VSF SERIES

MOTOVARIO®

HEART OF MOTION

웜 기어드 모터

WORM GEARED MOTORS

NMRV®

NMRV POWER

KUKJE (주)국제산업기계
KUKJE INDUSTRIAL MACHINERY CORP.

www.kukje.com

MOTOVARIO®
HEART OF MOTION

MOTOVARIO® HEART OF MOTION SMARTBOX™ 기술이전

MAC 조립센터 인증 획득 !!

Helical bevel geared motors

Worm geared motors

차례

KO

제품설명

Contents

UK

Informations

사용기호

KO

(P)	=	Power(kW)	=	동력
(M)	=	Torque(Nm)	=	토오크
(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)
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(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

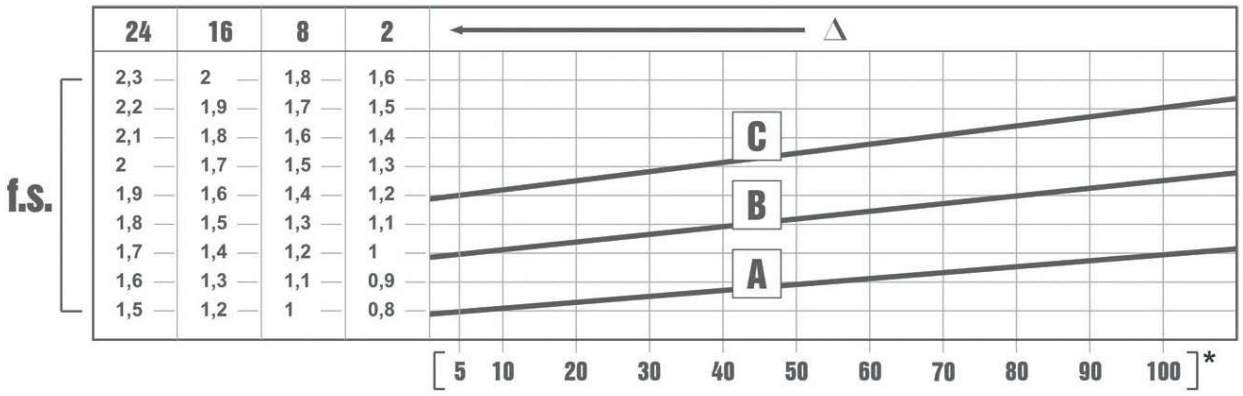
Specification

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)

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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 (⊿)
– 시동 빈도 : 시동 횟수/시간 (*)

부하종류 : A – 균일하중
진동이 없는 기계 fa ≤ 0.3
B – 경하중 fa ≤ 3
C – 중하중 fa ≤ 10

fa = Je/Jm
– Je (kgm²) 구동축에서 감소된 외부 관성모멘트
– Jm (kgm²) 모터의 관성모멘트
fa 〉 10의 경우, 당사에 기술서비스 지원을 요청하도록 한다.

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

B – 권선기, 목공기계 투입기, 화물용승강기, 밸런서, 나사 절삭기, 중형 믹서, 중량 자재용 컨베이어, 윈치, 슬라이딩 도어, 비료혼합기, 포장기, 콘크리트믹서, 크레인 구조물, 밀링 커터, 톰슨기, 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 (⊿)
- start - up frequency : starts / hour (*)

LOAD : **A** - uniform fa ≤ 0.3
B - moderate shocks fa ≤ 3
C - heavy shocks fa ≤ 10

fa = Je / Jm
- Je (kgm²)moment of reduced external inertia at the drive - shaft
- Jm (kgm²)moment of inertia of motor If fa ≤ 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
V5 – V1 : 1500 〈 n1 〈 3000	–
n1 〉 3000	B
V3 – V6	B

HW + NMRV-P	030+063	030 + 075	040 + 090	040 + 110
V5 : 1500 〈 n1 〈 3000	B	B	B	B
n1 〉 3000	A	A	A	A
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

카달로그에 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 발생되는 상황에서 사용되는 경우
– 리프팅 윈치로 사용되는 경우
– 감속기와 관련하여 높은 동적 변형이 발생되는 상황에서 사용되는 경우
– 주변온도가 –5℃ 이하 또는 40℃를 초과하는 상태에서 설치되는 경우
– 화학적 부식등 열악한 환경에서 사용되는 경우
– 카달로그에 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 견딜수 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 시동하는 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 접착되는 현상이 발생될 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℃ 또는 〉+40℃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. 눌러붙음 현상이나 산화현상을 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.
- 구동자치 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° C> +40° C call the Technical Service.
- The various parts (pulleys, gear wheels, couplings, shafts, etc.) must be mounted on the solid of 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 카달로그의 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.

$$Fre = \frac{2000 \cdot M \cdot fz}{D} \leq Fr_1 \text{ o } Fr_2$$

Fre (N) 레이디얼 하중 결과치
M (Nm) 샤프트 상의 토크(Torque)
D (mm) 샤프트 상에 장착된 풀리, 기어등의 직경
Fr (N) 최대 허용 레이디얼 하중 값
Fr1 – Fr2 (관련 도표 참조 요)
Fz = 1,1 기어 피니언
1,4 체인 휠
1,7 V – 풀리
2,5 평 풀리

레이디얼 하중의 결과 값이 샤프트의 중심선 상에서 적용되지 않는 경우, 허용 레이디얼 하중 Fr1 – 2를 아래 공식에 따라 조정하도록 한다.

$$Frx = \frac{Fr_{1\text{-}2} \cdot a}{(b+x)}$$

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 trducer 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 fo the case. Particular conditions of radial load higher than the limits of the catalogue may occur. In this case, call oru Technical Sevice 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:

$$Fre = \frac{2000 \cdot M \cdot fz}{D} \leq Fr_1 \text{ o } Fr_2$$

Fre(N)	Resulting radial load
M(Nm)	Torque on the shaft
D(mm)	Diameter of the transmission member mounted on the shaft
Fr(N)	Value of the maximum admitted radial load
Fr1 - Fr2	(see relative tables)
fz = 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 Fr1-2 with the following formula:

$$Frx = \frac{Fr_{1\text{-}2} \cdot a}{(b+x)}$$

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

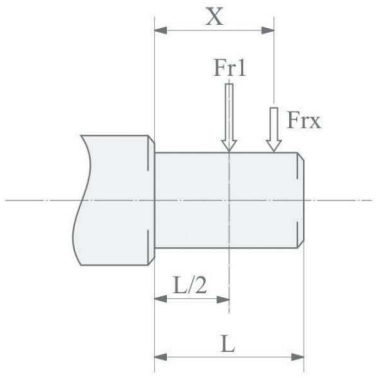
KO

입력 레이디얼 하중이 샤프트 중심선상에 있지 않을 경우, 입력 레이디얼 하중 Fr1은 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 Fr1 with the following formula:



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

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 레디얼 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

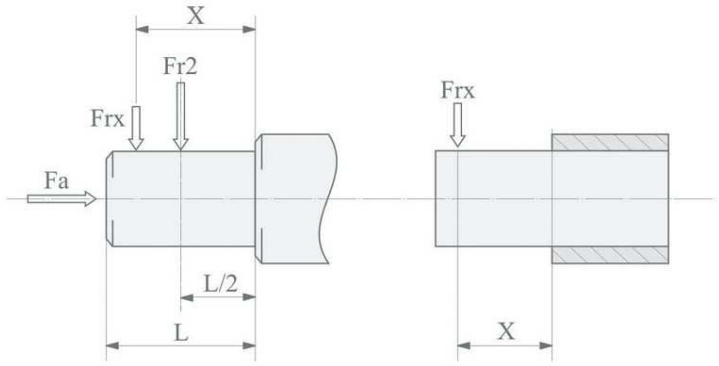
KO

출력 레이디얼 하중이 샤프트 중심선상에 있지 않을 경우, 출력 레이디얼 하중 Fr2는 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 Fr2 with the following formula:



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

(**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 fitled 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 고객사의 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℃ 이하이거나, 60℃ 를 초과하는 경우, 특수 재질의 오일 실을 사용할 필요가 있다.
주변 온도가 0℃ 이하인 경우의 작동범위와 관련하여, 다음 사항들을 고려할 필요가 있다.

1. 모터는 반영된 주변 온도 하에서 작동하기에 적합하여야 한다.
2. 모터의 동력은 높은 시동토오크가 요구되는 경우에도 사용할 수 있어야 한다.
3. 주철 형태의 감속기인 경우, 주철은 –15℃ 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 to 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 sutiable 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 untit 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	TELIUM 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.

다이케스트 알루미늄 알로이 케이스
다이케스팅 재질은 아래와 같은 표면 세척 공정을 거친다.
– 기계적 세링시스템에 의한 귀따기(De–burring)공정
– 정교한 숏 피닝(shot–peening)
– 도장 공정
– 세광 및 표탐처리(passivation)공정

회주철(Grey–Coloured Cast–iron)케이스
– 다이케스팅 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 미크론)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

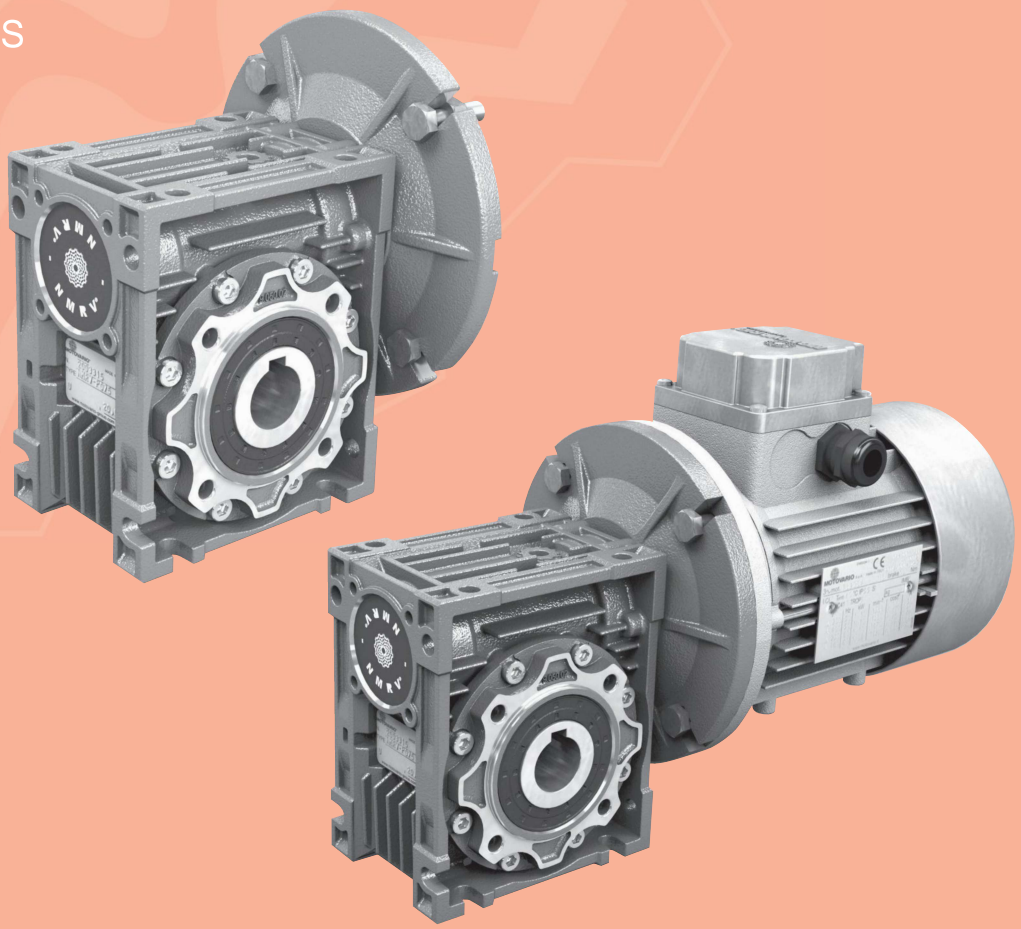
Motovario products are supplied with the following suface treatment features:
Die-cast aluminium alloy cases for gears
Die-cast materials undergo the following surface cleaning operations:
- Die-burring by means of a mechanically operated shearing system
- Accurate shot-peening. - Painting
- Washing 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

VSF SERIES



MOTOVARIO®

HEART OF MOTION

명칭 / Designation

NMRV	050	FA	30	160×14	VS	125	25	B3	···
NMRV	025	FA	5	PAM				B3	
NRV	030	FB	7,5	ECE				B8	
	040	FC	10					B6	
	050	FD	15					B7	
	063	FE	20					V5	
	075		25					V6	
	090		30						
	105		40						
	130		50						
	150		60						
			80						
			100						

기어박스 타입
Gearbox type

사이즈
Size

출력프랜지
Output flange

감속비
Reduction ratio

입력 사이즈
Input dimensions

모터취부용 커플링
Fitted for motor coupling
P (PAM)
(160x14)

입력 샤프트 직경
Input shaft diameter
E (ECE)
(28)

양축 입력 샤프트
Double input shaft

Ø 출력프랜지
Ø Output flange

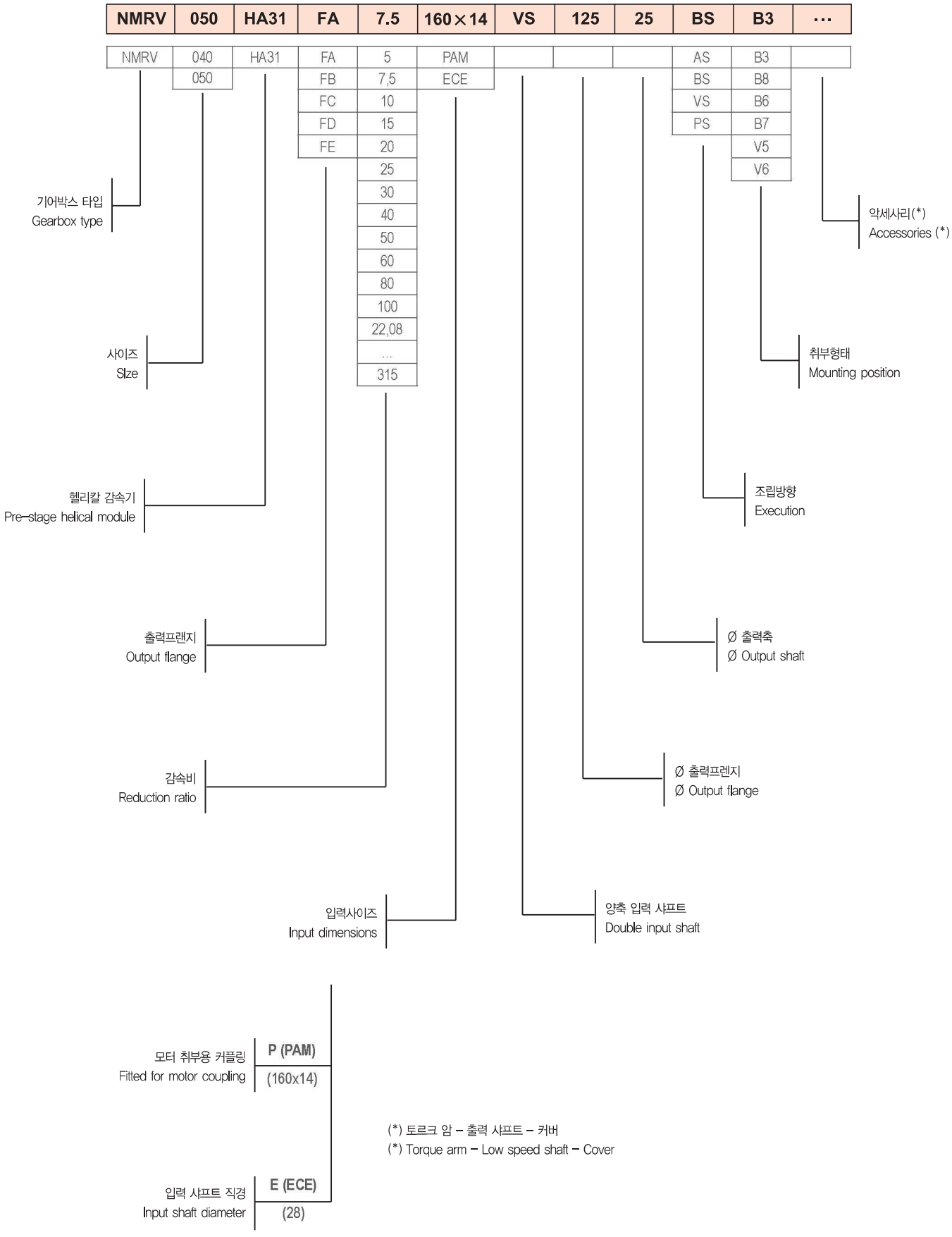
Ø 출력축
Ø Output shaft

취부형태
Mounting position

악세사리(*)
Accessories (*)

(*) 토르크 암 – 출력 샤프트 – 커버
(*) Torque arm – Low speed shaft – Cover

명칭 / Designation



명칭 / Designation

NMRV+NMRV	050+105	FA	900	160×14	40	BS1	B3

- **NMRV+NMRV**
  - NMRV+NMRV
  - NRV+NMRV
- **050+105**
  - 025+030
  - 025+040
  - 030+040
  - 030+050
  - 030+063
  - 040+075
  - 040+090
  - 050+105
  - 063+105
  - 063+130
  - 063+150
- **FA**
  - FA
  - FB
  - FC
  - FD
  - FE
- **900**
- **160×14**
  - PAM
  - ECE
- **40**
- **BS1**
  - AS1
  - AS2
  - BS1
  - BS2
  - VS1
  - VS2
  - PS1
  - PS2
- **B3**

기어박스 타입
Gearbox type

2단 기어드 모터
Combined geared motor

2단 감속기
Combined gear reducer

사이즈
Size

출력프랜지
Output flange

감속비
Reduction ratio

입력 사이즈
Input dimensions

P(PAM)
(160×14)
모터 취부용 커플링
Fitted for motor coupling

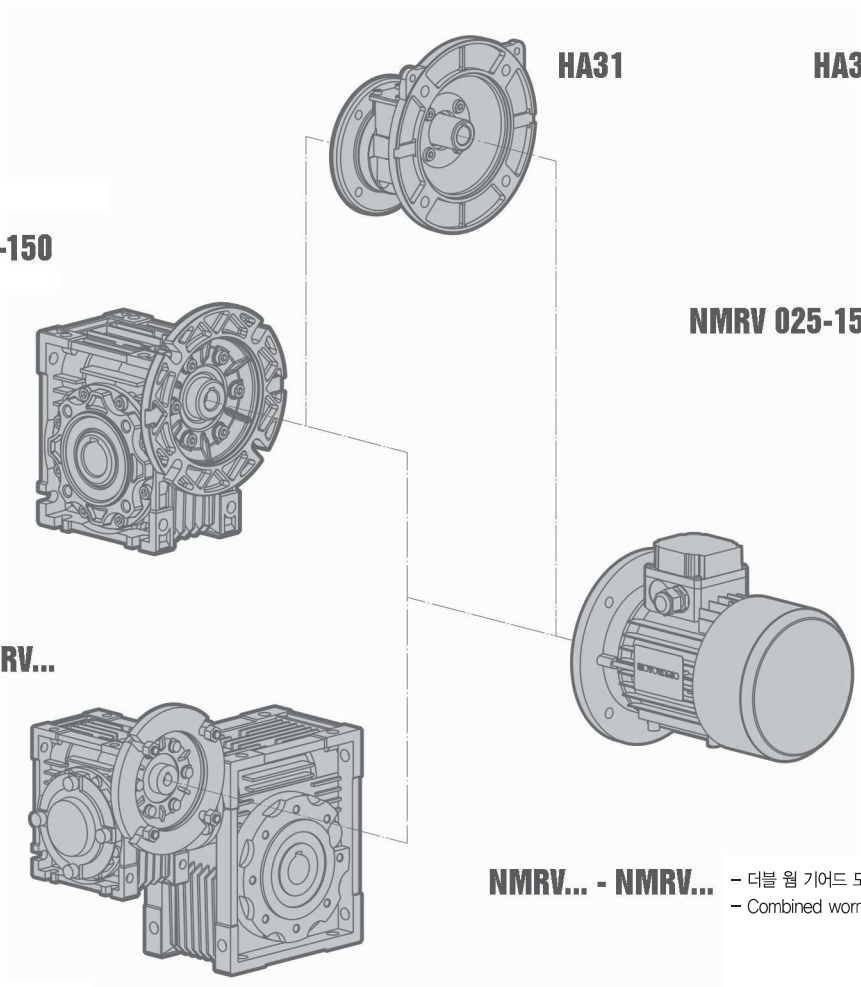
E(ECE)
(28)
입력 샤프트 직경
Input shaft diameter

Ø 출력축
Ø Output shaft

조립방향
Execution

취부형태
Mounting position

NMRV 모듈방식 / NMRV–Modularity

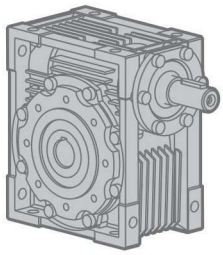


HA31 – Pre–stage 감속기(NMRV 040–050)
– Pre–stage reduction unit(NMRV 040–050)

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

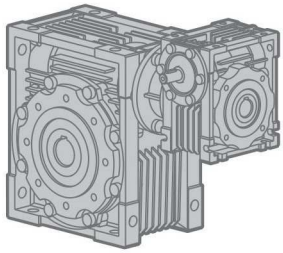
NMRV... - NMRV... – 더블 웜 기어드 모터
– Combined worm geared motor

NRV 030-150



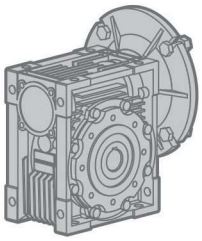
NRV 030-150 – 웜 기어 감속기
– Worm gear reducer

NRV-NMRV...

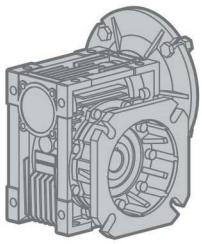


NRV... - NMRV... – 더블 웜 기어 감속기
– Combined worm gear reducer

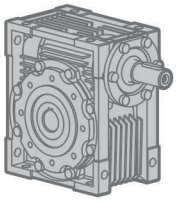
버전 / Versions



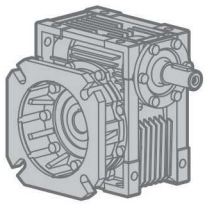
NMRV 025-150



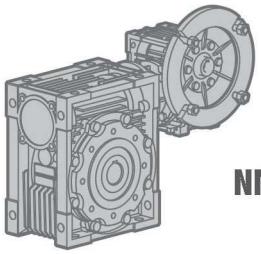
NMRV 025-150 F



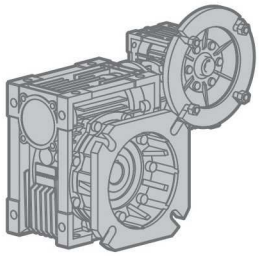
NRV 030-150



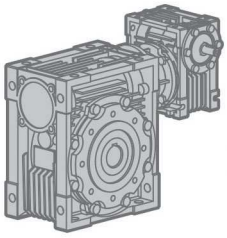
NRV 030-150 F



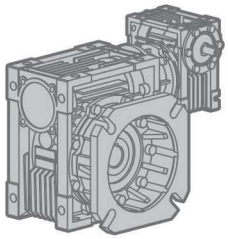
NMRV-NMRV...



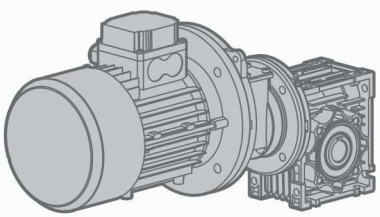
NMRV-NMRV... F



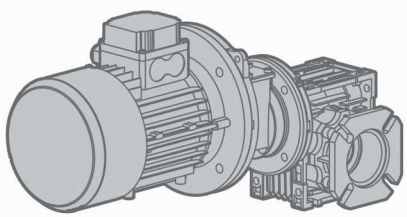
NRV-NMRV...



NRV-NMRV... F



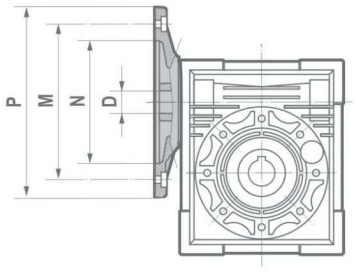
HA31+NMRV...



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(n1=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 ηd〈0.5의 동적 효율성을 필요로 한다.(20페이지 도표 참조)

정적 비역회전(Static Irreversibility)
정적 비역회전은(철회 불가능성), 감속기가 정지된 상태에서 출력 축에 대한 부하 적용이 동작중인 웜 샤프트에 대하여 설정되어 있지 않은 경우에 달성된다.
이러한 상황은 ηS〈0.5의 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 page20 shows dynamic efficiency(n1=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 $\eta d < 0.5$(see table on page 20).

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

비역회전 / Irreversibility

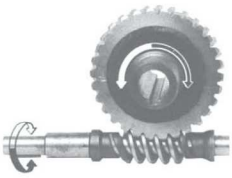
ηd	동적 비역회전	DYNAMIC IRREVERSIBILITY
〉0.6	동적역회전	dynamic reversibility
0.5÷0.6	낮은 동적역회전	low dynamic reversibility
0.4÷0.5	낮은 동적비역회전	good dynamic irreversibility
〈0.4	동적 비역회전	dynamic irreversibility

ηS	정적 비역회전	STATIC IRREVERSIBILITY
〉0.55	정적역회전	static reversibility
0.5÷0.55	낮은 정적역회전	low static reversibility
〈0.5	정적 비역회전	static irreversibility

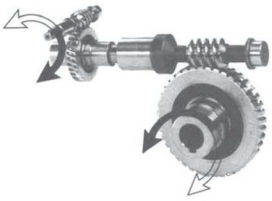
- 도표는 개략적인 비역회전 등급(Irreversibility Classes)을 제시한 것이다.
- The table shows approximate irreversibility classes.

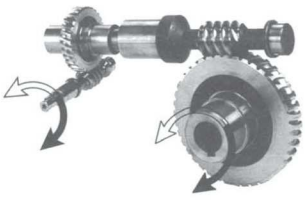
- 결속된 기어 감속기의 비역회전 상황은 가장 효율이 낮은 감속기에 의하여 주어진다.
- The irreversibility condition of combined gear reducers is given by the units with the lowest efficiency.

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.

메쉬데이타 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		
	ηd(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	
	ηd(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
	ηd(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
	ηd(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
	ηd(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
	ηd(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
	ηd(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
	ηd(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
	ηd(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
	ηd(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
Ø140프렌지로 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

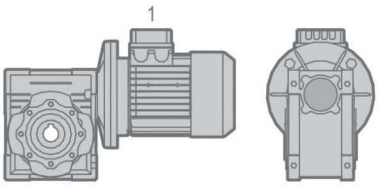
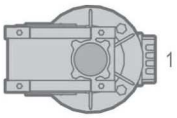
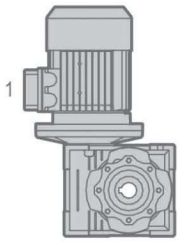
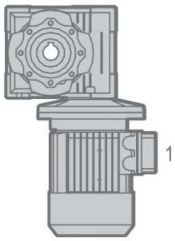
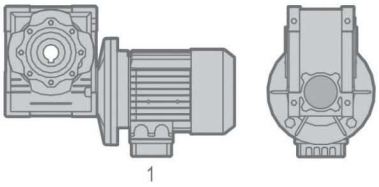
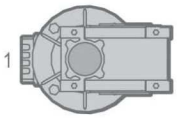
모터 없이 감속기를 공급받는 경우, 모터 취부를 정확히 하기 위해서
다음 사항을 따라야 합니다.
모터 축과 플랜지의 허용 오차가 IEC규격과 일치 하는지 확인합니다.
모터 축, spigot, 표면을 먼지나 페인트 흔적이 없도록 주의깊게 청소합니다.
모터 축에 슬리브를 장착할 때 과도한 힘에 의한 모터 축과 베어링에 손상이 가지 않도록 조립장비 사용이 필요합니다.
모터나 베어링에 손상이 가지 않도록 위해서 항상 올바른 방법으로 조립하고 사용한다.
모터 키 조정은 제공되지 않습니다.

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 reccomendations 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**		
			

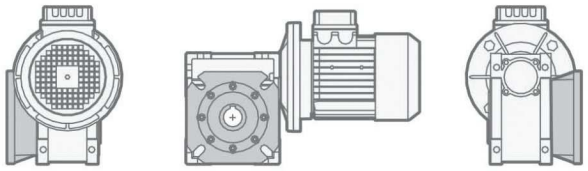
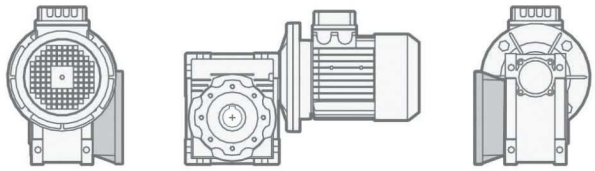
- " U " 버전은 NMRV 025–075 및 NRV 030–063의 사이즈와 연관되어 있다. 이러한 사이즈들의 경우, 취부방향을 반드시 지정할 필요는 없다.
- "U" version is related to sizes from NMRV 025-075 and NRV 030-063. For these sizes it is not necessary to specify mounting position.

- 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.

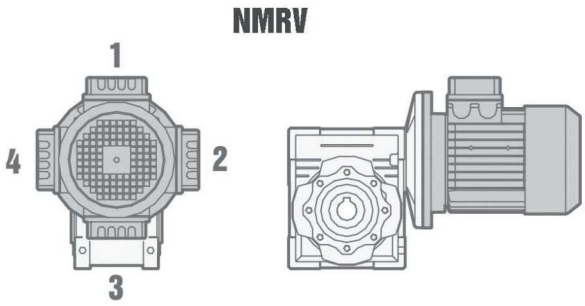
- 위치가 확정되지 않은 경우, 당사에 기술서비스 지원을 요청하도록 한다.
- For positions not envisaged, it is necessary to call our Technical Service.

Flange F–FL

D	S
	

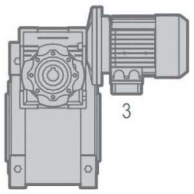
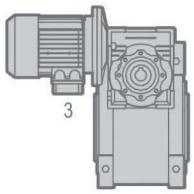
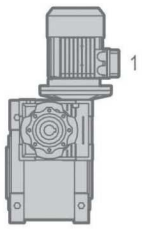
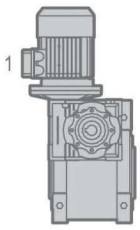
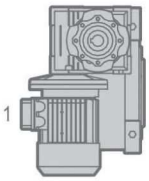
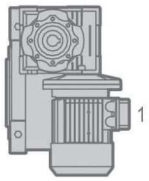
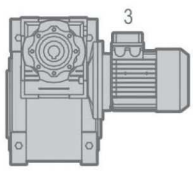
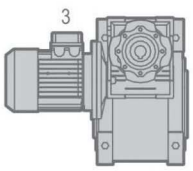
- 별도로 명시하지 않을 경우, 감속기는 B3에 대하여 명시된 위치 D에 플랜지가 설치되어 공급된다.
- Unless specified otherwise, the gear reducer is supplied with the flange in pos. D referred to position B3.

NMRV – 터미널 박스 위치 / Execution



- 별도로 명시하지 않을 경우, 1번으로 조립되어 제공된다.
- 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
			

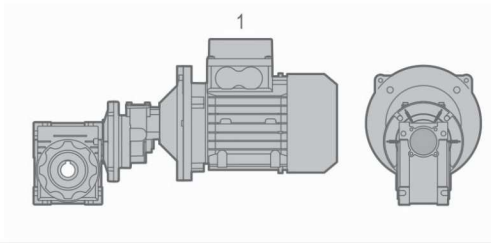
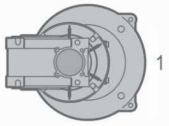
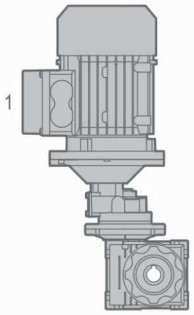
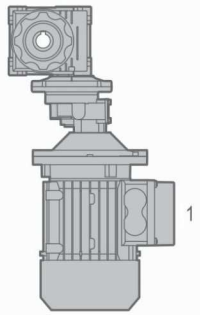
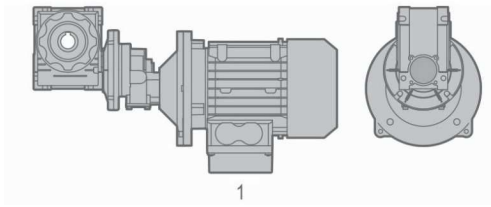
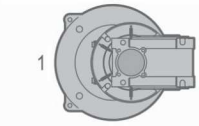
- 2차 기어 감속기와 관련한 1차 감속기의 위치는 버전에 따라 달라집니다.
- The position of the 1st reducer with respect to the 2nd gear reducer depend on the version.

- 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

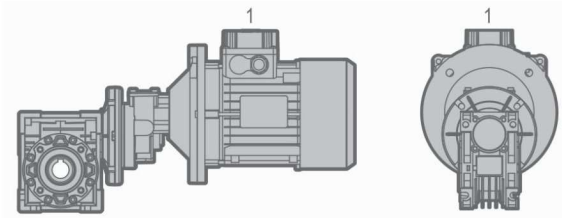
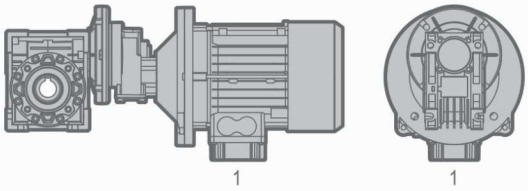
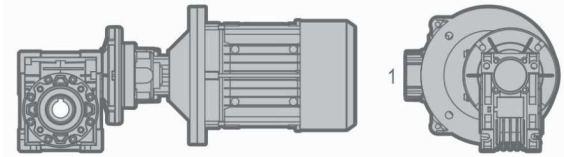
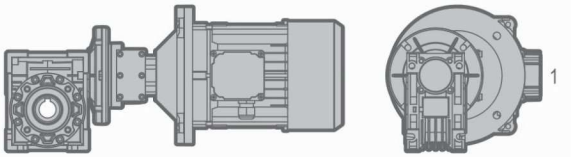
B3	B6	V5	V6
			
B8	**B7**		
			

– 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 모터 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		IEC	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		IEC	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

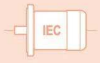
0,09kW

n2 [1/min]	M2 [Nm]	f.s.	i		IEC	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		IEC	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		IEC	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		IEC	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		IEC	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		IEC	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

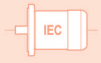
0,55kW

n2 [1/min]	M2 [Nm]	f.s.	i		IEC	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		IEC	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		IEC	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		IEC	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		IEC	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		IEC	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		IEC	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		IEC	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		IEC	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		IEC	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		IEC	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		IEC	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		IEC	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		IEC	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		IEC	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		IEC	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

NMRV

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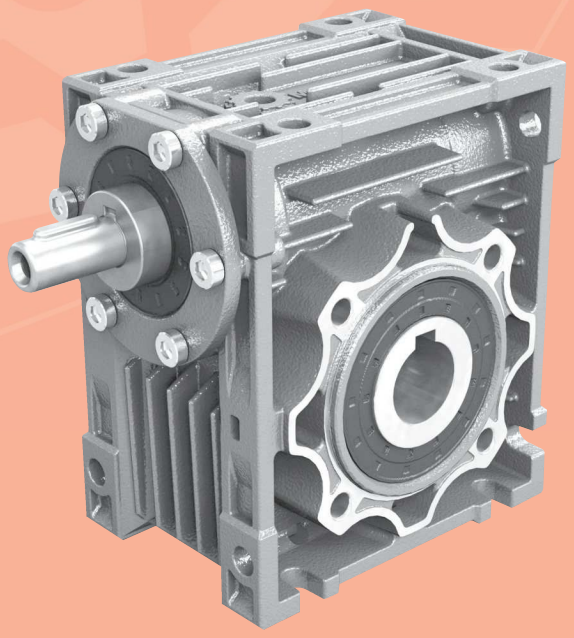
Worm geared motors

VSF SERIES



MOTOVARIO®

HEART OF MOTION

NRV 모터 용량에 따른 분류 / Performance(n1 = 2800rpm, Fs = 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(n1 = 2800rpm, Fs = 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(n1 = 1400rpm, Fs = 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(n1 = 1400rpm, Fs = 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

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

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

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

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

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(n1 = 900rpm, Fs = 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

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

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

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

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

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(n1 = 500rpm, Fs = 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(n1 = 1400rpm, Fs = 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(n1 = 1400rpm, Fs = 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

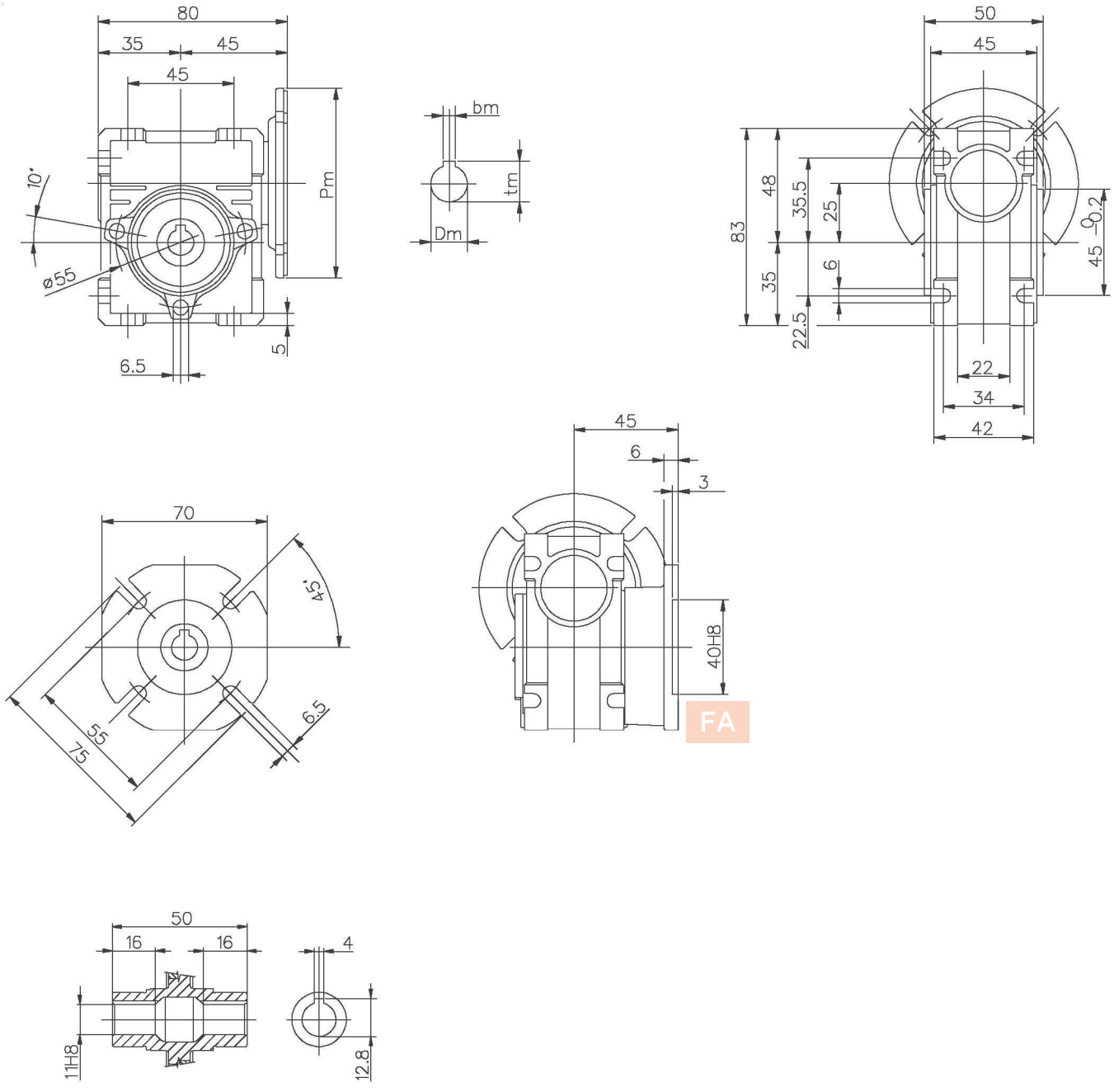
M2 [Nm]	i	P1 [kW]	n2 [1/min]	Fr2 [N]	Fr1 [N]
1760	300	1,45	4,7	13500	595
1650	400	1,07	3,5	13500	595
1550	500	0,84	2,8	13500	595
1650	600	0,74	2,3	13500	700
1760	750	0,65	1,9	13500	700
1760	900	0,57	1,6	13500	700
1650	1200	0,41	1,2	13500	700
1760	1500	0,38	0,9	13500	700
1760	1800	0,34	0,8	13500	700
1650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

NMRV

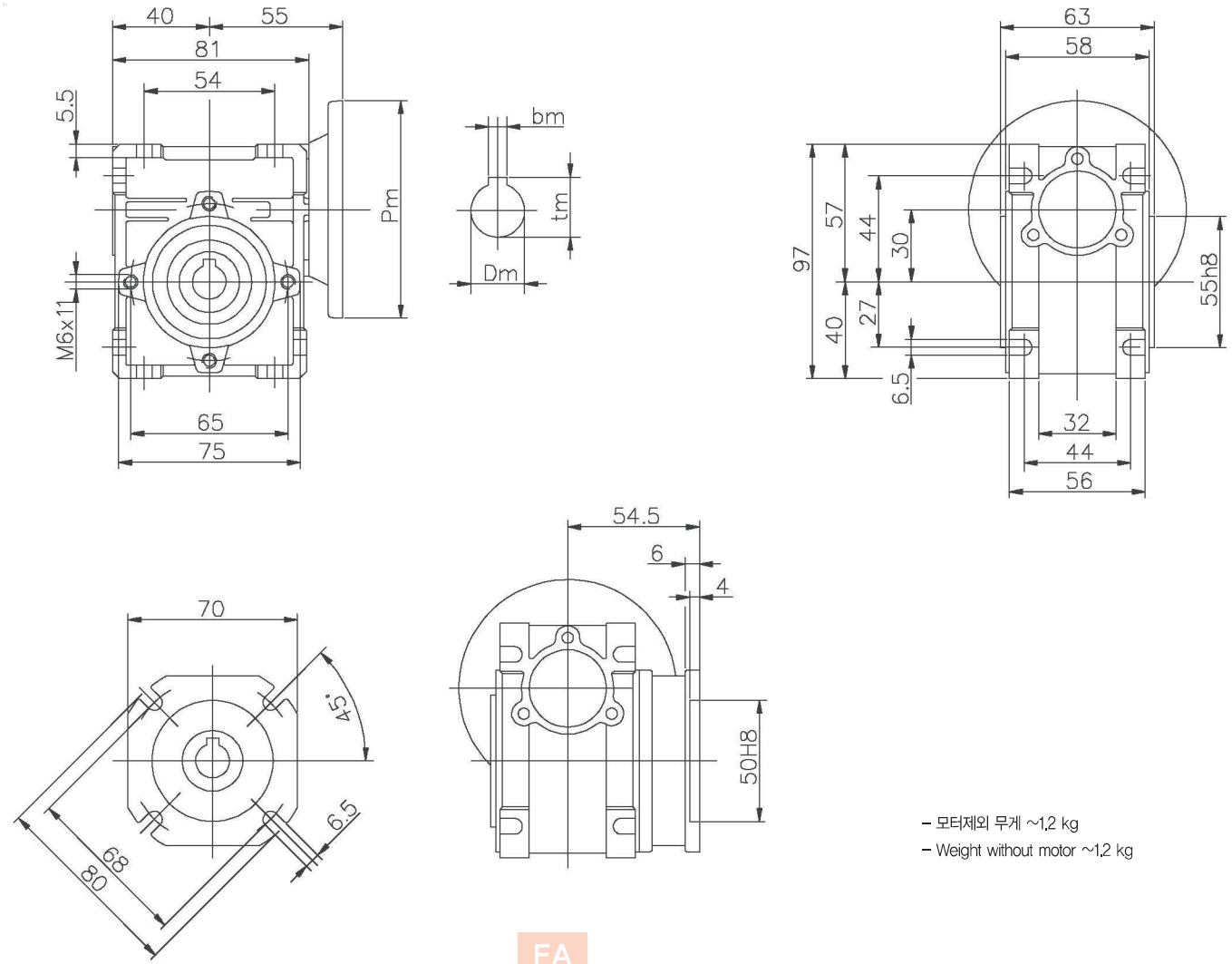


– 모터제외 무게 ~0.7 kg
– Weight without motor ~0.7 kg

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.

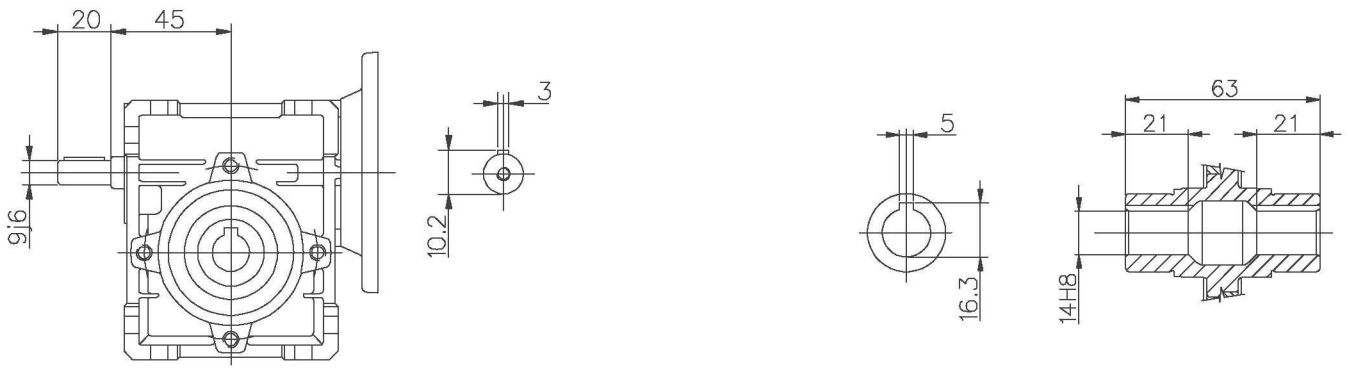
Dimensions / 치수 030

NMRV



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

FA

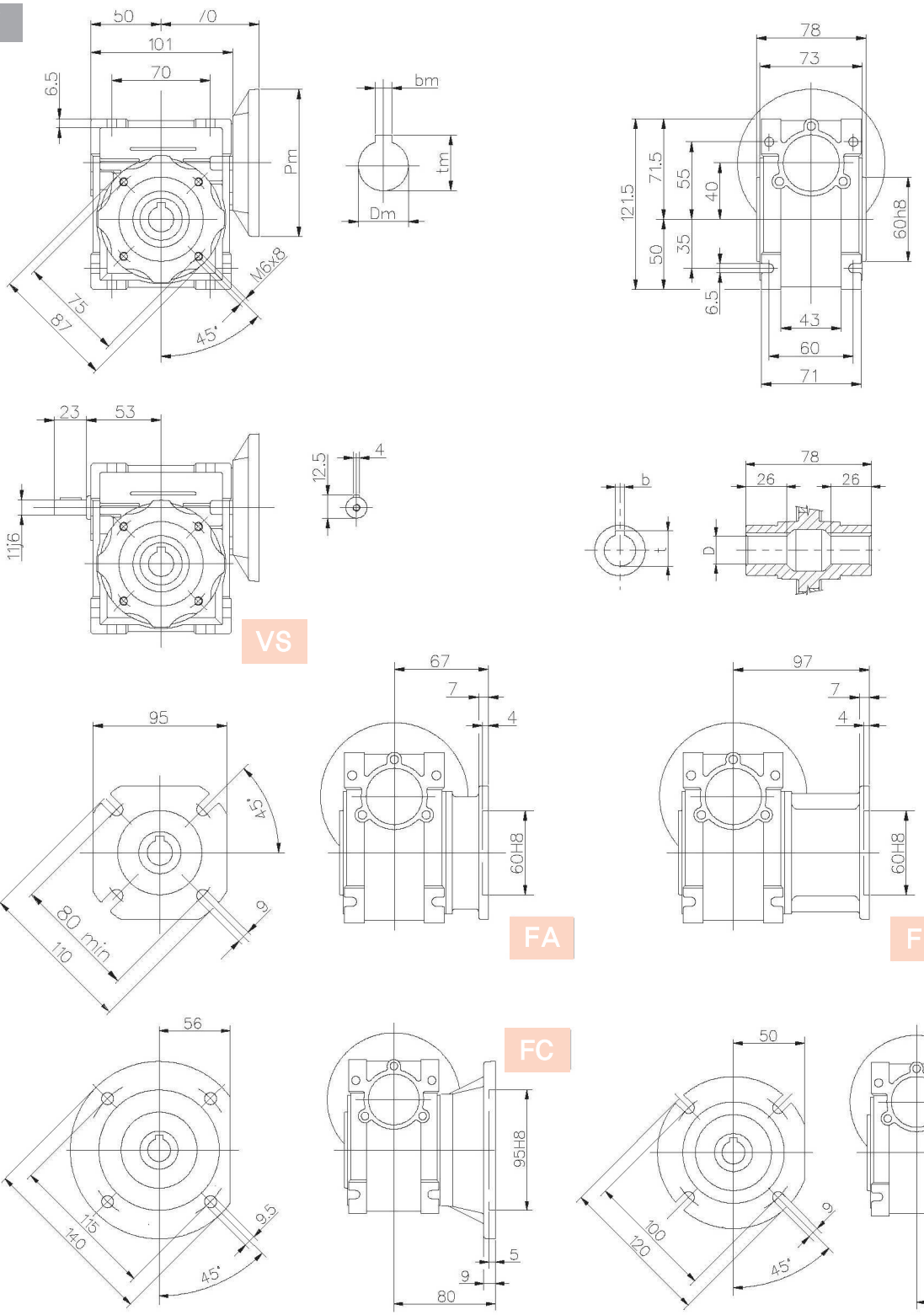


VS

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 치수 / Dimensions

NMRV



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

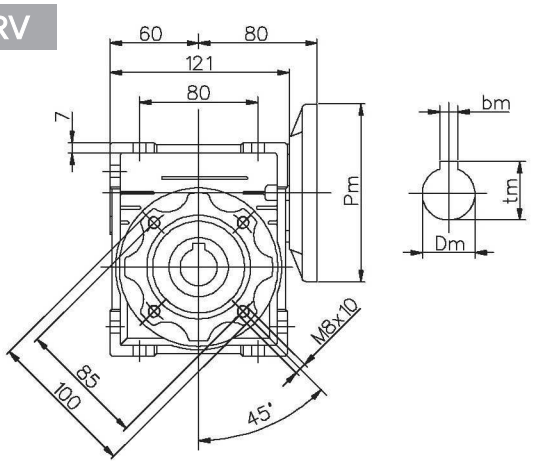
– 모터제외 무게 ~2.3 kg
– Weight without motor ~2.3 kg

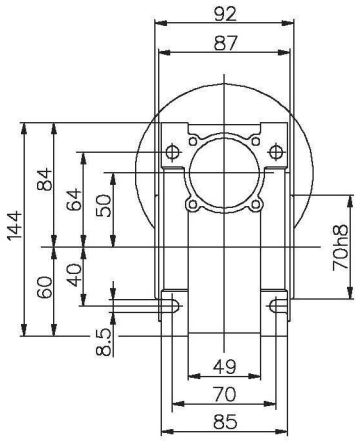
모터 결속부위 관련 치수(Pm, Dm, bm, tm)는 66페이지에 제시된 도표를 참조하도록 한다.
For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 66.

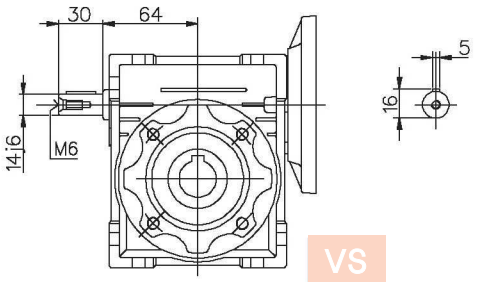
(..) 주문사항
(..) Only on request

Dimensions / 치수 050

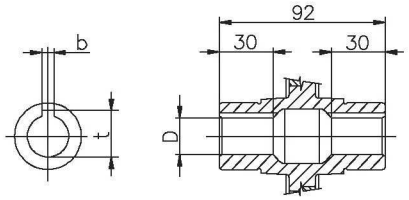
NMRV

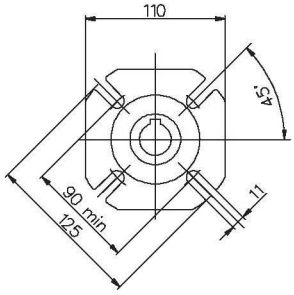


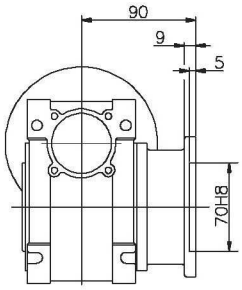




VS







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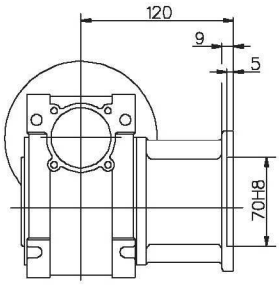
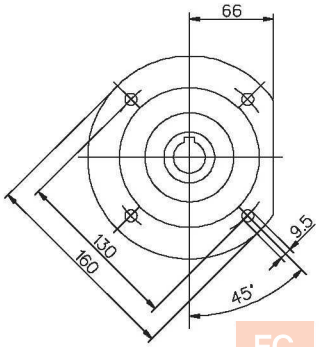


FB



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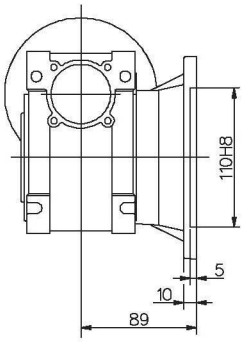
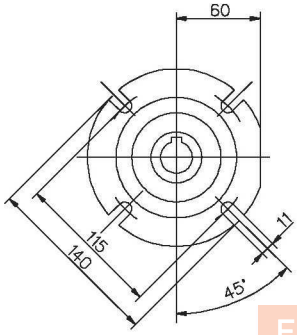
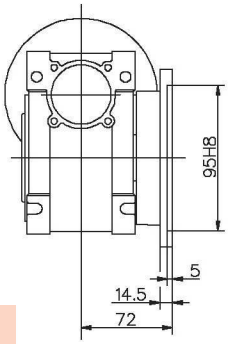






FD

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

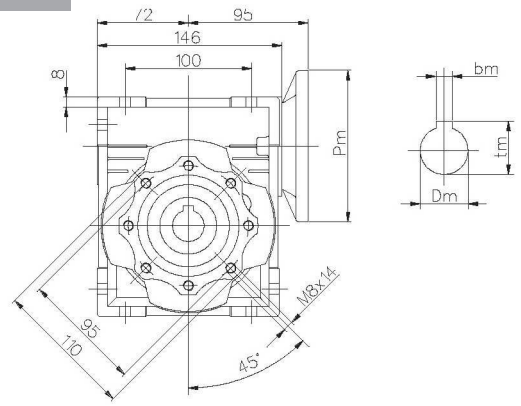
– 모터제외 무게 ~3.5 kg
– Weight without motor ~3.5 kg

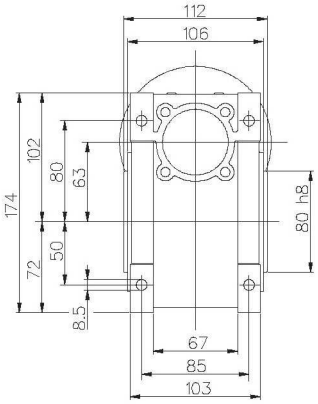
모터 결속부위 관련 치수(Pm, Dm, bm, tm)는 66페이지에 제시된 도표를 참조하도록 한다.
For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 66.

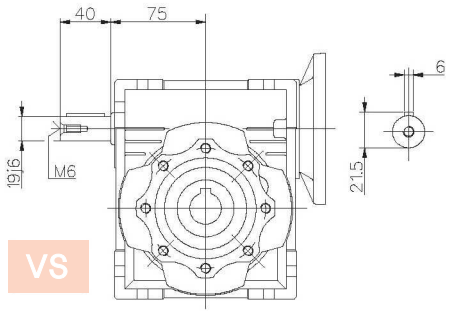
(..) 주문사항
(..) Only on request

063 치수 / Dimensions

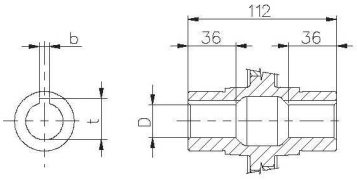
NMRV

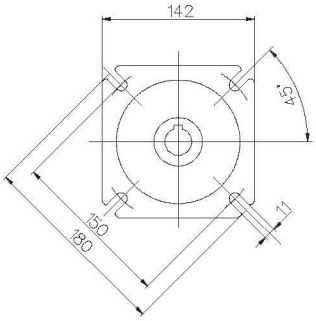


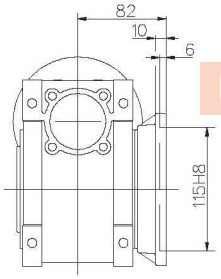




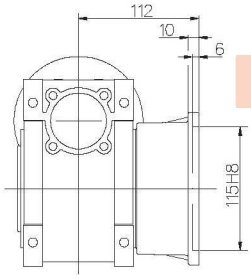
VS





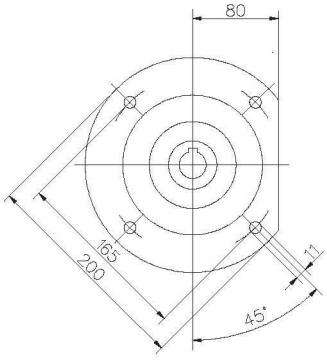


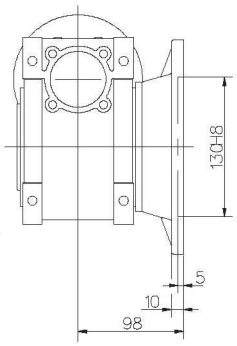
FA



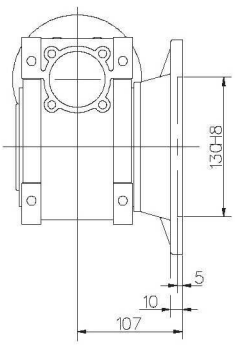
FB

FC

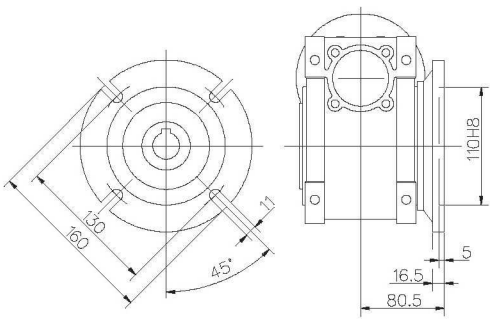




FD



FE



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

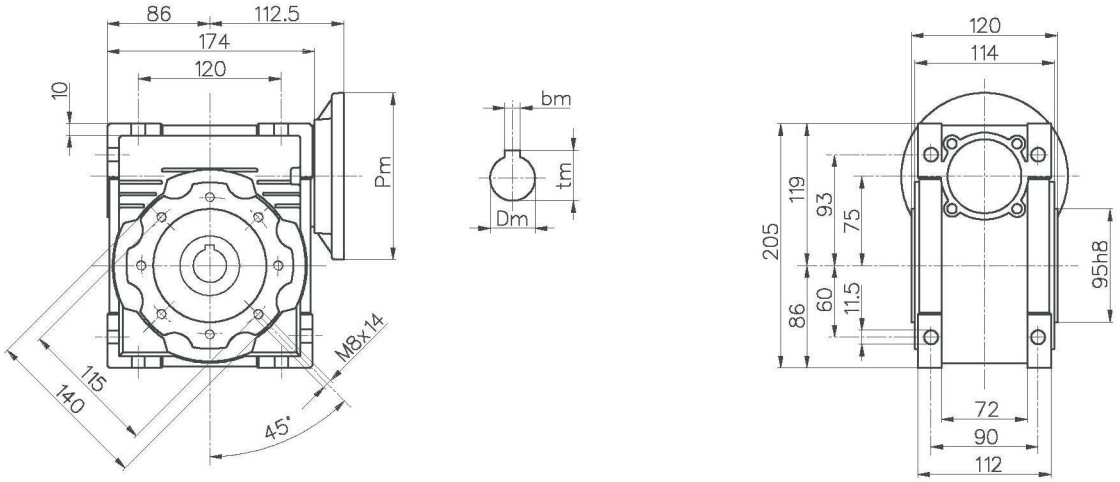
(..) 주문사항
(..) Only on request

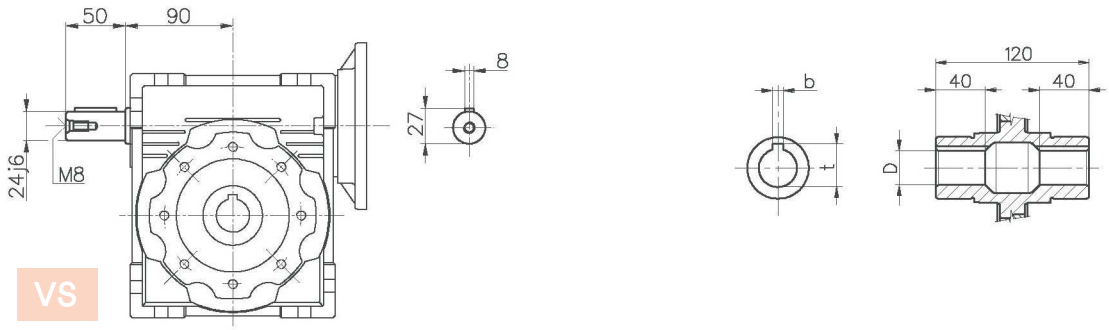
- 모터제외 무게 ~6.2 kg
- Weight without motor ~6.2 kg

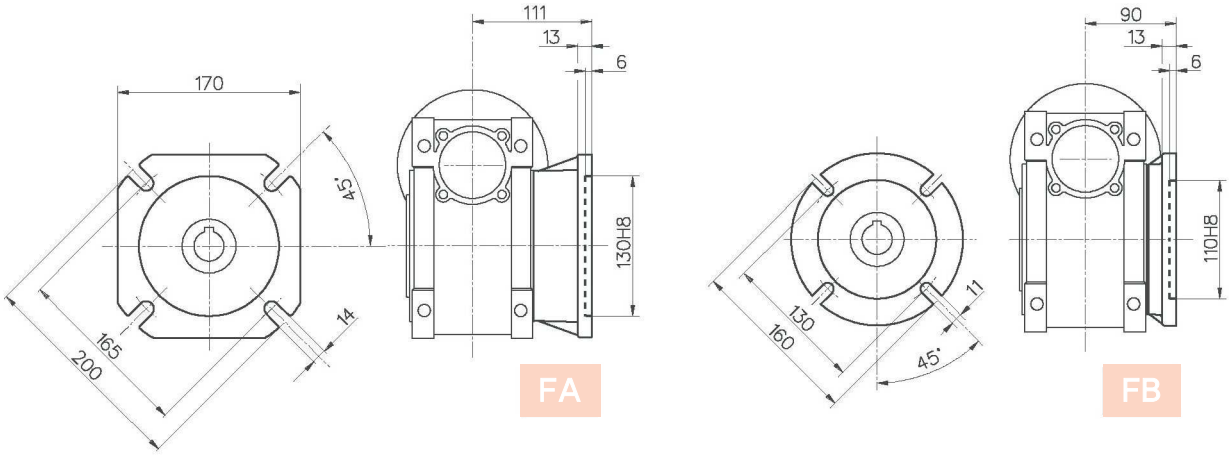
모터 결속부위 관련 치수(Pm, Dm, bm, tm)는 66페이지에 제시된 도표를 참조하도록 한다.
For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 66.

Dimensions / 치수 075

NMRV







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

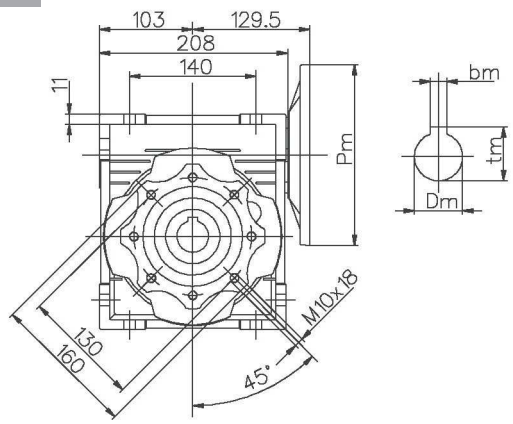
– 모터제외 무게 ~9 kg
– Weight without motor ~9 kg

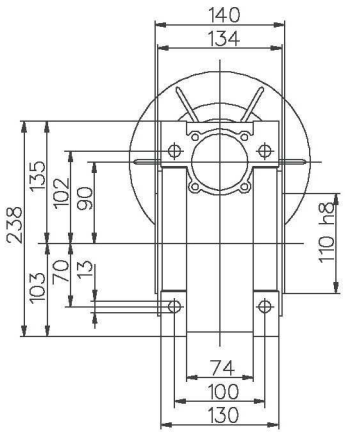
모터 결속부위 관련 치수(Pm, Dm, bm, tm)는 66페이지에 제시된 도표를 참조하도록 한다.
For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 66.

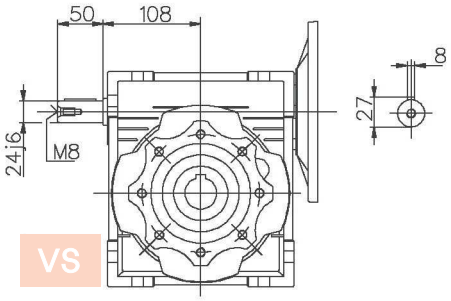
(..) 주문사항
(..) Only on request

090 치수 / Dimensions

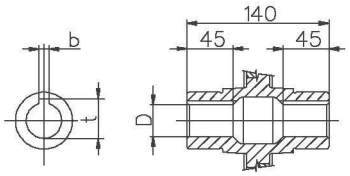
NMRV

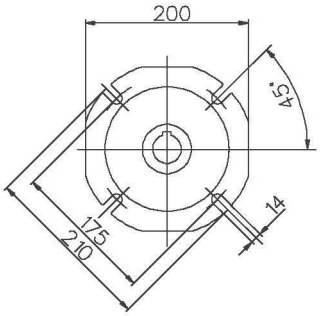


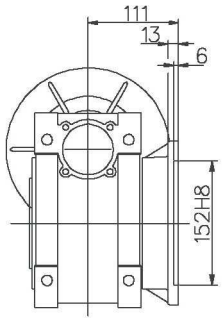




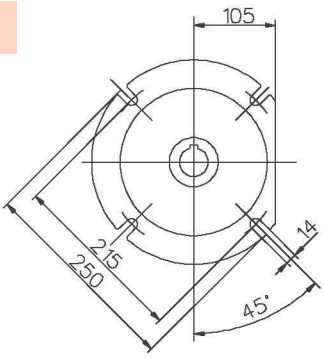
VS

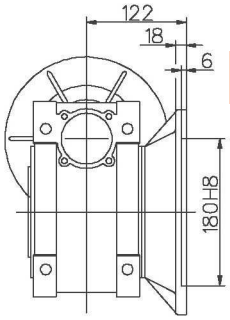




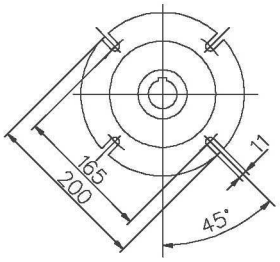


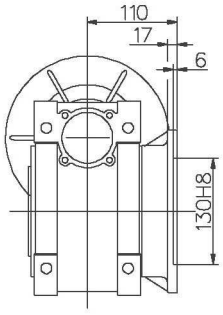
FA



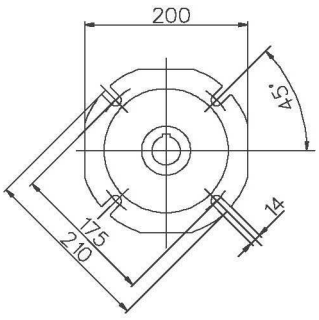


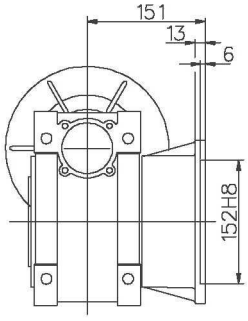
FB





FC





FD

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

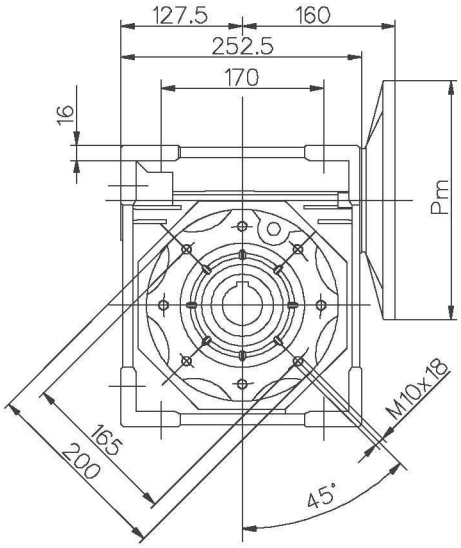
– 모터제외 무게 ~13 kg
– Weight without motor ~13 kg

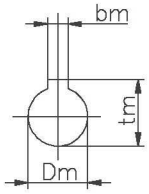
모터 결속부위 관련 치수(Pm, Dm, bm, tm)는 66페이지에 제시된 도표를 참조하도록 한다.
For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 66.

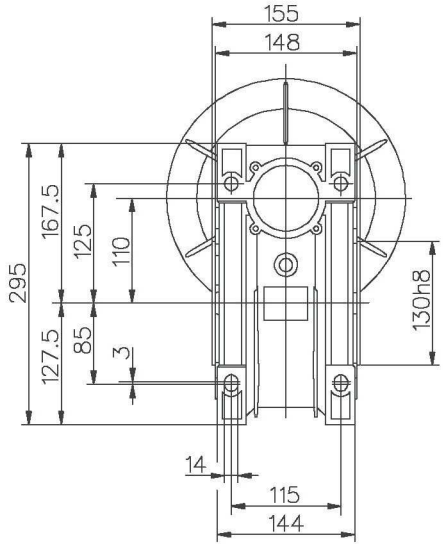
(..) 주문사항
(..) Only on request

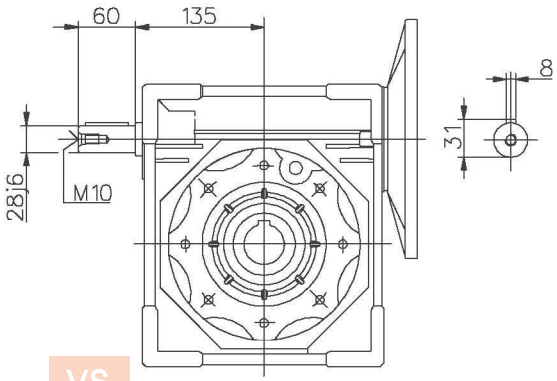
Dimensions / 치수 105

NMRV

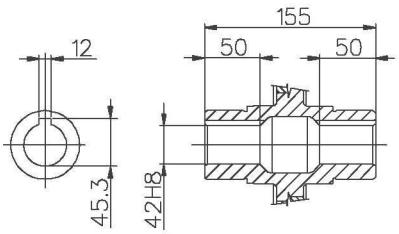


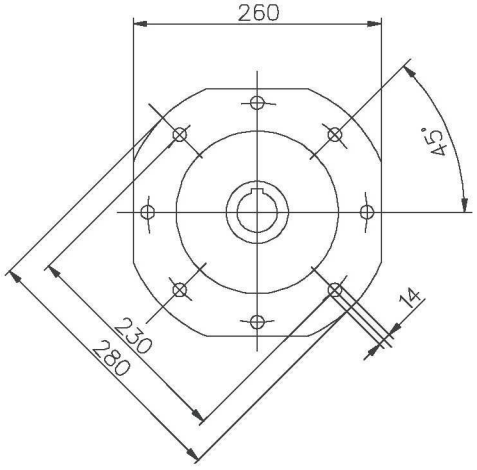


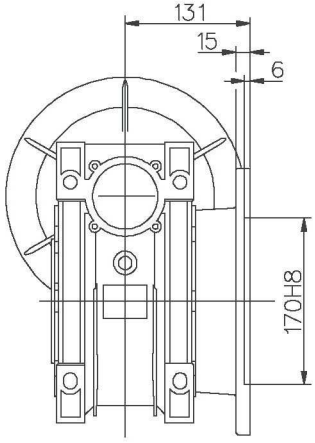




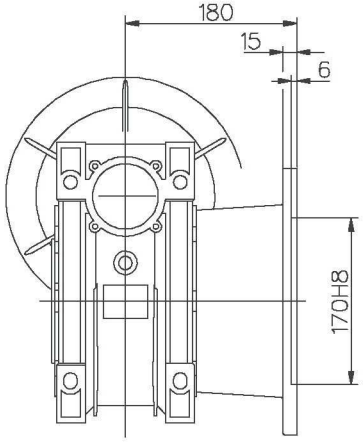
VS







FA



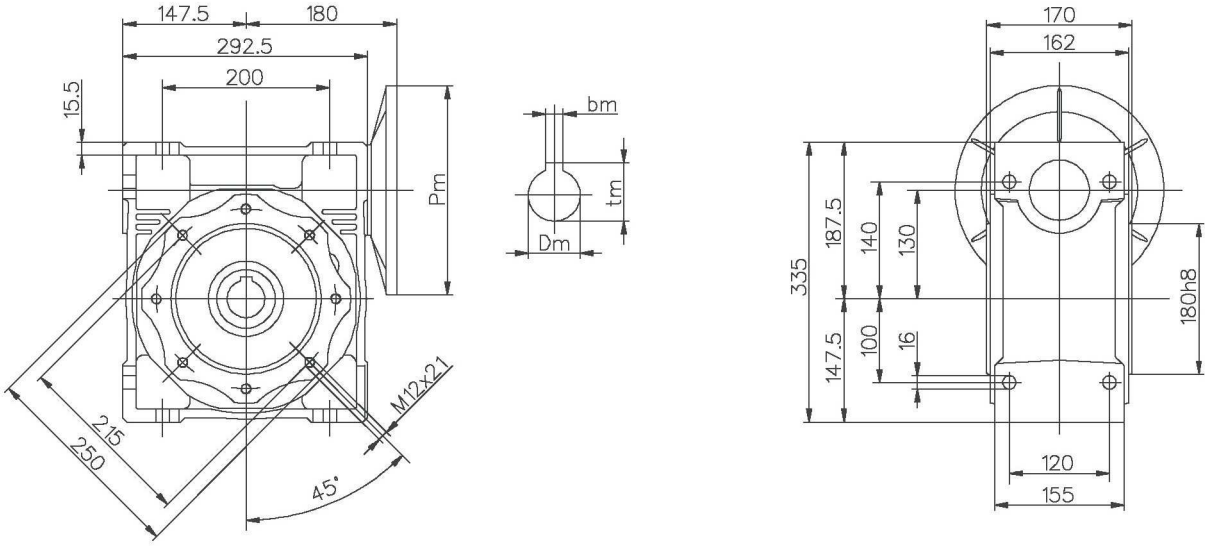
FB

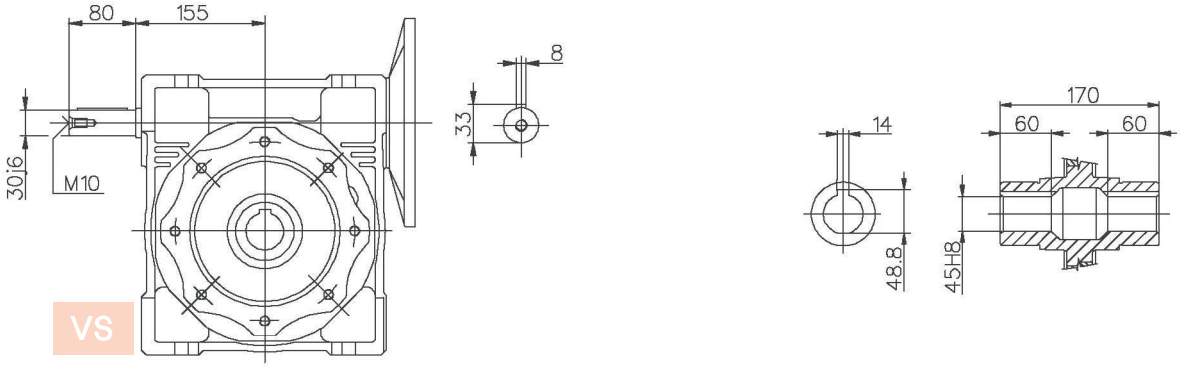
– 모터제외 무게 ~21 kg
– Weight without motor ~21 kg

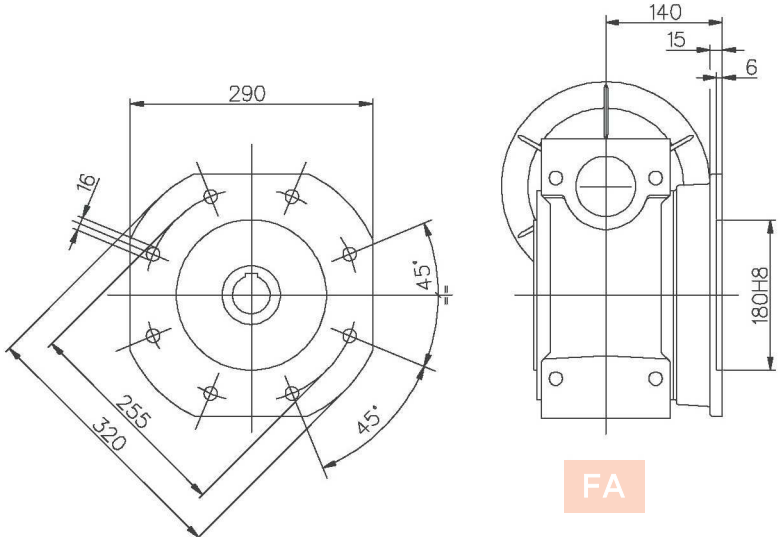
모터 결속부위 관련 치수(Pm, Dm, bm, tm)는 66페이지에 제시된 도표를 참조하도록 한다.
For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 66.

130 치수 / Dimensions

NMRV





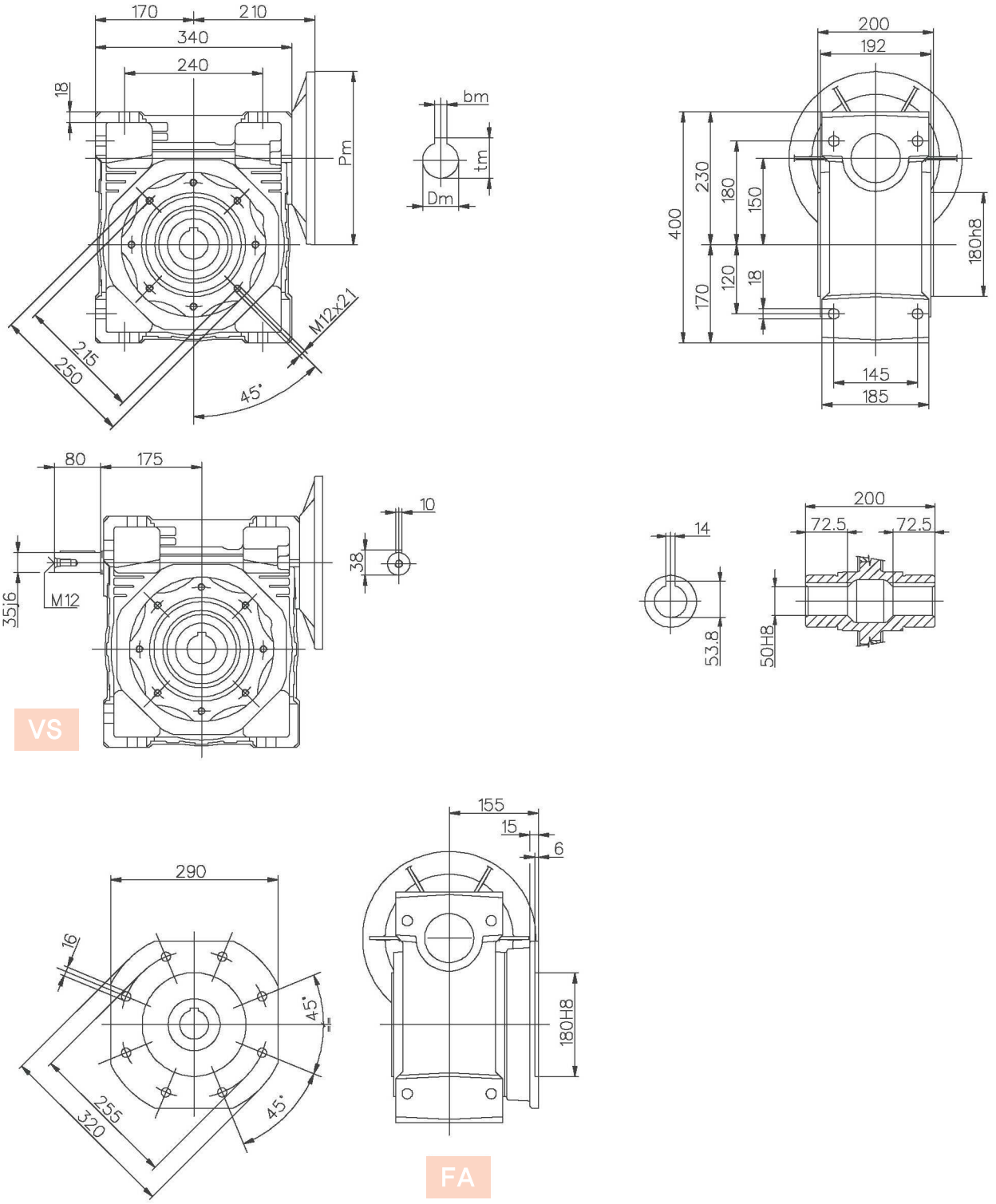


– 모터제외 무게 ~48 kg
– Weight without motor ~48 kg

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

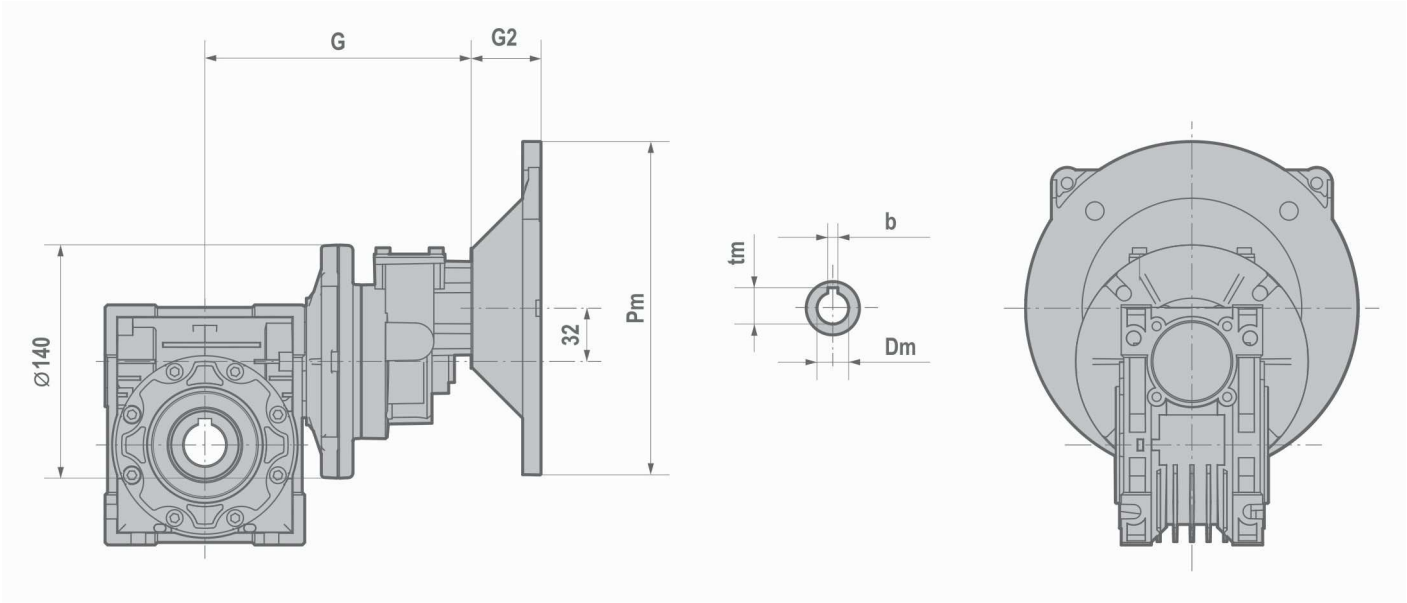
NMRV



– 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 치수 / HA31 + NMRV Dimensions



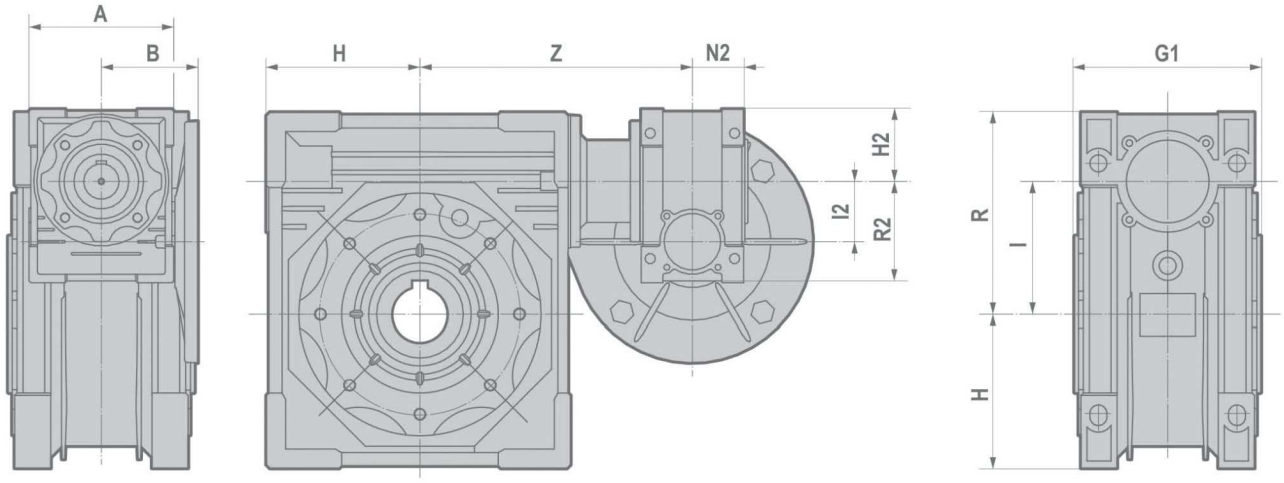
	040			050		
	G	G2	~ kg	G	G2	~ kg
063	150	25	4.2	160	25	5.4
071	150	32	4.3	160	32	5.5
080	150	42	4.5	160	42	5.7

- 모터 연결 부분에 대한 치수(Pm, Dm, bm, tm)는 66페이지의 표를 참조 하세요.
  다른 모드 치수는 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

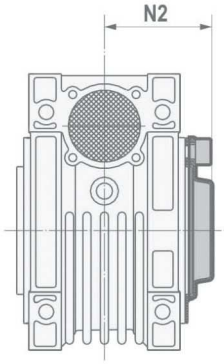
NMRV + NMRV – 치수 / Dimensions



	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

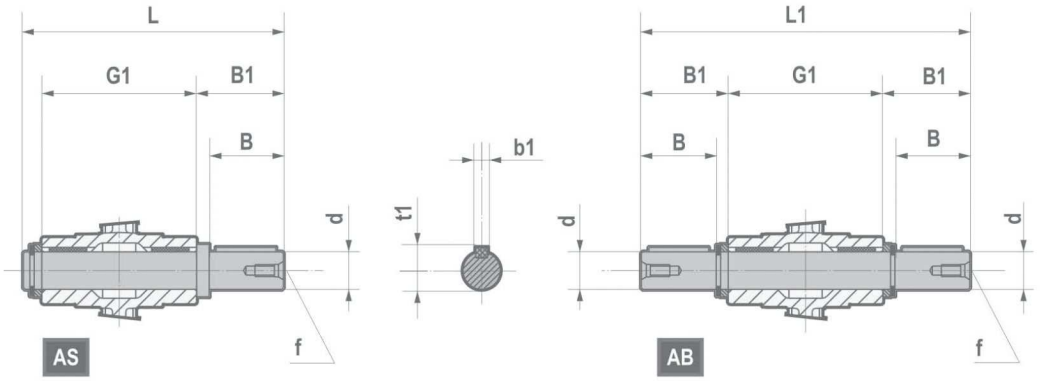
~kg 모터제외무게 / ~kg Weight without motor

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

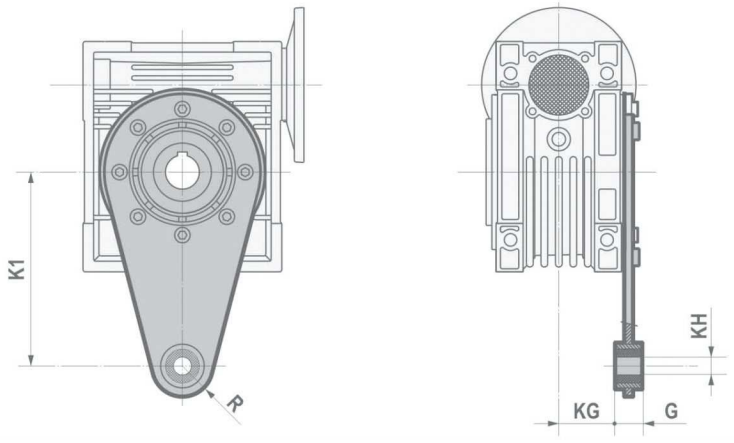
출력 샤프트 / Low speed shafts



(..) 주문사항
(..) Only on request

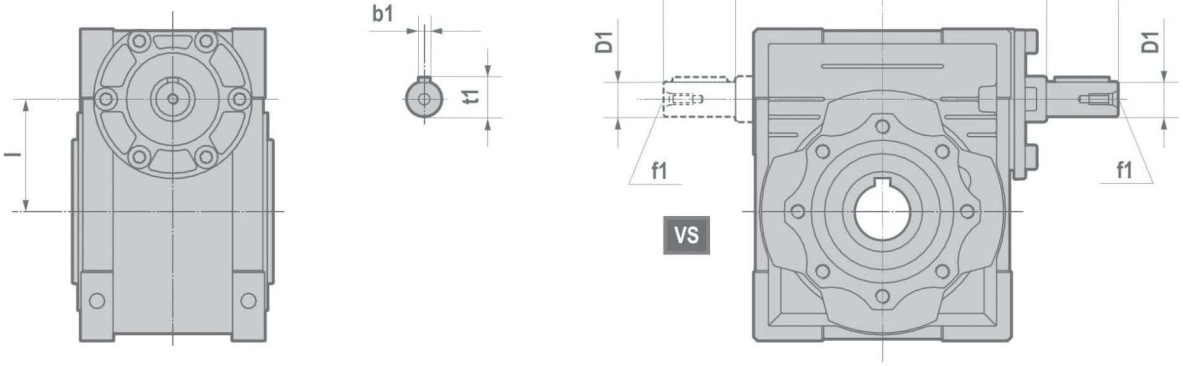
	d	B	B1	G1	L	L1	f	b1	t1
025	11g6 (9)	23 (25)	25,5 (30)	50	81 (85,5)	101	–	4 (3)	12,5 (10,2)
030	14 h6	30	32,5	63	102	128	M6	5	16
040	18 h6	40	43	78	128	164	M6	6	20,5
050	25 h6	50	53,5	92	153	199	M10	8	28
063	25 h6	50	53,5	112	173	219	M10	8	28
075	28 h6	60	63,5	120	192	247	M10	8	31
090	35 h6	80	84,5	140	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



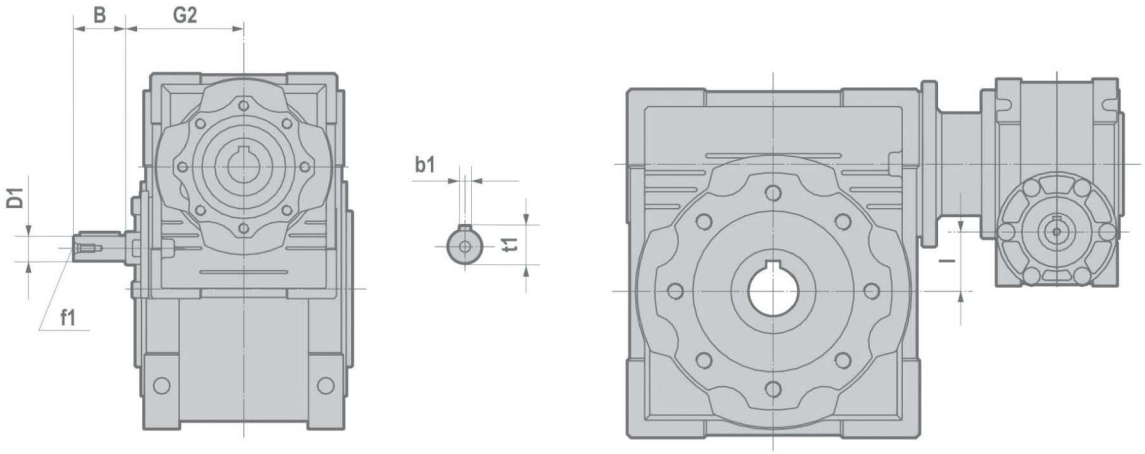
	K1	G	KG	KH	R
025	70	14	17,5	8	15
030	85	14	24	8	15
040	100	14	31,5	10	18
050	100	14	38,5	10	18
063	150	14	49	10	18
075	200	25	47,5	20	30
090	200	25	57,5	20	30
105	250	30	62	25	35
130	250	30	69	25	35
150	250	30	84	25	35

NRV – 치수 / Dimensions



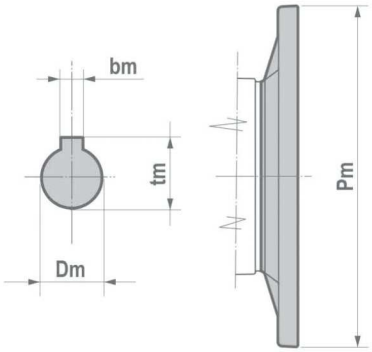
NRV	030	040	050	063	075	090	105	130	150
B	20	23	30	40	50	50	60	80	80
D1	9 j6	11 j6	14 j6	19 j6	24 j6	24 j6	28 j6	30 j6	35 j6
G2	51	60	74	90	105	125	142	162	195
G3	45	53	64	75	90	108	135	155	175
l	30	40	50	63	75	90	110	130	150
b1	3	4	5	6	8	8	8	8	10
f1	–	–	M6	M6	M8	M8	M10	M10	M12
t1	10,2	12,5	16	21,5	27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

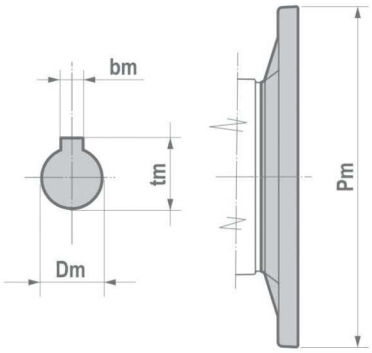
PAM B5 – 치수 / Dimensions



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) tm = 40,3(IEC132)

PAM B14 – 치수 / Dimensions



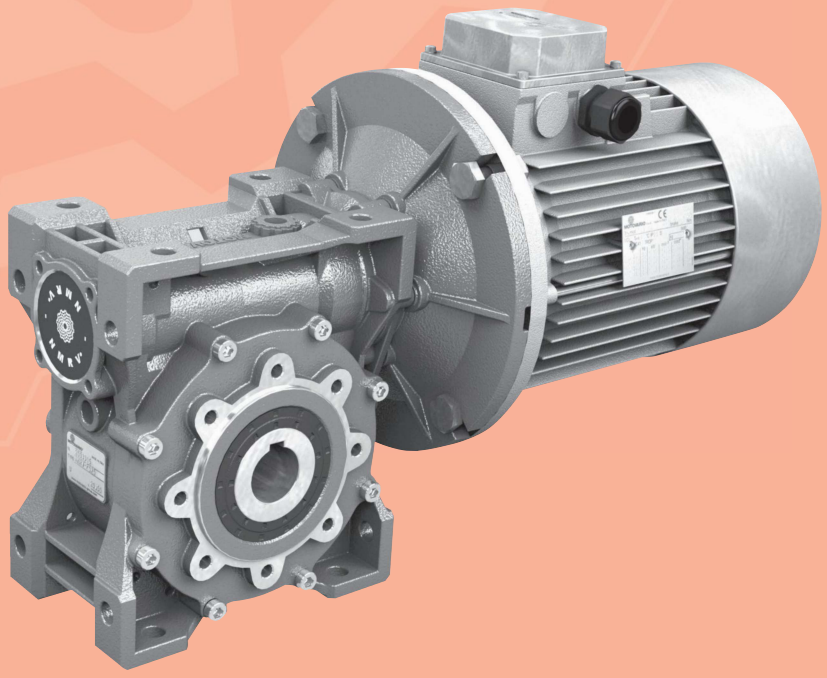
B14	IEC						
	056	063	071	080	090	100	112
Pm	80	90	105	120	140	160	160
Dm	9	11	14	19	24	28	28
bm	3	4	5	6	8	8	8
tm	10,4	12,8	16,3	21,8	27,3	31,3	31,3

NMRV™ POWER

웜 기어드 모터

Worm geared motors

VSF SERIES



MOTOVARIO®

HEART OF MOTION

명칭 / 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	
				20						
				25						
				30						
				40						
				50						
				60						
				80						
				100						

기어박스 타입
Gearbox type

사이즈
Size

헬리칼 감속기
Pre-stage helical module

출력 프랜지
Output flange

감속비
Reduction ratio

입력 사이즈
Input dimensions

Fitted for motor coupling — P (PAM) / (160x14)

Input shaft diameter — E (ECE) / (28)

양축 입력 샤프트
Double input shaft

Ø 출력프랜지
Ø Output flange

Ø 출력축
Ø Output shaft

취부형태
Mounting position (*)

악세사리 (*)
Accessories (*)

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

(*) 토르크 암 – 출력 샤프트 – 커버
(*) Torque arm – Low speed shaft – Cover

명칭 / Designation

NMRV+NMRV-P	050+110	FA	900	160×14	40	BS1	B3
NMRV+NMRV-P	030+063	FA		PAM		AS1	
NMRV-P+NMRV	040+063	FB		ECE		AS2	
NMRV-P+NMRV-P	040+075	FC				BS1	
NRV+NMRV-P	040+090	FD				BS2	
NRV-P+NMRV	050+075	FE				VS1	
	050+090					VS2	
	050+110					PS1	
	063+075					PS2	
	063+090						
	063+110						
	063+130						
	063+150						

기어박스 타입
Gearbox type

2단 기어드 모터
Combined geared motor

2단 감속기
Combined gear reducer

사이즈
Size

출력프랜지
Output flange

감속비
Reduction ratio

입력 사이즈
Input dimensions

P (PAM)
(160x14)
모터 취부용 커플링
Fitted for motor coupling

E (ECE)
(28)
입력 샤프트 직경
Input shaft diameter

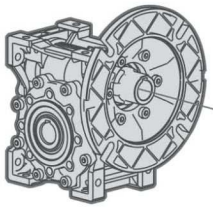
Ø 출력축
Ø Output shaft

조립형태
Execution

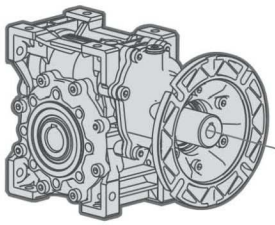
취부형태
Mounting position

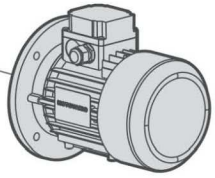
모듈 방식 / Modularity

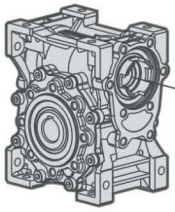
NMRVpower063-110 base



NMRVpower063-075/HW30
NMRVpower090-110/HW40



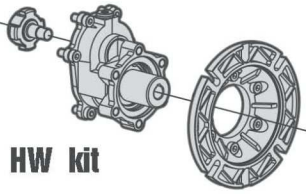




PAM kit

NMRVpower 063-110
- 웜기어 감속기
- Worm geared motor

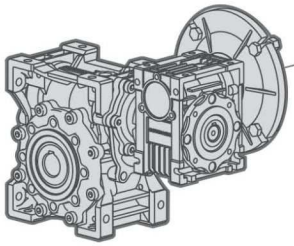
NMRVpower063-110 base
(distribution network)



HW kit

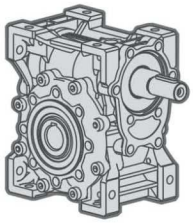
NRVpower 063-110
- 웜기어 감속기
- Worm gear reducer

NMRV-NMRVpower...
NMRVpower-NMRV...
NMRVpower-NMRVpower...



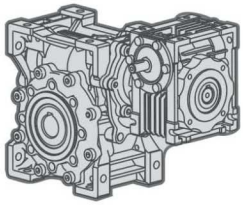
NMRVpower/HW
- 웜기어 감속기 + Pre–stage
- Worm geared motor with pre-stage

NRVpower 063-110



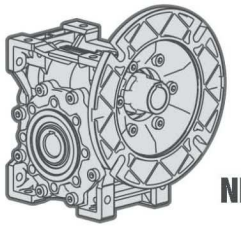
NMRV-NMRVpower...
- 더블웜 감속기
- Combined worm geared motor

NRV-NMRVpower...

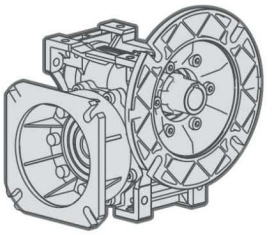


NRV-NMRVpower...
- 더블웜 감속기
- Combined worm gear reducer

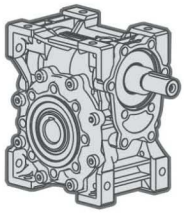
버전 / Versions



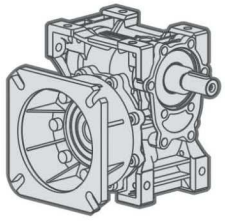
NMRVpower 063-110



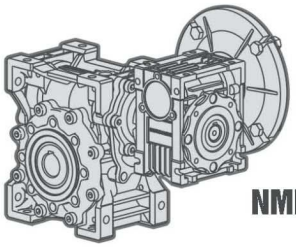
NMRVpower 063-110 F



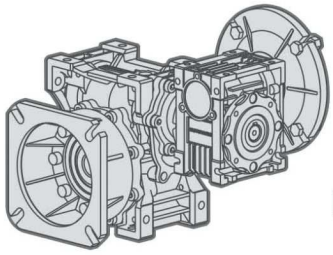
NRVpower 063-110



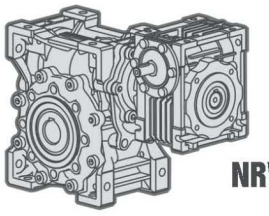
NRVpower 063-110 F



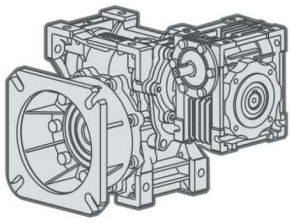
NMRV-NMRVpower...



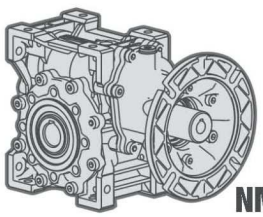
NMRV-NMRVpower... F



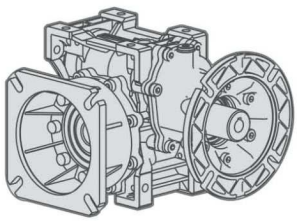
NRV-NMRVpower...



NRV-NMRVpower... F

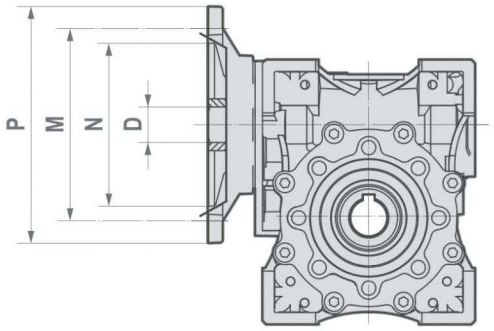


NMRVpower/HW...



NMRVpower/HW... F

비율에 따른 분류 / Predisposition



(*) 스페샬 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												
	71B5	110	130	160	**	14	14	14	14	14	14	14	14	14	14	14
	71B14	70	85	105												
090	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												
	80B5	130	165	200	**	19	19	19	19	19	19	19	19	19	19	19
	80B14	80	100	120												
110	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
	90B14	95	115	140												
	80B5	130	165	200	**	19	19	19	19	19	19	19	19	19	19	19
	89B14	80	100	120												

비율에 따른 분류

KO

형상은 엄격히 기하학의 기준을 기반으로 한다.
기계적인 요소에서, 모터 – 기어 유닛조립의 호환성을 결정하기 위하여
선택된 배치와 NRV / NRV – P 성능에 대한 비율 차트를 체크한다.

Predisposition

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 / Predisposition

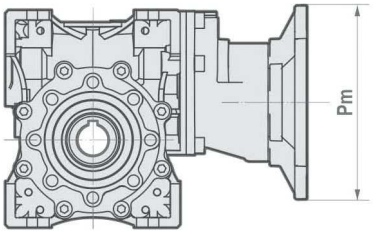
NMRV power 063 / HW 030				
I	**56**	**63**	**71**	**80**
22,08			B5 - B14	B5 - B14
29,00			B5 - B14	B5 - B14
38,67			B5 - B14	B5 - B14
44,17			B5 - B14	B5 - B14
47,50		B5	B5 - B14	B5 - B14
58,00		B5	B5 - B14	B5 - B14
71,25		B5	B5 - B14	B5 - B14
77,33		B5	B5 - B14	B5 - B14
81,82		B5	B5 - B14	B5 - B14
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			

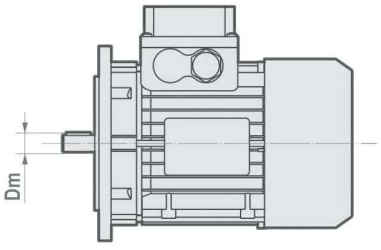
NMRV power 075/ HW 030				
I	**56**	**63**	**71**	**80**
22,08				B5 - B14
29.00			B5 - B14	B5 - B14
38.67			B5 - B14	B5 - B14
44,17			B5 - B14	B5 - B14
47,50			B5 - B14	B5 - B14
58,00			B5 - B14	B5 - B14
71,25			B5 - B14	B5 - B14
77,33			B5 - B14	B5 - B14
81,82		B5	B5 - B14	B5 - B14
88,33		B5	B5 - B14	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 / Predisposition

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		

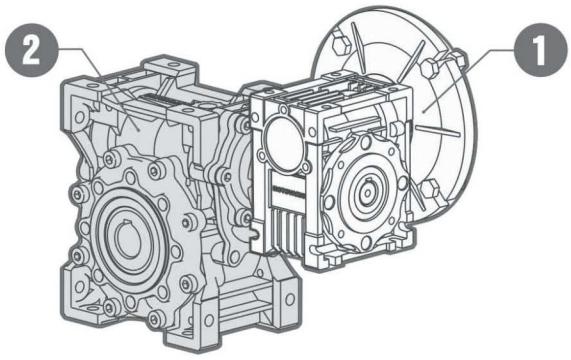


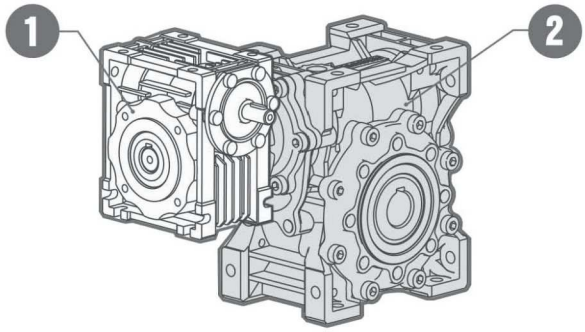


B5		
	Pm	Dm
056	120	9
063	140	11
071	160	14
080	200	19
090	200	24

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

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





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

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

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

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

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

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

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

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

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

i	NMRVpower/NMRVpower NRVpower/NMRVpower NMRVpower/NMRV NMRVpower/NRV	i1	i2
100	063/150	10.0	10.0
150		10.0	15.0
200		10.0	20.0
250		10.0	25.0
300		10.0	30.0
400		10.0	40.0
500		50.0	10.0
600		20.0	30.0
750		25.0	30.0
900		60.0	15.0
1200		40.0	30.0
1500		50.0	30.0
1800		60.0	30.0
2400		60.0	40.0
3000		60.0	50.0
4000		80.0	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(n1=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 ηd〈0.5의 동적 효율성을 필요로 한다.(78페이지 도표 참조)

정적 비역회전(Static Irreversibility)
정적 비역회전은(철회 불가능성), 감속기가 정지된 상태에서 출력 축에 대한 부하 적용이 동작중인 웜 샤프트에 대하여 설정되어 있지 않은 경우에 달성된다.
이러한 상황은 ηS〈0.5의 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 page78 shows dynamic efficiency(n1=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 $\eta d < 0.5$(see table on page 78).

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

비역회전 / Irreversibility

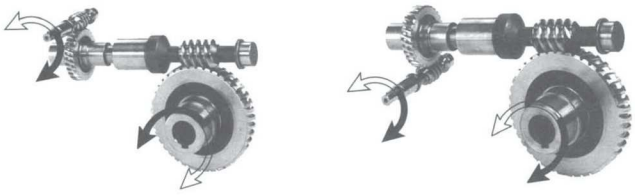
ηd	동적 비역회전	DYNAMIC IRREVERSIBILITY
〉0.6	동적역회전	dynamic reversibility
0.5÷0.6	낮은 동적역회전	low dynamic reversibility
0.4÷0.5	낮은 동적비역회전	good dynamic irreversibility
〈0.4	동적 비역회전	dynamic irreversibility

ηS	정적 비역회전	STATIC IRREVERSIBILITY
〉0.55	정적역회전	static reversibility
0.5÷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
	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
	$\eta\delta$(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
	$\eta\delta$(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
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
	ηS	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 연락주십시오.
• 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 프렌지와 모터 마운팅 –NMRV–P

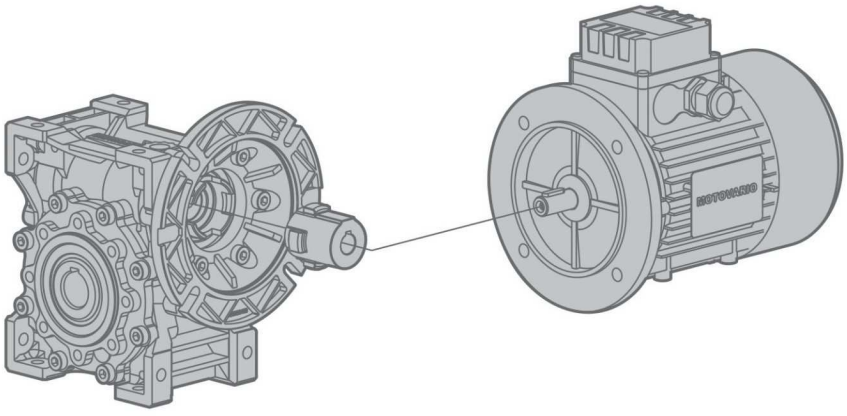
KO

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.
프렌지의 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, 유닛에 모터를 조립시, 부싱의 기어가 유닛 부싱의 기어와 함께 완벽하게 정열 되게 하라. 모터 또는 유닛 베어링에 데미지가 없도록 항상 올바른 방법으로 조립하고 사용한다.
모터 키 수정은 제공되지 않는다.

Motor mounting with PAM flange – NMRV–P

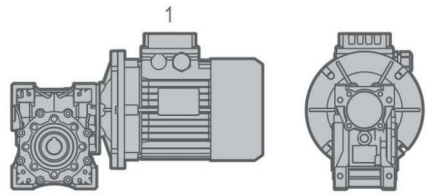
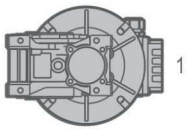
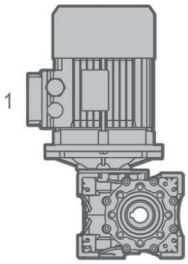
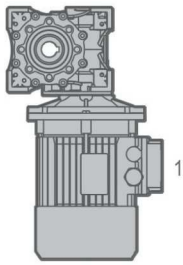
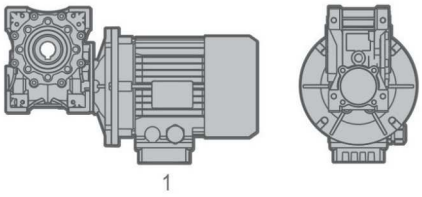
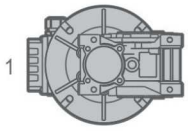
UK

When the unit is supplied without motor, to ensure the correct assembly of the electric motor, it is necessaryn to follow reccomendations 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

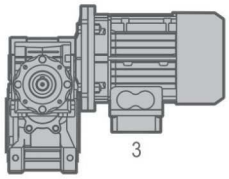
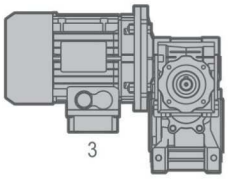
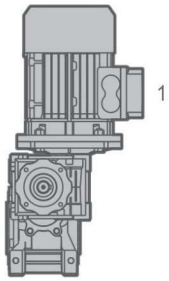
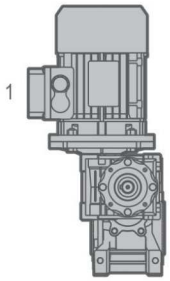
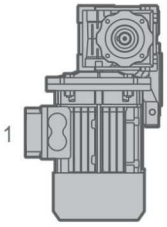
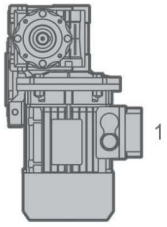
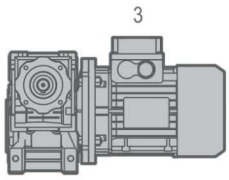
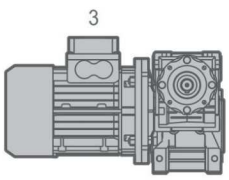
NMRVpower - NRVpower

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.

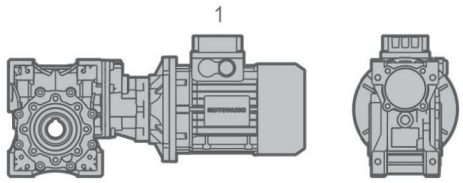
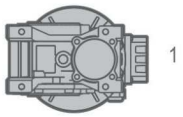
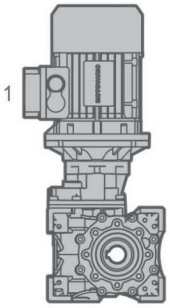
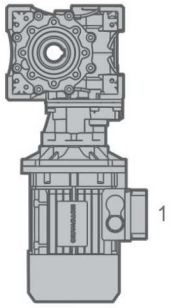
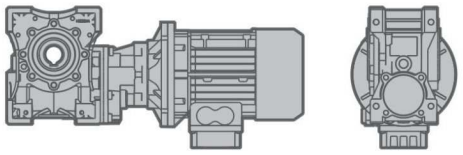
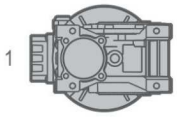
더블웜 조립방향 / Execution

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 취부방향 / NMRVpower + HW Mounting positions

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 않을경우, 기어 감속기는 터미널박스 포지션 1로 제공된다.
- 유닛을 준비한 취부방향으로 취부한다. 그렇지 않을경우, 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		IEC	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		IEC	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		IEC	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		IEC	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		IEC	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		IEC	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		IEC	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		IEC	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		IEC	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		IEC	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		IEC	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		IEC	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		IEC	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		IEC	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		IEC	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		IEC	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		IEC	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