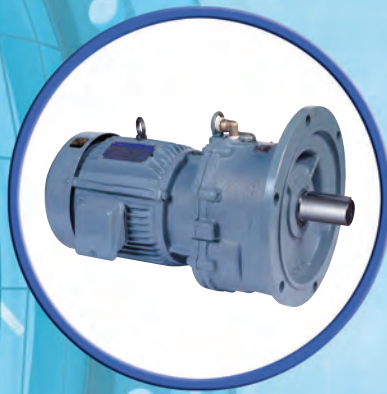


Geared Motor

1. TECHNICAL DATA
2. HORIZONTAL TYPE 형상및 치수
3. VERTICAL TYPE 형상및 치수
4. LINE POWER TYPE 형상및 치수
5. I.E.C FLANGE 형상및 치수





형 식 번 호
Product Code

GM-H004-60-NF105

Geared Motor

0.4Kw (출력)

Ratio (감속비)

Frame No.
(프레임 번호)

H:Horizontal (수평형)

V:Vertical (수직형)

L:Line Power (라인파워)

I:I.E.C Flange(I.E.C후렌지형)

Best Engineered and High Quality SAMHWA Reduction Gear

■ 특징

삼화감속기는 설계기술부터 Know-how를 갖고 있으며 기어재질을 침탄강 SNCM420을 채택하여 치면강도에 있어서 타사의 기어재질보다 한층 Upgrade하였으며 고정도 고효율은 물론 Compact한 설계와 최신정밀가공 기술로 기어류는 세이빙과 연마를 전부하여 JIS2급의 수준으로 감속기를 생산하는데 거듭나고 있습니다.

모든 제품은 표준화하여 대량 생산체제를 갖춰 재고를 확보함에 고객으로부터의 어떠한 요구에도 신속대응 공급토록 시스템이 되어있습니다.

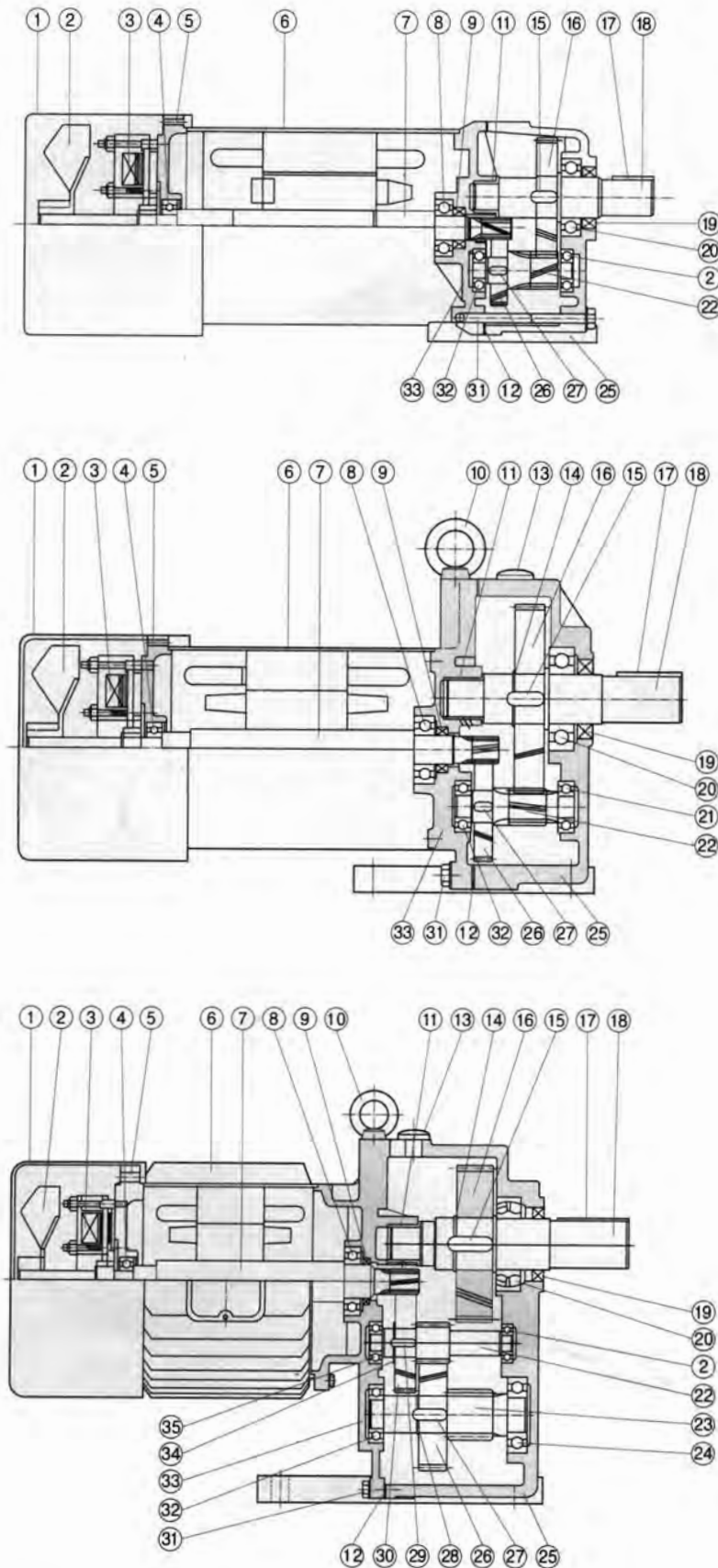
■ Features

Samhwa Gear Inc.(speed reducer) has know-hows from design technologies, and has selected SNCM 420 carburized iron for its gear materials, thus upgraded its gear materials compared to other companies, and it is producing JIS2 level quality gears by saving and grinding all through compact designs and the newest precision processing technologies as well as having high accuracy and high efficiency.

We have standardized all the products to be able to have a mass production system in order to respond promptly to any customer requests.

기어드 모터 / Geared Motor

내부 구조도 / INSIDE STRUCTURE



NO.	NAME
1	Fan Cover
2	Fan
3	Brake
4	Bearing
5	Motor Bolt
6	Motor Frame
7	Motor Shaft
8	Bearing
9	Oil Seal
10	Eye Bolt
11	Duf-Bush
12	Gasket
13	Air Vent
14	Snap Ring
15	Key
16	Gear A
17	Key
18	Output Shaft
19	Oil Seal
20	Bearing
21	Bearing
22	Pinion A
23	Pinion B
24	Bearing
25	Case
26	Gear B
27	Key
28	Snap Ring
29	Key
30	Gear C
31	Hex Bolt
32	Bearing
33	Motor Flange
34	Snap Ring
35	Bearing

출력의 선정 / Power Estimation

- ① 필요한 출력축 회전수 N (RPM)에 따라 감속비를 결정하십시오.

According to required output shaft rotation N(RPM), calculate reduction ratio.

- ② 부하 토오크 T1(kgf-m)에서 전달토오크 T(kgf-m)를 산출하십시오.

Calculate Transfer Load from load torque T1(kgf-m) by

$$T = T_1 \times S_f$$

Sf (서비스 계수) : 출력축에 작용하는 부하의 성질과 운전시간에 의하여 표1에 표시하였습니다.

where Sf is service factor. Types of service factor have been classified in Table 2 according to characteristics and operation hours.

- ③ 산출된 전달토오크 T(kgf-m) 및 부하 토오크 T1(kgf-m)과 회전수 N(RPM)에 의하여 그림1의 출력선정도에 의하여 각각의 모터용량을 구하고 가능한 높은 쪽으로 선정하여 주십시오.

Using obtained transfer torque T, load torque T1 and rotation N, choose motor capacity from Tabel 1.

If possible, choose higher one.

ex) 출력수 회전수 : N = 60RPM (60Hz)

Output shaft rotation : N = 60 RPM(60Hz)

부하토오크 : T₁ = 20 kgf-m

Load torque T₁ = 20 kgf-m

피동기 : 콘베어 (균일하중)

Driven Machine : Conveyor

운전시간 : 12시간 / 일

Operation Hours : 12 Hours/day

a. 감속비 $i = 60/1800 = 1/30$

Reduction Ratio : $i = 60 / 1800 = 1/30$

b. 전달 토오크 T : 표2 및 표1에 의하여 Sf = 1.25

$$T = T_1 \times S_f = 20 \times 1.25 = 25 \text{ (kgf-m)}$$

Transfer Torque : T

Sf = 1.25 from Table 2 and Table 1

$$T = T_1 \times S_f = 20 \times 1.25 = 25 \text{ (kgf-m)}$$

c. 모터출력

부하 토오크 T₁에 의거 N = 60 과 T₁ = 20 의 교차점을 구하십시오.

교차점은 0.75 Kw와 1.5 Kw의 사이

Motor Output

Point the crosspoint of T₁(=20) and N(=60).

The crosspoint is between 0.75Kw and 1.5 Kw.

기어드 모터 / Geared Motor

표1. 서비스 계수 Sf(Service Factor Sf)

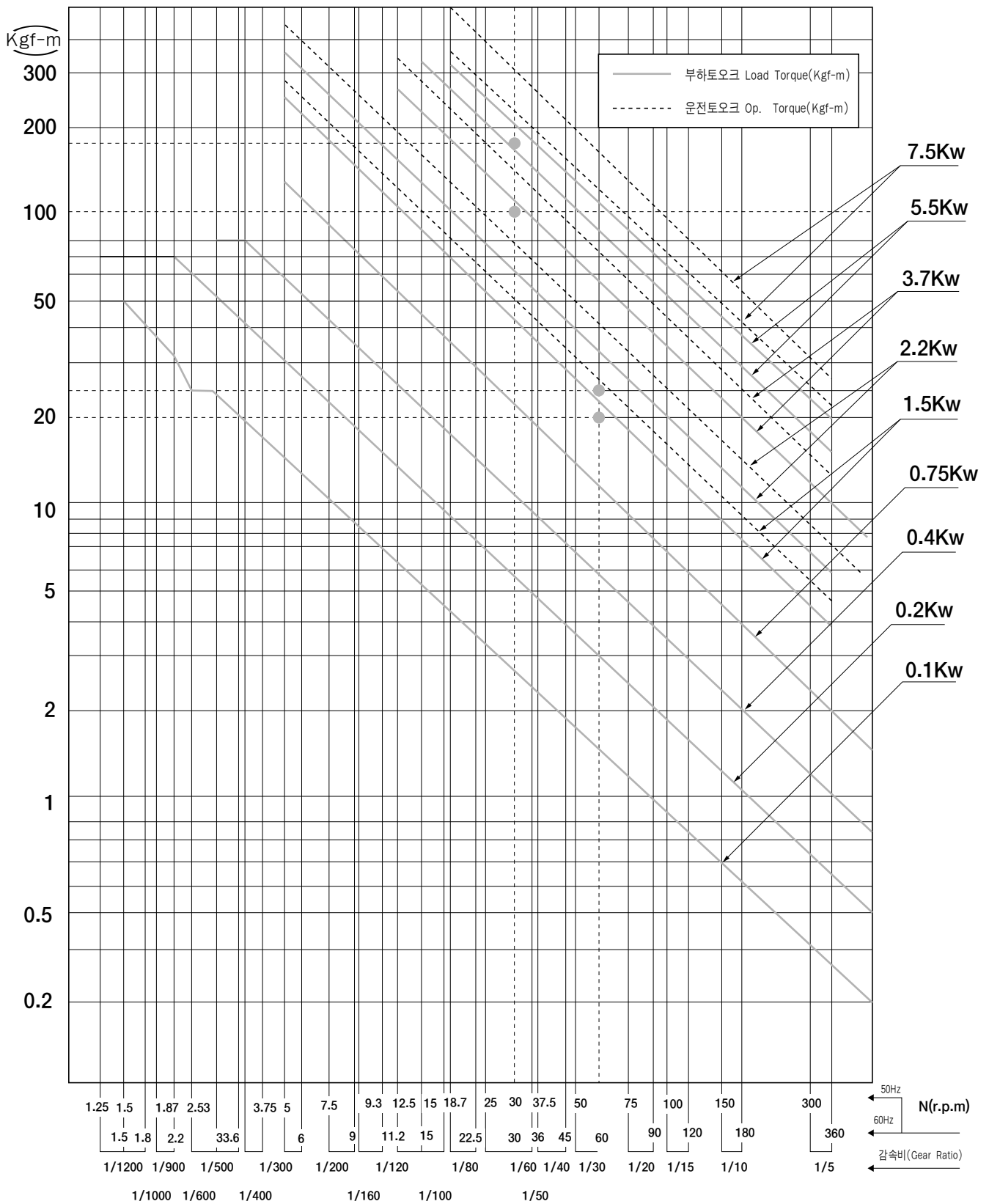
Operation Hr. \ Load	U	M	H
3시간 이하/일 (Less 3Hr/Day)	1	1	1.5
3~10시간/일 (3~10Hr/Day)	1	1.25	1.75
10시간 이상/일 (More than 10Hr/Day)	1.25	1.5	2

U : 균일 하중(Uniform Load)
M : 中 정도 충격(Medium Impact)
H : 重 정도 충격(Heavy Impact)

표2. 피동기계 부하 분류표(Driven Machine)

피동기계명(Driven Machine)	부하(Load)	피동기계명(Driven Machine)	부하(Load)
송풍기 Air Blower	U	호이스트 Hoist	M
주조 및 증류장치 Distillation	U	공작기계(주기동) Milling Machine(Main)	M
차량 Car	M	공작기계(보조기동) Milling Machine(Sub)	U
클라리 화이어(정제기) Clarifier	U	금속가공기계 Steel Process Machine	H
선별기 Sorter	M	회전밀 Turning Mill	M
요업기계(中부하) Ceramic Machine(M.Load)	M	턴푸라(텀블링 바렐) Tumbling Barrels	H
요업기계(重부하) Ceramic Machine(H.Load)	H	믹 서 Mixer	M
압축기 Compressor	M	유압정제기계 Oil Pressure Cleaner	M
콘베아(균일부하) Conveyor(Uniform)	U	제지기계 Paper Machine	M
콘베아(불균일부하) Conveyor(Non-uniform)	M	제재기계 Wood Cutter	H
크레인 Crane	U	펌프 Pump	M
크랏샤 Crusher	H	고무기계(中부하) Rubber Machine(M.Load)	M
준설용선박(中부하) Drainage(M.Load)	M	고무기계(重부하) Rubber Machine(H.Load)	H
준설용선박(重부하) Drainage(H.Load)	H	수처리기계(輕부하) Water Cleaner(L.Load)	U
엘리베이터 Elevator	U	수처리기계(重부하) Water Cleaner(H.Load)	M
압출기 Extruder	U	스크린(유체) Screen(Oil Based)	U
팬 Fan	U	제당기계 Sugar Machine	M
공급기 Supplier	M	섬유기계 Textile Machine	M
공급기(왕복동식) Supplier(Commuting)	H	제철기계(열간) Iron Works(Heat Treat)	H
식품기계 Food Machine	M	제철기계(냉간) Iron Works(Cold Treat)	U
햄머밀 Hammer Mill	H		

그림 1. 출력 선정도 (Output Estimation Chart)



기어드모터

원감속기

원감속기(SEM)

헬리컬 원

스크류 잭

기어드 모터 / Geared Motor

O.H.L (Overhang Load) 의 확인

O.H.L은 출력축에 작용하는 굽힘하중의 위치를 표시하고 있습니다. 상대기계와 체인, 기어, 벨트 등으로 연결한 경우에 발생하며, 카프링에 의한 직결의 경우에는 발생치 않습니다.

Overhang load indicates the position of side force occurred on output shaft. Overhang load is typically occurred when the motor has been coupled through chain, gear or belt and so forth. Direct coupling does not cause overhang load.

$$O.H.L(kgf) = T_1 / R \times S_f \times E_f \times L_f \times 1000$$

$T_1(kg\cdot m)$: 사용 토오크 / Applied Torque

$R(mm)$: 스프로킷, 기어, 풀리 등의 피치원반경 / Diameter of pitch in sprocket, gear or pulley

E_f : 연결방법에 따른 E_f 값 (표3에서 구함) / E_f value according coupling method (Refer Table 3)

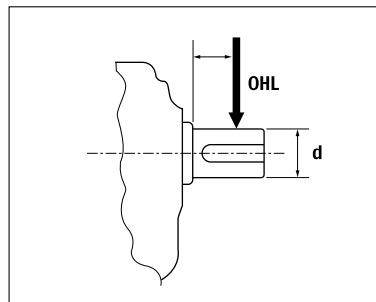
L_f : 작용거리에 따른 L_f 값 (표4에서 구함) / L_f value according operation distance (Refer Table 4)

산출한 O.H.L은 사용 기어드 모터의 허용 O.H.L의 이하에서 R 및 L_f 을 결정하여 주십시오.

허용 O.H.L은 규격별로 표시되어 있습니다.

Obtained OHL should be lower than allowed OHL of selected gear motor, and R and L_f is obtained from the obtained OHL value. Allowed OHL is enlisted according to types.

그림 2 (Figure 2)



플라이 휠 효과 / Fly Wheel Effect

부하의 관성(GD^2)이 크거나 단속운전을 할 때 시동시(또는 브레이크에 의한 제동시)에 간헐적으로 커다란 토오크가 발생할 경우에 고장의 원인이 될 수가 있으므로 그림3에 의한 부하의 관성과 허용시동 회수를 확인하여 주십시오.

When load inertia(GD^2) is high or the motor is intermitantly operated, momentarily occurred heavy torque may cause the reason of breakdown. Please make sure of load inertia and allowable starting number from Picture 3.

모타축환산부하 $GD^2(GD^2 l) = \text{출력축환산 } GD^2 \times (\text{속비})^2$

$$GD^2 \text{ 비}(R) = \frac{\text{모타축환산부하 } GD^2 (GD^2 l)}{\text{기어드모터의 } GD^2 (GD^2_M)}$$

Motor Shaft Conversion Load Inertia ($GD^2 l$) = Output Shaft Conversion Inertia x (Reduction Ratio)²

where, Inertia Ratio(R)=Motor Shaft Conversion Load Inertia ($GD^2 l$) / Geared Motor Inertia (GD^2_M)

GD^2_M : (15페이지 참조)

For GD^2_M , refer data table in page 15.

표3. 연결방법 (Coupling Ef)

단열체인 (Single Row Chain)	1.00
타이밍 벨트(Timing Belt)	1.00
복열체인 (Double Row Chain)	1.25
기어 (Gear)	1.25
벨트 (V-Belt)	1.50
평벨트 (Plain Belt)	2.50

표4. 작용위치 (Applied Point Lf)

l	L_f
0.25d	0.85
0.50d	0.90
0.75d	0.95
1.00d	1.00
1.25d	1.25
1.25d	1.50

R 수치와 그림3에 의한 허용시동시 총회수를 얻을 수 있습니다.

(예) 모터출력 : 5.5 kw 연결방법 : 체인
속 비 : 1/10 기동정도 : 20 sw/h
부하 GD^2 (출력축환산) : 4.8 kg · m²

Using obtained R and Figure 3, one can get allowable starting total number.

(EX)
Motor Output : 5.5 kw, Reduction Ratio : 1/10
Load Inertia(Output shaft Conversion): 4.8 kg · m²
Coupling Method : Chain, Starting Coefficient : 20sw/h

$$1) GD^2 l = 4.8 \times (1/10)^2 = 0.048 \text{ Kg} \cdot \text{m}^2$$

$$2) R = \frac{GD^2 l}{GD^2} = \frac{0.048}{0.12} = 0.4$$

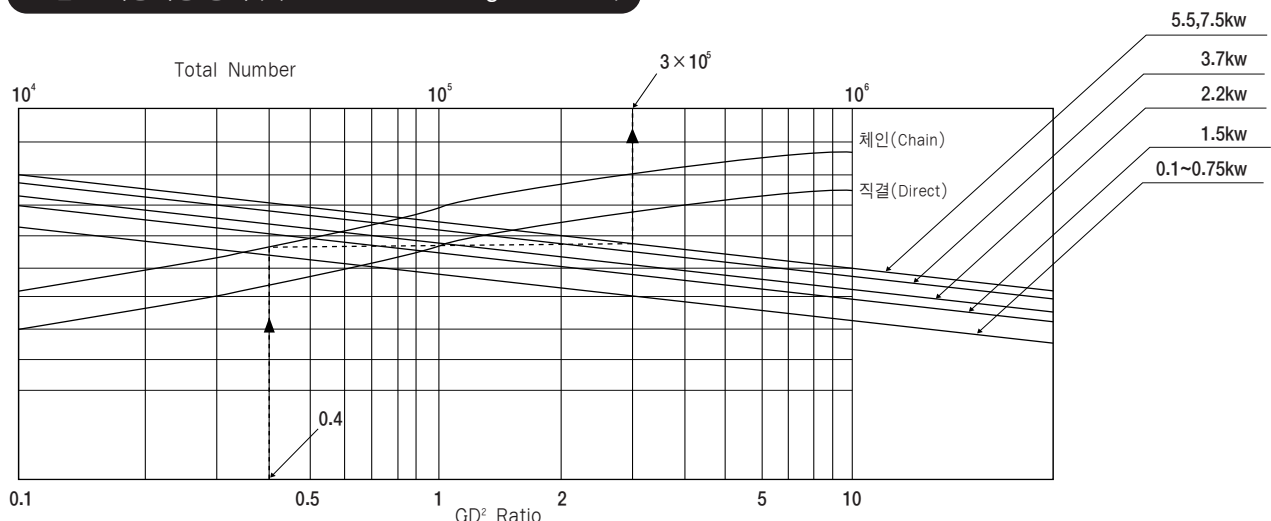
3) 그림 3에 의한 R = 0.4 의 수직선 체인의 선과 교점을 구하고 그점에 의한 수평선과 5.5Kw 선의 교점이 허용시동 총회수로 3×10^5 회수가 됩니다.

In Picture 3, find the crosspoint(A) of R = 0.5 and the curve of chain. Then the allowable starting total number is the crosspoint between horizontal line from(A) and the required power 5.5 Kw. In this example the allowable starting total number becomes 3×10^5 .

$$4) \text{내구시간은 } \frac{\text{허용시동 총회수}}{\text{기동정도}} = \frac{3 \times 10^5}{20} = 15,000 \text{ 시간}$$

$$\text{Durable hours : Allowable starting total number / Starting Coefficient} = 3 \times 10^5 / 20 = 15,000 \text{ hours}$$

그림 3 허용시동 총회수(Allowable Starting Total No.)



기어드 모터 / Geared Motor

기어드 모터 규격별 그리이스 및 오일 주입량 (Grease or Oil Charging Quantity)

구 분	1/5	1/10	1/15	1/20	1/30	1/40	1/45	1/50	1/60	1/80	1/100	1/120	1/160	1/200	적용	
0.1 Kw	0.1							0.1	0.42						Grease	
0.2 Kw	0.1					0.42	-	0.42					0.7			
0.4 Kw	0.1		0.3			0.7						1.5				
0.75 Kw	0.45				0.55	1.0										OIL
1.5 Kw	0.9		1.0		1.4	2.0										
2.2 Kw	1.0		1.4		1.9	2.5										
3.7 Kw	1.9				2.3	3.8										
5.5 Kw	2.3				3.6	4.5										
7.5 Kw	2.3			3.6	4.3	7.0										

- 0.75kw VERTICAL Geared Motor에는 Grease윤활
- 공장 출하시에 0.2 ~ 0.4 Kw의 전기종에 그리이스를 0.75~7.5Kw 전기종에는 오일을 충전하여 출하하고 있습니다.
- 그리이스의 교환시기는 2,000시간마다 교환하여 주십시오.
- 오일의 교환시기는 500시간 가동 후 1회 교환 후 매 2,000시간 마다 교환하여 주십시오.
- 그리이스 및 오일 교환시 양은 상기표를 참조 하십시오.
- Geared motors powered between 0.2 and 0.4 Kw are charged with grease during factory shipment. Also, geared motor powered between 0.75 and 7.5 Kw are charged with oil.
- Grease should be re-charged at every 2,000 hours.
- Oil needs to be changed first 500 hours operation, and hereafter to be changed at every 2,000 hours.

기어드 모터의 GD_M^2 (모터축 환산) / Geared Motor GD_M^2 (Motor Shaft Conversion)

Kw	4P	
	일반형 General	브레이크 부착 With Brake
0.4	0.0056	0.0069
0.75	0.0099	0.0112
1.5	0.0271	0.0321
2.2	0.0301	0.0351
3.7	0.0456	0.0967
5.5	0.0633	0.114
7.5	0.106	0.167

SGM 소음 수준 / SGM Geared Motor Noise Level

Geared Ratio		1/120	1/90	1/60	1/45	1/30	1/20	1/15	1/10	1/5
RPM		15	20	30	40	50	90	120	180	360
출력 (Kw) Out put	0.4	62	62	62	62	62	62	62	62	62
	0.75	65	65	65	65	65	65	66	66	66
	1.5	70	70	70	70	70	70	70	71	71
	2.2	70	72	72	72	72	72	72	72	72
	3.7	70	72	72	72	72	72	72	72	72
	5.5	72	72	72	72	72	72	72	72	72
	7.5		74	73	73	74	75	75	74	75

삼상유도 전동기 참고 특성 DATA

Three Phase Induction Motor Reference Characteristic Data

출력 KW(HP)	극수 Pole	정격전류 Regular Current		기동전류 Starting Current		효율 Efficiency %	역율 Power Factor %	전부하 Total Load Torque(Kg-m)	Slip %	R.P.M
		220V	380V	220V	380V					
0.4 (1/2)	2	1.9	1.1	9.5	5.5	70	83	0.11	5.0	3240
	4	1.8	1.0	9.2	5.3	76	78	0.23	4.4	1720
	6	2.3	1.3	9.3	5.4	70	64	0.35	6.6	1120
0.75 (1)	2	3.1	1.8	20	11.5	75	86	0.21	5.0	3420
	4	3.5	2.0	19.5	11.3	78	71	0.42	5.0	1720
	6	3.9	2.3	20	12.0	75	66	0.64	4.6	1140
1.5 (2)	2	5.6	3.2	38	22.0	83	84	0.42	3.3	3470
	4	6.5	3.7	46	26.6	80	76	0.84	3.8	1730
	6	6.8	3.9	36	20.8	79	72	1.28	5.0	1140
2.2 (3)	2	7.9	4.6	75.4	43.6	87	84	0.62	3.5	3480
	4	8.2	4.7	66	38.2	83	80	1.22	2.8	1750
	6	9.5	5.5	54	25.4	81	75	1.90	5.9	1130
3.7 (5)	2	12.8	7.4	142	82.0	85	88	1.03	2.7	3500
	4	13	7.5	101	58.0	86	86	2.07	3.4	1740
	6	13.4	7.7	81	47.0	86	83	3.14	4.5	1145
5.5 (7½)	2	18	10.4	108	62.0	86	93	1.54	3.1	3490
	4	20	11.5	99	57.0	88	84	3.07	3.2	1740
	6	21	12.1	110	64.0	89	78	4.62	3.3	1160
7.5 (10)	2	24.5	14.2	143	83.0	86	94	2.10	3.3	3480
	4	26	15	144	83.0	90	85	4.18	2.8	1750
	6	27	15.6	180	104.0	88	82	6.39	5.0	1140

단상유도 전동기 참고 특성 DATA

Single Phase Induction Motor Reference Characteristic Data

형식 Type	극수 Pole	출력 Output (KW)	프레임 Frame No.	전압 Voltage (V)	전부하 Total Load			기동 Starting		최대토크 Max. Torque(%)	효율 Efficiency (%)	컨덴서 Condenser Capa.(μF)
					Torque (kg · m)	전 류 Current(A)	R.P.M	Torque (%)	전 류 Current(A)			
EOUP	4	0.2	71	220	0.112	2.8	1750	260	12.5	260	50	180
		0.25	71		0.193	3	1750	260	15.0	260	57	200
		0.3	71		0.167	3.6	1750	260	20.0	260	55	200
		0.4	90		0.222	4.5	1740	230	21.0	250	59	200
		0.55	90		0.306	5.6	1750	230	30.0	250	63	310

기어드 모터 / Geared Motor

GD²플라이 휠의 효과 계산법

Calculation of Fly Wheel Inertia GD²

관성을 일반적인 관성모멘트 I ($\text{Kg} \cdot \text{m} \cdot \text{sec}^2$)로 나타내고 있습니다만 공업용으로 실제 사용할 경우는 GD^2 ($\text{Kg} \cdot \text{m}^2$)을 사용하는 것이 편리하다.

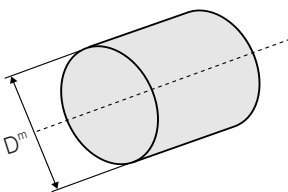
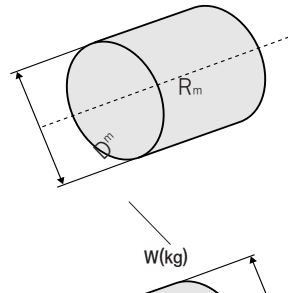
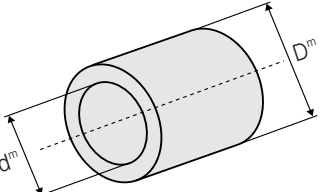
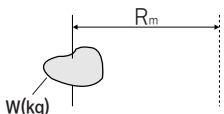
In general, inertia is represented by inertia momentum ($\text{Kg} \cdot \text{m} \cdot \text{sec}^2$), however, GD^2 is more widely used for industrial purpose.

$$\text{GD}^2 = 4g l$$

여기서

- G ----- 중량 Weight (Kg)
- D ----- 회전직경 Rotation Diameter (m)
- g ----- 중력가속도 Gravity (9.8 m/sec^2)
- l ----- 관성모멘트 Inertia Momentum ($\text{Kg} \cdot \text{m} \cdot \text{sec}^2$)

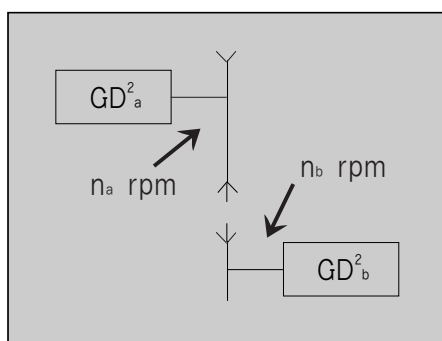
회전체의 GD² / Inertia of Gyration Object

회전중심이 무게중심과 일치할 때 Rotation Center = Gravity Center		회전중심이 무게중심과 일치하지 않을 때 Rotation Center $\neq$ Gravity Center	
	$\text{GD}^2 = \frac{1}{2} \text{WD}_m^2$ ($\text{Kg} \cdot \text{m}^2$)		$\text{GD}^2 = \frac{1}{2} \text{WD}_m^2 + 4\text{WR}_m^2$ ($\text{Kg} \cdot \text{m}^2$)
	$\text{GD}^2 = \frac{1}{2} \text{W}(\text{D}_m^2 + \text{d}_m^2)$ ($\text{Kg} \cdot \text{m}^2$)		$\text{GD}^2 = 4\text{WR}_m^2$ ($\text{Kg} \cdot \text{m}^2$)

직선운동을 하는 경우의 GD^2 / Inertia of Straightly Moving Object

일반적인 경우 General Case		$GD^2 = W \cdot \left(\frac{V}{\pi n} \right)^2$ (Kg . m²)
수평직선 운동인 경우 Horizontal Straight Movement (리드스크류에 의한 물체의 이동) (Moved by Lead Screw)		$GD^2 = W \cdot \left(\frac{P}{\pi} \right)^2$ $= W \cdot \left(\frac{V}{\pi n} \right)^2$ (Kg . m²)
수평직선 운동인 경우 Horizontal Straight Movement (컨베이어 등) (Conveyor...)		$GD^2 = W_1 D_m^2 + \frac{1}{2} W_2 D_m^2$ $+ \frac{1}{2} W_3 D_m^2 + W_4 D_m^2$ (Kg . m²)
수직 운동인 경우 Vertical Straight Movement (크레인, 윈치 등) (Crane, Winch...)		$GD^2 = W_1 D_m^2 + \frac{1}{2} W_2 D_m^2$ (Kg . m²)

회전비가 있는 경우의 GD^2 / Inertia with Rotation Ratio



부하축의 GD^2_b 를 n_a 축에 환산할 경우
Conversion of load shaft inertia to n_a shaft

$$GD^2 = GD^2_a + (n_b/n_a)^2 GD^2_b$$

기어드 모터 / Geared Motor

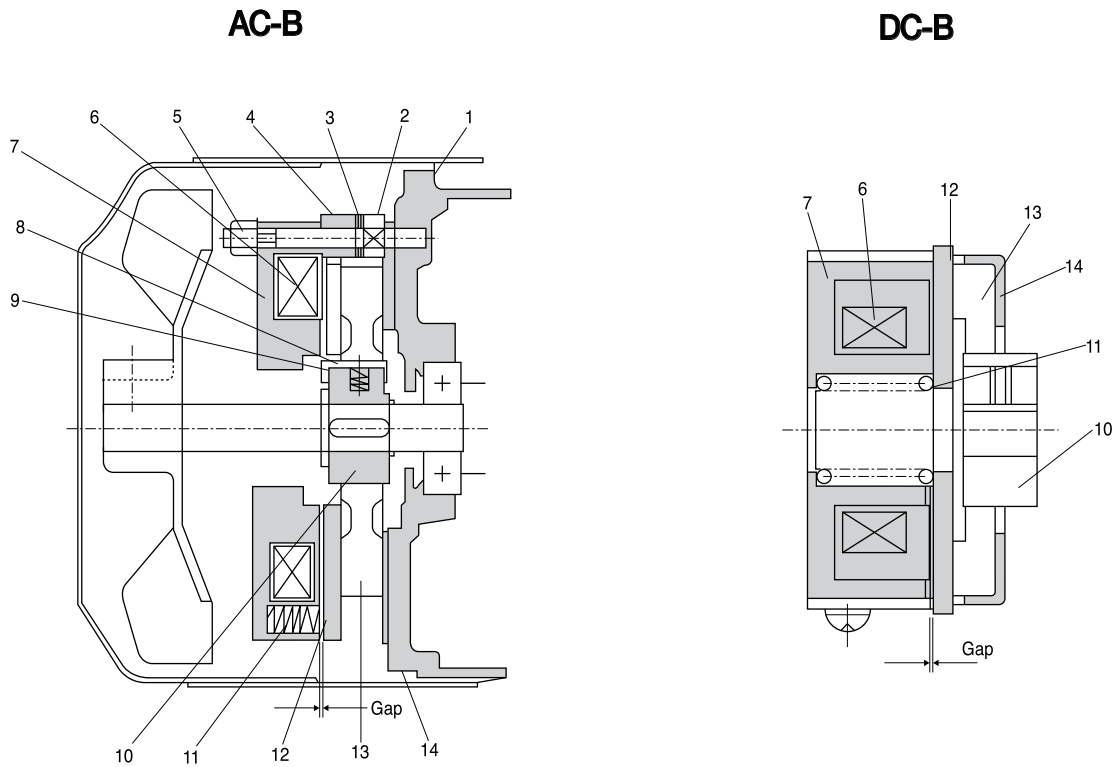
특징 / Features

- a) 무여자 작동형 (스프링 크로스식)으로서 정전시에는 자동적으로 작동하는 안전 브레이크입니다.
Cross spring type geared motor is automatically operational event at power failure.
- b) 전원장치가 있어 배선이 용이합니다.
Power connector makes easy wiring.
- c) 간단한 구조로 브레이크 갭 조정도 용이합니다.
Simple structure makes brake gap adjustment easy.

브레이크 사양 / Brake specification

출력 Output(KW) 4p 사양 Spec.		0.1	0.2	0.4	0.75	1.5	2.2	3.7	5.5	7.5
브레이크 Brake		SB-02	SB-1.0	SB-1.0	SB-2.0	SB-3.0	SB-6.0	SB-8.0	SB-8.0X2	SB-15
토크 Torque (kg・m)		0.2	1.0	1.0	2.0	3.0	3.5	8	12	15
전원장치 Power Supplier		HD-10	HD-20B							
전압 Voltage		AC 220V (DC90V)								
전류 Current at 75℃ (A)		0.082	0.27	0.27	0.25	0.27	0.3	0.4	0.4	0.56
용량 Capacity at 75℃(W)		7.3	24	24	22	24	27	36	36	50
규정 틈새 Regular Gap (mm)		0.2	0.3					0.4		
한계 틈새 Limit Gap (mm)		0.8	0.8					1.5		
허용열 열발산량 Allowable Heat Dissipation at 1500R.P.M 50% ED(kgf.m/min)		100	500	500	600	800	800	1100	1100	1100
총사사양 E.T (kgf・m)		9 X 10 ⁵	2.2 X 10 ⁷	2.2 X 10 ⁷	3.6 X 10 ⁷	4.5 X 10 ⁷	4.5 X 10 ⁷	6.3 X 10 ⁷	8.4 X 10 ⁷	8.4 X 10 ⁷
개방시간 Amateur Release Time(sec)	동시절환 AC/DC Converting	0.3	0.225	0.205	0.298	0.150	0.135	0.230	1.20	1.20
	교류절환 AC Converting	0.17	0.130	0.075	0.120	0.054	0.050	0.070	0.50	0.45
	직류절환 DC Converting	-	0.023	0.012	0.013	-	-	-	0.075	0.065

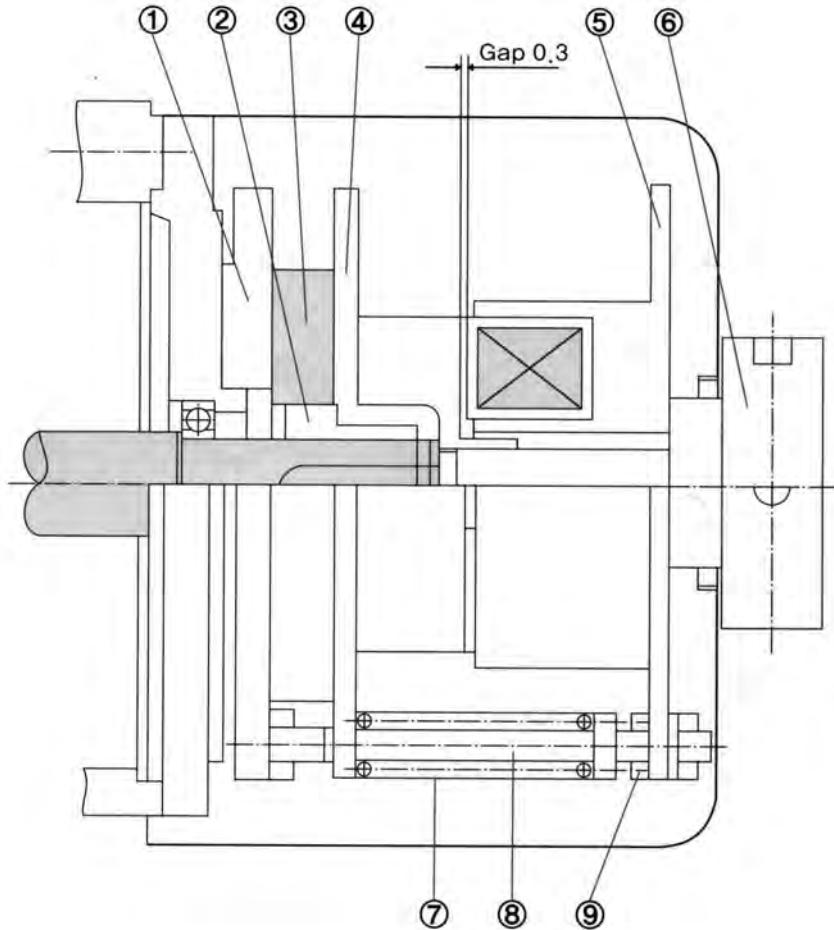
브레이크의 구조 / Brake Structure



No.	명 칭	Name
1	브라켓 쉴드	Bracket shield
2	스터드 볼트	Stud Bolt
3	조정 라이너	Adjust Liner
4	칼라	Collar
5	육각 너트	Hex - Nut
6	코일	Coil
7	자석	Magnet
8	소음 브라켓	Sound Bracket
9	소음 스프링	Sound Spring
10	허브	Hub
11	브레이크 스프링	Brake Spring
12	아마추어	Armature
13	내부 디스크	Inner Disk
14	브라켓	Bracket

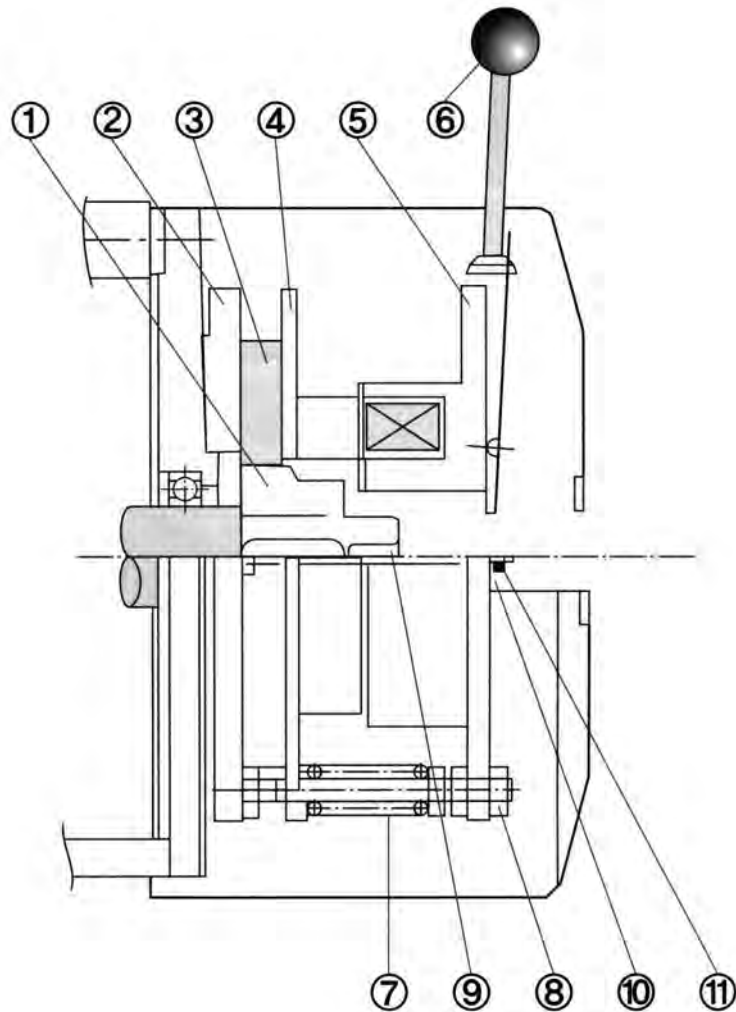
기어드 모터 / Geared Motor

주차주행용 (수동개폐)



SPECIFICATION		NO.	DESCRIPTION	Q' TY	MATERIAL	REMARK
BRAKE TYPE	AC-B	1	DISC FLANGE	1	SS 41	
RATING VOLTAGE	AC 380V	2	HEX LINING	1	SS 41	
RATING AMFERE	0.2A	3	LINING	1	ASBESTOS	
POWER CONSUMPTION	21W	4	AMATURE	1	SS 41	
COIL RESISTANCE	370Ω	5	MAGNET	1		
OYNAMIC TORQUE	0.8KG,M	6	RELEASE HANDLE	1		
STATIC TORQUE	1.0KG,M	7	SPRING	3	SUP6	
		8	STUD BOLT	3	S 35C	M6
		9	NUT	12	S 35C	M6

주차기용 (수동개폐)



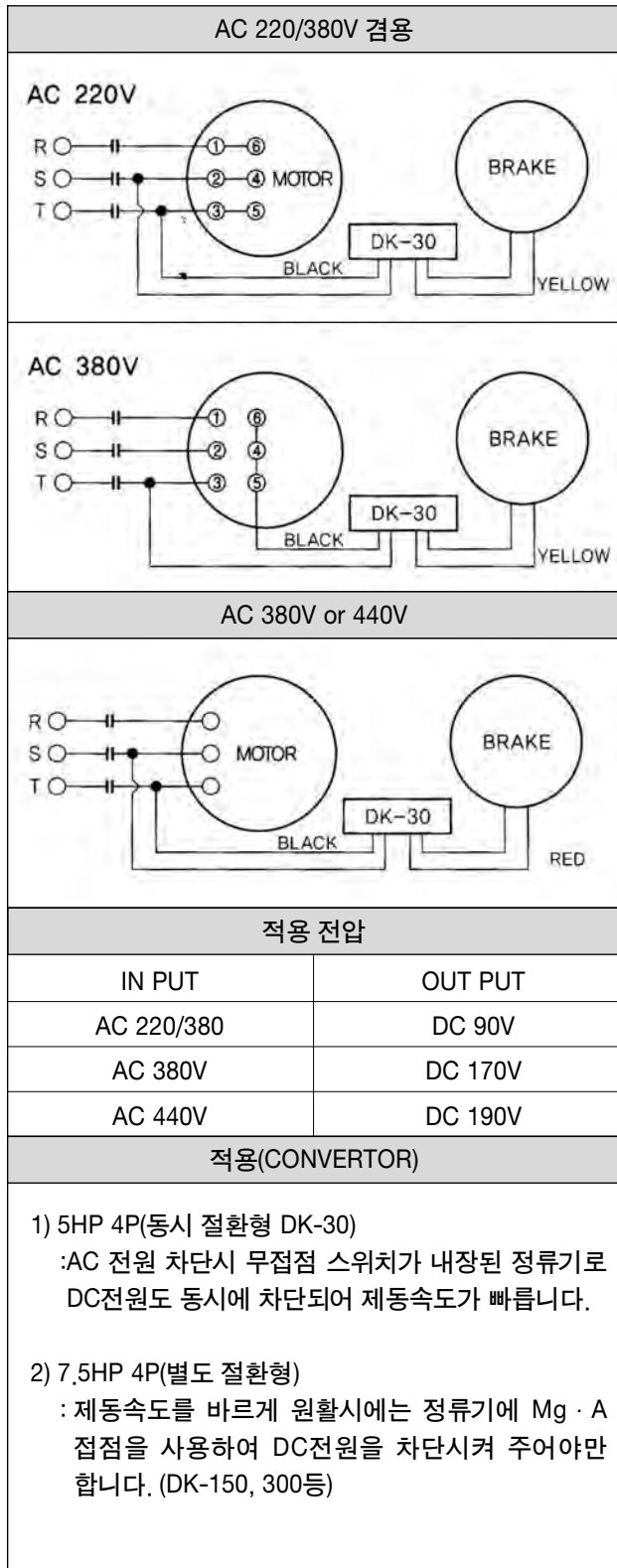
SPECIFICATION	
BRAKE TYPE	AC-B
RATING VOLTAGE	AC 380V
RATING AMFERE	0.3A
POWER CONSUMPTION	36W
COIL RESISTANCE	225 Ω
OYNAMIC TORQUE	3.3KG.M
STATIC TORQUE	4.5KG.M

NO.	DESCRIPTION	Q' TY	MATERIAL	REMARK
1	HEX LINING	1	SS 41	
2	DISC FLANGE	1	SS 41	
3	LINING	1	ASBESTOS	
4	AMATURE	1	SS 41	
5	MAGNET	1		
6	RELEASE HANDLE	1		
7	SPRING	3	SUP6	
8	NUT	12	S 35C	M8
9	STUD BOLT	2	S 35C	
10	SPRING	2	SU 96	
11	LOCK NUT	2	S 35C	

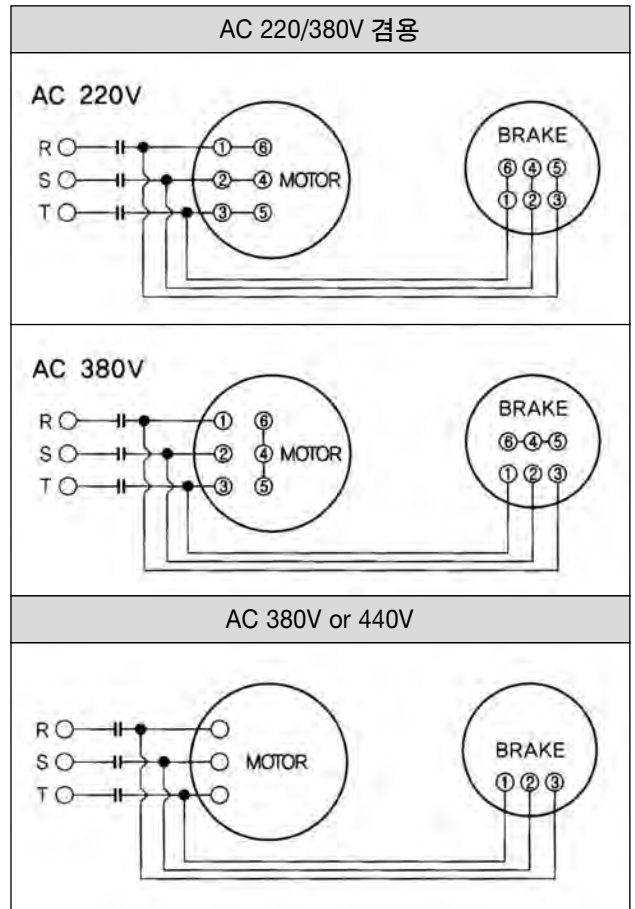
기어드 모터 / Geared Motor

무여자 작동형 결선도 / Brake B Type

1. DC B TYPE 결선도



2. AC B TYPE 결선도



주) AC BREAK는 적용 주파수 (50, 60Hz)에 유의 하십시오.

전동기 결선도 / Motor Connection Diagram

단상 모터(Single Phase Motor)

구분	단 전압 Single Voltage		양 전압 Double Voltage	
	리드 선 3개 인출시	리드 선 4개 인출시	낮은 전압 : 110V	높은 전압 : 220V
정회전 (ccw)				
역회전 (ccw)				

삼상 모터(Three Phase Motor)

리드 선 6개 인출시				
이중전압 (Dual Voltage) 220V 380V	낮은 전압 : 220V		높은 전압 : 380V	
	⑥—①→ R ④—②→ S ⑤—③→ T	Y - △ 기동 가능 결선은 단전압 6가닥 인출시와 동일함	⑥ ①→ R ④ ②→ S ⑤ ③→ T	Y - △ 기동 불능
	△(Delta)결선		Y(Star)결선	
리드 선 9개 인출시				
양전압(1) (Double Voltage) 220V 440V Y - △ 기동불가	낮은 전압 : 220V	높은 전압 : 440V	낮은 전압 : 220V	높은 전압 : 440V
	⑦—⑥—①→ R ⑧—④—②→ S ⑨—⑤—③→ T	⑦—④ ①→ R ⑧—⑤ ②→ S ⑨—⑥ ③→ T	④ ⑦—①→ R ⑤ ⑧—②→ S ⑥ ⑨—③→ T	④—⑦ ①→ R ⑤—⑧ ②→ S ⑥—⑨ ③→ T
	모터 내부 결선(△ - Conection)		모터 내부 결선 (Y - Conection)	
비고 Remark	① 모터 명판에 부착된 결선도에 따라 결선 하십시오			
	② 양전압에 있어 역회전을 원할시에는 다음과 같이 하면 됩니다.			
	- 다음 - ① ② ③ → R → S → T			

기어드 모터 / Geared Motor

설치 및 사용상 주의사항 / Cautions during Installation and Use

1. 설치전의 점검 / Before Installation

감속기는 당사에서 철저한 검사 및 점검한 후 납품하지만, 수송 도중 진동이나 그외 악영향을 받는 경우가 있으므로 설치 전에 반드시 다음 사항을 점검하십시오.

- ① 누유되는 곳은 없는가 ② 파손된 부분은 없는가 ③ 명판은 주문 사항과 일치하는가

Products get through inspection prior to shipment, however, vibration during delivery or other improper treatment may cause problem. Please make sure of following check point prior to installation.

- ① Oil Leakage ② Cracks ③ Order Specification

2. 상대기계와 연결 방식 / Coupling Method with Machine

1) 직결방식

입출력축 모두 직결방식을 사용하는 것이 가장 좋으며 커플링은 가급적 가요성 커플링을 사용하시기 바랍니다.

2) 기어, 체인 스프로킷 사용시

- 입출력축에 체인, 스프로킷, 폴리 등을 취부하는 경우 아래의 공식에 의해서 스프로킷 및 기어의 직경을 선정해 주십시오.

체인스프로킷 기어의 피치원 직경 $\geq 3 \times$ 입출력축의 직경

- 입출력축의 선단에 하중이 작용하면 축에 무리한 힘이 걸려서 축이 파괴되거나 베어링이 손상될 우려가 있으므로 완전히 안쪽(카바쪽)으로 조립한 후 사용하십시오.

(1) Direct Coupling : Direct coupling is the best for both input and output shaft coupling.

(2) Use with Gear, Sprocket or Chain

- When gear, sprocket or chain is connected with input or output shaft, please determine the diameter of sprocket or gear using following equation.
- If load is given to shaft end, excessive force harms to bearing and other parts. Make sure of coupling machine to deep side of shaft.

3. 가동전 무부하 상태로 6시간 후 가동 사용하십시오.

No Load Operation After 6 hour no load run, actual load running is recommended.

3. 윤활유의 선정 및 보존 / Preservation & Selection Of Lubrication

1) 주유 및 유량

윤활유는 반드시 추천 윤활유를 사용하고 유량은 완전 정지상태에서 유면계의 중심까지 오게 하십시오.

윤활유가 너무 많거나 적으면 기어와 베어링에 악영향을 미칠 우려가 있습니다.

2) 윤활유의 교환

처음 가동시에는 기어의 초기 마모분이 기름에 떨어지므로 운전개시 후 500시간 정도 사용후 새로운 윤활유로 교환하여 사용하고 그 후는 매 2000시간마다 교환하여 주십시오.

윤활유 교환시 내부를 깨끗하게 세척하여 마모분을 제거하십시오.

1) Charging and Quantity : One should use only recommended grease, and charge grease up to the center of oil gauge at fully stoped mode. Both more and less grease may cause problems to gear and bearing.

2) Grease Change : For the first 500 hour run, there are excessive particles in grease. Hereafter, grease can be replaced at every 2,000 hours. Rinse inside to remove particles during grease change.

추천 윤활유 / Recommended Lubricant

Type \ Maker		GS CALTEX	SK 에너지	극 동 Kuk Dong SHELL	MOBIL KOREA
ISO VG	68	Meropa Lubricant 68	EP LUBRICANT HD 68	Omala 68	Mobil gear 626
ISO VG	100	Meropa Lubricant 100	EP LUBRICANT HD 100	Omala 100	Mobil gear 627
ISO VG	150	Meropa Lubricant 150	EP LUBRICANT HD 150	Omala 150	Mobil gear 629
ISO VG	220	Meropa Lubricant 220	EP LUBRICANT HD 220	Omala 220	Mobil gear 630
ISO VG	320	Meropa Lubricant 320	EP LUBRICANT HD 320	Omala 320	Mobil gear 632
ISO VG	460	Meropa Lubricant 460	EP LUBRICANT HD 460	Omala 460	Mobil gear 634
ISO VG	680	Meropa Lubricant 680	EP LUBRICANT HD 680	Omala 680	Mobil gear 636
Grease 그리스	NLGI 0	Multifak EP 0	Crown EP 0	Alvania EP 0	Mobilplex EP 0
	NLGI 1	Multifak EP 1	Crown EP 1	Alvania EP 1	Mobilplex EP 1
	NLGI 2	Multifak EP 2	Crown EP 1	Alvania EP 2	Mobilplex EP 2

사용 윤활유

제품종류	하중상태	주위온도	사용윤활유	비고
기어드 모터	정하중	10°C 이하	ISO VG 150	
		10°C 이상	ISO VG 220	
웜 감속기	보통하중	10°C 이하	ISO VG 220	
		10°C 이상	ISO VG 320	
	중하중	10°C 이하	ISO VG 320	
		10°C 이상	ISO VG 460	

Factory Charged Lubricant

Product	Load Status	Temperature	Charged Lubricant	Remarks
Geared Motor	Total Load	10°C below	ISO VG 150	
		10°C up	ISO VG 220	
Worm Reducer	Normal Load	10°C below	ISO VG 220	
		10°C up	ISO VG 320	
	Heavy Load	10°C below	ISO VG 320	
		10°C up	ISO VG 460	

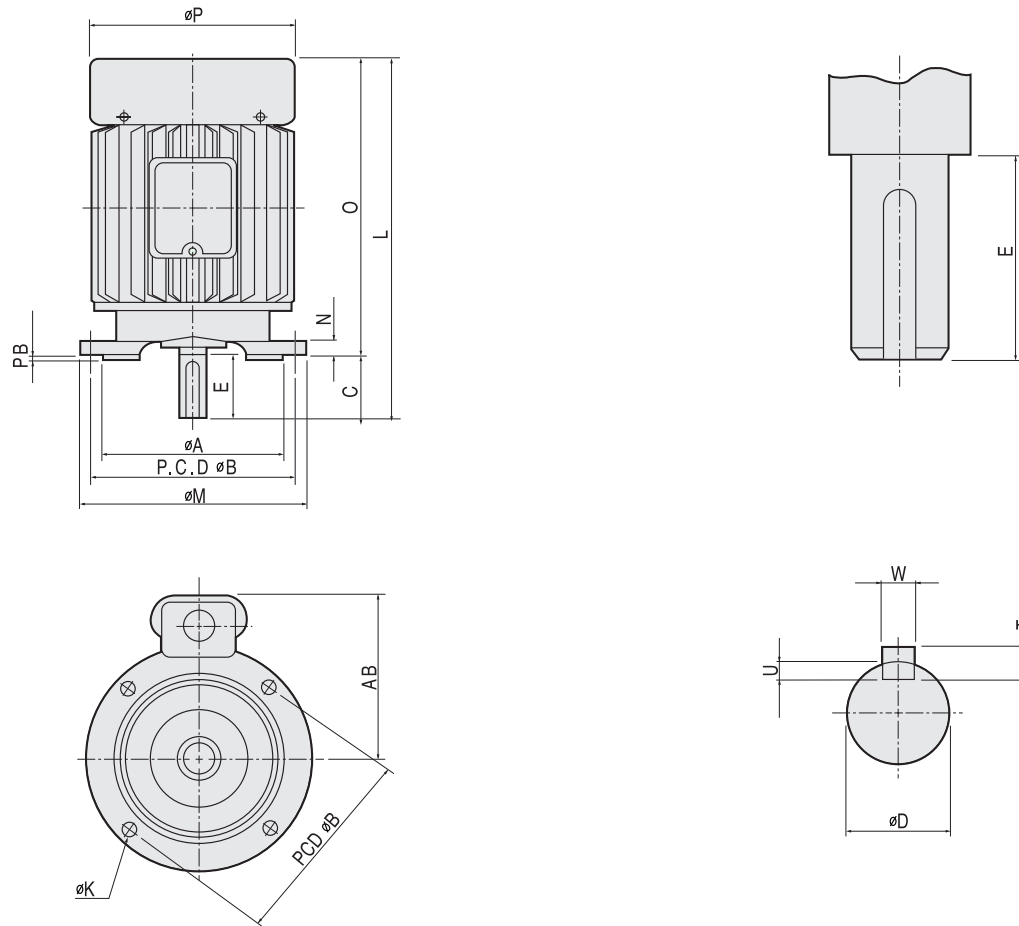
- 매우 격심한 부하조건의 표준형 감속기에는 한단계 높은 점도의 윤활유를 사용하는 것이 좋습니다.
- 그리스 전용 기어드모터에는 NLGI 0 을 사용하십시오.
- 주위온도가 40°C 이상되는 경우에는 당사에 문의하여 주십시오.
- 사용온도가 높은 경우에는 한단계 높은 점도유를 선택하십시오.

- For severe load, It is recommended to use one-step up grease for standard geared motor.
- Greased motor needs to use NLGI 0.
- For use of motor at higher than 40°C, Please ask us for direction.
- When normal running temperature is high, choose a one-step up viscosity grease.

기어드 모터 / Geared Motor

삼상 I.E.C 플랜지 모터

3-Phase I.E.C Flange Motor

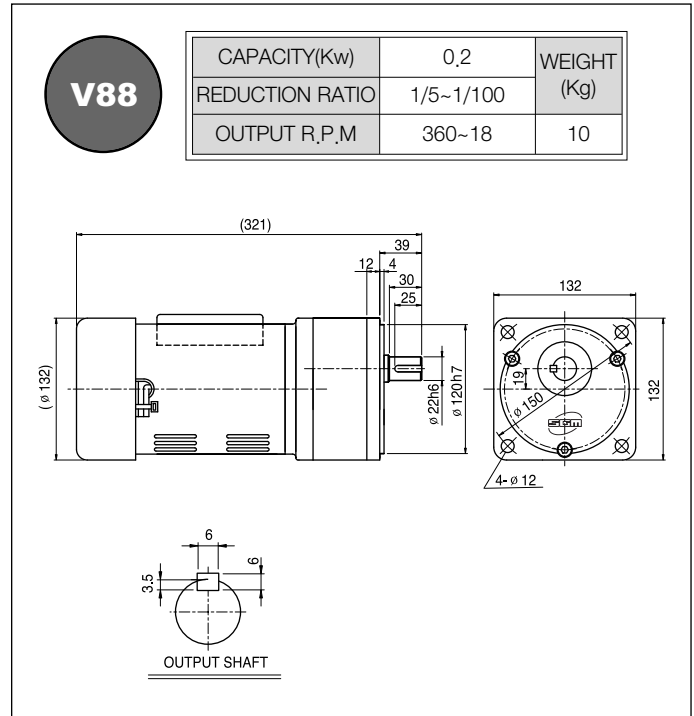
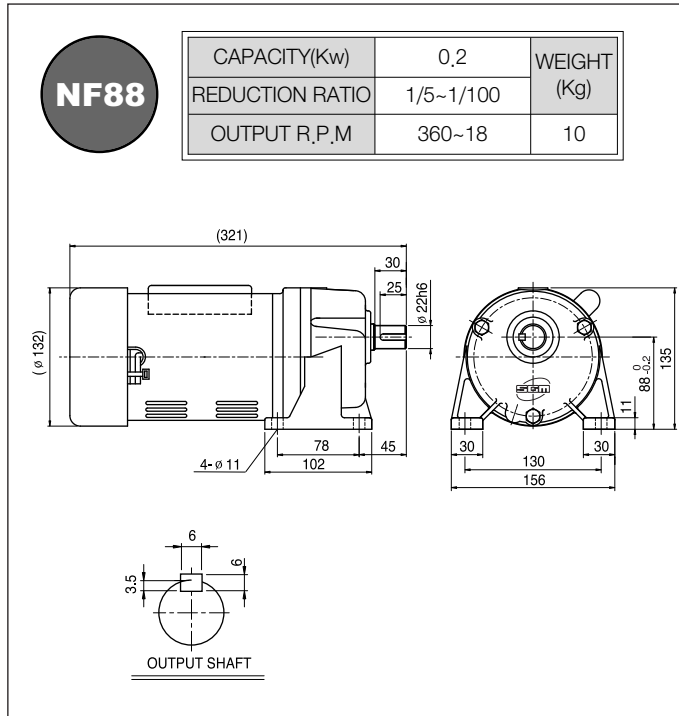


FRAME	OUTPUT(kw)		DIMENSIONS(mm)					SHAFT					FLANGE					
	4P	6P	L	O	P	C	AB	D	E	W	U	T	B	A	M	K	N	PB
63	0.2	-	203	180	118	23	110	11j6	23	4	2.5	4	115	95	140	10	9	3
71	0.4	-	270	240	132	30	115	14j6	30	5	3	5	130	110	160	10	10	3.5
80	0.75	0.4	293	253	175	40	140	19j6	40	6	3.5	6	165	130	200	12	12	4
90L	1.5	0.75	356	306	192	50	161	24j6	50	8	4	7	165	130	200	12	12	4
100L	2.2	1.5	368	308	197	60	168	28j6	60	8	4	7	215	180	250	15	16	4
112M	3.7	2.2	412	352	235	60	182	28j6	60	8	4	7	215	180	250	15	16	4
132S	5.5	3.7	458	378	274	80	213	38k6	80	10	5	8	265	230	300	15	20	4
132M	7.5	5.5	498	418	274	80	213	38k6	80	10	5	8	265	230	300	15	20	4
160M	11	7.5	595	485	317	110	265	42k6	110	12	5	8	300	250	350	19	20	5
160L	15	11	639	529	317	110	265	42k6	110	12	5	8	300	250	350	19	20	5
180M	18.5 22	15	675	565	365	110	290	48k6	110	14	5.5	9	350	300	395	19	20	5
180L	30	18.5 22	701	591	365	110	290	55m6	110	16	6	10	350	300	395	19	20	5

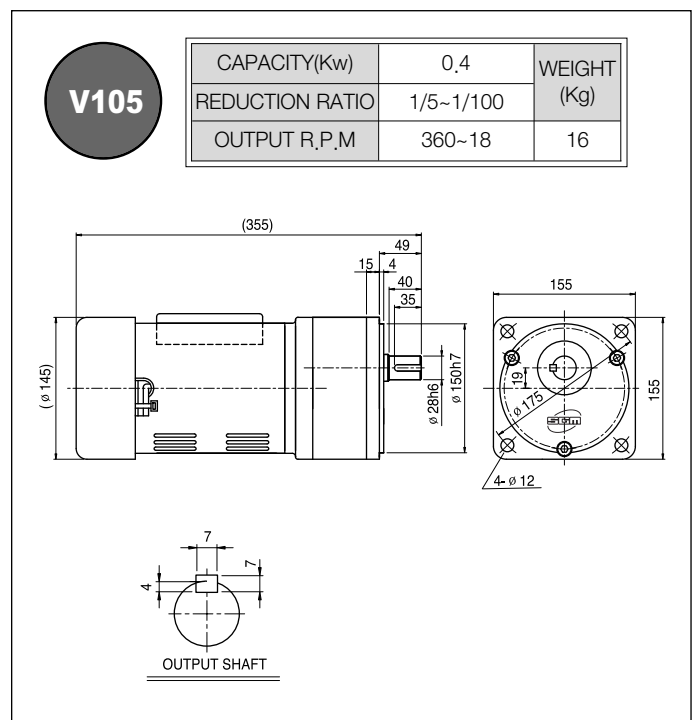
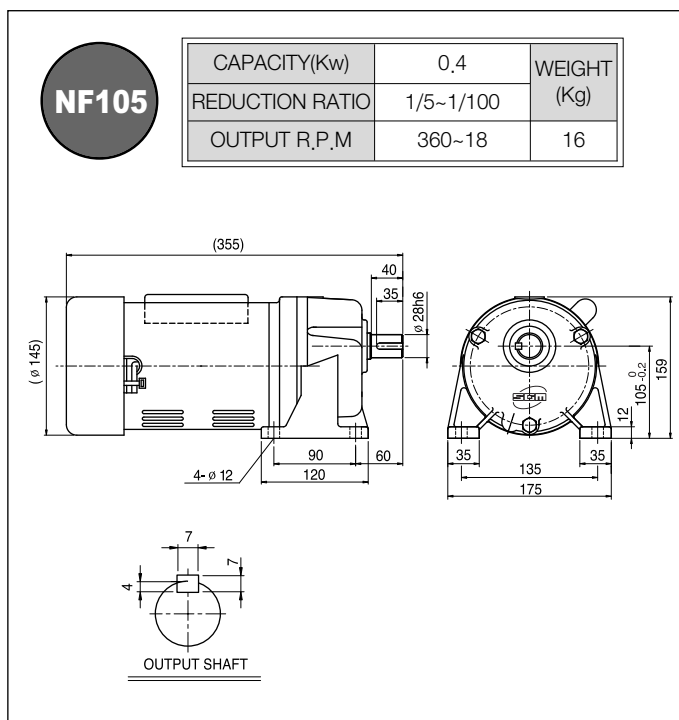
※ 외산 모터 부착시 당사 기술부로 문의 하시길 바랍니다.

GEARED MOTOR

1/4 HP(0.2Kw), 1 Phase (단상)



1/2 HP(0.4Kw), 1 Phase (단상)



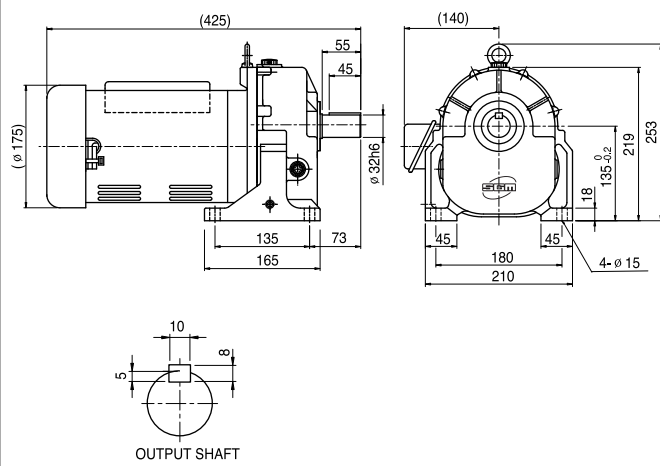
기어드 모터 / Geared Motor

GEARED MOTOR

1 HP(0.75Kw), 1 Phase (단상)

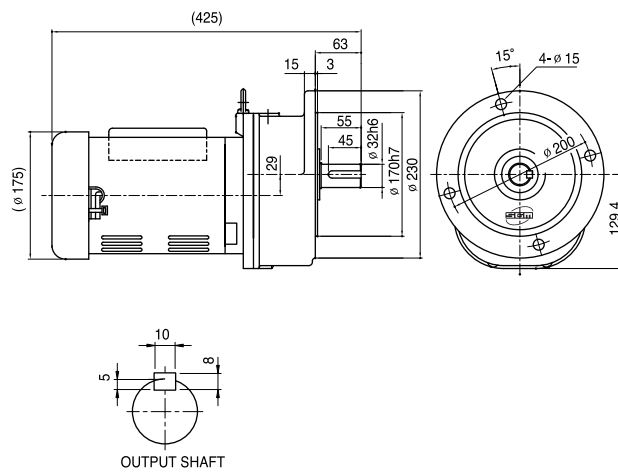
NF135

CAPACITY(Kw)	0.75	WEIGHT (Kg)
REDUCTION RATIO	1/5~1/30	
OUTPUT R.P.M	360~60	30



V135

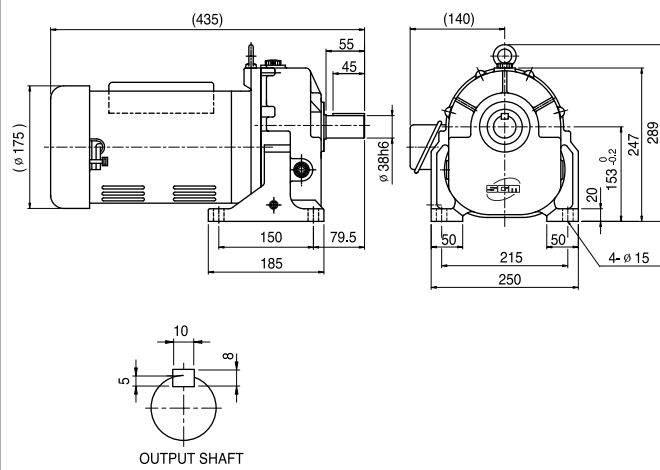
CAPACITY(Kw)	0.75	WEIGHT (Kg)
REDUCTION RATIO	1/5~1/30	
OUTPUT R.P.M	360~60	30



1 HP(0.75Kw), 1 Phase (단상)

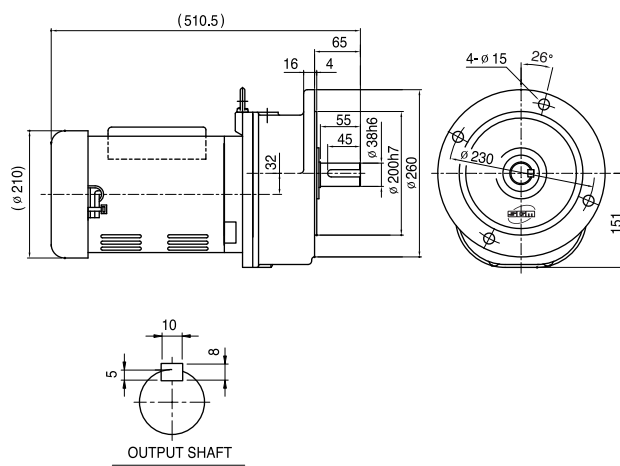
NF153

CAPACITY(Kw)	0.75	WEIGHT (Kg)
REDUCTION RATIO	1/40~1/75	
OUTPUT R.P.M	45~24	40



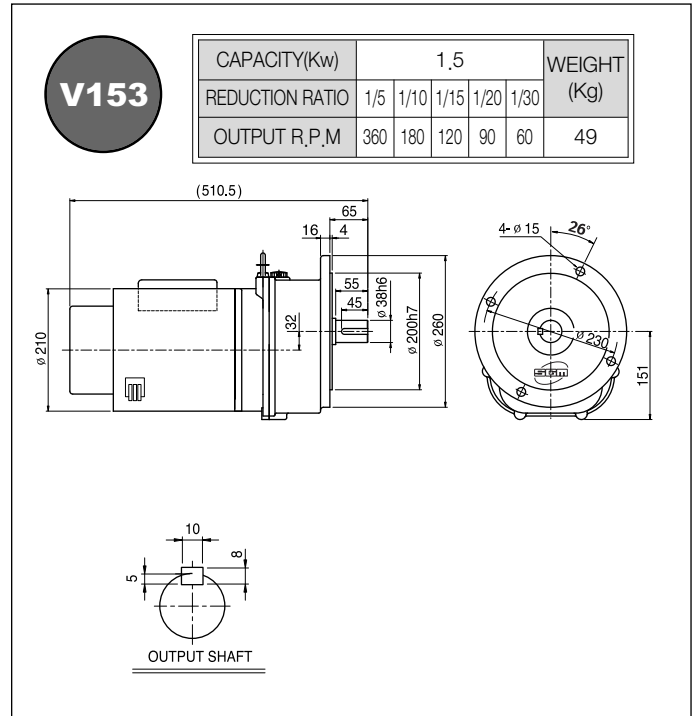
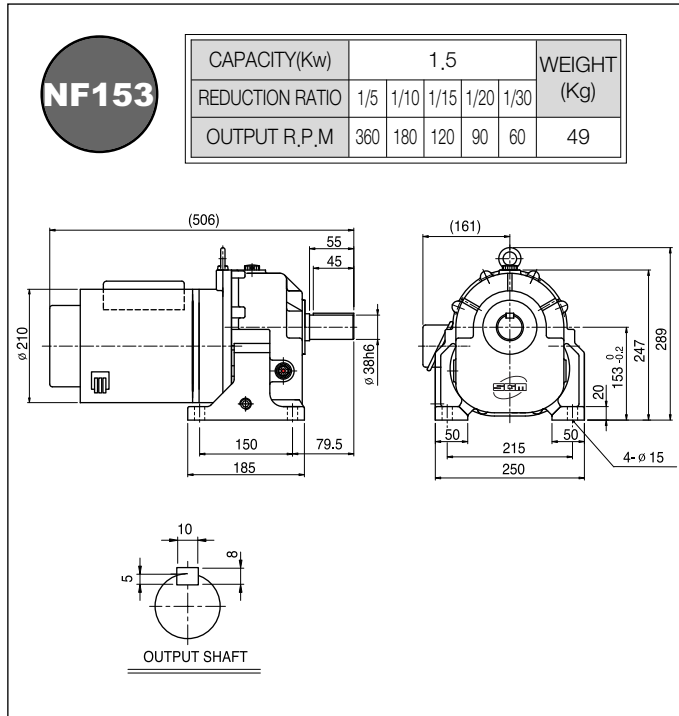
V153

CAPACITY(Kw)	0.75	WEIGHT (Kg)
REDUCTION RATIO	1/40~1/75	
OUTPUT R.P.M	45~24	40

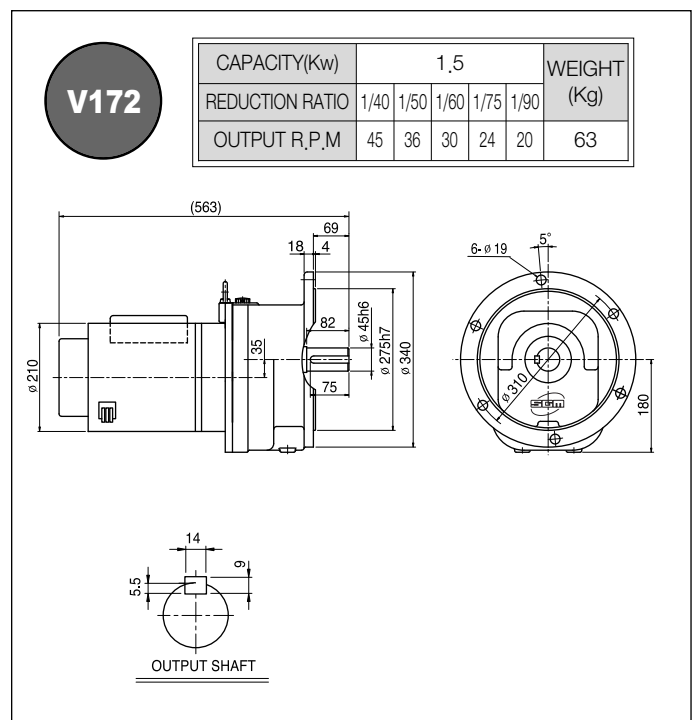
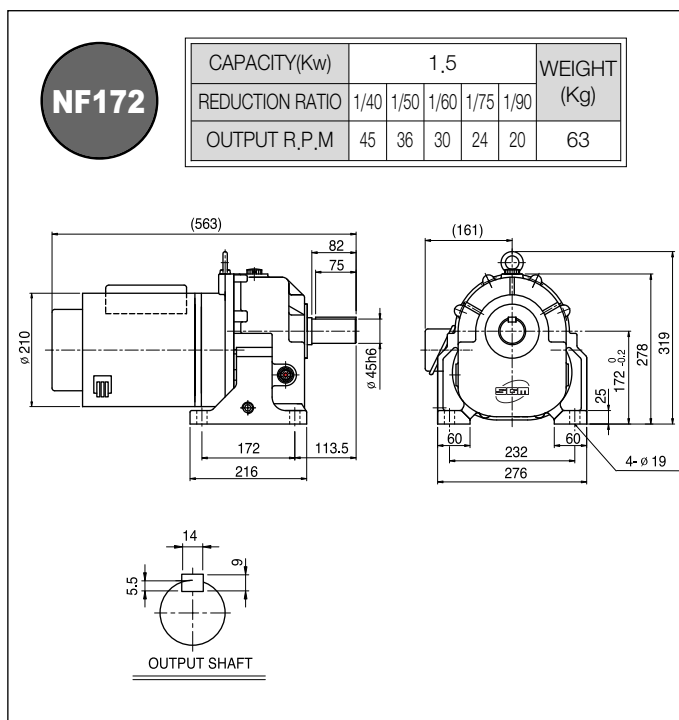


GEARED MOTOR

2 HP(1.5Kw), 1 Phase (단상)



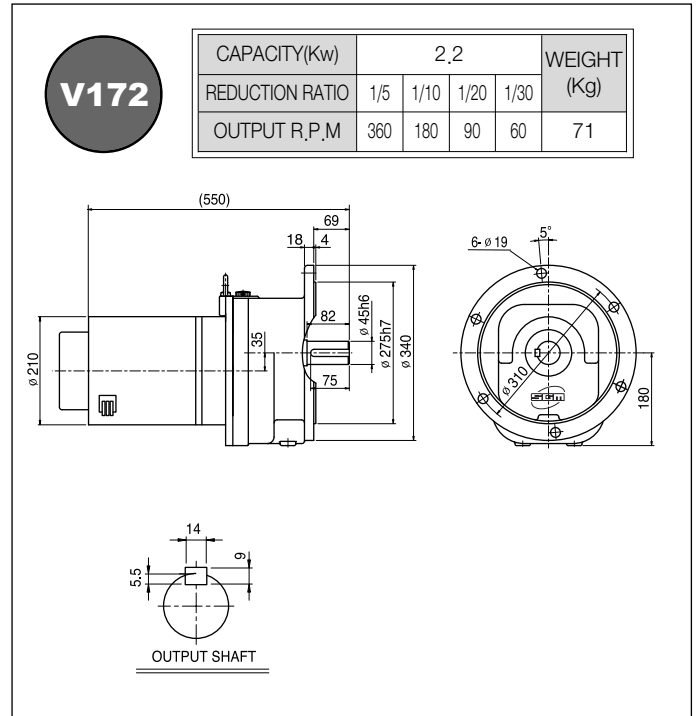
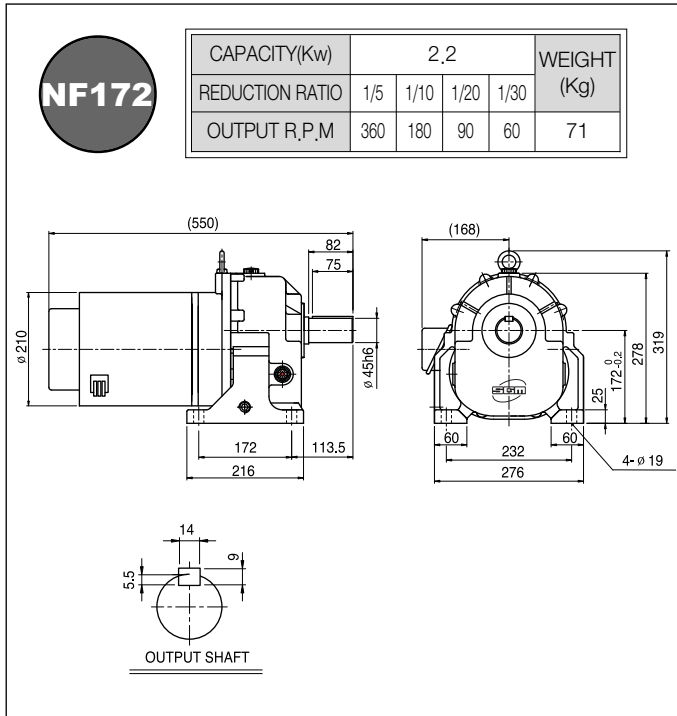
2 HP(1.5Kw), 1 Phase (단상)



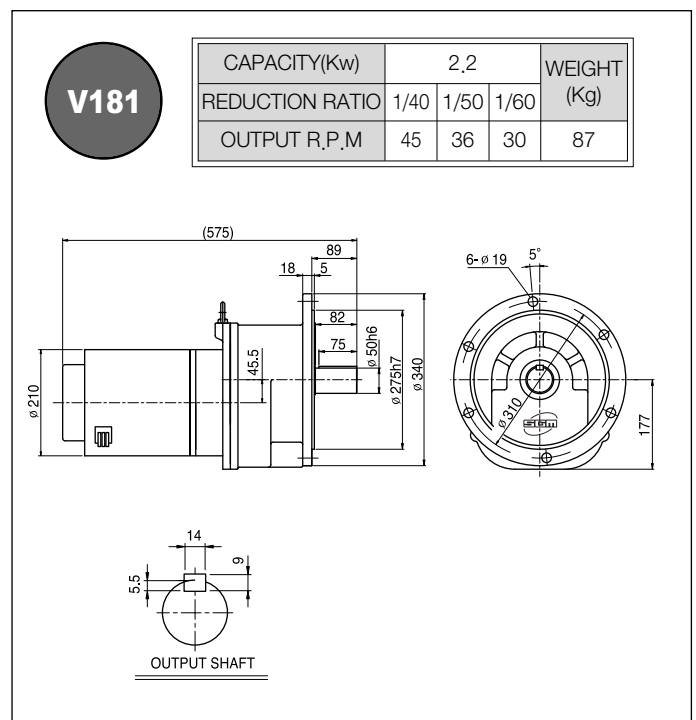
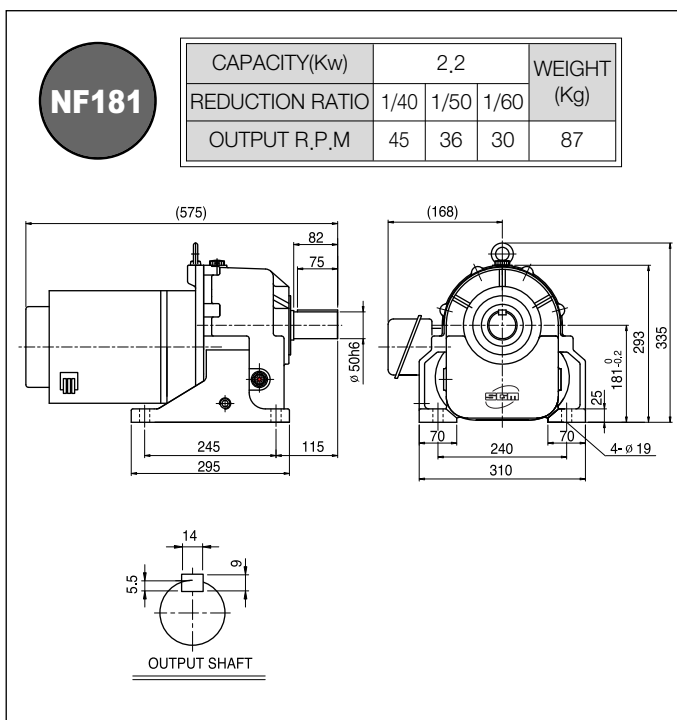
기어드 모터 / Geared Motor

GEARED MOTOR

3 HP(2.2Kw), 1 Phase (단상)



3 HP(2.2Kw), 1 Phase (단상)



고객 만족을 위해 종합적인 고객서비스 체제를 구축, 신속한 A/S

체계적 서비스 제공

고객의 현대 환경에서 사용되는 시스템의 개발 및 유지보수와 그에 따른 생산성 향상을 위한 서비스 제공을 해 드리고 있습니다.

체계적 기술력 제공

고객의 서비스 문의에 즉각 응답 처리할 수 있는 서비스 체제를 갖추고 있으며, 고객이 신뢰할 수 있는 고도의 전문 기술인력이 사전관리 체계를 갖추고 있습니다.

정보 기술 · 자료 서비스 제공

국내 · 외의 각종 기술자료를 갖추어 고객의 욕구 충족에 최선을 다하고 있습니다.



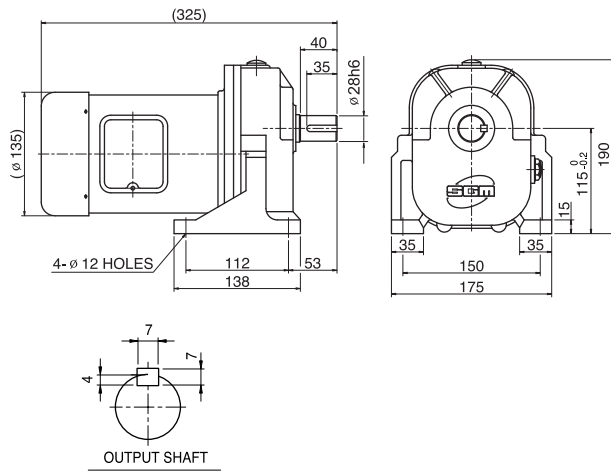
기어드 모터 / Geared Motor

M-TYPE GEARED MOTOR

1/2 HP(0.4Kw), 3 Phase (삼상)

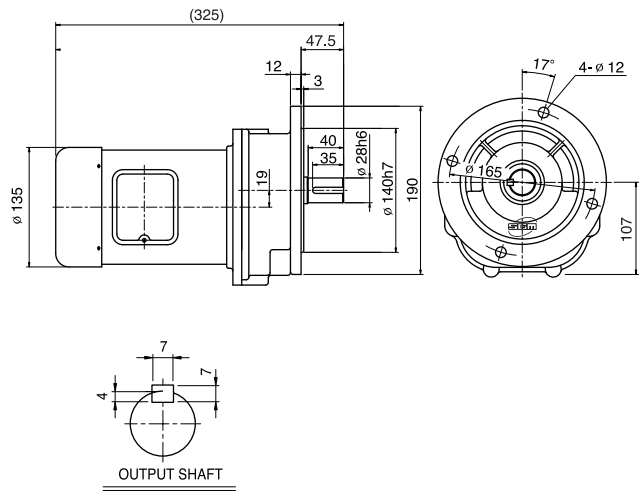
NF115

CAPACITY(Kw)	0,4	WEIGHT (Kg)
REDUCTION RATIO	1/5~1/100	
OUTPUT R.P.M	360~18	22



V115

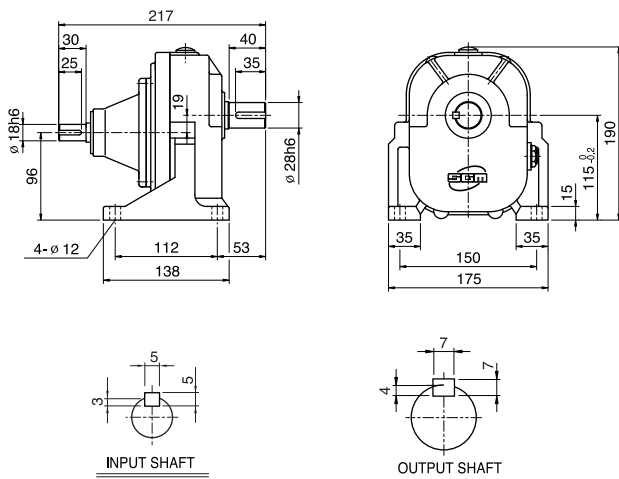
CAPACITY(Kw)	0,4	WEIGHT (Kg)
REDUCTION RATIO	1/5~1/100	
OUTPUT R.P.M	360~30	22



1/2 HP(0.4Kw), LINE POWER

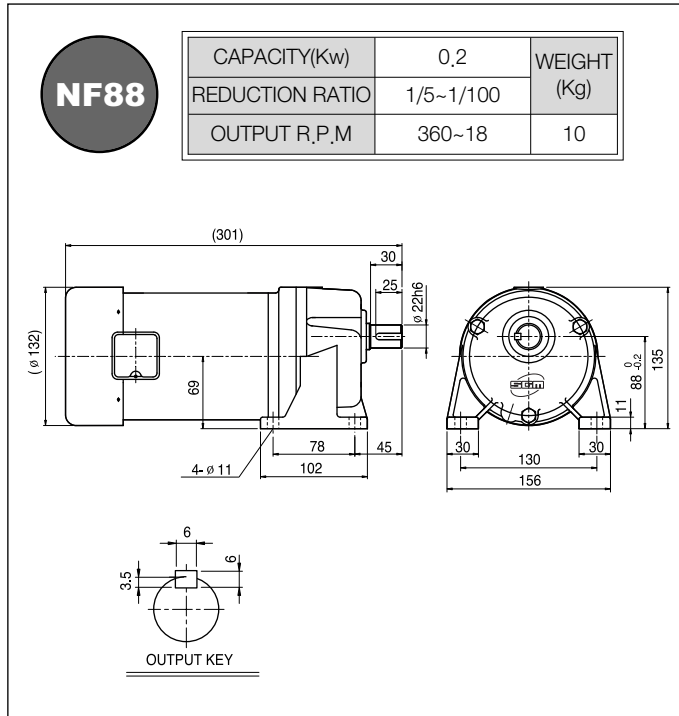
NL115

CAPACITY(Kw)	0,4	WEIGHT (Kg)
REDUCTION RATIO	1/5~1/100	
OUTPUT R.P.M	360~18	15

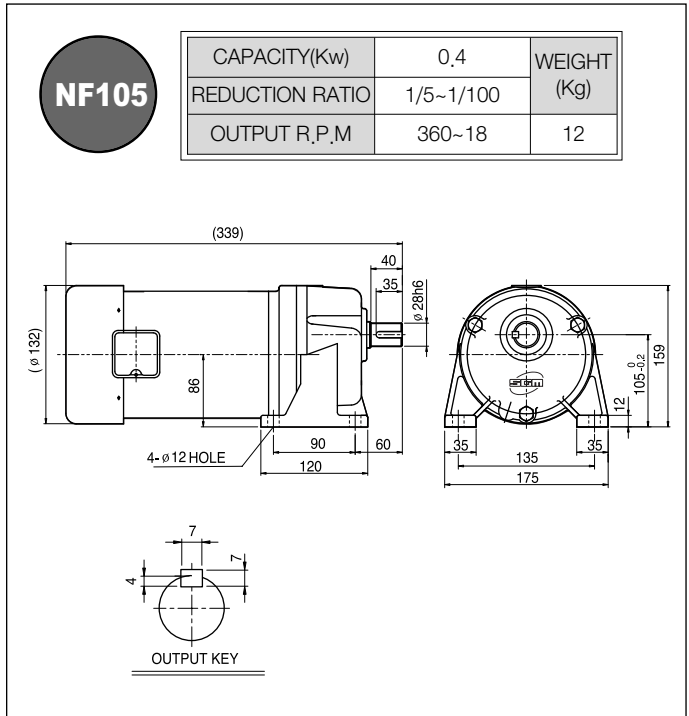


GEARED MOTOR

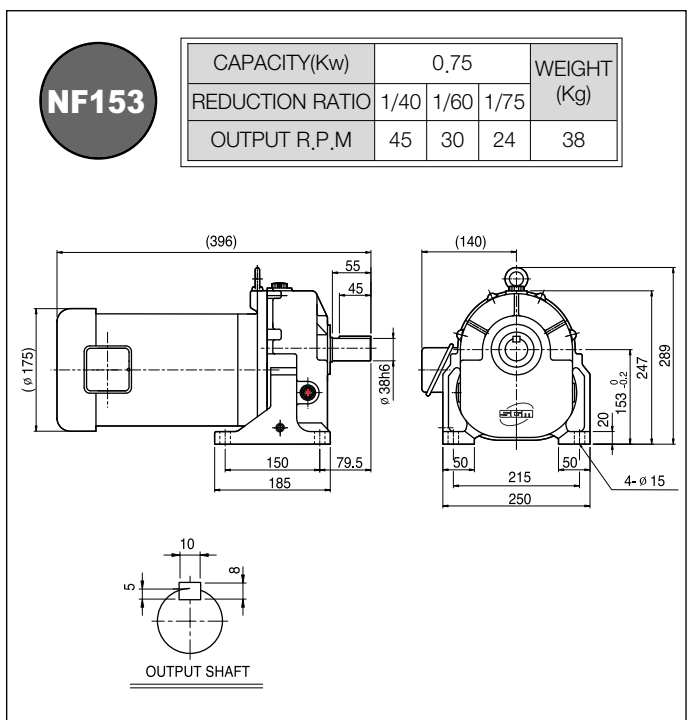
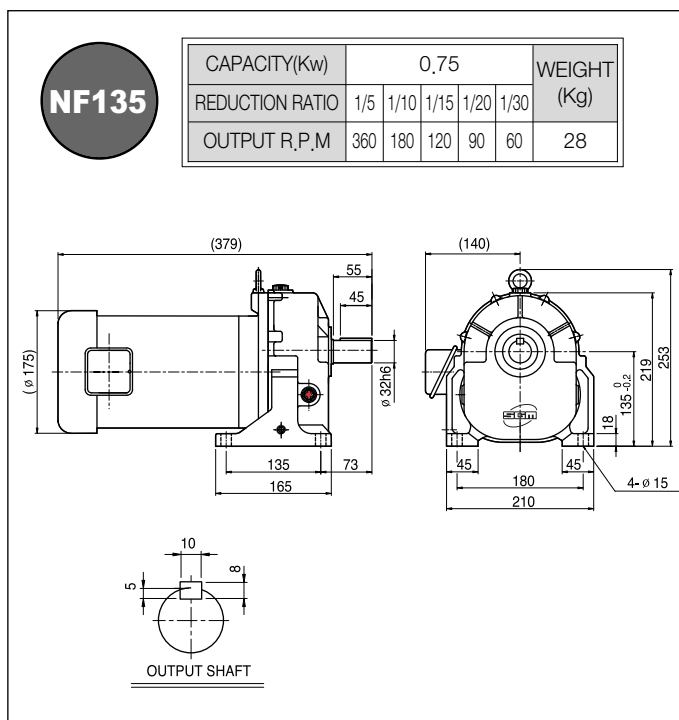
1/4 HP(0.2Kw), 3 Phase (삼상)



1/2 HP(0.4Kw), 3 Phase (삼상)



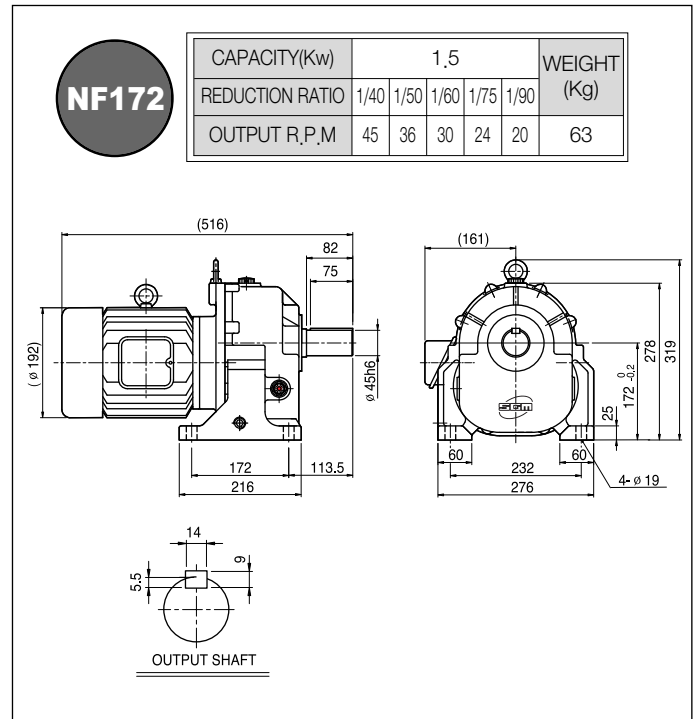
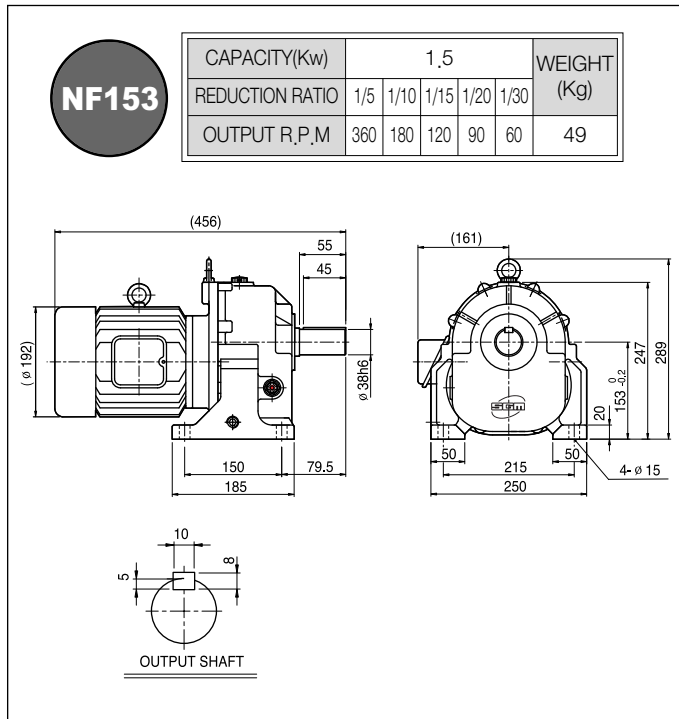
1 HP(0.75Kw), 3 Phase (삼상)



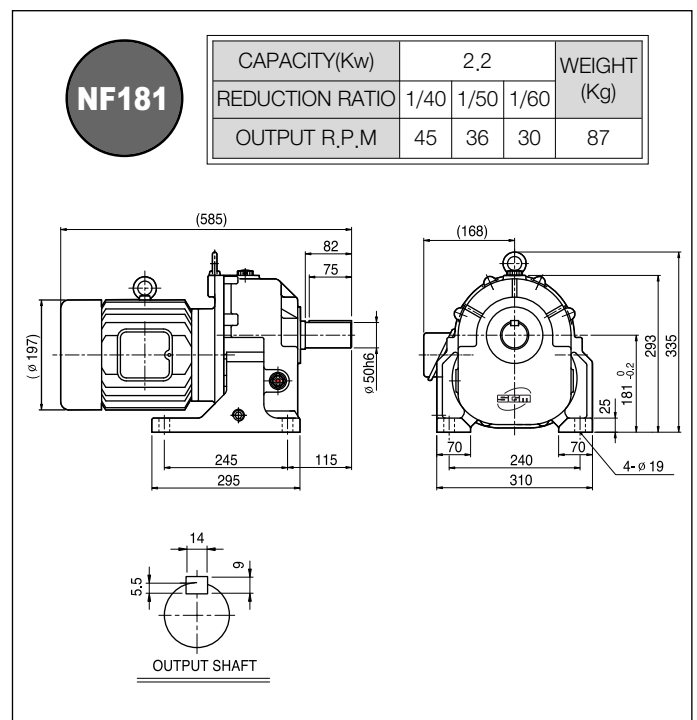
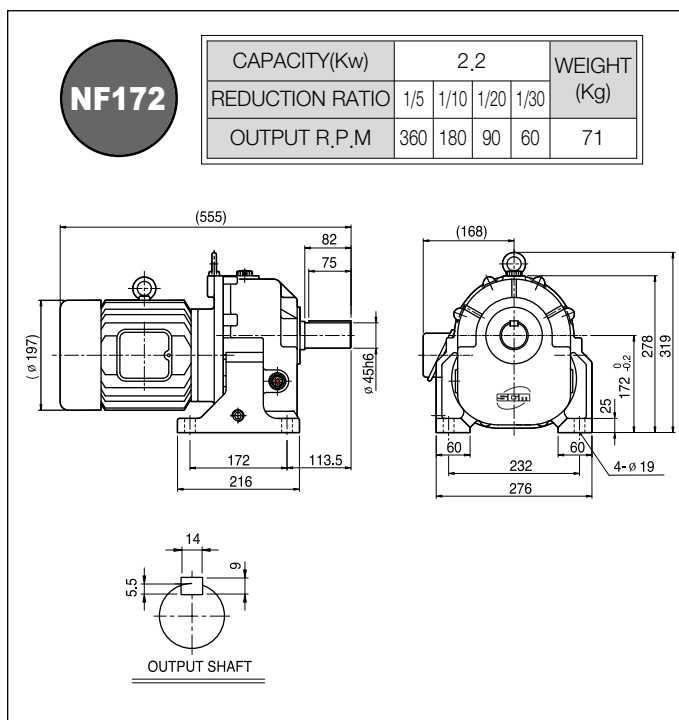
기어드 모터 / Geared Motor

GEARED MOTOR

2 HP(1.5Kw), 3 Phase (삼상)

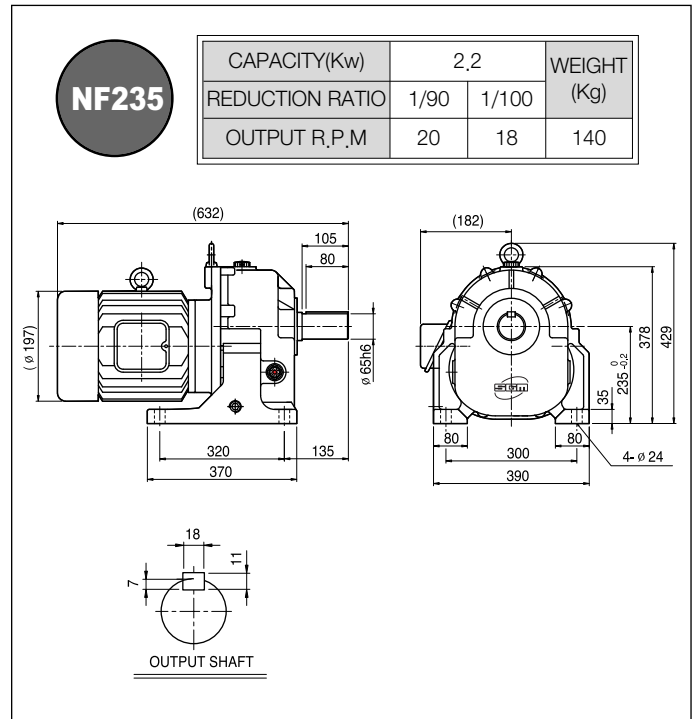
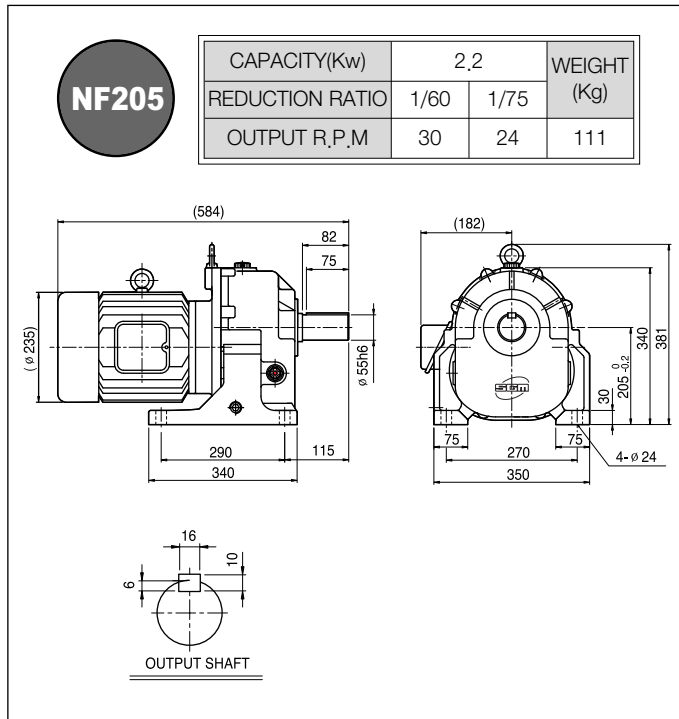


3 HP(2.2Kw), 3 Phase (삼상)

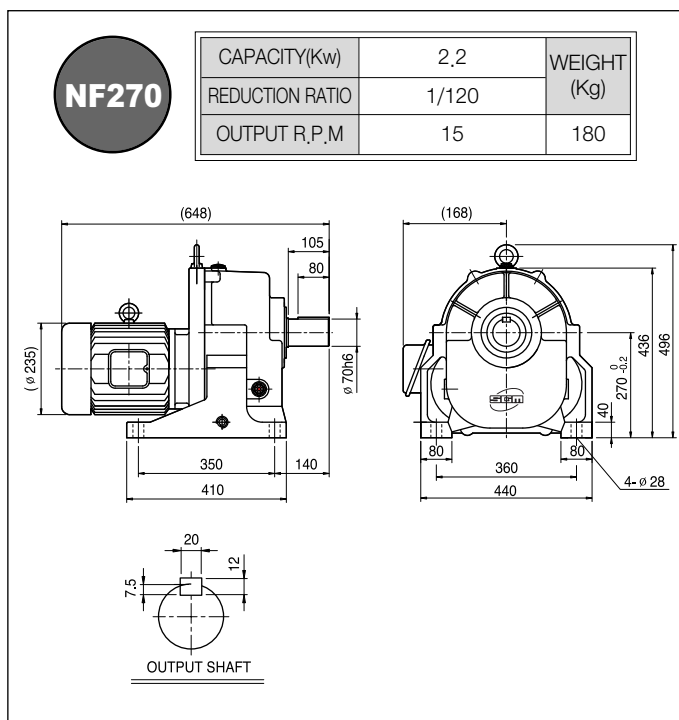


GEARED MOTOR

3 HP(2.2Kw), 3 Phase (삼상)



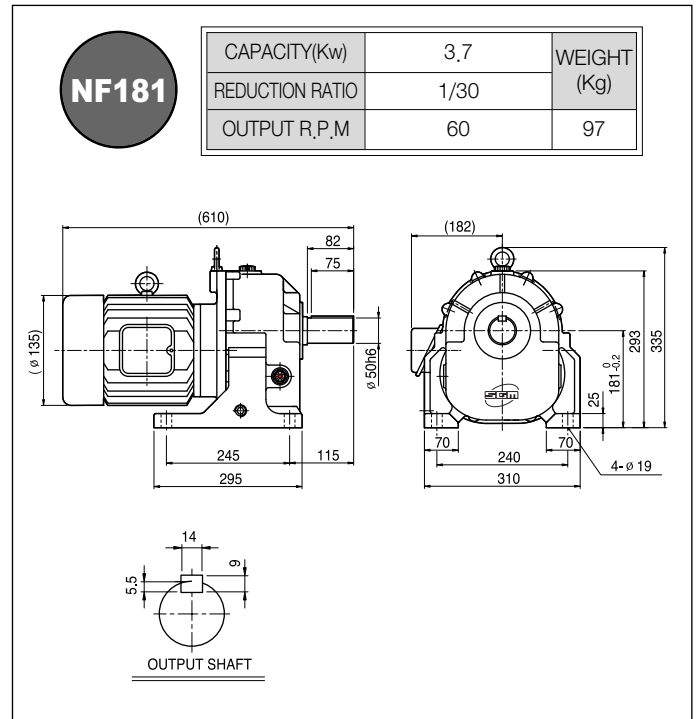
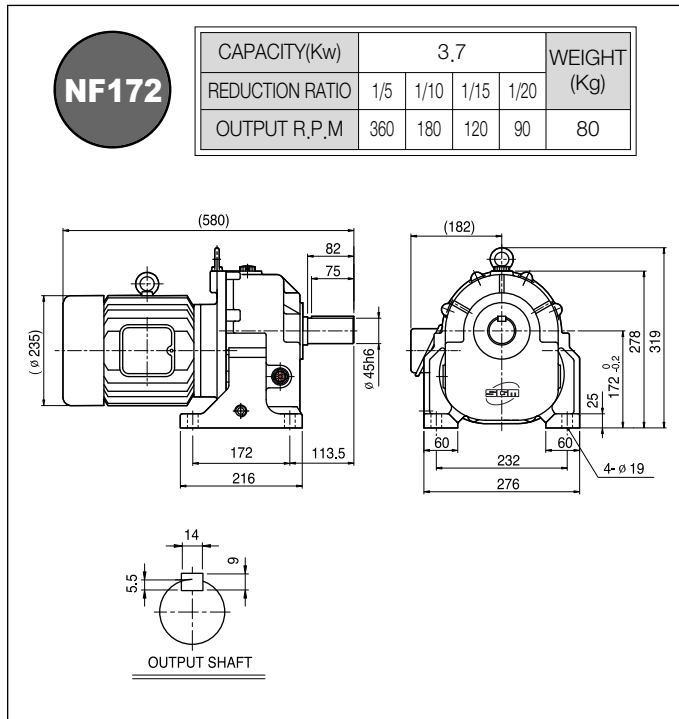
3 HP(2.2Kw), 3 Phase (삼상)



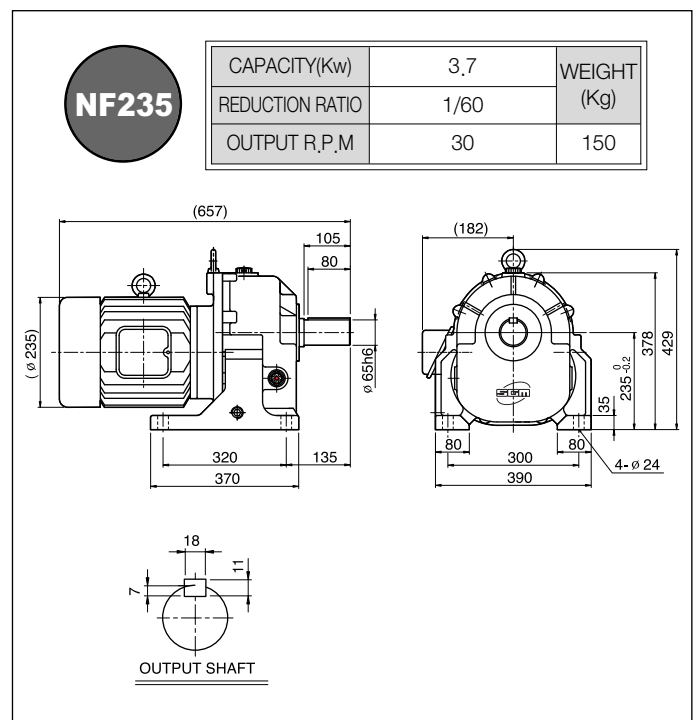
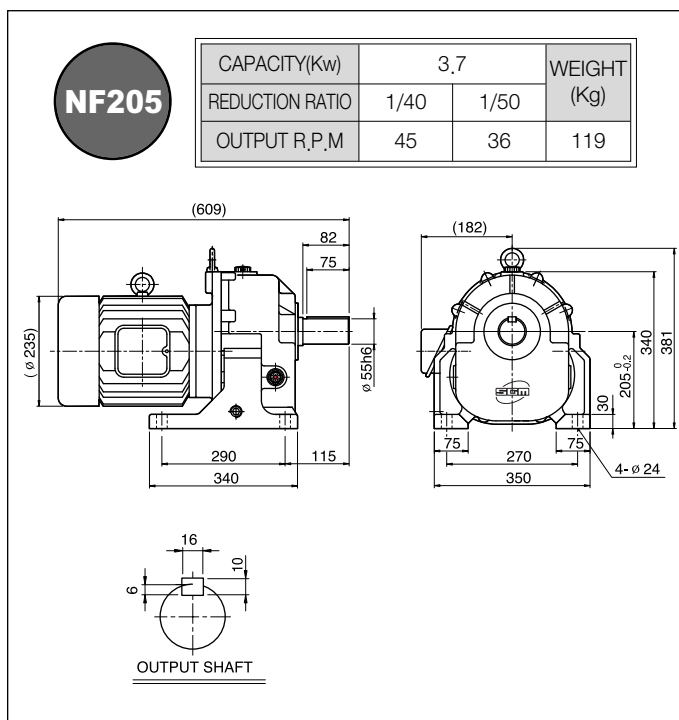
기어드 모터 / Geared Motor

GEARED MOTOR

5 HP(3.7Kw), 3 Phase (삼상)

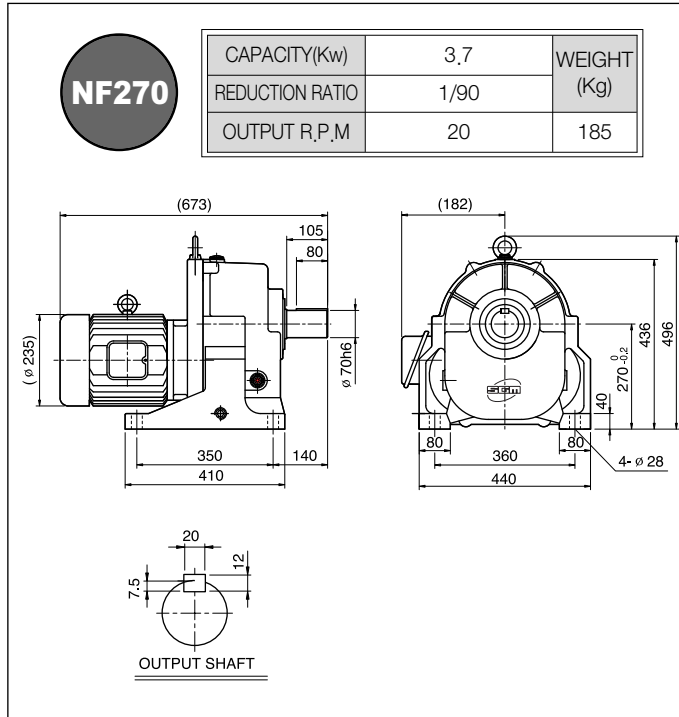


5 HP(3.7Kw), 3 Phase (삼상)

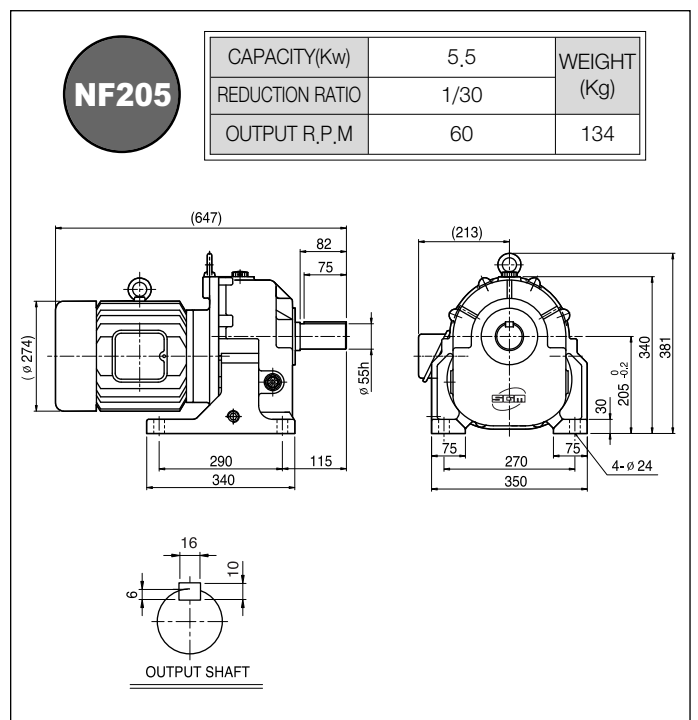
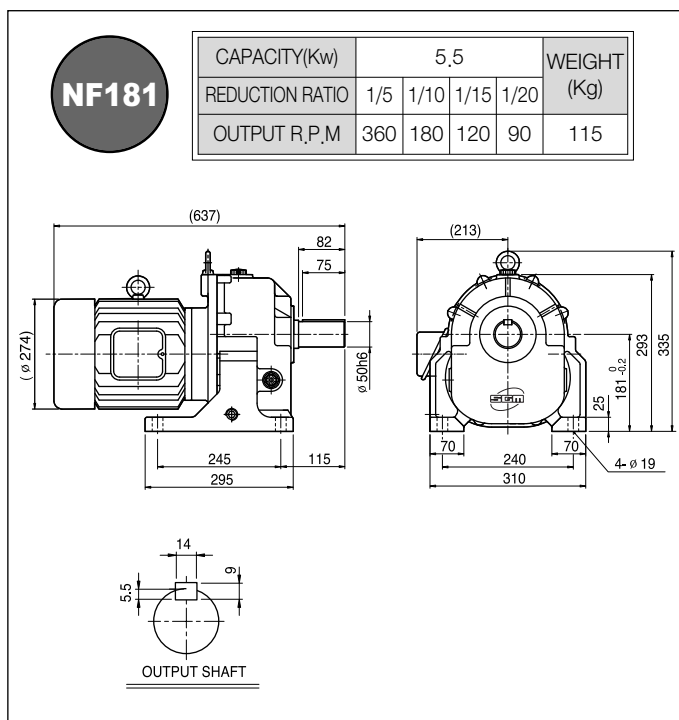


GEARED MOTOR

5 HP(3.7Kw), 3 Phase (삼상)



7.5 HP(5.5Kw), 3 Phase (삼상)



기어드모터

원감속기

원감속기(SEM)

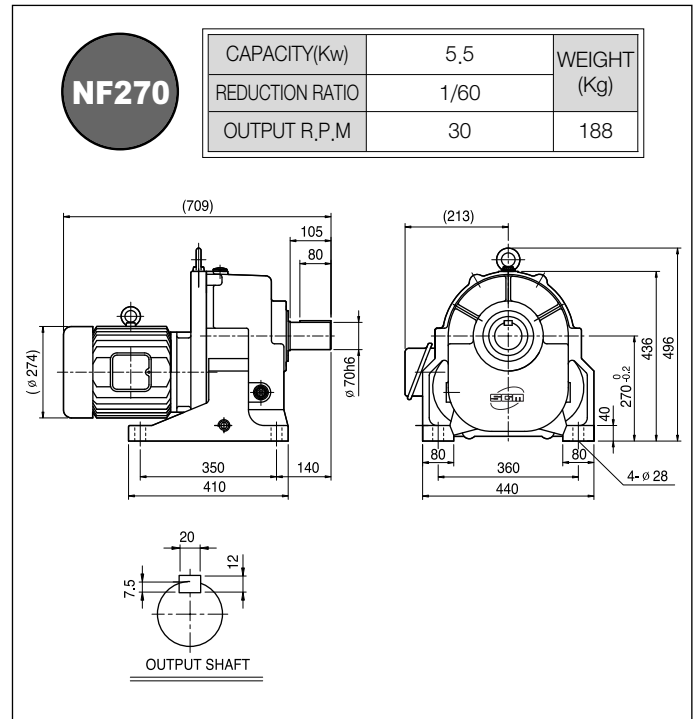
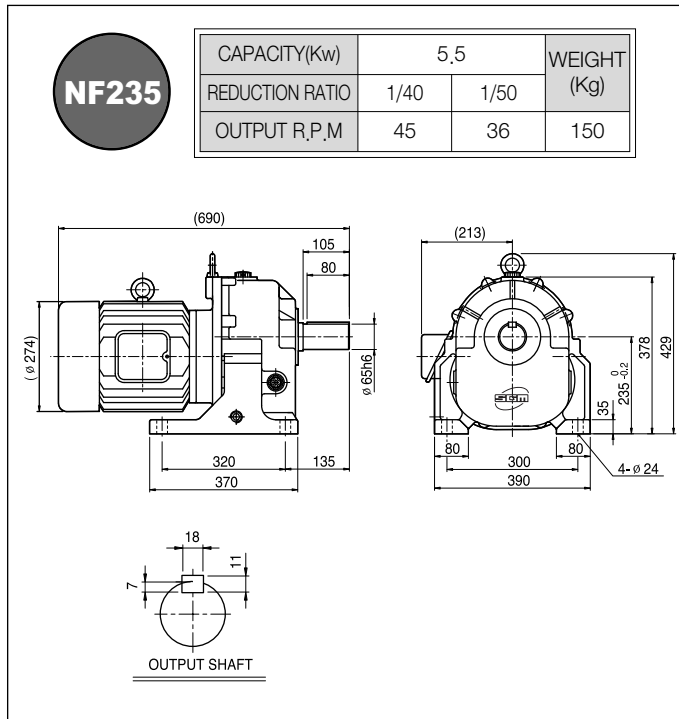
헬리컬 원

스크류 잭

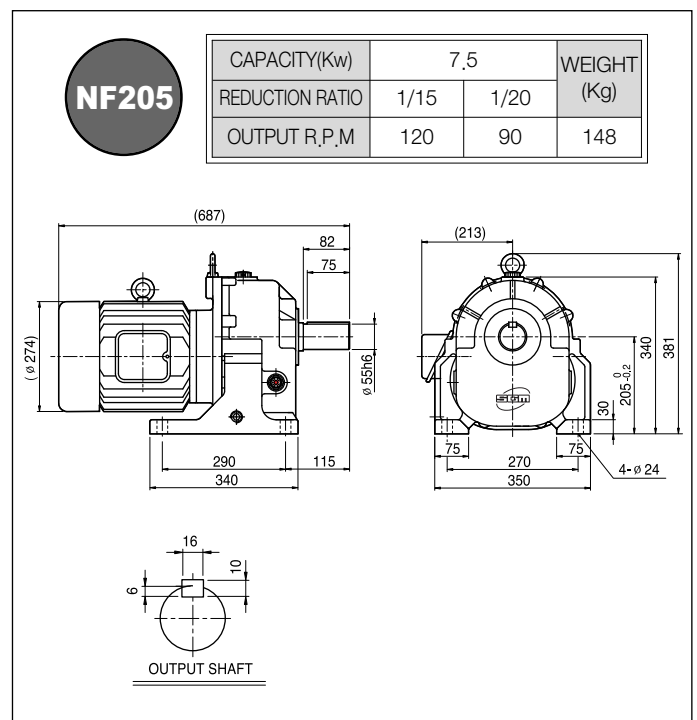
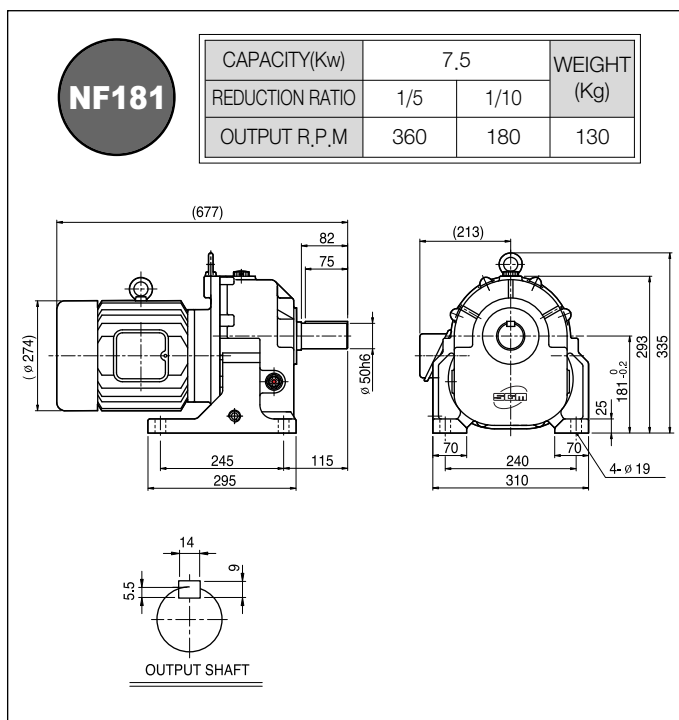
기어드 모터 / Geared Motor

GEARED MOTOR

7.5 HP(5.5Kw), 3 Phase (삼상)

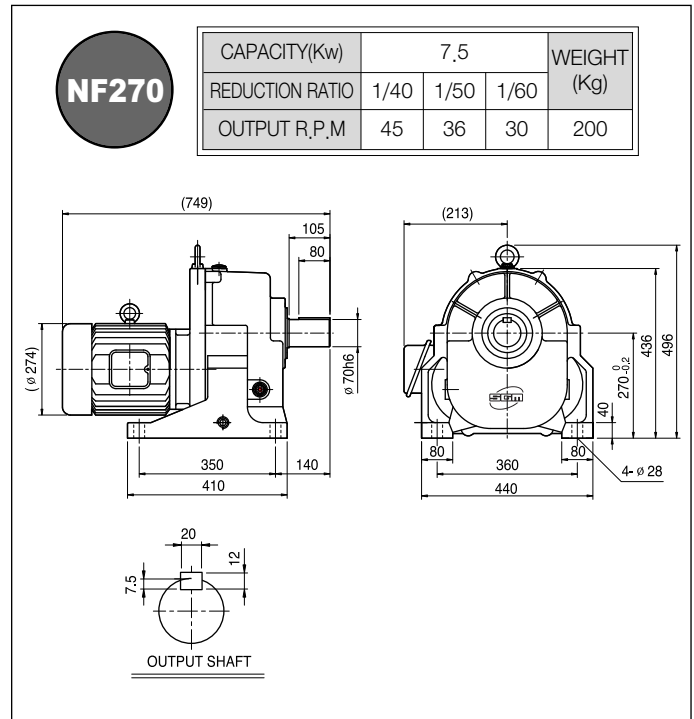
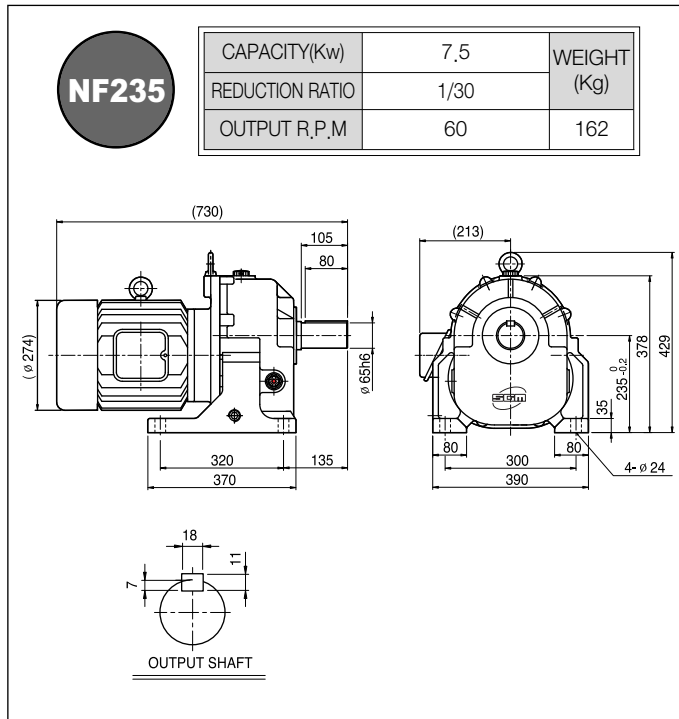


10 HP(7.5Kw), 3 Phase (삼상)

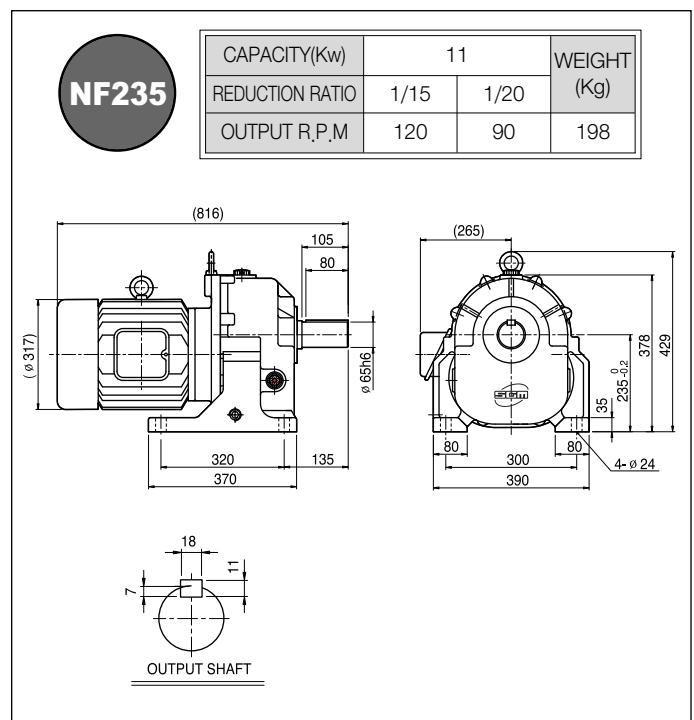
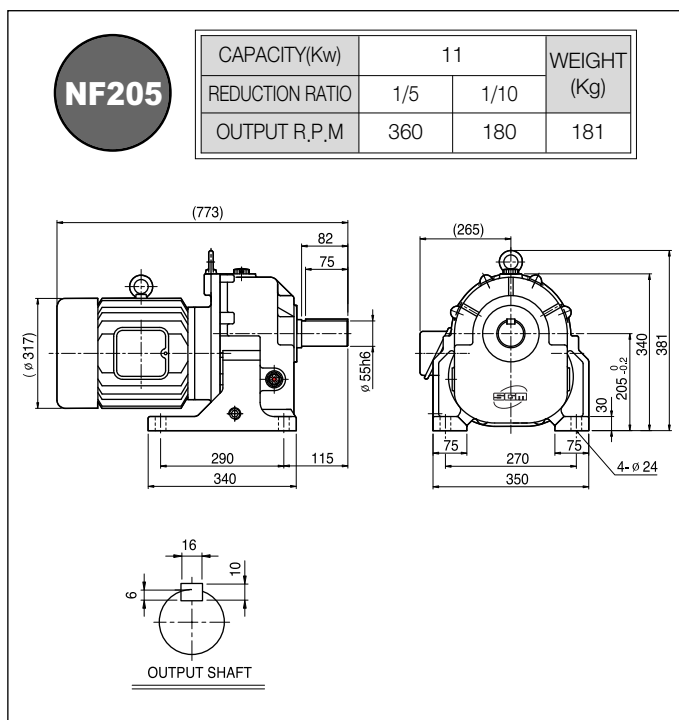


GEARED MOTOR

10 HP(7.5Kw), 3 Phase (삼상)



15 HP(11Kw), 3 Phase (삼상)



기어드모터

원감속기

원감속기(SEM)

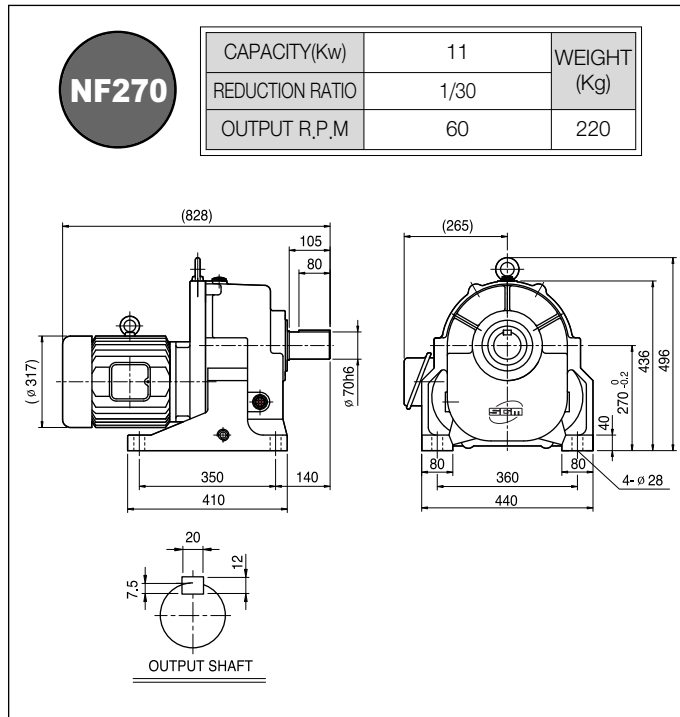
원리원

스크류 잭

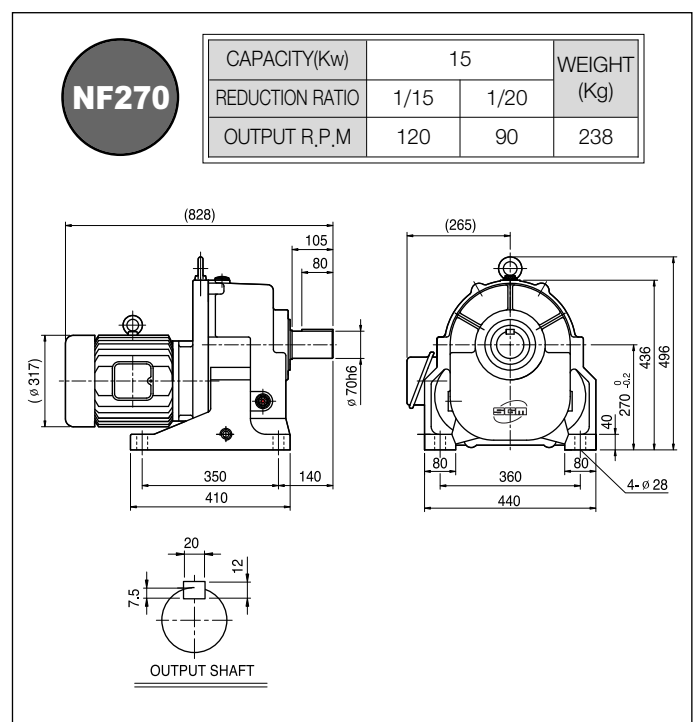
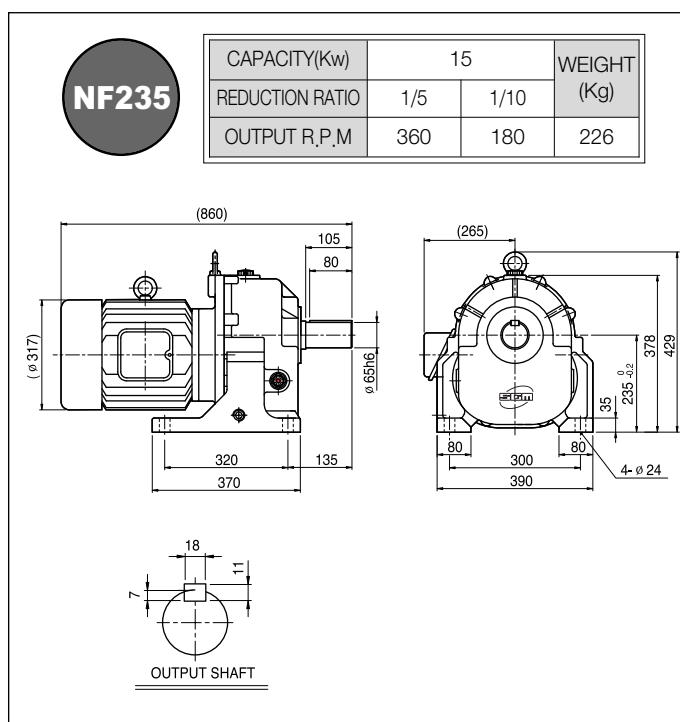
기어드 모터 / Geared Motor

GEARED MOTOR

15 HP(11Kw), 3 Phase (삼상)

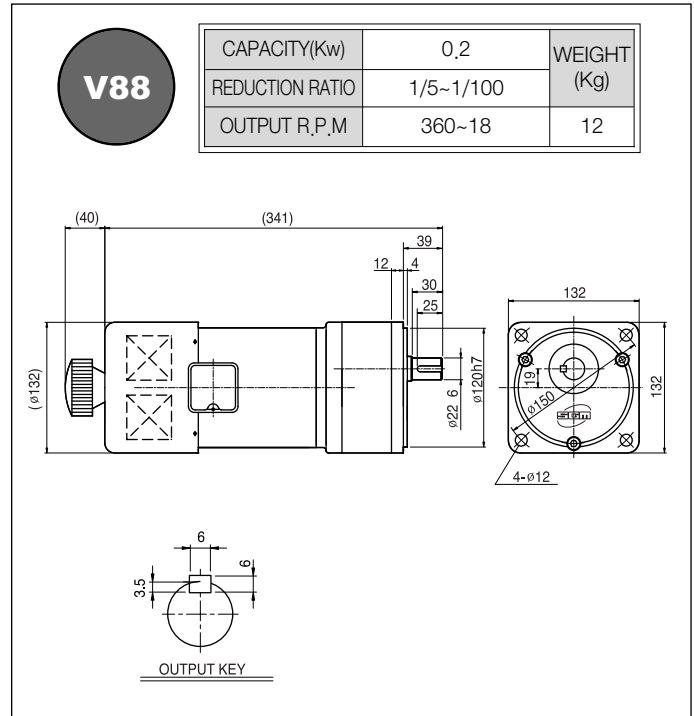
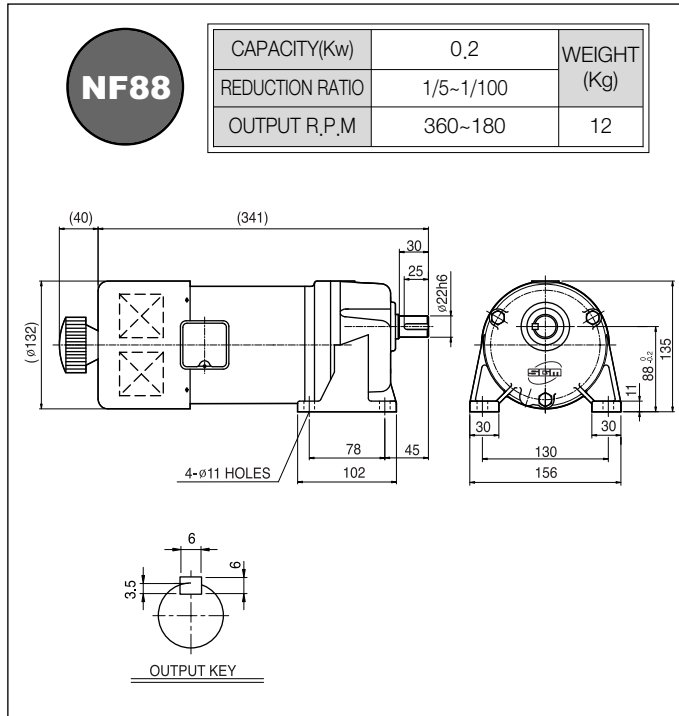


20 HP(15Kw), 3 Phase (삼상)

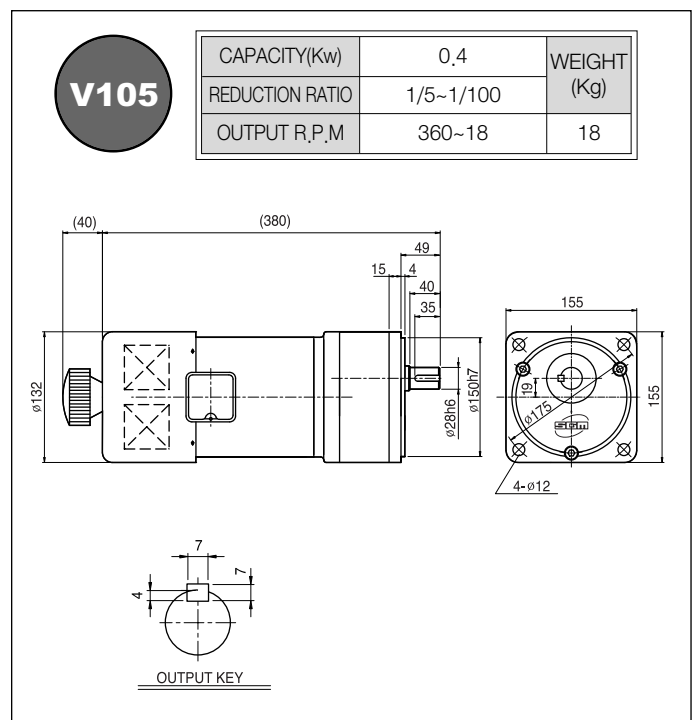
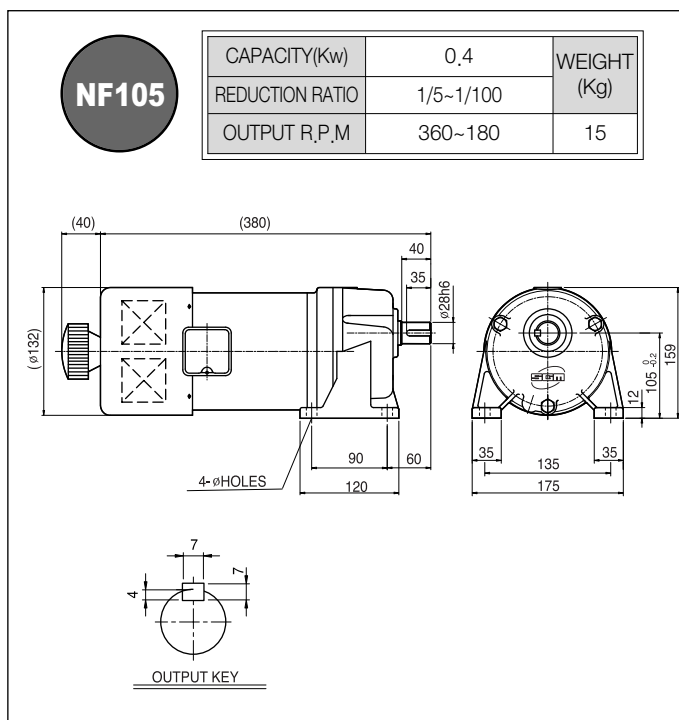


GEARED MOTOR(주차기 전용 BRAKE 부착형)

1/4 HP(0.2Kw), 3 Phase (삼상)



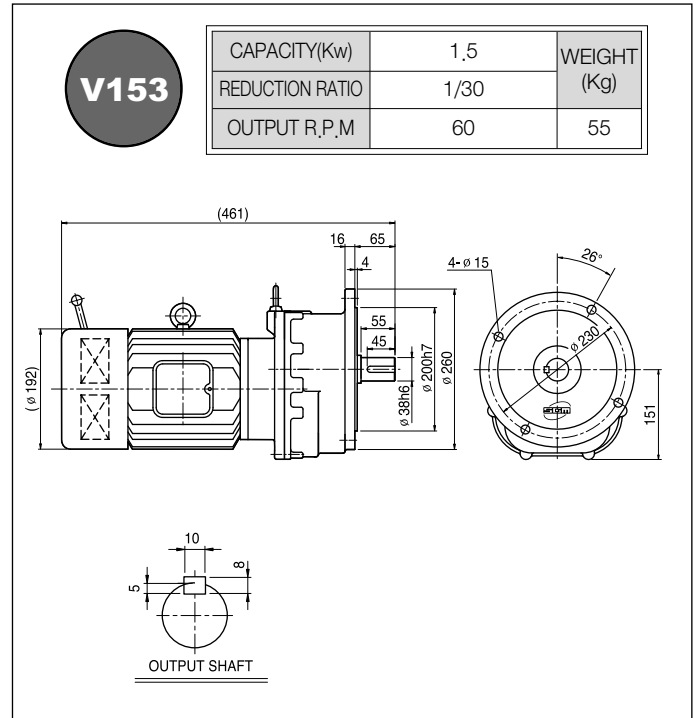
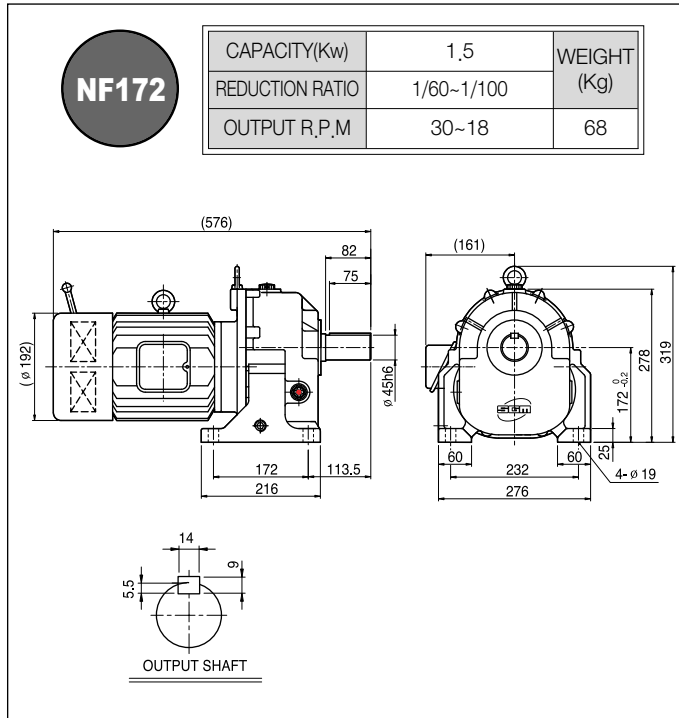
1/2 HP(0.4Kw), 3 Phase (삼상)



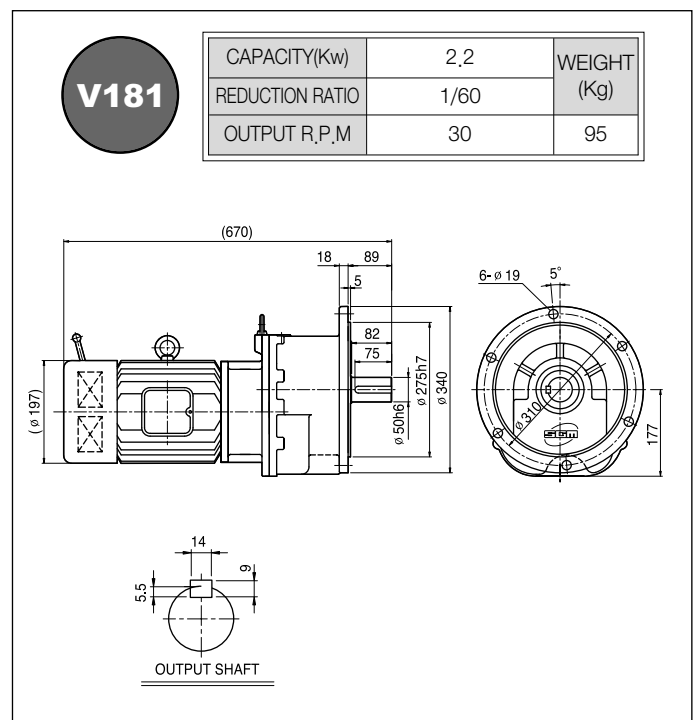
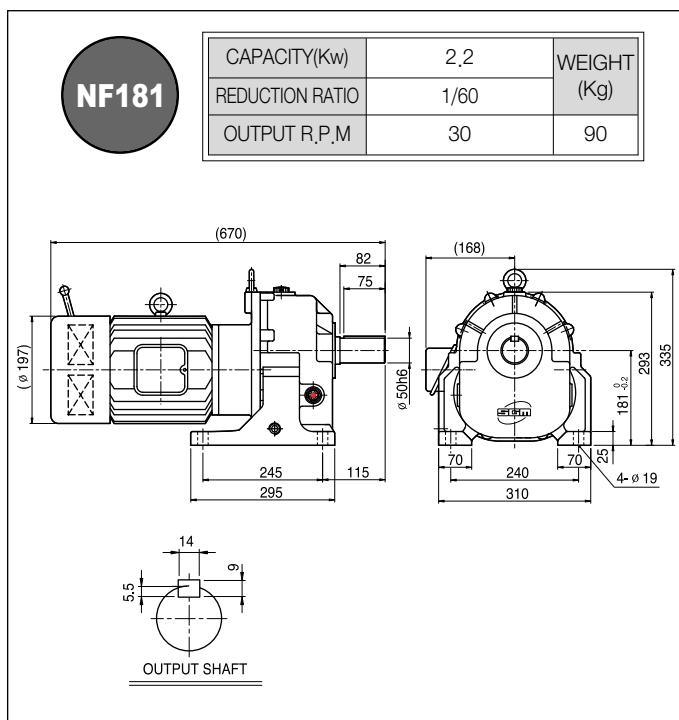
기어드 모터 / Geared Motor

GEARED MOTOR(주차기 전용 BRAKE 부착형)

2 HP(1.5Kw), 3 Phase (삼상)

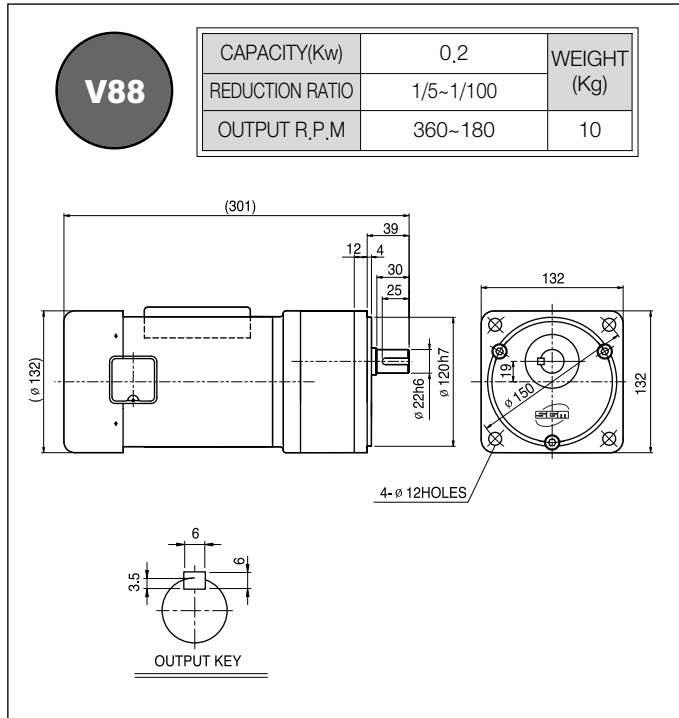


3 HP(2.2Kw), 3 Phase (삼상)

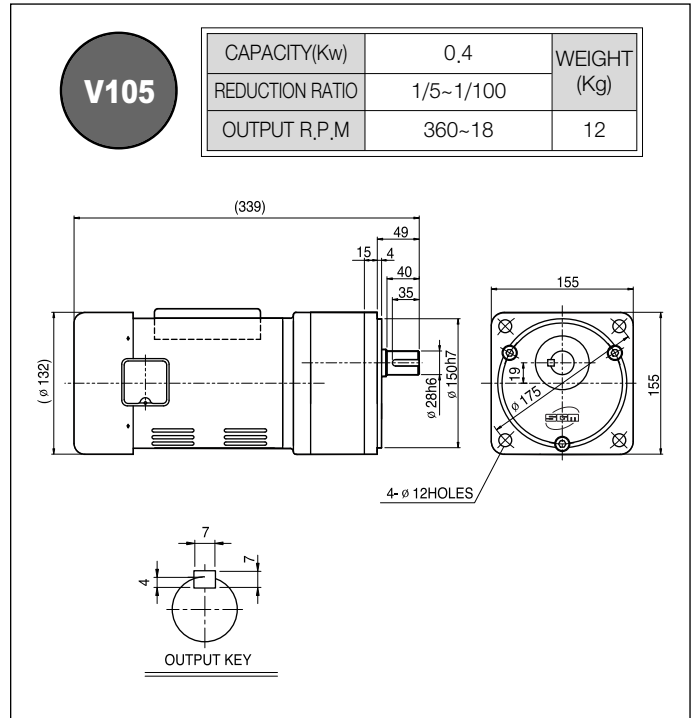


VERTICAL GEARED MOTOR

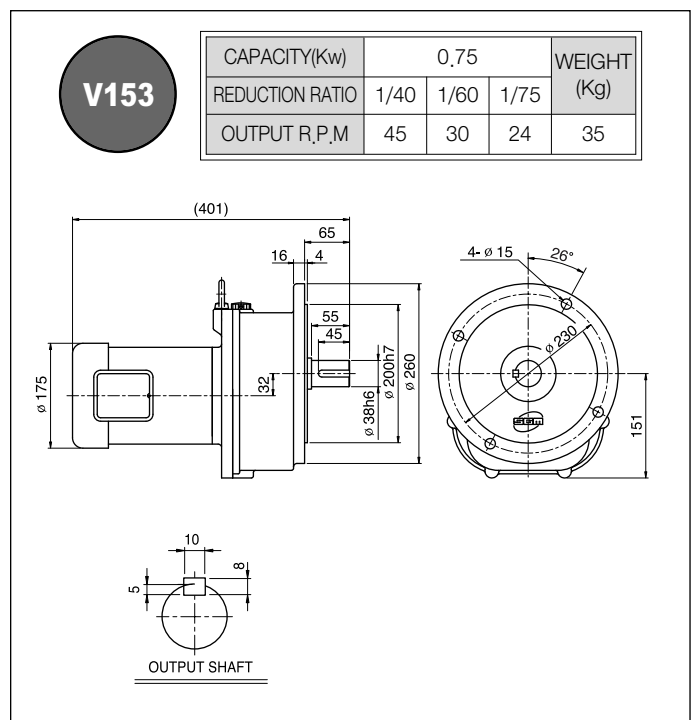
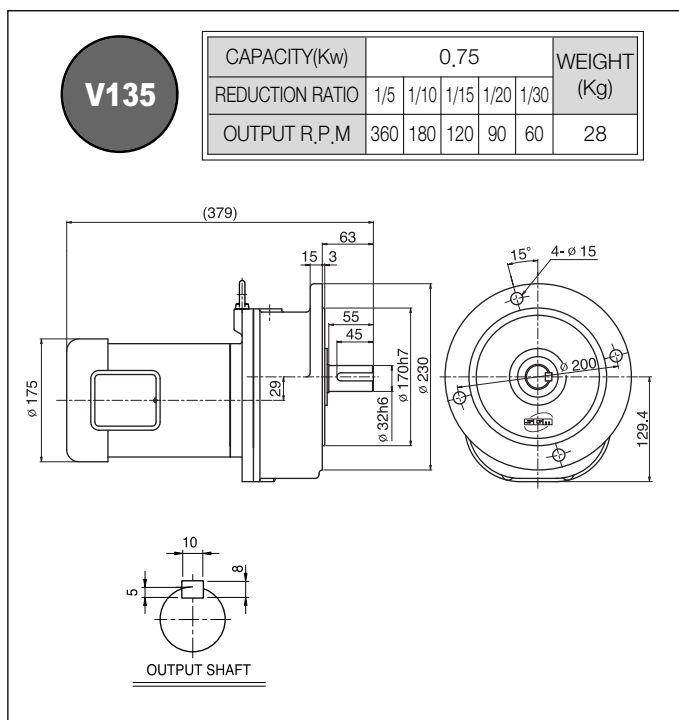
1/4 HP(0.2Kw), 3 Phase (삼상)



1/2 HP(0.4Kw), 3 Phase (삼상)



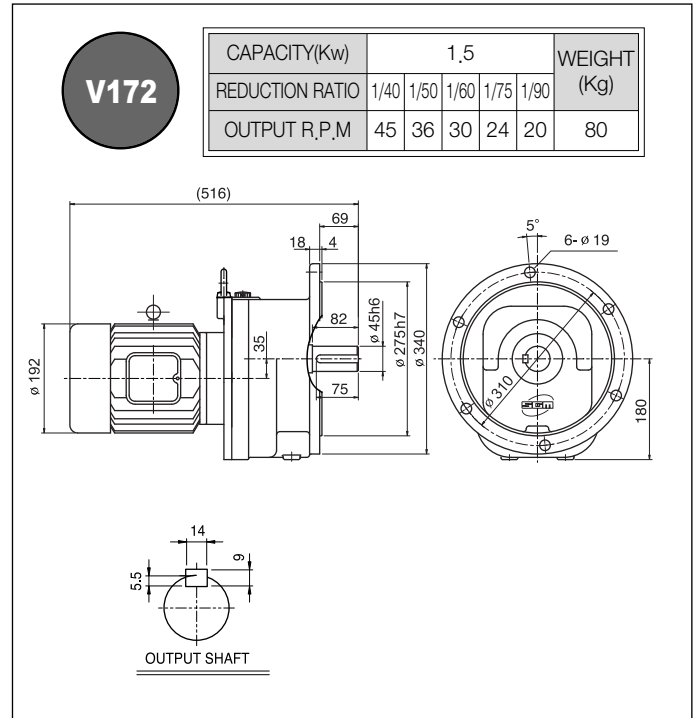
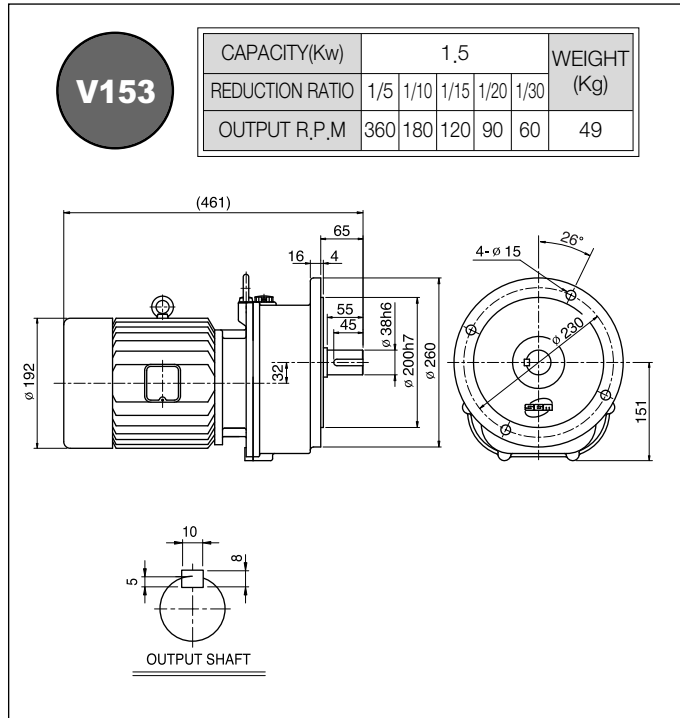
1 HP(0.75Kw), 3 Phase (삼상)



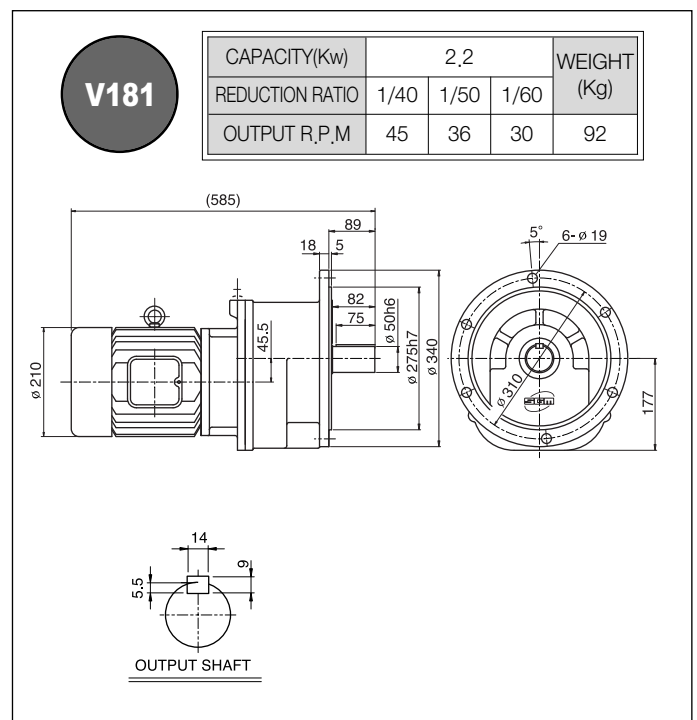
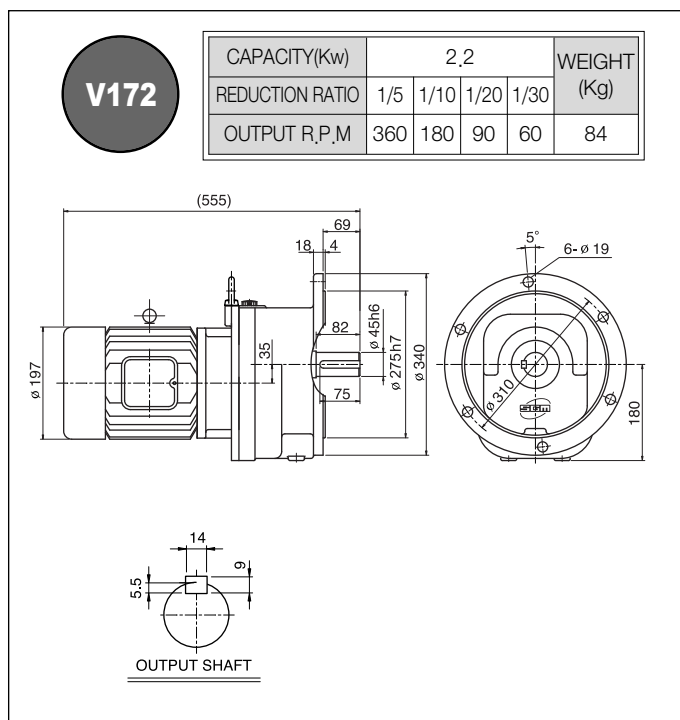
기어드 모터 / Geared Motor

VERTICAL GEARED MOTOR

2 HP(1.5Kw), 3 Phase (삼상)

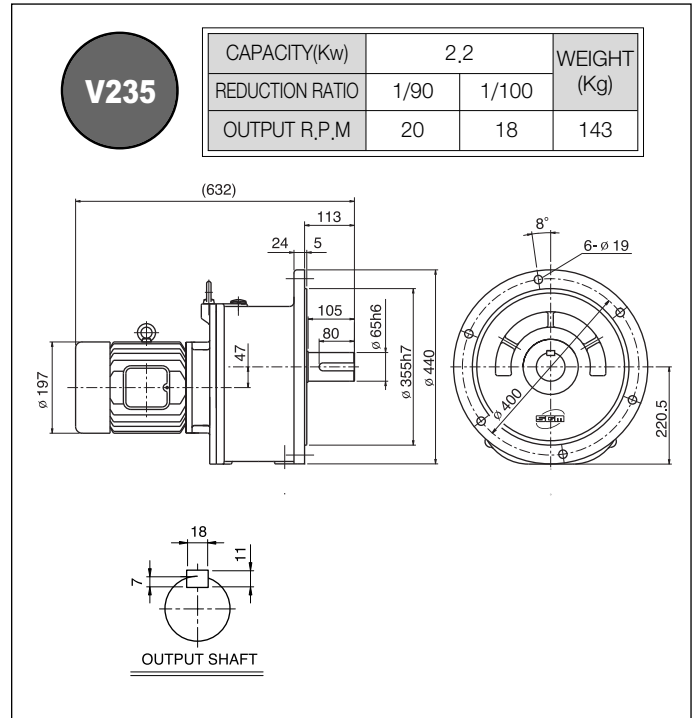
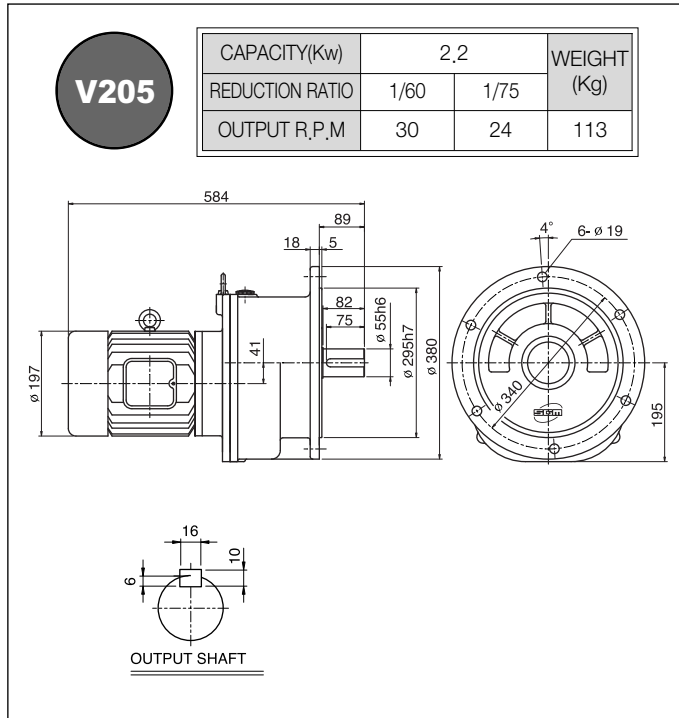


3 HP(2.2Kw), 3 Phase (삼상)

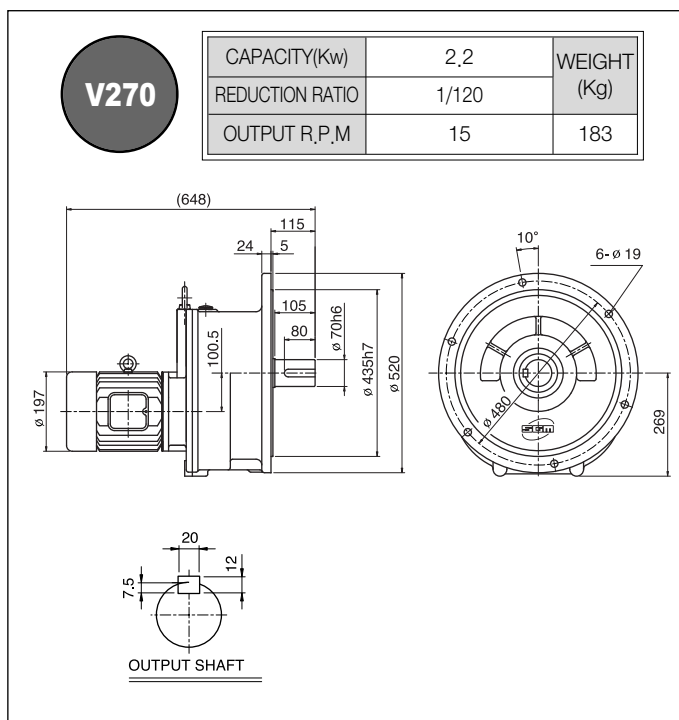


VERTICAL GEARED MOTOR

3 HP(2.2Kw), 3 Phase (삼상)



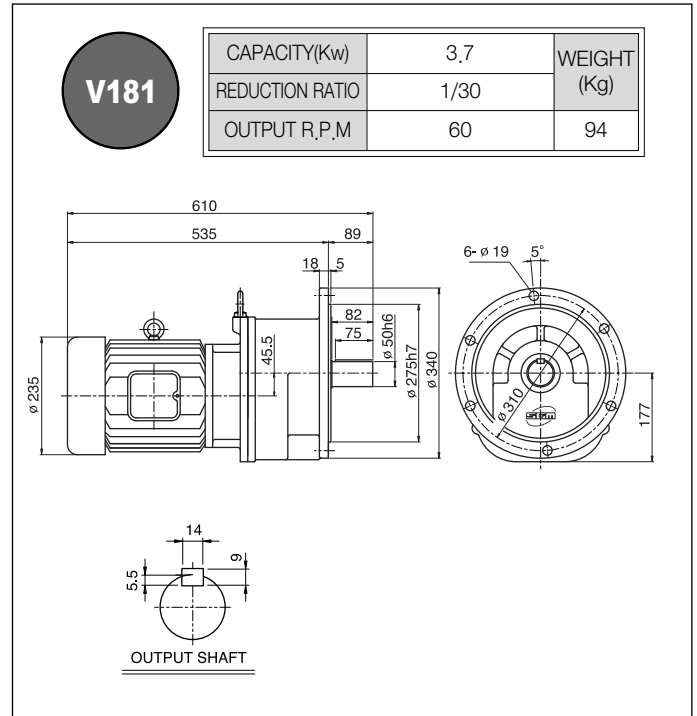
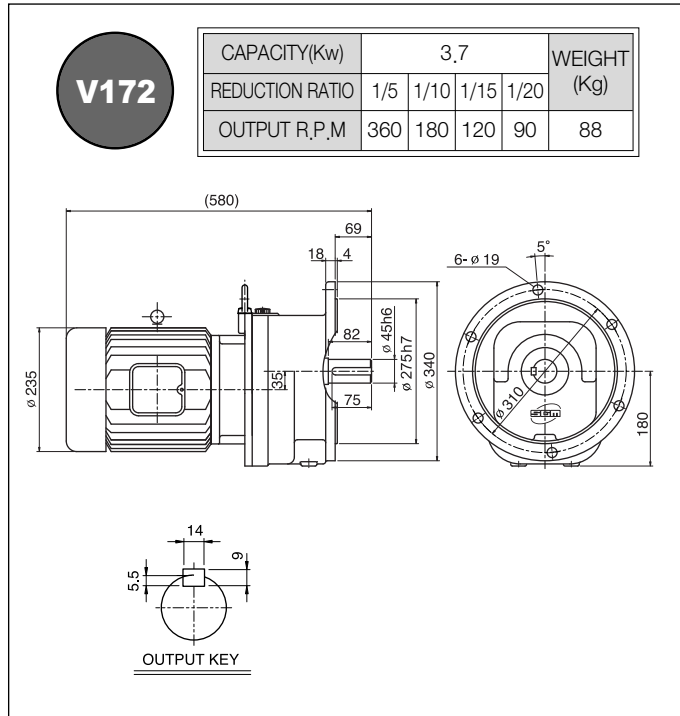
3 HP(2.2Kw), 3 Phase (삼상)



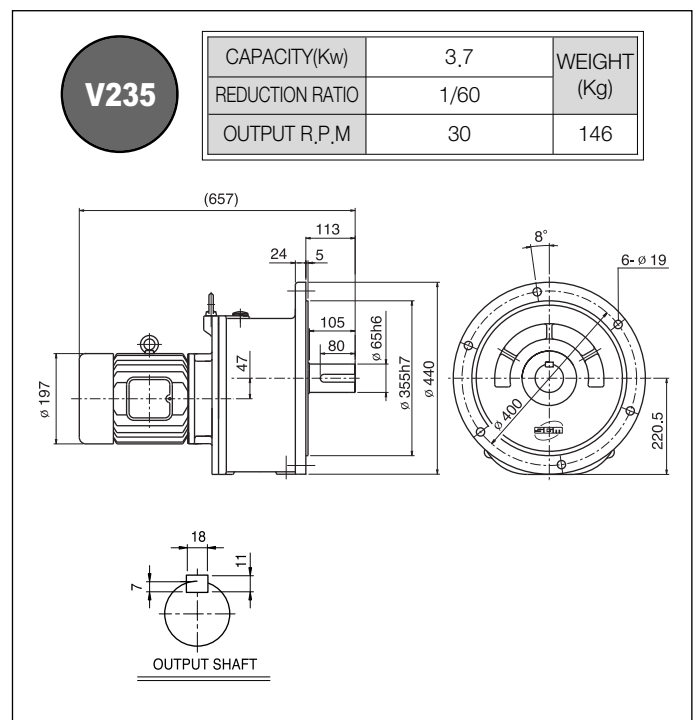
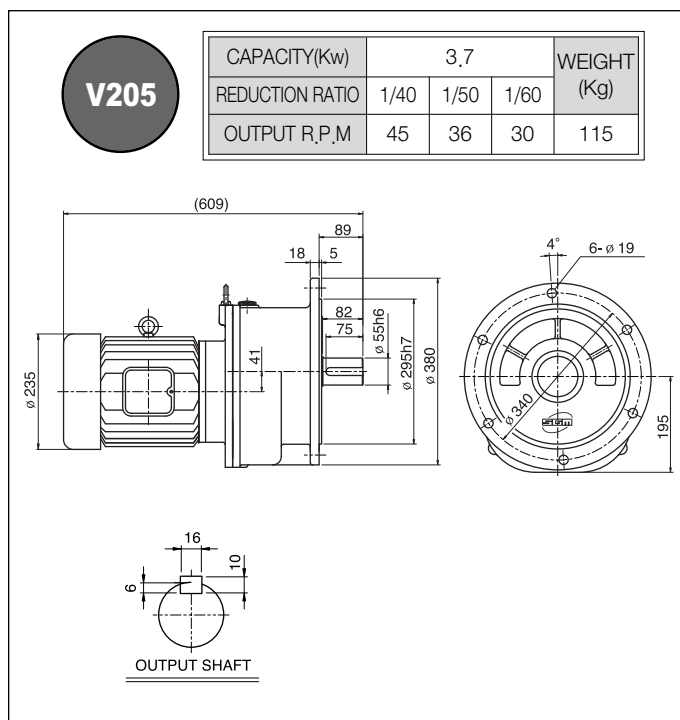
기어드 모터 / Geared Motor

VERTICAL GEARED MOTOR

5 HP(3.7Kw), 3 Phase (삼상)

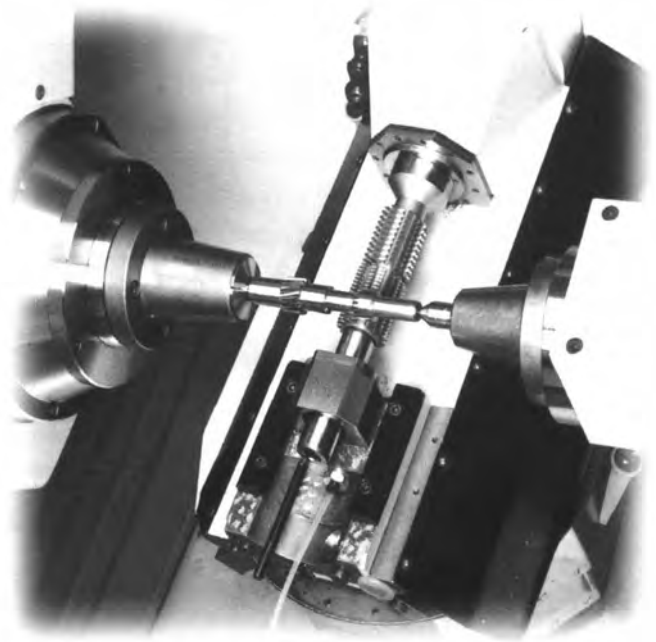
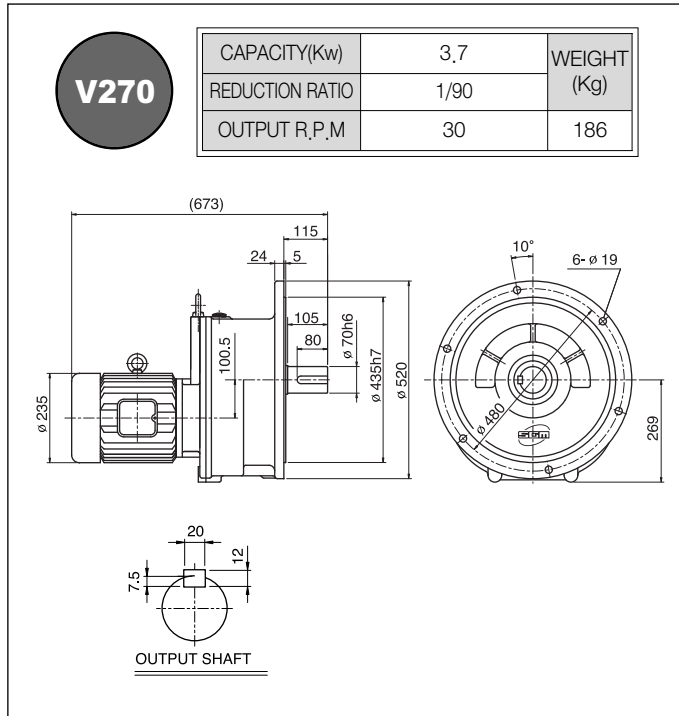


5 HP(3.7Kw), 3 Phase (삼상)



VERTICAL GEARED MOTOR

5 HP(3.7Kw), 3 Phase (삼상)



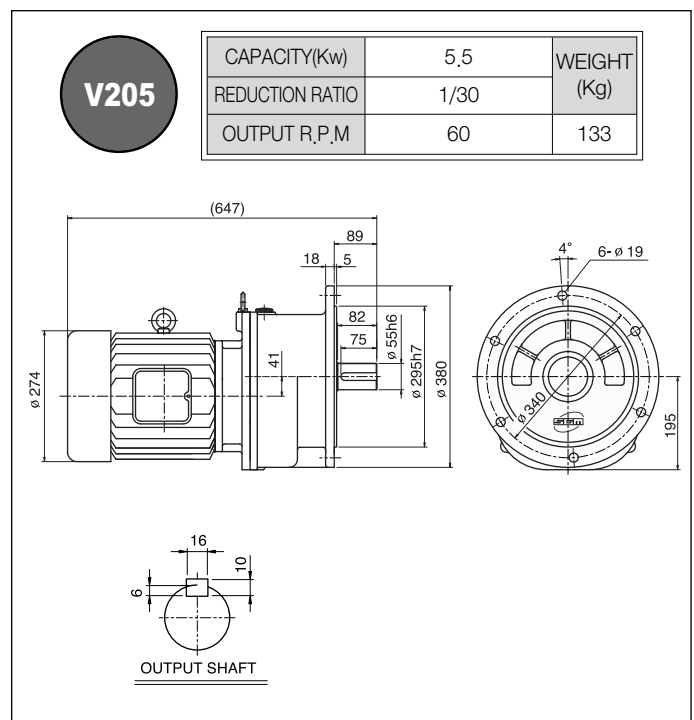
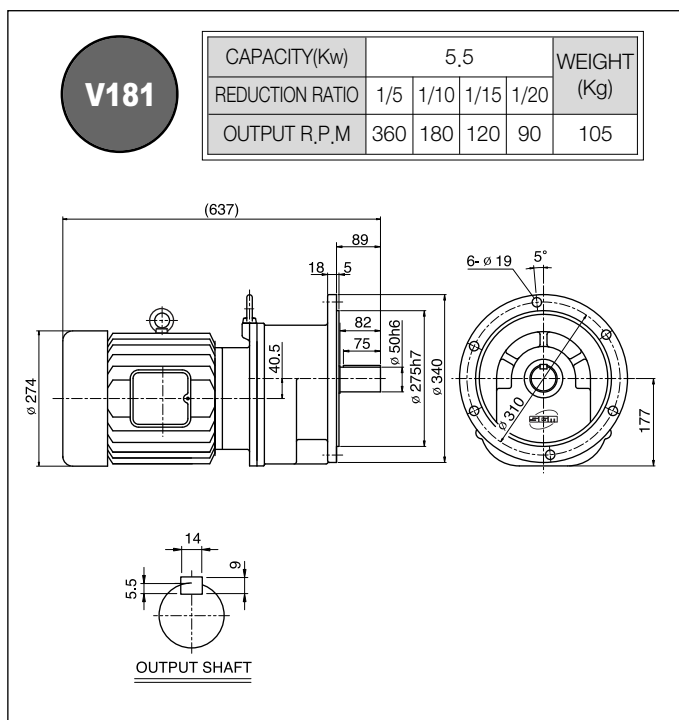
기어드모터

웜관속기

웜관속기(SEM)

헬리컬 웜

7.5 HP(5.5Kw), 3 Phase (삼상)

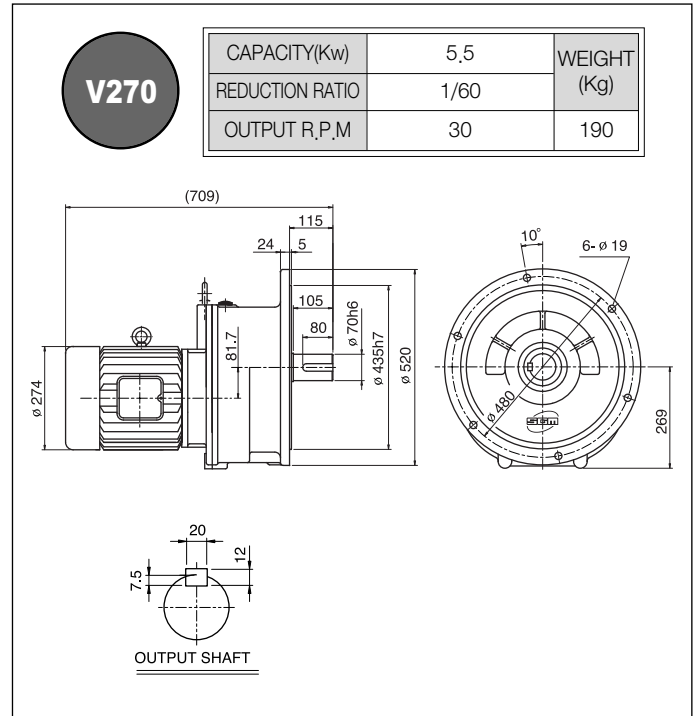
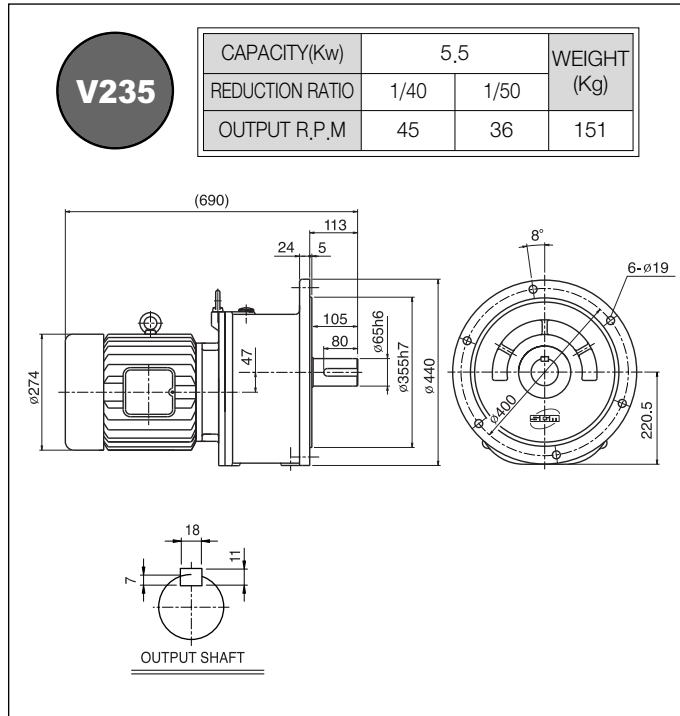


스크류 잭

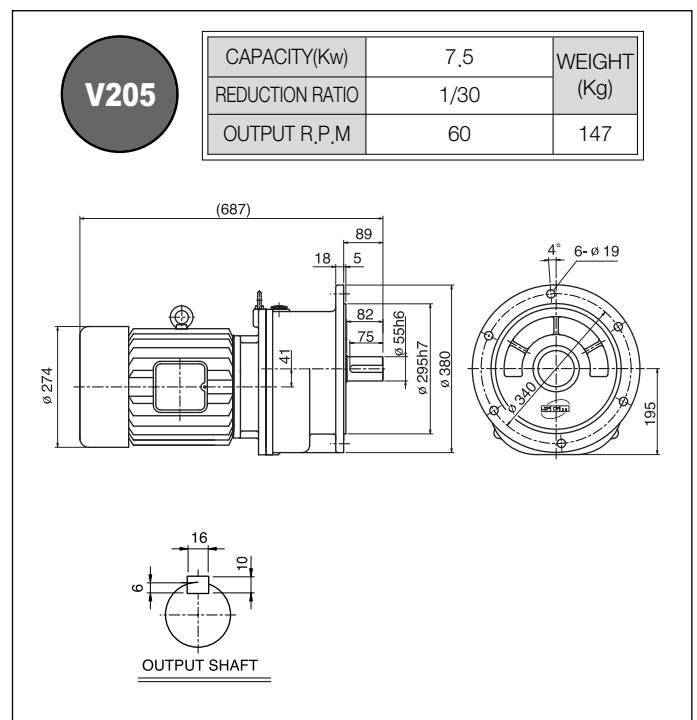
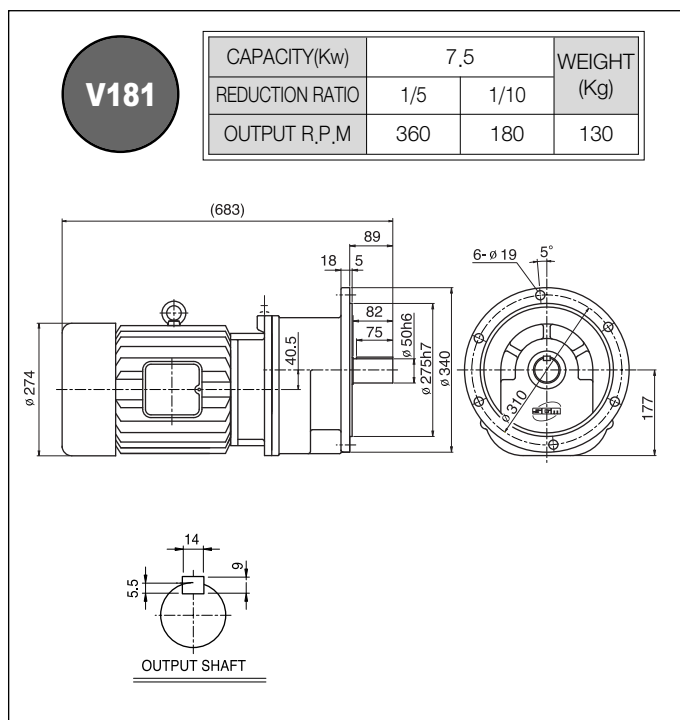
기어드 모터 / Geared Motor

VERTICAL GEARED MOTOR

7.5 HP(5.5Kw), 3 Phase (삼상)

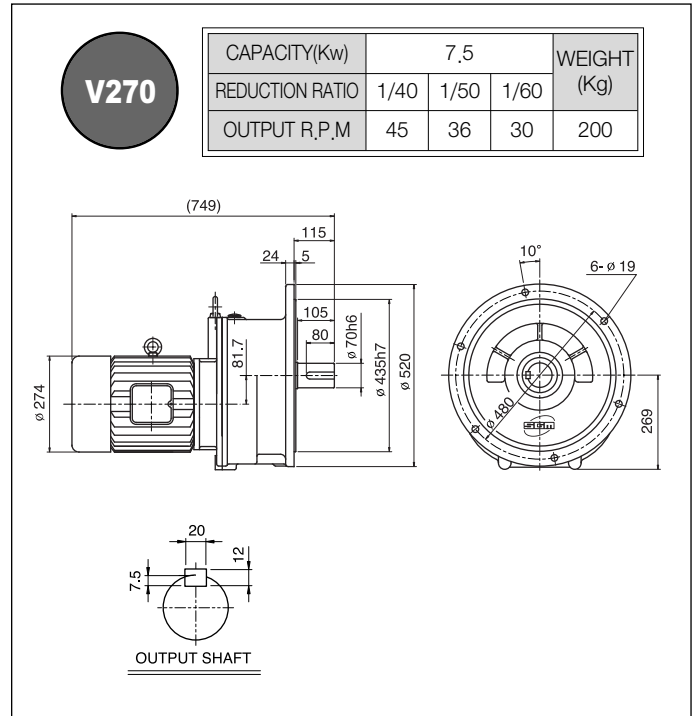
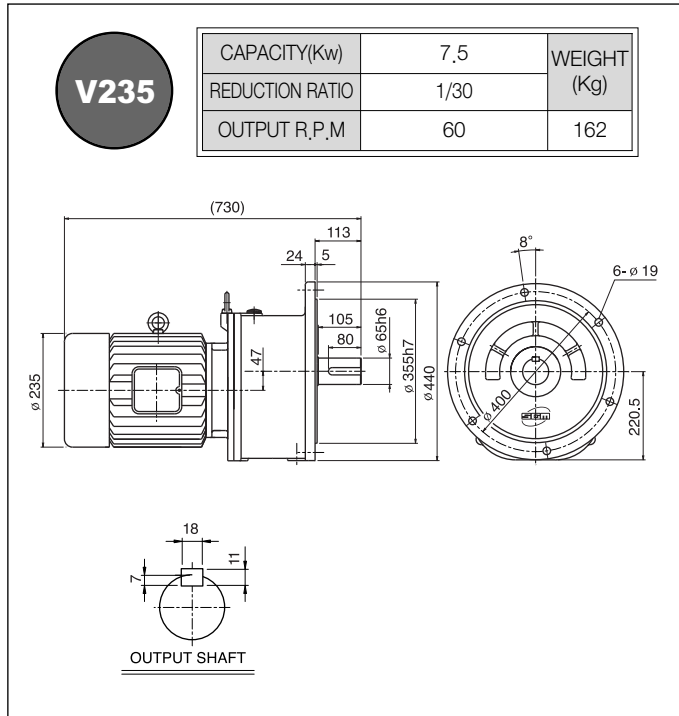


10 HP(7.5Kw), 3 Phase (삼상)

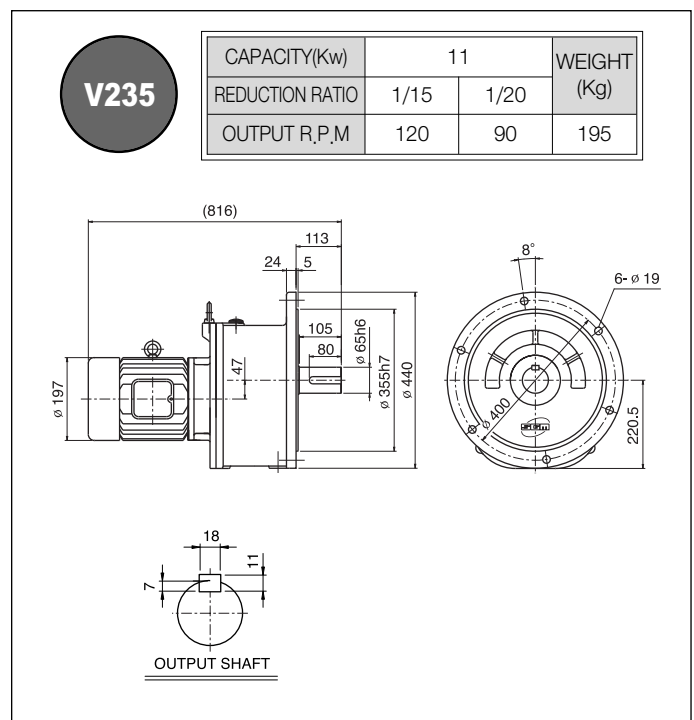
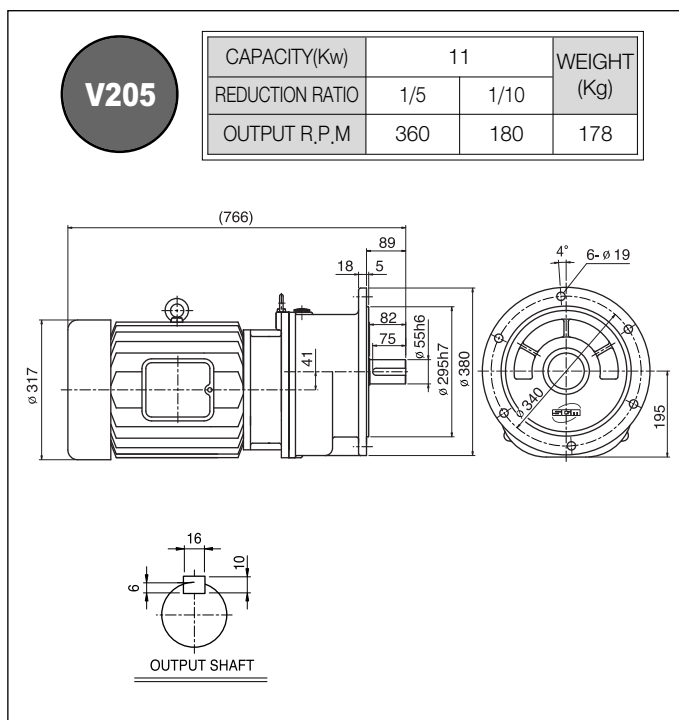


VERTICAL GEARED MOTOR

10 HP(7.5Kw), 3 Phase (삼상)



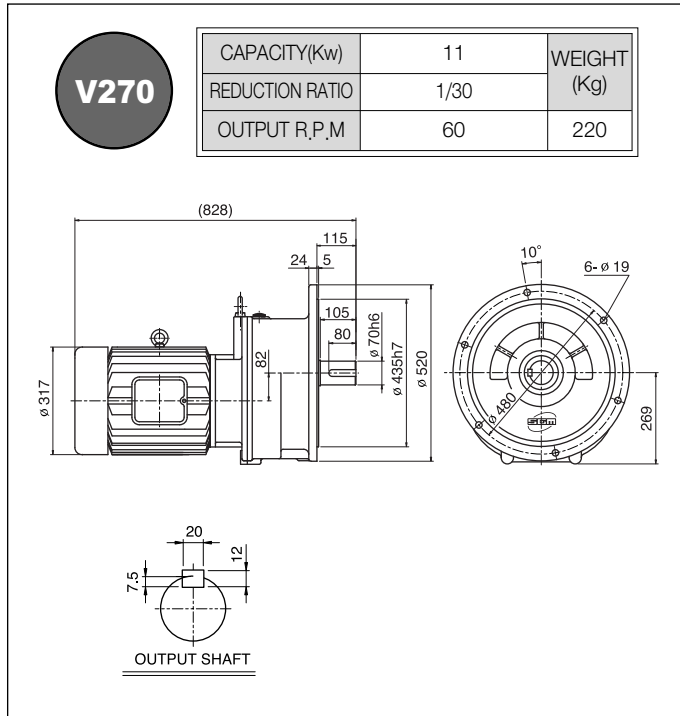
15 HP(11Kw), 3 Phase (삼상)



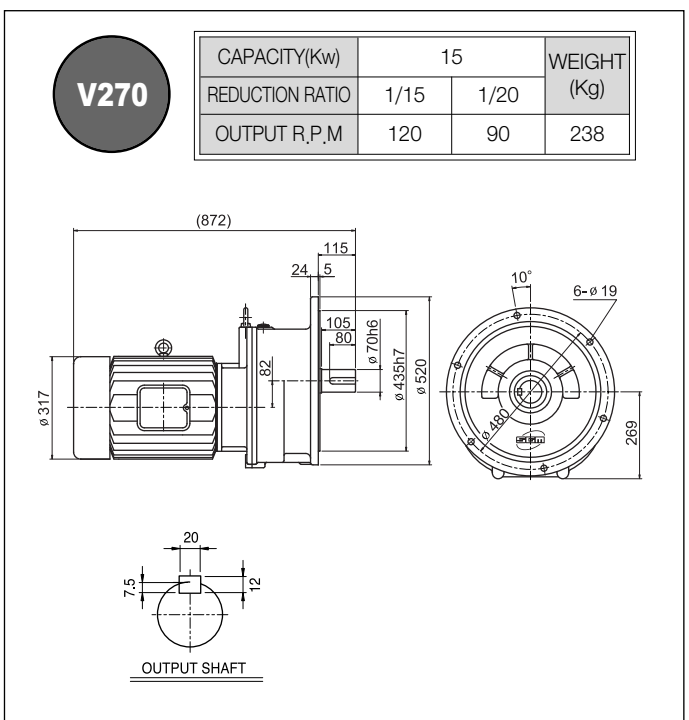
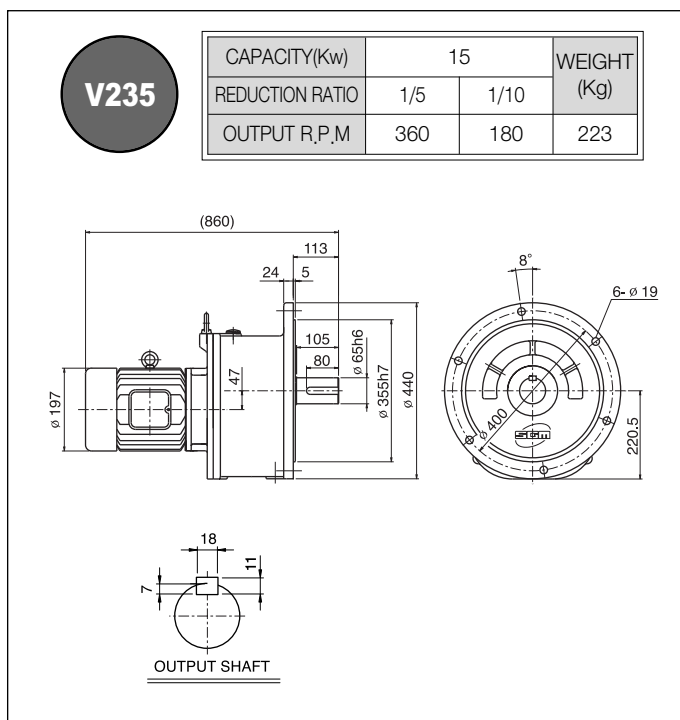
기어드 모터 / Geared Motor

VERTICAL GEARED MOTOR

15 HP(11Kw), 3 Phase (삼상)

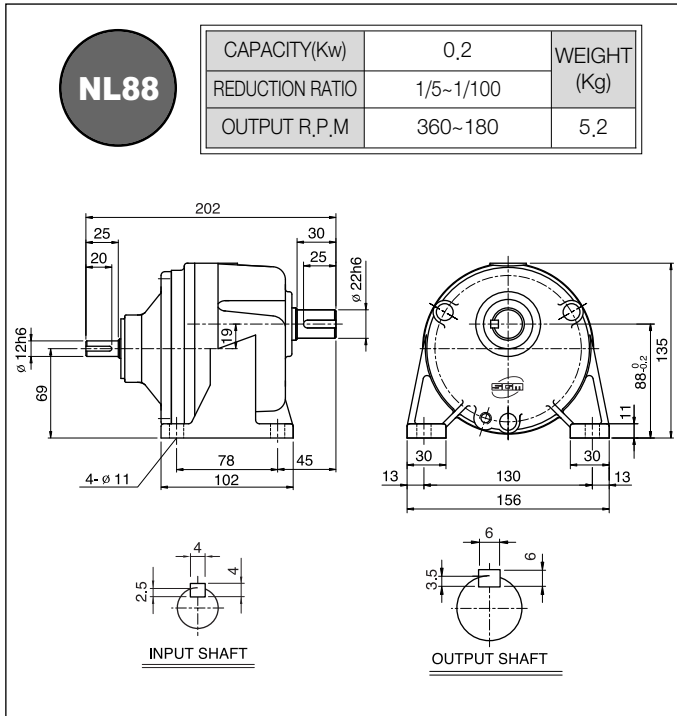


20 HP(15Kw), 3 Phase (삼상)

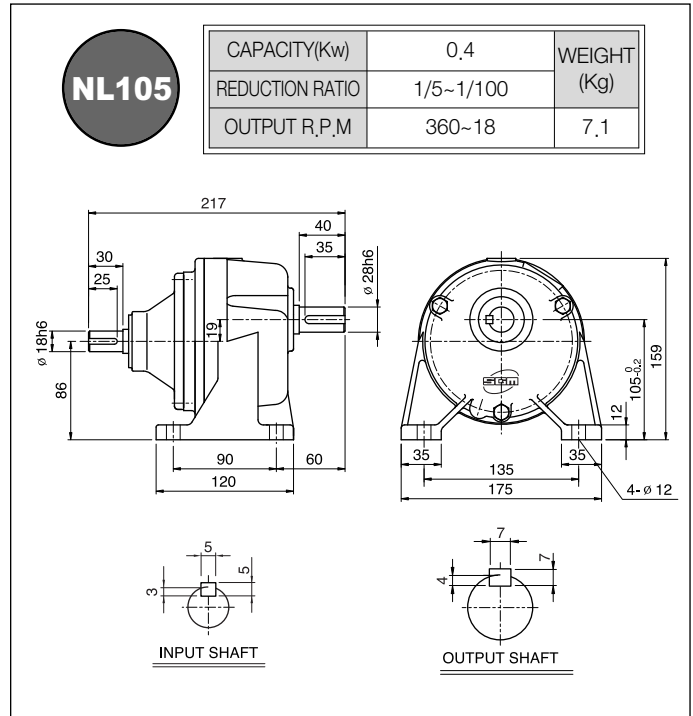


LINE POWER

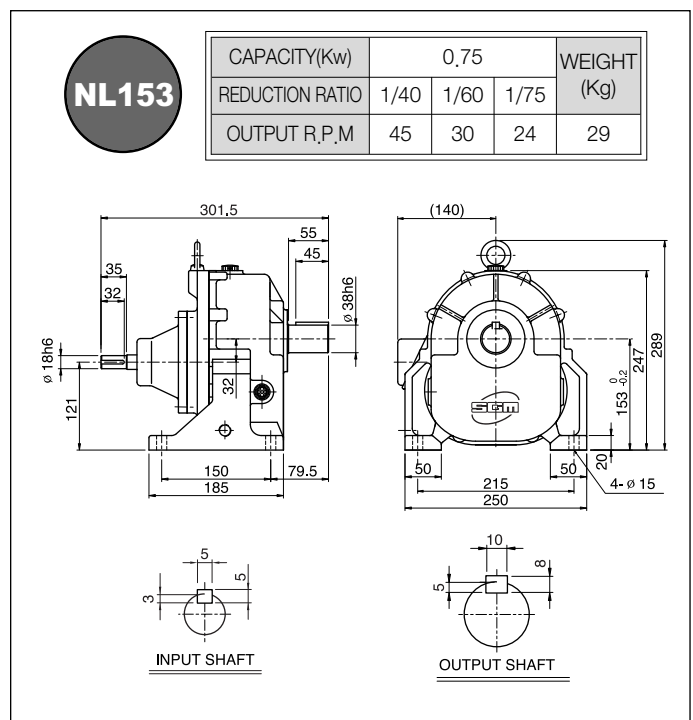
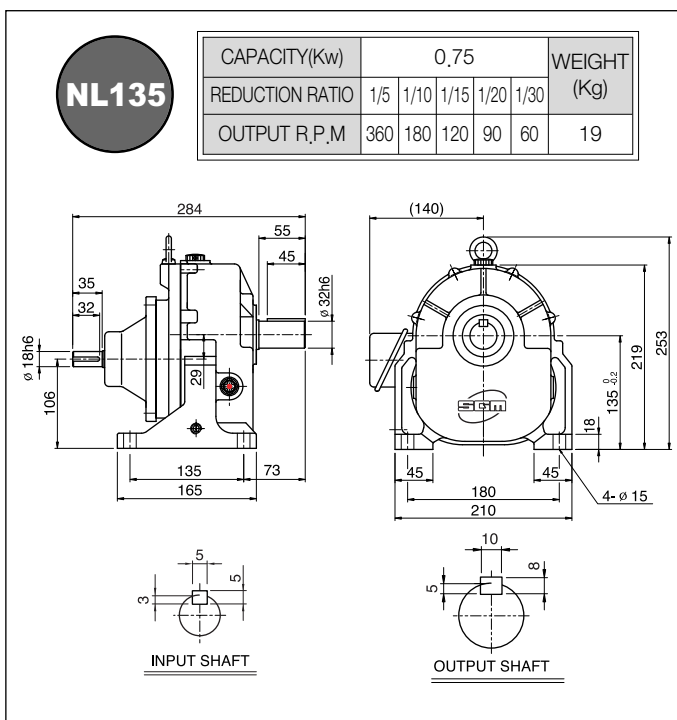
1/4 HP(0.2Kw)



1/2 HP(0.4Kw)



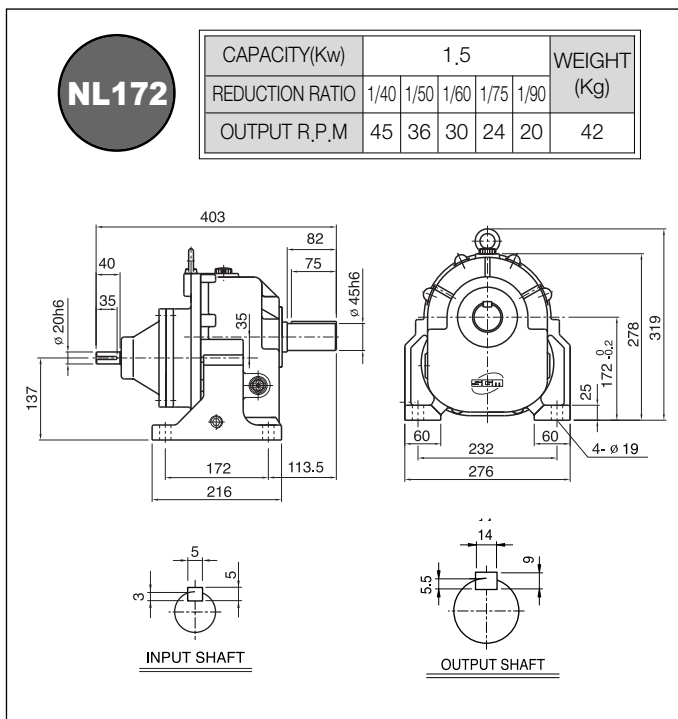
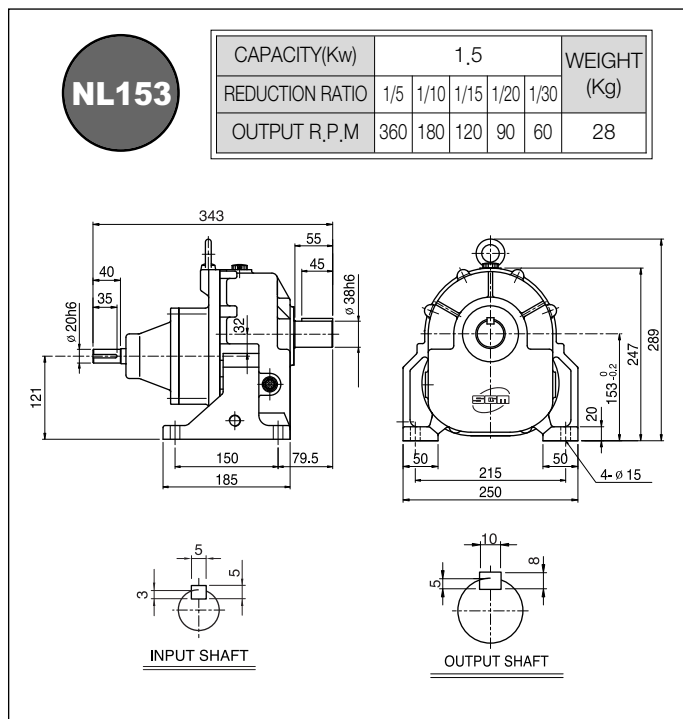
1 HP(0.75Kw)



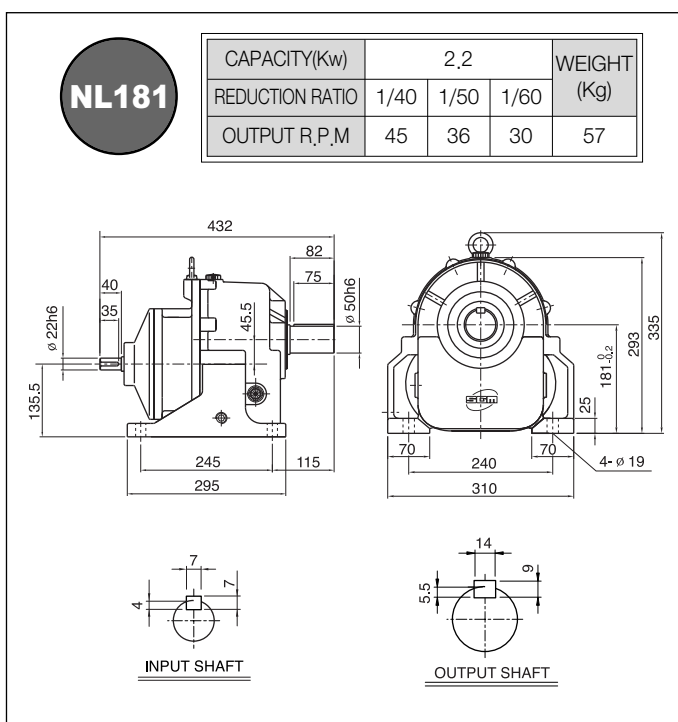
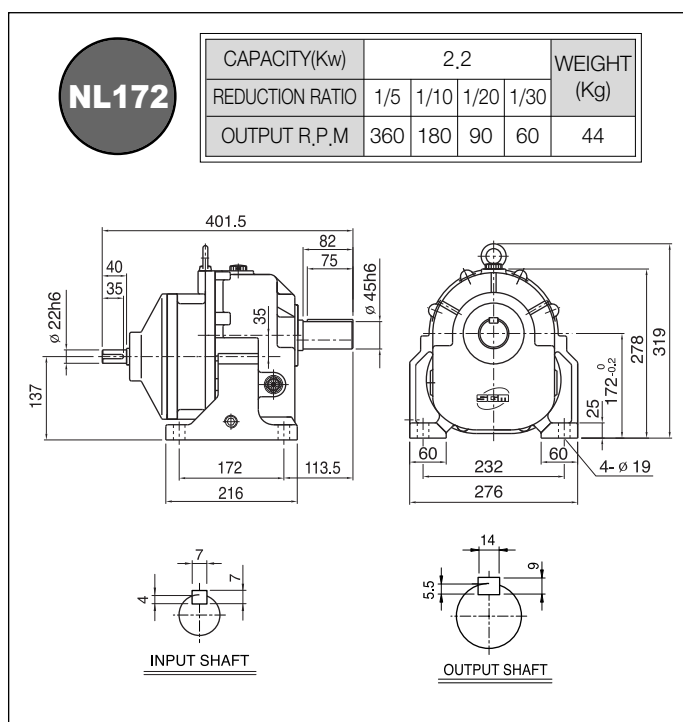
기어드 모터 / Geared Motor

LINE POWER

2 HP(1.5Kw)

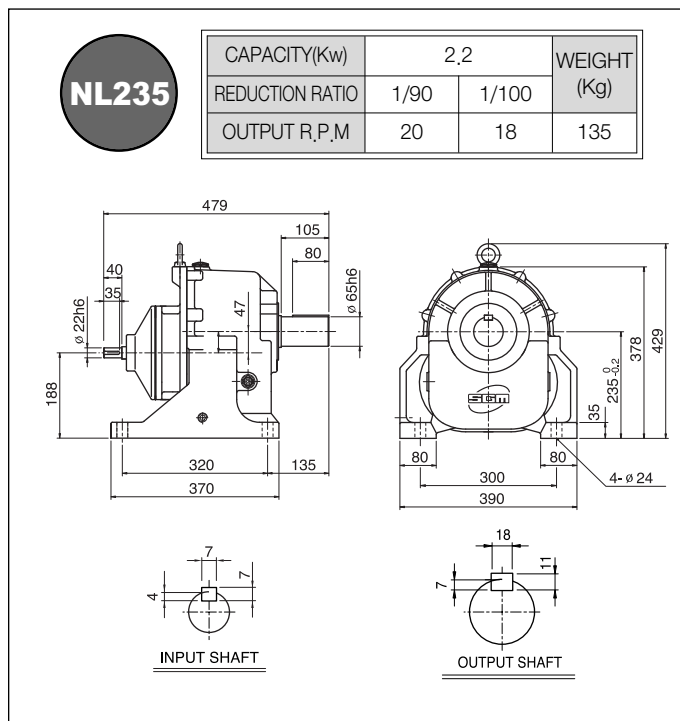
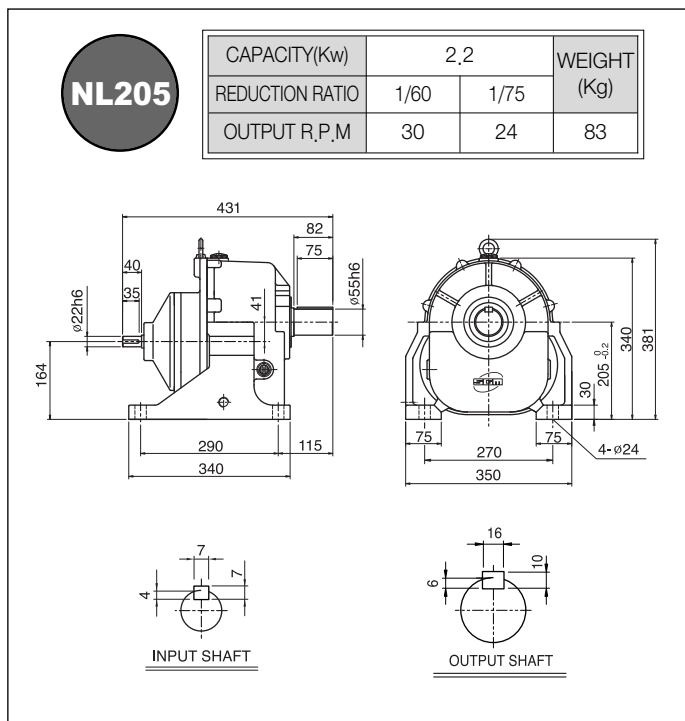


3 HP(2.2Kw)

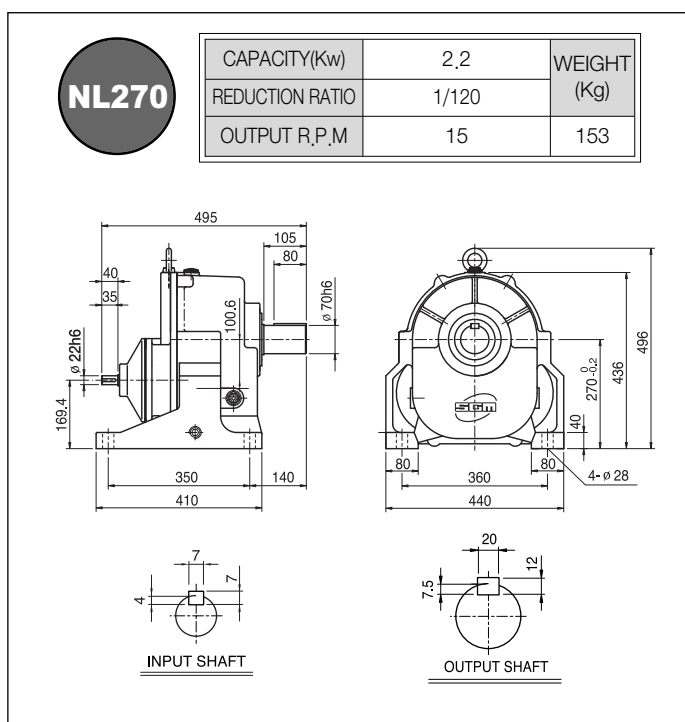


LINE POWER

3 HP(2.2Kw)



3 HP(2.2Kw)



기어드모터

웜간속기

웜간속기(SEM)

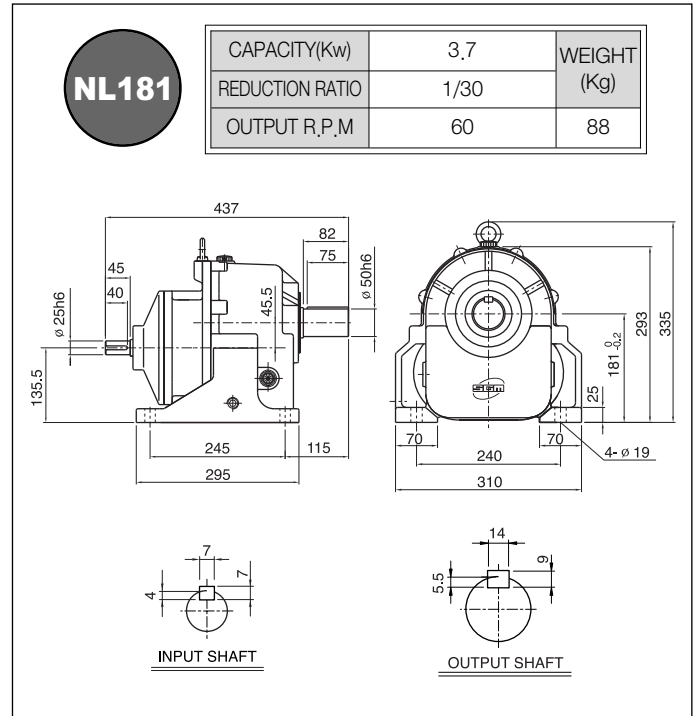
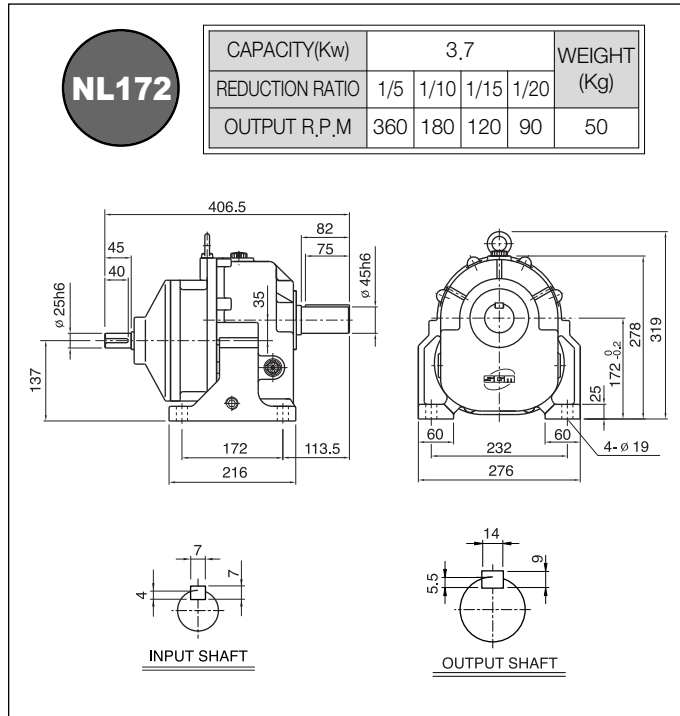
헬리컬 웜

스크류 잭

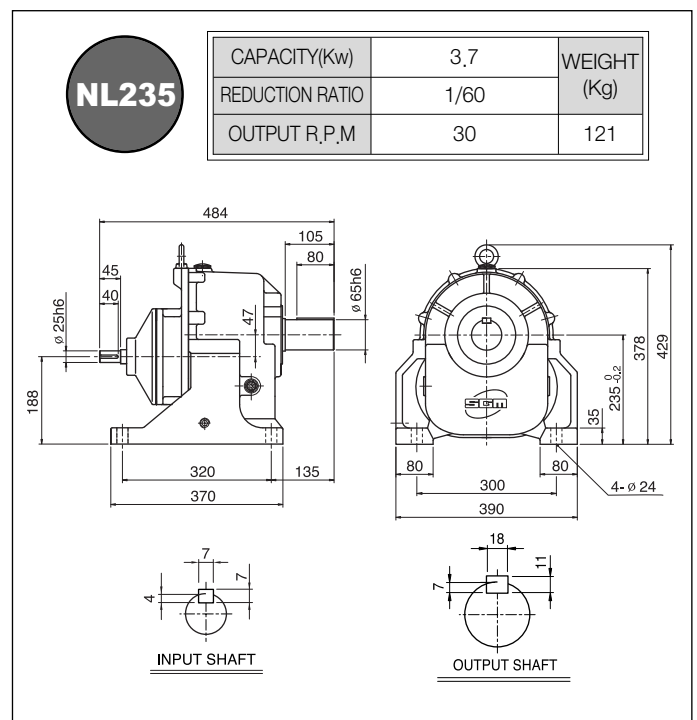
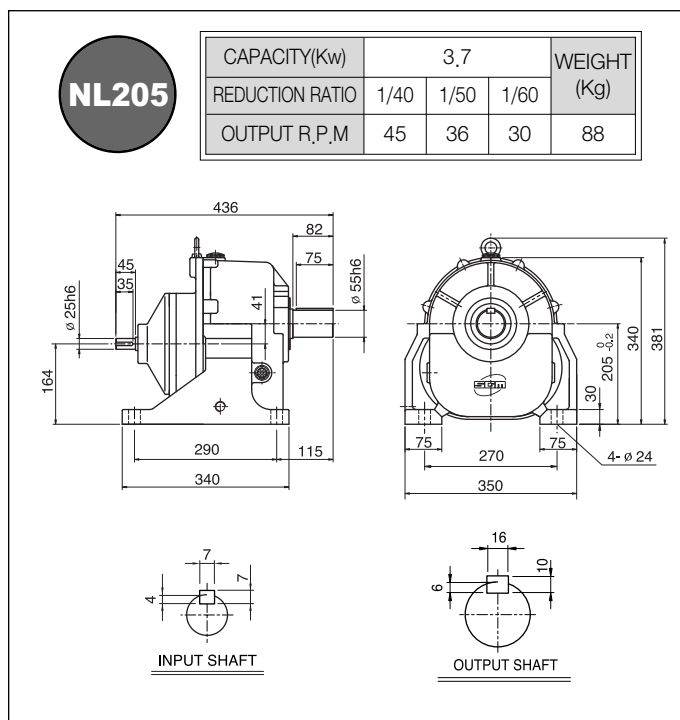
기어드 모터 / Geared Motor

LINE POWER

5 HP(3.7Kw)

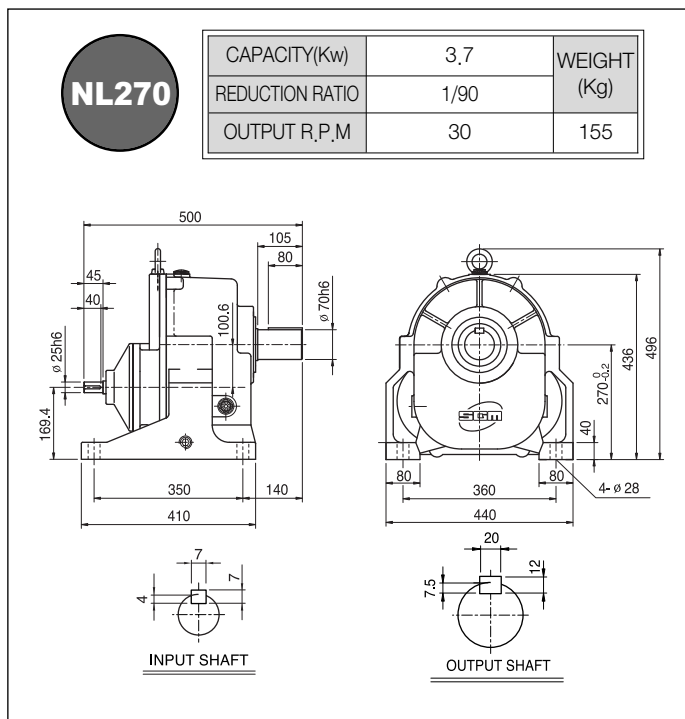


5 HP(3.7Kw)

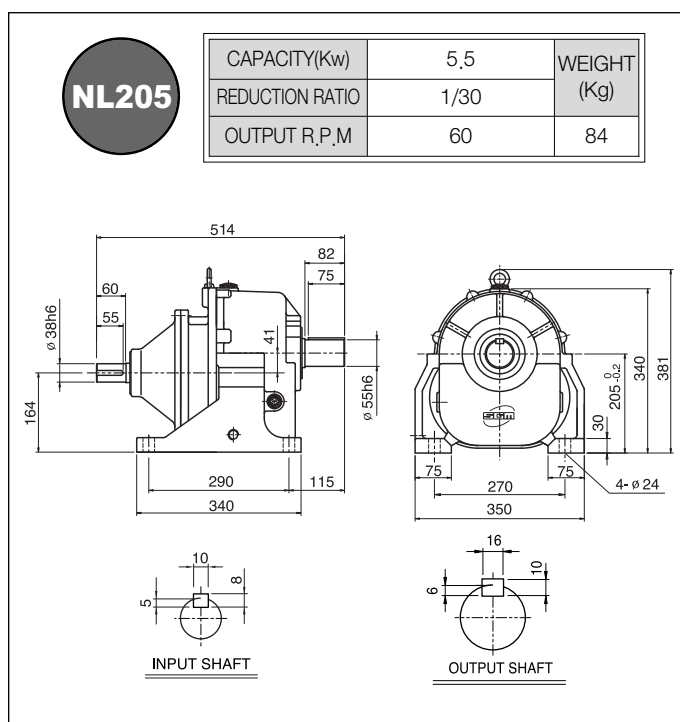
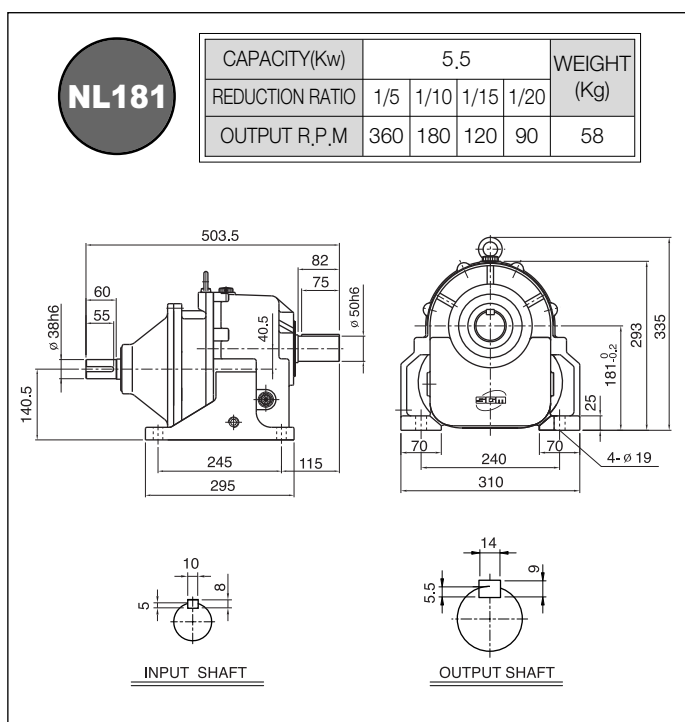


LINE POWER

5 HP(3.7Kw)



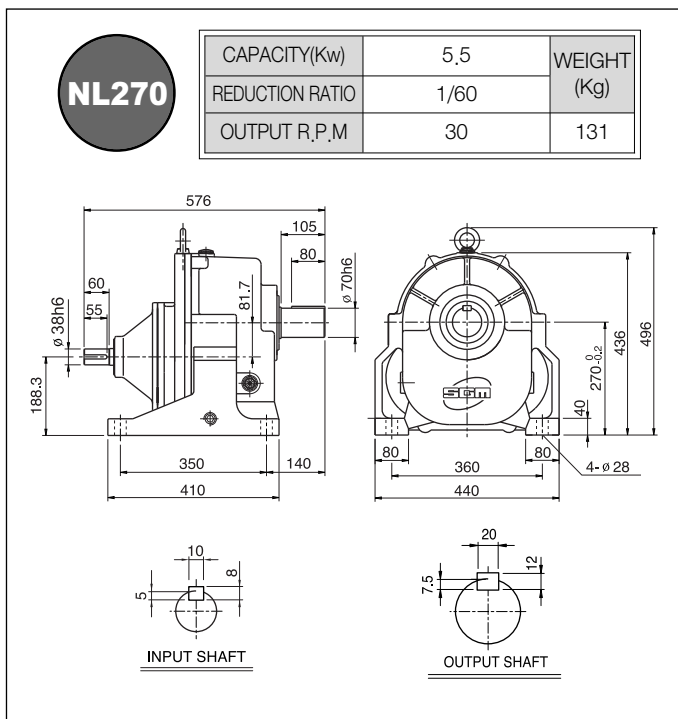
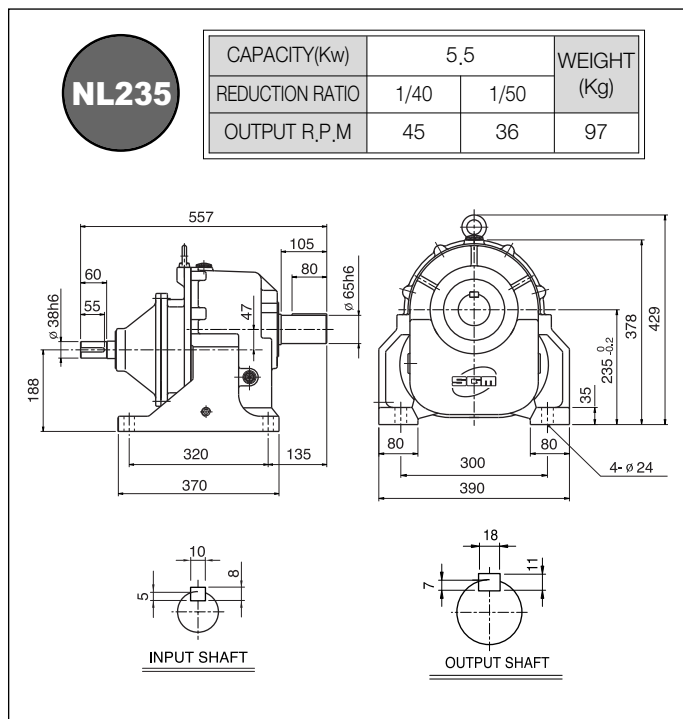
7.5 HP(5.5Kw)



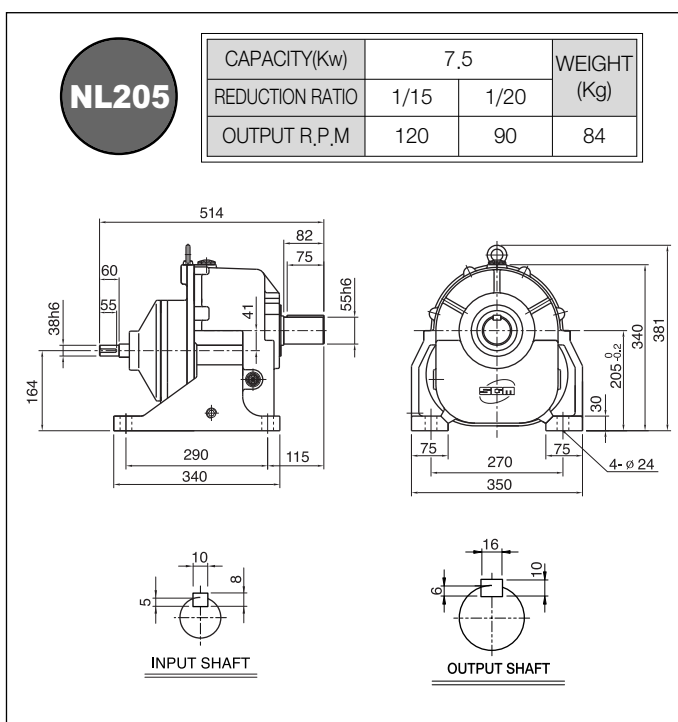
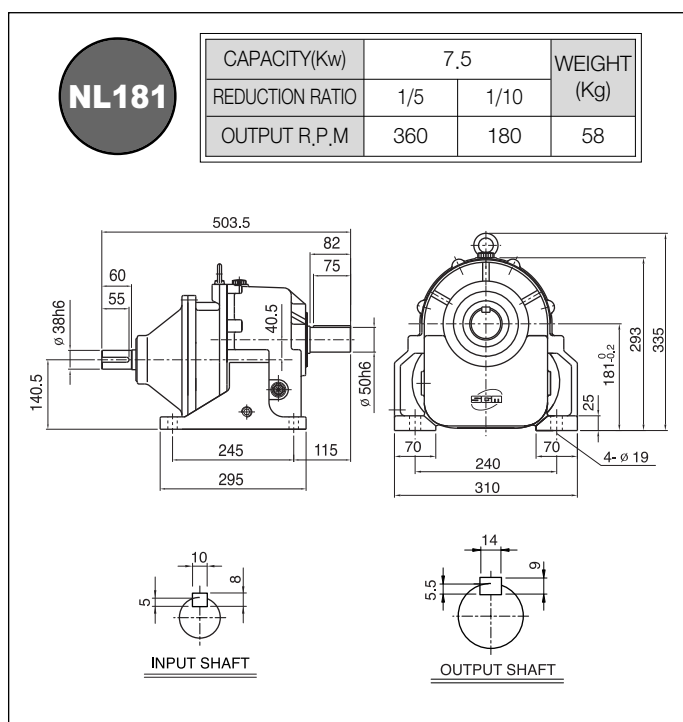
기어드 모터 / Geared Motor

LINE POWER

7.5 HP(5.5Kw)

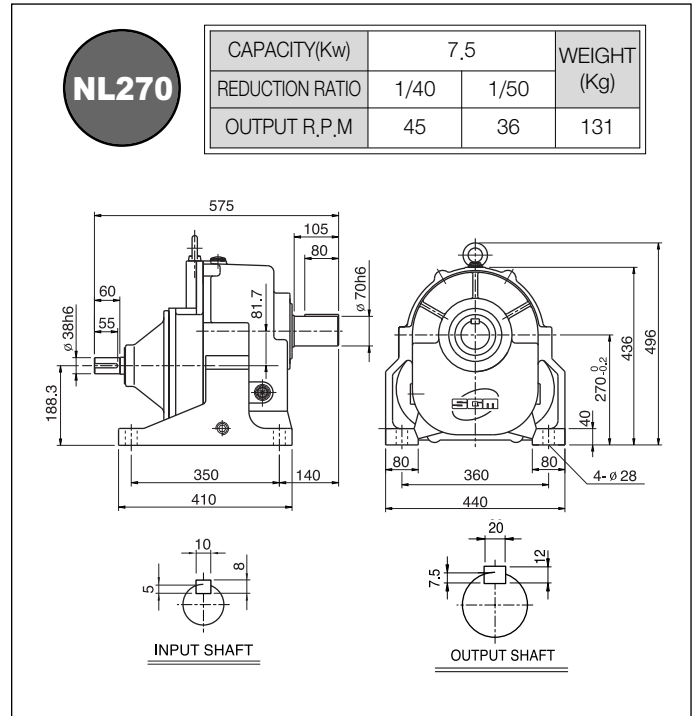
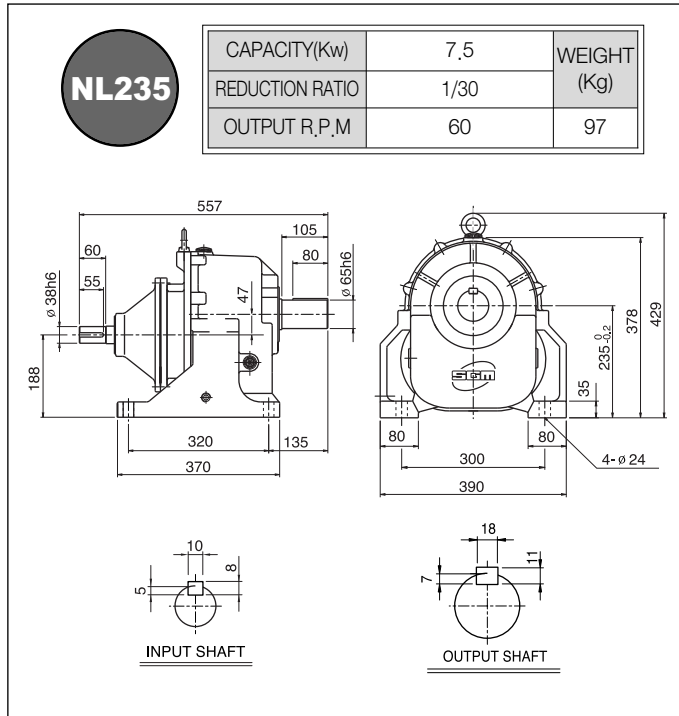


10 HP(7.5Kw)

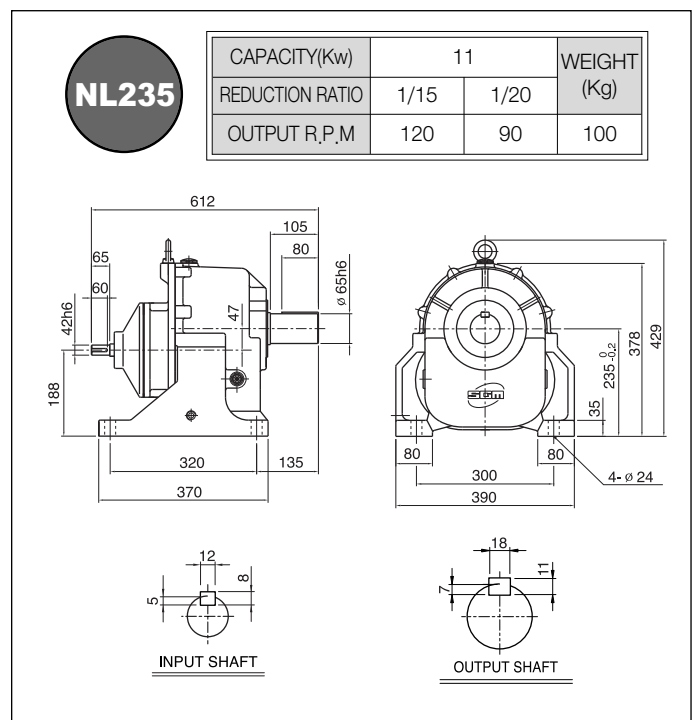
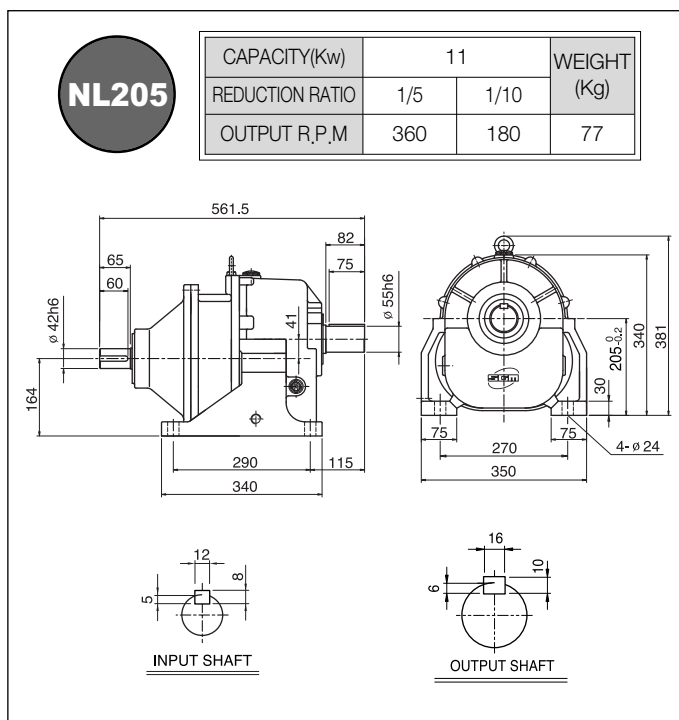


LINE POWER

10 HP(7.5Kw)



15 HP(11Kw)



기어드모터

원감속기

원감속기(SEM)

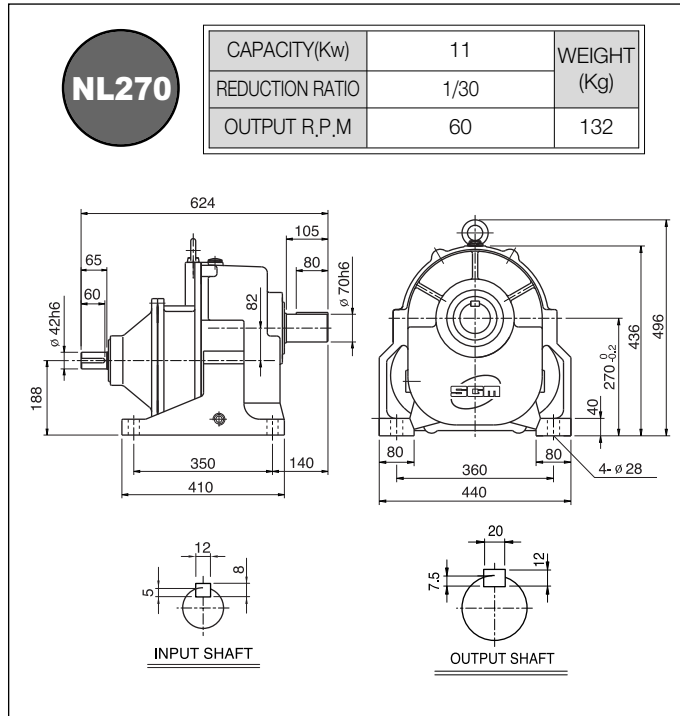
헬리컬 원

스크류 잭

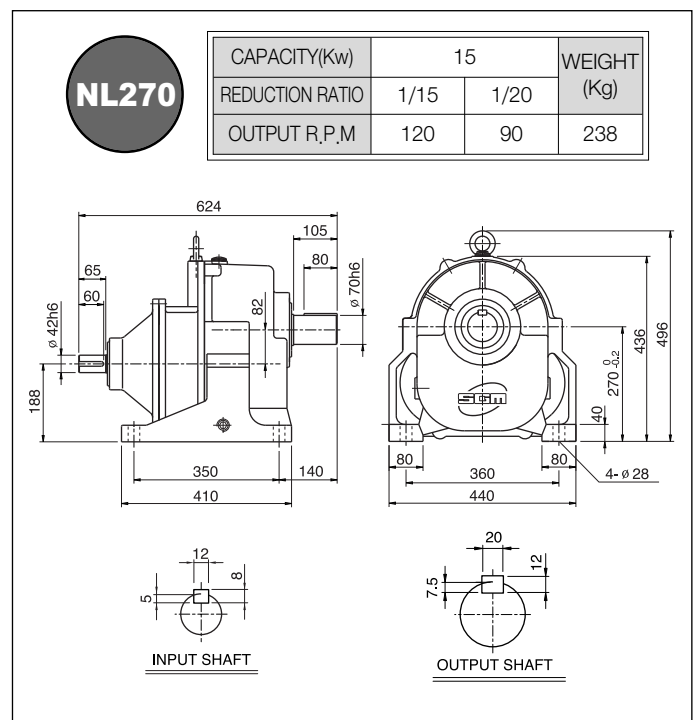
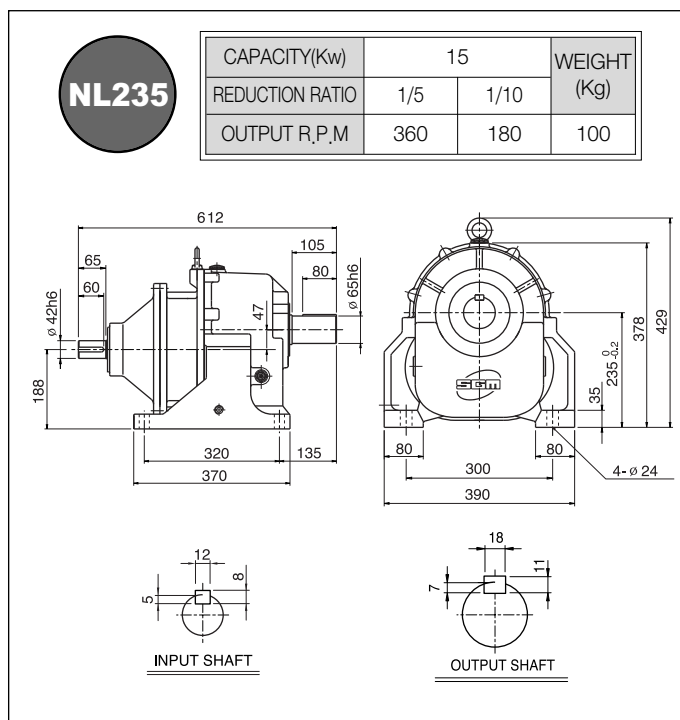
기어드 모터 / Geared Motor

LINE POWER

15 HP(11Kw)

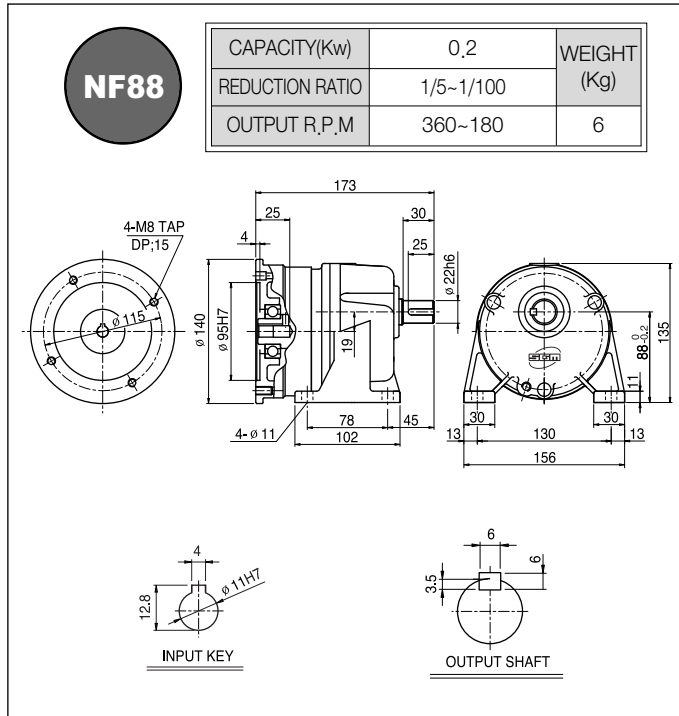


20 HP(15Kw)

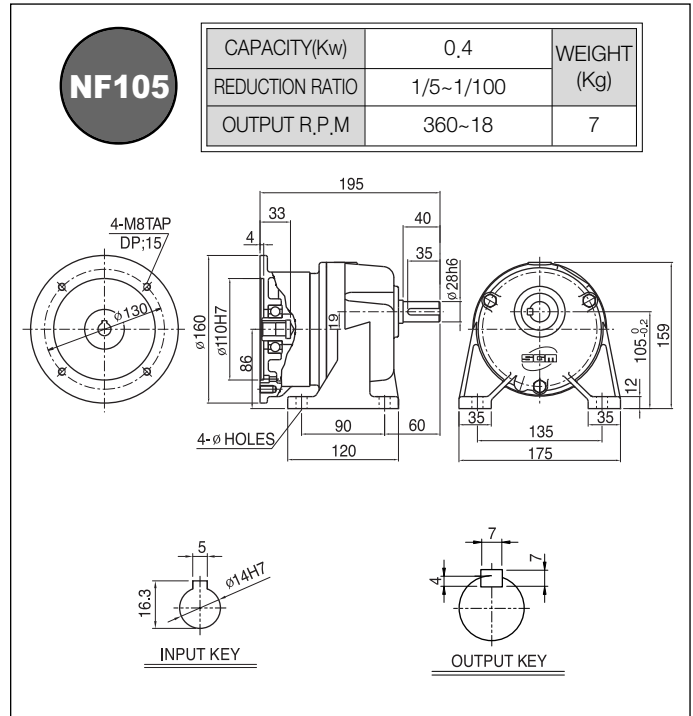


I.E.C FLANGE FLANGE TYPE

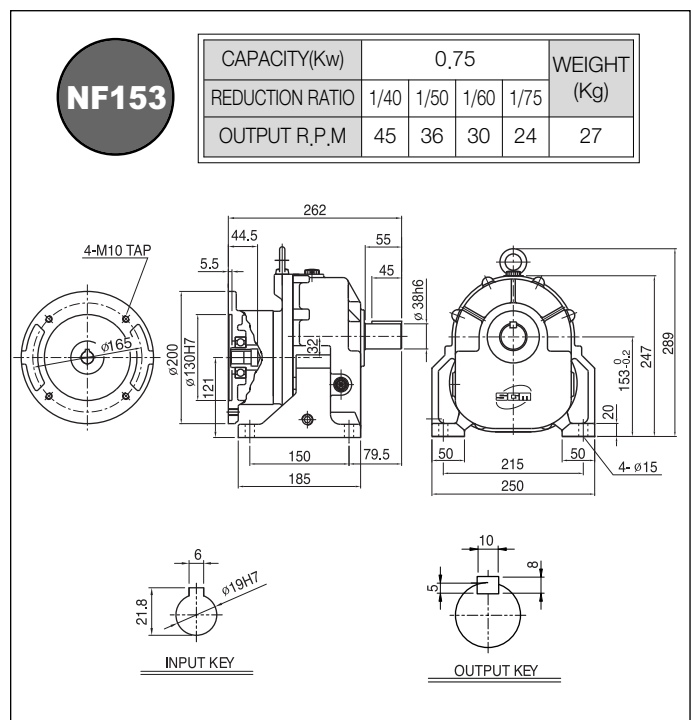
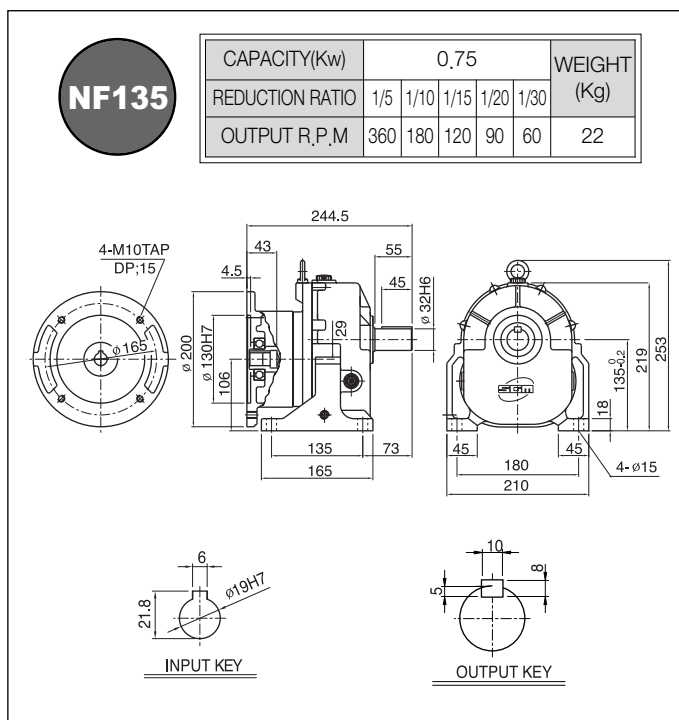
1/4 HP(0.2Kw), 3 Phase (삼상)



1/2 HP(0.4Kw), 3 Phase (삼상)



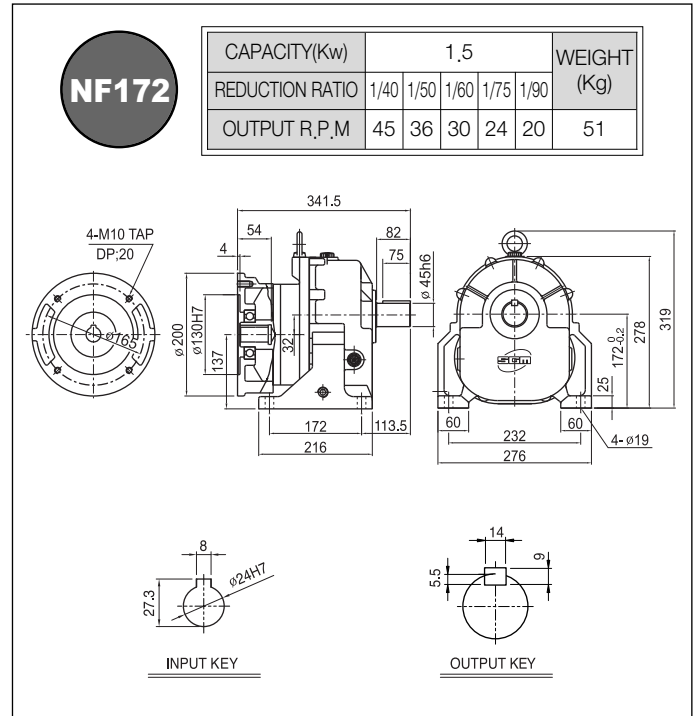
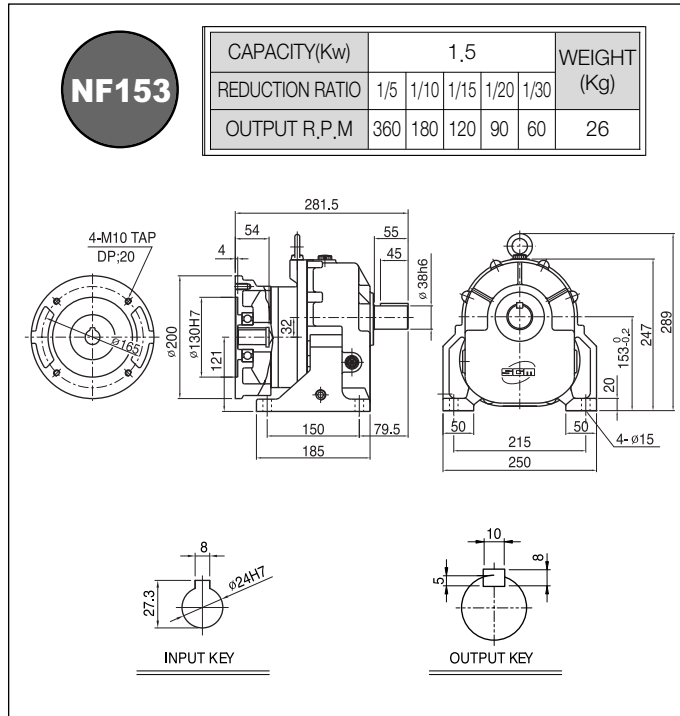
1 HP(0.75Kw), 3 Phase (삼상)



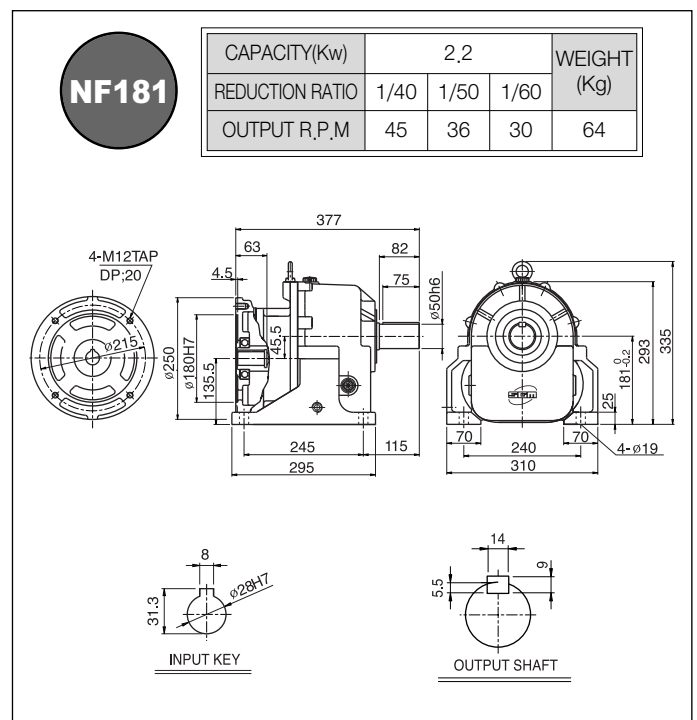
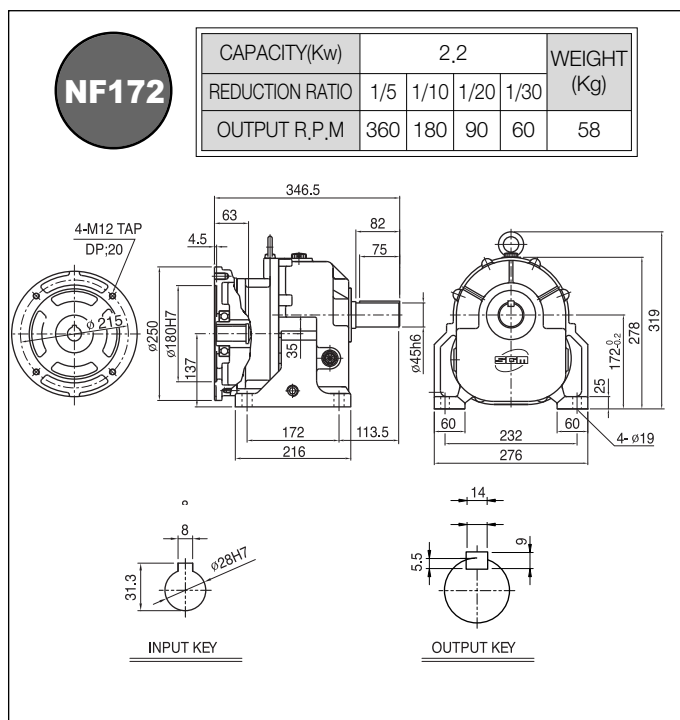
기어드 모터 / Geared Motor

I.E.C FLANGE TYPE

2 HP(1.5Kw), 3 Phase (삼상)

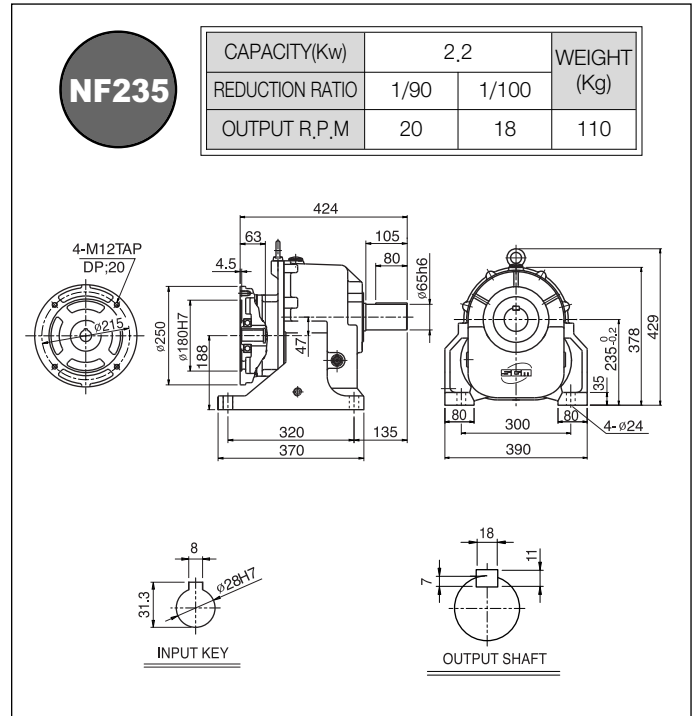
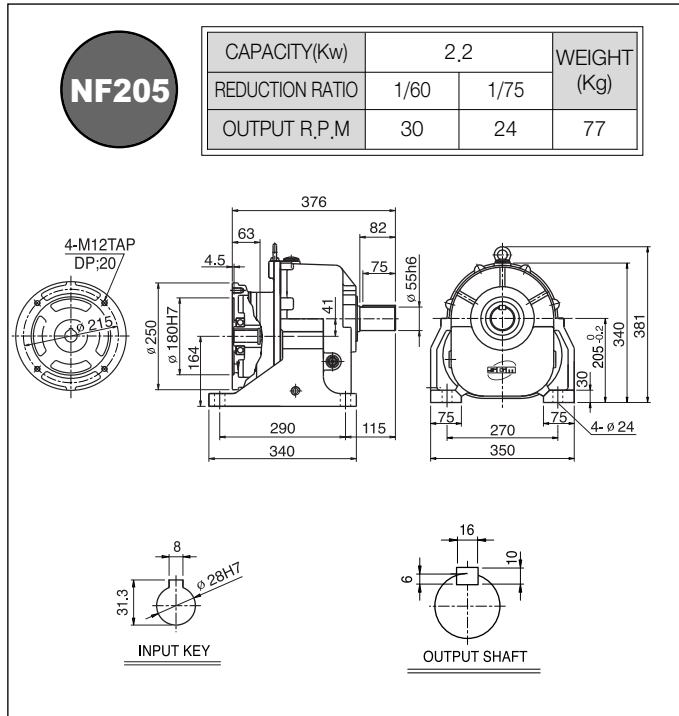


3 HP(2.2Kw), 3 Phase (삼상)

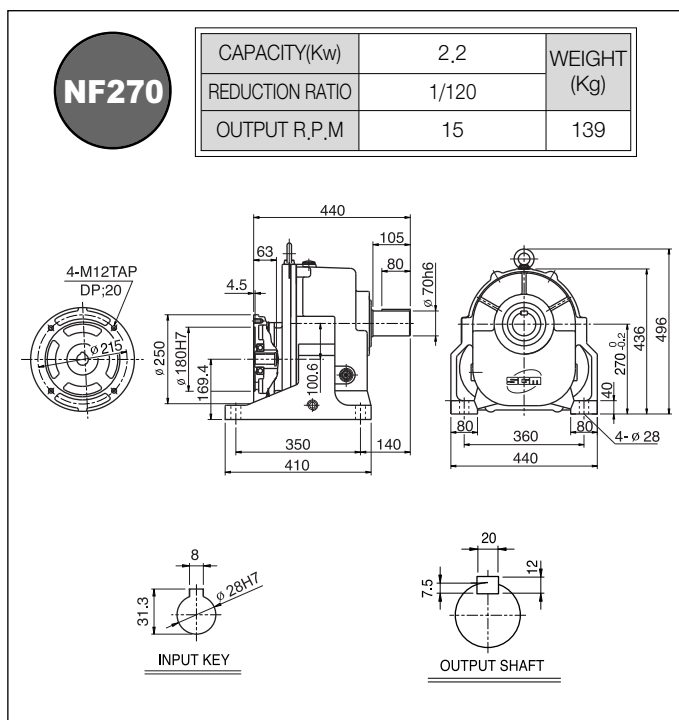


I.E.C FLANGE TYPE

3 HP(2.2Kw), 3 Phase (삼상)



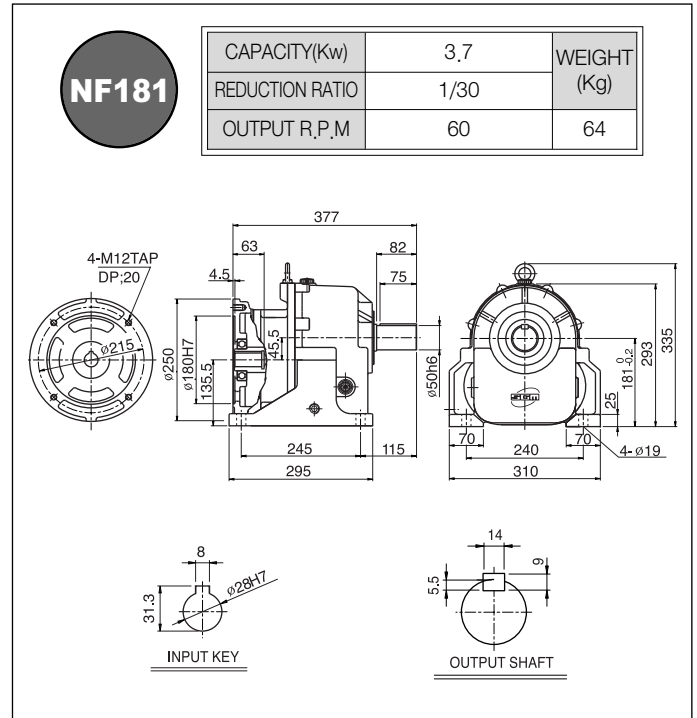
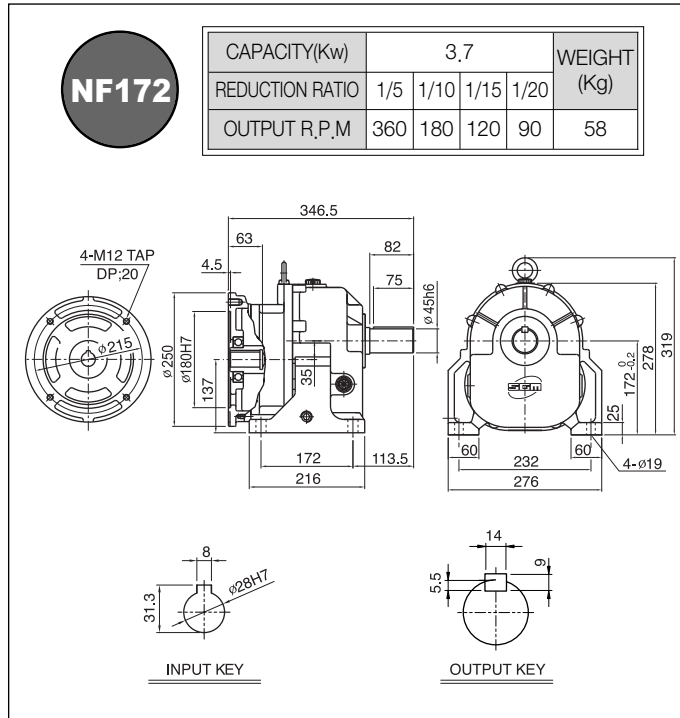
3 HP(2.2Kw), 3 Phase (삼상)



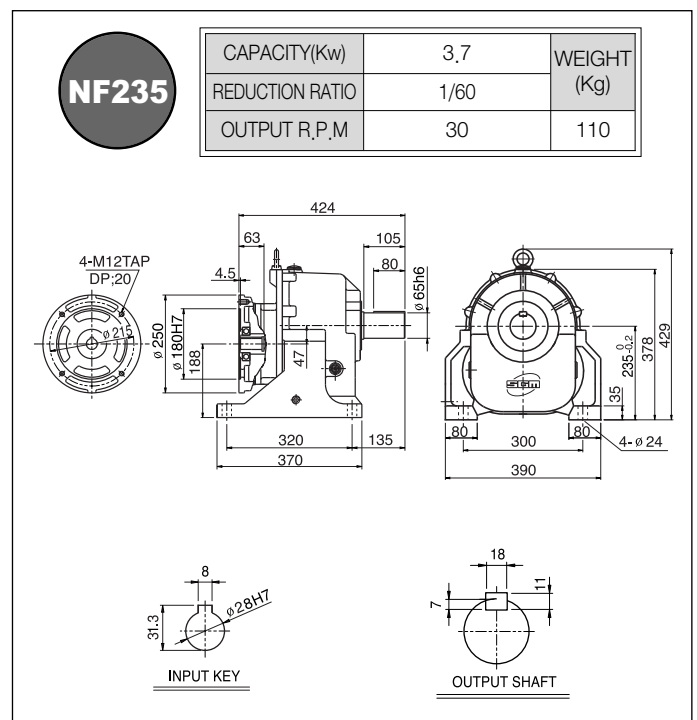
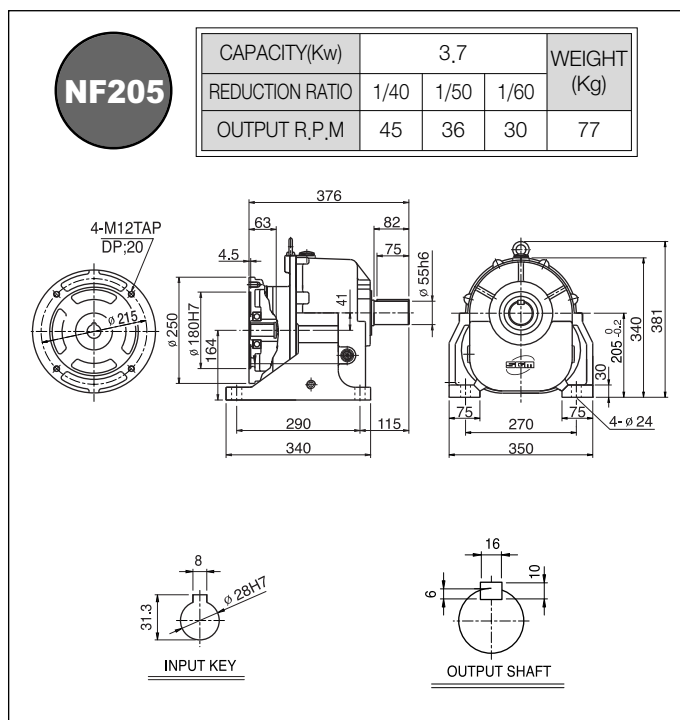
기어드 모터 / Geared Motor

I.E.C FLANGE TYPE

5 HP(3.7Kw), 3 Phase (삼상)

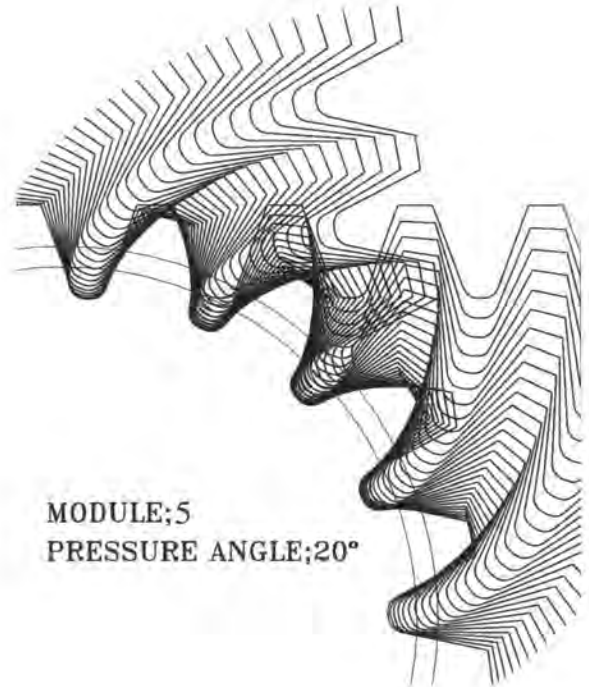
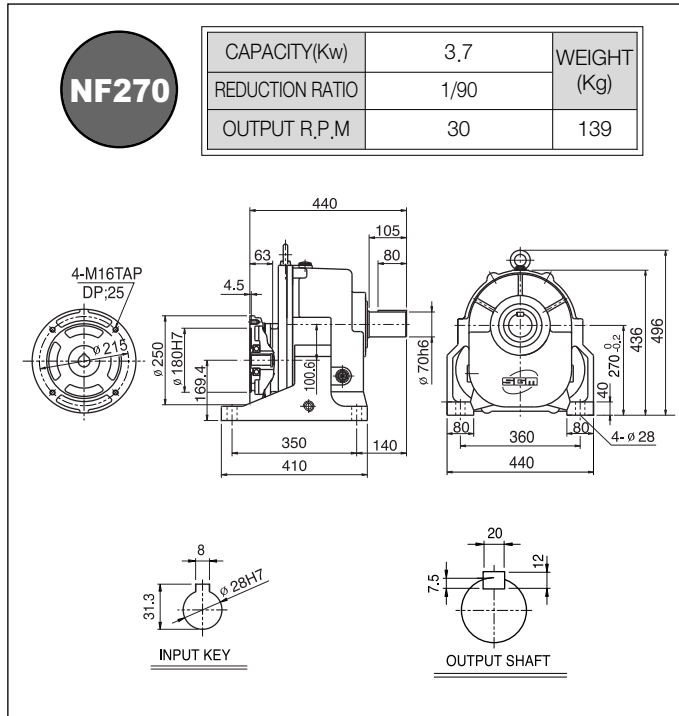


5 HP(3.7Kw), 3 Phase (삼상)

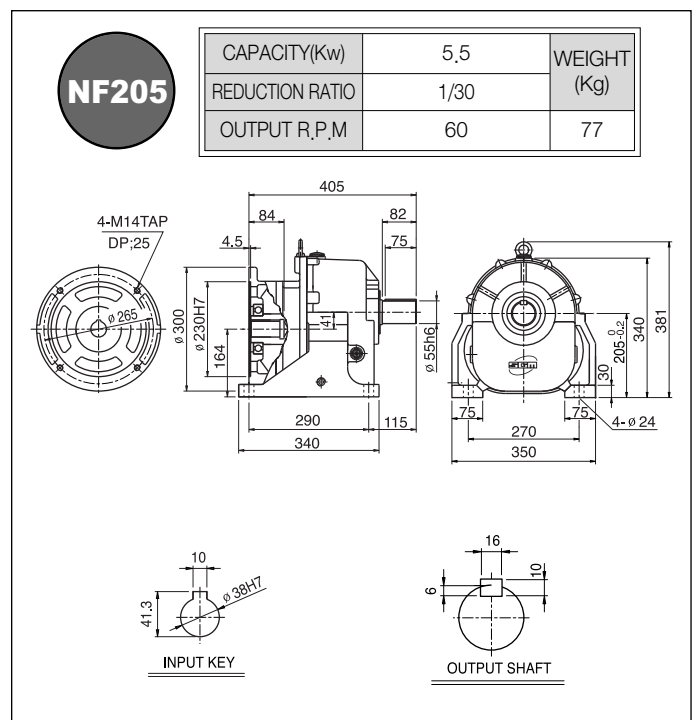
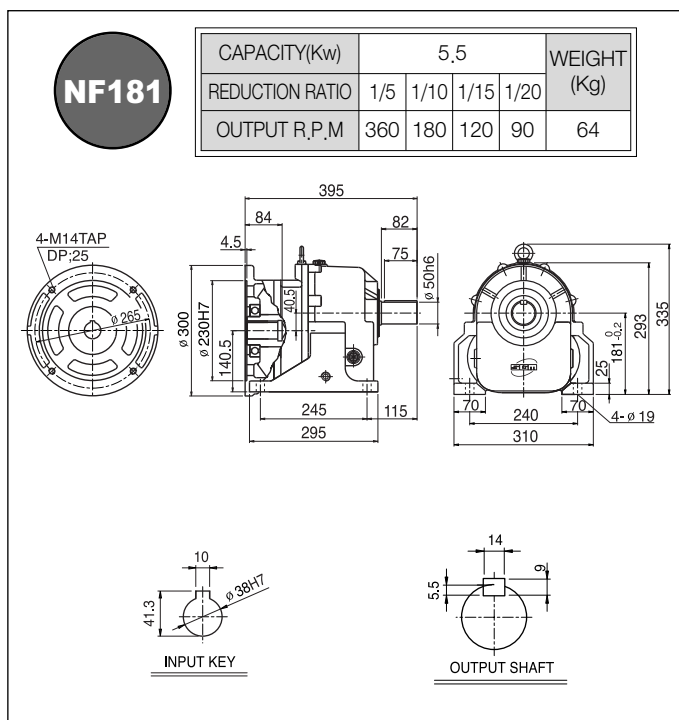


I.E.C FLANGE TYPE

5 HP(3.7Kw), 3 Phase (삼상)



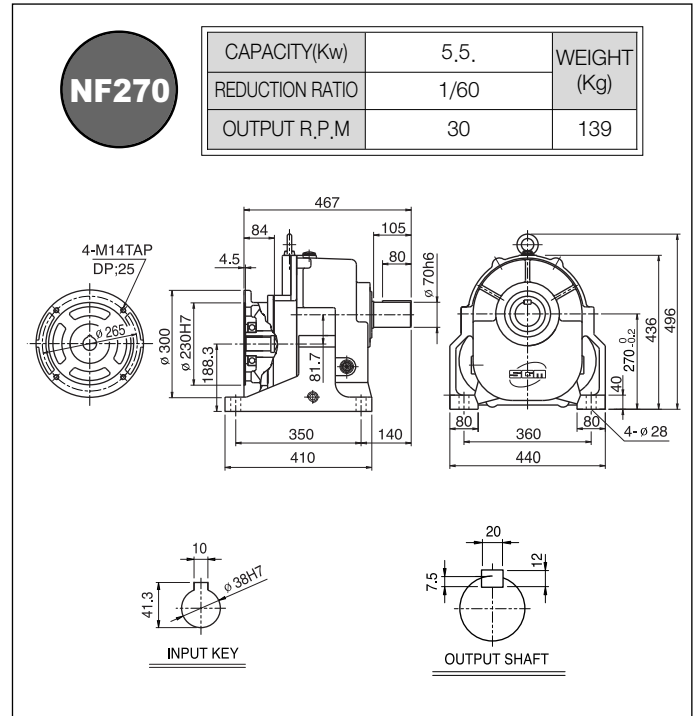
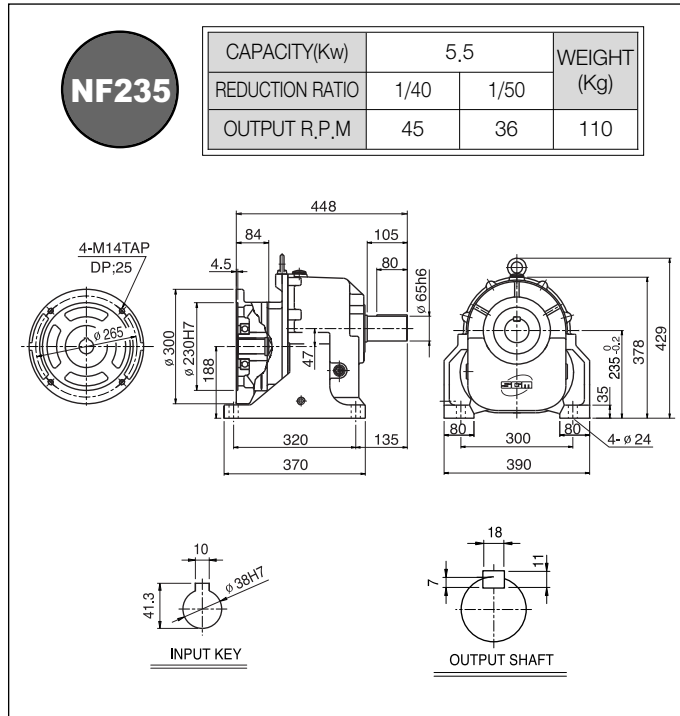
7.5 HP(5.5Kw), 3 Phase (삼상)



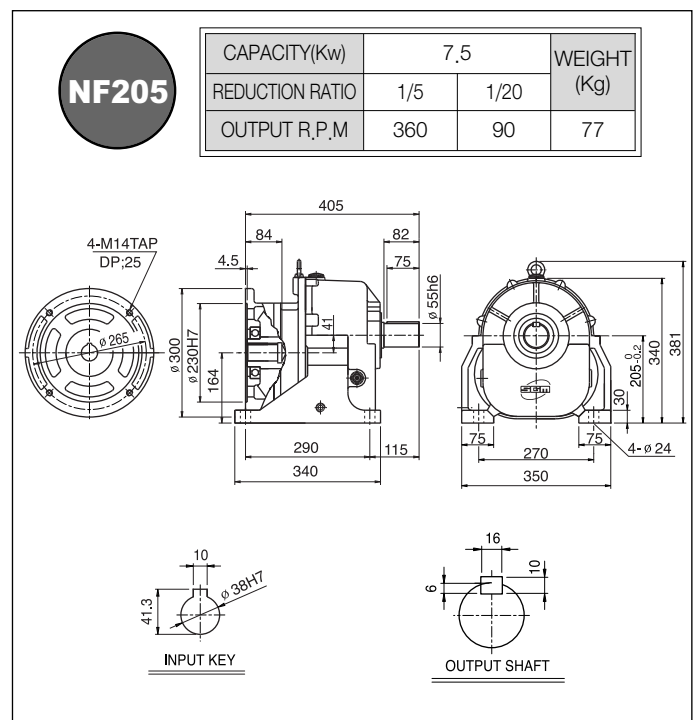
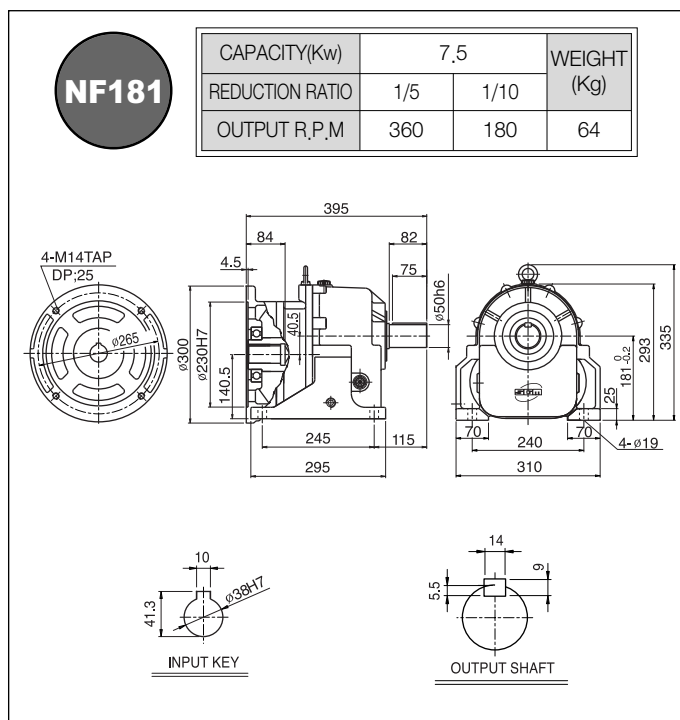
기어드 모터 / Geared Motor

I.E.C FLANGE TYPE

7.5 HP(5.5Kw), 3 Phase (삼상)

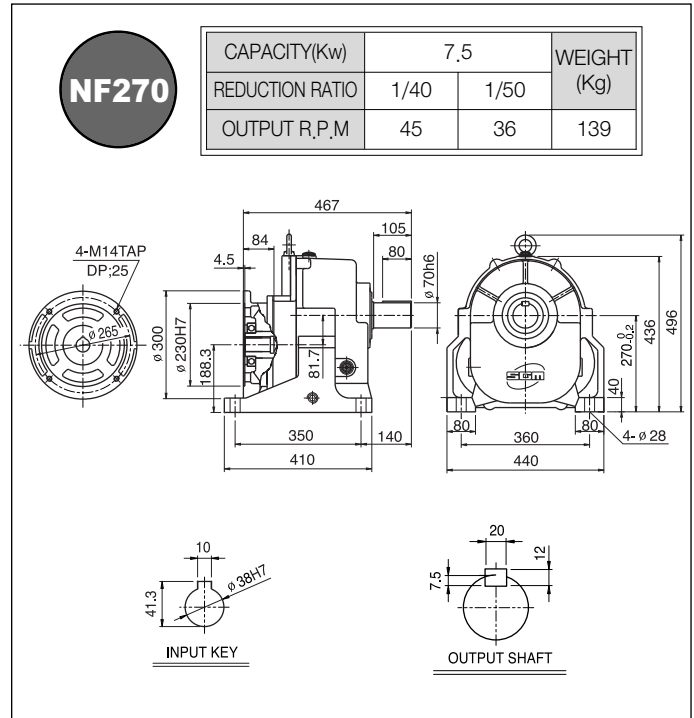
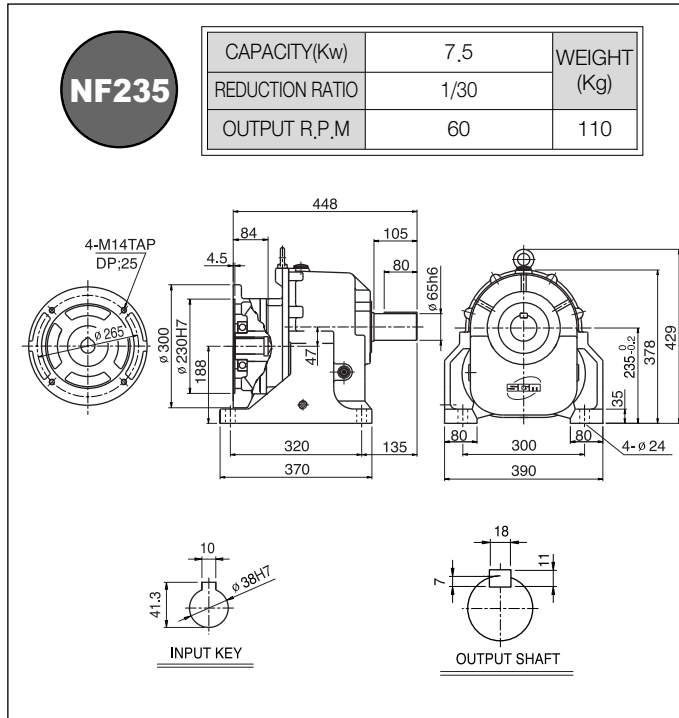


10 HP(7.5Kw), 3 Phase (삼상)

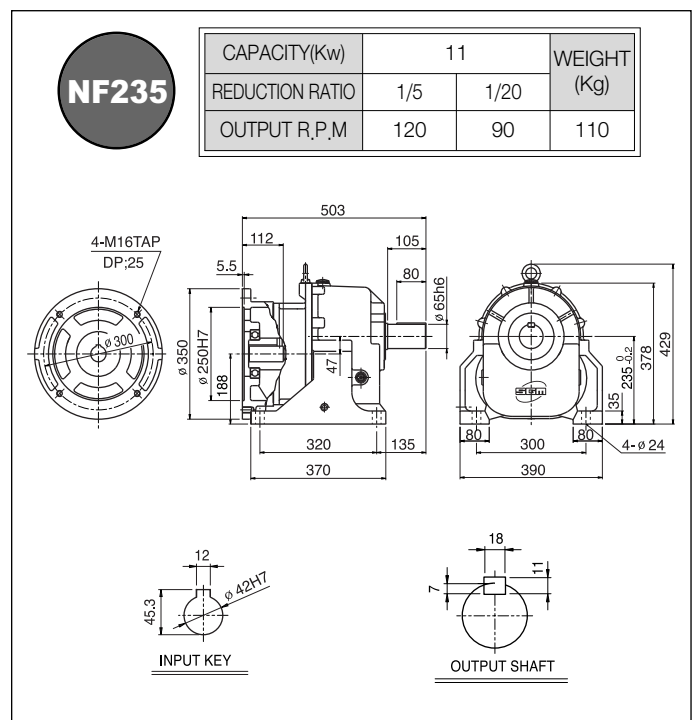
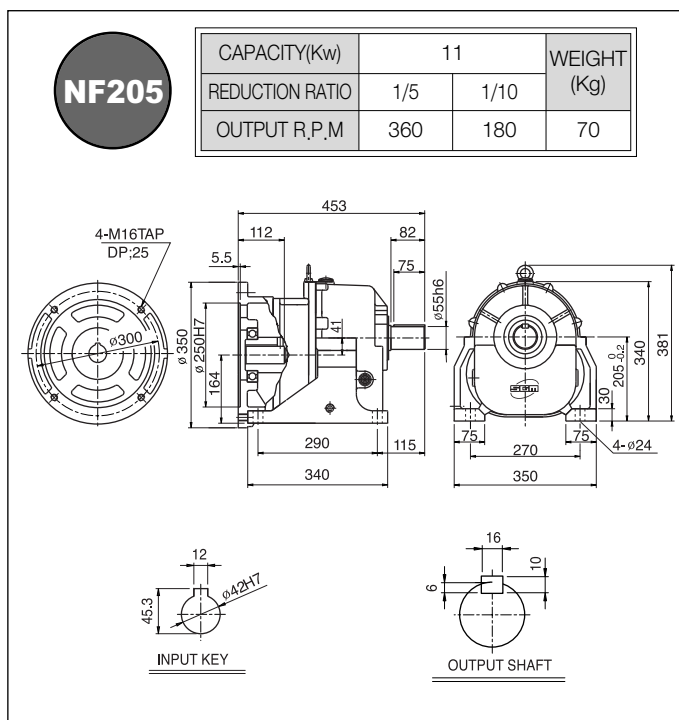


I.E.C FLANGE TYPE

10 HP(7.5Kw), 3 Phase (삼상)



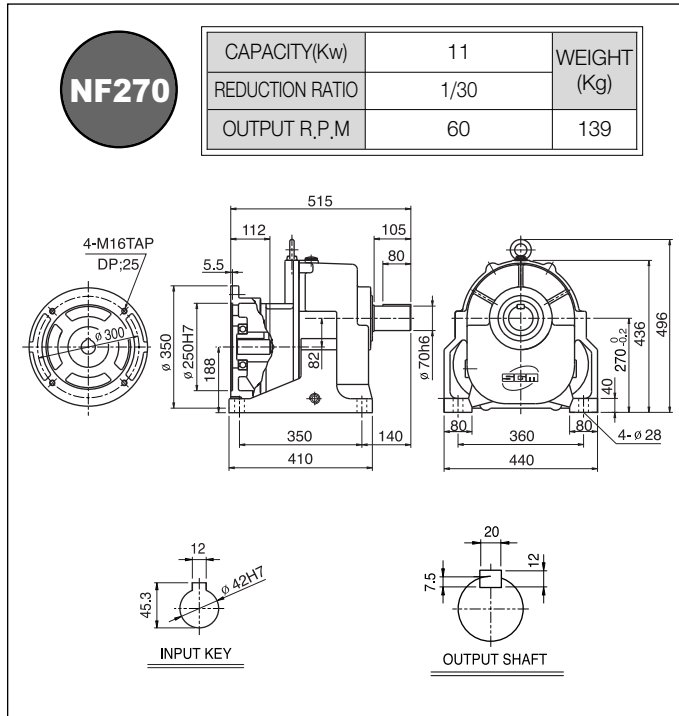
15 HP(11Kw), 3 Phase (삼상)



기어드 모터 / Geared Motor

I.E.C FLANGE TYPE

15 HP(11Kw), 3 Phase (삼상)



20 HP(15Kw), 3 Phase (삼상)

