Power, Control & Green Solutions

AS series

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T +31(0)88 7865200
F +31(0)88 7865299
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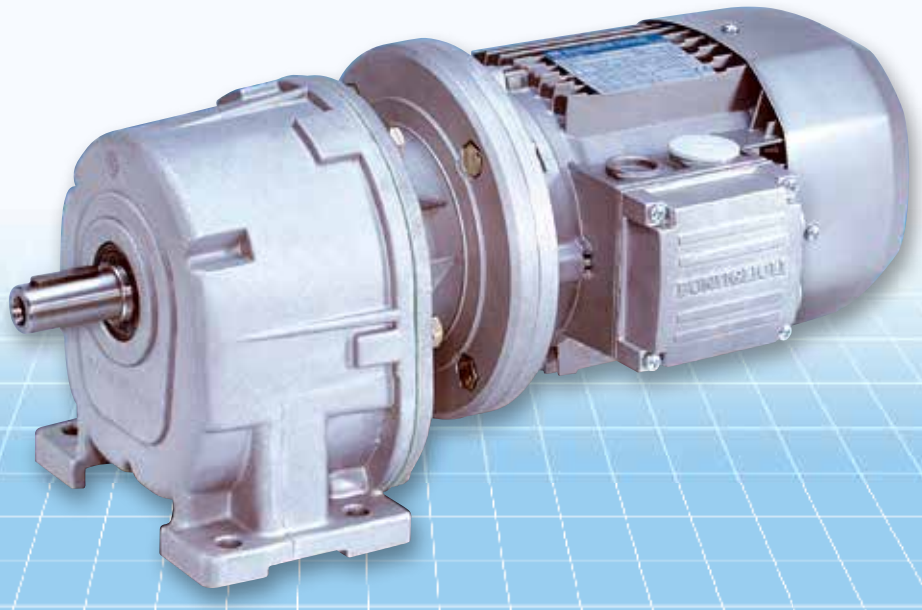
Bonfiglioli

Forever Forward

AS series



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INFORMAZIONI GENERALI
GENERAL INFORMATION
ALLGEMEINE INFORMATIONEN
INFORMATIONS GENERALES

RIDUTTORI COASSIALI SERIE AS
HELICAL GEAR UNITS SERIES AS
STIRNRADGETRIEBE SERIE AS
MOTOREDUCTEURS COAXIAUX SERIE AS

MOTORI ELETTRICI
ELECTRIC MOTORS
ELEKTROMOTOREN
MOTEURS ELECTRIQUES

Revisioni
L'indice di revisione del catalogo è riportato a pag. 162.
Al sito www.bonfiglioli.com sono disponibili i cataloghi con le revisioni aggiornate.

Revisions
Refer to page 162 for the catalogue revision index.
Visit www.bonfiglioli.com to search for catalogues with up-to-date revisions.

Änderungen
Das Revisionsverzeichnis des Katalogs wird auf Seite 162 wiedergegeben. Auf unserer Website www.bonfiglioli.com werden die Kataloge in ihrer letzten, überarbeiteten Version angeboten.

Révisions
Le sommaire de révision du catalogue est indiqué à la page 162.
Sur le site www.bonfiglioli.com des catalogues avec les dernières révisions sont disponibles.

1 - SIMBOLI E UNITÀ DI MISURA — *1 - SYMBOLS AND UNITS OF MEASUREMENT* — 1 - SYMBOLE UND MAßEINHEITEN — *1 - SYMBOLES ET UNITES DE MESURE*

Simb. Symb.	U.m. Meße-inh.	Descrizione	*Description*	Beschreibung	*Description*
$A_{N\ 1,\ 2}$	[N]	Carico assiale nominale	*Permissible axial force*	Nenn-Axialbelastung	*Charge axiale nominale*
f_s	–	Fattore di servizio	*Service factor*	Betriebsfaktor	*Facteur de service*
f_T	–	Fattore termico	*Thermal factor*	Temperaturfaktor	*Facteur thermique*
f_{TP}	–	Fattore di temperatura	*Temperature factor*	Wärmefaktor	*Facteur de température*
i	–	Rapporto di trasmissione	*Gear ratio*	Übersetzung	*Rapport de rèduction*
I	–	Rapporto di intermittenza	*Cyclic duration factor*	Relative Einschaltdauer	*Rapport d'intermittence*
J_C	[Kgm^2]	Momento di inerzia carico	*Mass moment of inertia to be driven*	Massenträgheitsmoment der externen Massen	*Moment d'inertie de la charge*
J_M	[Kgm^2]	Momento di inerzia motore	*Motor mass moment of inertia*	Motorträgheitsmoment	*Moment d'inertie du moteur*
J_R	[Kgm^2]	Momento di inerzia riduttore	*Mass moment of inertia for the gear unit*	Getriebeträgheitsmoment	*Moment d'inertie du réducteur*
K	–	Fattore di accelerazione delle masse	*Mass acceleration factor*	Massenbeschleunigungsfaktor	*Facteur d'accélération des masses*
K_r	–	Costante di trasmissione	*Transmission element factor*	Belastungsfaktor der Radiallast	*Constante de transmission*
$M_{1,\ 2}$	[Nm]	Coppia	*Torque*	Drehmoment	*Couple*
$M_{c\ 1,\ 2}$	[Nm]	Coppia di calcolo	*Calculated torque*	Berechnetes Drehmoment	*Couple de calcul*
$M_{n\ 1,\ 2}$	[Nm]	Coppia nominale	*Rated torque*	Nennmoment	*Couple nominal*
$M_{r\ 1,\ 2}$	[Nm]	Coppia richiesta	*Torque demand*	Benötigtes Drehmoment	*Couple nécessaire*
$n_{1,\ 2}$	[min^{-1}]	Velocità angolare	*Rotational speed*	Abtriebsdrehzahl	*Vitesse*
$P_{1,\ 2}$	[kW]	Potenza	*Power*	Leistung	*Puissance*
$P_{N\ 1,\ 2}$	[kW]	Potenza nominale	*Rated power*	Nennleistung	*Puissance nominale*
$P_{R\ 1,\ 2}$	[kW]	Potenza richiesta	*Power demand*	Benötigte Leistung	*Puissance nécessaire*
$R_{C\ 1,\ 2}$	[N]	Carico radiale di calcolo	*Calculated radial force*	Berechnete Axialbelastung	*Charge radiale de calcul*
$R_{N\ 1,\ 2}$	[N]	Carico radiale nominale	*Permissible overhung load*	Zulässige Radialbelastung	*Charge radiale nominale*
S	–	Fattore di sicurezza	*Safety factor*	Sicherheitsfaktor	*Facteur de sécurité*
t_a	[°C]	Temperatura ambiente	*Ambient temperature*	Umgebungstemperatur	*Température ambiante*
t_f	[min]	Tempo di funzionamento a carico costante	*Work time at constant load*	Betriebszeit während nennbetrieb	*Temps de fonctionnement à charge constante*
t_r	[min]	Tempo di riposo	*Rest time*	Stillstandszeit	*Temps de repos*
η_d	–	Rendimento dinamico	*Dynamic efficiency*	Dynamischer Wirkungsgrad	*Rendement dynamique*
η_s	–	Rendimento statico	*Static efficiency*	Statischer Wirkungsgrad	*Rendement statique*

1 valore riferito all'albero veloce — *1 value applies to i/p shaft* — 1 Werte beziehen sich auf die Antriebswelle — *1 valeurs pour l'arbre rapide*

2 valore riferito all'albero lento — *2 value applies to o/p shaft* — 2 Werte beziehen sich auf die Abtriebswelle — *2 valeurs pour l'arbre lent*

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Questo simbolo riporta i riferimenti angolari per l'indicazione della direzione del carico radiale (l'albero è visto di fronte).

This symbol refers to the angle the overhung load applies (viewing from drive end).

Dieses Symbol gibt die Winkelbezugswerte für die Angabe der Richtung der Radialkräfte an (Stirnansicht der Welle).

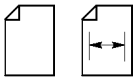
Ce symbole présente les références angulaires pour l'indication de la direction de la charge radiale (l'arbre est vu de face).

Simbolo riferito al peso dei riduttori e dei motoriduttori.
I valori riportati nelle tabelle dei motoriduttori sono comprensivi sia del peso del motore a 4 poli sia del peso del lubrificante contenuto, qualora previsto da BONFIGLIOLI RIDUTTORI.

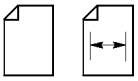
Symbol refers to weight of gearmotors and speed reducers.
Figure for gearmotors incorporates the weight of the 4-pole motor and for life lubricated units, where applicable, the weight of the oil.

Symbol für das Gewicht der Getriebe und der Getriebemotoren.
Die in der Getriebemotoren-Tabelle genannten Werte schließen das Gewicht des vierpoligen Motors und die eingefüllte Schmierstoffmenge ein, sofern von BONFIGLIOLI RIDUTTORI vorgesehen.

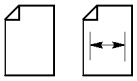
Symbole se référant aux poids des réducteurs et des motoréducteurs.
Les valeurs indiquées dans les tableaux des motoréducteurs comprennent tant le poids du moteur à 4 pôles que le poids du lubrifiant contenu, lorsque prévu par BONFIGLIOLI RIDUTTORI.



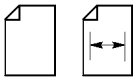
Il simbolo identifica la pagina alla quale può essere reperita l'informazione.



The symbol shows the page the information can be sorted from.



Das Symbol Kennzeichnet die Seite, auf die die Information gefunden werden kann.



Le symbole idendifie la page à laquelle l'on peut trover l'information.

Motoriduttore con motore IEC.

Gearmotor with IEC motor.

Getriebemotor mit IEC-Motor.

Motoréducteur avec moteur normalisé CEI.

Riduttore predisposto per accoppiamento a motore tipo IEC.

Gear unit with IEC motor interface.

Getriebe vorbereitet für IEC-motor.

Rèducteur prédisposé pour liaison a moteur IEC

Riduttore dotato di albero veloce cilindrico.

Speed reducer with solid input shaft.

Getriebe mit cylindrischer Antriebswelle.

Réducteur avec arbre rapide Cyllindrique.

INFORMAZIONI GENERALI

I paragrafi che seguono riportano una serie di informazioni sugli elementi indispensabili per la scelta e il corretto utilizzo dei motoriduttori.

GENERAL INFORMATION

The following headings contain information on essential elements for selection and correct use of gearmotors.

ALLGEMEINEINFORMATIONEN

Die folgenden Abschnitte enthalten eine Reihe von Informationen über die Aspekte, die in Hinblick auf die Wahl und den sachgemäßen Betrieb von Getriebemotoren unbedingt zu berücksichtigen sind.

INFORMATIONS GENERALES

Les paragraphes qui suivent présentent une série d'informations sur les éléments indispensables pour le choix et l'utilisation correcte des motoréducteurs.

2 - COPPIA

Coppia nominale
M_{n2} [Nm]

È la coppia trasmissibile in uscita con carico continuo uniforme, riferita alla velocità in ingresso n_1 e a quella corrispondente in uscita n_2.
È calcolata in base ad un fattore di servizio f_s = 1.

Coppia richiesta
M_{r2} [Nm]

Rappresenta la coppia richiesta dall'applicazione e dovrà sempre essere uguale o inferiore alla coppia in uscita nominale M_{n2} del riduttore scelto.

Coppia di calcolo
M_{c2} [Nm]

È il valore di coppia da utilizzare per la selezione del riduttore considerando la coppia richiesta M_{r2} e il fattore di servizio f_s ed è dato dalla formula:

2 - TORQUE

Rated torque
M_{n2} [Nm]

Torque transmissible through output shaft, under uniform loading and based on service factor f_s=1. Rating refers to specific n_1 input speeds.

Required torque
M_{r2} [Nm]

Torque corresponding to application requirements. It must always be equal to or less than rated output torque M_{n2} for the gearbox under study.

Calculated torque
M_{c2} [Nm]

Torque value to be used when selecting the gearbox, considering required torque M_{r2} and service factor f_s, and is obtained through the equation:

2 - ABTRIEBSMOMENT

Nenn-Drehmoment
M_{n2} [Nm]

Dies ist das an der Abtriebswelle übertragbare Drehmoment bei gleichförmiger Dauerbelastung bezogen auf die Antriebsdrehzahl n_1 und die entsprechende Abtriebsdrehzahl n_2.
Das Drehmoment wird auf Grundlage eines Betriebsfaktor f_s = 1 berechnet.

Verlangtes Drehmont
M_{r2} [Nm]

Dies ist das von der Anwendung verlangte Drehmoment, das stets kleiner oder gleich dem Nenn-Abtriebsmoment M_{n2} des gewählten Getriebes sein muß.

Soll-Drehmoment
M_{c2} [Nm]

Dies ist das bei der Wahl des Getriebes zugrundezulegende Drehmoment, wobei das übertragene Drehmoment M_{r2} und der Betriebsfaktor f_s zu berücksichtigen sind; das Soll-Drehmoment wird mit folgender Gleichung berechnet:

2 - COUPLE

Couple nominal
M_{n2} [Nm]

C'est le couple transmissible en sortie avec une charge continue uniforme se référant à la vitesse en entrée n_1 et à celle correspondante en sortie n_2.
Il est calculé sur la base d'un facteur de service f_s = 1.

Couple requis
M_{r2} [Nm]

Il représente le couple requis par l'application et devra toujours être inférieur ou égal au couple en sortie nominal M_{n2} du réducteur choisi.

Couple de calcul
M_{c2} [Nm]

C'est la valeur de couple à utiliser pour la sélection du réducteur en considérant le couple requis M_{r2} et le facteur de service fs et s'obtient avec la formule :

$$M_{c2} = M_{r2} \cdot f_s \leq M_{n2} \qquad (1)$$

3 - POTENZA

Potenza nominale in entrata P_{n1} [kW]

Nelle tabelle di selezione dei riduttori è la potenza applicabile in entrata riferita alla velocità n_1, considerando un fattore di servizio f_s = 1.

3 - POWER

Input rated power
P_{n1} [kW]

In the gearbox selection charts this is the power applicable to input shaft, based on input speed n_1 and corresponding to service factor f_s = 1.

3 - LEISTUNG

Leistung Antriebswelle
P_{n1} [kW]

In den Tabellen für die Wahl der Getriebe ist die an der Antriebswelle übertragbare Leistung auf die Drehzahl n_1 bezogen und es wurde ein Betriebsfaktor f_s = 1 angenommen.

3 - PUISSANCE

Puissance en entrée
P_{n1} [kW]

Dans les tableaux de sélection des réducteurs, c'est la puissance applicable en entrée se rapportant à la vitesse n_1 et en considérant un facteur de service f_s = 1.

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4 - POTENZA TERMICA P_t [kW]

P_t è il valore che indica il limite termico del riduttore e rappresenta la potenza trasmissibile in servizio continuo, e alla temperatura ambiente t_a= 20 °C, senza che si producano danneggiamenti negli organi del riduttore o degradamenti del lubrificante. Vedi tab. (A1).
Nel caso di servizio intermittente, o di temperatura ambiente inferiore a 20 °C, il valore di P_t deve essere corretto per mezzo del fattore f_t , espresso dalla tabella (A2), ossia $P_t' = P_t \times f_t$.

Infine, per riduttori con più di due riduzioni e/o con rapporto i > 45 la verifica della potenza termica non è necessaria in quanto quest'ultima è certamente superiore alla potenza meccanica trasmissibile.

4 - THERMAL CAPACITY P_t [kW]

P_t is the power that can be transmitted through the gear unit, under a continuous duty and an ambient temperature of 20 °C, without resulting into damage of the inner parts or degradation of the lubricant properties. Refer to chart (A1) for specific kW ratings.
In case of intermittent duty, or an operating ambient temperature other than the rated 20 °C, the P_t value should be adjusted through the factor f_t , obtained from chart (A2), as per the following equation: $P_t' = P_t \times f_t$.

Gear units featuring more than 2 reductions and/or a gear ratio larger than i > 45 do not normally require the thermal limit to be checked as in these cases the thermal rating usually exceeds the mechanical rating.

4 - THERMISCHE GRENZLEISTUNG P_t [kW]

P_t steht für den Wert der Wärmegrenzleistung des Getriebes und gibt die im Dauerbetrieb und bei einer Umgebungstemperatur t_a=20 °C übertragbare Leistung an, ohne daß sich daraus Schäden an den Getriebeorganen oder ein Verfall des Schmiermittels ergeben. Siehe Tab. (A1). Bei einem Aussetzbetrieb oder einer unter 20°C liegenden Umgebungstemperatur muß der Wert P_t über den Faktor f_t korrigiert werden, der in der Tabelle (A2) aufgeführt wird bzw. $P_t' = P_t \times f_t$.

Bei Getrieben mit mehr als zwei Untersetzungsstufen und/oder einem Verhältnis von i > 45 ist die Kontrolle der thermischen Leistung nicht erforderlich, da sie sicher oben der mechanisch übertragbaren Leistung liegt.

4 - PUISSANCE THERMIQUE P_t [kW]

P_t est la valeur qui indique la limite thermique du réducteur et représente la puissance transmissible en service continu, et à une température ambiante t_a=20 °C, sans apparition de dommages au niveau des organes du réducteur ou de dégradations du lubrifiant. Voir tab. (A1). En cas de service intermittent ou de température ambiante inférieure à 20°C, la valeur de P_t doit être corrigée au moyen du facteur f_t, exprimé dans le tableau (A2), à savoir: $P_t' = P_t \times f_t$.

Enfin, pour les réducteurs ayant plus de deux réductions et/ou un rapport i > 45, la vérification de la puissance thermique n'est pas nécessaire car elle est certainement supérieure à la puissance mécanique transmissible.

(A1)

P_t [kW] 20 °C		
	n_1 = 1400 min^{-1}	n_1 = 2800 min^{-1}
AS 16	3.3	2.2
AS 20	4.7	3.3
AS 25	6.0	4.2
AS 30	7.8	5.5
AS 35	10.8	7.5
AS 45	13.9	9.8
AS 55	20.8	15.6
AS 60	31	23
AS 80	43	31
AS 90	59	42

(A2)

		f_t			
t_a [°C]	Servizio continuo *Continuous duty* Dauerbetrieb *Service continu*	Servizio intermittente / *Intermittent duty* / Aussetzbetrieb / *Service intermittent*			
		Grado di intermittenza / *Degree of intermittence* / Relative Einschaltdauer / *Degrè d'intermittence* (I)			
		80%	**60%**	**40%**	**20%**
40	0.80	1.1	1.3	1.5	1.6
30	0.85	1.3	1.5	1.6	1.8
20	1.0	1.5	1.6	1.8	2.0
10	1.15	1.6	1.8	2.0	2.3

Il grado di intermittenza (I)% è dato dal rapporto fra il tempo di

Where cyclic duration factor (I)% is the relationship of oper-

Wobei die Einschaltdauer (I)% von dem Verhältnis zwischen

Où le degré d'intermittence (I)% est fourni par le rapport entre le

funzionamento a carico t_f e il tempo totale ($t_f + t_r$), espresso in percentuale.

ating time under load t_f and total time ($t_f + t_r$) expressed as a percentage.

Betriebszeit unter Last tf und der Gesamtbetriebszeit ($t_f + t_r$), ausgedrückt in Prozenten, gegeben wird.

temps de fonction en charge et le temps total ($t_f + t_r$) exprimé en pourcentage.

$$I = \frac{t_f}{t_f + t_r} \cdot 100 \qquad (2)$$

La condizione da verificare è:

The condition to verify is:

Die durchzuführende Kontrolle ist:

La vérification à faire sera la suivante :

$$P_{r1} \leq P_t \times f_t \qquad (3)$$

5 - RENDIMENTO « η »

È dato dal rapporto fra la potenza in uscita P_2 e quella in entrata P_1 secondo la relazione:

5 - EFFICIENCY « η »

Obtained from the relationship of output power P_2 to input power P_1 according to the following equation:

5 - WIRKUNGSGRAD « η »

Er ist gegeben durch das Verhältnis der Abtriebsleistung P_2 zur Antriebsleistung P_1:

5 - RENDEMENT « η »

Il est donné par le rapport entre la puissance en sortie P_2 et celle en entrée P_1 :

$$\eta = \frac{P_2}{P_1} \cdot 100 \qquad [\%] \qquad (4)$$

(A3)

	2 x	3 x
η	95%	93%

6 - RAPPORTO DI RIDUZIONE « i »

Il valore del rapporto di riduzione della velocità, identificato con il simbolo [i], è espresso tramite il rapporto fra le velocità all'albero veloce e lento del riduttore e riassunto nell'espressione:

6 - GEAR RATIO « i »

The value for the gear ratio is referred to with the letter [i] and calculated through the relationship of the input speed n_1 to the output speed n_2:

6 - GETRIEBEÜBERSETZUNG « i »

Die Übersetzung des Getriebes wird mit dem Buchstaben [i] bezeichnet und ist folgendermaßen definiert:

6 - RAPPORT DE REDUCTION « i »

Le rapport de réduction est identifiée par la lettre [i] et son calcul s'effectue à partir de la vitesse d'entrée n_1 et de la vitesse de sortie n_2 en utilisant la relation suivante :

$$i = \frac{n_1}{n_2} \qquad (5)$$

Il rapporto di riduzione è solitamente un numero decimale che viene rappresentato nel catalogo con una sola cifra decimale, o nessuna nel caso di i > 1000. Se si è interessati a conoscere il numero in tutte le componenti decimali consultare il Servizio Tecnico di Bonfiglioli Riduttori.

The gear ratio is usually a decimal fraction which in this catalogue is truncated at one digit after the comma (no decimals for i > 1000). If interested in knowing the complete figure please consult Bonfiglioli's Technical Service.

In diesem Katalog wird die Übersetzung mit einer Stelle hinter dem Komma angegeben, bei Übersetzungen > 1000 ohne Dezimalstelle.
Wenn genaue Angaben zur Übersetzung benötigt werden, wenden sie sich bitte an den technischen Service von Bonfiglioli Riduttori.

Dans le catalogue, le rapport de réduction a une précision d'un chiffre après la virgule (sauf pour i > 1000). Si une plus grande précision est nécessaire, contacter le Service Technique de Bonfiglioli.

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7 - VELOCITÀ ANGOLARE

Velocità in entrata
n_1 [min^{-1}]

È la velocità relativa al tipo di motorizzazione scelta; i valori di catalogo si riferiscono alle velocità dei motori elettrici comunemente usati a singola e doppia polarità.
Se il riduttore riceve il moto da una trasmissione in entrata, è sempre preferibile adottare velocità inferiori a 1400 min^{-1} al fine di garantire condizioni ottimali di funzionamento.
Velocità in entrata superiori sono ammesse considerando il naturale declassamento della coppia nominale M_{n2} del riduttore.

Velocità in uscita
n_2 [min^{-1}]

È in funzione della velocità in entrata n_1 e del rapporto di riduzione **i** secondo la relazione:

7 - ANGULAR VELOCITY

Input speed
n_1 [min^{-1}]

Speed is related to the prime mover selected. Catalogue values refer to speed of either single or double speed motors that are common in the industry.
If the gearbox is driven by an external transmission it is recommended to operate it with a speed of 1400 min^{-1} or lower in order to optimise operating conditions and lifetime.
Higher input speeds are permitted, however in this case consider that torque rating M_{n2} is affected adversely.
Please consult a Bonfiglioli representative.

Output speed
n_2 [min^{-1}]

*The output speed n_2 is calculated from the relationship of input speed n_1 to the gear ratio **i**, as per the following equation:*

7 - DREHZAHL

Drehzahl Antriebswelle
n_1 [min^{-1}]

Dies ist die vom gewählten Motortyp abhängige Drehzahl. Die Katalogangaben beziehen sich auf die Drehzahl von allgemeinüblichen eintourigen Elektromotoren oder von polumschaltbaren Elektromotoren.
Um optimale Betriebsbedingungen zu gewährleisten, ist stets eine Antriebsdrehzahl unter 1400 min^{-1} zu empfehlen.
Höhere Antriebsdrehzahlen sind zulässig, wobei die zwangsläufige Herabsetzung des Nenn-Abtriebsdrehmoments M_{n2} des Getriebes zu berücksichtigen ist.

Abtriebsdrehzahl
n_2 [min^{-1}]

Sie ist abhängig von der Antriebsdrehzahl n_1 und dem Übersetzungs **i** nach folgender Gleichung:

7 - VITESSE ANGULAIRE

Vitesse d' entrée
n_1 [min^{-1}]

C'est la vitesse relative au type de motorisation choisie. Les valeurs de catalogue se réfèrent aux vitesses des moteurs électriques à simple et double polarité communément utilisés.
Si le réducteur reçoit le mouvement d'une transmission en entrée, il est toujours préférable d'adopter des vitesses inférieures à 1400 min^{-1} afin de garantir des conditions optimales de fonctionnement.
Des vitesses d' entrée supérieures sont admises en considérant le déclassement naturel du couple nominal M_{n2} du réducteur.

Vitesse en sortie
n_2 [min^{-1}]

*Elle varie en fonction de la vitesse d'entrée n_1 et du rapport de reduction **i** selon l'équation :*

$$n_2 = \frac{n_1}{i} \qquad (6)$$

8 - FATTORE DI SERVIZIO « f_s »

Il fattore di servizio è il parametro che traduce in un valore numerico la gravosità del servizio che il riduttore è chiamato a svolgere, tenendo conto, benché con inevitabile approssimazione, del funzionamento giornaliero, della variabilità del carico e di eventuali sovraccarichi, connessi con la specifica applicazione del riduttore.
Nel grafico (A4) più sotto riportato il fattore di servizio si ricava, dopo aver selezionato la colonna relativa alle ore di funzionamento giornaliere, per intersezione fra il numero di avviamenti orari e una fra le curve K1, K2 e K3.
Le curve K_ sono associate alla natura del servizio (approssimativamente: uniforme, medio e pesante) tramite il fattore di

8 - SERVICE FACTOR « f_s »

This factor is the numeric value describing reducer service duty. It takes into consideration, with unavoidable approximation, daily operating conditions, load variations and overloads connected with reducer application.
In diagram (A4) here below, after selecting proper "daily working hours" column, the service factor is given by intersecting the number of starts per hour and one of the K1, K2 or K3 curves.
K_ curves are linked with the service nature (approximately: uniform, medium and heavy) through the acceleration factor of masses K, connected to the ratio between driven masses and motor inertia values.
Regardless of the value given for the service factor, we would

8 - BETRIEBSFAKTOR « f_s »

Beim Betriebsfaktor handelt es sich um den Parameter, der die Betriebsbelastung, die das Getriebe aushalten muss, in einem Wert ausdrückt. Dabei berücksichtigt er, auch wenn nur mit einer unvermeidbaren Annäherung, den täglichen Einsatz, die unterschiedlichen Belastungen und eventuelle Überbelastungen, die mit der spezifischen Applikation des Getriebes verbunden sind.
Der nachstehenden Grafik (A4) kann, nach der Wahl der entsprechenden Spalte mit der Angabe der täglichen Betriebsstunden der Betriebsfaktor entnommen werden, indem man die Schnittstelle zwischen der stündlichen Schaltungen und einer der Kurven K1, K2 und K3 sucht. Die mit K_ gekennzeich-

8 - FACTEUR DE SERVICE « f_s »

Le facteur de service est le paramètre qui traduit en une valeur numérique la difficulté du service que le réducteur est appelé à effectuer en tenant compte, avec une approximation inévitable, du fonctionnement journalier, de la variabilité de la charge et des éventuelles surcharges liées à l'application spécifique du réducteur.
Sur le graphique (A4) ci-dessous, le facteur de service peut être trouvé, après avoir sélectionné la colonne relative aux heures de fonctionnement journalier, à l'intersection entre le nombre de démarrages horaires et l'une des courbes K1, K2 et K3.
Les courbes K_ sont associées à la nature du service (approximativement : uniforme, moyen

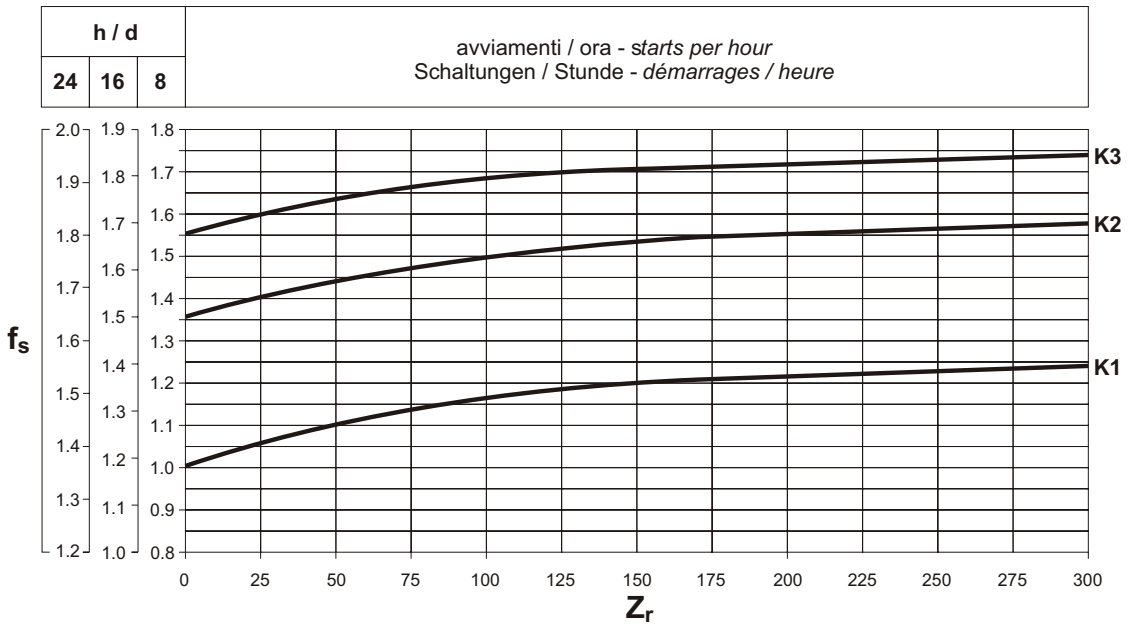
accelerazione delle masse K, legato al rapporto fra le inerzie delle masse condotte e del motore.
Indipendentemente dal valore così ricavato del fattore di servizio, segnaliamo che esistono applicazioni fra le quali, a puro titolo di esempio i sollevamenti, per le quali il cedimento di un organo del riduttore potrebbe esporre il personale che opera nelle immediate vicinanze a rischio di ferimento.
Se esistono dubbi che l'applicazione possa presentare questa criticità vi invitiamo a consultare preventivamente il ns. Servizio Tecnico.

like to remind that in some applications, which for example involve lifting of parts, failure of the reducer may expose the operators to the risk of injuries.
If in doubt, please contact our Technical Service.

neten Kurven sind über den Beschleunigungsfaktor der Massen K an die Betriebsart gekoppelt (annähernd: gleichmäßige, mittlere oder starke Belastung), der wiederum an das Verhältnis zwischen Trägheitsmoment der angetriebenen Massen und dem des Motors gebunden ist. Unabhängig von dem so erhaltenen Betriebsfaktor, möchten wir Sie darauf hinweisen, dass es Applikationen gibt, unter denen beispielsweise auch die Hebefunktionen zu finden sind, bei denen das Nachgeben eines Getriebeorgans, das in dessen Nähe arbeitende Personal einer Verletzungsgefahr aussetzen könnte.
Sollten daher Zweifel darüber bestehen, ob die entsprechende Applikation sich in diesem Bezug als kritisch erweist, bitten wir Sie sich zuvor mit unseren Technischen Kundendienst in Verbindung zu setzen.

et difficile) au moyen du facteur d'accélération des masses K, lié au rapport entre les inerties des masses conduites et le moteur.
Indépendamment de la valeur du facteur de service ainsi trouvée, nous signalons qu'il existe des applications parmi lesquelles, à titre d'exemple, les levages, pour lesquels la rupture d'un organe du réducteur pourrait exposer le personne opérant à proximité immédiate à des risques de lésion.
En cas de doute concernant les risques éventuels de l'application, nous vous conseillons de contacter préalablement notre Service Technique.

(A4)



Fattore di accelerazione delle masse, K

Il parametro serve a selezionare la curva relativa al particolare

Acceleration factor of masses, K

This parameter serves for selecting the right curve for the

Beschleunigungsfaktor der Massen, K

Dieser Parameter dient der Wahl der Kurve, die sich auf die

Facteur d'accélération des masses, K

Le paramètre sert à sélectionner la courbe relative au type

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tipo di carico. Il valore è dato dal rapporto:

type of load. The value is given by the following ratio:

jeweilige Belastungsart bezieht. Der Wert ergibt sich aus folgender Formel:

de charge particulier. La valeur est obtenue par l'équation :

$$K = \frac{J_c}{J_m} \quad (7)$$

dove:

J_c momento d'inerzia delle masse comandate, riferito all'albero del motore

J_m momento d'inerzia del motore

where:

J_c *moment of inertia of driven masses referred to motor driving shaft*

J_m *moment of inertia of motor*

wobei:

J_c Trägheitsmoment der angetriebenen Massen, bezogen auf die Motorwelle

J_m Trägheitsmoment des Motors

où:

J_c *moment d'inertie des masses commandées se référant à l'arbre du moteur.*

J_m *moment d'inertie du moteur*

$K \leq 0.25$ – curva **K1** carico uniforme

$K \leq 0.25$ – *curve* ***K1*** *uniform load*

$K \leq 0.25$ – Kurve **K1** Gleichmäßige Belastung

$K \leq 0.25$ – *courbe* ***K1*** *charge uniforme*

$0.25 < K \leq 3$ – curva **K2** carico con urti moderati

$0.25 < K \leq 3$ – *curve* ***K2*** *moderate shock load*

$0.25 < K \leq 3$ – Kurve **K2** Belastung mit mäßigen Stößen

$0.25 < K \leq 3$ – *courbe* ***K2*** *charge avec chocs modérés*

$3 < K \leq 10$ – curva **K3** carico con forti urti

$3 < K \leq 10$ – *curve* ***K3*** *heavy shock load*

$3 < K \leq 10$ – Kurve **K3** Belastung mit starken Stößen

$3 < K \leq 10$ – *courbe* ***K3*** *charge avec chocs importants*

Per valori di $K > 10$ invitiamo a consultare il nostro Servizio Tecnico.

For K values > 10, please contact our Technical Service.

Bei Werten $K > 10$ bitten wir Sie, sich mit unseren Technischen Kundendienst in Verbindung zu setzen.

Pour des valeurs de $K > 10$, nous vous conseillons de contacter notre Service Technique.

9 - MANUTENZIONE

I riduttori forniti con lubrificazione permanente non necessitano di sostituzioni periodiche dell'olio.
Per gli altri si consiglia di effettuare una prima sostituzione del lubrificante dopo circa 300 ore di funzionamento provvedendo ad un accurato lavaggio interno del gruppo con adeguati detergenti.
Evitare di miscelare olii a base minerale con olii sintetici.
Controllare periodicamente il livello del lubrificante effettuando la sostituzione indicativamente agli intervalli riportati nella tabella (A5).

9 - MAINTENANCE

Life lubricated gearboxes do not require any periodical oil changes.
For other types of gearboxes, the first oil change must take place after about 300 hours of operation, carefully flushing the gear unit using suitable detergents.
Do not mix mineral oils with synthetic oils.
Check oil level regularly and change oil at the intervals shown in the table (A5).

9 - WARTUNG

Die mit Dauerschmierung gelieferten Getriebe bedürfen periodische Ölwechsel.
Bei den übrigen Getrieben wird ein erster Ölwechsel nach ca. 300 Betriebsstunden empfohlen, wobei das Innere der Gruppe sorgfältig mit einem geeigneten Reinigungsmittel zu waschen ist.
Mineralöle nicht mit Syntheseölen mischen.
Den Ölstand regelmäßig kontrollieren. Die Ölwechsel in den in der Tabelle (A5) angegebenen Fristen durchführen.

9 - ENTRETIEN

Les réducteurs fournis avec lubrification permanente n'ont besoin d'aucun remplacement périodique de huile. Pour les autres, nous conseillons d'effectuer une première vidange du lubrifiant après les 300 premières heures de fonctionnement en réalisant un lavage soigné à l'intérieur du groupe avec des produits détergents appropriés. Eviter de mélanger les huiles à base minérale avec des huiles synthétiques. Contrôler périodiquement le niveau du lubrifiant en effectuant les vidanges conformèment aux intervalles indiqués dans le tableau (A5).

(A5)

Temperatura olio / *Oil temperature* Öltemperatur / *Température huile* [°C]	Intervallo di lubrificazione / *Oil change interval* Schmierfrist / *Intervalle de lubrification* [h]	
	olio minerale/ *mineral oil* Mineralöl / *huile minérale*	olio sintetico / *synthetic oil* Syntheseöl / *huile synthétique*
< 65	8000	25000
65 - 80	4000	15000
80 - 95	2000	12500

10 - SELEZIONE

Per selezionare correttamente un riduttore o un motoriduttore, è necessario disporre di alcuni dati fondamentali che sono sintetizzati nella tabella (A6).
In particolare, essa potrà essere compilata ed inviata in copia al ns. Servizio Tecnico che provvederà alla ricerca della motorizzazione più idonea alla applicazione indicata.

10 - SELECTION

Some fundamental data are necessary to assist the correct selection of a gearbox or gearmotor. The table below (A6) briefly sums up this information.
To simplify selection, fill in the table and send a copy to our Technical Service which will select the most suitable drive unit for your application.

10 - ANTRIEBSAUSWAHL

Um die Getriebe und Getriebemotoren richtig auszuwählen zu können, muß man über einige grundlegende Daten verfügen, die wir in der Tabelle (A6) zusammengefaßt haben.
Eine Kopie dieser vom Kunden ausgefüllten Tabelle kann an unseren Technischen Kundendienst geschickt werden, der dann die für die gewünschte Anwendung geeignete Auslegung wählt.

10 - SELECTION

Pour sélectionner correctement un réducteur ou un motoréducteur, il est nécessaire de disposer de certaines données fondamentales que nous avons résumé dans le tableau (A6).
En particulier, ce dernier pourra être rempli et retourné à notre service technique qui recherchera la motorisation la plus appropriée à l'application indiquée.

(A6)

	Tipo di applicazione *Type of application* Anwendung *Type d'application*				
P_{r2}	Potenza in uscita a n_2 max *Output power at n_2 max* Abtriebsleistung bei n_2 max *Puissance en sortie à n_2 maxi*	.....kW		Senso di rotazione albero entrata (O-AO) (**) *Input shaft rotation direction (CW-CCW) (**)* Drehrichtung der Antriebswelle (U-GU) (**) *Sens de rotation arbre entrée (H-AH) (**)*	.....A_{c2}
P_{r2} '	Potenza in uscita a n_2 min *Output power at n_2 min* Abtriebsleistung bei n_2 min *Puissance en sortie à n_2 mini*	.....kW	A_{c1}	Carico assiale su albero in uscita (+/–)(***) *Thrust load on output shaft (+/–)(***)* Axialkraft auf Abtriebswelle (+/–)(***) *Charge axiale sur arbre de sortie (+/–)(***)*	.....N
M_{r2}	Momento torcente in uscita a n_2 max *Output torque at n_2 max* Abtriebsdrehmoment bei n_2 max *Moment de torsion en sortie à n_2 maxi*	.....Nm	A_{c1}	Carico assiale su albero in entrata (+/–)(***) *Thrust load on input shaft (+/–)(***)* Axialkraft auf Antriebswelle (+/–)(***) *Charge axiale sur arbre d' entrée (+/–)(***)*	.....N
n_2	Velocità di rotazione in uscita max *Max.output speed* Abtriebsdrehzahl max *Vitesse de rotation maxi en sortie*	.....min^{-1}	Jc	Momento d' inerzia del carico *Moment of inertia of the load* Trägheitsmoment der Last *Moment d'inertie de la charg*	.....Kgm^2
n_2'	Velocità di rotazione in uscita min *Min.output speed* Abtriebsdrehzahl min *Vitesse de rotation mini en sortie*	.....min^{-1}	t_a	Temperatura ambiente *Ambient temperature* Umgebungstemperatur *Température ambiante*	.....C°
n_1	Velocità di rotazione in entrata max *Max.input speed* Antriebsdrehzahl max *Vitesse de rotation maxi en entrée*	.....min^{-1}		Altitudine sul livello del mare *Altitude above sea level* Höhe ü.d.M. *Altitude au-dessus du niveau de la mer*	.....m
n_1'	Velocità di rotazione in entrata min *Min.input speed* Antriebsdrehzahl min *Vitesse de rotation mini en entrée*	.....min^{-1}		Tipo di servizio in accordo a CEI *Duty type to IEC norms* Relative Einschaltdauer gemäß CEI *Type de service selon CE*	S...../.....%
R_{c2}	Carico radiale su albero in uscita *Radial load on output shaft* Radialkraft auf Abtriebswelle *Charge radiale sur arbre de sortie*	.....N	Z	Frequenza di avviamento *Starting frequency* Schaltungshäufigkeit *Fréquence de démarrage*	.....1/h
x_2	Distanza di applicazione del carico (*) *Load application distance (*)* Abstand des Kraftangriffspunktes (*) *Distance d'application de la charge (*)*	.....mm		Tensione di alimentazione motore *Motor voltage* Nennspannung des Motors *Tension de alimentation moteur*	V
	Orientamento del carico in uscita *Load orientation at output* Orientierung der Last am Abtrieb *Orientation de la charge en sortie*			Tensione di alimentazione freno *Brake voltage* Nennspannung der Bremse *Tension de alimentation frein*	V
	Senso di rotazione albero uscita (O-AO) (**) *Output shaft rotation direction (CW-CCW) (**)* Drehrichtung der Abtriebswelle (U-GU) (**) *Sens de rotation arbre sortie (H-AH) (**)*	.....		Frequenza *Frequency* Frequenz *Fréquence*	.....Hz
R_{c1}	Carico radiale su albero in entrata *Radial load on input shaft* Radialkraft auf Antriebswelle *Charge radiale sur arbre d' entrée*	.....N	M_b	Coppia frenante *Brake torque* Bremsmoment *Couple de freinag*	.....Nm
x_1	Distanza di applicazione del carico (*) *Load application distance (*)* Abstand des Kraftangriffspunktes (*) *Distance d'application de la charge (*)*	.....mm		Grado di protezione motore *Motor protection degree* Schutzart des Motors *Degré de protection moteur*	IP.....
	Orientamento del carico in entrata *Load orientation at input* Orientierung der Last am Antrieb *Orientation de la charge en entrée*			Classe di isolamento *Insulation class* Isolierstoffklasse *Classe d'isolation*	.....

(*) La distanza x_{1-2} è quella compresa fra il punto di applicazione della forza e la battuta dell'albero (se non indicata, si considererà la forza agente sulla mezzeria della sporgenza dell'albero).
(**) O = orario
AO = antiorario
(***) + = compressione
– = trazione

(*) *Distance x_{1-2} is between force application point and shaft shoulder (if not indicated the force acting at mid-point of the shaft extension will be considered).*
(**) *CW = clockwise;*
CCW = counterclockwise
(***) *+ = push*
– = pull

(*) Der Abstand x_{1-2} ist der Abstand vom Kraftangriffspunkt zum Wellenansatz (wenn nicht anders angegeben, wird davon ausgegangen, daß die Kraft auf der Mitte des Wellenendes angreift).
(**) U = Uhrzeigersinn;
GU = Gegenuhrzeigersinn
(***) + = Druck
– = Zug

(*) *La distance x_{1-2} est celle comprise entre le point d'application de la force et l'épaulement de l'arbre (si non precisée l'on considerera la force agissant au milieu de la saillie de l'arbre).*
(**) *H = sens horaire;*
AH = sens antihoraire
(***) *+ = compression*
– = traction

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Scelta dei motoriduttori

a) Determinare il fattore di servizio f_s in funzione del tipo di carico (fattore K), del numero di inserzioni/ora Z_r e del numero di ore di funzionamento.

b) Dalla coppia M_{r2}, conoscendo n_2 e il rendimento η, ricavare la potenza in entrata.

Selecting a gearmotor

a) Determine service factor f_s according to type of duty (factor K), number of starts per hour Z_r and hours of operation.

b) From values of torque Mr_2, speed n_2 and efficiency η the required input power can be calculated from the equation:

Wahl des Getriebemotors

a) Den Betriebsfaktor f_s in Abhängigkeit von der Belastungsart (Faktor K), den Schaltungen /Stunde Z_r und den Betriebs stunden bestimmen.

b) Aus dem Drehmoment M_{r2} mit ilfe der bekannten Werte für n_2 und dem Wirkungsgrad η die Antriebsleistung ableiten.

Sélection des motoréducteurs

a) Déterminer le facteur de service f_s en fonction du type decharge (facteur K), du nombre d'insertions/heure Z_r et du nombre d'heures de fonctionnement.

b) A partir du couple M_{r2}, en connaissant n_2 et le rendement η , calculer la puissance en entrée.

$$P_{r1} = \frac{M_{r2} \cdot n_2}{9550 \cdot \eta} \quad [kW] \qquad (8)$$

Il valore di η per lo specifico riduttore può essere ricavato dal paragrafo 5.

Value of η for the captioned worm gear can be sorted out from paragraph 5.

Für das spezifische Getriebe kann der Wert η unter Paragraph 5 erhoben werden.

Il valeur de η pour le réducteur spécifique peut être calculée d'après les indications du paragraphe 5.

c) Ricercare fra le tabelle dei dati tecnici motoriduttori quella corrispondente ad una potenza normalizzata P_n tale che:

c) Consult the gearmotor selection charts and locate the table corresponding to normalised power P_n:

c) Unter den Tabellen mit den Technischen Daten der Getriebemotoren die Tabelle auswählen, die folgender Leistung entspricht:

c) Rechercher parmi les tableaux des caractéristiques techniques des motoréducteurs celui correspondant à une puissance :

$$P_n \geq P_{r1} \qquad (9)$$

Se non diversamente indicato, la potenza P_n dei motori riportata a catalogo si riferisce al servizio continuo S1.
Per i motori utilizzati in condizioni diverse da S1, sarà necessario identificare il tipo di servizio previsto con riferimento alle Norme CEI 2-3/IEC 60034-1.
In particolare, per i servizi da S2 a S8 e per le grandezze motore uguali o inferiori a 132, è possibile ottenere una maggiorazione della potenza rispetto a quella prevista per il servizio continuo, pertanto la condizione da soddisfare sarà:

Unless otherwise specified, power P_n of motors indicated in the catalogue refers to continuous duty S1.
For motors used in conditions other than S1, the type of duty required by reference to CEI 2-3/IEC 60034-1 Standards must be mentioned.
For duties from S2 to S8 in particular and for motor frame 132 or smaller, extra power output can be obtained with respect to continuous duty.
Accordingly the following condition must be satisfied:

Wenn nicht anders angegeben, bezieht sich die im Katalog angegebene Leistung P_n der Motoren auf Dauerbetrieb S1. Bei Motoren, die unter anderen Bedingungen als S1 eingesetzt werden, muß die vorgesehen Betriebsart unter Bezug auf die CEI-Normen 2-3/IEC 60034-1 bestimmt werden.
Insbesondere kann man für die Betriebsarten S2 bis S8 (und für Motorbaugrößen gleich oder niedriger als 132) eine Überdimensionierung der Leistung relativ zu der für den Dauerbetrieb vorgesehenen Leistung erhalten; die zu erfüllende Bedingung ist dann:

Sauf indication contraire la puissance P_n des moteurs indiquée dans le catalogue se réfère à un service continu S1.
Pour les moteurs utilisés dans des conditions différentes du service S1, il sera nécessaire d'identifier le type de service prévu en se référant aux normes CEI 2-3/IEC 60034-1.
En particulier, pour les services de type S2 à S8 ou pour les tailles de moteurs égales ou inférieures à 132 il est possible d'obtenir une majoration de la puissance par rapport à celle prévue pour le service continu. Par conséquent, la condition à satisfaire sera:

$$P_n \geq \frac{P_{r1}}{f_m} \qquad (10)$$

Il fattore di maggiorazione f_m è ricavabile dalla tabella (A7).

The adjusting factor f_m can be obtained from table (A7).

Der Überdimensionierungsfaktor f_m kann der Tabelle (A7) entnommen werden.

Le facteur de majoration f_m peut être obtenu en consultant le tableau (A7).

Rapporto di intermittenza

Intermittence ratio

Relative Einschaltdauer

Rapport d'intermittence

$$I = \frac{t_f}{t_f + t_r} \cdot 100 \qquad (11)$$

t_f = tempo di funzionamento a carico costante
t_r = tempo di riposo

t_f = *work time at constant load*
t_r = *rest time*

t_f = Betriebszeit mit konstanter Belastung
t_r = Aussetzzeit

t_f = *temps de fonctionneent à charge constante*
t_r = *temps de repos*

(A7)

	SERVIZIO / *DUTY* / BETRIEB / *SERVICE*						
	S2			**S3***			**S4 - S8**
	Durata del ciclo / *Cycle duration [min]* Zyklusdauer / *Durée du cycle [min]*			Rapporto di intermittenza / *Cyclic duration factor (I)* Relative Einschaltdauer / *Rapport d'intermittence (I)*			Interpellarci *Please contact us* Rückfrage *Nous contacter*
	10	**30**	**60**	**25%**	**40%**	**60%**	
f_m	1.35	1.15	1.05	1.25	1.15	1.1	

* La durata del ciclo dovrà comunque essere uguale o inferiore a 10 minuti; se superiore interpellare il Servizio Tecnico di Bonfiglioli Riduttori.

** Cycle duration, in any event, must be 10 minutes or less. If it is longer, please contact our Technical Service.*

* Die Zyklusdauer muß in jedem Fall kleiner oder gleich 10 min sein; wenn sie darüber liegt, unseren Technisch en Kundendienst zu Rate ziehen.

** La durée du cycle devra être égale ou inférieure à 10 minutes. Si supérieure, contacter notre Service Technique.*

Nella sezione relativa alla potenza installata $\mathbf{P_n}$ selezionare infine il motoriduttore che sviluppa la velocità di funzionamento più prossima alla velocità $\mathbf{n_2}$ desiderata e per il quale il fattore di sicurezza **S** sia uguale, o superiore, al fattore di servizio $\mathbf{f_s}$.

*Next, refer to the appropriate $\boldsymbol{P_n}$ section within the gearmotor selection charts and locate the unit that features the desired output speed $\boldsymbol{n_2}$, or closest to, along with a safety factor **S** that meets or exceeds the applicable service factor $\boldsymbol{f_s}$.*

Als nächstes wählen Sie anhand der Getriebemotoren auswahltabellen den Abschnitt mit der entsprechenden $\mathbf{P_n}$ und suchen die gewünschte Abtriebsdrehzahl $\mathbf{n_2}$, oder die nächstmögliche Drehzahl, zusammen mit dem Sicherheitsfaktor **S**, der den zutreffenden Betriebsfaktor $\mathbf{f_s}$ erreicht oder überschreitet.

*Dans la section relative à la puissance installée $\boldsymbol{P_n}$ sélectionner enfin le motoréducteur qui développe la vitesse de fonctionnement la plus proche à la vitesse $\boldsymbol{n_2}$ désirée et pour lequel le facteur de sécurité **S** soit pareil, ou supérieur, au facteur de service $\boldsymbol{f_s}$.*

Il fattore di sicurezza è così definito:

The safety factor is so defined:

Der Sicherheitsfaktor wird wie folgt berechnet:

Le facteur de sécurité est défini ainsi :

$$S = \frac{Mn_2}{M_2} = \frac{Pn_1}{P_1} \qquad (12)$$

Nelle tabelle di selezione motoriduttori gli abbinamenti sono sviluppati con motori a 2, 4 e 6 poli alimentati a 50 Hz.
Per velocità di comando diverse da queste, effettuare la selezione con riferimento ai dati nominali forniti per i riduttori.

As standard, gear and motor combinations are implemented with 2, 4 and 6 pole motors, 50 Hz supplied. Should the drive speed be different from 2800, 1400 or 900 min-1, base the selection on the gear unit nominal rating.

Standardmäßig stehen Getriebemotorenkombinationen mit 2, 4 und 6 poligen Motoren für eine Frequenz von 50 Hz zur Verfügung. Sollten die Antriebsdrehzahlen abweichend von 2800, 1400 oder 900 min-1 sein, dann stützen Sie die Auslegung des Getriebes auf die Getriebenenndaten.

Dans les tableaux de sélection des motoréducteurs les accouplements sont développés avec moteurs à 2, 4 et 6 poles alimentés à 50 Hz. Pour vitesses de commande différentes à celles-ci, sélectionner suite aux données nominales fournies par les réducteurs.

Scelta dei riduttori e dei riduttori predisposti per motori IEC

Selecting a speed reducer or a gear unit with IEC motor adapter

Wahl des Getriebes und Getriebe für IEC-motoren

Sélection des réducteurs et des réducteurs CEI

a) Determinare il fattore di servizio f_s.

b) Conoscendo la coppia M_{r2} di uscita richiesta dalla applicazione, si procede alla definizione della coppia di calcolo:

a) Determine service factor f_s.

b) Assuming the required output torque for the application M_{r2} is known, the calculation torque can be then defined as:

a) Den Betriebsfaktor f_s bestimmen.

b) Anhand des bekannten von der Anwendung geforderten Abtriebsdrehmoments M_{r2} das Soll-Drehmoment bestimmen:

a) Déterminer le facteur de service f_s.

b) En connaissant le couple M_{r2} de sortie requis par l'application, l'on procède à la définition du couple de calcul :

$$M_{c2} = M_{r2} \cdot f_s \qquad (13)$$

c) In base alla velocità in uscita n_2 richiesta, e a quella in entrata n_1 disponibile, si calcola il rapporto di riduzione:

c) The gear ratio is calculated according to requested output speed n_2 and input speed n_1:

c) Auf Grundlage der verlangten Abtriebsdrehzahl n_2 und der verfügbaren Antriebsdrehzahl n_1 die Übersetzungs berechnen:

c) Suivant la vitesse en sortie n_2 requise et celle en entrée n_1 disponible, l'on calcule le rapport de réduction :

$$i = \frac{n_1}{n_2} \qquad (14)$$

Disponendo dei dati M_{c2} e i, si ricercherà nelle tabelle corrispondenti alla velocità

Once values for M_{c2} and i are known consult the rating charts under the appropriate

Anhand der Werte für M_{c2} und i in den Tabellen für die Drehzahl n_1 das Getriebe

En disposant des données Mc_2 et i, l'on recherchera dans les tableaux correspon-

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n_1 il riduttore che, in funzione del rapporto [i] più prossimo a quello calcolato, proponga una coppia nominale:

input speed n_1 and locate the gear unit that features the gear ratio closest to [i] and at same time offers a rated torque value M_{n2} so that:

auswählen, das in Abhängigkeit von einer Übersetzung [i], die dem Sollwert möglichst nahe ist, folgendes Nenn-Drehmoment erlaubt:

dant à la vitesse n_1 le réducteur qui, en fonction du rapport [i] le plus proche de celui calculé, propose un couple nominal :

$$M_{n2} \geq M_{c2} \qquad (15)$$

Se al riduttore scelto dovrà essere applicato un motore elettrico verificarne l'applicabilità consultando la tabella delle predisposizioni possibili paragrafo 24.

If a IEC normalized motor must be fitted check geometrical compatibility with the gear unit at paragraph 24 - Motor availability.

Wenn das Getriebe mit einem Elektromotor verbunden werden soll, die Verträglichkeit anhand der Tabelle der möglichen Anbaumöglichkeiten sicherstellen.

Au cas où il serait nécessaire d'appliquer un moteur électrique normalisé au réducteur choisi, en vérifier la possible adaptation en consultant le tableau des prédispositions possibles présenté.

11 - VERIFICHE

Effettuata la corretta selezione delle motorizzazioni, si consiglia di procedere alle seguenti verifiche:

a) Potenza termica
Assicurarsi che la potenza termica del riduttore, abbia un valore uguale o maggiore alla potenza richiesta dall'applicazione secondo la relazione (3) a pag. 6, in caso contrario selezionare un riduttore di grandezza superiore oppure provvedere ad applicare un sistema di raffreddamento forzato.

b) Coppia massima
Generalmente la coppia massima (intesa come punta di carico istantaneo) applicabile al riduttore non deve superare il 200% della coppia nominale M_{n2} ; verificare pertanto che tale limite non venga superato adottando, se necessario, opportuni dispositivi per la limitazione della coppia.
Per i motori trifase a doppia polarità è necessario rivolgere particolare attenzione alla coppia di commutazione istantanea che viene generata durante la commutazione dall'alta velocità alla bassa in quanto può essere decisamente più elevata della coppia massima stessa.
Un metodo semplice ed economico per ridurre tale coppia è quello di alimentare solo due fasi del motore durante la commutazione (il tempo di alimentazione a due fasi può essere regolato mediante un relè a tempo):

11 - VERIFICATION

After selection is complete it may be worth checking on the following:

a) Thermal capacity
Make sure that the thermal capacity of the gearbox is equal to or greater than the power required by the application according to equation (3) on page 6. If this condition is not verified, select a larger gearbox or apply a forced cooling system.

b) Maximum torque
The maximum torque (intended as momentary peak load) applicable to the gearbox must not, in general, exceed 200% of rated torque M_{n2}. Therefore, check that this limit is not exceeded, using suitable torque limiting devices, if necessary.
For three-phase double speed motors, it is important to pay attention to the switching torque which is generated when switching from high to low speed, because it could be significantly higher than maximum torque.
A simple, economical way to minimize overloading is to power only two phases of the motor during switch-over (power-up time on two phases can be controlled with a time-relay):

11 - PRÜFUNGEN

Nach Wahl des Getriebemotors folgende Prüfungen ausführen:

a) Thernische Grenzleistung
Sicherstellen, daß die Wärmeleistung des Getriebes größer oder gleich der verlangten Leistung ist, die von der Anwendung nach Gleichung (3) auf S. 6 verlangt wird. Andernfalls ein größer dimensioniertes Getriebe wählen bzw. ein Zwangskühlsystem vorsehen.

b) Max. Drehmoment
Im allgemeinen darf das max. Drehmoment (verstanden als mom entane Lastspitze), das auf das Getriebe aufgebracht werden kann, 200 % des Nenndrehmoments M_{n2} nicht überschreiten. Sicherstellen, daß dieser Grenzwert nicht überschritten wird, und nötigenfalls die entsprechenden Vorrichtungen zur Begrenzung des Drehmoments vorsehen. Bei polumschaltbaren Drehstrommotoren muss dem Umschaltdrehmoment, das beim Umschalten von der hohen auf die niedrige Drehzahl erzeugt wird, besondere Aufmerksamkeit geschenkt werden, da es entschieden größer sein kann als das Nenn-Drehmoment. Eine einfache und kostengünstige Methode zum Senken dieses Drehmoments besteht darin, daß nur zwei Phasen des Motors während des Umschaltens gespeist werden (die Dauer der Speisung von nur 2 Phasen kann durch ein Zeitrelais gesteuert werden):

11 - VERIFICATIONS

Après avoir effectué une sélection correcte des motorisations, nous conseillons de proceder aux vérifications suivantes :

a) Puissance thermique
S'assurer que la puissance thermique du réducteur ait une valeur supérieure ou égale à la puissance requise par l'application selon l'équation (3) page 6. Dans le cas contraire, sélectionner un réducteur de taille supérieure ou bien prevoir un système de refroidissement forcé.

b) Couple maximum
Généralement, le couple maximum (à considerer comme une pointe de charge instantanée) applicable au réducteur ne doit pas dépasser les 200% du couple nominal M_{n2}. Verifier par conséquent que cette limite ne soit pas dépassée en adoptant, si nécessaire, des dispositifs adaptés pour limiter le couple.
Pour les moteurs triphasés à double polarité, il est nécessaire de prêter une attention particulière au couple de commutation instantané qui est généré lors du passage de la grande à la petite vitesse étant donné qu'il peut être considérablement plus élevé que le couple maximum lui même.
Une méthode simple et économique pour réduire ce couple consiste à alimenter seulement deux phases du moteur pendant la commutation (la durée d'alimentation sur deux phases peut être réglée au moyen d'un relais temporisateur) :

M_{g2} = 0.5 · M_{g3}
M_{g2} = Coppia di commutazione alimentando 2 fasi
M_{g3} = Coppia di commutazione alimentando 3 fasi

Suggeriamo comunque di contattare il ns. Servizio Tecnico.

M_{g2} = 0.5 · M_{g3}
M_{g2} = Switching torque with two-phase power-up
M_{g3} = Switching torque with three-phase power-up

We advise you, in any event, to contact our Technical Service.

M_{g2}= 0.5 · M_{g3}
M_{g2}= Umschaltdrehmoment bei Speisung von 2 Phasen;
M_{g3}= Umschaltdrehmoment bei Speisung von 3 Phasen.

Wir empfehlen jedoch in jedem Fall, unseren Technischen Kundendienst zu Rate zu ziehen.

M_{g2}= 0.5 · M_{g3}
M_{g2}= Couple de commutation en alimentant deux phases
M_{g3}= Couple de commutation en alimentant trois phases

Nous suggérons cependant de contacter notre Service Technique.

c) Carichi radiali

Verificare che i carichi radiali agenti sugli alberi di entrata e/o uscita rientrino nei valori di catalogo ammessi. Se superiori, aumentare la grandezza del riduttore oppure modificare la supportazione del carico.
Ricordiamo che tutti i valori indicati nel catalogo si riferiscono a carichi agenti sulla mezzeria della sporgenza dell'albero in esame per cui, in fase di verifica, è indispensabile tenere conto di questa condizione provvedendo, se necessario, a determinare con le apposite formule il carico ammissibile alla distanza x_{1-2} desiderata.
A tale proposito si rimanda ai paragrafi relativi ai carichi radiali.

c) Radial loads

Make sure that radial forces applying on input and/or output shaft are within permittend catalogue values.
If they were higher consider designing a different bearing arrangement before switching to a larger gear unit.
Catalogue values for rated overhung loads refer to mid-point of shaft under study.
Should application point of the overhung load be localised further out the revised loading capability must be adjusted as per instructions given in this manual. See paragraph 22.

c) Radialkräfte

Sicherstellen, daß die auf die Antriebswellen und/oder Abtriebswellen wirkenden Radialkräfte innerhalb der zulässigen Katalogwerte liegen. Wenn sie höher sind, das Getriebe größer dimensionieren bzw. die Abstützung der Last verändern. Wir erinnern daran, daß alle im Katalog angegebenen Werte sich auf Kräfte beziehen, die auf die Mitte des Wellenendes wirken. Diese Tatsache muß bei der Prüfung unbedingt berücksichtigt werden und nötigenfalls muß mit Hilfe der geeigneten Formeln die zulässige Kraft beim gewünschten Abstand x_{1-2} bestimmt werden. Siehe hierzu die Erläuterungen zu den Radialkräften in diesem Katalog.

c) Charges radiales

Vérifier que les charges radiales agissant sur les arbres d'entrée et/ou de sortie se situent dans les valeurs de catalogue admises. Si elles sont supérieures, choisir la taille du réducteur superieure ou modifier la reprise de charge. Rappelons que toutes les valeurs indiquées dans le catalogue se réfèrent à des charges agissant au milieu de la longueur disponible de l'arbre contrôlé. Par conséquent, en phase de vérification, il est indispensable de prendre en considération cette condition en déterminant, si nécessaire, avec les formules appropriées, la charge admissible à la distance x_{1-2} désirée. Se rapporter à ce propos aux paragraphes relatifs aux charges radiales.

d) Carichi assiali

Anche gli eventuali carichi assiali dovranno essere confrontati con i valori ammissibili.
Se si è in presenza di carichi assiali molto elevati o combinati con carichi radiali, si consiglia di interpellare il ns. Servizio Tecnico.

d) Thrust loads

Actual thrust load must be found within 20% of the equivalent overhung load capacity.
Should an extremely high, or a combination of radial and axial load apply, consult Bonfiglioli Technical Service.

d) Axialkräfte

Auch die eventuell vorhandenen Axialkräfte müssen mit den im Katalog angegebenen zulässigen Werten verglichen werden. Wenn sehr hohe Axialkräfte wirken oder Axialkräfte in Kombination mit Radialkräften, bitte unseren Technischen Kundendienst zu Rate ziehen.

d) Charges axiales

Les éventuelles charges axiales devront être comparées avec les valeurs admissibles. Si l'on est en présence de charges axiales très élevées ou combinées avec des charges radiales, nous conseillons d'interpeller notre Service Technique.

e) Avviamenti orari

Per servizi diversi da S1, con un numero rilevante di inserzioni/ora si dovrà tener conto di un fattore Z (determinabile con le indicazioni riportate nel capitolo dei motori) il quale definisce il numero max. di avviamenti specifico per l'applicazione in oggetto.

e) Starts per hour

For duties featuring a high number of switches the actual starting capability in loaded condition [Z] must be calculated. Actual number of starts per hour must be lower than value so calculated.

e) Schaltungen/Stunde

Bei anderen Betriebsarten als S1 mit einem hohen Wert für die Schaltungen/Stunde muß der Faktor Z berücksichtigt werden (er kann mit Hilfe der Angaben im Kapitel Motoren bestimmt werden), der die max. zulässige Anzahl von Schalten für eine bestimmte Anwendung definiert.

e) Démarrages/heure

Pour les services différents de S1, avec un nombre important d'insertions/heure, il faudra prendre en considération un facteur Z (déterminé à l'aide des informations reportées dans le chapitre des moteurs) qui définit le nombre maximum de démarrages spécifique pour l'application concernée.

12 - INSTALLAZIONE

È molto importante, per l'installazione del riduttore, attenersi alle seguenti norme:

a) Assicurarsi che il fissaggio del riduttore, sia stabile onde evitare qualsiasi vibrazione. Installare (se si prevedono

12 - INSTALLATION

The following installation instructions must be observed:

a) Make sure that the gearbox is correctly secured to avoid vibrations.
If shocks or overloads are

12 - INSTALLATION

Für die Installation des Getriebes ist es äußerst wichtig, daß folgende Normen beachtet werden:

a) Sicherstellen, daß die Befestigung des Getriebes stabil ist, damit keine Schwingungen entstehen. Wenn es

12 - INSTALLATION

Il est très important, pour l'installation du réducteur, de se conformer aux règles suivantes:

a) S'assurer que la fixation du réducteur soit stable afin d'éviter toute vibration. Installer (en cas de chocs,

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urti, sovraccarichi prolungati o possibili bloccaggi) giunti idraulici, frizioni, limitatori di coppia, ecc.

expected, install hydraulic couplings, clutches, torque limiters, etc.

voraussichtlich zu Stößen, längerdauernden Überlasten oder zu Blockierungen kommen kann, sind entsprechende Schutzelemente wie hydraulische Kupplungen, Kupplungen, Rut- schkupplungen usw. zu installieren.

de surcharges prolongées ou de blocages) des coupleurs hydrauliques, des embrayages, des limiteurs de couple etc...

b) Durante la verniciatura si dovranno proteggere i piani lavorati e il bordo esterno degli anelli di tenuta per evitare che la vernice ne essichi la gomma, pregiudicando la tenuta del paraolio stesso.

b) Before being paint coated, the machined surfaces and the outer face of the oil seals must be protected to prevent paint drying out the rubber and jeopardising the sealing properties.

b) Beim Lackieren die bearbeiteten Flächen und die Dichtringe schützen, damit der Anstrichstoff nicht dem Kunststoff angreift und somit die Dichtigkeit der Ölabdichtungen in Frage gestellt wird.

b) En phase de peinture, il faudra protéger les plans usinés et le bord extérieur des bagues d'étanchéité pour éviter que la peinture ne dessèche le caoutchouc, ce qui risque de nuire à l'efficacité du joint.

c) Gli organi che vanno calettati sugli alberi di uscita del riduttore devono essere lavorati con tolleranza ISO H7 per evitare accoppiamenti troppo bloccati che, in fase di montaggio potrebbero danneggiare irreparabilmente il riduttore stesso. Inoltre, per il montaggio e lo smontaggio di tali organi si consiglia l'uso di adeguati tiranti ed estrattori utilizzando il foro filettato posto in testa alle estremità degli alberi.

c) Parts fitted on the gearbox output shaft must be machined to ISO H7 tolerance to prevent interference fits that could damage the gearbox itself. Further, to mount or remove such parts, use suitable pullers or extraction devices using the tapped hole located at the top of the shaft extension.

c) Die Organe, die mit einer Keilverbindung auf der Abtriebswelle des Getriebes befestigt werden, müssen mit einer Toleranz ISO H7 gearbeitet sein, um allzu fest blockierte Verbindungen zu vermeiden, die eventuell zu einer irreparablen Beschädigung des Getriebes während des Einbaus führen könnten. Außerdem sind beim Ein- und Ausbau dieser Organe geeignete Zugstangen und Abzieher zu verwenden, wobei die Gewindebohrung an den Kopfen der Wellen zu verwenden ist.

c) Les organes qui sont calés sur les arbres de sortie du réducteur doivent être réalisés avec une tolérance ISO H7 pour éviter les accouplements trop serrés qui, en phase de montage, pourraient endommager irrémédiablement le réducteur. En outre, pour le montage et le démontage de ces organes, nous conseillons d'utiliser un outillage et des extracteurs appropriés en utilisant le trou taraudé situé en extremité d'arbre.

d) Le superfici di contatto dovranno essere pulite e trattate con adeguati protettivi prima del montaggio, onde evitare l'ossidazione e il conseguente bloccaggio delle parti.

d) Mating surfaces must be cleaned and treated with suitable protective products before mounting to avoid oxidation and, as a result, seizure of parts.

d) Die Berührungsflächen müssen sauber sein und vor der Montage mit einem geeigneten Schutzmittel behandelt werden, um Oxidierung und die daraus folgende Blockierung der Teile zu verhindern.

d) Les surfaces de contact devront être propres et traitées avec des produits de protections appropriés avant le montage afin d'éviter l'oxydation et par suite le blocage des pièces.

e) Prima della messa in servizio del riduttore accertarsi che la macchina che lo incorpora sia in regola con le disposizioni della Direttiva Macchine 89/392 e successivi aggiornamenti.

e) Prior to putting the gear unit into operation make sure that the equipment that incorporates the same complies with the current revision of the Machines Directive 89/392.

e) Bevor das Getriebe im Betrieb zu setzen, muß man sich vergewissern daß die das Getriebe einbauende Maschine gemäß den aktuellen Regelungen der Maschine Richtlinie 89/392 ist.

e) Avant la mise en service du réducteur, vérifier que la machine où il est monté est conforme aux normes de la Directive Machines 89/392 et ses mises à jour.

f) Prima della messa in funzione della macchina, accertarsi che la posizione del livello del lubrificante sia conforme alla posizione di montaggio del riduttore e che la viscosità sia adeguata al tipo del carico (vedi tabella A3).

f) Before starting up the machine, make sure that oil level conforms to the mounting position specified for the gear unit.

f) Vor Inbetriebnahme der Maschine sicherstellen, daß die Anordnung der Füllstandschraube der Einbaulage angemessen ist, und die Viskosität des Schmiermittels der Belastungsart entspricht (siehe Tabelle A3).

f) Avant la mise en marche de la machine, s'assurer que la position du niveau du lubrifiant soit conforme à la position de montage du réducteur et que la viscosité soit appropriée au type de charge (voir tableau A3).

g) Nel caso di istallazione all'aperto prevede adeguate protezioni e/o carterature allo scopo di evitare l'esposizione diretta agli agenti atmosferici e alla radiazione solare.

g) For outdoor installation provide adequate guards in order to protect the drive from rainfalls as well as direct sun radiation.

g) Bei Inbetriebnahme in Frein, muß man geeigneten Schutzgeräte vorsehen, um das Antrieb gegen Regen und direkte Sonnenstrahlung zu schutzen.

g) En cas d'installation en plein air, il est nécessaire d'appliquer des protections et/ou des caches appropriés de façon à éviter l'exposition directe aux agents atmosphériques et aux rayonnements solaires.

13 - STOCCAGGIO

Il corretto stoccaggio dei prodotti ricevuti richiede l'esecuzione delle seguenti attività:

a) Escludere aree all'aperto, zone esposte alle intemperie o con eccessiva umidità.

b) Interporre sempre tra il pavimento ed i prodotti, pianali lignei o di altra natura, atti ad impedire il diretto contatto col suolo.

c) Per periodi di stoccaggio e soste prolungate le superfici interessate agli accoppiamenti quali flange, alberi e giunti devono essere protette con idoneo prodotto antiossidante (Mobilarma 248 o equivalente).
In questo caso i riduttori dovranno essere posizionati con il tappo di sfiato nella posizione più alta e riempiti interamente d'olio.
Prima della loro messa in servizio nei riduttori dovrà essere ripristinata la corretta quantità, e il tipo di lubrificante.

13 - STORAGE

Observe the following instructions to ensure correct storage of the products:

a) Do not store outdoors, in areas exposed to weather or with excessive humidity.

b) Always place wooden boards or other material underneath the product, to avoid the direct contact with the floor.

c) In case of long-term storage all machined surfaces such as flanges, shafts and couplings must be coated with a suitable rust inhibiting product (Mobilarma 248 or equivalent).
Furthermore gear units must be placed with the fill plug in the highest position and filled up with oil.
Before putting the units into operation the appropriate quantity, and type, of oil must be restored.

13 - LAGERUNG

Die korrekte Lagerung der Antriebe erfordert folgende Vorkehrungen:

a) Die Produkte nicht im Freien lagern und nicht in Räumen, die der Witterung ausgesetzt sind, oder eine hohe Feuchtigkeit aufweisen.

b) Die Produkte nie direkt auf dem Boden, sondern auf Unterlagen aus Holz oder einem anderen Material lagern.

c) Bei anhaltenden Lager-und Haltszeiten müssen die Oberflächen für die Verbindung, wie Flansche, Wellen oder Kupplungen mit einem geeigneten Oxidationsschutzmittel behandelt werden (Mobilarma 248 oder ein äquivalentes Mittel).
Übrigens müssen die Getriebe mit nach oben gehrichteter Entlüftungsschraube gelagert und mit Öl gefüllt werden.
Die Getriebe müssen vor ihrer Verwendung mit der angegeben Menge des vorgesehenen Schmiermittels gefüllt werden.

13 - STOCKAGE

Un correct stockage des produits reçus nécessite de respecter les règles suivantes :

a) Exclure les zones à ciel ouvert, les zones exposées aux intempéries ou avec humidité excessive.

b) Interposer dans tous les cas entre le plancher et les produits des planches de bois ou des supports d'autre nature empêchant le contact direct avec le sol.

c) Pour une stockage de long durée il faut protéger les surfaces d'accouplement (brides, arbres, manchon d'accouplement) avec produit anti oxydant (Mobilarma 248 ou equivalent).
Dans ce cas les réducteurs devront être placés avec bouchon reniflard vers le haut et complétement repli d'huile.
Avant de la mise en service du réducteur, la bon quantité d'huile devrà etre rétabli selon la quantité indiqué sur le catalogue.

14 - CONDIZIONI DI FORNITURA

I riduttori e i variatori vengono forniti come segue:

a) già predisposti per essere installati nella posizione di montaggio come definito in fase di ordine;

b) collaudati secondo specifiche interne;

c) le superfici di accoppiamento non sono verniciate;

d) provvisti di dadi e bulloni per montaggio motori per la versione IEC;

e) dotati di protezioni in plastica sugli alberi;

f) provvisti di golfare di sollevamento (dove previsto).

14 - CONDITIONS OF SUPPLY

Gear units are supplied as follows:

a) configured for installation in the mounting position specified when ordering;

b) tested to factory specifications;

c) mating machined surfaces unpainted;

d) nuts and bolts for mounting motors are provided;

e) shafts are protected;

f) supplied with lifting lug (where applicable).

14 - LIEFERBEDINGUNGEN

Die Getriebe und Verstellgetriebe werden in folgendem Zustand geliefert:

a) schon bereit für die Montage in der bei Bestellung festgelegten Einbaulage;

b) nach werksinternen Spezifikationen geprüft;

c) die Verbindungsflächen sind nicht lackiert;

d) ausgestattet mit Schrauben und Muttern für die Montage der Motoren (Version mit Adapter für IEC-Motoren);

e) alle Getriebe werden mit Kunststoffschutz auf den Wellen geliefert;

f) mit Transportierring zum An heben (falls vorgesehen).

14 - CONDITIONS DE LIVRAISON

Les réducteurs et les variateurs sont livrés comme suit :

a) déjà prédisposés pour être installés dans la position de montage comme défini en phase de commande ;

b) testés selon les spécifications internes ;

c) les surfaces de liaison ne sont pas peintes ;

d) équipés d'écrous et de boulons pour le montage des moteurs normalisés pour la version CEI ;

e) embouts de protections en plastique sur les arbres ;

f) dotés d'un crochet de levage (quand cela est prévu).

15 - SPECIFICHE DELLA VERNICE

Le specifiche della vernice applicata sui riduttori (dove previsto) potranno essere richieste alle filiali o ai distributori che hanno fornito i gruppi.

15 - PAINT SPECIFICATIONS

Coating specifications for paint applied to gearboxes (where applicable) may be obtained from the branches or dealers that supplied the units.

15 - ANGABEN ZU DEN ANSTRICHSTOFFE

Die Spezifikationen des Lackes, der auf den Getriebe (wo erforderlich) verwendet wurde, können bei den Filialen oder Verkaufsstellen, die die Gruppen geliefert haben, angefordert werden.

15 - SPECIFICATIONS DE LA PEINTURE

Les spécification de la peinture appliquée sur les réducteurs pourront, le cas échéant, être demandées aux filiales ou aux distributeurs ayant fourni les groupes.

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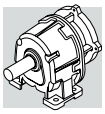
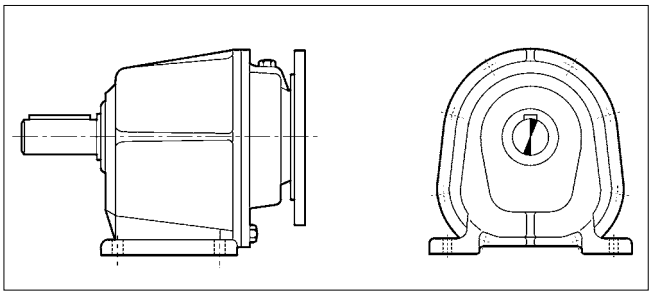


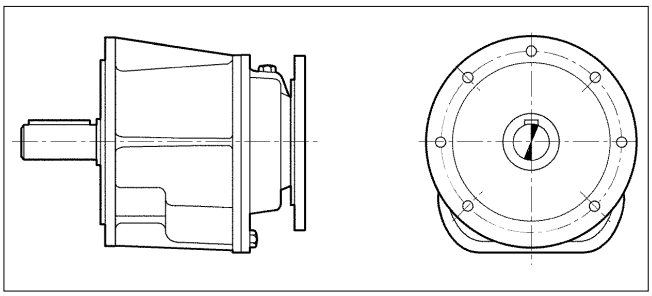
16 - FORME COSTRUTTIVE — *16 - VERSIONS* — 16 - BAUFORMEN — *16 - FORMES DE CONSTRUCTION*



P

Piedi integrali
Foot mount
Mit integrierten Füßen
Carter à pattes monobloc

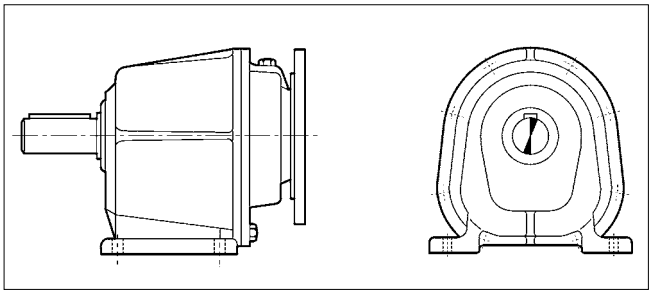
AS 16...AS 90



F

Flangia integrale
Flange mount
Mit integriertem Flansch
Carter à bride monobloc

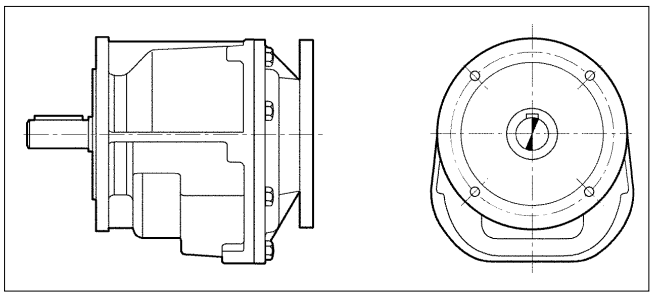
AS 16...AS 90



PR

Con piedi e cuscinetti rinforzati
Footed version with reinforced bearings
Mit verstärktem Füßen und Lagern
Avec pattes et roulements renforcés

AS 25...AS 30



R

Flangia dimensioni ridotte e cuscinetti rinforzati
Flange reduced in diametre and reinforced bearings
Kleiner Flansch und verstärkte Lager
Bride dimensions réduites et roulements renforcés

AS 25...AS 30

PR, R: Le forme costruttive PR ed R garantiscono sopportazioni radiali sull'albero lento maggiorate rispetto alle corrispondenti forme P ed F.
Per informazioni sui valori puntuali contattare il Servizio Tecnico di Bonfiglioli.

***PR, R**: The PR and R designs provide greater overhung load capacity at the output shaft end than their P and F equivalents.*
Please contact Bonfiglioli Technical Service for precise values.

PR, R: Durch die Konstruktionsformen PR und R werden Radialkräfte auf der Abtriebswelle gewährleistet, die im Vergleich zu den entsprechenden Formen P und F höher sind. Für Informationen hinsichtlich der genauen Werte setzen Sie sich bitte mit dem Technischen Kundenservice von Bonfiglioli in Verbindung.

***PR, R**: Les formes de construction PR et R garantissent des caractéristiques de supports radiaux sur l'arbre de sortie majorés par rapport aux formes P et F correspondantes.*
Pour de plus amples informations concernant les valeurs exactes, contacter le Service Technique de Bonfiglioli.

17 - DESIGNAZIONE | ***17 - DESIGNATION*** | **17 - BEZEICHNUNG** | ***17 - DESIGNATION***

RIDUTTORE / *GEAR UNIT*
GETRIEBE / *REDUCTEUR*

AS 30 D P 65.80 _ 080 B5 B3 .....

OPZIONI / *OPTIONS*
OPTIONEN / *OPTIONS*

LO (AS 45 … AS 90)
PV (AS 16 … AS 90)

20

POSIZIONE DI MONTAGGIO / *MOUNTING POSITION*
EINBAULAGEN / *POSITION DE MONTAGE*

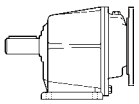
AS_P **B3** (default)**; B6; B7; B8; V5; V6**
AS_F **B5** (default)**; B51; B53; B52; V1; V3**

23

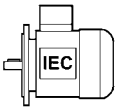
FLANGIA ATTACCO MOTORE / *MOTOR MOUNTING*
MOTOR BAUFORM / *BRIDE MOTEUR*

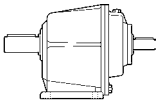
B5

DESIGNAZIONE INGRESSO / *INPUT CONFIGURATION*
BEZEICHNUNG DER ANTRIEBSSEITE / *DESIGNATION ENTREE*



063	**132**
071	**160**
080	**180**
090	**200**
100	**225**
112	

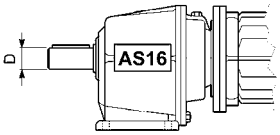




HS

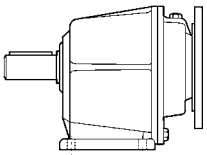
Ø ALBERO / *SHAFT* / ANTRIEBSWELLE / *ARBRE*
(solo / *only* / nur für / *seulement* **AS 16**)

— (Ø16 default)
D14 (Ø14 option)

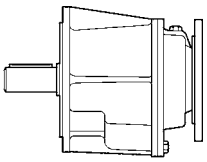


RAPPORTO / *GEAR RATIO*
ÜBERSETZUNG / *RAPPORT DE REDUCTION*

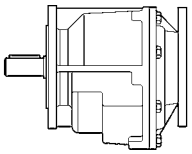
FORMA COSTRUTTIVA / *VERSION* / BAUFORM / *FORME DE CONSTRUCTION*



P (AS16…AS90) **PR** (AS25-AS30)



F (AS16…AS90)



R (AS25-AS35)

RIDUZIONI / *REDUCTIONS* / GETRIEBESTUFEN / *ETAGES DE REDUCTION*

– 

D 

GRANDEZZA / FRAME SIZE / BAUGRÖSSE / *TAILLE*
16, 20, 25, 30, 35, 45, 55, 60, 80, 90

SERIE / *GEARBOX TYPE* / GETRIEBETYP / *TYPE DU REDUCTEUR*
AS

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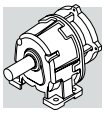

Designazione motore | ***Motor designation*** | **Motor bezeichnung** | ***Designation moteur***

MOTORE / *MOTOR*
MOTOR / *MOTEUR*

FRENO / *BRAKE*
BREMSE / *FREIN*

BN **80B** **4** 230/400-50 CLF **B5** **FD** 10 R SB 220SA .....

OPZIONI
OPTIONS
OPTIONEN
OPTIONS
20

ALIMENTAZ. FRENO
BRAKE SUPPLY
BREMSVERSORGUNG
ALIMENTATION FREIN
124

TIPO ALIMENTATORE
RECTIFIER TYPE
GLEICHRICHTERTYP
TYPE ALIMENTATEUR
NB, SB, NBR, SBR
129

LEVA DI SBLOCCO FRENO
BRAKE HAND RELEASE
BREMSENTHANDLÜFTUNG
LEVIER DE DEBLOCAGE FREIN
R, RM
122

COPPIA FRENANTE / *BRAKE TORQUE*
BREMSMOMENT/ *COUPLE FREIN*
131 135 139

TIPO FRENO / *BRAKE TYPE*
BREMSENTYP / *TYPE DE FREIN*
FD, FA, BA

FORMA COSTRUTTIVA / *MOTOR MOUNTING*
BAUFORM / *FORM DE CONSTRUCTION*
B5

CLASSE ISOLAMENTO / *INSULATION CLASS*
ISOLIERUNGSKLASSE / *CLASSE ISOLATION*
CL F standard
CL H option

TENSIONE - FREQUENZA / *VOLTAGE - FREQUENCY*
SPANNUNG - FREQUENZ / *TENSION - FREQUENCE*

NUMERO DI POLI / *POLE NUMBER* / POLZAHL / *N.bre POLES*
2, 4, 6, 2/4, 2/6, 2/8, 2/12, 4/6, 4/8

GRANDEZZA MOTORE / *MOTOR SIZE* / MOTOR-BAUGRÖSSE / *TAILLE MOTEUR*
63A...280M

TIPO MOTORE / *MOTOR TYPE* / MOTORTYP / *TYPE MOTEUR*
BN

Opzioni riduttori

LO

I riduttori AS45, AS55, AS60, AS80, AS90 solitamente sprovvisti di lubrificante, sono richiesti con olio sintetico del tipo correntemente utilizzato da BONFIGLIOLI RIDUTTORI e riempiti in accordo alla posizione di montaggio richiesta.

PV

Tutti gli anelli di tenuta in Viton®.

Gearbox options

LO

Gearboxes AS45, AS55, AS60, AS80, AS90 usually supplied without oil, to be supplied with synthetic oil currently used by BONFIGLIOLI RIDUTTORI and filled according to the mounting position specified.

PV

Both input and output shafts feature Viton® oil seals.

Getriebe Optionen

LO

Für Getriebe AS45, AS55, AS60, AS80, AS90 die gewöhnlich ohne Schmiermittel geliefert werden, in Übereinstimmung mit der Einbaulage gefüllt mit dem normalerweise von BONFIGLIOLI RIDUTTORI verwendeten synthetischen Schmierstoff.

PV

Alle Wellendichtringe aus Viton®.

Options réducteurs

LO

Les réducteurs AS45, AS55, AS60, AS80, AS90 habituellement dépourvus de lubrifiants, sont demandés avec huile synthétique du type couramment utilisé par BONFIGLIOLI RIDUTTORI et remplis conformément à la position de montage demandée.

PV

Toutes les bagues d'étanchéité en Viton®.

Opzioni motori

AA, AC, AD

Posizione angolare leva di sblocco freno rispetto alla posizione morsettiera visto lato ventola.
Posizione standard = 90° orari.
AA = 0°, AC = 180°,
AD = 90° antiorari.

CF

Filtro capacitivo.

D3

No. 3 sonde bimetalliche.

E3

No. 3 termistori per motori a singola polarità e doppia polarità (in accordo alla classe di isolamento).

F1

Volano per avviamento progressivo.

H1

Riscaldatori anticondensa. Alimentazione standard 230V ± 10%.

PN

Potenza a 60 Hz corrispondente alla potenza normalizzata a 50 Hz.

PS

Doppia estremità d'albero (esclude opzione RC e U1).

RC

Tettuccio parapioggia (esclude opzione PS).

RV

Bilanciamento rotore in grado di vibrazione R.

TC

La variante del tettuccio tipo TC è da specificare quando il motore è installato in ambienti dell'industria tessile.
L'opzione esclude le varianti

Motor options

AA, AC, AD

Mutual position of the brake release lever and terminal box.
View is from the fan side.
Standard position = 90° clockwise.
AA = 0°, AC = 180°,
AD = 90° counterclockwise.

CF

Capacitive filter.

D3

3 nos bimetallic thermostats.

E3

3 nos thermistors for single and double speed motors (according to the isolation class).

F1

Flywheel for soft start and stop.

H1

Anti condensate heaters. Standard voltage 230V± 10%.

PN

60 Hz power corresponding to the normalized 50 Hz power.

PS

Double shaft extention (barring RC and U1 options).

RC

Drip cover (barring option PS).

RV

Rotor balancing in vibration class R.

TC

Option TC is a rain canopy variant for textile industry environments.
This option is not compatible with variants EN1, EN2, EN3

Optionen Motoren

AA, AC, AD

geben die Lage des Bremslüfterhebels zum Klemmenkasten an. Standard ist 90° im Uhrzeigersinn beim Ansehen der Lüfterradseite.
AA = 0°, AC = 180°,
AD = 90° entgegen dem Uhrzeigersinn.

CF

Kapazitive filter.

D3

3 Bimetallfühler.

E3

3 Kaltleiterthermistoren für eintourige Motoren und polumschaltbaren Motoren (gemäß der Isolierstoffklasse).

F1

Schwungrad zum sanften Anfahren.

H1

Wicklungsheizung
Standardspannung 230 V± 10%

PN

Die 60 Hz-Leistung wird an der 50 Hz-Normleistung ausgegliechen.

PS

Zweites Wellenende (schließt die Optionen RC und U1 aus).

RC

Schutzdach (schließt Option PS aus).

RV

Läufer in Vibrationsgrad R ausgewuchtet.

TC

Bei dieser Option handelt es sich um ein Schutzdachs mit einem Textilnetz, dessen Einsatz empfohlen wird wenn der Motor in Bereichen der Textilindustrie instal-

Options moteurs

AA, AC, AD

Position angulaire du levier de déblocage du frein par rapport à la position de la boîte à borne en regardant du côté du ventilateur.
Position standard =90° sens horaire.
AA = 0°, AC = 180°,
AD = 90° sens anti-horaire.

CF

Filtre capacitif.

D3

3 sondes bimétalliques.

E3

3 thérmistances pour moteurs à simple polarité ou double polarité (selon les classes d'isolation).

F1

Volant pour démarrage progressif.

H1

Réchauffeurs anticondensation. Alimentation standard 230V ± 10%.

PN

Puissance à 60 Hz correspondante à la puissance normalisée à 50 Hz.

PS

Double extremité d'arbre (à l'exclusion de l'option RC et U1).

RC

Capot protection antipluie (option PS exclue).

RV

Equilibrage rotor avec degré de vibration R.

TC

La variante du capot type TC est à spécifier lorsque le moteur est installé dans des sites de l'industrie textile.
L'option exclue les variantes

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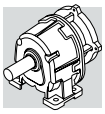

EN1, EN2, EN3 e non è applicabile ai motori con freno tipo BA.

and will not fit motors equipped with a BA brake.

liert wird. Diese Option schließt die Möglichkeit der Optionen EN1, EN2, EN3 aus und kann bei Bremsemotoren vom Typ BN_BA nicht montiert werden.

EN1, EN2, EN3 et n'est pas applicable aux moteurs avec frein type BA.

TP

Tropicalizzazione.

TP

Tropicalization.

TP

Tropenfestigkeit.

TP

Tropicalisation.

U1

Servoventilazione (esclude opzioni PS e CUS).

U1

Forced cooling (barring options PS and CUS).

U1

Fremdbelüftung (Nicht anwendbare Gesamtheit an den Optionen PS und CUS).

U1

Servo-ventilateur (Pas applicable ensemble aux options PS et CUS).

U2

Servoventilatore privo di scatola morsettiera, dotato di cavi precablati internamente. Esclude le opzioni PS e CUS.. Disponibile per motori:
BN 71 … BN 132.

U2

Separate supply forced ventilation without terminal box. Cables are pre-wired.Configuration is not compatible with options PS and CUS.
Available on motors;
BN 71 … BN 132.

U2

Servoventilator ohne Klemmenkasten, bereits intern verkabelt.
Nicht anwendbare Gesamtheit an den Optionen PS und CUS.
Verfügbar für folgende Motoren:
BN 71 … BN 132.

U2

Servoventilateur sans boîte à bornes, doté de câbles précâblés à l'intérieur. Pas applicable ensemble aux options PS et CUS. Disponible pour moteurs : BN 71 … BN 132.

18 - LUBRIFICAZIONE

I riduttori AS delle grandezze 16, 20, 25, 30 e 35 sono riempiti in fabbrica con carica di lubrificante sintetico "a vita" del tipo SHELL Tivela S 320.
Non sono pertanto richiesti interventi periodici di sostituzione del lubrificante.
I riduttori sono allestiti in esecuzione sigillata e pertanto privi di tappi di carico, scarico e livello.
La quantità di olio è tale da consentire l'installazione di questi gruppi in qualsiasi posizione di montaggio.
Il funzionamento dei riduttori è ammesso per temperature ambiente comprese fra -20°C e +40°C. Per temperature ambiente comprese fra -20°C e -10°C l'avviamento del riduttore potrà avvenire solo dopo aver effettuato un pre-riscaldamento progressivo ed omogeneo del gruppo, oppure con funzionamento "a vuoto", senza carico collegato.
Il carico potrà poi essere applicato all'albero del riduttore quando la temperatura dello stesso avrà raggiunto la temperatura di -10°C, o superiore.
Se, per qualsiasi motivo, si dovesse procedere alla completa sostituzione della carica originaria di lubrificante, la tabella seguente fornisce le quantità da immettere.

18 - LUBRICATION

The AS speed reducers sizes 16, 20, 25, 30 and 35 are factory filled with long-life synthetic lubricant, SHELL Tivela S 320.
There is no need for periodical lubricant changes.
The reducers are sealed, therefore they feature no fill, drain and level plugs. Oil quantity allows any mounting position.
Operation of gear units is permitted at ambient temperatures between -20°C and +40°C. However, for temperatures between -20°C and -10°C unit may only start up after it has been progressively and evenly pre-heated, or otherwise initially operated unloaded.
Load may then be connected to the output shaft when the gear unit has reached the temperature of -10°C, or higher.
Should you carry out, for any reason, the complete change of the original lubricant, the following table indicates quantity to be used.

18 - SCHMIERUNG

Die Getriebe der Serie AS in den Baugrößen 16, 20, 25, 30 und 35 sind bereits auf Lebenszeit „long life" ab Werk mit einem synthetischen Schmiermittel von Typ SHELL Tivela S 320 gefüllt.
Daher sind keinerlei regelmäßige Auswechseleingriffe des Schmiermittels erforderlich.
Die Getriebe sind versiegelt und verfügen über keinerlei Einfüll-, Ablass und Pegelstandsschrauben. Die Ölmenge ist so ausgelegt, dass diese Gruppen in allen Einbaulagen installiert werden können.
Die Getriebe dürfen bei einer Umgebungstemperatur von -20°C bis +40°C betrieben werden. Allerdings darf ein Start unter Last bei -20°C bis -10°C erst nach stufenweiser und gleichmäßiger Vorwärmung erfolgen. Anderfalls muss das Anfahren ohne Last erfolgen.
Die Last darf erst zugeschaltet werden, wenn die Getriebeeinheit eine Temperatur von mindestens -10° oder höher erreicht hat.
Sollte es aus irgendeinem Grund erforderlich sein die gesamte ursprüngliche Schmiermittelfüllung auswechseln zu müssen, bitten wir Sie dabei Bezug auf die nachstehende Tabelle zu nehmen.

18 - LUBRIFICATION

Pour les réducteurs AS des tailles 16, 20, 25, 30 et 35 le premier remplissage est effectué par les établissements Bonfiglioli avec du lubrifiant synthétique du type "long life", SHELL Tivela S 320.
Le lubrifiant particulier adopté de série ne nécessite aucune vidange périodique.
Les réducteurs sont scellés, par conséquent, ne sont pas équipés de bouchons de remplissage, vidange et niveau.
La quantité d'huile utilisée permet d'installer ces groupes dans toute position de montage.
Le fonctionnement des réducteurs est admis pour des températures ambiantes comprises entre -20°C et +40°C.
Pour des températures ambiantes comprises entre -20°C et -10°C le démarrage du réducteur est admis seulement après un préchauffage progressif et homogène, ou avec un fonctionnement « à vide », sans charge appliquée. La charge pourra être ensuite appliquée à l'arbre du réducteur quand celui-ci aura atteint une température de -10°C, ou supérieure.
Si, pour une raison quelconque, il est nécessaire de vidanger complètement la charge de lubrifiant, vérifier dans le tableau qui suit les quantités à utiliser pour le remplissage.

(A8)

	[l]
AS 16	0.36
AS 20	0.60
AS 25	0.75
AS 30	1.50
AS 35	1.50

I riduttori delle grandezze 45, 55, 60, 80 e 90 sono invece dotati di tappi per il carico, scarico e controllo del livello dell'olio e sono normalmente forniti privi di lubrificante.
Sarà quindi cura del Cliente immettere nel riduttore il corretto quantitativo di lubrificante, prima della sua messa in servizio.
La tabella che segue fornisce la quantità indicativa da inserire nel riduttore, in funzione della sua posizione di montaggio.
Il livello corretto è comunque sempre rappresentato dalla mezzeria del vetro-spia presente sul riduttore.

N.B. Specificare sempre nell'ordine la posizione di montaggio del riduttore.

Sizes 45, 55, 60, 80 and 90 are equipped with fill, drain and level plugs. The speed reducer is supplied unlubricated and the oil shall be filled by the Customer before start-up. The table below indicates the approximate quantity to be filled in the reducer, according to its mounting position.
Correct level is at mid height of the sight glass.

NOTE: When ordering, always indicate the reducer mounting position.

Die Getriebe in den Baugrößen 45, 55, 60, 80 und 90 sind dagegen mit Einfüll-, Ablass und Pegelstandschrauben ausgestattet und werden normalerweise ohne Schmiermittelfüllung geliefert.
Der Kunde muss daher vor einer Inbetriebnahme die korrekte Schmiermittelmenge in diese Getriebe füllen.
In der nachstehenden Tabelle werden Anhaltsmengen angegeben, die je nach entsprechender Einbaulage, in die Getriebe zu füllen sind.
Der korrekt Schmiermittelpegel ist jedoch dann erreicht, wenn er die Mitte am Schauglas des Pegelstands des Getriebes erreicht hat.

HINWEIS: Im Auftrag immer die Einbaulage des Getriebes angeben.

Dans les tailles 45, 55, 60, 80 et 90, le réducteur est livré sans huile et est doté de bouchons de service pour le remplissage, la vidange et le niveau de lubrifiant.
L'utilisateur doit se charger de le remplir en huile avant la mise en service.
Le tableau qui suit indique la quantité indicative à introduire dans le réducteur, selon la position de montage.
Pour un remplissage correct, prendre comme référence la moitié de l'hublot transparent.

N.B. : Dans la commande, toujours spécifier la position de montage du réducteur.

(A9)

	B3 B5	**B6 B51**	**B7 B53**	**B8 B52**	**V5 V1**	**V6 V3**
AS 45	2.4	2.2	2.2	1.8	2.7	3.6
AS 55	2.9	2.8	2.8	3.8	6.0	5.5
AS 60	5.5	6.0	6.0	6.5	9.0	8.0
AS 80	9.3	11.3	11.3	11.4	17.8	17.2
AS 90	15.5	17.3	17.3	17.3	29	26.2

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19 - POSIZIONI DI MONTAGGIO E ORIENTAMENTO MORSETTIERA

Gli orientamenti delle morsettiere dei motori sono identificati osservando il motore dal lato ventola; l'orientamento standard è evidenziato in nero (W), come indicato nella tabella (A10).

19 - MOUNTING POSITION AND TERMINAL BOX ANGULAR POSITION

Location of motor terminal boxes can be specified by viewing the motor from the fan side; standard location is highlighted in bold (W), as in table (A10).

19 - EINBAULAGEN UND LAGE DES KLEMMENKASTENS

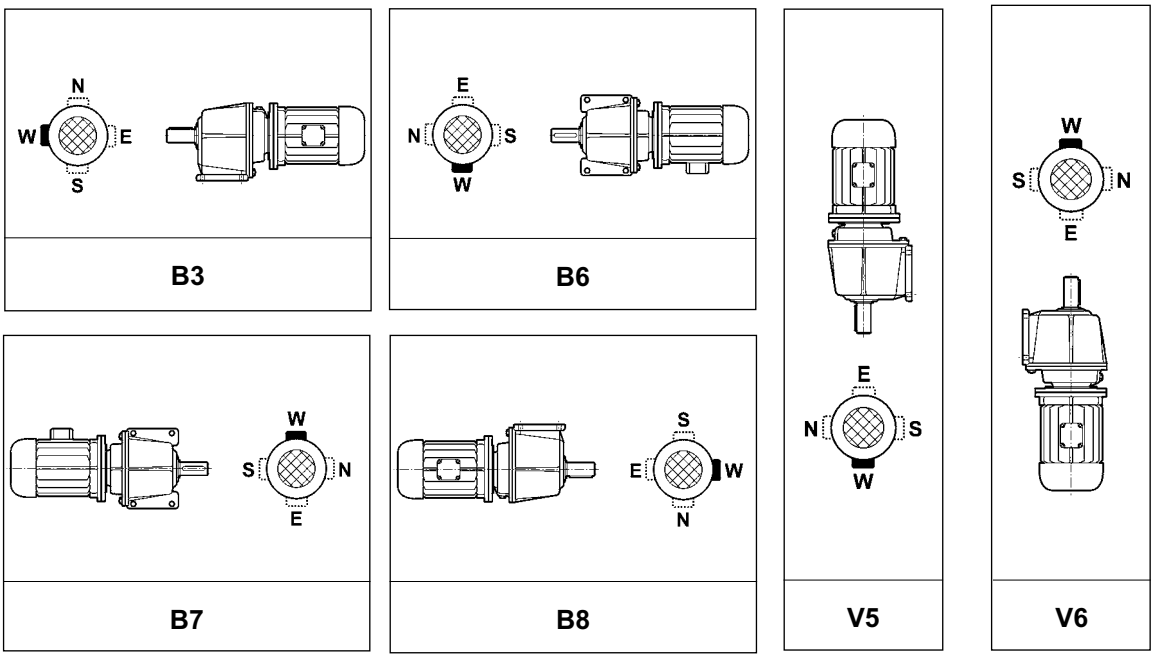
Die Angaben zur Lage des Klemmenkastens beziehen sich auf das von der Lüfterseite her betrachtete Getriebe. Die Standardorientierung ist schwarz hervorgehoben (W), wie in Abbildung (A10) angegeben.

19 - POSITIONS DE MONTAGE ET ORIENTATION BOITE A BORNE

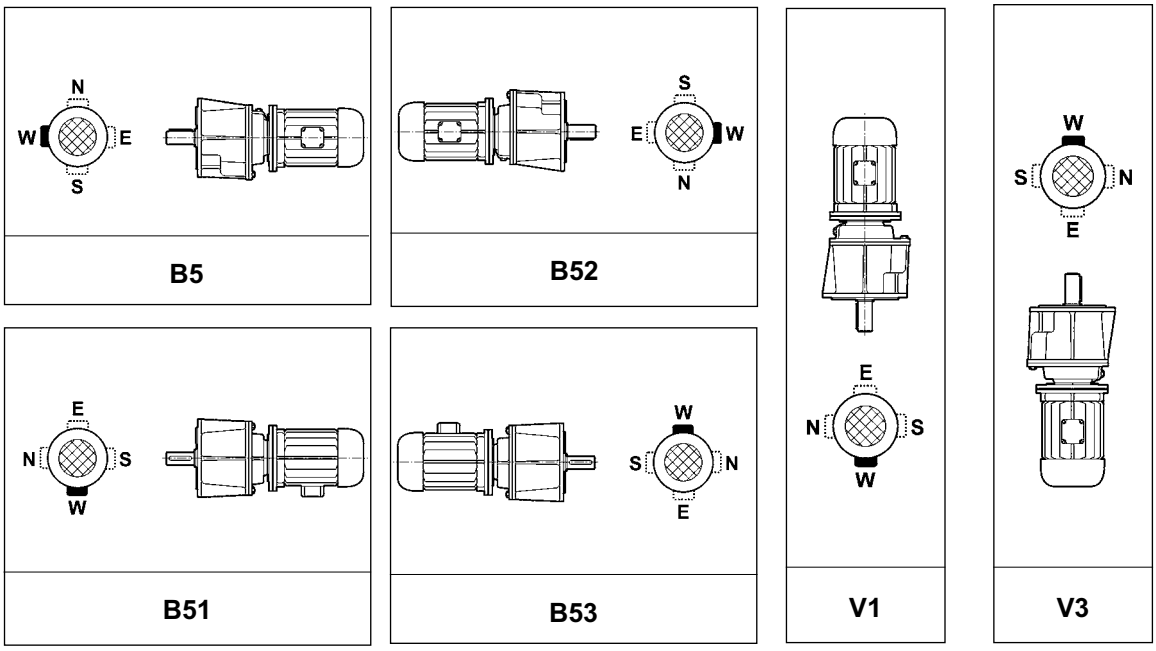
Les orientations des boîtes à bornes des moteurs sont définies en regardant le moteur du côté ventilateur. L'orientation standard est indiquée en noir (W), comme d'après le tableau (A10).

(A10)

P
PR

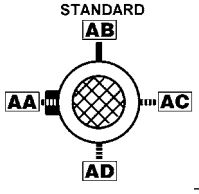


F
R



Posizione angolare leva di sblocco freno.
Nei motori autofrenanti, la leva di sblocco freno (se richiesta) ha l'orientamento standard a 90° rispetto alla morsettiera (posizione AB); specificare con relative opzioni qualora l'orienta- mento desiderato sia diverso.
Angular position of the brake release lever.
In brake motors the brake release lever (if requested) is 90° standard orientated with respect to the terminal box (position AB); different orientations must be specified when ordering by means of the proper option.

Winkellage des Handlüfterhebels.
Bei Bremsmotoren wird der Handlüfterhebel (auf Anfrage) standardmäßig auf 90° gegenüber des Klemmkastens (AB-Anordnung) geliefert; wird eine andere Anordnung verlangt, muß dies bei der Bestellung durch das geeignete Option angegeben werden.
Position angulaire levier déblocage frein.
Dans les moteurs freins, ce levier (si requis) aura l'orientation standard de 90° par rapport à la boîte à bornes (position AB); spécifier avec options relatives si l'orientation desirée est diffé-



20 - 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 (Rc_1 per albero di ingresso, Rc_2 per albero di uscita) deve essere inferiore al valore nominale (Rn_1 per albero di ingresso, Rn_2 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:

20 - 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 (Rc_1 for input shaft, Rc_2 for output shaft), must be equal to or lower than admissible overhung load capacity for shaft under study (Rn_1 for input shaft, Rn_2 for output shaft). OHL capability listed in the rating chart section.

In the formulas 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:

20 - 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 (Rc_1 für Antriebswelle und Rc_2 für Abtriebswelle) unter dem in den Tabellen der Technischen Daten angegebenen Nennwert (Rn_1 für Antriebswelle und Rn_2 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:

20 - 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 (Rc_1 pour l'arbre d'entrée, Rc_2 pour l'arbre de sortie) doit être inférieure à la valeur nominale (Rn_1 pour l'arbre d'entrée, Rn_2 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 :

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

dove:		*where:*		dabei:		*où:*	
$M_{1\text{-}2}$[Nm] =	coppia applicata all'albero	*$M_{1\text{-}2}$[Nm] =*	*torque applied to shaft*	$M_{1\text{-}2}$[Nm]=	Drehmoment an der Welle	*$M_{1\text{-}2}$[Nm] =*	*couple appliqué à l'arbre*
d [mm] =	diametro primitivo organo calettato	*d [mm] =*	*pitch diameter of part keyed on to shaft*	d [mm]=	Teilkreisdurchmesser des aufgekeilten Organs	*d [mm] =*	*diamètre primitif organe calé*
K_r = 1	trasmissione con catena	*K_r = 1*	*chain transmission*	K_r = 1	Kettenantrieb	*K_r = 1*	*transmission avec chaîne*
K_r = 1.25	trasmissione ad ingranaggio	*K_r = 1.25*	*gear transmission*	K_r = 1.25	Zahnradantrieb	*K_r = 1.25*	*transmission à engrenage*
K_r= 1.5-2.0	trasmissione a cinghia	*K_r= 1.5-2.0*	*belt transmission*	K_r= 1.5-2.0	Antrieb über Keilriemen	*K_r= 1.5-2.0*	*transmission à courroie*

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

$Rc_1 \le Rn_1$ [albero veloce]

oppure

$Rc_2 \le Rn_2$ [albero lento]

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

$Rc_1 \le Rn_1$ [input shaft]

or

$Rc_2 \le Rn_2$ [output shaft]

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

$Rc_1 \le Rn_1$ [Antriebswelle]

oder

$Rc_2 \le Rn_2$ [Abtriebswelle]

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

$Rc_1 \le Rn_1$ [arbre rapide]

ou

$Rc_2 \le Rn_2$ [arbre lent]

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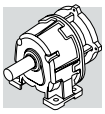

21 - CARICHI ASSIALI, A_{n1}, A_{n2}

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:

21 - 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 equation:

21 - 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:

21 - 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 :

$$A_{n1} = R_{n1} \times 0.2$$
$$A_{n2} = R_{n2} \times 0.2 \qquad (17)$$

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 simultaneously to 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 valeure de la charge radiale agissant sur l'arbre soit nul, l'on peut considerer la charge axiale admissible [A_n] egale à 50% de la valeure 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.

22 - DATI TECNICI MOTORIDUTTORI | ***22 - GEARMOTOR SELECTION CHARTS*** | **22 - GETRIEBEMOTORENAUS-WAHLTABELLEN** | ***22 - DONNEES TECHNIQUES MOTOREDUCTEURS***

0.09 kW

n_2 min^{-1}	M_2 Nm	S	i	Rn_2 N	IEC	
4.7	169	1.2	192.1	3200	**AS 25 D_063 B5 BN 63A 6**	74
5.8	139	1.4	157.9	3200	**AS 25 D_063 B5 BN 63A 6**	74
6.3	127	1.6	144.4	3200	**AS 25 D_063 B5 BN 63A 6**	74
7.4	108	1.9	122.5	3200	**AS 25 D_063 B5 BN 63A 6**	74
7.6	105	0.9	120.1	2800	**AS 20 D_063 B5 BN 63A 6**	72
8.3	96	2.1	109.1	3200	**AS 25 D_063 B5 BN 63A 6**	74
8.4	95	1.1	108.1	2800	**AS 20 D_063 B5 BN 63A 6**	72
9.3	86	1.2	97.7	2800	**AS 20 D_063 B5 BN 63A 6**	72
10.1	79	2.5	89.7	3200	**AS 25 D_063 B5 BN 63A 6**	74
11.1	72	2.8	82	3200	**AS 25 D_063 B5 BN 63A 6**	74
11.2	72	1.4	81.4	2800	**AS 20 D_063 B5 BN 63A 6**	72
13.1	61	3.3	69.6	3200	**AS 25 D_063 B5 BN 63A 6**	74
13.1	61	1.6	69.2	2800	**AS 20 D_063 B5 BN 63A 6**	72
14.2	56	1.8	64.3	2800	**AS 20 D_063 B5 BN 63A 6**	72
15.7	51	2.0	58.1	2800	**AS 20 D_063 B5 BN 63A 6**	72
18.4	44	2.0	49.52	2800	**AS 20_ 063 B5 BN 63A 6**	72
20.3	40	2.2	44.77	2800	**AS 20_ 063 B5 BN 63A 6**	72
20.3	40	1.1	44.73	1170	**AS 16_ 063 B5 BN 63A 6**	70
22.6	36	1.2	40.32	1150	**AS 16_ 063 B5 BN 63A 6**	70
24.4	33	2.7	37.31	2800	**AS 20_ 063 B5 BN 63A 6**	72
25.0	33	1.4	36.36	1140	**AS 16_ 063 B5 BN 63A 6**	70
27.8	29	1.5	32.78	1110	**AS 16_ 063 B5 BN 63A 6**	70
28.7	28	3.2	31.71	2790	**AS 20_ 063 B5 BN 63A 6**	72
32	25	3.6	28.13	2710	**AS 20_ 063 B5 BN 63A 6**	72
34	24	1.8	27.14	1070	**AS 16_ 063 B5 BN 63A 6**	70
36	23	3.9	25.43	2630	**AS 20_ 063 B5 BN 63A 6**	72
43	19	2.4	20.96	1020	**AS 16_ 063 B5 BN 63A 6**	70
48	17	2.7	18.89	1000	**AS 16_ 063 B5 BN 63A 6**	70
58	14	3.2	15.64	950	**AS 16_ 063 B5 BN 63A 6**	70
73	11	4.0	12.47	900	**AS 16_ 063 B5 BN 63A 6**	70
81	10	4.5	11.24	880	**AS 16_ 063 B5 BN 63A 6**	70
98	8	5.4	9.31	830	**AS 16_ 063 B5 BN 63A 6**	70
123	7	6.8	7.41	780	**AS 16_ 063 B5 BN 63A 6**	70
136	6	7.5	6.68	760	**AS 16_ 063 B5 BN 63A 6**	70
164	5	9.1	5.53	720	**AS 16_ 063 B5 BN 63A 6**	70

0.12 kW

5.8	185	1.1	157.9	3200	**AS 25 D_063 B5 BN 63B 6**	74
6.3	169	1.2	144.4	3200	**AS 25 D_063 B5 BN 63B 6**	74
7.3	146	1.2	192.1	3200	**AS 25 D_063 B5 BN 63A 4**	74
7.4	144	1.4	122.5	3200	**AS 25 D_063 B5 BN 63B 6**	74
8.3	128	1.6	109.1	3200	**AS 25 D_063 B5 BN 63B 6**	74
8.9	120	1.5	157.9	3200	**AS 25 D_063 B5 BN 63A 4**	74
9.7	110	1.6	144.4	3200	**AS 25 D_063 B5 BN 63A 4**	74
10.1	105	1.9	89.7	3200	**AS 25 D_063 B5 BN 63B 6**	74
11.1	96	2.1	82	3200	**AS 25 D_063 B5 BN 63B 6**	74
11.2	95	1.0	81.4	2800	**AS 20 D_063 B5 BN 63B 6**	72
11.4	93	1.9	122.5	3200	**AS 25 D_063 B5 BN 63A 4**	74
11.7	91	1.0	120.1	2800	**AS 20 D_063 B5 BN 63A 4**	72
12.8	83	2.2	109.1	3200	**AS 25 D_063 B5 BN 63A 4**	74
13.0	82	1.1	108.1	2800	**AS 20 D_063 B5 BN 63A 4**	72
13.1	82	2.5	69.6	3200	**AS 25 D_063 B5 BN 63B 6**	74
13.1	81	1.2	69.2	2800	**AS 20 D_063 B5 BN 63B 6**	72
14.2	75	1.3	64.3	2800	**AS 20 D_063 B5 BN 63B 6**	72

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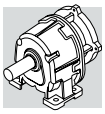
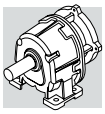


0.12 kW

n_2 min^{-1}	M_2 Nm	S	i	Rn_2 N	IEC	
14.3	74	1.2	97.7	2800	**AS 20 D_063 B5 BN 63A 4**	72
15.6	68	2.6	89.7	3200	**AS 25 D_063 B5 BN 63A 4**	74
17.1	62	2.9	82	3200	**AS 25 D_063 B5 BN 63A 4**	74
17.2	62	1.5	81.4	2800	**AS 20 D_063 B5 BN 63A 4**	72
20.1	53	3.4	69.6	3200	**AS 25 D_063 B5 BN 63A 4**	74
20.2	53	1.7	69.2	2800	**AS 20 D_063 B5 BN 63A 4**	72
21.8	49	1.8	64.3	2800	**AS 20 D_063 B5 BN 63A 4**	72
24.1	44	2.0	58.1	2800	**AS 20 D_063 B5 BN 63A 4**	72
28.3	39	2.1	49.52	2740	**AS 20_ 063 B5 BN 63A 4**	72
31	35	2.3	44.77	2660	**AS 20_ 063 B5 BN 63A 4**	72
31	35	1.3	44.73	1010	**AS 16_ 063 B5 BN 63A 4**	70
35	31	1.4	40.32	990	**AS 16_ 063 B5 BN 63A 4**	70
38	29	2.8	37.31	2530	**AS 20_ 063 B5 BN 63A 4**	72
39	28	1.6	36.36	980	**AS 16_ 063 B5 BN 63A 4**	70
43	25	1.8	32.78	960	**AS 16_ 063 B5 BN 63A 4**	70
44	25	3.2	31.71	2420	**AS 20_ 063 B5 BN 63A 4**	72
52	21	2.1	27.14	930	**AS 16_ 063 B5 BN 63A 4**	70
67	16	2.8	20.96	890	**AS 16_ 063 B5 BN 63A 4**	70
74	15	2.7	18.89	860	**AS 16_ 063 B5 BN 63A 4**	70
89	12	3.3	15.64	820	**AS 16_ 063 B5 BN 63A 4**	70
112	10	4.1	12.47	780	**AS 16_ 063 B5 BN 63A 4**	70
125	9	4.6	11.24	760	**AS 16_ 063 B5 BN 63A 4**	70
150	7	4.1	9.31	720	**AS 16_ 063 B5 BN 63A 4**	70
189	6	5.2	7.41	680	**AS 16_ 063 B5 BN 63A 4**	70
210	5	5.8	6.68	660	**AS 16_ 063 B5 BN 63A 4**	70
253	4	7.0	5.53	620	**AS 16_ 063 B5 BN 63A 4**	70

0.18 kW

4.5	359	2.2	202.1	9500	**AS 45 D_071 B5 BN 71A 6**	80
5.0	321	2.5	180.7	9500	**AS 45 D_071 B5 BN 71A 6**	80
5.5	289	2.8	162.7	9500	**AS 45 D_071 B5 BN 71A 6**	80
6.0	268	1.3	151.1	5500	**AS 30 D_071 B5 BN 71A 6**	76
6.0	268	2.0	151.1	7200	**AS 35 D_071 B5 BN 71A 6**	78
6.1	261	3.1	147.2	9500	**AS 45 D_071 B5 BN 71A 6**	80
6.7	239	1.5	134.7	5500	**AS 30 D_071 B5 BN 71A 6**	76
6.7	239	2.2	134.7	7200	**AS 35 D_071 B5 BN 71A 6**	78
7.3	218	0.9	122.5	3200	**AS 25 D_071 B5 BN 71A 6**	74
7.4	215	1.6	120.9	5500	**AS 30 D_071 B5 BN 71A 6**	76
7.4	215	2.5	120.9	7200	**AS 35 D_071 B5 BN 71A 6**	78
8.2	194	1.0	109.1	3200	**AS 25 D_071 B5 BN 71A 6**	74
8.8	182	1.0	157.9	3200	**AS 25 D_063 B5 BN 63B 4**	74
9.1	176	2.0	99.3	5500	**AS 30 D_071 B5 BN 71A 6**	76
9.1	176	3.0	99.3	7200	**AS 35 D_071 B5 BN 71A 6**	78
9.6	166	1.1	144.4	3200	**AS 25 D_063 B5 BN 63B 4**	74
10.0	159	1.3	89.7	3200	**AS 25 D_071 B5 BN 71A 6**	74
10.9	146	2.4	82.2	5500	**AS 30 D_071 B5 BN 71A 6**	76
11.0	146	1.4	82	3200	**AS 25 D_071 B5 BN 71A 6**	74
11.3	141	1.3	122.5	3200	**AS 25 D_063 B5 BN 63B 4**	74
12.3	130	2.7	73.3	5500	**AS 30 D_071 B5 BN 71A 6**	76
12.7	126	1.4	109.1	3200	**AS 25 D_063 B5 BN 63B 4**	74
12.9	124	1.6	69.6	3200	**AS 25 D_071 B5 BN 71A 6**	74
13.7	117	3.0	65.8	5500	**AS 30 D_071 B5 BN 71A 6**	76
15.0	107	1.9	60.1	3200	**AS 25 D_071 B5 BN 71A 6**	74
15.5	103	1.7	89.7	3200	**AS 25 D_063 B5 BN 63B 4**	74
16.9	94	1.9	82	3200	**AS 25 D_063 B5 BN 63B 4**	74
17.1	94	1.0	81.4	2800	**AS 20 D_063 B5 BN 63B 4**	72
20.0	80	2.2	69.6	3200	**AS 25 D_063 B5 BN 63B 4**	74
20.1	80	1.1	69.2	2730	**AS 20 D_063 B5 BN 63B 4**	72



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n_2 min^{-1}	M_2 Nm	S	i	Rn_2 N	IEC	
21.6	74	1.2	64.3	2730	**AS 20 D_063 B5 BN 63B 4**	72
23.1	69	2.6	60.1	3140	**AS 25 D_063 B5 BN 63B 4**	74
23.9	67	1.3	58.1	2680	**AS 20 D_063 B5 BN 63B 4**	72
28.1	58	1.4	49.52	2590	**AS 20_ 063 B5 BN 63B 4**	72
31	53	1.5	44.77	2520	**AS 20_ 063 B5 BN 63B 4**	72
34	47	1.0	40.32	850	**AS 16_ 063 B5 BN 63B 4**	70
37	44	1.8	37.31	2410	**AS 20_ 063 B5 BN 63B 4**	72
38	43	1.1	36.36	850	**AS 16_ 063 B5 BN 63B 4**	70
42	39	1.2	32.78	840	**AS 16_ 063 B5 BN 63B 4**	70
44	37	2.1	31.71	2310	**AS 20_ 063 B5 BN 63B 4**	72
49	33	2.4	28.13	2260	**AS 20_ 063 B5 BN 63B 4**	72
51	32	1.4	27.14	820	**AS 16_ 063 B5 BN 63B 4**	70
55	30	2.7	25.43	2200	**AS 20_ 063 B5 BN 63B 4**	72
66	25	3.2	21.19	2100	**AS 20_ 063 B5 BN 63B 4**	72
66	25	1.8	20.96	810	**AS 16_ 063 B5 BN 63B 4**	70
74	22	1.8	18.89	790	**AS 16_ 063 B5 BN 63B 4**	70
89	18	2.2	15.64	760	**AS 16_ 063 B5 BN 63B 4**	70
111	15	2.7	12.47	740	**AS 16_ 063 B5 BN 63B 4**	70
124	13	3.0	11.24	720	**AS 16_ 063 B5 BN 63B 4**	70
149	11	2.7	9.31	690	**AS 16_ 063 B5 BN 63B 4**	70
180	9	3.8	15.64	660	**AS 16_ 063 B5 BN 63A 2**	70
188	9	3.4	7.41	650	**AS 16_ 063 B5 BN 63B 4**	70
208	8	3.8	6.68	640	**AS 16_ 063 B5 BN 63B 4**	70
225	7	4.8	12.47	620	**AS 16_ 063 B5 BN 63A 2**	70
250	7	5.4	11.24	610	**AS 16_ 063 B5 BN 63A 2**	70
251	7	4.6	5.53	600	**AS 16_ 063 B5 BN 63B 4**	70
302	5	4.6	9.31	570	**AS 16_ 063 B5 BN 63A 2**	70
379	4	5.8	7.41	540	**AS 16_ 063 B5 BN 63A 2**	70
421	4	6.4	6.68	520	**AS 16_ 063 B5 BN 63A 2**	70
508	3	7.8	5.53	500	**AS 16_ 063 B5 BN 63A 2**	70

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4.5	499	1.6	202.1	9500	**AS 45 D_071 B5 BN 71B 6**	80
5.0	446	1.8	180.7	9500	**AS 45 D_071 B5 BN 71B 6**	80
5.5	401	2.0	162.7	9500	**AS 45 D_071 B5 BN 71B 6**	80
6.0	373	0.9	151.1	5500	**AS 30 D_071 B5 BN 71B 6**	76
6.0	373	1.4	151.1	7200	**AS 35 D_071 B5 BN 71B 6**	78
6.1	363	2.2	147.2	9500	**AS 45 D_071 B5 BN 71B 6**	80
6.7	332	1.1	134.7	5500	**AS 30 D_071 B5 BN 71B 6**	76
6.7	332	1.6	134.7	7200	**AS 35 D_071 B5 BN 71B 6**	78
6.8	326	2.2	202.1	9500	**AS 45 D_071 B5 BN 71A 4**	80
7.4	298	1.2	120.9	5500	**AS 30 D_071 B5 BN 71B 6**	76
7.4	298	1.8	120.9	7200	**AS 35 D_071 B5 BN 71B 6**	78
7.6	292	2.5	180.7	9500	**AS 45 D_071 B5 BN 71A 4**	80
8.5	263	2.7	162.7	9500	**AS 45 D_071 B5 BN 71A 4**	80
8.5	260	3.1	105.5	9500	**AS 45 D_071 B5 BN 71B 6**	80
9.1	245	1.4	99.3	5500	**AS 30 D_071 B5 BN 71B 6**	76
9.1	245	2.2	99.3	7200	**AS 35 D_071 B5 BN 71B 6**	78
9.1	244	1.3	151.1	5500	**AS 30 D_071 B5 BN 71A 4**	76
9.1	244	2.0	151.1	7200	**AS 35 D_071 B5 BN 71A 4**	78
9.3	238	3.0	147.2	9500	**AS 45 D_071 B5 BN 71A 4**	80
9.5	233	3.4	94.3	9500	**AS 45 D_071 B5 BN 71B 6**	80
10.0	221	0.9	89.7	3200	**AS 25 D_071 B5 BN 71B 6**	74
10.2	217	1.5	134.7	5500	**AS 30 D_071 B5 BN 71A 4**	76
10.2	217	2.2	134.7	7200	**AS 35 D_071 B5 BN 71A 4**	78
10.9	203	1.7	82.2	5500	**AS 30 D_071 B5 BN 71B 6**	76
10.9	203	2.6	82.2	7200	**AS 35 D_071 B5 BN 71B 6**	78

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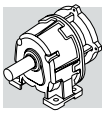

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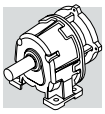
n_2 min^{-1}	M_2 Nm	S	i	Rn_2 N	IEC	
11.0	202	1.0	82	3180	**AS 25 D_071 B5 BN 71B 6**	74
11.2	198	0.9	122.5	3140	**AS 25 D_071 B5 BN 71A 4**	74
11.4	195	1.6	120.9	5500	**AS 30 D_071 B5 BN 71A 4**	76
11.4	195	2.5	120.9	7200	**AS 35 D_071 B5 BN 71A 4**	78
12.3	181	1.9	73.3	5500	**AS 30 D_071 B5 BN 71B 6**	76
12.3	181	2.9	73.3	7200	**AS 35 D_071 B5 BN 71B 6**	78
12.6	176	1.0	109.1	3200	**AS 25 D_071 B5 BN 71A 4**	74
12.9	172	1.2	69.6	3120	**AS 25 D_071 B5 BN 71B 6**	74
13.7	162	2.2	65.8	5500	**AS 30 D_071 B5 BN 71B 6**	76
13.7	162	3.3	65.8	7200	**AS 35 D_071 B5 BN 71B 6**	78
13.8	160	2.0	99.3	5500	**AS 30 D_071 B5 BN 71A 4**	76
13.8	160	3.0	99.3	7200	**AS 35 D_071 B5 BN 71A 4**	78
15.0	148	1.3	60.1	3150	**AS 25 D_071 B5 BN 71B 6**	74
15.3	145	1.2	89.7	3120	**AS 25 D_071 B5 BN 71A 4**	74
16.7	133	2.4	82.2	5500	**AS 30 D_071 B5 BN 71A 4**	76
16.8	132	1.4	82	3070	**AS 25 D_071 B5 BN 71A 4**	74
18.8	118	2.7	73.3	5500	**AS 30 D_071 B5 BN 71A 4**	76
19.8	112	1.6	69.6	2980	**AS 25 D_071 B5 BN 71A 4**	74
20.9	106	3.0	65.8	5500	**AS 30 D_071 B5 BN 71A 4**	76
22.9	97	1.9	60.1	2960	**AS 25 D_071 B5 BN 71A 4**	74
23.7	94	1.0	58.1	2460	**AS 20 D_071 B5 BN 71A 4**	72
27.8	82	1.0	49.52	2400	**AS 20_ 071 B5 BN 71A 4**	72
28.0	81	2.0	49.04	2830	**AS 25_ 071 B5 BN 71A 4**	74
31	74	1.1	44.77	2360	**AS 20_ 071 B5 BN 71A 4**	72
34	66	2.4	40.29	2710	**AS 25_ 071 B5 BN 71A 4**	74
37	62	1.3	37.31	2270	**AS 20_ 071 B5 BN 71A 4**	72
37	61	2.6	36.86	2650	**AS 25_ 071 B5 BN 71A 4**	74
43	52	1.5	31.71	2190	**AS 20_ 071 B5 BN 71A 4**	72
44	52	3.1	31.27	2540	**AS 25_ 071 B5 BN 71A 4**	74
49	46	1.7	28.13	2160	**AS 20_ 071 B5 BN 71A 4**	72
51	45	1.0	27.14	700	**AS 16_ 071 B5 BN 71A 4**	70
54	42	1.9	25.43	2110	**AS 20_ 071 B5 BN 71A 4**	72
65	35	2.3	21.19	2020	**AS 20_ 071 B5 BN 71A 4**	72
66	35	1.3	20.96	720	**AS 16_ 071 B5 BN 71A 4**	70
73	31	1.3	18.89	710	**AS 16_ 071 B5 BN 71A 4**	70
76	30	2.7	18.01	1940	**AS 20_ 071 B5 BN 71A 4**	72
88	26	1.6	15.64	700	**AS 16_ 071 B5 BN 71A 4**	70
89	26	2.5	15.48	1880	**AS 20_ 071 B5 BN 71A 4**	72
98	23	2.8	14	1830	**AS 20_ 071 B5 BN 71A 4**	72
110	21	1.9	12.47	690	**AS 16_ 071 B5 BN 71A 4**	70
118	19	3.4	11.67	1730	**AS 20_ 071 B5 BN 71A 4**	72
122	19	2.2	11.24	670	**AS 16_ 071 B5 BN 71A 4**	70
148	15	2.0	9.31	650	**AS 16_ 071 B5 BN 71A 4**	70
180	13	2.8	15.64	620	**AS 16_ 063 B5 BN 63B 2**	70
185	12	2.5	7.41	620	**AS 16_ 071 B5 BN 71A 4**	70
206	11	2.7	6.68	610	**AS 16_ 071 B5 BN 71A 4**	70
225	10	3.5	12.47	600	**AS 16_ 063 B5 BN 63B 2**	70
249	9	3.3	5.53	580	**AS 16_ 071 B5 BN 71A 4**	70
250	9	3.9	11.24	580	**AS 16_ 063 B5 BN 63B 2**	70
302	8	3.3	9.31	550	**AS 16_ 063 B5 BN 63B 2**	70
379	6	4.2	7.41	530	**AS 16_ 063 B5 BN 63B 2**	70
421	5	4.6	6.68	510	**AS 16_ 063 B5 BN 63B 2**	70
508	4	5.6	5.53	480	**AS 16_ 063 B5 BN 63B 2**	70



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n_2 min^{-1}	M_2 Nm	S	i	Rn_2 N	IEC	
4.5	730	1.1	202.1	9500	**AS 45 D_080 B5 BN 80A 6**	80
4.8	687	2.0	190.3	15000	**AS 55 D_080 B5 BN 80A 6**	82
5.0	653	1.2	180.7	9500	**AS 45 D_080 B5 BN 80A 6**	80
5.4	608	2.2	168.4	15000	**AS 55 D_080 B5 BN 80A 6**	82
5.6	587	1.4	162.7	9500	**AS 45 D_080 B5 BN 80A 6**	80
6.0	546	1.0	151.1	7200	**AS 35 D_080 B5 BN 80A 6**	78
6.1	542	2.5	150.2	15000	**AS 55 D_080 B5 BN 80A 6**	82
6.2	531	1.5	147.2	9500	**AS 45 D_080 B5 BN 80A 6**	80
6.8	487	2.8	134.8	15000	**AS 55 D_080 B5 BN 80A 6**	82
6.8	486	1.1	134.7	7200	**AS 35 D_080 B5 BN 80A 6**	78
6.8	485	1.5	202.1	9500	**AS 45 D_071 B5 BN 71B 4**	80
7.4	443	3.0	122.7	15000	**AS 55 D_080 B5 BN 80A 6**	82
7.5	437	1.2	120.9	7200	**AS 35 D_080 B5 BN 80A 6**	78
7.6	434	1.7	180.7	9500	**AS 45 D_071 B5 BN 71B 4**	80
8.4	392	3.4	108.6	15000	**AS 55 D_080 B5 BN 80A 6**	82
8.4	390	1.8	162.7	9500	**AS 45 D_071 B5 BN 71B 4**	80
8.6	381	2.1	105.5	9500	**AS 45 D_080 B5 BN 80A 6**	80
9.1	363	1.3	151.1	7200	**AS 35 D_071 B5 BN 71B 4**	78
9.2	359	1.0	99.3	5500	**AS 30 D_080 B5 BN 80A 6**	76
9.2	359	1.5	99.3	7200	**AS 35 D_080 B5 BN 80A 6**	78
9.3	353	2.0	147.2	9500	**AS 45 D_071 B5 BN 71B 4**	80
9.6	341	2.3	94.3	9500	**AS 45 D_080 B5 BN 80A 6**	80
10.2	323	1.0	134.7	5500	**AS 30 D_071 B5 BN 71B 4**	76
10.2	323	1.5	134.7	7200	**AS 35 D_071 B5 BN 71B 4**	78
10.7	306	2.6	84.9	9500	**AS 45 D_080 B5 BN 80A 6**	80
11.1	297	1.2	82.2	5500	**AS 30 D_080 B5 BN 80A 6**	76
11.1	297	1.8	82.2	7200	**AS 35 D_080 B5 BN 80A 6**	78
11.3	290	1.1	120.9	5500	**AS 30 D_071 B5 BN 71B 4**	76
11.3	290	1.7	120.9	7200	**AS 35 D_071 B5 BN 71B 4**	78
11.9	277	2.9	76.8	9500	**AS 45 D_080 B5 BN 80A 6**	80
12.4	265	1.3	73.3	5500	**AS 30 D_080 B5 BN 80A 6**	76
12.4	265	2.0	73.3	7200	**AS 35 D_080 B5 BN 80A 6**	78
13.0	253	2.8	105.5	9500	**AS 45 D_071 B5 BN 71B 4**	80
13.8	238	1.3	99.3	5500	**AS 30 D_071 B5 BN 71B 4**	76
13.8	238	2.0	99.3	7200	**AS 35 D_071 B5 BN 71B 4**	78
13.8	238	1.5	65.8	5500	**AS 30 D_080 B5 BN 80A 6**	76
13.8	238	2.2	65.8	7200	**AS 35 D_080 B5 BN 80A 6**	78
14.5	226	3.2	94.3	9500	**AS 45 D_071 B5 BN 71B 4**	80
16.7	197	1.6	82.2	5500	**AS 30 D_071 B5 BN 71B 4**	76
16.7	197	2.4	82.2	7200	**AS 35 D_071 B5 BN 71B 4**	78
16.7	197	0.9	82	2610	**AS 25 D_071 B5 BN 71B 4**	74
18.7	176	1.8	73.3	5480	**AS 30 D_071 B5 BN 71B 4**	76
18.7	176	2.7	73.3	7200	**AS 35 D_071 B5 BN 71B 4**	78
19.7	167	1.1	69.6	2580	**AS 25 D_071 B5 BN 71B 4**	74
20.8	158	2.0	65.8	5340	**AS 30 D_071 B5 BN 71B 4**	76
20.8	158	3.0	65.8	7200	**AS 35 D_071 B5 BN 71B 4**	78
22.8	144	1.2	60.1	2630	**AS 25 D_071 B5 BN 71B 4**	74
25.4	130	2.5	54	5090	**AS 30 D_071 B5 BN 71B 4**	76
27.9	120	1.3	49.04	2560	**AS 25_ 071 B5 BN 71B 4**	74
29.6	111	2.9	46.2	4950	**AS 30 D_071 B5 BN 71B 4**	76
33	99	3.2	41.2	4800	**AS 30 D_071 B5 BN 71B 4**	76
34	99	1.6	40.29	2480	**AS 25_ 071 B5 BN 71B 4**	74
37	90	1.8	36.86	2440	**AS 25_ 071 B5 BN 71B 4**	74
43	78	1.0	31.71	1980	**AS 20_ 071 B5 BN 71B 4**	72
44	77	2.1	31.27	2360	**AS 25_ 071 B5 BN 71B 4**	74
49	69	1.2	28.13	1980	**AS 20_ 071 B5 BN 71B 4**	72
53	63	2.5	25.75	2310	**AS 25_ 071 B5 BN 71B 4**	74
54	62	1.3	25.43	1950	**AS 20_ 071 B5 BN 71B 4**	72
65	52	1.5	21.19	1880	**AS 20_ 071 B5 BN 71B 4**	72
65	52	3.1	21.16	2200	**AS 25_ 071 B5 BN 71B 4**	74

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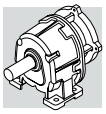

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n_2 min^{-1}	M_2 Nm	S	i	Rn_2 N	IEC	
71	47	3.4	19.35	2150	**AS 25_ 071 B5 BN 71B 4**	74
76	44	1.8	18.01	1810	**AS 20_ 071 B5 BN 71B 4**	72
88	38	1.0	15.64	580	**AS 16_ 071 B5 BN 71B 4**	70
88	38	1.7	15.48	1780	**AS 20_ 071 B5 BN 71B 4**	72
98	34	1.9	14	1740	**AS 20_ 071 B5 BN 71B 4**	72
110	31	1.3	12.47	600	**AS 16_ 071 B5 BN 71B 4**	70
117	29	2.3	11.67	1660	**AS 20_ 071 B5 BN 71B 4**	72
122	28	1.5	11.24	590	**AS 16_ 071 B5 BN 71B 4**	70
138	24	2.7	9.92	1590	**AS 20_ 071 B5 BN 71B 4**	72
147	23	1.3	9.31	580	**AS 16_ 071 B5 BN 71B 4**	70
160	21	2.9	8.57	1540	**AS 20_ 071 B5 BN 71B 4**	72
177	19	3.2	7.75	1500	**AS 20_ 071 B5 BN 71B 4**	72
180	19	1.9	15.64	560	**AS 16_ 071 B5 BN 71A 2**	70
181	18	3.0	15.48	1490	**AS 20_ 071 B5 BN 71A 2**	72
185	18	1.7	7.41	570	**AS 16_ 071 B5 BN 71B 4**	70
201	17	3.3	14	1450	**AS 20_ 071 B5 BN 71A 2**	72
205	16	1.8	6.68	560	**AS 16_ 071 B5 BN 71B 4**	70
225	15	2.3	12.47	550	**AS 16_ 071 B5 BN 71A 2**	70
248	14	2.2	5.53	540	**AS 16_ 071 B5 BN 71B 4**	70
250	13	2.6	11.24	540	**AS 16_ 071 B5 BN 71A 2**	70
302	11	2.2	9.31	520	**AS 16_ 071 B5 BN 71A 2**	70
379	9	2.8	7.41	500	**AS 16_ 071 B5 BN 71A 2**	70
421	8	3.1	6.68	490	**AS 16_ 071 B5 BN 71A 2**	70
508	7	3.8	5.53	460	**AS 16_ 071 B5 BN 71A 2**	70

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4.8	1010	1.3	190.3	15000	**AS 55 D_080 B5 BN 80B 6**	82
5.5	894	1.5	168.4	15000	**AS 55 D_080 B5 BN 80B 6**	82
5.7	864	0.9	162.7	9500	**AS 45 D_080 B5 BN 80B 6**	80
6.1	798	1.7	150.2	15000	**AS 55 D_080 B5 BN 80B 6**	82
6.3	781	1.0	147.2	9500	**AS 45 D_080 B5 BN 80B 6**	80
6.8	716	1.9	134.8	15000	**AS 55 D_080 B5 BN 80B 6**	82
6.8	715	1.0	202.1	9500	**AS 45 D_080 B5 BN 80A 4**	80
7.3	674	1.8	190.3	15000	**AS 55 D_080 B5 BN 80A 4**	82
7.5	652	2.1	122.7	15000	**AS 55 D_080 B5 BN 80B 6**	82
7.6	640	1.1	180.7	9500	**AS 45 D_080 B5 BN 80A 4**	80
8.2	596	2.0	168.4	15000	**AS 55 D_080 B5 BN 80A 4**	82
8.5	577	2.3	108.6	15000	**AS 55 D_080 B5 BN 80B 6**	82
8.5	576	1.3	162.7	9500	**AS 45 D_080 B5 BN 80A 4**	80
8.7	560	1.4	105.5	9500	**AS 45 D_080 B5 BN 80B 6**	80
9.2	532	2.3	150.2	15000	**AS 55 D_080 B5 BN 80A 4**	82
9.3	527	1.0	99.3	7200	**AS 35 D_080 B5 BN 80B 6**	78
9.4	521	1.4	147.2	9500	**AS 45 D_080 B5 BN 80A 4**	80
9.5	514	2.6	96.9	15000	**AS 55 D_080 B5 BN 80B 6**	82
9.8	501	1.6	94.3	9500	**AS 45 D_080 B5 BN 80B 6**	80
10.2	477	2.5	134.8	15000	**AS 55 D_080 B5 BN 80A 4**	82
10.2	477	1.0	134.7	7200	**AS 35 D_080 B5 BN 80A 4**	78
10.6	462	2.9	87	15000	**AS 55 D_080 B5 BN 80B 6**	82
10.8	451	1.8	84.9	9500	**AS 45 D_080 B5 BN 80B 6**	80
11.2	437	1.2	82.2	7200	**AS 35 D_080 B5 BN 80B 6**	78
11.2	434	2.8	122.7	15000	**AS 55 D_080 B5 BN 80A 4**	82
11.4	428	1.1	120.9	7200	**AS 35 D_080 B5 BN 80A 4**	78
12.0	408	2.0	76.8	9500	**AS 45 D_080 B5 BN 80B 6**	80
12.6	389	1.4	73.3	7200	**AS 35 D_080 B5 BN 80B 6**	78
12.7	385	3.1	108.6	15000	**AS 55 D_080 B5 BN 80A 4**	82
13.1	373	1.9	105.5	9500	**AS 45 D_080 B5 BN 80A 4**	80
13.9	352	0.9	99.3	5000	**AS 30 D_080 B5 BN 80A 4**	76

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n_2 min^{-1}	M_2 Nm	S	i	Rn_2 N	IEC	
13.9	352	1.4	99.3	7200	**AS 35 D_080 B5 BN 80A 4**	78
14.0	349	1.0	65.8	5080	**AS 30 D_080 B5 BN 80B 6**	76
14.0	349	1.5	65.8	7200	**AS 35 D_080 B5 BN 80B 6**	78
14.2	343	3.5	96.9	15000	**AS 55 D_080 B5 BN 80A 4**	82
14.6	334	2.2	94.3	9500	**AS 45 D_080 B5 BN 80A 4**	80
16.3	300	2.4	84.9	9500	**AS 45 D_080 B5 BN 80A 4**	80
16.8	291	1.1	82.2	5060	**AS 30 D_080 B5 BN 80A 4**	76
16.8	291	1.6	82.2	7200	**AS 35 D_080 B5 BN 80A 4**	78
18.0	272	2.6	76.8	9500	**AS 45 D_080 B5 BN 80A 4**	80
18.8	259	1.2	73.3	4970	**AS 30 D_080 B5 BN 80A 4**	76
18.8	259	1.9	73.3	7200	**AS 35 D_080 B5 BN 80A 4**	78
21.0	233	1.4	65.8	4870	**AS 30 D_080 B5 BN 80A 4**	76
21.0	233	2.1	65.8	7200	**AS 35 D_080 B5 BN 80A 4**	78
25.5	191	1.7	54	4680	**AS 30 D_080 B5 BN 80A 4**	76
25.5	191	2.5	54	7200	**AS 35 D_080 B5 BN 80A 4**	78
28.1	177	0.9	49.04	2150	**AS 25_ 080 B5 BN 80A 4**	74
29.8	164	2.0	46.2	4630	**AS 30 D_080 B5 BN 80A 4**	76
29.8	164	2.9	46.2	7200	**AS 35 D_080 B5 BN 80A 4**	78
34	146	2.2	41.2	4510	**AS 30 D_080 B5 BN 80A 4**	76
34	146	3.3	41.2	7200	**AS 35 D_080 B5 BN 80A 4**	78
34	146	1.1	40.29	2130	**AS 25_ 080 B5 BN 80A 4**	74
37	133	1.2	36.86	2120	**AS 25_ 080 B5 BN 80A 4**	74
37	133	2.4	36.82	4400	**AS 30_ 080 B5 BN 80A 4**	76
42	119	2.7	32.8	4280	**AS 30_ 080 B5 BN 80A 4**	76
44	113	1.4	31.27	2080	**AS 25_ 080 B5 BN 80A 4**	74
47	107	3.0	29.45	4160	**AS 30_ 080 B5 BN 80A 4**	76
54	93	1.7	25.75	2090	**AS 25_ 080 B5 BN 80A 4**	74
65	77	1.0	21.19	1660	**AS 20_ 080 B5 BN 80A 4**	72
65	77	2.1	21.16	2020	**AS 25_ 080 B5 BN 80A 4**	74
71	70	2.3	19.35	1980	**AS 25_ 080 B5 BN 80A 4**	74
77	65	1.2	18.01	1620	**AS 20_ 080 B5 BN 80A 4**	72
84	59	2.7	16.42	1920	**AS 25_ 080 B5 BN 80A 4**	74
89	56	1.2	15.48	1620	**AS 20_ 080 B5 BN 80A 4**	72
99	51	2.6	14.01	1880	**AS 25_ 080 B5 BN 80A 4**	74
99	51	1.3	14	1590	**AS 20_ 080 B5 BN 80A 4**	72
118	42	1.5	11.67	1540	**AS 20_ 080 B5 BN 80A 4**	72
120	42	3.1	11.51	1800	**AS 25_ 080 B5 BN 80A 4**	74
131	38	3.4	10.53	1760	**AS 25_ 080 B5 BN 80A 4**	74
139	36	1.8	9.92	1480	**AS 20_ 080 B5 BN 80A 4**	72
156	32	2.5	18.01	1450	**AS 20_ 071 B5 BN 71B 2**	72
161	31	1.9	8.57	1460	**AS 20_ 080 B5 BN 80A 4**	72
178	28	2.1	7.75	1420	**AS 20_ 080 B5 BN 80A 4**	72
180	28	1.3	15.64	480	**AS 16_ 071 B5 BN 71B 2**	70
181	27	2.0	15.48	1420	**AS 20_ 071 B5 BN 71B 2**	72
201	25	2.2	14	1380	**AS 20_ 071 B5 BN 71B 2**	72
214	23	2.6	6.46	1360	**AS 20_ 080 B5 BN 80A 4**	72
225	22	1.6	12.47	490	**AS 16_ 071 B5 BN 71B 2**	70
241	21	2.7	11.67	1320	**AS 20_ 071 B5 BN 71B 2**	72
250	20	1.8	11.24	480	**AS 16_ 071 B5 BN 71B 2**	70
251	20	3.0	5.49	1300	**AS 20_ 080 B5 BN 80A 4**	72
283	18	3.1	9.92	1260	**AS 20_ 071 B5 BN 71B 2**	72
302	17	1.5	9.31	470	**AS 16_ 071 B5 BN 71B 2**	70
328	15	3.3	8.57	1220	**AS 20_ 071 B5 BN 71B 2**	72
379	13	1.9	7.41	460	**AS 16_ 071 B5 BN 71B 2**	70
421	12	2.1	6.68	450	**AS 16_ 071 B5 BN 71B 2**	70
508	10	2.5	5.53	430	**AS 16_ 071 B5 BN 71B 2**	70

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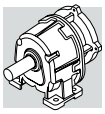

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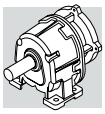
n_2 min^{-1}	M_2 Nm	S	i	Rn_2 N	IEC	
4.8	1378	1.0	190.3	15000	**AS 55 D_090 B5 BN 90S 6**	82
4.9	1358	1.7	187.5	22000	**AS 60 D_090 B5 BN 90S 6**	84
5.3	1248	3.4	172.3	31000	**AS 80 D_090 B5 BN 90S 6**	86
5.5	1219	1.1	168.4	15000	**AS 55 D_090 B5 BN 90S 6**	82
5.5	1214	1.9	167.7	22000	**AS 60 D_090 B5 BN 90S 6**	84
6.1	1093	2.1	151	22000	**AS 60 D_090 B5 BN 90S 6**	84
6.1	1088	1.2	150.2	15000	**AS 55 D_090 B5 BN 90S 6**	82
6.7	989	2.3	136.6	22000	**AS 60 D_090 B5 BN 90S 6**	84
6.8	976	1.4	134.8	15000	**AS 55 D_090 B5 BN 90S 6**	82
7.4	905	1.3	190.3	15000	**AS 55 D_080 B5 BN 80B 4**	82
7.5	889	1.5	122.7	15000	**AS 55 D_090 B5 BN 90S 6**	82
7.6	876	2.6	121	22000	**AS 60 D_090 B5 BN 90S 6**	84
8.3	801	1.5	168.4	15000	**AS 55 D_080 B5 BN 80B 4**	82
8.5	787	1.7	108.6	15000	**AS 55 D_090 B5 BN 90S 6**	82
8.5	783	2.9	108.2	22000	**AS 60 D_090 B5 BN 90S 6**	84
8.6	774	0.9	162.7	9500	**AS 45 D_080 B5 BN 80B 4**	80
8.7	764	1.0	105.5	9500	**AS 45 D_090 B5 BN 90S 6**	80
9.3	715	1.7	150.2	15000	**AS 55 D_080 B5 BN 80B 4**	82
9.4	705	3.3	97.4	22000	**AS 60 D_090 B5 BN 90S 6**	84
9.5	702	1.9	96.9	15000	**AS 55 D_090 B5 BN 90S 6**	82
9.5	700	1.0	147.2	9500	**AS 45 D_080 B5 BN 80B 4**	80
9.8	683	1.2	94.3	9500	**AS 45 D_090 B5 BN 90S 6**	80
10.4	641	1.9	134.8	15000	**AS 55 D_080 B5 BN 80B 4**	82
10.6	630	2.1	87	15000	**AS 55 D_090 B5 BN 90S 6**	82
10.8	615	1.3	84.9	9500	**AS 45 D_090 B5 BN 90S 6**	80
11.4	584	2.1	122.7	15000	**AS 55 D_080 B5 BN 80B 4**	82
11.9	561	2.4	77.5	15000	**AS 55 D_090 B5 BN 90S 6**	82
12.0	556	1.4	76.8	9500	**AS 45 D_090 B5 BN 90S 6**	80
12.6	530	1.0	73.3	7200	**AS 35 D_090 B5 BN 90S 6**	78
12.9	517	2.3	108.6	15000	**AS 55 D_080 B5 BN 80B 4**	82
13.3	502	1.4	105.5	9500	**AS 45 D_080 B5 BN 80B 4**	80
13.4	497	2.7	68.6	15000	**AS 55 D_090 B5 BN 90S 6**	82
14.0	476	1.1	65.8	7200	**AS 35 D_090 B5 BN 90S 6**	78
14.1	473	1.0	99.3	7200	**AS 35 D_080 B5 BN 80B 4**	78
14.4	461	2.6	96.9	15000	**AS 55 D_080 B5 BN 80B 4**	82
14.7	454	1.8	62.7	9500	**AS 45 D_090 B5 BN 90S 6**	80
14.8	449	1.6	94.3	9500	**AS 45 D_080 B5 BN 80B 4**	80
15.0	443	3.0	61.2	15000	**AS 55 D_090 B5 BN 90S 6**	82
16.1	414	2.9	87	15000	**AS 55 D_080 B5 BN 80B 4**	82
16.5	404	1.8	84.9	9500	**AS 45 D_080 B5 BN 80B 4**	80
17.0	391	1.2	82.2	7200	**AS 35 D_080 B5 BN 80B 4**	78
18.2	365	2.0	76.8	9500	**AS 45 D_080 B5 BN 80B 4**	80
19.1	349	0.9	73.3	4400	**AS 30 D_080 B5 BN 80B 4**	76
19.1	349	1.4	73.3	7200	**AS 35 D_080 B5 BN 80B 4**	78
21.3	313	1.0	65.8	4360	**AS 30 D_080 B5 BN 80B 4**	76
21.3	313	1.5	65.8	7200	**AS 35 D_080 B5 BN 80B 4**	78
25.9	257	1.2	54	4240	**AS 30 D_080 B5 BN 80B 4**	76
25.9	257	1.9	54	7200	**AS 35 D_080 B5 BN 80B 4**	78
30	220	1.5	46.2	4270	**AS 30 D_080 B5 BN 80B 4**	76
30	220	2.2	46.2	7200	**AS 35 D_080 B5 BN 80B 4**	78
34	196	1.6	41.2	4180	**AS 30 D_080 B5 BN 80B 4**	76
34	196	2.4	41.2	7200	**AS 35 D_080 B5 BN 80B 4**	78
38	179	1.8	36.82	4100	**AS 30_ 080 B5 BN 80B 4**	76
38	179	2.7	36.82	7200	**AS 35_ 080 B5 BN 80B 4**	78
43	159	2.0	32.8	4010	**AS 30_ 080 B5 BN 80B 4**	76
43	159	3.0	32.8	7200	**AS 35_ 080 B5 BN 80B 4**	78
45	152	1.1	31.27	1780	**AS 25_ 080 B5 BN 80B 4**	74
48	143	2.2	29.45	3920	**AS 30_ 080 B5 BN 80B 4**	76
48	143	3.4	29.45	7200	**AS 35_ 080 B5 BN 80B 4**	78
54	125	1.3	25.75	1850	**AS 25_ 080 B5 BN 80B 4**	74



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n_2 min^{-1}	M_2 Nm	S	i	Rn_2 N	IEC	
58	118	2.7	24.19	3740	**AS 30_ 080 B5 BN 80B 4**	76
66	103	1.6	21.16	1820	**AS 25_ 080 B5 BN 80B 4**	74
72	94	1.7	19.35	1800	**AS 25_ 080 B5 BN 80B 4**	74
73	93	2.8	19.21	3600	**AS 30_ 080 B5 BN 80B 4**	76
78	88	0.9	18.01	1420	**AS 20_ 080 B5 BN 80B 4**	72
82	83	3.1	17.11	3500	**AS 30_ 080 B5 BN 80B 4**	76
85	80	2.0	16.42	1750	**AS 25_ 080 B5 BN 80B 4**	74
91	75	3.5	15.37	3400	**AS 30_ 080 B5 BN 80B 4**	76
100	68	1.9	14.01	1750	**AS 25_ 080 B5 BN 80B 4**	74
100	68	1.0	14	1440	**AS 20_ 080 B5 BN 80B 4**	72
120	57	1.1	11.67	1410	**AS 20_ 080 B5 BN 80B 4**	72
122	56	2.3	11.51	1680	**AS 25_ 080 B5 BN 80B 4**	74
133	51	2.5	10.53	1650	**AS 25_ 080 B5 BN 80B 4**	74
141	48	1.3	9.92	1370	**AS 20_ 080 B5 BN 80B 4**	72
155	44	1.8	18.01	1350	**AS 20_ 080 B5 BN 80A 2**	72
157	43	3.0	8.93	1590	**AS 25_ 080 B5 BN 80B 4**	74
163	42	1.4	8.57	1360	**AS 20_ 080 B5 BN 80B 4**	72
178	38	3.1	7.88	1570	**AS 25_ 080 B5 BN 80B 4**	74
181	38	1.6	7.75	1330	**AS 20_ 080 B5 BN 80B 4**	72
181	38	1.5	15.48	1340	**AS 20_ 080 B5 BN 80A 2**	72
200	34	3.2	14.01	1530	**AS 25_ 080 B5 BN 80A 2**	74
200	34	1.6	14	1310	**AS 20_ 080 B5 BN 80A 2**	72
217	31	1.9	6.46	1280	**AS 20_ 080 B5 BN 80B 4**	72
240	28	1.9	11.67	1260	**AS 20_ 080 B5 BN 80A 2**	72
255	27	2.2	5.49	1240	**AS 20_ 080 B5 BN 80B 4**	72
282	24	2.3	9.92	1210	**AS 20_ 080 B5 BN 80A 2**	72
327	21	2.4	8.57	1180	**AS 20_ 080 B5 BN 80A 2**	72
361	19	2.7	7.75	1150	**AS 20_ 080 B5 BN 80A 2**	72
434	16	3.2	6.46	1100	**AS 20_ 080 B5 BN 80A 2**	72

1.1 kW

4.9	1992	1.2	187.5	22000	**AS 60 D_090 B5 BN 90L 6**	84
5.3	1830	2.3	172.3	31000	**AS 80 D_090 B5 BN 90L 6**	86
5.5	1781	1.3	167.7	22000	**AS 60 D_090 B5 BN 90L 6**	84
6.1	1603	1.4	151	22000	**AS 60 D_090 B5 BN 90L 6**	84
6.7	1450	1.6	136.6	22000	**AS 60 D_090 B5 BN 90L 6**	84
6.8	1432	0.9	134.8	15000	**AS 55 D_090 B5 BN 90L 6**	82
7.4	1328	0.9	190.3	15000	**AS 55 D_090 B5 BN 90S 4**	82
7.5	1309	1.6	187.5	22000	**AS 60 D_090 B5 BN 90S 4**	84
7.5	1303	1.0	122.7	15000	**AS 55 D_090 B5 BN 90L 6**	82
7.6	1285	1.8	121	22000	**AS 60 D_090 B5 BN 90L 6**	84
8.1	1203	3.2	172.3	31000	**AS 80 D_090 B5 BN 90S 4**	86
8.3	1175	1.0	168.4	15000	**AS 55 D_090 B5 BN 90S 4**	82
8.3	1170	1.8	167.7	22000	**AS 60 D_090 B5 BN 90S 4**	84
8.5	1154	1.2	108.6	15000	**AS 55 D_090 B5 BN 90L 6**	82
8.5	1149	2.0	108.2	22000	**AS 60 D_090 B5 BN 90L 6**	84
9.3	1053	2.0	151	22000	**AS 60 D_090 B5 BN 90S 4**	84
9.3	1048	1.1	150.2	15000	**AS 55 D_090 B5 BN 90S 4**	82
9.4	1034	2.2	97.4	22000	**AS 60 D_090 B5 BN 90L 6**	84
9.5	1029	1.3	96.9	15000	**AS 55 D_090 B5 BN 90L 6**	82
10.3	953	2.2	136.6	22000	**AS 60 D_090 B5 BN 90S 4**	84
10.4	941	1.3	134.8	15000	**AS 55 D_090 B5 BN 90S 4**	82
10.4	936	2.5	88.1	22000	**AS 60 D_090 B5 BN 90L 6**	84
10.6	923	1.5	87	15000	**AS 55 D_090 B5 BN 90L 6**	82
11.4	857	1.4	122.7	15000	**AS 55 D_090 B5 BN 90S 4**	82
11.6	844	2.5	121	22000	**AS 60 D_090 B5 BN 90S 4**	84
11.9	823	1.6	77.5	15000	**AS 55 D_090 B5 BN 90L 6**	82
12.0	815	1.0	76.8	9500	**AS 45 D_090 B5 BN 90L 6**	80

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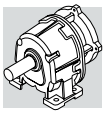

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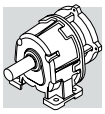
n_2 min^{-1}	M_2 Nm	S	i	Rn_2 N	IEC	
12.9	758	1.6	108.6	15000	**AS 55 D_090 B5 BN 90S 4**	82
12.9	755	2.8	108.2	22000	**AS 60 D_090 B5 BN 90S 4**	84
13.3	736	1.0	105.5	9500	**AS 45 D_090 B5 BN 90S 4**	80
13.4	729	1.9	68.6	15000	**AS 55 D_090 B5 BN 90L 6**	82
14.4	680	3.1	97.4	22000	**AS 60 D_090 B5 BN 90S 4**	84
14.4	676	1.8	96.9	15000	**AS 55 D_090 B5 BN 90S 4**	82
14.7	666	1.2	62.7	9500	**AS 45 D_090 B5 BN 90L 6**	80
14.8	658	1.1	94.3	9500	**AS 45 D_090 B5 BN 90S 4**	80
15.0	650	2.1	61.2	15000	**AS 55 D_090 B5 BN 90L 6**	82
15.9	615	3.4	88.1	22000	**AS 60 D_090 B5 BN 90S 4**	84
16.1	607	2.0	87	15000	**AS 55 D_090 B5 BN 90S 4**	82
16.5	592	1.2	84.9	9500	**AS 45 D_090 B5 BN 90S 4**	80
18.1	541	2.2	77.5	15000	**AS 55 D_090 B5 BN 90S 4**	82
18.2	536	1.3	76.8	9500	**AS 45 D_090 B5 BN 90S 4**	80
19.1	511	0.9	73.3	7200	**AS 35 D_090 B5 BN 90S 4**	78
20.4	479	2.5	68.6	15000	**AS 55 D_090 B5 BN 90S 4**	82
21.3	459	1.0	65.8	7200	**AS 35 D_090 B5 BN 90S 4**	78
22.3	438	1.6	62.7	9500	**AS 45 D_090 B5 BN 90S 4**	80
22.9	427	2.8	61.2	15000	**AS 55 D_090 B5 BN 90S 4**	82
25.0	392	1.8	56.1	9500	**AS 45 D_090 B5 BN 90S 4**	80
25.5	383	3.1	54.9	15000	**AS 55 D_090 B5 BN 90S 4**	82
25.9	377	1.3	54	7200	**AS 35 D_090 B5 BN 90S 4**	78
27.7	352	2.0	50.5	9500	**AS 45 D_090 B5 BN 90S 4**	80
30	323	1.0	46.2	3670	**AS 30 D_090 B5 BN 90S 4**	76
30	323	1.5	46.2	7200	**AS 35 D_090 B5 BN 90S 4**	78
31	319	2.3	45.7	9500	**AS 45 D_090 B5 BN 90S 4**	80
33	298	2.4	42.7	9500	**AS 45 D_090 B5 BN 90S 4**	80
34	287	1.1	41.2	3640	**AS 30 D_090 B5 BN 90S 4**	76
34	287	1.7	41.2	7200	**AS 35 D_090 B5 BN 90S 4**	78
37	266	2.7	38.2	9500	**AS 45 D_090 B5 BN 90S 4**	80
38	262	1.2	36.82	3610	**AS 30_ 090 B5 BN 90S 4**	76
38	262	1.8	36.82	7200	**AS 35_ 090 B5 BN 90S 4**	78
41	240	3.0	34.4	9500	**AS 45 D_090 B5 BN 90S 4**	80
43	234	1.4	32.8	3560	**AS 30_ 090 B5 BN 90S 4**	76
43	234	2.1	32.8	7200	**AS 35_ 090 B5 BN 90S 4**	78
45	217	3.3	31.1	9500	**AS 45 D_090 B5 BN 90S 4**	80
48	210	1.5	29.45	3510	**AS 30_ 090 B5 BN 90S 4**	76
48	210	2.3	29.45	7200	**AS 35_ 090 B5 BN 90S 4**	78
58	172	1.9	24.19	3400	**AS 30_ 090 B5 BN 90S 4**	76
58	172	2.8	24.19	7200	**AS 35_ 090 B5 BN 90S 4**	78
66	151	1.1	21.16	1470	**AS 25_ 090 B5 BN 90S 4**	74
72	138	1.2	19.35	1480	**AS 25_ 090 B5 BN 90S 4**	74
73	137	1.9	19.21	3350	**AS 30_ 090 B5 BN 90S 4**	76
73	137	2.9	19.21	7200	**AS 35_ 090 B5 BN 90S 4**	78
82	122	2.1	17.11	3260	**AS 30_ 090 B5 BN 90S 4**	76
82	122	3.3	17.11	7200	**AS 35_ 090 B5 BN 90S 4**	78
85	117	1.4	16.42	1470	**AS 25_ 090 B5 BN 90S 4**	74
91	110	2.4	15.37	3190	**AS 30_ 090 B5 BN 90S 4**	76
100	100	1.3	14.01	1530	**AS 25_ 090 B5 BN 90S 4**	74
111	90	2.9	12.62	3040	**AS 30_ 090 B5 BN 90S 4**	76
122	82	1.6	11.51	1500	**AS 25_ 090 B5 BN 90S 4**	74
123	81	3.2	11.43	3010	**AS 30_ 090 B5 BN 90S 4**	76
133	75	1.7	10.53	1480	**AS 25_ 090 B5 BN 90S 4**	74
141	71	0.9	9.92	1170	**AS 20_ 090 B5 BN 90S 4**	72
155	64	1.2	18.01	1170	**AS 20_ 080 B5 BN 80B 2**	72
157	64	2.0	8.93	1440	**AS 25_ 090 B5 BN 90S 4**	74
163	61	1.0	8.57	1200	**AS 20_ 090 B5 BN 90S 4**	72
171	59	2.7	16.42	1430	**AS 25_ 080 B5 BN 80B 2**	74
178	56	2.1	7.88	1440	**AS 25_ 090 B5 BN 90S 4**	74
181	55	1.1	7.75	1190	**AS 20_ 090 B5 BN 90S 4**	72



1.1 kW

n_2 min^{-1}	M_2 Nm	S	i	Rn_2 N	IEC	
181	55	1.0	15.48	1190	**AS 20_ 080 B5 BN 80B 2**	72
200	50	2.2	14.01	1420	**AS 25_ 080 B5 BN 80B 2**	74
200	50	1.1	14	1180	**AS 20_ 080 B5 BN 80B 2**	72
216	46	2.6	6.47	1390	**AS 25_ 090 B5 BN 90S 4**	74
217	46	1.3	6.46	1160	**AS 20_ 090 B5 BN 90S 4**	72
236	42	2.8	5.92	1360	**AS 25_ 090 B5 BN 90S 4**	74
240	42	1.3	11.67	1140	**AS 20_ 080 B5 BN 80B 2**	72
243	41	2.7	11.51	1360	**AS 25_ 080 B5 BN 80B 2**	74
255	39	1.5	5.49	1130	**AS 20_ 090 B5 BN 90S 4**	72
266	38	2.9	10.53	1330	**AS 25_ 080 B5 BN 80B 2**	74
279	36	3.4	5.02	1320	**AS 25_ 090 B5 BN 90S 4**	74
282	35	1.6	9.92	1110	**AS 20_ 080 B5 BN 80B 2**	72
313	32	3.5	8.93	1280	**AS 25_ 080 B5 BN 80B 2**	74
327	31	1.6	8.57	1100	**AS 20_ 080 B5 BN 80B 2**	72
361	28	1.8	7.75	1080	**AS 20_ 080 B5 BN 80B 2**	72
434	23	2.2	6.46	1030	**AS 20_ 080 B5 BN 80B 2**	72
510	20	2.6	5.49	990	**AS 20_ 080 B5 BN 80B 2**	72

1.5 kW

5.4	2455	2.8	173.2	42000	**AS 90 D_100 B5 BN 100LA 6**	88
5.5	2443	1.7	172.3	31000	**AS 80 D_100 B5 BN 100LA 6**	86
5.6	2377	1.0	167.7	22000	**AS 60 D_100 B5 BN 100LA 6**	84
6.1	2195	3.1	154.9	42000	**AS 90 D_100 B5 BN 100LA 6**	88
6.1	2184	1.9	154.1	31000	**AS 80 D_100 B5 BN 100LA 6**	86
6.2	2139	1.1	151	22000	**AS 60 D_100 B5 BN 100LA 6**	84
6.7	1976	3.4	139.4	42000	**AS 90 D_100 B5 BN 100LA 6**	88
6.8	1966	2.1	138.7	31000	**AS 80 D_100 B5 BN 100LA 6**	86
6.9	1936	1.2	136.6	22000	**AS 60 D_100 B5 BN 100LA 6**	84
7.5	1779	2.4	125.5	31000	**AS 80 D_100 B5 BN 100LA 6**	86
7.5	1772	1.2	187.5	22000	**AS 60 D_090 B5 BN 90LA 4**	84
7.8	1715	1.3	121	22000	**AS 60 D_100 B5 BN 100LA 6**	84
8.2	1628	2.3	172.3	31000	**AS 80 D_090 B5 BN 90LA 4**	86
8.4	1585	1.3	167.7	22000	**AS 60 D_090 B5 BN 90LA 4**	84
8.7	1533	1.5	108.2	22000	**AS 60 D_100 B5 BN 100LA 6**	84
8.8	1509	2.8	106.5	31000	**AS 80 D_100 B5 BN 100LA 6**	86
9.3	1426	1.5	151	22000	**AS 60 D_090 B5 BN 90LA 4**	84
9.7	1380	1.7	97.4	22000	**AS 60 D_100 B5 BN 100LA 6**	84
9.7	1373	1.0	96.9	15000	**AS 55 D_100 B5 BN 100LA 6**	82
9.9	1349	3.1	95.2	31000	**AS 80 D_100 B5 BN 100LA 6**	86
10.3	1290	1.6	136.6	22000	**AS 60 D_090 B5 BN 90LA 4**	84
10.5	1274	0.9	134.8	15000	**AS 55 D_090 B5 BN 90LA 4**	82
10.7	1249	1.8	88.1	22000	**AS 60 D_100 B5 BN 100LA 6**	84
10.8	1232	1.1	87	15000	**AS 55 D_100 B5 BN 100LA 6**	82
11.0	1214	3.5	85.7	31000	**AS 80 D_100 B5 BN 100LA 6**	86
11.5	1160	1.0	122.7	15000	**AS 55 D_090 B5 BN 90LA 4**	82
11.7	1143	1.8	121	22000	**AS 60 D_090 B5 BN 90LA 4**	84
12.1	1099	1.2	77.5	15000	**AS 55 D_100 B5 BN 100LA 6**	82
12.3	1083	2.1	76.4	22000	**AS 60 D_100 B5 BN 100LA 6**	84
13.0	1027	1.2	108.6	15000	**AS 55 D_090 B5 BN 90LA 4**	82
13.0	1022	2.1	108.2	22000	**AS 60 D_090 B5 BN 90LA 4**	84
13.7	972	1.4	68.6	15000	**AS 55 D_100 B5 BN 100LA 6**	82
13.8	968	2.4	68.3	22000	**AS 60 D_100 B5 BN 100LA 6**	84
14.5	920	2.3	97.4	22000	**AS 60 D_090 B5 BN 90LA 4**	84
14.6	916	1.3	96.9	15000	**AS 55 D_090 B5 BN 90LA 4**	82
16.0	832	2.5	88.1	22000	**AS 60 D_090 B5 BN 90LA 4**	84
16.2	822	1.5	87	15000	**AS 55 D_090 B5 BN 90LA 4**	82
18.2	732	1.6	77.5	15000	**AS 55 D_090 B5 BN 90LA 4**	82

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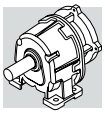
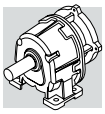


1.5 kW

n_2 min^{-1}	M_2 Nm	S	i	Rn_2 N	IEC	
18.4	726	1.0	76.8	9500	**AS 45 D_090 B5 BN 90LA 4**	80
20.5	648	1.9	68.6	15000	**AS 55 D_090 B5 BN 90LA 4**	82
22.5	593	1.2	62.7	9500	**AS 45 D_090 B5 BN 90LA 4**	80
23.0	578	2.1	61.2	15000	**AS 55 D_090 B5 BN 90LA 4**	82
25.7	519	2.3	54.9	15000	**AS 55 D_090 B5 BN 90LA 4**	82
26.1	511	0.9	54	7200	**AS 35 D_090 B5 BN 90LA 4**	78
27.9	477	1.5	50.5	9500	**AS 45 D_090 B5 BN 90LA 4**	80
30	437	1.1	46.2	7200	**AS 35 D_090 B5 BN 90LA 4**	78
31	432	1.7	45.7	9500	**AS 45 D_090 B5 BN 90LA 4**	80
33	403	1.8	42.7	9500	**AS 45 D_090 B5 BN 90LA 4**	80
34	398	3.0	42.1	15000	**AS 55 D_090 B5 BN 90LA 4**	82
34	389	1.2	41.2	7200	**AS 35 D_090 B5 BN 90LA 4**	78
37	361	2.0	38.2	9500	**AS 45 D_090 B5 BN 90LA 4**	80
38	352	3.4	37.2	15000	**AS 55 D_090 B5 BN 90LA 4**	82
38	355	0.9	36.82	3060	**AS 30_ 090 B5 BN 90LA 4**	76
38	355	1.4	36.82	7200	**AS 35_ 090 B5 BN 90LA 4**	78
41	325	2.2	34.4	9500	**AS 45 D_090 B5 BN 90LA 4**	80
43	317	1.0	32.8	3060	**AS 30_ 090 B5 BN 90LA 4**	76
43	317	1.5	32.8	7200	**AS 35_ 090 B5 BN 90LA 4**	78
45	294	2.5	31.1	9500	**AS 45 D_090 B5 BN 90LA 4**	80
48	284	1.1	29.45	3050	**AS 30_ 090 B5 BN 90LA 4**	76
48	284	1.7	29.45	7200	**AS 35_ 090 B5 BN 90LA 4**	78
51	265	2.7	27.45	9500	**AS 45_ 090 B5 BN 90LA 4**	80
57	237	3.0	24.55	9500	**AS 45_ 090 B5 BN 90LA 4**	80
58	234	1.4	24.19	3000	**AS 30_ 090 B5 BN 90LA 4**	76
58	234	2.1	24.19	7200	**AS 35_ 090 B5 BN 90LA 4**	78
64	213	3.4	22.09	9500	**AS 45_ 090 B5 BN 90LA 4**	80
73	185	1.4	19.21	3050	**AS 30_ 090 B5 BN 90LA 4**	76
73	185	2.2	19.21	7200	**AS 35_ 090 B5 BN 90LA 4**	78
82	165	1.6	17.11	3000	**AS 30_ 090 B5 BN 90LA 4**	76
82	165	2.4	17.11	7200	**AS 35_ 090 B5 BN 90LA 4**	78
86	158	1.0	16.42	1160	**AS 25_ 090 B5 BN 90LA 4**	74
92	148	1.8	15.37	2940	**AS 30_ 090 B5 BN 90LA 4**	76
92	148	2.7	15.37	7200	**AS 35_ 090 B5 BN 90LA 4**	78
101	135	1.0	14.01	1270	**AS 25_ 090 B5 BN 90LA 4**	74
112	122	2.1	12.62	2830	**AS 30_ 090 B5 BN 90LA 4**	76
112	122	3.3	12.62	7200	**AS 35_ 090 B5 BN 90LA 4**	78
122	111	1.2	11.51	1280	**AS 25_ 090 B5 BN 90LA 4**	74
123	110	2.4	11.43	2830	**AS 30_ 090 B5 BN 90LA 4**	76
134	102	1.3	10.53	1280	**AS 25_ 090 B5 BN 90LA 4**	74
138	98	2.6	10.18	2760	**AS 30_ 090 B5 BN 90LA 4**	76
154	88	2.9	9.14	2700	**AS 30_ 090 B5 BN 90LA 4**	76
155	88	0.9	18.01	970	**AS 20_ 090 B5 BN 90SA 2**	72
158	86	1.5	8.93	1270	**AS 25_ 090 B5 BN 90LA 4**	74
164	83	2.9	17.11	2670	**AS 30_ 090 B5 BN 90SA 2**	76
171	80	2.0	16.42	1270	**AS 25_ 090 B5 BN 90SA 2**	74
179	76	1.6	7.88	1300	**AS 25_ 090 B5 BN 90LA 4**	74
181	75	3.1	7.78	2620	**AS 30_ 090 B5 BN 90LA 4**	76
182	75	3.2	15.37	2600	**AS 30_ 090 B5 BN 90SA 2**	76
188	72	3.2	7.51	2570	**AS 30_ 090 B5 BN 90LA 4**	76
200	68	1.6	14.01	1290	**AS 25_ 090 B5 BN 90SA 2**	74
203	67	3.4	6.93	2550	**AS 30_ 090 B5 BN 90LA 4**	76
218	62	1.9	6.47	1270	**AS 25_ 090 B5 BN 90LA 4**	74
218	62	1.0	6.46	1020	**AS 20_ 090 B5 BN 90LA 4**	72
238	57	2.1	5.92	1250	**AS 25_ 090 B5 BN 90LA 4**	74
240	57	1.0	11.67	1020	**AS 20_ 090 B5 BN 90SA 2**	72
243	56	2.0	11.51	1250	**AS 25_ 090 B5 BN 90SA 2**	74
257	53	1.1	5.49	1000	**AS 20_ 090 B5 BN 90LA 4**	72
266	51	2.1	10.53	1230	**AS 25_ 090 B5 BN 90SA 2**	74
281	48	2.5	5.02	1220	**AS 25_ 090 B5 BN 90LA 4**	74



1.5 kW

n_2 min^{-1}	M_2 Nm	S	i	Rn_2 N	IEC	
282	48	1.1	9.92	1000	**AS 20_ 090 B5 BN 90SA 2**	72
313	43	2.5	8.93	1200	**AS 25_ 090 B5 BN 90SA 2**	74
327	42	1.2	8.57	1010	**AS 20_ 090 B5 BN 90SA 2**	72
355	38	2.6	7.88	1190	**AS 25_ 090 B5 BN 90SA 2**	74
361	38	1.3	7.75	990	**AS 20_ 090 B5 BN 90SA 2**	72
433	31	3.2	6.47	1140	**AS 25_ 090 B5 BN 90SA 2**	74
434	31	1.6	6.46	960	**AS 20_ 090 B5 BN 90SA 2**	72
473	29	3.5	5.92	1120	**AS 25_ 090 B5 BN 90SA 2**	74
510	27	1.9	5.49	930	**AS 20_ 090 B5 BN 90SA 2**	72

2.2 kW

5.4	3639	1.9	173.2	42000	**AS 90 D_112 B5 BN 112M 6**	88
5.4	3621	1.2	172.3	31000	**AS 80 D_112 B5 BN 112M 6**	86
6.0	3254	2.1	154.9	42000	**AS 90 D_112 B5 BN 112M 6**	88
6.0	3238	1.3	154.1	31000	**AS 80 D_112 B5 BN 112M 6**	86
6.7	2929	2.3	139.4	42000	**AS 90 D_112 B5 BN 112M 6**	88
6.7	2915	1.4	138.7	31000	**AS 80 D_112 B5 BN 112M 6**	86
7.4	2650	2.6	126.1	42000	**AS 90 D_112 B5 BN 112M 6**	88
7.4	2637	1.6	125.5	31000	**AS 80 D_112 B5 BN 112M 6**	86
7.7	2542	0.9	121	22000	**AS 60 D_112 B5 BN 112M 6**	84
8.1	2400	2.6	173.2	42000	**AS 90 D_100 B5 BN 100LA 4**	88
8.2	2388	1.6	172.3	31000	**AS 80 D_100 B5 BN 100LA 4**	86
8.4	2324	0.9	167.7	22000	**AS 60 D_100 B5 BN 100LA 4**	84
8.6	2273	1.0	108.2	22000	**AS 60 D_112 B5 BN 112M 6**	84
8.7	2237	1.9	106.5	31000	**AS 80 D_112 B5 BN 112M 6**	86
8.7	2237	3.0	106.5	42000	**AS 90 D_112 B5 BN 112M 6**	88
9.1	2146	2.9	154.9	42000	**AS 90 D_100 B5 BN 100LA 4**	88
9.1	2136	1.8	154.1	31000	**AS 80 D_100 B5 BN 100LA 4**	86
9.3	2092	1.0	151	22000	**AS 60 D_100 B5 BN 100LA 4**	84
9.6	2046	1.1	97.4	22000	**AS 60 D_112 B5 BN 112M 6**	84
9.8	2000	2.1	95.2	31000	**AS 80 D_112 B5 BN 112M 6**	86
9.8	2000	3.4	95.2	42000	**AS 90 D_112 B5 BN 112M 6**	88
10.1	1932	3.2	139.4	42000	**AS 90 D_100 B5 BN 100LA 4**	88
10.2	1922	2.0	138.7	31000	**AS 80 D_100 B5 BN 100LA 4**	86
10.3	1893	1.1	136.6	22000	**AS 60 D_100 B5 BN 100LA 4**	84
10.6	1851	1.2	88.1	22000	**AS 60 D_112 B5 BN 112M 6**	84
10.9	1800	2.3	85.7	31000	**AS 80 D_112 B5 BN 112M 6**	86
11.2	1739	2.2	125.5	31000	**AS 80 D_100 B5 BN 100LA 4**	86
11.7	1677	1.3	121	22000	**AS 60 D_100 B5 BN 100LA 4**	84
12.0	1629	2.6	77.5	31000	**AS 80 D_112 B5 BN 112M 6**	86
12.2	1605	1.4	76.4	22000	**AS 60 D_112 B5 BN 112M 6**	84
13.0	1499	1.4	108.2	22000	**AS 60 D_100 B5 BN 100LA 4**	84
13.2	1475	2.6	106.5	31000	**AS 80 D_100 B5 BN 100LA 4**	86
13.6	1442	0.9	68.6	15000	**AS 55 D_112 B5 BN 112M 6**	82
13.6	1436	1.6	68.3	22000	**AS 60 D_112 B5 BN 112M 6**	84
14.5	1349	1.6	97.4	22000	**AS 60 D_100 B5 BN 100LA 4**	84
14.8	1319	2.9	95.2	31000	**AS 80 D_100 B5 BN 100LA 4**	86
16.0	1221	1.7	88.1	22000	**AS 60 D_100 B5 BN 100LA 4**	84
16.2	1205	1.0	87	15000	**AS 55 D_100 B5 BN 100LA 4**	82
16.5	1187	3.2	85.7	31000	**AS 80 D_100 B5 BN 100LA 4**	86
18.2	1074	1.1	77.5	15000	**AS 55 D_100 B5 BN 100LA 4**	82
18.5	1059	2.0	76.4	22000	**AS 60 D_100 B5 BN 100LA 4**	84
20.5	951	1.3	68.6	15000	**AS 55 D_100 B5 BN 100LA 4**	82
20.6	947	2.2	68.3	21500	**AS 60 D_100 B5 BN 100LA 4**	84
22.9	852	2.5	61.5	20900	**AS 60 D_100 B5 BN 100LA 4**	84
23.0	848	1.4	61.2	15000	**AS 55 D_100 B5 BN 100LA 4**	82
25.1	777	0.9	56.1	9500	**AS 45 D_100 B5 BN 100LA 4**	80

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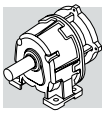
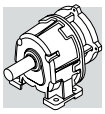


2.2 kW

n_2 min^{-1}	M_2 Nm	S	i	Rn_2 N	IEC	
25.3	771	2.7	55.6	20400	**AS 60 D_100 B5 BN 100LA 4**	84
25.7	761	1.6	54.9	15000	**AS 55 D_100 B5 BN 100LA 4**	82
27.9	700	1.0	50.5	9500	**AS 45 D_100 B5 BN 100LA 4**	80
31	633	1.1	45.7	9500	**AS 45 D_100 B5 BN 100LA 4**	80
33	592	1.2	42.7	9500	**AS 45 D_100 B5 BN 100LA 4**	80
34	583	2.1	42.1	15000	**AS 55 D_100 B5 BN 100LA 4**	82
37	529	1.4	38.2	9500	**AS 45 D_100 B5 BN 100LA 4**	80
38	516	2.3	37.2	15000	**AS 55 D_100 B5 BN 100LA 4**	82
38	521	0.9	36.82	7200	**AS 35_ 100 B5 BN 100LA 4**	78
41	476	1.5	34.4	9500	**AS 45 D_100 B5 BN 100LA 4**	80
42	460	2.6	33.2	15000	**AS 55 D_100 B5 BN 100LA 4**	82
43	464	1.0	32.8	7200	**AS 35_ 100 B5 BN 100LA 4**	78
45	431	1.7	31.1	9500	**AS 45 D_100 B5 BN 100LA 4**	80
47	413	2.9	29.8	15000	**AS 55 D_100 B5 BN 100LA 4**	82
48	417	1.2	29.45	7200	**AS 35_ 100 B5 BN 100LA 4**	78
51	389	1.9	27.45	9500	**AS 45_ 100 B5 BN 100LA 4**	80
55	366	3.3	25.84	15000	**AS 55_ 100 B5 BN 100LA 4**	82
57	347	2.1	24.55	9500	**AS 45_ 100 B5 BN 100LA 4**	80
58	342	0.9	24.19	2320	**AS 30_ 100 B5 BN 100LA 4**	76
58	342	1.4	24.19	7200	**AS 35_ 100 B5 BN 100LA 4**	78
64	313	2.3	22.09	9410	**AS 45_ 100 B5 BN 100LA 4**	80
71	283	2.5	19.99	9210	**AS 45_ 100 B5 BN 100LA 4**	80
73	272	1.0	19.21	2540	**AS 30_ 100 B5 BN 100LA 4**	76
73	272	1.5	19.21	7200	**AS 35_ 100 B5 BN 100LA 4**	78
80	251	2.6	17.7	9050	**AS 45_ 100 B5 BN 100LA 4**	80
82	242	1.1	17.11	2540	**AS 30_ 100 B5 BN 100LA 4**	76
82	242	1.7	17.11	7200	**AS 35_ 100 B5 BN 100LA 4**	78
89	224	2.9	15.83	8820	**AS 45_ 100 B5 BN 100LA 4**	80
92	218	1.2	15.37	2520	**AS 30_ 100 B5 BN 100LA 4**	76
92	218	1.8	15.37	7200	**AS 35_ 100 B5 BN 100LA 4**	78
99	202	3.2	14.25	8600	**AS 45_ 100 B5 BN 100LA 4**	80
112	179	1.5	12.62	2480	**AS 30_ 100 B5 BN 100LA 4**	76
112	179	2.2	12.62	7200	**AS 35_ 100 B5 BN 100LA 4**	78
123	162	1.6	11.43	2530	**AS 30_ 100 B5 BN 100LA 4**	76
123	162	2.5	11.43	7200	**AS 35_ 100 B5 BN 100LA 4**	78
138	144	1.8	10.18	2490	**AS 30_ 100 B5 BN 100LA 4**	76
138	144	2.8	10.18	7110	**AS 35_ 100 B5 BN 100LA 4**	78
154	129	2.0	9.14	2450	**AS 30_ 100 B5 BN 100LA 4**	76
154	129	3.1	9.14	6920	**AS 35_ 100 B5 BN 100LA 4**	78
164	122	2.0	17.11	2440	**AS 30_ 090 B5 BN 90L 2**	76
164	122	3.0	17.11	6830	**AS 35_ 090 B5 BN 90L 2**	78
171	117	1.4	16.42	990	**AS 25_ 090 B5 BN 90L 2**	74
181	110	2.1	7.78	2420	**AS 30_ 100 B5 BN 100LA 4**	76
181	110	3.1	7.78	6690	**AS 35_ 100 B5 BN 100LA 4**	78
183	109	2.2	15.37	2390	**AS 30_ 090 B5 BN 90L 2**	76
183	109	3.3	15.37	6650	**AS 35_ 090 B5 BN 90L 2**	78
188	106	2.2	7.51	2360	**AS 30_ 100 B5 BN 100LA 4**	76
188	106	3.2	7.51	6590	**AS 35_ 100 B5 BN 100LA 4**	78
201	100	1.1	14.01	1070	**AS 25_ 090 B5 BN 90L 2**	74
203	98	2.3	6.93	2360	**AS 30_ 100 B5 BN 100LA 4**	76
203	98	3.5	6.93	6490	**AS 35_ 100 B5 BN 100LA 4**	78
223	90	2.7	12.62	2300	**AS 30_ 090 B5 BN 90L 2**	76
227	88	2.6	6.22	2310	**AS 30_ 100 B5 BN 100LA 4**	76
244	82	1.3	11.51	1070	**AS 25_ 090 B5 BN 90L 2**	74
246	81	2.6	11.43	2290	**AS 30_ 090 B5 BN 90L 2**	76
267	75	1.5	10.53	1060	**AS 25_ 090 B5 BN 90L 2**	74
276	72	3.2	5.11	2210	**AS 30_ 100 B5 BN 100LA 4**	76
276	72	2.9	10.18	2230	**AS 30_ 090 B5 BN 90L 2**	76
307	65	3.2	9.14	2170	**AS 30_ 090 B5 BN 90L 2**	76
315	63	1.7	8.93	1050	**AS 25_ 090 B5 BN 90L 2**	74



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n_2 min^{-1}	M_2 Nm	S	i	Rn_2 N	IEC	
357	56	1.8	7.88	1060	**AS 25_ 090 B5 BN 90L 2**	74
361	55	3.3	7.78	2110	**AS 30_ 090 B5 BN 90L 2**	76
363	55	0.9	7.75	850	**AS 20_ 090 B5 BN 90L 2**	72
374	53	3.4	7.51	2070	**AS 30_ 090 B5 BN 90L 2**	76
434	46	2.2	6.47	1030	**AS 25_ 090 B5 BN 90L 2**	74
435	46	1.1	6.46	840	**AS 20_ 090 B5 BN 90L 2**	72
475	42	2.4	5.92	1020	**AS 25_ 090 B5 BN 90L 2**	74
512	39	1.3	5.49	820	**AS 20_ 090 B5 BN 90L 2**	72
559	36	2.8	5.02	990	**AS 25_ 090 B5 BN 90L 2**	74

3 kW

5.4	4909	1.4	173.2	42000	**AS 90 D_132 B5 BN 132S 6**	88
6.1	4390	1.5	154.9	42000	**AS 90 D_132 B5 BN 132S 6**	88
6.1	4369	1.0	154.1	31000	**AS 80 D_132 B5 BN 132S 6**	86
6.7	3951	1.7	139.4	42000	**AS 90 D_132 B5 BN 132S 6**	88
6.8	3932	1.1	138.7	31000	**AS 80 D_132 B5 BN 132S 6**	86
7.5	3575	1.9	126.1	42000	**AS 90 D_132 B5 BN 132S 6**	88
7.5	3558	1.2	125.5	31000	**AS 80 D_132 B5 BN 132S 6**	86
8.1	3273	1.9	173.2	42000	**AS 90 D_100 B5 BN 100LB 4**	88
8.2	3257	1.2	172.3	31000	**AS 80 D_100 B5 BN 100LB 4**	86
8.8	3017	1.4	106.5	31000	**AS 80 D_132 B5 BN 132S 6**	86
8.8	3017	2.3	106.5	42000	**AS 90 D_132 B5 BN 132S 6**	88
9.1	2927	2.1	154.9	42000	**AS 90 D_100 B5 BN 100LB 4**	88
9.1	2913	1.3	154.1	31000	**AS 80 D_100 B5 BN 100LB 4**	86
9.9	2698	1.6	95.2	31000	**AS 80 D_132 B5 BN 132S 6**	86
9.9	2698	2.5	95.2	42000	**AS 90 D_132 B5 BN 132S 6**	88
10.1	2634	2.4	139.4	42000	**AS 90 D_100 B5 BN 100LB 4**	88
10.2	2621	1.4	138.7	31000	**AS 80 D_100 B5 BN 100LB 4**	86
10.7	2497	0.9	88.1	22000	**AS 60 D_132 B5 BN 132S 6**	84
11.0	2429	1.7	85.7	31000	**AS 80 D_132 B5 BN 132S 6**	86
11.0	2429	2.8	85.7	42000	**AS 90 D_132 B5 BN 132S 6**	88
11.2	2383	2.6	126.1	42000	**AS 90 D_100 B5 BN 100LB 4**	88
11.2	2372	1.6	125.5	31000	**AS 80 D_100 B5 BN 100LB 4**	86
11.7	2286	0.9	121	22000	**AS 60 D_100 B5 BN 100LB 4**	84
12.1	2197	1.9	77.5	31000	**AS 80 D_132 B5 BN 132S 6**	86
12.1	2197	3.1	77.5	42000	**AS 90 D_132 B5 BN 132S 6**	88
12.3	2166	1.1	76.4	22000	**AS 60 D_132 B5 BN 132S 6**	84
13.0	2045	1.0	108.2	21900	**AS 60 D_100 B5 BN 100LB 4**	84
13.2	2012	1.9	106.5	31000	**AS 80 D_100 B5 BN 100LB 4**	86
13.2	2012	3.1	106.5	42000	**AS 90 D_100 B5 BN 100LB 4**	88
13.7	1950	2.2	68.8	31000	**AS 80 D_132 B5 BN 132S 6**	86
13.7	1950	3.5	68.8	42000	**AS 90 D_132 B5 BN 132S 6**	88
13.8	1937	1.2	68.3	21800	**AS 60 D_132 B5 BN 132S 6**	84
14.5	1840	1.1	97.4	21500	**AS 60 D_100 B5 BN 100LB 4**	84
14.8	1799	2.1	95.2	31000	**AS 80 D_100 B5 BN 100LB 4**	86
14.8	1799	3.4	95.2	42000	**AS 90 D_100 B5 BN 100LB 4**	88
16.0	1665	1.3	88.1	21100	**AS 60 D_100 B5 BN 100LB 4**	84
16.5	1619	2.3	85.7	31000	**AS 80 D_100 B5 BN 100LB 4**	86
18.2	1465	2.6	77.5	31000	**AS 80 D_100 B5 BN 100LB 4**	86
18.5	1444	1.5	76.4	21000	**AS 60 D_100 B5 BN 100LB 4**	84
20.5	1297	0.9	68.6	15000	**AS 55 D_100 B5 BN 100LB 4**	82
20.6	1291	1.6	68.3	20500	**AS 60 D_100 B5 BN 100LB 4**	84
22.9	1162	1.8	61.5	20000	**AS 60 D_100 B5 BN 100LB 4**	84
23.0	1156	1.0	61.2	15000	**AS 55 D_100 B5 BN 100LB 4**	82
25.3	1051	2.0	55.6	19600	**AS 60 D_100 B5 BN 100LB 4**	84
25.7	1038	1.2	54.9	15000	**AS 55 D_100 B5 BN 100LB 4**	82
34	795	1.5	42.1	15000	**AS 55 D_100 B5 BN 100LB 4**	82
34	784	2.7	41.5	18600	**AS 60 D_100 B5 BN 100LB 4**	84
37	722	1.0	38.2	9500	**AS 45 D_100 B5 BN 100LB 4**	80

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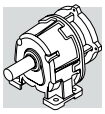

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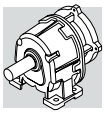
n_2 min^{-1}	M_2 Nm	S	i	Rn_2 N	IEC	
38	704	1.7	37.2	15000	**AS 55 D_100 B5 BN 100LB 4**	82
38	701	3.0	37.1	18100	**AS 60 D_100 B5 BN 100LB 4**	84
41	649	1.1	34.4	9500	**AS 45 D_100 B5 BN 100LB 4**	80
42	631	3.3	33.4	17600	**AS 60 D_100 B5 BN 100LB 4**	84
42	628	1.9	33.2	15000	**AS 55 D_100 B5 BN 100LB 4**	82
45	588	1.2	31.1	9500	**AS 45 D_100 B5 BN 100LB 4**	80
47	563	2.1	29.8	15000	**AS 55 D_100 B5 BN 100LB 4**	82
51	530	1.4	27.45	9220	**AS 45_ 100 B5 BN 100LB 4**	80
55	499	2.4	25.84	15000	**AS 55_ 100 B5 BN 100LB 4**	82
57	474	1.5	24.55	9050	**AS 45_ 100 B5 BN 100LB 4**	80
58	467	1.0	24.19	7200	**AS 35_ 100 B5 BN 100LB 4**	78
62	442	2.7	22.87	15000	**AS 55_ 100 B5 BN 100LB 4**	82
64	426	1.7	22.09	8880	**AS 45_ 100 B5 BN 100LB 4**	80
69	394	3.0	20.4	15000	**AS 55_ 100 B5 BN 100LB 4**	82
71	386	1.9	19.99	8710	**AS 45_ 100 B5 BN 100LB 4**	80
73	371	1.1	19.21	7200	**AS 35_ 100 B5 BN 100LB 4**	78
77	353	3.4	18.31	15000	**AS 55_ 100 B5 BN 100LB 4**	82
80	342	1.9	17.7	8640	**AS 45_ 100 B5 BN 100LB 4**	80
82	330	1.2	17.11	7200	**AS 35_ 100 B5 BN 100LB 4**	78
89	306	2.1	15.83	8440	**AS 45_ 100 B5 BN 100LB 4**	80
92	297	1.3	15.37	7200	**AS 35_ 100 B5 BN 100LB 4**	78
99	275	2.4	14.25	8250	**AS 45_ 100 B5 BN 100LB 4**	80
109	249	2.6	12.89	8070	**AS 45_ 100 B5 BN 100LB 4**	80
112	244	1.1	12.62	2070	**AS 30_ 100 B5 BN 100LB 4**	76
112	244	1.6	12.62	7030	**AS 35_ 100 B5 BN 100LB 4**	78
123	221	1.2	11.43	2190	**AS 30_ 100 B5 BN 100LB 4**	76
123	221	1.8	11.43	6990	**AS 35_ 100 B5 BN 100LB 4**	78
126	216	3.0	11.18	7900	**AS 45_ 100 B5 BN 100LB 4**	80
138	197	1.3	10.18	2180	**AS 30_ 100 B5 BN 100LB 4**	76
138	197	2.0	10.18	6820	**AS 35_ 100 B5 BN 100LB 4**	78
141	193	3.4	10	7690	**AS 45_ 100 B5 BN 100LB 4**	80
154	176	1.5	9.14	2160	**AS 30_ 100 B5 BN 100LB 4**	76
154	176	2.3	9.14	6670	**AS 35_ 100 B5 BN 100LB 4**	78
167	163	1.5	17.11	2180	**AS 30_ 100 B5 BN 100L 2**	76
167	163	2.2	17.11	6570	**AS 35_ 100 B5 BN 100L 2**	78
181	150	1.5	7.78	2180	**AS 30_ 100 B5 BN 100LB 4**	76
181	150	2.3	7.78	6470	**AS 35_ 100 B5 BN 100LB 4**	78
186	146	1.6	15.37	2150	**AS 30_ 100 B5 BN 100L 2**	76
186	146	2.5	15.37	6410	**AS 35_ 100 B5 BN 100L 2**	78
188	145	1.6	7.51	2120	**AS 30_ 100 B5 BN 100LB 4**	76
188	145	2.3	7.51	6370	**AS 35_ 100 B5 BN 100LB 4**	78
203	134	1.7	6.93	2150	**AS 30_ 100 B5 BN 100LB 4**	76
203	134	2.5	6.93	6300	**AS 35_ 100 B5 BN 100LB 4**	78
227	120	2.0	12.62	2090	**AS 30_ 100 B5 BN 100L 2**	76
227	120	3.0	12.62	6120	**AS 35_ 100 B5 BN 100L 2**	78
227	120	1.9	6.22	2110	**AS 30_ 100 B5 BN 100LB 4**	76
227	120	2.8	6.22	6140	**AS 35_ 100 B5 BN 100LB 4**	78
250	109	1.9	11.43	2110	**AS 30_ 100 B5 BN 100L 2**	76
250	109	2.9	11.43	6020	**AS 35_ 100 B5 BN 100L 2**	78
276	99	2.3	5.11	2040	**AS 30_ 100 B5 BN 100LB 4**	76
276	99	3.4	5.11	5850	**AS 35_ 100 B5 BN 100LB 4**	78
281	97	2.2	10.18	2070	**AS 30_ 100 B5 BN 100L 2**	76
281	97	3.3	10.18	5850	**AS 35_ 100 B5 BN 100L 2**	78
313	87	2.4	9.14	2030	**AS 30_ 100 B5 BN 100L 2**	76
368	74	2.4	7.78	1980	**AS 30_ 100 B5 BN 100L 2**	76
381	71	2.5	7.51	1940	**AS 30_ 100 B5 BN 100L 2**	76
413	66	2.7	6.93	1930	**AS 30_ 100 B5 BN 100L 2**	76
460	59	3.0	6.22	1890	**AS 30_ 100 B5 BN 100L 2**	76
521	52	1.0	5.49	700	**AS 20_ 100 B5 BN 100L 2**	72



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n_2 min^{-1}	M_2 Nm	S	i	Rn_2 N	IEC	
5.5	6477	1.0	173.2	42000	**AS 90 D_132 B5**	**BN 132MA 6**	88
6.1	5792	1.2	154.9	42000	**AS 90 D_132 B5**	**BN 132MA 6**	88
6.8	5213	1.3	139.4	42000	**AS 90 D_132 B5**	**BN 132MA 6**	88
7.5	4717	1.4	126.1	42000	**AS 90 D_132 B5**	**BN 132MA 6**	88
8.0	4427	1.4	173.2	42000	**AS 90 D_112 B5**	**BN 112M 4**	88
8.9	3981	1.1	106.5	31000	**AS 80 D_132 B5**	**BN 132MA 6**	86
8.9	3981	1.7	106.5	42000	**AS 90 D_132 B5**	**BN 132MA 6**	88
9.0	3959	1.6	154.9	42000	**AS 90 D_112 B5**	**BN 112M 4**	88
9.0	3939	1.0	154.1	31000	**AS 80 D_112 B5**	**BN 112M 4**	86
10.0	3563	1.7	139.4	42000	**AS 90 D_112 B5**	**BN 112M 4**	88
10.0	3560	1.2	95.2	31000	**AS 80 D_132 B5**	**BN 132MA 6**	86
10.0	3560	1.9	95.2	42000	**AS 90 D_132 B5**	**BN 132MA 6**	88
10.0	3545	1.1	138.7	31000	**AS 80 D_112 B5**	**BN 112M 4**	86
11.0	3224	1.9	126.1	42000	**AS 90 D_112 B5**	**BN 112M 4**	88
11.1	3208	1.2	125.5	31000	**AS 80 D_112 B5**	**BN 112M 4**	86
11.1	3204	1.3	85.7	31000	**AS 80 D_132 B5**	**BN 132MA 6**	86
11.1	3204	2.1	85.7	42000	**AS 90 D_132 B5**	**BN 132MA 6**	88
12.3	2899	1.4	77.5	31000	**AS 80 D_132 B5**	**BN 132MA 6**	86
12.3	2899	2.3	77.5	42000	**AS 90 D_132 B5**	**BN 132MA 6**	88
13.1	2721	1.4	106.5	31000	**AS 80 D_112 B5**	**BN 112M 4**	86
13.1	2721	2.3	106.5	42000	**AS 90 D_112 B5**	**BN 112M 4**	88
13.8	2573	1.6	68.8	31000	**AS 80 D_132 B5**	**BN 132MA 6**	86
13.8	2573	2.6	68.8	42000	**AS 90 D_132 B5**	**BN 132MA 6**	88
13.9	2555	0.9	68.3	20000	**AS 60 D_132 B5**	**BN 132MA 6**	84
14.6	2433	1.6	95.2	31000	**AS 80 D_112 B5**	**BN 112M 4**	86
14.6	2433	2.5	95.2	42000	**AS 90 D_112 B5**	**BN 112M 4**	88
15.8	2252	0.9	88.1	19500	**AS 60 D_112 B5**	**BN 112M 4**	84
16.2	2190	1.7	85.7	31000	**AS 80 D_112 B5**	**BN 112M 4**	86
16.2	2190	2.8	85.7	42000	**AS 90 D_112 B5**	**BN 112M 4**	88
17.9	1981	1.9	77.5	31000	**AS 80 D_112 B5**	**BN 112M 4**	86
17.9	1981	3.1	77.5	42000	**AS 90 D_112 B5**	**BN 112M 4**	88
18.2	1953	1.1	76.4	19700	**AS 60 D_112 B5**	**BN 112M 4**	84
20.3	1746	1.2	68.3	19300	**AS 60 D_112 B5**	**BN 112M 4**	84
22.6	1572	1.3	61.5	18900	**AS 60 D_112 B5**	**BN 112M 4**	84
25.0	1422	1.5	55.6	18600	**AS 60 D_112 B5**	**BN 112M 4**	84
33	1076	1.1	42.1	15000	**AS 55 D_112 B5**	**BN 112M 4**	82
34	1060	2.0	41.5	17900	**AS 60 D_112 B5**	**BN 112M 4**	84
37	952	1.3	37.2	15000	**AS 55 D_112 B5**	**BN 112M 4**	82
37	948	2.2	37.1	17500	**AS 60 D_112 B5**	**BN 112M 4**	84
42	853	2.5	33.4	17100	**AS 60 D_112 B5**	**BN 112M 4**	84
42	849	1.4	33.2	15000	**AS 55 D_112 B5**	**BN 112M 4**	82
45	795	0.9	31.1	9140	**AS 45 D_112 B5**	**BN 112M 4**	80
46	772	2.7	30.2	16700	**AS 60 D_112 B5**	**BN 112M 4**	84
47	762	1.6	29.8	15000	**AS 55 D_112 B5**	**BN 112M 4**	82
51	717	1.0	27.45	8420	**AS 45_ 112 B5**	**BN 112M 4**	80
54	675	1.8	25.84	15000	**AS 55_ 112 B5**	**BN 112M 4**	82
57	641	1.1	24.55	8320	**AS 45_ 112 B5**	**BN 112M 4**	80
61	597	2.0	22.87	15000	**AS 55_ 112 B5**	**BN 112M 4**	82
63	577	1.2	22.09	8220	**AS 45_ 112 B5**	**BN 112M 4**	80
68	533	2.3	20.4	15000	**AS 55_ 112 B5**	**BN 112M 4**	82
70	522	1.4	19.99	8100	**AS 45_ 112 B5**	**BN 112M 4**	80
76	478	2.5	18.31	15000	**AS 55_ 112 B5**	**BN 112M 4**	82
79	462	1.4	17.7	8140	**AS 45_ 112 B5**	**BN 112M 4**	80
87	417	2.6	15.96	15000	**AS 55_ 112 B5**	**BN 112M 4**	82
88	413	1.6	15.83	7980	**AS 45_ 112 B5**	**BN 112M 4**	80
90	401	1.0	15.37	6760	**AS 35_ 112 B5**	**BN 112M 4**	78
98	372	1.7	14.25	7830	**AS 45_ 112 B5**	**BN 112M 4**	80
98	369	3.0	14.13	14900	**AS 55_ 112 B5**	**BN 112M 4**	82
108	337	1.9	12.89	7680	**AS 45_ 112 B5**	**BN 112M 4**	80
110	330	1.2	12.62	6580	**AS 35_ 112 B5**	**BN 112M 4**	78

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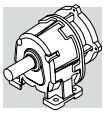

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n_2 min^{-1}	M_2 Nm	S	i	Rn_2 N	IEC			
110	329	3.3	12.6	14500	**AS 55_**	**112 B5**	**BN 112M 4**	82
122	298	1.3	11.43	6610	**AS 35_**	**112 B5**	**BN 112M 4**	78
124	292	2.2	11.18	7590	**AS 45_**	**112 B5**	**BN 112M 4**	80
137	266	1.0	10.18	1780	**AS 30_**	**112 B5**	**BN 112M 4**	76
137	266	1.5	10.18	6480	**AS 35_**	**112 B5**	**BN 112M 4**	78
139	261	2.5	10	7410	**AS 45_**	**112 B5**	**BN 112M 4**	80
152	239	1.1	9.14	1800	**AS 30_**	**112 B5**	**BN 112M 4**	76
152	239	1.7	9.14	6360	**AS 35_**	**112 B5**	**BN 112M 4**	78
154	235	2.8	9	7250	**AS 45_**	**112 B5**	**BN 112M 4**	80
162	224	2.6	17.7	7220	**AS 45_**	**100 B5**	**BN 100LB 2**	80
168	216	1.1	17.11	1850	**AS 30_**	**100 B5**	**BN 100LB 2**	76
168	216	1.7	17.11	6280	**AS 35_**	**100 B5**	**BN 100LB 2**	78
171	213	3.1	8.14	7080	**AS 45_**	**112 B5**	**BN 112M 4**	80
179	203	1.1	7.78	1890	**AS 30_**	**112 B5**	**BN 112M 4**	76
179	203	1.7	7.78	6220	**AS 35_**	**112 B5**	**BN 112M 4**	78
181	200	2.9	15.83	7040	**AS 45_**	**100 B5**	**BN 100LB 2**	80
185	196	1.2	7.51	1810	**AS 30_**	**112 B5**	**BN 112M 4**	76
185	196	1.7	7.51	6110	**AS 35_**	**112 B5**	**BN 112M 4**	78
187	194	1.2	15.37	1850	**AS 30_**	**100 B5**	**BN 100LB 2**	76
187	194	1.9	15.37	6140	**AS 35_**	**100 B5**	**BN 100LB 2**	78
201	181	1.3	6.93	1880	**AS 30_**	**112 B5**	**BN 112M 4**	76
201	181	1.9	6.93	6080	**AS 35_**	**112 B5**	**BN 112M 4**	78
201	180	3.3	14.25	6860	**AS 45_**	**100 B5**	**BN 100LB 2**	80
223	162	1.4	6.22	1870	**AS 30_**	**112 B5**	**BN 112M 4**	76
223	162	2.1	6.22	5940	**AS 35_**	**112 B5**	**BN 112M 4**	78
227	160	1.5	12.62	1840	**AS 30_**	**100 B5**	**BN 100LB 2**	76
227	160	2.3	12.62	5890	**AS 35_**	**100 B5**	**BN 100LB 2**	78
229	158	3.3	6.07	6700	**AS 45_**	**112 B5**	**BN 112M 4**	80
251	145	1.5	11.43	1900	**AS 30_**	**100 B5**	**BN 100LB 2**	76
251	145	2.2	11.43	5830	**AS 35_**	**100 B5**	**BN 100LB 2**	78
272	133	1.7	5.11	1840	**AS 30_**	**112 B5**	**BN 112M 4**	76
272	133	2.5	5.11	5680	**AS 35_**	**112 B5**	**BN 112M 4**	78
282	129	1.6	10.18	1880	**AS 30_**	**100 B5**	**BN 100LB 2**	76
282	129	2.5	10.18	5680	**AS 35_**	**100 B5**	**BN 100LB 2**	78
314	116	1.8	9.14	1850	**AS 30_**	**100 B5**	**BN 100LB 2**	76
314	116	2.8	9.14	5530	**AS 35_**	**100 B5**	**BN 100LB 2**	78
369	98	1.8	7.78	1840	**AS 30_**	**100 B5**	**BN 100LB 2**	76
369	98	2.7	7.78	5350	**AS 35_**	**100 B5**	**BN 100LB 2**	78
382	95	1.9	7.51	1790	**AS 30_**	**100 B5**	**BN 100LB 2**	76
382	95	2.8	7.51	5280	**AS 35_**	**100 B5**	**BN 100LB 2**	78
414	88	2.1	6.93	1800	**AS 30_**	**100 B5**	**BN 100LB 2**	76
414	88	3.1	6.93	5200	**AS 35_**	**100 B5**	**BN 100LB 2**	78
461	79	2.3	6.22	1770	**AS 30_**	**100 B5**	**BN 100LB 2**	76
461	79	3.4	6.22	5060	**AS 35_**	**100 B5**	**BN 100LB 2**	78
562	65	2.8	5.11	1690	**AS 30_**	**100 B5**	**BN 100LB 2**	76

5.5 kW

6.8	7206	0.9	139.4	42000	**AS 90 D_132 B5**	**BN 132MB 6**	88
7.5	6520	1.0	126.1	42000	**AS 90 D_132 B5**	**BN 132MB 6**	88
8.3	5875	1.1	173.2	42000	**AS 90 D_132 B5**	**BN 132S 4**	88
8.9	5503	1.2	106.5	42000	**AS 90 D_132 B5**	**BN 132MB 6**	88
9.3	5254	1.2	154.9	42000	**AS 90 D_132 B5**	**BN 132S 4**	88
9.9	4921	1.4	95.2	42000	**AS 90 D_132 B5**	**BN 132MB 6**	88
10.3	4729	1.3	139.4	42000	**AS 90 D_132 B5**	**BN 132S 4**	88
11.0	4429	0.9	85.7	31000	**AS 80 D_132 B5**	**BN 132MB 6**	86
11.0	4429	1.5	85.7	42000	**AS 90 D_132 B5**	**BN 132MB 6**	88
11.4	4278	1.4	126.1	42000	**AS 90 D_132 B5**	**BN 132S 4**	88
12.2	4007	1.0	77.5	31000	**AS 80 D_132 B5**	**BN 132MB 6**	86

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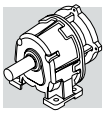

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n_2 min^{-1}	M_2 Nm	S	i	Rn_2 N	IEC	
12.2	4007	1.7	77.5	42000	**AS 90 D_132 B5 BN 132MB 6**	88
13.5	3611	1.1	106.5	31000	**AS 80 D_132 B5 BN 132S 4**	86
13.5	3611	1.7	106.5	42000	**AS 90 D_132 B5 BN 132S 4**	88
13.7	3556	1.2	68.8	31000	**AS 80 D_132 B5 BN 132MB 6**	86
13.7	3556	1.9	68.8	42000	**AS 90 D_132 B5 BN 132MB 6**	88
15.1	3229	1.2	95.2	31000	**AS 80 D_132 B5 BN 132S 4**	86
15.1	3229	1.9	95.2	42000	**AS 90 D_132 B5 BN 132S 4**	88
16.8	2906	1.3	85.7	31000	**AS 80 D_132 B5 BN 132S 4**	86
16.8	2906	2.1	85.7	42000	**AS 90 D_132 B5 BN 132S 4**	88
18.6	2630	1.4	77.5	31000	**AS 80 D_132 B5 BN 132S 4**	86
18.6	2630	2.4	77.5	42000	**AS 90 D_132 B5 BN 132S 4**	88
20.9	2334	1.6	68.8	31000	**AS 80 D_132 B5 BN 132S 4**	86
20.9	2334	2.7	68.8	42000	**AS 90 D_132 B5 BN 132S 4**	88
21.1	2318	0.9	68.3	17400	**AS 60 D_132 B5 BN 132S 4**	84
23.4	2087	1.8	61.5	31000	**AS 80 D_132 B5 BN 132S 4**	86
23.4	2087	3.0	61.5	42000	**AS 90 D_132 B5 BN 132S 4**	88
23.4	2086	1.0	61.5	17200	**AS 60 D_132 B5 BN 132S 4**	84
25.9	1888	1.1	55.6	16900	**AS 60 D_132 B5 BN 132S 4**	84
26.0	1878	2.0	55.4	31000	**AS 80 D_132 B5 BN 132S 4**	86
26.0	1878	3.3	55.4	42000	**AS 90 D_132 B5 BN 132S 4**	88
28.7	1699	2.2	50.1	31000	**AS 80 D_132 B5 BN 132S 4**	86
34	1453	2.6	42.8	31000	**AS 80 D_132 B5 BN 132S 4**	86
35	1407	1.5	41.5	16800	**AS 60 D_132 B5 BN 132S 4**	84
38	1299	2.9	38.3	31000	**AS 80 D_132 B5 BN 132S 4**	86
39	1264	0.9	37.2	15000	**AS 55 D_132 B5 BN 132S 4**	82
39	1258	1.7	37.1	16400	**AS 60 D_132 B5 BN 132S 4**	84
42	1169	3.2	34.5	31000	**AS 80 D_132 B5 BN 132S 4**	86
43	1133	1.9	33.4	16100	**AS 60 D_132 B5 BN 132S 4**	84
43	1127	1.1	33.2	15000	**AS 55 D_132 B5 BN 132S 4**	82
48	1025	2.0	30.2	15700	**AS 60 D_132 B5 BN 132S 4**	84
48	1011	1.2	29.8	15000	**AS 55 D_132 B5 BN 132S 4**	82
56	895	1.3	25.84	15000	**AS 55_ 132 B5 BN 132S 4**	82
57	883	2.4	25.47	14800	**AS 60_ 132 B5 BN 132S 4**	84
63	793	1.5	22.87	15000	**AS 55_ 132 B5 BN 132S 4**	82
63	789	2.7	22.78	14400	**AS 60_ 132 B5 BN 132S 4**	84
65	765	0.9	22.09	7210	**AS 45_ 132 B5 BN 132S 4**	80
70	710	3.0	20.5	14100	**AS 60_ 132 B5 BN 132S 4**	84
71	707	1.7	20.4	15000	**AS 55_ 132 B5 BN 132S 4**	82
72	693	1.0	19.99	7170	**AS 45_ 132 B5 BN 132S 4**	80
78	643	3.3	18.55	13800	**AS 60_ 132 B5 BN 132S 4**	84
79	634	1.9	18.31	14700	**AS 55_ 132 B5 BN 132S 4**	82
81	613	1.1	17.7	7340	**AS 45_ 132 B5 BN 132S 4**	80
90	553	2.0	15.96	14500	**AS 55_ 132 B5 BN 132S 4**	82
91	549	1.2	15.83	7250	**AS 45_ 132 B5 BN 132S 4**	80
101	494	1.3	14.25	7160	**AS 45_ 132 B5 BN 132S 4**	80
102	490	2.2	14.13	14200	**AS 55_ 132 B5 BN 132S 4**	82
112	447	1.5	12.89	7060	**AS 45_ 132 B5 BN 132S 4**	80
114	437	2.5	12.6	13800	**AS 55_ 132 B5 BN 132S 4**	82
127	392	2.8	11.31	13500	**AS 55_ 132 B5 BN 132S 4**	82
129	387	1.7	11.18	7060	**AS 45_ 132 B5 BN 132S 4**	80
140	357	3.1	10.31	13300	**AS 55_ 132 B5 BN 132S 4**	82
144	347	1.9	10	6930	**AS 45_ 132 B5 BN 132S 4**	80
158	316	3.5	9.13	13000	**AS 55_ 132 B5 BN 132S 4**	82
160	312	2.1	9	6790	**AS 45_ 132 B5 BN 132S 4**	80
163	306	1.9	17.7	6830	**AS 45_ 132 B5 BN 132SA 2**	80
177	282	2.3	8.14	6660	**AS 45_ 132 B5 BN 132S 4**	80
183	273	2.2	15.83	6680	**AS 45_ 132 B5 BN 132SA 2**	80
203	246	2.4	14.25	6540	**AS 45_ 132 B5 BN 132SA 2**	80
224	223	2.7	12.89	6400	**AS 45_ 132 B5 BN 132SA 2**	80
237	210	2.5	6.07	6390	**AS 45_ 132 B5 BN 132S 4**	80

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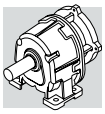

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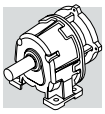
n_2 min^{-1}	M_2 Nm	S	i	Rn_2 N	IEC			
258	193	2.7	11.18	6280	**AS 45_**	**132 B5**	**BN 132SA 2**	80
265	188	2.8	5.43	6230	**AS 45_**	**132 B5**	**BN 132S 4**	80
289	173	3.0	10	6120	**AS 45_**	**132 B5**	**BN 132SA 2**	80
295	169	3.1	4.89	6080	**AS 45_**	**132 B5**	**BN 132S 4**	80
321	155	3.3	9	5970	**AS 45_**	**132 B5**	**BN 132SA 2**	80
326	153	3.4	4.42	5940	**AS 45_**	**132 B5**	**BN 132S 4**	80

7.5 kW

9.0	7425	0.9	106.5	42000	**AS 90 D_160 B5**		**BN 160M 6**	88
10.0	6640	1.0	95.2	42000	**AS 90 D_160 B5**		**BN 160M 6**	88
10.3	6448	1.0	139.4	42000	**AS 90 D_132 B5**		**BN 132MA 4**	88
11.1	5976	1.1	85.7	42000	**AS 90 D_160 B5**		**BN 160M 6**	88
11.4	5834	1.1	126.1	42000	**AS 90 D_132 B5**		**BN 132MA 4**	88
12.3	5407	1.3	77.5	42000	**AS 90 D_160 B5**		**BN 160M 6**	88
13.5	4924	1.3	106.5	42000	**AS 90 D_132 B5**		**BN 132MA 4**	88
13.9	4798	1.4	68.8	42000	**AS 90 D_160 B5**		**BN 160M 6**	88
15.1	4404	1.4	95.2	42000	**AS 90 D_132 B5**		**BN 132MA 4**	88
16.8	3963	1.0	85.7	31000	**AS 80 D_132 B5**		**BN 132MA 4**	86
16.8	3963	1.6	85.7	42000	**AS 90 D_132 B5**		**BN 132MA 4**	88
18.6	3586	1.1	77.5	31000	**AS 80 D_132 B5**		**BN 132MA 4**	86
18.6	3586	1.7	77.5	42000	**AS 90 D_132 B5**		**BN 132MA 4**	88
20.9	3182	1.2	68.8	31000	**AS 80 D_132 B5**		**BN 132MA 4**	86
20.9	3182	1.9	68.8	42000	**AS 90 D_132 B5**		**BN 132MA 4**	88
23.4	2846	1.3	61.5	31000	**AS 80 D_132 B5**		**BN 132MA 4**	86
23.4	2846	2.2	61.5	42000	**AS 90 D_132 B5**		**BN 132MA 4**	88
26.0	2561	1.5	55.4	31000	**AS 80 D_132 B5**		**BN 132MA 4**	86
26.0	2561	2.4	55.4	42000	**AS 90 D_132 B5**		**BN 132MA 4**	88
28.7	2317	1.6	50.1	31000	**AS 80 D_132 B5**		**BN 132MA 4**	86
28.7	2317	2.7	50.1	42000	**AS 90 D_132 B5**		**BN 132MA 4**	88
34	1981	1.9	42.8	31000	**AS 80 D_132 B5**		**BN 132MA 4**	86
35	1919	1.1	41.5	15300	**AS 60 D_132 B5**		**BN 132MA 4**	84
36	1876	3.3	40.6	42000	**AS 90 D_132 B5**		**BN 132MA 4**	88
38	1772	2.1	38.3	31000	**AS 80 D_132 B5**		**BN 132MA 4**	86
39	1716	1.2	37.1	15100	**AS 60 D_132 B5**		**BN 132MA 4**	84
42	1594	2.4	34.5	31000	**AS 80 D_132 B5**		**BN 132MA 4**	86
43	1544	1.4	33.4	14900	**AS 60 D_132 B5**		**BN 132MA 4**	84
46	1443	2.6	31.2	31000	**AS 80 D_132 B5**		**BN 132MA 4**	86
48	1397	1.5	30.2	14600	**AS 60 D_132 B5**		**BN 132MA 4**	84
56	1221	1.0	25.84	14100	**AS 55_**	**132 B5**	**BN 132MA 4**	82
57	1204	1.7	25.47	13600	**AS 60_**	**132 B5**	**BN 132MA 4**	84
63	1081	1.1	22.87	13900	**AS 55_**	**132 B5**	**BN 132MA 4**	82
63	1076	2.0	22.78	13400	**AS 60_**	**132 B5**	**BN 132MA 4**	84
70	969	2.2	20.5	13200	**AS 60_**	**132 B5**	**BN 132MA 4**	84
71	964	1.2	20.4	13700	**AS 55_**	**132 B5**	**BN 132MA 4**	82
78	876	2.4	18.55	13000	**AS 60_**	**132 B5**	**BN 132MA 4**	84
79	865	1.4	18.31	13500	**AS 55_**	**132 B5**	**BN 132MA 4**	82
90	754	1.5	15.96	13600	**AS 55_**	**132 B5**	**BN 132MA 4**	82
92	740	2.6	15.65	12800	**AS 60_**	**132 B5**	**BN 132MA 4**	84
101	673	1.0	14.25	6310	**AS 45_**	**132 B5**	**BN 132MA 4**	80
102	668	1.6	14.13	13300	**AS 55_**	**132 B5**	**BN 132MA 4**	82
103	662	2.9	14	12500	**AS 60_**	**132 B5**	**BN 132MA 4**	84
112	609	1.1	12.89	6270	**AS 45_**	**132 B5**	**BN 132MA 4**	80
114	595	1.8	12.6	13000	**AS 55_**	**132 B5**	**BN 132MA 4**	82
114	595	3.2	12.6	12300	**AS 60_**	**132 B5**	**BN 132MA 4**	84
127	534	2.1	11.31	12800	**AS 55_**	**132 B5**	**BN 132MA 4**	82
129	528	1.2	11.18	6420	**AS 45_**	**132 B5**	**BN 132MA 4**	80
140	487	2.3	10.31	12700	**AS 55_**	**132 B5**	**BN 132MA 4**	82



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n_2 min^{-1}	M_2 Nm	S	i	Rn_2 N	IEC			
144	473	1.4	10	6350	**AS 45_**	**132 B5**	**BN 132MA 4**	80
158	431	2.5	9.13	12400	**AS 55_**	**132 B5**	**BN 132MA 4**	82
158	430	2.8	18.31	12300	**AS 55_**	**132 B5**	**BN 132SB 2**	82
160	425	1.5	9	6260	**AS 45_**	**132 B5**	**BN 132MA 4**	80
164	415	1.4	17.7	6320	**AS 45_**	**132 B5**	**BN 132SB 2**	80
177	385	1.7	8.14	6170	**AS 45_**	**132 B5**	**BN 132MA 4**	80
177	385	2.9	8.14	12100	**AS 55_**	**132 B5**	**BN 132MA 4**	82
182	374	2.7	15.96	12100	**AS 55_**	**132 B5**	**BN 132SB 2**	82
183	372	1.6	15.83	6220	**AS 45_**	**132 B5**	**BN 132SB 2**	80
197	345	3.2	7.31	11800	**AS 55_**	**132 B5**	**BN 132MA 4**	82
204	334	1.8	14.25	6110	**AS 45_**	**132 B5**	**BN 132SB 2**	80
205	331	3.0	14.13	11800	**AS 55_**	**132 B5**	**BN 132SB 2**	82
224	303	2.6	6.42	11600	**AS 55_**	**132 B5**	**BN 132MA 4**	82
225	303	2.0	12.89	6010	**AS 45_**	**132 B5**	**BN 132SB 2**	80
230	296	3.4	12.6	11500	**AS 55_**	**132 B5**	**BN 132SB 2**	82
237	287	1.8	6.07	6040	**AS 45_**	**132 B5**	**BN 132MA 4**	80
253	269	3.0	5.68	11300	**AS 55_**	**132 B5**	**BN 132MA 4**	82
259	262	2.0	11.18	5960	**AS 45_**	**132 B5**	**BN 132SB 2**	80
265	257	2.0	5.43	5920	**AS 45_**	**132 B5**	**BN 132MA 4**	80
284	240	3.3	5.07	11000	**AS 55_**	**132 B5**	**BN 132MA 4**	82
290	235	2.2	10	5830	**AS 45_**	**132 B5**	**BN 132SB 2**	80
295	231	2.3	4.89	5790	**AS 45_**	**132 B5**	**BN 132MA 4**	80
322	211	2.5	9	5700	**AS 45_**	**132 B5**	**BN 132SB 2**	80
326	209	2.5	4.42	5670	**AS 45_**	**132 B5**	**BN 132MA 4**	80
356	191	2.7	8.14	5580	**AS 45_**	**132 B5**	**BN 132SB 2**	80
478	142	2.9	6.07	5310	**AS 45_**	**132 B5**	**BN 132SB 2**	80
534	127	3.3	5.43	5170	**AS 45_**	**132 B5**	**BN 132SB 2**	80

9.2 kW

13.5	6040	1.0	106.5	42000	**AS 90 D_**	**132 B5**	**BN 132MB 4**	88
15.1	5402	1.1	95.2	42000	**AS 90 D_**	**132 B5**	**BN 132MB 4**	88
16.8	4862	1.3	85.7	42000	**AS 90 D_**	**132 B5**	**BN 132MB 4**	88
18.6	4399	1.4	77.5	42000	**AS 90 D_**	**132 B5**	**BN 132MB 4**	88
20.9	3904	1.0	68.8	31000	**AS 80 D_**	**132 B5**	**BN 132MB 4**	86
20.9	3904	1.6	68.8	42000	**AS 90 D_**	**132 B5**	**BN 132MB 4**	88
23.4	3491	1.1	61.5	31000	**AS 80 D_**	**132 B5**	**BN 132MB 4**	86
23.4	3491	1.8	61.5	42000	**AS 90 D_**	**132 B5**	**BN 132MB 4**	88
26.0	3142	1.2	55.4	31000	**AS 80 D_**	**132 B5**	**BN 132MB 4**	86
26.0	3142	2.0	55.4	42000	**AS 90 D_**	**132 B5**	**BN 132MB 4**	88
28.7	2843	1.3	50.1	31000	**AS 80 D_**	**132 B5**	**BN 132MB 4**	86
28.7	2843	2.2	50.1	42000	**AS 90 D_**	**132 B5**	**BN 132MB 4**	88
34	2430	1.6	42.8	31000	**AS 80 D_**	**132 B5**	**BN 132MB 4**	86
36	2301	2.7	40.6	42000	**AS 90 D_**	**132 B5**	**BN 132MB 4**	88
38	2173	1.7	38.3	31000	**AS 80 D_**	**132 B5**	**BN 132MB 4**	86
39	2105	1.0	37.1	14000	**AS 60 D_**	**132 B5**	**BN 132MB 4**	84
40	2058	3.0	36.3	42000	**AS 90 D_**	**132 B5**	**BN 132MB 4**	88
42	1956	1.9	34.5	31000	**AS 80 D_**	**132 B5**	**BN 132MB 4**	86
43	1894	1.1	33.4	13800	**AS 60 D_**	**132 B5**	**BN 132MB 4**	84
44	1852	3.3	32.6	42000	**AS 90 D_**	**132 B5**	**BN 132MB 4**	88
46	1770	2.1	31.2	31000	**AS 80 D_**	**132 B5**	**BN 132MB 4**	86
48	1714	1.2	30.2	13700	**AS 60 D_**	**132 B5**	**BN 132MB 4**	84
57	1476	1.4	25.47	12700	**AS 60_**	**132 B5**	**BN 132MB 4**	84
63	1326	0.9	22.87	12800	**AS 55_**	**132 B5**	**BN 132MB 4**	82
63	1320	1.6	22.78	12600	**AS 60_**	**132 B5**	**BN 132MB 4**	84
70	1188	1.8	20.5	12400	**AS 60_**	**132 B5**	**BN 132MB 4**	84
71	1182	1.0	20.4	12700	**AS 55_**	**132 B5**	**BN 132MB 4**	82
78	1075	2.0	18.55	12200	**AS 60_**	**132 B5**	**BN 132MB 4**	84

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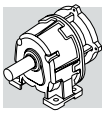

9.2 kW

n_2 min^{-1}	M_2 Nm	S	i	Rn_2 N	IEC			
79	1061	1.1	18.31	12500	**AS 55_**	**132 B5**	**BN 132MB 4**	82
90	925	1.2	15.96	12800	**AS 55_**	**132 B5**	**BN 132MB 4**	82
92	907	2.1	15.65	12200	**AS 60_**	**132 B5**	**BN 132MB 4**	84
102	819	1.3	14.13	12600	**AS 55_**	**132 B5**	**BN 132MB 4**	82
103	811	2.3	14	12000	**AS 60_**	**132 B5**	**BN 132MB 4**	84
114	730	1.5	12.6	12400	**AS 55_**	**132 B5**	**BN 132MB 4**	82
114	730	2.6	12.6	11800	**AS 60_**	**132 B5**	**BN 132MB 4**	84
126	661	2.9	11.4	11600	**AS 60_**	**132 B5**	**BN 132MB 4**	84
127	655	1.7	11.31	12200	**AS 55_**	**132 B5**	**BN 132MB 4**	82
129	648	1.0	11.18	5880	**AS 45_**	**132 B5**	**BN 132MB 4**	80
140	598	1.8	10.31	12200	**AS 55_**	**132 B5**	**BN 132MB 4**	82
142	586	3.2	10.12	11500	**AS 60_**	**132 B5**	**BN 132MB 4**	84
144	580	1.1	10	5850	**AS 45_**	**132 B5**	**BN 132MB 4**	80
158	529	2.1	9.13	12000	**AS 55_**	**132 B5**	**BN 132MB 4**	82
158	527	2.3	18.31	11800	**AS 55_**	**132 B5**	**BN 132M 2**	82
160	522	1.2	9	5810	**AS 45_**	**132 B5**	**BN 132MB 4**	80
164	510	1.2	17.7	5890	**AS 45_**	**132 B5**	**BN 132M 2**	80
177	472	1.4	8.14	5750	**AS 45_**	**132 B5**	**BN 132MB 4**	80
177	472	2.3	8.14	11700	**AS 55_**	**132 B5**	**BN 132MB 4**	82
182	459	2.2	15.96	11700	**AS 55_**	**132 B5**	**BN 132M 2**	82
183	456	1.3	15.83	5830	**AS 45_**	**132 B5**	**BN 132M 2**	80
197	424	2.6	7.31	11400	**AS 55_**	**132 B5**	**BN 132MB 4**	82
204	410	1.4	14.25	5760	**AS 45_**	**132 B5**	**BN 132M 2**	80
205	407	2.5	14.13	11400	**AS 55_**	**132 B5**	**BN 132M 2**	82
224	372	2.1	6.42	11300	**AS 55_**	**132 B5**	**BN 132MB 4**	82
225	371	1.6	12.89	5680	**AS 45_**	**132 B5**	**BN 132M 2**	80
230	363	2.8	12.6	11100	**AS 55_**	**132 B5**	**BN 132M 2**	82
237	352	1.5	6.07	5750	**AS 45_**	**132 B5**	**BN 132MB 4**	80
253	329	2.4	5.68	11000	**AS 55_**	**132 B5**	**BN 132MB 4**	82
256	325	3.1	11.31	10900	**AS 55_**	**132 B5**	**BN 132M 2**	82
259	322	1.6	11.18	5690	**AS 45_**	**132 B5**	**BN 132M 2**	80
265	315	1.7	5.43	5650	**AS 45_**	**132 B5**	**BN 132MB 4**	80
281	297	3.0	10.31	10800	**AS 55_**	**132 B5**	**BN 132M 2**	82
284	294	2.7	5.07	10700	**AS 55_**	**132 B5**	**BN 132MB 4**	82
290	288	1.8	10	5580	**AS 45_**	**132 B5**	**BN 132M 2**	80
295	283	1.8	4.89	5550	**AS 45_**	**132 B5**	**BN 132MB 4**	80
317	264	3.0	4.55	10400	**AS 55_**	**132 B5**	**BN 132MB 4**	82
318	263	3.4	9.13	10500	**AS 55_**	**132 B5**	**BN 132M 2**	82
322	259	2.0	9	5480	**AS 45_**	**132 B5**	**BN 132M 2**	80
326	256	2.0	4.42	5440	**AS 45_**	**132 B5**	**BN 132MB 4**	80
356	234	2.2	8.14	5370	**AS 45_**	**132 B5**	**BN 132M 2**	80
452	185	3.5	6.42	9700	**AS 55_**	**132 B5**	**BN 132M 2**	82
478	175	2.4	6.07	5160	**AS 45_**	**132 B5**	**BN 132M 2**	80
534	156	2.7	5.43	5030	**AS 45_**	**132 B5**	**BN 132M 2**	80
594	141	3.0	4.89	4910	**AS 45_**	**132 B5**	**BN 132M 2**	80
656	127	3.3	4.42	4800	**AS 45_**	**132 B5**	**BN 132M 2**	80

11 kW

14.0	7001	1.0	68.8	42000	**AS 90 D_160 B5**		**BN 160L 6**	88
15.1	6459	1.0	95.2	42000	**AS 90 D_160 B5**		**BN 160MR 4**	88
16.8	5813	1.1	85.7	42000	**AS 90 D_160 B5**		**BN 160MR 4**	88
18.6	5259	1.2	77.5	42000	**AS 90 D_160 B5**		**BN 160MR 4**	88
20.9	4667	1.3	68.8	42000	**AS 90 D_160 B5**		**BN 160MR 4**	88
23.4	4174	0.9	61.5	31000	**AS 80 D_160 B5**		**BN 160MR 4**	86
23.4	4174	1.5	61.5	42000	**AS 90 D_160 B5**		**BN 160MR 4**	88
26.0	3757	1.0	55.4	31000	**AS 80 D_160 B5**		**BN 160MR 4**	86
26.0	3757	1.7	55.4	42000	**AS 90 D_160 B5**		**BN 160MR 4**	88

11 kW

n_2 min^{-1}	M_2 Nm	S	i	Rn_2 N	IEC	
28.7	3399	1.1	50.1	31000	**AS 80 D_160 B5 BN 160MR 4**	86
28.7	3399	1.8	50.1	42000	**AS 90 D_160 B5 BN 160MR 4**	88
34	2905	1.3	42.8	31000	**AS 80 D_160 B5 BN 160MR 4**	86
36	2751	2.3	40.6	42000	**AS 90 D_160 B5 BN 160MR 4**	88
38	2598	1.5	38.3	31000	**AS 80 D_160 B5 BN 160MR 4**	86
40	2461	2.5	36.3	42000	**AS 90 D_160 B5 BN 160MR 4**	88
42	2339	1.6	34.5	31000	**AS 80 D_160 B5 BN 160MR 4**	86
44	2214	2.8	32.6	42000	**AS 90 D_160 B5 BN 160MR 4**	88
46	2116	1.8	31.2	31000	**AS 80 D_160 B5 BN 160MR 4**	86
49	2004	3.1	29.5	42000	**AS 90 D_160 B5 BN 160MR 4**	88
57	1765	1.2	25.47	11700	**AS 60_ 160 B5 BN 160MR 4**	84
57	1757	2.2	25.35	31000	**AS 80_ 160 B5 BN 160MR 4**	86
63	1579	1.3	22.78	11600	**AS 60_ 160 B5 BN 160MR 4**	84
64	1571	2.4	22.67	31000	**AS 80_ 160 B5 BN 160MR 4**	86
70	1421	1.5	20.5	11600	**AS 60_ 160 B5 BN 160MR 4**	84
71	1414	2.7	20.4	31000	**AS 80_ 160 B5 BN 160MR 4**	86
78	1285	1.6	18.55	11500	**AS 60_ 160 B5 BN 160MR 4**	84
78	1279	3.0	18.46	31000	**AS 80_ 160 B5 BN 160MR 4**	86
79	1269	0.9	18.31	11500	**AS 55_ 160 B5 BN 160MR 4**	82
90	1106	1.0	15.96	12000	**AS 55_ 160 B5 BN 160MR 4**	82
92	1085	1.8	15.65	11600	**AS 60_ 160 B5 BN 160MR 4**	84
92	1085	2.9	15.65	30900	**AS 80_ 160 B5 BN 160MR 4**	86
102	979	1.1	14.13	11800	**AS 55_ 160 B5 BN 160MR 4**	82
103	970	2.0	14	11400	**AS 60_ 160 B5 BN 160MR 4**	84
103	970	3.3	14	30100	**AS 80_ 160 B5 BN 160MR 4**	86
114	873	1.3	12.6	11700	**AS 55_ 160 B5 BN 160MR 4**	82
114	873	2.2	12.6	11300	**AS 60_ 160 B5 BN 160MR 4**	84
126	790	2.4	11.4	11100	**AS 60_ 160 B5 BN 160MR 4**	84
127	784	1.4	11.31	11500	**AS 55_ 160 B5 BN 160MR 4**	82
140	715	1.5	10.31	11700	**AS 55_ 160 B5 BN 160MR 4**	82
142	701	2.7	10.12	11100	**AS 60_ 160 B5 BN 160MR 4**	84
157	636	3.3	18.55	10800	**AS 60_ 160 B5 BN 160MR 2**	84
158	633	1.7	9.13	11500	**AS 55_ 160 B5 BN 160MR 4**	82
159	628	1.9	18.31	11300	**AS 55_ 160 B5 BN 160MR 2**	82
159	627	3.0	9.05	10800	**AS 60_ 160 B5 BN 160MR 4**	84
177	564	1.9	8.14	11200	**AS 55_ 160 B5 BN 160MR 4**	82
177	564	3.4	8.14	10600	**AS 60_ 160 B5 BN 160MR 4**	84
182	547	1.8	15.96	11300	**AS 55_ 160 B5 BN 160MR 2**	82
186	537	3.2	15.65	10600	**AS 60_ 160 B5 BN 160MR 2**	84
197	506	2.2	7.31	11000	**AS 55_ 160 B5 BN 160MR 4**	82
206	484	2.1	14.13	11000	**AS 55_ 160 B5 BN 160MR 2**	82
224	445	1.8	6.42	10900	**AS 55_ 160 B5 BN 160MR 4**	82
231	432	2.3	12.6	10800	**AS 55_ 160 B5 BN 160MR 2**	82
241	413	3.4	5.96	10100	**AS 60_ 160 B5 BN 160MR 4**	84
253	394	2.0	5.68	10700	**AS 55_ 160 B5 BN 160MR 4**	82
257	388	2.6	11.31	10600	**AS 55_ 160 B5 BN 160MR 2**	82
282	354	2.5	10.31	10500	**AS 55_ 160 B5 BN 160MR 2**	82
284	351	2.3	5.07	10400	**AS 55_ 160 B5 BN 160MR 4**	82
317	315	2.5	4.55	10200	**AS 55_ 160 B5 BN 160MR 4**	82
319	313	2.9	9.13	10200	**AS 55_ 160 B5 BN 160MR 2**	82
357	279	3.2	8.14	10000	**AS 55_ 160 B5 BN 160MR 2**	82
453	220	2.9	6.42	9550	**AS 55_ 160 B5 BN 160MR 2**	82
512	195	3.3	5.68	9270	**AS 55_ 160 B5 BN 160MR 2**	82

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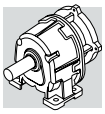
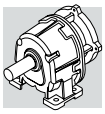


15 kW

n_2 min^{-1}	M_2 Nm	S	i	Rn_2 N	IEC	
21.2	6277	1.0	68.8	42000	**AS 90 D_160 B5 BN 160L 4**	88
23.7	5614	1.1	61.5	42000	**AS 90 D_160 B5 BN 160L 4**	88
26.4	5053	1.2	55.4	42000	**AS 90 D_160 B5 BN 160L 4**	88
29.1	4571	1.4	50.1	42000	**AS 90 D_160 B5 BN 160L 4**	88
34	3908	1.0	42.8	31000	**AS 80 D_160 B5 BN 160L 4**	86
36	3700	1.7	40.6	42000	**AS 90 D_160 B5 BN 160L 4**	88
38	3495	1.1	38.3	31000	**AS 80 D_160 B5 BN 160L 4**	86
40	3309	1.9	36.3	42000	**AS 90 D_160 B5 BN 160L 4**	88
42	3145	1.2	34.5	31000	**AS 80 D_160 B5 BN 160L 4**	86
45	2978	2.1	32.6	42000	**AS 90 D_160 B5 BN 160L 4**	88
47	2846	1.3	31.2	31000	**AS 80 D_160 B5 BN 160L 4**	86
49	2695	2.3	29.5	42000	**AS 90 D_160 B5 BN 160L 4**	88
58	2362	1.6	25.35	31000	**AS 80_ 160 B5 BN 160L 4**	86
64	2123	1.0	22.78	9680	**AS 60_ 160 B5 BN 160L 4**	84
64	2113	1.8	22.67	31000	**AS 80_ 160 B5 BN 160L 4**	86
71	1911	1.1	20.5	9760	**AS 60_ 160 B5 BN 160L 4**	84
72	1901	2.0	20.4	30500	**AS 80_ 160 B5 BN 160L 4**	86
79	1729	1.2	18.55	9790	**AS 60_ 160 B5 BN 160L 4**	84
79	1720	2.2	18.46	29900	**AS 80_ 160 B5 BN 160L 4**	86
93	1459	1.3	15.65	10300	**AS 60_ 160 B5 BN 160L 4**	84
93	1459	2.2	15.65	29500	**AS 80_ 160 B5 BN 160L 4**	86
104	1305	1.5	14	10200	**AS 60_ 160 B5 BN 160L 4**	84
104	1305	2.5	14	28800	**AS 80_ 160 B5 BN 160L 4**	86
116	1174	0.9	12.6	10200	**AS 55_ 160 B5 BN 160L 4**	82
116	1174	1.6	12.6	10100	**AS 60_ 160 B5 BN 160L 4**	84
116	1174	2.7	12.6	28100	**AS 80_ 160 B5 BN 160L 4**	86
128	1063	1.8	11.4	10000	**AS 60_ 160 B5 BN 160L 4**	84
128	1063	3.0	11.4	27400	**AS 80_ 160 B5 BN 160L 4**	86
129	1054	1.0	11.31	10100	**AS 55_ 160 B5 BN 160L 4**	82
142	961	1.1	10.31	10500	**AS 55_ 160 B5 BN 160L 4**	82
144	943	2.0	10.12	10200	**AS 60_ 160 B5 BN 160L 4**	84
158	861	2.4	18.55	9950	**AS 60_ 160 B5 BN 160MB 2**	84
160	851	1.3	9.13	10400	**AS 55_ 160 B5 BN 160L 4**	82
160	850	1.4	18.31	10200	**AS 55_ 160 B5 BN 160MB 2**	82
161	843	2.3	9.05	10000	**AS 60_ 160 B5 BN 160L 4**	84
179	759	1.4	8.14	10200	**AS 55_ 160 B5 BN 160L 4**	82
179	759	2.5	8.14	9890	**AS 60_ 160 B5 BN 160L 4**	84
184	741	1.3	15.96	10400	**AS 55_ 160 B5 BN 160MB 2**	82
187	727	2.3	15.65	9950	**AS 60_ 160 B5 BN 160MB 2**	84
198	687	2.8	7.37	9730	**AS 60_ 160 B5 BN 160L 4**	84
200	681	1.6	7.31	10100	**AS 55_ 160 B5 BN 160L 4**	82
207	656	1.5	14.13	10200	**AS 55_ 160 B5 BN 160MB 2**	82
209	650	2.6	14	9760	**AS 60_ 160 B5 BN 160MB 2**	84
227	598	1.3	6.42	10200	**AS 55_ 160 B5 BN 160L 4**	82
233	585	1.7	12.6	10000	**AS 55_ 160 B5 BN 160MB 2**	82
233	585	2.9	12.6	9570	**AS 60_ 160 B5 BN 160MB 2**	84
245	556	2.5	5.96	9580	**AS 60_ 160 B5 BN 160L 4**	84
257	530	1.5	5.68	10000	**AS 55_ 160 B5 BN 160L 4**	82
257	529	3.2	11.4	9390	**AS 60_ 160 B5 BN 160MB 2**	84
259	525	1.9	11.31	9890	**AS 55_ 160 B5 BN 160MB 2**	82
274	497	2.8	5.33	9370	**AS 60_ 160 B5 BN 160L 4**	84
284	479	1.9	10.31	9940	**AS 55_ 160 B5 BN 160MB 2**	82
288	472	1.7	5.07	9810	**AS 55_ 160 B5 BN 160L 4**	82
290	470	3.2	10.12	9310	**AS 60_ 160 B5 BN 160MB 2**	84
304	447	3.1	4.8	9170	**AS 60_ 160 B5 BN 160L 4**	84
321	424	2.1	9.13	9710	**AS 55_ 160 B5 BN 160MB 2**	82
321	424	1.9	4.55	9610	**AS 55_ 160 B5 BN 160L 4**	82
336	405	3.5	4.34	8970	**AS 60_ 160 B5 BN 160L 4**	84
360	378	2.4	8.14	9490	**AS 55_ 160 B5 BN 160MB 2**	82
401	339	2.7	7.31	9280	**AS 55_ 160 B5 BN 160MB 2**	82



15 kW

n_2 min^{-1}	M_2 Nm	S	i	Rn_2 N	IEC	
456	298	2.1	6.42	9160	**AS 55_ 160 B5 BN 160MB 2**	82
516	264	2.4	5.68	8920	**AS 55_ 160 B5 BN 160MB 2**	82
578	235	2.7	5.07	8680	**AS 55_ 160 B5 BN 160MB 2**	82
644	211	3.0	4.55	8460	**AS 55_ 160 B5 BN 160MB 2**	82

18.5 kW

26.4	6231	1.0	55.4	42000	**AS 90 D_180 B5 BN 180M 4**	88
29.1	5638	1.1	50.1	42000	**AS 90 D_180 B5 BN 180M 4**	88
36	4564	1.4	40.6	42000	**AS 90 D_180 B5 BN 180M 4**	88
40	4081	1.5	36.3	42000	**AS 90 D_180 B5 BN 180M 4**	88
45	3673	1.7	32.6	42000	**AS 90 D_180 B5 BN 180M 4**	88
49	3323	1.9	29.5	42000	**AS 90 D_180 B5 BN 180M 4**	88
58	2914	1.3	25.35	29700	**AS 80_ 180 B5 BN 180M 4**	86
58	2914	2.1	25.35	42000	**AS 90_ 180 B5 BN 180M 4**	88
64	2606	1.5	22.67	29300	**AS 80_ 180 B5 BN 180M 4**	86
64	2606	2.4	22.67	42000	**AS 90_ 180 B5 BN 180M 4**	88
72	2345	1.6	20.4	28800	**AS 80_ 180 B5 BN 180M 4**	86
72	2345	2.6	20.4	41200	**AS 90_ 180 B5 BN 180M 4**	88
79	2132	1.0	18.55	8290	**AS 60_ 180 B5 BN 180M 4**	84
79	2122	1.8	18.46	28400	**AS 80_ 180 B5 BN 180M 4**	86
79	2122	2.9	18.46	40300	**AS 90_ 180 B5 BN 180M 4**	88
93	1800	1.1	15.65	9120	**AS 60_ 180 B5 BN 180M 4**	84
93	1800	1.8	15.65	28300	**AS 80_ 180 B5 BN 180M 4**	86
93	1800	2.9	15.65	39200	**AS 90_ 180 B5 BN 180M 4**	88
104	1609	1.2	14	9160	**AS 60_ 180 B5 BN 180M 4**	84
104	1609	2.0	14	27700	**AS 80_ 180 B5 BN 180M 4**	86
104	1609	3.3	14	38200	**AS 90_ 180 B5 BN 180M 4**	88
116	1448	1.3	12.6	9160	**AS 60_ 180 B5 BN 180M 4**	84
116	1448	2.2	12.6	27100	**AS 80_ 180 B5 BN 180M 4**	86
128	1311	1.4	11.4	9140	**AS 60_ 180 B5 BN 180M 4**	84
128	1311	2.4	11.4	26500	**AS 80_ 180 B5 BN 180M 4**	86
144	1163	1.6	10.12	9450	**AS 60_ 180 B5 BN 180M 4**	84
144	1163	2.8	10.12	26200	**AS 80_ 180 B5 BN 180M 4**	86
158	1062	2.0	18.55	9200	**AS 60_ 160 B5 BN 160L 2**	84
160	1049	1.1	18.31	9220	**AS 55_ 160 B5 BN 160L 2**	82
161	1040	1.8	9.05	9360	**AS 60_ 180 B5 BN 180M 4**	84
161	1040	3.1	9.05	25600	**AS 80_ 180 B5 BN 180M 4**	86
179	936	2.0	8.14	9250	**AS 60_ 180 B5 BN 180M 4**	84
179	936	3.4	8.14	25000	**AS 80_ 180 B5 BN 180M 4**	86
184	914	1.1	15.96	9610	**AS 55_ 160 B5 BN 160L 2**	82
187	897	1.9	15.65	9360	**AS 60_ 160 B5 BN 160L 2**	84
187	897	3.2	15.65	24900	**AS 80_ 160 B5 BN 160L 2**	86
198	847	2.2	7.37	9140	**AS 60_ 180 B5 BN 180M 4**	84
207	809	1.2	14.13	9520	**AS 55_ 160 B5 BN 160L 2**	82
209	802	2.1	14	9220	**AS 60_ 160 B5 BN 160L 2**	84
233	722	1.4	12.6	9400	**AS 55_ 160 B5 BN 160L 2**	82
233	722	2.4	12.6	9080	**AS 60_ 160 B5 BN 160L 2**	84
245	686	2.0	5.96	9130	**AS 60_ 180 B5 BN 180M 4**	84
257	653	2.6	11.4	8930	**AS 60_ 160 B5 BN 160L 2**	84
259	648	1.5	11.31	9280	**AS 55_ 160 B5 BN 160L 2**	82
274	613	2.3	5.33	8960	**AS 60_ 180 B5 BN 180M 4**	84
284	591	1.5	10.31	9420	**AS 55_ 160 B5 BN 160L 2**	82
290	580	2.6	10.12	8930	**AS 60_ 160 B5 BN 160L 2**	84
304	552	2.5	4.8	8790	**AS 60_ 180 B5 BN 180M 4**	84
321	523	1.7	9.13	9240	**AS 55_ 160 B5 BN 160L 2**	82
324	518	2.9	9.05	8750	**AS 60_ 160 B5 BN 160L 2**	84
336	499	2.8	4.34	8620	**AS 60_ 180 B5 BN 180M 4**	84

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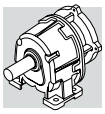
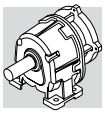


18.5 kW

n_2 min^{-1}	M_2 Nm	S	i	Rn_2 N	IEC	
360	466	1.9	8.14	9060	**AS 55_ 160 B5 BN 160L 2**	82
360	466	3.2	8.14	8570	**AS 60_ 160 B5 BN 160L 2**	84
401	419	2.1	7.31	8880	**AS 55_ 160 B5 BN 160L 2**	82
456	368	1.7	6.42	8840	**AS 55_ 160 B5 BN 160L 2**	82
491	342	3.2	5.96	8160	**AS 60_ 160 B5 BN 160L 2**	84
516	326	2.0	5.68	8620	**AS 55_ 160 B5 BN 160L 2**	82
578	290	2.2	5.07	8420	**AS 55_ 160 B5 BN 160L 2**	82
644	261	2.5	4.55	8220	**AS 55_ 160 B5 BN 160L 2**	82

22 kW

29.3	6659	0.9	50.1	42000	**AS 90 D_180 B5 BN 180L 4**	88
36	5390	1.2	40.6	42000	**AS 90 D_180 B5 BN 180L 4**	88
41	4821	1.3	36.3	42000	**AS 90 D_180 B5 BN 180L 4**	88
45	4339	1.4	32.6	42000	**AS 90 D_180 B5 BN 180L 4**	88
50	3925	1.6	29.5	42000	**AS 90 D_180 B5 BN 180L 4**	88
58	3441	1.1	25.35	27800	**AS 80_ 180 B5 BN 180L 4**	86
58	3441	1.8	25.35	41700	**AS 90_ 180 B5 BN 180L 4**	88
65	3078	1.2	22.67	27500	**AS 80_ 180 B5 BN 180L 4**	86
65	3078	2.0	22.67	40800	**AS 90_ 180 B5 BN 180L 4**	88
72	2770	1.4	20.4	27200	**AS 80_ 180 B5 BN 180L 4**	86
72	2770	2.2	20.4	39900	**AS 90_ 180 B5 BN 180L 4**	88
80	2506	1.5	18.46	26800	**AS 80_ 180 B5 BN 180L 4**	86
80	2506	2.5	18.46	39100	**AS 90_ 180 B5 BN 180L 4**	88
94	2126	1.5	15.65	27000	**AS 80_ 180 B5 BN 180L 4**	86
94	2126	2.5	15.65	38300	**AS 90_ 180 B5 BN 180L 4**	88
105	1901	1.0	14	8100	**AS 60_ 180 B5 BN 180L 4**	84
105	1901	1.7	14	26500	**AS 80_ 180 B5 BN 180L 4**	86
105	1901	2.8	14	37300	**AS 90_ 180 B5 BN 180L 4**	88
117	1711	1.1	12.6	8180	**AS 60_ 180 B5 BN 180L 4**	84
117	1711	1.9	12.6	26000	**AS 80_ 180 B5 BN 180L 4**	86
117	1711	3.1	12.6	36400	**AS 90_ 180 B5 BN 180L 4**	88
129	1548	1.2	11.4	8230	**AS 60_ 180 B5 BN 180L 4**	84
129	1548	2.1	11.4	25600	**AS 80_ 180 B5 BN 180L 4**	86
129	1548	3.4	11.4	35500	**AS 90_ 180 B5 BN 180L 4**	88
145	1374	1.4	10.12	8690	**AS 60_ 180 B5 BN 180L 4**	84
145	1374	2.3	10.12	25400	**AS 80_ 180 B5 BN 180L 4**	86
158	1263	1.7	18.55	8460	**AS 60_ 180 B5 BN 180M 2**	84
159	1257	3.0	18.46	24700	**AS 80_ 180 B5 BN 180M 2**	86
162	1228	1.5	9.05	8660	**AS 60_ 180 B5 BN 180L 4**	84
162	1228	2.6	9.05	24900	**AS 80_ 180 B5 BN 180L 4**	86
181	1106	1.7	8.14	8610	**AS 60_ 180 B5 BN 180L 4**	84
181	1106	2.9	8.14	24300	**AS 80_ 180 B5 BN 180L 4**	86
187	1066	1.6	15.65	8770	**AS 60_ 180 B5 BN 180M 2**	84
187	1066	2.7	15.65	24300	**AS 80_ 180 B5 BN 180M 2**	86
200	1000	1.9	7.37	8540	**AS 60_ 180 B5 BN 180L 4**	84
200	1000	3.2	7.37	23800	**AS 80_ 180 B5 BN 180L 4**	86
209	954	1.8	14	8690	**AS 60_ 180 B5 BN 180M 2**	84
209	954	3.0	14	23700	**AS 80_ 180 B5 BN 180M 2**	86
233	858	2.0	12.6	8590	**AS 60_ 180 B5 BN 180M 2**	84
233	858	3.4	12.6	23100	**AS 80_ 180 B5 BN 180M 2**	86
246	810	1.7	5.96	8670	**AS 60_ 180 B5 BN 180L 4**	84
246	810	3.0	5.96	23000	**AS 80_ 180 B5 BN 180L 4**	86
257	777	2.2	11.4	8480	**AS 60_ 180 B5 BN 180M 2**	84
276	724	1.9	5.33	8540	**AS 60_ 180 B5 BN 180L 4**	84
276	724	3.3	5.33	22400	**AS 80_ 180 B5 BN 180L 4**	86
290	689	2.2	10.12	8550	**AS 60_ 180 B5 BN 180M 2**	84
306	652	2.1	4.8	8410	**AS 60_ 180 B5 BN 180L 4**	84



22 kW

n_2 min^{-1}	M_2 Nm	S	i	Rn_2 N	IEC	
324	616	2.4	9.05	8400	**AS 60_ 180 B5 BN 180M 2**	84
338	590	2.4	4.34	8270	**AS 60_ 180 B5 BN 180L 4**	84
360	555	2.7	8.14	8250	**AS 60_ 180 B5 BN 180M 2**	84
398	502	3.0	7.37	8100	**AS 60_ 180 B5 BN 180M 2**	84
491	406	2.7	5.96	7930	**AS 60_ 180 B5 BN 180M 2**	84
549	363	3.0	5.33	7750	**AS 60_ 180 B5 BN 180M 2**	84
610	327	3.4	4.8	7570	**AS 60_ 180 B5 BN 180M 2**	84

30 kW

58	4693	1.3	25.35	38500	**AS 90_ 200 B5 BN 200L 4**	88
65	4197	0.9	22.67	23400	**AS 80_ 200 B5 BN 200L 4**	86
65	4197	1.5	22.67	37800	**AS 90_ 200 B5 BN 200L 4**	88
72	3777	1.0	20.4	23500	**AS 80_ 200 B5 BN 200L 4**	86
72	3777	1.6	20.4	37200	**AS 90_ 200 B5 BN 200L 4**	88
80	3417	1.1	18.46	23400	**AS 80_ 200 B5 BN 200L 4**	86
80	3417	1.8	18.46	36600	**AS 90_ 200 B5 BN 200L 4**	88
94	2898	1.1	15.65	24300	**AS 80_ 200 B5 BN 200L 4**	86
94	2898	1.8	15.65	36300	**AS 90_ 200 B5 BN 200L 4**	88
105	2592	1.2	14	24000	**AS 80_ 200 B5 BN 200L 4**	86
105	2592	2.0	14	35500	**AS 90_ 200 B5 BN 200L 4**	88
117	2333	1.4	12.6	23800	**AS 80_ 200 B5 BN 200L 4**	86
117	2333	2.3	12.6	34700	**AS 90_ 200 B5 BN 200L 4**	88
129	2111	1.5	11.4	23400	**AS 80_ 200 B5 BN 200L 4**	86
129	2111	2.5	11.4	34000	**AS 90_ 200 B5 BN 200L 4**	88
145	1873	1.7	10.12	23700	**AS 80_ 200 B5 BN 200L 4**	86
145	1873	2.8	10.12	33600	**AS 90_ 200 B5 BN 200L 4**	88
160	1703	2.2	18.46	23000	**AS 80_ 200 B5 BN 200LA 2**	86
162	1675	1.9	9.05	23200	**AS 80_ 200 B5 BN 200L 4**	86
162	1675	3.2	9.05	32700	**AS 90_ 200 B5 BN 200L 4**	88
181	1508	2.1	8.14	22800	**AS 80_ 200 B5 BN 200L 4**	86
188	1444	2.0	15.65	22900	**AS 80_ 200 B5 BN 200LA 2**	86
188	1444	3.3	15.65	31800	**AS 90_ 200 B5 BN 200LA 2**	88
200	1364	2.3	7.37	22400	**AS 80_ 200 B5 BN 200L 4**	86
211	1292	2.2	14	22400	**AS 80_ 200 B5 BN 200LA 2**	86
234	1163	2.5	12.6	22000	**AS 80_ 200 B5 BN 200LA 2**	86
246	1104	2.2	5.96	21900	**AS 80_ 200 B5 BN 200L 4**	86
259	1052	2.8	11.4	21500	**AS 80_ 200 B5 BN 200LA 2**	86
276	987	2.4	5.33	21400	**AS 80_ 200 B5 BN 200L 4**	86
292	933	2.8	10.12	21300	**AS 80_ 200 B5 BN 200LA 2**	86
306	889	2.7	4.8	20900	**AS 80_ 200 B5 BN 200L 4**	86
326	835	3.1	9.05	20700	**AS 80_ 200 B5 BN 200LA 2**	86
338	804	3.0	4.34	20500	**AS 80_ 200 B5 BN 200L 4**	86
362	751	3.5	8.14	20200	**AS 80_ 200 B5 BN 200LA 2**	86
495	550	3.5	5.96	19000	**AS 80_ 200 B5 BN 200LA 2**	86

37 kW

58	5749	1.1	25.35	35600	**AS 90_ 225 B5 BN 225S 4**	88
65	5141	1.2	22.67	35300	**AS 90_ 225 B5 BN 225S 4**	88
73	4627	1.3	20.4	34800	**AS 90_ 225 B5 BN 225S 4**	88
80	4186	1.5	18.46	34400	**AS 90_ 225 B5 BN 225S 4**	88
95	3551	1.5	15.65	34500	**AS 90_ 225 B5 BN 225S 4**	88
106	3175	1.0	14	21900	**AS 80_ 225 B5 BN 225S 4**	86
106	3175	1.7	14	33900	**AS 90_ 225 B5 BN 225S 4**	88
117	2858	1.9	12.6	33200	**AS 90_ 225 B5 BN 225S 4**	88
130	2586	2.0	11.4	32600	**AS 90_ 225 B5 BN 225S 4**	88

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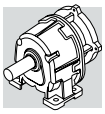
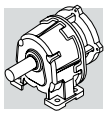


37 kW

n_2 min^{-1}	M_2 Nm	S	i	Rn_2 N	IEC			
146	2295	2.3	10.12	32400	**AS 90_**	**225 B5**	**BN 225S 4**	88
160	2093	1.8	18.46	21500	**AS 80_**	**200 B5**	**BN 200LB 2**	86
160	2093	3.0	18.46	31500	**AS 90_**	**200 B5**	**BN 200LB 2**	88
164	2052	2.6	9.05	31600	**AS 90_**	**225 B5**	**BN 225S 4**	88
182	1847	2.9	8.14	30900	**AS 90_**	**225 B5**	**BN 225S 4**	88
189	1775	1.6	15.65	21700	**AS 80_**	**200 B5**	**BN 200LB 2**	86
189	1775	2.6	15.65	30900	**AS 90_**	**200 B5**	**BN 200LB 2**	88
201	1671	3.2	7.37	30200	**AS 90_**	**225 B5**	**BN 225S 4**	88
211	1588	1.8	14	21300	**AS 80_**	**200 B5**	**BN 200LB 2**	86
211	1588	3.0	14	30100	**AS 90_**	**200 B5**	**BN 200LB 2**	88
235	1429	2.0	12.6	20900	**AS 80_**	**200 B5**	**BN 200LB 2**	86
235	1429	3.3	12.6	29400	**AS 90_**	**200 B5**	**BN 200LB 2**	88
248	1353	3.0	5.96	29200	**AS 90_**	**225 B5**	**BN 225S 4**	88
260	1293	2.2	11.4	20600	**AS 80_**	**200 B5**	**BN 200LB 2**	86
278	1210	3.4	5.33	28400	**AS 90_**	**225 B5**	**BN 225S 4**	88
293	1147	2.3	10.12	20500	**AS 80_**	**200 B5**	**BN 200LB 2**	86
327	1026	2.5	9.05	20000	**AS 80_**	**200 B5**	**BN 200LB 2**	86
364	923	2.8	8.14	19600	**AS 80_**	**200 B5**	**BN 200LB 2**	86
402	836	3.1	7.37	19200	**AS 80_**	**200 B5**	**BN 200LB 2**	86
496	676	2.8	5.96	18500	**AS 80_**	**200 B5**	**BN 200LB 2**	86
555	605	3.1	5.33	18100	**AS 80_**	**200 B5**	**BN 200LB 2**	86
617	544	3.5	4.8	17600	**AS 80_**	**200 B5**	**BN 200LB 2**	86

45 kW

65	6253	1.0	22.67	27000	**AS 90_**	**225 B5**	**BN 225M 4**	88
73	5627	1.1	20.4	29400	**AS 90_**	**225 B5**	**BN 225M 4**	88
80	5091	1.2	18.46	31200	**AS 90_**	**225 B5**	**BN 225M 4**	88
95	4318	1.2	15.65	32500	**AS 90_**	**225 B5**	**BN 225M 4**	88
106	3862	1.4	14	32100	**AS 90_**	**225 B5**	**BN 225M 4**	88
117	3476	1.5	12.6	31600	**AS 90_**	**225 B5**	**BN 225M 4**	88
130	3145	1.7	11.4	31100	**AS 90_**	**225 B5**	**BN 225M 4**	88
146	2791	1.9	10.12	31100	**AS 90_**	**225 B5**	**BN 225M 4**	88
160	2546	2.4	18.46	30300	**AS 90_**	**225 B5**	**BN 225M 2**	88
164	2496	2.1	9.05	30500	**AS 90_**	**225 B5**	**BN 225M 4**	88
182	2246	2.4	8.14	29800	**AS 90_**	**225 B5**	**BN 225M 4**	88
189	2159	2.2	15.65	29900	**AS 90_**	**225 B5**	**BN 225M 2**	88
201	2032	2.6	7.37	29200	**AS 90_**	**225 B5**	**BN 225M 4**	88
211	1931	1.5	14	20100	**AS 80_**	**225 B5**	**BN 225M 2**	86
211	1931	2.4	14	29200	**AS 90_**	**225 B5**	**BN 225M 2**	88
235	1738	2.7	12.6	28600	**AS 90_**	**225 B5**	**BN 225M 2**	88
248	1645	2.5	5.96	28400	**AS 90_**	**225 B5**	**BN 225M 4**	88
260	1572	3.0	11.4	27900	**AS 90_**	**225 B5**	**BN 225M 2**	88
278	1471	2.8	5.33	27700	**AS 90_**	**225 B5**	**BN 225M 4**	88
293	1395	3.1	10.12	27500	**AS 90_**	**225 B5**	**BN 225M 2**	88
308	1324	3.1	4.8	27100	**AS 90_**	**225 B5**	**BN 225M 4**	88
327	1248	3.4	9.05	26800	**AS 90_**	**225 B5**	**BN 225M 2**	88
341	1198	3.4	4.34	26400	**AS 90_**	**225 B5**	**BN 225M 4**	88



AS 16 — 50 Nm

23 - TABELLE DATI TECNICI RIDUTTORI | ***23 - SPEED REDUCER RATING CHARTS*** | **23 - GETRIEBE AUSWAHLTABELLEN** | ***23 - DONNEES TECHNIQUES REDUCTEURS***

	i	n_1= 2800 min^{-1}					n_1 = 1400 min^{-1}					
		n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	R_{n1} N	R_{n2} N	n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	R_{n1} N	R_{n2} N	
AS 16_	**5.53**	506	25	1.4	330	290	253	30	0.84	330	380	71
AS 16_	**6.68**	419	25	1.2	330	330	210	30	0.69	330	430	
AS 16_	**7.41**	378	25	1.0	330	350	189	30	0.62	330	460	
AS 16_	**9.31**	301	25	0.83	330	390	150	30	0.50	330	500	
AS 16_	**11.24**	249	35	0.96	330	340	125	40	0.55	330	470	
AS 16_	**12.47**	225	35	0.87	330	368	112	40	0.49	330	500	
AS 16_	**15.64**	179	35	0.69	330	410	90	40	0.39	330	550	
AS 16_	**18.89**	148	35	0.57	330	470	74	40	0.33	330	630	
AS 16_	**20.96**	134	45	0.66	330	410	67	45	0.33	330	620	
AS 16_	**27.14**	103	45	0.51	330	460	52	45	0.26	330	700	
AS 16_	**32.78**	85	45	0.42	330	530	43	45	0.21	330	780	
AS 16_	**36.36**	77	45	0.38	330	570	39	45	0.19	330	830	
AS 16_	**40.32**	69	45	0.34	330	600	35	45	0.17	330	870	
AS 16_	**44.73**	63	45	0.31	330	640	31	45	0.16	330	920	

		n_1= 900 min^{-1}					n_1 = 500 min^{-1}					
AS 16_	**5.53**	163	45	0.81	330	340	90	50	0.50	330	450	71
AS 16_	**6.68**	135	45	0.67	330	400	75	50	0.41	330	530	
AS 16_	**7.41**	121	45	0.60	330	430	67	50	0.37	330	570	
AS 16_	**9.31**	97	45	0.48	330	480	54	50	0.30	330	630	
AS 16_	**11.24**	80	45	0.40	330	550	44	50	0.24	330	720	
AS 16_	**12.47**	72	45	0.36	330	590	40	50	0.22	330	770	
AS 16_	**15.64**	58	45	0.29	330	660	32	50	0.18	330	840	
AS 16_	**18.89**	48	45	0.24	330	740	26	50	0.15	330	940	
AS 16_	**20.96**	43	45	0.21	330	790	24	50	0.13	330	1000	
AS 16_	**27.14**	33	45	0.16	330	870	18	50	0.10	330	1110	
AS 16_	**32.78**	27	45	0.14	330	970	15	50	0.08	330	1230	
AS 16_	**36.36**	25	45	0.12	330	1030	14	50	0.08	330	1290	
AS 16_	**40.32**	22	45	0.11	330	1070	12	50	0.07	330	1350	
AS 16_	**44.73**	20	45	0.10	330	1130	11	50	0.06	330	1420	

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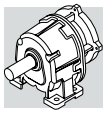
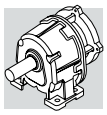
100 Nm AS 20



	i	n_1= 2800 min^{-1}					n_1 = 1400 min^{-1}					
		n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	R_{n1} N	R_{n2} N	n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	R_{n1} N	R_{n2} N	
AS 20_	**5.49**	510	50	2.8	600	730	255	60	1.7	600	950	
AS 20_	**6.46**	433	50	2.4	600	800	217	60	1.4	600	1040	
AS 20_	**7.75**	361	50	2.0	600	890	181	60	1.2	600	1150	
AS 20_	**8.57**	327	50	1.8	600	940	163	60	1.1	600	1210	
AS 20_	**9.92**	282	55	1.7	600	940	141	65	1.0	600	1220	
AS 20_	**11.67**	240	55	1.5	600	1030	120	65	0.86	600	1340	
AS 20_	**14**	200	55	1.2	600	1140	100	65	0.72	600	1470	
AS 20_	**15.48**	181	55	1.1	600	1200	90	65	0.65	600	1540	
AS 20_	**18.01**	155	80	1.4	600	1040	78	80	0.68	600	1490	
AS 20_	**21.19**	132	80	1.2	600	1150	66	80	0.58	600	1620	
AS 20_	**25.43**	110	80	0.97	600	1280	55	80	0.48	600	1780	
AS 20_	**28.13**	100	80	0.88	600	1350	50	80	0.44	600	1880	
AS 20_	**31.71**	88	80	0.78	600	1390	44	80	0.39	600	1940	
AS 20_	**37.31**	75	80	0.66	600	1530	38	80	0.33	600	2100	73
AS 20_	**44.77**	63	80	0.55	600	1680	31	80	0.28	600	2290	
AS 20_	**49.52**	57	80	0.50	600	1770	28.3	80	0.25	600	2400	
AS 20 D_	**58.1**	48	90	0.49	330	1810	24.1	90	0.24	330	2476	
AS 20 D_	**64.3**	44	90	0.44	330	1910	21.8	90	0.22	330	2595	
AS 20 D_	**69.2**	40	90	0.41	330	1930	20.2	90	0.21	330	2632	
AS 20 D_	**81.4**	34	90	0.35	330	2100	17.2	90	0.17	330	2800	
AS 20 D_	**97.7**	28.7	90	0.29	330	2300	14.3	90	0.15	330	2800	
AS 20 D_	**108.1**	25.9	90	0.26	330	2410	13.0	90	0.13	330	2800	
AS 20 D_	**120.1**	23.3	90	0.24	330	2470	11.7	90	0.12	330	2800	
AS 20 D_	**141.3**	19.8	90	0.20	330	2680	9.9	90	0.10	330	2800	
AS 20 D_	**169.5**	16.5	90	0.17	330	2800	8.3	90	0.08	330	2800	
AS 20 D_	**187.5**	14.9	90	0.15	330	2800	7.5	90	0.08	330	2800	

		n_1= 900 min^{-1}					n_1 = 500 min^{-1}					
AS 20_	**5.49**	164	90	1.6	600	920	91	100	1.0	600	1200	
AS 20_	**6.46**	139	90	1.4	600	1030	77	100	0.85	600	1340	
AS 20_	**7.75**	116	90	1.2	600	1160	65	100	0.71	600	1490	
AS 20_	**8.57**	105	90	1.0	600	1240	58	100	0.64	600	1580	
AS 20_	**9.92**	91	90	0.90	600	1290	50	100	0.55	600	1650	
AS 20_	**11.67**	77	90	0.76	600	1420	43	100	0.47	600	1810	
AS 20_	**14.0**	64	90	0.64	600	1580	36	100	0.39	600	2000	
AS 20_	**15.48**	58	90	0.58	600	1670	32	100	0.36	600	2100	
AS 20_	**18.01**	50	90	0.50	600	1740	27.8	100	0.31	600	2200	
AS 20_	**21.19**	42	90	0.42	600	1900	23.6	100	0.26	600	2400	
AS 20_	**25.43**	35	90	0.35	600	2090	19.7	100	0.22	600	2620	
AS 20_	**28.13**	32	90	0.32	600	2190	17.8	100	0.20	600	2750	
AS 20_	**31.71**	28.4	90	0.28	600	2270	15.8	100	0.17	600	2800	
AS 20_	**37.31**	24.1	90	0.24	600	2460	13.4	100	0.15	600	2800	73
AS 20_	**44.77**	20.1	90	0.20	600	2680	11.2	100	0.12	600	2800	
AS 20_	**49.52**	18.2	90	0.18	600	2800	10.1	100	0.11	600	2800	
AS 20 D_	**58.1**	15.5	100	0.17	330	2800	8.6	100	0.10	330	2800	
AS 20 D_	**64.3**	14.0	100	0.16	330	2800	7.8	100	0.09	330	2800	
AS 20 D_	**69.2**	13.0	100	0.15	330	2800	7.2	100	0.08	330	2800	
AS 20 D_	**81.4**	11.1	100	0.12	330	2800	6.1	100	0.07	330	2800	
AS 20 D_	**97.7**	9.2	100	0.10	330	2800	5.1	100	0.06	330	2800	
AS 20 D_	**108.1**	8.3	100	0.09	330	2800	4.6	100	0.05	330	2800	
AS 20 D_	**120.1**	7.5	100	0.08	330	2800	4.2	100	0.05	330	2800	
AS 20 D_	**141.3**	6.4	100	0.07	330	2800	3.5	100	0.04	330	2800	
AS 20 D_	**169.5**	5.3	100	0.06	330	2800	2.9	100	0.03	330	2800	
AS 20 D_	**187.5**	4.8	100	0.05	330	2800	2.7	100	0.03	330	2800	



AS 25 — 200 Nm

	i	n_1= 2800 min^{-1}					n_1 = 1400 min^{-1}					
		n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	R_{n1} N	R_{n2} N	n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	R_{n1} N	R_{n2} N	
AS 25_	5.02	558	80	4.9	370	660	279	120	3.7	350	760	75
AS 25_	5.92	473	90	4.7	410	670	236	120	3.1	450	800	
AS 25_	6.47	433	90	4.3	490	720	216	120	2.9	560	860	
AS 25_	7.88	355	100	3.9	570	760	178	120	2.3	760	1000	
AS 25_	8.93	314	100	3.5	380	780	157	130	2.2	440	950	
AS 25_	10.53	266	100	2.9	520	880	133	130	1.9	630	1080	
AS 25_	11.51	243	110	2.9	520	860	122	130	1.7	720	1150	
AS 25_	14.01	200	110	2.4	670	1000	100	130	1.4	830	1310	
AS 25_	16.42	171	140	2.6	200	820	85	160	1.5	380	1150	
AS 25_	19.35	145	150	2.4	300	880	72	160	1.3	580	1320	
AS 25_	21.16	132	150	2.2	390	950	66	160	1.2	670	1400	
AS 25_	25.75	109	160	1.9	510	1040	54	160	0.96	830	1600	
AS 25_	31.27	90	140	1.4	310	1270	45	160	0.79	510	1720	
AS 25_	36.86	76	150	1.3	410	1350	38	160	0.67	690	1910	
AS 25_	40.29	69	160	1.2	430	1360	35	160	0.61	780	2020	
AS 25_	49.04	57	160	1.0	590	1560	28.5	160	0.50	830	2260	
AS 25 D_	60.1	47	180	0.95	500	1607	23.3	180	0.47	500	3200	
AS 25 D_	69.6	40	180	0.82	420	1672	20.1	180	0.41	500	3200	
AS 25 D_	82.0	34	180	0.69	471	1875	17.1	180	0.35	500	3200	
AS 25 D_	89.7	31	180	0.63	496	1987	15.6	180	0.32	500	3200	
AS 25 D_	109.1	25.7	180	0.52	500	2239	12.8	180	0.26	500	3200	
AS 25 D_	122.5	22.9	180	0.46	450	2298	11.4	180	0.23	500	3200	
AS 25 D_	144.4	19.4	180	0.39	497	2537	9.7	180	0.20	500	3200	
AS 25 D_	157.9	17.7	180	0.36	500	2668	8.9	180	0.18	500	3200	
AS 25 D_	192.1	14.6	180	0.30	500	2967	7.3	180	0.15	500	3200	

	i	n_1= 900 min^{-1}					n_1 = 500 min^{-1}					
		n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	R_{n1} N	R_{n2} N	n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	R_{n1} N	R_{n2} N	
AS 25_	5.02	179	130	2.6	380	860	100	160	1.8	440	1040	75
AS 25_	5.92	152	150	2.5	410	840	84	190	1.8	420	970	
AS 25_	6.47	139	160	2.5	450	840	77	200	1.7	500	990	
AS 25_	7.88	114	180	2.3	560	860	63	200	1.4	830	1190	
AS 25_	8.93	101	160	1.8	420	1030	56	200	1.2	450	1210	
AS 25_	10.53	85	180	1.7	490	1040	47	200	1.0	750	1400	
AS 25_	11.51	78	180	1.5	610	1120	43	200	0.96	830	1500	
AS 25_	14.01	64	180	1.3	830	1320	36	200	0.79	830	1730	
AS 25_	16.42	55	180	1.1	490	1380	30.5	200	0.67	750	1820	
AS 25_	19.35	47	180	0.92	710	1560	25.8	200	0.57	830	2040	
AS 25_	21.16	43	180	0.84	820	1670	23.6	200	0.52	830	2160	
AS 25_	25.75	35	180	0.69	830	1900	19.4	200	0.43	830	2440	
AS 25_	31.27	28.8	180	0.57	640	2030	16.0	200	0.35	830	2610	
AS 25_	36.86	24.4	180	0.48	830	2250	13.6	200	0.30	830	2880	
AS 25_	40.29	22.3	180	0.44	830	2380	12.4	200	0.27	830	3030	
AS 25_	49.04	18.4	180	0.36	830	2650	10.2	200	0.22	830	3200	
AS 25 D_	60.1	15.0	200	0.34	500	2788	8.3	200	0.19	500	3200	
AS 25 D_	69.6	12.9	200	0.29	500	2910	7.2	200	0.16	500	3200	
AS 25 D_	82.0	11.0	200	0.25	500	3195	6.1	200	0.14	500	3200	
AS 25 D_	89.7	10.0	200	0.23	500	3200	5.6	200	0.13	500	3200	
AS 25 D_	109.1	8.2	200	0.19	500	3200	4.6	200	0.10	500	3200	
AS 25 D_	122.5	7.3	200	0.17	500	3200	4.1	200	0.09	500	3200	
AS 25 D_	144.4	6.2	200	0.14	500	3200	3.5	200	0.08	500	3200	
AS 25 D_	157.9	5.7	200	0.13	500	3200	3.2	200	0.07	500	3200	
AS 25 D_	192.1	4.7	200	0.11	500	3200	2.6	200	0.06	500	3200	

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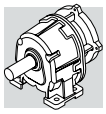
350 Nm AS 30



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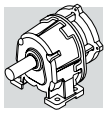
AS 30_	5.11	548	160	9.7	530	1100	274	230	6.9	550	1350	
AS 30_	6.22	450	180	8.9	710	1200	225	230	5.7	850	1500	
AS 30_	6.93	404	180	8.0	930	1300	202	230	5.1	1000	1600	
AS 30_	7.51	373	180	7.4	590	1300	186	230	4.7	700	1600	
AS 30_	7.78	360	180	7.1	1000	1400	180	230	4.6	1000	1750	
AS 30_	9.14	306	210	7.1	690	1300	153	260	4.4	920	1650	
AS 30_	10.18	275	210	6.4	910	1400	138	260	3.9	1000	1800	
AS 30_	11.43	245	210	5.7	1000	1550	122	260	3.5	1000	2000	
AS 30_	12.62	222	220	5.4	460	1500	111	260	3.2	770	2000	
AS 30_	15.37	182	240	4.8	710	1600	91	260	2.6	1000	2300	
AS 30_	17.11	164	240	4.3	930	1750	82	260	2.3	1000	2500	
AS 30_	19.21	146	240	3.9	1000	1900	73	260	2.1	1000	2600	
AS 30_	24.19	116	250	3.2	430	2000	58	320	2.0	490	2500	
AS 30_	29.45	95	300	3.1	460	2000	48	320	1.7	1000	2800	77
AS 30_	32.8	85	320	3.0	560	2000	43	320	1.5	1000	3050	
AS 30_	36.82	76	320	2.7	810	2200	38	320	1.3	1000	3300	
AS 30 D_	41.2	68	320	2.5	660	2350	34	320	1.2	660	3500	
AS 30 D_	46.2	61	320	2.2	660	2550	30	320	1.1	660	3700	
AS 30 D_	54.0	52	320	1.9	660	2650	25.9	320	0.94	660	3900	
AS 30 D_	65.8	43	320	1.5	660	3050	21.3	320	0.77	660	4300	
AS 30 D_	73.6	38	320	1.4	660	3250	19.0	320	0.69	660	4600	
AS 30 D_	82.2	34	320	1.2	660	3500	17.0	320	0.62	660	4860	
AS 30 D_	99.3	28.2	320	1.0	660	3700	14.1	320	0.51	660	5200	
AS 30 D_	120.9	23.2	320	0.84	660	4150	11.6	320	0.42	660	5500	
AS 30 D_	134.7	20.8	320	0.75	660	4400	10.4	320	0.38	660	5500	
AS 30 D_	151.1	18.5	320	0.67	660	4700	9.3	320	0.33	660	5500	

		n_1= 900 min^{-1}					n_1 = 500 min^{-1}					
AS 30_	5.11	176	320	6.2	400	1370	98	350	3.8	430	1590	
AS 30_	6.22	145	320	5.1	590	1230	80	350	3.1	900	1790	
AS 30_	6.93	130	320	4.6	740	1210	72	350	2.8	1000	2080	
AS 30_	7.51	120	320	4.2	530	1670	67	350	2.6	670	2080	
AS 30_	7.78	116	320	4.1	1000	1610	64	350	2.5	1000	2270	
AS 30_	9.14	98	320	3.5	870	1810	55	350	2.1	1000	2440	
AS 30_	10.18	88	320	3.1	1000	1980	49	350	1.9	1000	2650	
AS 30_	11.43	79	320	2.8	1000	2170	44	350	1.7	1000	2870	
AS 30_	12.62	71	320	2.5	680	2170	39.6	350	1.5	1000	2890	
AS 30_	15.37	59	320	2.1	1000	2520	32.5	350	1.3	1000	3310	
AS 30_	17.11	53	320	1.9	1000	2720	29.2	350	1.1	1000	3540	
AS 30_	19.21	47	320	1.7	1000	2930	26.0	350	1.0	1000	3800	
AS 30_	24.19	37.2	320	1.3	1000	3180	20.7	350	0.80	1000	4120	
AS 30_	29.45	30.6	320	1.1	1000	3600	17.0	350	0.65	1000	4620	77
AS 30_	32.8	27.4	320	0.97	1000	3840	15.2	350	0.59	1000	4900	
AS 30_	36.82	24.4	320	0.86	1000	4090	13.6	350	0.52	1000	5210	
AS 30 D_	41.2	21.8	350	0.86	660	4100	12.1	350	0.48	660	5450	
AS 30 D_	46.2	19.5	350	0.77	660	4400	10.8	350	0.43	660	5500	
AS 30 D_	54.0	16.7	350	0.66	660	4600	9.3	350	0.37	660	5500	
AS 30 D_	65.8	13.7	350	0.54	660	5200	7.6	350	0.30	660	5500	
AS 30 D_	73.6	12.2	350	0.48	660	5450	6.8	350	0.27	660	5500	
AS 30 D_	82.2	10.9	350	0.43	660	5500	6.1	350	0.24	660	5500	
AS 30 D_	99.3	9.1	350	0.36	660	5500	5.0	350	0.20	660	5500	
AS 30 D_	120.9	7.4	350	0.29	660	5500	4.1	350	0.16	660	5500	
AS 30 D_	134.7	6.7	350	0.26	660	5500	3.7	350	0.15	660	5500	
AS 30 D_	151.1	6.0	350	0.24	660	5500	3.3	350	0.13	660	5500	

AS 35 — 530 Nm



	i	n_1= 2800 min^{-1}					n_1 = 1400 min^{-1}					
		n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	R_{n1} N	R_{n2} N	n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	R_{n1} N	R_{n2} N	
AS 35_	**5.11**	548	270	16.3	640	3690	274	340	10.3	900	4500	
AS 35_	**6.22**	450	270	13.4	850	4060	225	340	8.4	1050	4950	
AS 35_	**6.93**	404	270	12.0	910	4260	202	340	7.6	1140	5200	
AS 35_	**7.51**	373	270	11.1	830	4330	186	340	7.0	1050	5280	
AS 35_	**7.78**	360	270	10.7	960	4490	180	340	6.7	1200	5480	
AS 35_	**9.14**	306	320	10.8	850	4460	153	400	6.7	1100	5460	
AS 35_	**10.18**	275	320	9.7	910	4690	138	400	6.1	1150	5740	
AS 35_	**11.43**	245	320	8.6	960	4940	122	400	5.4	1150	6050	
AS 35_	**12.62**	222	360	8.8	660	4800	111	400	4.9	1050	6160	
AS 35_	**15.37**	182	360	7.2	880	5290	91	400	4.0	1150	6750	
AS 35_	**17.11**	164	360	6.5	940	5560	82	400	3.6	1150	7070	
AS 35_	**19.21**	146	360	5.8	990	5850	73	400	3.2	1150	7200	
AS 35_	**24.19**	116	480	6.1	370	5600	58	480	3.1	1150	7200	
AS 35_	**29.45**	95	480	5.0	700	6190	48	480	2.5	1150	7200	79
AS 35_	**32.8**	85	480	4.5	860	6530	43	480	2.3	1150	7200	
AS 35_	**36.82**	76	480	4.0	920	6890	38	480	2.0	1150	7200	
AS 35 D_	**41.2**	68	480	3.7	700	7200	34	480	1.8	830	7200	
AS 35 D_	**46.2**	61	480	3.3	750	7200	30	480	1.6	830	7200	
AS 35 D_	**54.0**	52	480	2.8	650	7200	25.9	480	1.4	830	7200	
AS 35 D_	**65.8**	43	480	2.3	750	7200	21.3	480	1.2	830	7200	
AS 35 D_	**73.6**	38	480	2.1	830	7200	19.0	480	1.0	830	7200	
AS 35 D_	**82.2**	34	480	1.8	830	7200	17.0	480	0.92	830	7200	
AS 35 D_	**99.3**	28.2	480	1.5	750	7200	14.1	480	0.76	830	7200	
AS 35 D_	**120.9**	23.2	480	1.3	830	7200	11.6	480	0.63	830	7200	
AS 35 D_	**134.7**	20.8	480	1.1	830	7200	10.4	480	0.56	830	7200	
AS 35 D_	**151.1**	18.5	480	1.0	830	7200	9.3	480	0.50	830	7200	

		n_1= 900 min^{-1}					n_1 = 500 min^{-1}					
AS 35_	**5.11**	176	480	9.3	590	4610	98	530	5.7	1110	5740	
AS 35_	**6.22**	145	480	7.6	1060	5150	80	530	4.7	1160	6380	
AS 35_	**6.93**	130	480	6.9	1160	5450	72	530	4.2	1160	6730	
AS 35_	**7.51**	120	480	6.3	970	5510	67	530	3.9	1160	6810	
AS 35_	**7.78**	116	480	6.1	1160	5770	64	530	3.8	1160	7110	
AS 35_	**9.14**	98	480	5.2	1160	6100	55	530	3.2	1160	7200	
AS 35_	**10.18**	88	480	4.7	1160	6430	49	530	2.9	1160	7200	
AS 35_	**11.43**	79	480	4.2	1160	6790	44	530	2.6	1160	7200	
AS 35_	**12.62**	71	480	3.8	1160	6900	40	530	2.3	1160	7200	
AS 35_	**15.37**	59	480	3.1	1160	7200	33	530	1.9	1160	7200	
AS 35_	**17.11**	53	480	2.8	1160	7200	29.2	530	1.7	1160	7200	
AS 35_	**19.21**	47	480	2.5	1160	7200	26.0	530	1.5	1160	7200	
AS 35_	**24.19**	37	480	2.0	1160	7200	20.7	530	1.2	1160	7200	
AS 35_	**29.45**	31	480	1.6	1160	7200	17.0	530	0.99	1160	7200	79
AS 35_	**32.8**	27.4	480	1.5	1160	7200	15.2	530	0.89	1160	7200	
AS 35_	**36.82**	24.4	480	1.3	1160	7200	13.6	530	0.79	1160	7200	
AS 35 D_	**41.2**	21.8	530	1.3	830	7200	12.1	530	0.73	830	7200	
AS 35 D_	**46.2**	19.5	530	1.2	830	7200	10.8	530	0.65	830	7200	
AS 35 D_	**54.0**	16.7	530	1.0	830	7200	9.3	530	0.55	830	7200	
AS 35 D_	**65.8**	13.7	530	0.82	830	7200	7.6	530	0.45	830	7200	
AS 35 D_	**73.6**	12.2	530	0.73	830	7200	6.8	530	0.41	830	7200	
AS 35 D_	**82.2**	10.9	530	0.66	830	7200	6.1	530	0.36	830	7200	
AS 35 D_	**99.3**	9.1	530	0.54	830	7200	5.0	530	0.30	830	7200	
AS 35 D_	**120.9**	7.4	530	0.45	830	7200	4.1	530	0.25	830	7200	
AS 35 D_	**134.7**	6.7	530	0.40	830	7200	3.7	530	0.22	830	7200	
AS 35 D_	**151.1**	6.0	530	0.36	830	7200	3.3	530	0.20	830	7200	

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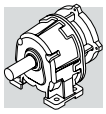
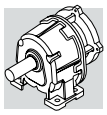


800 Nm AS 45

	i	n_1= 2800 min^{-1}					n_1 = 1400 min^{-1}					
		n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	R_{n1} N	R_{n2} N	n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	R_{n1} N	R_{n2} N	
AS 45_	**4.42**	633	420	29.3	1750	3500	317	520	18.1	1750	4250	
AS 45_	**4.89**	573	420	26.5	1750	3700	286	520	16.4	1750	4500	
AS 45_	**5.43**	516	420	23.8	1750	3900	258	520	14.8	1750	4800	
AS 45_	**6.07**	461	420	21.3	1750	4100	231	520	13.2	1750	5050	
AS 45_	**8.14**	344	520	19.7	1750	4100	172	650	12.3	1750	5000	
AS 45_	**9.0**	311	520	17.8	1750	4300	156	650	11.1	1750	5300	
AS 45_	**10.0**	280	520	16.0	1750	4600	140	650	10.0	1750	5600	
AS 45_	**11.18**	250	520	14.3	1750	4900	125	650	9.0	1750	6000	
AS 45_	**12.89**	217	590	14.1	1750	4700	109	650	7.8	1750	6200	
AS 45_	**14.25**	196	590	12.8	1750	5000	98	650	7.0	1750	6500	
AS 45_	**15.83**	177	590	11.5	1750	5300	88	650	6.3	1750	6900	
AS 45_	**17.7**	158	590	10.3	1750	5600	79	650	5.7	1750	7300	
AS 45_	**19.99**	140	720	11.1	1750	5200	70	720	5.6	1750	7200	
AS 45_	**22.09**	127	720	10.0	1750	5500	63	720	5.0	1750	7500	
AS 45_	**24.55**	114	720	9.0	1750	5800	57	720	4.5	1750	8000	
AS 45_	**27.45**	102	720	8.1	1750	6200	51	720	4.0	1750	8400	81
AS 45 D_	**31.1**	90	720	7.3	1050	7150	45	720	3.7	1080	9400	
AS 45 D_	**34.4**	81	720	6.6	1080	7500	41	720	3.3	1080	9500	
AS 45 D_	**38.2**	73	720	6.0	1080	7900	37	720	3.0	1080	9500	
AS 45 D_	**42.7**	66	720	5.3	1080	8300	33	720	2.7	1080	9500	
AS 45 D_	**45.7**	61	720	5.0	1080	8350	31	720	2.5	1080	9500	
AS 45 D_	**50.5**	55	720	4.5	1080	8800	27.7	720	2.3	1080	9500	
AS 45 D_	**56.1**	50	720	4.1	1080	9200	25.0	720	2.0	1080	9500	
AS 45 D_	**62.7**	45	720	3.6	1080	9500	22.3	720	1.8	1080	9500	
AS 45 D_	**76.8**	36	720	3.0	1080	9500	18.2	720	1.5	1080	9500	
AS 45 D_	**84.9**	33	720	2.7	1080	9500	16.5	720	1.3	1080	9500	
AS 45 D_	**94.3**	29.7	720	2.4	1080	9500	14.8	720	1.2	1080	9500	
AS 45 D_	**105.5**	26.5	720	2.2	1080	9500	13.3	720	1.1	1080	9500	
AS 45 D_	**147.2**	19.0	720	1.5	1080	9500	9.5	720	0.77	1080	9500	
AS 45 D_	**162.7**	17.2	720	1.4	1080	9500	8.6	720	0.70	1080	9500	
AS 45 D_	**180.7**	15.5	720	1.3	1080	9500	7.7	720	0.63	1080	9500	
AS 45 D_	**202.1**	13.9	720	1.1	1080	9500	6.9	720	0.56	1080	9500	



AS 45 — 800 Nm

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		n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	R_{n1} N	R_{n2} N	n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	R_{n1} N	R_{n2} N	
AS 45_	**4.42**	204	720	16.1	1750	4250	113	800	10.0	1750	5350	
AS 45_	**4.89**	184	720	14.6	1750	4600	102	800	9.0	1750	5700	
AS 45_	**5.43**	166	720	13.1	1750	4900	92	800	8.1	1750	6100	
AS 45_	**6.07**	148	720	11.8	1750	5200	82	800	7.3	1750	6500	
AS 45_	**8.14**	111	720	8.8	1750	5800	61	800	5.4	1750	7200	
AS 45_	**9.0**	100	720	7.9	1750	6200	56	800	4.9	1750	7600	
AS 45_	**10.0**	90	720	7.1	1750	6500	50	800	4.4	1750	8000	
AS 45_	**11.18**	81	720	6.4	1750	6900	45	800	3.9	1750	8500	
AS 45_	**12.89**	70	720	5.5	1750	7200	39	800	3.4	1750	8800	
AS 45_	**14.25**	63	720	5.0	1750	7600	35	800	3.1	1750	9300	
AS 45_	**15.83**	57	720	4.5	1750	8000	32	800	2.8	1750	9500	
AS 45_	**17.7**	51	720	4.0	1750	8400	28.2	800	2.5	1750	9500	
AS 45_	**19.99**	45	720	3.6	1750	8700	25.0	800	2.2	1750	9500	
AS 45_	**22.09**	41	720	3.2	1750	9100	22.6	800	2.0	1750	9500	
AS 45_	**24.55**	37	720	2.9	1750	9500	20.4	800	1.8	1750	9500	
AS 45_	**27.45**	33	720	2.6	1750	9500	18.2	800	1.6	1750	9500	81
AS 45 D_	**31.1**	28.9	800	2.6	1080	9500	16.1	800	1.5	1080	9500	
AS 45 D_	**34.4**	26.2	800	2.4	1080	9500	14.5	800	1.3	1080	9500	
AS 45 D_	**38.2**	23.6	800	2.1	1080	9500	13.1	800	1.2	1080	9500	
AS 45 D_	**42.7**	21.1	800	1.9	1080	9500	11.7	800	1.1	1080	9500	
AS 45 D_	**45.7**	19.7	800	1.8	1080	9500	10.9	800	0.99	1080	9500	
AS 45 D_	**50.5**	17.8	800	1.6	1080	9500	9.9	800	0.89	1080	9500	
AS 45 D_	**56.1**	16.0	800	1.4	1080	9500	8.9	800	0.81	1080	9500	
AS 45 D_	**62.7**	14.4	800	1.3	1080	9500	8.0	800	0.72	1080	9500	
AS 45 D_	**76.8**	11.7	800	1.1	1080	9500	6.5	800	0.59	1080	9500	
AS 45 D_	**84.9**	10.6	800	0.96	1080	9500	5.9	800	0.53	1080	9500	
AS 45 D_	**94.3**	9.5	800	0.86	1080	9500	5.3	800	0.48	1080	9500	
AS 45 D_	**105.5**	8.5	800	0.77	1080	9500	4.7	800	0.43	1080	9500	
AS 45 D_	**147.2**	6.1	800	0.55	1080	9500	3.4	800	0.31	1080	9500	
AS 45 D_	**162.7**	5.5	800	0.50	1080	9500	3.1	800	0.28	1080	9500	
AS 45 D_	**180.7**	5.0	800	0.45	1080	9500	2.8	800	0.25	1080	9500	
AS 45 D_	**202.1**	4.5	800	0.40	1080	9500	2.5	800	0.22	1080	9500	

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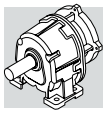
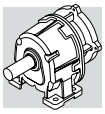
1350 Nm AS 55



	i	n_1= 2800 min^{-1}					n_1 = 1400 min^{-1}					
		n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	R_{n1} N	R_{n2} N	n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	R_{n1} N	R_{n2} N	
AS 55_	**4.55**	615	640	43	2350	6460	308	800	27	2500	7890	
AS 55_	**5.07**	552	640	39	2500	6850	276	800	24	2500	8400	
AS 55_	**5.68**	493	640	35	2500	7300	246	800	22	2500	8900	
AS 55_	**6.42**	436	640	31	2500	7720	218	800	19	2500	9450	
AS 55_	**7.31**	383	900	38	1230	6650	192	1100	23	1616	8200	
AS 55_	**8.14**	344	900	34	2240	7100	172	1100	21	2500	8800	
AS 55_	**9.13**	307	900	30	2420	7600	153	1100	18.6	2500	9400	
AS 55_	**10.31**	272	900	27	2500	8150	136	1100	16.4	2500	10100	
AS 55_	**11.31**	248	1000	27	1210	7700	124	1100	15.0	2500	10100	
AS 55_	**12.6**	222	1000	24	2250	8250	111	1100	13.5	2500	10800	
AS 55_	**14.13**	198	1000	22	2430	8800	99	1100	12.0	2500	11500	
AS 55_	**15.96**	175	1000	19.3	2500	9400	88	1100	10.6	2500	12200	
AS 55_	**18.31**	153	1100	18.5	1030	9150	76	1200	10.1	2500	12000	
AS 55_	**20.4**	137	1200	18.1	1270	9300	69	1200	9.1	2500	12800	
AS 55_	**22.87**	122	1200	16.2	2280	9950	61	1200	8.1	2500	13600	
AS 55_	**25.84**	108	1200	14.3	2470	10700	54	1200	7.2	2500	14400	83
AS 55 D_	**29.8**	94	1200	12.7	1050	12100	47	1200	6.4	1600	15000	
AS 55 D_	**33.2**	84	1200	11.4	1300	12800	42	1200	5.7	1600	15000	
AS 55 D_	**37.2**	75	1200	10.2	1500	13500	38	1200	5.1	1600	15000	
AS 55 D_	**42.1**	67	1200	9.0	1600	14300	33	1200	4.5	1600	15000	
AS 55 D_	**54.9**	51	1200	6.9	1500	15000	26	1200	3.5	1600	15000	
AS 55 D_	**61.2**	46	1200	6.2	1600	15000	22.9	1200	3.1	1600	15000	
AS 55 D_	**68.6**	41	1200	5.5	1600	15000	20.4	1200	2.8	1600	15000	
AS 55 D_	**77.5**	36	1200	4.9	1600	15000	18.1	1200	2.4	1600	15000	
AS 55 D_	**87.0**	32	1200	4.4	1600	15000	16.1	1200	2.2	1600	15000	
AS 55 D_	**96.9**	29	1200	3.9	1600	15000	14.4	1200	2.0	1600	15000	
AS 55 D_	**108.6**	25.8	1200	3.5	1600	15000	12.9	1200	1.7	1600	15000	
AS 55 D_	**122.7**	22.8	1200	3.1	1600	15000	11.4	1200	1.5	1600	15000	
AS 55 D_	**134.8**	20.8	1200	2.8	1600	15000	10.4	1200	1.4	1600	15000	
AS 55 D_	**150.2**	18.6	1200	2.5	1600	15000	9.3	1200	1.3	1600	15000	
AS 55 D_	**168.4**	16.6	1200	2.3	1600	15000	8.3	1200	1.1	1600	15000	
AS 55 D_	**190.3**	14.7	1200	2.0	1600	15000	7.4	1200	1.0	1600	15000	



AS 55 — 1350 Nm

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		n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	R_{n1} N	R_{n2} N	n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	R_{n1} N	R_{n2} N	
AS 55_	**4.55**	198	1200	26	1500	8080	110	1350	16.3	1250	10000	
AS 55_	**5.07**	178	1200	23	1800	8160	99	1350	14.7	2500	10000	
AS 55_	**5.68**	158	1200	21	2500	8790	88	1350	13.1	2500	11000	
AS 55_	**6.42**	140	1200	18.5	2500	9450	78	1350	11.6	2500	11700	
AS 55_	**7.31**	123	1200	16.3	2500	9650	68	1350	10.2	2500	11900	
AS 55_	**8.14**	111	1200	14.6	2500	10300	61	1350	9.1	2500	12700	
AS 55_	**9.13**	99	1200	13.0	2500	11000	55	1350	8.1	2500	13500	
AS 55_	**10.31**	87	1200	11.5	2500	11750	48	1350	7.2	2500	14400	
AS 55_	**11.31**	80	1200	10.5	2500	11840	44	1350	6.6	2500	14500	
AS 55_	**12.6**	71	1200	9.4	2500	12560	40	1350	5.9	2500	15000	
AS 55_	**14.13**	64	1200	8.4	2500	13340	35	1350	5.3	2500	15000	
AS 55_	**15.96**	56	1200	7.5	2500	14170	31.3	1350	4.7	2500	15000	
AS 55_	**18.31**	49	1200	6.5	2500	14610	27.3	1350	4.1	2500	15000	
AS 55_	**20.4**	44	1200	5.8	2500	15000	24.5	1350	3.6	2500	15000	
AS 55_	**22.87**	39	1200	5.2	2500	15000	21.9	1350	3.2	2500	15000	
AS 55_	**25.84**	35	1200	4.6	2500	15000	19.3	1350	2.9	2500	15000	83
AS 55 D_	**29.8**	30.2	1350	4.6	1600	15000	16.8	1350	2.6	1600	15000	
AS 55 D_	**33.2**	27.1	1350	4.1	1600	15000	15.1	1350	2.3	1600	15000	
AS 55 D_	**37.2**	24.2	1350	3.7	1600	15000	13.4	1350	2.0	1600	15000	
AS 55 D_	**42.1**	21.4	1350	3.3	1600	15000	11.9	1350	1.8	1600	15000	
AS 55 D_	**54.9**	16.4	1350	2.5	1600	15000	9.1	1350	1.4	1600	15000	
AS 55 D_	**61.2**	14.7	1350	2.2	1600	15000	8.2	1350	1.2	1600	15000	
AS 55 D_	**68.6**	13.1	1350	2.0	1600	15000	7.3	1350	1.1	1600	15000	
AS 55 D_	**77.5**	11.6	1350	1.8	1600	15000	6.5	1350	0.98	1600	15000	
AS 55 D_	**87.0**	10.3	1350	1.6	1600	15000	5.7	1350	0.88	1600	15000	
AS 55 D_	**96.9**	9.3	1350	1.4	1600	15000	5.2	1350	0.79	1600	15000	
AS 55 D_	**108.6**	8.3	1350	1.3	1600	15000	4.6	1350	0.70	1600	15000	
AS 55 D_	**122.7**	7.3	1350	1.1	1600	15000	4.1	1350	0.62	1600	15000	
AS 55 D_	**134.8**	6.7	1350	1.0	1600	15000	3.7	1350	0.57	1600	15000	
AS 55 D_	**150.2**	6.0	1350	0.91	1600	15000	3.3	1350	0.51	1600	15000	
AS 55 D_	**168.4**	5.3	1350	0.81	1600	15000	3.0	1350	0.45	1600	15000	
AS 55 D_	**190.3**	4.7	1350	0.72	1600	15000	2.6	1350	0.40	1600	15000	

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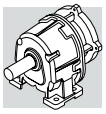
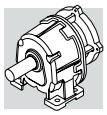
2300 Nm AS 60



	i	n_1= 2800 min^{-1}					n_1 = 1400 min^{-1}					
		n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	R_{n1} N	R_{n2} N	n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	R_{n1} N	R_{n2} N	
AS 60_	**4.34**	645	1100	78	1790	4540	323	1400	50	2230	5420	
AS 60_	**4.8**	583	1100	71	1980	4890	292	1400	45	2470	5850	
AS 60_	**5.33**	525	1100	64	2150	5260	263	1400	40	2690	6310	
AS 60_	**5.96**	470	1100	57	2320	5640	235	1400	36	2900	6790	
AS 60_	**7.37**	380	1500	63	1550	4160	190	1900	40	1940	4450	
AS 60_	**8.14**	344	1500	57	1760	4960	172	1900	36	2210	5830	
AS 60_	**9.05**	309	1500	51	1960	5410	155	1900	32	2450	6470	
AS 60_	**10.12**	277	1500	46	2140	5880	138	1900	29	2690	7050	
AS 60_	**11.4**	246	1700	46	1530	4860	123	1900	26	2240	7130	
AS 60_	**12.6**	222	1700	42	1740	5690	111	1900	23	2470	7710	
AS 60_	**14.0**	200	1700	37	1940	6200	100	1900	21	2690	8320	
AS 60_	**15.65**	179	1700	33	2120	6740	89	1900	18.7	2900	8960	
AS 60_	**18.55**	151	1900	32	1060	6280	75	2100	17.5	2120	8620	
AS 60_	**20.5**	137	2100	32	1060	5500	68	2100	15.8	2360	9180	
AS 60_	**22.78**	123	2100	28	1630	6700	61	2100	14.2	2590	9980	
AS 60_	**25.47**	110	2100	25	1850	7330	55	2100	12.7	2820	10700	85
AS 60 D_	**30.2**	93	2100	22	1620	9160	46	2100	11.0	2210	12700	
AS 60 D_	**33.4**	84	2100	19.9	1680	9790	42	2100	9.9	2270	13500	
AS 60 D_	**37.1**	75	2100	17.9	1740	10500	38	2100	9.0	2330	14200	
AS 60 D_	**41.5**	67	2100	16.0	1800	11200	34	2100	8.0	2350	15100	
AS 60 D_	**55.6**	50	2100	11.9	1770	12300	25	2100	6.0	2350	16500	
AS 60 D_	**61.5**	46	2100	10.8	1810	13000	22.8	2100	5.4	2350	17400	
AS 60 D_	**68.3**	41	2100	9.7	1860	13800	20.5	2100	4.9	2350	18300	
AS 60 D_	**76.4**	37	2100	8.7	1900	14600	18.3	2100	4.3	2350	19300	
AS 60 D_	**88.1**	32	2100	7.5	1830	15000	15.9	2100	3.8	2350	19100	
AS 60 D_	**97.4**	29	2100	6.8	1870	15800	14.4	2100	3.4	2350	20900	
AS 60 D_	**108.2**	25.9	2100	6.1	1910	16700	12.9	2100	3.1	2350	21900	
AS 60 D_	**121.0**	23.1	2100	5.5	1950	17600	11.6	2100	2.7	2350	22000	
AS 60 D_	**136.6**	20.5	2100	4.9	1870	18000	10.2	2100	2.4	2350	22000	
AS 60 D_	**151.0**	18.5	2100	4.4	1900	18900	9.3	2100	2.2	2350	22000	
AS 60 D_	**167.7**	16.7	2100	4.0	1940	19800	8.3	2100	2.0	2350	22000	
AS 60 D_	**187.5**	14.9	2100	3.5	1980	20900	7.5	2100	1.8	1400	22000	



AS 60 — 2300 Nm

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AS 60_	**4.34**	207	2100	48	1620	3680	115	2300	29	1610	3900	
AS 60_	**4.8**	188	2100	43	1620	2360	104	2300	26	2960	5700	
AS 60_	**5.33**	169	2100	39	2440	4130	94	2300	24	3330	7190	
AS 60_	**5.96**	151	2100	35	2750	5680	84	2300	21	3670	7880	
AS 60_	**7.37**	122	2100	28	2400	5950	68	2300	17.2	3290	8410	
AS 60_	**8.14**	111	2100	26	2690	7010	61	2300	15.6	3600	9100	
AS 60_	**9.05**	99	2100	23	2960	7630	55	2300	14.0	3680	9830	
AS 60_	**10.12**	89	2100	21	3220	8290	49	2300	12.5	3680	10610	
AS 60_	**11.4**	79	2100	18.3	2720	8400	44	2300	11.1	3640	10780	
AS 60_	**12.6**	71	2100	16.5	2980	9050	40	2300	10.0	3680	11540	
AS 60_	**14.0**	64	2100	14.9	3230	9740	36	2300	9.0	3680	12350	
AS 60_	**15.65**	58	2100	13.3	3460	10480	31.9	2300	8.1	3680	13210	
AS 60_	**18.55**	49	2100	11.2	2860	10940	27.0	2300	6.8	3680	13810	
AS 60_	**20.5**	44	2100	10.2	3110	11680	24.4	2300	6.2	3680	14670	
AS 60_	**22.78**	40	2100	9.1	3340	12450	21.9	2300	5.6	3680	15580	
AS 60_	**25.47**	35	2100	8.2	3560	13270	19.6	2300	5.0	3680	16550	85
AS 60 D_	**30.2**	29.8	2300	7.7	2350	14810	16.6	2300	4.3	2350	18990	
AS 60 D_	**33.4**	26.9	2300	7.0	2350	15650	15.0	2300	3.9	2350	19950	
AS 60 D_	**37.1**	24.3	2300	6.3	2350	16530	13.5	2300	3.5	2350	20970	
AS 60 D_	**41.5**	21.7	2300	5.6	2350	17480	12.0	2300	3.1	2350	22000	
AS 60 D_	**55.6**	16.2	2300	4.2	2350	19170	9.0	2300	2.3	2350	22000	
AS 60 D_	**61.5**	14.6	2300	3.8	2350	20140	8.1	2300	2.1	2350	22000	
AS 60 D_	**68.3**	13.2	2300	3.4	2350	21170	7.3	2300	1.9	2350	22000	
AS 60 D_	**76.4**	11.8	2300	3.1	2350	22000	6.5	2300	1.7	2350	22000	
AS 60 D_	**88.1**	10.2	2300	2.7	2350	22000	5.7	2300	1.5	2350	22000	
AS 60 D_	**97.4**	9.2	2300	2.4	2350	22000	5.1	2300	1.3	2350	22000	
AS 60 D_	**108.2**	8.3	2300	2.2	2350	22000	4.6	2300	1.2	2350	22000	
AS 60 D_	**121.0**	7.4	2300	1.9	2350	22000	4.1	2300	1.1	2350	22000	
AS 60 D_	**136.6**	6.6	2300	1.7	2350	22000	3.7	2300	0.95	2350	22000	
AS 60 D_	**151.0**	6.0	2300	1.5	2350	22000	3.3	2300	0.86	2350	22000	
AS 60 D_	**167.7**	5.4	2300	1.4	2350	22000	3.0	2300	0.77	2350	22000	
AS 60 D_	**187.5**	4.8	2300	1.2	2350	22000	2.7	2300	0.69	2350	22000	

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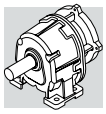
4200 Nm AS 80



	i	n_1= 2800 min^{-1}					n_1 = 1400 min^{-1}					
		n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	R_{n1} N	R_{n2} N	n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	R_{n1} N	R_{n2} N	
AS 80_	**4.34**	645	1900	135	3560	12200	323	2400	85	4380	14900	
AS 80_	**4.8**	583	1900	122	3790	12300	292	2400	77	4760	15800	
AS 80_	**5.33**	525	1900	110	4000	13800	263	2400	69	5000	16800	
AS 80_	**5.96**	470	1900	98	4200	14600	235	2400	62	5000	17800	
AS 80_	**7.37**	380	2600	109	1170	10500	190	3200	67	1450	13000	
AS 80_	**8.14**	344	2600	98	3340	12700	172	3200	61	4150	15700	
AS 80_	**9.05**	309	2600	89	3760	14800	155	3200	55	4800	18300	
AS 80_	**10.12**	277	2600	79	3990	15800	138	3200	49	5000	19500	
AS 80_	**11.4**	246	2900	78	1040	12900	123	3200	43	4200	19900	
AS 80_	**12.6**	222	2900	71	3230	15400	111	3200	39	4850	21100	
AS 80_	**14.0**	200	2900	64	3770	17100	100	3200	35	5000	22400	
AS 80_	**15.65**	179	2900	57	4000	18300	89	3200	32	5000	23800	
AS 80_	**18.46**	152	3000	50	2060	18600	76	3800	32	1750	22600	
AS 80_	**20.4**	137	3200	48	2830	19100	69	3800	29	4400	24000	
AS 80_	**22.67**	124	3800	52	1370	15000	62	3800	26	4900	25500	
AS 80_	**25.35**	110	3800	46	3620	18200	55	3800	23	5000	27200	87
AS 80 D_	**31.2**	90	3800	39	1940	19000	45	3800	19.3	2800	29000	
AS 80 D_	**34.5**	81	3800	35	2070	21100	41	3800	17.4	2900	30500	
AS 80 D_	**38.3**	73	3800	31	2190	23600	37	3800	15.7	3000	31000	
AS 80 D_	**42.8**	65	3800	28	2300	25100	33	3800	14.0	3150	31000	
AS 80 D_	**50.1**	56	3800	24	2140	26100	27.9	3800	12.0	3000	31000	
AS 80 D_	**55.4**	51	3800	22	2250	27600	25.3	3800	10.8	3100	31000	
AS 80 D_	**61.5**	46	3800	19.5	2350	29300	22.8	3800	9.8	3200	31000	
AS 80 D_	**68.8**	41	3800	17.5	2440	31000	20.3	3800	8.7	3300	31000	
AS 80 D_	**77.5**	36	3800	15.5	2260	31000	18.1	3800	7.8	3100	31000	
AS 80 D_	**85.7**	33	3800	14.0	2350	31000	16.3	3800	7.0	3200	31000	
AS 80 D_	**95.2**	29.4	3800	12.6	2440	31000	14.7	3800	6.3	3300	31000	
AS 80 D_	**106.5**	26.3	3800	11.3	2530	31000	13.1	3800	5.6	3400	31000	
AS 80 D_	**125.5**	22.3	3800	9.6	2340	31000	11.2	3800	4.8	3200	31000	
AS 80 D_	**138.7**	20.2	3800	8.7	2430	31000	10.1	3800	4.3	3300	31000	
AS 80 D_	**154.1**	18.2	3800	7.8	2510	31000	9.1	3800	3.9	3400	31000	
AS 80 D_	**172.3**	16.3	3800	7.0	2590	31000	8.1	3800	3.5	3450	31000	

AS 80 — 4200 Nm

	i	n_1= 900 min^{-1}					n_1 = 500 min^{-1}					
		n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	R_{n1} N	R_{n2} N	n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	R_{n1} N	R_{n2} N	
AS 80_	**4.34**	207	3800	87	2280	14200	115	4200	53	2500	31000	
AS 80_	**4.8**	188	3800	78	3380	14200	104	4200	48	2300	31000	
AS 80_	**5.33**	169	3800	71	3000	11900	94	4200	43	4380	31000	
AS 80_	**5.96**	151	3800	63	4720	12400	84	4200	39	5000	31000	
AS 80_	**7.37**	122	3800	51	2120	15500	68	4200	31	3360	31000	
AS 80_	**8.14**	111	3800	46	3540	16000	61	4200	28	5000	31000	
AS 80_	**9.05**	99	3800	42	5000	19300	55	4200	26	5000	31000	
AS 80_	**10.12**	89	3800	37	5000	21700	49	4200	23	5000	31000	
AS 80_	**11.4**	79	3800	33	3650	21800	44	4200	20	5000	31000	
AS 80_	**12.6**	71	3800	30	5000	23500	40	4200	18.4	5000	31000	
AS 80_	**14.0**	64	3800	27	5000	25000	36	4200	16.5	5000	31000	
AS 80_	**15.65**	58	3800	24	5000	26700	32	4200	14.8	5000	31000	
AS 80_	**18.46**	49	3800	20	5000	27800	27.1	4200	12.5	5000	31000	
AS 80_	**20.4**	44	3800	18.5	5000	29400	24.5	4200	11.3	5000	31000	
AS 80_	**22.67**	40	3800	16.6	5000	31000	22.1	4200	10.2	5000	31000	
AS 80_	**25.35**	36	3800	14.9	5000	31000	19.7	4200	9.1	5000	31000	87
AS 80 D_	**31.2**	28.8	4200	13.7	3300	31000	16.0	4200	7.6	3680	31000	
AS 80 D_	**34.5**	26.1	4200	12.4	3438	31000	14.5	4200	6.9	3680	31000	
AS 80 D_	**38.3**	23.5	4200	11.1	3569	31000	13.1	4200	6.2	3680	31000	
AS 80 D_	**42.8**	21.0	4200	10.0	3680	31000	11.7	4200	5.5	3680	31000	
AS 80 D_	**50.1**	18.0	4200	8.5	3522	31000	10.0	4200	4.7	3680	31000	
AS 80 D_	**55.4**	16.2	4200	7.7	3638	31000	9.0	4200	4.3	3680	31000	
AS 80 D_	**61.5**	14.6	4200	6.9	3680	31000	8.1	4200	3.9	3680	31000	
AS 80 D_	**68.8**	13.1	4200	6.2	3680	31000	7.3	4200	3.4	3680	31000	
AS 80 D_	**77.5**	11.6	4200	5.5	3680	31000	6.5	4200	3.1	3680	31000	
AS 80 D_	**85.7**	10.5	4200	5.0	3680	31000	5.8	4200	2.8	3680	31000	
AS 80 D_	**95.2**	9.5	4200	4.5	3680	31000	5.3	4200	2.5	3680	31000	
AS 80 D_	**106.5**	8.5	4200	4.0	3680	31000	4.7	4200	2.2	3680	31000	
AS 80 D_	**125.5**	7.2	4200	3.4	3680	31000	4.0	4200	1.9	3680	31000	
AS 80 D_	**138.7**	6.5	4200	3.1	3680	31000	3.6	4200	1.7	3680	31000	
AS 80 D_	**154.1**	5.8	4200	2.8	3680	31000	3.2	4200	1.5	3680	31000	
AS 80 D_	**172.3**	5.2	4200	2.5	3680	31000	2.9	4200	1.4	3680	31000	

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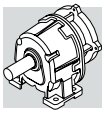
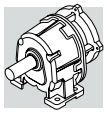
6800 Nm AS 90



	i	n_1= 2800 min^{-1}					n_1 = 1400 min^{-1}					
		n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	R_{n1} N	R_{n2} N	n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	R_{n1} N	R_{n2} N	
AS 90_	**4.34**	645	2800	199	1110	15900	323	3600	128	1640	17800	
AS 90_	**4.8**	583	3000	193	1400	15900	292	4100	132	1280	15000	
AS 90_	**5.33**	525	3200	185	1770	16000	263	4100	119	2490	18000	
AS 90_	**5.96**	470	3300	171	2460	17500	235	4100	106	3660	21100	
AS 90_	**7.37**	380	3300	138	1370	18400	190	4100	86	2350	22200	
AS 90_	**8.14**	344	3600	136	1490	17600	172	4500	85	2430	21000	
AS 90_	**9.05**	309	4000	136	1490	16100	155	5300	90	1760	15700	
AS 90_	**10.12**	277	4300	131	1840	15900	138	5300	81	3000	19500	
AS 90_	**11.4**	246	3800	103	1100	20500	123	4800	65	1840	23900	
AS 90_	**12.6**	222	4000	98	1550	21300	111	5300	65	1850	22000	
AS 90_	**14.0**	200	4500	99	1440	19000	100	5300	58	3010	25900	
AS 90_	**15.65**	179	4700	93	2040	20200	89	5300	52	4130	30100	
AS 90_	**18.46**	152	4000	67	1420	26900	76	5300	44	1690	30400	
AS 90_	**20.4**	137	4500	68	1260	25900	69	6000	45	1410	26800	
AS 90_	**22.67**	124	5000	68	1260	24100	62	6200	42	2250	29200	
AS 90_	**25.35**	110	5600	68	1250	21600	55	6200	38	3430	34000	89
AS 90 D_	**29.5**	95	6200	66	1800	14300	47	6200	33	2670	33900	
AS 90 D_	**32.6**	86	6200	60	1950	18600	43	6200	30	2820	38700	
AS 90 D_	**36.3**	77	6200	54	2090	22900	39	6200	27	2970	40800	
AS 90 D_	**40.6**	69	6200	48	2230	27500	34	6200	24	3100	42000	
AS 90 D_	**50.1**	56	6200	39	2080	28900	27.9	6200	19.6	2950	42000	
AS 90 D_	**55.4**	51	6200	35	2200	33600	25.3	6200	17.7	3080	42000	
AS 90 D_	**61.5**	46	6200	32	2320	38100	22.8	6200	15.9	3190	42000	
AS 90 D_	**68.8**	41	6200	29	2430	40300	20.3	6200	14.3	3300	42000	
AS 90 D_	**77.5**	36	6200	25	2220	41300	18.1	6200	12.7	3090	42000	
AS 90 D_	**85.7**	33	6200	23	2330	42000	16.3	6200	11.4	3200	42000	
AS 90 D_	**95.2**	29.4	6200	21	2430	42000	14.7	6200	10.3	3310	42000	
AS 90 D_	**106.5**	26.3	6200	18	2530	42000	13.1	6200	9.2	3410	42000	
AS 90 D_	**126.1**	22.2	6200	16	2270	42000	11.1	6200	7.8	3150	42000	
AS 90 D_	**139.4**	20.1	6200	14	2380	42000	10.0	6200	7.0	3250	42000	
AS 90 D_	**154.9**	18.1	6200	13	2480	42000	9.0	6200	6.3	3350	42000	
AS 90 D_	**173.2**	16.2	6200	11	2570	42000	8.1	6200	5.7	3450	42000	



AS 90 — 6800 Nm

	i	n_1= 900 min^{-1}					n_1 = 500 min^{-1}					
		n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	R_{n1} N	R_{n2} N	n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	R_{n1} N	R_{n2} N	
AS 90_	**4.34**	207	4300	98	1830	18200	115	5800	74	1010	14100	
AS 90_	**4.8**	188	4800	99	1690	15800	104	6200	71	1600	13600	
AS 90_	**5.33**	169	5300	99	1780	13800	94	6800	70	1820	11300	
AS 90_	**5.96**	151	5800	96	2070	12200	84	6800	63	3630	15900	
AS 90_	**7.37**	122	5300	71	1610	18300	68	6800	51	1620	16400	
AS 90_	**8.14**	111	5800	71	1740	16600	61	6800	46	3260	21100	
AS 90_	**9.05**	99	6200	68	2270	16300	55	6800	41	4840	25900	
AS 90_	**10.12**	89	6200	61	3670	20700	49	6800	37	6370	31000	
AS 90_	**11.4**	79	5800	50	1920	23600	44	6800	33	3470	29600	
AS 90_	**12.6**	71	6200	49	2370	23500	40	6800	30	4960	34600	
AS 90_	**14.0**	64	6200	44	3690	28000	36	6800	27	6390	39900	
AS 90_	**15.65**	58	6200	39	4970	32800	32	6800	24	7670	42000	
AS 90_	**18.46**	49	6200	33	2190	33000	27.1	6800	20	4760	42000	
AS 90_	**20.4**	44	6200	30	3460	37800	24.5	6800	18.4	6140	42000	
AS 90_	**22.67**	40	6200	27	4680	40400	22.1	6800	16.5	7470	42000	
AS 90_	**25.35**	36	6200	24	5870	42000	19.7	6800	14.8	8000	42000	89
AS 90 D_	**29.5**	31	6800	23	3200	41900	16.9	6800	13.0	4260	42000	
AS 90 D_	**32.6**	27.6	6800	21	3360	42000	15.3	6800	11.8	4430	42000	
AS 90 D_	**36.3**	24.8	6800	19.0	3520	42000	13.8	6800	10.6	4580	42000	
AS 90 D_	**40.6**	22.2	6800	17.0	3670	42000	12.3	6800	9.5	4730	42000	
AS 90 D_	**50.1**	18.0	6800	13.8	3500	42000	10.0	6800	7.7	4570	42000	
AS 90 D_	**55.4**	16.2	6800	12.5	3640	42000	9.0	6800	6.9	4700	42000	
AS 90 D_	**61.5**	14.6	6800	11.2	3760	42000	8.1	6800	6.2	4830	42000	
AS 90 D_	**68.8**	13.1	6800	10.0	3890	42000	7.3	6800	5.6	4950	42000	
AS 90 D_	**77.5**	11.6	6800	8.9	3650	42000	6.5	6800	5.0	4720	42000	
AS 90 D_	**85.7**	10.5	6800	8.1	3770	42000	5.8	6800	4.5	4840	42000	
AS 90 D_	**95.2**	9.5	6800	7.3	3890	42000	5.3	6800	4.0	4950	42000	
AS 90 D_	**106.5**	8.5	6800	6.5	4000	42000	4.7	6800	3.6	5000	42000	
AS 90 D_	**126.1**	7.1	6800	5.5	3720	42000	4.0	6800	3.0	4780	42000	
AS 90 D_	**139.4**	6.5	6800	5.0	3830	42000	3.6	6800	2.8	4900	42000	
AS 90 D_	**154.9**	5.8	6800	4.5	3940	42000	3.2	6800	2.5	5000	42000	
AS 90 D_	**173.2**	5.2	6800	4.0	4040	42000	2.9	6800	2.2	5000	42000	

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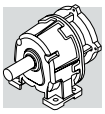


24 - PREDISPOSIZIONI POSSIBILI

Nella tabella (A11) vengono riportati gli abbinamenti motore possibili in termini puramente geometrici.
La scelta del motoriduttore deve essere effettuata seguendo le istruzioni specificate al paragrafo 10, rispettando in particolare la condizione S ≥ fs.

24 - MOTOR AVAILABILITY

Motor-gearbox combinations resulting from chart (A11) are purely based on geometrical compatibility.
When selecting a gearmotor, refer to procedure specified at para 10 and observe particularly the condition S ≥ fs.

24 - ANBAUMÖGLICHKEITEN

In den Tabelle (A11) werden die von den Größen her gesehenen möglichen Passungen angegeben.
Die angemessene Getriebewahl muss unter Befolgung der im Paragraph 10 gegebenen Anleitungen und auf der Grundlage der Auswahltabelle der technischen Daten erfolgen.

24 - PREDISPOSITIONS POSSIBLES

Dans le tableau (A11) sont indiqués les accouplements possibles en termes de dimensions.
Le choix le plus approprié du réducteur à utiliser doit être effectué selon les indications du paragraphe 10, ainsi qu'en fonction des caractéristiques techniques des tableaux de sélection.

(A12)

	i	IEC										
		63	**71**	**80**	**90**	**100**	**112**	**132**	**160**	**180**	**200**	**225**
AS 16	5.53 - 44.73											
AS 20	5.49 - 15.48											
	18.01 - 49.52											
AS 20 D	58.1 - 187.5											
AS 25	5.02 - 49.04											
AS 25 D	60.1 - 192.1											
AS 30	5.11 - 36.82											
AS 30 D	41.2 - 151.1											
AS 35	5.11 - 36.82											
AS 35 D	41.2 - 151.1											
AS 45	4.42 - 27.45							⚠				
AS 45 D	31.1 - 62.7											
	76.8 - 202.1											
AS 55	4.55 - 25.84								⚠			
AS 55 D	29.8 - 77.5											
	87 - 190.3											
AS 60	4.34 - 25.47									⚠		
AS 60 D	30.2 - 76.4											
	88.1 - 187.5											
AS 80	4.34 - 10.12										⚠	
	11.4 - 25.35											
AS 80 D	31.2 - 68.8											
	77.5 - 172.3											
AS 90	4.34 - 25.35											
AS 90 D	29.5 - 68.8											
	77.5 - 172.3											

⚠

In questo caso, se il riduttore è installato in una qualsiasi posizione di montaggio orizzontale è consigliabile che il motore sia nella forma costruttiva IM B35.

⚠

In this case, if the reducer is in any horizontal mounting position, it is recommended that the motor is IM B35 type.

⚠

In diesem Fall, wenn das Getriebe in irgendeiner waagrechten Einlaulage installiert ist, wird empfohlen, einen Motor in der Bauform IM B35 zu verwenden.

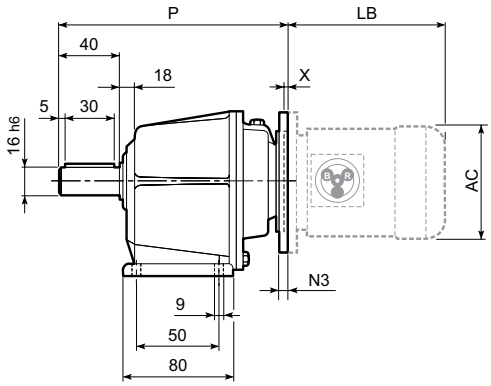
⚠

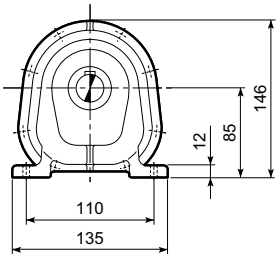
Dans ce cas, si le réducteur est monté dans toute position horizontale, il est préconisé d'avoir un moteur du type IM B35.

AS 16...P(IEC)

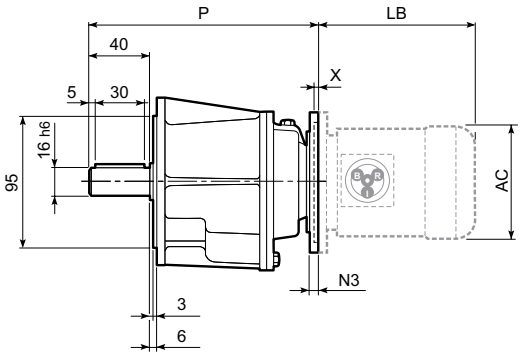
25 - DIMENSIONI *25 - DIMENSIONS* **25 - ABMESSUNGEN** *25 - DIMENSIONS*

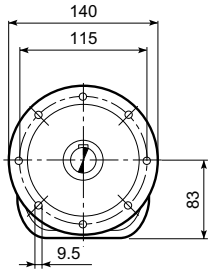
P



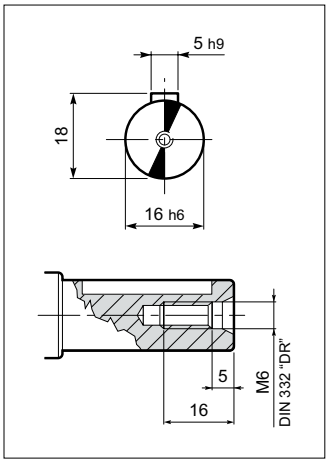


F

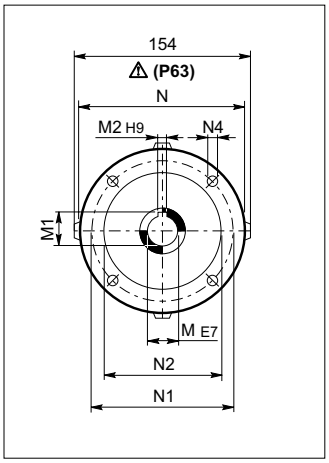




OUTPUT



INPUT



	AS 16													BN...		BN...FD BN...FA	
										P							
	M	M1	M2	N	N1	N2	N3	N4	X	...P	...F	...R	Kg	IEC	LB	AC	LB	AC
AS 16_063	11	12.8	4	140	115	95	-	M8x19	5	170	-	-	3.4	BN 63	184	121	249	121
AS 16_071	14	16.3	5	160	130	110	-	M8x16	5	170	-	-	3.4	BN 71	219	138	280	138

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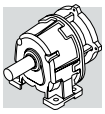
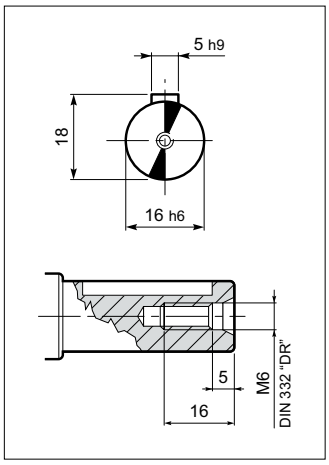
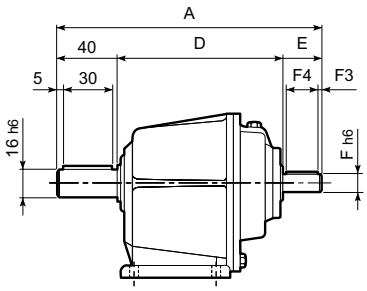
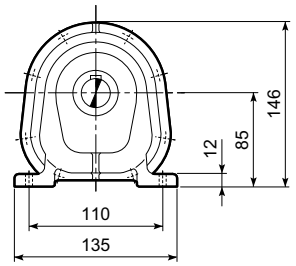
AS 16...HS



OUTPUT

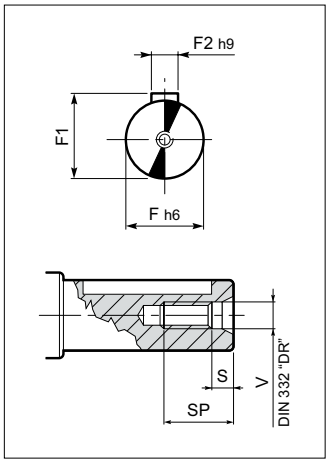


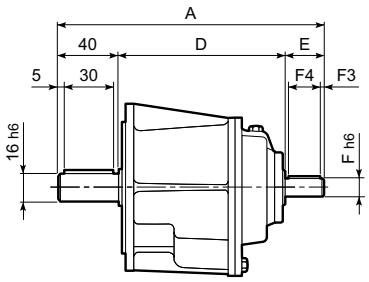


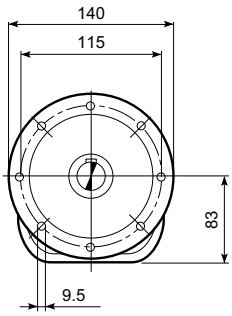


P

INPUT





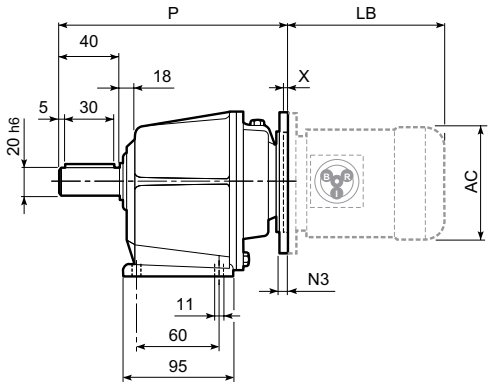


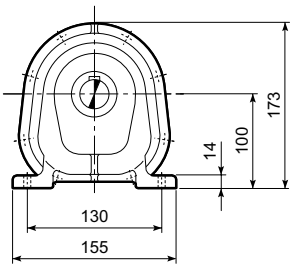
F

	AS 16											
	A	D	E	F	F1	F2	F3	F4	V	S	SP	Kg
AS 16 P_HS	206	126	40	16	18.8	5	5	30	M6	5	16	3.4
AS 16 F_HS	206	126	40	16	18.8	5	5	30	M6	5	16	3.4

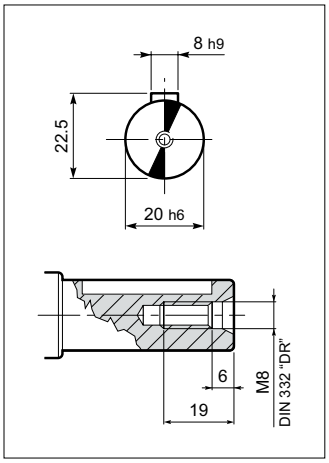
AS 20...P(IEC)

P
DP

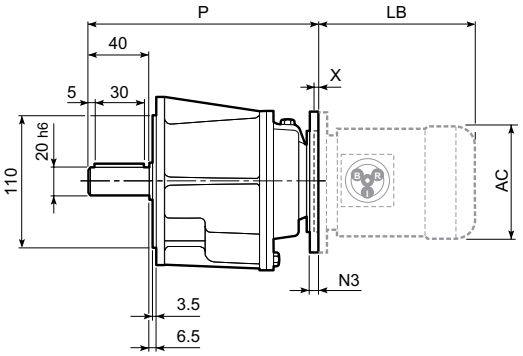


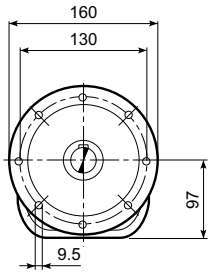


OUTPUT

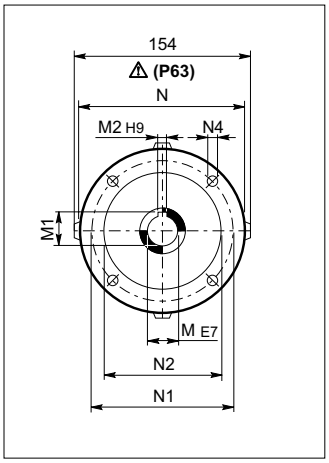


F
DF





INPUT



	AS 20													BN...		BN...FD BN...FA	
										P							
	M	M1	M2	N	N1	N2	N3	N4	X	...P	...F	...R	kg	IEC	LB	AC	LB	AC
AS 20_063	11	12.8	4	140	115	95	-	M8x19	5	195	195	-	6.4	BN 63	184	121	249	121
AS 20_071	14	16.3	5	160	130	110	-	M8x16	5	195	195	-	6.4	BN 71	219	138	280	138
AS 20_080	19	21.8	6	200	165	130	-	M10x12	5	200	200	-	6.4	BN 80	234	156	306	156
AS 20_090	24	27.3	8	200	165	130	-	M10x12	5	200	200	-	6.4	BN 90	276	176	359	176
AS 20 D_063	11	12.8	4	140	115	95	-	M8x19	3.5	194	194	-	6	BN 63	184	121	249	121
AS 20 D_071	14	16.3	5	160	130	110	-	M8x16	3.5	194	194	-	6	BN 71	219	138	280	138

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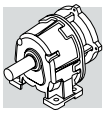
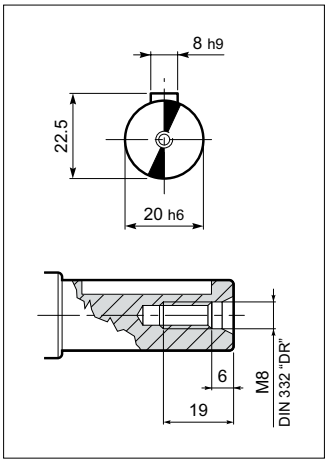
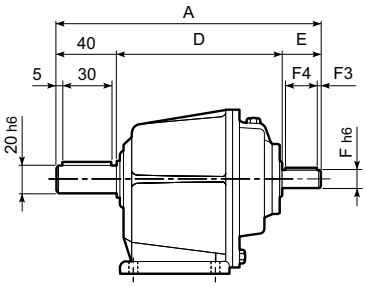
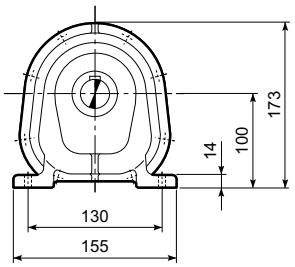
AS 20...HS



OUTPUT

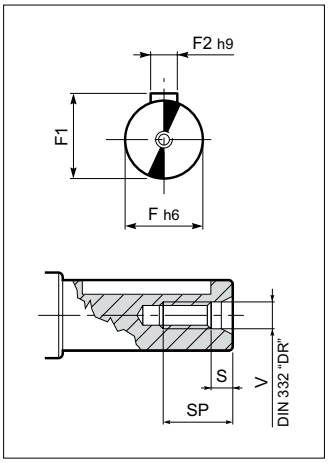


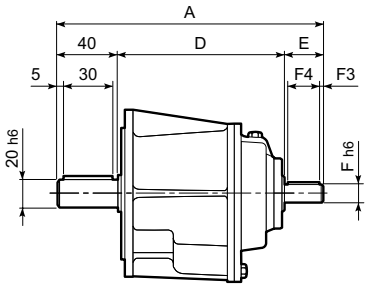


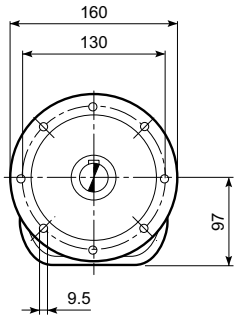


P
DP

INPUT





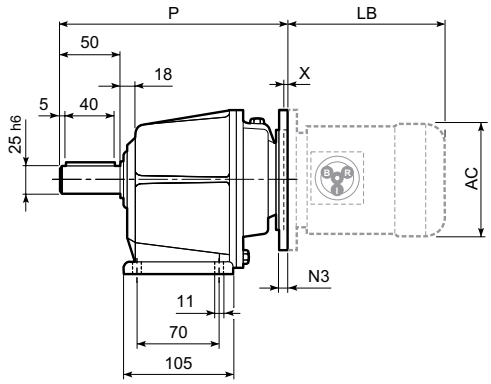


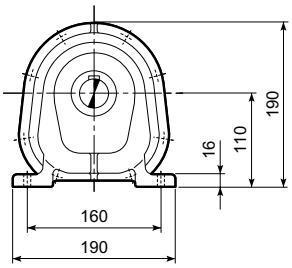
F
DF

	AS 20											
	A	D	E	F	F1	F2	F3	F4	V	S	SP	Kg
AS 20 P_HS	233	153	40	19	21.8	6	5	30	M6	5	16	6.4
AS 20 DP_HS	230	153	40	16	21.8	5	5	30	M6	5	16	6
AS 20 F_HS	233	153	40	19	21.8	6	5	30	M6	5	16	6.4
AS 20 DF_HS	230	153	40	16	18.8	5	5	30	M6	5	16	6

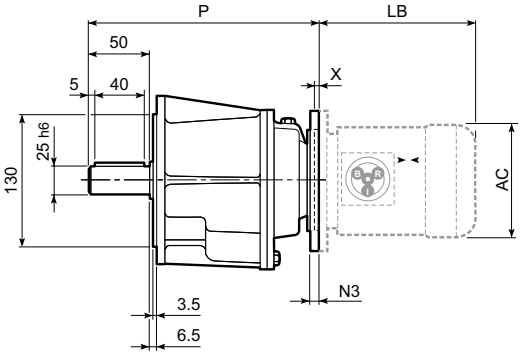
AS 25...P(IEC)

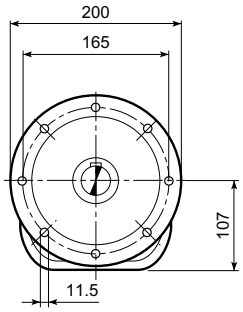
P
DP



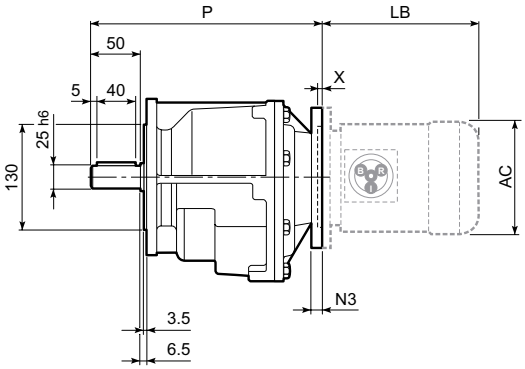


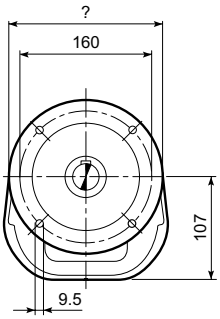
F
DF



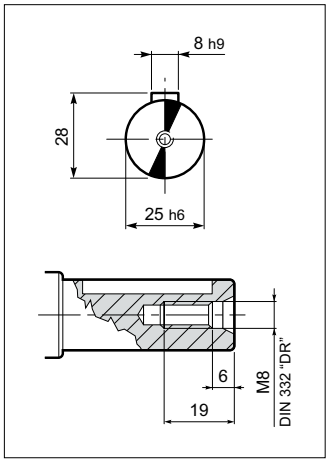


R
DR

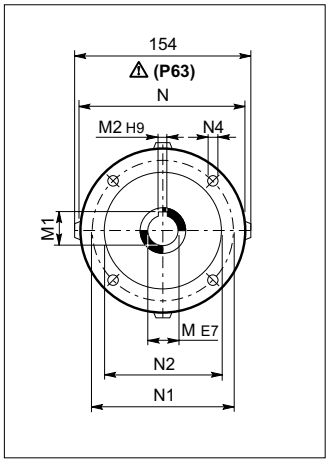




OUTPUT



INPUT



	AS 25									P					BN...		BN...FD BN...FA	
	M	M1	M2	N	N1	N2	N3	N4	X	...P	...F	...R	Kg		LB	AC	LB	AC
AS 25_071	14	16.3	5	160	130	110	-	M8x16	5	214	214	242	14	BN 71	219	138	280	138
AS 25_080	19	21.8	6	200	165	130	-	M10x12	5	219	219	247	14	BN 80	234	156	306	156
AS 25_090	24	27.3	8	200	165	130	-	M10x12	5	219	219	247	14	BN 90	276	176	359	176
AS 25 D_063	11	12.8	4	140	115	95	-	M8x19	3.5	214	194	242	13.5	BN 63	184	121	249	121
AS 25 D_071	14	16.3	5	160	130	110	-	M8x16	3.5	214	194	242	13.5	BN 71	219	138	280	138

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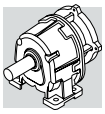
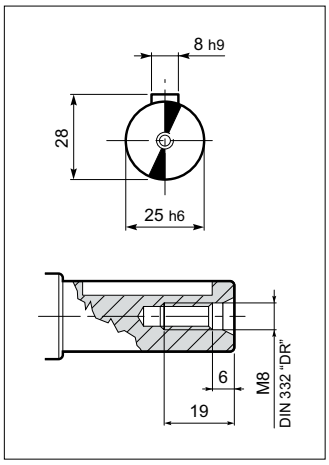
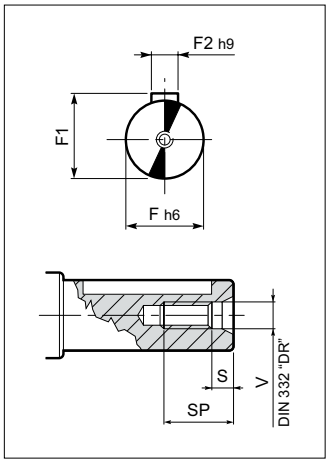
AS 25...HS

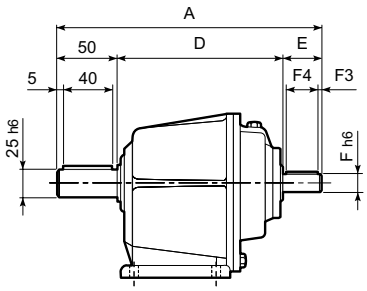


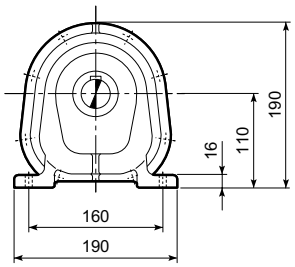
OUTPUT



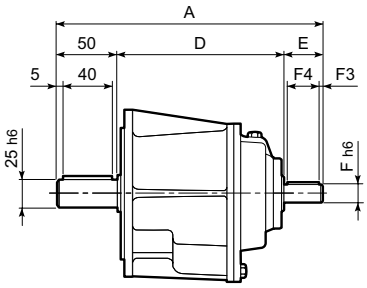
INPUT

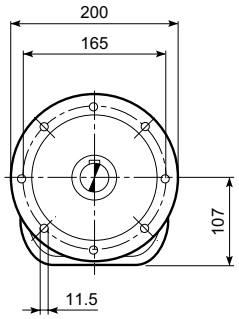




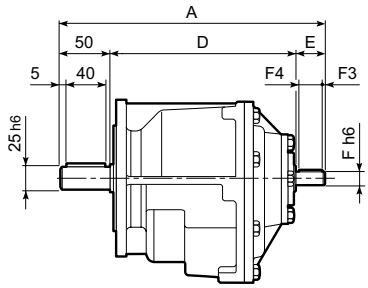


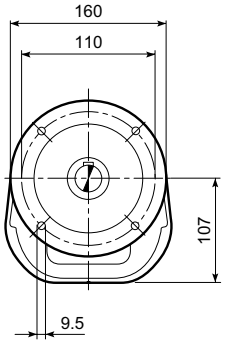
P
DP





F
DF



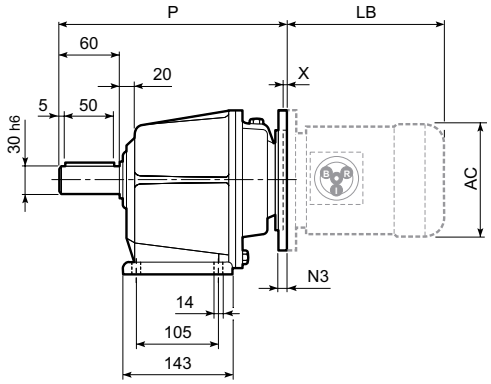


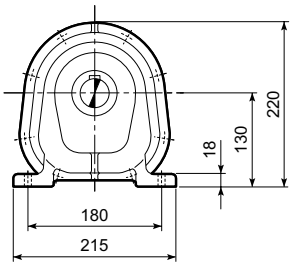
R
DR

	AS 25											
	A	D	E	F	F1	F2	F3	F4	V	S	SP	Kg
AS 25 P_HS	252	162	40	19	21.8	5	5	30	M6	5	16	14
AS 25 DP_HS	250	160	40	16	18.8	5	5	30	M6	5	16	13.5
AS 25 F_HS	252	162	40	19	21.8	5	5	30	M6	5	16	14
AS 25 DF_HS	250	160	40	16	18.8	5	5	30	M6	5	16	13.5
AS 25 R_HS	280	190	40	19	21.8	5	5	30	M6	5	16	14
AS 25 DR_HS	278	188	40	16	18.8	5	5	30	M6	5	16	13.5

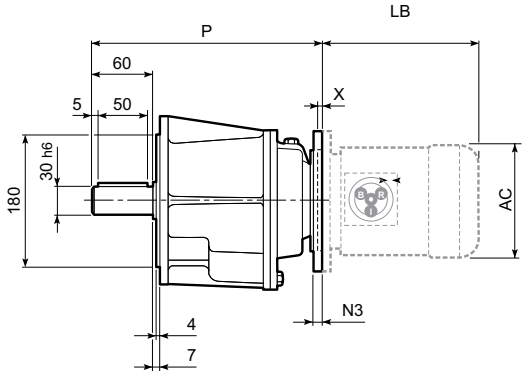
AS 30...P(IEC)

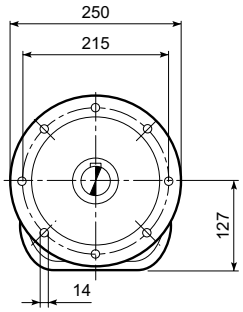
P
DP



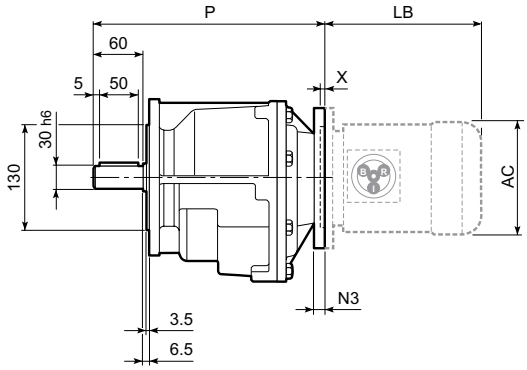


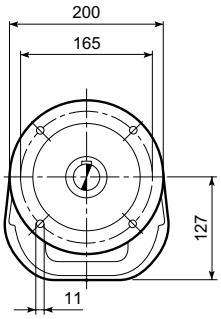
F
DF



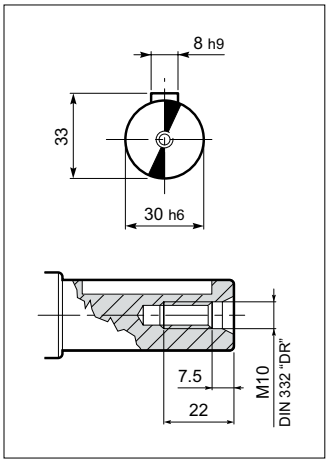


R
DR

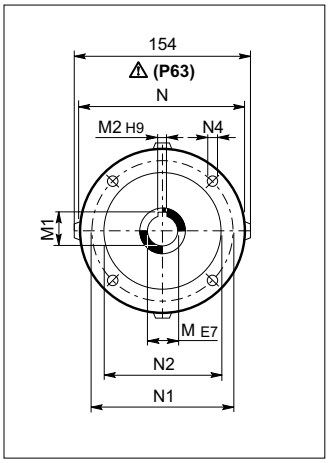




OUTPUT



INPUT



	AS 30													BN...		BN...FD BN...FA	
										P							
	M	M1	M2	N	N1	N2	N3	N4	X	...P	...F	...R	Kg	IEC	LB	AC	LB	AC
AS 30_071	14	16.3	5	160	130	110	-	M8x16	5	284	284	-	23	BN 71	219	138	280	138
AS 30_080	19	21.8	6	200	165	130	-	M10x12	4	284	284	311	23	BN 80	234	156	306	156
AS 30_090	24	27.3	8	200	165	130	-	M10x12	4	284	284	311	23	BN 90	276	176	359	176
AS 30_100	28	31.3	8	250	215	180	-	M12x16	5	284	284	311	23	BN 100	307	195	398	195
AS 30_112	28	31.3	8	250	215	180	-	M12x16	5	284	284	311	23	BN 112	325	219	424	219
AS 30 D_071	14	16.3	5	160	130	110	-	M8x19	5	276	276	303	22.5	BN 71	219	138	280	138
AS 30 D_080	19	21.8	6	200	165	130	-	M10x19	5	281	281	308	22.5	BN 80	234	156	306	156
AS 30 D_090	24	27.3	8	200	165	130	-	M10x12	5	281	281	308	22.5	BN 90	276	176	359	176

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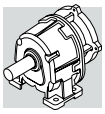
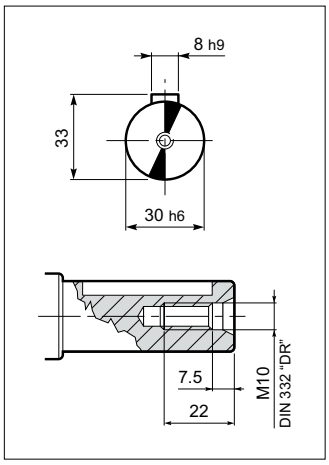
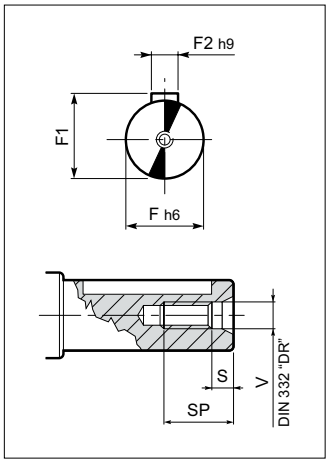
AS 30...HS



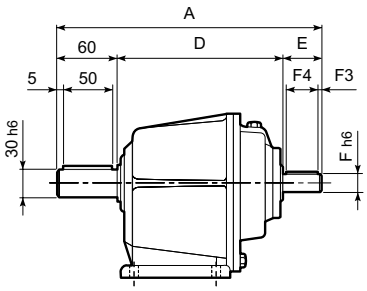
OUTPUT

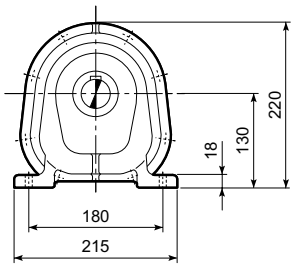


INPUT

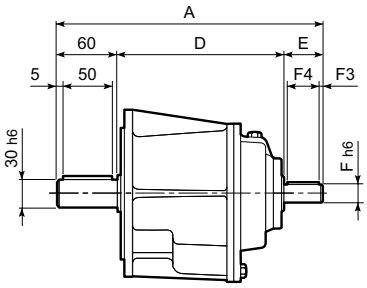


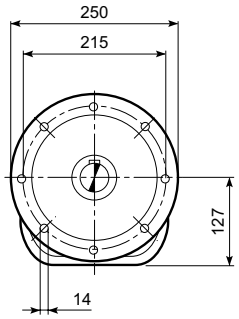
P
DP



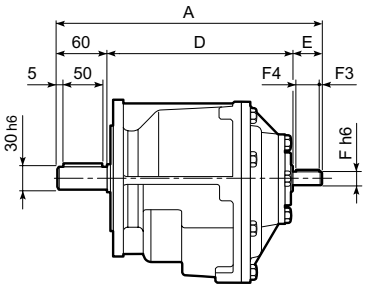


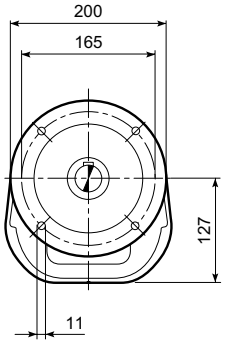
F
DF





R
DR

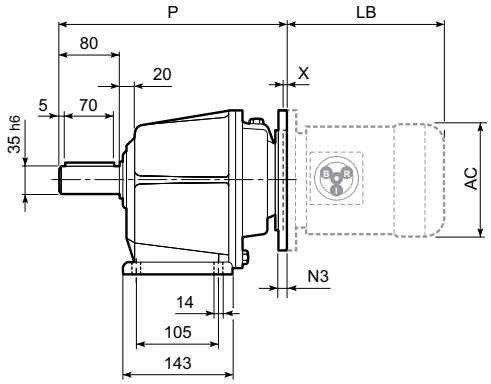


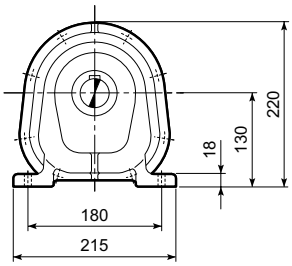


	AS 30											
	A	D	E	F	F1	F2	F3	F4	V	S	SP	Kg
AS 30 P_HS	329	219	50	24	27.3	8	5	40	M8	6	19	23
AS 30 DP_HS	314	214	40	19	21.8	6	5	30	M6	5	16	22.5
AS 30 F_HS	329	219	50	24	27.3	8	5	40	M8	6	19	24
AS 30 DF_HS	314	214	40	19	21.8	6	5	30	M6	5	16	23.5
AS 30 R_HS	356	246	50	24	27.3	8	5	40	M8	6	19	22.5
AS 30 DR_HS	341	241	40	19	21.8	6	5	30	M6	5	16	23.5

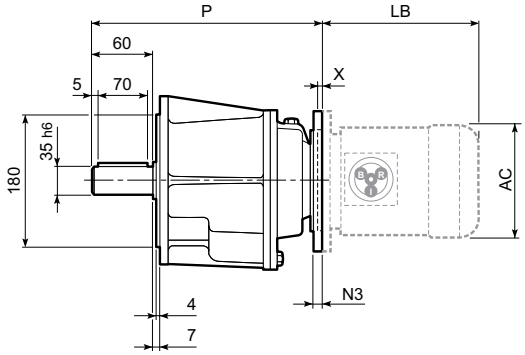
AS 35...P(IEC)

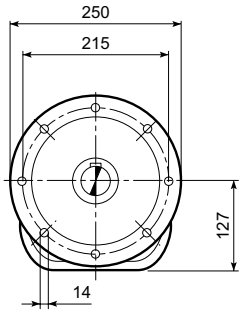
P
DP



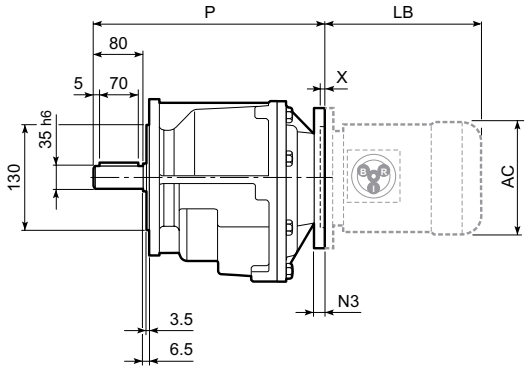


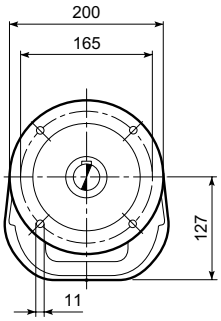
F
DF



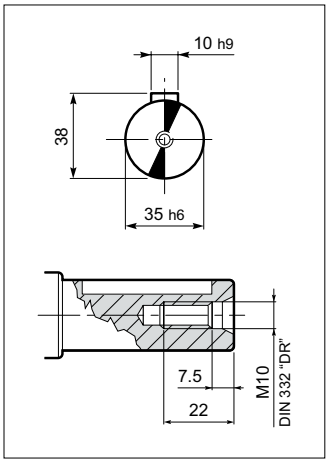


R
DR

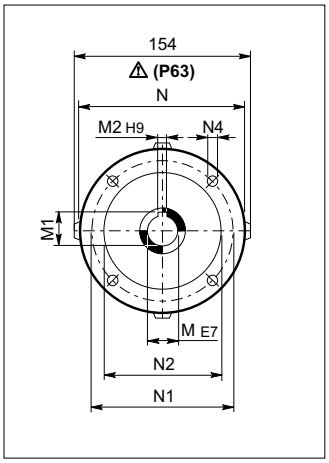




OUTPUT



INPUT



	AS 35													BN...		BN...FD BN...FA	
										P							
	M	M1	M2	N	N1	N2	N3	N4	X	...P	...F	...R	Kg	IEC	LB	AC	LB	AC
AS 35_071	14	16.3	5	160	130	110	-	M8x16	5	304	304	-	24	BN 71	219	138	280	138
AS 35_080	19	21.8	6	200	165	130	-	M10x12	4	304	304	331	24	BN 80	234	156	306	156
AS 35_090	24	27.3	8	200	165	130	-	M10x12	4	304	304	331	24	BN 90	276	176	359	176
AS 35_100	28	31.3	8	250	215	180	-	M12x16	5	304	304	-	24	BN 100	307	195	398	195
AS 35_112	28	31.3	8	250	215	180	-	M12x16	5	304	304	-	24	BN 112	325	219	424	219
AS 35 D_071	14	16.3	5	160	130	110	-	M8x19	5	296	296	323	23.5	BN 71	219	138	280	138
AS 35 D_080	19	21.8	6	200	165	130	-	M10x19	5	301	301	328	23.5	BN 80	234	156	306	156
AS 35 D_090	24	27.3	8	200	165	130	-	M10x12	5	301	301	328	23.5	BN 90	276	176	359	176

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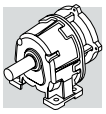
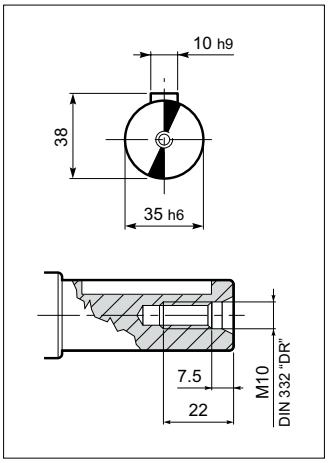
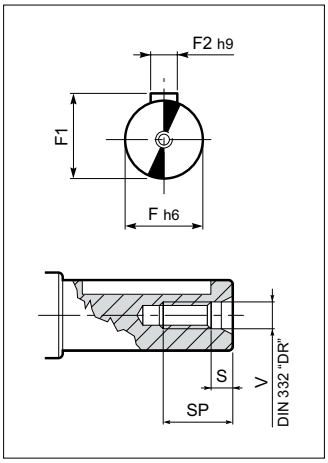
AS 35...HS



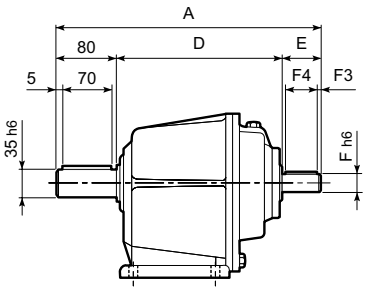
OUTPUT

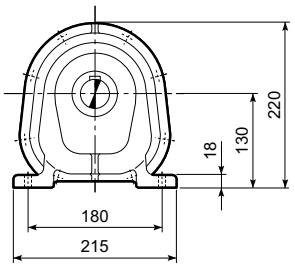


INPUT

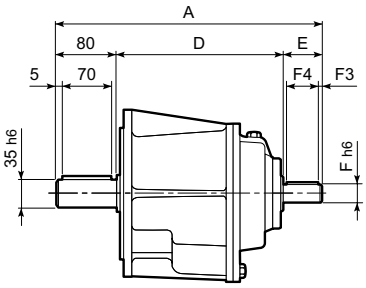


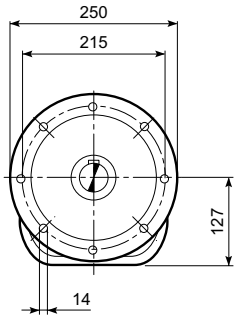
P
DP



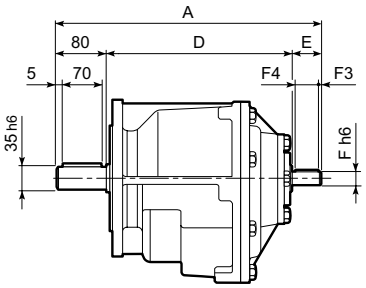


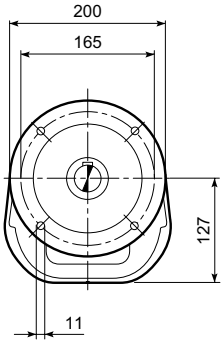
F
DF





R
DR

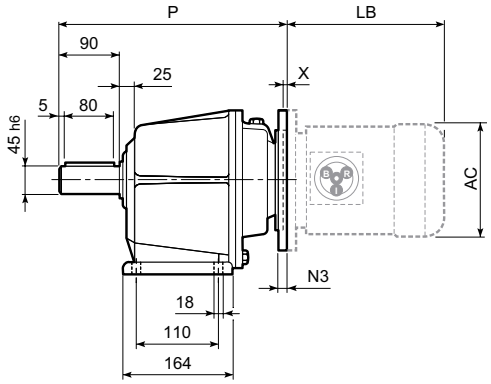


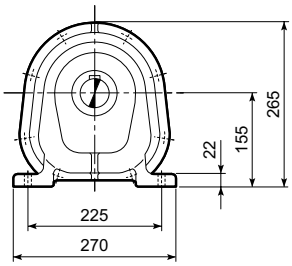


	AS 35											
	A	D	E	F	F1	F2	F3	F4	V	S	SP	Kg
AS 35 P_HS	349	219	50	24	27.3	8	5	40	M8	6	19	24
AS 35 DP_HS	334	214	40	19	21.8	6	5	30	M6	5	16	23.5
AS 35 F_HS	349	219	50	24	27.3	8	5	40	M8	6	19	24
AS 35 DF_HS	334	214	40	19	21.8	6	5	30	M6	5	16	23.5
AS 35 R_HS	376	246	50	24	27.3	8	5	40	M8	6	19	23.5
AS 35 DR_HS	361	241	40	19	21.8	6	5	30	M6	5	16	23

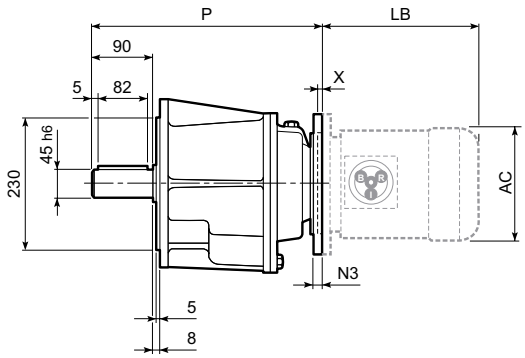
AS 45...P(IEC)

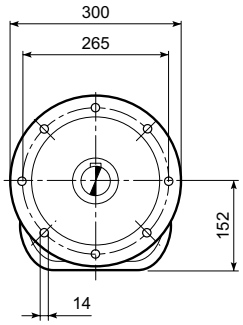
P
DP



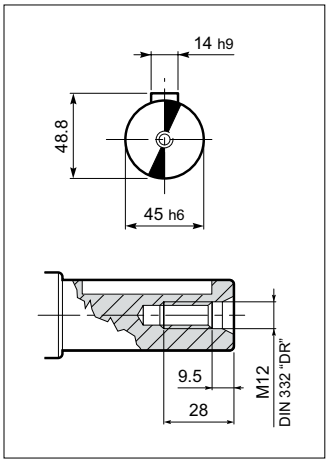


F
DF

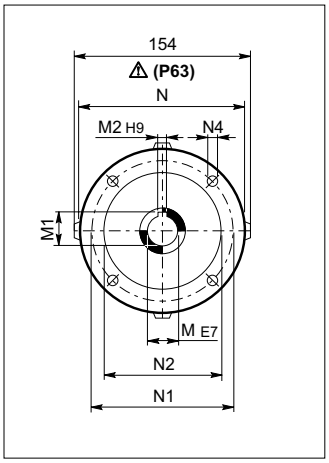




OUTPUT



INPUT



	AS 45									P					BN...		BN...FD BN...FA	
	M	M1	M2	N	N1	N2	N3	N4	X	...P	...F	...R	Kg	IEC	LB	AC	LB	AC
AS 45_090	24	27.3	8	200	165	130	-	M10x12	4	340	340	-	40	BN 90	276	176	359	176
AS 45_100	28	31.3	8	250	215	180	-	M12x16	5	340	340	-	40	BN 100	307	195	398	195
AS 45_112	28	31.3	8	250	215	180	-	M12x16	5	340	340	-	40	BN 112	325	219	424	219
AS 45_132	38	41.3	10	300	265	230	16	14	5	360	360	-	40	BN 132	413	258	523	258
AS 45 D_071	14	16.3	5	160	130	110	-	M8x19	5	350	350	-	35	BN 71	219	138	280	138
AS 45 D_080	19	21.8	6	200	165	130	-	M10x19	5	350	350	-	35	BN 80	234	156	306	156
AS 45 D_090	24	27.3	8	200	165	130	-	M10x20	5	350	350	-	35	BN 90	276	176	359	176

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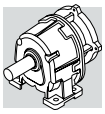
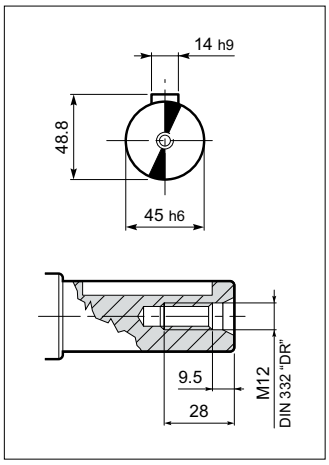
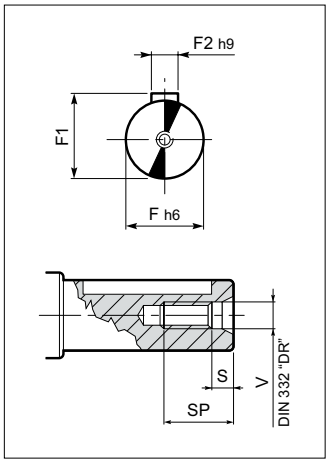
AS 45...HS

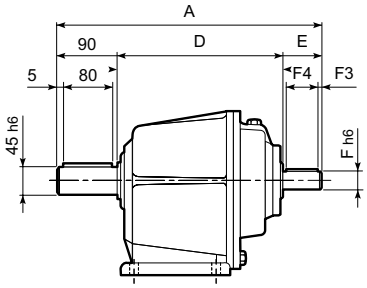


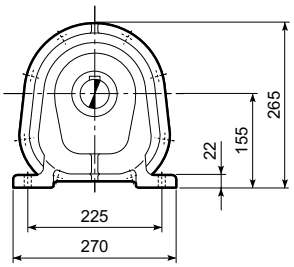
OUTPUT



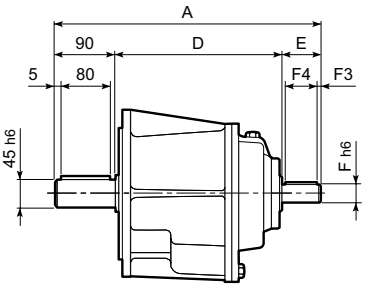
INPUT

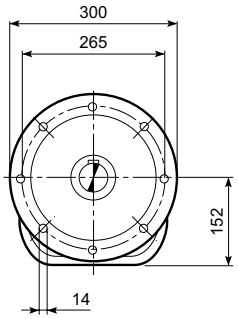






P
DP



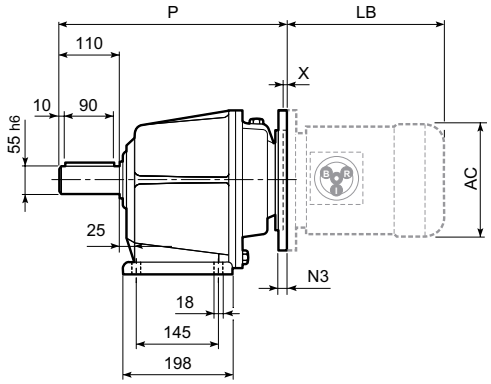


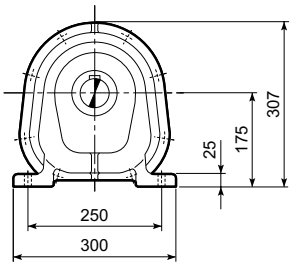
F
DF

	AS 45											
	A	D	E	F	F1	F2	F3	F4	V	S	SP	Kg
AS 45 P_HS	392	245	60	28	31.3	8	5	50	M10	7.5	22	40
AS 45 DP_HS	395	255	50	24	27.3	8	5	40	M8	6	19	35
AS 45 F_HS	392	245	60	28	31.3	8	5	50	M10	7.5	22	40
AS 45 DF_HS	395	255	50	24	27.3	8	5	40	M8	6	19	35

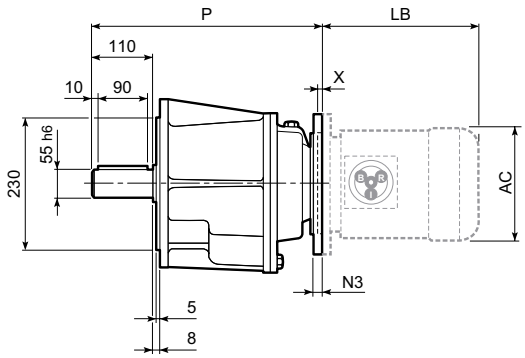
AS 55...P(IEC)

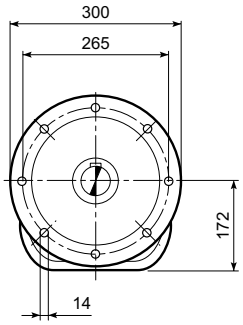
P
DP



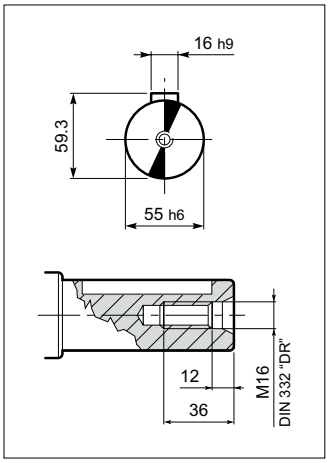


F
DF

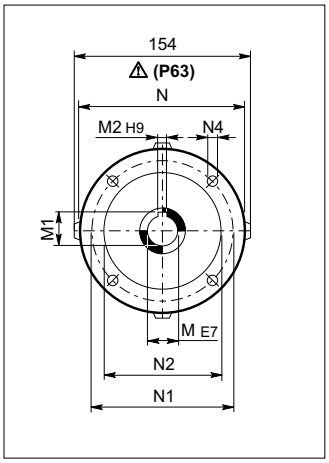




OUTPUT



INPUT



	AS 55														BN...		BN...FD BN...FA	
										P								
	M	M1	M2	N	N1	N2	N3	N4	X	...P	...F	...R	kg	IEC	LB	AC	LB	AC
AS 55_100	28	31.3	8	250	215	180	-	M12x16	5	430	430	-	61	BN 100	307	195	398	195
AS 55_112	28	31.3	8	250	215	180	-	M12x16	5	430	430	-	61	BN 112	325	219	424	219
AS 55_132	38	41.3	10	300	265	230	16	14	5	460	460	-	61	BN 132	413	258	523	258
AS 55_160	42	45.3	12	350	300	250	23	18	6	460	460	-	61	BN 160MR	452	258	562	258
														BN 160M/L	486	310	626	310
AS 55 D_080	19	21.8	6	200	165	130	-	M10x19	4	418	418	-	56	BN 80	234	156	306	156
AS 55 D_090	24	27.3	8	200	165	130	-	M10x20	4	418	418	-	56	BN 90	276	176	359	176
AS 55 D_100	28	31.3	8	250	215	180	-	M12x16	5	418	418	-	56	BN 100	307	195	398	195
AS 55 D_112	28	31.3	8	250	215	180	-	M12x16	5	438	438	-	56	BN 112	325	219	424	219
AS 55 D_132	38	41.3	10	300	265	230	16	14	5	438	438	-	56	BN 132	413	258	523	258

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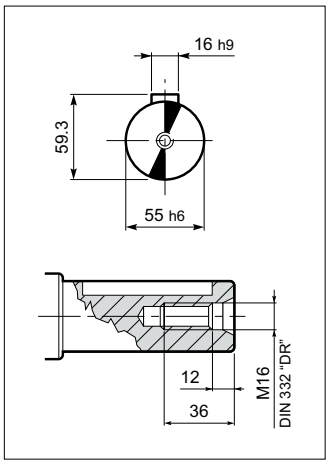
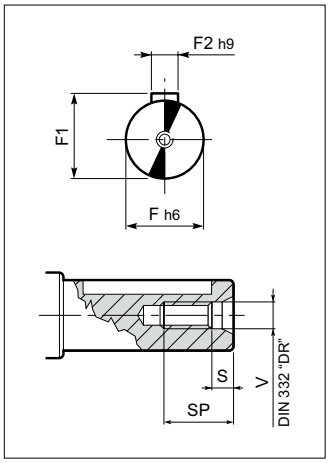
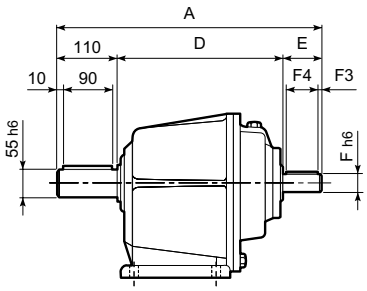
AS 55...HS

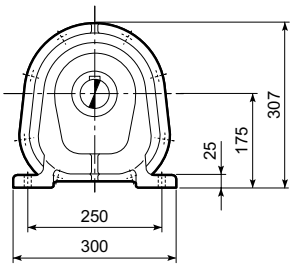
OUTPUT



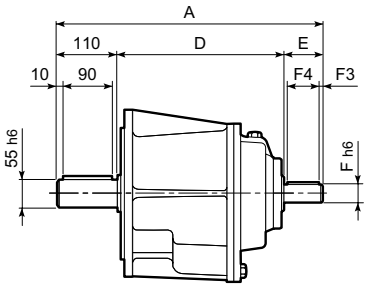
INPUT

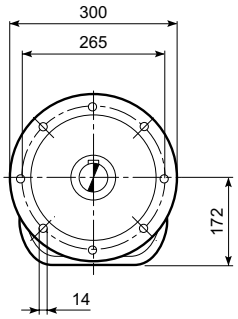






P
DP



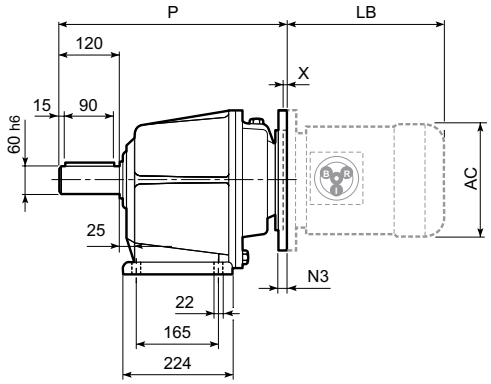


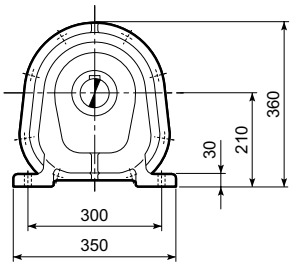
F
DF

	AS 55											
	A	D	E	F	F1	F2	F3	F4	V	S	SP	Kg
AS 55 P_HS	505	315	80	38	41.3	10	10	60	M12	9.5	28	61
AS 55 DP_HS	475	305	60	28	31.3	8	5	50	M10	7.5	22	56
AS 55 F_HS	505	315	80	38	41.3	10	10	60	M12	9.5	28	61
AS 55 DF_HS	475	305	60	28	31.3	8	5	50	M10	7.5	22	56

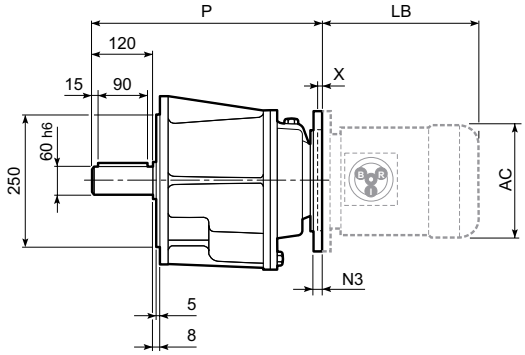
AS 60...P(IEC)

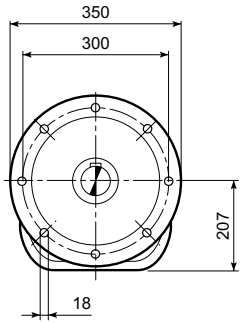
P
DP



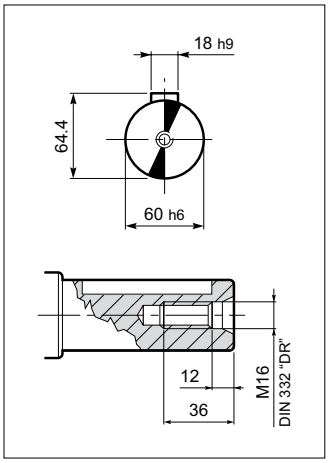


F
DF

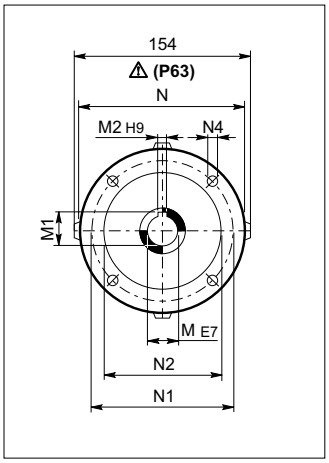




OUTPUT



INPUT



	AS 60													BN...		BN...FD BN...FA	
										P							
	M	M1	M2	N	N1	N2	N3	N4	X	...P	...F	...R	Kg	IEC	LB	AC	LB	AC
AS 60_132	38	41.3	10	300	265	230	16	14	5	470	470	-	91	BN 132	413	258	523	258
AS 60_160	42	45.3	12	350	300	250	23	18	5	495	495	-	91	BN 160MR	452	258	562	258
														BN 160M/L	486	310	626	310
AS 60_180	48	51.8	14	350	300	250	23	18	6	495	495	-	91	BN 180M	530	310	670	310
														BN 180L	598	348	756	348
AS 60 D_080	19	21.8	6	200	165	130	-	M10x19	4	457	457	-	86	BN 80	234	156	306	156
AS 60 D_090	24	27.3	8	200	165	130	-	M10x20	4	457	457	-	86	BN 90	276	176	359	176
AS 60 D_100	28	31.3	8	250	215	180	-	M12x16	5	457	457	-	86	BN 100	307	195	398	195
AS 60 D_112	28	31.3	8	250	215	180	-	M12x16	5	457	457	-	86	BN 112	325	219	424	219
AS 60 D_132	38	41.3	10	300	265	230	16	14	5	477	477	-	86	BN 132	413	258	523	258

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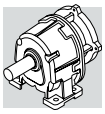
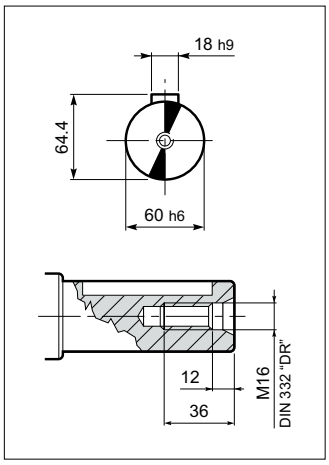
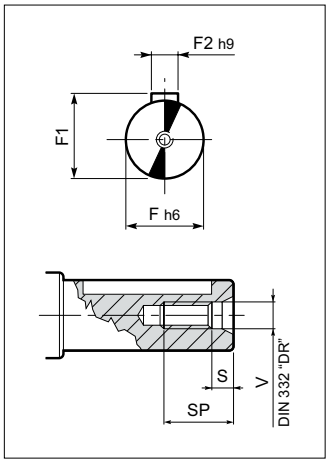
AS 60...HS

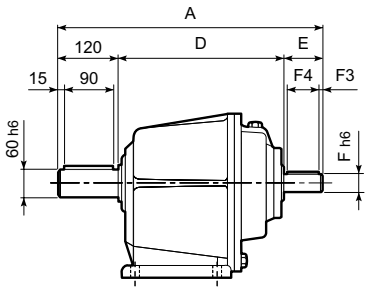


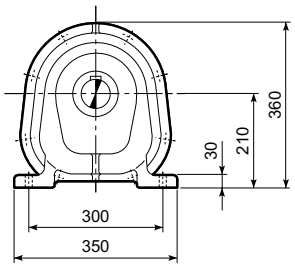
OUTPUT



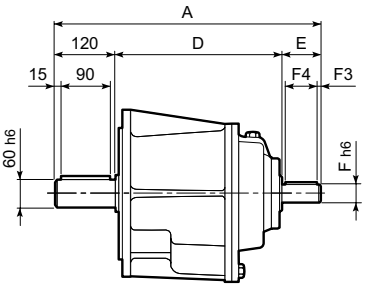
INPUT

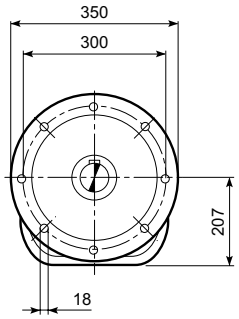






P
DP



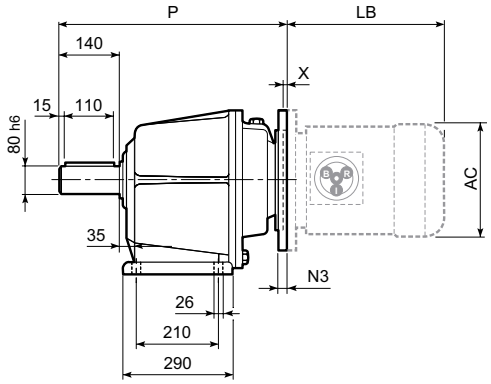


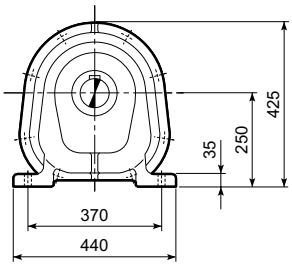
F
DF

	AS 60											
	A	D	E	F	F1	F2	F3	F4	V	S	SP	Kg
AS 60 P_HS	575	345	110	42	45.3	12	10	90	M12	9.5	28	91
AS 60 DP_HS	535	335	80	38	41.3	10	10	60	M12	9.5	28	86
AS 60 F_HS	575	345	110	42	45.3	12	10	90	M12	9.5	28	91
AS 60 DF_HS	535	335	80	38	41.3	10	10	60	M12	9.5	28	86

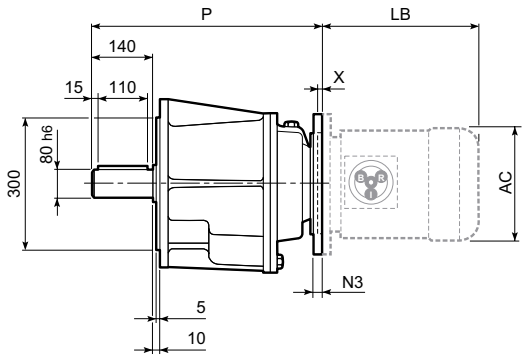
AS 80...P(IEC)

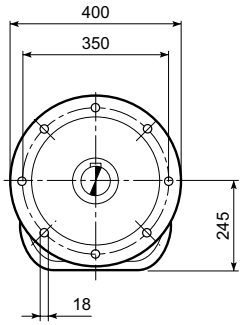
P
DP



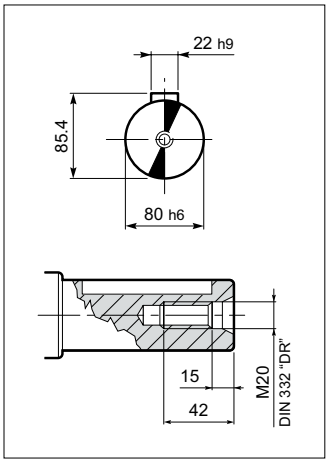


F
DF

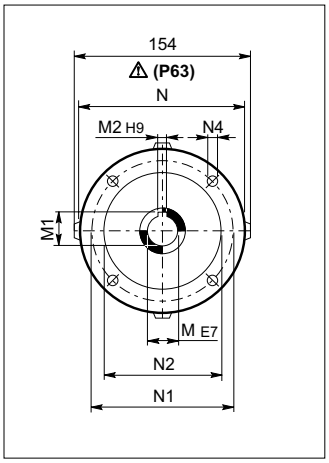




OUTPUT



INPUT



	AS 80														BN...		BN...FD BN...FA	
										P								
	M	M1	M2	N	N1	N2	N3	N4	X	...P	...F	...R	Kg	IEC	LB	AC	LB	AC
AS 80_160	42	45.3	12	350	300	250	23	18	6	600	600	-	152	BN 160MR	452	258	562	258
														BN 160M/L	486	310	626	310
AS 80_180	48	51.8	14	350	300	250	23	18	6	600	600	-	152	BN 180M	530	310	670	310
														BN 180L	598	348	756	348
AS 80_200	55	59.3	16	400	350	300	-	M16x25	6	600	600	-	152	BN 200L	612	348	768	348
AS 80 D_100	28	31.3	8	250	215	180	-	M12x16	5	585	585	-	147	BN 100	307	195	398	195
AS 80 D_112	28	31.3	8	250	215	180	-	M12x16	5	585	585	-	147	BN 112	325	219	424	219
AS 80 D_132	38	41.3	10	300	265	230	16	14	5	615	615	-	147	BN 132	413	258	523	258
AS 80 D_160	42	45.3	12	350	300	250	23	18	5	615	615	-	147	BN 160MR	452	258	562	258
														BN 160M/L	486	310	626	310

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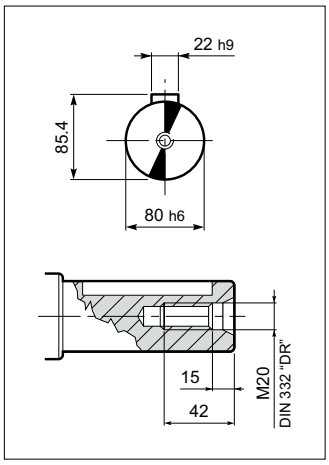
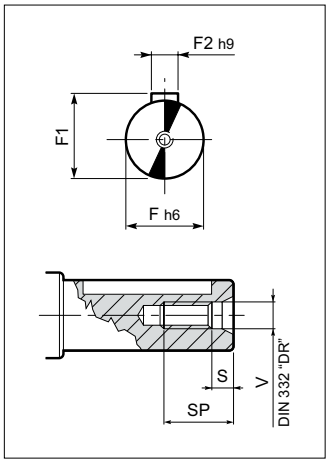
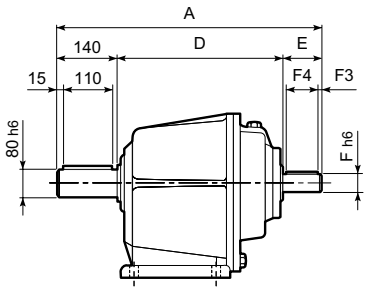
AS 80...HS

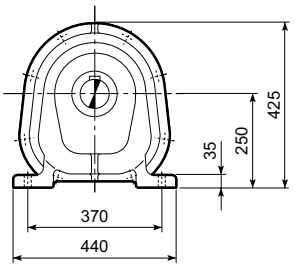
OUTPUT



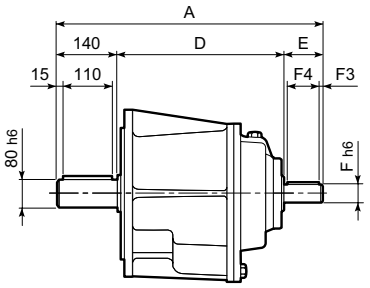
INPUT

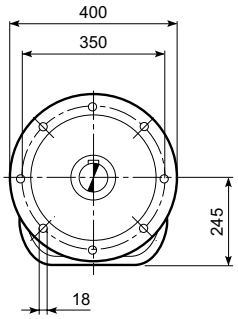






P
DP



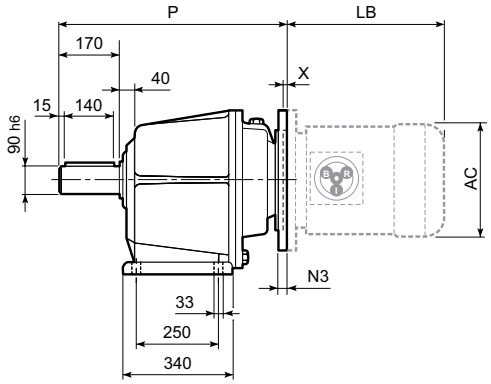


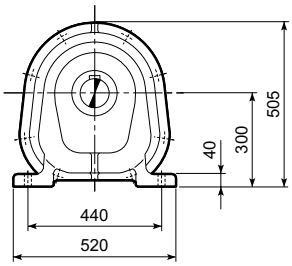
F
DF

	AS 80											
	A	D	E	F	F1	F2	F3	F4	V	S	SP	Kg
AS 80 P_HS	705	455	110	48	51.8	14	10	90	M16	12	36	152
AS 80 DP_HS	690	440	110	42	45.3	12	10	90	M12	9.5	28	147
AS 80 F_HS	705	455	110	48	51.8	14	10	90	M16	12	36	152
AS 80 DF_HS	690	440	110	42	45.3	12	10	90	M12	9.5	28	147

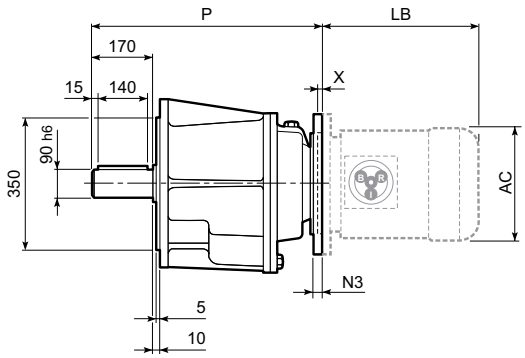
AS 90...P(IEC)

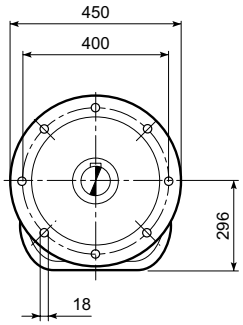
P
DP



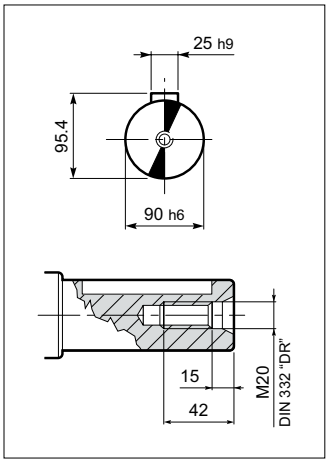


F
DF

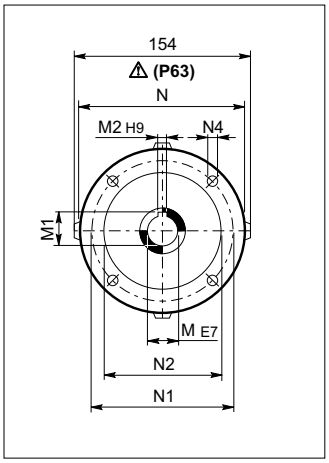




OUTPUT



INPUT



	AS 90									P				BN...		BN...FD BN...FA	
	M	M1	M2	N	N1	N2	N3	N4	X	...P	...F	...R	kg	IEC	LB	AC	LB	AC
AS 90_180	48	51.8	14	350	300	250	23	18	6	685	685	-	239	BN 180M	530	310	670	310
														BN 180L	598	348	756	348
AS 90_200	55	59.3	16	400	350	300	-	M16x25	6	685	685	-	239	BN 200L	612	348	768	348
AS 90_225	60	64.4	18	450	400	350	25	18	6	710	710	-	239	-	-	-	-	-
AS 90 D_100	28	31.3	8	250	215	180	-	M12x16	5	664	664	-	232	BN 100	307	195	398	195
AS 90 D_112	28	31.3	8	250	215	180	-	M12x16	5	664	664	-	232	BN 112	325	219	424	219
AS 90 D_132	38	41.3	10	300	265	230	16	14	5	689	689	-	232	BN 132	413	258	523	258
AS 90 D_160	42	45.3	12	350	300	250	23	18	5	689	689	-	232	BN 160MR	452	258	562	258
														BN 160M/L	486	310	626	310
AS 90 D_180	48	51.8	14	350	300	250	23	18	5	689	689	-	232	BN 180M	530	310	670	310
														BN 180L	598	348	756	348

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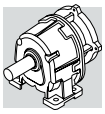
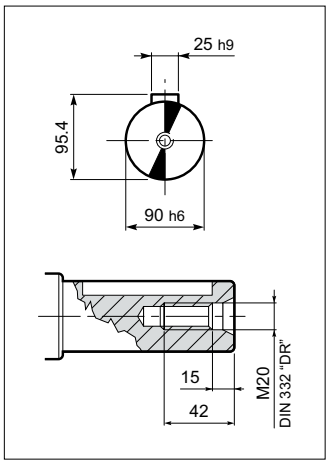
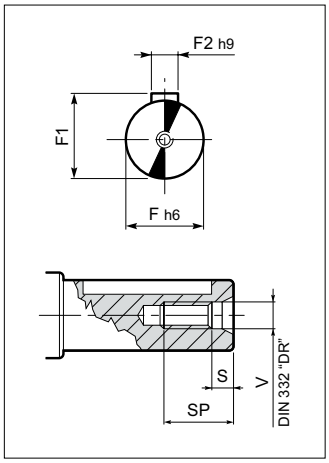
AS 90...HS

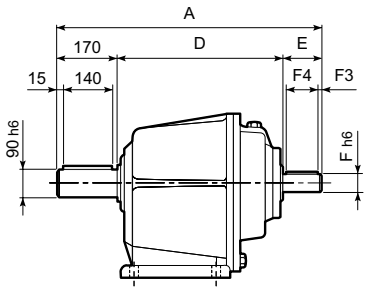


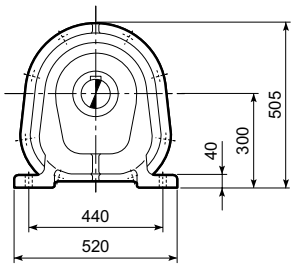
OUTPUT



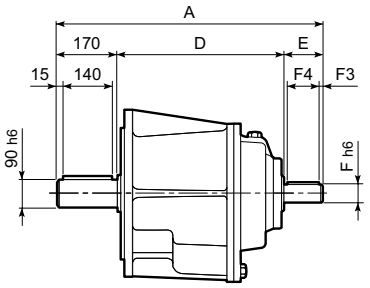
INPUT

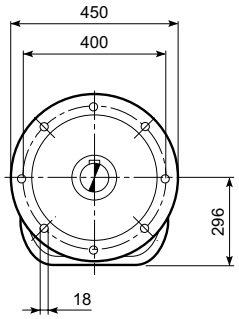






P
DP





F
DF

	AS 90											
	A	D	E	F	F1	F2	F3	F4	V	S	SP	Kg
AS 90 P_HS	787	507	110	55	59.3	16	10	90	M16	12	36	239
AS 90 DP_HS	770	490	110	50	53.8	14	10	90	M16	12	36	232
AS 90 F_HS	787	507	110	55	59.3	16	10	90	M16	12	36	239
AS 90 DF_HS	770	490	110	50	53.8	14	10	90	M16	12	36	232

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Leveringsprogramma

Besturingen

- Frequentieregelaars / Gelijkstroomregelaars
- Servobesturingen / PLC's
- Scada / adaptieve regelsystemen
- Pulsgevers / Encoders / Tacho's
- Industriële besturingscomponenten

Reductoren

- Wormwielreductoren
- Tandwielreductoren
- Planetaire reductoren
- Servo reductoren
- Mobiele aandrijvingen

Motoren

- Draaistroommotoren (met rem) / Wisselstroommotoren (met rem)
- Servomotoren(met rem) / Gelijkstroommotoren (met rem)
- ATEX / Drukvaste motoren (met rem)
- Trilmotoren
- Hydromotoren en remmen

Koppelingen

- Starre / Draaistijve koppelingen
- Flexibele / (Hoog)elastische koppelingen
- Aanloop / Schakelbare koppelingen
- Vrijloop / Veiligheidskoppelingen
- Remkoppelingcombinaties

Open aandrijvingen

- Tandwiel overbrengingen
- Snaar overbrengingen
- Ketting overbrengingen
- Klembussen

Componenten

- Lineaire aandrijvingen / Spindelaandrijvingen
- Remmen (Schijf / Blok / Hydraulisch / Pneumatisch)
- Afstandbedienkabels
- Universele lagers / Klaplagers / Spanassen
- Hydraulische ventielen en appendages

Transport

- Lieren / Takels / Hijs- en heftoebehoren
- Heftafels / Tilhulpmiddelen
- Goederenliften / Huisliften
- Interne logistieke systemen
- Transport equipment

Services

- Reparatie, Revisie en onderhoud van alle fabrikaten aandrijfcomponenten
- MRO (=Maintenance Repair Overhaul)
- Diagnostiek, preventief- en correctief onderhoud "On en off site"
- Wikkelen en balanceren van elektromotoren / generatoren
- Engineering en productie van speciale maatwerkaandrijvingen en refits
- Ontwerp en bouw van besturingssystemen en schakelkasten

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