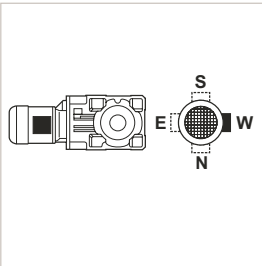
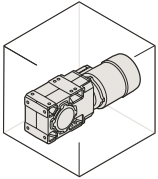


HS

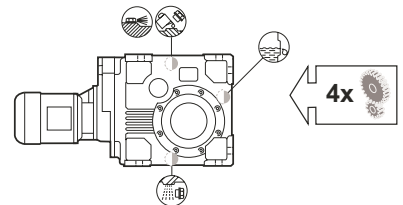
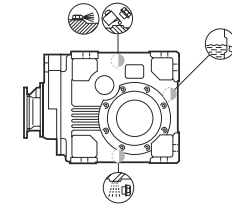
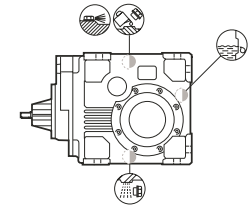
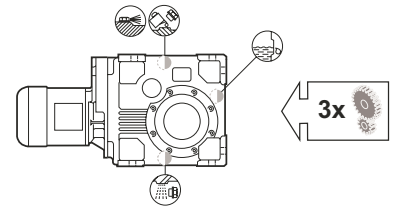
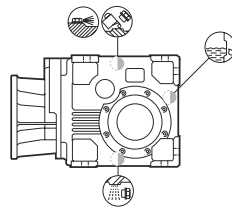
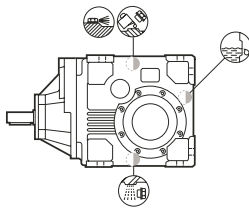
P (IEC)

S

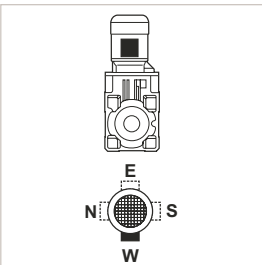
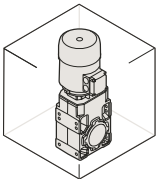
B8



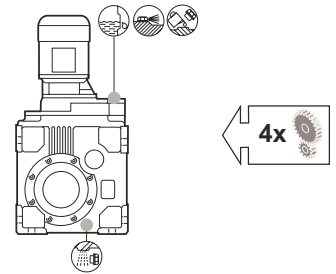
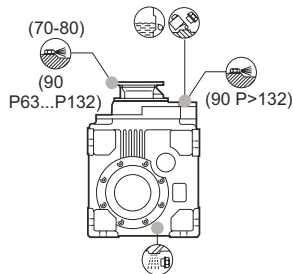
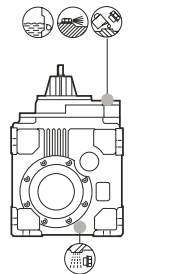
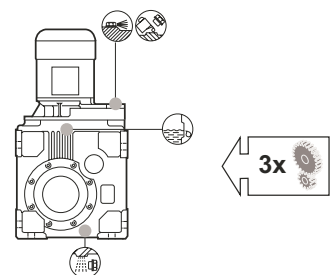
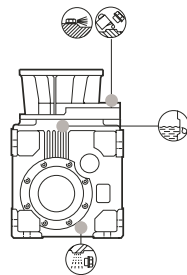
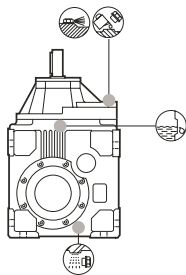
W = Default



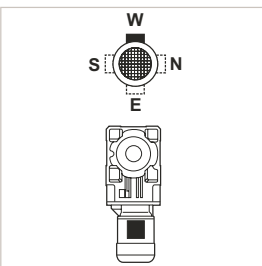
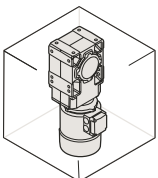
VA



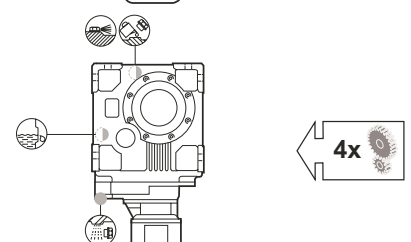
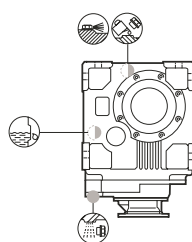
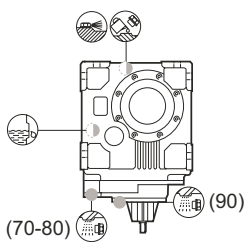
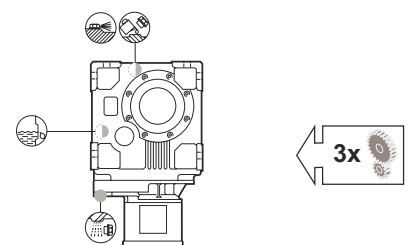
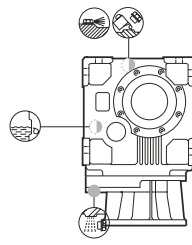
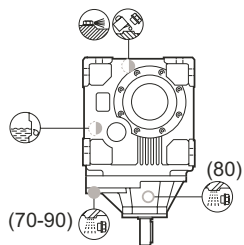
W = Default

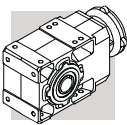


VB



W = Default





22 - CARICHI RADIALI

Organi di trasmissione calettati sugli alberi di ingresso e/o di uscita del riduttore generano forze la cui risultante agisce in senso radiale sull'albero stesso. L'entità di questi carichi deve essere compatibile con la capacità di sopportazione del sistema albero-cuscinetti del riduttore, in particolare il valore assoluto del carico applicato (R_{c1} per albero di ingresso, R_{c2} per albero di uscita) deve essere inferiore al valore nominale (R_{n1} per albero di ingresso, R_{n2} per albero di uscita) riportato nelle tabelle dati tecnici.

Nelle formule che seguono l'indice (1) si riferisce a grandezze relative all'albero veloce, l'indice (2) all'albero lento. Il carico generato da una trasmissione esterna può essere calcolato, con buona approssimazione, tramite la formula seguente:

22 - OVERHUNG LOADS

External transmissions keyed onto input and/or output shaft generate loads that act radially onto same shaft. Resulting shaft loading must be compatible with both the bearing and the shaft capacity. Namely shaft loading (R_{c1} for input shaft, R_{c2} for output shaft), must be equal to or lower than admissible overhung load capacity for shaft under study (R_{n1} for input shaft, R_{n2} for output shaft). OHL capability listed in the rating chart section.

In the equations given below, index (1) applies to parameters relating to input shaft, whereas index (2) refers to output shaft. The load generated by an external transmission can be calculated with close approximation through the following equations:

22 - RADIALKRÄFTE

Die mit den Antriebs- und/oder Abtriebswellen des Getriebes verbundenen Antriebsorgane bilden Kräfte, die in radiale Richtung auf die Welle selbst wirken. Das Ausmaß dieser Kräfte muß mit der Festigkeit des Systems aus Getriebewelle/-lager kompatibel sein, insbesondere muß der absolute Wert der angetragenen Belastung (R_{c1} für Antriebswelle und R_{c2} für Abtriebswelle) unter dem in den Tabellen der Technischen Daten angegebenen Nennwert (R_{n1} für Antriebswelle und R_{n2} für Abtriebswelle) liegen.

In den nachstehenden Formeln bezieht sich die Angabe (1) auf die Maße der Antriebswelle, die Angabe (2) auf die Abtriebswelle. Die von einem externen Antrieb erzeugte Kraft kann, recht genau, anhand der nachstehenden Formel berechnet werden:

22 - CHARGES RADIALES

Les organes de transmission calés sur les arbres d'entrée et/ou de sortie du réducteur génèrent des forces dont la résultante agit sur l'arbre dans le sens radial. L'entité de ces charges doit être compatible avec la capacité d'endurance du système arbre-roulements du réducteur. Plus particulièrement, la valeur absolue de la charge appliquée (R_{c1} pour l'arbre d'entrée, R_{c2} pour l'arbre de sortie) doit être inférieure à la valeur nominale (R_{n1} pour l'arbre d'entrée, R_{n2} pour l'arbre de sortie) indiquée dans les tableaux des données techniques. Dans les formules qui suivent, l'indice (1) se réfère à des tailles relatives à l'arbre rapide, l'indice (2) concerne l'arbre lent. La charge générée par une transmission extérieure peut être calculée, avec une bonne approximation, au moyen de la formule suivante :

$$R_{c1} [N] = \frac{2000 \cdot M_1 [Nm] \cdot K_r}{d [mm]} ; R_{c2} [N] = \frac{2000 \cdot M_2 [Nm] \cdot K_r}{d [mm]} \quad (16)$$

dove:

$M_{1-2} [Nm]$ = Coppia applicata all'albero

$d [mm]$ = diametro primitivo organo calettato

$K_r = 1$ trasmissione con catena

$K_r = 1,25$ trasmissione ad ingranaggio

$K_r = 1,5-2,0$ trasmissione a cinghia

In base al punto di applicazione del carico sull'albero la verifica di compatibilità procederà in modi diversi e in particolare:

where:

$M_{1-2} [Nm]$ = torque applied to shaft

$d [mm]$ = pitch diameter of part keyed on to shaft

$K_r = 1$ chain transmission

$K_r = 1,25$ gear transmission

$K_r = 1,5-2,0$ belt transmission

Verification of OHL capability varies depending on whether load applies at midpoint of shaft or it is shifted further out:

dabei:

$M_{1-2} [Nm]$ = Drehmoment an der Welle

$d [mm]$ = Teilkreisdurchmesser des aufgekeilten Organs

$K_r = 1$ Kettenantrieb

$K_r = 1,25$ Zahnradantrieb

$K_r = 1,5-2,0$ Antrieb über Keilriemen

In Abhängigkeit zum Kraftangriffspunkt an der Welle erfolgt die Kontrolle hinsichtlich der Kompatibilität in unterschiedlicher Weise und insbesondere:

où:

$M_{1-2} [Nm]$ = couple appliqué à l'arbre

$d [mm]$ = diamètre primitif organe calé

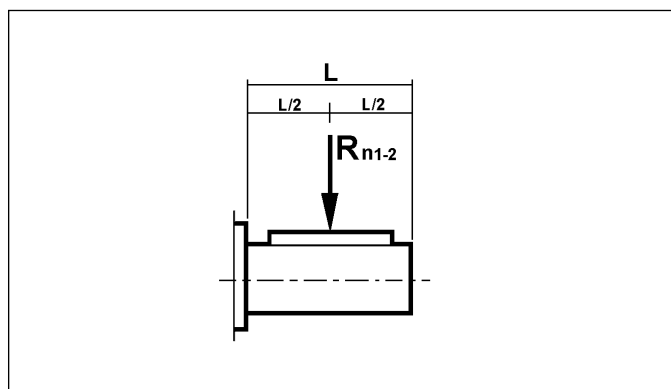
$K_r = 1$ transmission avec chaîne

$K_r = 1,25$ transmission à engrenage

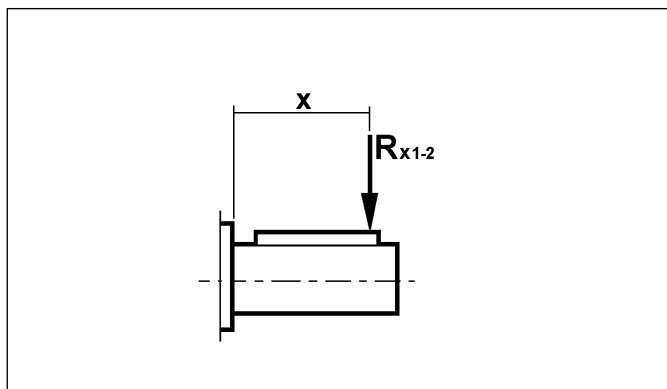
$K_r = 1,5-2,0$ transmission à courroie

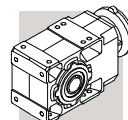
En fonction du point d'application de la charge sur l'arbre, la vérification de la compatibilité sera différente, plus particulièrement :

(B6)



(B7)





a) Applicazione in mezzzeria, tab. (B6)

Il carico precedentemente calcolato si dovrà confrontare con il corrispondente valore nominale esposto a catalogo e dovrà verificarsi:

$$R_{c1} \leq R_{n1} \quad [\text{albero veloce}]$$

oppure

$$R_{c2} \leq R_{n2} \quad [\text{albero lento}]$$

a) Load applied at midpoint of shaft, (B6) pattern

A comparison of shaft loading with catalogue OHL ratings should verify the following condition:

$$R_{c1} \leq R_{n1} \quad [\text{input shaft}]$$

or

$$R_{c2} \leq R_{n2} \quad [\text{output shaft}]$$

a) Kraftangriffspunkt in der Mitte, Tab. (B6)

Der zuvor errechnete Wert muß mit dem im Katalog angegebenen Nennwert verglichen werden. Es muß sich folgendes ergeben:

$$R_{c1} \leq R_{n1} \quad [\text{Antriebswelle}]$$

oder

$$R_{c2} \leq R_{n2} \quad [\text{Abtriebswelle}]$$

a) Application au milieu, tab. (B6)

La charge précédemment calculée doit être comparée avec la valeur nominale correspondante indiquée dans le catalogue, on doit vérifier :

$$R_{c1} \leq R_{n1} \quad [\text{arbre rapide}]$$

ou

$$R_{c2} \leq R_{n2} \quad [\text{arbre lent}]$$

b) Applicazione spostata dalla mezzzeria, tab. (B7)

L'applicazione del carico ad una distanza "x" dalla battuta dell'albero comporta il ricalcolo del valore ammissibile a detta distanza.

Il nuovo valore è individuato con i simboli R_{x1} (ingresso) e R_{x2} (uscita) e si ricava dai valori di catalogo, rispettivamente R_{n1} e R_{n2} , tramite l'elaborazione del fattore:

b) Load off the midpoint (B7) pattern

When load is shifted at an "x" distance from shaft shoulder, permissible load must be calculated for that distance.

Revised permissible overhung loads R_{x1} (input) and R_{x2} (output) are calculated respectively from original rated values R_{n1} and R_{n2} through factor:

b) Von der Mitte versetzter Kraftangriffspunkt Tab. (B7)

Der auf einer Distanz "x" vom Wellenansatz liegende Kraftangriffspunkt fordert eine erneute Berechnung des für diesen Abstand zulässigen Werts.

Der neue Wert wird mit den Symbolen R_{x1} (Antrieb) und R_{x2} (Abtrieb) gekennzeichnet und unter Anwendung der nachstehenden Faktorenberechnung aus den Katalogwerten R_{n1} und R_{n2} :

b) Application déplacée du milieu, tab. (B7)

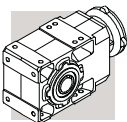
L'application de la charge à une distance "x" de la butée de l'arbre implique un nouveau calcul de la valeur admissible à cette distance.

La nouvelle valeur est indiquée par les symboles R_{x1} (entrée) et R_{x2} (sortie) ou peut être calculée d'après les valeurs de catalogue, respectivement R_{n1} et R_{n2} , en élaborant le facteur :

$$\frac{a}{b+x} \quad (17)$$

(B8)

| | Costanti del riduttore / Load location factors / Getriebekonstanten / Constantes du réducteur | | | | | |
|-----------------|---|-------|------|--|------|------|
| | Albero lento / Output shaft / Abtriebswelle / Arbre lent | | | Albero veloce / Input shaft / Antriebswelle / Arbre rapide | | |
| | a | b | c | a | b | c |
| A 10 2 | 123 | 101 | 600 | 21 | 1 | 300 |
| A 20 2 | 150 | 120 | 750 | 40 | 20 | 350 |
| A 20 3 | 150 | 120 | 750 | 21 | 1 | 300 |
| A 30 2 | 168 | 138 | 900 | 38.5 | 18.5 | 350 |
| A 30 3 | 168 | 138 | 900 | 21 | 1 | 300 |
| A 41 2 | 198 | 158 | 1050 | 49.5 | 24.5 | 450 |
| A 41 3 | 198 | 158 | 1050 | 40 | 20 | 350 |
| A 50 2 - A 50 3 | 242.5 | 201.5 | 1300 | 49.5 | 24.5 | 450 |
| A 50 4 | 242.5 | 201.5 | 1300 | 38.5 | 18.5 | 350 |
| A 60 2 - A 60 3 | 242.5 | 190 | 1550 | 55.5 | 25.5 | 600 |
| A 60 4 | 242.5 | 190 | 1550 | 49.5 | 24.5 | 450 |
| A 70 3 | 295.5 | 230.5 | 1900 | 86 | 31 | 1000 |
| A 70 4 | 295.5 | 230.5 | 1900 | 49.5 | 24.5 | 450 |
| A 80 3 | 345 | 280 | 2400 | 86 | 31 | 1000 |
| A 80 4 | 345 | 280 | 2400 | 49.5 | 24.5 | 450 |
| A 90 3 | 432 | 327 | 3000 | 116 | 46 | 1400 |
| A 90 4 | 432 | 327 | 3000 | 49.5 | 24.5 | 450 |



La procedura di verifica comporta passi successivi che sono qui descritti.

Verification procedure is described here after.

Das Kontrollverfahren zieht die nachstehend beschriebenen Schritte nach sich.

La procédure de vérification comporte les pas successifs indiqués ici.

ALBERO VELOCE

INPUT SHAFT

ANTRIEBSWELLE

ARBRE RAPIDE

Calcolo di:

Calculate:

Berechnung von:

Calcul de :

$$R_{x1} = R_{n1} \cdot \frac{a}{b+x} \quad (18)$$

N.B. A condizione che:

N.B. Subject to condition:

HINWEIS unter der Bedingung, daß:

N.B. A condition que :

$$\frac{L}{2} \leq x \leq c \quad (19)$$

Infine si dovrà verificare che:

Finally, the following condition must be verified:

Dies als Voraussetzung, muß sich folgendes ergeben:

Ensuite, vérifier que :

$$R_{c1} \leq R_{x1} \quad (20)$$

ALBERO LENTO

OUTPUT SHAFT

ABTRIEBSWELLE

ARBRE LENT

Calcolo di:

Calculate:

Berechnung von:

Calcul de :

$$R_{x2} = R_{n2} \cdot \frac{a}{b+x} \quad (21)$$

N.B. A condizione che:

N.B. Subject to condition:

HINWEIS unter der Bedingung, daß:

N.B. A condition que :

$$\frac{L}{2} \leq x \leq c \quad (22)$$

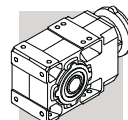
Infine si dovrà verificare che:

Finally, the following condition must be verified:

Dies als Voraussetzung, muß sich folgendes ergeben:

Ensuite, vérifier que :

$$R_{c2} \leq R_{x2} \quad (23)$$



23 - CARICHI ASSIALI,

A_{n1}, A_{n2}

I valori di carico assiale ammissibile sugli alberi veloce $[A_{n1}]$ e lento $[A_{n2}]$ si possono ricavare con riferimento al corrispondente valore di carico radiale $[R_{n1}]$ e $[R_{n2}]$ tramite le espressioni che seguono:

23 - THRUST LOADS,

A_{n1}, A_{n2}

Permissible thrust loads on input $[A_{n1}]$ and output $[A_{n2}]$ shafts are obtained from the radial loading for the shaft under consideration $[R_{n1}]$ and $[R_{n2}]$ through the following equations:

23 - AXIALKRÄFTE,

A_{n1}, A_{n2}

Die Werte der zulässigen, auf die Antriebswelle $[A_{n1}]$ und auf die Abtriebswelle $[A_{n2}]$ einwirkenden Axialkräfte können unter Bezugnahme auf den jeweiligen Wert der Radialkraft $[R_{n1}]$ und $[R_{n2}]$ anhand der nachstehenden Angaben berechnet werden:

23 - CHARGES AXIALES,

A_{n1}, A_{n2}

Les valeurs de charge axiale admissible sur les arbres rapides $[A_{n1}]$ et lent $[A_{n2}]$ peuvent être calculées, en se référant à la valeur de charge radiale correspondante $[R_{n1}]$ et $[R_{n2}]$ au moyen des formules suivantes :

$$A_{n1} = R_{n1} \cdot 0,2$$

$$A_{n2} = R_{n2} \cdot 0,2$$

(24)

I valori di carico assiale ammissibile così calcolati si riferiscono al caso di forze assiali agenti contemporaneamente ai carichi radiali nominali.

Nel solo caso in cui il valore del carico radiale agente sull'albero del riduttore sia nullo, si può considerare il carico assiale ammissibile $[A_n]$ pari al 50% del valore di carico radiale ammissibile $[R_n]$ sullo stesso albero.

In presenza di carichi assiali eccedenti il valore ammissibile, o di forze assiali fortemente prevalenti sui carichi radiali, è consigliabile contattare il Servizio Tecnico di Bonfiglioli Riduttori per una verifica puntuale.

The thrust loads calculated through these formulas apply to thrust forces occurring at the same time as rated radial loads.

In the only case that no overhung load acts on the shaft the value of the admissible thrust load $[A_n]$ amounts to 50% of rated OHL $[R_n]$ on same shaft.

Where thrust loads exceed permissible value or largely prevail over radial loads, contact Bonfiglioli Riduttori for an in-depth analysis of the application.

Die so errechneten Werte der zulässigen Axialkräfte beziehen sich auf den Fall, in dem die Axialkräfte gleichzeitig mit den Nennradialkräften einwirken.

Nur im Fall, es keine Radialbelastung auf die Getriebewelle gibt, ist der Wert der zulässigen Axialbelastung $[A_n]$ gleich zu 50% der zulässigen Radialbelastung $[R_n]$ auf die gleiche Welle.

In Anwesenheit von übermäßigen Axialkräften, oder stark auf die Radialkräfte einwirkende Kräfte, wird im Hinblick auf eine genaue Kontrolle empfohlen, sich mit dem Technischen Kundendienst der Bonfiglioli Riduttori in Verbindung zu setzen.

Les valeurs de charge axiale admissible ainsi calculées se réfèrent au cas de forces axiales agissant en même temps que les charges radiales nominales.

Dans le seul cas la valeur de la charge radiale agissant sur l'arbre soit nul, l'on peut considérer la charge axiale admissible $[A_n]$ égale à 50% de la valeur de la charge radiale admissible $[R_n]$ sur le même arbre.

En présence de charges axiales excédant la valeur admissible, ou de forces axiales fortement supérieures aux charges radiales, il est conseillé de contacter le Service Technique Bonfiglioli Riduttori pour une vérification.

24 - ROTAZIONE ALBERI

Negli schemi riportati nella tabella (B9) sono indicati i sensi di rotazione standard dei riduttori ad assi ortogonali a 2, 3 e 4 stadi di riduzione.

24 - SHAFTS ARRANGEMENT

Table (B9) shows standard directions of rotation for 2, 3 and 4 stage helical-bevel gearboxes.

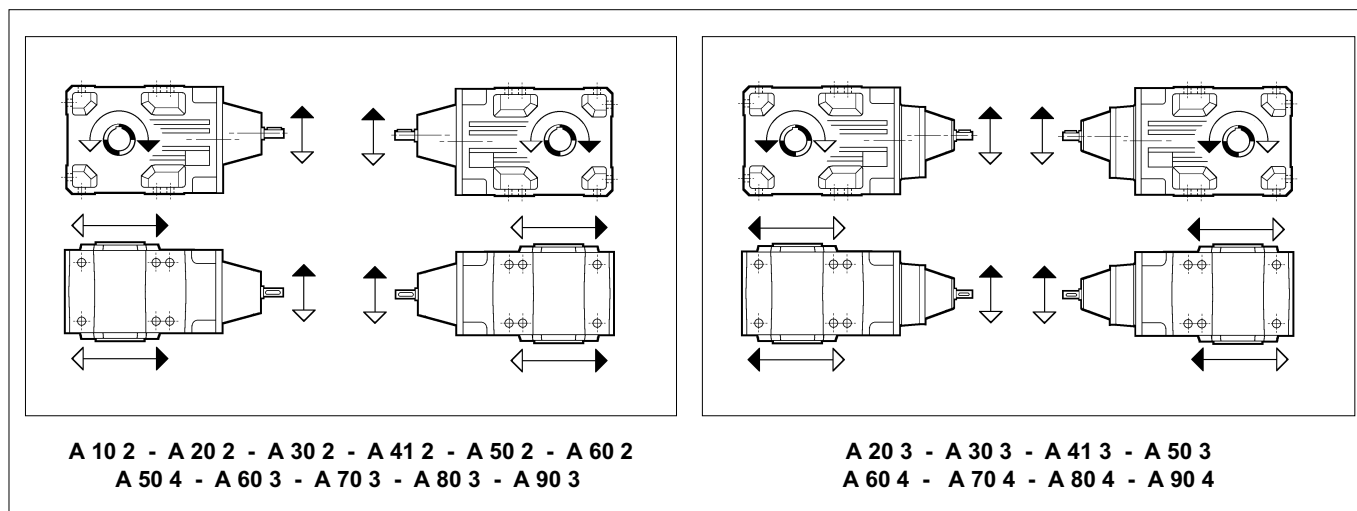
24 - WELLENDREHUNG

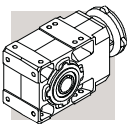
Die auf die Tabelle (B9) angegebenen Bilder zeigen die Standardrichtungen der 2-, 3- und 4- stufigen Kegelstirnradgetrieben.

24 - ROTATION ARBRES

Dans les schémas reportés dans le tableau (B9) sont indiqués les sens de rotation standard des réducteurs avec arbres orthogonaux à 2, 3 et 4 étages de réduction.

(B9)





25 - DISPOSITIVO ANTIRETRO

25 - ANTI-RUN BACK DEVICE

25 - RÜCKLAUFSPERRE

25 - DISPOSITIF ANTI-RETOUR

A richiesta si può fornire il riduttore/motoriduttore munito di dispositivo antiretro che permette la rotazione dell'albero lento solo nel senso desiderato (opzione AL-AR).

La tabella (B10) indica i riduttori nei quali è possibile applicare il dispositivo antiretro.

In fase d'ordine specificare il senso di rotazione mediante le opzioni AL o AR (tabella B11) nella designazione riduttore o in quella del motore.

Se non specificato, il riduttore viene fornito con il senso di rotazione AR.

N.B. Quando l'intervento del dispositivo antiretro è richiesto in maniera ripetitiva verificare che la coppia all'albero lento, risultante dall'applicazione del carico, non superi il 70% della coppia nominale Mn2 per lo specifico riduttore.

An anti-run back device is available upon request to allow rotation of the output shaft in one direction only (option AL-AR).

Table B10 shows the gearboxes in which the anti-run back device can be installed.

When ordering the gear unit, the direction of free rotation must be specified through either the AR or the AL option.

Unless otherwise specified, the AR direction of rotation is arranged at the factory as the backstop default setting.

N.B. When the anti-run back device operates very frequently make sure that the torque backdriving the gearbox does not exceed 70% of the rated torque Mn2 for the captioned gear unit.

Die Getriebe können mit einer Rücklauf Sperre geliefert werden, um die Drehung der Abtriebswelle in einer Richtung zu ermöglichen (Option AL-AR).

Auf der Tabelle B10 sind die Getriebe angegeben, mit denen die Rücklauf Sperre verwendet werden kann.

Bei Bestellung bitte die gewünschte Drehrichtung durch die Option AL oder AR (Tabelle B11) in den Getriebe oder Motorbezeichnung angeben. Wenn nicht angegeben, wird das Getriebe mit Drehrichtung AR geliefert.

HINWEIS: Sollte ein Auslösen der Rücklauf Sperre wiederholt erforderlich sein, muss kontrolliert werden, dass der Drehmoment am Abtrieb, der sich aus der Applikation der Last ergibt, 70% des Nenndrehmoments Mn2 für dieses spezifische Getriebe nicht übersteigt.

Sur demande le réducteur/motoréducteur peut être fourni avec le dispositif anti-retour en permettant la rotation de l'arbre lent seulement dans un sens (option AL-AR).

Le tableau B10 indique les réducteurs dans les quels on peut appliquer le dispositif anti-retour.

A la commande on (tab. B11) doit préciser le sens de rotation en indiquant les options AL ou AR dans la désignation du réducteur ou du moteur. En cas contraire le réducteur sera livré avec sens de rotations AR.

REMARQUE : Lorsque le dispositif anti-retour intervient très souvent, vérifier que le couple de l'arbre de sortie, résultant de l'application de la charge, ne dépasse pas 70% du couple nominal Mn2 du réducteur en question.

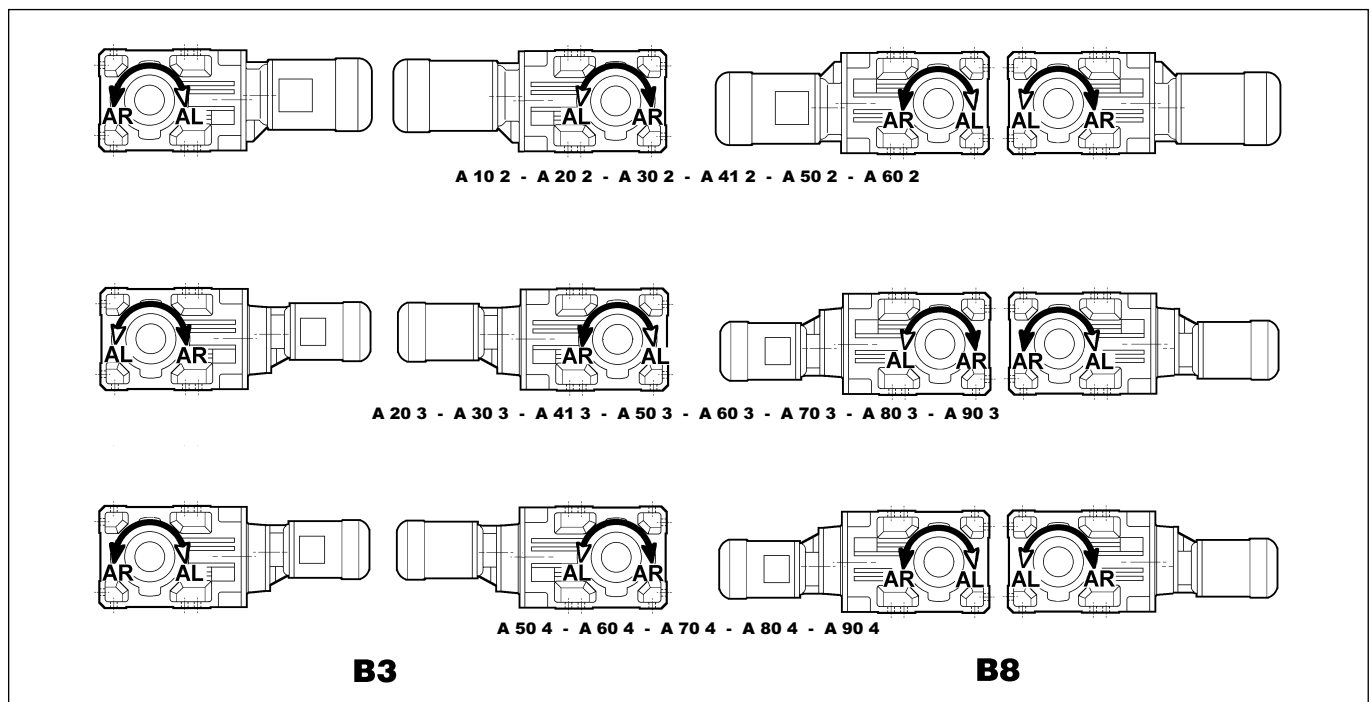
(B10)

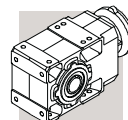
| | | | | | | | | | | |
|--------|------------------|------------------|------------------|--------|------------------|--------|------------------|------------------|------------------|------------------|
| A 10 2 | A 20 2 A 20 3 | A 30 2 A 30 3 | A 41 2 A 41 3 | A 50 2 | A 50 3 A 50 4 | A 60 2 | A 60 3 A 60 4 | A 70 3 A 70 4 | A 80 3 A 80 4 | A 90 3 A 90 4 |
| • | • | • | • | • | | • | | | | |

• Applicazione antiretro possibile solo sul motore integrato / Anti-run back device can be fitted to compact motor only / Die Rücklauf Sperre kann nur am integrierten Motor angebracht werden / Application du dispositif anti-retour possible uniquement sur le moteur intégré

■ Applicazione antiretro possibile sia sul riduttore che sul motore integrato/ Anti-run back device can be fitted both to compact motor and gearbox / Die Rücklauf Sperre kann sowohl am aGetriebe als auch am Motor angebracht werden / Application dispositif anti-retour possible aussi bien sur le réducteur que sur le moteur intégré

(B11)





26 - ISTRUZIONI DI INSTALLAZIONE

Negli schemi indicati in tabella (B12) vengono riportati i 3 casi possibili per l'installazione dei riduttori tipo A alla struttura della macchina da operare.

Per ognuno di questi casi riportiamo nella tabella (B13) le dimensioni delle viti a testa esagonale da utilizzare.

Inoltre, per una facile installazione, suggeriamo di utilizzare il tipo di chiave mostrato in tabella (B12).

26 - INSTALLATION INSTRUCTIONS

Schemes in table (B12) show the 3 possible installation patterns for A gear units to the machine frame.

For each of these circumstances, table (B13) indicates exagonal head screw sizes to be used.

Besides, to facilitate the installation, we suggest to use a wrench of the type shown in table (B12).

26 - ANBAUANWEISUNGEN

In den auf die Tabelle (B12) angegebenen Bilder werden die 3 möglichen Fällen zum Anbau des Getriebes Typ A der zu betriebenden Maschine dargestellt.

Für jede dieser Fällen sind auf die Tabelle (B13) die Abmessungen der zu verwendenden Sechskantschraube angegeben.

Im übrigens, für ein einfaches Anbau, schlagen wir vor, den Schlüsseltyp wie auf die Tabelle (B12) zu verwenden.

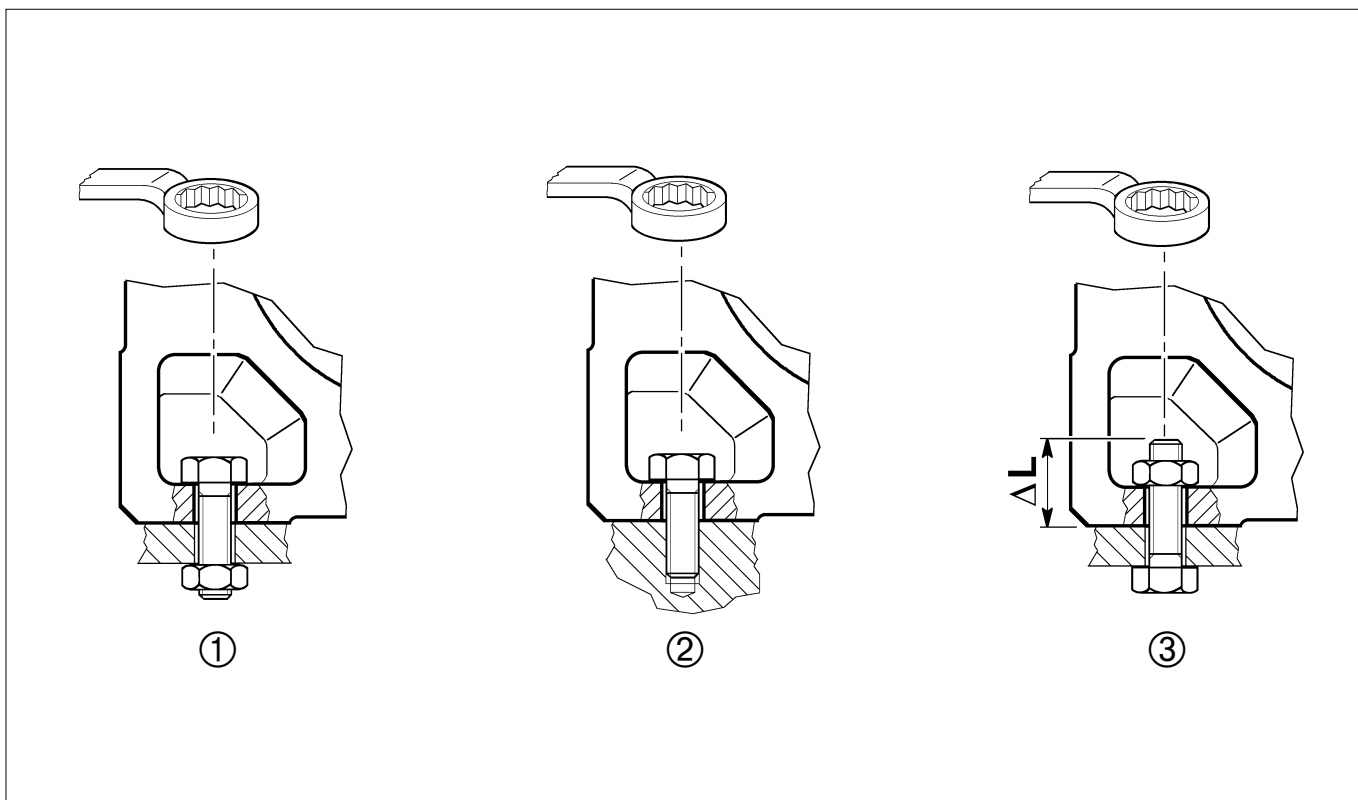
26 - INSTRUCTIONS POUR L'INSTALLATION

Dans les schémas indiqués dans le tableau (B12) l'on a indiqué 3 cas possibles pour le montage des réducteurs type A à la structure de la machine.

Pour tous ces cas l'on doit se référer pour les dimensions des vis à tête hexagonales à employer, au tableau (B13).

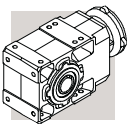
Pour un montage plus soigneux nous conseillons l'emploi du type de clé indiquée au tableau (B12).

(B12)



(B13)

| | Tipo vite / Bolt type / Schraubentyp / Type de vis | | | | | Tipo vite / Bolt type / Schraubentyp / Type de vis | | | |
|------------|--|--------|----------|---------|------------|--|--------|----------|---------|
| | ① | ② | ③ | ΔL (mm) | | ① | ② | ③ | ΔL (mm) |
| A10 | M8x25 | M8x20 | M8x ... | 20 | A50 | M14x45 | M14x40 | M14x ... | 35 |
| A20 | M8x25 | M8x20 | M8x ... | 20 | A60 | M16x50 | M16x45 | M16x ... | 40 |
| A30 | M10x30 | M10x25 | M10x ... | 25 | A70 | M20x60 | M20x55 | M20x ... | 45 |
| A41 | M12x35 | M12x30 | M12x ... | 30 | A80 | M24x70 | M24x65 | M24x ... | 55 |
| | | | | | A90 | M24x90 | M24x80 | M24x ... | 65 |



**27 - ISTRUZIONI
PER IL SERRAGGIO
DEL CALETTATORE**

I riduttori serie A sono disponibili a richiesta con albero lento cavo munito di calettatore (forma costruttiva US). È necessario eseguire le seguenti operazioni per effettuare il montaggio del riduttore sull'albero della macchina da azionare.

- 1) Svitare le viti di bloccaggio gradualmente e in successione rimuovendo il calettatore.
- 2) Pulire e sgrassare accuratamente le zone di accoppiamento fra albero lento riduttore e albero della macchina da azionare.
- 3) Accoppiare albero condotto e riduttore.
- 4) Montare il calettatore sull'albero del riduttore.
- 5) Avvitare a fondo tutte le viti del calettatore gradualmente e in successione facendo uso di una chiave dinamometrica.
È necessario ripetere la sequenza alcune volte al fine di raggiungere la coppia di serraggio Mt indicata in tabella (B14).

**27 - INSTRUCTIONS FOR
FITTING OF SHRINK DISC**

Gearboxes of the A series are available upon request with hollow output shaft complete with shrink disc (US version). To fit the gearbox onto the customer shaft the procedure described here below must be followed.

- 1) *Unscrew the locking bolts progressively and remove the shrink disc.*
- 2) *Carefully clean and degrease mating surfaces of the hollow shaft and customer shaft.*
- 3) *Fit the gearbox onto the driven shaft.*
- 4) *Fit the shrink disc onto the gearbox shaft.*
- 5) *Tighten all locking bolts of the shrink disc gradually and progressively in circular sequence using a torque wrench.*
Several sequences are necessary until the specified tightening torque Mt is reached. See tab. (B14) for reference.

**27 - ANLEITUNGEN
FÜR DEN ANZUG DER
SCHRUMPFSCHEIBE**

Die Getriebe der Serie A sind auf Anfrage mit einer Abtriebswelle verfügbar, die mit einer Schrumpfscheibe versehen ist (Version US). Um ein solches Getriebe auf die Welle der zu betreibenden Maschine montieren zu können, muß man folgendermaßen vorgehen:

- 1) Die Befestigungsschrauben schrittweise und in entsprechender Reihenfolge lockern und so die Schrumpfscheibe entfernen.
- 2) Die Passbereiche zwischen Abtriebswelle des Getriebes und der Welle der anzutreibenden Maschine säubern und entfetten.
- 3) Die geführte Welle und das Getriebe aneinander passen.
- 4) Die Schrumpfscheibe auf die Getriebewelle montieren.
- 5) Alle Schrauben der Verbindung schrittweise und nacheinander mit einem Drehmomentschlüssel anschrauben.
Diese Sequenz ist mehrmals zu wiederholen, d.h. solange bis der in der Tabelle (B14) angegebene Azugsmomet Mt erreicht wurde.

**27 - INSTRUCTIONS
POUR LE BLOCAGE DE
LA FRETTE DE SERRAGE**

Les réducteurs série A sont disponibles sur demande avec un arbre de sortie creux équipé de frette de serrage (version US). Il est nécessaire d'exécuter les opérations suivantes pour effectuer le montage du réducteur sur l'arbre de la machine à actionner:

- 1) *Dévisser graduellement et l'une après l'autre les vis de blocage et enlever la frette de serrage.*
- 2) *Nettoyer et dégraisser soigneusement les zones d'accouplement entre arbre de sortie réducteur et arbre de la machine à actionner.*
- 3) *Accoupler l'arbre mené et le réducteur.*
- 4) *Monter la frette de serrage sur l'arbre réducteur.*
- 5) *Visser à fond graduellement et l'une après l'autre toutes les vis de la frette de serrage à l'aide d'une clé dynamométrique.*
Il est nécessaire de répéter la séquence plusieurs fois afin d'atteindre le couple de serrage Mt indiqué dans le tableau (B14).



Attenzione! Non usare bisolfuro di molibdeno o altri grassi, causa di notevoli riduzioni del coefficiente d'attrito.



Warning! Do not use molybdenum disulphide or any grease whatsoever because of consequent reduction in the friction coefficient.



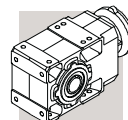
Achtung! Niemals Molybdändisulfid oder andere Fettarten verwenden, da sie zu erheblichen Reduzierungen des Reibkoeffizienten führen würden.



Attention! Ne pas utiliser de bisulfure de molybdène ou autres graisses, susceptibles de provoquer d'importantes réductions du coefficient de frottement.

(B14)

| | A10 | A20 | A30 | A41 | A50 | A60 | A70 | A80 | A90 |
|---------|------|------|------|------|-----|-----|-----|-----|-----|
| Mt [Nm] | 14.5 | 14.5 | 14.5 | 14.5 | 35 | 35 | 35 | 69 | 69 |



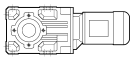

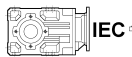


28 - DATI TECNICI
MOTORIDUTTORI

28 - GEARMOTOR RATING
CHARTS

28 - GETRIEBEMOTORENAUS-
WAHLTABELLEN

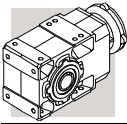
28 - DONNEES TECHNIQUES
MOTOREDUCTEURS

0.09 kW

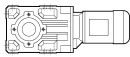

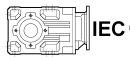


| n_2 min ⁻¹ | M ₂ Nm | S | i | R _{n2} N |  |  |  IEC  |  |
|----------------------------|----------------------|------|-------|----------------------|---|---|---|---|
| 0.51 | 1524 | 3.5 | 1715 | 50000 | | | A704_1715 P63 BN63A6 | 98 |
| 0.65 | 1196 | 4.4 | 1346 | 50000 | | | A704_1346 P63 BN63A6 | 98 |
| 0.82 | 953 | 5.5 | 1072 | 50000 | | | A704_1072 P63 BN63A6 | 98 |
| 1.1 | 692 | 2.3 | 778.2 | 20000 | | | A504_778.2 P63 BN63A6 | 92 |
| 1.4 | 552 | 2.9 | 621.3 | 20000 | | | A504_621.3 P63 BN63A6 | 92 |
| 1.7 | 471 | 3.4 | 529.5 | 20000 | | | A504_529.5 P63 BN63A6 | 92 |
| 2.2 | 364 | 1.0 | 400.8 | 9600 | A303_400.8 S05 M05A6 | 85 | A303_400.8 P63 BN63A6 | 86 |
| 2.3 | 342 | 2.6 | 376.8 | 15000 | A413_376.8 S05 M05A6 | 88 | A413_376.8 P63 BN63A6 | 89 |
| 2.7 | 294 | 3.1 | 324.2 | 15000 | A413_324.2 S05 M05A6 | 88 | A413_324.2 P63 BN63A6 | 89 |
| 2.8 | 286 | 1.5 | 314.6 | 9600 | A303_314.6 S05 M05A6 | 85 | A303_314.6 P63 BN63A6 | 86 |
| 3.2 | 247 | 1.8 | 271.5 | 9600 | A303_271.5 S05 M05A6 | 85 | A303_271.5 P63 BN63A6 | 86 |
| 3.4 | 238 | 3.8 | 262.5 | 15000 | A413_262.5 S05 M05A6 | 88 | A413_262.5 P63 BN63A6 | 89 |
| 3.4 | 237 | 1.1 | 260.5 | 6200 | A203_260.5 S05 M05A6 | 82 | A203_260.5 P63 BN63A6 | 83 |
| 4.0 | 201 | 1.3 | 221.3 | 6200 | A203_221.3 S05 M05A6 | 82 | A203_221.3 P63 BN63A6 | 83 |
| 4.1 | 197 | 2.2 | 216.6 | 9600 | A303_216.6 S05 M05A6 | 85 | A303_216.6 P63 BN63A6 | 86 |
| 4.9 | 162 | 2.6 | 178.5 | 9600 | A303_178.5 S05 M05A6 | 85 | A303_178.5 P63 BN63A6 | 86 |
| 4.9 | 162 | 1.6 | 178.3 | 6200 | A203_178.3 S05 M05A6 | 82 | A203_178.3 P63 BN63A6 | 83 |
| 6.0 | 133 | 2.0 | 146.1 | 6200 | A203_146.1 S05 M05A6 | 82 | A203_146.1 P63 BN63A6 | 83 |
| 7.3 | 109 | 2.4 | 120.5 | 6200 | A203_120.5 S05 M05A6 | 82 | A203_120.5 P63 BN63A6 | 83 |
| 9.5 | 86 | 2.4 | 92.3 | 6200 | A202_92.3 S05 M05A6 | 82 | A202_92.3 P63 BN63A6 | 83 |
| 9.6 | 85 | 1.6 | 91.6 | 5500 | A102_91.6 S05 M05A6 | 79 | A102_91.6 P63 BN63A6 | 80 |
| 11.0 | 74 | 3.0 | 79.9 | 6200 | A202_79.9 S05 M05A6 | 82 | A202_79.9 P63 BN63A6 | 83 |
| 11.5 | 71 | 2.2 | 76.4 | 5500 | A102_76.4 S05 M05A6 | 79 | A102_76.4 P63 BN63A6 | 80 |
| 13.3 | 61 | 2.6 | 65.9 | 5500 | A102_65.9 S05 M05A6 | 79 | A102_65.9 P63 BN63A6 | 80 |
| 17.2 | 48 | 3.3 | 51.3 | 5500 | A102_51.3 S05 M05A6 | 79 | A102_51.3 P63 BN63A6 | 80 |
| 19.4 | 42 | 3.7 | 45.4 | 5500 | A102_45.4 S05 M05A6 | 79 | A102_45.4 P63 BN63A6 | 80 |
| 25.1 | 33 | 4.8 | 35.1 | 5500 | A102_35.1 S05 M05A6 | 79 | A102_35.1 P63 BN63A6 | 80 |
| 31 | 27 | 5.9 | 28.6 | 5500 | A102_28.6 S05 M05A6 | 79 | A102_28.6 P63 BN63A6 | 80 |
| 47 | 17 | 9.1 | 18.6 | 5180 | A102_18.6 S05 M05A6 | 79 | A102_18.6 P63 BN63A6 | 80 |
| 63 | 13 | 12.1 | 13.9 | 4730 | A102_13.9 S05 M05A6 | 79 | A102_13.9 P63 BN63A6 | 80 |
| 72 | 11 | 12.8 | 12.3 | 4540 | A102_12.3 S05 M05A6 | 79 | A102_12.3 P63 BN63A6 | 80 |
| 83 | 10 | 16.0 | 10.6 | 4330 | A102_10.6 S05 M05A6 | 79 | A102_10.6 P63 BN63A6 | 80 |
| 92 | 9 | 16.4 | 9.6 | 4200 | A102_9.6 S05 M05A6 | 79 | A102_9.6 P63 BN63A6 | 80 |
| 122 | 7 | 21.9 | 7.2 | 3830 | A102_7.2 S05 M05A6 | 79 | A102_7.2 P63 BN63A6 | 80 |
| 161 | 5 | 28.9 | 5.5 | 3500 | A102_5.5 S05 M05A6 | 79 | A102_5.5 P63 BN63A6 | 80 |

0.12 kW

| | | | | | | | | |
|------|------|-----|-------|-------|----------------------|----|-----------------------|----|
| 0.53 | 2056 | 2.6 | 1715 | 50000 | | | A704_1715 P63 BN63B6 | 98 |
| 0.68 | 1613 | 3.3 | 1346 | 50000 | | | A704_1346 P63 BN63B6 | 98 |
| 0.85 | 1285 | 4.2 | 1072 | 50000 | | | A704_1072 P63 BN63B6 | 98 |
| 0.98 | 1111 | 4.8 | 926.5 | 50000 | | | A704_926.5 P63 BN63B6 | 98 |
| 1.2 | 933 | 1.7 | 778.2 | 20000 | | | A504_778.2 P63 BN63B6 | 91 |
| 1.2 | 905 | 3.3 | 755.4 | 30000 | | | A604_755.4 P63 BN63B6 | 95 |
| 1.3 | 849 | 1.9 | 707.9 | 20000 | | | A504_707.9 P63 BN63B6 | 91 |
| 1.5 | 745 | 2.2 | 621.3 | 20000 | | | A504_621.3 P63 BN63B6 | 91 |
| 1.7 | 635 | 2.5 | 529.5 | 20000 | | | A504_529.5 P63 BN63B6 | 91 |
| 1.9 | 564 | 2.9 | 707.9 | 20000 | | | A504_707.9 P63 BN63A4 | 91 |
| 2.1 | 495 | 3.3 | 621.3 | 20000 | | | A504_621.3 P63 BN63A4 | 91 |
| 2.3 | 462 | 2.0 | 376.8 | 15000 | A413_376.8 S05 M05B6 | 88 | A413_376.8 P63 BN63B6 | 89 |
| 2.7 | 397 | 2.3 | 324.2 | 15000 | A413_324.2 S05 M05B6 | 88 | A413_324.2 P63 BN63B6 | 89 |
| 2.8 | 385 | 1.1 | 314.6 | 9600 | A303_314.6 S05 M05B6 | 85 | A303_314.6 P63 BN63B6 | 86 |
| 3.3 | 322 | 2.8 | 262.5 | 15000 | A413_262.5 S05 M05B6 | 88 | A413_262.5 P63 BN63B6 | 89 |
| 3.3 | 326 | 1.2 | 400.8 | 9600 | A303_400.8 S05 M05A4 | 85 | A303_400.8 P63 BN63A4 | 86 |
| 3.5 | 307 | 3.0 | 376.8 | 15000 | A413_376.8 S05 M05A4 | 88 | A413_376.8 P63 BN63A4 | 89 |
| 4.0 | 268 | 1.0 | 329.4 | 6200 | A203_329.4 S05 M05A4 | 82 | A203_329.4 P63 BN63A4 | 83 |
| 4.0 | 264 | 3.5 | 324.2 | 15000 | A413_324.2 S05 M05A4 | 88 | A413_324.2 P63 BN63A4 | 89 |
| 4.2 | 256 | 1.7 | 314.6 | 9600 | A303_314.6 S05 M05A4 | 85 | A303_314.6 P63 BN63A4 | 86 |
| 4.8 | 221 | 1.9 | 271.5 | 9600 | A303_271.5 S05 M05A4 | 85 | A303_271.5 P63 BN63A4 | 86 |
| 5.0 | 212 | 1.3 | 260.5 | 6200 | A203_260.5 S05 M05A4 | 82 | A203_260.5 P63 BN63A4 | 83 |
| 5.9 | 180 | 1.5 | 221.3 | 6200 | A203_221.3 S05 M05A4 | 82 | A203_221.3 P63 BN63A4 | 83 |
| 6.0 | 176 | 2.2 | 216.6 | 9600 | A303_216.6 S05 M05A4 | 85 | A303_216.6 P63 BN63A4 | 86 |
| 7.3 | 145 | 2.6 | 178.5 | 9600 | A303_178.5 S05 M05A4 | 85 | A303_178.5 P63 BN63A4 | 86 |
| 7.3 | 145 | 1.8 | 178.3 | 6200 | A203_178.3 S05 M05A4 | 82 | A203_178.3 P63 BN63A4 | 83 |

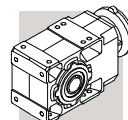


0.12 kW

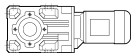

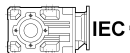


| n_2 min ⁻¹ | M_2 Nm | S | i | R_{n2} N |  |  |  IEC  |  |
|----------------------------|-------------|------|-------|---------------|---|---|---|---|
| 9.0 | 119 | 2.1 | 146.1 | 6200 | A203_146.1 S05 M05A4 | 82 | A203_146.1 P63 BN63A4 | 83 |
| 9.4 | 116 | 1.8 | 92.3 | 6200 | A202_92.3 S05 M05B6 | 82 | A202_92.3 P63 BN63B6 | 83 |
| 9.5 | 115 | 1.2 | 91.6 | 5500 | A102_91.6 S05 M05B6 | 79 | A102_91.6 P63 BN63B6 | 80 |
| 10.9 | 100 | 2.2 | 79.9 | 6200 | A202_79.9 S05 M05B6 | 82 | A202_79.9 P63 BN63B6 | 83 |
| 10.9 | 98 | 2.3 | 120.5 | 6200 | A203_120.5 S05 M05A4 | 82 | A203_120.5 P63 BN63A4 | 83 |
| 11.4 | 96 | 1.7 | 76.4 | 5500 | A102_76.4 S05 M05B6 | 79 | A102_76.4 P63 BN63B6 | 80 |
| 13.2 | 83 | 1.9 | 65.9 | 5500 | A102_65.9 S05 M05B6 | 79 | A102_65.9 P63 BN63B6 | 80 |
| 14.2 | 77 | 2.8 | 92.3 | 6200 | A202_92.3 S05 M05A4 | 82 | A202_92.3 P63 BN63A4 | 83 |
| 14.3 | 76 | 1.8 | 91.6 | 5500 | A102_91.6 S05 M05A4 | 79 | A102_91.6 P63 BN63A4 | 80 |
| 17.0 | 64 | 2.5 | 51.3 | 5500 | A102_51.3 S05 M05B6 | 79 | A102_51.3 P63 BN63B6 | 80 |
| 17.1 | 64 | 2.6 | 76.4 | 5500 | A102_76.4 S05 M05A4 | 79 | A102_76.4 P63 BN63A4 | 80 |
| 19.9 | 55 | 3.0 | 65.9 | 5500 | A102_65.9 S05 M05A4 | 79 | A102_65.9 P63 BN63A4 | 80 |
| 24.8 | 44 | 3.6 | 35.1 | 5500 | A102_35.1 S05 M05B6 | 79 | A102_35.1 P63 BN63B6 | 80 |
| 25.6 | 43 | 3.8 | 51.3 | 5500 | A102_51.3 S05 M05A4 | 79 | A102_51.3 P63 BN63A4 | 80 |
| 28.9 | 38 | 4.3 | 45.4 | 5500 | A102_45.4 S05 M05A4 | 79 | A102_45.4 P63 BN63A4 | 80 |
| 37 | 29 | 5.6 | 35.1 | 5470 | A102_35.1 S05 M05A4 | 79 | A102_35.1 P63 BN63A4 | 80 |
| 46 | 24 | 6.8 | 28.6 | 5140 | A102_28.6 S05 M05A4 | 79 | A102_28.6 P63 BN63A4 | 80 |
| 55 | 20 | 8.2 | 23.8 | 4850 | A102_23.8 S05 M05A4 | 79 | A102_23.8 P63 BN63A4 | 80 |
| 62 | 17 | 9.1 | 13.9 | 4700 | A102_13.9 S05 M05B6 | 79 | A102_13.9 P63 BN63B6 | 80 |
| 71 | 15 | 10.5 | 18.6 | 4490 | A102_18.6 S05 M05A4 | 79 | A102_18.6 P63 BN63A4 | 80 |
| 82 | 13 | 12.0 | 10.6 | 4300 | A102_10.6 S05 M05B6 | 79 | A102_10.6 P63 BN63B6 | 80 |
| 94 | 12 | 14.0 | 13.9 | 4100 | A102_13.9 S05 M05A4 | 79 | A102_13.9 P63 BN63A4 | 80 |
| 106 | 10 | 14.8 | 12.3 | 3940 | A102_12.3 S05 M05A4 | 79 | A102_12.3 P63 BN63A4 | 80 |
| 124 | 9 | 18.5 | 10.6 | 3750 | A102_10.6 S05 M05A4 | 79 | A102_10.6 P63 BN63A4 | 80 |
| 136 | 8 | 18.9 | 9.6 | 3640 | A102_9.6 S05 M05A4 | 79 | A102_9.6 P63 BN63A4 | 80 |
| 159 | 7 | 21.6 | 5.5 | 3480 | A102_5.5 S05 M05B6 | 79 | A102_5.5 P63 BN63B6 | 80 |
| 182 | 6 | 25.2 | 7.2 | 3310 | A102_7.2 S05 M05A4 | 79 | A102_7.2 P63 BN63A4 | 80 |
| 240 | 5 | 33.3 | 5.5 | 3030 | A102_5.5 S05 M05A4 | 79 | A102_5.5 P63 BN63A4 | 80 |

0.18 kW

| | | | | | | | | |
|------|------|-----|-------|-------|----------------------|----|-----------------------|----|
| 0.52 | 2915 | 1.7 | 1715 | 50000 | A704_1715 S1 M1SC6 | 97 | A704_1715 P71 BN71A6 | 98 |
| 0.67 | 2288 | 2.2 | 1346 | 50000 | A704_1346 S1 M1SC6 | 97 | A704_1346 P71 BN71A6 | 98 |
| 0.77 | 2032 | 2.6 | 1715 | 50000 | | | A704_1715 P63 BN63B4 | 98 |
| 0.83 | 1876 | 2.9 | 1583 | 50000 | | | A704_1583 P63 BN63B4 | 98 |
| 0.98 | 1595 | 3.4 | 1346 | 50000 | | | A704_1346 P63 BN63B4 | 98 |
| 1.2 | 1323 | 1.1 | 778.2 | 20000 | A504_778.2 S1 M1SC6 | 91 | A504_778.2 P71 BN71A6 | 92 |
| 1.3 | 1185 | 2.4 | 697.3 | 30000 | A604_697.3 S1 M1SC6 | 94 | A604_697.3 P71 BN71A6 | 95 |
| 1.5 | 996 | 2.8 | 585.8 | 30000 | A604_585.8 S1 M1SC6 | 94 | A604_585.8 P71 BN71A6 | 95 |
| 1.6 | 976 | 1.5 | 574.2 | 20000 | A504_574.2 S1 M1SC6 | 91 | A504_574.2 P71 BN71A6 | 92 |
| 1.7 | 922 | 1.8 | 778.2 | 20000 | | | A504_778.2 P63 BN63B4 | 92 |
| 1.8 | 850 | 3.3 | 500.3 | 30000 | A604_500.3 S1 M1SC6 | 94 | A604_500.3 P71 BN71A6 | 95 |
| 1.9 | 839 | 1.9 | 707.9 | 20000 | | | A504_707.9 P63 BN63B4 | 92 |
| 2.1 | 736 | 2.2 | 621.3 | 20000 | | | A504_621.3 P63 BN63B4 | 92 |
| 2.4 | 655 | 1.3 | 376.8 | 15000 | A413_376.8 S1 M1SC6 | 88 | A413_376.8 P71 BN71A6 | 89 |
| 2.3 | 681 | 2.4 | 574.3 | 20000 | | | A504_574.3 P63 BN63B4 | 92 |
| 2.5 | 627 | 2.6 | 529.5 | 20000 | | | A504_529.5 P63 BN63B4 | 92 |
| 2.8 | 563 | 1.5 | 324.2 | 15000 | A413_324.2 S1 M1SC6 | 88 | A413_324.2 P71 BN71A6 | 89 |
| 3.0 | 529 | 3.1 | 446.8 | 20000 | | | A504_446.8 P63 BN63B4 | 92 |
| 3.2 | 482 | 3.4 | 406.4 | 20000 | | | A504_406.4 P63 BN63B4 | 92 |
| 3.4 | 456 | 1.9 | 262.5 | 15000 | A413_262.5 S1 M1SC6 | 88 | A413_262.5 P71 BN71A6 | 89 |
| 3.5 | 456 | 2.0 | 376.8 | 15000 | A413_376.8 S05 M05B4 | 88 | A413_376.8 P63 BN63B4 | 89 |
| 4.1 | 393 | 2.3 | 324.2 | 15000 | A413_324.2 S05 M05B4 | 88 | A413_324.2 P63 BN63B4 | 89 |
| 4.2 | 381 | 1.1 | 314.6 | 9600 | A303_314.6 S05 M05B4 | 85 | A303_314.6 P63 BN63B4 | 86 |
| 4.9 | 320 | 2.7 | 184.4 | 15000 | A413_184.4 S1 M1SC6 | 88 | A413_184.4 P71 BN71A6 | 89 |
| 4.9 | 329 | 1.2 | 271.5 | 9600 | A303_271.5 S05 M05B4 | 85 | A303_271.5 P63 BN63B4 | 86 |
| 5.0 | 318 | 2.9 | 262.5 | 15000 | A413_262.5 S05 M05B4 | 88 | A413_262.5 P63 BN63B4 | 89 |
| 6.0 | 262 | 1.5 | 150.7 | 9600 | A303_150.7 S1 M1SC6 | 85 | A303_150.7 P71 BN71A6 | 86 |
| 6.0 | 268 | 1.0 | 221.3 | 6200 | A203_221.3 S05 M05B4 | 82 | A203_221.3 P63 BN63B4 | 83 |
| 6.1 | 263 | 3.5 | 217.4 | 15000 | A413_217.4 S05 M05B4 | 88 | A413_217.4 P63 BN63B4 | 89 |
| 6.1 | 262 | 1.5 | 216.6 | 9600 | A303_216.6 S05 M05B4 | 85 | A303_216.6 P63 BN63B4 | 86 |
| 7.4 | 216 | 1.7 | 178.5 | 9600 | A303_178.5 S05 M05B4 | 85 | A303_178.5 P63 BN63B4 | 86 |
| 7.4 | 216 | 1.2 | 178.3 | 6200 | A203_178.3 S05 M05B4 | 82 | A203_178.3 P63 BN63B4 | 83 |
| 8.8 | 182 | 1.9 | 150.7 | 9600 | A303_150.7 S05 M05B4 | 85 | A303_150.7 P63 BN63B4 | 86 |
| 9.0 | 177 | 1.4 | 146.1 | 6200 | A203_146.1 S05 M05B4 | 82 | A203_146.1 P63 BN63B4 | 83 |
| 9.7 | 166 | 1.2 | 92.3 | 6200 | A202_92.3 S1 M1SC6 | 82 | A202_92.3 P71 BN71A6 | 83 |
| 11.3 | 143 | 1.5 | 79.9 | 6200 | A202_79.9 S1 M1SC6 | 82 | A202_79.9 P71 BN71A6 | 83 |

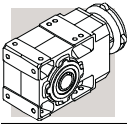


0.18 kW

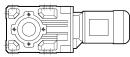

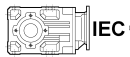


| n_2 min ⁻¹ | M ₂ Nm | S | i | R _{n2} N |  |  |  IEC  |  |
|----------------------------|----------------------|------|-------|----------------------|---|---|---|---|
| 11.0 | 146 | 1.5 | 120.5 | 6200 | A203_120.5 S05 M05B4 | 82 | A203_120.5 P63 BN63B4 | 83 |
| 11.0 | 146 | 2.2 | 120.5 | 9600 | A303_120.5 S05 M05B4 | 85 | A303_120.5 P63 BN63B4 | 86 |
| 11.8 | 137 | 2.5 | 76.5 | 9600 | A302_76.5 S1 M1SC6 | 85 | A302_76.5 P71 BN71A6 | 86 |
| 11.8 | 137 | 1.1 | 76.4 | 5500 | A102_76.4 S1 M1SC6 | 79 | A102_76.4 P71 BN71A6 | 80 |
| 13.5 | 118 | 2.6 | 97.5 | 9600 | | | A302_97.5 P63 BN63B4 | 86 |
| 14.3 | 114 | 1.9 | 92.3 | 6200 | A202_92.3 S05 M05B4 | 82 | A202_92.3 P63 BN63B4 | 83 |
| 14.4 | 113 | 1.2 | 91.6 | 5500 | A102_91.6 S05 M05B4 | 79 | A102_91.6 P63 BN63B4 | 80 |
| 16.5 | 99 | 2.3 | 79.9 | 6200 | A202_79.9 S05 M05B4 | 82 | A202_79.9 P63 BN63B4 | 83 |
| 17.3 | 95 | 1.7 | 76.4 | 5500 | A102_76.4 S05 M05B4 | 79 | A102_76.4 P63 BN63B4 | 80 |
| 20.0 | 82 | 2.0 | 65.9 | 5500 | A102_65.9 S05 M05B4 | 79 | A102_65.9 P63 BN63B4 | 80 |
| 20.9 | 78 | 3.3 | 63.1 | 6200 | A202_63.1 S05 M05B4 | 82 | A202_63.1 P63 BN63B4 | 83 |
| 25.6 | 63 | 2.4 | 35.1 | 5500 | A102_35.1 S1 M1SC6 | 79 | A102_35.1 P71 BN71A6 | 80 |
| 25.8 | 63 | 2.5 | 51.3 | 5500 | A102_51.3 S05 M05B4 | 79 | A102_51.3 P63 BN63B4 | 80 |
| 29.1 | 56 | 2.8 | 45.4 | 5500 | A102_45.4 S05 M05B4 | 79 | A102_45.4 P63 BN63B4 | 80 |
| 38 | 43 | 3.5 | 23.8 | 5450 | A102_23.8 S1 M1SC6 | 79 | A102_23.8 P71 BN71A6 | 80 |
| 38 | 43 | 3.7 | 35.1 | 5380 | A102_35.1 S05 M05B4 | 79 | A102_35.1 P63 BN63B4 | 80 |
| 46 | 35 | 4.5 | 28.6 | 5060 | A102_28.6 S05 M05B4 | 79 | A102_28.6 P63 BN63B4 | 80 |
| 56 | 29 | 5.4 | 23.8 | 4790 | A102_23.8 S05 M05B4 | 79 | A102_23.8 P63 BN63B4 | 80 |
| 65 | 25 | 6.0 | 13.9 | 4640 | A102_13.9 S1 M1SC6 | 79 | A102_13.9 P71 BN71A6 | 80 |
| 71 | 23 | 6.9 | 18.6 | 4440 | A102_18.6 S05 M05B4 | 79 | A102_18.6 P63 BN63B4 | 80 |
| 85 | 19 | 7.9 | 10.6 | 4270 | A102_10.6 S1 M1SC6 | 79 | A102_10.6 P71 BN71A6 | 80 |
| 94 | 17 | 8.1 | 9.6 | 4140 | A102_9.6 S1 M1SC6 | 79 | A102_9.6 P71 BN71A6 | 80 |
| 95 | 17 | 9.3 | 13.9 | 4060 | A102_13.9 S05 M05B4 | 79 | A102_13.9 P63 BN63B4 | 80 |
| 107 | 15 | 9.8 | 12.3 | 3910 | A102_12.3 S05 M05B4 | 79 | A102_12.3 P63 BN63B4 | 80 |
| 125 | 13 | 12.2 | 10.6 | 3720 | A102_10.6 S05 M05B4 | 79 | A102_10.6 P63 BN63B4 | 80 |
| 137 | 12 | 12.5 | 9.6 | 3610 | A102_9.6 S05 M05B4 | 79 | A102_9.6 P63 BN63B4 | 80 |
| 145 | 11 | 13.8 | 18.6 | 3560 | A102_18.6 S05 M05A2 | 79 | A102_18.6 P63 BN63A2 | 80 |
| 165 | 10 | 14.3 | 5.5 | 3470 | A102_5.5 S1 M1SC6 | 79 | A102_5.5 P71 BN71A6 | 80 |
| 183 | 9 | 16.7 | 7.2 | 3300 | A102_7.2 S05 M05B4 | 79 | A102_7.2 P63 BN63B4 | 80 |
| 219 | 7 | 19.8 | 12.3 | 3120 | A102_12.3 S05 M05A2 | 79 | A102_12.3 P63 BN63A2 | 80 |
| 242 | 7 | 22.0 | 5.5 | 3020 | A102_5.5 S05 M05B4 | 79 | A102_5.5 P63 BN63B4 | 80 |
| 256 | 6 | 20.6 | 10.6 | 2970 | A102_10.6 S05 M05A2 | 79 | A102_10.6 P63 BN63A2 | 80 |
| 281 | 6 | 25.3 | 9.6 | 2890 | A102_9.6 S05 M05A2 | 79 | A102_9.6 P63 BN63A2 | 80 |
| 374 | 4 | 33.8 | 7.2 | 2630 | A102_7.2 S05 M05A2 | 79 | A102_7.2 P63 BN63A2 | 80 |

0.25 kW

| | | | | | | | | |
|------|------|-----|-------|-------|----------------------|----|-----------------------|----|
| 0.52 | 4049 | 1.2 | 1715 | 50000 | A704_1715 S1 M1SD6 | 97 | A704_1715 P71 BN71B6 | 98 |
| 0.67 | 3178 | 1.6 | 1346 | 50000 | A704_1346 S1 M1SD6 | 97 | A704_1346 P71 BN71B6 | 98 |
| 0.80 | 2710 | 1.9 | 1715 | 50000 | | | A704_1715 P71 BN71A4 | 98 |
| 1.0 | 2127 | 2.4 | 1346 | 50000 | | | A704_1346 P71 BN71A4 | 98 |
| 1.2 | 1836 | 2.8 | 1162 | 50000 | | | A704_1162 P71 BN71A4 | 98 |
| 1.2 | 1783 | 1.6 | 755.4 | 30000 | A604_755.4 S1 M1SD6 | 94 | A604_755.4 P71 BN71B6 | 95 |
| 1.5 | 1464 | 3.5 | 926.5 | 50000 | | | A704_926.5 P71 BN71A4 | 98 |
| 1.5 | 1383 | 2.0 | 585.8 | 30000 | A604_585.8 S1 M1SD6 | 94 | A604_585.8 P71 BN71B6 | 95 |
| 1.8 | 1230 | 1.2 | 778.2 | 20000 | | | A504_778.2 P71 BN71A4 | 92 |
| 1.8 | 1181 | 2.4 | 500.3 | 30000 | A604_500.3 S1 M1SD6 | 94 | A604_500.3 P71 BN71B6 | 95 |
| 1.9 | 1119 | 1.4 | 707.9 | 20000 | | | A504_707.9 P71 BN71A4 | 92 |
| 2.0 | 1102 | 2.6 | 697.3 | 30000 | | | A604_697.3 P71 BN71A4 | 95 |
| 2.2 | 1003 | 2.9 | 634.6 | 30000 | | | A604_634.6 P71 BN71A4 | 95 |
| 2.2 | 982 | 1.6 | 621.3 | 20000 | | | A504_621.3 P71 BN71A4 | 92 |
| 2.5 | 856 | 3.3 | 542.0 | 20000 | | | A604_542.0 P71 BN71A4 | 95 |
| 2.6 | 837 | 1.8 | 529.5 | 20000 | | | A504_529.6 P71 BN71A4 | 92 |
| 2.8 | 758 | 2.0 | 481.6 | 20000 | | | A504_481.6 P71 BN71A4 | 92 |
| 3.1 | 706 | 2.2 | 446.8 | 20000 | | | A504_446.8 P71 BN71A4 | 92 |
| 3.4 | 642 | 2.4 | 406.4 | 20000 | | | A504_406.4 P71 BN71A4 | 92 |
| 3.4 | 634 | 1.3 | 262.5 | 15000 | A413_262.5 S1 M1SD6 | 88 | A413_262.5 P71 BN71B6 | 89 |
| 3.5 | 634 | 1.4 | 376.8 | 15000 | A413_376.8 S05 M05C4 | 88 | A413_376.8 P71 BN71A4 | 89 |
| 3.8 | 578 | 2.7 | 365.6 | 20000 | | | A504_365.6 P71 BN71A4 | 92 |
| 4.1 | 526 | 2.9 | 332.6 | 20000 | | | A504_332.6 P71 BN71A4 | 92 |
| 4.1 | 545 | 1.7 | 324.2 | 15000 | A413_324.2 S05 M05C4 | 88 | A413_324.2 P71 BN71A4 | 89 |
| 4.8 | 453 | 3.4 | 286.8 | 20000 | | | A504_286.8 P71 BN71A4 | 95 |
| 5.0 | 441 | 2.0 | 262.5 | 15000 | A413_262.5 S05 M05C4 | 88 | A413_262.5 P71 BN71A4 | 89 |
| 6.1 | 366 | 2.5 | 217.4 | 15000 | A413_217.4 S05 M05C4 | 88 | A413_217.4 P71 BN71A4 | 89 |
| 6.1 | 364 | 1.1 | 216.6 | 9600 | A303_216.6 S05 M05C4 | 85 | A303_216.6 P71 BN71A4 | 86 |
| 7.2 | 310 | 2.9 | 184.4 | 15000 | A413_184.4 S05 M05C4 | 88 | A413_184.4 P71 BN71A4 | 89 |
| 7.4 | 300 | 1.2 | 178.5 | 9600 | A303_178.5 S05 M05C4 | 85 | A303_178.5 P71 BN71A4 | 86 |
| 8.8 | 253 | 1.4 | 150.7 | 9600 | A303_150.7 S05 M05C4 | 85 | A303_150.7 P71 BN71A4 | 86 |

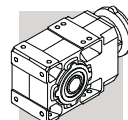


0.25 kW

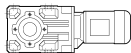

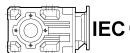


| n_2 min ⁻¹ | M ₂ Nm | S | i | R _{n2} N |  |  |  IEC  |  |
|----------------------------|----------------------|------|-------|----------------------|---|---|---|---|
| 9.2 | 243 | 1.2 | 97.5 | 9600 | A302_97.5 S05 M1SD6 | 85 | A302_97.5 P71 BN71B6 | 86 |
| 9.0 | 247 | 3.7 | 146.9 | 15000 | A413_146.9 S05 M05C4 | 88 | A413_146.9 P71 BN71A4 | 89 |
| 9.0 | 246 | 1.0 | 146.1 | 6200 | A203_146.1 S05 M05C4 | 82 | A203_146.1 P71 BN71A4 | 83 |
| 11.0 | 203 | 1.1 | 120.5 | 6200 | A203_120.5 S05 M05C4 | 82 | A203_120.5 P71 BN71A4 | 83 |
| 11.0 | 203 | 1.6 | 120.5 | 9600 | A303_120.5 S05 M05C4 | 85 | A303_120.5 P71 BN71A4 | 86 |
| 14.1 | 161 | 1.9 | 97.5 | 9600 | | | A302_97.5 P71 BN71A4 | 86 |
| 14.3 | 159 | 1.3 | 92.3 | 6200 | A202_92.3 S05 M05C4 | 82 | A202_92.3 P71 BN71A4 | 83 |
| 16.5 | 137 | 1.6 | 79.9 | 6200 | A202_79.9 S05 M05C4 | 82 | A202_79.9 P71 BN71A4 | 83 |
| 18.0 | 126 | 2.8 | 76.5 | 9600 | | | A302_76.5 P71 BN71A4 | 86 |
| 17.3 | 131 | 1.2 | 76.4 | 5500 | A102_76.4 S05 M05C4 | 79 | A102_76.4 P71 BN71A4 | 80 |
| 20.0 | 113 | 1.4 | 65.9 | 5500 | A102_65.9 S05 M05C4 | 79 | A102_65.9 P71 BN71A4 | 80 |
| 20.9 | 108 | 2.4 | 63.1 | 6200 | A202_63.1 S05 M05C4 | 82 | A202_63.1 P71 BN71A4 | 83 |
| 24.6 | 92 | 2.9 | 53.7 | 6200 | A202_53.7 S05 M05C4 | 82 | A202_53.7 P71 BN71A4 | 83 |
| 25.8 | 88 | 1.8 | 51.3 | 5500 | A102_51.3 S05 M05C4 | 79 | A102_51.3 P71 BN71A4 | 80 |
| 29.1 | 78 | 2.0 | 45.4 | 5500 | A102_45.4 S05 M05C4 | 79 | A102_45.4 P71 BN71A4 | 80 |
| 38 | 59 | 2.5 | 23.8 | 5310 | A102_23.8 S1 M1SD6 | 79 | A102_23.8 P71 BN71B6 | 80 |
| 38 | 60 | 2.6 | 35.1 | 5260 | A102_35.1 S05 M05C4 | 79 | A102_35.1 P71 BN71A4 | 80 |
| 46 | 49 | 3.2 | 28.6 | 4970 | A102_28.6 S05 M05C4 | 79 | A102_28.6 P71 BN71A4 | 80 |
| 56 | 41 | 3.9 | 23.8 | 4710 | A102_23.8 S05 M05C4 | 79 | A102_23.8 P71 BN71A4 | 80 |
| 65 | 35 | 4.3 | 13.9 | 4560 | A102_13.9 S1 M1SD6 | 79 | A102_13.9 P71 BN71B6 | 80 |
| 71 | 32 | 4.9 | 18.6 | 4390 | A102_18.6 S05 M05C4 | 79 | A102_18.6 P71 BN71A4 | 80 |
| 85 | 26 | 5.7 | 10.6 | 4210 | A102_10.6 S1 M1SD6 | 79 | A102_10.6 P71 BN71B6 | 80 |
| 94 | 24 | 5.8 | 9.6 | 4090 | A102_9.6 S1 M1SD6 | 79 | A102_9.6 P71 BN71B6 | 80 |
| 95 | 24 | 6.6 | 13.9 | 4020 | A102_13.9 S05 M05C4 | 79 | A102_13.9 P71 BN71A4 | 80 |
| 107 | 21 | 7.0 | 12.3 | 3870 | A102_12.3 S05 M05C4 | 79 | A102_12.3 P71 BN71A4 | 80 |
| 125 | 18 | 7.8 | 7.2 | 3740 | A102_7.2 S1 M1SD6 | 79 | A102_7.2 P71 BN71B6 | 80 |
| 125 | 18 | 8.7 | 10.6 | 3700 | A102_10.6 S05 M05C4 | 79 | A102_10.6 P71 BN71A4 | 80 |
| 137 | 17 | 8.9 | 9.6 | 3590 | A102_9.6 S05 M05C4 | 79 | A102_9.6 P71 BN71A4 | 80 |
| 145 | 16 | 9.9 | 18.6 | 3530 | A102_18.6 S05 M05B2 | 79 | A102_18.6 P63 BN63B2 | 80 |
| 183 | 12 | 11.9 | 7.2 | 3280 | A102_7.2 S05 M05C4 | 79 | A102_7.2 P71 BN71A4 | 80 |
| 219 | 10 | 14.2 | 12.3 | 3100 | A102_12.3 S05 M05B2 | 79 | A102_12.3 P63 BN63B2 | 80 |
| 242 | 9 | 15.7 | 5.5 | 3010 | A102_5.5 S05 M05C4 | 79 | A102_5.5 P71 BN71A4 | 80 |
| 256 | 9 | 14.8 | 10.6 | 2960 | A102_10.6 S05 M05B2 | 79 | A102_10.6 P63 BN63B2 | 80 |
| 281 | 8 | 18.2 | 9.6 | 2870 | A102_9.6 S05 M05B2 | 79 | A102_9.6 P63 BN63B2 | 80 |
| 374 | 6 | 24.3 | 7.2 | 2620 | A102_7.2 S05 M05B2 | 79 | A102_7.2 P63 BN63B2 | 80 |
| 494 | 5 | 30.5 | 5.5 | 2390 | A102_5.5 S05 M05B2 | 79 | A102_5.5 P63 BN63B2 | 80 |

0.37 kW

| | | | | | | | | |
|------|------|-----|-------|-------|---------------------|-----|-----------------------|-----|
| 0.56 | 5640 | 2.5 | 1632 | 75000 | | | A904_1632 P80 BN80A6 | 104 |
| 0.57 | 5471 | 0.9 | 1583 | 50000 | A704_1583 S1 M1LA6 | 97 | A704_1583 P80 BN80A6 | 98 |
| 0.80 | 3937 | 1.3 | 1715 | 50000 | A704_1715 S1 M1SD4 | 97 | A704_1715 P71 BN71B4 | 98 |
| 0.84 | 3750 | 2.1 | 1085 | 65000 | A804_1085 S1 M1LA6 | 100 | A804_1085 P80 BN80A6 | 101 |
| 1.0 | 3090 | 1.6 | 1346 | 50000 | A704_1346 S1 M1SD4 | 97 | A704_1346 P71 BN71B4 | 98 |
| 1.0 | 3076 | 2.6 | 1340 | 65000 | A804_1340 S1 M1SD4 | 100 | A804_1340 P71 BN71B4 | 101 |
| 1.2 | 2667 | 1.9 | 1162 | 50000 | A704_1162 S1 M1SD4 | 97 | A704_1162 P71 BN71B4 | 98 |
| 1.3 | 2491 | 3.2 | 1085 | 65000 | A804_1085 S1 M1SD4 | 100 | A804_1085 P71 BN71B4 | 101 |
| 1.4 | 2193 | 1.3 | 634.6 | 30000 | A604_634.6 S1 M1LA6 | 94 | A604_634.6 P80 BN80A6 | 95 |
| 1.5 | 2127 | 2.4 | 926.5 | 50000 | A704_926.5 S1 M1SD4 | 97 | A704_926.5 P71 BN71B4 | 98 |
| 1.8 | 1754 | 2.9 | 763.9 | 50000 | A704_763.9 S1 M1SD4 | 97 | A704_763.9 P71 BN71B4 | 98 |
| 1.8 | 1734 | 1.6 | 755.4 | 30000 | A604_755.4 S1 M1SD4 | 94 | A604_755.4 P71 BN71B4 | 95 |
| 1.9 | 1625 | 0.9 | 707.9 | 20000 | A504_707.9 S1 M1SD4 | 91 | A504_707.9 P71 BN71B4 | 92 |
| 2.1 | 1480 | 3.4 | 644.6 | 50000 | A704_644.6 S1 M1SD4 | 97 | A704_644.6 P71 BN71B4 | 98 |
| 2.2 | 1457 | 1.9 | 634.6 | 30000 | A604_634.6 S1 M1SD4 | 94 | A604_634.6 P71 BN71B4 | 95 |
| 2.2 | 1449 | 1.0 | 631.2 | 20000 | A504_631.2 S1 M1SD4 | 91 | A504_631.2 P71 BN71B4 | 92 |
| 2.5 | 1244 | 2.3 | 542.0 | 30000 | A604_542.0 S1 M1SD4 | 94 | A604_542.0 P71 BN71B4 | 95 |
| 2.6 | 1215 | 1.2 | 529.5 | 20000 | A504_529.5 S1 M1SD4 | 91 | A504_529.5 P71 BN71B4 | 92 |
| 2.8 | 1106 | 1.4 | 481.6 | 20000 | A504_481.6 S1 M1SD4 | 91 | A504_481.6 P71 BN71B4 | 92 |
| 3.1 | 1026 | 1.5 | 446.8 | 20000 | A504_446.8 S1 M1SD4 | 91 | A504_446.8 P71 BN71B4 | 92 |
| 3.4 | 933 | 1.6 | 406.4 | 20000 | A504_406.4 S1 M1SD4 | 91 | A504_406.4 P71 BN71B4 | 92 |
| 3.4 | 929 | 3.0 | 404.7 | 30000 | A604_404.7 S1 M1SD4 | 94 | A604_404.7 P71 BN71B4 | 95 |
| 3.6 | 884 | 1.0 | 376.8 | 15000 | A413_376.8 S1 M1SD4 | 88 | A413_376.8 P71 BN71B4 | 89 |
| 3.7 | 839 | 1.8 | 365.6 | 20000 | A504_365.6 S1 M1SD4 | 91 | A504_365.6 P71 BN71B4 | 92 |
| 4.1 | 763 | 2.0 | 332.6 | 20000 | A504_332.6 S1 M1SD4 | 91 | A504_332.6 P71 BN71B4 | 92 |
| 4.2 | 761 | 1.1 | 324.2 | 15000 | A413_324.2 S1 M1SD4 | 88 | A413_324.2 P71 BN71B4 | 89 |
| 4.8 | 658 | 2.3 | 286.8 | 20000 | A504_286.8 S1 M1SD4 | 91 | A504_286.8 P71 BN71B4 | 92 |
| 4.9 | 651 | 1.3 | 184.4 | 15000 | A413_184.4 S1 M1LA6 | 88 | A413_184.4 P80 BN80A6 | 89 |
| 5.2 | 616 | 1.4 | 262.5 | 15000 | A413_262.5 S1 M1SD4 | 88 | A413_262.5 P71 BN71B4 | 89 |

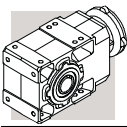


0.37 kW

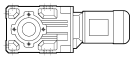



| n_2 min ⁻¹ | M ₂ Nm | S | i | R _{n2} N |  |  |  IEC  |  |
|----------------------------|----------------------|------|-------|----------------------|---|---|---|---|
| 6.2 | 519 | 1.6 | 146.9 | 15000 | A413_146.9 S1 M1LA6 | 88 | A413_146.9 P80 BN80A6 | 89 |
| 6.3 | 510 | 1.7 | 217.4 | 15000 | A413_217.4 S1 M1SD4 | 88 | A413_217.4 P71 BN71B4 | 89 |
| 6.5 | 484 | 3.1 | 211.0 | 20000 | A504_211.0 S1 M1SD4 | 91 | A504_211.0 P71 BN71B4 | 92 |
| 7.4 | 433 | 2.0 | 184.4 | 15000 | A413_184.4 S1 M1SD4 | 88 | A413_184.4 P71 BN71B4 | 89 |
| 9.1 | 354 | 0.9 | 150.7 | 9600 | A303_150.7 S1 M1SD4 | 85 | A303_150.7 P71 BN71B4 | 86 |
| 9.3 | 345 | 2.5 | 146.9 | 15000 | A413_146.9 S1 M1SD4 | 88 | A413_146.9 P71 BN71B4 | 89 |
| 9.8 | 328 | 2.4 | 92.8 | 15000 | A413_92.8 S1 M1LA6 | 88 | A413_92.8 P80 BN80A6 | 89 |
| 11.4 | 283 | 1.1 | 120.5 | 9600 | A303_120.5 S1 M1SD4 | 85 | A303_120.5 P71 BN71B4 | 86 |
| 11.5 | 289 | 2.8 | 79.2 | 15000 | A412_79.2 S1 M1LA6 | 88 | A412_79.2 P80 BN80A6 | 89 |
| 11.8 | 272 | 3.1 | 115.9 | 15000 | A413_115.9 S1 M1SD4 | 88 | A413_115.9 P71 BN71B4 | 89 |
| 14.1 | 236 | 1.3 | 97.5 | 9600 | A302_97.5 S1 M1SD4 | 85 | A302_97.5 P71 BN71B4 | 86 |
| 14.8 | 218 | 3.7 | 92.8 | 15000 | A413_92.8 S1 M1SD4 | 88 | A413_92.8 P71 BN71B4 | 89 |
| 17.2 | 194 | 1.1 | 79.9 | 6200 | A202_79.9 S1 M1SD4 | 82 | A202_79.9 P71 BN71B4 | 83 |
| 17.9 | 186 | 1.9 | 76.5 | 9600 | A302_76.5 S1 M1SD4 | 85 | A302_76.5 P71 BN71B4 | 86 |
| 20.7 | 160 | 2.4 | 66.0 | 9350 | A302_66.0 S1 M1SD4 | 85 | A302_66.0 P71 BN71B4 | 86 |
| 20.8 | 160 | 0.9 | 65.9 | 5500 | A102_65.9 S1 M1SD4 | 79 | A102_65.9 P71 BN71B4 | 80 |
| 21.7 | 153 | 1.6 | 63.1 | 6200 | A202_63.1 S1 M1SD4 | 82 | A202_63.1 P71 BN71B4 | 83 |
| 25.5 | 130 | 1.9 | 53.7 | 6090 | A202_53.7 S1 M1SD4 | 82 | A202_53.7 P71 BN71B4 | 83 |
| 26.0 | 128 | 3.2 | 52.7 | 8790 | A302_52.7 S1 M1SD4 | 85 | A302_52.7 P71 BN71B4 | 86 |
| 26.7 | 124 | 1.2 | 51.3 | 5490 | A102_51.3 S1 M1SD4 | 79 | A102_51.3 P71 BN71B4 | 80 |
| 30 | 110 | 1.4 | 45.4 | 5350 | A102_45.4 S1 M1SD4 | 79 | A102_45.4 P71 BN71B4 | 80 |
| 32 | 105 | 2.4 | 43.2 | 5780 | A202_43.2 S1 M1SD4 | 82 | A202_43.2 P71 BN71B4 | 83 |
| 39 | 86 | 2.9 | 35.4 | 5480 | A202_35.4 S1 M1SD4 | 82 | A202_35.4 P71 BN71B4 | 83 |
| 39 | 85 | 1.8 | 35.1 | 5040 | A102_35.1 S1 M1SD4 | 79 | A102_35.1 P71 BN71B4 | 80 |
| 47 | 71 | 3.5 | 29.2 | 5210 | A202_29.2 S1 M1SD4 | 82 | A202_29.2 P71 BN71B4 | 83 |
| 48 | 69 | 2.2 | 28.6 | 4790 | A102_28.6 S1 M1SD4 | 79 | A102_28.6 P71 BN71B4 | 80 |
| 58 | 58 | 2.6 | 23.8 | 4570 | A102_23.8 S1 M1SD4 | 79 | A102_23.8 P71 BN71B4 | 80 |
| 65 | 51 | 3.0 | 13.9 | 4420 | A102_13.9 S1 M1LA6 | 79 | A102_13.9 P80 BN80A6 | 80 |
| 74 | 45 | 3.3 | 18.6 | 4270 | A102_18.6 S1 M1SD4 | 79 | A102_18.6 P71 BN71B4 | 80 |
| 86 | 39 | 3.9 | 10.6 | 4090 | A102_10.6 S1 M1LA6 | 79 | A102_10.6 P80 BN80A6 | 80 |
| 95 | 35 | 4.0 | 9.6 | 3980 | A102_9.6 S1 M1LA6 | 79 | A102_9.6 P80 BN80A6 | 80 |
| 98 | 34 | 4.4 | 13.9 | 3940 | A102_13.9 S1 M1SD4 | 79 | A102_13.9 P71 BN71B4 | 80 |
| 111 | 30 | 4.7 | 12.3 | 3800 | A102_12.3 S1 M1SD4 | 79 | A102_12.3 P71 BN71B4 | 80 |
| 130 | 26 | 5.9 | 10.6 | 3630 | A102_10.6 S1 M1SD4 | 79 | A102_10.6 P71 BN71B4 | 80 |
| 142 | 23 | 6.0 | 9.6 | 3530 | A102_9.6 S1 M1SD4 | 79 | A102_9.6 P71 BN71B4 | 80 |
| 148 | 23 | 6.7 | 18.6 | 3470 | A102_18.6 S05 M05C2 | 79 | A102_18.6 P71 BN71A2 | 80 |
| 166 | 20 | 7.0 | 5.5 | 3370 | A102_5.5 S1 M1LA6 | 79 | A102_5.5 P80 BN80A6 | 80 |
| 190 | 17 | 8.0 | 7.2 | 3240 | A102_7.2 S1 M1SD4 | 79 | A102_7.2 P71 BN71B4 | 80 |
| 197 | 17 | 8.2 | 13.9 | 3180 | A102_13.9 S05 M05C2 | 79 | A102_13.9 P71 BN71A2 | 80 |
| 223 | 15 | 9.6 | 12.3 | 3060 | A102_12.3 S05 M05C2 | 79 | A102_12.3 P71 BN71A2 | 80 |
| 251 | 13 | 10.6 | 5.5 | 2980 | A102_5.5 S1 M1SD4 | 79 | A102_5.5 P71 BN71B4 | 80 |
| 261 | 13 | 10.0 | 10.6 | 2920 | A102_10.6 S05 M05C2 | 79 | A102_10.6 P71 BN71A2 | 80 |
| 286 | 12 | 12.3 | 9.6 | 2840 | A102_9.6 S05 M05C2 | 79 | A102_9.6 P71 BN71A2 | 80 |
| 381 | 9 | 16.4 | 7.2 | 2590 | A102_7.2 S05 M05C2 | 79 | A102_7.2 P71 BN71A2 | 80 |
| 514 | 6 | 20.6 | 5.5 | 2380 | A102_5.5 S1 M05C2 | 79 | A102_5.5 P71 BN71A2 | 80 |

0.55 kW

| | | | | | | | | |
|------|------|-----|-------|-------|---------------------|-----|-----------------------|-----|
| 0.56 | 8293 | 1.7 | 1632 | 75000 | A904_1632 S2 M2SA6 | 103 | A904_1632 P80 BN80B6 | 104 |
| 0.59 | 7917 | 1.0 | 1558 | 65000 | A804_1558 S2 M2SA6 | 100 | A804_1558 P80 BN80B6 | 101 |
| 0.85 | 5528 | 2.5 | 1632 | 75000 | A904_1632 S1 M1LA4 | 103 | A904_1632 P80 BN80A4 | 104 |
| 0.87 | 5362 | 0.9 | 1583 | 50000 | A704_1583 S1 M1LA4 | 97 | A704_1583 P80 BN80A4 | 98 |
| 0.89 | 5278 | 1.5 | 1558 | 65000 | A804_1558 S1 M1LA4 | 100 | A804_1558 P80 BN80A4 | 101 |
| 1.1 | 4207 | 1.2 | 1242 | 50000 | A704_1242 S1 M1LA4 | 97 | A704_1242 P80 BN80A4 | 98 |
| 1.1 | 4190 | 1.9 | 1237 | 65000 | A804_1237 S1 M1LA4 | 100 | A804_1237 P80 BN80A4 | 101 |
| 1.3 | 3631 | 1.4 | 1072 | 50000 | A704_1072 S1 M1LA4 | 97 | A704_1072 P80 BN80A4 | 98 |
| 1.4 | 3391 | 2.4 | 1001 | 65000 | A804_1001 S1 M1LA4 | 100 | A804_1001 P80 BN80A4 | 101 |
| 1.6 | 2897 | 1.7 | 855.3 | 50000 | A704_855.3 S1 M1LA4 | 97 | A704_855.3 P80 BN80A4 | 98 |
| 1.7 | 2810 | 2.8 | 829.5 | 65000 | A804_829.5 S1 M1LA4 | 100 | A804_829.5 P80 BN80A4 | 101 |
| 2.0 | 2389 | 2.1 | 705.1 | 50000 | A704_705.1 S1 M1LA4 | 97 | A704_705.1 P80 BN80A4 | 98 |
| 2.0 | 2383 | 3.4 | 703.5 | 65000 | A804_703.5 S1 M1LA4 | 100 | A804_703.5 P80 BN80A4 | 101 |
| 2.0 | 2362 | 1.2 | 697.3 | 30000 | A604_697.3 S1 M1LA4 | 94 | A604_697.3 P80 BN80A4 | 95 |
| 2.3 | 2016 | 2.5 | 595.0 | 50000 | A704_595.0 S1 M1LA4 | 97 | A704_595.0 P80 BN80A4 | 98 |
| 2.4 | 1984 | 1.4 | 585.8 | 30000 | A604_585.8 S1 M1LA4 | 94 | A604_585.8 P80 BN80A4 | 95 |
| 2.7 | 1746 | 2.9 | 515.4 | 50000 | A704_515.4 S1 M1LA4 | 97 | A704_515.4 P80 BN80A4 | 98 |
| 2.8 | 1695 | 1.7 | 500.3 | 30000 | A604_500.3 S1 M1LA4 | 94 | A604_500.3 P80 BN80A4 | 95 |
| 2.9 | 1631 | 0.9 | 481.6 | 20000 | A504_481.6 S1 M1LA4 | 91 | A504_481.6 P80 BN80A4 | 92 |



0.55 kW

| n_2 min ⁻¹ | M ₂ Nm | S | i | R _{n2} N |  |  |  |  |
|----------------------------|----------------------|------|-------|----------------------|---|---|---|---|
| 3.1 | 1514 | 1.0 | 446.8 | 20000 | A504_446.8 S1 M1LA4 | 91 | A504_446.8 P80 BN80A4 | 92 |
| 3.1 | 1485 | 1.9 | 438.4 | 30000 | A604_438.4 S1 M1LA4 | 94 | A604_438.4 P80 BN80A4 | 95 |
| 3.4 | 1377 | 1.1 | 406.4 | 20000 | A504_406.4 S1 M1LA4 | 91 | A504_406.4 P80 BN80A4 | 92 |
| 3.4 | 1371 | 2.0 | 404.7 | 30000 | A604_404.7 S1 M1LA4 | 94 | A604_404.7 P80 BN80A4 | 95 |
| 3.8 | 1238 | 1.2 | 365.6 | 20000 | A504_365.6 S1 M1LA4 | 91 | A504_365.6 P80 BN80A4 | 92 |
| 3.9 | 1190 | 2.4 | 351.2 | 30000 | A604_351.2 S1 M1LA4 | 94 | A604_351.2 P80 BN80A4 | 95 |
| 4.1 | 1127 | 1.3 | 332.6 | 20000 | A504_332.6 S1 M1LA4 | 91 | A504_332.6 P80 BN80A4 | 92 |
| 4.3 | 1098 | 2.5 | 324.2 | 30000 | A604_324.2 S1 M1LA4 | 94 | A604_324.2 P80 BN80A4 | 95 |
| 4.8 | 972 | 1.5 | 286.8 | 20000 | A504_286.8 S1 M1LA4 | 91 | A504_286.8 P80 BN80A4 | 92 |
| 4.8 | 970 | 2.9 | 286.3 | 30000 | A604_286.3 S1 M1LA4 | 94 | A604_286.3 P80 BN80A4 | 95 |
| 5.2 | 895 | 3.1 | 264.3 | 30000 | A604_264.3 S1 M1LA4 | 94 | A604_264.3 P80 BN80A4 | 95 |
| 5.3 | 909 | 0.9 | 262.5 | 15000 | A413_262.5 S1 M1LA4 | 88 | A413_262.5 P80 BN80A4 | 89 |
| 5.3 | 884 | 1.7 | 260.9 | 20000 | A504_260.9 S1 M1LA4 | 91 | A504_260.9 P80 BN80A4 | 92 |
| 5.9 | 786 | 1.9 | 232.0 | 20000 | A504_232.0 S1 M1LA4 | 91 | A504_232.0 P80 BN80A4 | 92 |
| 6.3 | 753 | 1.1 | 217.4 | 15000 | A413_217.4 S1 M1LA4 | 88 | A413_217.4 P80 BN80A4 | 89 |
| 6.5 | 715 | 2.1 | 211.0 | 20000 | A504_211.0 S1 M1LA4 | 91 | A504_211.0 P80 BN80A4 | 92 |
| 7.2 | 660 | 2.3 | 190.6 | 20000 | A503_190.6 S1 M1LA4 | 91 | A503_190.6 P80 BN80A4 | 92 |
| 7.5 | 639 | 1.3 | 184.4 | 15000 | A413_184.4 S1 M1LA4 | 88 | A413_184.4 P80 BN80A4 | 89 |
| 7.9 | 602 | 1.4 | 115.9 | 15000 | A413_115.9 S2 M2SA6 | 88 | A413_115.9 P80 BN80B6 | 89 |
| 8.0 | 600 | 2.5 | 173.4 | 20000 | A503_173.4 S1 M1LA4 | 91 | A503_173.4 P80 BN80A4 | 92 |
| 9.4 | 509 | 1.7 | 146.9 | 15000 | A413_146.9 S1 M1LA4 | 88 | A413_146.9 P80 BN80A4 | 89 |
| 9.9 | 482 | 1.7 | 92.8 | 15000 | A413_92.8 S2 M2SA6 | 88 | A413_92.8 P80 BN80B6 | 89 |
| 11.6 | 425 | 1.9 | 79.2 | 15000 | A412_79.2 S2 M2SA6 | 88 | A412_79.2 P80 BN80B6 | 89 |
| 11.9 | 401 | 2.1 | 115.9 | 15000 | A413_115.9 S1 M1LA4 | 88 | A413_115.9 P80 BN80A4 | 89 |
| 14.9 | 321 | 2.5 | 92.8 | 15000 | A413_92.8 S1 M1LA4 | 88 | A413_92.8 P80 BN80A4 | 89 |
| 17.3 | 285 | 3.0 | 53.1 | 15000 | A412_53.1 S2 M2SA6 | 88 | A412_53.1 P80 BN80B6 | 89 |
| 17.4 | 283 | 2.8 | 79.2 | 15000 | A412_79.2 S1 M1LA4 | 88 | A412_79.2 P80 BN80A4 | 89 |
| 18.0 | 274 | 1.3 | 76.5 | 9180 | A302_76.5 S1 M1LA4 | 85 | A302_76.5 P80 BN80A4 | 86 |
| 20.4 | 242 | 3.5 | 45.1 | 15000 | A412_45.1 S2 M2SA6 | 88 | A412_45.1 P80 BN80B6 | 89 |
| 20.9 | 236 | 1.7 | 66.0 | 8880 | A302_66.0 S1 M1LA4 | 85 | A302_66.0 P80 BN80A4 | 86 |
| 21.5 | 230 | 3.7 | 64.2 | 15000 | A412_64.2 S1 M1LA4 | 88 | A412_64.2 P80 BN80A4 | 89 |
| 21.9 | 226 | 1.1 | 63.1 | 5840 | A202_63.1 S1 M1LA4 | 82 | A202_63.1 P80 BN80A4 | 83 |
| 25.7 | 192 | 1.3 | 53.7 | 5670 | A202_53.7 S1 M1LA4 | 82 | A202_53.7 P80 BN80A4 | 83 |
| 26.2 | 188 | 2.2 | 52.7 | 8410 | A302_52.7 S1 M1LA4 | 85 | A302_52.7 P80 BN80A4 | 86 |
| 30 | 162 | 0.9 | 45.4 | 4910 | A102_45.4 S1 M1LA4 | 79 | A102_45.4 P80 BN80A4 | 80 |
| 32 | 155 | 2.6 | 43.4 | 8010 | A302_43.4 S1 M1LA4 | 85 | A302_43.4 P80 BN80A4 | 86 |
| 32 | 155 | 1.6 | 43.2 | 5440 | A202_43.2 S1 M1LA4 | 82 | A202_43.2 P80 BN80A4 | 83 |
| 38 | 131 | 3.1 | 36.6 | 7660 | A302_36.6 S1 M1LA4 | 85 | A302_36.6 P80 BN80A4 | 86 |
| 39 | 127 | 2.0 | 35.4 | 5200 | A202_35.4 S1 M1LA4 | 82 | A202_35.4 P80 BN80A4 | 83 |
| 39 | 126 | 1.2 | 35.1 | 4700 | A102_35.1 S1 M1LA4 | 79 | A102_35.1 P80 BN80A4 | 80 |
| 47 | 105 | 2.4 | 29.2 | 4970 | A202_29.2 S1 M1LA4 | 82 | A202_29.2 P80 BN80A4 | 82 |
| 48 | 102 | 1.5 | 28.6 | 4510 | A102_28.6 S1 M1LA4 | 79 | A102_28.6 P80 BN80A4 | 80 |
| 58 | 85 | 1.8 | 23.8 | 4330 | A102_23.8 S1 M1LA4 | 79 | A102_23.8 P80 BN80A4 | 80 |
| 60 | 83 | 3.0 | 23.1 | 4690 | A202_23.1 S1 M1LA4 | 82 | A202_23.1 P80 BN80A4 | 83 |
| 66 | 75 | 2.0 | 13.9 | 4200 | A102_13.9 S2 M2SA6 | 79 | A102_13.9 P80 BN80B6 | 80 |
| 74 | 66 | 2.3 | 18.6 | 4090 | A102_18.6 S1 M1LA4 | 79 | A102_18.6 P80 BN80A4 | 80 |
| 87 | 57 | 2.6 | 10.6 | 3930 | A102_10.6 S2 M2SA6 | 79 | A102_10.6 P80 BN80B6 | 80 |
| 96 | 52 | 2.7 | 9.6 | 3830 | A102_9.6 S2 M2SA6 | 79 | A102_9.6 P80 BN80B6 | 80 |
| 99 | 50 | 3.0 | 13.9 | 3800 | A102_13.9 S1 M1LA4 | 79 | A102_13.9 P80 BN80A4 | 80 |
| 112 | 44 | 3.2 | 12.3 | 3670 | A102_12.3 S1 M1LA4 | 79 | A102_12.3 P80 BN80A4 | 80 |
| 128 | 39 | 3.6 | 7.2 | 3550 | A102_7.2 S2 M2SA6 | 79 | A102_7.2 P80 BN80B6 | 80 |
| 131 | 38 | 4.0 | 10.6 | 3530 | A102_10.6 S1 M1LA4 | 79 | A102_10.6 P80 BN80A4 | 80 |
| 144 | 34 | 4.1 | 9.6 | 3430 | A102_9.6 S1 M1LA4 | 79 | A102_9.6 P80 BN80A4 | 80 |
| 151 | 33 | 4.5 | 18.6 | 3380 | A102_18.6 S1 M1SD2 | 79 | A102_18.6 P71 BN71B2 | 80 |
| 168 | 29 | 4.8 | 5.5 | 3280 | A102_5.5 S2 M2SA6 | 79 | A102_5.5 P80 BN80B6 | 80 |
| 191 | 26 | 5.4 | 7.2 | 3160 | A102_7.2 S1 M1LA4 | 79 | A102_7.2 P80 BN80A4 | 80 |
| 202 | 24 | 5.5 | 13.9 | 3120 | A102_13.9 S1 M1SD2 | 79 | A102_13.9 P71 BN71B2 | 80 |
| 228 | 22 | 6.5 | 12.3 | 3010 | A102_12.3 S1 M1SD2 | 79 | A102_12.3 P71 BN71B2 | 80 |
| 252 | 20 | 7.2 | 5.5 | 2920 | A102_5.5 S1 M1LA4 | 79 | A102_5.5 P80 BN80A4 | 80 |
| 266 | 19 | 6.7 | 10.6 | 2870 | A102_10.6 S1 M1SD2 | 79 | A102_10.6 P71 BN71B2 | 80 |
| 292 | 17 | 8.3 | 9.6 | 2790 | A102_9.6 S1 M1SD2 | 79 | A102_9.6 P71 BN71B2 | 80 |
| 390 | 13 | 11.0 | 7.2 | 2560 | A102_7.2 S1 M1SD2 | 79 | A102_7.2 P71 BN71B2 | 80 |
| 514 | 10 | 13.8 | 5.5 | 2350 | A102_5.5 S1 M1SD2 | 79 | A102_5.5 P71 BN71B2 | 80 |

0.75 kW

| | | | | | | | | |
|------|-------|-----|------|-------|--------------------|-----|----------------------|-----|
| 0.56 | 11308 | 1.2 | 1632 | 75000 | A904_1632 S2 M2SB6 | 103 | A904_1632 P90 BN90S6 | 104 |
| 0.74 | 8571 | 0.9 | 1237 | 65000 | A804_1237 S2 M2SB6 | 100 | A804_1237 P90 BN90S6 | 101 |
| 0.90 | 7094 | 1.1 | 1558 | 65000 | A804_1558 S2 M2SA4 | 100 | A804_1558 P80 BN80B4 | 101 |
| 0.93 | 6862 | 2.0 | 1507 | 75000 | A904_1507 S2 M2SA4 | 103 | A904_1507 P80 BN80B4 | 104 |