Bonfiglioli
Riduttori

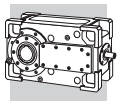
HDO series

Riduttori ad assi ortogonali

Bevel helical gear units

Kegelstirnradgetrieben

Bonfiglioli
power, control and green solutions

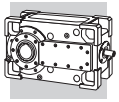


SOMMARIO — *SUMMARY* — ZUSAMMENFASSUNG

Revisioni
L'indice di revisione del catalogo è riportato a pag. 146. Al sito www.bonfiglioli.com sono disponibili i cataloghi con le revisioni aggiornate.

Revisions
Refer to page 146 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 146 wiedergegeben. Auf unserer Website www.bonfiglioli.com werden die Kataloge in ihrer letzten, überarbeiteten Version angeboten.



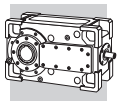
1 - INFORMAZIONI GENERALI
1 - GENERAL INFORMATION
1 - ALLGEMEINE INFORMATIONEN

1.1 - SIMBOLOGIA E UNITÀ DI MISURA
1.1 - SYMBOLS AND UNITS OF MEASUREMENT
1.1 - SYMBOLE UND MASSEINHEITEN

		Descrizione	*Description*	Beschreibung
An $_{1,2}$	[kN]	Carico assiale nominale	*Permissible axial force*	Nominale Axialkraft
$\mathbf{f_S}$	-	Fattore di servizio	*Service factor*	Betriebsfaktor
i	-	Rapporto di trasmissione	*Gear ratio*	Übersetzung
I	-	Rapporto di intermittenza	*Cyclic duration factor*	Relative Einschaltdauer
J	[Kgm^2]	Momento di inerzia	*Mass moment of inertia*	Trägheitsmoment
M $_{1,2}$	[Nm]	Coppia	*Torque*	Drehmoment
Mc $_{1,2}$	[Nm]	Coppia di calcolo	*Calculated torque*	Rechnerisches Drehmoment
Mn $_{1,2}$	[Nm]	Coppia nominale	*Rated torque*	Nennmoment
Mr $_{1,2}$	[Nm]	Coppia richiesta	*Torque demand*	Benötigtes Drehmoment
n $_{1,2}$	[min^{-1}]	Velocità	*Speed*	Drehzahl
P $_{1,2}$	[kW]	Potenza	*Power*	Leistung
Pn $_{1,2}$	[kW]	Potenza nominale	*Rated power*	Nennleistung
Pr $_{1,2}$	[kW]	Potenza richiesta	*Power demand*	Benötigte Leistung
Rc $_{1,2}$	[kN]	Carico radiale di calcolo	*Calculated radial force*	Rechnerische Radialkraft
Rn $_{1,2}$	[kN]	Carico radiale nominale	*Permissible overhung load*	Nominale Radialkraft
η	-	Rendimento	*Efficiency*	Wirkungsgrad

$\square_1$ valore riferito all'albero veloce — $\square_1$ *value applies to input shaft* — $\square_1$ Auf die Antriebswelle bezogener Wert

$\square_2$ valore riferito all'albero lento — $\square_2$ *value applies to output shaft* — $\square_2$ Auf die Abtriebswelle bezogener Wert



1.2 - CARATTERISTICHE COSTRUTTIVE

I riduttori della serie HDO sfruttano tecniche progettuali all'avanguardia ed offrono pertanto:

- Elevate coppie specifiche.
- Rendimenti superiori.
- Vibrazione e rumorosità ridotte.
- Robustezza e affidabilità assolute.
- Calcoli di vita secondo le Norme ISO e AGMA applicabili.
- Ampia personalizzazione tramite la vasta gamma di opzioni offerte a catalogo.

Le principali caratteristiche costruttive della serie di riduttori ad assi ortogonali HDO sono:

- 7 grandezze: HDO 100, 110, 120, 130, 140, 150 e 160 a 2, 3 e 4 stadi di riduzione.
- Valori di coppia nominale con distribuzione favorevole su tutto l'arco dei rapporti.
- Rapporti di trasmissione con progressione costante del 12%.
- HDO 100, 110 e 120: Cassa monoblocco in ghisa sferoidale, rigida, resistente e precisa, verniciata internamente ed esternamente. Design moderno e privo di recessi a garanzia di una pulizia facilitata. Fissaggio universale grazie alle numerose superfici lavorate e forate. Forme e spessori ottimizzati mediante l'analisi FEM garantiscono elevata rigidezza strutturale e ridotte emissioni acustiche con un peso contenuto.
- HDO 130, 140, 150 e 160: Cassa in ghisa sferoidale realizzata in due semigusci, con piano di separazione complanare agli assi. L'architettura consente di realizzare interventi di manutenzione in maniera efficace ed economica. Forme e spessori ottimizzati mediante l'analisi FEM garantiscono elevata rigidezza strutturale e ridotte emissioni acustiche con un peso contenuto.
- Ingranaggi conici e cilindrici in acciaio legato, cementati, temprati e rettificati, con correzione dei profili per:
  - ridurre la rumorosità e favorire la regolarità della trasmissione degli ingranaggi veloci
  - massimizzare la coppia trasmissibile delle riduzioni finali
- Alberi veloci generalmente cementati e rettificati e alberi lenti in acciaio da bonifica di elevata rigidezza.

1.2 - DESIGN FEATURES

The HDO range of gearboxes features advanced design techniques that offer:

- *High specific torque values.*
- *Superior performance.*
- *Silent, vibration-free operation.*
- *Total ruggedness and reliability.*
- *Lifetime calculations according to applicable ISO and AGMA standards.*
- *Extensive customisation through a wide range of catalogue options.*

The main design features of the HDO bevel helical range are:

- *7 frame sizes: HDO 100, 110, 120 130, 140, 150 and 160, with 2, 3, and 4 reduction stages.*
- *Excellent distribution of rated torque values across the entire ratio range.*
- *Gear ratios with constant 12% escalation.*
- *HDO 100, 110 and 120: monobloc casing in rigid, strong and precision machined spheroidal graphite cast iron, with internal and external paint finish. Modern recess-free design for easy cleaning. Universal mounting thanks to large number of machined and drilled surfaces. Casing shapes and thicknesses optimised by FEM analysis for superior structural rigidity, low acoustic emissions and reduced weight.*
- *HDO 130, 140, 150 and 160: spheroidal graphite cast iron body made up of two half-casings, split along the same plane as the shafts. This design makes maintenance operations quick and economical. Casing shapes and thicknesses optimised by FEM analysis for superior structural rigidity, low acoustic emissions and reduced weight.*
- *Case hardened, tempered and ground finished alloyed steel bevel and helical gears, with corrected profiles for:*
  - *more silent operation and smoother running of input gears*
  - *maximum transmissible torque from final reduction stages*
- *Casehardened and ground finished input shafts; output shafts in extremely rigid hardened and tempered steel.*
- *Input shaft configurations:*
  Solid input shaft on same plane as or orthogonal to gear shafts, even simultaneously.

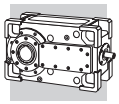
1.2 - BAULICHE EIGENSCHAFTEN

Die Getriebe der Serie HDO nutzen modernste Entwicklungstechniken und bieten daher:

- Hohe spezifische Drehmomente.
- Höhere Wirkungsgrade.
- Reduzierte Vibrationen und Geräuschentwicklung.
- Robuste Bauweise und absolute Zuverlässigkeit.
- Lebensdauerberechnung gemäß den einschlägigen ISO-und AGMA-Normen.
- Weitest gehende Personalisierung durch das breit gefächerte Optionsangebot im Katalog.

Die hauptsächlichen baulichen Merkmale der Kegelstirnradgetriebe HDO sind:

- 7 Größen: HDO 100, 110, 120, 130, 140, 150 und 160 mit 2, 3 und 4 Untersetzungsstufen.
- Nennmomentwerte mit optimaler Verteilung im gesamten Übersetzungsbereich.
- Übersetzungen mit konstantem Stufensprung von 12%.
- HDO 100, 110 und 120: Starres, widerstandsfähiges und präzises Monoblockgehäuse aus Sphäroguss, innen und außen lackiert. Modernes Design ohne Einbuchtungen für eine einfache Reinigung. Universalbefestigung durch die zahlreichen bearbeiteten und gelochten Oberflächen. Mittels FEM- Analysen optimierte Formen und Stärken garantieren hohe Struktursteifheit und reduzierte Schallemissionen bei gleichzeitig geringem Gewicht.
- HDO 130, 140, 150 und 160: 2 Gehäuseschalen aus Sphäroguss mit Teilfuge in Wellenebene Diese Konstruktion gestattet wirksame und wirtschaftliche Serviceeingriffe. Mittels FEM- Analysen optimierte Formen und Stärken garantieren hohe Struktursteifheit und reduzierte Schallemissionen bei gleichzeitig geringem Gewicht.
- Einsatzgehärtete und geschliffene Kegel- und Stirnzahnräder aus legiertem Stahl mit Profilkorrektur, um:
  - die Geräuschentwicklung zu verringern und die gleichförmige Antriebsleistung der schnelllaufenden Zahnräder zu garantieren
  - das von den Enduntersetzungen übertragbare Drehmoment zu maximieren
- Die Antriebswellen sind in der Regel einsatzgehärtet und geschliffen, die Abtriebswellen aus Vergütungsstahl hoher Steifigkeit.



- Configurazioni albero veloce:
  Albero cilindrico con disposizione complanare agli assi oppure ortogonale, anche contemporaneamente. Estremità d'albero secondo UNI/ISO 775-88 (serie lunga). Predisposizione motore mediante campana di collegamento e giunto elastico.
- Configurazioni albero lento:
  - albero cilindrico integrale, a singola o doppia sporgenza, con estremità secondo UNI/ISO 775-88 (serie lunga)
  - albero cavo con sede per linguetta
  - albero cavo con calettatore
- Cuscinetti delle primarie marche del tipo a rulli conici, oppure orientabili a rulli, largamente dimensionati e idonei a sopportare elevati carichi esterni.
- Numerose possibilità di personalizzazione del riduttore tramite le opzioni a richiesta, fra le quali:
  - dispositivi termici ausiliari di raffreddamento/riscaldamento
  - sistemi di lubrificazione forzata
  - dispositivo antiretro
  - flangie di fissaggio, o a manicotto
  - tenute e guarnizioni di diverso tipo e materiale
  - sensori
  - dispositivo dry-well per installazioni con albero verticale
  - organi di fissaggio

Shaft end according to UNI/ISO 775-88 standards (long series).
Provision for motor mounting with coupling bell and flexible joint.

- *Output shaft configurations:*
  - *solid, single or double-extension output shaft with ends conforming to UNI/ISO 775-88 standards (long series)*
  - *hollow shaft with keyway*
  - *hollow shaft with shrink disc*
- *Large, leading brand taper roller or self aligning roller bearings capable of withstanding high external loads.*
- *A wide range of gearbox customisation options available upon request, including:*
  - *auxiliary cooling/heating devices*
  - *forced lubrication systems*
  - *backstop device*
  - *mounting flanges or sleeves*
  - *seals and gaskets in various types and materials*
  - *sensors*
  - *dry-well device for vertical shaft installations*
  - *fixing elements*

- Konfiguration der Antriebswelle:
  Zylindrische Welle auch mit gleichzeitiger komplanarer oder orthogonaler Wellenanordnung. Wellenende gemäß UNI/ISO 775-88 (lange Serie). Vorrüstung für Motoranschluss mit Verbindungsglocke und elastischer Kupplung.
- Konfiguration der Abtriebswelle:
  - Zylindrische Vollwelle mit ein- oder zweifachem Wellenstummel und Wellenende gemäß UNI/ISO 775-88 (lange Serie)
  - Hohlwelle mit Aussparung für Passfeder
  - Hohlwelle mit Schrumpfscheibenverbindung
- Großzügig bemessene Kegel- bzw. Pendelrollenlager führender Marken, für hohe Außenbelastungen ausgelegt.
- Zahlreiche Personalisierungsmöglichkeiten des Getriebes mit den auf Anfrage erhältlichen Optionen, unter anderen:
  - thermische Vorrichtungen zur Kühlung/Wärmung
  - Systeme zur Zwangsschmierung
  - Rücklaufsperre
  - Befestigungsflansche oder -muffe
  - Dichtungen und Dichtmanschetten verschiedener Art und Werkstoffe
  - Sensoren
  - Drywell Vorrichtung für Einbau mit senkrechter Welle
  - Befestigungselemente

1.3 - INSTALLAZIONE

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

- Assicurarsi che il fissaggio del riduttore sia stabile onde evitare qualsiasi vibrazione. Installare (se si prevedono urti, sovraccarichi prolungati o possibili bloccaggi) giunti idraulici, frizioni, limitatori di coppia, ecc.
- Prima della eventuale 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.
- Si consiglia di lavorare gli organi che vanno calettati sugli alberi di uscita del riduttore 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.

1.3 - INSTALLATION

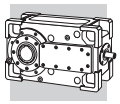
The following installation instructions must be observed:

- *Make sure that the gearbox is correctly secured to avoid vibrations.*
  If shocks or overloads are expected, install hydraulic couplings, clutches, torque limiters, etc.
- *Before being painted, the machined surfaces and the outer face of the oilseals must be protected to prevent paint drying out the rubber and jeopardising the oil-seal function.*
- *Components to be keyed on to the gearbox output shafts should be machined to ISO H7 tolerances to prevent mating surfaces jamming and causing irreparable damage to the gearbox during installation. Suitable pullers and extractors should also be used to fit and remove such components. These should be properly secured to the threaded hole at the end of the shafts.*

1.3 - INSTALLATION

Beim Einbau des Getriebes sind folgende Vorschriften strikt zu befolgen:

- Um Vibration zu vermeiden sicherstellen, dass die Getriebe korrekt befestigt sind. Wenn Stöße, anhaltende Überlasten oder mögliche Blockierungen erwartet werden, Strömungskupplungen, Kupplungen, Drehmomentbegrenzer usw. installieren.
- Während der Lackierung müssen die bearbeiteten Flächen und die Außenkante der Dichtringe geschützt werden, damit der Lack nicht das Gummi austrocknet, und somit die Funktion des Dichtrings.
- Die Komponenten, die auf die Abtriebswellen des Getriebes aufgezogen werden, sollten die Toleranz ISO H7 aufweisen, damit zu fest sitzende Verbindungen vermieden werden, durch die das Getriebe bei der Montage irreparabel beschädigt werden könnte. Für den Ein- und Ausbau dieser Elemente wird außerdem die Verwendung geeigneter Zugstreben oder Abzieher empfohlen, die an der Ge-



- 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.
- Prima della messa in servizio del riduttore accertarsi che la macchina che lo incorpora sia in regola con le disposizioni della Direttiva Macchine 2006/42/CE e successivi aggiornamenti.
- 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 di applicazione.
- Nel caso di istallazione all'aperto prevedere adeguate protezioni e/o carterature allo scopo di evitare l'esposizione diretta agli agenti atmosferici e alla radiazione solare.

- *Mating surfaces must be cleaned and treated with suitable protective products before mounting to avoid oxidation and, as a result, seizure of parts.*
- *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 2006/42/CE.*
- *Before starting up the machine, make sure that oil level conforms to the mounting position specified for the gear unit and viscosity is suitable for the specific application.*
- *For outdoor installation provide adequate guards in order to protect the drive from rainfalls as well as direct sun radiation.*

windebohrung an der Stirnseite am Wellenende angesetzt werden.

- Die Kontaktflächen müssen vor der Montage gesäubert und mit geeigneten Schutzprodukten behandelt werden, um eine Oxidation und folglich die Blockierung der Teile, zu verhindern.
- Vor Inbetriebnahme des Getriebes sicherstellen, dass die Maschine, in die es eingebaut wird, die Vorschriften der Maschinenrichtlinie 2006/42/CE in gültiger Fassung erfüllt.
- Vor Inbetriebnahme der Maschine muss sichergestellt werden, dass der Schmiermittelstand der Einbaulage des Getriebes entspricht und die Viskosität für die Art der Applikation geeignet ist.
- Bei Installation im Freien müssen geeignete Schutzvorrichtungen und/oder Schutzgehäuse vorgesehen werden, um die Getriebe vor direkten Witterungseinflüssen und Sonneneinstrahlung zu schützen.

1.4 - MANUTENZIONE

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 oli di tipo e/o marca differente.
Controllare periodicamente il livello del lubrificante effettuando la sostituzione indicativamente agli intervalli riportati nella tabella.

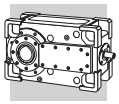
1.4 - MAINTENANCE

It is advisable to change the lubricant after the initial 300 hours of operation and thoroughly clean the interior of the unit with a suitable detergent.
Do not mix different types and/or brands of oil.
Periodically check the oil level, and replace at the intervals given in the chart.

1.4 - WARTUNG

Es wird empfohlen, das Schmiermittel erstmalig nach 300 Betriebsstunden zu ersetzen, und den Getriebeinnenraum mit einem angemessenen Reinigungsmittel sorgfältig zu säubern.
Schmieröle unterschiedlicher Art und/oder Marke nicht mischen.
Regelmäßig den Schmiermittelstand kontrollieren und nach den Angaben der nachfolgenden Tabelle wechseln.

Temperatura olio */ Oil temperature* Öltemperatur [°C]	Intervallo di lubrificazione / *Oil change interval* Schmierintervall [h]	
	olio minerale / *mineral oil* Mineralöl	olio sintetic / *synthetic oil* Synthetiköl
t < 65	8000	25000
65 < t < 80	4000	15000
80 < t < 95	2000	12500



1.5 - STOCCAGGIO

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

- Escludere aree all'aperto, zone esposte alle intemperie o con eccessiva umidità.
- Interporre sempre tra il pavimento ed i prodotti pianali lignei, o di altra natura, atti ad impedire il diretto contatto col suolo.
- Per periodi di stoccaggio e soste prolungate le superfici interessate agli accoppiamenti quali flange, alberi e giunti devono essere protette con idoneo prodotto antiossidante (Tectile 506 EH 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.

1.5 - STORAGE

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

- *Do not store outdoors, in areas exposed to weather or with excessive humidity.*
- *Always place boards, wooden or other material between the products and the floor. The gearboxes should not have direct contact with the floor.*
- *In case of long-term storage all machined surfaces such as flanges, shafts and couplings must be coated with a suitable rust inhibiting product (Tectile 506 EH 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.*

1.5 - LAGERUNG

Befolgen Sie die nachstehenden Punkte um eine korrekte Lagerung der Produkte sicherzustellen:

- Die Getriebe dürfen nicht im Freien sowie an Orten mit hoher Luftfeuchtigkeit gelagert werden.
- Die Produkte nicht direkt auf den Boden, sondern auf Paletten aus Holz oder sonstigem Material stellen.
- Im Falle einer längeren Lagerung bzw. bei längerem Stillstand müssen die Kontaktflächen wie Flansche, Wellen und Kupplungen mit Antioxidationsmittel (Tectile 506 EH oder gleichwertig) geschützt werden. In diesem Fall müssen die Getriebe so aufgestellt werden, dass die Entlüftungsschraube an der höchsten Position ist. Anschließend muss das Getriebe vollständig mit Öl befüllt werden. Vor Inbetriebnahme müssen die Getriebe wieder mit der richtigen Schmiermittelmenge und -art befüllt werden.

1.6 - CONDIZIONI DI FORNITURA

I riduttori vengono forniti come segue:

- già predisposti per essere installati nella posizione di montaggio come definito in fase di ordine;
- collaudati secondo specifiche interne;
- superfici di accoppiamento non verniciate
- provvisti di bulloneria per la flangiatura del motore (se la predisposizione a standard IEC è specificata).

1.6 - CONDITIONS OF SUPPLY

Gear units are supplied as follows:

- *configured for installation in the mounting position specified when ordering;*
- *tested to manufacturer specifications;*
- *mating machined surfaces come unpainted;*
- *nuts and bolts for mounting motors are provided if a flanged motor input is specified.*

1.6 - LIEFERBEDINGUNGEN

Die Getriebe werden wie folgt geliefert:

- ausgelegt für die Installation in der bei Auftragserteilung angegebenen Einbaulage;
- abgenommen gemäß den firmeninternen Spezifikationen;
- die Kontaktflächen sind nicht lackiert;
- Schrauben und Muttern für das Anflanschen des Motors beiliegend (falls die Auslegung nach IEC-Standard spezifiziert ist).

1.7 - VERNICIATURA

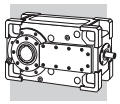
I gruppi HDO sono verniciati a spruzzo con mano di primer epossidico sia internamente che esternamente, seguita da una verniciatura esterna a riduttore finito - colore grigio RAL 7042, spessore complessivo all'esterno 130-180 µm. Spessore complessivo all'interno 80-100 µm.

1.7 - PAINT COATING

HDO gearboxes are internally and externally spray painted with an epoxy primer, and then finished with an epoxy top coating for a total thickness of 130-180 µm. The colour is RAL 7042 grey.
Total thickness of internal coating is 80-100 µm.

1.7 - LACKIERUNG

Die HDO Getriebe sind innen und außen mit Epoxydharzgrundierung spritzbeschichtet und nachträglich, nach der Montage von Getrieben, mit Epoxydharzanstrich überlackiert. Gesamtstärke der Außenschicht 130–180 µm. Farbe Grau RAL 7042. Gesamtstärke der Innenschicht 80–100 µm.



1.8 - FATTORE DI SERVIZIO

I fattori di servizio elencati qui di seguito sono valori empirici basati su specifiche emesse dalle Norme ISO e AGMA e dalla conoscenza maturata dal costruttore in lunghi anni di attività nell'industria. Essi sono applicabili per macchine progettate e realizzate secondo lo stato dell'arte e operanti in condizioni di funzionamento normali.

1.8 - SERVICE FACTOR

Service factors listed here under are empirical values based on AGMA and ISO specifications as well as our experience for use in common applications. They apply for state of the art-designed driven machines and normal operating conditions.

1.8 - BETRIEBSFAKTOR

Die nachstehend aufgeführten Betriebsfaktoren sind empirische Werte, die auf Spezifikationen der ISO- und AGMA-Normen und auf der langjährigen Erfahrung des Herstellers in der Industrie beruhen. Sie gelten für Maschinen, die nach dem Stand der Technik konzipiert wurden und unter normalen Betriebsbedingungen arbeiten.

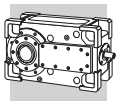
Applicazione	***Application***	**Applikation**	**≤ 10** ore/giorno *hours/day* Std./Tag	**> 10** ore/giorno *hours/day* Std./Tag
AGITATORI, MESCOLATORI	***AGITATORS, MIXERS***	**RÜHRWERKE, MISCHER**		
Liquidi a densità costante	*Pure liquids*	Flüssigkeiten mit konstanter Dichte	1.25	1.50
Liquidi con solidi in sospensione	*Liquids and solids*	Flüssigkeiten mit Schwebstoffen	1.25	1.50
Liquidi a densità variabile	*Liquids - variable density*	Flüssigkeiten mit variabler Dichte	1.50	1.75
SOFFIANTI	***BLOWERS***	**GEBLÄSE**		
Centrifughe	*Centrifugal*	Zentrifugalgebläse	1.00	1.25
A lobi	*Lobe*	Drehkolbengebläse	1.25	1.50
A palette	*Vane*	Drehschiebergebläse	1.25	1.50
CHIARIFICATORI	***CLARIFIERS***	**KLÄRBECKEN**	1.00	1.25
MACCHINE PER LAVORAZIONE DELL'ARGILLA	***CLAY WORKING MACHINERY***	**MASCHINEN FÜR DIE TONBEARBEITUNG**		
Presse per laterizi	*Brick press*	Ziegelpressen	1.75	2.00
Presse per formatura piastrelle	*Briquette machine*	Fliesenpressen	1.75	2.00
Impastatrici	*Pug mill*	Knetmaschinen	1.25	1.50
COMPATTATORI	***COMPACTORS***	**KOMPAKTOREN**	2.00	2.00
COMPRESSORI	***COMPRESSORS***	**VERDICHTER**		
Centrifughi	*Centrifugal*	Zentrifugalverdichter	1.25	1.50
A lobi	*Lobe*	Drehkolbenverdichter	1.25	1.50
Alternativi, pluricilindrici	*Reciprocating, multi-cylinder*	Mehrzylinder-Hubkolbenverdichter	1.50	1.75
Alternativi, monocilindrici	*Reciprocating, single-cylinder*	Einzelzylinder-Hubkolbenverdichter	1.75	2.00
TRASPORTATORI - USO GENERALE	***CONVEYORS - GENERAL PURPOSE***	**FÖRDERER - ALLGEMEINE VERWENDUNG**		
Carico uniformemente distribuito	*Uniformly loaded or fed*	Gleichmäßig verteilte Last	1.15	1.25
- Servizio pesante	*- Heavy duty*	- Schwerer Betrieb		
Carico non uniformemente distribuito	*Not uniformly fed*	Ungleichmäßig verteilte Last	1.25	1.50
- Alternativi o a scosse	*- Reciprocating or shaker*	- Schwing- oder Rüttelförderer	1.75	2.00
GRU (*)	***CRANES (*)***	**KRANE (*)**		
Bacino di carenaggio	***Dry dock***	**Reparaturdock**		
Paranco principale	*Main hoist*	Hauptrollenzug	2.50	2.50
Paranco ausiliario	*Auxiliary hoist*	Hilfsrollenzug	2.50	3.00
Paranco a braccio	*Boom hoist*	Armrollenzug	2.50	3.00
Azionamento rotazione	*Slewing Drive*	Drehantrieb	2.50	3.00
Azionamento traslazione	*Traction Drive*	Fahrantrieb	3.00	3.00
Carrello	***Trolley Drive***	**Wagen**		
Traslazione portale	*Gantry Drive*	Fahrantrieb Kranportal	3.00	3.00
Azionamento traslazione	*Traction Drive*	Fahrantrieb	2.00	2.00
Impiego industriale	***Industrial duty***	**Industrieller Einsatz**		
Paranco principale	*Main hoist*	Hauptrollenzug	2.50	3.00
Paranco ausiliario	*Auxiliary hoist*	Hilfsrollenzug	2.50	3.00
Ponte e	*Bridge and*	Brückenkran	3.00	3.00
Traslazione carrello	*Trolley travel*	Fahrantrieb Kranwagen	3.00	3.00
FRANTUMATORI	***CRUSHER***	**BRECHER**		
Pietre o minerali	*Stone or ore*	Steine oder Minerale	2.00	2.00

(*) - L'indicazione del fattore di servizio in funzione della classificazione FEM è disponibile su richiesta. Consultare il Servizio Tecnico Bonfiglioli.
- Argani per sollevamento di persone: i valori in tabella **non sono applicabili**. Consultare il Servizio Tecnico Bonfiglioli.

(*) - Indication of service factor based on FEM 1.001 classification available upon request. Consult factory.

*- Hoists for passengers lift: charted **values not applicable**. Consult factory.*

(*) - Die Angabe des Betriebsfaktors in Abhängigkeit von der FEM-Einstufung ist auf Anfrage verfügbar. Bitte wenden Sie sich an den technischen Kundendienst von Bonfiglioli.
- Aufzugswinden für Personenaufzüge: Die Tabellenwerte sind **nicht anwendbar bei** Aufzugswinden von Personenaufzügen. Bitte wenden Sie sich an den technischen Kundendienst von Bonfiglioli.



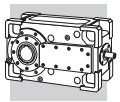
Applicazione	***Application***	**Applikation**	**≤ 10** ore/giorno *hours/day* Std./Tag	**> 10** ore/giorno *hours/day* Std./Tag
DRAGHE	***DREDGES***	**SCHWIMMBAGGER**		
Trasportatori	*Conveyors*	Förderer	1.25	1.50
Azionamenti teste portafrese	*Cutter head drives*	Antriebe Fräsköpfe	2.00	2.00
Vagli	*Screen drives*	Siebe	1.75	2.00
Accatastatori	*Stackers*	Stapler	1.25	1.50
Argani	*Winches*	Aufzugswinden	1.25	1.50
ELEVATORI	***ELEVATORS***	**ELEVATOREN**		
A tazze	*Bucket*	Becherwerke	1.25	1.50
A scarico centrifugo	*Centrifugal discharge*	Mit Zentrifugalentleerung	1.15	1.25
Scale mobili	*Escalators*	Rolltreppen	1.15	1.25
Carico	*Freight*	Beladung	1.25	1.50
Scarico per gravità	*Gravity discharge*	Schwerkraftentleerung	1.15	1.25
ESTRUSORI	***EXTRUDERS***	**STRANGPRESSEN**		
Generalità	*General*	Allgemein	1.50	1.50
Plastica	***Plastics***	**Kunststoff**		
Funzionamento a velocità variabile	*Variable speed drive*	Betrieb bei variabler Drehzahl	1.50	1.50
Funzionamento a velocità fissa	*Fixed speed drive*	Betrieb bei unveränderlicher Drehzahl	1.75	1.75
Gomma	***Rubber***	**Gummi**		
Funzionamento vite continuo	*Continuous screw operation*	Dauer-Schneckenbetrieb	1.75	1.75
Funzionamento vite intermittente	*Intermittent screw operation*	Aussetzender Schneckenbetrieb	1.75	1.75
VENTILATORI	***FANS***	**VENTILATOREN**		
A centrifuga	*Centrifugal*	Zentrifugalventilatoren	1.00	1.25
Torri di raffreddamento	*Cooling towers*	Kühltürme	2.00	2.00
Tiraggio forzato	*Forced draft*	Druckbelüftet	1.25	1.25
Tiraggio indotto	*Induced draft*	Saugzug-Gegenstrom	1.50	1.50
Industriali e ad uso minerario	*Industrial and mine*	Industriell und Verwendung Untertage	1.50	1.50
ALIMENTATORI	***FEEDERS***	**BESCHICKER**		
A piastre	*Apron*	Plattenbandbeschicker	1.25	1.50
A cinghia	*Belt*	Gurtbeschicker	1.15	1.50
A tavola	*Disc*	Tischbeschicker	1.00	1.25
Alternativi	*Reciprocating*	Schwenkbeschicker	1.75	2.00
A vite	*Screw*	Schneckenbeschicker	1.25	1.50
INDUSTRIA ALIMENTARE	***FOOD INDUSTRY***	**NAHRUNGSMITTELINDUSTRIE**		
Impastatrici	*Dough mixer*	Knetmaschinen	1.25	1.50
Tritacarne	*Meat grinders*	Fleischwölfe	1.25	1.50
Affettatrici	*Slicers*	Aufschnittmaschinen	1.25	1.50
GENERATORI DI CORRENTE	***GENERATORS AND EXCITERS***	**STROMERZEUGER**	1.00	1.25
MOLINI A MARTELLO	***HAMMER MILLS***	**HAMMERMÜHLEN**	1.75	2.00
ARGANI (*)	***HOISTS (*)***	**AUFZUGSWINDEN (*)**		
Servizio pesante	*Heavy duty*	Schwerer Betrieb	1.75	2.00
Servizio medio	*Medium duty*	Mittlerer Betrieb	1.25	1.50
Argani a cassetta	*Skip hoist*	Schrägaufzüge	1.25	1.50
INDUSTRIA DEL LEGNO	***LUMBER INDUSTRY***	**HOLZINDUSTRIE**		
Scortecciatrici - avanzamento del mandrino	*Barkers - spindle feed*	Entrindungsmaschinen - Spindelvorschub	1.25	1.50
Azionamento principale	*Main drive*	Hauptantrieb	1.75	1.75
Trasportatori - bruciatori	***Conveyors - burner***	**Förderer - Brenner**	1.25	1.50
Servizio principale o pesante	*Main or heavy duty*	Haupt- oder schwerer Betrieb	1.50	1.50
Tronco principale	*Main log*	Hauptstamm	1.75	2.00
Risegatura, giostra	*Re-saw, merry-go-round*	Sägearbeiten, Karussell	1.25	1.50
Trasportatori	***Conveyors***	**Förderer**		
Lastra	*Slab*	Platte	1.75	2.00
Trasferimento	*Transfer*	Transfer	1.25	1.50
Catene	***Chains***	**Ketten**		
Pavimento	*Floor*	Boden	1.50	1.50
Non stagionato	*Green*	Grünes Holz	1.50	1.75

(*) - L'indicazione del fattore di servizio in funzione della classificazione FEM è disponibile su richiesta. Consultare il Servizio Tecnico Bonfiglioli.
- Argani per sollevamento di persone: i valori in tabella **non sono applicabili**. Consultare il Servizio Tecnico Bonfiglioli.

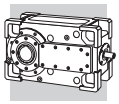
(*) - Indication of service factor based on FEM 1.001 classification available upon request. Consult factory.

*- Hoists for passengers lift: charted **values not applicable**. Consult factory.*

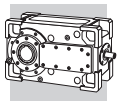
(*) - Die Angabe des Betriebsfaktors in Abhängigkeit von der FEM-Einstufung ist auf Anfrage verfügbar. Bitte wenden Sie sich an den technischen Kundendienst von Bonfiglioli.
- Aufzugswinden für Personenaufzüge: Die Tabellenwerte sind **nicht anwendbar bei** Aufzugswinden von Personenaufzügen. Bitte wenden Sie sich an den technischen Kundendienst von Bonfiglioli.



Applicazione	*Application*	Applikation	≤ 10 ore/giorno *hours/day* Std./Tag	> 10 ore/giorno *hours/day* Std./Tag
Segatrici	***Cut-off saws***	**Handsägen**		
Catena	*Chain*	Kette	1.50	1.75
Trascinamento	*Drag*	Mitnehmer	1.50	1.75
Cilindri di scortecciatura	*Debarking drums*	Schälzylinder	1.75	2.00
Avanzamenti	***Feeds***	**Vorschübe**		
Rifilatrice	*Edger*	Beschneidemaschine	1.25	1.50
Lame multiple	*Gang*	Mehrfachklingen	1.75	1.75
Taglierina	*Trimmer*	Cutter	1.25	1.50
Tronchi in pila	*Log deck*	Gestapelte Stämme	1.75	1.75
Convogliatori di tronchi - rampa - a ruote	*Log hauls - incline - weel type*	Stammförderer - Rampe - mit Rädern	1.75	1.75
Dispositivi ribaltamento tronchi	*Log turning devices*	Stamm-Kippvorrichtungen	1.75	1.75
Avanzamento piallatrice	*Planer feed*	Vorschub Hobelmaschine	1.25	1.50
Paranchi ribaltamento tronchi	*Planer tilting hoists*	Stamm-Kipprollenzüge	1.50	1.50
A rulli	*Rolls - live-off brg. - roll cases*	Mit Rollen	1.75	1.75
Tavola di selezione	*Sorting table*	Selektiertisch	1.25	1.50
Paranco con piano ribaltabile	*Tipple hoist*	Rollenzug mit Kipptisch	1.25	1.50
Trasbordatori	***Transfers***	**Verschiebebühnen**		
Catena	*Chain*	Kette	1.50	1.75
Vie di corsa	*Craneways*	Laufbahnen	1.50	1.75
Azionamento vassoi	*Tray drives*	Tablettantrieb	1.25	1.50
Azionamento torni piallacci	*Veneer lathe drives*	Antrieb Furnierdrehmaschinen	1.25	1.50
STABILIMENTI METALLURGICI	***METAL MILLS***	**METALLURGISCHE WERKE**		
Spintori lastre	*Slab pushers*	Plattenschieber	1.50	1.50
Trance	*Shears*	Scheren	2.00	2.00
Trafilatura	*Wire drawing*	Drahtziehmaschinen	1.25	1.50
Bobinatrice	*Wire winding machine*	Spulmaschine	1.50	1.50
MULINI, TIPO ROTANTE	***MILLS, ROTARY TYPE***	**DREHMÜHLEN**		
Palla e barra	*Ball and rod*	Kugel- und Stabmühlen	2.00	2.00
Corona dentata cilindrica	*Spur ring gear*	Zylindrischer Zahnkranz	2.00	2.00
Corona dentata elicoidale	*Helical ring gear*	Schrauben-Zahnkranz	1.50	1.50
Collegamento diretto	*Direct connected*	Direktverbindung	2.00	2.00
Forni da cemento	*Cement kilns*	Zementöfen	1.50	1.50
Essiccatori e refrigeratori	*Dryers and coolers*	Trockner und Kühler	1.50	1.50
MESCOLATORI	***MIXERS***	**MISCHER**		
Calcestruzzo	*Concrete*	Beton	1.50	1.75
CARTIERE	***PAPER MILLS***	**PAPIERFABRIKEN**		
Agitatore (impastatore)	*Agitator (mixer)*	Rührwerk (Kneter)	1.50	1.50
Agitatore per liscivia pura	*Agitator for pure liquors*	Rührwerk für reine Lauge	1.25	1.25
Cilindri di scortecciatura	*Barking drums*	Schälzylinder	2.00	2.00
Scortecciatrici - meccaniche	*Barkers - mechanical*	Entrindungsmaschinen - mechanisch	2.00	2.00
Raffinatore	*Beater*	Refiner	1.50	1.50
Sfilacciatore	*Breaker stack*	Reißwolf	1.25	1.25
Calandra	*Calendar*	Kalander	1.25	1.25
Sminuzzatrice	*Chipper*	Shredder	2.00	2.00
Alimentatore trucioli	*Chip feeder*	Spänebeschicker	1.50	1.50
Cilindri di patinatura	*Coating rolls*	Patinierzylinder	1.25	1.25
Trasportatori	***Conveyors***	**Förderer**		
Truciolo, corteccia, sostanze chimiche	*Chip, bark, chemical*	Späne, Rinde, Chemikalien	1.25	1.25
Tronco (tavola inclusa)	*Log (including slab)*	Stamm (einschl, Tafel)	2.00	2.00
Presse manicotto	*Couch rolls*	Muffenpressen	1.25	1.25
Fresa	*Cutter*	Fräse	2.00	2.00
Stampi cilindrici	*Cylinder molds*	Zylindrische Werkzeuge	1.25	1.25
Essiccatori	***Dryers***	**Trockner**		
Macchina continua	*Paper machine*	Papiermaschine	1.25	1.25
Tipo a convogliatori	*Conveyors type*	Mit Förderern	1.25	1.25
Goffratrice	*Embosser*	Gaufriermaschine	1.25	1.25
Estrusore	*Extruder*	Strangpresse	1.50	1.50
Macchina per raffinare la polpa	*Jordan*	Halbstoff-Refiner	1.50	1.50
Azionamento forno	*Kiln drive*	Ofenantrieb	1.50	1.50
Rotoli di carta	*Paper rolls*	Papierrollen	1.25	1.25
Piatto	*Platter*	Teller	1.50	1.50
Presse - feltro e aspirazione	*Presses - felt and suction*	Pressen - Filz und Absaugung	1.25	1.25
Impastatrici	*Pulper*	Knetmaschinen	2.00	2.00
Pompe - a vuoto	*Pumps - vacuum*	Vakuumpumpen	1.50	1.50



Applicazione	***Application***	**Applikation**	**≤ 10** ore/giorno *hours/day* Std./Tag	**> 10** ore/giorno *hours/day* Std./Tag
Bobina (tipo superficiale)	*Reel (surface type)*	Flächenspule	1.25	1.25
Setacci	***Screens***	**Siebe**		
Trucioli	*Chip*	Späne	1.50	1.50
Rotanti	*Rotary*	Drehsiebe	1.50	1.50
Vibranti	*Vibrating*	Rüttelsiebe	2.00	2.00
Pressa a misura	*Size press*	Leimpresse	1.25	1.25
Supercalandra	*Super calendar*	Superkalander	1.25	1.25
Addensatore (motore CA)	*Thickener (AC motor)*	Eindicker (AC-Motor)	1.50	1.50
Addensatore (motore CC)	*Thickener (DC motor)*	Eindicker (DC-Motor)	1.25	1.25
Lavatrice (motore CA)	*Washer (AC motor)*	Waschmaschine (AC-Motor)	1.50	1.50
Lavatrice (motore CC)	*Washer (DC motor)*	Waschmaschine (DC-Motor)	1.25	1.25
Supporto di avvolgimento e svolgimento	*Wind and unwind stand*	Auf- und Abwickelhalter	1.25	1.50
Incannatoi (tipo superficiale)	*Winders (surface type)*	Flächenspulmaschinen	1.25	1.25
Essiccatoi Yankee	*Yankee dryers*	Yankee-Trockner	1.25	1.25
INDUSTRIA DELLA PLASTICA	***PLASTICS INDUSTRY***	**KUNSTSTOFFINDUSTRIE**		
Impastatori lotti	*Batch mixers*	Chargenkneter	1.75	1.75
Miscelatori continui	*Continuous mixers*	Dauermischer	1.50	1.50
Impianto di mescolatura	*Compounding mill*	Mischanlagen	1.25	1.25
Calandre	*Calendars*	Kalander	1.50	1.50
Lavorazione secondaria	***Secondary processing***	**Sekundärbearbeitung**		
Impianti di soffiatura	*Blow molders*	Gebläseanlagen	1.50	1.50
Rivestimento	*Coating*	Beschichtung	1.25	1.25
Pellicola	*Film*	Folien	1.25	1.25
Pre-masticatori	*Pre-plasticizers*	Vor-Zerkleinerer	1.50	1.50
Barre	*Rods*	Stäbe	1.25	1.25
Lastra	*Sheet*	Platten	1.25	1.25
Tubi	*Tubing*	Rohre	1.25	1.50
POMPE	***PUMPS***	**PUMPEN**		
Centrifughe	*Centrifugal*	Kreiselpumpen	1.15	1.25
A moto alternativo	***Reciprocating***	**Hubkolbenpumpen**		
A effetto semplice, tre o più cilindri	*Single acting, three or more cylinders*	Einfachwirkend, drei oder mehr Zylinder	1.25	1.50
A doppio effetto, due o più cilindri	*Double acting, two or more cylinders*	Doppeltwirkend, zwei oder mehr Zylinder	1.25	1.50
Rotanti	***Rotary***	**Drehpumpen**		
Tipo a ingranaggi	*Gear type*	Zahnradpumpen	1.15	1.25
A lobi	*Lobe*	Drehkolbenpumpen	1.15	1.25
A pale	*Vane*	Flügelpumpen	1.15	1.25
INDUSTRIA DELLA GOMMA	***RUBBER INDUSTRY***	**GUMMIINDUSTRIE**		
Impastatori interni intensivi	***Intensive internal mixer***	**Interne Intensivkneter**		
Impastatori lotti	*Batch mixers*	Chargenkneter	1.75	1.75
Miscelatori continui	*Continuous mixers*	Dauermischer	1.50	1.50
Raffinatore - due cilindri	*Refiner - two rolls*	Refiner - zwei Zylinder	1.50	1.50
Calandre	*Calendars*	Kalander	1.50	1.50
MOLAZZA PER SABBIA	***SAND MULLER***	**MAHLGANG FÜR SAND**	1.25	1.50
DISPOSITIVI SMALTIMENTO LIQUAMI	***SEWAGE DISPOSAL EQUIPMENT***	**VORRICHTUNGEN FÜR DIE ABWASSERENTSORGUNG**		
Aeratori	*Aerators*	Belüfter	2.00	2.00
Alimentatori sostanze chimiche	*Chemical feeders*	Beschicker von chemischen Substanzen	1.25	1.25
Vagli di disidratazione	*Dewatering screens*	Dehydratisierungssiebe	1.50	1.50
Frangi scorie	*Scum breakers*	Schlackenbrecher	1.50	1.50
Mescolatori lenti o rapidi	*Slow or rapid mixers*	Langsame oder schnelle Mischer	1.50	1.50
Collettori di fanghi	*Sludge collectors*	Schlammsammler	1.25	1.25
Addensatori	*Thickeners*	Schlammverdichter	1.50	1.50
Filtri a vuoto	*Vacuum filters*	Vakuumfilter	1.50	1.50
SETACCI	***SCREENS***	**SIEBE**		
Lavaggio aria	*Air washing*	Luftwäsche	1.00	1.25
Rotanti - pietra o ghiaia	*Rotary - stone or gravel*	Drehsiebe - Stein oder Kies	1.25	1.50
Mobili entrata acqua	*Travelling water intake*	Mobile Siebe Wassereintritt	1.00	1.25
INDUSTRIA DELLO ZUCCHERO	***SUGAR INDUSTRY***	**ZUCKERINDUSTRIE**		
Pelabarbabietole	*Beet slicer*	Rübenschälmaschinen	2.00	2.00
Lame per canne	*Cane knives*	Zuckerrohrmesser	1.50	1.50
Frantoi	*Crushers*	Ölmühlen	1.50	1.50
Mulini (estremità a bassa velocità)	*Mills (low speed end)*	Mühlen (mit niedriger Geschwindigkeit)	1.75	1.75
MACCHINARIO TESSILE	***TEXTILE MACHINERY***	**TEXTILMASCHINEN**	1.25	1.50



1.9 - LUBRIFICAZIONE

Gli organi interni dei riduttori HDO sono lubrificati con un sistema misto di immersione e sbattimento dell'olio. Per velocità di comando inferiori a 500 min^{-1} o superiori a 1500 min^{-1}, consultare preventivamente il Servizio Tecnico di Bonfiglioli.
In funzione della specifica configurazione e posizione di montaggio, i riduttori HDO possono richiedere l'uso di uno dei diversi sistemi di lubrificazione forzata che sono descritti più avanti in questo catalogo. I riduttori sono forniti privi di lubrificante e sarà cura del Cliente immettere, prima della messa in opera, la quantità di olio appropriata.

Le quantità di lubrificante riportate in tabella sono indicative. Per il corretto riempimento si dovrà fare riferimento alla mezzeria del tappo, o dell'astina di livello, se presente.
Rispetto a questa condizione la quantità di lubrificante riportata in tabella può presentare scostamenti, occasionalmente anche rilevanti, in funzione del rapporto o della particolare esecuzione del prodotto.

1.9 - LUBRICATION

HDO gearboxes are internally lubricated by a mixed oil immersion and splash system. Should the drive speed be lower than 500 min^{-1} or greater than 1500 min^{-1}, please contact Bonfiglioli Technical Service for advise.
Depending on the configuration and mounting position, HDO gearboxes may require one of a number of forced lubrication systems described later in this catalogue.
The gearboxes are supplied without lubricant. It is the customer's responsibility to fill them with the appropriate amount of oil before start-up.

The amounts of lubricant given in the chart are indicative. Use the plug hole centre line or the dipstick, if provided, for correct filling. The amount of lubricant given in the chart may vary, sometimes substantially, depending on the ratio or particular execution of the product.

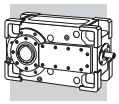
1.9 - SCHMIERUNG

Die Innenteile der Getriebe HDO werden mit einem gemischten System der Tauch- und Ölspritzschmierung geschmiert.
Wenn die Eingangsdrehzahl niedriger als 500 min^{-1} oder höher als 1500 min^{-1}, kontaktieren Sie bitte den Technischen Service von Bonfiglioli.
Je nach spezifischer Konfiguration und Einbaulage erfordern die HDO Getriebe womöglich die Verwendung eines der jeweiligen und nachstehend in diesem Katalog beschriebenen Zwangsschmiersysteme.
Die Getriebe werden ohne Schmiermittel geliefert, wobei Kunde vor Inbetriebnahme die korrekte Ölmenge einfüllen muss.

Die in der Tabelle angegebenen Schmiermittelmengen sind Richtwerte. Für die korrekte Füllung muss auf die Mittellinie des Öleinfüllstutzens oder des Ölstabs (sofern vorhanden) Bezug genommen werden. Je nach Übersetzungsverhältnis oder je nach Ausführung des Produkts können die tatsächlichen Füllmengen unter Umständen auch stark von den Tabellenwerten abweichen.

	oil [l]			
	B3	**B6**	**B7**	**V5**
HDO 100 2	27	42	49	51
HDO 100 3	32	52	56	58
HDO 100 4	34	70		
HDO 110 2	27	44	49	51
HDO 110 3	32	52	56	58
HDO 110 4		70		
HDO 120 2	35	59	64	68
HDO 120 3	45	72	74	79
HDO 120 4		96		
HDO 130 2	57	110	119	128
HDO 130 3	86	138	140	150
HDO 130 4		181		
HDO 140 2	76	117	126	115
HDO 140 3	89	146	147	135
HDO 140 4	88	191		
HDO 150 2	109	174	189	173
HDO 150 3	125	212	217	199
HDO 150 4		281		
HDO 160 2	118	191	204	187
HDO 160 3	135	230	234	214
HDO 160 4		303		

Lubrificante / *Lubricant* / Schmiermittel		Viscosità cinematica a 40°C / *Kinematic viscosity at* 40°C / Kinematische Viskosität 40°C [cSt]		
		ISO VG 220	**ISO VG 320**	**ISO VG 460**
Olio minerale EP *Mineral Oil (EP additives)* **Mineralöl EP**	Tamb	0°C ... 20°C	10°C ... 40°C	20°C ... 50°C
Olio sintetico / *Synthetic oil* Synthetiköl	Tamb	0°C ... 30°C	10°C ... 50°C	—



Nei seguenti casi è necessario prevedere il pre-riscaldamento dell'olio attraverso un'opportuna resistenza elettrica (variante opzionale HE):

- funzionamento a temperature inferiori a 0°C
- avviamento di riduttori lubrificati ad immersione e sbattimento qualora la temperatura ambiente minima non sia superiore di almeno 10°C al punto di scorrimento dell'olio
- avviamento di riduttori con dispositivi di lubrificazione forzata (varianti OP1, OP2, MOP), quando la viscosità dell'olio è superiore a 1800 cst. In funzione del lubrificante utilizzato questo valore si riscontra indicativamente a temperature ambiente comprese fra 10°C e 20°C.

Lubricant must be pre-heated through the appropriate electric resistance (HE option) in the following cases:

- *operation at ambient temperatures lower than 0°C*
- *operation of gear units lubricated by oil immersion and splashing when the minimum ambient temperature exceeds the pour point of lubricant by less than 10°C*
- *upon starting up gear units with forced lubrication systems (options OP1, OP2 or MOP) if the oil viscosity exceeds 1800 cst. Depending of the type of lubricant used, this value may be produced with ambient temperatures between 10°C and 20°C approx.*

In folgenden Fällen muss das Öl mit einem geeigneten elektrischen Heizwiderstand (optionale Variante HE) vorgewärmt werden:

- Betrieb bei Temperaturen unter 0°C
- Anfahren von Getrieben mit Tauch- und Ölspritzschmierung, wenn die niedrigste Umgebungstemperatur mehr als 10° unter dem Fließpunkt des Öls liegt
- Anfahren von Getrieben mit Zwangsschmierung (Varianten OP1, OP2, MOP), wenn die Viskosität des Öls über 1800 cSt liegt. Je nach verwendetem Schmiermittel tritt dieser Wert ungefähr bei Umgebungstemperaturen zwischen 10°C und 20°C auf.

2 - SELEZIONE DEL RIDUTTORE

La selezione ottimale della trasmissione può essere condotta solo previa la piena conoscenza delle condizioni applicative, sia di natura funzionale, che ambientale.

A garanzia di un corretto dimensionamento del prodotto, è vivamente consigliato ricorrere all'esperienza e alla specifica conoscenza del Servizio Tecnico di Bonfiglioli.

2 - SELECTING THE GEAR UNIT

The selection of the drive unit can only be optimized upon knowing both the engineering and the environmental conditions the gearbox will operate into.

For a safe selection it is strongly recommended to rely on the long time experience of the Bonfiglioli Technical Service Dept.

2 - WAHL DES GETRIEBES

Eine optimale Wahl der Uebertragung kann durch eine vollständige Bekanntschaft von allen Anwendungsbedingungen sowohl die zweckmäßige als auch die Umweltbedingungen ausgeführt werden.

Um eine richtige Bemessung zu gewähren, empfehlen wir Sie, an die Dienstleistungsservice von der Bonfiglioli zu wenden.

2.1 - DIMENSIONAMENTO

1. Determinare il rapporto di trasmissione:

2.1 - ENGINEERING SELECTION

1. *First determine the gear ratio:*

2.1 - BEMESSUNG

1. Die Übersetzung ermitteln:

$$i = \frac{n_1}{n_2}$$

2. Calcolare la potenza richiesta $\mathbf{P_{r1}}$ all'albero veloce del riduttore:

2. *Calculate the power P_{r1} required at the input shaft:*

2. Benötigte Leistung $\mathbf{P_{r1}}$ an der Antriebswelle des Getriebes berechnen:

$$P_{r1} = \frac{M_{r2} \times n_2}{9550 \times \eta}$$

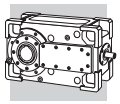
	η
2x	0.96
3x	0.94
4x	0.92

3. Determinare il fattore di servizio $\mathbf{f_s}$ applicabile e il fattore correttivo dipendente dal tipo di organo motore $\mathbf{f_m}$:

3. *Determine the applicable service factor f_s and the adjusting factor f_m depending on prime mover:*

3. Bestimmen Sie den geeigneten Betriebsfaktor $\mathbf{f_s}$ und den Korrekturfaktor $\mathbf{f_m}$ in Abhängigkeit von der Antriebsmaschine:

			f_m
Motore elettrico / Motore idraulico / Turbina	*Electric motor / Hydraulic motor / Turbine*	Elektromotor / Hydraulikmotor / Turbine	1.00
Motore a combustione interna pluricilindrico	*Multi-cylinder internal combustion engine*	Mehrzylinder-Verbrennungsmotor	1.25
Motore a combustione interna monocilindrico	*Single cylinder internal combustion engine*	Einzelzylinder-Verbrennungsmotor	1.50



4. Dalle tabelle dati tecnici selezionare il riduttore con rapporto di trasmissione più prossimo a quello calcolato e caratterizzato da una potenza nominale P_{n1}, tale che:

4. Use the rating charts to select the gear unit with the gear ratio nearest to that calculated, and with a rated power P_{n1}, so that:

4. Aus den technischen Datentabellen ein Getriebe aussuchen, dessen Übersetzungsverhältnis dem berechneten am nächsten kommt, und dessen Nennleistung P_{n1}, die folgende Bedingung ermöglicht:

$$P_{n1} \geq P_{r1} \times f_s \times f_m$$

2.2 - VERIFICHE

2.2.1 - CARICHI IMPULSIVI

In presenza di cicli di lavoro intermittenti, o caratterizzati da urti, avviamenti a pieno carico o elevati carichi inerziali, per il valore di coppia istantanea M_p sviluppata nel ciclo di funzionamento si deve verificare la seguente condizione:

2.2 - VERIFICATIONS

2.2.1 - SHOCK LOADING

For intermittent duty, impact/shock loading applications or start-ups under full load or with high inertial loads, make sure the following condition is satisfied for momentary peak torque M_p generated during the operating cycle:

2.2 - KONTROLLEN

2.2.1 - STOSSBELASTUNG

Stellen Sie sicher, dass im Fall von aussetzenden Arbeitszyklen, oder bei Arbeitszyklen die durch Stöße, Anlaufen unter Volllast oder durch hohe Trägheitskräfte gekennzeichnet sind, folgende Bedingung, für kurzzeitige Spitzenmomente M_p die während des Betriebs erzeugt werden, eingehalten wird:

$$M_p \leq M_{n2} \times f_p$$

Picchi/ora / *Peaks/hour* Spitzenwerte/Stunde		f_p				
		1	**2 ... 10**	**11 ... 50**	**51 ... 100**	**> 100**
Tipo di moto *Drive* Bewegungsart	Direzione costante *Constant direction* Konstante Richtung	2.0	1.6	1.3	1.1	1.0
	Inversioni di moto *Reversals* Reversierbetrieb	1.4	1.1	0.9	0.8	0.7

Per la configurazione S (albero lento con calettatore) eseguire la verifica considerando i seguenti valori:

For configuration S (output shaft with shrink disc), use the following values to verify applicability:

Für die Konfiguration S (Abtriebswelle mit Schrumpfverbindung) die Überprüfung unter Berücksichtigung folgender Werte ausführen:

Picchi/ora / *Peaks/hour* Spitzenwerte/Stunde		f_p		
		1 ... 50	**51 ... 100**	**> 100**
Tipo di moto *Drive* Bewegungsart	Direzione costante *Constant direction* Konstante Richtung	1.3	1.1	1.0
	Inversioni di moto *Reversals* Reversierbetrieb	0.9	0.8	0.7

Se la condizione suddetta non fosse verificata prevedere l'installazione di un dispositivo limitatore di coppia, oppure considerare la selezione di un riduttore di taglia superiore.

If the above condition is not satisfied, consider installing a torque limiter or selecting a gear unit of the next size up.

Wenn die oben genannte Bedingung nicht erfüllt wird, muss ein Drehmomentbegrenzer installiert oder ein größeres Getriebe gewählt werden.

2.2.2 - ABBINAMENTO MOTORE

Per il riduttore selezionato verificare la disponibilità della relativa flangia di accoppiamento nella sezione 3.5.
La normalizzazione tipica dei motori elettrici può portare a selezionare un motore caratterizzato da potenza di tar-

2.2.2 - MOTOR MOUNTING

Verify that the appropriate motor adapter is available for the selected gear unit. See section 3.5.
Because of standardisation, the rated power of the electric motor selected might be greater than power P_{r1} actually

2.2.2 - MOTORZUSAMMENSTELLUNG

Für das gewählte Getriebe im Abschnitt 3.5 die Verfügbarkeit des entsprechenden Kupplungsflansches überprüfen.
Aufgrund der Normierung von Elektromotoren kann es dazu kommen, dass ein Motor gewählt wird, dessen Nennlei-

ga superiore, anche considerevolmente, alla potenza nominale P_{n1} del riduttore che si è dimensionato. Verificare che in nessuna condizione del ciclo di lavoro la maggiore potenza erogabile dal motore elettrico sia effettivamente sviluppata. In presenza di dati di calcolo incerti, o di dubbi sull'effettivo diagramma di carico dell'applicazione è consigliabile installare un dispositivo limitatore di coppia.

requested by the application. Make sure that the electric motor will never develop the extra power at any stage of the operating cycle. If you have any doubts about the validity of the application data, or uncertainty concerning the actual load pattern, install a torque limiting device or proportionally revise the applicable service factor.

stung P_{n1} größer als die erforderliche Leistung P_{r1} für die Anwendung ist. Es muss sichergestellt werden, dass diese überschüssige Leistung zu keiner Zeit an das Getriebe abgegeben wird. Sollten Zweifel oder Unsicherheiten bezüglich der Belastungs- oder Anwendungsdaten bestehen, empfiehlt sich die Installation eines Drehmomentbegrenzers.

2.2.3 - DISPOSITIVO ANTI-RITORNO

Se il riduttore è specificato con dispositivo anti-ritorno, verificare la capacità di carico di quest'ultimo nella relativa sezione 3.6.3 di questo catalogo e assicurarsi che il valore di coppia massima M_{1MAX} non sia mai trasmesso al riduttore durante il suo funzionamento.

2.2.3 - BACKSTOP DEVICE

If the gear unit is specified with a backstop, verify the load capacity of the device at section 3.6.3 of this catalogue and make sure the torque M_{1MAX} is never exceeded in operation.

2.2.3 - RÜCKLAUFSPERRE

Wird das Getriebe mit Rücklaufsperre bestellt, muss deren Belastbarkeit im entsprechenden Abschnitt 3.6.3 dieses Katalogs überprüft werden; zudem ist sicherzustellen, dass der Wert des maximalen Drehmoments M_{1MAX} während des Betriebs niemals auf das Getriebe übertragen wird.

2.2.4 - FORZA RISULTANTE SULL'ALBERO

Organi di trasmissione calettati sugli alberi di ingresso e/o di uscita del riduttore generano forze la cui risultante agisce in senso radiale sull'albero stesso.
L'entità di questi carichi deve essere compatibile con la capacità di sopportazione del sistema albero-cuscinetti del riduttore, in particolare il valore assoluto del carico applicato (R_{c1} per albero di ingresso, R_{c2} per albero di uscita) deve essere inferiore al valore nominale (R_{x1} per albero di ingresso, R_{x2} per albero di uscita) riportato nelle tabelle dati tecnici.
Il procedimento descritto si applica indifferentemente all'albero veloce o all'albero lento avendo l'avvertenza di utilizzare i coefficienti K_1 o K_2, in funzione dell'albero interessato alla verifica. Il carico generato da una trasmissione esterna può essere calcolato, con buona approssimazione, tramite la formula seguente:

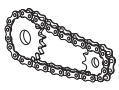
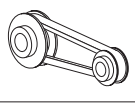
2.2.4 - CALCULATING THE RESULTING OVERHUNG LOAD

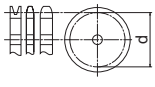
External transmissions keyed onto input and/or output shaft generate loads that act radially onto same shaft.
Resulting shaft loading must be compatible with both the bearing and the shaft capacity.
Namely shaft loading (R_{c1} for input shaft, R_{c2} for output shaft), must be equal or lower than admissible overhung load capacity for shaft under study (R_{x1} for input shaft, R_{x2} for output shaft). OHL capability listed in the rating chart section.
The procedure described above applies to both the input shaft and the output shaft, but care must be taken to apply factor K_1 or factor K_2 to suit the particular shaft.
The load generated by an external transmission can be calculated, to a good approximation, by the following equation:

2.2.4 - AUF DIE WELLE WIRKENDE KRAFT

Externe Vorgelege auf den Antriebs- und/oder Abtriebswellen des Getriebes entwickeln Kräfte, die radial auf die Welle einwirken. Die resultierende Wellenbelastung muss mit der Widerstandskraft des Systems Welle/Lager des Getriebes kompatibel sein; vor allem muss der Absolutwert der ausgeübten Kraft (R_{c1} für Antriebswelle, R_{c2} für Abtriebswelle) unter dem in der Tabelle mit den technischen Daten angegebenen Nennwert (R_{x1} für Antriebswelle, R_{x2} für Abtriebswelle) liegen.
Die beschriebene Vorgehensweise gilt ohne Unterschied für die Antriebs- und für die Abtriebswelle, wobei entsprechend der jeweils betroffenen Welle die Koeffizienten K_1 oder K_2 verwendet werden müssen.
Die von einer äußeren Übertragung ausgeübte Kraft kann mit gutem Näherungswert mit folgender Formel berechnet werden:

$$R_c = \frac{2000 \times M \times K_r}{d}$$

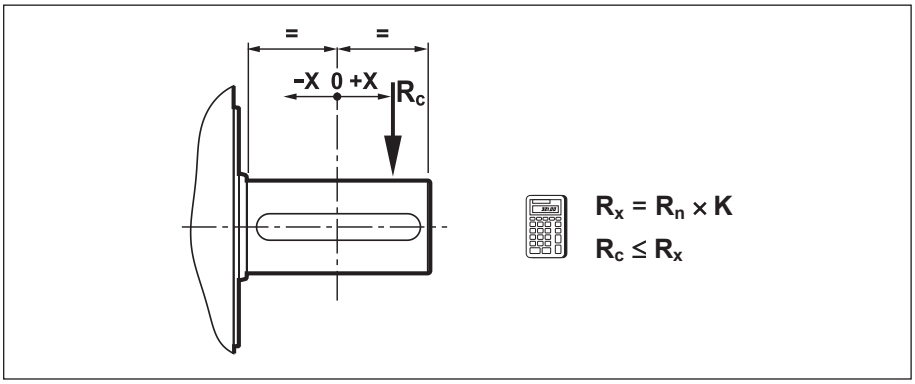
$K_r = 1$	
$K_r = 1.25$	
$K_r = 1.5 - 2.0$	

M [Nm]	
d [mm]	

2.2.5 - VERIFICA SOPPORTAZIONE RADIALE

2.2.5 - OVERHUNG LOADING VERIFICATION

2.2.5 - PRÜFUNG DER RADIALKRÄFTE

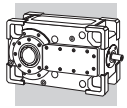


I valori $Rn_{1\ max}$ riportati in tabella sono i carichi radiali massimi ammissibili; essi possono subire delle limitazioni in funzione delle condizioni applicative. Per un calcolo puntuale contattare il Servizio Tecnico Bonfiglioli.

The $Rn_{1\ max}$ values listed in the table are the maximum permissible overhung loads; these loads may have to be reduced in certain applications.
For an exact value, please contact Bonfiglioli's Technical Service.

Die in der Tabelle aufgeführten Höchstwerte $Rn_{1\ max}$ sind die maximal zulässigen Radialkräfte; je nach Anwendungsbedingungen können sie Begrenzungen unterworfen sein. Für eine spezifische Berechnung wenden Sie sich bitte an den technischen Kundendienst von Bonfiglioli.

	i =	$Rn_{1\ max}$ [kN]	K_1 x [mm] =												
			-100	-75	-50	-25	0	25	50	75	100	150	200	250	300
HDO 100 2	5.8 … 13.5	19.4	—	—	1.88	1.30	1.00	0.81	0.68	0.59	0.51	0.40	0.32	—	—
HDO 100 3	14 … 17.3	18.7	—	—	2.23	1.38	1.00	0.78	0.64	0.54	0.45	0.34	—	—	—
	20.2 … 67.5	10.8	—	—	2.23	1.38	1.00	0.78	0.63	0.51	0.43	0.32	—	—	—
HDO 100 4	70.8 … 139.8	7.2	—	—	—	1.56	1.00	0.72	0.52	0.40	0.33	—	—	—	—
	160 … 344.2	4.8	—	—	—	1.56	1.00	0.74	0.58	0.46	0.38	—	—	—	—
HDO 110 2	6.4 … 15.5	19.4	—	—	1.88	1.30	1.00	0.81	0.68	0.59	0.51	0.40	0.32	—	—
HDO 110 3	18.9 … 20.9	18.7	—	—	2.23	1.38	1.00	0.78	0.64	0.54	0.45	0.34	—	—	—
	22 … 77.5	10.8	—	—	2.23	1.38	1.00	0.78	0.63	0.51	0.43	0.32	—	—	—
HDO 110 4	77.4 … 121.7	7.2	—	—	—	1.56	1.00	0.72	0.52	0.40	0.33	—	—	—	—
	137.1 … 395	4.8	—	—	—	1.56	1.00	0.74	0.58	0.46	0.38	—	—	—	—
HDO 120 2	6.6 … 15.5	22.6	—	—	1.82	1.29	1.00	0.78	0.62	0.51	0.44	0.34	0.28	—	—
HDO 120 3	17.3 … 24.6	18.7	—	—	2.23	1.38	1.00	0.78	0.64	0.54	0.45	0.34	—	—	—
	28.3 … 78.6	10.8	—	—	2.23	1.38	1.00	0.78	0.63	0.51	0.43	0.32	—	—	—
HDO 120 4	87 … 162.2	7.2	—	—	—	1.56	1.00	0.72	0.52	0.40	0.33	—	—	—	—
	179.7 … 400.6	4.8	—	—	—	1.56	1.00	0.74	0.58	0.46	0.38	—	—	—	—
HDO 130 2	5.7 … 13.6	35.8	—	2.21	1.57	1.22	1.00	0.85	0.73	0.62	0.54	0.42	0.35	0.30	—
HDO 130 3	15.2 … 67.1	22.6	—	—	1.82	1.29	1.00	0.78	0.62	0.51	0.44	0.34	0.28	—	—
HDO 130 4	71.5 … 335.6	10.9	—	—	2.25	1.38	1.00	0.78	0.63	0.50	0.42	0.32	—	—	—
HDO 140 2	6.6 … 15.7	35.8	—	2.21	1.57	1.22	1.00	0.85	0.73	0.62	0.54	0.42	0.35	0.30	—
HDO 140 3	17.7 … 77.3	22.6	—	—	1.82	1.29	1.00	0.78	0.62	0.51	0.44	0.34	0.28	—	—
HDO 140 4	82.3 … 386.6	10.9	—	—	2.25	1.38	1.00	0.78	0.63	0.50	0.42	0.32	—	—	—



	i =	$Rn_{1\ max}$ [kN]	K_1 x [mm] =												
			-100	-75	-50	-25	0	25	50	75	100	150	200	250	300
HDO 150 2	**5.5 … 7.0**	54.0	2.75	1.91	1.47	1.19	1.00	0.86	0.76	0.67	0.59	0.47	0.40	0.34	0.30
	8.1 … 13.7	41.6	2.75	1.91	1.47	1.19	1.00	0.86	0.76	0.66	0.58	0.46	0.39	0.33	0.29
HDO 150 3	**15.6 … 60.8**	35.8	—	2.21	1.57	1.22	1.00	0.85	0.73	0.62	0.54	0.42	0.35	0.30	—
HDO 150 4	**66.9 … 92.9**	18.7	—	—	2.23	1.38	1.00	0.78	0.64	0.54	0.45	0.34	—	—	—
	101.8 … 238.8	10.9	—	—	2.25	1.38	1.00	0.78	0.63	0.50	0.42	0.32	—	—	—
HDO 160 2	**7.3 … 7.9**	54.0	2.75	1.91	1.47	1.19	1.00	0.86	0.76	0.67	0.59	0.47	0.40	0.34	0.30
	8.9 … 15.4	41.6	2.75	1.91	1.47	1.19	1.00	0.86	0.76	0.66	0.58	0.46	0.39	0.33	0.29
HDO 160 3	**17.7 … 68.6**	35.8	—	2.21	1.57	1.22	1.00	0.85	0.73	0.62	0.54	0.42	0.35	0.30	—
HDO 160 4	**75.9 … 96.3**	18.7	—	—	2.23	1.38	1.00	0.78	0.64	0.54	0.45	0.34	—	—	—
	115.2 … 269.7	10.9	—	—	2.25	1.38	1.00	0.78	0.63	0.50	0.42	0.32	—	—	—

I valori dei carichi radiali ed assiali sono quelli massimi ammissibili.
Per confrontare i valori di Rn_2 e An_2 alle diverse condizioni applicative vedere i capitoli 4.2 e 4.3.

The values for overhung and thrust loads are the maximum permissible values.
To verify Rn_2 and An_2 values for different applications, see sections 4.2 and 4.3.

Bei den angegebenen Radial- und Axialkräften handelt es sich um die maximal zulässigen Werte. Zum Vergleich der Werte von Rn_2 und An_2 unter den verschiedenen Anwendungsbedingungen sind die Kapitel 4.2 und 4.3 einzusehen.

	$Rn_{2\ max}$ [kN]	K_2 x [mm] =																	$An_{2\ max}$ [kN]
		-100	-75	-50	-25	0	25	50	75	100	150	200	250	300	350	400	450	500	
HDO 100	80.0	1.28	1.20	1.12	1.06	1.00	0.81	0.68	0.58	0.51	0.41	0.34	0.30	0.26	—	—	—	—	40.0
HDO 110	86.0	1.27	1.19	1.12	1.06	1.00	0.83	0.71	0.63	0.56	0.45	0.38	0.33	0.29	0.26	0.24	—	—	43.0
HDO 120	107.0	1.25	1.18	1.11	1.05	1.00	0.83	0.71	0.63	0.56	0.45	0.38	0.33	0.29	0.26	0.24	—	—	53.5
HDO 130	160.0	1.20	1.14	1.09	1.04	1.00	0.86	0.75	0.67	0.60	0.50	0.43	0.38	0.33	0.30	0.27	0.25	—	80.0
HDO 140	190.0	1.20	1.14	1.09	1.04	1.00	0.86	0.75	0.67	0.60	0.50	0.43	0.38	0.33	0.30	0.27	0.25	—	95.0
HDO 150	200.0	1.15	1.11	1.07	1.03	1.00	0.92	0.85	0.80	0.75	0.66	0.60	0.54	0.49	0.45	0.41	0.38	0.35	100.0
HDO 160	220.0	1.15	1.11	1.07	1.03	1.00	0.92	0.85	0.80	0.75	0.66	0.60	0.54	0.49	0.45	0.41	0.38	0.35	110.0

2.2.6 - CARICHI AGENTI SUGLI ALBERI

1. Carichi radiali albero lento

Riferirsi alla sezione 4.2 e verificare che, per la configurazione di prodotto selezionata, e per le condizioni di carico radiale e assiale applicate agli alberi, le forze agenti esternamente non superino quelle ammissibili per il riduttore.

Per verificare la sopportazione radiale riferirsi allo schema illustrato al paragrafo 2.2.5 e confrontare la forza radiale **Rc** gravante sull'albero con il carico ammissibile **Rx** corrispondente alla distanza di applicazione della for-

2.2.6 - SHAFT LOADING

1. Overhung loads on output shaft

Refer to section 4.2, and verify that both the radial and the axial force acting onto output shaft do not exceed the maximum permitted for the selected product configuration.

*When checking the overhung load capacity refer to scheme shown at paragraph 2.2.5. Calculate the admissible overhung load **Rx** that is relevant to the distance the force applies from shaft midpoint and compare this with the force **Rc** that acts onto the shaft.*

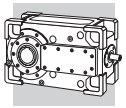
Multiply the nominal radial load Rn_2,

2.2.6 - WELLENBELASTUNG

1.Radialkräfte auf der Abtriebswelle

Auf den Abschnitt 4.2 Bezug nehmen und sicherstellen, dass weder die außen einwirkenden Radial- noch die Axialkräfte die für das Getriebe zulässigen Kräfte übersteigen.

Um die zulässige radiale Belastung zu überprüfen, beziehen Sie sich auf das in Abschnitt 2.2.5 dargestellte Schema. Berechnen Sie die zulässige Radiallast **Rx** in Abhängigkeit vom Abstand zum Mittelpunkt der Welle und vergleichen Sie diese mit der Radialkraft **Rc**. Die zulässige Last Rx_2 für die Ab-



za stessa dalla mezzeria dell'albero. Il carico ammissibile Rx_2 per l'albero lento si ricava moltiplicando il valore nominale Rn_2, reperibile nelle tabelle dati tecnici, per il coefficiente di spostamento K_2. I carichi radiali nominali **Rn** sono relativi alle condizioni di calcolo più sfavorevoli in quanto a verso di rotazione e angolo di applicazione della forza, e rappresentano pertanto un valore conservativo. Per un calcolo puntuale consultare il Servizio Tecnico di Bonfiglioli Riduttori. Congiuntamente al carico radiale è applicabile un carico assiale $An_2 \leq 0.2 \times Rn_2$.

2. Carichi assiali albero lento

Riferirsi alla sezione 4.3 e verificare che, per la configurazione di prodotto selezionata, e per la combinazione verso di rotazione albero / verso di applicazione della forza, il carico applicato all'abero sia inferiore o uguale a quello ammissibile riportato in tabella. I valori di carico assiale ammissibile riportati in tabella si riferiscono all'applicazione di forze puramente assiali.

In caso di configurazione S (albero lento con calettatore), forze agenti eccentricamente rispetto all'asse o in presenza di componenti radiali, consultare il Servizio Tecnico di Bonfiglioli Riduttori.

3. Carichi radiali e assiali albero veloce

Per verificare la sopportazione radiale riferirsi allo schema illustrato al paragrafo 2.2.5 e confrontare la forza radiale **Rc** gravante sull'albero con il carico ammissibile **Rx** corrispondente alla distanza di applicazione della forza stessa dalla mezzeria dell'albero. Il carico ammissibile Rx_1 per l'albero veloce si ricava moltiplicando il valore nominale Rn_1, reperibile nelle tabelle dati tecnici, per il coefficiente di spostamento K_1.

I carichi radiali nominali **Rn** sono relativi alle condizioni di calcolo più sfavorevoli in quanto a verso di rotazione e angolo di applicazione della forza, e rappresentano pertanto un valore conservativo. Per un calcolo puntuale consultare il Servizio Tecnico di Bonfiglioli Riduttori. Congiuntamente al carico radiale è applicabile un carico assiale $An_1 \leq 0.2 \times Rn_1$.

*as listed in the technical data section, for the load location factor K_2 to get the permissible overhung load Rx_2 for the output shaft. Rated overhung loads **Rn** are calculated for the most unfavourable condition as far as direction of rotation and the angle the force applies onto the shaft.*

Catalogue values are therefore conservative, for an in-depth calculation contact the Technical Service of Bonfiglioli Riduttori. When a radial force applies a thrust load $An_2 \leq 0.2 \times Rn_2$ is also permitted.

2. Thrust loads on output shaft

Refer to section 4.3 and verify that thrust force on the shaft does not exceed that specified in the chart for the selected product configuration and combination of direction of shaft rotation / direction of force.

Permissible thrust loads refer exclusively to forces applying axially on the shaft.

Please contact Bonfiglioli Riduttori's Technical Service for information on configuration S gearboxes (output shaft with shrink disc) and for applications involving forces that act eccentrically with respect to the shaft or involving overhung loads.

3. Overhung and thrust loads on input shaft

*When checking the overhung load capacity refer to scheme shown at paragraph 2.2.5. Calculate the admissible overhung load **Rx** that is relevant to the distance the force applies from shaft midpoint and compare this with the force **Rc** that acts onto the shaft. Multiply the nominal radial load Rn_1, as listed in the technical data section, for the load location factor K_1 to get the permissible overhung load Rx_1 for the output shaft.*

*Rated overhung loads **Rn** are calculated for the most unfavourable condition as far as direction of rotation and the angle the force applies onto the shaft. Catalogue values are therefore conservative, for an in-depth calculation contact the Technical Service of Bonfiglioli Riduttori.*

When a radial force applies a thrust load $An_1 \leq 0.2 \times Rn_1$ is also permitted.

triebswelle wird errechnet, indem der Nennwert Rn_2, der den Tabellen mit den technischen Daten entnommen werden kann, mit dem Verschiebungskoeffizienten K_2 multipliziert wird.

Die Nenn-Radialkräfte **Rn** beziehen sich auf die ungünstigsten Berechnungsbedingungen hinsichtlich Drehrichtung und Anwendungswinkel der Kraft, und stellen daher einen konservativen Wert dar. Für eine spezifische Berechnung wenden Sie sich bitte an den technischen Kundendienst von Bonfiglioli Riduttori.

Zusammen mit der Radialkraft ist eine Axialkraft von $An_2 \leq 0.2 \times Rn_2$ anwendbar.

2. Axialkräfte auf der Abtriebswelle

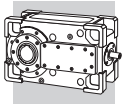
Auf den Abschnitt 4.3 Bezug nehmen und prüfen, ob die auf die Welle angewandte Last für die gewählte Produktkonfiguration und für die Kombination Drehrichtung der Welle / Richtung der Kraftanwendung kleiner oder gleich der in der Tabelle angegebenen zulässigen Last ist. Die in der Tabelle angegebenen zulässigen Axialkraftwerte beziehen sich auf reine Axialkräfte. Im Fall der Konfiguration S (Abtriebswelle mit Schrumpfverbindung) ist bei exzentrisch zur Achse wirkenden Kräften oder beim Vorhandensein radialer Komponenten der technische Kundendienst von Bonfiglioli Riduttori zu kontaktieren.

3. Radial- und Axialkräfte auf der Antriebswelle

Um die zulässige radiale Belastung zu überprüfen, beziehen Sie sich auf das in Abschnitt 2.2.5 dargestellte Schema. Berechnen Sie die zulässige Radiallast **Rx** in Abhängigkeit vom Abstand zum Mittelpunkt der Welle und vergleichen Sie diese mit der Radialkraft **Rc**.

Die zulässige Last Rx_1 für die Antriebswelle wird errechnet, indem der Nennwert Rn_1, der den Tabellen mit den technischen Daten entnommen werden kann, mit dem Verschiebungskoeffizienten K_1 multipliziert wird.

Die Nenn-Radialkräfte **Rn** beziehen sich auf die ungünstigsten Berechnungsbedingungen hinsichtlich Drehrichtung und Anwendungswinkel der Kraft, und stellen daher einen konservativen Wert dar. Für eine spezifische Berechnung wenden Sie sich bitte an den technischen Kundendienst von Bonfiglioli Riduttori. Zusammen mit der Radialkraft ist eine Axialkraft von $An_1 \leq 0.2 \times Rn_1$ anwendbar.



2.2.7 - POTENZA TERMICA

La potenza termica P_T è il valore massimo di potenza che può essere trasmessa meccanicamente dal riduttore, in funzionamento continuo, senza che si produca al suo interno un aumento di temperatura tale da provocare il danneggiamento degli organi principali.

Nelle seguenti condizioni operative:

- posizione di montaggio B3
- funzionamento continuo
- installazione in ampi spazi (velocità aria > 1.4 m/s)
- altitudine max 1000 m

i valori di potenza termica complessiva e i valori di potenza termica comprensiva del contributo fornito dagli eventuali dispositivi di ausilio termico, sono riportati nel capitolo 4.1.
Per condizioni diverse contattare il Servizio Tecnico Bonfiglioli.

Il valore così determinato deve essere maggiore del valore di potenza Pr_1 richiesto all'albero veloce del riduttore, la seguente espressione deve essere pertanto verificata:

2.2.7 - THERMAL CAPACITY

Thermal power P_T is the maximum power that the gearbox can transmit mechanically, under continuous operation, without the internal temperature rising to a value that could damage the gearbox components.

Under the following operating conditions:

- *mounting position B3*
- *continuous functioning*
- *installation in large areas (air speed > 1.4 m/s)*
- *max. installation altitude 1000 m*

total thermal capacity values and thermal capacity values inclusive of contributions from auxiliary cooling units are listed in section 4.1.
For other conditions contact Bonfiglioli's Technical Service.

The figure determined must be greater than the Pr_1 power value for the gearbox input shaft. It is therefore important to verify the following formula:

2.2.7 - WARMELEISTUNG

Die Wärmeleistung P_T ist der maximale Leistungswert, der bei Dauerbetrieb mechanisch vom Getriebe übertragen werden kann, ohne dass im Innenbereich des Getriebes ein Temperaturanstieg zu verzeichnen wäre, der die Schädigung der wesentlichen Teile verursachen würde.

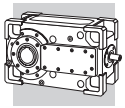
Unter folgenden Betriebsbedingungen:

- Einbaulage B3
- Dauerbetrieb
- Installation in großen Räumen (Luftgeschwindigkeit > 1.4 m/s)
- max. 1000 m ü NN

Die Werte der Gesamtwärmeleistung und die Werte der Wärmeleistung einschließlich des Beitrags durch eventuelle thermische Hilfsvorrichtungen sind in Kapitel 4.1 aufgeführt.
Für andere Bedingungen Kontakt technischen Kundendienst von Bonfiglioli Riduttori.

Der Wert bestimmt so muss über dem Leistungswert Pr_1 liegen, der an der Antriebswelle des Getriebes gefordert ist; folgende Bedingung muss deshalb überprüft werden:

$$P_{T...} \geq Pr_1$$



2.3 - CASO APPLICATIVO — *2.3 - SAMPLE APPLICATION* — 2.3 - ANWENDUNGSFALL

Dati dell'applicazione / Application data Applikationsdaten	
$\mathbf{n_1}$ = 1100 min^{-1}	$\mathbf{f_s}$ = 1.5
$\mathbf{n_2}$ = 100 min^{-1}	$\mathbf{Mr_2}$ = 14400 Nm
Posizione di montaggio: *Mounting position:* Einbaulage:	**B3**
Parametri ambientali / Environmental conditions Umgebungsparameter	
Temperatura ambiente *Ambient temperature* Umgebungstemperatur	= 40°C
Installazione in ampi spazi / *Installation in large areas* Installation in großen Räumen	

Selezione del prodotto: — ***Product selection:*** — **Produktwahl:**

a) $i = \frac{n_1}{n_2} = \frac{1100}{100} = 11.0$

b) $Pr_1 = \frac{Mr_2 \times n_2}{9550 \times \eta} = \frac{14400 \times 100}{9550 \times 0.96} \approx 157.1$ kW

c) $Pn_1 \geq Pr_1 \cdot f_s \approx 235.6$ kW

→ **HDO 110 2 10.9 LP L 1 VP B3**

[Pn_1 = 238 kW @ n_1 = 1100 min^{-1}]

Verifica potenza termica: — ***Thermal capacity check:*** — **Prüfung der Wärmeleistung:**

P_T = 72 kW < Pr_1 = 157.1 kW ⚠

Soluzione 1
- Centralina di raffreddamento con scambiatore aria/olio

Option 1
- *Cooling units with air/oil heat exchanger*

Lösung 1
- Kühlaggregat mit einem Luft/Öl-Wärmetauscher

P_{TMCRA9} = 195 kW @ n_1 = 1100 min^{-1}

$P_{TMCRA9} > Pr_1$ ✓ OK

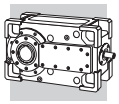
Soluzione 2
- Centralina di raffreddamento con scambiatore acqua/olio

Option 2
- *Cooling units with water/oil heat exchanger*

Lösung 2
- Kühlaggregat mit einem Wasser/Öl-Wärmetauscher

P_{TMCRW5} = 170 kW @ n_1 = 1100 min^{-1}

$P_{TMCRW5} > Pr_1$ ✓ OK



HDO 100 3 25.5 LP L 1 G 180 B3

POSIZIONE DI MONTAGGIO
MOUNTING POSITION
EINBAULAGE
B3, B6, B7, V5
3.3

GRANDEZZA MOTORE
MOTOR SIZE
BAUGRÖSSE MOTOR
—, 112 ... 315
3.5

CONFIGURAZIONE PARTE VELOCE
INPUT CONFIGURATION
KONFIGURATIONEN DES ANTRIEBSTEILS
VP, G, GJ
3.4.2

ESECUZIONE
EXECUTION
AUSFÜHRUNG
1, 2
3.4.4

DISPOSIZIONE ALBERI
SHAFT ARRANGEMENT
ANORDNUNG DER WELLEN
L, LJ, LD, R, RJ, RD, D, DJ, DD
3.4.3

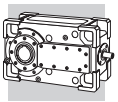
CONFIGURAZIONE ALBERO LENTO
OUTPUT SHAFT CONFIGURATION
KONFIGURATION DER ABTRIEBSWELLE
LP, H, S
3.4.1

RAPPORTO DI RIDUZIONE
GEAR RATIO
ÜBERSETZUNG
5.6 ... 400.0

N° STADI DI RIDUZIONE
REDUCTIONS
ANZAHL DER GETRIEBESTUFEN
2, 3, 4

GRANDEZZA RIDUTTORE
GEAR FRAME SIZE
BAUGRÖSSE DES GETRIEBES
100, 110, 120, 130, 140, 150, 160

TIPO RIDUTTORE
GEARBOX TYPE
GETRIEBETYP
HDO



3.2 - VARIANTI OPZIONALI — *3.2 - OPTIONAL VARIANTS* — 3.2 - OPTIONALE VARIANTEN

PROVE DOCUMENTALI
CERTIFICATES
NACHWEISE
—, AC, CC, CT

3.6.8

ORGANI DI FISSAGGIO
MOUNTING DEVICES
BEFESTIGUNGSORGANE
—, TA

3.6.7

DRYWELL
—, DW

3.6.6

SENSORI
SENSORS
SENSOREN
—, **TG, OLG**

3.6.5

TENUTE E GUARNIZIONI
OIL SEALING
DICHTUNGEN UND DICHTMANSCHETTEN
—, TK, VS, DS, DVS

3.6.4

FLANGIA DI FISSAGGIO / *MOUNTING FLANGE*
BEFESTIGUNGSFLANSCH
— F660L, F800L,
F660R, F800R, FM

5.2

ROTAZIONE ALBERO LENTO
OUTPUT SHAFT ROTATION
DREHUNG DER ABTRIEBSWELLE
—, CW, CCW

ANTIRETRO
ANTI-RUN BACK DEVICE
RÜCKLAUFSPERRE
—, A

3.6.3

LUBRIFICAZIONE FORZATA
FORCED LUBRICATION
ZWANGSSCHMIERUNG
—, OP, OP1, OP2, MOP

3.6.2

DISPOSITIVI DI AUSILIO TERMICO
AUXILIARY THERMAL DEVICES
THERMISCHE HILFSVORRICHTUNGEN
—, FAN, FANJ,
MCRW5, MCRW9, MCRW21, MCRW34, MCRW51
MCRA5, MCRA9, MCRA21, MCRA34, MCRA51
SR, HE

3.6.1

NOTA: La selezione combinata di alcune varianti può comportare conflitti di natura tecnica o dimensionale.
Consultare la fabbrica per una verifica puntuale.

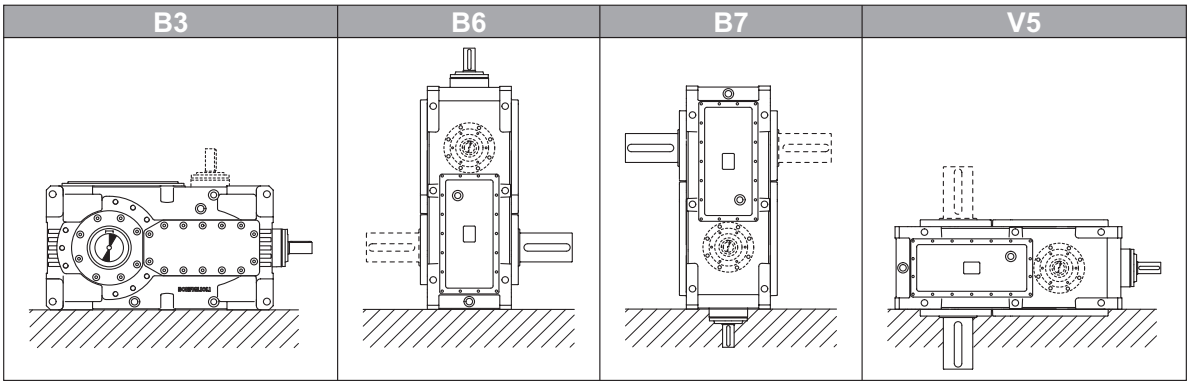
REMARK: The multiple selection of some of the variants may be subject to technical or dimensional constraints. Consult with the factory to have your selection approved.

HINWEIS: Die Kombination einiger Varianten kann Konflikte technischer oder dimensionaler Art verursachen.
Für eine spezifische Überprüfung bitte Rücksprache mit dem Werk halten.

3.3 - POSIZIONI DI MONTAGGIO

3.3 - MOUNTING POSITION

3.3 - EINBAULAGEN



3.4 - CONFIGURAZIONE LATO INGRESSO E USCITA

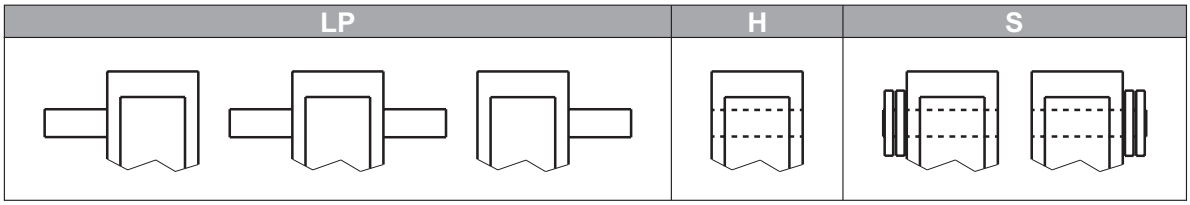
3.4 - INPUT AND OUTPUT CONFIGURATION

3.4 - KONFIGURATION ANTRIEBS UND ABTRIEBSSEITE

3.4.1 - CONFIGURAZIONE ALBERO LENTO

3.4.1 - OUTPUT SHAFT CONFIGURATION

3.4.1 - KONFIGURATION DER ABTRIEBSWELLE



3.4.2 - CONFIGURAZIONE PARTE VELOCE

Per l'azionamento da parte dell'organo motore il lato veloce del riduttore può essere configurato con:

- **Albero cilindrico**, a semplice o doppia sporgenza – Specificare **VP**
- **Flangiatura con campana attacco motore e interposizione di un giunto elastico** fra gli alberi cilindrici di motore e riduttore. Questa opzione assume la denominazione **G** o **GJ** in dipendenza del lato del riduttore su cui è richiesta la predisposizione.
  Il giunto elastico è parte della fornitura.

3.4.2 - INPUT CONFIGURATION

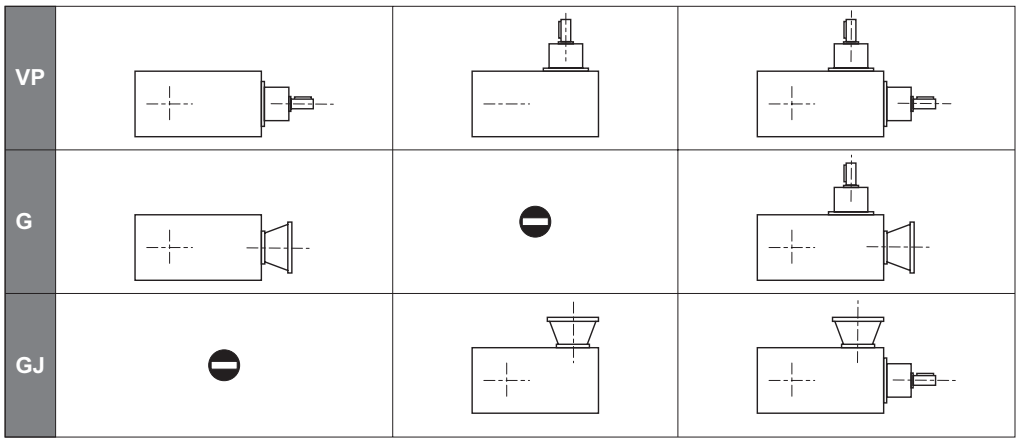
On the input side the gear unit can be arranged in either one of the configurations described here after:

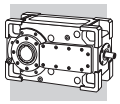
- ***Solid input shaft**, single- or double-sided – Specify **VP***
- ***Motor mounting through bell housing and flexible coupling.** The option is designated **G** or **GJ** depending on what side of the gear unit the coupling is mounted. The flexible coupling is within the scope for supply.*

3.4.2 - KONFIGURATION DER ANTRIEBSSEITE

Auf der Antriebsseite kann das Getriebe wie nachfolgend beschrieben konfiguriert werden:

- **Zylindrische Eingangswelle**, mit ein- oder zweifachem Wellenstummel – **VP** angeben
- **Motormontage über eine Motorglocke und elastische Kupplung**. Diese Option wird in Abhängigkeit von der Montageseite mit **G** oder **GJ** angegeben. Die elastische Kupplung ist im Lieferumfang enthalten.

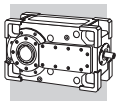


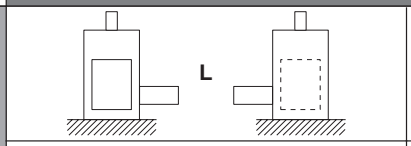
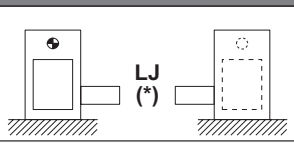
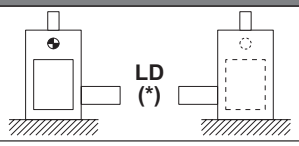
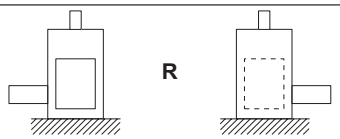
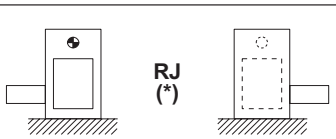
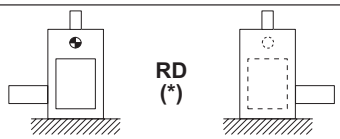
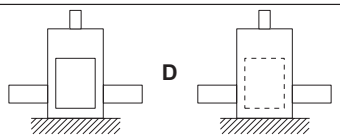
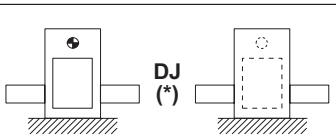
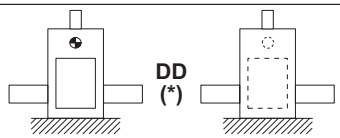
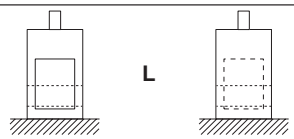
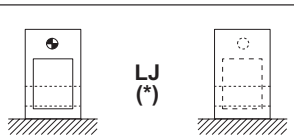
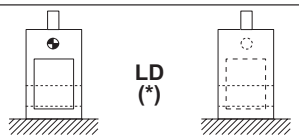
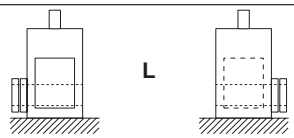
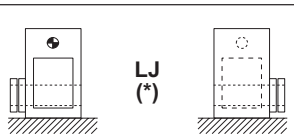
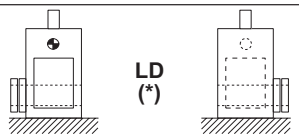
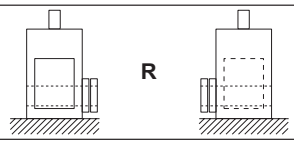
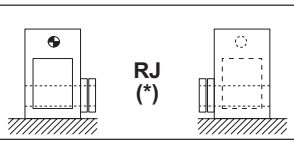
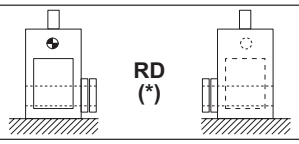


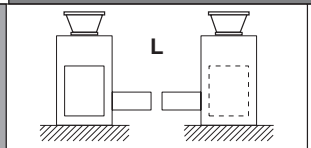
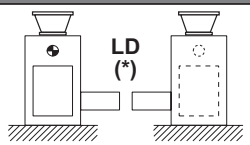
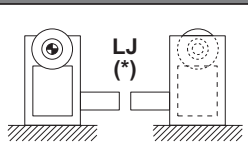
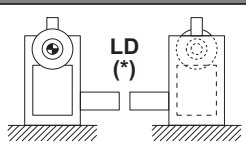
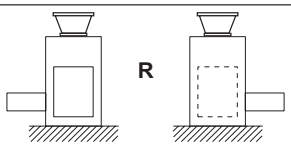
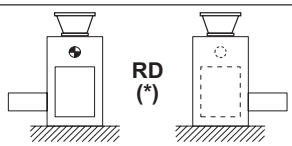
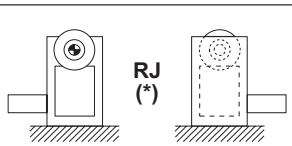
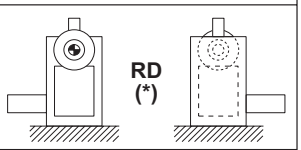
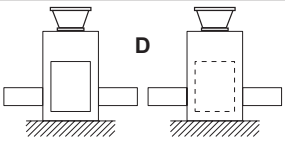
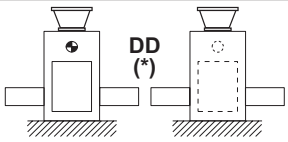
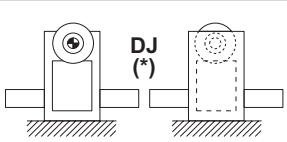
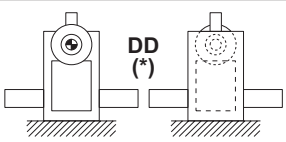
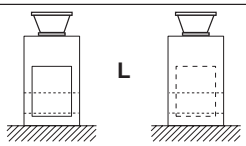
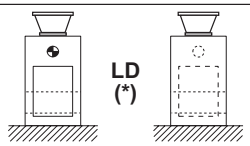
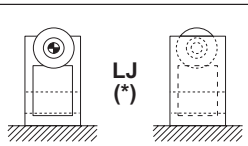
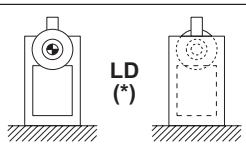
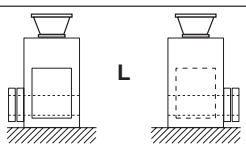
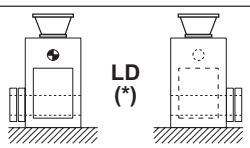
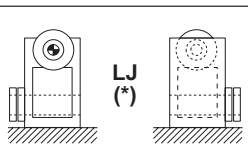
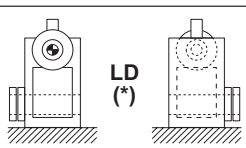
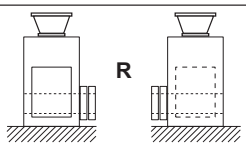
3.4.3 - DISPOSIZIONE ALBERI *3.4.3 - SHAFT ARRANGEMENT* 3.4.3 - ANORDNUNG DER WELLEN

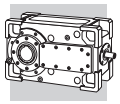
		VP		
B3 (*) 27	LP	L	LJ (*)	LD (*)
		R	RJ (*)	RD (*)
		D	DJ (*)	DD (*)
	H	L	LJ (*)	LD (*)
	S	L	LJ (*)	LD (*)
		R	RJ (*)	RD (*)

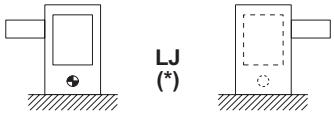
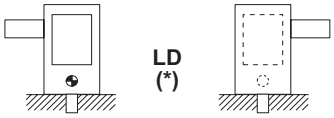
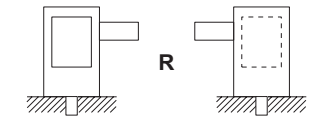
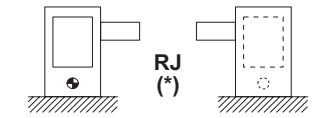
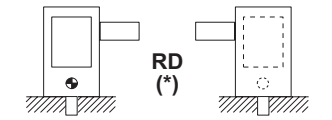
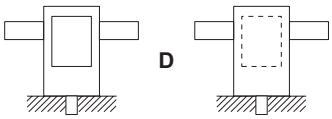
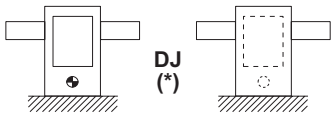
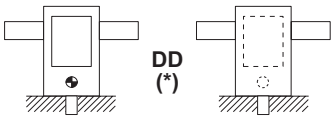
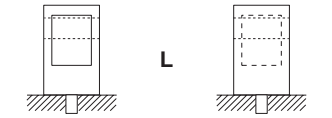
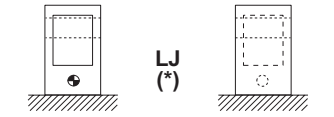
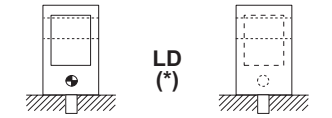
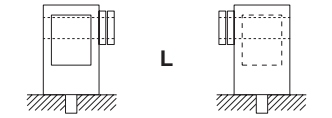
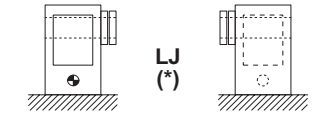
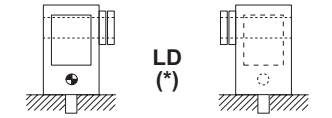
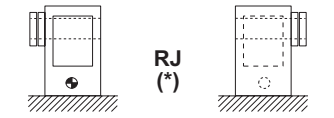
		G		GJ	
B3 (*) 27	LP	L	LD (*)	LJ (*)	LD (*)
		R	RD (*)	RJ (*)	RD (*)
		D	DD (*)	DJ (*)	DD (*)
	H	L	LD (*)	LJ (*)	LD (*)
	S	L	LD (*)	LJ (*)	LD (*)
		R	RD (*)	RJ (*)	RD (*)

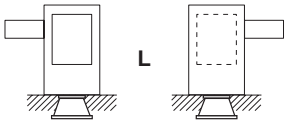
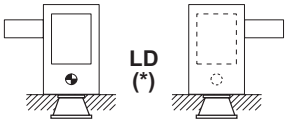
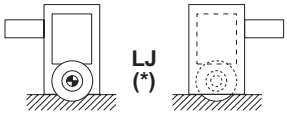
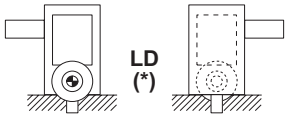
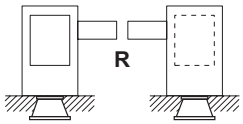
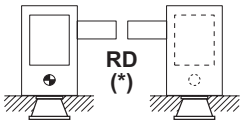
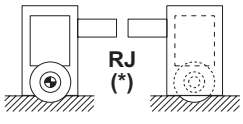
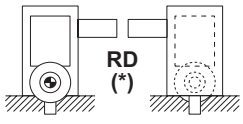
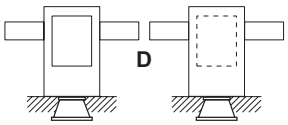
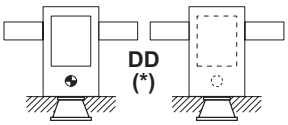
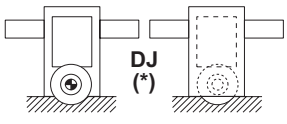
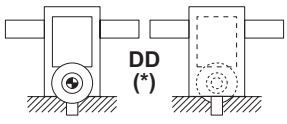
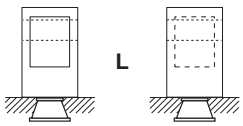
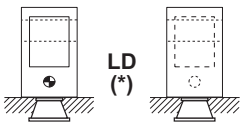
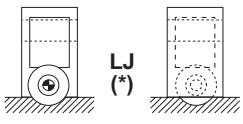
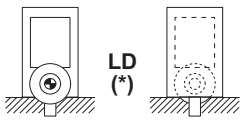
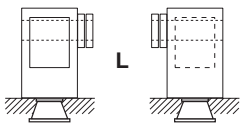
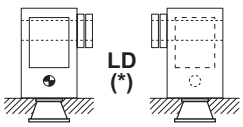
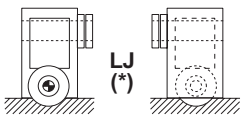
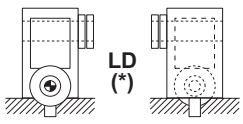
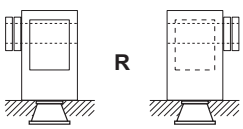


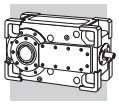
		VP		
B6 (*) 27	LP	 L	 LJ (*)	 LD (*)
		 R	 RJ (*)	 RD (*)
		 D	 DJ (*)	 DD (*)
	H	 L	 LJ (*)	 LD (*)
	S	 L	 LJ (*)	 LD (*)
		 R	 RJ (*)	 RD (*)

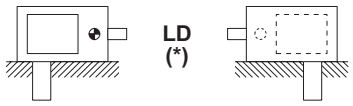
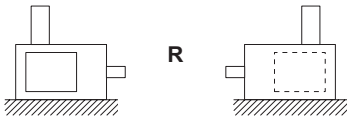
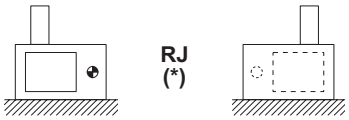
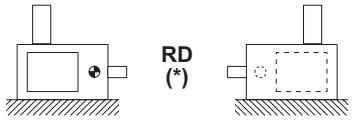
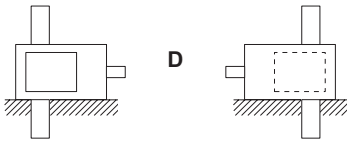
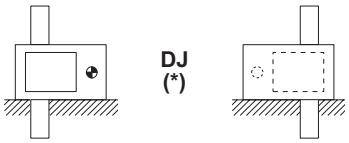
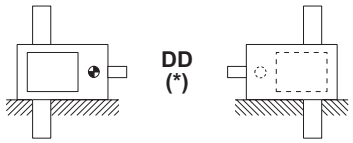
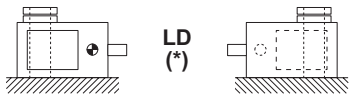
		G		GJ	
B6 (*) 27	LP	 L	 LD (*)	 LJ (*)	 LD (*)
		 R	 RD (*)	 RJ (*)	 RD (*)
		 D	 DD (*)	 DJ (*)	 DD (*)
	H	 L	 LD (*)	 LJ (*)	 LD (*)
	S	 L	 LD (*)	 LJ (*)	 LD (*)
		 R	RD (*)	RJ (*)	RD (*)

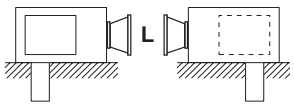
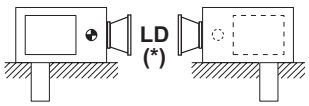
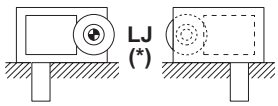
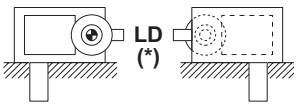
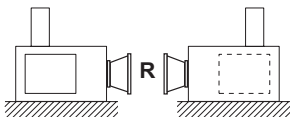
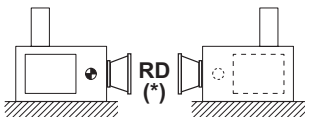
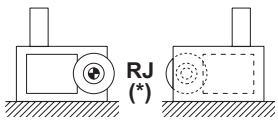
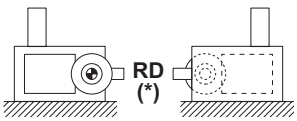
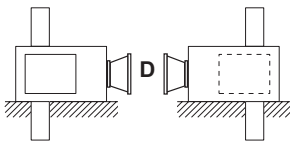
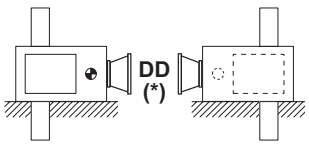
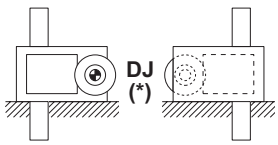
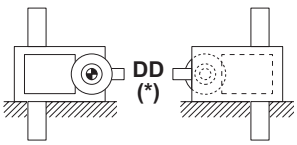
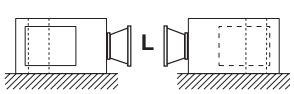
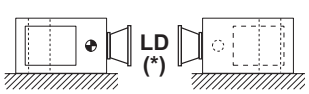
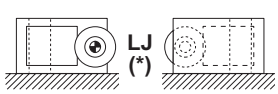
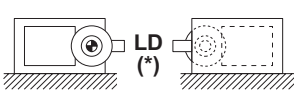
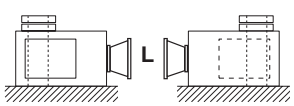
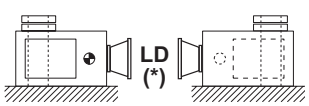
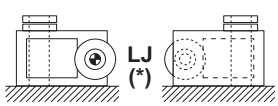
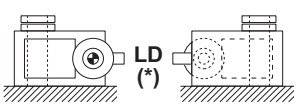
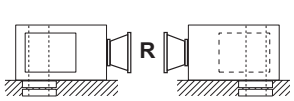


		VP		
B7 (*) 27	LP	 L	 LJ (*)	 LD (*)
		 R	 RJ (*)	 RD (*)
		 D	 DJ (*)	 DD (*)
	H	 L	 LJ (*)	 LD (*)
	S	 L	 LJ (*)	 LD (*)
		 R	 RJ (*)	 RD (*)

		G		GJ	
B7 (*) 27	LP	 L	 LD (*)	 LJ (*)	 LD (*)
		 R	 RD (*)	 RJ (*)	 RD (*)
		 D	 DD (*)	 DJ (*)	 DD (*)
	H	 L	 LD (*)	 LJ (*)	 LD (*)
	S	 L	 LD (*)	 LJ (*)	 LD (*)
		 R	RD (*)	RJ (*)	RD (*)



		VP		
V5 (*) 27	LP	 L	 LJ (*)	 LD (*)
		 R	 RJ (*)	 RD (*)
		 D	 DJ (*)	 DD (*)
	H	 L	 LJ (*)	 LD (*)
	S	 L	 LJ (*)	 LD (*)
		 R	 RJ (*)	 RD (*)

		G		GJ	
V5 (*) 27	LP	 L	 LD (*)	 LJ (*)	 LD (*)
		 R	 RD (*)	 RJ (*)	 RD (*)
		 D	 DD (*)	 DJ (*)	 DD (*)
	H	 L	 LD (*)	 LJ (*)	 LD (*)
	S	 L	 LD (*)	 LJ (*)	 LD (*)
		 R	RD (*)	RJ (*)	RD (*)

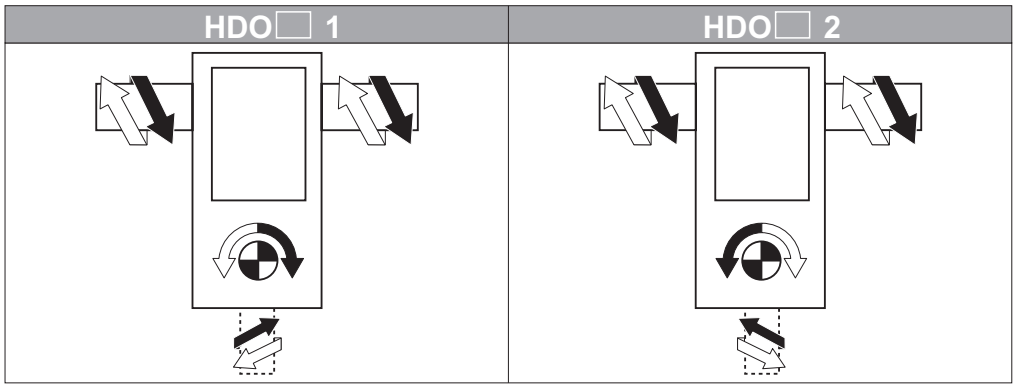
Nella tabella seguente sono elencati i rapporti che impediscono la realizzazione di alcune configurazioni. Tali configuarazioni sono evidenziate, nelle immagini precedenti, dal simbolo (*).

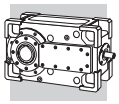
The gear ratios listed below are those that are not available for the configurations marked with (*) in the charts here before.

Auf diese Tabelle können Sie die Untersetzungsliste, die nicht für bestimmte Ausführungen geeignet sind.
Diese Ausführungen sind auf vorhergehende Seiten mit * herausgestrichen.

(*)	**Configurazioni non realizzabili** ***Configurations not possible*** **Nicht ausführbare Konfiguratione**
	**i**
HDO 100 2	5.8 ≤ i ≤ 7.0
HDO 100 4	70.8 ≤ i ≤ 344.2
HDO 110 2	6.4 ≤ i ≤ 8.1
HDO 110 4	77.4 ≤ i ≤ 395.0
HDO 120 2	6.6 ≤ i ≤ 8.1
HDO 120 3	i = 24.6
HDO 120 4	87.0 ≤ i ≤ 400.6
HDO 130 2	5.7 ≤ i ≤ 7.1
HDO 130 4	71.5 ≤ i ≤ 335.6
HDO 140 2	6.6 ≤ i ≤ 8.2
HDO 140 4	82.3 ≤ i ≤ 386.6
HDO 150 2	6.5 ≤ i ≤ 7.1
HDO 150 3	15.6 ≤ i ≤ 25.4
HDO 150 4	66.9 ≤ i ≤ 238.8
HDO 160 2	i = 7.3; 7.9
HDO 160 3	17.7 ≤ i ≤ 31.3
HDO 160 4	75.9 ≤ i ≤ 269.7

3.4.4 - ESECUZIONE — *3.4.4 - EXECUTION* — 3.4.4 - AUSFÜHRUNG





3.5 - PREDISPOSIZIONI MOTORE

Le tabelle che seguono riportano gli abbinamenti flangiati motore/riduttore che sono possibili in termini puramente geometrici.

La normalizzazione tipica dei motori elettrici può portare a selezionare un motore caratterizzato da potenza di targa superiore alla potenza nominale P_{n1} del riduttore che si è dimensionato. Verificare che in nessuna condizione del ciclo di lavoro la maggiore potenza erogabile dal motore elettrico sia effettivamente sviluppata. In presenza di dati di calcolo incerti, o di dubbi sull'effettivo diagramma di carico dell'applicazione è consigliabile installare un dispositivo limitatore di coppia.

3.5 - MOTOR AVAILABILITY

The following charts list the motor/gearbox combinations that are geometrically feasible.

Because of standardisation, the rated power of the electric motor selected might be greater than power P_{r1} actually requested by the application. Make sure that the electric motor will never develop the extra power at any stage of the operating cycle. If you have any doubts about the validity of the application data, or uncertainty concerning the actual load pattern, install a torque limiting device or proportionally revise the applicable service factor.

3.5 - MOTORAUSLEGUNGEN

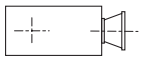
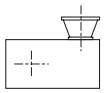
In den folgenden Tabellen sind die Motor/Getriebe Kombinationen aufgeführt, die unter rein geometrischen Aspekten möglich sind.

Aufgrund der Normierung von Elektromotoren kann es dazu kommen, dass ein Motor gewählt wird, dessen Nennleistung P_{n1} größer als die erforderliche Leistung P_{r1} für die Anwendung ist. Es muss sichergestellt werden, dass diese überschüssige Leistung zu keiner Zeit an das Getriebe abgegeben wird. Sollten Zweifel oder Unsicherheiten bezüglich der Belastungs- oder Anwendungsdaten bestehen, empfiehlt sich die Installation eines Drehmomentbegrenzers.

		Configurazione veloce tipo G / *Input configuration type G* / Konfiguration der Antriebsseite G								
		112	**132**	**160**	**180**	**200**	**225**	**250**	**280**	**315 (*)**
HDO 100_2		—	—	—	—	—	—	5.8_13.5	5.8_13.5	5.8_13.5
HDO 100_3		—	—	20.2_67.5	20.2_67.5	20.2_67.5	20.2_67.5	14.0_67.5	14.0_67.5	14.0_67.5
HDO 100_4		160.0_344.2	70.8_344.2	70.8_344.2	70.8_344.2	70.8_139.8	70.8_139.8	—	—	—
HDO 110_2		—	—	—	—	—	—	—	6.4_15.5	6.4_15.5
HDO 110_3		—	—	22.0_77.5	22.0_77.5	22.0_77.5	22.0_77.5	22.0_77.5	18.9_77.5	18.9_77.5
HDO 110_4		137.1_395.0	137.1_395.0	77.4_395.0	77.4_395.0	77.4_121.7	77.4_121.7	—	—	—
HDO 120_2		—	—	—	—	—	—	—	—	6.6_15.5
HDO 120_3		—	—	—	—	28.3_78.6	28.3_78.6	28.3_78.6	17.3_78.6	17.3_78.6
HDO 120_4		—	179.7_400.6	87.0_400.6	87.0_400.6	87.0_162.2	87.0_162.2	—	—	—
HDO 130_2		—	—	—	—	—	—	—	—	5.7_13.6
HDO 130_3	**i =**	—	—	—	—	—	—	15.2_67.1	15.2_67.1	15.2_67.1
HDO 130_4		—	—	71.5_335.6	71.5_335.6	71.5_335.6	71.5_335.6	71.5_335.6	71.5_335.6	—
HDO 140_2		—	—	—	—	—	—	—	—	6.6_15.7
HDO 140_3		—	—	—	—	—	—	17.7_77.3	17.7_77.3	17.7_77.3
HDO 140_4		—	—	82.3_386.6	82.3_386.6	82.3_386.6	82.3_386.6	82.3_386.6	82.3_386.6	—
HDO 150_2		—	—	—	—	—	—	—	—	—
HDO 150_3		—	—	—	—	—	—	—	15.6_60.8	15.6_60.8
HDO 150_4		—	—	—	101.8_238.8	101.8_238.8	101.8_238.8	66.9_238.8	66.9_238.8	66.9_238.8
HDO 160_2		—	—	—	—	—	—	—	—	—
HDO 160_3		—	—	—	—	—	—	—	17.7_68.6	17.7_68.6
HDO 160_4		—	—	—	115.2_269.7	115.2_269.7	115.2_269.7	75.9_269.7	75.9_269.7	75.9_269.7

		Configurazione veloce tipo GJ / *Input configuration type GJ* / Konfiguration der Antriebsseite GJ						
		160	**180**	**200**	**225**	**250**	**280**	**315 (*)**
HDO 100_2		—	—	—	—	8.0_13.5	8.0_13.5	8.0_13.5
HDO 100_3		20.2_67.5	20.2_67.5	20.2_67.5	20.2_67.5	14.0_67.5	14.0_67.5	14.0_67.5
HDO 100_4		—	—	—	—	—	—	—
HDO 110_2		—	—	—	—	—	8.7_15.5	8.7_15.5
HDO 110_3		22.0_77.5	22.0_77.5	22.0_77.5	22.0_77.5	22.0_77.5	18.9_77.5	18.9_77.5
HDO 110_4		—	—	—	—	—	—	—
HDO 120_2		—	—					8.9_15.5
HDO 120_3		—	—	28.3_78.6	28.3_78.6	28.3_78.6	17.3_78.6 ⛔ (24.6)	17.3_78.6 ⛔ (24.6)
HDO 120_4		—	—	—	—	—	—	—
HDO 130_2		—	—	—	—	—	—	7.7_13.6
HDO 130_3	**i =**	—	—	—	—	15.2_67.1	15.2_67.1	15.2_67.1
HDO 130_4		—	—	—	—	—	—	—
HDO 140_2		—	—	—	—	—	—	9.0_15.7
HDO 140_3		—	—	—	—	17.7_77.3	17.7_77.3	17.7_77.3
HDO 140_4		—	—	—	—	—	—	—
HDO 150_2		—	—	—	—	—	—	—
HDO 150_3		—	—	—	—	—	28.2_60.8	28.2_60.8
HDO 150_4		—	—	—	—	—	—	—
HDO 160_2		—	—	—	—	—	—	—
HDO 160_3		—	—	—	—	—	34.9_68.6	34.9_68.6
HDO 160_4		—	—	—	—	—	—	—

(*)

		B3	**B6**	**B7**	**V5**
HDO ... G 315		⚠	OK	OK	⚠
HDO ... GJ 315		OK	⚠	⚠	⚠

⚠

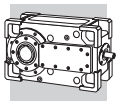
Necessaria la supportazione esterna del motore.
Per la flangiatura a sbalzo del motore, privo di supporto esterno, consultare preventivamente il Servizio Tecnico Bonfiglioli.

⚠

Motor requires external support.
For end flange motor mountings with no external support, contact Bonfiglioli's Technical Service on beforehand.

⚠

Für die äußere Abstützung des Motors erforderlich.
Für die geflanschte Montage ohne Abstützung wenden Sie sich zuvor bitte an den Technischen Kundendienst von Bonfiglioli.



3.6 - VARIANTI OPZIONALI

3.6.1 - DISPOSITIVI TERMICI AUSILIARI

3.6.1.1 - VENTILAZIONE FORZATA

Una maggiore capacità di dissipazione termica per i riduttori HDO è ottenibile mediante l'uso di una ventola di raffreddamento calettata sull'albero veloce del riduttore.

È possibile specificare il montaggio di una ventola sull'albero complanare mediante l'opzione **FAN**. La collocazione alternativa della ventola sull'estremità ortogonale, opzione **FANJ**, è possibile solo per i riduttori a due o tre stadi di riduzione.

Per alcune configurazioni o posizioni di montaggio la ventilazione forzata può non essere compatibile con i sistemi di lubrificazione forzata - opzioni OP... e MOP.

L'effetto della maggiore capacità di dissipazione è rappresentato dal valore di potenza termica P_{TFAN}, rilevabile nel capitolo: 4.1 e significativo solo se il funzionamento è di tipo continuo.

L'efficienza della ventilazione forzata si riduce grandemente per funzionamento intermittente e velocità di comando inferiori a $n_1 = 900\ min^{-1}$.
In questo caso per incrementare la potenza termica del riduttore è consigliabile ricorrere ad altri sistemi di raffreddamento ausiliari.

3.6 - OPTIONAL VARIANTS

3.6.1 - AUXILIARY THERMAL DEVICES

3.6.1.1 - FORCED VENTILATION

Improved heat dissipation can be achieved on HDO gearboxes by keying a cooling fan on to the gearbox input shaft.

*Specify the **FAN** option to have the fan installed on the shaft in the same plane. The alternative option, **FANJ**, with an orthogonally mounted fan, is only available with two or three stage gearboxes.*

In combination with some configuration or mounting position forced ventilation may not be available along with forced lubrication devices - option OP... or MOP.

The increased cooling effect is shown by the thermal capacity value P_{TFAN} listed in section 4.1. This value is only significant with continuous duty applications.

The effectiveness of forced ventilation is drastically reduced in intermittent duty applications and also below drive speeds of $n_1 = 900\ min^{-1}$.
In such cases, other auxiliary cooling devices should be used to increase the thermal capacity of the gearbox.

3.6 - OPTIONALE VARIANTEN

3.6.1 - THERMISCHE HILFSVORRICHTUNGEN

3.6.1.1 - ZWANGSLÜFTUNG

Eine höhere Wärmeableitleistung bei den HDO Getrieben lässt sich durch einen auf der Antriebswelle des Getriebes aufgeschrumpften Kühllüfter erzielen.

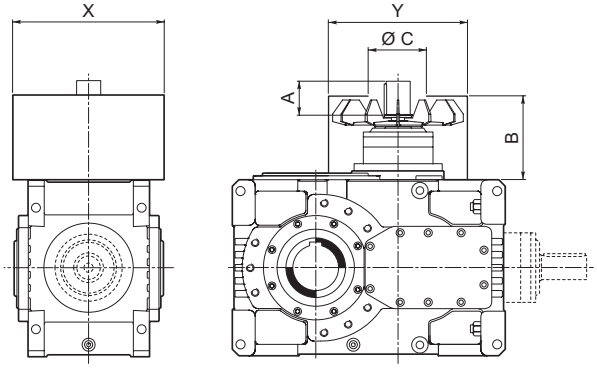
Der Einbau eines Lüfters an der komplanaren Welle kann mit der Option **FAN** bestellt werden. Die alternative Anbringung des Lüfters am orthogonalen Wellenende, Option **FANJ**, ist nur bei Getrieben mit 2 bzw. 3 Untersetzungsstufen möglich.

In manchen Konfigurationen oder Einbaulagen steht die Zwangslüftung nicht mit der Zwangsschmierung zur Verfügung - Option OP oder MOP.

Die Wirkung der stärkeren Wärmeableitung ist durch den Wert der Wärmeleistung P_{TFAN} dargestellt, siehe Angaben im Kapitel: 4.1, und nur bei Dauerbetrieb signifikant.

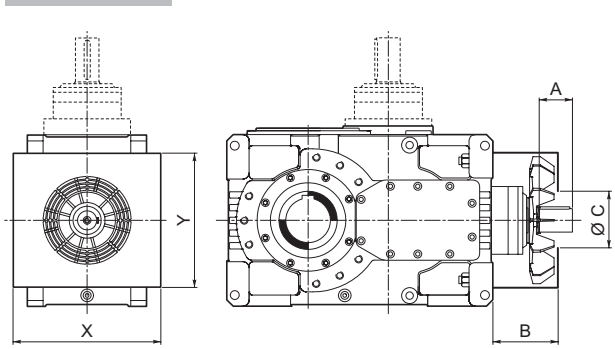
Die Effizienz der Zwangslüftung verringert sich erheblich bei Aussetzbetrieb und Schaltgeschwindigkeit unter $n_1 = 900\ min^{-1}$. Um die Wärmeleistung des Getriebes zu erhöhen, sollte in diesem Fall auf andere Hilfskühlsysteme zurückgegriffen werden.

FANJ

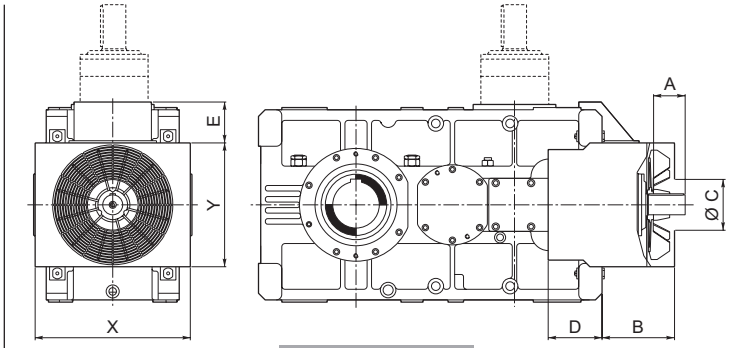


	A	B	C	X	Y
HDO 100 2	105	262	180	460	440
HDO 100 3	82	207	180	460	440
HDO 110 2	105	262	180	460	440
HDO 110 3	82	207	180	460	440
HDO 120 2	105	282	180	480	480
HDO 120 3	82	172	180	480	480
HDO 130 2	140	367	230	600	600
HDO 130 3	105	222	230	600	600
HDO 140 2	140	367	230	600	600
HDO 140 3	105	222	230	600	600
HDO 150 2					
HDO 150 3					
HDO 160 2					
HDO 160 3					

FAN



HDO 100 ... HDO 140



HDO 150 - HDO 160

	A	B	C	D	E	X	Y
HDO 100 2	105	207	180	—	—	460	424
HDO 100 3	82	207	180	—	—	460	424
HDO 100 4	58	207	180	—	—	460	424
HDO 110 2	105	207	180	—	—	460	424
HDO 110 3	82	207	180	—	—	460	424
HDO 110 4	58	207	180	—	—	460	424
HDO 120 2	105	232	180	—	—	480	460
HDO 120 3	82	172	180	—	—	480	460
HDO 120 4	58	172	180	—	—	480	460
HDO 130 2	140	327	230	—	—	600	600
HDO 130 3	105	222	230	—	—	600	600
HDO 130 4	82	287	230	—	—	600	600
HDO 140 2	140	327	230	—	—	600	600
HDO 140 3	105	222	230	—	—	600	600
HDO 140 4	82	287	230	—	—	600	600
HDO 150 2	165	387	230	243	185	700	560
HDO 150 3	130	327	230	243	185	700	560
HDO 150 4	82	297	230	243	185	700	560
HDO 160 2	165	387	230	243	185	700	560
HDO 160 3	130	327	230	243	185	700	560
HDO 160 4	82	297	230	243	185	700	560

3.6.1.2 - RAFFREDDAMENTO MEDIANTE SERPENTINA

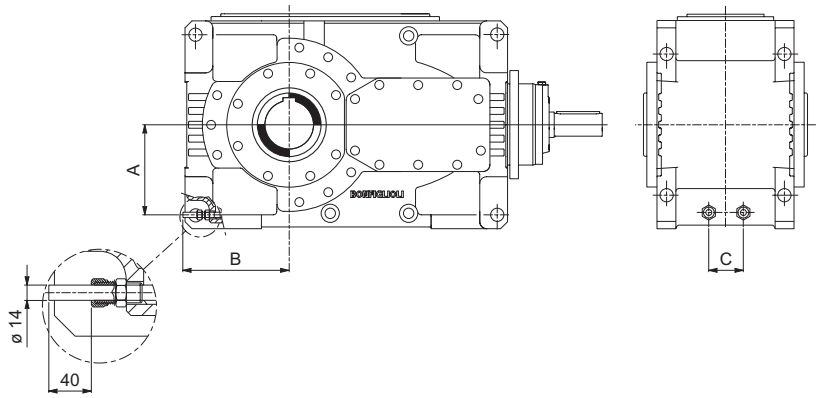
La serpentina di scambio – opzione **SR** – è prevista per essere integrata in un circuito di raffreddamento la cui realizzazione è a cura dell'installatore.
Il circuito di alimentazione dell'acqua deve corrispondere alle seguenti specifiche: pressione max 8 bar, portata 10 l/min, temperatura di mandata max. 20°C.
In queste condizioni l'effetto della maggiore capacità di dissipazione termica è rappresentato dal valore di potenza termica P_{TSR}, rilevabile nel capitolo: 4.1.

3.6.1.2 - HEAT DISSIPATION THROUGH COOLING COIL

*The cooling coil option **SR** is designed for integration in a cooling circuit to be provided by the installer.*
The water supply circuit must correspond to the following specifications: maximum pressure 8 bar, flow rate 10 l/min, maximum delivery temperature 20°C.
The increased cooling effect obtained in these conditions is shown by the thermal capacity value P_{TSR}. See the section, 4.1.

3.6.1.2 - KÜHLUNG MITTELS KÜHLSCHLANGE

Die Kühlschlange – Option **SR** – ist für den Einbau in einen Kühlkreis vorgesehen, der vom Monteur realisiert werden muss.
Das Wasserversorgungsnetz muss folgende Spezifikationen erfüllen: Druck max. 8 bar, Durchsatz 10 l/Min., Auslasstemperatur max. 20 °C.
Die erhöhte Kühlwirkung unter diesen Bedingungen ist durch den Wert der Wärmeleistung P_{TSR} im Kapitel 4.1 angegeben.



	A	B	C
HDO 100_ SR	232	285	100
HDO 110_ SR	232	270	100
HDO 120_ SR	258	305	100
HDO 130_ SR	325	340	100
HDO 140_ SR	325	365	100
HDO 150	⛔		
HDO 160			

3.6.1.3 - RAFFREDDAMENTO AUSILIARIO MEDIANTE CENTRALINA AUTONOMA

Sono offerte in opzione due tipi di centraline, ognuna delle quali in più taglie corrispondenti a diverse capacità di raffreddamento, che sfruttano un diverso mezzo di raffreddamento dell'olio, MCRW… – dotata di scambiatore acqua/olio e MCRA… – con scambiatore aria/olio.
Quando si ricorre ad una centralina autonoma di raffreddamento, previa verifica del Servizio Tecnico Bonfiglioli, non è necessario specificare un ulteriore dispositivo di lubrificazione forzata, vedi paragrafo 3.6.2.
La disponibilità del dispositivo è evidenziata nella tabella seguente per ciascuna taglia di riduttore. La selezione dovrà tenere conto del deficit di potenza termica da colmare mediante il contributo indicato come P_{TMCRW} o P_{TMCRA} nella tabella del capitolo 4.1.

3.6.1.3 - AUXILIARY COOLING WITH AUTONOMOUS COOLING UNIT

Two types of cooling unit are available, each in a range of sizes providing different cooling capacities. The two types use different cooling media for the oil: MCRW… – water/oil heat exchanger and MCRA… – air/oil heat exchanger.
If an autonomous cooling unit is installed on the advice of the Bonfiglioli Technical Service, no additional forced lubrication devices are required. See section 3.6.2.
The following chart shows device availability according to gearbox size.
Your selection must take into account the deficit in thermal power that must be made up by contribution P_{TMCRW} or P_{TMCRA} as shown in the chart in section 4.1.

3.6.13 - HILFSKÜHLUNG ÜBER AUTONOMES KÜHLAGGREGAT

Optional werden zwei Kühlaggregattypen mit unterschiedlichen Kühlkapazitäten angeboten, die ein anderes Kühlmittel als Öl einsetzen, das MCRW – mit einem Wasser/Öl-Wärmetauscher – und das MCRA – mit einem Luft/Öl-Wärmetauscher.
Wird ein autonomes Kühlaggregat eingesetzt und wurde dies zuvor durch den Technischen Kundendienst von Bonfiglioli geprüft, ist kein weiteres Zwangsschmiersystem erforderlich. Vgl. auch Punkt 3.6.2.
Die folgende Tabelle zeigt die verfügbaren Zwangsschmiersysteme für die jeweiligen Getriebegrößen.
Bei der Auswahl muss der Wärmeleistungsverlust durch den als P_{TMCRW} oder P_{TMCRA} bezeichneten Anteil in der Tabelle unter Punkt 4.1 ausgeglichen werden.

	MCRW5 MCRA5	MCRW9 MCRA9	MCRW21 MCRA21	MCRW34 MCRA34	MCRW51 MCRA51
HDO 100	**X**	**X**			
HDO 110	**X**	**X**			
HDO 120	**X**	**X**	**X (*)**		
HDO 130	**X**	**X**	**X**	**X (**)**	
HDO 140	**X**	**X**	**X**	**X (**)**	
HDO 150	**X**	**X**	**X**	**X**	**X (**)**
HDO 160	**X**	**X**	**X**	**X**	**X (**)**

(*) non disponibile per la posizione di montaggio B3.

(**) non disponibile per i riduttori a due stadi in posizione di montaggio B3.

(*) not available for mounting position B3.

(**) not available for double reduction units in the mounting position B3.

(*) nicht verfügbar für die Einbaulagen B3.

(**) Für die zwei stufige Getriebe nach Bauform B3 nicht möglich.

I componenti principali delle centraline sono:

MCRW…

1) Motopompa con circuito di by-pass
2) Filtro con indicatore di intasamento visivo
3) Scambiatore di calore acqua / olio
4) Pressostato di minima (presente solo in caso di lubrificazione forzata)
5) Termostato di massima
6) Termostato d'inserzione
7) Elettrovalvola

The main components of the cooling units are as follows:

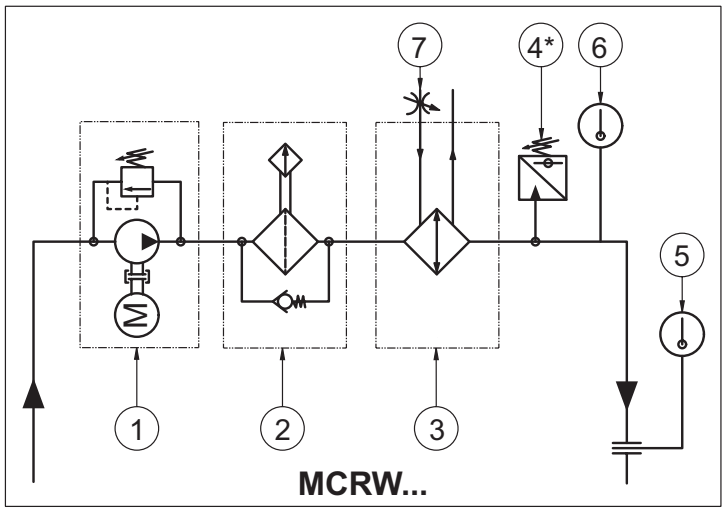
MCRW…

1) motorpump complete with by-pass circuit
2) filter with clogging visual indicator
3) water/oil heat exchanger
4) minimum pressure switch (only available in combination with forced lubrication)
5) maximum temperature thermostat
6) minimum temperature switch
7) electro-valve

Die wichtigste Komponenten des Kühlaggregats:

MCRW…

1) Motorpumpe mit By-pass Kreislauf
2) Filter mit Verschmutzung Schauglas
3) Wasser/Öl Wärmeaustauscher
4) Druckschalter von Minimaldruck (Anwesend nur im Fall von Drucklaufschmierung)
5) Max. Druckthermostat
6) Min. Druckthermostat
7) Elektroventil



MCRA…

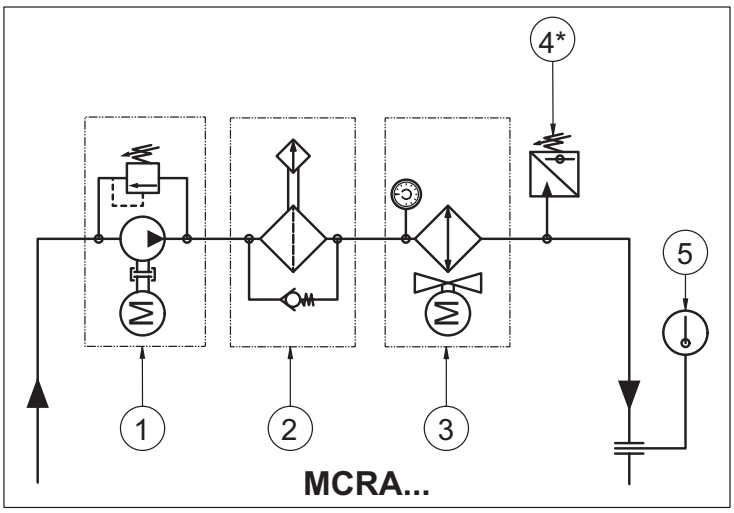
1) Motopompa con circuito di by-pass
2) Filtro con indicatore di intasamento visivo
3) Scambiatore di calore aria / olio con termostato
4) Pressostato di minima (presente solo in caso di lubrificazione forzata)
5) Termostato di massima

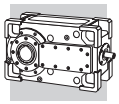
MCRA…

1) motorpump complete with by-pass circuit
2) filter with clogging visual indicator
3) air/oil heat exchanger with thermostat
4) minimum pressure switch (only available in combination with forced lubrication)
5) maximum temperature thermostat

MCRA…

1) Motorpumpe mit By-pass Kreislauf
2) Filter mit Verschmutzung Schauglas
3) Luft/Öl Wärmeaustauscher
4) Druckschalter von Minimaldruck (Anwesend nur im Fall von Drucklaufschmierung)
5) Max. Druckthermostat





Avvertenze di carattere generale:

MCRW... : prevedere un circuito di alimentazione dell'acqua che rispetti le seguenti specifiche:

- pressione max 10 bar
- temperatura di mandata max 20°C
- portata minima Q_{H2O} come da tabella:

General warnings:

MCRW... *: provide a water supply system that corresponds to the following specifications:*

- *max. pressure, 10 bar*
- *maximum delivery temperature, 20°C*
- *minimum flow rate Q_{H2O} as per the chart:*

Allgemeine Hinweise:

MCRW... : Wasserversorgungskreislauf mit folgenden Daten vorsehen:

- Max. Druck 10 bar
- Auslasstemperatur max. 20°C
- Mindestdurchsatz Q_{H2O} wie in der Tabelle:

	MCRW5	MCRW9	MCRW21	MCRW34	MCRW51
Q_{H2O} [l/min]	10	18	31	56	81

MCRA... : lasciare adeguato spazio libero attorno allo scambiatore per garantire un flusso d'aria non impedito.

MCRA... *: leave sufficient space around the heat exchanger to ensure an unrestricted air flow.*

MCRA... : Um den Wärmetauscher ausreichend Platz für ungehinderte Luftzirkulation vorsehen.

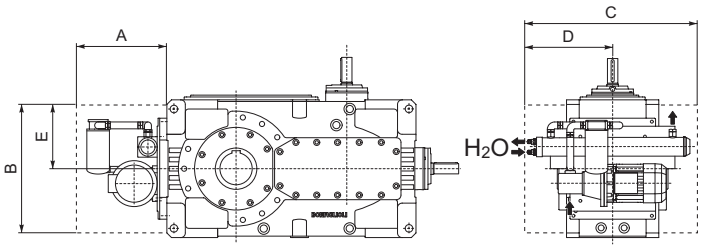
Le centraline sono installate sui riduttori come rappresentato nello schema sotto riportato.

The cooling units are installed on the gearboxes as shown in the figure below.

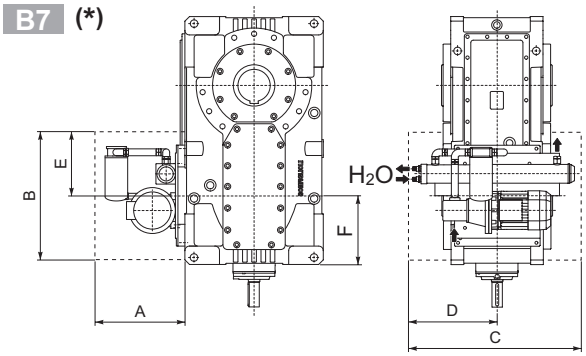
Die Aggregate werden auf den Getrieben gemäß der Zeichnung unten montiert.

MCRW...

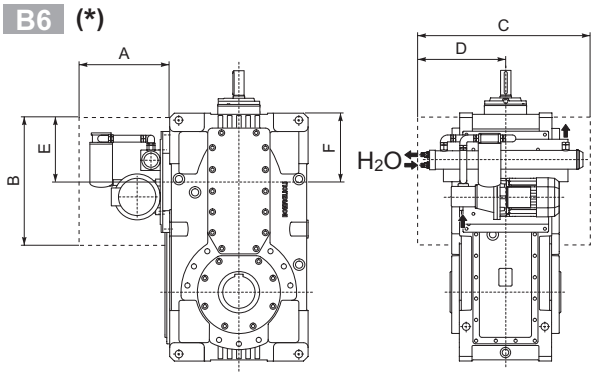
B3



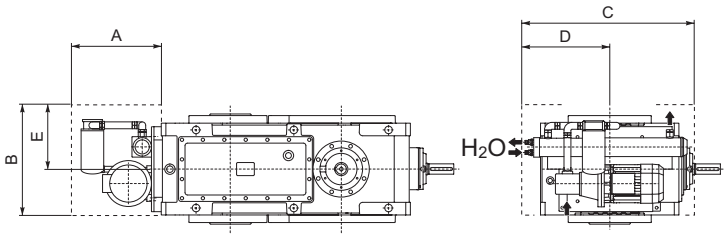
B7 (*)



B6 (*)



V5



	A	B	C	D	E	F							
						HDO 100 - HDO 110		HDO 120		HDO 130 - HDO 140		HDO 150 - HDO 160	
						2x	3x/4x	2x	3x/4x	2x	3x/4x	2x	3x/4x
MCRW5	360	415	730	365	230	325	270	350	300	420	380	475	395
MCRW9	360	380	870	435	195								
MCRW21	400	425	780	390	240								
MCRW34	430	650	1000	500	465								
MCRW51	520	650	1250	625	465								

(*) Per configurazioni con ingresso **J** la centralina sarà posizionata sul lato opposto.

*(*) Units featuring the **"J"** input configuration have the cooling unit fitted on opposite side as shown.*

(*) Für Ausführungen mit Eingang **J** wird das Steuergerät auf die andere Seite montiert sein.

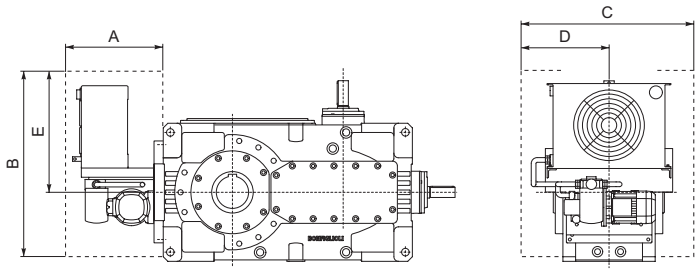
Le dimensioni d'ingombro massimo A, B, C, D ed E sono indicative.

Overall dimensions A, B, C, D and E are indicative only

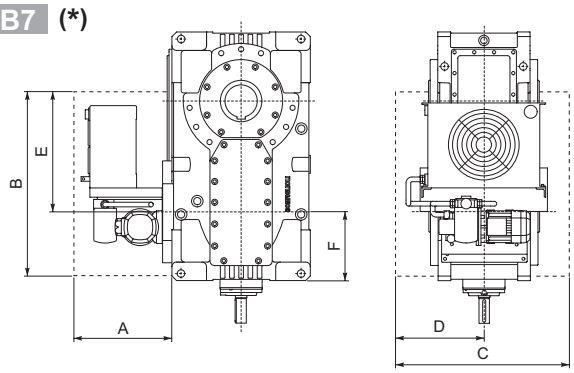
Die Außenabmessungen A; B; C; D und E sind nur Richtabmessungen.

MCRA...

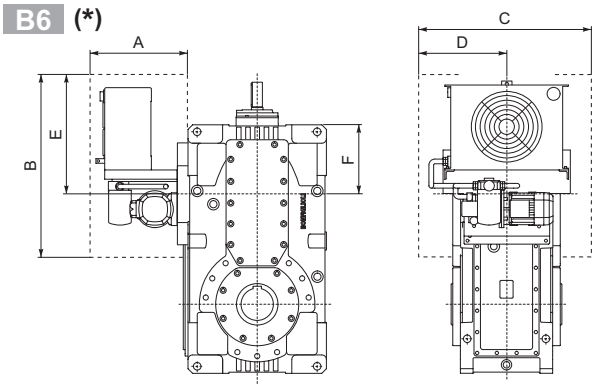
B3



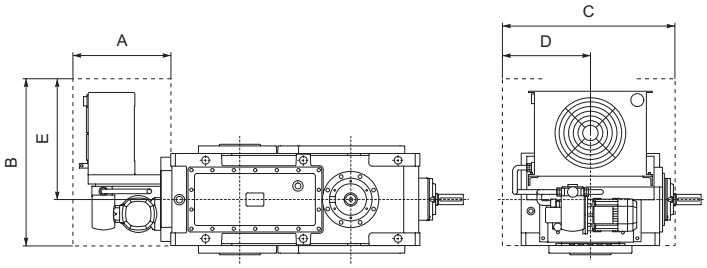
B7 (*)



B6 (*)



V5



	A	B	C	D	E	F							
						HDO 100 - HDO 110		HDO 120		HDO 130 - HDO 140		HDO 150 - HDO 160	
						2x	3x/4x	2x	3x/4x	2x	3x/4x	2x	3x/4x
MCRA5	400	560	500	250	375	325	270	350	300	420	380	475	395
MCRA9	435	650	640	320	465								
MCRA21	440	815	700	350	630								
MCRA34	500	920	840	420	735								
MCRA51	560	1075	1000	500	890								

(*) Per configurazioni con ingresso **J** la centralina sarà posizionata sul lato opposto.

Le dimensioni d'ingombro massimo A, B, C, D ed E sono indicative.

*(*) Units featuring the "**J**" input configuration have the cooling unit fitted on opposite side as shown.*

Overall dimensions A, B, C, D and E are indicative only

(*) Für Ausführungen mit Eingang **J** wird das Steuergerät auf die andere Seite montiert sein.

Die Außenabmessungen A; B; C; D und E sind nur Richtabmessungen.

3.6.1.4 - RESISTENZA DI PRERISCALDO

Con temperature ambientali molto basse può essere necessario pre-riscaldare il lubrificante nel carter prima dell'avviamento e/o durante il funzionamento. L'opzione **HE** prevede l'installazione di una resistenza elettrica e la fornitura a corredo di un termostato per segnalare il raggiungimento della temperatura minima richiesta per un corretto funzionamento. Il cablaggio di quest'ultimo è a cura dell'installatore.

3.6.1.4 - HEATERS

*In very low ambient temperatures it may prove necessary to pre-heat the lubricant in the sump before start-up and/or during operation. The **HE** option envisages the installation of an electrical heating element, supplied with a thermostat to detect when the minimum temperature needed for correct operation has been reached. The wiring necessary for the thermostat must be provided by the installer.*

3.6.1.4 - HEIZGERÄTE

Bei sehr niedrigen Umgebungstemperaturen kann es sich als erforderlich erweisen, das Schmiermittel im Gehäuse vor Inbetriebnahme und/oder während des Betriebs vorzuwärmen. Die Option **HE** sieht die Installation eines elektrischen Heizwiderstands und die Lieferung eines Thermostats vor, mit dem das Erreichen der erforderlichen Mindesttemperatur für einen korrekten Betrieb angezeigt wird. Die Verkabelung ist vom Monteur vorzunehmen.

3.6.2 - LUBRIFICAZIONE FORZATA

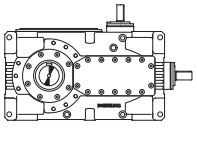
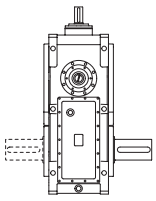
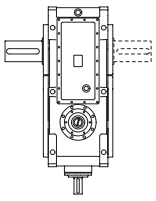
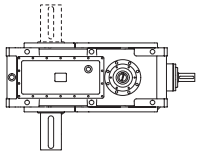
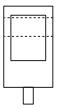
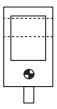
Condizioni di applicazione OBBLIGATORIA di dispositivi di lubrificazione forzata.

3.6.2 - FORCED LUBRICATION

Pattern for MANDATORY specification of forced lubrication devices.

3.6.2 - ZWANGSSCHMIERUNG

OBLIGATORISCHE Anwendungsbedingungen für Zwangsschmiervorrichtungen.

					
		B3	**B6**	**B7**	**V5**
	**L R D**	⛔	OP MOP	⛔	OP... MOP
	**LJ RJ DJ**	OP MOP	⛔	⛔	OP... MOP
	**LD RD DD**	OP MOP	OP MOP	⛔	OP... MOP

Nota: Tutti i dispositivi di lubrificazione forzata sopra riportati possono essere sostituiti, previa verifica del Servizio Tecnico Bonfiglioli, dalle centraline autonome di raffreddamento tipo MCR...

Remark: Forced lubrication devices may be replaced, upon approval from Bonfiglioli Techical Service, by independent cooling systems, type MCR...

Anmerkung: Alle oben aufgeführten Zwangsschmiervorrichtungen können nach entsprechender Prüfung durch den technischen Kundendienst von Bonfiglioli durch die autonom arbeitenden Kühleinheiten des Typs MCR... ersetzt werden.

3.6.2.1 - POMPA PER POSIZIONI DI MONTAGGIO B3 e B6

Per servizi di tipo continuo e installazioni nella posizione di montaggio B3 o B6 (dove richiesto: vedi capitolo 3.6.2) è fornibile a richiesta un circuito di lubrificazione forzata con pompa trascinata meccanicamente e calettata sull'albero intermedio.
Il circuito garantisce la lubrificazione dei soli cuscinetti superiori, non immersi in olio.

In fase di ordinativo specificare OP verificando preventivamente la compatibilità del dispositivo, come riportato in tabella in funzione della velocità di comando n_1 e del rapporto di riduzione, vedi schema seguente.

3.6.2.1 - PUMP FOR MOUNTING POSITIONS B3 and B6

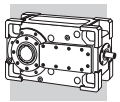
In continuous duty applications and, when required, for B3 or B6 mounting positions (see section 3.6.2), an optional forced lubrication circuit is available with a mechanically driven pump keyed on to the intermediate shaft.
This circuit only guarantees lubrication of the top bearings that are not immersed in oil.

Before specifying the OP option in your order, check the chart to make sure that the device is fully compatible with the drive speed n1 and reduction ratio. See the following diagram.

3.6.2.1 - PUMPE FÜR EINBAULAGEN B3 und B6

Für Dauerbetrieb und Installationen in den Einbaulagen B3 bzw. B6 (sofern erfordert: s. Kapitel 3.6.2) ist auf Anfrage ein Zwangsschmierkreis mit mechanisch angetriebener Pumpe an der Zwischenwelle lieferbar.
Der Zwangsschmierkreis garantiert die Schmierung ausschließlich der oberen, nicht in Öl getauchten Lager.

Bei Auftragserteilung im Anschluss an den Kompatibilitätsnachweis der Vorrichtung lt. Tabelle je nach Schaltgeschwindigkeit n1 und Untersetzungsverhältnis OP bestellen, siehe nachstehendes Schema.



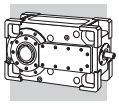
	i	n_1		
		900 min^{-1}	1100 min^{-1}	1400 min^{-1}
HDO 100 2	5.8 ≤ i ≤ 8.7	OP	OP	OP
	i = 10.0; 10.9	⛔	OP	OP
	i = 12.4; 13.5	⛔	⛔	OP
HDO 100 3	14.0 ≤ i ≤ 40.0	OP	OP	OP
	43.9 ≤ i ≤ 67.5	⛔	⛔	OP
HDO 100 4	70.8 ≤ i ≤ 139.8	OP	OP	OP
	160.0 ≤ i ≤ 344.2	⛔	⛔	OP
HDO 110 2	6.4 ≤ i ≤ 10.0	OP	OP	OP
	i = 10.9; 12.5	⛔	OP	OP
	i = 13.5; 15.5	⛔	⛔	OP
HDO 110 3	18.9 ≤ i ≤ 43.6	OP	OP	OP
	48.0 ≤ i ≤ 77.5	⛔	⛔	OP
HDO 110 4	77.4 ≤ i ≤ 121.7	OP	OP	OP
	137.1 ≤ i ≤ 395.0	⛔	⛔	OP
HDO 120 2	6.6 ≤ i ≤ 10.0	OP	OP	OP
	i = 11.1; 12.5	⛔	OP	OP
	i = 13.7; 15.5	⛔	⛔	OP
HDO 120 3	17.3 ≤ i ≤ 44.9	OP	OP	OP
	49.5 ≤ i ≤ 78.6	⛔	⛔	OP
HDO 120 4	87.0 ≤ i ≤ 162.2	OP	OP	OP
	179.7 ≤ i ≤ 400.6	⛔	⛔	OP
HDO 130 2	5.7 ≤ i ≤ 7.1	⛔	OP	OP
	i = 7.7; 8.8	⛔	⛔	OP
	9.6 ≤ i ≤ 13.6	⛔	⛔	⛔
HDO 130 3	15.2 ≤ i ≤ 34.9	OP	OP	OP
	38.3 ≤ i ≤ 67.1	⛔	⛔	OP
HDO 130 4	71.5 ≤ i ≤ 190.3	OP	OP	OP
	219.1 ≤ i ≤ 335.6	⛔	⛔	OP

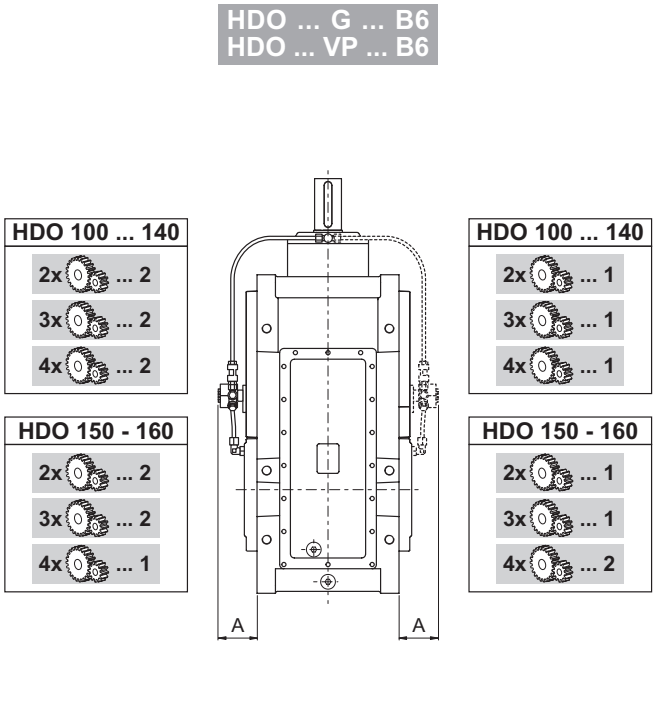
	i	n_1		
		900 min^{-1}	1100 min^{-1}	1400 min^{-1}
HDO 140 2	6.6 ≤ i ≤ 8.2	⛔	OP	OP
	i = 9.0; 10.1	⛔	⛔	OP
	11.3 ≤ i ≤ 15.7	⛔	⛔	⛔
HDO 140 3	17.7 ≤ i ≤ 44.4	OP	OP	OP
	50.4 ≤ i ≤ 77.3	⛔	⛔	OP
HDO 140 4	82.3 ≤ i ≤ 180.0	OP	OP	OP
	198.3 ≤ i ≤ 386.6	⛔	⛔	OP
HDO 150 2	5.5 ≤ i ≤ 7.0	⛔	OP	OP
	i = 8.1; 8.9	⛔	⛔	OP
	10.0 ≤ i ≤ 13.7	⛔	⛔	⛔
HDO 150 3	15.6 ≤ i ≤ 25.4	⛔	OP	OP
	28.2 ≤ i ≤ 36.0	⛔	⛔	OP
	40.2 ≤ i ≤ 60.8	⛔	⛔	⛔
HDO 150 4	66.9 ≤ i ≤ 92.9	OP	OP	OP
	101.8 ≤ i ≤ 141.5	⛔	OP	OP
	157.9 ≤ i ≤ 238.8	⛔	⛔	⛔
HDO 160 2	i = 7.3; 7.9	⛔	OP	OP
	8.9 ≤ i ≤ 11.3	⛔	⛔	OP
	12.2 ≤ i ≤ 15.4	⛔	⛔	⛔
HDO 160 3	17.7 ≤ i ≤ 31.3	⛔	OP	OP
	34.9 ≤ i ≤ 44.3	⛔	⛔	OP
	49.4 ≤ i ≤ 68.6	⛔	⛔	⛔
HDO 160 4	75.9 ≤ i ≤ 96.3	OP	OP	OP
	115.2 ≤ i ≤ 174.0	⛔	OP	OP
	194.1 ≤ i ≤ 269.7	⛔	⛔	⛔

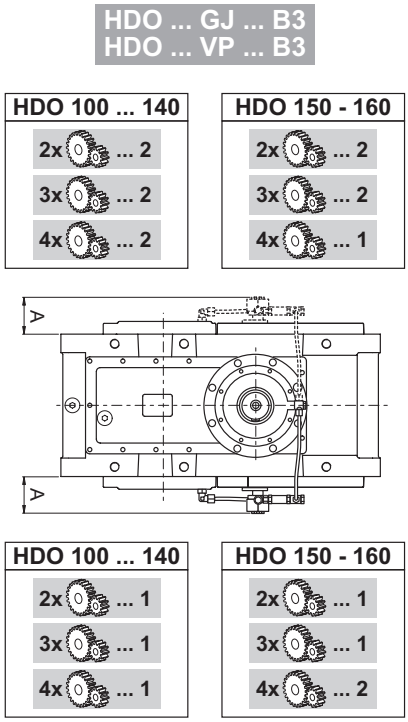
L'opzione non è disponibile in abbinamento con altre configurazioni che impegnano la medesima estremità d'albero.

This option is not available with other configurations that use the same shaft end.

Die Option ist nicht erhältlich in Kombination mit anderen Konfigurationen, die dasselbe Wellenende in Anspruch nehmen.







	A (min) [mm]
HDO 100 2_OP	100
HDO 100 3_OP	95
HDO 100 4_OP	95
HDO 110 2_OP	130
HDO 110 3_OP	95
HDO 110 4_OP	95

	A (min) [mm]
HDO 120 2_OP	125
HDO 120 3_OP	105
HDO 120 4_OP	100
HDO 130 2_OP	120
HDO 130 3_OP	110
HDO 130 4_OP	110
HDO 140 2_OP	125
HDO 140 3_OP	110
HDO 140 4_OP	110

	A (min) [mm]
HDO 150 2_OP	125
HDO 150 3_OP	110
HDO 150 4_OP	110
HDO 160 2_OP	125
HDO 160 3_OP	110
HDO 160 4_OP	110

La tabella qui di seguito descrive la disponibilità del dispositivo pompa in funzione delle posizioni di montaggio, della disposizione alberi e della configurazione parte veloce.

The following chart specifies the availability of the pump on the basis of mounting position, shaft arrangement and input configuration.

In der folgenden Tabelle sind die verfügbaren Pumpsysteme abhängig von Einbaulage, Wellenlage und Konfiguration des Antriebsteils aufgeführt.

Posizione di montaggio / *Mounting position* / Einbaulagen	Disposizione alberi / *Shaft arrangement* / Anordnung der wellen	Configurazione parte veloce / *Input configuration* / Konfiguration Antriebs
B3	LJ - RJ - DJ - LD - RD - DD	VP - GJ
B6	L - R - D - LD - RD - DD	VP - G

3.6.2.2 - POMPA PER POSIZIONE DI MONTAGGIO V5

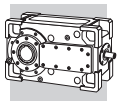
Per servizi di tipo continuo e installazioni nella posizione di montaggio V5 ed esecuzione 1 (esecuzione 2 per HDO 150 e 160 a 4 stadi) è fornibile a richiesta un circuito di lubrificazione forzata con pompa trascinata meccanicamente e calettata sull'albero intermedio. Il circuito garantisce

3.6.2.2 - PUMP FOR MOUNTING POSITION V5

In continuous duty applications and with V5 mounting positions version 1 (version 2 for 4-stage HDO 150 and 160), an optional forced lubrication circuit is available with a mechanically driven pump keyed on to the intermediate shaft.
This circuit only guarantees lubrication

3.6.2.2 - PUMPE FÜR EINBAULAGE V5

Für Dauerbetrieb und Installationen in den Einbaulagen V5 und Ausführung 1 (Ausführung 2 für HDO 150 und 160 mit 4 Stufen) ist auf Anfrage ein Zwangsschmierkreis mit mechanisch angetriebener Pumpe an der Zwischenwelle lieferbar. Der Zwangsschmierkreis garantiert



la lubrificazione dei soli cuscinetti superiori, non immersi in olio.
Se il dispositivo è richiesto congiuntamente al dispositivo di Drywell consultare il Servizio Tecnico Bonfiglioli.
In fase di ordinativo specificare OP1 o OP2 verificando preventivamente la compatibilità del dispositivo, come riportato in tabella in funzione della velocità di comando n_1 e del rapporto di riduzione, vedi schema seguente.

of the top bearings that are not immersed in oil.
If this device is required in conjunction with the Drywell device, consult the Bonfiglioli Technical Service.
When ordering, specify the OP1 or OP2 option in your order after first checking the chart to make sure that the device is fully compatible with drive speed n_1 and the reduction ratio. See the following diagram.

ausschließlich die Schmierung der oberen, nicht im Ölbad laufenden Lager.
Wird die Zwangsschmierung zusammen mit der „Drywell"-Vorrichtung gewünscht, wenden Sie sich bitte an den Technischen Kundendienst von Bonfiglioli.
Bei Auftragserteilung bitte die Kompatibilität der Vorrichtung lt. Tabelle im nachstehenden Schema je nach Schaltgeschwindigkeit n_1 und Untersetzungsverhältnis prüfen und OP1 oder OP2 angeben.

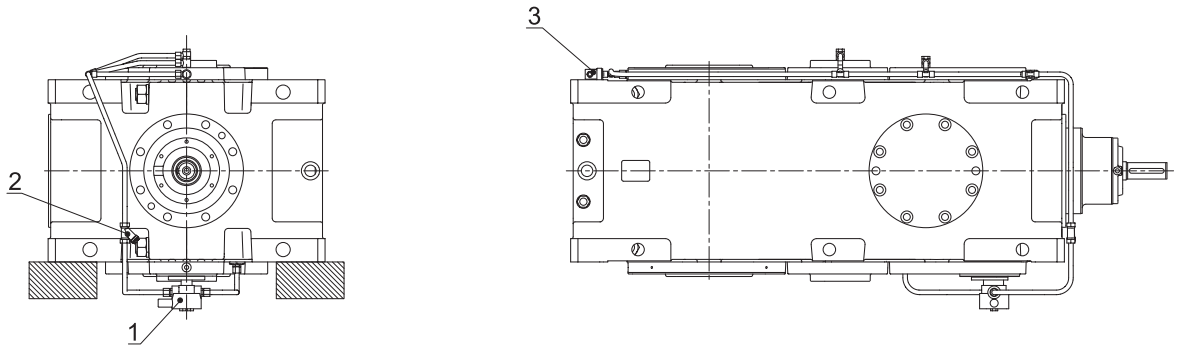
	i	n_1		
		900 min^{-1}	1100 min^{-1}	1400 min^{-1}
HDO 100 2	5.8 ≤ i ≤ 7.0	OP1	OP1	OP1
	i = 8.0; 8.7	⛔	OP1	OP1
	i = 10.0; 10.9	⛔	⛔	OP1
	i = 12.4; 13.5	⛔	⛔	⛔
HDO 100 3	14.0 ≤ i ≤ 17.3	OP2	OP1	OP1
	20.2 ≤ i ≤ 40.0	⛔	OP2	OP1
	43.9 ≤ i ≤ 67.5	⛔	⛔	⛔
HDO 100 4	70.8 ≤ i ≤ 139.8	⛔	OP2	OP1
	160.0 ≤ i ≤ 344.2	⛔	⛔	⛔
HDO 110 2	6.4 ≤ i ≤ 8.1	OP2	OP2	OP1
	i = 8.7; 10.0	⛔	OP2	OP2
	i = 10.9; 12.5	⛔	⛔	OP2
	i = 13.5; 15.5	⛔	⛔	⛔
HDO 110 3	i = 18.9; 20.9	OP2	OP1	OP1
	22.0 ≤ i ≤ 43.6	⛔	OP2	OP1
	48.0 ≤ i ≤ 77.5	⛔	⛔	⛔
HDO 110 4	77.4 ≤ i ≤ 121.7	⛔	OP2	OP2
	137.1 ≤ i ≤ 395.0	⛔	⛔	⛔
HDO 120 2	6.6 ≤ i ≤ 8.1	OP2	OP2	OP1
	i = 8.9; 10.0	⛔	OP2	OP2
	i = 11.1; 12.5	⛔	⛔	OP2
	i = 13.7; 15.5	⛔	⛔	⛔
HDO 120 3	17.3 ≤ i ≤ 28.3	OP2	OP2	OP1
	32.0 ≤ i ≤ 44.9	⛔	OP2	OP2
	49.5 ≤ i ≤ 78.6	⛔	⛔	⛔
HDO 120 4	87.0 ≤ i ≤ 162.2	⛔	OP2	OP2
	179.0 ≤ i ≤ 400.6	⛔	⛔	⛔
HDO 130 2	5.7 ≤ i ≤ 7.1	OP2	OP1	OP1
	i = 7.7; 8.8	⛔	OP2	OP1
	i = 9.6; 11.0	⛔	⛔	OP2
	i = 12.0; 13.6	⛔	⛔	⛔
HDO 130 3	15.2 ≤ i ≤ 19.9	OP2	OP2	OP1
	22.6 ≤ i ≤ 34.9	⛔	OP2	OP2
	38.3 ≤ i ≤ 67.1	⛔	⛔	⛔
HDO 130 4	71.5 ≤ i ≤ 190.3	⛔	OP2	OP1
	219.1 ≤ i ≤ 335.6	⛔	⛔	⛔

	i	n_1		
		900 min^{-1}	1100 min^{-1}	1400 min^{-1}
HDO 140 2	6.6 ≤ i ≤ 8.2	OP2	OP2	OP1
	i = 9.0; 10.1	⛔	OP2	OP2
	i = 11.3; 12.6	⛔	⛔	OP2
	i = 14.0; 15.7	⛔	⛔	⛔
HDO 140 3	17.7 ≤ i ≤ 23.3	OP2	OP2	OP1
	26.0 ≤ i ≤ 44.4	⛔	OP2	OP2
	50.4 ≤ i ≤ 77.3	⛔	⛔	⛔
HDO 140 4	82.3 ≤ i ≤ 180.0	⛔	OP2	OP1
	198.3 ≤ i ≤ 386.6	⛔	⛔	⛔
HDO 150 2	5.5 ≤ i ≤ 7.0	OP2	OP2	OP1
	i = 8.1; 8.9	⛔	OP2	OP2
	10.0 ≤ i ≤ 10.9	⛔	⛔	OP2
	12.6 ≤ i ≤ 13.7	⛔	⛔	⛔
HDO 150 3	15.6 ≤ i ≤ 25.4	OP2	OP2	OP1
	28.2 ≤ i ≤ 36.0	⛔	OP2	OP2
	40.2 ≤ i ≤ 60.8	⛔	⛔	⛔
HDO 150 4	66.9 ≤ i ≤ 92.9	OP2	OP2	OP1
	101.8 ≤ i ≤ 141.5	⛔	OP2	OP2
	157.9 ≤ i ≤ 238.8	⛔	⛔	⛔
HDO 160 2	i = 7.3; 7.9	OP2	OP2	OP1
	8.9 ≤ i ≤ 11.3	⛔	⛔	OP2
	12.2 ≤ i ≤ 15.4	⛔	⛔	⛔
HDO 160 3	17.7 ≤ i ≤ 31.3	OP2	OP2	OP1
	34.9 ≤ i ≤ 44.3	⛔	OP2	OP2
	49.4 ≤ i ≤ 68.6	⛔	⛔	⛔
HDO 160 4	75.9 ≤ i ≤ 96.3	OP2	OP2	OP1
	115.2 ≤ i ≤ 174.0	⛔	OP2	OP2
	194.1 ≤ i ≤ 269.7	⛔	⛔	⛔

L'opzione non è disponibile in abbinamento con altre configurazioni che impegnano la medesima estremità d'albero.

This option is not available with other configurations that use the same shaft end.

Die Option ist nicht in Verbindung mit anderen Konfigurationen verfügbar, die dasselbe Wellenende in Anspruch nehmen.



1 - Pompa
2 - Filtro
3 - Pressostato di minima

1 - Pump
2 - Filter
3 - Minimum pressure switch

1 - Pumpe
2 - Filter
3 - Mindestdruckwächter

Per le dimensioni di ingombro contattare il Servizio Tecnico Bonfiglioli.

Contact the Bonfiglioli Technical Service for overall dimensions.

Für die Aufstellmaße wenden Sie sich bitte an den Technischen Kundendienst von Bonfiglioli.

3.6.2.3 - MOTOPOMPA PER POSIZIONI DI MONTAGGIO B3 e B6

Per servizi di tipo intermittente e/o qualora le velocità non siano compatibili con l'utilizzo della pompa OP, nella posizione di montaggio B3 e B6 (dove richiesto: vedi capitolo 3.6.2) è fornibile a richiesta un circuito di lubrificazione forzata con motopompa alimentata autonomamente - opzione MOP. Il circuito garantisce una portata costante di olio in corrispondenza dei cuscinetti superiori.

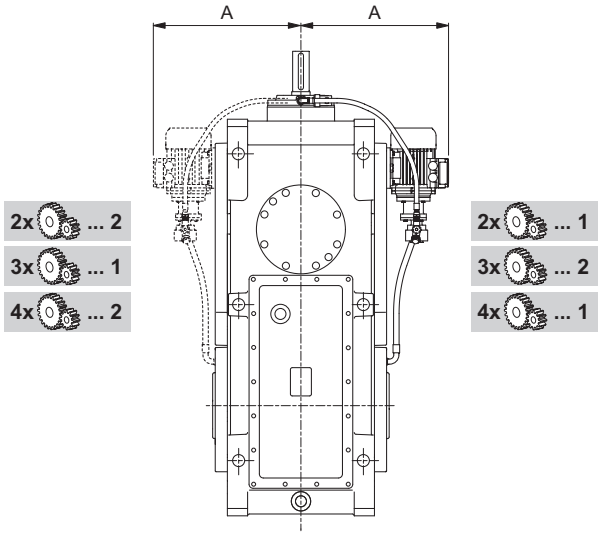
3.6.2.3 - ELECTRIC PUMP FOR MOUNTING POSITIONS B3 and B6

In intermittent duty applications, if speeds are incompatible with the use of the OP pump option, and when required for B3 and B6 mounting positions (see section 3.6.2), the MOP optional forced lubrication circuit is available with an independently powered electric pump.
This system ensures a constant flow of oil to the top bearings.

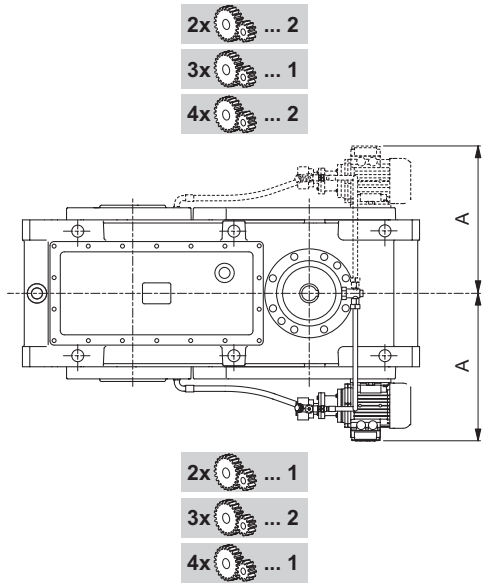
3.6.2.3 - MOTORPUMPE FÜR EINBAULAGEN B3 und B6

Für Aussetzbetrieb bzw. bei nicht für den Einsatz der Pumpe OP geeigneten Drehzahlen ist in den Einbaulagen B3 bzw. B6 (sofern erfordert: s. Kapitel 3.6.2) auf Anfrage ein Zwangsschmierkreis mit unabhängig versorgter Motorpumpe - Option MOP - lieferbar.
Der Zwangsschmierkreis garantiert einen konstanten Schmieröldurchsatz an den oberen Lagern.

HDO ... G ... B6
HDO ... VP ... B6



HDO ... GJ ... B3
HDO ... VP ... B3



	A (min) [mm]
HDO 100	410
HDO 110	410
HDO 120	430
HDO 130	480
HDO 140	480
HDO 150	BONFIGLIOLI TECHNICAL SERVICE
HDO 160	

Le disposizioni della motopompa sopra rappresentate sono indicative, per motivi legati alla contemporanea presenza di altri dispositivi opzionali la loro posizione potrebbe variare.

The electric pump arrangements shown above are purely indicative. Pump positions may vary depending on the presence of other options

Die Einbaupositionen der Motorpumpe können aufgrund der gleichzeitigen Installation weiterer optionaler Vorrichtungen von obenstehenden Darstellungen abweichen.

La tabella descrive la disponibilità del dispositivo motopompa in funzione delle posizioni di montaggio e la disposizione alberi.

The chart specifies electric pump availability on the basis of mounting position and shaft arrangement.

In der Tabelle ist die Verfügbarkeit der Pumpe in Abhängigkeit von den Einbaulagen und Wellenanordnungen angegeben.

Posizione di montaggio / *Mounting position* / Einbaulagen	Disposizione alberi / *Shaft arrangement* / Anordnung der wellen	Configurazione parte veloce / *Input configuration* / Konfiguration Antriebs
B3	LJ - RJ - DJ - LD - RD - DD	VP - GJ
B6	L - R - D - LD - RD - DD	VP - G

3.6.2.4 - MOTOPOMPA PER POSIZIONE DI MONTAGGIO V5

Per servizi di tipo intermittente e/o qualora le velocità non siano compatibili con l'utilizzo della pompa OP, nella posizione di montaggio V5 è fornibile a richie-

3.6.2.4 - ELECTRIC PUMP FOR MOUNTING POSITION V5

In intermittent duty applications or when speeds are incompatible with the use of the OP pump option, and when required for mounting position V5, the MOP op-

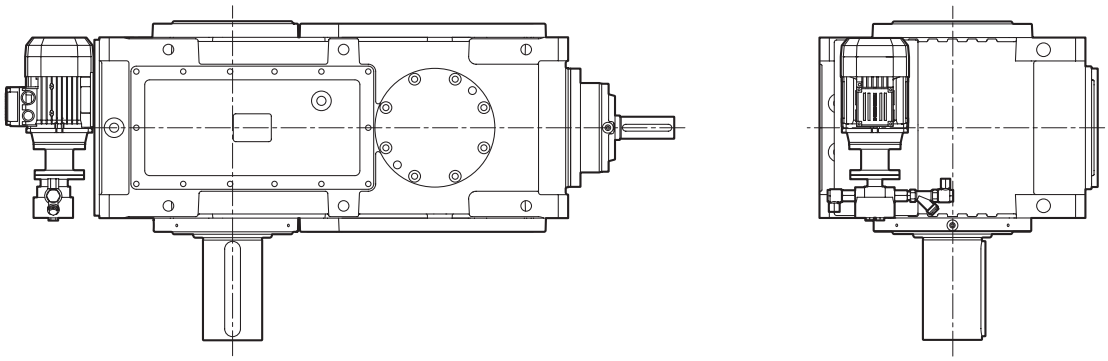
3.6.2.4 - MOTORPUMPE FÜR EINBAULAGE V5

Für Aussetzbetrieb und/oder bei nicht für den Einsatz der Pumpe OP geeigneten Drehzahlen ist in der Einbaulage V5 auf Anfrage ein Zwangsschmierkreis mit

sta un circuito di lubrificazione forzata con motopompa alimentata autonomamente - opzione MOP.
Se il dispositivo è richiesto congiuntamente al dispositivo di Drywell consultare il Servizio Tecnico Bonfiglioli.
Il circuito garantisce una portata costante di olio in corrispondenza dei cuscinetti superiori.

tional forced lubrication circuit is available with an independently powered electric pump.
If this device is required in conjunction with the Drywell device, consult the Bonfiglioli Technical Service.
This system ensures a constant flow of oil to the top bearings.

unabhängig versorgter Motorpumpe – Option MOP – lieferbar.
Wird die Zwangsschmierung zusammen mit der „Drywell"-Vorrichtung gewünscht, wenden Sie sich bitte an den Technischen Kundendienst von Bonfiglioli.
Der Zwangsschmierkreis garantiert eine konstante Ölschmierung der oberen Lager.



I componenti principali sono:
1 - Pompa
2 - Filtro
3 - Pressostato di minima

The main components are:
1 - Pump
2 - Filter
3 - Minimum pressure switch

Die wesentlichen Komponenten sind:
1 - Pumpe
2 - Filter
3 - Mindestdruckwächter

Le disposizioni della motopompa sopra rappresentate sono indicative, per motivi legati alla contemporanea presenza di altri dispositivi opzionali la loro posizione potrebbe variare.

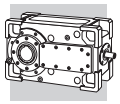
The electric pump arrangements shown above are purely indicative. Pump positions may vary depending on the presence of other options at the same time.

Die Einbaupositionen der Motorpumpe können aufgrund der gleichzeitigen Installation weiterer optionaler Vorrichtungen von den oben stehenden Darstellungen abweichen

Per le dimensioni di ingombro contattare il Servizio Tecnico Bonfiglioli.

Contact the Bonfiglioli Technical Service for overall dimensions.

Für die Aufstellmaße wenden Sie sich bitte an den Technischen Kundendienst von Bonfiglioli.



3.6.3 - DISPOSITIVO ANTIRETRO

Il dispositivo antiretro garantisce il funzionamento unidirezionale del riduttore e previene il moto retrogrado per effetto del carico collegato all'albero lento. Oltre ad effettuare la verifica ai carichi impulsivi riportati al paragrafo 2.2.1, è necessario accertarsi che la coppia richiesta al dispositivo antiretro $M_1 = M_2 / (i \times \eta)$ sia inferiore al momento torcente M_{1max} riportato in tabella.
La specifica della relativa opzione, designata **A**, deve essere necessariamente completata dall'indicazione del verso di rotazione libera dell'albero lento (**CW** oppure **CCW**).
Se particolari condizioni d'uso lo richiedono, il verso di rotazione del dispositivo anti-ritorno può essere variato dall'utente accedendo all'alloggiamento che lo contiene, e invertendo il verso di montaggio della ruota libera. Qualora sia richiesto un intervento di questo tipo contattare il Servizio Tecnico Bonfiglioli per le relative istruzioni.
Il particolare tipo di anti-ritorno, costituito da corpi di contatto a distacco centrifugo, non richiede alcun tipo di manutenzione periodica.
L'opzione non è disponibile in abbinamento con altre configurazioni che impegnano la medesima estremità d'albero.

3.6.3 - BACKSTOP DEVICE

The backstop device ensures that only one direction of rotation is allowed, and prevents the gearbox to be backdriven by the load connected to the output shaft.
In addition to verifying the shock loads shown in section 2.2.1, also make sure that the torque transmitted to the backstop $M_1 = M_2 / (i \times \eta)$ is less than the admissible torque M_{1max} listed in the chart below.
*Along with the specification of the backstop device, option **A**, the direction of free rotation for the output shaft (**CW** or **CCW**) must also be specified in the order.*
If special operating conditions require it, the user can reverse the direction of rotation of the backstop device by opening the backstop compartment and reversing the direction of the freewheel. If you need to perform this operation, contact Bonfiglioli's Technical Service for the necessary instructions.
The type of backstop device used, based on centrifugally released shoes, does not require any regular maintenance.
This option is not available with other configurations that use the same shaft end.

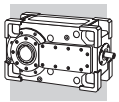
3.6.3 - RÜCKLAUFSPERRE

Die Rücklaufsperre stellt sicher, dass nur eine Drehrichtung des Getriebes möglich ist und verhindert die Rückwärtsbewegung durch die mit der Abtriebswelle verbundene Last. Zusätzlich zur Überprüfung der im Abschnitt 2.2.1 aufgeführten Stoßbelastung muss sichergestellt werden, dass das von der Rücklaufsperre übertragene Moment $M_1 = M_2 / (i \times \eta)$ unter dem in der Tabelle angegebenen max. erlaubten Torsionsmoment M_{1max} liegt.
Bei Bestellung der entsprechenden Option mit der Bezeichnung **A** muss obligatorisch auch die freie Drehrichtung der Abtriebswelle angegeben werden (**CW** oder **CCW**). Die Option ist nicht in Kombination mit anderen Konfigurationen erhältlich, die dasselbe Wellenende in Anspruch nehmen. Sollten bestimmte Betriebsbedingungen dies erfordern, kann die Drehrichtung der Rücklaufsperre vom Benutzer geändert werden, indem in der Aufnahme der Rücklaufsperre die Montagerichtung des frei drehenden Rads umgekehrt wird. Ist ein Eingriff dieser Art notwendig, kann die jeweilige Anleitung beim technischen Kundendienst von Bonfiglioli angefordert werden.
Die besondere Ausführung der Rücklaufsperre, bestehend aus Kontaktkörpern, die sich bei Einwirkung der Zentrifugalkraft ablösen, erfordert keine regelmäßigen Wartungseingriffe.
Die Option ist nicht erhältlich in Kombination mit anderen Konfigurationen, die dasselbe Wellenende in Anspruch nehmen.

In funzionamento permanente si consiglia di mantenere una velocità di rotazione in folle (sopravanzo) $\mathbf{n_{1min}}$ superiore a quella indicata in tabella, al fine di garantire il distacco centrifugo di tutti i corpi preservandoli da fenomeni di usura.
Per ulteriori informazioni contattare Servizio Tecnico Bonfiglioli.

Under continuous operating conditions, it is advisable to maintain a neutral rotation speed $\boldsymbol{n_{1min}}$ greater than that specified in the chart in order to ensure the effective centrifugal release of all the shoes and avoid unnecessary wear. For further details, contact the Bonfiglioli Technical Service.

Bei Dauerbetrieb empfiehlt sich die Einhaltung einer Leerlaufdrehzahl (Überschuss) $\mathbf{n_{1min}}$ oberhalb des in der Tabelle angegebenen Werts, um die Ablösung aller Kontaktkörper bei Einwirkung der Zentrifugalkraft zu gewährleisten und somit Verschleißerscheinungen der Kontaktkörper vorzubeugen. Bei weiterem Informationsbedarf wenden Sie sich bitte an den technischen Kundendienst von Bonfiglioli.

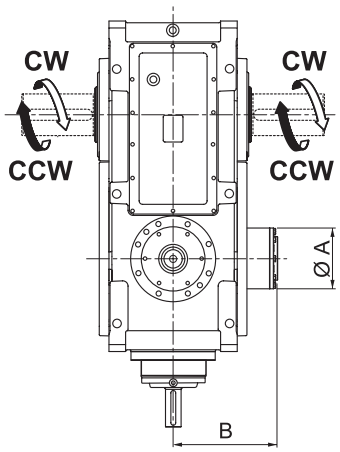


HDO 100 ... 140

2x ... 1
3x ... 2
4x ... 1

HDO 150 - 160

2x ... 1
3x ... 2
4x ... 2

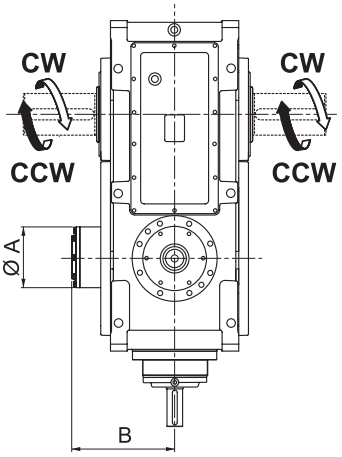


HDO 100 ... 140

2x ... 2
3x ... 1
4x ... 2

HDO 150 - 160

2x ... 2
3x ... 1
4x ... 1



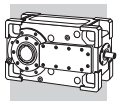
	i	A	B	M_{1max} [Nm]	n_{1min} [min^{-1}]
HDO 100 2_A	5.8 ≤ i ≤ 7.0	210	335	2840	720
	i = 8.0; 8.7			2290	900
	i = 10.0; 10.9			1830	1120
	i = 12.4; 13.5			1480	1390
HDO 100 3_A	14.0 ≤ i ≤ 17.3	175	285	1550	750
	20.2 ≤ i ≤ 40.0			1190	980
	43.9 ≤ i ≤ 67.5			770	1400
HDO 100 4_A	70.8 ≤ i ≤ 139.8	125	278	400	1400
	160.0 ≤ i ≤ 344.2			250	(*)
HDO 110 2_A	6.4 ≤ i ≤ 8.1	210	335	2840	720
	8.7 ≤ i ≤ 10.0			2290	900
	10.9 ≤ i ≤ 12.5			1830	1120
	13.5 ≤ i ≤ 15.5			1480	1390
HDO 110 3_A	18.9 ≤ i ≤ 20.9	175	285	1550	750
	22.0 ≤ i ≤ 43.6			1190	980
	48.0 ≤ i ≤ 77.5			770	1400
HDO 110 4_A	77.4 ≤ i ≤ 121.7	125	278	400	1400
	137.1 ≤ i ≤ 395.0			250	(*)
HDO 120 2_A	6.6 ≤ i ≤ 8.1	230	336	3530	670
	8.9 ≤ i ≤ 10.0			2850	840
	11.1 ≤ i ≤ 12.5			2280	1050
	13.7 ≤ i ≤ 15.5			1840	1300
HDO 120 3_A	17.3 ≤ i ≤ 24.6	175	305	1550	750
	28.3 ≤ i ≤ 44.9			1190	980
	49.5 ≤ i ≤ 78.6			770	1400
HDO 120 4_A	87.0 ≤ i ≤ 162.2	125	279	400	1400
	179.7 ≤ i ≤ 400.6			250	(*)
HDO 130 2_A	5.7 ≤ i ≤ 7.1	290	437	6630	730
	i = 7.7; 8.8			5350	910
	i = 9.6; 11.0			4280	1130
	i = 12.0; 13.6			3450	1400
HDO 130 3_A	15.2 ≤ i ≤ 19.9	210	402	2840	720
	22.6 ≤ i ≤ 34.9			2290	900
	38.3 ≤ i ≤ 67.1			1480	1390
HDO 130 4_A	71.5 ≤ i ≤ 190.3	175	366	1190	980
	219.1 ≤ i ≤ 335.6			770	1400

	i	A	B	M_{1max} [Nm]	n_{1min} [min^{-1}]
HDO 140 2_A	6.6 ≤ i ≤ 8.2	290	437	6630	730
	i = 9.0; 10.1			5350	910
	i = 11.3; 12.6			4280	1130
	i = 14.0; 15.7			3450	1400
HDO 140 3_A	17.7 ≤ i ≤ 23.3	210	402	2840	720
	26.0 ≤ i ≤ 44.4			2290	900
	50.4 ≤ i ≤ 77.3			1480	1390
HDO 140 4_A	82.3 ≤ i ≤ 180.0	175	366	1190	980
	198.3 ≤ i ≤ 386.6			770	1400
HDO 150 2_A	5.5 ≤ i ≤ 7.0	322	447	10110	650
	i = 8.1; 8.9			8030	830
	i = 10.0; 10.9			6520	1020
	i = 12.6; 13.7			5180	1280
HDO 150 3_A	15.6 ≤ i ≤ 25.4	230	439.5	4040	590
	28.2 ≤ i ≤ 36.0			2850	840
	40.2 ≤ i ≤ 60.8			1840	1300
HDO 150 4_A	66.9 ≤ i ≤ 92.9	—	333	1550	750
	101.8 ≤ i ≤ 141.5			1190	980
	157.9 ≤ i ≤ 238.8			770	1400
HDO 160 2_A	i = 7.3; 7.9	322	447	10100	650
	8.9 ≤ i ≤ 11.3			7070	940
	12.2 ≤ i ≤ 15.4			5210	1270
HDO 160 3_A	17.7 ≤ i ≤ 31.3	230	439.5	4040	590
	34.9 ≤ i ≤ 44.3			2850	840
	49.4 ≤ i ≤ 68.6			1840	1300
HDO 160 4_A	75.9 ≤ i ≤ 96.3	—	333	1550	750
	115.2 ≤ i ≤ 174.0			1190	980
	194.1 ≤ i ≤ 269.7			770	1400

(*) Consultare il Servizio Tecnico Bonfiglioli.

(*) Contact the Bonfiglioli Technical service.

(*) Bitte wenden Sie sich an den technischen Kundendienst von Bonfiglioli.



3.6.4 - TENUTE E GUARNIZIONI

A richiesta, i riduttori possono essere dotati di sistemi di tenuta diversi, e in particolare:

TK – In ambienti caratterizzati da presenza di polveri abrasive sono consigliate tenute tipo Taconite costituite da una combinazione di anelli di tenuta, labirinti e camera a grasso.
La presenza del grasso deve essere garantita attraverso operazioni di manutenzione periodica.

VS – Dotazione di anelli di tenuta con mescola in Viton®.

DS – Dotazione di doppio anello di tenuta su ogni estremità d'albero.

DVS – Dotazione di doppio anello di tenuta con mescola in Viton® su ogni estremità d'albero.

3.6.4 - SEALS AND GASKETS

On request, gearboxes can be equipped with different oil sealing systems. These are:

***TK** – Taconite seals are recommended for environments characterised by the presence of abrasive dust or powders. Taconite seals incorporate a combination of sealing rings, labyrinths and a grease chamber. Greasing must be ensured as part of the scheduled maintenance programme.*

***VS** – Viton® compound seal rings.*

***DS** – Dual set of seal rings at each shaft end.*

***DVS** – Dual set of Viton® compound seal rings at each shaft end.*

3.6.4 - DICHTUNGEN UND DICHTMANSCHETTEN

Auf Anfrage können die Getriebe mit unterschiedlichen Dichtsystemen ausgestattet werden, und zwar:

TK – In Umgebungen mit hoher Präsenz abrasiver Stäube werden Taconite-Dichtungen empfohlen. Diese bestehen aus einer Kombination von Dichtringen, Labyrinthdichtungen und Fettkammern.
Das Fett muss durch regelmäßige Wartung geprüft werden.

VS – Ausstattung mit Wellendichtringen aus Viton®.

DS – Ausstattung mit doppeltem Wellendichtring an jedem Wellenende.

DVS – Ausstattung mit doppeltem Wellendichtring aus Viton® an jedem Wellenende.

3.6.5 - SENSORI

Termostato bimetallico – Su specifica dell'opzione **TG** è fornita una sonda bimetallica termostatica per rilevare quando la temperatura dell'olio supera il valore di 90°C ± 5°C. Il dispositivo è fornito a corredo e l'installazione e il relativo cablaggio elettrico sono a cura dell'installatore.

Controllo livello olio – Su specifica dell'opzione **OLG** in fase di ordinativo è installata una sonda per il controllo remoto del livello del lubrificante. Il dispositivo è funzionante in condizioni di inattività del riduttore. Durante il funzionamento dello stesso, il dispositivo deve essere bypassato. Il cablaggio è a cura dell'installatore.
Il dispositivo può non essere compatibile con altri accessori e/o alcune configurazioni, contattare il Servizio Tecnico Bonfiglioli.

3.6.5 - SENSORS

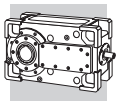
***Bimetal thermostat** – If the **TG** option is specified, a bimetallic thermostat detects when the oil temperature exceeds 90°C ± 5°C.*
The device is supplied with the gear unit, but installation and wiring are the responsibility of the installer.

***Oil level indicator** – If the **OLG** option is specified in the order, the gearbox is supplied with a device permitting the remote checking of the oil level. The device best operates when the gearbox is idle and should be bypassed when the gearbox is operating. Wiring is the responsibility of the installer.*
The device may not be available in combination with other accessories and/or particular product configurations. Please contact Bonfiglioli Technical Service for advise.

3.6.5 - SENSOREN

Bimetallthermostat – Bei Bestellung der Option **TG** ist ein Bimetalltemperaturfühler verfügbar, der dazu dient, die Überschreitung des Werts 90°C ± 5°C der Öltemperatur zu erfassen. Die Vorrichtung wird im Zubehör mitgeliefert; die Installation und die entsprechende elektrische Verkabelung müssen vom Monteur durchgeführt werden.

Ölstandkontrolle – Wird bei Auftragserteilung die Option **OLG** bestellt, erfolgt die Installation eines Fühlers für die Fernkontrolle des Ölstands. Die Vorrichtung funktioniert bei Stillstand des Getriebes. Während des Betriebs des Getriebes muss die Vorrichtung überbrückt werden. Die Verkabelung ist vom Monteur vorzunehmen.
Diese Ausführung könnte nicht mit weiteren Zubehören und/oder Ausführungen möglich sein. Kontaktieren Sie bitte den Technischen Service von Bonfiglioli.



3.6.6 - DRYWELL

Il dispositivo “Drywell”, opzione **DW**, è un particolare dispositivo di tenuta dell'albero lento ed è unicamente applicabile ai riduttori nella posizione di montaggio verticale V5.
Quando specificato, richiede necessariamente l’adozione contestuale di un sistema di lubrificazione forzata, selezionato fra quelli disponibili per l’unità e illustrati nel relativo capitolo di questo catalogo.
Periodicamente, è opportuno verificare/ripristinare la carica di grasso nella camera ricavata sotto al cuscinetto inferiore dell’albero lento.

L’opzione Drywell può avere limitazioni in concomitanza con altre varianti del prodotto.
Consultare preventivamente il Servizio Tecnico Bonfiglioli.

3.6.6 - DRYWELL

*The "drywell" - option **DW** - is a device providing output shaft sealing for units with output shaft laying vertically in the V5 position.*
When specified, it necessarily requires the installation of a forced lubrication system, selected from those available for the gearbox, as illustrated in the relevant section of this catalogue.
At scheduled intervals, check and refill the grease in the vane underneath the output shaft’s bottom bearing.

Availability of the Drywell may be subject to limitations, depending on the contemporary specification of other devices. Please consult with Bonfiglioli Technical Service.

3.6.6 - DRYWELL

Die „Drywell“-Vorrichtung – Option **DW** – garantiert die Dichtung der Abtriebswelle und kann nur bei Getrieben nach Einbaulagen V5 verwendet.
Wenn diese Option bestellt wird, muss obligatorisch gleichzeitig ein Zwangsschmiersystem vorgesehen werden, das unter den für die Einheit verfügbaren, im entsprechenden Kapitel dieses Katalogs illustrierten Systemen auszuwählen ist. Die Schmierfettfüllung in der Kammer unter dem unteren Lager der Abtriebswelle ist regelmäßig zu kontrollieren/nachzufüllen. Die Verfügbarkeit der Option Drywell kann durch gleichzeitige Auswahl weiterer Optionen eingeschränkt sein.
Bitte wenden Sie sich dann an unseren technischen Service.

3.6.7 - ORGANI DI FISSAGGIO

Per i fissaggi di tipo pendolare dei riduttori HDO è fornibile un bullone in acciaio bonificato e opportunamente sagomato per vincolare il riduttore alla struttura di supporto.

Fanno parte del kit anche le molle a tazza con funzione di smorzamento delle vibrazioni il cui precarico dovrà essere regolato dal Cliente al momento dell’installazione rispettando la quota G indicata nella tabella seguente.

Il bullone di reazione dovrà essere collocato sul lato del riduttore adiacente alla macchina che deve essere azionata e nel foro lontano dall'asse lento del riduttore (vedi quota F indicata nella figura seguente).

Il montaggio dal lato coperchio non è possibile, consultare il Servizio Tecnico Bonfiglioli.

3.6.7 - FIXING ELEMENTS

For shaft mounted HDO gearboxes, a specially shaped hardened steel bolt is available to secure the unit to the supporting structure.

Vibration damping cup springs are also supplied in the kit. The customer must adjust the preload of these springs during installation, respecting the value G given in the following chart.

The reaction bolt must be fitted on the side of the gearbox next to the driven machine and in the farthest hole from output shaft centre (see dimension F in the following figure).

Fitting the bolt on same side as the inspection cover is not possible. In this case please contact Bonfiglioli Technical Service for advise.

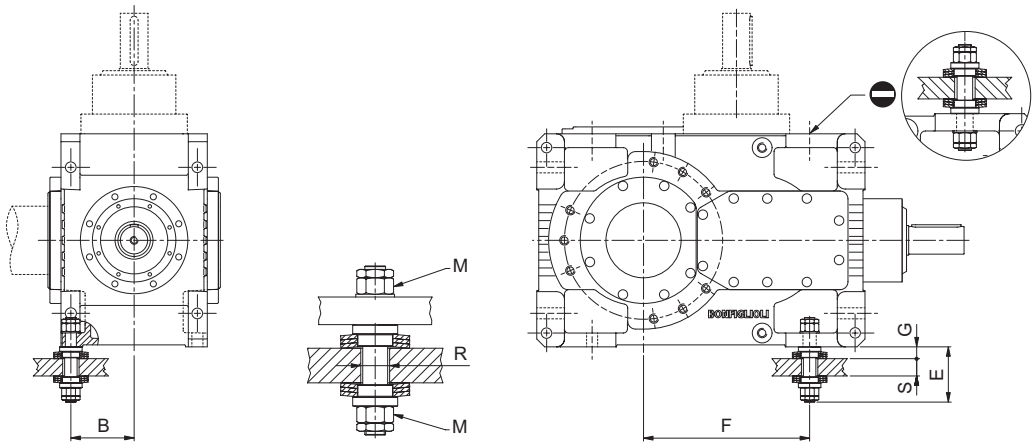
3.6.7 - BEFESTIGUNGSORGANE

Für die Aufsteckbefestigungen der HDO Getriebe ist eine Schraube aus vergütetem Stahl mit entsprechender Form lieferbar, um das Getriebe an der Trägerstruktur zu verankern.

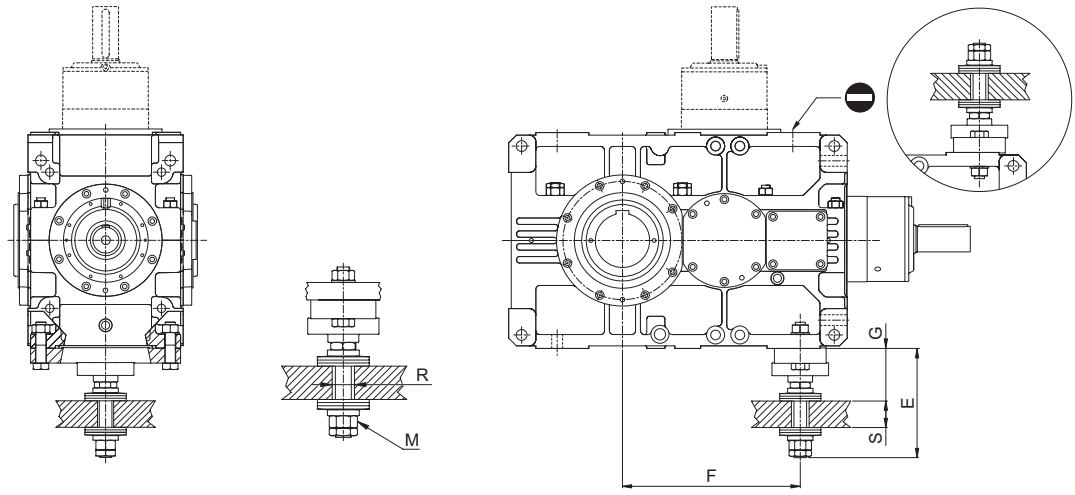
Der Bausatz enthält außerdem die Tellerfedern zur Schwingungsdämpfung, die bei der Installation durch den Kunden nach dem in folgender Tabelle angegebenen Maß G vorgespannt werden müssen.

Die Reaktionsschraube ist an der Getriebeseite neben der anzutreibenden Maschine anzubringen und in der Bohrung mehr entfernt von Abtriebswelle (sehen Sie die Masse F auf folgender Zeichnung).

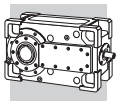
Die Montage auf der Deckelseite ist unmöglich. In diesem Fall kontaktieren Sie bitte den Technischen Service von Bonfiglioli.



	F	B	E	G Valore nominale *Rated value* Nennwert	M	R	S	DIN2093
HDO 100 2_TA	420	160	153	33.4	M27	35	30 - 40	A100
HDO 100 3_TA **HDO 100 4_TA**	540							
HDO 110 2_TA	435	160	153	33.4	M27	35	30 - 40	A100
HDO 110 3_TA **HDO 110 4_TA**	555							
HDO 120 2_TA	480	170	166	33.4	M30	40	40 - 50	A100
HDO 120 3_TA **HDO 120 4_TA**	630							
HDO 130 2_TA	585	216	205	42.7	M36	45	50 - 60	A125
HDO 130 3_TA **HDO 130 4_TA**	780							
HDO 140 2_TA	625	216	205	42.7	M36	45	50 - 60	A125
HDO 140 3_TA **HDO 140 4_TA**	790							



	F	E	G Valore nominale *Rated value* Nennwert	M	R	S	DIN2093
HDO 150 2_TA	687.5	405	204.3	M48x2	52	70 - 80	A160
HDO 150 3_TA **HDO 150 4_TA**	877.5						
HDO 160 2_TA	727.5	405	204.3	M48x2	52	70 - 80	A160
HDO 160 3_TA **HDO 160 4_TA**	927.5						



3.6.8 - PROVE DOCUMENTALI

AC - Attestato di conformità
Documento il cui rilascio attesta la conformità del prodotto all'ordinativo e la costruzione dello stesso in conformità alle procedure standard di processo e di controllo previste dal sistema di Qualità Bonfiglioli Riduttori.

CC - Certificato di collaudo
La specifica comporta la conduzione di verifiche di conformità all'ordine, controlli visivi generali e verifiche strumentali delle dimensioni di accoppiamento. Sono inoltre condotti controlli generali di funzionamento a vuoto e verifiche della funzionalità delle guarnizioni di tenuta in modalità statica e in funzionamento. Il collaudo si applica ad un campione statistico del lotto di spedizione.

CT - Certificato di tipo
Oltre alle attività competenti al Certificato di collaudo si aggiungono controlli funzionali specifici relativi a:

- controllo rumorosità
- temperatura superficiale a regime
- verifica della coppia di serraggio viteria esterna
- funzionalità eventuali organi accessori

Tutte le attività sono condotte con funzionamento a vuoto del riduttore. Il collaudo si applica ad un campione statistico del lotto di spedizione.

3.6.8 - CERTIFICATES

AC - Certificate of compliance
The document certifies the compliance of the product with the purchase order and the construction in conformity with the applicable procedures of the Bonfiglioli Quality System.

CC - Inspection certificate
The document entails checking on order compliance, the visual inspection of external conditions and of mating dimensions. Checking on main functional parameters in unloaded conditions is also performed along with oil seal proofing, both in static and in running conditions. Units inspected are sampled within the shipping batch and marked individually.

CT - Type certificate
Further to the activities relevant to the Inspection certificate the following checks are also conducted:

- *noise*
- *surface temperature*
- *tightness of external hardware*
- *functionality of ancillary devices, if fitted*

All checks are conducted with the gear unit running unloaded. Units inspected are sampled within the shipping batch and marked individually.

3.6.8 - NACHWEISE

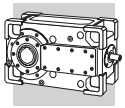
AC - Konformitätsbescheinigung Dokument
mit dessen Ausstellung die Konformität des Produkts mit dem Auftrag, und dessen Konstruktion in Konformität mit den vom Qualitätsmanagementsystem von Bonfiglioli Riduttori vorgesehenen Standardfertigungs- und -kontrollverfahren bescheinigt wird.

CC - Prüfzeugnis
Die Bestellung führt zur Durchführung von Kontrollen der Konformität mit dem Auftrag, allgemeinen Sichtkontrollen und instrumentalen Prüfungen der Passmaße. Des Weiteren werden allgemeine Betriebskontrollen bei Leerlauf sowie Prüfungen der Funktionalität der Dichtungen bei Stillstand und während des Betriebs durchgeführt. Die Prüfung wird anhand einer Stichprobe des Versandloses durchgeführt.

CT - Baumusterzeugnis
Zu den Tätigkeiten, die unter das Prüfzeugnis fallen, kommen spezifische Funktionskontrollen in Bezug auf:

- Geräuschentwicklung
- Oberflächentemperatur bei Betriebsdrehzahl
- Prüfung des Anzugsmoments der äußeren Schrauben
- Funktionalität eventueller zusätzlicher Organe

Alle Vorgänge werden bei Leerlauf des Getriebes durchgeführt. Die Prüfung wird anhand einer Stichprobe des Versandloses durchgeführt.



4 - COPPIA MASSIMA TRASMISSIBILE

I momenti torcenti riportati in tabella possono subire delle limitazioni in funzione del componente più sollecitato alle diverse velocità di rotazione (vedere capitolo “Potenza termica e dati tecnici”).

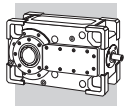
4 - MAXIMUM TRANSMISSIBLE TORQUE

The torque values given in the table may be reduced depending on what component is most stressed at the various rotation speeds (see the “Thermal Capacities and Technical Specifications” section).

4 - ÜBERSETZBARES MAXIMALES DREHMOMENT

Für die in der Tabelle aufgeführten Torsionsmomente sind Begrenzungen nicht auszuschließen; dies ist von der höheren Belastung der Komponente bei den verschiedenen Drehzahlen abhängig (siehe Kapitel “Wärmeleistung und technische Daten”).

HDO								
		Mn_{2max} [Nm]						
	i_N	HDO 100	HDO 110	HDO 120	HDO 130	HDO 140	HDO 150	HDO 160
2x	5.6	19750	—	—	52900	—	79750	—
	6.3	19750	20750	29650	57750	60900	93450	—
	7.1	21700	22050	31850	57400	67400	101800	105750
	8.0	21600	24150	34050	60700	71700	99000	114950
	9.0	21700	22250	33150	57400	74900	104350	116350
	10.0	20950	24350	34300	54850	71700	91600	133000
	11.2	20950	21600	32200	57400	64000	99750	133700
	12.5	20450	23650	34300	52000	71700	92850	114250
	14.0	20450	21100	31400	57400	60700	101100	133000
	16.0	—	23150	33600	—	68150	—	133700
3x	14.0	25650	—	—	—	—	—	—
	16.0	23100	—	—	55050	—	95450	—
	18.0	25650	27950	30650	63250	64250	106450	108350
	20.0	23100	28900	34300	60700	71700	104350	126500
	22.4	25650	28900	36500	59650	78400	106550	133700
	25.0	23100	27950	37500	60700	68650	106450	130400
	28.0	25650	28900	34500	63250	75950	104350	133000
	31.5	23100	28300	36600	60700	77100	106550	133700
	35.5	25650	28900	37200	63250	79150	106450	124650
	40.0	23100	28600	37500	60700	74700	97500	133000
	45.0	25650	28900	37200	63250	79150	104350	133700
	50.0	23100	28300	34200	60700	75000	103650	119900
	56.0	25650	28900	37200	63250	79150	106450	117700
	63.0	23100	28600	37500	60700	74700	104350	133000
	71.0	21700	28900	37200	57400	79150	—	133700
	80.0	—	25900	34300	—	71700	—	—
4x	71.0	25650	—	—	63250	—	103000	—
	80.0	23100	28300	—	60700	77100	106450	116950
	90.0	25650	28900	37200	63250	79150	106550	133000
	100.0	23100	27950	37500	60700	74700	106450	133700
	112.0	25650	28900	37200	63250	79150	104350	128900
	125.0	23100	28300	37500	60700	77100	106550	133700
	140.0	25650	28900	37200	63250	79150	106450	130400
	160.0	23100	28500	37500	60700	77100	106000	133000
	180.0	25650	28900	37200	63250	79150	104350	133700
	200.0	23100	28700	37500	60700	77100	106550	130300
	224.0	25650	28900	37200	63250	79150	106450	130400
	250.0	23100	28700	37500	60700	77100	104350	133000
	280.0	25650	28900	37200	63250	79150	—	133700
	315.0	23100	28700	37500	60700	74700	—	—
	355.0	21700	28900	37200	57400	79150	—	—
	400.0	—	25900	34300	—	71700	—	—



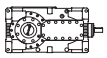
4.1 - POTENZA TERMICA E DATI TECNICI

4.1 - THERMAL CAPACITY AND RATING CHARTS

4.1 - WARMELEISTUNG UND AUSWAHLTABELLEN

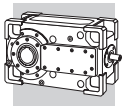
P_T	Potenza termica complessiva	*Overall thermal capacity*	Gesamtwärmeleistung
$P_{TFAN...}$	Potenza termica comprensiva del contributo fornito dalla ventilazione forzata	*Thermal capacity with the contribution of forced ventilation*	Wärmeleistung einschließlich des Beitrags durch die Zwangsbelüftung
P_{TSR}	Potenza termica comprensiva del contributo fornito dalla serpentina di raffreddamento	*Thermal capacity inclusive of contribution from cooling coil*	Wärmeleistung einschließlich des Beitrags durch die Kühlschlange
$P_{TMCRA...}$	Potenza termica comprensiva del contributo fornito dalla centralina di raffreddamento con scambiatore aria/olio	*Thermal capacity inclusive of contribution from air/oil exchanger cooling unit*	Wärmeleistung einschließlich des Beitrags durch das Kühlaggregat mit Luft-/Öl-Wärmetauscher
$P_{TMCRW...}$	Potenza termica comprensiva del contributo fornito dalla centralina di raffreddamento con scambiatore acqua/olio	*Thermal capacity inclusive of contribution from water/oil exchanger cooling unit*	Wärmeleistung einschließlich des Beitrags durch das Kühlaggregat mit Wasser-/Öl-Wärmetauscher

HDO 100 — n_1 = 1750 min^{-1}

					Tamb = 20°C						
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 100 2	**5.8**	301	12850	422	*	228	*	*	*	*	*
HDO 100 2	**6.5**	271	14650	433	*	228	*	*	*	*	*
HDO 100 2	**7.0**	249	15200	412	*	228	*	*	*	*	*
HDO 100 2	**8.0**	219	13950	333	*	228	284	353	*	*	310
HDO 100 2	**8.7**	201	14500	317	100	228	284	353	*	225	310
HDO 100 2	**10.0**	175	14085	269	100	228	284	—	197	225	—
HDO 100 2	**10.9**	161	14650	257	100	228	—	—	197	225	—
HDO 100 2	**12.4**	141	14450	222	100	—	—	—	197	—	—
HDO 100 2	**13.5**	130	15000	212	100	—	—	—	197	—	—
HDO 100 3	**14.0**	125	17350	241	*	170	200	—	135	156	—
HDO 100 3	**15.6**	112	19050	238	*	170	200	—	135	156	—
HDO 100 3	**17.3**	101	18250	205	*	170	200	—	135	156	—
HDO 100 3	**20.2**	86	20100	193	84	170	—	—	135	156	—
HDO 100 3	**22.5**	78	19750	171	84	170	—	—	135	156	—
HDO 100 3	**25.0**	70	21900	171	84	170	—	—	135	156	—
HDO 100 3	**28.3**	62	20650	142	84	—	—	—	135	—	—
HDO 100 3	**31.5**	56	21350	132	84	—	—	—	—	—	—
HDO 100 3	**36.0**	49	21600	117	84	—	—	—	—	—	—
HDO 100 3	**40.0**	44	21350	104	84	—	—	—	—	—	—
HDO 100 3	**43.9**	40	21900	97	84	—	—	—	—	—	—
HDO 100 3	**48.8**	36	21350	85	84	—	—	—	—	—	—
HDO 100 3	**55.8**	31	24050	84	—	—	—	—	—	—	—
HDO 100 3	**62.0**	28.2	21350	67	—	—	—	—	—	—	—
HDO 100 3	**67.5**	25.9	20050	58	—	—	—	—	—	—	—
HDO 100 4	**70.8**	24.7	24050	67	—	—	—	—	—	—	—
HDO 100 4	**78.7**	22.2	21350	54	—	—	—	—	—	—	—
HDO 100 4	**90.0**	19.4	24050	53	—	—	—	—	—	—	—
HDO 100 4	**100.0**	17.5	21350	42	—	—	—	—	—	—	—
HDO 100 4	**111.4**	15.7	24050	43	—	—	—	—	—	—	—
HDO 100 4	**123.8**	14.1	21350	34	—	—	—	—	—	—	—
HDO 100 4	**139.8**	12.5	24050	34	—	—	—	—	—	—	—
HDO 100 4	**160.0**	10.9	21350	27	—	—	—	—	—	—	—
HDO 100 4	**178.2**	9.8	24050	27	—	—	—	—	—	—	—
HDO 100 4	**198.0**	8.8	21350	21	—	—	—	—	—	—	—
HDO 100 4	**223.7**	7.8	24050	21	—	—	—	—	—	—	—
HDO 100 4	**248.6**	7.0	23100	18.5	—	—	—	—	—	—	—
HDO 100 4	**284.4**	6.2	25650	17.9	—	—	—	—	—	—	—
HDO 100 4	**316.0**	5.5	23100	14.5	—	—	—	—	—	—	—
HDO 100 4	**344.2**	5.1	21700	12.5	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

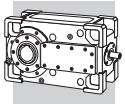


HDO 100 — n_1 = 1750 min^{-1}

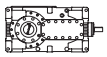
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 100 2	**5.8**	301	12850	422	*	*	*	*	*	*	*
HDO 100 2	**6.5**	271	14650	433	*	156	*	*	*	*	*
HDO 100 2	**7.0**	249	15200	412	*	156	*	*	*	*	*
HDO 100 2	**8.0**	219	13950	333	*	156	*	*	*	*	*
HDO 100 2	**8.7**	201	14500	317	*	156	159	203	150	178	272
HDO 100 2	**10.0**	175	14085	269	71	156	159	203	150	178	—
HDO 100 2	**10.9**	161	14650	257	71	156	159	203	150	178	—
HDO 100 2	**12.4**	141	14450	222	71	156	159	203	150	178	—
HDO 100 2	**13.5**	130	15000	212	71	156	159	203	150	178	—
HDO 100 3	**14.0**	125	17350	241	*	115	*	*	*	*	*
HDO 100 3	**15.6**	112	19050	238	*	115	*	*	*	*	200
HDO 100 3	**17.3**	101	18250	205	*	115	*	*	*	139	200
HDO 100 3	**20.2**	86	20100	193	55	115	126	157	118	139	—
HDO 100 3	**22.5**	78	19750	171	55	115	126	157	118	139	—
HDO 100 3	**25.0**	70	21900	171	55	115	126	157	118	139	—
HDO 100 3	**28.3**	62	20650	142	55	115	126	—	118	139	—
HDO 100 3	**31.5**	56	21350	132	55	115	126	—	118	—	—
HDO 100 3	**36.0**	49	21600	117	55	115	—	—	—	—	—
HDO 100 3	**40.0**	44	21350	104	55	—	—	—	—	—	—
HDO 100 3	**43.9**	40	21900	97	55	—	—	—	—	—	—
HDO 100 3	**48.8**	36	21350	85	55	—	—	—	—	—	—
HDO 100 3	**55.8**	31	24050	84	55	—	—	—	—	—	—
HDO 100 3	**62.0**	28.2	21350	67	55	—	—	—	—	—	—
HDO 100 3	**67.5**	25.9	20050	58	55	—	—	—	—	—	—
HDO 100 4	**70.8**	24.7	24050	67	51	—	—	—	—	—	—
HDO 100 4	**78.7**	22.2	21350	54	51	—	—	—	—	—	—
HDO 100 4	**90.0**	19.4	24050	53	51	—	—	—	—	—	—
HDO 100 4	**100.0**	17.5	21350	42	—	—	—	—	—	—	—
HDO 100 4	**111.4**	15.7	24050	43	—	—	—	—	—	—	—
HDO 100 4	**123.8**	14.1	21350	34	—	—	—	—	—	—	—
HDO 100 4	**139.8**	12.5	24050	34	—	—	—	—	—	—	—
HDO 100 4	**160.0**	10.9	21350	27	—	—	—	—	—	—	—
HDO 100 4	**178.2**	9.8	24050	27	—	—	—	—	—	—	—
HDO 100 4	**198.0**	8.8	21350	21	—	—	—	—	—	—	—
HDO 100 4	**223.7**	7.8	24050	21	—	—	—	—	—	—	—
HDO 100 4	**248.6**	7.0	23100	18.5	—	—	—	—	—	—	—
HDO 100 4	**284.4**	6.2	25650	17.9	—	—	—	—	—	—	—
HDO 100 4	**316.0**	5.5	23100	14.5	—	—	—	—	—	—	—
HDO 100 4	**344.2**	5.1	21700	12.5	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

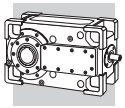


HDO 100 — n_1 = 1400 min^{-1}

					Tamb = 20°C						
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 100 2	**5.8**	241	13700	360	99	223	274	352	187	215	309
HDO 100 2	**6.5**	217	15650	370	99	223	274	352	187	215	309
HDO 100 2	**7.0**	199	16250	352	99	223	274	—	187	215	309
HDO 100 2	**8.0**	175	14900	284	99	223	274	—	187	215	—
HDO 100 2	**8.7**	161	15550	272	99	223	—	—	187	215	—
HDO 100 2	**10.0**	140	15085	230	99	223	—	—	187	215	—
HDO 100 2	**10.9**	129	15650	219	99	—	—	—	187	215	—
HDO 100 2	**12.4**	113	15450	190	99	—	—	—	187	—	—
HDO 100 2	**13.5**	104	16050	181	99	—	—	—	—	—	—
HDO 100 3	**14.0**	100	18550	206	81	166	—	—	—	—	—
HDO 100 3	**15.6**	90	20350	204	81	166	—	—	—	—	—
HDO 100 3	**17.3**	81	19500	175	81	166	—	—	—	—	—
HDO 100 3	**20.2**	69	21500	165	81	—	—	—	—	—	—
HDO 100 3	**22.5**	62	21000	145	81	—	—	—	—	—	—
HDO 100 3	**25.0**	56	23100	144	81	—	—	—	—	—	—
HDO 100 3	**28.3**	49	22050	121	81	—	—	—	—	—	—
HDO 100 3	**31.5**	44	23100	114	81	—	—	—	—	—	—
HDO 100 3	**36.0**	39	23100	100	81	—	—	—	—	—	—
HDO 100 3	**40.0**	35	23100	90	81	—	—	—	—	—	—
HDO 100 3	**43.9**	32	23400	83	81	—	—	—	—	—	—
HDO 100 3	**48.8**	28.7	23100	74	—	—	—	—	—	—	—
HDO 100 3	**55.8**	25.1	25650	72	—	—	—	—	—	—	—
HDO 100 3	**62.0**	22.6	23100	58	—	—	—	—	—	—	—
HDO 100 3	**67.5**	20.7	21700	50	—	—	—	—	—	—	—
HDO 100 4	**70.8**	19.8	25650	58	—	—	—	—	—	—	—
HDO 100 4	**78.7**	17.8	23100	47	—	—	—	—	—	—	—
HDO 100 4	**90.0**	15.6	25650	45	—	—	—	—	—	—	—
HDO 100 4	**100.0**	14.0	23100	37	—	—	—	—	—	—	—
HDO 100 4	**111.4**	12.6	25650	37	—	—	—	—	—	—	—
HDO 100 4	**123.8**	11.3	23100	30	—	—	—	—	—	—	—
HDO 100 4	**139.8**	10.0	25650	29	—	—	—	—	—	—	—
HDO 100 4	**160.0**	8.8	23100	23	—	—	—	—	—	—	—
HDO 100 4	**178.2**	7.9	25650	23	—	—	—	—	—	—	—
HDO 100 4	**198.0**	7.1	23100	18.5	—	—	—	—	—	—	—
HDO 100 4	**223.7**	6.3	25650	18.2	—	—	—	—	—	—	—
HDO 100 4	**248.6**	5.6	23100	14.8	—	—	—	—	—	—	—
HDO 100 4	**284.4**	4.9	25650	14.3	—	—	—	—	—	—	—
HDO 100 4	**316.0**	4.4	23100	11.6	—	—	—	—	—	—	—
HDO 100 4	**344.2**	4.1	21700	10.0	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

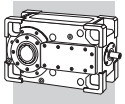


HDO 100 — n_1 = 1400 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 40°C						
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 100 2	**5.8**	241	13700	360	*	152	158	202	149	177	271
HDO 100 2	**6.5**	217	15650	370	*	152	158	202	149	177	271
HDO 100 2	**7.0**	199	16250	352	*	152	158	202	149	177	271
HDO 100 2	**8.0**	175	14900	284	70	152	158	202	149	177	271
HDO 100 2	**8.7**	161	15550	272	70	152	158	202	149	177	271
HDO 100 2	**10.0**	140	15085	230	70	152	158	202	149	177	—
HDO 100 2	**10.9**	129	15650	219	70	152	158	202	149	177	—
HDO 100 2	**12.4**	113	15450	190	70	152	158	—	149	177	—
HDO 100 2	**13.5**	104	16050	181	70	152	158	—	149	177	—
HDO 100 3	**14.0**	100	18550	206	52	114	123	—	115	136	—
HDO 100 3	**15.6**	90	20350	204	52	114	123	—	115	136	—
HDO 100 3	**17.3**	81	19500	175	52	114	123	—	115	136	—
HDO 100 3	**20.2**	69	21500	165	52	114	123	—	115	136	—
HDO 100 3	**22.5**	62	21000	145	52	114	123	—	115	136	—
HDO 100 3	**25.0**	56	23100	144	52	114	123	—	115	136	—
HDO 100 3	**28.3**	49	22050	121	52	114	—	—	115	—	—
HDO 100 3	**31.5**	44	23100	114	52	—	—	—	—	—	—
HDO 100 3	**36.0**	39	23100	100	52	—	—	—	—	—	—
HDO 100 3	**40.0**	35	23100	90	52	—	—	—	—	—	—
HDO 100 3	**43.9**	32	23400	83	52	—	—	—	—	—	—
HDO 100 3	**48.8**	28.7	23100	74	52	—	—	—	—	—	—
HDO 100 3	**55.8**	25.1	25650	72	52	—	—	—	—	—	—
HDO 100 3	**62.0**	22.6	23100	58	52	—	—	—	—	—	—
HDO 100 3	**67.5**	20.7	21700	50	—	—	—	—	—	—	—
HDO 100 4	**70.8**	19.8	25650	58	53	—	—	—	—	—	—
HDO 100 4	**78.7**	17.8	23100	47	—	—	—	—	—	—	—
HDO 100 4	**90.0**	15.6	25650	45	—	—	—	—	—	—	—
HDO 100 4	**100.0**	14.0	23100	37	—	—	—	—	—	—	—
HDO 100 4	**111.4**	12.6	25650	37	—	—	—	—	—	—	—
HDO 100 4	**123.8**	11.3	23100	30	—	—	—	—	—	—	—
HDO 100 4	**139.8**	10.0	25650	29	—	—	—	—	—	—	—
HDO 100 4	**160.0**	8.8	23100	23	—	—	—	—	—	—	—
HDO 100 4	**178.2**	7.9	25650	23	—	—	—	—	—	—	—
HDO 100 4	**198.0**	7.1	23100	18.5	—	—	—	—	—	—	—
HDO 100 4	**223.7**	6.3	25650	18.2	—	—	—	—	—	—	—
HDO 100 4	**248.6**	5.6	23100	14.8	—	—	—	—	—	—	—
HDO 100 4	**284.4**	4.9	25650	14.3	—	—	—	—	—	—	—
HDO 100 4	**316.0**	4.4	23100	11.6	—	—	—	—	—	—	—
HDO 100 4	**344.2**	4.1	21700	10.0	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

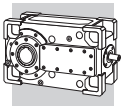


HDO 100 — n_1 = 1100 min^{-1}

					Tamb = 20°C						
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 100 2	**5.8**	189	14750	304	109	220	284	—	197	225	—
HDO 100 2	**6.5**	170	16800	312	109	220	284	—	197	225	—
HDO 100 2	**7.0**	156	17450	297	109	220	284	—	197	225	—
HDO 100 2	**8.0**	138	16050	241	109	220	—	—	197	225	—
HDO 100 2	**8.7**	126	16700	230	109	220	—	—	197	225	—
HDO 100 2	**10.0**	110	16185	194	109	—	—	—	—	—	—
HDO 100 2	**10.9**	101	16850	186	109	—	—	—	—	—	—
HDO 100 2	**12.4**	89	16600	161	109	—	—	—	—	—	—
HDO 100 2	**13.5**	81	17250	153	109	—	—	—	—	—	—
HDO 100 3	**14.0**	79	19950	174	87	163	—	—	150	171	—
HDO 100 3	**15.6**	71	21900	172	87	163	—	—	150	171	—
HDO 100 3	**17.3**	64	21000	148	87	—	—	—	—	—	—
HDO 100 3	**20.2**	54	21500	130	87	—	—	—	—	—	—
HDO 100 3	**22.5**	49	22700	123	87	—	—	—	—	—	—
HDO 100 3	**25.0**	44	23100	113	87	—	—	—	—	—	—
HDO 100 3	**28.3**	39	23700	102	87	—	—	—	—	—	—
HDO 100 3	**31.5**	35	23100	90	87	—	—	—	—	—	—
HDO 100 3	**36.0**	31	24850	84	—	—	—	—	—	—	—
HDO 100 3	**40.0**	27.5	23100	71	—	—	—	—	—	—	—
HDO 100 3	**43.9**	25.1	25150	70	—	—	—	—	—	—	—
HDO 100 3	**48.8**	22.6	23100	58	—	—	—	—	—	—	—
HDO 100 3	**55.8**	19.7	25650	56	—	—	—	—	—	—	—
HDO 100 3	**62.0**	17.7	23100	46	—	—	—	—	—	—	—
HDO 100 3	**67.5**	16.3	21700	39	—	—	—	—	—	—	—
HDO 100 4	**70.8**	15.5	25650	45	—	—	—	—	—	—	—
HDO 100 4	**78.7**	14.0	23100	37	—	—	—	—	—	—	—
HDO 100 4	**90.0**	12.2	25650	36	—	—	—	—	—	—	—
HDO 100 4	**100.0**	11.0	23100	29	—	—	—	—	—	—	—
HDO 100 4	**111.4**	9.9	25650	29	—	—	—	—	—	—	—
HDO 100 4	**123.8**	8.9	23100	23	—	—	—	—	—	—	—
HDO 100 4	**139.8**	7.9	25650	23	—	—	—	—	—	—	—
HDO 100 4	**160.0**	6.9	23100	18.0	—	—	—	—	—	—	—
HDO 100 4	**178.2**	6.2	25650	18.0	—	—	—	—	—	—	—
HDO 100 4	**198.0**	5.6	23100	14.6	—	—	—	—	—	—	—
HDO 100 4	**223.7**	4.9	25650	14.3	—	—	—	—	—	—	—
HDO 100 4	**248.6**	4.4	23100	11.6	—	—	—	—	—	—	—
HDO 100 4	**284.4**	3.9	25650	11.3	—	—	—	—	—	—	—
HDO 100 4	**316.0**	3.5	23100	9.1	—	—	—	—	—	—	—
HDO 100 4	**344.2**	3.2	21700	7.9	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

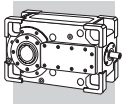


HDO 100 — n_1 = 1100 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 40°C						
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 100 2	**5.8**	189	14750	304	*	*	*	*	*	*	264
HDO 100 2	**6.5**	170	16800	312	*	*	*	*	*	*	264
HDO 100 2	**7.0**	156	17450	297	60	142	157	201	148	178	264
HDO 100 2	**8.0**	138	16050	241	60	142	157	201	148	178	—
HDO 100 2	**8.7**	126	16700	230	60	142	157	201	148	178	—
HDO 100 2	**10.0**	110	16185	194	60	142	157	—	148	178	—
HDO 100 2	**10.9**	101	16850	186	60	142	157	—	148	178	—
HDO 100 2	**12.4**	89	16600	161	60	142	157	—	148	—	—
HDO 100 2	**13.5**	81	17250	153	60	142	—	—	148	—	—
HDO 100 3	**14.0**	79	19950	174	59	116	131	162	123	144	—
HDO 100 3	**15.6**	71	21900	172	59	116	131	162	123	144	—
HDO 100 3	**17.3**	64	21000	148	59	116	131	—	123	144	—
HDO 100 3	**20.2**	54	21500	130	59	116	—	—	123	—	—
HDO 100 3	**22.5**	49	22700	123	59	116	—	—	123	—	—
HDO 100 3	**25.0**	44	23100	113	59	—	—	—	—	—	—
HDO 100 3	**28.3**	39	23700	102	59	—	—	—	—	—	—
HDO 100 3	**31.5**	35	23100	90	59	—	—	—	—	—	—
HDO 100 3	**36.0**	31	24850	84	59	—	—	—	—	—	—
HDO 100 3	**40.0**	27.5	23100	71	59	—	—	—	—	—	—
HDO 100 3	**43.9**	25.1	25150	70	59	—	—	—	—	—	—
HDO 100 3	**48.8**	22.6	23100	58	—	—	—	—	—	—	—
HDO 100 3	**55.8**	19.7	25650	56	—	—	—	—	—	—	—
HDO 100 3	**62.0**	17.7	23100	46	—	—	—	—	—	—	—
HDO 100 3	**67.5**	16.3	21700	39	—	—	—	—	—	—	—
HDO 100 4	**70.8**	15.5	25650	45	—	—	—	—	—	—	—
HDO 100 4	**78.7**	14.0	23100	37	—	—	—	—	—	—	—
HDO 100 4	**90.0**	12.2	25650	36	—	—	—	—	—	—	—
HDO 100 4	**100.0**	11.0	23100	29	—	—	—	—	—	—	—
HDO 100 4	**111.4**	9.9	25650	29	—	—	—	—	—	—	—
HDO 100 4	**123.8**	8.9	23100	23	—	—	—	—	—	—	—
HDO 100 4	**139.8**	7.9	25650	23	—	—	—	—	—	—	—
HDO 100 4	**160.0**	6.9	23100	18.0	—	—	—	—	—	—	—
HDO 100 4	**178.2**	6.2	25650	18.0	—	—	—	—	—	—	—
HDO 100 4	**198.0**	5.6	23100	14.6	—	—	—	—	—	—	—
HDO 100 4	**223.7**	4.9	25650	14.3	—	—	—	—	—	—	—
HDO 100 4	**248.6**	4.4	23100	11.6	—	—	—	—	—	—	—
HDO 100 4	**284.4**	3.9	25650	11.3	—	—	—	—	—	—	—
HDO 100 4	**316.0**	3.5	23100	9.1	—	—	—	—	—	—	—
HDO 100 4	**344.2**	3.2	21700	7.9	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

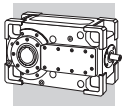


HDO 100 — n_1 = 900 min^{-1}

					Tamb = 20°C						
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 100 2	**5.8**	155	15650	264	116	203	—	—	204	232	—
HDO 100 2	**6.5**	139	17850	271	116	203	—	—	204	232	—
HDO 100 2	**7.0**	128	18550	259	116	203	—	—	204	232	—
HDO 100 2	**8.0**	113	17050	209	116	203	—	—	204	—	—
HDO 100 2	**8.7**	103	17750	200	116	—	—	—	—	—	—
HDO 100 2	**10.0**	90	17185	169	116	—	—	—	—	—	—
HDO 100 2	**10.9**	83	17900	161	116	—	—	—	—	—	—
HDO 100 2	**12.4**	73	17650	140	116	—	—	—	—	—	—
HDO 100 2	**13.5**	67	18350	133	116	—	—	—	—	—	—
HDO 100 3	**14.0**	64	21150	151	91	150	—	—	—	—	—
HDO 100 3	**15.6**	58	23100	149	91	—	—	—	—	—	—
HDO 100 3	**17.3**	52	22300	129	91	—	—	—	—	—	—
HDO 100 3	**20.2**	44	23100	114	91	—	—	—	—	—	—
HDO 100 3	**22.5**	40	24100	107	91	—	—	—	—	—	—
HDO 100 3	**25.0**	36	23100	93	91	—	—	—	—	—	—
HDO 100 3	**28.3**	32	25200	89	—	—	—	—	—	—	—
HDO 100 3	**31.5**	28.6	23100	74	—	—	—	—	—	—	—
HDO 100 3	**36.0**	25.0	24850	69	—	—	—	—	—	—	—
HDO 100 3	**40.0**	22.5	23100	58	—	—	—	—	—	—	—
HDO 100 3	**43.9**	20.5	25150	57	—	—	—	—	—	—	—
HDO 100 3	**48.8**	18.5	23100	47	—	—	—	—	—	—	—
HDO 100 3	**55.8**	16.1	25650	46	—	—	—	—	—	—	—
HDO 100 3	**62.0**	14.5	23100	37	—	—	—	—	—	—	—
HDO 100 3	**67.5**	13.3	21700	32	—	—	—	—	—	—	—
HDO 100 4	**70.8**	12.7	25650	37	—	—	—	—	—	—	—
HDO 100 4	**78.7**	11.4	23100	30	—	—	—	—	—	—	—
HDO 100 4	**90.0**	10.0	25650	29	—	—	—	—	—	—	—
HDO 100 4	**100.0**	9.0	23100	24	—	—	—	—	—	—	—
HDO 100 4	**111.4**	8.1	25650	24	—	—	—	—	—	—	—
HDO 100 4	**123.8**	7.3	23100	19.1	—	—	—	—	—	—	—
HDO 100 4	**139.8**	6.4	25650	18.7	—	—	—	—	—	—	—
HDO 100 4	**160.0**	5.6	23100	14.8	—	—	—	—	—	—	—
HDO 100 4	**178.2**	5.0	25650	14.7	—	—	—	—	—	—	—
HDO 100 4	**198.0**	4.5	23100	11.9	—	—	—	—	—	—	—
HDO 100 4	**223.7**	4.0	25650	11.7	—	—	—	—	—	—	—
HDO 100 4	**248.6**	3.6	23100	9.5	—	—	—	—	—	—	—
HDO 100 4	**284.4**	3.2	25650	9.2	—	—	—	—	—	—	—
HDO 100 4	**316.0**	2.8	23100	7.5	—	—	—	—	—	—	—
HDO 100 4	**344.2**	2.6	21700	6.4	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

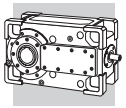


HDO 100 — n_1 = 900 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 40°C						
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 100 2	**5.8**	155	15650	264	78	142	175	219	166	194	—
HDO 100 2	**6.5**	139	17850	271	78	142	175	219	166	194	—
HDO 100 2	**7.0**	128	18550	259	78	142	175	219	166	194	—
HDO 100 2	**8.0**	113	17050	209	78	142	175	—	166	194	—
HDO 100 2	**8.7**	103	17750	200	78	142	175	—	166	194	—
HDO 100 2	**10.0**	90	17185	169	78	142	—	—	166	—	—
HDO 100 2	**10.9**	83	17900	161	78	142	—	—	—	—	—
HDO 100 2	**12.4**	73	17650	140	78	—	—	—	—	—	—
HDO 100 2	**13.5**	67	18350	133	78	—	—	—	—	—	—
HDO 100 3	**14.0**	64	21150	151	62	106	133	—	125	146	—
HDO 100 3	**15.6**	58	23100	149	62	106	133	—	125	146	—
HDO 100 3	**17.3**	52	22300	129	62	106	—	—	125	—	—
HDO 100 3	**20.2**	44	23100	114	62	106	—	—	—	—	—
HDO 100 3	**22.5**	40	24100	107	62	106	—	—	—	—	—
HDO 100 3	**25.0**	36	23100	93	62	—	—	—	—	—	—
HDO 100 3	**28.3**	32	25200	89	62	—	—	—	—	—	—
HDO 100 3	**31.5**	28.6	23100	74	62	—	—	—	—	—	—
HDO 100 3	**36.0**	25.0	24850	69	62	—	—	—	—	—	—
HDO 100 3	**40.0**	22.5	23100	58	—	—	—	—	—	—	—
HDO 100 3	**43.9**	20.5	25150	57	—	—	—	—	—	—	—
HDO 100 3	**48.8**	18.5	23100	47	—	—	—	—	—	—	—
HDO 100 3	**55.8**	16.1	25650	46	—	—	—	—	—	—	—
HDO 100 3	**62.0**	14.5	23100	37	—	—	—	—	—	—	—
HDO 100 3	**67.5**	13.3	21700	32	—	—	—	—	—	—	—
HDO 100 4	**70.8**	12.7	25650	37	—	—	—	—	—	—	—
HDO 100 4	**78.7**	11.4	23100	30	—	—	—	—	—	—	—
HDO 100 4	**90.0**	10.0	25650	29	—	—	—	—	—	—	—
HDO 100 4	**100.0**	9.0	23100	24	—	—	—	—	—	—	—
HDO 100 4	**111.4**	8.1	25650	24	—	—	—	—	—	—	—
HDO 100 4	**123.8**	7.3	23100	19.1	—	—	—	—	—	—	—
HDO 100 4	**139.8**	6.4	25650	18.7	—	—	—	—	—	—	—
HDO 100 4	**160.0**	5.6	23100	14.8	—	—	—	—	—	—	—
HDO 100 4	**178.2**	5.0	25650	14.7	—	—	—	—	—	—	—
HDO 100 4	**198.0**	4.5	23100	11.9	—	—	—	—	—	—	—
HDO 100 4	**223.7**	4.0	25650	11.7	—	—	—	—	—	—	—
HDO 100 4	**248.6**	3.6	23100	9.5	—	—	—	—	—	—	—
HDO 100 4	**284.4**	3.2	25650	9.2	—	—	—	—	—	—	—
HDO 100 4	**316.0**	2.8	23100	7.5	—	—	—	—	—	—	—
HDO 100 4	**344.2**	2.6	21700	6.4	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

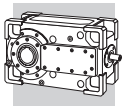


HDO 110 — n_1 = 1750 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 110 2	**6.4**	275	18050	542	*	*	*	*	*	*	*
HDO 110 2	**7.0**	249	19000	515	*	*	*	*	*	*	*
HDO 110 2	**8.1**	217	20450	483	*	*	*	*	*	*	*
HDO 110 2	**8.7**	201	20350	446	*	213	*	*	*	*	*
HDO 110 2	**10.0**	175	21950	419	*	213	*	*	*	*	285
HDO 110 2	**10.9**	161	21350	374	*	213	262	340	175	203	285
HDO 110 2	**12.5**	140	23050	352	*	213	262	340	175	203	285
HDO 110 2	**13.5**	130	19750	279	*	213	262	340	175	203	285
HDO 110 2	**15.5**	113	21350	263	*	213	262	340	175	203	285
HDO 110 3	**18.9**	93	21250	219	*	174	203	—	*	160	—
HDO 110 3	**20.9**	84	22250	207	*	174	203	—	140	160	—
HDO 110 3	**22.0**	79	21900	193	*	174	—	—	140	160	—
HDO 110 3	**24.6**	71	22150	175	86	174	—	—	140	160	—
HDO 110 3	**27.2**	64	24100	172	86	—	—	—	140	160	—
HDO 110 3	**30.9**	57	24050	151	86	—	—	—	140	—	—
HDO 110 3	**34.3**	51	25650	146	86	—	—	—	140	—	—
HDO 110 3	**39.3**	44	25150	124	86	—	—	—	—	—	—
HDO 110 3	**43.6**	40	26850	120	86	—	—	—	—	—	—
HDO 110 3	**48.0**	36	27450	111	86	—	—	—	—	—	—
HDO 110 3	**53.1**	33	26400	97	86	—	—	—	—	—	—
HDO 110 3	**61.0**	28.7	26450	84	86	—	—	—	—	—	—
HDO 110 3	**67.5**	25.9	26400	76	—	—	—	—	—	—	—
HDO 110 3	**77.5**	22.6	23650	59	—	—	—	—	—	—	—
HDO 110 4	**77.4**	22.6	26850	69	—	—	—	—	—	—	—
HDO 110 4	**85.7**	20.4	26400	61	—	—	—	—	—	—	—
HDO 110 4	**96.7**	18.1	26300	54	—	—	—	—	—	—	—
HDO 110 4	**108.9**	16.1	26400	48	—	—	—	—	—	—	—
HDO 110 4	**121.7**	14.4	27550	45	—	—	—	—	—	—	—
HDO 110 4	**137.1**	12.8	26050	38	—	—	—	—	—	—	—
HDO 110 4	**154.7**	11.3	28050	36	—	—	—	—	—	—	—
HDO 110 4	**174.3**	10.0	26400	30	—	—	—	—	—	—	—
HDO 110 4	**194.7**	9.0	28700	29	—	—	—	—	—	—	—
HDO 110 4	**215.7**	8.1	26400	24	—	—	—	—	—	—	—
HDO 110 4	**244.4**	7.2	28700	23	—	—	—	—	—	—	—
HDO 110 4	**274.2**	6.4	26400	19.1	—	—	—	—	—	—	—
HDO 110 4	**310.7**	5.6	26450	16.9	—	—	—	—	—	—	—
HDO 110 4	**344.2**	5.1	28900	16.7	—	—	—	—	—	—	—
HDO 110 4	**395.0**	4.4	25900	13.0	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

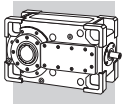


HDO 110 — n_1 = 1750 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 40°C						
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 110 2	**6.4**	275	18050	542	*	*	*	*	*	*	*
HDO 110 2	**7.0**	249	19000	515	*	*	*	*	*	*	*
HDO 110 2	**8.1**	217	20450	483	*	*	*	*	*	*	*
HDO 110 2	**8.7**	201	20350	446	*	*	*	*	*	*	*
HDO 110 2	**10.0**	175	21950	419	*	141	*	*	*	*	*
HDO 110 2	**10.9**	161	21350	374	*	141	*	190	*	*	259
HDO 110 2	**12.5**	140	23050	352	*	141	*	190	*	168	259
HDO 110 2	**13.5**	130	19750	279	*	141	158	190	*	168	259
HDO 110 2	**15.5**	113	21350	263	*	141	158	190	*	168	259
HDO 110 3	**18.9**	93	21250	219	*	119	*	*	*	131	199
HDO 110 3	**20.9**	84	22250	207	*	119	*	*	*	131	199
HDO 110 3	**22.0**	79	21900	193	*	119	125	159	*	131	—
HDO 110 3	**24.6**	71	22150	175	57	119	125	159	120	131	—
HDO 110 3	**27.2**	64	24100	172	57	119	125	159	120	131	—
HDO 110 3	**30.9**	57	24050	151	57	119	125	—	120	131	—
HDO 110 3	**34.3**	51	25650	146	57	119	125	—	120	131	—
HDO 110 3	**39.3**	44	25150	124	57	119	—	—	120	—	—
HDO 110 3	**43.6**	40	26850	120	57	119	—	—	—	—	—
HDO 110 3	**48.0**	36	27450	111	57	—	—	—	—	—	—
HDO 110 3	**53.1**	33	26400	97	57	—	—	—	—	—	—
HDO 110 3	**61.0**	28.7	26450	84	57	—	—	—	—	—	—
HDO 110 3	**67.5**	25.9	26400	76	57	—	—	—	—	—	—
HDO 110 3	**77.5**	22.6	23650	59	57	—	—	—	—	—	—
HDO 110 4	**77.4**	22.6	26850	69	50	—	—	—	—	—	—
HDO 110 4	**85.7**	20.4	26400	61	50	—	—	—	—	—	—
HDO 110 4	**96.7**	18.1	26300	54	50	—	—	—	—	—	—
HDO 110 4	**108.9**	16.1	26400	48	—	—	—	—	—	—	—
HDO 110 4	**121.7**	14.4	27550	45	—	—	—	—	—	—	—
HDO 110 4	**137.1**	12.8	26050	38	—	—	—	—	—	—	—
HDO 110 4	**154.7**	11.3	28050	36	—	—	—	—	—	—	—
HDO 110 4	**174.3**	10.0	26400	30	—	—	—	—	—	—	—
HDO 110 4	**194.7**	9.0	28700	29	—	—	—	—	—	—	—
HDO 110 4	**215.7**	8.1	26400	24	—	—	—	—	—	—	—
HDO 110 4	**244.4**	7.2	28700	23	—	—	—	—	—	—	—
HDO 110 4	**274.2**	6.4	26400	19.1	—	—	—	—	—	—	—
HDO 110 4	**310.7**	5.6	26450	16.9	—	—	—	—	—	—	—
HDO 110 4	**344.2**	5.1	28900	16.7	—	—	—	—	—	—	—
HDO 110 4	**395.0**	4.4	25900	13.0	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

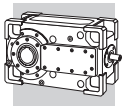


HDO 110 — n_1 = 1400 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 110 2	**6.4**	220	19300	464	*	209	253	331	*	194	288
HDO 110 2	**7.0**	199	20300	440	*	209	253	331	*	194	288
HDO 110 2	**8.1**	173	21900	414	*	209	253	331	173	194	288
HDO 110 2	**8.7**	161	21750	381	*	209	253	331	173	194	288
HDO 110 2	**10.0**	140	23450	358	*	209	253	331	173	194	288
HDO 110 2	**10.9**	129	21600	303	100	209	253	—	173	194	288
HDO 110 2	**12.5**	112	23650	289	100	209	253	—	173	194	288
HDO 110 2	**13.5**	104	21100	238	100	209	—	—	173	194	—
HDO 110 2	**15.5**	90	22800	225	100	209	—	—	173	194	—
HDO 110 3	**18.9**	74	22750	187	84	169	—	—	147	—	—
HDO 110 3	**20.9**	67	23800	177	84	169	—	—	147	—	—
HDO 110 3	**22.0**	64	23400	165	84	—	—	—	147	—	—
HDO 110 3	**24.6**	57	23700	150	84	—	—	—	147	—	—
HDO 110 3	**27.2**	51	25750	147	84	—	—	—	147	—	—
HDO 110 3	**30.9**	45	25700	129	84	—	—	—	—	—	—
HDO 110 3	**34.3**	41	27400	125	84	—	—	—	—	—	—
HDO 110 3	**39.3**	36	26900	107	84	—	—	—	—	—	—
HDO 110 3	**43.6**	32	28700	103	84	—	—	—	—	—	—
HDO 110 3	**48.0**	29.2	28300	92	84	—	—	—	—	—	—
HDO 110 3	**53.1**	26.4	28900	85	—	—	—	—	—	—	—
HDO 110 3	**61.0**	23.0	28600	73	—	—	—	—	—	—	—
HDO 110 3	**67.5**	20.7	28900	67	—	—	—	—	—	—	—
HDO 110 3	**77.5**	18.1	25900	52	—	—	—	—	—	—	—
HDO 110 4	**77.4**	18.1	28300	58	—	—	—	—	—	—	—
HDO 110 4	**85.7**	16.3	28900	54	—	—	—	—	—	—	—
HDO 110 4	**96.7**	14.5	27950	46	—	—	—	—	—	—	—
HDO 110 4	**108.9**	12.9	28900	42	—	—	—	—	—	—	—
HDO 110 4	**121.7**	11.5	28300	37	—	—	—	—	—	—	—
HDO 110 4	**137.1**	10.2	27850	32	—	—	—	—	—	—	—
HDO 110 4	**154.7**	9.0	28500	29	—	—	—	—	—	—	—
HDO 110 4	**174.3**	8.0	28900	26	—	—	—	—	—	—	—
HDO 110 4	**194.7**	7.2	28700	23	—	—	—	—	—	—	—
HDO 110 4	**215.7**	6.5	28900	21	—	—	—	—	—	—	—
HDO 110 4	**244.4**	5.7	28700	18.7	—	—	—	—	—	—	—
HDO 110 4	**274.2**	5.1	28900	16.8	—	—	—	—	—	—	—
HDO 110 4	**310.7**	4.5	28700	14.7	—	—	—	—	—	—	—
HDO 110 4	**344.2**	4.1	28900	13.3	—	—	—	—	—	—	—
HDO 110 4	**395.0**	3.5	25900	10.4	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

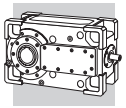


HDO 110 — n_1 = 1400 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 40°C						
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 110 2	**6.4**	220	19300	464	*	*	*	*	*	*	250
HDO 110 2	**7.0**	199	20300	440	*	*	*	184	*	*	250
HDO 110 2	**8.1**	173	21900	414	*	138	*	184	*	*	250
HDO 110 2	**8.7**	161	21750	381	*	138	*	184	*	165	250
HDO 110 2	**10.0**	140	23450	358	*	138	149	184	*	165	250
HDO 110 2	**10.9**	129	21600	303	*	138	149	184	150	165	250
HDO 110 2	**12.5**	112	23650	289	64	138	149	184	150	165	250
HDO 110 2	**13.5**	104	21100	238	64	138	149	184	150	165	—
HDO 110 2	**15.5**	90	22800	225	64	138	149	184	150	165	—
HDO 110 3	**18.9**	74	22750	187	55	117	126	157	118	139	—
HDO 110 3	**20.9**	67	23800	177	55	117	126	157	118	139	—
HDO 110 3	**22.0**	64	23400	165	55	117	126	157	118	139	—
HDO 110 3	**24.6**	57	23700	150	55	117	126	—	118	139	—
HDO 110 3	**27.2**	51	25750	147	55	117	126	—	118	139	—
HDO 110 3	**30.9**	45	25700	129	55	117	126	—	118	—	—
HDO 110 3	**34.3**	41	27400	125	55	117	—	—	118	—	—
HDO 110 3	**39.3**	36	26900	107	55	—	—	—	—	—	—
HDO 110 3	**43.6**	32	28700	103	55	—	—	—	—	—	—
HDO 110 3	**48.0**	29.2	28300	92	55	—	—	—	—	—	—
HDO 110 3	**53.1**	26.4	28900	85	55	—	—	—	—	—	—
HDO 110 3	**61.0**	23.0	28600	73	55	—	—	—	—	—	—
HDO 110 3	**67.5**	20.7	28900	67	55	—	—	—	—	—	—
HDO 110 3	**77.5**	18.1	25900	52	—	—	—	—	—	—	—
HDO 110 4	**77.4**	18.1	28300	58	53	—	—	—	—	—	—
HDO 110 4	**85.7**	16.3	28900	54	—	—	—	—	—	—	—
HDO 110 4	**96.7**	14.5	27950	46	—	—	—	—	—	—	—
HDO 110 4	**108.9**	12.9	28900	42	—	—	—	—	—	—	—
HDO 110 4	**121.7**	11.5	28300	37	—	—	—	—	—	—	—
HDO 110 4	**137.1**	10.2	27850	32	—	—	—	—	—	—	—
HDO 110 4	**154.7**	9.0	28500	29	—	—	—	—	—	—	—
HDO 110 4	**174.3**	8.0	28900	26	—	—	—	—	—	—	—
HDO 110 4	**194.7**	7.2	28700	23	—	—	—	—	—	—	—
HDO 110 4	**215.7**	6.5	28900	21	—	—	—	—	—	—	—
HDO 110 4	**244.4**	5.7	28700	18.7	—	—	—	—	—	—	—
HDO 110 4	**274.2**	5.1	28900	16.8	—	—	—	—	—	—	—
HDO 110 4	**310.7**	4.5	28700	14.7	—	—	—	—	—	—	—
HDO 110 4	**344.2**	4.1	28900	13.3	—	—	—	—	—	—	—
HDO 110 4	**395.0**	3.5	25900	10.4	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

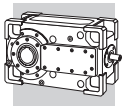


HDO 110 — n_1 = 1100 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 110 2	**6.4**	173	20750	392	*	203	267	345	180	208	302
HDO 110 2	**7.0**	156	21800	371	*	203	267	345	180	208	302
HDO 110 2	**8.1**	136	23550	350	*	203	267	345	180	208	302
HDO 110 2	**8.7**	126	22250	306	100	203	267	—	180	208	302
HDO 110 2	**10.0**	110	24350	292	100	203	267	—	180	208	—
HDO 110 2	**10.9**	101	21600	238	100	203	—	—	180	208	—
HDO 110 2	**12.5**	88	23650	227	100	203	—	—	180	208	—
HDO 110 2	**13.5**	81	21100	187	100	—	—	—	180	—	—
HDO 110 2	**15.5**	71	23150	179	100	—	—	—	—	—	—
HDO 110 3	**18.9**	58	24450	158	89	—	—	—	152	—	—
HDO 110 3	**20.9**	53	25600	150	89	—	—	—	—	—	—
HDO 110 3	**22.0**	50	25150	140	89	—	—	—	—	—	—
HDO 110 3	**24.6**	45	25450	127	89	—	—	—	—	—	—
HDO 110 3	**27.2**	40	27700	124	89	—	—	—	—	—	—
HDO 110 3	**30.9**	36	27650	109	89	—	—	—	—	—	—
HDO 110 3	**34.3**	32	28900	103	89	—	—	—	—	—	—
HDO 110 3	**39.3**	28.0	28600	89	—	—	—	—	—	—	—
HDO 110 3	**43.6**	25.2	28900	81	—	—	—	—	—	—	—
HDO 110 3	**48.0**	22.9	28300	72	—	—	—	—	—	—	—
HDO 110 3	**53.1**	20.7	28900	67	—	—	—	—	—	—	—
HDO 110 3	**61.0**	18.0	28600	57	—	—	—	—	—	—	—
HDO 110 3	**67.5**	16.3	28900	52	—	—	—	—	—	—	—
HDO 110 3	**77.5**	14.2	25900	41	—	—	—	—	—	—	—
HDO 110 4	**77.4**	14.2	28300	46	—	—	—	—	—	—	—
HDO 110 4	**85.7**	12.8	28900	42	—	—	—	—	—	—	—
HDO 110 4	**96.7**	11.4	27950	36	—	—	—	—	—	—	—
HDO 110 4	**108.9**	10.1	28900	33	—	—	—	—	—	—	—
HDO 110 4	**121.7**	9.0	28300	29	—	—	—	—	—	—	—
HDO 110 4	**137.1**	8.0	28900	26	—	—	—	—	—	—	—
HDO 110 4	**154.7**	7.1	28500	23	—	—	—	—	—	—	—
HDO 110 4	**174.3**	6.3	28900	21	—	—	—	—	—	—	—
HDO 110 4	**194.7**	5.6	28700	18.4	—	—	—	—	—	—	—
HDO 110 4	**215.7**	5.1	28900	16.7	—	—	—	—	—	—	—
HDO 110 4	**244.4**	4.5	28700	14.7	—	—	—	—	—	—	—
HDO 110 4	**274.2**	4.0	28900	13.2	—	—	—	—	—	—	—
HDO 110 4	**310.7**	3.5	28700	11.5	—	—	—	—	—	—	—
HDO 110 4	**344.2**	3.2	28900	10.5	—	—	—	—	—	—	—
HDO 110 4	**395.0**	2.8	25900	8.2	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

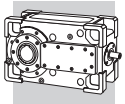


HDO 110 — n_1 = 1100 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 40°C						
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 110 2	**6.4**	173	20750	392	*	136	151	195	*	170	264
HDO 110 2	**7.0**	156	21800	371	*	136	151	195	*	170	264
HDO 110 2	**8.1**	136	23550	350	*	136	151	195	148	170	264
HDO 110 2	**8.7**	126	22250	306	*	136	151	195	148	170	264
HDO 110 2	**10.0**	110	24350	292	*	136	151	195	148	170	264
HDO 110 2	**10.9**	101	21600	238	72	136	151	195	148	170	—
HDO 110 2	**12.5**	88	23650	227	72	136	151	195	148	170	—
HDO 110 2	**13.5**	81	21100	187	72	136	151	—	148	170	—
HDO 110 2	**15.5**	71	23150	179	72	136	151	—	148	170	—
HDO 110 3	**18.9**	58	24450	158	60	116	131	—	123	144	—
HDO 110 3	**20.9**	53	25600	150	60	116	131	—	123	144	—
HDO 110 3	**22.0**	50	25150	140	60	116	131	—	123	—	—
HDO 110 3	**24.6**	45	25450	127	60	116	—	—	123	—	—
HDO 110 3	**27.2**	40	27700	124	60	116	—	—	123	—	—
HDO 110 3	**30.9**	36	27650	109	60	—	—	—	—	—	—
HDO 110 3	**34.3**	32	28900	103	60	—	—	—	—	—	—
HDO 110 3	**39.3**	28.0	28600	89	60	—	—	—	—	—	—
HDO 110 3	**43.6**	25.2	28900	81	60	—	—	—	—	—	—
HDO 110 3	**48.0**	22.9	28300	72	60	—	—	—	—	—	—
HDO 110 3	**53.1**	20.7	28900	67	60	—	—	—	—	—	—
HDO 110 3	**61.0**	18.0	28600	57	—	—	—	—	—	—	—
HDO 110 3	**67.5**	16.3	28900	52	—	—	—	—	—	—	—
HDO 110 3	**77.5**	14.2	25900	41	—	—	—	—	—	—	—
HDO 110 4	**77.4**	14.2	28300	46	—	—	—	—	—	—	—
HDO 110 4	**85.7**	12.8	28900	42	—	—	—	—	—	—	—
HDO 110 4	**96.7**	11.4	27950	36	—	—	—	—	—	—	—
HDO 110 4	**108.9**	10.1	28900	33	—	—	—	—	—	—	—
HDO 110 4	**121.7**	9.0	28300	29	—	—	—	—	—	—	—
HDO 110 4	**137.1**	8.0	28900	26	—	—	—	—	—	—	—
HDO 110 4	**154.7**	7.1	28500	23	—	—	—	—	—	—	—
HDO 110 4	**174.3**	6.3	28900	21	—	—	—	—	—	—	—
HDO 110 4	**194.7**	5.6	28700	18.4	—	—	—	—	—	—	—
HDO 110 4	**215.7**	5.1	28900	16.7	—	—	—	—	—	—	—
HDO 110 4	**244.4**	4.5	28700	14.7	—	—	—	—	—	—	—
HDO 110 4	**274.2**	4.0	28900	13.2	—	—	—	—	—	—	—
HDO 110 4	**310.7**	3.5	28700	11.5	—	—	—	—	—	—	—
HDO 110 4	**344.2**	3.2	28900	10.5	—	—	—	—	—	—	—
HDO 110 4	**395.0**	2.8	25900	8.2	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

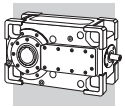


HDO 110 — n_1 = 900 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 110 2	**6.4**	142	20750	320	*	189	277	—	190	218	—
HDO 110 2	**7.0**	128	22050	307	102	189	277	—	190	218	—
HDO 110 2	**8.1**	111	24150	293	102	189	277	—	190	218	—
HDO 110 2	**8.7**	103	22250	251	102	189	—	—	190	218	—
HDO 110 2	**10.0**	90	24350	239	102	189	—	—	190	218	—
HDO 110 2	**10.9**	83	21600	195	102	189	—	—	190	—	—
HDO 110 2	**12.5**	72	23650	186	102	—	—	—	—	—	—
HDO 110 2	**13.5**	67	21100	153	102	—	—	—	—	—	—
HDO 110 2	**15.5**	58	23150	147	102	—	—	—	—	—	—
HDO 110 3	**18.9**	48	26000	138	93	—	—	—	—	—	—
HDO 110 3	**20.9**	43	27200	130	93	—	—	—	—	—	—
HDO 110 3	**22.0**	41	26700	121	93	—	—	—	—	—	—
HDO 110 3	**24.6**	37	27050	110	93	—	—	—	—	—	—
HDO 110 3	**27.2**	33	27700	102	93	—	—	—	—	—	—
HDO 110 3	**30.9**	29.1	28300	92	—	—	—	—	—	—	—
HDO 110 3	**34.3**	26.3	28900	84	—	—	—	—	—	—	—
HDO 110 3	**39.3**	22.9	28600	73	—	—	—	—	—	—	—
HDO 110 3	**43.6**	20.7	28900	66	—	—	—	—	—	—	—
HDO 110 3	**48.0**	18.8	28300	59	—	—	—	—	—	—	—
HDO 110 3	**53.1**	16.9	28900	54	—	—	—	—	—	—	—
HDO 110 3	**61.0**	14.8	28600	47	—	—	—	—	—	—	—
HDO 110 3	**67.5**	13.3	28900	43	—	—	—	—	—	—	—
HDO 110 3	**77.5**	11.6	25900	33	—	—	—	—	—	—	—
HDO 110 4	**77.4**	11.6	28300	37	—	—	—	—	—	—	—
HDO 110 4	**85.7**	10.5	28900	34	—	—	—	—	—	—	—
HDO 110 4	**96.7**	9.3	27950	30	—	—	—	—	—	—	—
HDO 110 4	**108.9**	8.3	28900	27	—	—	—	—	—	—	—
HDO 110 4	**121.7**	7.4	28300	24	—	—	—	—	—	—	—
HDO 110 4	**137.1**	6.6	28900	22	—	—	—	—	—	—	—
HDO 110 4	**154.7**	5.8	28500	18.8	—	—	—	—	—	—	—
HDO 110 4	**174.3**	5.2	28900	16.9	—	—	—	—	—	—	—
HDO 110 4	**194.7**	4.6	28700	15.1	—	—	—	—	—	—	—
HDO 110 4	**215.7**	4.2	28900	13.7	—	—	—	—	—	—	—
HDO 110 4	**244.4**	3.7	28700	12.0	—	—	—	—	—	—	—
HDO 110 4	**274.2**	3.3	28900	10.8	—	—	—	—	—	—	—
HDO 110 4	**310.7**	2.9	28700	9.4	—	—	—	—	—	—	—
HDO 110 4	**344.2**	2.6	28900	8.6	—	—	—	—	—	—	—
HDO 110 4	**395.0**	2.3	25900	6.7	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

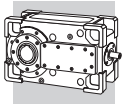


HDO 110 — n_1 = 900 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 40°C						
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 110 2	**6.4**	142	20750	320	*	128	161	205	152	180	274
HDO 110 2	**7.0**	128	22050	307	*	128	161	205	152	180	274
HDO 110 2	**8.1**	111	24150	293	*	128	161	205	152	180	274
HDO 110 2	**8.7**	103	22250	251	70	128	161	205	152	180	—
HDO 110 2	**10.0**	90	24350	239	70	128	161	205	152	180	—
HDO 110 2	**10.9**	83	21600	195	70	128	161	—	152	180	—
HDO 110 2	**12.5**	72	23650	186	70	128	161	—	152	180	—
HDO 110 2	**13.5**	67	21100	153	70	128	—	—	152	—	—
HDO 110 2	**15.5**	58	23150	147	70	128	—	—	—	—	—
HDO 110 3	**18.9**	48	26000	138	64	108	135	—	127	—	—
HDO 110 3	**20.9**	43	27200	130	64	108	—	—	127	—	—
HDO 110 3	**22.0**	41	26700	121	64	108	—	—	—	—	—
HDO 110 3	**24.6**	37	27050	110	64	108	—	—	—	—	—
HDO 110 3	**27.2**	33	27700	102	64	—	—	—	—	—	—
HDO 110 3	**30.9**	29.1	28300	92	64	—	—	—	—	—	—
HDO 110 3	**34.3**	26.3	28900	84	64	—	—	—	—	—	—
HDO 110 3	**39.3**	22.9	28600	73	64	—	—	—	—	—	—
HDO 110 3	**43.6**	20.7	28900	66	64	—	—	—	—	—	—
HDO 110 3	**48.0**	18.8	28300	59	—	—	—	—	—	—	—
HDO 110 3	**53.1**	16.9	28900	54	—	—	—	—	—	—	—
HDO 110 3	**61.0**	14.8	28600	47	—	—	—	—	—	—	—
HDO 110 3	**67.5**	13.3	28900	43	—	—	—	—	—	—	—
HDO 110 3	**77.5**	11.6	25900	33	—	—	—	—	—	—	—
HDO 110 4	**77.4**	11.6	28300	37	—	—	—	—	—	—	—
HDO 110 4	**85.7**	10.5	28900	34	—	—	—	—	—	—	—
HDO 110 4	**96.7**	9.3	27950	30	—	—	—	—	—	—	—
HDO 110 4	**108.9**	8.3	28900	27	—	—	—	—	—	—	—
HDO 110 4	**121.7**	7.4	28300	24	—	—	—	—	—	—	—
HDO 110 4	**137.1**	6.6	28900	22	—	—	—	—	—	—	—
HDO 110 4	**154.7**	5.8	28500	18.8	—	—	—	—	—	—	—
HDO 110 4	**174.3**	5.2	28900	16.9	—	—	—	—	—	—	—
HDO 110 4	**194.7**	4.6	28700	15.1	—	—	—	—	—	—	—
HDO 110 4	**215.7**	4.2	28900	13.7	—	—	—	—	—	—	—
HDO 110 4	**244.4**	3.7	28700	12.0	—	—	—	—	—	—	—
HDO 110 4	**274.2**	3.3	28900	10.8	—	—	—	—	—	—	—
HDO 110 4	**310.7**	2.9	28700	9.4	—	—	—	—	—	—	—
HDO 110 4	**344.2**	2.6	28900	8.6	—	—	—	—	—	—	—
HDO 110 4	**395.0**	2.3	25900	6.7	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

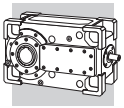


HDO 120 — n_1 = 1750 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 120 2	**6.6**	266	23550	684	*	*	*	*	*	*	*
HDO 120 2	**7.2**	245	25650	684	*	*	*	*	*	*	*
HDO 120 2	**8.1**	217	28150	665	*	*	*	*	*	*	*
HDO 120 2	**8.9**	198	29100	627	*	*	*	*	*	*	*
HDO 120 2	**10.0**	175	30700	586	*	*	*	*	*	*	*
HDO 120 2	**11.1**	158	30450	525	*	261	*	345	*	*	*
HDO 120 2	**12.5**	140	32300	493	*	261	270	345	*	211	305
HDO 120 2	**13.7**	127	31150	433	*	261	270	345	*	211	305
HDO 120 2	**15.5**	113	31750	391	*	261	270	345	*	211	305
HDO 120 3	**17.3**	101	26900	303	*	205	220	273	*	*	241
HDO 120 3	**19.5**	90	29800	298	*	205	220	273	*	*	241
HDO 120 3	**21.8**	80	28600	255	*	205	220	—	*	*	241
HDO 120 3	**24.6**	71	29600	234	102	205	220	—	165	186	241
HDO 120 3	**28.3**	62	28950	199	102	—	—	—	165	186	—
HDO 120 3	**32.0**	55	32000	195	102	—	—	—	165	186	—
HDO 120 3	**34.8**	50	32500	182	102	—	—	—	165	—	—
HDO 120 3	**41.2**	42	34100	161	102	—	—	—	—	—	—
HDO 120 3	**44.9**	39	34650	150	102	—	—	—	—	—	—
HDO 120 3	**49.5**	35	31350	123	102	—	—	—	—	—	—
HDO 120 3	**53.9**	32	34150	123	102	—	—	—	—	—	—
HDO 120 3	**63.9**	27.4	35350	108	102	—	—	—	—	—	—
HDO 120 3	**69.6**	25.1	35000	98	—	—	—	—	—	—	—
HDO 120 3	**78.6**	22.3	31750	79	—	—	—	—	—	—	—
HDO 120 4	**87.0**	20.1	30200	69	—	—	—	—	—	—	—
HDO 120 4	**103.1**	17.0	32700	63	—	—	—	—	—	—	—
HDO 120 4	**112.3**	15.6	35000	62	—	—	—	—	—	—	—
HDO 120 4	**125.7**	13.9	32950	52	—	—	—	—	—	—	—
HDO 120 4	**136.9**	12.8	35000	51	—	—	—	—	—	—	—
HDO 120 4	**162.2**	10.8	35350	43	—	—	—	—	—	—	—
HDO 120 4	**179.7**	9.7	34150	38	—	—	—	—	—	—	—
HDO 120 4	**201.1**	8.7	35350	35	—	—	—	—	—	—	—
HDO 120 4	**219.0**	8.0	35000	32	—	—	—	—	—	—	—
HDO 120 4	**252.4**	6.9	35350	28	—	—	—	—	—	—	—
HDO 120 4	**282.7**	6.2	35000	25	—	—	—	—	—	—	—
HDO 120 4	**325.9**	5.4	35350	22	—	—	—	—	—	—	—
HDO 120 4	**354.9**	4.9	37200	21	—	—	—	—	—	—	—
HDO 120 4	**400.6**	4.4	34300	17.0	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

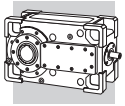


HDO 120 — n_1 = 1750 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 40°C						
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 120 2	**6.6**	266	23550	684	*	*	*	*	*	*	*
HDO 120 2	**7.2**	245	25650	684	*	*	*	*	*	*	*
HDO 120 2	**8.1**	217	28150	665	*	*	*	*	*	*	*
HDO 120 2	**8.9**	198	29100	627	*	*	*	*	*	*	*
HDO 120 2	**10.0**	175	30700	586	*	*	*	*	*	*	*
HDO 120 2	**11.1**	158	30450	525	*	168	*	*	*	*	*
HDO 120 2	**12.5**	140	32300	493	*	168	*	*	*	*	*
HDO 120 2	**13.7**	127	31150	433	*	168	*	*	*	*	272
HDO 120 2	**15.5**	113	31750	391	*	168	*	*	*	*	272
HDO 120 3	**17.3**	101	26900	303	*	138	*	*	*	*	205
HDO 120 3	**19.5**	90	29800	298	*	138	*	*	*	*	205
HDO 120 3	**21.8**	80	28600	255	*	138	*	*	*	*	205
HDO 120 3	**24.6**	71	29600	234	*	138	136	167	128	149	205
HDO 120 3	**28.3**	62	28950	199	*	138	136	167	128	149	—
HDO 120 3	**32.0**	55	32000	195	*	138	136	167	128	149	—
HDO 120 3	**34.8**	50	32500	182	*	138	136	167	128	149	—
HDO 120 3	**41.2**	42	34100	161	*	138	136	167	128	149	—
HDO 120 3	**44.9**	39	34650	150	80	138	136	—	128	149	—
HDO 120 3	**49.5**	35	31350	123	80	—	—	—	—	—	—
HDO 120 3	**53.9**	32	34150	123	80	—	—	—	—	—	—
HDO 120 3	**63.9**	27.4	35350	108	80	—	—	—	—	—	—
HDO 120 3	**69.6**	25.1	35000	98	80	—	—	—	—	—	—
HDO 120 3	**78.6**	22.3	31750	79	80	—	—	—	—	—	—
HDO 120 4	**87.0**	20.1	30200	69	64	—	—	—	—	—	—
HDO 120 4	**103.1**	17.0	32700	63	64	—	—	—	—	—	—
HDO 120 4	**112.3**	15.6	35000	62	—	—	—	—	—	—	—
HDO 120 4	**125.7**	13.9	32950	52	—	—	—	—	—	—	—
HDO 120 4	**136.9**	12.8	35000	51	—	—	—	—	—	—	—
HDO 120 4	**162.2**	10.8	35350	43	—	—	—	—	—	—	—
HDO 120 4	**179.7**	9.7	34150	38	—	—	—	—	—	—	—
HDO 120 4	**201.1**	8.7	35350	35	—	—	—	—	—	—	—
HDO 120 4	**219.0**	8.0	35000	32	—	—	—	—	—	—	—
HDO 120 4	**252.4**	6.9	35350	28	—	—	—	—	—	—	—
HDO 120 4	**282.7**	6.2	35000	25	—	—	—	—	—	—	—
HDO 120 4	**325.9**	5.4	35350	22	—	—	—	—	—	—	—
HDO 120 4	**354.9**	4.9	37200	21	—	—	—	—	—	—	—
HDO 120 4	**400.6**	4.4	34300	17.0	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

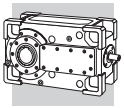


HDO 120 — n_1 = 1400 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 120 2	**6.6**	213	25200	586	*	240	268	346	*	*	303
HDO 120 2	**7.2**	196	27450	586	*	240	268	346	*	*	303
HDO 120 2	**8.1**	173	30100	569	*	240	268	346	*	*	303
HDO 120 2	**8.9**	158	31100	536	*	240	268	346	*	*	303
HDO 120 2	**10.0**	140	32850	501	*	240	268	346	*	209	303
HDO 120 2	**11.1**	126	32200	444	111	240	268	346	199	209	303
HDO 120 2	**12.5**	112	34150	417	111	240	268	346	199	209	303
HDO 120 2	**13.7**	102	31400	349	111	240	268	346	199	209	303
HDO 120 2	**15.5**	90	33600	331	111	240	268	—	199	209	303
HDO 120 3	**17.3**	81	28750	259	100	201	227	—	163	184	—
HDO 120 3	**19.5**	72	31850	255	100	201	227	—	163	184	—
HDO 120 3	**21.8**	64	30600	219	100	201	—	—	163	184	—
HDO 120 3	**24.6**	57	31650	201	100	—	—	—	163	184	—
HDO 120 3	**28.3**	49	30950	170	100	—	—	—	163	—	—
HDO 120 3	**32.0**	44	34250	167	100	—	—	—	163	—	—
HDO 120 3	**34.8**	40	34750	156	100	—	—	—	—	—	—
HDO 120 3	**41.2**	34	36450	138	100	—	—	—	—	—	—
HDO 120 3	**44.9**	31	37050	128	100	—	—	—	—	—	—
HDO 120 3	**49.5**	28.3	33550	106	100	—	—	—	—	—	—
HDO 120 3	**53.9**	26.0	36550	106	100	—	—	—	—	—	—
HDO 120 3	**63.9**	21.9	37500	91	—	—	—	—	—	—	—
HDO 120 3	**69.6**	20.1	37200	83	—	—	—	—	—	—	—
HDO 120 3	**78.6**	17.8	34300	68	—	—	—	—	—	—	—
HDO 120 4	**87.0**	16.1	32250	59	—	—	—	—	—	—	—
HDO 120 4	**103.1**	13.6	34950	54	—	—	—	—	—	—	—
HDO 120 4	**112.3**	12.5	37200	53	—	—	—	—	—	—	—
HDO 120 4	**125.7**	11.1	35250	45	—	—	—	—	—	—	—
HDO 120 4	**136.9**	10.2	37200	43	—	—	—	—	—	—	—
HDO 120 4	**162.2**	8.6	37500	37	—	—	—	—	—	—	—
HDO 120 4	**179.7**	7.8	36550	32	—	—	—	—	—	—	—
HDO 120 4	**201.1**	7.0	37500	30	—	—	—	—	—	—	—
HDO 120 4	**219.0**	6.4	37200	27	—	—	—	—	—	—	—
HDO 120 4	**252.4**	5.5	37500	24	—	—	—	—	—	—	—
HDO 120 4	**282.7**	5.0	37200	21	—	—	—	—	—	—	—
HDO 120 4	**325.9**	4.3	37500	18.3	—	—	—	—	—	—	—
HDO 120 4	**354.9**	3.9	37200	16.7	—	—	—	—	—	—	—
HDO 120 4	**400.6**	3.5	34300	13.6	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

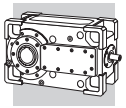


HDO 120 — n_1 = 1400 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 120 2	**6.6**	213	25200	586	*	*	*	*	*	*	*
HDO 120 2	**7.2**	196	27450	586	*	*	*	*	*	*	*
HDO 120 2	**8.1**	173	30100	569	54	162	*	*	*	*	264
HDO 120 2	**8.9**	158	31100	536	54	162	*	*	*	*	264
HDO 120 2	**10.0**	140	32850	501	54	162	*	*	*	*	264
HDO 120 2	**11.1**	126	32200	444	54	162	*	205	*	180	264
HDO 120 2	**12.5**	112	34150	417	54	162	*	205	*	180	264
HDO 120 2	**13.7**	102	31400	349	54	162	174	205	165	180	264
HDO 120 2	**15.5**	90	33600	331	54	162	174	205	165	180	264
HDO 120 3	**17.3**	81	28750	259	64	138	135	166	127	148	216
HDO 120 3	**19.5**	72	31850	255	64	138	135	166	127	148	216
HDO 120 3	**21.8**	64	30600	219	64	138	135	166	127	148	216
HDO 120 3	**24.6**	57	31650	201	64	138	135	166	127	148	—
HDO 120 3	**28.3**	49	30950	170	64	138	135	166	127	148	—
HDO 120 3	**32.0**	44	34250	167	64	138	135	166	127	148	—
HDO 120 3	**34.8**	40	34750	156	64	138	135	—	127	148	—
HDO 120 3	**41.2**	34	36450	138	64	—	135	—	127	—	—
HDO 120 3	**44.9**	31	37050	128	64	—	—	—	127	—	—
HDO 120 3	**49.5**	28.3	33550	106	64	—	—	—	—	—	—
HDO 120 3	**53.9**	26.0	36550	106	64	—	—	—	—	—	—
HDO 120 3	**63.9**	21.9	37500	91	64	—	—	—	—	—	—
HDO 120 3	**69.6**	20.1	37200	83	64	—	—	—	—	—	—
HDO 120 3	**78.6**	17.8	34300	68	—	—	—	—	—	—	—
HDO 120 4	**87.0**	16.1	32250	59	—	—	—	—	—	—	—
HDO 120 4	**103.1**	13.6	34950	54	—	—	—	—	—	—	—
HDO 120 4	**112.3**	12.5	37200	53	—	—	—	—	—	—	—
HDO 120 4	**125.7**	11.1	35250	45	—	—	—	—	—	—	—
HDO 120 4	**136.9**	10.2	37200	43	—	—	—	—	—	—	—
HDO 120 4	**162.2**	8.6	37500	37	—	—	—	—	—	—	—
HDO 120 4	**179.7**	7.8	36550	32	—	—	—	—	—	—	—
HDO 120 4	**201.1**	7.0	37500	30	—	—	—	—	—	—	—
HDO 120 4	**219.0**	6.4	37200	27	—	—	—	—	—	—	—
HDO 120 4	**252.4**	5.5	37500	24	—	—	—	—	—	—	—
HDO 120 4	**282.7**	5.0	37200	21	—	—	—	—	—	—	—
HDO 120 4	**325.9**	4.3	37500	18.3	—	—	—	—	—	—	—
HDO 120 4	**354.9**	3.9	37200	16.7	—	—	—	—	—	—	—
HDO 120 4	**400.6**	3.5	34300	13.6	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

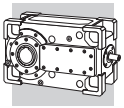


HDO 120 — n_1 = 1100 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 120 2	**6.6**	167	27100	495	*	243	286	364	199	227	321
HDO 120 2	**7.2**	154	29500	495	*	243	286	364	199	227	321
HDO 120 2	**8.1**	136	32350	480	*	243	286	364	199	227	321
HDO 120 2	**8.9**	124	33150	449	109	243	286	364	199	227	321
HDO 120 2	**10.0**	110	32850	394	109	243	286	364	199	227	321
HDO 120 2	**11.1**	99	32200	349	109	243	286	—	199	227	321
HDO 120 2	**12.5**	88	34300	329	109	243	286	—	199	227	321
HDO 120 2	**13.7**	80	31400	274	109	243	—	—	199	227	—
HDO 120 2	**15.5**	71	33600	260	109	243	—	—	199	227	—
HDO 120 3	**17.3**	64	30650	217	108	199	—	—	171	192	—
HDO 120 3	**19.5**	56	34250	215	108	199	—	—	171	192	—
HDO 120 3	**21.8**	50	32900	185	108	—	—	—	171	—	—
HDO 120 3	**24.6**	45	34000	169	108	—	—	—	—	—	—
HDO 120 3	**28.3**	39	33300	144	108	—	—	—	—	—	—
HDO 120 3	**32.0**	34	36600	140	108	—	—	—	—	—	—
HDO 120 3	**34.8**	32	37200	131	108	—	—	—	—	—	—
HDO 120 3	**41.2**	26.7	37500	111	108	—	—	—	—	—	—
HDO 120 3	**44.9**	24.5	37200	101	—	—	—	—	—	—	—
HDO 120 3	**49.5**	22.2	34200	85	—	—	—	—	—	—	—
HDO 120 3	**53.9**	20.4	37200	84	—	—	—	—	—	—	—
HDO 120 3	**63.9**	17.2	37500	72	—	—	—	—	—	—	—
HDO 120 3	**69.6**	15.8	37200	65	—	—	—	—	—	—	—
HDO 120 3	**78.6**	14.0	34300	53	—	—	—	—	—	—	—
HDO 120 4	**87.0**	12.6	34700	50	—	—	—	—	—	—	—
HDO 120 4	**103.1**	10.7	35400	43	—	—	—	—	—	—	—
HDO 120 4	**112.3**	9.8	35200	39	—	—	—	—	—	—	—
HDO 120 4	**125.7**	8.8	37250	37	—	—	—	—	—	—	—
HDO 120 4	**136.9**	8.0	37200	34	—	—	—	—	—	—	—
HDO 120 4	**162.2**	6.8	37500	29	—	—	—	—	—	—	—
HDO 120 4	**179.7**	6.1	36550	25	—	—	—	—	—	—	—
HDO 120 4	**201.1**	5.5	37500	23	—	—	—	—	—	—	—
HDO 120 4	**219.0**	5.0	37200	21	—	—	—	—	—	—	—
HDO 120 4	**252.4**	4.4	37500	18.6	—	—	—	—	—	—	—
HDO 120 4	**282.7**	3.9	37200	16.4	—	—	—	—	—	—	—
HDO 120 4	**325.9**	3.4	37500	14.4	—	—	—	—	—	—	—
HDO 120 4	**354.9**	3.1	37200	13.1	—	—	—	—	—	—	—
HDO 120 4	**400.6**	2.7	34300	10.7	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

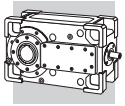


HDO 120 — n_1 = 1100 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 120 2	**6.6**	167	27100	495	64	161	161	205	*	180	274
HDO 120 2	**7.2**	154	29500	495	64	161	161	205	*	180	274
HDO 120 2	**8.1**	136	32350	480	64	161	161	205	*	180	274
HDO 120 2	**8.9**	124	33150	449	64	161	161	205	*	180	274
HDO 120 2	**10.0**	110	32850	394	64	161	161	205	152	180	274
HDO 120 2	**11.1**	99	32200	349	64	161	161	205	152	180	274
HDO 120 2	**12.5**	88	34300	329	64	161	161	205	152	180	274
HDO 120 2	**13.7**	80	31400	274	64	161	161	205	152	180	274
HDO 120 2	**15.5**	71	33600	260	64	161	161	205	152	180	—
HDO 120 3	**17.3**	64	30650	217	72	139	143	174	135	156	—
HDO 120 3	**19.5**	56	34250	215	72	139	143	174	135	156	—
HDO 120 3	**21.8**	50	32900	185	72	139	143	174	135	156	—
HDO 120 3	**24.6**	45	34000	169	72	139	143	—	135	156	—
HDO 120 3	**28.3**	39	33300	144	72	139	143	—	135	—	—
HDO 120 3	**32.0**	34	36600	140	72	139	—	—	135	—	—
HDO 120 3	**34.8**	32	37200	131	72	—	—	—	—	—	—
HDO 120 3	**41.2**	26.7	37500	111	72	—	—	—	—	—	—
HDO 120 3	**44.9**	24.5	37200	101	72	—	—	—	—	—	—
HDO 120 3	**49.5**	22.2	34200	85	72	—	—	—	—	—	—
HDO 120 3	**53.9**	20.4	37200	84	72	—	—	—	—	—	—
HDO 120 3	**63.9**	17.2	37500	72	—	—	—	—	—	—	—
HDO 120 3	**69.6**	15.8	37200	65	—	—	—	—	—	—	—
HDO 120 3	**78.6**	14.0	34300	53	—	—	—	—	—	—	—
HDO 120 4	**87.0**	12.6	34700	50	—	—	—	—	—	—	—
HDO 120 4	**103.1**	10.7	35400	43	—	—	—	—	—	—	—
HDO 120 4	**112.3**	9.8	35200	39	—	—	—	—	—	—	—
HDO 120 4	**125.7**	8.8	37250	37	—	—	—	—	—	—	—
HDO 120 4	**136.9**	8.0	37200	34	—	—	—	—	—	—	—
HDO 120 4	**162.2**	6.8	37500	29	—	—	—	—	—	—	—
HDO 120 4	**179.7**	6.1	36550	25	—	—	—	—	—	—	—
HDO 120 4	**201.1**	5.5	37500	23	—	—	—	—	—	—	—
HDO 120 4	**219.0**	5.0	37200	21	—	—	—	—	—	—	—
HDO 120 4	**252.4**	4.4	37500	18.6	—	—	—	—	—	—	—
HDO 120 4	**282.7**	3.9	37200	16.4	—	—	—	—	—	—	—
HDO 120 4	**325.9**	3.4	37500	14.4	—	—	—	—	—	—	—
HDO 120 4	**354.9**	3.1	37200	13.1	—	—	—	—	—	—	—
HDO 120 4	**400.6**	2.7	34300	10.7	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

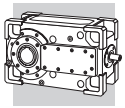


HDO 120 — n_1 = 900 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 120 2	**6.6**	137	28750	429	124	227	299	377	212	240	334
HDO 120 2	**7.2**	126	31350	430	124	227	299	377	212	240	334
HDO 120 2	**8.1**	111	34050	414	124	227	299	377	212	240	334
HDO 120 2	**8.9**	102	33150	367	124	227	299	—	212	240	334
HDO 120 2	**10.0**	90	34300	337	124	227	299	—	212	240	334
HDO 120 2	**11.1**	81	32200	285	124	227	—	—	212	240	—
HDO 120 2	**12.5**	72	34300	269	124	227	—	—	212	240	—
HDO 120 2	**13.7**	66	31400	224	124	—	—	—	212	—	—
HDO 120 2	**15.5**	58	33600	213	124	—	—	—	212	—	—
HDO 120 3	**17.3**	52	30650	178	113	—	—	—	176	—	—
HDO 120 3	**19.5**	46	34250	176	113	—	—	—	—	—	—
HDO 120 3	**21.8**	41	34950	161	113	—	—	—	—	—	—
HDO 120 3	**24.6**	37	36100	147	113	—	—	—	—	—	—
HDO 120 3	**28.3**	32	34500	122	113	—	—	—	—	—	—
HDO 120 3	**32.0**	28.2	36600	115	113	—	—	—	—	—	—
HDO 120 3	**34.8**	25.9	37200	107	—	—	—	—	—	—	—
HDO 120 3	**41.2**	21.8	37500	91	—	—	—	—	—	—	—
HDO 120 3	**44.9**	20.0	37200	83	—	—	—	—	—	—	—
HDO 120 3	**49.5**	18.2	34200	69	—	—	—	—	—	—	—
HDO 120 3	**53.9**	16.7	37200	69	—	—	—	—	—	—	—
HDO 120 3	**63.9**	14.1	37500	59	—	—	—	—	—	—	—
HDO 120 3	**69.6**	12.9	37200	53	—	—	—	—	—	—	—
HDO 120 3	**78.6**	11.4	34300	44	—	—	—	—	—	—	—
HDO 120 4	**87.0**	10.3	36850	43	—	—	—	—	—	—	—
HDO 120 4	**103.1**	8.7	37500	37	—	—	—	—	—	—	—
HDO 120 4	**112.3**	8.0	37200	34	—	—	—	—	—	—	—
HDO 120 4	**125.7**	7.2	37500	30	—	—	—	—	—	—	—
HDO 120 4	**136.9**	6.6	37200	28	—	—	—	—	—	—	—
HDO 120 4	**162.2**	5.5	37500	24	—	—	—	—	—	—	—
HDO 120 4	**179.7**	5.0	37200	21	—	—	—	—	—	—	—
HDO 120 4	**201.1**	4.5	37500	19.1	—	—	—	—	—	—	—
HDO 120 4	**219.0**	4.1	37200	17.4	—	—	—	—	—	—	—
HDO 120 4	**252.4**	3.6	37500	15.2	—	—	—	—	—	—	—
HDO 120 4	**282.7**	3.2	37200	13.4	—	—	—	—	—	—	—
HDO 120 4	**325.9**	2.8	37500	11.8	—	—	—	—	—	—	—
HDO 120 4	**354.9**	2.5	37200	10.7	—	—	—	—	—	—	—
HDO 120 4	**400.6**	2.2	34300	8.7	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

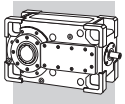


HDO 120 — n_1 = 900 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 120 2	**6.6**	137	28750	429	76	151	173	217	*	192	286
HDO 120 2	**7.2**	126	31350	430	76	151	173	217	*	192	286
HDO 120 2	**8.1**	111	34050	414	76	151	173	217	*	192	286
HDO 120 2	**8.9**	102	33150	367	76	151	173	217	162	192	286
HDO 120 2	**10.0**	90	34300	337	76	151	173	217	162	192	286
HDO 120 2	**11.1**	81	32200	285	76	151	173	217	162	192	—
HDO 120 2	**12.5**	72	34300	269	76	151	173	217	162	192	—
HDO 120 2	**13.7**	66	31400	224	76	151	173	217	162	192	—
HDO 120 2	**15.5**	58	33600	213	76	151	173	—	162	192	—
HDO 120 3	**17.3**	52	30650	178	77	129	148	—	140	161	—
HDO 120 3	**19.5**	46	34250	176	77	129	148	—	140	161	—
HDO 120 3	**21.8**	41	34950	161	77	129	148	—	140	—	—
HDO 120 3	**24.6**	37	36100	147	77	129	—	—	140	—	—
HDO 120 3	**28.3**	32	34500	122	77	—	—	—	—	—	—
HDO 120 3	**32.0**	28.2	36600	115	77	—	—	—	—	—	—
HDO 120 3	**34.8**	25.9	37200	107	77	—	—	—	—	—	—
HDO 120 3	**41.2**	21.8	37500	91	77	—	—	—	—	—	—
HDO 120 3	**44.9**	20.0	37200	83	77	—	—	—	—	—	—
HDO 120 3	**49.5**	18.2	34200	69	—	—	—	—	—	—	—
HDO 120 3	**53.9**	16.7	37200	69	—	—	—	—	—	—	—
HDO 120 3	**63.9**	14.1	37500	59	—	—	—	—	—	—	—
HDO 120 3	**69.6**	12.9	37200	53	—	—	—	—	—	—	—
HDO 120 3	**78.6**	11.4	34300	44	—	—	—	—	—	—	—
HDO 120 4	**87.0**	10.3	36850	43	—	—	—	—	—	—	—
HDO 120 4	**103.1**	8.7	37500	37	—	—	—	—	—	—	—
HDO 120 4	**112.3**	8.0	37200	34	—	—	—	—	—	—	—
HDO 120 4	**125.7**	7.2	37500	30	—	—	—	—	—	—	—
HDO 120 4	**136.9**	6.6	37200	28	—	—	—	—	—	—	—
HDO 120 4	**162.2**	5.5	37500	24	—	—	—	—	—	—	—
HDO 120 4	**179.7**	5.0	37200	21	—	—	—	—	—	—	—
HDO 120 4	**201.1**	4.5	37500	19.1	—	—	—	—	—	—	—
HDO 120 4	**219.0**	4.1	37200	17.4	—	—	—	—	—	—	—
HDO 120 4	**252.4**	3.6	37500	15.2	—	—	—	—	—	—	—
HDO 120 4	**282.7**	3.2	37200	13.4	—	—	—	—	—	—	—
HDO 120 4	**325.9**	2.8	37500	11.8	—	—	—	—	—	—	—
HDO 120 4	**354.9**	2.5	37200	10.7	—	—	—	—	—	—	—
HDO 120 4	**400.6**	2.2	34300	8.7	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

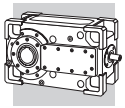


HDO 130 — n_1 = 1750 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C										
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]
HDO 130 2	**5.7**	307	37550	1255	*	*	*	*	*		*	*	*	*	
HDO 130 2	**6.2**	281	38900	1191	*	*	*	*	*		*	*	*	*	
HDO 130 2	**7.1**	247	40300	1085	*	*	*	*	*		*	*	*	*	
HDO 130 2	**7.7**	227	41700	1031	*	*	*	*	*		*	*	*	*	
HDO 130 2	**8.8**	199	43200	939	*	*	*	*	*	ⓘ	*	*	*	*	ⓘ
HDO 130 2	**9.6**	181	43800	867	*	408	*	*	625		*	*	*	*	
HDO 130 2	**11.0**	159	45400	789	*	408	*	*	625		*	*	*	505	
HDO 130 2	**12.0**	146	46000	734	161	408	336	414	625		*	*	371	505	
HDO 130 2	**13.6**	129	47800	670	161	408	336	414	625		*	*	371	505	
HDO 130 3	**15.2**	115	50150	643	*	*	*	*	*	505	*	*	*	*	509
HDO 130 3	**18.3**	96	51800	552	*	*	215	272	448	505	*	*	*	*	509
HDO 130 3	**19.9**	88	56550	552	*	*	215	272	448	505	*	*	*	*	509
HDO 130 3	**22.6**	77	54500	469	117	308	215	272	448	—	219	201	269	385	—
HDO 130 3	**24.7**	71	56900	449	117	308	215	272	448	—	219	201	269	385	—
HDO 130 3	**28.3**	62	59300	408	117	308	215	272	—	—	219	201	269	385	—
HDO 130 3	**30.9**	57	56900	359	117	308	215	272	—	—	219	201	269	385	—
HDO 130 3	**34.9**	50	58650	328	117	308	215	272	—	—	219	201	269	—	—
HDO 130 3	**38.3**	46	56900	290	117	—	215	272	—	—	219	201	269	—	—
HDO 130 3	**43.8**	40	58900	262	117	—	215	—	—	—	219	201	—	—	—
HDO 130 3	**47.8**	37	56900	232	117	—	215	—	—	—	219	201	—	—	—
HDO 130 3	**54.0**	32	55650	201	117	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**59.0**	29.7	56900	188	117	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**67.1**	26.1	53600	155	117	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**71.5**	24.5	59300	165	135	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**78.1**	22.4	56900	145	135	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**88.2**	19.8	58650	132	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**96.3**	18.2	56900	117	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**111.2**	15.7	59300	106	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**121.4**	14.4	56900	93	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**141.3**	12.4	59300	83	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**154.3**	11.3	60700	78	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**174.3**	10.0	63250	72	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**190.3**	9.2	60700	63	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**219.1**	8.0	59300	54	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**239.1**	7.3	60700	50	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**270.2**	6.5	63250	47	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**294.9**	5.9	60700	41	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**335.6**	5.2	57400	34	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

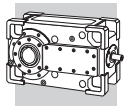


HDO 130 — n_1 = 1750 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 40°C										
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 130 2	**5.7**	307	37550	1255	*	*	*	*	*		*	*	*	*	
HDO 130 2	**6.2**	281	38900	1191	*	*	*	*	*		*	*	*	*	
HDO 130 2	**7.1**	247	40300	1085	*	*	*	*	*		*	*	*	*	
HDO 130 2	**7.7**	227	41700	1031	*	*	*	*	*		*	*	*	*	
HDO 130 2	**8.8**	199	43200	939	*	*	*	*	*	❶	*	*	*	*	❶
HDO 130 2	**9.6**	181	43800	867	*	*	*	*	*		*	*	*	428	
HDO 130 2	**11.0**	159	45400	789	*	*	*	*	341		*	*	*	428	
HDO 130 2	**12.0**	146	46000	734	*	295	*	*	341		*	*	300	428	
HDO 130 2	**13.6**	129	47800	670	*	295	*	*	341		*	*	300	428	
HDO 130 3	**15.2**	115	50150	643	*	*	*	*	*	*	*	*	*	*	*
HDO 130 3	**18.3**	96	51800	552	*	*	*	*	*	*	*	*	*	*	523
HDO 130 3	**19.9**	88	56550	552	*	*	*	*	*	*	*	*	*	*	523
HDO 130 3	**22.6**	77	54500	469	*	202	*	*	262	332	*	*	*	330	—
HDO 130 3	**24.7**	71	56900	449	*	202	*	*	262	332	*	*	*	330	—
HDO 130 3	**28.3**	62	59300	408	*	202	*	*	262	332	*	*	*	330	—
HDO 130 3	**30.9**	57	56900	359	*	202	*	*	262	332	*	*	*	330	—
HDO 130 3	**34.9**	50	58650	328	*	202	*	185	262	—	185	*	235	330	—
HDO 130 3	**38.3**	46	56900	290	106	202	177	185	262	—	185	190	235	—	—
HDO 130 3	**43.8**	40	58900	262	106	202	177	185	262	—	185	190	235	—	—
HDO 130 3	**47.8**	37	56900	232	106	202	177	185	—	—	185	190	—	—	—
HDO 130 3	**54.0**	32	55650	201	106	—	177	185	—	—	185	—	—	—	—
HDO 130 3	**59.0**	29.7	56900	188	106	—	177	—	—	—	185	—	—	—	—
HDO 130 3	**67.1**	26.1	53600	155	106	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**71.5**	24.5	59300	165	93	—	148	—	—	—	—	159	—	—	—
HDO 130 4	**78.1**	22.4	56900	145	93	—	148	—	—	—	—	—	—	—	—
HDO 130 4	**88.2**	19.8	58650	132	93	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**96.3**	18.2	56900	117	93	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**111.2**	15.7	59300	106	93	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**121.4**	14.4	56900	93	93	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**141.3**	12.4	59300	83	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**154.3**	11.3	60700	78	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**174.3**	10.0	63250	72	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**190.3**	9.2	60700	63	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**219.1**	8.0	59300	54	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**239.1**	7.3	60700	50	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**270.2**	6.5	63250	47	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**294.9**	5.9	60700	41	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**335.6**	5.2	57400	34	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

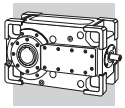


HDO 130 — n_1 = 1400 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C										
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]
HDO 130 2	**5.7**	245	40150	1074	*	354	*	*	*		*	*	*	*	
HDO 130 2	**6.2**	225	41600	1019	*	354	*	*	*		*	*	*	*	
HDO 130 2	**7.1**	197	43100	928	*	354	*	*	*		*	*	*	*	
HDO 130 2	**7.7**	181	44600	882	*	354	*	*	620		*	*	*	*	
HDO 130 2	**8.8**	159	46200	803	*	354	*	*	620	ⓘ	*	*	*	501	ⓘ
HDO 130 2	**9.6**	145	46800	741	160	354	335	413	620		*	*	370	501	
HDO 130 2	**11.0**	128	48550	675	160	354	335	413	620		*	282	370	501	
HDO 130 2	**12.0**	117	49200	628	160	354	335	413	620		292	282	370	501	
HDO 130 2	**13.6**	103	51100	573	160	354	335	413	—		292	282	370	501	
HDO 130 3	**15.2**	92	53600	550	*	*	189	246	422	548	*	*	*	*	—
HDO 130 3	**18.3**	77	55400	472	115	281	189	246	422	—	217	199	267	383	—
HDO 130 3	**19.9**	70	60500	473	115	281	189	246	422	—	217	199	267	383	—
HDO 130 3	**22.6**	62	58300	402	115	281	189	246	—	—	217	199	267	383	—
HDO 130 3	**24.7**	57	60700	383	115	281	189	246	—	—	217	199	267	—	—
HDO 130 3	**28.3**	50	63250	349	115	281	189	246	—	—	217	199	267	—	—
HDO 130 3	**30.9**	45	60700	306	115	281	189	246	—	—	217	199	267	—	—
HDO 130 3	**34.9**	40	63250	283	115	—	189	246	—	—	217	199	267	—	—
HDO 130 3	**38.3**	37	60700	247	115	—	189	246	—	—	217	199	—	—	—
HDO 130 3	**43.8**	32	62950	224	115	—	189	—	—	—	217	199	—	—	—
HDO 130 3	**47.8**	29.3	60700	198	115	—	189	—	—	—	—	—	—	—	—
HDO 130 3	**54.0**	25.9	59500	172	115	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**59.0**	23.7	60700	160	115	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**67.1**	20.9	57400	133	115	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**71.5**	19.6	63250	141	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**78.1**	17.9	60700	124	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**88.2**	15.9	63250	114	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**96.3**	14.5	60700	100	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**111.2**	12.6	63250	90	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**121.4**	11.5	60700	79	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**141.3**	9.9	63250	71	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**154.3**	9.1	60700	63	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**174.3**	8.0	63250	58	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**190.3**	7.4	60700	51	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**219.1**	6.4	63250	46	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**239.1**	5.9	60700	40	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**270.2**	5.2	63250	37	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**294.9**	4.7	60700	33	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**335.6**	4.2	57400	27	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

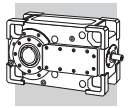


HDO 130 — n_1 = 1400 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 40°C										
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 130 2	**5.7**	245	40150	1074	*	*	*	*	*		*	*	*	*	
HDO 130 2	**6.2**	225	41600	1019	*	*	*	*	*		*	*	*	*	
HDO 130 2	**7.1**	197	43100	928	*	228	*	*	*		*	*	*	*	
HDO 130 2	**7.7**	181	44600	882	*	228	*	*	*		*	*	*	*	
HDO 130 2	**8.8**	159	46200	803	*	228	*	*	336	⛔	*	*	*	*	⛔
HDO 130 2	**9.6**	145	46800	741	90	228	*	*	336		*	*	*	430	
HDO 130 2	**11.0**	128	48550	675	90	228	*	*	336		*	*	305	430	
HDO 130 2	**12.0**	117	49200	628	90	228	211	255	336		*	230	305	430	
HDO 130 2	**13.6**	103	51100	573	90	228	211	255	336		225	230	305	430	
HDO 130 3	**15.2**	92	53600	550	*	*	*	*	*	*	*	*	*	*	497
HDO 130 3	**18.3**	77	55400	472	*	182	*	*	260	330	*	*	*	*	—
HDO 130 3	**19.9**	70	60500	473	*	182	*	*	260	330	*	*	*	329	—
HDO 130 3	**22.6**	62	58300	402	82	182	*	184	260	330	184	166	234	329	—
HDO 130 3	**24.7**	57	60700	383	82	182	154	184	260	330	184	166	234	329	—
HDO 130 3	**28.3**	50	63250	349	82	182	154	184	260	330	184	166	234	329	—
HDO 130 3	**30.9**	45	60700	306	82	182	154	184	260	—	184	166	234	—	—
HDO 130 3	**34.9**	40	63250	283	82	182	154	184	260	—	184	166	234	—	—
HDO 130 3	**38.3**	37	60700	247	82	182	154	184	—	—	184	166	234	—	—
HDO 130 3	**43.8**	32	62950	224	82	182	154	184	—	—	184	166	—	—	—
HDO 130 3	**47.8**	29.3	60700	198	82	182	154	184	—	—	184	166	—	—	—
HDO 130 3	**54.0**	25.9	59500	172	82	—	154	—	—	—	—	166	—	—	—
HDO 130 3	**59.0**	23.7	60700	160	82	—	154	—	—	—	—	—	—	—	—
HDO 130 3	**67.1**	20.9	57400	133	82	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**71.5**	19.6	63250	141	98	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**78.1**	17.9	60700	124	98	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**88.2**	15.9	63250	114	98	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**96.3**	14.5	60700	100	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**111.2**	12.6	63250	90	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**121.4**	11.5	60700	79	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**141.3**	9.9	63250	71	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**154.3**	9.1	60700	63	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**174.3**	8.0	63250	58	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**190.3**	7.4	60700	51	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**219.1**	6.4	63250	46	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**239.1**	5.9	60700	40	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**270.2**	5.2	63250	37	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**294.9**	4.7	60700	33	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**335.6**	4.2	57400	27	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

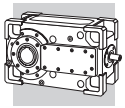


HDO 130 — n_1 = 1100 min^{-1}

					Tamb = 20°C										
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]
HDO 130 2	**5.7**	193	43200	908	*	359	316	394	637		*	*	*	511	
HDO 130 2	**6.2**	177	44750	861	*	359	316	394	637		*	*	*	511	
HDO 130 2	**7.1**	155	46350	784	*	359	316	394	637		*	*	363	511	
HDO 130 2	**7.7**	143	47950	745	156	359	316	394	637		*	272	363	511	
HDO 130 2	**8.8**	125	49650	678	156	359	316	394	637	●	*	272	363	511	●
HDO 130 2	**9.6**	114	50350	626	156	359	316	394	—		291	272	363	511	
HDO 130 2	**11.0**	100	52200	571	156	359	316	394	—		291	272	363	511	
HDO 130 2	**12.0**	92	52000	522	156	359	316	394	—		291	272	363	511	
HDO 130 2	**13.6**	81	54950	484	156	359	316	394	—		291	272	363	—	
HDO 130 3	**15.2**	72	55050	444	*	245	222	279	—	—	*	*	*	—	—
HDO 130 3	**18.3**	60	59550	399	136	245	222	279	—	—	238	220	288	—	—
HDO 130 3	**19.9**	55	60700	373	136	245	222	279	—	—	238	220	288	—	—
HDO 130 3	**22.6**	49	59650	323	136	245	222	279	—	—	238	220	288	—	—
HDO 130 3	**24.7**	45	60700	301	136	245	222	279	—	—	238	220	288	—	—
HDO 130 3	**28.3**	39	63250	274	136	245	222	—	—	—	238	220	—	—	—
HDO 130 3	**30.9**	36	60700	241	136	—	222	—	—	—	238	220	—	—	—
HDO 130 3	**34.9**	32	63250	222	136	—	222	—	—	—	—	220	—	—	—
HDO 130 3	**38.3**	28.7	60700	194	136	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**43.8**	25.1	63250	177	136	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**47.8**	23.0	60700	155	136	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**54.0**	20.4	63250	143	136	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**59.0**	18.6	60700	126	—	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**67.1**	16.4	57400	105	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**71.5**	15.4	63250	110	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**78.1**	14.1	60700	97	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**88.2**	12.5	63250	90	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**96.3**	11.4	60700	79	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**111.2**	9.9	63250	71	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**121.4**	9.1	60700	62	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**141.3**	7.8	63250	56	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**154.3**	7.1	60700	49	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**174.3**	6.3	63250	45	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**190.3**	5.8	60700	40	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**219.1**	5.0	63250	36	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**239.1**	4.6	60700	32	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**270.2**	4.1	63250	29	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**294.9**	3.7	60700	26	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**335.6**	3.3	57400	21	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

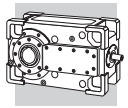


HDO 130 — n_1 = 1100 min^{-1}

					Tamb = 40°C										
	i	n_2	Mn_2	Pn_1	P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 130 2	**5.7**	193	43200	908	*	230	*	*	*		*	*	*	*	
HDO 130 2	**6.2**	177	44750	861	*	230	*	*	351		*	*	*	*	
HDO 130 2	**7.1**	155	46350	784	*	230	*	*	351		*	*	292	452	
HDO 130 2	**7.7**	143	47950	745	85	230	*	*	351		*	201	292	452	
HDO 130 2	**8.8**	125	49650	678	85	230	*	*	351	⛔	*	201	292	452	⛔
HDO 130 2	**9.6**	114	50350	626	85	230	210	254	351		220	201	292	452	
HDO 130 2	**11.0**	100	52200	571	85	230	210	254	351		220	201	292	452	
HDO 130 2	**12.0**	92	52000	522	85	230	210	254	351		220	201	292	452	
HDO 130 2	**13.6**	81	54950	484	85	230	210	254	351		220	201	292	452	
HDO 130 3	**15.2**	72	55050	444	*	150	*	*	240	443	*	*	*	308	—
HDO 130 3	**18.3**	60	59550	399	81	150	152	183	240	—	183	165	253	308	—
HDO 130 3	**19.9**	55	60700	373	81	150	152	183	240	—	183	165	253	308	—
HDO 130 3	**22.6**	49	59650	323	81	150	152	183	240	—	183	165	253	308	—
HDO 130 3	**24.7**	45	60700	301	81	150	152	183	240	—	183	165	253	—	—
HDO 130 3	**28.3**	39	63250	274	81	150	152	183	240	—	183	165	253	—	—
HDO 130 3	**30.9**	36	60700	241	81	150	152	183	240	—	183	165	—	—	—
HDO 130 3	**34.9**	32	63250	222	81	150	152	183	—	—	183	165	—	—	—
HDO 130 3	**38.3**	28.7	60700	194	81	150	152	183	—	—	183	165	—	—	—
HDO 130 3	**43.8**	25.1	63250	177	81	150	152	—	—	—	—	165	—	—	—
HDO 130 3	**47.8**	23.0	60700	155	81	150	152	—	—	—	—	—	—	—	—
HDO 130 3	**54.0**	20.4	63250	143	81	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**59.0**	18.6	60700	126	81	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**67.1**	16.4	57400	105	81	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**71.5**	15.4	63250	110	102	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**78.1**	14.1	60700	97	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**88.2**	12.5	63250	90	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**96.3**	11.4	60700	79	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**111.2**	9.9	63250	71	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**121.4**	9.1	60700	62	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**141.3**	7.8	63250	56	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**154.3**	7.1	60700	49	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**174.3**	6.3	63250	45	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**190.3**	5.8	60700	40	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**219.1**	5.0	63250	36	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**239.1**	4.6	60700	32	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**270.2**	4.1	63250	29	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**294.9**	3.7	60700	26	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**335.6**	3.3	57400	21	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

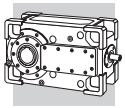


HDO 130 — n_1 = 900 min^{-1}

					Tamb = 20°C										
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]
HDO 130 2	**5.7**	158	45850	788	165	335	340	418	661		272	281	375	535	
HDO 130 2	**6.2**	144	47500	748	165	335	340	418	661		272	281	375	535	
HDO 130 2	**7.1**	127	49200	681	165	335	340	418	661		272	281	375	535	
HDO 130 2	**7.7**	117	50950	648	165	335	340	418	—		272	281	375	535	
HDO 130 2	**8.8**	103	52750	590	165	335	340	418	—	⛔	272	281	375	535	⛔
HDO 130 2	**9.6**	93	53450	544	165	335	340	418	—		272	281	375	535	
HDO 130 2	**11.0**	82	55450	496	165	335	340	418	—		272	281	375	—	
HDO 130 2	**12.0**	75	52000	427	165	335	340	418	—		272	281	375	—	
HDO 130 2	**13.6**	66	57400	414	165	335	340	—	—		272	281	375	—	
HDO 130 3	**15.2**	59	55050	363	*	232	243	300	—	—	218	200	268	—	—
HDO 130 3	**18.3**	49	63250	347	149	232	243	300	—	—	218	200	268	—	—
HDO 130 3	**19.9**	45	60700	305	149	232	243	300	—	—	218	200	268	—	—
HDO 130 3	**22.6**	40	59650	264	149	232	243	—	—	—	218	200	—	—	—
HDO 130 3	**24.7**	36	60700	246	149	232	243	—	—	—	218	200	—	—	—
HDO 130 3	**28.3**	32	63250	224	149	—	—	—	—	—	218	200	—	—	—
HDO 130 3	**30.9**	29.2	60700	197	149	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**34.9**	25.8	63250	182	149	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**38.3**	23.5	60700	159	149	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**43.8**	20.5	63250	145	—	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**47.8**	18.8	60700	127	—	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**54.0**	16.7	63250	117	—	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**59.0**	15.3	60700	103	—	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**67.1**	13.4	57400	86	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**71.5**	12.6	63250	90	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**78.1**	11.5	60700	79	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**88.2**	10.2	63250	73	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**96.3**	9.3	60700	64	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**111.2**	8.1	63250	58	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**121.4**	7.4	60700	51	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**141.3**	6.4	63250	46	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**154.3**	5.8	60700	40	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**174.3**	5.2	63250	37	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**190.3**	4.7	60700	33	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**219.1**	4.1	63250	29	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**239.1**	3.8	60700	26	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**270.2**	3.3	63250	24	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**294.9**	3.1	60700	21	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**335.6**	2.7	57400	17.5	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

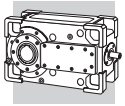


HDO 130 — n_1 = 900 min^{-1}

					Tamb = 40°C										
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]
HDO 130 2	**5.7**	158	45850	788	94	219	*	*	370		201	210	304	464	
HDO 130 2	**6.2**	144	47500	748	94	219	*	*	370		201	210	304	464	
HDO 130 2	**7.1**	127	49200	681	94	219	201	245	370		201	210	304	464	
HDO 130 2	**7.7**	117	50950	648	94	219	201	245	370		201	210	304	464	
HDO 130 2	**8.8**	103	52750	590	94	219	201	245	370	⛔	201	210	304	464	⛔
HDO 130 2	**9.6**	93	53450	544	94	219	201	245	370		201	210	304	464	
HDO 130 2	**11.0**	82	55450	496	94	219	201	245	370		201	210	304	464	
HDO 130 2	**12.0**	75	52000	427	94	219	201	245	370		201	210	304	—	
HDO 130 2	**13.6**	66	57400	414	94	219	201	245	370		201	210	304	—	
HDO 130 3	**15.2**	59	55050	363	*	146	132	163	—	—	163	145	213	—	—
HDO 130 3	**18.3**	49	63250	347	93	146	132	163	—	—	163	145	213	—	—
HDO 130 3	**19.9**	45	60700	305	93	146	132	163	—	—	163	145	213	—	—
HDO 130 3	**22.6**	40	59650	264	93	146	132	163	—	—	163	145	213	—	—
HDO 130 3	**24.7**	36	60700	246	93	146	132	163	—	—	163	145	213	—	—
HDO 130 3	**28.3**	32	63250	224	93	146	132	163	—	—	163	145	213	—	—
HDO 130 3	**30.9**	29.2	60700	197	93	146	132	163	—	—	163	145	—	—	—
HDO 130 3	**34.9**	25.8	63250	182	93	146	132	163	—	—	163	145	—	—	—
HDO 130 3	**38.3**	23.5	60700	159	93	146	132	—	—	—	—	145	—	—	—
HDO 130 3	**43.8**	20.5	63250	145	93	—	132	—	—	—	—	—	—	—	—
HDO 130 3	**47.8**	18.8	60700	127	93	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**54.0**	16.7	63250	117	93	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**59.0**	15.3	60700	103	93	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**67.1**	13.4	57400	86	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**71.5**	12.6	63250	90	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**78.1**	11.5	60700	79	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**88.2**	10.2	63250	73	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**96.3**	9.3	60700	64	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**111.2**	8.1	63250	58	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**121.4**	7.4	60700	51	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**141.3**	6.4	63250	46	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**154.3**	5.8	60700	40	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**174.3**	5.2	63250	37	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**190.3**	4.7	60700	33	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**219.1**	4.1	63250	29	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**239.1**	3.8	60700	26	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**270.2**	3.3	63250	24	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**294.9**	3.1	60700	21	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**335.6**	2.7	57400	17.5	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

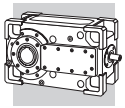


HDO 140 — n_1 = 1750 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C										
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]
HDO 140 2	**6.6**	266	44850	1303	*	*	*	*	*		*	*	*	*	
HDO 140 2	**7.3**	241	49650	1303	*	*	*	*	*		*	*	*	*	
HDO 140 2	**8.2**	214	55550	1298	*	*	*	*	*		*	*	*	*	
HDO 140 2	**9.0**	194	58250	1235	*	*	*	*	*		*	*	*	*	
HDO 140 2	**10.1**	173	59550	1124	*	372	*	*	*	❶	*	*	*	*	❶
HDO 140 2	**11.3**	156	58950	1000	*	372	*	*	629		*	*	*	*	
HDO 140 2	**12.6**	138	62550	944	*	372	*	393	629		*	*	*	510	
HDO 140 2	**14.0**	125	58400	799	*	372	342	393	629		*	*	*	510	
HDO 140 2	**15.7**	112	65850	802	*	372	342	393	629		*	*	*	510	
HDO 140 3	**17.7**	99	58500	643	*	*	*	*	*	*	*	*	*	*	*
HDO 140 3	**19.9**	88	65700	643	*	*	*	*	*	*	*	*	*	*	*
HDO 140 3	**23.3**	75	66000	552	*	*	*	270	446	572	*	*	*	354	576
HDO 140 3	**26.0**	67	62750	469	*	305	*	270	446	—	*	*	266	354	—
HDO 140 3	**28.8**	61	69450	470	*	305	*	270	446	—	*	*	266	354	—
HDO 140 3	**32.5**	54	69350	415	129	305	256	270	—	—	231	213	266	354	—
HDO 140 3	**36.0**	49	73500	398	129	305	256	270	—	—	231	213	266	354	—
HDO 140 3	**40.1**	44	67550	328	129	305	256	270	—	—	231	213	266	—	—
HDO 140 3	**44.4**	39	73500	322	129	305	256	270	—	—	231	213	266	—	—
HDO 140 3	**50.4**	35	74100	286	129	—	256	270	—	—	231	213	266	—	—
HDO 140 3	**55.8**	31	73500	256	129	—	256	—	—	—	231	213	—	—	—
HDO 140 3	**62.2**	28.1	67550	211	129	—	—	—	—	—	—	—	—	—	—
HDO 140 3	**68.8**	25.4	73500	208	129	—	—	—	—	—	—	—	—	—	—
HDO 140 3	**77.3**	22.6	67200	169	129	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**82.3**	21.3	69100	167	141	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**91.1**	19.2	73500	160	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**101.5**	17.2	67550	132	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**112.3**	15.6	73500	130	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**128.0**	13.7	74100	115	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**141.6**	12.4	73500	103	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**162.7**	10.8	74100	91	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**180.0**	9.7	73500	81	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**198.3**	8.8	74100	74	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**219.5**	8.0	73500	67	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**252.1**	6.9	74100	58	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**279.0**	6.3	79150	56	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**311.0**	5.6	74700	48	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**344.1**	5.1	79150	46	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**386.6**	4.5	71700	37	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

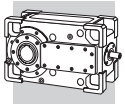


HDO 140 — n_1 = 1750 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 40°C										
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 140 2	**6.6**	266	44850	1303	*	*	*	*	*	⊖	*	*	*	*	⊖
HDO 140 2	**7.3**	241	49650	1303	*	*	*	*	*		*	*	*	*	
HDO 140 2	**8.2**	214	55550	1298	*	*	*	*	*		*	*	*	*	
HDO 140 2	**9.0**	194	58250	1235	*	*	*	*	*		*	*	*	*	
HDO 140 2	**10.1**	173	59550	1124	*	*	*	*	*		*	*	*	*	
HDO 140 2	**11.3**	156	58950	1000	*	265	*	*	*		*	*	*	430	
HDO 140 2	**12.6**	138	62550	944	*	265	*	*	*		*	*	*	430	
HDO 140 2	**14.0**	125	58400	799	*	265	*	*	*		*	*	303	430	
HDO 140 2	**15.7**	112	65850	802	*	265	*	*	*		*	*	303	430	
HDO 140 3	**17.7**	99	58500	643	*	*	*	*	*	*	*	*	*	*	*
HDO 140 3	**19.9**	88	65700	643	*	*	*	*	*	*	*	*	*	*	*
HDO 140 3	**23.3**	75	66000	552	*	*	*	*	229	299	*	*	*	297	519
HDO 140 3	**26.0**	67	62750	469	*	*	*	*	229	299	*	*	*	297	—
HDO 140 3	**28.8**	61	69450	470	*	*	*	*	229	299	160	*	*	297	—
HDO 140 3	**32.5**	54	69350	415	*	211	*	*	229	299	160	*	223	297	—
HDO 140 3	**36.0**	49	73500	398	*	211	*	*	229	299	160	*	223	297	—
HDO 140 3	**40.1**	44	67550	328	*	211	153	184	229	299	160	166	223	297	—
HDO 140 3	**44.4**	39	73500	322	*	211	153	184	229	299	160	166	223	297	—
HDO 140 3	**50.4**	35	74100	286	113	211	153	184	229	—	160	166	223	—	—
HDO 140 3	**55.8**	31	73500	256	113	211	153	184	229	—	160	166	223	—	—
HDO 140 3	**62.2**	28.1	67550	211	113	211	153	184	—	—	160	166	—	—	—
HDO 140 3	**68.8**	25.4	73500	208	113	—	153	184	—	—	160	166	—	—	—
HDO 140 3	**77.3**	22.6	67200	169	113	—	153	—	—	—	160	166	—	—	—
HDO 140 4	**82.3**	21.3	69100	167	97	—	152	—	—	—	—	—	—	—	—
HDO 140 4	**91.1**	19.2	73500	160	97	—	152	—	—	—	—	—	—	—	—
HDO 140 4	**101.5**	17.2	67550	132	97	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**112.3**	15.6	73500	130	97	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**128.0**	13.7	74100	115	97	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**141.6**	12.4	73500	103	97	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**162.7**	10.8	74100	91	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**180.0**	9.7	73500	81	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**198.3**	8.8	74100	74	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**219.5**	8.0	73500	67	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**252.1**	6.9	74100	58	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**279.0**	6.3	79150	56	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**311.0**	5.6	74700	48	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**344.1**	5.1	79150	46	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**386.6**	4.5	71700	37	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

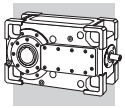


HDO 140 — n_1 = 1400 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C										
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]
HDO 140 2	**6.6**	213	48000	1115	*	*	*	*	*		*	*	*	*	
HDO 140 2	**7.3**	193	53100	1115	*	*	*	*	609		*	*	*	*	
HDO 140 2	**8.2**	171	59400	1110	*	366	*	*	609		*	*	*	*	
HDO 140 2	**9.0**	156	62250	1056	*	366	*	*	609		*	*	*	*	
HDO 140 2	**10.1**	138	63650	961	*	366	*	388	609	⛔	*	*	*	505	⛔
HDO 140 2	**11.3**	124	63050	855	167	366	342	388	609		*	*	*	505	
HDO 140 2	**12.6**	111	66900	808	167	366	342	388	609		*	*	382	505	
HDO 140 2	**14.0**	100	60700	664	167	366	342	388	609		300	309	382	505	
HDO 140 2	**15.7**	89	68150	664	167	366	342	388	609		300	309	382	505	
HDO 140 3	**17.7**	79	62550	550	*	*	*	242	418	544	*	*	210	326	548
HDO 140 3	**19.9**	70	70250	550	*	*	*	242	418	544	*	*	210	326	548
HDO 140 3	**23.3**	60	70550	472	116	*	243	242	418	—	218	200	210	326	—
HDO 140 3	**26.0**	54	67100	402	116	303	243	242	—	—	218	200	210	326	—
HDO 140 3	**28.8**	49	74250	402	116	303	243	242	—	—	218	200	210	326	—
HDO 140 3	**32.5**	43	74150	355	116	303	243	242	—	—	218	200	210	326	—
HDO 140 3	**36.0**	39	79150	342	116	303	243	242	—	—	218	200	210	326	—
HDO 140 3	**40.1**	35	72800	283	116	—	243	242	—	—	218	200	210	—	—
HDO 140 3	**44.4**	32	79150	278	116	—	243	242	—	—	218	200	210	—	—
HDO 140 3	**50.4**	27.8	75000	232	116	—	—	—	—	—	218	200	210	—	—
HDO 140 3	**55.8**	25.1	79150	221	116	—	—	—	—	—	218	200	210	—	—
HDO 140 3	**62.2**	22.5	74700	187	116	—	—	—	—	—	—	—	—	—	—
HDO 140 3	**68.8**	20.3	79150	179	116	—	—	—	—	—	—	—	—	—	—
HDO 140 3	**77.3**	18.1	71700	144	116	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**82.3**	17.0	73350	142	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**91.1**	15.4	79150	138	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**101.5**	13.8	74700	117	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**112.3**	12.5	79150	112	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**128.0**	10.9	77100	96	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**141.6**	9.9	79150	89	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**162.7**	8.6	77100	75	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**180.0**	7.8	79150	70	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**198.3**	7.1	77100	62	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**219.5**	6.4	79150	57	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**252.1**	5.6	77100	49	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**279.0**	5.0	79150	45	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**311.0**	4.5	74700	38	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**344.1**	4.1	79150	37	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**386.6**	3.6	71700	29	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

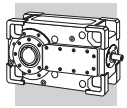


HDO 140 — n_1 = 1400 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 40°C										
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 140 2	**6.6**	213	48000	1115	*	*	*	*	*		*	*	*	*	
HDO 140 2	**7.3**	193	53100	1115	*	*	*	*	*		*	*	*	*	
HDO 140 2	**8.2**	171	59400	1110	*	*	*	*	*		*	*	*	*	
HDO 140 2	**9.0**	156	62250	1056	*	232	*	*	*		*	*	*	424	
HDO 140 2	**10.1**	138	63650	961	*	232	*	*	*	⛔	*	*	*	424	⛔
HDO 140 2	**11.3**	124	63050	855	93	232	*	*	*		*	*	303	424	
HDO 140 2	**12.6**	111	66900	808	93	232	*	*	374		*	*	303	424	
HDO 140 2	**14.0**	100	60700	664	93	232	*	260	374		226	235	303	424	
HDO 140 2	**15.7**	89	68150	664	93	232	*	260	374		226	235	303	424	
HDO 140 3	**17.7**	79	62550	550	*	*	*	*	*	271	*	*	*	269	491
HDO 140 3	**19.9**	70	70250	550	*	*	*	*	204	271	*	*	*	269	491
HDO 140 3	**23.3**	60	70550	472	*	*	*	*	204	271	*	*	210	269	—
HDO 140 3	**26.0**	54	67100	402	*	202	151	182	204	271	182	164	210	269	—
HDO 140 3	**28.8**	49	74250	402	*	202	151	182	204	271	182	164	210	269	—
HDO 140 3	**32.5**	43	74150	355	91	202	151	182	204	271	182	164	210	269	—
HDO 140 3	**36.0**	39	79150	342	91	202	151	182	204	271	182	164	210	269	—
HDO 140 3	**40.1**	35	72800	283	91	202	151	182	204	271	182	164	210	269	—
HDO 140 3	**44.4**	32	79150	278	91	202	151	182	204	271	182	164	210	269	—
HDO 140 3	**50.4**	27.8	75000	232	91	202	151	182	204	—	182	164	210	—	—
HDO 140 3	**55.8**	25.1	79150	221	91	202	151	182	204	—	182	164	210	—	—
HDO 140 3	**62.2**	22.5	74700	187	91	—	151	182	—	—	182	164	—	—	—
HDO 140 3	**68.8**	20.3	79150	179	91	—	151	—	—	—	—	164	—	—	—
HDO 140 3	**77.3**	18.1	71700	144	91	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**82.3**	17.0	73350	142	102	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**91.1**	15.4	79150	138	102	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**101.5**	13.8	74700	117	102	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**112.3**	12.5	79150	112	102	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**128.0**	10.9	77100	96	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**141.6**	9.9	79150	89	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**162.7**	8.6	77100	75	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**180.0**	7.8	79150	70	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**198.3**	7.1	77100	62	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**219.5**	6.4	79150	57	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**252.1**	5.6	77100	49	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**279.0**	5.0	79150	45	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**311.0**	4.5	74700	38	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**344.1**	4.1	79150	37	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**386.6**	3.6	71700	29	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

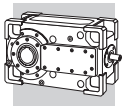


HDO 140 — n_1 = 1100 min^{-1}

					Tamb = 20°C										
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]
HDO 140 2	**6.6**	167	51600	942	*	360	*	*	*		*	*	*	*	
HDO 140 2	**7.3**	151	57100	942	*	360	*	*	646		*	*	*	520	
HDO 140 2	**8.2**	135	63850	938	*	360	*	410	646		*	*	*	520	
HDO 140 2	**9.0**	122	66950	892	162	360	337	410	646		*	*	*	520	
HDO 140 2	**10.1**	109	68450	812	162	360	337	410	646	⛔	*	*	372	520	⛔
HDO 140 2	**11.3**	98	63050	672	162	360	337	410	646		299	308	372	520	
HDO 140 2	**12.6**	87	66900	635	162	360	337	410	—		299	308	372	520	
HDO 140 2	**14.0**	79	60700	522	162	360	337	410	—		299	308	372	520	
HDO 140 2	**15.7**	70	68150	522	162	360	337	410	—		299	308	372	520	
HDO 140 3	**17.7**	62	64250	444	*	243	220	277	—	—	195	179	245	—	—
HDO 140 3	**19.9**	55	71700	441	*	243	220	277	—	—	195	179	245	—	—
HDO 140 3	**23.3**	47	75850	399	138	243	220	277	—	—	195	179	245	—	—
HDO 140 3	**26.0**	42	68650	323	138	243	220	277	—	—	195	179	245	—	—
HDO 140 3	**28.8**	38	75950	323	138	243	220	277	—	—	195	179	245	—	—
HDO 140 3	**32.5**	34	77100	290	138	243	220	277	—	—	195	179	245	—	—
HDO 140 3	**36.0**	31	79150	269	138	243	220	—	—	—	195	179	245	—	—
HDO 140 3	**40.1**	27.4	74700	228	138	—	220	—	—	—	195	179	—	—	—
HDO 140 3	**44.4**	24.8	79150	218	138	—	—	—	—	—	195	179	—	—	—
HDO 140 3	**50.4**	21.8	75000	182	138	—	—	—	—	—	—	179	—	—	—
HDO 140 3	**55.8**	19.7	79150	174	138	—	—	—	—	—	—	—	—	—	—
HDO 140 3	**62.2**	17.7	74700	147	138	—	—	—	—	—	—	—	—	—	—
HDO 140 3	**68.8**	16.0	79150	141	138	—	—	—	—	—	—	—	—	—	—
HDO 140 3	**77.3**	14.2	71700	113	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**82.3**	13.4	77100	117	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**91.1**	12.1	79150	109	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**101.5**	10.8	74700	92	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**112.3**	9.8	79150	88	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**128.0**	8.6	77100	75	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**141.6**	7.8	79150	70	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**162.7**	6.8	77100	59	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**180.0**	6.1	79150	55	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**198.3**	5.5	77100	49	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**219.5**	5.0	79150	45	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**252.1**	4.4	77100	38	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**279.0**	3.9	79150	35	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**311.0**	3.5	74700	30	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**344.1**	3.2	79150	29	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**386.6**	2.8	71700	23	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

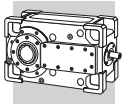


HDO 140 — n_1 = 1100 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 40°C										
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 140 2	**6.6**	167	51600	942	*	228	*	*	*		*	*	*	*	
HDO 140 2	**7.3**	151	57100	942	*	228	*	*	*		*	*	*	446	
HDO 140 2	**8.2**	135	63850	938	*	228	*	*	*		*	*	*	446	
HDO 140 2	**9.0**	122	66950	892	88	228	*	*	*		*	*	*	446	
HDO 140 2	**10.1**	109	68450	812	88	228	*	*	369	⛔	221	*	298	446	⛔
HDO 140 2	**11.3**	98	63050	672	88	228	*	259	369		221	234	298	446	
HDO 140 2	**12.6**	87	66900	635	88	228	*	259	369		221	234	298	446	
HDO 140 2	**14.0**	79	60700	522	88	228	*	259	369		221	234	298	446	
HDO 140 2	**15.7**	70	68150	522	88	228	*	259	369		221	234	298	446	
HDO 140 3	**17.7**	62	64250	444	*	146	*	*	236	441	*	*	*	304	—
HDO 140 3	**19.9**	55	71700	441	*	146	*	*	236	—	*	*	*	304	—
HDO 140 3	**23.3**	47	75850	399	81	146	152	183	236	—	183	165	233	304	—
HDO 140 3	**26.0**	42	68650	323	81	146	152	183	236	—	183	165	233	304	—
HDO 140 3	**28.8**	38	75950	323	81	146	152	183	236	—	183	165	233	304	—
HDO 140 3	**32.5**	34	77100	290	81	146	152	183	236	—	183	165	233	—	—
HDO 140 3	**36.0**	31	79150	269	81	146	152	183	236	—	183	165	233	—	—
HDO 140 3	**40.1**	27.4	74700	228	81	146	152	183	—	—	183	165	—	—	—
HDO 140 3	**44.4**	24.8	79150	218	81	146	152	183	—	—	183	165	—	—	—
HDO 140 3	**50.4**	21.8	75000	182	81	146	152	—	—	—	—	165	—	—	—
HDO 140 3	**55.8**	19.7	79150	174	81	146	152	—	—	—	—	165	—	—	—
HDO 140 3	**62.2**	17.7	74700	147	81	146	—	—	—	—	—	—	—	—	—
HDO 140 3	**68.8**	16.0	79150	141	81	—	—	—	—	—	—	—	—	—	—
HDO 140 3	**77.3**	14.2	71700	113	81	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**82.3**	13.4	77100	117	106	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**91.1**	12.1	79150	109	106	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**101.5**	10.8	74700	92	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**112.3**	9.8	79150	88	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**128.0**	8.6	77100	75	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**141.6**	7.8	79150	70	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**162.7**	6.8	77100	59	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**180.0**	6.1	79150	55	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**198.3**	5.5	77100	49	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**219.5**	5.0	79150	45	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**252.1**	4.4	77100	38	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**279.0**	3.9	79150	35	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**311.0**	3.5	74700	30	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**344.1**	3.2	79150	29	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**386.6**	2.8	71700	23	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

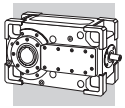


HDO 140 — n_1 = 900 min^{-1}

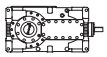
					Tamb = 20°C										
	i	n_2	Mn_2	Pn_1	P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 140 2	**6.6**	137	54800	819	168	338	343	421	664		275	*	378	538	
HDO 140 2	**7.3**	124	60600	818	168	338	343	421	664		275	*	378	538	
HDO 140 2	**8.2**	110	67800	815	168	338	343	421	664		275	*	378	538	
HDO 140 2	**9.0**	100	71100	775	168	338	343	421	664		275	*	378	538	
HDO 140 2	**10.1**	89	71600	695	168	338	343	421	664	⛔	275	300	378	538	⛔
HDO 140 2	**11.3**	80	64000	558	168	338	343	421	—		275	300	378	538	
HDO 140 2	**12.6**	71	71700	557	168	338	343	421	—		275	300	378	538	
HDO 140 2	**14.0**	65	60700	427	168	338	343	421	—		275	300	378	—	
HDO 140 2	**15.7**	57	68150	427	168	338	343	421	—		275	300	378	—	
HDO 140 3	**17.7**	51	64250	363	116	232	243	300	—	—	218	200	268	—	—
HDO 140 3	**19.9**	45	71700	361	116	232	243	300	—	—	218	200	268	—	—
HDO 140 3	**23.3**	39	78400	337	116	232	243	300	—	—	218	200	268	—	—
HDO 140 3	**26.0**	35	68650	264	116	232	243	—	—	—	218	200	—	—	—
HDO 140 3	**28.8**	31	75950	264	116	232	243	—	—	—	218	200	—	—	—
HDO 140 3	**32.5**	27.7	77100	237	116	232	—	—	—	—	218	200	—	—	—
HDO 140 3	**36.0**	25.0	79150	220	116	—	—	—	—	—	218	200	—	—	—
HDO 140 3	**40.1**	22.4	74700	186	116	—	—	—	—	—	—	—	—	—	—
HDO 140 3	**44.4**	20.3	79150	178	116	—	—	—	—	—	—	—	—	—	—
HDO 140 3	**50.4**	17.8	75000	149	116	—	—	—	—	—	—	—	—	—	—
HDO 140 3	**55.8**	16.1	79150	142	116	—	—	—	—	—	—	—	—	—	—
HDO 140 3	**62.2**	14.5	74700	120	116	—	—	—	—	—	—	—	—	—	—
HDO 140 3	**68.8**	13.1	79150	115	—	—	—	—	—	—	—	—	—	—	—
HDO 140 3	**77.3**	11.6	71700	93	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**82.3**	10.9	77100	96	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**91.1**	9.9	79150	89	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**101.5**	8.9	74700	75	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**112.3**	8.0	79150	72	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**128.0**	7.0	77100	62	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**141.6**	6.4	79150	57	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**162.7**	5.5	77100	48	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**180.0**	5.0	79150	45	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**198.3**	4.5	77100	40	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**219.5**	4.1	79150	37	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**252.1**	3.6	77100	31	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**279.0**	3.2	79150	29	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**311.0**	2.9	74700	25	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**344.1**	2.6	79150	24	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**386.6**	2.3	71700	19.0	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

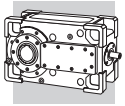


HDO 140 — n_1 = 900 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 40°C										
		[min^{-1}]	[Nm]	[kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]
HDO 140 2	**6.6**	137	54800	819	94	219	*	*	370		*	210	304	464	
HDO 140 2	**7.3**	124	60600	818	94	219	*	*	370		*	210	304	464	
HDO 140 2	**8.2**	110	67800	815	94	219	*	*	370		213	210	304	464	
HDO 140 2	**9.0**	100	71100	775	94	219	*	*	370		213	210	304	464	
HDO 140 2	**10.1**	89	71600	695	94	219	*	255	370	⛔	213	210	304	464	⛔
HDO 140 2	**11.3**	80	64000	558	94	219	*	255	370		213	210	304	464	
HDO 140 2	**12.6**	71	71700	557	94	219	*	255	370		213	210	304	464	
HDO 140 2	**14.0**	65	60700	427	94	219	*	255	370		213	210	304	—	
HDO 140 2	**15.7**	57	68150	427	94	219	*	255	370		213	210	304	—	
HDO 140 3	**17.7**	51	64250	363	61	144	130	161	—	—	161	143	211	—	—
HDO 140 3	**19.9**	45	71700	361	61	144	130	161	—	—	161	143	211	—	—
HDO 140 3	**23.3**	39	78400	337	61	144	130	161	—	—	161	143	211	—	—
HDO 140 3	**26.0**	35	68650	264	61	144	130	161	—	—	161	143	211	—	—
HDO 140 3	**28.8**	31	75950	264	61	144	130	161	—	—	161	143	211	—	—
HDO 140 3	**32.5**	27.7	77100	237	61	144	130	161	—	—	161	143	211	—	—
HDO 140 3	**36.0**	25.0	79150	220	61	144	130	161	—	—	161	143	211	—	—
HDO 140 3	**40.1**	22.4	74700	186	61	144	130	161	—	—	161	143	—	—	—
HDO 140 3	**44.4**	20.3	79150	178	61	144	130	161	—	—	161	143	—	—	—
HDO 140 3	**50.4**	17.8	75000	149	61	144	130	—	—	—	—	143	—	—	—
HDO 140 3	**55.8**	16.1	79150	142	61	—	130	—	—	—	—	—	—	—	—
HDO 140 3	**62.2**	14.5	74700	120	61	—	—	—	—	—	—	—	—	—	—
HDO 140 3	**68.8**	13.1	79150	115	61	—	—	—	—	—	—	—	—	—	—
HDO 140 3	**77.3**	11.6	71700	93	61	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**82.3**	10.9	77100	96	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**91.1**	9.9	79150	89	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**101.5**	8.9	74700	75	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**112.3**	8.0	79150	72	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**128.0**	7.0	77100	62	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**141.6**	6.4	79150	57	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**162.7**	5.5	77100	48	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**180.0**	5.0	79150	45	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**198.3**	4.5	77100	40	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**219.5**	4.1	79150	37	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**252.1**	3.6	77100	31	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**279.0**	3.2	79150	29	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**311.0**	2.9	74700	25	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**344.1**	2.6	79150	24	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**386.6**	2.3	71700	19.0	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

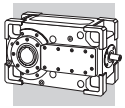


HDO 150 — n_1 = 1750 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C											
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDO 150 2	**5.5**	317	58100	2011	*	*	*	*	*	*		*	*	*	*	
HDO 150 2	**6.5**	271	68050	2010	*	*	*	*	*	*		*	*	*	*	
HDO 150 2	**7.0**	249	70150	1903	*	*	*	*	*	*		*	*	*	*	
HDO 150 2	**8.1**	215	72250	1695	*	*	*	*	*	*		*	*	*	*	
HDO 150 2	**8.9**	198	74550	1606	*	*	*	*	*	*	⛔	*	*	*	*	⛔
HDO 150 2	**10.0**	175	75550	1440	*	502	*	*	*	774		*	*	*	779	
HDO 150 2	**10.9**	161	78000	1365	*	502	*	*	*	774		*	*	*	779	
HDO 150 2	**12.6**	139	79700	1206	*	502	*	423	666	774		*	*	540	779	
HDO 150 2	**13.7**	127	82350	1145	*	502	*	423	666	774		*	*	540	779	
HDO 150 3	**15.6**	112	77650	968	*	*	*	*	*	*	*	*	*	*	*	799
HDO 150 3	**18.3**	96	88050	937	*	378	*	*	*	*	*	*	*	*	*	799
HDO 150 3	**19.9**	88	90100	880	*	378	*	*	*	*	*	*	*	*	*	799
HDO 150 3	**21.7**	81	89900	807	*	378	*	*	*	612	676	*	*	*	*	799
HDO 150 3	**25.4**	69	98000	750	*	378	*	*	490	612	676	*	*	*	*	—
HDO 150 3	**28.2**	62	90150	622	194	378	321	378	490	612	—	278	346	462	684	—
HDO 150 3	**30.7**	57	85200	540	194	378	321	378	490	—	—	278	346	462	—	—
HDO 150 3	**36.0**	49	99850	540	194	378	321	378	490	—	—	278	346	462	—	—
HDO 150 3	**40.2**	44	86350	418	194	378	321	378	—	—	—	278	346	—	—	—
HDO 150 3	**43.8**	40	94000	418	194	378	321	378	—	—	—	278	346	—	—	—
HDO 150 3	**47.6**	37	95000	388	194	378	321	378	—	—	—	278	346	—	—	—
HDO 150 3	**55.8**	31	106450	371	194	—	321	—	—	—	—	278	346	—	—	—
HDO 150 3	**60.8**	28.8	104350	334	194	—	321	—	—	—	—	278	—	—	—	—
HDO 150 4	**66.9**	26.2	81450	242	160	—	—	—	—	—	—	225	—	—	—	—
HDO 150 4	**78.3**	22.3	95450	242	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**92.9**	18.8	106550	228	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**101.8**	17.2	101300	198	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**110.9**	15.8	104350	187	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**120.8**	14.5	106550	175	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**141.5**	12.4	106450	149	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**157.9**	11.1	97600	123	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**171.9**	10.2	104350	121	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**187.2**	9.3	106550	113	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**219.3**	8.0	106450	96	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**238.8**	7.3	104350	87	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

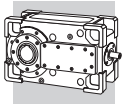


HDO 150 — n_1 = 1750 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C											
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDO 150 2	**5.5**	317	58100	2011	*	*	*	*	*	*		*	*	*	*	
HDO 150 2	**6.5**	271	68050	2010	*	*	*	*	*	*		*	*	*	*	
HDO 150 2	**7.0**	249	70150	1903	*	*	*	*	*	*		*	*	*	*	
HDO 150 2	**8.1**	215	72250	1695	*	*	*	*	*	*		*	*	*	*	
HDO 150 2	**8.9**	198	74550	1606	*	*	*	*	*	*	⛔	*	*	*	*	⛔
HDO 150 2	**10.0**	175	75550	1440	*	*	*	*	*	*		*	*	*	684	
HDO 150 2	**10.9**	161	78000	1365	*	*	*	*	*	*		*	*	*	684	
HDO 150 2	**12.6**	139	79700	1206	*	367	*	*	*	*		*	*	*	684	
HDO 150 2	**13.7**	127	82350	1145	*	367	*	*	*	*		*	*	*	684	
HDO 150 3	**15.6**	112	77650	968	*	*	*	*	*	*	*	*	*	*	*	*
HDO 150 3	**18.3**	96	88050	937	*	*	*	*	*	*	*	*	*	*	*	732
HDO 150 3	**19.9**	88	90100	880	*	*	*	*	*	*	*	*	*	*	*	732
HDO 150 3	**21.7**	81	89900	807	*	254	*	*	*	*	*	*	*	*	*	732
HDO 150 3	**25.4**	69	98000	750	*	254	*	*	*	*	*	*	*	*	*	732
HDO 150 3	**28.2**	62	90150	622	*	254	*	*	322	392	422	*	274	390	612	—
HDO 150 3	**30.7**	57	85200	540	*	254	*	*	322	392	422	*	274	390	—	—
HDO 150 3	**36.0**	49	99850	540	*	254	*	*	322	392	422	*	274	390	—	—
HDO 150 3	**40.2**	44	86350	418	154	254	225	256	322	392	—	238	274	390	—	—
HDO 150 3	**43.8**	40	94000	418	154	254	225	256	322	392	—	238	274	390	—	—
HDO 150 3	**47.6**	37	95000	388	154	254	225	256	322	—	—	238	274	—	—	—
HDO 150 3	**55.8**	31	106450	371	154	254	225	256	322	—	—	238	274	—	—	—
HDO 150 3	**60.8**	28.8	104350	334	154	254	225	256	322	—	—	238	274	—	—	—
HDO 150 4	**66.9**	26.2	81450	242	104	—	159	—	—	—	—	*	223	—	—	—
HDO 150 4	**78.3**	22.3	95450	242	104	—	—	—	—	—	—	*	—	—	—	—
HDO 150 4	**92.9**	18.8	106550	228	104	—	—	—	—	—	—	183	—	—	—	—
HDO 150 4	**101.8**	17.2	101300	198	104	—	—	—	—	—	—	183	—	—	—	—
HDO 150 4	**110.9**	15.8	104350	187	104	—	—	—	—	—	—	183	—	—	—	—
HDO 150 4	**120.8**	14.5	106550	175	104	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**141.5**	12.4	106450	149	104	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**157.9**	11.1	97600	123	104	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**171.9**	10.2	104350	121	104	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**187.2**	9.3	106550	113	104	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**219.3**	8.0	106450	96	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**238.8**	7.3	104350	87	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

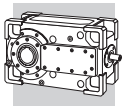


HDO 150 — n_1 = 1400 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C											
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDO 150 2	**5.5**	254	62150	1721	*	*	*	*	*	*		*	*	*	*	
HDO 150 2	**6.5**	217	72750	1719	*	*	*	*	*	*		*	*	*	*	
HDO 150 2	**7.0**	199	75000	1628	*	*	*	*	*	*		*	*	*	*	
HDO 150 2	**8.1**	172	77300	1451	*	440	*	*	*	*		*	*	*	769	
HDO 150 2	**8.9**	158	79700	1374	*	440	*	*	*	772	⛔	*	*	*	769	⛔
HDO 150 2	**10.0**	140	80800	1232	*	440	*	*	657	772		*	*	531	769	
HDO 150 2	**10.9**	128	83400	1168	*	440	*	420	657	772		*	*	531	769	
HDO 150 2	**12.6**	111	85250	1032	213	440	*	420	657	772		*	423	531	769	
HDO 150 2	**13.7**	102	88050	979	213	440	393	420	657	772		*	423	531	769	
HDO 150 3	**15.6**	90	83000	828	143	377	*	*	499	625	689	*	*	407	629	—
HDO 150 3	**18.3**	77	94150	801	143	377	*	327	499	625	689	*	*	407	629	—
HDO 150 3	**19.9**	70	96350	753	143	377	*	327	499	625	689	*	*	407	629	—
HDO 150 3	**21.7**	65	96150	690	143	377	287	327	499	625	689	*	312	407	629	—
HDO 150 3	**25.4**	55	104800	642	143	377	287	327	499	625	—	247	312	407	629	—
HDO 150 3	**28.2**	50	96350	532	143	377	287	327	499	—	—	247	312	407	—	—
HDO 150 3	**30.7**	46	91100	462	143	377	287	327	—	—	—	247	312	407	—	—
HDO 150 3	**36.0**	39	106450	460	143	377	287	327	—	—	—	247	312	407	—	—
HDO 150 3	**40.2**	35	92300	358	143	—	287	327	—	—	—	247	312	—	—	—
HDO 150 3	**43.8**	32	100550	358	143	—	287	327	—	—	—	247	312	—	—	—
HDO 150 3	**47.6**	29.4	101550	332	143	—	287	327	—	—	—	247	312	—	—	—
HDO 150 3	**55.8**	25.1	106450	297	143	—	287	—	—	—	—	247	—	—	—	—
HDO 150 3	**60.8**	23.0	104350	267	143	—	—	—	—	—	—	247	—	—	—	—
HDO 150 4	**66.9**	20.9	87100	207	170	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**78.3**	17.9	102050	207	170	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**92.9**	15.1	106550	182	170	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**101.8**	13.7	106450	166	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**110.9**	12.6	104350	150	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**120.8**	11.6	106550	140	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**141.5**	9.9	106450	120	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**157.9**	8.9	104350	105	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**171.9**	8.1	104350	96	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**187.2**	7.5	106550	90	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**219.3**	6.4	106450	77	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**238.8**	5.9	104350	69	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

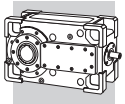


HDO 150 — n_1 = 1400 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C											
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDO 150 2	**5.5**	254	62150	1721	*	*	*	*	*	*		*	*	*	*	
HDO 150 2	**6.5**	217	72750	1719	*	*	*	*	*	*		*	*	*	*	
HDO 150 2	**7.0**	199	75000	1628	*	*	*	*	*	*		*	*	*	*	
HDO 150 2	**8.1**	172	77300	1451	*	*	*	*	*	*		*	*	*	674	
HDO 150 2	**8.9**	158	79700	1374	*	*	*	*	*	*	⛔	*	*	*	674	⛔
HDO 150 2	**10.0**	140	80800	1232	*	320	*	*	*	*		*	*	*	674	
HDO 150 2	**10.9**	128	83400	1168	*	320	*	*	*	*		*	*	*	674	
HDO 150 2	**12.6**	111	85250	1032	118	320	*	*	394	491		*	*	488	674	
HDO 150 2	**13.7**	102	88050	979	118	320	*	*	394	491		*	*	488	674	
HDO 150 3	**15.6**	90	83000	828	*	241	*	*	*	*	*	*	*	*	*	767
HDO 150 3	**18.3**	77	94150	801	*	241	*	*	*	341	371	*	*	*	561	767
HDO 150 3	**19.9**	70	96350	753	*	241	*	*	*	341	371	*	*	341	561	—
HDO 150 3	**21.7**	65	96150	690	*	241	*	*	287	341	371	*	*	341	561	—
HDO 150 3	**25.4**	55	104800	642	*	241	*	*	287	341	371	*	242	341	561	—
HDO 150 3	**28.2**	50	96350	532	140	241	211	242	287	341	371	224	242	341	—	—
HDO 150 3	**30.7**	46	91100	462	140	241	211	242	287	341	371	224	242	341	—	—
HDO 150 3	**36.0**	39	106450	460	140	241	211	242	287	341	371	224	242	341	—	—
HDO 150 3	**40.2**	35	92300	358	140	241	211	242	287	341	—	224	242	341	—	—
HDO 150 3	**43.8**	32	100550	358	140	241	211	242	287	341	—	224	242	341	—	—
HDO 150 3	**47.6**	29.4	101550	332	140	241	211	242	287	—	—	224	242	—	—	—
HDO 150 3	**55.8**	25.1	106450	297	140	241	211	242	287	—	—	224	242	—	—	—
HDO 150 3	**60.8**	23.0	104350	267	140	241	211	242	—	—	—	224	242	—	—	—
HDO 150 4	**66.9**	20.9	87100	207	115	—	170	195	—	—	—	181	—	—	—	—
HDO 150 4	**78.3**	17.9	102050	207	115	—	170	195	—	—	—	181	—	—	—	—
HDO 150 4	**92.9**	15.1	106550	182	115	—	170	—	—	—	—	181	—	—	—	—
HDO 150 4	**101.8**	13.7	106450	166	115	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**110.9**	12.6	104350	150	115	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**120.8**	11.6	106550	140	115	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**141.5**	9.9	106450	120	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**157.9**	8.9	104350	105	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**171.9**	8.1	104350	96	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**187.2**	7.5	106550	90	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**219.3**	6.4	106450	77	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**238.8**	5.9	104350	69	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

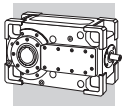


HDO 150 — n_1 = 1100 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C											
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDO 150 2	**5.5**	200	66800	1453	*	*	*	*	*	*		*	*	*	*	
HDO 150 2	**6.5**	170	78200	1452	*	*	*	*	*	*		*	*	*	770	
HDO 150 2	**7.0**	156	80650	1375	*	415	*	*	*	774		*	*	*	770	
HDO 150 2	**8.1**	135	83100	1225	*	415	*	*	648	774		*	*	522	770	
HDO 150 2	**8.9**	124	85700	1160	*	415	*	411	648	774	⛔	*	*	522	770	⛔
HDO 150 2	**10.0**	110	86850	1041	205	415	*	411	648	774		*	*	522	770	
HDO 150 2	**10.9**	101	89650	986	205	415	383	411	648	774		*	420	522	770	
HDO 150 2	**12.6**	87	91650	872	205	415	383	411	648	774		361	420	522	770	
HDO 150 2	**13.7**	80	94700	827	205	415	383	411	648	774		361	420	522	770	
HDO 150 3	**15.6**	70	89250	699	169	383	296	353	529	—	719	253	321	437	659	869
HDO 150 3	**18.3**	60	101200	677	169	383	296	353	529	—	—	253	321	437	659	—
HDO 150 3	**19.9**	55	103600	636	169	383	296	353	529	—	—	253	321	437	—	—
HDO 150 3	**21.7**	51	103350	583	169	383	296	353	529	—	—	253	321	437	—	—
HDO 150 3	**25.4**	43	106450	512	169	383	296	353	—	—	—	253	321	437	—	—
HDO 150 3	**28.2**	39	103600	449	169	383	296	353	—	—	—	253	321	437	—	—
HDO 150 3	**30.7**	36	97950	390	169	383	296	353	—	—	—	253	321	—	—	—
HDO 150 3	**36.0**	31	106450	362	169	—	296	353	—	—	—	253	321	—	—	—
HDO 150 3	**40.2**	27.4	97500	297	169	—	296	—	—	—	—	253	—	—	—	—
HDO 150 3	**43.8**	25.1	104350	292	169	—	—	—	—	—	—	253	—	—	—	—
HDO 150 3	**47.6**	23.1	103650	266	169	—	—	—	—	—	—	253	—	—	—	—
HDO 150 3	**55.8**	19.7	106450	233	169	—	—	—	—	—	—	—	—	—	—	—
HDO 150 3	**60.8**	18.1	104350	210	169	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**66.9**	16.5	93650	175	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**78.3**	14.0	106450	170	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**92.9**	11.8	106550	143	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**101.8**	10.8	106450	131	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**110.9**	9.9	104350	117	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**120.8**	9.1	106550	110	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**141.5**	7.8	106450	94	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**157.9**	7.0	106000	84	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**171.9**	6.4	104350	76	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**187.2**	5.9	106550	71	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**219.3**	5.0	106450	61	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**238.8**	4.6	104350	55	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

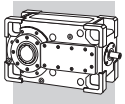


HDO 150 — n_1 = 1100 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C											
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDO 150 2	**5.5**	200	66800	1453	*	*	*	*	*	*		*	*	*	655	
HDO 150 2	**6.5**	170	78200	1452	*	*	*	*	*	*		*	*	*	655	
HDO 150 2	**7.0**	156	80650	1375	*	*	*	*	*	*		*	*	*	655	
HDO 150 2	**8.1**	135	83100	1225	*	*	*	*	*	*		*	*	*	655	
HDO 150 2	**8.9**	124	85700	1160	*	292	*	*	*	*	⛔	*	*	*	655	⛔
HDO 150 2	**10.0**	110	86850	1041	110	292	*	*	386	483		*	*	480	655	
HDO 150 2	**10.9**	101	89650	986	110	292	*	*	386	483		*	*	480	655	
HDO 150 2	**12.6**	87	91650	872	110	292	*	*	386	483		266	360	480	655	
HDO 150 2	**13.7**	80	94700	827	110	292	*	*	386	483		266	360	480	655	
HDO 150 3	**15.6**	70	89250	699	*	254	*	*	297	367	397	*	249	365	587	—
HDO 150 3	**18.3**	60	101200	677	*	254	*	*	297	367	397	*	249	365	587	—
HDO 150 3	**19.9**	55	103600	636	*	254	*	*	297	367	397	*	249	365	587	—
HDO 150 3	**21.7**	51	103350	583	*	254	*	214	297	367	397	*	249	365	—	—
HDO 150 3	**25.4**	43	106450	512	115	254	186	214	297	367	397	199	249	365	—	—
HDO 150 3	**28.2**	39	103600	449	115	254	186	214	297	367	397	199	249	365	—	—
HDO 150 3	**30.7**	36	97950	390	115	254	186	214	297	367	—	199	249	365	—	—
HDO 150 3	**36.0**	31	106450	362	115	254	186	214	297	—	—	199	249	—	—	—
HDO 150 3	**40.2**	27.4	97500	297	115	254	186	214	—	—	—	199	249	—	—	—
HDO 150 3	**43.8**	25.1	104350	292	115	254	186	214	—	—	—	199	249	—	—	—
HDO 150 3	**47.6**	23.1	103650	266	115	254	186	214	—	—	—	199	249	—	—	—
HDO 150 3	**55.8**	19.7	106450	233	115	—	186	214	—	—	—	199	—	—	—	—
HDO 150 3	**60.8**	18.1	104350	210	115	—	186	—	—	—	—	199	—	—	—	—
HDO 150 4	**66.9**	16.5	93650	175	123	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**78.3**	14.0	106450	170	123	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**92.9**	11.8	106550	143	123	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**101.8**	10.8	106450	131	123	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**110.9**	9.9	104350	117	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**120.8**	9.1	106550	110	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**141.5**	7.8	106450	94	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**157.9**	7.0	106000	84	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**171.9**	6.4	104350	76	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**187.2**	5.9	106550	71	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**219.3**	5.0	106450	61	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**238.8**	4.6	104350	55	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

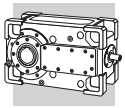


HDO 150 — n_1 = 900 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C											
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDO 150 2	**5.5**	163	70950	1263	*	*	*	*	*	800		*	*	*	805	
HDO 150 2	**6.5**	139	83050	1262	*	*	*	*	641	800		*	*	515	805	
HDO 150 2	**7.0**	128	85650	1195	*	395	*	405	641	800		*	*	515	805	
HDO 150 2	**8.1**	111	88250	1065	*	395	*	405	641	800		*	*	515	805	
HDO 150 2	**8.9**	102	91000	1008	196	395	371	405	641	800	⛔	*	406	515	805	⛔
HDO 150 2	**10.0**	90	91600	898	196	395	371	405	641	800		350	406	515	805	
HDO 150 2	**10.9**	83	95200	857	196	395	371	405	641	800		350	406	515	805	
HDO 150 2	**12.6**	71	92850	723	196	395	371	405	641	—		350	406	515	—	
HDO 150 2	**13.7**	66	100550	719	196	395	371	405	641	—		350	406	515	—	
HDO 150 3	**15.6**	58	94800	608	189	355	316	373	549	—	—	273	341	515	—	—
HDO 150 3	**18.3**	49	106450	582	189	355	316	373	549	—	—	273	341	515	—	—
HDO 150 3	**19.9**	45	104350	524	189	355	316	373	—	—	—	273	341	515	—	—
HDO 150 3	**21.7**	41	106550	492	189	355	316	373	—	—	—	273	341	—	—	—
HDO 150 3	**25.4**	35	106450	419	189	355	316	373	—	—	—	273	341	—	—	—
HDO 150 3	**28.2**	32	104350	370	189	355	316	—	—	—	—	273	341	—	—	—
HDO 150 3	**30.7**	29.3	104050	339	189	—	316	—	—	—	—	273	—	—	—	—
HDO 150 3	**36.0**	25.0	106450	296	189	—	—	—	—	—	—	273	—	—	—	—
HDO 150 3	**40.2**	22.4	97500	243	189	—	—	—	—	—	—	—	—	—	—	—
HDO 150 3	**43.8**	20.6	104350	239	189	—	—	—	—	—	—	—	—	—	—	—
HDO 150 3	**47.6**	18.9	103650	218	189	—	—	—	—	—	—	—	—	—	—	—
HDO 150 3	**55.8**	16.1	106450	191	189	—	—	—	—	—	—	—	—	—	—	—
HDO 150 3	**60.8**	14.8	104350	172	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**66.9**	13.5	99450	152	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**78.3**	11.5	106450	139	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**92.9**	9.7	106550	117	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**101.8**	8.8	106450	107	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**110.9**	8.1	104350	96	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**120.8**	7.5	106550	90	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**141.5**	6.4	106450	77	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**157.9**	5.7	106000	69	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**171.9**	5.2	104350	62	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**187.2**	4.8	106550	58	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**219.3**	4.1	106450	50	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**238.8**	3.8	104350	45	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

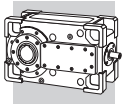


HDO 150 — n_1 = 900 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C											
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDO 150 2	**5.5**	163	70950	1263	*	*	*	*	*	*		*	*	*	709	
HDO 150 2	**6.5**	139	83050	1262	*	*	*	*	*	*		*	*	*	709	
HDO 150 2	**7.0**	128	85650	1195	*	*	*	*	*	*		*	*	*	709	
HDO 150 2	**8.1**	111	88250	1065	*	274	*	*	372	469		*	*	466	709	
HDO 150 2	**8.9**	102	91000	1008	101	274	*	*	372	469	⛔	*	*	466	709	⛔
HDO 150 2	**10.0**	90	91600	898	101	274	*	280	372	469		255	349	466	709	
HDO 150 2	**10.9**	83	95200	857	101	274	240	280	372	469		255	349	466	709	
HDO 150 2	**12.6**	71	92850	723	101	274	240	280	372	469		255	349	466	709	
HDO 150 2	**13.7**	66	100550	719	101	274	240	280	372	469		255	349	466	709	
HDO 150 3	**15.6**	58	94800	608	116	238	187	218	316	386	416	200	268	384	—	—
HDO 150 3	**18.3**	49	106450	582	116	238	187	218	316	386	416	200	268	384	—	—
HDO 150 3	**19.9**	45	104350	524	116	238	187	218	316	386	416	200	268	384	—	—
HDO 150 3	**21.7**	41	106550	492	116	238	187	218	316	386	416	200	268	384	—	—
HDO 150 3	**25.4**	35	106450	419	116	238	187	218	316	386	416	200	268	384	—	—
HDO 150 3	**28.2**	32	104350	370	116	238	187	218	316	—	—	200	268	—	—	—
HDO 150 3	**30.7**	29.3	104050	339	116	238	187	218	316	—	—	200	268	—	—	—
HDO 150 3	**36.0**	25.0	106450	296	116	238	187	218	—	—	—	200	268	—	—	—
HDO 150 3	**40.2**	22.4	97500	243	116	238	187	218	—	—	—	200	—	—	—	—
HDO 150 3	**43.8**	20.6	104350	239	116	238	187	218	—	—	—	200	—	—	—	—
HDO 150 3	**47.6**	18.9	103650	218	116	—	187	—	—	—	—	200	—	—	—	—
HDO 150 3	**55.8**	16.1	106450	191	116	—	187	—	—	—	—	—	—	—	—	—
HDO 150 3	**60.8**	14.8	104350	172	116	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**66.9**	13.5	99450	152	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**78.3**	11.5	106450	139	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**92.9**	9.7	106550	117	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**101.8**	8.8	106450	107	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**110.9**	8.1	104350	96	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**120.8**	7.5	106550	90	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**141.5**	6.4	106450	77	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**157.9**	5.7	106000	69	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**171.9**	5.2	104350	62	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**187.2**	4.8	106550	58	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**219.3**	4.1	106450	50	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**238.8**	3.8	104350	45	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

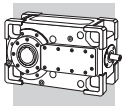


HDO 160 — n_1 = 1750 min^{-1}

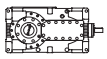
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C											
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDO 160 2	**7.3**	240	77050	2012	*	*	*	*	*	*	⛔	*	*	*	*	⛔
HDO 160 2	**7.9**	220	81300	1953	*	*	*	*	*	*		*	*	*	*	
HDO 160 2	**8.9**	196	82150	1755	*	*	*	*	*	*		*	*	*	*	
HDO 160 2	**10.4**	168	88700	1623	*	*	*	*	*	*		*	*	*	*	
HDO 160 2	**11.3**	154	91300	1537	*	*	*	*	*	*		*	*	*	*	
HDO 160 2	**12.2**	144	84200	1322	*	*	*	*	*	755		*	*	*	760	
HDO 160 2	**14.2**	123	95100	1279	*	500	*	*	*	755		*	*	*	760	
HDO 160 2	**15.4**	114	98000	1213	*	500	*	*	*	755		*	*	*	760	
HDO 160 3	**17.7**	99	88200	968	*	382	*	*	*	*	659	*	*	*	*	809
HDO 160 3	**20.7**	85	102900	968	*	382	*	*	*	*	659	*	*	*	*	809
HDO 160 3	**22.5**	78	111850	968	*	382	*	*	*	*	659	*	*	*	*	809
HDO 160 3	**24.6**	71	102100	807	*	382	*	*	*	623	659	*	*	*	*	—
HDO 160 3	**28.8**	61	119200	807	*	382	*	*	*	623	659	*	*	*	*	—
HDO 160 3	**31.3**	56	126150	786	*	382	*	*	*	623	659	*	*	*	*	—
HDO 160 3	**34.9**	50	100800	562	219	382	346	403	579	—	—	303	371	487	709	—
HDO 160 3	**40.7**	43	117650	562	219	382	346	403	—	—	—	303	371	487	—	—
HDO 160 3	**44.3**	40	122300	538	219	382	346	403	—	—	—	303	371	487	—	—
HDO 160 3	**49.4**	35	106150	418	219	382	346	403	—	—	—	303	371	—	—	—
HDO 160 3	**54.1**	32	107850	388	219	382	346	—	—	—	—	303	371	—	—	—
HDO 160 3	**63.2**	27.7	125900	388	219	382	346	—	—	—	—	303	371	—	—	—
HDO 160 3	**68.6**	25.5	133700	379	219	—	346	—	—	—	—	303	371	—	—	—
HDO 160 4	**75.9**	23.0	92500	242	170	—	—	—	—	—	—	236	—	—	—	—
HDO 160 4	**88.6**	19.7	107950	242	170	—	—	—	—	—	—	236	—	—	—	—
HDO 160 4	**96.3**	18.2	117350	242	170	—	—	—	—	—	—	236	—	—	—	—
HDO 160 4	**115.2**	15.2	114600	198	170	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**125.2**	14.0	124550	198	170	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**137.1**	12.8	130400	189	170	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**160.1**	10.9	133000	165	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**174.0**	10.1	133700	153	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**194.1**	9.0	120000	123	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**212.6**	8.2	130400	122	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**248.1**	7.1	133000	107	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**269.7**	6.5	133700	98	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

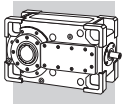


HDO 160 — n_1 = 1750 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 40°C											
		[min^{-1}]	[Nm]	[kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDO 160 2	**7.3**	240	77050	2012	*	*	*	*	*	*	⛔	*	*	*	*	⛔
HDO 160 2	**7.9**	220	81300	1953	*	*	*	*	*	*		*	*	*	*	
HDO 160 2	**8.9**	196	82150	1755	*	*	*	*	*	*		*	*	*	*	
HDO 160 2	**10.4**	168	88700	1623	*	*	*	*	*	*		*	*	*	*	
HDO 160 2	**11.3**	154	91300	1537	*	*	*	*	*	*		*	*	*	*	
HDO 160 2	**12.2**	144	84200	1322	*	*	*	*	*	*		*	*	*	659	
HDO 160 2	**14.2**	123	95100	1279	*	*	*	*	*	*		*	*	*	659	
HDO 160 2	**15.4**	114	98000	1213	*	*	*	*	*	*		*	*	*	659	
HDO 160 3	**17.7**	99	88200	968	*	*	*	*	*	*	*	*	*	*	*	*
HDO 160 3	**20.7**	85	102900	968	*	*	*	*	*	*	*	*	*	*	*	*
HDO 160 3	**22.5**	78	111850	968	*	*	*	*	*	*	*	*	*	*	*	*
HDO 160 3	**24.6**	71	102100	807	*	261	*	*	*	*	*	*	*	*	*	760
HDO 160 3	**28.8**	61	119200	807	*	261	*	*	*	*	*	*	*	*	*	760
HDO 160 3	**31.3**	56	126150	786	*	261	*	*	*	*	*	*	*	*	632	760
HDO 160 3	**34.9**	50	100800	562	*	261	*	*	342	412	442	*	294	410	—	—
HDO 160 3	**40.7**	43	117650	562	*	261	*	*	342	412	442	*	294	410	—	—
HDO 160 3	**44.3**	40	122300	538	*	261	*	*	342	412	442	*	294	410	—	—
HDO 160 3	**49.4**	35	106150	418	165	261	236	267	342	412	—	249	294	410	—	—
HDO 160 3	**54.1**	32	107850	388	165	261	236	267	342	—	—	249	294	—	—	—
HDO 160 3	**63.2**	27.7	125900	388	165	261	236	267	342	—	—	249	294	—	—	—
HDO 160 3	**68.6**	25.5	133700	379	165	261	236	267	342	—	—	249	294	—	—	—
HDO 160 4	**75.9**	23.0	92500	242	*	—	*	*	—	—	—	*	—	—	—	—
HDO 160 4	**88.6**	19.7	107950	242	*	—	*	*	—	—	—	*	—	—	—	—
HDO 160 4	**96.3**	18.2	117350	242	*	—	*	*	—	—	—	*	—	—	—	—
HDO 160 4	**115.2**	15.2	114600	198	126	—	181	206	—	—	—	192	—	—	—	—
HDO 160 4	**125.2**	14.0	124550	198	126	—	181	—	—	—	—	192	—	—	—	—
HDO 160 4	**137.1**	12.8	130400	189	126	—	181	—	—	—	—	—	—	—	—	—
HDO 160 4	**160.1**	10.9	133000	165	126	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**174.0**	10.1	133700	153	126	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**194.1**	9.0	120000	123	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**212.6**	8.2	130400	122	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**248.1**	7.1	133000	107	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**269.7**	6.5	133700	98	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

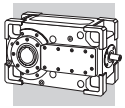


HDO 160 — n_1 = 1400 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C											
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDO 160 2	**7.3**	192	82400	1722	*	*	*	*	*	*	⛔	*	*	*	*	⛔
HDO 160 2	**7.9**	176	86900	1670	*	*	*	*	*	*		*	*	*	*	
HDO 160 2	**8.9**	157	87850	1501	*	*	*	*	*	697		*	*	*	*	
HDO 160 2	**10.4**	134	94850	1389	*	*	*	*	*	697		*	*	*	720	
HDO 160 2	**11.3**	124	97600	1315	*	*	*	*	540	697		*	*	*	720	
HDO 160 2	**12.2**	115	90050	1131	*	499	*	*	540	697		*	*	522	720	
HDO 160 2	**14.2**	99	101700	1094	164	499	*	*	540	697		*	*	522	720	
HDO 160 2	**15.4**	91	104750	1037	164	499	*	423	540	697		*	*	522	720	
HDO 160 3	**17.7**	79	94300	828	*	388	*	334	510	636	700	*	*	*	640	—
HDO 160 3	**20.7**	68	110050	828	*	388	*	334	510	636	700	*	*	*	640	—
HDO 160 3	**22.5**	62	119600	828	*	388	*	334	510	636	700	*	*	425	640	—
HDO 160 3	**24.6**	57	109200	690	172	388	299	334	510	636	—	*	324	425	640	—
HDO 160 3	**28.8**	49	127450	690	172	388	299	334	510	636	—	260	324	425	640	—
HDO 160 3	**31.3**	45	133700	666	172	388	299	334	510	636	—	260	324	425	640	—
HDO 160 3	**34.9**	40	107750	481	172	388	299	334	—	—	—	260	324	425	—	—
HDO 160 3	**40.7**	34	125800	481	172	388	299	334	—	—	—	260	324	425	—	—
HDO 160 3	**44.3**	32	130750	460	172	388	299	334	—	—	—	260	324	425	—	—
HDO 160 3	**49.4**	28.3	113500	358	172	—	299	334	—	—	—	260	324	—	—	—
HDO 160 3	**54.1**	25.9	115350	332	172	—	299	—	—	—	—	260	324	—	—	—
HDO 160 3	**63.2**	22.2	133000	328	172	—	299	—	—	—	—	260	324	—	—	—
HDO 160 3	**68.6**	20.4	133700	303	172	—	299	—	—	—	—	260	—	—	—	—
HDO 160 4	**75.9**	18.4	98900	207	182	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**88.6**	15.8	115450	207	182	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**96.3**	14.5	125500	207	182	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**115.2**	12.2	122500	169	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**125.2**	11.2	133150	169	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**137.1**	10.2	130400	151	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**160.1**	8.7	133000	132	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**174.0**	8.0	133700	122	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**194.1**	7.2	128300	105	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**212.6**	6.6	130400	98	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**248.1**	5.6	133000	85	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**269.7**	5.2	133700	79	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

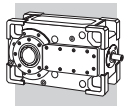


HDO 160 — n_1 = 1400 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C											
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDO 160 2	**7.3**	192	82400	1722	*	*	*	*	*	*	⛔	*	*	*	*	⛔
HDO 160 2	**7.9**	176	86900	1670	*	*	*	*	*	*		*	*	*	*	
HDO 160 2	**8.9**	157	87850	1501	*	*	*	*	*	*		*	*	*	601	
HDO 160 2	**10.4**	134	94850	1389	*	*	*	*	*	*		*	*	*	601	
HDO 160 2	**11.3**	124	97600	1315	*	*	*	*	*	*		*	*	*	601	
HDO 160 2	**12.2**	115	90050	1131	*	*	*	*	*	*		*	*	*	601	
HDO 160 2	**14.2**	99	101700	1094	*	*	*	*	*	436		*	*	433	601	
HDO 160 2	**15.4**	91	104750	1037	*	*	*	*	*	436		*	*	433	601	
HDO 160 3	**17.7**	79	94300	828	*	252	*	*	*	*	*	*	*	*	*	773
HDO 160 3	**20.7**	68	110050	828	*	252	*	*	*	*	378	*	*	*	*	773
HDO 160 3	**22.5**	62	119600	828	*	252	*	*	*	350	378	*	*	*	570	773
HDO 160 3	**24.6**	57	109200	690	*	252	*	*	295	350	378	*	*	363	570	—
HDO 160 3	**28.8**	49	127450	690	*	252	*	*	295	350	378	*	*	363	570	—
HDO 160 3	**31.3**	45	133700	666	*	252	*	*	295	350	378	*	252	363	570	—
HDO 160 3	**34.9**	40	107750	481	158	252	229	260	295	350	378	*	252	363	—	—
HDO 160 3	**40.7**	34	125800	481	158	252	229	260	295	350	378	242	252	363	—	—
HDO 160 3	**44.3**	32	130750	460	158	252	229	260	295	350	378	242	252	363	—	—
HDO 160 3	**49.4**	28.3	113500	358	158	252	229	260	295	350	—	242	252	—	—	—
HDO 160 3	**54.1**	25.9	115350	332	158	252	229	260	295	—	—	242	252	—	—	—
HDO 160 3	**63.2**	22.2	133000	328	158	252	229	260	295	—	—	242	252	—	—	—
HDO 160 3	**68.6**	20.4	133700	303	158	252	229	260	295	—	—	242	252	—	—	—
HDO 160 4	**75.9**	18.4	98900	207	123	—	178	203	—	—	—	189	242	—	—	—
HDO 160 4	**88.6**	15.8	115450	207	123	—	178	203	—	—	—	189	—	—	—	—
HDO 160 4	**96.3**	14.5	125500	207	123	—	178	203	—	—	—	189	—	—	—	—
HDO 160 4	**115.2**	12.2	122500	169	123	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**125.2**	11.2	133150	169	123	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**137.1**	10.2	130400	151	123	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**160.1**	8.7	133000	132	123	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**174.0**	8.0	133700	122	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**194.1**	7.2	128300	105	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**212.6**	6.6	130400	98	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**248.1**	5.6	133000	85	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**269.7**	5.2	133700	79	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

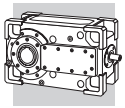


HDO 160 — n_1 = 1100 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C											
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDO 160 2	**7.3**	151	88550	1454	*	*	*	*	591	766	⛔	*	*	*	771	⛔
HDO 160 2	**7.9**	139	93450	1411	*	*	*	*	591	766		*	*	*	771	
HDO 160 2	**8.9**	123	94450	1268	*	*	*	*	591	766		*	*	*	771	
HDO 160 2	**10.4**	105	102000	1173	*	431	*	*	591	766		*	*	*	771	
HDO 160 2	**11.3**	97	104950	1111	126	431	*	379	591	766		242	336	496	771	
HDO 160 2	**12.2**	91	96800	955	126	431	*	379	591	766		242	336	496	771	
HDO 160 2	**14.2**	78	109350	925	126	431	387	379	591	766		242	336	496	771	
HDO 160 2	**15.4**	71	112650	876	126	431	387	379	591	766		242	336	496	771	
HDO 160 3	**17.7**	62	101350	699	181	395	308	365	541	667	731	*	*	*	671	—
HDO 160 3	**20.7**	53	118300	699	181	395	308	365	541	667	—	*	*	*	671	—
HDO 160 3	**22.5**	49	128600	699	181	395	308	365	541	667	—	271	339	455	671	—
HDO 160 3	**24.6**	45	117400	583	181	395	308	365	541	—	—	271	339	455	—	—
HDO 160 3	**28.8**	38	133000	566	181	395	308	365	541	—	—	271	339	455	—	—
HDO 160 3	**31.3**	35	133700	523	181	395	308	365	—	—	—	271	339	455	—	—
HDO 160 3	**34.9**	32	115850	406	181	395	308	365	—	—	—	271	339	—	—	—
HDO 160 3	**40.7**	27.0	133000	399	181	395	308	365	—	—	—	271	339	—	—	—
HDO 160 3	**44.3**	24.8	133700	369	181	—	308	365	—	—	—	271	339	—	—	—
HDO 160 3	**49.4**	22.3	119900	297	181	—	—	—	—	—	—	271	—	—	—	—
HDO 160 3	**54.1**	20.3	117700	266	181	—	—	—	—	—	—	—	—	—	—	—
HDO 160 3	**63.2**	17.4	133000	258	181	—	—	—	—	—	—	—	—	—	—	—
HDO 160 3	**68.6**	16.0	133700	238	181	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**75.9**	14.5	106350	175	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**88.6**	12.4	124100	175	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**96.3**	11.4	133700	173	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**115.2**	9.5	128900	140	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**125.2**	8.8	133700	133	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**137.1**	8.0	130400	119	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**160.1**	6.9	133000	104	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**174.0**	6.3	133700	96	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**194.1**	5.7	130300	84	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**212.6**	5.2	130400	77	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**248.1**	4.4	133000	67	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**269.7**	4.1	133700	62	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

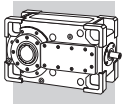


HDO 160 — n_1 = 1100 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C											
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDO 160 2	**7.3**	151	88550	1454	*	*	*	*	*	*	⛔	*	*	*	670	⛔
HDO 160 2	**7.9**	139	93450	1411	*	*	*	*	*	*		*	*	*	670	
HDO 160 2	**8.9**	123	94450	1268	*	*	*	*	*	*		*	*	*	670	
HDO 160 2	**10.4**	105	102000	1173	*	*	*	*	*	*		*	*	*	670	
HDO 160 2	**11.3**	97	104950	1111	*	*	*	*	*	*		*	*	395	670	
HDO 160 2	**12.2**	91	96800	955	*	*	*	*	*	475		*	*	395	670	
HDO 160 2	**14.2**	78	109350	925	*	340	*	*	387	475		*	*	395	670	
HDO 160 2	**15.4**	71	112650	876	*	340	*	*	387	475		*	*	395	670	
HDO 160 3	**17.7**	62	101350	699	*	261	*	*	304	374	404	*	256	372	594	—
HDO 160 3	**20.7**	53	118300	699	*	261	*	*	304	374	404	*	256	372	594	—
HDO 160 3	**22.5**	49	128600	699	*	261	*	*	304	374	404	*	256	372	594	—
HDO 160 3	**24.6**	45	117400	583	*	261	*	*	304	374	404	*	256	372	—	—
HDO 160 3	**28.8**	38	133000	566	*	261	*	226	304	374	404	*	256	372	—	—
HDO 160 3	**31.3**	35	133700	523	125	261	196	226	304	374	404	*	256	372	—	—
HDO 160 3	**34.9**	32	115850	406	125	261	196	226	304	374	404	254	256	372	—	—
HDO 160 3	**40.7**	27.0	133000	399	125	261	196	226	304	374	—	254	256	372	—	—
HDO 160 3	**44.3**	24.8	133700	369	125	261	196	226	304	—	—	254	256	—	—	—
HDO 160 3	**49.4**	22.3	119900	297	125	261	196	226	—	—	—	254	256	—	—	—
HDO 160 3	**54.1**	20.3	117700	266	125	261	196	226	—	—	—	254	256	—	—	—
HDO 160 3	**63.2**	17.4	133000	258	125	—	196	226	—	—	—	254	256	—	—	—
HDO 160 3	**68.6**	16.0	133700	238	125	—	196	226	—	—	—	—	—	—	—	—
HDO 160 4	**75.9**	14.5	106350	175	132	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**88.6**	12.4	124100	175	132	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**96.3**	11.4	133700	173	132	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**115.2**	9.5	128900	140	132	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**125.2**	8.8	133700	133	132	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**137.1**	8.0	130400	119	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**160.1**	6.9	133000	104	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**174.0**	6.3	133700	96	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**194.1**	5.7	130300	84	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**212.6**	5.2	130400	77	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**248.1**	4.4	133000	67	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**269.7**	4.1	133700	62	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

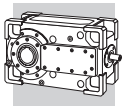


HDO 160 — n_1 = 900 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C											
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDO 160 2	**7.3**	123	94050	1263	149	401	*	402	645	820		265	359	519	825	
HDO 160 2	**7.9**	113	99250	1226	149	401	*	402	645	820		265	359	519	825	
HDO 160 2	**8.9**	101	100300	1102	149	401	*	402	645	820		265	359	519	825	
HDO 160 2	**10.4**	86	108300	1019	149	401	*	402	645	820		265	359	519	825	
HDO 160 2	**11.3**	79	111450	965	149	401	349	402	645	820	⛔	265	359	519	825	⛔
HDO 160 2	**12.2**	74	102800	830	149	401	349	402	645	820		265	359	519	825	
HDO 160 2	**14.2**	63	116150	804	149	401	349	402	645	—		265	359	519	—	
HDO 160 2	**15.4**	58	119650	762	149	401	349	402	645	—		265	359	519	—	
HDO 160 3	**17.7**	51	107650	608	202	368	329	386	562	688	—	286	354	470	—	—
HDO 160 3	**20.7**	43	125650	608	202	368	329	386	562	—	—	286	354	470	—	—
HDO 160 3	**22.5**	40	133700	595	202	368	329	386	562	—	—	286	354	470	—	—
HDO 160 3	**24.6**	37	124650	507	202	368	329	386	—	—	—	286	354	470	—	—
HDO 160 3	**28.8**	31	133000	463	202	368	329	386	—	—	—	286	354	—	—	—
HDO 160 3	**31.3**	28.8	133700	428	202	368	329	386	—	—	—	286	354	—	—	—
HDO 160 3	**34.9**	25.8	123050	353	202	—	329	—	—	—	—	286	—	—	—	—
HDO 160 3	**40.7**	22.1	133000	327	202	—	—	—	—	—	—	286	—	—	—	—
HDO 160 3	**44.3**	20.3	133700	302	202	—	—	—	—	—	—	286	—	—	—	—
HDO 160 3	**49.4**	18.2	119900	243	202	—	—	—	—	—	—	—	—	—	—	—
HDO 160 3	**54.1**	16.6	117700	218	202	—	—	—	—	—	—	—	—	—	—	—
HDO 160 3	**63.2**	14.3	133000	211	202	—	—	—	—	—	—	—	—	—	—	—
HDO 160 3	**68.6**	13.1	133700	195	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**75.9**	11.9	112900	152	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**88.6**	10.2	131800	152	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**96.3**	9.3	133700	142	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**115.2**	7.8	128900	114	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**125.2**	7.2	133700	109	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**137.1**	6.6	130400	97	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**160.1**	5.6	133000	85	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**174.0**	5.2	133700	79	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**194.1**	4.6	130300	69	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**212.6**	4.2	130400	63	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**248.1**	3.6	133000	55	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**269.7**	3.3	133700	51	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

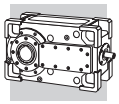


HDO 160 — n_1 = 900 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C											
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDO 160 2	**7.3**	123	94050	1263	*	*	*	*	*	*	⛔	*	*	*	724	⛔
HDO 160 2	**7.9**	113	99250	1226	*	*	*	*	*	*		*	*	*	724	
HDO 160 2	**8.9**	101	100300	1102	*	*	*	*	*	429		*	*	426	724	
HDO 160 2	**10.4**	86	108300	1019	*	*	*	*	*	429		*	*	426	724	
HDO 160 2	**11.3**	79	111450	965	*	*	*	*	349	429		*	*	426	724	
HDO 160 2	**12.2**	74	102800	830	*	314	*	*	349	429		*	*	426	724	
HDO 160 2	**14.2**	63	116150	804	*	314	*	*	349	429		*	353	426	724	
HDO 160 2	**15.4**	58	119650	762	*	314	*	*	349	429		*	353	426	724	
HDO 160 3	**17.7**	51	107650	608	125	247	196	227	325	395	425	209	277	393	—	—
HDO 160 3	**20.7**	43	125650	608	125	247	196	227	325	395	425	209	277	393	—	—
HDO 160 3	**22.5**	40	133700	595	125	247	196	227	325	395	425	209	277	393	—	—
HDO 160 3	**24.6**	37	124650	507	125	247	196	227	325	395	425	209	277	393	—	—
HDO 160 3	**28.8**	31	133000	463	125	247	196	227	325	395	425	209	277	393	—	—
HDO 160 3	**31.3**	28.8	133700	428	125	247	196	227	325	395	425	209	277	393	—	—
HDO 160 3	**34.9**	25.8	123050	353	125	247	196	227	325	—	—	209	277	—	—	—
HDO 160 3	**40.7**	22.1	133000	327	125	247	196	227	325	—	—	209	277	—	—	—
HDO 160 3	**44.3**	20.3	133700	302	125	247	196	227	—	—	—	209	277	—	—	—
HDO 160 3	**49.4**	18.2	119900	243	125	—	196	227	—	—	—	209	—	—	—	—
HDO 160 3	**54.1**	16.6	117700	218	125	—	196	—	—	—	—	209	—	—	—	—
HDO 160 3	**63.2**	14.3	133000	211	125	—	196	—	—	—	—	209	—	—	—	—
HDO 160 3	**68.6**	13.1	133700	195	125	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**75.9**	11.9	112900	152	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**88.6**	10.2	131800	152	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**96.3**	9.3	133700	142	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**115.2**	7.8	128900	114	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**125.2**	7.2	133700	109	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**137.1**	6.6	130400	97	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**160.1**	5.6	133000	85	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**174.0**	5.2	133700	79	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**194.1**	4.6	130300	69	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**212.6**	4.2	130400	63	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**248.1**	3.6	133000	55	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**269.7**	3.3	133700	51	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Verifica termica non necessaria / *Thermal verification not necessary* / Wärmeprüfung nicht erforderlich

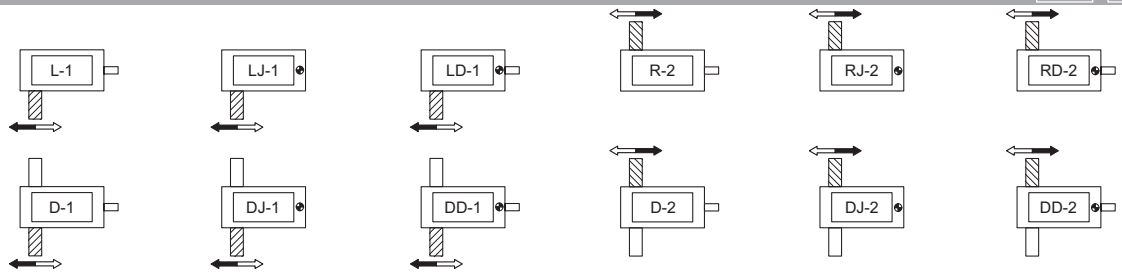


4.2 - CARICHI RADIALI ALBERO LENTO

4.2 - PERMITTED OVERHUNG LOADS ON OUTPUT SHAFT

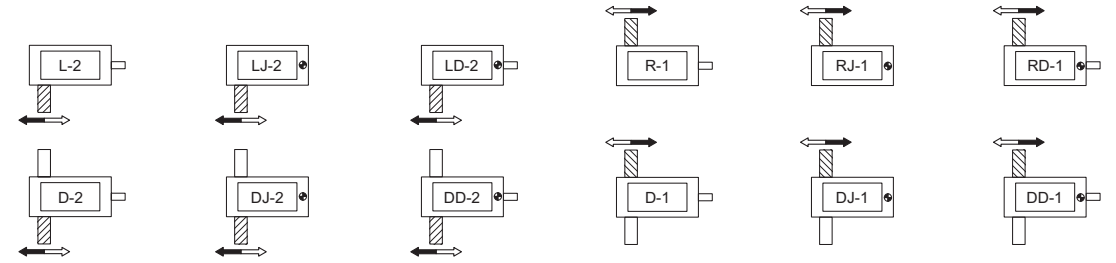
4.2 - RADIALKRÄFTE ABTRIEBSWELLE

HDO 100 LP H S



		Rn_2 [kN]			
n_2 x h		M_2 = 20000 Nm	M_2 = 16000 Nm	M_2 = 13300 Nm	M_2 = 10000 Nm
250 000	⇨	76.3	80.0	80.0	80.0
	⇦	79.1	80.0	80.0	80.0
500 000	⇨	56.7	62.3	66.1	70.7
	⇦	53.4	69.8	72.0	75.3
750 000	⇨	43.5	52.6	56.4	61.0
	⇦	40.1	57.9	59.8	65.6
1 000 000	⇨	33.6	46.4	50.2	54.8
	⇦	31.1	49.7	51.9	59.4
1 250 000	⇨	25.9	41.5	45.7	50.3
	⇦	24.5	43.8	46.1	55.0
2 500 000	⇨	—	22.2	32.6	38.3
	⇦	—	22.6	30.0	39.7
3 750 000	⇨	—	—	23.4	32.3
	⇦	—	—	21.4	31.9
5 000 000	⇨	—	—	16.7	28.5
	⇦	—	—	—	26.9

HDO 100 LP H S



		Rn_2 [kN]			
n_2 x h		M_2 = 20000 Nm	M_2 = 16000 Nm	M_2 = 13300 Nm	M_2 = 10000 Nm
250 000	⇨	52.0	62.5	69.5	78.1
	⇦	61.9	70.4	76.0	80.0
500 000	⇨	32.4	42.8	49.9	58.5
	⇦	42.3	50.8	56.5	63.5
750 000	⇨	22.7	33.2	40.2	48.8
	⇦	32.6	41.1	46.8	53.8
1 000 000	⇨	16.4	26.9	34.0	42.6
	⇦	26.4	34.9	40.6	47.6
1 250 000	⇨	—	22.5	29.5	38.2
	⇦	22.0	30.4	36.1	43.1
2 500 000	⇨	—	—	17.4	26.1
	⇦	—	18.3	24.1	31.1
3 750 000	⇨	—	—	—	20.1
	⇦	—	—	18.1	25.1
5 000 000	⇨	—	—	—	16.4
	⇦	—	—	—	21.2

h: durata in ore riferita al cuscinetto dell'albero lento.

Albero al quale sono riferiti i carichi radiali ammissibili. Per gli alberi bisporgenti il carico può essere applicato solo sull'estremità così evidenziata. In caso diverso consultare il Servizio Tecnico Bonfiglioli.

(—) Consultare il Servizio Tecnico Bonfiglioli

h: *expected lifetime [hours] for bearing of the output shaft.*

Shaft the rated overhung load is applicable to. For double extended shaft the load is only applicable to the extension highlighted Should this not be the case consult Bonfiglioli's Technical Service.

(—) Contact the Bonfiglioli Technical Service.

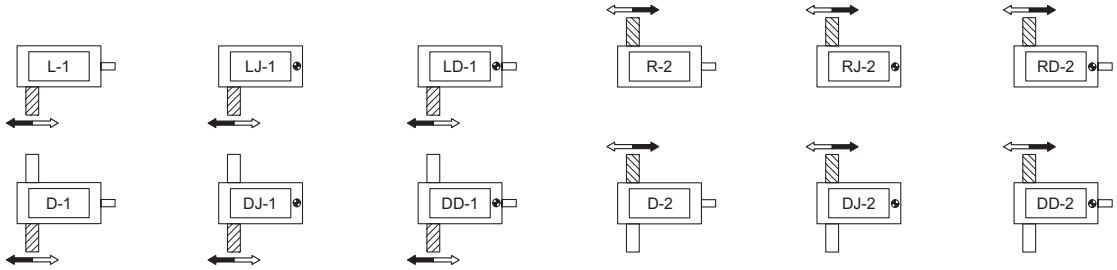
h: Lebensdauer in Stunden für des Lagers der Abtriebswelle.

Welle, auf die sich die zulässigen Radialkräfte beziehen. Für die Wellen mit zwei Wellenstummeln kann die Kraft nur auf das so gekennzeichnete Wellenende ausgeübt werden. Andernfalls mit dem technischen Kundendienst von Bonfiglioli Rücksprache halten.

(—) Bitte wenden Sie sich an den technischen Kundendienst von Bonfiglioli.

HDO 110

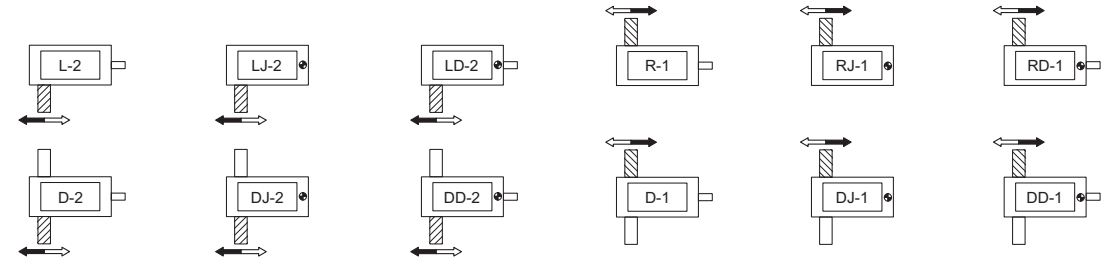
LP H S



n_2 x h		Rn_2 [kN] M_2 = 23650 Nm	M_2 = 18900 Nm	M_2 = 15750 Nm	M_2 = 11800 Nm
250 000	⇨	86.0	86.0	86.0	86.0
	⇦	86.0	86.0	86.0	86.0
500 000	⇨	65.5	71.3	75.1	80.0
	⇦	68.7	78.6	81.2	84.4
750 000	⇨	54.6	60.5	64.3	69.3
	⇦	54.5	65.4	70.4	73.7
1 000 000	⇨	47.7	53.5	57.4	62.2
	⇦	45.1	56.5	63.3	66.8
1 250 000	⇨	41.0	48.6	52.4	57.1
	⇦	38.1	50.0	57.1	62.0
2 500 000	⇨	17.8	34.2	39.0	43.8
	⇦	—	31.8	39.7	48.4
3 750 000	⇨	—	23.4	32.3	37.1
	⇦	—	20.6	30.8	40.0
5 000 000	⇨	—	—	26.6	32.8
	⇦	—	—	24.9	34.5

HDO 110

LP H S



n_2 x h		Rn_2 [kN] M_2 = 23650 Nm	M_2 = 18900 Nm	M_2 = 15750 Nm	M_2 = 11800 Nm
250 000	⇨	64.4	75.1	81.7	86.0
	⇦	74.0	82.5	86.0	86.0
500 000	⇨	42.6	53.0	59.9	68.3
	⇦	52.1	60.6	66.3	73.2
750 000	⇨	31.7	42.2	49.1	57.6
	⇦	41.3	49.8	55.4	62.5
1 000 000	⇨	24.8	35.2	42.2	50.9
	⇦	34.4	42.9	48.5	55.6
1 250 000	⇨	19.8	30.3	37.2	45.8
	⇦	29.5	37.9	43.6	50.7
2 500 000	⇨	—	—	23.7	32.4
	⇦	—	24.5	30.1	37.2
3 750 000	⇨	—	—	—	25.7
	⇦	—	17.8	23.4	30.5
5 000 000	⇨	—	—	—	21.4
	⇦	—	—	19.2	26.2

h: durata in ore riferita al cuscinetto dell'albero lento.

Albero al quale sono riferiti i carichi radiali ammissibili. Per gli alberi bisporgenti il carico può essere applicato solo sull'estremità così evidenziata. In caso diverso consultare il Servizio Tecnico Bonfiglioli.

(—) Consultare il Servizio Tecnico Bonfiglioli

h: *expected lifetime [hours] for bearing of the output shaft.*

Shaft the rated overhung load is applicable to. For double extended shaft the load is only applicable to the extension highlighted Should this not be the case consult Bonfiglioli's Technical Service.

(—) Contact the Bonfiglioli Technical Service.

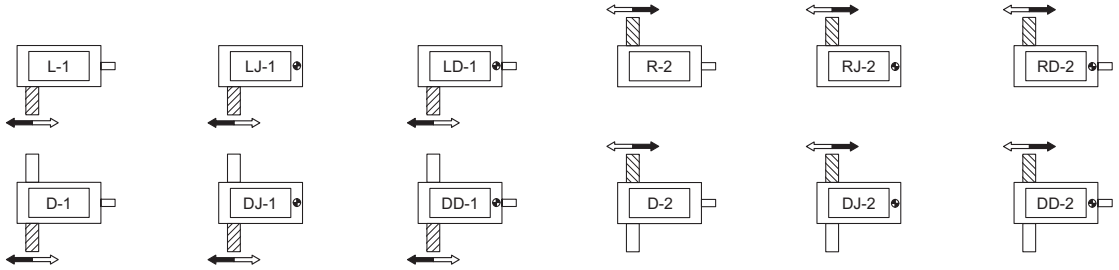
h: Lebensdauer in Stunden für des Lagers der Abtriebswelle.

Welle, auf die sich die zulässigen Radialkräfte beziehen. Für die Wellen mit zwei Wellenstummeln kann die Kraft nur auf das so gekennzeichnete Wellenende ausgeübt werden. Andernfalls mit dem technischen Kundendienst von Bonfiglioli Rücksprache halten.

(—) Bitte wenden Sie sich an den technischen Kundendienst von Bonfiglioli.

HDO 120

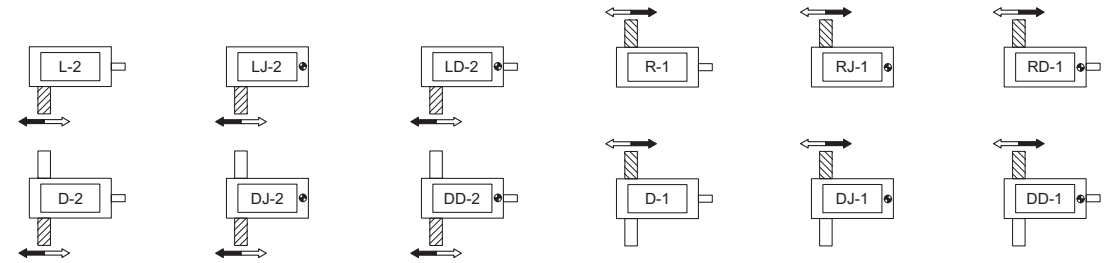
LP H S



n_2 x h		Rn_2 [kN] M_2 = 31750 Nm	M_2 = 25400 Nm	M_2 = 21150 Nm	M_2 = 15850 Nm
250 000	⇨	107.0	107.0	107.0	107.0
	⇦	107.0	107.0	107.0	107.0
500 000	⇨	88.0	95.1	99.9	105.8
	⇦	88.1	101.5	107.0	107.0
750 000	⇨	73.9	81.0	85.7	91.6
	⇦	69.6	83.8	92.5	97.1
1 000 000	⇨	62.5	71.9	76.6	82.6
	⇦	57.6	72.4	81.3	88.1
1 250 000	⇨	52.8	65.4	70.2	76.1
	⇦	48.8	64.0	73.3	81.5
2 500 000	⇨	23.7	43.9	52.5	58.5
	⇦	23.0	40.6	50.8	62.2
3 750 000	⇨	—	30.4	42.6	49.7
	⇦	—	28.1	39.2	51.4
5 000 000	⇨	—	—	34.2	44.2
	⇦	—	—	31.7	44.3

HDO 120

LP H S



n_2 x h		Rn_2 [kN] M_2 = 31750 Nm	M_2 = 25400 Nm	M_2 = 21150 Nm	M_2 = 15850 Nm
250 000	⇨	88.9	101.5	107.0	107.0
	⇦	100.7	107.0	107.0	107.0
500 000	⇨	60.3	73.0	81.4	91.9
	⇦	72.2	82.5	89.3	97.9
750 000	⇨	46.1	58.8	67.3	77.8
	⇦	58.0	68.3	75.2	83.7
1 000 000	⇨	37.0	49.7	58.2	68.8
	⇦	48.9	59.3	66.2	74.7
1 250 000	⇨	30.5	43.2	51.7	62.3
	⇦	42.4	52.8	59.6	68.2
2 500 000	⇨	—	25.5	34.0	44.6
	⇦	—	35.1	42.0	50.6
3 750 000	⇨	—	—	25.3	35.9
	⇦	—	26.3	33.2	41.8
5 000 000	⇨	—	—	—	30.3
	⇦	—	—	27.7	36.2

h: durata in ore riferita al cuscinetto dell'albero lento.

Albero al quale sono riferiti i carichi radiali ammissibili. Per gli alberi bisporgenti il carico può essere applicato solo sull'estremità così evidenziata. In caso diverso consultare il Servizio Tecnico Bonfiglioli.

(—) Consultare il Servizio Tecnico Bonfiglioli

h: *expected lifetime [hours] for bearing of the output shaft.*

Shaft the rated overhung load is applicable to. For double extended shaft the load is only applicable to the extension highlighted Should this not be the case consult Bonfiglioli's Technical Service.

(—) Contact the Bonfiglioli Technical Service.

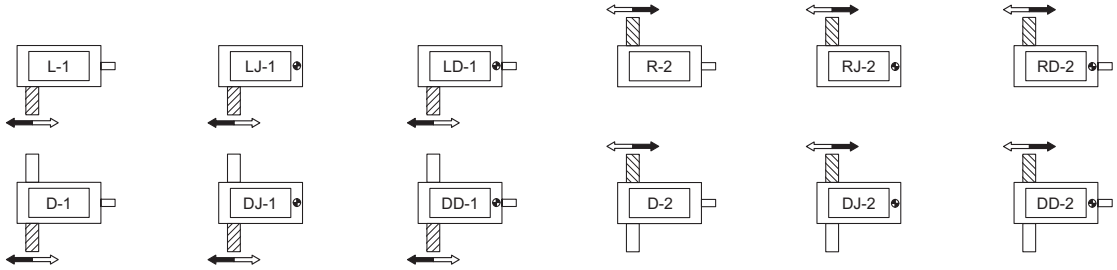
h: Lebensdauer in Stunden für des Lagers der Abtriebswelle.

Welle, auf die sich die zulässigen Radialkräfte beziehen. Für die Wellen mit zwei Wellenstummeln kann die Kraft nur auf das so gekennzeichnete Wellenende ausgeübt werden. Andernfalls mit dem technischen Kundendienst von Bonfiglioli Rücksprache halten.

(—) Bitte wenden Sie sich an den technischen Kundendienst von Bonfiglioli.

HDO 130

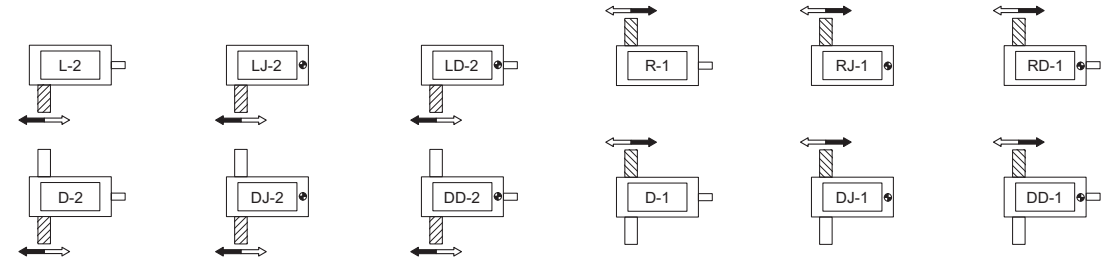
LP H S



n_2 x h		Rn_2 [kN] M_2 = 53600 Nm	M_2 = 42850 Nm	M_2 = 35700 Nm	M_2 = 26800 Nm
250 000	⇨	160.0	160.0	160.0	160.0
	⇦	160.0	160.0	160.0	160.0
500 000	⇨	119.3	140.6	152.0	158.2
	⇦	124.8	135.2	142.0	150.6
750 000	⇨	92.5	115.2	128.7	137.9
	⇦	99.5	114.9	121.8	130.4
1 000 000	⇨	75.0	98.4	112.5	125.0
	⇦	81.2	102.0	108.9	117.5
1 250 000	⇨	62.5	86.1	100.8	115.7
	⇦	62.5	92.7	99.7	108.3
2 500 000	⇨	—	50.0	68.0	86.1
	⇦	—	56.2	73.3	83.1
3 750 000	⇨	—	—	50.0	70.3
	⇦	—	37.5	56.2	70.6
5 000 000	⇨	—	—	37.5	59.9
	⇦	—	—	43.7	62.6

HDO 130

LP H S



n_2 x h		Rn_2 [kN] M_2 = 53600 Nm	M_2 = 42850 Nm	M_2 = 35700 Nm	M_2 = 26800 Nm
250 000	⇨	135.8	152.1	160.0	160.0
	⇦	119.7	139.3	152.3	160.0
500 000	⇨	94.9	111.3	122.2	135.8
	⇦	78.9	98.5	111.5	127.8
750 000	⇨	74.7	91.1	102.0	115.6
	⇦	58.6	78.3	91.3	107.5
1 000 000	⇨	62.5	78.2	89.0	102.6
	⇦	43.7	65.3	78.4	94.6
1 250 000	⇨	50.0	68.8	79.7	93.3
	⇦	37.5	56.0	69.1	85.3
2 500 000	⇨	—	43.7	54.5	68.1
	⇦	—	—	43.8	60.1
3 750 000	⇨	—	—	43.7	55.6
	⇦	—	—	—	47.6
5 000 000	⇨	—	—	34.3	47.7
	⇦	—	—	—	39.6

h: durata in ore riferita al cuscinetto dell'albero lento.

Albero al quale sono riferiti i carichi radiali ammissibili. Per gli alberi bisporgenti il carico può essere applicato solo sull'estremità così evidenziata. In caso diverso consultare il Servizio Tecnico Bonfiglioli.

(—) Consultare il Servizio Tecnico Bonfiglioli

h: *expected lifetime [hours] for bearing of the output shaft.*

Shaft the rated overhung load is applicable to. For double extended shaft the load is only applicable to the extension highlighted Should this not be the case consult Bonfiglioli's Technical Service.

(—) Contact the Bonfiglioli Technical Service.

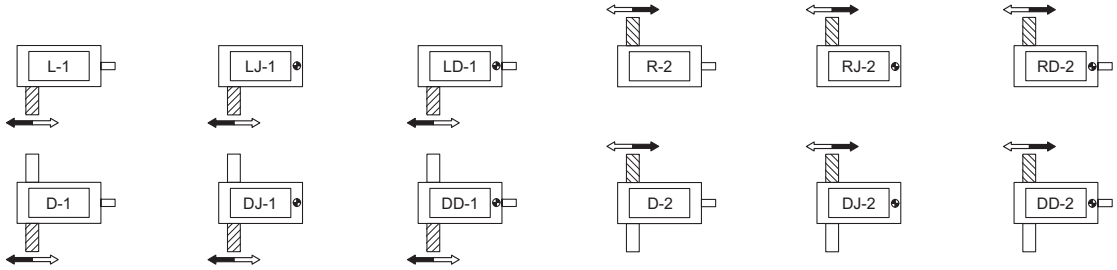
h: Lebensdauer in Stunden für des Lagers der Abtriebswelle.

Welle, auf die sich die zulässigen Radialkräfte beziehen. Für die Wellen mit zwei Wellenstummeln kann die Kraft nur auf das so gekennzeichnete Wellenende ausgeübt werden. Andernfalls mit dem technischen Kundendienst von Bonfiglioli Rücksprache halten.

(—) Bitte wenden Sie sich an den technischen Kundendienst von Bonfiglioli.

HDO 140

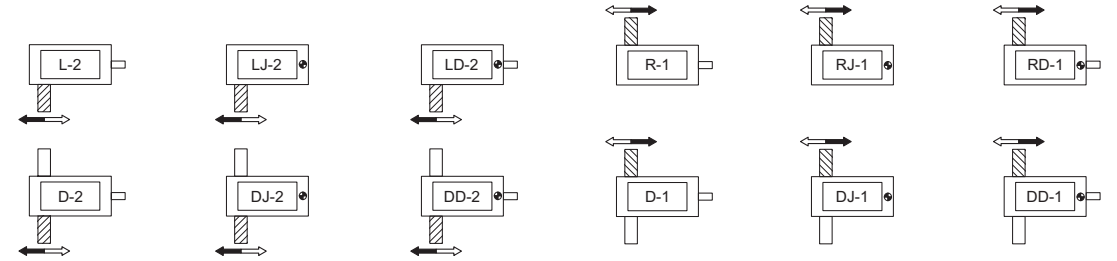
LP H S



n_2 x h		Rn_2 [kN] M_2 = 67200 Nm	M_2 = 53750 Nm	M_2 = 44800 Nm	M_2 = 33600 Nm
250 000	⇨	171.7	187.3	190.0	190.0
	⇦	160.2	172.3	180.4	190.0
500 000	⇨	117.6	140.8	151.4	158.4
	⇦	118.7	130.8	138.9	149.0
750 000	⇨	90.0	114.3	129.1	137.9
	⇦	98.2	110.3	118.4	128.4
1 000 000	⇨	71.7	97.1	112.5	124.8
	⇦	78.1	97.2	105.2	115.3
1 250 000	⇨	57.9	84.5	100.4	115.3
	⇦	62.7	87.8	95.8	105.9
2 500 000	⇨	—	48.8	66.5	86.1
	⇦	—	52.9	70.3	80.3
3 750 000	⇨	—	—	49.0	69.8
	⇦	—	—	53.4	67.6
5 000 000	⇨	—	—	—	59.1
	⇦	—	—	40.2	59.6

HDO 140

LP H S



n_2 x h		Rn_2 [kN] M_2 = 67200 Nm	M_2 = 53750 Nm	M_2 = 44800 Nm	M_2 = 33600 Nm
250 000	⇨	137.4	154.0	165.1	179.0
	⇦	116.5	137.4	151.3	168.7
500 000	⇨	95.9	112.6	123.7	137.6
	⇦	75.0	96.0	109.8	127.3
750 000	⇨	75.3	92.1	103.2	117.0
	⇦	54.5	75.4	89.3	106.6
1 000 000	⇨	62.2	78.9	90.0	104.0
	⇦	41.3	62.2	76.1	93.6
1 250 000	⇨	52.7	69.5	80.6	94.5
	⇦	—	52.8	66.7	84.1
2 500 000	⇨	—	43.8	55.0	68.9
	⇦	—	—	41.1	58.5
3 750 000	⇨	—	—	42.3	56.2
	⇦	—	—	—	45.8
5 000 000	⇨	—	—	—	48.1
	⇦	—	—	—	—

h: durata in ore riferita al cuscinetto dell'albero lento.

Albero al quale sono riferiti i carichi radiali ammissibili. Per gli alberi bisporgenti il carico può essere applicato solo sull'estremità così evidenziata. In caso diverso consultare il Servizio Tecnico Bonfiglioli.

(—) Consultare il Servizio Tecnico Bonfiglioli

h: *expected lifetime [hours] for bearing of the output shaft.*

Shaft the rated overhung load is applicable to. For double extended shaft the load is only applicable to the extension highlighted Should this not be the case consult Bonfiglioli's Technical Service.

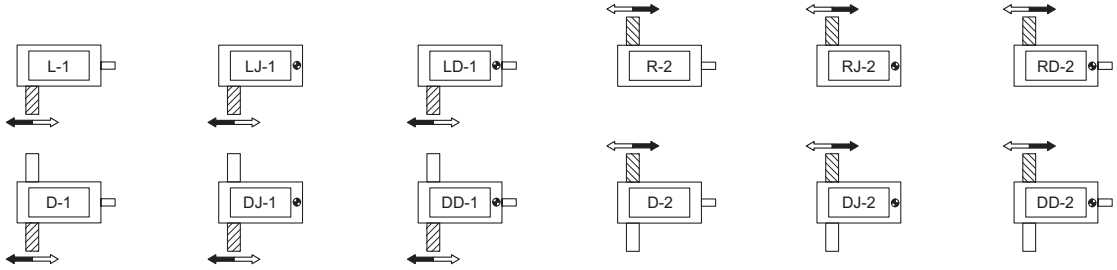
(—) Contact the Bonfiglioli Technical Service.

h: Lebensdauer in Stunden für des Lagers der Abtriebswelle.

Welle, auf die sich die zulässigen Radialkräfte beziehen. Für die Wellen mit zwei Wellenstummeln kann die Kraft nur auf das so gekennzeichnete Wellenende ausgeübt werden. Andernfalls mit dem technischen Kundendienst von Bonfiglioli Rücksprache halten.

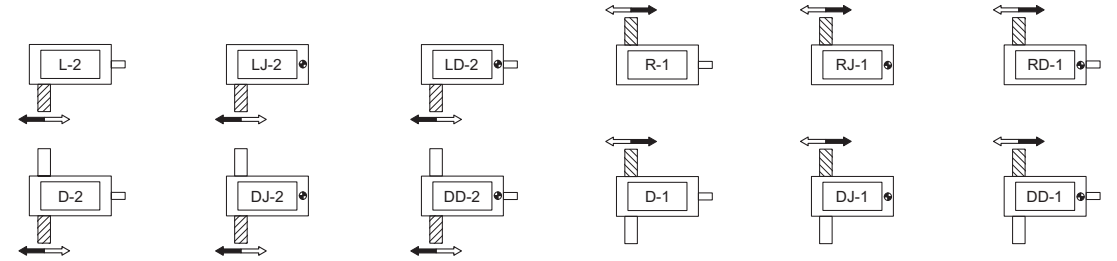
(—) Bitte wenden Sie sich an den technischen Kundendienst von Bonfiglioli.

HDO 150 LP



n_2 x h		Rn_2 [kN] M_2 = 96250 Nm	M_2 = 77000 Nm	M_2 = 64150 Nm	M_2 = 48100 Nm
250 000	⇨	161.1	193.2	200.0	200.0
	⇦	161.4	177.4	188.1	200.0
500 000	⇨	95.7	133.0	154.5	165.8
	⇦	101.5	132.2	142.8	156.1
750 000	⇨	60.0	101.5	124.6	143.4
	⇦	61.2	109.3	120.3	133.6
1 000 000	⇨	—	80.2	105.2	129.1
	⇦	—	85.3	106.0	119.3
1 250 000	⇨	—	64.3	90.5	118.4
	⇦	—	67.5	95.7	109.0
2 500 000	⇨	—	—	48.5	81.0
	⇦	—	—	50.6	81.0
3 750 000	⇨	—	—	—	61.3
	⇦	—	—	—	65.9
5 000 000	⇨	—	—	—	48.2
	⇦	—	—	—	51.2

HDO 150 LP



n_2 x h		Rn_2 [kN] M_2 = 96250 Nm	M_2 = 77000 Nm	M_2 = 64150 Nm	M_2 = 48100 Nm
250 000	⇨	116.3	141.3	157.9	178.8
	⇦	95.3	124.5	144.0	168.3
500 000	⇨	70.9	95.9	112.6	133.5
	⇦	50.0	79.2	98.7	123.0
750 000	⇨	48.4	73.4	90.2	111.0
	⇦	—	56.7	76.2	100.5
1 000 000	⇨	—	59.2	75.9	96.7
	⇦	—	42.4	61.8	86.3
1 250 000	⇨	—	48.8	65.5	86.4
	⇦	—	—	51.6	75.9
2 500 000	⇨	—	—	—	58.4
	⇦	—	—	—	47.9
3 750 000	⇨	—	—	—	44.6
	⇦	—	—	—	—
5 000 000	⇨	—	—	—	—
	⇦	—	—	—	—

h: durata in ore riferita al cuscinetto dell'albero lento.

Albero al quale sono riferiti i carichi radiali ammissibili. Per gli alberi bisporgenti il carico può essere applicato solo sull'estremità così evidenziata. In caso diverso consultare il Servizio Tecnico Bonfiglioli.

(—) Consultare il Servizio Tecnico Bonfiglioli

h: *expected lifetime [hours] for bearing of the output shaft.*

Shaft the rated overhung load is applicable to. For double extended shaft the load is only applicable to the extension highlighted Should this not be the case consult Bonfiglioli's Technical Service.

(—) Contact the Bonfiglioli Technical Service.

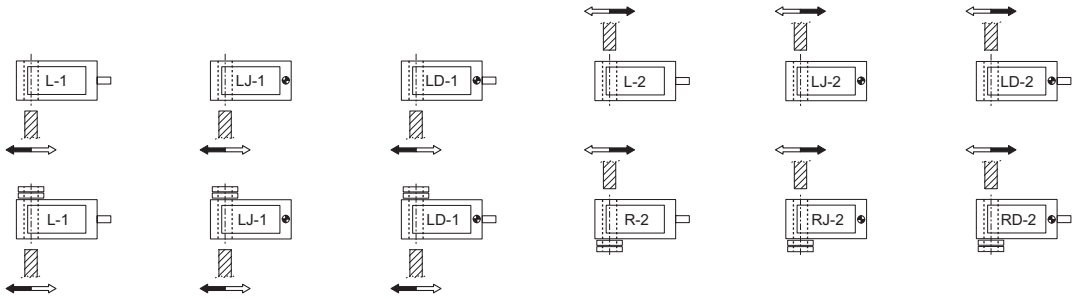
h: Lebensdauer in Stunden für des Lagers der Abtriebswelle.

Welle, auf die sich die zulässigen Radialkräfte beziehen. Für die Wellen mit zwei Wellenstummeln kann die Kraft nur auf das so gekennzeichnete Wellenende ausgeübt werden. Andernfalls mit dem technischen Kundendienst von Bonfiglioli Rücksprache halten.

(—) Bitte wenden Sie sich an den technischen Kundendienst von Bonfiglioli.

HDO 150

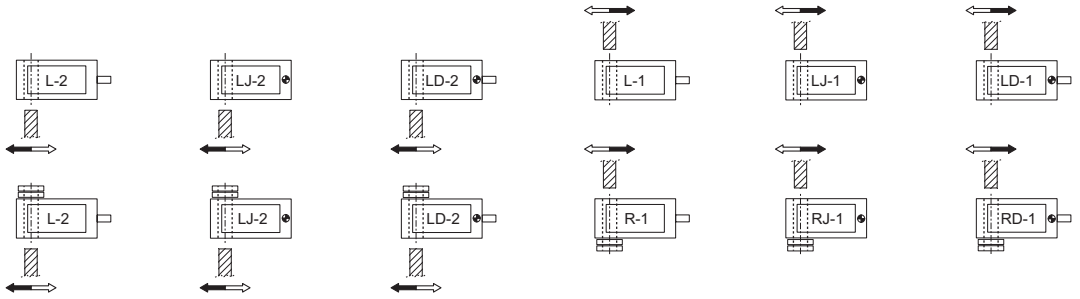
H S



n_2 x h		Rn_2 [kN] M_2 = 96250 Nm	M_2 = 77000 Nm	M_2 = 64150 Nm	M_2 = 48100 Nm
250 000	⇨	200.0	200.0	200.0	200.0
	⇦	200.0	200.0	200.0	200.0
500 000	⇨	164.5	194.2	200.0	200.0
	⇦	165.5	180.2	190.1	200.0
750 000	⇨	126.9	158.9	176.0	185.0
	⇦	136.7	152.8	162.7	175.0
1 000 000	⇨	102.2	135.6	155.5	167.4
	⇦	108.6	135.3	145.2	157.4
1 250 000	⇨	83.7	118.6	139.2	154.9
	⇦	87.8	122.8	132.6	144.8
2 500 000	⇨	—	70.3	93.6	119.0
	⇦	—	74.2	98.5	110.8
3 750 000	⇨	—	—	69.9	97.1
	⇦	—	44.1	74.3	93.8
5 000 000	⇨	—	—	53.9	82.7
	⇦	—	—	56.5	83.0

HDO 150

H S



n_2 x h		Rn_2 [kN] M_2 = 96250 Nm	M_2 = 77000 Nm	M_2 = 64150 Nm	M_2 = 48100 Nm
250 000	⇨	174.0	198.2	200.0	200.0
	⇦	152.5	181.0	199.9	200.0
500 000	⇨	118.7	142.9	159.0	179.0
	⇦	97.2	125.7	144.6	168.3
750 000	⇨	91.3	115.4	131.5	151.7
	⇦	69.9	98.2	117.3	140.9
1 000 000	⇨	73.7	97.9	114.0	134.1
	⇦	52.3	80.8	99.7	123.4
1 250 000	⇨	61.1	85.3	101.4	121.5
	⇦	—	68.2	87.1	110.8
2 500 000	⇨	—	51.1	67.2	87.4
	⇦	—	—	53.0	76.7
3 750 000	⇨	—	—	50.3	70.4
	⇦	—	—	—	59.8
5 000 000	⇨	—	—	—	59.6
	⇦	—	—	—	48.9

h: durata in ore riferita al cuscinetto dell'albero lento.

I carichi radiali ammissibili indicati nelle tabelle soprastanti si riferiscono al caso di forze applicate dal lato evidenziato in figura.

(—) Consultare il Servizio Tecnico Bonfiglioli

h: *expected lifetime [hours] for bearing of the output shaft.*

Rated overhung loads charted above refer to the case of forces applying on the side shown in the picture.

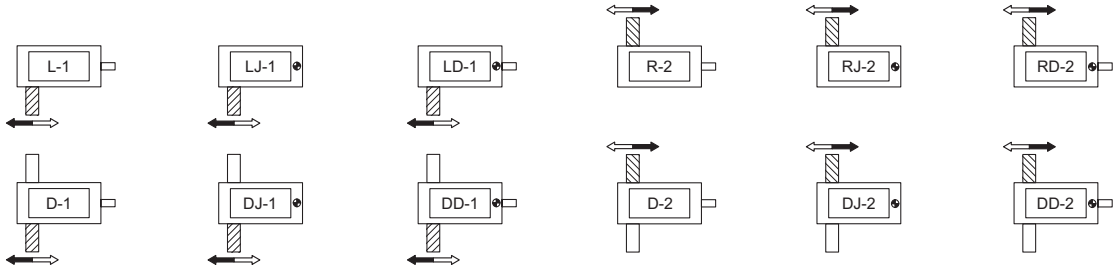
(—) Contact the Bonfiglioli Technical Service.

h: Lebensdauer in Stunden für des Lagers der Abtriebswelle.

Die zuverlässige Radialkräfte in o. g. Tabellen sind für Kräfte an der Zeichnungsseite ausgezeichnet gültig.

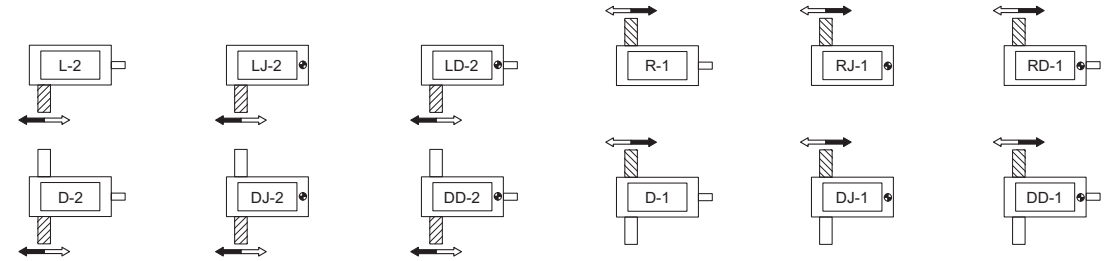
(—) Bitte wenden Sie sich an den technischen Kundendienst von Bonfiglioli.

HDO 160 LP



n_2 x h		Rn_2 [kN] M_2 = 123200 Nm	M_2 = 98550 Nm	M_2 = 82100 Nm	M_2 = 61600 Nm
250 000	⇨	135.0	175.2	192.8	204.9
	⬅	143.7	163.3	176.2	192.5
500 000	⇨	65.4	112.3	139.4	159.6
	⬅	68.1	118.0	130.9	147.2
750 000	⇨	—	78.9	108.1	137.2
	⬅	—	84.7	108.5	124.7
1 000 000	⇨	—	56.6	87.6	120.7
	⬅	—	58.5	94.2	110.4
1 250 000	⇨	—	—	72.5	107.0
	⬅	—	—	77.8	100.0
2 500 000	⇨	—	—	—	67.8
	⬅	—	—	—	72.2
3 750 000	⇨	—	—	—	47.1
	⬅	—	—	—	50.5
5 000 000	⇨	—	—	—	—
	⬅	—	—	—	—

HDO 160 LP



n_2 x h		Rn_2 [kN] M_2 = 123200 Nm	M_2 = 98550 Nm	M_2 = 82100 Nm	M_2 = 61600 Nm
250 000	⇨	106.2	133.3	151.3	173.8
	⬅	79.7	112.0	133.7	160.5
500 000	⇨	57.3	87.8	106.0	128.5
	⬅	—	66.4	88.2	115.2
750 000	⇨	—	65.4	83.5	106.0
	⬅	—	44.2	65.8	92.7
1 000 000	⇨	—	50.1	69.2	91.6
	⬅	—	—	51.5	78.3
1 250 000	⇨	—	—	58.8	81.4
	⬅	—	—	—	68.1
2 500 000	⇨	—	—	—	53.4
	⬅	—	—	—	—
3 750 000	⇨	—	—	—	—
	⬅	—	—	—	—
5 000 000	⇨	—	—	—	—
	⬅	—	—	—	—

h: durata in ore riferita al cuscinetto dell'albero lento.

Albero al quale sono riferiti i carichi radiali ammissibili. Per gli alberi bisporgenti il carico può essere applicato solo sull'estremità così evidenziata. In caso diverso consultare il Servizio Tecnico Bonfiglioli.

(—) Consultare il Servizio Tecnico Bonfiglioli

h: *expected lifetime [hours] for bearing of the output shaft.*

Shaft the rated overhung load is applicable to. For double extended shaft the load is only applicable to the extension highlighted Should this not be the case consult Bonfiglioli's Technical Service.

(—) Contact the Bonfiglioli Technical Service.

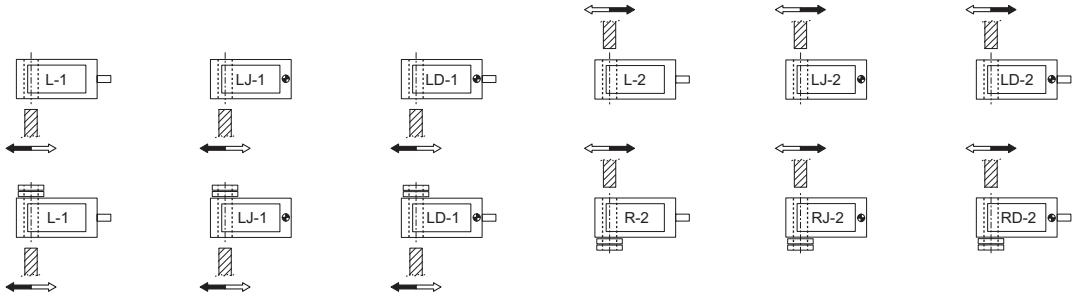
h: Lebensdauer in Stunden für des Lagers der Abtriebswelle.

Welle, auf die sich die zulässigen Radialkräfte beziehen. Für die Wellen mit zwei Wellenstummeln kann die Kraft nur auf das so gekennzeichnete Wellenende ausgeübt werden. Andernfalls mit dem technischen Kundendienst von Bonfiglioli Rücksprache halten.

(—) Bitte wenden Sie sich an den technischen Kundendienst von Bonfiglioli.

HDO 160

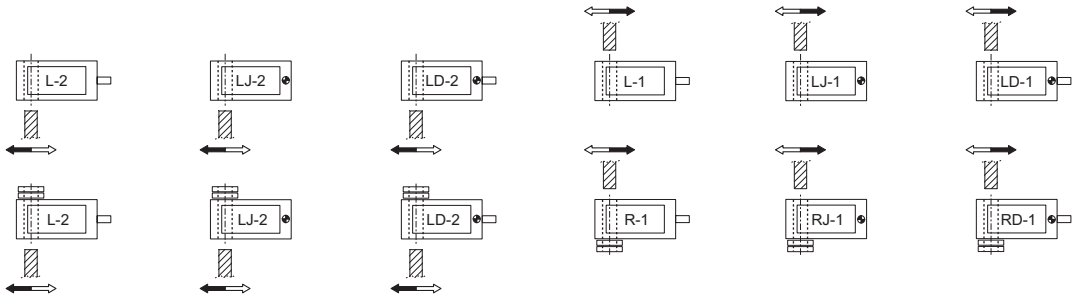
H S



n_2 x h		M_2 = 123200 Nm	M_2 = 98550 Nm	M_2 = 82100 Nm	M_2 = 61600 Nm
		Rn_2 [kN]			
250 000	⇨	216.0	220.0	220.0	220.0
	⇦	203.6	220.0	220.0	220.0
500 000	⇨	141.3	177.6	195.5	206.4
	⇦	148.3	166.5	178.7	193.8
750 000	⇨	101.6	141.1	164.4	179.0
	⇦	109.1	139.1	151.2	166.3
1 000 000	⇨	75.3	117.1	141.3	161.4
	⇦	79.1	121.5	133.7	148.9
1 250 000	⇨	54.4	99.6	124.6	148.9
	⇦	56.1	107.4	121.2	136.3
2 500 000	⇨	—	47.6	77.2	108.5
	⇦	—	49.0	83.3	102.1
3 750 000	⇨	—	—	51.7	85.9
	⇦	—	—	54.6	85.2
5 000 000	⇨	—	—	—	71.1
	⇦	—	—	—	74.4

HDO 160

H S



n_2 x h		M_2 = 123200 Nm	M_2 = 98550 Nm	M_2 = 82100 Nm	M_2 = 61600 Nm
		Rn_2 [kN]			
250 000	⇨	164.7	190.7	208.2	220.0
	⇦	137.5	168.9	189.9	216.0
500 000	⇨	109.3	135.3	152.8	174.4
	⇦	82.1	113.6	134.6	160.8
750 000	⇨	81.7	107.9	125.3	146.9
	⇦	54.6	86.1	107.2	133.4
1 000 000	⇨	64.2	90.4	107.7	129.5
	⇦	—	68.7	89.7	115.8
1 250 000	⇨	47.6	77.7	95.2	116.9
	⇦	—	56.0	77.1	103.2
2 500 000	⇨	—	—	61.0	82.7
	⇦	—	—	—	69.0
3 750 000	⇨	—	—	—	65.7
	⇦	—	—	—	52.1
5 000 000	⇨	—	—	—	54.9
	⇦	—	—	—	—

h: durata in ore riferita al cuscinetto dell'albero lento.

I carichi radiali ammissibili indicati nelle tabelle soprastanti si riferiscono al caso di forze applicate dal lato evidenziato in figura.

(—) Consultare il Servizio Tecnico Bonfiglioli

h: *expected lifetime [hours] for bearing of the output shaft.*

Rated overhung loads charted above refer to the case of forces applying on the side shown in the picture.

(—) Contact the Bonfiglioli Technical Service.

h: Lebensdauer in Stunden für des Lagers der Abtriebswelle.

Die zuverlässige Radialkräfte in o. g. Tabellen sind für Kräfte an der Zeichnungsseite ausgezeichnet gültig.

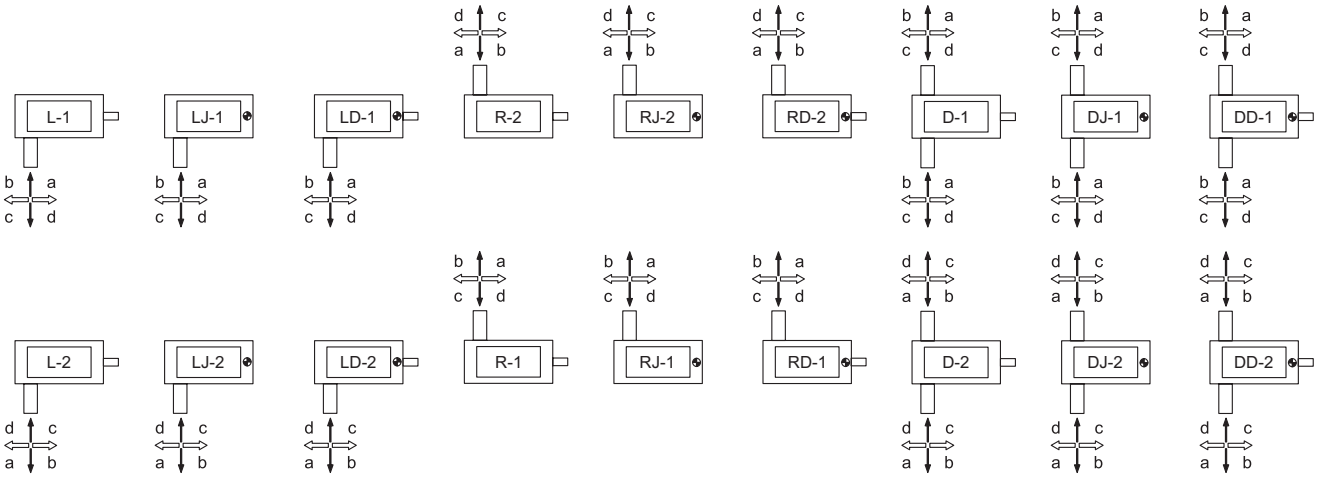
(—) Bitte wenden Sie sich an den technischen Kundendienst von Bonfiglioli.

4.3 - CARICHI ASSIALI ALBERO LENTO

4.3 - PERMITTED THRUST LOAD ON OUTPUT SHAFT

4.3 - AXIALKRÄFTE ABTRIEBSWELLE

HDO 100 LP H S



An_2 [kN]

n_2 x h		M_2 = 20000 Nm	M_2 = 16000 Nm	M_2 = 13300 Nm	M_2 = 10000 Nm
250 000	a	40.0	40.0	40.0	40.0
	b	40.0	40.0	40.0	40.0
	c	40.0	40.0	40.0	40.0
	d	40.0	40.0	40.0	40.0
500 000	a	40.0	40.0	40.0	40.0
	b	40.0	40.0	40.0	40.0
	c	40.0	40.0	40.0	40.0
	d	40.0	40.0	40.0	40.0
750 000	a	40.0	40.0	40.0	40.0
	b	35.2	40.0	40.0	40.0
	c	40.0	40.0	40.0	40.0
	d	32.4	40.0	40.0	40.0
1 000 000	a	40.0	40.0	40.0	40.0
	b	26.5	40.0	40.0	40.0
	c	40.0	40.0	40.0	40.0
	d	23.6	38.2	40.0	40.0
1 250 000	a	40.0	40.0	40.0	40.0
	b	20.3	34.3	40.0	40.0
	c	40.0	40.0	40.0	40.0
	d	17.4	32.0	40.0	40.0
2 500 000	a	—	40.0	40.0	40.0
	b	—	17.3	26.8	38.3
	c	—	40.0	40.0	40.0
	d	—	15.0	24.9	36.9
3 750 000	a	—	40.0	40.0	40.0
	b	—	8.9	18.4	29.9
	c	—	40.0	40.0	40.0
	d	—	—	16.5	28.5
5 000 000	a	—	40.0	40.0	40.0
	b	—	—	13.0	24.5
	c	—	40.0	40.0	40.0
	d	—	—	11.1	23.1

⟺ verso di rotazione albero lento

↕ verso di applicazione del carico assiale

(—) Consultare il Servizio Tecnico Bonfiglioli

⟺ *direction of rotation of output shaft*

↕ *direction of application of axial force*

(—) *Contact the Bonfiglioli Technical Service.*

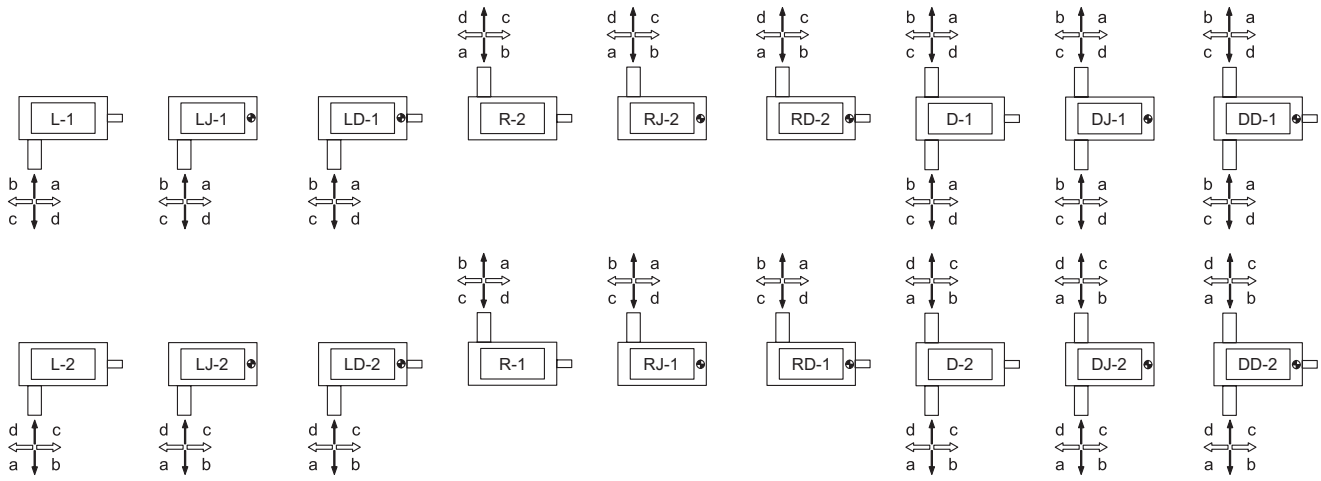
⟺ Drehrichtung der Abtriebswelle

↕ Wirkrichtung der Axialkraft

(—) Bitte wenden Sie sich an den technischen Kundendienst von Bonfiglioli.

HDO 110

LP | H | S



An_2 [kN]

n_2 x h		M_2 = 23650 Nm	M_2 = 18900 Nm	M_2 = 15750 Nm	M_2 = 11800 Nm
250 000	a	43.0	43.0	43.0	43.0
	b	43.0	43.0	43.0	43.0
	c	43.0	43.0	43.0	43.0
	d	43.0	43.0	43.0	43.0
500 000	a	43.0	43.0	43.0	43.0
	b	43.0	43.0	43.0	43.0
	c	43.0	43.0	43.0	43.0
	d	43.0	43.0	43.0	43.0
750 000	a	43.0	43.0	43.0	43.0
	b	43.0	43.0	43.0	43.0
	c	43.0	43.0	43.0	43.0
	d	43.0	43.0	43.0	43.0
1 000 000	a	43.0	43.0	43.0	43.0
	b	40.9	43.0	43.0	43.0
	c	43.0	43.0	43.0	43.0
	d	38.0	43.0	43.0	43.0
1 250 000	a	43.0	43.0	43.0	43.0
	b	33.7	43.0	43.0	43.0
	c	43.0	43.0	43.0	43.0
	d	30.8	43.0	43.0	43.0
2 500 000	a	43.0	43.0	43.0	43.0
	b	14.2	28.3	37.6	43.0
	c	43.0	43.0	43.0	43.0
	d	11.4	26.0	35.7	43.0
3 750 000	a	—	43.0	43.0	43.0
	b	—	18.6	28.0	39.7
	c	—	43.0	43.0	43.0
	d	—	16.3	26.1	38.2
5 000 000	a	—	—	43.0	43.0
	b	—	—	21.8	33.5
	c	—	—	43.0	43.0
	d	—	—	19.9	32.1

⟺ verso di rotazione albero lento

⟺ *direction of rotation of output shaft*

⟺ Drehrichtung der Abtriebswelle

↕ verso di applicazione del carico assiale

↕ *direction of application of axial force*

↕ Wirkrichtung der Axialkraft

(—) Consultare il Servizio Tecnico Bonfiglioli

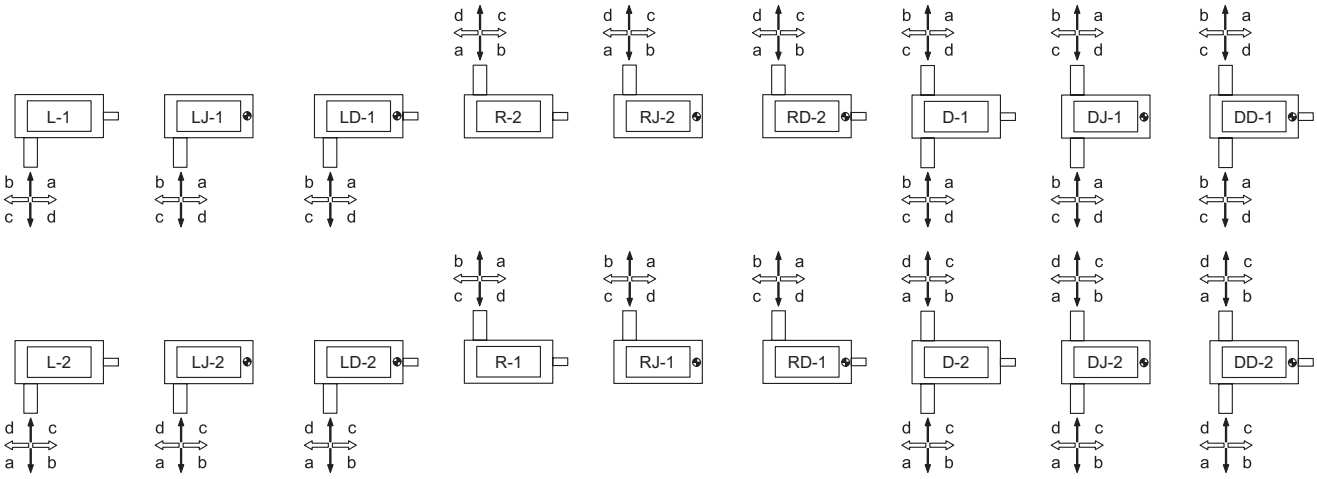
(—) *Contact the Bonfiglioli Technical Service.*

(—) Bitte wenden Sie sich an den technischen Kundendienst von Bonfiglioli.

Bonfiglioli Riduttori

HDO 120

LP | H | S



An_2 [kN]

n_2 x h		M_2 = 31750 Nm	M_2 = 25400 Nm	M_2 = 21150 Nm	M_2 = 15850 Nm
250 000	a	53.5	53.5	53.5	53.5
	b	53.5	53.5	53.5	53.5
	c	53.5	53.5	53.5	53.5
	d	53.5	53.5	53.5	53.5
500 000	a	53.5	53.5	53.5	53.5
	b	53.5	53.5	53.5	53.5
	c	53.5	53.5	53.5	53.5
	d	53.5	53.5	53.5	53.5
750 000	a	53.5	53.5	53.5	53.5
	b	53.5	53.5	53.5	53.5
	c	53.5	53.5	53.5	53.5
	d	53.5	53.5	53.5	53.5
1 000 000	a	53.5	53.5	53.5	53.5
	b	50.6	53.5	53.5	53.5
	c	53.5	53.5	53.5	53.5
	d	47.6	53.5	53.5	53.5
1 250 000	a	53.5	53.5	53.5	53.5
	b	41.8	53.5	53.5	53.5
	c	53.5	53.5	53.5	53.5
	d	38.8	53.5	53.5	53.5
2 500 000	a	53.5	53.5	53.5	53.5
	b	18.2	35.0	46.3	53.5
	c	53.5	53.5	53.5	53.5
	d	15.2	32.6	44.3	53.5
3 750 000	a	53.5	53.5	53.5	53.5
	b	—	23.3	34.6	48.6
	c	53.5	53.5	53.5	53.5
	d	—	20.9	32.5	47.1
5 000 000	a	—	53.5	53.5	53.5
	b	—	15.8	27.1	41.1
	c	—	53.5	53.5	53.5
	d	—	13.4	25.1	39.6

⟺ verso di rotazione albero lento

⟺ *direction of rotation of output shaft*

⟺ Drehrichtung der Abtriebswelle

↕ verso di applicazione del carico assiale

↕ *direction of application of axial force*

↕ Wirkrichtung der Axialkraft

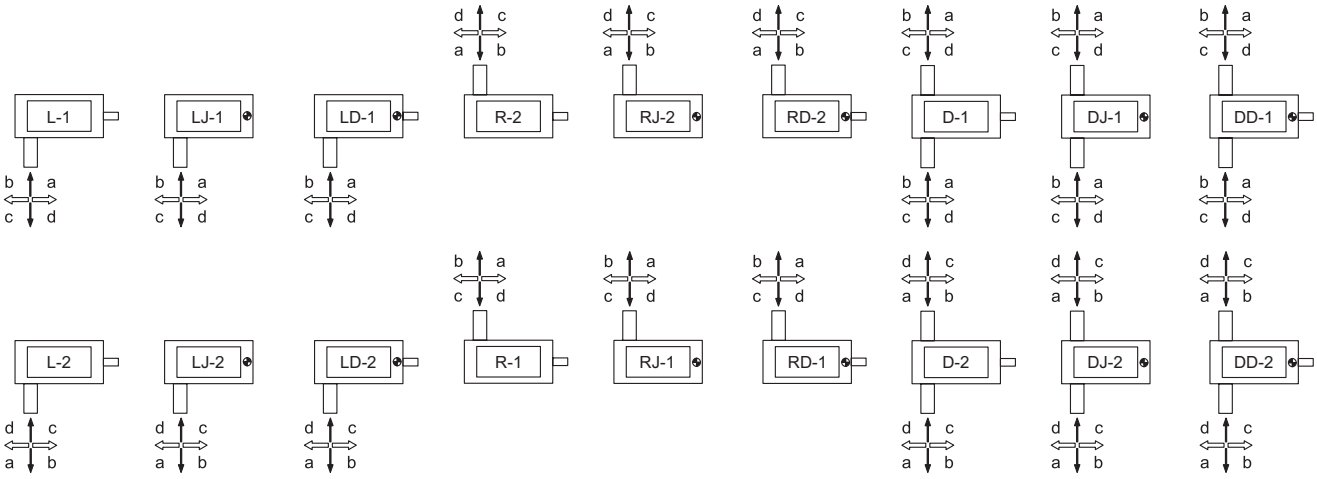
(—) Consultare il Servizio Tecnico Bonfiglioli

(—) *Contact the Bonfiglioli Technical Service.*

(—) Bitte wenden Sie sich an den technischen Kundendienst von Bonfiglioli.

HDO 130

LP | H | S



An_2 [kN]

n_2 x h		M_2 = 53600 Nm	M_2 = 42850 Nm	M_2 = 35700 Nm	M_2 = 26800 Nm
250 000	a	80.0	80.0	80.0	80.0
	b	80.0	80.0	80.0	80.0
	c	80.0	80.0	80.0	80.0
	d	80.0	80.0	80.0	80.0
500 000	a	80.0	80.0	80.0	80.0
	b	80.0	80.0	80.0	80.0
	c	80.0	80.0	80.0	80.0
	d	80.0	80.0	80.0	80.0
750 000	a	78.5	80.0	80.0	80.0
	b	80.0	80.0	80.0	80.0
	c	73.3	80.0	80.0	80.0
	d	80.0	80.0	80.0	80.0
1 000 000	a	61.6	80.0	80.0	80.0
	b	80.0	80.0	80.0	80.0
	c	56.4	80.0	80.0	80.0
	d	80.0	80.0	80.0	80.0
1 250 000	a	49.5	74.7	80.0	80.0
	b	80.0	80.0	80.0	80.0
	c	44.3	70.6	80.0	80.0
	d	80.0	80.0	80.0	80.0
2 500 000	a	16.5	41.7	58.5	79.4
	b	80.0	80.0	80.0	80.0
	c	—	37.6	55.1	76.9
	d	80.0	80.0	80.0	80.0
3 750 000	a	—	25.4	42.2	63.1
	b	—	80.0	80.0	80.0
	c	—	21.3	38.8	60.6
	d	—	80.0	80.0	80.0
5 000 000	a	—	—	31.8	52.7
	b	—	80.0	80.0	80.0
	c	—	—	28.4	50.1
	d	—	78.7	80.0	80.0

⟸ ⟹ verso di rotazione albero lento

⟸ ⟹ *direction of rotation of output shaft*

⟸ ⟹ Drehrichtung der Abtriebswelle

↓ ↑ verso di applicazione del carico assiale

↓ ↑ *direction of application of axial force*

↓ ↑ Wirkrichtung der Axialkraft

(—) Consultare il Servizio Tecnico Bonfiglioli

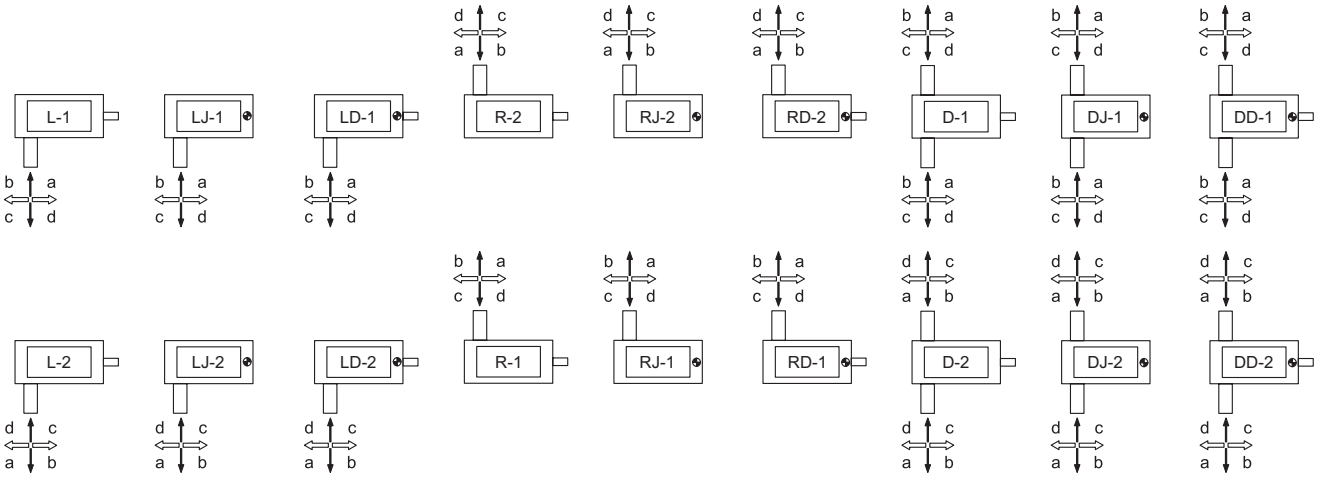
(—) *Contact the Bonfiglioli Technical Service.*

(—) Bitte wenden Sie sich an den technischen Kundendienst von Bonfiglioli.

Bonfiglioli Riduttori

HDO 140

LP | H | S



An_2 [kN]

n_2 x h		M_2 = 67200 Nm	M_2 = 53750 Nm	M_2 = 44800 Nm	M_2 = 33600 Nm
250 000	a	95.0	95.0	95.0	95.0
	b	95.0	95.0	95.0	95.0
	c	95.0	95.0	95.0	95.0
	d	95.0	95.0	95.0	95.0
500 000	a	83.9	95.0	95.0	95.0
	b	95.0	95.0	95.0	95.0
	c	79.1	95.0	95.0	95.0
	d	95.0	95.0	95.0	95.0
750 000	a	83.9	95.0	95.0	95.0
	b	95.0	95.0	95.0	95.0
	c	79.1	95.0	95.0	95.0
	d	95.0	95.0	95.0	95.0
1 000 000	a	64.9	94.1	95.0	95.0
	b	95.0	95.0	95.0	95.0
	c	60.0	90.2	95.0	95.0
	d	95.0	95.0	95.0	95.0
1 250 000	a	51.3	80.4	95.0	95.0
	b	95.0	95.0	95.0	95.0
	c	46.3	76.5	95.0	95.0
	d	95.0	95.0	95.0	95.0
2 500 000	a	—	43.5	62.8	87.1
	b	95.0	95.0	95.0	95.0
	c	—	39.5	59.6	84.7
	d	95.0	95.0	95.0	95.0
3 750 000	a	—	25.2	44.5	68.8
	b	—	95.0	95.0	95.0
	c	—	21.2	41.2	66.4
	d	—	95.0	95.0	95.0
5 000 000	a	—	—	32.8	57.1
	b	—	89.2	95.0	95.0
	c	—	—	29.6	54.6
	d	—	83.8	91.4	95.0

⟺ verso di rotazione albero lento

⟺ *direction of rotation of output shaft*

⟺ Drehrichtung der Abtriebswelle

↕ verso di applicazione del carico assiale

↕ *direction of application of axial force*

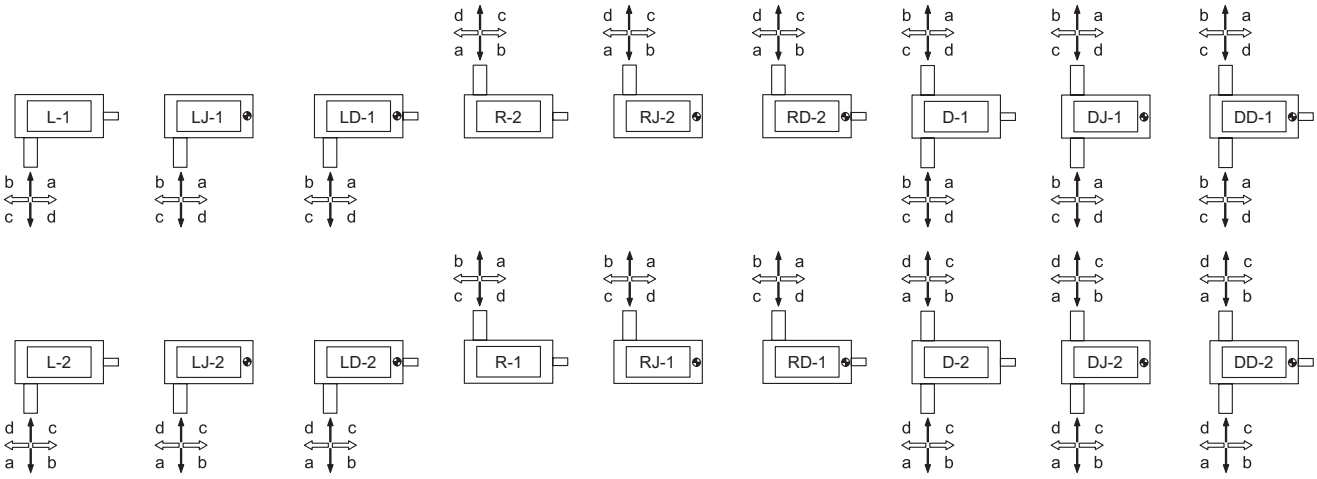
↕ Wirkrichtung der Axialkraft

(—) Consultare il Servizio Tecnico Bonfiglioli

(—) *Contact the Bonfiglioli Technical Service.*

(—) Bitte wenden Sie sich an den technischen Kundendienst von Bonfiglioli.

HDO 150 LP



An_2 [kN]

n_2 x h		M_2 = 96250 Nm	M_2 = 77000 Nm	M_2 = 64150 Nm	M_2 = 48100 Nm
250 000	a	100.0	100.0	100.0	100.0
	b	100.0	100.0	100.0	100.0
	c	100.0	100.0	100.0	100.0
	d	100.0	100.0	100.0	100.0
500 000	a	74.4	100.0	100.0	100.0
	b	100.0	100.0	100.0	100.0
	c	66.4	100.0	100.0	100.0
	d	100.0	100.0	100.0	100.0
750 000	a	44.7	81.7	100.0	100.0
	b	100.0	100.0	100.0	100.0
	c	36.7	75.3	100.0	100.0
	d	100.0	100.0	100.0	100.0
1 000 000	a	25.7	62.7	87.4	100.0
	b	100.0	100.0	100.0	100.0
	c	—	56.2	82.0	100.0
	d	100.0	100.0	100.0	100.0
1 250 000	a	—	49.0	73.7	100.0
	b	100.0	100.0	100.0	100.0
	c	—	42.7	68.4	100.0
	d	100.0	100.0	100.0	100.0
2 500 000	a	—	—	36.8	67.6
	b	—	100.0	100.0	100.0
	c	—	—	31.4	63.5
	d	—	100.0	100.0	100.0
3 750 000	a	—	—	—	49.3
	b	—	—	100.0	100.0
	c	—	—	—	45.2
	d	—	—	99.1	100.0
5 000 000	a	—	—	—	37.5
	b	—	—	93.4	100.0
	c	—	—	—	33.5
	d	—	—	87.4	98.0

⟺ verso di rotazione albero lento

⟺ *direction of rotation of output shaft*

⟺ Drehrichtung der Abtriebswelle

↕ verso di applicazione del carico assiale

↕ *direction of application of axial force*

↕ Wirkrichtung der Axialkraft

(—) Consultare il Servizio Tecnico Bonfiglioli

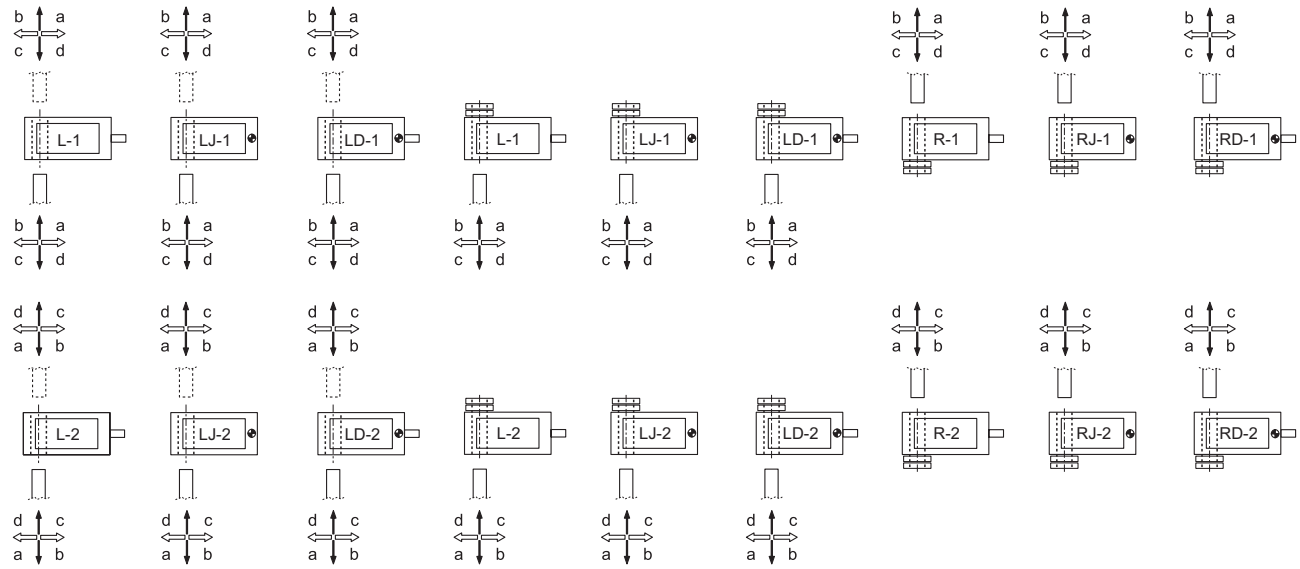
(—) *Contact the Bonfiglioli Technical Service.*

(—) Bitte wenden Sie sich an den technischen Kundendienst von Bonfiglioli.

Bonfiglioli Riduttori

HDO 150

H S



An_2 [kN]

n_2 x h		M_2 = 96250 Nm	M_2 = 77000 Nm	M_2 = 64150 Nm	M_2 = 48100 Nm
250 000	a	100.0	100.0	100.0	100.0
	b	100.0	100.0	100.0	100.0
	c	100.0	100.0	100.0	100.0
	d	100.0	100.0	100.0	100.0
500 000	a	100.0	100.0	100.0	100.0
	b	100.0	100.0	100.0	100.0
	c	100.0	100.0	100.0	100.0
	d	100.0	100.0	100.0	100.0
750 000	a	100.0	100.0	100.0	100.0
	b	100.0	100.0	100.0	100.0
	c	100.0	100.0	100.0	100.0
	d	100.0	100.0	100.0	100.0
1 000 000	a	87.1	100.0	100.0	100.0
	b	100.0	100.0	100.0	100.0
	c	78.6	100.0	100.0	100.0
	d	100.0	100.0	100.0	100.0
1 250 000	a	69.4	100.0	100.0	100.0
	b	100.0	100.0	100.0	100.0
	c	61.0	99.7	100.0	100.0
	d	100.0	100.0	100.0	100.0
2 500 000	a	21.6	58.7	83.4	100.0
	b	100.0	100.0	100.0	100.0
	c	—	51.8	77.7	100.0
	d	100.0	100.0	100.0	100.0
3 750 000	a	—	35.0	59.7	90.6
	b	—	100.0	100.0	100.0
	c	—	28.1	54.0	86.4
	d	—	100.0	100.0	100.0
5 000 000	a	—	—	44.5	75.5
	b	—	100.0	100.0	100.0
	c	—	—	38.9	71.2
	d	—	100.0	100.0	100.0

⟸ ⟹ verso di rotazione albero lento

⟸ ⟹ *direction of rotation of output shaft*

⟸ ⟹ Drehrichtung der Abtriebswelle

↓ ↑ verso di applicazione del carico assiale

↓ ↑ *direction of application of axial force*

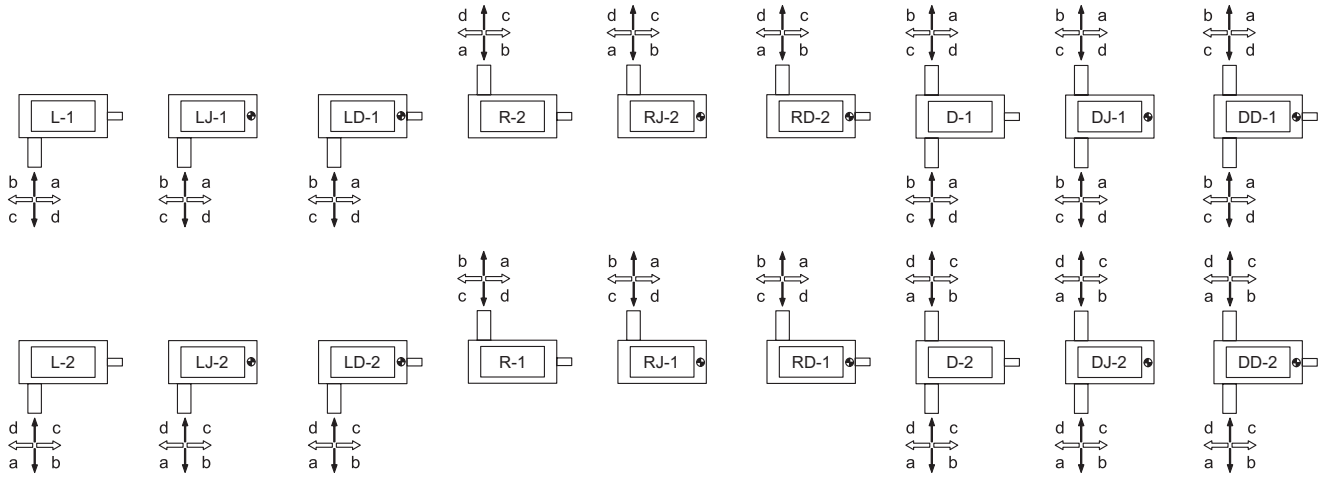
↓ ↑ Wirkrichtung der Axialkraft

(—) Consultare il Servizio Tecnico Bonfiglioli

(—) *Contact the Bonfiglioli Technical Service.*

(—) Bitte wenden Sie sich an den technischen Kundendienst von Bonfiglioli.

HDO 160 LP



An_2 [kN]

n_2 x h		M_2 = 123200 Nm	M_2 = 98550 Nm	M_2 = 82100 Nm	M_2 = 61600 Nm
250 000	**a**	109.1	110.0	110.0	110.0
	b	110.0	110.0	110.0	110.0
	c	101.5	110.0	110.0	110.0
	d	110.0	110.0	110.0	110.0
500 000	**a**	49.0	91.1	110.0	110.0
	b	110.0	110.0	110.0	110.0
	c	41.6	85.2	110.0	110.0
	d	110.0	110.0	110.0	110.0
750 000	**a**	—	61.5	89.5	110.0
	b	110.0	110.0	110.0	110.0
	c	—	55.4	84.4	110.0
	d	110.0	110.0	110.0	110.0
1 000 000	**a**	—	42.4	70.5	105.4
	b	—	110.0	110.0	110.0
	c	—	36.4	65.5	101.8
	d	—	110.0	110.0	110.0
1 250 000	**a**	—	28.9	56.8	91.9
	b	—	110.0	110.0	110.0
	c	—	22.8	51.8	88.1
	d	—	110.0	110.0	110.0
2 500 000	**a**	—	—	—	54.9
	b	—	—	110.0	110.0
	c	—	—	—	51.1
	d	—	—	110.0	110.0
3 750 000	**a**	—	—	—	36.6
	b	—	—	—	109.7
	c	—	—	—	32.8
	d	—	—	—	105.2
5 000 000	**a**	—	—	—	24.9
	b	—	—	—	98.0
	c	—	—	—	—
	d	—	—	—	93.5

⟺ verso di rotazione albero lento

⟺ *direction of rotation of output shaft*

⟺ Drehrichtung der Abtriebswelle

↕ verso di applicazione del carico assiale

↕ *direction of application of axial force*

↕ Wirkrichtung der Axialkraft

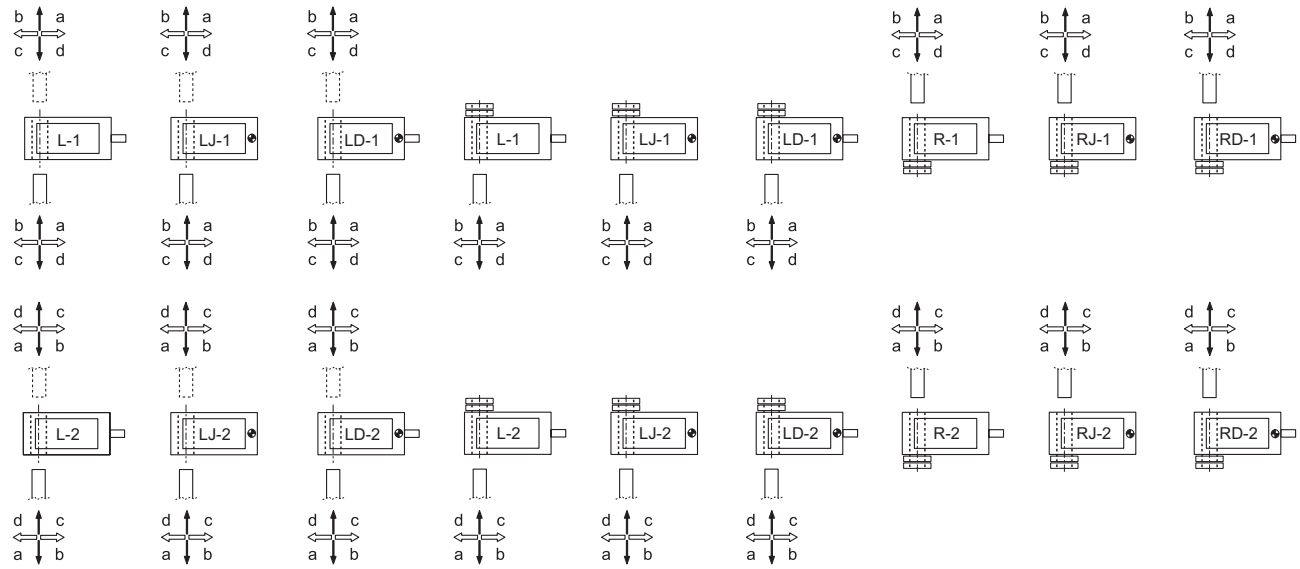
(—) Consultare il Servizio Tecnico Bonfiglioli

(—) *Contact the Bonfiglioli Technical Service.*

(—) Bitte wenden Sie sich an den technischen Kundendienst von Bonfiglioli.

HDO 160

H S



An_2 [kN]

n_2 x h		M_2 = 123200 Nm	M_2 = 98550 Nm	M_2 = 82100 Nm	M_2 = 61600 Nm
250 000	a	110.0	110.0	110.0	110.0
	b	110.0	110.0	110.0	110.0
	c	110.0	110.0	110.0	110.0
	d	110.0	110.0	110.0	110.0
500 000	a	110.0	110.0	110.0	110.0
	b	110.0	110.0	110.0	110.0
	c	110.0	110.0	110.0	110.0
	d	110.0	110.0	110.0	110.0
750 000	a	86.0	110.0	110.0	110.0
	b	110.0	110.0	110.0	110.0
	c	78.1	110.0	110.0	110.0
	d	110.0	110.0	110.0	110.0
1 000 000	a	61.5	103.7	110.0	110.0
	b	110.0	110.0	110.0	110.0
	c	53.5	97.4	110.0	110.0
	d	110.0	110.0	110.0	110.0
1 250 000	a	43.8	86.0	110.0	110.0
	b	110.0	110.0	110.0	110.0
	c	35.8	79.7	109.0	110.0
	d	110.0	110.0	110.0	110.0
2 500 000	a	—	38.2	66.4	101.5
	b	—	110.0	110.0	110.0
	c	—	31.8	61.1	97.5
	d	—	110.0	110.0	110.0
3 750 000	a	—	—	42.7	77.7
	b	—	110.0	110.0	110.0
	c	—	—	37.4	73.8
	d	—	110.0	110.0	110.0
5 000 000	a	—	—	27.5	62.6
	b	—	—	110.0	110.0
	c	—	—	22.2	58.7
	d	—	—	110.0	110.0

⟸ ⟹ verso di rotazione albero lento

↓ ↑ verso di applicazione del carico assiale

(—) Consultare il Servizio Tecnico Bonfiglioli

⟸ ⟹ *direction of rotation of output shaft*

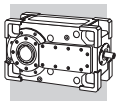
↓ ↑ *direction of application of axial force*

(—) *Contact the Bonfiglioli Technical Service.*

⟸ ⟹ Drehrichtung der Abtriebswelle

↓ ↑ Wirkrichtung der Axialkraft

(—) Bitte wenden Sie sich an den technischen Kundendienst von Bonfiglioli.



4.4 - MOMENTO D'INERZIA

I momenti d'inerzia sono riferiti all'asse veloce del riduttore e unicamente alla configurazione caratterizzata da un albero veloce pieno e un albero lento pieno a singola sporgenza.

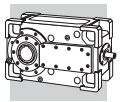
4.4 - MASS MOMENT OF INERTIA

Moments of inertia listed refer to gearbox input shaft and apply exclusively for configurations with a single extension input and output shaft.

4.4 - TRÄGHEITSMOMENT

Die aufgeführten Trägheitsmomente beziehen sich auf die Antriebswelle des Getriebes und nur auf die Ausführungen mit einer Eingangswelle und Ausgangswelle.

	i_N	$J \bullet 10^{-4}$ [Kg m^2]						
		HDO 100	HDO 110	HDO 120	HDO 130	HDO 140	HDO 150	HDO 160
2x	5.6	1862	—	—	8268	—	23425	—
	6.3	1780	1893	2869	7943	9161	21737	—
	7.1	1725	1803	2757	10164	8677	20949	23848
	8.0	1578	1692	2592	6959	8104	16297	22841
	9.0	1543	1566	2774	8408	7438	15670	19669
	10.0	1204	1494	2666	5207	7065	12076	18609
	11.2	1182	1168	2056	6135	5514	12006	18114
	12.5	967	1121	1987	4070	5275	9091	12785
	14.0	952	996	1572	4673	4269	8884	12212
	16.0	—	966	1528	—	4114	—	11945
3x	14.0	940	—	—	—	—	—	—
	16.0	926	—	—	3156	—	9690	—
	18.0	836	849	1233	2675	3280	9480	10012
	20.0	540	839	1205	2643	3184	9382	9743
	22.4	487	550	1013	1913	2716	8401	9618
	25.0	481	494	917	1893	1970	8292	8568
	28.0	443	488	592	1728	1940	5067	8428
	31.5	440	448	534	1714	1764	4578	8363
	35.5	415	444	530	1612	1744	4524	4661
	40.0	413	418	464	1137	1636	3114	4592
	45.0	240	415	461	1069	1623	3093	4559
	50.0	239	242	278	1063	1084	2890	3142
	56.0	228	241	276	1021	1076	2867	2924
	63.0	227	230	249	1017	1031	2857	2895
	71.0	227	229	248	1042	1025	—	2882
	80.0	—	227	246	—	1019	—	—
4x	71.0	168	—	—	553	—	1023	—
	80.0	167	169	—	551	558	1011	1040
	90.0	163	168	182	535	555	952	1025
	100.0	163	143	171	533	538	589	1019
	112.0	139	163	171	447	536	586	597
	125.0	139	140	145	446	449	554	593
	140.0	132	70	145	410	448	550	559
	160.0	68	60	141	410	412	301	555
	180.0	59	68	71	406	411	300	553
	200.0	59	59	61	405	243	287	303
	224.0	56	59	61	227	242	285	289
	250.0	56	56	58	226	227	284	287
	280.0	56	58	60	225	227	—	286
	315.0	56	56	57	225	225	—	—
	355.0	56	56	57	226	225	—	—
	400.0	—	56	56	—	225	—	—

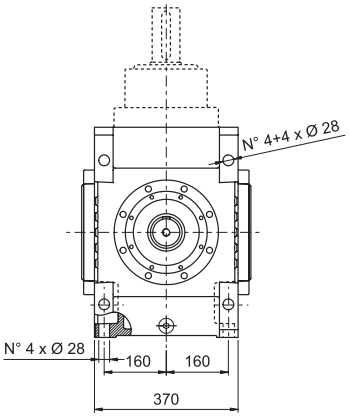


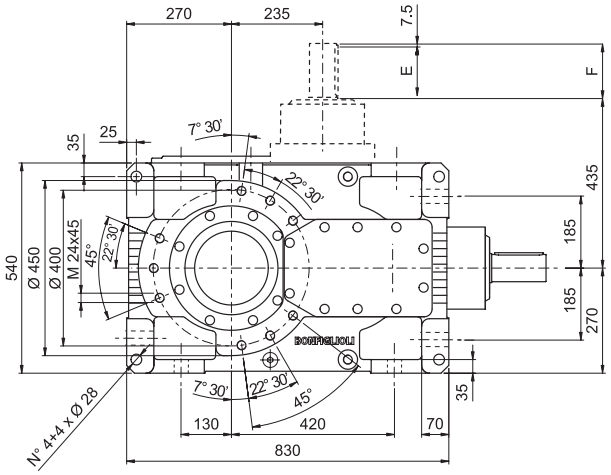
4.5 - RAPPORTI ESATTI *4.5 - EXACT RATIOS* 4.5 - EXAKTE ÜBERSETZUNG

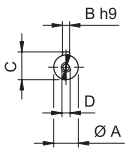
	i_N	i						
		HDO 100	HDO 110	HDO 120	HDO 130	HDO 140	HDO 150	HDO 160
2x	**5.6**	5.815	—	—	5.708	—	5.512	—
	6.3	6.462	6.354	6.569	6.231	6.569	6.459	—
	7.1	7.038	7.038	7.154	7.090	7.269	7.034	7.306
	8.0	8.000	8.077	8.077	7.714	8.167	8.133	7.941
	9.0	8.714	8.714	8.857	8.778	9.000	8.857	8.933
	10.0	10.000	10.000	10.000	9.643	10.111	10.010	10.427
	11.2	10.893	10.893	11.071	10.972	11.250	10.901	11.333
	12.5	12.400	12.500	12.500	11.957	12.639	12.607	12.152
	14.0	13.507	13.507	13.729	13.606	13.950	13.729	14.183
	16.0	—	15.500	15.500	—	15.672	—	15.417
3x	**14.0**	14.009	—	—	—	—	—	—
	16.0	15.566	—	—	15.188	—	15.618	—
	18.0	17.308	18.910	17.260	18.265	17.719	18.300	17.735
	20.0	20.235	20.948	19.487	19.938	19.906	19.929	20.700
	22.4	22.500	22.042	21.802	22.613	23.262	21.698	22.500
	25.0	25.000	24.583	24.579	24.686	26.027	25.425	24.641
	28.0	28.320	27.232	28.343	28.267	28.800	28.232	28.760
	31.5	31.467	30.942	31.952	30.857	32.533	30.739	31.261
	35.5	36.000	34.276	34.796	34.862	36.000	36.019	34.908
	40.0	40.000	39.333	41.248	38.263	40.124	40.184	40.743
	45.0	43.896	43.571	44.918	43.813	44.400	43.760	44.286
	50.0	48.773	47.960	49.526	47.829	50.427	47.646	49.406
	56.0	55.800	53.128	53.934	54.036	55.800	55.830	54.107
	63.0	62.000	60.967	63.934	58.989	62.193	60.798	63.151
	71.0	67.536	67.536	69.623	67.121	68.820	—	68.643
	80.0	—	77.500	78.607	—	77.316	—	—
4x	**71.0**	70.800	—	—	71.498	—	66.861	—
	80.0	78.667	77.356	—	78.050	82.290	78.345	75.927
	90.0	90.000	85.690	86.990	88.181	91.059	92.894	88.620
	100.0	100.000	96.694	103.119	96.262	101.491	101.848	96.326
	112.0	111.392	108.929	112.296	111.182	112.306	110.912	115.205
	125.0	123.769	121.706	125.679	121.371	127.964	120.762	125.223
	140.0	139.830	137.105	136.864	141.333	141.600	141.503	137.137
	160.0	160.000	154.711	162.241	154.286	162.667	157.865	160.061
	180.0	178.227	174.286	179.673	174.311	180.000	171.914	173.980
	200.0	198.030	194.730	201.087	190.286	198.345	187.182	194.096
	225.0	223.728	215.711	218.982	219.067	219.480	219.330	212.562
	250.0	248.587	244.444	252.424	239.143	252.133	238.849	248.095
	280.0	284.400	274.210	282.686	270.182	279.000	—	269.668
	315.0	316.000	310.733	325.856	294.943	310.964	—	—
	355.0	344.214	344.214	354.855	335.604	344.100	—	—
	400.0	—	395.000	400.643	—	386.581	—	—

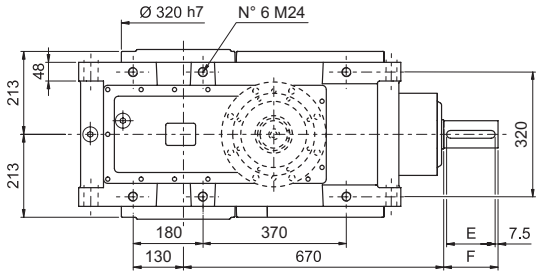
5 - DIMENSIONI E PESI | ***5 - DIMENSIONS AND WEIGHT*** | **5 - ABMESSUNGEN UND GEWICHTE**

HDO 100 2

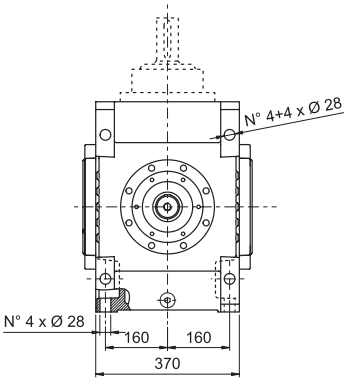


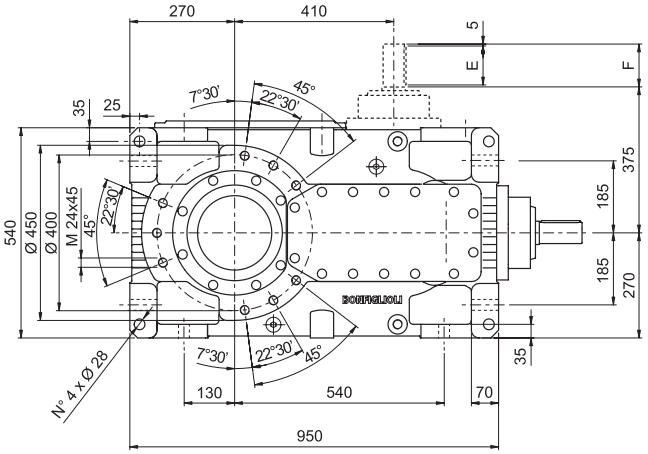


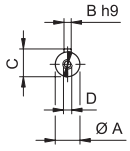


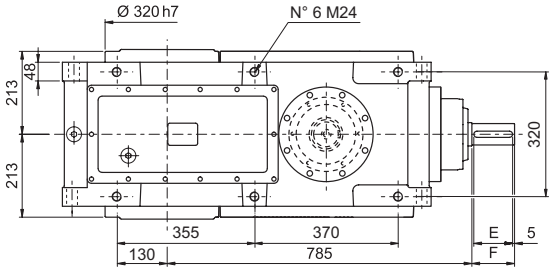


HDO 100 3
HDO 100 4



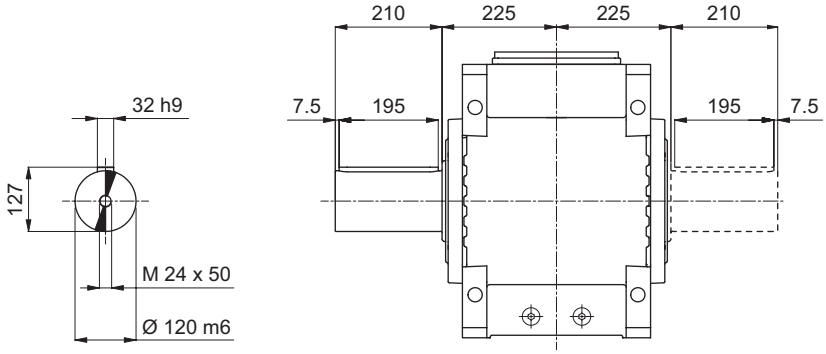




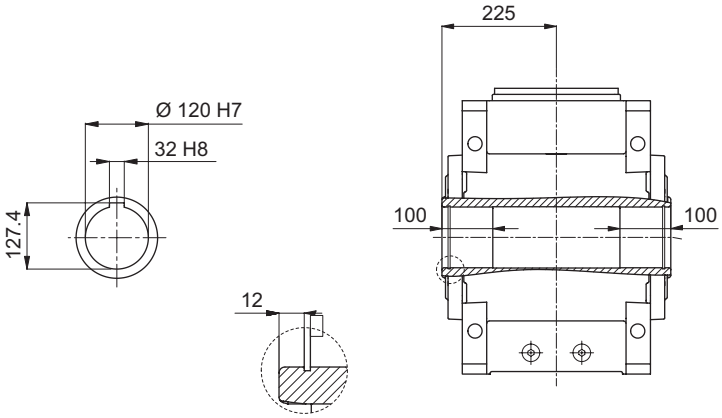


VP	i =	A	B	C	D	E	F	Kg
HDO 100 2	**5.8 … 13.5**	70 m6	20	74.5	M20x42	125	140	660
HDO 100 3	**14 … 17.3**	55 m6	16	59	M20x42	100	110	750
HDO 100 3	**20.2 … 67.5**	45 k6	14	48.5	M16x36	100	110	750
HDO 100 4	**70.8 … 139.8**	35 k6	10	38	M12x28	70	80	760
HDO 100 4	**160 … 344.2**	32 k6	10	35	M12x28	70	80	760

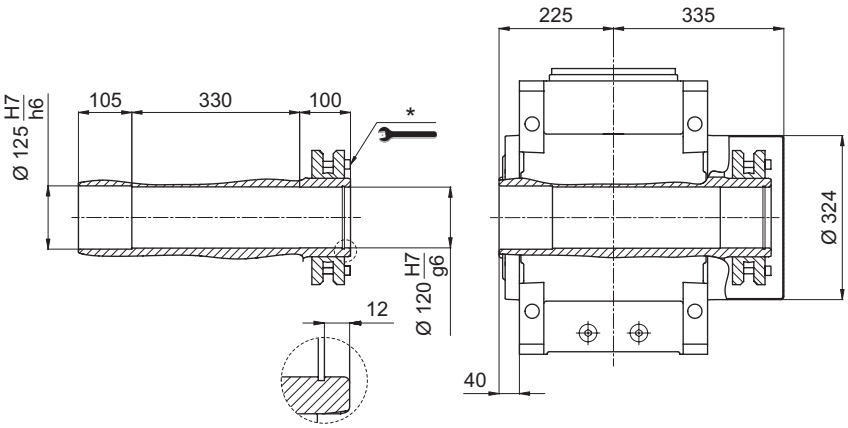
LP



H



S

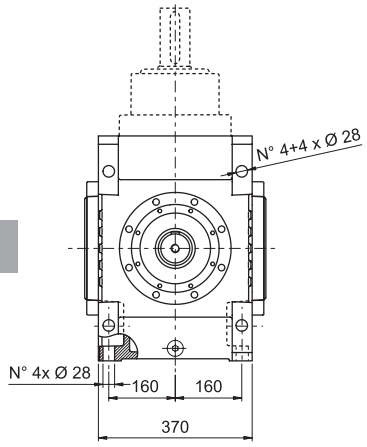


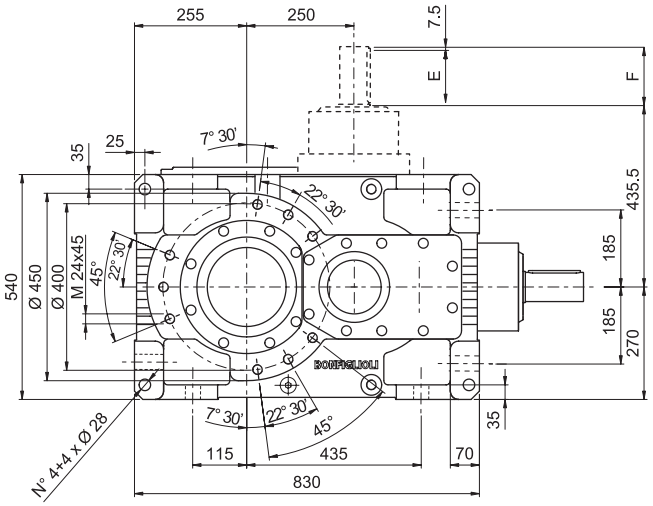
* Per un corretto utilizzo riferirsi al "MANUALE USO E MANUTENZIONE".

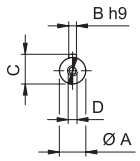
* *For correct use, refer to the "OPERATION AND MAINTENANCE MANUAL".*

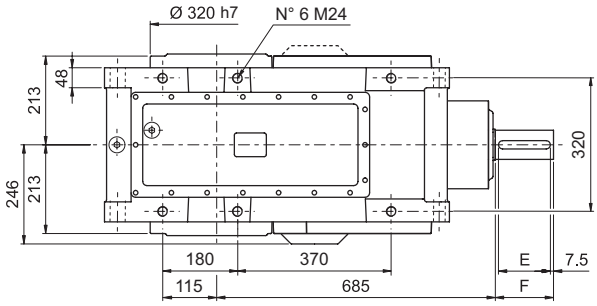
* Zur Gewährleistung eines korrekten Gebrauchs die "BETRIEBS- UND WARTUNGSANLEITUNG" konsultieren.

HDO 110 2

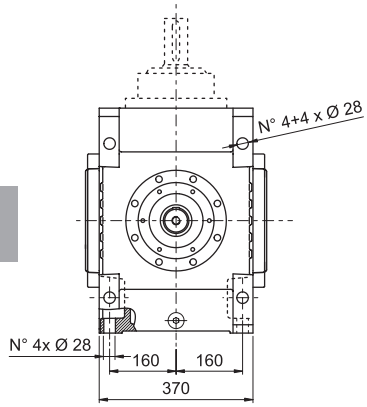


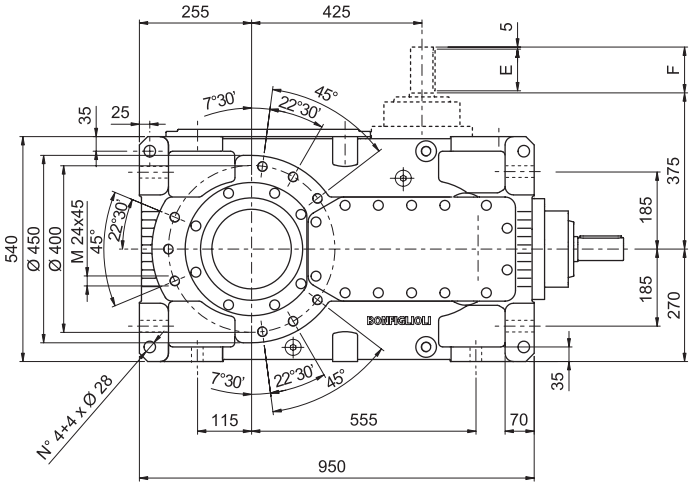


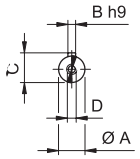


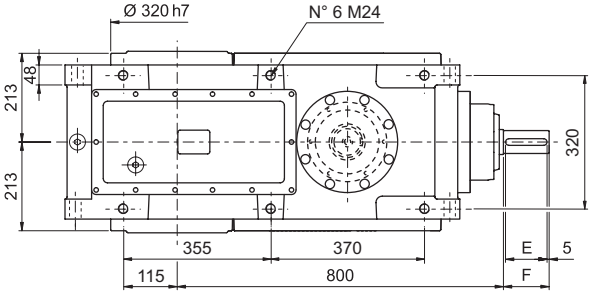


HDO 110 3
HDO 110 4

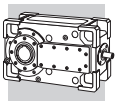




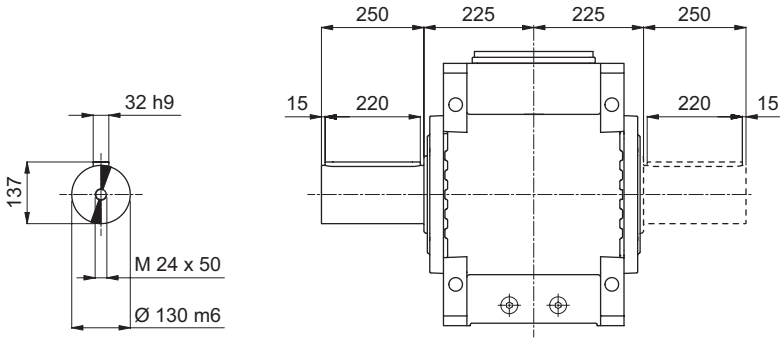




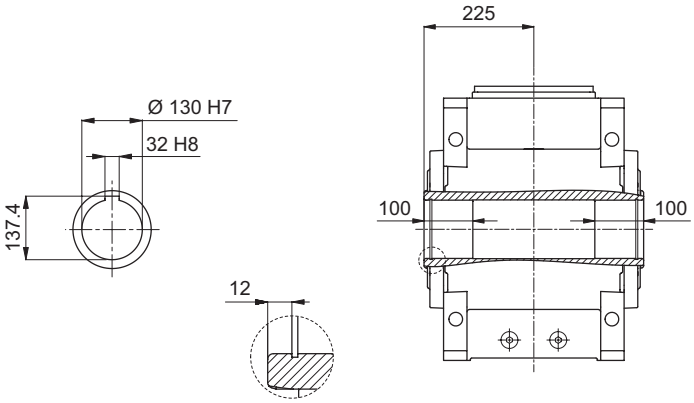
VP	i =	A	B	C	D	E	F	Kg
HDO 110 2	**6.4 … 15.5**	70 m6	20	74.5	M20x42	125	140	715
HDO 110 3	**18.9 … 20.9**	55 m6	16	59	M20x42	100	110	800
HDO 110 3	**22 … 77.5**	45 k6	14	48.5	M16x36	100	110	800
HDO 110 4	**77.4 … 121.7**	35 k6	10	38	M12x28	70	80	790
HDO 110 4	**137.1 … 395**	32 k6	10	35	M12x28	70	80	790



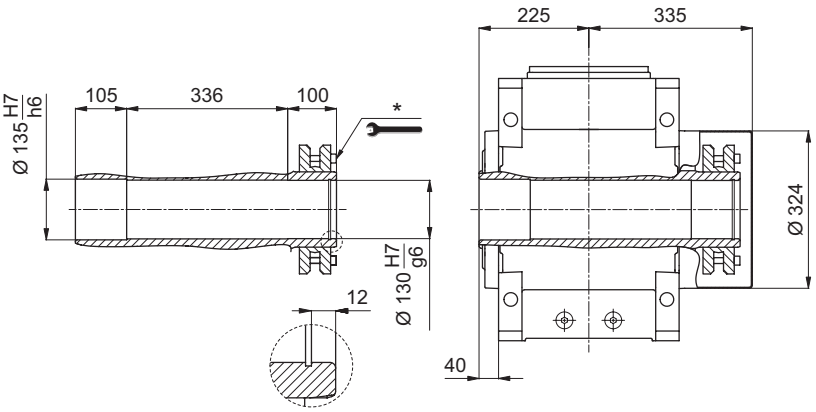
LP



H



S

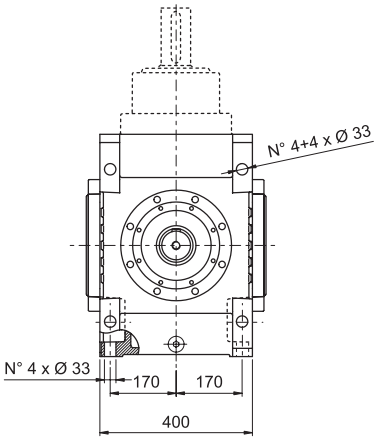


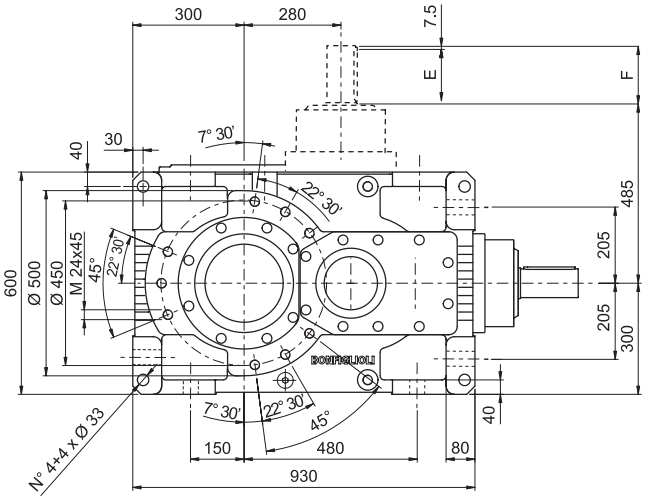
* Per un corretto utilizzo riferirsi al "MANUALE USO E MANUTENZIONE".

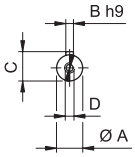
* *For correct use, refer to the "OPERATION AND MAINTENANCE MANUAL".*

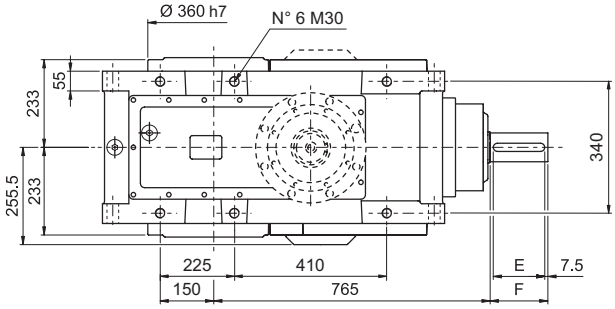
* Zur Gewährleistung eines korrekten Gebrauchs die "BETRIEBS- UND WARTUNGSANLEITUNG" konsultieren.

HDO 120 2

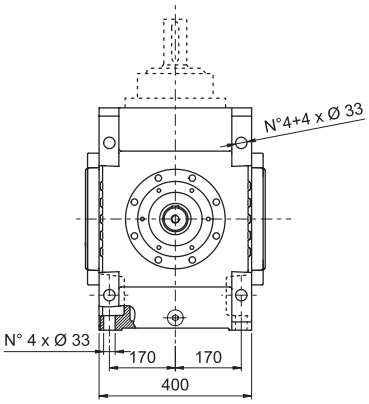


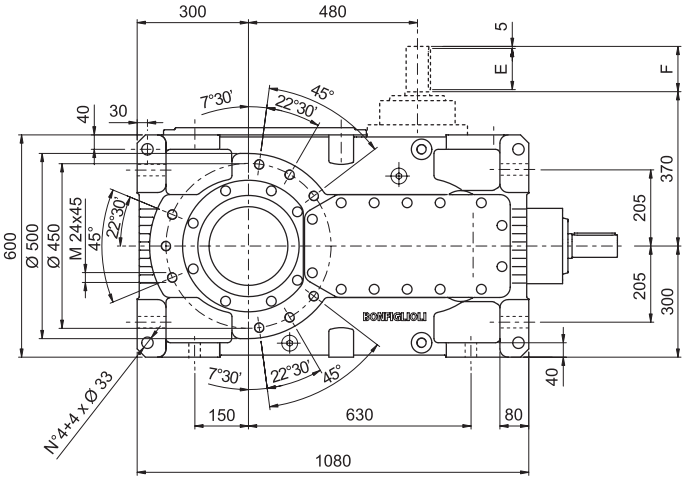


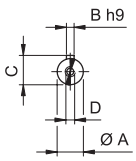


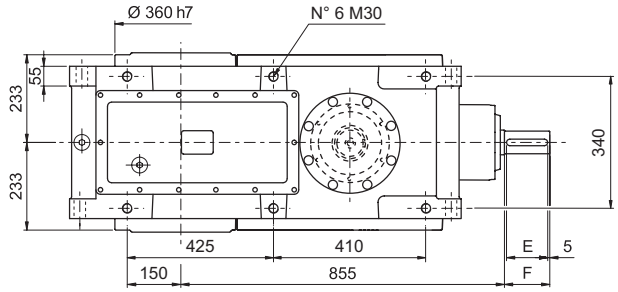


HDO 120 3
HDO 120 4

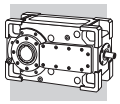




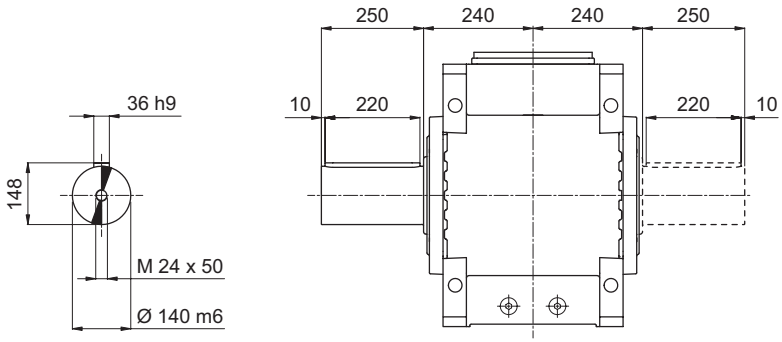




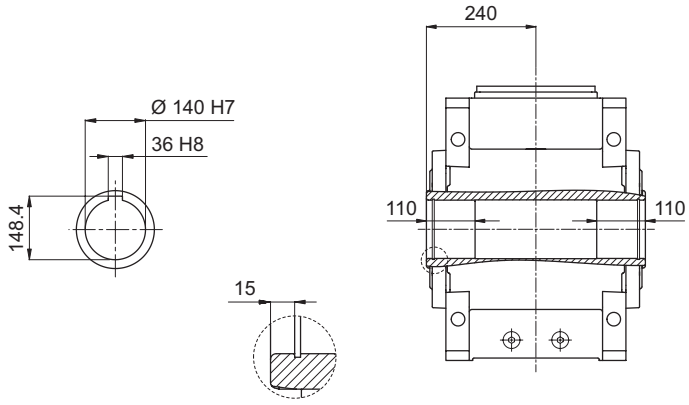
VP	i =	A	B	C	D	E	F	Kg
HDO 120 2	**6.6 … 15.5**	70 m6	20	74.5	M20x42	125	140	995
HDO 120 3	**17.3 … 24.6**	55 m6	16	59	M20x42	100	110	1075
HDO 120 3	**28.3 … 78.6**	45 k6	14	48.5	M16x36	100	110	1075
HDO 120 4	**87 … 162.2**	35 k6	10	38	M12x28	70	80	1035
HDO 120 4	**179.7 … 400.6**	32 k6	10	35	M12x28	70	80	1035



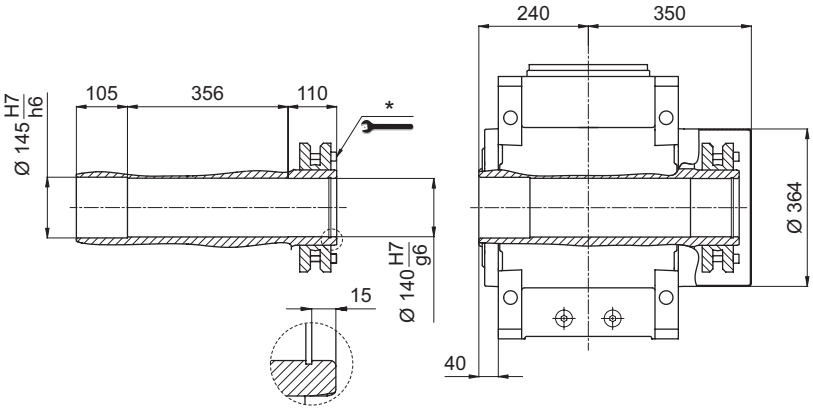
LP



H



S

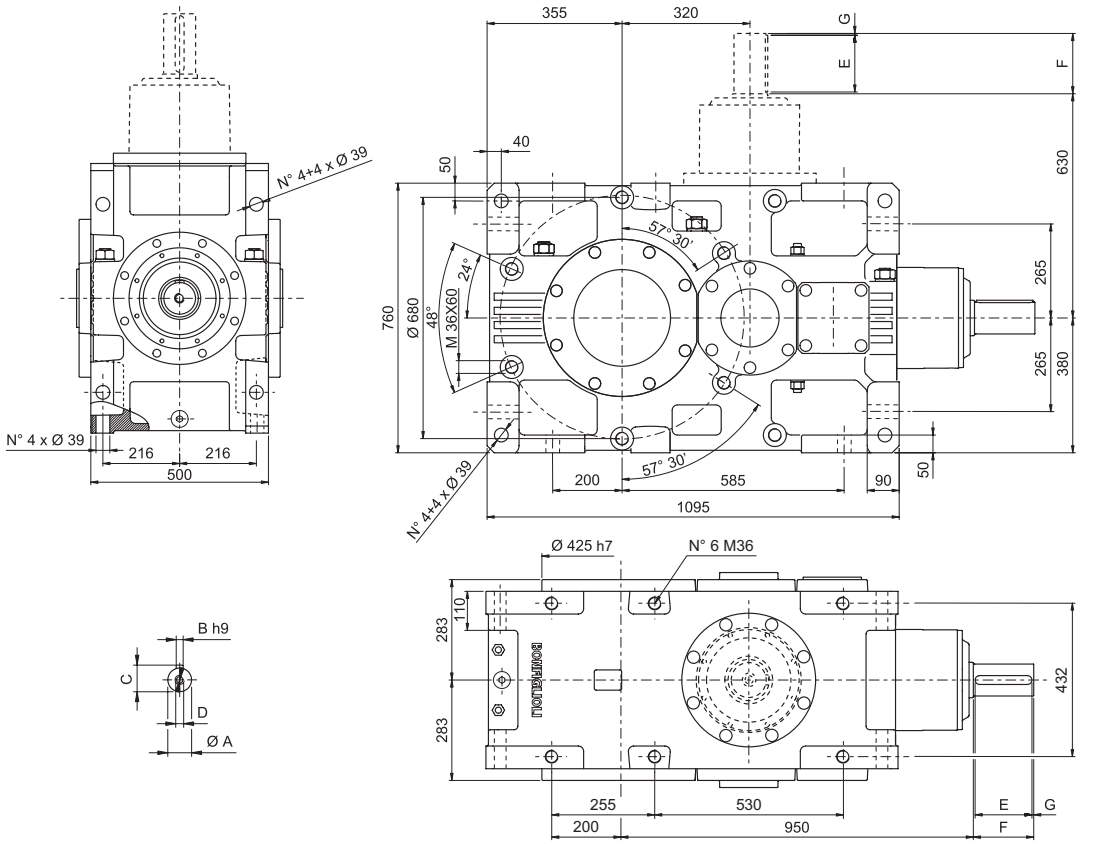


* Per un corretto utilizzo riferirsi al "MANUALE USO E MANUTENZIONE".

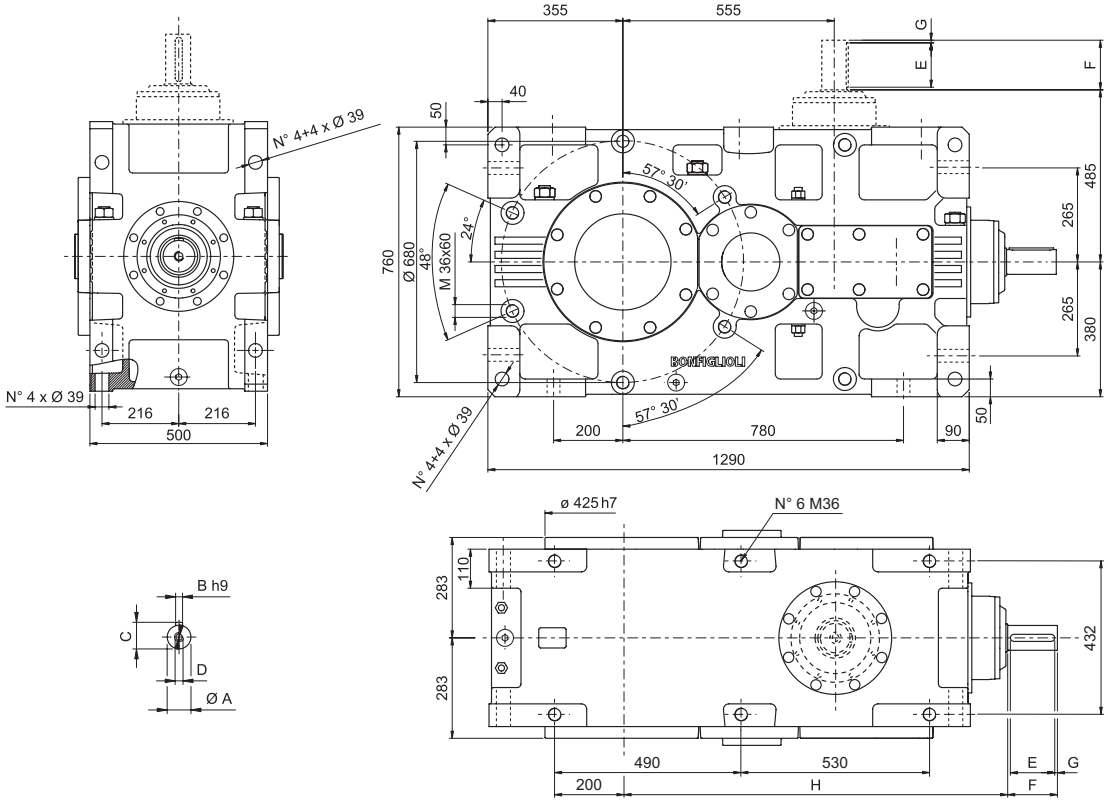
* *For correct use, refer to the "OPERATION AND MAINTENANCE MANUAL".*

* Zur Gewährleistung eines korrekten Gebrauchs die "BETRIEBS- UND WARTUNGSANLEITUNG" konsultieren.

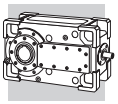
HDO 130 2



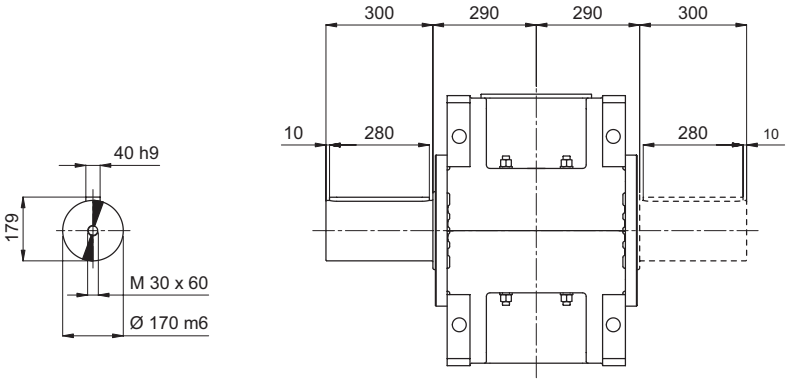
HDO 130 3
HDO 130 4



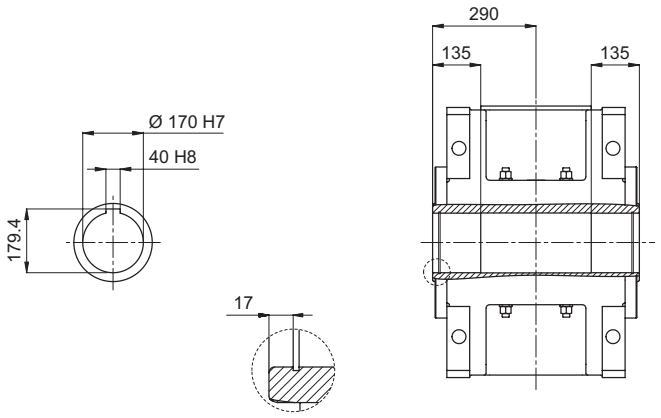
VP	i =	A	B	C	D	E	F	G	H	kg
HDO 130 2	**5.7 … 13.6**	90 m6	25	95	M24x50	160	170	5	—	1765
HDO 130 3	**15.2 … 67.1**	70 m6	20	74.5	M20x42	125	140	7.5	1040	1835
HDO 130 4	**71.5 … 335.6**	45 k6	14	48.5	M16x36	100	110	5	1105	1805



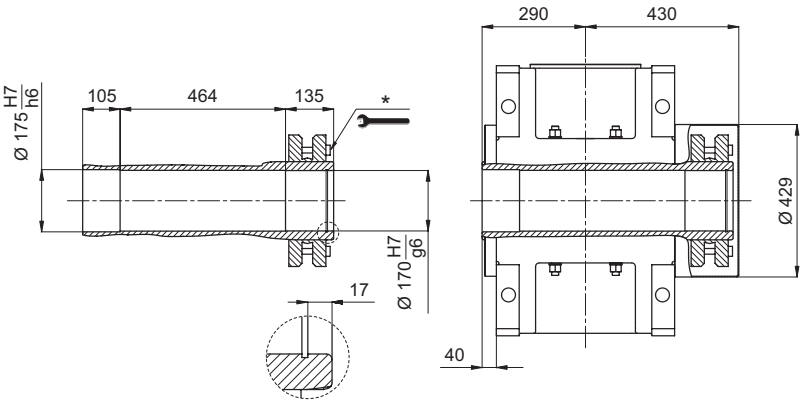
LP



H



S

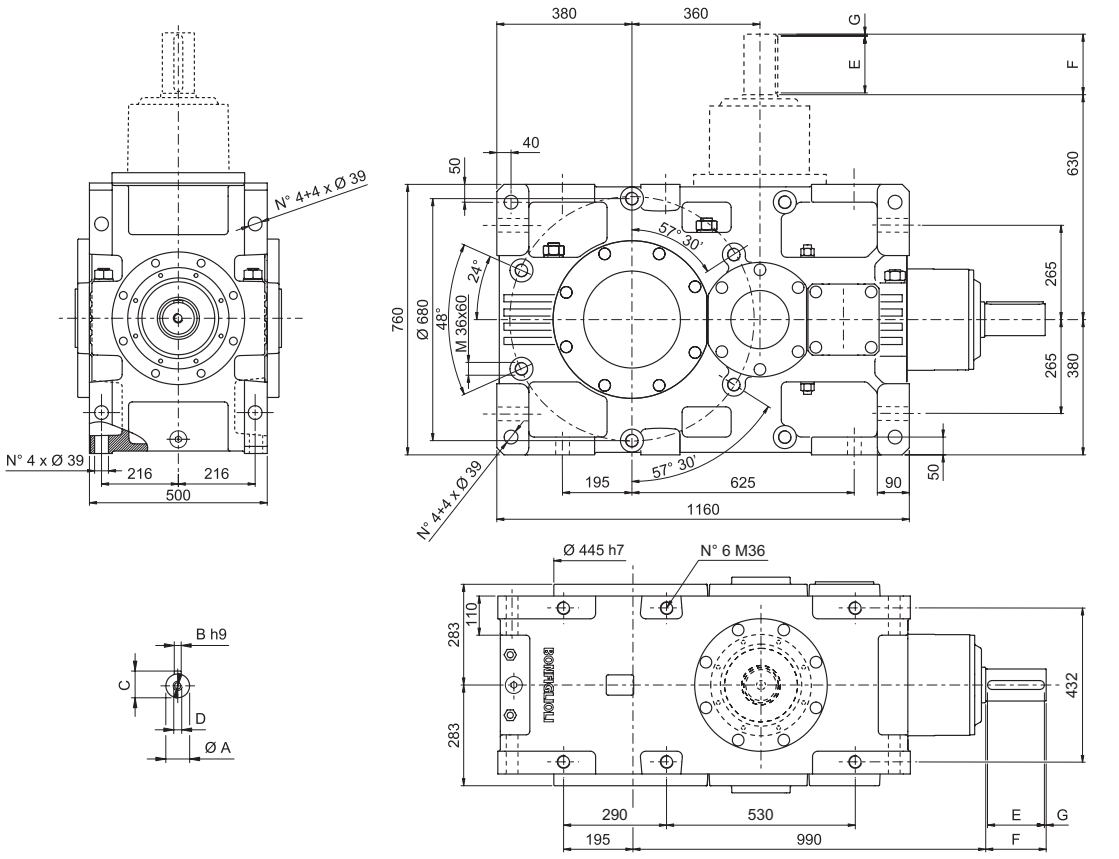


* Per un corretto utilizzo riferirsi al "MANUALE USO E MANUTENZIONE".

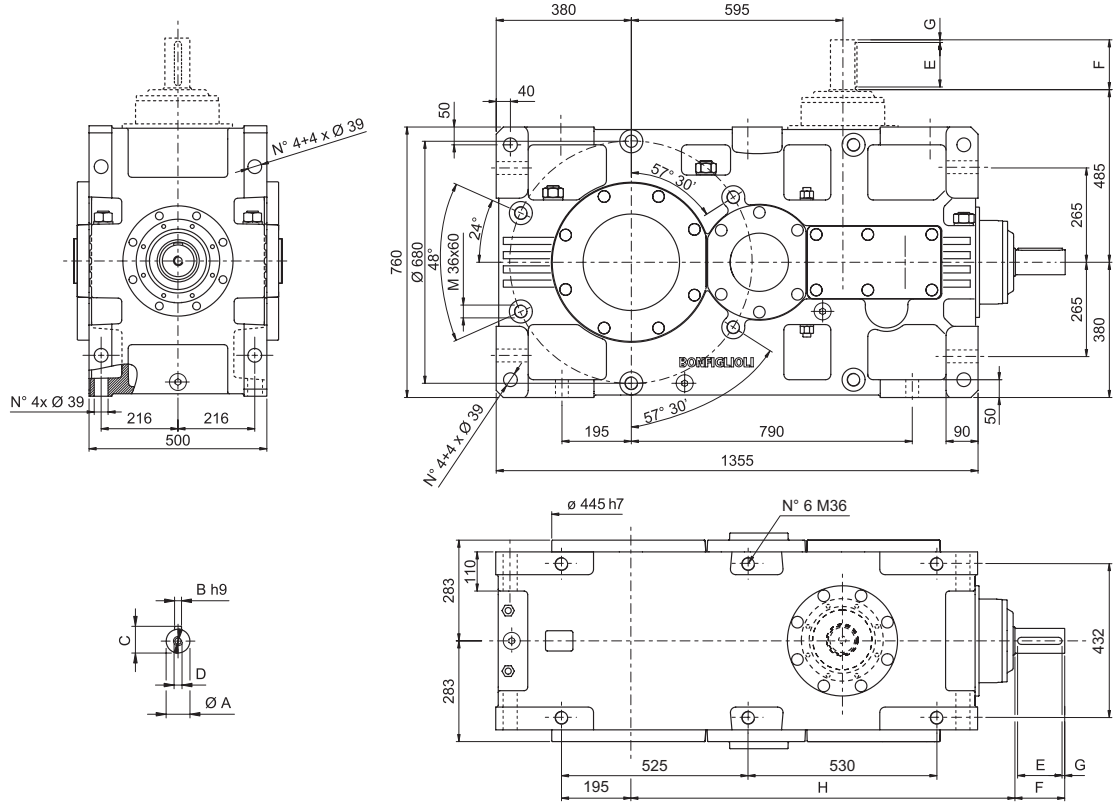
* *For correct use, refer to the "OPERATION AND MAINTENANCE MANUAL".*

* Zur Gewährleistung eines korrekten Gebrauchs die "BETRIEBS- UND WARTUNGSANLEITUNG" konsultieren.

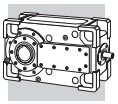
HDO 140 2



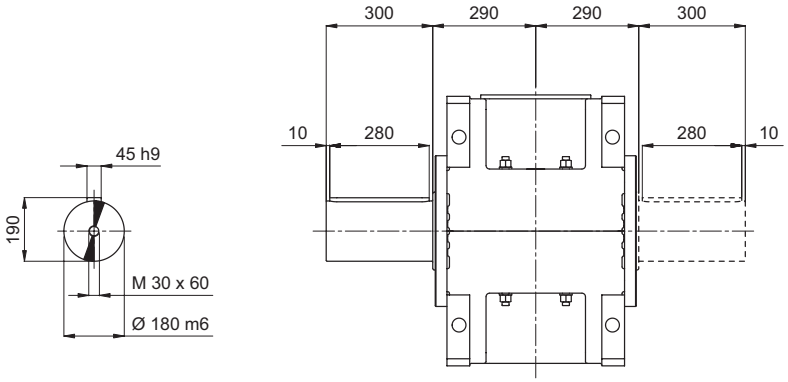
HDO 140 3
HDO 140 4



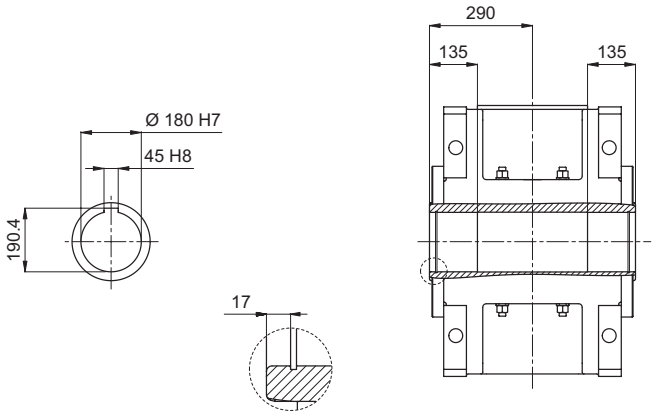
VP	i =	A	B	C	D	E	F	G	H	Kg
HDO 140 2	**6.6 … 15.7**	90 m6	25	95	M24x50	160	170	5	—	1940
HDO 140 3	**17.7 … 77.3**	70 m6	20	74.5	M20x42	125	140	7.5	1080	2040
HDO 140 4	**82.3 … 386.6**	45 k6	14	48.5	M16x36	100	110	5	1145	2010



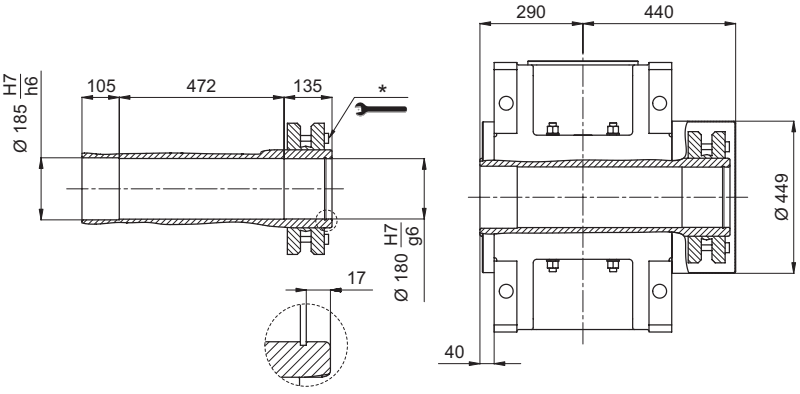
LP



H



S

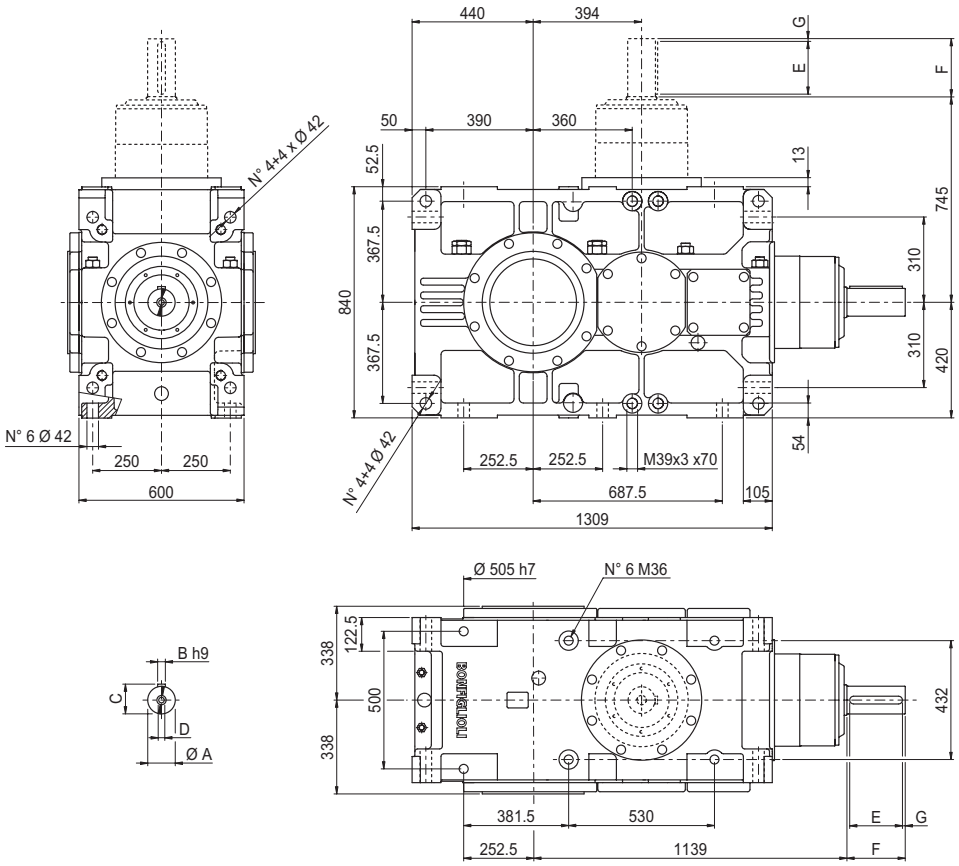


* Per un corretto utilizzo riferirsi al "MANUALE USO E MANUTENZIONE".

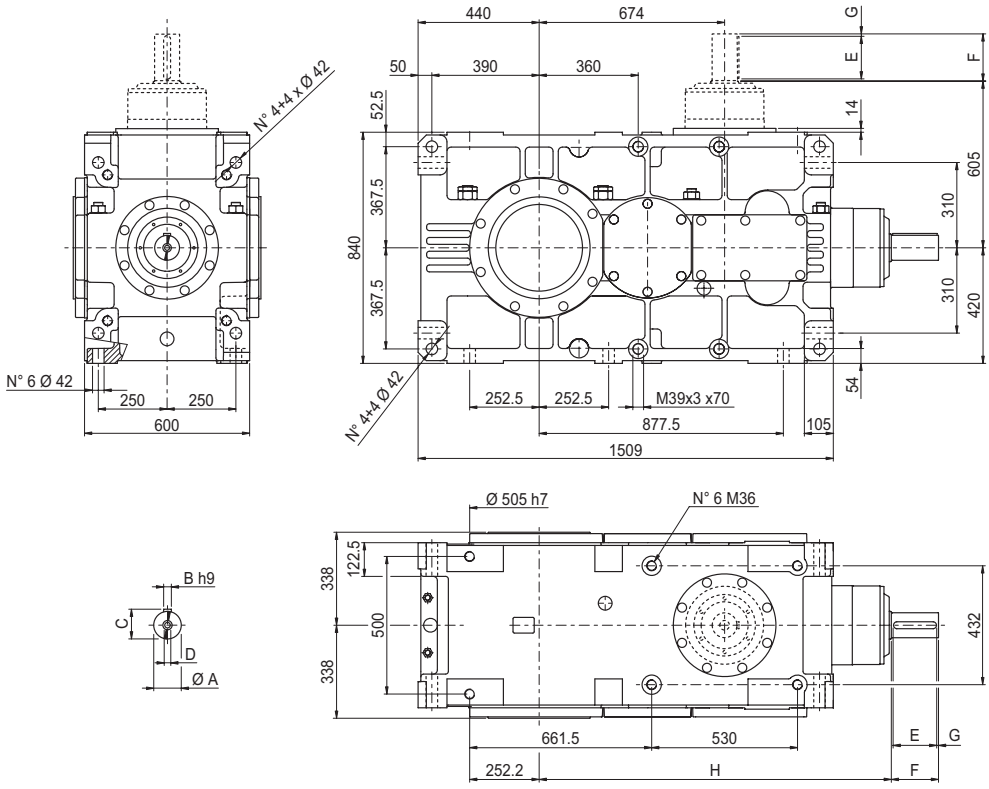
* *For correct use, refer to the "OPERATION AND MAINTENANCE MANUAL".*

* Zur Gewährleistung eines korrekten Gebrauchs die "BETRIEBS- UND WARTUNGSANLEITUNG" konsultieren.

HDO 150 2

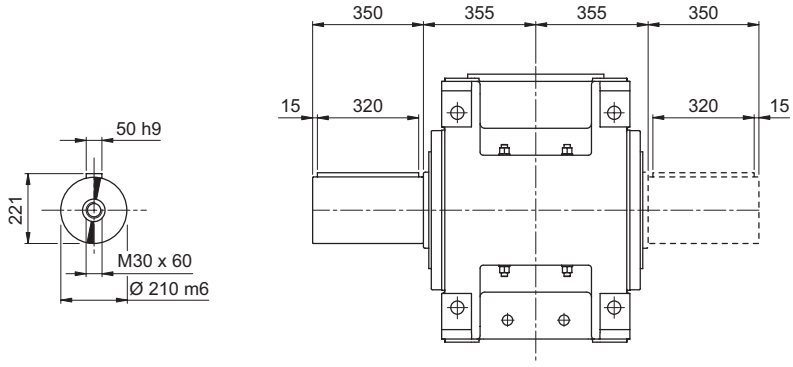


HDO 150 3
HDO 150 4

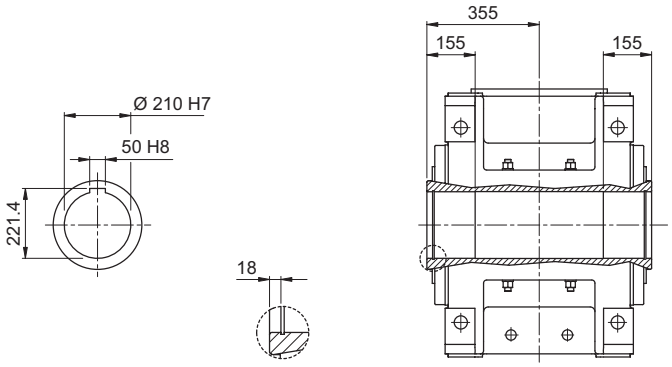


VP	i =	A	B	C	D	E	F	G	H	Kg
HDO 150 2	**5.5 … 7.0**	110 m6	28	116	M24x50	190	210	10	—	2795
HDO 150 2	**8.1 … 13.7**	100 m6	28	106	M24x50	190	210	10	—	2795
HDO 150 3	**15.6 … 60.8**	90 m6	25	95	M24x50	160	170	5	1279	2895
HDO 150 4	**66.9 … 92.9**	55 m6	16	59	M20x42	90	110	10	1249	2875
HDO 150 4	**101.8 … 238.8**	45 k6	14	48.5	M16x36	100	110	5	1249	2875

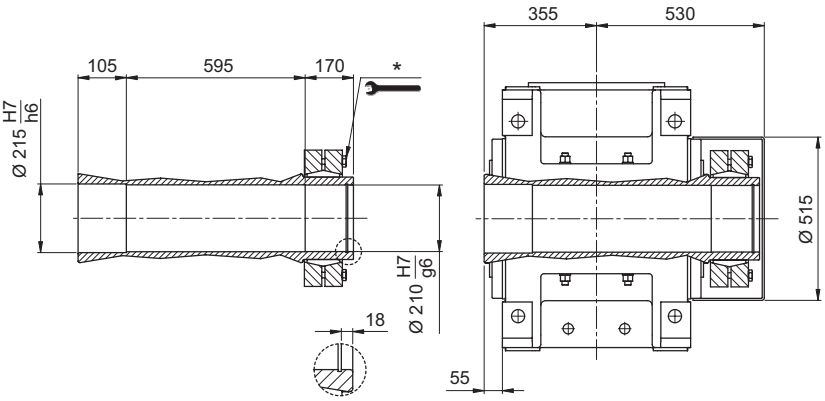
LP



H



S

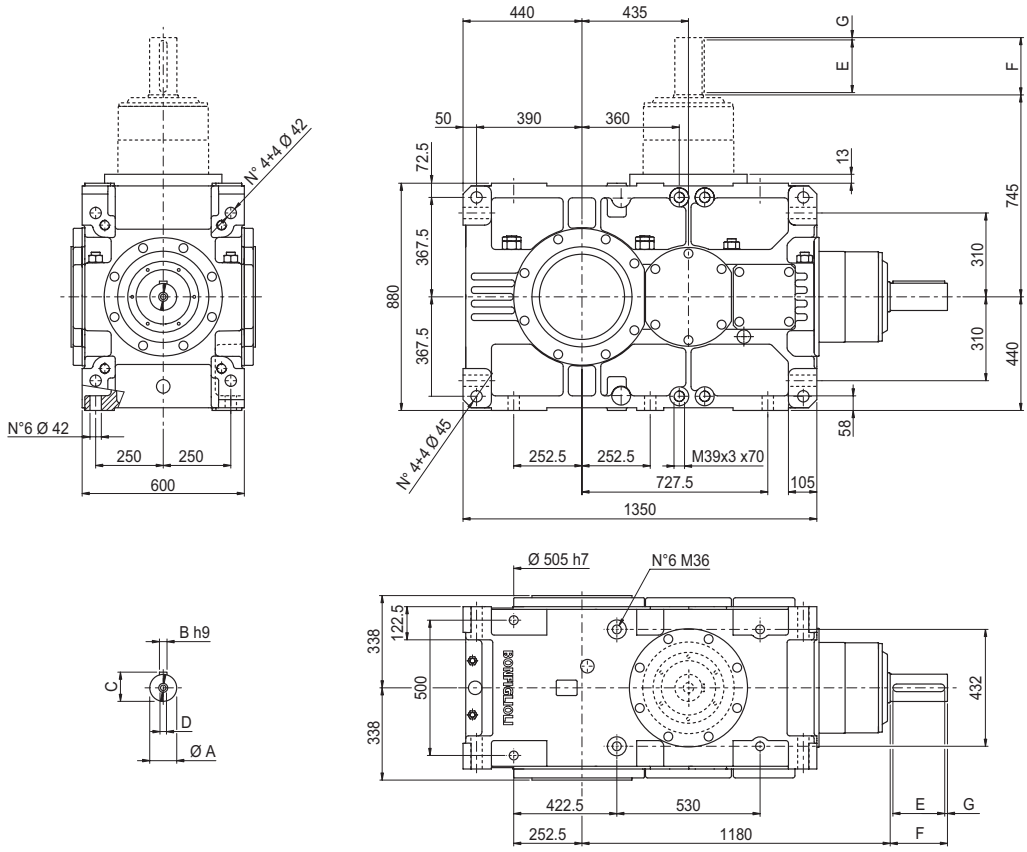


* Per un corretto utilizzo riferirsi al "MANUALE USO E MANUTENZIONE".

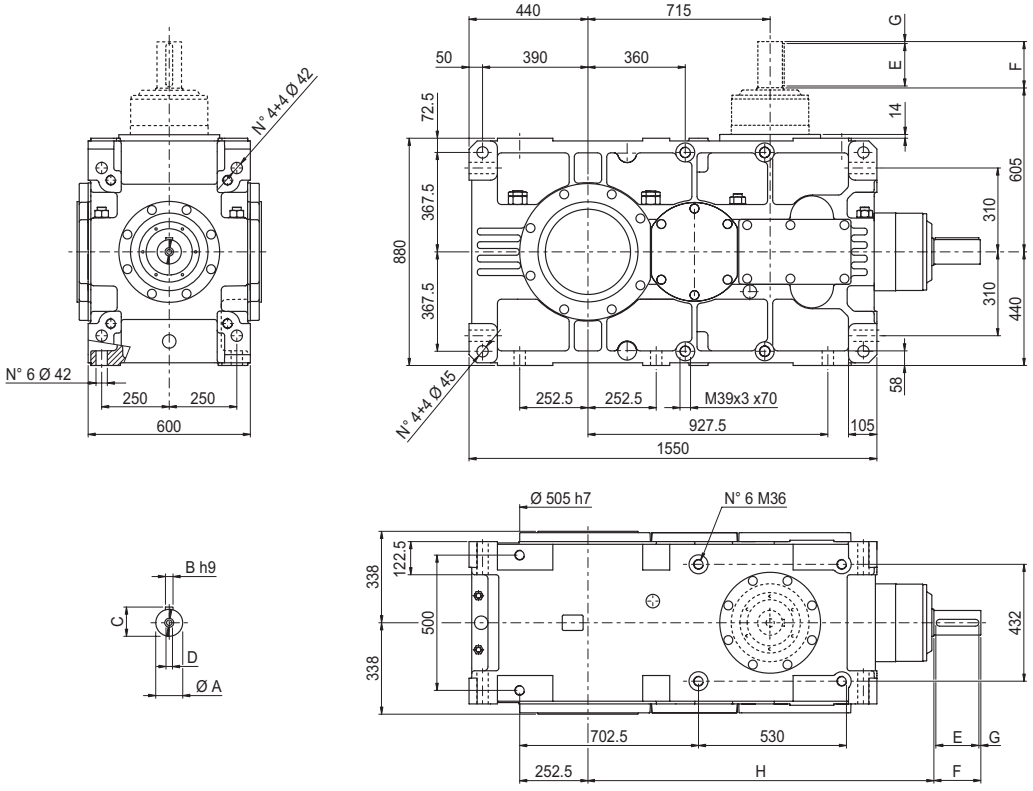
* *For correct use, refer to the "OPERATION AND MAINTENANCE MANUAL".*

* Zur Gewährleistung eines korrekten Gebrauchs die "BETRIEBS- UND WARTUNGSANLEITUNG" konsultieren.

HDO 160 2

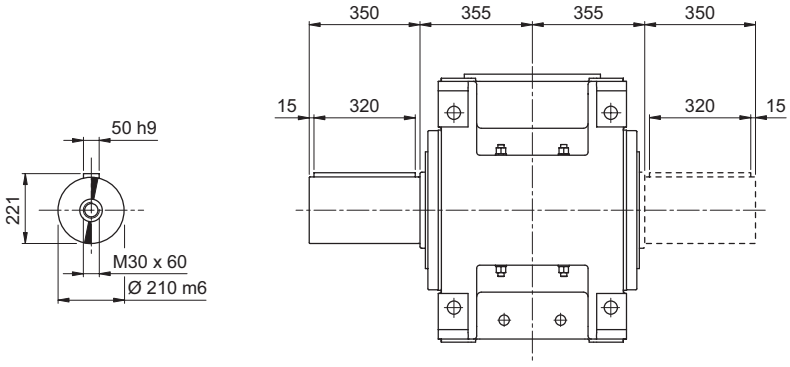


HDO 160 3
HDO 160 4

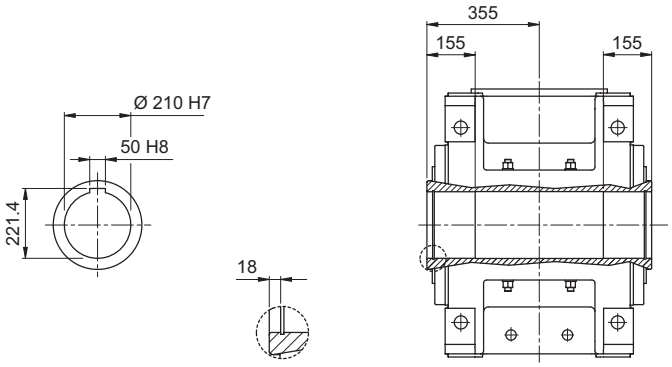


VP	i =	A	B	C	D	E	F	G	H	Kg
HDO 160 2	**7.3 … 7.9**	110 m6	28	116	M24x50	190	210	10	—	3075
HDO 160 2	**8.9 … 15.4**	100 m6	28	106	M24x50	190	210	10	—	3075
HDO 160 3	**17.7 … 68.6**	90 m6	25	95	M24x50	160	170	5	1320	3175
HDO 160 4	**75.9 … 96.3**	55 m6	16	59	M20x42	90	110	10	1290	3160
HDO 160 4	**115.2 … 269.7**	45 k6	14	48.5	M16x36	100	110	5	1290	3160

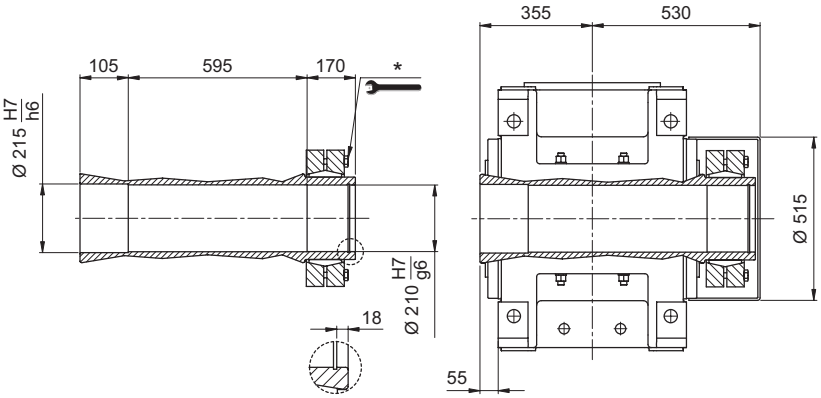
LP



H



S



* Per un corretto utilizzo riferirsi al "MANUALE USO E MANUTENZIONE".

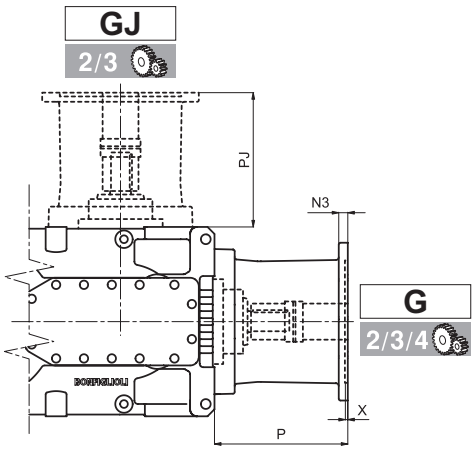
* *For correct use, refer to the "OPERATION AND MAINTENANCE MANUAL".*

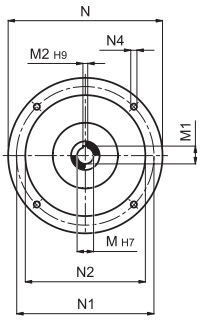
* Zur Gewährleistung eines korrekten Gebrauchs die "BETRIEBS- UND WARTUNGSANLEITUNG" konsultieren.

5.1 - PREDISPOSIZIONE ATTACCO MOTORE CON CAMPANA E GIUNTO ELASTICO

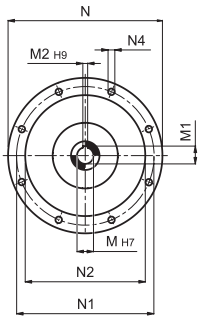
5.1 - MOTOR MOUNTING WITH BELL HOUSING AND FLEXIBLE COUPLING

5.1 - AUSLEGUNG FÜR MOTORANSCHLUSS MIT GLOCKE UND ELASTISCHER KUPPLUNG



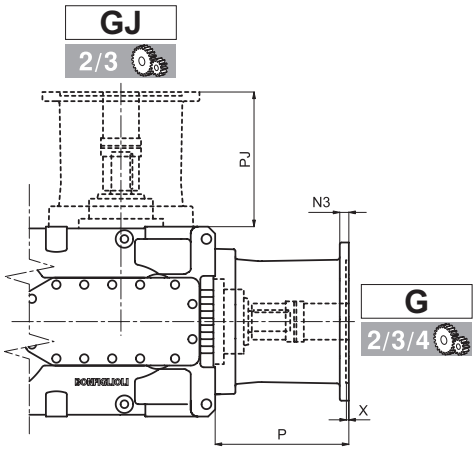


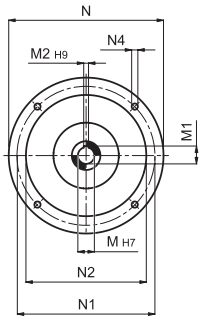
Ø N1 ≤ 350



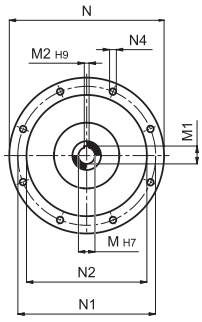
Ø N1 ≥ 400

	M	M1	M2	N	N1	N2	N3	N4	X	P	PJ
HDO 100 2_250	65	69.4	18	550	500	450	30	18	6	420.5	475.5
HDO 100 2_280	75	79.9	20	550	500	450	30	18	6	420.5	475.5
HDO 100 2_315	80	85.4	22	660	600	550	22	22	10	457	512
HDO 100 3_160	42	45.3	12	350	300	250	23	18	6	351	351
HDO 100 3_180	48	51.8	14	350	300	250	23	18	6	351	351
HDO 100 3_200	55	59.3	16	400	350	300	—	M16x23	7	376	376
HDO 100 3_225	60	64.4	18	450	400	350	26	18	7	383	383
HDO 100 3_250	65	69.4	18	550	500	450	30	18	6	413	413
HDO 100 3_280	75	79.9	20	550	500	450	30	18	6	413	413
HDO 100 3_315	80	85.4	22	660	600	550	22	22	10	449.5	449.5
HDO 100 4_112	28	31.3	8	250	215	180	15	14	5	265	—
HDO 100 4_132	38	41.3	10	300	265	230	—	M12x20	6	285	—
HDO 100 4_160	42	45.3	12	350	300	250	23	18	6	351	—
HDO 100 4_180	48	51.8	14	350	300	250	23	18	6	351	—
HDO 100 4_200	55	59.3	16	400	350	300	—	M16x23	7	376	—
HDO 100 4_225	60	64.4	18	450	400	350	26	18	7	383	—
HDO 110 2_280	75	79.9	20	550	500	450	30	18	6	420.5	475.5
HDO 110 2_315	80	85.4	22	660	600	550	22	22	10	457	512
HDO 110 3_160	42	45.3	12	350	300	250	23	18	6	351	351
HDO 110 3_180	48	51.8	14	350	300	250	23	18	6	351	351
HDO 110 3_200	55	59.3	16	400	350	300	—	M16x23	7	376	376
HDO 110 3_225	60	64.4	18	450	400	350	26	18	7	383	383
HDO 110 3_250	65	69.4	18	550	500	450	30	18	6	413	413
HDO 110 3_280	75	79.9	20	550	500	450	30	18	6	413	413
HDO 110 3_315	80	85.4	22	660	600	550	22	22	10	449.5	449.5
HDO 110 4_112	28	31.3	8	250	215	180	15	14	5	265	—
HDO 110 4_132	38	41.3	10	300	265	230	—	M12x20	6	285	—
HDO 110 4_160	42	45.3	12	350	300	250	23	18	6	351	—
HDO 110 4_180	48	51.8	14	350	300	250	23	18	6	351	—
HDO 110 4_200	55	59.3	16	400	350	300	—	M16x23	7	376	—
HDO 110 4_225	60	64.4	18	450	400	350	26	18	7	383	—
HDO 120 2_315	80	85.4	22	660	600	550	22	22	10	482	532
HDO 120 3_200	55	59.3	16	400	350	300	—	M16x23	7	346	346
HDO 120 3_225	60	64.4	18	450	400	350	26	18	7	353	353
HDO 120 3_250	65	69.4	18	550	500	450	30	18	6	383	383
HDO 120 3_280	75	79.9	20	550	500	450	30	18	6	383	383
HDO 120 3_315	80	85.4	22	660	600	550	22	22	10	419.5	419.5
HDO 120 4_132	38	41.3	10	300	265	230	—	M12x40	6	255	—
HDO 120 4_160	42	45.3	12	350	300	250	23	18	6	321	—
HDO 120 4_180	48	51.8	14	350	300	250	23	18	6	321	—
HDO 120 4_200	55	59.3	16	400	350	300	—	M16x23	7	346	—
HDO 120 4_225	60	64.4	18	450	400	350	26	18	7	353	—





Ø N1 ≤ 350



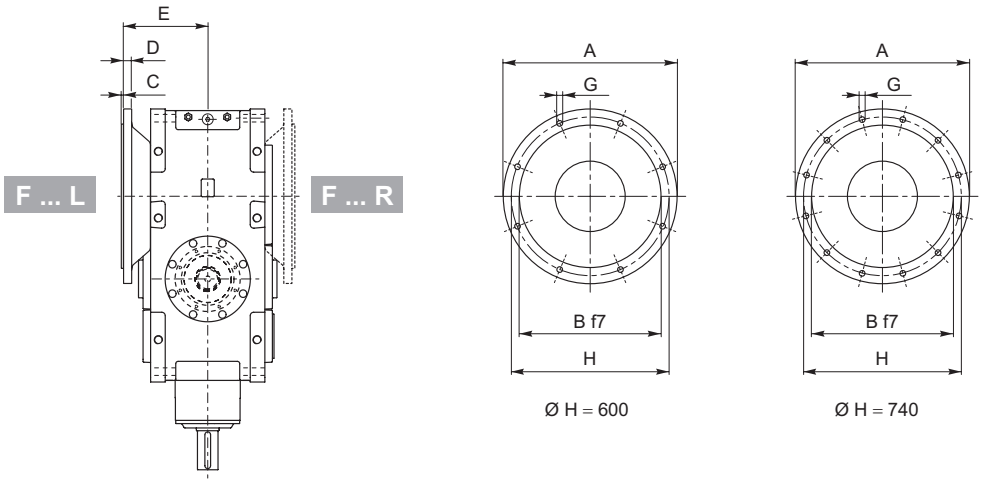
Ø N1 ≥ 400

	M	M1	M2	N	N1	N2	N3	N4	X	P	PJ
HDO 130 2_315	80	85.4	22	660	600	550	22	22	10	590	630
HDO 130 3_250	65	69.4	18	550	500	450	30	18	6	415.5	413
HDO 130 3_280	75	79.9	20	550	500	450	30	18	6	415.5	413
HDO 130 3_315	80	85.4	22	660	600	550	22	22	10	452	449.5
HDO 130 4_160	42	45.3	12	350	300	250	23	18	6	416	—
HDO 130 4_180	48	51.8	14	350	300	250	23	18	6	416	—
HDO 130 4_200	55	59.3	16	400	350	300	—	M16x23	7	441	—
HDO 130 4_225	60	64.4	18	450	400	350	26	18	7	448	—
HDO 130 4_250	65	69.4	18	550	500	450	30	18	6	478	—
HDO 130 4_280	75	79.9	20	550	500	450	30	18	6	478	—
HDO 140 2_315	80	85.4	22	660	600	550	22	22	10	590	630
HDO 140 3_250	65	69.4	18	550	500	450	30	18	6	415.5	413
HDO 140 3_280	75	79.9	20	550	500	450	30	18	6	415.5	413
HDO 140 3_315	80	85.4	22	660	600	550	22	22	10	452	449.5
HDO 140 4_160	42	45.3	12	350	300	250	23	18	6	416	—
HDO 140 4_180	48	51.8	14	350	300	250	23	18	6	416	—
HDO 140 4_200	55	59.3	16	400	350	300	—	M16x23	7	441	—
HDO 140 4_225	60	64.4	18	450	400	350	26	18	7	448	—
HDO 140 4_250	65	69.4	18	550	500	450	30	18	6	478	—
HDO 140 4_280	75	79.9	20	550	500	450	30	18	6	478	—
HDO 150 3_280	75	79.9	20	550	500	450	30	18	6	553.5	528.5
HDO 150 3_315	80	85.4	22	660	600	550	22	22	10	590	565
HDO 150 4_180	48	51.8	14	350	300	250	23	18	6	426	—
HDO 150 4_200	55	59.3	16	400	350	300	—	M16x23	7	451	—
HDO 150 4_225	60	64.4	18	450	400	350	26	18	7	458	—
HDO 150 4_250	65	69.4	18	550	500	450	30	18	6	488	—
HDO 150 4_280	75	79.9	20	550	500	450	30	18	6	488	—
HDO 150 4_315	80	85.4	22	660	600	550	22	22	10	524.5	—
HDO 160 3_280	75	79.9	20	550	500	450	30	18	6	553.5	508.5
HDO 160 3_315	80	85.4	22	660	600	550	22	22	10	590	545
HDO 160 4_180	48	51.8	14	350	300	250	23	18	6	426	—
HDO 160 4_200	55	59.3	16	400	350	300	—	M16x23	7	451	—
HDO 160 4_225	60	64.4	18	450	400	350	26	18	7	458	—
HDO 160 4_250	65	69.4	18	550	500	450	30	18	6	488	—
HDO 160 4_280	75	79.9	20	550	500	450	30	18	6	488	—
HDO 160 4_315	80	85.4	22	660	600	550	22	22	10	524.5	—

5.2 - FLANGIA DI FISSAGGIO

5.2 - MOUNTING FLANGE

5.2 - BEFESTIGUNGSFLANSCH



		A	B	C	D	E	G	H
HDO 100	**F660_**	660	550	7	30	335	22	600
HDO 110	**F660_**	660	550	7	30	335	22	600
HDO 120	**F660_**	660	550	7	30	355	26	600
HDO 130	**F800_**	800	680	7	40	460	26	740
HDO 140	**F800_**	800	680	7	40	460	26	740
HDO 150		BONFIGLIOLI TECHNICAL SERVICE						
HDO 160								

5.3 - FLANGIA A MANICOTTO

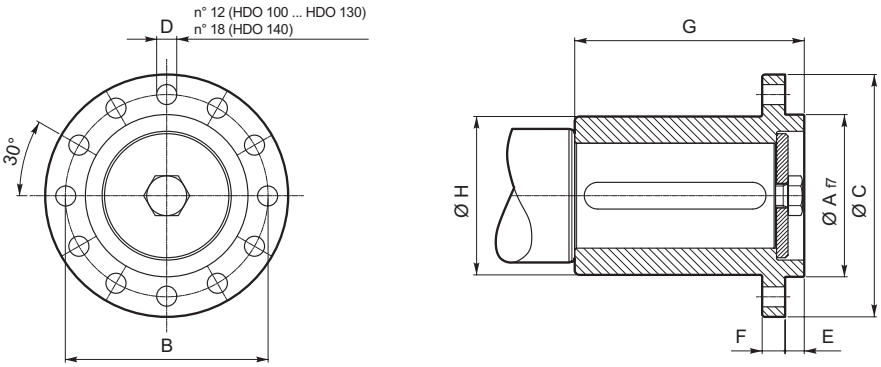
Disponibile per le configurazioni con disposizioni degli alberi tipo: L, LJ, LD, R, RJ e RD, caratterizzate da una sola sporgenza d'albero in uscita.

5.3 - MANIFOLD FLANGE

Available for shaft arrangement: L, LJ, LD, R, RJ and RD, all featuring a single output shaft extension.

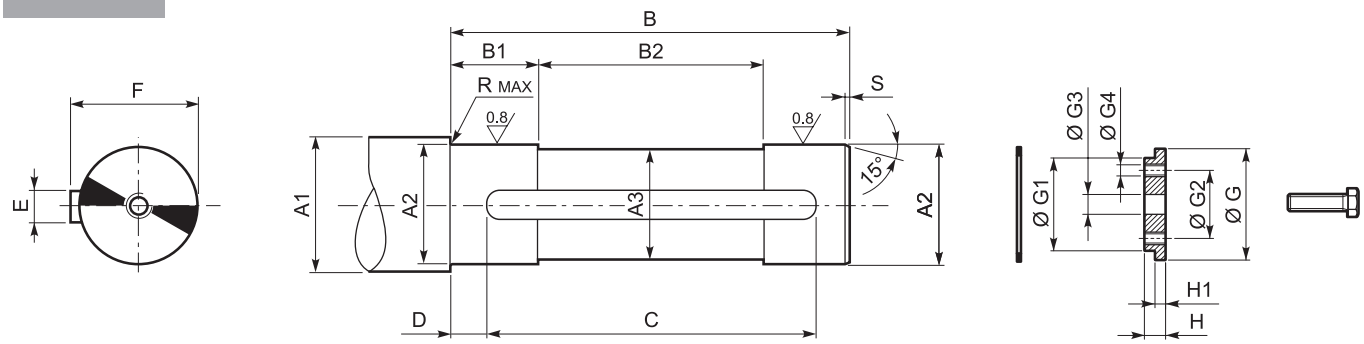
5.3 - AUFSTECKFLANSCH

Verfügbar für die entsprechenden Konfigurationen mit den Wellenanordnungen L, LJ, LD, R, RJ und RD, mit nur einem Wellenstummel.



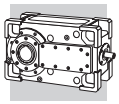
	A	B	C	D	E	F	G	H
HDO 100_ FM	200	260	309	25	19	31	244	200
HDO 110_ FM	200	260	309	25	19	31	289	200
HDO 120_ FM	200	260	309	25	19	31	289	200
HDO 130_ FM	220	320	384	32	19	31	344	250
HDO 140_ FM	250	380	450	32	19	40	344	310
HDO 150	BONFIGLIOLI TECHNICAL SERVICE							
HDO 160								

H

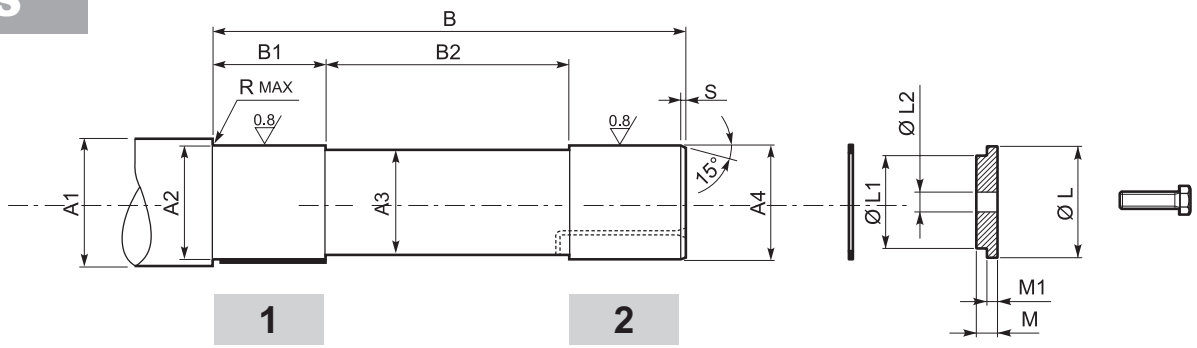


	A1	A2	A3	B	B1	B2	C	D	E	F	R	S	UNI6604
HDO 100	≥ 133	120 h6	119.5	420	100	250	360	30	32 h9	127	3	2.5	32x18x360A
HDO 110	≥ 143	130 h6	129.5	420	100	250	360	30	32 h9	137	3	2.5	32x18x360A
HDO 120	≥ 153	140 h6	139.5	444	110	260	400	40	36 h9	148	3	2.5	36x20x400A
HDO 130	≥ 183	170 h6	169.5	540	135	310	400	80	40 h9	179	3	2.5	40x22x400A
HDO 140	≥ 193	180 h6	179.5	540	135	310	400	80	45 h9	190	3	2.5	45x25x400A
HDO 150	≥ 223	210 h6	209.5	667	155	400	500	100	50 h9	221	3	3	50x28x450B
HDO 160	≥ 223	210 h6	209.5	667	155	400	500	100	50 h9	221	3	3	50x28x450B

	Escluso dalla fornitura / *out of scope for supply* / Nicht im Lieferumfang enthalten								
	UNI7437	G	G1	G2	G3	G4	H	H1	UNI5739
HDO 100	120x4	120 d9	96	64	26	M16	24	12	M24x70
HDO 110	130x4	130 d9	105	69	26	M20	24	12	M24x70
HDO 120	140x4	140 d9	115	79	26	M20	30	15	M24x80
HDO 130	170x4	170 d9	142	102	33	M24	34	17	M30x90
HDO 140	180x4	180 d9	150	110	33	M24	34	17	M30x90
HDO 150	210x5	210 d9	178	140	33	M24	36	18	M30x100
HDO 160	210x5	210 d9	178	140	33	M24	36	18	M30x100



S



	A1	A2	A3	A4	B	B1	B2	R	S
HDO 100	≥ 138	125 h6	119.5	120 g6	517	104	328	3	2.5
HDO 110	≥ 148	135 h6	129.5	130 g6	523	104	334	3	2.5
HDO 120	≥ 158	145 h6	139.5	140 g6	550	104	354	3	2.5
HDO 130	≥ 188	175 h6	169.5	170 g6	681	104	462	3	2.5
HDO 140	≥ 198	185 h6	179.5	180 g6	689	104	470	3	2.5
HDO 150	≥ 228	215 h6	209.5	210 g6	839	104	593	3	3
HDO 160	≥ 228	215 h6	209.5	210 g6	839	104	593	3	3

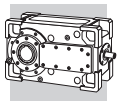
	Escluso dalla fornitura / *out of scope for supply* / Nicht im Lieferumfang enthalten						
	UNI7437	**L**	**L1**	**L2**	**M**	**M1**	**UNI5739**
HDO 100	120x4	120 d9	96	26	16	12	M24x65
HDO 110	130x4	130 d9	105	26	16	12	M24x65
HDO 120	140x4	140 d9	115	26	19	15	M24x70
HDO 130	170x4	170 d9	142	33	21	17	M30x80
HDO 140	180x4	180 d9	150	33	21	17	M30x80
HDO 150	210x5	210 d9	178	33	29	18	M30x90
HDO 160	210x5	210 d9	178	33	29	18	M30x90

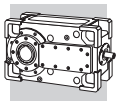
Per agevolare le operazioni di smontaggio è consigliabile realizzare il perno macchina dotato di un foro adatto al passaggio di una sostanza antiruggine (2) e/o predisposto per il montaggio di una boccola cilindrica autolubrificante nel tratto cilindrico di guida opposto al calettatore (1).
In presenza di carichi assiali esterni, vibrazioni, problemi di sicurezza, richiesta di elevata affidabilità o posizioni di montaggio sfavorevoli (es. V5, albero lento verso il basso) è necessario prevedere opportuni dispositivi atti a fissare assialmente l'albero ed ad impedirne lo smontaggio accidentale.

To facilitate part removal in the area of the cylindrical guide opposite the shrink disc, install a machine pivot to which a self-lubricating cylindrical bushing (1) can be fitted and/or with a hole big enough to allow application of a rust treatment (2).

In the presence of external thrust loads, vibration, safety problems, requirements for enhanced reliability, or unfavourable mounting positions (e.g. V5 mounting positions, output shaft directed downwards), install suitable devices to secure the shaft in an axial direction and prevent accidental decoupling.

Um den Ausbau aus der Zylinderführung an der Schrumpfscheibe zu erleichtern, wird empfohlen, den für die Montage bestimmten Maschinenzapfen mit einer selbstschmierenden Zylinderbuchse (1) und/oder mit einer Öffnung zum Einbringen von Rostschutzmittel (2) zu versehen. Beim Vorhandensein von externen Axialkräften, Vibrationen, Sicherheitsproblemen, Auflagen für höhere Zuverlässigkeit oder ungünstigen Montagepositionen (z.B. V5, nach unten gerichtete Abtriebswelle) sind geeignete Vorrichtungen vorzusehen, die die axiale Befestigung der Welle gewährleisten und dessen unvorhergesehene Ablösung verhindern.





INDICE DI REVISIONE (R) ***INDEX OF REVISIONS (R)*** **LISTE DER ÄNDERUNGEN (R)**

R3			
	Descrizione	***Description***	**Beschereibung**

110525

Bonfiglioli

power, control and green solutions

Dal 1956 Bonfiglioli progetta e realizza soluzioni innovative ed affidabili per il controllo e la trasmissione di potenza nell'industria e nelle macchine operatrici semoventi e per le energie rinnovabili.

Bonfiglioli has been designing and developing innovative and reliable power transmission and control solutions for industry, mobile machinery and renewable energy applications since 1956.

Seit 1956 plant und realisiert Bonfiglioli innovative und zuverlässige Lösungen für die Leistungsüberwachung und -übertragung in industrieller Umgebung und für selbstfahrende Maschinen sowie Anlagen im Rahmen der erneuerbaren Energien.

Bonfiglioli Riduttori S.p.A.
Via Giovanni XXIII, 7/A
40012 Lippo di Calderara di Reno
Bologna, Italy

tel: +39 051 647 3111
fax: +39 051 647 3126
bonfiglioli@bonfiglioli.com
www.bonfiglioli.com