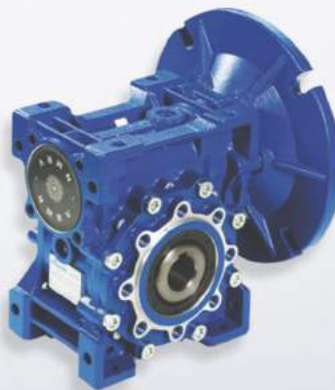




MOTOVARIO®

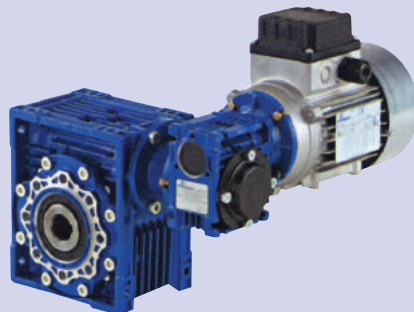
HEART OF MOTION

웜 기어드 모터
WORM GEARED MOTORS

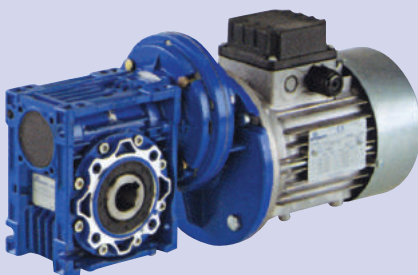




WORM GEAR REDUCERS



COMBINED WORM GEAR REDUCERS



**PRE-STAGE HELICAL GEAR REDUCERS
COMBINED WITH WORM GEAR REDUCERS**

— 한국내 조립센터 인증서 —



차례

KO

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사용기호

KO

(P)	=	Power(kW)	=	동력
(M)	=	Torque(Nm)	=	토크
(n)	=	Speed(RPM)	=	속도
(i)	=	Reduction ratio	=	감속비
(nd)	=	Dynamic efficiency	=	동적효율
(F)	=	Load (N)	=	하중(부하)
(m)	=	Weight (kg)	=	중량
(f.s)	=	Service factor	=	안전계수
(1)	=	Input shaft	=	입력축
(2)	=	Output shaft	=	출력축
(r)	=	Radial	=	레디알(반경)
(a)	=	Axial	=	축 상단
(S)	=	Static	=	정적
(d)	=	Dynamic	=	동적
(max)	=	Maximum	=	최대
(min)	=	Minimum	=	최소

Symbols

UK

(P)	=	Power(kW)
(M)	=	Torque(Nm)
(n)	=	Speed(RPM)
(i)	=	Reduction ratio
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(F)	=	Load (N)
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(f.s)	=	Service factor
(1)	=	Input shaft
(2)	=	Output shaft
(r)	=	Radial
(a)	=	Axial
(S)	=	Static
(d)	=	Dynamic
(max)	=	Maximum
(min)	=	Minimum

규격

KO

요청 시, 감속기는 아래 규격에 따라 제조 가능합니다.

ATEX 94/9/CE
Categories : 2GD T=135 °C (T4)
3GD T=135 °C (T4)
with n1 max =1500rpm

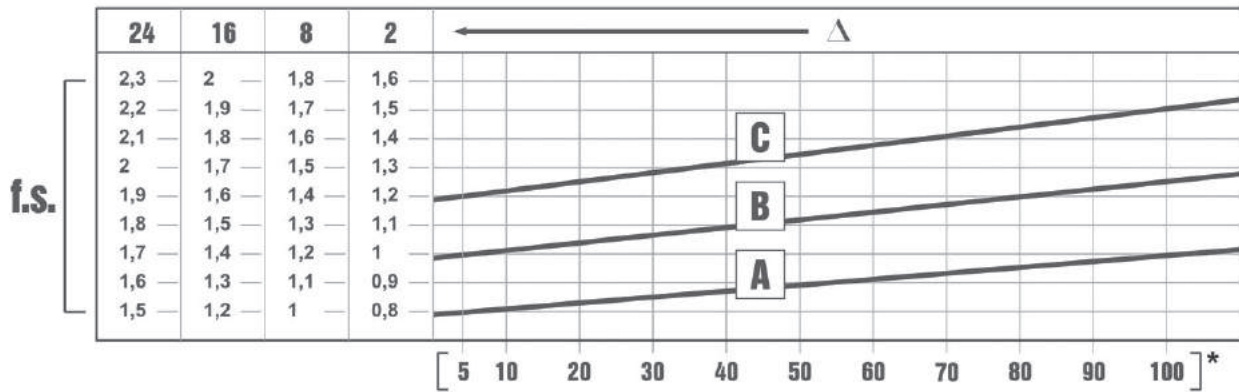
Specification

UK

On request, reducers can be manufactured in compliance with standards:

ATEX 94/9/CE
Categories : 2GD T=135 °C (T4)
3GD T=135 °C (T4)
with n1 max =1500rpm

안전계수 / Service factor



안전계수(f.x. : Service factor)

KO

안전계수(과부하율)는 기어 감속기의 가동 상황에 따라 달라진다.

가장 적합한 안전계수를 선택하기 위하여 고려할 변수들은 다음과 같다 :

- 가동 기계의 부하 형태 : A - B - C
- 일일 가동시간 : 시간/일 (A)
- 시동 빈도 : 시동 횟수/시간 (*)

부하종류 : A - 균일하중
진동이 없는 기계 $f_a \leq 0.3$
B - 경하중 $f_a \leq 3$
C - 중하중 $f_a \leq 10$

$f_a = J_e / J_m$

- J_e (kgm^2) 구동축에서 감소된 외부 관성모멘트
- J_m (kgm^2) 모터의 관성모멘트

$f_a > 10$ 의 경우, 당사에 기술서비스 지원을 요청하도록 한다.

A - 경량자재용 스크류 피더(Screw Feeders), 팬(Fan), 조립라인, 경량 자재용 컨베이어, 소형 믹서기, 리프트, 세척기, 충전기, 제어기

B - 권선기, 목공기계 투입기, 화물용승강기, 밸런서, 나사 절삭기, 중형 믹서, 중량 자재용 컨베이어, 윈치, 슬라이딩 도어, 비료혼합기, 포장기, 콘크리트믹서, 크레인 구조물, 밀링 커터, 톱슨기, 기어펌프

C - 중량 자재용 믹서, 세링기, 프레스, 원심분리기, 회전 지지대, 중량 자재용 윈치 및 리프트, 가공선반, 분쇄기, 버킷엘리베이터, 드릴링 머신, 햄머분쇄기, 캠 프레스, 절곡기, 턴테이블, 텀블링 바렐, 진동장치, 파쇄기

Service factor

UK

The service factor (f.s.) depends on the operating conditions the gear reducer is subjected to.

The parameters that need to be taken into consideration to select the most adequate service factor correctly comprise :

- type of load of the operated machine : A - B - C
- length of daily operation time : hours / day (Δ)
- start - up frequency : starts / hour (*)

LOAD : A - uniform $f_a \leq 0.3$
B - moderate shocks $f_a \leq 3$
C - heavy shocks $f_a \leq 10$

$f_a = J_e / J_m$

- J_e (kgm^2) moment of reduced external inertia at the drive - shaft
- J_m (kgm^2) moment of inertia of motor If $f_a \leq 10$ call our Technical Service

A - Screw feeders for light materials, fans, assembly lines, conveyor belts for light materials, small mixers, lifts, cleaning machines, fillers, control machines.

B - Winding devices, woodworking machine feeders, goods lifts, balancers, threading machines, medium mixers, conveyor belts for heavy materials, winches, sliding doors, fertilizer scrapers, packing machines, concrete mixers, crane mechanisms, milling cutters, folding machines, gear pumps.

C - Mixers for heavy materials, shears, presses, centrifuges, rotating supports, winches and lifts for heavy materials, grinding lathes, stone mills, bucket elevators, drilling machines, hammer mills, cam presses, folding machines, turntables, tumbling barrels, vibrators, shredders.

주의사항 / Critical applications

NMRV-P	063	075	090	110
V5 : 1500 < n1 < 3000	B	B	B	B
n1 > 3000	B	B	A	A
V6	B	B	B	B

N	A31	HW + NMRV-P	030+063	030 + 075	040 + 090	040 + 110
V5 - V1 : 1500 < n1 < 3000	-	V5 : 1500 < n1 < 3000	B	B	B	B
n1 > 3000	B	n1 > 3000	A	A	A	A
V3 - V6	B	V3 - V6	B	B	B	B

NMRV	025	030	040	050	063	075	090	105	130	150
V5 : 1500 < n1 < 3000	-	-	-	-	-	B	B	B	B	B
n1 > 3000	B	B	B	B	B	A	A	A	A	A
V6	B	B	B	B	B	B	B	B	B	B

A | 권장하지 않는 적용 용도
Application not recommended

B | 사용시 재점검 필요 - 본사와 상의후 결정
Check the application and/or call our technical service

주의사항

KO

카탈로그에 명시된 성능은 취부위치가 B3 또는 이와 유사한 취부상태, 즉 1단기어가 완전히 오일에 잠기지 않은 경우에 해당한다. 다른 취부상태 및 특정한 입력 속도의 경우, 기어 감속기의 각 크기에 따른 상이한 한계상황을 강조한 도표를 참조하도록 한다. 또한 다음과 같은 상황에 적용되는 용도인지 여부를 확인한 후, 세밀한 평가를 위해서는 당사의 기술서비스 지원요청을 필요로 한다.

- 속도가 지속적으로 증가하는 경우
- 감속기 고장 시, 인명 피해가 초래될 수 있는 경우
- 높은 관성이 발생하는 상황에서 사용되는 경우
- 리프팅 원치로 사용되는 경우
- 감속기와 관련하여 높은 동적 변형이 발생하는 상황에서 사용되는 경우
- 주변온도가 -5°C 이하 또는 40°C를 초과하는 상태에서 설치되는 경우
- 화학적 부식 등 열악한 환경에서 사용되는 경우
- 카탈로그에 명시되지 않은 취부조건에 사용되는 경우
- 방사선 환경에서 사용되는 경우
- 대기압 이외의 압력 환경에서 사용되는 경우

감속기의 일부분이 어딘가에 잠기는 상황에서는 사용하지 않도록 하여야 한다. 감속기가 견딜 수 있는 최대 토크(*)는 성능 도표에 명시된 정격 토크(f.s.=1)의 2배를 넘지 않도록 하여야 한다.

S3에서의 가동과 더불어, 토크비(torque ratio)입력속도 및 사용 기간에 따라 전달 토크를 높일 수 있으며, 이러한 경우 당사의 기술 서비스 지원을 받도록 한다.

(*)순간 과부하는 최대부하(브레이크), 제동, 충격 또는 기타 원인, 특히 동태적 요인이 존재하는 상황에서 사용하는 경우를 예상할 수 있다.

Critical applications

UK

The performance given in the catalogue correspond to mounting position B3 or similar, ie. When the first stage is not entirely immersed in oil. For other mounting positions and / or particular input speeds, refer to the tables that highlight different critical situations for each size of gear reducer. It is also necessary to take due consideration of and carefully assess the following applications by calling our Technical Service:

- To avoid the use as multiplier.
- Use in services that could be hazardous for people if the gear reducer fails.
- Applications with especially high inertia.
- Use as a lifting winch.
- Applications with high dynamic strain on the case of the gear reducer.
- In places with T° under -5° C or over 40° C.
- Use in chemically aggressive environments.
- Use in a salty environment.
- Mounting positions not envisaged in the catalogue.
- Use in radioactive environments.
- Use in environments pressures other than atmospheric pressure.

Avoid applications where even partial immersion of the reducer is required. The maximum torque(*) that the reducer can support must not exceed two times the nominal torque (f.s.=1) stated in the performance tables.

With S3 service it is possible to increase transmitted torque according to ratio, input speed and application duration, in this case please contact our Technical service.

(*) intended for momentary overloads due to starting at full load, braking, shocks or other causes, particularly those that are dynamic.

설치

KO

기어 감속기를 설치할 경우, 다음과 같은 권장 사항에 유의하도록 한다.

- 장치를 기계에 장착하기 전에 기어감속기의 출력축회전 방향이 올바른지 확인한다.
- 특히 장기간 보관된 경우(4~6개월), 오일실 부위가 오일에 닿지않아 굳어있을 경우, 그러한 오일 실은 샤프트에 접촉되는 현상이 발생할 수 있으며, 심지어 적절한 작동에 요구되는 탄성을 잃었을 수 있으므로 교체하도록 한다.
- 가능하면, 직사광선 및 악천후로부터 피하여 설치하는 것이 좋다.
- 팬을 통과한 공기 흐름이 양호하도록 하여 모터 냉각이 제대로 이루어지도록 한다.
- 주변 온도가 -5°C 또는 $+40^{\circ}\text{C}$ 인 경우, 기술서비스 지원을 받도록 한다.
- 다양한 부품(풀리(pulley), 기어 휠, 커플링, 샤프트 등)은 장치의 베어링이나 외부 부품에 대한 파손 상황이 발생하지 않고 항상 정확하게 작동할 수 있도록 특수 나사형 구멍이나 기타 장치를 이용하여 솔리드축(solid shaft)이나 중공축(hollow shafts)상에 장착되어야 한다. 놀러붙음 현상이나 산화 현상을 방지하기 위하여 접촉 표면에 윤활유를 칠 하도록 한다.
- 어떠한 경우에도, 페인트 칠이 고무부품과 기어박스의 압력을 조정하여 기름 누유를 방지하는 에어벤트 플러그(breather plugs)상의 구멍을 침범하지 않도록 하여야 한다.
- 오일 플러그가 부착된 장치의 경우, 운송 기간 동안 사용된 밀폐 플러그는 에어벤트 플러그와 함께 교체하도록 한다.
- 제품에 유량계가 있다면(설치되어 있는 경우), 윤활유의 올바른 수준 여부를 점검하도록 한다.
- 시동은 즉시 최대 부하가 걸리지 않도록 서서히 진행한다.
- 구동장치 주변으로 부품이나 다른물체가 있다면 충격을 받을 우려가 있으며 약간의 누유로 인하여 모터가 손상을 받을수 있으므로 특별한 보호조치가 필요하다.

Installation

UK

To install the gear reducer it is necessary to note the following recommendations

- Check the correct direction of rotation of the gear reducer output shaft before fitting the unit to the machine.
- In the case of particularly lengthy periods of storage(4/6 months), if the oil seal is not immersed in the lubricant inside the unit, it is recommended to change it since the rubber could stick to the shaft or may even have lost the elasticity it needs to function properly.
- Whenever possible, protect the gear reducer against solar radiation and bad weather.
- Ensure the motor cools correctly by ensuring good passage of air from the fan side.
- In the case of ambient temperatures $<-5^{\circ}\text{C}> +40^{\circ}\text{C}$ call the Technical Service.
- The various parts (pulleys, gear wheels, couplings, shafts, etc.) must be mounted on the solid or hollow shafts using special threaded holes of other systems that anyhow ensure correct operation without risking damage to the bearings of external parts of the units. Lubricate the surfaces in contact to avoid seizure or oxidation.
- Painting must definitely not go over rubber parts and the holes on the breather plugs, if any.
- For units equipped with oil plugs, replace the closed plug used for shipping with the special breather plug.
- Check the correct level of the lubricant through the indicator, if there is one.
- Starting must take place gradually, without immediately applying the maximum load.
- When there are parts, objects or materials under the motor drive that can be damaged by even limited spillage of oil, special protection should be fitted.

Please note: in the event of a cover with adhesive label having to be replaced, you will have to stick a new label onto the new cover. Please contact Motovario and we can supply you with one.

레이디얼 하중

KO

허용 레이디얼 하중(N : radial load)의 값은 해당 기어 감속기의 성능을 표시한 도표에 명시되어 있다. 축단 하중은 샤프트 중심선 상에 적용되는 하중, 적용각의 심각한 부적합 조건, 회전 방향과 관계 된다.

최대 허용 축 하중은, 레이디얼 하중과 결합하여 적용되는 경우, 주어진 레이디얼 하중 값의 1/5로 한다.

출력 축과 관련된 도표는 최대허용치를 명시한 것이다. 이러한 최대허용치는 해당 경우의 해당 감속기의 케이스(하우징)강도를 절대 초과되는 상황이 발생하지 않도록 하여야 한다.

특별한 상황에서 레이디얼 하중은 카탈로그의 허용치 보다 높아질 수 있다. 이러한 경우, 당사의 기술서비스 부서에 지원을 요청하여, 그러한 적용 용도와 관련한 세부적인 자료를 제공받도록 한다. 특히 부하의 방향, 축 회전 방향, 적용 형태 등.

양 끝단에 적용되는 레이디얼 하중을 가진 더블 연장 축의 경우, 최대 허용 레이디얼 하중은 세부적인 가동 상황에 따라 정의되어야 하며, 이러한 경우에는 당사의 기술서비스를 지원받도록 한다.

샤프트 상의 레이디얼 하중은 아래 공식으로 산출한다.

$$F_{re} = \frac{2000 \cdot M \cdot f_z}{D} \leq F_{r1} \text{ o } F_{r2}$$

F_{re} (N) 레이디얼 하중 결과치

M (Nm) 샤프트 상의 토크(Torque)

D (mm) 샤프트 상에 장착된 폴리, 기어등의 직경

F_r (N) 최대 허용 레이디얼 하중 값

F_{r1} - F_{r2} (관련 도표 참조 요)

F_z = 1,1 기어 피니언

1,4 체인 휠

1,7 V - 폴리

2,5 평 폴리

레이디얼 하중의 결과 값이 샤프트의 중심선 상에서 적용되지 않는 경우, 허용 레이디얼 하중 F_{r1} - 2를 아래 공식에 따라 조정하도록 한다.

$$F_{rx} = \frac{F_{r1-2} \cdot a}{(b+x)}$$

a, b = 성능도표 6페이지에 명시된 값

x = 하중 적용점부터 샤프트의 축턱(shaft shoulder)까지의 거리

Overhung Load

UK

The value of the admissible radial load (N) is given in the tables relating to the performance of the gear reducer at issue. It is related to the load applied on the centre line of the shaft and in the most unfavourable conditions of angle of application and direction of rotation.

The maximum admissible axial loads are 1/5 of the value of the given radial load when they are applied in combination with the radial load.

The tables relating to the output shafts give the maximum admissible value. This value must never be exceeded since it relates to the strength for the case. Particular conditions of radial load higher than the limits of the catalogue may occur. In this case, call our Technical Service and provide details on the application: direction of the load, direction of rotation of the shaft, type of service.

In case of double extension shafts with radial load applied on both ends, the max. admissible radial loads must be defined according to the specific running conditions, in this case call our Technical Service.

The radial load on the shaft is calculated with the following formula:

$$F_{re} = \frac{2000 \cdot M \cdot f_z}{D} \leq F_{r1} \text{ o } F_{r2}$$

F_{re}(N) Resulting radial load

M(Nm) Torque on the shaft

D(mm) Diameter of the transmission member mounted on the shaft

F_r(N) Value of the maximum admitted radial load

F_{r1} - F_{r2} (see relative tables)

f_z = 1, 1 gear pinion

1, 4 chain wheel

1, 7 v-pulley

2, 5 flat pulley

When the resulting radial load is not applied on the centre line of the shaft, it is necessary to adjust the admissible radial load F_{r1-2} with the following formula:

$$F_{rx} = \frac{F_{r1-2} \cdot a}{(b+x)}$$

a, b = values given in the tables on page 6

X = distance from the point of application of the load to the shaft shoulder

입력 레이디얼 하중

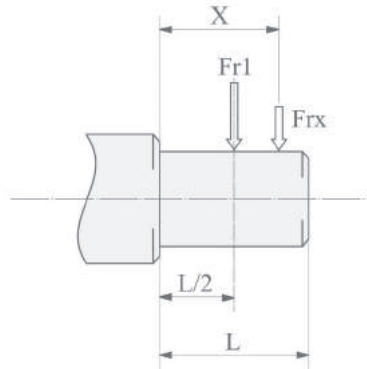
KO

입력 레이디얼 하중이 샤프트 중심선상에 있지 않을 경우, 입력 레이디얼 하중 Fr_1 은 아래 공식에 따라 조정하도록 한다.

Input radial loads

UK

When the radial load is not on the centre line of the shaft, it is necessary to adjust the admissible radial load Fr_1 with the following formula:



$$Fr_x = \frac{Fr_1 \cdot a}{(b + x)}$$

NRV-P	063	075	090	110
a	139	192	227	266
b	139	167	202	236
Fr1 max (**)	700	980	1270	1700

(** Fr_1) 감속기의 입력 레이디얼 하중의 최대 허용치는, 성능 도표의 최대 허용치와 대조하도록 한다.
(** Fr_1) Max. admissible value of the reducer; verify max. admissible value on performances tables.

NRV	030	040	050	063	075	090	105	130	150
a	86	106	129	159	192	227	266	317	350
b	76	94.5	114	139	167	202	236	274	310
Fr1 max (**)	210	350	490	700	980	1270	1700	2100	2800

IHW040	090	110
a	71	
b	51	
Fr1 max (**)	400	500

출력 레이디얼 하중

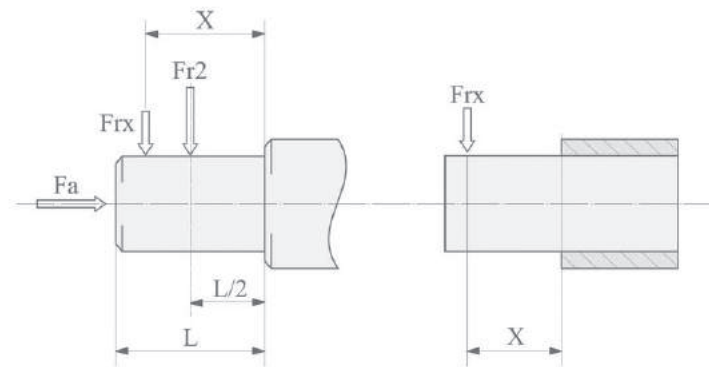
KO

출력 레이디얼 하중이 샤프트 중심선상에 있지 않을 경우, 출력 레이디얼 하중 Fr_2 는 아래 공식에 따라 조정하도록 한다.

Output radial loads

UK

When the radial load is not on the centre line of the shaft, it is necessary to adjust the admissible radial load Fr_2 with the following formula:



$$Fr_x = \frac{Fr_2 \cdot a}{(b + x)}$$

(** Fr_2) 감속기의 최대 허용치는 성능 도표 상에서 최대 허용치를 확인하도록 한다.
(** Fr_2) Max. admissible value of the reducer; verify max. admissible value on performances tables.

NMRV-P	063	075	090	110
a	120	131	162	176
b	95	101	122	136
Fr1 max (**)	6270	7380	8180	10320

NMRV	025	030	040	050	063	075	090	105	130	150
a	50	65	84	101	120	131	162	176	188	215
b	38	50	64	76	95	101	122	136	148	174
Fr2 max (**)	1350	1830	3490	4840	6270	7380	8180	10320	13500	18000

관성모멘트 / Moments of inertia

NMRV-P	J * 1E - 4 (kg * m2)
063	2.2
075	4.4
090	8.2
110	19.9

H	J * 1E - 4 (kg * m2)
A31	1.0

NMRV	J * 1E - 4 (kg * m2)
025	0.03
030	0.10
040	0.3
050	0.8
063	1.8
075	3.3
090	5.4
105	14.0
130	22.5
150	52.9

관성모멘트

KO

위의 값은 단지 예시적인 목적에 따라 제시한 것으로, 입력 PAM에 맞춘 기어 감속기에 적용한 경우이다. 이러한 값들은 최대 관성 모멘트 값을 참조하도록 한다.

Moments of inertia

UK

Following values are indicative only and refer to gear reducers fitted with input PAM. These values refer to maximum moment of inertia.

윤활방법 / Lubrication

NMRV-P	063			075			090		110	
B3	0.33			0.55			1		1.6	
B8										
B6 - B7										
V5										
V6										
H	A31									
B3	0.06									
HW	030						040			
	063		075		090		110			
B3	0.06		0.09		0.11		0.12			
NMRV	025	030	040	050	063	075	090	105	130	150
B3	0.02	0.04	0.08	0.15	0.3	0.55	1	1.6	4.5	7
B8									3.3	5.1
B6 - B7									3.5	5.4
V5									4.5	7
V6									3.3	5.1

· 리터 단위의 오일량 · Quantity of oil in litres ~

윤활방법

KO

윤활유 공급량은 단지 예시적인 목적으로 제시된 것에 불과하다. 정확한 윤활유 공급을 위하여, 항상 유량계나 계량봉을 활용하도록 한다.(설치/제공된 경우). 모든 경우의 오일 수준의 차이는 시공 오차에 의하여 발생될 수 있지만, 장착위치나 고객의 조립 방식에 따라 달라질 수 있다. 따라서 고객사에서 오일 수준을 점검하여, 필요한 경우, 필요한 양을 보충하도록 하는 것은 매우 중요하다.

사이즈가 025 - 030 - 040 - 050 - 063 - 075 - 090 - 110인 감속기는 윤활유로서 제품 수명기간 동안 사용이 가능한 합성오일인 AGIP TELIUM VSF를 주입하여 공급된다. 감속기는 카달로그에 명시된 모든 위치에 장착이 가능하지만, NMRV 090 - 110와 NRV 075 - 090 - 110의 경우, 고객사에서 취부형태를 명시하여 통지하여야 한다. 사이즈가 130 및 150인 감속기는 윤활유로서 미네랄 오일이 AGIP BLASIA 460을 주입하여 공급된다. 사이즈가 130 및 150인 감속기의 경우, 고객사에서 취부형태를 명시하여 통지하여야 하며, 그렇지 않을 경우, 감속기는 취부형태 B3의 오일량을 주입하여 공급된다.

사이즈가 130 및 150인 경우 에어벤트 캡, 오일 레벨창 그리고 오일 배유구가 함께 공급된다. 설치 후, 감속기와 함께 공급된 에어벤트 캡은 운송 과정에서 사용된 밀봉 마개와 교체하도록 한다.

Pre-stage 헬리컬 모듈(Helical modules)은 제품 수명기간 동안 사용이 가능한 윤활유로서 합성 오일인 AGIP TELIUM VSF를 주입하여 공급된다. 윤활 방식은 웜 감속기의 윤활방식과는 구별된다.

주변 온도가 도표에 명시되어 있지 않은 경우, 관련 자료는 본사와 상의하도록 한다. 주변 온도가 -30°C 이하이거나, 60°C 를 초과하는 경우, 특수 재질의 오일 실을 사용할 필요가 있다.

주변 온도가 0°C 이하인 경우의 작동범위와 관련하여, 다음 사항들을 고려할 필요가 있다.

1. 모터는 반영된 주변 온도 하에서 작동하기에 적합하여야 한다.
2. 모터의 동력은 높은 시동토크가 요구되는 경우에도 사용할 수 있어야 한다.
3. 주철 형태의 감속기인 경우, 주철은 -15°C 이하에서 깨질 우려가 있으므로 충격 하중에 유의하도록 한다.
4. 가동 초기 단계 동안, 높은 수준의 오일 점성으로 인하여 윤활문제가 발생될 수 있으므로, 부하를 걸지 않고 몇 분 동안 공회전 하도록 한다.

오일은 약 10,000시간 정도 가동한 후 교체하도록 한다. 오일 교체 조건은 가동 형태와 감속기의 작동 환경에 따라 달라진다. 오일 플러그를 장착하지 않은 장치인 경우, 윤활 상태는 영구적이므로, 오일교체를 요하지 않는다.

Lubrication

UK

Lubricant quantities are only indicative. For correct filling always refer to the sight glass or the dipstick, when this is supplied. Any oil level differences can be caused by constructive tolerances but also on the mounting position or the assembly scheme of the customer. Therefore it is very important for the customer to check oil level and if necessary to add the necessary quantity.

The gear reducers size 030 - 040 - 050 - 063 - 075 - 090 - 110 are supplied complete with lubricant for life, synthetic oil, AGIP TELIUM VSF. They can be mounted in any position envisaged in the catalogue, except for NMRV 090 - 110 and NRV 075 - 090 - 110 for which you must specify the mounting position. The gear reducers size 130 and 150 are supplied complete with lubricant, mineral oil, AGIP BLASIA 460.

For sizes 130 and 150 it is necessary to specify the position, otherwise the gear reducers are supplied with the quantity of oil relating to pos. B3.

Only reduction units 130 and 150 are fitted with breather, level and oil drainage plugs. It is necessary, after installation, to replace the closed plug used for transportation with the breather plug supplied with the unit.

The pre-stage helical modules are supplied complete with life-long lubricant, synthetic oil, AGIP TELIUM VSF. Lubrication is separated from that of the worm gear reducers.

In cases of ambient temperatures not envisaged in the table, call our Technical Service. In the case of temperatures under -30°C or over 60°C it is necessary to use oil seals with special properties.

For operating ranges with temperatures under 0°C it is necessary to consider the following:

1. The motors need to be suitable for operation at the envisaged ambient temperature.
2. The power of the electric motor needs to be adequate for exceeding the higher starting torques required.
3. In case of cast-iron gear reducers, pay attention to impact loads since cast iron may have problems of fragility at temperatures under -15°C.
4. During the early stages of service, problems of lubrication may arise due to the high level of viscosity taken on by the oil and so it is wise to have a few minutes of rotation under no load.

The oil needs to be changed after approximately 10,000 hours. This period depends on the type of service and the environment where the gear reducer works. For unit supplied without oil plugs, lubrication is permanent and so they need no servicing.

윤활방법 / Lubrication

	*T °C ISO/SAE	ENI	SHELL	ESSO	MOBIL	CASTROL	BP	
HA31	(-5) ÷ (+40) ISO VG220	BLASIA 220	OMALA OIL220	SPARTAN EP220	MOBILGEAR 600 XP220	ALPHA MAX 220	ENERGOL GR-XP220	Mineral oil
NMRV 025 ÷ 150 NMRV-P 063 ÷ 110 HW 030 ÷ 040	(-25) ÷ (+50) ISO VG320	TELJUM VSF320	TIVELA OIL S320	-	SHC 632	ALPHASYN PG320	ENERGOL SG-XP320	Synthetic oil

- 규격(품)공급
- standard supply

- Motovario S.p.A.에서 권장하는 윤활유 공급
- Specifications of lubricants recommended by Motovario S.p.A.

* 작업환경 온도
* Working ambient temperature

특별한 윤활유 / Special lubricants

		*T °C ISO VG...	합성유 / Synthetic oil
저온용 오일 Oils for low temperature	ENI	(-25) ÷ (+20)	BLASIA 150 S(ISO VG150)
	KLUBER	(-35) ÷ (+10)	KLUBERSYNTH GH 6-80(ISO VG68)
	MOBIL	(-40) ÷ (+5)	SCH 626(ISO VG68)
	KLUBER	(-40) ÷ (+5)	KLUBERSYNTH GH 6-32(ISO VG32)
저온용 오일 - 식품분야 Oils for low temperature - Food sector	KLUBER	(-30) ÷ (+10)	KLUBERSYNTH UH 1-6 100(ISO VG100)
고온용 오일 Oils for high temperature	KLUBER	(-10) ÷ (+50)	KLUBERSYNTH GH 6-460(ISO VG460)
	KLUBER	(-10) ÷ (+70)	KLUBERSYNTH GH 6-680(ISO VG680)
고온용 오일 - 식품분야 Oils for high temperature - Food sector	KLUBER	(-10) ÷ (+50)	KLUBERSYNTH UH 1-6 460(ISO VG460)
식품분야 Food sector	KLUBER	(-15) ÷ (+40)	KLUBERSYNTH UH 1-6 320(ISO VG320)

- 만약 특별한 윤활유가 필요하면 기술서비스 지원을 요청한다.
- If 'special' lubricant is required please contact for Technical Assistance

디자인 특성

KO

Motovario사의 제품은 다음과 같은 표면 처리 특성을 구현하여 공급된다.

다이캐스트 알루미늄 알로이 케이스

다이캐스팅 재질은 아래와 같은 표면 세척 공정을 거친다.

- 기계적 세팅시스템에 의한 귀따기(De-burring)공정
- 정교한 샷 피닝(shot-peening)
- 도장 공정
- 세광 및 표담처리(passivation)공정

회주철(Grey-Coloured Cast-iron)케이스

- 다이캐스팅 제품은 항상 도장공정을 거친후 출고됨.

N.B : 가장 작은 웜 사이즈 NMRV025는 도색 되지 않는다.

도장규격 :

오렌지 계통(Orange-peel)의 푸른 에폭시-폴리에스터 RAL 5010.

사용재료 :

열처리 파우더를 재질에 기초하여, 폴리에스터 레진, 에폭시 레진.

기계적 특성

- 검사는 다음 규격들과 부합하는 탈지된 Unichim 백색 황동합금판(막 두께 : 60 마이크론)상에서 수행 : 접착(adherence - ISO2409), 에릭슨 가공(Erichsen drawing - ISO152), 역전 충격(inverted shock - DIN53158), 원추형 굴대(cone-shaped mandrel - DIN53151), 경화(hardness - ASTM D3363 / 74)

내열성 :

- 150°C에서 24시간 작업

부식강도 :

ASTM B 117/97 염무 기준을 적용하여 100시간 에서 500시간(해당 지지부에 대한 전처리 공정에 따라 차이가 있음).

성능 :

UNI 8862, DIN3990, AFNOR 23-015, ISO 6336, BS721, DIN743, ISO28과 부합하는 부하 내하력>Loading capacity)

Design features

UK

Motovario products are supplied with the following surface treatment features:

Die-cast aluminium alloy cases for gears

Die-cast materials undergo the following surface cleaning operations:

- Die-burring by means of a mechanically operated shearing system
- Accurate shot-peening. - Painting
- Washing and passivation

Grey-coloured cast-iron cases for gears

- Die-cast materials are always painted

Painting specifications:

Orange-peel blue epoxy-polyester RAL 5010. Polyester resin based heat-hardening powders, altered with epoxy resins.

Machanical properties

- Tests carried out onto degreased Unichim white lattens(film thickness:60microns)comply with the followingspecifications:adherence (ISO2409), Erichsen drawing(ISO152), inverted shock(DIN53158), cone-shaped mandrel(DIN53151), hardness(ASTM D3363/74).

Heat resistance

- 24 HOURSAT 150° C

Corrosion strength

- ASTM B 117/97 salt fog from 100 to 500 hours depending on the support's preliminary treatment.

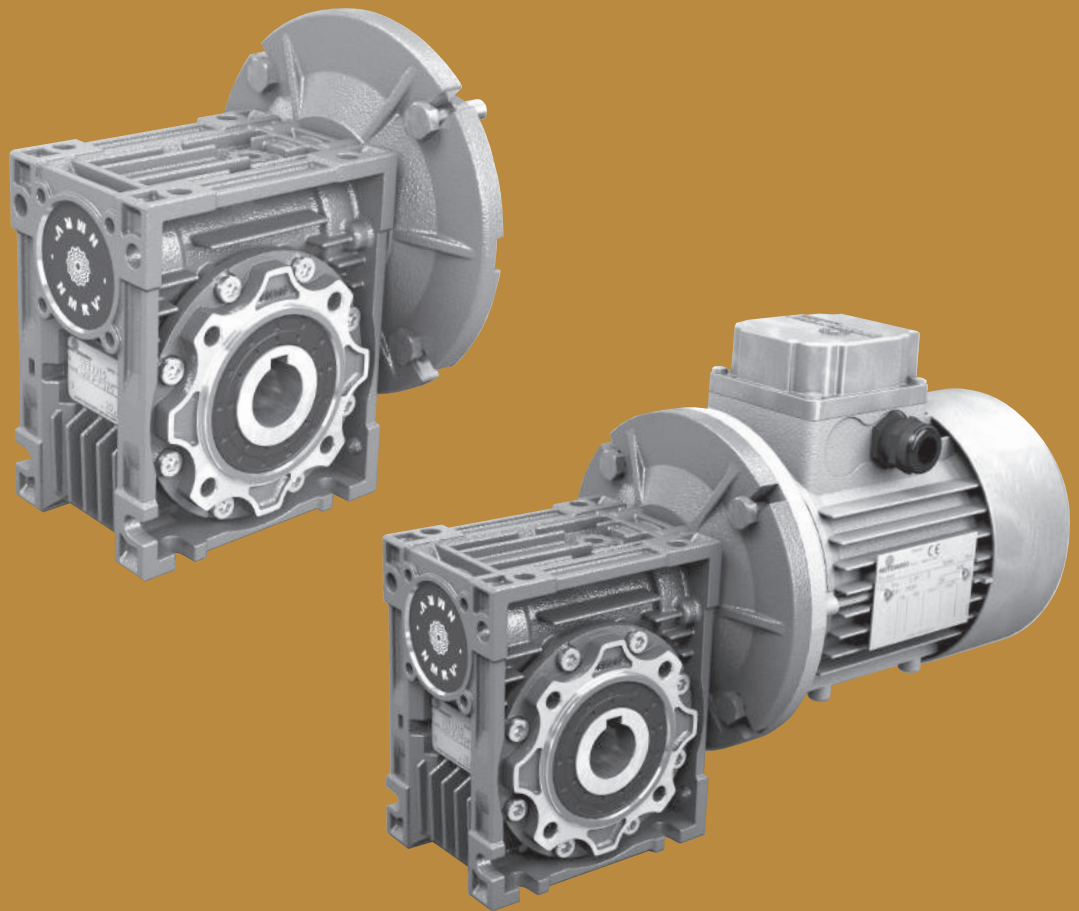
Performance:

Loading capacity in accordance with UNI 8862, DIN 3990, AFNOR E 23-015, ISO 6336, BS 721, DIN 743, ISO 28

NMRV

웜 기어드 모터

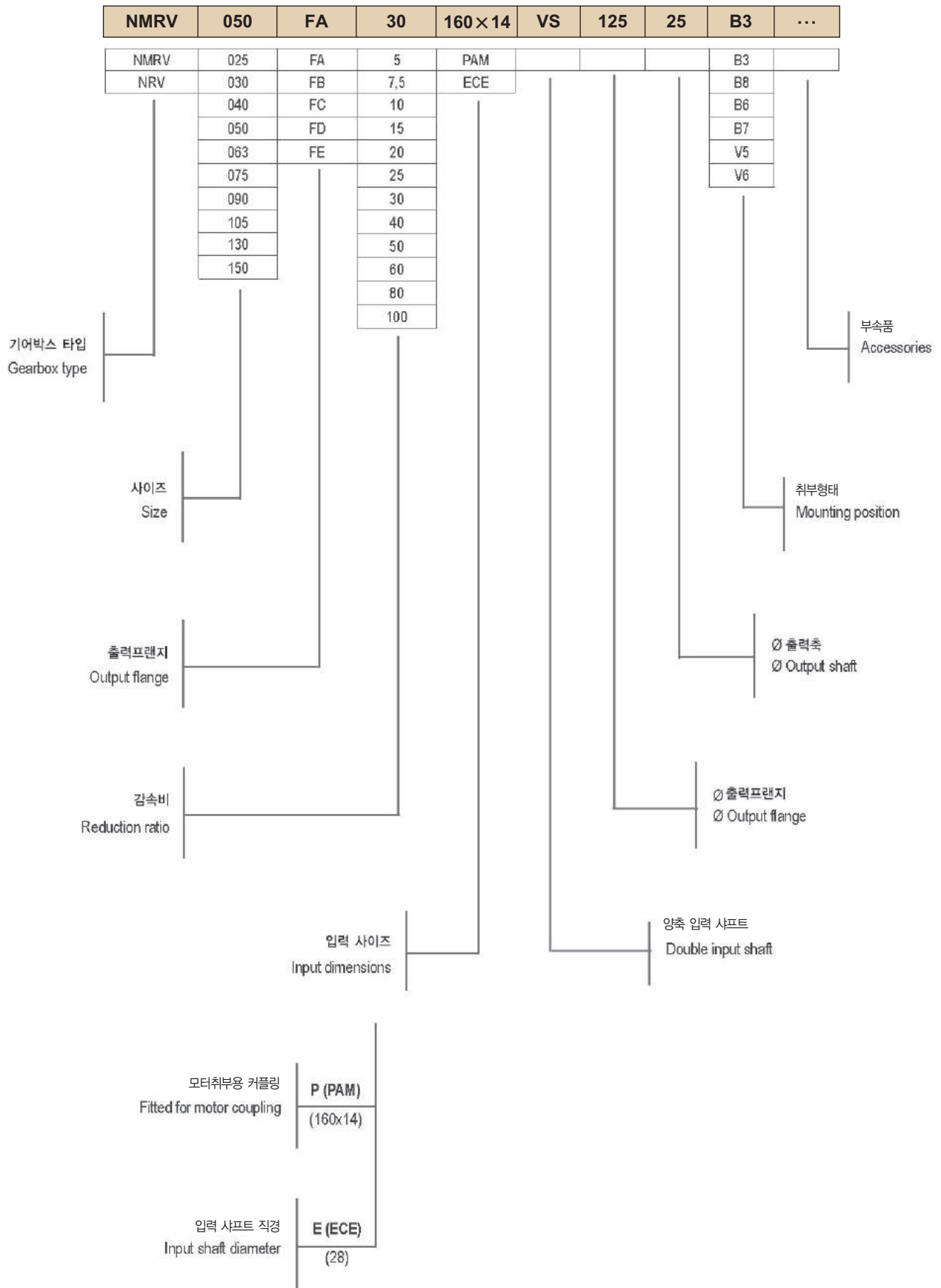
Worm geared motors



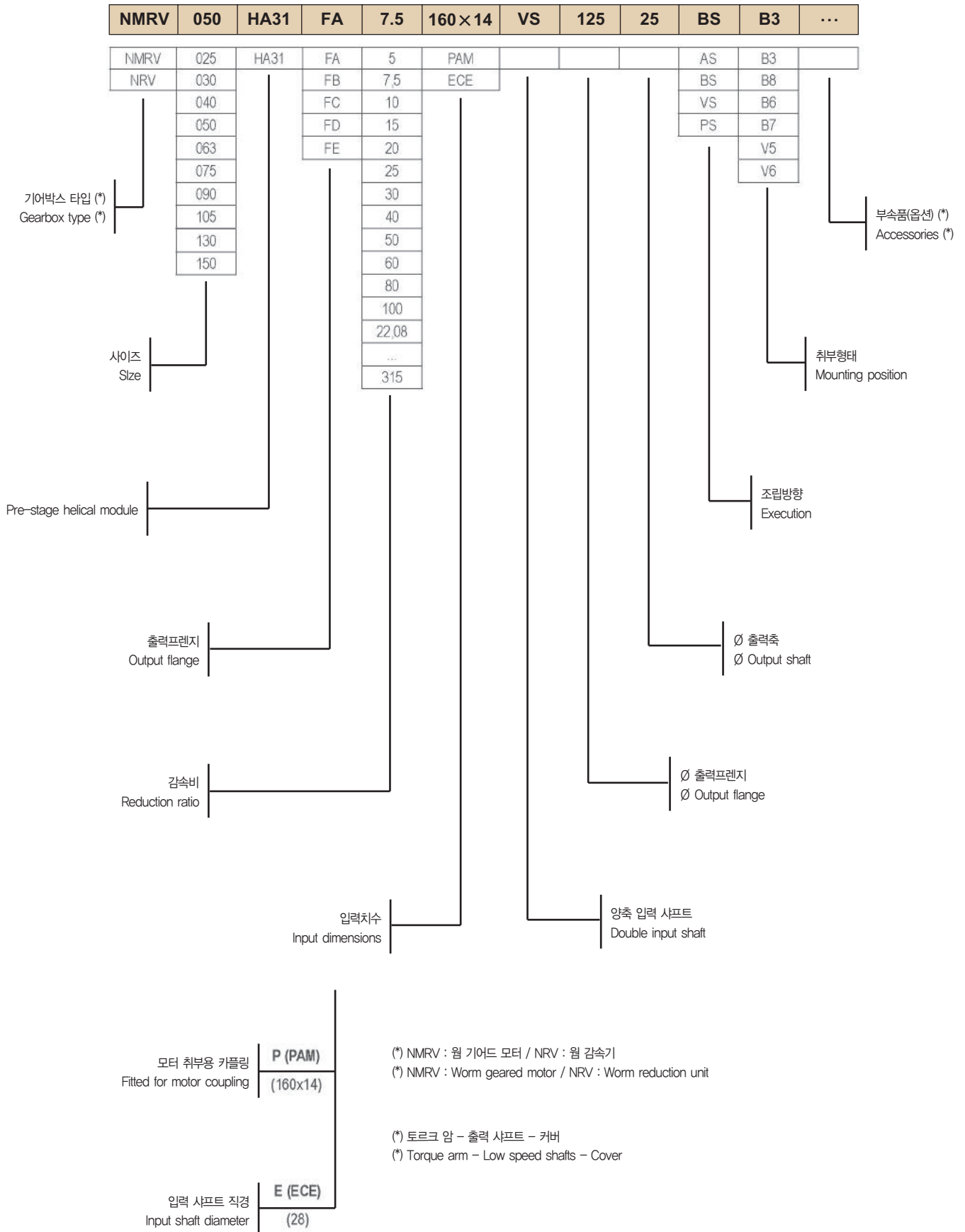
MOTOVARIO®

HEART OF MOTION

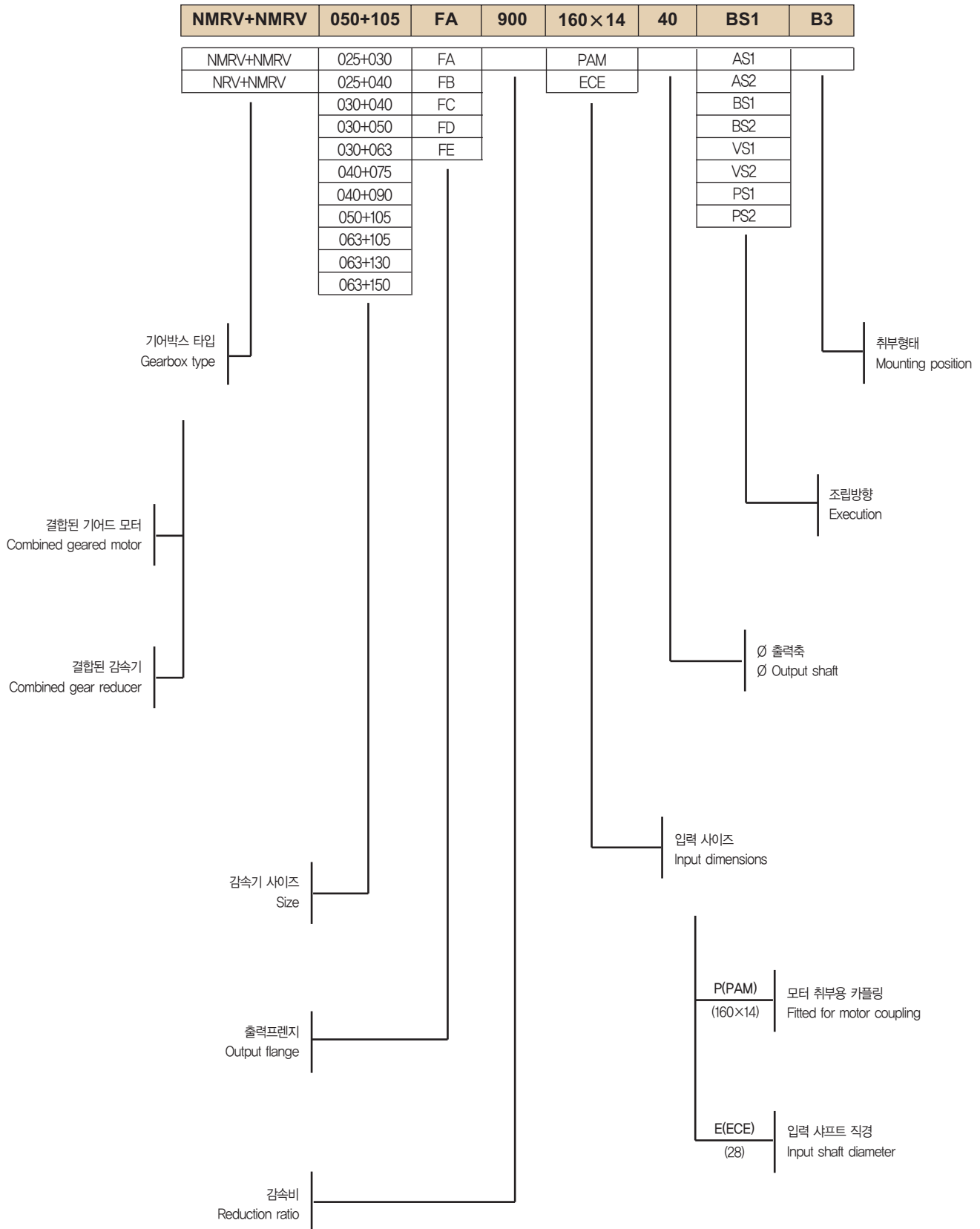
명칭 / Designation



명칭 / Designation

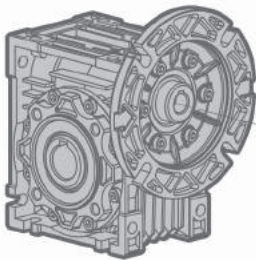


명칭 / Designation



NMRV 모듈방식 / NMRV-Modularity

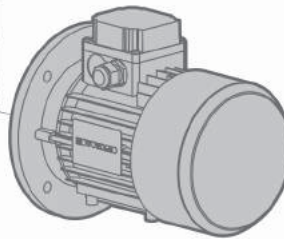
NMRV 025-150



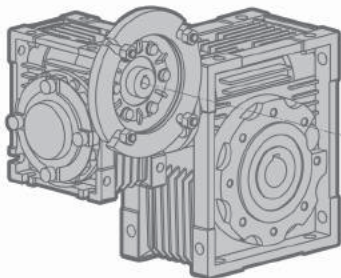
HA31

HA31 - Pre-stage 감속기(NMRV 040-050)
- Pre-stage reduction unit(NMRV 040-050)

NMRV 025-150 - 웜 기어드 모터
- Worm geared motor

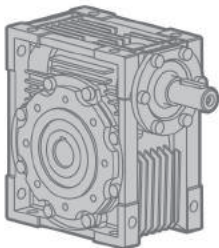


NMRV-NMRV...



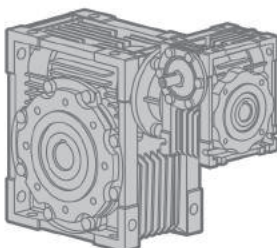
NMRV... - NMRV... - 더블 웜 기어드 모터
- Combined worm geared motor

NRV 030-150



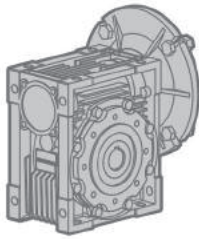
NRV 030-150 - 웜 기어 감속기
- Worm gear reducer

NRV-NMRV...

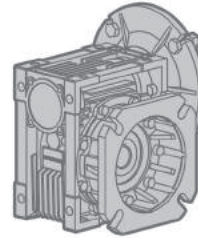


NRV... - NMRV... - 더블 웜 기어 감속기
- Combined worm gear reducer

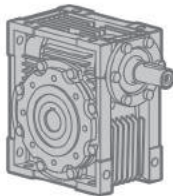
버전 / Versions



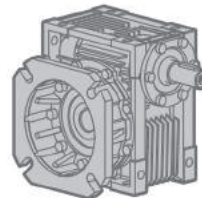
NMRV 025-150



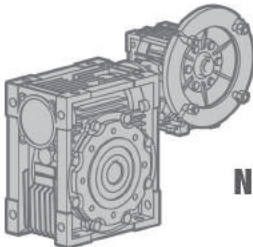
NMRV 025-150 F



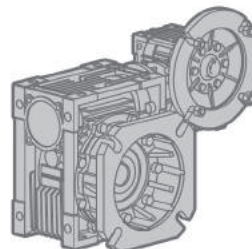
NRV 030-150



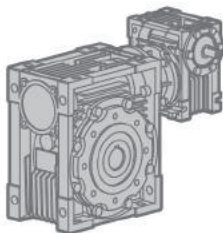
NRV 030-150 F



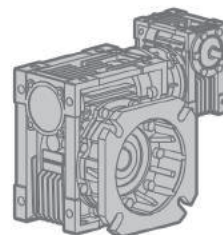
NMRV-NMRV...



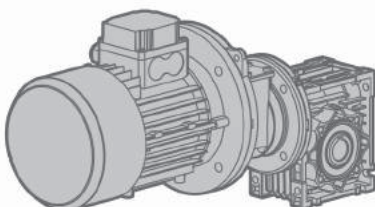
NMRV-NMRV... F



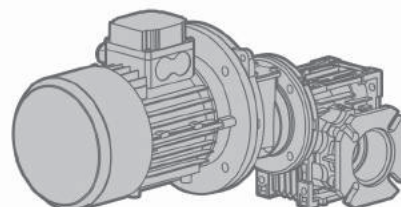
NRV-NMRV...



NRV-NMRV... F



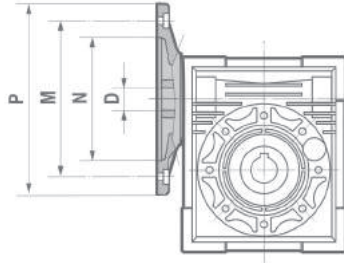
HA31+NMRV...



HA31+NMRV... F

비율에 따른 분류 / Predisposition

(*) Low profile key는 모토바리오에서 공급함.
(*) Low profile key supplied by Motovario



NMRV	PAM IEC	N	M	P	D											
					5	7.5	10	15	20	25	30	40	50	60	80	100
025	56B14	50	65	80	9	9	9	9	9	-	9	9	9	9	-	-
030	63B5	95	115	140	11	11	11	11	11	11	11	11	11	-	-	-
	63B14	60	75	90												
	56B5	80	100	120	9	9	9	9	9	9	9	9	9	9	9	-
	56B14	50	65	80												
040	71B5	110	130	160	14	14	14	14	14	14	14	14	-	-	-	-
	71B14	70	85	105												
	63B5	95	115	140	11	11	11	11	11	11	11	11	11	11	11	11
	63B14	60	75	90												
	56B5	80	100	120	-	-	-	-	-	-	-	-	9	9	9	9
050	80B5	130	165	200	19	19	19	19	19	19	19	-	-	-	-	-
	80B14	80	100	120												
	71B5	110	130	160	14	14	14	14	14	14	14	14	14	14	14	-
	71B14	70	85	105												
	63B5	95	115	140	-	-	-	-	-	-	-	11	11	11	11	11
063	90B5	130	165	200	-	24	24	24	24	24	24	-	-	-	-	-
	90B14	95	115	140												
	80B5	130	165	200	-	19	19	19	19	19	19	19	19	19	-	-
	80B14	80	100	120												
	71B5	110	130	160	-	-	-	-	-	-	-	14	14	14	14	14
	71B14	70	85	105												
075	100/112B5	180	215	250	-	28	28	28	-	-	-	-	-	-	-	-
	100/1121B4	110	130	160												
	90B5	130	165	200	-	24	24	24	24	24	24	24	-	-	-	-
	90B14	95	115	140												
	80B5	130	165	200	-	-	-	-	19	19	19	19	19	19	19	19
	80B14	80	100	120												
	71B5	110	130	160	-	-	-	-	-	-	-	-	14	14	14	14
090	100/112B5	180	215	250	-	28	28	28	28	28	28	-	-	-	-	-
	100/112B14	110	130	160												
	90B5	130	165	200	-	24	24	24	24	24	24	24	24	24	-	-
	90B14	95	115	140												
	80B5	130	165	200	-	-	-	-	-	-	-	19	19	19	19	19
	80B14	80	100	120												
105	132B5	230	265	300	-	38*	38*	38*	38*	-	-	-	-	-	-	-
	100/112B5	180	215	250	-	28	28	28	28	28	28	28	28	28	-	-
	90B5	130	165	200	-	-	-	-	-	24	24	24	24	24	24	24
	80B5	130	165	200	-	-	-	-	-	-	-	-	-	-	19	19
130	132B5	230	265	300	-	38*	38*	38*	38*	38*	38*	38*	-	-	-	-
	100/112B5	180	215	250	-	-	-	-	-	28	28	28	28	28	28	28
	90B5	130	165	200	-	-	-	-	-	-	-	-	-	-	24	24
150	160B5	250	300	350	-	42	42	42	42	42	-	-	-	-	-	-
	132B5	230	265	300	-	-	-	-	38	38	38	38	38	38	-	-
	100/112B5	180	215	250	-	-	-	-	-	-	-	-	28	28	28	28

효율

KO

효율은 특정한 용도와 관련한 사이즈를 결정하는 것에 결정적 영향을 미치는 변수이며, 기본적으로 기어들의 설계적 요소에 결정된다. 20페이지에 제시한 메시 데이터 도표(Mesh Data Table)에는 동적(역학적) 효율성(Dynamic efficiency)의 값($\eta_1=1400$)과 정적 효율(static efficiency)의 값을 명시한다. 이러한 값들은 가동 후 입수하게 된다는 점에 유의하여야 한다.

동적 비역회전(Dynamic Irreversibility)

동적 비역회전(철회 불가능성)은 웜 샤프트를 통하여 더 이상 전달되는 동력이 없어, 출력 축이 즉시 중지하게 되는 경우에 달성된다. 이러한 상황은 $\eta_d < 0.5$ 의 동적 효율성을 필요로 한다.(20페이지 도표 참조)

정적 비역회전(Static Irreversibility)

정적 비역회전(철회 불가능성), 감속기가 정지된 상태에서 출력 축에 대한 부하 적용이 동작중인 웜 샤프트에 대하여 설정되어 있지 않은 경우에 달성된다. 이러한 상황은 $\eta_s < 0.5$ 의 정적 효율성 필요로 한다.
(20페이지 도표 참조)

참조 : 진동과 충격은 기어 감속기의 비역회전에 영향을 미칠 수 있다.

Efficiency

UK

Efficiency is a parameter which has a major influence on the sizing of certain applications, and basically depends on gear pair design elements. The mesh data table on page 20 shows dynamic efficiency($\eta_1=1400$) and static efficiency values. Remember that these values are only achieved after the unit has been run in.

Dynamic irreversibility

Dynamic irreversibility is achieved when the output shaft stops instantly when drive is no longer transmitted through the worm shaft. This condition requires a dynamic efficiency of $\eta_d < 0.5$ (see table on page 20).

Static irreversibility

Static irreversibility is achieved when, with the gear reducer at a standstill, the application of a load to the output shaft does not set in motion the worm shaft. This condition requires a static efficiency of $\eta_s < 0.5$ (see table on page 20).

N.B.: Vibrations and shocks can affect a gear reducer's irreversibility.

비역회전 / Irreversibility

η_d	동적 비역회전	DYNAMIC IRREVERSIBILITY
>0.6	동적역회전	dynamic reversibility
$0.5 \div 0.6$	낮은 동적역회전	low dynamic reversibility
$0.4 \div 0.5$	낮은 동적비역회전	good dynamic irreversibility
<0.4	동적 비역회전	dynamic irreversibility

η_d	정적 비역회전	STATIC IRREVERSIBILITY
>0.55	정적역회전	static reversibility
$0.5 \div 0.55$	낮은 정적역회전	low static reversibility
<0.5	정적 비역회전	static irreversibility

- 도표는 개략적인 비역회전 등급(Irreversibility Classes)을 제시한 것이다.
- The table shows approximate irreversibility classes.
- 결속된 기어 감속기의 비역회전 상황은 가장 효율이 낮은 감속기에 의하여 주어진다.
- The irreversibility condition of combined gear reducers is given by the units with the lowest efficiency.

회전력의 방향 / Direction of rotation



NMRV-NRV

NMRV+NMRV - NRV+NMRV

- 나선(Helix)은 오른나사(right-handed)로 되어 있다.
- The helix is right-handed.

메쉬데이터 도표 / Mesh data

NRV	I	5	7.5	10	15	20	25	30	40	50	60	80	100
025	Z1	6	4	3	2	2		1	1	1	1		
	Y	35° 02'	25° 03'	19° 19'	13° 09'	10° 41'		6° 40'	5° 23'	4° 31'	3° 53'		
	Mx	1.3	1.3	1.3	1.3	0.995		1.3	0.995	0.8	0.67		
	$\eta d(1400)$	0.87	0.85	0.83	0.79	0.75		0.67	0.62	0.58	0.55		
	ηS	0.72	0.71	0.68	0.61	0.56		0.46	0.41	0.36	0.34		
030	Z1	6	4	3	2	2	1	1	1	1	1	1	
	Y	27° 04'	18° 49'	14° 20'	9° 40'	7° 42'	5° 35'	4° 52'	3° 52'	3° 12'	2° 45'	2° 07'	
	Mx	1.44	1.44	1.44	1.44	1.09	1.7	1.44	1.09	0.89	0.74	0.56	
	$\eta d(1400)$	0.87	0.85	0.83	0.78	0.74	0.69	0.66	0.6	0.56	0.52	0.45	
	ηS	0.72	0.67	0.63	0.55	0.5	0.43	0.39	0.35	0.31	0.27	0.23	
040	Z1	6	4	3	2	2	2	1	1	1	1	1	1
	Y	34° 19'	24° 28'	18° 51'	12° 49'	10° 23'	8° 43'	6° 29'	5° 14'	4° 23'	3° 47'	2° 57'	2° 25'
	Mx	2.06	2.06	2.06	2.06	1.57	1.27	2.06	1.57	1.27	1.06	0.81	0.65
	$\eta d(1400)$	0.89	0.87	0.85	0.83	0.79	0.76	0.71	0.66	0.63	0.59	0.53	0.48
	ηS	0.74	0.71	0.67	0.6	0.55	0.51	0.45	0.4	0.36	0.32	0.28	0.24
050	Z1	6	4	3	2	2	2	1	1	1	1	1	1
	Y	33° 37'	23° 54'	18° 23'	12° 30'	10° 06'	8° 29'	6° 19'	5° 06'	4° 16'	3° 40'	2° 52'	2° 21'
	Mx	2.56	2.56	2.56	2.56	1.95	1.58	2.56	1.95	1.58	1.32	1	0.8
	$\eta d(1400)$	0.89	0.88	0.87	0.83	0.8	0.77	0.73	0.68	0.64	0.6	0.54	0.5
	ηS	0.74	0.7	0.66	0.59	0.55	0.51	0.44	0.39	0.35	0.32	0.27	0.23
063	Z1		4	3	2	2	2	1	1	1	1	1	1
	Y		24° 31'	18° 53'	12° 51'	10° 25'	8° 45'	6° 30'	5° 15'	4° 24'	3° 47'	2° 58'	2° 26'
	Mx		3.25	3.25	3.25	2.48	2	3.25	2.48	2	1.68	1.27	1.02
	$\eta d(1400)$		0.89	0.87	0.84	0.82	0.79	0.75	0.71	0.67	0.63	0.58	0.52
	ηS		0.71	0.67	0.6	0.55	0.51	0.45	0.4	0.36	0.33	0.28	0.24
075	Z1		4	3	2	2	2	1	1	1	1	1	1
	Y		26° 17'	20° 20'	13° 52'	11° 18'	9° 32'	7° 02'	5° 42'	4° 48'	4° 08'	3° 14'	2° 40'
	Mx		3.94	3.94	3.94	3	2.42	3.94	3	2.42	2.03	1.54	1.24
	$\eta d(1400)$		0.89	0.88	0.86	0.83	0.81	0.77	0.73	0.7	0.66	0.61	0.56
	ηS		0.71	0.68	0.61	0.57	0.53	0.46	0.42	0.38	0.35	0.29	0.26
090	Z1		4	3	2	2	2	1	1	1	1	1	1
	Y		29° 11'	22° 44'	15° 36'	12° 50'	10° 54'	7° 57'	6° 30'	5° 30'	4° 46'	3° 45'	3° 06'
	Mx		4.84	4.84	4.84	3.69	2.98	4.84	3.69	2.98	2.5	1.89	1.52
	$\eta d(1400)$		0.9	0.89	0.87	0.85	0.83	0.79	0.76	0.73	0.7	0.64	0.6
	ηS		0.73	0.7	0.64	0.6	0.56	0.49	0.45	0.41	0.38	0.32	0.28
105	Z1		4	3	2	2	2	1	1	1	1	1	1
	Y		28° 15'	21° 57'	15° 02'	14° 41'	12° 34'	7° 39'	7° 28'	6° 22'	5° 32'	4° 24'	3° 39'
	Mx		5.875	5.875	5.875	4.62	3.73	5.875	4.62	3.73	3.13	2.37	1.91
	$\eta d(1400)$		0.9	0.89	0.87	0.86	0.85	0.8	0.79	0.76	0.73	0.68	0.64
	ηS		0.72	0.69	0.63	0.62	0.59	0.48	0.48	0.44	0.41	0.36	0.32
130	Z1		4	3	2	2	2	1	1	1	1	1	1
	Y		28° 41'	22° 19'	15° 18'	13° 52'	11° 49'	7° 47'	7° 02'	5° 58'	5° 11'	4° 07'	3° 24'
	Mx		6.97	6.97	6.97	5.4	4.37	6.97	5.4	4.37	3.67	2.77	2.23
	$\eta d(1400)$		0.91	0.89	0.87	0.87	0.85	0.81	0.79	0.76	0.73	0.69	0.65
	ηS		0.72	0.69	0.63	0.61	0.58	0.49	0.46	0.43	0.39	0.34	0.3
150	Z1		6	4	3	2	2	2	1	1	1	1	1
	Y		32° 09'	24° 35'	17° 27'	12° 53'	11° 19'	9° 50'	6° 32'	5° 43'	4° 57'	3° 55'	3° 14'
	Mx		5.5	6.155	5.5	6.155	5	4.193	6.155	5	4.193	3.17	2.55
	$\eta d(1400)$		0.91	0.9	0.88	0.87	0.85	0.84	0.79	0.77	0.74	0.69	0.65
	ηS		0.73	0.71	0.66	0.6	0.57	0.54	0.45	0.42	0.39	0.33	0.29

디자인 특성 HA31

KO

HA31은 1단 헬리컬 기어 감속기로 NMRV040과 NMRV050에
Ø140플렌지로 결합하여 중간(pre-stage)감속기로 사용 할 수 있다.

재질(Materials)

열경화 처리를 하고 연마된 기어들 20MnCrS(UNI7846)

Design Features

UK

HA31 is the single stage helical gear reducer available
as pre-stage for the worm gear boxes NMRV040
and NMRV050 coupled with Ø140 flange.

Materials

Gears 20MnCr5 (UNI7846) hardened and tempered
with shaved profile.

HA31+NMRV – Predisposition

HA31 i_1	NMRV 040 i_2	$i_1 \times i_2$	63	71	80
2.94	7.5	22,08	B5	B5	B5
4.75	5	23,75	B5	B5	B5
5.10	5	25,50	B5	B5	
2.94	10	29,44	B5	B5	
6.30	5	31,50	B5	B5	
4.75	7.5	35,63	B5	B5	
5.45	7.5	40,91	B5	B5	
2.94	15	44,17	B5	B5	
4.75	10	47,50	B5	B5	
5.45	10	54,55	B5	B5	
2.94	20	58,89	B5	B5	
6.30	10	63,00	B5	B5	
4.75	15	71,25	B5	B5	
7.88	10	78,75	B5		
2.94	30	88,33	B5		
6.30	15	94,50	B5		
5.10	20	102,00	B5		
5.45	20	109,09	B5		
7.88	15	118,13	B5		
5.10	25	127,50	B5		
4.75	30	142,50	B5		
3.87	40	154,67	B5		
5.45	30	163,64	B5		
6.30	30	189,00	B5		
5.10	40	204,00	B5		

HA31 i_1	NMRV 050 i_2	$i_1 \times i_2$	63	71	80
2.94	7.5	22,08	B5	B5	B5
4.75	5	23,75	B5	B5	B5
5.10	5	25,50	B5	B5	
2.94	10	29,44	B5	B5	B5
6.30	5	31,50	B5	B5	
4.75	7.5	35,63	B5	B5	B5
5.45	7.5	40,91	B5	B5	
2.94	15	44,17	B5	B5	B5
4.75	10	47,50	B5	B5	B5
5.45	10	54,55	B5	B5	
2.94	20	58,89	B5	B5	
6.30	10	63,00	B5	B5	
4.75	15	71,25	B5	B5	
7.88	10	78,75	B5	B5	
2.94	30	88,33	B5	B5	
6.30	15	94,50	B5	B5	
5.10	20	102,00	B5	B5	
5.45	20	109,09	B5	B5	
7.88	15	118,13	B5	B5	
5.10	25	127,50	B5	B5	
4.75	30	142,50	B5	B5	
3.87	40	154,67	B5	B5	
5.45	30	163,64	B5	B5	
6.30	30	189,00	B5		
5.10	40	204,00	B5		
7.88	30	236,25	B5		
6.30	40	252,00	B5		
5.45	50	272,73	B5		
4.75	60	285,00	B5		
6.30	50	315,00	B5		

NMRV 모터 취부 방법

KO

모터 없이 감속기를 공급받는 경우, 모터 취부를 정확히 하기 위해서 다음 사항을 따라야 합니다.

모터 축과 플랜지의 허용 오차가 IEC규격과 일치 하는지 확인합니다.

모터 축, spigot, 표면을 먼지나 페인트 흔적이 없도록 주의깊게 청소합니다.

모터 축에 슬리브를 장착할 때 과도한 힘에 의한 모터 축과 베어링에 손상이 가지 않도록 조립장비 사용이 필요합니다.

모터나 베어링에 손상이 가지 않기 위해서 항상 올바른 절차와 방법을 사용해야 합니다.

모터 키 조정은 제공되지 않습니다.

Motor mounting with PAM flange – NMRV

UK

When the unit is supplied without motor, to ensure the correct assembly of the electric motor, it is necessary to follow recommendations below.

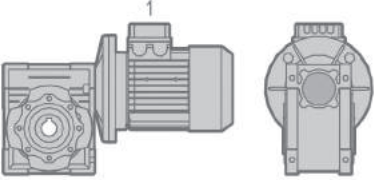
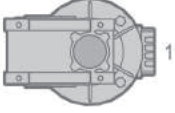
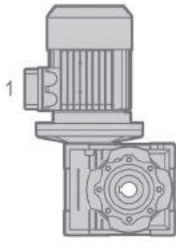
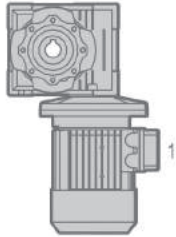
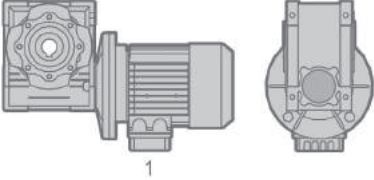
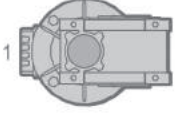
Check that the tolerances for the motor shaft and flange correspond to the latest IEC standard.

Carefully clean the motor shaft, spigot and surfaces of the flange removing any traces of paint and dirt.

Proceed to the sleeve mountage to the motor shaft taking care to ensure the motor shaft and bearings are not damaged by avoiding excessive force and where necessary using assembly equipment.

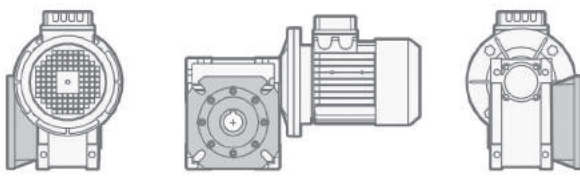
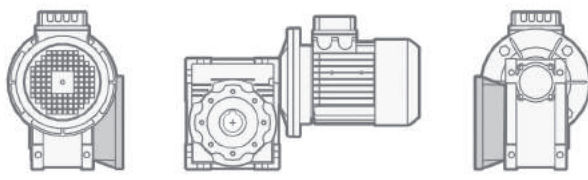
Always use good procedures and practises that ensure correct operation without risking damage to the motor or unit bearings. Motor key adjustment is not provided.

NMRV – 취부방향 / Mounting positions

NMRV - NRV			
NMRV...U - B3	B6	V5	V6
			
B8	B7		
			

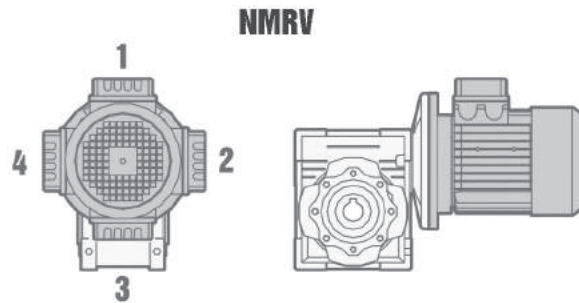
- “U” 버전은 NMRV 025-075 및 NRV 030-063의 사이즈와 연관되어 있다. 이러한 사이즈들의 경우, 취부방향을 반드시 지정할 필요는 없다.
- “U” version is related to sizes from NMRV 025-075 and NRV 030-063. For these sizes it is not necessary to specify mounting position.
- 수직 위치에 관한 내용은 3페이지를 참조하도록 한다.
- For vertical positions, check with pages 3.
- 별도로 명시하지 않을 경우, 기본적인 취부방향은 B3로 한다.
- Unless specified otherwise, the standard positions are B3.
- 위치가 확정되지 않은 경우, 당사에 기술서비스 지원을 요청하도록 한다.
- For positions not envisaged, it is necessary to call our Technical Service.

Flange F-FL

D	S
	

- 별도로 명시하지 않을 경우, 감속기는 B3에 대하여 명시된 위치 D에 플랜지가 설치되어 공급된다.
- Unless specified otherwise, the gear reducer is supplied with the flange in pos. D referred to position B3.

NMRV – 터미널 박스 위치 / Execution



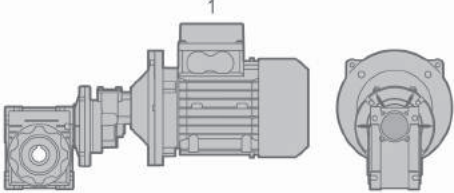
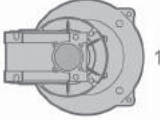
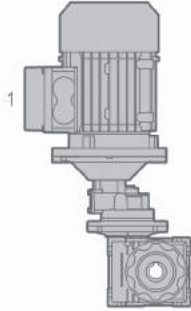
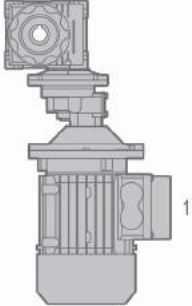
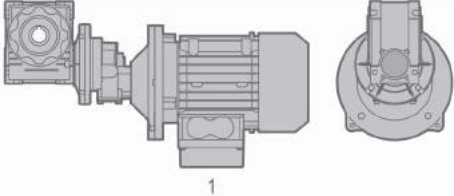
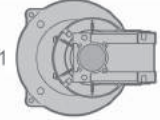
- 별도로 명시하지 않을 경우, 1번으로 조립되어 제공됩니다.
- In the case of specific requirements, when ordering, specify the position of the terminal box as shown in the diagram.

NMRV + NMRV – 더블웜 조립방향 / Execution

NMRV-NMRV / NRV-NMRV			
AS1	AS2	VS1	VS2
PS1	PS2	BS1	BS2

- 2차 기어 감속기와 관련한 1차 감속기의 위치는 버전에 따라 달라집니다.
- The position of the 1st reducer with respect to the 2nd gear reducer depend on the version.
- 특정 조립방향은 2차 감속기에 대하여 지정된다. 설치 가능한 조립방향은 24페이지를 참조하도록 한다.
- The specified mounting position refers to the 2nd gear reducer. See page 24 for the possible mounting positions.
- 별도로 명시하지 않을 경우, 조립방향은 BS2에 맞추어 공급된다.
- Unless otherwise specified at the time of order, combination groups are supplied in version BS2.

HA31 + NMRV 취부방향 / HA31 + NMRV Mounting positions

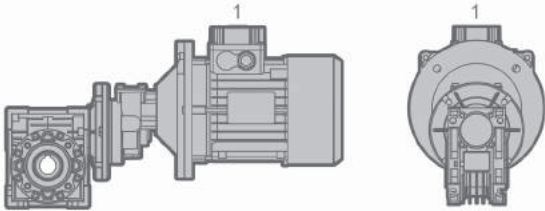
HA31 - NMRV			
B3	B6	V5	V6
			
B8	B7		
			

- 취부방식은 "U" 이고, 모든 취부방식에 사용 가능합니다.
- The mounting position is U and it is valid for all mounting positions.
- 예상 장착 위치에 취부합니다. 그렇지 않을 경우 당사 기술부에 문의합니다.
- Mount the unit in the expected mounting position. Otherwise contact our Technical Service.
- 취부방식이 명시되지 않은 경우, 터미널 박스는 position 1 으로 공급된다.
- Unless otherwise specified, the gear reducer is supplied with terminal box in position 1.

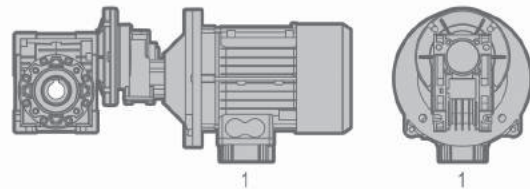
HA31 + NMRV 조립방향 / HA31 + NMRV Execution

HA31 - NMRV

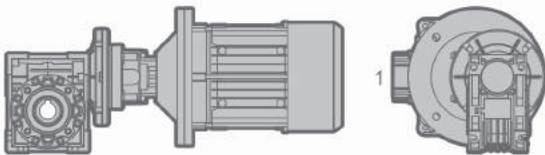
BS



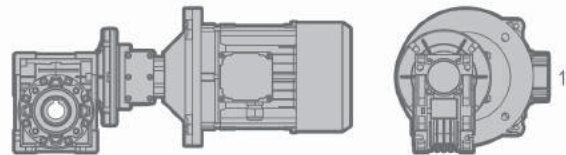
AS



VS



PS



- 취부방식이 명시되지 않은 경우, 기본 취부방향은 BS/B3입니다.
- Unless specified otherwise, the standard positions are BS/B3.
- 취부방식이 명시되지 않은 경우, 터미널 박스는 position 1으로 공급된다.
- Unless otherwise specified, the gear reducer is supplied with terminal box in position 1.
- 참조 : 주문시 항상 취부방식과 조립방향을 지정해 주시기 바랍니다.
- N.B. : When ordering, please always specify execution and mounting position.

NMRV – 모터용량에 따른 분류 / Performance

0,06kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
280,0	2	6,2	5,0	NMRV025	56A4	439
186,7	3	4,2	7,5	NMRV025	56A4	503
140,0	3	3,5	10,0	NMRV025	56A4	553
93,3	5	2,5	15,0	NMRV025	56A4	633
70,0	6	2,0	20,0	NMRV025	56A4	697
46,7	8	1,6	30,0	NMRV025	56A4	798
35,0	10	1,3	40,0	NMRV025	56A4	878
28,0	12	0,9	50,0	NMRV025	56A4	946
23,3	14	0,7	60,0	NMRV025	56A4	1006
280,0	2	10,7	5,0	NMRV030	56A4	597
186,7	3	7,3	7,5	NMRV030	56A4	683
140,0	3	5,6	10,0	NMRV030	56A4	752
93,3	5	4,0	15,0	NMRV030	56A4	861
70,0	6	3,0	20,0	NMRV030	56A4	948
56,0	7	3,1	25,0	NMRV030	56A4	1021
46,7	8	2,6	30,0	NMRV030	56A4	1085
35,0	10	1,9	40,0	NMRV030	56A4	1194
28,0	11	1,6	50,0	NMRV030	56A4	1286
23,3	13	1,3	60,0	NMRV030	56A4	1367
17,5	15	0,9	80,0	NMRV030	56A4	1504
14,0	25	1,3	100,0	NMRV025/030	56A4	1620
9,3	32	0,9	150,0	NMRV025/030	56A4	1830
7,0	41	0,7	200,0	NMRV025/030	56A4	1830
5,6	44	0,8	250,0	NMRV025/030	56A4	1830
4,7	59	1,2	300,0	NMRV025/040	56A4	3490
3,5	71	0,9	400,0	NMRV025/040	56A4	3490
2,8	82	0,7	500,0	NMRV025/040	56A4	3490
2,3	101	0,6	600,0	NMRV025/040	56A4	3490
1,9	116	0,5	750,0	NMRV025/040	56A4	3490
1,6	143	0,5	900,0	NMRV025/040	56A4	3490
1,2	171	0,4	1200,0	NMRV025/040	56A4	3490
0,9	197	0,3	1500,0	NMRV025/040	56A4	3490
0,8	217	0,3	1800,0	NMRV025/040	56A4	3490
0,6	268	0,2	2400,0	NMRV025/040	56A4	3490
0,5	324	0,2	3000,0	NMRV025/040	56A4	3490
0,4	294	0,1	4000,0	NMRV025/040	56A4	3490
0,3	356	0,1	5000,0	NMRV025/040	56A4	3490
4,7	60	1,2	300,0	NMRV030/040	56A4	3490
3,5	72	0,9	400,0	NMRV030/040	56A4	3490
2,8	98	0,6	500,0	NMRV030/040	56A4	3490
2,3	107	0,7	600,0	NMRV030/040	56A4	3490
1,9	125	0,6	750,0	NMRV030/040	56A4	3490
1,6	143	0,5	900,0	NMRV030/040	56A4	3490
1,2	172	0,4	1200,0	NMRV030/040	56A4	3490
0,9	203	0,4	1500,0	NMRV030/040	56A4	3490
0,8	226	0,3	1800,0	NMRV030/040	56A4	3490
0,6	271	0,2	2400,0	NMRV030/040	56A4	3490
0,4	312	0,2	3200,0	NMRV030/040	56A4	3490
0,4	367	0,1	4000,0	NMRV030/040	56A4	3490
0,3	401	0,1	5000,0	NMRV030/040	56A4	3490
1,6	146	1,0	900,0	NMRV030/050	56A4	4840
1,2	175	0,7	1200,0	NMRV030/050	56A4	4840
0,9	206	0,7	1500,0	NMRV030/050	56A4	4840
0,8	230	0,6	1800,0	NMRV030/050	56A4	4840
0,6	276	0,4	2400,0	NMRV030/050	56A4	4840
0,5	319	0,4	3000,0	NMRV030/050	56A4	4840
0,4	367	0,2	4000,0	NMRV030/050	56A4	4840
0,3	409	0,2	4800,0	NMRV030/050	56A4	4840

0,06kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
0,9	211	1,0	1500,0	NMRV030/063	56A4	6270
0,8	233	0,8	1800,0	NMRV030/063	56A4	6270
0,6	286	0,8	2400,0	NMRV030/063	56A4	6270
0,5	332	0,7	3000,0	NMRV030/063	56A4	6270
0,4	385	0,4	4000,0	NMRV030/063	56A4	6270
0,3	424	0,4	5000,0	NMRV030/063	56A4	6270
0,6	342	1,1	2400,0	NMRV040/075	56A4	7380
0,5	391	0,8	3000,0	NMRV040/075	56A4	7380
0,4	464	0,5	4000,0	NMRV040/075	56A4	7380
0,3	516	0,4	5000,0	NMRV040/075	56A4	7380
0,5	420	1,3	3000,0	NMRV040/090	56A4	8180
0,4	505	0,9	4000,0	NMRV040/090	56A4	8180
0,3	567	0,7	5000,0	NMRV040/090	56A4	8180

0,09kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
280,0	3	4,1	5,0	NMRV025	56B4	439
186,7	4	2,8	7,5	NMRV025	56B4	503
140,0	5	2,4	10,0	NMRV025	56B4	553
93,3	7	1,6	15,0	NMRV025	56B4	633
70,0	9	1,3	20,0	NMRV025	56B4	697
46,7	12	1,1	30,0	NMRV025	56B4	798
35,0	15	0,9	40,0	NMRV025	56B4	878
280,0	3	7,1	5,0	NMRV030	56B4	597
186,7	4	4,9	7,5	NMRV030	56B4	683
140,0	5	3,7	10,0	NMRV030	56B4	752
93,3	7	2,6	15,0	NMRV030	56B4	861
70,0	9	2,0	20,0	NMRV030	56B4	948
56,0	11	2,1	25,0	NMRV030	56B4	1021
46,7	12	1,7	30,0	NMRV030	56B4	1085
35,0	15	1,3	40,0	NMRV030	56B4	1194
28,0	17	1,0	50,0	NMRV030	56B4	1286
23,3	19	0,8	60,0	NMRV030	56B4	1367
14,0	38	0,8	100,0	NMRV025/030	56B4	1620
9,3	49	0,6	150,0	NMRV025/030	56B4	1830
7,0	62	0,5	200,0	NMRV025/030	56B4	1830
5,6	66	0,5	250,0	NMRV025/030	56B4	1830
4,7	75	0,4	300,0	NMRV025/030	56B4	1830
3,5	107	0,3	400,0	NMRV025/030	56B4	1830
2,8	115	0,3	500,0	NMRV025/030	56B4	1830
2,3	135	0,2	600,0	NMRV025/030	56B4	1830
1,9	151	0,2	750,0	NMRV025/030	56B4	1830
1,6	178	0,2	900,0	NMRV025/030	56B4	1830
1,2	212	0,1	1200,0	NMRV025/030	56B4	1830
0,9	247	0,1	1500,0	NMRV025/030	56B4	1830
0,8	304	0,1	1800,0	NMRV025/030	56B4	1830
0,6	340	0,1	2400,0	NMRV025/030	56B4	1830
0,5	405	0,1	3000,0	NMRV025/030	56B4	1830
28,0	19	2,2	50,0	NMRV040	56B4	2475
23,3	22	1,8	60,0	NMRV040	56B4	2630
17,5	26	1,3	80,0	NMRV040	56B4	2895
14,0	29	1,0	100,0	NMRV040	56B4	3118

0,09kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
3,5	110	1,1	400,0	NMRV030/050	56B4	4840
2,8	127	0,9	500,0	NMRV030/050	56B4	4840
2,3	164	0,9	600,0	NMRV030/050	56B4	4840
1,9	191	0,8	750,0	NMRV030/050	56B4	4840
1,6	219	0,7	900,0	NMRV030/050	56B4	4840
1,6	207	1,0	900,0	NMRV030/063	56B4	6270
1,2	272	0,8	1200,0	NMRV030/063	56B4	6270
0,9	316	0,7	1500,0	NMRV030/063	56B4	6270
0,9	371	1,1	1500,0	NMRV040/075	56B4	7380
0,8	417	0,9	1800,0	NMRV040/075	56B4	7380
0,6	513	0,7	2400,0	NMRV040/075	56B4	7380
0,5	587	0,5	3000,0	NMRV040/090	56B4	8180
0,4	696	0,4	4000,0	NMRV040/090	56B4	8180

0,18kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
280,0	5	3,6	5,0	NMRV030	63B4	597
186,7	8	2,4	7,5	NMRV030	63B4	683
140,0	10	1,9	10,0	NMRV030	63B4	752
93,3	14	1,3	15,0	NMRV030	63B4	861
70,0	18	1,0	20,0	NMRV030	63B4	948
56,0	21	1,0	25,0	NMRV030	63B4	1021
46,7	24	0,9	30,0	NMRV030	63B4	1085
70,0	19	2,2	20,0	NMRV040	63B4	1824
56,0	23	1,7	25,0	NMRV040	63B4	1964
46,7	26	1,8	30,0	NMRV040	63B4	2087
35,0	32	1,4	40,0	NMRV040	63B4	2298
28,0	39	1,1	50,0	NMRV040	63B4	2475
23,3	43	0,9	60,0	NMRV040	63B4	2630
35,0	33	2,5	40,0	NMRV050	63B4	3153
28,0	39	2,0	50,0	NMRV050	63B4	3397
23,3	44	1,6	60,0	NMRV050	63B4	3610
17,5	53	1,2	80,0	NMRV050	63B4	3973
14,0	61	0,9	100,0	NMRV050	63B4	4280
3,5	228	1,0	400,0	NMRV030/063	63B4	6270
2,8	265	0,8	500,0	NMRV030/063	63B4	6270
2,3	372	1,0	600,0	NMRV040/075	63B4	7380
1,9	448	0,9	750,0	NMRV040/075	63B4	7380
1,6	502	0,8	900,0	NMRV040/075	63B4	7380
1,2	649	0,9	1200,0	NMRV040/090	63B4	8180
0,9	758	0,7	1500,0	NMRV040/090	63B4	8180
0,8	888	1,2	1800,0	NMRV050/105	63B4	10320
0,6	1149	0,9	2400,0	NMRV050/105	63B4	10320
63,0	22,0	2,6	22,10	HA31+NMRV040	63B4	1885
59,0	24,0	2,6	23,80	HA31+NMRV040	63B4	1931
55,0	25,0	2,5	25,50	HA31+NMRV040	63B4	1977
48,0	28,0	2,1	29,40	HA31+NMRV040	63B4	2074
44,0	31,0	2,1	31,50	HA31+NMRV040	63B4	2122
39,0	34,0	1,9	35,60	HA31+NMRV040	63B4	2211
34,0	39,0	1,8	40,90	HA31+NMRV040	63B4	2315
32,0	40,0	1,6	44,20	HA31+NMRV040	63B4	2375
29,0	44,0	1,5	47,50	HA31+NMRV040	63B4	2433

0,18kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
26,0	51,0	1,4	54,50	HA31+NMRV040	63B4	2548
24,0	51,0	1,1	58,90	HA31+NMRV040	63B4	2614
22,0	58,0	1,2	63,00	HA31+NMRV040	63B4	2673
20,0	63,0	1,1	71,30	HA31+NMRV040	63B4	2785
18,0	72,0	1,0	78,80	HA31+NMRV040	63B4	2880
16,0	67,0	0,9	88,30	HA31+NMRV040	63B4	2992
15,0	82,0	0,9	94,50	HA31+NMRV040	63B4	3060
14,0	85,0	0,7	102,00	HA31+NMRV040	63B4	3139
13,0	91,0	0,7	109,10	HA31+NMRV040	63B4	3210
12,0	103,0	0,7	118,10	HA31+NMRV040	63B4	3296
59,0	24,0	3,0	23,80	HA31+NMRV050	63B4	2650
55,0	25,0	2,9	25,50	HA31+NMRV050	63B4	2714
44,0	31,0	2,4	31,50	HA31+NMRV050	63B4	2912
39,0	35,0	3,0	35,60	HA31+NMRV050	63B4	3034
34,0	40,0	2,8	40,90	HA31+NMRV050	63B4	3177
32,0	40,0	2,8	44,20	HA31+NMRV050	63B4	3259
29,0	45,0	2,9	47,50	HA31+NMRV050	63B4	3339
26,0	52,0	2,6	54,50	HA31+NMRV050	63B4	3497
24,0	52,0	2,0	58,90	HA31+NMRV050	63B4	3587
22,0	59,0	2,3	63,00	HA31+NMRV050	63B4	3669
20,0	63,0	2,0	71,30	HA31+NMRV050	63B4	3823
18,0	74,0	1,8	78,80	HA31+NMRV050	63B4	3952
16,0	68,0	1,7	88,30	HA31+NMRV050	63B4	4107
15,0	83,0	1,6	94,50	HA31+NMRV050	63B4	4200
14,0	85,0	1,3	102,00	HA31+NMRV050	63B4	4308
13,0	91,0	1,3	109,10	HA31+NMRV050	63B4	4406
12,0	103,0	1,3	118,10	HA31+NMRV050	63B4	4524
11,0	101,0	1,0	127,50	HA31+NMRV050	63B4	4641
9,8	105,0	1,3	142,50	HA31+NMRV050	63B4	4816
9,0	105,0	1,1	154,70	HA31+NMRV050	63B4	4840
8,6	119,0	1,2	163,60	HA31+NMRV050	63B4	4840
7,4	136,0	1,0	189,00	HA31+NMRV050	63B4	4840
6,9	135,0	0,9	204,00	HA31+NMRV050	63B4	4840
5,9	169,0	0,9	236,30	HA31+NMRV050	63B4	4840
5,6	163,0	0,7	252,00	HA31+NMRV050	63B4	4840
14,0	81,0	1,7	100,00	NMRV030/050	63B4	3800
9,3	112,0	1,2	150,00	NMRV030/050	63B4	4350
7,0	141,0	0,9	200,00	NMRV030/050	63B4	4788
4,7	183,0	0,8	300,00	NMRV030/050	63B4	4840
14,0	82,0	1,7	100,00	NMRV040/050	63B4	3800
9,3	114,0	1,2	150,00	NMRV040/050	63B4	4350
7,0	144,0	0,8	200,00	NMRV040/050	63B4	4788
4,7	188,0	0,8	300,00	NMRV040/050	63B4	4840

0,22kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
280,0	7,0	2,9	5,00	NMRV030	63C4	597
187,0	10,0	2,0	7,50	NMRV030	63C4	683
140,0	12,0	1,5	10,00	NMRV030	63C4	752
93,0	18,0	1,1	15,00	NMRV030	63C4	861
70,0	22,0	0,8	20,00	NMRV030	63C4	948
56,0	26,0	0,8	25,00	NMRV030	63C4	1021
47,0	30,0	0,7	30,00	NMRV030	63C4	1085

0,22kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
140,0	13,0	3,4	10,00	NMRV040	63C4	1447
93,0	19,0	2,4	15,00	NMRV040	63C4	1657
70,0	24,0	1,8	20,00	NMRV040	63C4	1824
56,0	29,0	1,4	25,00	NMRV040	63C4	1964
47,0	32,0	1,5	30,00	NMRV040	63C4	2087
35,0	40,0	1,1	40,00	NMRV040	63C4	2298
28,0	47,0	0,9	50,00	NMRV040	63C4	2475
23,0	53,0	0,7	60,00	NMRV040	63C4	2630
35,0	41,0	2,0	40,00	NMRV050	63C4	3153
28,0	48,0	1,6	50,00	NMRV050	63C4	3397
23,0	54,0	1,3	60,00	NMRV050	63C4	3610
18,0	65,0	1,0	80,00	NMRV050	63C4	3973
14,0	75,0	0,7	100,00	NMRV050	63C4	4280
63,0	27,0	2,2	22,10	HA31+NMRV040	63C4	1885
59,0	29,0	2,2	23,80	HA31+NMRV040	63C4	1931
55,0	31,0	2,1	25,50	HA31+NMRV040	63C4	1977
48,0	35,0	1,7	29,40	HA31+NMRV040	63C4	2074
44,0	38,0	1,8	31,50	HA31+NMRV040	63C4	2122
39,0	42,0	1,6	35,60	HA31+NMRV040	63C4	2211
34,0	48,0	1,4	40,90	HA31+NMRV040	63C4	2315
32,0	49,0	1,3	44,20	HA31+NMRV040	63C4	2375
29,0	54,0	1,2	47,50	HA31+NMRV040	63C4	2433
26,0	62,0	1,1	54,50	HA31+NMRV040	63C4	2548
24,0	62,0	0,9	58,90	HA31+NMRV040	63C4	2614
22,0	71,0	1,0	63,00	HA31+NMRV040	63C4	2673
20,0	77,0	0,9	71,30	HA31+NMRV040	63C4	2785
18,0	88,0	0,8	78,80	HA31+NMRV040	63C4	2880
16,0	82,0	0,8	88,30	HA31+NMRV040	63C4	2992
15,0	101,0	0,7	94,50	HA31+NMRV040	63C4	3060
59,0	29,0	2,5	23,80	HA31+NMRV050	63C4	2650
55,0	31,0	2,4	25,50	HA31+NMRV050	63C4	2714
48,0	35,0	3,3	29,40	HA31+NMRV050	63C4	2847
44,0	38,0	1,9	31,50	HA31+NMRV050	63C4	2912
39,0	43,0	2,5	35,60	HA31+NMRV050	63C4	3034
34,0	49,0	2,3	40,90	HA31+NMRV050	63C4	3177
32,0	49,0	2,3	44,20	HA31+NMRV050	63C4	3259
29,0	55,0	2,3	47,50	HA31+NMRV050	63C4	3339
26,0	63,0	2,1	54,50	HA31+NMRV050	63C4	3497
24,0	63,0	1,6	58,90	HA31+NMRV050	63C4	3587
22,0	73,0	1,9	63,00	HA31+NMRV050	63C4	3669
20,0	77,0	1,7	71,30	HA31+NMRV050	63C4	3823
18,0	91,0	1,5	78,80	HA31+NMRV050	63C4	3952
16,0	83,0	1,4	88,30	HA31+NMRV050	63C4	4107
15,0	101,0	1,3	94,50	HA31+NMRV050	63C4	4200
14,0	104,0	1,1	102,00	HA31+NMRV050	63C4	4308
13,0	111,0	1,0	109,10	HA31+NMRV050	63C4	4406
12,0	126,0	1,1	118,10	HA31+NMRV050	63C4	4524
11,0	123,0	0,9	127,50	HA31+NMRV050	63C4	4641
9,8	128,0	1,1	142,50	HA31+NMRV050	63C4	4816
9,0	129,0	0,9	154,70	HA31+NMRV050	63C4	4840
8,6	145,0	1,0	163,60	HA31+NMRV050	63C4	4840
7,4	166,0	0,9	189,00	HA31+NMRV050	63C4	4840
6,9	165,0	0,7	204,00	HA31+NMRV050	63C4	4840
5,9	206,0	0,7	236,30	HA31+NMRV050	63C4	4840
14,0	96,0	0,7	100,00	NMRV030/040	63C4	2769
14,0	98,0	1,4	100,00	NMRV030/050	63C4	3800
9,3	136,0	1,0	150,00	NMRV030/050	63C4	4350
14,0	101,0	1,4	100,00	NMRV040/050	63C4	3800
9,3	140,0	1,0	150,00	NMRV040/050	63C4	4350
4,7	214	1,1	300,0	NMRV030/063	63C4	6270
3,5	279	0,8	400,0	NMRV030/063	63C4	6270

0,37kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
280,0	11	3,2	5,0	NMRV040	71B4	1149
186,7	16	2,6	7,5	NMRV040	71B4	1315
140,0	21	2,1	10,0	NMRV040	71B4	1447
93,3	31	1,4	15,0	NMRV040	71B4	1657
70,0	40	1,1	20,0	NMRV040	71B4	1824
56,0	48	0,8	25,0	NMRV040	71B4	1964
46,7	54	0,9	30,0	NMRV040	71B4	2087
140,0	22	3,6	10,0	NMRV050	71B4	1987
93,3	31	2,6	15,0	NMRV050	71B4	2274
70,0	40	1,9	20,0	NMRV050	71B4	2503
56,0	49	1,5	25,0	NMRV050	71B4	2696
46,7	55	1,6	30,0	NMRV050	71B4	2865
35,0	69	1,2	40,0	NMRV050	71B4	3153
28,0	81	1,0	50,0	NMRV050	71B4	3397
23,3	91	0,8	60,0	NMRV050	71B4	3610
35,0	72	2,0	40,0	NMRV063	71B4	4122
28,0	85	1,6	50,0	NMRV063	71B4	4440
23,3	95	1,4	60,0	NMRV063	71B4	4719
17,5	117	1,0	80,0	NMRV063	71B4	5193
14,0	131	0,9	100,0	NMRV063	71B4	5595
23,3	100	2,0	60,0	NMRV075	71B4	5569
17,5	123	1,5	80,0	NMRV075	71B4	6130
14,0	141	1,3	100,0	NMRV075	71B4	6603
4,7	412	0,9	300,0	NMRV040/075	71B4	7380
3,5	506	0,7	400,0	NMRV040/075	71B4	7380
4,7	408	1,5	300,0	NMRV040/090	71B4	8180
3,5	532	1,1	400,0	NMRV040/090	71B4	8180
2,8	622	0,9	500,0	NMRV040/090	71B4	8180
2,3	779	0,8	600,0	NMRV040/090	71B4	8180
1,9	977	1,1	750,0	NMRV050/105	71B4	10320
1,6	1111	1,0	900,0	NMRV050/105	71B4	10320
1,2	1437	0,7	1200,0	NMRV050/105	71B4	10320
63,0	45,0	1,3	22,10	HA31+NMRV040	71B4	1885
59,0	49,0	1,3	23,80	HA31+NMRV040	71B4	1931
55,0	52,0	1,2	25,50	HA31+NMRV040	71B4	1977
48,0	58,0	1,0	29,40	HA31+NMRV040	71B4	2074
44,0	64,0	1,0	31,50	HA31+NMRV040	71B4	2122
39,0	71,0	0,9	35,60	HA31+NMRV040	71B4	2211
34,0	81,0	0,9	40,90	HA31+NMRV040	71B4	2315
32,0	82,0	0,8	44,20	HA31+NMRV040	71B4	2375
29,0	91,0	0,7	47,50	HA31+NMRV040	71B4	2433
63,0	45,0	2,2	22,10	HA31+NMRV050	71B4	2587
59,0	49,0	1,5	23,80	HA31+NMRV050	71B4	2650
55,0	52,0	1,4	25,50	HA31+NMRV050	71B4	2714
48,0	59,0	1,9	29,40	HA31+NMRV050	71B4	2847
44,0	64,0	1,2	31,50	HA31+NMRV050	71B4	2912
39,0	72,0	1,5	35,60	HA31+NMRV050	71B4	3034
34,0	82,0	1,3	40,90	HA31+NMRV050	71B4	3177
32,0	83,0	1,4	44,20	HA31+NMRV050	71B4	3259
29,0	93,0	1,4	47,50	HA31+NMRV050	71B4	3339
26,0	106,0	1,2	54,50	HA31+NMRV050	71B4	3497
24,0	106,0	1,0	58,90	HA31+NMRV050	71B4	3587
22,0	122,0	1,1	63,00	HA31+NMRV050	71B4	3669
20,0	130,0	1,0	71,30	HA31+NMRV050	71B4	3823
18,0	152,0	0,9	78,80	HA31+NMRV050	71B4	3952
16,0	140,0	0,8	88,30	HA31+NMRV050	71B4	4107
15,0	170,0	0,8	94,50	HA31+NMRV050	71B4	4200

0,37kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
0,9	1699	1,0	1500,0	NMRV063/130	71B4	13500
0,8	1918	0,9	1800,0	NMRV063/130	71B4	13500
0,8	2089	1,0	1800,0	NMRV063/150	71B4	18000
0,6	2519	1,1	2400,0	NMRV063/150	71B4	18000
0,5	2958	0,8	3000,0	NMRV063/150	71B4	18000

0,55kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
280,0	17	2,2	5,0	NMRV040	71C4	1149
186,7	24	1,7	7,5	NMRV040	71C4	1315
140,0	32	1,4	10,0	NMRV040	71C4	1447
93,3	47	0,9	15,0	NMRV040	71C4	1657
280,0	17	4,1	5,0	NMRV050	80A4	1577
186,7	25	3,1	7,5	NMRV050	80A4	1805
140,0	33	2,4	10,0	NMRV050	80A4	1987
93,3	47	1,7	15,0	NMRV050	80A4	2274
70,0	60	1,3	20,0	NMRV050	80A4	2503
56,0	72	1,0	25,0	NMRV050	80A4	2696
46,7	82	1,1	30,0	NMRV050	80A4	2865
70,0	62	2,2	20,0	NMRV063	80A4	3272
56,0	74	1,8	25,0	NMRV063	80A4	3524
46,7	84	1,9	30,0	NMRV063	80A4	3745
35,0	107	1,4	40,0	NMRV063	80A4	4122
28,0	126	1,1	50,0	NMRV063	80A4	4440
23,3	142	0,9	60,0	NMRV063	80A4	4719
35,0	110	2,0	40,0	NMRV075	80A4	4865
28,0	131	1,6	50,0	NMRV075	80A4	5241
23,3	149	1,3	60,0	NMRV075	80A4	5569
17,5	183	1,0	80,0	NMRV075	80A4	6130
14,0	210	0,9	100,0	NMRV075	80A4	6603
17,5	192	1,5	80,0	NMRV090	80A4	6783
14,0	225	1,2	100,0	NMRV090	80A4	7306
17,5	204	2,4	80,0	NMRV105	80A4	8571
14,0	240	1,9	100,0	NMRV105	80A4	9232
4,7	656	1,7	300,0	NMRV050/105	80A4	10320
3,5	849	1,2	400,0	NMRV050/105	80A4	10320
2,8	1012	1,0	500,0	NMRV050/105	80A4	10320
2,3	1214	0,8	600,0	NMRV050/105	80A4	10320
1,9	1452	0,8	750,0	NMRV050/105	80A4	10320
55,0	78,0	0,8	25,50	HA31+NMRV040	71C4	1977
44,0	95,0	0,7	31,50	HA31+NMRV040	71C4	2122
63,0	67,0	0,9	22,10	HA31+NMRV040	71C4/80A4	1885
59,0	73,0	0,9	23,80	HA31+NMRV040	71C4/80A4	1931
55,0	78,0	1,0	25,50	HA31+NMRV050	71C4	2714
44,0	95,0	0,8	31,50	HA31+NMRV050	71C4	2912
34,0	121,0	0,9	40,90	HA31+NMRV050	71C4	3177
26,0	158,0	0,8	54,50	HA31+NMRV050	71C4	3497
22,0	182,0	0,7	63,00	HA31+NMRV050	71C4	3669
63,0	67,0	1,5	22,10	HA31+NMRV050	71C4/80A4	2587
59,0	73,0	1,0	23,80	HA31+NMRV050	71C4/80A4	2650
48,0	88,0	1,3	29,40	HA31+NMRV050	71C4/80A4	2847
39,0	106,0	1,0	35,60	HA31+NMRV050	71C4/80A4	3034
32,0	123,0	0,9	44,20	HA31+NMRV050	71C4/80A4	3259
29,0	138,0	0,9	47,50	HA31+NMRV050	71C4/80A4	3339

0,55kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
2,8	1012	1,5	500,0	NMRV063/130	80A4	13500
1,9	1489	1,2	750,0	NMRV063/130	80A4	13500
1,2	2195	0,8	1200,0	NMRV063/130	80A4	13500
0,8	3106	0,7	1800,0	NMRV063/150	80A4	18000
0,6	3744	0,7	2400,0	NMRV063/150	80A4	18000

0,75kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
280,0	23	3,0	5,0	NMRV050	80B4	1577
186,7	34	2,3	7,5	NMRV050	80B4	1805
140,0	45	1,8	10,0	NMRV050	80B4	1987
93,3	64	1,3	15,0	NMRV050	80B4	2274
70,0	82	1,0	20,0	NMRV050	80B4	2503
93,3	64	2,2	15,0	NMRV063	80B4	2973
70,0	84	1,6	20,0	NMRV063	80B4	3272
56,0	101	1,3	25,0	NMRV063	80B4	3524
46,7	115	1,4	30,0	NMRV063	80B4	3745
35,0	145	1,0	40,0	NMRV063	80B4	4122
56,0	104	1,9	25,0	NMRV075	80B4	4160
46,7	118	1,9	30,0	NMRV075	80B4	4421
35,0	149	1,5	40,0	NMRV075	80B4	4865
28,0	179	1,2	50,0	NMRV075	80B4	5241
23,3	203	1,0	60,0	NMRV075	80B4	5569
28,0	187	2,0	50,0	NMRV090	80B4	5799
23,3	215	1,6	60,0	NMRV090	80B4	6163
17,5	262	1,1	80,0	NMRV090	80B4	6783
14,0	307	0,9	100,0	NMRV090	80B4	7306
17,5	278	1,8	80,0	NMRV105	80B4	8571
14,0	327	1,4	100,0	NMRV105	80B4	9232
4,7	895	1,2	300,0	NMRV050/105	80B4	10320
3,5	1157	0,9	400,0	NMRV050/105	80B4	10320
63,0	92,0	1,1	22,10	HA31+NMRV050	80B4	2587
59,0	99,0	0,7	23,80	HA31+NMRV050	80B4	2650
48,0	120,0	1,0	29,40	HA31+NMRV050	80B4	2847
39,0	145,0	0,7	35,60	HA31+NMRV050	80B4	3034
2,8	1380	1,1	500,0	NMRV063/130	80B4	13500
2,3	1676	1,0	600,0	NMRV063/130	80B4	13500
1,9	2031	0,9	750,0	NMRV063/130	80B4	13500
1,6	2314	0,8	900,0	NMRV063/130	80B4	13500
2,8	1380	1,7	500,0	NMRV063/150	80B4	18000
2,3	1702	1,6	600,0	NMRV063/150	80B4	18000
1,9	1998	1,2	750,0	NMRV063/150	80B4	18000
1,6	2521	0,8	900,0	NMRV063/150	80B4	18000
1,2	3039	0,9	1200,0	NMRV063/150	80B4	18000

0,92kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
280,0	28	2,4	5,0	NMRV050	80C4	1577
186,7	41	1,9	7,5	NMRV050	80C4	1805

0,92kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
140,0	55	1,4	10,0	NMRV050	80C4	1987
93,3	78	1,0	15,0	NMRV050	80C4	2274
140,0	55	2,4	10,0	NMRV063	80C4	2597
93,3	79	1,8	15,0	NMRV063	80C4	2973
70,0	103	1,3	20,0	NMRV063	80C4	3272
56,0	124	1,0	25,0	NMRV063	80C4	3524
46,7	141	1,1	30,0	NMRV063	80C4	3745
35,0	178	0,8	40,0	NMRV063	80C4	4122
70,0	104	2,0	20,0	NMRV075	80C4	3862
56,0	127	1,6	25,0	NMRV075	80C4	4160
46,7	145	1,6	30,0	NMRV075	80C4	4421
35,0	183	1,2	40,0	NMRV075	80C4	4865
28,0	220	1,0	50,0	NMRV075	80C4	5241
23,3	249	0,8	60,0	NMRV075	80C4	5569
28,0	229	1,6	50,0	NMRV090	80C4	5799
23,3	264	1,3	60,0	NMRV090	80C4	6163
17,5	321	0,9	80,0	NMRV090	80C4	6783
17,5	341	1,4	80,0	NMRV105	80C4	8571
14,0	402	1,1	100,0	NMRV105	80C4	9232
4,7	1097	1,0	300,0	NMRV050/105	80C4	10320
3,5	1420	0,7	400,0	NMRV050/105	80C4	10320
3,5	1420	1,2	400,0	NMRV063/130	80C4	13500
2,8	1693	0,9	500,0	NMRV063/150	80C4	13500
63,0	113,0	0,9	22,10	HA31+NMRV050	80C4	2587
48,0	147,0	0,8	29,40	HA31+NMRV050	80C4	2847
2,8	1693	1,4	500,0	NMRV063/150	80C4	18000
2,3	2088	1,3	600,0	NMRV063/150	80C4	18000
1,9	2451	1,0	750,0	NMRV063/150	80C4	18000
1,6	3092	0,7	900,0	NMRV063/150	80C4	18000
1,2	3728	0,7	1200,0	NMRV063/150	80C4	18000

1,50kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
186,7	68	1,9	7,5	NMRV063	90L4	2359
140,0	89	1,5	10,0	NMRV063	90L4	2597
93,3	129	1,1	15,0	NMRV063	90L4	2973
70,0	168	0,8	20,0	NMRV063	90L4	3272
140,0	90	2,2	10,0	NMRV075	90L4	3065
93,3	132	1,5	15,0	NMRV075	90L4	3509
70,0	170	1,2	20,0	NMRV075	90L4	3862
56,0	207	1,0	25,0	NMRV075	90L4	4160
46,7	236	1,0	30,0	NMRV075	90L4	4421
70,0	174	2,2	20,0	NMRV090	90L4	4273
56,0	212	1,8	25,0	NMRV090	90L4	4603
46,7	243	1,8	30,0	NMRV090	90L4	4891
35,0	311	1,3	40,0	NMRV090	90L4	5383
28,0	373	1,0	50,0	NMRV090	90L4	5799
23,3	430	0,8	60,0	NMRV090	90L4	6163
35,0	323	2,1	40,0	NMRV105	90L4	6803
28,0	389	1,7	50,0	NMRV105	90L4	7328
23,3	448	1,3	60,0	NMRV105	90L4	7787
17,5	557	0,9	80,0	NMRV105	90L4	8571
17,5	565	1,5	80,0	NMRV130	90L4	11210
14,0	665	1,1	100,0	NMRV130	90L4	12076

1,50kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
4,7	1816	1,0	300,0	NMRV063/130	90L4	13500
3,5	2315	0,7	400,0	NMRV063/130	90L4	13500
9,3	1052	1,9	150,0	NMRV063/150	90L4	18000
7,0	1371	1,4	200,0	NMRV063/150	90L4	18000
5,6	1669	1,2	250,0	NMRV063/150	90L4	18000
4,7	1985	1,1	300,0	NMRV063/150	90L4	18000
3,5	2350	1,1	400,0	NMRV063/150	90L4	18000
2,8	2760	0,8	500,0	NMRV063/150	90L4	18000
2,3	3404	0,8	600,0	NMRV063/150	90L4	18000

1,84kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
186,7	84	1,5	7,5	NMRV063	90LL4	2359
140,0	109	1,2	10,0	NMRV063	90LL4	2597
93,3	158	0,9	15,0	NMRV063	90LL4	2973
186,7	84	2,2	7,5	NMRV075	90LL4	2785
140,0	110	1,8	10,0	NMRV075	90LL4	3065
93,3	162	1,2	15,0	NMRV075	90LL4	3509
70,0	208	1,0	20,0	NMRV075	90LL4	3862
56,0	254	0,8	25,0	NMRV075	90LL4	4160
46,7	290	0,8	30,0	NMRV075	90LL4	4421
70,0	213	1,8	20,0	NMRV090	90LL4	4273
56,0	260	1,4	25,0	NMRV090	90LL4	4603
46,7	297	1,5	30,0	NMRV090	90LL4	4891
35,0	382	1,0	40,0	NMRV090	90LL4	5383
28,0	458	0,8	50,0	NMRV090	90LL4	5799
56,0	267	2,2	25,0	NMRV105	90LL4	5816
35,0	397	1,7	40,0	NMRV105	90LL4	6803
28,0	477	1,4	50,0	NMRV105	90LL4	7328
23,3	550	1,0	60,0	NMRV105	90LL4	7787
17,5	693	1,2	80,0	NMRV130	90LL4	11210
14,0	816	0,9	100,0	NMRV130	90LL4	12076
9,3	1290	1,5	150,0	NMRV063/150	90LL4	18000
7,0	1682	1,2	200,0	NMRV063/150	90LL4	18000
5,6	2047	1,0	250,0	NMRV063/150	90LL4	18000
4,7	2435	0,9	300,0	NMRV063/150	90LL4	18000
3,5	2883	0,9	400,0	NMRV063/150	90LL4	18000
2,8	3385	0,7	500,0	NMRV063/150	90LL4	18000

2,20kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
186,7	100	1,8	7,5	NMRV075	100LA4	2785
140,0	132	1,5	10,0	NMRV075	100LA4	3065
93,3	194	1,0	15,0	NMRV075	100LA4	3509
186,7	101	3,1	7,5	NMRV090	100LA4	3081
140,0	134	2,6	10,0	NMRV090	100LA4	3391
93,3	196	2,0	15,0	NMRV090	100LA4	3882
70,0	255	1,5	20,0	NMRV090	100LA4	4273
56,0	311	1,2	25,0	NMRV090	100LA4	4603
46,7	356	1,2	30,0	NMRV090	100LA4	4891

2,20kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
70,0	258	2,4	20,0	NMRV105	100LA4	5399
56,0	319	1,9	25,0	NMRV105	100LA4	5816
46,7	360	1,8	30,0	NMRV105	100LA4	6181
35,0	474	1,4	40,0	NMRV105	100LA4	6803
28,0	570	1,1	50,0	NMRV105	100LA4	7328
23,3	657	0,9	60,0	NMRV105	100LA4	7787
35,0	474	2,2	40,0	NMRV130	100LA4	8897
28,0	570	1,7	50,0	NMRV130	100LA4	9584
23,3	657	1,4	60,0	NMRV130	100LA4	10185
17,5	828	1,0	80,0	NMRV130	100LA4	11210
28,0	578	2,4	50,0	NMRV150	100LA4	13103
23,3	666	1,9	60,0	NMRV150	100LA4	13924
17,5	828	1,4	80,0	NMRV150	100LA4	15325
14,0	975	1,0	100,0	NMRV150	100LA4	16508

3,00kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
186,7	137	1,4	7,5	NMRV075	100LB4	2785
140,0	180	1,1	10,0	NMRV075	100LB4	3065
93,3	264	0,8	15,0	NMRV075	100LB4	3509
186,7	138	2,3	7,5	NMRV090	100LB4	3081
140,0	182	1,9	10,0	NMRV090	100LB4	3391
93,3	267	1,5	15,0	NMRV090	100LB4	3882
70,0	348	1,1	20,0	NMRV090	100LB4	4273
56,0	425	0,9	25,0	NMRV090	100LB4	4603
46,7	485	0,9	30,0	NMRV090	100LB4	4891
93,3	267	2,3	15,0	NMRV105	100LB4	4905
70,0	352	1,8	20,0	NMRV105	100LB4	5399
56,0	435	1,4	25,0	NMRV105	100LB4	5816
46,7	491	1,4	30,0	NMRV105	100LB4	6181
35,0	647	1,1	40,0	NMRV105	100LB4	6803
28,0	778	0,8	50,0	NMRV105	100LB4	7328
56,0	435	2,1	25,0	NMRV130	100LB4	7607
46,7	497	2,1	30,0	NMRV130	100LB4	8084
35,0	647	1,6	40,0	NMRV130	100LB4	8897
28,0	778	1,3	50,0	NMRV130	100LB4	9584
23,3	896	1,0	60,0	NMRV130	100LB4	10185
17,5	1130	0,7	80,0	NMRV130	100LB4	11210
28,0	788	1,8	50,0	NMRV150	100LB4	13103
23,3	909	1,4	60,0	NMRV150	100LB4	13924
17,5	1130	1,0	80,0	NMRV150	100LB4	15325
14,0	1330	0,8	100,0	NMRV150	100LB4	16508

4,00kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
186,7	182	1,0	7,5	NMRV075	112M4	2785
140,0	240	0,8	10,0	NMRV075	112M4	3065

4,00kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
186,7	184	1,7	7,5	NMRV090	112M4	3081
140,0	243	1,4	10,0	NMRV090	112M4	3391
93,3	356	1,1	15,0	NMRV090	112M4	3882
70,0	464	0,8	20,0	NMRV090	112M4	4273
140,0	243	2,4	10,0	NMRV105	112M4	4285
93,3	356	1,7	15,0	NMRV105	112M4	4905
70,0	469	1,3	20,0	NMRV105	112M4	5399
56,0	580	1,0	25,0	NMRV105	112M4	5816
46,7	655	1,0	30,0	NMRV105	112M4	6181
56,0	580	1,6	25,0	NMRV130	112M4	7607
46,7	663	1,6	30,0	NMRV130	112M4	8084
35,0	862	1,2	40,0	NMRV130	112M4	8897
28,0	1037	0,9	50,0	NMRV130	112M4	9584
23,3	1195	0,8	60,0	NMRV130	112M4	10185
28,0	1051	1,3	50,0	NMRV150	112M4	13103
23,3	1211	1,0	60,0	NMRV150	112M4	13924
17,5	1506	0,8	80,0	NMRV150	112M4	15325

5,50kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
186,7	253	2,1	7,5	NMRV105	132S4	3893
140,0	334	1,7	10,0	NMRV105	132S4	4285
93,3	490	1,2	15,0	NMRV105	132S4	4905
70,0	645	1,0	20,0	NMRV105	132S4	5399
140,0	334	2,5	10,0	NMRV130	132S4	5605
93,3	490	1,9	15,0	NMRV130	132S4	6416
70,0	653	1,4	20,0	NMRV130	132S4	7062
56,0	797	1,2	25,0	NMRV130	132S4	7607
46,7	912	1,1	30,0	NMRV130	132S4	8084
35,0	1186	0,9	40,0	NMRV130	132S4	8897
70,0	653	2,0	20,0	NMRV150	132S4	9654
56,0	797	1,5	25,0	NMRV150	132S4	10400
46,7	945	1,3	30,0	NMRV150	132S4	11051
35,0	1186	1,3	40,0	NMRV150	132S4	12163
28,0	1444	1,0	50,0	NMRV150	132S4	13103
23,3	1666	0,8	60,0	NMRV150	132S4	13924

7,50kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
186,7	345	1,5	7,5	NMRV105	132L4	3893
140,0	455	1,3	10,0	NMRV105	132L4	4285
93,3	668	0,9	15,0	NMRV105	132L4	4905
186,7	349	2,1	7,5	NMRV130	132L4	5092
140,0	455	1,8	10,0	NMRV130	132L4	5605
93,3	668	1,4	15,0	NMRV130	132L4	6416
70,0	890	1,0	20,0	NMRV130	132L4	7062
56,0	1087	0,9	25,0	NMRV130	132L4	7607
46,7	1243	0,8	30,0	NMRV130	132L4	8084
35,0	1617	0,6	40,0	NMRV130	132L4	8897

7,50kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
70,0	890	1,5	20,0	NMRV150	132L4	9654
56,0	1087	1,1	25,0	NMRV150	132L4	10400
46,7	1289	0,9	30,0	NMRV150	132L4	11051
35,0	1617	1,0	40,0	NMRV150	132L4	12163

9,20kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
186,7	428	1,8	7,5	NMRV130	132M4	5092
140,0	559	1,5	10,0	NMRV130	132M4	5605
93,3	819	1,1	15,0	NMRV130	132M4	6416
70,0	1092	0,8	20,0	NMRV130	132M4	7062
56,0	1334	0,7	25,0	NMRV130	132M4	7607
70,0	1092	1,2	20,0	NMRV150	132M4	9654
56,0	1334	0,9	25,0	NMRV150	132M4	10400
46,7	1581	0,8	30,0	NMRV150	132M4	11051
35,0	1983	0,8	40,0	NMRV150	132M4	12163

11,00kW

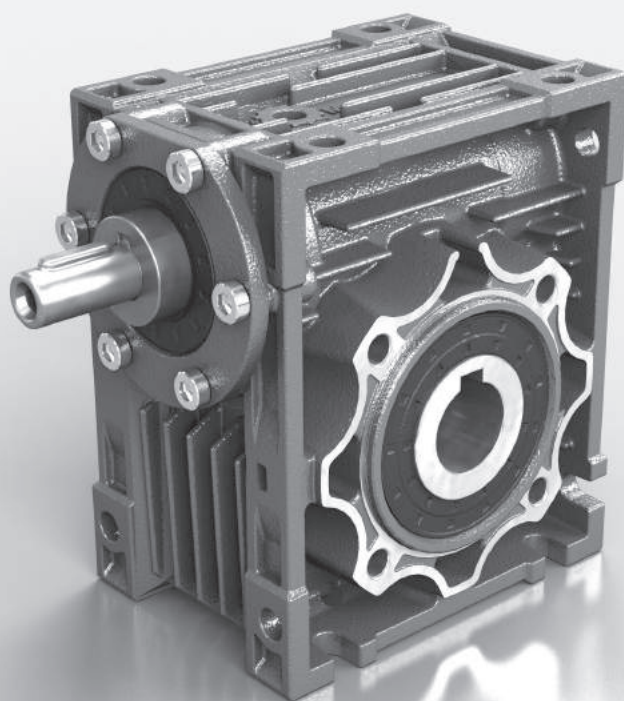
n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
186,7	512	2,3	7,5	NMRV150	160M4	6962
140,0	675	1,8	10,0	NMRV150	160M4	7663
93,3	990	1,3	15,0	NMRV150	160M4	8771
70,0	1306	1,0	20,0	NMRV150	160M4	9654
56,0	1595	0,8	25,0	NMRV150	160M4	10400

15,00kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
186,7	698	1,7	7,5	NMRV150	160L4	6962
140,0	921	1,3	10,0	NMRV150	160L4	7663
93,3	1351	0,9	15,0	NMRV150	160L4	8771
70,0	1780	0,7	20,0	NMRV150	160L4	9654



MOTOVARIO[®]
HEART OF MOTION



NRV 모터 용량에 따른 분류 / Performance($n_1 = 2800\text{rpm}$, $F_s = 1$)

NRV030

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
12	5,0	0,79	560,0	474	115
13	7,5	0,58	373,3	542	125
13	10,0	0,44	280,0	597	140
13	15,0	0,31	186,7	683	140
12	20,0	0,22	140,0	752	146
16	25,0	0,25	112,0	810	210
15	30,0	0,20	93,3	861	210
14	40,0	0,15	70,0	948	127
13	50,0	0,12	56,0	1021	128
12	60,0	0,10	46,7	1085	126
11	80,0	0,08	35,0	1194	130

NRV040

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
24	5,0	1,56	560,0	912	200
28	7,5	1,23	373,3	1044	233
29	10,0	0,97	280,0	1149	272
31	15,0	0,71	186,7	1315	291
29	20,0	0,51	140,0	1447	204
28	25,0	0,41	112,0	1559	236
34	30,0	0,43	93,3	1657	350
31	40,0	0,31	70,0	1824	350
30	50,0	0,25	56,0	1964	350
28	60,0	0,21	46,7	2087	350
25	80,0	0,15	35,0	2298	350
23	100,0	0,12	28,0	2475	350

NRV050

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
45	5,0	2,90	560,0	1251	280
52	7,5	2,26	373,3	1433	324
54	10,0	1,78	280,0	1577	378
57	15,0	1,30	186,7	1805	399
53	20,0	0,94	140,0	1987	417
51	25,0	0,74	112,0	2140	482
64	30,0	0,81	93,3	2274	490
59	40,0	0,58	70,0	2503	490
53	50,0	0,44	56,0	2696	490
50	60,0	0,36	46,7	2865	490
45	80,0	0,27	35,0	3153	490
40	100,0	0,21	28,0	3397	490

NRV063

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
93	7,5	4,00	373,3	1873	395
97	10,0	3,20	280,0	2061	463
103	15,0	2,31	186,7	2359	492
100	20,0	1,72	140,0	2597	538
92	25,0	1,30	112,0	2797	593
120	30,0	1,48	93,3	2973	700
108	40,0	1,04	70,0	3272	700
100	50,0	0,81	56,0	3524	700
95	60,0	0,67	46,7	3745	700
85	80,0	0,49	35,0	4122	700
74	100,0	0,37	28,0	4440	700

NRV075

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
130	7,5	5,58	373,3	2210	560
145	10,0	4,72	280,0	2433	703
150	15,0	3,33	186,7	2785	727
160	20,0	2,73	140,0	3065	872
150	25,0	2,09	112,0	3302	980
170	30,0	2,05	93,3	3509	980
165	40,0	1,55	70,0	3862	980
150	50,0	1,17	56,0	4160	980
145	60,0	0,86	46,7	4421	980
130	80,0	0,71	35,0	4865	980
120	100,0	0,57	28,0	5241	980

NRV090

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
210	7,5	8,92	373,3	2446	715
235	10,0	7,66	280,0	2692	900
270	15,0	5,93	186,7	3081	1034
260	20,0	4,33	140,0	3391	1120
250	25,0	3,41	112,0	3653	1270
310	30,0	3,65	93,3	3882	1270
275	40,0	2,52	70,0	4273	1270
265	50,0	2,02	56,0	4603	1270
245	60,0	1,60	46,7	4891	1270
225	80,0	1,18	35,0	5383	1270
200	100,0	0,89	28,0	5799	1270

NRV 모터 용량에 따른 분류 / Performance($n_1 = 2800\text{rpm}$, $F_s = 1$)

NRV105

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
340	7,5	14,45	373,3	3090	950
380	10,0	12,24	280,0	3401	1194
425	15,0	9,23	186,7	3893	1336
420	20,0	6,92	140,0	4285	1485
440	25,0	5,86	112,0	4616	1700
480	30,0	5,58	93,3	4905	1700
460	40,0	4,06	70,0	5399	1700
450	50,0	3,30	56,0	5816	1700
430	60,0	2,69	46,7	6181	1700
380	80,0	1,88	35,0	6803	1700
350	100,0	1,47	28,0	7328	1700

NRV130

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
520	7,5	22,10	373,3	4042	1190
580	10,0	18,69	280,0	4449	1493
670	15,0	14,71	186,7	5092	1725
660	20,0	10,87	140,0	5605	1912
670	25,0	8,93	112,0	6038	2100
770	30,0	8,85	93,3	6416	2100
730	40,0	6,45	70,0	7062	2100
700	50,0	5,07	56,0	7607	2100
640	60,0	3,96	46,7	8084	2100
590	80,0	2,92	35,0	8897	2100
520	100,0	2,15	28,0	9584	2100

NRV150

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
840	7,5	35,69	373,3	5526	1550
890	10,0	28,36	280,0	6082	1848
910	15,0	19,76	186,7	6962	1889
980	20,0	15,96	140,0	7663	2289
890	25,0	11,86	112,0	8254	2494
920	30,0	10,33	93,3	8771	2800
1200	40,0	10,47	70,0	9654	2800
1100	50,0	7,96	56,0	10400	2800
990	60,0	6,12	46,7	11051	2800
920	80,0	4,50	35,0	12163	2800
810	100,0	3,30	28,0	13103	2800

NRV 모터 용량에 따른 분류 / Performance($n_1 = 1400\text{rpm}$, $F_s = 1$)

NRV030

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
19	5,0	0,64	280,0	597	150
19	7,5	0,44	186,7	683	150
19	10,0	0,34	140,0	752	169
19	15,0	0,24	93,3	861	169
18	20,0	0,18	70,0	948	180
22	25,0	0,19	56,0	1021	210
21	30,0	0,16	46,7	1085	210
19	40,0	0,12	35,0	1194	210
18	50,0	0,09	28,0	1286	210
16	60,0	0,08	23,3	1367	210
13	80,0	0,05	17,5	1504	210

NRV040

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
36	5,0	1,19	280,0	1149	250
42	7,5	0,94	186,7	1315	292
44	10,0	0,76	140,0	1447	344
44	15,0	0,52	93,3	1657	344
43	20,0	0,40	70,0	1824	350
39	25,0	0,30	56,0	1964	350
48	30,0	0,33	46,7	2087	350
45	40,0	0,25	35,0	2298	350
42	50,0	0,20	28,0	2475	350
39	60,0	0,16	23,3	2630	350
33	80,0	0,11	17,5	2895	350
29	100,0	0,09	14,0	3118	350

NRV050

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
68	5,0	2,24	280,0	1577	350
77	7,5	1,71	186,7	1805	396
79	10,0	1,33	140,0	1987	490
81	15,0	0,95	93,3	2274	490
78	20,0	0,71	70,0	2503	490
71	25,0	0,54	56,0	2696	490
88	30,0	0,59	46,7	2865	490
82	40,0	0,44	35,0	3153	490
77	50,0	0,35	28,0	3397	490
72	60,0	0,29	23,3	3610	490
65	80,0	0,22	17,5	3973	490
55	100,0	0,16	14,0	4280	490

NRV063

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
128	7,5	2,81	186,7	2359	500
130	10,0	2,19	140,0	2597	571
140	15,0	1,63	93,3	2973	615
135	20,0	1,21	70,0	3272	667
130	25,0	0,96	56,0	3524	700
160	30,0	1,04	46,7	3745	700
145	40,0	0,75	35,0	4122	700
135	50,0	0,59	28,0	4440	700
130	60,0	0,50	23,3	4719	700
122	80,0	0,39	17,5	5193	700
118	100,0	0,33	14,0	5595	700

NRV075

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
185	7,5	4,06	186,7	2785	700
195	10,0	3,25	140,0	3065	830
200	15,0	2,27	93,3	3509	851
210	20,0	1,85	70,0	3862	980
200	25,0	1,45	56,0	4160	980
230	30,0	1,46	46,7	4421	980
220	40,0	1,10	35,0	4865	980
210	50,0	0,88	28,0	5241	980
200	60,0	0,74	23,3	5569	980
190	80,0	0,57	17,5	6130	980
180	100,0	0,47	14,0	6603	980

NRV090

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
319	7,5	6,93	186,7	3081	900
341	10,0	5,62	140,0	3391	1082
396	15,0	4,45	93,3	3882	1257
391	20,0	3,37	70,0	4273	1270
374	25,0	2,64	56,0	4603	1270
432	30,0	2,67	46,7	4891	1270
396	40,0	1,91	35,0	5383	1270
374	50,0	1,50	28,0	5799	1270
352	60,0	1,23	23,3	6163	1270
285	80,0	0,82	17,5	6783	1270
270	100,0	0,66	14,0	7306	1270

NRV 모터 용량에 따른 분류 / Performance($n_1 = 1400\text{rpm}$, $F_s = 1$)

NRV105

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
530	7,5	11,51	186,7	3893	1200
572	10,0	9,42	140,0	4285	1457
609	15,0	6,84	93,3	4905	1551
624	20,0	5,32	70,0	5399	1700
590	25,0	4,07	56,0	5816	1700
665	30,0	4,06	46,7	6181	1700
680	40,0	3,15	35,0	6803	1700
645	50,0	2,49	28,0	7328	1700
575	60,0	1,92	23,3	7787	1700
490	80,0	1,32	17,5	8571	1700
460	100,0	1,05	14,0	9232	1700

NRV130

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
750	7,5	16,11	186,7	5092	1500
820	10,0	13,51	140,0	5605	1845
920	15,0	10,33	93,3	6416	2070
910	20,0	7,67	70,0	7062	2100
930	25,0	6,42	56,0	7607	2100
1040	30,0	6,27	46,7	8084	2100
1050	40,0	4,87	35,0	8897	2100
980	50,0	3,78	28,0	9584	2100
900	60,0	3,01	23,3	10185	2100
840	80,0	2,23	17,5	11210	2100
740	100,0	1,67	14,0	12076	2100

NRV150

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
1200	7,5	25,78	186,7	6962	1950
1240	10,0	20,20	140,0	7663	2267
1250	15,0	13,88	93,3	8771	2285
1300	20,0	10,95	70,0	9654	2674
1200	25,0	8,28	56,0	10400	2800
1200	30,0	6,98	46,7	11051	2800
1550	40,0	7,19	35,0	12163	2800
1400	50,0	5,33	28,0	13103	2800
1260	60,0	4,16	23,3	13924	2800
1150	80,0	3,05	17,5	15325	2800
1000	100,0	2,26	14,0	16508	2800

NRV 모터 용량에 따른 분류 / Performance(n1 = 900rpm, Fs = 1)

NRV030

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
21	5,0	0,47	180,0	692	175
21	7,5	0,32	120,0	792	175
21	10,0	0,24	90,0	871	197
21	15,0	0,18	60,0	997	197
20	20,0	0,13	45,0	1098	210
24	25,0	0,14	36,0	1183	210
22	30,0	0,11	30,0	1257	210
21	40,0	0,09	22,5	1383	210
19	50,0	0,07	18,0	1490	210
17	60,0	0,06	15,0	1583	210
15	80,0	0,04	11,3	1743	210

NRV063

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
141	7,5	2,01	120,0	2734	580
143	10,0	1,59	90,0	3009	662
154	15,0	1,18	60,0	3444	713
149	20,0	0,90	45,0	3791	700
141	25,0	0,70	36,0	4084	700
176	30,0	0,78	30,0	4339	700
160	40,0	0,57	22,5	4776	700
149	50,0	0,45	18,0	5145	700
142	60,0	0,38	15,0	5467	700
128	80,0	0,28	11,3	6018	700
124	100,0	0,24	9,0	6270	700

NRV040

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
42	5,0	0,91	180,0	1331	290
46	7,5	0,68	120,0	1524	318
48	10,0	0,55	90,0	1677	350
50	15,0	0,40	60,0	1920	350
48	20,0	0,30	45,0	2113	350
45	25,0	0,23	36,0	2276	350
53	30,0	0,25	30,0	2419	350
50	40,0	0,19	22,5	2662	350
46	50,0	0,15	18,0	2868	350
41	60,0	0,12	15,0	3047	350
35	80,0	0,08	11,3	3354	350
32	100,0	0,07	9,0	3490	350

NRV075

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
203	7,5	2,90	120,0	3227	810
214	10,0	2,35	90,0	3551	961
219	15,0	1,66	60,0	4065	980
230	20,0	1,35	45,0	4474	980
219	25,0	1,06	36,0	4820	980
252	30,0	1,07	30,0	5122	980
241	40,0	0,82	22,5	5637	980
230	50,0	0,67	18,0	6073	980
219	60,0	0,55	15,0	6453	980
200	80,0	0,42	11,3	7103	980
190	100,0	0,36	9,0	7380	980

NRV050

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
82	5,0	1,76	180,0	1827	400
91	7,5	1,33	120,0	2091	444
92	10,0	1,02	90,0	2302	490
92	15,0	0,72	60,0	2635	490
83	20,0	0,51	45,0	2900	490
76	25,0	0,39	36,0	3124	490
94	30,0	0,43	30,0	3320	490
88	40,0	0,32	22,5	3654	490
81	50,0	0,25	18,0	3936	490
76	60,0	0,21	15,0	4183	490
68	80,0	0,16	11,3	4604	490
56	100,0	0,12	9,0	4840	490

NRV090

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
374	7,5	5,28	120,0	3570	1040
407	10,0	4,41	90,0	3929	1270
462	15,0	3,41	60,0	4498	1270
429	20,0	2,47	45,0	4951	1270
407	25,0	1,92	36,0	5333	1270
485	30,0	2,00	30,0	5667	1270
451	40,0	1,48	22,5	6238	1270
429	50,0	1,17	18,0	6719	1270
385	60,0	0,93	15,0	7140	1270
315	80,0	0,62	11,3	7859	1270
280	100,0	0,48	9,0	8180	1270

NRV 모터 용량에 따른 분류 / Performance($n_1 = 900\text{rpm}$, $F_s = 1$)

NRV105

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
624	7,5	8,81	120,0	4511	1390
682	10,0	7,30	90,0	4965	1700
705	15,0	5,15	60,0	5684	1700
702	20,0	3,94	45,0	6256	1700
660	25,0	3,03	36,0	6739	1700
771	30,0	3,15	30,0	7161	1700
769	40,0	2,42	22,5	7882	1700
731	50,0	1,91	18,0	8491	1700
637	60,0	1,45	15,0	9023	1700
540	80,0	0,99	11,3	9931	1700
490	100,0	0,78	9,0	10320	1700

NRV130

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
880	7,5	12,29	120,0	5901	1740
960	10,0	10,28	90,0	6494	2100
1060	15,0	7,83	60,0	7434	2100
1040	20,0	5,77	45,0	8182	2100
1050	25,0	4,77	36,0	8814	2100
1170	30,0	4,65	30,0	9366	2100
1100	40,0	3,41	22,5	10309	2100
1050	50,0	2,71	18,0	11105	2100
940	60,0	2,11	15,0	11801	2100
860	80,0	1,56	11,3	12989	2100
780	100,0	1,23	9,0	13500	2100

NRV150

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
1400	7,5	19,55	120,0	8067	2270
1480	10,0	15,67	90,0	8878	2700
1450	15,0	10,47	60,0	10163	2645
1500	20,0	8,32	45,0	11186	2800
1380	25,0	6,19	36,0	12050	2800
1400	30,0	5,36	30,0	12805	2800
1800	40,0	5,58	22,5	14094	2800
1600	50,0	4,08	18,0	15182	2800
1440	60,0	3,19	15,0	16133	2800
1300	80,0	2,32	11,3	17757	2800
1150	100,0	1,78	9,0	18000	2800

NRV 모터 용량에 따른 분류 / Performance(n1 = 500rpm, Fs = 1)

NRV030

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
25	5,0	0,31	100,0	841	210
25	7,5	0,22	66,7	963	210
25	10,0	0,17	50,0	1060	210
25	15,0	0,12	33,3	1213	210
23	20,0	0,09	25,0	1336	210
30	25,0	0,10	20,0	1439	210
27	30,0	0,08	16,7	1529	210
24	40,0	0,06	12,5	1683	210
22	50,0	0,05	10,0	1813	210
19	60,0	0,04	8,3	1830	210
17	80,0	0,03	6,3	1830	210

NRV063

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
171	7,5	1,39	66,7	3325	700
174	10,0	1,11	50,0	3660	700
187	15,0	0,84	33,3	4190	700
181	20,0	0,63	25,0	4611	700
169	25,0	0,49	20,0	4967	700
210	30,0	0,56	16,7	5279	700
192	40,0	0,41	12,5	5810	700
181	50,0	0,33	10,0	6259	700
165	60,0	0,27	8,3	6270	700
137	80,0	0,19	6,3	6270	700
128	100,0	0,16	5,0	6270	700

NRV040

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
52	5,0	0,63	100,0	1619	350
56	7,5	0,47	66,7	1853	350
59	10,0	0,38	50,0	2040	350
61	15,0	0,28	33,3	2335	350
57	20,0	0,20	25,0	2570	350
51	25,0	0,15	20,0	2769	350
62	30,0	0,17	16,7	2942	350
58	40,0	0,13	12,5	3238	350
53	50,0	0,10	10,0	3488	350
48	60,0	0,08	8,3	3490	350
40	80,0	0,06	6,3	3490	350
36	100,0	0,05	5,0	3490	350

NRV075

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
247	7,5	2,03	66,7	3925	980
260	10,0	1,64	50,0	4320	980
266	15,0	1,16	33,3	4945	980
280	20,0	0,95	25,0	5443	980
266	25,0	0,75	20,0	5863	980
306	30,0	0,77	16,7	6231	980
293	40,0	0,60	12,5	6858	980
273	50,0	0,48	10,0	7380	980
262	60,0	0,40	8,3	7380	980
215	80,0	0,28	6,3	7380	980
210	100,0	0,24	5,0	7380	980

NRV050

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
101	5,0	1,23	100,0	2222	490
112	7,5	0,93	66,7	2544	490
113	10,0	0,72	50,0	2800	490
113	15,0	0,51	33,3	3205	490
100	20,0	0,35	25,0	3528	490
92	25,0	0,28	20,0	3800	490
113	30,0	0,30	16,7	4038	490
105	40,0	0,23	12,5	4445	490
96	50,0	0,18	10,0	4788	490
87	60,0	0,15	8,3	4840	490
75	80,0	0,11	6,3	4840	490
65	100,0	0,08	5,0	4840	490

NRV090

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
451	7,5	3,66	66,7	4343	1270
479	10,0	2,95	50,0	4780	1270
539	15,0	2,29	33,3	5472	1270
517	20,0	1,71	25,0	6022	1270
484	25,0	1,33	20,0	6487	1270
579	30,0	1,40	16,7	6894	1270
528	40,0	1,03	12,5	7588	1270
495	50,0	0,81	10,0	8174	1270
440	60,0	0,64	8,3	8180	1270
365	80,0	0,44	6,3	8180	1270
330	100,0	0,35	5,0	8180	1270

NRV 모터 용량에 따른 분류 / Performance($n_1 = 500\text{rpm}$, $F_s = 1$)

NRV105

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
762	7,5	6,11	66,7	5488	1700
814	10,0	5,01	50,0	6040	1700
844	15,0	3,55	33,3	6914	1700
836	20,0	2,70	25,0	7610	1700
790	25,0	2,09	20,0	8198	1700
919	30,0	2,20	16,7	8711	1700
903	40,0	1,66	12,5	9588	1700
860	50,0	1,34	10,0	10320	1700
729	60,0	0,99	8,3	10320	1700
630	80,0	0,71	6,3	10320	1700
570	100,0	0,55	5,0	10320	1700

NRV130

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
1080	7,5	8,57	66,7	7178	2100
1160	10,0	7,06	50,0	7900	2100
1300	15,0	5,47	33,3	9043	2100
1230	20,0	3,93	25,0	9953	2100
1200	25,0	3,18	20,0	10722	2100
1400	30,0	3,28	16,7	11394	2100
1300	40,0	2,40	12,5	12540	2100
1220	50,0	1,88	10,0	13500	2100
1070	60,0	1,46	8,3	13500	2100
970	80,0	1,08	6,3	13500	2100
860	100,0	0,83	5,0	13500	2100

NRV150

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
1700	7,5	13,49	66,7	9812	2800
1780	10,0	10,71	50,0	10800	2800
1730	15,0	7,19	33,3	12363	2800
1820	20,0	5,81	25,0	13607	2800
1630	25,0	4,27	20,0	14658	2800
1670	30,0	3,74	16,7	15576	2800
2120	40,0	3,38	12,5	17144	2800
1870	50,0	2,84	10,0	18000	2800
1680	60,0	2,26	8,3	18000	2800
1530	80,0	1,67	6,3	18000	2800
1350	100,0	1,29	5,0	18000	2800

NRV 모터 용량에 따른 분류 / Performance($n_1 = 1400\text{rpm}$, $F_s = 1$)

NRV030/040

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
73	300	0,07	4,7	3490	150
65	400	0,05	3,5	3490	169
61	500	0,04	2,8	3490	169
73	600	0,04	2,3	3490	180
73	750	0,04	1,9	3490	210
73	900	0,03	1,6	3490	210
65	1200	0,02	1,2	3490	210
73	1500	0,02	0,9	3490	210
73	1800	0,02	0,8	3490	210
65	2400	0,01	0,6	3490	210
65	3200	0,01	0,4	3490	210
33	4000	0,01	0,4	3490	210
29	5000	0,01	0,3	3490	210

NRV030/050

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
145	300	0,14	4,7	4840	150
124	400	0,10	3,5	4840	169
120	500	0,08	2,8	4840	169
145	600	0,08	2,3	4840	180
145	750	0,07	1,9	4840	210
145	900	0,06	1,6	4840	210
124	1200	0,04	1,2	4840	210
145	1500	0,04	0,9	4840	210
145	1800	0,04	0,8	4840	210
124	2400	0,03	0,6	4840	210
120	3000	0,02	0,5	4840	210
82	4000	0,01	0,4	4840	210
82	4800	0,01	0,3	4840	210

NRV030/063

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
230	300	0,24	4,7	6270	150
230	400	0,18	3,5	6270	169
216	500	0,15	2,8	6270	169
230	600	0,13	2,3	6270	180
216	750	0,10	1,9	6270	210
198	900	0,09	1,6	6270	210
230	1200	0,08	1,2	6270	210
216	1500	0,06	0,9	6270	210
198	1800	0,05	0,8	6270	210
230	2400	0,05	0,6	6270	210
216	3000	0,04	0,5	6270	210
172	4000	0,03	0,4	6270	210
150	5000	0,02	0,3	6270	210

NRV040/075

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
390	300	0,35	4,7	7380	344
360	400	0,26	3,5	7380	344
320	500	0,20	2,8	7380	344
390	600	0,19	2,3	7380	350
390	750	0,16	1,9	7380	350
390	900	0,14	1,6	7380	350
360	1200	0,10	1,2	7380	350
390	1500	0,09	0,9	7380	350
390	1800	0,08	0,8	7380	350
360	2400	0,06	0,6	7380	350
320	3000	0,05	0,5	7380	350
250	4000	0,03	0,4	7380	350
230	5000	0,03	0,3	7380	350

NRV040/090

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
610	300	0,55	4,7	8180	344
610	400	0,42	3,5	8180	344
560	500	0,33	2,8	8180	344
610	600	0,29	2,3	8180	350
560	750	0,23	1,9	8180	350
505	900	0,18	1,6	8180	350
610	1200	0,17	1,2	8180	350
560	1500	0,13	0,9	8180	350
505	1800	0,11	0,8	8180	350
610	2400	0,10	0,6	8180	350
560	3000	0,08	0,5	8180	350
460	4000	0,05	0,4	8180	350
410	5000	0,04	0,3	8180	350

NRV 모터 용량에 따른 분류 / Performance($n_1 = 1400\text{rpm}$, $F_s = 1$)

NRV050/105

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
1100	300	0,92	4,7	10320	490
1030	400	0,67	3,5	10320	490
1000	500	0,54	2,8	10320	490
1030	600	0,47	2,3	10320	490
1100	750	0,42	1,9	10320	490
1100	900	0,37	1,6	10320	490
1030	1200	0,27	1,2	10320	490
1100	1500	0,25	0,9	10320	490
1100	1800	0,22	0,8	10320	490
1030	2400	0,16	0,6	10320	490
1000	3000	0,13	0,5	10320	490
780	4000	0,08	0,4	10320	490
710	5000	0,07	0,3	10320	490

NRV063/130

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
1760	300	1,45	4,7	13500	595
1650	400	1,07	3,5	13500	595
1550	500	0,84	2,8	13500	595
1650	600	0,74	2,3	13500	700
1760	750	0,65	1,9	13500	700
1760	900	0,57	1,6	13500	700
1650	1200	0,41	1,2	13500	700
1760	1500	0,38	0,9	13500	700
1760	1800	0,34	0,8	13500	700
1650	2400	0,25	0,6	13500	700
1550	3000	0,19	0,5	13500	700
1220	4000	0,13	0,4	13500	700
1100	5000	0,10	0,3	13500	700

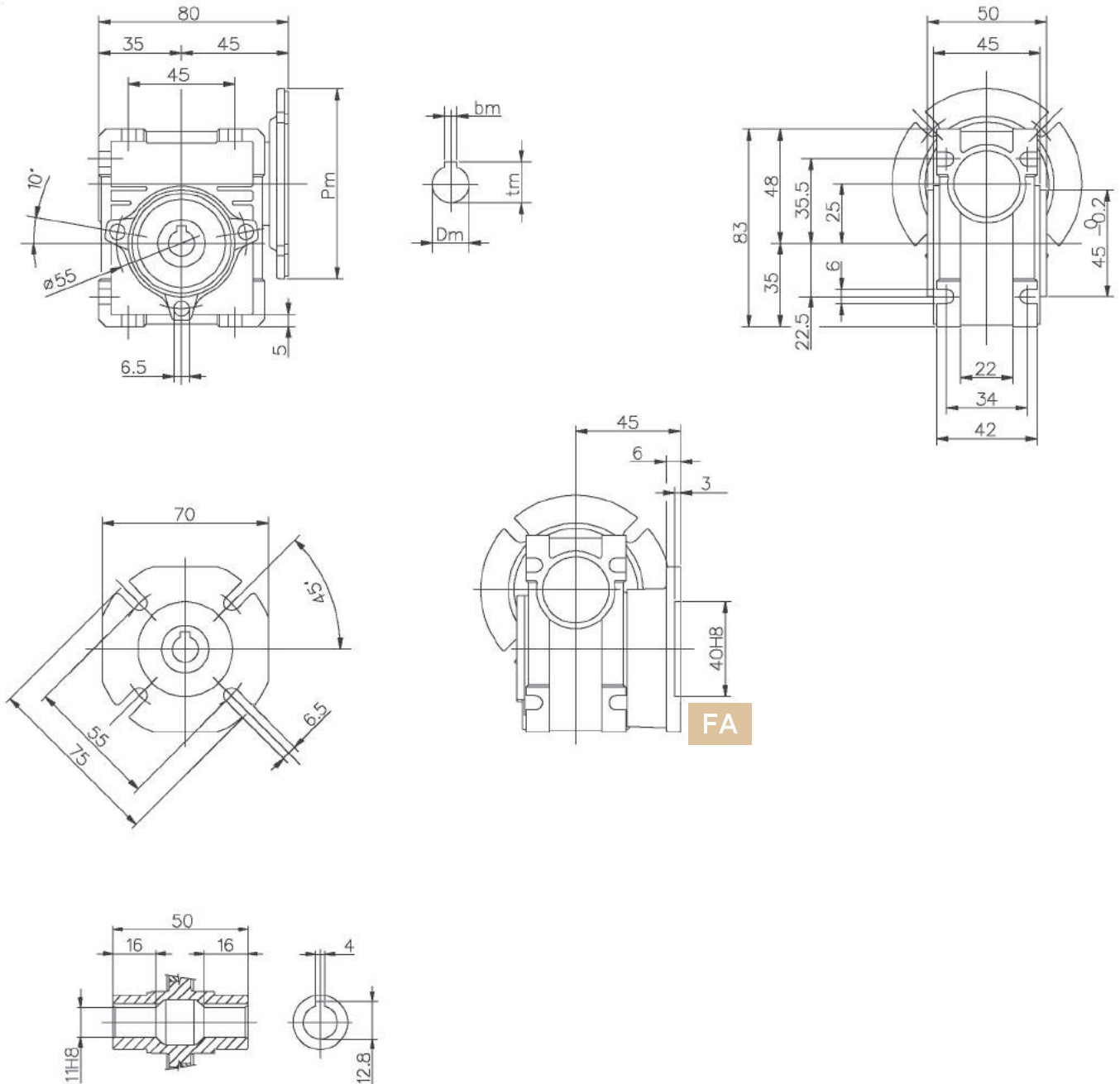
NRV063/150

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
1946	150	2,78	9,3	18000	500
1976	200	2,16	7,0	18000	595
2050	250	1,84	5,6	18000	595
2128	300	1,61	4,7	18000	595
2670	400	1,70	3,5	18000	595
2330	500	1,27	2,8	18000	595
2670	600	1,18	2,3	18000	700
2330	750	0,87	1,9	18000	700
2100	900	0,62	1,6	18000	700
2670	1200	0,66	1,2	18000	700
2100	1800	0,37	0,8	18000	700
2670	2400	0,39	0,6	18000	700
2330	3000	0,29	0,5	18000	700
1880	4000	0,19	0,4	18000	700
1650	5000	0,15	0,3	18000	700

025

차수 / Dimensions

NMRV



- 모터제외 무게 ~0.7 kg
- Weight without motor ~0.7 kg

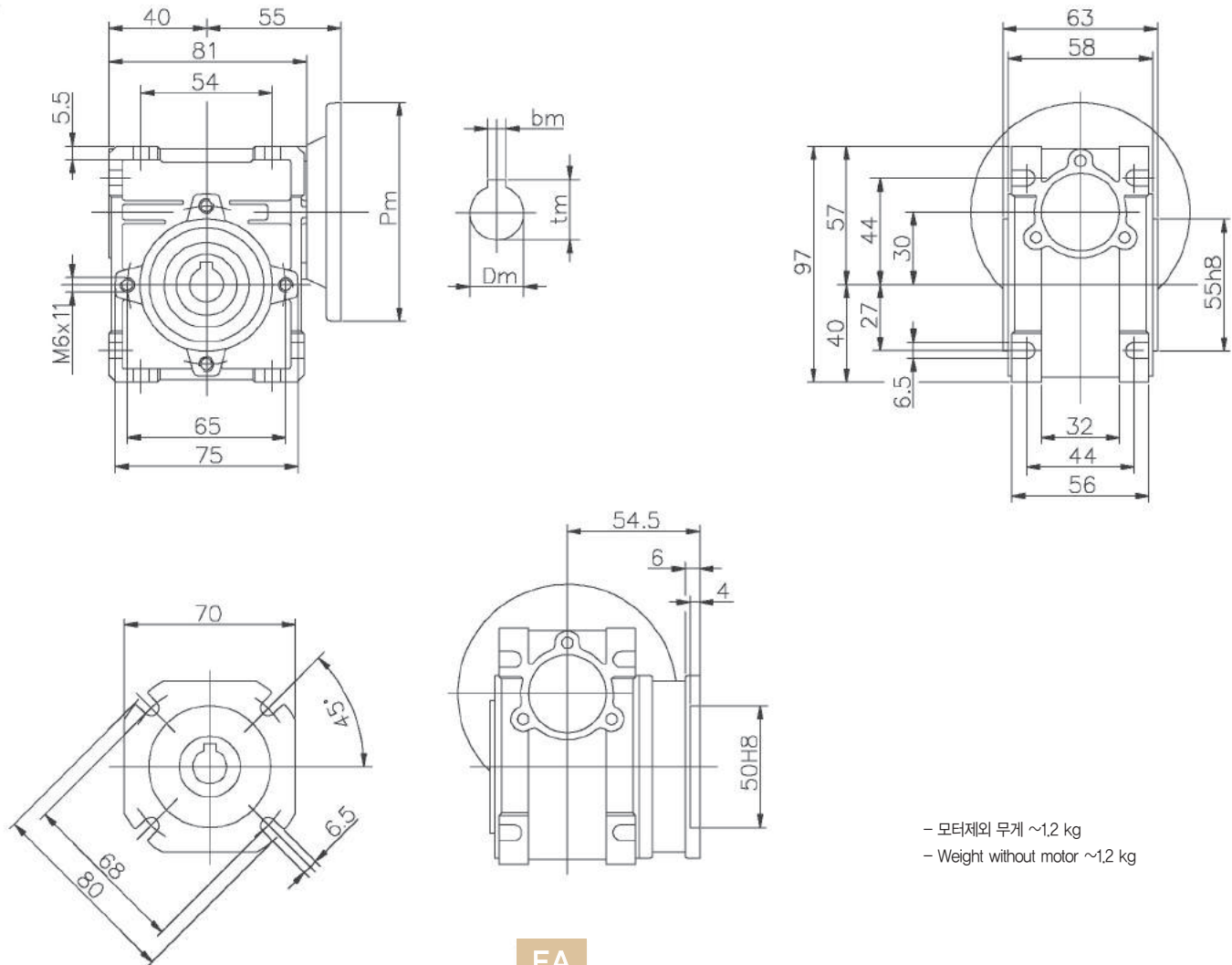
모터 결속부위 관련 치수(Pm, Dm, bm, tm)는 66페이지에 제시된 도표를 참조하도록 한다.

For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 66.

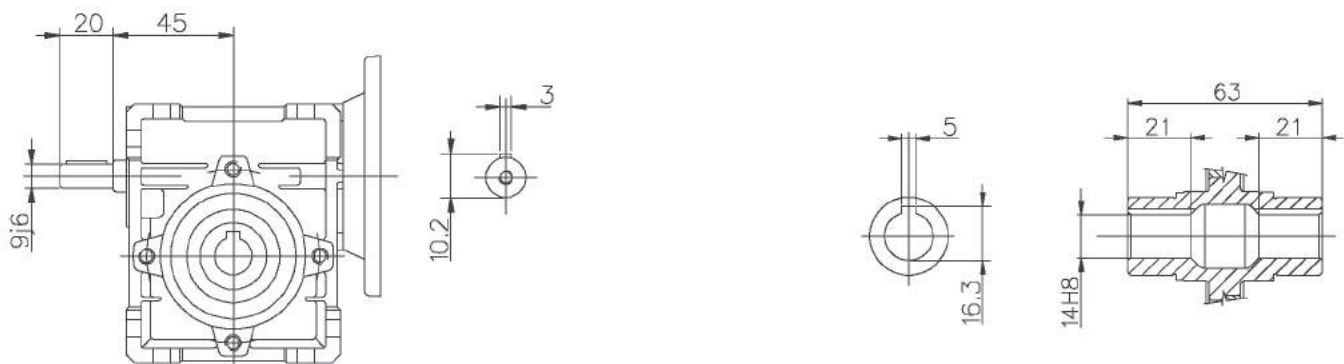
Dimensions / 치수

030

NMRV



- 모터체의 무게 ~1.2 kg
- Weight without motor ~1.2 kg



VS

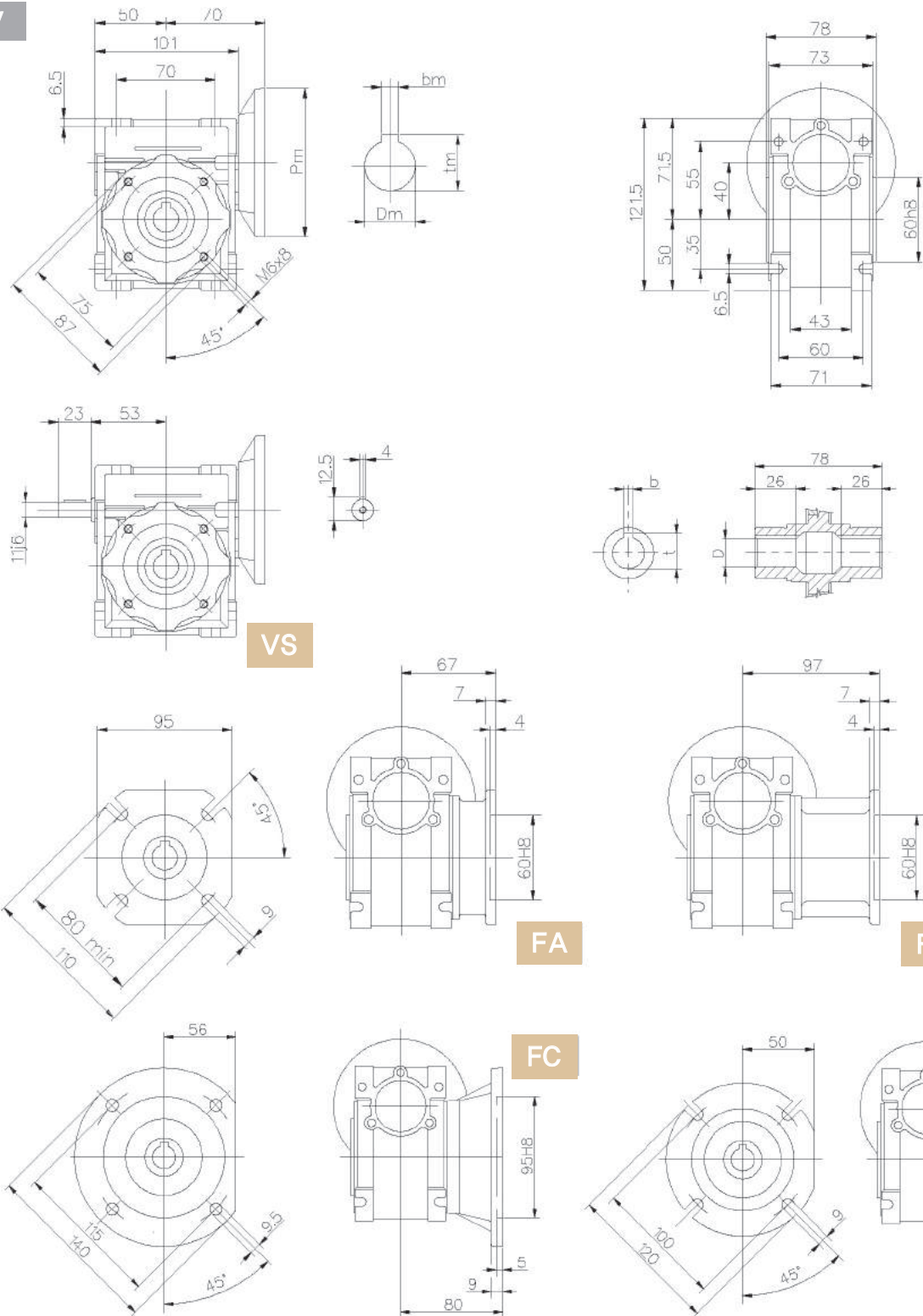
모터 결속부위 관련 치수(Pm, Dm, bm, tm)는 66페이지에 제시된 도표를 참조하도록 한다.

For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 66.

040

차수 / Dimensions

NMRV



- 모터제외 무게 ~2.3 kg
- Weight without motor ~2.3 kg

모터 결속부위 관련 치수(Pm, Dm, bm, tm)는 66페이지에 제시된 도표를 참조하도록 한다.

For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 66.

출력 / Output		
D H8	b	t
18	6	20,8
(19)	(6)	(21,8)

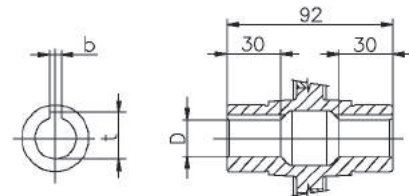
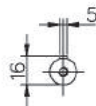
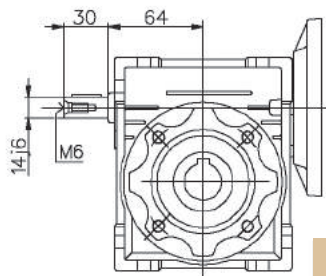
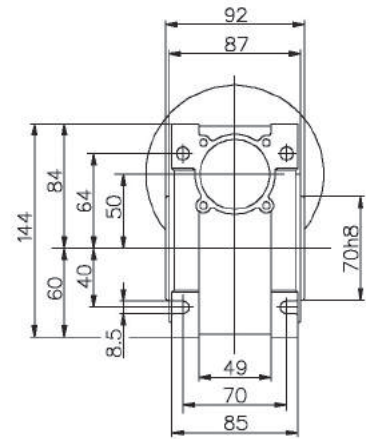
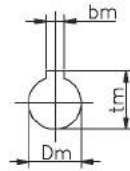
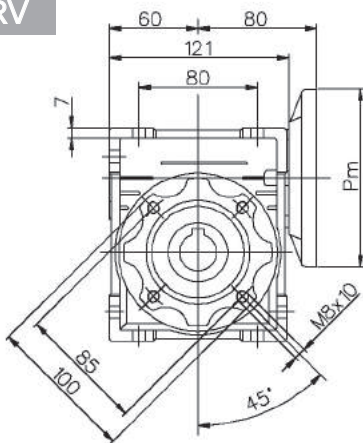
(.) 주문사항

(..) Only on request

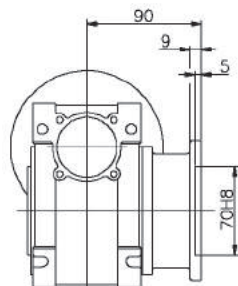
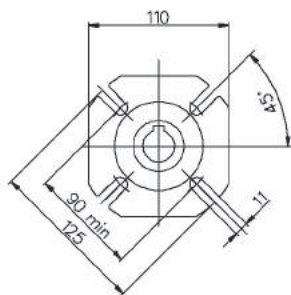
Dimensions / 치수

050

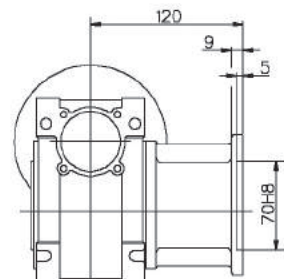
NMRV



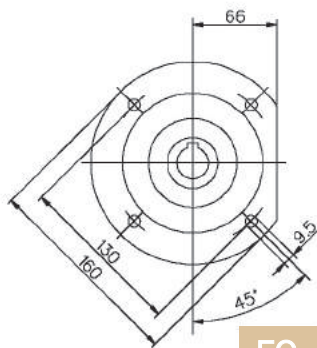
VS



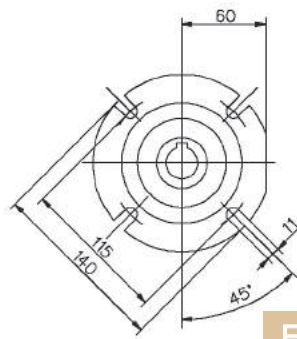
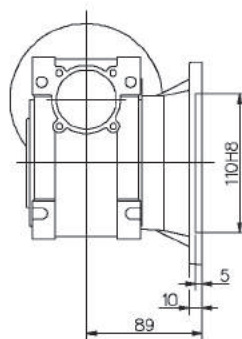
FA



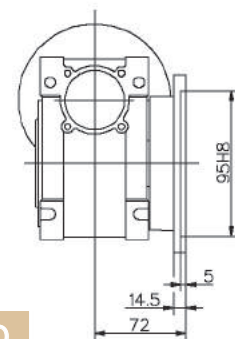
FB



FC



FD



- 모터제외 무게 ~3.5 kg
- Weight without motor ~3.5 kg

모터 접속부위 관련 치수(Pm, Dm, bm, tm)는 66페이지에 제시된 도표를 참조하도록 한다.

For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 66.

(..) 주문사항

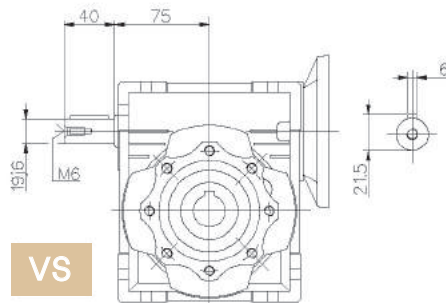
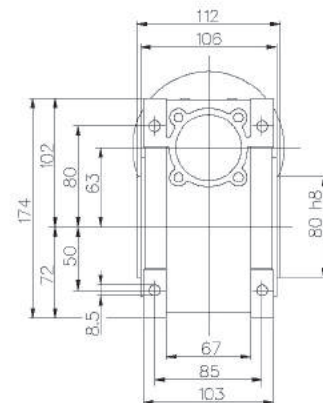
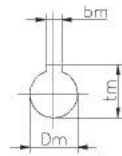
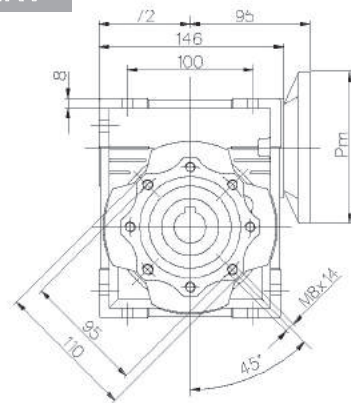
(..) Only on request

출력 / Output		
D H8	b	t
25	8	28,3
(24)	(8)	(27,3)

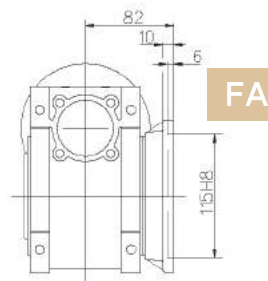
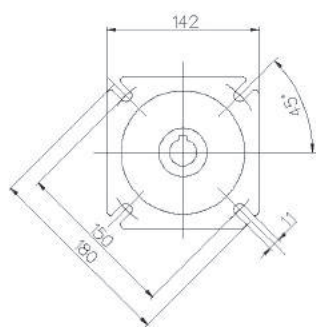
063

차수 / Dimensions

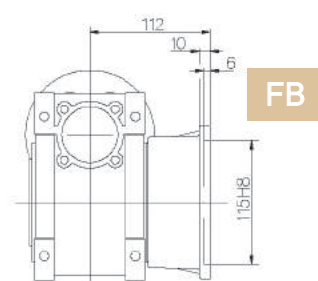
NMRV



VS



FA

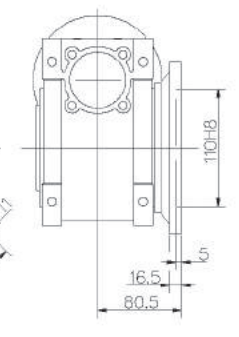
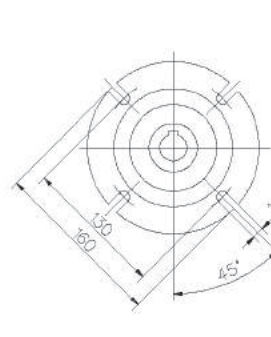
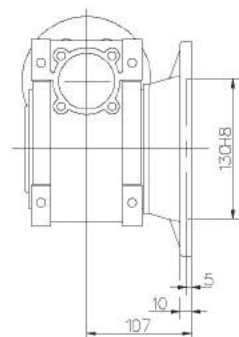
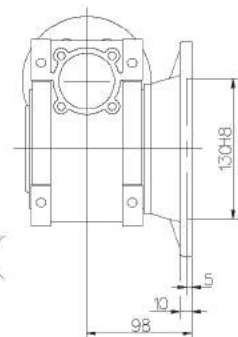
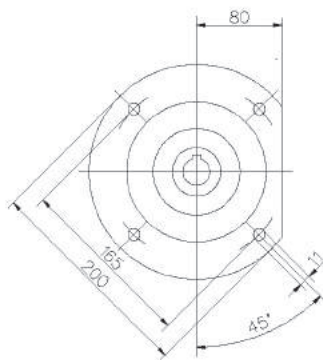


FB

FC

FD

FE



- 모터제외 무게 ~6.2 kg
- Weight without motor ~6.2 kg

모터 결속부위 관련 치수(Pm, Dm, bm, tm)는 66페이지에 제시된 도표를 참조하도록 한다.

For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 66.

(..) 주문사항

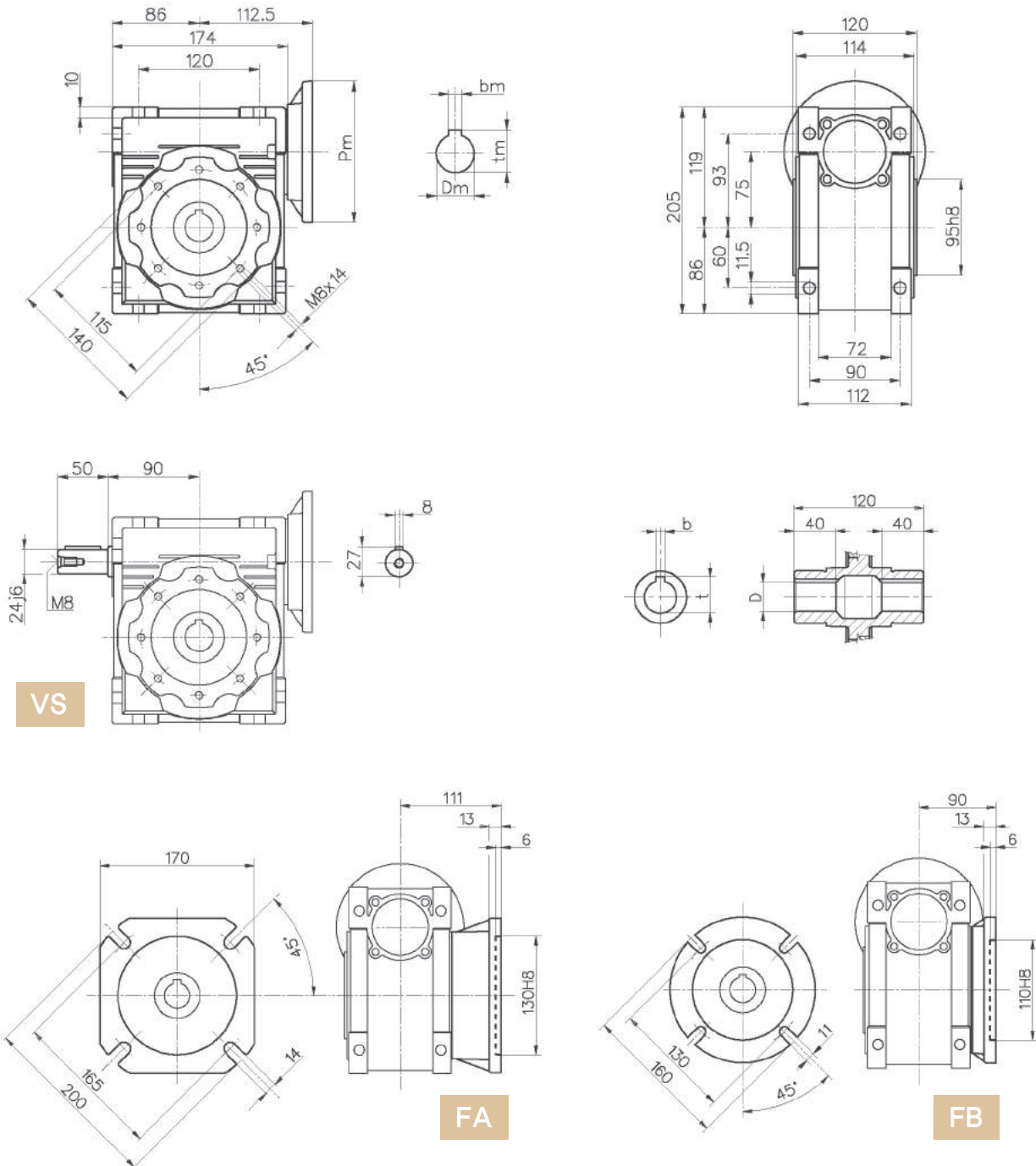
(..) Only on request

출력 / Output		
D H8	b	t
25	8	28,3
(28)	(8)	(31,3)

Dimensions / 치수

075

NMRV



- 모터제외 무게 ~9 kg
- Weight without motor ~9 kg

모터 결속부위 관련 치수(Pm, Dm, bm, tm)는 66페이지에 제시된 도표를 참조하도록 한다.

For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 66.

출력 / Output		
D H8	b	t
28	8	31,3
(35)	(10)	(38,3)

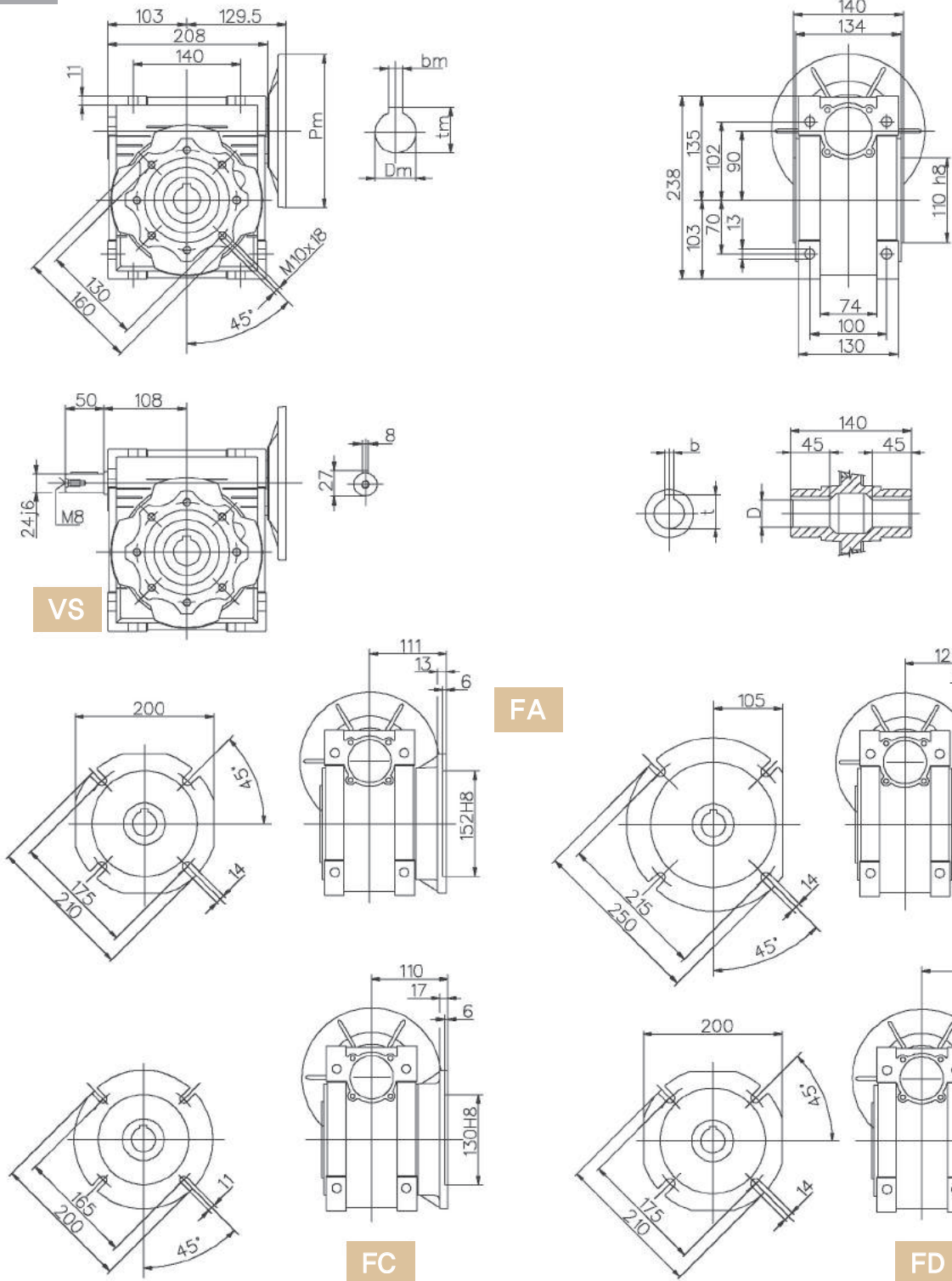
(.) 주문사항

(.) Only on request

090

차수 / Dimensions

NMRV



- 모터제외 무게 ~13 kg
- Weight without motor ~13 kg

모터 결속부위 관련 치수(Pm, Dm, bm, tm)는 66페이지에 제시된 도표를 참조하도록 한다.

For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 66.

(..) 주문사항

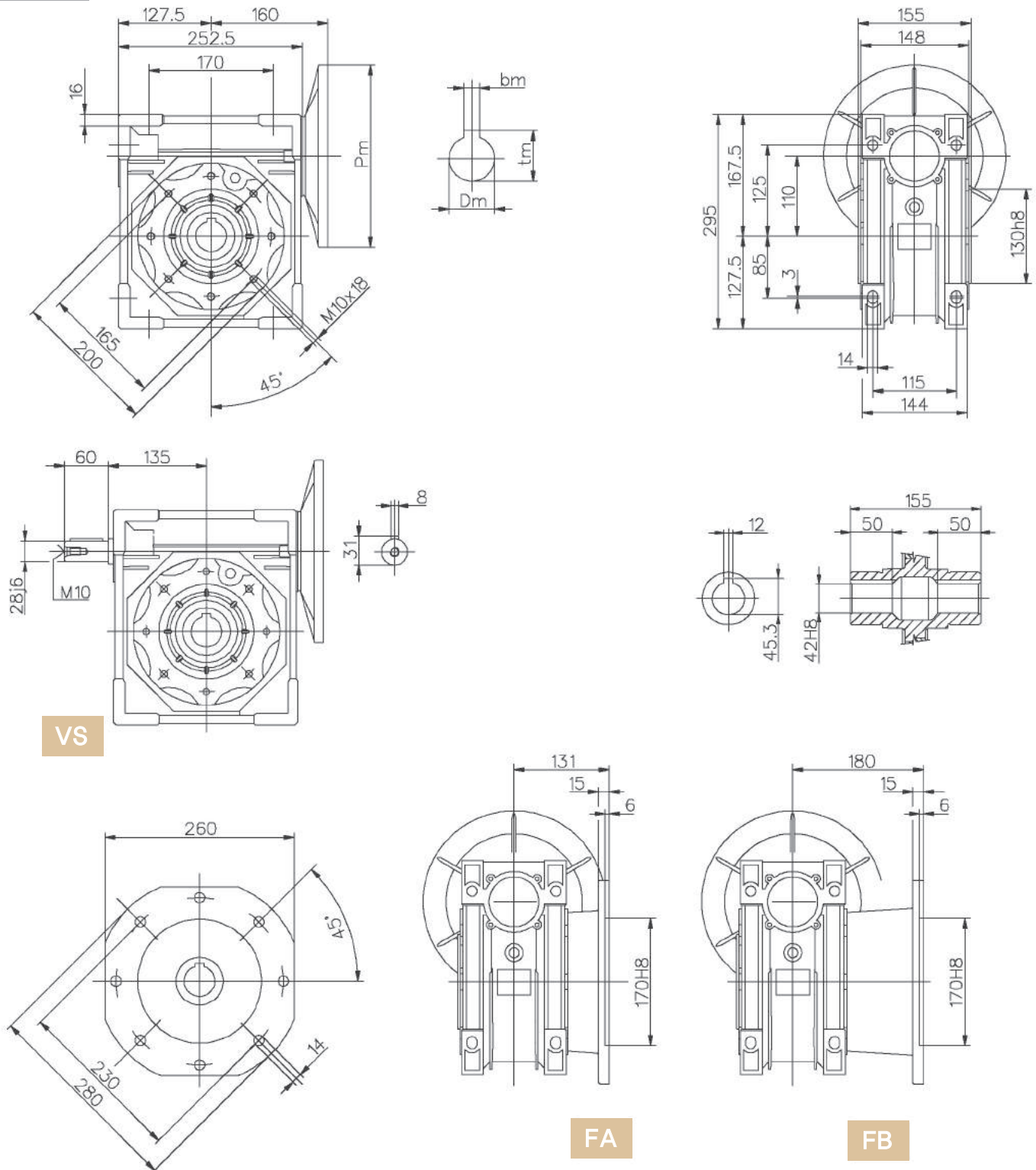
(..) Only on request

출력 / Output		
D H8	b	t
35	10	38,3
(38)	(10)	(41,3)

Dimensions / 치수

105

NMRV



- 모터제외 무게 ~21 kg
- Weight without motor ~21 kg

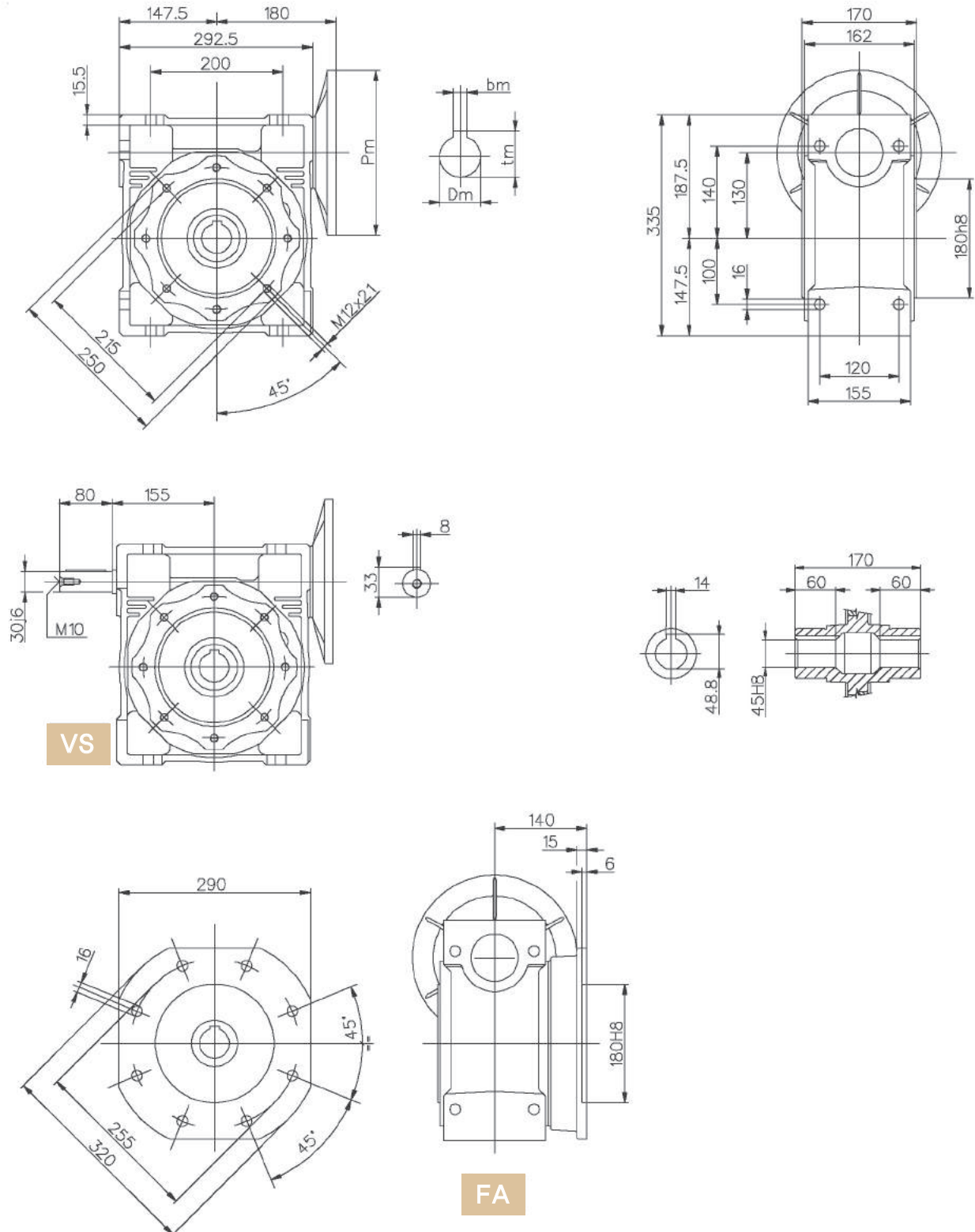
모터 결속부위 관련 치수(Pm, Dm, bm, tm)는 66페이지에 제시된 도표를 참조하도록 한다.

For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 66.

130

차수 / Dimensions

NMRV



- 모터제외 무게 ~48 kg
- Weight without motor ~48 kg

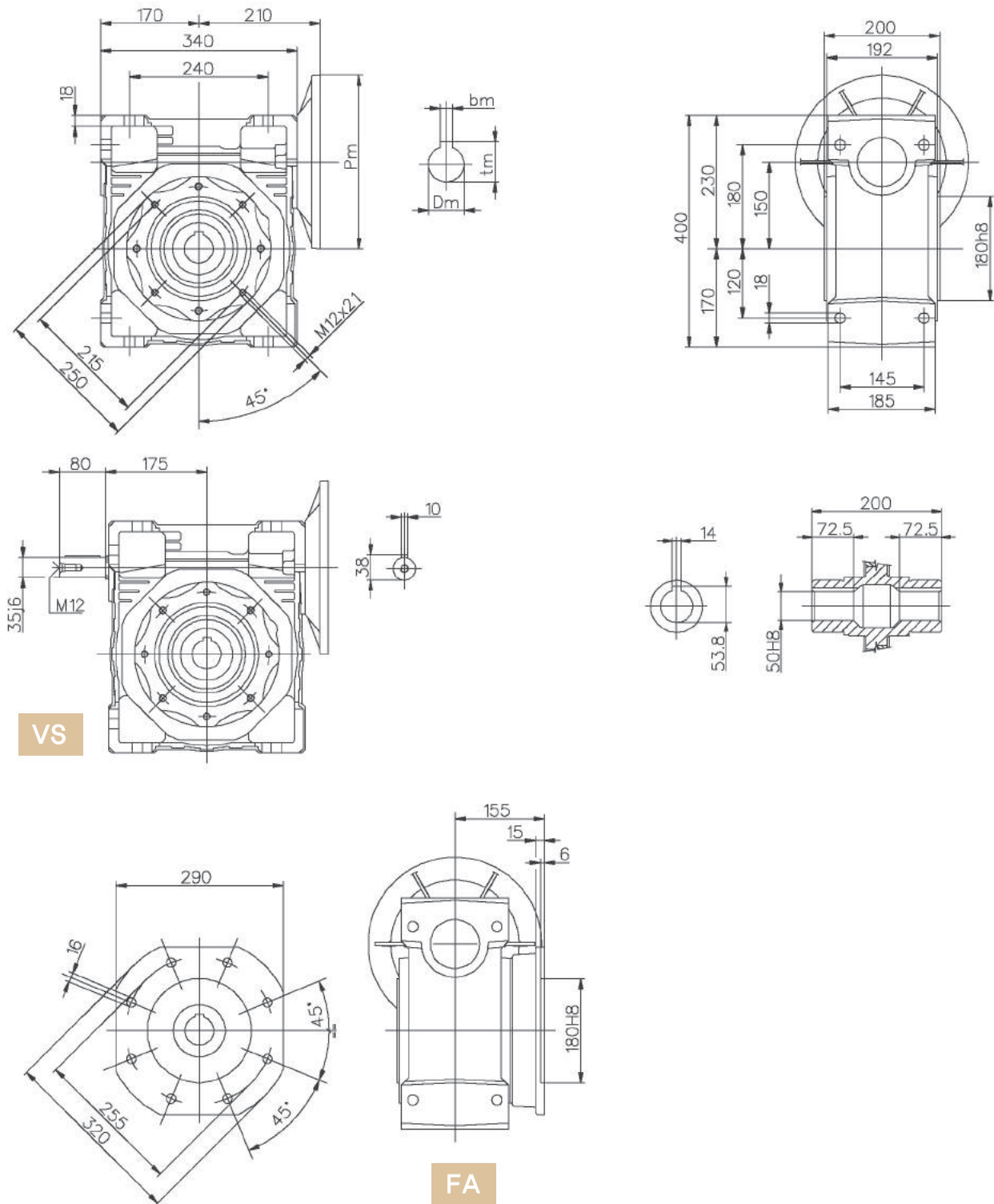
모터 결속부위 관련 치수(Pm, Dm, bm, tm)는 66페이지에 제시된 도표를 참조하도록 한다.

For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 66.

Dimensions / 치수

150

NMRV



VS

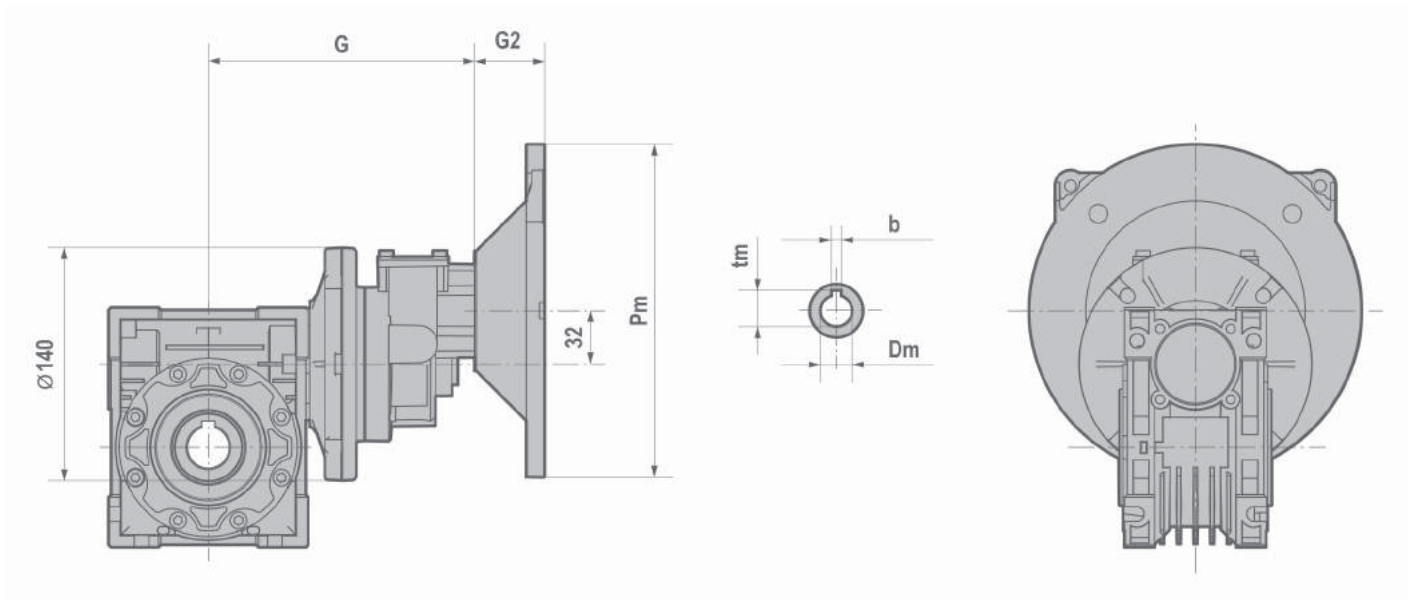
FA

- 모터제외 무게 ~84 kg
- Weight without motor ~84 kg

모터 결속부위 관련 치수(Pm, Dm, bm, tm)는 66페이지에 제시된 도표를 참조하도록 한다.

For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 66.

HA31 + NMRV 차수 / HA31 + NMRV Dimensions



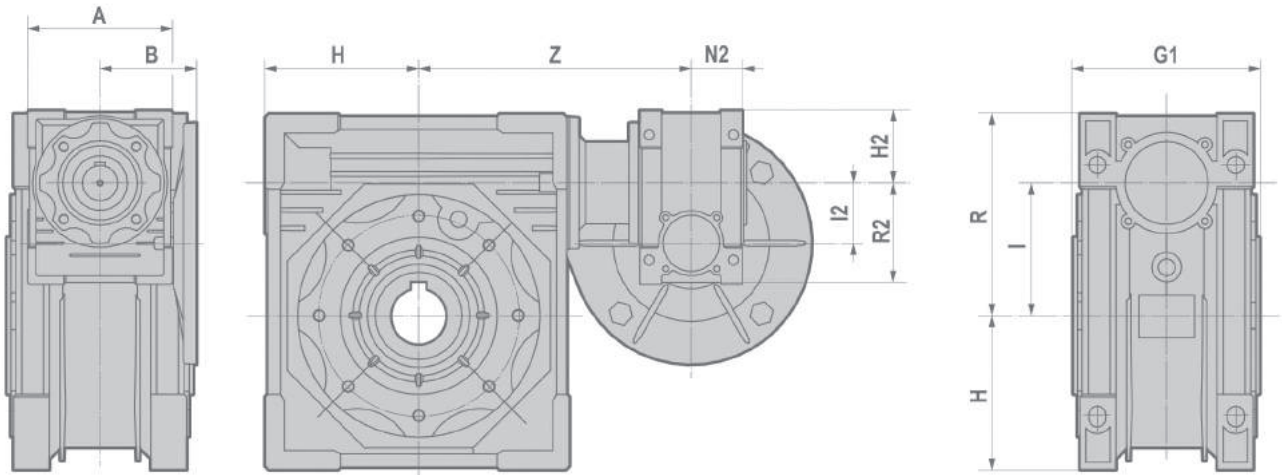
	040			050		
	G	G2	~ kg	G	G2	~ kg
063	150	25	4,2	160	25	5,4
071	150	32	4,3	160	32	5,5
080	150	42	4,5	160	42	5,7

- 모터 연결 부분에 대한 차수(Pm, Dm, bm, tm)는 66페이지의 표를 참조 하세요.
다른 모드 차수는 NMRV 사이즈를 참조 하세요.

- For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 66.
For all other dimensions, please consider the drawing of relevant NMRV size.

~kg : 오일은 포함, 모터는 미포함 무게입니다.
~kg : Weight with oil and without motor

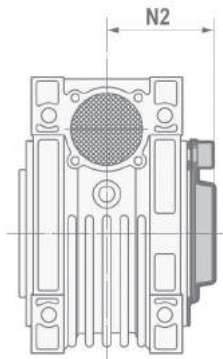
NMRV + NMRV - 치수 / Dimensions



	A	B	G1	H	I	R	H2	I2	N2	R2	Z	~ kg
025 - 030	70	45	63	40	30	57	35	25	22,5	48	100	1,9
025 - 040	70	45	78	50	40	71,5	35	25	22,5	48	115	3
030 - 040	80	55	78	50	40	71,5	40	30	29	57	122	3,5
030 - 050	80	55	92	60	50	84	40	30	29	57	132	4,7
030 - 063	80	55	112	72	63	102	40	30	29	57	145	7,4
040 - 075	100	70	120	86	75	119	50	40	36,5	71,5	167,5	11,3
040 - 090	100	70	140	103	90	135	50	40	36,5	71,5	184,5	15,3
050 - 105	120	80	155	127,5	110	167,5	60	50	43,5	84	226	24,5
063 - 105	144	95	160	127,5	110	167,5	72	63	53	102	225	27,2
063 - 130	144	95	170	147,5	130	187,5	72	63	53	102	245	54,2
063 - 150	144	95	200	170	150	230	72	63	53	102	275	90,2

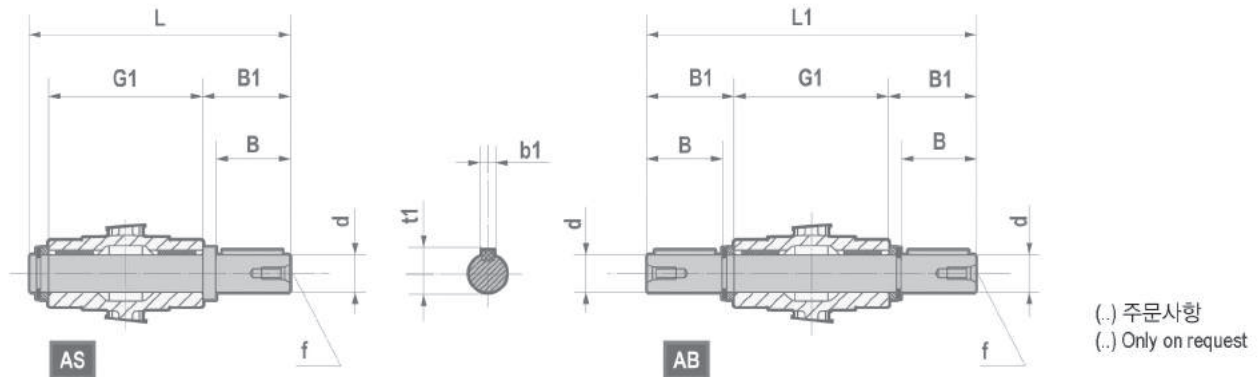
~kg 모터제외무게 / ~kg Weight without motor

플라스틱 커버 / Cover



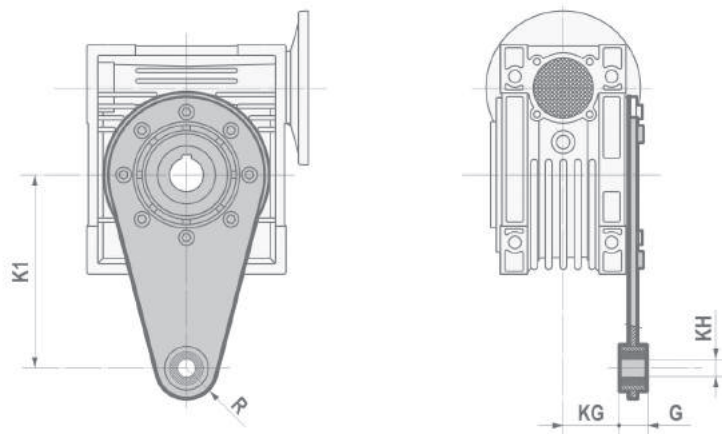
	N2
030	42
040	50
050	57,5
063	68,5
075	73,5
090	85,5
105	94
130	102
150	117

출력 샤프트 / Low speed shafts



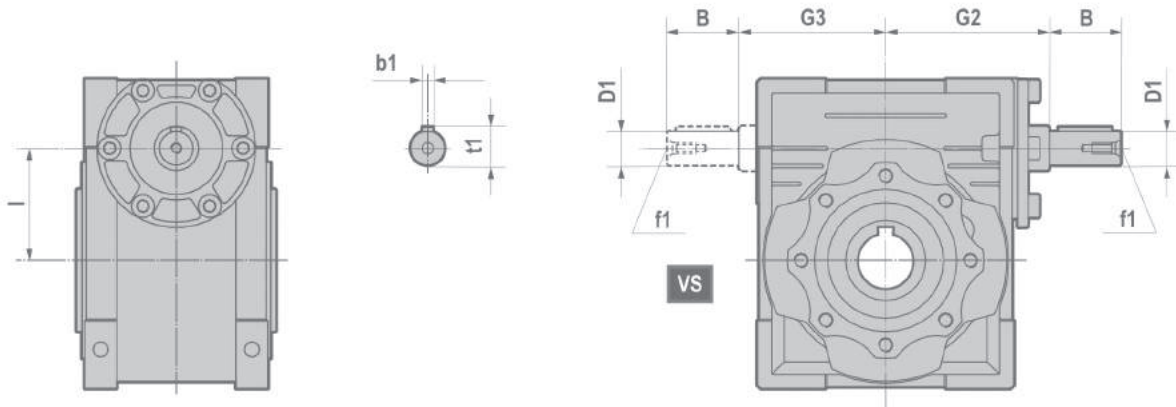
	d	B	B1	G1	L	L1	f	b1	t1
025	11g6 (9)	23 (25)	25.5 (30)	50	81 (85.5)	101	—	4 (3)	12.5 (10.2)
030	14 h6	30	32.5	63	102	128	M6	5	16
040	18 h6	40	43	78	128	164	M6	6	20.5
050	25 h6	50	53.5	92	153	199	M10	8	28
063	25 h6	50	53.5	112	173	219	M10	8	28
075	28 h6	60	63.5	120	192	247	M10	8	31
090	35 h6	80	84.5	140	234	309	M12	10	38
105	42 h6	80	84.5	155	249	324	M16	12	45
130	45 h6	80	85	170	265	340	M16	14	48.5
150	50 h6	82	87	200	297	374	M16	14	53.5

토크 암 / Torque arm



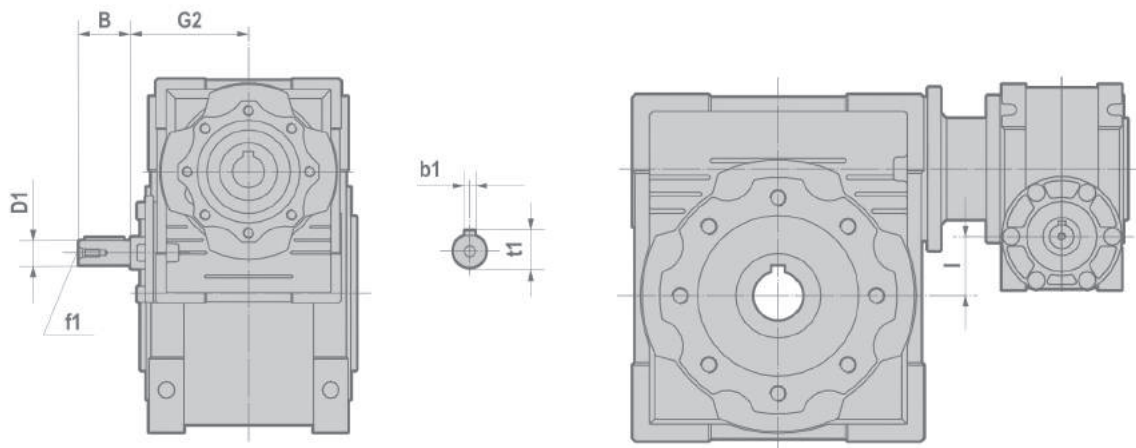
	K1	G	KG	KH	R
025	70	14	17.5	8	15
030	85	14	24	8	15
040	100	14	31.5	10	18
050	100	14	38.5	10	18
063	150	14	49	10	18
075	200	25	47.5	20	30
090	200	25	57.5	20	30
105	250	30	62	25	35
130	250	30	69	25	35
150	250	30	84	25	35

NRV – 치수 / Dimensions



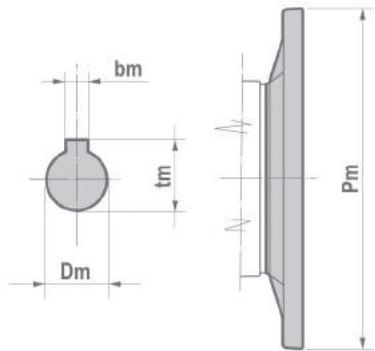
NRV	030	040	050	063	075	090	105	130	150
B	20	23	30	40	50	50	60	80	80
D1	9 j6	11 j6	14 j6	19 j6	24 j6	24 j6	28 j6	30 j6	35 j6
G2	51	60	74	90	105	125	142	162	195
G3	45	53	64	75	90	108	135	155	175
I	30	40	50	63	75	90	110	130	150
b1	3	4	5	6	8	8	8	8	10
f1	–	–	M6	M6	M8	M8	M10	M10	M12
t1	10,2	12,5	16	21,5	27	27	31	33	38

NRV + NMRV – 치수 / Dimensions



NRV-NMRV	030-040	030-050	030-063	040-075	040-090	050-105	063-105	063-130	063-150
B	20	20	20	23	23	30	40	40	40
D1	9 j6	9 j6	9 j6	11 j6	11 j6	14 j6	19 j6	19 j6	19 j6
G2	51	51	51	60	60	74	90	90	90
I	10	20	33	35	50	60	47	67	87
b1	3	3	3	4	4	5	6	6	6
f1	–	–	–	–	–	M6	M6	M6	M6
t1	10,2	10,2	10,2	12,5	12,5	16	21,5	21,5	21,5

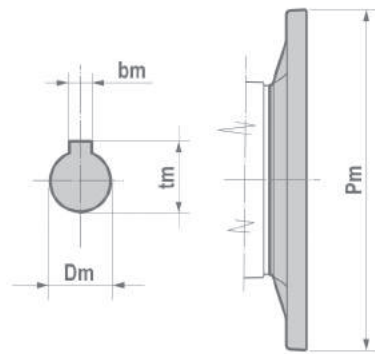
PAM B5 – 치수 / Dimensions



B5	IEC								
	056	063	071	080	090	100	112	132	160
Pm	120	140	160	200	200	250	250	300	350
Dm	9	11	14	19	24	28	28	38	42
bm	3	4	5	6	8	8	8	10	12
tm	10,4	12,8	16,3	21,8	27,3	31,3	31,3	41,3	45,3

- NMRV(105 - 130) $t_m = 40,3$ (IEC132)

PAM B14 – 치수 / Dimensions

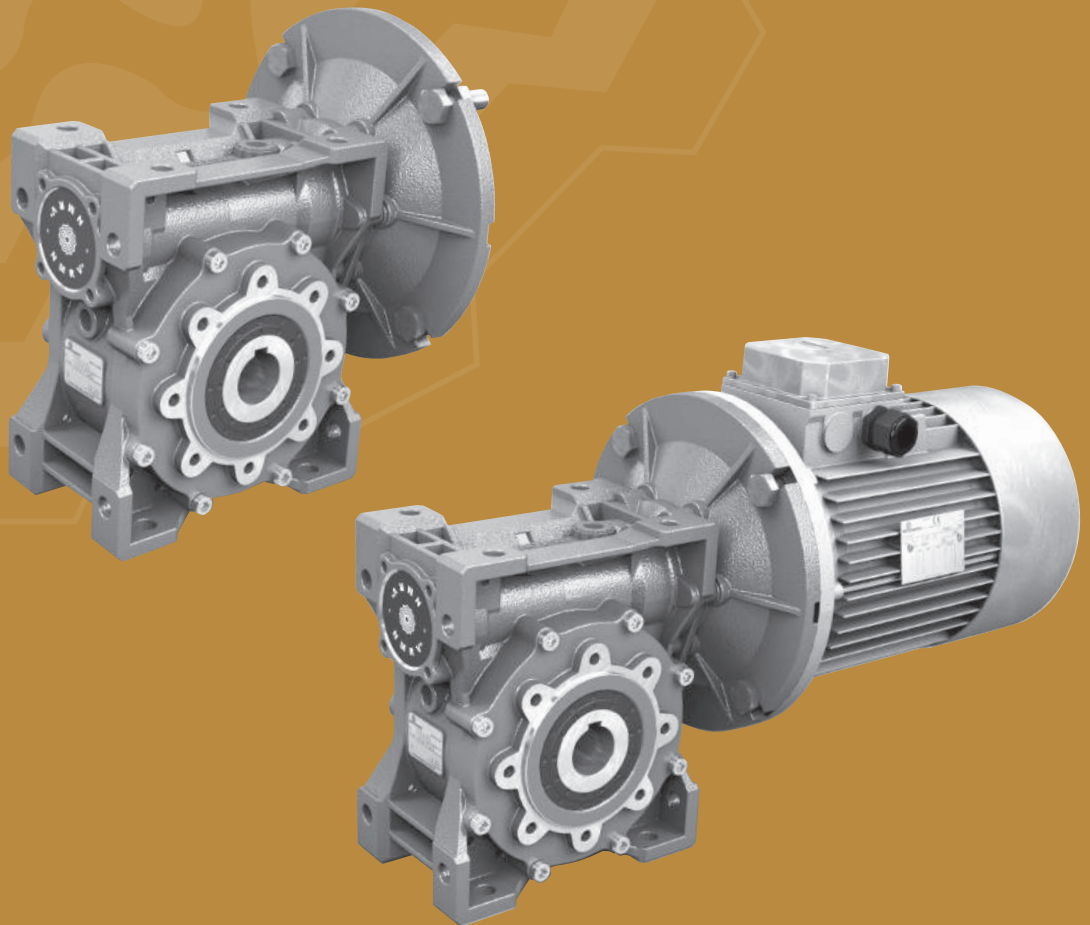


B14	IEC							
	056	063	071	080	090	100	112	
Pm	80	90	105	120	140	160	160	
Dm	9	11	14	19	24	28	28	
bm	3	4	5	6	8	8	8	
tm	10,4	12,8	16,3	21,8	27,3	31,3	31,3	



웜 기어드 모터

Worm geared motors



MOTOVARIO®

HEART OF MOTION

모델형식 / Designation

NMRV-P	063	HW030	FA	30	160×14	VS	125	25	B3*	...
NMRV-P	063	HW030	FA	22,08	PAM				B3	
NRV-P	075	HW040	FB	...	ECE				B8	
	090	IHW040	FC	1083,3					B6	
	110		FD	7,5					B7	
			FE	10					V5	
				15					V6	

기어박스 타입
Gearbox type

사이즈
Size

Pre-stage helical module

출력 플랜지
Output flange

감속비
Reduction ratio

입력 사이즈
Input dimensions

Fitted for motor coupling

Input shaft diameter

P (PAM)
(160x14)

E (ECE)
(28)

옵션
Accessories

취부형태
Mounting position (*)

Ø 출력축
Ø Output shaft

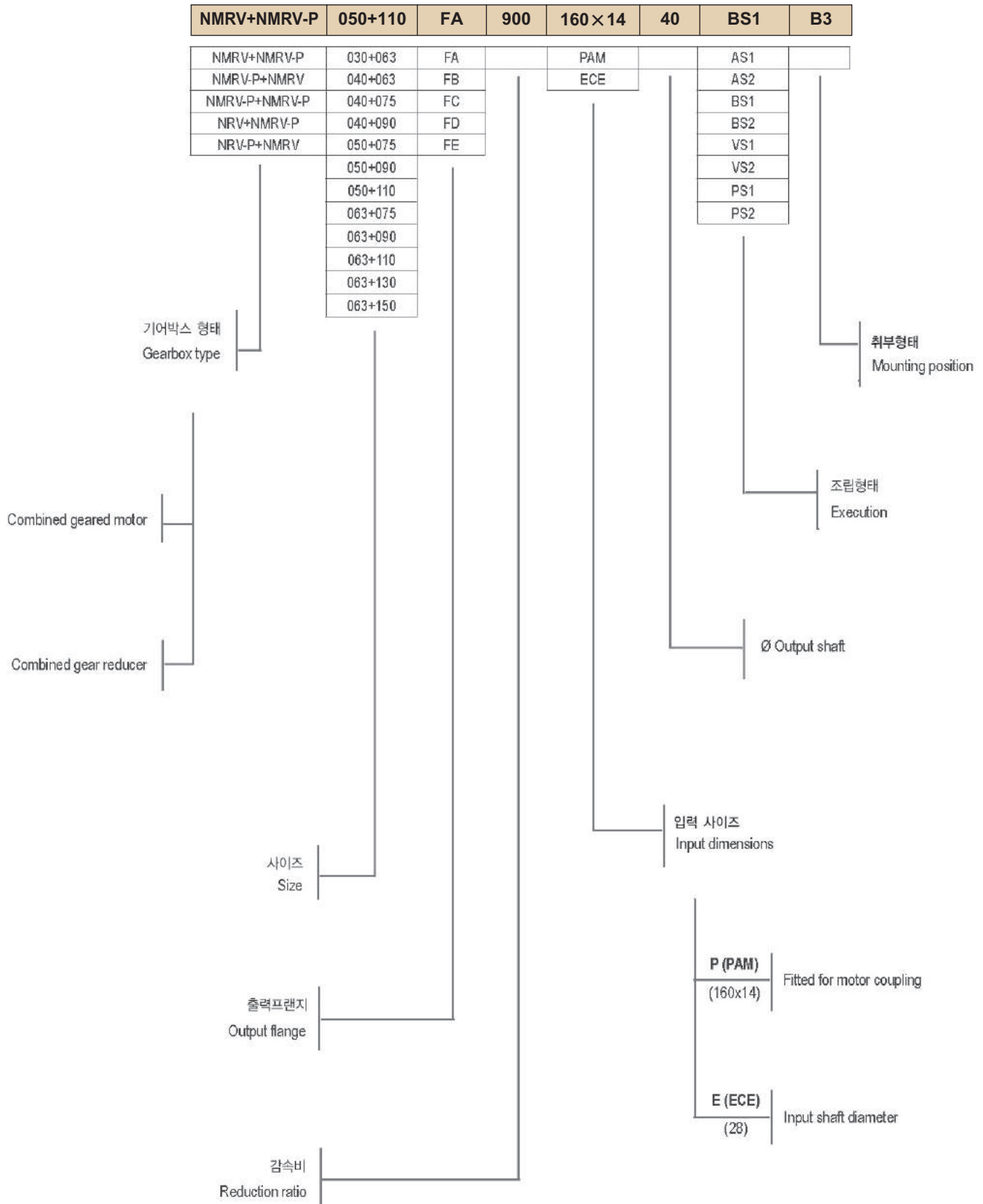
Ø Output flange

Double input shaft

(*) NMRV-P 시리즈는 취부형태를 항상 알려줘야 합니다.

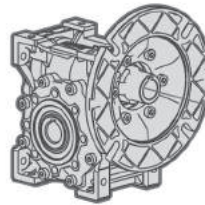
(*) For the reduction units NMRV-P series it is always necessary to specify the mounting position.

모델형식 / Designation

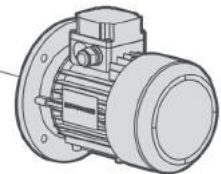
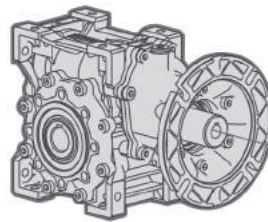


모듈 방식 / Modularity

NMRVpower063-110 base

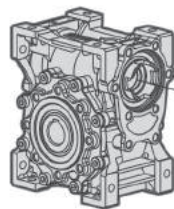


NMRVpower063-075/HW30
NMRVpower090-110/HW40

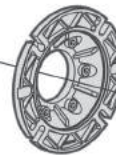


NMRVpower 063-110

- 웜기어 감속기
- Worm geared motor

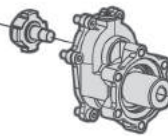


PAM kit



NMRVpower063-110 base
(distribution network)

HW kit



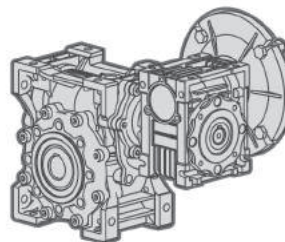
NRVpower 063-110

- 웜기어 감속기
- Worm gear reducer

NMRV-NMRVpower...

NMRVpower-NMRV...

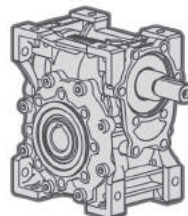
NMRVpower-NMRVpower...



NMRVpower/HW

- 웜기어 감속기 + Pre-stage
- Worm geared motor with pre-stage

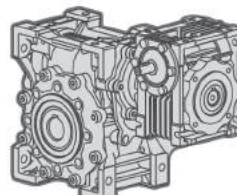
NRVpower 063-110



NMRV-NMRVpower...

- 더블웜 감속기
- Combined worm geared motor

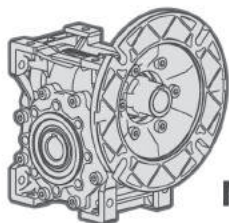
NRV-NMRVpower...



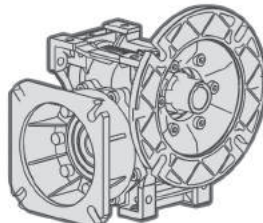
NRV-NMRVpower...

- 더블웜 감속기
- Combined worm gear reducer

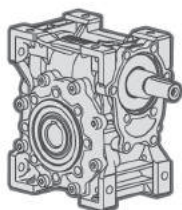
버전 / Versions



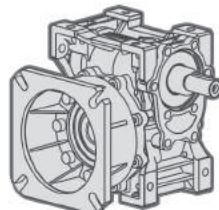
NMRVpower 063-110



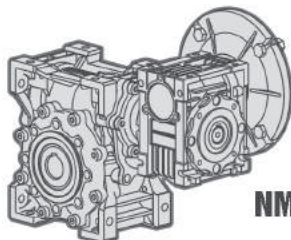
NMRVpower 063-110 F



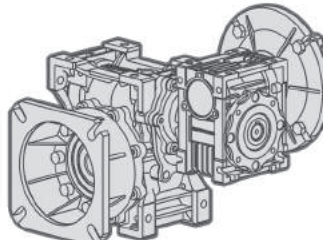
NRVpower 063-110



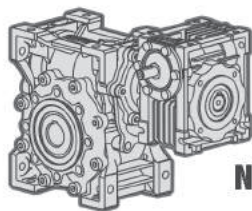
NRVpower 063-110 F



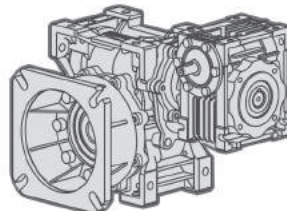
NMRV-NMRVpower...



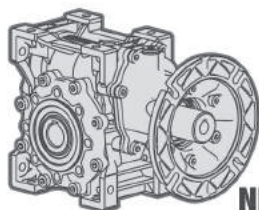
NMRV-NMRVpower... F



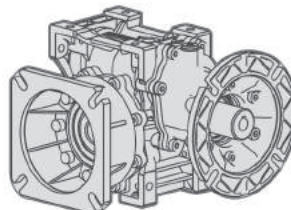
NRV-NMRVpower...



NRV-NMRVpower... F

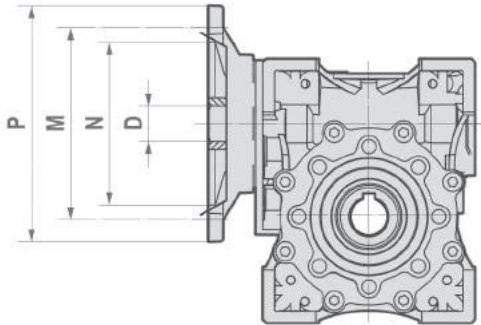


NMRVpower/HW...



NMRVpower/HW... F

비율에 따른 분류 / Predisposion



(*) 스페셜 키(Low profile key)는 Motovario에서 공급된다.
(*) Low profile key supplied by Motovario

(**) 모터 성능비(Motor - ratio)결합은 실현 가능성 없음.
(**) Motor - ration combination not feasible.

(+) 모터 성능비(Motor - ratio)결합 방식은 사용되지 않음 - 보증 제외.
(+) Motor - ratio combination not to be used, but of warranty terms.

NMRV-P	PAM IEC	N	M	P	I											
					5	7.5	10	15	20	25	30	40	50	60	80	100
					D											
063	90B5	130	165	200	**	24	24	24	24	24	24	24	+	+	+	+
	90B14	95	115	140												
	80B5	130	165	200	**	19	19	19	19	19	19	19	19	19	19	+
	80B14	80	100	120												
	71B5	110	130	160	**	14	14	14	14	14	14	14	14	14	14	14
	71B14	70	85	105												
075	100/112B5	180	215	250	**	28	28	28	28	28	28	+	+	+	+	+
	100/112B14	110	130	160												
	90B5	130	165	200	**	24	24	24	24	24	24	24	24	24	+	+
	90B14	95	115	140												
	80B5	130	165	200	**	19	19	19	19	19	19	19	19	19	19	19
	80B14	80	100	120												
090	71B5	110	130	160	**	14	14	14	14	14	14	14	14	14	14	14
	71B14	70	85	105												
	100/112B5	180	215	250	**	28	28	28	28	28	28	28	+	+	+	+
	100/112B14	110	130	160												
	90B5	130	165	200	**	24	24	24	24	24	24	24	24	24	24	+
	90B14	95	115	140												
110	80B5	130	165	200	**	19	19	19	19	19	19	19	19	19	19	19
	80B14	80	100	120												
	132B5	230	265	300	**	38	38	38	38	38	38	38	+	+	+	+
	100/112B5	180	215	250	**	28	28	28	28	28	28	28	28	28	+	+
	100/112B14	110	130	160												
	90B5	130	165	200	**	24	24	24	24	24	24	24	24	24	24	24
110	90B14	95	115	140												
	80B5	130	165	200	**	19	19	19	19	19	19	19	19	19	19	19
	80B14	80	100	120												
	89B14	80	100	120												

비율에 따른 분류

KO

배치는 엄격히 기하학의 기준을 기반으로 한다.
기계적인 요소의 면에서, 모터 - 기어 유닛조립의 호환성을 결정하기 위하여
선택된 배치와 NRV / NRV - P 성능에 대한 비율 차트를 체크한다.

Predisposion

UK

configurations strictly based on geometric criteria.
To determine the compatibility of a motor-gear unit assembly in terms
of mechanical factors, double
check the selected configuration against the rating
charts for NRV/NRV-P performances.

NMRVpower/HW – 비율에 따른 분류 / Predisposion

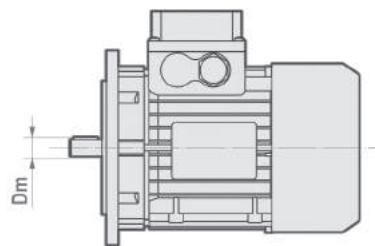
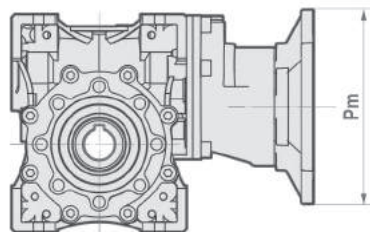
NMRV power 063 / HW 030				
I	56	63	71	80
22,08			B5 - B14	B5 - B14
29,00			B5 - B14	B5 - B14
38,67			B5 - B14	B5 - B14
44,17			B5 - B14	B5 - B14
47,50		B5	B5 - B14	B5 - B14
58,00		B5	B5 - B14	B5 - B14
71,25		B5	B5 - B14	B5 - B14
77,33		B5	B5 - B14	B5 - B14
81,82		B5	B5 - B14	B5 - B14
88,33		B5	B5 - B14	B5 - B14
95,00		B5	B5 - B14	B5 - B14
109,09		B5	B5 - B14	B5 - B14
119,13		B5	B5 - B14	B5 - B14
136,35		B5	B5 - B14	B5 - B14
142,50		B5	B5 - B14	B5 - B14
157,50		B5	B5 - B14	B5 - B14
163,64		B5	B5 - B14	B5 - B14
176,67	B5	B5	B5 - B14	
196,88	B5	B5	B5 - B14	
218,18	B5	B5	B5 - B14	
236,25	B5	B5	B5 - B14	
272,73	B5	B5	B5 - B14	
315,00	B5	B5	B5 - B14	
393,75	B5	B5	B5 - B14	
433,33	B5	B5		
472,50	B5	B5		
541,67	B5	B5		
650,00	B5	B5		
787,50	B5			
866,67	B5			
1083,33	B5			

NMRV power 075/ HW 030				
I	56	63	71	80
22,08				B5 - B14
29,00			B5 - B14	B5 - B14
38,67			B5 - B14	B5 - B14
44,17			B5 - B14	B5 - B14
47,50			B5 - B14	B5 - B14
58,00			B5 - B14	B5 - B14
71,25			B5 - B14	B5 - B14
77,33			B5 - B14	B5 - B14
81,82		B5	B5 - B14	B5 - B14
88,33		B5	B5 - B14	B5 - B14
95,00		B5	B5 - B14	B5 - B14
109,09		B5	B5 - B14	B5 - B14
116,00		B5	B5 - B14	B5 - B14
136,36		B5	B5 - B14	B5 - B14
142,50		B5	B5 - B14	B5 - B14
154,67		B5	B5 - B14	B5 - B14
163,64		B5	B5 - B14	B5 - B14
176,67		B5	B5 - B14	B5 - B14
196,88		B5	B5 - B14	B5 - B14
218,18		B5	B5 - B14	B5 - B14
236,25		B5	B5 - B14	B5 - B14
272,73		B5	B5 - B14	B5 - B14
315,00		B5	B5 - B14	
393,75	B5	B5	B5 - B14	
472,50	B5	B5	B5 - B14	
541,67	B5	B5		
650,00	B5	B5		
787,50	B5	B5		
866,67	B5	B5		
1083,33	B5			

NMRVpower/HW – 비율에 따른 분류 / Predisposion

NMRV power 090 / HW 040				
I	63	71	80	90
23,29			B5 - B14	B5 - B14
31,05			B5 - B14	B5 - B14
42,00			B5 - B14	B5 - B14
46,58			B5 - B14	B5 - B14
63,00		B5 - B14	B5 - B14	B5 - B14
77,63		B5 - B14	B5 - B14	B5 - B14
84,00		B5 - B14	B5 - B14	B5 - B14
93,16		B5 - B14	B5 - B14	B5 - B14
110,00		B5 - B14	B5 - B14	B5 - B14
126,00		B5 - B14	B5 - B14	B5 - B14
137,50		B5 - B14	B5 - B14	B5 - B14
155,26	B5	B5 - B14	B5 - B14	B5 - B14
165,00		B5 - B14	B5 - B14	B5 - B14
186,32	B5	B5 - B14	B5 - B14	
220,00	B5	B5 - B14	B5 - B14	B5 - B14
252,00	B5	B5 - B14	B5 - B14	
275,00	B5	B5 - B14	B5 - B14	
304,55	B5	B5 - B14	B5 - B14	
330,00	B5	B5 - B14	B5 - B14	
383,33	B5	B5 - B14	B5 - B14	
437,50	B5	B5 - B14		
460,00	B5	B5 - B14		
525,00	B5	B5 - B14		
613,33	B5	B5 - B14		
700,00	B5	B5 - B14		
766,67	B5			
875,00	B5			

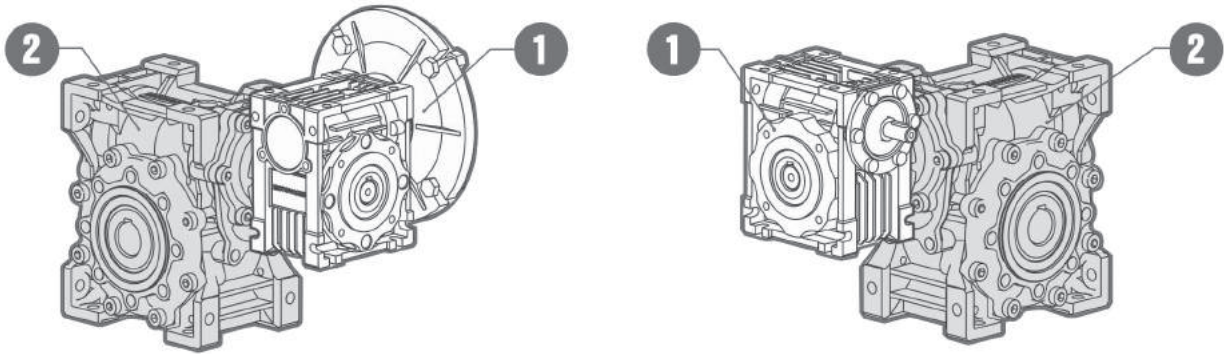
NMRV power 110 / HW 040				
I	63	71	80	90
23,39			B5 - B14	B5 - B14
31,05			B5 - B14	B5 - B14
42,00			B5 - B14	B5 - B14
46,58			B5 - B14	B5 - B14
62,11			B5 - B14	B5 - B14
77,63			B5 - B14	B5 - B14
84,00			B5 - B14	B5 - B14
93,16			B5 - B14	B5 - B14
105,00			B5 - B14	B5 - B14
126,00			B5 - B14	B5 - B14
137,50		B5 - B14	B5 - B14	B5 - B14
155,26		B5 - B14	B5 - B14	B5 - B14
168,00		B5 - B14	B5 - B14	B5 - B14
186,32		B5 - B14	B5 - B14	B5 - B14
220,00		B5 - B14	B5 - B14	B5 - B14
252,00		B5 - B14	B5 - B14	B5 - B14
275,00		B5 - B14	B5 - B14	B5 - B14
304,55	B5	B5 - B14	B5 - B14	B5 - B14
330,00	B5	B5 - B14	B5 - B14	
383,33	B5	B5 - B14	B5 - B14	
440,00	B5	B5 - B14	B5 - B14	
460,00	B5	B5 - B14	B5 - B14	
525,00	B5	B5 - B14		
613,33	B5	B5 - B14	B5 - B14	
700,00	B5	B5 - B14		
766,67	B5	B5 - B14		
875,00	B5	B5 - B14		



B5		
	Pm	Dm
056	120	9
063	140	11
071	160	14
080	200	19
090	200	24

B14		
	Pm	Dm
071	105	14
080	120	19
090	140	24

NMRV/NMRVpower – NRV/NRVpower 비율에 따른 분류 / Predisposion



i	NMRV/NRMVpower NRV/NMRVpower	i1	i2	i	NMRV/NRMVpower NRV/NMRVpower	i1	i2	i	NMRV/NRMVpower NRV/NMRVpower	i1	i2
100	030/063	10.0	10.0	100	040/063	10.0	10.0	100	040/075	10.0	10.0
150		10.0	15.0	150		10.0	15.0	150		10.0	15.0
200		10.0	20.0	200		10.0	20.0	200		10.0	20.0
250		10.0	25.0	250		10.0	25.0	250		10.0	25.0
300		7.5	40.0	300		10.0	30.0	300		10.0	30.0
400		10.0	40.0	400		10.0	40.0	400		10.0	40.0
500		10.0	50.0	500		20.0	25.0	500		10.0	50.0
600		20.0	30.0	600		20.0	30.0	600		20.0	30.0
750		25.0	30.0	750		25.0	30.0	750		25.0	30.0
900		30.0	30.0	900		30.0	30.0	900		30.0	30.0
1200		40.0	30.0	1200		40.0	30.0	1200		40.0	30.0
1500		50.0	30.0	1500		50.0	30.0	1500		50.0	30.0
1800		60.0	30.0	1800		60.0	30.0	1800		60.0	30.0
2400		60.0	40.0	2400		60.0	40.0	2400		60.0	40.0
3000		60.0	50.0	3000		60.0	50.0	3000		60.0	50.0
4000		80.0	50.0	4000		80.0	50.0	4000		80.0	50.0
5000		50.0	100.0	5000		100.0	50.0	5000		100.0	50.0

NMRV / NMRVpower – NRV / NRVpower 비율에 따른 분류 / Predisposion

i	NMRV/NMRVpower NRV/NMRVpower	i1	i2	i	NMRV/NMRVpower NRV/NMRVpower	i1	i2	i	NMRV/NMRVpower NRV/NMRVpower	i1	i2
100	040/090	10.0	10.0	100	050/090	10.0	10.0	100	050/110	10.0	10.0
150		10.0	15.0	150		10.0	15.0	150		10.0	15.0
200		10.0	20.0	200		10.0	20.0	200		10.0	20.0
250		10.0	25.0	250		10.0	25.0	250		10.0	25.0
300		10.0	30.0	300		10.0	30.0	300		10.0	30.0
400		10.0	40.0	400		10.0	40.0	400		10.0	40.0
500		50.0	10.0	500		50.0	10.0	500		50.0	10.0
600		20.0	30.0	600		20.0	30.0	600		20.0	30.0
750		25.0	30.0	750		25.0	30.0	750		25.0	30.0
900		60.0	15.0	900		60.0	15.0	900		60.0	15.0
1200		40.0	30.0	1200		40.0	30.0	1200		40.0	30.0
1500		50.0	30.0	1500		50.0	30.0	1500		50.0	30.0
1800		60.0	30.0	1800		60.0	30.0	1800		60.0	30.0
2400		60.0	40.0	2400		60.0	40.0	2400		60.0	40.0
3000		60.0	50.0	3000		60.0	50.0	3000		60.0	50.0
4000		80.0	50.0	4000		80.0	50.0	4000		80.0	50.0
5000		100.0	50.0	5000		100.0	50.0	5000		100.0	50.0

i	NMRVpower/NMRVpower NRVpower/NMRVpower NMRVpower/NMRV NMRVpower/NRV	i1	i2	i	NMRVpower/NMRVpower NRVpower/NMRVpower NMRVpower/NMRV NMRVpower/NRV	i1	i2	i	NMRVpower/NMRVpower NRVpower/NMRVpower NMRVpower/NMRV NMRVpower/NRV	i1	i2
100	063/110	10.0	10.0	100	063/130	10.0	10.0	100	063/150	10.0	10.0
150		10.0	15.0	150		10.0	15.0	150		10.0	15.0
200		10.0	20.0	200		10.0	20.0	200		10.0	20.0
250		10.0	25.0	250		10.0	25.0	250		10.0	25.0
300		10.0	30.0	300		10.0	30.0	300		10.0	30.0
400		10.0	40.0	400		10.0	40.0	400		10.0	40.0
500		50.0	10.0	500		50.0	10.0	500		50.0	10.0
600		20.0	30.0	600		20.0	30.0	600		20.0	30.0
750		25.0	30.0	750		25.0	30.0	750		25.0	30.0
900		60.0	15.0	900		60.0	15.0	900		60.0	15.0
1200		40.0	30.0	1200		40.0	30.0	1200		40.0	30.0
1500		50.0	30.0	1500		50.0	30.0	1500		50.0	30.0
1800		60.0	30.0	1800		60.0	30.0	1800		60.0	30.0
2400		60.0	40.0	2400		60.0	40.0	2400		60.0	40.0
3000		60.0	50.0	3000		60.0	50.0	3000		60.0	50.0
4000		80.0	50.0	4000		80.0	50.0	4000		80.0	50.0
5000		100.0	50.0	5000		100.0	50.0	5000		100.0	50.0

효율

KO

효율은 특정한 용도와 관련한 사이즈를 결정하는 것에 결정적 영향을 미치는 변수이며, 기본적으로 기어들의 설계적 요소에 결정된다. 78페이지에 제시한 메시 데이터 도표(Mesh Data Table)에는 동적(역학적) 효율성(Dynamic efficiency)의 값($\eta_d=1400$)과 정적 효율성(static efficiency)의 값을 명시한다. 이러한 값들은 가동 후 입수하게 된다는 점에 유의하여야 한다.

동적 비역회전(Dynamic Irreversibility)

동적 비역회전(철회 불가능성)은 웜 샤프트를 통하여 더 이상 전달되는 동력이 없어, 출력 축이 즉시 중지하게 되는 경우에 달성된다. 이러한 상황은 $\eta_d < 0.5$ 의 동적 효율성을 필요로 한다.(78페이지 도표 참조)

정적 비역회전(Static Irreversibility)

정적 비역회전(철회 불가능성), 감속기가 정지된 상태에서 출력 축에 대한 부하 적용이 동작중인 웜 샤프트에 대하여 설정되어 있지 않은 경우에 달성된다. 이러한 상황은 $\eta_s < 0.5$ 의 정적 효율성 필요로 한다.(78페이지 도표 참조)

참조 : 진동과 충격은 기어 감속기의 비역회전에 영향을 미칠 수 있다.

Efficiency

UK

Efficiency is a parameter which has a major influence on the sizing of certain applications, and basically depends on gear pair design elements. The mesh data table on page 78 shows dynamic efficiency($\eta_d=1400$) and static efficiency values. Remember that these values are only achieved after the unit has been run in.

Dynamic irreversibility

Dynamic irreversibility is achieved when the output shaft stops instantly when drive is no longer transmitted through the worm shaft. This condition requires a dynamic efficiency of $\eta_d < 0.5$ (see table on page 78).

Static irreversibility

Static irreversibility is achieved when, with the gear reducer at a standstill, the application of a load to the output shaft does not set in motion the worm shaft. This condition requires a static efficiency of $\eta_s < 0.5$ (see table on page 78).

N.B.: Vibrations and shocks can affect a gear reducer's irreversibility.

비역회전 / Irreversibility

η_d	동적 비역회전	DYNAMIC IRREVERSIBILITY
> 0.6	동적역회전	dynamic reversibility
$0.5 \div 0.6$	낮은 동적역회전	low dynamic reversibility
$0.4 \div 0.5$	낮은 동적비역회전	good dynamic irreversibility
< 0.4	동적 비역회전	dynamic irreversibility

η_s	정적 비역회전	STATIC IRREVERSIBILITY
> 0.55	정적역회전	static reversibility
$0.5 \div 0.55$	낮은 정적역회전	low static reversibility
< 0.5	정적 비역회전	static irreversibility

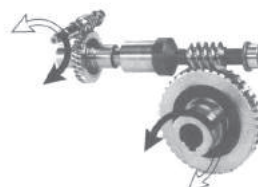
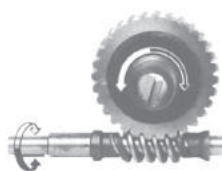
- 도표는 개략적인 비역회전 등급(Irreversibility Classes)을 제시한 것이다.
- The table shows approximate irreversibility classes.

- 결속된 기어 감속기의 비역회전 상황은 가장 효율이 낮은 감속기에 의하여 주어진다.
- The irreversibility condition of combined gear reducers is given by the units with the lowest efficiency.

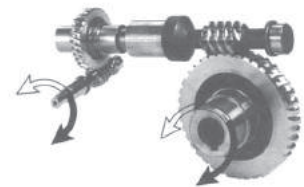
회전의 방향 / Direction of rotation



NMRV-NRV



NMRV+NMRV - NRV+NMRV



- 나선(Helix)은 오른나사(right-handed)로 되어 있다.
- The helix is right-handed.

효율(메쉬)데이터 표 / Mesh data

NRV-P	I	7.5	10	15	20	25	30	40	50	60	80	100
063	Z1	4	3	2	2	2	1	1	1	1	1	1
	Y	24° 31'	18° 53'	12° 51'	10° 25'	8° 45'	6° 30'	5° 15'	4° 24'	3° 47'	2° 58'	2° 26'
	Mx	3.25	3.25	3.25	2.48	2	3.25	2.48	2	1.68	1.27	1.02
	$\eta_{\delta}(1400)$	0.89	0.87	0.84	0.82	0.79	0.75	0.71	0.67	0.63	0.58	0.52
	η_S	0.71	0.67	0.6	0.55	0.51	0.45	0.4	0.36	0.33	0.28	0.24
075	Z1	4	3	2	2	2	1	1	1	1	1	1
	Y	26° 17'	20° 20'	13° 52'	11° 18'	9° 32'	7° 02'	5° 42'	4° 48'	4° 08'	3° 14'	2° 40'
	Mx	3.94	3.94	3.94	3	2.42	3.94	3	2.42	2.03	1.54	1.24
	$\eta_{\delta}(1400)$	0.89	0.88	0.86	0.83	0.81	0.77	0.73	0.7	0.66	0.61	0.56
	η_S	0.71	0.68	0.61	0.57	0.53	0.46	0.42	0.38	0.35	0.29	0.26
090	Z1	4	3	2	2	2	1	1	1	1	1	1
	Y	29° 11'	22° 44'	15° 36'	12° 50'	10° 54'	7° 57'	6° 30'	5° 30'	4° 46'	3° 45'	3° 06'
	Mx	4.84	4.84	4.84	3.69	2.98	4.84	3.69	2.98	2.5	1.89	1.52
	$\eta_{\delta}(1400)$	0.9	0.89	0.87	0.85	0.83	0.79	0.76	0.73	0.7	0.64	0.6
	η_S	0.73	0.7	0.64	0.6	0.56	0.49	0.45	0.41	0.38	0.32	0.28
110	Z1	4	3	2	2	2	1	1	1	1	1	1
	Y	28° 15'	21° 57'	15° 02'	14° 41'	12° 34'	7° 39'	7° 28'	6° 22'	5° 32'	4° 24'	3° 39'
	Mx	5.845	5.875	5.875	4.62	3.73	5.875	4.62	3.73	3.13	2.37	1.91
	$\eta_{\delta}(1400)$	0.9	0.89	0.87	0.86	0.85	0.8	0.79	0.76	0.73	0.68	0.64
	η_S	0.72	0.69	0.63	0.62	0.59	0.48	0.48	0.44	0.41	0.36	0.32

백래쉬 / Backlash

NMRV-P 063	NMRV-P 075	NMRV-P 090	NMRV-P 110
18' - 28'	18' - 24'	6' - 18'	6' - 14'

- 이 값들은 입력축이 잠긴 출력축에서 발견된다. 적용을 위하여, 통제 또는 감소된 백래쉬를 요구하면 기술부서로 연락하십시오.
- These values can be detected on the output shaft, with the input shaft locked. For applications requiring controlled or reduced backlash, please contact our technical department.

HW의 디자인 특성

KO

HW는 Pre-stage unit인 HW030과 기어박스 두가지 NMRVpower 063-075로 구성되며, HW040은 기어박스 NMRVpower 090-110과 장착될 수 있다. Pre-stage unit은 모듈식으로 되어 있으며, 따라서 B5 플랜지와 B14 플랜지를 가진 다양한 모터용(PAM)으로 공급이 가능하다.

소재(Materials)

알루미늄 다이캐스팅으로 된 케이스가 사용된다. 스틸 기어(20MnCr5 (UNI7846))는 열경화 처리를 거쳐, 연마 처리 과정을 거친다.

Design features HW

UK

There are two pre-stage units called HW. HW030 which can be mounted on gearboxes NMRVpower 063-075 and HW040 which can be fitted with gearboxes NMRVpower 090-110

The pre-stage construction is modular and therefore it can be supplied for various (PAM) with B5 and B14 flange.

The pre-stage is always coupled to the reducer NMRVpower.

Materials

Casing in aluminium alloy. Steel gears 20MnCr5(UNI7846), hardened, tempered and carefully scraped.

PAM 플랜지와 모터 마운틴 -NMRV-P

KO

모터를 제외하고 유닛이 공급될때, 전동기의 올바른 조립을 보장하기 위해, 아래와 같은 추천을 따르는것이 필요하다.

모터축과 플랜지 공차가 최신 IEC 표준에 부합하는지 체크한다.

모터축을 신중하게 청결히 하라.

플랜지의 삽입구와 표면의 페인트나 먼지를 추적하여 제거하라.

올바른 키 부속품과 공차가 올바른지 확인하고 나서 모터축으로 부싱을 맞추는것을 진행하고(그림 참고) 반드시 모터축과 베어링이 과도한 힘으로부터 데미지를 받지 않도록 하는데 주의를 기울여라 또한 조립장비 사용에 있어서도 필수적이다. 마지막으로, 그 유닛에 모터를 조립시, 그것의 부싱의 이가 그 유닛 부싱의 이와 함께 완벽하게 일직선이 되게 하라 모터 또는 유닛 베어링에 위험 데미지가 없도록 항상 좋은 절차와 연습을 사용하라.

모터 키 수정은 제공되지 않는다.

Motor mounting with PAM flange – NMRV-P ist nicht notwendig.

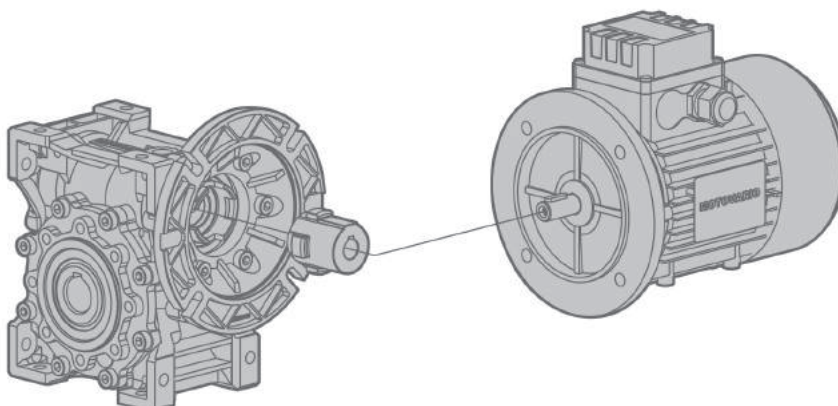
UK

When the unit is supplied without motor, to ensure the correct assembly of the electric motor, it is necessary to follow recommendations below.

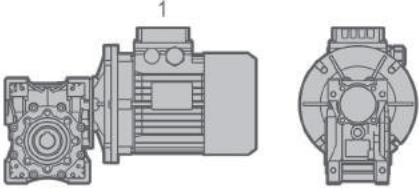
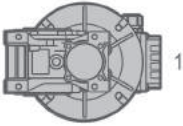
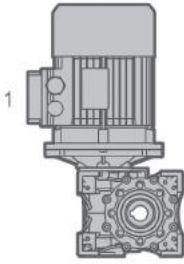
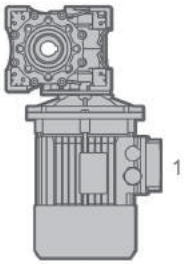
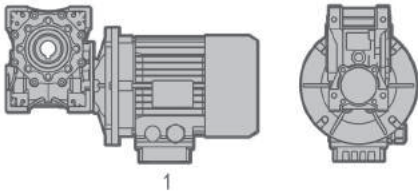
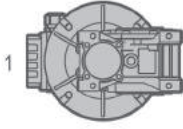
Check that the tolerances for the motor shaft and flange correspond to the latest IEC standard.

Carefully clean the motor shaft, spigot and surfaces of the flange removing any traces of paint and dirt.

Verify the correct key fitment and tolerances and then proceed fitting the bushing to the motor shaft (see picture) taking care to ensure the motor shaft and bearings are not damaged by avoiding excessive force and where necessary using assembly equipment. Finally assembly the motor to the unit ensuring its bushin teeth are in perfect alignment with the teeth of the unit bushing. Always use good procedures and practises that ensure correct operation without risking damage to the motor or unit bearings. Motor key adjustment is not provided.



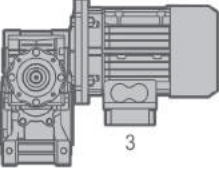
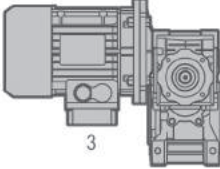
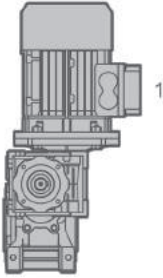
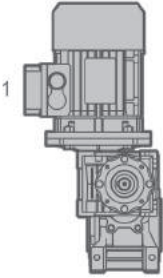
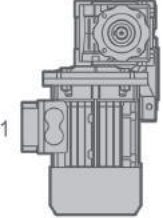
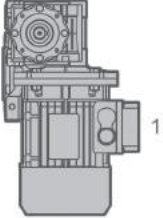
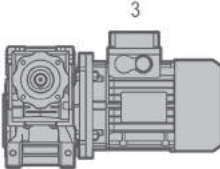
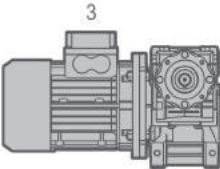
취부방향 / Mounting positions

NMRVpower - NRVpower			
NMRVpower...U - B3	B6	V5	V6
			
B8	B7		
			

- “U” 버전은 NMRV-P 063 – 075와 NRV-P 063과 연관되어 있다. 이러한 사이즈들의 경우, 장착위치를 반드시 지정할 필요는 없다.
- 수직위치에 관한 내용은 3페이지를 참조하도록 한다.
- 취부방향이 정해져있지 않은 경우, 당사의 기술서비스 부서에 지원을 요청할 필요가 있다.
- 취부방향이 명시된 경우를 제외하고, 기본적인 취부방향은 B3로 한다.
- 유닛을 완벽한 취부방식으로 취부한다. 그렇지 않을경우 당사의 기술서비스 부서에 연락한다.
- 취부방향이 정해져있지 않은경우, 기어 감속기는 터미널박스 포지션 1로 제공된다.

- “U” version is related to sizes from NMRV-P 063 – 075 and NRV-P 063. For these sizes it is not necessary to specify mounting position.
- For vertical positions, check with pages 3.
- For positions not envisaged, it is necessary to call our Technical Service.
- Unless specified otherwise, the standard positions are B3.
- Mount the unit in the expected mounting position. Otherwise contact our Technical Service.
- Unless otherwise specified, the gear reducer is supplied with terminal box in position 1.

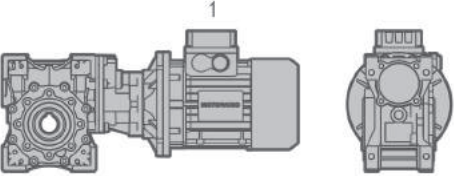
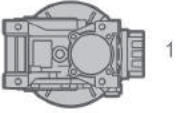
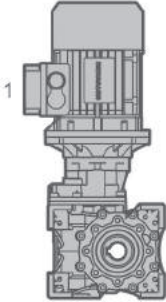
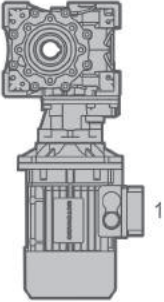
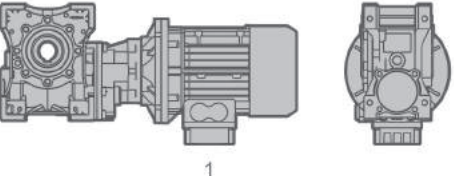
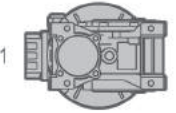
더블웜 조립방향 / Execution

NMRV-NMRVpower / NRV-NMRVpower			
AS1	AS2	VS1	VS2
			
PS1	PS2	BS1	BS2
			

- 2차감속기와 관련한 1차 감속기의 위치는 버전에 따라 달라진다.
- 특정 조립방향은 2차 기어 감속기에 대하여 지정된다. 설치가능한 조립방향은 80페이지를 참조하도록 한다.
- 별도로 명시하지 않을 경우, 조립방향은 BS2에 맞추어 공급된다.
- 유닛을 요구하는 마운팅 포지션으로 취부하라. 그렇지 않을경우, 당사 기술서비스 부서에 연락한다.
- 별도로 명시되지 않을경우, 기어 감속기는 터미널박스 포지션 1로 제공된다.

- The position of the 1st reducer with respect to the 2nd gear reducer depend on the version.
- The specified mounting position refers to the 2nd gear reducer. See page 80 for the possible mounting positions.
- Unless otherwise specified at the time of order, combination groups are supplied in version BS2.
- Mount the unit in the expected mounting position. Otherwise contact our Technical Service.
- Unless otherwise specified, the gear reducer is supplied with terminal box in position 1.

NMRVpower / HW

NMRVpower/HW			
B3	B6	V5	V6
			
B8	B7		
			

- NMRVpower/HW 063-075 취부방향은 B3로 하며, 이는 B6 - B7 - B8 - V6에도 적용된다. 취부방향 V5는 지정하여야 한다.
- NMRVpower 090 - 110의 취부방향은 B3로 하며, 이는 B6 - B7 - B8에도 적용된다.
- 별도로 명시하지 않을 경우, 기본적인 취부방향은 BS/B3로 한다.
- 별도로 명시하지 않을 경우, 기어 감속기는 터미널박스 포지션 1로 제공된다.
- 유닛을 준비한 취부방향으로 취부한다. 그렇지 않을 경우, 당사 기술서비스 부서에 연락한다.
- For NMRVpower/HW 063-075 mounting position B3 is valid also for B6-B7-B8-V6. Mounting position V5 must be specified.
- For NMRV 090-110 mounting position B3 is valid also for B6-B7-B8. Mounting positions V5 and V6 must be specified.
- Unless specified otherwise, the standard positions are BS/B3.
- Unless otherwise specified, the gear reducer is supplied with terminal box in position 1.
- Mount the unit in the expected mounting position. Otherwise contact our Technical Service.

NMRVpower 모터 용량에 따른 성능 / Performance

0,06kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
3,6	81,0	3,0	393,8	HW030+NMRV-P063	56A4	6270
3,2	94,0	3,0	433,3	HW030+NMRV-P063	56A4	6270
3,0	89,0	2,5	472,5	HW030+NMRV-P063	56A4	6270
2,6	109,0	2,3	541,7	HW030+NMRV-P063	56A4	6270
2,2	120,0	1,9	650,0	HW030+NMRV-P063	56A4	6270
1,8	114,0	1,2	787,5	HW030+NMRV-P063	56A4	6270
1,6	140,0	1,2	866,7	HW030+NMRV-P063	56A4	6270
1,3	153,0	0,9	1083,3	HW030+NMRV-P063	56A4	6270
2,6	113,0	3,3	541,7	HW030+NMRV-P075	56A4	7380
2,2	128,0	3,0	650,0	HW030+NMRV-P075	56A4	7380
1,8	124,0	1,8	787,5	HW030+NMRV-P075	56A4	7380
1,6	151,0	1,9	866,7	HW030+NMRV-P075	56A4	7380
1,3	166,0	1,4	1083,3	HW030+NMRV-P075	56A4	7380
3,5	76,0	3,4	400,00	NMRV-P030/063	56A4	6270
2,8	88,0	2,7	500,00	NMRV-P030/063	56A4	6270
2,3	111,0	2,4	600,00	NMRV-P030/063	56A4	6270
1,9	129,0	2,1	750,00	NMRV-P030/063	56A4	6270
1,6	148,0	1,8	900,00	NMRV-P030/063	56A4	6270
1,2	180,0	1,5	1200,00	NMRV-P030/063	56A4	6270
0,9	210,0	1,3	1500,00	NMRV-P030/063	56A4	6270
0,8	234,0	1,2	1800,00	NMRV-P030/063	56A4	6270
0,6	286,0	0,9	2400,00	NMRV-P030/063	56A4	6270
0,5	332,0	0,7	3000,00	NMRV-P030/063	56A4	6270
0,9	236,0	1,1	1500,00	NMRV-P040/063	56A4	6270
0,8	265,0	1,0	1800,00	NMRV-P040/063	56A4	6270
0,6	325,0	0,8	2400,00	NMRV-P040/063	56A4	6270
0,9	248,0	1,8	1500,00	NMRV-P040/075	56A4	7380
0,8	278,0	1,6	1800,00	NMRV-P040/075	56A4	7380
0,6	342,0	1,2	2400,00	NMRV-P040/075	56A4	7380
0,5	391,0	0,9	3000,00	NMRV-P040/075	56A4	7380
0,4	469,0	0,8	4000,00	NMRV-P040/075	56A4	7380
0,9	259,0	2,7	1500,00	NMRV-P040/090	56A4	8180
0,8	291,0	2,4	1800,00	NMRV-P040/090	56A4	8180
0,6	359,0	1,7	2400,00	NMRV-P040/090	56A4	8180
0,5	420,0	1,3	3000,00	NMRV-P040/090	56A4	8180
0,4	503,0	1,1	4000,00	NMRV-P040/090	56A4	8180
0,3	570,0	1,0	5000,00	NMRV-P040/090	56A4	8180

0,09kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
7,9	56,0	3,2	176,70	HW030+NMRV-P063	56B4	6270
7,1	78,0	3,2	196,90	HW030+NMRV-P063	56B4	6270
6,4	74,0	3,4	218,20	HW030+NMRV-P063	56B4	6270
5,9	85,0	3,3	236,30	HW030+NMRV-P063	56B4	6270
5,1	86,0	2,7	272,70	HW030+NMRV-P063	56B4	6270
4,4	104,0	2,6	315,00	HW030+NMRV-P063	56B4	6270
3,6	121,0	2,0	393,80	HW030+NMRV-P063	56B4	6270
3,2	141,0	2,0	433,30	HW030+NMRV-P063	56B4	6270
3,0	134,0	1,6	472,50	HW030+NMRV-P063	56B4	6270
2,6	164,0	1,5	541,70	HW030+NMRV-P063	56B4	6270
2,2	180,0	1,3	650,00	HW030+NMRV-P063	56B4	6270
1,8	172,0	0,8	787,50	HW030+NMRV-P063	56B4	6270
1,6	210,0	0,8	866,70	HW030+NMRV-P063	56B4	6270

0,09kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
3,6	126,0	3,2	393,80	HW030+NMRV-P075	56B4	7380
3,0	142,0	2,6	472,50	HW030+NMRV-P075	56B4	7380
2,6	170,0	2,2	541,70	HW030+NMRV-P075	56B4	7380
2,2	192,0	2,0	650,00	HW030+NMRV-P075	56B4	7380
1,8	186,0	1,2	787,50	HW030+NMRV-P075	56B4	7380
1,6	226,0	1,3	866,70	HW030+NMRV-P075	56B4	7380
1,3	249,0	0,9	1083,30	HW030+NMRV-P075	56B4	7380
5,6	85,0	2,7	250,00	NMRV-P030/063	56B4	6270
4,7	88,0	2,9	300,00	NMRV-P030/063	56B4	6270
3,5	114,0	2,2	400,00	NMRV-P030/063	56B4	6270
2,8	132,0	1,8	500,00	NMRV-P030/063	56B4	6270
2,3	166,0	1,6	600,00	NMRV-P030/063	56B4	6270
1,9	194,0	1,4	750,00	NMRV-P030/063	56B4	6270
1,6	222,0	1,2	900,00	NMRV-P030/063	56B4	6270
1,2	270,0	1,0	1200,00	NMRV-P030/063	56B4	6270
0,9	315,0	0,9	1500,00	NMRV-P030/063	56B4	6270
0,8	351,0	0,8	1800,00	NMRV-P030/063	56B4	6270
0,9	354,0	0,8	1500,00	NMRV-P040/063	56B4	6270
0,9	371,0	1,2	1500,00	NMRV-P040/075	56B4	7380
0,8	417,0	1,1	1800,00	NMRV-P040/075	56B4	7380
0,6	513,0	0,8	2400,00	NMRV-P040/075	56B4	7380
0,9	389,0	1,8	1500,00	NMRV-P040/090	56B4	8180
0,8	437,0	1,6	1800,00	NMRV-P040/090	56B4	8180
0,6	539,0	1,1	2400,00	NMRV-P040/090	56B4	8180
0,5	630,0	0,9	3000,00	NMRV-P040/090	56B4	8180
0,4	755,0	0,7	4000,00	NMRV-P040/090	56B4	8180

0,18kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
18,0	67,0	3,3	77,30	HW030+NMRV-P063	63B4	5135
17,0	73,0	3,3	81,80	HW030+NMRV-P063	63B4	5233
16,0	69,0	3,1	88,30	HW030+NMRV-P063	63B4	5368
15,0	81,0	2,9	95,00	HW030+NMRV-P063	63B4	5500
13,0	92,0	2,7	109,10	HW030+NMRV-P063	63B4	5759
12,0	104,0	2,5	118,10	HW030+NMRV-P063	63B4	5914
10,0	110,0	2,1	136,40	HW030+NMRV-P063	63B4	6204
9,8	106,0	2,4	142,50	HW030+NMRV-P063	63B4	6270
8,9	131,0	2,1	157,50	HW030+NMRV-P063	63B4	6270
8,6	121,0	2,2	163,60	HW030+NMRV-P063	63B4	6270
7,9	113,0	1,6	176,70	HW030+NMRV-P063	63B4	6270
7,1	156,0	1,6	196,90	HW030+NMRV-P063	63B4	6270
6,4	149,0	1,7	218,20	HW030+NMRV-P063	63B4	6270
5,9	171,0	1,7	236,30	HW030+NMRV-P063	63B4	6270
5,1	172,0	1,3	272,70	HW030+NMRV-P063	63B4	6270
4,4	209,0	1,3	315,00	HW030+NMRV-P063	63B4	6270
3,6	242,0	1,0	393,80	HW030+NMRV-P063	63B4	6270
3,2	282,0	1,0	433,30	HW030+NMRV-P063	63B4	6270
3,0	268,0	0,8	472,50	HW030+NMRV-P063	63B4	6270
2,6	328,0	0,8	541,70	HW030+NMRV-P063	63B4	6270
10,0	114,0	3,0	136,40	HW030+NMRV-P075	63B4	7323
9,0	114,0	3,2	154,70	HW030+NMRV-P075	63B4	7380
8,6	127,0	3,3	163,60	HW030+NMRV-P075	63B4	7380
7,9	119,0	2,6	176,70	HW030+NMRV-P075	63B4	7380

0,18kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
7,1	161,0	2,4	196,90	HW030+NMRV-P075	63B4	7380
6,4	156,0	2,6	218,20	HW030+NMRV-P075	63B4	7380
5,9	179,0	2,7	236,30	HW030+NMRV-P075	63B4	7380
5,1	179,0	2,1	272,70	HW030+NMRV-P075	63B4	7380
4,4	220,0	2,0	315,00	HW030+NMRV-P075	63B4	7380
3,6	251,0	1,6	393,80	HW030+NMRV-P075	63B4	7380
3,0	285,0	1,3	472,50	HW030+NMRV-P075	63B4	7380
2,6	339,0	1,1	541,70	HW030+NMRV-P075	63B4	7380
2,2	384,0	1,0	650,00	HW030+NMRV-P075	63B4	7380
7,5	131,0	3,5	186,30	HW040+NMRV-P090	63B4	8180
5,6	170,0	2,9	252,00	HW040+NMRV-P090	63B4	8180
5,1	194,0	3,1	275,00	HW040+NMRV-P090	63B4	8180
4,6	213,0	2,6	304,50	HW040+NMRV-P090	63B4	8180
4,2	217,0	2,4	330,00	HW040+NMRV-P090	63B4	8180
3,7	263,0	2,4	383,30	HW040+NMRV-P090	63B4	8180
3,2	298,0	2,2	437,50	HW040+NMRV-P090	63B4	8180
3,0	294,0	1,9	460,00	HW040+NMRV-P090	63B4	8180
2,7	333,0	1,7	525,00	HW040+NMRV-P090	63B4	8180
2,3	356,0	1,2	613,30	HW040+NMRV-P090	63B4	8180
2,0	403,0	1,1	700,00	HW040+NMRV-P090	63B4	8180
1,8	399,0	0,9	766,70	HW040+NMRV-P090	63B4	8180
1,6	450,0	0,8	875,00	HW040+NMRV-P090	63B4	8180
3,7	282,0	3,4	383,30	HW040+NMRV-P110	63B4	10320
3,2	283,0	2,8	440,00	HW040+NMRV-P110	63B4	10320
3,0	316,0	3,1	460,00	HW040+NMRV-P110	63B4	10320
2,7	358,0	2,6	525,00	HW040+NMRV-P110	63B4	10320
2,3	385,0	2,1	613,30	HW040+NMRV-P110	63B4	10320
2,0	437,0	1,9	700,00	HW040+NMRV-P110	63B4	10320
1,8	435,0	1,5	766,70	HW040+NMRV-P110	63B4	10320
1,6	492,0	1,3	875,00	HW040+NMRV-P110	63B4	10320
14,0	81,0	1,9	100,00	NMRV-P030/063	63B4	4967
9,3	113,0	1,9	150,00	NMRV-P030/063	63B4	5686
7,0	143,0	1,8	200,00	NMRV-P030/063	63B4	6259
5,6	171,0	1,4	250,00	NMRV-P030/063	63B4	6270
4,7	175,0	1,5	300,00	NMRV-P030/063	63B4	6270
3,5	228,0	1,1	400,00	NMRV-P030/063	63B4	6270
2,8	265,0	0,9	500,00	NMRV-P030/063	63B4	6270
2,3	333,0	0,8	600,00	NMRV-P030/063	63B4	6270
14,0	82,0	3,1	100,00	NMRV-P040/063	63B4	4967
9,3	116,0	2,2	150,00	NMRV-P040/063	63B4	5686
7,0	146,0	1,7	200,00	NMRV-P040/063	63B4	6259
5,6	175,0	1,3	250,00	NMRV-P040/063	63B4	6270
4,7	191,0	1,4	300,00	NMRV-P040/063	63B4	6270
3,5	234,0	1,1	400,00	NMRV-P040/063	63B4	6270
2,8	325,0	0,7	500,00	NMRV-P040/063	63B4	6270
2,3	355,0	0,8	600,00	NMRV-P040/063	63B4	6270
7,0	150,0	2,8	200,00	NMRV-P040/075	63B4	7380
5,6	180,0	2,1	250,00	NMRV-P040/075	63B4	7380
4,7	200,0	2,2	300,00	NMRV-P040/075	63B4	7380
3,5	246,0	1,7	400,00	NMRV-P040/075	63B4	7380
2,8	282,0	1,3	500,00	NMRV-P040/075	63B4	7380
2,3	372,0	1,2	600,00	NMRV-P040/075	63B4	7380
1,9	448,0	1,0	750,00	NMRV-P040/075	63B4	7380
1,6	502,0	0,9	900,00	NMRV-P040/075	63B4	7380
1,2	622,0	0,7	1200,00	NMRV-P040/075	63B4	7380
5,6	188,0	3,0	250,00	NMRV-P040/090	63B4	8180
4,7	210,0	3,3	300,00	NMRV-P040/090	63B4	8180

0,18kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
3,5	259,0	2,4	400,00	NMRV-P040/090	63B4	8180
2,8	303,0	1,9	500,00	NMRV-P040/090	63B4	8180
2,3	390,0	1,8	600,00	NMRV-P040/090	63B4	8180
1,9	469,0	1,5	750,00	NMRV-P040/090	63B4	8180
1,6	526,0	1,3	900,00	NMRV-P040/090	63B4	8180
1,2	652,0	1,1	1200,00	NMRV-P040/090	63B4	8180
0,9	777,0	0,9	1500,00	NMRV-P040/090	63B4	8180
0,8	874,0	0,8	1800,00	NMRV-P040/090	63B4	8180
1,2	671,0	1,0	1200,00	NMRV-P050/090	63B4	8180
0,9	790,0	0,9	1500,00	NMRV-P050/090	63B4	8180
0,8	888,0	0,8	1800,00	NMRV-P050/090	63B4	8180
1,2	671,0	1,9	1200,00	NMRV-P050/110	63B4	10320
0,9	790,0	1,6	1500,00	NMRV-P050/110	63B4	10320
0,8	888,0	1,4	1800,00	NMRV-P050/110	63B4	10320
0,6	1149,0	1,0	2400,00	NMRV-P050/110	63B4	10320
0,5	1370,0	0,8	3000,00	NMRV-P050/110	63B4	10320

0,22kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
24,0	64,0	3,4	58,00	HW030+NMRV-P063	63C4	4666
20,0	78,0	3,0	71,30	HW030+NMRV-P063	63C4	4997
18,0	82,0	2,7	77,30	HW030+NMRV-P063	63C4	5135
17,0	89,0	2,7	81,80	HW030+NMRV-P063	63C4	5233
16,0	84,0	2,6	88,30	HW030+NMRV-P063	63C4	5368
15,0	99,0	2,4	95,00	HW030+NMRV-P063	63C4	5500
13,0	113,0	2,2	109,10	HW030+NMRV-P063	63C4	5759
12,0	127,0	2,1	118,10	HW030+NMRV-P063	63C4	5914
10,0	135,0	1,7	136,40	HW030+NMRV-P063	63C4	6204
9,8	130,0	2,0	142,50	HW030+NMRV-P063	63C4	6270
8,9	160,0	1,7	157,50	HW030+NMRV-P063	63C4	6270
8,6	148,0	1,8	163,60	HW030+NMRV-P063	63C4	6270
7,9	138,0	1,3	176,70	HW030+NMRV-P063	63C4	6270
7,1	191,0	1,3	196,90	HW030+NMRV-P063	63C4	6270
6,4	182,0	1,4	218,20	HW030+NMRV-P063	63C4	6270
5,9	209,0	1,4	236,30	HW030+NMRV-P063	63C4	6270
5,1	210,0	1,1	272,70	HW030+NMRV-P063	63C4	6270
4,4	255,0	1,0	315,00	HW030+NMRV-P063	63C4	6270
3,6	296,0	0,8	393,80	HW030+NMRV-P063	63C4	6270
3,2	344,0	0,8	433,30	HW030+NMRV-P063	63C4	6270
12,0	113,0	3,3	116,00	HW030+NMRV-P075	63C4	6938
10,0	139,0	2,5	136,40	HW030+NMRV-P075	63C4	7323
9,8	136,0	3,0	142,50	HW030+NMRV-P075	63C4	7380
9,0	139,0	2,6	154,70	HW030+NMRV-P075	63C4	7380
8,6	155,0	2,7	163,60	HW030+NMRV-P075	63C4	7380
7,9	145,0	2,1	176,70	HW030+NMRV-P075	63C4	7380
7,1	197,0	2,0	196,90	HW030+NMRV-P075	63C4	7380
6,4	190,0	2,2	218,20	HW030+NMRV-P075	63C4	7380
5,9	219,0	2,2	236,30	HW030+NMRV-P075	63C4	7380
5,1	219,0	1,7	272,70	HW030+NMRV-P075	63C4	7380
4,4	269,0	1,6	315,00	HW030+NMRV-P075	63C4	7380
3,6	307,0	1,3	393,80	HW030+NMRV-P075	63C4	7380
3,0	348,0	1,1	472,50	HW030+NMRV-P075	63C4	7380
2,6	415,0	0,9	541,70	HW030+NMRV-P075	63C4	7380
2,2	469,0	0,8	650,00	HW030+NMRV-P075	63C4	7380
7,5	160,0	2,9	186,30	HW040+NMRV-P090	63C4	8180
6,4	202,0	3,3	220,00	HW040+NMRV-P090	63C4	8180

0,22kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
5,6	208,0	2,4	252,00	HW040+NMRV-P090	63C4	8180
5,1	237,0	2,5	275,00	HW040+NMRV-P090	63C4	8180
4,6	260,0	2,1	304,50	HW040+NMRV-P090	63C4	8180
4,2	265,0	2,0	330,00	HW040+NMRV-P090	63C4	8180
3,7	322,0	2,0	383,30	HW040+NMRV-P090	63C4	8180
3,2	364,0	1,8	437,50	HW040+NMRV-P090	63C4	8180
3,0	359,0	1,5	460,00	HW040+NMRV-P090	63C4	8180
2,7	407,0	1,4	525,00	HW040+NMRV-P090	63C4	8180
2,3	435,0	1,0	613,30	HW040+NMRV-P090	63C4	8180
2,0	493,0	0,9	700,00	HW040+NMRV-P090	63C4	8180
1,8	487,0	0,7	766,70	HW040+NMRV-P090	63C4	8180
4,2	284,0	3,3	330,00	HW040+NMRV-P110	63C4	10320
3,7	345,0	2,8	383,30	HW040+NMRV-P110	63C4	10320
3,2	345,0	2,3	440,00	HW040+NMRV-P110	63C4	10320
3,0	386,0	2,6	460,00	HW040+NMRV-P110	63C4	10320
2,7	437,0	2,1	525,00	HW040+NMRV-P110	63C4	10320
2,3	471,0	1,7	613,30	HW040+NMRV-P110	63C4	10320
2,0	534,0	1,6	700,00	HW040+NMRV-P110	63C4	10320
1,8	532,0	1,2	766,70	HW040+NMRV-P110	63C4	10320
1,6	601,0	1,1	875,00	HW040+NMRV-P110	63C4	10320
14,0	98,0	1,5	100,00	NMRV-P030/063	63C4	4967
9,3	138,0	1,5	150,00	NMRV-P030/063	63C4	5686
7,0	174,0	1,5	200,00	NMRV-P030/063	63C4	6259
5,6	209,0	1,1	250,00	NMRV-P030/063	63C4	6270
4,7	214,0	1,2	300,00	NMRV-P030/063	63C4	6270
3,5	279,0	0,9	400,00	NMRV-P030/063	63C4	6270
2,8	324,0	0,7	500,00	NMRV-P030/063	63C4	6270
14,0	101,0	2,6	100,00	NMRV-P040/063	63C4	4967
9,3	142,0	1,8	150,00	NMRV-P040/063	63C4	5686
7,0	179,0	1,4	200,00	NMRV-P040/063	63C4	6259
5,6	214,0	1,1	250,00	NMRV-P040/063	63C4	6270
4,7	233,0	1,2	300,00	NMRV-P040/063	63C4	6270
3,5	286,0	0,9	400,00	NMRV-P040/063	63C4	6270
14,0	102,0	3,4	100,00	NMRV-P040/075	63C4	5863
9,3	145,0	2,9	150,00	NMRV-P040/075	63C4	6712
7,0	184,0	2,3	200,00	NMRV-P040/075	63C4	7380
5,6	220,0	1,7	250,00	NMRV-P040/075	63C4	7380
4,7	245,0	1,8	300,00	NMRV-P040/075	63C4	7380
3,5	301,0	1,4	400,00	NMRV-P040/075	63C4	7380
2,8	344,0	1,1	500,00	NMRV-P040/075	63C4	7380
2,3	455,0	1,0	600,00	NMRV-P040/075	63C4	7380
1,9	547,0	0,8	750,00	NMRV-P040/075	63C4	7380
1,6	614,0	0,7	900,00	NMRV-P040/075	63C4	7380
14,0	105,0	3,4	100,00	NMRV-P040/090	63C4	6487
9,3	149,0	3,4	150,00	NMRV-P040/090	63C4	7426
7,0	191,0	3,2	200,00	NMRV-P040/090	63C4	8174
5,6	230,0	2,5	250,00	NMRV-P040/090	63C4	8180
4,7	256,0	2,7	300,00	NMRV-P040/090	63C4	8180
3,5	316,0	1,9	400,00	NMRV-P040/090	63C4	8180
2,8	370,0	1,5	500,00	NMRV-P040/090	63C4	8180
2,3	477,0	1,5	600,00	NMRV-P040/090	63C4	8180
1,9	573,0	1,2	750,00	NMRV-P040/090	63C4	8180
1,6	643,0	1,1	900,00	NMRV-P040/090	63C4	8180
1,2	796,0	0,9	1200,00	NMRV-P040/090	63C4	8180
0,9	950,0	0,7	1500,00	NMRV-P040/090	63C4	8180
1,2	820,0	0,9	1200,00	NMRV-P050/090	63C4	8180
0,9	965,0	0,7	1500,00	NMRV-P050/090	63C4	8180

0,22kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
1,2	820,0	1,5	1200,00	NMRV-P050/110	63C4	10320
0,9	965,0	1,3	1500,00	NMRV-P050/110	63C4	10320
0,8	1086,0	1,2	1800,00	NMRV-P050/110	63C4	10320
0,6	1405,0	0,8	2400,00	NMRV-P050/110	63C4	10320

0,37kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
56,0	50,0	2,7	25,00	NMRV-P063	71B4	3524
47,0	57,0	2,8	30,00	NMRV-P063	71B4	3745
35,0	72,0	2,1	40,00	NMRV-P063	71B4	4122
28,0	85,0	1,7	50,00	NMRV-P063	71B4	4440
23,0	95,0	1,4	60,00	NMRV-P063	71B4	4719
18,0	117,0	1,0	80,00	NMRV-P063	71B4	5193
14,0	131,0	0,9	100,00	NMRV-P063	71B4	5595
35,0	74,0	3,3	40,00	NMRV-P075	71B4	4865
28,0	88,0	2,5	50,00	NMRV-P075	71B4	5241
23,0	100,0	2,1	60,00	NMRV-P075	71B4	5569
18,0	123,0	1,6	80,00	NMRV-P075	71B4	6130
14,0	141,0	1,3	100,00	NMRV-P075	71B4	6603
48,0	60,0	3,4	29,00	HW030+NMRV-P063	71B4	3703
36,0	76,0	2,7	38,70	HW030+NMRV-P063	71B4	4076
32,0	84,0	2,4	44,20	HW030+NMRV-P063	71B4	4260
29,0	93,0	2,3	47,50	HW030+NMRV-P063	71B4	4365
24,0	108,0	2,0	58,00	HW030+NMRV-P063	71B4	4666
20,0	131,0	1,8	71,30	HW030+NMRV-P063	71B4	4997
18,0	138,0	1,6	77,30	HW030+NMRV-P063	71B4	5135
17,0	150,0	1,6	81,80	HW030+NMRV-P063	71B4	5233
16,0	142,0	1,5	88,30	HW030+NMRV-P063	71B4	5368
15,0	167,0	1,4	95,00	HW030+NMRV-P063	71B4	5500
13,0	190,0	1,3	109,10	HW030+NMRV-P063	71B4	5759
12,0	213,0	1,2	118,10	HW030+NMRV-P063	71B4	5914
10,0	227,0	1,0	136,40	HW030+NMRV-P063	71B4	6204
9,8	218,0	1,2	142,50	HW030+NMRV-P063	71B4	6270
8,9	269,0	1,0	157,50	HW030+NMRV-P063	71B4	6270
8,6	248,0	1,1	163,60	HW030+NMRV-P063	71B4	6270
7,9	232,0	0,8	176,70	HW030+NMRV-P063	71B4	6270
7,1	321,0	0,8	196,90	HW030+NMRV-P063	71B4	6270
6,4	305,0	0,8	218,20	HW030+NMRV-P063	71B4	6270
5,9	351,0	0,8	236,30	HW030+NMRV-P063	71B4	6270
29,0	94,0	3,4	47,50	HW030+NMRV-P075	71B4	5152
24,0	111,0	3,1	58,00	HW030+NMRV-P075	71B4	5507
20,0	135,0	2,8	71,30	HW030+NMRV-P075	71B4	5898
18,0	141,0	2,6	77,30	HW030+NMRV-P075	71B4	6061
17,0	154,0	2,5	81,80	HW030+NMRV-P075	71B4	6176
16,0	148,0	2,3	88,30	HW030+NMRV-P075	71B4	6336
15,0	171,0	2,4	95,00	HW030+NMRV-P075	71B4	6491
13,0	195,0	2,2	109,10	HW030+NMRV-P075	71B4	6798
12,0	190,0	2,0	116,00	HW030+NMRV-P075	71B4	6938
10,0	234,0	1,5	136,40	HW030+NMRV-P075	71B4	7323
9,8	229,0	1,8	142,50	HW030+NMRV-P075	71B4	7380
9,0	234,0	1,6	154,70	HW030+NMRV-P075	71B4	7380
8,6	260,0	1,6	163,60	HW030+NMRV-P075	71B4	7380
7,9	245,0	1,3	176,70	HW030+NMRV-P075	71B4	7380
7,1	331,0	1,2	196,90	HW030+NMRV-P075	71B4	7380
6,4	320,0	1,3	218,20	HW030+NMRV-P075	71B4	7380
5,9	368,0	1,3	236,30	HW030+NMRV-P075	71B4	7380

0,37kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
5,1	368,0	1,0	272,70	HW030+NMRV-P075	71B4	7380
4,4	452,0	1,0	315,00	HW030+NMRV-P075	71B4	7380
3,6	516,0	0,8	393,80	HW030+NMRV-P075	71B4	7380
13,0	204,0	3,2	110,00	HW040+NMRV-P090	71B4	7542
11,0	214,0	3,1	126,00	HW040+NMRV-P090	71B4	7892
10,0	245,0	2,6	137,50	HW040+NMRV-P090	71B4	8125
9,0	240,0	2,1	155,30	HW040+NMRV-P090	71B4	8180
8,5	274,0	2,6	165,00	HW040+NMRV-P090	71B4	8180
7,5	269,0	1,7	186,30	HW040+NMRV-P090	71B4	8180
6,4	339,0	2,0	220,00	HW040+NMRV-P090	71B4	8180
5,6	350,0	1,4	252,00	HW040+NMRV-P090	71B4	8180
5,1	398,0	1,5	275,00	HW040+NMRV-P090	71B4	8180
4,6	437,0	1,3	304,50	HW040+NMRV-P090	71B4	8180
4,2	445,0	1,2	330,00	HW040+NMRV-P090	71B4	8180
3,7	541,0	1,2	383,30	HW040+NMRV-P090	71B4	8180
3,2	613,0	1,0	437,50	HW040+NMRV-P090	71B4	8180
3,0	604,0	0,9	460,00	HW040+NMRV-P090	71B4	8180
2,7	684,0	0,8	525,00	HW040+NMRV-P090	71B4	8180
7,5	288,0	2,8	186,30	HW040+NMRV-P110	71B4	10320
6,4	356,0	3,3	220,00	HW040+NMRV-P110	71B4	10320
5,6	374,0	2,4	252,00	HW040+NMRV-P110	71B4	10320
5,1	424,0	2,5	275,00	HW040+NMRV-P110	71B4	10320
4,6	466,0	2,1	304,50	HW040+NMRV-P110	71B4	10320
4,2	478,0	2,0	330,00	HW040+NMRV-P110	71B4	10320
3,7	579,0	1,7	383,30	HW040+NMRV-P110	71B4	10320
3,2	581,0	1,3	440,00	HW040+NMRV-P110	71B4	10320
3,0	650,0	1,5	460,00	HW040+NMRV-P110	71B4	10320
2,7	736,0	1,3	525,00	HW040+NMRV-P110	71B4	10320
2,3	792,0	1,0	613,30	HW040+NMRV-P110	71B4	10320
2,0	897,0	0,9	700,00	HW040+NMRV-P110	71B4	10320
1,8	895,0	0,7	766,70	HW040+NMRV-P110	71B4	10320
14,0	169,0	1,5	100,00	NMRV-P040/063	71B4	4967
9,3	238,0	1,1	150,00	NMRV-P040/063	71B4	5686
7,0	300,0	0,8	200,00	NMRV-P040/063	71B4	6259
14,0	172,0	2,1	100,00	NMRV-P040/075	71B4	5863
9,3	245,0	1,7	150,00	NMRV-P040/075	71B4	6712
7,0	309,0	1,4	200,00	NMRV-P040/075	71B4	7380
5,6	370,0	1,0	250,00	NMRV-P040/075	71B4	7380
4,7	412,0	1,1	300,00	NMRV-P040/075	71B4	7380
3,5	506,0	0,8	400,00	NMRV-P040/075	71B4	7380
14,0	176,0	2,1	100,00	NMRV-P040/090	71B4	6487
9,3	251,0	2,1	150,00	NMRV-P040/090	71B4	7426
7,0	322,0	1,9	200,00	NMRV-P040/090	71B4	8174
5,6	386,0	1,5	250,00	NMRV-P040/090	71B4	8180
4,7	431,0	1,6	300,00	NMRV-P040/090	71B4	8180
3,5	532,0	1,1	400,00	NMRV-P040/090	71B4	8180
2,8	622,0	0,9	500,00	NMRV-P040/090	71B4	8180
2,3	802,0	0,9	600,00	NMRV-P040/090	71B4	8180
1,9	964,0	0,7	750,00	NMRV-P040/090	71B4	8180
14,0	180,0	3,3	100,00	NMRV-P050/090	71B4	6487
9,3	257,0	2,6	150,00	NMRV-P050/090	71B4	7426
7,0	329,0	1,9	200,00	NMRV-P050/090	71B4	8174
5,6	395,0	1,4	250,00	NMRV-P050/090	71B4	8180
4,7	441,0	1,6	300,00	NMRV-P050/090	71B4	8180
3,5	545,0	1,1	400,00	NMRV-P050/090	71B4	8180
2,8	727,0	0,8	500,00	NMRV-P050/090	71B4	8180
2,3	812,0	0,9	600,00	NMRV-P050/090	71B4	8180

0,37kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
1,9	977,0	0,7	750,00	NMRV-P050/090	71B4	8180
7,0	338,0	3,4	200,00	NMRV-P050/110	71B4	10320
5,6	412,0	2,8	250,00	NMRV-P050/110	71B4	10320
4,7	441,0	2,9	300,00	NMRV-P050/110	71B4	10320
3,5	571,0	2,1	400,00	NMRV-P050/110	71B4	10320
2,8	757,0	1,5	500,00	NMRV-P050/110	71B4	10320
2,3	812,0	1,6	600,00	NMRV-P050/110	71B4	10320
1,9	977,0	1,3	750,00	NMRV-P050/110	71B4	10320
1,6	1111,0	1,1	900,00	NMRV-P050/110	71B4	10320
1,2	1380,0	0,9	1200,00	NMRV-P050/110	71B4	10320
0,9	1623,0	0,8	1500,00	NMRV-P050/110	71B4	10320
7,0	338,0	3,4	200,00	NMRV-P063/110	71B4	10320
5,6	412,0	2,8	250,00	NMRV-P063/110	71B4	10320
4,7	441,0	2,9	300,00	NMRV-P063/110	71B4	10320
3,5	571,0	2,1	400,00	NMRV-P063/110	71B4	10320
2,8	776,0	1,5	500,00	NMRV-P063/110	71B4	10320
2,3	832,0	1,5	600,00	NMRV-P063/110	71B4	10320
1,9	1002,0	1,3	750,00	NMRV-P063/110	71B4	10320
1,6	1141,0	1,1	900,00	NMRV-P063/110	71B4	10320
1,2	1441,0	0,9	1200,00	NMRV-P063/110	71B4	10320
0,9	1699,0	0,7	1500,00	NMRV-P063/110	71B4	10320
3,5	571,0	2,9	400,00	NMRV-P063/130	71B4	13500
2,8	681,0	2,3	500,00	NMRV-P063/130	71B4	13500
2,3	844,0	2,1	600,00	NMRV-P063/130	71B4	13500
1,9	1017,0	1,7	750,00	NMRV-P063/130	71B4	13500
1,6	1158,0	1,5	900,00	NMRV-P063/130	71B4	13500
1,2	1462,0	1,2	1200,00	NMRV-P063/130	71B4	13500
0,9	1725,0	1,0	1500,00	NMRV-P063/130	71B4	13500
0,8	1946,0	0,9	1800,00	NMRV-P063/130	71B4	13500
2,8	681,0	3,4	500,00	NMRV-P063/150	71B4	18000
2,3	840,0	3,2	600,00	NMRV-P063/150	71B4	18000
1,9	986,0	2,4	750,00	NMRV-P063/150	71B4	18000
1,6	1244,0	1,7	900,00	NMRV-P063/150	71B4	18000
1,2	1499,0	1,8	1200,00	NMRV-P063/150	71B4	18000
0,9	1760,0	1,3	1500,00	NMRV-P063/150	71B4	18000
0,8	2089,0	1,0	1800,00	NMRV-P063/150	71B4	18000
0,6	2519,0	1,1	2400,00	NMRV-P063/150	71B4	18000
0,5	2958,0	0,8	3000,00	NMRV-P063/150	71B4	18000

0,55kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
93,0	47,0	3,2	15,00	NMRV-P063	71C4/80A4	2973
70,0	62,0	2,4	20,00	NMRV-P063	71C4/80A4	3272
56,0	74,0	1,8	25,00	NMRV-P063	71C4/80A4	3524
47,0	84,0	1,9	30,00	NMRV-P063	71C4/80A4	3745
35,0	107,0	1,4	40,00	NMRV-P063	71C4/80A4	4122
28,0	126,0	1,1	50,00	NMRV-P063	71C4/80A4	4440
23,0	142,0	0,9	60,00	NMRV-P063	71C4/80A4	4719
18,0	174,0	0,7	80,00	NMRV-P063	71C4/80A4	5193
56,0	76,0	2,8	25,00	NMRV-P075	71C4/80A4	4160
47,0	87,0	2,9	30,00	NMRV-P075	71C4/80A4	4421
35,0	110,0	2,2	40,00	NMRV-P075	71C4/80A4	4865
28,0	131,0	1,7	50,00	NMRV-P075	71C4/80A4	5241
23,0	149,0	1,4	60,00	NMRV-P075	71C4/80A4	5569

0,55kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
18,0	183,0	1,1	80,00	NMRV-P075	71C4/80A4	6130
14,0	210,0	0,9	100,00	NMRV-P075	71C4/80A4	6603
35,0	114,0	3,5	40,00	NMRV-P090	80A4	5383
28,0	137,0	2,7	50,00	NMRV-P090	80A4	5799
23,0	158,0	2,2	60,00	NMRV-P090	80A4	6163
18,0	192,0	1,5	80,00	NMRV-P090	80A4	6783
14,0	225,0	1,2	100,00	NMRV-P090	80A4	7306
18,0	204,0	2,5	80,00	NMRV-P110	80A4	8571
14,0	240,0	2,0	100,00	NMRV-P110	80A4	9232
63,0	69,0	2,7	22,10	HW030+NMRV-P063	71C4/80A4	3382
48,0	89,0	2,3	29,00	HW030+NMRV-P063	71C4/80A4	3703
36,0	113,0	1,8	38,70	HW030+NMRV-P063	71C4/80A4	4076
32,0	125,0	1,6	44,20	HW030+NMRV-P063	71C4/80A4	4260
29,0	138,0	1,5	47,50	HW030+NMRV-P063	71C4/80A4	4365
24,0	161,0	1,4	58,00	HW030+NMRV-P063	71C4/80A4	4666
20,0	195,0	1,2	71,30	HW030+NMRV-P063	71C4/80A4	4997
18,0	205,0	1,1	77,30	HW030+NMRV-P063	71C4/80A4	5135
17,0	223,0	1,1	81,80	HW030+NMRV-P063	71C4/80A4	5233
16,0	211,0	1,0	88,30	HW030+NMRV-P063	71C4/80A4	5368
15,0	248,0	1,0	95,00	HW030+NMRV-P063	71C4/80A4	5500
13,0	282,0	0,9	109,10	HW030+NMRV-P063	71C4/80A4	5759
12,0	317,0	0,8	118,10	HW030+NMRV-P063	71C4/80A4	5914
9,8	325,0	0,8	142,50	HW030+NMRV-P063	71C4/80A4	6270
8,6	369,0	0,7	163,60	HW030+NMRV-P063	71C4/80A4	6270
48,0	89,0	3,2	29,00	HW030+NMRV-P075	71C4/80A4	4371
36,0	115,0	2,6	38,70	HW030+NMRV-P075	71C4/80A4	4811
32,0	128,0	2,5	44,20	HW030+NMRV-P075	71C4/80A4	5029
29,0	140,0	2,3	47,50	HW030+NMRV-P075	71C4/80A4	5152
24,0	165,0	2,1	58,00	HW030+NMRV-P075	71C4/80A4	5507
20,0	200,0	1,9	71,30	HW030+NMRV-P075	71C4/80A4	5898
18,0	210,0	1,8	77,30	HW030+NMRV-P075	71C4/80A4	6061
17,0	229,0	1,7	81,80	HW030+NMRV-P075	71C4/80A4	6176
16,0	221,0	1,6	88,30	HW030+NMRV-P075	71C4/80A4	6336
15,0	254,0	1,6	95,00	HW030+NMRV-P075	71C4/80A4	6491
13,0	290,0	1,5	109,10	HW030+NMRV-P075	71C4/80A4	6798
12,0	282,0	1,3	116,00	HW030+NMRV-P075	71C4/80A4	6938
10,0	347,0	1,0	136,40	HW030+NMRV-P075	71C4/80A4	7323
9,8	340,0	1,2	142,50	HW030+NMRV-P075	71C4/80A4	7380
9,0	347,0	1,1	154,70	HW030+NMRV-P075	71C4/80A4	7380
8,6	387,0	1,1	163,60	HW030+NMRV-P075	71C4/80A4	7380
7,9	363,0	0,8	176,70	HW030+NMRV-P075	71C4/80A4	7380
7,1	492,0	0,8	196,90	HW030+NMRV-P075	71C4/80A4	7380
6,4	476,0	0,9	218,20	HW030+NMRV-P075	71C4/80A4	7380
5,9	547,0	0,9	236,30	HW030+NMRV-P075	71C4/80A4	7380
22,0	183,0	3,4	63,00	HW040+NMRV-P090	71C4/80A4	6264
18,0	213,0	2,4	77,60	HW040+NMRV-P090	71C4/80A4	6715
17,0	235,0	2,5	84,00	HW040+NMRV-P090	71C4/80A4	6894
15,0	241,0	2,5	93,20	HW040+NMRV-P090	71C4/80A4	7136
13,0	303,0	2,1	110,00	HW040+NMRV-P090	71C4/80A4	7542
11,0	318,0	2,1	126,00	HW040+NMRV-P090	71C4/80A4	7892
10,0	364,0	1,7	137,50	HW040+NMRV-P090	71C4/80A4	8125
9,0	356,0	1,4	155,30	HW040+NMRV-P090	71C4/80A4	8180
8,5	408,0	1,8	165,00	HW040+NMRV-P090	71C4/80A4	8180
7,5	400,0	1,1	186,30	HW040+NMRV-P090	71C4/80A4	8180
6,4	504,0	1,3	220,00	HW040+NMRV-P090	71C4/80A4	8180
5,6	520,0	1,0	252,00	HW040+NMRV-P090	71C4/80A4	8180
5,1	592,0	1,0	275,00	HW040+NMRV-P090	71C4/80A4	8180
4,6	650,0	0,8	304,50	HW040+NMRV-P090	71C4/80A4	8180

0,55kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
4,2	662,0	0,8	330,00	HW040+NMRV-P090	71C4/80A4	8180
3,7	805,0	0,8	383,30	HW040+NMRV-P090	71C4/80A4	8180
3,2	911,0	0,7	437,50	HW040+NMRV-P090	71C4/80A4	8180
10,0	379,0	2,5	137,50	HW040+NMRV-P110	71C4/80A4	10266
9,0	374,0	2,5	155,30	HW040+NMRV-P110	71C4/80A4	10320
8,3	414,0	2,6	168,00	HW040+NMRV-P110	71C4/80A4	10320
7,5	427,0	1,9	186,30	HW040+NMRV-P110	71C4/80A4	10320
6,4	529,0	2,2	220,00	HW040+NMRV-P110	71C4/80A4	10320
5,6	557,0	1,6	252,00	HW040+NMRV-P110	71C4/80A4	10320
5,1	630,0	1,7	275,00	HW040+NMRV-P110	71C4/80A4	10320
4,6	693,0	1,4	304,50	HW040+NMRV-P110	71C4/80A4	10320
4,2	710,0	1,3	330,00	HW040+NMRV-P110	71C4/80A4	10320
3,7	861,0	1,1	383,30	HW040+NMRV-P110	71C4/80A4	10320
3,2	864,0	0,9	440,00	HW040+NMRV-P110	71C4/80A4	10320
3,0	966,0	1,0	460,00	HW040+NMRV-P110	71C4/80A4	10320
2,7	1093,0	0,8	525,00	HW040+NMRV-P110	71C4	10320
14,0	252,0	1,0	100,00	NMRV-P040/063	71C4	4967
9,3	354,0	0,7	150,00	NMRV-P040/063	71C4	5686
14,0	255,0	1,4	100,00	NMRV-P040/075	71C4	5863
9,3	364,0	1,2	150,00	NMRV-P040/075	71C4	6712
7,0	459,0	0,9	200,00	NMRV-P040/075	71C4	7380
4,7	612,0	0,7	300,00	NMRV-P040/075	71C4	7380
14,0	261,0	1,4	100,00	NMRV-P040/090	71C4	6487
9,3	373,0	1,4	150,00	NMRV-P040/090	71C4	7426
7,0	478,0	1,3	200,00	NMRV-P040/090	71C4	8174
5,6	574,0	1,0	250,00	NMRV-P040/090	71C4	8180
4,7	641,0	1,1	300,00	NMRV-P040/090	71C4	8180
3,5	791,0	0,8	400,00	NMRV-P040/090	71C4	8180
14,0	268,0	2,2	100,00	NMRV-P050/090	71C4/80A4	6487
9,3	382,0	1,7	150,00	NMRV-P050/090	71C4/80A4	7426
7,0	490,0	1,2	200,00	NMRV-P050/090	71C4/80A4	8174
5,6	588,0	1,0	250,00	NMRV-P050/090	71C4/80A4	8180
4,7	656,0	1,1	300,00	NMRV-P050/090	71C4/80A4	8180
3,5	809,0	0,8	400,00	NMRV-P050/090	71C4/80A4	8180
14,0	268,0	2,4	100,00	NMRV-P050/110	71C4/80A4	8198
9,3	387,0	2,4	150,00	NMRV-P050/110	71C4/80A4	9384
7,0	503,0	2,3	200,00	NMRV-P050/110	71C4/80A4	10320
5,6	612,0	1,9	250,00	NMRV-P050/110	71C4/80A4	10320
4,7	656,0	1,9	300,00	NMRV-P050/110	71C4/80A4	10320
3,5	849,0	1,4	400,00	NMRV-P050/110	71C4/80A4	10320
2,8	1126,0	1,0	500,00	NMRV-P050/110	71C4/80A4	10320
2,3	1207,0	1,0	600,00	NMRV-P050/110	71C4/80A4	10320
1,9	1452,0	0,9	750,00	NMRV-P050/110	71C4/80A4	10320
1,6	1651,0	0,8	900,00	NMRV-P050/110	71C4/80A4	10320
9,3	387,0	3,1	150,00	NMRV-P063/110	71C4/80A4	9384
7,0	503,0	2,3	200,00	NMRV-P063/110	71C4/80A4	10320
5,6	612,0	1,9	250,00	NMRV-P063/110	71C4/80A4	10320
4,7	656,0	1,9	300,00	NMRV-P063/110	71C4/80A4	10320
3,5	849,0	1,4	400,00	NMRV-P063/110	71C4/80A4	10320
2,8	1154,0	1,0	500,00	NMRV-P063/110	71C4/80A4	10320
2,3	1237,0	1,0	600,00	NMRV-P063/110	71C4/80A4	10320
1,9	1489,0	0,8	750,00	NMRV-P063/110	71C4/80A4	10320
1,6	1697,0	0,7	900,00	NMRV-P063/110	71C4/80A4	10320
7,0	503,0	3,2	200,00	NMRV-P063/130	71C4/80A4	13500
5,6	612,0	2,5	250,00	NMRV-P063/130	71C4/80A4	13500
4,7	666,0	2,6	300,00	NMRV-P063/130	71C4/80A4	13500
3,5	849,0	1,9	400,00	NMRV-P063/130	71C4/80A4	13500
2,8	1012,0	1,5	500,00	NMRV-P063/130	71C4/80A4	13500
2,3	1255,0	1,4	600,00	NMRV-P063/130	71C4/80A4	13500
1,9	1512,0	1,2	750,00	NMRV-P063/130	71C4/80A4	13500
1,6	1722,0	1,0	900,00	NMRV-P063/130	71C4/80A4	13500

0,55kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
1,2	2174,0	0,8	1200,00	NMRV-P063/130	71C4/80A4	13500
5,6	612,0	3,3	250,00	NMRV-P063/150	71C4/80A4	18000
4,7	728,0	3,2	300,00	NMRV-P063/150	71C4/80A4	18000
3,5	862,0	3,1	400,00	NMRV-P063/150	71C4/80A4	18000
2,8	1012,0	2,3	500,00	NMRV-P063/150	71C4/80A4	18000
2,3	1248,0	2,1	600,00	NMRV-P063/150	71C4/80A4	18000
1,9	1465,0	1,6	750,00	NMRV-P063/150	71C4/80A4	18000
1,6	1849,0	1,1	900,00	NMRV-P063/150	71C4/80A4	18000
1,2	2229,0	1,2	1200,00	NMRV-P063/150	71C4/80A4	18000
0,9	2617,0	0,9	1500,00	NMRV-P063/150	71C4/80A4	18000
0,6	3744,0	0,7	2400,00	NMRV-P063/150	71C4/80A4	18000

0,75kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
140,0	45,0	3,0	10,00	NMRV-P063	80B4	2597
93,0	64,0	2,3	15,00	NMRV-P063	80B4	2973
70,0	84,0	1,7	20,00	NMRV-P063	80B4	3272
56,0	101,0	1,3	25,00	NMRV-P063	80B4	3524
47,0	115,0	1,4	30,00	NMRV-P063	80B4	3745
35,0	145,0	1,0	40,00	NMRV-P063	80B4	4122
28,0	171,0	0,8	50,00	NMRV-P063	80B4	4440
93,0	66,0	3,5	15,00	NMRV-P075	80B4	3509
70,0	85,0	2,8	20,00	NMRV-P075	80B4	3862
56,0	104,0	2,1	25,00	NMRV-P075	80B4	4160
47,0	118,0	2,1	30,00	NMRV-P075	80B4	4421
35,0	149,0	1,6	40,00	NMRV-P075	80B4	4865
28,0	179,0	1,3	50,00	NMRV-P075	80B4	5241
23,0	203,0	1,1	60,00	NMRV-P075	80B4	5569
18,0	250,0	0,8	80,00	NMRV-P075	80B4	6130
35,0	156,0	2,5	40,00	NMRV-P090	80B4	5383
28,0	187,0	2,0	50,00	NMRV-P090	80B4	5799
23,0	215,0	1,6	60,00	NMRV-P090	80B4	6163
18,0	262,0	1,1	80,00	NMRV-P090	80B4	6783
14,0	307,0	0,9	100,00	NMRV-P090	80B4	7306
28,0	194,0	3,4	50,00	NMRV-P110	80B4	7328
23,0	227,0	2,7	60,00	NMRV-P110	80B4	7787
18,0	278,0	1,8	80,00	NMRV-P110	80B4	8571
14,0	328,0	1,5	100,00	NMRV-P110	80B4	9232
63,0	94,0	2,0	22,10	HW030+NMRV-P063	80B4	3382
48,0	122,0	1,7	29,00	HW030+NMRV-P063	80B4	3703
36,0	155,0	1,3	38,70	HW030+NMRV-P063	80B4	4076
32,0	170,0	1,2	44,20	HW030+NMRV-P063	80B4	4260
29,0	189,0	1,1	47,50	HW030+NMRV-P063	80B4	4365
24,0	219,0	1,0	58,00	HW030+NMRV-P063	80B4	4666
20,0	266,0	0,9	71,30	HW030+NMRV-P063	80B4	4997
18,0	279,0	0,8	77,30	HW030+NMRV-P063	80B4	5135
17,0	304,0	0,8	81,80	HW030+NMRV-P063	80B4	5233
16,0	288,0	0,8	88,30	HW030+NMRV-P063	80B4	5368
15,0	338,0	0,7	95,00	HW030+NMRV-P063	80B4	5500
63,0	93,0	2,8	22,10	HW030+NMRV-P075	80B4	3991
48,0	121,0	2,3	29,00	HW030+NMRV-P075	80B4	4371
36,0	157,0	1,9	38,70	HW030+NMRV-P075	80B4	4811
32,0	175,0	1,8	44,20	HW030+NMRV-P075	80B4	5029
29,0	191,0	1,7	47,50	HW030+NMRV-P075	80B4	5152

0,75kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
24,0	225,0	1,5	58,00	HW030+NMRV-P075	80B4	5507
20,0	273,0	1,4	71,30	HW030+NMRV-P075	80B4	5898
18,0	287,0	1,3	77,30	HW030+NMRV-P075	80B4	6061
17,0	312,0	1,3	81,80	HW030+NMRV-P075	80B4	6176
16,0	301,0	1,1	88,30	HW030+NMRV-P075	80B4	6336
15,0	347,0	1,2	95,00	HW030+NMRV-P075	80B4	6491
13,0	395,0	1,1	109,10	HW030+NMRV-P075	80B4	6798
12,0	384,0	1,0	116,00	HW030+NMRV-P075	80B4	6938
10,0	474,0	0,7	136,40	HW030+NMRV-P075	80B4	7323
9,8	464,0	0,9	142,50	HW030+NMRV-P075	80B4	7380
9,0	474,0	0,8	154,70	HW030+NMRV-P075	80B4	7380
8,6	528,0	0,8	163,60	HW030+NMRV-P075	80B4	7380
33,0	174,0	2,8	42,00	HW040+NMRV-P090	80B4	5472
30,0	188,0	3,0	46,60	HW040+NMRV-P090	80B4	5664
22,0	250,0	2,5	63,00	HW040+NMRV-P090	80B4	6264
18,0	290,0	1,8	77,60	HW040+NMRV-P090	80B4	6715
17,0	320,0	1,8	84,00	HW040+NMRV-P090	80B4	6894
15,0	329,0	1,8	93,20	HW040+NMRV-P090	80B4	7136
13,0	414,0	1,6	110,00	HW040+NMRV-P090	80B4	7542
11,0	433,0	1,5	126,00	HW040+NMRV-P090	80B4	7892
10,0	496,0	1,3	137,50	HW040+NMRV-P090	80B4	8125
9,0	486,0	1,1	155,30	HW040+NMRV-P090	80B4	8180
8,5	556,0	1,3	165,00	HW040+NMRV-P090	80B4	8180
7,5	546,0	0,8	186,30	HW040+NMRV-P090	80B4	8180
6,4	687,0	1,0	220,00	HW040+NMRV-P090	80B4	8180
5,6	709,0	0,7	252,00	HW040+NMRV-P090	80B4	8180
5,1	807,0	0,7	275,00	HW040+NMRV-P090	80B4	8180
33,0	174,0	2,8	42,00	HW040+NMRV-P110	80B4	6914
18,0	302,0	3,2	77,60	HW040+NMRV-P110	80B4	8485
17,0	329,0	2,8	84,00	HW040+NMRV-P110	80B4	8711
15,0	333,0	3,1	93,20	HW040+NMRV-P110	80B4	9017
13,0	400,0	2,8	105,00	HW040+NMRV-P110	80B4	9384
11,0	436,0	2,7	126,00	HW040+NMRV-P110	80B4	9972
10,0	517,0	1,8	137,50	HW040+NMRV-P110	80B4	10266
9,0	510,0	1,8	155,30	HW040+NMRV-P110	80B4	10320
8,3	564,0	1,9	168,00	HW040+NMRV-P110	80B4	10320
7,5	583,0	1,4	186,30	HW040+NMRV-P110	80B4	10320
6,4	722,0	1,6	220,00	HW040+NMRV-P110	80B4	10320
5,6	759,0	1,2	252,00	HW040+NMRV-P110	80B4	10320
5,1	859,0	1,3	275,00	HW040+NMRV-P110	80B4	10320
4,6	945,0	1,0	304,50	HW040+NMRV-P110	80B4	10320
4,2	968,0	1,0	330,00	HW040+NMRV-P110	80B4	10320
3,7	1174,0	0,8	383,30	HW040+NMRV-P110	80B4	10320
3,0	1317,0	0,8	460,00	HW040+NMRV-P110	80B4	10320
14,0	365,0	1,6	100,00	NMRV-P050/090	80B4	6487
9,3	521,0	1,3	150,00	NMRV-P050/090	80B4	7426
7,0	668,0	0,9	200,00	NMRV-P050/090	80B4	8174
5,6	801,0	0,7	250,00	NMRV-P050/090	80B4	8180
4,7	895,0	0,8	300,00	NMRV-P050/090	80B4	8180
14,0	365,0	1,8	100,00	NMRV-P050/110	80B4	8198
9,3	527,0	1,8	150,00	NMRV-P050/110	80B4	9384
7,0	685,0	1,7	200,00	NMRV-P050/110	80B4	10320
5,6	835,0	1,4	250,00	NMRV-P050/110	80B4	10320
4,7	895,0	1,4	300,00	NMRV-P050/110	80B4	10320
3,5	1157,0	1,0	400,00	NMRV-P050/110	80B4	10320
2,8	1535,0	0,8	500,00	NMRV-P050/110	80B4	10320
2,3	1645,0	0,8	600,00	NMRV-P050/110	80B4	10320
14,0	365,0	3,0	100,00	NMRV-P063/110	80B4	8198
9,3	527,0	2,3	150,00	NMRV-P063/110	80B4	9384
7,0	685,0	1,7	200,00	NMRV-P063/110	80B4	10320
5,6	835,0	1,4	250,00	NMRV-P063/110	80B4	10320

0,75kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
4,7	895,0	1,4	300,00	NMRV-P063/110	80B4	10320
3,5	1157,0	1,0	400,00	NMRV-P063/110	80B4	10320
2,8	1573,0	0,7	500,00	NMRV-P063/110	80B4	10320
2,3	1686,0	0,8	600,00	NMRV-P063/110	80B4	10320
14,0	369,0	3,0	100,00	NMRV-P063/130	80B4	10722
9,3	521,0	3,0	150,00	NMRV-P063/130	80B4	12274
7,0	685,0	2,3	200,00	NMRV-P063/130	80B4	13500
5,6	835,0	1,8	250,00	NMRV-P063/130	80B4	13500
4,7	908,0	1,9	300,00	NMRV-P063/130	80B4	13500
3,5	1157,0	1,4	400,00	NMRV-P063/130	80B4	13500
2,8	1380,0	1,1	500,00	NMRV-P063/130	80B4	13500
2,3	1712,0	1,0	600,00	NMRV-P063/130	80B4	13500
1,9	2061,0	0,9	750,00	NMRV-P063/130	80B4	13500
1,6	2348,0	0,7	900,00	NMRV-P063/130	80B4	13500
7,0	685,0	3,0	200,00	NMRV-P063/150	80B4	18000
5,6	835,0	2,5	250,00	NMRV-P063/150	80B4	18000
4,7	993,0	2,3	300,00	NMRV-P063/150	80B4	18000
3,5	1175,0	2,3	400,00	NMRV-P063/150	80B4	18000
2,8	1380,0	1,7	500,00	NMRV-P063/150	80B4	18000
2,3	1702,0	1,6	600,00	NMRV-P063/150	80B4	18000
1,9	1998,0	1,2	750,00	NMRV-P063/150	80B4	18000
1,6	2521,0	0,8	900,00	NMRV-P063/150	80B4	18000
1,2	3039,0	0,9	1200,00	NMRV-P063/150	80B4	18000

0,92kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
187,0	42,0	3,1	7,50	NMRV-P063	80C4	2359
140,0	55,0	2,5	10,00	NMRV-P063	80C4	2597
93,0	79,0	1,9	15,00	NMRV-P063	80C4	2973
70,0	103,0	1,4	20,00	NMRV-P063	80C4	3272
56,0	124,0	1,1	25,00	NMRV-P063	80C4	3524
47,0	141,0	1,1	30,00	NMRV-P063	80C4	3745
35,0	178,0	0,8	40,00	NMRV-P063	80C4	4122
93,0	81,0	2,8	15,00	NMRV-P075	80C4	3509
70,0	104,0	2,3	20,00	NMRV-P075	80C4	3862
56,0	127,0	1,7	25,00	NMRV-P075	80C4	4160
47,0	145,0	1,7	30,00	NMRV-P075	80C4	4421
35,0	183,0	1,3	40,00	NMRV-P075	80C4	4865
28,0	220,0	1,0	50,00	NMRV-P075	80C4	5241
23,0	249,0	0,9	60,00	NMRV-P075	80C4	5569
56,0	130,0	2,9	25,00	NMRV-P090	80C4	4603
47,0	149,0	2,9	30,00	NMRV-P090	80C4	4891
35,0	191,0	2,1	40,00	NMRV-P090	80C4	5383
28,0	229,0	1,6	50,00	NMRV-P090	80C4	5799
23,0	264,0	1,3	60,00	NMRV-P090	80C4	6163
18,0	321,0	0,9	80,00	NMRV-P090	80C4	6783
14,0	377,0	0,7	100,00	NMRV-P090	80C4	7306
28,0	239,0	2,8	50,00	NMRV-P110	80C4	7328
23,0	279,0	2,2	60,00	NMRV-P110	80C4	7787
18,0	342,0	1,5	80,00	NMRV-P110	80C4	8571
14,0	402,0	1,2	100,00	NMRV-P110	80C4	9232
63,0	115,0	1,6	22,10	HW030+NMRV-P063	80C4	3382
48,0	149,0	1,4	29,00	HW030+NMRV-P063	80C4	3703
36,0	190,0	1,1	38,70	HW030+NMRV-P063	80C4	4076
32,0	209,0	1,0	44,20	HW030+NMRV-P063	80C4	4260
29,0	231,0	0,9	47,50	HW030+NMRV-P063	80C4	4365

0,92kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
24,0	269,0	0,8	58,00	HW030+NMRV-P063	80C4	4666
20,0	327,0	0,7	71,30	HW030+NMRV-P063	80C4	4997
63,0	114,0	2,3	22,10	HW030+NMRV-P075	80C4	3991
48,0	148,0	1,9	29,00	HW030+NMRV-P075	80C4	4371
36,0	192,0	1,5	38,70	HW030+NMRV-P075	80C4	4811
32,0	214,0	1,5	44,20	HW030+NMRV-P075	80C4	5029
29,0	234,0	1,4	47,50	HW030+NMRV-P075	80C4	5152
24,0	276,0	1,3	58,00	HW030+NMRV-P075	80C4	5507
20,0	335,0	1,1	71,30	HW030+NMRV-P075	80C4	5898
18,0	352,0	1,1	77,30	HW030+NMRV-P075	80C4	6061
17,0	382,0	1,0	81,80	HW030+NMRV-P075	80C4	6176
16,0	369,0	0,9	88,30	HW030+NMRV-P075	80C4	6336
15,0	426,0	0,9	95,00	HW030+NMRV-P075	80C4	6491
13,0	485,0	0,9	109,10	HW030+NMRV-P075	80C4	6798
12,0	471,0	0,8	116,00	HW030+NMRV-P075	80C4	6938
9,8	569,0	0,7	142,50	HW030+NMRV-P075	80C4	7380
60,0	122,0	3,4	23,30	HW040+NMRV-P090	80C4	4495
45,0	160,0	3,1	31,10	HW040+NMRV-P090	80C4	4948
33,0	213,0	2,3	42,00	HW040+NMRV-P090	80C4	5472
30,0	231,0	2,4	46,60	HW040+NMRV-P090	80C4	5664
22,0	306,0	2,0	63,00	HW040+NMRV-P090	80C4	6264
18,0	356,0	1,4	77,60	HW040+NMRV-P090	80C4	6715
17,0	393,0	1,5	84,00	HW040+NMRV-P090	80C4	6894
15,0	404,0	1,5	93,20	HW040+NMRV-P090	80C4	7136
13,0	507,0	1,3	110,00	HW040+NMRV-P090	80C4	7542
11,0	531,0	1,2	126,00	HW040+NMRV-P090	80C4	7892
10,0	609,0	1,0	137,50	HW040+NMRV-P090	80C4	8125
9,0	596,0	0,9	155,30	HW040+NMRV-P090	80C4	8180
8,5	682,0	1,1	165,00	HW040+NMRV-P090	80C4	8180
6,4	843,0	0,8	220,00	HW040+NMRV-P090	80C4	8180
60,0	123,0	3,4	23,30	HW040+NMRV-P110	80C4	5680
45,0	160,0	3,4	31,10	HW040+NMRV-P110	80C4	6252
33,0	213,0	2,3	42,00	HW040+NMRV-P110	80C4	6914
30,0	234,0	3,4	46,60	HW040+NMRV-P110	80C4	7157
23,0	304,0	3,0	62,10	HW040+NMRV-P110	80C4	7877
18,0	370,0	2,6	77,60	HW040+NMRV-P110	80C4	8485
17,0	403,0	2,3	84,00	HW040+NMRV-P110	80C4	8711
15,0	409,0	2,5	93,20	HW040+NMRV-P110	80C4	9017
13,0	491,0	2,3	105,00	HW040+NMRV-P110	80C4	9384
11,0	535,0	2,2	126,00	HW040+NMRV-P110	80C4	9972
10,0	634,0	1,5	137,50	HW040+NMRV-P110	80C4	10266
9,0	626,0	1,5	155,30	HW040+NMRV-P110	80C4	10320
8,3	692,0	1,6	168,00	HW040+NMRV-P110	80C4	10320
7,5	715,0	1,1	186,30	HW040+NMRV-P110	80C4	10320
6,4	885,0	1,3	220,00	HW040+NMRV-P110	80C4	10320
5,6	931,0	1,0	252,00	HW040+NMRV-P110	80C4	10320
5,1	1054,0	1,0	275,00	HW040+NMRV-P110	80C4	10320
4,6	1159,0	0,8	304,50	HW040+NMRV-P110	80C4	10320
4,2	1188,0	0,8	330,00	HW040+NMRV-P110	80C4	10320
14,0	448,0	1,3	100,00	NMRV-P050/090	80C4	6487
9,3	639,0	1,0	150,00	NMRV-P050/090	80C4	7426
7,0	819,0	0,7	200,00	NMRV-P050/090	80C4	8174
14,0	448,0	1,4	100,00	NMRV-P050/110	80C4	8198
9,3	647,0	1,4	150,00	NMRV-P050/110	80C4	9384
7,0	841,0	1,4	200,00	NMRV-P050/110	80C4	10320
5,6	1024,0	1,1	250,00	NMRV-P050/110	80C4	10320
4,7	1097,0	1,2	300,00	NMRV-P050/110	80C4	10320
3,5	1420,0	0,8	400,00	NMRV-P050/110	80C4	10320
14,0	448,0	2,5	100,00	NMRV-P063/110	80C4	8198
9,3	647,0	1,8	150,00	NMRV-P063/110	80C4	9384
7,0	841,0	1,4	200,00	NMRV-P063/110	80C4	10320

0,92kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
5,6	1024,0	1,1	250,00	NMRV-P063/110	80C4	10320
4,7	1097,0	1,2	300,00	NMRV-P063/110	80C4	10320
3,5	1420,0	0,8	400,00	NMRV-P063/110	80C4	10320
14,0	453,0	2,5	100,00	NMRV-P063/130	80C4	10722
9,3	639,0	2,5	150,00	NMRV-P063/130	80C4	12274
7,0	841,0	1,9	200,00	NMRV-P063/130	80C4	13500
5,6	1024,0	1,5	250,00	NMRV-P063/130	80C4	13500
4,7	1114,0	1,6	300,00	NMRV-P063/130	80C4	13500
3,5	1420,0	1,2	400,00	NMRV-P063/130	80C4	13500
2,8	1693,0	0,9	500,00	NMRV-P063/130	80C4	13500
2,3	2100,0	0,8	600,00	NMRV-P063/130	80C4	13500
9,3	645,0	3,1	150,00	NMRV-P063/150	80C4	18000
7,0	841,0	2,5	200,00	NMRV-P063/150	80C4	18000
5,6	1024,0	2,0	250,00	NMRV-P063/150	80C4	18000
4,7	1218,0	1,9	300,00	NMRV-P063/150	80C4	18000
3,5	1441,0	1,9	400,00	NMRV-P063/150	80C4	18000
2,8	1693,0	1,4	500,00	NMRV-P063/150	80C4	18000
2,3	2088,0	1,3	600,00	NMRV-P063/150	80C4	18000
1,9	2451,0	1,0	750,00	NMRV-P063/150	80C4	18000
1,2	3728,0	0,7	1200,00	NMRV-P063/150	80C4	18000

1,50kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
187,0	68,0	1,9	7,50	NMRV-P063	90LA4	2359
140,0	89,0	1,5	10,00	NMRV-P063	90LA4	2597
93,0	129,0	1,2	15,00	NMRV-P063	90LA4	2973
70,0	168,0	0,9	20,00	NMRV-P063	90LA4	3272
187,0	68,0	2,7	7,50	NMRV-P075	90LA4	2785
140,0	90,0	2,2	10,00	NMRV-P075	90LA4	3065
93,0	132,0	1,7	15,00	NMRV-P075	90LA4	3509
70,0	170,0	1,4	20,00	NMRV-P075	90LA4	3862
56,0	207,0	1,0	25,00	NMRV-P075	90LA4	4160
47,0	236,0	1,0	30,00	NMRV-P075	90LA4	4421
35,0	299,0	0,8	40,00	NMRV-P075	90LA4	4865
93,0	134,0	3,0	15,00	NMRV-P090	90LA4	3882
70,0	174,0	2,2	20,00	NMRV-P090	90LA4	4273
56,0	212,0	1,8	25,00	NMRV-P090	90LA4	4603
47,0	243,0	1,8	30,00	NMRV-P090	90LA4	4891
35,0	311,0	1,3	40,00	NMRV-P090	90LA4	5383
28,0	374,0	1,0	50,00	NMRV-P090	90LA4	5799
23,0	430,0	0,8	60,00	NMRV-P090	90LA4	6163
56,0	218,0	3,1	25,00	NMRV-P110	90LA4	5816
47,0	246,0	3,0	30,00	NMRV-P110	90LA4	6181
35,0	323,0	2,2	40,00	NMRV-P110	90LA4	6803
28,0	389,0	1,7	50,00	NMRV-P110	90LA4	7328
23,0	455,0	1,4	60,00	NMRV-P110	90LA4	7787
18,0	557,0	0,9	80,00	NMRV-P110	90LA4	8571
14,0	655,0	0,7	100,00	NMRV-P110	90LA4	9232
18,0	565,0	1,5	80,00	NMRV 130	90LA4	11210
14,0	665,0	1,1	100,00	NMRV 130	90LA4	12076
60,0	198,0	2,1	23,30	HW040+NMRV-P090	90LA4	4495
45,0	261,0	1,9	31,10	HW040+NMRV-P090	90LA4	4948
33,0	348,0	1,4	42,00	HW040+NMRV-P090	90LA4	5472
30,0	376,0	1,5	46,60	HW040+NMRV-P090	90LA4	5664
22,0	499,0	1,2	63,00	HW040+NMRV-P090	90LA4	6264
18,0	581,0	0,9	77,60	HW040+NMRV-P090	90LA4	6715

1,50kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
17,0	640,0	0,9	84,00	HW040+NMRV-P090	90LA4	6894
15,0	658,0	0,9	93,20	HW040+NMRV-P090	90LA4	7136
13,0	827,0	0,8	110,00	HW040+NMRV-P090	90LA4	7542
11,0	866,0	0,8	126,00	HW040+NMRV-P090	90LA4	7892
60,0	200,0	2,1	23,30	HW040+NMRV-P110	90LA4	5680
45,0	261,0	2,1	31,10	HW040+NMRV-P110	90LA4	6252
33,0	348,0	1,4	42,00	HW040+NMRV-P110	90LA4	6914
30,0	381,0	2,1	46,60	HW040+NMRV-P110	90LA4	7157
23,0	495,0	1,8	62,10	HW040+NMRV-P110	90LA4	7877
18,0	604,0	1,6	77,60	HW040+NMRV-P110	90LA4	8485
17,0	657,0	1,4	84,00	HW040+NMRV-P110	90LA4	8711
15,0	666,0	1,6	93,20	HW040+NMRV-P110	90LA4	9017
13,0	800,0	1,4	105,00	HW040+NMRV-P110	90LA4	9384
11,0	872,0	1,4	126,00	HW040+NMRV-P110	90LA4	9972
10,0	1034,0	0,9	137,50	HW040+NMRV-P110	90LA4	10266
9,0	1020,0	0,9	155,30	HW040+NMRV-P110	90LA4	10320
8,3	1129,0	1,0	168,00	HW040+NMRV-P110	90LA4	10320
6,4	1444,0	0,8	220,00	HW040+NMRV-P110	90LA4	10320
14,0	730,0	1,5	100,00	NMRV-P063/110	90LA4	8198
9,3	1055,0	1,1	150,00	NMRV-P063/110	90LA4	9384
7,0	1371,0	0,8	200,00	NMRV-P063/110	90LA4	10320
5,6	1669,0	0,7	250,00	NMRV-P063/110	90LA4	10320
4,7	1789,0	0,7	300,00	NMRV-P063/110	90LA4	10320
14,0	739,0	1,5	100,00	NMRV-P063/130	90LA4	10722
9,3	1042,0	1,5	150,00	NMRV-P063/130	90LA4	12274
7,0	1371,0	1,2	200,00	NMRV-P063/130	90LA4	13500
5,6	1669,0	0,9	250,00	NMRV-P063/130	90LA4	13500
4,7	1816,0	1,0	300,00	NMRV-P063/130	90LA4	13500
3,5	2315,0	0,7	400,00	NMRV-P063/130	90LA4	13500
9,3	1052,0	1,9	150,00	NMRV-P063/150	90LA4	18000
7,0	1371,0	1,5	200,00	NMRV-P063/150	90LA4	18000
5,6	1669,0	1,2	250,00	NMRV-P063/150	90LA4	18000
4,7	1985,0	1,2	300,00	NMRV-P063/150	90LA4	18000
3,5	2350,0	1,1	400,00	NMRV-P063/150	90LA4	18000
2,8	2760,0	0,8	500,00	NMRV-P063/150	90LA4	18000
2,3	3404,0	0,8	600,00	NMRV-P063/150	90LA4	18000

1,85kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
187,0	84,0	1,5	7,50	NMRV-P063	90LB4	2359
140,0	110,0	1,2	10,00	NMRV-P063	90LB4	2597
93,0	159,0	0,9	15,00	NMRV-P063	90LB4	2973
70,0	207,0	0,7	20,00	NMRV-P063	90LB4	3272
187,0	84,0	2,2	7,50	NMRV-P075	90LB4	2785
140,0	111,0	1,8	10,00	NMRV-P075	90LB4	3065
93,0	163,0	1,4	15,00	NMRV-P075	90LB4	3509
70,0	210,0	1,1	20,00	NMRV-P075	90LB4	3862
56,0	256,0	0,8	25,00	NMRV-P075	90LB4	4160
47,0	292,0	0,8	30,00	NMRV-P075	90LB4	4421
140,0	112,0	3,0	10,00	NMRV-P090	90LB4	3391
93,0	165,0	2,4	15,00	NMRV-P090	90LB4	3882
70,0	215,0	1,8	20,00	NMRV-P090	90LB4	4273
56,0	262,0	1,4	25,00	NMRV-P090	90LB4	4603
47,0	299,0	1,4	30,00	NMRV-P090	90LB4	4891
35,0	384,0	1,0	40,00	NMRV-P090	90LB4	5383
28,0	461,0	0,8	50,00	NMRV-P090	90LB4	5799

1,85kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
70,0	217,0	3,0	20,00	NMRV-P110	90LB4	5399
56,0	268,0	2,5	25,00	NMRV-P110	90LB4	5816
47,0	303,0	2,4	30,00	NMRV-P110	90LB4	6181
35,0	399,0	1,8	40,00	NMRV-P110	90LB4	6803
28,0	480,0	1,4	50,00	NMRV-P110	90LB4	7328
23,0	561,0	1,1	60,00	NMRV-P110	90LB4	7787
18,0	687,0	0,7	80,00	NMRV-P110	90LB4	8571
18,0	697,0	1,2	80,00	NMRV-130	90LB4	11210
14,0	821,0	0,9	100,00	NMRV-130	90LB4	12076
60,0	244,0	1,7	23,30	HW040+NMRV-P090	90LB4	4495
45,0	321,0	1,5	31,10	HW040+NMRV-P090	90LB4	4948
33,0	429,0	1,1	42,00	HW040+NMRV-P090	90LB4	5472
30,0	464,0	1,2	46,60	HW040+NMRV-P090	90LB4	5664
22,0	616,0	1,0	63,00	HW040+NMRV-P090	90LB4	6264
18,0	716,0	0,7	77,60	HW040+NMRV-P090	90LB4	6715
17,0	790,0	0,7	84,00	HW040+NMRV-P090	90LB4	6894
15,0	812,0	0,7	93,20	HW040+NMRV-P090	90LB4	7136
60,0	247,0	1,7	23,30	HW040+NMRV-P110	90LB4	5680
45,0	321,0	1,7	31,10	HW040+NMRV-P110	90LB4	6252
33,0	429,0	1,1	42,00	HW040+NMRV-P110	90LB4	6914
30,0	470,0	1,7	46,60	HW040+NMRV-P110	90LB4	7157
23,0	611,0	1,5	62,10	HW040+NMRV-P110	90LB4	7877
18,0	745,0	1,3	77,60	HW040+NMRV-P110	90LB4	8485
17,0	810,0	1,1	84,00	HW040+NMRV-P110	90LB4	8711
15,0	822,0	1,3	93,20	HW040+NMRV-P110	90LB4	9017
13,0	987,0	1,1	105,00	HW040+NMRV-P110	90LB4	9384
11,0	1075,0	1,1	126,00	HW040+NMRV-P110	90LB4	9972
10,0	1275,0	0,7	137,50	HW040+NMRV-P110	90LB4	10266
9,0	1258,0	0,7	155,30	HW040+NMRV-P110	90LB4	10320
8,3	1392,0	0,8	168,00	HW040+NMRV-P110	90LB4	10320
14,0	900,0	1,2	100,00	NMRV-P063/110	90LB4	8198
9,3	1301,0	0,9	150,00	NMRV-P063/110	90LB4	9384
14,0	911,0	1,2	100,00	NMRV-P063/130	90LB4	10722
9,3	1285,0	1,2	150,00	NMRV-P063/130	90LB4	12274
7,0	1691,0	0,9	200,00	NMRV-P063/130	90LB4	13500
5,6	2059,0	0,7	250,00	NMRV-P063/130	90LB4	13500
4,7	2240,0	0,8	300,00	NMRV-P063/130	90LB4	13500
9,3	1297,0	1,5	150,00	NMRV-P063/150	90LB4	18000
7,0	1691,0	1,2	200,00	NMRV-P063/150	90LB4	18000
5,6	2059,0	1,0	250,00	NMRV-P063/150	90LB4	18000
4,7	2449,0	0,9	300,00	NMRV-P063/150	90LB4	18000
3,5	2898,0	0,9	400,00	NMRV-P063/150	90LB4	18000

2,20kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
187,0	100,0	1,8	7,50	NMRV-P075	100LA4	2785
140,0	132,0	1,5	10,00	NMRV-P075	100LA4	3065
93,0	194,0	1,2	15,00	NMRV-P075	100LA4	3509
70,0	249,0	0,9	20,00	NMRV-P075	100LA4	3862
56,0	304,0	0,7	25,00	NMRV-P075	100LA4	4160
47,0	347,0	0,7	30,00	NMRV-P075	100LA4	4421
187,0	101,0	3,1	7,50	NMRV-P090	100LA4	3081
140,0	134,0	2,6	10,00	NMRV-P090	100LA4	3391
93,0	196,0	2,0	15,00	NMRV-P090	100LA4	3882
70,0	255,0	1,5	20,00	NMRV-P090	100LA4	4273

2,20kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
56,0	312,0	1,2	25,00	NMRV-P090	100LA4	4603
47,0	356,0	1,2	30,00	NMRV-P090	100LA4	4891
35,0	456,0	0,9	40,00	NMRV-P090	100LA4	5383
93,0	196,0	3,3	15,00	NMRV-P110	100LA4	4905
70,0	258,0	2,5	20,00	NMRV-P110	100LA4	5399
56,0	319,0	2,1	25,00	NMRV-P110	100LA4	5816
47,0	360,0	2,0	30,00	NMRV-P110	100LA4	6181
35,0	474,0	1,5	40,00	NMRV-P110	100LA4	6803
28,0	571,0	1,2	50,00	NMRV-P110	100LA4	7328
23,0	667,0	0,9	60,00	NMRV-P110	100LA4	7787
56,0	319,0	2,9	25,00	NMRV-130	100LA4	7607
47,0	365,0	2,9	30,00	NMRV-130	100LA4	8084
35,0	474,0	2,2	40,00	NMRV-130	100LA4	8897
28,0	571,0	1,7	50,00	NMRV-130	100LA4	9584
23,0	658,0	1,4	60,00	NMRV-130	100LA4	10185
18,0	829,0	1,0	80,00	NMRV-130	100LA4	11210
14,0	976,0	0,8	100,00	NMRV-130	100LA4	12076
28,0	578,0	2,4	50,00	NMRV-150	100LA4	13103
23,0	667,0	1,9	60,00	NMRV-150	100LA4	13924
18,0	829,0	1,4	80,00	NMRV-150	100LA4	15325
14,0	976,0	1,0	100,00	NMRV-150	100LA4	16508

3,00kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
187,0	137,0	1,4	7,50	NMRV-P075	100LB4	2785
140,0	180,0	1,1	10,00	NMRV-P075	100LB4	3065
93,0	264,0	0,9	15,00	NMRV-P075	100LB4	3509
187,0	138,0	2,3	7,50	NMRV-P090	100LB4	3081
140,0	182,0	1,9	10,00	NMRV-P090	100LB4	3391
93,0	267,0	1,5	15,00	NMRV-P090	100LB4	3882
70,0	348,0	1,1	20,00	NMRV-P090	100LB4	4273
56,0	425,0	0,9	25,00	NMRV-P090	100LB4	4603
47,0	485,0	0,9	30,00	NMRV-P090	100LB4	4891
140,0	182,0	3,3	10,00	NMRV-P110	100LB4	4285
93,0	267,0	2,5	15,00	NMRV-P110	100LB4	4905
70,0	352,0	1,8	20,00	NMRV-P110	100LB4	5399
56,0	435,0	1,6	25,00	NMRV-P110	100LB4	5816
47,0	491,0	1,5	30,00	NMRV-P110	100LB4	6181
35,0	647,0	1,1	40,00	NMRV-P110	100LB4	6803
28,0	778,0	0,8	50,00	NMRV-P110	100LB4	7328
56,0	435,0	2,1	25,00	NMRV 130	100LB4	7607
47,0	497,0	2,1	30,00	NMRV 130	100LB4	8084
35,0	647,0	1,6	40,00	NMRV 130	100LB4	8897
28,0	778,0	1,3	50,00	NMRV 130	100LB4	9584
23,0	897,0	1,0	60,00	NMRV 130	100LB4	10185
18,0	1130,0	0,7	80,00	NMRV 130	100LB4	11210
28,0	788,0	1,8	50,00	NMRV 150	100LB4	13103
23,0	909,0	1,4	60,00	NMRV 150	100LB4	13924
18,0	1130,0	1,0	80,00	NMRV 150	100LB4	15325

4,00kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
187,0	182,0	1,0	7,50	NMRV-P075	112MA4	2785
140,0	240,0	0,8	10,00	NMRV-P075	112MA4	3065
187,0	184,0	1,7	7,50	NMRV-P090	112MA4	3081
140,0	243,0	1,4	10,00	NMRV-P090	112MA4	3391
93,0	356,0	1,1	15,00	NMRV-P090	112MA4	3882
70,0	464,0	0,8	20,00	NMRV-P090	112MA4	4273
187,0	184,0	3,0	7,50	NMRV-P110	112MA4	3893
140,0	243,0	2,5	10,00	NMRV-P110	112MA4	4285
93,0	356,0	1,8	15,00	NMRV-P110	112MA4	4905
70,0	470,0	1,4	20,00	NMRV-P110	112MA4	5399
56,0	580,0	1,2	25,00	NMRV-P110	112MA4	5816
47,0	655,0	1,1	30,00	NMRV-P110	112MA4	6181
35,0	863,0	0,8	40,00	NMRV-P110	112MA4	6803
56,0	580,0	1,6	25,00	NMRV 130	112MA4	7607
47,0	663,0	1,6	30,00	NMRV 130	112MA4	8084
35,0	863,0	1,2	40,00	NMRV 130	112MA4	8897
28,0	1037,0	0,9	50,00	NMRV 130	112MA4	9584
23,0	1196,0	0,8	60,00	NMRV 130	112MA4	10185
28,0	1051,0	1,3	50,00	NMRV 150	112MA4	13103
23,0	1212,0	1,0	60,00	NMRV 150	112MA4	13924

5,50kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
187,0	253,0	2,2	7,50	NMRV-P110	132S4	3893
140,0	334,0	1,8	10,00	NMRV-P110	132S4	4285
93,0	490,0	1,3	15,00	NMRV-P110	132S4	4905
70,0	646,0	1,0	20,00	NMRV-P110	132S4	5399
56,0	798,0	0,9	25,00	NMRV-P110	132S4	5816
47,0	901,0	0,8	30,00	NMRV-P110	132S4	6181
187,0	256,0	2,9	7,50	NMRV 130	132S4	5092
140,0	334,0	2,5	10,00	NMRV 130	132S4	5605
93,0	490,0	1,9	15,00	NMRV 130	132S4	6416
70,0	653,0	1,4	20,00	NMRV 130	132S4	7062
56,0	798,0	1,2	25,00	NMRV 130	132S4	7607
47,0	912,0	1,1	30,00	NMRV 130	132S4	8084
35,0	1186,0	0,9	40,00	NMRV 130	132S4	8897
70,0	653,0	2,0	20,00	NMRV 150	132S4	9654
56,0	798,0	1,5	25,00	NMRV 150	132S4	10400
47,0	946,0	1,3	30,00	NMRV 150	132S4	11051
35,0	1186,0	1,3	40,00	NMRV 150	132S4	12163
28,0	1445,0	1,0	50,00	NMRV 150	132S4	13103

7,50kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
187,0	345,0	1,6	7,50	NMRV-P110	132MA4	3893
140,0	456,0	1,3	10,00	NMRV-P110	132MA4	4285
93,0	668,0	1,0	15,00	NMRV-P110	132MA4	4905
70,0	880,0	0,7	20,00	NMRV-P110	132MA4	5399
187,0	349,0	2,1	7,50	NMRV 130	132MA4	5092
140,0	456,0	1,8	10,00	NMRV 130	132MA4	5605

7,50kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
93,0	668,0	1,4	15,00	NMRV 130	132MA4	6416
70,0	891,0	1,0	20,00	NMRV 130	132MA4	7062
56,0	1088,0	0,9	25,00	NMRV 130	132MA4	7607
47,0	1244,0	0,8	30,00	NMRV 130	132MA4	8084
70,0	891,0	1,5	20,00	NMRV 150	132MA4	9654
56,0	1088,0	1,1	25,00	NMRV 150	132MA4	10400
47,0	1290,0	0,9	30,00	NMRV 150	132MA4	11051
35,0	1617,0	1,0	40,00	NMRV 150	132MA4	12163

9,20kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
187,0	424,0	1,3	7,50	NMRV-P110	132MB4	3893
140,0	559,0	1,1	10,00	NMRV-P110	132MB4	4285
93,0	819,0	0,8	15,00	NMRV-P110	132MB4	4905
187,0	429,0	1,8	7,50	NMRV 130	132MB4	5092
140,0	559,0	1,5	10,00	NMRV 130	132MB4	5605
93,0	819,0	1,1	15,00	NMRV 130	132MB4	6416
70,0	1092,0	0,8	20,00	NMRV 130	132MB4	7062
70,0	1092,0	1,2	20,00	NMRV 150	132MB4	9654
56,0	1334,0	0,9	25,00	NMRV 150	132MB4	10400

11,00kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
187,0	507,0	1,1	7,50	NMRV-P110	132MC4	3893
140,0	668,0	0,9	10,00	NMRV-P110	132MC4	4285
187,0	512,0	1,5	7,50	NMRV 130	132MC4	5092
140,0	668,0	1,2	10,00	NMRV 130	132MC4	5605
93,0	980,0	0,9	15,00	NMRV 130	132MC4	6416
187,0	512,0	2,3	7,50	NMRV 150	160S4	6962
140,0	676,0	1,8	10,00	NMRV 150	160S4	7663
93,0	991,0	1,3	15,00	NMRV 150	160S4	8771
70,0	1306,0	1,0	20,00	NMRV 150	132MC4/160S4	9654

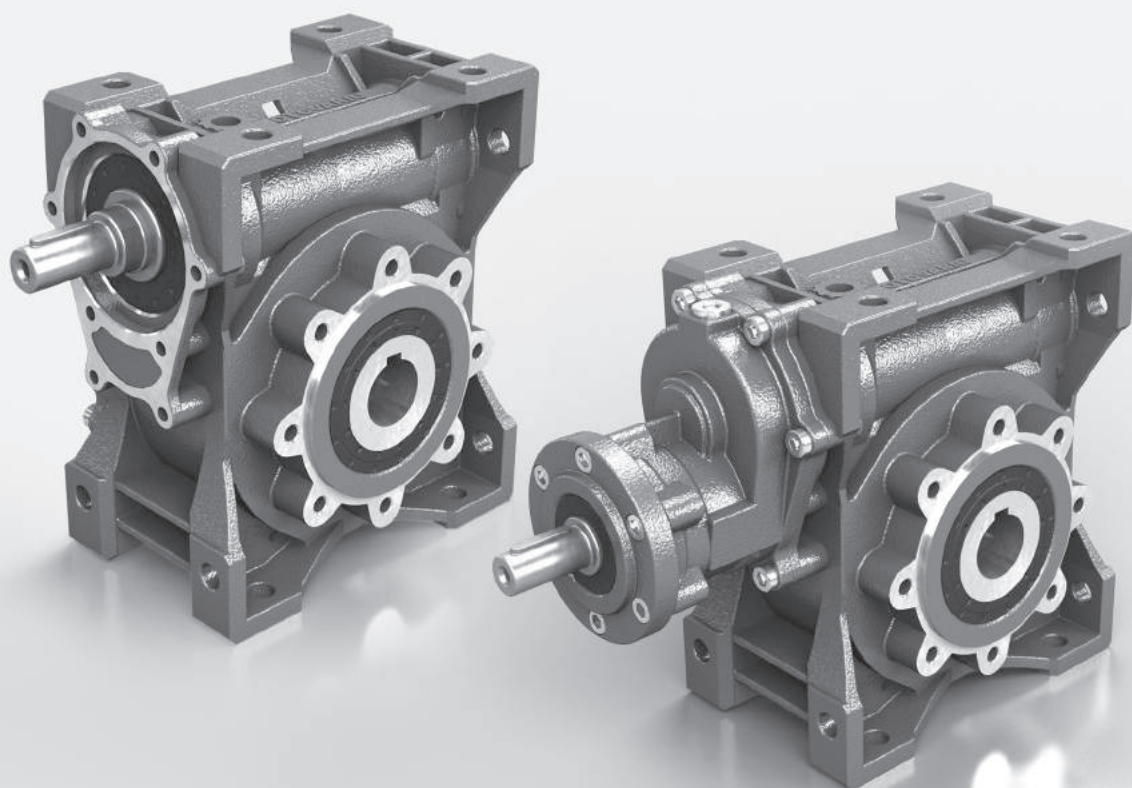
15,00kW

n2 [1/min]	M2 [Nm]	f.s.	i			Fr [N]
187,0	699,0	1,7	7,50	NMRV 150	160L4	6962
140,0	921,0	1,3	10,00	NMRV 150	160L4	7663
93,0	1351,0	0,9	15,00	NMRV 150	160L4	8771



MOTOVARIO[®]

HEART OF MOTION



NRVpower 모터 용량에 따른 분류 / Performance(n1 = 2800rpm, Fs = 1)

NRV-P063

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
94	7,5	4,03	373,3	1873	395
99	10	3,27	280	2061	471
109	15	2,45	186,7	2359	516
104	20	1,8	140	2597	556
96	25	1,35	112	2797	613
121	30	1,49	93,3	2973	700
113	40	1,09	70	3272	700
105	50	0,85	56	3524	700
99	60	0,7	46,7	3745	700
88	80	0,5	35	4122	700
79	100	0,39	28	4440	700

NRV-P090

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
210	7,5	8,92	373,3	2446	715
235	10	7,66	280	2692	900
270	15	5,93	186,7	3081	1034
260	20	4,33	140	3391	1120
250	25	3,41	112	3653	1270
310	30	3,65	93,3	3882	1270
275	40	2,52	70	4273	1270
265	50	2,02	56	4603	1270
245	60	1,60	46,7	4891	1270
225	80	1,18	35	5383	1270
200	100	0,89	28	5799	1270

NRV-P075

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
131	7,5	5,61	373,3	2210	560
151	10	4,93	280	2433	729
165	15	3,66	186,7	2785	795
173	20	2,94	140	3065	935
159	25	2,21	112	3302	980
185	30	2,24	93,3	3509	980
182	40	1,71	70	3862	980
165	50	1,29	56	4160	980
159	60	1,08	46,7	4421	980
141	80	0,77	35	4865	980
131	100	0,62	28	5241	980

NRV-P110

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
391	7,5	16,61	373,3	3090	950
437	10	14,08	280	3401	1194
489	15	10,62	186,7	3893	1337
483	20	7,96	140	4285	1485
506	25	6,74	112	4616	1700
552	30	6,42	93,3	4905	1700
529	40	4,67	70	5399	1700
495	50	3,63	56	5816	1700
473	60	2,96	46,7	6181	1700
399	80	1,98	35	6803	1700
368	100	1,54	28	7328	1700

NRVpower 모터 용량에 따른 분류 / Performance($n_1 = 1400\text{rpm}$, $F_s = 1$)

NRV-P063

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
128	7,5	2,81	186,7	2359	500
135	10	2,28	140	2597	595
150	15	1,75	93,3	2973	660
146	20	1,3	70	3272	700
134	25	0,99	56	3524	700
160	30	1,04	46,7	3745	700
149	40	0,77	35	4122	700
143	50	0,63	28	4440	700
135	60	0,52	23,3	4719	700
122	80	0,39	17,5	5193	700
118	100	0,33	14	5595	700

NRV-P090

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
319	7,5	6,93	186,7	3081	900
341	10	5,62	140	3391	1082
396	15	4,45	93,3	3882	1257
391	20	3,37	70	4273	1270
374	25	2,64	56	4603	1270
432	30	2,67	46,7	4891	1270
396	40	1,91	35	5383	1270
374	50	1,50	28	5799	1270
352	60	1,23	23,3	6163	1270
285	80	0,82	17,5	6783	1270
270	100	0,66	14	7306	1270

NRV-P075

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
185	7,5	4,06	186,7	2785	700
201	10	3,35	140	3065	857
230	15	2,61	93,3	3509	979
236	20	2,09	70	3862	980
214	25	1,55	56	4160	980
247	30	1,57	46,7	4421	980
245	40	1,23	35	4865	980
225	50	0,94	28	5241	980
214	60	0,79	23,3	5569	980
195	80	0,58	17,5	6130	980
180	100	0,47	14	6603	980

NRV-P110

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
552	7,5	11,99	186,7	3893	1200
598	10	9,85	140	4285	1463
656	15	7,37	93,3	4905	1604
644	20	5,49	70	5399	1700
679	25	4,68	56	5816	1700
725	30	4,43	46,7	6181	1700
702	40	3,26	35	6803	1700
660	50	2,55	28	7328	1700
616	60	2,03	23,3	7787	1700
515	80	1,39	17,5	8571	1700
483	100	1,11	14	9232	1700

NRVpower 모터 용량에 따른 분류 / Performance(n1 = 900rpm, Fs = 1)

NRV-P063

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
151	7,5	2,16	120	2734	580
153	10	1,7	90	3009	661
171	15	1,31	60	3444	700
163	20	0,99	45	3791	700
149	25	0,74	36	4084	700
177	30	0,78	30	4339	700
171	40	0,61	22,5	4776	700
161	50	0,49	18	5145	700
153	60	0,41	15	5467	700
137	80	0,3	11,3	6018	700
124	100	0,24	9	6270	700

NRV-P090

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
374	7,5	5,28	120	3570	1040
407	10	4,41	90	3929	1270
462	15	3,41	60	4498	1270
429	20	2,47	45	4951	1270
407	25	1,92	36	5333	1270
485	30	2,00	30	5667	1270
451	40	1,48	22,5	6238	1270
429	50	1,17	18	6719	1270
385	60	0,93	15	7140	1270
315	80	0,62	11,3	7859	1270
280	100	0,48	9	8180	1270

NRV-P075

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
215	7,5	3,07	120	3227	810
230	10	2,52	90	3551	975
264	15	2	60	4065	980
268	20	1,58	45	4474	980
241	25	1,16	36	4820	980
285	30	1,21	30	5122	980
277	40	0,95	22,5	5637	980
255	50	0,75	18	6073	980
247	60	0,63	15	6453	980
220	80	0,46	11,3	7103	980
196	100	0,36	9	7380	980

NRV-P110

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
650	7,5	9,18	120	4511	1390
713	10	7,64	90	4965	1700
759	15	5,54	60	5684	1700
725	20	4,07	45	6256	1700
759	25	3,49	36	6739	1700
840	30	3,43	30	7161	1700
794	40	2,49	22,5	7882	1700
748	50	1,96	18	8491	1700
682	60	1,55	15	9023	1700
567	80	1,04	11,3	9931	1700
515	100	0,82	9	10320	1700

NRVpower 모터 용량에 따른 분류 / Performance(n1 = 500rpm, Fs = 1)

NRV-P063

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
184	7,5	1,49	66,7	3325	700
185	10	1,18	50	3660	700
200	15	0,9	33,3	4190	700
194	20	0,68	25	4611	700
178	25	0,52	20	4967	700
213	30	0,56	16,7	5279	700
206	40	0,44	12,5	5810	700
195	50	0,36	10	6259	700
180	60	0,29	8,3	6270	700
151	80	0,21	6,3	6270	700
128	100	0,16	5	6270	700

NRV-P090

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
451	7,5	3,66	66,7	4343	1270
479	10	2,95	50	4780	1270
539	15	2,29	33,3	5472	1270
517	20	1,71	25	6022	1270
484	25	1,33	20	6487	1270
579	30	1,40	16,7	6894	1270
528	40	1,03	12,5	7588	1270
495	50	0,81	10	8174	1270
440	60	0,64	8,3	8180	1270
365	80	0,44	6,3	8180	1270
330	100	0,35	5	8180	1270

NRV-P075

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
260	7,5	2,14	66,7	3925	980
270	10	1,7	50	4320	980
318	15	1,39	33,3	4945	980
326	20	1,11	25	5443	980
293	25	0,83	20,0	5863	980
344	30	0,87	16,7	6231	980
337	40	0,69	12,5	6858	980
314	50	0,55	10	7380	980
301	60	0,46	8,3	7380	980
247	80	0,32	6,3	7380	980
210	100	0,24	5	7380	980

NRV-P110

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
794	7,5	6,37	66,7	5488	1700
851	10	5,24	50	6040	1700
909	15	3,82	33,3	6914	1700
863	20	2,79	25	7610	1700
909	25	2,41	20	8198	1700
1000	30	2,39	16,7	8711	1700
932	40	1,72	12,5	9588	1700
880	50	1,38	10	10320	1700
781	60	1,06	8,3	10320	1700
662	80	0,75	6,3	10320	1700
599	100	0,58	5	10320	1700

IHW 모터 용량에 따른 분류 / Performance($n_1 = 1400\text{rpm}$, $F_s = 1$)

IHW040+NMRV-P090

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
411	23,29	3,11	60,11	4343	300
496	31,05	2,86	45,08	4780	400
558	46,58	2,23	30,06	5472	400
513	77,63	1,33	18,03	6487	400
599	93,16	1,37	15,03	6894	400
514	155,26	0,79	9,02	8174	400
457	186,32	0,63	7,51	8180	400
492	42,00	2,12	33,33	4780	400
617	63,00	1,86	22,22	5472	400
592	84,00	1,39	16,67	6022	400
663	126,00	1,15	11,11	6894	400
496	252,00	0,53	5,56	8180	400
647	110,00	1,17	12,73	6022	400
637	137,50	0,96	10,18	6487	400
725	165,00	0,98	8,48	6894	400
661	220,00	0,72	6,36	7588	400
599	275,00	0,56	5,09	8174	400
524	330,00	0,44	4,24	8180	400
552	304,55	0,47	4,60	8174	400
632	383,33	0,43	3,65	8174	400
550	460,00	0,34	3,04	8180	400
435	613,33	0,22	2,28	8180	400
356	766,67	0,16	1,83	8180	400
642	437,50	0,39	3,20	8174	400
558	525,00	0,30	2,67	8180	400
439	700,00	0,20	2,00	8180	400
359	875,00	0,14	1,60	8180	400

IHW040+NMRV-P110

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
415	23,29	3,11	60,11	5488	300
541	31,05	3,11	45,08	6040	300
791	46,58	3,11	30,06	6914	300
904	62,11	2,74	22,54	7610	500
968	77,63	2,40	18,03	8198	500
1035	93,16	2,33	15,03	8711	500
920	155,26	1,35	9,02	10320	500
813	186,32	1,05	7,51	10320	500
492	42,00	2,12	33,33	6040	500
930	84,00	2,12	16,67	7610	500
1112	105,00	2,08	13,33	8198	500
1189	126,00	2,05	11,11	8711	500
1095	168,00	1,46	8,33	9588	500
888	252,00	0,88	5,56	10320	500
947	137,50	1,37	10,18	8198	500
1175	220,00	1,22	6,36	9588	500
1079	275,00	0,94	5,09	10320	500
941	330,00	0,73	4,24	10320	500
780	440,00	0,50	3,18	10320	500
978	304,55	0,78	4,60	10320	500
957	383,33	0,61	3,65	10320	500
990	460,00	0,56	3,04	10320	500
816	613,33	0,38	2,28	10320	500
646	766,67	0,27	1,83	10320	500
927	525,00	0,47	2,67	10320	500
827	700,00	0,34	2,00	10320	500
652	875,00	0,24	1,60	10320	500

IHW 모터 용량에 따른 분류 / Performance($n_1 = 900\text{rpm}$, $F_s = 1$)

IHW040+NMRV-P090

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
425	23,29	2,10	38,64	4343	300
555	31,05	2,10	28,98	4780	400
646	46,58	1,70	19,32	5472	400
610	77,63	1,04	11,59	6487	400
694	93,16	1,06	9,66	6894	400
584	155,26	0,61	5,80	8174	400
511	186,32	0,48	4,83	8180	400
505	42,00	1,42	21,43	4780	400
715	63,00	1,41	14,29	5472	400
686	84,00	1,05	10,71	6022	400
768	126,00	0,88	7,14	6894	400
538	252,00	0,38	3,57	8180	400
750	110,00	0,89	8,18	6022	400
699	137,50	0,69	6,55	6487	400
840	165,00	0,74	5,45	6894	400
766	220,00	0,55	4,09	7588	400
641	275,00	0,40	3,27	8174	400
557	330,00	0,31	2,73	8180	400
639	304,55	0,36	2,96	8174	400
662	383,33	0,30	2,35	8174	400
574	460,00	0,23	1,96	8180	400
461	613,33	0,15	1,47	8180	400
366	766,67	0,11	1,17	8180	400
669	437,50	0,26	2,06	8174	400
579	525,00	0,21	1,71	8180	400
466	700,00	0,14	1,29	8180	400
369	875,00	0,10	1,03	8180	400

IHW040+NMRV-P110

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
427	23,29	2,10	38,64	5488	300
555	31,05	2,10	28,98	6040	300
806	46,58	2,10	19,32	6914	300
1048	62,11	2,10	14,99	7610	500
1167	77,63	1,92	11,59	8198	500
1252	93,16	1,90	9,66	8711	500
1050	155,26	1,03	5,80	10320	500
917	186,32	0,80	4,83	10320	500
505	42,00	1,42	21,43	6040	500
949	84,00	1,42	10,71	7610	500
1156	105,00	1,42	8,57	8198	500
1241	126,00	1,42	7,14	8711	500
1219	168,00	1,08	5,36	9588	500
969	252,00	0,64	3,57	10320	500
969	137,50	0,92	6,55	8198	500
1272	220,00	0,87	4,09	9588	500
1158	275,00	0,67	3,27	10320	500
1003	330,00	0,52	2,73	10320	500
825	440,00	0,35	2,05	10320	500
1158	304,55	0,60	2,96	10320	500
1009	383,33	0,42	2,35	10320	500
1035	460,00	0,39	1,96	10320	500
848	613,33	0,26	1,47	10320	500
663	766,67	0,18	1,17	10320	500
932	525,00	0,31	1,71	10320	500
857	700,00	0,23	1,29	10320	500
670	875,00	0,15	1,03	10320	500

NRVpower 모터 용량에 따른 분류 / Performance(n1 = 2800rpm, Fs = 1)

NRV-P030/063

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
103	100	0,44	2,8	4967	140
144	150	0,44	18,7	5686	140
182	200	0,44	1,4	6259	140
218	250	0,44	11,2	6270	140
255	300	0,51	9,3	6270	125
255	400	0,39	7	6270	140
236	500	0,31	5,6	6270	140
220	600	0,22	4,7	6270	146
271	750	0,23	3,7	6270	210
271	900	0,2	3,1	6270	210
256	1200	0,15	2,3	6270	127
238	1500	0,12	1,9	6270	128
220	1800	0,1	1,6	6270	126
255	2400	0,09	1,2	6270	126
236	3000	0,08	0,9	6270	126
236	4000	0,06	0,7	6270	130
150	5000	0,04	0,6	6270	128

NRV-P040/063

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
229	100	0,97	28	4967	272
260	150	0,78	18,7	5686	272
253	200	0,6	14	6259	272
231	250	0,46	11,2	6270	272
271	300	0,49	9,3	6270	272
255	400	0,38	7	6270	272
231	500	0,24	5,6	6270	204
271	600	0,26	4,7	6270	204
271	750	0,22	3,7	6270	236
271	900	0,19	3,1	6270	350
271	1200	0,15	2,3	6270	350
271	1500	0,13	1,9	6270	350
271	1800	0,11	1,6	6270	350
255	2400	0,08	1,2	6270	350
236	3000	0,07	0,9	6270	350
236	4000	0,06	0,7	6270	350
236	5000	0,05	0,6	6270	350

NRV-P040/075

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
232	100	0,97	28	5863	272
331	150	0,97	18,7	6712	272
418	200	0,97	14	7380	272
380	250	0,73	11,2	7380	272
444	300	0,77	9,3	7380	272
414	400	0,58	7	7380	272

NRV-P040/075

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
368	500	0,45	5,6	7380	272
444	600	0,41	4,7	7380	204
444	750	0,34	3,7	7380	236
444	900	0,29	3,1	7380	350
444	1200	0,23	2,3	7380	350
444	1500	0,2	1,9	7380	350
444	1800	0,17	1,6	7380	350
414	2400	0,13	1,2	7380	350
368	3000	0,1	0,9	7380	350
368	4000	0,08	0,7	7380	350
368	5000	0,07	0,6	7380	350

NRV-P040/090

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
238	100	0,97	28	6487	272
339	150	0,97	18,7	7426	272
435	200	0,97	14	8174	272
522	250	0,97	11,2	8180	272
583	300	0,97	9,3	8180	272
610	400	0,82	7	8180	272
560	500	0,64	5,6	8180	272
583	600	0,51	4,7	8180	204
563	750	0,41	3,7	8180	236
683	900	0,43	3,1	8180	350
623	1200	0,31	2,3	8180	350
603	1500	0,25	1,9	8180	350
563	1800	0,21	1,6	8180	350
610	2400	0,18	1,2	8180	350
560	3000	0,14	0,9	8180	350
560	4000	0,12	0,7	8180	350
560	5000	0,1	0,6	8180	350

NRV-P050/090

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
443	100	1,78	28	6487	378
632	150	1,78	18,7	7426	378
610	200	1,34	14	8174	378
570	250	1,04	11,2	8180	378
700	300	1,15	9,3	8180	378
610	400	0,81	7	8180	378
570	500	0,56	5,6	8180	417
700	600	0,62	4,7	8180	417
700	750	0,5	3,7	8180	482
700	900	0,44	3,1	8180	490
700	1200	0,34	2,3	8180	490
700	1500	0,29	1,9	8180	490

NRVpower 모터 용량에 따른 분류 / Performance(n1 = 2800rpm, Fs = 1)

NRV-P050/090

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
700	1800	0,25	1,6	8180	490
610	2400	0,18	1,2	8180	490
560	3000	0,14	0,9	8180	490
560	4000	0,11	0,7	8180	490
560	5000	0,1	0,6	8180	490

NRV-P050/110

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
443	100	1,78	28	8198	378
640	150	1,78	18,7	9384	378
832	200	1,78	14	10320	378
1013	250	1,78	11,2	10320	378
1085	300	1,78	9,3	10320	378
1185	400	1,5	7	10320	378
994	500	0,94	5,6	10320	417
1065	600	0,94	4,7	10320	417
1025	750	0,74	3,7	10320	482
1265	900	0,8	3,1	10320	490
1186	1200	0,58	2,3	10320	490
1065	1500	0,44	1,9	10320	490
1005	1800	0,36	1,6	10320	490
1185	2400	0,33	1,2	10320	490
1100	3000	0,26	0,9	10320	490
1100	4000	0,21	0,7	10320	490
1100	5000	0,18	0,6	10320	490

NRV-P063/110

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
815	100	3,27	28	8198	471
1178	150	3,27	18,7	9384	471
1139	200	2,44	14	10320	471
1173	250	2,06	11,2	10320	471
1265	300	2,07	9,3	10320	471
1185	400	1,5	7	10320	471
1173	500	1,08	5,6	10320	556
1265	600	1,09	4,7	10320	556
1265	750	0,89	3,7	10320	613
1265	900	0,78	3,1	10320	700
1265	1200	0,61	2,3	10320	700
1265	1500	0,51	1,9	10320	700
1265	1800	0,45	1,6	10320	700
1185	2400	0,32	1,2	10320	700
1100	3000	0,25	0,9	10320	700
1100	4000	0,2	0,7	10320	700
1100	5000	0,18	0,6	10320	700

NRV-P063/130

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
825	100	3,27	28	10722	471
1163	150	3,27	18,7	12274	471
1531	200	3,27	14	13500	471
1530	250	2,69	11,2	13500	471
1760	300	2,84	9,3	13500	471
1650	400	2,09	7	13500	471
1550	500	1,65	5,6	13500	471
1760	600	1,49	4,7	13500	556
1760	750	1,22	3,7	13500	613
1760	900	1,07	3,1	13500	700
1760	1200	0,83	2,3	13500	700
1760	1500	0,7	1,9	13500	700
1760	1800	0,61	1,6	13500	700
1650	2400	0,45	1,2	13500	700
1550	3000	0,35	0,9	13500	700
1550	4000	0,28	0,7	13500	700
1550	5000	0,25	0,6	13500	700

NRV-P063/150

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
1444	150	4,03	18,7	18000	395
1531	200	3,27	14	18000	471
1864	250	3,27	11,2	18000	471
1678	300	2,45	9,3	18000	516
2624	400	3,27	7	18000	471
2330	500	2,48	5,6	18000	471
2670	600	2,27	4,7	18000	516
2330	750	1,69	3,7	18000	516
2100	900	1,19	3,1	18000	700
2670	1200	1,25	2,3	18000	700
2330	1500	0,93	1,9	18000	700
2100	1800	0,68	1,6	18000	700
2610	2400	0,7	1,2	18000	700
2330	3000	0,53	0,9	18000	700
2330	4000	0,43	0,7	18000	700
2330	5000	0,37	0,6	18000	700

NRVpower 모터 용량에 따른 분류 / Performance(n1 = 1400rpm, Fs = 1)

NRV-P030/063

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
150	100	0,34	14	4967	169
211	150	0,34	9,3	5686	169
253	200	0,32	7	6259	169
231	250	0,24	5,6	6270	169
255	300	0,26	4,7	6270	150
255	400	0,2	3,5	6270	169
236	500	0,16	2,8	6270	169
271	600	0,15	2,3	6270	180
271	750	0,13	1,9	6270	210
271	900	0,11	1,6	6270	210
271	1200	0,09	1,2	6270	210
271	1500	0,08	0,9	6270	210
271	1800	0,07	0,8	6270	210
255	2400	0,05	0,6	6270	210
236	3000	0,04	0,5	6270	210
236	4000	0,04	0,4	6270	210
150	5000	0,02	0,3	6270	210

NRV-P040/063

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
257	100	0,56	14	4967	344
260	150	0,4	9,3	5686	344
253	200	0,31	7	6259	344
231	250	0,24	5,6	6270	344
271	300	0,26	4,7	6270	344
255	400	0,2	3,5	6270	344
231	500	0,13	2,8	6270	350
271	600	0,14	2,3	6270	350
271	750	0,11	1,9	6270	350
271	900	0,1	1,6	6270	350
271	1200	0,08	1,2	6270	350
271	1500	0,07	0,9	6270	350
271	1800	0,06	0,8	6270	350
255	2400	0,05	0,6	6270	350
236	3000	0,04	0,5	6270	350
236	4000	0,03	0,4	6270	350
236	5000	0,03	0,3	6270	350

NRV-P040/075

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
352	100	0,76	14	5863	344
425	150	0,64	9,3	6712	344
420	200	0,5	7	7380	344
380	250	0,38	5,6	7380	344
444	300	0,4	4,7	7380	344
414	400	0,3	3,5	7380	344

NRV-P040/075

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
368	500	0,24	2,8	7380	344
444	600	0,21	2,3	7380	350
444	750	0,18	1,9	7380	350
444	900	0,16	1,6	7380	350
444	1200	0,13	1,2	7380	350
444	1500	0,11	0,9	7380	350
444	1800	0,1	0,8	7380	350
414	2400	0,07	0,6	7380	350
368	3000	0,06	0,5	7380	350
368	4000	0,05	0,4	7380	350
368	5000	0,04	0,3	7380	350

NRV-P040/090

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
361	100	0,76	14	6487	344
515	150	0,76	9,3	7426	344
610	200	0,7	7	8174	344
570	250	0,55	5,6	8180	344
700	300	0,6	4,7	8180	344
610	400	0,42	3,5	8180	344
560	500	0,33	2,8	8180	344
700	600	0,32	2,3	8180	350
700	750	0,27	1,9	8180	350
700	900	0,24	1,6	8180	350
700	1200	0,19	1,2	8180	350
700	1500	0,16	0,9	8180	350
700	1800	0,14	0,8	8180	350
610	2400	0,1	0,6	8180	350
560	3000	0,08	0,5	8180	350
560	4000	0,07	0,4	8180	350
560	5000	0,06	0,3	8180	350

NRV-P050/090

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
590	100	1,21	14	6487	490
660	150	0,95	9,3	7426	490
610	200	0,69	7	8174	490
570	250	0,53	5,6	8180	490
700	300	0,59	4,7	8180	490
610	400	0,41	3,5	8180	490
570	500	0,29	2,8	8180	490
700	600	0,32	2,3	8180	490
700	750	0,27	1,9	8180	490
700	900	0,23	1,6	8180	490
700	1200	0,19	1,2	8180	490
700	1500	0,16	0,9	8180	490

NRVpower 모터 용량에 따른 분류 / Performance(n1 = 1400rpm, Fs = 1)

NRV-P050/090

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
700	1800	0,14	0,8	8180	490
610	2400	0,1	0,6	8180	490
560	3000	0,08	0,5	8180	490
560	4000	0,07	0,4	8180	490
560	5000	0,06	0,3	8180	490

NRV-P050/110

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
648	100	1,33	14	8198	490
936	150	1,33	9,3	9384	490
1139	200	1,25	7	10320	490
1173	250	1,05	5,6	10320	490
1265	300	1,06	4,7	10320	490
1185	400	0,77	3,5	10320	490
1173	500	0,57	2,8	10320	490
1265	600	0,58	2,3	10320	490
1265	750	0,48	1,9	10320	490
1265	900	0,42	1,6	10320	490
1265	1200	0,34	1,2	10320	490
1265	1500	0,29	0,9	10320	490
1265	1800	0,26	0,8	10320	490
1185	2400	0,19	0,6	10320	490
1100	3000	0,14	0,5	10320	490
1100	4000	0,12	0,4	10320	490
1100	5000	0,1	0,3	10320	490

NRV-P063/110

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
1110	100	2,28	14	8198	595
1196	150	1,7	9,3	9384	595
1139	200	1,25	7	10320	595
1173	250	1,05	5,6	10320	595
1265	300	1,06	4,7	10320	595
1185	400	0,77	3,5	10320	595
1173	500	0,56	2,8	10320	700
1265	600	0,56	2,3	10320	700
1265	750	0,47	1,9	10320	700
1265	900	0,41	1,6	10320	700
1265	1200	0,32	1,2	10320	700
1265	1500	0,28	0,9	10320	700
1265	1800	0,24	0,8	10320	700
1185	2400	0,18	0,6	10320	700
1100	3000	0,14	0,5	10320	700
1100	4000	0,11	0,4	10320	700
1100	5000	0,1	0,3	10320	700

NRV-P063/130

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
1123	100	2,28	14	10722	595
1584	150	2,28	9,3	12274	595
1600	200	1,75	7	13500	595
1530	250	1,37	5,6	13500	595
1760	300	1,45	4,7	13500	595
1650	400	1,07	3,5	13500	595
1550	500	0,84	2,8	13500	595
1760	600	0,77	2,3	13500	700
1760	750	0,64	1,9	13500	700
1760	900	0,56	1,6	13500	700
1760	1200	0,45	1,2	13500	700
1760	1500	0,38	0,9	13500	700
1760	1800	0,33	0,8	13500	700
1650	2400	0,25	0,6	13500	700
1550	3000	0,19	0,5	13500	700
1550	4000	0,16	0,4	13500	700
1550	5000	0,14	0,3	13500	700

NRV-P063/150

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
1971	150	2,81	9,3	18000	500
2084	200	2,28	7	18000	595
2050	250	1,84	5,6	18000	595
2312	300	1,75	4,7	18000	660
2670	400	1,7	3,5	18000	595
2330	500	1,27	2,8	18000	595
2670	600	1,18	2,3	18000	660
2330	750	0,87	1,9	18000	660
2100	900	0,62	1,6	18000	700
2670	1200	0,66	1,2	18000	700
2330	1500	0,49	0,9	18000	700
2100	1800	0,37	0,8	18000	700
2670	2400	0,39	0,6	18000	700
2330	3000	0,29	0,5	18000	700
2330	4000	0,24	0,4	18000	700
2330	5000	0,21	0,3	18000	700

NRVpower 모터 용량에 따른 분류 / Performance(n1 = 900rpm, Fs = 1)

NRV-P030/063

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
166	100	0,24	9	4967	197
233	150	0,24	6	5686	197
253	200	0,21	4,5	6259	197
231	250	0,16	3,6	6270	197
255	300	0,17	3	6270	175
255	400	0,13	2,3	6270	197
236	500	0,11	1,8	6270	197
271	600	0,1	1,5	6270	210
271	750	0,09	1,2	6270	210
271	900	0,08	1	6270	210
271	1200	0,06	0,8	6270	210
271	1500	0,05	0,6	6270	210
271	1800	0,05	0,5	6270	210
255	2400	0,04	0,4	6270	210
236	3000	0,03	0,3	6270	210
236	4000	0,03	0,2	6270	210
150	5000	0,01	0,2	6270	210

NRV-P040/063

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
257	100	0,37	9	4967	350
260	150	0,27	6	5686	350
253	200	0,21	4,5	6259	350
231	250	0,16	3,6	6270	350
271	300	0,17	3	6270	350
255	400	0,13	2,3	6270	350
231	500	0,09	1,8	6270	350
271	600	0,09	1,5	6270	350
271	750	0,08	1,2	6270	350
271	900	0,07	1	6270	350
271	1200	0,06	0,8	6270	350
271	1500	0,05	0,6	6270	350
271	1800	0,04	0,5	6270	350
255	2400	0,03	0,4	6270	350
236	3000	0,03	0,3	6270	350
236	4000	0,02	0,2	6270	350
236	5000	0,02	0,2	6270	350

NRV-P040/075

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
384	100	0,55	9	5863	350
425	150	0,42	6	6712	350
420	200	0,33	4,5	7380	350
380	250	0,25	3,6	7380	350
444	300	0,26	3	7380	350
414	400	0,2	2,3	7380	350

NRV-P040/075

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
368	500	0,15	1,8	7380	350
444	600	0,14	1,5	7380	350
444	750	0,12	1,2	7380	350
444	900	0,11	1	7380	350
444	1200	0,09	0,8	7380	350
444	1500	0,08	0,6	7380	350
444	1800	0,07	0,5	7380	350
414	2400	0,05	0,4	7380	350
368	3000	0,04	0,3	7380	350
368	4000	0,03	0,2	7380	350
368	5000	0,03	0,2	7380	350

NRV-P040/090

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
394	100	0,55	9	6487	350
562	150	0,55	6	7426	350
610	200	0,46	4,5	8174	350
570	250	0,36	3,6	8180	350
700	300	0,4	3	8180	350
610	400	0,28	2,3	8180	350
560	500	0,22	1,8	8180	350
700	600	0,22	1,5	8180	350
700	750	0,18	1,2	8180	350
700	900	0,16	1	8180	350
700	1200	0,13	0,8	8180	350
700	1500	0,11	0,6	8180	350
700	1800	0,1	0,5	8180	350
610	2400	0,07	0,4	8180	350
560	3000	0,06	0,3	8180	350
560	4000	0,05	0,2	8180	350
560	5000	0,04	0,2	8180	350

NRV-P050/090

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
590	100	0,8	9	6487	490
660	150	0,63	6	7426	490
610	200	0,45	4,5	8174	490
570	250	0,35	3,6	8180	490
700	300	0,39	3	8180	490
610	400	0,27	2,3	8180	490
570	500	0,19	1,8	8180	490
700	600	0,21	1,5	8180	490
700	750	0,18	1,2	8180	490
700	900	0,16	1	8180	490
700	1200	0,13	0,8	8180	490
700	1500	0,11	0,6	8180	490

NRVpower 모터 용량에 따른 분류 / Performance(n1 = 900rpm, Fs = 1)

NRV-P050/090

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
700	1800	0,1	0,5	8180	490
610	2400	0,07	0,4	8180	490
560	3000	0,05	0,3	8180	490
560	4000	0,05	0,2	8180	490
560	5000	0,04	0,2	8180	490

NRV-P050/110

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
754	100	1,02	9	8198	490
1090	150	1,02	6	9384	490
1139	200	0,82	4,5	10320	490
1173	250	0,69	3,6	10320	490
1265	300	0,7	3	10320	490
1185	400	0,51	2,3	10320	490
1173	500	0,38	1,8	10320	490
1265	600	0,39	1,5	10320	490
1265	750	0,32	1,2	10320	490
1265	900	0,29	1	10320	490
1265	1200	0,23	0,8	10320	490
1265	1500	0,2	0,6	10320	490
1265	1800	0,18	0,5	10320	490
1185	2400	0,13	0,4	10320	490
1100	3000	0,1	0,3	10320	490
1100	4000	0,08	0,2	10320	490
1100	5000	0,07	0,2	10320	490

NRV-P063/110

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
1127	100	1,52	9	8198	661
1196	150	1,12	6	9384	661
1139	200	0,82	4,5	10320	661
1173	250	0,69	3,6	10320	661
1265	300	0,7	3	10320	661
1185	400	0,51	2,3	10320	661
1173	500	0,38	1,8	10320	700
1265	600	0,38	1,5	10320	700
1265	750	0,31	1,2	10320	700
1265	900	0,28	1	10320	700
1265	1200	0,22	0,8	10320	700
1265	1500	0,19	0,6	10320	700
1265	1800	0,17	0,5	10320	700
1185	2400	0,12	0,4	10320	700
1100	3000	0,09	0,3	10320	700
1100	4000	0,08	0,2	10320	700
1100	5000	0,07	0,2	10320	700

NRV-P063/130

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
1270	100	1,7	9	10722	661
1700	150	1,61	6	12274	661
1600	200	1,15	4,5	13500	661
1530	250	0,9	3,6	13500	661
1760	300	0,96	3	13500	661
1650	400	0,7	2,3	13500	661
1550	500	0,55	1,8	13500	661
1760	600	0,52	1,5	13500	700
1760	750	0,43	1,2	13500	700
1760	900	0,38	1	13500	700
1760	1200	0,31	0,8	13500	700
1760	1500	0,26	0,6	13500	700
1760	1800	0,23	0,5	13500	700
1650	2400	0,17	0,4	13500	700
1550	3000	0,13	0,3	13500	700
1550	4000	0,11	0,2	13500	700
1550	5000	0,1	0,2	13500	700

NRV-P063/150

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
2325	150	2,16	6	18000	580
2340	200	1,68	4,5	18000	661
2050	250	1,21	3,6	18000	661
2340	300	1,16	3	18000	700
2670	400	1,12	2,3	18000	661
2330	500	0,83	1,8	18000	661
2670	600	0,77	1,5	18000	700
2330	750	0,58	1,2	18000	700
2100	900	0,42	1	18000	700
2670	1200	0,45	0,8	18000	700
2330	1500	0,33	0,6	18000	700
2100	1800	0,26	0,5	18000	700
2670	2400	0,27	0,4	18000	700
2330	3000	0,2	0,3	18000	700
2330	4000	0,17	0,2	18000	700
2330	5000	0,15	0,2	18000	700

NRVpower 모터 용량에 따른 분류 / Performance(n1 = 500rpm, Fs = 1)

NRV-P030/063

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
198	100	0,17	5	4967	210
260	150	0,16	3,3	5686	210
253	200	0,12	2,5	6259	210
231	250	0,09	2	6270	210
255	300	0,1	1,7	6270	210
255	400	0,08	1,3	6270	210
236	500	0,06	1	6270	210
271	600	0,06	0,8	6270	210
271	750	0,05	0,7	6270	210
271	900	0,04	0,6	6270	210
271	1200	0,04	0,4	6270	210
271	1500	0,03	0,3	6270	210
271	1800	0,03	0,3	6270	210
255	2400	0,02	0,2	6270	210
236	3000	0,02	0,2	6270	210
236	4000	0,02	0,1	6270	210
150	5000	0,01	0,1	6270	210

NRV-P040/063

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
257	100	0,21	5	4967	350
260	150	0,15	3,3	5686	350
253	200	0,12	2,5	6259	350
231	250	0,09	2	6270	350
271	300	0,1	1,7	6270	350
255	400	0,07	1,3	6270	350
231	500	0,05	1	6270	350
271	600	0,05	0,8	6270	350
271	750	0,04	0,7	6270	350
271	900	0,04	0,6	6270	350
271	1200	0,03	0,4	6270	350
271	1500	0,03	0,3	6270	350
271	1800	0,03	0,3	6270	350
255	2400	0,02	0,2	6270	350
236	3000	0,02	0,2	6270	350
236	4000	0,01	0,1	6270	350
236	5000	0,01	0,1	6270	350

NRV-P040/075

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
405	100	0,33	5	5863	350
425	150	0,24	3,3	6712	350
420	200	0,19	2,5	7380	350
380	250	0,14	2	7380	350
444	300	0,15	1,7	7380	350
414	400	0,11	1,3	7380	350

NRV-P040/075

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
368	500	0,09	1	7380	350
444	600	0,08	0,8	7380	350
444	750	0,07	0,7	7380	350
444	900	0,06	0,6	7380	350
444	1200	0,05	0,4	7380	350
444	1500	0,04	0,3	7380	350
444	1800	0,04	0,3	7380	350
414	2400	0,03	0,2	7380	350
368	3000	0,02	0,2	7380	350
368	4000	0,02	0,1	7380	350
368	5000	0,02	0,1	7380	350

NRV-P040/090

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
484	100	0,38	5	6487	350
660	150	0,36	3,3	7426	350
610	200	0,26	2,5	8174	350
570	250	0,2	2	8180	350
700	300	0,23	1,7	8180	350
610	400	0,16	1,3	8180	350
560	500	0,12	1	8180	350
700	600	0,12	0,8	8180	350
700	750	0,1	0,7	8180	350
700	900	0,09	0,6	8180	350
700	1200	0,08	0,4	8180	350
700	1500	0,07	0,3	8180	350
700	1800	0,06	0,3	8180	350
610	2400	0,04	0,2	8180	350
560	3000	0,03	0,2	8180	350
560	4000	0,03	0,1	8180	350
560	5000	0,03	0,1	8180	350

NRV-P050/090

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
590	100	0,46	5	6487	490
660	150	0,36	3,3	7426	490
610	200	0,26	2,5	8174	490
570	250	0,2	2	8180	490
700	300	0,22	1,7	8180	490
610	400	0,16	1,3	8180	490
570	500	0,11	1	8180	490
700	600	0,12	0,8	8180	490
700	750	0,1	0,7	8180	490
700	900	0,09	0,6	8180	490
700	1200	0,08	0,4	8180	490
700	1500	0,07	0,3	8180	490

NRVpower 모터 용량에 따른 분류 / Performance(n1 = 500rpm, Fs = 1)

NRV-P050/090

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
700	1800	0,06	0,3	8180	490
610	2400	0,04	0,2	8180	490
560	3000	0,03	0,2	8180	490
560	4000	0,03	0,1	8180	490
560	5000	0,02	0,1	8180	490

NRV-P050/110

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
927	100	0,72	5	8198	490
1196	150	0,65	3,3	9384	490
1139	200	0,47	2,5	10320	490
1173	250	0,4	2	10320	490
1265	300	0,4	1,7	10320	490
1185	400	0,29	1,3	10320	490
1173	500	0,22	1	10320	490
1265	600	0,22	0,8	10320	490
1265	750	0,19	0,7	10320	490
1265	900	0,17	0,6	10320	490
1265	1200	0,14	0,4	10320	490
1265	1500	0,12	0,3	10320	490
1265	1800	0,11	0,3	10320	490
1185	2400	0,08	0,2	10320	490
1100	3000	0,06	0,2	10320	490
1100	4000	0,05	0,1	10320	490
1100	5000	0,05	0,1	10320	490

NRV-P063/110

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
1127	100	0,88	5	8198	700
1196	150	0,64	3,3	9384	700
1139	200	0,47	2,5	10320	700
1173	250	0,4	2	10320	700
1265	300	0,4	1,7	10320	700
1185	400	0,29	1,3	10320	700
1173	500	0,22	1	10320	700
1265	600	0,22	0,8	10320	700
1265	750	0,18	0,7	10320	700
1265	900	0,17	0,6	10320	700
1265	1200	0,13	0,4	10320	700
1265	1500	0,12	0,3	10320	700
1265	1800	0,1	0,3	10320	700
1185	2400	0,07	0,2	10320	700
1100	3000	0,06	0,2	10320	700
1100	4000	0,05	0,1	10320	700
1100	5000	0,04	0,1	10320	700

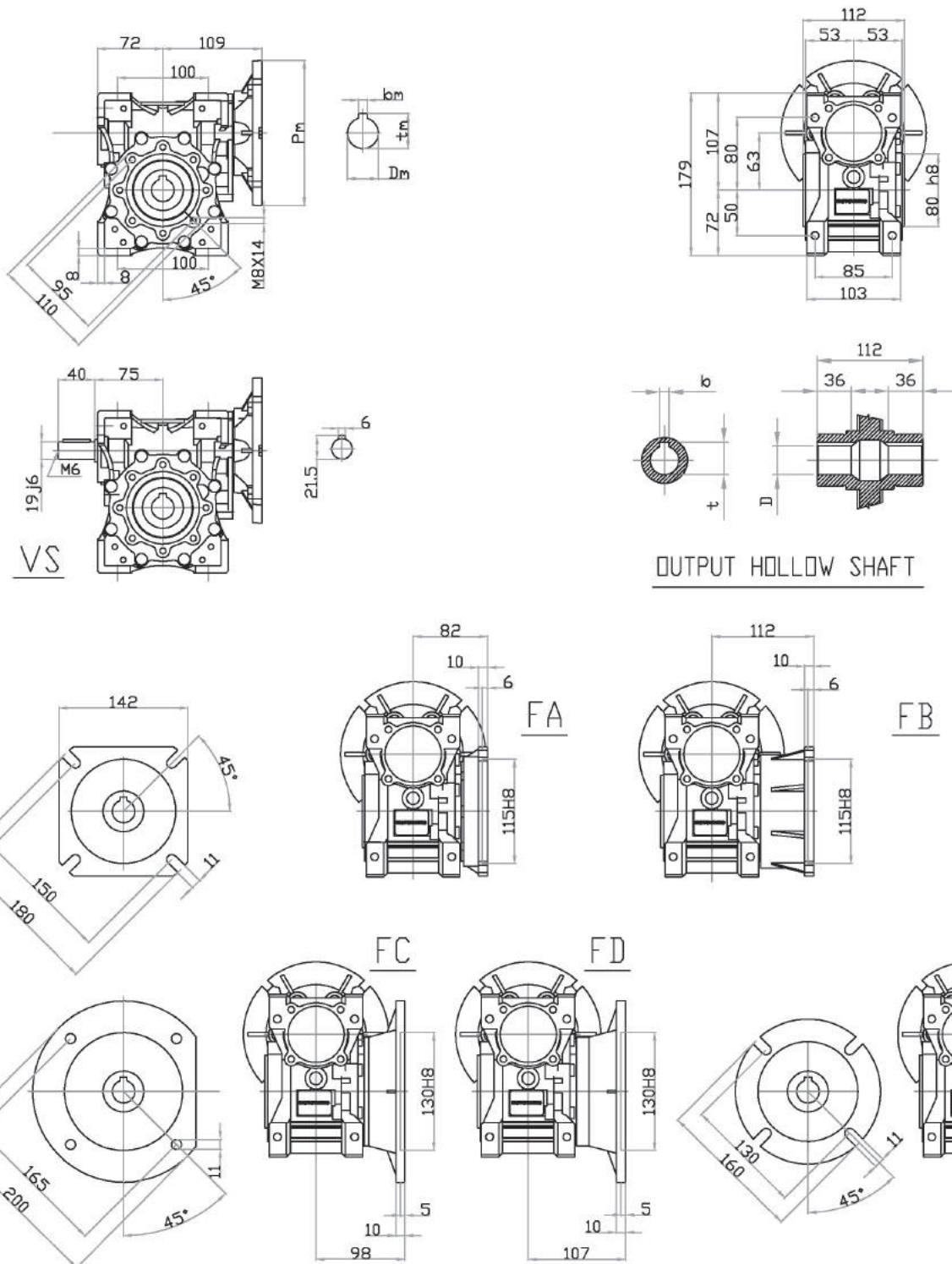
NRV-P063/130

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
1530	100	1,18	5	10722	700
1700	150	0,93	3,3	12274	700
1600	200	0,66	2,5	13500	700
1530	250	0,52	2	13500	700
1760	300	0,55	1,7	13500	700
1650	400	0,41	1,3	13500	700
1550	500	0,32	1	13500	700
1760	600	0,3	0,8	13500	700
1760	750	0,25	0,7	13500	700
1760	900	0,23	0,6	13500	700
1760	1200	0,18	0,4	13500	700
1760	1500	0,16	0,3	13500	700
1760	1800	0,14	0,3	13500	700
1650	2400	0,1	0,2	13500	700
1550	3000	0,08	0,2	13500	700
1550	4000	0,07	0,1	13500	700
1550	5000	0,06	0,1	13500	700

NRV-P063/150

M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
2340	150	1,23	3,3	18000	700
2340	200	0,97	2,5	18000	700
2050	250	0,7	2	18000	700
2340	300	0,68	1,7	18000	700
2670	400	0,65	1,3	18000	700
2330	500	0,48	1	18000	700
2670	600	0,45	0,8	18000	700
2330	750	0,34	0,7	18000	700
2100	900	0,25	0,6	18000	700
2670	1200	0,27	0,4	18000	700
2330	1500	0,2	0,3	18000	700
2100	1800	0,15	0,3	18000	700
2670	2400	0,16	0,2	18000	700
2330	3000	0,12	0,2	18000	700
2330	4000	0,1	0,1	18000	700
2330	5000	0,09	0,1	18000	700

NMRV – P063 – 도면 / Dimensions



- 모터제외무게 : 6.2kg
- Weight without motor : 6.2kg

모터 결속부위 관련 치수(Pm, Dm, bm, tm)는 125페이지에 제시된 도표를 참조하도록 한다.

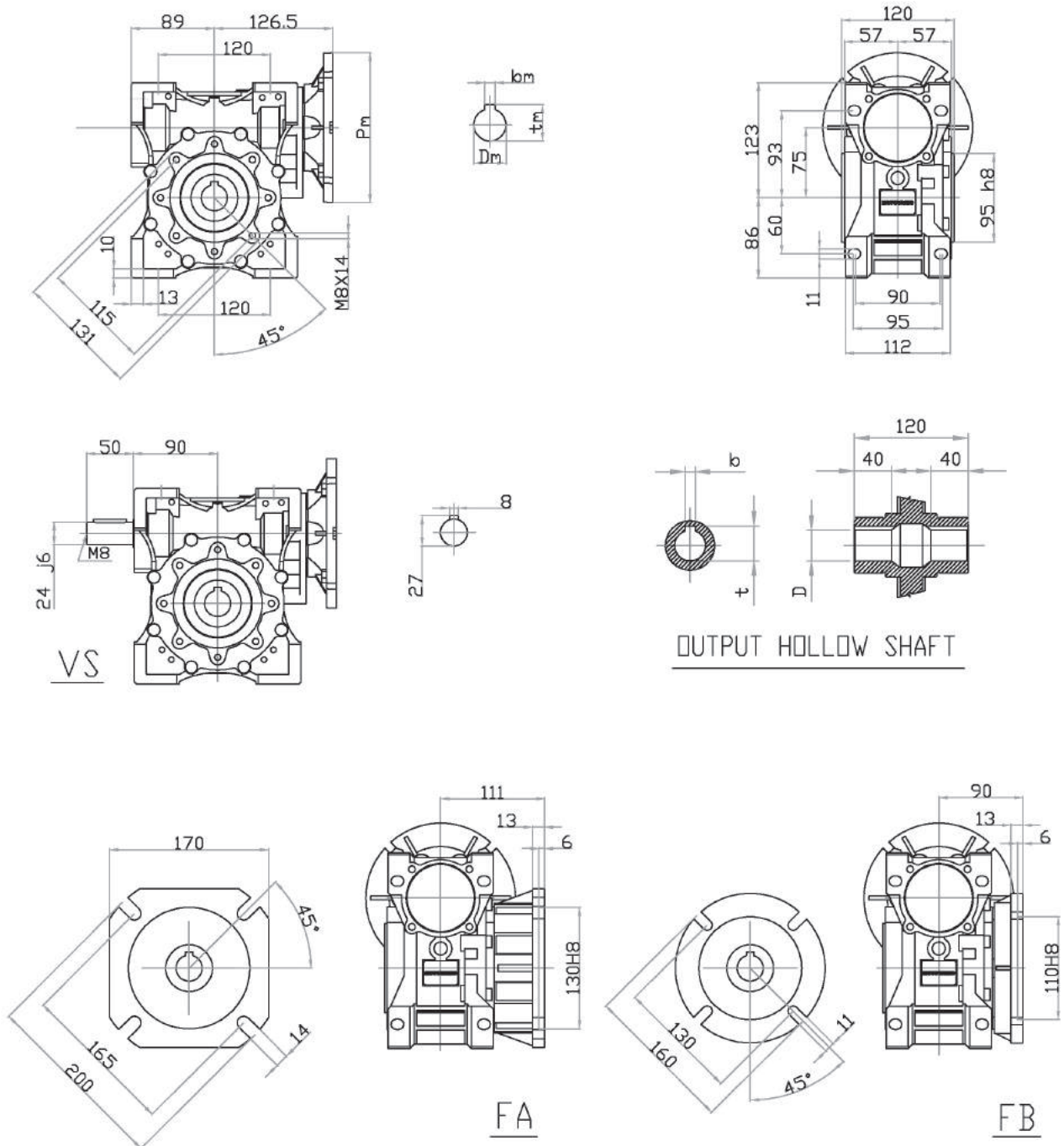
For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 125.

(.) 주문사항

(.) Only on request

출력 / Output		
D H8	b	t
25	8	28.3
(28)	(8)	(31.3)

NMRV - P075 - 도면 / Dimensions



- 모터제외무게 : 9kg
- Weight without motor : 9kg

모터 접속부위 관련 치수(Pm, Dm, bm, tm)는 125페이지에 제시된 도표를 참조하도록 한다.

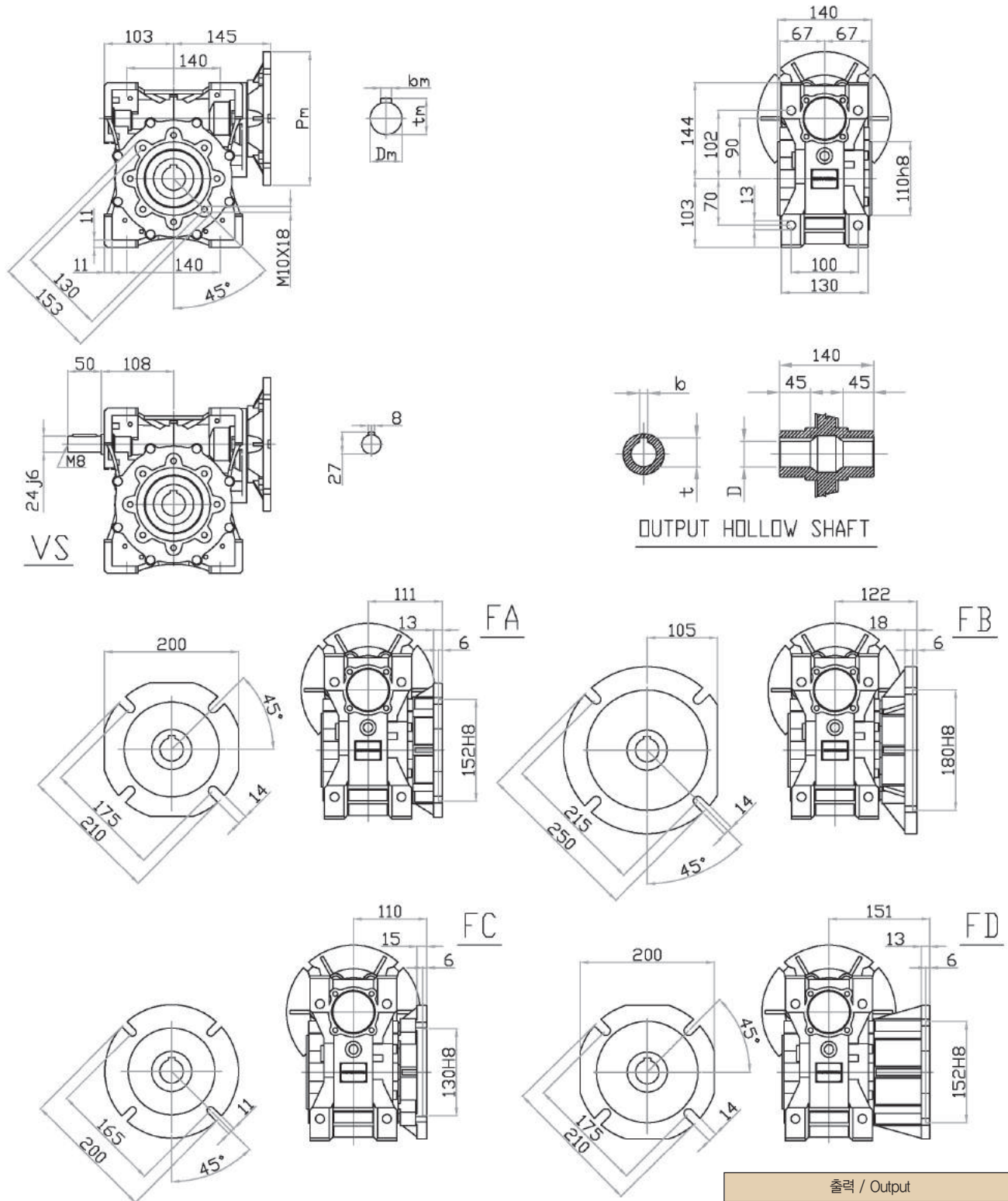
For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 125.

(..) 주문사항

(..) Only on request

출력 / Output		
D H8	b	t
28	8	31.3
(35)	(10)	(38.3)

NMRV - P090 - 도면 / Dimensions



- 모터제외무게 : 13kg
- Weight without motor : 13kg

모터 결속부위 관련 치수(Pm, Dm, bm, tm)는 125페이지에 제시된 도표를 참조하도록 한다.

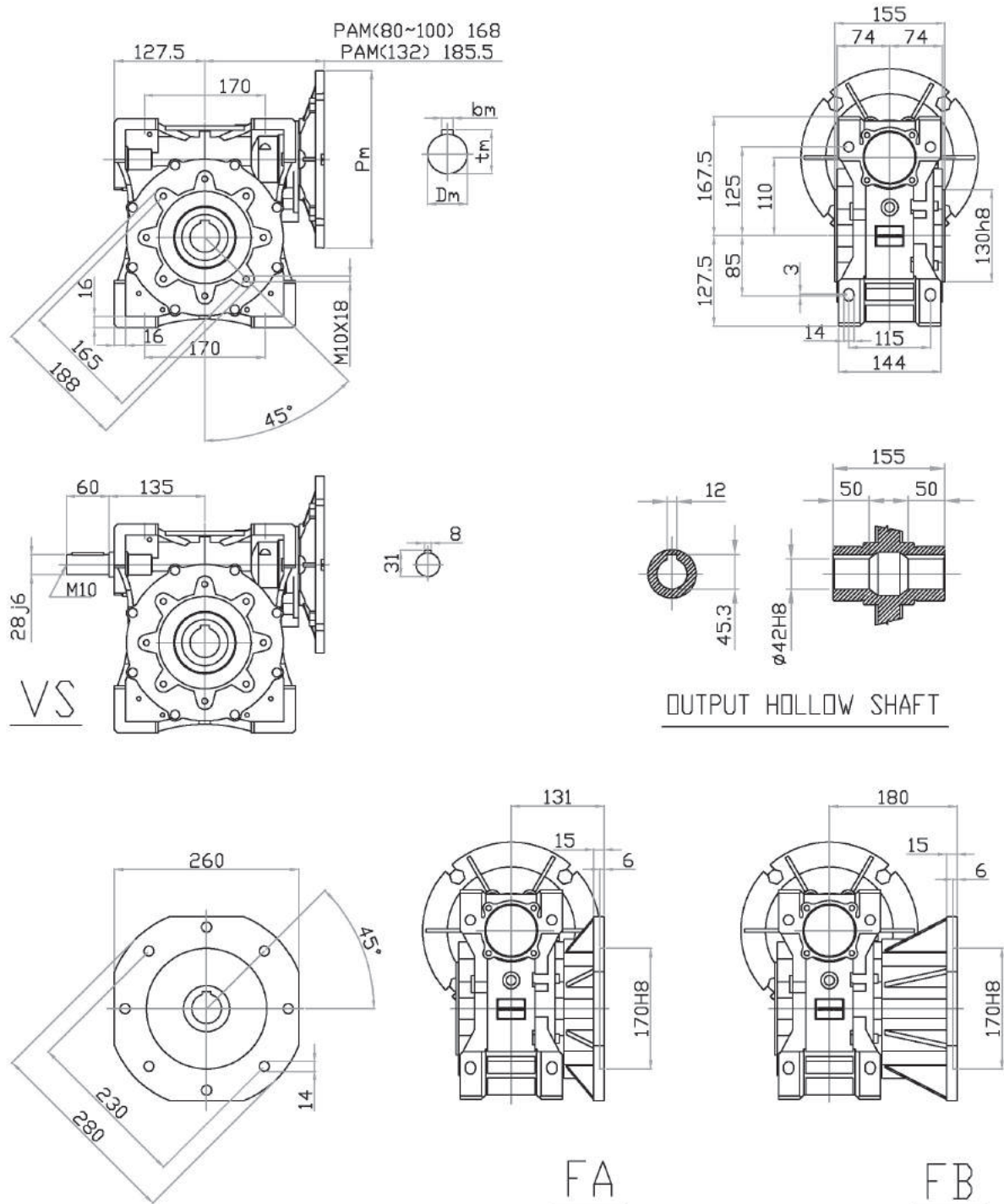
For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 125.

(..) 주문사항

(..) Only on request

출력 / Output		
D H8	b	t
35	10	38.3
(38)	(10)	(41.3)

NMRV – P110 – 도면 / Dimensions

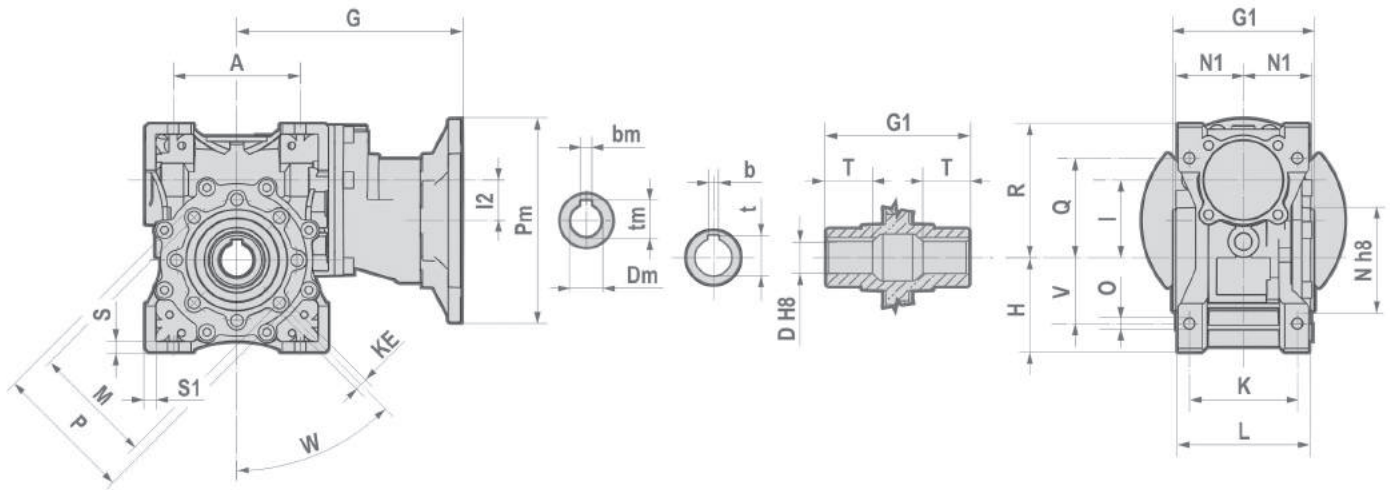


- 모터제외무게 : 21kg
- Weight without motor : 21kg

모터 결속부위 관련 치수(Pm, Dm, bm, tm)는 125페이지에 제시된 도표를 참조하도록 한다.

For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 125.

NMRV power / IHW – 치수 / Dimensions



	HW030		HW040	
	056/063/071/080		063/071/080/090	
	NMRVpower 063	NMRVpower 075	NMRVpower 090	NMRVpower 110
A	100	120	140	170
G	176.5	194	218	241
G1	112	120	140	155
H	72	86	103	127.5
I	63	75	90	110
12	32	32	42	42
L	103	112	130	144
K	85	90-95	100	115
KE	M8*14(8)	M8*14(8)	M10*18(8)	M10*18(8)
M	95	115	130	165
N	80	95	110	130
N1	53	56	67	74
O	8.5	11	13	14
P	110	131	153	188
Q	80	93	102	125
R	107	123	144	167.5
S	8	10	11	16
S1	8	13	11	16
T	36	40	45	50
V	50	60	70	85
W	45°	45°	45°	45°
D	25(28)	28(35)	35(38)	42
b	8(8)	8(10)	10(10)	12
t	28.3(31.3)	31.3(38.3)	38.3(41.3)	45.3
~kg	7.1	10	14.6	24.4

• 모터 결속 부위의 관련치수(Pm, Dm, bm,tm)는 125페이지에 제시된 도표를 참조하도록 한다.

• For the dimensions concerning the motor connection(Pm, Dm, bm,tm)please refer to the table shown at page 125.

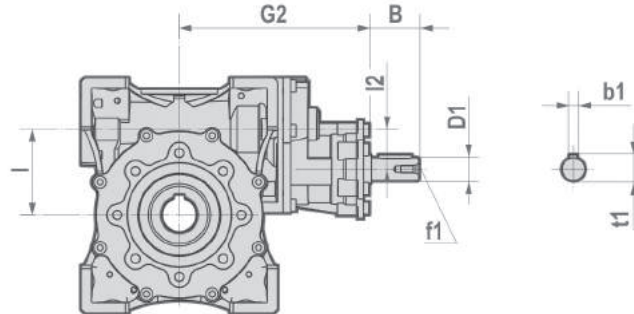
• 모든 다른 치수는 관련 NMRV사이즈의 도면을 검토하도록 한다.

• For all other dimensions, please consider the drawing of relevant NMRV size.

~kg 모터 제외 무게

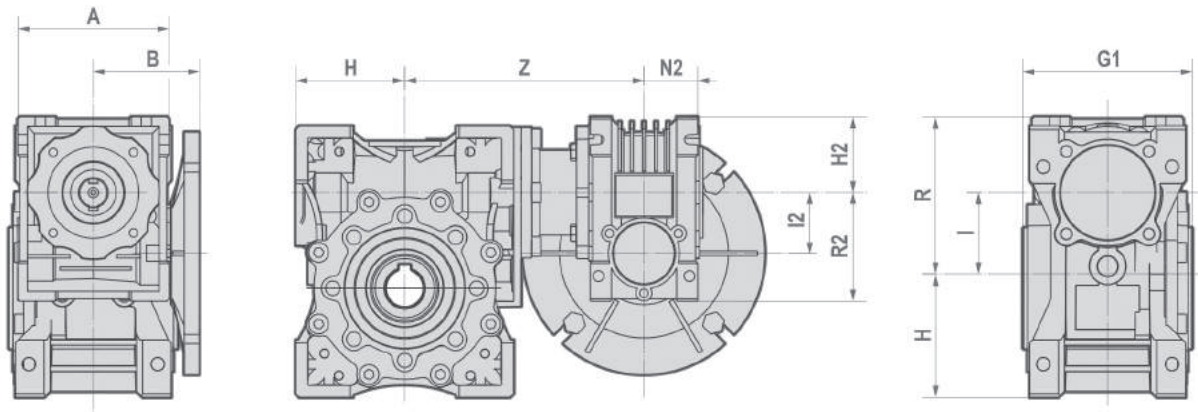
~kg Weight without motor

NMRVpower / IHW – 치수 / Dimensions



IHW040	B	G2	I	I2	D1	b1	t1	f1	~kg
NMRVpower 090	40	204.5	90	42	19 j6	6	21.5	M6	14.6
NMRVpower 110	50	227.5	110	42	24 j6	8	27	M8	24.4

NMRV + NMRVpower – 치수 / Dimensions

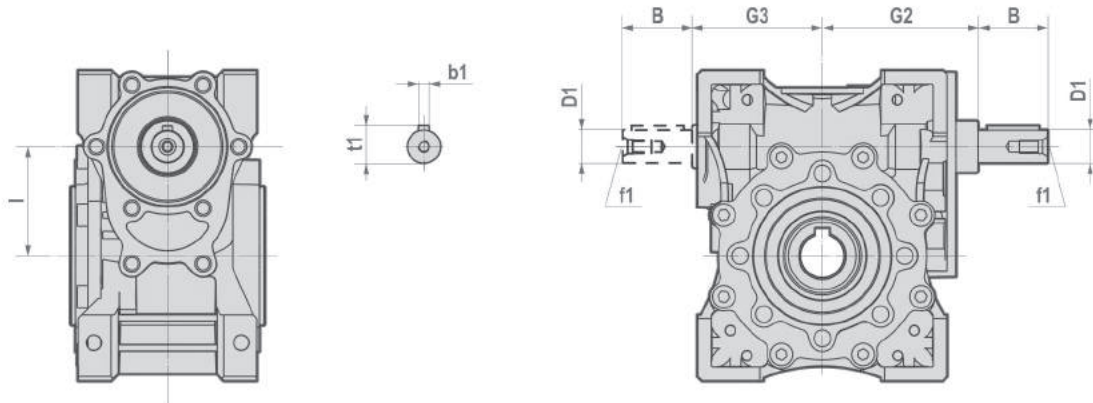


	A	B	G1	H	I	R	H2	I2	N2	R2	Z	~kg
030 - 063	80	55	112	72	63	107	40	30	29	57	150	7.4
040 - 063	100	70	112	72	63	107	50	40	36.5	71.5	161	8.5
040 - 075	100	70	120	89	75	123	50	40	36.5	71.5	178.5	11.3
040 - 090	100	70	140	103	90	144	50	40	36.5	71.5	197	15.3
050 - 090	120	80	140	103	90	144	60	50	43.5	84	214	16.5
050 - 110	120	80	155	127.5	110	167.5	60	50	43.5	84	237	24.5
063 - 110	144	109	155	127.5	110	167.5	72	63	53	107	237	27.2
063 - 130	144	109	170	147.5	130	187.5	72	63	53	107	245	54.2
063 - 150	144	109	200	170	150	230	72	63	53	107	275	90.2

~kg 모터 제외 무게

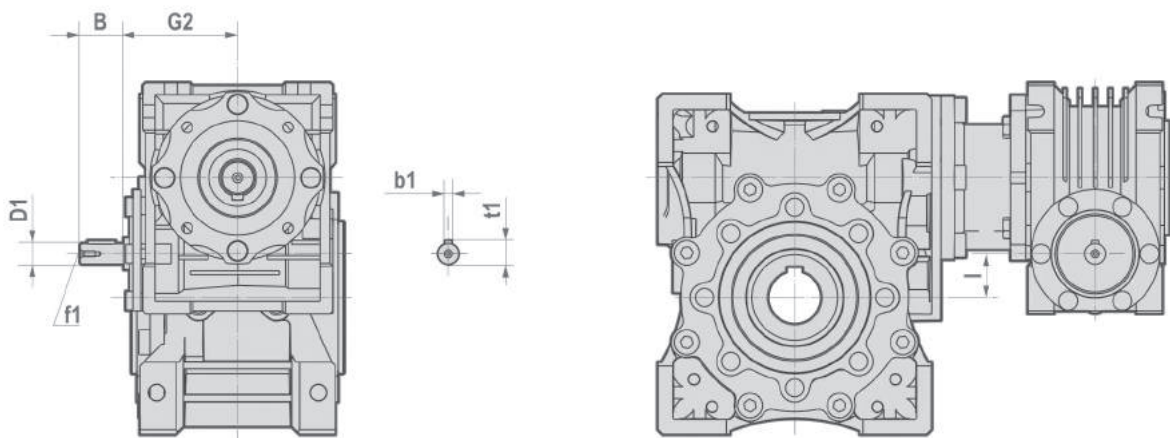
~kg Weight without motor

NRVpower – 치수 / Dimensions



	063	075	090	110
B1	40	50	50	60
D1	19 j6	24 j6	24 j6	28 j6
G2	90	105	125	142
G3	75	90	108	135
l	63	75	90	110
b1	6	8	8	8
t1	21.5	27	27	31
f1	M6	M8	M8	M10
~kg	5.8	8.8	13	21

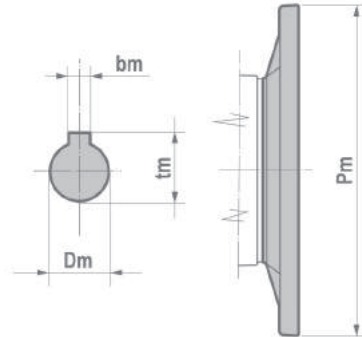
NRV + NMRVpower – 치수 / Dimensions



	030-063	040-063	040-075	040-090	050-090	050-110	063-110	063-130	063-150
B1	20	23	23	23	30	30	40	40	40
D1	9 j6	11 j6	11 j6	11 j6	14 j6	14 j6	19 j6	19 j6	19 j6
G2	51	60	60	60	74	74	90	90	90
l	33	23	35	50	40	60	47	67	87
b1	3	4	4	4	5	5	6	6	6
f1	-	-	-	-	M6	M6	M6	M6	M6
t1	10.2	12.5	12.5	12.5	16	16	21.5	21.5	21.5

- 누락된 치수들의 경우, 관련 NMRV 사이즈의 도면을 검토하도록 한다.
- For the missing dimensions, please consider the drawing of relevant NMRV size.

PAM 치수 / PAM Dimensions

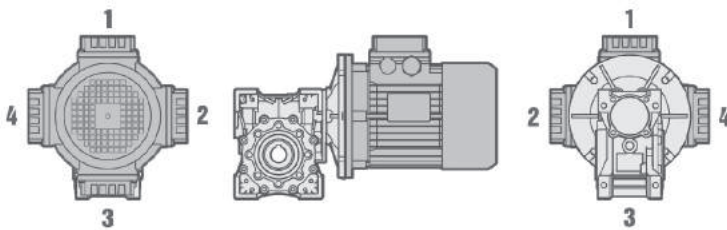


B5	IEC								
	056	063	071	080	090	100	112	132	160
Pm	120	140	160	200	200	250	250	300	350
Dm	9	11	14	19	24	28	28	38	42
bm	3	4	5	6	8	8	8	10	12
tm	10.4	12.8	16.3	21.8	27.3	31.3	31.3	41.3	45.3

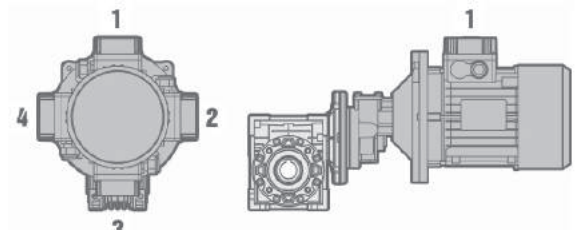
B14	IEC							
	056	063	071	080	090	100	112	
Pm	80	90	105	120	140	160	160	
Dm	9	11	14	19	24	28	28	
bm	3	4	5	6	8	8	8	
tm	10.4	12.8	16.3	21.8	27.3	31.3	31.3	

터미널박스 위치 / Position of terminal box

NMRV - NMRVpower

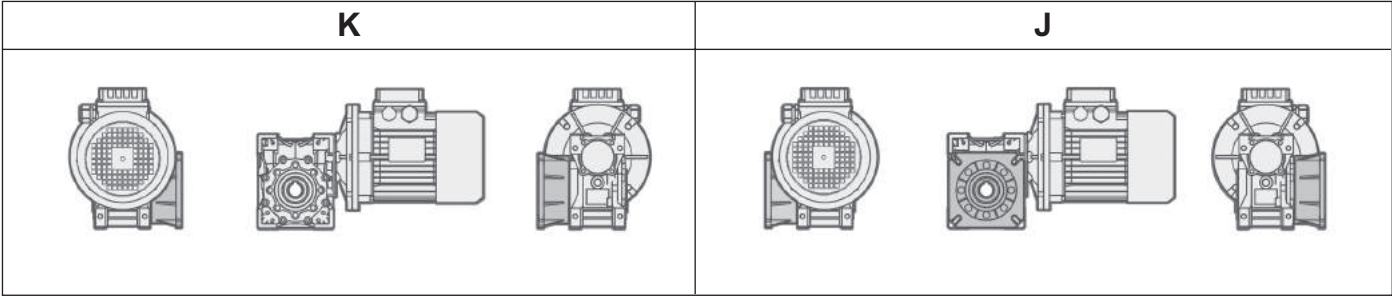


HA31



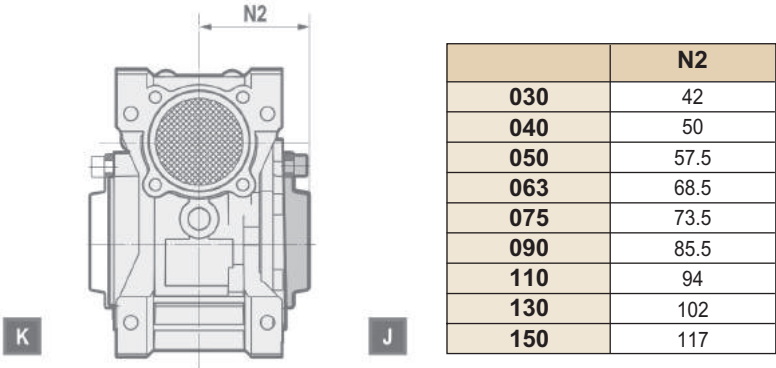
- 구체적인 요구의 경우, 오더시 도표에 보여지는 터미널박스의 위치를 표기해주세요.
- In the case of specific requirements, when ordering, specify the position of the terminal box as shown in the diagram.
- 터미널 박스 위치는 항상 HA31을 참고한다.
- Terminal box position always refers to HA31 position.

출력플렌지 /Output flange

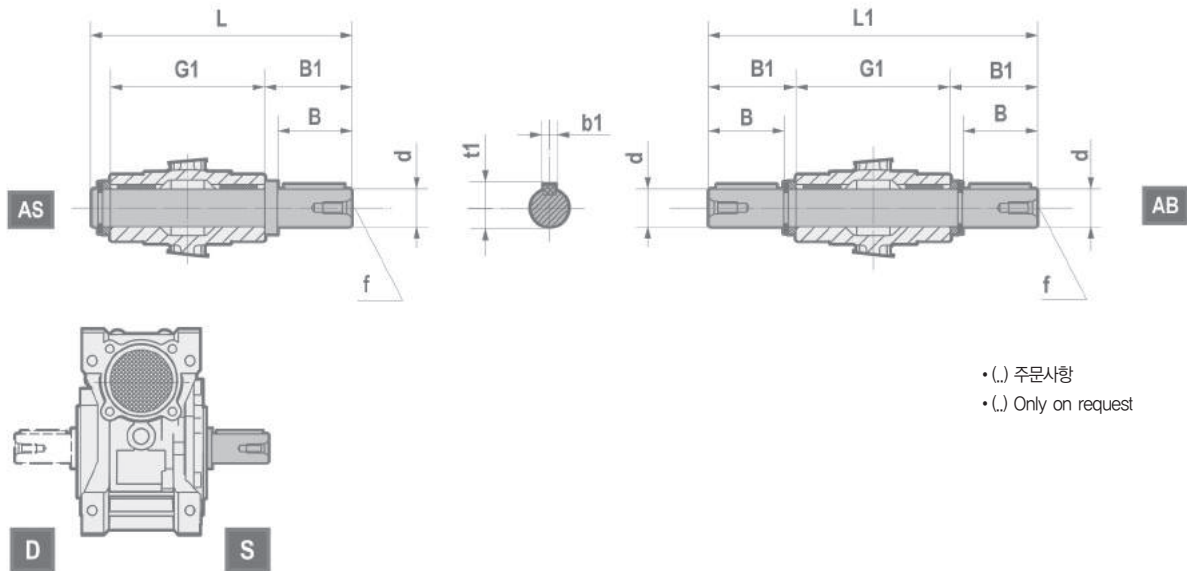


- 요청한 경우를 제외하고, 기어감속기는 위치 B3에 대하여 명시된 위치 J에 플렌지가 조립되어 공급된다.
- Unless specified otherwise, the gear reducer is supplied with the flange in pos. J referred to position B3.

플라스틱 커버 / Plastic cover

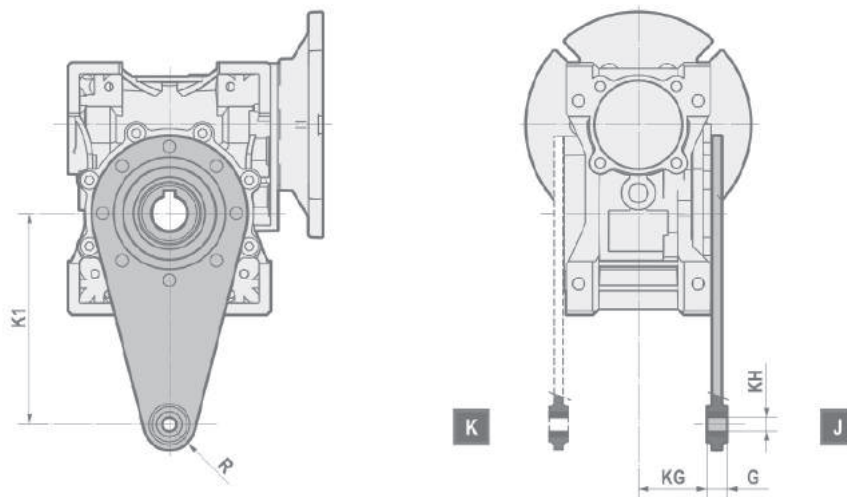


출력샤프트 / Output Shaft



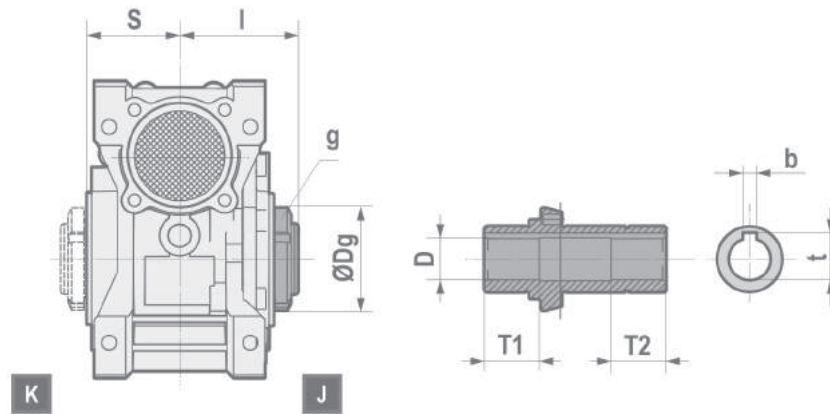
	063	075	090	110
d	25 h6	28 h6	35 h6	42 h6
B	50	60	80	80
B1	53.5	63.5	84.5	84.5
G1	112	120	140	155
L	173	192	234	249
L1	219	247	309	324
f	M10	M10	M12	M16
h1	8	8	10	12
t1	28	31	38	45

토크 암 / Torque arm



	063	075	090	110
K1	150	200	200	250
G	14	25	25	30
KG	49	47.5	57.5	62
KH	10	20	20	25
R	18	30	30	35

P – NMRL 치수(토크 리미터) / P – NMRL Dimensions



	063	075	090
I	74	78.5	89.5
S	56	60	70
Dg	62	68	80
g	M45×1.5	M50×1.5	M60×2
b	8	8	10
t	28.3	31.3	38.3
D	Ø25	Ø28	Ø35
T1	37	40	45
T2	37	40	45

- MTV토크리미터는 도표 D에서 보여지는 치수와 동일하게, 모든 기어 유닛과 중공출력축 한자기로 공급된다.
- The MTV torque limiter is univocally supplied for every gear unit with the hollow output shaft diameter equal to dimension D shown in the table. Different diameters could be provided upon request, after technical and manufacturing control.
- 카다로그 상의 표준과 다른, 요청에 따른 출력축 kit와 조립 가능하다.
- Upon request it's possible to assemble an output solid shaft kit, different from the standard one available in the Catalogue.

토크리미터

KO

서술

토크리미터는 기계적이 장치로 돌발적인 과부하 또는 이상으로 야기되는 운동으로부터 전달을 보호하기 위해 설계 되었다.
그것은 웜 기어 감속기의 출력과 내부적이 마찰작용에 적용되며, 이는 외부의 잠금 링 너트를 통해 조정할 수도 있다.

전자의 또는 외부기계장치를 비교하라, 이 해결책은 아래와 같은 이점이 있다.

- 토크리미터 없이 한정된 추가되는 치수를 버전과 비교하라
- 지름에 대하여 변경없이 중공출력축을 표준 버전에 비교하라
- 전달에서 즉각적인 빠른 조치로 틀림없이 보호될것이다.
- 그것은 oil-bath 운동을 위해 설계되었으므로, 닳아서 없어지지 않고 믿을 수 있다.
- 슬립 토크의 수동 조정 :
- 슬립 토크를 넘어서면, 토크리미터는 "잠금"상태로 남아있다. 외부적인 개입없이 자동으로 기계 재시작을 보장한다.
- 토크리미터를 사용하면, 느슨해진 외부 잠금 링 너트에 의해 기어박스 축 회전이 가능하다. 예를 들면 웜 비역회전에 의한 기계 잠금의 경우이다.

토크리미터 장치는 돌발적인 사건 그리고, 잘못된 기어박스 선정의 보호를 위해 설치된 보호 시스템이다.

(예를 들면, 기어 박스 선정후 실제 필요로 하는 application과 비교하여낮은 sf)

토크리미터는 NMRL-P063-075-090 타입의 웜 기어 감속기에 유효하며, 카다로그에 제공된 결합 유닛배열에 해당하며, 대개 최신기어박스이다.
토크리미터는 기어박스 출력축 위치 J 또는 K에 공급된다.

Torque limiter

UK

Description

The torque limiter is a mechanical device designed to protect the transmission from movement caused by accidental overloads or irregularities. It is applied to the output of the worm gear reducers and it works as an internal friction applied on the output shaft, which can be adjusted manually through an external locking ring nut.

Compared to electronic or external mechanical devices, this solution presents the following advantages:

- limited additional dimensions compared to the version without the torque limiter;
- hollow output shaft without changes in terms of diameter compared to the standard version;
- quick action directly on the transmission that must be protected;
- it has been designed for oil-bath operation, therefore wear-free and reliable;
- manual adjustment of the slip torque;
- over the slip torque, the torque limiter is still "on hold", ensuring the automatic machine restart without external intervention;
- using the torque limiter, it's possible also to rotate the gearbox shaft by loosening the external locking ring nut, for example in case of mechanical locks due to worm irreversibility.

The torque limiter device must to be installed as a protection system for accidental events and not as protection of wrong gearbox selection

(for example after selecting a gearbox with a low service factor compared with the real needs of the application).

The torque limiter is available for worm gear reducers type NMRL-P 063-075-090 and it is applicable in all combined unit configurations provided in the catalogue, usually on the last gearbox. The torque limiter is supplied on the gearbox output shaft in J or K position.

토크리미터

KO

안전상의 이유로, 이 장치는 들어올리는 장비에 설치하는 것을 추천하지 않는다. 예를 들어 과적 또는 비정역회전이며, 옮기는 동안 suspension에 무게가 유지될 수 없다.

Torque limiter

UK

For safety reasons it isn't recommended to install this device in lifting equipment: in case of overloads or irregularities, during the shift, the weight could not be maintained in suspension.

토크리미터

KO

작동원리

이 기계장치는 구동면[input shaft(10)] 구동면[wormwheel(9)] 사이의 마찰에 의해 운동의 전달에 의해 일어난다.
이것은 the plate(7)에 의해 생성된 결정된 압축의 대상이다.
(7)은 two belleville washers(6)에 의해 발생되었다.
The belleville washers작용은 the bushing(3)에 의해 발생된다.
(3)은 출력축의 나사 모양의 외부 잠금 링 너트(1)에 의해 구동된다.
변화는 the hub(2)와 웜 휠의 원뿔모양의 2가지 요소사이의 연결에 의해 보증된다.
운동의 전달은 최대 수용가능 토크값(slip torque)까지 표준 작업을 가지고 있다;
이 값을 넘어서면, 토크리미터는 웜 휠 사이의 slip을 발생시키기 위해 작동한다. 이는 입력축과 the hub 사이에 계속적으로 회전을 하게 된다.
규정으로부터 예상된 slip torque를 넘어서면, 토크리미터는 "잠금"상태에 있다; 그것은 지정된 값을 전송하고, 더 높은 값은 전송하지 않는다.
이는 기계에 외부적인 작용없이 자동적으로 재시작을 보장한다.

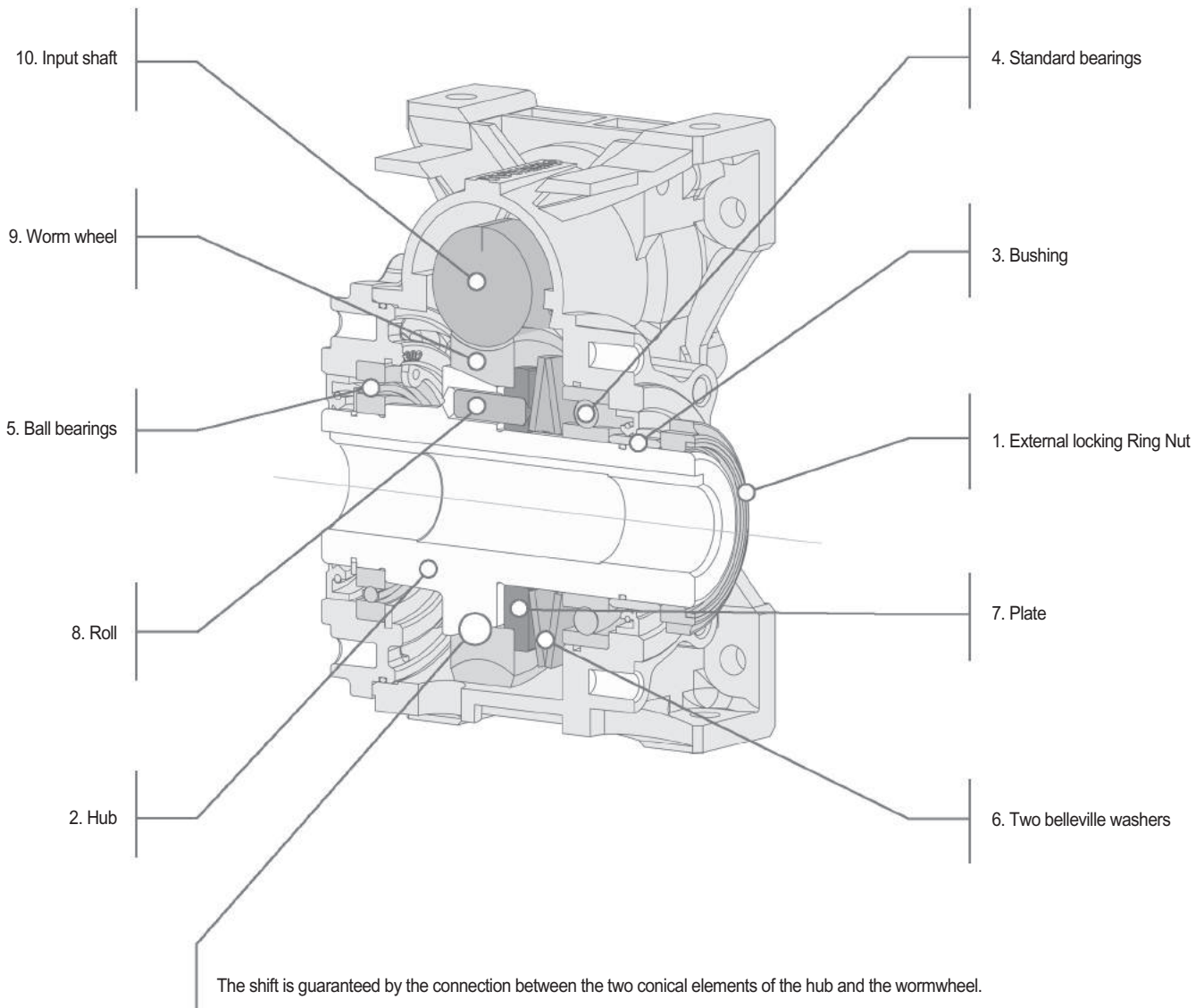
Torque limiter

UK

Operating principle

In this mechanical device the transmission of movement takes place by means of friction between the driving surface (input shaft (10)) and the driven surface (wormwheel (9)). These are subject of a determined compression created by the plate (7) which is generated by two belleville washers (6), arranged in series. The belleville washers action is generated by the bushing (3), driven by the external locking ring nut (1) which is screwed on the output shaft. The shift is guaranteed by the connection between the two conical elements of the hub (2) and the worm wheel.

The transmission of movement has a standard operation up to a maximum admissible torque value(slip torque); over this value the torque limiter starts to work generating a slip between the worm wheel, which continues to spin conducted by the input shaft, and the hub which remains still. Over the slip torque expected from the regulation, the torque limiter is still "on hold": it transmits the set value and it doesn't transmit higher values. This ensures to the machine to restart automatically without external action.



토크리미터

KO

슬립 토크 설정

슬립 토크 설정은 잠금 링 너트의 회전에 의해, 외부로부터, 쉽게 조절 가능하며, 턴의 숫자를 정의하기 위해, 4가지로 표시하는 것을 특징으로 한다.(각각 표시는 동등하게 턴의 1/4이다.)
장치는 조립단계 동안 예비로 둔다.

Torque limiter

UK

Slip torque setting

A slip torque setting is easily adjustable from the outside through the rotation of the locking ring nut, characterized by 4 marks to define the number of turns (each mark is equivalent to ②° of a turn). The device is preliminary set during the assembly phase.

	Ring nut rotation
063	3/4(")
075	1(")
090	1(")

아래 요소들은 setting에 영향을 준다;

온도와 조절시간, 그러므로 설치하는 동안 실제 application의 요구에 따라, 실질적인 슬립 토크 한계를 확인하라.

링 너트의 등록된 회전의 표준방향은 시계방향이다. 링 너트쪽에서 정면으로 보라. 모터 위치가 오른쪽일때, 토크리미터 위치는 J이다. ; 모터 위치가 왼쪽일때, 토크리미터 위치는 K 이다.

IMP : 오랜 정지, 심지어 기계를 자동적으로 재시작시 링 너트를 원래 위치로 되돌려놓고, 다시 셋팅하는 것을 추천한다.

이전에 언급하였듯이, 각 감속기 사이즈(050-063-075-090)슬립 토크 범위는 비율과 기어박스의 회전의 방향에 의존한다. 이는 두 원뿔 모양의 요소 사이의 공차에 영향을 받으며, slip을 발생시킨다.

(축의 요소는 접근 또는 떨어지려는 경향이 있다.)

그러므로, 셋팅된 도표는 2선을 보여준다. 이는 제공된 슬립 토크 내에서 대략적인 한계를 대표하며, 변경 가능하다.

슬립 토크의 셋팅은 원하는 슬립 토크 값에서 링 너트의 품질보증 턴의 수를 결정하기 위해, 항상 체크 되어야 한다.

The following factors may affect the setting:

temperature and period of adjustment. It is therefore recommended, during the installation, to actually verify the slip torque limit, in according to the real needs of the application.

The standard direction of rotation for the registration of the ring nut is clockwise. Looking frontally from the ring nut side, the torque limiter is in J position when the motor position is on the right side; with the motor on left side the torque limiter is in K position.

IMP: It's recommended for long stops, even if the machine restarts automatically, to return the ring nut to its original position and to set it again.

As previously mentioned, for each reducers size (050-063-075-090) the slip torque range depends by the ratio and the direction of rotation of the gearbox, which affects the tolerances between the two conical components that generate the slip (there is an axial component which tends to approach or move their away).

Therefore in the setting diagrams are shown two lines which represent the approximate limits within the provided slip torque could change.

The slip torque setting must be always checked afterward to determine if the number of turns of the ring nut guarantees the desired slip torque value.

모터 Electric motors

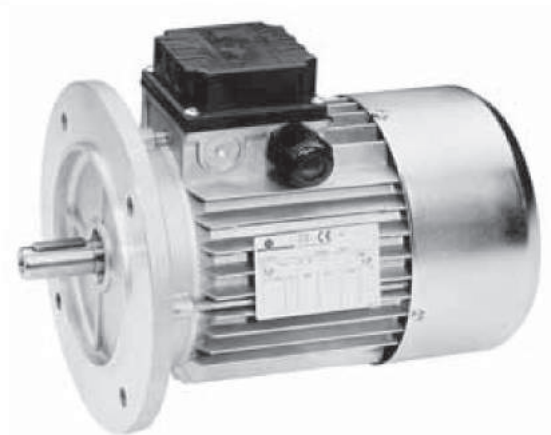
B3



B14



B5



부호 / Symbols

성능표에 사용된 약어와 기호의 의미

Meaning of the symbols and abbreviations used in the performance tables

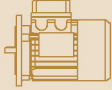
P_n	정격 파워 nominal power [kW]	n_n	정격 속도 nominal speed [min ⁻¹]
I_n	정격 전류 nominal current [A]	M_n	정격 토크 nominal torque [Nm]
η_n%	정격 효율 nominal efficiency in %	cos ψ_n	정격 역률 nominal power factor
M_s / M_n	기동 토크 / 정격 토크 비 starting torque / nominal torque ratio	M_{max} / M_n	
I_s / I_n	기동 전류 / 정격 전류 비 starting current / nominal current ratio	M_B	정지 토크 braking torque [Nm]
J_t	관성모멘트(10 ⁻⁴ kgm ²) 1)브레이크 미포함 2)브레이크 포함 moment of inertia of motor [10 ⁻⁴ kgm ²] 1) without brake 2) with brake		
m_t	모터 무게 B5(kg) 1)브레이크 미포함 2)브레이크 포함(type MS-FM) motor weight B5 [kg] 1) without brake 2) with brake (type MS-FM)		
Z_o	시간 당 최대 시동횟수 – 무부하(10 ³ /h) max. admitted nr. start-ups/hour with no load [10 ³ /h]		
C_r	구동중 콘덴서 정전용량 operating capacitor [•F] (series S, HS)	C_a	기동 콘덴서 정전용량 starting capacitor [•F] (series HS)

모터 용량에 따른 성능 / Performance

T – TB

2 Poles(3000min⁻¹)

230/400V/50Hz

P _n [kW]		n _n [min ⁻¹]	I _n 400V [A]	M _n [Nm]	η _n %	cosφ _n	M _s M _n	I _s I _n	M _{max} M _n	J _T 10 ⁻⁴ Kg m ²		m _T [Kg]		Z ₀ [10 ³ 1/h]	M _B [Nm]
0.18	63A2	2760	0.63	0.62	53	0.77	2.7	3.7	2.8	1.7	2.3	3.7	5.2	4.7	1.8
0.25	63B2	2760	0.71	0.87	59	0.84	2.7	4.2	2.8	2.3	2.9	4.4	5.9	4.7	1.8
0.37	63C2	2730	1.08	1.29	63	0.79	2.8	4.3	2.9	2.3	2.9	4.4	5.9	4	3.5
0.37	71A2	2860	1.1	1.24	69	0.73	2.9	4.9	3.7	3.5	4.6	5.4	7.6	4	5
0.55	71B2	2840	1.5	1.85	71	0.79	3.1	4.9	3.7	4.3	5.4	6.2	8.4	4	5
0.75	71C2	2840	2.0	2.52	72	0.79	3.1	5.1	3.5	5.3	6.4	7	9.2	3	7.5
0.75	80A2	2810	1.9	2.55	70	0.85	3.3	5.7	3.8	8.2	9.8	9	12.5	3	10
1.1	80B2	2850	2.6	3.7	74	0.83	4.1	6.8	4.5	11	12.6	10.5	14	3	15
1.5	80C2	2820	3.5	5.1	75	0.86	3.8	6.7	3.7	13	14.6	11.3	14.8	2.5	15
1.5	90S2	2830	3.4	5.1	75	0.84	2.9	5.2	3.6	14	15.6	12.3	15.8	2.5	13
2.2	90L2	2840	5.0	7.4	79	0.84	3.2	6.3	3.4	19	22.5	14.8	20.4	2.5	26
3	100LA2	2860	6.7	10.0	77	0.84	3.4	7	3.7	32	35.5	19	24.6	1.8	40
4	100LB2	2860	8.5	13.4	79	0.84	3.7	7.2	4	43	46.5	23.5	29.1	1.5	40
4	112M2	2870	8.2	13.3	82	0.85	3.1	6.8	3.6	55	63.8	25	34.7	1.5	40
5.5	112MS2	2910	11.7	18.0	83	0.81	3.6	6.3	3.9	70	78.8	30	39.7	1.4	60
5.5	132SA2	2900	12	18.1	79	0.83	2.8	5	3.1	106	116	36	46.3	1.2	75
7.5	132SB2	2900	15.7	24.7	81	0.84	3.1	5.4	3.4	142	152	42	52.3	1.1	75
9.2	132L2	2940	20	29.9	84	0.80	3.9	3.9	4.2	180	203	49.3	64	1	100
11	132M2	2930	23.6	35.9	84	0.81	4.1	4	4.3	213	236	55	69.7	0.85	150

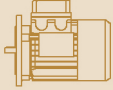
T – TB

4Poles(1500min⁻¹)

230/400V/50Hz

P _n [kW]		n _n [min ⁻¹]	I _n 400V [A]	M _n [Nm]	η _n %	cosφ _n	M _s M _n	I _s I _n	M _{max} M _n	J _T 10 ⁻⁴ Kg m ²		m _T [Kg]		Z ₀ [10 ³ 1/h]	M _B [Nm]
0.12	63A4	1360	0.58	0.84	50	0.62	2.4	2.6	2.6	2.1	2.7	3.6	5.1	12.5	1.8
0.18	63B4	1360	0.7	1.26	55	0.64	2.4	2.7	2.6	2.8	3.4	4.2	5.7	12.5	3.5
0.22	63C4	1370	0.9	1.53	60	0.61	3.5	3.5	3.7	2.8	3.4	4.2	5.7	10	3.5
0.25	71A4	1400	0.8	1.71	64	0.73	2.7	4.3	3.1	7.2	8.3	5.3	7.5	10	5
0.37	71B4	1400	1.1	2.52	67	0.75	2.8	4.2	3.1	8.6	9.7	5.9	8.1	10	7.5
0.55	71C4	1390	1.5	3.8	69	0.77	2.7	4.7	2.9	10.8	11.9	6.7	8.9	8	7.5
0.55	80A4	1420	1.55	3.7	70	0.77	2.5	4.7	2.6	19	20.6	8.7	12.2	8	10
0.75	80B4	1420	2.1	5.0	71	0.77	2.6	4.6	2.8	25	26.6	10.1	13.6	7.1	15
0.92	80C4	1420	2.5	6.2	72	0.78	2.7	5.4	2.8	28	29.6	10.9	14.4	5	15
1.1	90S4	1380	2.6	7.6	74	0.83	2.6	4.5	2.8	25	26.6	12	15.5	5	13
1.5	90L4	1400	3.5	10.2	77	0.81	2.9	5.9	3.2	32	35.5	14.5	20.1	4	26
1.84	90LLA4	1380	4.4	12.7	74	0.83	3.2	6.2	3.5	35	38.5	15.5	21.1	4	40
2.2	100LA4	1410	5.2	14.9	78	0.78	2.5	5.5	2.8	53	56.5	19.1	24.7	3.2	40
3	100LB4	1420	6.9	20.2	80	0.80	2.6	5.5	2.8	72	75.5	22.8	28.4	3.2	55
4	112M4	1430	9	26.7	82.5	0.78	2.7	5.7	2.8	110	119	29.4	39.1	2.5	60
4.8	112MS4	1420	10.5	32.3	81	0.81	2.6	5.5	2.8	120	129	30.5	40.2	1.8	60
5.5	132S4	1450	12.7	36.2	82.5	0.76	3	5.2	3.3	240	250	42.3	52.6	1.8	100
7.5	132L4	1450	16.7	49.4	84	0.76	3.2	5.5	3.5	330	353	52.5	67.2	1.2	150
9.2	132M4	1440	19.5	61.0	84	0.80	3	5.2	3.3	350	373	54.8	69.5	1.1	150

모터 용량에 따른 성능 / Performance
T – TB
6 Poles(1000min⁻¹)
230/400V/50Hz

P _n [kW]		n _n [min ⁻¹]	I _n 400V [A]	M _n [Nm]	η _n %	cosφ _n	M _s M _n	I _s I _n	M _{max} M _n	J _T 1) 2) 10 ⁻⁴ Kg·m ²		m _T 1) 2) [Kg]		Z ₀ [10 ³ 1/h]	M _B [Nm]
0.09	63A6	890	0.52	0.97	44	0.58	2.3	2.1	2.3	3.0	3.6	4.0	5.5	12.5	3.5
0.12	63B6	890	0.65	1.29	47	0.58	2.4	2.2	2.4	3.8	4.4	4.6	6.1	12.5	3.5
0.15	63C6	880	0.72	1.63	50	0.58	2.2	2.1	2.2	4.3	4.9	5.0	6.5	11.8	3.5
0.18	71A6	920	0.62	1.87	64	0.68	2.2	3.2	2.4	9.3	10.4	5.2	7.4	11.2	5
0.25	71B6	920	0.82	2.60	65	0.67	2.3	3.3	2.4	12	13.1	6	8.2	11.2	7.5
0.37	71C6	900	1.1	3.9	67	0.73	2.2	3.3	2.3	14.8	15.9	6.8	9	10	7.5
0.37	80A6	930	1.3	3.8	64	0.64	2.5	4.1	2.7	22	23.6	9.3	12.7	9.5	10
0.55	80B6	930	1.8	5.6	66	0.68	2.2	4.1	2.4	28	29.6	10.9	14.4	9	15
0.75	80C6	900	2.2	8.0	66	0.78	2.2	3.4	2.4	31	32.6	11.7	15.2	7.1	15
0.75	90S6	930	2.2	7.7	75	0.68	2.1	3.6	2.3	40	41.6	12.1	15.6	7.1	13
1.1	90L6	930	3.2	11.3	75	0.67	2.2	3.6	2.4	55	58.5	15	20.6	5.3	26
1.5	100LA6	940	4	15.2	80	0.7	2.6	4.4	2.8	72	75.5	20	25.6	3.6	40
1.85	100LB6	945	4.7	18.7	80	0.74	2.3	5.3	2.7	88	91.5	24	29.6	3.2	40
2.2	112M6	950	5.7	22.1	81	0.7	2.4	4.5	2.6	148	177	24	33.7	2.8	60
3	112MS6	950	6.9	30.2	82	0.77	2.1	5	2.7	188	217	30.5	40.2	2.5	60
3	132S6	970	7.2	29.5	78	0.77	2.3	5.6	2.4	320	330	40	50.3	2.3	75
4	132L6	970	9.7	39.4	80	0.74	2.2	5.6	2.3	380	403	46.4	61.1	1.5	100
5.5	132M6	970	11.5	54.1	83	0.83	2.2	4.6	2.3	460	483	52.5	67.2	1.3	150

T – TB
8 Poles(750min⁻¹)
230/400V/50Hz

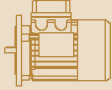
P _n [kW]		n _n [min ⁻¹]	I _n 400V [A]	M _n [Nm]	η _n %	cosφ _n	M _s M _n	I _s I _n	M _{max} M _n	J _T 1) 2) 10 ⁻⁴ Kg·m ²		m _T 1) 2) [Kg]		Z ₀ [10 ³ 1/h]	M _B [Nm]
0.07	63C8	620	0.5	1.08	41	0.52	1.8	1.6	1.8	4.3	4.9	5.0	6.5	12.5	1.8
0.09	71A8	670	0.44	1.28	49	0.61	2.1	2.3	2.2	9.3	10.4	5.2	7.4	8.5	2.5
0.12	71B8	680	0.55	1.69	54	0.58	2.3	2.5	2.4	12	13.1	6	8.2	8.5	5
0.18	71C8	650	0.76	2.6	52	0.64	2.0	2.5	2.1	14.8	15.9	6.8	9.0	8	5
0.18	80A8	700	0.9	2.5	52	0.59	2.2	2.6	2.4	22	23.6	9.3	12.7	8	5
0.25	80B8	710	1.1	3.4	56	0.6	2.2	2.9	2.4	28	29.6	10.9	14.4	7.1	10
0.37	80C8	680	1.35	5.2	59	0.65	2.1	3.0	2.3	31	32.6	11.7	15.2	6.3	10
0.37	90S8	700	1.5	5.0	60	0.56	1.7	2.6	2.0	40	41.6	12.1	15.6	6.7	13
0.55	90L8	700	2.3	7.5	61	0.58	1.9	5.6	2.1	55	58.5	15	20.6	5.3	13
0.75	100LA8	700	2.6	10.2	67	0.62	2.5	4.7	2.7	72	75.5	20	25.6	3.7	26
1.1	100LB8	690	3.4	15.2	71	0.64	2.1	3.2	2.5	88	91.5	24	29.6	3.5	40
1.5	112M8	710	4.3	20.2	76	0.67	1.6	3.9	2.0	188	217	30.5	40.2	3.1	60
2.2	132S8	720	6	29.2	77	0.69	1.5	3.8	2.0	320	330	40	50.3	2.8	75
3	132L8	725	8.7	39.5	77	0.65	2.5	4.5	2.9	460	483	52.5	67.2	2	100

모터 용량에 따른 성능 / Performance

S – SB

2 Poles(3000min⁻¹)

230V/50Hz

P _n [kW]		n _n [min ⁻¹]	I _n 230V [A]	M _n [Nm]	η _n %	cosφ _n	C _r μF	M _s M _n	I _s I _n	M _{max} M _n	J _T 1) 2) 10 ⁻⁴ Kg·m ²		m _T 1) 2) [Kg]		M _B [Nm]
0.18	63A2	2860	1.4	0.60	61	0.97	8	0.75	3.7	2.5	2.3	2.9	4.4	5.9	1.8
0.25	63B2	2880	1.8	0.83	62	0.97	10	0.75	4.2	2.5	2.8	3.4	5.1	6.6	1.8
0.37	71A2	2790	2.8	1.3	62	0.95	12.5	0.60	3.1	1.8	4.3	5.4	6.2	8.4	3.5
0.55	71B2	2750	3.8	1.9	67	0.93	16	0.60	3.2	1.9	5.3	6.5	7	9.2	5
0.75	80A2	2840	5.2	2.5	69	0.92	25	0.63	3.9	2.2	11	12.6	10.5	14	10
1.1	80B2	2820	7.4	3.7	71	0.90	30	0.60	3.4	1.8	13.8	15.4	12.1	15.6	15
1.5	90S2	2790	10	5.1	72	0.95	40	0.55	3.4	1.5	16.8	20.3	14.8	20.4	13
2.2	90L2	2840	14	7.4	74	0.98	50	0.50	4.1	1.5	22.8	26.3	17.8	23.4	26
3	100LB2	2800	18	10.2	77	0.98	60	0.40	3.9	1.5	43	46.5	23.5	29.1	40

S – SB

4 Poles(1500min⁻¹)

230V/50Hz

P _n [kW]		n _n [min ⁻¹]	I _n 230V [A]	M _n [Nm]	η _n %	cosφ _n	C _r μF	M _s M _n	I _s I _n	M _{max} M _n	J _T 1) 2) 10 ⁻⁴ Kg·m ²		m _T 1) 2) [Kg]		M _B [Nm]
0.12	63A4	1420	1.3	0.81	48	0.88	6.3	0.85	2.7	2.4	2.8	3.4	4.2	5.7	1.8
0.18	63B4	1400	1.6	1.23	57	0.90	8	0.75	2.8	1.9	3.5	4.1	4.8	6.3	3.5
0.25	71A4	1340	2.1	1.78	59	0.94	10	0.70	2.7	1.7	8.6	9.7	5.9	8.1	5
0.37	71B4	1360	2.8	2.6	61	0.95	14	0.70	2.9	1.6	10.8	11.9	6.7	8.9	7.5
0.55	80A4	1400	3.8	3.8	64	0.98	20	0.65	3.7	1.9	25	26.6	10.1	13.6	10
0.75	80B4	1400	5.1	5.1	65	0.98	25	0.60	3.6	1.9	31	32.6	11.5	15	15
1.1	90S4	1370	7.7	7.7	69	0.91	30	0.50	3.2	1.7	30	33.5	13.5	17	13
1.5	90L4	1350	9.3	10.6	72	0.96	40	0.50	3.0	1.6	38	41.5	16.5	22.1	26
2.2	100LB4	1400	13.2	15.0	72	0.95	50	0.50	3.0	1.5	72	75.5	22.8	28.4	40

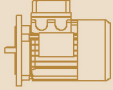
S – SB

6 Poles(1000min⁻¹)

230V/50Hz

P _n [kW]		n _n [min ⁻¹]	I _n 230V [A]	M _n [Nm]	η _n %	cosφ _n	C _r μF	M _s M _n	I _s I _n	M _{max} M _n	J _T 1) 2) 10 ⁻⁴ Kg·m ²		m _T 1) 2) [Kg]		M _B [Nm]
0.09	63A6	920	1.1	0.93	40	0.91	14	0.77	1.7	1.6	3.8	4.4	4.6	6.1	3.5
0.12	63B6	890	1.3	1.29	47	0.9	16	0.6	1.7	1.6	4.3	4.9	5.0	6.5	3.5
0.18	71A6	930	1.5	1.85	56	0.96	8	0.67	2.7	1.9	9.2	10.3	5.2	7.4	5
0.25	71B6	930	2.2	2.57	58	0.89	10	0.6	2.4	1.9	12	13.1	6	8.2	7.5
0.37	80A6	930	2.8	3.8	59	0.98	16	0.6	2.9	2	22	23.6	9.3	12.7	10
0.55	80B6	890	4.2	5.9	64	0.9	20	0.65	2.8	2.3	28	29.6	10.9	14.4	15
0.75	90S6	890	5.8	8.0	68	0.92	25	0.65	2.3	2.1	40	43.5	12.1	17.7	13
1.1	90L6	910	8.5	11.5	70	0.88	30	0.6	2.6	2.4	55	58.5	15	20.6	26
1.5	100LB6	880	12	16.3	72	0.9	40	0.55	2.8	2	88	91.5	24	29.6	40

모터 용량에 따른 성능 / Performance
HSE
2 Poles(3000min⁻¹)
230V/50Hz

P _n [kW]		n _n [min ⁻¹]	I _n 230V [A]	M _n [Nm]	η _n %	cosφ _n	C _r /C _a [μF]	M _S M _n	I _S I _n	M _{max} M _n	J _T 1) 2) 10 ⁻⁴ Kg m ²		m _T 1) 2) [Kg]		M _B [Nm]
0.18	63A2	2860	1.4	0.60	61	0.97	08/16	2.5	4.2	2.5	2.3	2.9	4.4	5.9	1.8
0.25	63B2	2880	1.8	0.83	62	0.97	10/20	2.4	4.9	2.5	2.8	3.4	5.1	6.6	1.8
0.37	71A2	2790	2.8	1.3	62	0.95	12.5/25	2.2	4.5	1.8	4.3	5.4	6.2	8.4	3.5
0.55	71B2	2750	3.8	1.9	67	0.93	16/30	2.3	4.4	1.9	5.3	6.5	7	9.2	5
0.75	80A2	2840	5.2	2.5	69	0.92	25/50	2.3	4.3	2.2	11	12.6	10.5	14	10
1.1	80B2	2820	7.4	3.7	71	0.90	30/60	1.8	3.4	1.8	13.8	15.4	12.1	15.6	15
1.5	90S2	2790	10	5.1	72	0.95	40/80	1.9	4.0	1.5	16.8	20.3	14.8	20.4	13
2.2	90L2	2840	14	7.4	74	0.98	50/125	1.8	4.1	1.5	22.8	26.3	17.8	23.4	26
3	100LB2	2800	18	10.2	77	0.98	60/150	1.8	3.9	1.5	43	46.5	23.5	29.1	40

HSE
4 Poles(1500min⁻¹)
230V/50Hz

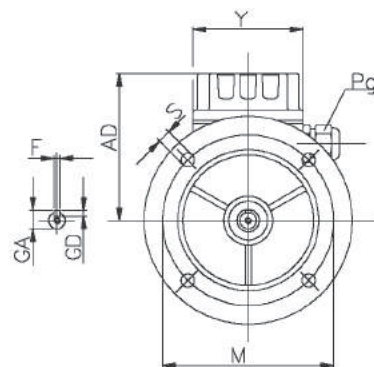
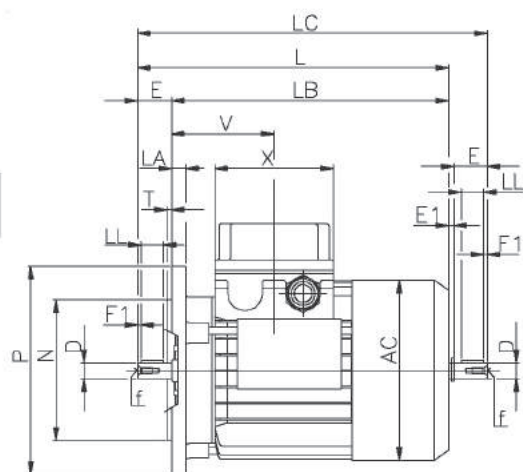
P _n [kW]		n _n [min ⁻¹]	I _n 230V [A]	M _n [Nm]	η _n %	cosφ _n	C _r μF	M _S M _n	I _S I _n	M _{max} M _n	J _T 1) 2) 10 ⁻⁴ Kg m ²		m _T 1) 2) [Kg]		M _B [Nm]
0.12	63A4	1420	1.3	0.81	48	0.88	6.3/12.5	2.4	3.3	2.4	2.8	3.4	4.2	5.7	1.8
0.18	63B4	1400	1.6	1.23	57	0.90	08/16	2.3	3.2	1.9	3.5	4.1	4.8	6.3	3.5
0.25	71A4	1340	2.1	1.78	59	0.94	10/20	2.5	3.0	1.7	8.6	9.7	5.9	8.1	5
0.37	71B4	1360	2.8	2.6	61	0.95	14/25	2.3	3.2	1.6	10.8	11.9	6.7	8.9	7.5
0.55	80A4	1400	3.8	3.8	64	0.98	20/40	2.4	4.2	1.9	25	26.6	10.1	13.6	10
0.75	80B4	1400	5.1	5.1	65	0.98	25/50	2.3	4.0	1.9	31	32.6	11.5	15	15
1.1	90S4(*)	1370	7.7	7.7	69	0.91	30/80	2.3	3.4	1.7	30	33.5	13.5	17	13
1.5	90L4(*)	1350	9.3	10.6	72	0.96	40/125	2.3	3.9	1.6	38	41.5	16.5	22.1	26
2.2	100LB4(*)	1400	13.2	15.0	72	0.95	50/150	2.4	4.0	1.5	72	75.5	22.8	28.4	40

HSE
6 Poles(1000min⁻¹)
230V/50Hz

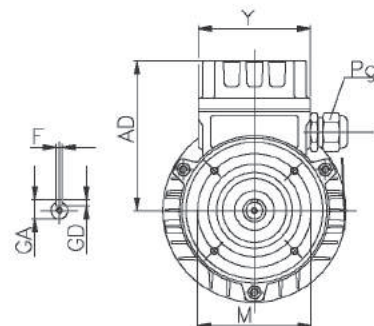
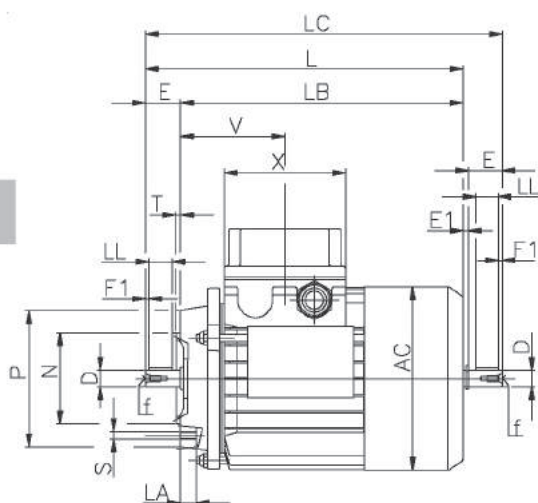
P _n [kW]		n _n [min ⁻¹]	I _n 230V [A]	M _n [Nm]	η _n %	cosφ _n	C _r μF	M _S M _n	I _S I _n	M _{max} M _n	J _T 1) 2) 10 ⁻⁴ Kg m ²		m _T 1) 2) [Kg]		M _B [Nm]
0.09	63A6	920	1.1	0.93	40	0.91	14/16	2.1	1.7	1.6	3.8	4.4	4.6	6.1	3.5
0.12	63B6	890	1.3	1.29	47	0.9	16/16	2.4	1.7	1.6	4.3	4.9	5.0	6.5	3.5
0.18	71A6	930	1.5	1.85	56	0.96	08/16	2.2	2.7	1.9	9.2	10.3	5.2	7.4	5
0.25	71B6	930	2.2	2.57	58	0.89	10/20	2.3	2.4	1.9	12	13.1	6	8.2	7.5
0.37	80A6	930	2.8	3.8	59	0.98	16/30	2.0	2.9	2	22	23.6	9.3	12.7	10
0.55	80B6	890	4.2	5.9	64	0.9	20/40	1.9	2.8	2.3	28	29.6	10.9	14.4	15
0.75	90S6	890	5.8	8.0	68	0.92	25/50	1.8	2.3	2.1	40	43.5	12.1	17.7	13
1.1	90L6	910	8.5	11.5	70	0.88	30/60	1.8	2.6	2.4	55	58.5	15	20.6	26
1.5	100LB6	880	12	16.3	72	0.9	40/80	1.6	2.8	2	88	91.5	24	29.6	40

T - D 치수 / Dimensions

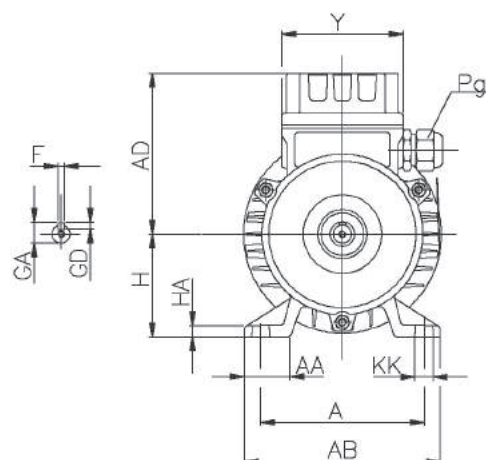
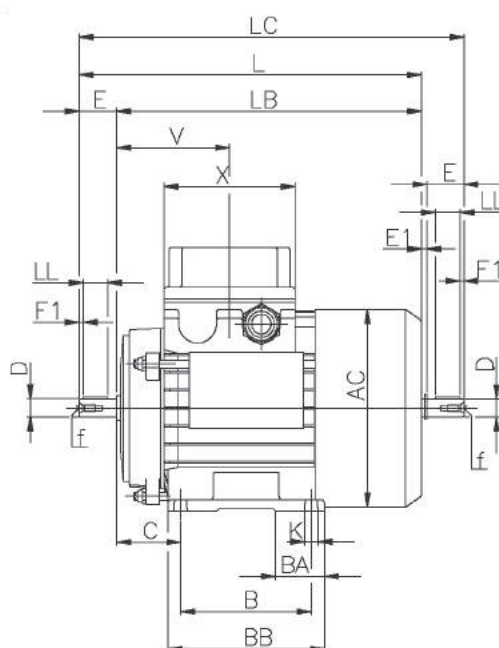
B5



B14



B3



Dimensions / 치수

T - D

	AC	AD	L	LB	LC	X	Y	V	D	E	E1	f	F1	GA	F	GD	LL	Pg	Ø	
																			min	max
63	121	103.5	211	188	235.5	80	74	69	11 j6	23	1.5	M4×10	2.5	12.5	4	4	15	M16×1.5	5	10
71	139	112	238.5	208.5	271	80	74	74.5	14 j6	30	2.5	M5×12.5	3	16	5	5	20	M20×1.5	6	12
80	158	121.5	272.5	232.5	314	80	74	78	19 j6	40	1.5	M6×16	5	21.5	6	6	30	M20×1.5	6	12
90S	173	129.5	298	248	349.5	98	98	89.5	24 j6	50	1.5	M8×19	5	27	8	7	35	M25×1.5	9	17
90L	173	129.5	323	273	374.5	98	98	89.5	24 j6	50	1.5	M8×19	5	27	8	7	35	M25×1.5	9	17
100	191	138.5	368	308	431.5	98	98	97.5	28 j6	60	2.5	M10×22	7.5	31	8	7	45	M25×1.5	9	17
112	210.5	153.5	382.5	322.5	447	98	98	100	28 j6	60	1.5	M10×22	7.5	31	8	7	45	M25×1.5	9	17
132S	248.4	194	452	372	536.5	118	118	115.5	38 k6	80	4	M12×28	10	41	10	8	60	M32×1.5	11	21
132M/L	248.4	194	490	410	574.5	118	118	115.5	38 k6	80	4	M12×28	10	41	10	8	60	M32×1.5	11	21

B5	M	N	P	LA	S	T
63	115	95 j6	140	9.5	9	3
71	130	110 j6	160	10	9.5	3.5
80	165	130 j6	200	12	11	3.5
90	165	130 j6	200	12	11	3.5
100	215	180 j6	250	15	14	4
112	215	180 j6	250	14.5	14	4
132	265	230 j6	300	20	14	3.5

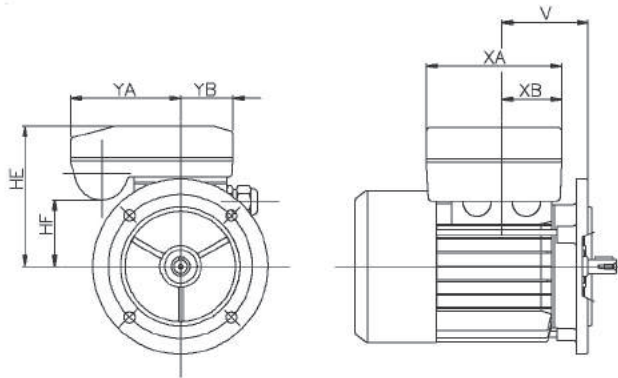
B14	M	N	P	LA	S	T
63	75	60 j6	90	10.5	M5	2.5
71	85	70 j6	105	10.5	M6	2.5
80	100	80 j6	120	10.5	M6	3
90	115	95 j6	140	11.5	M8	3
100	130	110 j6	160	15	M8	3.5
112	130	110 j6	160	11.5	M8	3.5
132	165	130 j6	200	20.5	M10	3.5

B3	A	AA	AB	KK	B	BB	BA	K	C	H	HA
63	100	28	120	10.5	80	96	30	7.5	39	63	7
71	112	30.5	135	12.5	90	112	31	7.5	44	71	8
80	125	33.5	153	13.5	100	124	32	9.5	49	80	9.5
90S	140	42	172	13.5	100	127	33.5	10	54	90	10.5
90L	140	42	172	13	125	152	38.5	10	54	90	10.5
100	160	45	192	15.5	140	167	38.5	11.5	62	100	12.5
112	190	48	221	16	140	175	44	12.5	69	112	13.5
132S	216	54	260	21	140	182	46	12	87	132	16
132M/L	216	54	260	21	178	220	46	12	87	132	16

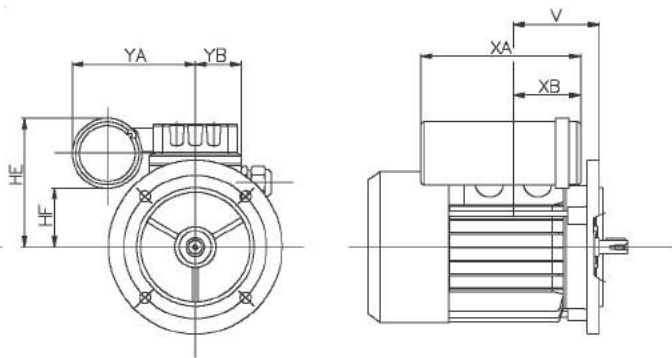
S

차수 / Dimensions

S - 063 / 071 / 080



S - 090 / 100

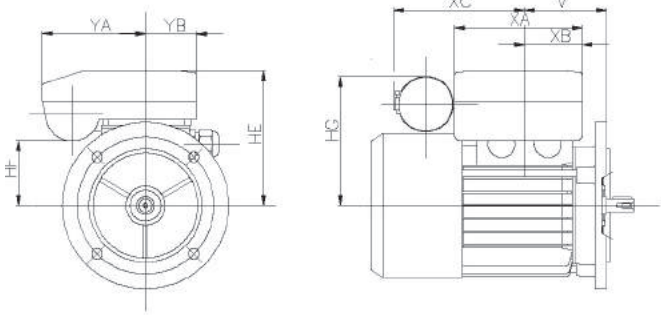


	V	YA	YB	HE	HF	XA	XB
63	69	88	43	118	58	108	48
71	74,5	88	43	127	67	108	48
80	78	88	43	136	76	108	48
90S/L	89,5	110,5	49	135	78,5	129	54
100	97,5	110,5	49	144	87,5	129	54

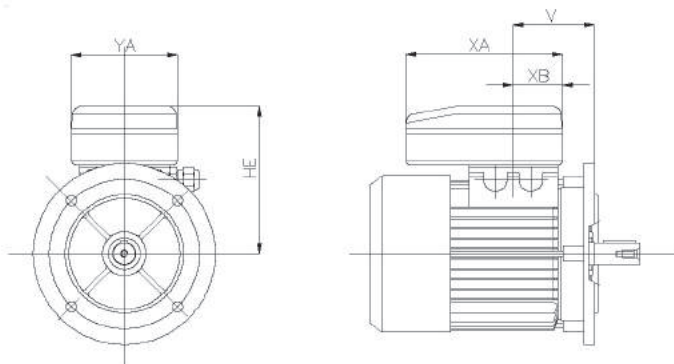
HSE

차수 / Dimensions

HSE - 063 / 071



HSE - 080 / 090 / 100



	V	YA	YB	HE	HF	XA	XB	XC
63	69	88	43	118	58	108	48	112
71	74,5	88	43	127	67	108	48	112
80	78	117	-	155	-	173	55	112
90S	89,5	117	-	163	-	173	55	-
90L	89,5	117	-	163	-	173	55	-
100	97,5	117	-	172	-	173	55	-

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