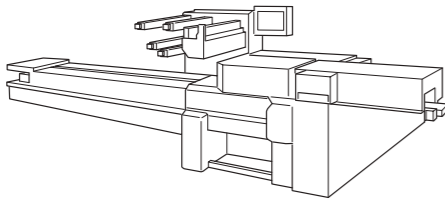
■ 컨베이어 벨트
Conveyer-belt



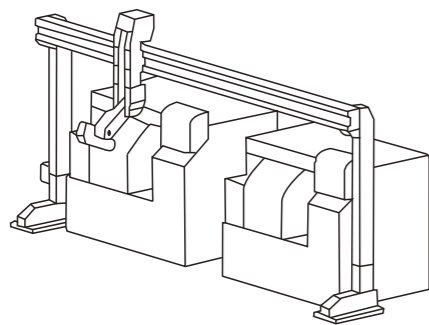
■ 자동포장기
Auto packing sealing machine



■ 포장기(수평형)
Horizontal pillow packing machine



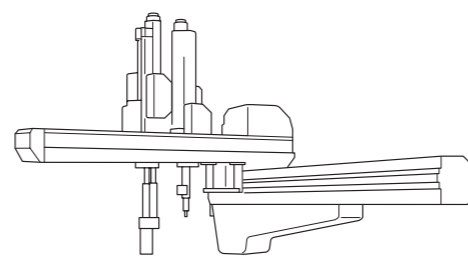
■ 로더 로봇
Loader robot



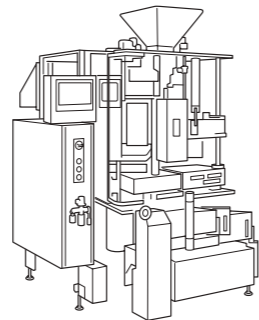
■ 인쇄기
Printer



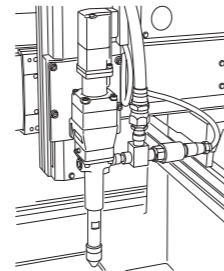
■ 갠트리 로봇
Gantry robot



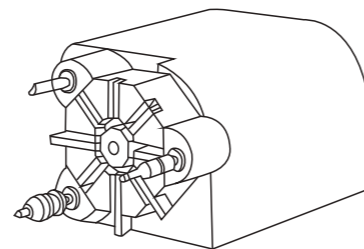
■ 포장기(수직형)
Vertial pillow packing machine



■ 디스펜서 로봇
Dispenser robot

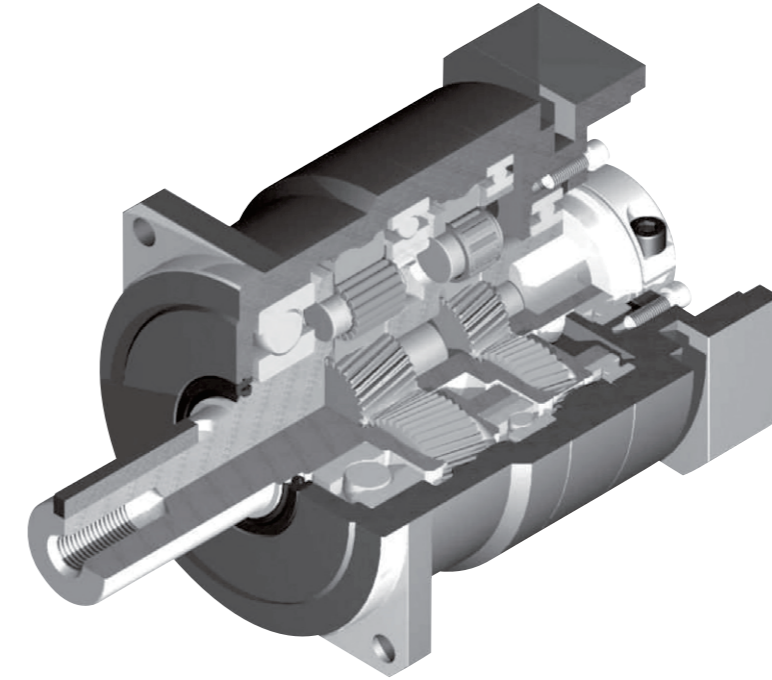


■ 터릿 헤드
Turret head



다양한 장치 및 장비에 적용가능.
Attachable and applicable to a range of applications and devices

SMB series



정속한 운전

헬리컬 기어 적용으로 저진동, 저소음 실현.

고정밀

표준 백래시 ≤ 3 arc-min.

고강성 & 고토크

Uncaged 니들롤러베어링을 사용하여 강성과 토크 향상.

어댑터-부싱 연결방식

다양한 모터에 취부 가능.

그리스 누유현상 없음

고점도 분리방지 그리스를 사용.

유지 보수 불필요

제품 수명 동안 그리스 교체 불필요 자유로운 설치 가능.

Quiet operation

Helical gears contribute to reduce vibration and noise.

High precision

Standard backlash is 3 arc-min, ideal for precision control.

High rigidity & torque

High rigidity & high torque were achieved by uncaged needle roller bearings.

Adapter-bushing connection

Can be attached to any motor all over the world.

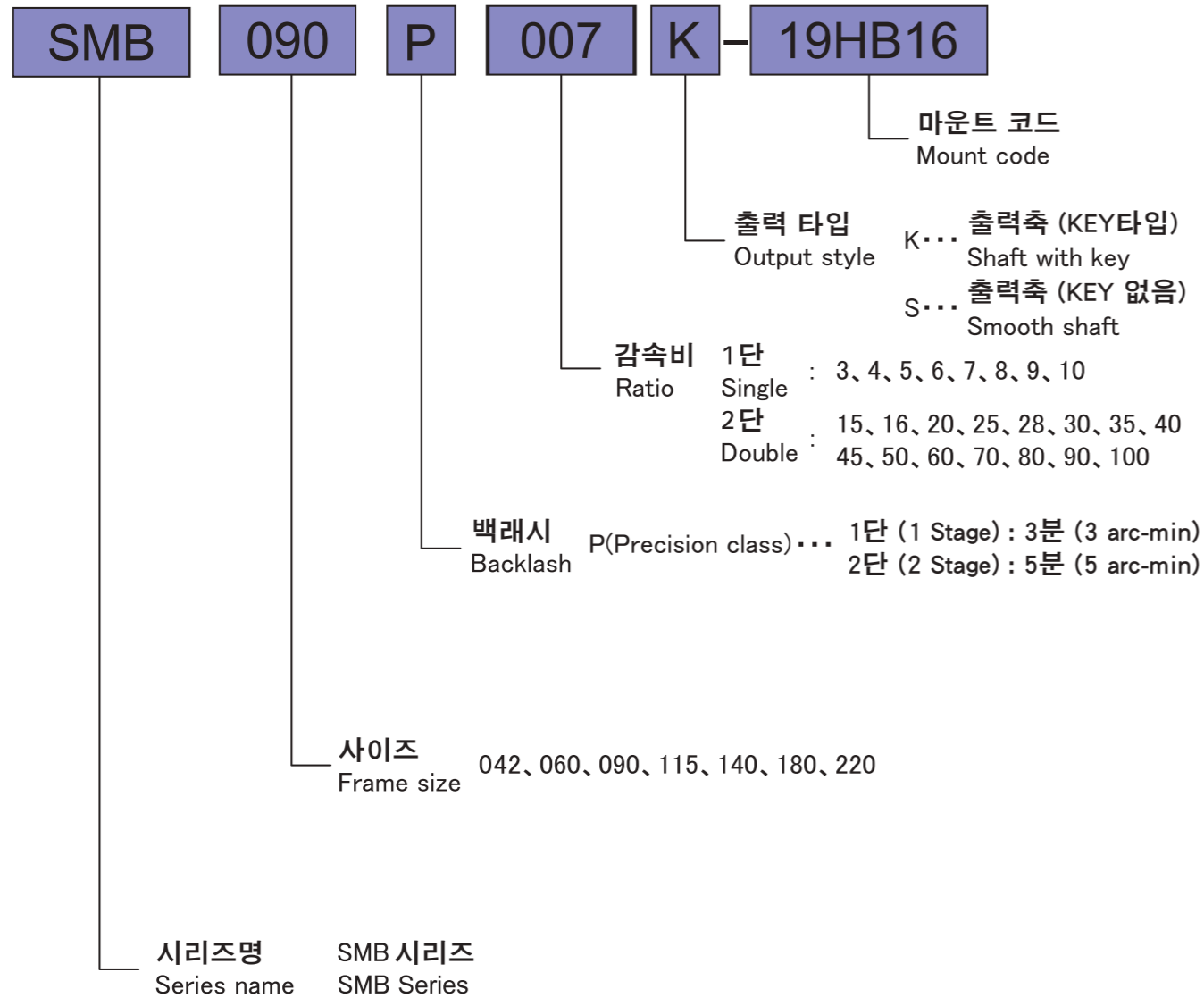
No grease leakage

Perfect solution using high viscosity anti-separation grease.

Maintenance-free

No need to replace the grease for the life of the unit. Can be attached in any position.

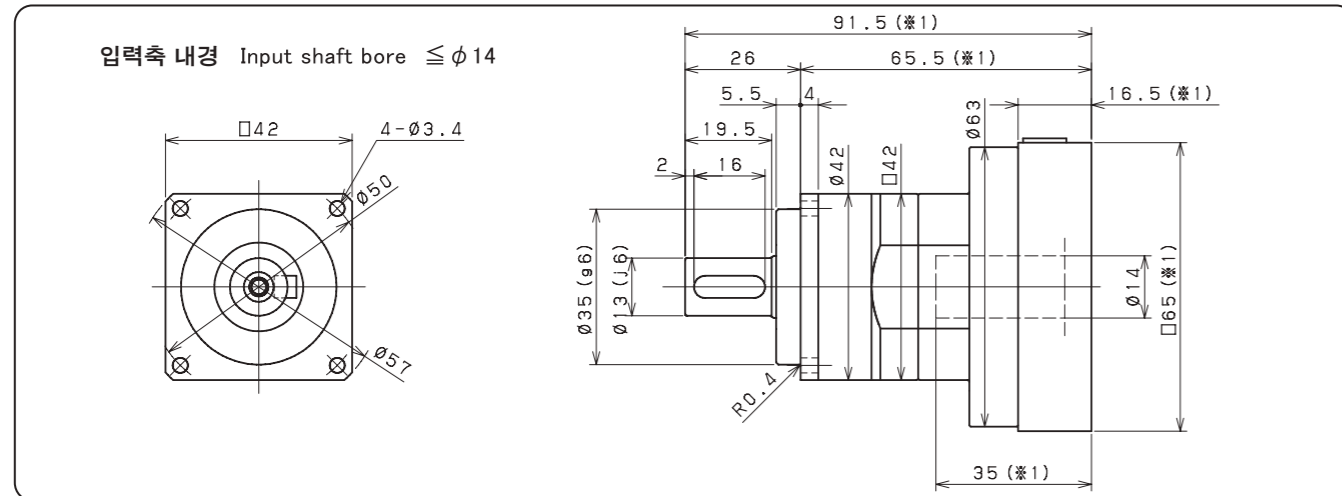
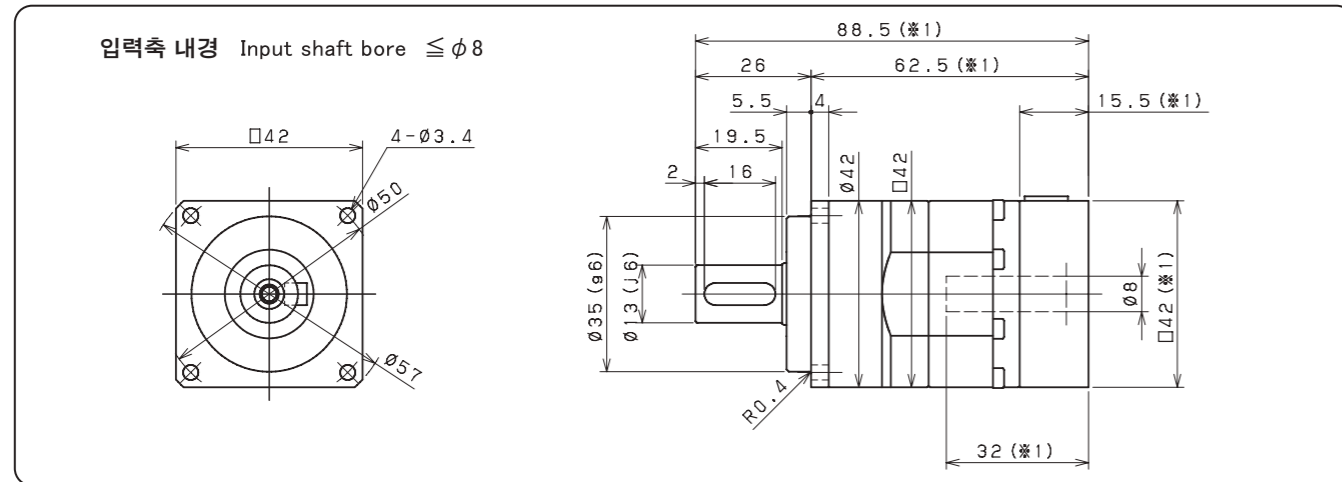
SMB series



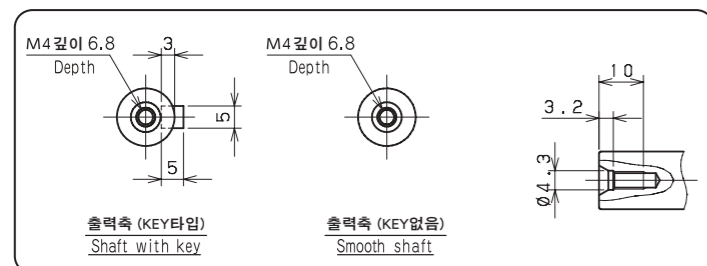
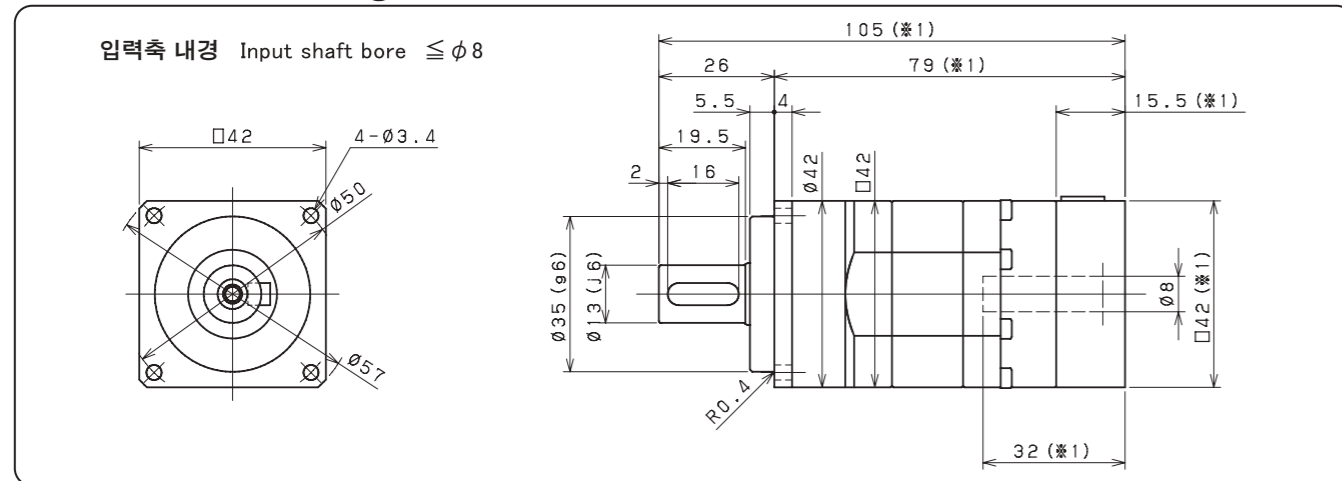
Model No.	Unit	Stage	Ratio ¹	SMB042	SMB060	SMB090	SMB115	SMB140	SMB180	SMB220	
Rated Output Torque (Nominal Output torque)	T _{2N}	1	3	13	39	106	195	440	750	1,500	
			4	16	39	110	210	460	950	1,600	
			5	19	43	110	210	580	1,200	2,000	
			6	15	43	108	160	530	1,100	1,600	
			7	15	43	108	200	490	1,000	1,500	
			8	15	43	79	190	420	900	1,200	
			9	15	35	90	170	390	800	1,100	
			10	15	30	88	170	370	800	1,100	
			15	13	35	84	195	440	750	1,450	
			16	16	39	100	210	460	950	1,800	
		20	16	39	100	210	460	950	1,900		
		25	19	43	110	210	580	1,200	2,000		
		28	18	43	108	200	580	1,200	1,500		
		30	13	39	90	195	440	900	1,500		
		35	18	43	108	200	580	1,200	1,500		
		40	19	43	110	210	580	1,200	2,000		
		45	17	39	90	170	580	1,200	1,100		
		50	19	43	110	210	580	1,200	2,000		
		60	18	43	108	160	580	1,200	1,600		
		70	18	43	108	200	490	1,100	1,500		
80	17	43	79	190	420	900	1,200				
90	17	39	90	170	390	800	1,100				
100	17	39	88	170	370	800	1,100				
Max. Acceleration Torque	T _{2B}	Nm	1,2	3~100	1.8 Times of Rated Output Torque						
Max. Output Torque Emergency Stop Torque	T _{2NOT}	Nm	1,2	3~100	3 Times of Rated Output Torque						
Nominal Input speed	n _{1n}	rpm	1,2	3~100	3,000	3,000	3,000	3,000	2,000	1,500	1,000
Max. Input speed	n _{1B}	rpm	1,2	3~100	6,000	6,000	6,000	6,000	5,000	4,000	3,000
Backlash (Precision class)		arcmin	1	3~10	≤3	≤3	≤3	≤3	≤3	≤3	≤3
			2	15~100	≤5	≤5	≤5	≤5	≤5	≤5	≤5
Torsional Rigidity		Nm/arcmin	1,2	3~100	2	5	12	23	38	110	210
Max. Radial load ²	F _{2rB}	N	1,2	3~100	570	1,100	2,150	3,600	7,500	10,500	10,500
Max. Axial load ²	F _{2aB}	N	1,2	3~100	300	600	1,800	2,500	3,000	6,000	11,300
Service life	L _H	hr	1,2	3~100	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Noise level ³		dB(A)	1,2	3~100	≤ 56	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
Weight		kg	1	3~10	0.6	1.4	3.7	8	16	36	53
			2	15~100	0.7	1.6	4.2	8.9	17	37	54
Mass Moments of Inertia ⁴		kg cm ²	1	3~10	0.04	0.16	0.86	3.6	14	44	52
			2	15~100	0.03	0.13	0.71	2.8	11	34	35
Operating Temp. ⁵		°C	1,2	3~100	-10 ~ +90						
Lubrication			1,2	3~100	High temperature & Extreme pressure Lubricant						
Mounting position			1,2	3~100	All directions						
Efficiency	η	%	1	3~10	≥ 97						
			2	15~100	≥ 94						
Degree of protection			1,2	3~100	IP 65						

(1) Ratio (감속비) = N_{in} / N_{out}
 (2) 기준 : 출력회전수 100rpm, 출력축 중앙 부하, 부하계수(Ka)=1, 연속운전 10,000시간
 These values are based on the following conditions : 100 rpm at the output. Load applied to the middle of the output shaft. Load coefficient(Ka)=1. Continuous operation(S1=10,000hrs).
 (3) 입력 회전수 3000 rpm, 무부하 운전상태에서 감속기 취부면에서 1m 떨어진 거리에서 측정 (모델에 따라 차이가 있을수 있습니다)
 Noise level : A measurement 1m away from the reducer (with ratio10 or ratio 100), 3000 input rpm and at no load condition. (Background noise 40dB(A)) With lower ratio and/or higher rpm, the noise level could be 3 to 5 dB higher.
 (4) 관성모멘트 : 감속비 중 대표값 (i=1/5)
 Moment of inertia : A measurement at the input shaft and representatives from each ratio.(i=1/5)
 (5) 감속기 작동온도 : -10~+90 °C, 감속기 주위온도 -10~40°C
 Operating temperature : Surface temperature of gear case in -10 °C~40 °C of ambient temperature.
 ※ 제품 성능 향상을 위해 사양은 별도의 고지 없이 변경될 수 있습니다.
 Specifications are subject to change without notice to improve product performances.

SMB 042 1단 1stage

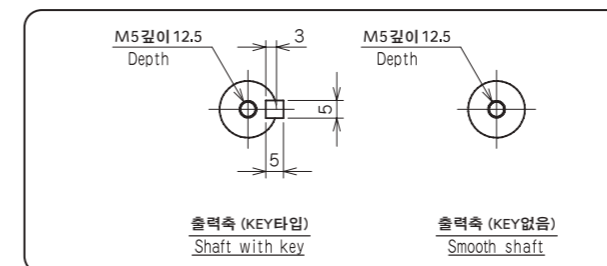
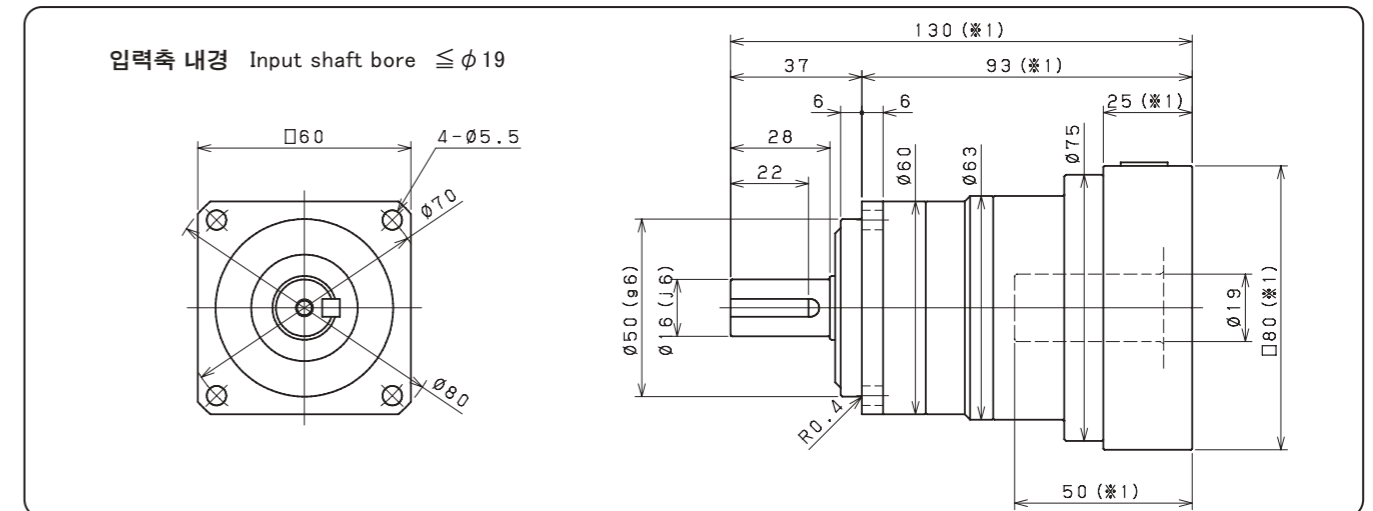
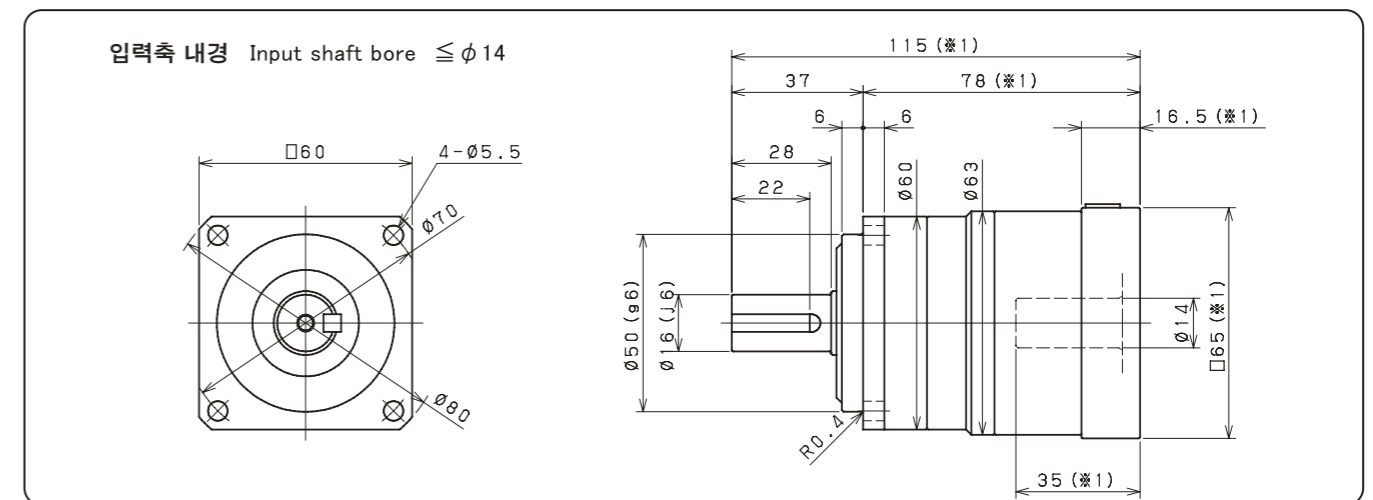
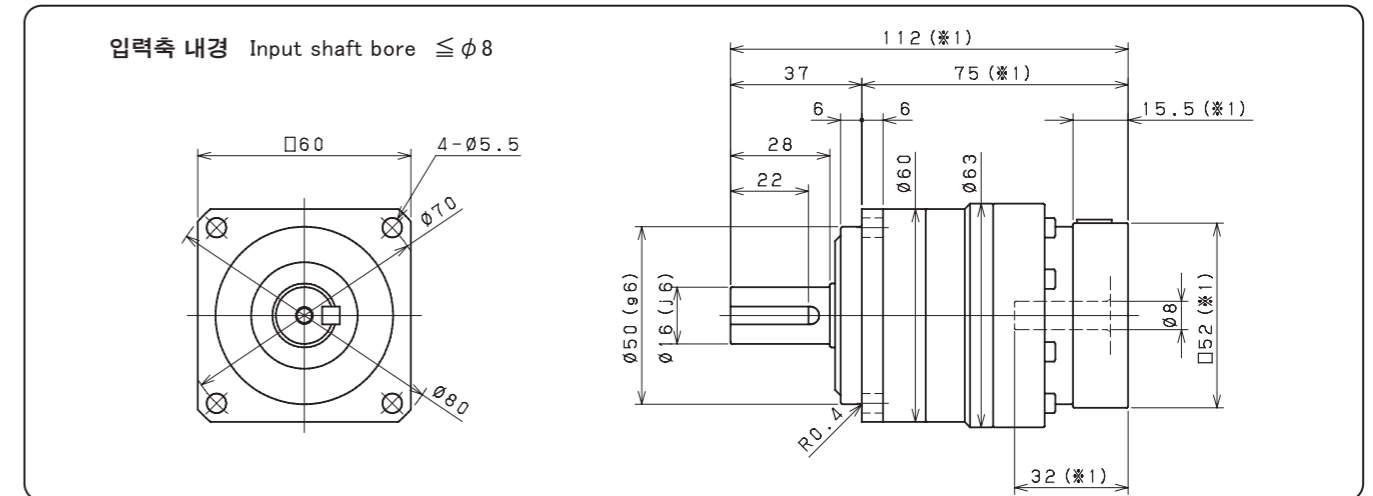


SMB 042 2단 2stage



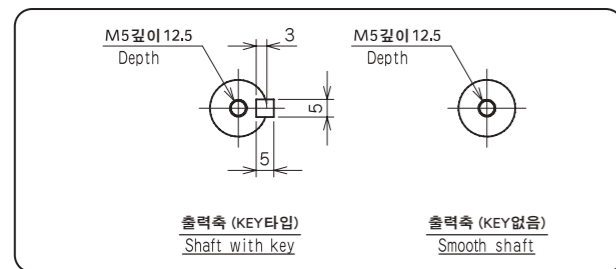
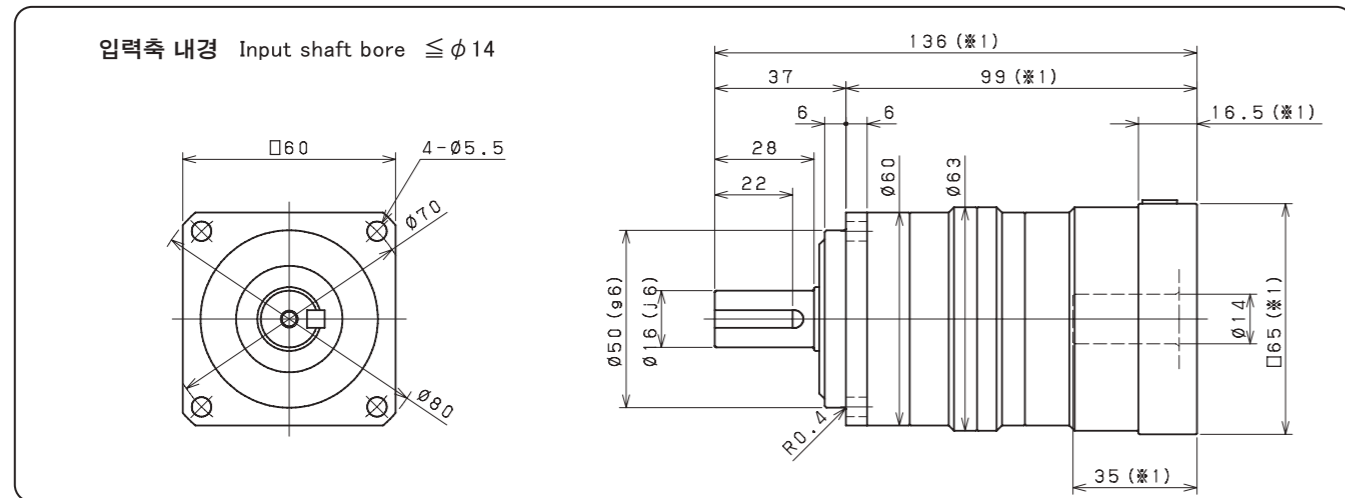
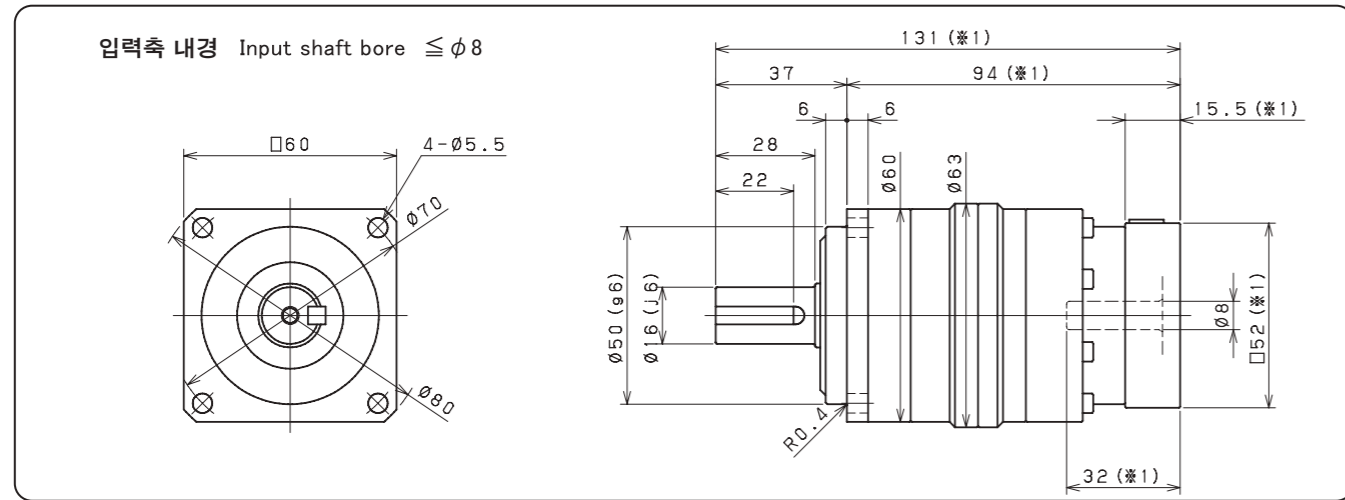
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMB 060 1단 1stage



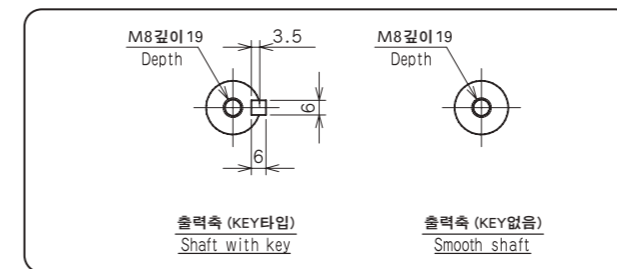
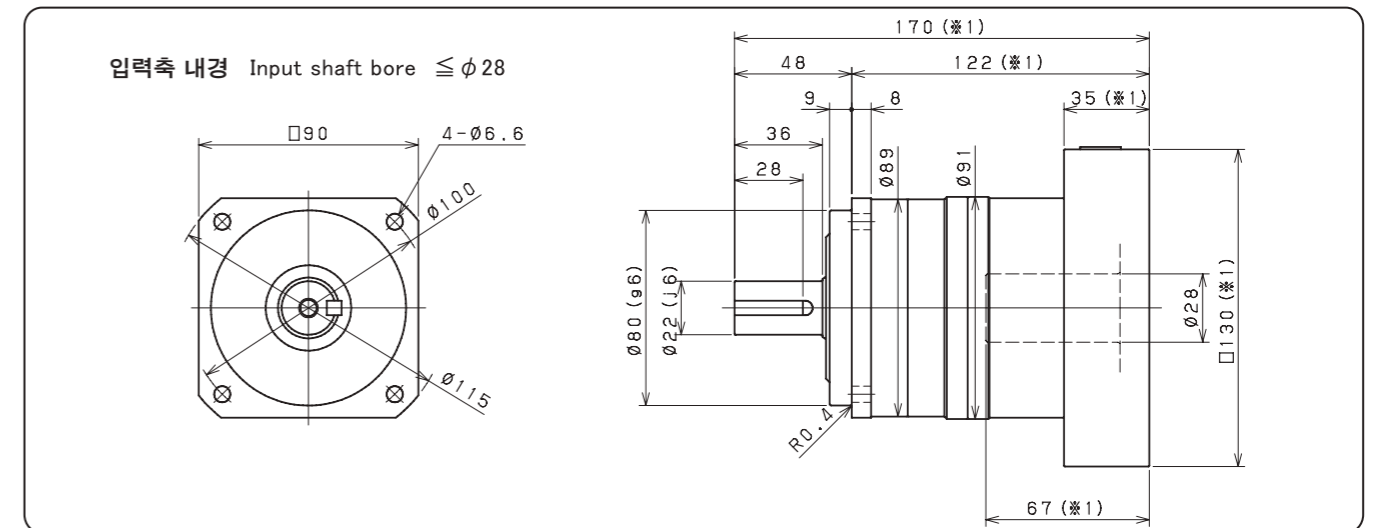
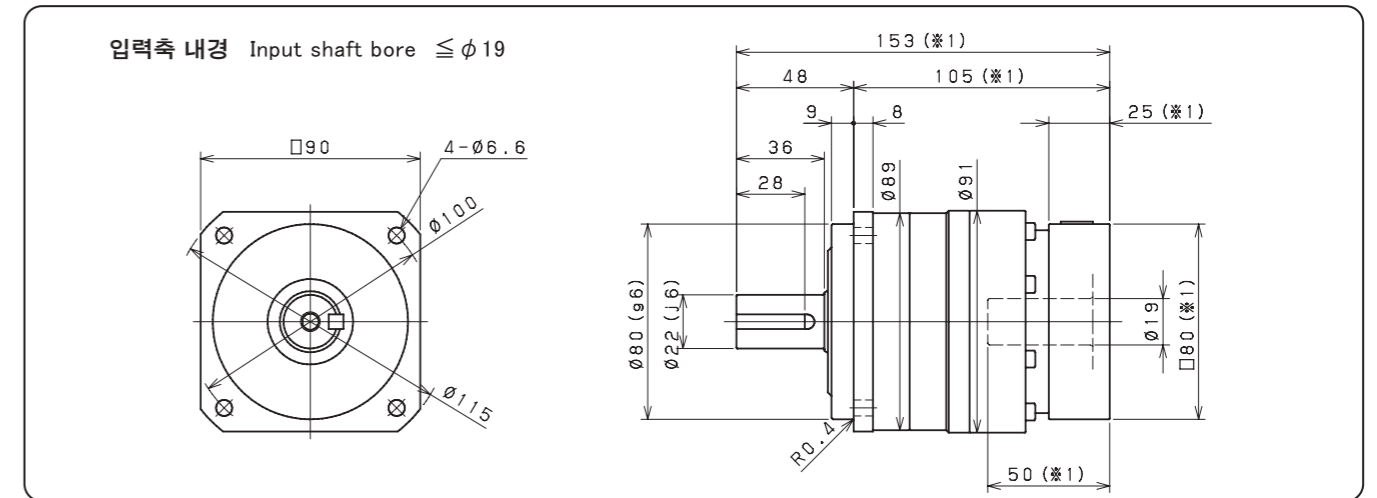
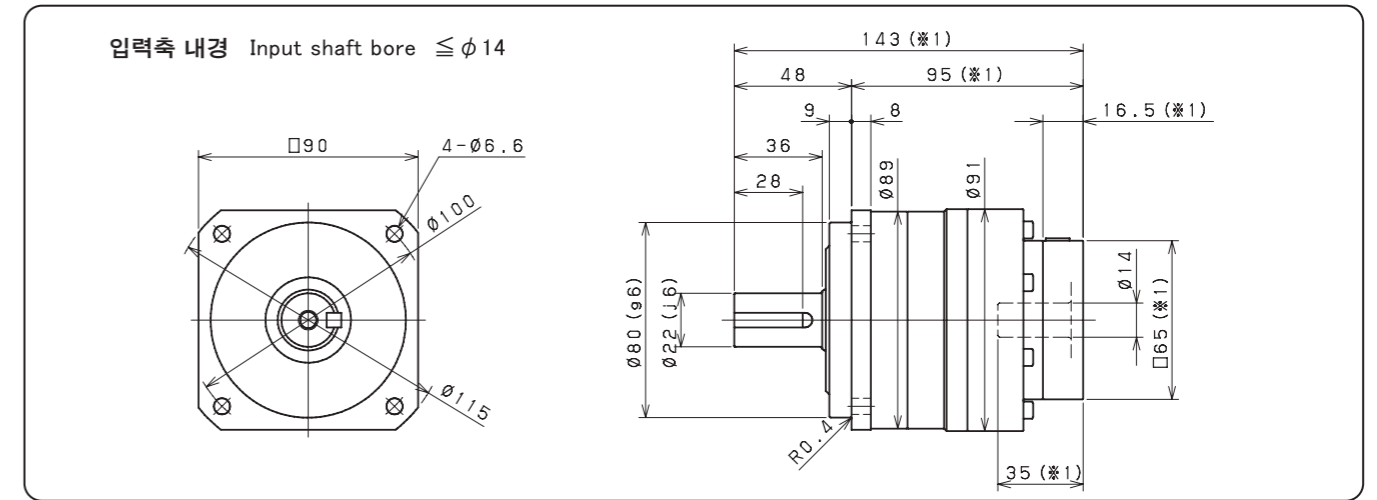
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- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMB 060 2단 2stage



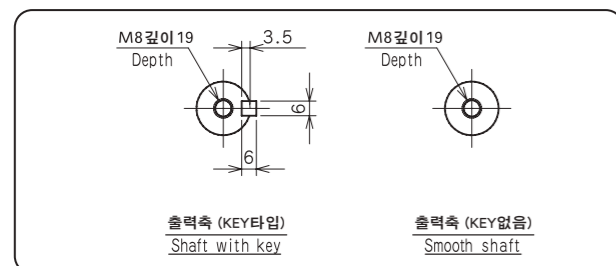
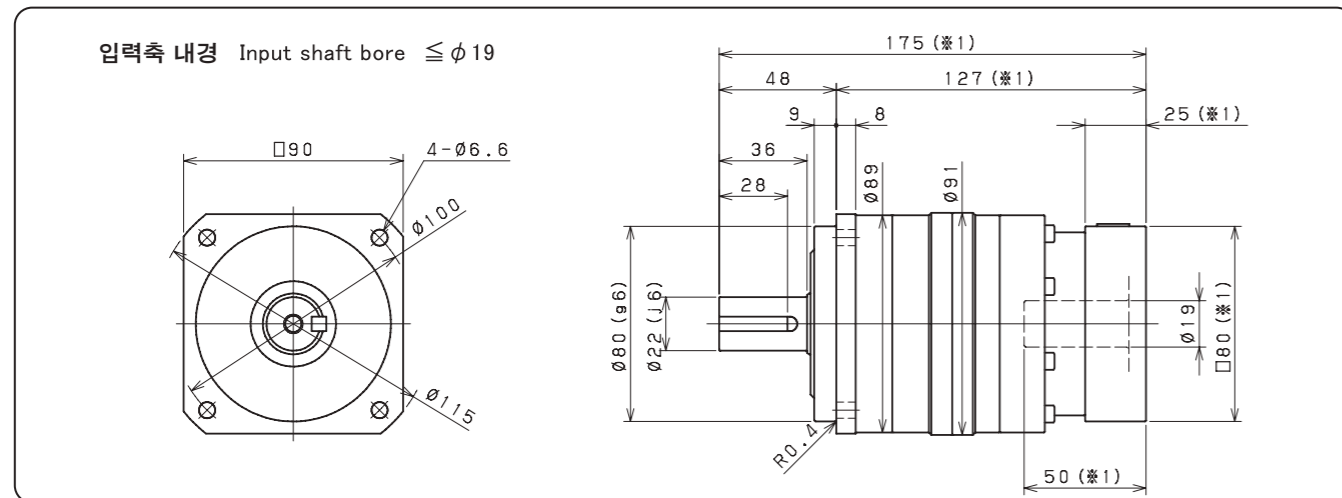
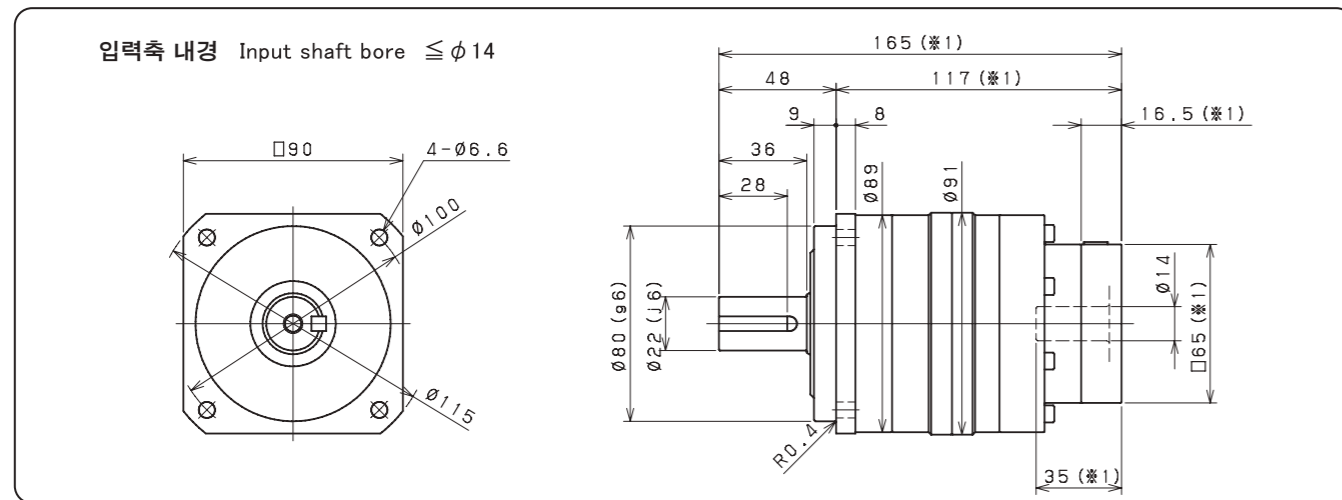
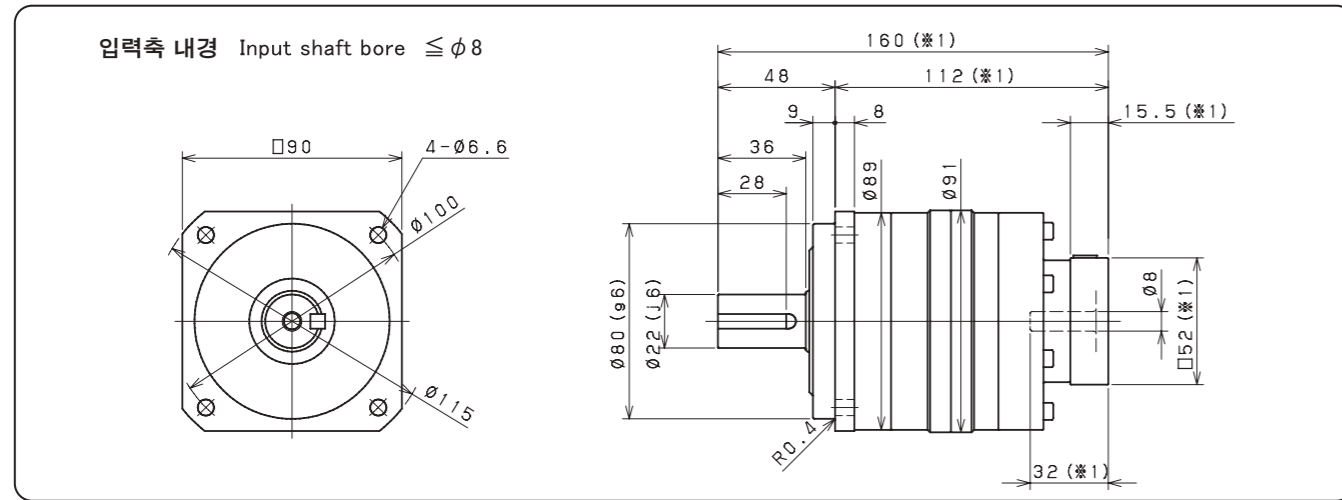
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- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMB 090 1단 1stage



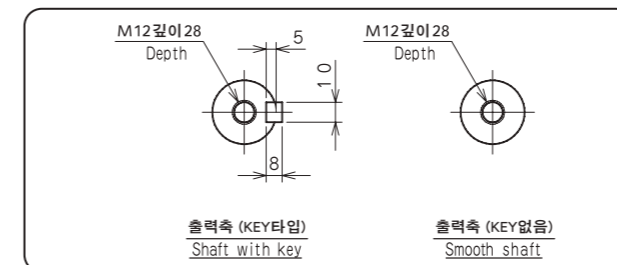
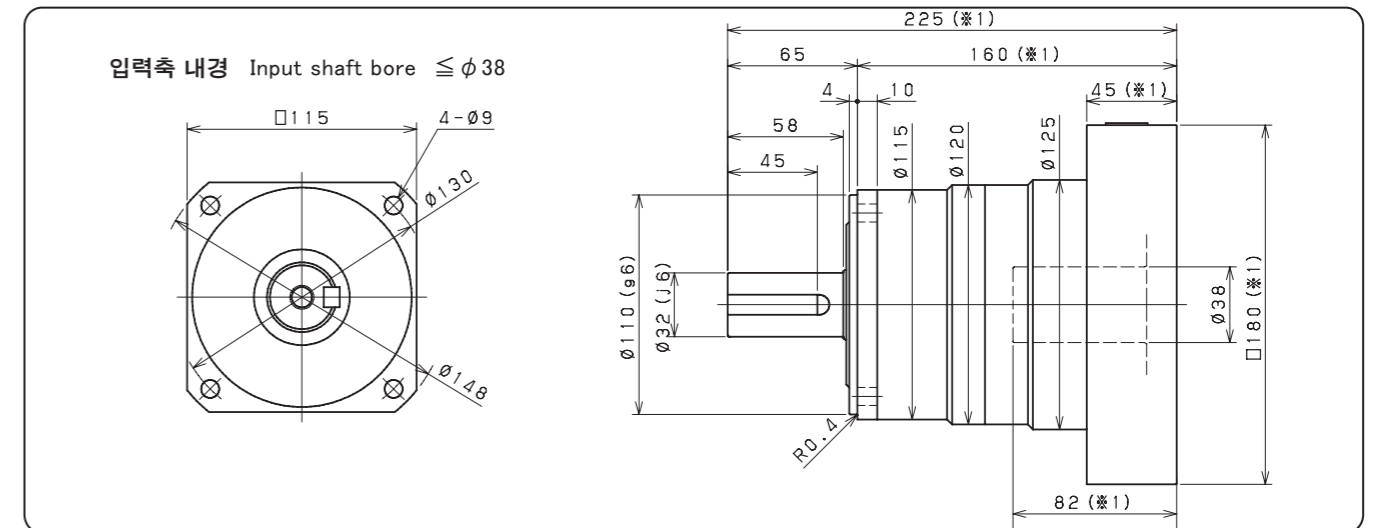
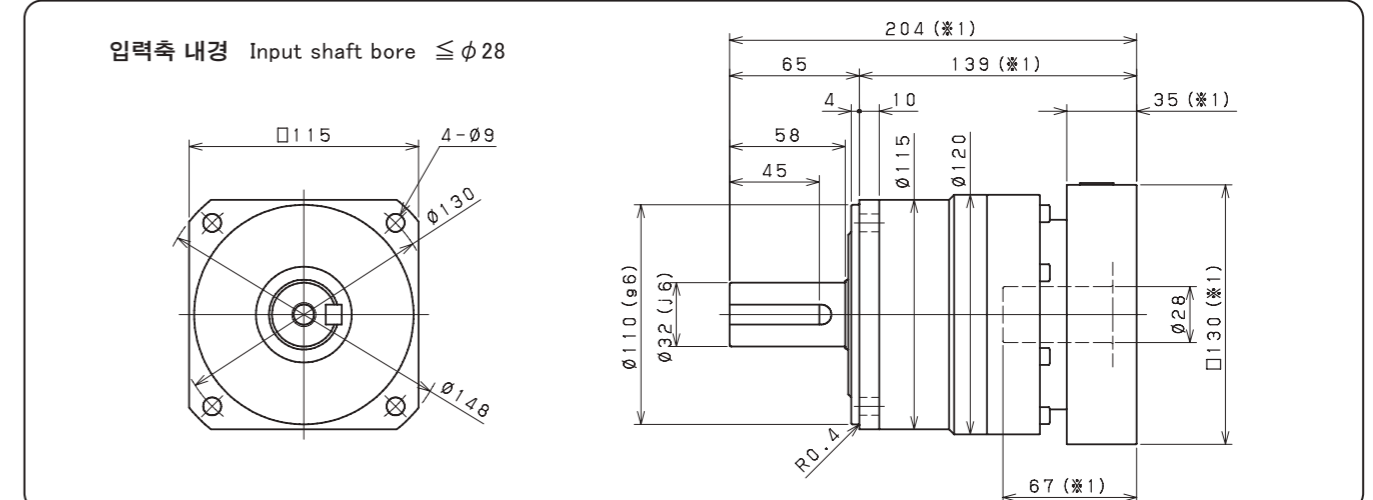
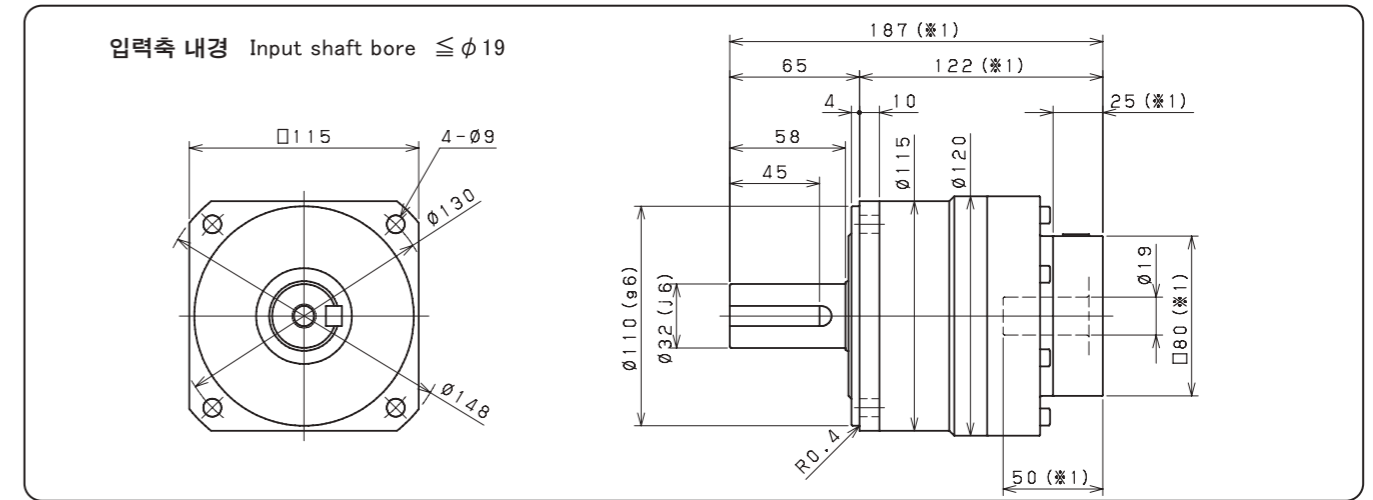
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- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMB 090 2단 2stage



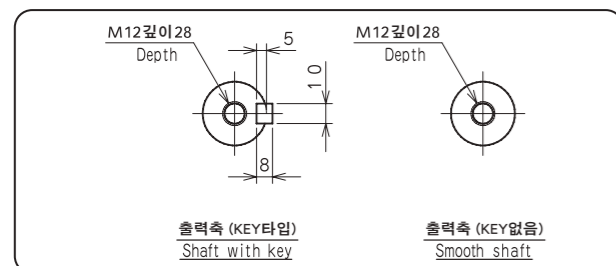
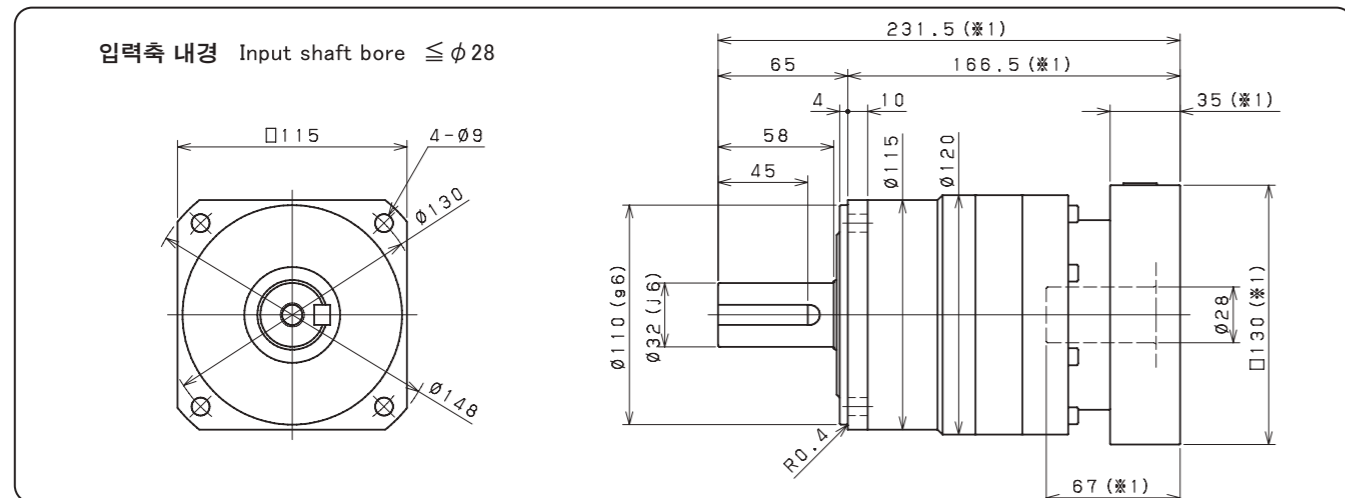
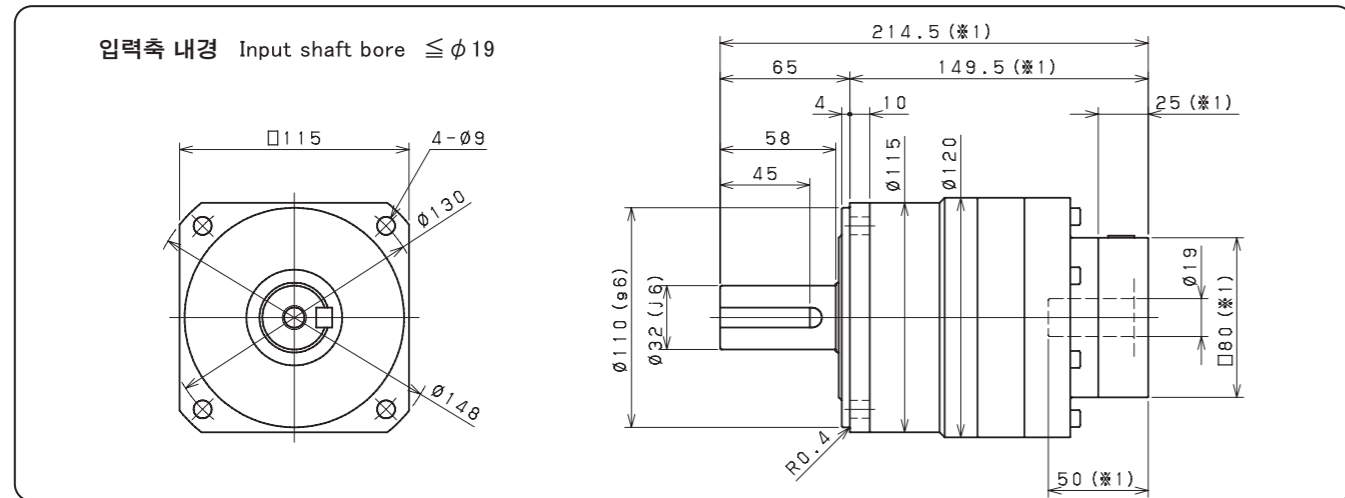
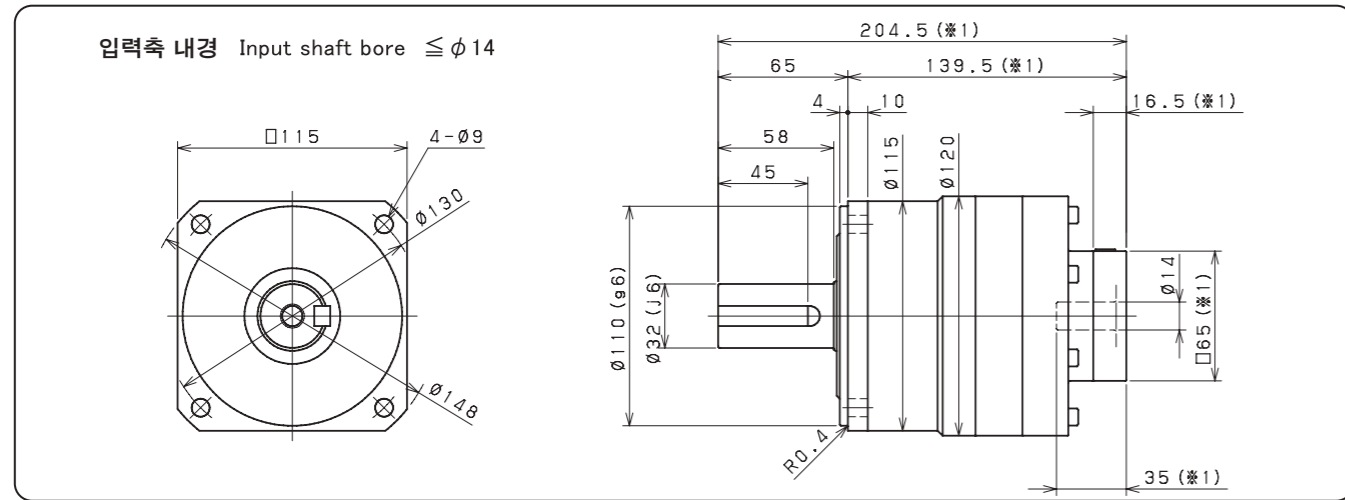
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- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMB 115 1단 1stage



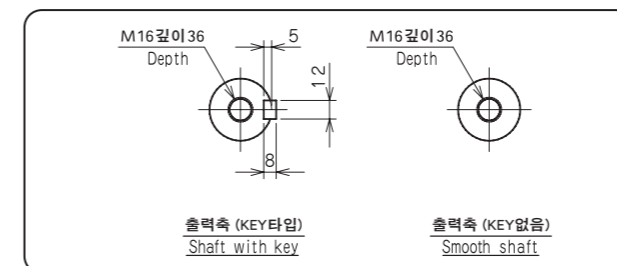
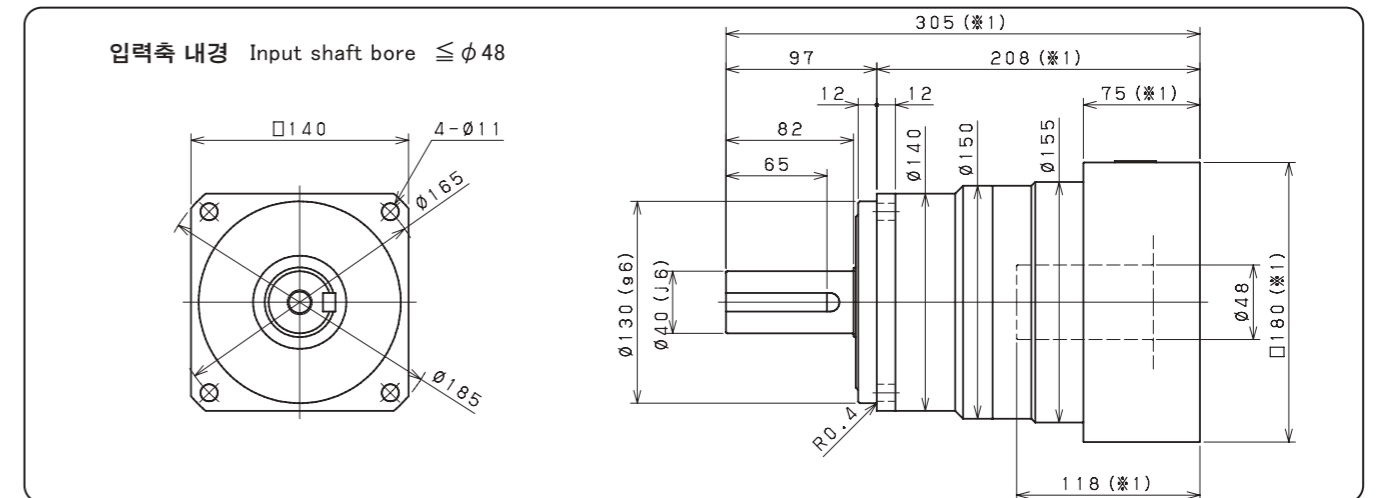
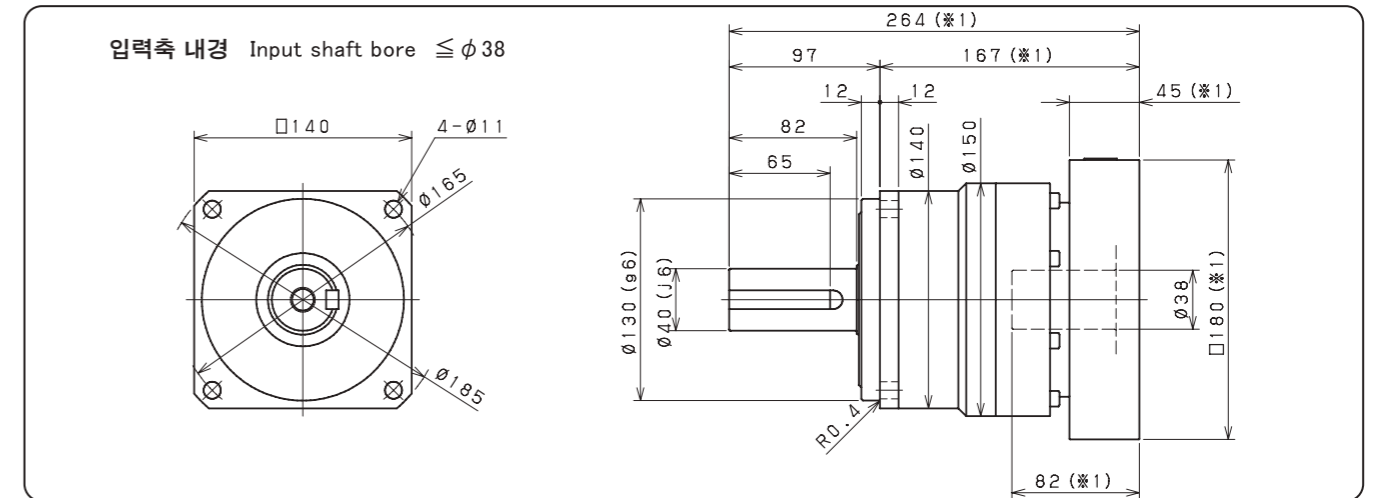
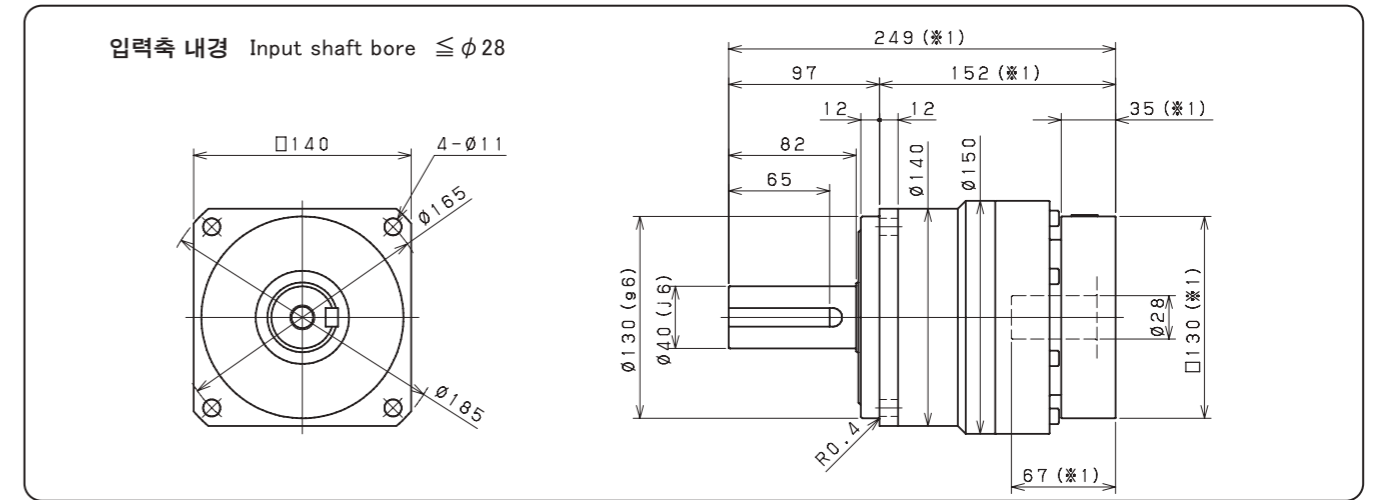
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMB 115 2단 2stage



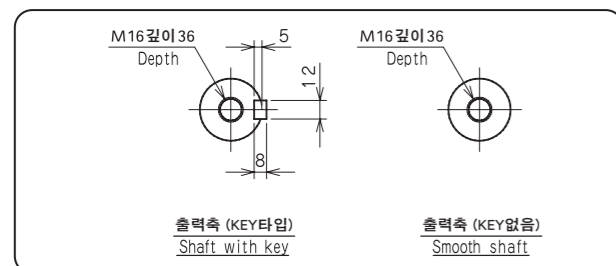
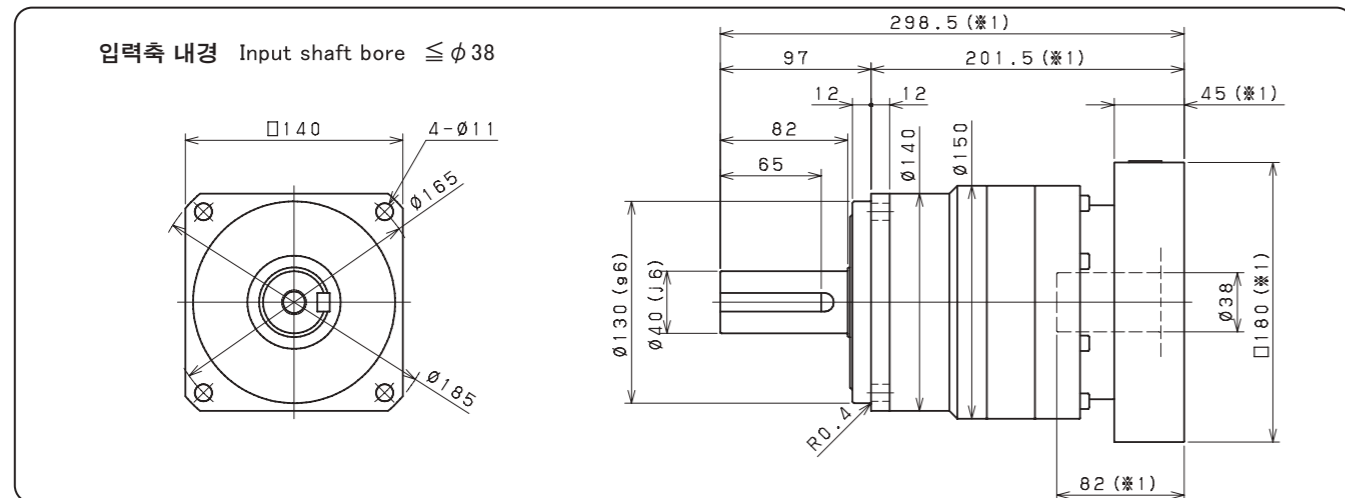
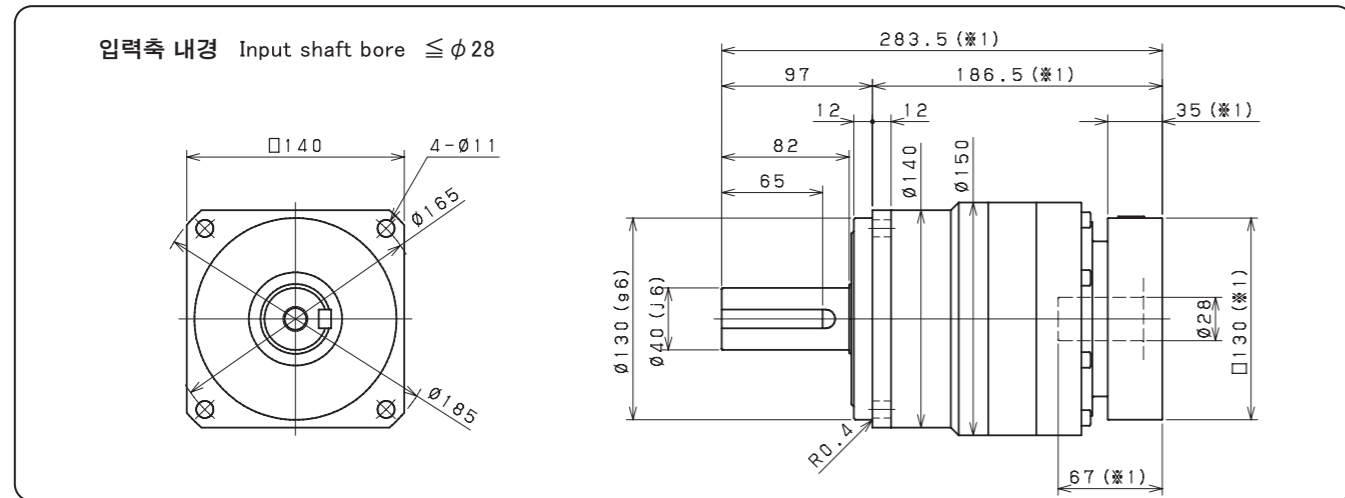
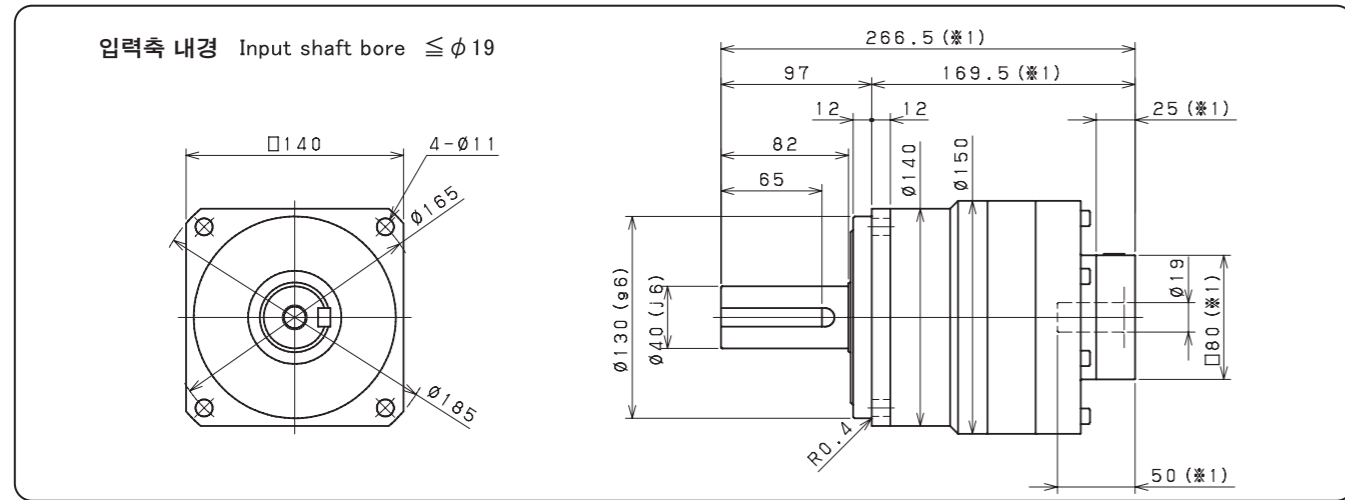
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMB 140 1단 1stage



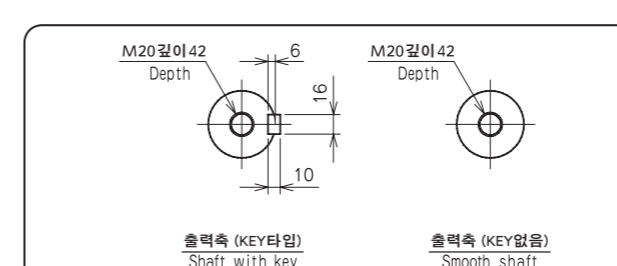
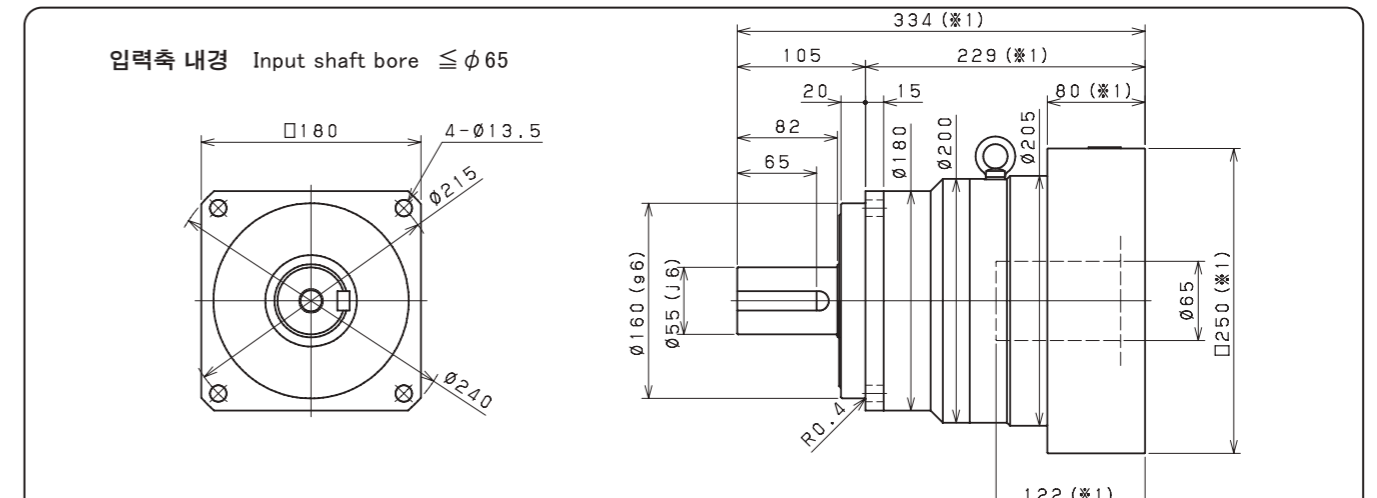
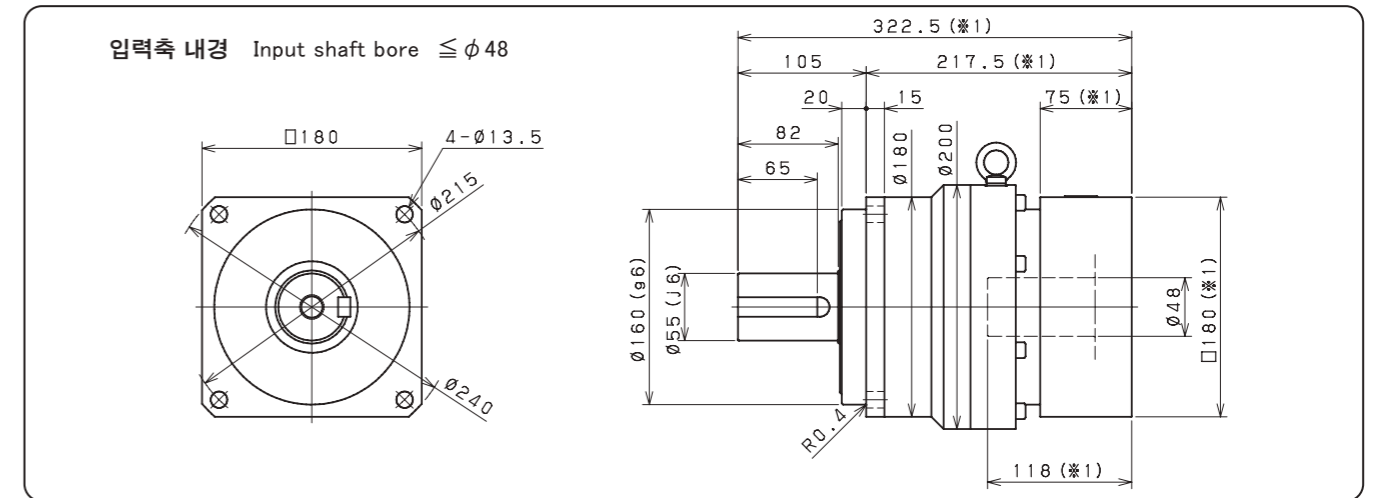
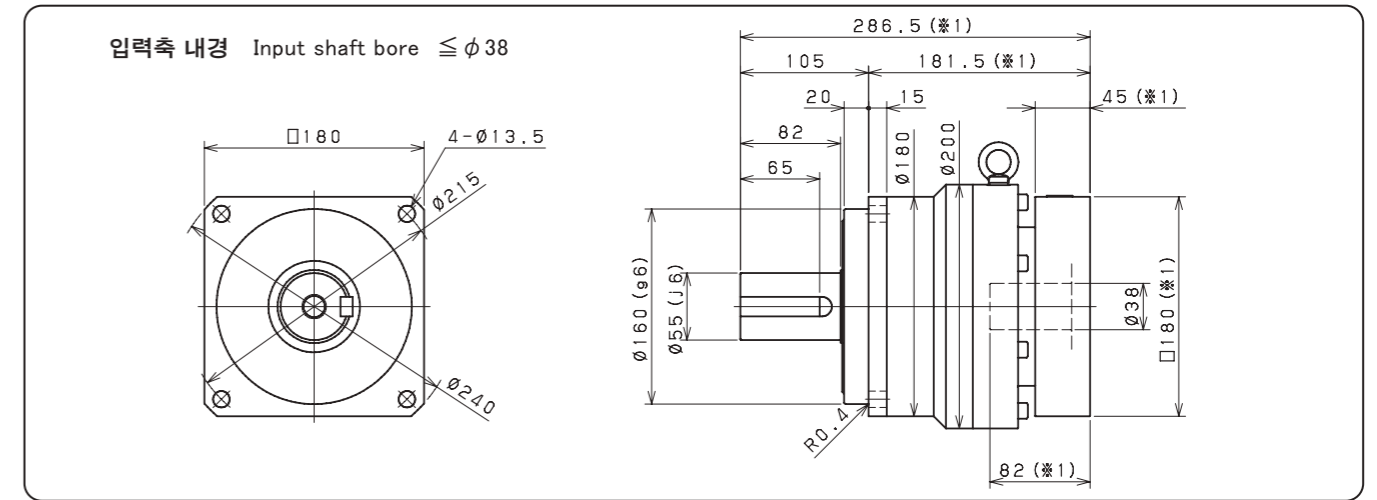
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMB 140 2단 2stage



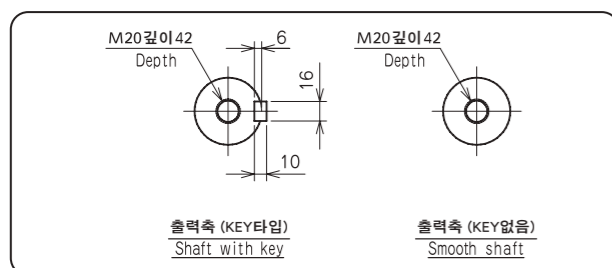
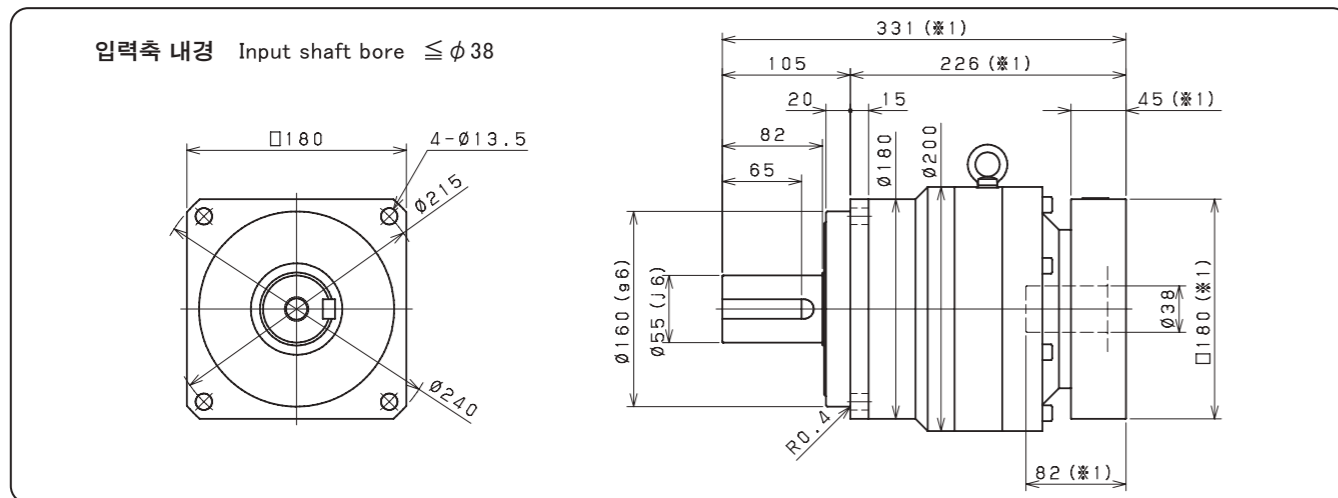
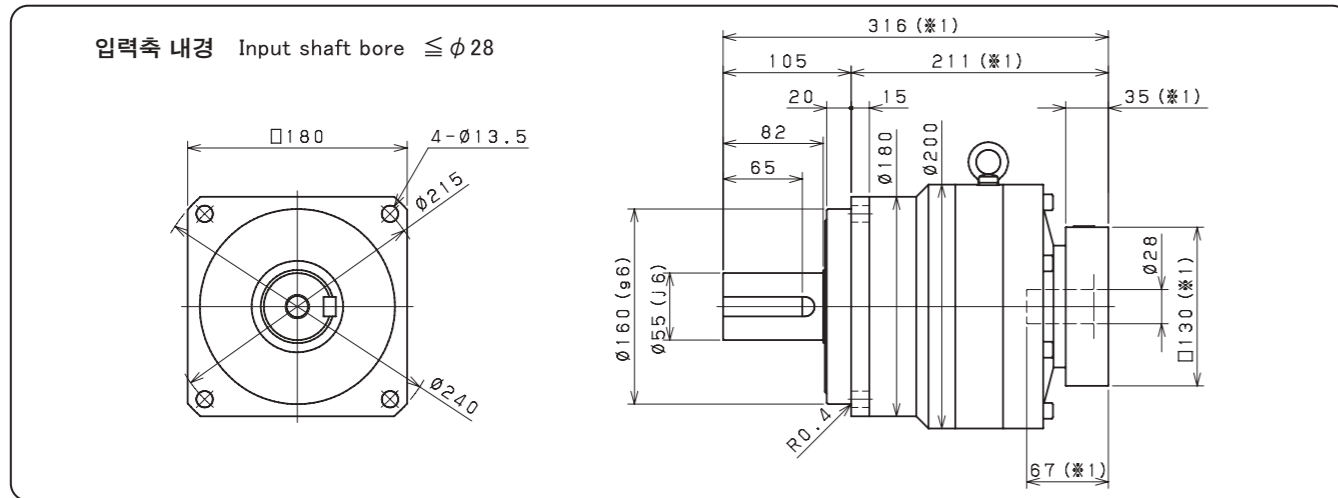
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMB 180 1단 1stage



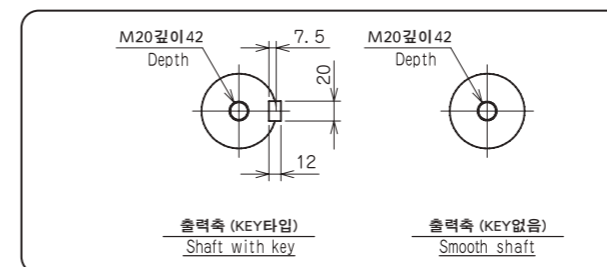
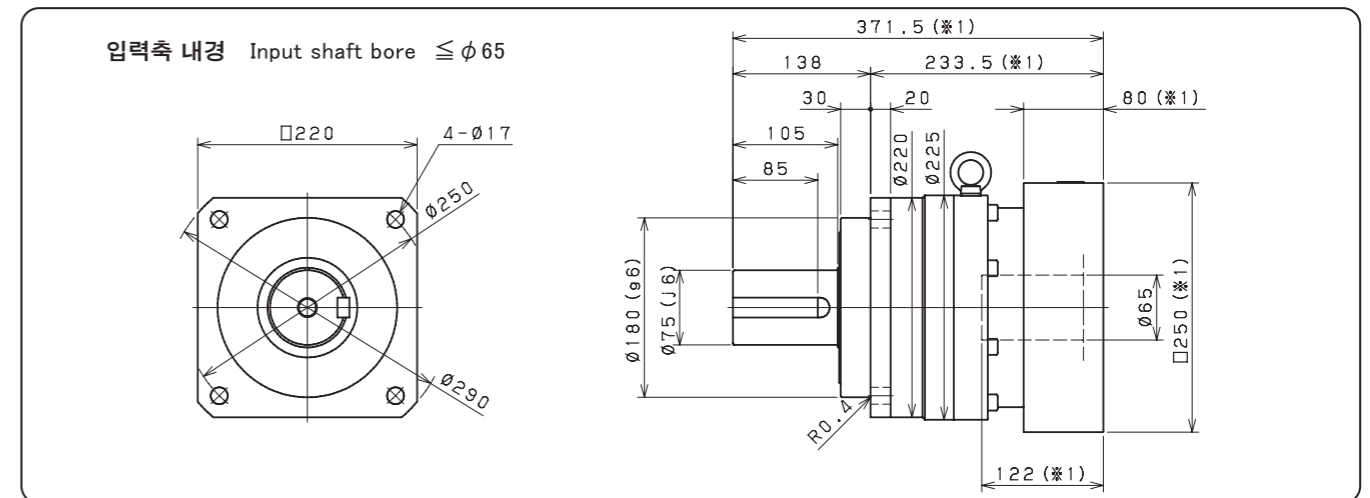
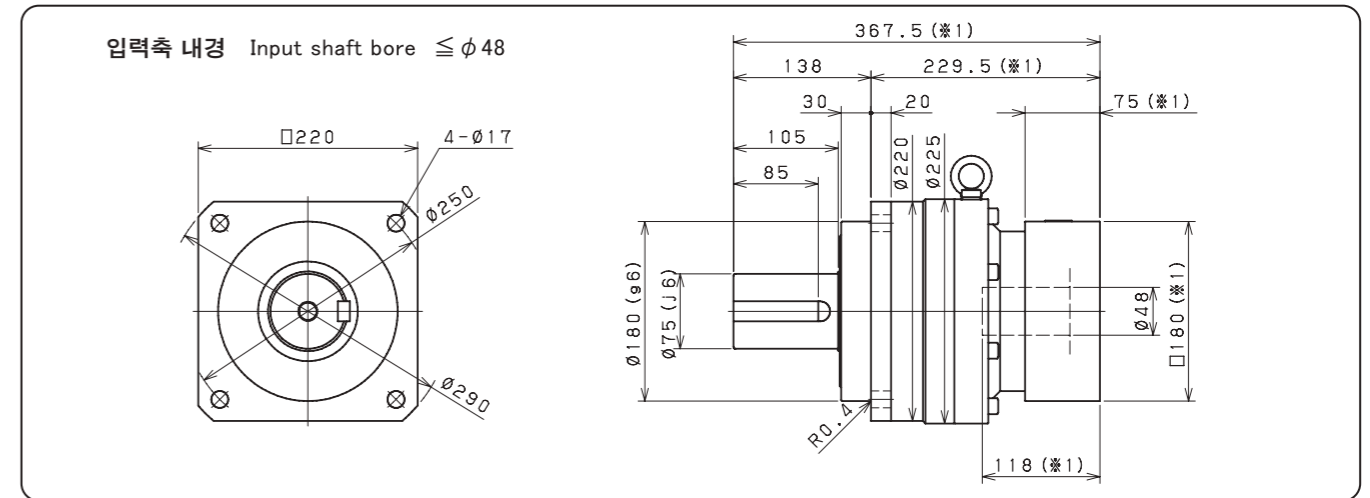
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMB 180 2단 2stage



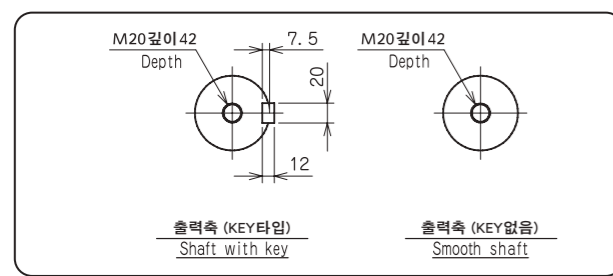
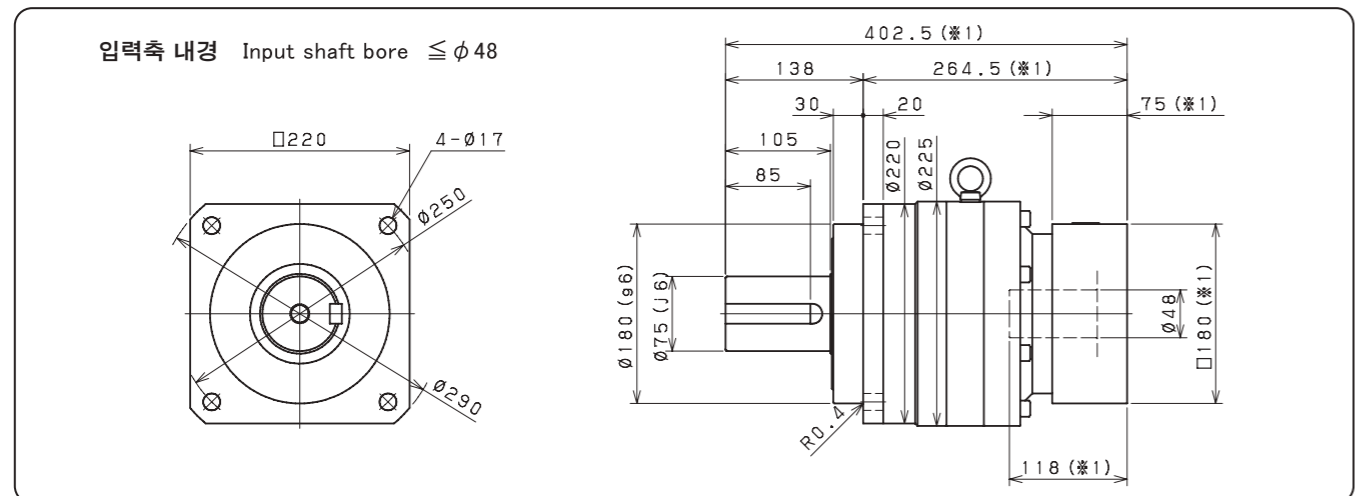
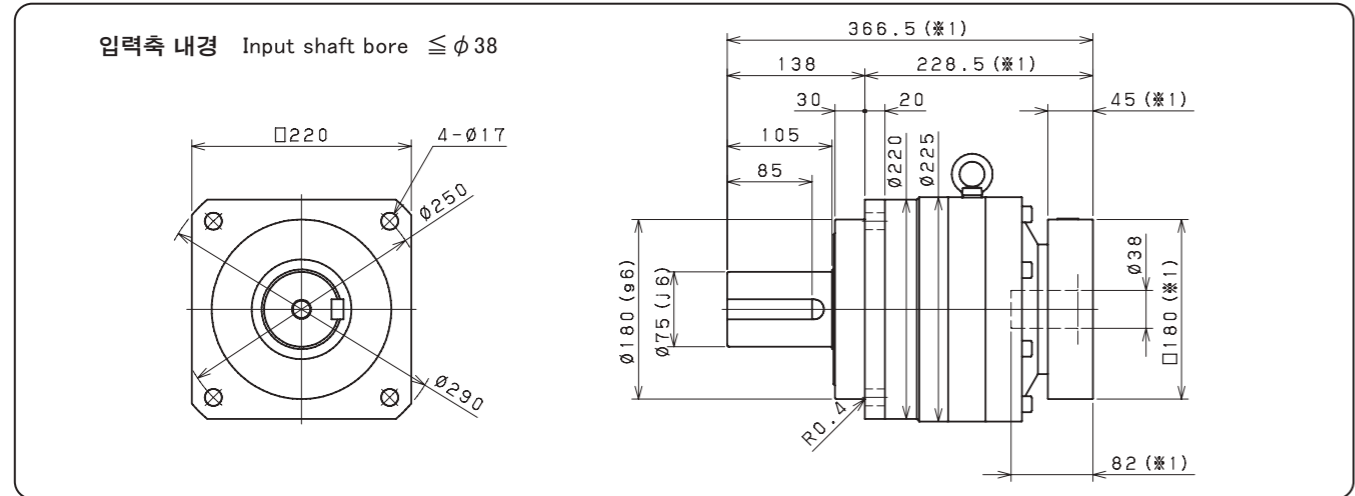
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMB 220 1단 1stage



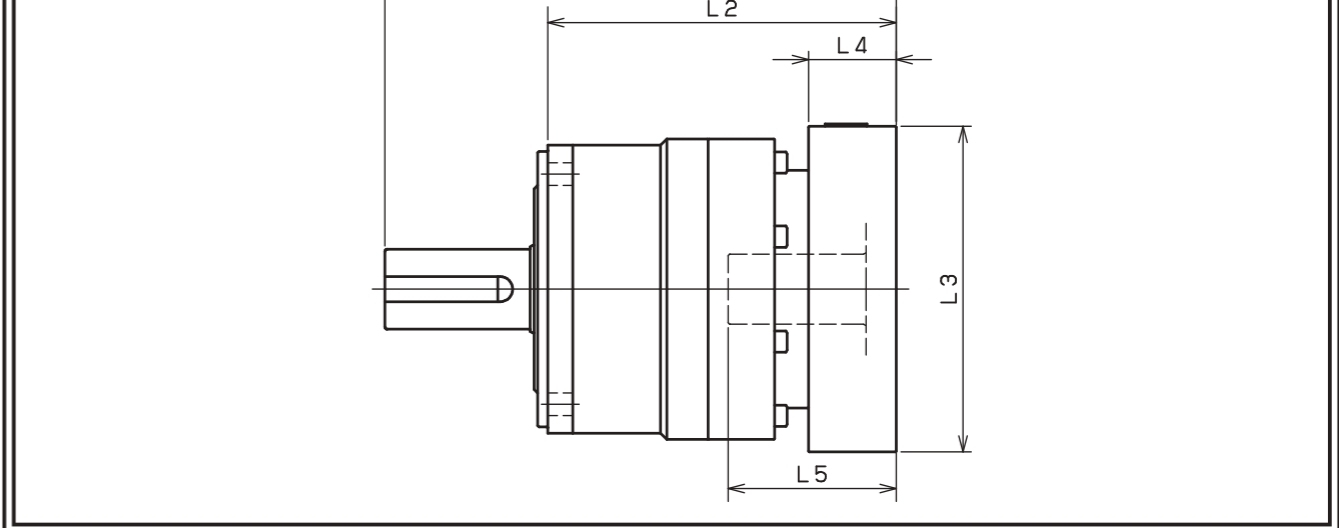
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMB 220 2단 2stage



※1 적용 모터에 따라 길이는 변경될 수 있습니다.
 ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
 ※1 Length will vary depending on motor.
 ※2 Bushing will be inserted to adapt to motor shaft.

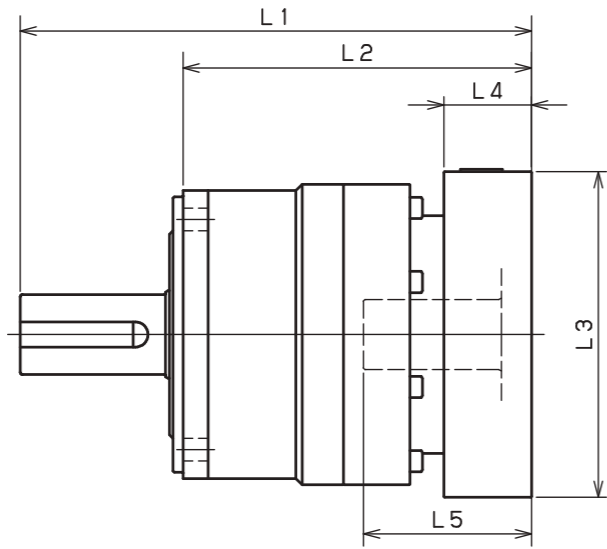
SMB 060



모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	1단 Single					2단 Double				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMB060□□□-8** (입력축 내경 Input shaft bore $\leq \phi 8$)	AA·AC·AD·AF·AG	112	75	□52	15.5	32	131	94	□52	15.5	32
	AB·AE·AH·AJ·AK	117	80	□52	20.5	37	136	99	□52	20.5	37
	BA·BB·BD·BE	112	75	□60	15.5	32	131	94	□60	15.5	32
	BC·BF	117	80	□60	20.5	37	136	99	□60	20.5	37
	CA	117	80	□70	20.5	37	136	99	□70	20.5	37
SMB060□□□-14** (입력축 내경 Input shaft bore $\leq \phi 14$)	BA·BB·BD·BE·BF·BG·BJ·BK	115	78	□65	16.5	35	136	99	□65	16.5	35
	BC·BH·BM	120	83	□65	21.5	40	141	104	□65	21.5	40
	BL	125	88	□65	26.5	45	146	109	□65	26.5	45
	CA	115	78	□70	16.5	35	136	99	□70	16.5	35
	CB	120	83	□70	21.5	40	141	104	□70	21.5	40
	DA·DB·DC·DD·DF·DH	115	78	□80	16.5	35	136	99	□80	16.5	35
	DE	120	83	□80	21.5	40	141	104	□80	21.5	40
	DG	125	88	□80	26.5	45	146	109	□80	26.5	45
	EA·EB·EC	115	78	□90	16.5	35	136	99	□90	16.5	35
	ED	125	88	□90	26.5	45	146	109	□90	26.5	45
SMB060□□□-19** (입력축 내경 Input shaft bore $\leq \phi 19$)	FA	115	78	□100	16.5	35	136	99	□100	16.5	35
	GA	115	78	□115	16.5	35	136	99	□115	16.5	35
	DA·DB·DC	130	93	□80	25	50					
	DD	140	103	□80	35	60					
	DE	135	98	□80	30	55					
	EA	135	98	□90	30	55					
	EB	130	93	□90	25	50					
	EC	140	103	□90	35	60					
	FA	130	93	□100	25	50					
	FB	140	103	□100	35	60					
GA·GC	135	98	□115	30	55						
GB·GD	130	93	□115	25	50						
HA	130	93	□130	25	50						
HB	145	108	□130	40	65						
HC·HD·HE	135	98	□130	30	55						

※1 1단 감속비: 1/3~1/10 ; 2단 감속비: 1/15~1/100
 ※1 Single reduction : 1/3 ~ 1/10, Double reduction : 1/15 ~ 1/100
 ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
 ※2 Bushing will be inserted to adapt to motor shaft.

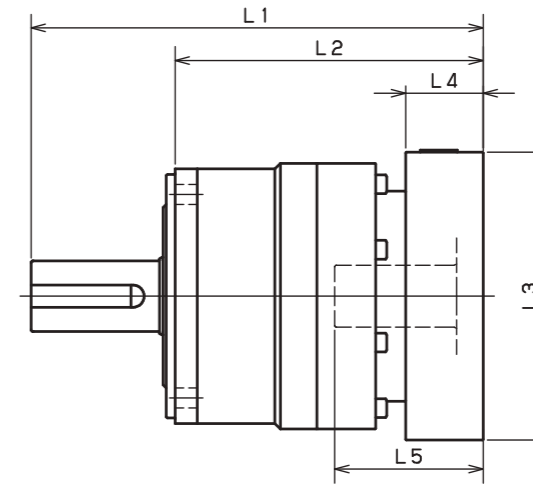
SMB 090



모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	1단 Single					2단 Double				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMB090□□□-8** (입력축 내경 ≤ φ8)	AA·AC·AD·AF·AG	/	/	/	/	/	160	112	□52	15.5	32
	AB·AE·AH·AJ·AK	/	/	/	/	/	165	117	□52	20.5	37
	BA·BB·BD·BE	/	/	/	/	/	160	112	□60	15.5	32
	BC·BF	/	/	/	/	/	165	117	□60	20.5	37
	CA	/	/	/	/	/	165	117	□70	20.5	37
SMB090□□□-14** (입력축 내경 ≤ φ14)	BA·BB·BD·BE·BF·BG·BJ·BK	143	95	□65	16.5	35	165	117	□65	16.5	35
	BC·BH·BM	148	100	□65	21.5	40	170	122	□65	21.5	40
	BL	153	105	□65	26.5	45	175	127	□65	26.5	45
	CA	143	95	□70	16.5	35	165	117	□70	16.5	35
	CB	148	100	□70	21.5	40	170	122	□70	21.5	40
	DA·DB·DC·DD·DF·DH	143	95	□80	16.5	35	165	117	□80	16.5	35
	DE	148	100	□80	21.5	40	170	122	□80	21.5	40
	DG	153	105	□80	26.5	45	175	127	□80	26.5	45
	EA·EB·EC	143	95	□90	16.5	35	165	117	□90	16.5	35
	ED	153	105	□90	26.5	45	175	127	□90	26.5	45
SMB090□□□-19** (입력축 내경 ≤ φ19)	DA·DB·DC	153	105	□80	25	50	175	127	□80	25	50
	DD	163	115	□80	35	60	185	137	□80	35	60
	DE	158	110	□80	30	55	180	132	□80	30	55
	EA	158	110	□90	30	55	180	132	□90	30	55
	EB	153	105	□90	25	50	175	127	□90	25	50
	EC	163	115	□90	35	60	185	137	□90	35	60
	FA	153	105	□100	25	50	175	127	□100	25	50
	FB	163	115	□100	35	60	185	137	□100	35	60
	GA·GC	158	110	□115	30	55	180	132	□115	30	55
	GB·GD	153	105	□115	25	50	175	127	□115	25	50
SMB090□□□-28** (입력축 내경 ≤ φ28)	HA	153	105	□130	25	50	175	127	□130	25	50
	HB	168	120	□130	40	65	190	142	□130	40	65
	HC·HD·HE	158	110	□130	30	55	180	132	□130	30	55
	FA·FB·FC	170	122	□100	35	67	/	/	/	/	/
	GA·GB·GC·GD·GE·GF·GG	170	122	□115	35	67	/	/	/	/	/
	HA·HC·HD	170	122	□130	35	67	/	/	/	/	/
	HB	180	132	□130	45	77	/	/	/	/	/
	JA·JB·JC	170	122	□150	35	67	/	/	/	/	/
SMB115□□□-14** (입력축 내경 ≤ φ14)	KA·KB	170	122	□180	35	67	/	/	/	/	/
	KD	180	132	□180	45	77	/	/	/	/	/
	LA	170	122	□200	35	67	/	/	/	/	/
	MA	170	122	□220	35	67	/	/	/	/	/
	NA	170	122	□220	35	67	/	/	/	/	/
	MB	170	122	□220	35	67	/	/	/	/	/

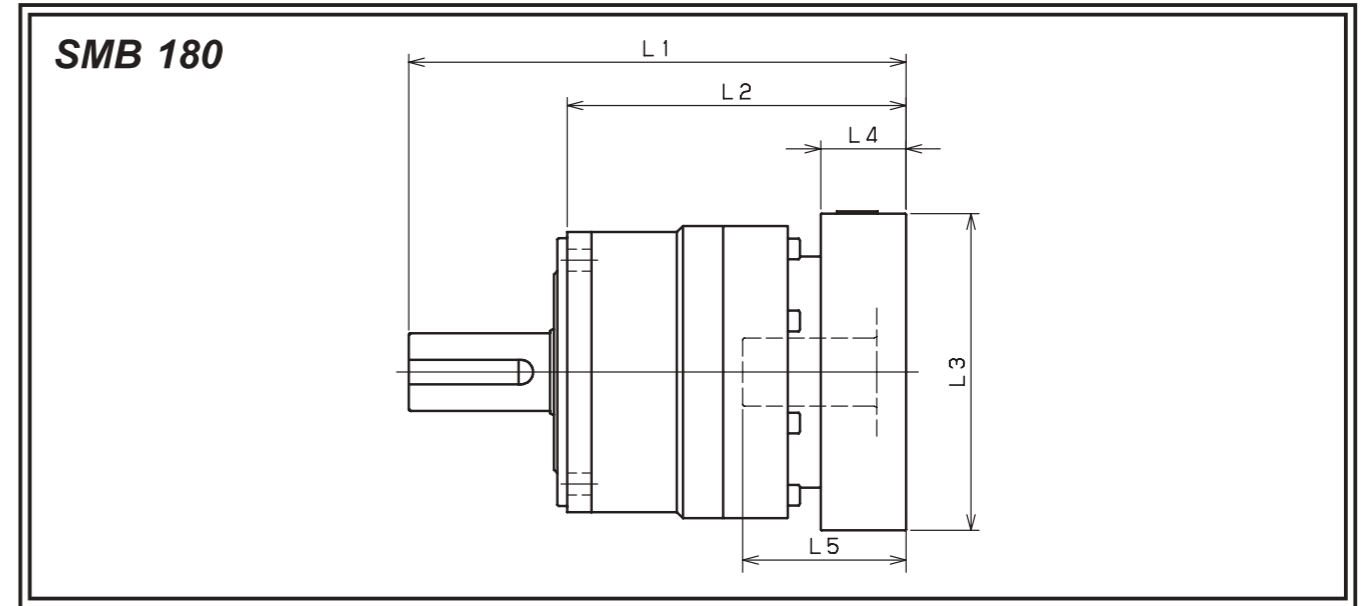
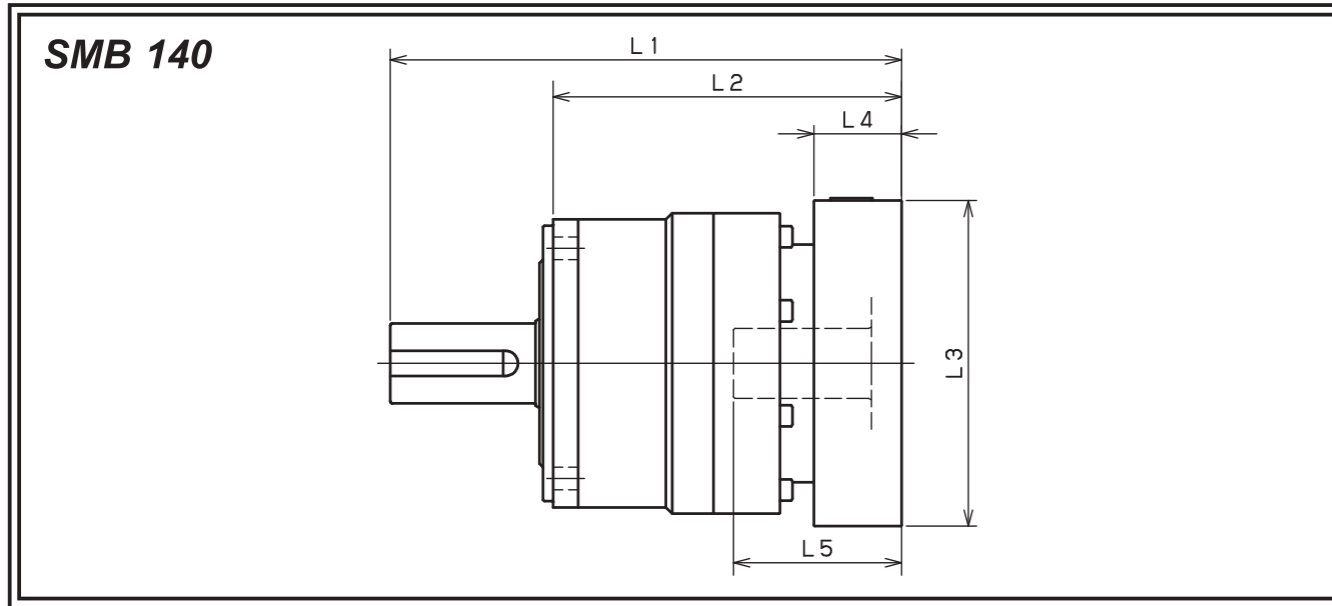
※ 1 1단 감속비: 1/3~1/10 ; 2단 감속비: 1/15~1/100 ※ 1 Single reduction : 1/3~1/10, Double reduction : 1/15~1/100
 ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※ 2 Bushing will be inserted to adapt to motor shaft.

SMB 115



모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	1단 Single					2단 Double					
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5	
SMB115□□□-14** (입력축 내경 ≤ φ14)	BA·BB·BD·BE·BF·BG·BJ·BK	/	/	/	/	/	204.5	139.5	□65	16.5	35	
	BC·BH·BM	/	/	/	/	/	209.5	144.5	□65	21.5	40	
	BL	/	/	/	/	/	214.5	149.5	□65	26.5	45	
	CA	/	/	/	/	/	204.5	139.5	□70	16.5	35	
	CB	/	/	/	/	/	209.5	144.5	□70	21.5	40	
	DA·DB·DC·DD·DF·DH	/	/	/	/	/	204.5	139.5	□80	16.5	35	
	DE	/	/	/	/	/	209.5	144.5	□80	21.5	40	
	DG	/	/	/	/	/	214.5	149.5	□80	26.5	45	
	EA·EB·EC	/	/	/	/	/	204.5	139.5	□90	16.5	35	
	ED	/	/	/	/	/	214.5	149.5	□90	26.5	45	
	FA	/	/	/	/	/	204.5	139.5	□100	16.5	35	
	GA	/	/	/	/	/	204.5	139.5	□115	16.5	35	
	SMB115□□□-19** (입력축 내경 ≤ φ19)	DA·DB·DC	187	122	□80	25	50	214.5	149.5	□80	25	50
		DD	197	132	□80	35	60	224.5	159.5	□80	35	60
DE		192	127	□80	30	55	219.5	154.5	□80	30	55	
EA		192	127	□90	30	55	219.5	154.5	□90	30	55	
EB		187	122	□90	25	50	214.5	149.5	□90	25	50	
EC		197	132	□90	35	60	224.5	159.5	□90	35	60	
FA		187	122	□100	25	50	214.5	149.5	□100	25	50	
FB		197	132	□100	35	60	224.5	159.5	□100	35	60	
GA·GC		192	127	□115	30	55	219.5	154.5	□115	30	55	
GB·GD		187	122	□115	25	50	214.5	149.5	□115	25	50	
HA		187	122	□130	25	50	214.5	149.5	□130	25	50	
HB		202	137	□130	40	65	229.5	164.5	□130	40	65	
HC·HD·HE		192	127	□130	30	55	219.5	154.5	□130	30	55	
SMB115□□□-28** (입력축 내경 ≤ φ28)		FA·FB·FC	204	139	□100	35	67	231.5	166.5	□100	35	67
	GA·GB·GC·GD·GE·GF·GG	204	139	□115	35	67	231.5	166.5	□115	35	67	
	HA·HC·HD	204	139	□130	35	67	231.5	166.5	□130	35	67	
	HB	214	149	□130	45	77	241.5	176.5	□130	45	77	
	JA·JB·JC	204	139	□150	35	67	231.5	166.5	□150	35	67	
	KA·KB	204	139	□180	35	67	231.5	166.5	□180	35	67	
	KD	214	149	□180	45	77	241.5	176.5	□180	45	77	
	LA	204	139	□200	35	67	231.5	166.5	□200	35	67	
SMB115□□□-38** (입력축 내경 ≤ φ38)	MA	204	139	□220	35	67	231.5	166.5	□220	35	67	
	HA	225	160	□130	45	82	/	/	/	/	/	
	HB	220	155	□130	40	77	/	/	/	/	/	
	JA	225	160	□150	45	82	/	/	/	/	/	
	KA·KB·KC	225	160	□180	45	82	/	/	/	/	/	
	LA	225	160	□200	45	82	/	/	/	/	/	
	LB	235	170	□200	55	92	/	/	/	/	/	
	MA·MB	225	160	□220	45	82	/	/	/	/	/	
NA	225	160	□250	45	82	/	/	/	/	/		

※ 1 1단 감속비: 1/3~1/10 ; 2단 감속비: 1/15~1/100 ※ 1 Single reduction : 1/3~1/10, Double reduction : 1/15~1/100
 ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※ 2 Bushing will be inserted to adapt to motor shaft.

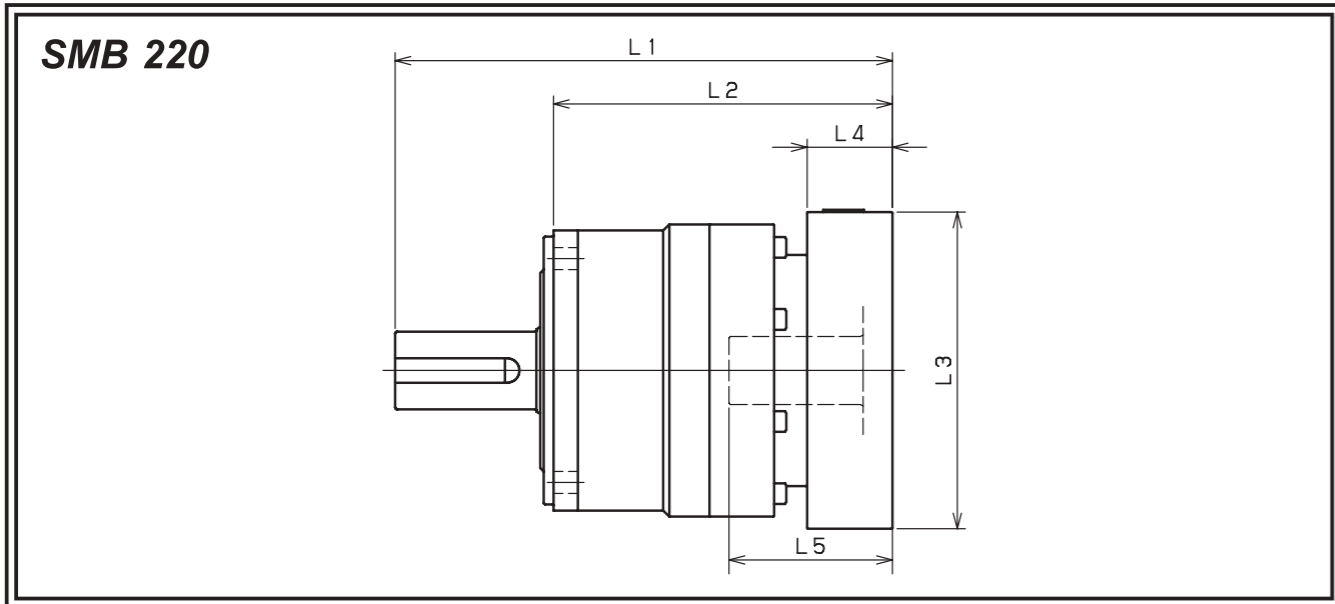


모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	1단 Single					2단 Double				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMB140□□□-19** (입력축 내경 ≤ φ19)	DA·DB·DC	/	/	/	/	/	266.5	169.5	□80	25	50
	DD	/	/	/	/	/	276.5	179.5	□80	35	60
	DE	/	/	/	/	/	271.5	174.5	□80	30	55
	EA	/	/	/	/	/	271.5	174.5	□90	30	55
	EB	/	/	/	/	/	266.5	169.5	□90	25	50
	EC	/	/	/	/	/	276.5	179.5	□90	35	60
	FA	/	/	/	/	/	266.5	169.5	□100	25	50
	FB	/	/	/	/	/	276.5	179.5	□100	35	60
	GA·GC	/	/	/	/	/	271.5	174.5	□115	30	55
	GB·GD	/	/	/	/	/	266.5	169.5	□115	25	50
	HA	/	/	/	/	/	266.5	169.5	□130	25	50
	HB	/	/	/	/	/	281.5	184.5	□130	40	65
	HC·HD·HE	/	/	/	/	/	271.5	174.5	□130	30	55
	SMB140□□□-28** (입력축 내경 ≤ φ28)	FA·FB·FC	249	152	□100	35	67	283.5	186.5	□100	35
GA·GB·GC·GD·GE·GF·GG		249	152	□115	35	67	283.5	186.5	□115	35	67
HA·HC·HD		249	152	□130	35	67	283.5	186.5	□130	35	67
HB		259	162	□130	45	77	293.5	196.5	□130	45	77
JA·JB·JC		249	152	□150	35	67	283.5	186.5	□150	35	67
KA·KB		249	152	□180	35	67	283.5	186.5	□180	35	67
KD		259	162	□180	45	77	293.5	196.5	□180	45	77
LA		249	152	□200	35	67	283.5	186.5	□200	35	67
SMB140□□□-38** (입력축 내경 ≤ φ38)	MA	249	152	□220	35	67	283.5	186.5	□220	35	67
	HA	264	167	□130	45	82	298.5	201.5	□130	45	82
	HB	259	162	□130	40	77	293.5	196.5	□130	40	77
	JA	264	167	□150	45	82	298.5	201.5	□150	45	82
	KA·KB·KC	264	167	□180	45	82	298.5	201.5	□180	45	82
	LA	264	167	□200	45	82	298.5	201.5	□200	45	82
	LB	274	177	□200	55	92	308.5	211.5	□200	55	92
	MA·MB	264	167	□220	45	82	298.5	201.5	□220	45	82
SMB140□□□-48** (입력축 내경 ≤ φ48)	NA	264	167	□250	45	82	298.5	201.5	□250	45	82
	KB·KC	285	188	□180	55	98	/	/	/	/	/
	KA	305	208	□180	75	118	/	/	/	/	/
	LA	285	188	□200	55	98	/	/	/	/	/
	MA	285	188	□220	55	98	/	/	/	/	/
	MB	305	208	□220	75	118	/	/	/	/	/
	NA	305	208	□250	75	118	/	/	/	/	/
	PA	305	208	□280	75	118	/	/	/	/	/

※ 1 1단 감속비: 1/3~1/10 ; 2단 감속비: 1/15~1/100 ※ 1 Single reduction : 1/3 ~ 1/10, Double reduction : 1/15 ~ 1/100
 ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※ 2 Bushing will be inserted to adapt to motor shaft.

모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	1단 Single					2단 Double				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMB180□□□-28** (입력축 내경 ≤ φ28)	FA·FB·FC	/	/	/	/	/	316	211	□100	35	67
	GA·GB·GC·GD·GE·GF·GG	/	/	/	/	/	316	211	□115	35	67
	HA·HC·HD	/	/	/	/	/	316	211	□130	35	67
	HB	/	/	/	/	/	326	221	□130	45	77
	JA·JB·JC	/	/	/	/	/	316	211	□150	35	67
	KA·KB	/	/	/	/	/	316	211	□180	35	67
	KD	/	/	/	/	/	326	221	□180	45	77
	LA	/	/	/	/	/	316	211	□200	35	67
	MA	/	/	/	/	/	316	211	□220	35	67
	SMB180□□□-38** (입력축 내경 ≤ φ38)	HA	286.5	181.5	□130	45	82	331	226	□130	45
HB		281.5	176.5	□130	40	77	326	221	□130	40	77
JA		286.5	181.5	□150	45	82	331	226	□150	45	82
KA·KB·KC		286.5	181.5	□180	45	82	331	226	□180	45	82
LA		286.5	181.5	□200	45	82	331	226	□200	45	82
LB		296.5	191.5	□200	55	92	341	236	□200	55	92
MA·MB		286.5	181.5	□220	45	82	331	226	□220	45	82
NA		286.5	181.5	□250	45	82	331	226	□250	45	82
SMB180□□□-48** (입력축 내경 ≤ φ48)	KB·KC	302.5	197.5	□180	55	98	347	242	□180	55	98
	KA	322.5	217.5	□180	75	118	367	262	□180	75	118
	LA	302.5	197.5	□200	55	98	347	242	□200	55	98
	MA	302.5	197.5	□220	55	98	347	242	□220	55	98
	MB	322.5	217.5	□220	75	118	367	262	□220	75	118
	NA	322.5	217.5	□250	75	118	367	262	□250	75	118
	PA	322.5	217.5	□280	75	118	367	262	□280	75	118
SMB180□□□-65** (입력축 내경 ≤ φ65)	MA·MB·MC·MD	334	229	□220	80	122	/	/	/	/	/
	NA	334	229	□250	80	122	/	/	/	/	/
	PA	354	249	□280	100	142	/	/	/	/	/
	PB	364	259	□280	110	152	/	/	/	/	/
	QA	354	249	□320	100	142	/	/	/	/	/

※ 1 1단 감속비: 1/3~1/10 ; 2단 감속비: 1/15~1/100 ※ 1 Single reduction : 1/3 ~ 1/10, Double reduction : 1/15 ~ 1/100
 ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※ 2 Bushing will be inserted to adapt to motor shaft.



모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	1단 Single					2단 Double				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMB220□□□-38** (입력축 내경 ≤ φ38 Input shaft bore)	HA						366.5	228.5	□130	45	82
	HB						361.5	223.5	□130	40	77
	JA						366.5	228.5	□150	45	82
	KA·KB·KC						366.5	228.5	□180	45	82
	LA						366.5	228.5	□200	45	82
	LB						376.5	238.5	□200	55	92
	MA·MB						366.5	228.5	□220	45	82
SMB220□□□-48** (입력축 내경 ≤ φ48 Input shaft bore)	NA						366.5	228.5	□250	45	82
	KB·KC	347.5	209.5	□180	55	98	382.5	244.5	□180	55	98
	KA	367.5	229.5	□180	75	118	402.5	264.5	□180	75	118
	LA	347.5	209.5	□200	55	98	382.5	244.5	□200	55	98
	MA	347.5	209.5	□220	55	98	382.5	244.5	□220	55	98
	MB	367.5	229.5	□220	75	118	402.5	264.5	□220	75	118
	NA	367.5	229.5	□250	75	118	402.5	264.5	□250	75	118
SMB220□□□-65** (입력축 내경 ≤ φ65 Input shaft bore)	PA	367.5	229.5	□280	75	118	402.5	264.5	□280	75	118
	MA·MB·MC·MD	371.5	233.5	□220	80	122					
	NA	371.5	233.5	□250	80	122					
	PA	391.5	253.5	□280	100	142					
	PB	401.5	263.5	□280	110	152					
QA	391.5	253.5	□320	100	142						

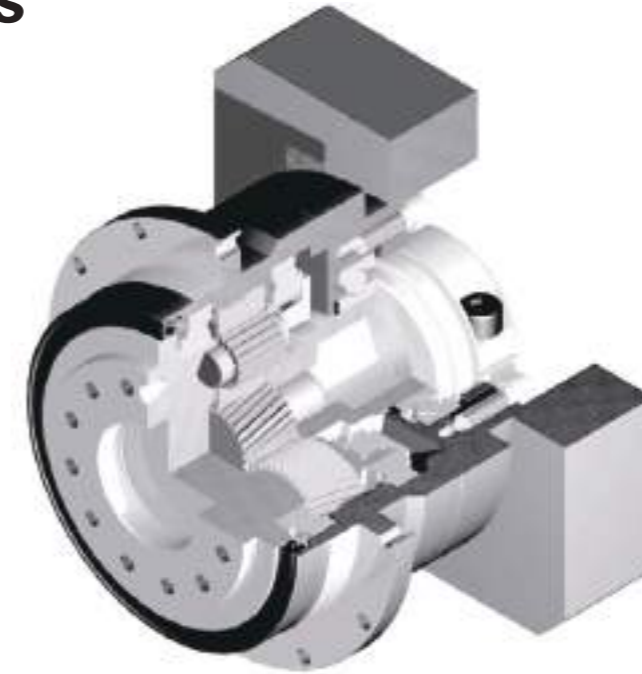
※ 1 1단 감속비: 1/3~1/10 ; 2단 감속비: 1/15~1/100

※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.

※ 1 Single reduction : 1/3 ~ 1/10, Double reduction : 1/15 ~ 1/100

※ 2 Bushing will be inserted to adapt to motor shaft.

SMT series



고정밀

표준 백래시 ≤ 3 arc-min.

High precision

Standard backlash is 3 arc-min, ideal for precision control.

고강성 & 고토크

Uncaged 니들롤러베어링을 사용하여 강성과 토크 향상.

High rigidity & torque

High rigidity & high torque were achieved by uncaged needle roller bearings.

고하중

출력단에 테이퍼롤러 베어링을 사용하여 반경방향 및 축방향 하중을 증가.

※ (프레임사이즈 064·090 제품은 볼베어링).

High load capacity

Adopting taper roller bearing for the main output shaft to increase radial and axial load.

※ Frame size 064 · 090 adopt ball bearing.

어댑터-부싱 연결방식

다양한 모터에 취부 가능.

Adapter-bushing connection

Can be attached to any motor all over the world.

그리스 누유현상 없음

고점도 분리방지 그리스를 사용.

No grease leakage

Perfect solution using high viscosity anti-separation grease.

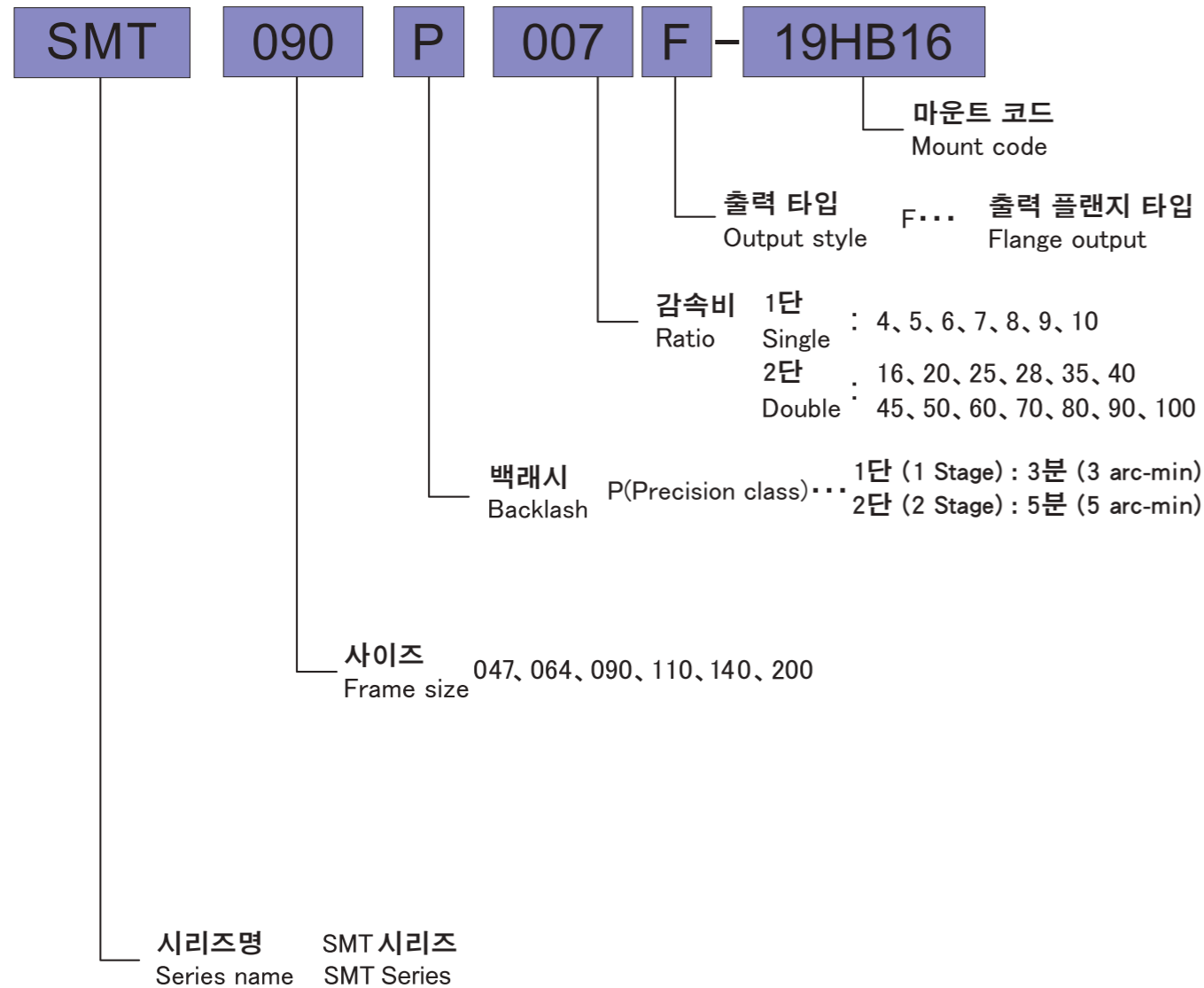
유지 보수 불필요

제품 수명 동안 그리스 교체 불필요 자유로운 설치 가능.

Maintenance-free

No need to replace the grease for the life of the unit. Can be attached in any position.

SMT series

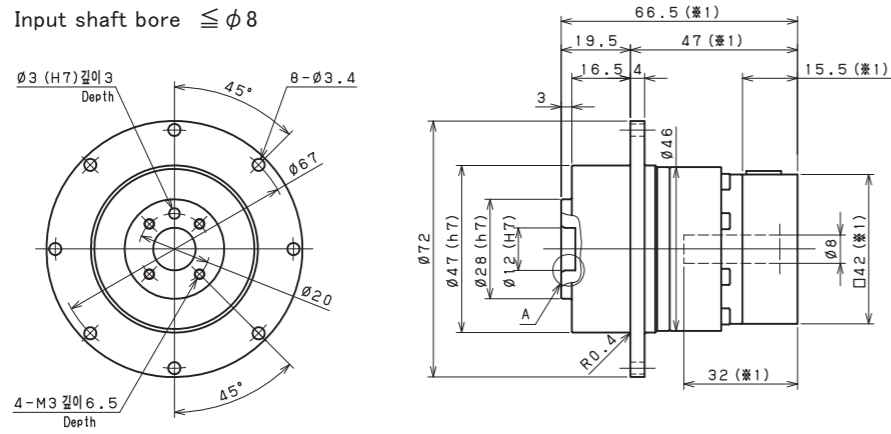


Model No.	Unit	Stage	Ratio ¹	SMT047	SMT064	SMT090	SMT110	SMT140	SMT200	
Rated Output Torque (Nominal Output torque)	T _{2N}	1	4	16	39	110	210	460	950	
			5	19	43	110	210	580	1,200	
			6	15	43	108	160	530	1,100	
			7	15	43	108	200	490	1,000	
			8	15	43	79	190	420	900	
			9	15	35	90	170	390	800	
			10	15	30	88	170	370	800	
			16	16	39	100	210	460	950	
			20	16	39	100	210	460	950	
			25	19	43	110	210	580	1,200	
		2	28	18	43	108	200	580	1,200	
			35	18	43	108	200	580	1,200	
			40	19	43	110	210	460	1,200	
			45	17	39	90	170	580	1,200	
			50	19	43	110	210	580	1,200	
			60	18	43	108	160	580	1,200	
			70	18	43	108	200	490	1,100	
			80	17	43	79	190	420	900	
			90	17	39	90	170	390	800	
100	17		39	88	170	370	800			
Max. Acceleration Torque	T _{2B}	Nm	1,2	4~100	1.8 Times of Rated Output Torque					
Max. Output Torque Emergency Stop Torque	T _{2NOT}	Nm	1,2	4~100	3 Times of Rated Output Torque					
Nominal Input speed	n _{1n}	rpm	1,2	4~100	3,000	3,000	3,000	3,000	2,000	1,500
Max. Input speed	n _{1B}	rpm	1,2	4~100	6,000	6,000	6,000	6,000	5,000	4,000
Backlash (Precision class)		arcmin	1	4~10	≤3	≤3	≤3	≤3	≤3	≤3
			2	16~100	≤5	≤5	≤5	≤5	≤5	≤5
Torsional Rigidity		Nm/arcmin	1,2	4~100	2	5	12	23	38	110
Max. Radial load ²	F _{2rB}	N	1,2	4~100	745	900	1,750	7,300	14,000	22,000
Max. Axial load ²	F _{2aB}	N	1,2	4~100	745	900	1,750	4,300	10,000	15,000
Service life	L _H	hr	1,2	4~100	20,000	20,000	20,000	20,000	20,000	20,000
Noise level ³		dB(A)	1,2	4~100	≤ 56	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67
Weight		kg	1	4~10	0.7	1.4	3.6	7	15	42
			2	16~100	0.8	1.6	4	7.7	17	43
Mass Moments of Inertia ⁴		kg cm ²	1	4~10	0.04	0.18	1.0	3.9	16	61
			2	16~100	0.03	0.13	0.72	2.8	12	38
Operating Temp. ⁵		°C	1,2	4~100	-10 ~ +90					
Lubrication			1,2	4~100	High temperature & Extreme pressure Lubricant					
Mounting position			1,2	4~100	All directions					
Efficiency	η	%	1	4~10	≥ 95					
			2	16~100	≥ 92					
Degree of protection			1,2	4~100	IP 65					

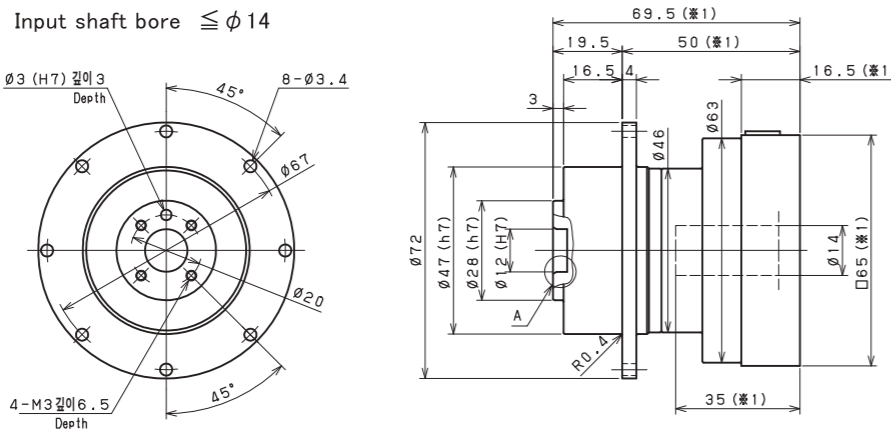
(1) Ratio (감속비) = N_{in} / N_{out}
 (2) 기준 : 출력회전수 100rpm, 출력축 중앙 부하, 부하계수(Ka)=1, 연속운전 10,000시간
 These values are based on the following conditions : 100 rpm at the output. Load applied to the middle of the output shaft. Load coefficient(Ka)=1. Continuous operation(S1≒10,000hrs).
 (3) 입력 회전수 3000 rpm, 무부하 운전상태에서 감속기 취부면에서 1m 떨어진 거리에서 측정 (모델에 따라 차이가 있을수 있습니다)
 Noise level : A measurement 1m away from the reducer (with ratio10 or ratio 100), 3000 input rpm and at no load condition. (Background noise 40dB(A)) With lower ratio and/or higher rpm, the noise level could be 3 to 5 dB higher.
 (4) 관성모멘트 : 감속비 중 대표값 (i=1/5)
 Moment of inertia : A measurement at the input shaft and representatives from each ratio.(i=1/5)
 (5) 감속기 작동온도 : -10~+90 °C, 감속기 주위온도 -10~40°C
 Operating temperature : Surface temperature of gear case in -10 °C~40 °C of ambient temperature.
 ※ 제품 성능 향상을 위해 사양은 별도의 고지 없이 변경될 수 있습니다.
 Specifications are subject to change without notice to improve product performances.

SMT 047 1단 1stage

입력축 내경 Input shaft bore $\leq \phi 8$

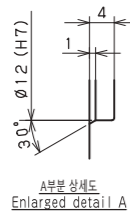
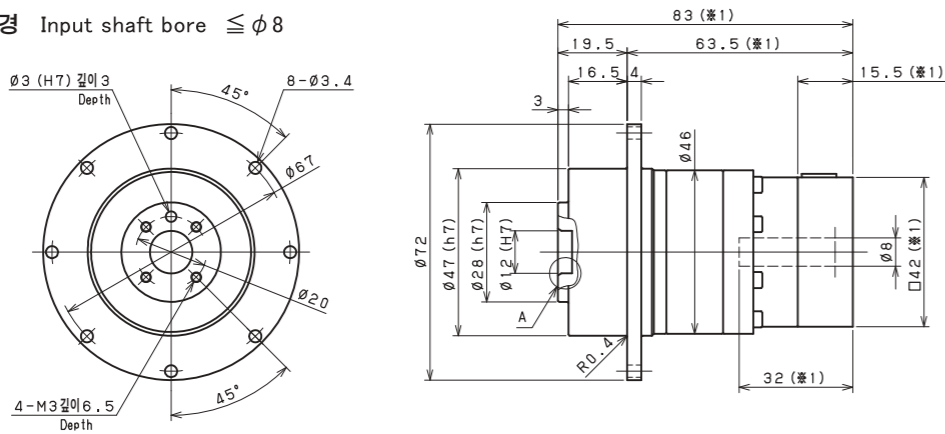


입력축 내경 Input shaft bore $\leq \phi 14$



SMT 047 2단 2stage

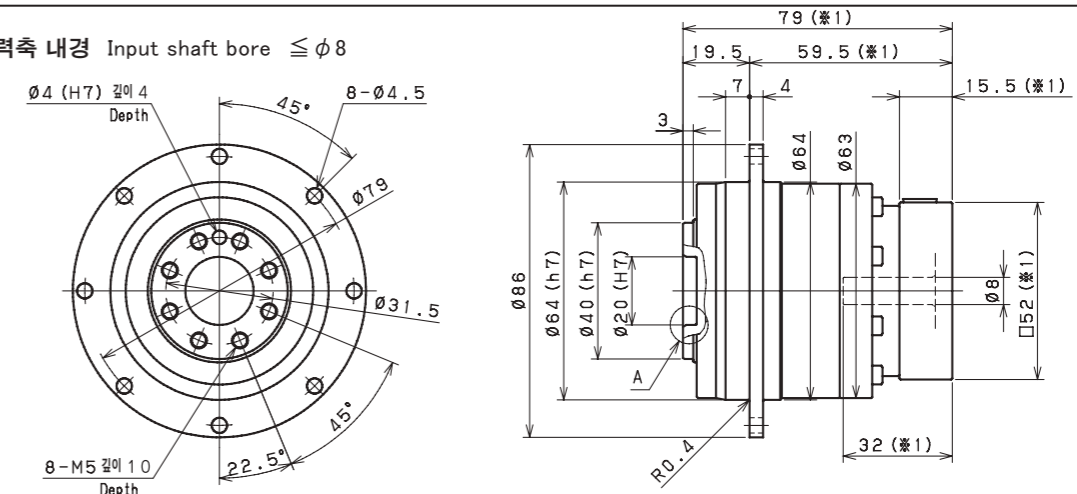
입력축 내경 Input shaft bore $\leq \phi 8$



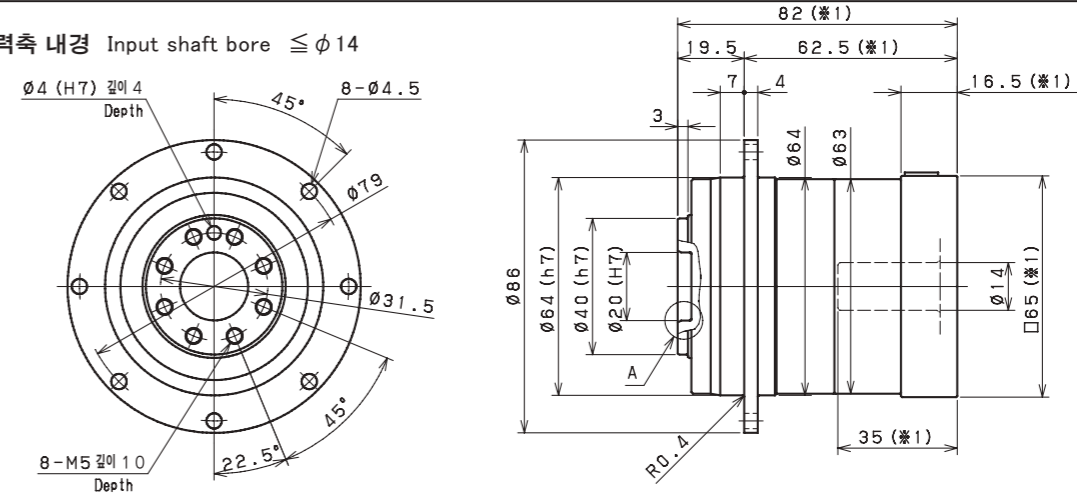
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMT 064 1단 1stage

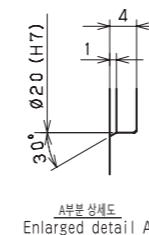
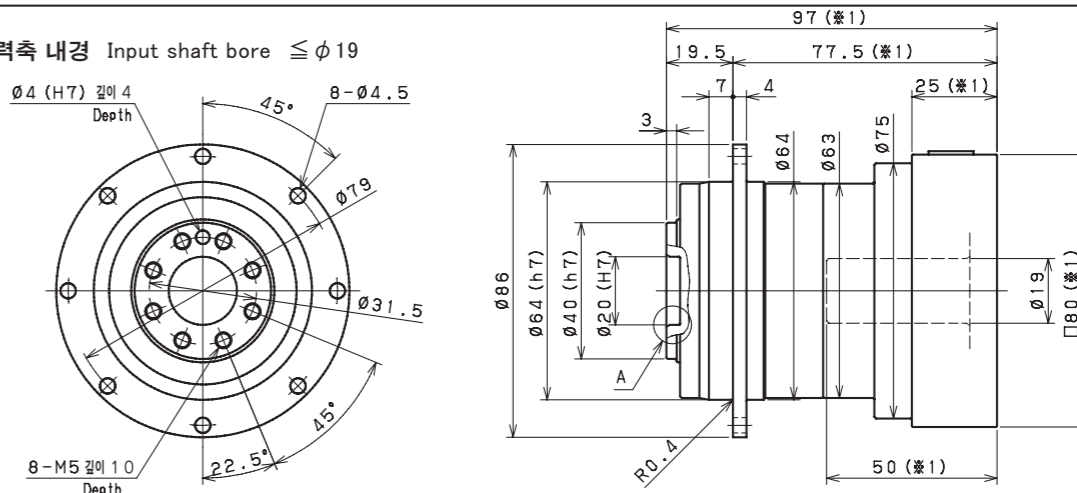
입력축 내경 Input shaft bore $\leq \phi 8$



입력축 내경 Input shaft bore $\leq \phi 14$

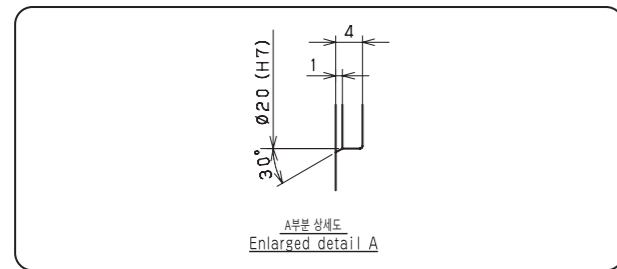
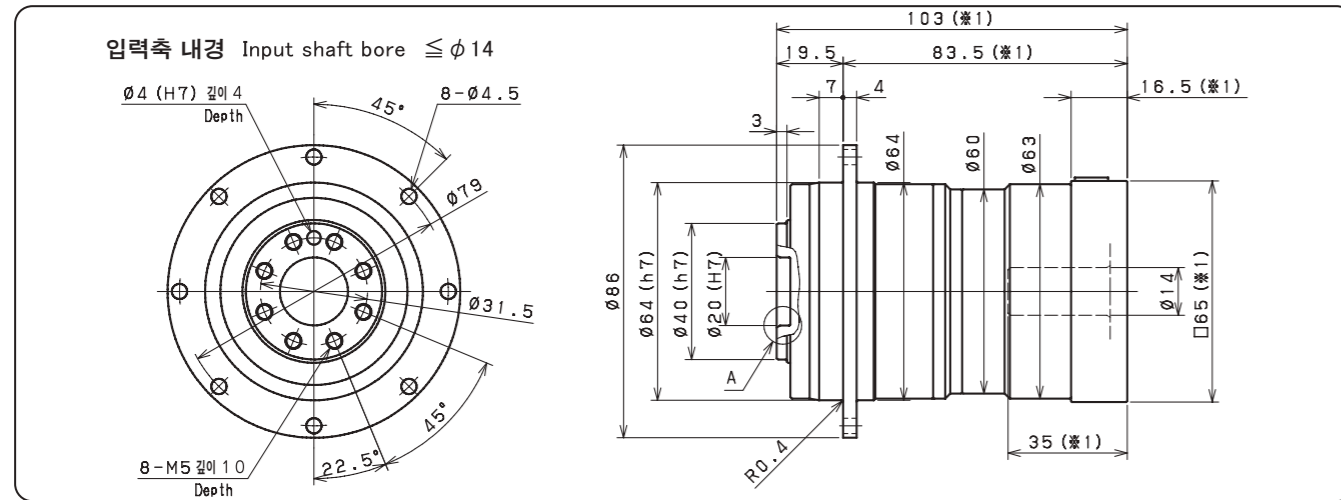
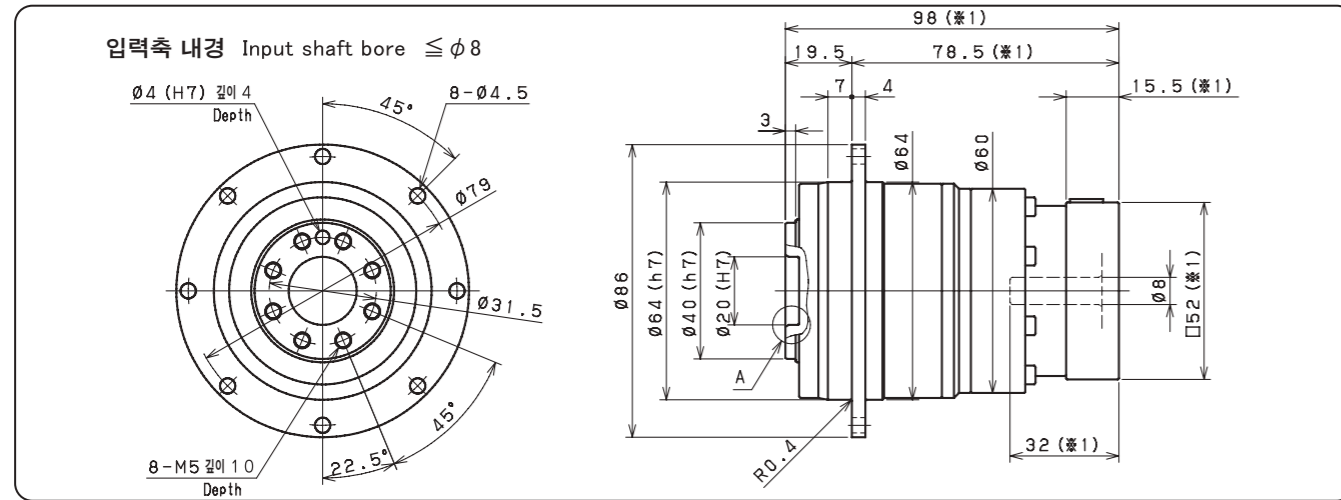


입력축 내경 Input shaft bore $\leq \phi 19$



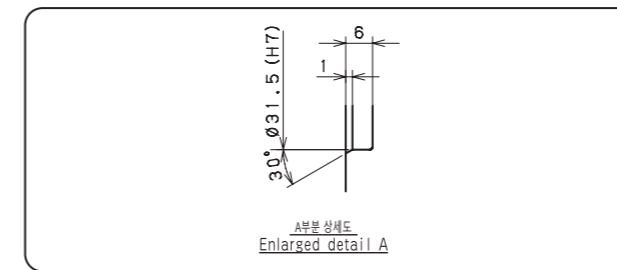
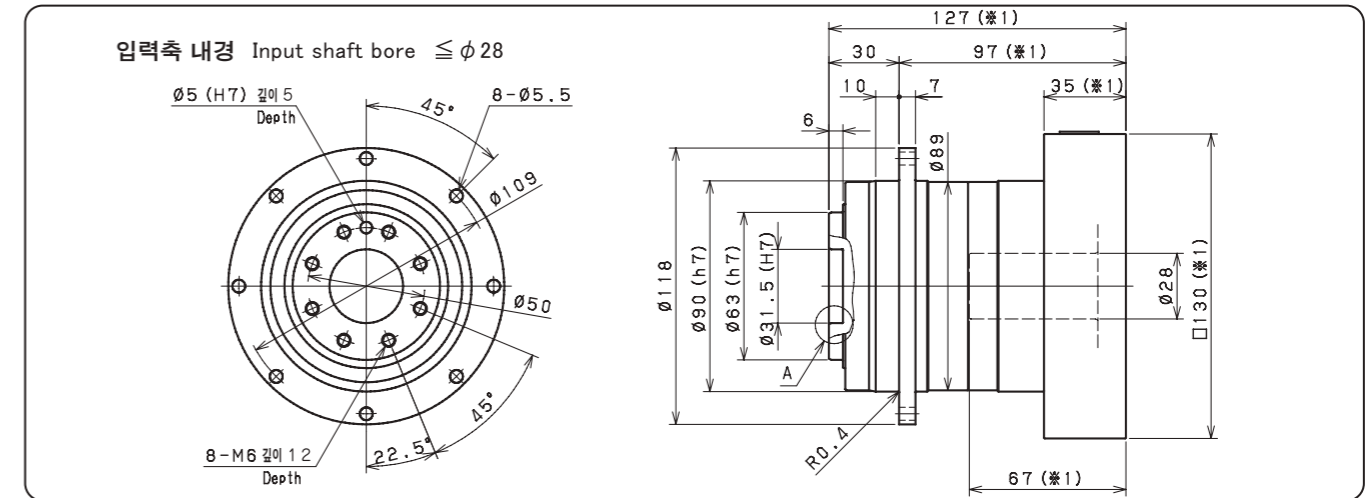
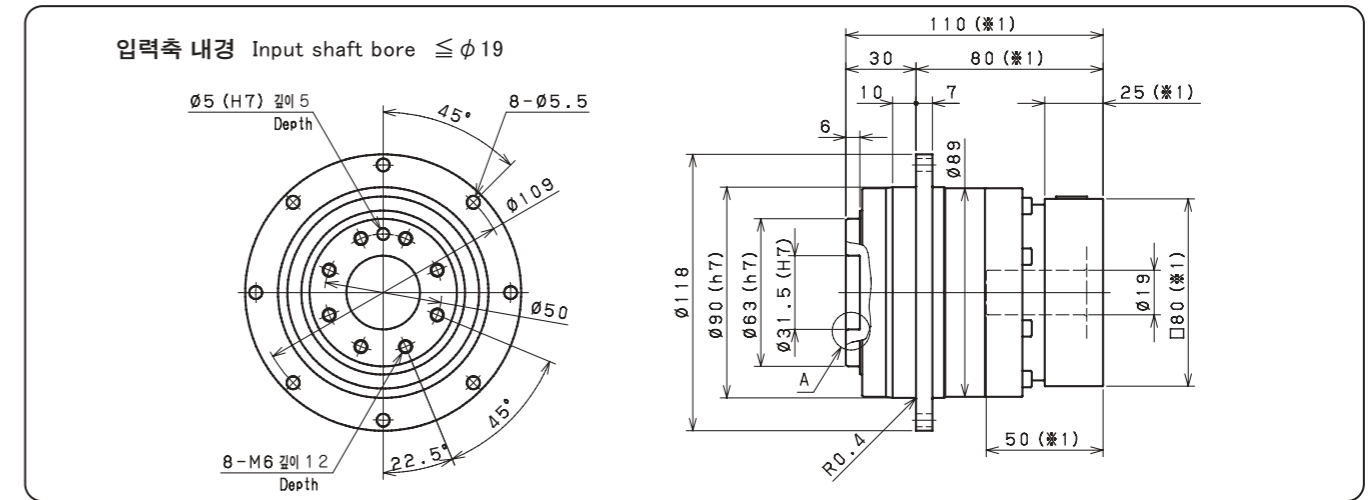
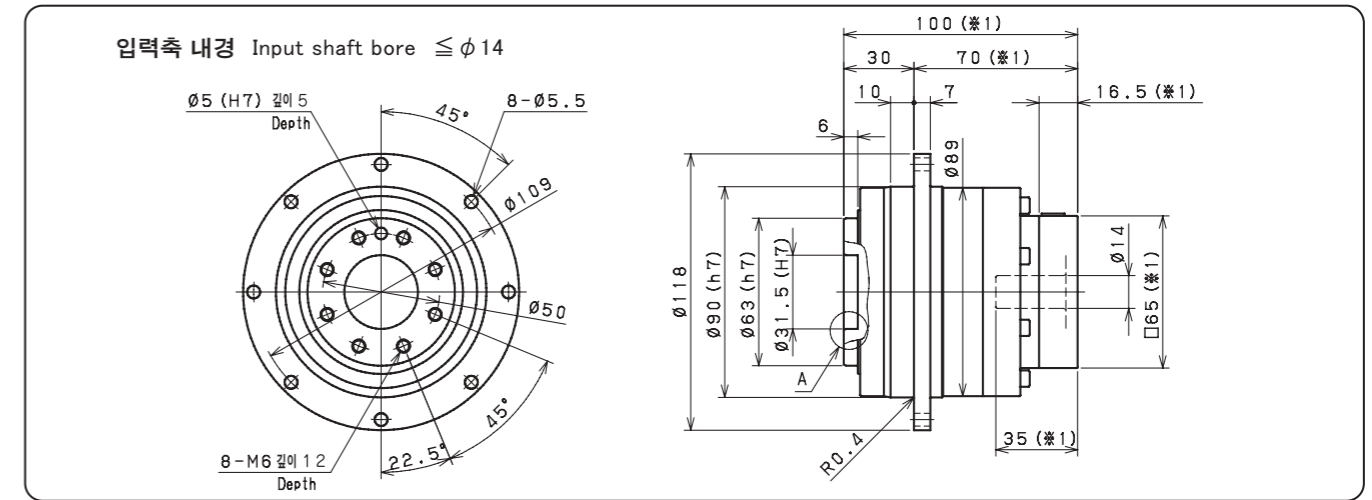
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMT 064 2단 2stage



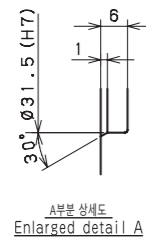
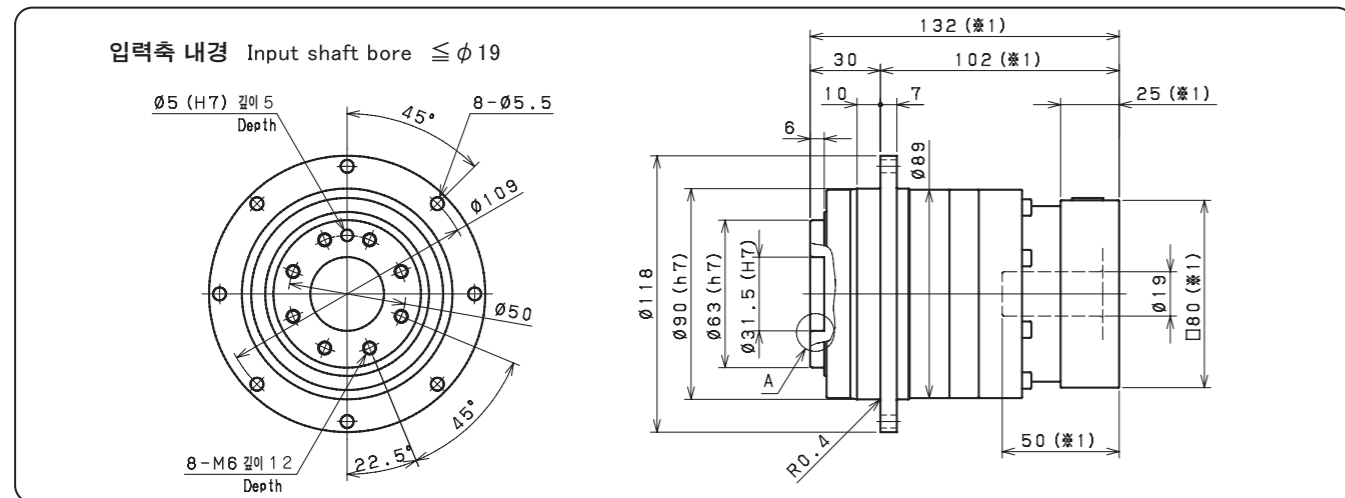
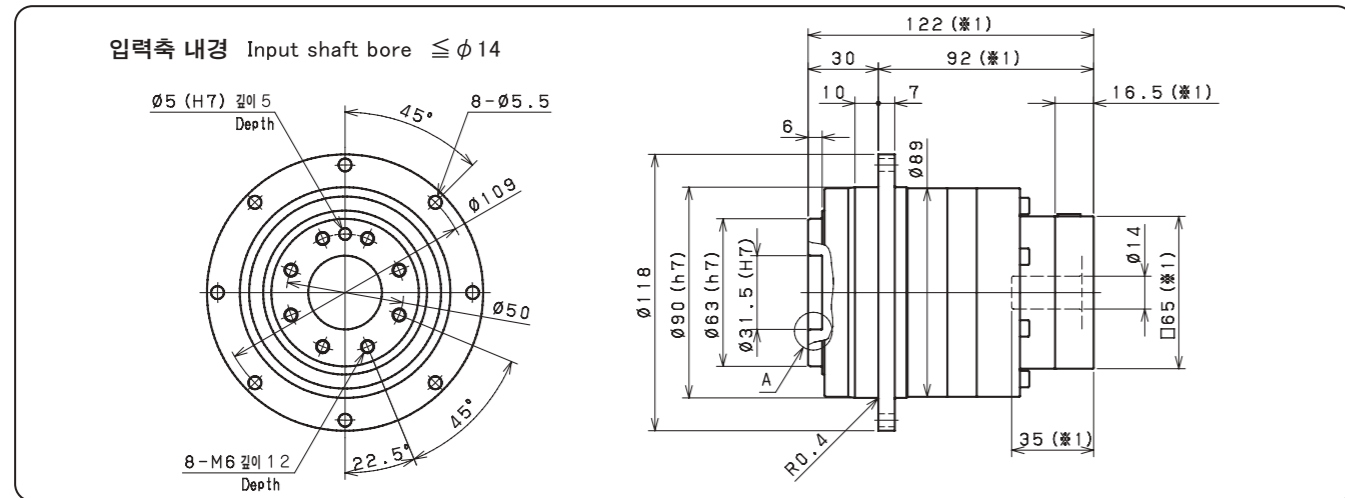
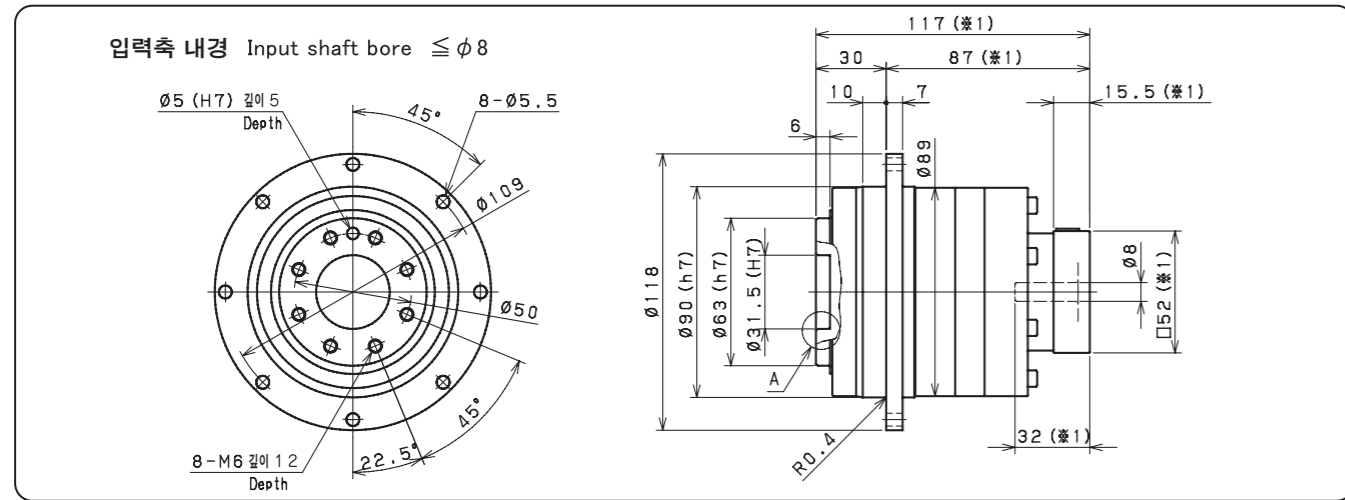
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMT 090 1단 1stage



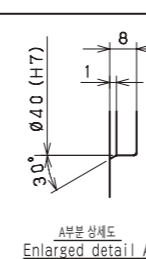
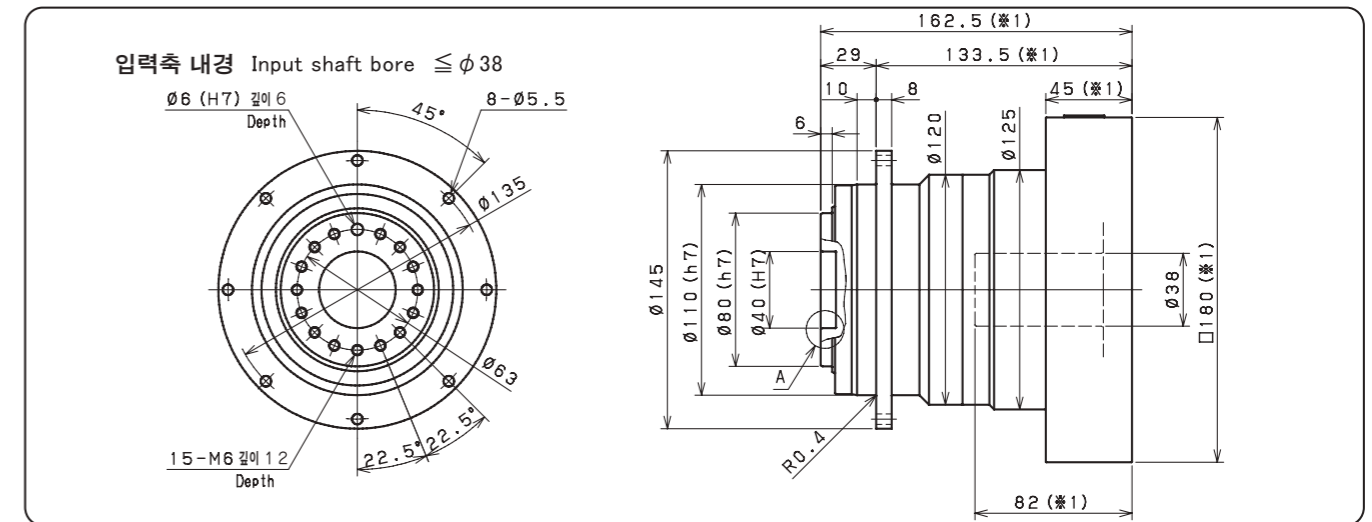
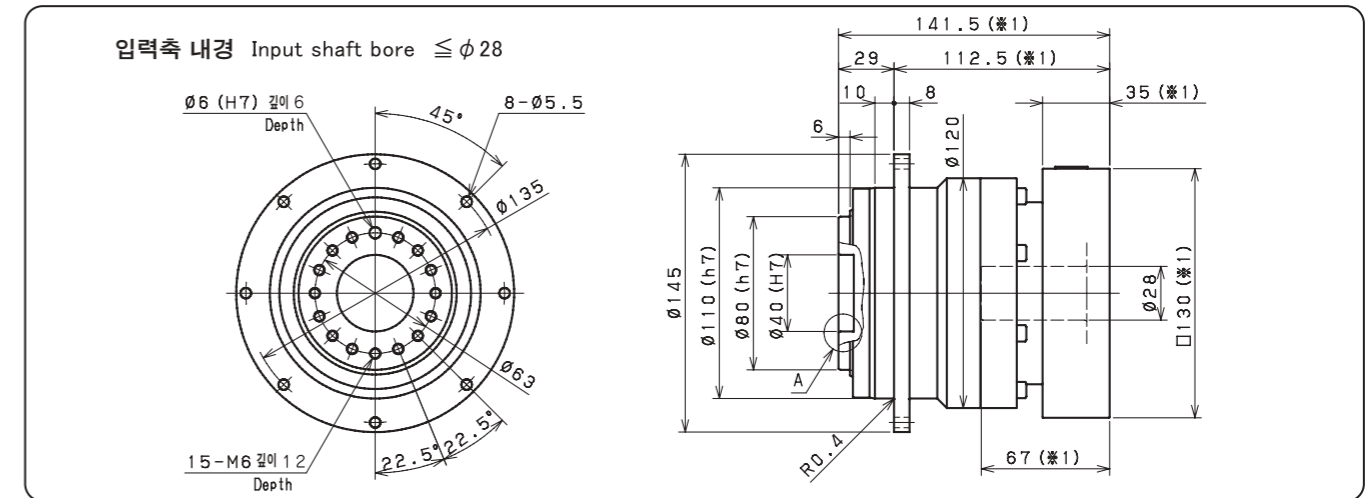
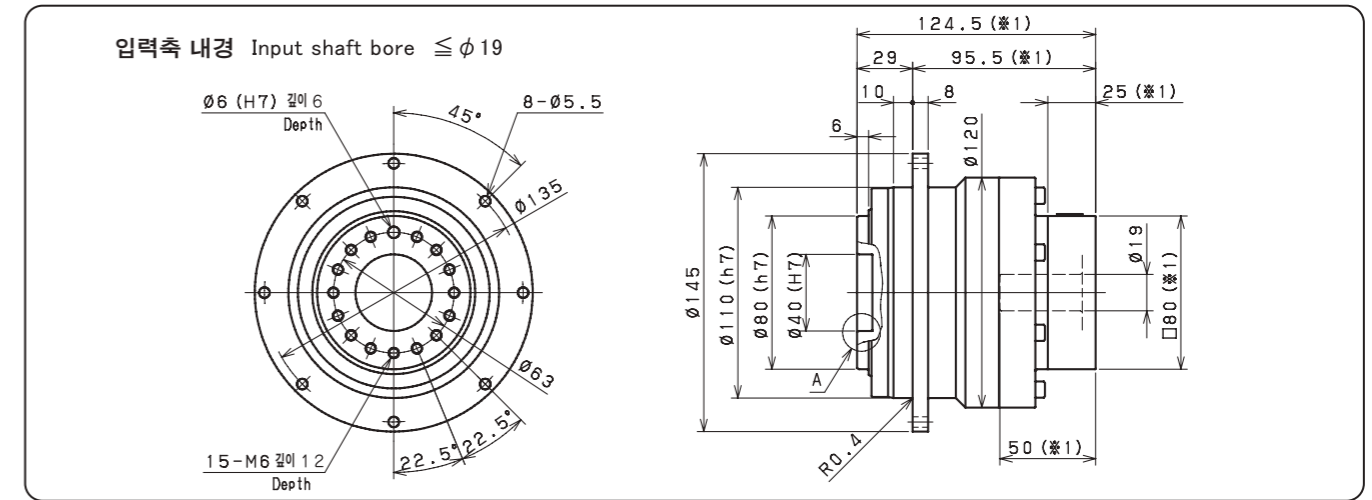
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMT 090 2단 2stage



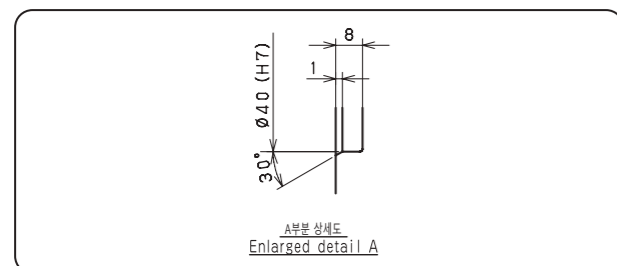
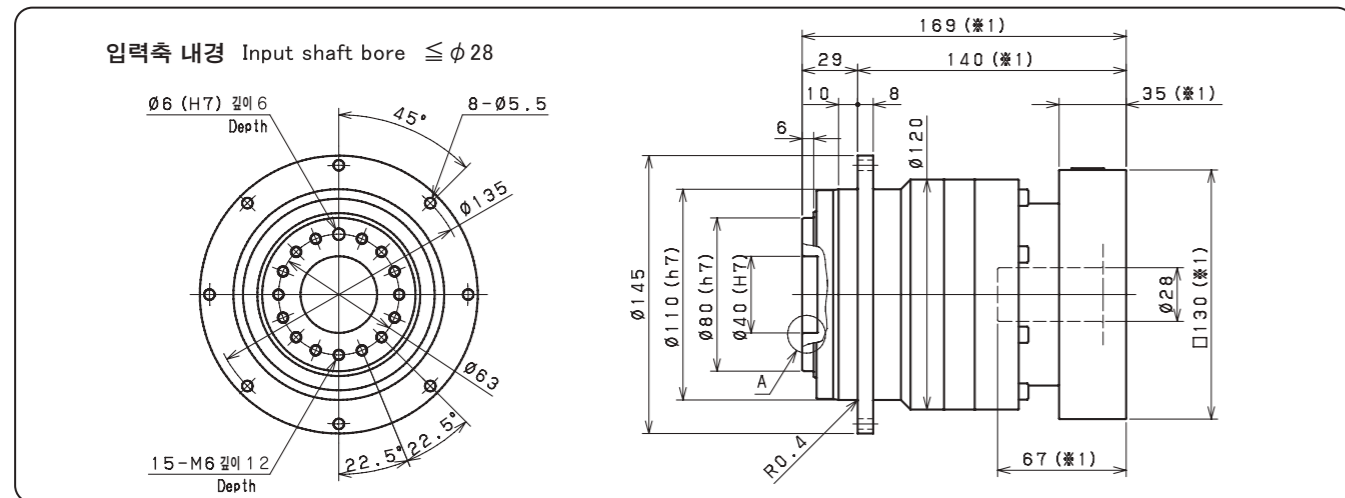
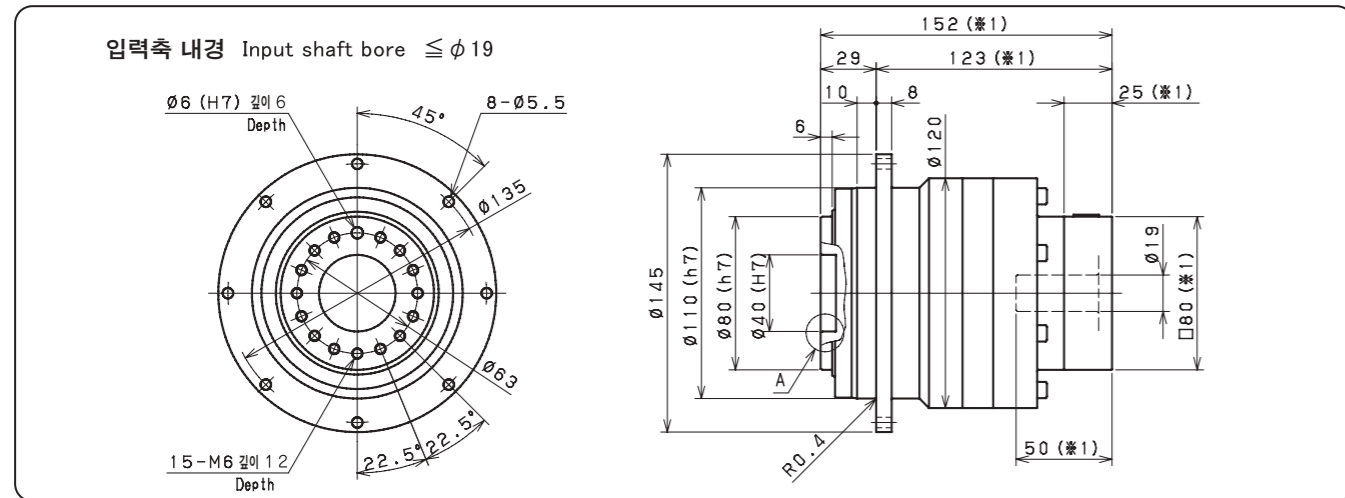
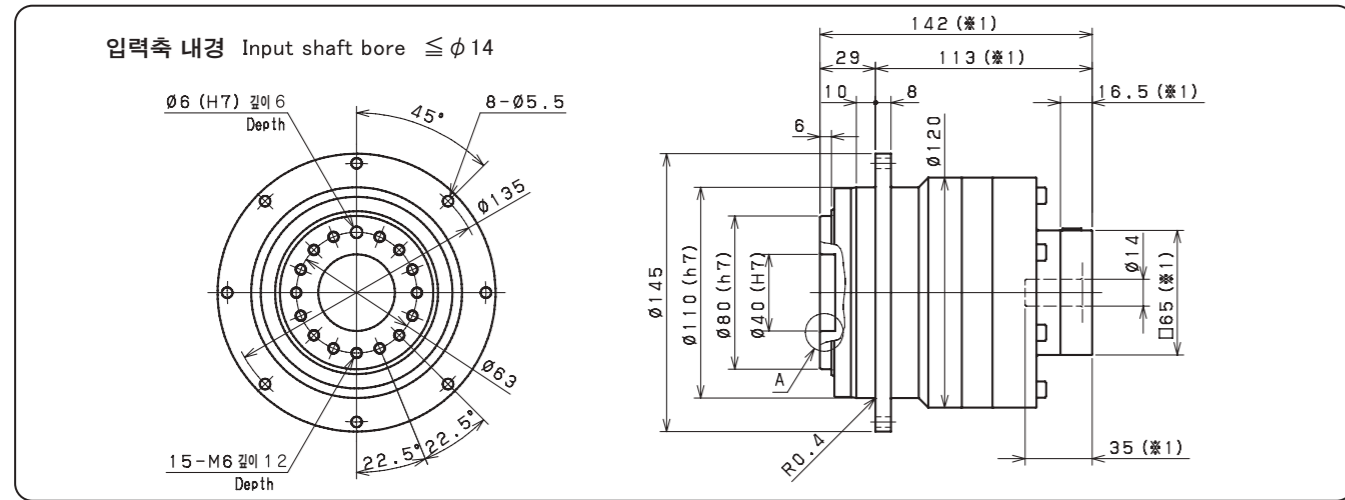
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMT 110 1단 1stage



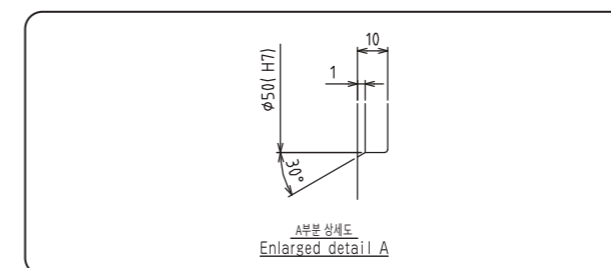
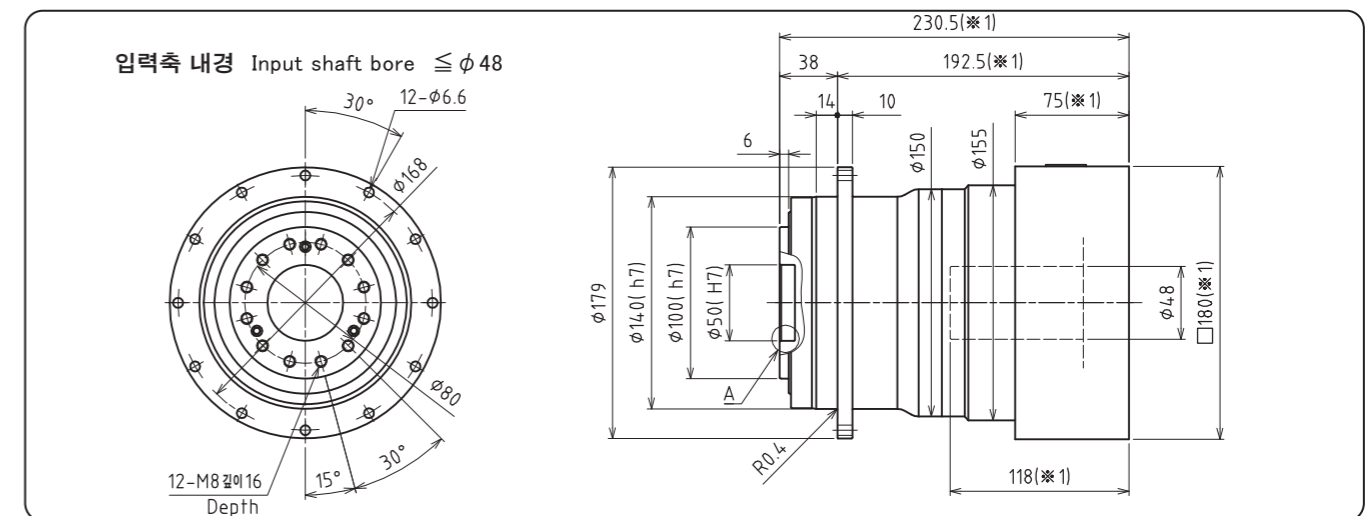
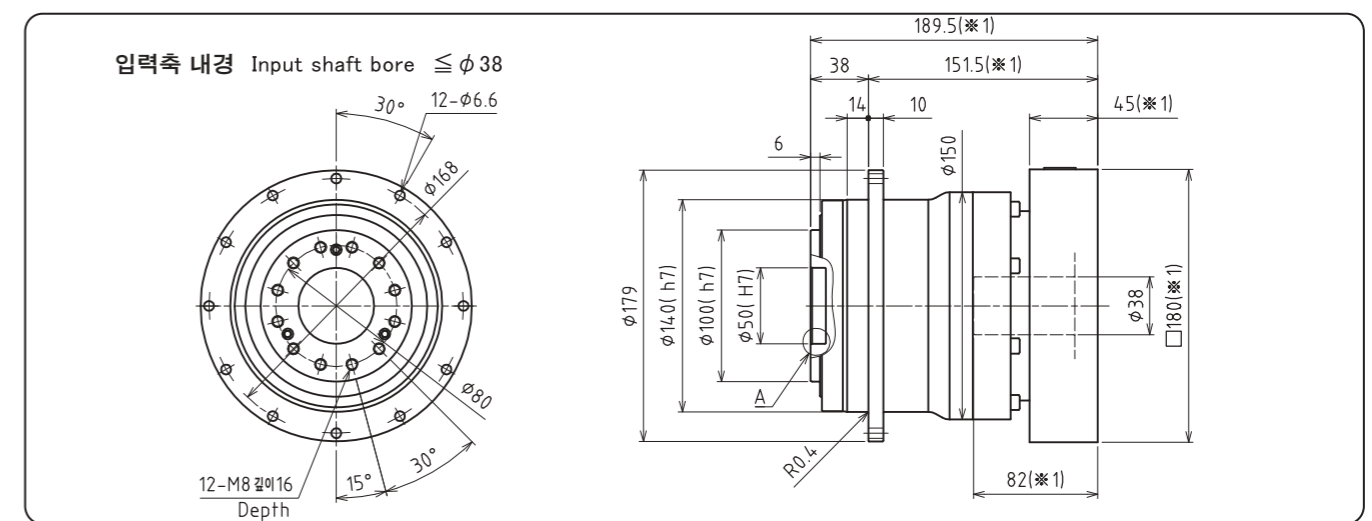
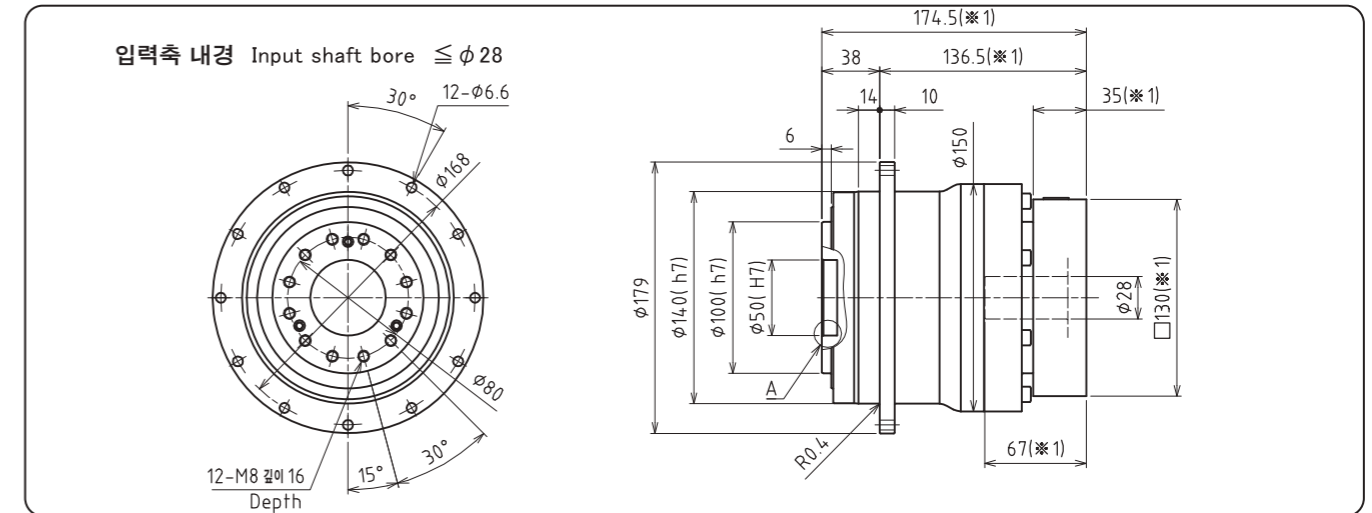
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMT 110 2단 2stage



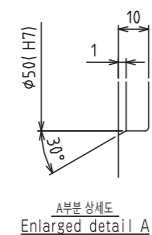
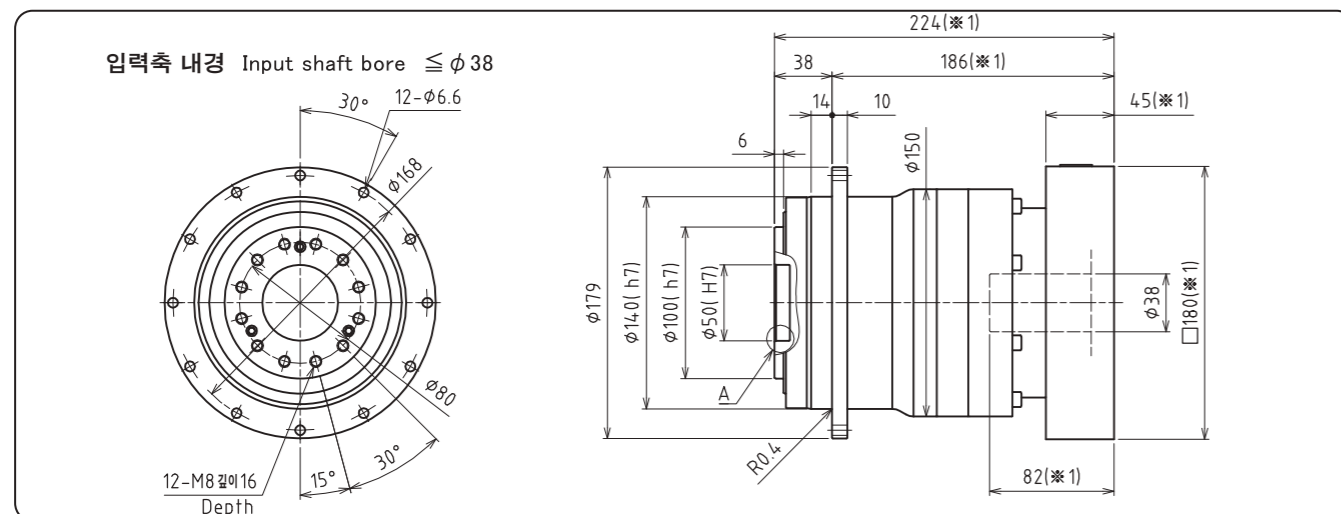
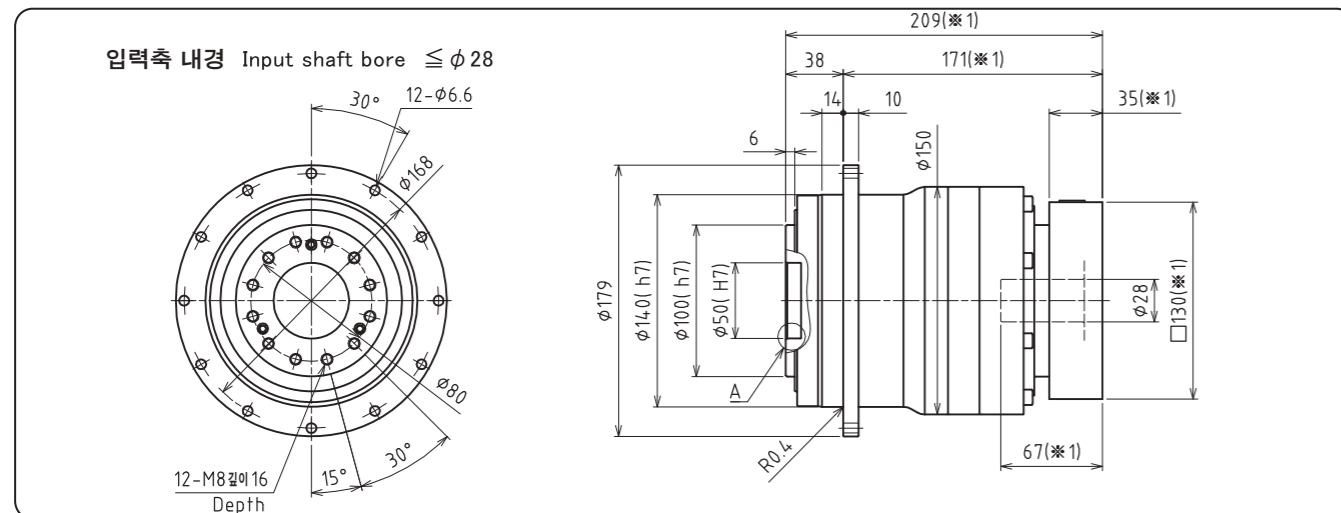
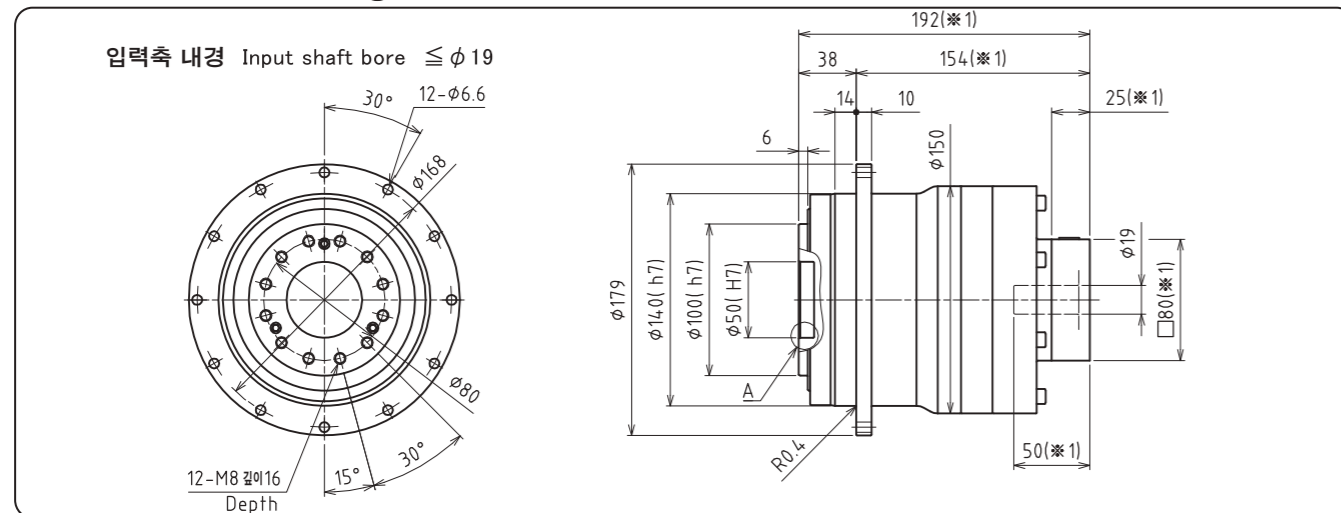
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMT 140 1단 1stage



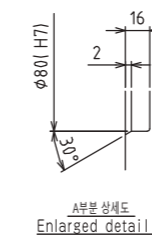
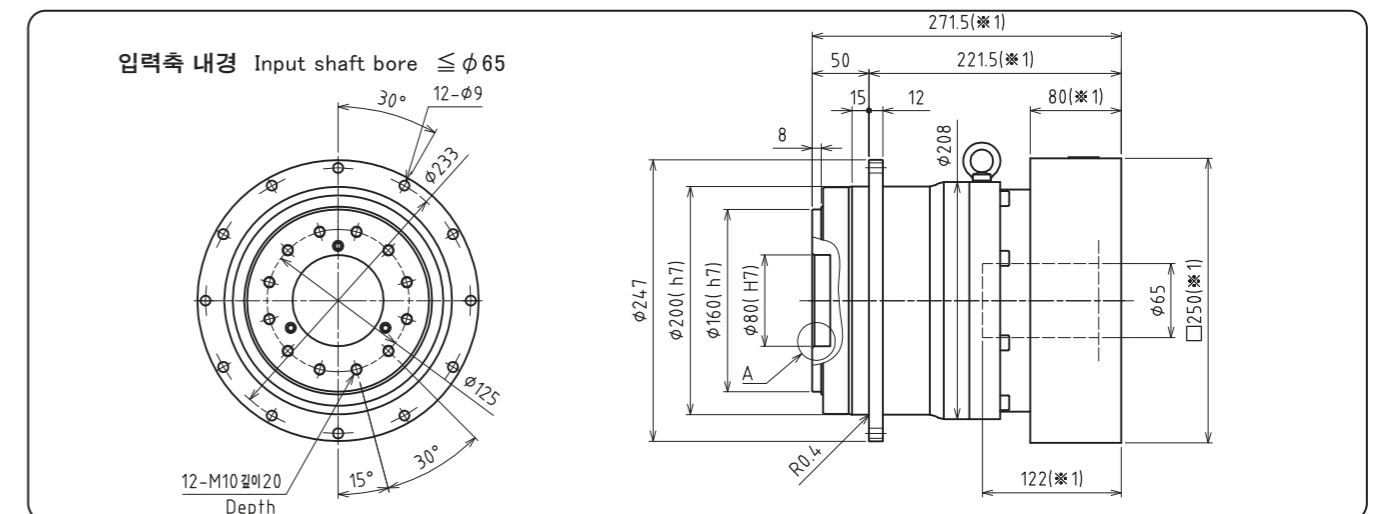
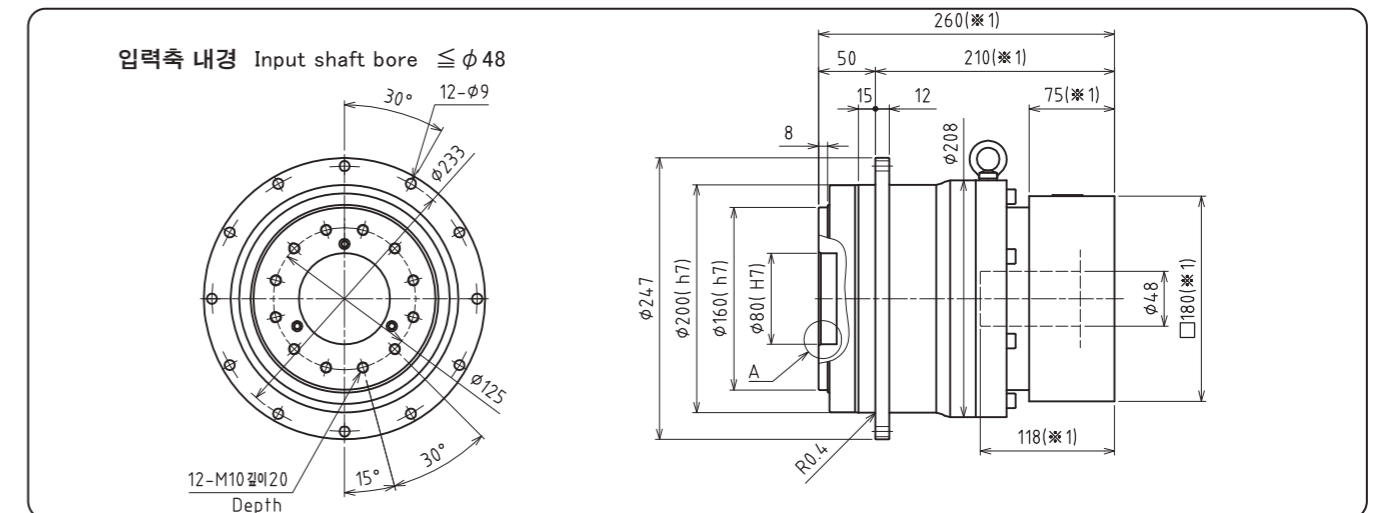
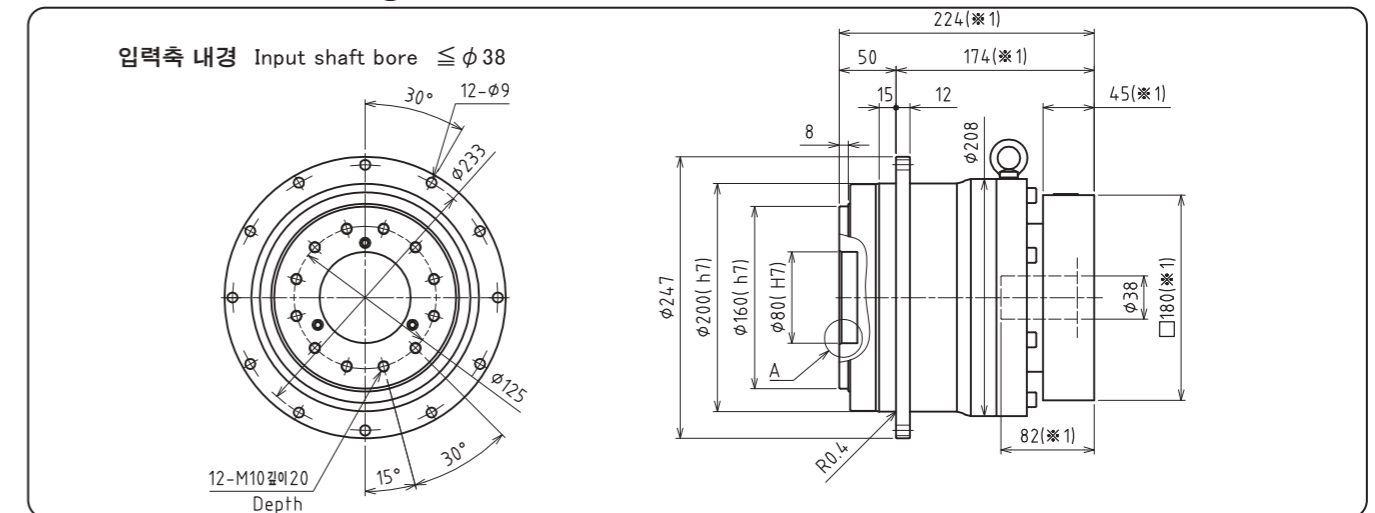
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMT 140 2단 2stage



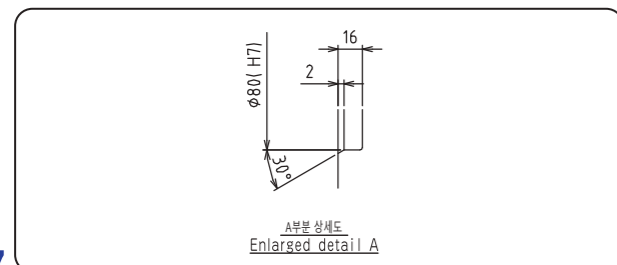
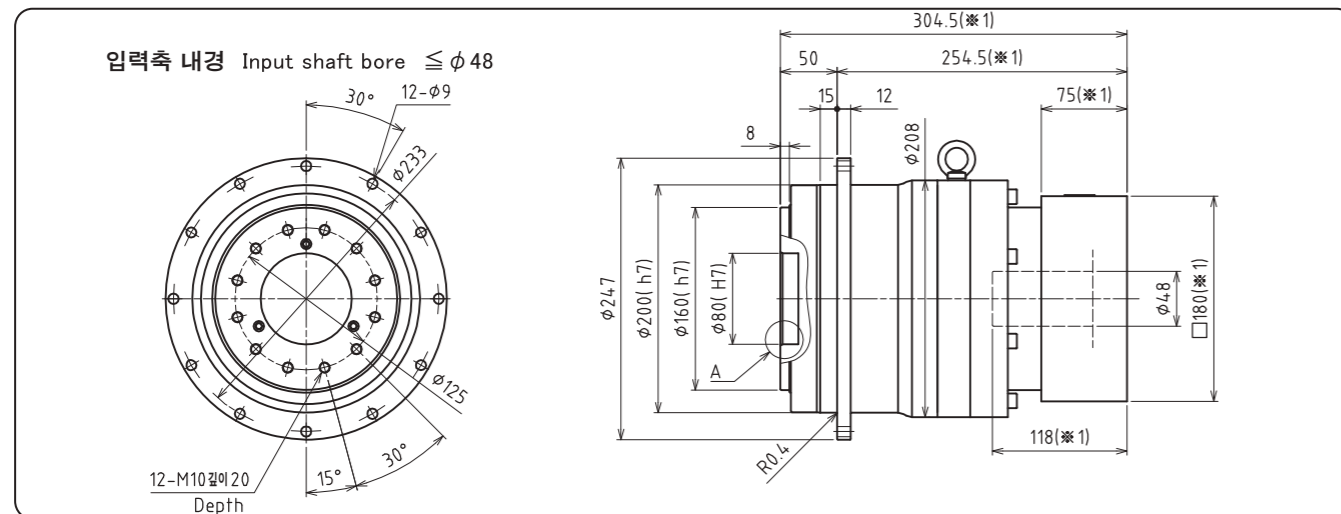
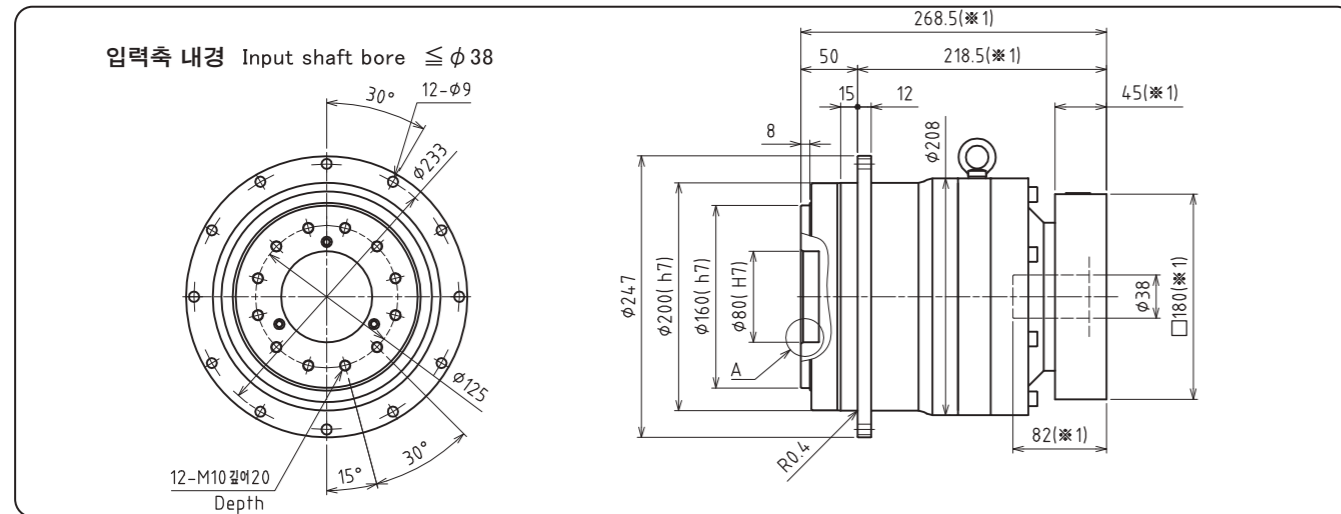
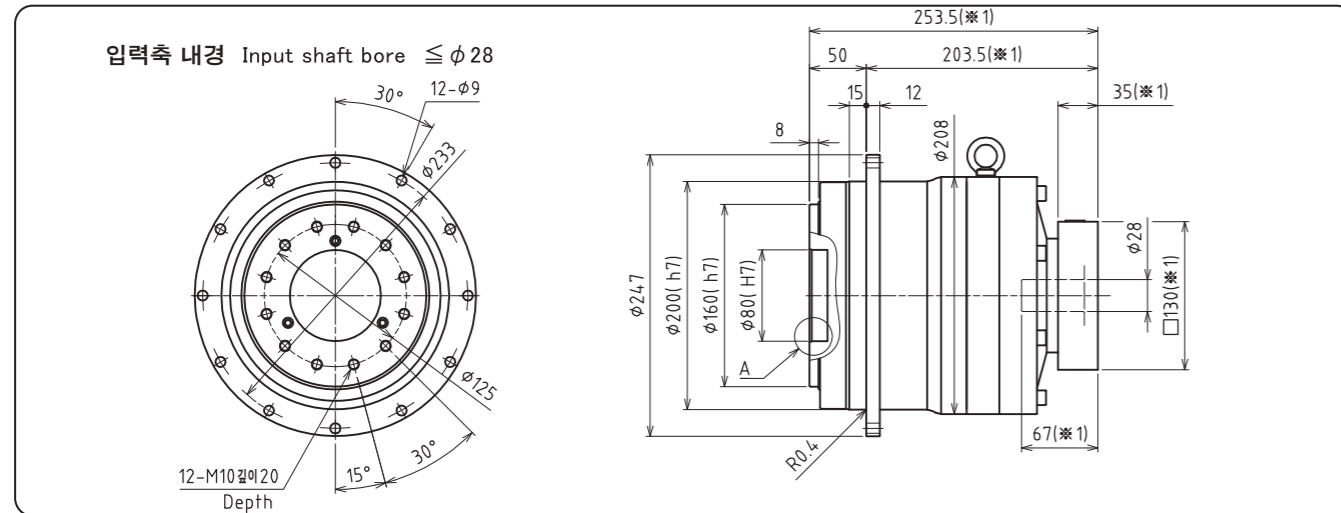
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMT 200 1단 1stage



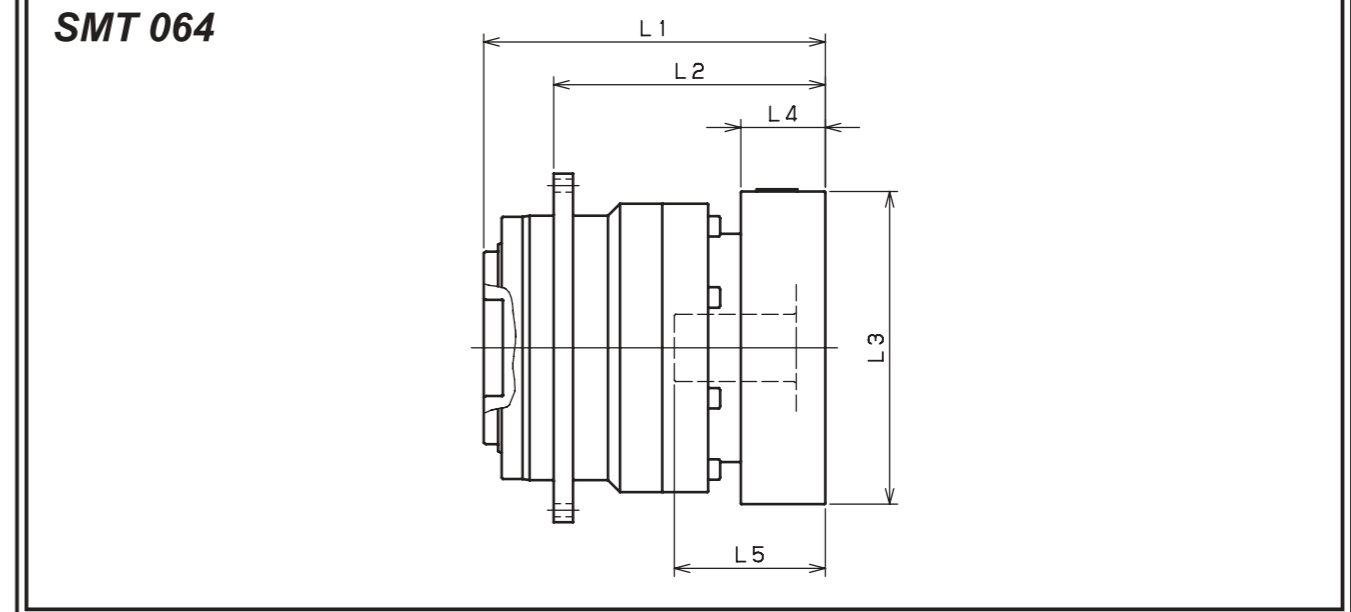
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMT 200 2단 2stage



- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

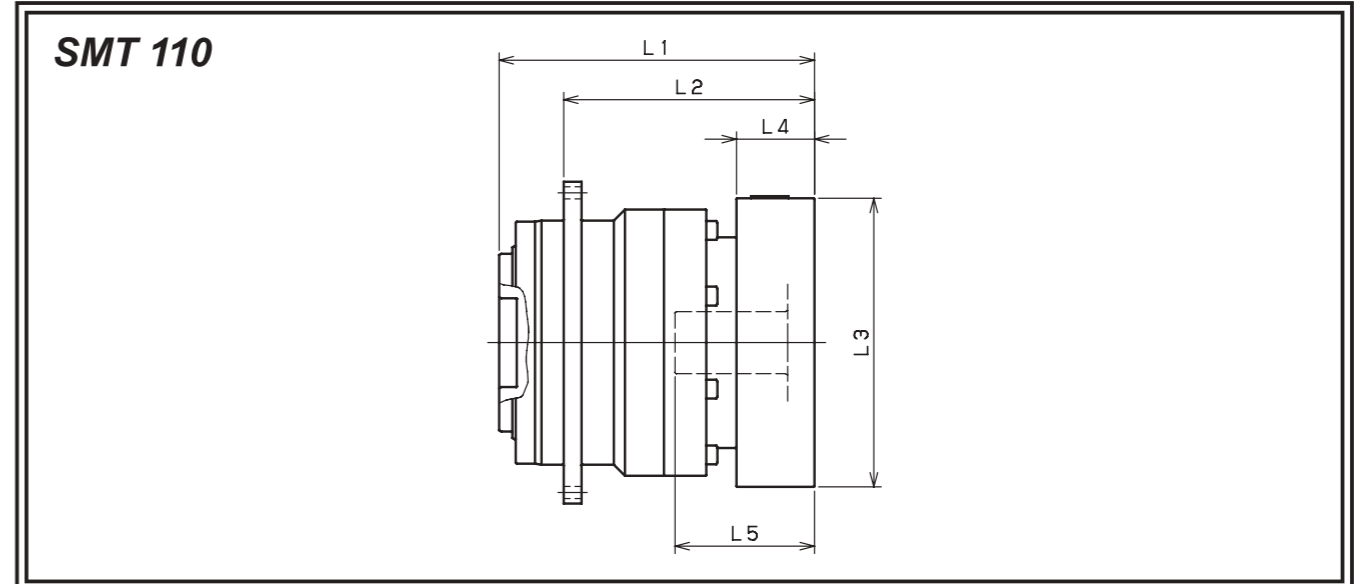
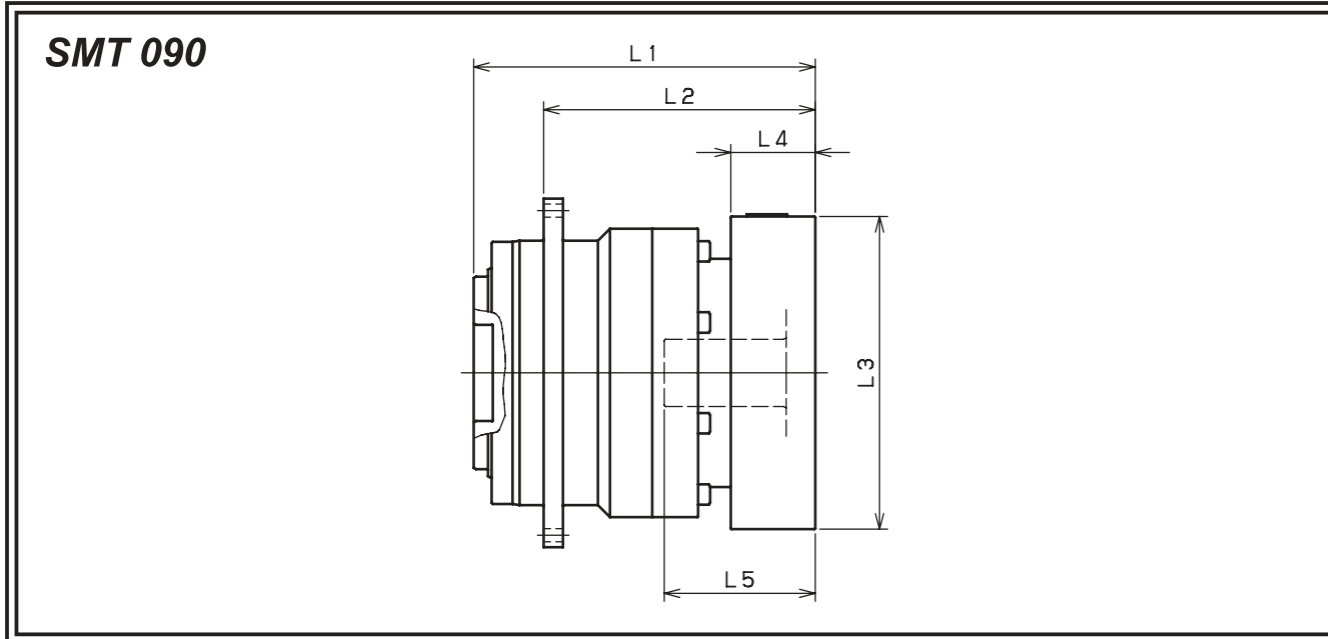
SMT 064



모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	1단 Single					2단 Double				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMT064□□□-8** (입력축 내경 ≤ φ8 Input shaft bore)	AA·AC·AD·AF·AG	79	59.5	□52	15.5	32	98	78.5	□52	15.5	32
	AB·AE·AH·AJ·AK	84	64.5	□52	20.5	37	103	83.5	□52	20.5	37
	BA·BB·BD·BE	79	59.5	□60	15.5	32	98	78.5	□60	15.5	32
	BC·BF	84	64.5	□60	20.5	37	103	83.5	□60	20.5	37
	CA	84	64.5	□70	20.5	37	103	83.5	□70	20.5	37
SMT064□□□-14** (입력축 내경 ≤ φ14 Input shaft bore)	BA·BB·BD·BE·BF·BG·BJ·BK	82	62.5	□65	16.5	35	103	83.5	□65	16.5	35
	BC·BH·BM	87	67.5	□65	21.5	40	108	88.5	□65	21.5	40
	BL	92	72.5	□65	26.5	45	113	93.5	□65	26.5	45
	CA	82	62.5	□70	16.5	35	103	83.5	□70	16.5	35
	CB	87	67.5	□70	21.5	40	108	88.5	□70	21.5	40
	DA·DB·DC·DD·DF·DH	82	62.5	□80	16.5	35	103	83.5	□80	16.5	35
	DE	87	67.5	□80	21.5	40	108	88.5	□80	21.5	40
	DG	92	72.5	□80	26.5	45	113	93.5	□80	26.5	45
	EA·EB·EC	82	62.5	□90	16.5	35	103	83.5	□90	16.5	35
	ED	92	72.5	□90	26.5	45	113	93.5	□90	26.5	45
SMT064□□□-19** (입력축 내경 ≤ φ19 Input shaft bore)	FA	82	62.5	□100	16.5	35	103	83.5	□100	16.5	35
	GA	82	62.5	□115	16.5	35	103	83.5	□115	16.5	35
	DA·DB·DC	97	77.5	□80	25	50					
	DD	107	87.5	□80	35	60					
	DE	102	82.5	□80	30	55					
	EA	102	82.5	□90	30	55					
	EB	97	77.5	□90	25	50					
	EC	107	87.5	□90	35	60					
	FA	97	77.5	□100	25	50					
	FB	107	87.5	□100	35	60					
GA·GC	102	82.5	□115	30	55						
GB·GD	97	77.5	□115	25	50						
HA	97	77.5	□130	25	50						
HB	112	92.5	□130	40	65						
HC·HD·HE	102	82.5	□130	30	55						

- ※1 1단 감속비: 1/4~1/10 ; 2단 감속비: 1/16~1/100
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.

- ※1 Single reduction : 1/4 ~ 1/10, Double reduction : 1/16 ~ 1/100
- ※2 Bushing will be inserted to adapt to motor shaft.



모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	1단 Single					2단 Double				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMT090□□□-8** (입력축 내경 ≤ φ8) Input shaft bore	AA·AC·AD·AF·AG	/	/	/	/	/	117	87	□52	15.5	32
	AB·AE·AH·AJ·AK	/	/	/	/	/	122	92	□52	20.5	37
	BA·BB·BD·BE	/	/	/	/	/	117	87	□60	15.5	32
	BC·BF	/	/	/	/	/	122	92	□60	20.5	37
	CA	/	/	/	/	/	122	92	□70	20.5	37
SMT090□□□-14** (입력축 내경 ≤ φ14) Input shaft bore	BA·BB·BD·BE·BF·BG·BJ·BK	100	70	□65	16.5	35	122	92	□65	16.5	35
	BC·BH·BM	105	75	□65	21.5	40	127	97	□65	21.5	40
	BL	110	80	□65	26.5	45	132	102	□65	26.5	45
	CA	100	70	□70	16.5	35	122	92	□70	16.5	35
	CB	105	75	□70	21.5	40	127	97	□70	21.5	40
	DA·DB·DC·DD·DF·DH	100	70	□80	16.5	35	122	92	□80	16.5	35
	DE	105	75	□80	21.5	40	127	97	□80	21.5	40
	DG	110	80	□80	26.5	45	132	102	□80	26.5	45
	EA·EB·EC	100	70	□90	16.5	35	122	92	□90	16.5	35
	ED	110	80	□90	26.5	45	132	102	□90	26.5	45
SMT090□□□-19** (입력축 내경 ≤ φ19) Input shaft bore	FA	100	70	□100	16.5	35	122	92	□100	16.5	35
	GA	100	70	□115	16.5	35	122	92	□115	16.5	35
	DA·DB·DC	110	80	□80	25	50	132	102	□80	25	50
	DD	120	90	□80	35	60	142	112	□80	35	60
	DE	115	85	□80	30	55	137	107	□80	30	55
	EA	115	85	□90	30	55	137	107	□90	30	55
	EB	110	80	□90	25	50	132	102	□90	25	50
	EC	120	90	□90	35	60	142	112	□90	35	60
	FA	110	80	□100	25	50	132	102	□100	25	50
	FB	120	90	□100	35	60	142	112	□100	35	60
SMT090□□□-28** (입력축 내경 ≤ φ28) Input shaft bore	GA·GC	115	85	□115	30	55	137	107	□115	30	55
	GB·GD	110	80	□115	25	50	132	102	□115	25	50
	HA	110	80	□130	25	50	132	102	□130	25	50
	HB	125	95	□130	40	65	147	117	□130	40	65
	HC·HD·HE	115	85	□130	30	55	137	107	□130	30	55
	FA·FB·FC	127	97	□100	35	67	/	/	/	/	/
	GA·GB·GC·GD·GE·GF·GG	127	97	□115	35	67	/	/	/	/	/
	HA·HC·HD	127	97	□130	35	67	/	/	/	/	/
	HB	137	107	□130	45	77	/	/	/	/	/
	JA·JB·JC	127	97	□150	35	67	/	/	/	/	/

※1 1단 감속비: 1/4~1/10 ; 2단 감속비: 1/16~1/100

※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.

※1 Single reduction : 1/4 ~ 1/10, Double reduction : 1/16 ~ 1/100

※2 Bushing will be inserted to adapt to motor shaft.

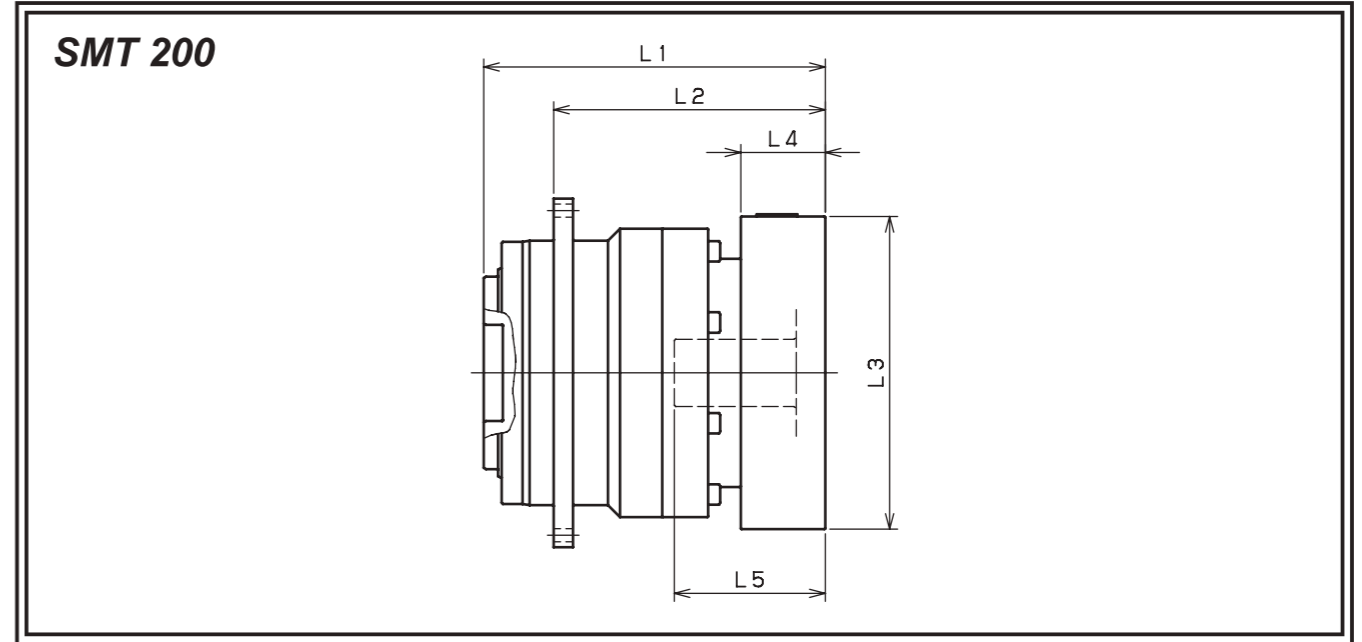
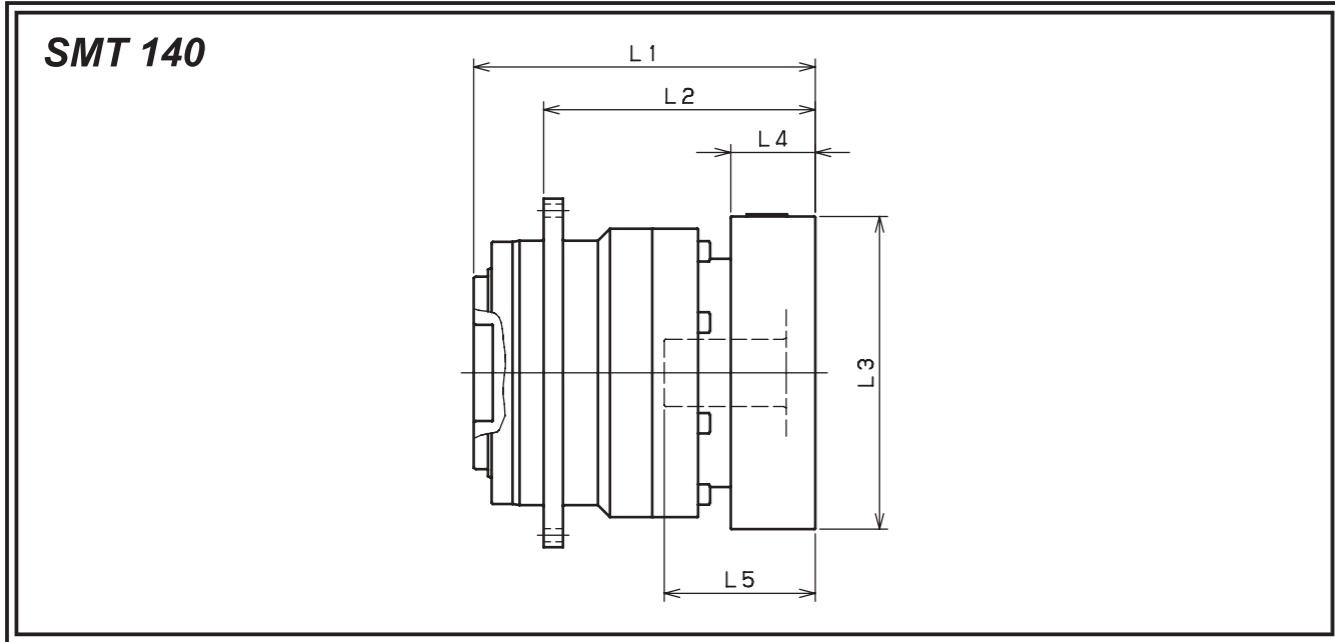
모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	1단 Single					2단 Double				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMT110□□□-14** (입력축 내경 ≤ φ14) Input shaft bore	BA·BB·BD·BE·BF·BG·BJ·BK	/	/	/	/	/	142	113	□65	16.5	35
	BC·BH·BM	/	/	/	/	/	147	118	□65	21.5	40
	BL	/	/	/	/	/	152	123	□65	26.5	45
	CA	/	/	/	/	/	142	113	□70	16.5	35
	CB	/	/	/	/	/	147	118	□70	21.5	40
	DA·DB·DC·DD·DF·DH	/	/	/	/	/	142	113	□80	16.5	35
	DE	/	/	/	/	/	147	118	□80	21.5	40
	DG	/	/	/	/	/	152	123	□80	26.5	45
	EA·EB·EC	/	/	/	/	/	142	113	□90	16.5	35
	ED	/	/	/	/	/	152	123	□90	26.5	45
	FA	/	/	/	/	/	142	113	□100	16.5	35
	GA	/	/	/	/	/	142	113	□115	16.5	35
	SMT110□□□-19** (입력축 내경 ≤ φ19) Input shaft bore	DA·DB·DC	124.5	95.5	□80	25	50	152	123	□80	25
DD		134.5	105.5	□80	35	60	162	133	□80	35	60
DE		129.5	100.5	□80	30	55	157	128	□80	30	55
EA		129.5	100.5	□90	30	55	157	128	□90	30	55
EB		124.5	95.5	□90	25	50	152	123	□90	25	50
EC		134.5	105.5	□90	35	60	162	133	□90	35	60
FA		124.5	95.5	□100	25	50	152	123	□100	25	50
FB		134.5	105.5	□100	35	60	162	133	□100	35	60
GA·GC		129.5	100.5	□115	30	55	157	128	□115	30	55
GB·GD		124.5	95.5	□115	25	50	152	123	□115	25	50
HA		124.5	95.5	□130	25	50	152	123	□130	25	50
HB		139.5	110.5	□130	40	65	167	138	□130	40	65
HC·HD·HE		129.5	100.5	□130	30	55	157	128	□130	30	55
SMT110□□□-28** (입력축 내경 ≤ φ28) Input shaft bore	FA·FB·FC	141.5	112.5	□100	35	67	169	140	□100	35	67
	GA·GB·GC·GD·GE·GF·GG	141.5	112.5	□115	35	67	169	140	□115	35	67
	HA·HC·HD	141.5	112.5	□130	35	67	169	140	□130	35	67
	HB	151.5	122.5	□130	45	77	179	150	□130	45	77
	JA·JB·JC	141.5	112.5	□150	35	67	169	140	□150	35	67
	KA·KB	141.5	112.5	□180	35	67	169	140	□180	35	67
	KD	151.5	122.5	□180	45	77	179	150	□180	45	77
	LA	141.5	112.5	□200	35	67	169	140	□200	35	67
	MA	141.5	112.5	□220	35	67	169	140	□220	35	67
	NA	141.5	112.5	□220	35	67	169	140	□220	35	67
SMT110□□□-38** (입력축 내경 ≤ φ38) Input shaft bore	HA	162.5	133.5	□130	45	82	/	/	/	/	/
	HB	157.5	128.5	□130	40	77	/	/	/	/	/
	JA	162.5	133.5	□150	45	82	/	/	/	/	/
	KA·KB·KC	162.5	133.5	□180	45	82	/	/	/	/	/
	LA	162.5	133.5	□200	45	82	/	/	/	/	/
	LB	172.5	143.5	□200	55	92	/	/	/	/	/
	MA·MB	162.5	133.5	□220	45	82	/	/	/	/	/

※1 1단 감속비: 1/4~1/10 ; 2단 감속비: 1/16~1/100

※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.

※1 Single reduction : 1/4 ~ 1/10, Double reduction : 1/16 ~ 1/100

※2 Bushing will be inserted to adapt to motor shaft.



모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	1단 Single					2단 Double				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
MKT-140-□-□-19** (입력축 내경 ≤ φ19 Input shaft bore)	DA·DB·DC	/	/	/	/	/	192	154	□80	25	50
	DD	/	/	/	/	/	202	164	□80	35	60
	DE	/	/	/	/	/	197	159	□80	30	55
	EA	/	/	/	/	/	197	159	□90	30	55
	EB	/	/	/	/	/	192	154	□90	25	50
	EC	/	/	/	/	/	202	164	□90	35	60
	FA	/	/	/	/	/	192	154	□100	25	50
	FB	/	/	/	/	/	202	164	□100	35	60
	GA·GC	/	/	/	/	/	197	159	□115	30	55
	GB·GD	/	/	/	/	/	192	154	□115	25	50
	HA	/	/	/	/	/	192	154	□130	25	50
	HB	/	/	/	/	/	207	169	□130	40	65
	HC·HD·HE	/	/	/	/	/	197	159	□130	30	55
	MKT-140-□-□-28** (입력축 내경 ≤ φ28 Input shaft bore)	FA·FB·FC	174.5	136.5	□100	35	67	209	171	□100	35
GA·GB·GC·GD·GE·GF·GG		174.5	136.5	□115	35	67	209	171	□115	35	67
HA·HC·HD		174.5	136.5	□130	35	67	209	171	□130	35	67
HB		184.5	146.5	□130	45	77	219	181	□130	45	77
JA·JB·JC		174.5	136.5	□150	35	67	209	171	□150	35	67
KA·KB		174.5	136.5	□180	35	67	209	171	□180	35	67
KD		184.5	146.5	□180	45	77	219	181	□180	45	77
MKT-140-□-□-38** (입력축 내경 ≤ φ38 Input shaft bore)	LA	174.5	136.5	□200	35	67	209	171	□200	35	67
	MA	174.5	136.5	□220	35	67	209	171	□220	35	67
	HA	189.5	151.5	□130	45	82	224	186	□130	45	82
	HB	184.5	146.5	□130	40	77	219	181	□130	40	77
	JA	189.5	151.5	□150	45	82	224	186	□150	45	82
	KA·KB·KC	189.5	151.5	□180	45	82	224	186	□180	45	82
	LA	189.5	151.5	□200	45	82	224	186	□200	45	82
MKT-140-□-□-48** (입력축 내경 ≤ φ48 Input shaft bore)	LB	199.5	161.5	□200	55	92	234	196	□200	55	92
	MA·MB	189.5	151.5	□220	45	82	224	186	□220	45	82
	NA	189.5	151.5	□250	45	82	224	186	□250	45	82
	KB·KC	210.5	172.5	□180	55	98	/	/	/	/	/
	KA	230.5	192.5	□180	75	118	/	/	/	/	/
	LA	210.5	172.5	□200	55	98	/	/	/	/	/
	MA	210.5	172.5	□220	55	98	/	/	/	/	/
MKT-140-□-□-55** (입력축 내경 ≤ φ55 Input shaft bore)	MB	230.5	192.5	□220	75	118	/	/	/	/	/
	NA	230.5	192.5	□250	75	118	/	/	/	/	/
	PA	230.5	192.5	□280	75	118	/	/	/	/	/

※1 1단 감속비: 1/4~1/10 ; 2단 감속비: 1/16~1/100
 ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.

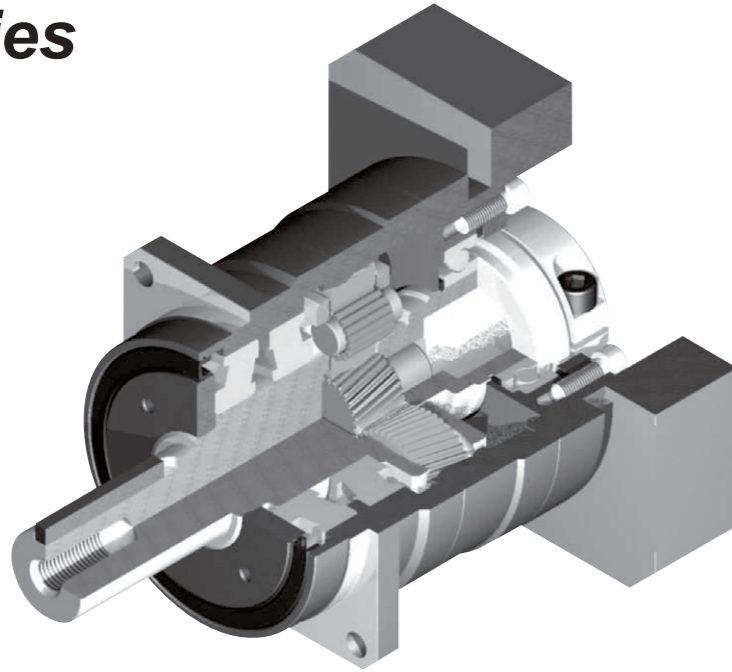
※1 Single reduction : 1/4 ~ 1/10, Double reduction : 1/16 ~ 1/100
 ※2 Bushing will be inserted to adapt to motor shaft.

모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	1단 Single					2단 Double				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMT200□□□-28** (입력축 내경 ≤ φ28 Input shaft bore)	FA·FB·FC	/	/	/	/	/	253.5	203.5	□100	35	67
	GA·GB·GC·GD·GE·GF·GG	/	/	/	/	/	253.5	203.5	□115	35	67
	HA·HC·HD	/	/	/	/	/	253.5	203.5	□130	35	67
	HB	/	/	/	/	/	263.5	213.5	□130	45	77
	JA·JB·JC	/	/	/	/	/	253.5	203.5	□150	35	67
	KA·KB	/	/	/	/	/	253.5	203.5	□180	35	67
	KD	/	/	/	/	/	263.5	213.5	□180	45	77
	LA	/	/	/	/	/	253.5	203.5	□200	35	67
	MA	/	/	/	/	/	253.5	203.5	□220	35	67
	SMT200□□□-38** (입력축 내경 ≤ φ38 Input shaft bore)	HA	224	174	□130	45	82	268.5	218.5	□130	45
HB		219	169	□130	40	77	263.5	213.5	□130	40	77
JA		224	174	□150	45	82	268.5	218.5	□150	45	82
KA·KB·KC		224	174	□180	45	82	268.5	218.5	□180	45	82
LA		224	174	□200	45	82	268.5	218.5	□200	45	82
LB		234	184	□200	55	92	278.5	228.5	□200	55	92
MA·MB		224	174	□220	45	82	268.5	218.5	□220	45	82
SMT200□□□-48** (입력축 내경 ≤ φ48 Input shaft bore)	NA	224	174	□250	45	82	268.5	218.5	□250	45	82
	KB·KC	240	190	□180	55	98	284.5	234.5	□180	55	98
	KA	260	210	□180	75	118	304.5	254.5	□180	75	118
	LA	240	190	□200	55	98	284.5	234.5	□200	55	98
	MA	240	190	□220	55	98	284.5	234.5	□220	55	98
	MB	260	210	□220	75	118	304.5	254.5	□220	75	118
	NA	260	210	□250	75	118	304.5	254.5	□250	75	118
SMT200□□□-65** (입력축 내경 ≤ φ65 Input shaft bore)	PA	260	210	□280	75	118	304.5	254.5	□280	75	118
	MA·MB·MC·MD	271.5	221.5	□220	80	122	/	/	/	/	/
	NA	271.5	221.5	□250	80	122	/	/	/	/	/
	PA	291.5	241.5	□280	100	142	/	/	/	/	/
	PB	301.5	251.5	□280	110	152	/	/	/	/	/
QA	291.5	241.5	□320	100	142	/	/	/	/	/	

※1 1단 감속비: 1/4~1/10 ; 2단 감속비: 1/16~1/100
 ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.

※1 Single reduction : 1/4 ~ 1/10, Double reduction : 1/16 ~ 1/100
 ※2 Bushing will be inserted to adapt to motor shaft.

SMS series



고정밀

표준 백래시 ≤ 3 arc-min.

고강성 & 고토크

Uncaged 니들롤러베어링을 사용하여 강성과 토크 향상.

고하중

출력단에 테이퍼롤러 베어링을 사용하여 반경방향 및 축방향 하중을 증가.

어댑터-부싱 연결방식

다양한 모터에 취부 가능.

그리스 누유현상 없음

고점도 분리방지 그리스를 사용.

유지 보수 불필요

제품 수명 동안 그리스 교체 불필요 자유로운 설치 가능.

High precision

Standard backlash is 3 arc-min, ideal for precision control.

High rigidity & torque

High rigidity & high torque were achieved by uncaged needle roller bearings.

High load capacity

Adopting taper roller bearing for the main output shaft to increase radial and axial load.

Adapter-bushing connection

Can be attached to any motor all over the world.

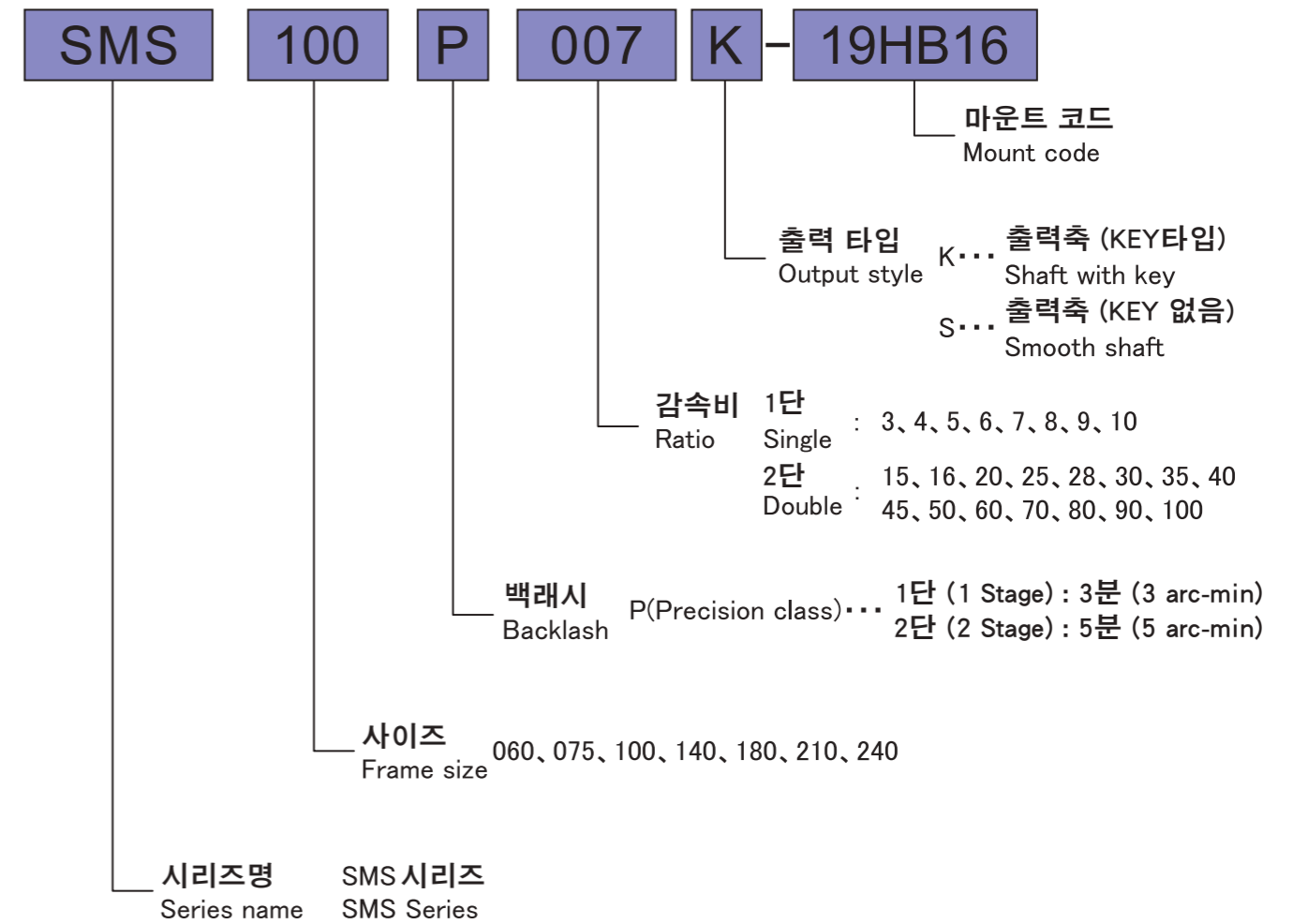
No grease leakage

Perfect solution using high viscosity anti-separation grease.

Maintenance-free

No need to replace the grease for the life of the unit. Can be attached in any position.

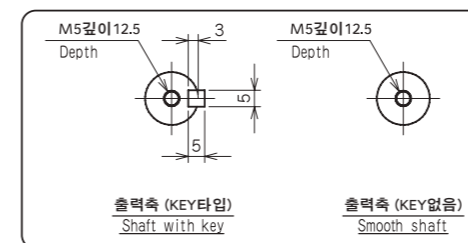
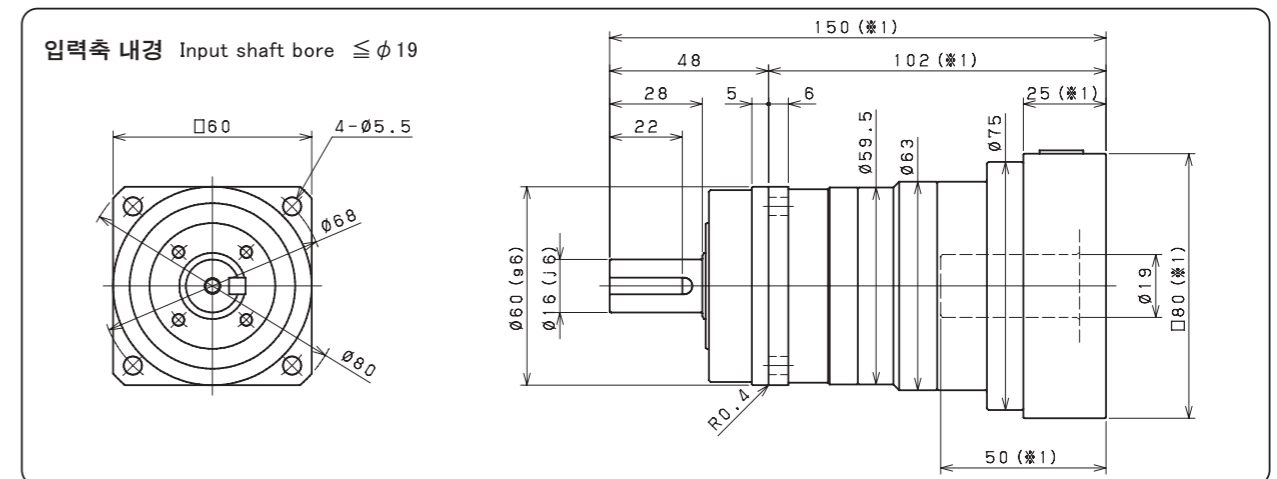
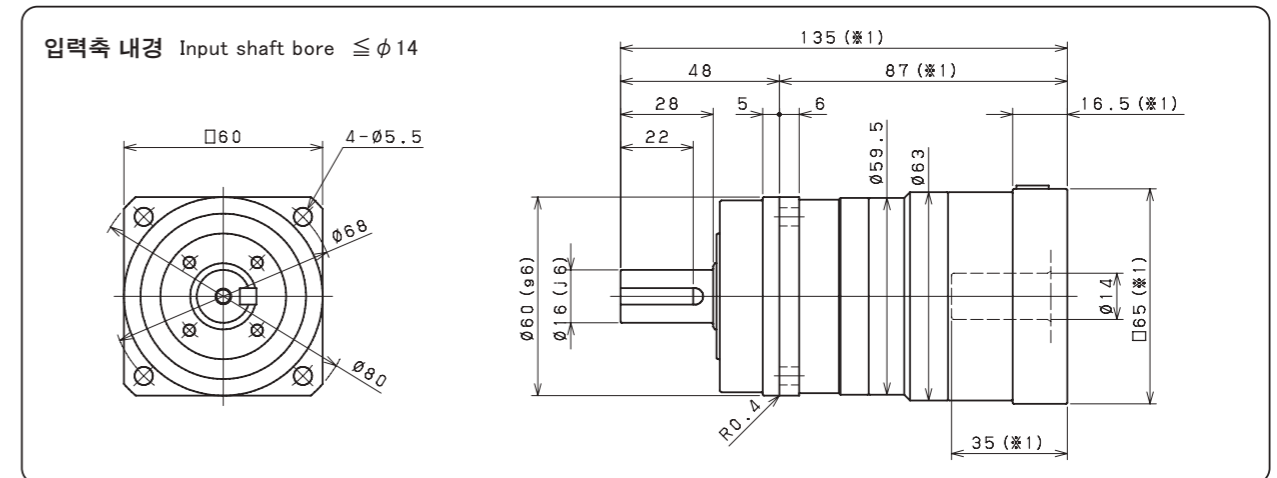
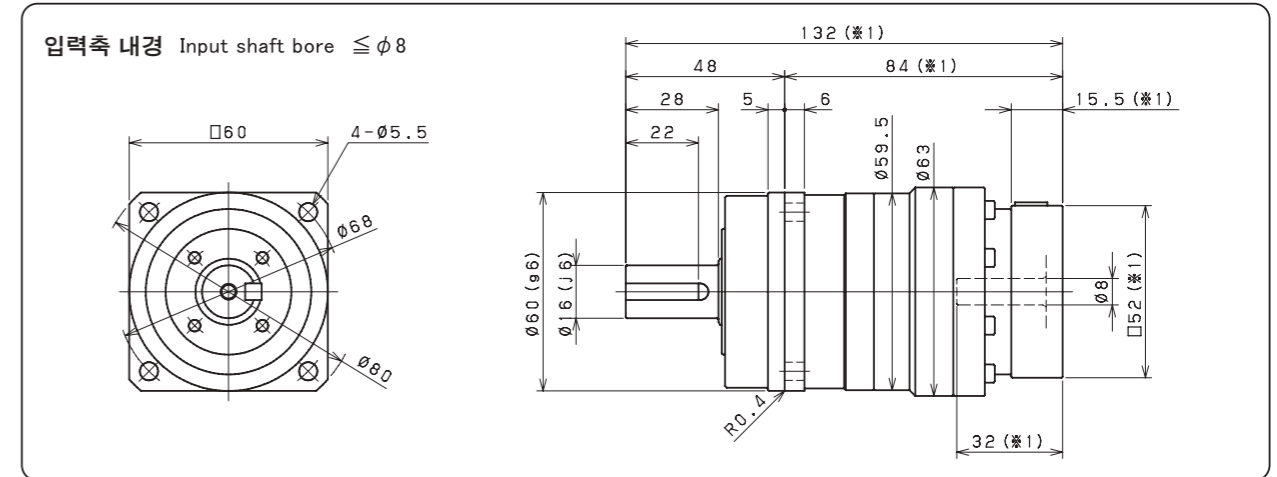
SMS series



Model No.	Unit	Stage	Ratio ¹	SMS060	SMS075	SMS100	SMS140	SMS180	SMS210	SMS240	
Rated Output Torque (Nominal Output torque)	T _{2N}	1	3	39	106	195	440	750	1,500	1,700	
			4	39	110	210	460	950	1,600	2,400	
			5	43	110	210	580	1,200	2,000	2,600	
			6	43	108	160	530	1,100	1,600	2,500	
			7	43	108	200	490	1,000	1,500	2,300	
			8	43	79	190	420	900	1,200	1,900	
			9	35	90	170	390	800	1,100	1,700	
			10	30	88	170	370	800	1,100	1,600	
			2	15	35	84	195	440	750	1,450	2,400
				16	39	100	210	460	950	1,800	2,800
		20		39	100	210	460	950	1,900	3,200	
		25		43	110	210	580	1,200	2,000	3,100	
		28		43	108	200	580	1,200	1,500	2,300	
		30		39	90	195	440	900	1,500	3,200	
		35		43	108	200	580	1,200	1,500	2,300	
		40		43	110	210	460	1,200	2,000	3,200	
		45		39	90	170	580	1,200	1,100	1,700	
		50		43	110	210	580	1,200	2,000	3,000	
		60	43	108	160	580	1,200	1,600	2,500		
		70	43	108	200	490	1,100	1,500	2,300		
80	43	79	190	420	900	1,200	1,900				
90	39	90	170	390	800	1,100	1,700				
100	39	88	170	370	800	1,100	1,600				
Max. Acceleration Torque	T _{2B}	Nm	1,2	3~100	1.8 Times of Rated Output Torque						
Max. Output Torque Emergency Stop Torque	T _{2NOT}	Nm	1,2	3~100	3 Times of Rated Output Torque						
Nominal Input speed	n _{1n}	rpm	1,2	3~100	3,000	3,000	3,000	2,000	1,500	1,000	1,000
Max. Input speed	n _{1B}	rpm	1,2	3~100	6,000	6,000	6,000	5,000	4,000	3,000	3,000
Backlash (Precision class)		arcmin	1	3~10	≤3	≤3	≤3	≤3	≤3	≤3	≤3
			2	15~100	≤5	≤5	≤5	≤5	≤5	≤5	≤5
Torsional Rigidity		Nm/arcmin	1,2	3~100	5	12	23	38	110	210	430
Max. Radial load ²	F _{2rB}	N	1,2	3~100	3,000	4,300	6,900	10,000	19,000	24,000	30,000
Max. Axial load ²	F _{2aB}	N	1,2	3~100	2,700	3,900	6,300	90,000	17,000	22,000	27,000
Service life	L _H	hr	1,2	3~100	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Noise level ³		dB(A)	1,2	3~100	≤58	≤60	≤63	≤65	≤67	≤70	≤73
Weight		kg	1	3~10	1.6	3.4	8.1	17	39	59	85
			2	15~100	1.8	3.8	8.8	19	39	60	89
Mass Moments of Inertia ⁴		kg cm ²	1	3~10	0.16	0.85	3.6	13	43	53	130
			2	15~100	0.13	0.71	2.8	11	34	35	39
Operating Temp. ⁵		°C	1,2	3~100	-10 ~ +90						
Lubrication			1,2	3~100	High temperature & Extreme pressure Lubricant						
Mounting position			1,2	3~100	All directions						
Efficiency	η	%	1	3~10	≥95						
			2	15~100	≥92						
Degree of protection			1,2	3~100	IP 65						

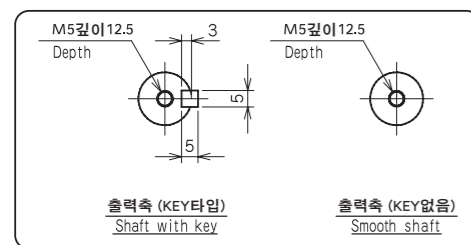
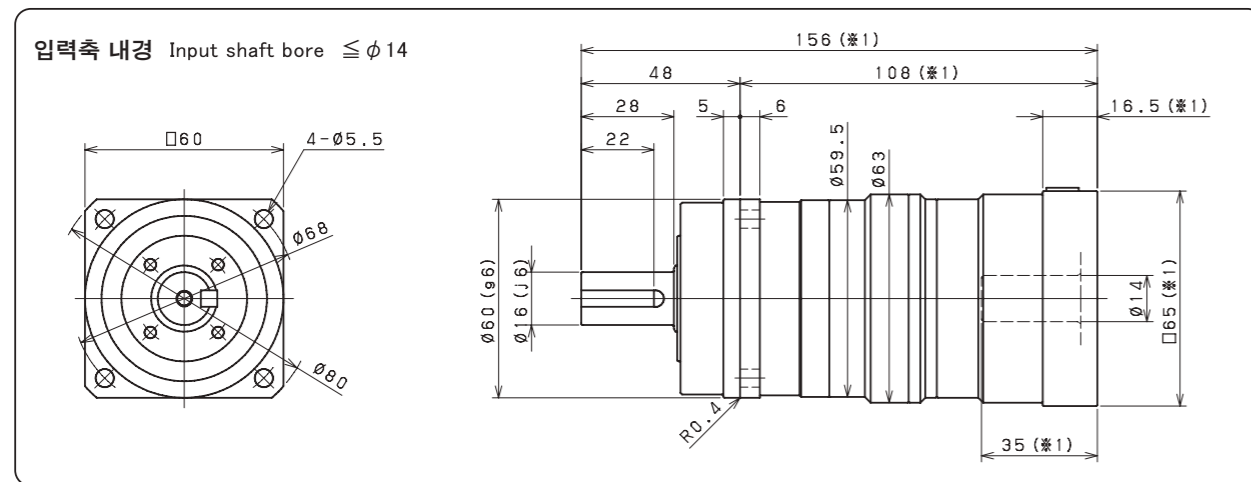
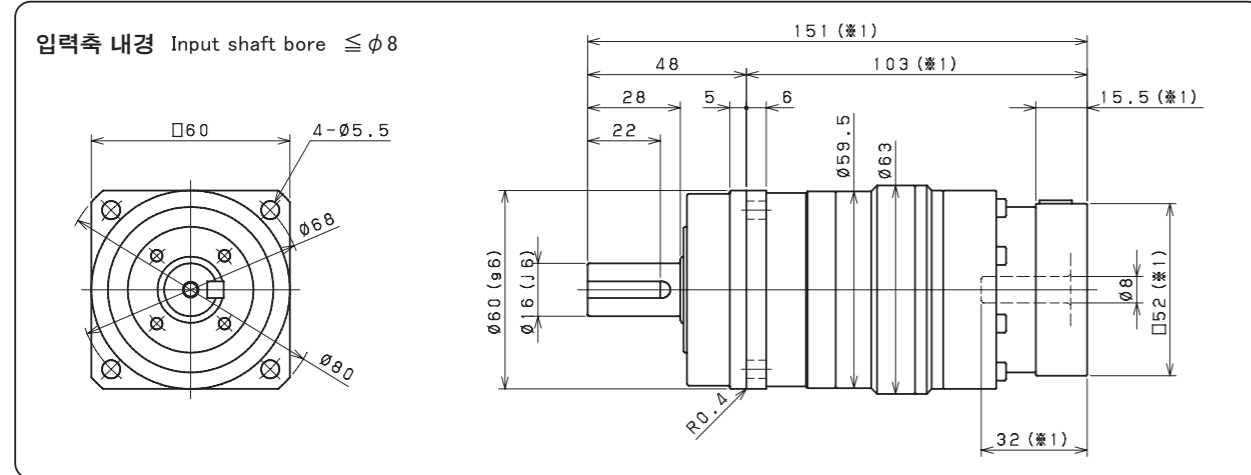
- (1) Ratio (감속비) = N_{in} / N_{out}
 (2) 기준 : 출력회전수 100rpm, 출력축 중앙 부하, 부하계수(Ka)=1, 연속운전 10,000시간
 These values are based on the following conditions : 100 rpm at the output. Load applied to the middle of the output shaft.
 Load coefficient(Ka)=1. Continuous operation(S1≒10,000hrs).
 (3) 입력 회전수 3000 rpm, 무부하 운전상태에서 감속기 취부면에서 1m 떨어진 거리에서 측정 (모델에 따라 차이가 있을수 있습니다)
 Noise level : A measurement 1m away from the reducer (with ratio10 or ratio 100), 3000 input rpm and at no load condition.
 (Background noise 40dB(A)) With lower ratio and/or higher rpm, the noise level could be 3 to 5 dB higher.
 (4) 관성모멘트 : 감속비 중 대표값 (i=1/5)
 Moment of inertia : A measurement at the input shaft and representatives from each ratio.(i=1/5)
 (5) 감속기 작동온도 : -10~+90 °C, 감속기 주위온도 -10~40°C
 Operating temperature : Surface temperature of gear case in -10 °C~40 °C of ambient temperature.
 ※ 제품 성능 향상을 위해 사양은 별도의 고지 없이 변경될 수 있습니다.
 Specifications are subject to change without notice to improve product performances.

SMS 060 1단 1stage



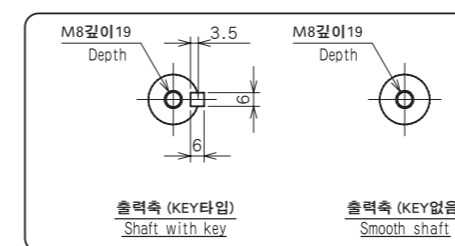
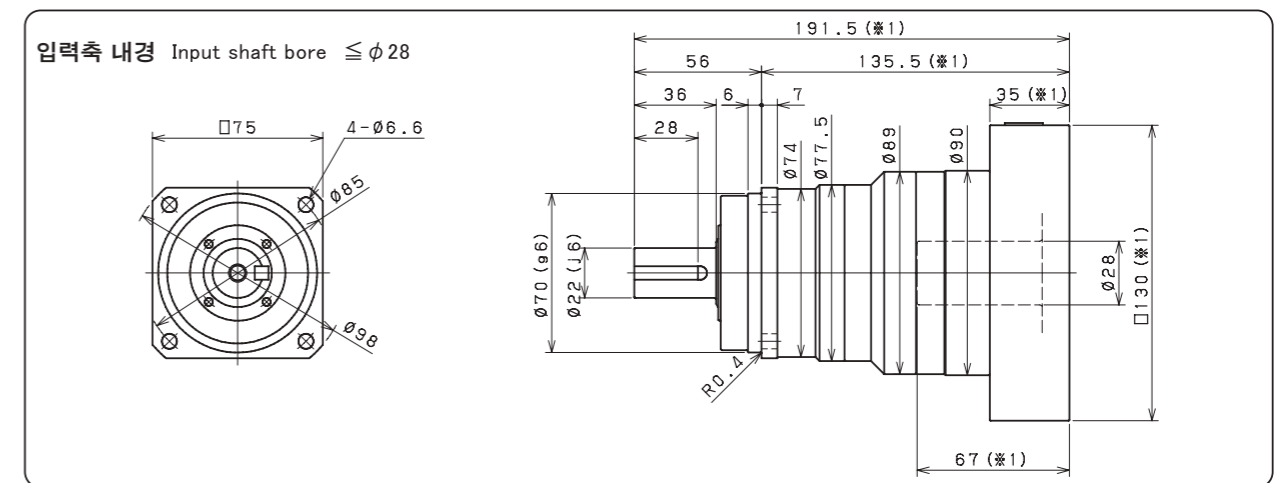
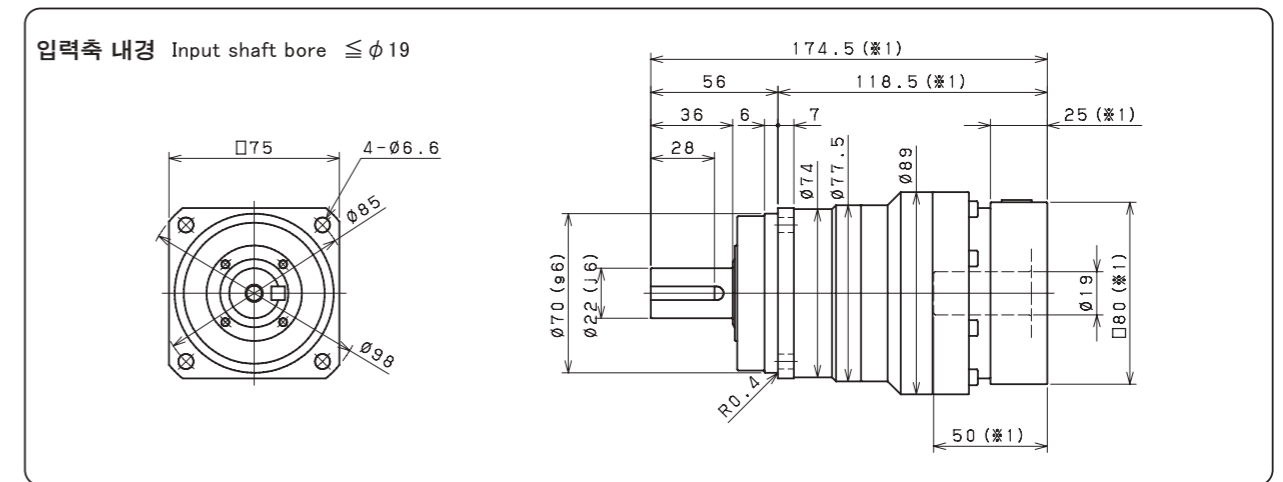
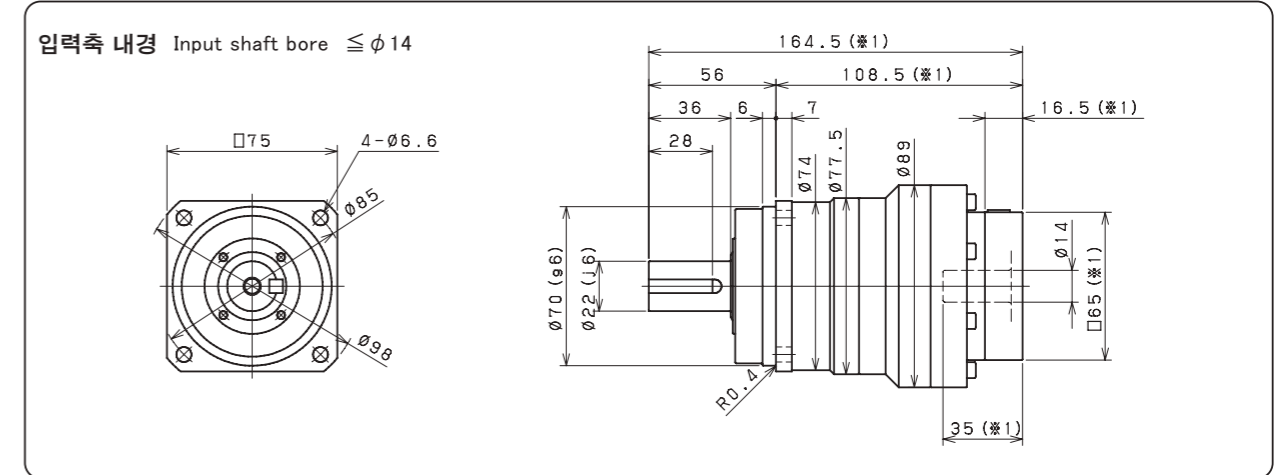
- ※ 1 적용 모터에 따라 길이는 변경될 수 있습니다.
 ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
 ※ 1 Length will vary depending on motor.
 ※ 2 Bushing will be inserted to adapt to motor shaft.

SMS 060 2단 2stage



- ※ 1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※ 1 Length will vary depending on motor.
- ※ 2 Bushing will be inserted to adapt to motor shaft.

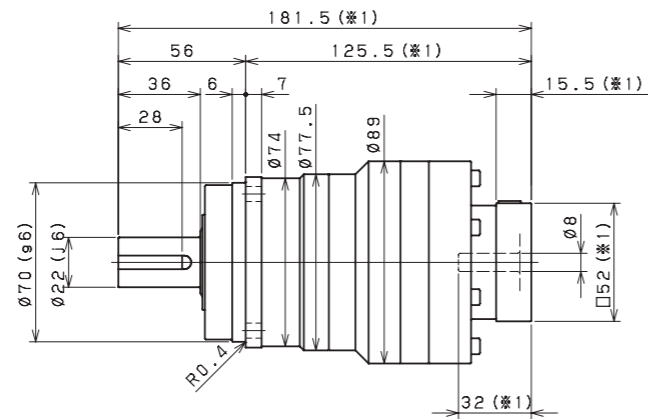
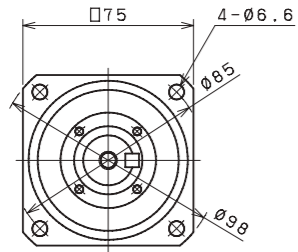
SMS 075 1단 1stage



- ※ 1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※ 1 Length will vary depending on motor.
- ※ 2 Bushing will be inserted to adapt to motor shaft.

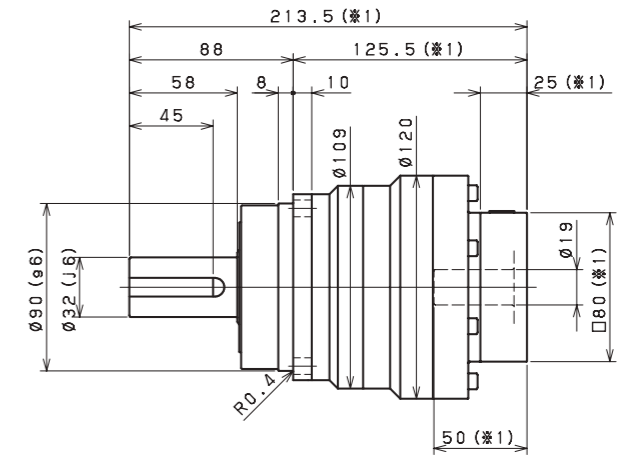
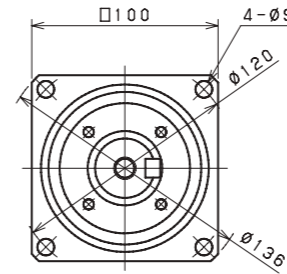
SMS 075 2단 2stage

입력축 내경 Input shaft bore $\leq \phi 8$

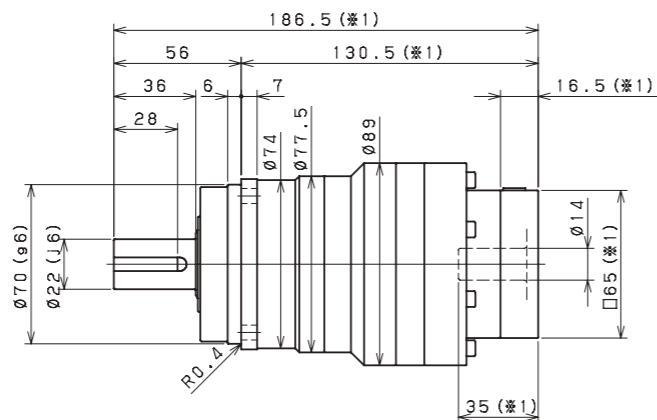
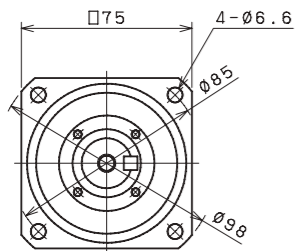


SMS 100 1단 1stage

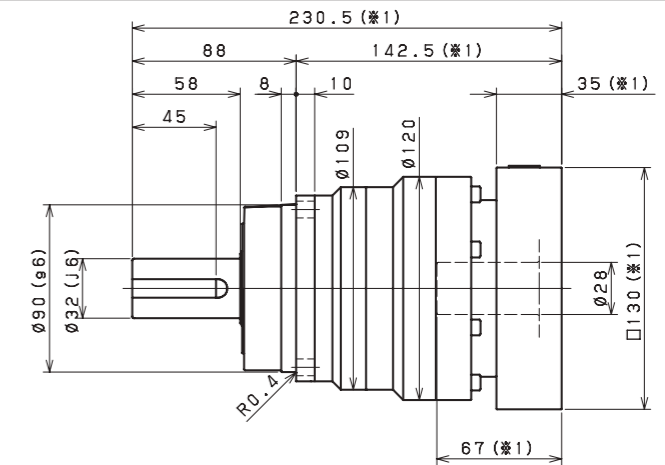
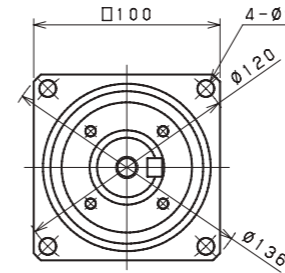
입력축 내경 Input shaft bore $\leq \phi 19$



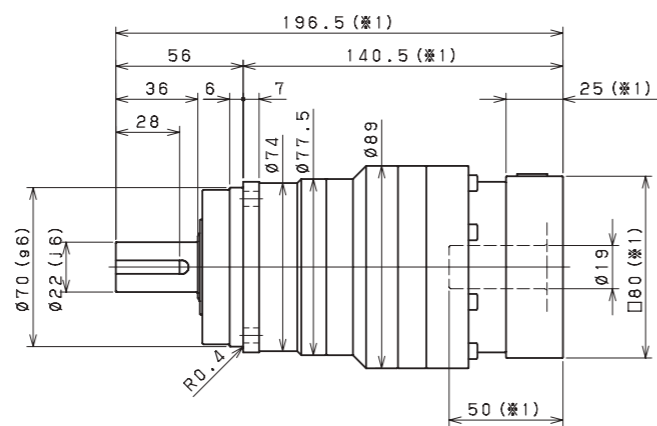
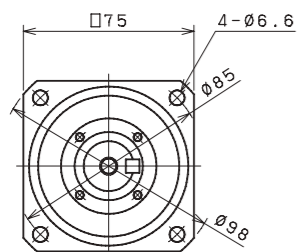
입력축 내경 Input shaft bore $\leq \phi 14$



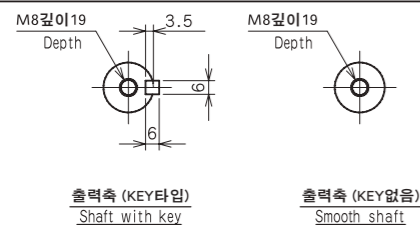
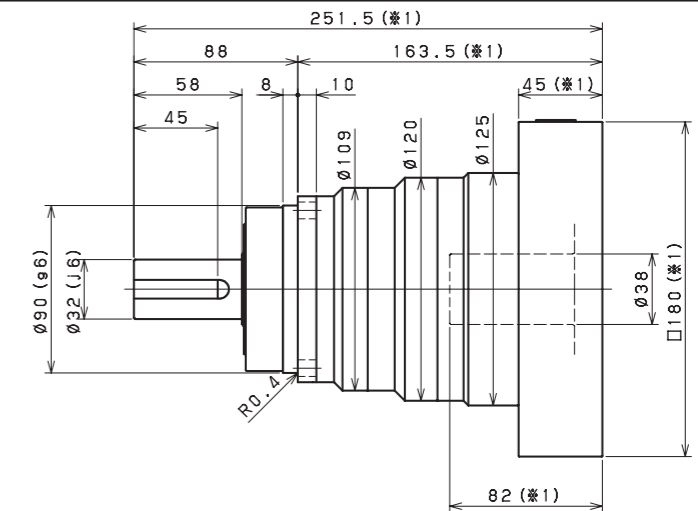
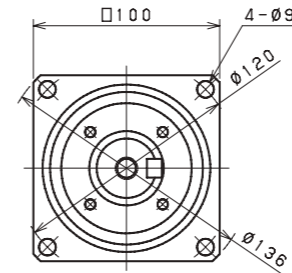
입력축 내경 Input shaft bore $\leq \phi 28$



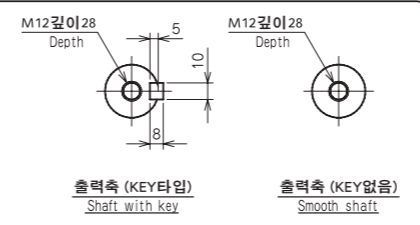
입력축 내경 Input shaft bore $\leq \phi 19$



입력축 내경 Input shaft bore $\leq \phi 38$



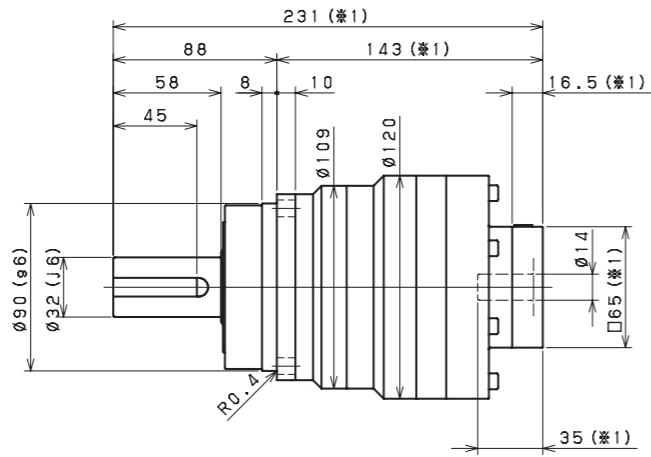
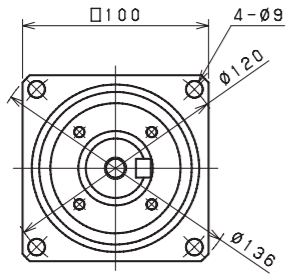
- ※ 1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※ 1 Length will vary depending on motor.
- ※ 2 Bushing will be inserted to adapt to motor shaft.



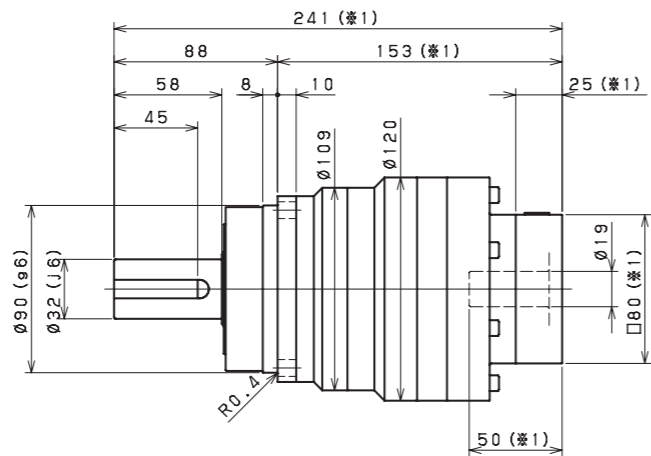
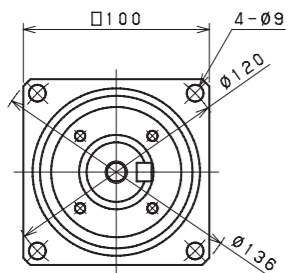
- ※ 1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※ 1 Length will vary depending on motor.
- ※ 2 Bushing will be inserted to adapt to motor shaft.

SMS 100 2단 2stage

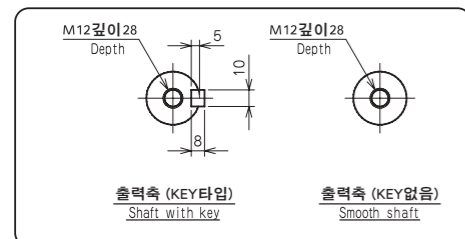
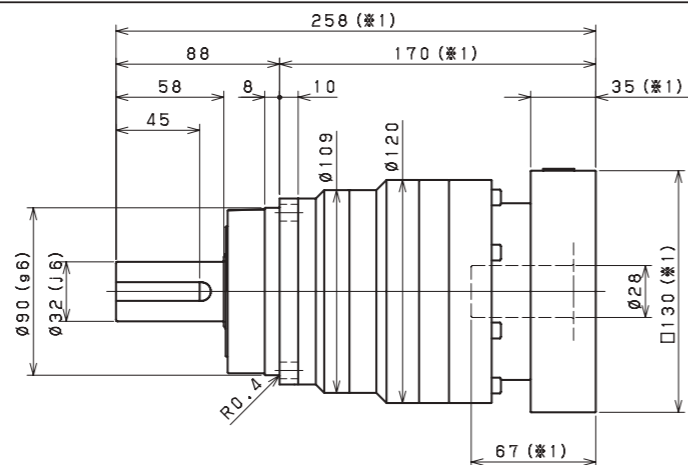
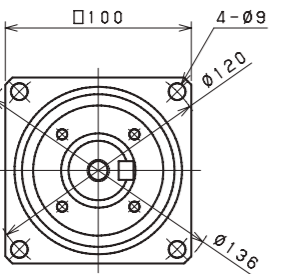
입력축 내경 Input shaft bore $\leq \phi 14$



입력축 내경 Input shaft bore $\leq \phi 19$



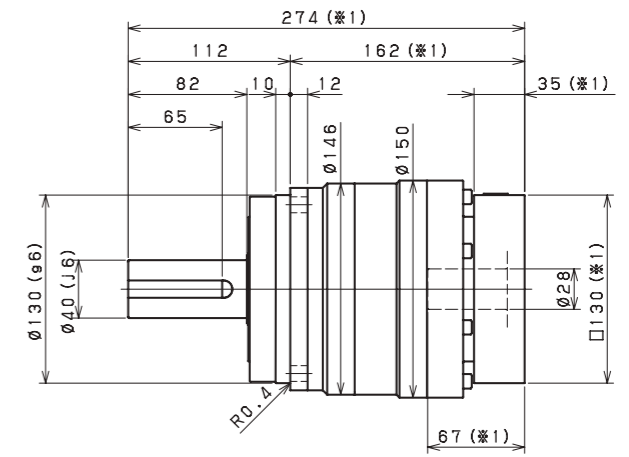
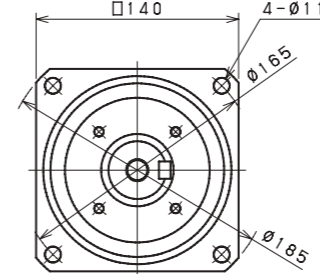
입력축 내경 Input shaft bore $\leq \phi 28$



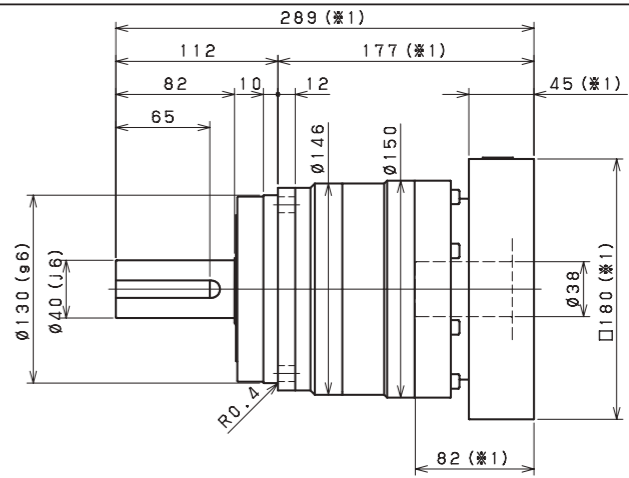
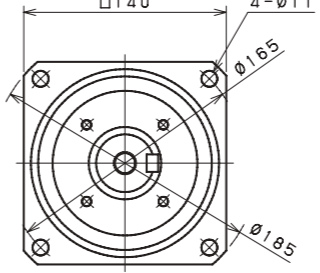
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMS 140 1단 1stage

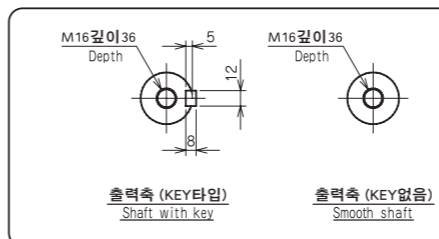
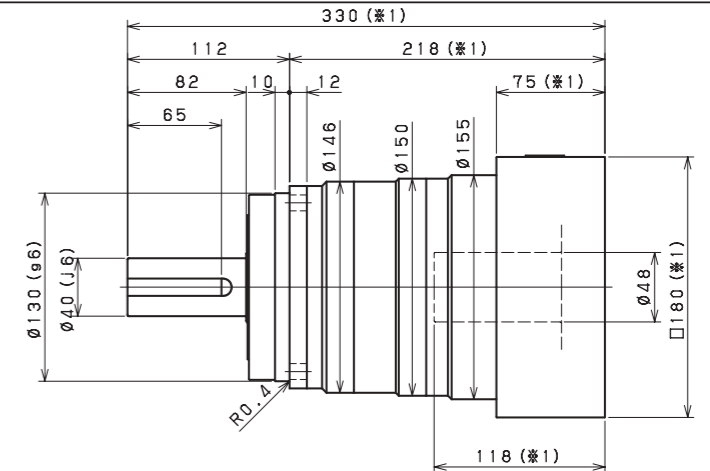
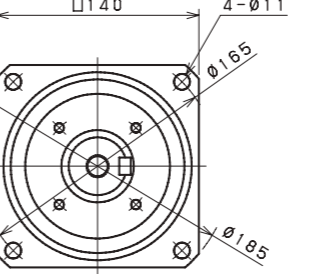
입력축 내경 Input shaft bore $\leq \phi 28$



입력축 내경 Input shaft bore $\leq \phi 38$



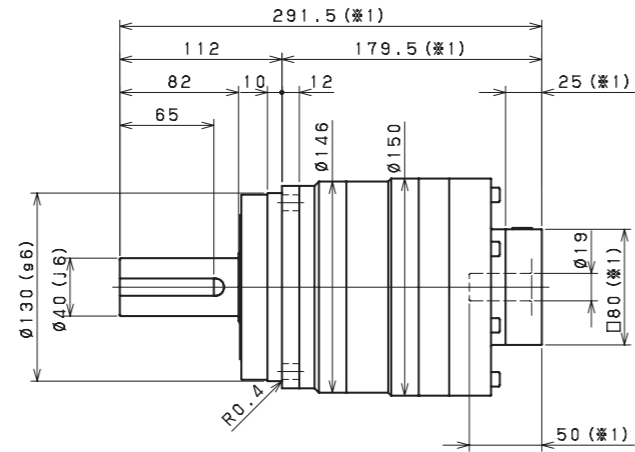
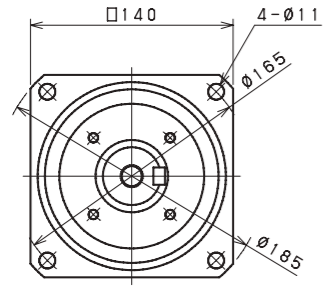
입력축 내경 Input shaft bore $\leq \phi 48$



- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

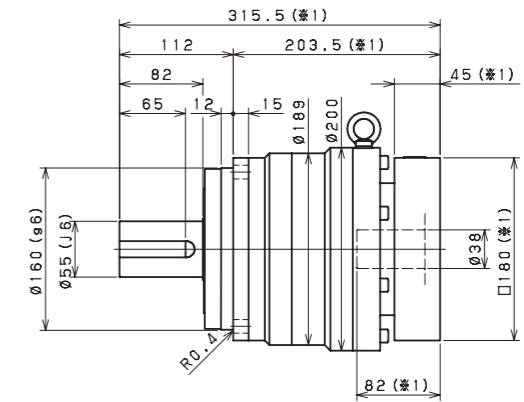
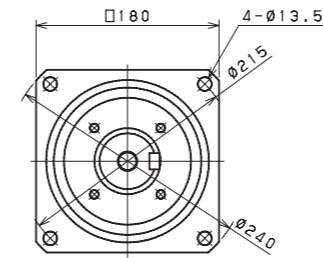
SMS 140 2단 2stage

입력축 내경 Input shaft bore $\leq \phi 19$

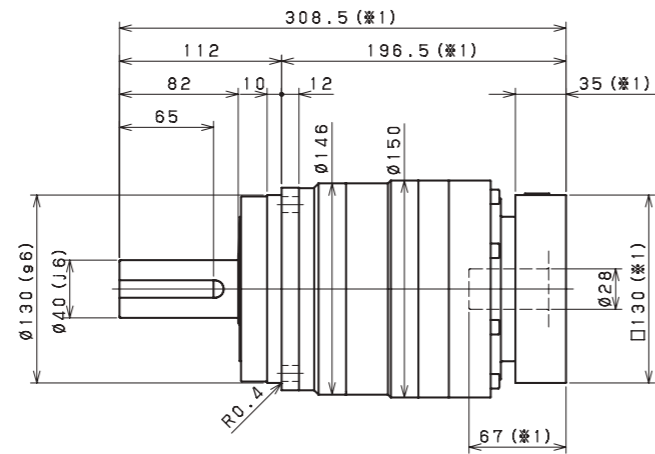
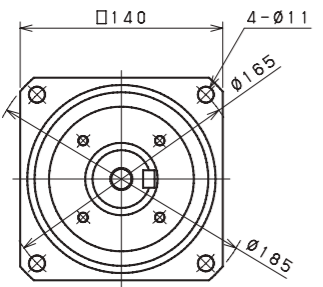


SMS 180 1단 1stage

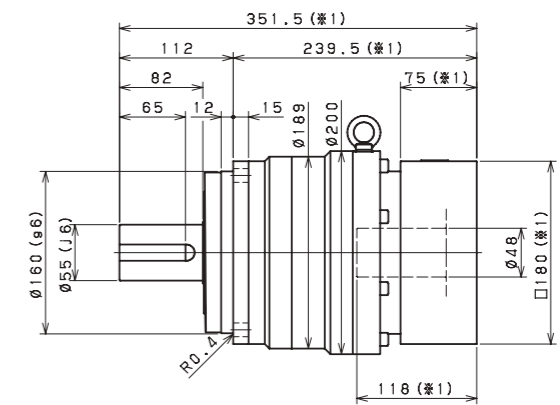
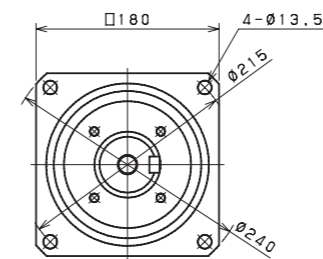
입력축 내경 Input shaft bore $\leq \phi 38$



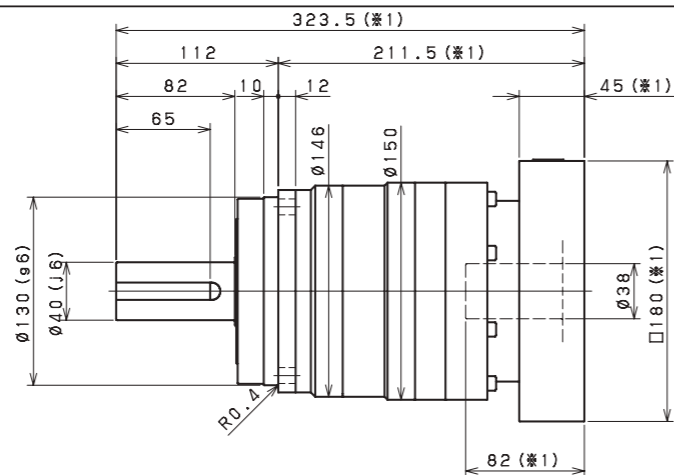
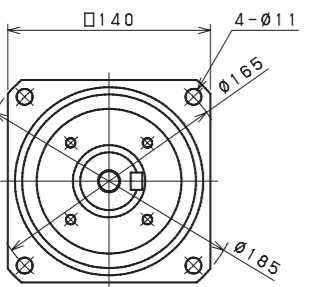
입력축 내경 Input shaft bore $\leq \phi 28$



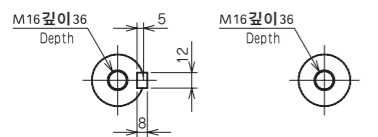
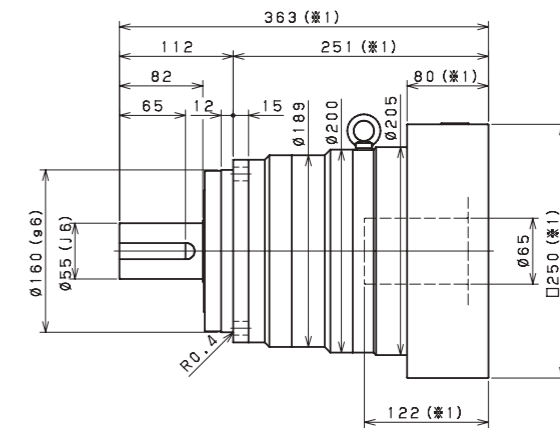
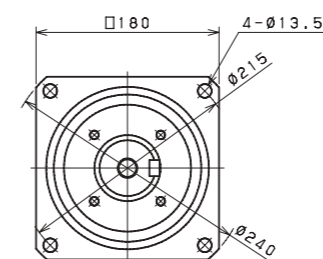
입력축 내경 Input shaft bore $\leq \phi 48$



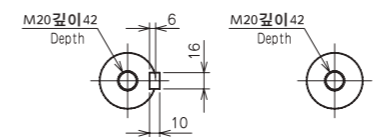
입력축 내경 Input shaft bore $\leq \phi 38$



입력축 내경 Input shaft bore $\leq \phi 65$



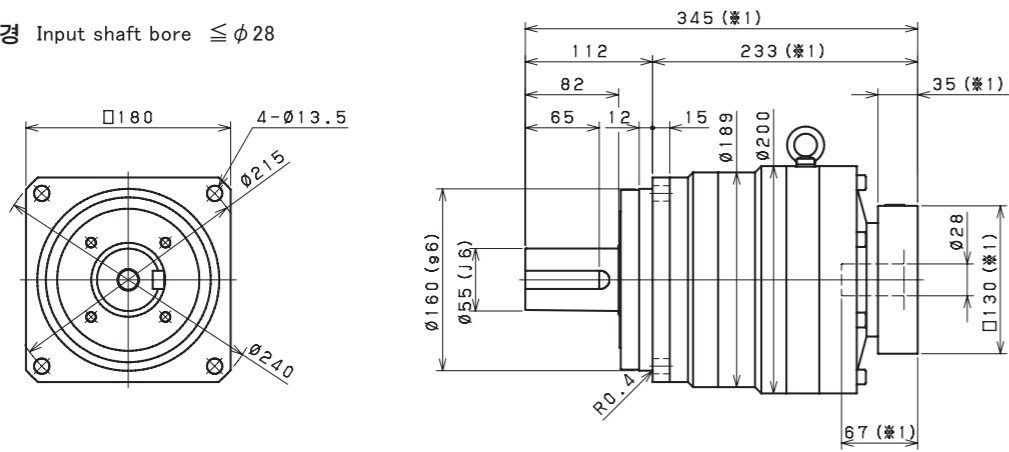
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.



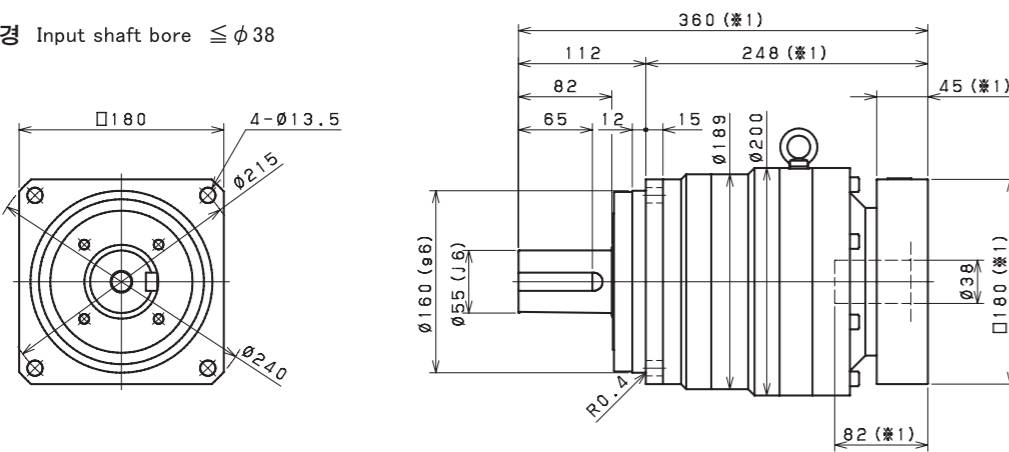
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMS 180 2단 2stage

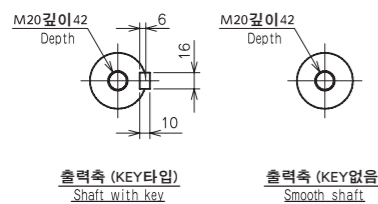
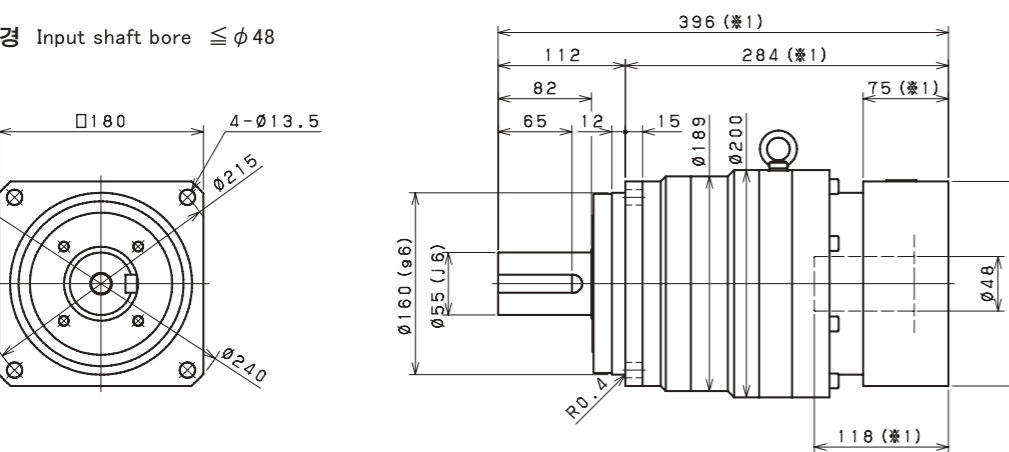
입력축 내경 Input shaft bore $\leq \phi 28$



입력축 내경 Input shaft bore $\leq \phi 38$



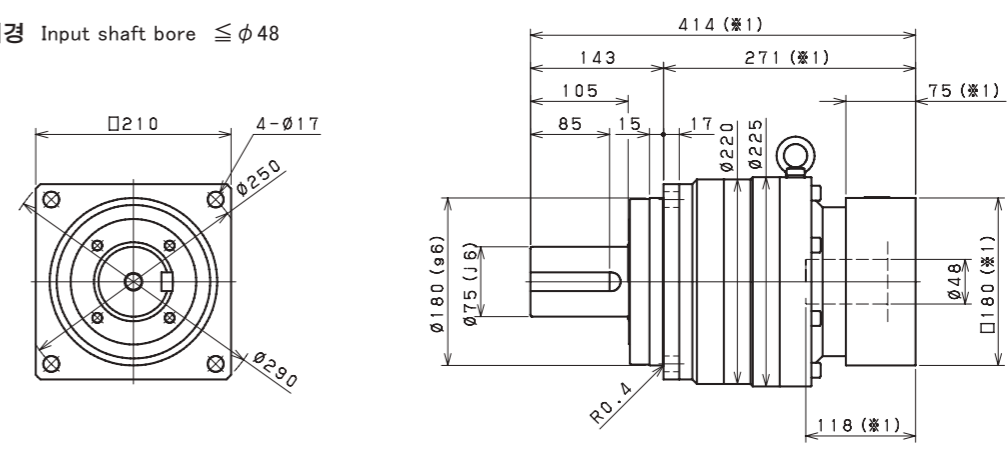
입력축 내경 Input shaft bore $\leq \phi 48$



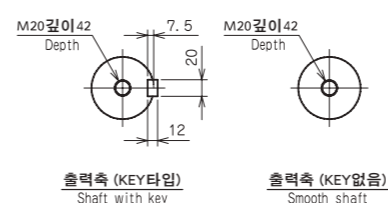
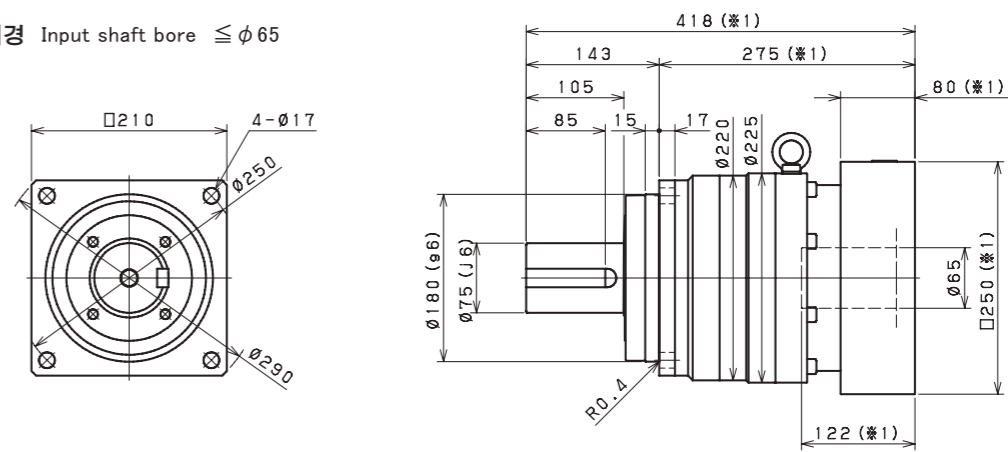
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMS 210 1단 1stage

입력축 내경 Input shaft bore $\leq \phi 48$



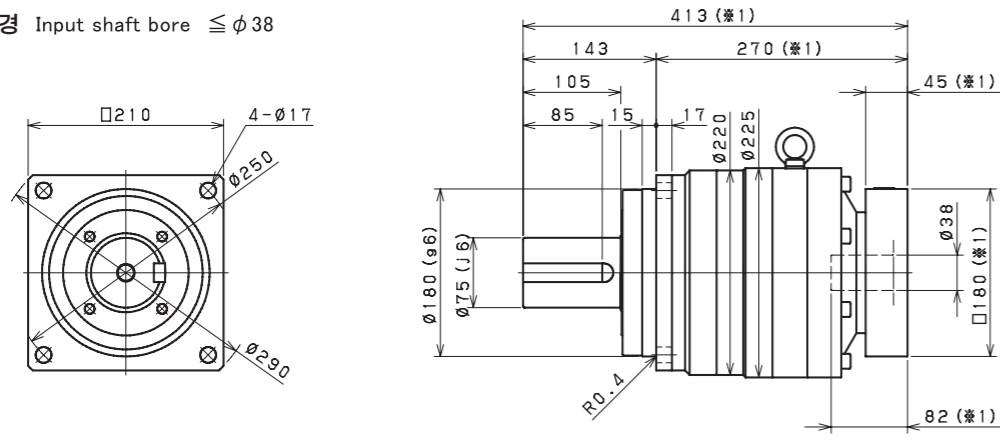
입력축 내경 Input shaft bore $\leq \phi 65$



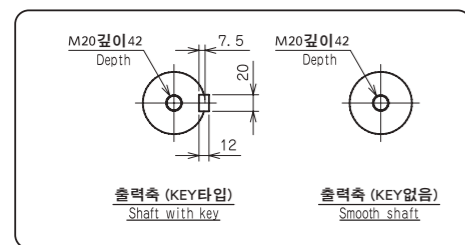
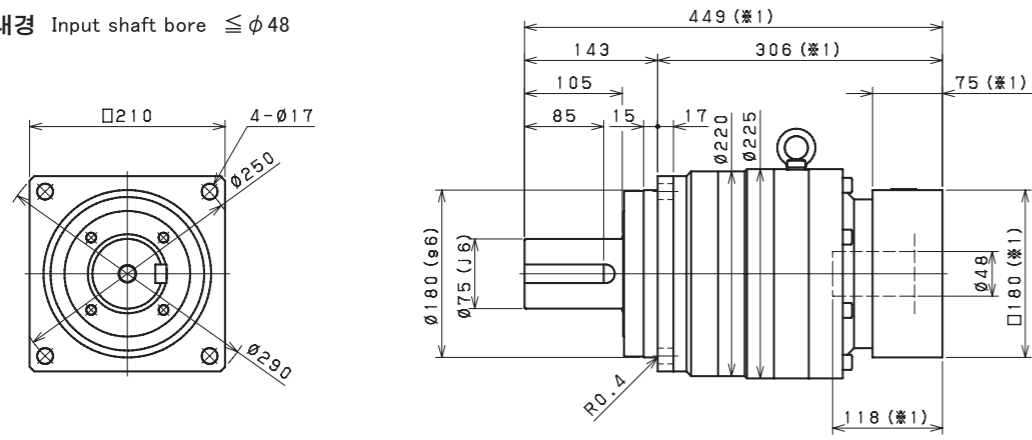
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMS 210 2단 2stage

입력축 내경 Input shaft bore $\leq \phi 38$



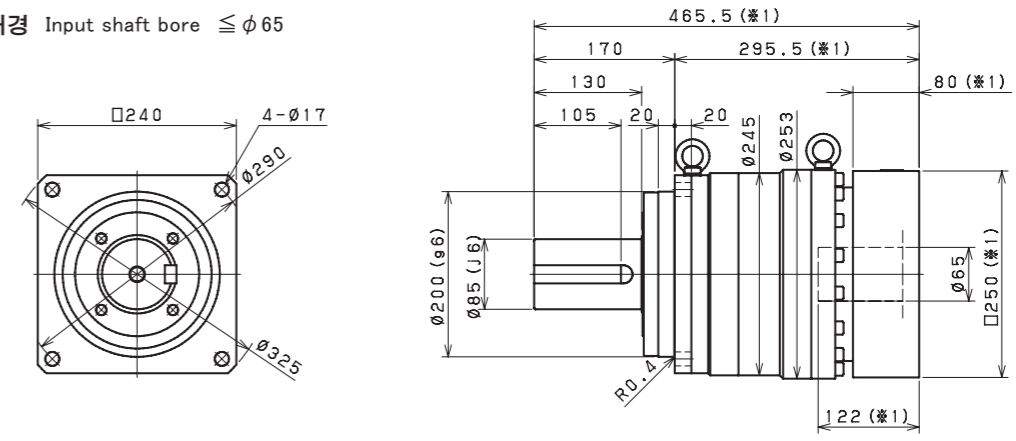
입력축 내경 Input shaft bore $\leq \phi 48$



- ※ 1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※ 1 Length will vary depending on motor.
- ※ 2 Bushing will be inserted to adapt to motor shaft.

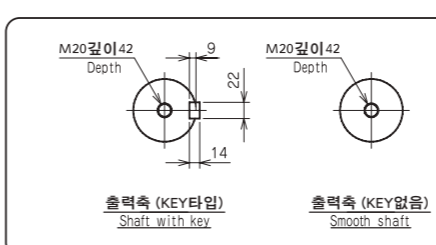
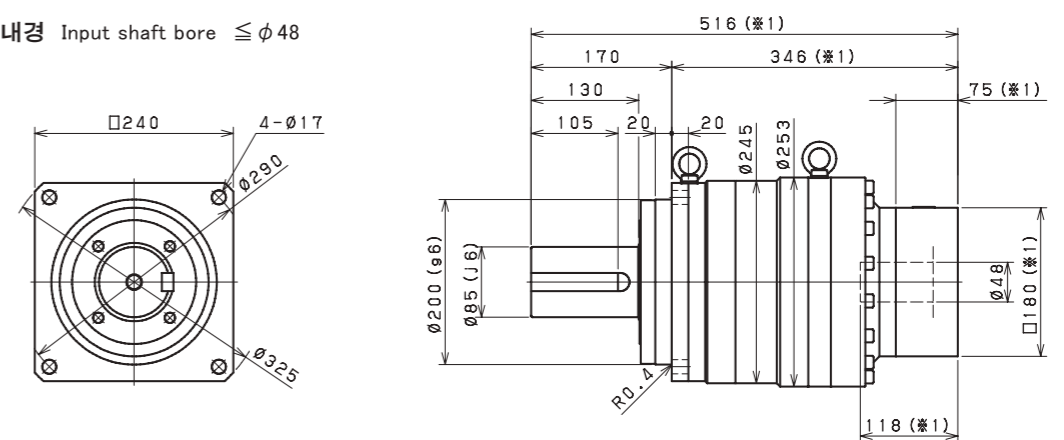
SMS 240 1단 1stage

입력축 내경 Input shaft bore $\leq \phi 65$

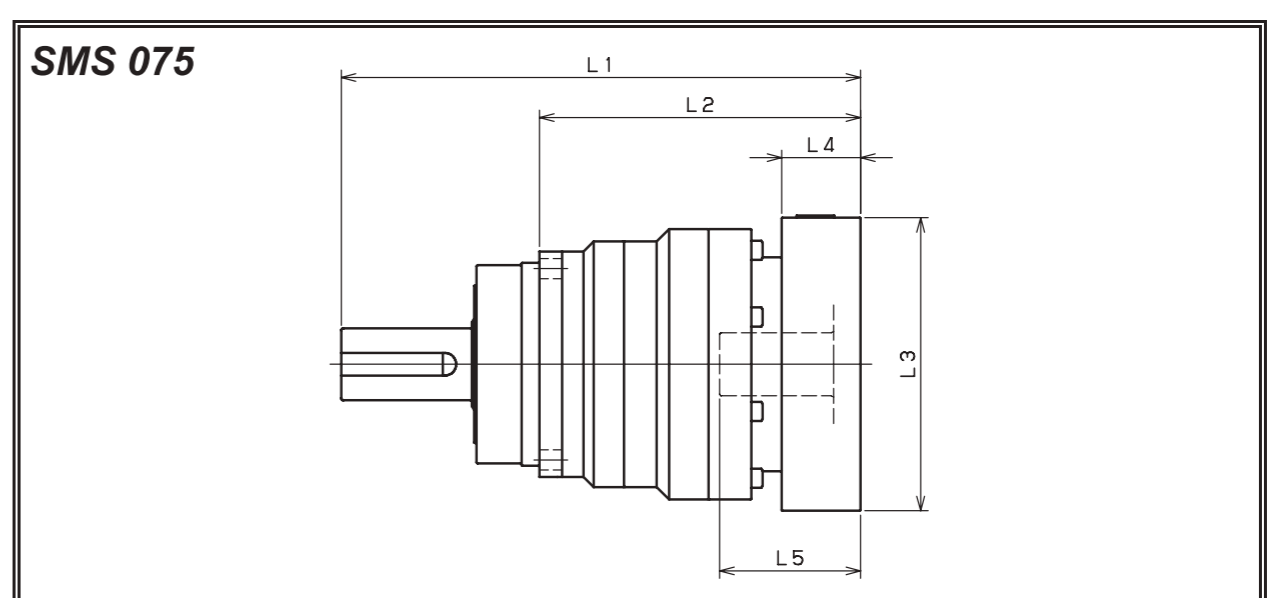
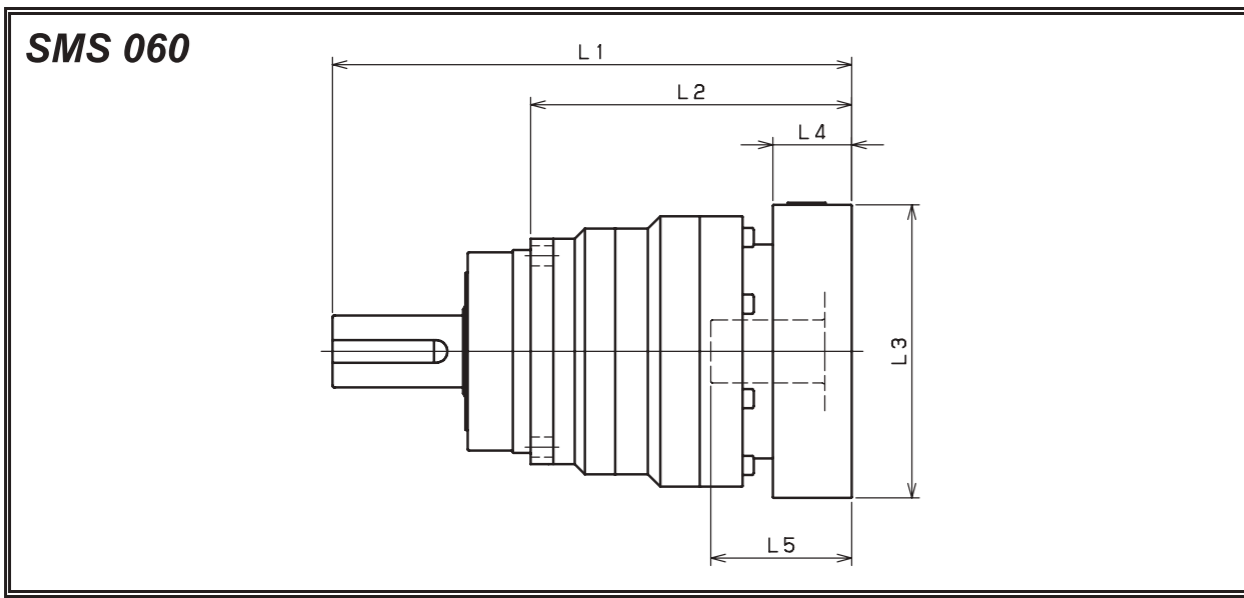


SMS 240 2단 2stage

입력축 내경 Input shaft bore $\leq \phi 48$



- ※ 1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※ 1 Length will vary depending on motor.
- ※ 2 Bushing will be inserted to adapt to motor shaft.

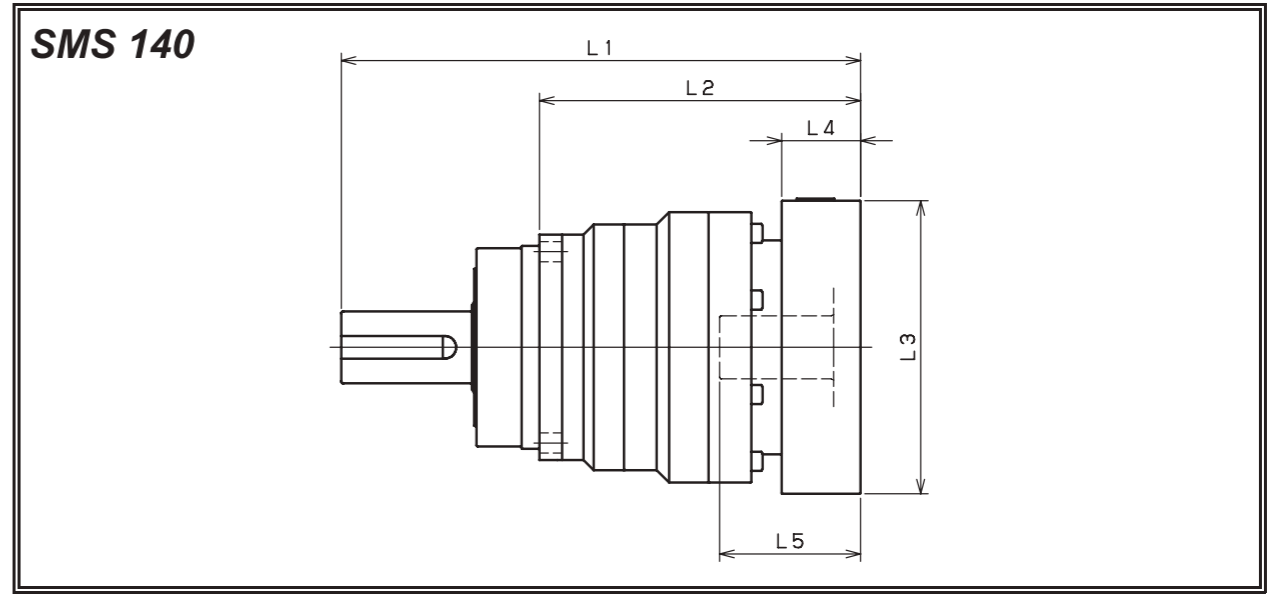
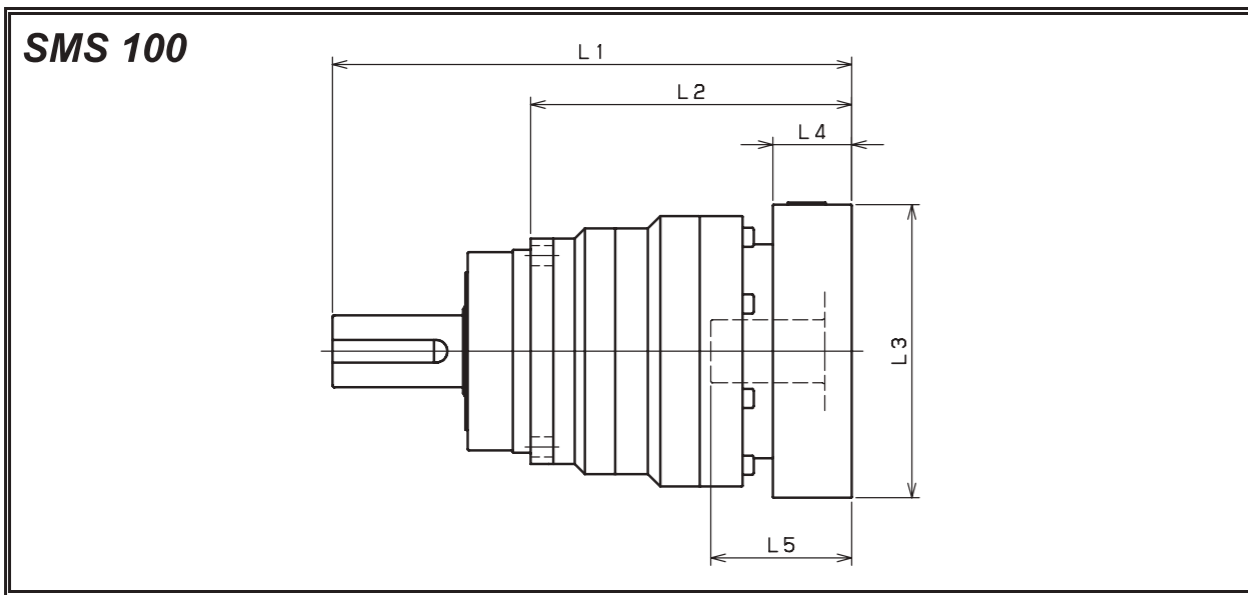


모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	1단 Single					2단 Double				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMS060□□□-8** (입력축 내경 ≤ φ8)	AA·AC·AD·AF·AG	132	84	□52	15.5	32	151	103	□52	15.5	32
	AB·AE·AH·AJ·AK	137	89	□52	20.5	37	156	108	□52	20.5	37
	BA·BB·BD·BE	132	84	□60	15.5	32	151	103	□60	15.5	32
	BC·BF	137	89	□60	20.5	37	156	108	□60	20.5	37
	CA	137	89	□70	20.5	37	156	108	□70	20.5	37
SMS060□□□-14** (입력축 내경 ≤ φ14)	BA·BB·BD·BE·BF·BG·BJ·BK	135	87	□65	16.5	35	156	108	□65	16.5	35
	BC·BH·BM	140	92	□65	21.5	40	161	113	□65	21.5	40
	BL	145	97	□65	26.5	45	166	118	□65	26.5	45
	CA	135	87	□70	16.5	35	156	108	□70	16.5	35
	CB	140	92	□70	21.5	40	161	113	□70	21.5	40
	DA·DB·DC·DD·DF·DH	135	87	□80	16.5	35	156	108	□80	16.5	35
	DE	140	92	□80	21.5	40	161	113	□80	21.5	40
	DG	145	97	□80	26.5	45	166	118	□80	26.5	45
	EA·EB·EC	135	87	□90	16.5	35	156	108	□90	16.5	35
	ED	145	97	□90	26.5	45	166	118	□90	26.5	45
	FA	135	87	□100	16.5	35	156	108	□100	16.5	35
GA	135	87	□115	16.5	35	156	108	□115	16.5	35	
SMS060□□□-19** (입력축 내경 ≤ φ19)	DA·DB·DC	150	102	□80	25	50					
	DD	160	112	□80	35	60					
	DE	155	107	□80	30	55					
	EA	155	107	□90	30	55					
	EB	150	102	□90	25	50					
	EC	160	112	□90	35	60					
	FA	150	102	□100	25	50					
	FB	160	112	□100	35	60					
	GA·GC	155	107	□115	30	55					
	GB·GD	150	102	□115	25	50					
	HA	150	102	□130	25	50					
	HB	165	117	□130	40	65					
	HC·HD·HE	155	107	□130	30	55					

※ 1 1단 감속비: 1/3~1/10 ; 2단 감속비: 1/15~1/100 ※ 1 Single reduction : 1/3 ~ 1/10, Double reduction : 1/15 ~ 1/100
 ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※ 2 Bushing will be inserted to adapt to motor shaft.

모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	1단 Single					2단 Double				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMS075□□□-8** (입력축 내경 ≤ φ8)	AA·AC·AD·AF·AG						181.5	125.5	□52	15.5	32
	AB·AE·AH·AJ·AK						186.5	130.5	□52	20.5	37
	BA·BB·BD·BE						181.5	125.5	□60	15.5	32
	BC·BF						186.5	130.5	□60	20.5	37
	CA						186.5	130.5	□70	20.5	37
SMS075□□□-14** (입력축 내경 ≤ φ14)	BA·BB·BD·BE·BF·BG·BJ·BK	164.5	108.5	□65	16.5	35	186.5	130.5	□65	16.5	35
	BC·BH·BM	169.5	113.5	□65	21.5	40	191.5	135.5	□65	21.5	40
	BL	174.5	118.5	□65	26.5	45	196.5	140.5	□65	26.5	45
	CA	164.5	108.5	□70	16.5	35	186.5	130.5	□70	16.5	35
	CB	169.5	113.5	□70	21.5	40	191.5	135.5	□70	21.5	40
	DA·DB·DC·DD·DF·DH	164.5	108.5	□80	16.5	35	186.5	130.5	□80	16.5	35
	DE	169.5	113.5	□80	21.5	40	191.5	135.5	□80	21.5	40
	DG	174.5	118.5	□80	26.5	45	196.5	140.5	□80	26.5	45
	EA·EB·EC	164.5	108.5	□90	16.5	35	186.5	130.5	□90	16.5	35
	ED	174.5	118.5	□90	26.5	45	196.5	140.5	□90	26.5	45
	FA	164.5	108.5	□100	16.5	35	186.5	130.5	□100	16.5	35
GA	164.5	108.5	□115	16.5	35	186.5	130.5	□115	16.5	35	
SMS075□□□-19** (입력축 내경 ≤ φ19)	DA·DB·DC	174.5	118.5	□80	25	50	196.5	140.5	□80	25	50
	DD	184.5	128.5	□80	35	60	206.5	150.5	□80	35	60
	DE	179.5	123.5	□80	30	55	201.5	145.5	□80	30	55
	EA	179.5	123.5	□90	30	55	201.5	145.5	□90	30	55
	EB	174.5	118.5	□90	25	50	196.5	140.5	□90	25	50
	EC	184.5	128.5	□90	35	60	206.5	150.5	□90	35	60
	FA	174.5	118.5	□100	25	50	196.5	140.5	□100	25	50
	FB	184.5	128.5	□100	35	60	206.5	150.5	□100	35	60
	GA·GC	179.5	123.5	□115	30	55	201.5	145.5	□115	30	55
	GB·GD	174.5	118.5	□115	25	50	196.5	140.5	□115	25	50
	HA	174.5	118.5	□130	25	50	196.5	140.5	□130	25	50
	HB	189.5	133.5	□130	40	65	211.5	155.5	□130	40	65
	HC·HD·HE	179.5	123.5	□130	30	55	201.5	145.5	□130	30	55
SMS075□□□-28** (입력축 내경 ≤ φ28)	FA·FB·FC	191.5	135.5	□100	35	67					
	GA·GB·GC·GD·GE·GF·GG	191.5	135.5	□115	35	67					
	HA·HC·HD	191.5	135.5	□130	35	67					
	HB	201.5	145.5	□130	45	77					
	JA·JB·JC	191.5	135.5	□150	35	67					
	KA·KB	191.5	135.5	□180	35	67					
	KD	201.5	145.5	□180	45	77					
LA	191.5	135.5	□200	35	67						
MA	191.5	135.5	□220	35	67						

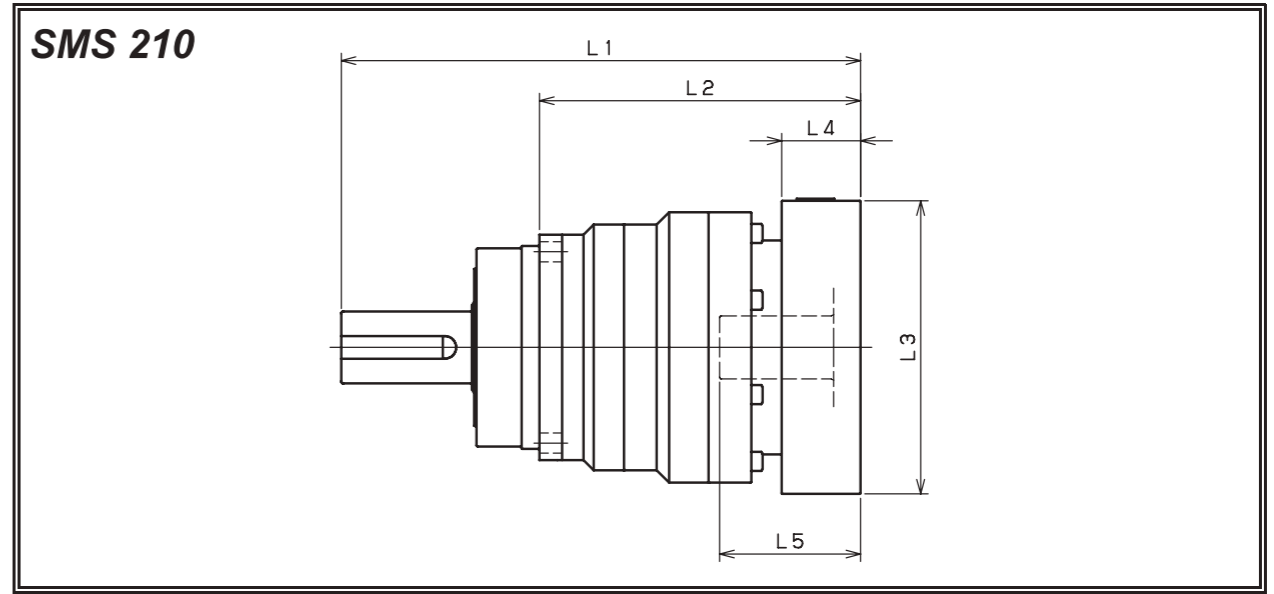
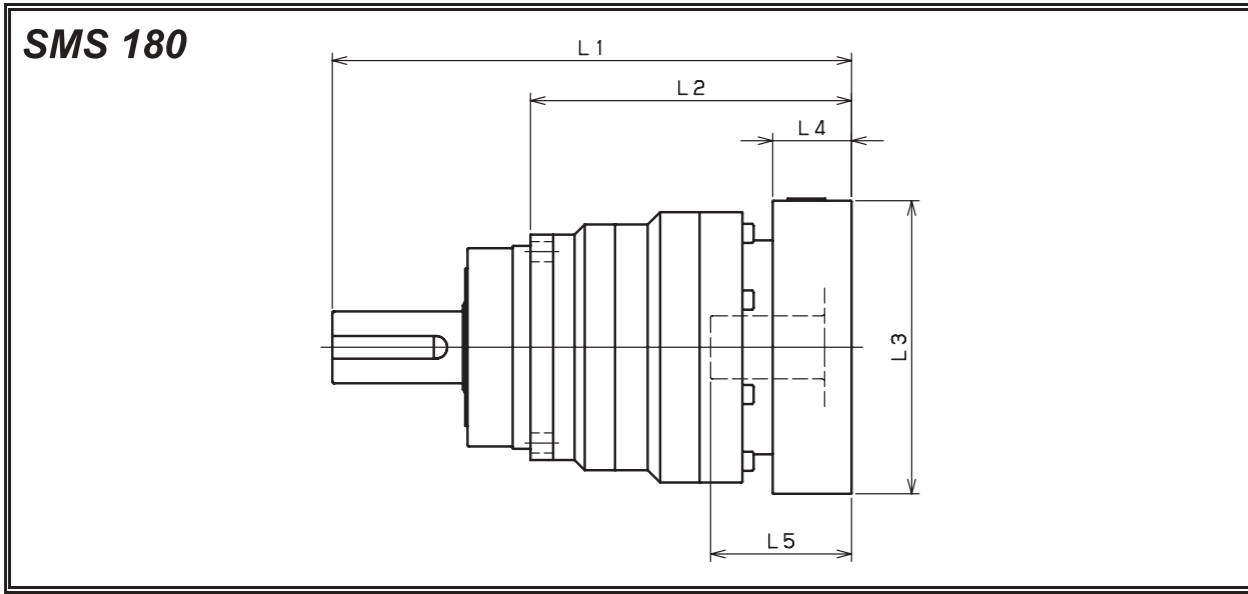
※ 1 1단 감속비: 1/3~1/10 ; 2단 감속비: 1/15~1/100 ※ 1 Single reduction : 1/3 ~ 1/10, Double reduction : 1/15 ~ 1/100
 ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※ 2 Bushing will be inserted to adapt to motor shaft.



모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	1단 Single					2단 Double				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMS100□□□-14** (입력축 내경 ≤ φ 14)	BA·BB·BD·BE·BF·BG·BJ·BK						231	143	□65	16.5	35
	BC·BH·BM						236	148	□65	21.5	40
	BL						241	153	□65	26.5	45
	CA						231	143	□70	16.5	35
	CB						236	148	□70	21.5	40
	DA·DB·DC·DD·DF·DH						231	143	□80	16.5	35
	DE						236	148	□80	21.5	40
	DG						241	153	□80	26.5	45
	EA·EB·EC						231	143	□90	16.5	35
	ED						241	153	□90	26.5	45
SMS100□□□-19** (입력축 내경 ≤ φ 19)	FA						231	143	□100	16.5	35
	GA						231	143	□115	16.5	35
	DA·DB·DC	213.5	125.5	□80	25	50	241	153	□80	25	50
	DD	223.5	135.5	□80	35	60	251	163	□80	35	60
	DE	218.5	130.5	□80	30	55	246	158	□80	30	55
	EA	218.5	130.5	□90	30	55	246	158	□90	30	55
	EB	213.5	125.5	□90	25	50	241	153	□90	25	50
	EC	223.5	135.5	□90	35	60	251	163	□90	35	60
	FA	213.5	125.5	□100	25	50	241	153	□100	25	50
	FB	223.5	135.5	□100	35	60	251	163	□100	35	60
SMS100□□□-28** (입력축 내경 ≤ φ 28)	GA·GC	218.5	130.5	□115	30	55	246	158	□115	30	55
	GB·GD	213.5	125.5	□115	25	50	241	153	□115	25	50
	HA	213.5	125.5	□130	25	50	241	153	□130	25	50
	HB	228.5	140.5	□130	40	65	256	168	□130	40	65
	HC·HD·HE	218.5	130.5	□130	30	55	246	158	□130	30	55
	FA·FB·FC	230.5	142.5	□100	35	67	258	170	□100	35	67
	GA·GB·GC·GD·GE·GF·GG	230.5	142.5	□115	35	67	258	170	□115	35	67
	HA·HC·HD	230.5	142.5	□130	35	67	258	170	□130	35	67
	HB	240.5	152.5	□130	45	77	268	180	□130	45	77
	JA·JB·JC	230.5	142.5	□150	35	67	258	170	□150	35	67
SMS100□□□-38** (입력축 내경 ≤ φ 38)	KA·KB	230.5	142.5	□180	35	67	258	170	□180	35	67
	KD	240.5	152.5	□180	45	77	268	180	□180	45	77
	LA	230.5	142.5	□200	35	67	258	170	□200	35	67
	MA	230.5	142.5	□220	35	67	258	170	□220	35	67
	HA	251.5	163.5	□130	45	82					
	HB	246.5	158.5	□130	40	77					
	JA	251.5	163.5	□150	45	82					
SMS100□□□-48** (입력축 내경 ≤ φ 48)	KA·KB·KC	251.5	163.5	□180	45	82					
	LA	251.5	163.5	□200	45	82					
	LB	261.5	173.5	□200	55	92					
	MA·MB	251.5	163.5	□220	45	82					
	NA	251.5	163.5	□250	45	82					

모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	1단 Single					2단 Double				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMS140□□□-19** (입력축 내경 ≤ φ 19)	DA·DB·DC						291.5	179.5	□80	25	50
	DD						301.5	189.5	□80	35	60
	DE						296.5	184.5	□80	30	55
	EA						296.5	184.5	□90	30	55
	EB						291.5	179.5	□90	25	50
	EC						301.5	189.5	□90	35	60
	FA						291.5	179.5	□100	25	50
	FB						301.5	189.5	□100	35	60
	GA·GC						296.5	184.5	□115	30	55
	GB·GD						291.5	179.5	□115	25	50
	HA						291.5	179.5	□130	25	50
	HB						306.5	194.5	□130	40	65
	HC·HD·HE						296.5	184.5	□130	30	55
SMS140□□□-28** (입력축 내경 ≤ φ 28)	FA·FB·FC	274	162	□100	35	67	308.5	196.5	□100	35	67
	GA·GB·GC·GD·GE·GF·GG	274	162	□115	35	67	308.5	196.5	□115	35	67
	HA·HC·HD	274	162	□130	35	67	308.5	196.5	□130	35	67
	HB	284	172	□130	45	77	318.5	206.5	□130	45	77
	JA·JB·JC	274	162	□150	35	67	308.5	196.5	□150	35	67
	KA·KB	274	162	□180	35	67	308.5	196.5	□180	35	67
	KD	284	172	□180	45	77	318.5	206.5	□180	45	77
	LA	274	162	□200	35	67	308.5	196.5	□200	35	67
	MA	274	162	□220	35	67	308.5	196.5	□220	35	67
	SMS140□□□-38** (입력축 내경 ≤ φ 38)	HA	289	177	□130	45	82	323.5	211.5	□130	45
HB		284	172	□130	40	77	318.5	206.5	□130	40	77
JA		289	177	□150	45	82	323.5	211.5	□150	45	82
KA·KB·KC		289	177	□180	45	82	323.5	211.5	□180	45	82
LA		289	177	□200	45	82	323.5	211.5	□200	45	82
LB		299	187	□200	55	92	333.5	221.5	□200	55	92
MA·MB		289	177	□220	45	82	323.5	211.5	□220	45	82
SMS140□□□-48** (입력축 내경 ≤ φ 48)	NA	289	177	□250	45	82	323.5	211.5	□250	45	82
	KB·KC	310	198	□180	55	98					
	KA	330	218	□180	75	118					
	LA	310	198	□200	55	98					
	MA	310	198	□220	55	98					
	MB	330	218	□220	75	118					
	PA	330	218	□250	75	118					

※ 1 1단 감속비: 1/3~1/10 ; 2단 감속비: 1/15~1/100 ※ 1 Single reduction : 1/3 ~ 1/10, Double reduction : 1/15 ~ 1/100
 ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※ 2 Bushing will be inserted to adapt to motor shaft.

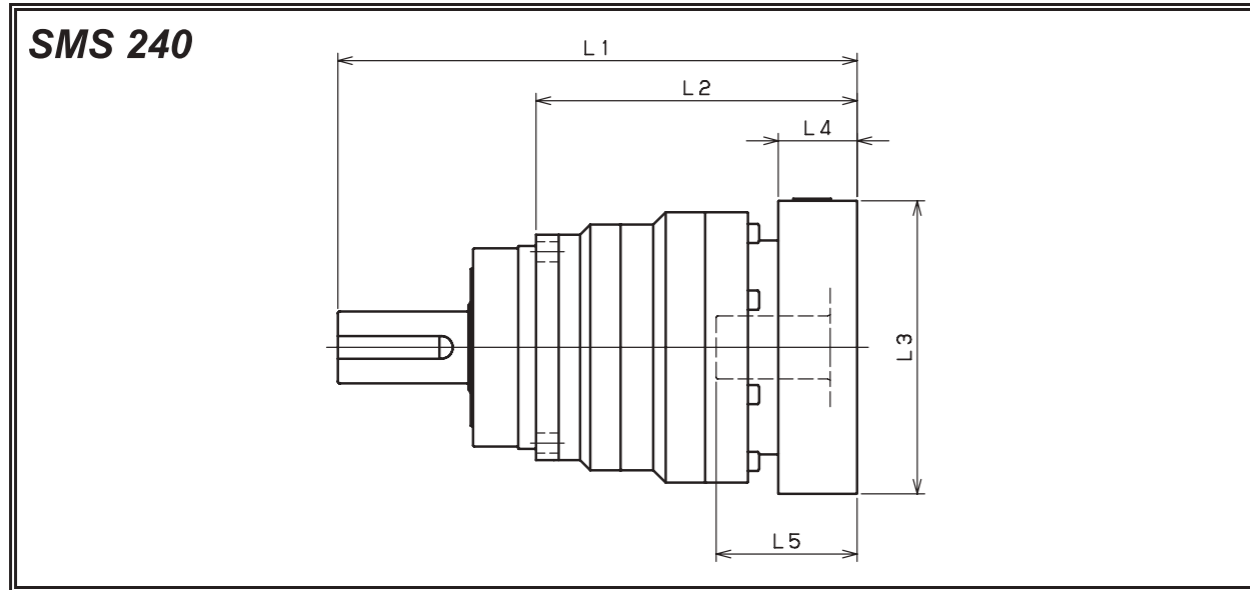


모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	1단 Single					2단 Double				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMS180□□□-28** 입력축 내경 ≤ φ28 Input shaft bore ≤ φ28	FA·FB·FC	/	/	/	/	/	345	233	□100	35	67
	GA·GB·GC·GD·GE·GF·GG	/	/	/	/	/	345	233	□115	35	67
	HA·HC·HD	/	/	/	/	/	345	233	□130	35	67
	HB	/	/	/	/	/	355	243	□130	45	77
	JA·JB·JC	/	/	/	/	/	345	233	□150	35	67
	KA·KB	/	/	/	/	/	345	233	□180	35	67
	KD	/	/	/	/	/	355	243	□180	45	77
	LA	/	/	/	/	/	345	233	□200	35	67
	MA	/	/	/	/	/	345	233	□220	35	67
SMS180□□□-38** 입력축 내경 ≤ φ38 Input shaft bore ≤ φ38	HA	315.5	203.5	□130	45	82	360	248	□130	45	82
	HB	310.5	198.5	□130	40	77	355	243	□130	40	77
	JA	315.5	203.5	□150	45	82	360	248	□150	45	82
	KA·KB·KC	315.5	203.5	□180	45	82	360	248	□180	45	82
	LA	315.5	203.5	□200	45	82	360	248	□200	45	82
	LB	325.5	213.5	□200	55	92	370	258	□200	55	92
	MA·MB	315.5	203.5	□220	45	82	360	248	□220	45	82
NA	315.5	203.5	□250	45	82	360	248	□250	45	82	
SMS180□□□-48** 입력축 내경 ≤ φ48 Input shaft bore ≤ φ48	KB·KC	331.5	219.5	□180	55	98	376	264	□180	55	98
	KA	351.5	239.5	□180	75	118	396	284	□180	75	118
	LA	331.5	219.5	□200	55	98	376	264	□200	55	98
	MA	331.5	219.5	□220	55	98	376	264	□220	55	98
	MB	351.5	239.5	□220	75	118	396	284	□220	75	118
	NA	351.5	239.5	□250	75	118	396	284	□250	75	118
	PA	351.5	239.5	□280	75	118	396	284	□280	75	118
SMS180□□□-65** 입력축 내경 ≤ φ65 Input shaft bore ≤ φ65	MA·MB·MC·MD	363	251	□220	80	122	/	/	/	/	/
	NA	363	251	□250	80	122	/	/	/	/	/
	PA	383	271	□280	100	142	/	/	/	/	/
	PB	393	281	□280	110	152	/	/	/	/	/
	QA	383	271	□320	100	142	/	/	/	/	/

모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	1단 Single					2단 Double				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMS210□□□-38** 입력축 내경 ≤ φ38 Input shaft bore ≤ φ38	HA	/	/	/	/	/	413	270	□130	45	82
	HB	/	/	/	/	/	408	265	□130	40	77
	JA	/	/	/	/	/	413	270	□150	45	82
	KA·KB·KC	/	/	/	/	/	413	270	□180	45	82
	LA	/	/	/	/	/	413	270	□200	45	82
	LB	/	/	/	/	/	423	280	□200	55	92
	MA·MB	/	/	/	/	/	413	270	□220	45	82
	NA	/	/	/	/	/	413	270	□250	45	82
	KB·KC	394	251	□180	55	98	429	286	□180	55	98
SMS210□□□-48** 입력축 내경 ≤ φ48 Input shaft bore ≤ φ48	KA	414	271	□180	75	118	449	306	□180	75	118
	LA	394	251	□200	55	98	429	286	□200	55	98
	MA	394	251	□220	55	98	429	286	□220	55	98
	MB	414	271	□220	75	118	449	306	□220	75	118
	NA	414	271	□250	75	118	449	306	□250	75	118
	PA	414	271	□280	75	118	449	306	□280	75	118
	MA·MB·MC·MD	418	275	□220	80	122	/	/	/	/	/
SMS210□□□-65** 입력축 내경 ≤ φ65 Input shaft bore ≤ φ65	NA	418	275	□250	80	122	/	/	/	/	/
	PA	438	295	□280	100	142	/	/	/	/	/
	PB	448	305	□280	110	152	/	/	/	/	/
	QA	438	295	□320	100	142	/	/	/	/	/

※ 1 단 감속비: 1/3~1/10 ; 2단 감속비: 1/15~1/100 ※ 1 Single reduction : 1/3 ~ 1/10, Double reduction : 1/15 ~ 1/100
 ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※ 2 Bushing will be inserted to adapt to motor shaft.

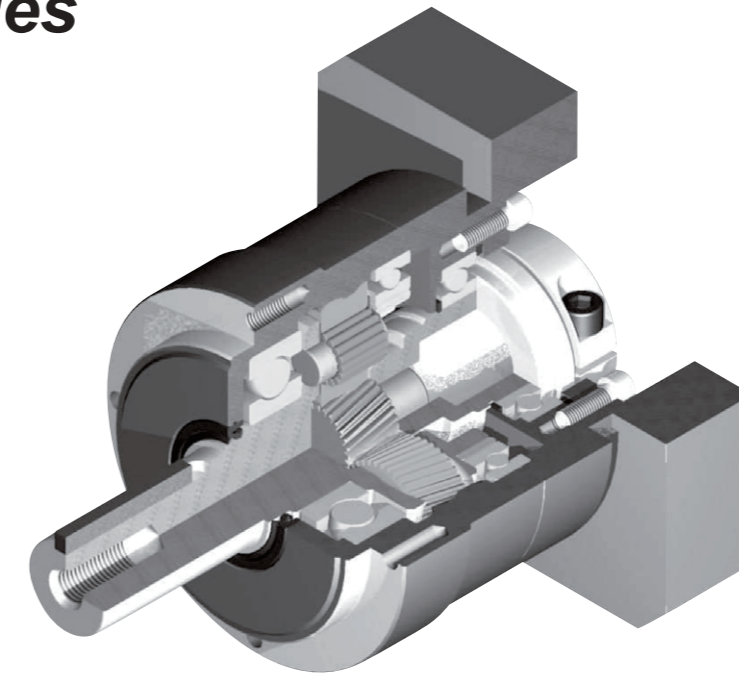
※ 1 단 감속비: 1/3~1/10 ; 2단 감속비: 1/15~1/100 ※ 1 Single reduction : 1/3 ~ 1/10, Double reduction : 1/15 ~ 1/100
 ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※ 2 Bushing will be inserted to adapt to motor shaft.



모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	1단 Single					2단 Double				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMS240□□□-48** (입력축 내경 ≤ φ48 Input shaft bore)	KB·KC						496	326	□180	55	98
	KA						516	346	□180	75	118
	LA						496	326	□200	55	98
	MA						496	326	□220	55	98
	MB						516	346	□220	75	118
	NA						516	346	□250	75	118
SMS240□□□-65** (입력축 내경 ≤ φ65 Input shaft bore)	PA						516	346	□280	75	118
	MA·MB·MC·MD	465.5	295.5	□220	80	122					
	NA	465.5	295.5	□250	80	122					
	PA	485.5	315.5	□280	100	142					
	PB	495.5	325.5	□280	110	152					
	QA	485.5	315.5	□320	100	142					

※1 1단 감속비: 1/3~1/10 ; 2단 감속비: 1/15~1/100 ※1 Single reduction : 1/3 ~ 1/10, Double reduction : 1/15 ~ 1/100
 ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※2 Bushing will be inserted to adapt to motor shaft.

SML series



정속한 운전

헬리컬 기어 적용으로 저진동, 저소음 실현.

Quiet operation

Helical gears contribute to reduce vibration and noise.

고정밀

표준 백래시 ≤ 5 arc-min.

High precision

Standard backlash is 5 arc-min, ideal for precision control.

고강성 & 고토크

Uncaged 니들롤러베어링을 사용하여 강성과 토크 향상.

High rigidity & torque

High rigidity & high torque were achieved by uncaged needle roller bearings.

어댑터-부싱 연결방식

다양한 모터에 취부 가능.

Adapter-bushing connection

Can be attached to any motor all over the world.

그리스 누유현상 없음

고점도 분리방지 그리스를 사용.

No grease leakage

Perfect solution using high viscosity anti-separation grease.

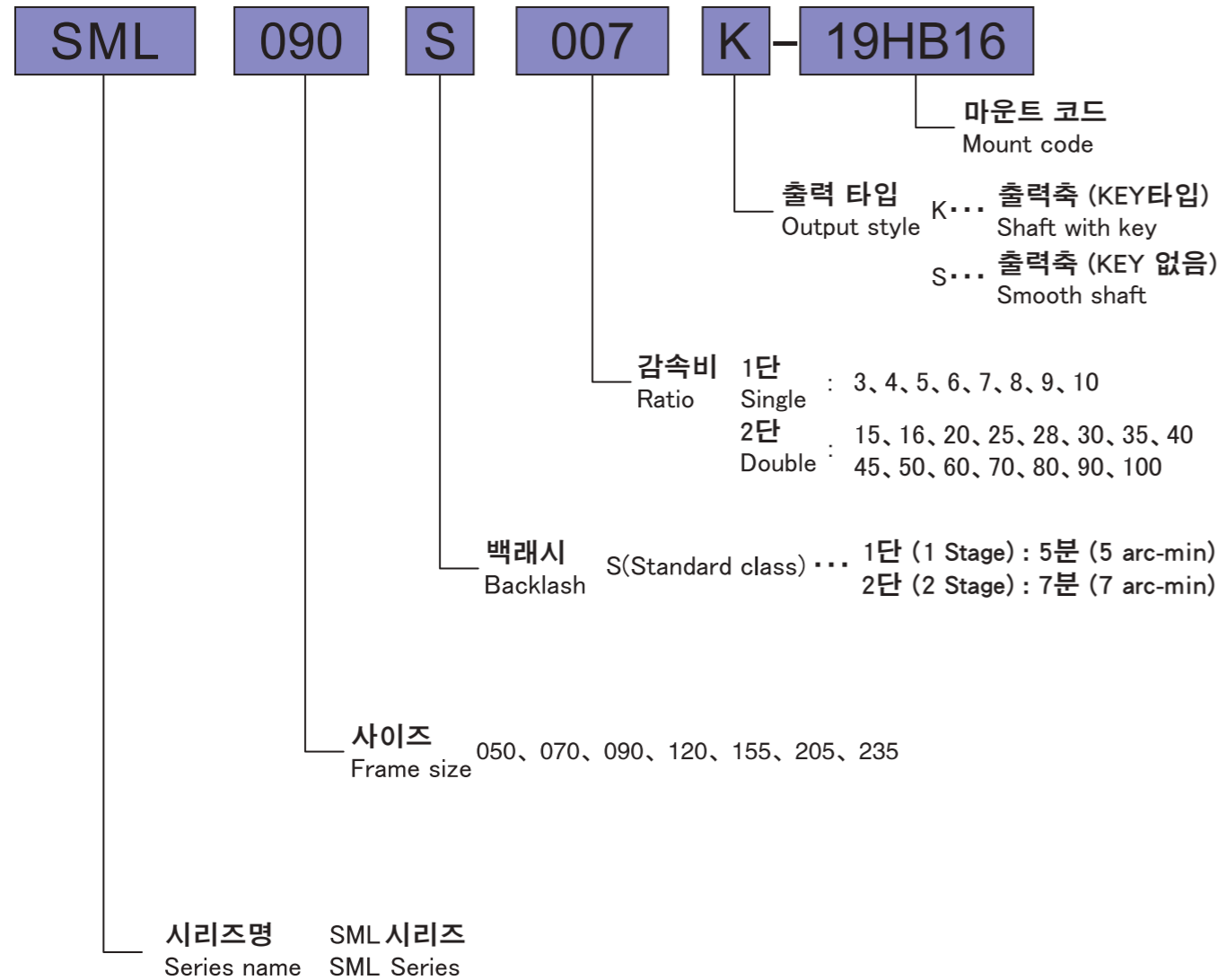
유지 보수 불필요

제품 수명 동안 그리스 교체 불필요 자유로운 설치 가능.

Maintenance-free

No need to replace the grease for the life of the unit. Can be attached in any position.

SML series

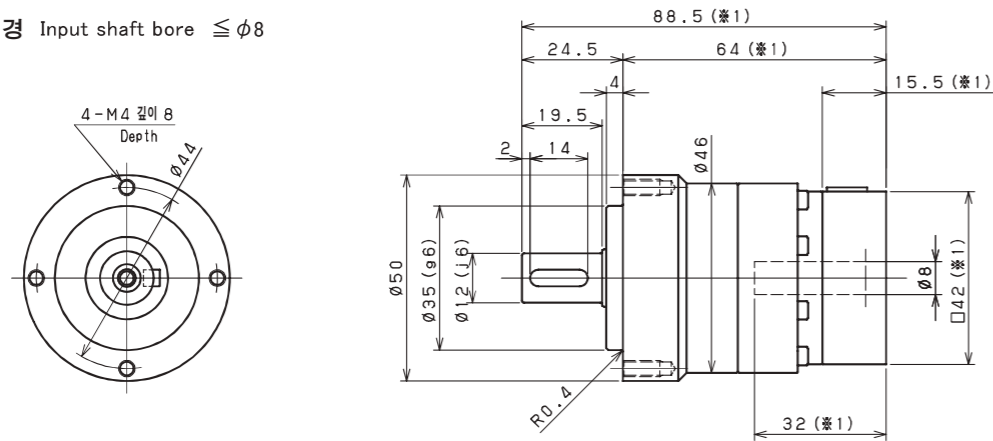


Model No.	Unit	Stage	Ratio ¹	SML050	SML070	SML090	SML120	SML155	SML205	SML235	
Rated Output Torque (Nominal Output torque)	T _{2N}	1	3	13	39	106	195	440	750	1,500	
			4	16	39	110	210	460	950	1,600	
			5	19	43	110	210	580	1,200	2,000	
			6	15	43	108	160	530	1,100	1,600	
			7	15	43	108	200	490	1,000	1,500	
			8	15	43	79	190	420	900	1,200	
			9	15	35	90	170	390	800	1,100	
			10	15	30	88	170	370	800	1,100	
			15	13	35	84	195	440	750	1,450	
			16	16	39	100	210	460	950	1,800	
		20	16	39	100	210	460	950	1,900		
		25	19	43	110	210	580	1,200	2,000		
		28	18	43	108	200	580	1,200	1,500		
		30	13	39	90	195	440	900	1,500		
		35	18	43	108	200	580	1,200	1,500		
		40	19	43	110	210	460	1,200	2,000		
		45	17	39	90	170	580	1,200	1,100		
		50	19	43	110	210	580	1,200	2,000		
		60	18	43	108	160	580	1,200	1,600		
		70	18	43	108	200	490	1,100	1,500		
80	17	43	79	190	420	900	1,200				
90	17	39	90	170	390	800	1,100				
100	17	39	88	170	370	800	1,100				
Max. Acceleration Torque	T _{2B}	Nm	1,2	3~100	1.8 Times of Rated Output Torque						
Max. Output Torque Emergency Stop Torque	T _{2NOT}	Nm	1,2	3~100	3 Times of Rated Output Torque						
Nominal Input speed	n _{1n}	rpm	1,2	3~100	3,000	3,000	3,000	3,000	2,000	1,500	1,000
Max. Input speed	n _{1B}	rpm	1,2	3~100	6,000	6,000	6,000	6,000	5,000	4,000	3,000
Backlash (Standard class)		arcmin	1	3~10	≤5	≤5	≤5	≤5	≤5	≤5	≤5
			2	15~100	≤7	≤7	≤7	≤7	≤7	≤7	≤7
Torsional Rigidity		Nm/arcmin	1,2	3~100	2	5	12	23	38	110	210
Max. Radial load ²	F _{2rB}	N	1,2	3~100	570	1,100	2,150	3,600	7,500	10,500	10,500
Max. Axial load ²	F _{2aB}	N	1,2	3~100	300	600	1,800	2,500	3,000	6,000	11,300
Service life	L _H	hr	1,2	3~100	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Noise level ³		dB(A)	1,2	3~100	≤ 56	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
Weight		kg	1	3~10	0.6	1.4	3.7	8	16	36	53
			2	15~100	0.7	1.6	4.2	8.9	17	37	54
Mass Moments of Inertia ⁴		kg cm ²	1	3~10	0.03	0.16	0.86	3.6	14	44	52
			2	15~100	0.03	0.13	0.71	2.8	11	34	35
Operating Temp. ⁵		°C	1,2	3~100	-10 ~ +90						
Lubrication			1,2	3~100	High temperature & Extreme pressure Lubricant						
Mounting position			1,2	3~100	All directions						
Efficiency	η	%	1	3~10	≥ 97						
			2	15~100	≥ 94						
Degree of protection			1,2	3~100	IP 65						

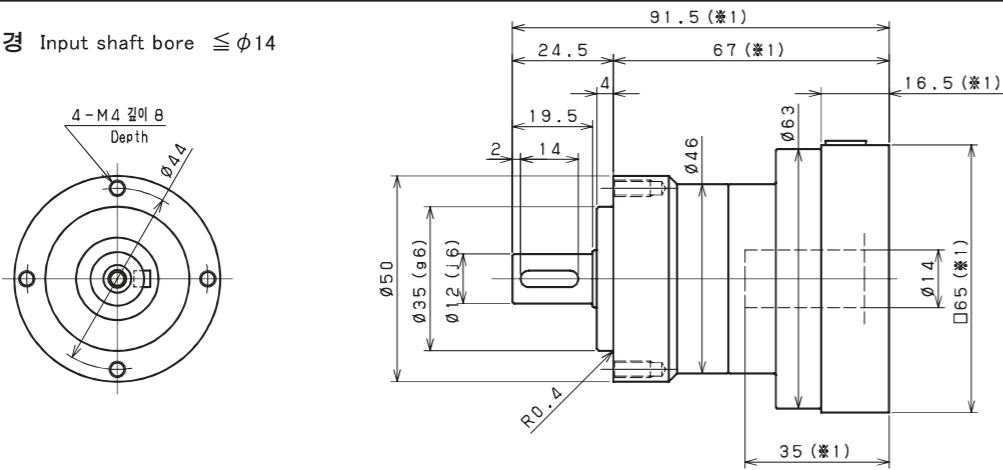
(1) Ratio (감속비) = N_{in} / N_{out}
 (2) 기준 : 출력회전수 100rpm, 출력축 중앙 부하, 부하계수(Ka)=1, 연속운전 10,000시간
 These values are based on the following conditions : 100 rpm at the output. Load applied to the middle of the output shaft. Load coefficient(Ka)=1. Continuous operation(S1≒10,000hrs).
 (3) 입력 회전수 3000 rpm, 무부하 운전상태에서 감속기 취부면에서 1m 떨어진 거리에서 측정 (모델에 따라 차이가 있을수 있습니다)
 Noise level : A measurement 1m away from the reducer (with ratio10 or ratio 100), 3000 input rpm and at no load condition. (Background noise 40dB(A)) With lower ratio and/or higher rpm, the noise level could be 3 to 5 dB higher.
 (4) 관성모멘트 : 감속비 중 대표값 (i=1/5)
 Moment of inertia : A measurement at the input shaft and representatives from each ratio.(i=1/5)
 (5) 감속기 작동온도 : -10~+90 °C, 감속기 주위온도 -10~40 °C
 Operating temperature : Surface temperature of gear case in -10 °C~40 °C of ambient temperature.
 ※ 제품 성능 향상을 위해 사양은 별도의 고지 없이 변경될 수 있습니다.
 Specifications are subject to change without notice to improve product performances.

SML 050 1단 1stage

입력축 내경 Input shaft bore $\leq \phi 8$

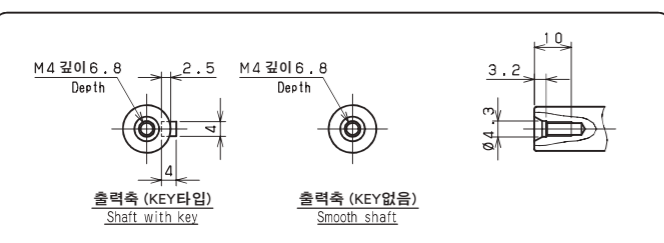
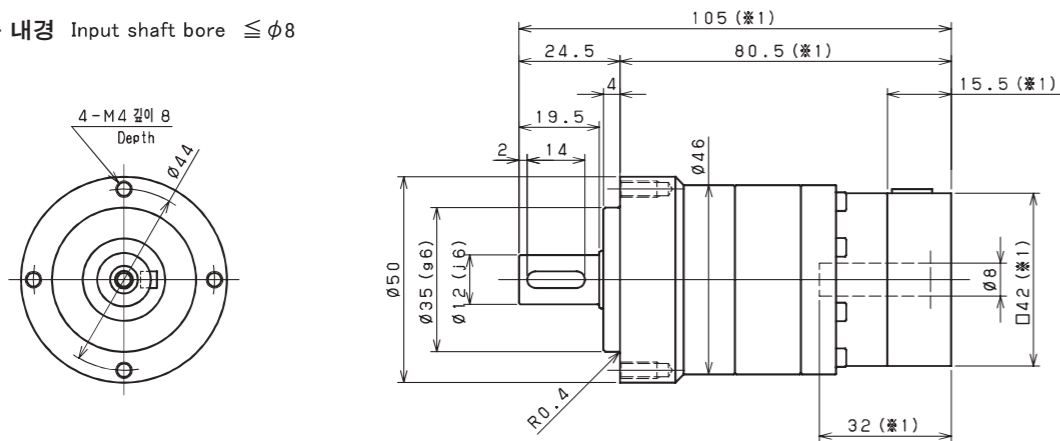


입력축 내경 Input shaft bore $\leq \phi 14$



SML 050 2단 2stage

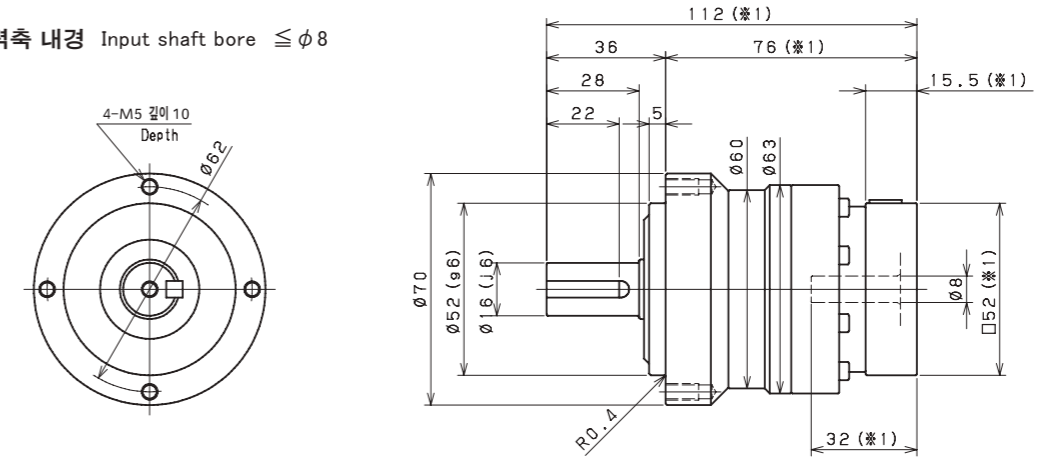
입력축 내경 Input shaft bore $\leq \phi 8$



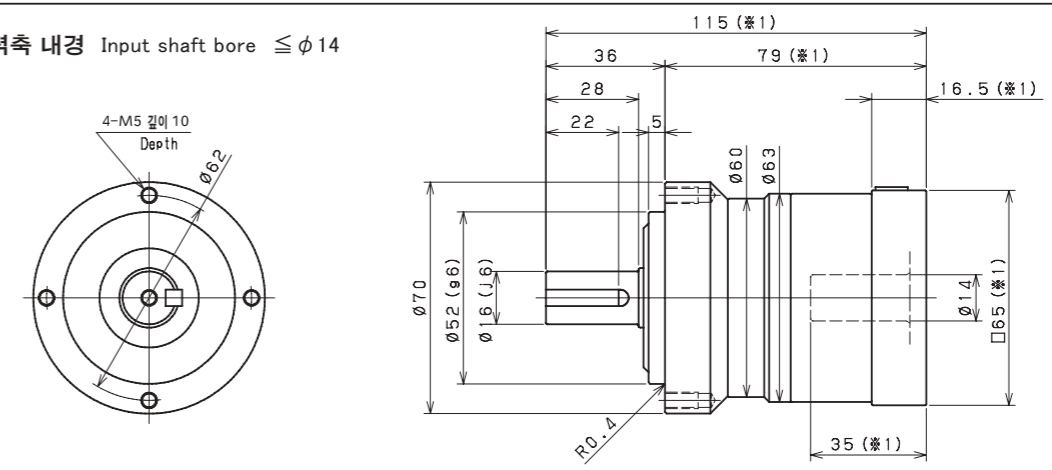
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SML 070 1단 1stage

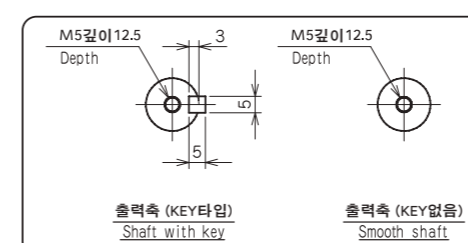
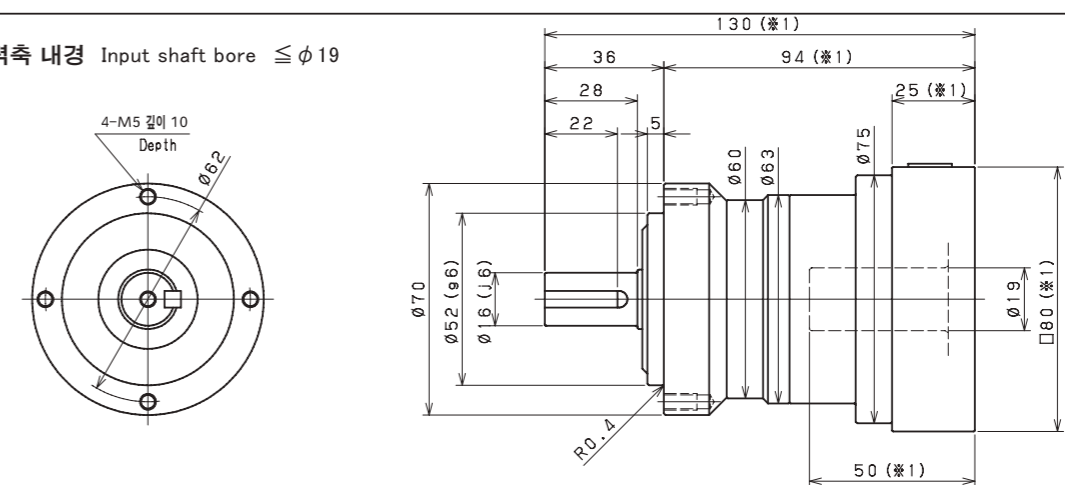
입력축 내경 Input shaft bore $\leq \phi 8$



입력축 내경 Input shaft bore $\leq \phi 14$



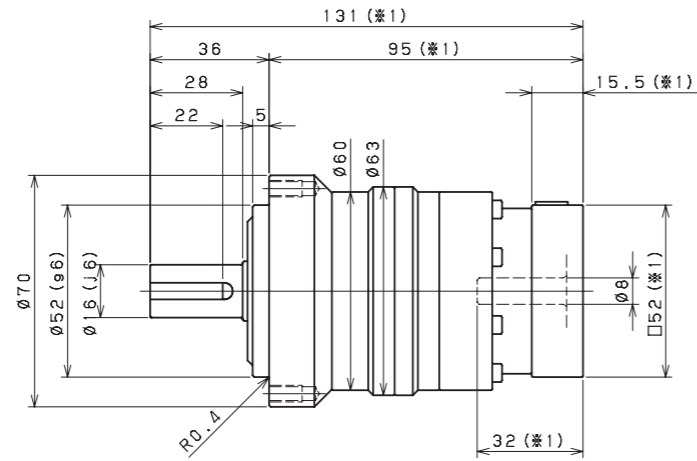
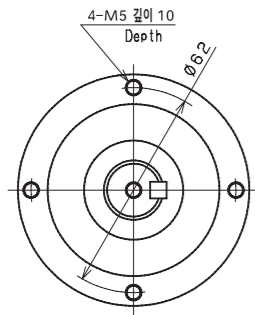
입력축 내경 Input shaft bore $\leq \phi 19$



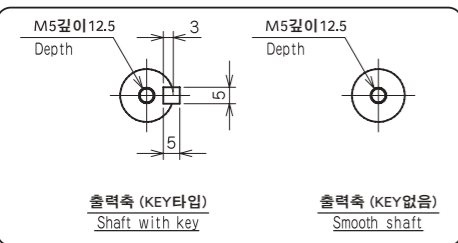
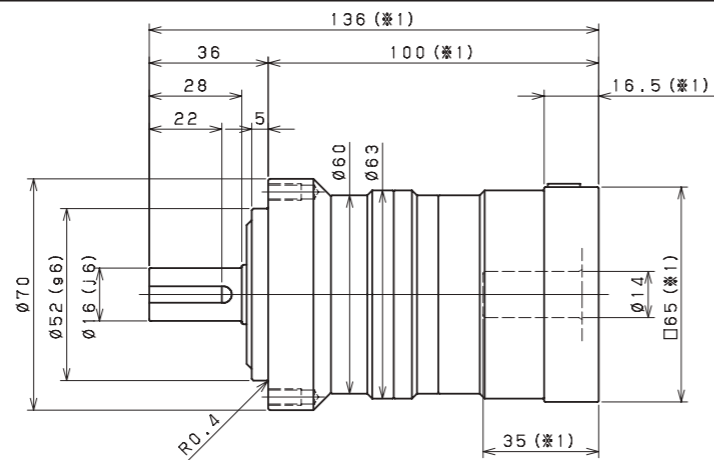
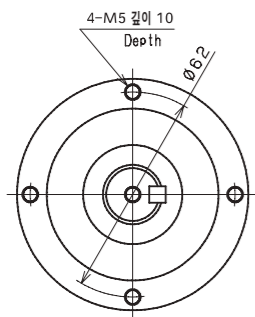
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SML 070 2단 2stage

입력축 내경 Input shaft bore $\leq \phi 8$



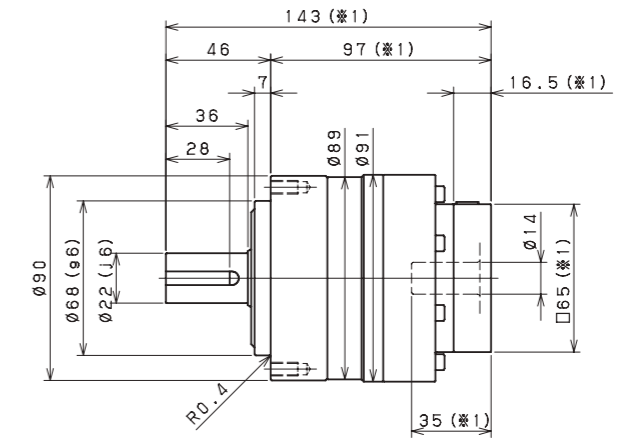
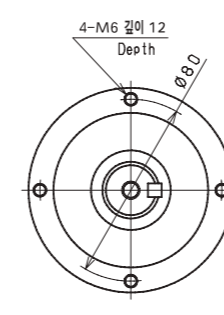
입력축 내경 Input shaft bore $\leq \phi 14$



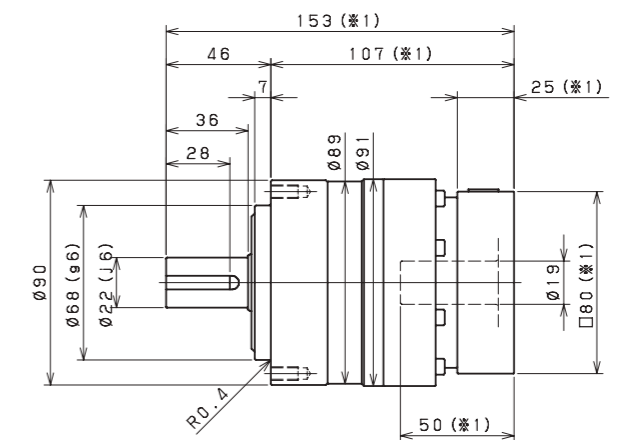
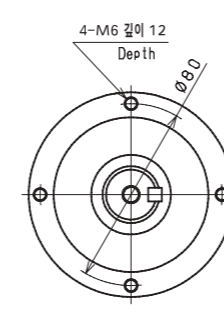
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SML 090 1단 1stage

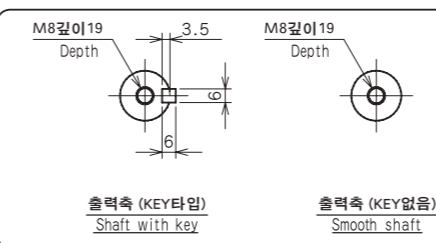
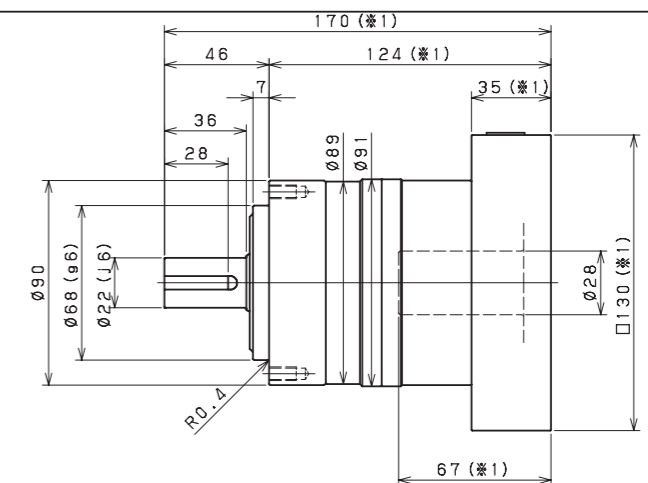
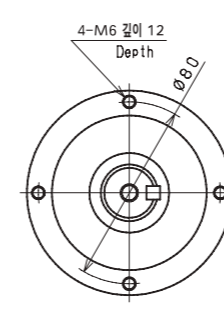
입력축 내경 Input shaft bore $\leq \phi 14$



입력축 내경 Input shaft bore $\leq \phi 19$



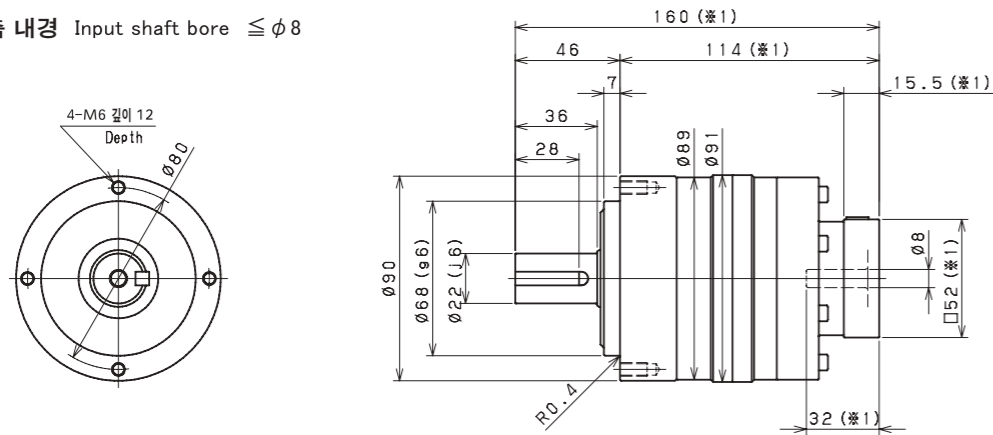
입력축 내경 Input shaft bore $\leq \phi 28$



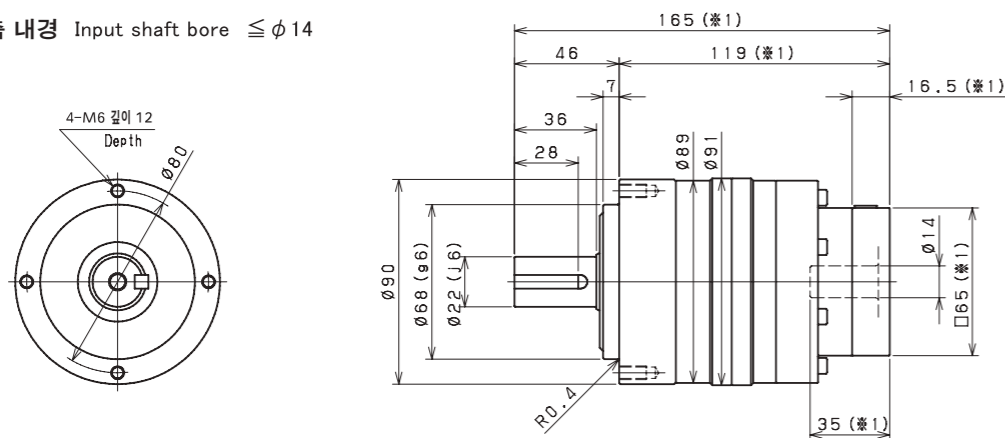
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SML 090 2단 2stage

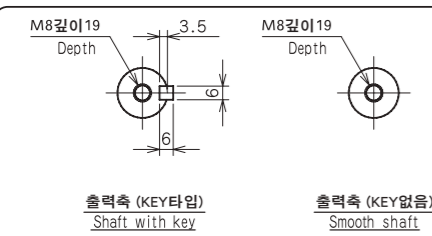
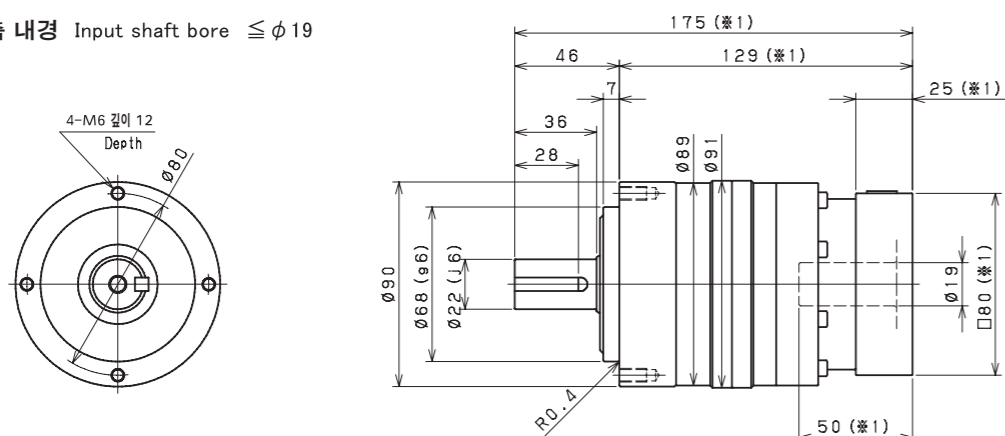
입력축 내경 Input shaft bore $\leq \phi 8$



입력축 내경 Input shaft bore $\leq \phi 14$



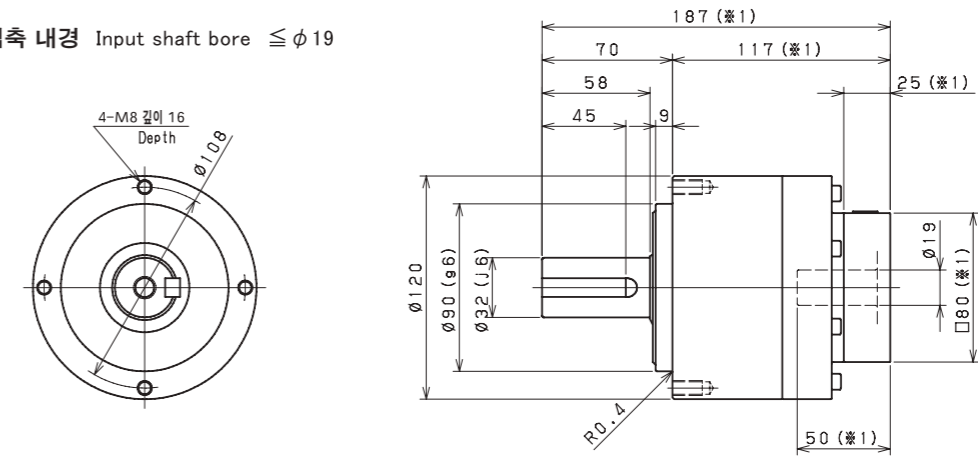
입력축 내경 Input shaft bore $\leq \phi 19$



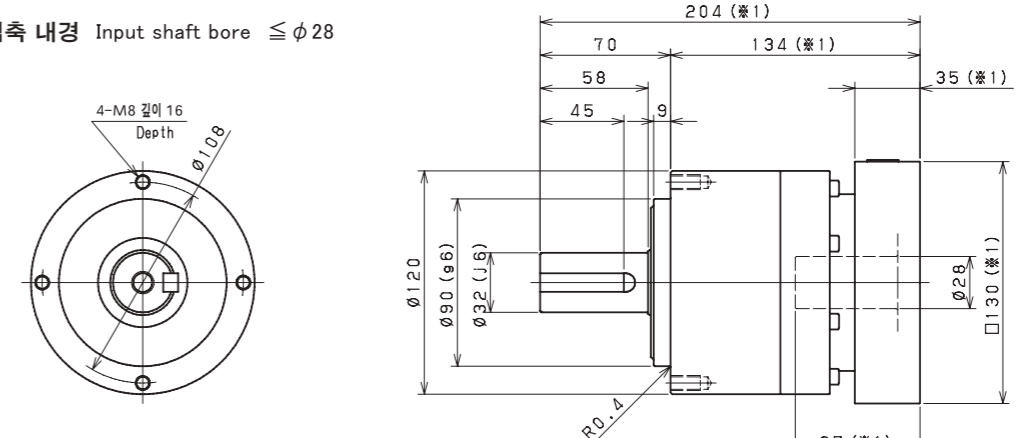
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SML 120 1단 1stage

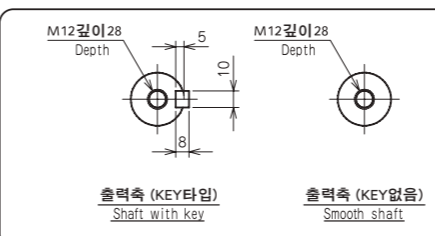
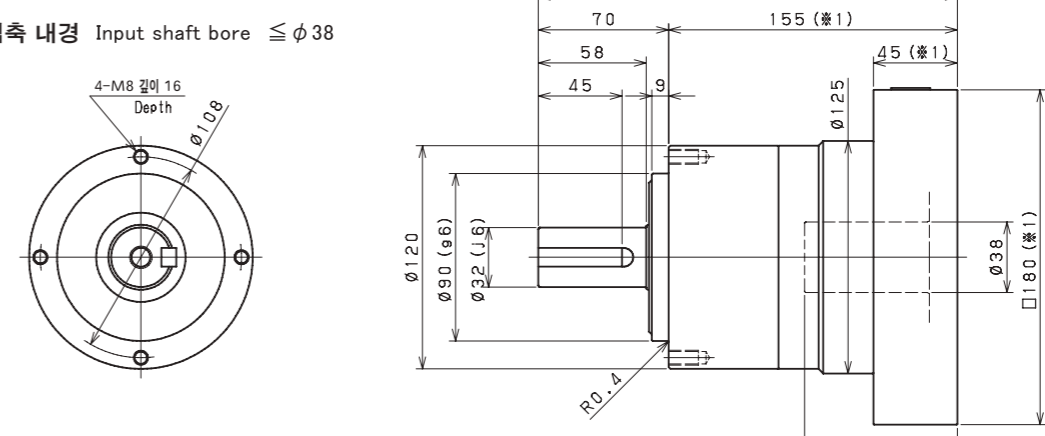
입력축 내경 Input shaft bore $\leq \phi 19$



입력축 내경 Input shaft bore $\leq \phi 28$



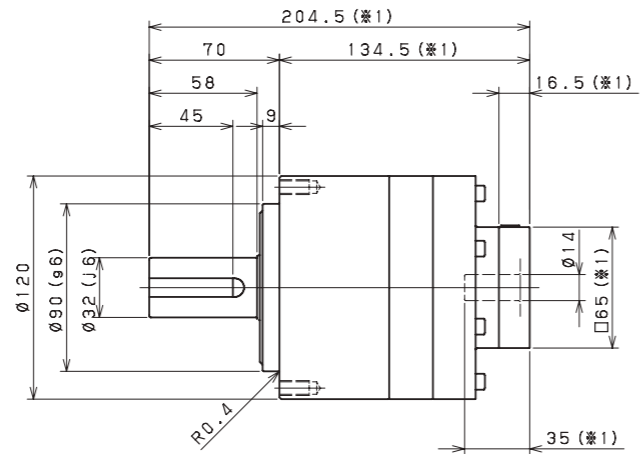
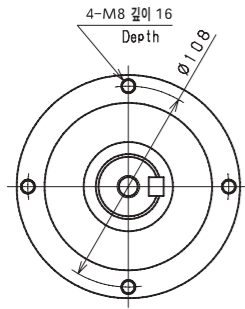
입력축 내경 Input shaft bore $\leq \phi 38$



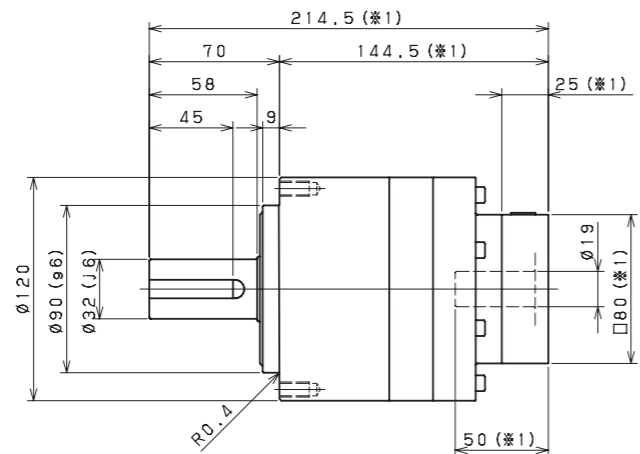
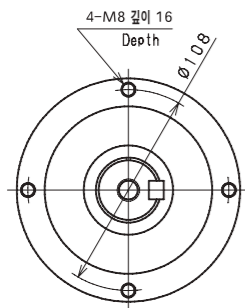
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SML 120 2단 2stage

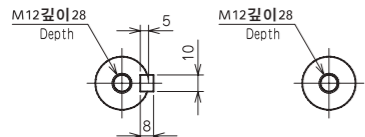
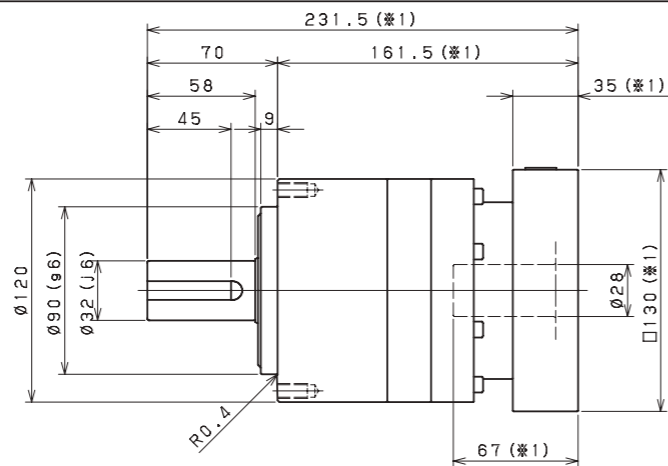
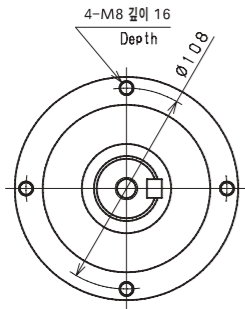
입력축 내경 Input shaft bore $\leq \phi 14$



입력축 내경 Input shaft bore $\leq \phi 19$



입력축 내경 Input shaft bore $\leq \phi 28$

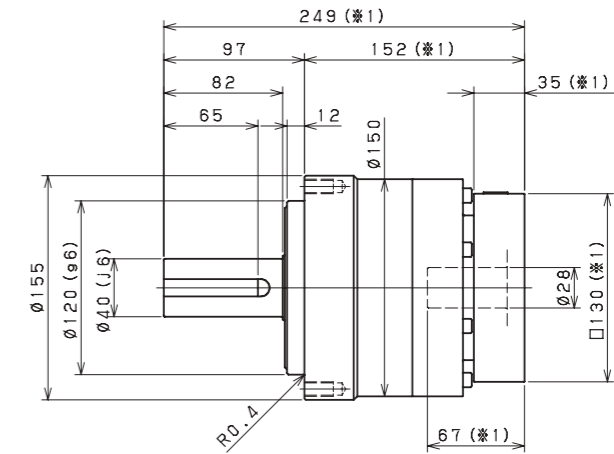
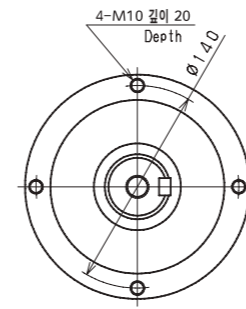


출력축 (KEY타입) Shaft with key
출력축 (KEY없음) Smooth shaft

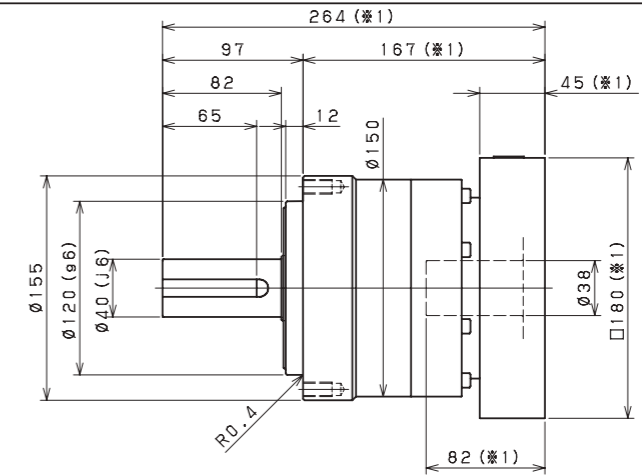
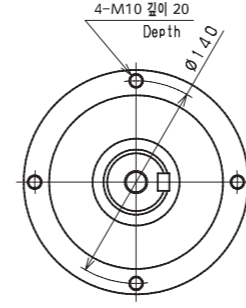
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SML 155 1단 1stage

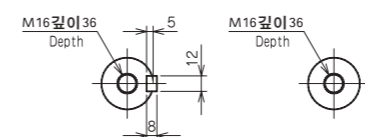
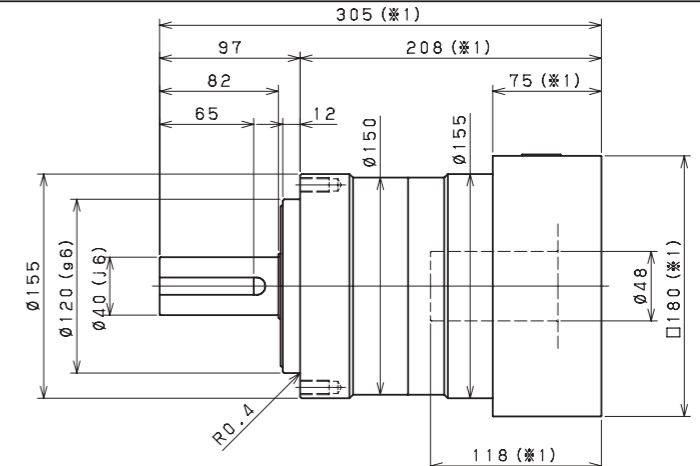
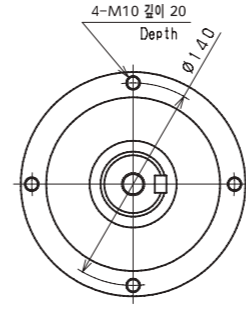
입력축 내경 Input shaft bore $\leq \phi 28$



입력축 내경 Input shaft bore $\leq \phi 38$



입력축 내경 Input shaft bore $\leq \phi 48$

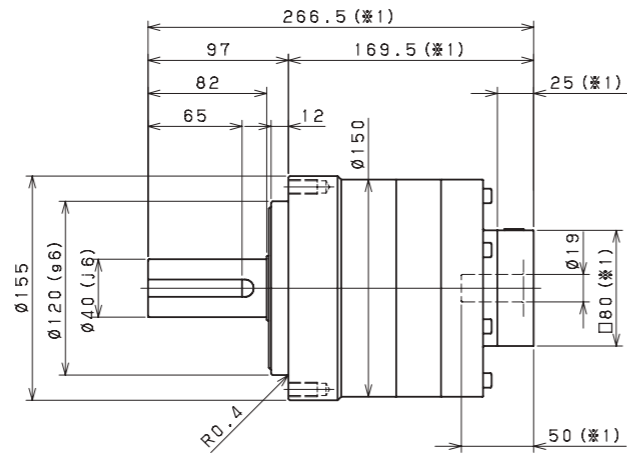
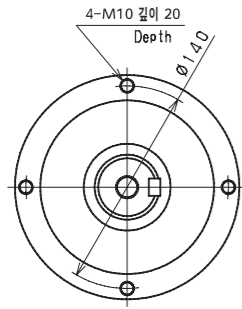


출력축 (KEY타입) Shaft with key
출력축 (KEY없음) Smooth shaft

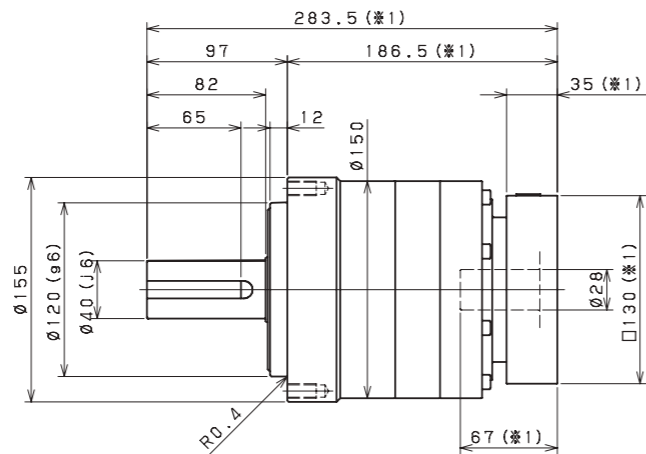
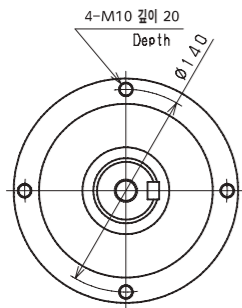
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SML 155 2단 2stage

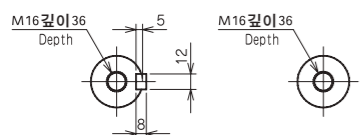
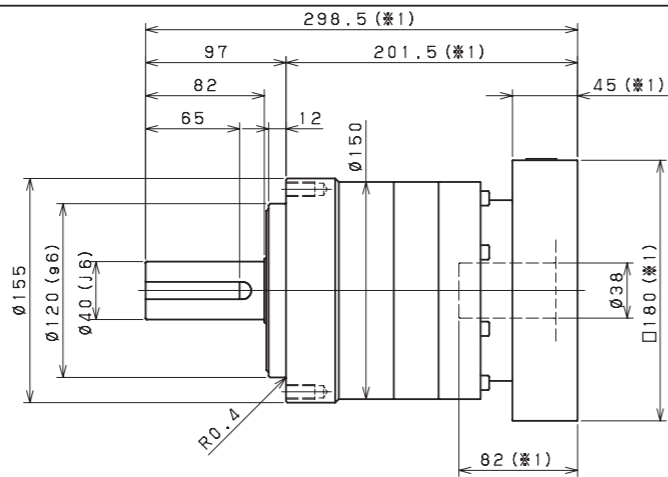
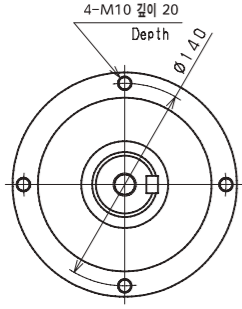
입력축 내경 Input shaft bore $\leq \phi 19$



입력축 내경 Input shaft bore $\leq \phi 28$



입력축 내경 Input shaft bore $\leq \phi 38$

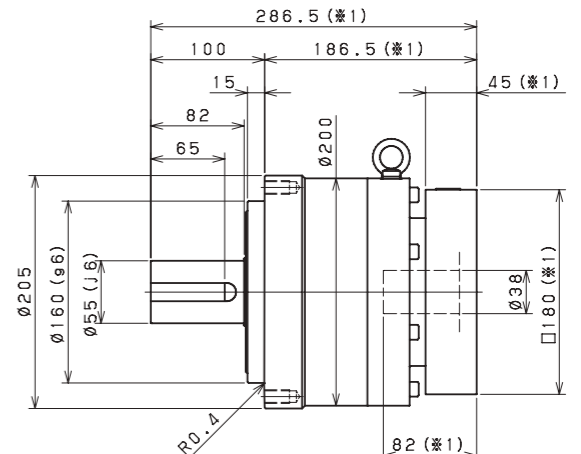
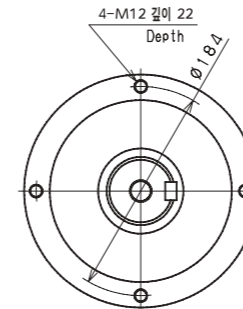


출력축 (KEY타입) Shaft with key
출력축 (KEY없음) Smooth shaft

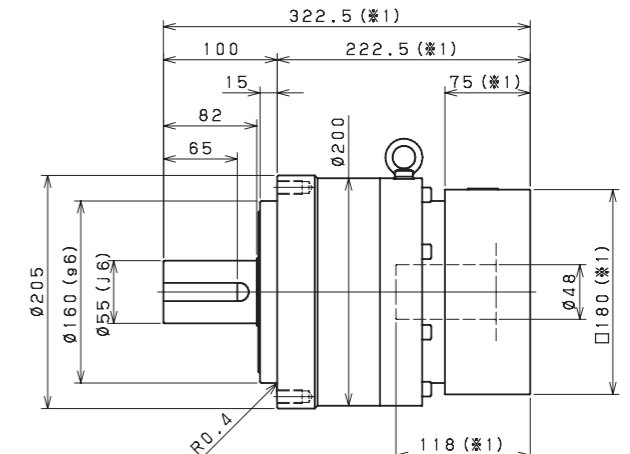
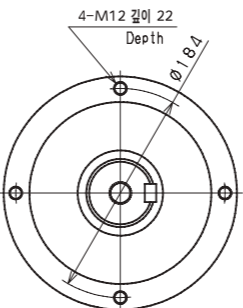
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SML 205 1단 1stage

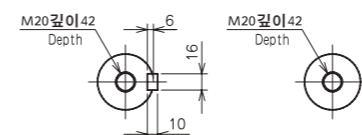
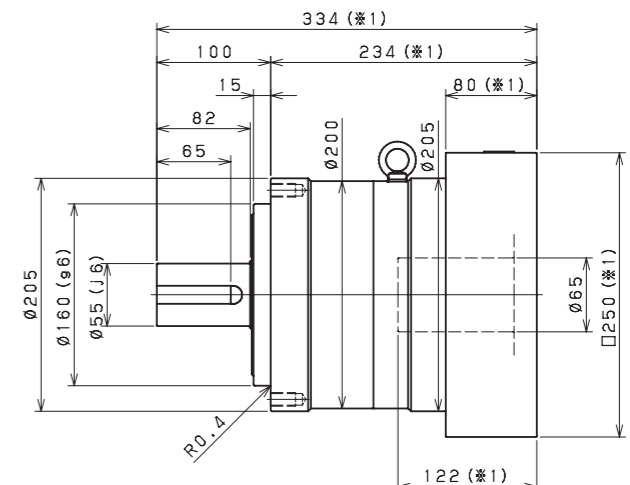
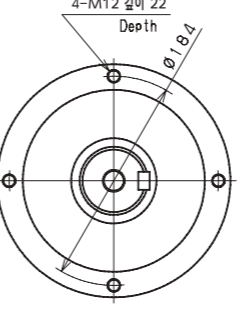
입력축 내경 Input shaft bore $\leq \phi 38$



입력축 내경 Input shaft bore $\leq \phi 48$



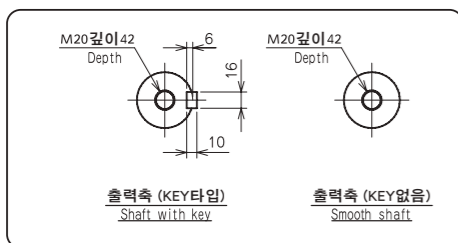
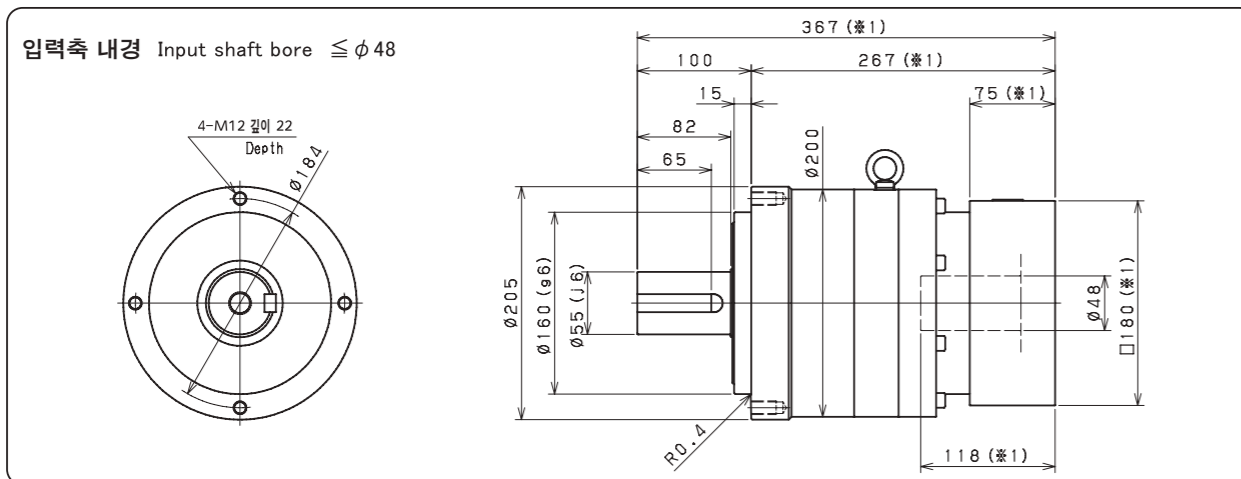
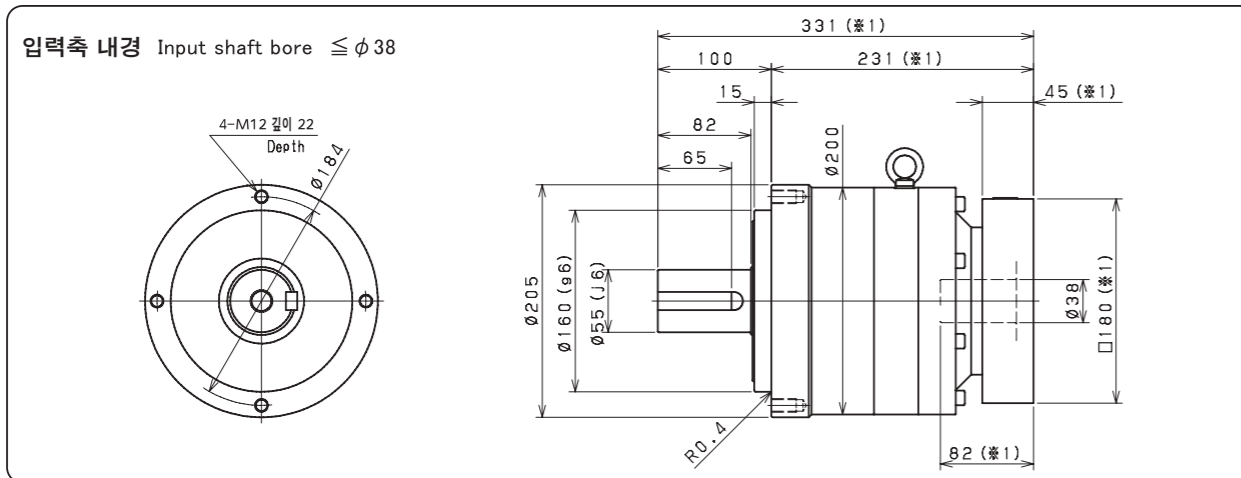
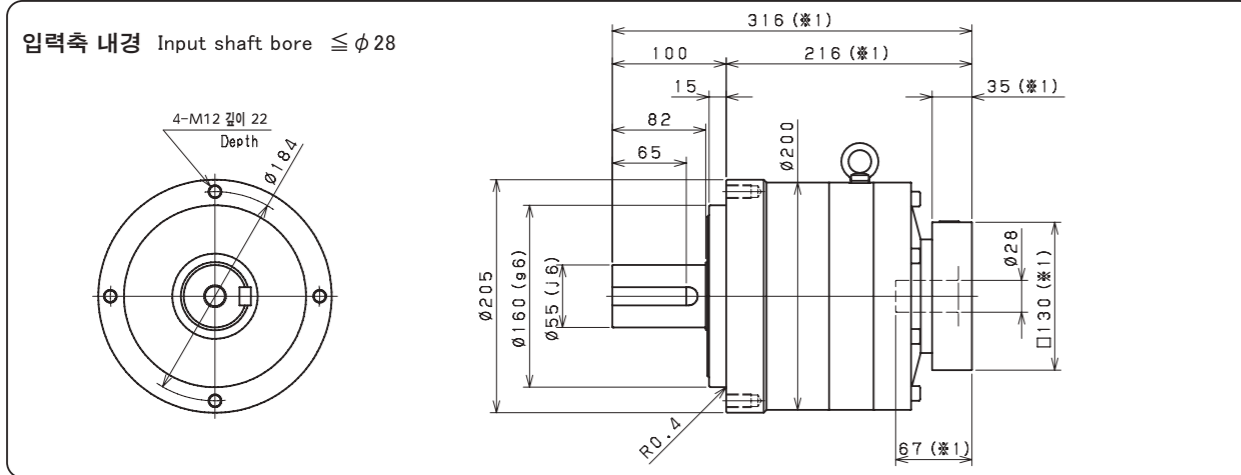
입력축 내경 Input shaft bore $\leq \phi 65$



출력축 (KEY타입) Shaft with key
출력축 (KEY없음) Smooth shaft

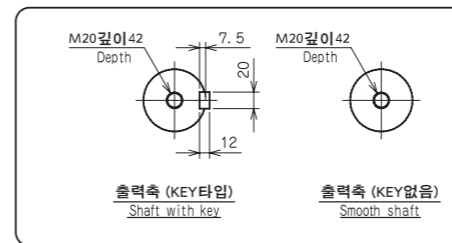
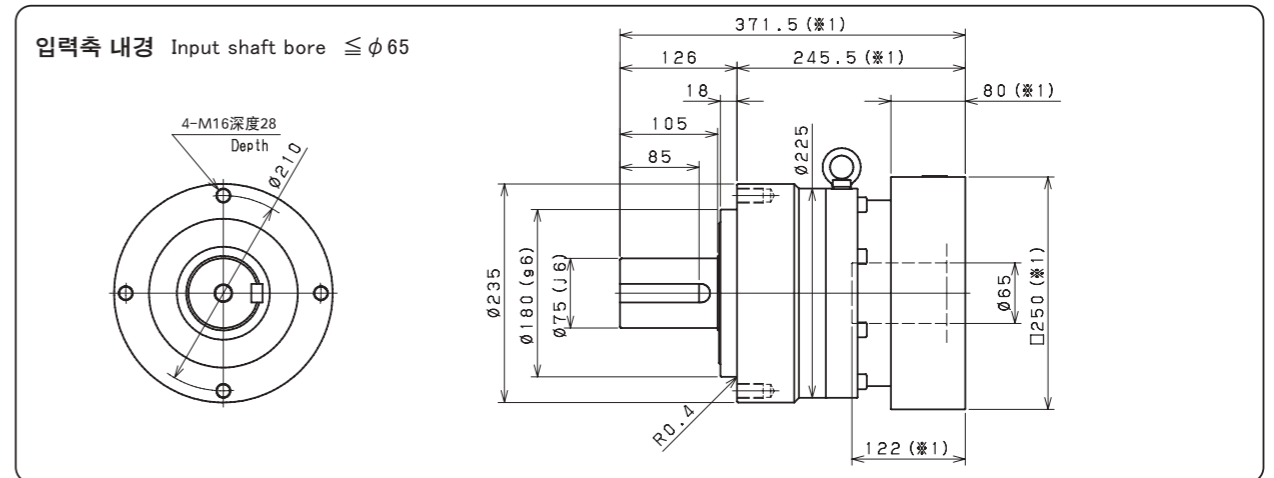
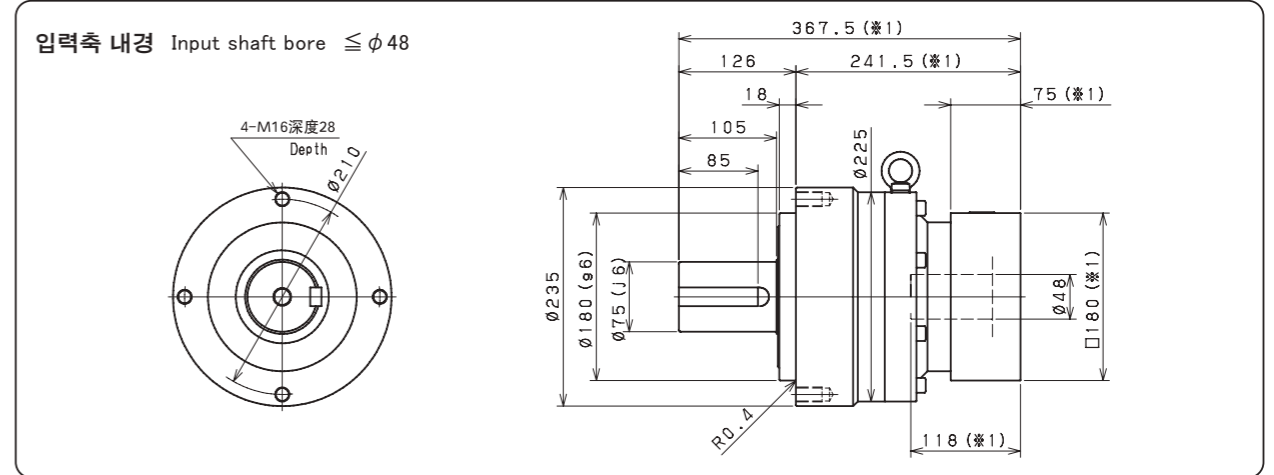
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SML 205 2단 2stage



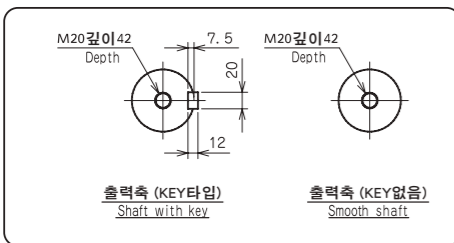
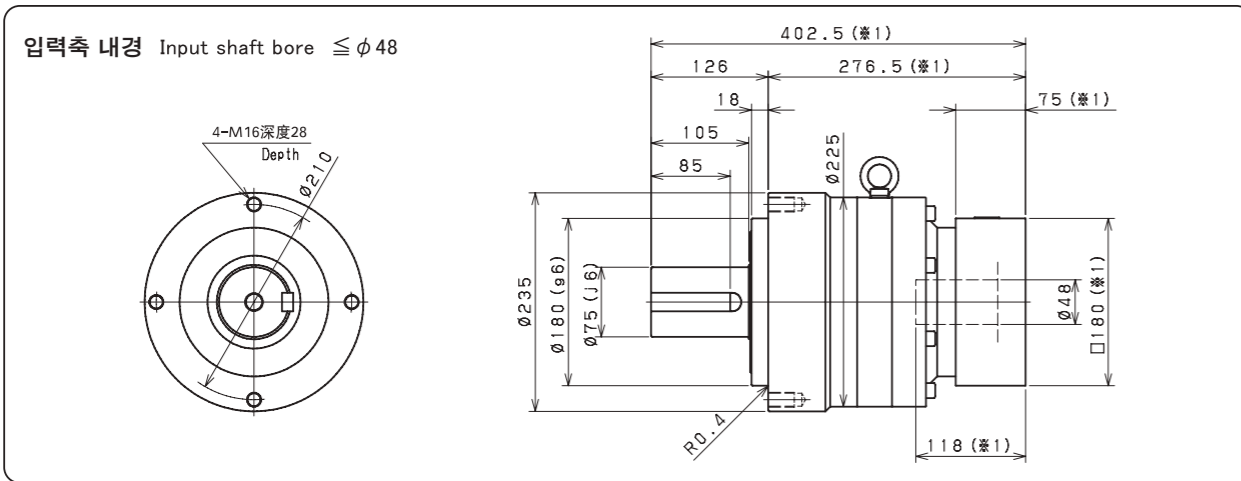
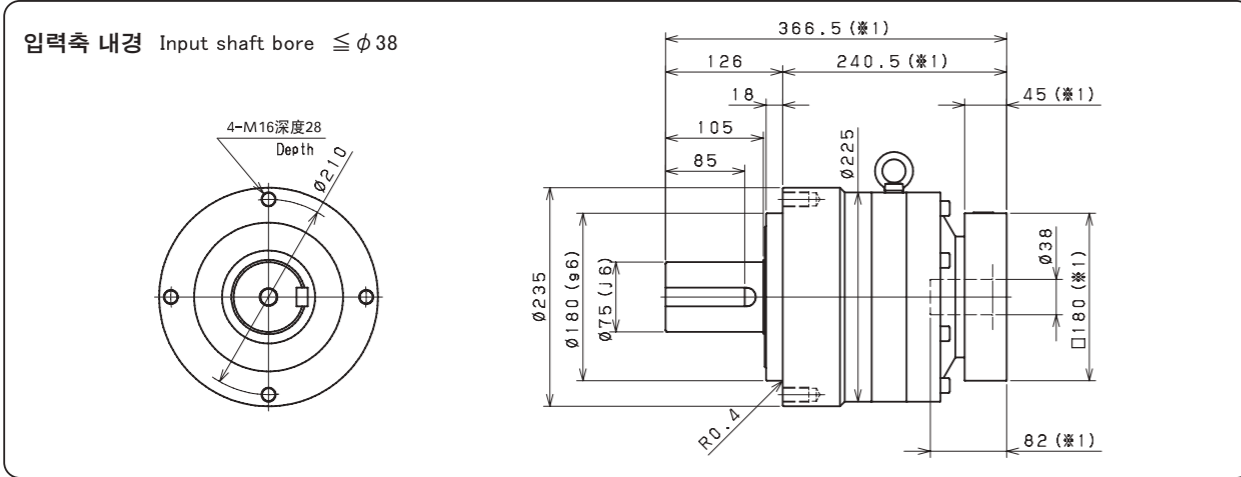
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SML 235 1단 1stage



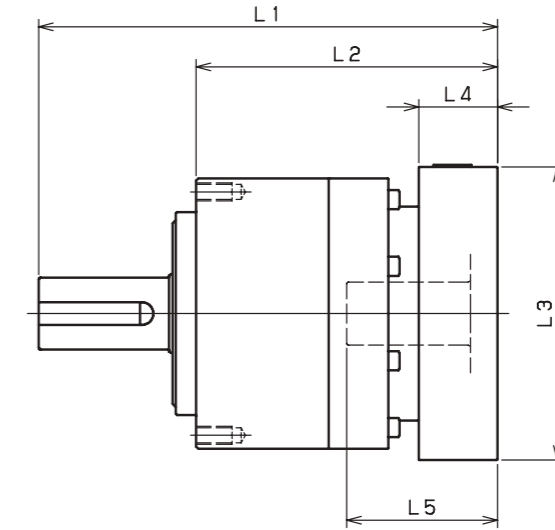
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SML 235 2단 2stage



- ※ 1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※ 1 Length will vary depending on motor.
- ※ 2 Bushing will be inserted to adapt to motor shaft.

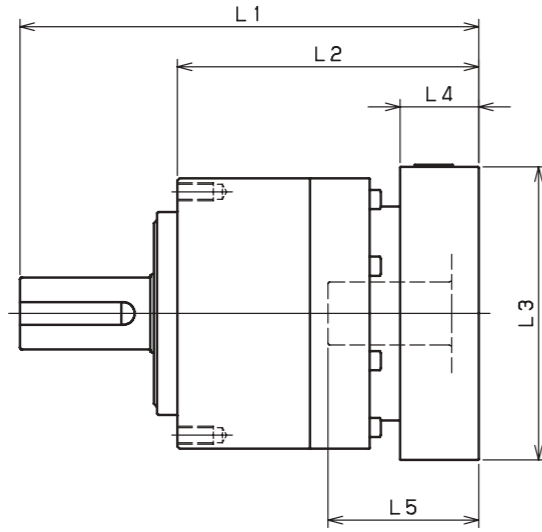
SML 070



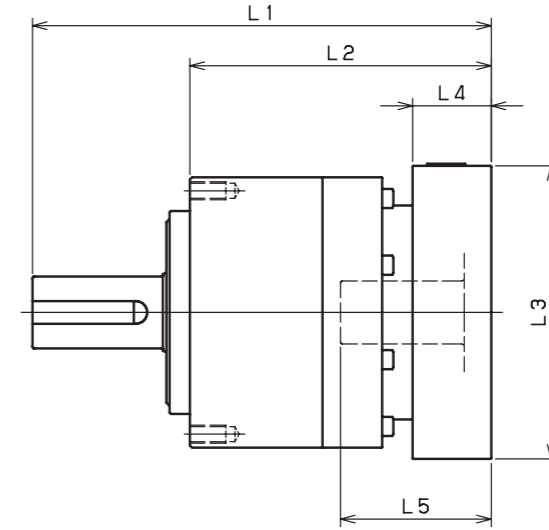
모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	1단 Single					2단 Double				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SML070□□□-8** (입력축 내경 $\leq \phi 8$)	AA·AC·AD·AF·AG	112	76	□52	15.5	32	131	95	□52	15.5	32
	AB·AE·AH·AJ·AK	117	81	□52	20.5	37	136	100	□52	20.5	37
	BA·BB·BD·BE	112	76	□60	15.5	32	131	95	□60	15.5	32
	BC·BF	117	81	□60	20.5	37	136	100	□60	20.5	37
	CA	117	81	□70	20.5	37	136	100	□70	20.5	37
SML070□□□-14** (입력축 내경 $\leq \phi 14$)	BA·BB·BD·BE·BF·BG·BJ·BK	115	79	□65	16.5	35	136	100	□65	16.5	35
	BC·BH·BM	120	84	□65	21.5	40	141	105	□65	21.5	40
	BL	125	89	□65	26.5	45	146	110	□65	26.5	45
	CA	115	79	□70	16.5	35	136	100	□70	16.5	35
	CB	120	84	□70	21.5	40	141	105	□70	21.5	40
	DA·DB·DC·DD·DF·DH	115	79	□80	16.5	35	136	100	□80	16.5	35
	DE	120	84	□80	21.5	40	141	105	□80	21.5	40
	DG	125	89	□80	26.5	45	146	110	□80	26.5	45
	EA·EB·EC	115	79	□90	16.5	35	136	100	□90	16.5	35
	ED	125	89	□90	26.5	45	146	110	□90	26.5	45
SML070□□□-19** (입력축 내경 $\leq \phi 19$)	FA	115	79	□100	16.5	35	136	100	□100	16.5	35
	GA	115	79	□115	16.5	35	136	100	□115	16.5	35
	DA·DB·DC	130	94	□80	25	50					
	DD	140	104	□80	35	60					
	DE	135	99	□80	30	55					
	EA	135	99	□90	30	55					
	EB	130	94	□90	25	50					
	EC	140	104	□90	35	60					
	FA	130	94	□100	25	50					
	FB	140	104	□100	35	60					
	GA·GC	135	99	□115	30	55					
	GB·GD	130	94	□115	25	50					
	HA	130	94	□130	25	50					
HB	145	109	□130	40	65						
HC·HD·HE	135	99	□130	30	55						

- ※ 1 1단 감속비: 1/3~1/10 ; 2단 감속비: 1/15~1/100
- ※ 1 Single reduction : 1/3 ~ 1/10, Double reduction : 1/15 ~ 1/100
- ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※ 2 Bushing will be inserted to adapt to motor shaft.

SML 090



SML 120



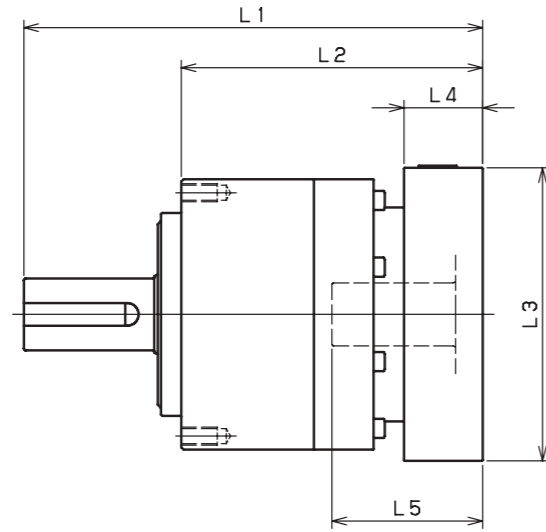
모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	1단 Single					2단 Double				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SML090□□□-8** (입력축 내경 ≤ φ8)	AA·AC·AD·AF·AG	/	/	/	/	/	160	114	□52	15.5	32
	AB·AE·AH·AJ·AK	/	/	/	/	/	165	119	□52	20.5	37
	BA·BB·BD·BE	/	/	/	/	/	160	114	□60	15.5	32
	BC·BF	/	/	/	/	/	165	119	□60	20.5	37
	CA	/	/	/	/	/	165	119	□70	20.5	37
SML090□□□-14** (입력축 내경 ≤ φ14)	BA·BB·BD·BE·BF·BG·BJ·BK	143	97	□65	16.5	35	165	119	□65	16.5	35
	BC·BH·BM	148	102	□65	21.5	40	170	124	□65	21.5	40
	BL	153	107	□65	26.5	45	175	129	□65	26.5	45
	CA	143	97	□70	16.5	35	165	119	□70	16.5	35
	CB	148	102	□70	21.5	40	170	124	□70	21.5	40
	DA·DB·DC·DD·DF·DH	143	97	□80	16.5	35	165	119	□80	16.5	35
	DE	148	102	□80	21.5	40	170	124	□80	21.5	40
	DG	153	107	□80	26.5	45	175	129	□80	26.5	45
	EA·EB·EC	143	97	□90	16.5	35	165	119	□90	16.5	35
	ED	153	107	□90	26.5	45	175	129	□90	26.5	45
	FA	143	97	□100	16.5	35	165	119	□100	16.5	35
GA	143	97	□115	16.5	35	165	119	□115	16.5	35	
SML090□□□-19** (입력축 내경 ≤ φ19)	DA·DB·DC	153	107	□80	25	50	175	129	□80	25	50
	DD	163	117	□80	35	60	185	139	□80	35	60
	DE	158	112	□80	30	55	180	134	□80	30	55
	EA	158	112	□90	30	55	180	134	□90	30	55
	EB	153	107	□90	25	50	175	129	□90	25	50
	EC	163	117	□90	35	60	185	139	□90	35	60
	FA	153	107	□100	25	50	175	129	□100	25	50
	FB	163	117	□100	35	60	185	139	□100	35	60
	GA·GC	158	112	□115	30	55	180	134	□115	30	55
	GB·GD	153	107	□115	25	50	175	129	□115	25	50
	HA	153	107	□130	25	50	175	129	□130	25	50
SML090□□□-28** (입력축 내경 ≤ φ28)	HB	168	122	□130	40	65	190	144	□130	40	65
	HC·HD·HE	158	112	□130	30	55	180	134	□130	30	55
	FA·FB·FC	170	124	□100	35	67	/	/	/	/	/
	GA·GB·GC·GD·GE·GF·GG	170	124	□115	35	67	/	/	/	/	/
	HA·HC·HD	170	124	□130	35	67	/	/	/	/	/
	HB	180	134	□130	45	77	/	/	/	/	/
	JA·JB·JC	170	124	□150	35	67	/	/	/	/	/
	KA·KB	170	124	□180	35	67	/	/	/	/	/
	KD	180	134	□180	45	77	/	/	/	/	/
	LA	170	124	□200	35	67	/	/	/	/	/
	MA	170	124	□220	35	67	/	/	/	/	/

※1 1단 감속비: 1/3~1/10 ; 2단 감속비: 1/15~1/100 ※1 Single reduction : 1/3 ~ 1/10, Double reduction : 1/15 ~ 1/100
 ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※2 Bushing will be inserted to adapt to motor shaft.

모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	1단 Single					2단 Double				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SML120□□□-14** (입력축 내경 ≤ φ14)	BA·BB·BD·BE·BF·BG·BJ·BK	/	/	/	/	/	204.5	134.5	□65	16.5	35
	BC·BH·BM	/	/	/	/	/	209.5	139.5	□65	21.5	40
	BL	/	/	/	/	/	214.5	144.5	□65	26.5	45
	CA	/	/	/	/	/	204.5	134.5	□70	16.5	35
	CB	/	/	/	/	/	209.5	139.5	□70	21.5	40
	DA·DB·DC·DD·DF·DH	/	/	/	/	/	204.5	134.5	□80	16.5	35
	DE	/	/	/	/	/	209.5	139.5	□80	21.5	40
	DG	/	/	/	/	/	214.5	144.5	□80	26.5	45
	EA·EB·EC	/	/	/	/	/	204.5	134.5	□90	16.5	35
	ED	/	/	/	/	/	214.5	144.5	□90	26.5	45
	FA	/	/	/	/	/	204.5	134.5	□100	16.5	35
GA	/	/	/	/	/	204.5	134.5	□115	16.5	35	
SML120□□□-19** (입력축 내경 ≤ φ19)	DA·DB·DC	187	117	□80	25	50	214.5	144.5	□80	25	50
	DD	197	127	□80	35	60	224.5	154.5	□80	35	60
	DE	192	122	□80	30	55	219.5	149.5	□80	30	55
	EA	192	122	□90	30	55	219.5	149.5	□90	30	55
	EB	187	117	□90	25	50	214.5	144.5	□90	25	50
	EC	197	127	□90	35	60	224.5	154.5	□90	35	60
	FA	187	117	□100	25	50	214.5	144.5	□100	25	50
	FB	197	127	□100	35	60	224.5	154.5	□100	35	60
	GA·GC	192	122	□115	30	55	219.5	149.5	□115	30	55
	GB·GD	187	117	□115	25	50	214.5	144.5	□115	25	50
	HA	187	117	□130	25	50	214.5	144.5	□130	25	50
SML120□□□-28** (입력축 내경 ≤ φ28)	HB	202	132	□130	40	65	229.5	159.5	□130	40	65
	HC·HD·HE	192	122	□130	30	55	219.5	149.5	□130	30	55
	FA·FB·FC	204	134	□100	35	67	231.5	161.5	□100	35	67
	GA·GB·GC·GD·GE·GF·GG	204	134	□115	35	67	231.5	161.5	□115	35	67
	HA·HC·HD	204	134	□130	35	67	231.5	161.5	□130	35	67
	HB	214	144	□130	45	77	241.5	171.5	□130	45	77
	JA·JB·JC	204	134	□150	35	67	231.5	161.5	□150	35	67
	KA·KB	204	134	□180	35	67	231.5	161.5	□180	35	67
	KD	214	144	□180	45	77	241.5	171.5	□180	45	77
	LA	204	134	□200	35	67	231.5	161.5	□200	35	67
	MA	204	134	□220	35	67	231.5	161.5	□220	35	67
SML120□□□-38** (입력축 내경 ≤ φ38)	HA	225	155	□130	45	82	/	/	/	/	/
	HB	220	150	□130	40	77	/	/	/	/	/
	JA	225	155	□150	45	82	/	/	/	/	/
	KA·KB·KC	225	155	□180	45	82	/	/	/	/	/
	LA	225	155	□200	45	82	/	/	/	/	/
	LB	235	165	□200	55	92	/	/	/	/	/
	MA·MB	225	155	□220	45	82	/	/	/	/	/
	NA	225	155	□250	45	82	/	/	/	/	/

※1 1단 감속비: 1/3~1/10 ; 2단 감속비: 1/15~1/100 ※1 Single reduction : 1/3 ~ 1/10, Double reduction : 1/15 ~ 1/100
 ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※2 Bushing will be inserted to adapt to motor shaft.

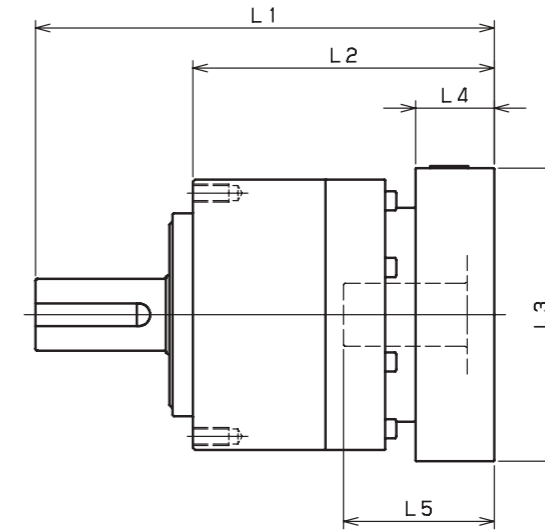
SML 155



모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	1단 Single					2단 Double				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SML155□□□-19** (입력축 내경 ≤ φ 19)	DA·DB·DC	/	/	/	/	/	266.5	169.5	□80	25	50
	DD	/	/	/	/	/	276.5	179.5	□80	35	60
	DE	/	/	/	/	/	271.5	174.5	□80	30	55
	EA	/	/	/	/	/	271.5	174.5	□90	30	55
	EB	/	/	/	/	/	266.5	169.5	□90	25	50
	EC	/	/	/	/	/	276.5	179.5	□90	35	60
	FA	/	/	/	/	/	266.5	169.5	□100	25	50
	FB	/	/	/	/	/	276.5	179.5	□100	35	60
	GA·GC	/	/	/	/	/	271.5	174.5	□115	30	55
	GB·GD	/	/	/	/	/	266.5	169.5	□115	25	50
	HA	/	/	/	/	/	266.5	169.5	□130	25	50
	HB	/	/	/	/	/	281.5	184.5	□130	40	65
	HC·HD·HE	/	/	/	/	/	271.5	174.5	□130	30	55
	SML155□□□-28** (입력축 내경 ≤ φ 28)	FA·FB·FC	249	152	□100	35	67	283.5	186.5	□100	35
GA·GB·GC·GD·GE·GF·GG		249	152	□115	35	67	283.5	186.5	□115	35	67
HA·HC·HD		249	152	□130	35	67	283.5	186.5	□130	35	67
HB		259	162	□130	45	77	293.5	196.5	□130	45	77
JA·JB·JC		249	152	□150	35	67	283.5	186.5	□150	35	67
KA·KB		249	152	□180	35	67	283.5	186.5	□180	35	67
KD		259	162	□180	45	77	293.5	196.5	□180	45	77
LA		249	152	□200	35	67	283.5	186.5	□200	35	67
SML155□□□-38** (입력축 내경 ≤ φ 38)	MA	249	152	□220	35	67	283.5	186.5	□220	35	67
	HA	264	167	□130	45	82	298.5	201.5	□130	45	82
	HB	259	162	□130	40	77	293.5	196.5	□130	40	77
	JA	264	167	□150	45	82	298.5	201.5	□150	45	82
	KA·KB·KC	264	167	□180	45	82	298.5	201.5	□180	45	82
	LA	264	167	□200	45	82	298.5	201.5	□200	45	82
	LB	274	177	□200	55	92	308.5	211.5	□200	55	92
SML155□□□-48** (입력축 내경 ≤ φ 48)	MA·MB	264	167	□220	45	82	298.5	201.5	□220	45	82
	NA	264	167	□250	45	82	298.5	201.5	□250	45	82
	KB·KC	285	188	□180	55	98	/	/	/	/	/
	KA	305	208	□180	75	118	/	/	/	/	/
	LA	285	188	□200	55	98	/	/	/	/	/
SML155□□□-65** (입력축 내경 ≤ φ 65)	MA	285	188	□220	55	98	/	/	/	/	/
	MB	305	208	□220	75	118	/	/	/	/	/
	NA	305	208	□250	75	118	/	/	/	/	/
	PA	305	208	□280	75	118	/	/	/	/	/
	QA	305	208	□280	75	118	/	/	/	/	/

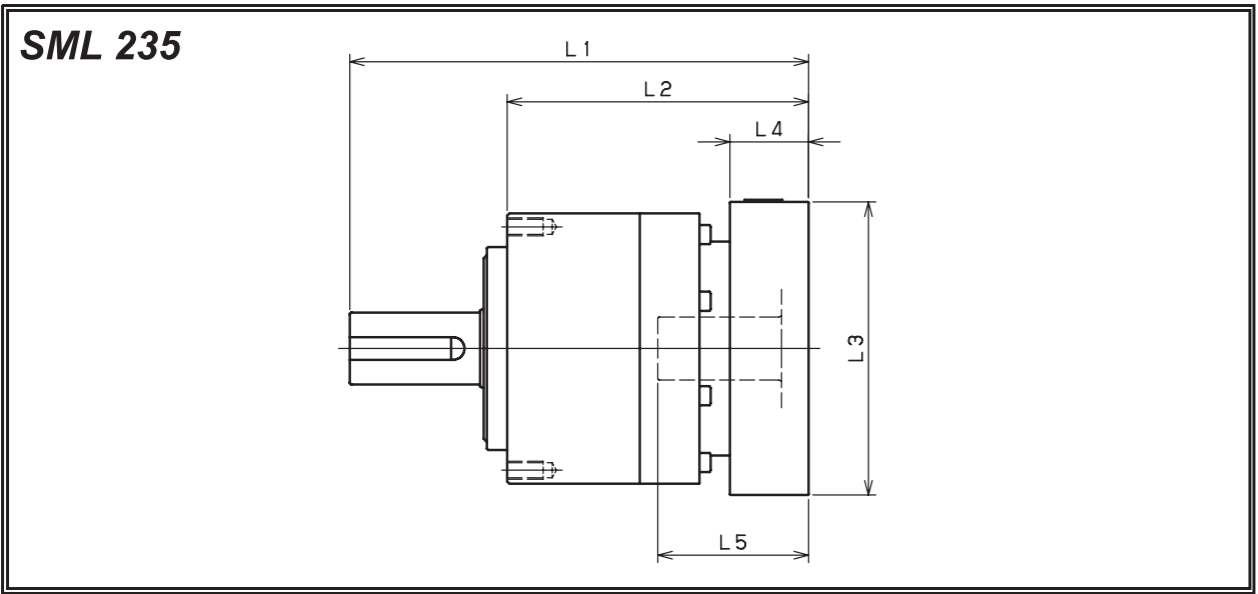
※1 1단 감속비: 1/3~1/10 ; 2단 감속비: 1/15~1/100 ※1 Single reduction : 1/3~1/10, Double reduction : 1/15~1/100
 ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※2 Bushing will be inserted to adapt to motor shaft.

SML 205



모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	1단 Single					2단 Double				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SML205□□□-28** (입력축 내경 ≤ φ 28)	FA·FB·FC	/	/	/	/	/	316	216	□100	35	67
	GA·GB·GC·GD·GE·GF·GG	/	/	/	/	/	316	216	□115	35	67
	HA·HC·HD	/	/	/	/	/	316	216	□130	35	67
	HB	/	/	/	/	/	326	226	□130	45	77
	JA·JB·JC	/	/	/	/	/	316	216	□150	35	67
	KA·KB	/	/	/	/	/	316	216	□180	35	67
	KD	/	/	/	/	/	326	226	□180	45	77
	LA	/	/	/	/	/	316	216	□200	35	67
	MA	/	/	/	/	/	316	216	□220	35	67
	SML205□□□-38** (입력축 내경 ≤ φ 38)	HA	286.5	186.5	□130	45	82	331	231	□130	45
HB		281.5	181.5	□130	40	77	326	226	□130	40	77
JA		286.5	186.5	□150	45	82	331	231	□150	45	82
KA·KB·KC		286.5	186.5	□180	45	82	331	231	□180	45	82
LA		286.5	186.5	□200	45	82	331	231	□200	45	82
LB		296.5	196.5	□200	55	92	341	241	□200	55	92
MA·MB		286.5	186.5	□220	45	82	331	231	□220	45	82
SML205□□□-48** (입력축 내경 ≤ φ 48)	NA	286.5	186.5	□250	45	82	331	231	□250	45	82
	KB·KC	302.5	202.5	□180	55	98	347	247	□180	55	98
	KA	322.5	222.5	□180	75	118	367	267	□180	75	118
	LA	302.5	202.5	□200	55	98	347	247	□200	55	98
	MA	302.5	202.5	□220	55	98	347	247	□220	55	98
	MB	322.5	222.5	□220	75	118	367	267	□220	75	118
	NA	322.5	222.5	□250	75	118	367	267	□250	75	118
SML205□□□-65** (입력축 내경 ≤ φ 65)	PA	322.5	222.5	□280	75	118	367	267	□280	75	118
	MA·MB·MC·MD	334	234	□220	80	122	/	/	/	/	/
	NA	334	234	□250	80	122	/	/	/	/	/
	PA	354	254	□280	100	142	/	/	/	/	/
	PB	364	264	□280	110	152	/	/	/	/	/
	QA	354	254	□320	100	142	/	/	/	/	/

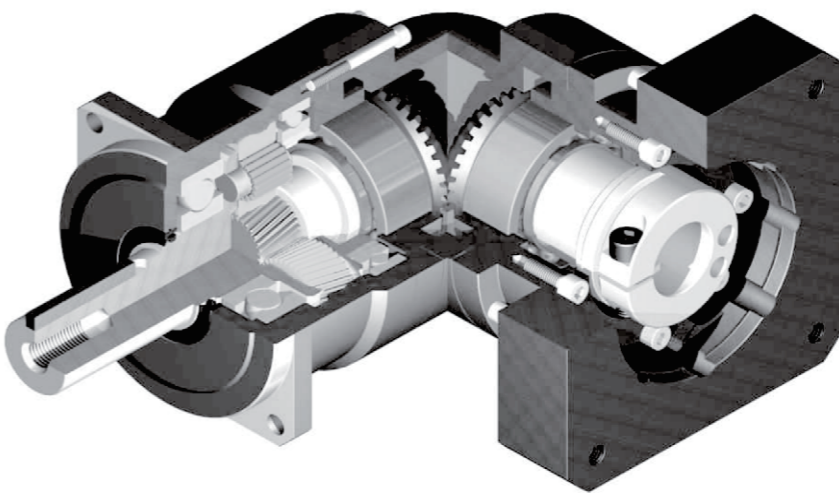
※1 1단 감속비: 1/3~1/10 ; 2단 감속비: 1/15~1/100 ※1 Single reduction : 1/3~1/10, Double reduction : 1/15~1/100
 ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※2 Bushing will be inserted to adapt to motor shaft.



모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	1단 Single					2단 Double				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SML235□□□-38** (입력축 내경 ≤ φ38 Input shaft bore)	HA						366.5	240.5	□130	45	82
	HB						361.5	235.5	□130	40	77
	JA						366.5	240.5	□150	45	82
	KA·KB·KC						366.5	240.5	□180	45	82
	LA						366.5	240.5	□200	45	82
	LB						376.5	250.5	□200	55	92
	MA·MB						366.5	240.5	□220	45	82
SML235□□□-48** (입력축 내경 ≤ φ48 Input shaft bore)	NA						366.5	240.5	□250	45	82
	KB·KC	347.5	221.5	□180	55	98	382.5	256.5	□180	55	98
	KA	367.5	241.5	□180	75	118	402.5	276.5	□180	75	118
	LA	347.5	221.5	□200	55	98	382.5	256.5	□200	55	98
	MA	347.5	221.5	□220	55	98	382.5	256.5	□220	55	98
	MB	367.5	241.5	□220	75	118	402.5	276.5	□220	75	118
	NA	367.5	241.5	□250	75	118	402.5	276.5	□250	75	118
SML235□□□-65** (입력축 내경 ≤ φ65 Input shaft bore)	PA	367.5	241.5	□280	75	118	402.5	276.5	□280	75	118
	MA·MB·MC·MD	371.5	245.5	□220	80	122					
	NA	371.5	245.5	□250	80	122					
	PA	391.5	265.5	□280	100	142					
	PB	401.5	275.5	□280	110	152					
QA	391.5	265.5	□320	100	142						

※ 1 1단 감속비: 1/3~1/10 ; 2단 감속비: 1/15~1/100 ※ 1 Single reduction : 1/3 ~ 1/10, Double reduction : 1/15 ~ 1/100
 ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※ 2 Bushing will be inserted to adapt to motor shaft.

SMEB series



공간 절약

스파이럴 베벨기어를 적용한 직교형 감속기로, 출력축과 모터를 수직으로 위치시켜 공간절약 가능.

Space - saving

Right angle reducer using spiral bevel gear. Customer can locate the motor at 90 degree away from the reducer if required to save space.

고강성 & 고토크

Uncaged 니들롤러베어링을 사용하여 강성과 토크 향상.

High rigidity & torque

High rigidity & high torque was achieved by uncaged needle roller bearings.

어댑터-부싱 연결방식

다양한 모터에 취부 가능.

Adapter-bushing connection

Can be attached to any motor all over the world.

그리스 누유현상 없음

고점도 분리방지 그리스를 사용.

No grease leakage

Perfect solution by high viscosity anti-separation grease.

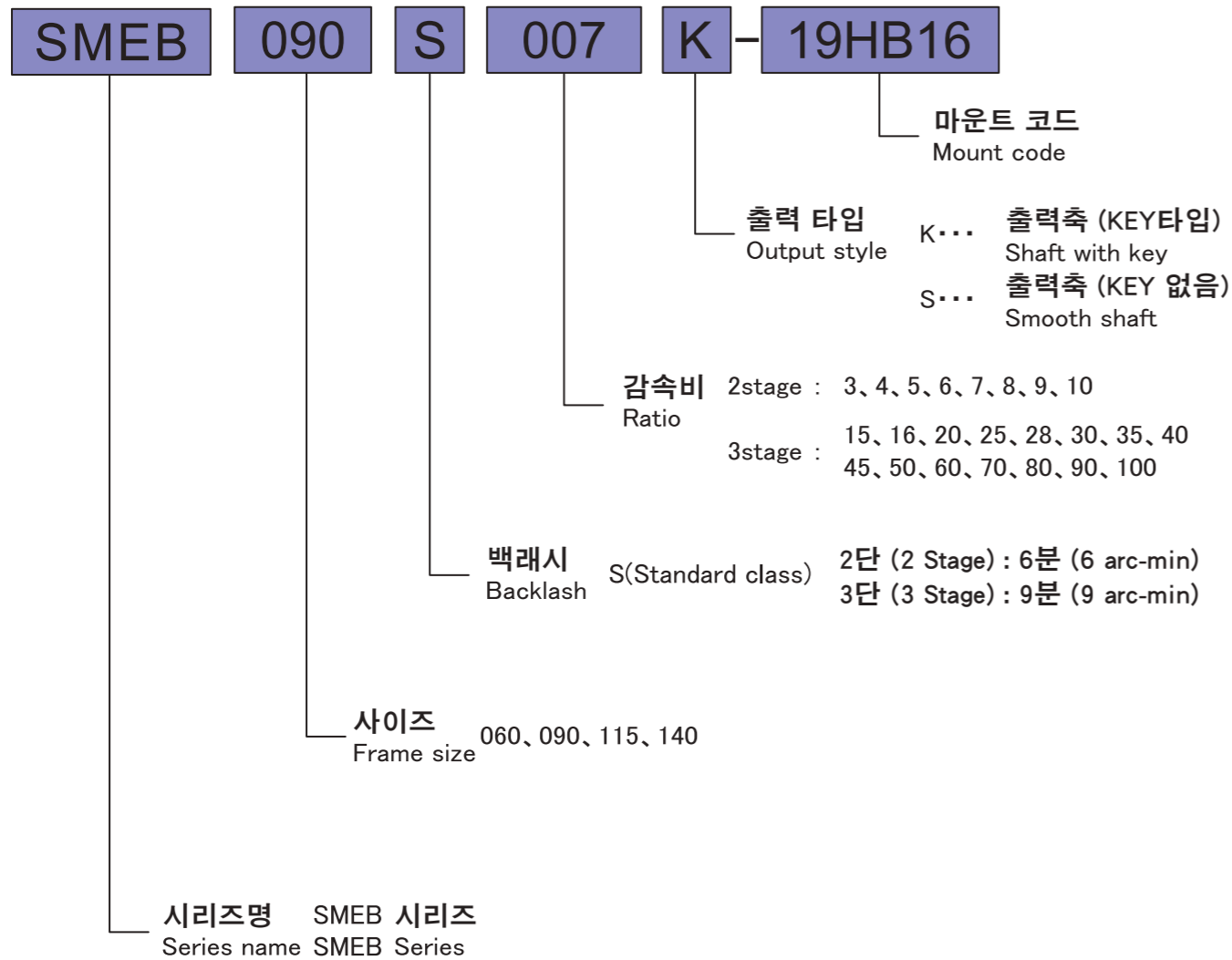
유지 보수 불필요

제품 수명 동안 그리스 교체 불필요 자유로운 설치 가능.

Maintenance-free

No need to replace the grease for the life time. Can be attached in any position.

SMEB series

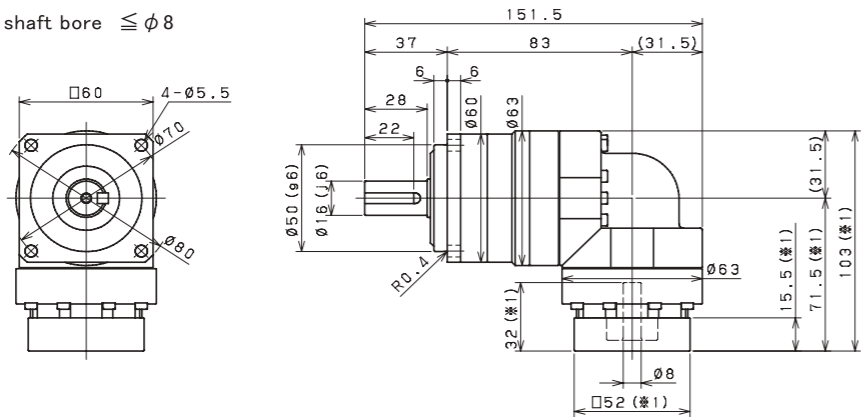


Model No.	Unit	Stage	Ratio ¹	SMEB060	SMEB090	SMEB115	SMEB140
Rated Output Torque (Nominal Output torque)	T _{2N}	2	3	33	89	195	440
			4	39	110	210	460
			5	43	110	210	580
			6	43	108	160	530
			7	43	108	200	490
			8	43	79	190	420
			9	35	90	170	390
			10	30	88	170	370
			15	35	84	195	440
			16	39	100	210	460
		3	20	39	100	210	460
			25	43	110	210	580
			28	43	108	200	580
			30	39	90	195	440
			35	43	108	200	580
			40	43	110	210	460
			45	39	90	170	580
			50	43	110	210	580
			60	43	108	160	580
			70	43	108	200	490
80	43	79	190	420			
90	39	90	170	390			
100	39	88	170	370			
Max. Acceleration Torque	T _{2B}	Nm	2,3	1.8 Times of Rated Output Torque			
Max. Output Torque Emergency Stop Torque	T _{2NOT}	Nm	2,3	3 Times of Rated Output Torque			
Nominal Input speed	n _{1n}	rpm	2,3	3,000	3,000	3,000	2,000
Max. Input speed	n _{1B}	rpm	2,3	6,000	6,000	6,000	5,000
Backlash (Standard class)		arcmin	2	3~10	≤6	≤6	≤6
			3	15~100	≤9	≤9	≤9
Torsional Rigidity		Nm/arcmin	2,3	3~100	5	12	23
Max. Radial load ²	F _{2rB}	N	2,3	3~100	1,100	2,150	3,600
Max. Axial load ²	F _{2aB}	N	2,3	3~100	600	1,800	2,500
Service life	L _H	hr	2,3	3~100	20,000	20,000	20,000
Noise level ³		dB(A)	2,3	3~100	≤63	≤65	≤68
Weight		kg	2	3~10	1.8	5.1	10.4
			3	15~100	2.1	4.4	10.1
Mass Moments of Inertia ⁴		kg cm ²	2	3~10	0.32	2.13	6.61
			3	15~100	0.12	0.59	2.51
Operating Temp. ⁵		°C	2,3	3~100	-10 ~ +90		
Lubrication			2,3	3~100	High temperature & Extreme pressure Lubricant		
Mounting position			2,3	3~100	All directions		
Efficiency	η	%	2	3~10	≥ 95		
			3	15~100	≥ 92		
Degree of protection			2,3	3~100	IP 65		

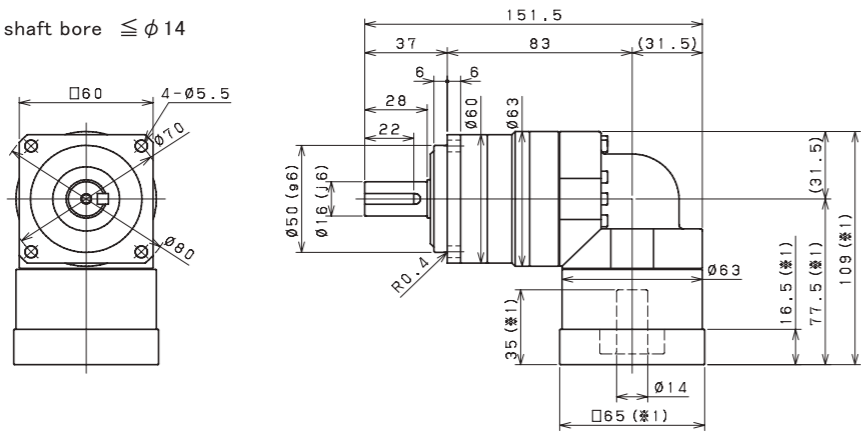
(1) Ratio (감속비) = Nin / Nout
 (2) 기준 : 출력회전수 100rpm, 출력축 중앙 부하, 부하계수(Ka)=1, 연속운전 10,000시간
 These values are based on the following conditions : 100 rpm at the output. Load applied to the middle of the output shaft.
 Load coefficient(Ka)=1. Continuous operation(S1=10,000hrs).
 (3) 입력 회전수 3000 rpm, 무부하 운전상태에서 감속기 취부면에서 1m 떨어진 거리에서 측정 (모델에 따라 차이가 있을수 있습니다)
 Noise level : A measurement 1m away from the reducer (with ratio10 or ratio 100), 3000 input rpm and at no load condition.
 (Background noise 40dB(A)) With lower ratio and/or higher rpm, the noise level could be 3 to 5 dB higher.
 (4) 관성모멘트 : 감속비 중 대표값 (i=1/5)
 Moment of inertia : A measurement at the input shaft and representatives from each ratio.(i=1/5)
 (5) 감속기 작동온도 : -10~+90 °C, 감속기 주위온도 -10~40°C
 Operating temperature : Surface temperature of gear case in -10 °C~40 °C of ambient temperature.
 ※ 제품 성능 향상을 위해 사양은 별도의 고지 없이 변경될 수 있습니다.
 Specifications are subject to change without notice to improve product performances.

SMEB 060 2단 2stage

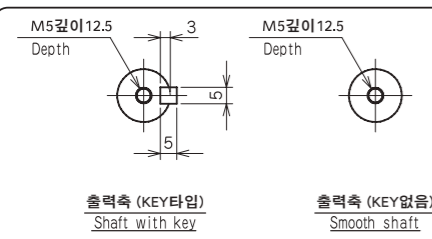
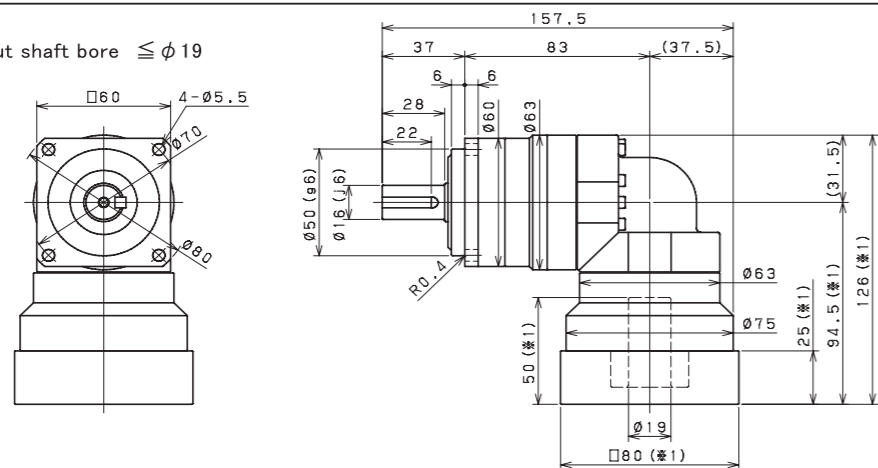
입력축 내경 Input shaft bore $\leq \phi 8$



입력축 내경 Input shaft bore $\leq \phi 14$



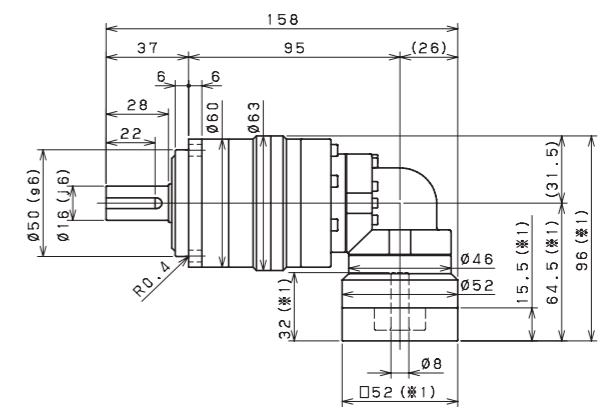
입력축 내경 Input shaft bore $\leq \phi 19$



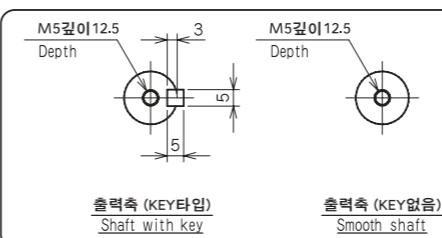
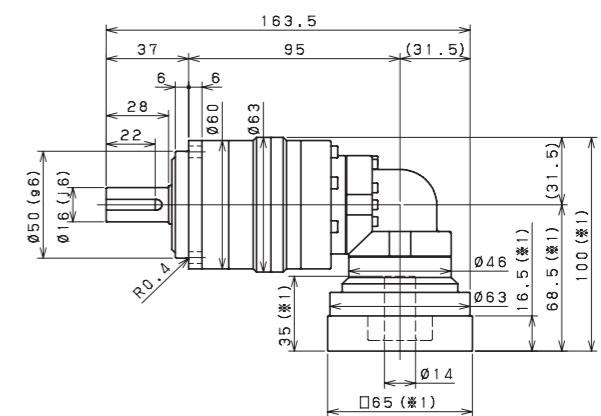
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMEB 060 3단 3stage

입력축 내경 Input shaft bore $\leq \phi 8$



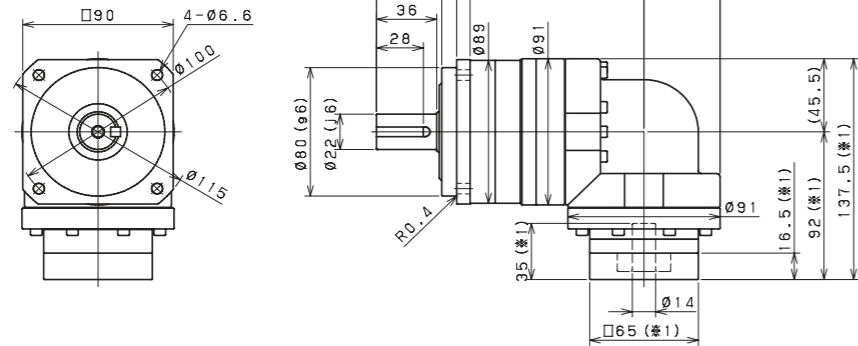
입력축 내경 Input shaft bore $\leq \phi 14$



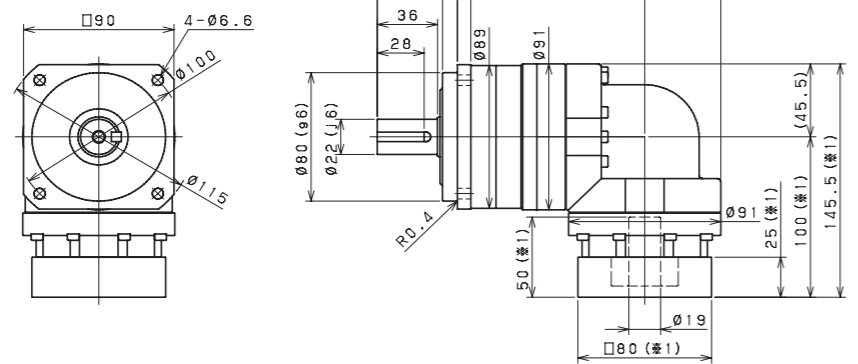
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMEB 090 2단 2stage

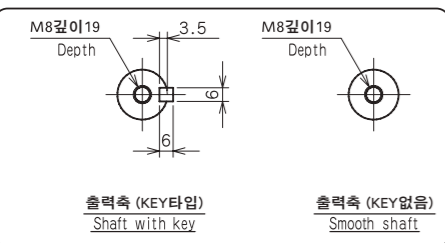
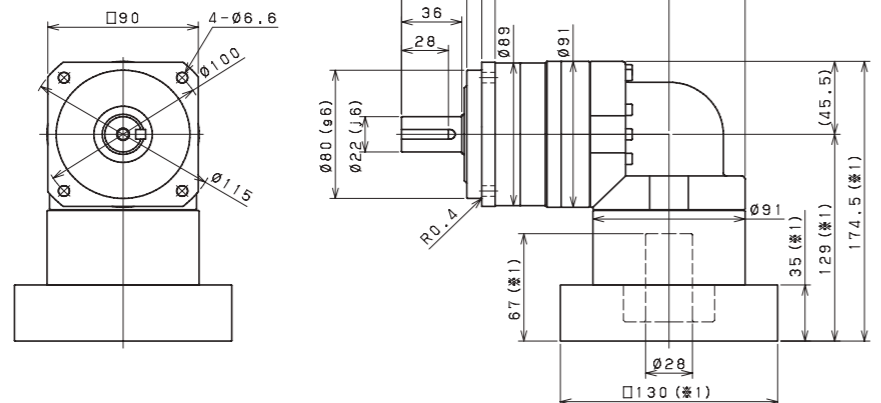
입력축 내경 Input shaft bore $\leq \phi 14$



입력축 내경 Input shaft bore $\leq \phi 19$



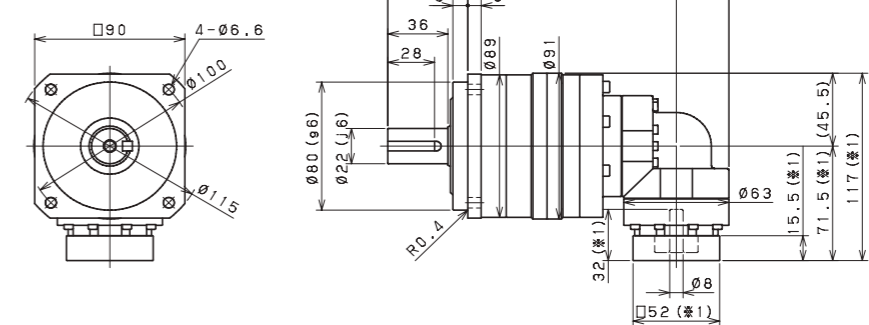
입력축 내경 Input shaft bore $\leq \phi 28$



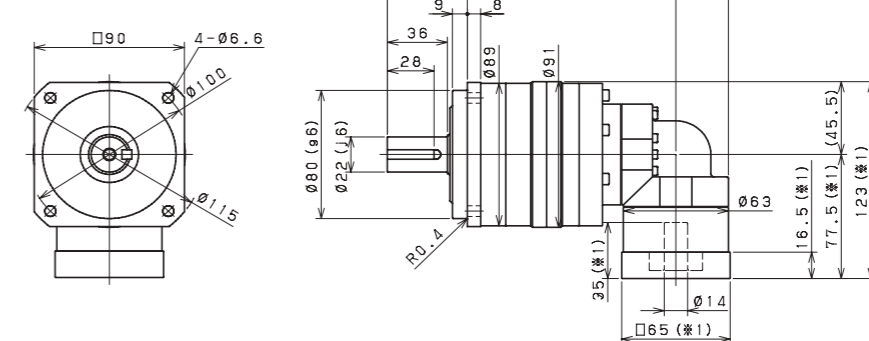
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMEB 090 3단 3stage

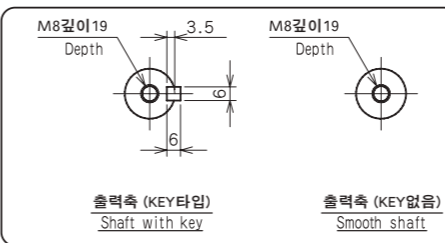
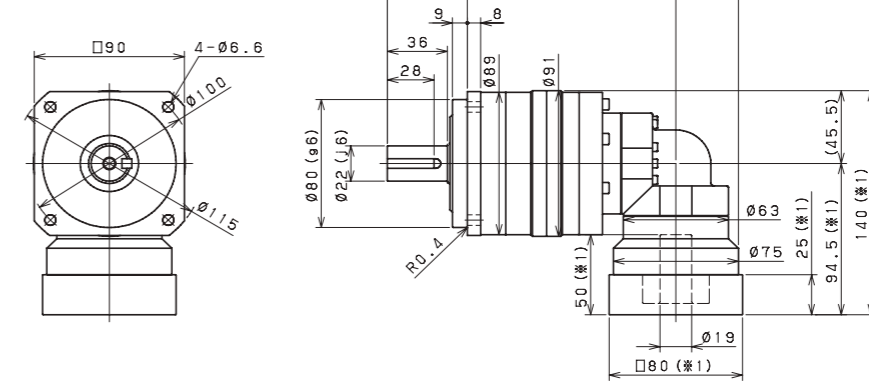
입력축 내경 Input shaft bore $\leq \phi 8$



입력축 내경 Input shaft bore $\leq \phi 14$



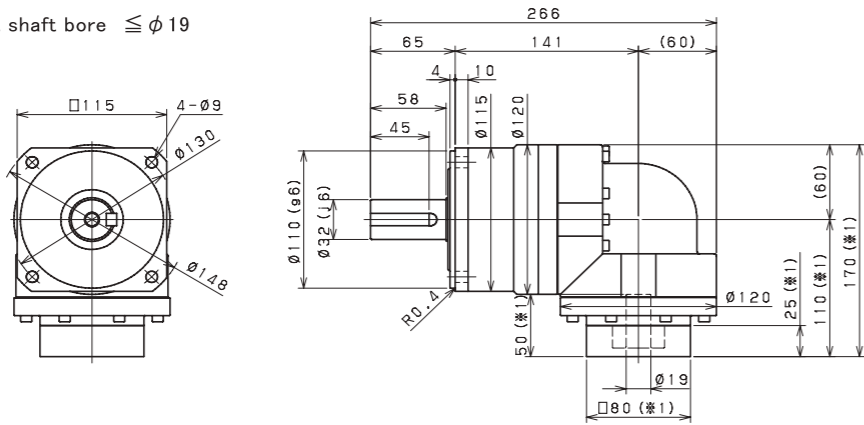
입력축 내경 Input shaft bore $\leq \phi 19$



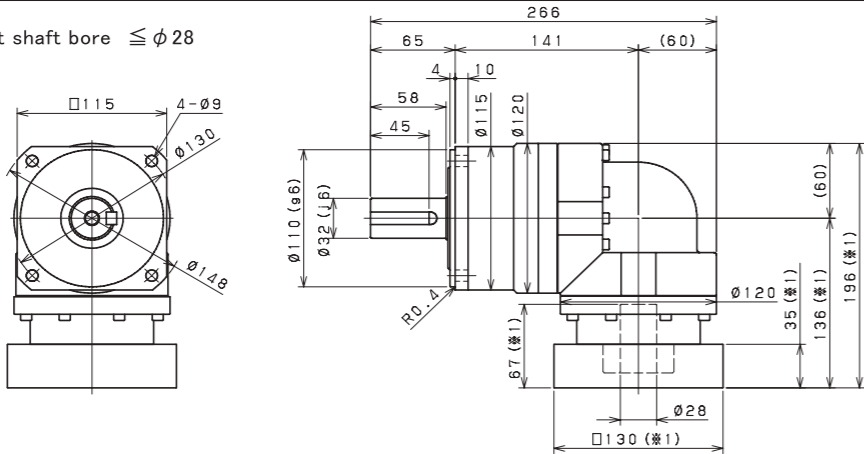
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMEB 115 2단 2stage

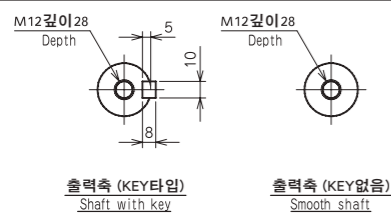
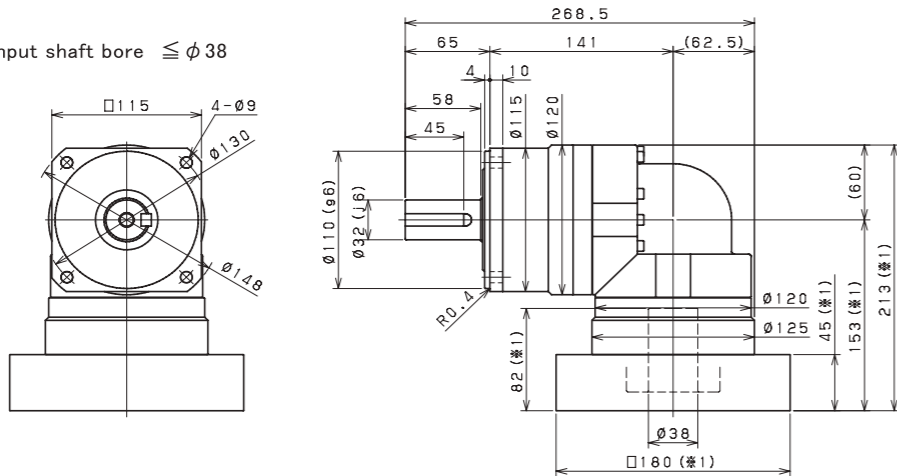
입력축 내경 Input shaft bore $\leq \phi 19$



입력축 내경 Input shaft bore $\leq \phi 28$



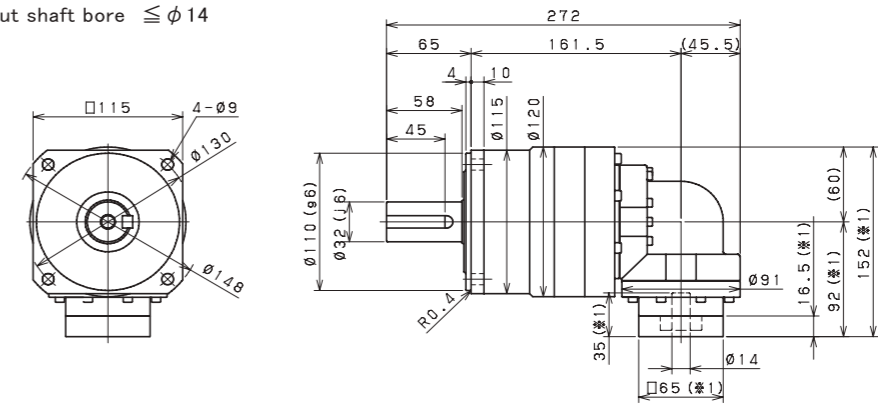
입력축 내경 Input shaft bore $\leq \phi 38$



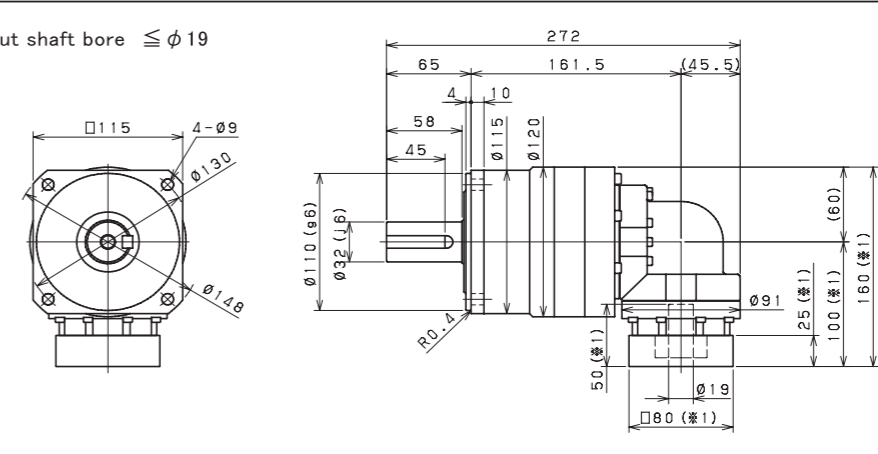
- ※ 1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※ 1 Length will vary depending on motor.
- ※ 2 Bushing will be inserted to adapt to motor shaft.

SMEB 115 3단 3stage

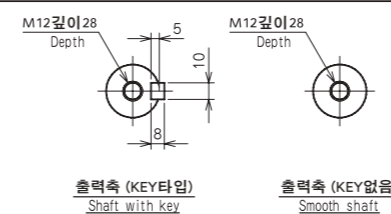
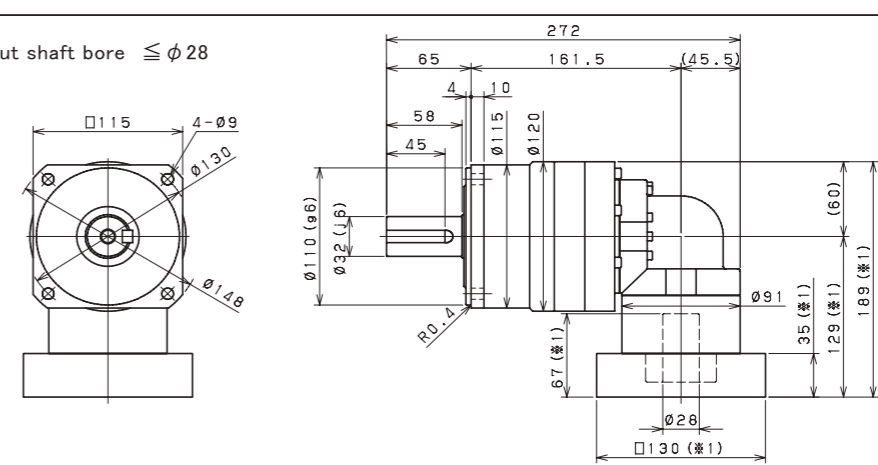
입력축 내경 Input shaft bore $\leq \phi 14$



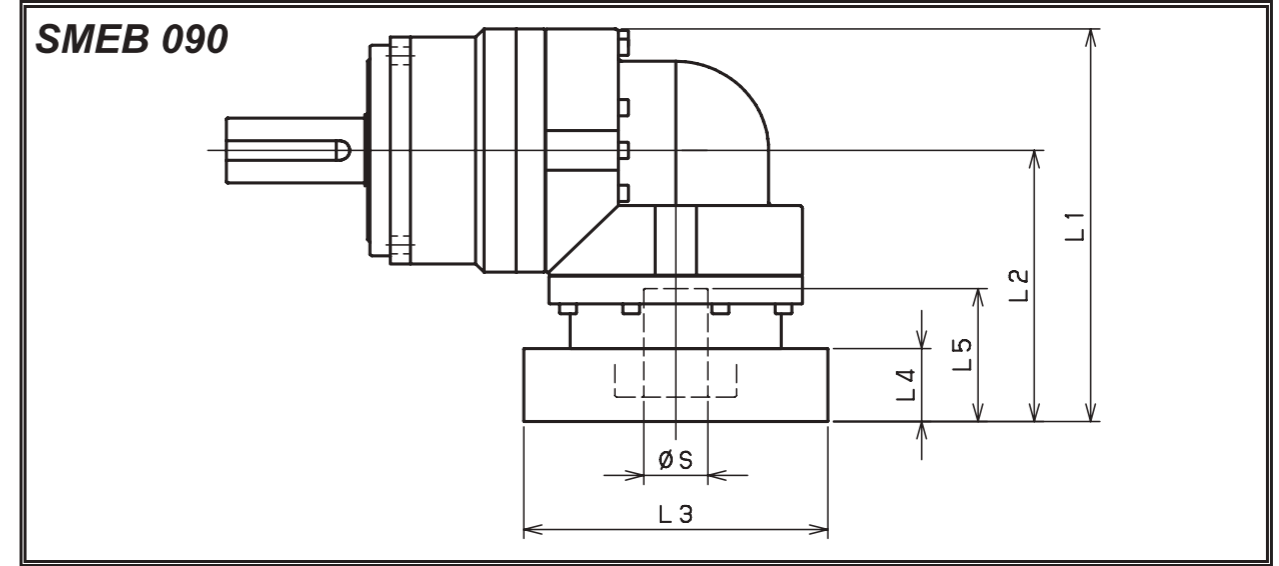
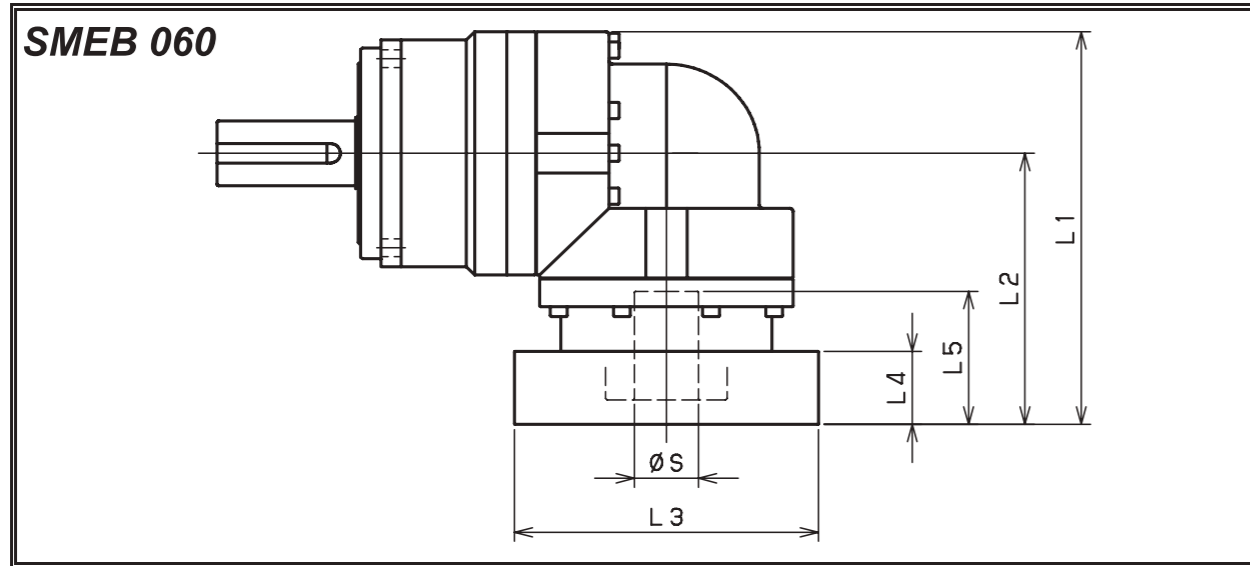
입력축 내경 Input shaft bore $\leq \phi 19$



입력축 내경 Input shaft bore $\leq \phi 28$



- ※ 1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※ 1 Length will vary depending on motor.
- ※ 2 Bushing will be inserted to adapt to motor shaft.

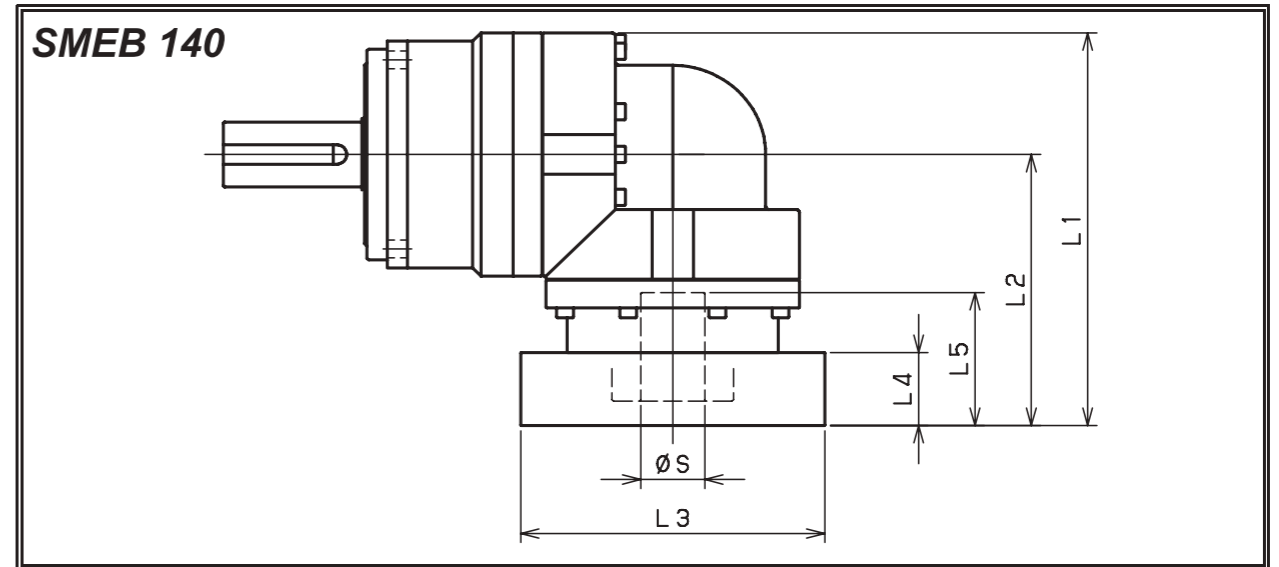
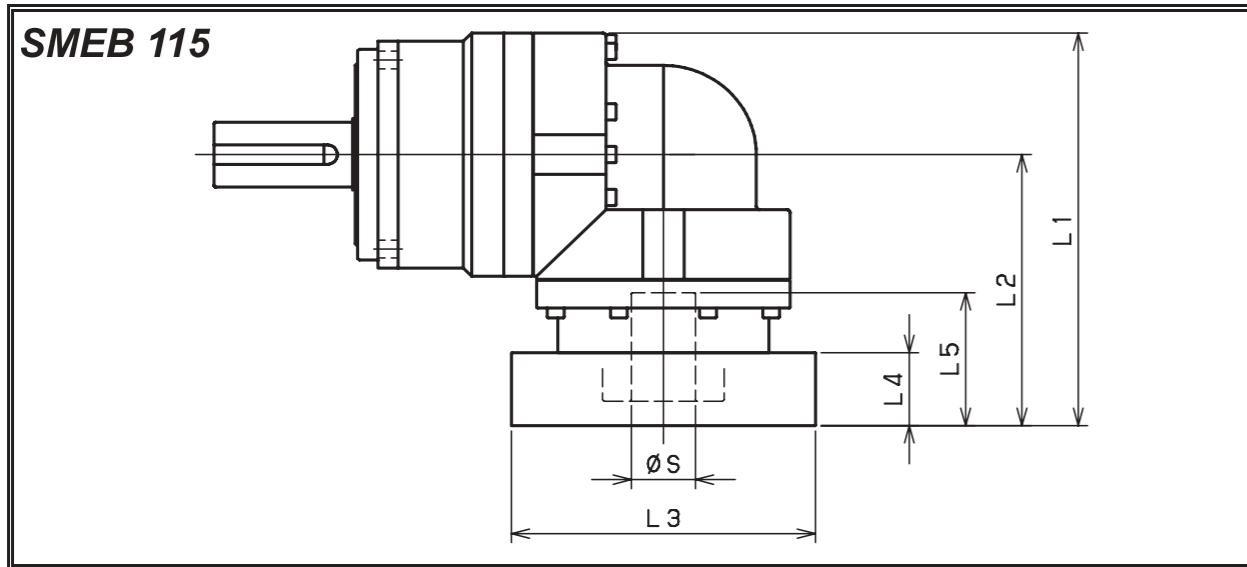


모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	2단 Double					3단 Triple				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMEB060□□□-8** (S≤8)	AA·AC·AD·AF·AG	103	71.5	□52	15.5	32	96	64.5	□52	15.5	32
	AB·AE·AH·AJ·AK	108	76.5	□52	20.5	37	101	69.5	□52	20.5	37
	BA·BB·BD·BE	103	71.5	□60	15.5	32	96	64.5	□60	15.5	32
	BC·BF	108	76.5	□60	20.5	37	101	69.5	□60	20.5	37
	CA	108	76.5	□70	20.5	37	101	69.5	□70	20.5	37
SMEB060□□□-14** (8<S≤14)	BA·BB·BD·BE·BF·BG·BJ·BK	109	77.5	□65	16.5	35	100	68.5	□65	16.5	35
	BC·BH	114	82.5	□65	21.5	40	105	73.5	□65	21.5	40
	BL	119	87.5	□65	26.5	45	110	78.5	□65	26.5	45
	CA	109	77.5	□70	16.5	35	100	68.5	□70	16.5	35
	CB	114	82.5	□70	21.5	40	105	73.5	□70	21.5	40
	DA·DB·DC·DD·DF·DH	109	77.5	□80	16.5	35	100	68.5	□80	16.5	35
	DE	114	82.5	□80	21.5	40	105	73.5	□80	21.5	40
	DG	119	87.5	□80	26.5	45	110	78.5	□80	26.5	45
	EA·EB·EC	109	77.5	□90	16.5	35	100	68.5	□90	16.5	35
	ED	119	87.5	□90	26.5	45	110	78.5	□90	26.5	45
	FA	109	77.5	□100	16.5	35	100	68.5	□100	16.5	35
GA	109	77.5	□115	16.5	35	100	68.5	□115	16.5	35	
SMEB060□□□-19** (14<S≤19)	DA·DB·DC	126	94.5	□80	25	50					
	DD	136	104.5	□80	35	60					
	DE	131	99.5	□80	30	55					
	EA	131	99.5	□90	30	55					
	EB	126	94.5	□90	25	50					
	EC	136	104.5	□90	35	60					
	FA	126	94.5	□100	25	50					
	FB	136	104.5	□100	35	60					
	GA·GC	131	99.5	□115	30	55					
	GB·GD	126	94.5	□115	25	50					
	HA	126	94.5	□130	25	50					
HB	141	109.5	□130	40	65						
HC·HD·HE	131	99.5	□130	30	55						

※1 2단 감속비: 1/3~1/10 ; 3단 감속비: 1/15~1/100 ※1 Double reduction : 1/3 ~ 1/10, Triple reduction : 1/15 ~ 1/100
 ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※2 Bushing will be inserted to adapt to motor shaft.

모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	2단 Double					3단 Triple				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMEB090□□□-8** (S≤8)	AA·AC·AD·AF·AG						117	71.5	□52	15.5	32
	AB·AE·AH·AJ·AK						122	76.5	□52	20.5	37
	BA·BB·BD·BE						117	71.5	□60	15.5	32
	BC·BF						122	76.5	□60	20.5	37
	CA						122	76.5	□70	20.5	37
SMEB090□□□-14** (8<S≤14)	BA·BB·BD·BE·BF·BG·BJ·BK	137.5	92	□65	16.5	35	123	77.5	□65	16.5	35
	BC·BH	142.5	97	□65	21.5	40	128	82.5	□65	21.5	40
	BL	147.5	102	□65	26.5	45	133	87.5	□65	26.5	45
	CA	137.5	92	□70	16.5	35	123	77.5	□70	16.5	35
	CB	142.5	97	□70	21.5	40	128	82.5	□70	21.5	40
	DA·DB·DC·DD·DF·DH	137.5	92	□80	16.5	35	123	77.5	□80	16.5	35
	DE	142.5	97	□80	21.5	40	128	82.5	□80	21.5	40
	DG	147.5	102	□80	26.5	45	133	87.5	□80	26.5	45
	EA·EB·EC	137.5	92	□90	16.5	35	123	77.5	□90	16.5	35
	ED	147.5	102	□90	26.5	45	133	87.5	□90	26.5	45
	FA	137.5	92	□100	16.5	35	123	77.5	□100	16.5	35
GA	137.5	92	□115	16.5	35	123	77.5	□115	16.5	35	
SMEB090□□□-19** (14<S≤19)	DA·DB·DC	145.5	100	□80	25	50	140	94.5	□80	25	50
	DD	155.5	110	□80	35	60	150	104.5	□80	35	60
	DE	150.5	105	□80	30	55	145	99.5	□80	30	55
	EA	150.5	105	□90	30	55	145	99.5	□90	30	55
	EB	145.5	100	□90	25	50	140	94.5	□90	25	50
	EC	155.5	110	□90	35	60	150	104.5	□90	35	60
	FA	145.5	100	□100	25	50	140	94.5	□100	25	50
	FB	155.5	110	□100	35	60	150	104.5	□100	35	60
	GA·GC	150.5	105	□115	30	55	145	99.5	□115	30	55
	GB·GD	145.5	100	□115	25	50	140	94.5	□115	25	50
	HA	145.5	100	□130	25	50	140	94.5	□130	25	50
HB	160.5	115	□130	40	65	155	109.5	□130	40	65	
HC·HD·HE	150.5	105	□130	30	55	145	99.5	□130	30	55	
SMEB090□□□-28** (19<S≤28)	FA·FB·FC	174.5	129	□100	35	67					
	GA·GB·GC·GD·GE·GF·GG	174.5	129	□115	35	67					
	HA·HC·HD	174.5	129	□130	35	67					
	HB	184.5	139	□130	45	77					
	JA·JB·JC	174.5	129	□150	35	67					
	KA·KB	174.5	129	□180	35	67					
LA	174.5	129	□200	35	67						
MA	174.5	129	□220	35	67						

※1 2단 감속비: 1/3~1/10 ; 3단 감속비: 1/15~1/100 ※1 Double reduction : 1/3 ~ 1/10, Triple reduction : 1/15 ~ 1/100
 ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※2 Bushing will be inserted to adapt to motor shaft.



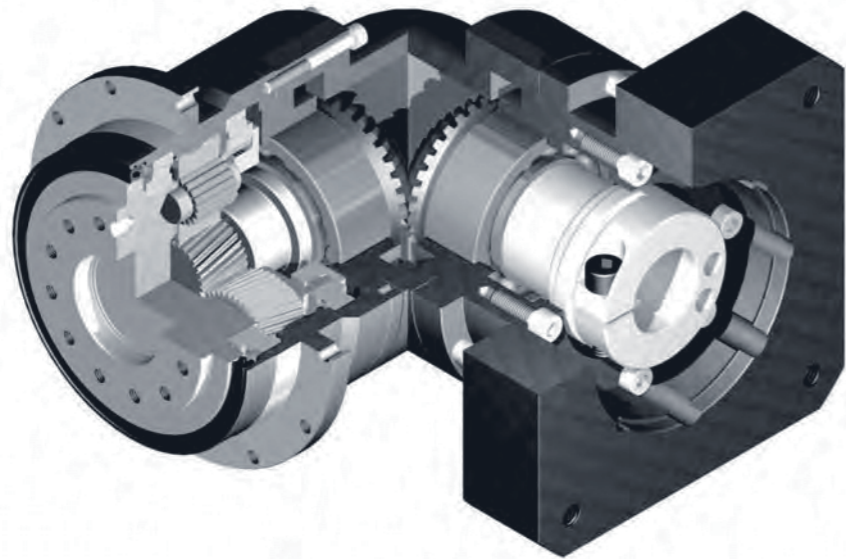
모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	2단 Double					3단 Triple				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMEB115□□□-14** (S ≤ 14)	BA·BB·BD·BE·BF·BG·BJ·BK	/	/	/	/	/	152	92	□65	16.5	35
	BC·BH	/	/	/	/	/	157	97	□65	21.5	40
	BL	/	/	/	/	/	162	102	□65	26.5	45
	CA	/	/	/	/	/	152	92	□70	16.5	35
	CB	/	/	/	/	/	157	97	□70	21.5	40
	DA·DB·DC·DD·DF·DH	/	/	/	/	/	152	92	□80	16.5	35
	DE	/	/	/	/	/	157	97	□80	21.5	40
	DG	/	/	/	/	/	162	102	□80	26.5	45
	EA·EB·EC	/	/	/	/	/	152	92	□90	16.5	35
	ED	/	/	/	/	/	162	102	□90	26.5	45
	FA	/	/	/	/	/	152	92	□100	16.5	35
	GA	/	/	/	/	/	152	92	□115	16.5	35
SMEB115□□□-19** (14 < S ≤ 19)	DA·DB·DC	170	110	□80	25	50	160	100	□80	25	50
	DD	180	120	□80	35	60	170	110	□80	35	60
	DE	175	115	□80	30	55	165	105	□80	30	55
	EA	175	115	□90	30	55	165	105	□90	30	55
	EB	170	110	□90	25	50	160	100	□90	25	50
	EC	180	120	□90	35	60	170	110	□90	35	60
	FA	170	110	□100	25	50	160	100	□100	25	50
	FB	180	120	□100	35	60	170	110	□100	35	60
	GA·GC	175	115	□115	30	55	165	105	□115	30	55
	GB·GD	170	110	□115	25	50	160	100	□115	25	50
	HA	170	110	□130	25	50	160	100	□130	25	50
	HB	185	125	□130	40	65	175	115	□130	40	65
HC·HD·HE	175	115	□130	30	55	165	105	□130	30	55	
SMEB115□□□-28** (19 < S ≤ 28)	FA·FB·FC	196	136	□100	35	67	189	129	□100	35	67
	GA·GB·GC·GD·GE·GF·GG	196	136	□115	35	67	189	129	□115	35	67
	HA·HC·HD	196	136	□130	35	67	189	129	□130	35	67
	HB	206	146	□130	45	77	199	139	□130	45	77
	JA·JB·JC	196	136	□150	35	67	189	129	□150	35	67
	KA·KB	196	136	□180	35	67	189	129	□180	35	67
	LA	196	136	□200	35	67	189	129	□200	35	67
SMEB115□□□-38** (28 < S ≤ 38)	MA	196	136	□220	35	67	189	129	□220	35	67
	HA	213	153	□130	45	82	/	/	/	/	/
	HB	208	148	□130	40	77	/	/	/	/	/
	JA	213	153	□150	45	82	/	/	/	/	/
	KA·KB·KC	213	153	□180	45	82	/	/	/	/	/
	LA	213	153	□200	45	82	/	/	/	/	/
	LB	223	163	□200	55	92	/	/	/	/	/
SMEB115□□□-48** (38 < S ≤ 48)	MA·MB	213	153	□220	45	82	/	/	/	/	/
	NA	213	153	□250	45	82	/	/	/	/	/
	PA	/	/	/	/	/	/	/	/	/	/

※ 1 2단 감속비: 1/3~1/10 ; 3단 감속비: 1/15~1/100 ※ 1 Double reduction : 1/3 ~ 1/10, Triple reduction : 1/15 ~ 1/100
 ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※ 2 Bushing will be inserted to adapt to motor shaft.

모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	2단 Double					3단 Triple					
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5	
SMEB140□□□-19** (S ≤ 19)	DA·DB·DC	/	/	/	/	/	185	110	□80	25	50	
	DD	/	/	/	/	/	195	120	□80	35	60	
	DE	/	/	/	/	/	190	115	□80	30	55	
	EA	/	/	/	/	/	190	115	□90	30	55	
	EB	/	/	/	/	/	185	110	□90	25	50	
	EC	/	/	/	/	/	195	120	□90	35	60	
	FA	/	/	/	/	/	185	110	□100	25	50	
	FB	/	/	/	/	/	195	120	□100	35	60	
	GA·GC	/	/	/	/	/	190	115	□115	30	55	
	GB·GD	/	/	/	/	/	185	110	□115	25	50	
	HA	/	/	/	/	/	185	110	□130	25	50	
	HB	/	/	/	/	/	200	125	□130	40	65	
	HC·HD·HE	/	/	/	/	/	190	115	□130	30	55	
	SMEB140□□□-28** (19 < S ≤ 28)	FA·FB·FC	227	152	□100	35	67	211	136	□100	35	67
		GA·GB·GC·GD·GE·GF·GG	227	152	□115	35	67	211	136	□115	35	67
HA·HC·HD		227	152	□130	35	67	211	136	□130	35	67	
HB		237	162	□130	45	77	221	146	□130	45	77	
JA·JB·JC		227	152	□150	35	67	211	136	□150	35	67	
KA·KB		227	152	□180	35	67	211	136	□180	35	67	
LA		227	152	□200	35	67	211	136	□200	35	67	
SMEB140□□□-38** (28 < S ≤ 38)	MA	227	152	□220	35	67	211	136	□220	35	67	
	HA	242	167	□130	45	82	228	153	□130	45	82	
	HB	237	162	□130	40	77	223	148	□130	40	77	
	JA	242	167	□150	45	82	228	153	□150	45	82	
	KA·KB·KC	242	167	□180	45	82	228	153	□180	45	82	
	LA	242	167	□200	45	82	228	153	□200	45	82	
	LB	252	177	□200	55	92	238	163	□200	55	92	
SMEB140□□□-48** (38 < S ≤ 48)	MA·MB	242	167	□220	45	82	228	153	□220	45	82	
	NA	242	167	□250	45	82	228	153	□250	45	82	
	KA	268	193	□180	55	98	/	/	/	/	/	
	LA	268	193	□200	55	98	/	/	/	/	/	
	MA	268	193	□220	55	98	/	/	/	/	/	
	MB	288	213	□220	75	118	/	/	/	/	/	
	PA	288	213	□280	75	118	/	/	/	/	/	

※ 1 2단 감속비: 1/3~1/10 ; 3단 감속비: 1/15~1/100 ※ 1 Double reduction : 1/3 ~ 1/10, Triple reduction : 1/15 ~ 1/100
 ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※ 2 Bushing will be inserted to adapt to motor shaft.

SMET series



공간 절약

스파이럴 베벨기어를 적용한 직교형 감속기로, 출력축과 모터를 수직으로 위치시켜 공간절약 가능.

Space - saving

Right angle reducer using spiral bevel gear
Customer can locate the motor at 90 degree away from the reducer if required to save space.

고강성 & 고토크

Uncaged 니들롤러베어링을 사용하여 강성과 토크 향상.

High rigidity & torque

High rigidity & high torque was achieved by uncaged needle roller bearings.

어댑터-부싱 연결방식

다양한 모터에 취부 가능.

Adapter-bushing connection

Can be attached to any motor all over the world.

그리스 누유현상 없음

고점도 분리방지 그리스를 사용.

No grease leakage

Perfect solution by high viscosity anti-separation grease.

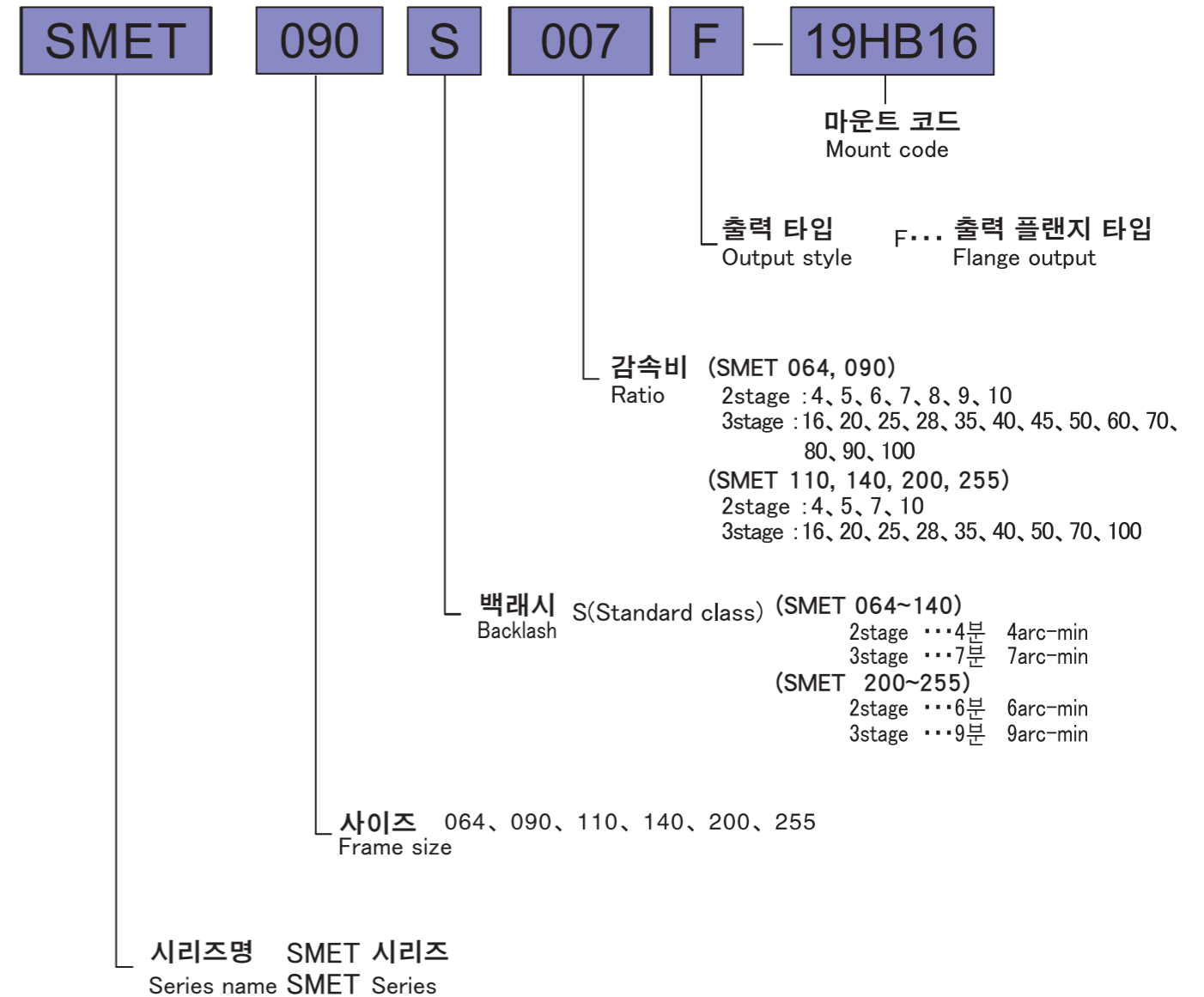
유지 보수 불필요

제품 수명 동안 그리스 교체 불필요 자유로운 설치 가능.

Maintenance-free

No need to replace the grease for the life time.
Can be attached in any position.

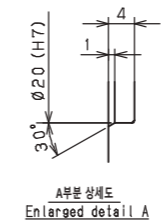
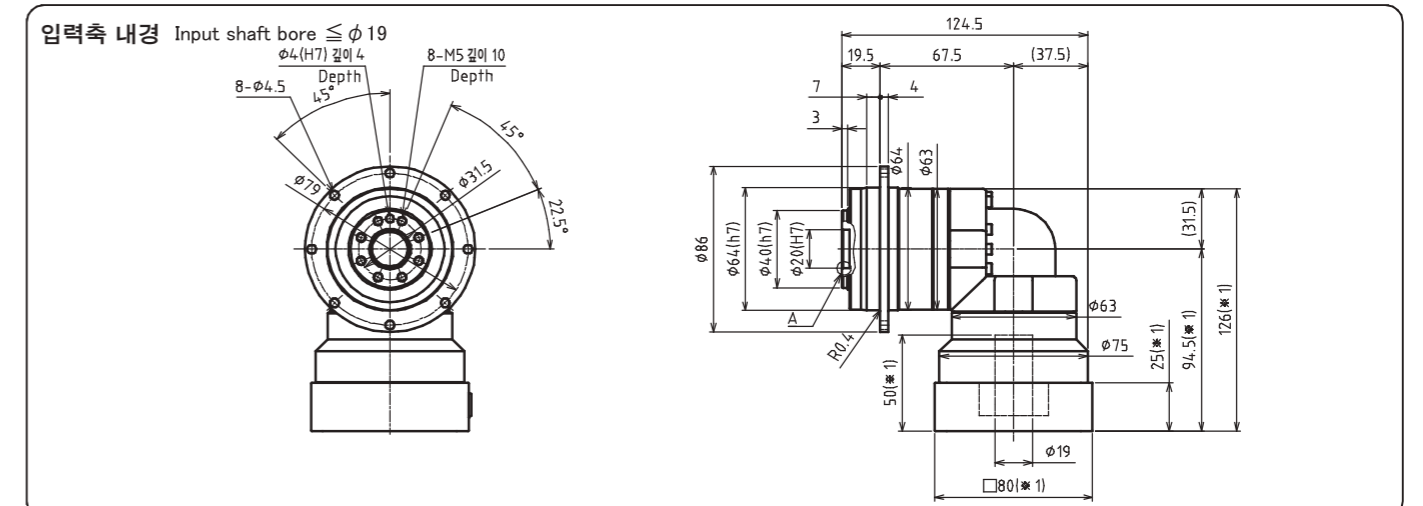
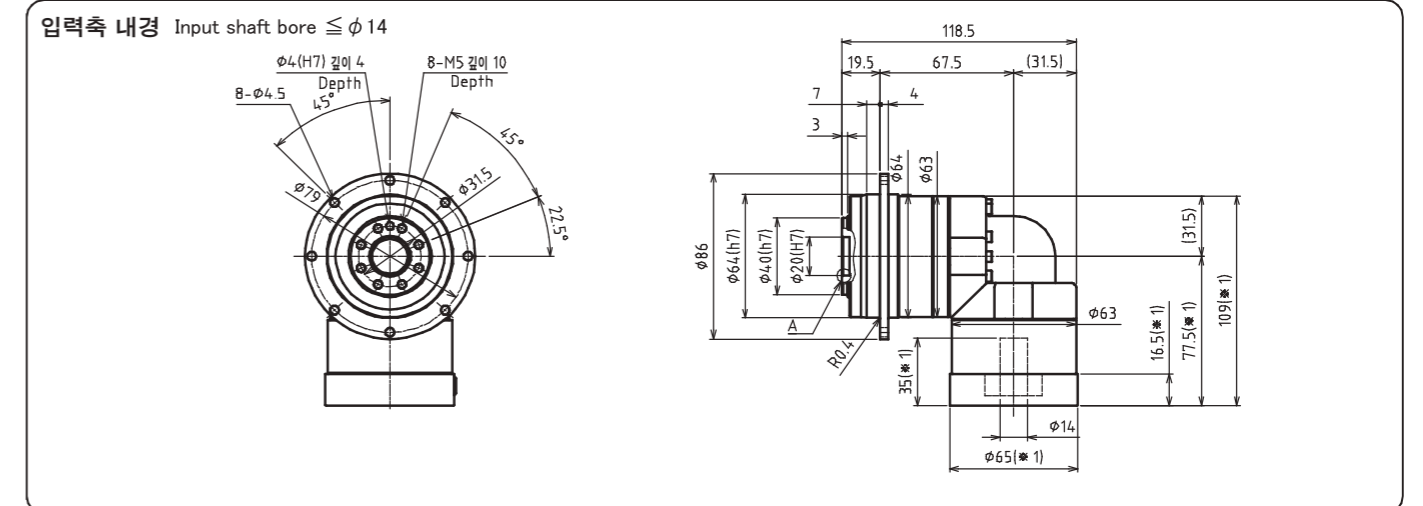
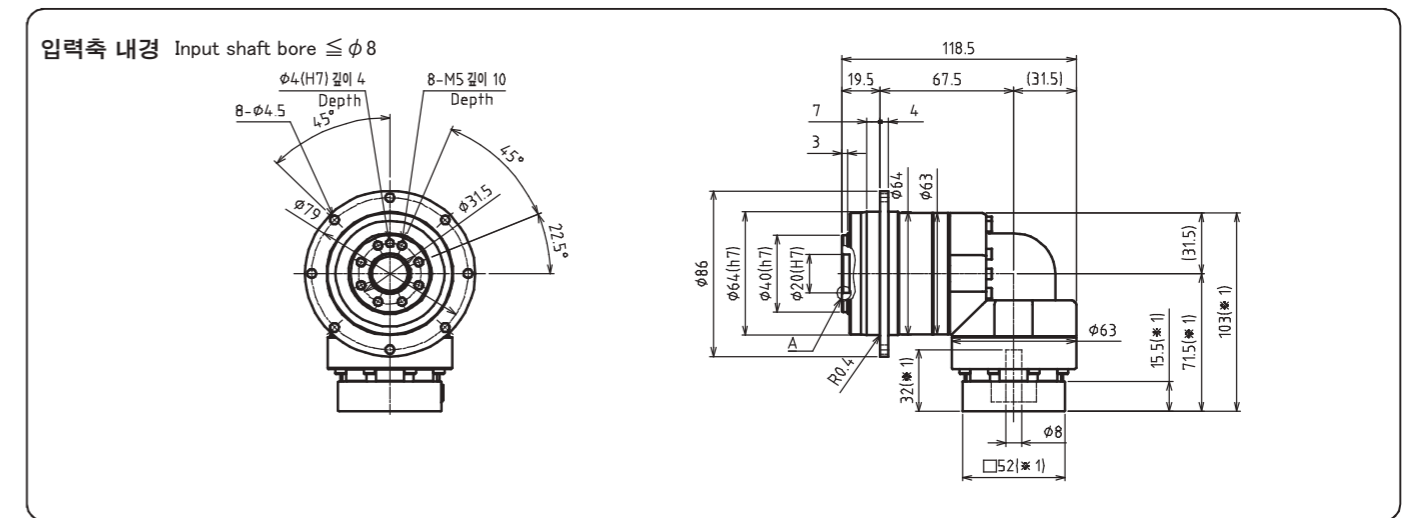
SMET series



Model No.	Unit	Stage	Ratio ¹	SMET064	SMET090	SMET110	SMET140	SMET200	SMET255	
Rated Output Torque (Nominal Output torque)	T _{2N}	2	4	33	89	195	440	750	1,500	
			5	43	110	210	580	1,200	2,000	
			6	43	108	-	-	-	-	
			7	43	108	200	490	1,000	1,500	
			8	43	79	-	-	-	-	
			9	35	90	-	-	-	-	
			10	30	88	170	370	800	1,100	
			16	39	100	210	460	950	1,800	
			20	39	100	210	460	950	1,900	
			25	43	110	210	580	1,200	2,000	
		3	28	43	108	200	580	1,200	1,500	
			35	43	108	200	580	1,200	1,500	
			40	43	110	210	460	1,200	2,000	
			45	39	90	-	-	-	-	
			50	43	110	210	580	1,200	2,000	
			60	43	108	-	-	-	-	
			70	43	108	200	490	1,100	1,500	
			80	43	79	-	-	-	-	
			90	39	90	-	-	-	-	
			100	39	88	170	370	800	1,100	
Max. Acceleration Torque	T _{2B}	Nm	2,3	4~100 1.8 Times of Rated Output Torque						
Max. Output Torque	T _{2NOT}	Nm	2,3	4~100 3 Times of Rated Output Torque						
Emergency Stop Torque										
Nominal Input speed	n _{1n}	rpm	2,3	4~100	3,000	3,000	3,000	2,000	1,500	1,000
Max. Input speed	n _{1B}	rpm	2,3	4~100	6,000	6,000	6,000	5,000	4,000	3,000
Backlash (Standard class)		arcmin	2	4~10	≤4	≤4	≤4	≤4	≤6	≤6
			3	16~100	≤7	≤7	≤7	≤7	≤9	≤9
Torsional Rigidity		Nm/arcmin	2,3	4~100	5	12	23	38	110	210
Max. Radial load ²	F _{2rB}	N	2,3	4~100	900	1,750	7,300	14,000	22,000	25,000
Max. Axial load ²	F _{2aB}	N	2,3	4~100	900	1,750	4,300	10,000	15,000	20,000
Service life	L _H	hr	2,3	4~100	20,000	20,000	20,000	20,000	20,000	20,000
Noise level ³		dB(A)	2,3	4~100	≤63	≤65	≤68	≤70	≤72	≤74
Weight		kg	2	4~10	1.9	5.1	9.5	17.4	50	110
			3	16~100	2.1	4.3	9	17.6	37	99
Mass Moments of Inertia ⁴		kg cm ²	2	4~10	0.35	2.31	7.24	23.94	123.3	619.8
			3	16~100	0.12	0.59	4.66	14.76	24.99	113.37
Operating Temp. ⁵		°C	2,3	4~100	-10 ~ +90					
Lubrication			2,3	4~100	High temperature & Extreme pressure Lubricant					
Mounting position			2,3	4~100	All directions					
Efficiency	η	%	2	4~10	≥93					
			3	16~100	≥90					
Degree of protection			2,3	4~100	IP 65					

- (1) Ratio (감속비) = N_{in} / N_{out}
 (2) 기준 : 출력회전수 100rpm, 출력축 중앙 부하, 부하계수(K_a)=1, 연속운전 10,000시간
 These values are based on the following conditions : 100 rpm at the output. Load applied to the middle of the output shaft.
 Load coefficient(K_a)=1. Continuous operation(S1)≒10,000hrs.
 (3) 입력 회전수 3000 rpm, 무부하 운전상태에서 감속기 취부면에서 1m 떨어진 거리에서 측정 (모델에 따라 차이가 있을수 있습니다)
 Noise level : A measurement 1m away from the reducer (with ratio10 or ratio 100), 3000 input rpm and at no load condition.
 (Background noise 40dB(A)) With lower ratio and/or higher rpm, the noise level could be 3 to 5 dB higher.
 (4) 관성모멘트 : 감속비 중 대표값 (i=1/5)
 Moment of inertia : A measurement at the input shaft and representatives from each ratio.(i=1/5)
 (5) 감속기 작동온도 : -10~+90 °C, 감속기 주위온도 -10~40 °C
 Operating temperature : Surface temperature of gear case in -10 °C~40 °C of ambient temperature.
 ※ 제품 성능 향상을 위해 사양은 별도의 고지 없이 변경될 수 있습니다.
 Specifications are subject to change without notice to improve product performances.

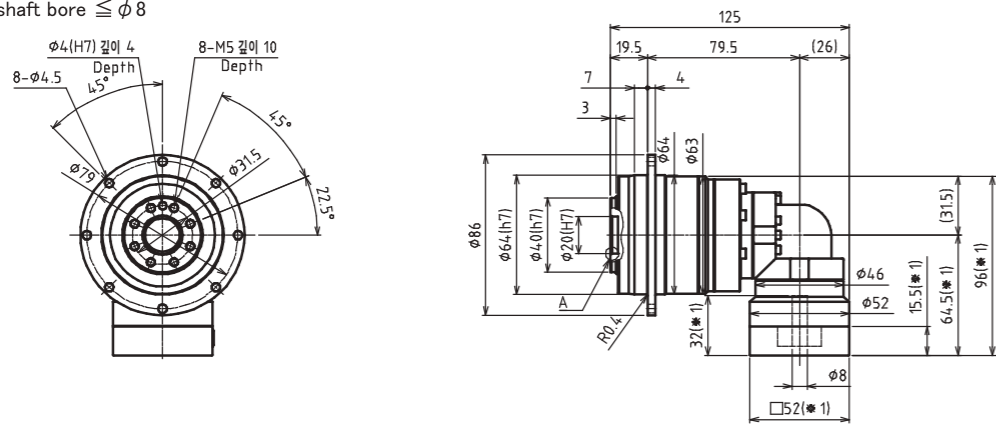
SMET 064 2단 2stage



- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

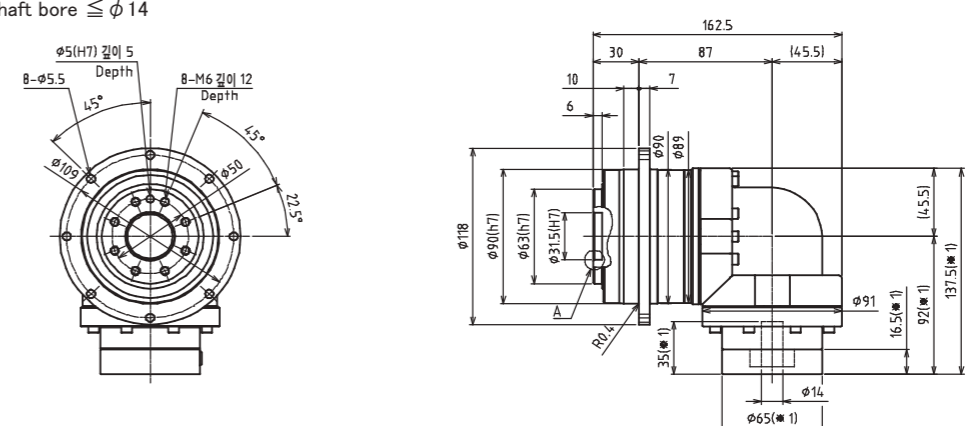
SMET 064 3단 3stage

입력축 내경 Input shaft bore $\leq \phi 8$

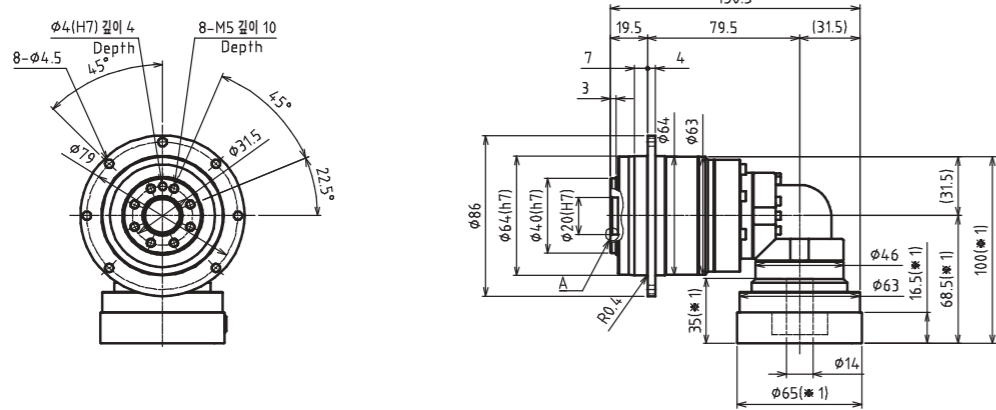


SMET 090 2단 2stage

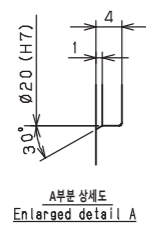
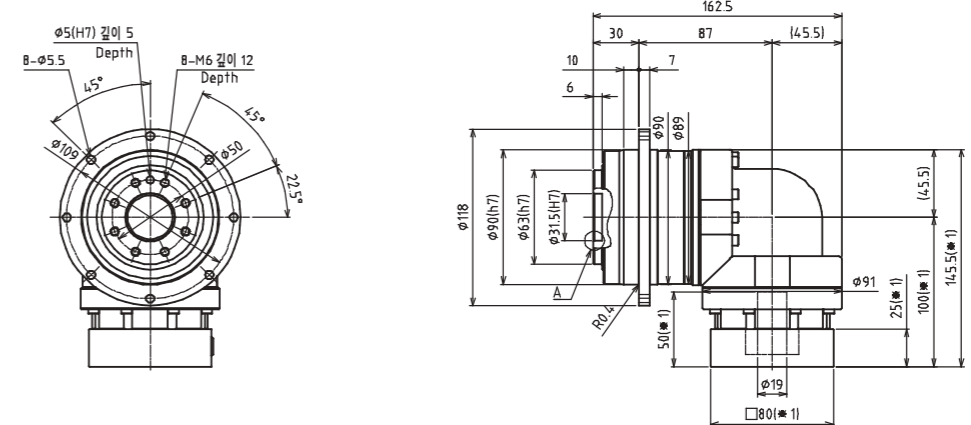
입력축 내경 Input shaft bore $\leq \phi 14$



입력축 내경 Input shaft bore $\leq \phi 14$

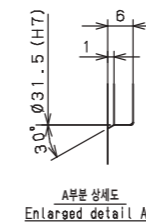
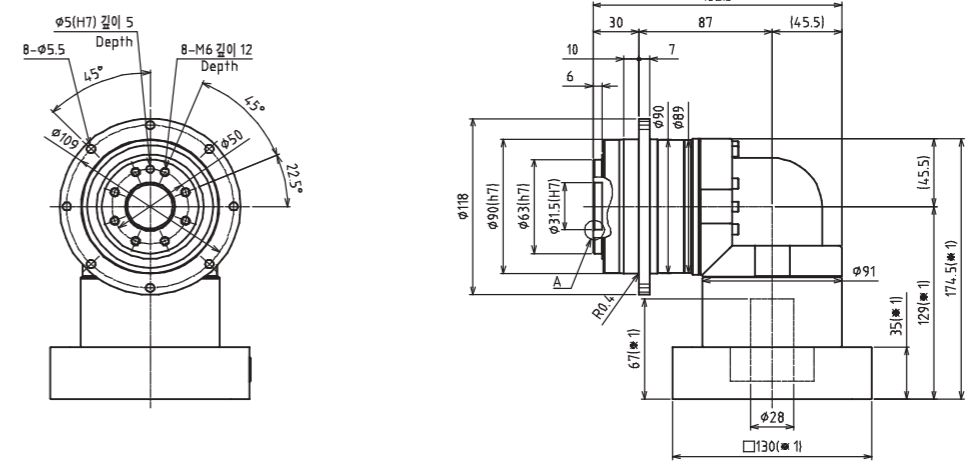


입력축 내경 Input shaft bore $\leq \phi 19$



- ※ 1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※ 1 Length will vary depending on motor.
- ※ 2 Bushing will be inserted to adapt to motor shaft.

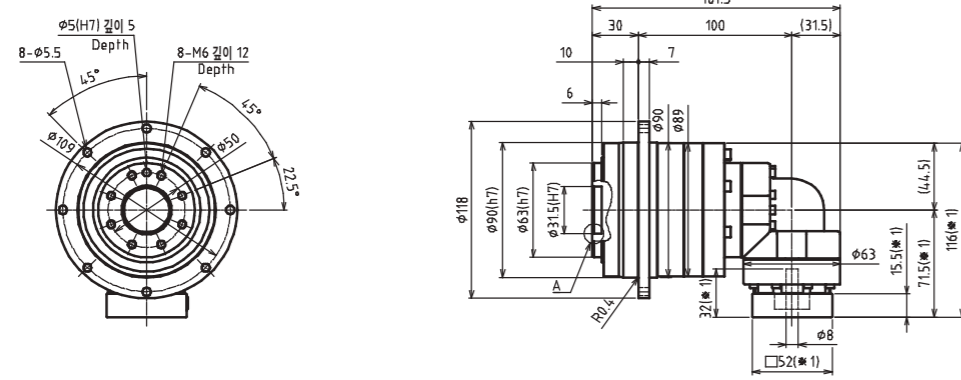
입력축 내경 Input shaft bore $\leq \phi 28$



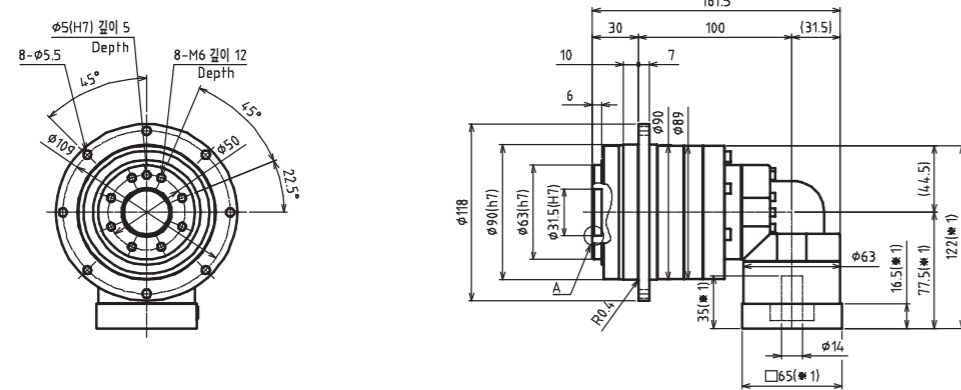
- ※ 1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※ 1 Length will vary depending on motor.
- ※ 2 Bushing will be inserted to adapt to motor shaft.

SMET 090 3단 3stage

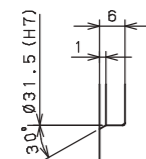
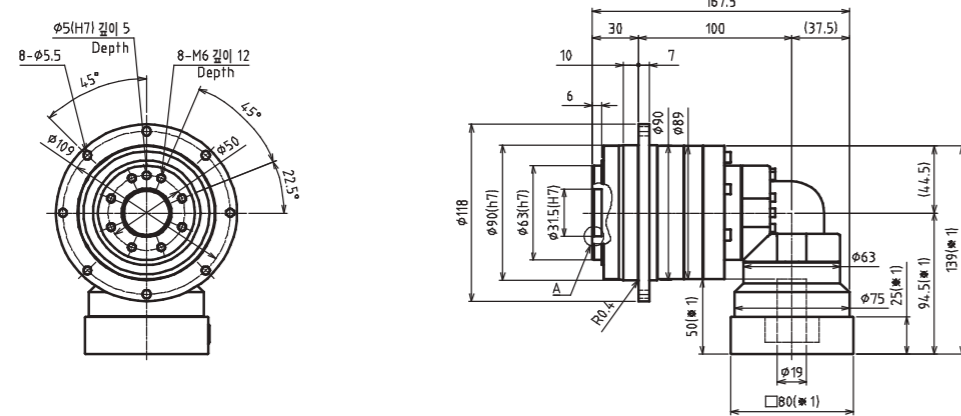
입력축 내경 Input shaft bore $\leq \phi 8$



입력축 내경 Input shaft bore $\leq \phi 14$



입력축 내경 Input shaft bore $\leq \phi 19$

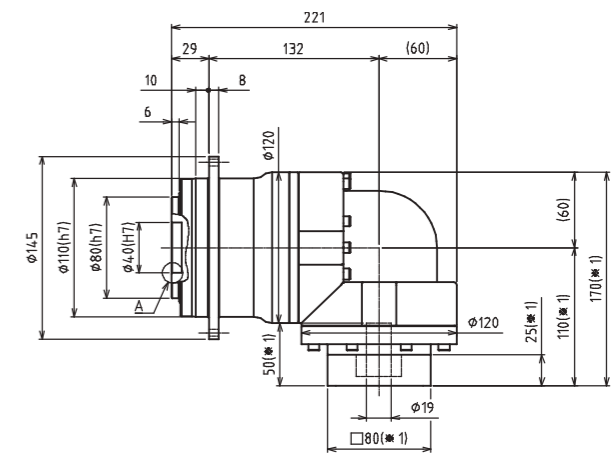
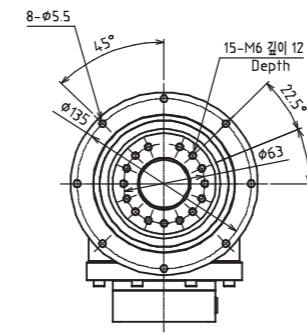


A부분 상세도
Enlarged detail A

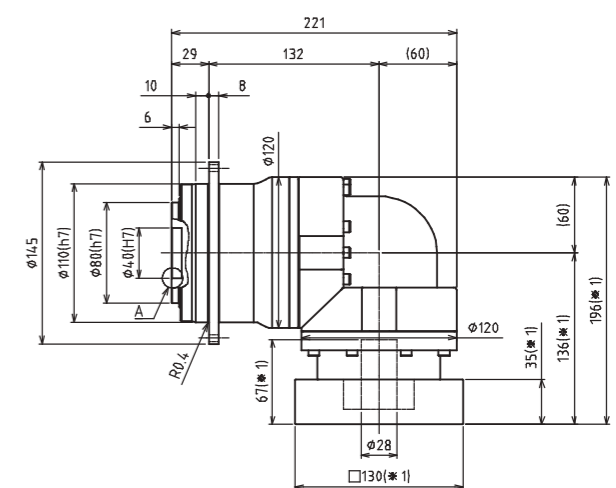
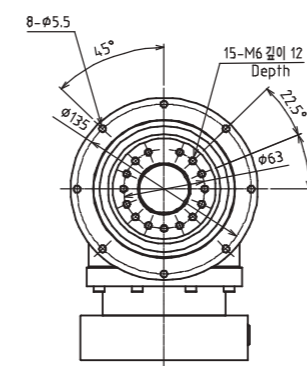
- ※ 1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※ 1 Length will vary depending on motor.
- ※ 2 Bushing will be inserted to adapt to motor shaft.

SMET 110 2단 2stage

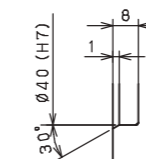
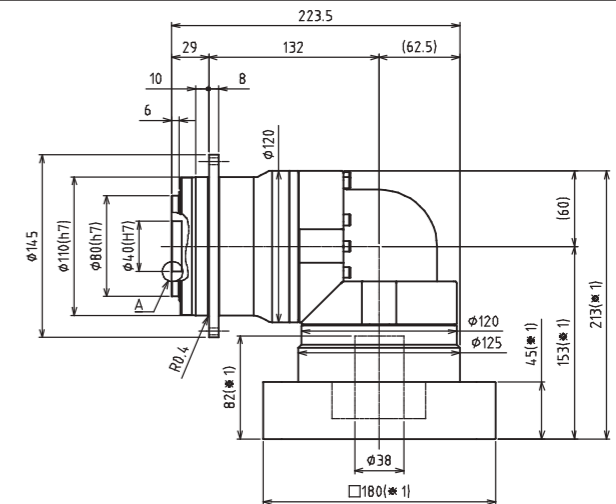
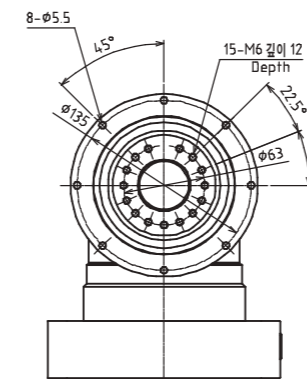
입력축 내경 Input shaft bore $\leq \phi 19$



입력축 내경 Input shaft bore $\leq \phi 28$



입력축 내경 Input shaft bore $\leq \phi 38$

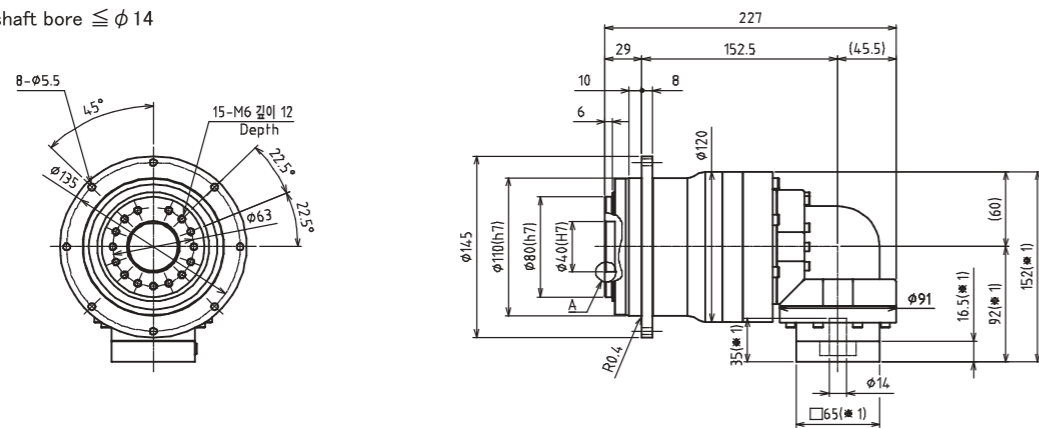


A부분 상세도
Enlarged detail A

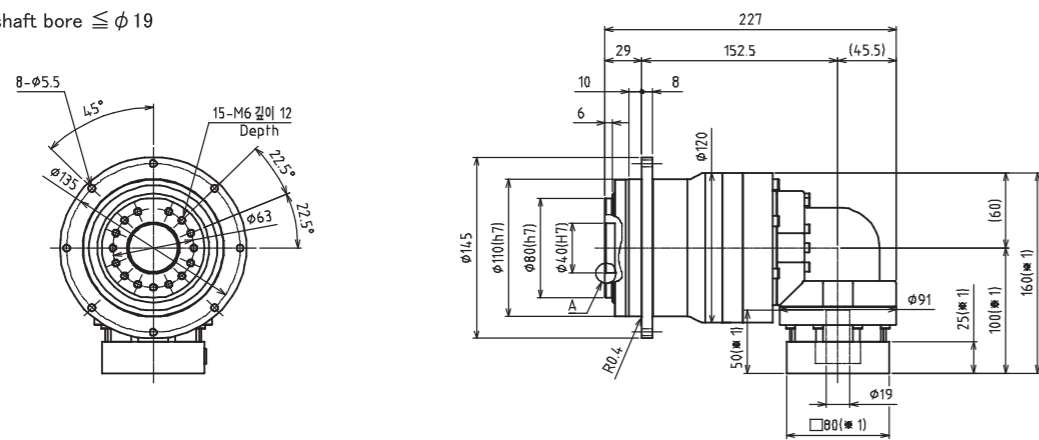
- ※ 1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※ 1 Length will vary depending on motor.
- ※ 2 Bushing will be inserted to adapt to motor shaft.

SMET 110 3단 3stage

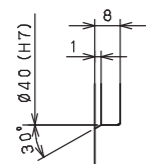
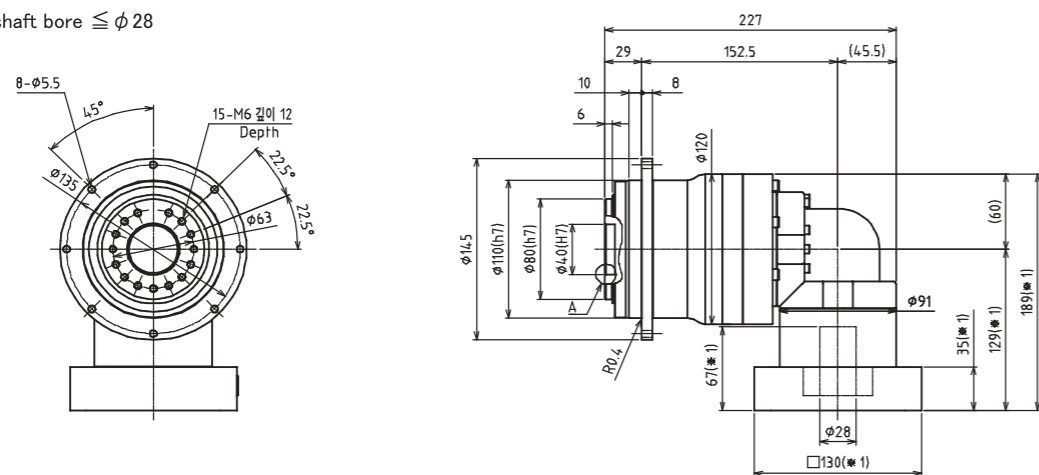
입력축 내경 Input shaft bore $\leq \phi 14$



입력축 내경 Input shaft bore $\leq \phi 19$



입력축 내경 Input shaft bore $\leq \phi 28$

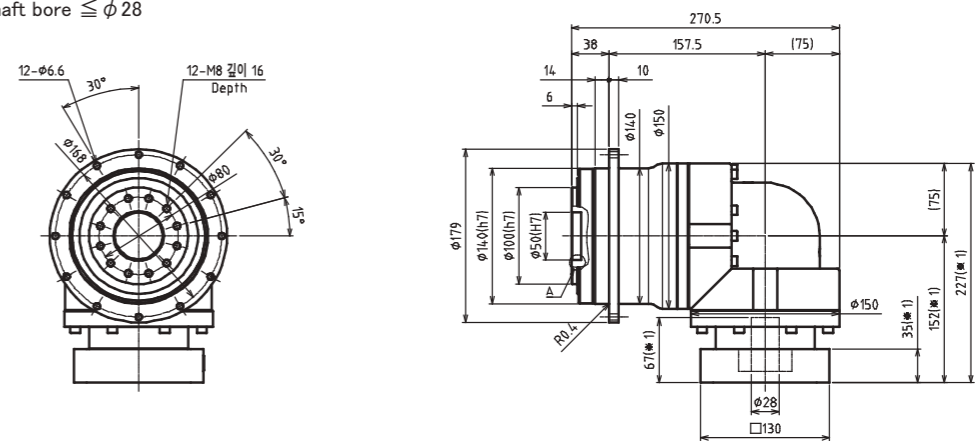


A부분 상세도
Enlarged detail A

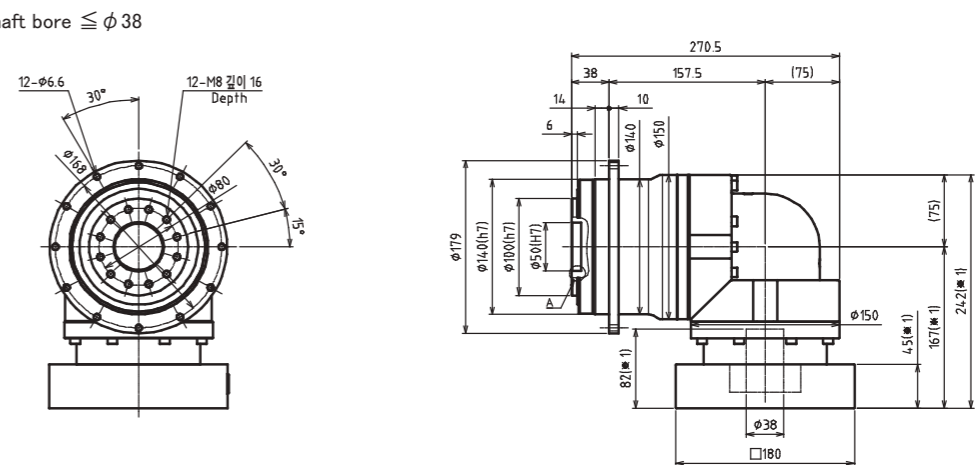
- ※ 1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※ 1 Length will vary depending on motor.
- ※ 2 Bushing will be inserted to adapt to motor shaft.

SMET 140 2단 2stage

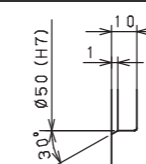
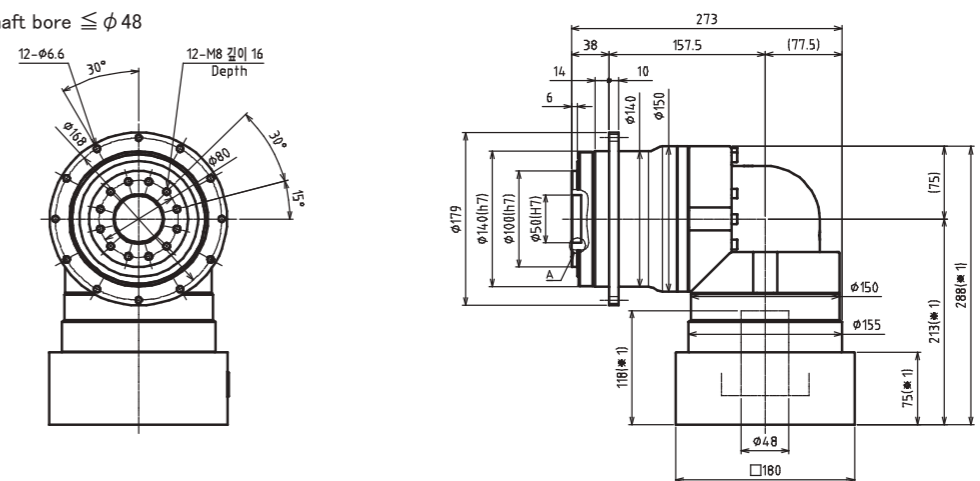
입력축 내경 Input shaft bore $\leq \phi 28$



입력축 내경 Input shaft bore $\leq \phi 38$



입력축 내경 Input shaft bore $\leq \phi 48$

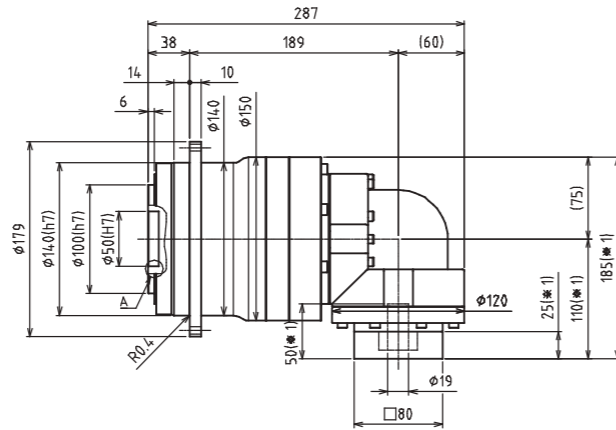
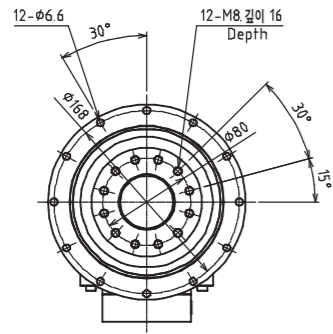


A부분 상세도
Enlarged detail A

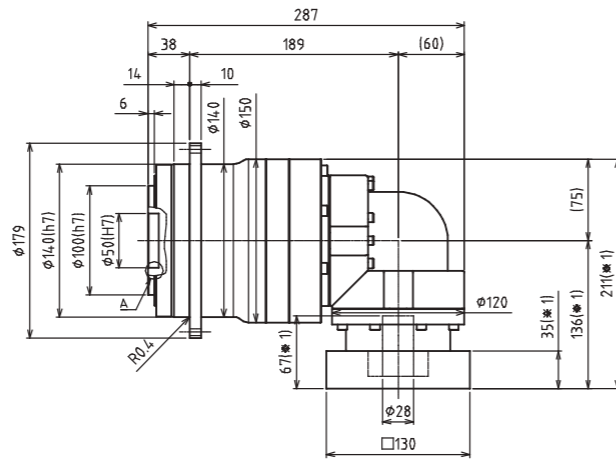
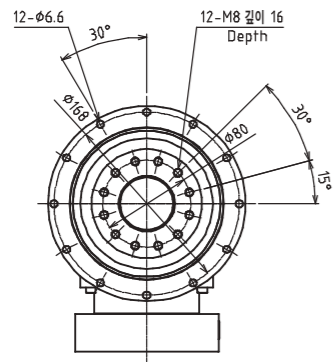
- ※ 1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※ 1 Length will vary depending on motor.
- ※ 2 Bushing will be inserted to adapt to motor shaft.

SMET 140 3단 3stage

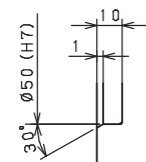
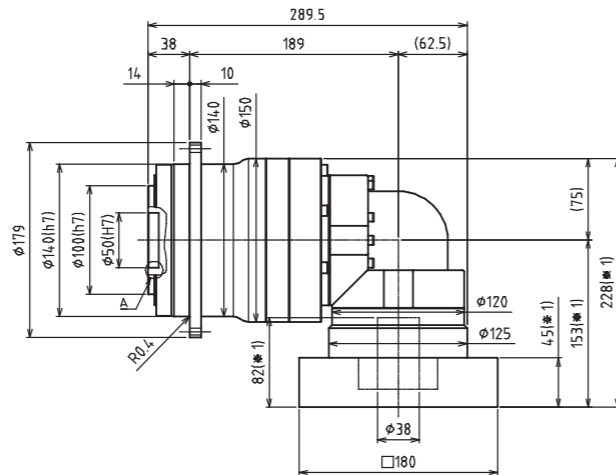
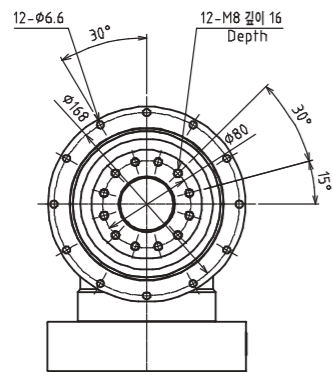
입력축 내경 Input shaft bore $\leq \phi 19$



입력축 내경 Input shaft bore $\leq \phi 28$



입력축 내경 Input shaft bore $\leq \phi 38$

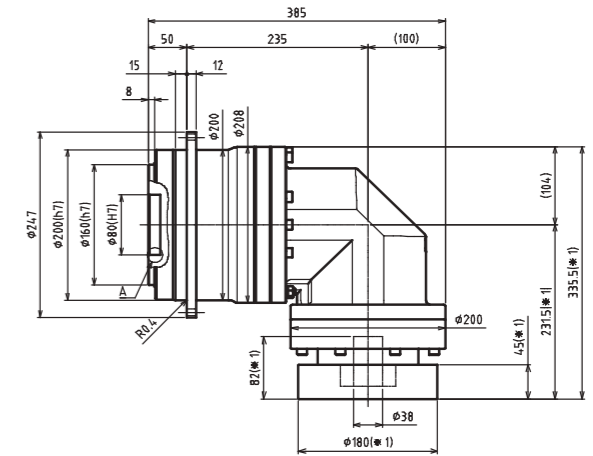
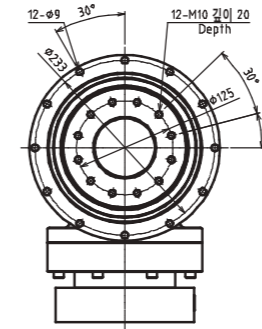


A부분 상세도
Enlarged detail A

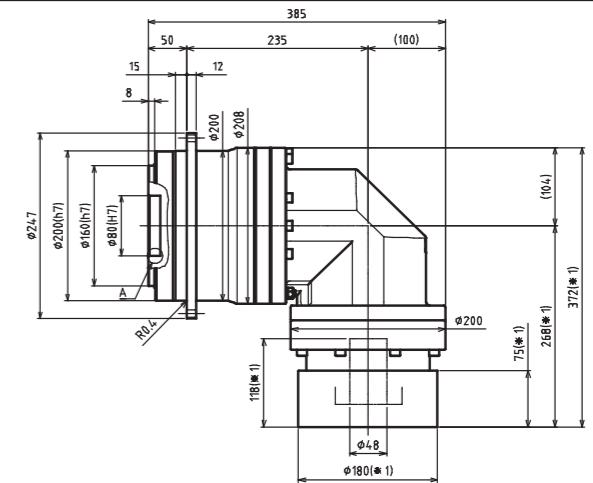
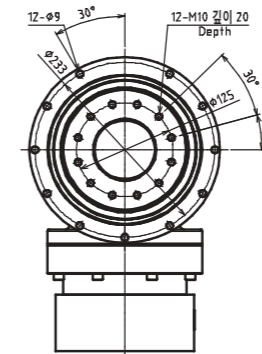
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMET 200 2단 2stage

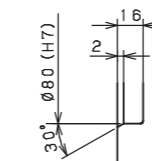
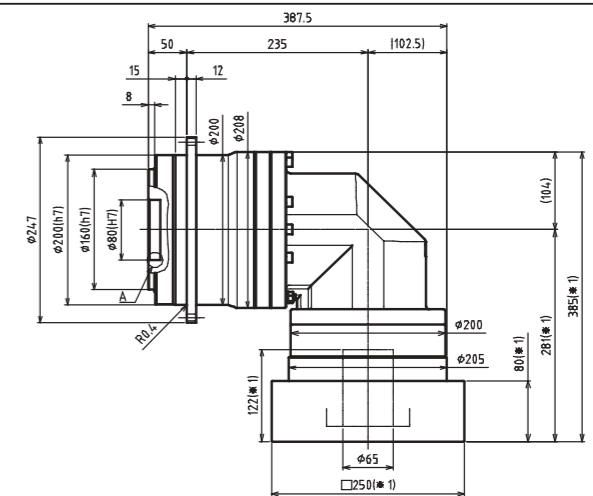
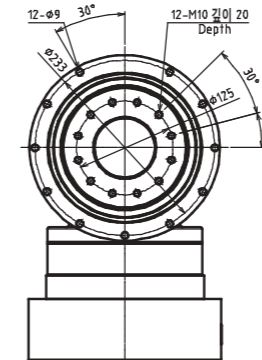
입력축 내경 Input shaft bore $\leq \phi 38$



입력축 내경 Input shaft bore $\leq \phi 48$



입력축 내경 Input shaft bore $\leq \phi 65$

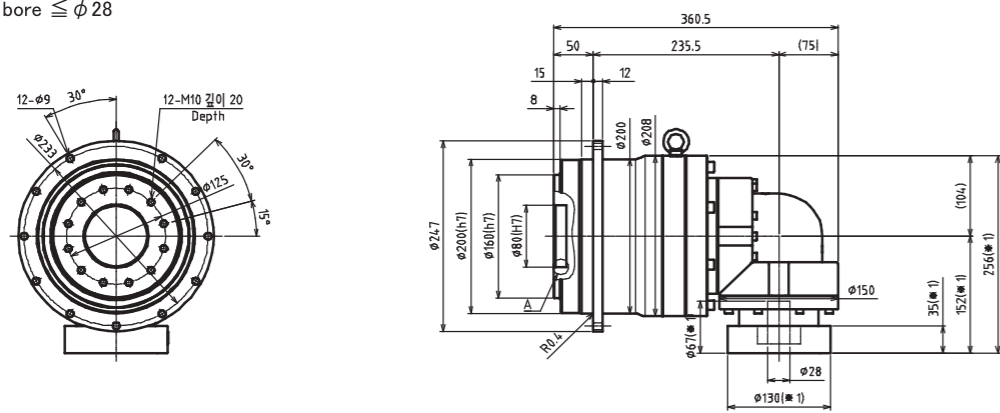


A부분 상세도
Enlarged detail A

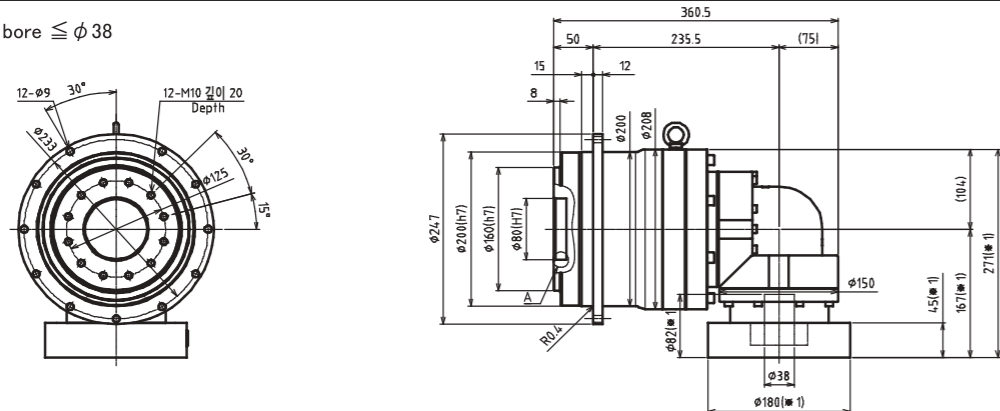
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMET 200 3단 3stage

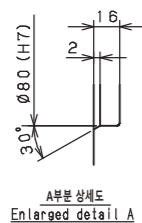
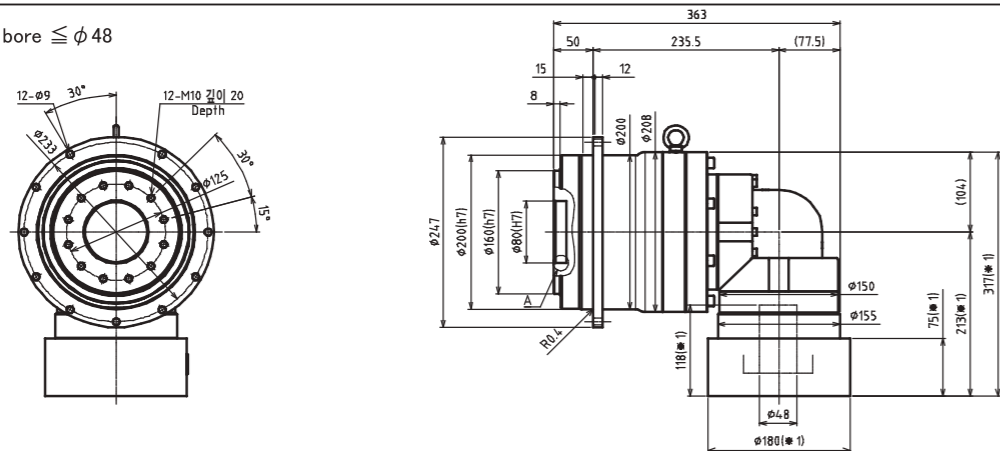
입력축 내경 Input shaft bore $\leq \phi 28$



입력축 내경 Input shaft bore $\leq \phi 38$



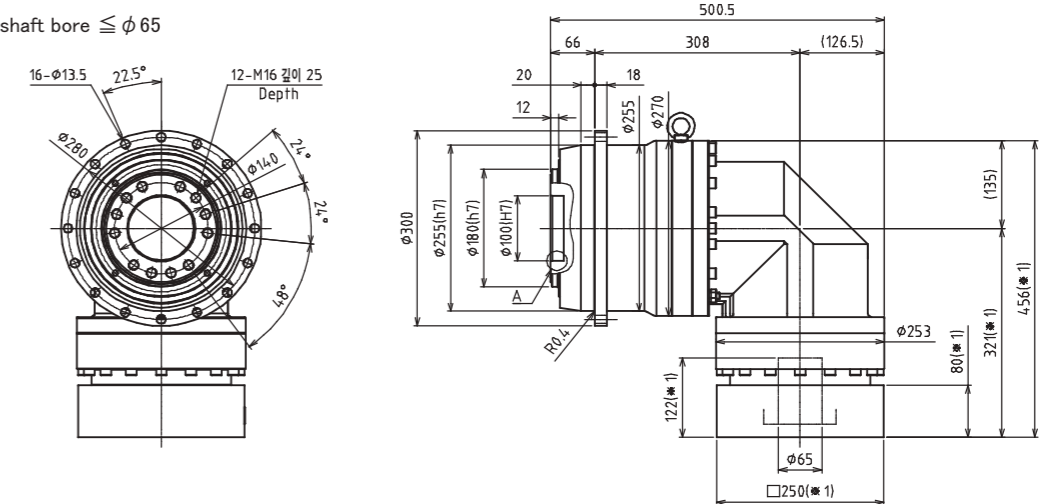
입력축 내경 Input shaft bore $\leq \phi 48$



- ※ 1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※ 1 Length will vary depending on motor.
- ※ 2 Bushing will be inserted to adapt to motor shaft.

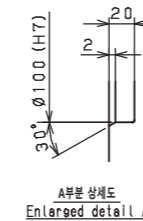
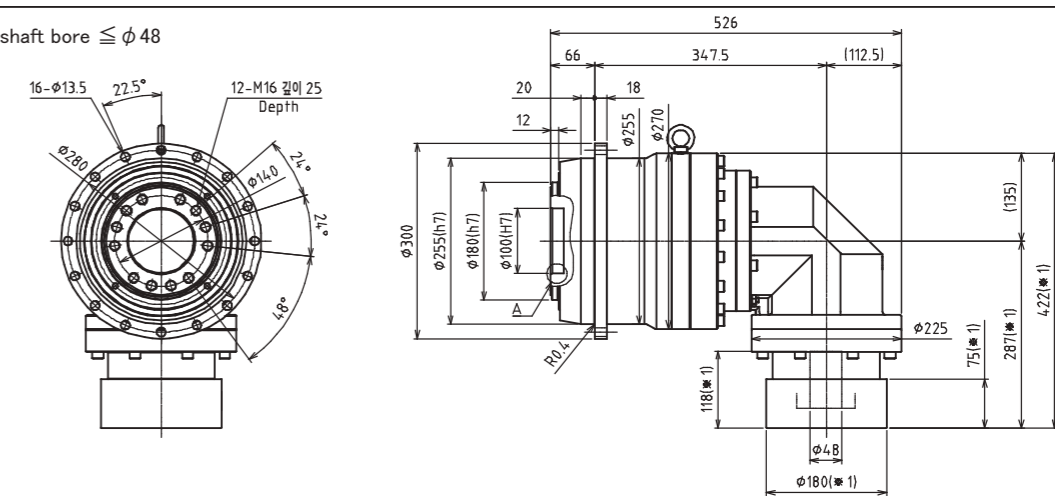
SMET 255 2단 2stage

입력축 내경 Input shaft bore $\leq \phi 65$



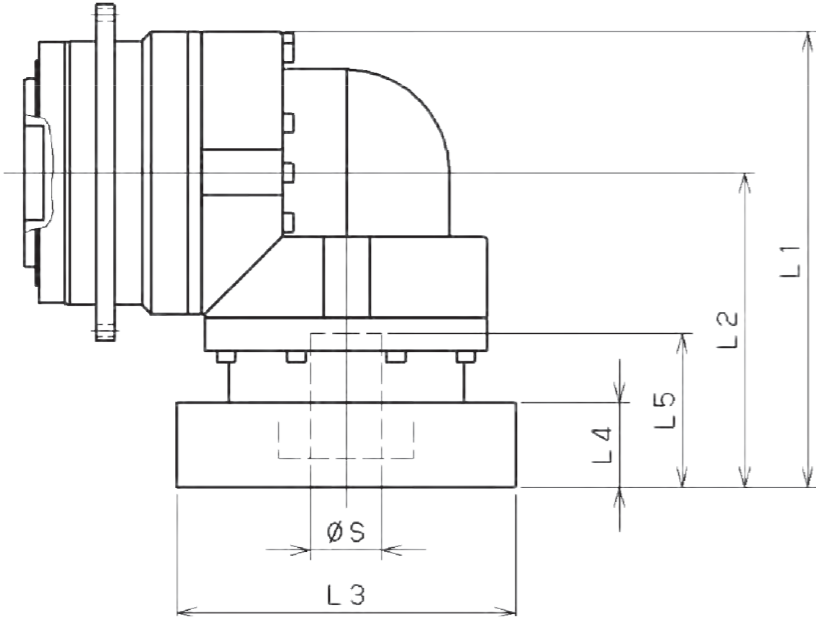
SMET 255 3단 3stage

입력축 내경 Input shaft bore $\leq \phi 48$



- ※ 1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※ 1 Length will vary depending on motor.
- ※ 2 Bushing will be inserted to adapt to motor shaft.

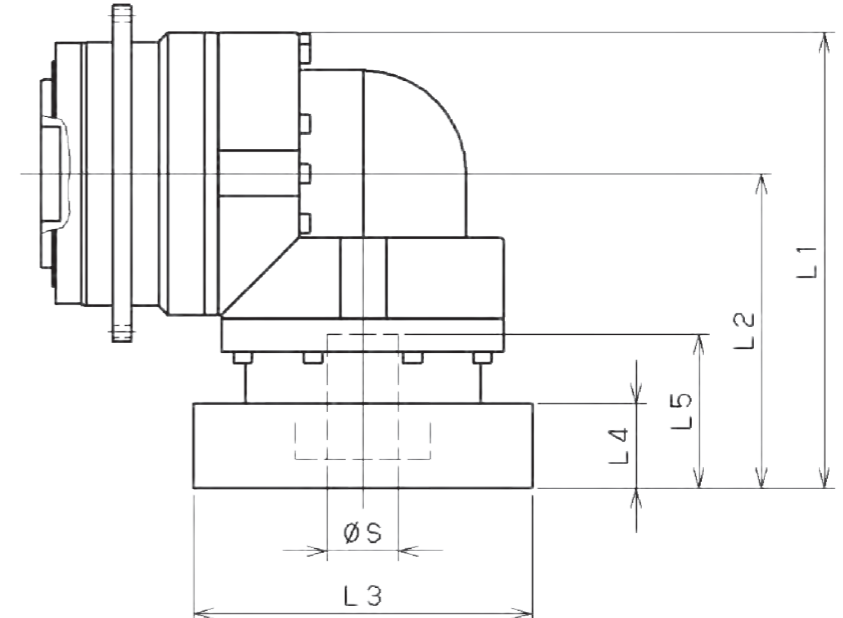
SMET 064



모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	2단 2stage					3단 3stage				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMET064□□□-8** (S≤8)	AA·AC·AD·AF·AG	103	71.5	□52	15.5	32	94.5	64.5	□52	15.5	32
	AB·AE·AH·AJ·AK	108	76.5	□52	20.5	37	99.5	69.5	□52	20.5	37
	BA·BB·BD·BE	103	71.5	□60	15.5	32	94.5	64.5	□60	15.5	32
	BC·BF	108	76.5	□60	20.5	37	99.5	69.5	□60	20.5	37
	CA	108	76.5	□70	20.5	37	99.5	69.5	□70	20.5	37
SMET064□□□-14** (8<S≤14)	BA·BB·BD·BE·BF·BG·BJ·BK	109	77.5	□65	16.5	35	98.5	68.5	□65	16.5	35
	BC·BH	114	82.5	□65	21.5	40	103.5	73.5	□65	21.5	40
	BL	119	87.5	□65	26.5	45	108.5	78.5	□65	26.5	45
	CA	109	77.5	□70	16.5	35	98.5	68.5	□70	16.5	35
	CB	114	82.5	□70	21.5	40	103.5	73.5	□70	21.5	40
	DA·DB·DC·DD·DF·DH	109	77.5	□80	16.5	35	98.5	68.5	□80	16.5	35
	DE	114	82.5	□80	21.5	40	103.5	73.5	□80	21.5	40
	DG	119	87.5	□80	26.5	45	108.5	78.5	□80	26.5	45
	EA·EB·EC	109	77.5	□90	16.5	35	98.5	68.5	□90	16.5	35
	ED	119	87.5	□90	26.5	45	108.5	78.5	□90	26.5	45
	FA	109	77.5	□100	16.5	35	98.5	68.5	□100	16.5	35
GA	109	77.5	□115	16.5	35	98.5	68.5	□115	16.5	35	
SMET064□□□-19** (14<S≤19)	DA·DB·DC	126	94.5	□80	25	50					
	DD	136	104.5	□80	35	60					
	DE	131	99.5	□80	30	55					
	EA	131	99.5	□90	30	55					
	EB	126	94.5	□90	25	50					
	EC	136	104.5	□90	35	60					
	FA	126	94.5	□100	25	50					
	FB	136	104.5	□100	35	60					
	GA·GC	131	99.5	□115	30	55					
	GB·GD	126	94.5	□115	25	50					
	HA	126	94.5	□130	25	50					
	HB	141	109.5	□130	40	65					
	HC·HD·HE	131	99.5	□130	30	55					

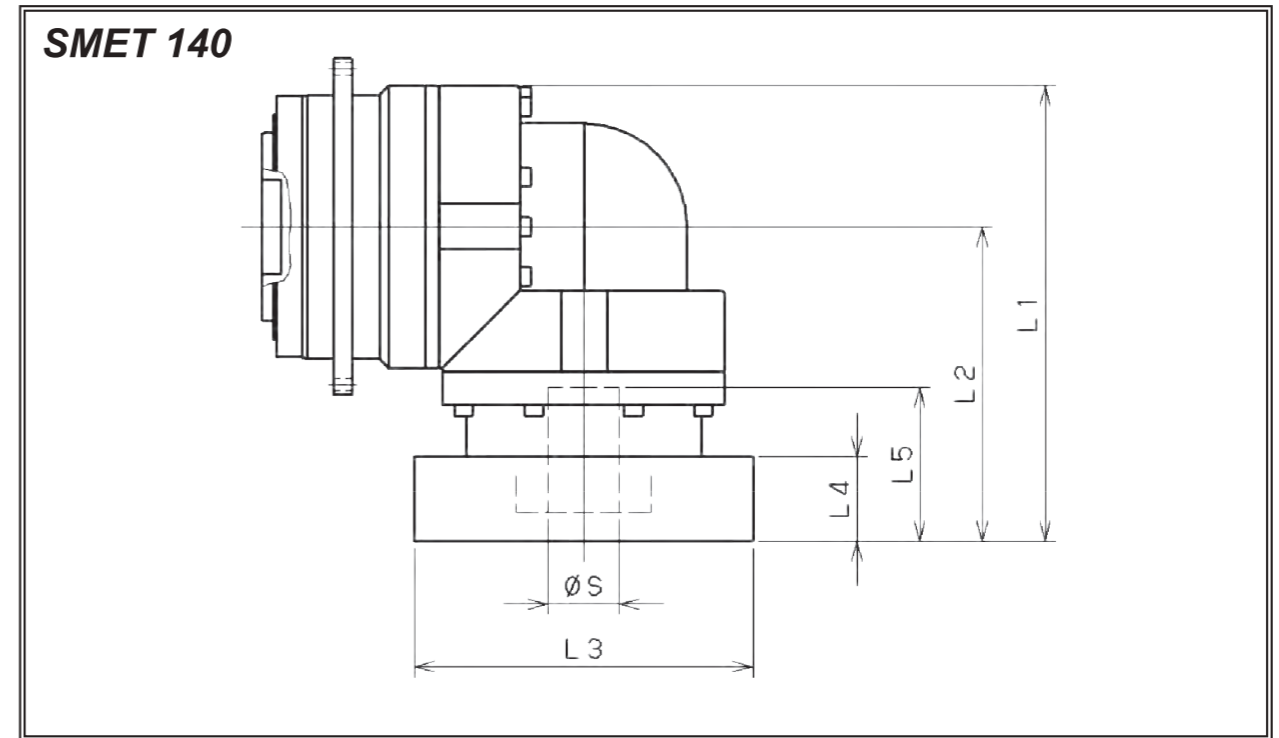
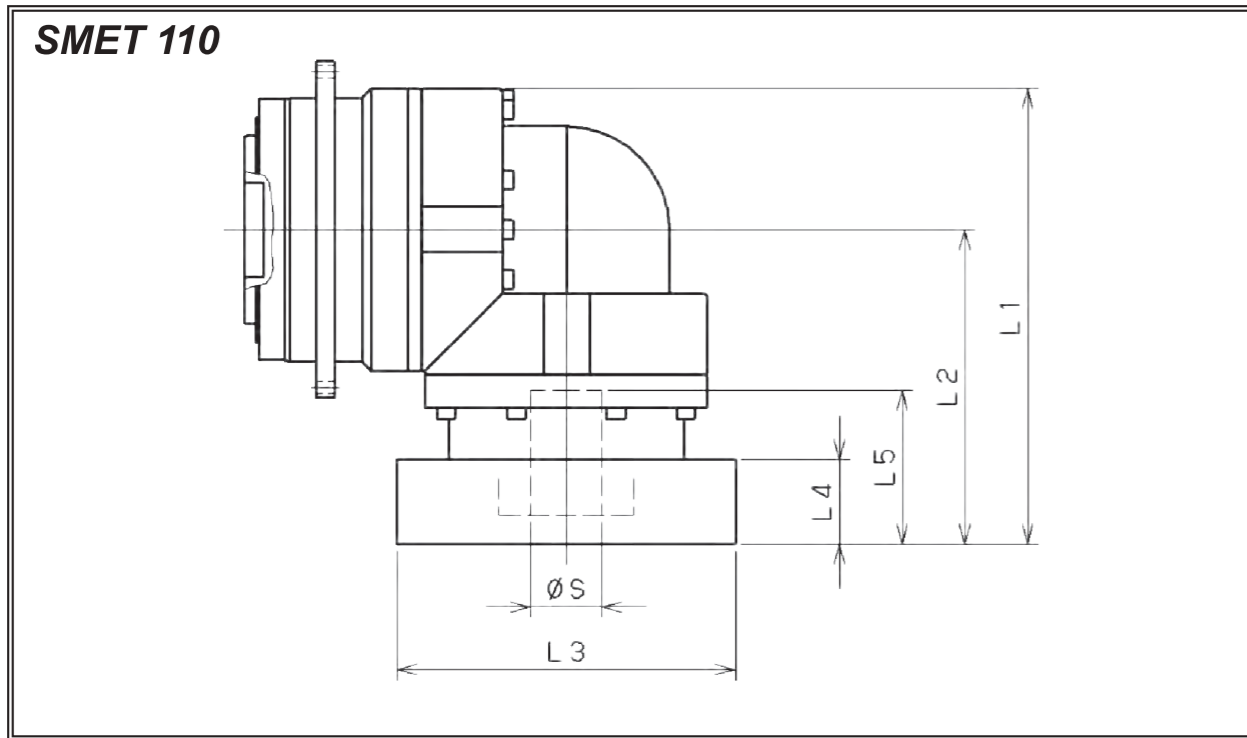
※1 2단 감속비: 1/4~1/10 ; 3단 감속비: 1/16~1/100 ※1 2stage reduction : 1/4~1/10, 3stage reduction : 1/16~1/100
 ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※2 Bushing will be inserted to adapt to motor shaft.

SMET 090



모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	2단 2stage					3단 3stage				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMET090□□□-8** (S≤8)	AA·AC·AD·AF·AG	/	/	/	/	/	116	71.5	□52	15.5	32
	AB·AE·AH·AJ·AK	/	/	/	/	/	121	76.5	□52	20.5	37
	BA·BB·BD·BE	/	/	/	/	/	116	71.5	□60	15.5	32
	BC·BF	/	/	/	/	/	121	76.5	□60	20.5	37
	CA	/	/	/	/	/	121	76.5	□70	20.5	37
SMET090□□□-14** (8<S≤14)	BA·BB·BD·BE·BF·BG·BJ·BK	137.5	92	□65	16.5	35	122	77.5	□65	16.5	35
	BC·BH	142.5	97	□65	21.5	40	127	82.5	□65	21.5	40
	BL	147.5	102	□65	26.5	45	132	87.5	□65	26.5	45
	CA	137.5	92	□70	16.5	35	122	77.5	□70	16.5	35
	CB	142.5	97	□70	21.5	40	127	82.5	□70	21.5	40
	DA·DB·DC·DD·DF·DH	137.5	92	□80	16.5	35	122	77.5	□80	16.5	35
	DE	142.5	97	□80	21.5	40	127	82.5	□80	21.5	40
	DG	147.5	102	□80	26.5	45	132	87.5	□80	26.5	45
	EA·EB·EC	137.5	92	□90	16.5	35	122	77.5	□90	16.5	35
	ED	147.5	102	□90	26.5	45	132	87.5	□90	26.5	45
	FA	137.5	92	□100	16.5	35	122	77.5	□100	16.5	35
GA	137.5	92	□115	16.5	35	122	77.5	□115	16.5	35	
SMET090□□□-19** (14<S≤19)	DA·DB·DC	145.5	100	□80	25	50	139	94.5	□80	25	50
	DD	155.5	110	□80	35	60	149	104.5	□80	35	60
	DE	150.5	105	□80	30	55	144	99.5	□80	30	55
	EA	150.5	105	□90	30	55	144	99.5	□90	30	55
	EB	145.5	100	□90	25	50	139	94.5	□90	25	50
	EC	155.5	110	□90	35	60	149	104.5	□90	35	60
	FA	145.5	100	□100	25	50	139	94.5	□100	25	50
	FB	155.5	110	□100	35	60	149	104.5	□100	35	60
	GA·GC	150.5	105	□115	30	55	144	99.5	□115	30	55
	GB·GD	145.5	100	□115	25	50	139	94.5	□115	25	50
	HA	145.5	100	□130	25	50	139	94.5	□130	25	50
	HB	160.5	115	□130	40	65	154	109.5	□130	40	65
	HC·HD·HE	150.5	105	□130	30	55	144	99.5	□130	30	55
SMET090□□□-28** (19<S≤28)	FA·FB·FC	174.5	129	□100	35	67					
	GA·GB·GC·GD·GE·GF·GG	174.5	129	□115	35	67					
	HA·HC·HD	174.5	129	□130	35	67					
	HB	184.5	139	□130	45	77					
	JA·JB·JC	174.5	129	□150	35	67					
	KA·KB	174.5	129	□180	35	67					
	LA	174.5	129	□200	35	67					
MA	174.5	129	□220	35	67						

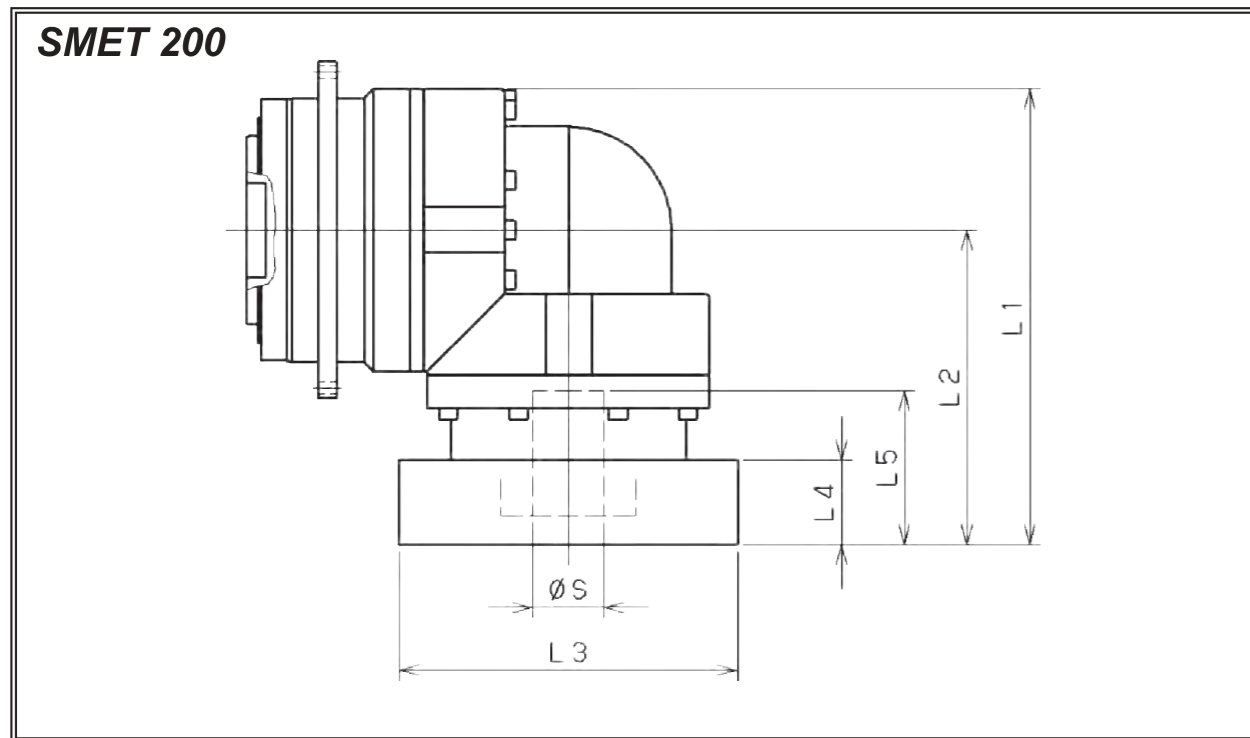
※1 2단 감속비: 1/4~1/10 ; 3단 감속비: 1/16~1/100 ※1 2stage reduction : 1/4~1/10, 3stage reduction : 1/16~1/100
 ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※2 Bushing will be inserted to adapt to motor shaft.



모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	2단 2stage					3단 3stage				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMET110□□□-14** (S ≤ 14)	BA·BB·BD·BE·BF·BG·BJ·BK	/	/	/	/	/	152	92	□65	16.5	35
	BC·BH	/	/	/	/	/	157	97	□65	21.5	40
	BL	/	/	/	/	/	162	102	□65	26.5	45
	CA	/	/	/	/	/	152	92	□70	16.5	35
	CB	/	/	/	/	/	157	97	□70	21.5	40
	DA·DB·DC·DD·DF·DH	/	/	/	/	/	152	92	□80	16.5	35
	DE	/	/	/	/	/	157	97	□80	21.5	40
	DG	/	/	/	/	/	162	102	□80	26.5	45
	EA·EB·EC	/	/	/	/	/	152	92	□90	16.5	35
	ED	/	/	/	/	/	162	102	□90	26.5	45
SMET110□□□-19** (14 < S ≤ 19)	DA·DB·DC	170	110	□80	25	50	160	100	□80	25	50
	DD	180	120	□80	35	60	170	110	□80	35	60
	DE	175	115	□80	30	55	165	105	□80	30	55
	EA	175	115	□90	30	55	165	105	□90	30	55
	EB	170	110	□90	25	50	160	100	□90	25	50
	EC	180	120	□90	35	60	170	110	□90	35	60
	FA	170	110	□100	25	50	160	100	□100	25	50
	FB	180	120	□100	35	60	170	110	□100	35	60
	GA·GC	175	115	□115	30	55	165	105	□115	30	55
	GB·GD	170	110	□115	25	50	160	100	□115	25	50
SMET110□□□-28** (19 < S ≤ 28)	HA	170	110	□130	25	50	160	100	□130	25	50
	HB	185	125	□130	40	65	175	115	□130	40	65
	HC·HD·HE	175	115	□130	30	55	165	105	□130	30	55
	FA·FB·FC	196	136	□100	35	67	189	129	□100	35	67
	GA·GB·GC·GD·GE·GF·GG	196	136	□115	35	67	189	129	□115	35	67
	HA·HC·HD	196	136	□130	35	67	189	129	□130	35	67
SMET110□□□-38** (28 < S ≤ 38)	HB	206	146	□130	45	77	199	139	□130	45	77
	JA·JB·JC	196	136	□150	35	67	189	129	□150	35	67
	KA·KB	196	136	□180	35	67	189	129	□180	35	67
	LA	196	136	□200	35	67	189	129	□200	35	67
	MA	196	136	□220	35	67	189	129	□220	35	67
	HA	213	153	□130	45	82	/	/	/	/	/
SMET110□□□-48** (38 < S ≤ 48)	HB	208	148	□130	40	77	/	/	/	/	/
	JA	213	153	□150	45	82	/	/	/	/	/
	KA·KB·KC	213	153	□180	45	82	/	/	/	/	/
	LA	213	153	□200	45	82	/	/	/	/	/
	LB	223	163	□200	55	92	/	/	/	/	/
	MA·MB	213	153	□220	45	82	/	/	/	/	/
	NA	213	153	□250	45	82	/	/	/	/	/
	PA	213	153	□250	45	82	/	/	/	/	/

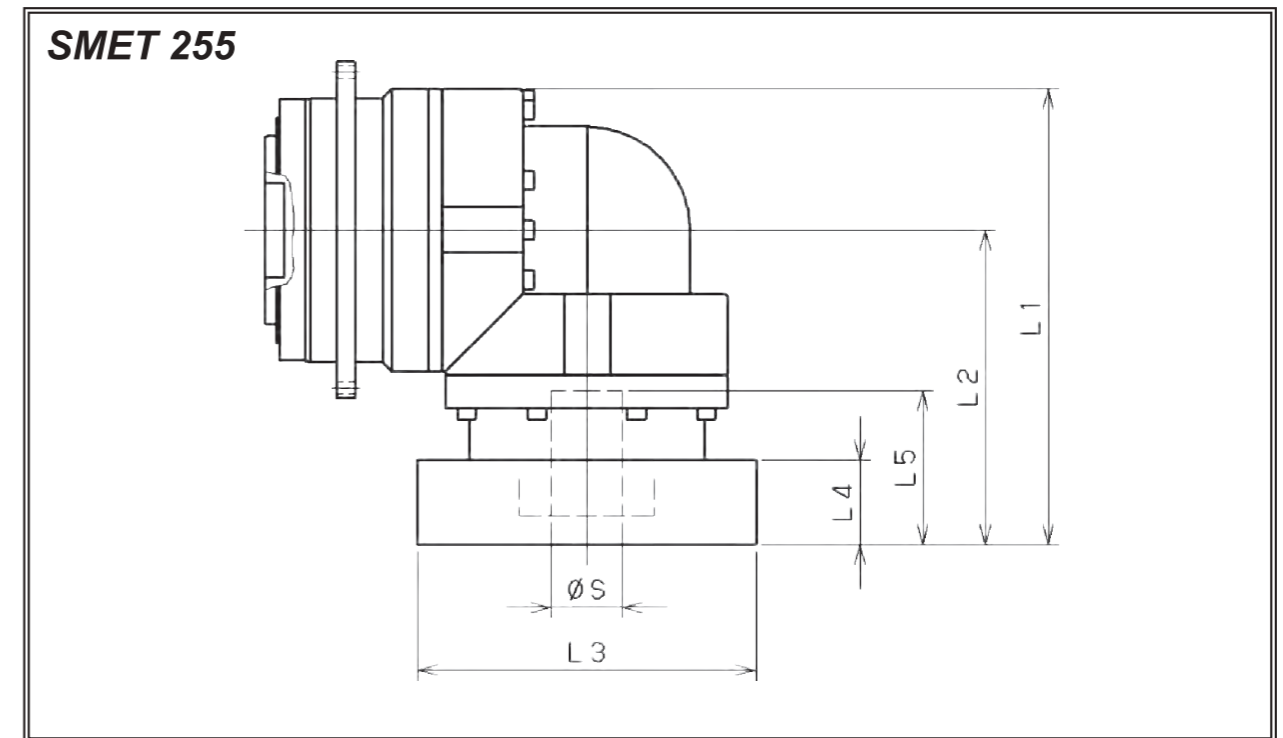
모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	2단 2stage					3단 3stage				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMET140□□□-19** (S ≤ 19)	DA·DB·DC	/	/	/	/	/	185	110	□80	25	50
	DD	/	/	/	/	/	195	120	□80	35	60
	DE	/	/	/	/	/	190	115	□80	30	55
	EA	/	/	/	/	/	190	115	□90	30	55
	EB	/	/	/	/	/	185	110	□90	25	50
	EC	/	/	/	/	/	195	120	□90	35	60
	FA	/	/	/	/	/	185	110	□100	25	50
	FB	/	/	/	/	/	195	120	□100	35	60
	GA·GC	/	/	/	/	/	190	115	□115	30	55
	GB·GD	/	/	/	/	/	185	110	□115	25	50
	HA	/	/	/	/	/	185	110	□130	25	50
	HB	/	/	/	/	/	200	125	□130	40	65
	HC·HD·HE	/	/	/	/	/	190	115	□130	30	55
	SMET140□□□-28** (19 < S ≤ 28)	FA·FB·FC	227	152	□100	35	67	211	136	□100	35
GA·GB·GC·GD·GE·GF·GG		227	152	□115	35	67	211	136	□115	35	67
HA·HC·HD		227	152	□130	35	67	211	136	□130	35	67
HB		237	162	□130	45	77	221	146	□130	45	77
JA·JB·JC		227	152	□150	35	67	211	136	□150	35	67
KA·KB		227	152	□180	35	67	211	136	□180	35	67
LA		227	152	□200	35	67	211	136	□200	35	67
SMET140□□□-38** (28 < S ≤ 38)	MA	227	152	□220	35	67	211	136	□220	35	67
	HA	242	167	□130	45	82	228	153	□130	45	82
	HB	237	162	□130	40	77	223	148	□130	40	77
	JA	242	167	□150	45	82	228	153	□150	45	82
	KA·KB·KC	242	167	□180	45	82	228	153	□180	45	82
	LA	242	167	□200	45	82	228	153	□200	45	82
	LB	252	177	□200	55	92	238	163	□200	55	92
SMET140□□□-48** (38 < S ≤ 48)	MA·MB	242	167	□220	45	82	228	153	□220	45	82
	NA	242	167	□250	45	82	228	153	□250	45	82
	KB·KC	268	193	□180	55	98	/	/	/	/	/
	KA	268	193	□180	75	118	/	/	/	/	/
	LA	268	193	□200	55	98	/	/	/	/	/
	MA	268	193	□220	55	98	/	/	/	/	/
	MB	268	193	□220	75	118	/	/	/	/	/
NA	268	193	□250	75	118	/	/	/	/	/	
PA	268	193	□280	75	118	/	/	/	/	/	

※1 2단 감속비: 1/4~1/10 ; 3단 감속비: 1/16~1/100 ※1 2stage reduction : 1/4~1/10, 3stage reduction : 1/16~1/100
 ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※2 Bushing will be inserted to adapt to motor shaft.



모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	2단 2stage					3단 3stage				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMET200□□□-28** (S ≤ 28)	FA·FB·FC	/	/	/	/	/	256	152	□100	35	67
	GA·GB·GC·GD·GE·GF·GG	/	/	/	/	/	256	152	□115	35	67
	HA·HC·HD	/	/	/	/	/	256	152	□130	35	67
	HB	/	/	/	/	/	266	162	□130	45	77
	JA·JB·JC	/	/	/	/	/	256	152	□150	35	67
	KA·KB	/	/	/	/	/	256	152	□180	35	67
	KD	/	/	/	/	/	266	162	□180	45	77
	LA	/	/	/	/	/	256	152	□200	35	67
	MA	/	/	/	/	/	256	152	□220	35	67
SMET200□□□-38** (28 < S ≤ 38)	HA	335.5	231.5	□130	45	82	271	167	□130	45	82
	HB	330.5	226.5	□130	40	77	266	162	□130	40	77
	JA	335.5	231.5	□150	45	82	271	167	□150	45	82
	KA·KB·KC	335.5	231.5	□180	45	82	271	167	□180	45	82
	LA	335.5	231.5	□200	45	82	271	167	□200	45	82
	LB	345.5	241.5	□200	55	92	281	177	□200	55	92
	MA·MB	335.5	231.5	□220	45	82	271	167	□220	45	82
NA	335.5	231.5	□250	45	82	271	167	□250	45	82	
SMET200□□□-48** (38 < S ≤ 48)	KB·KC	352	248	□180	55	98	297	193	□180	55	98
	KA	372	268	□180	75	118	317	213	□180	75	118
	LA	352	248	□200	55	98	297	193	□200	55	98
	MA	352	248	□220	55	98	297	193	□220	55	98
	MB	372	268	□220	75	118	317	213	□220	75	118
	NA	372	268	□250	75	118	317	213	□250	75	118
SMET200□□□-65** (48 < S ≤ 65)	PA	372	268	□280	75	118	317	213	□280	75	118
	MA·MB·MC·MD	385	281	□220	80	122	/	/	/	/	/
	NA	385	281	□250	80	122	/	/	/	/	/
	PA	405	301	□280	100	142	/	/	/	/	/
	PB	415	311	□280	110	152	/	/	/	/	/
QA	405	301	□320	100	142	/	/	/	/	/	

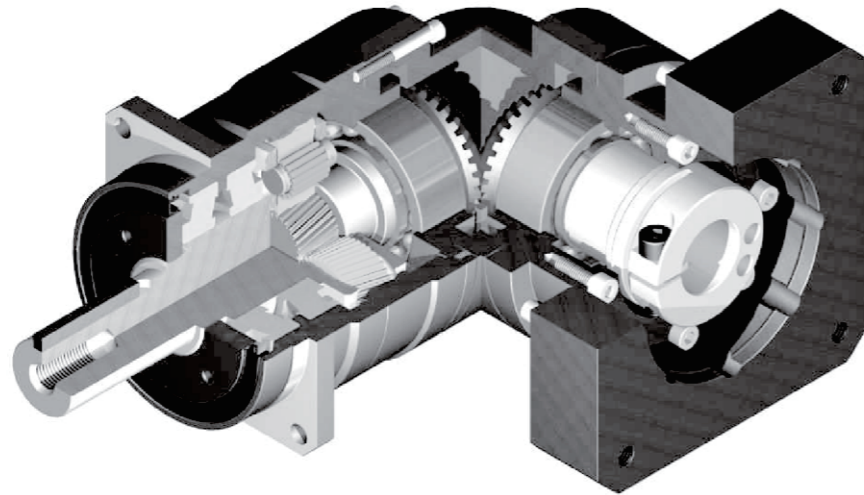
※1 2단 감속비: 1/4~1/10 ; 3단 감속비: 1/16~1/100 ※1 2stage reduction : 1/4~1/10, 3stage reduction : 1/16~1/100
 ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※2 Bushing will be inserted to adapt to motor shaft.



모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	2단 2stage					3단 3stage				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMET255□□□-48** (S ≤ 48)	KB·KC	/	/	/	/	/	402	267	□180	55	98
	KA	/	/	/	/	/	422	287	□180	75	118
	LA	/	/	/	/	/	402	267	□200	55	98
	MA	/	/	/	/	/	402	267	□220	55	98
	MB	/	/	/	/	/	422	287	□220	75	118
	NA	/	/	/	/	/	422	287	□250	75	118
SMET255□□□-65** (48 < S ≤ 65)	PA	/	/	/	/	/	422	287	□280	75	118
	MA·MB·MC·MD	456	321	□220	80	122	/	/	/	/	/
	NA	456	321	□250	80	122	/	/	/	/	/
	PA	476	341	□280	100	142	/	/	/	/	/
	PB	486	351	□280	110	152	/	/	/	/	/
QA	476	341	□320	100	142	/	/	/	/	/	

※1 2단 감속비: 1/4~1/10 ; 3단 감속비: 1/16~1/100 ※1 2stage reduction : 1/4~1/10, 3stage reduction : 1/16~1/100
 ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※2 Bushing will be inserted to adapt to motor shaft.

SMES series



공간 절약

스파이럴 베벨기어를 적용한 직교형 감속기로, 출력축과 모터를 수직으로 위치시켜 공간절약 가능.

Space - saving

Right angle reducer using spiral bevel gear
Customer can locate the motor at 90 degree away from the reducer if required to save space.

고강성 & 고토크

Uncaged 니들롤러베어링을 사용하여 강성과 토크 향상.

High rigidity & torque

High rigidity & high torque was achieved by uncaged needle roller bearings.

고하중

출력축에 테이퍼롤러 베어링을 적용하여 레이디얼 및 액시얼 하중 증가.

High load capacity

Adopting taper roller bearing for the main output shaft to increase radial and axial load.

어댑터-부싱 연결방식

다양한 모터에 취부 가능.

Adapter-bushing connection

Can be attached to any motor all over the world.

그리스 누유현상 없음

고점도 분리방지 그리스를 사용.

No grease leakage

Perfect solution by high viscosity anti-separation grease.

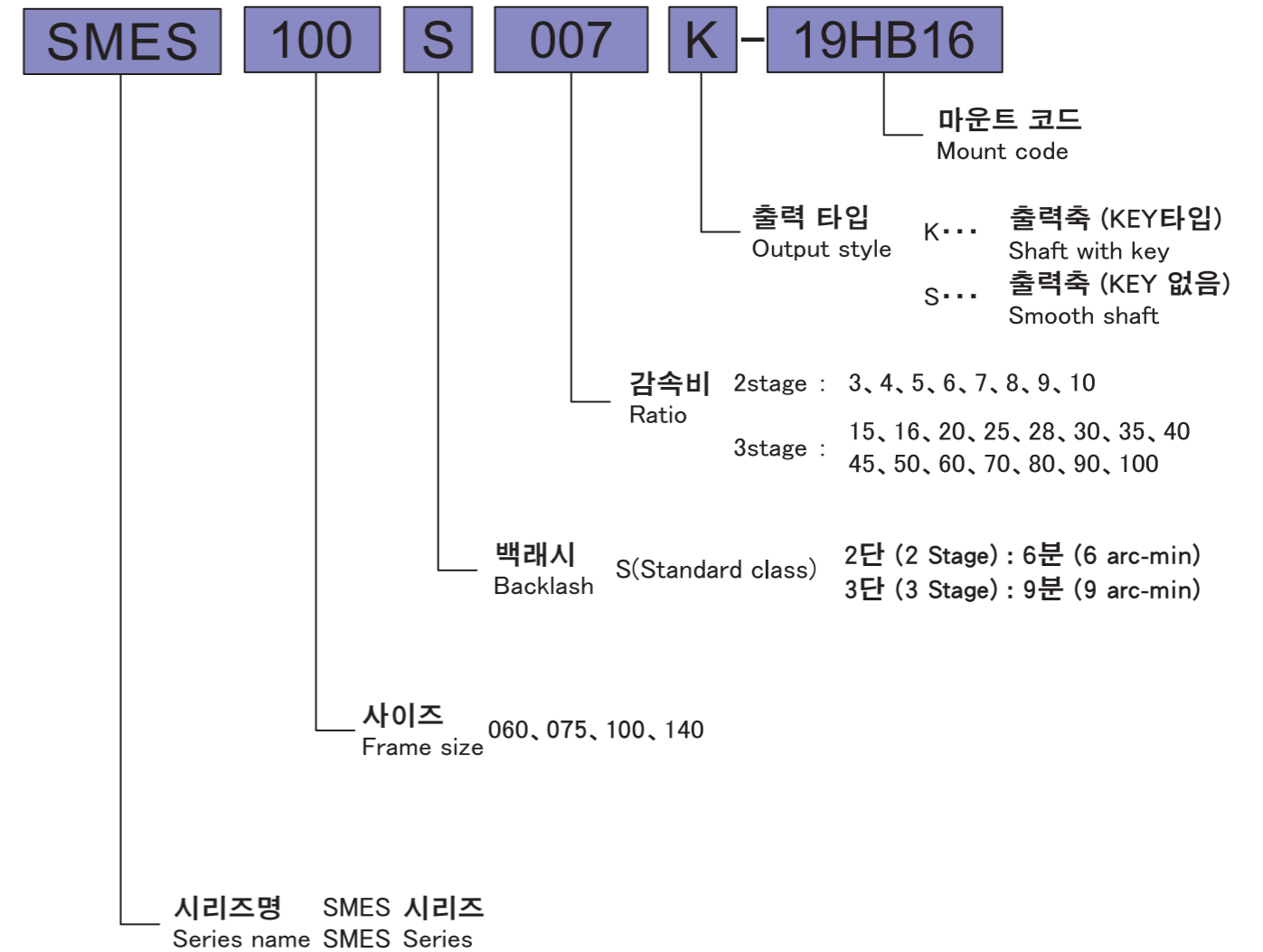
유지 보수 불필요

제품 수명 동안 그리스 교체 불필요 자유로운 설치 가능.

Maintenance-free

No need to replace the grease for the life time.
Can be attached in any position.

SMES series

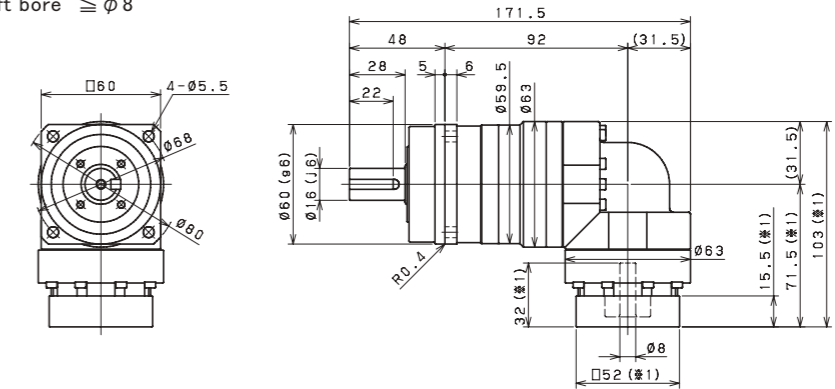


Model No.	Unit	Stage	Ratio ¹	SMES060	SMES075	SMES100	SMES140	
Rated Output Torque (Nominal Output torque)	T _{2N}	2	3	33	89	195	440	
			4	39	110	210	460	
			5	43	110	210	580	
			6	43	108	160	530	
			7	43	108	200	490	
			8	43	79	190	420	
			9	35	90	170	390	
			10	30	88	170	370	
			15	35	84	195	440	
			16	39	100	210	460	
		3	20	39	100	210	460	
			25	43	110	210	580	
			28	43	108	200	580	
			30	39	90	195	440	
			35	43	108	200	580	
			40	43	110	210	460	
			45	39	90	170	580	
			50	43	110	210	580	
			60	43	108	160	580	
			70	43	108	200	490	
80	43	79	190	420				
90	39	90	170	390				
100	39	88	170	370				
Max. Acceleration Torque	T _{2B}	Nm	2,3	3~100				1.8 Times of Rated Output Torque
Max. Output Torque Emergency Stop Torque	T _{2NOT}	Nm	2,3	3~100				3 Times of Rated Output Torque
Nominal Input speed	n _{1n}	rpm	2,3	3~100	3,000	3,000	3,000	2,000
Max. Input speed	n _{1B}	rpm	2,3	3~100	6,000	6,000	6,000	5,000
Backlash (Standard class)		arcmin	2	3~10	≤6	≤6	≤6	≤6
			3	15~100	≤9	≤9	≤9	≤9
Torsional Rigidity		Nm/arcmin	2,3	3~100	5	12	23	38
Max. Radial load ²	F _{2rB}	N	2,3	3~100	3,000	4,300	6,900	10,000
Max. Axial load ²	F _{2aB}	N	2,3	3~100	2,700	3,900	6,300	90,000
Service life	L _H	hr	2,3	3~100	20,000	20,000	20,000	20,000
Noise level ³		dB(A)	2,3	3~100	≤63	≤65	≤68	≤70
Weight		kg	2	3~10	2	5.3	10.5	20.6
			3	15~100	2.1	4.4	10.1	20.7
Mass Moments of Inertia ⁴		kg cm ²	2	3~10	0.33	2.11	6.57	20.34
			3	15~100	0.12	0.59	4.63	14.82
Operating Temp. ⁵		°C	2,3	3~100	-10 ~ +90			
Lubrication			2,3	3~100	High temperature & Extreme pressure Lubricant			
Mounting position			2,3	3~100	All directions			
Efficiency	η	%	2	3~10	≥93			
			3	15~100	≥90			
Degree of protection			2,3	3~100	IP 65			

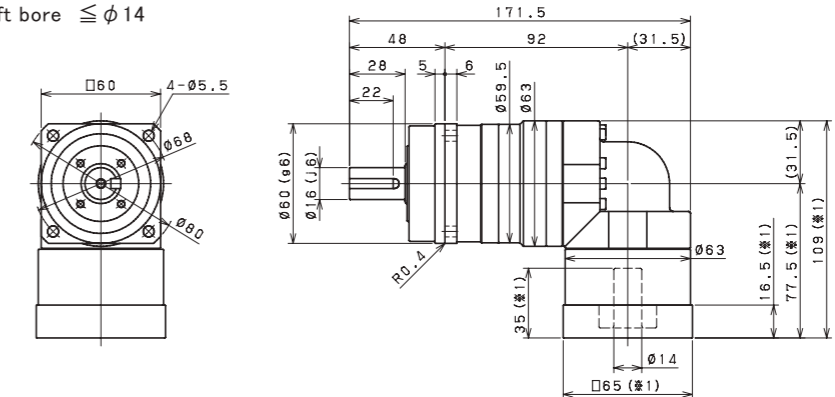
- Ratio (감속비) = N_{in} / N_{out}
 - 기준 : 출력회전수 100rpm, 출력축 중앙 부하, 부하계수(K_a)=1, 연속운전 10,000시간
These values are based on the following conditions : 100 rpm at the output. Load applied to the middle of the output shaft.
Load coefficient(K_a)=1. Continuous operation(S1=10,000hrs).
 - 입력 회전수 3000 rpm, 무부하 운전상태에서 감속기 취부면에서 1m 떨어진 거리에서 측정 (모델에 따라 차이가 있을수 있습니다)
Noise level : A measurement 1m away from the reducer (with ratio 10 or ratio 100), 3000 input rpm and at no load condition.
(Background noise 40dB(A)) With lower ratio and/or higher rpm, the noise level could be 3 to 5 dB higher.
 - 관성모멘트 : 감속비 중 대표값 (i=1/5)
Moment of inertia : A measurement at the input shaft and representatives from each ratio.(i=1/5)
 - 감속기 작동온도 : -10~+90 °C, 감속기 주위온도 -10~40°C
Operating temperature : Surface temperature of gear case in -10 °C~40 °C of ambient temperature.
- ※ 제품 성능 향상을 위해 사양은 별도의 고지 없이 변경될 수 있습니다.
Specifications are subject to change without notice to improve product performances.

SMES 060 2단 2stage

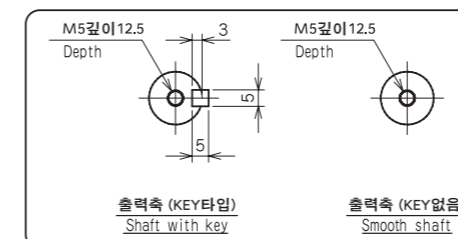
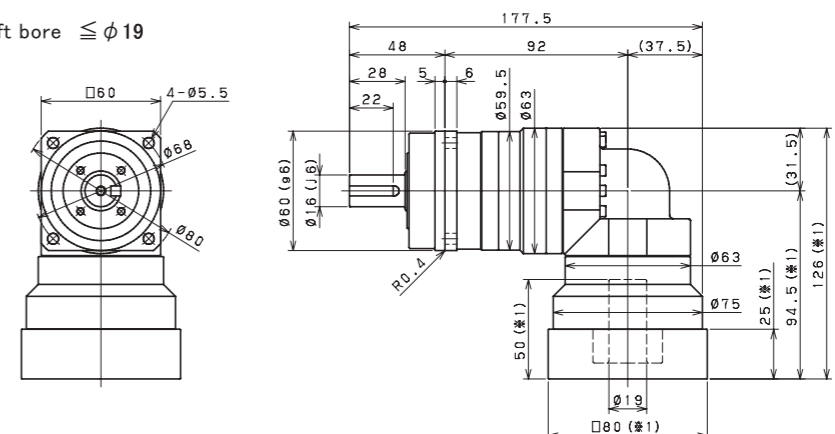
입력축 내경 Input shaft bore ≤ φ8



입력축 내경 Input shaft bore ≤ φ14



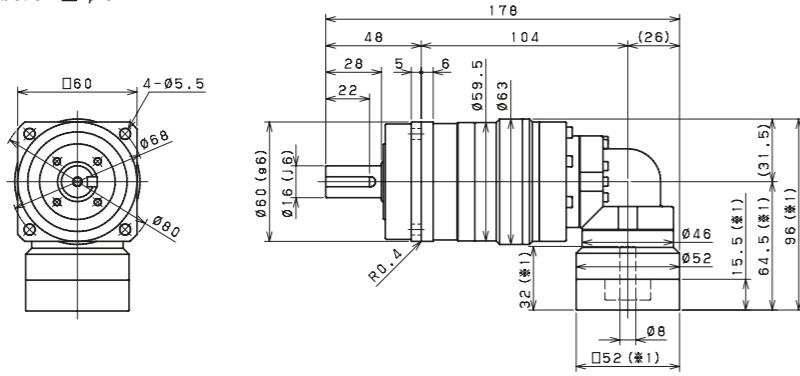
입력축 내경 Input shaft bore ≤ φ19



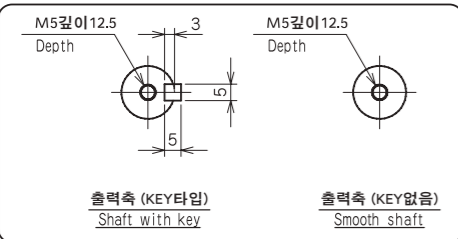
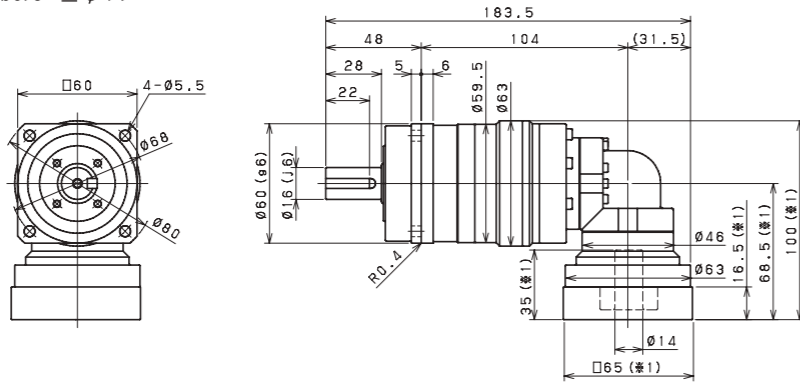
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMES 060 3단 3stage

입력축 내경 Input shaft bore $\leq \phi 8$



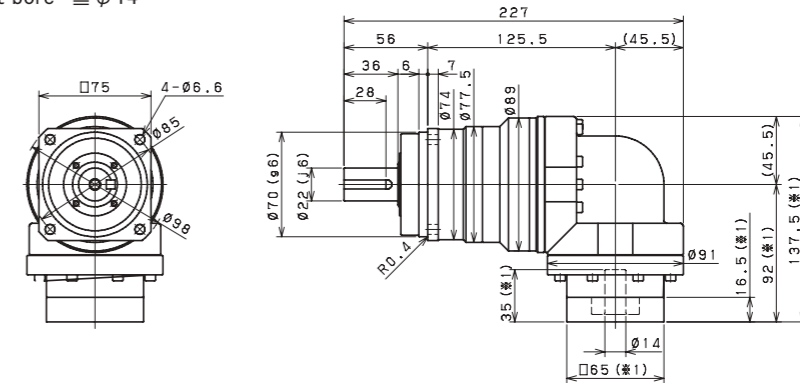
입력축 내경 Input shaft bore $\leq \phi 14$



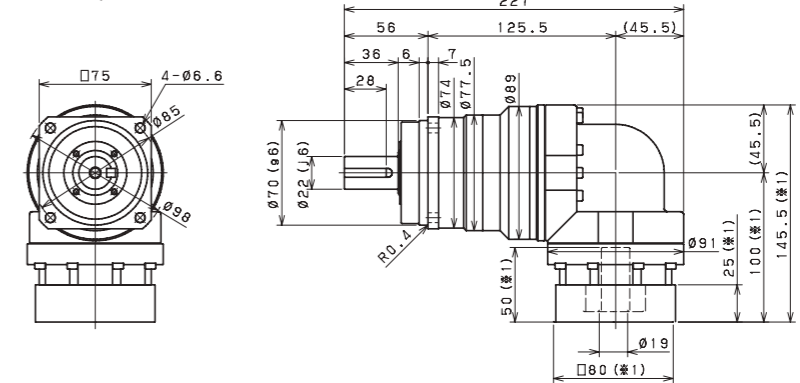
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMES 075 2단 2stage

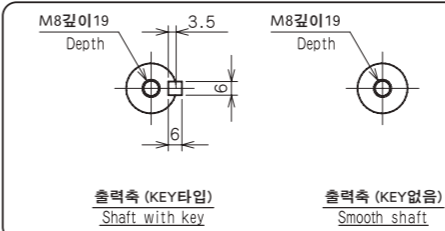
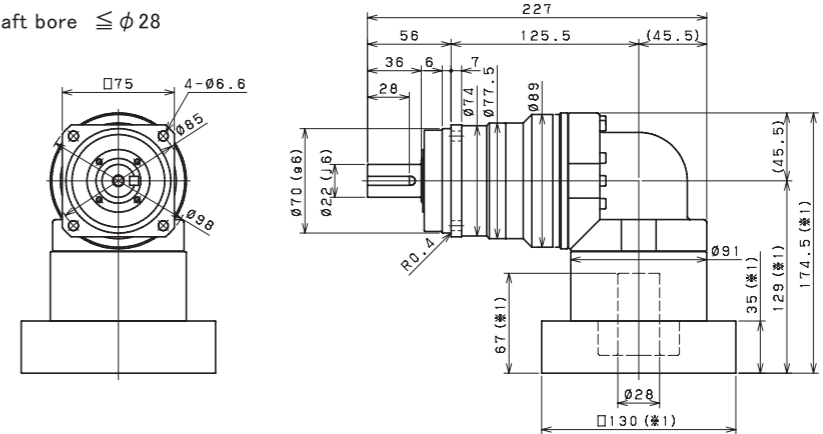
입력축 내경 Input shaft bore $\leq \phi 14$



입력축 내경 Input shaft bore $\leq \phi 19$



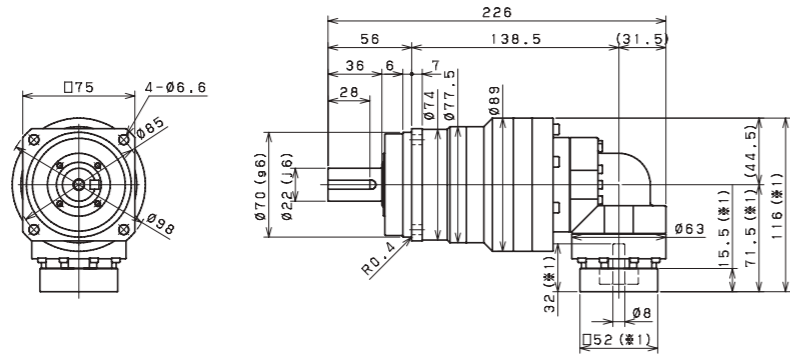
입력축 내경 Input shaft bore $\leq \phi 28$



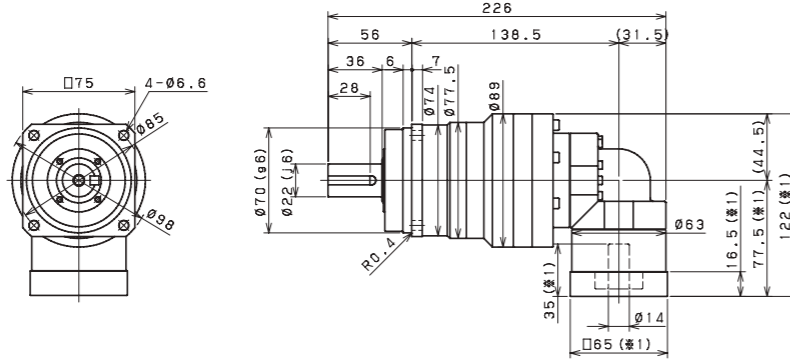
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMES 075 3단 3stage

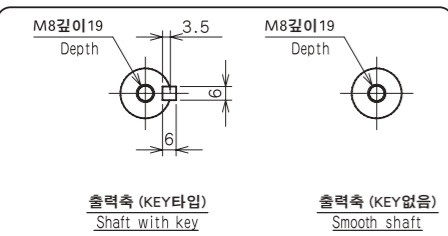
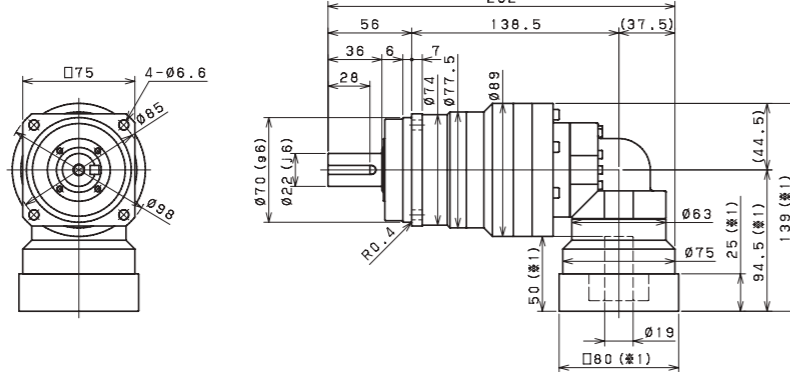
입력축 내경 Input shaft bore $\leq \phi 8$



입력축 내경 Input shaft bore $\leq \phi 14$



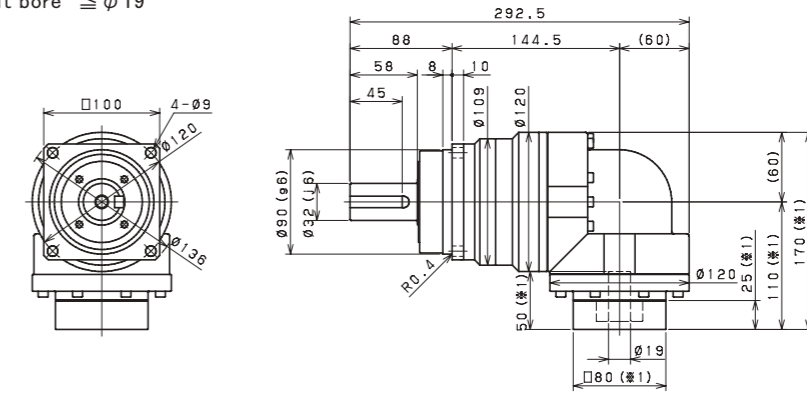
입력축 내경 Input shaft bore $\leq \phi 19$



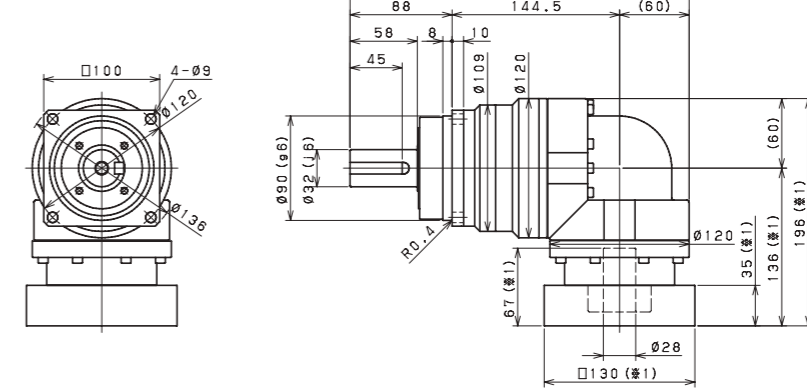
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMES 100 2단 2stage

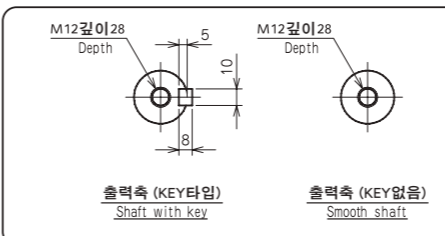
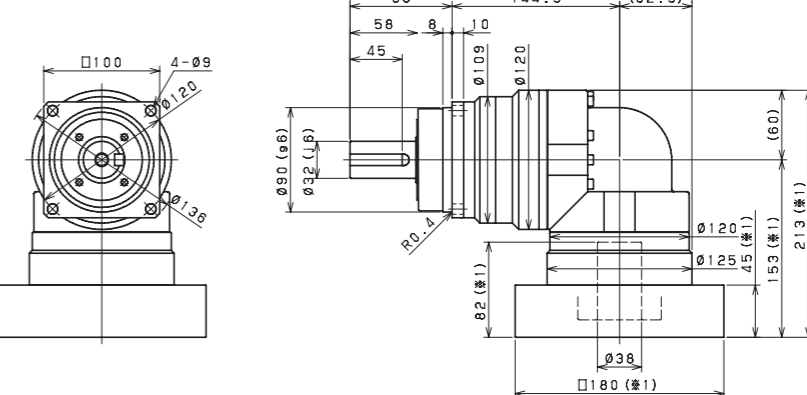
입력축 내경 Input shaft bore $\leq \phi 19$



입력축 내경 Input shaft bore $\leq \phi 28$



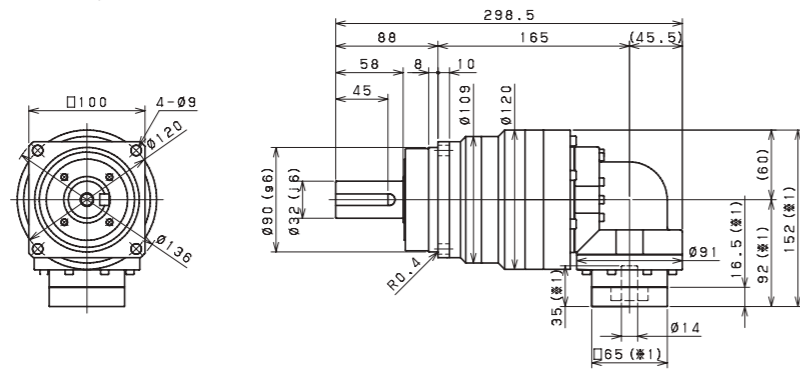
입력축 내경 Input shaft bore $\leq \phi 38$



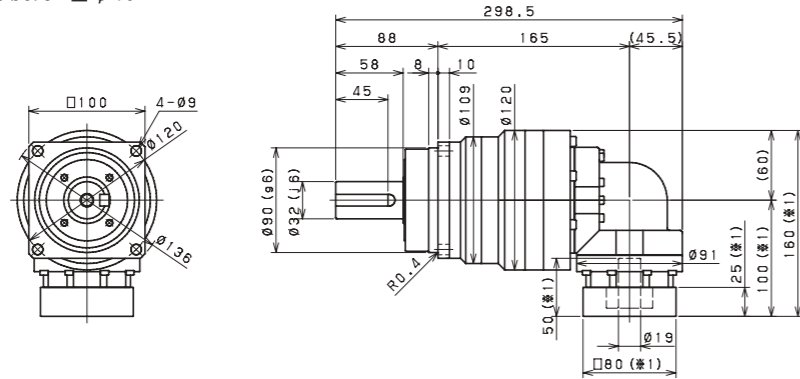
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMES 100 3단 3stage

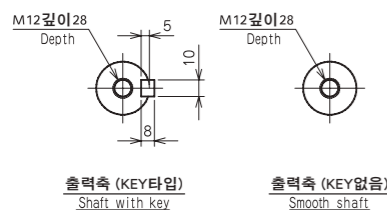
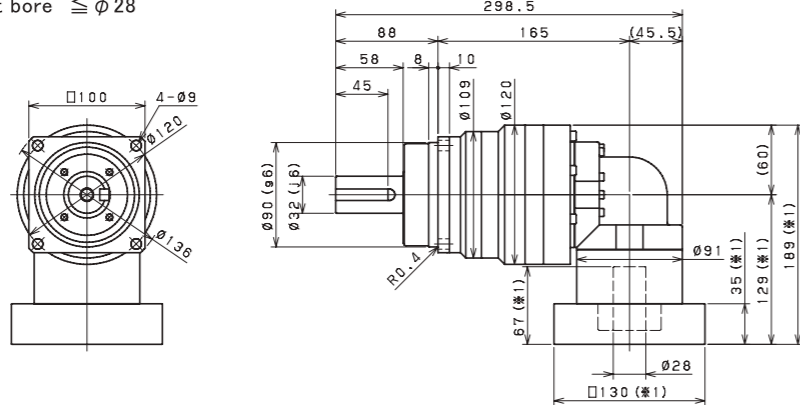
입력축 내경 Input shaft bore $\leq \phi 14$



입력축 내경 Input shaft bore $\leq \phi 19$



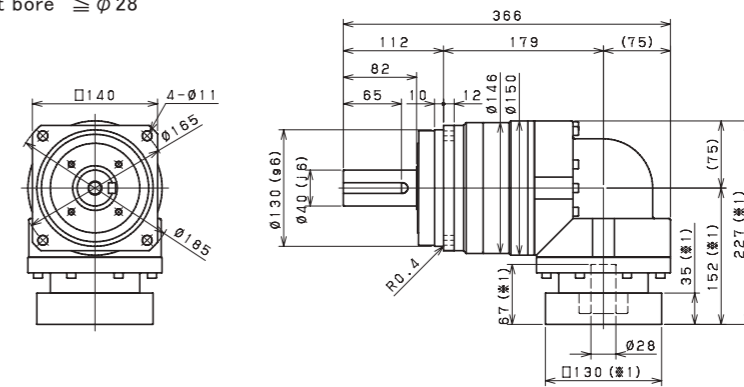
입력축 내경 Input shaft bore $\leq \phi 28$



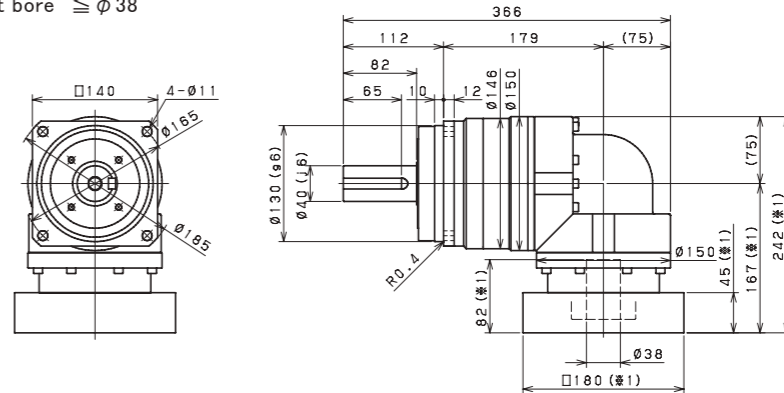
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMES 140 2단 2stage

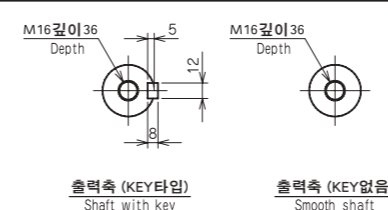
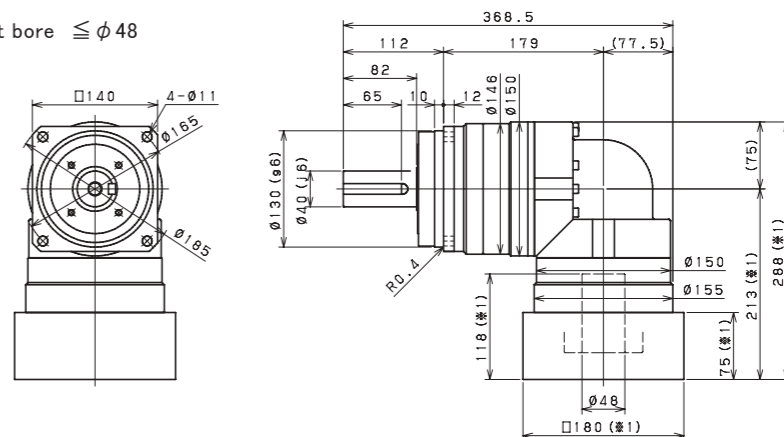
입력축 내경 Input shaft bore $\leq \phi 28$



입력축 내경 Input shaft bore $\leq \phi 38$



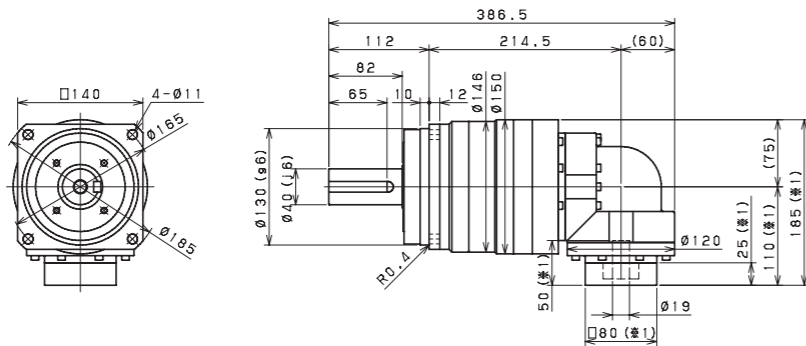
입력축 내경 Input shaft bore $\leq \phi 48$



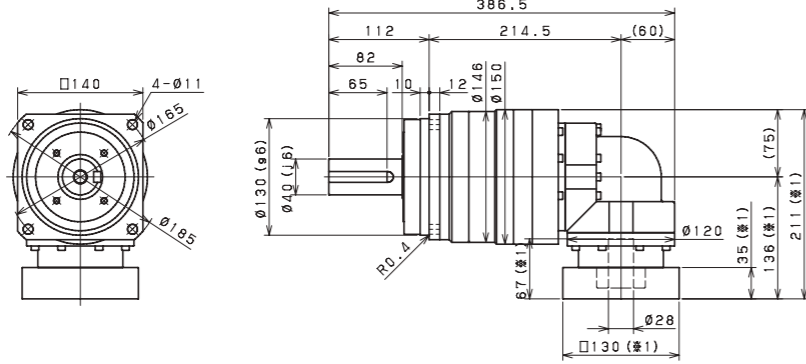
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMES 140 3단 3stage

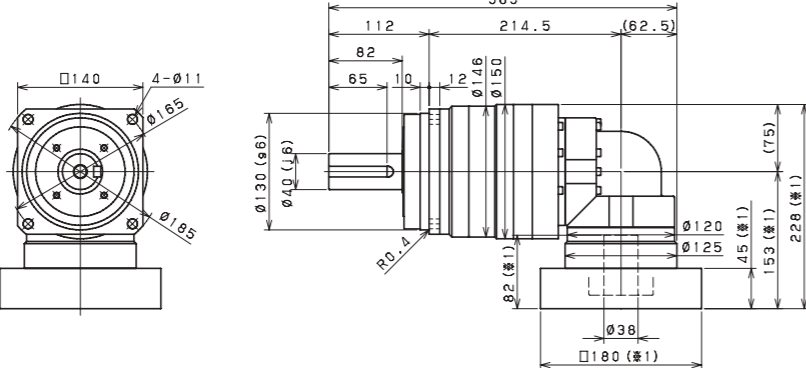
입력축 내경 Input shaft bore $\leq \phi 19$



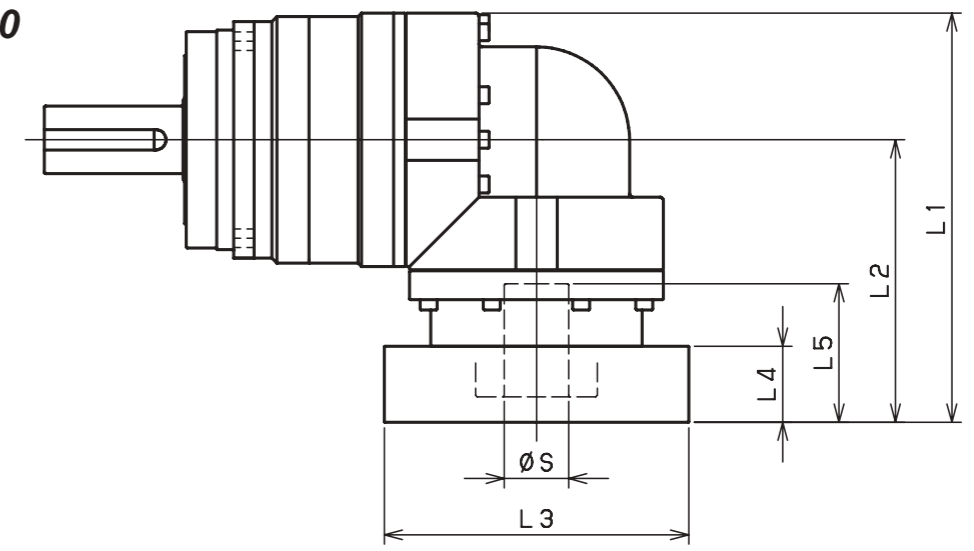
입력축 내경 Input shaft bore $\leq \phi 28$



입력축 내경 Input shaft bore $\leq \phi 38$



SMES 060



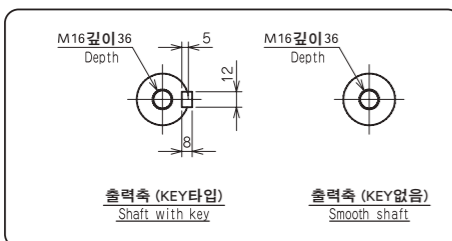
모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	2단 Double					3단 Triple				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMES060□□□-8** (S ≤ 8)	AA·AC·AD·AF·AG	103	71.5	□52	15.5	32	96	64.5	□52	15.5	32
	AB·AE·AH·AJ·AK	108	76.5	□52	20.5	37	101	69.5	□52	20.5	37
	BA·BB·BD·BE	103	71.5	□60	15.5	32	96	64.5	□60	15.5	32
	BC·BF	108	76.5	□60	20.5	37	101	69.5	□60	20.5	37
	CA	108	76.5	□70	20.5	37	101	69.5	□70	20.5	37
SMES060□□□-14** (8 < S ≤ 14)	BA·BB·BD·BE·BF·BG·BJ·BK	109	77.5	□65	16.5	35	100	68.5	□65	16.5	35
	BC·BH	114	82.5	□65	21.5	40	105	73.5	□65	21.5	40
	BL	119	87.5	□65	26.5	45	110	78.5	□65	26.5	45
	CA	109	77.5	□70	16.5	35	100	68.5	□70	16.5	35
	CB	114	82.5	□70	21.5	40	105	73.5	□70	21.5	40
	DA·DB·DC·DD·DF·DH	109	77.5	□80	16.5	35	100	68.5	□80	16.5	35
	DE	114	82.5	□80	21.5	40	105	73.5	□80	21.5	40
	DG	119	87.5	□80	26.5	45	110	78.5	□80	26.5	45
	EA·EB·EC	109	77.5	□90	16.5	35	100	68.5	□90	16.5	35
	ED	119	87.5	□90	26.5	45	110	78.5	□90	26.5	45
	FA	109	77.5	□100	16.5	35	100	68.5	□100	16.5	35
GA	109	77.5	□115	16.5	35	100	68.5	□115	16.5	35	
SMES060□□□-19** (14 < S ≤ 19)	DA·DB·DC	126	94.5	□80	25	50					
	DD	136	104.5	□80	35	60					
	DE	131	99.5	□80	30	55					
	EA	131	99.5	□90	30	55					
	EB	126	94.5	□90	25	50					
	EC	136	104.5	□90	35	60					
	FA	126	94.5	□100	25	50					
	FB	136	104.5	□100	35	60					
	GA·GC	131	99.5	□115	30	55					
	GB·GD	126	94.5	□115	25	50					
	HA	126	94.5	□130	25	50					
HB	141	109.5	□130	40	65						
HC·HD·HE	131	99.5	□130	30	55						

※1 2단 감속비: 1/3~1/10; 3단 감속비: 1/15~1/100

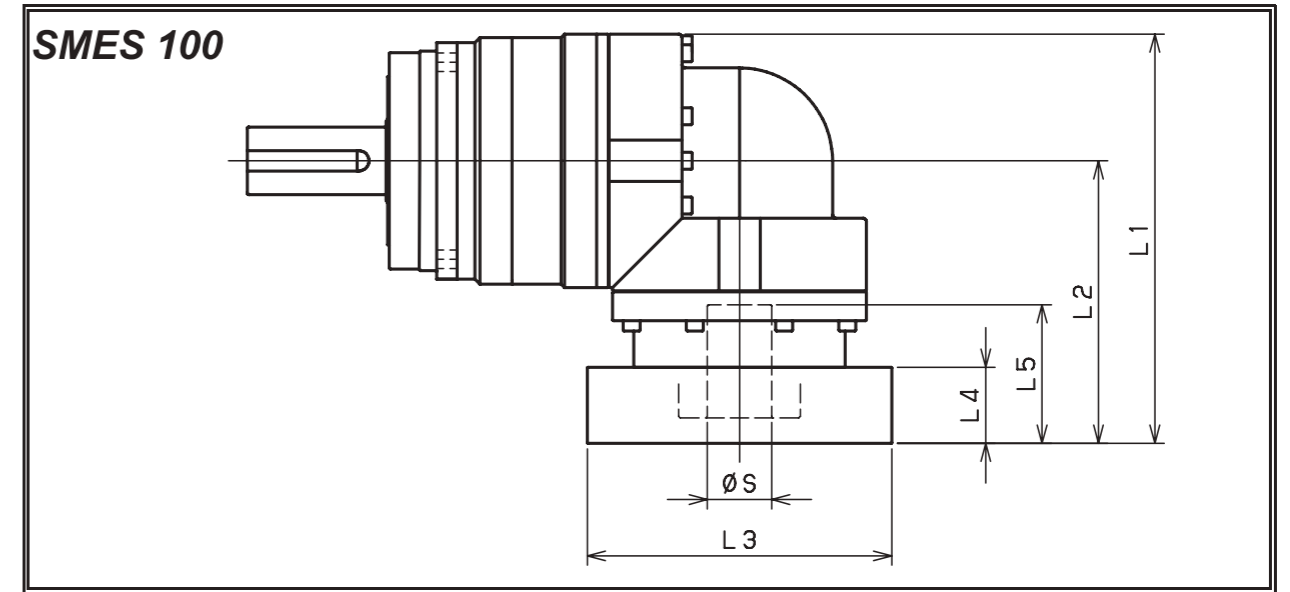
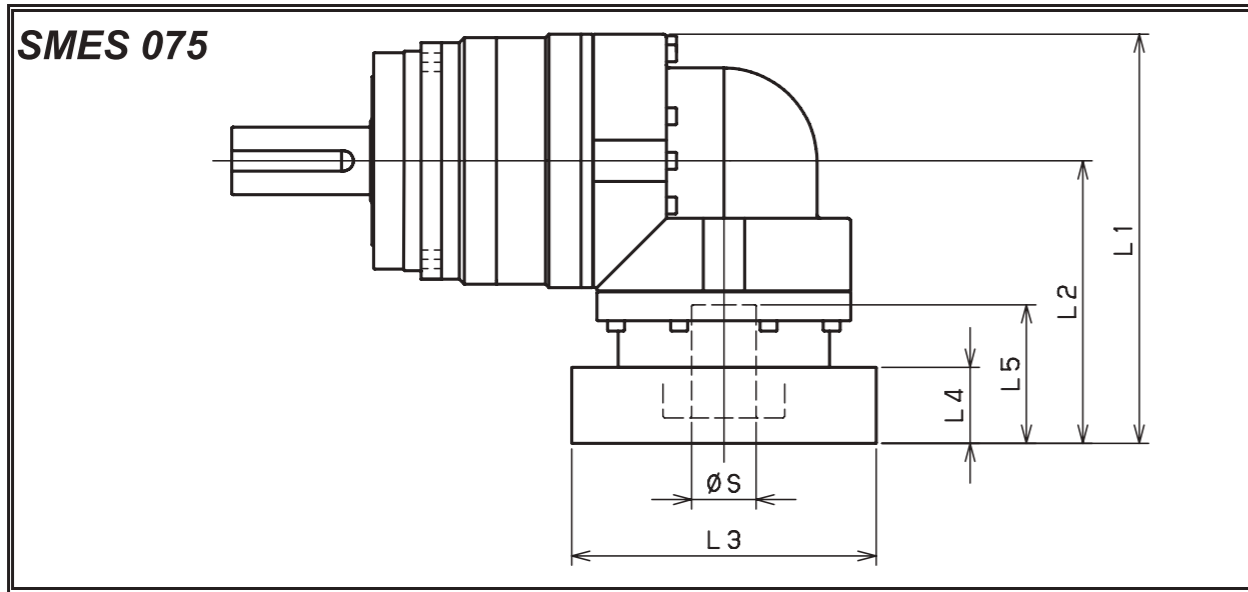
※1 Double reduction : 1/3 ~ 1/10, Triple reduction : 1/15 ~ 1/100

※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.

※2 Bushing will be inserted to adapt to motor shaft.



- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

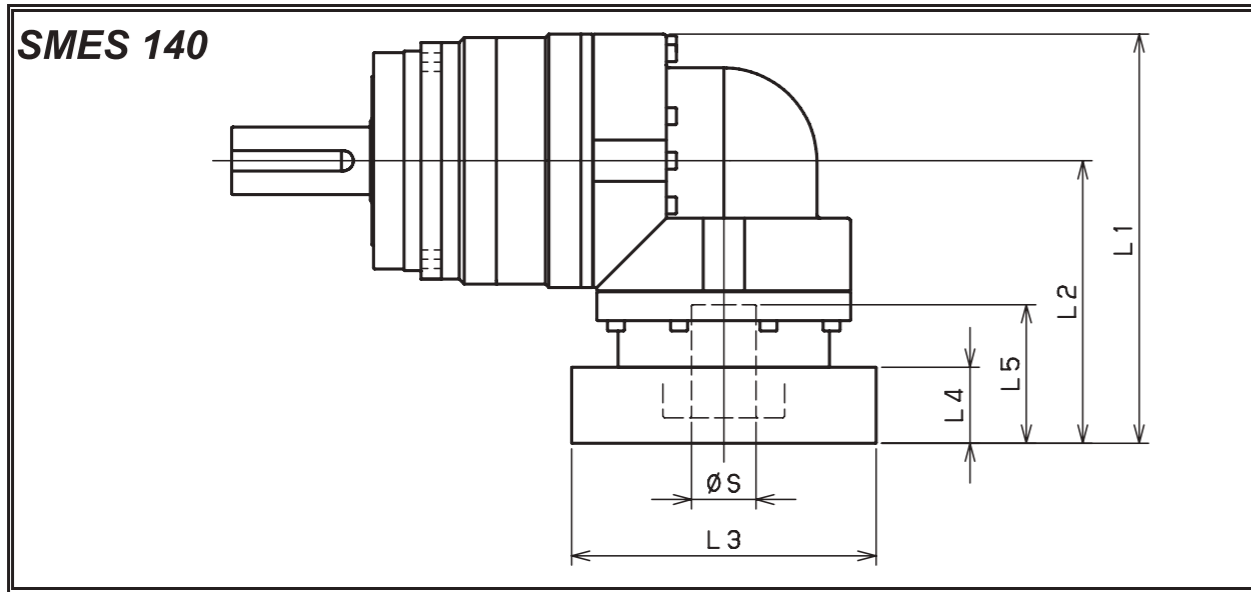


모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	2단 Double					3단 Triple				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMES075□□□-8** (S≤8)	AA·AC·AD·AF·AG	/	/	/	/	/	116	71.5	□52	15.5	32
	AB·AE·AH·AJ·AK	/	/	/	/	/	121	76.5	□52	20.5	37
	BA·BB·BD·BE	/	/	/	/	/	116	71.5	□60	15.5	32
	BC·BF	/	/	/	/	/	121	76.5	□60	20.5	37
	CA	/	/	/	/	/	121	76.5	□70	20.5	37
SMES075□□□-14** (8<S≤14)	BA·BB·BD·BE·BF·BG·BJ·BK	137.5	92	□65	16.5	35	122	77.5	□65	16.5	35
	BC·BH	142.5	97	□65	21.5	40	127	82.5	□65	21.5	40
	BL	147.5	102	□65	26.5	45	132	87.5	□65	26.5	45
	CA	137.5	92	□70	16.5	35	122	77.5	□70	16.5	35
	CB	142.5	97	□70	21.5	40	127	82.5	□70	21.5	40
	DA·DB·DC·DD·DF·DH	137.5	92	□80	16.5	35	122	77.5	□80	16.5	35
	DE	142.5	97	□80	21.5	40	127	82.5	□80	21.5	40
	DG	147.5	102	□80	26.5	45	132	87.5	□80	26.5	45
	EA·EB·EC	137.5	92	□90	16.5	35	122	77.5	□90	16.5	35
	ED	147.5	102	□90	26.5	45	132	87.5	□90	26.5	45
	FA	137.5	92	□100	16.5	35	122	77.5	□100	16.5	35
GA	137.5	92	□115	16.5	35	122	77.5	□115	16.5	35	
SMES075□□□-19** (14<S≤19)	DA·DB·DC	145.5	100	□80	25	50	139	94.5	□80	25	50
	DD	155.5	110	□80	35	60	149	104.5	□80	35	60
	DE	150.5	105	□80	30	55	144	99.5	□80	30	55
	EA	150.5	105	□90	30	55	144	99.5	□90	30	55
	EB	145.5	100	□90	25	50	139	94.5	□90	25	50
	EC	155.5	110	□90	35	60	149	104.5	□90	35	60
	FA	145.5	100	□100	25	50	139	94.5	□100	25	50
	FB	155.5	110	□100	35	60	149	104.5	□100	35	60
	GA·GC	150.5	105	□115	30	55	144	99.5	□115	30	55
	GB·GD	145.5	100	□115	25	50	139	94.5	□115	25	50
	HA	145.5	100	□130	25	50	139	94.5	□130	25	50
	HB	160.5	115	□130	40	65	154	109.5	□130	40	65
	HC·HD·HE	150.5	105	□130	30	55	144	99.5	□130	30	55
SMES075□□□-28** (19<S≤28)	FA·FB·FC	174.5	129	□100	35	67	/	/	/	/	/
	GA·GB·GC·GD·GE·GF·GG	174.5	129	□115	35	67	/	/	/	/	/
	HA·HC·HD	174.5	129	□130	35	67	/	/	/	/	/
	HB	184.5	139	□130	45	77	/	/	/	/	/
	JA·JB·JC	174.5	129	□150	35	67	/	/	/	/	/
	KA·KB	174.5	129	□180	35	67	/	/	/	/	/
	LA	174.5	129	□200	35	67	/	/	/	/	/
	MA	174.5	129	□220	35	67	/	/	/	/	/

※1 2단 감속비: 1/3~1/10 ; 3단 감속비: 1/15~1/100 ※1 Double reduction : 1/3 ~ 1/10, Triple reduction : 1/15 ~ 1/100
 ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※2 Bushing will be inserted to adapt to motor shaft.

모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	2단 Double					3단 Triple					
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5	
SMES100□□□-14** (S≤14)	BA·BB·BD·BE·BF·BG·BJ·BK	/	/	/	/	/	152	92	□65	16.5	35	
	BC·BH	/	/	/	/	/	157	97	□65	21.5	40	
	BL	/	/	/	/	/	162	102	□65	26.5	45	
	CA	/	/	/	/	/	152	92	□70	16.5	35	
	CB	/	/	/	/	/	157	97	□70	21.5	40	
	DA·DB·DC·DD·DF·DH	/	/	/	/	/	152	92	□80	16.5	35	
	DE	/	/	/	/	/	157	97	□80	21.5	40	
	DG	/	/	/	/	/	162	102	□80	26.5	45	
	EA·EB·EC	/	/	/	/	/	152	92	□90	16.5	35	
	ED	/	/	/	/	/	162	102	□90	26.5	45	
	FA	/	/	/	/	/	152	92	□100	16.5	35	
	GA	/	/	/	/	/	152	92	□115	16.5	35	
	SMES100□□□-19** (14<S≤19)	DA·DB·DC	170	110	□80	25	50	160	100	□80	25	50
		DD	180	120	□80	35	60	170	110	□80	35	60
DE		175	115	□80	30	55	165	105	□80	30	55	
EA		175	115	□90	30	55	165	105	□90	30	55	
EB		170	110	□90	25	50	160	100	□90	25	50	
EC		180	120	□90	35	60	170	110	□90	35	60	
FA		170	110	□100	25	50	160	100	□100	25	50	
FB		180	120	□100	35	60	170	110	□100	35	60	
GA·GC		175	115	□115	30	55	165	105	□115	30	55	
GB·GD		170	110	□115	25	50	160	100	□115	25	50	
HA		170	110	□130	25	50	160	100	□130	25	50	
HB		185	125	□130	40	65	175	115	□130	40	65	
HC·HD·HE		175	115	□130	30	55	165	105	□130	30	55	
SMES100□□□-28** (19<S≤28)	FA·FB·FC	196	136	□100	35	67	189	129	□100	35	67	
	GA·GB·GC·GD·GE·GF·GG	196	136	□115	35	67	189	129	□115	35	67	
	HA·HC·HD	196	136	□130	35	67	189	129	□130	35	67	
	HB	206	146	□130	45	77	199	139	□130	45	77	
	JA·JB·JC	196	136	□150	35	67	189	129	□150	35	67	
	KA·KB	196	136	□180	35	67	189	129	□180	35	67	
SMES100□□□-38** (28<S≤38)	LA	196	136	□200	35	67	189	129	□200	35	67	
	MA	196	136	□220	35	67	189	129	□220	35	67	
	HA	213	153	□130	45	82	/	/	/	/	/	
	HB	208	148	□130	40	77	/	/	/	/	/	
	JA	213	153	□150	45	82	/	/	/	/	/	
	KA·KB·KC	213	153	□180	45	82	/	/	/	/	/	
	LA	213	153	□200	45	82	/	/	/	/	/	
	LB	223	163	□200	55	92	/	/	/	/	/	
	MA·MB	213	153	□220	45	82	/	/	/	/	/	
	NA	213	153	□250	45	82	/	/	/	/	/	

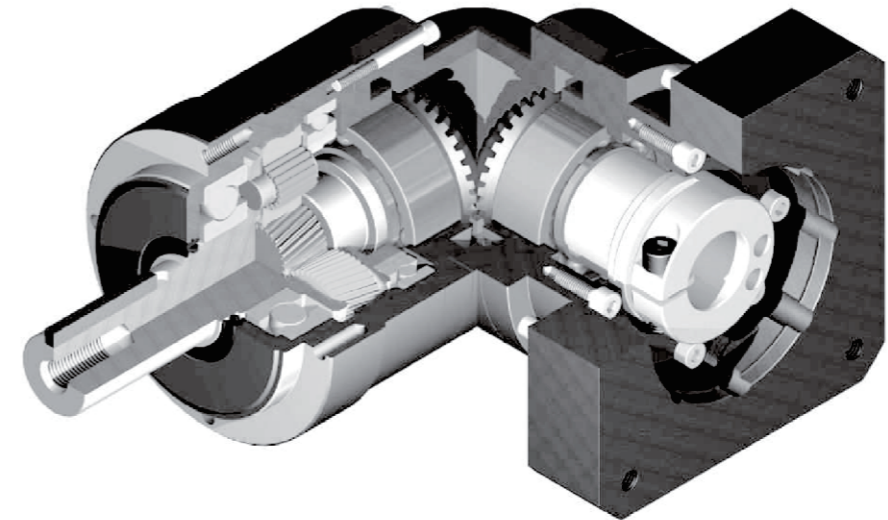
※1 2단 감속비: 1/3~1/10 ; 3단 감속비: 1/15~1/100 ※1 Double reduction : 1/3 ~ 1/10, Triple reduction : 1/15 ~ 1/100
 ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※2 Bushing will be inserted to adapt to motor shaft.



모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	2단 Double					3단 Triple				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMES140□□□-19** (S ≤ 19)	DA·DB·DC						185	110	□80	25	50
	DD						195	120	□80	35	60
	DE						190	115	□80	30	55
	EA						190	115	□90	30	55
	EB						185	110	□90	25	50
	EC						195	120	□90	35	60
	FA						185	110	□100	25	50
	FB						195	120	□100	35	60
	GA·GC						190	115	□115	30	55
	GB·GD						185	110	□115	25	50
	HA						185	110	□130	25	50
	HB						200	125	□130	40	65
HC·HD·HE						190	115	□130	30	55	
SMES140□□□-28** (19 < S ≤ 28)	FA·FB·FC	227	152	□100	35	67	211	136	□100	35	67
	GA·GB·GC·GD·GE·GF·GG	227	152	□115	35	67	211	136	□115	35	67
	HA·HC·HD	227	152	□130	35	67	211	136	□130	35	67
	HB	237	162	□130	45	77	221	146	□130	45	77
	JA·JB·JC	227	152	□150	35	67	211	136	□150	35	67
	KA·KB	227	152	□180	35	67	211	136	□180	35	67
	LA	227	152	□200	35	67	211	136	□200	35	67
SMES140□□□-38** (28 < S ≤ 38)	MA	227	152	□220	35	67	211	136	□220	35	67
	HA	242	167	□130	45	82	228	153	□130	45	82
	HB	237	162	□130	40	77	223	148	□130	40	77
	JA	242	167	□150	45	82	228	153	□150	45	82
	KA·KB·KC	242	167	□180	45	82	228	153	□180	45	82
	LA	242	167	□200	45	82	228	153	□200	45	82
	LB	252	177	□200	55	92	238	163	□200	55	92
SMES140□□□-48** (38 < S ≤ 48)	MA·MB	242	167	□220	45	82	228	153	□220	45	82
	NA	242	167	□250	45	82	228	153	□250	45	82
	KB·KC	268	193	□180	55	98					
	KA	288	213	□180	75	118					
	LA	268	193	□200	55	98					
	MA	268	193	□220	55	98					
	MB	288	213	□220	75	118					
	NA	288	213	□250	75	118					
	PA	288	213	□280	75	118					

※1 2단 감속비: 1/3~1/10 ; 3단 감속비: 1/15~1/100 ※1 Double reduction : 1/3 ~ 1/10, Triple reduction : 1/15 ~ 1/100
 ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※2 Bushing will be inserted to adapt to motor shaft.

SMEL series



공간 절약

스파이럴 베벨기어를 적용한 직교형 감속기로, 출력축과 모터를 수직으로 위치시켜 공간절약 가능.

Space - saving

Right angle reducer using spiral bevel gear. Customer can locate the motor at 90 degree away from the reducer if required to save space.

고강성 & 고토크

Uncaged 니들롤러베어링을 사용하여 강성과 토크 향상.

High rigidity & torque

High rigidity & high torque was achieved by uncaged needle roller bearings.

어댑터-부싱 연결방식

다양한 모터에 취부 가능.

Adapter-bushing connection

Can be attached to any motor all over the world.

그리스 누유현상 없음

고점도 분리방지 그리스를 사용.

No grease leakage

Perfect solution by high viscosity anti-separation grease.

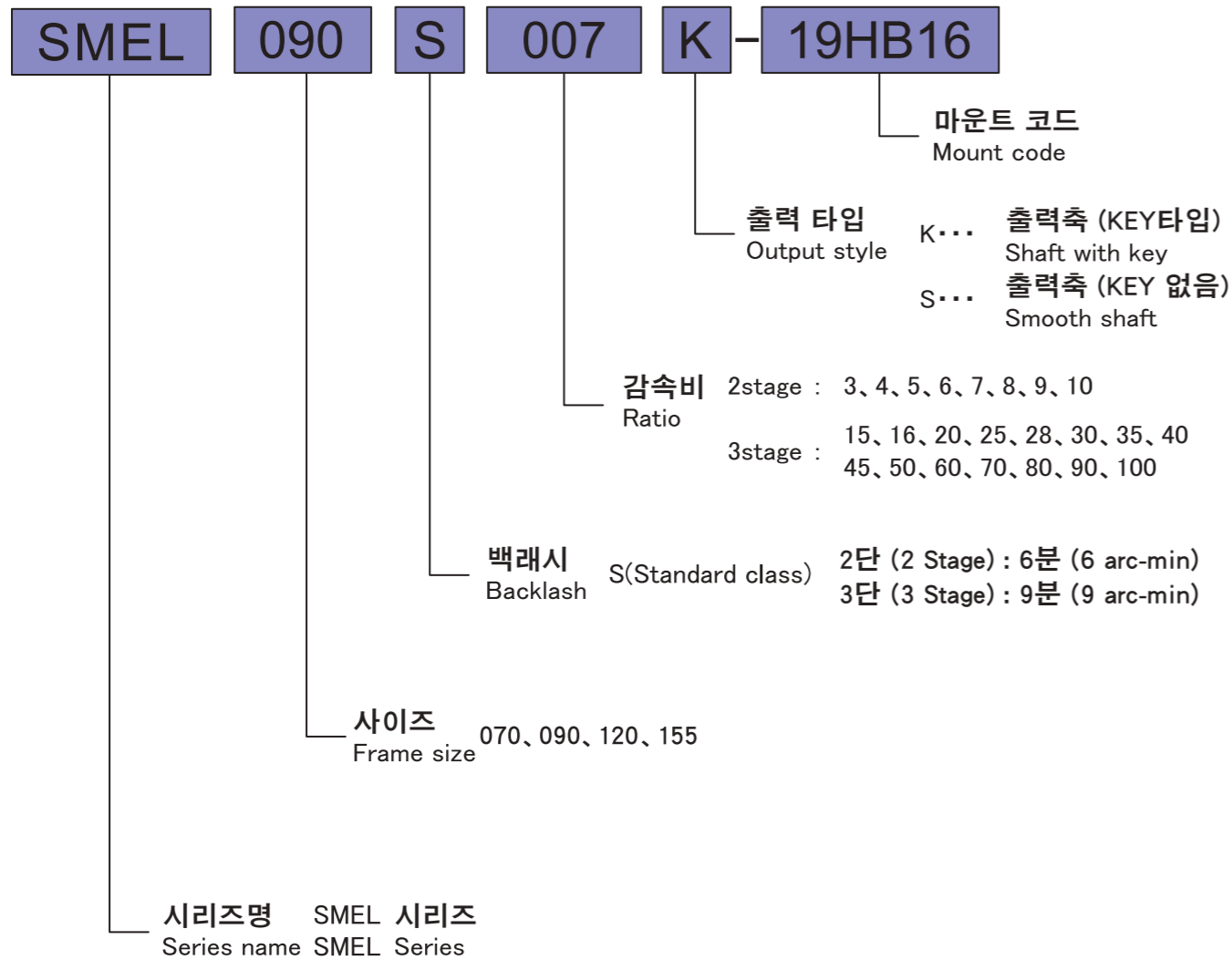
유지 보수 불필요

제품 수명 동안 그리스 교체 불필요 자유로운 설치 가능.

Maintenance-free

No need to replace the grease for the life time. Can be attached in any position.

SMEL series

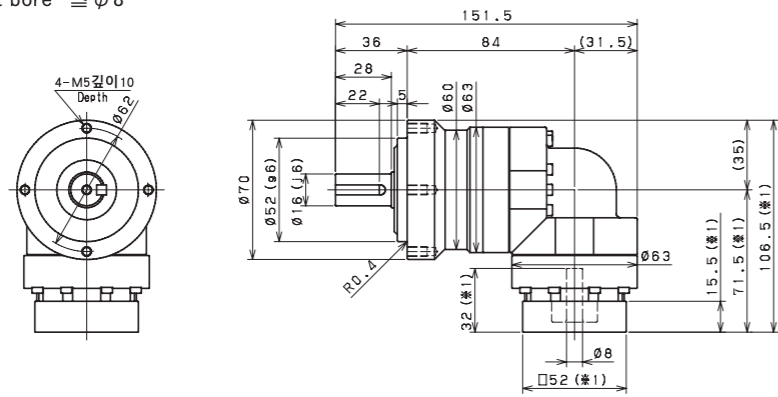


Model No.	Unit	Stage	Ratio ¹	SMEL070	SMEL090	SMEL120	SMEL155	
Rated Output Torque (Nominal Output torque)	T _{2N}	2	3	33	89	195	440	
			4	39	110	210	460	
			5	43	110	210	580	
			6	43	108	160	530	
			7	43	108	200	490	
			8	43	79	190	420	
			9	35	90	170	390	
			10	30	88	170	370	
			15	35	84	195	440	
			16	39	100	210	460	
		3	20	39	100	210	460	
			25	43	110	210	580	
			28	43	108	200	580	
			30	39	90	195	440	
			35	43	108	200	580	
			40	43	110	210	460	
			45	39	90	170	580	
			50	43	110	210	580	
			60	43	108	160	580	
			70	43	108	200	490	
80	43	79	190	420				
90	39	90	170	390				
100	39	88	170	370				
Max. Acceleration Torque	T _{2B}	Nm	2,3	3~100				1.8 Times of Rated Output Torque
Max. Output Torque Emergency Stop Torque	T _{2NOT}	Nm	2,3	3~100				3 Times of Rated Output Torque
Nominal Input speed	n _{1n}	rpm	2,3	3~100	3,000	3,000	3,000	2,000
Max. Input speed	n _{1B}	rpm	2,3	3~100	6,000	6,000	6,000	5,000
Backlash (Standard class)		arcmin	2	3~10	≤6	≤6	≤6	≤6
			3	15~100	≤9	≤9	≤9	≤9
Torsional Rigidity		Nm/arcmin	2,3	3~100	5	12	23	38
Max. Radial load ²	F _{2rB}	N	2,3	3~100	1,100	2,150	3,600	7,500
Max. Axial load ²	F _{2aB}	N	2,3	3~100	600	1,800	2,500	3,000
Service life	L _H	hr	2,3	3~100	20,000	20,000	20,000	20,000
Noise level ³		dB(A)	2,3	3~100	≤63	≤65	≤68	≤70
Weight		kg	2	3~10	1.8	5.1	10.4	19.1
			3	15~100	2.1	4.4	10.1	19.6
Mass Moments of Inertia ⁴		kg cm ²	2	3~10	0.32	2.13	6.61	21.28
			3	15~100	0.12	0.59	4.64	14.82
Operating Temp. ⁵		°C	2,3	3~100	-10 ~ +90			
Lubrication			2,3	3~100	High temperature & Extreme pressure Lubricant			
Mounting position			2,3	3~100	All directions			
Efficiency	η	%	2	3~10	≥ 95			
			3	15~100	≥ 92			
Degree of protection			2,3	3~100	IP 65			

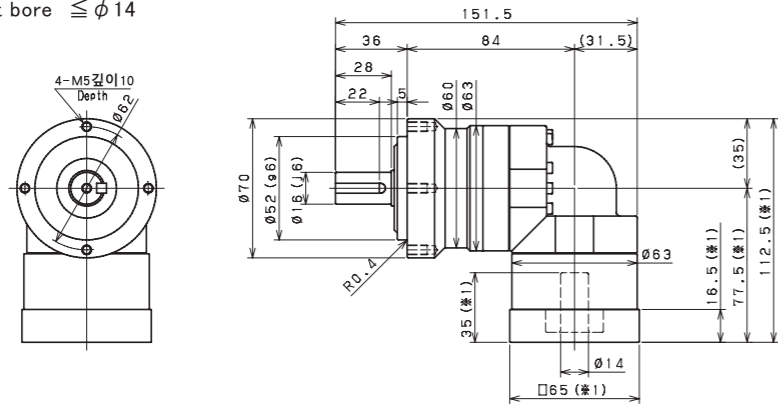
(1) Ratio (감속비) = N_{in} / N_{out}
 (2) 기준 : 출력회전수 100rpm, 출력축 중앙 부하, 부하계수(Ka)=1, 연속운전 10,000시간
 These values are based on the following conditions : 100 rpm at the output. Load applied to the middle of the output shaft. Load coefficient(Ka)=1. Continuous operation(S1 ≒ 10,000hrs).
 (3) 입력 회전수 3000 rpm, 무부하 운전상태에서 감속기 취부면에서 1m 떨어진 거리에서 측정 (모델에 따라 차이가 있을수 있습니다)
 Noise level : A measurement 1m away from the reducer (with ratio10 or ratio 100), 3000 input rpm and at no load condition. (Background noise 40dB(A)) With lower ratio and/or higher rpm, the noise level could be 3 to 5 dB higher.
 (4) 관성모멘트 : 감속비 중 대표값 (i=1/5)
 Moment of inertia : A measurement at the input shaft and representatives from each ratio.(i=1/5)
 (5) 감속기 작동온도 : -10~+90 °C, 감속기 주위온도 -10~40 °C
 Operating temperature : Surface temperature of gear case in -10 °C~40 °C of ambient temperature.
 ※ 제품 성능 향상을 위해 사양은 별도의 고지 없이 변경될 수 있습니다.
 Specifications are subject to change without notice to improve product performances.

SMEL 070 2단 2stage

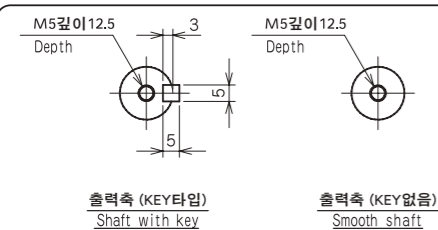
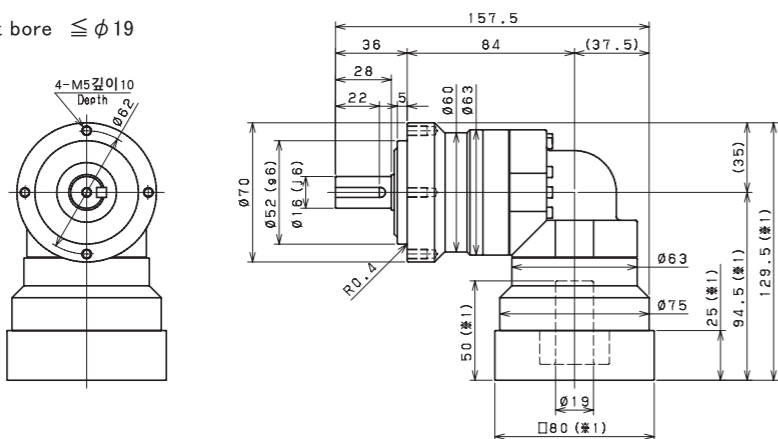
입력축 내경 Input shaft bore $\leq \phi 8$



입력축 내경 Input shaft bore $\leq \phi 14$



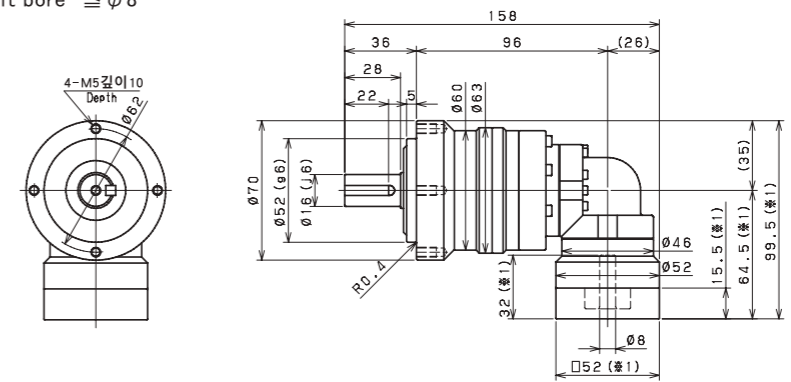
입력축 내경 Input shaft bore $\leq \phi 19$



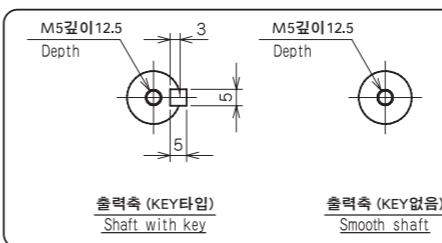
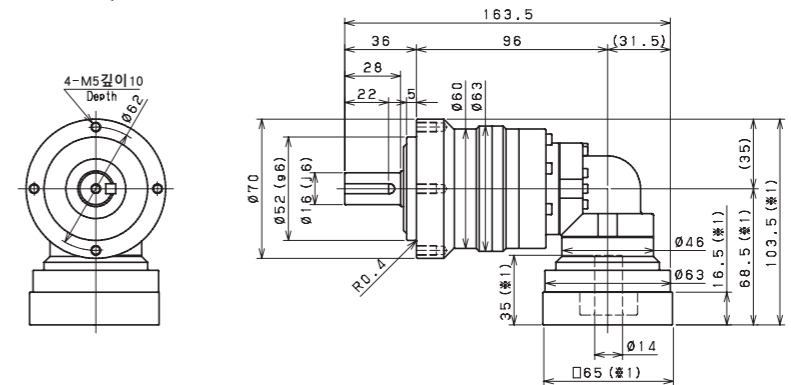
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMEL 070 3단 3stage

입력축 내경 Input shaft bore $\leq \phi 8$



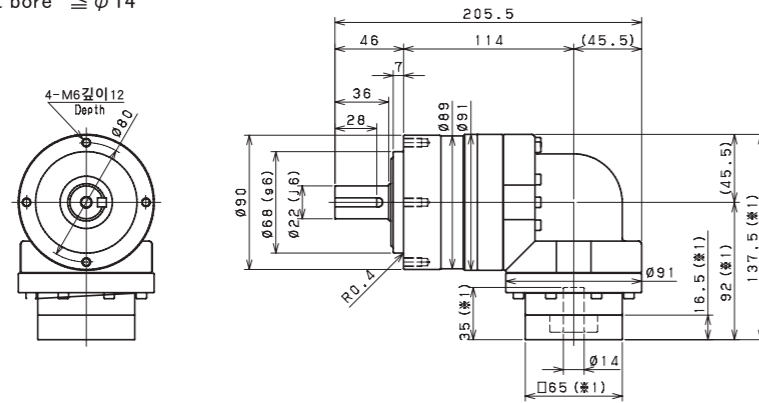
입력축 내경 Input shaft bore $\leq \phi 14$



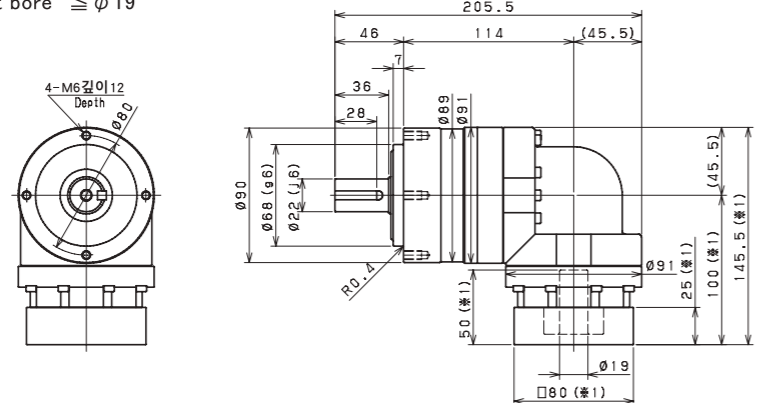
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMEL 090 2단 2stage

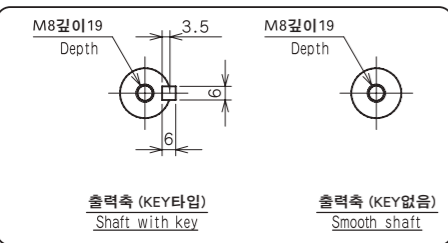
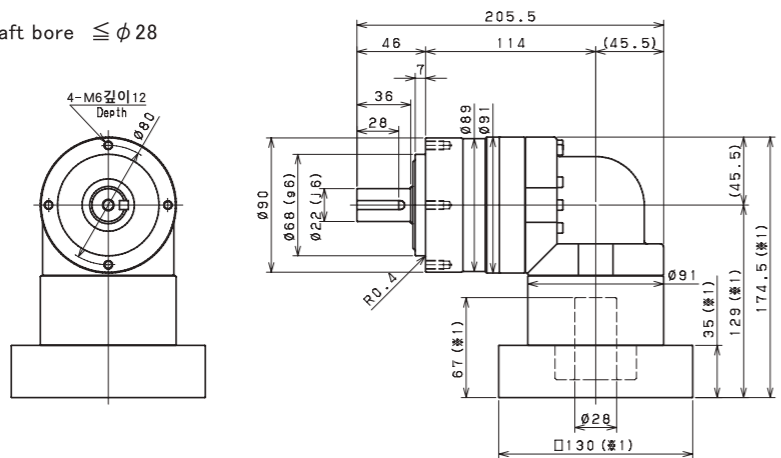
입력축 내경 Input shaft bore $\leq \phi 14$



입력축 내경 Input shaft bore $\leq \phi 19$



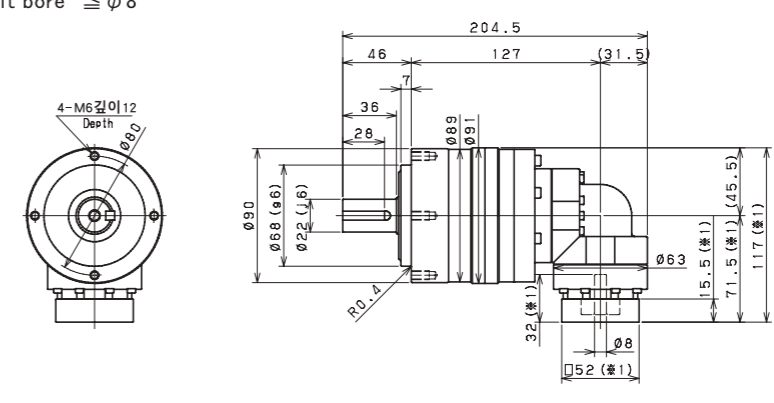
입력축 내경 Input shaft bore $\leq \phi 28$



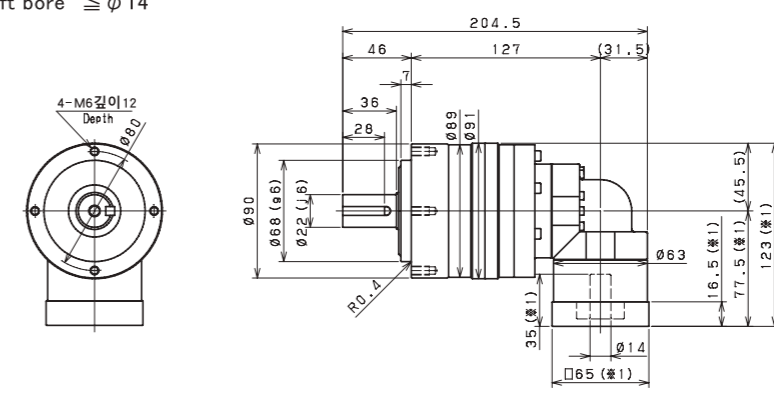
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMEL 090 3단 3stage

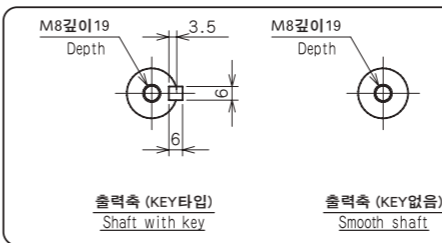
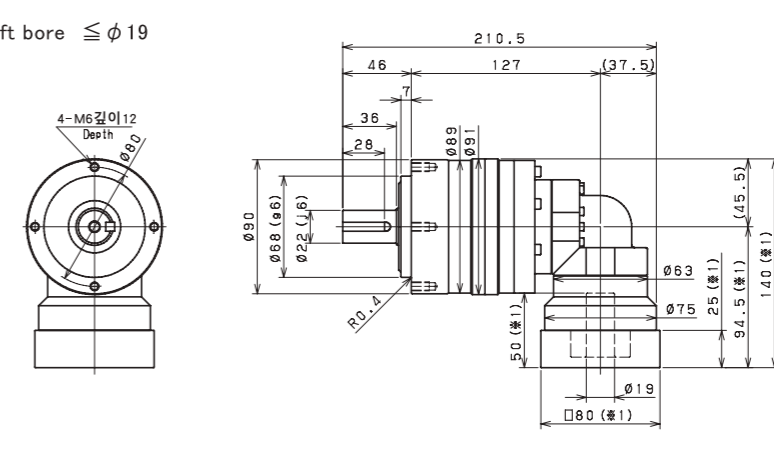
입력축 내경 Input shaft bore $\leq \phi 8$



입력축 내경 Input shaft bore $\leq \phi 14$



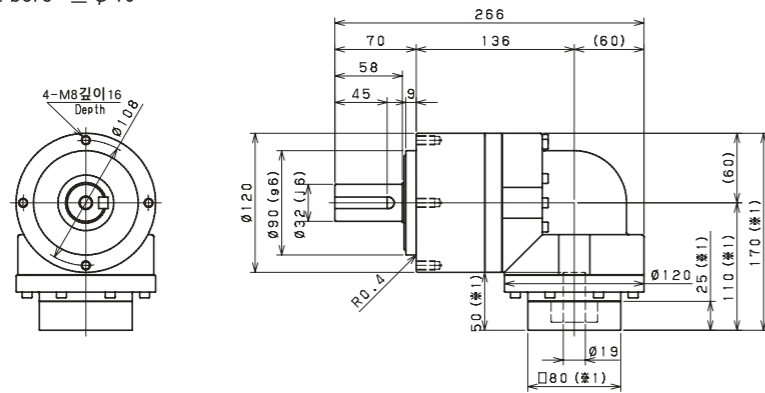
입력축 내경 Input shaft bore $\leq \phi 19$



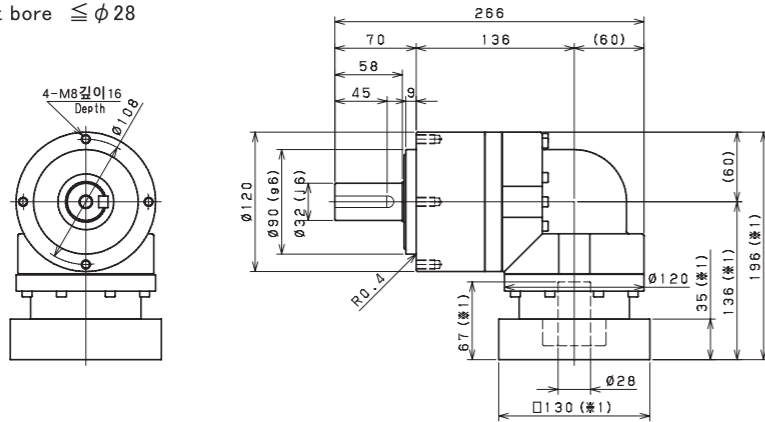
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMEL 120 2단 2stage

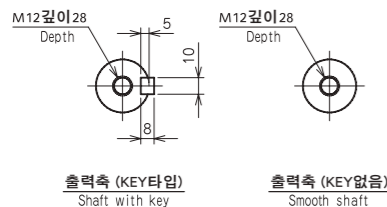
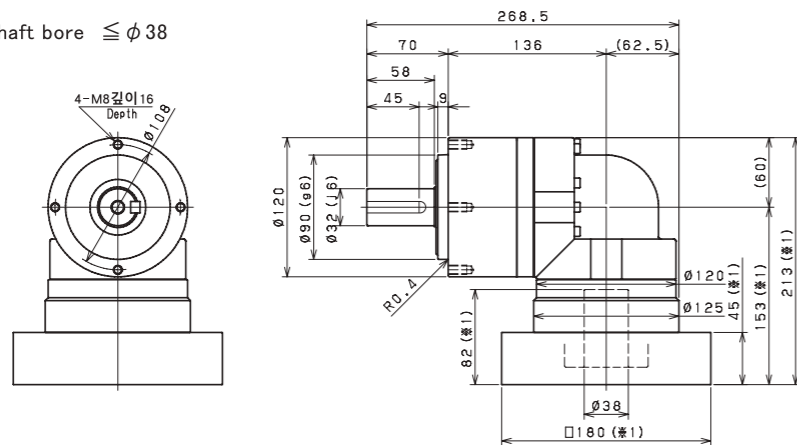
입력축 내경 Input shaft bore $\leq \phi 19$



입력축 내경 Input shaft bore $\leq \phi 28$



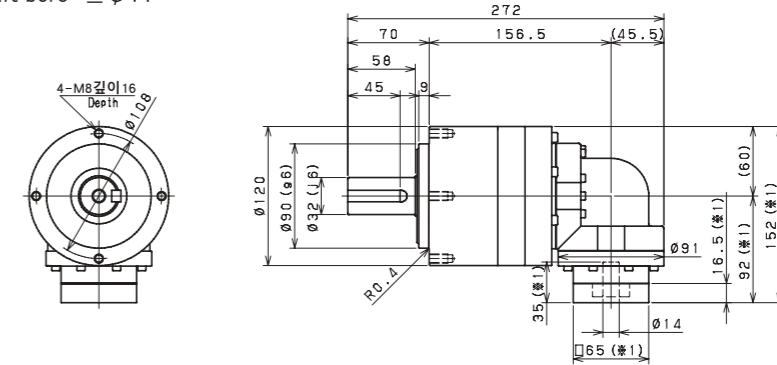
입력축 내경 Input shaft bore $\leq \phi 38$



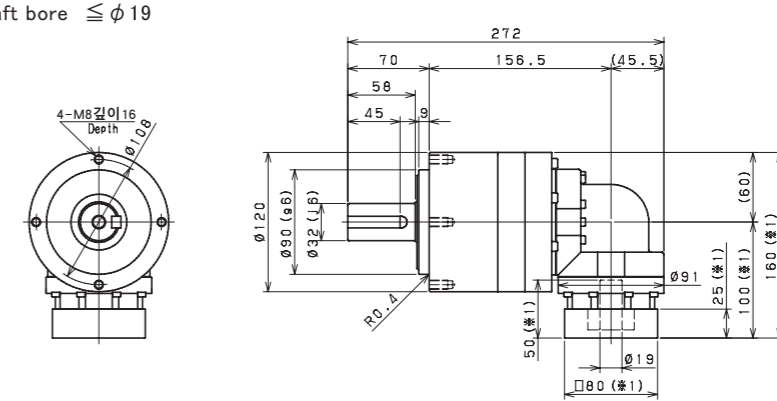
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMEL 120 3단 3stage

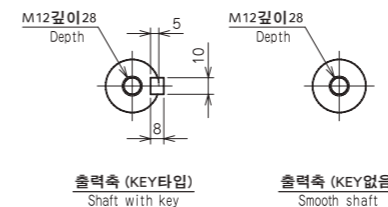
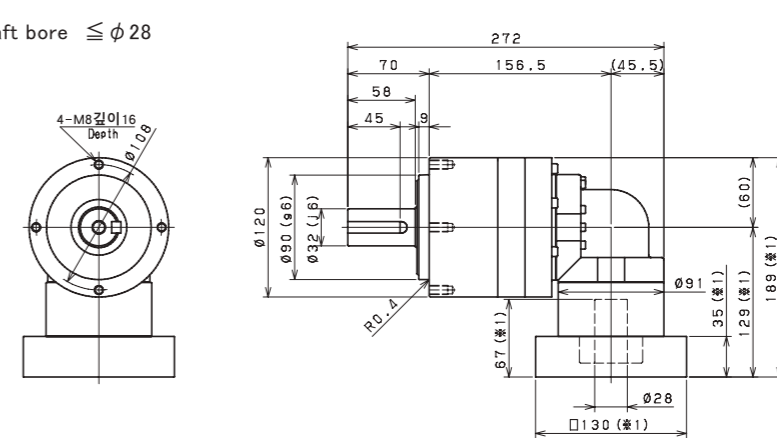
입력축 내경 Input shaft bore $\leq \phi 14$



입력축 내경 Input shaft bore $\leq \phi 19$



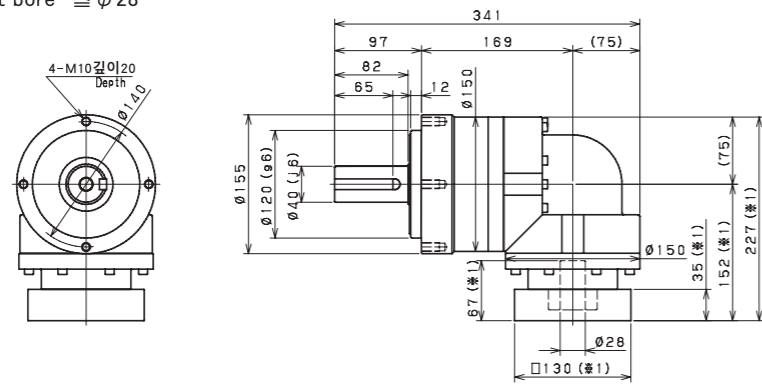
입력축 내경 Input shaft bore $\leq \phi 28$



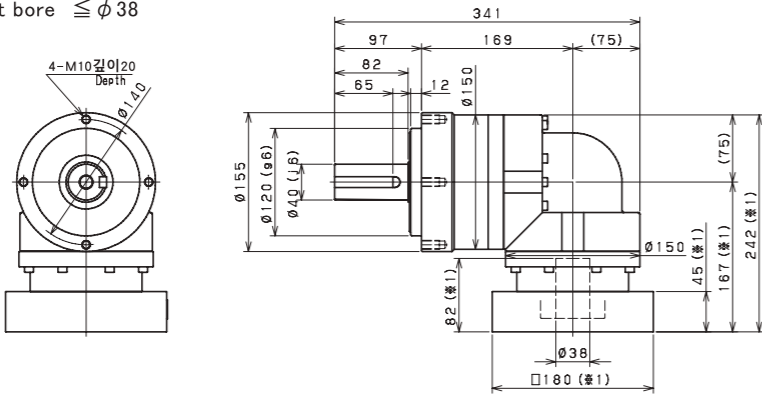
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMEL 155 2단 2stage

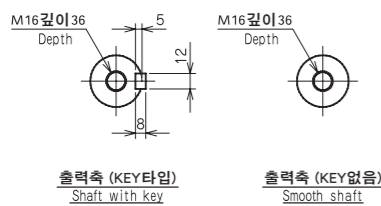
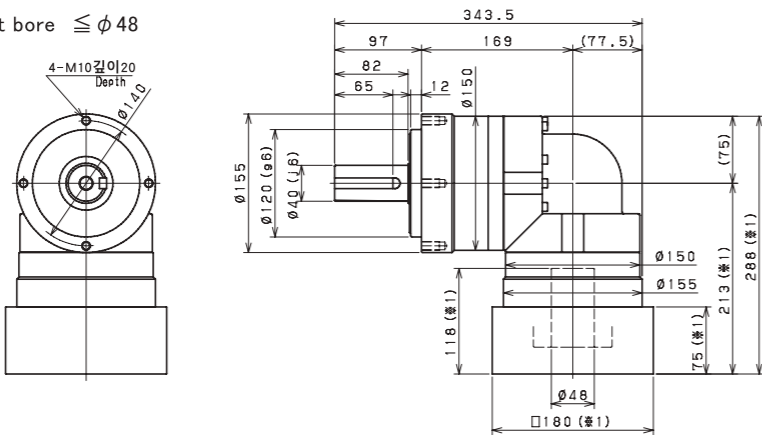
입력축 내경 Input shaft bore $\leq \phi 28$



입력축 내경 Input shaft bore $\leq \phi 38$



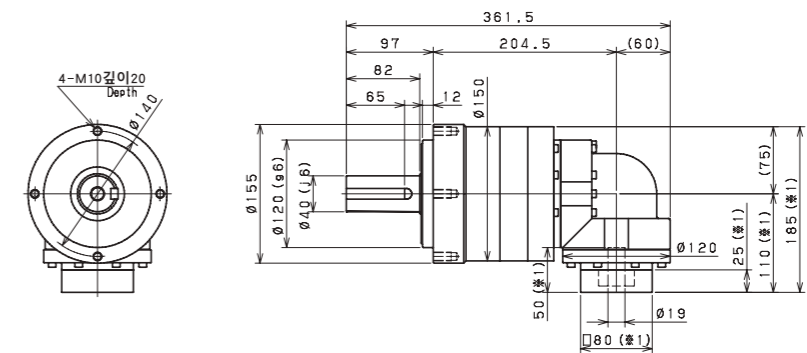
입력축 내경 Input shaft bore $\leq \phi 48$



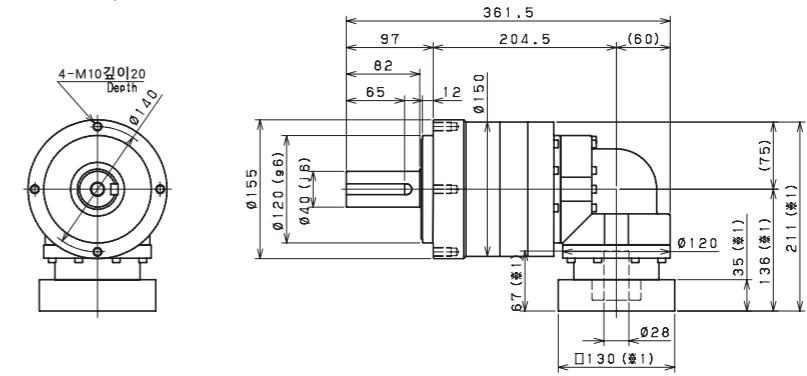
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Busing will be inserted to adapt to motor shaft.

SMEL 155 3단 3stage

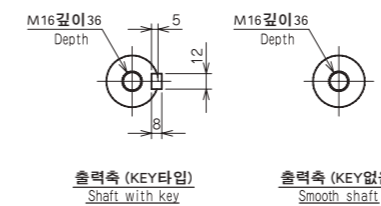
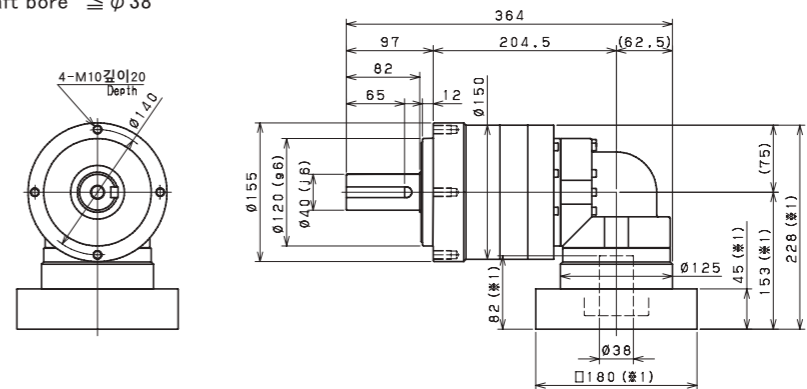
입력축 내경 Input shaft bore $\leq \phi 19$



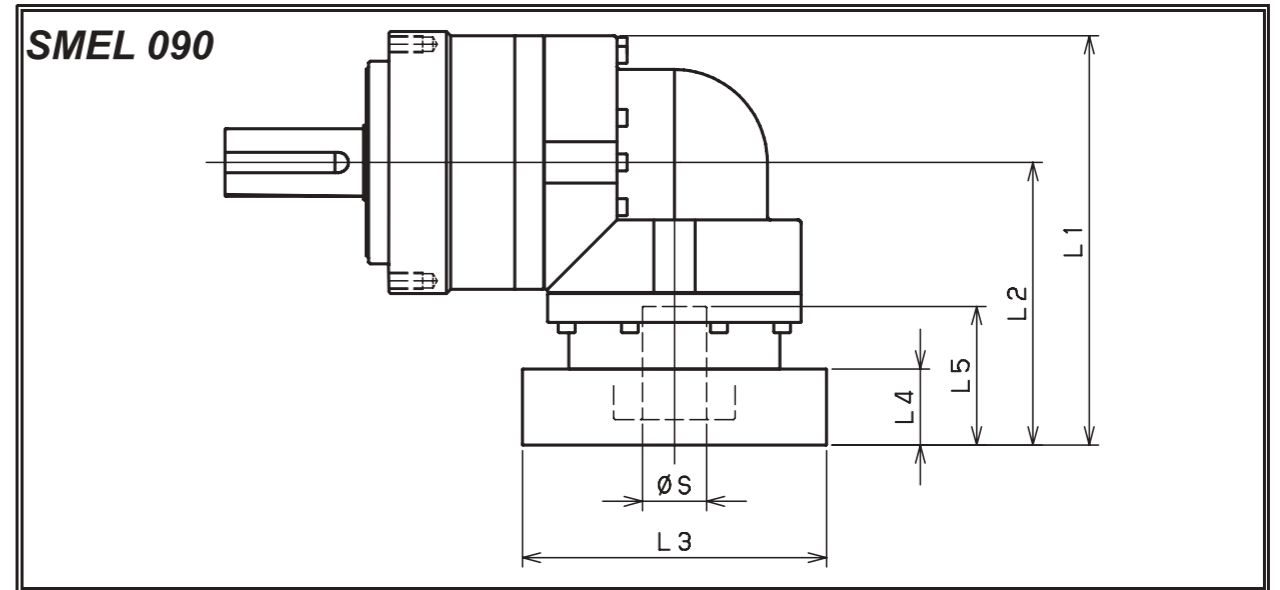
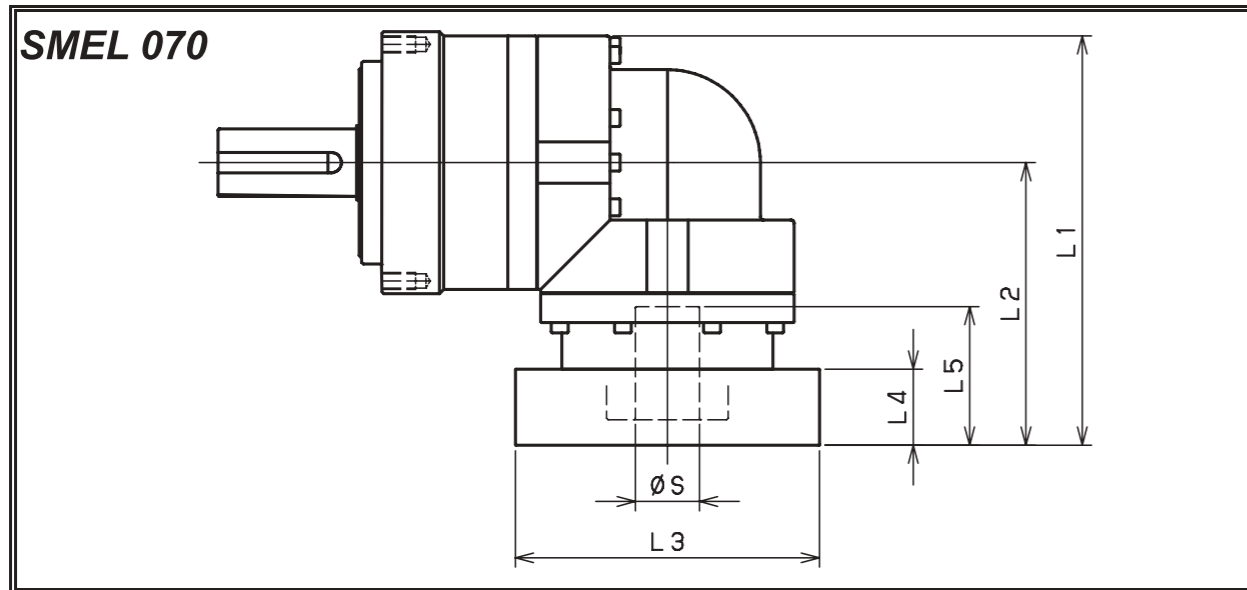
입력축 내경 Input shaft bore $\leq \phi 28$



입력축 내경 Input shaft bore $\leq \phi 38$



- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Busing will be inserted to adapt to motor shaft.

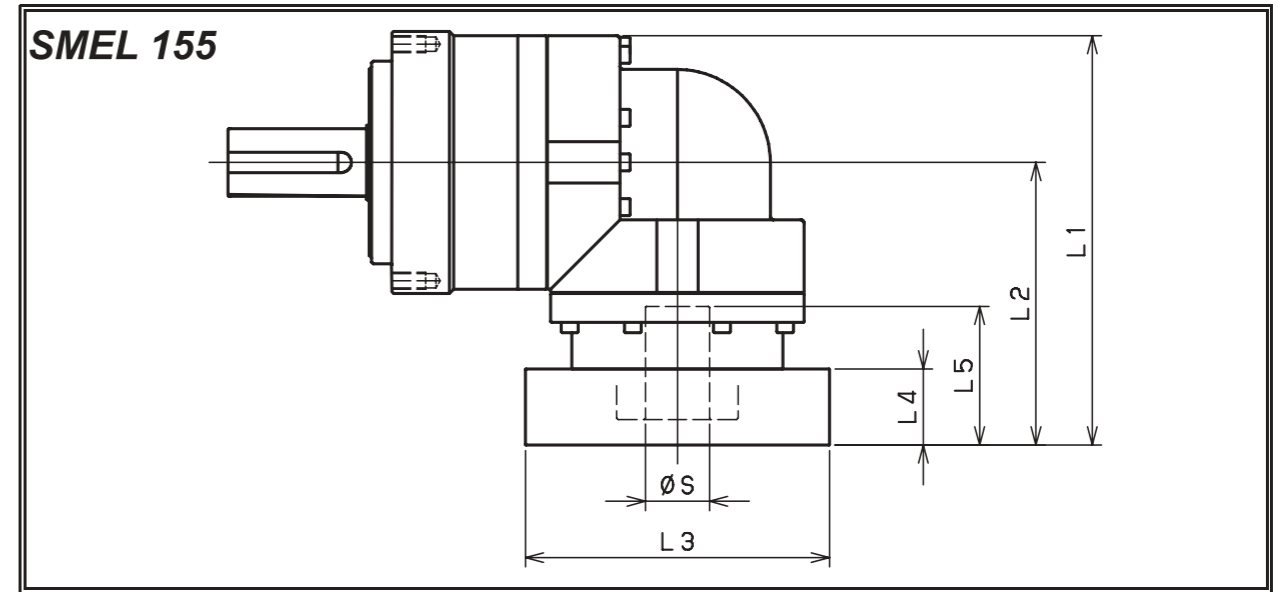
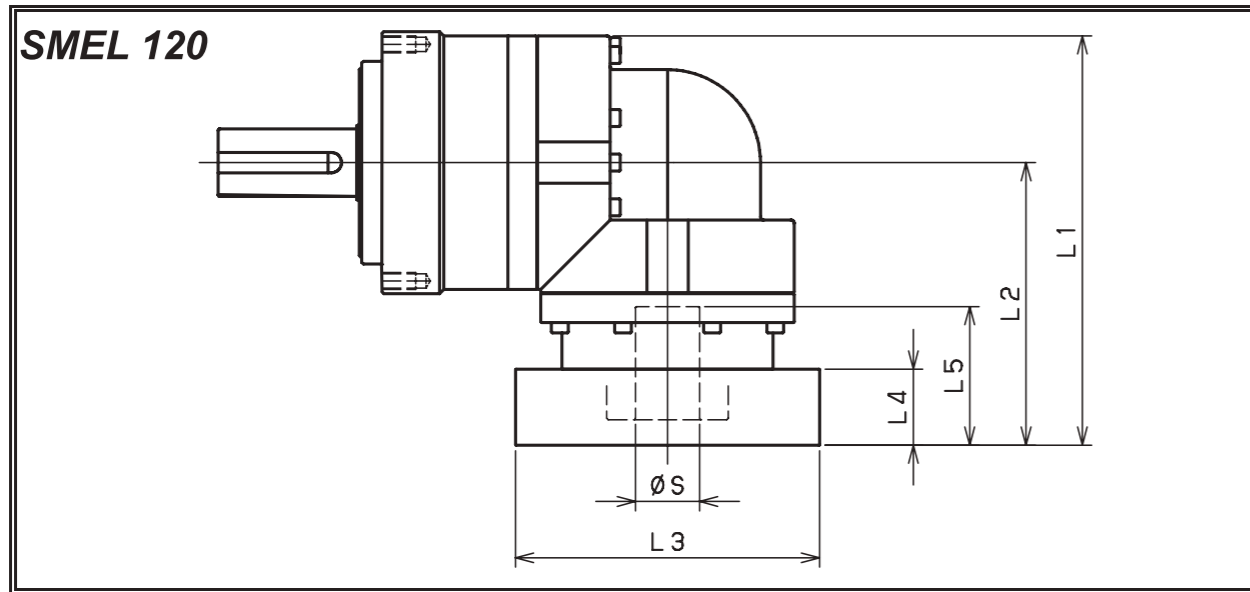


모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	2단 Double					3단 Triple				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMEL070□□□-8** (S ≤ 8)	AA·AC·AD·AF·AG	106.5	71.5	□52	15.5	32	99.5	64.5	□52	15.5	32
	AB·AE·AH·AJ·AK	111.5	76.5	□52	20.5	37	104.5	69.5	□52	20.5	37
	BA·BB·BD·BE	106.5	71.5	□60	15.5	32	99.5	64.5	□60	15.5	32
	BC·BF	111.5	76.5	□60	20.5	37	104.5	69.5	□60	20.5	37
	CA	111.5	76.5	□70	20.5	37	104.5	69.5	□70	20.5	37
SMEL070□□□-14** (8 < S ≤ 14)	BA·BB·BD·BE·BF·BG·BJ·BK	112.5	77.5	□65	16.5	35	103.5	68.5	□65	16.5	35
	BC·BH	117.5	82.5	□65	21.5	40	108.5	73.5	□65	21.5	40
	BL	122.5	87.5	□65	26.5	45	113.5	78.5	□65	26.5	45
	CA	112.5	77.5	□70	16.5	35	103.5	68.5	□70	16.5	35
	CB	117.5	82.5	□70	21.5	40	108.5	73.5	□70	21.5	40
	DA·DB·DC·DD·DF·DH	112.5	77.5	□80	16.5	35	103.5	68.5	□80	16.5	35
	DE	117.5	82.5	□80	21.5	40	108.5	73.5	□80	21.5	40
	DG	122.5	87.5	□80	26.5	45	113.5	78.5	□80	26.5	45
	EA·EB·EC	112.5	77.5	□90	16.5	35	103.5	68.5	□90	16.5	35
	ED	122.5	87.5	□90	26.5	45	113.5	78.5	□90	26.5	45
	FA	112.5	77.5	□100	16.5	35	103.5	68.5	□100	16.5	35
GA	112.5	77.5	□115	16.5	35	103.5	68.5	□115	16.5	35	
SMEL070□□□-19** (14 < S ≤ 19)	DA·DB·DC	129.5	94.5	□80	25	50					
	DD	139.5	104.5	□80	35	60					
	DE	134.5	99.5	□80	30	55					
	EA	134.5	99.5	□90	30	55					
	EB	129.5	94.5	□90	25	50					
	EC	139.5	104.5	□90	35	60					
	FA	129.5	94.5	□100	25	50					
	FB	139.5	104.5	□100	35	60					
	GA·GC	134.5	99.5	□115	30	55					
	GB·GD	129.5	94.5	□115	25	50					
	HA	129.5	94.5	□130	25	50					
HB	144.5	109.5	□130	40	65						
HC·HD·HE	134.5	99.5	□130	30	55						

※1 2단 감속비: 1/3~1/10 ; 3단 감속비: 1/15~1/100 ※1 Double reduction : 1/3~1/10, Triple reduction : 1/15~1/100
 ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※2 Bushing will be inserted to adapt to motor shaft.

모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	2단 Double					3단 Triple				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMEL090□□□-8** (S ≤ 8)	AA·AC·AD·AF·AG						117	71.5	□52	15.5	32
	AB·AE·AH·AJ·AK						122	76.5	□52	20.5	37
	BA·BB·BD·BE						117	71.5	□60	15.5	32
	BC·BF						122	76.5	□60	20.5	37
	CA						122	76.5	□70	20.5	37
SMEL090□□□-14** (8 < S ≤ 14)	BA·BB·BD·BE·BF·BG·BJ·BK	137.5	92	□65	16.5	35	123	77.5	□65	16.5	35
	BC·BH	142.5	97	□65	21.5	40	128	82.5	□65	21.5	40
	BL	147.5	102	□65	26.5	45	133	87.5	□65	26.5	45
	CA	137.5	92	□70	16.5	35	123	77.5	□70	16.5	35
	CB	142.5	97	□70	21.5	40	128	82.5	□70	21.5	40
	DA·DB·DC·DD·DF·DH	137.5	92	□80	16.5	35	123	77.5	□80	16.5	35
	DE	142.5	97	□80	21.5	40	128	82.5	□80	21.5	40
	DG	147.5	102	□80	26.5	45	133	87.5	□80	26.5	45
	EA·EB·EC	137.5	92	□90	16.5	35	123	77.5	□90	16.5	35
	ED	147.5	102	□90	26.5	45	133	87.5	□90	26.5	45
	FA	137.5	92	□100	16.5	35	123	77.5	□100	16.5	35
GA	137.5	92	□115	16.5	35	123	77.5	□115	16.5	35	
SMEL090□□□-19** (14 < S ≤ 19)	DA·DB·DC	145.5	100	□80	25	50	140	94.5	□80	25	50
	DD	155.5	110	□80	35	60	150	104.5	□80	35	60
	DE	150.5	105	□80	30	55	145	99.5	□80	30	55
	EA	150.5	105	□90	30	55	145	99.5	□90	30	55
	EB	145.5	100	□90	25	50	140	94.5	□90	25	50
	EC	155.5	110	□90	35	60	150	104.5	□90	35	60
	FA	145.5	100	□100	25	50	140	94.5	□100	25	50
	FB	155.5	110	□100	35	60	150	104.5	□100	35	60
	GA·GC	150.5	105	□115	30	55	145	99.5	□115	30	55
	GB·GD	145.5	100	□115	25	50	140	94.5	□115	25	50
	HA	145.5	100	□130	25	50	140	94.5	□130	25	50
HB	160.5	115	□130	40	65	155	109.5	□130	40	65	
HC·HD·HE	150.5	105	□130	30	55	145	99.5	□130	30	55	
SMEL090□□□-28** (19 < S ≤ 28)	FA·FB·FC	174.5	129	□100	35	67					
	GA·GB·GC·GD·GE·GF·GG	174.5	129	□115	35	67					
	HA·HC·HD	174.5	129	□130	35	67					
	HB	184.5	139	□130	45	77					
	JA·JB·JC	174.5	129	□150	35	67					
	KA·KB	174.5	129	□180	35	67					
LA	174.5	129	□200	35	67						
MA	174.5	129	□220	35	67						

※1 2단 감속비: 1/3~1/10 ; 3단 감속비: 1/15~1/100 ※1 Double reduction : 1/3~1/10, Triple reduction : 1/15~1/100
 ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※2 Bushing will be inserted to adapt to motor shaft.



모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	2단 Double					3단 Triple				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMEL120□□□-14** (S ≤ 14)	BA·BB·BD·BE·BF·BG·BJ·BK						152	92	□65	16.5	35
	BC·BH						157	97	□65	21.5	40
	BL						162	102	□65	26.5	45
	CA						152	92	□70	16.5	35
	CB						157	97	□70	21.5	40
	DA·DB·DC·DD·DF·DH						152	92	□80	16.5	35
	DE						157	97	□80	21.5	40
	DG						162	102	□80	26.5	45
	EA·EB·EC						152	92	□90	16.5	35
	ED						162	102	□90	26.5	45
	FA						152	92	□100	16.5	35
	GA						152	92	□115	16.5	35
SMEL120□□□-19** (14 < S ≤ 19)	DA·DB·DC	170	110	□80	25	50	160	100	□80	25	50
	DD	180	120	□80	35	60	170	110	□80	35	60
	DE	175	115	□80	30	55	165	105	□80	30	55
	EA	175	115	□90	30	55	165	105	□90	30	55
	EB	170	110	□90	25	50	160	100	□90	25	50
	EC	180	120	□90	35	60	170	110	□90	35	60
	FA	170	110	□100	25	50	160	100	□100	25	50
	FB	180	120	□100	35	60	170	110	□100	35	60
	GA·GC	175	115	□115	30	55	165	105	□115	30	55
	GB·GD	170	110	□115	25	50	160	100	□115	25	50
	HA	170	110	□130	25	50	160	100	□130	25	50
	HB	185	125	□130	40	65	175	115	□130	40	65
HC·HD·HE	175	115	□130	30	55	165	105	□130	30	55	
SMEL120□□□-28** (19 < S ≤ 28)	FA·FB·FC	196	136	□100	35	67	189	129	□100	35	67
	GA·GB·GC·GD·GE·GF·GG	196	136	□115	35	67	189	129	□115	35	67
	HA·HC·HD	196	136	□130	35	67	189	129	□130	35	67
	HB	206	146	□130	45	77	199	139	□130	45	77
	JA·JB·JC	196	136	□150	35	67	189	129	□150	35	67
	KA·KB	196	136	□180	35	67	189	129	□180	35	67
SMEL120□□□-38** (28 < S ≤ 38)	LA	196	136	□200	35	67	189	129	□200	35	67
	MA	196	136	□220	35	67	189	129	□220	35	67
	HA	213	153	□130	45	82					
	HB	208	148	□130	40	77					
	JA	213	153	□150	45	82					
	KA·KB·KC	213	153	□180	45	82					
	LA	213	153	□200	45	82					
	LB	223	163	□200	55	92					
SMEL155□□□-19** (S ≤ 19)	DA·DB·DC						187.5	110	□80	25	50
	DD						197.5	120	□80	35	60
SMEL155□□□-28** (19 < S ≤ 28)	DE						192.5	115	□80	30	55
	EA						192.5	115	□90	30	55
	EB						187.5	110	□90	25	50
	EC						197.5	120	□90	35	60
	FA						187.5	110	□100	25	50
	FB						197.5	120	□100	35	60
	GA·GC						192.5	115	□115	30	55
	GB·GD						187.5	110	□115	25	50
	HA						187.5	110	□130	25	50
	HB						202.5	125	□130	40	65
	HC·HD·HE						192.5	115	□130	30	55
	SMEL155□□□-38** (28 < S ≤ 38)	FA·FB·FC	229.5	152	□100	35	67	213.5	136	□100	35
GA·GB·GC·GD·GE·GF·GG		229.5	152	□115	35	67	213.5	136	□115	35	67
HA·HC·HD		229.5	152	□130	35	67	213.5	136	□130	35	67
HB		239.5	162	□130	45	77	223.5	146	□130	45	77
JA·JB·JC		229.5	152	□150	35	67	213.5	136	□150	35	67
KA·KB		229.5	152	□180	35	67	213.5	136	□180	35	67
SMEL155□□□-48** (38 < S ≤ 48)	LA	229.5	152	□200	35	67	213.5	136	□200	35	67
	MA	229.5	152	□220	35	67	213.5	136	□220	35	67
	HA	244.5	167	□130	45	82	230.5	153	□130	45	82
	HB	239.5	162	□130	40	77	225.5	148	□130	40	77
	JA	244.5	167	□150	45	82	230.5	153	□150	45	82
	KA·KB·KC	244.5	167	□180	45	82	230.5	153	□180	45	82
SMEL155□□□-19** (S ≤ 19)	LA	244.5	167	□200	45	82	230.5	153	□200	45	82
	LB	254.5	177	□200	55	92	240.5	163	□200	55	92
	MA·MB	244.5	167	□220	45	82	230.5	153	□220	45	82
	NA	244.5	167	□250	45	82	230.5	153	□250	45	82
	KB·KC	270.5	193	□180	55	98					
	KA	290.5	213	□180	75	118					
	LA	270.5	193	□200	55	98					
	MA	270.5	193	□220	55	98					
SMEL155□□□-28** (19 < S ≤ 28)	MB	290.5	213	□220	75	118					
	NA	290.5	213	□250	75	118					
	PA	290.5	213	□280	75	118					

모델명 Model number	** : 어댑터 코드 ** : Adapter code (Mount code)	2단 Double					3단 Triple				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
SMEL155□□□-19** (S ≤ 19)	DA·DB·DC						187.5	110	□80	25	50
	DD						197.5	120	□80	35	60
	DE						192.5	115	□80	30	55
	EA						192.5	115	□90	30	55
	EB						187.5	110	□90	25	50
	EC						197.5	120	□90	35	60
	FA						187.5	110	□100	25	50
	FB						197.5	120	□100	35	60
	GA·GC						192.5	115	□115	30	55
	GB·GD						187.5	110	□115	25	50
	HA						187.5	110	□130	25	50
	HB						202.5	125	□130	40	65
HC·HD·HE						192.5	115	□130	30	55	
SMEL155□□□-28** (19 < S ≤ 28)	FA·FB·FC	229.5	152	□100	35	67	213.5	136	□100	35	67
	GA·GB·GC·GD·GE·GF·GG	229.5	152	□115	35	67	213.5	136	□115	35	67
	HA·HC·HD	229.5	152	□130	35	67	213.5	136	□130	35	67
	HB	239.5	162	□130	45	77	223.5	146	□130	45	77
	JA·JB·JC	229.5	152	□150	35	67	213.5	136	□150	35	67
	KA·KB	229.5	152	□180	35	67	213.5	136	□180	35	67
SMEL155□□□-38** (28 < S ≤ 38)	LA	229.5	152	□200	35	67	213.5	136	□200	35	67
	MA	229.5	152	□220	35	67	213.5	136	□220	35	67
	HA	244.5	167	□130	45	82	230.5	153	□130	45	82
	HB	239.5	162	□130	40	77	225.5	148	□130	40	77
	JA	244.5	167	□150	45	82	230.5	153	□150	45	82
	KA·KB·KC	244.5	167	□180	45	82	230.5	153	□180	45	82
SMEL155□□□-48** (38 < S ≤ 48)	LA	244.5	167	□200	45	82	230.5	153	□200	45	82
	LB	254.5	177	□200	55	92	240.5	163	□200	55	92
	MA·MB	244.5	167	□220	45	82	230.5	153	□220	45	82
	NA	244.5	167	□250	45	82	230.5	153	□250	45	82
	KB·KC	270.5	193	□180	55	98					
	KA	290.5	213	□180	75	118					
SMEL155□□□-19** (S ≤ 19)	LA	270.5	193	□200	55	98					
	MA	270.5	193	□220	55	98					
	MB	290.5	213	□220	75	118					
	NA	290.5	213	□250	75	118					
SMEL155□□□-28** (19 < S ≤ 28)	PA	290.5	213	□280	75	118					

※1 2단 감속비: 1/3~1/10 ; 3단 감속비: 1/15~1/100 ※1 Double reduction : 1/3 ~ 1/10, Triple reduction : 1/15 ~ 1/100
 ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※2 Bushing will be inserted to adapt to motor shaft.

※1 2단 감속비: 1/3~1/10 ; 3단 감속비: 1/15~1/100 ※1 Double reduction : 1/3 ~ 1/10, Triple reduction : 1/15 ~ 1/100
 ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다. ※2 Bushing will be inserted to adapt to motor shaft.

SMPB series



정속한 운전

헬리컬 기어 적용으로 저진동, 저소음 실현.

고정밀

표준 백래시 ≤ 5 arc-min.

고강성 & 고토크

Uncaged 니들롤러베어링을 사용하여 강성과 토크 향상.

어댑터-부싱 연결방식

다양한 모터에 취부 가능.

그리스 누유현상 없음

고점도 분리방지 그리스를 사용.

유지 보수 불필요

제품 수명 동안 그리스 교체 불필요 자유로운 설치 가능.

Quiet operation

Helical gears contribute to reduce vibration and noise.

High precision

Standard backlash is 5 arc-min, ideal for precision control.

High rigidity & torque

High rigidity & high torque were achieved by uncaged needle roller bearings.

Adapter-bushing connection

Can be attached to any motor all over the world.

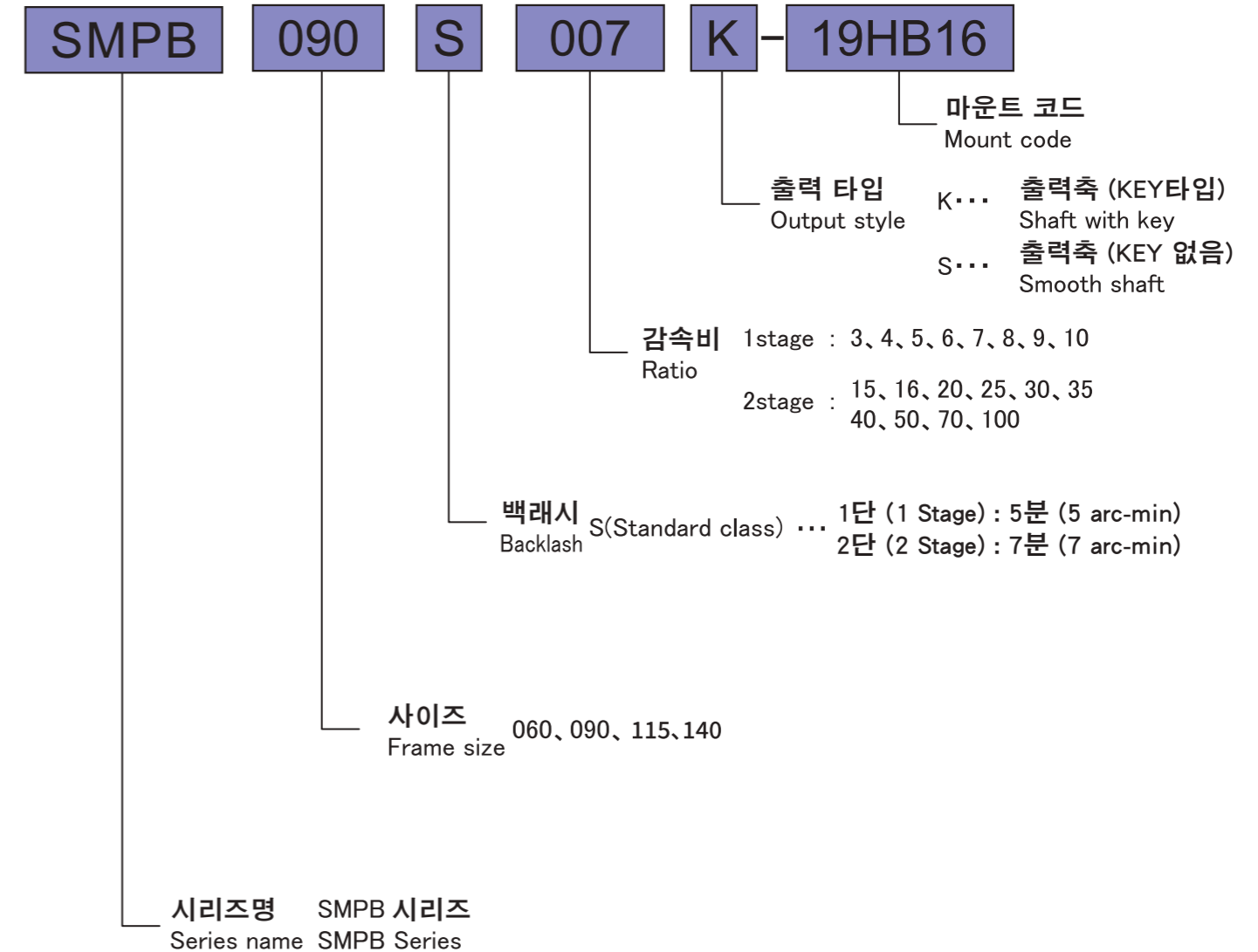
No grease leakage

Perfect solution using high viscosity anti-separation grease.

Maintenance-free

No need to replace the grease for the life of the unit. Can be attached in any position.

SMPB series

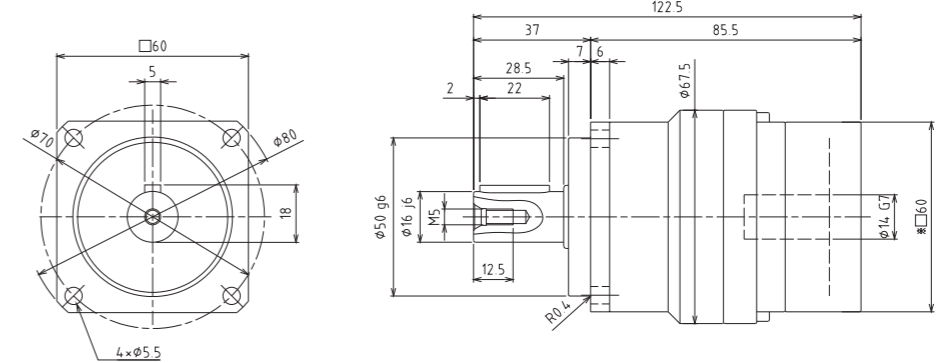


Model No.	Unit	Stage	Ratio ¹	SMPB060	SMPB090	SMPB115	SMPB140
Rated Output Torque (Nominal Output torque)	T _{2N}	1	3	39	106	195	440
			4	39	110	210	460
			5	43	110	210	580
			6	43	108	160	530
			7	43	108	200	490
			8	43	79	190	420
			9	35	90	170	390
			10	30	88	170	370
			15	35	84	195	440
			16	39	100	210	460
		20	39	100	210	460	
		25	43	110	210	580	
		30	39	90	195	440	
		35	43	108	200	580	
		40	43	110	210	460	
		50	43	110	210	580	
		70	43	108	200	490	
		100	39	88	170	370	
		Max. Acceleration Torque	T _{2B}	Nm	1,2	3~100 1.8 Times of Rated Output Torque	
Max. Output Torque Emergency Stop Torque	T _{2NOT}	Nm	1,2	3~100 3 Times of Rated Output Torque			
Nominal Input speed	n _{1n}	rpm	1,2	3~100	3,000	3,000	2,000
Max. Input speed	n _{1B}	rpm	1,2	3~100	6,000	6,000	5,000
Backlash (Standard class)		arcmin	1	3~10	≤5	≤5	≤5
			2	15~100	≤7	≤7	≤7
Torsional Rigidity		Nm/arcmin	1,2	3~100	5	12	23
Max. Radial load ²	F _{2rB}	N	1,2	3~100	930	2,350	5,100
Max. Axial load ²	F _{2aB}	N	1,2	3~100	860	1,700	3,900
Service life	L _H	hr	1,2	3~100	20,000	20,000	20,000
Noise level ³		dB(A)	1,2	3~100	≤ 58	≤ 60	≤ 63
Weight		kg	1	3~10	1.3	3.9	6.2
			2	15~100	1.8	4.6	8
Mass Moments of Inertia ⁴		kg cm ²	1	3~10	0.22	1.1	4.5
			2	15~100	0.16	0.2	1.8
Operating Temp. ⁵		°C	1,2	3~100	-10 ~ +90		
Lubrication			1,2	3~100	High temperature & Extreme pressure Lubricant		
Mounting position			1,2	3~100	All directions		
Efficiency	η	%	1	3~10	≥ 95		
			2	15~100	≥ 90		
Degree of protection			1,2	3~100	IP 65		

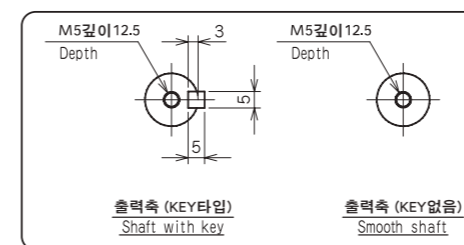
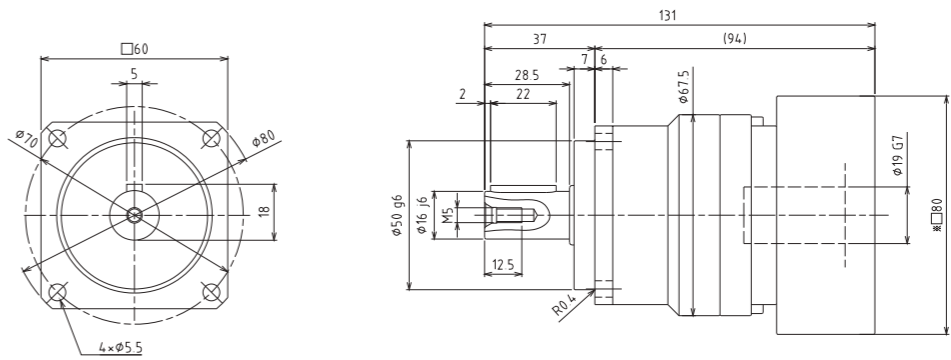
- (1) Ratio (감속비) = N_{in} / N_{out}
 (2) 기준 : 출력회전수 100rpm, 출력축 중앙 부하, 부하계수(Ka)=1, 연속운전 10,000시간
 These values are based on the following conditions : 100 rpm at the output. Load applied to the middle of the output shaft.
 Load coefficient(Ka)=1. Continuous operation(S1=10,000hrs).
 (3) 입력 회전수 3000 rpm, 무부하 운전상태에서 감속기 취부면에서 1m 떨어진 거리에서 측정 (모델에 따라 차이가 있을수 있습니다)
 Noise level : A measurement 1m away from the reducer (with ratio 10 or ratio 100), 3000 input rpm and at no load condition.
 (Background noise 40dB(A)) With lower ratio and/or higher rpm, the noise level could be 3 to 5 dB higher.
 (4) 관성모멘트 : 감속비 중 대표값 (i=1/5)
 Moment of inertia : A measurement at the input shaft and representatives from each ratio.(i=1/5)
 (5) 감속기 작동온도 : -10~+90 °C, 감속기 주위온도 -10~40°C
 Operating temperature : Surface temperature of gear case in -10 °C~40 °C of ambient temperature.
 ※ 제품 성능 향상을 위해 사양은 별도의 고지 없이 변경될 수 있습니다.
 Specifications are subject to change without notice to improve product performances.

SMPB 060 1단 1stage

입력축 내경 Input shaft bore ≤ φ 14



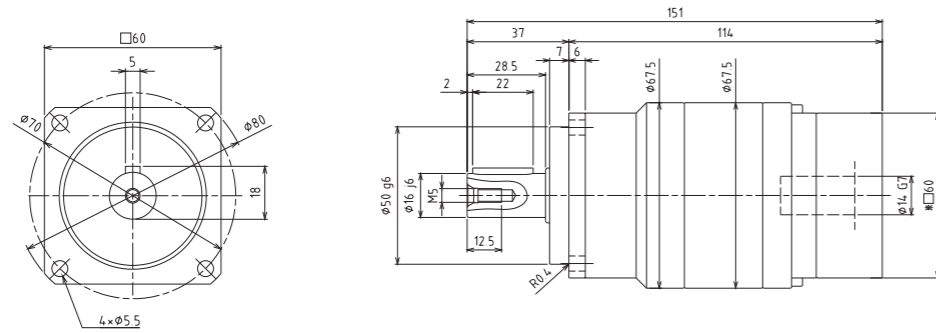
입력축 내경 Input shaft bore ≤ φ 19



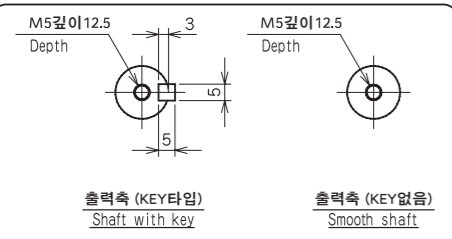
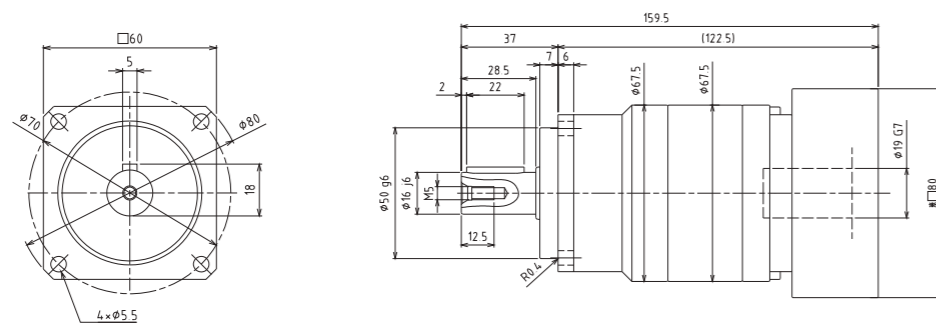
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
 ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
 ※1 Length will vary depending on motor.
 ※2 Bushing will be inserted to adapt to motor shaft.

SMPB 060 2단 2stage

입력축 내경 Input shaft bore $\leq \phi 14$



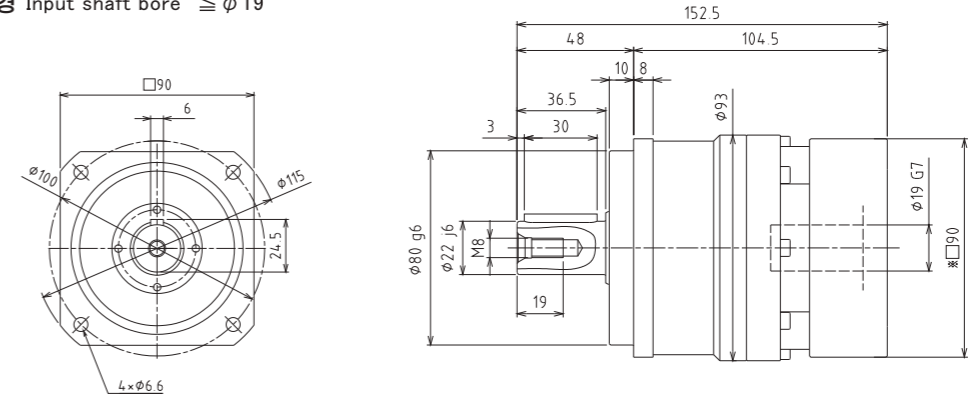
입력축 내경 Input shaft bore $\leq \phi 19$



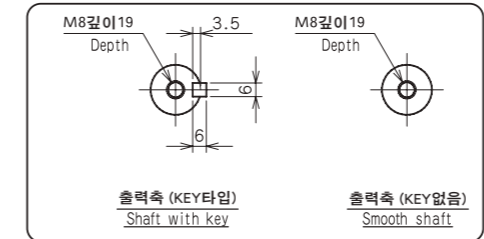
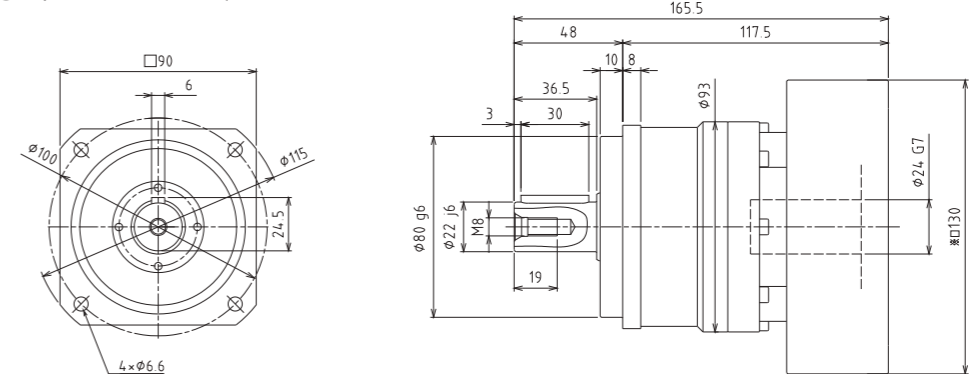
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMPB 090 1단 1stage

입력축 내경 Input shaft bore $\leq \phi 19$



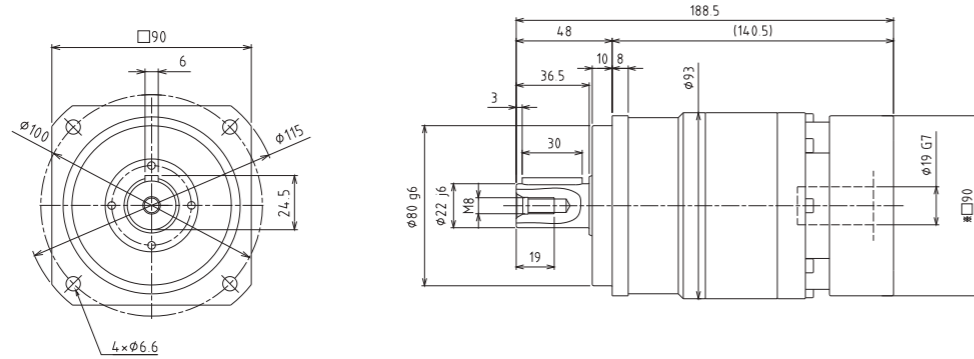
입력축 내경 Input shaft bore $\leq \phi 24$



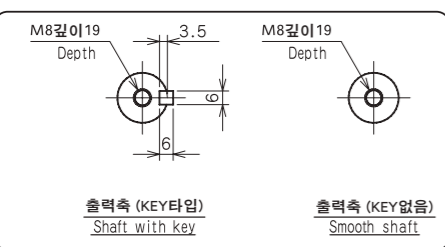
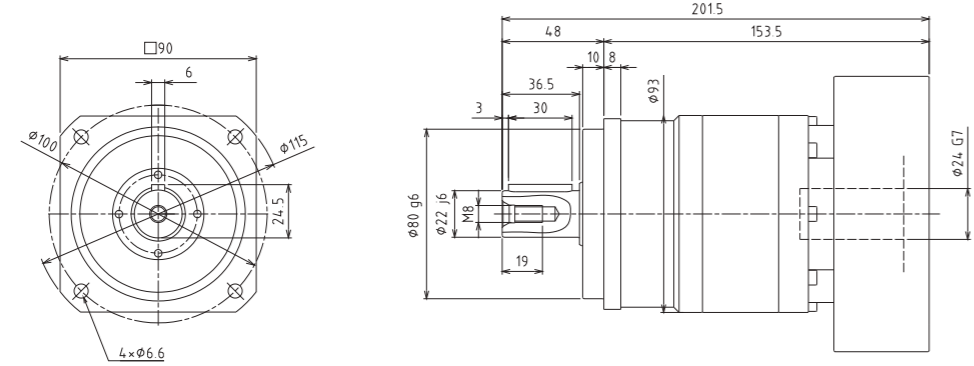
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMPB 090 2단 2stage

입력축 내경 Input shaft bore $\leq \phi 19$



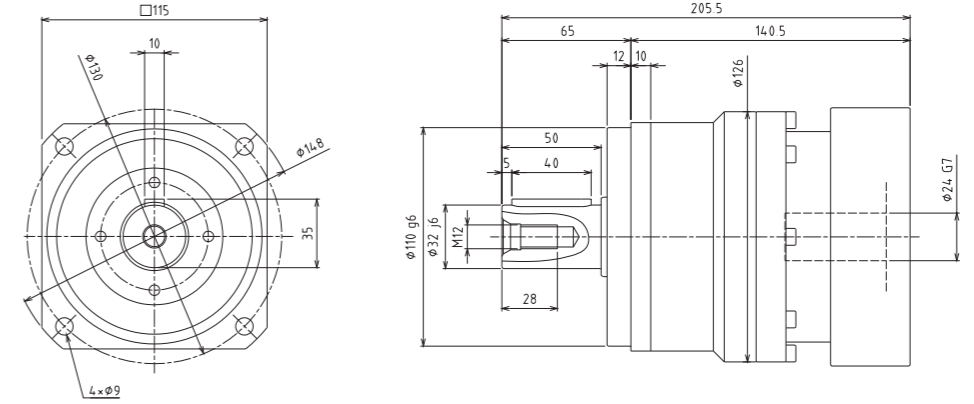
입력축 내경 Input shaft bore $\leq \phi 24$



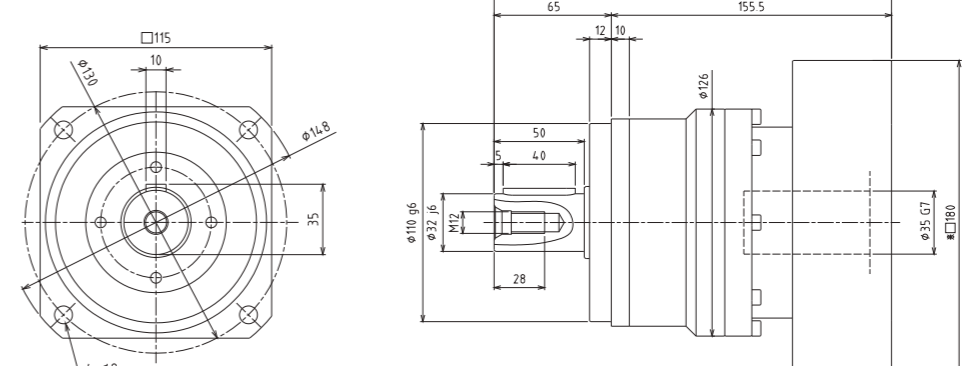
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMPB 115 1단 1stage

입력축 내경 Input shaft bore $\leq \phi 24$

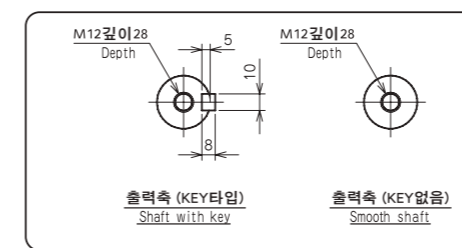
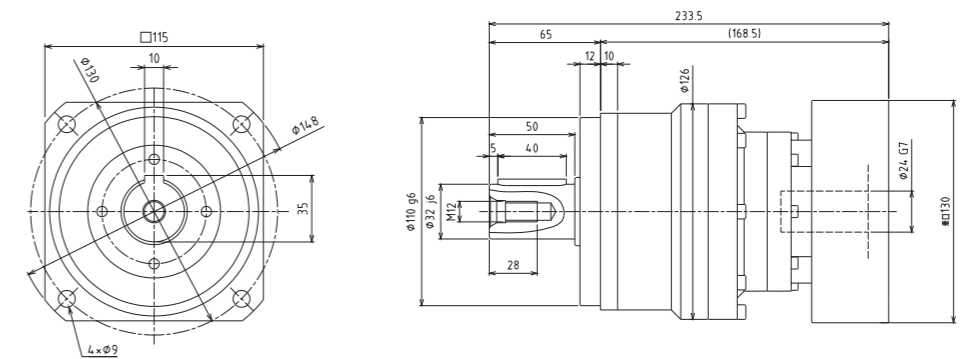


입력축 내경 Input shaft bore $\leq \phi 35$



SMPB 115 2단 2stage

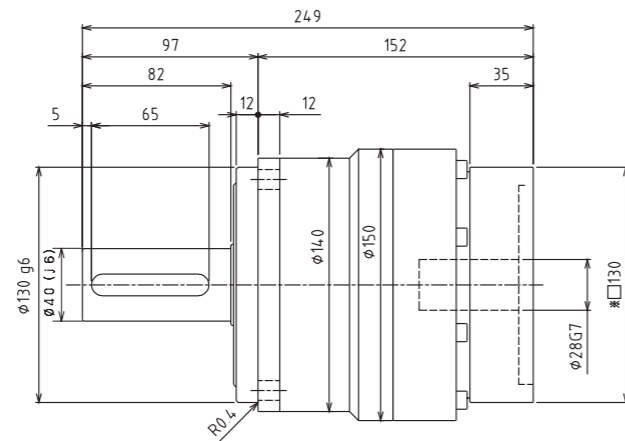
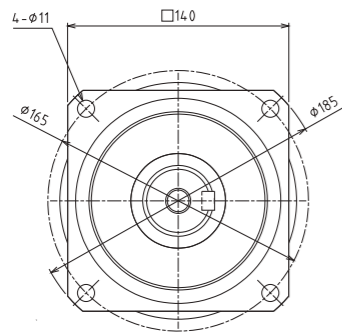
입력축 내경 Input shaft bore $\leq \phi 24$



- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

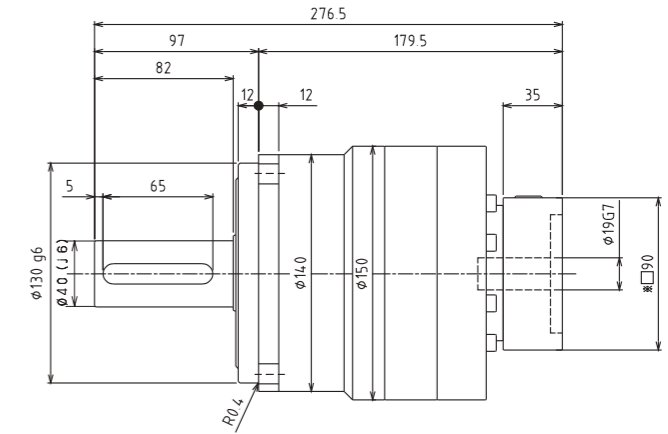
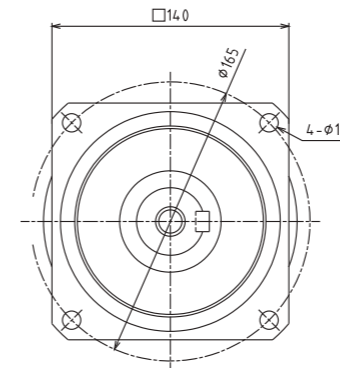
SMPB 140 1단 1stage

입력축 내경 Input shaft bore $\leq \phi 28$

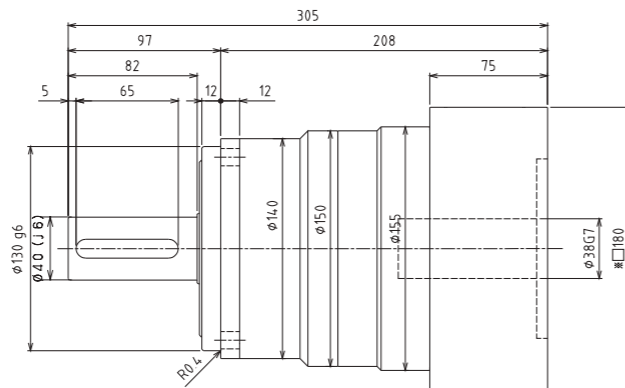
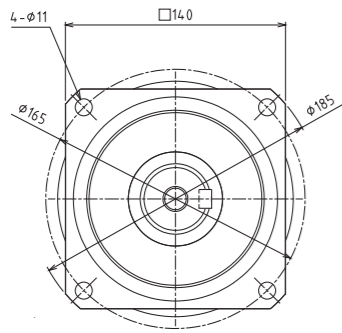


SMPB 140 2단 2stage

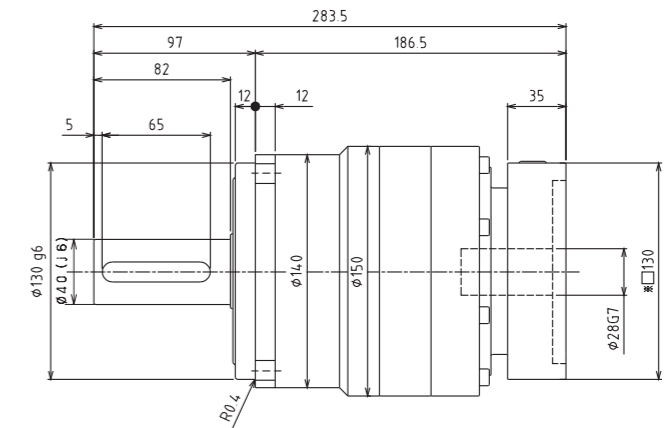
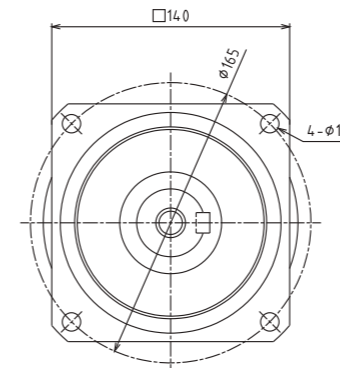
输入轴内径 Input shaft bore $\leq \phi 28$



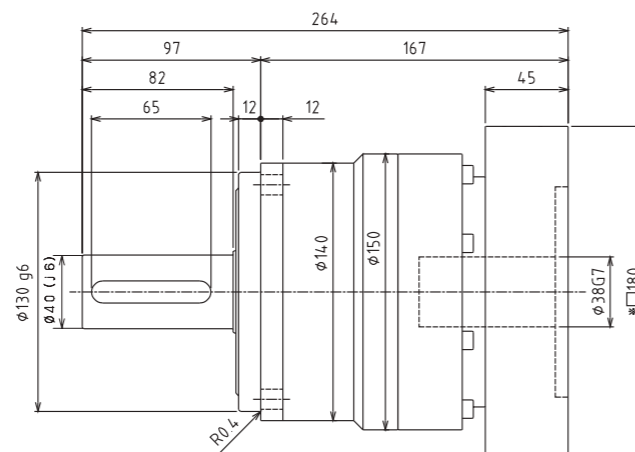
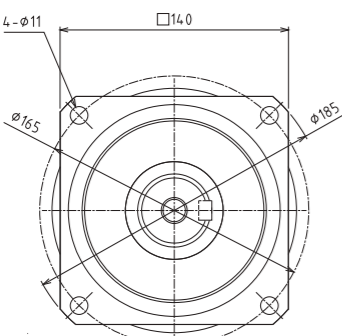
입력축 내경 Input shaft bore $\leq \phi 38$



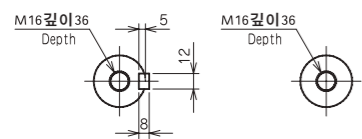
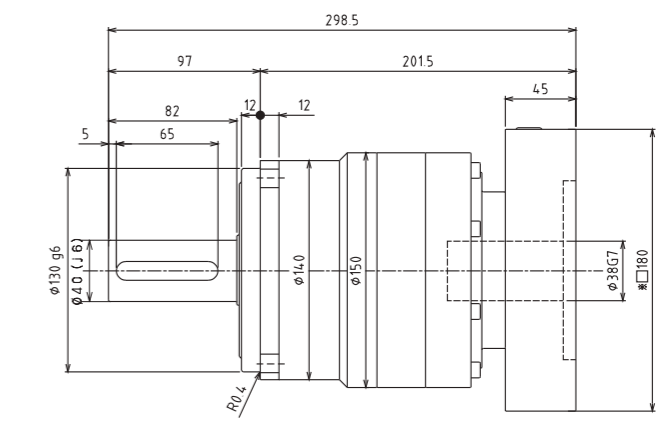
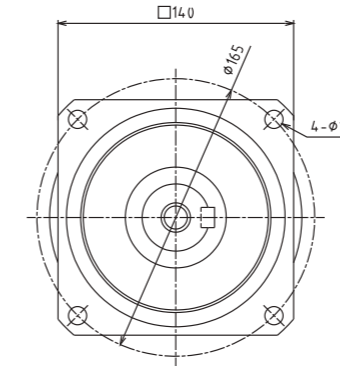
输入轴内径 Input shaft bore $\leq \phi 28$



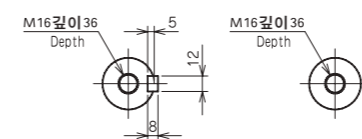
입력축 내경 Input shaft bore $\leq \phi 38$



输入轴内径 Input shaft bore $\leq \phi 38$



- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.



- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMPEB series



공간 절약

스파이럴 베벨기어를 적용한 직교형 감속기로, 출력축과 모터를 수직으로 위치시켜 공간절약 가능.

Space - saving

Right angle reducer using spiral bevel gear
Customer can locate the motor at 90 degree away from the reducer if required to save space.

고강성 & 고토크

Uncaged 니들롤러베어링을 사용하여 강성과 토크 향상.

High rigidity & torque

High rigidity & high torque was achieved by uncaged needle roller bearings.

어댑터-부싱 연결방식

다양한 모터에 취부 가능.

Adapter-bushing connection

Can be attached to any motor all over the world.

그리스 누유현상 없음

고점도 분리방지 그리스를 사용.

No grease leakage

Perfect solution by high viscosity anti-separation grease.

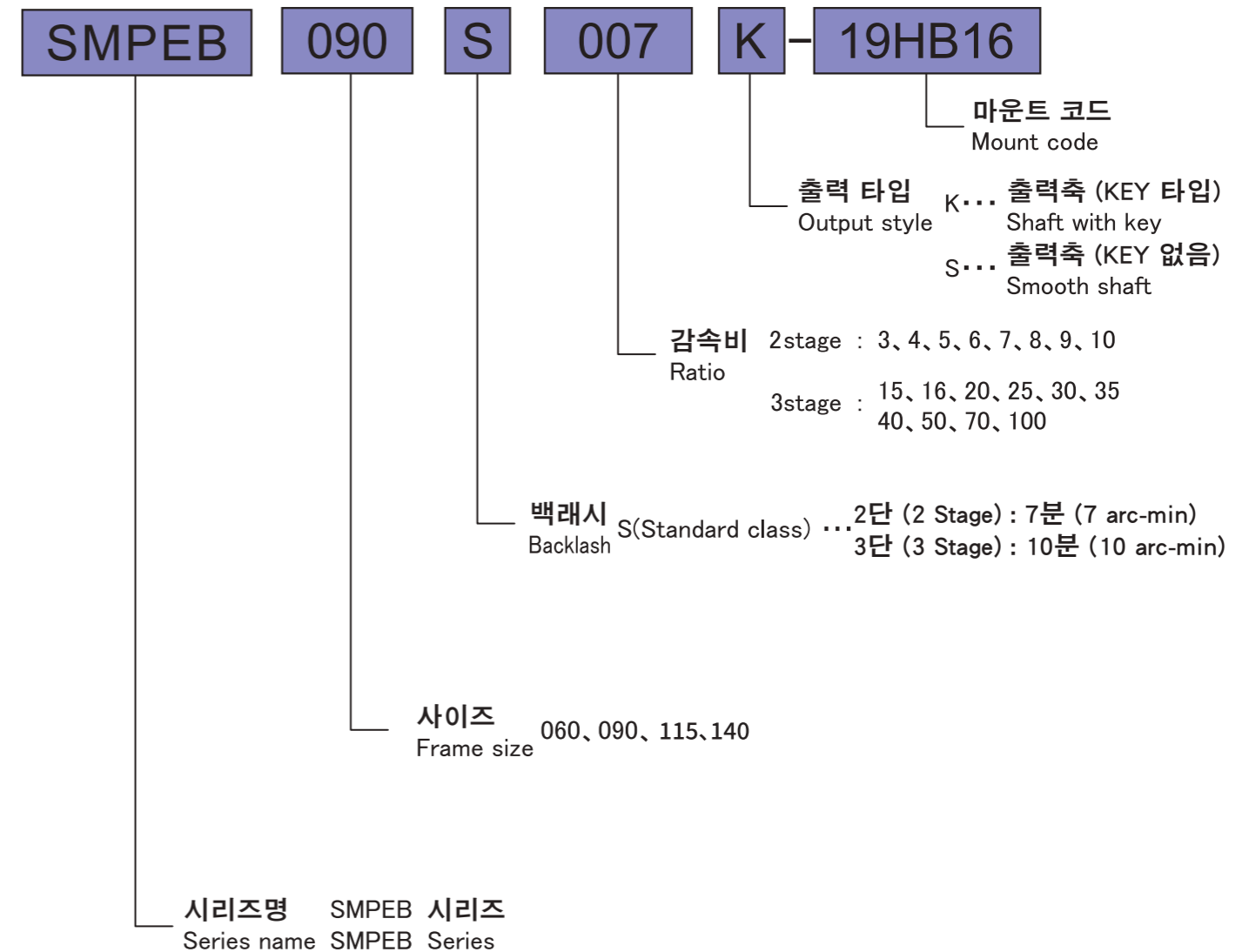
유지 보수 불필요

제품 수명 동안 그리스 교체 불필요 자유로운 설치 가능.

Maintenance-free

No need to replace the grease for the life time.
Can be attached in any position.

SMPEB series

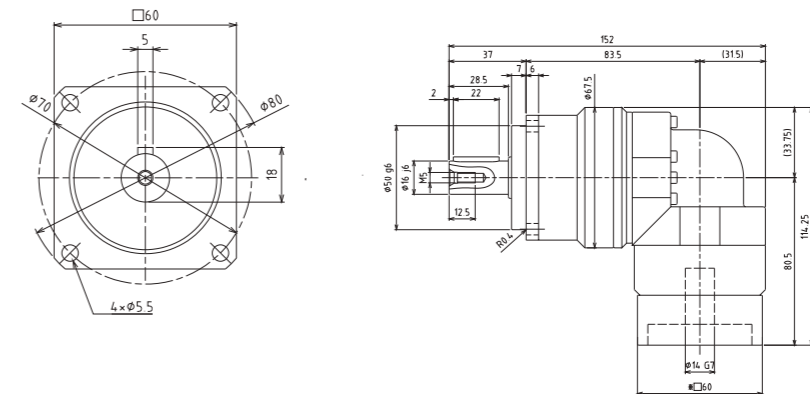


Model No.	Unit	Stage	Ratio ¹	SMPEB060	SMPEB090	SMPEB115	SMPEB140		
Rated Output Torque (Nominal Output torque)	T _{2N}	2	3	33	89	195	440		
			4	39	110	210	460		
			5	43	110	210	580		
			6	43	108	160	530		
			7	43	108	200	490		
			8	43	79	190	420		
			9	35	90	170	390		
			10	30	88	170	370		
			3	15	35	84	195	440	
				16	39	100	210	460	
		20		39	100	210	460		
		25		43	110	210	580		
		30		39	90	195	440		
		35		43	108	200	580		
		40		43	110	210	460		
		Max. Acceleration Torque	T _{2B}	Nm	2,3	3~100	1.8 Times of Rated Output Torque		
			T _{2NOT}	Nm	2,3	3~100	3 Times of Rated Output Torque		
Max. Output Torque									
Emergency Stop Torque									
Nominal Input speed	n _{1n}	rpm	2,3	3~100	3,000	3,000	3,000	2,000	
Max. Input speed	n _{1B}	rpm	2,3	3~100	6,000	6,000	6,000	5,000	
Backlash (Standard class)		arcmin	2	3~10	≤7	≤7	≤7	≤7	
			3	15~100	≤10	≤10	≤10	≤10	
Torsional Rigidity		Nm/arcmin	2,3	3~100	5	12	23	38	
Max. Radial load ²	F _{2rB}	N	2,3	3~100	930	2,350	5,100	8,100	
Max. Axial load ²	F _{2aB}	N	2,3	3~100	860	1,700	3,900	8,200	
Service life	L _H	hr	2,3	3~100	20,000	20,000	20,000	20,000	
Noise level ³		dB(A)	2,3	3~100	≤63	≤65	≤68	≤70	
Weight		kg	2	3~10	1.9	5.5	10.5	19.1	
			3	15~100	2.2	6.8	9.7	19.6	
Mass Moments of Inertia ⁴		kg cm ²	2	3~10	0.25	0.55	4.5	21.28	
			3	15~100	0.16	0.7	2.1	14.74	
Operating Temp. ⁵		°C	2,3	3~100	-10 ~ +90				
Lubrication			2,3	3~100	High temperature & Extreme pressure Lubricant				
Mounting position			2,3	3~100	All directions				
Efficiency	η	%	2	3~10	≥ 95				
			3	15~100	≥ 90				
Degree of protection			2,3	3~100	IP 65				

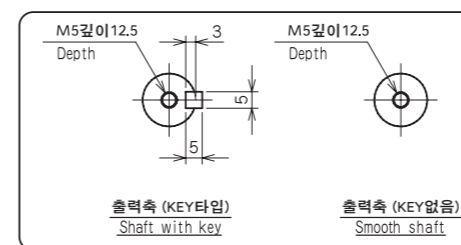
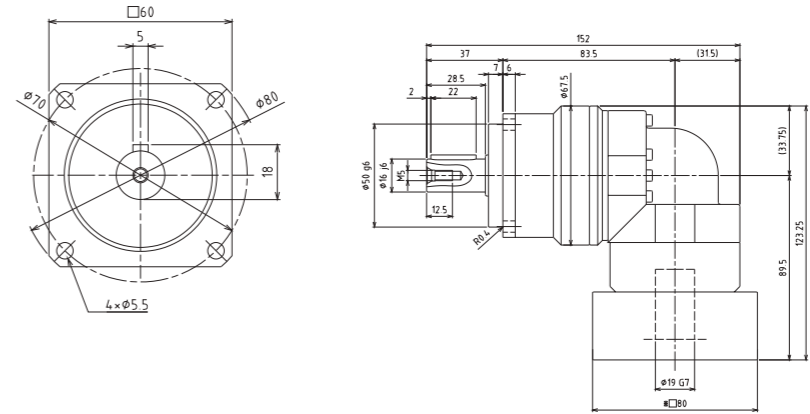
- (1) Ratio (감속비) = N_{in} / N_{out}
 (2) 기준 : 출력회전수 100rpm, 출력축 중앙 부하, 부하계수(Ka)=1, 연속운전 10,000시간
 These values are based on the following conditions : 100 rpm at the output. Load applied to the middle of the output shaft.
 Load coefficient(Ka)=1. Continuous operation(S1=10,000hrs).
 (3) 입력 회전수 3000 rpm, 무부하 운전상태에서 감속기 취부면에서 1m 떨어진 거리에서 측정 (모델에 따라 차이가 있을수 있습니다)
 Noise level : A measurement 1m away from the reducer (with ratio 10 or ratio 100), 3000 input rpm and at no load condition.
 (Background noise 40dB(A)) With lower ratio and/or higher rpm, the noise level could be 3 to 5 dB higher.
 (4) 관성모멘트 : 감속비 중 대표값 (i=1/5)
 Moment of inertia : A measurement at the input shaft and representatives from each ratio.(i=1/5)
 (5) 감속기 작동온도 : -10~+90 °C, 감속기 주위온도 -10~40 °C
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 ※ 제품 성능 향상을 위해 사양은 별도의 고지 없이 변경될 수 있습니다.
 Specifications are subject to change without notice to improve product performances.

SMPEB 060 2단 2stage

입력축 내경 Input shaft bore ≤ φ 14



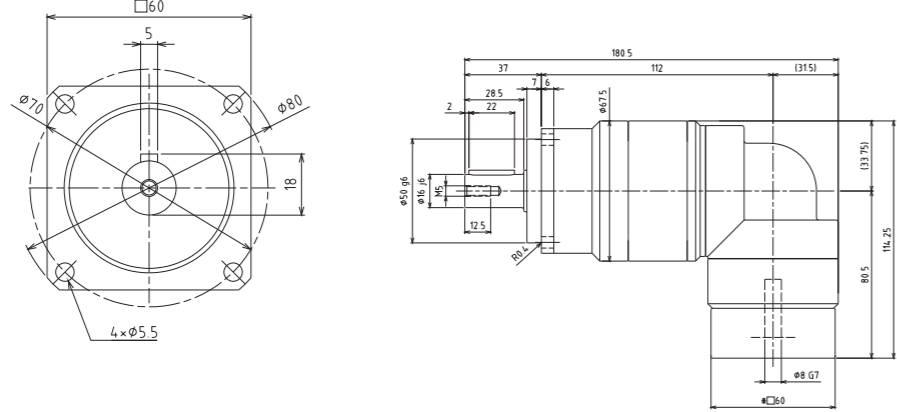
입력축 내경 Input shaft bore ≤ φ 19



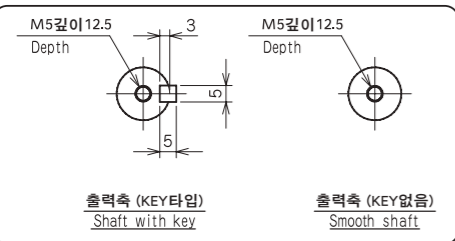
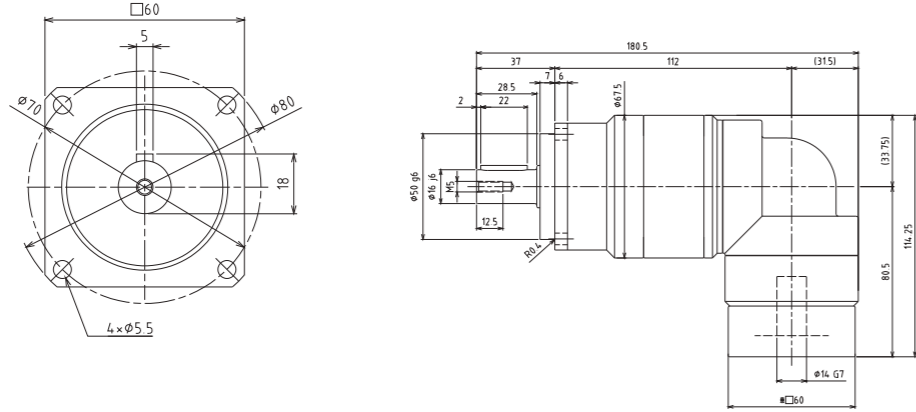
- ※ 1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※ 1 Length will vary depending on motor.
- ※ 2 Bushing will be inserted to adapt to motor shaft.

SMPEB 060 3단 3stage

입력축 내경 Input shaft bore $\leq \phi 8$



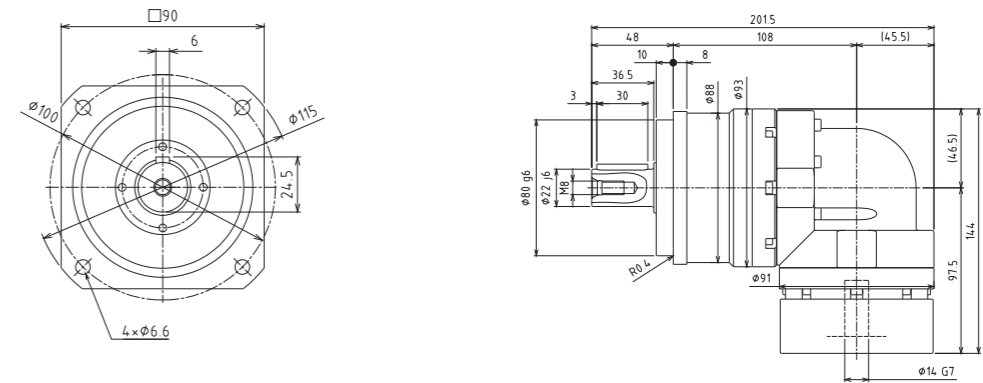
입력축 내경 Input shaft bore $\leq \phi 14$



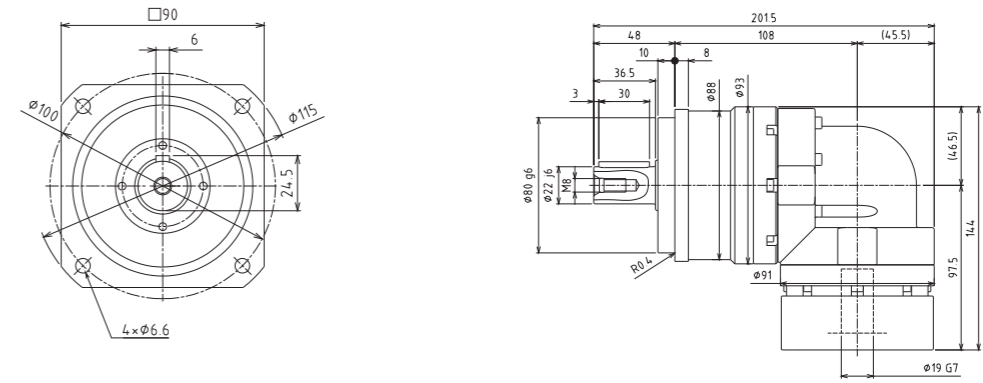
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMPEB 090 2단 2stage

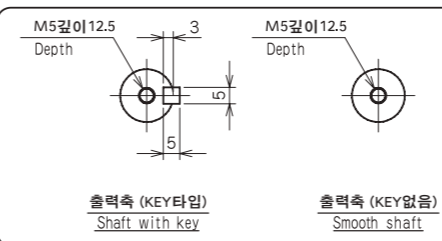
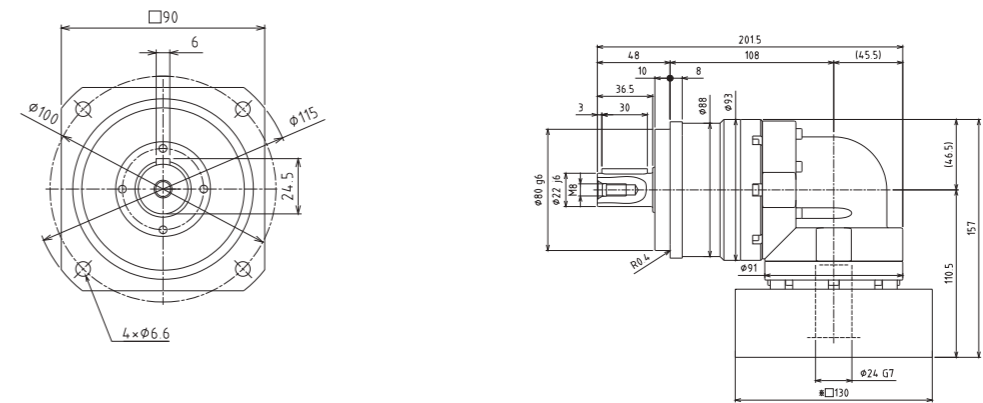
입력축 내경 Input shaft bore $\leq \phi 14$



입력축 내경 Input shaft bore $\leq \phi 19$



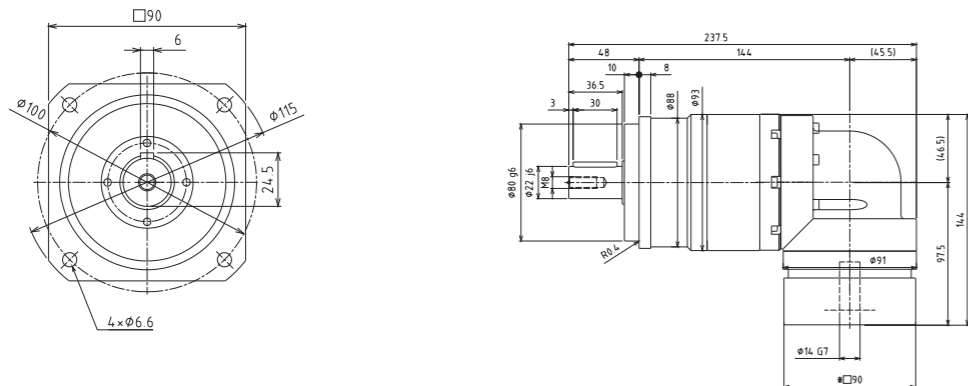
입력축 내경 Input shaft bore $\leq \phi 24$



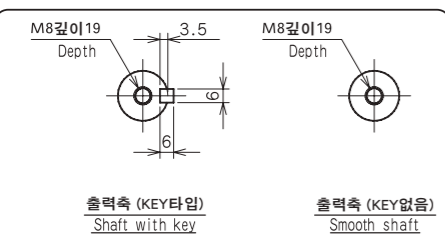
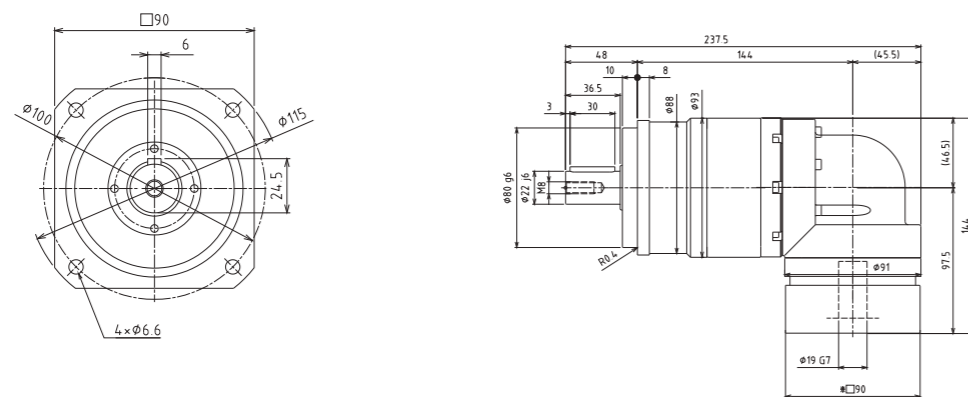
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMPEB 090 3단 3stage

입력축 내경 Input shaft bore $\leq \phi 14$



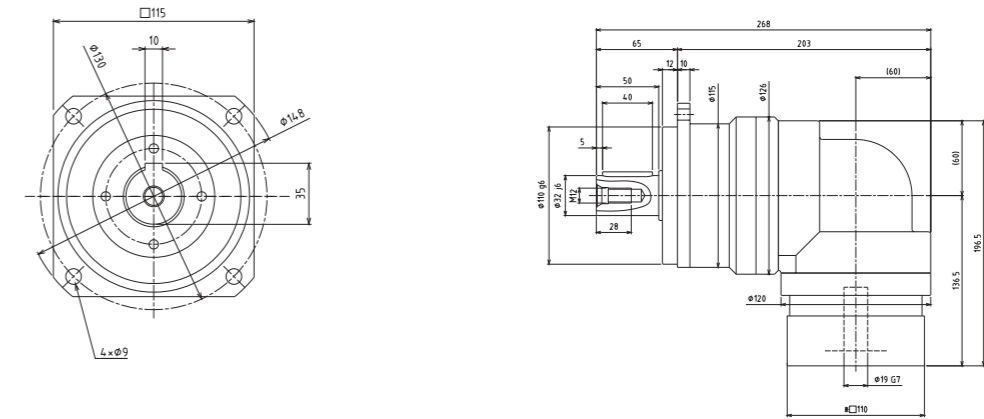
입력축 내경 Input shaft bore $\leq \phi 19$



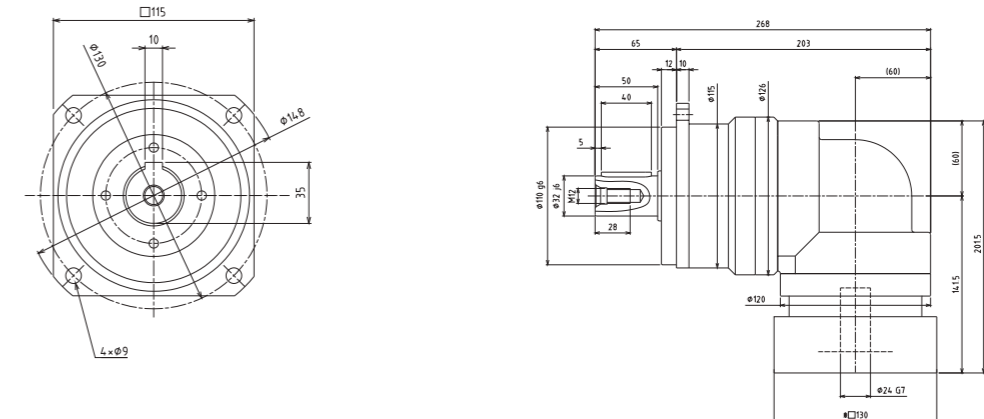
- ※ 1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※ 1 Length will vary depending on motor.
- ※ 2 Busing will be inserted to adapt to motor shaft.

SMPEB 115 2단 2stage

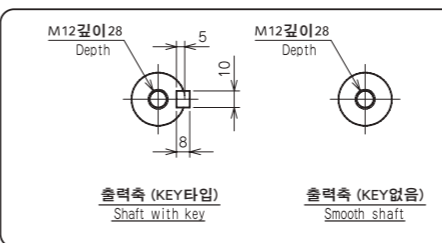
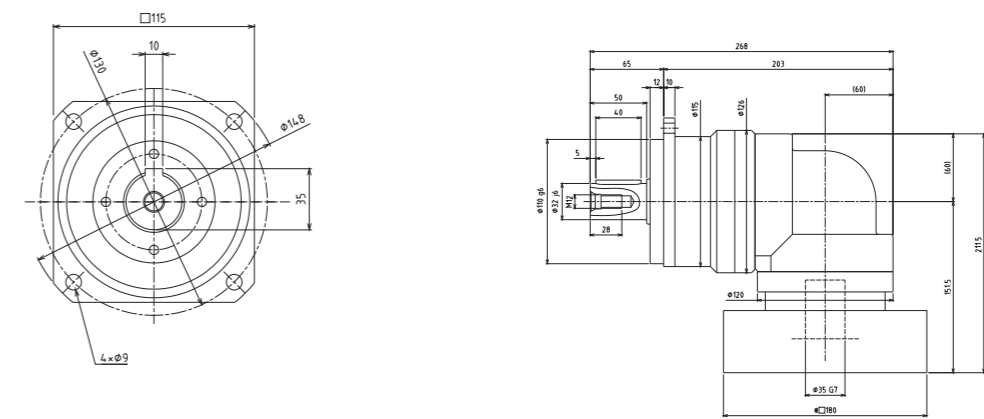
입력축 내경 Input shaft bore $\leq \phi 19$



입력축 내경 Input shaft bore $\leq \phi 24$



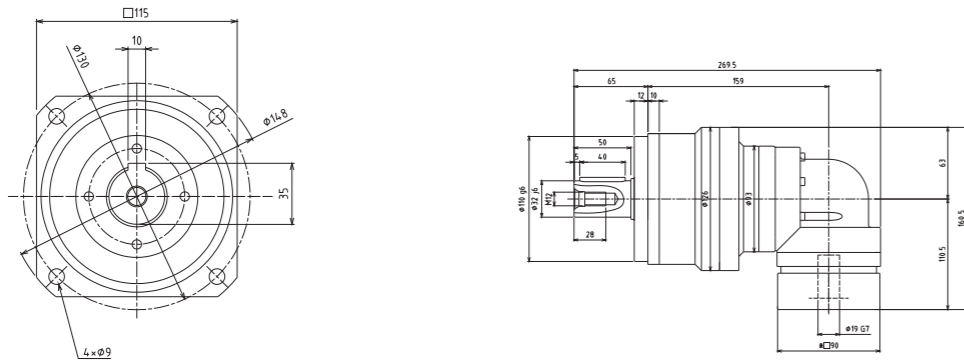
입력축 내경 Input shaft bore $\leq \phi 35$



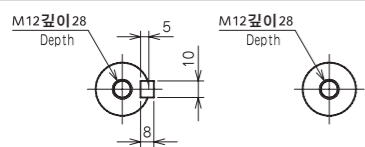
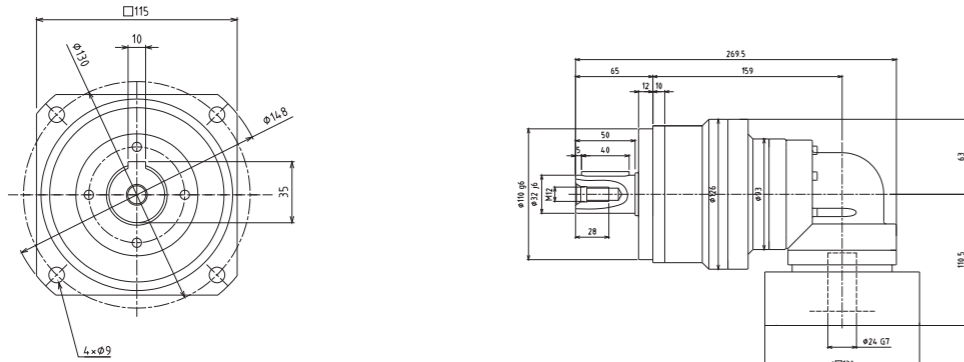
- ※ 1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※ 2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※ 1 Length will vary depending on motor.
- ※ 2 Busing will be inserted to adapt to motor shaft.

SMPEB 115 3단 3stage

입력축 내경 Input shaft bore $\leq \phi 19$



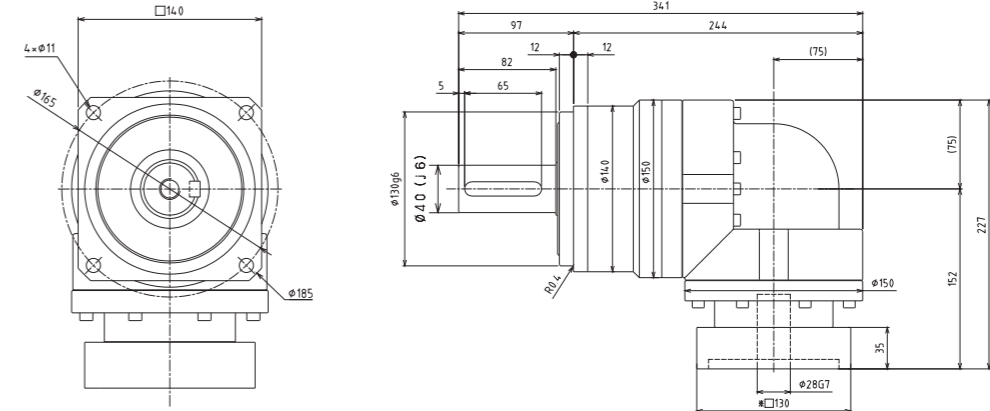
입력축 내경 Input shaft bore $\leq \phi 24$



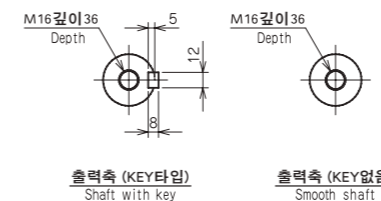
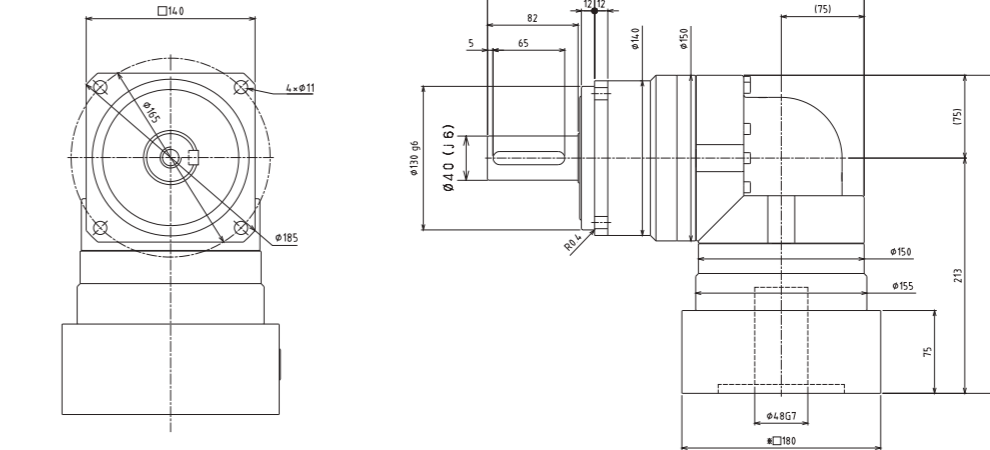
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMPEB 140 2단 2stage

입력축 내경 Input shaft bore $\leq \phi 28$



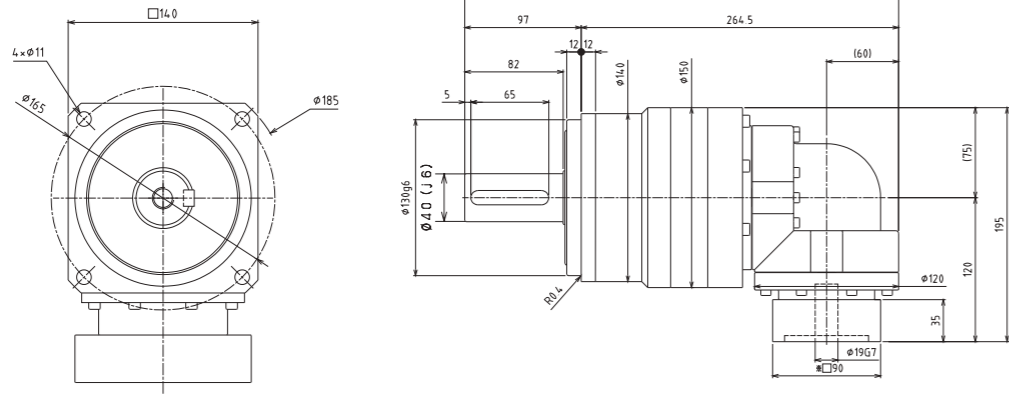
입력축 내경 Input shaft bore $\leq \phi 48$



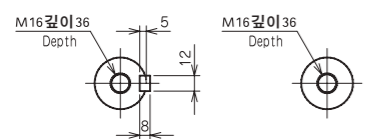
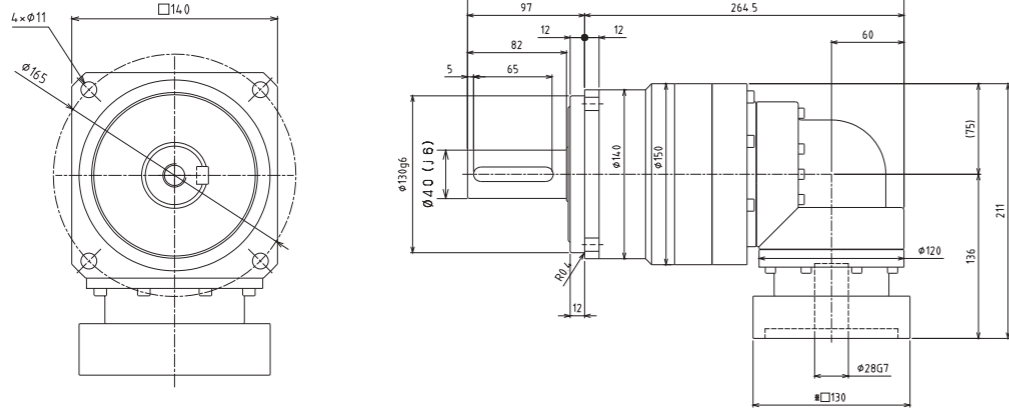
- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

SMPEB 140 3단 3stage

입력축 내경 Input shaft bore $\leq \phi 19$



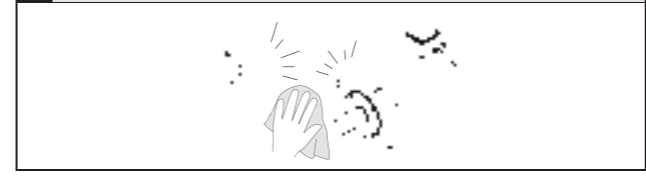
입력축 내경 Input shaft bore $\leq \phi 28$



- ※1 적용 모터에 따라 길이는 변경될 수 있습니다.
- ※2 모터 축과 감속기의 입력축 내경이 다를 경우에는 부싱이 삽입됩니다.
- ※1 Length will vary depending on motor.
- ※2 Bushing will be inserted to adapt to motor shaft.

1 모터 조립 절차 Mounting procedure to the motor

1 모터 축의 방청제 및 오일을 제거해주세요.
Wipe off anti-rust agent and oil on the motor shaft.

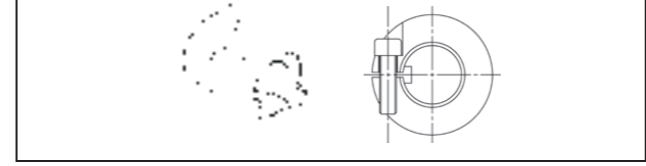


2 감속기에서 플러그를 분리해주세요.
Remove the plug.



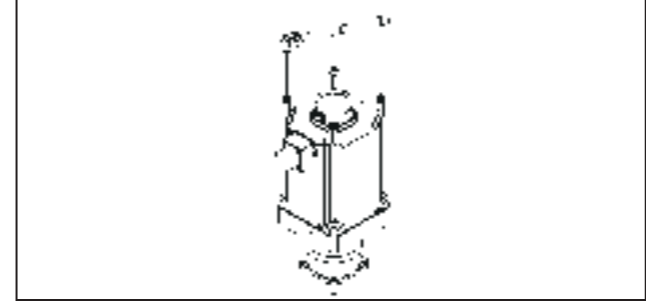
3 클램프 볼트가 보일때까지 입력축을 돌려 위치를 맞춰주세요.
볼트를 느슨하게 풀어주세요.
Turn the input shaft until the cap screw is seen. Make sure the cap screw is loosened.

부싱이 장착될 경우에는 아래 그림에 따라 조립하세요.
In case the bushing has been attached, Please fix it to the reducer as the drawing below.



4 평평한 면에 감속기의 모터 설치면이 위로 오도록 놔 주세요.
감속기 입력축에 모터축을 천천히 삽입하고, 모터면과 감속기면을 완전히 밀착시켜주세요.
규정된 체결토크로 볼트를 조여주세요 (Table 1)

Please place reducer vertically on the flat surface so the motor mounting part faces up. Carefully insert the motor shaft into the input shaft. (It should be inserted smoothly) Make sure the motor flange is perfectly fit to the reducer's flange. Tighten the motor installing bolts to the proper torque.(See table1)

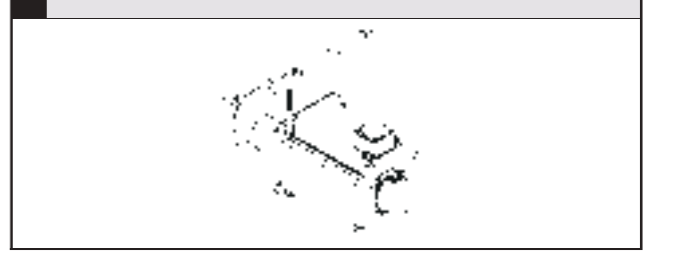


2 감속기 취부 방법

설치면이 깨끗하고 평평한 것을 확인 후, 규정된 체결토크로 체결해주세요 (Table 2)

Reducer installation
After confirming the installation surface is flat and clean, tighten the bolt using a torque wrench to the proper torque.(See table2)

5 토크렌치를 사용하여 규정된 체결토크로 클램핑 볼트를 조여주세요 (Table 1)
Tighten the clamping bolt of the input shaft with torque wrench to the proper torque.(See table1)



6 플러그를 다시 설치하면 절차가 완료됩니다.
Reinstall the plug. The procedure is done.



Table 1

볼트 사이즈 Bolt size	모터 조립 볼트 Motor installing bolts		클램핑 볼트 Clamping bolt	
	Nm	kgfm	Nm	kgfm
M3	1.1	0.11	1.9	0.18
M4	2.5	0.26	4.3	0.44
M5	5.1	0.52	8.7	0.89
M6	8.7	0.89	15	1.5
M8	21	2.1	36	3.7
M10	42	4.3	71	7.2
M12	72	7.3	125	13
M16	134	14	-	-

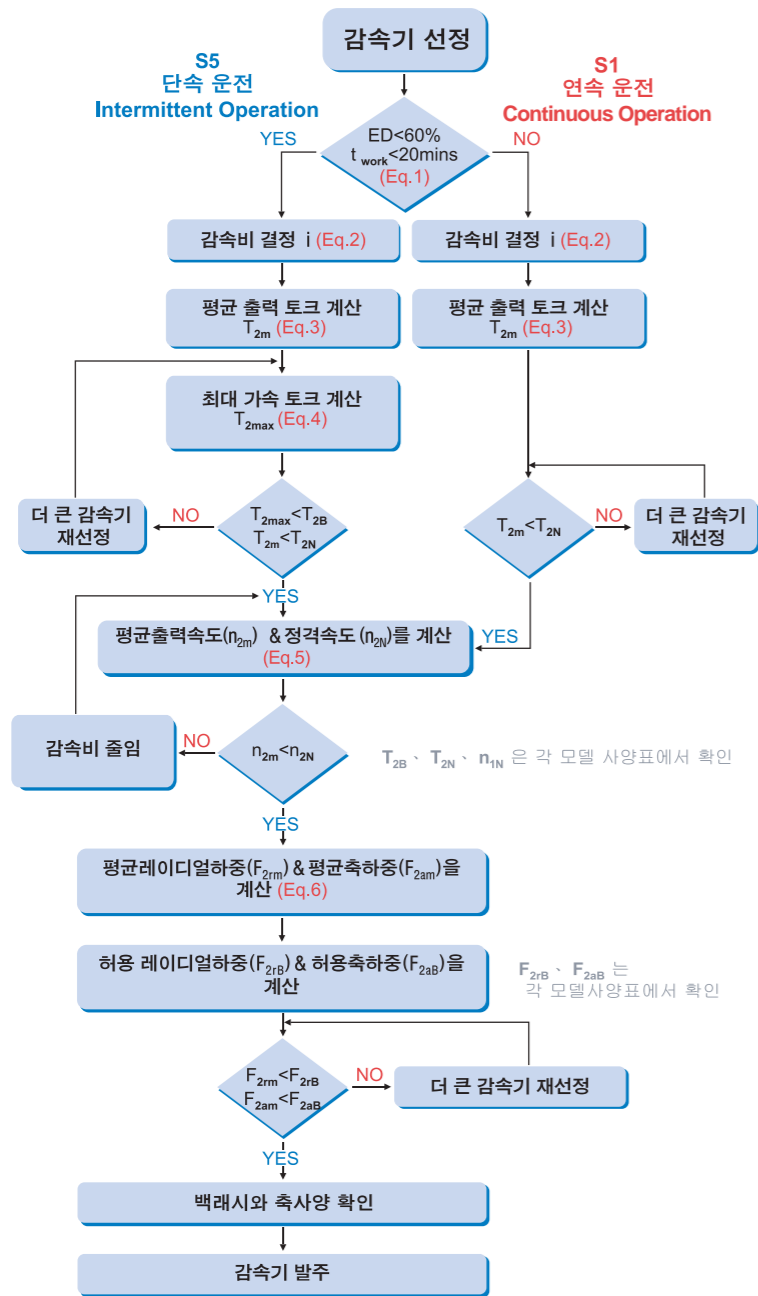
Table 2

볼트 사이즈 Bolt size	체결토크 Tightening torque	
	Nm	kgfm
M3	1.9	0.18
M4	4.3	0.44
M5	8.7	0.89
M6	15	1.5
M8	36	3.7
M10	71	7.2
M12	125	13
M16	310	32
M20	603	62

※권장 볼트 : 강도 12.9

※Recommended bolt : Strength 12.9

감속기 선정



Recommended (for S5 Cycle Operation)

The general design is given for

$$\frac{J_L}{i^2} \leq 4 \times J_m$$

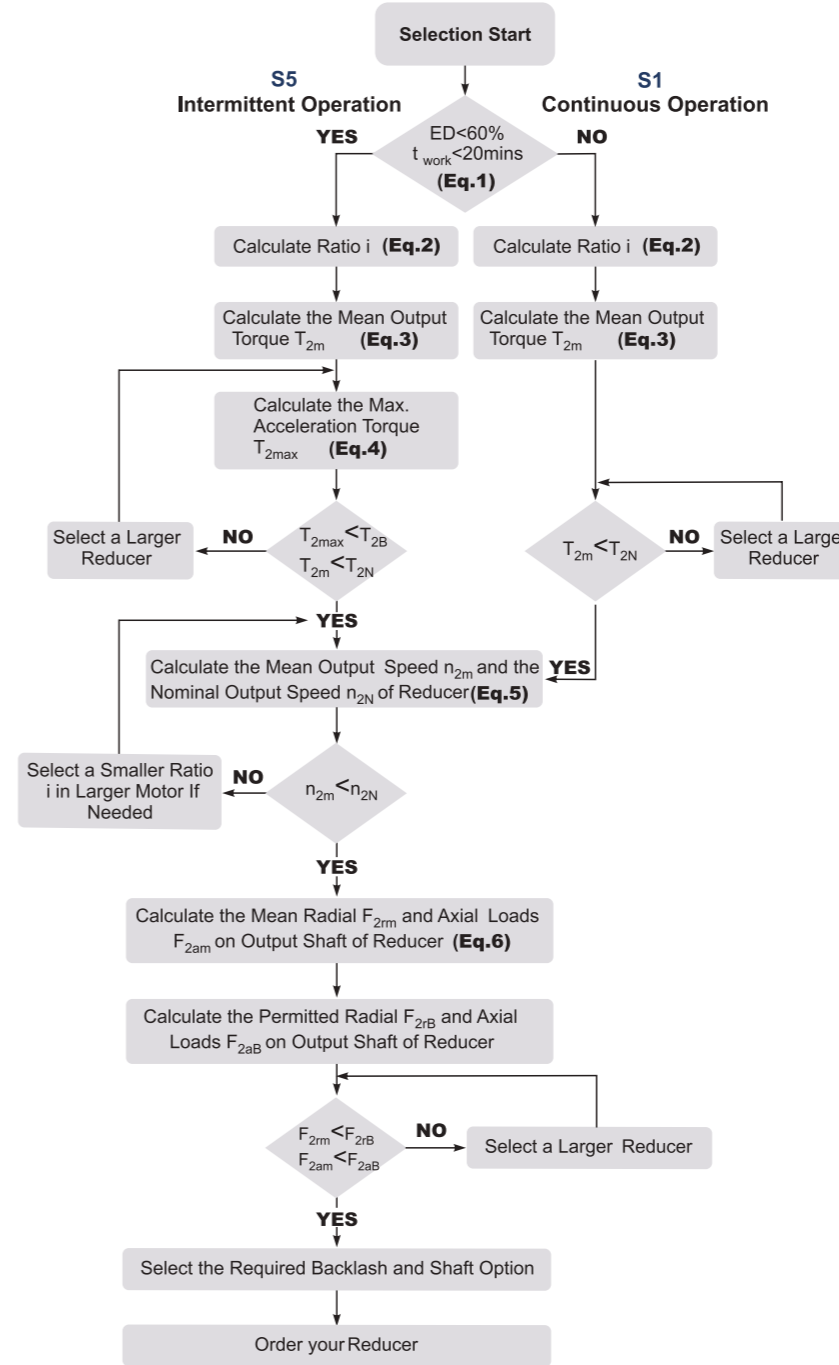
The optimal design is given for

$$\frac{J_L}{i^2} \cong J_m$$

J_L Load Inertia

J_m Motor Inertia

Reducer Selection



Recommended (for S5 Cycle Operation)

The general design is given for

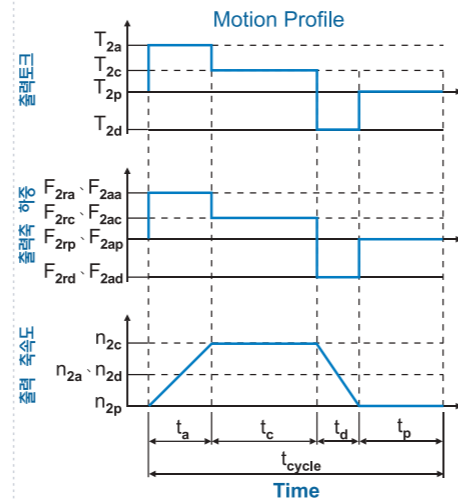
$$\frac{J_L}{i^2} \leq 4 \times J_m$$

The optimal design is given for

$$\frac{J_L}{i^2} \cong J_m$$

J_L Load Inertia

J_m Motor Inertia



S1 : 연속운전의 기준

- 전체 Cycle중 작동시간이 60%이상일때
- 작동시간이 20분을 초과할때
- 하루 작동시간이 20시간을 초과할때

$$1. ED = \frac{t_a + t_c + t_d}{t_{cycle}} \times 100\%, t_{work} = t_a + t_c + t_d$$

Index : a. Acceleration, c. Constant, d. Deceleration, p. Pause (Eq.1)

$$2. i \cong \frac{n_m}{n_{work}}$$

n_m Output Speed of the Motor
 n_{work} Working Speed (Eq.2)

$$3. T_{2m} = 3 \sqrt{\frac{n_{2a} \times t_a \times T_{2a}^3 + n_{2c} \times t_c \times T_{2c}^3 + n_{2d} \times t_d \times T_{2d}^3}{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}}$$

(Eq.3)

$$4. T_{2max} = T_{mB} \times i \times k_s \times \eta$$

where K_s is

K_s	No. Of Cycles / hr
1.0	0 ~ 1,000
1.1	1,000 ~ 1,500
1.3	1,500 ~ 2,000
1.6	2,000 ~ 3,000
1.8	3,000 ~ 5,000

T_{mB} Max. Output Torque of the Motor

η Efficiency of the Gearbox (Eq.4)

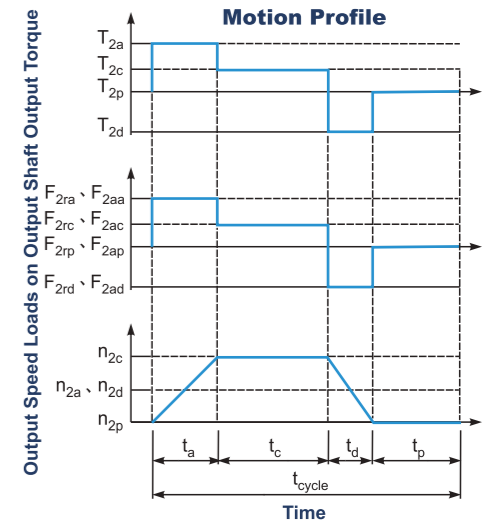
$$5. n_{2a} = n_{2d} = \frac{1}{2} \times n_{2c}$$

$$n_{2m} = \frac{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}{t_a + t_c + t_d}$$

$$n_{2N} = \frac{n_{1N}}{i} \quad (Eq.5)$$

$$6. F_{2rm} = 3 \sqrt{\frac{n_{2a} \times t_a \times F_{2ra}^3 + n_{2c} \times t_c \times F_{2rc}^3 + n_{2d} \times t_d \times F_{2rd}^3}{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}}$$

$$F_{2am} = 3 \sqrt{\frac{n_{2a} \times t_a \times F_{2aa}^3 + n_{2c} \times t_c \times F_{2ac}^3 + n_{2d} \times t_d \times F_{2ad}^3}{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}} \quad (Eq.6)$$



$$1. ED = \frac{t_a + t_c + t_d}{t_{cycle}} \times 100\%, t_{work} = t_a + t_c + t_d$$

Index : a. Acceleration, c. Constant, d. Deceleration, p. Pause (Eq.1)

$$2. i \cong \frac{n_m}{n_{work}}$$

n_m Output Speed of the Motor
 n_{work} Working Speed (Eq.2)

$$3. T_{2m} = 3 \sqrt{\frac{n_{2a} \times t_a \times T_{2a}^3 + n_{2c} \times t_c \times T_{2c}^3 + n_{2d} \times t_d \times T_{2d}^3}{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}}$$

(Eq.3)

$$4. T_{2max} = T_{mB} \times i \times k_s \times \eta$$

where K_s is

K_s	No. of Cycles / hr
1.0	0 ~ 1,000
1.1	1,000 ~ 1,500
1.3	1,500 ~ 2,000
1.6	2,000 ~ 3,000
1.8	3,000 ~ 5,000

T_{mB} Max. Output Torque of the Motor

η Efficiency of the Reducer (Eq.4)

$$5. n_{2a} = n_{2d} = \frac{1}{2} \times n_{2c}$$

$$n_{2m} = \frac{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}{t_a + t_c + t_d}$$

$$n_{2N} = \frac{n_{1N}}{i} \quad (Eq.5)$$

$$6. F_{2rm} = 3 \sqrt{\frac{n_{2a} \times t_a \times F_{2ra}^3 + n_{2c} \times t_c \times F_{2rc}^3 + n_{2d} \times t_d \times F_{2rd}^3}{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}}$$

$$F_{2am} = 3 \sqrt{\frac{n_{2a} \times t_a \times F_{2aa}^3 + n_{2c} \times t_c \times F_{2ac}^3 + n_{2d} \times t_d \times F_{2ad}^3}{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}} \quad (Eq.6)$$

모터에 따라 마운트 코드가 다릅니다. 이 표들은 각 코드에 대한 상세 정보를 제공합니다. 표는 모델명 끝에 표시된 입력 보어 측정값과 Part # Code부터 시작하며, 각 Part # Code에 대한 파일럿, BCD, 탭 구멍 및 파일럿 깊이가 설명됩니다.

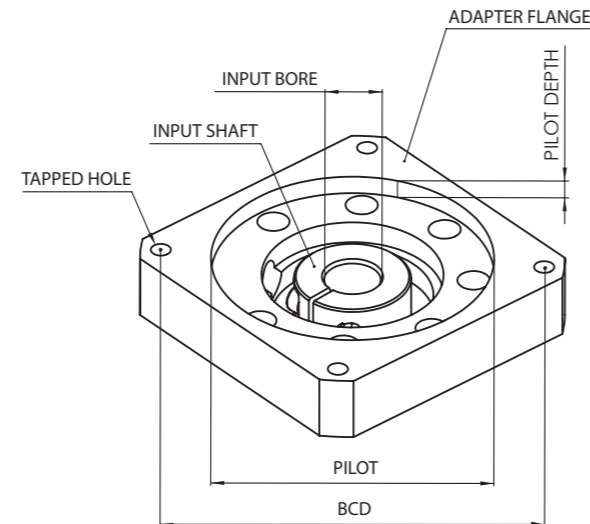
Mount code varies depending on the motor. These tables supply the details behind these codes. The tables start with Input Bore measurement and the Part # Code, which are indicated at the end of every model code. For each Part # Code, the Pilot, BCD, Tapped Hole, and Pilot Depth, are explained.

Part # Code가 동일한 문자(예: DC, FB, HA 등)를 가지더라도 입력 보어 직경이 다른 파일럿 및 BCD 치수가 동일하지 않을 수 있으므로 주의하십시오. 먼저 입력 보어 직경별로 표를 찾은 다음 해당 어댑터 Part# Code를 찾아 치수를 확인하십시오.

Please note that even though the Part# Code may have the same letters (i.e. DC, FB, HA, etc), the Pilot and BCD dimensions may not be the same if a different input bore diameter. Locate the table by input bore diameter first, and then find the appropriate adapter Part# Code to check the dimensions.

Input Bore (mm)	Part# Code	Pilot (mm)	BCD (mm)	Tapped Hole	Pilot Depth (mm)
S8	ZA	20.02	46.69	M3	5
S8	ZB	22	43.82	4.7	10
S8	ZC	22	48	M3	5
S8	ZD	22.22	50.8	M3	5
S8	ZE	25.4	38.89	4	10
S8	ZF	30	45	M3	5
S8	ZG	30	46	M4	5
S8	ZH	30	46	M4	10
S8	ZJ	30	46	3.5	10
S8	ZK	34	48	M3	10
S8	ZL	30	48	M3	5
S8	ZM	22	43.82	3.5	5
S8	ZN	40	50	M4	5
S8	ZQ	37.6	48	M3	5
S8	BA	38.1	66.68	M4	5
S8	BB	38.1	66.68	M5	5
S8	BC	50	60	M4	10
S8	BD	50	70	M4	5
S8	BE	50	70	M5	5
S8	BF	50	70	M5	10
S8	BG	36	70.71	M4	5
S8	BH	54	70	M4	5
S8	BJ	50	58	M3	5
S8	CA	50	80	M4	10

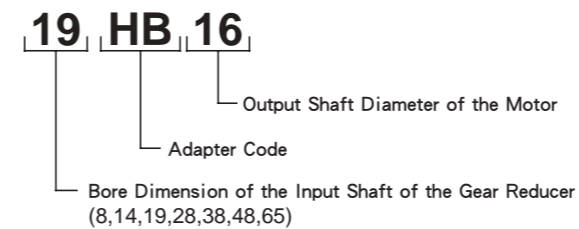
Input Bore (mm)	Part# Code	Pilot (mm)	BCD (mm)	Tapped Hole	Pilot Depth (mm)
8	AA	20.02	46.69	M3	5
8	AB	22	43.82	4.7	10
8	AC	22	48	M3	5
8	AD	22.22	50.8	M3	5
8	AE	25.4	38.89	4	10
8	AF	30	45	M3	5
8	AG	30	46	M4	5
8	AH	30	46	M4	10
8	AJ	30	46	3.5	10
8	AK	34	48	M3	10
8	AL	30	48	M3	5
8	AM	22	43.82	3.5	5
8	AN	40	50	M4	5
8	AQ	37.6	48	M3	5
8	BA	38.1	66.68	M4	5
8	BB	38.1	66.68	M5	5
8	BC	50	60	M4	10
8	BD	50	70	M4	5
8	BE	50	70	M5	5
8	BF	50	70	M5	10
8	BG	36	70.71	M4	5
8	BH	54	70	M4	5
8	BJ	50	58	M3	5
8	CA	50	80	M4	10



Input Bore (mm)	Part# Code	Pilot (mm)	BCD (mm)	Tapped Hole	Pilot Depth (mm)
14	BA	38.1	66.68	M4	5
14	BB	38.1	66.68	M5	5
14	BC	38.1	66.68	M5	10
14	BD	40	63	M4	5
14	BE	40	63	M5	5
14	BF	40	65	M5	5
14	BG	40	70	M4	5
14	BH	50	60	M4	10
14	BJ	50	70	M4	5
14	BK	50	70	M5	5
14	BL	50	70	M5	15
14	BM	50	70	M5	10
14	BN	50	70	M4	10
14	BP	36	70.71	M4	5
14	CA	60	75	M5	5
14	CB	60	75	M6	10
14	CC	60	80	M4	5
14	DA	50	95	M6	5
14	DB	60	85	M5	5
14	DC	60	90	M5	5
14	DD	70	85	6.5	5
14	DE	70	90	M5	10
14	DF	70	90	M6	5

Input Bore (mm)	Part# Code	Pilot (mm)	BCD (mm)	Tapped Hole	Pilot Depth (mm)
14	DG	70	90	M6	15
14	DH	70	95	M6	5
14	DJ	60	95	M5	5
14	DK	36.8	82.024	M6	15
14	DL	62	91.924	M5	10
14	EA	50	100	M6	5
14	EB	73.025	98.43	M5	5
14	EC	80	100	M6	5
14	ED	80	100	M6	15
14	EE	73.025	98.43	M6	15
14	EF	50	98.43	M5	5
14	EG	60	98.995	M5	5
14	EH	80	105	M6	15
14	EJ	60	98.995	M6	10
14	EK	73.025	98.43	M6	5
14	EL	73	94	M6	5
14	EM	83	104	M8	10
14	FA	60	115	M6	5
14	FB	95	115	M8	15
14	GA	80	139.7	M6	5
14	GB	80	130	M5	20
14	GC	94	120	M8	10
14	JA	115	165	M8	10

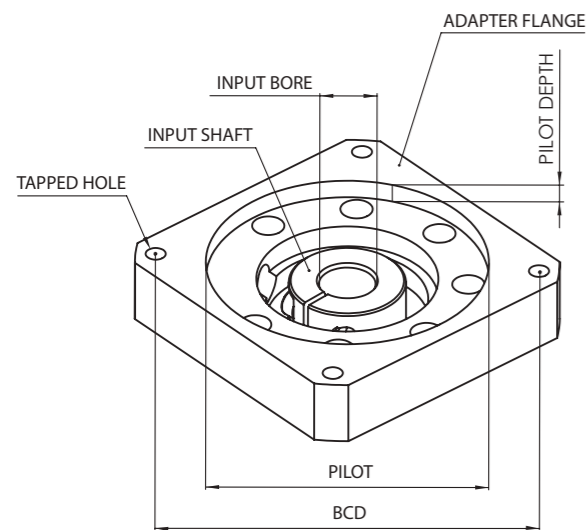
Example: Mount code



※ In the above case, $\Phi 16$ bushing needs to be inserted into the input shaft of the gear reducer.

위의 경우, $\Phi 16$ 부싱을 기어 감속기의 입력 축에 삽입.

Input Bore (mm)	Part# Code	Pilot (mm)	BCD (mm)	Tapped Hole	Pilot Depth (mm)
19	DA	60	90	M5	6
19	DB	70	90	M5	6
19	DC	70	90	M6	6
19	DD	70	90	M6	16
19	DE	70	90	M5	11
19	EA	73.025	98.43	M5	11
19	EB	80	100	M6	6
19	EC	80	100	M6	16
19	ED	60	98.99	M6	6
19	FA	95	115	M8	6
19	FB	95	115	M8	16
19	GA	55.563	125.73	M6	11
19	GB	95	130	M8	6
19	GC	110	130	M8	11
19	GD	110	130	8.8	6
19	GE	95	130	M8	16
19	GF	100	125	M8	16
19	GH	95	135	M8	11
19	HA	110	145	M8	6
19	HB	110	145	M8	21
19	HC	110	145	10.5	11
19	HD	114.3	149.23	M8	11
19	HE	114.3	149.23	10.5	11
19	JA	130	165	M10	16
19	JB	115	165	M8	21

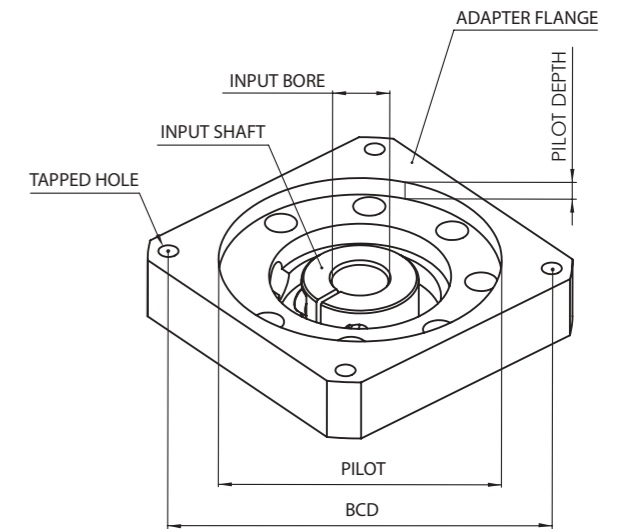


Input Bore (mm)	Part# Code	Pilot (mm)	BCD (mm)	Tapped Hole	Pilot Depth (mm)
28	FA	80	100	M6	8
28	FB	95	115	M6	8
28	FC	95	115	M8	8
28	FD	95	115	M6	8
28	FE	95	115	M8	6
28	GA	55.563	125.73	M6	8
28	GB	63.5	127	M6	8
28	GC	95	130	M8	8
28	GD	110	130	M8	8
28	GE	110	130	M10	8
28	GF	110	130	8.8	8
28	GG	110	135	M8	8
28	GH	95	135	M8	8
28	HA	110	145	M8	8
28	HB	110	145	M8	18
28	HC	110	145	10.5	8
28	HD	114.3	149.23	10.5	8
28	HE	95	145	M8	18
28	HF	110	145	M8	8
28	JA	110	165	M8	8
28	JB	110	165	M10	8
28	JC	130	165	M10	8
28	JD	130	174	M10	28
28	JE	130	165	M10	18
28	JF	114.3	160	M10	8
28	KA	114.3	200	M12	8
28	KB	130	215	M10	8
28	KD	114.3	200	M12	18
28	KE	150	185	M10	8
28	LA	180	215	M12	8
28	LB	180	220	M12	18
28	MA	200	235	M12	8
28	MB	200	250	M8	18

Input Bore (mm)	Part# Code	Pilot (mm)	BCD (mm)	Tapped Hole	Pilot Depth (mm)
38	HA	110	130	8.8	8
38	HB	110	145	M8	8
38	HE	110	130	M8	8
38	JA	130	165	M10	8
38	KA	114.3	200	M12	8
38	KB	130	215	M10	8
38	KC	130	215	M12	8
38	KD	95	200	M10	18
38	KE	114.3	200	M12	18
38	LA	180	215	M12	8
38	LB	180	215	M12	18
38	MA	180	265	M12	8
38	MB	200	235	M12	8
38	MC	215.9	184.15	13.7	5.5
38	MD	200	250	M8	18
38	NA	230	265	M12	8

Input Bore (mm)	Part# Code	Pilot (mm)	BCD (mm)	Tapped Hole	Pilot Depth (mm)
48	KA	114.3	200	M12	8
48	KB	110	130	8.8	8
48	KC	130	215	M12	8
48	LA	180	215	M12	8
48	MA	180	265	M12	8
48	MB	200	235	M12	8
48	NA	230	265	M12	8
48	PA	250	300	M16	8

Input Bore (mm)	Part# Code	Pilot (mm)	BCD (mm)	Tapped Hole	Pilot Depth (mm)
65	MA	114.3	200	M12	8
65	MB	200	235	M12	8
65	MC	180	215	M12	8
65	MD	180	265	M12	8
65	NA	230	265	M12	8
65	NB	230	265	M12	18
65	NC	230	290	M12	8
65	ND	230	265	M20	18
65	PA	250	300	M16	8
65	PB	250	320	M16	18
65	QA	300	350	M16	8
65	QB	280	325	M16	8



보관시 주의사항

본 제품을 임시 보관할 때는 다음 지침을 준수해주세요 :

- ① 청결하고 건조한 장소에 보관하십시오.
- ② 제품을 야외 또는 습한 장소에 보관시, 제품을 상자에 넣어 비나 외부 공기와의 직접적인 접촉을 피하고, 비닐 시트로 덮어 녹이 슬지 않도록 관리해 주세요.

■ 운전시 주의사항

■ 감속기를 받으셨을 때 ...

- 받으신 제품이 주문한 제품이 맞는지 확인해 주세요.
- 감속기의 입력과 출력축의 방청액을 제거해 주세요.
- ※ 감속기는 그리스가 충전된 상태이므로 바로 사용가능합니다.

■ 장착 및 설치

- 비 또는 물이 직접 떨어지는 장소에서 사용을 피해주십시오.
- 주위온도 0℃~ 40℃ 에서 설치해 주세요.
- 진동이 없는 견고한 지지대에 볼트로 단단히 고정해 주세요.
- 유지보수 와 점검이 편리한 곳에 설치해 주세요.

■ 운전 시작 전 주의사항

- 감속기는 그리스가 충전되어 있으므로 도착 후 바로 사용이 가능합니다.
- 초기 동작시 출력축 회전방향을 확인하여 주시고 점차 부하를 가해 주십시오.

■ 운전시 주의사항

- 과부하를 피해주십시오.
- 입력회전수는 규정된 회전수를 초과하지 않도록 해주세요.
- 다음과 같은 현상이 발생시, 작동을 중지하고 확인해 주세요.
 - 급격한 온도상승
 - 갑작스런 이상소음
 - 비정상적인 회전수

● 제품 보증 규정

- 보증범위는 납품된 제품에 한합니다.
- 아래에 언급된 비용 및 손해실 보증범위에 포함되지 않습니다.
 - 1) 당사 제품의 수리를 위한 운송비.
 - 2) 당사 제품이 타 기기에 설치된 경우 발생하는 철거, 재설치 및 기타 관련 작업 비용.
 - 3) 당사 제품의 결함으로 인한 서비스 중단으로 발생하는 사용 기회 손실 및 간접적 손해.
 - 4) 그외 모든 추가적인 비용 및 손실.

Cautions for storage

Whenever temporarily keeping the product, keep the following directions:

- ① Keep in a clean and dry place.
- ② Whenever storing outdoors or in a humid place, put in a box so that it does not directly contact rain or external air and cover with a vinyl sheet (Take a measure to prevent rust.).

■ Cautions for operation

■ When the reducer is delivered to you . . .

When the product delivered, please confirm that you received the exact same model you have ordered. Please wipe out the input and output shaft of the reducer which is covered by anti-corrosive oil. ※ Lubricant (grease) is already filled in the reducer. It is available as it is.

■ Fixation & installation

- Avoid use in a place where rain or water drops directly.
- Install at 0℃-40℃ of surrounding temperature.
- Firmly fix with a bolt onto a solid stand without vibration.
- Install in consideration of convenience in repair and inspection.

■ Cautions prior to starting the operation

- Reducer can be used soon after arrival, since it has already been filled out with lubrication.
- At initial operation, check the rotating direction of the output shaft and then gradually apply load.

■ Cautions during operation

- Avoid overload.
- Ensure that input speed shall not be the number of revolutions beyond the specification.
- In the following cases, stop the operation and check the following points:
 - If temperature sharply increases
 - If an abnormal noise appears sharply
 - If the number of revolutions becomes unstable sharply

- 아래와 같은 원인으로 발생할 수 있으므로, 신속하게 조치를 취하거나 당사로 문의해 주십시오.
 - 과부하 상태?
 - 윤활유의 부족, 열화 또는 이종 제품의 사용?
 - 축, 기어, 모터부의 손상?
 - 다른 기계와 결합 불량?

■ 분해

- 감속기는 분해를 허용하지 않습니다.

■ 보증

- 보증기간은 제품 납품 후 12개월 또는 해당 제품의 운전시간이 2,000 시간 중 빨리 도달한 경우로 적용합니다.

■ 사용 윤활유

- 감속기 전 모델은 그리스 빌봉 방식입니다.
- 공장 출하시 규정량의 그리스가 주입되어 있으므로, 제품을 받으신 후 곧바로 사용할 수 있습니다
- 그리스 교체는 불가합니다.
- 주위온도 0℃~ 40℃ 에서 사용하여 주십시오.

■ 일상 점검 사항

- 운전중 감속기 표면온도가 과도하게 높은지 확인? (50℃까지는 문제없음)
- 베어링, 기어 등에 이상 소음 여부?
- 감속기의 비정상적인 진동 여부?
* 이상 현상 발생시 즉시 동작을 정지하여 주십시오.
- 오일 누유 여부?

■ 정기 점검 사항

- 과부하나 비정상적인 회전 여부?
- 스프라켓과 감속기, 체결볼트 유격 여부?
- 전기 계통 이상 유무?
- 주요부품의 점검과 수리
※ 이상 현상 발생시 즉시 동작을 정지하여 주십시오.
- 오일 누유 여부

■ 폐기

감속기 폐기시, 부품을 재질별로 분류하고, 해당 자치단체의 조례 및 규칙에 따라 산업폐기물로 처리해 주세요. 부품의 재질은 4가지로 분류될 수 있습니다.
 ① 고무 부품 : 오일실, 패킹, 베어링 실.
 ② 알루미늄 부품 : 모터 플랜지.
 ③ 그리스 : 부품에 묻은 그리스는 마른 천으로 닦아내고 폐유로 모아 폐기해주세요.
 ④ 철제 부품 : 상기 언급된 부품 외의 부품들.

- These may be caused by the following matters, so rapidly respond to it or contact us.
 - Is it under overload condition?
 - Is lubricant insufficient or deteriorated, or is lubricant of other type used?
 - Is the axis, gear, and motor side damaged?
 - Is jointing with other machines poor?

■ Disassembly

- REDUCER is designed not to allow disassembly.

■ Warranty

- The warranty is valid for 12 months from the date of delivery, or 2,000 operating hours, whichever occurs sooner.

■ Lubricant use

- The REDUCER is of grease-seal type in all models. A specified amount of grease is filled at factory release, so you can use as soon as it is delivered to you.
- It is impossible to exchange grease.
- In case of use at 0℃-40℃ of surrounding temperature at usual times, consider this in advance.

■ Daily check points

- Is reducer case temperature excessively high during operation? (Up to +50℃ is not significant.)
- Is there an abnormal noise in the bearing, gear, etc?
- Is there abnormal vibration in the reducer?
* Upon an abnormal phenomenon, immediately stop the operation and contact us.
- Is there a lubricant leak?

■ Periodic check points

- Are there overload and abnormal rotation?
- Are free, sprocket, and reducer assembling bolts loose?
- Is there an abnormal condition in the electric system?
- Checkup and repair of major parts
※ Upon an abnormal condition, immediately stop the operation and contact us.
- Oil leak

■ Scrapping

Whenever scrapping the REDUCER, classify the parts by material into industrial wastes as specified in the laws and regulations of self-governing bodies. Material of parts can be divided into four:
 ① Rubber parts : Oil seal, seat packing, rubber cap, seal used for bearing on the motor flange, etc.
 ② Aluminum parts : Motor flange, output shaft holder
 ③ Grease : Wipe off grease attached to parts with dry cloth and scrap into oils.
 ④ Iron parts : Parts other than those mentioned in the above

WARRANTY PROVISION

· Warranty scope is the delivered product only.

■ THE EXPENSES AND LOSSES THAT MENTIONED BELOW ARE NOT INCLUDED IN WARRANTY

- 1) The transport charges for repairing of our products.
- 2) The fee for the removal operation, reinstallation and other related operation in case our product is installed to other machine.
- 3) The loss of the chances of use and indirect damages caused by the interruption of the services caused by our product's defects.
- 4) All other secondary expenses and losses.

