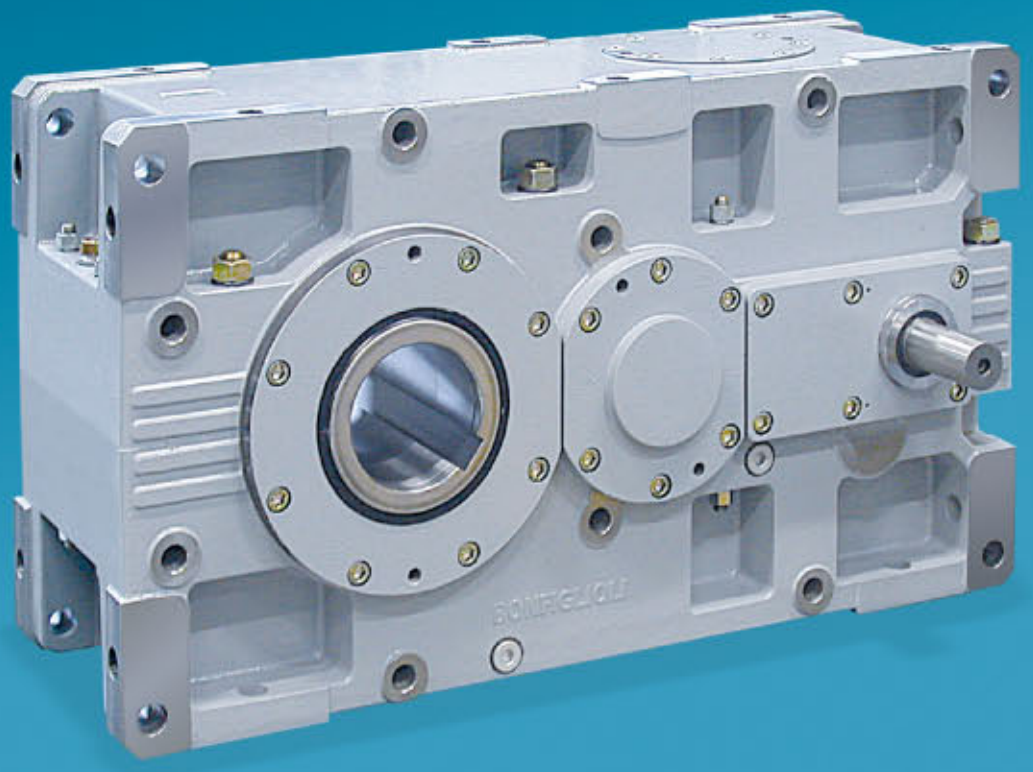
Bonfiglioli
Riduttori

HDP series

Riduttori ad assi paralleli

Parallel shaft gear units

Parallelwellengetrieben



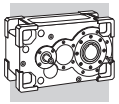
Bonfiglioli
power, control and green solutions

SOMMARIO — *SUMMARY* — ZUSAMMENFASSUNG

Revisioni
L'indice di revisione del catalogo è riportato a pag. 174. Al sito www.bonfiglioli.com sono disponibili i cataloghi con le revisioni aggiornate.

Revisions
Refer to page 174 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 174 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

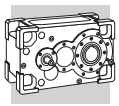
$\square_2$ valore riferito all'albero lento

$\square_1$ *value applies to input shaft*

$\square_2$ *value applies to output shaft*

$\square_1$ Auf die Antriebswelle bezogener Wert

$\square_2$ Auf die Abtriebswelle bezogener Wert



1.2 - CARATTERISTICHE COSTRUTTIVE

I riduttori della serie HDP 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 paralleli HDP sono:

- grandezze da HDP 60 a HDP 90 a 2 e 3 stadi di riduzione
- grandezze da HDP 100 a HDP 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%.
- HDP 60 ... HDP 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.
- HDP 130 ... HDP 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.
- Ingranaggi elicoidali in acciaio legato, cementati e temprati, con correzione del profilo 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 - PRODUCT FEATURES

Gear units of the HDP series make optimum use of advanced design features, to offer:

- *Top torque density*
- *Superior performance*
- *Silent and vibration-free operation*
- *Total ruggedness and reliability*
- *Lifetime calculation in accordance with the applicable ISO and AGMA standards*
- *Extensive customisation through a wide range of options offered in the catalogue*

The main construction features of the HDP parallel shaft gear unit range are:

- *sizes from HDP 60 to HDP 90 with double and triple reduction.*
- *sizes from HDP 100 to HDP 160 with double, triple and quadruple reduction.*
- *Favourable distribution of rated torque values across the entire ratio range.*
- *Gear ratios in a 12% progression between consecutive values.*
- *HDP 60 ... HDP 120: Monobloc housing in rigid, spheroidal cast iron, paint coated both internally and externally. A modern design without recesses for facilitated cleaning. Universal mounting thanks to the many machined surfaces. Profiles and dimensions optimised by FEM analysis for superior structural rigidity and low acoustic emissions.*
- *HDP 130 ... HDP 160: housing in spheroidal cast iron, horizontally split. This design makes maintenance quick and economical. Profiles and dimensions optimised by FEM analysis for superior structural rigidity and low acoustic emissions.*
- *Casehardened and hardened alloy steel helical gears ground finished and with profile corrected for:*
  - more silent operation and smoother transmission of high speed input gears
  - maximum transmissible torque of the lower speed output gear reductions
- *Input shafts generally casehardened and ground finished on outer diametre.*
  Output shafts from hardened and tempered alloy steel.
- *Input shaft configurations:*
  - HDP 60 ... HDP 160: solid, single or double-sided shaft with dimensions to UNI/ISO 775-88 (extended length)

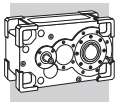
1.2 - BAULICHE EIGENSCHAFTEN

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

- Hohe spezifische Drehmomente
- Hohe Wirkungsgrade
- Reduzierte Vibration und Geräuschentwicklung
- Robuste Bauweise und absolute Zuverlässigkeit
- Lebensdauerberechnung gemäß den einschlägigen ISO- und AGMA-Normen
- Kundenspezifische Anpassung dank einer großen Auswahl an Optionen im Katalog

Die wichtigsten baulichen Merkmale der Parallelwellengetriebe HDP sind:

- Baugrößen HDP 60 bis HDP 90 mit 2 und 3 Untersetzungsstufen.
- Baugrößen HDP 100 bis HDP 160 mit 2, 3 und 4 Untersetzungsstufen.
- Nennmomentwerte mit günstiger Verteilung auf den gesamten Übersetzungsbereich.
- Übersetzungsverhältnisse mit konstantem Stufensprung von 12%.
- HDP 60 ... HDP 120: Starres, widerstandsfähiges und präzises Monoblockgehäuse aus Sphäroguss, innen und außen lackiert. Modernes Design ohne Einbuchtungen für eine einfache Reinigung. Universalbefestigung dank den zahlreichen bearbeiteten Oberflächen. Mittels FEM-Analysen optimierte Formen und Abmessungen garantieren hohe Strukturssteifheit und reduzierte Schallemissionen.
- HDP 130 ... HDP 160: Aus zwei Halbschalen gefertigtes Sphäroguss-Gehäuse mit direkt an den Achsen anliegender Trennfläche. Dank entsprechender Konstruktion können Wartungsarbeiten wirksam und ökonomisch ausgeführt werden. Mittels FEM-Analysen optimierte Formen und Abmessungen garantieren hohe Struktursteifheit und reduzierte Schallemissionen.
- Einsatzgehärtete Schrägzahnräder aus legiertem Stahl mit geschliffener Verzahnung, optimiert um:
  - die Geräuschentwicklung zu verringern und eine gleichmäßigere Übertragung zwischen den Zahnrädern zu erzielen
  - das übertragbare Drehmoment der Enduntersetzungen auf ein Höchstmaß zu steigern
- Die Antriebswellen sind generell einsatzgehärtet und geschliffen. Ab-



- Configurazioni alberi veloci:
  - HDP 60 ... HDP 160: albero cilindrico, a semplice o doppia sporgenza, con estremità secondo UNI/ISO 775-88 (serie lunga)
  - HDP 60 ... HDP 90: predisposizione per attacco diretto al motore oppure tramite giunto elastico di collegamento.
  - HDP 100 ... HDP 160: predisposizione motore mediante campana di collegamento e giunto elastico.
- Configurazioni alberi lenti:
  - 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 di raffreddamento / riscaldamento ausiliari
  - sistemi di lubrificazione forzata
  - dispositivo antiretro
  - flangie di fissaggio, o a manicotto
  - cuscinetti per sopportazione radiale maggiorata (solo per HDP 60 ... HDP 90)
  - tenute e guarnizioni di diverso tipo e materiale
  - sensori
  - dispositivo dry-well per installazioni con albero verticale
  - organi di fissaggio

- HDP 60 ... HDP 90: direct motor mounting or lantern housing and flexible coupling provision.
- HDP 100 ... HDP 160: motor mounting with bell and housing and flexible coupling.

- *Output shaft configurations:*
  - solid, single or double-sided shaft with dimensions to UNI/ISO 775-88 (extended length)
  - hollow shaft with keyway
  - hollow shaft with shrink disc
- *Heavy duty taper roller bearings or extra large self-aligning roller bearings from the most reputed brands for unparalleled overhung load capacity.*
- *A wide range of customisation options are available upon request, including:*
  - auxiliary cooling/heating devices
  - forced lubrication systems
  - backstop device
  - mounting or manifold flanges
  - bearings for increased overhung load capacity (only for HDP 60 ... HDP 90)
  - seals and gaskets in various types and materials
  - sensors
  - dry-well device for vertical shaft installations
  - fixing elements

triebswellen aus Vergütungsstahl mit hoher Festigkeit.

- Konfigurationen der Antriebswellen:
  - HDP 60 ... HDP 160: Zylindrische Passfederwelle mit ein- oder zweifachem Wellenzapfen. Wellenende gemäß UNI/ISO 775-88 (lange Serie)
  - HDP 60 ... HDP 90: Vorbereitung für Direktmontage des Motors oder über elastische Kupplung.
  - HDP 100 ... HDP 160: Motoradaption mittels Verbindungsglocke und elastischer Kupplung.
- Konfigurationen der Abtriebswellen:
  - Zylindrische Passfederwelle mit ein- oder zweifachem Wellenzapfen. Wellenende gemäß UNI/ISO 775-88 (lange Serie)
  - Hohlwelle mit Passfedernut
  - Hohlwelle mit Schrumpfscheibenverbindung.
- Großzügig bemessene Kegelrollenlager oder Pendelrollenlager führender Hersteller, geeignet, um hohen externen Krafteinwirkung standzuhalten
- Zahlreiche Möglichkeiten der kundenspezifische Anpassung des Getriebes mit den auf Anfrage erhältlichen Optionen, unter anderem:
  - Thermische Vorrichtung zur Kühlung/Wärmung der Getriebe
  - Systeme zur Zwangsschmierung
  - Rücklaufsperre
  - Montageflansche oder Aufsteckflansche
  - Lager für erhöhte radiale Widerstandskraft (nur für HDP 60 ... HDP 90)
  - Verschiedene Arten von Dichtungen aus unterschiedlichen Materialien
  - Sensoren
  - Vorrichtung Drywell für Installationen 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.
- Durante la verniciatura si dovranno proteggere i piani lavorati e il bordo esterno degli anelli di tenuta per evitare che la vernice ne essichi la gomma, pregiudicando la tenuta del paraolio stesso.
- Si consiglia di lavorare gli organi che vanno calettati sugli alberi di uscita

1.3 - INSTALLATION

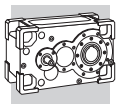
The following installation instructions must be observed:

- *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 pre-*

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.



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.

- 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.

vent 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.

- *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.*

- 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 Gewindebohrung 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.

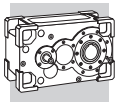
1.4 - MAINTENANCE

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, wood 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

La verniciatura esterna ed interna dei gruppi HDP delle grandezze da 60 a 90 è realizzata con polvere termoindurente a base di resine epossidiche e poliestere dotata di elevato indice di protezione dalla corrosione ed idonea all'installazione anche in ambienti esterni - colore grigio RAL 7042, spessore complessivo 60-80 µm.
Può essere in seguito sovraverniciata con vernici sintetiche.

I gruppi HDP 100 ... HDP 160 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

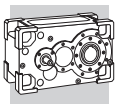
HDP gearboxes in sizes 60 to 90 are externally and internally painted in oven hardened epoxy resin and polyester powder paint that provides an excellent level of protection against corrosion and is suitable for outdoor installations.
The colour is RAL 7042 grey. A synthetic top coat may also be applied.

HDP gearboxes in sizes 100 to 160 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 Innen- und Außenlackierung der Getriebe HDP der Baugrößen 60 bis 90 erfolgt mit wärmehärtendem Pulver auf Epoxydharz- und Polyester-Basis mit hohem Korrosionsschutz und Eignung auch für die Installation im Freien - Farbe Grau RAL 7042. Kann nachträglich mit Synthetiklacken überlackiert werden.

Die HDP Getriebe der Baugrößen 100 bis 160 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.
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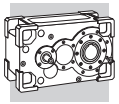

Applicazione	***Application***	**Applikation**	**≤ 10** ore/giorno *hours/day* Std./Tag	**> 10** ore/giorno *hours/day* Std./Tag
DRAGHE	***DREDGES***	**SCHWIMMBAGGER**		
Trasportatori	*Conveyors*	Förderer	1.25	1.50
Azionamenti teste portafrese	*Cutter head drives*	Antriebe Fräsköpfe	2.00	2.00
Vagli	*Screen 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.
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(*) - 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.
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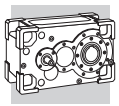
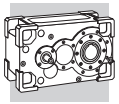
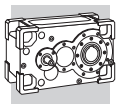


Applicazione	*Application*	Applikation	≤ 10 ore/giorno *hours/day* Std./Tag	> 10 ore/giorno *hours/day* Std./Tag
Segatrici	***Cut-off saws***	**Handsägen**		
Catena	*Chain*	Kette	1.50	1.75
Trascinamento	*Drag*	Mitnehmer	1.50	1.75
Cilindri di scortecciatura	*Debarking drums*	Schälzylinder	1.75	2.00
Avanzamenti	***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 HDP 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.
Nella posizione di montaggio V5 i cuscinetti superiori dei gruppi da HDP 60 a HDP 90 sono lubrificati con grasso e dotati di anello di ritegno Nilos, salvo che in fase d'ordine sia specificato un sistema di lubrificazione forzato tramite pompa meccanica (variante opzionale OP1, OP2) o motopompa (opzione MOP).
I riduttori HDP delle grandezze da 100 a 160 qualora siano richiesti nella posizione di montaggio V5, con albero lento verticale, richiedono invariabilmente la specifica di uno dei sistemi di lubrificazione forzata sopra menzionati, da selezionare in funzione della velocità e/o delle condizioni di esercizio.
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

The internal parts of HDP gearboxes are lubricated with a mixed 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.
In mounting position V5, the top bearings in gearbox sizes HDP 60 to HDP 90 are pre-lubricated with grease and fitted with Nilos seals, unless the order specifies a forced lubrication system with mechanical pump (optional variants OP1, OP2) or electric pump (option MOP).
If HDP 100 to 160 gearboxes have to be installed in mounting position V5, with the output shaft vertical, one of the above mentioned forced lubrication systems must be specified. The actual system should be selected on the basis of speed and/or operating conditions. These gearboxes are supplied without lubricant. It is the customer's responsibility to fill them with the appropriate amount of oil before start-up.

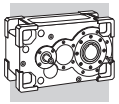
The amounts of lubricant given in the chart are indicative. Use the plug hole centre line or the dipstick, if provided, for correct filling. The amount of lubricant given in the chart may vary, sometimes substantially, depending on the ratio or particular execution of the product.

1.9 - SCHMIERUNG

Die Innenteile der Getriebe HDP 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.
In der Einbaulage V5 werden die oberen Lager der Gruppen HDP 60 bis HDP 90 mit Fett geschmiert und mit einem Nilos-Ring versehen, es sei denn, dass bei Auftragserteilung ein Zwangsschmiersystem mittels mechanischer Pumpe (optionale Variante OP1, OP2) oder Motorpumpe (Option MOP) bestellt wurde.
Bei Bestellung der Getriebe für die Einbaulage V5 (vertikale Abtriebswelle) müssen die Getriebe HDP der Baugrößen 100 bis 160 unbedingt mit einer der oben genannten Zwangsschmiersysteme, das aufgrund der Drehzahl und/oder der Betriebsbedingungen auszuwählen ist, ausgerüstet werden. Die Getriebe werden ohne Schmiermittel geliefert, und der Kunde muss vor Inbetriebnahme die korrekte Ölmenge einfüllen.

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**
HDP 60 2	10	14.8	14.6	16
HDP 60 3				
HDP 70 2	11	16	15	17
HDP 70 3				
HDP 80 2	16	24	24	26
HDP 80 3				
HDP 90 2	23	34	33	37
HDP 90 3				



	oil [l]			
	B3	**B6**	**B7**	**V5**
HDP 100 2	27	61	49	51
HDP 100 3	32	70	56	58
HDP 100 4	34			
HDP 110 2	27	61	49	51
HDP 110 3	32	70	56	58
HDP 110 4				
HDP 120 2	35	83	64	68
HDP 120 3	45	96	74	79
HDP 120 4				
HDP 130 2	57	154	119	128
HDP 130 3	86	181	140	150
HDP 130 4				
HDP 140 2	76	163	126	115
HDP 140 3	89	191	147	135
HDP 140 4	88			
HDP 150 2	109	244	189	173
HDP 150 3	125	281	217	199
HDP 150 4				
HDP 160 2	118	264	204	187
HDP 160 3	135	303	234	214
HDP 160 4				

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:

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

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

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

	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 $\mathbf{f_m}$:

			$\mathbf{f_m}$
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 $\mathbf{P_{n1}}$, tale che:

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

2.1 - ENGINEERING SELECTION

1. *First determine the gear ratio:*

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

3. *Determine the applicable service factor $\boldsymbol{f_s}$ and the adjusting factor $\boldsymbol{f_m}$ depending on prime mover:*

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

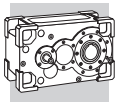
2.1 - BEMESSUNG

1. Die Übersetzung ermitteln:

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

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

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



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 $\mathbf{M_p}$ 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 $\mathbf{M_p}$ 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
		1.1 (HDP 80)		
	Inversioni di moto *Reversals* Reversierbetrieb	0.9	0.8	0.7
		0.8 (HDP 80)		

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 targa superiore, anche considerevolmente, alla potenza nominale $\mathbf{P_{n1}}$ 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.

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 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.

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 Nennleistung $\mathbf{P_{n1}}$ größer als die erforderliche Leistung $\mathbf{P_{r1}}$ 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 ($\mathbf{R_{c1}}$ per albero di ingresso, $\mathbf{R_{c2}}$ per albero di uscita) deve essere inferiore al valore nominale ($\mathbf{R_{x1}}$ per albero di ingresso, $\mathbf{R_{x2}}$ 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 $\mathbf{K_1}$ o $\mathbf{K_2}$, in funzione dell'albero interessato alla verifica.
Il carico generato da una trasmissione esterna può essere calcolato, con buona approssimazione, tramite la formula seguente:

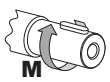
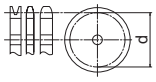
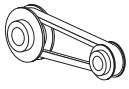
2.2.4 - CALCULATING THE RESULTING OVERHUNG LOAD

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 ($\boldsymbol{R_{c1}}$ for input shaft, $\boldsymbol{R_{c2}}$ for output shaft), must be equal or lower than admissible overhung load capacity for shaft under study ($\boldsymbol{R_{x1}}$ for input shaft, $\boldsymbol{R_{x2}}$ 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 $\boldsymbol{K_1}$ or factor $\boldsymbol{K_2}$ 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 ($\mathbf{R_{c1}}$ für Antriebswelle, $\mathbf{R_{c2}}$ für Abtriebswelle) unter dem in der Tabelle mit den technischen Daten angegebenen Nennwert ($\mathbf{R_{x1}}$ für Antriebswelle, $\mathbf{R_{x2}}$ für Abtriebswelle) liegen.
Die beschriebene Vorgehensweise gilt ohne Unterschied für die Antriebs- und für die Abtriebswelle, wobei entsprechend der jeweils betroffenen Welle die Koeffizienten $\mathbf{K_1}$ oder $\mathbf{K_2}$ verwendet werden müssen.
Die von einer äußeren Übertragung ausgeübte Kraft kann mit gutem Näherungswert mit folgender Formel berechnet werden:

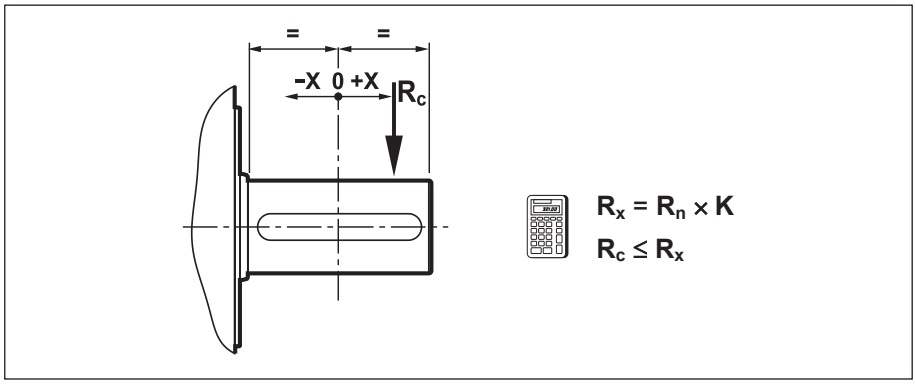
$$\mathbf{R_c} = \frac{\mathbf{2000 \times M \times K_r}}{\mathbf{d}}$$

$\mathbf{K_r = 1}$		**M** [Nm]	
$\mathbf{K_r = 1.25}$		**d** [mm]	
$\mathbf{K_r = 1.5 - 2.0}$			

2.2.5 - VERIFICA SOPPORTAZIONE RADIALE

2.2.5 - OVERHUNG LOADING VERIFICATION

2.2.5 - PRÜFUNG DER RADIALKRÄFTE

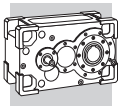


I valori $Rn_{1\ max}$ riportati in tabella sono i carichi radiali massimi ammissibili; essi possono subire delle limitazioni in funzione delle condizioni applicative.
Per un calcolo puntuale contattare il Servizio Tecnico Bonfiglioli.

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
HDP 60 2	7.1 ... 15.2	4.5	—	—	—	1.29	1.00	0.82	0.69	0.60	0.53	—	—	—	—
	17.3 … 19.4	3.0	—	—	—	1.28	1.00	0.82	0.70	0.60	0.53	—	—	—	—
HDP 60 3	22.7 … 49.1	3.1	—	—	—	1.29	1.00	0.82	0.69	0.60	0.53	—	—	—	—
	56.6 … 98.4	2.1	—	—	—	1.33	1.00	0.80	0.67	0.57	0.50	—	—	—	—
HDP 70 2	8.0 … 17.7	4.5	—	—	—	1.29	1.00	0.82	0.69	0.60	0.53	—	—	—	—
	19.4 … 22.6	3.0	—	—	—	1.28	1.00	0.82	0.70	0.60	0.53	—	—	—	—
HDP 70 3	25.5 … 57.0	3.1	—	—	—	1.29	1.00	0.82	0.69	0.60	0.53	—	—	—	—
	63.7 … 114.4	2.1	—	—	—	1.33	1.00	0.80	0.67	0.57	0.50	—	—	—	—
HDP 80 2	8.1 … 14.6	5.0	—	—	1.53	1.21	1.00	0.85	0.74	0.66	0.59	0.49	—	—	—
	15.5 … 22.6	5.5	—	—	—	1.24	1.00	0.84	0.72	0.63	0.56	0.41	—	—	—
HDP 80 3	25.8 …75.2	5.8	—	—	—	1.26	1.00	0.83	0.71	0.62	0.53	0.39	—	—	—
	76.4 … 111.4	3.0	—	—	—	1.29	1.00	0.82	0.69	0.54	0.44	0.32	—	—	—
HDP 90 2	7.9 … 13.6	6.3	—	—	1.48	1.19	1.00	0.86	0.76	0.67	0.61	0.51	—	—	—
	15.8 … 22.4	6.3	—	—	1.48	1.19	1.00	0.86	0.76	0.67	0.61	0.51	—	—	—
HDP 90 3	25.4 … 73.3	6.1	—	—	1.45	1.18	1.00	0.87	0.76	0.68	0.62	0.52	—	—	—
	77.8 … 110.1	3.7	—	—	—	1.22	1.00	0.85	0.73	0.61	0.50	0.37	—	—	—
HDP 100 2	7.4 … 21.8	11.1	—	—	1.35	1.15	1.00	0.89	0.80	0.72	0.66	0.56	0.49	—	—
HDP 100 3	22.8 …50	6.3	—	—	1.48	1.19	1.00	0.86	0.76	0.67	0.61	0.51	—	—	—
	55.5 … 107.8	6.9	—	—	1.54	1.21	1.00	0.85	0.74	0.65	0.59	0.49	—	—	—
HDP 100 4	110.6 … 246.9	2.1	—	—	—	1.18	1.00	0.87	0.76	0.68	0.62	—	—	—	—
	286.4 … 507.9	2.7	—	—	—	1.25	1.00	0.83	0.71	0.63	0.56	—	—	—	—
HDP 110 2	8.1 … 25.0	11.1	—	—	1.35	1.15	1.00	0.89	0.80	0.72	0.66	0.56	0.49	—	—
HDP 110 3	24.9 … 54.5	6.3	—	—	1.48	1.19	1.00	0.86	0.76	0.67	0.61	0.51	—	—	—
	60.7 …123.5	6.9	—	—	1.54	1.21	1.00	0.85	0.74	0.65	0.59	0.49	—	—	—
HDP 110 4	120. … 214.2	2.1	—	—	—	1.18	1.00	0.87	0.76	0.68	0.62	—	—	—	—
	248.6 … 499.4	2.7	—	—	—	1.25	1.00	0.83	0.71	0.63	0.56	—	—	—	—



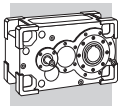
	i =	$Rn_{1\ max}$ [kN]	K_1 x [mm] =												
			-100	-75	-50	-25	0	25	50	75	100	150	200	250	300
HDP 120 2	**7.9 … 25.4**	17.8	—	—	1.37	1.16	1.00	0.88	0.79	0.71	0.65	0.55	0.48	—	—
HDP 120 3	**25.8 … 56.1**	6.3	—	—	1.48	1.19	1.00	0.86	0.76	0.67	0.61	0.51	—	—	—
	64.3 … 125.2	6.9	—	—	1.54	1.21	1.00	0.85	0.74	0.65	0.59	0.49	—	—	—
HDP 120 4	**128 … 277.2**	2.1	—	—	—	1.18	1.00	0.87	0.76	0.68	0.62	—	—	—	—
	323.2 … 523.7	2.7	—	—	—	1.25	1.00	0.83	0.71	0.63	0.56	—	—	—	—
HDP 130 2	**7.3 … 12.3**	28.0	—	1.47	1.27	1.12	1.00	0.90	0.82	0.76	0.69	0.54	0.45	0.38	—
	14.1 … 21.7	22.1	—	—	1.30	1.13	1.00	0.90	0.81	0.74	0.69	0.55	0.45	—	—
HDP 130 3	**21.8 … 48.1**	11.9	—	—	1.28	1.12	1.00	0.90	0.82	0.75	0.69	0.60	0.53	—	—
	56.5 … 108.3	8.1	—	—	1.31	1.13	1.00	0.89	0.81	0.74	0.68	0.58	—	—	—
HDP 130 4	**111.2 … 237.9**	4.8	—	—	1.33	1.14	1.00	0.89	0.80	0.73	0.67	0.57	—	—	—
	274.5 … 534.5	1.8	—	—	—	1.15	1.00	0.88	0.79	0.72	0.65	—	—	—	—
HDP 140 2	**8.4 … 14.4**	28.0	—	1.47	1.27	1.12	1.00	0.90	0.82	0.76	0.69	0.54	0.45	0.38	—
	16.3 … 24.9	22.1	—	—	1.30	1.13	1.00	0.90	0.81	0.74	0.69	0.55	0.45	—	—
HDP 140 3	**25.1 … 56.2**	11.9	—	—	1.28	1.12	1.00	0.90	0.82	0.75	0.69	0.60	0.53	—	—
	65.1 … 124.7	8.1	—	—	1.31	1.13	1.00	0.89	0.81	0.74	0.68	0.58	—	—	—
HDP 140 4	**141.6 … 277.5**	4.8	—	—	1.33	1.14	1.00	0.89	0.80	0.73	0.67	0.57	—	—	—
	315.9 … 495.3	1.8	—	—	—	1.15	1.00	0.88	0.79	0.72	0.65	—	—	—	—
HDP 150 2	**7.9 … 14.1**	31.7	1.60	1.39	1.23	1.10	1.00	0.91	0.84	0.78	0.73	0.61	0.51	0.44	0.38
	15.4 … 19.6	26.4	—	1.43	1.25	1.11	1.00	0.91	0.83	0.77	0.71	0.58	0.48	0.40	—
HDP 150 3	**21.5 … 38.1**	26.6	—	1.44	1.26	1.11	1.00	0.91	0.83	0.77	0.71	0.57	0.47	0.40	—
	43.5 … 77.0	17.4	—	—	1.28	1.12	1.00	0.90	0.82	0.75	0.70	0.61	0.54	—	—
HDP 150 4	**89.0 … 157.8**	10.8	—	—	1.47	1.19	1.00	0.86	0.76	0.68	0.61	0.51	—	—	—
	170.9 … 303.1	6.1	—	—	1.45	1.18	1.00	0.87	0.76	0.68	0.62	0.52	—	—	—
HDP 160 2	**9.0 …15.9**	31.7	1.60	1.39	1.23	1.10	1.00	0.91	0.84	0.78	0.73	0.61	0.51	0.44	0.38
	17.5 … 22.1	26.4	—	1.43	1.25	1.11	1.00	0.91	0.83	0.77	0.71	0.58	0.48	0.40	—
HDP 160 3	**24.4 … 43.1**	26.6	—	1.44	1.26	1.11	1.00	0.91	0.83	0.77	0.71	0.57	0.47	0.40	—
	49.4 … 87.0	17.4	—	—	1.28	1.12	1.00	0.90	0.82	0.75	0.70	0.61	0.54	—	—
HDP 160 4	**101.1 … 178.1**	10.8	—	—	1.47	1.19	1.00	0.86	0.76	0.68	0.61	0.51	—	—	—
	194.1 … 342.2	6.1	—	—	1.45	1.18	1.00	0.87	0.76	0.68	0.62	0.52	—	—	—

I valori dei carichi radiali ed assiali sono quelli massimi ammissibili.
Per confrontare i valori di $\mathbf{Rn_2}$ e $\mathbf{An_2}$ 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 $\boldsymbol{Rn_2}$ and $\boldsymbol{An_2}$ 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 $\mathbf{Rn_2}$ und $\mathbf{An_2}$ 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	
HDP 60	35.0	—	—	1.20	1.09	1.00	0.74	0.58	0.48	0.41	0.32	—	—	—	—	—	—	—	17.5
HDP 70	40.0	—	1.34	1.20	1.09	1.00	0.77	0.63	0.53	0.46	0.36	0.30	—	—	—	—	—	—	25.0
HDP 80	46.0	1.38	1.26	1.16	1.07	1.00	0.82	0.69	0.59	0.52	0.42	0.35	0.30	—	—	—	—	—	32.5
HDP 90	62.0	1.33	1.23	1.14	1.07	1.00	0.81	0.68	0.58	0.51	0.41	0.34	0.30	—	—	—	—	—	37.5
HDP 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
HDP 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
HDP 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
HDP 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
HDP 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
HDP 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
HDP 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 carichi esterni particolarmente gravosi, unicamente per i gruppi HDP 60...HDP 90, sono disponibili cuscinetti con capacità di carico maggiorata, specificabili mediante l'opzione HDB. Se le forze esterne eccedessero anche la capacità di carico dei cuscinetti rinforzati, considerare l'ipotesi di supportazione esterna degli alberi, la riduzione dei carichi esterni o, eventualmente, la selezione di un riduttore di taglia superiore.

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 $\mathbf{Rx_2}$ per l'albero lento si ricava moltiplicando il valore nominale $\mathbf{Rn_2}$, reperibile nelle tabelle dati tecnici, per il coefficiente di spostamento $\mathbf{K_2}$.

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 $\mathbf{An_2 \leq 0.2 \times Rn_2}$.

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.

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.

Only for HDP units size 60 through 90 the HDB option provides higher capacity bearings to cater for particularly heavy external loads. If external loads exceed the capacity of even the heavy-duty bearings, consider providing external support for the drive shafts, reducing external loads or, if necessary, selecting a gear unit of the next size up.

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 $\boldsymbol{Rn_2}$*, as listed in the technical data section, for the load location factor* $\boldsymbol{K_2}$ *to get the permissible overhung load* $\boldsymbol{Rx_2}$ *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 $\boldsymbol{An_2 \leq 0.2 \times Rn_2}$ *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.

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. Für besonders schwere äußere Kräfte sind – ausschließlich für die Gruppen HDP 60…HDP 90 – Lager mit erhöhter Belastbarkeit verfügbar, die mit der Option HDB bestellt werden können. Falls die äußeren Kräfte auch die Belastbarkeit der verstärkten Lager übersteigen sollten, muss eine externe Abstützung der Wellen, die Reduzierung der äußeren Kräfte oder eventuell die Wahl eines größeren Getriebes in Erwägung gezogen werden.

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 $\mathbf{Rx_2}$ für die Abtriebswelle wird errechnet, indem der Nennwert $\mathbf{Rn_2}$, der den Tabellen mit den technischen Daten entnommen werden kann, mit dem Verschiebungskoeffizienten $\mathbf{K_2}$ 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 $\mathbf{An_2 \leq 0.2 \times Rn_2}$ 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. 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 $\mathbf{Rx_1}$ per l'albero veloce si ricava moltiplicando il valore nominale $\mathbf{Rn_1}$, reperibile nelle tabelle dati tecnici, per il coefficiente di spostamento $\mathbf{K_1}$.

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, o in caso di HDP 4 stadi con albero bisporgente (LD, RD e DD), consultare il Servizio Tecnico di Bonfiglioli Riduttori. Congiuntamente al carico radiale è applicabile un carico assiale $\mathbf{An_1 \leq 0.2 \times Rn_1}$.

Per le esecuzioni con albero bisporgente il carico radiale ammissibile è riferito all'estremità evidenziata in nero nello schema seguente:

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 $\mathbf{Rn_1}$, as listed in the technical data section, for the load location factor $\mathbf{K_1}$ to get the permissible overhung load $\mathbf{Rx_1}$ 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, or in case of HDP with 4 reductions and through-shafts (LD, RD and DD), contact the Technical Service of Bonfiglioli Riduttori.*

When a radial force applies a thrust load $\mathbf{An_1 \leq 0.2 \times Rn_1}$ is also permitted. In the case of gearboxes with through-shafts the maximum permitted overhung load refers to the shaft end highlighted in black below:

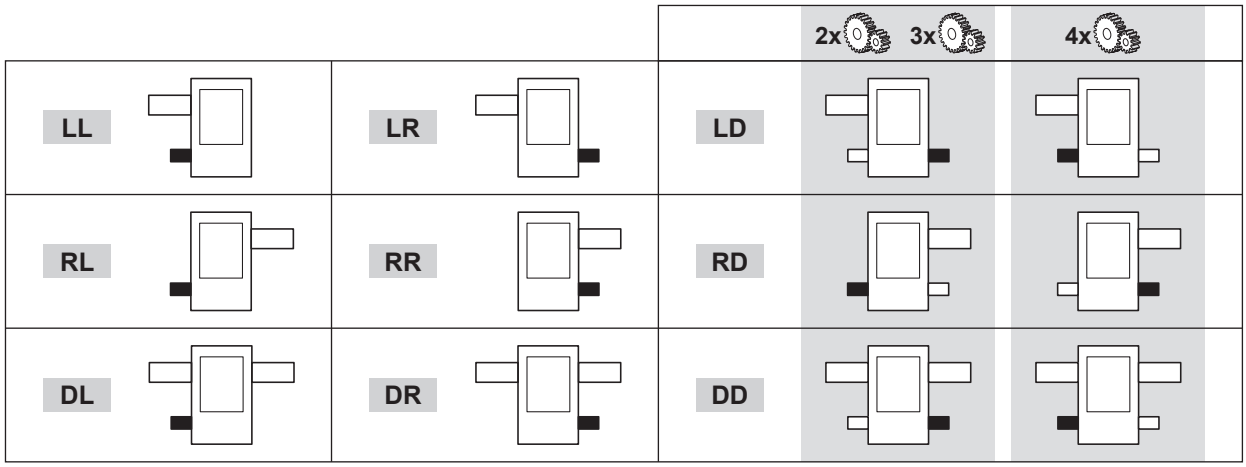
3. Radial- und Axialkräfte auf der Antriebswelle

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 $\mathbf{Rx_1}$ für die Antriebswelle wird errechnet, indem der Nennwert $\mathbf{Rn_1}$, der den Tabellen mit den technischen Daten entnommen werden kann, mit dem Verschiebungskoeffizienten $\mathbf{K_1}$ 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, oder im Falle von HDP mit 4 Getriebestufen und zwei Wellenstummeln (LD, RD und DD), siehe unseren Technischen Service.

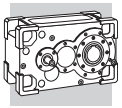
Zusammen mit der Radialkraft ist eine Axialkraft von $\mathbf{An_1 \leq 0.2 \times Rn_1}$ anwendbar. Für die Ausführungen mit zwei Wellenstummeln bezieht sich die zulässige Radialkraft auf das im nachfolgenden Schema schwarz hervorgehobene Wellenende:



Per carichi radiali agenti su entrambe le sporgenze d'albero consultare il Servizio Tecnico di Bonfiglioli Riduttori.

If an overhung load is applied to both shaft ends, contact Bonfiglioli Riduttori's Technical Service for advise.

Wirken auf beide Wellenzapfen Radialkräfte wenden Sie sich bitte an den technischen Kundendienst von Bonfiglioli Riduttori.



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
$\mathbf{n_2}$ = 75 min^{-1}	$\mathbf{Mr_2}$ = 8150 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) $i = \frac{n_1}{n_2} = \frac{1100}{75} \approx 14.7$

b) $Pr_1 = \frac{Mr_2 \times n_2}{9550 \times \eta} = \frac{8150 \times 75}{9550 \times 0.96} \approx 66.7\ kW$

c) $Pn_1 \geq Pr_1 \cdot f_s \approx 100.0\ kW$

→ **HDP 80 2 14.6 LP LR VP B3**

[Pn_1 = 100 kW @ n_1 = 1100 min^{-1}]

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

P_T = 58 kW < Pr_1 = 66.7 kW ⚠

Soluzione 1
- Ventilazione forzata

Option 1
- Fan cooling

Lösung 1
- Zwangslüftung

$P_{TFANL\ /\ R}$ = 76 kW @ n_1 = 1100 min^{-1}

$P_{TFANL\ /\ R} > Pr_1$ ✓ **OK**

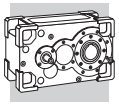
Soluzione 2
- Serpentina di raffreddamento

Option 2
- Cooling coil

Lösung 2
- Kühlschlange

P_{TSR} = 98 kW @ n_1 = 1100 min^{-1}

$P_{TSR} > Pr_1$ ✓ **OK**



HDP 70 2 25.0 LP LR GR 132 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, AD, GL, GR

3.4.2

DISPOSIZIONE ALBERI
SHAFT ARRANGEMENT
ANORDNUNG DER WELLEN
LL, LR, LD, RL, RR, RD, DL, DR, 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
7.1 ... 500.0

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

GRANDEZZA RIDUTTORE
GEAR FRAME SIZE
BAUGRÖSSE DES GETRIEBES
60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160

TIPO RIDUTTORE
GEARBOX TYPE
GETRIEBETYP
HDP

PROVE DOCUMENTALI
CERTIFICATES
NACHWEISE
—, AC, CC, CT
3.6.9

ORGANI DI FISSAGGIO
MOUNTING DEVICES
BEFESTIGUNGSORGANE
—, TA
3.6.8

DRYWELL
—, DW
3.6.7

SENSORI
SENSORS
SENSOREN
—, **TG, OLG**
3.6.6

TENUTE E GUARNIZIONI
OIL SEALING
DICHTUNGEN UND DICHTMANSCHETTEN
—, VS, DS, DVS, TK
3.6.5

SUPPORTAZIONE RADIALE RINFORZATA
REINFORCED BEARINGS
VERSTÄRKTE RADIALE LAGERUNG
—, **HDB**
3.6.4

FLANGIA DI FISSAGGIO / *MOUNTING FLANGE*
BEFESTIGUNGSFLANSCH
— F350L, F400L, F450L, F550L, F660L, F800L,
F350R, F400R, F450R, F550R, 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
—, OP1, OP2, MOP
3.6.2

DISPOSITIVI DI AUSILIO TERMICO / *AUXILIARY THERMAL DEVICES*
THERMISCHE HILFSVORRICHTUNGEN
—, FANL, FANR, FANLR,
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.

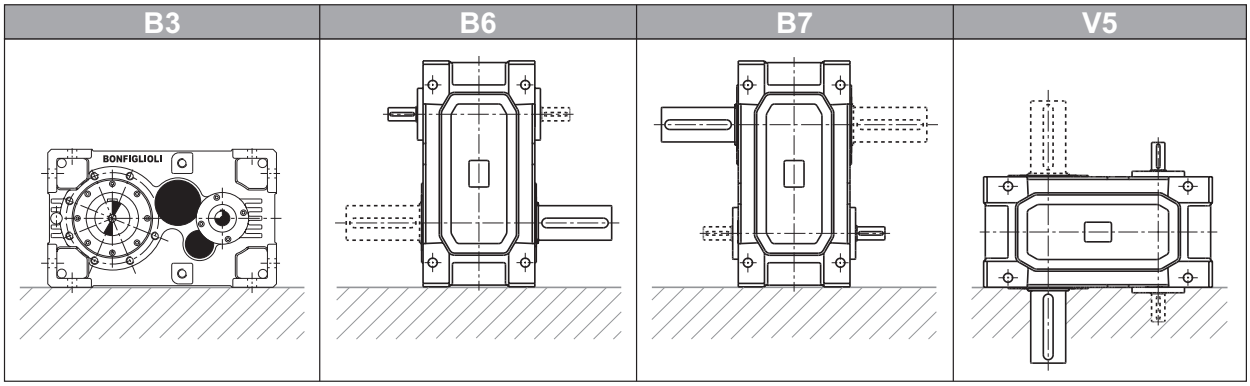
REMARK: The multiple selection of some of the variants may be subject to technical or dimensional constraints. Consult with the factory to have your selection approved.

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

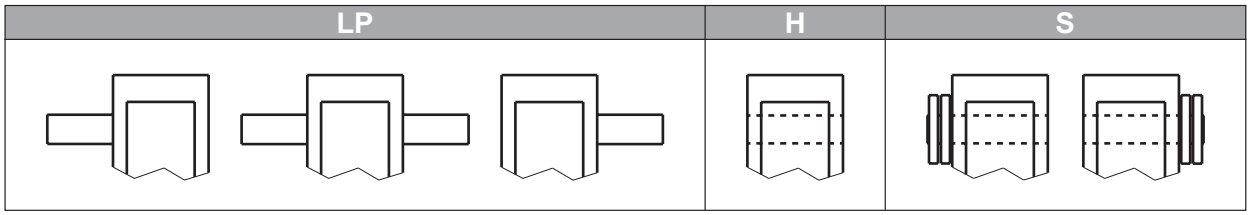
3.4 - INPUT AND OUTPUT CONFIGURATION

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 per accoppiamento diretto** ad un motore elettrico normalizzato in forma costruttiva IM B5. L'allestimento è unicamente disponibile per i gruppi HDP 60...HDP 90 nell'esecuzione a tre stadi di riduzione – Specificare **AD**.
- **Flangiatura con campana attacco motore e interposizione di un giunto elastico** fra gli alberi cilindrici di motore e riduttore. Questa opzione assume la denominazione **GL** o **GR** in dipendenza del lato del riduttore su cui è richiesta la predisposizione. Il giunto elastico è parte della fornitura.

3.4.2 - INPUT CONFIGURATION

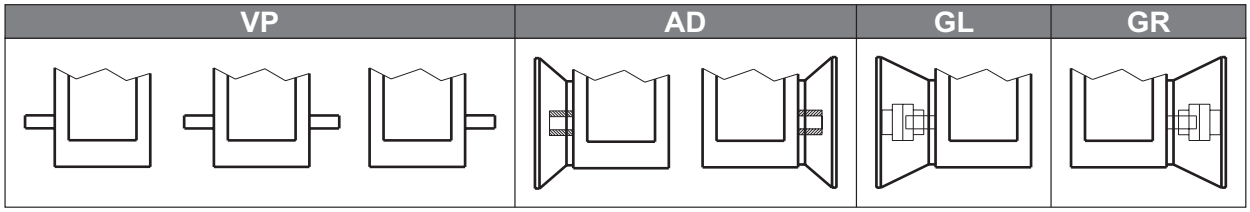
On the input side the gear unit can be arranged in either one of the configurations described here after:

- ***Solid input shaft**, single- or double-sided – Specify **VP***
- ***Motor flange mounting** for an IEC-standard electric motor with IM B5 flange. The option is only applicable to units HDP 60... HDP 90 in the triple reduction configuration – Specify **AD**.*
- ***Motor mounting through bell housing and flexible coupling**. The option is designated **GL** or **GR** depending on what side of the gear unit the coupling is mounted. The flexible coupling is within the scope for supply.*

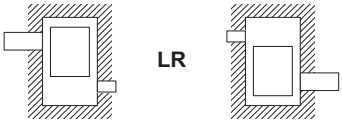
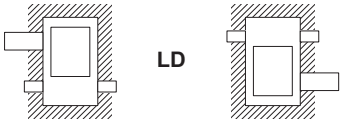
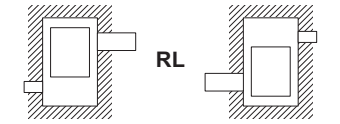
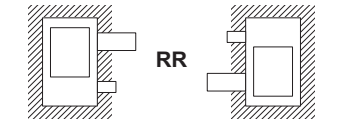
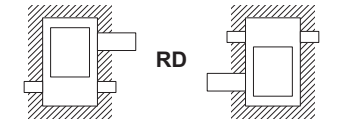
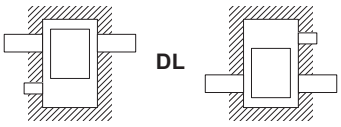
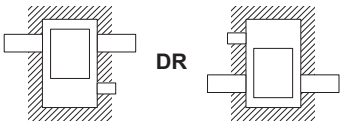
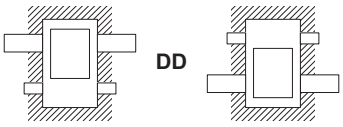
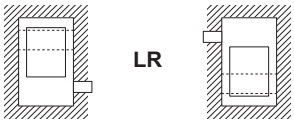
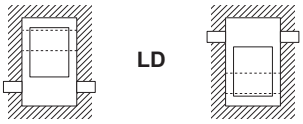
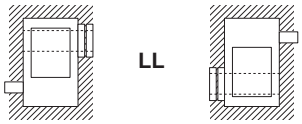
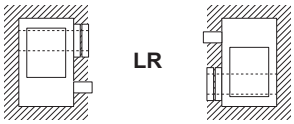
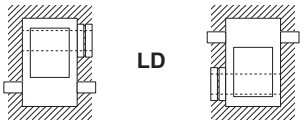
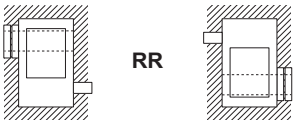
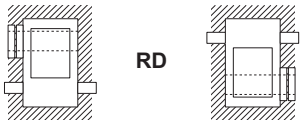
3.4.2 - KONFIGURATION DER ANTRIEBSSEITE

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

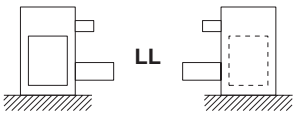
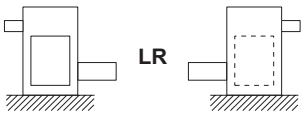
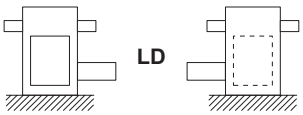
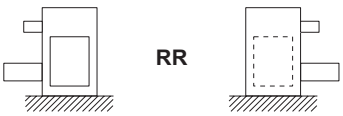
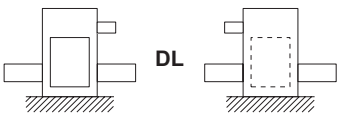
- **Zylindrische Eingangswelle**, mit ein- oder zweifachem Wellenzapfen – **VP** angeben
- **Motorflanscheingang** für die Verbindung mit einem Elektromotor nach IEC-Standard in Bauform IM B5. Die Konfiguration ist nur für die Einheiten HDP 60...HDP 90 in der Ausführung mit drei Untersetzungsstufen erhältlich – **AD** angeben.
- **Motormontage über eine Motorglokke und elastische Kupplung**. Diese Option wird in Abhängigkeit von der Montageseite mit **GL** oder **GR** angegeben. Die elastische Kupplung ist im Lieferumfang enthalten.



B3

	VP - GL - AD	VP - GR - AD	VP - GL - GR
LP	 LL	 LR	 LD
LP	 RL	 RR	 RD
LP	 DL	 DR	 DD
H	 LL	 LR	 LD
S	 LL	 LR	 LD
S	 RL	 RR	 RD

B6

	VP - GL - AD	VP - GR - AD	VP - GL - GR
LP	 LL	 LR	 LD
LP	 RL	 RR	 RD
LP	 DL	 DR	 DD
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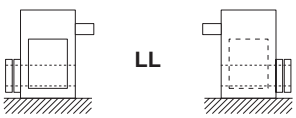
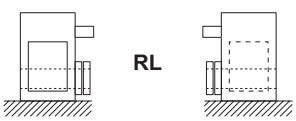
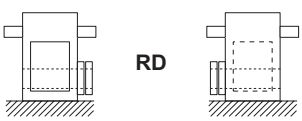
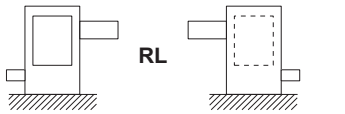
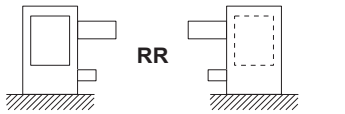
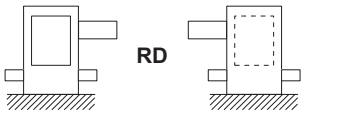
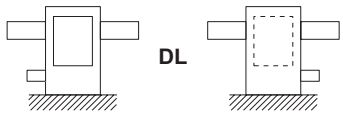
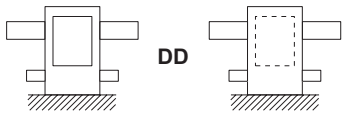
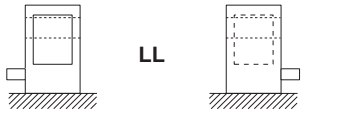
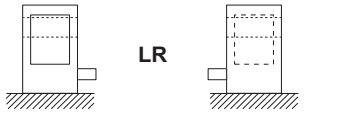
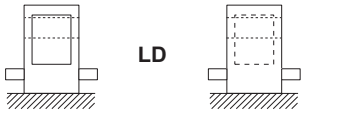
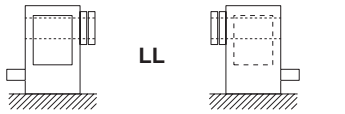
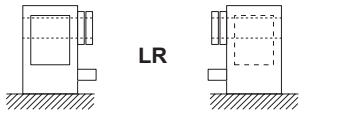
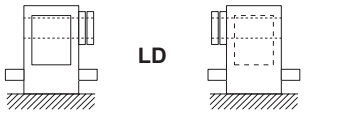
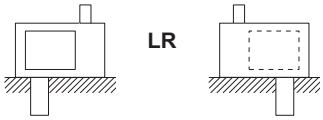
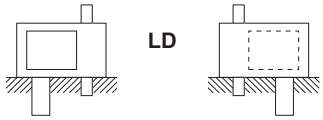
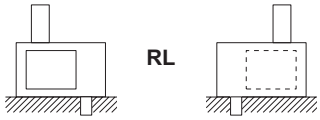
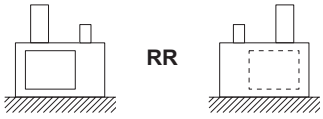
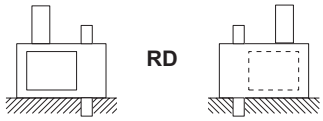
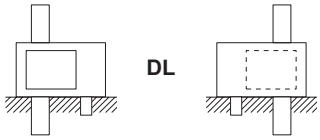
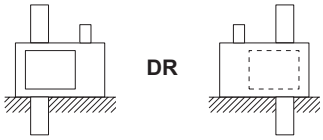
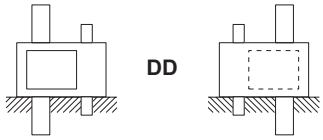
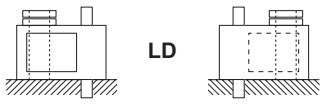
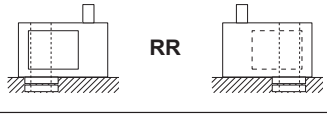
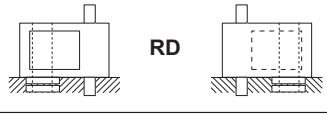
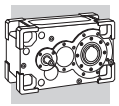
S	 LL	 LR	 LD
S	 RL	 RR	 RD

		VP - GL - AD	VP - GR - AD	VP - GL - GR
B7	LP	 LL	 LR	 LD
		 RL	 RR	 RD
		 DL	 DR	 DD
	H	 LL	 LR	 LD
	S	 LL	 LR	 LD
		 RL	 RR	 RD

		VP - GL - AD	VP - GR - AD	VP - GL - GR
V5	LP	 LL	 LR	 LD
		 RL	 RR	 RD
		 DL	 DR	 DD
	H	 LL	 LR	 LD
	S	 LL	 LR	 LD
		 RL	 RR	 RD



3.5 - PREDISPOSIZIONI MOTORE

Le tabelle che seguono riportano gli abbinamenti motore/riduttore che sono possibili in termini puramente geometrici. La variante è attiva se si è precedentemente specificato una configurazione veloce del tipo AD (attacco diretto), oppure GL / GR (attacco mediante giunto elastico e campana).

La normalizzazione tipica dei motori elettrici può portare a selezionare un motore caratterizzato da potenza di targa superiore alla potenza nominale $\mathbf{P_{n1}}$ 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. Variants are only applicable if either an AD (direct motor mounting) or a GL / GR input configuration (coupling through bell housing and flexible coupling) were previously specified within the ordering code.

Because of standardisation, the rated power of the electric motor selected might be greater than power $\boldsymbol{P_{r1}}$ 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.

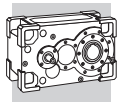
3.5 - MOTORAUSLEGUNGEN

In den folgenden Tabellen sind die Motor/Getriebe Kombinationen aufgeführt, die unter rein geometrischen Aspekten möglich sind. Die Variante ist nur dann möglich, wenn entweder die Ausführung AD (Direktverbindung) oder GL / GR (Verbindung mittels elastischer Kupplung und Glocke) bestellt wurde.

Aufgrund der Normierung von Elektromotoren kann es dazu kommen, dass ein Motor gewählt wird, dessen Nennleistung $\mathbf{P_{n1}}$ größer als die erforderliche Leistung $\mathbf{P_{r1}}$ 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 / *Input configuration* / Eingangskonfiguration				
	AD				
	112	**132**	**160**	**180**	**200**
HDP 60 3	X	X	X	X	
HDP 70 3	X	X	X	X	X
HDP 80 3	—	X	X	X	X
HDP 90 3	—	—	X	X	X

		Configurazione veloce / *Input configuration* / Eingangskonfiguration						
		GL - GR						
		132	**160**	**180**	**200**	**225**	**250**	**280**
HDP 60 2	**i =**	17.3_19.4	7.1_19.4	7.1_19.4	7.1_19.4	7.1_19.4	—	—
HDP 60 3		22.7_98.4	22.7_98.4	22.7_49.1	22.7_49.1	22.7_49.1	—	—
HDP 70 2		19.4_22.6	8.0_22.6	8.0_22.6	8.0_22.6	8.0_22.6	—	—
HDP 70 3		25.5_114.4	25.5_114.4	25.5_57.0	25.5_57.0	25.5_57.0	—	—
HDP 80 2		—	15.5_22.6	15.5_22.6	15.5_22.6	8.1_22.6	8.1_22.6	8.1_22.6
HDP 80 3		—	25.8_111.4	25.8_111.4	25.8_75.2	25.8_75.2	25.8_75.2	25.8_75.2
HDP 90 2		—	15.8_22.4	15.8_22.4	15.8_22.4	15.8_22.4	7.9_22.4	7.9_22.4
HDP 90 3		—	25.4_110.1	25.4_110.1	25.4_110.1	25.4_73.3	25.4_73.3	25.4_73.3



Configurazione veloce / *Input configuration* / Eingangskonfiguration										
		GL - GR								
		112	132	160	180	200	225	250	280	315(*)
HDP 100 2		—	—	—	—	—	—	7.4_21.8	7.4_21.8	7.4_21.8
HDP 100 3		—	—	55.5_107.6	55.5_107.6	22.8_107.6	22.8_107.6	22.8_107.6	22.8_50.0	22.8_50.0
HDP 100 4		110.6_507.9	110.6_507.9	110.6_507.9	110.6_507.9	110.6_507.9	—	—	—	—
HDP 110 2		—	—	—	—	—	—	8.1_25.0	8.1_25.0	8.1_25.0
HDP 110 3		—	—	60.7_123.4	60.7_123.4	24.9_123.4	24.9_123.4	24.9_123.4	24.9_54.5	24.9_54.5
HDP 110 4		120.9_499.4	120.9_499.4	120.9_499.4	120.9_499.4	120.9_499.4	—	—	—	—
HDP 120 2		—	—	—	—	—	—	—	7.9_25.4	7.9_25.4
HDP 120 3		—	—	—	64.3_125.2	64.3_125.2	25.8_125.2	25.8_125.2	25.8_56.1	25.8_56.1
HDP 120 4		—	128.0_523.7	128.0_523.7	128.0_523.7	128.0_523.7	128.0_523.7	—	—	—
HDP 130 2		—	—	—	—	—	—	—	—	7.3_21.7
HDP 130 3	**i =**	—	—	—	—	—	56.5_108.3	56.5_108.3	21.8_108.3	21.8_108.3
HDP 130 4		—	—	111.2_534.5	111.2_534.5	111.2_534.5	111.2_217.9	111.2_217.9	—	—
HDP 140 2		—	—	—	—	—	—	—	—	8.4_24.9
HDP 140 3		—	—	—	—	—	65.1_124.7	65.1_124.7	25.1_124.7	25.1_124.7
HDP 140 4		—	—	141.6_495.3	141.6_495.3	141.6_495.3	141.6_277.5	141.6_277.5	—	—
HDP 150 2		—	—	—	—	—	—	—	—	—
HDP 150 3		—	—	—	—	—	—	—	43.5_77.0	21.5_77.0
HDP 150 4		—	—	170.9_303.1	170.9_303.1	89.0_303.1	89.0_303.1	89.0_303.1	89.0_303.1	89.0_157.8
HDP 160 2		—	—	—	—	—	—	—	—	—
HDP 160 3		—	—	—	—	—	—	—	49.4_87.0	24.4_87.0
HDP 160 4		—	—	194.1_342.2	194.1_342.2	101.1_342.2	101.1_342.2	101.1_342.2	101.1_342.2	101.1_178.1

(*) Abbinamento con motore possibile per posizione di montaggio V5 oppure B3/B6/B7 con supportazione esterna del motore. Per montaggio flangiato senza supporto consultare preventivamente il servizio Tecnico Bonfiglioli.

(*) Motors can be coupled in V5 or B3/B6/B7 mounting positions with external motor support brackets.
For flange mountings with no additional support, contact Bonfiglioli's Technical Service first.

(*) Verbindung mit Motor für Einbaulage V5 oder B3/B6/B7 mit äußerer Abstützung des Motors möglich. 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 è ottenibile mediante l'uso di ventole di raffreddamento che sono calettate sull'albero veloce del riduttore. Per i riduttori HDP 60 ... HDP 90 in configurazione VP e per i riduttori HDP 100 ... HDP 160 in con-

3.6 - OPTIONAL VARIANTS

3.6.1 - AUXILIARY COOLING DEVICES

3.6.1.1 - FAN COOLING

Greater heat dissipation capacity can be achieved by installing cooling fans, which are keyed on to the gearbox input shaft. Gear units HDP 60 ... HDP 90 featuring a solid input shaft (VP) and HDP 100 ... HDP 160 with lantern type motor

3.6 - OPTIONALE VARIANTEN

3.6.1 - THERMISCHE HILFSVORRICHTUNGEN

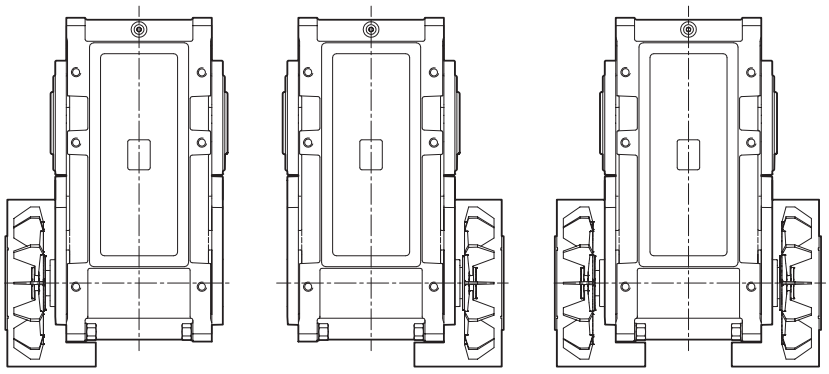
3.6.1.1 - ZWANGSLÜFTUNG

Eine verstärkte Wärmeableitung erhält man bei Verwendung von Lüftern, die an der Antriebswelle des Getriebes aufgezogen werden. Für die Getriebe HDP 60 ... HDP 90, bei der VP-Konfiguration und für die Getriebe HDP 100 bis HDP 160 bei der GL oder GR

figurazione GL o GR, è possibile richiedere il montaggio di una ventola unicamente sulla parte opposta al lato di comando specificando la sigla FANL o FANR.
Per i riduttori HDP 100 ... HDP 160 in configurazione VP, la ventola si può specificare sul lato destro o sinistro indipendentemente dalla presenza dell'albero di comando.
Per questi ultimi riduttori è anche possibile sfruttare la maggiore capacità di raffreddamento fornita da due ventole specificando la sigla FANLR nell'ordinativo.

adapter (GL/GR) may have an auxiliary fan fitted to the side opposite the drive end. Specify code FANL or FANR.
On units ranging from HDP 100 to HDP 160 in the solid input shaft configuration (VP), the fan can be mounted on the right or left side irrespective of whether a drive shaft is present or not.
It is also possible to maximise the cooling capacity on HDP 100 to HDP 160 gearboxes by fitting two fans, specifying code FANLR in the order.

–Konfiguration, besteht die Möglichkeit, die Montage eines Lüfters ausschließlich an der Seite gegenüber der Steuerseite mit Angabe der Abkürzung FANL oder FANR anzufordern. Für die Getriebe HDP 100... 140 bei der VP-Konfiguration, kann die Installation des Lüfters auf der rechten oder linken Seite unabhängig von der vorliegenden Installation der Steuerwelle angefordert werden.
Für die zuletzt genannten Getriebe ist es ferner möglich, die höhere Kühlleistung durch zwei Lüfter auszunutzen, die in der Bestellung mit der Abkürzung FANLR anzugeben sind.



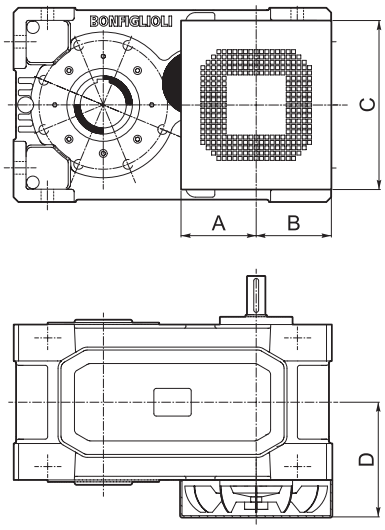
FANL **FANR** **FANLR**

(HDP 100 ... HDP 160)

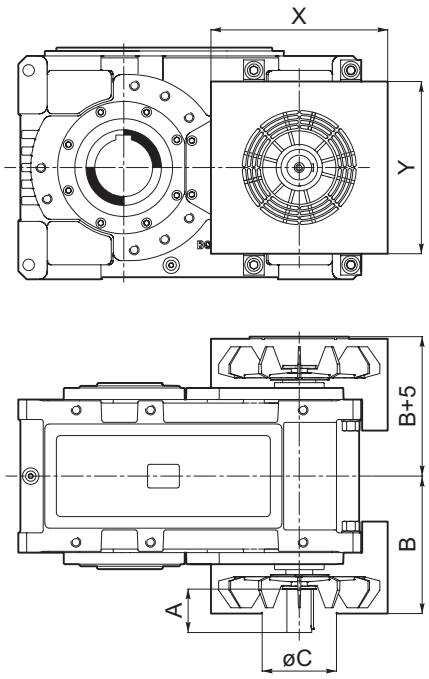
L'opzione non è disponibile in abbinamento con altre configurazioni che impegnano la medesima estremità d'albero e con la variante opzionale MOP (lubrificazione forzata con motopompa).
L'effetto della maggiore capacità di dissipazione è rappresentato dal valore di potenza termica P_{TFAN}, rilevabile nel capitolo: 4.1.
L'efficienza della ventilazione forzata si riduce grandemente al di sotto di velocità di comando n_1 = 900 min^{-1}. In questo caso per incrementare la potenza termica del riduttore è consigliabile ricorrere ad altri sistemi di raffreddamento ausiliari.

This option is not available in conjunction with configurations that use the same shaft end or with MOP variant (forced lubrication with electric pump).
The increased cooling effect is shown by the thermal capacity value P_{TFAN}. See chapter 4.1. The efficiency of forced ventilation falls drastically below the drive speed of n_1 = 900 min^{-1}. In this case, it is advisable to adopt other auxiliary cooling devices to increase the thermal capacity of the gearbox.

Die Option ist nicht erhältlich in Kombination mit anderen Konfigurationen, die dasselbe Wellenende in Anspruch nehmen, und mit den optionalen Variante MOP – Zwangsschmierung mit Motorpumpe.
Die verstärkte Wärmeableitung ist durch den Wert der Wärmeleistung P_{TFAN} dargestellt, der in folgendem Kapitel angegeben ist: 4.1 Unterhalb der Schaltgeschwindigkeit n_1 = 900 min^{-1} verringert sich die Effizienz der Zwangslüftung erheblich. Um die Wärmeleistung des Getriebes zu erhöhen, wird in diesem Fall empfohlen, auf andere Hilfskühlsysteme zurückzugreifen.



	A	B	C	D
HDP 60 FAN_	125	130	255	200
HDP 70 FAN_	125	130	255	200
HDP 80 FAN_	155	155	348	235
HDP 90 FAN_	178	178	360	260



	i	A	B	C	X	Y
HDP 100 FAN_	7.4 ≤ i ≤ 21.8	105	330	180	424	420
	22.8 ≤ i ≤ 107.6	82	330	180	424	420
	110.6 ≤ i ≤ 507.9	58	330	180	424	420
HDP 110 FAN_	8.1 ≤ i ≤ 25.0	105	330	180	424	420
	24.9 ≤ i ≤ 123.4	82	330	180	424	420
	120.9 ≤ i ≤ 499.4	58	330	180	424	420
HDP 120 FAN_	7.9 ≤ i ≤ 25.4	105	345	180	450	450
	25.8 ≤ i ≤ 125.2	85	345	180	450	450
	128.0 ≤ i ≤ 523.7	58	345	180	450	450
HDP 130 FAN_	7.3 ≤ i ≤ 12.3	130	422	230	540	590
	14.1 ≤ i ≤ 48.1	105	422	230	540	590
	56.5 ≤ i ≤ 237.9	82	422	230	540	590
	274.5 ≤ i ≤ 534.5	58	422	230	540	590
HDP 140 FAN_	8.4 ≤ i ≤ 14.4	130	422	230	540	590
	16.3 ≤ i ≤ 56.2	105	422	230	540	590
	65.1 ≤ i ≤ 277.5	82	422	230	540	590
	315.9 ≤ i ≤ 495.3	58	422	230	540	590
HDP 150 FAN_	7.9 ≤ i ≤ 14.1	165	472	230	540	665
	15.4 ≤ i ≤ 38.1	130	472	230	540	665
	43.5 ≤ i ≤ 77.0	105	472	230	540	665
	89.0 ≤ i ≤ 303.1	82	472	230	540	665
HDP 160 FAN_	9.0 ≤ i ≤ 15.9	165	472	230	540	665
	17.5 ≤ i ≤ 43.1	130	472	230	540	665
	49.4 ≤ i ≤ 87.0	105	472	230	540	665
	101.1 ≤ i ≤ 342.2	82	472	230	540	665

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.

Per una resa ottimale, il circuito di alimentazione, deve corrispondere alle seguenti specifiche:

- pressione max 8 bar
- portata min 5 l/min per HDP 60 … HDP 90
- portata min 10 l/min per HDP 100 … HDP 140
- temperatura acqua 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.*

For optimal efficiency the cooling circuit supply must comply with the following specifications:

- *max. pressure 8 bar*
- *min flow rate 5 l/min for HDP 60 … HDP 90*
- *min flow rate 10 l/min for HDP 100 … HDP 140*
- *max. water 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

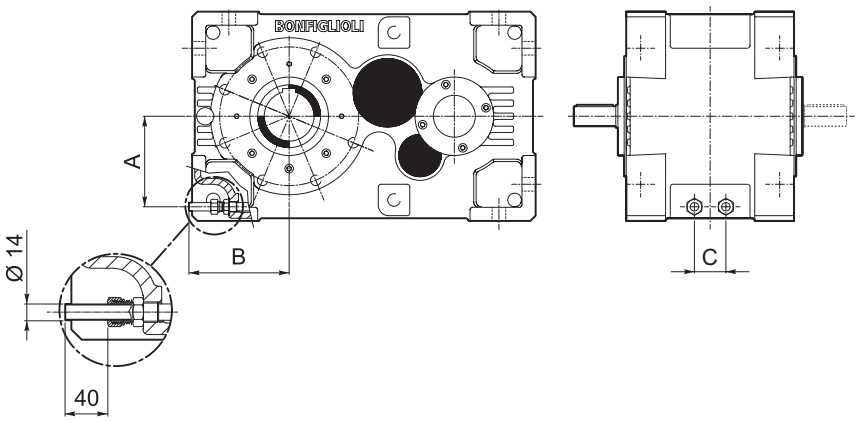
3.6.1.2 - KÜHLUNG MITTELS KÜHLSCHLANGE

Die Kühlschlange – Option **SR** – ist für den Einbau in einen Kühlkreis vorgesehen, der vom Monteur realisiert werden muss.

Zur Gewährleistung eines optimalen Betriebs muss der Versorgungskreis folgende Vorgaben erfüllen:

- Max. Druck 8 bar
- Mindestdurchsatz 5 l/min für HDP 60 … HDP 90
- Mindestdurchsatz 10 l/min für HDP 100 … HDP 140
- Wassertemperatur 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
HDP 60_ SR	147	170	60
HDP 70_ SR	147	170	60
HDP 80_ SR	173	190	60
HDP 90_ SR	190	210	60
HDP 100_ SR	232	285	100
HDP 110_ SR	232	270	100
HDP 120_ SR	258	305	100
HDP 130_ SR	325	340	100
HDP 140_ SR	325	365	100
HDP 150	⛔		
HDP 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 units 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 independent 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 capacity 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
HDP 100	**X**	**X**			
HDP 110	**X**	**X**			
HDP 120	**X**	**X**	**X (*)**		
HDP 130	**X**	**X**	**X**	**X (**)**	
HDP 140	**X**	**X**	**X**	**X (**)**	
HDP 150	**X**	**X**	**X**	**X**	**X (**)**
HDP 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:

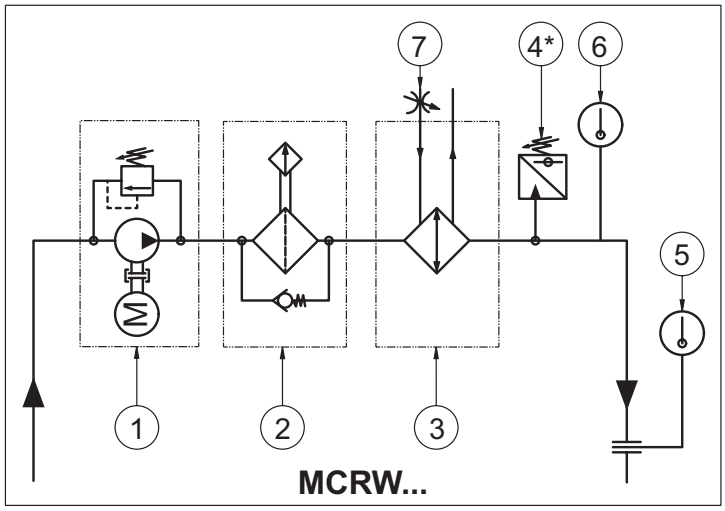
MCRW…

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…

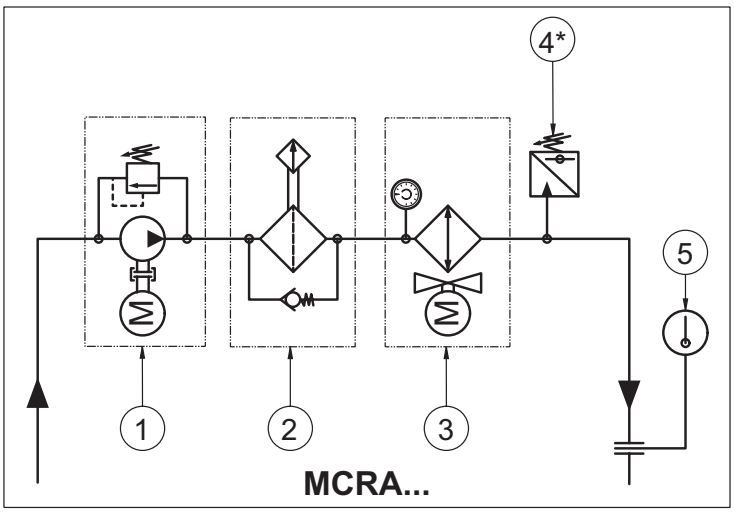
1) Motopompa con circuito di by-pass
2) Filtro con indicatore di intasamento visivo
3) Scambiatore di calore aria / olio con termostato
4) Pressostato di minima (presente solo in caso di lubrificazione forzata)
5) Termostato di massima

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.

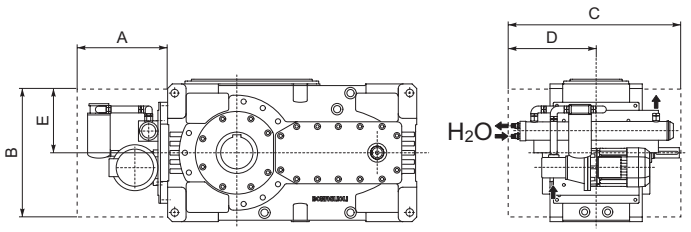
Le centraline sono installate sui riduttori come rappresentato nello schema sotto riportato.

The cooling units are mounted as shown in the figure below.

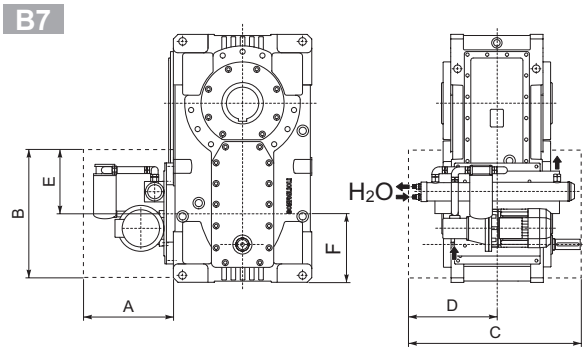
Die Aggregate werden auf den Getrieben gemäß der Zeichnung unten montiert.

MCRW...

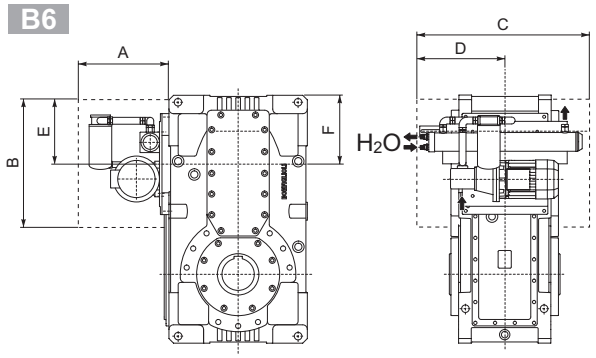
B3



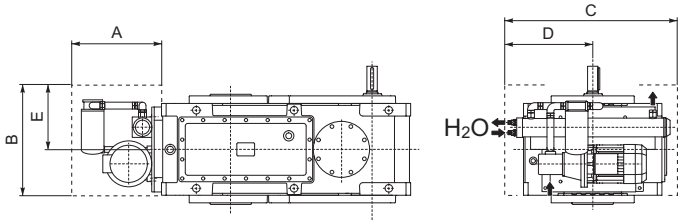
B7



B6



V5



	A	B	C	D	E	F						
						HDP 100 - HDP 110		HDP 120		HDP 130 - HDP 140		HDP 150 - HDP 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								

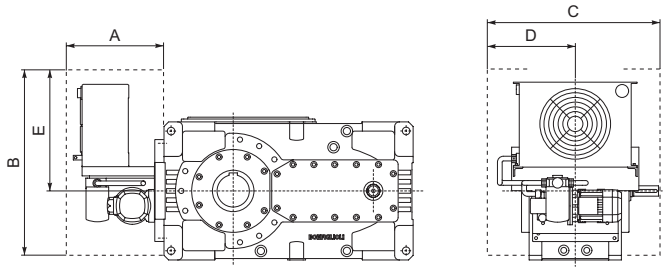
Le dimensioni d'ingombro massimo A, B, C, D ed E sono indicative.

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

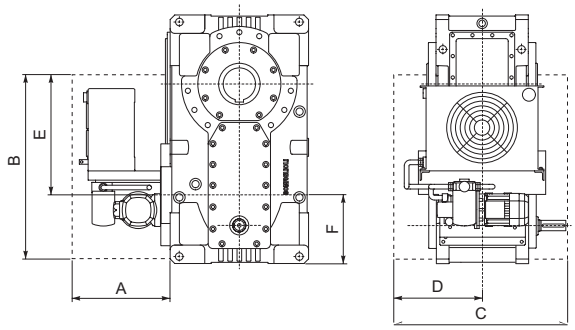
Die Außenabmessungen A; B; C; D und E sind nur Richtabmessungen.

MCRA...

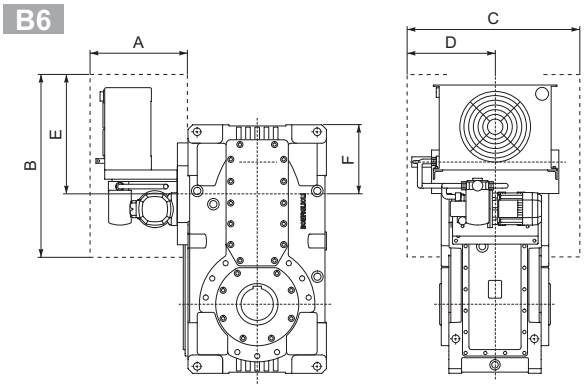
B3



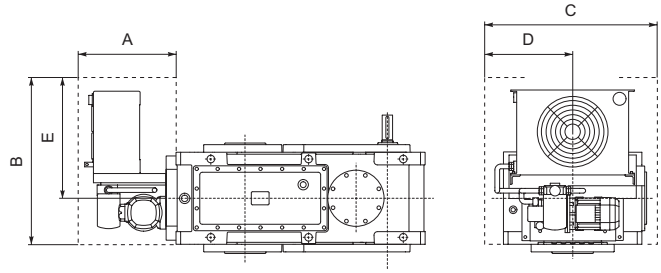
B7



B6



V5



	A	B	C	D	E	F						
						HDP 100 - HDP 110		HDP 120		HDP 130 - HDP 140		HDP 150 - HDP 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								

⚠ 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.

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

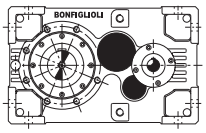
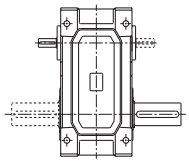
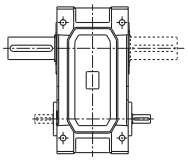
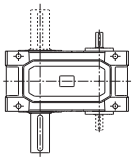
Condizioni di applicazione OBBLIGATORIA di dispositivi di lubrificazione forzata.

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**
HDP 60 ... HDP 90	⛔	⛔	⛔	(*)
HDP 100 ... HDP 160	⛔	⛔	⛔	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...

(*) Lubrificazione forzata OPZIONALE (OP… e MOP).

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

(*) Forced lubrication in this case is only optionally requested, NOT MANDATORY.

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.

(*) OPTIONALE Zwangsschmierung (OP… und MOP).

3.6.2.1 - POMPA

Per servizi di tipo continuo e installazioni nella posizione di montaggio V5 è fornibile a richiesta un circuito di lubrificazione forzata con pompa calettata sull'estremità opposta dell'albero di comando. Il circuito garantisce la lubrificazione dei cuscinetti superiori.
In fase di ordinativo specificare il tipo di pompa - **OP1** oppure **OP2** - in funzione della velocità di comando n_1, vedi schema seguente.

3.6.2.1 - MECHANICAL PUMP

*In continuous duty applications and V5 mounting position installations, an optional forced lubrication circuit is available on request, complete with a pump keyed to the shaft end opposite the drive side. This system ensures adequate lubrication of the top bearings. When ordering, specify the pump type - **OP1** or **OP2** to suit drive speed n_1. See the table below.*

3.6.2.1 - MECHANISCHE PUMPE

Bei Dauerbetrieb und Installationen in der Einbaulage V5 mit Dauerbetrieb ist auf Anfrage ein Zwangsschmierkreis mit Pumpe am Wellenende gegenüber der Antriebsseite lieferbar.
Der Zwangsschmierkreis garantiert die Schmierung der oberen Lager. Bei Auftragserteilung den Pumpentyp - **OP1** oder **OP2** in Abhängigkeit von der Drehzahl n_1 angeben siehe nachstehendes Schema.

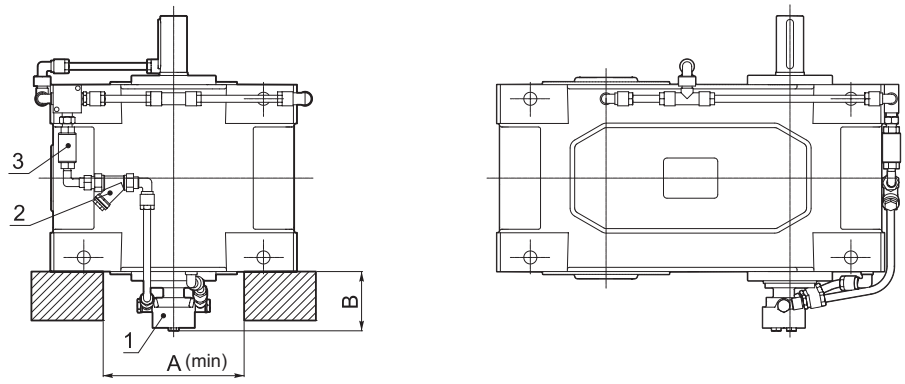
	n_1 = 900 min^{-1}	**n_1 = 1100 min^{-1}**	**n_1 = 1400 min^{-1}**
HDP 60 ... HDP 140	OP2	OP2	OP1
HDP 150 ... HDP 160	OP2	OP2	OP2

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 Kombination mit anderen Konfigurationen erhältlich, die dasselbe Wellenende in Anspruch nehmen.

HDP 60 ... HDP 90



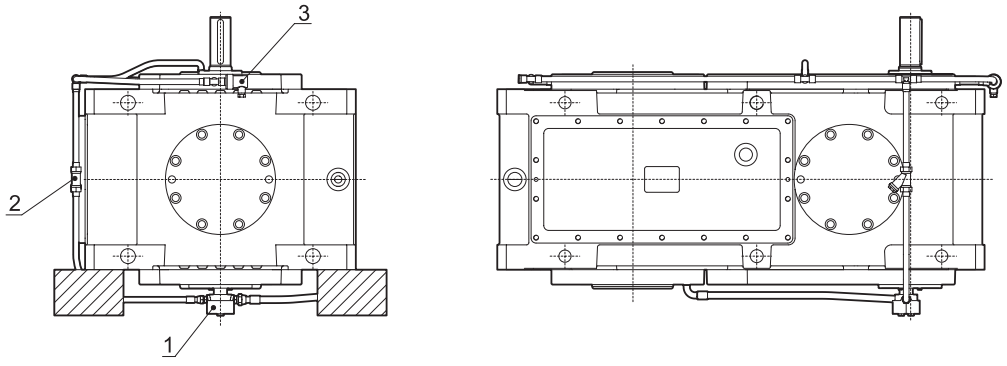
1 - Pompa
2 - Filtro
3 - Indicatore di flusso ad elica

1 - Pump
2 - Filter
3 - Oil flow visual indicator

1 - Pumpe
2 - Filter
3 - Optische-Ölflussanzeige

	A (min)	B
HDP 60_ OP1	190	105
HDP 60_ OP2	190	105
HDP 70_ OP1	215	105
HDP 70_ OP2	215	105
HDP 80_ OP1	240	105
HDP 80_ OP2	240	130
HDP 90_ OP1	240	130
HDP 90_ OP2	240	130

HDP 100 ... HDP 160



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.

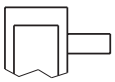
Contact the Bonfiglioli Technical Service for overall dimensions.

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

La tabella descrive la disponibilità del dispositivo pompa in funzione delle configurazioni lenta e veloce.

The chart shows the applicability for the pump depending on the input and output configuration.

In der Tabelle ist die Verfügbarkeit der Pumpe in Abhängigkeit von den Konfigurationen der Abtriebs- und Antriebsseite angegeben.

HDP 60 ... HDP 160		LL RL DL	LR RR DR	LD RD DD
	**LP**	⛔	VP GR AD	⛔
	**H**	⛔	VP GR AD	⛔
	**S**	⛔	VP GR AD	⛔

3.6.2.2 - MOTOPOMPA

Per servizi di tipo intermittente e installazioni nella posizione di montaggio V5 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.
L'opzione non è disponibile in abbinamento alla variante opzionale FAN_

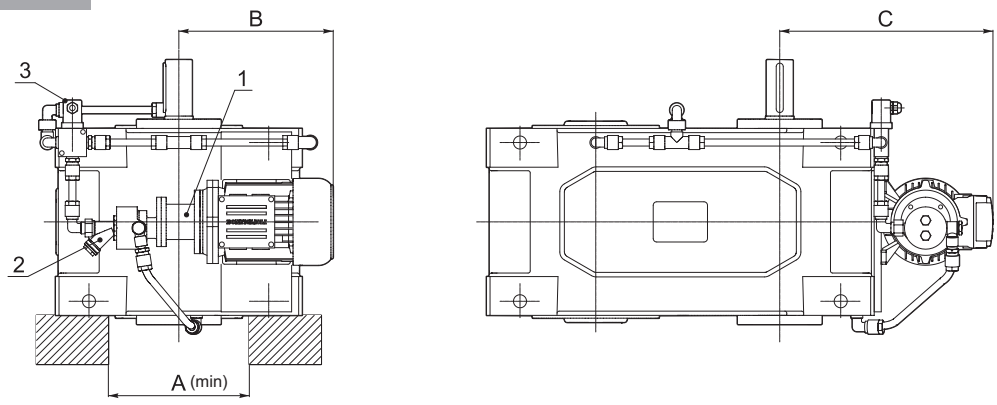
3.6.2.2 - MOTOR PUMP

*For intermittent duty applications and V5 mounting position installations, a forced lubrication circuit is available on request, complete with an independently powered motor pump. This system ensures a constant oil flow to the top bearings. Specify the **MOP** option.*
Option MOP is not available if fan cooling - option FAN_ - is also specified.

3.6.2.2 - MOTORPUMPE

Bei Aussetzbetrieb und Installationen in der Einbaulage V5 mit Aussetzbetrieb ist auf Anfrage ein Zwangsschmierkreis mit unabhängig versorgter Motorpumpe - Option **MOP** - lieferbar. Der Zwangsschmierkreis garantiert einen konstanten Schmieröldurchsatz an den oberen Lagern. Die Option ist nicht in Kombination mit der optionalen Variante FAN_ verfügbar.

HDP 60 ... HDP 90



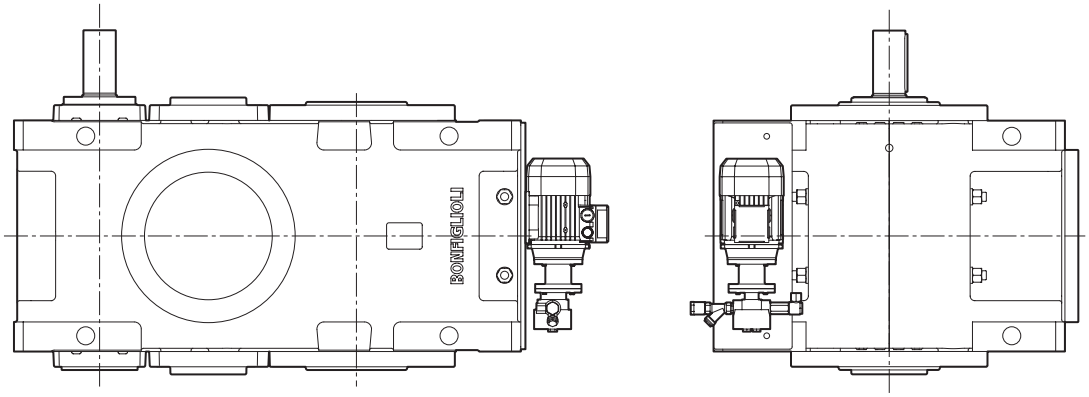
1 - Motopompa
2 - Filtro
3 - Pressostato di minima

1 - Motorpump
2 - Filter
3 - Minimum pressure switch

1 - Motorpumpe
2 - Filter
3 - Mindestdruckwächter

	A (min)	B	C
HDP 60_ MOP	190	260	310
HDP 70_ MOP	215	260	330
HDP 80_ MOP	240	270	355
HDP 90_ MOP	240	285	390

HDP 100 ... HDP 160



I componenti principali sono:

1 - Motopompa
2 - Filtro
3 - Pressostato di minima

The main components are:

1 - Motorpump
2 - Filter
3 - Minimum pressure switch

Die wesentlichen Komponenten sind:

1 - Motorpumpe
2 - Filter
3 - Mindestdruckwächter

Per le dimensioni di ingombro contattare il Servizio Tecnico Bonfiglioli.

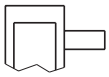
Contact the Bonfiglioli Technical Service for overall dimensions.

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

La tabella descrive la disponibilità del dispositivo motopompa in funzione delle configurazioni lenta e veloce.

The chart shows the applicability for the motorpump depending on the input and output configuration.

In der Tabelle ist die Verfügbarkeit der Pumpe in Abhängigkeit von den Konfigurationen der Abtriebs- und Antriebsseite angegeben.

		LL RD DL	**LR RR DR**	**LD RD DD**
	**LP**	VP	VP GR AD	VP GR
	**H**	VP	VP GR AD	VP GR
	**S**	VP	VP GR AD	VP GR

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.

Il dispositivo è calettato sull'estremità dell'albero veloce opposta al lato di comando ed è accessibile dall'esterno per esigenze di facile ispezionabilità.

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.

The backstop is keyed to the input shaft opposite the drive end and it is accessible for inspection.

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

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. Die Vorrichtung ist am Wellenende auf der gegenüberliegenden Seite von der Antriebswelle angebracht und ist von außen zugänglich, um Inspektionen zu erleichtern.

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.

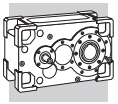
Die Option ist nicht erhältlich in Kombination mit anderen Konfigurationen, die dasselbe Wellenende in Anspruch nehmen.

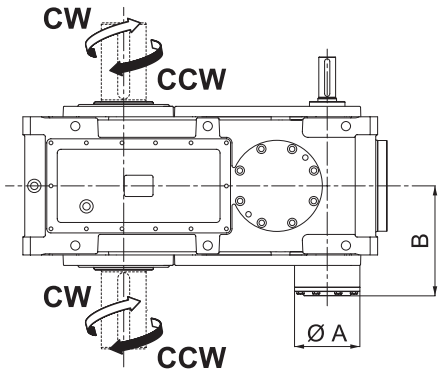
In funzionamento permanente si consiglia di mantenere una velocità di rotazione in folle (sopravanzo) n_{1min} superiore a quella indicata in tabella, al fine di garantire il distacco centrifugo di tutti i corpi preservandoli da fenomeni di usura.

Per ulteriori informazioni contattare Servizio Tecnico Bonfiglioli.

Under continuous operating conditions, it is advisable to maintain a neutral rotation speed 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.

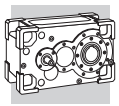
Bei Dauerbetrieb empfiehlt sich die Einhaltung einer Leerlaufdrehzahl (Überschuss) n_{1min} oberhalb des in der Tabelle angegebenen Werts, um die Ablösung aller Kontaktkörper bei Einwirkung der Zentrifugalkraft zu gewährleisten und somit Verschleißerscheinungen der Kontaktkörper vorzubeugen. Bei weiterem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





	i	A	B	M_{1max} [Nm]	n_{1min} [min^{-1}]
HDP 60 2_A	7.1 ≤ i ≤ 15.2	125	202.5	800	720
	i = 17.3; 19.4	100	197.5	375	780
HDP 60 3_A	22.7 ≤ i ≤ 98.4	100	197.5	375	780
HDP 70 2_A	8.0 ≤ i ≤ 17.7	125	202.5	800	720
	i = 19.4; 22.6	100	197.5	375	780
HDP 70 3_A	25.5 ≤ i ≤ 114.4	100	197.5	375	780
HDP 80 2_A	8.1 ≤ i ≤ 22.6	130	233	912	665
HDP 80 3_A	25.8 ≤ i ≤ 111.4	110	228	550	740
HDP 90 2_A	7.9 ≤ i ≤ 22.4	150	261	1400	610
HDP 90 3_A	25.4 ≤ i ≤ 110.1	125	256	800	720
HDP 100 2_A	7.4 ≤ i ≤ 21.8	175	285	2350	490
HDP 100 3_A	22.8 ≤ i ≤ 50.0	150	298	1400	610
	55.5 ≤ i ≤ 107.6	125	293	800	720
HDP 100 4_A	110.6 ≤ i ≤ 507.9	95	262	310	825
HDP 110 2_A	8.1 ≤ i ≤ 25.0	175	285	2350	490
HDP 110 3_A	24.9 ≤ i ≤ 54.5	150	298	1400	610
	60.7 ≤ i ≤ 123.4	125	293	800	720
HDP 110 4_A	120.9 ≤ i ≤ 499.4	95	262	310	825
HDP 120 2_A	7.9 ≤ i ≤ 25.4	190	315	3050	480
HDP 120 3_A	25.8 ≤ i ≤ 56.1	150	285	1400	610
	64.3 ≤ i ≤ 125.2	125	279	800	720
HDP 120 4_A	128.0 ≤ i ≤ 523.7	95	277	310	825

	i	A	B	M_{1max} [Nm]	n_{1min} [min^{-1}]
HDP 130 2_A	7.3 ≤ i ≤ 12.3	230	425	5600	420
	14.1 ≤ i ≤ 21.7	210	395	4500	450
HDP 130 3_A	21.8 ≤ i ≤ 48.1	190	366	3050	480
	56.5 ≤ i ≤ 108.3	175	366	2350	490
HDP 130 4_A	i = 111.2; 121.4	110	332	550	740
HDP 140 2_A	8.4 ≤ i ≤ 14.4	230	425	5600	420
	16.3 ≤ i ≤ 24.9	210	395	4500	450
HDP 140 3_A	25.1 ≤ i ≤ 56.2	190	366	3050	480
	65.1 ≤ i ≤ 124.7	175	342	2350	490
HDP 140 4_A	141.6 ≤ i ≤ 495.3	110	332	550	740
HDP 150 2_A	7.9 ≤ i ≤ 14.1	290	487.5	10500	455
	15.4 ≤ i ≤ 19.6	230	447.5	5600	420
HDP 150 3_A	21.5 ≤ i ≤ 38.1	230	445.5	5600	420
	43.5 ≤ i ≤ 77.0	190	417	3050	480
HDP 150 4_A	89.0 ≤ i ≤ 303.1	150	385	1400	610
HDP 160 2_A	9.0 ≤ i ≤ 15.9	290	487.5	10500	455
	17.5 ≤ i ≤ 22.1	230	447.5	5600	420
HDP 160 3_A	24.4 ≤ i ≤ 43.1	230	445.5	5600	420
	49.4 ≤ i ≤ 87.0	190	417	3050	480
HDP 160 4_A	101.1 ≤ i ≤ 342.2	150	385	1400	610



3.6.4 - SUPPORTAZIONE RADIALE RINFORZATA

A richiesta sono disponibili cuscinetti di una serie maggiorata, caratterizzati da maggiore capacità di carico radiale. L'opzione HDB è applicabile solo per i gruppi HDP 60 ... HDP 90 dotati di albero lento cilindrico, esecuzione LP.
Per i valori di carico radiale puntuale consultare il relativo capitolo di questo catalogo. L'opzione non è disponibile congiuntamente alla variante DW -dry well-.

3.6.4 - REINFORCED BEARINGS

Optional heavy-duty bearings are also available, with increased overhung load capacity. The HDB option can only be applied to HDP 60 ... HDP 90 units with the LP shaft arrangement (solid shaft).
See the relevant section in this catalogue for precise overhung load values.
Option cannot be specified along with variant DW -drywell-.

3.6.4 - VERSTÄRKTE RADIALE LAGERUNG

Auf Anfrage sind Lager in verstärkter Ausführung lieferbar, die sich durch eine erhöhte radiale Belastbarkeit auszeichnen. Die Option HDB ist nur für die Gruppen HDP 60 ... HDP 90 mit zylindrischer Abtriebswelle, Ausführung LP, verfügbar.
Die genauen Werte der spezifischen Radialkraft finden Sie im entsprechenden Kapitel dieses Katalogs. Die Option ist nicht in Kombination mit die Variante DW - Drywell-.

3.6.5 - TENUTE E GUARNIZIONI

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

3.6.5 - SEALS AND GASKETS

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

3.6.5 - DICHTUNGEN UND DICHTMANSCHETTEN

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

	HDP 60	HDP 70	HDP 80	HDP 90	HDP 100	HDP 110	HDP 120	HDP 130	HDP 140	HDP 150	HDP 160
TK	⛔	⛔	⛔	⛔	X	X	X	X	X	BONFIGLIOLI TECHNICAL SERVICE	
VS	X	X	X	X	X	X	X	X	X	X	X
DS	X	X	X	X	X	X	X	X	X	X	X
DVS	X	X	X	X	X	X	X	X	X	X	X

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.

***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.*

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.

3.6.6 - 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.

3.6.6 - 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 to permit remote control 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.

3.6.6 - 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.
Diese Ausführung könnte nicht mit weiteren Zubehören und/oder Ausführungen möglich sein. Kontaktieren Sie bitte den Technischen Service von Bonfiglioli.

3.6.7 - DRYWELL

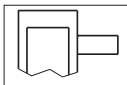
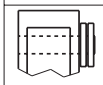
Il dispositivo “Drywell”, opzione **DW**, garantisce la tenuta dell’albero lento ed è unicamente applicabile per i riduttori in posizione di montaggio verticale V5.
Quando specificato, richiede necessariamente l’adozione contestuale di un sistema di lubrificazione forzata, selezionato fra quelli disponibili 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.
La tabella descrive la disponibilità del dispositivo drywell in funzione delle configurazioni lenta e veloce.

3.6.7 - DRYWELL

*The Drywell device, option **DW**, guarantees proper sealing for the output shaft. It can only be applied to gearboxes in vertical mounting position V5.*
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.
The chart shows the applicability for the drywell depending on the input and output configurations.

3.6.7 - DRYWELL

Die „Drywell“-Vorrichtung – Option **DW** – garantiert die Dichtung der Abtriebswelle und wird nur bei Getrieben mit vertikaler Einbaulage 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.
In der Tabelle ist die Verfügbarkeit der Drywell-Vorrichtung in Abhängigkeit von den Konfigurationen der Abtriebs- und Antriebsseite angegeben.

		LR	DR	LD	DD	LL	DL
	**LP**	VP GR	VP GR	VP GR GL	VP GR GL	AD	AD
	**H**	VP GR	⛔	VP GR GL	⛔	AD	⛔
	**S**	VP GR	⛔	VP GR GL	⛔	AD	⛔

Rapporti per i quali **non è disponibile** il dispositivo drywell:

*The drywell **is NOT available** for the gear ratios listed here under:*

Übersetzungsverhältnisse, für die die Drywell-Vorrichtung **nicht erhältlich ist:**

⛔ DW	HDP 60	HDP 70	HDP 80	HDP 90	HDP 100	HDP 110	HDP 120	HDP 130	HDP 140	HDP 150	HDP 160
i =	17.3 19.4 43.7 49.1 87.6 98.4	19.4 22.6 49.1 57.0 98.5 114.4	—	20.1 22.4 65.8 73.3 98.9 110.1	BONFIGLIOLI TECHNICAL SERVICE						

3.6.8 - ORGANI DI FISSAGGIO

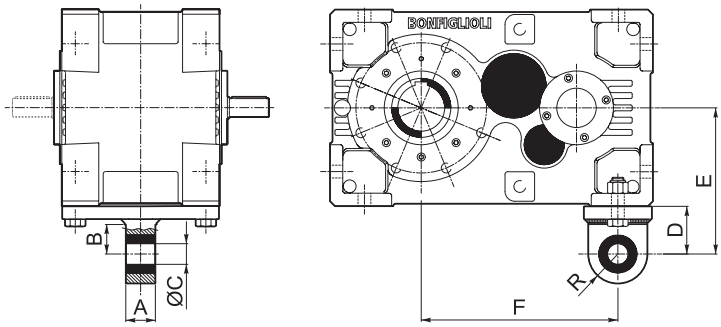
Per i fissaggi di tipo pendolare dei riduttori HDP 60 ... HDP 90 è fornibile a corredo un braccio di reazione, realizzato in acciaio elettrosaldato e dotato di boccola anti-vibrante.

3.6.8 - FIXING ELEMENTS

For shaft-mounted installations, HDP 60 ... HDP 90 gearboxes can be fitted with an electro-welded steel torque arm, complete with anti-vibration bushing.

3.6.8 - BEFESTIGUNGSORGANE

Für die Pendelbefestigungen der Getriebe HDP 60 … HDP 90 kann als Zubehör eine Drehmomentstütze mitgeliefert werden, der aus elektrogeschweißtem Stahl gefertigt und mit schwingungsdämpfender Buchse ausgestattet ist.



	A	B	C	D	E	F	R
HDP 60_ TA	40	47	32	76	251	340	47
HDP 70_ TA	40	47	32	76	251	375	47
HDP 80_ TA	60	60	42	97	297	400	60
HDP 90_ TA	60	68	42	113	338	460	68

Per l'identica funzione è fornibile per i riduttori HDP 100 e superiori 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.

To perform the same function, gearboxes HDP 100 and larger can be supplied with a hardened steel bolt to secure the units to the machine framwork.

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

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).

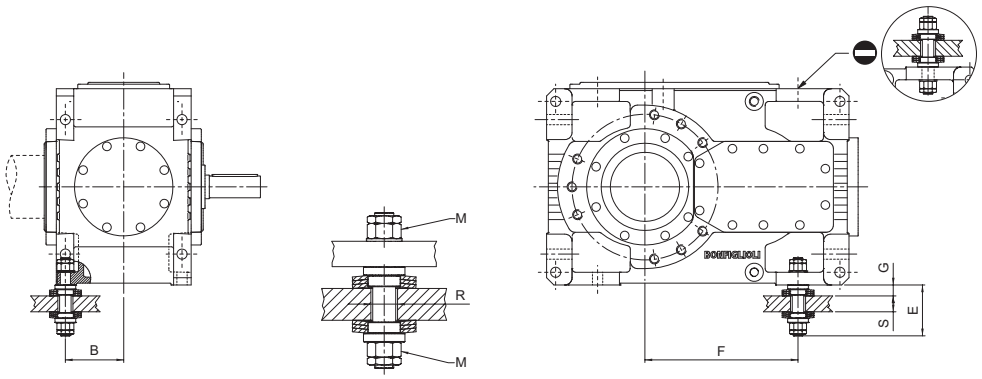
Fitting the bolt on same side as the inspection cover is not possible. In this case please contact Bonfiglioli Technical Service for advise.

Für die gleiche Funktion kann, für die Getriebe HDP 100 und weitere Größen, eine Schraube aus vergütetem Stahl mit entsprechender Form geliefert werden, um das Getriebe an der Trägerstruktur zu verankern.

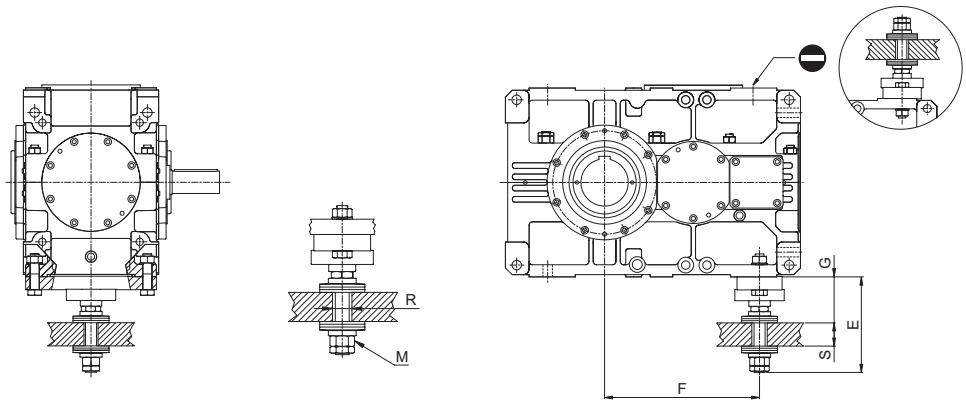
Im Bausatz befinden sich ferner die Tellerfedern zur Schwingungsdämpfung, deren Vorbelastung bei der Installation durch den Kunden einzustellen ist; hierzu das in der nachfolgenden Tabelle angegebene Maß G beachten.

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
HDP 100 2_TA	420	160	153	33.4	M27	35	30 - 40	A100
HDP 100 3_TA **HDP 100 4_TA**	540							
HDP 110 2_TA	435	160	153	33.4	M27	35	30 - 40	A100
HDP 110 3_TA **HDP 110 4_TA**	555							
HDP 120 2_TA	480	170	166	33.4	M30	40	40 - 50	A100
HDP 120 3_TA **HDP 120 4_TA**	630							
HDP 130 2_TA	585	216	205	42.7	M36	45	50 - 60	A125
HDP 130 3_TA **HDP 130 4_TA**	780							
HDP 140 2_TA	625	216	205	42.7	M36	45	50 - 60	A125
HDP 140 3_TA **HDP 140 4_TA**	790							



	F	E	G Valore nominale *Rated value* Nennwert	M	R	S	DIN2093
HDP 150 2_TA	687.5	405	204,3	M48x2	52	70 - 80	A160
HDP 150 3_TA **HDP 150 4_TA**	877.5						
HDP 160 2_TA	727.5	405	204,3	M48x2	52	70 - 80	A160
HDP 160 3_TA **HDP 160 4_TA**	927.5						

3.6.9 - 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.

3.6.9 - 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.

3.6.9 - NACHWEISE

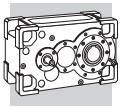
AC - Konformitätsbescheinigung Dokument mit dessen Ausstellung die Konformität des Produkts mit dem Auftrag, und dessen Konstruktion in Konformität mit den vom Qualitätsmanagementsystem von Bonfiglioli Riduttori vorgesehenen Standardfertigungs- und -kontrollverfahren bescheinigt wird.

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”).

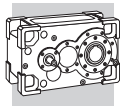
4 - MAXIMUM TRANSMISSIBLE TORQUE

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”).

HDP												
		Mn_{2max} [Nm]										
	i_N	HDP 60	HDP 70	HDP 80	HDP 90	HDP 100	HDP 110	HDP 120	HDP 130	HDP 140	HDP 150	HDP 160
2x	7.1	5000	—	—	—	22600	—	—	63250	—	—	—
	8.0	4600	6200	10350	14000	23100	24050	34900	60700	77100	106550	—
	9.0	5000	6850	12050	15600	23150	25400	36500	63250	79150	106450	123200
	10.0	4600	6750	11350	17650	23100	24450	35550	60700	77100	104350	133000
	11.2	5000	6850	12250	16750	23450	25800	37100	63250	77100	106550	133700
	12.5	4600	6750	11500	17650	23100	24750	36000	60700	77100	106450	128750
	14.0	5000	6850	12250	16750	23750	26100	37200	63250	77100	104350	133000
	16.0	4600	6750	11750	17000	23100	25050	36350	60700	77100	106550	128750
	18.0	5000	6850	11950	16750	23950	26450	37200	63250	79150	106450	128750
	20.0	4600	6750	11900	17650	23100	25350	36700	60700	74700	104350	133000
	22.4	—	6850	12250	16750	21700	26700	37200	57400	79150	—	133700
	25.0	—	—	—	—	—	25900	34300	—	71700	—	—
3x	22.4	4950	—	—	—	25650	—	—	60750	—	106550	—
	25.0	4600	6750	9900	17650	23100	27600	36450	60700	70400	106450	130400
	28.0	5000	6850	11500	16750	25650	28900	37200	63250	77950	104350	133000
	31.5	4600	6750	11650	17650	23100	27950	37500	60700	77100	106550	133700
	35.5	5000	6850	12250	16750	25650	28900	37200	63250	79150	106450	130400
	40.0	4600	6750	12600	17650	23100	28300	37500	60700	77100	104350	133000
	45.0	5000	6850	12250	16750	25650	28900	37200	63250	79150	106550	133700
	50.0	4600	6750	11950	17650	23100	28500	37500	60700	74700	106450	130400
	56.0	5000	6850	12250	16750	25650	28900	37200	63250	79150	104350	133000
	63.0	4600	6750	12600	17650	23100	27950	37500	60700	77100	106550	133700
	71.0	5000	6850	12250	16750	25650	28900	37200	63250	79150	106450	130400
	80.0	4600	6750	12000	17650	23100	28300	37500	60700	77100	104350	133000
	90.0	5000	6850	12250	16750	25650	28900	37200	63250	79150	—	133700
	100.0	4600	6750	12600	17650	23100	28500	37500	60700	74700	—	—
	112.0	—	6850	12250	16750	21700	28900	37200	57400	79150	—	—
	125.0	—	—	—	—	—	25900	34300	—	71700	—	—
4x	90.0	—	—	—	—	—	—	—	—	—	106550	—
	100.0	—	—	—	—	—	—	—	—	—	106450	126300
	112.0	—	—	—	—	25650	—	—	63250	—	104350	133000
	125.0	—	—	—	—	23100	28500	37500	60700	—	106550	133700
	140.0	—	—	—	—	25650	28900	37200	63250	77100	106450	130400
	160.0	—	—	—	—	23100	28900	37500	60700	77100	104350	133000
	180.0	—	—	—	—	25650	28700	37200	63250	79150	106550	133700
	200.0	—	—	—	—	23100	28700	37500	60700	74700	106450	126300
	224.0	—	—	—	—	25650	28900	37200	63250	79150	104350	133000
	250.0	—	—	—	—	23100	28500	37500	60700	74700	106550	133700
	280.0	—	—	—	—	25650	28900	37200	63250	77100	106450	130400
	315.0	—	—	—	—	23100	28700	37500	60700	77100	104350	133000
	355.0	—	—	—	—	25650	28900	37200	63250	77100	—	133700
	400.0	—	—	—	—	23100	28700	37500	60700	77100	—	—
	450.0	—	—	—	—	25650	28900	37200	60700	79150	—	—
	500.0	—	—	—	—	23100	28700	37500	57400	74700	—	—



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

HDP 60 — n_1 = 1750 min^{-1}

					Tamb = 20°C			Tamb = 40°C		
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TSR} [kW]	P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TSR} [kW]
HDP 60 2	**7.1**	245	3900	104	*	*	75	*	*	*
HDP 60 2	**8.0**	218	4000	95	*	*	75	*	*	*
HDP 60 2	**9.0**	195	4200	89	*	*	75	*	*	*
HDP 60 2	**10.1**	174	4250	80	*	68	75	*	*	62
HDP 60 2	**11.2**	157	4500	77	*	68	75	*	*	62
HDP 60 2	**12.5**	140	4600	70	52	68	—	34	48	62
HDP 60 2	**13.5**	129	4800	68	52	—	—	34	48	62
HDP 60 2	**15.2**	115	4600	58	52	—	—	34	48	—
HDP 60 2	**17.3**	101	4750	52	52	—	—	34	48	—
HDP 60 2	**19.4**	90	4600	45	—	—	—	34	—	—
HDP 60 3	**22.7**	77	4050	35	33	—	—	21	31	—
HDP 60 3	**25.5**	69	4200	32	—	—	—	21	31	—
HDP 60 3	**28.2**	62	4500	31	—	—	—	21	31	—
HDP 60 3	**31.7**	55	4350	27	—	—	—	21	—	—
HDP 60 3	**34.2**	51	4700	27	—	—	—	21	—	—
HDP 60 3	**38.5**	45	4600	23	—	—	—	21	—	—
HDP 60 3	**43.7**	40	4900	22	—	—	—	21	—	—
HDP 60 3	**49.1**	36	4600	18.2	—	—	—	—	—	—
HDP 60 3	**56.6**	31	4800	16.5	—	—	—	—	—	—
HDP 60 3	**63.6**	27.5	4600	14.1	—	—	—	—	—	—
HDP 60 3	**68.6**	25.5	5000	14.2	—	—	—	—	—	—
HDP 60 3	**77.1**	22.7	4600	11.6	—	—	—	—	—	—
HDP 60 3	**87.6**	20.0	5000	11.1	—	—	—	—	—	—
HDP 60 3	**98.4**	17.8	4600	9.1	—	—	—	—	—	—

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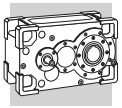

HDP 60 — n_1 = 1400 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C			Tamb = 40°C		
					P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TSR} [kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TSR} [kW]
HDP 60 2	**7.1**	196	4200	90	48	65	80	*	44	63
HDP 60 2	**8.0**	174	4250	81	48	65	80	*	44	63
HDP 60 2	**9.0**	156	4500	77	48	65	80	*	44	63
HDP 60 2	**10.1**	139	4550	69	48	—	—	34	44	63
HDP 60 2	**11.2**	125	4800	66	48	—	—	34	44	63
HDP 60 2	**12.5**	112	4600	56	48	—	—	34	44	—
HDP 60 2	**13.5**	103	4950	56	48	—	—	34	44	—
HDP 60 2	**15.2**	92	4600	46	—	—	—	34	—	—
HDP 60 2	**17.3**	81	5000	44	—	—	—	34	—	—
HDP 60 2	**19.4**	72	4600	36	—	—	—	—	—	—
HDP 60 3	**22.7**	62	4350	30	—	—	—	23	—	—
HDP 60 3	**25.5**	55	4500	27	—	—	—	23	—	—
HDP 60 3	**28.2**	50	4800	26	—	—	—	23	—	—
HDP 60 3	**31.7**	44	4600	23	—	—	—	—	—	—
HDP 60 3	**34.2**	41	5000	23	—	—	—	—	—	—
HDP 60 3	**38.5**	36	4600	18.6	—	—	—	—	—	—
HDP 60 3	**43.7**	32	5000	17.8	—	—	—	—	—	—
HDP 60 3	**49.1**	28.5	4600	14.6	—	—	—	—	—	—
HDP 60 3	**56.6**	24.7	5000	13.8	—	—	—	—	—	—
HDP 60 3	**63.6**	22.0	4600	11.3	—	—	—	—	—	—
HDP 60 3	**68.6**	20.4	5000	11.3	—	—	—	—	—	—
HDP 60 3	**77.1**	18.2	4600	9.3	—	—	—	—	—	—
HDP 60 3	**87.6**	16.0	5000	8.9	—	—	—	—	—	—
HDP 60 3	**98.4**	14.2	4600	7.3	—	—	—	—	—	—

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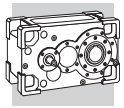

HDP 60 — n_1 = 1100 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C P_T [kW]	Tamb = 20°C $P_{TFANL/R}$ [kW]	Tamb = 20°C P_{TSR} [kW]	Tamb = 40°C P_T [kW]	Tamb = 40°C $P_{TFANL/R}$ [kW]	Tamb = 40°C P_{TSR} [kW]
HDP 60 2	**7.1**	154	4500	76	51	66	—	34	45	66
HDP 60 2	**8.0**	137	4600	69	51	66	—	34	45	66
HDP 60 2	**9.0**	123	4750	64	51	—	—	34	45	—
HDP 60 2	**10.1**	109	4600	55	51	—	—	34	45	—
HDP 60 2	**11.2**	99	4950	53	51	—	—	34	45	—
HDP 60 2	**12.5**	88	4600	44	—	—	—	34	—	—
HDP 60 2	**13.5**	81	5000	44	—	—	—	34	—	—
HDP 60 2	**15.2**	72	4600	36	—	—	—	34	—	—
HDP 60 2	**17.3**	64	5000	35	—	—	—	34	—	—
HDP 60 2	**19.4**	57	4600	28	—	—	—	—	—	—
HDP 60 3	**22.7**	48	4650	25	—	—	—	—	—	—
HDP 60 3	**25.5**	43	4600	22	—	—	—	—	—	—
HDP 60 3	**28.2**	39	5000	22	—	—	—	—	—	—
HDP 60 3	**31.7**	35	4600	17.8	—	—	—	—	—	—
HDP 60 3	**34.2**	32	5000	17.9	—	—	—	—	—	—
HDP 60 3	**38.5**	28.6	4600	14.6	—	—	—	—	—	—
HDP 60 3	**43.7**	25.2	5000	14.0	—	—	—	—	—	—
HDP 60 3	**49.1**	22.4	4600	11.5	—	—	—	—	—	—
HDP 60 3	**56.6**	19.4	5000	10.8	—	—	—	—	—	—
HDP 60 3	**63.6**	17.3	4600	8.9	—	—	—	—	—	—
HDP 60 3	**68.6**	16.0	5000	8.9	—	—	—	—	—	—
HDP 60 3	**77.1**	14.3	4600	7.3	—	—	—	—	—	—
HDP 60 3	**87.6**	12.6	5000	7.0	—	—	—	—	—	—
HDP 60 3	**98.4**	11.2	4600	5.7	—	—	—	—	—	—

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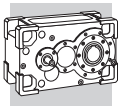

HDP 60 — n_1 = 900 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C P_T [kW]	Tamb = 20°C $P_{TFANL/R}$ [kW]	Tamb = 20°C P_{TSR} [kW]	Tamb = 40°C P_T [kW]	Tamb = 40°C $P_{TFANL/R}$ [kW]	Tamb = 40°C P_{TSR} [kW]
HDP 60 2	**7.1**	126	4750	65	54	—	—	36	45	68
HDP 60 2	**8.0**	112	4600	56	54	—	—	36	45	—
HDP 60 2	**9.0**	100	4950	54	54	—	—	36	45	—
HDP 60 2	**10.1**	89	4600	45	—	—	—	36	—	—
HDP 60 2	**11.2**	81	5000	44	—	—	—	36	—	—
HDP 60 2	**12.5**	72	4600	36	—	—	—	—	—	—
HDP 60 2	**13.5**	67	5000	36	—	—	—	—	—	—
HDP 60 2	**15.2**	59	4600	30	—	—	—	—	—	—
HDP 60 2	**17.3**	52	5000	28	—	—	—	—	—	—
HDP 60 2	**19.4**	46	4600	23	—	—	—	—	—	—
HDP 60 3	**22.7**	40	4950	22	—	—	—	—	—	—
HDP 60 3	**25.5**	35	4600	18.1	—	—	—	—	—	—
HDP 60 3	**28.2**	32	5000	17.7	—	—	—	—	—	—
HDP 60 3	**31.7**	28.4	4600	14.5	—	—	—	—	—	—
HDP 60 3	**34.2**	26.3	5000	14.6	—	—	—	—	—	—
HDP 60 3	**38.5**	23.4	4600	12.0	—	—	—	—	—	—
HDP 60 3	**43.7**	20.6	5000	11.5	—	—	—	—	—	—
HDP 60 3	**49.1**	18.3	4600	9.4	—	—	—	—	—	—
HDP 60 3	**56.6**	15.9	5000	8.8	—	—	—	—	—	—
HDP 60 3	**63.6**	14.2	4600	7.2	—	—	—	—	—	—
HDP 60 3	**68.6**	13.1	5000	7.3	—	—	—	—	—	—
HDP 60 3	**77.1**	11.7	4600	6.0	—	—	—	—	—	—
HDP 60 3	**87.6**	10.3	5000	5.7	—	—	—	—	—	—
HDP 60 3	**98.4**	9.1	4600	4.7	—	—	—	—	—	—

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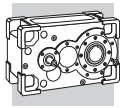

HDP 70 — n_1 = 1750 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C P_T [kW]	Tamb = 20°C $P_{TFANL/R}$ [kW]	Tamb = 20°C P_{TSR} [kW]	Tamb = 40°C P_T [kW]	Tamb = 40°C $P_{TFANL/R}$ [kW]	Tamb = 40°C P_{TSR} [kW]
HDP 70 2	**8.0**	218	5100	121	*	*	*	*	*	*
HDP 70 2	**9.3**	188	5300	108	*	*	*	*	*	*
HDP 70 2	**10.1**	173	5450	103	*	69	81	*	*	*
HDP 70 2	**11.7**	149	5650	92	*	69	81	*	*	*
HDP 70 2	**12.6**	139	5900	90	54	69	81	36	50	68
HDP 70 2	**14.6**	120	6100	80	54	69	—	36	50	68
HDP 70 2	**15.2**	115	6300	79	54	69	—	36	50	68
HDP 70 2	**17.7**	99	6500	70	54	69	—	36	50	68
HDP 70 2	**19.4**	90	6550	64	54	—	—	36	50	—
HDP 70 2	**22.6**	78	6850	58	54	—	—	36	50	—
HDP 70 3	**25.5**	69	6500	50	33	47	—	*	30	—
HDP 70 3	**29.6**	59	6850	45	33	—	—	*	30	—
HDP 70 3	**31.7**	55	6000	37	33	—	—	*	30	—
HDP 70 3	**36.9**	47	6200	33	—	—	—	*	30	—
HDP 70 3	**38.5**	45	6400	32	—	—	—	23	30	—
HDP 70 3	**44.7**	39	6450	28	—	—	—	23	—	—
HDP 70 3	**49.1**	36	6750	27	—	—	—	23	—	—
HDP 70 3	**57.0**	31	6850	23	—	—	—	23	—	—
HDP 70 3	**63.7**	27.5	6050	18.5	—	—	—	—	—	—
HDP 70 3	**73.9**	23.7	6650	17.5	—	—	—	—	—	—
HDP 70 3	**77.2**	22.7	6600	16.6	—	—	—	—	—	—
HDP 70 3	**89.6**	19.5	6850	14.9	—	—	—	—	—	—
HDP 70 3	**98.5**	17.8	6750	13.3	—	—	—	—	—	—
HDP 70 3	**114.4**	15.3	6850	11.7	—	—	—	—	—	—

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HDP 70 — n_1 = 1400 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C P_T [kW]	Tamb = 20°C $P_{TFANL/R}$ [kW]	Tamb = 20°C P_{TSR} [kW]	Tamb = 40°C P_T [kW]	Tamb = 40°C $P_{TFANL/R}$ [kW]	Tamb = 40°C P_{TSR} [kW]
HDP 70 2	**8.0**	174	5450	103	48	65	82	*	44	63
HDP 70 2	**9.3**	150	5650	92	48	65	82	*	44	63
HDP 70 2	**10.1**	139	5850	89	48	65	82	*	44	63
HDP 70 2	**11.7**	120	6050	79	48	—	—	34	44	63
HDP 70 2	**12.6**	112	6300	77	48	—	—	34	44	63
HDP 70 2	**14.6**	96	6500	68	48	—	—	34	44	—
HDP 70 2	**15.2**	92	6700	67	48	—	—	34	44	—
HDP 70 2	**17.7**	79	6850	59	—	—	—	34	—	—
HDP 70 2	**19.4**	72	6750	53	—	—	—	34	—	—
HDP 70 2	**22.6**	62	6850	46	—	—	—	—	—	—
HDP 70 3	**25.5**	55	6750	41	—	—	—	23	—	—
HDP 70 3	**29.6**	47	6850	36	—	—	—	23	—	—
HDP 70 3	**31.7**	44	6400	31	—	—	—	23	—	—
HDP 70 3	**36.9**	38	6600	28	—	—	—	—	—	—
HDP 70 3	**38.5**	36	6750	27	—	—	—	—	—	—
HDP 70 3	**44.7**	31	6850	24	—	—	—	—	—	—
HDP 70 3	**49.1**	28.5	6750	21	—	—	—	—	—	—
HDP 70 3	**57.0**	24.5	6850	18.7	—	—	—	—	—	—
HDP 70 3	**63.7**	22.0	6500	15.9	—	—	—	—	—	—
HDP 70 3	**73.9**	18.9	6850	14.4	—	—	—	—	—	—
HDP 70 3	**77.2**	18.1	6750	13.6	—	—	—	—	—	—
HDP 70 3	**89.6**	15.6	6850	11.9	—	—	—	—	—	—
HDP 70 3	**98.5**	14.2	6750	10.7	—	—	—	—	—	—
HDP 70 3	**114.4**	12.2	6850	9.3	—	—	—	—	—	—

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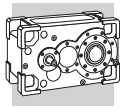

HDP 70 — n_1 = 1100 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C P_T [kW]	Tamb = 20°C $P_{TFANL/R}$ [kW]	Tamb = 20°C P_{TSR} [kW]	Tamb = 40°C P_T [kW]	Tamb = 40°C $P_{TFANL/R}$ [kW]	Tamb = 40°C P_{TSR} [kW]
HDP 70 2	**8.0**	137	5850	87	54	69	86	35	46	67
HDP 70 2	**9.3**	118	6050	78	54	69	—	35	46	67
HDP 70 2	**10.1**	109	6300	75	54	69	—	35	46	67
HDP 70 2	**11.7**	94	6500	67	54	—	—	35	46	—
HDP 70 2	**12.6**	88	6750	65	54	—	—	35	46	—
HDP 70 2	**14.6**	75	6850	56	54	—	—	35	46	—
HDP 70 2	**15.2**	72	6750	53	—	—	—	35	46	—
HDP 70 2	**17.7**	62	6850	46	—	—	—	35	46	—
HDP 70 2	**19.4**	57	6750	42	—	—	—	35	—	—
HDP 70 2	**22.6**	49	6850	36	—	—	—	35	—	—
HDP 70 3	**25.5**	43	6750	32	—	—	—	25	—	—
HDP 70 3	**29.6**	37	6850	28	—	—	—	25	—	—
HDP 70 3	**31.7**	35	6750	26	—	—	—	25	—	—
HDP 70 3	**36.9**	29.8	6850	23	—	—	—	—	—	—
HDP 70 3	**38.5**	28.6	6750	21	—	—	—	—	—	—
HDP 70 3	**44.7**	24.6	6850	18.7	—	—	—	—	—	—
HDP 70 3	**49.1**	22.4	6750	16.8	—	—	—	—	—	—
HDP 70 3	**57.0**	19.3	6850	14.7	—	—	—	—	—	—
HDP 70 3	**63.7**	17.3	6750	13.0	—	—	—	—	—	—
HDP 70 3	**73.9**	14.9	6850	11.3	—	—	—	—	—	—
HDP 70 3	**77.2**	14.2	6750	10.7	—	—	—	—	—	—
HDP 70 3	**89.6**	12.3	6850	9.4	—	—	—	—	—	—
HDP 70 3	**98.5**	11.2	6750	8.4	—	—	—	—	—	—
HDP 70 3	**114.4**	9.6	6850	7.3	—	—	—	—	—	—

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HDP 70 — n_1 = 900 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C P_T [kW]	Tamb = 20°C $P_{TFANL/R}$ [kW]	Tamb = 20°C P_{TSR} [kW]	Tamb = 40°C P_T [kW]	Tamb = 40°C $P_{TFANL/R}$ [kW]	Tamb = 40°C P_{TSR} [kW]
HDP 70 2	**8.0**	112	6200	76	56	68	—	38	47	70
HDP 70 2	**9.3**	96	6450	68	56	—	—	38	47	—
HDP 70 2	**10.1**	89	6700	65	56	—	—	38	47	—
HDP 70 2	**11.7**	77	6850	57	56	—	—	38	47	—
HDP 70 2	**12.6**	72	6750	53	—	—	—	38	47	—
HDP 70 2	**14.6**	62	6850	46	—	—	—	38	—	—
HDP 70 2	**15.2**	59	6750	44	—	—	—	38	—	—
HDP 70 2	**17.7**	51	6850	38	—	—	—	—	—	—
HDP 70 2	**19.4**	46	6750	34	—	—	—	—	—	—
HDP 70 2	**22.6**	40	6850	30	—	—	—	—	—	—
HDP 70 3	**25.5**	35	6750	26	—	—	—	—	—	—
HDP 70 3	**29.6**	30	6850	23	—	—	—	—	—	—
HDP 70 3	**31.7**	28.3	6750	21	—	—	—	—	—	—
HDP 70 3	**36.9**	24.4	6850	18.6	—	—	—	—	—	—
HDP 70 3	**38.5**	23.4	6750	17.6	—	—	—	—	—	—
HDP 70 3	**44.7**	20.1	6850	15.3	—	—	—	—	—	—
HDP 70 3	**49.1**	18.3	6750	13.8	—	—	—	—	—	—
HDP 70 3	**57.0**	15.8	6850	12.0	—	—	—	—	—	—
HDP 70 3	**63.7**	14.1	6750	10.6	—	—	—	—	—	—
HDP 70 3	**73.9**	12.2	6850	9.3	—	—	—	—	—	—
HDP 70 3	**77.2**	11.7	6750	8.8	—	—	—	—	—	—
HDP 70 3	**89.6**	10.0	6850	7.7	—	—	—	—	—	—
HDP 70 3	**98.5**	9.1	6750	6.9	—	—	—	—	—	—
HDP 70 3	**114.4**	7.9	6850	6.0	—	—	—	—	—	—

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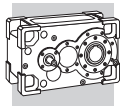

HDP 80 — n_1 = 1750 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C P_T [kW]	Tamb = 20°C $P_{TFANL/R}$ [kW]	Tamb = 20°C P_{TSR} [kW]	Tamb = 40°C P_T [kW]	Tamb = 40°C $P_{TFANL/R}$ [kW]	Tamb = 40°C P_{TSR} [kW]
HDP 80 2	**8.1**	217	8900	211	*	108	*	*	*	*
HDP 80 2	**9.4**	187	9200	188	*	108	*	*	*	*
HDP 80 2	**9.8**	178	9500	184	*	108	*	*	78	*
HDP 80 2	**11.4**	153	9850	164	*	108	*	*	78	*
HDP 80 2	**12.6**	139	10350	157	81	108	122	*	78	98
HDP 80 2	**14.6**	120	10650	139	81	108	122	*	78	98
HDP 80 2	**15.5**	113	11050	136	81	108	122	59	78	98
HDP 80 2	**18.0**	97	10900	116	81	108	—	59	78	98
HDP 80 2	**19.4**	90	11550	113	81	108	—	59	78	98
HDP 80 2	**22.6**	78	11450	97	81	—	—	59	78	—
HDP 80 3	**25.8**	68	9550	72	47	69	—	30	46	—
HDP 80 3	**30.0**	58	10700	70	47	69	—	30	46	—
HDP 80 3	**31.7**	55	10250	63	47	—	—	30	46	—
HDP 80 3	**36.8**	48	11600	61	47	—	—	30	46	—
HDP 80 3	**39.8**	44	10900	53	47	—	—	30	46	—
HDP 80 3	**46.2**	38	12250	52	47	—	—	30	46	—
HDP 80 3	**51.6**	34	11950	45	—	—	—	30	—	—
HDP 80 3	**59.9**	29.2	12250	40	—	—	—	30	—	—
HDP 80 3	**64.8**	27.0	12600	38	—	—	—	30	—	—
HDP 80 3	**75.2**	23.3	12250	32	—	—	—	30	—	—
HDP 80 3	**76.4**	22.9	11200	29	—	—	—	—	—	—
HDP 80 3	**88.7**	19.7	12250	27	—	—	—	—	—	—
HDP 80 3	**95.9**	18.2	12550	25	—	—	—	—	—	—
HDP 80 3	**111.4**	15.7	12250	21	—	—	—	—	—	—

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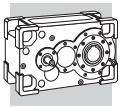

HDP 80 — n_1 = 1400 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C P_T [kW]	Tamb = 20°C $P_{TFANL/R}$ [kW]	Tamb = 20°C P_{TSR} [kW]	Tamb = 40°C P_T [kW]	Tamb = 40°C $P_{TFANL/R}$ [kW]	Tamb = 40°C P_{TSR} [kW]
HDP 80 2	**8.1**	174	9500	180	78	106	119	55	76	96
HDP 80 2	**9.4**	150	9850	161	78	106	119	55	76	96
HDP 80 2	**9.8**	142	10150	157	78	106	119	55	76	96
HDP 80 2	**11.4**	123	10550	141	78	106	119	55	76	96
HDP 80 2	**12.6**	111	11050	134	78	106	119	55	76	96
HDP 80 2	**14.6**	96	11400	119	78	106	119	55	76	96
HDP 80 2	**15.5**	90	11750	116	78	106	—	55	76	96
HDP 80 2	**18.0**	78	11700	99	78	—	—	55	76	96
HDP 80 2	**19.4**	72	11900	93	78	—	—	55	76	—
HDP 80 2	**22.6**	62	12250	83	—	—	—	55	76	—
HDP 80 3	**25.8**	54	9900	60	50	—	—	34	48	—
HDP 80 3	**30.0**	47	11450	60	50	—	—	34	48	—
HDP 80 3	**31.7**	44	11000	54	50	—	—	34	48	—
HDP 80 3	**36.8**	38	12250	52	—	—	—	34	48	—
HDP 80 3	**39.8**	35	11650	46	—	—	—	34	—	—
HDP 80 3	**46.2**	30	12250	41	—	—	—	34	—	—
HDP 80 3	**51.6**	27.1	11950	36	—	—	—	34	—	—
HDP 80 3	**59.9**	23.4	12250	32	—	—	—	—	—	—
HDP 80 3	**64.8**	21.6	12600	30	—	—	—	—	—	—
HDP 80 3	**75.2**	18.6	12250	25	—	—	—	—	—	—
HDP 80 3	**76.4**	18.3	12000	24	—	—	—	—	—	—
HDP 80 3	**88.7**	15.8	12250	22	—	—	—	—	—	—
HDP 80 3	**95.9**	14.6	12600	20	—	—	—	—	—	—
HDP 80 3	**111.4**	12.6	12250	17.1	—	—	—	—	—	—

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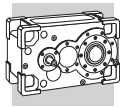

HDP 80 — n_1 = 1100 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C P_T [kW]	Tamb = 20°C $P_{TFANL/R}$ [kW]	Tamb = 20°C P_{TSR} [kW]	Tamb = 40°C P_T [kW]	Tamb = 40°C $P_{TFANL/R}$ [kW]	Tamb = 40°C P_{TSR} [kW]
HDP 80 2	**8.1**	136	10250	152	81	107	122	*	76	98
HDP 80 2	**9.4**	118	10550	135	81	107	122	*	76	98
HDP 80 2	**9.8**	112	10950	133	81	107	122	58	76	98
HDP 80 2	**11.4**	96	11350	119	81	107	—	58	76	98
HDP 80 2	**12.6**	87	11500	109	81	107	—	58	76	98
HDP 80 2	**14.6**	75	12250	100	81	—	—	58	76	98
HDP 80 2	**15.5**	71	11750	91	81	—	—	58	76	—
HDP 80 2	**18.0**	61	11950	80	—	—	—	58	76	—
HDP 80 2	**19.4**	57	11900	73	—	—	—	58	—	—
HDP 80 2	**22.6**	49	12250	65	—	—	—	58	—	—
HDP 80 3	**25.8**	43	9900	47	—	—	—	36	—	—
HDP 80 3	**30.0**	37	11500	47	—	—	—	36	—	—
HDP 80 3	**31.7**	35	11650	45	—	—	—	36	—	—
HDP 80 3	**36.8**	29.9	12250	41	—	—	—	36	—	—
HDP 80 3	**39.8**	27.6	12550	39	—	—	—	36	—	—
HDP 80 3	**46.2**	23.8	12250	32	—	—	—	—	—	—
HDP 80 3	**51.6**	21.3	11950	28	—	—	—	—	—	—
HDP 80 3	**59.9**	18.4	12250	25	—	—	—	—	—	—
HDP 80 3	**64.8**	17.0	12600	24	—	—	—	—	—	—
HDP 80 3	**75.2**	14.6	12250	19.9	—	—	—	—	—	—
HDP 80 3	**76.4**	14.4	12000	19.2	—	—	—	—	—	—
HDP 80 3	**88.7**	12.4	12250	16.9	—	—	—	—	—	—
HDP 80 3	**95.9**	11.5	12600	16.1	—	—	—	—	—	—
HDP 80 3	**111.4**	9.9	12250	13.5	—	—	—	—	—	—

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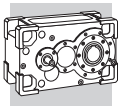

HDP 80 — n_1 = 900 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C P_T [kW]	Tamb = 20°C $P_{TFANL/R}$ [kW]	Tamb = 20°C P_{TSR} [kW]	Tamb = 40°C P_T [kW]	Tamb = 40°C $P_{TFANL/R}$ [kW]	Tamb = 40°C P_{TSR} [kW]
HDP 80 2	**8.1**	112	10350	126	82	102	123	58	73	99
HDP 80 2	**9.4**	96	11250	118	82	102	—	58	73	99
HDP 80 2	**9.8**	91	11350	113	82	102	—	58	73	99
HDP 80 2	**11.4**	79	12050	103	82	102	—	58	73	99
HDP 80 2	**12.6**	71	11500	90	82	—	—	58	73	—
HDP 80 2	**14.6**	62	12250	82	82	—	—	58	73	—
HDP 80 2	**15.5**	58	11750	74	—	—	—	58	73	—
HDP 80 2	**18.0**	50	11950	65	—	—	—	58	—	—
HDP 80 2	**19.4**	46	11900	60	—	—	—	58	—	—
HDP 80 2	**22.6**	40	12250	53	—	—	—	—	—	—
HDP 80 3	**25.8**	35	9900	38	—	—	—	38	—	—
HDP 80 3	**30.0**	30	11500	38	—	—	—	38	—	—
HDP 80 3	**31.7**	28.4	11650	37	—	—	—	—	—	—
HDP 80 3	**36.8**	24.4	12250	33	—	—	—	—	—	—
HDP 80 3	**39.8**	22.6	12600	32	—	—	—	—	—	—
HDP 80 3	**46.2**	19.5	12250	27	—	—	—	—	—	—
HDP 80 3	**51.6**	17.4	11950	23	—	—	—	—	—	—
HDP 80 3	**59.9**	15.0	12250	20	—	—	—	—	—	—
HDP 80 3	**64.8**	13.9	12600	19.5	—	—	—	—	—	—
HDP 80 3	**75.2**	12.0	12250	16.3	—	—	—	—	—	—
HDP 80 3	**76.4**	11.8	12000	15.7	—	—	—	—	—	—
HDP 80 3	**88.7**	10.1	12250	13.8	—	—	—	—	—	—
HDP 80 3	**95.9**	9.4	12600	13.2	—	—	—	—	—	—
HDP 80 3	**111.4**	8.1	12250	11.0	—	—	—	—	—	—

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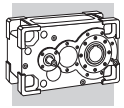

HDP 90 — n_1 = 1750 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C P_T [kW]	Tamb = 20°C $P_{TFANL/R}$ [kW]	Tamb = 20°C P_{TSR} [kW]	Tamb = 40°C P_T [kW]	Tamb = 40°C $P_{TFANL/R}$ [kW]	Tamb = 40°C P_{TSR} [kW]
HDP 90 2	**7.9**	221	11700	282	*	*	*	*	*	*
HDP 90 2	**8.8**	198	12250	265	*	*	*	*	*	*
HDP 90 2	**10.1**	174	12700	241	*	141	*	*	98	*
HDP 90 2	**11.2**	156	13250	226	*	141	*	*	98	*
HDP 90 2	**12.2**	143	13450	210	105	141	153	*	98	122
HDP 90 2	**13.6**	129	14100	198	105	141	153	*	98	122
HDP 90 2	**15.8**	111	14350	173	105	141	153	76	98	122
HDP 90 2	**17.6**	99	15350	166	105	141	153	76	98	122
HDP 90 2	**20.1**	87	15400	146	105	141	—	76	98	122
HDP 90 2	**22.4**	78	16550	141	105	141	—	76	98	122
HDP 90 3	**25.4**	69	14600	112	60	87	82	*	58	60
HDP 90 3	**28.3**	62	15150	104	60	87	82	*	58	60
HDP 90 3	**32.9**	53	15600	92	60	87	82	41	58	60
HDP 90 3	**36.6**	48	16550	88	60	87	82	41	58	60
HDP 90 3	**40.0**	44	15100	73	60	—	—	41	58	60
HDP 90 3	**44.6**	39	16750	73	60	—	—	41	58	60
HDP 90 3	**51.8**	34	16300	61	60	—	—	41	58	60
HDP 90 3	**57.7**	30	16750	57	—	—	—	41	—	—
HDP 90 3	**65.8**	26.6	17650	52	—	—	—	41	—	—
HDP 90 3	**73.3**	23.9	16750	44	—	—	—	41	—	—
HDP 90 3	**77.8**	22.5	16150	40	—	—	—	—	—	—
HDP 90 3	**86.6**	20.2	16750	38	—	—	—	—	—	—
HDP 90 3	**98.9**	17.7	17650	35	—	—	—	—	—	—
HDP 90 3	**110.1**	15.9	16750	30	—	—	—	—	—	—

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HDP 90 — n_1 = 1400 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C P_T [kW]	Tamb = 20°C $P_{TFANL/R}$ [kW]	Tamb = 20°C P_{TSR} [kW]	Tamb = 40°C P_T [kW]	Tamb = 40°C $P_{TFANL/R}$ [kW]	Tamb = 40°C P_{TSR} [kW]
HDP 90 2	**7.9**	177	12500	241	102	136	150	*	95	118
HDP 90 2	**8.8**	159	13100	227	102	136	150	*	95	118
HDP 90 2	**10.1**	139	13550	206	102	136	150	74	95	118
HDP 90 2	**11.2**	125	14200	194	102	136	150	74	95	118
HDP 90 2	**12.2**	115	14350	179	102	136	150	74	95	118
HDP 90 2	**13.6**	103	15100	169	102	136	150	74	95	118
HDP 90 2	**15.8**	89	15350	148	102	136	—	74	95	118
HDP 90 2	**17.6**	80	16400	142	102	—	—	74	95	118
HDP 90 2	**20.1**	70	16450	125	102	—	—	74	95	118
HDP 90 2	**22.4**	63	16750	114	102	—	—	74	95	—
HDP 90 3	**25.4**	55	15600	96	64	87	86	43	60	65
HDP 90 3	**28.3**	49	16200	89	64	—	86	43	60	65
HDP 90 3	**32.9**	43	16700	79	64	—	—	43	60	65
HDP 90 3	**36.6**	38	16750	71	64	—	—	43	60	65
HDP 90 3	**40.0**	35	16150	63	—	—	—	43	60	—
HDP 90 3	**44.6**	31	16750	59	—	—	—	43	—	—
HDP 90 3	**51.8**	27.0	17450	52	—	—	—	43	—	—
HDP 90 3	**57.7**	24.3	16750	45	—	—	—	—	—	—
HDP 90 3	**65.8**	21.3	17650	42	—	—	—	—	—	—
HDP 90 3	**73.3**	19.1	16750	36	—	—	—	—	—	—
HDP 90 3	**77.8**	18.0	17250	35	—	—	—	—	—	—
HDP 90 3	**86.6**	16.2	16750	30	—	—	—	—	—	—
HDP 90 3	**98.9**	14.2	17650	28	—	—	—	—	—	—
HDP 90 3	**110.1**	12.7	16750	24	—	—	—	—	—	—

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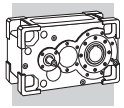

HDP 90 — n_1 = 1100 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C P_T [kW]	Tamb = 20°C $P_{TFANL/R}$ [kW]	Tamb = 20°C P_{TSR} [kW]	Tamb = 40°C P_T [kW]	Tamb = 40°C $P_{TFANL/R}$ [kW]	Tamb = 40°C P_{TSR} [kW]
HDP 90 2	**7.9**	139	13450	203	105	135	153	74	96	122
HDP 90 2	**8.8**	125	14050	191	105	135	153	74	96	122
HDP 90 2	**10.1**	109	14600	174	105	135	153	74	96	122
HDP 90 2	**11.2**	98	15250	163	105	135	153	74	96	122
HDP 90 2	**12.2**	90	15450	152	105	135	—	74	96	122
HDP 90 2	**13.6**	81	16250	143	105	135	—	74	96	122
HDP 90 2	**15.8**	70	16500	125	105	—	—	74	96	122
HDP 90 2	**17.6**	63	16750	114	105	—	—	74	96	—
HDP 90 2	**20.1**	55	17650	105	105	—	—	74	96	—
HDP 90 2	**22.4**	49	16750	90	—	—	—	74	—	—
HDP 90 3	**25.4**	43	16800	81	68	—	—	46	61	68
HDP 90 3	**28.3**	39	16750	72	68	—	—	46	61	68
HDP 90 3	**32.9**	33	17650	66	—	—	—	46	61	—
HDP 90 3	**36.6**	30	16750	56	—	—	—	46	—	—
HDP 90 3	**40.0**	27.5	17350	53	—	—	—	46	—	—
HDP 90 3	**44.6**	24.7	16750	46	—	—	—	—	—	—
HDP 90 3	**51.8**	21.2	17650	42	—	—	—	—	—	—
HDP 90 3	**57.7**	19.1	16750	36	—	—	—	—	—	—
HDP 90 3	**65.8**	16.7	17650	33	—	—	—	—	—	—
HDP 90 3	**73.3**	15.0	16750	28	—	—	—	—	—	—
HDP 90 3	**77.8**	14.1	17650	28	—	—	—	—	—	—
HDP 90 3	**86.6**	12.7	16750	24	—	—	—	—	—	—
HDP 90 3	**98.9**	11.1	17650	22	—	—	—	—	—	—
HDP 90 3	**110.1**	10.0	16750	18.6	—	—	—	—	—	—

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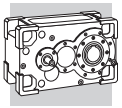

HDP 90 — n_1 = 900 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C P_T [kW]	Tamb = 20°C $P_{TFANL/R}$ [kW]	Tamb = 20°C P_{TSR} [kW]	Tamb = 40°C P_T [kW]	Tamb = 40°C $P_{TFANL/R}$ [kW]	Tamb = 40°C P_{TSR} [kW]
HDP 90 2	**7.9**	114	14000	173	107	131	155	76	93	124
HDP 90 2	**8.8**	102	14950	166	107	131	155	76	93	124
HDP 90 2	**10.1**	89	15500	151	107	131	—	76	93	124
HDP 90 2	**11.2**	80	16200	142	107	131	—	76	93	124
HDP 90 2	**12.2**	74	16400	132	107	131	—	76	93	124
HDP 90 2	**13.6**	66	16750	121	107	—	—	76	93	—
HDP 90 2	**15.8**	57	17000	106	—	—	—	76	93	—
HDP 90 2	**17.6**	51	16750	93	—	—	—	76	93	—
HDP 90 2	**20.1**	45	17650	86	—	—	—	76	—	—
HDP 90 2	**22.4**	40	16750	73	—	—	—	—	—	—
HDP 90 3	**25.4**	35	17650	70	—	—	—	48	60	—
HDP 90 3	**28.3**	32	16750	59	—	—	—	48	—	—
HDP 90 3	**32.9**	27.4	17650	54	—	—	—	48	—	—
HDP 90 3	**36.6**	24.6	16750	46	—	—	—	—	—	—
HDP 90 3	**40.0**	22.5	17650	44	—	—	—	—	—	—
HDP 90 3	**44.6**	20.2	16750	38	—	—	—	—	—	—
HDP 90 3	**51.8**	17.4	17650	34	—	—	—	—	—	—
HDP 90 3	**57.7**	15.6	16750	29	—	—	—	—	—	—
HDP 90 3	**65.8**	13.7	17650	27	—	—	—	—	—	—
HDP 90 3	**73.3**	12.3	16750	23	—	—	—	—	—	—
HDP 90 3	**77.8**	11.6	17650	23	—	—	—	—	—	—
HDP 90 3	**86.6**	10.4	16750	19.4	—	—	—	—	—	—
HDP 90 3	**98.9**	9.1	17650	17.9	—	—	—	—	—	—
HDP 90 3	**110.1**	8.2	16750	15.2	—	—	—	—	—	—

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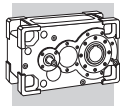

HDP 100 — n_1 = 1750 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 20°C							
					P_T	$P_{TFANL/R}$	P_{TFANLR}	P_{TMCRA5}	P_{TMCRA9}	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDP 100 2	**7.4**	236	18400	474	*	*	*	*	*	*	*	*
HDP 100 2	**8.2**	213	20600	478	*	*	*	*	*	*	*	*
HDP 100 2	**9.1**	192	19350	405	*	*	224	*	*	*	*	295
HDP 100 2	**10.1**	173	21350	403	*	180	224	*	340	175	*	295
HDP 100 2	**11.3**	156	20400	346	*	180	224	272	340	175	213	295
HDP 100 2	**12.5**	140	21350	326	*	180	224	272	—	175	213	295
HDP 100 2	**14.2**	124	21300	287	108	180	224	272	—	175	213	—
HDP 100 2	**15.7**	111	21350	259	108	180	224	—	—	175	213	—
HDP 100 2	**18.0**	97	22400	237	108	180	224	—	—	175	213	—
HDP 100 2	**20.0**	88	21350	204	108	180	—	—	—	175	—	—
HDP 100 2	**21.8**	80	20050	176	108	—	—	—	—	175	—	—
HDP 100 3	**22.8**	77	20050	171	82	145	—	—	—	145	166	—
HDP 100 3	**25.3**	69	21350	164	82	145	—	—	—	145	—	—
HDP 100 3	**28.1**	62	21100	146	82	145	—	—	—	145	—	—
HDP 100 3	**31.3**	56	21350	133	82	—	—	—	—	—	—	—
HDP 100 3	**35.4**	49	22050	121	82	—	—	—	—	—	—	—
HDP 100 3	**39.3**	44	21350	106	82	—	—	—	—	—	—	—
HDP 100 3	**45.0**	39	23100	100	82	—	—	—	—	—	—	—
HDP 100 3	**50.0**	35	21350	83	82	—	—	—	—	—	—	—
HDP 100 3	**55.5**	32	24050	84	82	—	—	—	—	—	—	—
HDP 100 3	**61.7**	28.4	21350	67	—	—	—	—	—	—	—	—
HDP 100 3	**69.9**	25.0	24050	67	—	—	—	—	—	—	—	—
HDP 100 3	**77.7**	22.5	21350	54	—	—	—	—	—	—	—	—
HDP 100 3	**88.9**	19.7	24050	53	—	—	—	—	—	—	—	—
HDP 100 3	**98.8**	17.7	21350	42	—	—	—	—	—	—	—	—
HDP 100 3	**107.6**	16.3	20050	36	—	—	—	—	—	—	—	—
HDP 100 4	**110.6**	15.8	22550	40	—	—	—	—	—	—	—	—
HDP 100 4	**122.9**	14.2	21350	35	—	—	—	—	—	—	—	—
HDP 100 4	**139.2**	12.6	23600	34	—	—	—	—	—	—	—	—
HDP 100 4	**154.7**	11.3	21350	27	—	—	—	—	—	—	—	—
HDP 100 4	**177.0**	9.9	24050	27	—	—	—	—	—	—	—	—
HDP 100 4	**196.7**	8.9	21350	22	—	—	—	—	—	—	—	—
HDP 100 4	**222.2**	7.9	24050	22	—	—	—	—	—	—	—	—
HDP 100 4	**246.9**	7.1	23100	18.6	—	—	—	—	—	—	—	—
HDP 100 4	**286.4**	6.1	24050	16.7	—	—	—	—	—	—	—	—
HDP 100 4	**318.3**	5.5	23100	14.4	—	—	—	—	—	—	—	—
HDP 100 4	**359.6**	4.9	24050	13.3	—	—	—	—	—	—	—	—
HDP 100 4	**399.5**	4.4	23100	11.5	—	—	—	—	—	—	—	—
HDP 100 4	**457.1**	3.8	25650	11.1	—	—	—	—	—	—	—	—
HDP 100 4	**507.9**	3.4	23100	9.0	—	—	—	—	—	—	—	—

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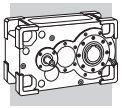

HDP 100

n_1 = 1750 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C							
					P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 100 2	**7.4**	236	18400	474	*	*	*	*	*	*	*	*
HDP 100 2	**8.2**	213	20600	478	*	*	*	*	*	*	*	*
HDP 100 2	**9.1**	192	19350	405	*	*	*	*	*	*	*	*
HDP 100 2	**10.1**	173	21350	403	*	*	151	*	*	*	*	*
HDP 100 2	**11.3**	156	20400	346	*	127	151	156	200	*	*	269
HDP 100 2	**12.5**	140	21350	326	*	127	151	156	200	*	*	269
HDP 100 2	**14.2**	124	21300	287	*	127	151	156	200	*	185	269
HDP 100 2	**15.7**	111	21350	259	*	127	151	156	200	158	185	—
HDP 100 2	**18.0**	97	22400	237	77	127	151	156	200	158	185	—
HDP 100 2	**20.0**	88	21350	204	77	127	151	156	200	158	185	—
HDP 100 2	**21.8**	80	20050	176	77	127	151	156	—	158	—	—
HDP 100 3	**22.8**	77	20050	171	*	99	121	124	155	116	137	—
HDP 100 3	**25.3**	69	21350	164	*	99	121	124	155	116	137	—
HDP 100 3	**28.1**	62	21100	146	56	99	121	124	—	116	137	—
HDP 100 3	**31.3**	56	21350	133	56	99	121	124	—	116	—	—
HDP 100 3	**35.4**	49	22050	121	56	99	121	—	—	116	—	—
HDP 100 3	**39.3**	44	21350	106	56	99	—	—	—	—	—	—
HDP 100 3	**45.0**	39	23100	100	56	99	—	—	—	—	—	—
HDP 100 3	**50.0**	35	21350	83	56	—	—	—	—	—	—	—
HDP 100 3	**55.5**	32	24050	84	56	—	—	—	—	—	—	—
HDP 100 3	**61.7**	28.4	21350	67	56	—	—	—	—	—	—	—
HDP 100 3	**69.9**	25.0	24050	67	56	—	—	—	—	—	—	—
HDP 100 3	**77.7**	22.5	21350	54	—	—	—	—	—	—	—	—
HDP 100 3	**88.9**	19.7	24050	53	—	—	—	—	—	—	—	—
HDP 100 3	**98.8**	17.7	21350	42	—	—	—	—	—	—	—	—
HDP 100 3	**107.6**	16.3	20050	36	—	—	—	—	—	—	—	—
HDP 100 4	**110.6**	15.8	22550	40	—	—	—	—	—	—	—	—
HDP 100 4	**122.9**	14.2	21350	35	—	—	—	—	—	—	—	—
HDP 100 4	**139.2**	12.6	23600	34	—	—	—	—	—	—	—	—
HDP 100 4	**154.7**	11.3	21350	27	—	—	—	—	—	—	—	—
HDP 100 4	**177.0**	9.9	24050	27	—	—	—	—	—	—	—	—
HDP 100 4	**196.7**	8.9	21350	22	—	—	—	—	—	—	—	—
HDP 100 4	**222.2**	7.9	24050	22	—	—	—	—	—	—	—	—
HDP 100 4	**246.9**	7.1	23100	18.6	—	—	—	—	—	—	—	—
HDP 100 4	**286.4**	6.1	24050	16.7	—	—	—	—	—	—	—	—
HDP 100 4	**318.3**	5.5	23100	14.4	—	—	—	—	—	—	—	—
HDP 100 4	**359.6**	4.9	24050	13.3	—	—	—	—	—	—	—	—
HDP 100 4	**399.5**	4.4	23100	11.5	—	—	—	—	—	—	—	—
HDP 100 4	**457.1**	3.8	25650	11.1	—	—	—	—	—	—	—	—
HDP 100 4	**507.9**	3.4	23100	9.0	—	—	—	—	—	—	—	—

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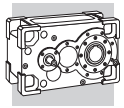

HDP 100 — n_1 = 1400 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 20°C							
		[min^{-1}]	[Nm]	[kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 100 2	**7.4**	189	19650	405	*	*	*	262	340	175	203	297
HDP 100 2	**8.2**	170	22000	408	*	170	210	262	340	175	203	297
HDP 100 2	**9.1**	154	20650	346	99	170	210	262	340	175	203	297
HDP 100 2	**10.1**	138	23100	349	99	170	210	262	—	175	203	297
HDP 100 2	**11.3**	124	21800	296	99	170	210	262	—	175	203	—
HDP 100 2	**12.5**	112	23100	282	99	170	210	—	—	175	203	—
HDP 100 2	**14.2**	99	22800	246	99	170	210	—	—	175	203	—
HDP 100 2	**15.7**	89	23100	224	99	170	—	—	—	175	203	—
HDP 100 2	**18.0**	78	23950	203	99	170	—	—	—	175	203	—
HDP 100 2	**20.0**	70	23100	176	99	—	—	—	—	—	—	—
HDP 100 2	**21.8**	64	21700	152	99	—	—	—	—	—	—	—
HDP 100 3	**22.8**	61	21450	147	88	142	—	—	—	—	—	—
HDP 100 3	**25.3**	55	23100	142	88	—	—	—	—	—	—	—
HDP 100 3	**28.1**	50	22600	125	88	—	—	—	—	—	—	—
HDP 100 3	**31.3**	45	23100	115	88	—	—	—	—	—	—	—
HDP 100 3	**35.4**	40	23600	104	88	—	—	—	—	—	—	—
HDP 100 3	**39.3**	36	23100	91	—	—	—	—	—	—	—	—
HDP 100 3	**45.0**	31	24700	85	—	—	—	—	—	—	—	—
HDP 100 3	**50.0**	28.0	23100	72	—	—	—	—	—	—	—	—
HDP 100 3	**55.5**	25.2	25650	72	—	—	—	—	—	—	—	—
HDP 100 3	**61.7**	22.7	23100	58	—	—	—	—	—	—	—	—
HDP 100 3	**69.9**	20.0	25650	57	—	—	—	—	—	—	—	—
HDP 100 3	**77.7**	18.0	23100	46	—	—	—	—	—	—	—	—
HDP 100 3	**88.9**	15.8	25650	45	—	—	—	—	—	—	—	—
HDP 100 3	**98.8**	14.2	23100	36	—	—	—	—	—	—	—	—
HDP 100 3	**107.6**	13.0	21700	31	—	—	—	—	—	—	—	—
HDP 100 4	**110.6**	12.7	24100	35	—	—	—	—	—	—	—	—
HDP 100 4	**122.9**	11.4	23100	30	—	—	—	—	—	—	—	—
HDP 100 4	**139.2**	10.1	25250	29	—	—	—	—	—	—	—	—
HDP 100 4	**154.7**	9.0	23100	24	—	—	—	—	—	—	—	—
HDP 100 4	**177.0**	7.9	25650	23	—	—	—	—	—	—	—	—
HDP 100 4	**196.7**	7.1	23100	18.7	—	—	—	—	—	—	—	—
HDP 100 4	**222.2**	6.3	25650	18.3	—	—	—	—	—	—	—	—
HDP 100 4	**246.9**	5.7	23100	14.9	—	—	—	—	—	—	—	—
HDP 100 4	**286.4**	4.9	25650	14.2	—	—	—	—	—	—	—	—
HDP 100 4	**318.3**	4.4	23100	11.5	—	—	—	—	—	—	—	—
HDP 100 4	**359.6**	3.9	25650	11.3	—	—	—	—	—	—	—	—
HDP 100 4	**399.5**	3.5	23100	9.2	—	—	—	—	—	—	—	—
HDP 100 4	**457.1**	3.1	25650	8.9	—	—	—	—	—	—	—	—
HDP 100 4	**507.9**	2.8	23100	7.2	—	—	—	—	—	—	—	—

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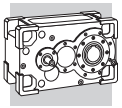

HDP 100 — n_1 = 1400 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 40°C							
					P_T	$P_{TFANL\,/\,R}$	P_{TFANLR}	P_{TMCRA5}	P_{TMCRA9}	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDP 100 2	**7.4**	189	19650	405	*	*	*	*	192	*	*	259
HDP 100 2	**8.2**	170	22000	408	*	110	140	148	192	*	176	259
HDP 100 2	**9.1**	154	20650	346	*	110	140	148	192	*	176	259
HDP 100 2	**10.1**	138	23100	349	*	110	140	148	192	*	176	259
HDP 100 2	**11.3**	124	21800	296	*	110	140	148	192	157	176	259
HDP 100 2	**12.5**	112	23100	282	71	110	140	148	192	157	176	—
HDP 100 2	**14.2**	99	22800	246	71	110	140	148	192	157	176	—
HDP 100 2	**15.7**	89	23100	224	71	110	140	148	192	157	176	—
HDP 100 2	**18.0**	78	23950	203	71	110	140	148	192	157	176	—
HDP 100 2	**20.0**	70	23100	176	71	110	140	148	—	—	—	—
HDP 100 2	**21.8**	64	21700	152	71	110	140	—	—	—	—	—
HDP 100 3	**22.8**	61	21450	147	59	99	118	—	—	—	—	—
HDP 100 3	**25.3**	55	23100	142	59	99	118	—	—	—	—	—
HDP 100 3	**28.1**	50	22600	125	59	99	118	—	—	—	—	—
HDP 100 3	**31.3**	45	23100	115	59	99	—	—	—	—	—	—
HDP 100 3	**35.4**	40	23600	104	59	99	—	—	—	—	—	—
HDP 100 3	**39.3**	36	23100	91	59	—	—	—	—	—	—	—
HDP 100 3	**45.0**	31	24700	85	59	—	—	—	—	—	—	—
HDP 100 3	**50.0**	28.0	23100	72	59	—	—	—	—	—	—	—
HDP 100 3	**55.5**	25.2	25650	72	59	—	—	—	—	—	—	—
HDP 100 3	**61.7**	22.7	23100	58	—	—	—	—	—	—	—	—
HDP 100 3	**69.9**	20.0	25650	57	—	—	—	—	—	—	—	—
HDP 100 3	**77.7**	18.0	23100	46	—	—	—	—	—	—	—	—
HDP 100 3	**88.9**	15.8	25650	45	—	—	—	—	—	—	—	—
HDP 100 3	**98.8**	14.2	23100	36	—	—	—	—	—	—	—	—
HDP 100 3	**107.6**	13.0	21700	31	—	—	—	—	—	—	—	—
HDP 100 4	**110.6**	12.7	24100	35	—	—	—	—	—	—	—	—
HDP 100 4	**122.9**	11.4	23100	30	—	—	—	—	—	—	—	—
HDP 100 4	**139.2**	10.1	25250	29	—	—	—	—	—	—	—	—
HDP 100 4	**154.7**	9.0	23100	24	—	—	—	—	—	—	—	—
HDP 100 4	**177.0**	7.9	25650	23	—	—	—	—	—	—	—	—
HDP 100 4	**196.7**	7.1	23100	18.7	—	—	—	—	—	—	—	—
HDP 100 4	**222.2**	6.3	25650	18.3	—	—	—	—	—	—	—	—
HDP 100 4	**246.9**	5.7	23100	14.9	—	—	—	—	—	—	—	—
HDP 100 4	**286.4**	4.9	25650	14.2	—	—	—	—	—	—	—	—
HDP 100 4	**318.3**	4.4	23100	11.5	—	—	—	—	—	—	—	—
HDP 100 4	**359.6**	3.9	25650	11.3	—	—	—	—	—	—	—	—
HDP 100 4	**399.5**	3.5	23100	9.2	—	—	—	—	—	—	—	—
HDP 100 4	**457.1**	3.1	25650	8.9	—	—	—	—	—	—	—	—
HDP 100 4	**507.9**	2.8	23100	7.2	—	—	—	—	—	—	—	—

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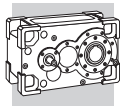

HDP 100 — n_1 = 1100 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 20°C							
					P_T	$P_{TFANL/R}$	P_{TFANLR}	P_{TMCRA5}	P_{TMCRA9}	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDP 100 2	**7.4**	149	21150	343	*	173	209	275	—	188	216	310
HDP 100 2	**8.2**	134	23100	337	*	173	209	275	—	188	216	310
HDP 100 2	**9.1**	121	22200	292	109	173	209	275	—	188	216	—
HDP 100 2	**10.1**	109	23100	274	109	173	209	—	—	188	216	—
HDP 100 2	**11.3**	98	23450	250	109	173	209	—	—	188	216	—
HDP 100 2	**12.5**	88	23100	222	109	173	209	—	—	188	216	—
HDP 100 2	**14.2**	78	23750	201	109	173	—	—	—	188	—	—
HDP 100 2	**15.7**	70	23100	176	109	—	—	—	—	—	—	—
HDP 100 2	**18.0**	61	23950	160	109	—	—	—	—	—	—	—
HDP 100 2	**20.0**	55	23100	139	109	—	—	—	—	—	—	—
HDP 100 2	**21.8**	50	21700	119	109	—	—	—	—	—	—	—
HDP 100 3	**22.8**	48	23050	124	93	142	—	—	—	—	—	—
HDP 100 3	**25.3**	43	23100	112	93	—	—	—	—	—	—	—
HDP 100 3	**28.1**	39	24250	106	93	—	—	—	—	—	—	—
HDP 100 3	**31.3**	35	23100	90	—	—	—	—	—	—	—	—
HDP 100 3	**35.4**	31	25350	88	—	—	—	—	—	—	—	—
HDP 100 3	**39.3**	28.0	23100	72	—	—	—	—	—	—	—	—
HDP 100 3	**45.0**	24.4	24700	67	—	—	—	—	—	—	—	—
HDP 100 3	**50.0**	22.0	23100	57	—	—	—	—	—	—	—	—
HDP 100 3	**55.5**	19.8	25650	57	—	—	—	—	—	—	—	—
HDP 100 3	**61.7**	17.8	23100	46	—	—	—	—	—	—	—	—
HDP 100 3	**69.9**	15.7	25650	45	—	—	—	—	—	—	—	—
HDP 100 3	**77.7**	14.2	23100	36	—	—	—	—	—	—	—	—
HDP 100 3	**88.9**	12.4	25650	35	—	—	—	—	—	—	—	—
HDP 100 3	**98.8**	11.1	23100	29	—	—	—	—	—	—	—	—
HDP 100 3	**107.6**	10.2	21700	25	—	—	—	—	—	—	—	—
HDP 100 4	**110.6**	9.9	24100	27	—	—	—	—	—	—	—	—
HDP 100 4	**122.9**	8.9	23100	23	—	—	—	—	—	—	—	—
HDP 100 4	**139.2**	7.9	25250	23	—	—	—	—	—	—	—	—
HDP 100 4	**154.7**	7.1	23100	18.6	—	—	—	—	—	—	—	—
HDP 100 4	**177.0**	6.2	25650	18.1	—	—	—	—	—	—	—	—
HDP 100 4	**196.7**	5.6	23100	14.7	—	—	—	—	—	—	—	—
HDP 100 4	**222.2**	5.0	25650	14.4	—	—	—	—	—	—	—	—
HDP 100 4	**246.9**	4.5	23100	11.7	—	—	—	—	—	—	—	—
HDP 100 4	**286.4**	3.8	25650	11.2	—	—	—	—	—	—	—	—
HDP 100 4	**318.3**	3.5	23100	9.1	—	—	—	—	—	—	—	—
HDP 100 4	**359.6**	3.1	25650	8.9	—	—	—	—	—	—	—	—
HDP 100 4	**399.5**	2.8	23100	7.2	—	—	—	—	—	—	—	—
HDP 100 4	**457.1**	2.4	25650	7.0	—	—	—	—	—	—	—	—
HDP 100 4	**507.9**	2.2	23100	5.7	—	—	—	—	—	—	—	—

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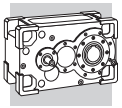

HDP 100 — n_1 = 1100 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 40°C							
					P_T	$P_{TFANL\,/\,R}$	P_{TFANLR}	P_{TMCRA5}	P_{TMCRA9}	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDP 100 2	**7.4**	149	21150	343	*	114	141	158	202	149	177	271
HDP 100 2	**8.2**	134	23100	337	*	114	141	158	202	149	177	271
HDP 100 2	**9.1**	121	22200	292	*	114	141	158	202	149	177	271
HDP 100 2	**10.1**	109	23100	274	*	114	141	158	202	149	177	271
HDP 100 2	**11.3**	98	23450	250	77	114	141	158	202	149	177	—
HDP 100 2	**12.5**	88	23100	222	77	114	141	158	202	149	177	—
HDP 100 2	**14.2**	78	23750	201	77	114	141	158	—	149	177	—
HDP 100 2	**15.7**	70	23100	176	77	114	141	158	—	149	—	—
HDP 100 2	**18.0**	61	23950	160	77	114	141	158	—	149	—	—
HDP 100 2	**20.0**	55	23100	139	77	114	—	—	—	—	—	—
HDP 100 2	**21.8**	50	21700	119	77	114	—	—	—	—	—	—
HDP 100 3	**22.8**	48	23050	124	64	100	117	—	—	—	—	—
HDP 100 3	**25.3**	43	23100	112	64	100	—	—	—	—	—	—
HDP 100 3	**28.1**	39	24250	106	64	100	—	—	—	—	—	—
HDP 100 3	**31.3**	35	23100	90	64	—	—	—	—	—	—	—
HDP 100 3	**35.4**	31	25350	88	64	—	—	—	—	—	—	—
HDP 100 3	**39.3**	28.0	23100	72	64	—	—	—	—	—	—	—
HDP 100 3	**45.0**	24.4	24700	67	64	—	—	—	—	—	—	—
HDP 100 3	**50.0**	22.0	23100	57	—	—	—	—	—	—	—	—
HDP 100 3	**55.5**	19.8	25650	57	—	—	—	—	—	—	—	—
HDP 100 3	**61.7**	17.8	23100	46	—	—	—	—	—	—	—	—
HDP 100 3	**69.9**	15.7	25650	45	—	—	—	—	—	—	—	—
HDP 100 3	**77.7**	14.2	23100	36	—	—	—	—	—	—	—	—
HDP 100 3	**88.9**	12.4	25650	35	—	—	—	—	—	—	—	—
HDP 100 3	**98.8**	11.1	23100	29	—	—	—	—	—	—	—	—
HDP 100 3	**107.6**	10.2	21700	25	—	—	—	—	—	—	—	—
HDP 100 4	**110.6**	9.9	24100	27	—	—	—	—	—	—	—	—
HDP 100 4	**122.9**	8.9	23100	23	—	—	—	—	—	—	—	—
HDP 100 4	**139.2**	7.9	25250	23	—	—	—	—	—	—	—	—
HDP 100 4	**154.7**	7.1	23100	18.6	—	—	—	—	—	—	—	—
HDP 100 4	**177.0**	6.2	25650	18.1	—	—	—	—	—	—	—	—
HDP 100 4	**196.7**	5.6	23100	14.7	—	—	—	—	—	—	—	—
HDP 100 4	**222.2**	5.0	25650	14.4	—	—	—	—	—	—	—	—
HDP 100 4	**246.9**	4.5	23100	11.7	—	—	—	—	—	—	—	—
HDP 100 4	**286.4**	3.8	25650	11.2	—	—	—	—	—	—	—	—
HDP 100 4	**318.3**	3.5	23100	9.1	—	—	—	—	—	—	—	—
HDP 100 4	**359.6**	3.1	25650	8.9	—	—	—	—	—	—	—	—
HDP 100 4	**399.5**	2.8	23100	7.2	—	—	—	—	—	—	—	—
HDP 100 4	**457.1**	2.4	25650	7.0	—	—	—	—	—	—	—	—
HDP 100 4	**507.9**	2.2	23100	5.7	—	—	—	—	—	—	—	—

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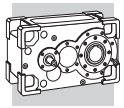

HDP 100 — n_1 = 900 min^{-1}

					Tamb = 20°C							
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 100 2	**7.4**	122	22450	298	108	165	193	283	—	196	224	—
HDP 100 2	**8.2**	109	23100	276	108	165	193	—	—	196	224	—
HDP 100 2	**9.1**	99	23150	249	108	165	193	—	—	196	224	—
HDP 100 2	**10.1**	89	23100	224	108	165	193	—	—	196	—	—
HDP 100 2	**11.3**	80	23450	205	108	165	193	—	—	196	—	—
HDP 100 2	**12.5**	72	23100	181	108	165	—	—	—	—	—	—
HDP 100 2	**14.2**	64	23750	165	108	—	—	—	—	—	—	—
HDP 100 2	**15.7**	57	23100	144	108	—	—	—	—	—	—	—
HDP 100 2	**18.0**	50	23950	131	108	—	—	—	—	—	—	—
HDP 100 2	**20.0**	45	23100	113	—	—	—	—	—	—	—	—
HDP 100 2	**21.8**	41	21700	98	—	—	—	—	—	—	—	—
HDP 100 3	**22.8**	40	24500	108	96	—	—	—	—	—	—	—
HDP 100 3	**25.3**	36	23100	91	—	—	—	—	—	—	—	—
HDP 100 3	**28.1**	32	25650	91	—	—	—	—	—	—	—	—
HDP 100 3	**31.3**	28.8	23100	74	—	—	—	—	—	—	—	—
HDP 100 3	**35.4**	25.4	25650	73	—	—	—	—	—	—	—	—
HDP 100 3	**39.3**	22.9	23100	59	—	—	—	—	—	—	—	—
HDP 100 3	**45.0**	20.0	25650	57	—	—	—	—	—	—	—	—
HDP 100 3	**50.0**	18.0	23100	46	—	—	—	—	—	—	—	—
HDP 100 3	**55.5**	16.2	25650	46	—	—	—	—	—	—	—	—
HDP 100 3	**61.7**	14.6	23100	37	—	—	—	—	—	—	—	—
HDP 100 3	**69.9**	12.9	25650	37	—	—	—	—	—	—	—	—
HDP 100 3	**77.7**	11.6	23100	30	—	—	—	—	—	—	—	—
HDP 100 3	**88.9**	10.1	25650	29	—	—	—	—	—	—	—	—
HDP 100 3	**98.8**	9.1	23100	23	—	—	—	—	—	—	—	—
HDP 100 3	**107.6**	8.4	21700	20	—	—	—	—	—	—	—	—
HDP 100 4	**110.6**	8.1	25650	24	—	—	—	—	—	—	—	—
HDP 100 4	**122.9**	7.3	23100	19.2	—	—	—	—	—	—	—	—
HDP 100 4	**139.2**	6.5	25650	18.8	—	—	—	—	—	—	—	—
HDP 100 4	**154.7**	5.8	23100	15.3	—	—	—	—	—	—	—	—
HDP 100 4	**177.0**	5.1	25650	14.8	—	—	—	—	—	—	—	—
HDP 100 4	**196.7**	4.6	23100	12.0	—	—	—	—	—	—	—	—
HDP 100 4	**222.2**	4.1	25650	11.8	—	—	—	—	—	—	—	—
HDP 100 4	**246.9**	3.6	23100	9.6	—	—	—	—	—	—	—	—
HDP 100 4	**286.4**	3.1	25650	9.1	—	—	—	—	—	—	—	—
HDP 100 4	**318.3**	2.8	23100	7.4	—	—	—	—	—	—	—	—
HDP 100 4	**359.6**	2.5	25650	7.3	—	—	—	—	—	—	—	—
HDP 100 4	**399.5**	2.3	23100	5.9	—	—	—	—	—	—	—	—
HDP 100 4	**457.1**	2.0	25650	5.7	—	—	—	—	—	—	—	—
HDP 100 4	**507.9**	1.8	23100	4.6	—	—	—	—	—	—	—	—

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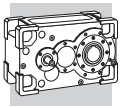

HDP 100 — n_1 = 900 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C							
					P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 100 2	**7.4**	122	22450	298	*	111	131	166	210	157	185	279
HDP 100 2	**8.2**	109	23100	276	*	111	131	166	210	157	185	—
HDP 100 2	**9.1**	99	23150	249	*	111	131	166	210	157	185	—
HDP 100 2	**10.1**	89	23100	224	78	111	131	166	210	157	185	—
HDP 100 2	**11.3**	80	23450	205	78	111	131	166	—	157	185	—
HDP 100 2	**12.5**	72	23100	181	78	111	131	166	—	157	—	—
HDP 100 2	**14.2**	64	23750	165	78	111	131	—	—	157	—	—
HDP 100 2	**15.7**	57	23100	144	78	111	131	—	—	—	—	—
HDP 100 2	**18.0**	50	23950	131	78	111	—	—	—	—	—	—
HDP 100 2	**20.0**	45	23100	113	78	—	—	—	—	—	—	—
HDP 100 2	**21.8**	41	21700	98	78	—	—	—	—	—	—	—
HDP 100 3	**22.8**	40	24500	108	67	95	108	—	—	—	—	—
HDP 100 3	**25.3**	36	23100	91	67	—	—	—	—	—	—	—
HDP 100 3	**28.1**	32	25650	91	67	—	—	—	—	—	—	—
HDP 100 3	**31.3**	28.8	23100	74	67	—	—	—	—	—	—	—
HDP 100 3	**35.4**	25.4	25650	73	67	—	—	—	—	—	—	—
HDP 100 3	**39.3**	22.9	23100	59	—	—	—	—	—	—	—	—
HDP 100 3	**45.0**	20.0	25650	57	—	—	—	—	—	—	—	—
HDP 100 3	**50.0**	18.0	23100	46	—	—	—	—	—	—	—	—
HDP 100 3	**55.5**	16.2	25650	46	—	—	—	—	—	—	—	—
HDP 100 3	**61.7**	14.6	23100	37	—	—	—	—	—	—	—	—
HDP 100 3	**69.9**	12.9	25650	37	—	—	—	—	—	—	—	—
HDP 100 3	**77.7**	11.6	23100	30	—	—	—	—	—	—	—	—
HDP 100 3	**88.9**	10.1	25650	29	—	—	—	—	—	—	—	—
HDP 100 3	**98.8**	9.1	23100	23	—	—	—	—	—	—	—	—
HDP 100 3	**107.6**	8.4	21700	20	—	—	—	—	—	—	—	—
HDP 100 4	**110.6**	8.1	25650	24	—	—	—	—	—	—	—	—
HDP 100 4	**122.9**	7.3	23100	19.2	—	—	—	—	—	—	—	—
HDP 100 4	**139.2**	6.5	25650	18.8	—	—	—	—	—	—	—	—
HDP 100 4	**154.7**	5.8	23100	15.3	—	—	—	—	—	—	—	—
HDP 100 4	**177.0**	5.1	25650	14.8	—	—	—	—	—	—	—	—
HDP 100 4	**196.7**	4.6	23100	12.0	—	—	—	—	—	—	—	—
HDP 100 4	**222.2**	4.1	25650	11.8	—	—	—	—	—	—	—	—
HDP 100 4	**246.9**	3.6	23100	9.6	—	—	—	—	—	—	—	—
HDP 100 4	**286.4**	3.1	25650	9.1	—	—	—	—	—	—	—	—
HDP 100 4	**318.3**	2.8	23100	7.4	—	—	—	—	—	—	—	—
HDP 100 4	**359.6**	2.5	25650	7.3	—	—	—	—	—	—	—	—
HDP 100 4	**399.5**	2.3	23100	5.9	—	—	—	—	—	—	—	—
HDP 100 4	**457.1**	2.0	25650	5.7	—	—	—	—	—	—	—	—
HDP 100 4	**507.9**	1.8	23100	4.6	—	—	—	—	—	—	—	—

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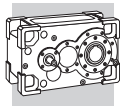

HDP 110 — n_1 = 1750 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 20°C							
					P_T	$P_{TFANL/R}$	P_{TFANLR}	P_{TMCRA5}	P_{TMCRA9}	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDP 110 2	**8.1**	216	21200	500	*	*	*	*	*	*	*	*
HDP 110 2	**9.0**	195	22450	478	*	*	*	*	*	*	*	*
HDP 110 2	**9.9**	176	22300	428	*	*	*	*	*	*	*	*
HDP 110 2	**11.0**	159	24000	416	*	*	223	*	*	*	*	294
HDP 110 2	**12.3**	142	23500	365	*	188	223	270	348	*	211	294
HDP 110 2	**13.6**	129	25300	355	*	188	223	270	348	*	211	294
HDP 110 2	**15.5**	113	24550	303	*	188	223	270	—	193	211	294
HDP 110 2	**17.1**	102	26400	294	*	188	223	270	—	193	211	—
HDP 110 2	**19.7**	89	25350	246	114	188	223	—	—	193	211	—
HDP 110 2	**21.8**	80	26400	231	114	188	223	—	—	193	211	—
HDP 110 2	**25.0**	70	23650	180	114	—	—	—	—	—	—	—
HDP 110 3	**24.9**	70	23000	180	81	144	174	—	—	144	165	—
HDP 110 3	**27.6**	64	24000	170	81	144	—	—	—	144	165	—
HDP 110 3	**30.7**	57	24650	156	81	144	—	—	—	144	—	—
HDP 110 3	**34.0**	51	25750	147	81	144	—	—	—	144	—	—
HDP 110 3	**38.7**	45	25700	129	81	—	—	—	—	—	—	—
HDP 110 3	**42.8**	41	26400	120	81	—	—	—	—	—	—	—
HDP 110 3	**49.2**	36	26450	105	81	—	—	—	—	—	—	—
HDP 110 3	**54.5**	32	26400	94	81	—	—	—	—	—	—	—
HDP 110 3	**60.7**	28.8	27950	90	81	—	—	—	—	—	—	—
HDP 110 3	**67.2**	26.0	26400	76	—	—	—	—	—	—	—	—
HDP 110 3	**76.4**	22.9	28300	72	—	—	—	—	—	—	—	—
HDP 110 3	**84.6**	20.7	26400	61	—	—	—	—	—	—	—	—
HDP 110 3	**97.1**	18.0	26450	53	—	—	—	—	—	—	—	—
HDP 110 3	**107.6**	16.3	26400	48	—	—	—	—	—	—	—	—
HDP 110 3	**123.4**	14.2	23650	37	—	—	—	—	—	—	—	—
HDP 110 4	**120.9**	14.5	25950	43	—	—	—	—	—	—	—	—
HDP 110 4	**133.9**	13.1	26400	39	—	—	—	—	—	—	—	—
HDP 110 4	**168.5**	10.4	26400	31	—	—	—	—	—	—	—	—
HDP 110 4	**191.0**	9.2	28700	30	—	—	—	—	—	—	—	—
HDP 110 4	**193.4**	9.0	26450	27	—	—	—	—	—	—	—	—
HDP 110 4	**214.2**	8.2	26400	24	—	—	—	—	—	—	—	—
HDP 110 4	**248.6**	7.0	28500	23	—	—	—	—	—	—	—	—
HDP 110 4	**275.4**	6.4	26400	19.0	—	—	—	—	—	—	—	—
HDP 110 4	**313.0**	5.6	28700	18.2	—	—	—	—	—	—	—	—
HDP 110 4	**346.7**	5.0	26400	15.1	—	—	—	—	—	—	—	—
HDP 110 4	**392.9**	4.5	28700	14.5	—	—	—	—	—	—	—	—
HDP 110 4	**440.7**	4.0	26400	11.9	—	—	—	—	—	—	—	—
HDP 110 4	**499.4**	3.5	26450	10.5	—	—	—	—	—	—	—	—

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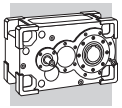

HDP 110 — n_1 = 1750 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C							
					P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 110 2	**8.1**	216	21200	500	*	*	*	*	*	*	*	*
HDP 110 2	**9.0**	195	22450	478	*	*	*	*	*	*	*	*
HDP 110 2	**9.9**	176	22300	428	*	*	*	*	*	*	*	*
HDP 110 2	**11.0**	159	24000	416	*	*	*	*	*	*	*	*
HDP 110 2	**12.3**	142	23500	365	*	124	158	*	*	*	*	266
HDP 110 2	**13.6**	129	25300	355	*	124	158	*	*	*	*	266
HDP 110 2	**15.5**	113	24550	303	*	124	158	164	208	*	183	266
HDP 110 2	**17.1**	102	26400	294	*	124	158	164	208	156	183	266
HDP 110 2	**19.7**	89	25350	246	*	124	158	164	208	156	183	—
HDP 110 2	**21.8**	80	26400	231	77	124	158	164	208	156	183	—
HDP 110 2	**25.0**	70	23650	180	77	124	158	164	—	156	—	—
HDP 110 3	**24.9**	70	23000	180	*	*	120	123	154	115	136	—
HDP 110 3	**27.6**	64	24000	170	*	*	120	123	154	115	136	—
HDP 110 3	**30.7**	57	24650	156	*	101	120	123	154	115	136	—
HDP 110 3	**34.0**	51	25750	147	*	101	120	123	—	115	136	—
HDP 110 3	**38.7**	45	25700	129	58	101	120	123	—	115	—	—
HDP 110 3	**42.8**	41	26400	120	58	101	—	—	—	115	—	—
HDP 110 3	**49.2**	36	26450	105	58	101	—	—	—	—	—	—
HDP 110 3	**54.5**	32	26400	94	58	—	—	—	—	—	—	—
HDP 110 3	**60.7**	28.8	27950	90	58	—	—	—	—	—	—	—
HDP 110 3	**67.2**	26.0	26400	76	58	—	—	—	—	—	—	—
HDP 110 3	**76.4**	22.9	28300	72	58	—	—	—	—	—	—	—
HDP 110 3	**84.6**	20.7	26400	61	58	—	—	—	—	—	—	—
HDP 110 3	**97.1**	18.0	26450	53	—	—	—	—	—	—	—	—
HDP 110 3	**107.6**	16.3	26400	48	—	—	—	—	—	—	—	—
HDP 110 3	**123.4**	14.2	23650	37	—	—	—	—	—	—	—	—
HDP 110 4	**120.9**	14.5	25950	43	—	—	—	—	—	—	—	—
HDP 110 4	**133.9**	13.1	26400	39	—	—	—	—	—	—	—	—
HDP 110 4	**168.5**	10.4	26400	31	—	—	—	—	—	—	—	—
HDP 110 4	**191.0**	9.2	28700	30	—	—	—	—	—	—	—	—
HDP 110 4	**193.4**	9.0	26450	27	—	—	—	—	—	—	—	—
HDP 110 4	**214.2**	8.2	26400	24	—	—	—	—	—	—	—	—
HDP 110 4	**248.6**	7.0	28500	23	—	—	—	—	—	—	—	—
HDP 110 4	**275.4**	6.4	26400	19.0	—	—	—	—	—	—	—	—
HDP 110 4	**313.0**	5.6	28700	18.2	—	—	—	—	—	—	—	—
HDP 110 4	**346.7**	5.0	26400	15.1	—	—	—	—	—	—	—	—
HDP 110 4	**392.9**	4.5	28700	14.5	—	—	—	—	—	—	—	—
HDP 110 4	**440.7**	4.0	26400	11.9	—	—	—	—	—	—	—	—
HDP 110 4	**499.4**	3.5	26450	10.5	—	—	—	—	—	—	—	—

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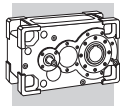

HDP 110 — n_1 = 1400 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 20°C							
					P_T	$P_{TFANL/R}$	P_{TFANLR}	P_{TMCRA5}	P_{TMCRA9}	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDP 110 2	**8.1**	173	22650	428	*	*	*	259	337	*	200	294
HDP 110 2	**9.0**	156	24000	409	*	*	*	259	337	184	200	294
HDP 110 2	**9.9**	141	23850	366	*	177	217	259	337	184	200	294
HDP 110 2	**11.0**	127	25700	356	*	177	217	259	337	184	200	294
HDP 110 2	**12.3**	114	24750	307	106	177	217	259	—	184	200	294
HDP 110 2	**13.6**	103	26100	293	106	177	217	259	—	184	200	—
HDP 110 2	**15.5**	90	25050	247	106	177	217	—	—	184	200	—
HDP 110 2	**17.1**	82	26450	236	106	177	217	—	—	184	200	—
HDP 110 2	**19.7**	71	25350	197	106	177	—	—	—	—	—	—
HDP 110 2	**21.8**	64	26700	187	106	177	—	—	—	—	—	—
HDP 110 2	**25.0**	56	25900	158	106	—	—	—	—	—	—	—
HDP 110 3	**24.9**	56	24600	154	88	142	—	—	—	151	—	—
HDP 110 3	**27.6**	51	25650	145	88	142	—	—	—	—	—	—
HDP 110 3	**30.7**	46	26350	134	88	—	—	—	—	—	—	—
HDP 110 3	**34.0**	41	27550	126	88	—	—	—	—	—	—	—
HDP 110 3	**38.7**	36	27500	111	88	—	—	—	—	—	—	—
HDP 110 3	**42.8**	33	28900	105	88	—	—	—	—	—	—	—
HDP 110 3	**49.2**	28.5	28525	90	—	—	—	—	—	—	—	—
HDP 110 3	**54.5**	25.7	28900	83	—	—	—	—	—	—	—	—
HDP 110 3	**60.7**	23.1	27950	72	—	—	—	—	—	—	—	—
HDP 110 3	**67.2**	20.8	28900	67	—	—	—	—	—	—	—	—
HDP 110 3	**76.4**	18.3	28300	58	—	—	—	—	—	—	—	—
HDP 110 3	**84.6**	16.5	28900	53	—	—	—	—	—	—	—	—
HDP 110 3	**97.1**	14.4	28525	46	—	—	—	—	—	—	—	—
HDP 110 3	**107.6**	13.0	28900	42	—	—	—	—	—	—	—	—
HDP 110 3	**123.4**	11.3	25900	33	—	—	—	—	—	—	—	—
HDP 110 4	**120.9**	11.6	27750	36	—	—	—	—	—	—	—	—
HDP 110 4	**133.9**	10.5	28900	34	—	—	—	—	—	—	—	—
HDP 110 4	**168.5**	8.3	28900	27	—	—	—	—	—	—	—	—
HDP 110 4	**191.0**	7.3	28700	24	—	—	—	—	—	—	—	—
HDP 110 4	**193.4**	7.2	28700	24	—	—	—	—	—	—	—	—
HDP 110 4	**214.2**	6.5	28900	21	—	—	—	—	—	—	—	—
HDP 110 4	**248.6**	5.6	28500	18.2	—	—	—	—	—	—	—	—
HDP 110 4	**275.4**	5.1	28900	16.7	—	—	—	—	—	—	—	—
HDP 110 4	**313.0**	4.5	28700	14.6	—	—	—	—	—	—	—	—
HDP 110 4	**346.7**	4.0	28900	13.2	—	—	—	—	—	—	—	—
HDP 110 4	**392.9**	3.6	28700	11.6	—	—	—	—	—	—	—	—
HDP 110 4	**440.7**	3.2	28900	10.4	—	—	—	—	—	—	—	—
HDP 110 4	**499.4**	2.8	28700	9.1	—	—	—	—	—	—	—	—

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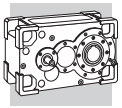

HDP 110 — n_1 = 1400 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C							
					P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 110 2	**8.1**	173	22650	428	*	*	*	*	*	*	*	*
HDP 110 2	**9.0**	156	24000	409	*	*	*	*	*	*	*	258
HDP 110 2	**9.9**	141	23850	366	*	116	146	154	198	*	*	258
HDP 110 2	**11.0**	127	25700	356	*	116	146	154	198	155	173	258
HDP 110 2	**12.3**	114	24750	307	*	116	146	154	198	155	173	258
HDP 110 2	**13.6**	103	26100	293	*	116	146	154	198	155	173	258
HDP 110 2	**15.5**	90	25050	247	76	116	146	154	198	155	173	258
HDP 110 2	**17.1**	82	26450	236	76	116	146	154	198	155	173	—
HDP 110 2	**19.7**	71	25350	197	76	116	146	154	198	155	173	—
HDP 110 2	**21.8**	64	26700	187	76	116	146	154	—	155	173	—
HDP 110 2	**25.0**	56	25900	158	76	116	—	—	—	—	—	—
HDP 110 3	**24.9**	56	24600	154	59	99	118	129	—	121	142	—
HDP 110 3	**27.6**	51	25650	145	59	99	118	129	—	121	142	—
HDP 110 3	**30.7**	46	26350	134	59	99	118	129	—	121	—	—
HDP 110 3	**34.0**	41	27550	126	59	99	118	—	—	121	—	—
HDP 110 3	**38.7**	36	27500	111	59	99	—	—	—	—	—	—
HDP 110 3	**42.8**	33	28900	105	59	—	—	—	—	—	—	—
HDP 110 3	**49.2**	28.5	28525	90	59	—	—	—	—	—	—	—
HDP 110 3	**54.5**	25.7	28900	83	59	—	—	—	—	—	—	—
HDP 110 3	**60.7**	23.1	27950	72	59	—	—	—	—	—	—	—
HDP 110 3	**67.2**	20.8	28900	67	59	—	—	—	—	—	—	—
HDP 110 3	**76.4**	18.3	28300	58	—	—	—	—	—	—	—	—
HDP 110 3	**84.6**	16.5	28900	53	—	—	—	—	—	—	—	—
HDP 110 3	**97.1**	14.4	28525	46	—	—	—	—	—	—	—	—
HDP 110 3	**107.6**	13.0	28900	42	—	—	—	—	—	—	—	—
HDP 110 3	**123.4**	11.3	25900	33	—	—	—	—	—	—	—	—
HDP 110 4	**120.9**	11.6	27750	36	—	—	—	—	—	—	—	—
HDP 110 4	**133.9**	10.5	28900	34	—	—	—	—	—	—	—	—
HDP 110 4	**168.5**	8.3	28900	27	—	—	—	—	—	—	—	—
HDP 110 4	**191.0**	7.3	28700	24	—	—	—	—	—	—	—	—
HDP 110 4	**193.4**	7.2	28700	24	—	—	—	—	—	—	—	—
HDP 110 4	**214.2**	6.5	28900	21	—	—	—	—	—	—	—	—
HDP 110 4	**248.6**	5.6	28500	18.2	—	—	—	—	—	—	—	—
HDP 110 4	**275.4**	5.1	28900	16.7	—	—	—	—	—	—	—	—
HDP 110 4	**313.0**	4.5	28700	14.6	—	—	—	—	—	—	—	—
HDP 110 4	**346.7**	4.0	28900	13.2	—	—	—	—	—	—	—	—
HDP 110 4	**392.9**	3.6	28700	11.6	—	—	—	—	—	—	—	—
HDP 110 4	**440.7**	3.2	28900	10.4	—	—	—	—	—	—	—	—
HDP 110 4	**499.4**	2.8	28700	9.1	—	—	—	—	—	—	—	—

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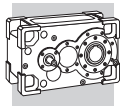

HDP 110 — n_1 = 1100 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 20°C							
					P_T	$P_{TFANL/R}$	P_{TFANLR}	P_{TMCRA5}	P_{TMCRA9}	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDP 110 2	**8.1**	136	24050	357	*	170	206	272	350	185	213	307
HDP 110 2	**9.0**	123	25400	340	*	170	206	272	—	185	213	307
HDP 110 2	**9.9**	111	24450	295	*	170	206	272	—	185	213	—
HDP 110 2	**11.0**	100	25800	281	106	170	206	272	—	185	213	—
HDP 110 2	**12.3**	89	24750	241	106	170	206	—	—	185	213	—
HDP 110 2	**13.6**	81	26100	230	106	170	206	—	—	185	213	—
HDP 110 2	**15.5**	71	25050	194	106	170	—	—	—	185	—	—
HDP 110 2	**17.1**	64	26450	185	106	170	—	—	—	185	—	—
HDP 110 2	**19.7**	56	25350	155	106	—	—	—	—	—	—	—
HDP 110 2	**21.8**	50	26700	147	106	—	—	—	—	—	—	—
HDP 110 2	**25.0**	44	25900	124	106	—	—	—	—	—	—	—
HDP 110 3	**24.9**	44	26450	130	92	—	—	—	—	—	—	—
HDP 110 3	**27.6**	40	27600	123	92	—	—	—	—	—	—	—
HDP 110 3	**30.7**	36	27950	111	92	—	—	—	—	—	—	—
HDP 110 3	**34.0**	32	27550	99	92	—	—	—	—	—	—	—
HDP 110 3	**38.7**	28.4	28300	90	—	—	—	—	—	—	—	—
HDP 110 3	**42.8**	25.7	28900	83	—	—	—	—	—	—	—	—
HDP 110 3	**49.2**	22.4	28500	71	—	—	—	—	—	—	—	—
HDP 110 3	**54.5**	20.2	28900	65	—	—	—	—	—	—	—	—
HDP 110 3	**60.7**	18.1	27950	56	—	—	—	—	—	—	—	—
HDP 110 3	**67.2**	16.4	28900	53	—	—	—	—	—	—	—	—
HDP 110 3	**76.4**	14.4	28300	45	—	—	—	—	—	—	—	—
HDP 110 3	**84.6**	13.0	28900	42	—	—	—	—	—	—	—	—
HDP 110 3	**97.1**	11.3	28500	36	—	—	—	—	—	—	—	—
HDP 110 3	**107.6**	10.2	28900	33	—	—	—	—	—	—	—	—
HDP 110 3	**123.4**	8.9	25900	26	—	—	—	—	—	—	—	—
HDP 110 4	**120.9**	9.1	28500	29	—	—	—	—	—	—	—	—
HDP 110 4	**133.9**	8.2	28900	27	—	—	—	—	—	—	—	—
HDP 110 4	**168.5**	6.5	28900	21	—	—	—	—	—	—	—	—
HDP 110 4	**191.0**	5.8	28700	18.8	—	—	—	—	—	—	—	—
HDP 110 4	**193.4**	5.7	28700	18.5	—	—	—	—	—	—	—	—
HDP 110 4	**214.2**	5.1	28900	16.8	—	—	—	—	—	—	—	—
HDP 110 4	**248.6**	4.4	28500	14.3	—	—	—	—	—	—	—	—
HDP 110 4	**275.4**	4.0	28900	13.1	—	—	—	—	—	—	—	—
HDP 110 4	**313.0**	3.5	28700	11.5	—	—	—	—	—	—	—	—
HDP 110 4	**346.7**	3.2	28900	10.4	—	—	—	—	—	—	—	—
HDP 110 4	**392.9**	2.8	28700	9.1	—	—	—	—	—	—	—	—
HDP 110 4	**440.7**	2.5	28900	8.2	—	—	—	—	—	—	—	—
HDP 110 4	**499.4**	2.2	28700	7.2	—	—	—	—	—	—	—	—

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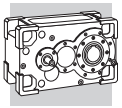

HDP 110 — n_1 = 1100 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C							
					P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 110 2	**8.1**	136	24050	357	*	*	138	155	199	146	174	268
HDP 110 2	**9.0**	123	25400	340	*	113	138	155	199	146	174	268
HDP 110 2	**9.9**	111	24450	295	*	113	138	155	199	146	174	268
HDP 110 2	**11.0**	100	25800	281	*	113	138	155	199	146	174	268
HDP 110 2	**12.3**	89	24750	241	75	113	138	155	199	146	174	—
HDP 110 2	**13.6**	81	26100	230	75	113	138	155	199	146	174	—
HDP 110 2	**15.5**	71	25050	194	75	113	138	155	—	146	174	—
HDP 110 2	**17.1**	64	26450	185	75	113	138	155	—	146	174	—
HDP 110 2	**19.7**	56	25350	155	75	113	138	—	—	146	—	—
HDP 110 2	**21.8**	50	26700	147	75	113	138	—	—	146	—	—
HDP 110 2	**25.0**	44	25900	124	75	113	—	—	—	—	—	—
HDP 110 3	**24.9**	44	26450	130	63	99	116	—	—	126	147	—
HDP 110 3	**27.6**	40	27600	123	63	99	116	—	—	—	—	—
HDP 110 3	**30.7**	36	27950	111	63	99	—	—	—	—	—	—
HDP 110 3	**34.0**	32	27550	99	63	99	—	—	—	—	—	—
HDP 110 3	**38.7**	28.4	28300	90	63	—	—	—	—	—	—	—
HDP 110 3	**42.8**	25.7	28900	83	63	—	—	—	—	—	—	—
HDP 110 3	**49.2**	22.4	28500	71	63	—	—	—	—	—	—	—
HDP 110 3	**54.5**	20.2	28900	65	63	—	—	—	—	—	—	—
HDP 110 3	**60.7**	18.1	27950	56	—	—	—	—	—	—	—	—
HDP 110 3	**67.2**	16.4	28900	53	—	—	—	—	—	—	—	—
HDP 110 3	**76.4**	14.4	28300	45	—	—	—	—	—	—	—	—
HDP 110 3	**84.6**	13.0	28900	42	—	—	—	—	—	—	—	—
HDP 110 3	**97.1**	11.3	28500	36	—	—	—	—	—	—	—	—
HDP 110 3	**107.6**	10.2	28900	33	—	—	—	—	—	—	—	—
HDP 110 3	**123.4**	8.9	25900	26	—	—	—	—	—	—	—	—
HDP 110 4	**120.9**	9.1	28500	29	—	—	—	—	—	—	—	—
HDP 110 4	**133.9**	8.2	28900	27	—	—	—	—	—	—	—	—
HDP 110 4	**168.5**	6.5	28900	21	—	—	—	—	—	—	—	—
HDP 110 4	**191.0**	5.8	28700	18.8	—	—	—	—	—	—	—	—
HDP 110 4	**193.4**	5.7	28700	18.5	—	—	—	—	—	—	—	—
HDP 110 4	**214.2**	5.1	28900	16.8	—	—	—	—	—	—	—	—
HDP 110 4	**248.6**	4.4	28500	14.3	—	—	—	—	—	—	—	—
HDP 110 4	**275.4**	4.0	28900	13.1	—	—	—	—	—	—	—	—
HDP 110 4	**313.0**	3.5	28700	11.5	—	—	—	—	—	—	—	—
HDP 110 4	**346.7**	3.2	28900	10.4	—	—	—	—	—	—	—	—
HDP 110 4	**392.9**	2.8	28700	9.1	—	—	—	—	—	—	—	—
HDP 110 4	**440.7**	2.5	28900	8.2	—	—	—	—	—	—	—	—
HDP 110 4	**499.4**	2.2	28700	7.2	—	—	—	—	—	—	—	—

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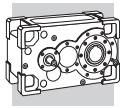

HDP 110 — n_1 = 900 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C							
					P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 110 2	**8.1**	111	24050	292	106	163	191	281	—	194	222	—
HDP 110 2	**9.0**	100	25400	278	106	163	191	—	—	194	222	—
HDP 110 2	**9.9**	90	24450	241	106	163	191	—	—	194	222	—
HDP 110 2	**11.0**	82	25800	230	106	163	191	—	—	194	222	—
HDP 110 2	**12.3**	73	24750	198	106	163	191	—	—	194	—	—
HDP 110 2	**13.6**	66	26100	188	106	163	—	—	—	—	—	—
HDP 110 2	**15.5**	58	25050	159	106	—	—	—	—	—	—	—
HDP 110 2	**17.1**	53	26450	151	106	—	—	—	—	—	—	—
HDP 110 2	**19.7**	46	25350	126	106	—	—	—	—	—	—	—
HDP 110 2	**21.8**	41	26700	120	106	—	—	—	—	—	—	—
HDP 110 2	**25.0**	36	25900	102	—	—	—	—	—	—	—	—
HDP 110 3	**24.9**	36	27600	111	96	—	—	—	—	—	—	—
HDP 110 3	**27.6**	33	28900	105	96	—	—	—	—	—	—	—
HDP 110 3	**30.7**	29.3	27950	91	—	—	—	—	—	—	—	—
HDP 110 3	**34.0**	26.4	28900	85	—	—	—	—	—	—	—	—
HDP 110 3	**38.7**	23.3	28300	73	—	—	—	—	—	—	—	—
HDP 110 3	**42.8**	21.0	28900	68	—	—	—	—	—	—	—	—
HDP 110 3	**49.2**	18.3	28500	58	—	—	—	—	—	—	—	—
HDP 110 3	**54.5**	16.5	28900	53	—	—	—	—	—	—	—	—
HDP 110 3	**60.7**	14.8	27950	46	—	—	—	—	—	—	—	—
HDP 110 3	**67.2**	13.4	28900	43	—	—	—	—	—	—	—	—
HDP 110 3	**76.4**	11.8	28300	37	—	—	—	—	—	—	—	—
HDP 110 3	**84.6**	10.6	28900	34	—	—	—	—	—	—	—	—
HDP 110 3	**97.1**	9.3	28500	29	—	—	—	—	—	—	—	—
HDP 110 3	**107.6**	8.4	28900	27	—	—	—	—	—	—	—	—
HDP 110 3	**123.4**	7.3	25900	21	—	—	—	—	—	—	—	—
HDP 110 4	**120.9**	7.4	28500	24	—	—	—	—	—	—	—	—
HDP 110 4	**133.9**	6.7	28900	22	—	—	—	—	—	—	—	—
HDP 110 4	**168.5**	5.3	28900	17.5	—	—	—	—	—	—	—	—
HDP 110 4	**191.0**	4.7	28700	15.4	—	—	—	—	—	—	—	—
HDP 110 4	**193.4**	4.7	28700	15.2	—	—	—	—	—	—	—	—
HDP 110 4	**214.2**	4.2	28900	13.8	—	—	—	—	—	—	—	—
HDP 110 4	**248.6**	3.6	28500	11.7	—	—	—	—	—	—	—	—
HDP 110 4	**275.4**	3.3	28900	10.7	—	—	—	—	—	—	—	—
HDP 110 4	**313.0**	2.9	28700	9.4	—	—	—	—	—	—	—	—
HDP 110 4	**346.7**	2.6	28900	8.5	—	—	—	—	—	—	—	—
HDP 110 4	**392.9**	2.3	28700	7.5	—	—	—	—	—	—	—	—
HDP 110 4	**440.7**	2.0	28900	6.7	—	—	—	—	—	—	—	—
HDP 110 4	**499.4**	1.8	28700	5.9	—	—	—	—	—	—	—	—

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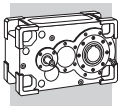

HDP 110 — n_1 = 900 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 40°C							
		[min^{-1}]	[Nm]	[kW]	P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 110 2	**8.1**	111	24050	292	67	109	129	164	208	155	183	277
HDP 110 2	**9.0**	100	25400	278	67	109	129	164	208	155	183	277
HDP 110 2	**9.9**	90	24450	241	67	109	129	164	208	155	183	—
HDP 110 2	**11.0**	82	25800	230	67	109	129	164	208	155	183	—
HDP 110 2	**12.3**	73	24750	198	67	109	129	164	—	155	183	—
HDP 110 2	**13.6**	66	26100	188	67	109	129	164	—	155	183	—
HDP 110 2	**15.5**	58	25050	159	67	109	129	—	—	155	—	—
HDP 110 2	**17.1**	53	26450	151	67	109	129	—	—	—	—	—
HDP 110 2	**19.7**	46	25350	126	67	109	—	—	—	—	—	—
HDP 110 2	**21.8**	41	26700	120	67	109	—	—	—	—	—	—
HDP 110 2	**25.0**	36	25900	102	67	—	—	—	—	—	—	—
HDP 110 3	**24.9**	36	27600	111	66	94	107	—	—	—	—	—
HDP 110 3	**27.6**	33	28900	105	66	94	—	—	—	—	—	—
HDP 110 3	**30.7**	29.3	27950	91	66	—	—	—	—	—	—	—
HDP 110 3	**34.0**	26.4	28900	85	66	—	—	—	—	—	—	—
HDP 110 3	**38.7**	23.3	28300	73	66	—	—	—	—	—	—	—
HDP 110 3	**42.8**	21.0	28900	68	66	—	—	—	—	—	—	—
HDP 110 3	**49.2**	18.3	28500	58	—	—	—	—	—	—	—	—
HDP 110 3	**54.5**	16.5	28900	53	—	—	—	—	—	—	—	—
HDP 110 3	**60.7**	14.8	27950	46	—	—	—	—	—	—	—	—
HDP 110 3	**67.2**	13.4	28900	43	—	—	—	—	—	—	—	—
HDP 110 3	**76.4**	11.8	28300	37	—	—	—	—	—	—	—	—
HDP 110 3	**84.6**	10.6	28900	34	—	—	—	—	—	—	—	—
HDP 110 3	**97.1**	9.3	28500	29	—	—	—	—	—	—	—	—
HDP 110 3	**107.6**	8.4	28900	27	—	—	—	—	—	—	—	—
HDP 110 3	**123.4**	7.3	25900	21	—	—	—	—	—	—	—	—
HDP 110 4	**120.9**	7.4	28500	24	—	—	—	—	—	—	—	—
HDP 110 4	**133.9**	6.7	28900	22	—	—	—	—	—	—	—	—
HDP 110 4	**168.5**	5.3	28900	17.5	—	—	—	—	—	—	—	—
HDP 110 4	**191.0**	4.7	28700	15.4	—	—	—	—	—	—	—	—
HDP 110 4	**193.4**	4.7	28700	15.2	—	—	—	—	—	—	—	—
HDP 110 4	**214.2**	4.2	28900	13.8	—	—	—	—	—	—	—	—
HDP 110 4	**248.6**	3.6	28500	11.7	—	—	—	—	—	—	—	—
HDP 110 4	**275.4**	3.3	28900	10.7	—	—	—	—	—	—	—	—
HDP 110 4	**313.0**	2.9	28700	9.4	—	—	—	—	—	—	—	—
HDP 110 4	**346.7**	2.6	28900	8.5	—	—	—	—	—	—	—	—
HDP 110 4	**392.9**	2.3	28700	7.5	—	—	—	—	—	—	—	—
HDP 110 4	**440.7**	2.0	28900	6.7	—	—	—	—	—	—	—	—
HDP 110 4	**499.4**	1.8	28700	5.9	—	—	—	—	—	—	—	—

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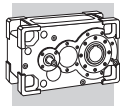

HDP 120 — n_1 = 1750 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C							
					P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 120 2	**7.9**	221	28250	682	*	*	*	*	*	*	*	*
HDP 120 2	**8.6**	203	28750	637	*	*	*	*	*	*	*	*
HDP 120 2	**10.3**	170	30600	567	*	*	*	*	*	*	*	*
HDP 120 2	**11.2**	156	31200	531	*	*	253	271	349	*	*	*
HDP 120 2	**13.0**	134	31800	466	*	218	253	271	349	*	*	322
HDP 120 2	**14.2**	123	32450	437	*	218	253	271	349	*	230	322
HDP 120 2	**16.0**	110	33400	399	*	218	253	271	349	213	230	322
HDP 120 2	**17.4**	101	34150	375	*	218	253	271	349	213	230	322
HDP 120 2	**20.6**	85	35350	327	138	218	253	271	—	213	230	322
HDP 120 2	**22.5**	78	35000	297	138	218	253	271	—	213	230	—
HDP 120 2	**25.4**	69	31750	239	138	218	—	—	—	213	230	—
HDP 120 3	**25.8**	68	31150	235	103	177	213	230	—	166	187	—
HDP 120 3	**28.0**	62	31800	221	103	177	213	—	—	166	187	—
HDP 120 3	**32.5**	54	32600	195	103	177	—	—	—	166	187	—
HDP 120 3	**35.4**	49	33100	182	103	177	—	—	—	166	—	—
HDP 120 3	**39.9**	44	34250	167	103	—	—	—	—	166	—	—
HDP 120 3	**43.5**	40	34750	156	103	—	—	—	—	—	—	—
HDP 120 3	**51.6**	34	35350	133	103	—	—	—	—	—	—	—
HDP 120 3	**56.1**	31	35000	121	103	—	—	—	—	—	—	—
HDP 120 3	**64.3**	27.2	35350	107	103	—	—	—	—	—	—	—
HDP 120 3	**70.0**	25.0	35000	97	—	—	—	—	—	—	—	—
HDP 120 3	**78.9**	22.2	35350	87	—	—	—	—	—	—	—	—
HDP 120 3	**85.9**	20.4	35000	79	—	—	—	—	—	—	—	—
HDP 120 3	**101.8**	17.2	35350	68	—	—	—	—	—	—	—	—
HDP 120 3	**110.9**	15.8	35000	61	—	—	—	—	—	—	—	—
HDP 120 3	**125.2**	14.0	31750	49	—	—	—	—	—	—	—	—
HDP 120 4	**128.0**	13.7	32650	51	—	—	—	—	—	—	—	—
HDP 120 4	**139.4**	12.6	35600	51	—	—	—	—	—	—	—	—
HDP 120 4	**157.1**	11.1	33650	43	—	—	—	—	—	—	—	—
HDP 120 4	**171.1**	10.2	35000	41	—	—	—	—	—	—	—	—
HDP 120 4	**202.8**	8.6	35350	35	—	—	—	—	—	—	—	—
HDP 120 4	**220.8**	7.9	35000	31	—	—	—	—	—	—	—	—
HDP 120 4	**254.6**	6.9	35350	28	—	—	—	—	—	—	—	—
HDP 120 4	**277.2**	6.3	35000	25	—	—	—	—	—	—	—	—
HDP 120 4	**323.2**	5.4	35350	22	—	—	—	—	—	—	—	—
HDP 120 4	**351.9**	5.0	35000	19.8	—	—	—	—	—	—	—	—
HDP 120 4	**405.7**	4.3	35350	17.3	—	—	—	—	—	—	—	—
HDP 120 4	**454.3**	3.9	37200	16.3	—	—	—	—	—	—	—	—
HDP 120 4	**523.7**	3.3	37500	14.2	—	—	—	—	—	—	—	—

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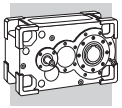

HDP 120 — n_1 = 1750 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C							
					P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 120 2	**7.9**	221	28250	682	*	*	*	*	*	*	*	*
HDP 120 2	**8.6**	203	28750	637	*	*	*	*	*	*	*	*
HDP 120 2	**10.3**	170	30600	567	*	*	*	*	*	*	*	*
HDP 120 2	**11.2**	156	31200	531	*	*	*	*	*	*	*	*
HDP 120 2	**13.0**	134	31800	466	*	*	*	*	*	*	*	*
HDP 120 2	**14.2**	123	32450	437	*	*	*	*	*	*	*	277
HDP 120 2	**16.0**	110	33400	399	*	156	193	*	219	*	194	277
HDP 120 2	**17.4**	101	34150	375	*	156	193	176	219	*	194	277
HDP 120 2	**20.6**	85	35350	327	*	156	193	176	219	178	194	277
HDP 120 2	**22.5**	78	35000	297	*	156	193	176	219	178	194	277
HDP 120 2	**25.4**	69	31750	239	*	156	193	176	219	178	194	—
HDP 120 3	**25.8**	68	31150	235	*	120	147	137	168	129	150	218
HDP 120 3	**28.0**	62	31800	221	*	120	147	137	168	129	150	218
HDP 120 3	**32.5**	54	32600	195	*	120	147	137	168	129	150	—
HDP 120 3	**35.4**	49	33100	182	*	120	147	137	168	129	150	—
HDP 120 3	**39.9**	44	34250	167	74	120	147	137	—	129	150	—
HDP 120 3	**43.5**	40	34750	156	74	120	147	137	—	129	150	—
HDP 120 3	**51.6**	34	35350	133	74	120	—	—	—	129	—	—
HDP 120 3	**56.1**	31	35000	121	74	120	—	—	—	—	—	—
HDP 120 3	**64.3**	27.2	35350	107	74	—	—	—	—	—	—	—
HDP 120 3	**70.0**	25.0	35000	97	74	—	—	—	—	—	—	—
HDP 120 3	**78.9**	22.2	35350	87	74	—	—	—	—	—	—	—
HDP 120 3	**85.9**	20.4	35000	79	74	—	—	—	—	—	—	—
HDP 120 3	**101.8**	17.2	35350	68	—	—	—	—	—	—	—	—
HDP 120 3	**110.9**	15.8	35000	61	—	—	—	—	—	—	—	—
HDP 120 3	**125.2**	14.0	31750	49	—	—	—	—	—	—	—	—
HDP 120 4	**128.0**	13.7	32650	51	—	—	—	—	—	—	—	—
HDP 120 4	**139.4**	12.6	35600	51	—	—	—	—	—	—	—	—
HDP 120 4	**157.1**	11.1	33650	43	—	—	—	—	—	—	—	—
HDP 120 4	**171.1**	10.2	35000	41	—	—	—	—	—	—	—	—
HDP 120 4	**202.8**	8.6	35350	35	—	—	—	—	—	—	—	—
HDP 120 4	**220.8**	7.9	35000	31	—	—	—	—	—	—	—	—
HDP 120 4	**254.6**	6.9	35350	28	—	—	—	—	—	—	—	—
HDP 120 4	**277.2**	6.3	35000	25	—	—	—	—	—	—	—	—
HDP 120 4	**323.2**	5.4	35350	22	—	—	—	—	—	—	—	—
HDP 120 4	**351.9**	5.0	35000	19.8	—	—	—	—	—	—	—	—
HDP 120 4	**405.7**	4.3	35350	17.3	—	—	—	—	—	—	—	—
HDP 120 4	**454.3**	3.9	37200	16.3	—	—	—	—	—	—	—	—
HDP 120 4	**523.7**	3.3	37500	14.2	—	—	—	—	—	—	—	—

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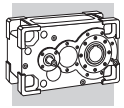

HDP 120 — n_1 = 1400 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C							
					P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 120 2	**7.9**	177	30200	583	*	*	*	*	343	*	*	*
HDP 120 2	**8.6**	163	30750	545	*	*	*	268	343	*	*	303
HDP 120 2	**10.3**	136	32750	485	*	204	248	268	343	*	228	303
HDP 120 2	**11.2**	125	33350	454	*	204	248	268	343	215	228	303
HDP 120 2	**13.0**	108	34000	399	127	204	248	268	343	215	228	303
HDP 120 2	**14.2**	99	34700	374	127	204	248	268	343	215	228	303
HDP 120 2	**16.0**	88	35750	342	127	204	248	268	—	215	228	303
HDP 120 2	**17.4**	80	36500	320	127	204	248	268	—	215	228	303
HDP 120 2	**20.6**	68	36700	272	127	204	248	—	—	215	228	—
HDP 120 2	**22.5**	62	37200	253	127	204	—	—	—	215	228	—
HDP 120 2	**25.4**	55	34300	206	127	—	—	—	—	—	—	—
HDP 120 3	**25.8**	54	33300	201	110	174	—	—	—	173	194	—
HDP 120 3	**28.0**	50	34000	189	110	174	—	—	—	173	194	—
HDP 120 3	**32.5**	43	34850	167	110	—	—	—	—	—	—	—
HDP 120 3	**35.4**	40	35400	156	110	—	—	—	—	—	—	—
HDP 120 3	**39.9**	35	36600	143	110	—	—	—	—	—	—	—
HDP 120 3	**43.5**	32	37150	133	110	—	—	—	—	—	—	—
HDP 120 3	**51.6**	27.2	37500	113	—	—	—	—	—	—	—	—
HDP 120 3	**56.1**	24.9	37200	103	—	—	—	—	—	—	—	—
HDP 120 3	**64.3**	21.8	37500	91	—	—	—	—	—	—	—	—
HDP 120 3	**70.0**	20.0	37200	83	—	—	—	—	—	—	—	—
HDP 120 3	**78.9**	17.7	37500	74	—	—	—	—	—	—	—	—
HDP 120 3	**85.9**	16.3	37200	67	—	—	—	—	—	—	—	—
HDP 120 3	**101.8**	13.7	37500	57	—	—	—	—	—	—	—	—
HDP 120 3	**110.9**	12.6	37200	52	—	—	—	—	—	—	—	—
HDP 120 3	**125.2**	11.2	34300	43	—	—	—	—	—	—	—	—
HDP 120 4	**128.0**	10.9	34950	43	—	—	—	—	—	—	—	—
HDP 120 4	**139.4**	10.0	37200	42	—	—	—	—	—	—	—	—
HDP 120 4	**157.1**	8.9	36000	36	—	—	—	—	—	—	—	—
HDP 120 4	**171.1**	8.2	37200	35	—	—	—	—	—	—	—	—
HDP 120 4	**202.8**	6.9	37500	29	—	—	—	—	—	—	—	—
HDP 120 4	**220.8**	6.3	37200	27	—	—	—	—	—	—	—	—
HDP 120 4	**254.6**	5.5	37500	23	—	—	—	—	—	—	—	—
HDP 120 4	**277.2**	5.0	37200	21	—	—	—	—	—	—	—	—
HDP 120 4	**323.2**	4.3	37500	18.4	—	—	—	—	—	—	—	—
HDP 120 4	**351.9**	4.0	37200	16.8	—	—	—	—	—	—	—	—
HDP 120 4	**405.7**	3.5	37500	14.7	—	—	—	—	—	—	—	—
HDP 120 4	**454.3**	3.1	37200	13.0	—	—	—	—	—	—	—	—
HDP 120 4	**523.7**	2.7	37500	11.4	—	—	—	—	—	—	—	—

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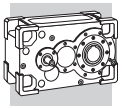

HDP 120 — n_1 = 1400 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C							
					P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 120 2	**7.9**	177	30200	583	*	*	*	*	*	*	*	*
HDP 120 2	**8.6**	163	30750	545	*	*	*	*	*	*	*	*
HDP 120 2	**10.3**	136	32750	485	*	*	*	*	*	*	*	275
HDP 120 2	**11.2**	125	33350	454	*	*	*	*	208	*	183	275
HDP 120 2	**13.0**	108	34000	399	*	147	180	177	208	*	183	275
HDP 120 2	**14.2**	99	34700	374	*	147	180	177	208	178	183	275
HDP 120 2	**16.0**	88	35750	342	90	147	180	177	208	178	183	275
HDP 120 2	**17.4**	80	36500	320	90	147	180	177	208	178	183	275
HDP 120 2	**20.6**	68	36700	272	90	147	180	177	208	178	183	275
HDP 120 2	**22.5**	62	37200	253	90	147	180	177	208	178	183	—
HDP 120 2	**25.4**	55	34300	206	90	147	180	177	—	178	183	—
HDP 120 3	**25.8**	54	33300	201	74	121	144	145	176	137	158	—
HDP 120 3	**28.0**	50	34000	189	74	121	144	145	176	137	158	—
HDP 120 3	**32.5**	43	34850	167	74	121	144	145	—	137	158	—
HDP 120 3	**35.4**	40	35400	156	74	121	144	145	—	137	158	—
HDP 120 3	**39.9**	35	36600	143	74	121	—	—	—	137	—	—
HDP 120 3	**43.5**	32	37150	133	74	121	—	—	—	—	—	—
HDP 120 3	**51.6**	27.2	37500	113	74	—	—	—	—	—	—	—
HDP 120 3	**56.1**	24.9	37200	103	74	—	—	—	—	—	—	—
HDP 120 3	**64.3**	21.8	37500	91	74	—	—	—	—	—	—	—
HDP 120 3	**70.0**	20.0	37200	83	74	—	—	—	—	—	—	—
HDP 120 3	**78.9**	17.7	37500	74	—	—	—	—	—	—	—	—
HDP 120 3	**85.9**	16.3	37200	67	—	—	—	—	—	—	—	—
HDP 120 3	**101.8**	13.7	37500	57	—	—	—	—	—	—	—	—
HDP 120 3	**110.9**	12.6	37200	52	—	—	—	—	—	—	—	—
HDP 120 3	**125.2**	11.2	34300	43	—	—	—	—	—	—	—	—
HDP 120 4	**128.0**	10.9	34950	43	—	—	—	—	—	—	—	—
HDP 120 4	**139.4**	10.0	37200	42	—	—	—	—	—	—	—	—
HDP 120 4	**157.1**	8.9	36000	36	—	—	—	—	—	—	—	—
HDP 120 4	**171.1**	8.2	37200	35	—	—	—	—	—	—	—	—
HDP 120 4	**202.8**	6.9	37500	29	—	—	—	—	—	—	—	—
HDP 120 4	**220.8**	6.3	37200	27	—	—	—	—	—	—	—	—
HDP 120 4	**254.6**	5.5	37500	23	—	—	—	—	—	—	—	—
HDP 120 4	**277.2**	5.0	37200	21	—	—	—	—	—	—	—	—
HDP 120 4	**323.2**	4.3	37500	18.4	—	—	—	—	—	—	—	—
HDP 120 4	**351.9**	4.0	37200	16.8	—	—	—	—	—	—	—	—
HDP 120 4	**405.7**	3.5	37500	14.7	—	—	—	—	—	—	—	—
HDP 120 4	**454.3**	3.1	37200	13.0	—	—	—	—	—	—	—	—
HDP 120 4	**523.7**	2.7	37500	11.4	—	—	—	—	—	—	—	—

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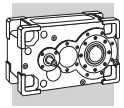

HDP 120 — n_1 = 1100 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 20°C							
					P_T	$P_{TFANL/R}$	P_{TFANLR}	P_{TMCRA5}	P_{TMCRA9}	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDP 120 2	**7.9**	139	32450	492	*	*	232	284	362	*	225	319
HDP 120 2	**8.6**	128	33050	460	*	194	232	284	362	*	225	319
HDP 120 2	**10.3**	107	35200	410	126	194	232	284	362	214	225	319
HDP 120 2	**11.2**	98	35850	383	126	194	232	284	362	214	225	319
HDP 120 2	**13.0**	85	36000	332	126	194	232	284	—	214	225	319
HDP 120 2	**14.2**	78	37200	315	126	194	232	284	—	214	225	—
HDP 120 2	**16.0**	69	36350	273	126	194	232	—	—	214	225	—
HDP 120 2	**17.4**	63	37200	256	126	194	232	—	—	214	225	—
HDP 120 2	**20.6**	53	36700	213	126	194	—	—	—	—	—	—
HDP 120 2	**22.5**	49	37200	199	126	194	—	—	—	—	—	—
HDP 120 2	**25.4**	43	34300	162	126	—	—	—	—	—	—	—
HDP 120 3	**25.8**	43	35800	170	116	174	—	—	—	179	—	—
HDP 120 3	**28.0**	39	36550	159	116	—	—	—	—	—	—	—
HDP 120 3	**32.5**	34	37500	141	116	—	—	—	—	—	—	—
HDP 120 3	**35.4**	31	37200	128	116	—	—	—	—	—	—	—
HDP 120 3	**39.9**	27.5	37500	115	—	—	—	—	—	—	—	—
HDP 120 3	**43.5**	25.3	37200	105	—	—	—	—	—	—	—	—
HDP 120 3	**51.6**	21.3	37500	89	—	—	—	—	—	—	—	—
HDP 120 3	**56.1**	19.6	37200	81	—	—	—	—	—	—	—	—
HDP 120 3	**64.3**	17.1	37500	71	—	—	—	—	—	—	—	—
HDP 120 3	**70.0**	15.7	37200	65	—	—	—	—	—	—	—	—
HDP 120 3	**78.9**	13.9	37500	58	—	—	—	—	—	—	—	—
HDP 120 3	**85.9**	12.8	37200	53	—	—	—	—	—	—	—	—
HDP 120 3	**101.8**	10.8	37500	45	—	—	—	—	—	—	—	—
HDP 120 3	**110.9**	9.9	37200	41	—	—	—	—	—	—	—	—
HDP 120 3	**125.2**	8.8	34300	34	—	—	—	—	—	—	—	—
HDP 120 4	**128.0**	8.6	37500	37	—	—	—	—	—	—	—	—
HDP 120 4	**139.4**	7.9	37200	33	—	—	—	—	—	—	—	—
HDP 120 4	**157.1**	7.0	37500	30	—	—	—	—	—	—	—	—
HDP 120 4	**171.1**	6.4	37200	27	—	—	—	—	—	—	—	—
HDP 120 4	**202.8**	5.4	37500	23	—	—	—	—	—	—	—	—
HDP 120 4	**220.8**	5.0	37200	21	—	—	—	—	—	—	—	—
HDP 120 4	**254.6**	4.3	37500	18.4	—	—	—	—	—	—	—	—
HDP 120 4	**277.2**	4.0	37200	16.8	—	—	—	—	—	—	—	—
HDP 120 4	**323.2**	3.4	37500	14.5	—	—	—	—	—	—	—	—
HDP 120 4	**351.9**	3.1	37200	13.2	—	—	—	—	—	—	—	—
HDP 120 4	**405.7**	2.7	37500	11.5	—	—	—	—	—	—	—	—
HDP 120 4	**454.3**	2.4	37200	10.2	—	—	—	—	—	—	—	—
HDP 120 4	**523.7**	2.1	37500	8.9	—	—	—	—	—	—	—	—

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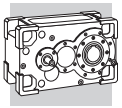

HDP 120 — n_1 = 1100 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 40°C							
		[min^{-1}]	[Nm]	[kW]	P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 120 2	**7.9**	139	32450	492	*	*	*	*	203	*	*	272
HDP 120 2	**8.6**	128	33050	460	*	*	154	161	203	*	180	272
HDP 120 2	**10.3**	107	35200	410	*	140	154	161	203	*	180	272
HDP 120 2	**11.2**	98	35850	383	*	140	154	161	203	168	180	272
HDP 120 2	**13.0**	85	36000	332	*	140	154	161	203	168	180	272
HDP 120 2	**14.2**	78	37200	315	*	140	154	161	203	168	180	272
HDP 120 2	**16.0**	69	36350	273	*	140	154	161	203	168	180	272
HDP 120 2	**17.4**	63	37200	256	*	140	154	161	203	168	180	—
HDP 120 2	**20.6**	53	36700	213	106	140	154	161	203	168	180	—
HDP 120 2	**22.5**	49	37200	199	106	140	154	161	—	168	180	—
HDP 120 2	**25.4**	43	34300	162	106	140	154	161	—	—	—	—
HDP 120 3	**25.8**	43	35800	170	79	121	142	150	—	142	163	—
HDP 120 3	**28.0**	39	36550	159	79	121	142	150	—	142	—	—
HDP 120 3	**32.5**	34	37500	141	79	121	—	—	—	—	—	—
HDP 120 3	**35.4**	31	37200	128	79	121	—	—	—	—	—	—
HDP 120 3	**39.9**	27.5	37500	115	79	—	—	—	—	—	—	—
HDP 120 3	**43.5**	25.3	37200	105	79	—	—	—	—	—	—	—
HDP 120 3	**51.6**	21.3	37500	89	79	—	—	—	—	—	—	—
HDP 120 3	**56.1**	19.6	37200	81	79	—	—	—	—	—	—	—
HDP 120 3	**64.3**	17.1	37500	71	—	—	—	—	—	—	—	—
HDP 120 3	**70.0**	15.7	37200	65	—	—	—	—	—	—	—	—
HDP 120 3	**78.9**	13.9	37500	58	—	—	—	—	—	—	—	—
HDP 120 3	**85.9**	12.8	37200	53	—	—	—	—	—	—	—	—
HDP 120 3	**101.8**	10.8	37500	45	—	—	—	—	—	—	—	—
HDP 120 3	**110.9**	9.9	37200	41	—	—	—	—	—	—	—	—
HDP 120 3	**125.2**	8.8	34300	34	—	—	—	—	—	—	—	—
HDP 120 4	**128.0**	8.6	37500	37	—	—	—	—	—	—	—	—
HDP 120 4	**139.4**	7.9	37200	33	—	—	—	—	—	—	—	—
HDP 120 4	**157.1**	7.0	37500	30	—	—	—	—	—	—	—	—
HDP 120 4	**171.1**	6.4	37200	27	—	—	—	—	—	—	—	—
HDP 120 4	**202.8**	5.4	37500	23	—	—	—	—	—	—	—	—
HDP 120 4	**220.8**	5.0	37200	21	—	—	—	—	—	—	—	—
HDP 120 4	**254.6**	4.3	37500	18.4	—	—	—	—	—	—	—	—
HDP 120 4	**277.2**	4.0	37200	16.8	—	—	—	—	—	—	—	—
HDP 120 4	**323.2**	3.4	37500	14.5	—	—	—	—	—	—	—	—
HDP 120 4	**351.9**	3.1	37200	13.2	—	—	—	—	—	—	—	—
HDP 120 4	**405.7**	2.7	37500	11.5	—	—	—	—	—	—	—	—
HDP 120 4	**454.3**	2.4	37200	10.2	—	—	—	—	—	—	—	—
HDP 120 4	**523.7**	2.1	37500	8.9	—	—	—	—	—	—	—	—

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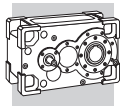

HDP 120 — n_1 = 900 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C							
					P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 120 2	**7.9**	114	34450	428	*	186	218	297	375	210	238	332
HDP 120 2	**8.6**	105	35100	400	124	186	218	297	375	210	238	332
HDP 120 2	**10.3**	87	35550	339	124	186	218	297	—	210	238	332
HDP 120 2	**11.2**	80	37100	324	124	186	218	297	—	210	238	—
HDP 120 2	**13.0**	69	36000	271	124	186	218	—	—	210	238	—
HDP 120 2	**14.2**	64	37200	258	124	186	218	—	—	210	238	—
HDP 120 2	**16.0**	56	36350	223	124	186	218	—	—	210	—	—
HDP 120 2	**17.4**	52	37200	210	124	186	—	—	—	—	—	—
HDP 120 2	**20.6**	44	36700	175	124	—	—	—	—	—	—	—
HDP 120 2	**22.5**	40	37200	163	124	—	—	—	—	—	—	—
HDP 120 2	**25.4**	35	34300	133	124	—	—	—	—	—	—	—
HDP 120 3	**25.8**	35	36450	142	120	—	—	—	—	—	—	—
HDP 120 3	**28.0**	32	37200	133	120	—	—	—	—	—	—	—
HDP 120 3	**32.5**	27.7	37500	115	—	—	—	—	—	—	—	—
HDP 120 3	**35.4**	25.4	37200	105	—	—	—	—	—	—	—	—
HDP 120 3	**39.9**	22.5	37500	94	—	—	—	—	—	—	—	—
HDP 120 3	**43.5**	20.7	37200	86	—	—	—	—	—	—	—	—
HDP 120 3	**51.6**	17.5	37500	73	—	—	—	—	—	—	—	—
HDP 120 3	**56.1**	16.0	37200	66	—	—	—	—	—	—	—	—
HDP 120 3	**64.3**	14.0	37500	58	—	—	—	—	—	—	—	—
HDP 120 3	**70.0**	12.9	37200	53	—	—	—	—	—	—	—	—
HDP 120 3	**78.9**	11.4	37500	48	—	—	—	—	—	—	—	—
HDP 120 3	**85.9**	10.5	37200	43	—	—	—	—	—	—	—	—
HDP 120 3	**101.8**	8.8	37500	37	—	—	—	—	—	—	—	—
HDP 120 3	**110.9**	8.1	37200	34	—	—	—	—	—	—	—	—
HDP 120 3	**125.2**	7.2	34300	27	—	—	—	—	—	—	—	—
HDP 120 4	**128.0**	7.0	37500	30	—	—	—	—	—	—	—	—
HDP 120 4	**139.4**	6.5	37200	27	—	—	—	—	—	—	—	—
HDP 120 4	**157.1**	5.7	37500	24	—	—	—	—	—	—	—	—
HDP 120 4	**171.1**	5.3	37200	22	—	—	—	—	—	—	—	—
HDP 120 4	**202.8**	4.4	37500	18.9	—	—	—	—	—	—	—	—
HDP 120 4	**220.8**	4.1	37200	17.2	—	—	—	—	—	—	—	—
HDP 120 4	**254.6**	3.5	37500	15.1	—	—	—	—	—	—	—	—
HDP 120 4	**277.2**	3.2	37200	13.7	—	—	—	—	—	—	—	—
HDP 120 4	**323.2**	2.8	37500	11.9	—	—	—	—	—	—	—	—
HDP 120 4	**351.9**	2.6	37200	10.8	—	—	—	—	—	—	—	—
HDP 120 4	**405.7**	2.2	37500	9.4	—	—	—	—	—	—	—	—
HDP 120 4	**454.3**	2.0	37200	8.4	—	—	—	—	—	—	—	—
HDP 120 4	**523.7**	1.7	37500	7.3	—	—	—	—	—	—	—	—

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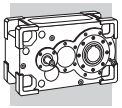

HDP 120 — n_1 = 900 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C							
					P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 120 2	**7.9**	114	34450	428	*	*	145	172	216	163	191	285
HDP 120 2	**8.6**	105	35100	400	*	*	145	172	216	163	191	285
HDP 120 2	**10.3**	87	35550	339	*	136	145	172	216	163	191	285
HDP 120 2	**11.2**	80	37100	324	*	136	145	172	216	163	191	285
HDP 120 2	**13.0**	69	36000	271	*	136	145	172	216	163	191	—
HDP 120 2	**14.2**	64	37200	258	*	136	145	172	216	163	191	—
HDP 120 2	**16.0**	56	36350	223	104	136	145	172	216	163	191	—
HDP 120 2	**17.4**	52	37200	210	104	136	145	172	—	163	191	—
HDP 120 2	**20.6**	44	36700	175	104	136	145	172	—	163	—	—
HDP 120 2	**22.5**	40	37200	163	104	136	145	—	—	—	—	—
HDP 120 2	**25.4**	35	34300	133	104	—	—	—	—	—	—	—
HDP 120 3	**25.8**	35	36450	142	83	116	132	—	—	—	—	—
HDP 120 3	**28.0**	32	37200	133	83	116	132	—	—	—	—	—
HDP 120 3	**32.5**	27.7	37500	115	83	—	—	—	—	—	—	—
HDP 120 3	**35.4**	25.4	37200	105	83	—	—	—	—	—	—	—
HDP 120 3	**39.9**	22.5	37500	94	83	—	—	—	—	—	—	—
HDP 120 3	**43.5**	20.7	37200	86	83	—	—	—	—	—	—	—
HDP 120 3	**51.6**	17.5	37500	73	—	—	—	—	—	—	—	—
HDP 120 3	**56.1**	16.0	37200	66	—	—	—	—	—	—	—	—
HDP 120 3	**64.3**	14.0	37500	58	—	—	—	—	—	—	—	—
HDP 120 3	**70.0**	12.9	37200	53	—	—	—	—	—	—	—	—
HDP 120 3	**78.9**	11.4	37500	48	—	—	—	—	—	—	—	—
HDP 120 3	**85.9**	10.5	37200	43	—	—	—	—	—	—	—	—
HDP 120 3	**101.8**	8.8	37500	37	—	—	—	—	—	—	—	—
HDP 120 3	**110.9**	8.1	37200	34	—	—	—	—	—	—	—	—
HDP 120 3	**125.2**	7.2	34300	27	—	—	—	—	—	—	—	—
HDP 120 4	**128.0**	7.0	37500	30	—	—	—	—	—	—	—	—
HDP 120 4	**139.4**	6.5	37200	27	—	—	—	—	—	—	—	—
HDP 120 4	**157.1**	5.7	37500	24	—	—	—	—	—	—	—	—
HDP 120 4	**171.1**	5.3	37200	22	—	—	—	—	—	—	—	—
HDP 120 4	**202.8**	4.4	37500	18.9	—	—	—	—	—	—	—	—
HDP 120 4	**220.8**	4.1	37200	17.2	—	—	—	—	—	—	—	—
HDP 120 4	**254.6**	3.5	37500	15.1	—	—	—	—	—	—	—	—
HDP 120 4	**277.2**	3.2	37200	13.7	—	—	—	—	—	—	—	—
HDP 120 4	**323.2**	2.8	37500	11.9	—	—	—	—	—	—	—	—
HDP 120 4	**351.9**	2.6	37200	10.8	—	—	—	—	—	—	—	—
HDP 120 4	**405.7**	2.2	37500	9.4	—	—	—	—	—	—	—	—
HDP 120 4	**454.3**	2.0	37200	8.4	—	—	—	—	—	—	—	—
HDP 120 4	**523.7**	1.7	37500	7.3	—	—	—	—	—	—	—	—

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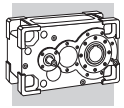

HDP 130 — n_1 = 1750 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 20°C											
					P_T	$P_{TFANL\,/\,R}$	P_{TFANLR}	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]	[kW]
HDP 130 2	**7.3**	241	41500	1090	*	*	*	*	*	*		*	*	*	*	
HDP 130 2	**7.9**	221	43950	1058	*	*	*	*	*	*		*	*	*	*	
HDP 130 2	**8.6**	203	43850	971	*	*	*	*	*	*		*	*	*	*	
HDP 130 2	**9.4**	186	46350	941	*	*	*	*	*	620		*	*	*	*	
HDP 130 2	**11.3**	155	48550	819	*	*	411	334	412	620		*	*	*	529	
HDP 130 2	**12.3**	142	49650	768	*	*	411	334	412	620	⛔	*	*	*	529	⛔
HDP 130 2	**14.1**	124	49550	669	*	354	411	334	412	620		*	*	393	529	
HDP 130 2	**15.4**	113	50850	629	*	354	411	334	412	620		*	302	393	529	
HDP 130 2	**17.4**	100	53150	582	*	354	411	334	412	—		*	302	393	529	
HDP 130 2	**19.0**	92	56550	567	*	354	411	334	412	—		310	302	393	529	
HDP 130 2	**21.7**	81	57400	506	206	354	411	334	412	—		310	302	393	—	
HDP 130 3	**21.8**	80	56550	505	*	266	324	273	330	506	—	*	230	298	414	—
HDP 130 3	**23.8**	74	56900	466	*	266	324	273	330	—	—	*	230	298	414	—
HDP 130 3	**28.6**	61	59300	404	155	266	324	273	330	—	—	257	230	298	—	—
HDP 130 3	**31.2**	56	56900	355	155	266	324	273	330	—	—	257	230	298	—	—
HDP 130 3	**35.7**	49	56400	307	155	266	—	273	—	—	—	257	230	298	—	—
HDP 130 3	**39.0**	45	56900	284	155	266	—	273	—	—	—	257	230	—	—	—
HDP 130 3	**44.1**	40	58650	259	155	—	—	—	—	—	—	257	230	—	—	—
HDP 130 3	**48.1**	36	56900	230	155	—	—	—	—	—	—	—	230	—	—	—
HDP 130 3	**56.5**	31	59300	204	155	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**61.7**	28.4	56900	180	155	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**70.7**	24.8	59300	163	155	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**77.1**	22.7	56900	144	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**87.2**	20.1	58650	131	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**95.1**	18.4	56900	116	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**108.3**	16.2	53600	96	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**111.2**	15.7	52400	94	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**121.4**	14.4	56900	93	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**139.0**	12.6	59300	85	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**151.7**	11.5	56900	75	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**176.7**	9.9	58950	66	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**192.9**	9.1	56900	59	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**217.9**	8.0	58650	53	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**237.9**	7.4	56900	48	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**274.5**	6.4	59300	43	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**299.6**	5.8	56900	38	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**348.9**	5.0	59300	34	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**380.9**	4.6	56900	30	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**469.8**	3.7	56900	24	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**534.5**	3.3	53600	19.9	—	—	—	—	—	—	—	—	—	—	—	—

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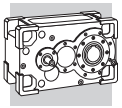

HDP 130 — n_1 = 1750 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C											
					P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [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]
HDP 130 2	**7.3**	241	41500	1090	*	*	*	*	*	*	⊖	*	*	*	*	⊖
HDP 130 2	**7.9**	221	43950	1058	*	*	*	*	*	*		*	*	*	*	
HDP 130 2	**8.6**	203	43850	971	*	*	*	*	*	*		*	*	*	*	
HDP 130 2	**9.4**	186	46350	941	*	*	*	*	*	*		*	*	*	*	
HDP 130 2	**11.3**	155	48550	819	*	*	*	*	*	*		*	*	*	*	
HDP 130 2	**12.3**	142	49650	768	*	*	*	*	*	*		*	*	*	*	
HDP 130 2	**14.1**	124	49550	669	*	237	297	*	*	*		*	*	*	*	
HDP 130 2	**15.4**	113	50850	629	*	237	297	*	*	390		*	*	*	484	
HDP 130 2	**17.4**	100	53150	582	*	237	297	226	270	390		*	*	339	484	
HDP 130 2	**19.0**	92	56550	567	*	237	297	226	270	390		*	*	339	484	
HDP 130 2	**21.7**	81	57400	506	*	237	297	226	270	390		241	250	339	484	
HDP 130 3	**21.8**	80	56550	505	*	*	220	*	*	*	360	*	*	*	*	—
HDP 130 3	**23.8**	74	56900	466	*	*	220	*	*	*	360	*	*	*	360	—
HDP 130 3	**28.6**	61	59300	404	*	187	220	*	*	299	360	*	*	*	360	—
HDP 130 3	**31.2**	56	56900	355	*	187	220	*	202	299	—	*	*	252	—	—
HDP 130 3	**35.7**	49	56400	307	*	187	220	175	202	299	—	*	188	252	—	—
HDP 130 3	**39.0**	45	56900	284	105	187	220	175	202	—	—	207	188	252	—	—
HDP 130 3	**44.1**	40	58650	259	105	187	220	175	202	—	—	207	188	252	—	—
HDP 130 3	**48.1**	36	56900	230	105	187	220	175	202	—	—	207	188	—	—	—
HDP 130 3	**56.5**	31	59300	204	105	187	—	175	202	—	—	—	188	—	—	—
HDP 130 3	**61.7**	28.4	56900	180	105	—	—	175	—	—	—	—	—	—	—	—
HDP 130 3	**70.7**	24.8	59300	163	105	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**77.1**	22.7	56900	144	105	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**87.2**	20.1	58650	131	105	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**95.1**	18.4	56900	116	105	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**108.3**	16.2	53600	96	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**111.2**	15.7	52400	94	75	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**121.4**	14.4	56900	93	75	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**139.0**	12.6	59300	85	75	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**151.7**	11.5	56900	75	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**176.7**	9.9	58950	66	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**192.9**	9.1	56900	59	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**217.9**	8.0	58650	53	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**237.9**	7.4	56900	48	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**274.5**	6.4	59300	43	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**299.6**	5.8	56900	38	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**348.9**	5.0	59300	34	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**380.9**	4.6	56900	30	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**469.8**	3.7	56900	24	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**534.5**	3.3	53600	19.9	—	—	—	—	—	—	—	—	—	—	—	—

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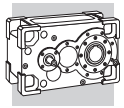

HDP 130 — n_1 = 1400 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 20°C											
					P_T	$P_{TFANL\,/\,R}$	P_{TFANLR}	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]	[kW]
HDP 130 2	**7.3**	193	44350	932	*	*	*	*	*	*		*	*	*	*	
HDP 130 2	**7.9**	177	47000	905	*	*	*	*	*	629		*	*	*	503	
HDP 130 2	**8.6**	163	46900	831	*	*	*	*	406	629		*	*	363	503	
HDP 130 2	**9.4**	149	49550	804	*	*	*	332	406	629		*	*	363	503	
HDP 130 2	**11.3**	124	51900	701	*	333	403	332	406	629		*	300	363	503	
HDP 130 2	**12.3**	113	53100	657	*	333	403	332	406	629	⛔	*	300	363	503	⛔
HDP 130 2	**14.1**	99	53000	572	202	333	403	332	406	—		309	300	363	503	
HDP 130 2	**15.4**	91	54400	538	202	333	403	332	406	—		309	300	363	503	
HDP 130 2	**17.4**	80	56850	498	202	333	403	332	406	—		309	300	363	503	
HDP 130 2	**19.0**	74	60450	485	202	333	403	332	406	—		309	300	363	—	
HDP 130 2	**21.7**	65	57400	405	202	333	—	332	—	—		309	300	363	—	
HDP 130 3	**21.8**	64	60450	432	160	264	315	287	344	—	—	262	244	312	428	—
HDP 130 3	**23.8**	59	60700	398	160	264	315	287	344	—	—	262	244	312	—	—
HDP 130 3	**28.6**	49	63250	344	160	264	315	287	—	—	—	262	244	312	—	—
HDP 130 3	**31.2**	45	60700	303	160	264	—	287	—	—	—	262	244	—	—	—
HDP 130 3	**35.7**	39	60300	263	160	—	—	—	—	—	—	—	244	—	—	—
HDP 130 3	**39.0**	36	60700	242	160	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**44.1**	32	63250	223	160	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**48.1**	29.1	60700	196	160	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**56.5**	24.8	63250	174	160	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**61.7**	22.7	60700	153	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**70.7**	19.8	63250	139	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**77.1**	18.1	60700	123	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**87.2**	16.1	63250	113	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**95.1**	14.7	60700	99	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**108.3**	12.9	57400	83	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**111.2**	12.6	56000	80	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**121.4**	11.5	60700	79	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**139.0**	10.1	63250	72	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**151.7**	9.2	60700	64	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**176.7**	7.9	63050	57	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**192.9**	7.3	60700	50	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**217.9**	6.4	63250	46	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**237.9**	5.9	60700	41	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**274.5**	5.1	63250	37	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**299.6**	4.7	60700	32	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**348.9**	4.0	63250	29	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**380.9**	3.7	60700	25	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**469.8**	3.0	60700	21	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**534.5**	2.6	57400	17.1	—	—	—	—	—	—	—	—	—	—	—	—

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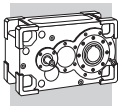

HDP 130 — n_1 = 1400 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 40°C											
		[min^{-1}]	[Nm]	[kW]	P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [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]
HDP 130 2	**7.3**	193	44350	932	*	*	*	*	*	*		*	*	*	*	
HDP 130 2	**7.9**	177	47000	905	*	*	*	*	*	*		*	*	*	*	
HDP 130 2	**8.6**	163	46900	831	*	*	*	*	*	*		*	*	*	*	
HDP 130 2	**9.4**	149	49550	804	*	*	*	*	*	361		*	*	*	*	
HDP 130 2	**11.3**	124	51900	701	*	221	273	*	253	361		*	*	*	482	
HDP 130 2	**12.3**	113	53100	657	*	221	273	*	253	361	⛔	*	*	325	482	⛔
HDP 130 2	**14.1**	99	53000	572	131	221	273	228	253	361		238	247	325	482	
HDP 130 2	**15.4**	91	54400	538	131	221	273	228	253	361		238	247	325	482	
HDP 130 2	**17.4**	80	56850	498	131	221	273	228	253	361		238	247	325	482	
HDP 130 2	**19.0**	74	60450	485	131	221	273	228	253	361		238	247	325	—	
HDP 130 2	**21.7**	65	57400	405	131	221	273	228	253	—		238	247	325	—	
HDP 130 3	**21.8**	64	60450	432	104	180	217	*	206	304	374	206	*	256	372	—
HDP 130 3	**23.8**	59	60700	398	104	180	217	176	206	304	374	206	189	256	372	—
HDP 130 3	**28.6**	49	63250	344	104	180	217	176	206	304	—	206	189	256	—	—
HDP 130 3	**31.2**	45	60700	303	104	180	217	176	206	—	—	206	189	256	—	—
HDP 130 3	**35.7**	39	60300	263	104	180	217	176	206	—	—	206	189	256	—	—
HDP 130 3	**39.0**	36	60700	242	104	180	217	176	206	—	—	206	189	—	—	—
HDP 130 3	**44.1**	32	63250	223	104	180	—	176	—	—	—	—	189	—	—	—
HDP 130 3	**48.1**	29.1	60700	196	104	180	—	176	—	—	—	—	—	—	—	—
HDP 130 3	**56.5**	24.8	63250	174	104	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**61.7**	22.7	60700	153	104	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**70.7**	19.8	63250	139	104	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**77.1**	18.1	60700	123	104	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**87.2**	16.1	63250	113	104	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**95.1**	14.7	60700	99	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**108.3**	12.9	57400	83	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**111.2**	12.6	56000	80	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**121.4**	11.5	60700	79	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**139.0**	10.1	63250	72	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**151.7**	9.2	60700	64	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**176.7**	7.9	63050	57	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**192.9**	7.3	60700	50	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**217.9**	6.4	63250	46	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**237.9**	5.9	60700	41	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**274.5**	5.1	63250	37	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**299.6**	4.7	60700	32	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**348.9**	4.0	63250	29	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**380.9**	3.7	60700	25	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**469.8**	3.0	60700	21	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**534.5**	2.6	57400	17.1	—	—	—	—	—	—	—	—	—	—	—	—

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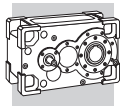
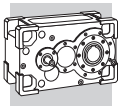


HDP 130 — n_1 = 1100 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 20°C											
					P_T	$P_{TFANL\,/\,R}$	P_{TFANLR}	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]	[kW]
HDP 130 2	**7.3**	151	47700	788	*	*	*	333	411	654		*	*	368	528	
HDP 130 2	**7.9**	139	50550	765	*	*	*	333	411	654		*	*	368	528	
HDP 130 2	**8.6**	128	50400	702	*	*	375	333	411	654		285	294	368	528	
HDP 130 2	**9.4**	117	53300	680	*	315	375	333	411	654		285	294	368	528	
HDP 130 2	**11.3**	97	55800	592	*	315	375	333	411	—		285	294	368	528	
HDP 130 2	**12.3**	89	57050	554	204	315	375	333	411	—	⛔	285	294	368	528	⛔
HDP 130 2	**14.1**	78	57000	484	204	315	375	333	411	—		285	294	368	—	
HDP 130 2	**15.4**	71	58450	454	204	315	375	333	411	—		285	294	368	—	
HDP 130 2	**17.4**	63	61100	420	204	315	375	333	411	—		285	294	368	—	
HDP 130 2	**19.0**	58	60700	383	204	315	375	333	—	—		285	294	368	—	
HDP 130 2	**21.7**	51	57400	318	204	315	—	—	—	—		285	294	—	—	
HDP 130 3	**21.8**	50	60795	342	170	264	309	297	—	—	—	272	254	322	—	—
HDP 130 3	**23.8**	46	60700	312	170	264	309	297	—	—	—	272	254	—	—	—
HDP 130 3	**28.6**	38	63250	271	170	264	—	—	—	—	—	—	254	—	—	—
HDP 130 3	**31.2**	35	60700	238	170	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**35.7**	31	63250	217	170	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**39.0**	28.2	60700	190	170	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**44.1**	24.9	63250	176	170	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**48.1**	22.9	60700	154	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**56.5**	19.5	63250	137	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**61.7**	17.8	60700	120	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**70.7**	15.6	63250	110	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**77.1**	14.3	60700	96	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**87.2**	12.6	63250	89	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**95.1**	11.6	60700	78	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**108.3**	10.2	57400	65	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**111.2**	9.9	60200	68	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**121.4**	9.1	60700	62	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**139.0**	7.9	63250	57	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**151.7**	7.3	60700	50	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**176.7**	6.2	63250	45	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**192.9**	5.7	60700	39	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**217.9**	5.0	63250	36	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**237.9**	4.6	60700	32	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**274.5**	4.0	63250	29	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**299.6**	3.7	60700	25	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**348.9**	3.2	63250	23	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**380.9**	2.9	60700	19.9	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**469.8**	2.3	60700	16.1	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**534.5**	2.1	57400	13.4	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

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



HDP 130 — n_1 = 1100 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C											
					P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [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]
HDP 130 2	**7.3**	151	47700	788	*	*	*	*	*	*		*	*	*	*	
HDP 130 2	**7.9**	139	50550	765	*	*	*	*	*	*		*	*	*	*	
HDP 130 2	**8.6**	128	50400	702	*	*	*	*	*	382		*	*	*	*	
HDP 130 2	**9.4**	117	53300	680	*	207	254	*	250	382		*	*	*	479	
HDP 130 2	**11.3**	97	55800	592	*	207	254	227	250	382		237	246	340	479	
HDP 130 2	**12.3**	89	57050	554	132	207	254	227	250	382	⛔	237	246	340	479	⛔
HDP 130 2	**14.1**	78	57000	484	132	207	254	227	250	382		237	246	340	479	
HDP 130 2	**15.4**	71	58450	454	132	207	254	227	250	382		237	246	340	—	
HDP 130 2	**17.4**	63	61100	420	132	207	254	227	250	382		237	246	340	—	
HDP 130 2	**19.0**	58	60700	383	132	207	254	227	250	382		237	246	340	—	
HDP 130 2	**21.7**	51	57400	318	132	207	254	227	250	—		237	246	—	—	
HDP 130 3	**21.8**	50	60795	342	114	183	216	185	216	314	—	216	198	266	—	—
HDP 130 3	**23.8**	46	60700	312	114	183	216	185	216	—	—	216	198	266	—	—
HDP 130 3	**28.6**	38	63250	271	114	183	216	185	216	—	—	216	198	266	—	—
HDP 130 3	**31.2**	35	60700	238	114	183	216	185	216	—	—	216	198	—	—	—
HDP 130 3	**35.7**	31	63250	217	114	183	216	185	216	—	—	216	198	—	—	—
HDP 130 3	**39.0**	28.2	60700	190	114	183	—	185	—	—	—	—	—	—	—	—
HDP 130 3	**44.1**	24.9	63250	176	114	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**48.1**	22.9	60700	154	114	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**56.5**	19.5	63250	137	114	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**61.7**	17.8	60700	120	114	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**70.7**	15.6	63250	110	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**77.1**	14.3	60700	96	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**87.2**	12.6	63250	89	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**95.1**	11.6	60700	78	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**108.3**	10.2	57400	65	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**111.2**	9.9	60200	68	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**121.4**	9.1	60700	62	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**139.0**	7.9	63250	57	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**151.7**	7.3	60700	50	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**176.7**	6.2	63250	45	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**192.9**	5.7	60700	39	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**217.9**	5.0	63250	36	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**237.9**	4.6	60700	32	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**274.5**	4.0	63250	29	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**299.6**	3.7	60700	25	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**348.9**	3.2	63250	23	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**380.9**	2.9	60700	19.9	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**469.8**	2.3	60700	16.1	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**534.5**	2.1	57400	13.4	—	—	—	—	—	—	—	—	—	—	—	—

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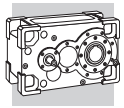

HDP 130 — n_1 = 900 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C											
					P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [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]
HDP 130 2	**7.3**	124	50650	684	*	*	*	354	432	675		286	295	389	549	
HDP 130 2	**7.9**	114	53700	665	*	*	*	354	432	—		286	295	389	549	
HDP 130 2	**8.6**	104	53550	610	*	*	349	354	432	—		286	295	389	549	
HDP 130 2	**9.4**	96	56600	591	*	301	349	354	432	—		286	295	389	549	
HDP 130 2	**11.3**	80	59250	514	214	301	349	354	432	—		286	295	389	—	
HDP 130 2	**12.3**	73	60600	482	214	301	349	354	432	—	⛔	286	295	389	—	⛔
HDP 130 2	**14.1**	64	60500	420	214	301	349	354	—	—		286	295	389	—	
HDP 130 2	**15.4**	58	60700	386	214	301	349	354	—	—		286	295	—	—	
HDP 130 2	**17.4**	52	63250	356	214	301	349	354	—	—		286	295	—	—	
HDP 130 2	**19.0**	47	60700	313	214	301	—	—	—	—		286	295	—	—	
HDP 130 2	**21.7**	42	57400	260	214	—	—	—	—	—		—	—	—	—	
HDP 130 3	**21.8**	41	60795	279	177	250	—	—	—	—	—	—	261	—	—	—
HDP 130 3	**23.8**	38	60700	256	177	250	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**28.6**	31	63250	221	177	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**31.2**	28.8	60700	195	177	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**35.7**	25.2	63250	177	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**39.0**	23.1	60700	156	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**44.1**	20.4	63250	144	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**48.1**	18.7	60700	126	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**56.5**	15.9	63250	112	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**61.7**	14.6	60700	98	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**70.7**	12.7	63250	90	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**77.1**	11.7	60700	79	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**87.2**	10.3	63250	73	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**95.1**	9.5	60700	64	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**108.3**	8.3	57400	53	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**111.2**	8.1	63250	58	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**121.4**	7.4	60700	51	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**139.0**	6.5	63250	46	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**151.7**	5.9	60700	41	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**176.7**	5.1	63250	37	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**192.9**	4.7	60700	32	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**217.9**	4.1	63250	30	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**237.9**	3.8	60700	26	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**274.5**	3.3	63250	24	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**299.6**	3.0	60700	21	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**348.9**	2.6	63250	18.5	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**380.9**	2.4	60700	16.3	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**469.8**	1.9	60700	13.2	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**534.5**	1.7	57400	11.0	—	—	—	—	—	—	—	—	—	—	—	—

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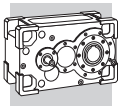

HDP 130 — n_1 = 900 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 40°C											
		[min^{-1}]	[Nm]	[kW]	P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [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]
HDP 130 2	**7.3**	124	50650	684	*	*	*	*	*	384		*	*	*	478	
HDP 130 2	**7.9**	114	53700	665	*	*	*	*	*	384		*	*	*	478	
HDP 130 2	**8.6**	104	53550	610	*	*	236	*	264	384		*	*	333	478	
HDP 130 2	**9.4**	96	56600	591	126	202	236	223	264	384		233	206	333	478	
HDP 130 2	**11.3**	80	59250	514	126	202	236	223	264	384		233	206	333	478	
HDP 130 2	**12.3**	73	60600	482	126	202	236	223	264	384	⛔	233	206	333	478	⛔
HDP 130 2	**14.1**	64	60500	420	126	202	236	223	264	384		233	206	333	—	
HDP 130 2	**15.4**	58	60700	386	126	202	236	223	264	384		233	206	333	—	
HDP 130 2	**17.4**	52	63250	356	126	202	236	223	264	—		233	206	333	—	
HDP 130 2	**19.0**	47	60700	313	126	202	236	223	264	—		233	206	—	—	
HDP 130 2	**21.7**	42	57400	260	126	202	236	223	—	—		233	206	—	—	
HDP 130 3	**21.8**	41	60795	279	122	175	201	193	224	—	—	224	206	—	—	—
HDP 130 3	**23.8**	38	60700	256	122	175	201	193	224	—	—	224	206	—	—	—
HDP 130 3	**28.6**	31	63250	221	122	175	201	193	—	—	—	—	206	—	—	—
HDP 130 3	**31.2**	28.8	60700	195	122	175	—	193	—	—	—	—	—	—	—	—
HDP 130 3	**35.7**	25.2	63250	177	122	175	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**39.0**	23.1	60700	156	122	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**44.1**	20.4	63250	144	122	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**48.1**	18.7	60700	126	122	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**56.5**	15.9	63250	112	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**61.7**	14.6	60700	98	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**70.7**	12.7	63250	90	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**77.1**	11.7	60700	79	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**87.2**	10.3	63250	73	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**95.1**	9.5	60700	64	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**108.3**	8.3	57400	53	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**111.2**	8.1	63250	58	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**121.4**	7.4	60700	51	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**139.0**	6.5	63250	46	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**151.7**	5.9	60700	41	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**176.7**	5.1	63250	37	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**192.9**	4.7	60700	32	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**217.9**	4.1	63250	30	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**237.9**	3.8	60700	26	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**274.5**	3.3	63250	24	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**299.6**	3.0	60700	21	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**348.9**	2.6	63250	18.5	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**380.9**	2.4	60700	16.3	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**469.8**	1.9	60700	13.2	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**534.5**	1.7	57400	11.0	—	—	—	—	—	—	—	—	—	—	—	—

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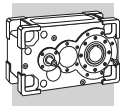

HDP 140

n_1 = 1750 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C											
					P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [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]
HDP 140 2	**8.4**	209	47750	1090	*	*	*	*	*	*	⛔	*	*	*	*	⛔
HDP 140 2	**9.3**	189	52850	1090	*	*	*	*	*	*		*	*	*	*	
HDP 140 2	**9.9**	177	50450	971	*	*	*	*	*	*		*	*	*	*	
HDP 140 2	**11.0**	160	55850	972	*	*	*	*	*	*		*	*	*	*	
HDP 140 2	**13.0**	134	57250	839	*	*	*	*	*	*		*	*	*	*	
HDP 140 2	**14.4**	122	63350	839	*	*	421	*	*	665		*	*	*	*	
HDP 140 2	**16.3**	108	65100	764	*	361	421	*	443	665		*	*	*	560	
HDP 140 2	**18.0**	97	70150	744	*	361	421	369	443	665		*	*	404	560	
HDP 140 2	**20.1**	87	61200	582	*	361	421	369	443	—		*	325	404	560	
HDP 140 2	**22.2**	79	67700	582	*	361	421	369	443	—		318	325	404	560	
HDP 140 2	**24.9**	70	71700	549	214	361	421	369	443	—		318	325	404	—	
HDP 140 3	**25.1**	70	65100	506	*	*	330	279	336	—	—	*	*	304	420	—
HDP 140 3	**27.7**	63	72050	506	*	*	330	279	336	—	—	*	*	304	420	—
HDP 140 3	**32.9**	53	73350	434	161	281	330	279	336	—	—	*	245	304	420	—
HDP 140 3	**36.4**	48	73500	393	161	281	330	279	336	—	—	264	245	304	—	—
HDP 140 3	**41.1**	43	73050	346	161	281	330	279	336	—	—	264	245	304	—	—
HDP 140 3	**45.5**	38	73500	314	161	281	—	279	—	—	—	264	245	304	—	—
HDP 140 3	**50.7**	34	67550	259	161	—	—	—	—	—	—	—	245	—	—	—
HDP 140 3	**56.2**	31	73500	255	161	—	—	—	—	—	—	—	245	—	—	—
HDP 140 3	**65.1**	26.9	74850	224	161	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**72.0**	24.3	73500	199	161	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**81.3**	21.5	74100	177	161	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**90.0**	19.4	73500	159	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**100.3**	17.4	67550	131	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**111.0**	15.8	73500	129	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**124.7**	14.0	67200	105	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**141.6**	12.4	66700	94	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**160.0**	10.9	74100	92	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**177.0**	9.9	73500	82	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**197.3**	8.9	67550	68	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**225.0**	7.8	73500	65	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**250.8**	7.0	67550	54	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**277.5**	6.3	73500	53	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**315.9**	5.5	74100	47	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**349.6**	5.0	73500	42	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**401.6**	4.4	74100	37	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**444.4**	3.9	73500	33	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**495.3**	3.5	67550	27	—	—	—	—	—	—	—	—	—	—	—	—

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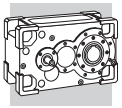

HDP 140 — n_1 = 1750 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C											
					P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [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]
HDP 140 2	**8.4**	209	47750	1090	*	*	*	*	*	*	⊖	*	*	*	*	⊖
HDP 140 2	**9.3**	189	52850	1090	*	*	*	*	*	*		*	*	*	*	
HDP 140 2	**9.9**	177	50450	971	*	*	*	*	*	*		*	*	*	*	
HDP 140 2	**11.0**	160	55850	972	*	*	*	*	*	*		*	*	*	*	
HDP 140 2	**13.0**	134	57250	839	*	*	*	*	*	*		*	*	*	*	
HDP 140 2	**14.4**	122	63350	839	*	*	*	*	*	*		*	*	*	*	
HDP 140 2	**16.3**	108	65100	764	*	*	*	*	*	*		*	*	*	*	
HDP 140 2	**18.0**	97	70150	744	*	*	*	*	*	*		*	*	*	489	
HDP 140 2	**20.1**	87	61200	582	*	259	319	231	*	410		*	*	344	489	
HDP 140 2	**22.2**	79	67700	582	*	259	319	231	278	410		*	253	344	489	
HDP 140 2	**24.9**	70	71700	549	*	259	319	231	278	410		247	253	344	489	
HDP 140 3	**25.1**	70	65100	506	*	*	224	*	*	*	364	*	*	*	*	—
HDP 140 3	**27.7**	63	72050	506	*	*	224	*	*	*	364	*	*	*	*	—
HDP 140 3	**32.9**	53	73350	434	*	191	224	*	*	303	364	*	*	*	371	—
HDP 140 3	**36.4**	48	73500	393	*	191	224	*	206	303	364	*	*	256	371	—
HDP 140 3	**41.1**	43	73050	346	*	191	224	180	206	303	—	*	*	256	—	—
HDP 140 3	**45.5**	38	73500	314	*	191	224	180	206	303	—	212	194	256	—	—
HDP 140 3	**50.7**	34	67550	259	113	191	224	180	206	—	—	212	194	256	—	—
HDP 140 3	**56.2**	31	73500	255	113	191	224	180	206	—	—	212	194	—	—	—
HDP 140 3	**65.1**	26.9	74850	224	113	191	—	180	206	—	—	212	194	—	—	—
HDP 140 3	**72.0**	24.3	73500	199	113	191	—	180	—	—	—	—	194	—	—	—
HDP 140 3	**81.3**	21.5	74100	177	113	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**90.0**	19.4	73500	159	113	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**100.3**	17.4	67550	131	113	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**111.0**	15.8	73500	129	113	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**124.7**	14.0	67200	105	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**141.6**	12.4	66700	94	78	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**160.0**	10.9	74100	92	78	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**177.0**	9.9	73500	82	78	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**197.3**	8.9	67550	68	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**225.0**	7.8	73500	65	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**250.8**	7.0	67550	54	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**277.5**	6.3	73500	53	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**315.9**	5.5	74100	47	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**349.6**	5.0	73500	42	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**401.6**	4.4	74100	37	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**444.4**	3.9	73500	33	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**495.3**	3.5	67550	27	—	—	—	—	—	—	—	—	—	—	—	—

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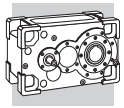

HDP 140 — n_1 = 1400 min^{-1}

					Tamb = 20°C											
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [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]
HDP 140 2	**8.4**	167	51100	933	*	*	*	*	*	*		*	*	*	*	
HDP 140 2	**9.3**	151	56500	932	*	*	*	*	*	633		*	*	*	*	
HDP 140 2	**9.9**	141	53950	831	*	*	*	*	411	633		*	*	*	528	
HDP 140 2	**11.0**	128	59700	831	*	*	*	365	411	633		*	*	373	528	
HDP 140 2	**13.0**	108	61200	718	*	339	409	365	411	633		*	*	373	528	
HDP 140 2	**14.4**	97	67750	718	*	339	409	365	411	633	⛔	*	310	373	528	⛔
HDP 140 2	**16.3**	86	69600	653	210	339	409	365	411	633		317	310	373	528	
HDP 140 2	**18.0**	78	75000	636	210	339	409	365	411	—		317	310	373	528	
HDP 140 2	**20.1**	70	65400	498	210	339	409	365	411	—		317	310	373	—	
HDP 140 2	**22.2**	63	72400	498	210	339	409	365	411	—		317	310	373	—	
HDP 140 2	**24.9**	56	71700	439	210	339	409	365	411	—		317	310	*	—	
HDP 140 3	**25.1**	56	69600	432	166	270	321	293	350	—	—	268	250	318	—	—
HDP 140 3	**27.7**	50	77050	433	166	270	321	293	350	—	—	268	250	318	—	—
HDP 140 3	**32.9**	43	77100	365	166	270	321	293	350	—	—	268	250	318	—	—
HDP 140 3	**36.4**	38	79150	338	166	270	—	293	—	—	—	268	250	318	—	—
HDP 140 3	**41.1**	34	77100	292	166	270	—	—	—	—	—	268	250	—	—	—
HDP 140 3	**45.5**	31	79150	271	166	—	—	—	—	—	—	—	250	—	—	—
HDP 140 3	**50.7**	27.6	74700	229	166	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**56.2**	24.9	79150	220	166	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**65.1**	21.5	77100	185	166	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**72.0**	19.4	79150	171	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**81.3**	17.2	77100	148	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**90.0**	15.6	79150	137	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**100.3**	14.0	74700	116	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**111.0**	12.6	79150	111	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**124.7**	11.2	71700	90	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**141.6**	9.9	71350	80	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**160.0**	8.8	77116	77	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**177.0**	7.9	79150	71	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**197.3**	7.1	74700	60	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**225.0**	6.2	79150	56	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**250.8**	5.6	74700	47	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**277.5**	5.0	79150	45	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**315.9**	4.4	77116	39	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**349.6**	4.0	79150	36	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**401.6**	3.5	77116	31	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**444.4**	3.2	79150	28	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**495.3**	2.8	74700	24	—	—	—	—	—	—	—	—	—	—	—	—

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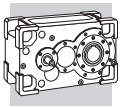

HDP 140 — n_1 = 1400 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C											
					P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [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]
HDP 140 2	**8.4**	167	51100	933	*	*	*	*	*	*		*	*	*	*	
HDP 140 2	**9.3**	151	56500	932	*	*	*	*	*	*		*	*	*	*	
HDP 140 2	**9.9**	141	53950	831	*	*	*	*	*	*		*	*	*	*	
HDP 140 2	**11.0**	128	59700	831	*	*	*	*	*	*		*	*	*	*	
HDP 140 2	**13.0**	108	61200	718	*	*	*	*	*	*		*	*	*	486	
HDP 140 2	**14.4**	97	67750	718	*	*	*	*	*	395	⛔	*	*	329	486	⛔
HDP 140 2	**16.3**	86	69600	653	135	244	296	*	276	395		*	251	329	486	
HDP 140 2	**18.0**	78	75000	636	135	244	296	235	276	395		245	251	329	486	
HDP 140 2	**20.1**	70	65400	498	135	244	296	235	276	395		245	251	329	486	
HDP 140 2	**22.2**	63	72400	498	135	244	296	235	276	395		245	251	329	486	
HDP 140 2	**24.9**	56	71700	439	135	244	296	235	276	395		245	251	329	—	
HDP 140 3	**25.1**	56	69600	432	109	185	222	*	211	309	379	211	193	261	377	—
HDP 140 3	**27.7**	50	77050	433	109	185	222	*	211	309	379	211	193	261	377	—
HDP 140 3	**32.9**	43	77100	365	109	185	222	187	211	309	—	211	193	261	—	—
HDP 140 3	**36.4**	38	79150	338	109	185	222	187	211	309	—	211	193	261	—	—
HDP 140 3	**41.1**	34	77100	292	109	185	222	187	211	—	—	211	193	261	—	—
HDP 140 3	**45.5**	31	79150	271	109	185	222	187	211	—	—	211	193	—	—	—
HDP 140 3	**50.7**	27.6	74700	229	109	185	—	187	—	—	—	—	193	—	—	—
HDP 140 3	**56.2**	24.9	79150	220	109	185	—	187	—	—	—	—	193	—	—	—
HDP 140 3	**65.1**	21.5	77100	185	109	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**72.0**	19.4	79150	171	109	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**81.3**	17.2	77100	148	109	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**90.0**	15.6	79150	137	109	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**100.3**	14.0	74700	116	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**111.0**	12.6	79150	111	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**124.7**	11.2	71700	90	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**141.6**	9.9	71350	80	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**160.0**	8.8	77116	77	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**177.0**	7.9	79150	71	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**197.3**	7.1	74700	60	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**225.0**	6.2	79150	56	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**250.8**	5.6	74700	47	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**277.5**	5.0	79150	45	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**315.9**	4.4	77116	39	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**349.6**	4.0	79150	36	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**401.6**	3.5	77116	31	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**444.4**	3.2	79150	28	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**495.3**	2.8	74700	24	—	—	—	—	—	—	—	—	—	—	—	—

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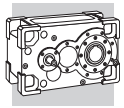

HDP 140

n_1 = 1100 min^{-1}

					Tamb = 20°C											
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [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]
HDP 140 2	**8.4**	132	54900	788	*	*	*	*	*	659		*	*	373	533	
HDP 140 2	**9.3**	119	60750	788	*	*	*	*	421	659		*	*	373	533	
HDP 140 2	**9.9**	111	58000	702	*	*	381	359	421	659		*	300	373	533	
HDP 140 2	**11.0**	100	64200	702	*	322	381	359	421	659		295	300	373	533	
HDP 140 2	**13.0**	85	65800	606	212	322	381	359	421	—		295	300	373	533	
HDP 140 2	**14.4**	76	72800	606	212	322	381	359	421	—	⛔	295	300	373	533	⛔
HDP 140 2	**16.3**	68	74850	552	212	322	381	359	421	—		295	300	373	533	
HDP 140 2	**18.0**	61	79150	527	212	322	381	359	421	—		295	300	373	—	
HDP 140 2	**20.1**	55	70350	421	212	322	381	359	—	—		295	300	373	—	
HDP 140 2	**22.2**	50	77850	421	212	322	381	359	—	—		295	300	373	—	
HDP 140 2	**24.9**	44	71700	345	212	322	—	—	—	—		295	300	—	—	
HDP 140 3	**25.1**	44	70400	344	177	271	316	304	—	—	—	279	261	329	—	—
HDP 140 3	**27.7**	40	77950	344	177	271	316	304	—	—	—	279	261	329	—	—
HDP 140 3	**32.9**	33	77100	287	177	271	—	—	—	—	—	279	261	—	—	—
HDP 140 3	**36.4**	30	79150	266	177	—	—	—	—	—	—	—	261	—	—	—
HDP 140 3	**41.1**	26.7	77100	229	177	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**45.5**	24.2	79150	213	177	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**50.7**	21.7	74700	180	177	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**56.2**	19.6	79150	173	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**65.1**	16.9	77100	145	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**72.0**	15.3	79150	135	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**81.3**	13.5	77100	116	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**90.0**	12.2	79150	108	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**100.3**	11.0	74700	91	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**111.0**	9.9	79150	87	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**124.7**	8.8	71700	70	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**141.6**	7.8	76700	68	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**160.0**	6.9	77116	60	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**177.0**	6.2	79150	56	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**197.3**	5.6	74700	47	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**225.0**	4.9	79150	44	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**250.8**	4.4	74700	37	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**277.5**	4.0	79150	36	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**315.9**	3.5	77116	30	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**349.6**	3.1	79150	28	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**401.6**	2.7	77116	24	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**444.4**	2.5	79150	22	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**495.3**	2.2	74700	18.8	—	—	—	—	—	—	—	—	—	—	—	—

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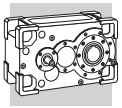

HDP 140 — n_1 = 1100 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C											
					P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [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]
HDP 140 2	**8.4**	132	54900	788	*	*	*	*	*	*		*	*	*	*	
HDP 140 2	**9.3**	119	60750	788	*	*	*	*	*	*		*	*	*	*	
HDP 140 2	**9.9**	111	58000	702	*	*	*	*	*	*		*	*	*	479	
HDP 140 2	**11.0**	100	64200	702	*	*	*	*	*	389		*	*	323	479	
HDP 140 2	**13.0**	85	65800	606	*	*	*	232	276	389		242	251	323	479	
HDP 140 2	**14.4**	76	72800	606	*	*	283	232	276	389	⛔	242	251	323	479	⛔
HDP 140 2	**16.3**	68	74850	552	150	248	283	232	276	389		242	251	323	479	
HDP 140 2	**18.0**	61	79150	527	150	248	283	232	276	389		242	251	323	479	
HDP 140 2	**20.1**	55	70350	421	150	248	283	232	276	389		242	251	323	—	
HDP 140 2	**22.2**	50	77850	421	150	248	283	232	276	389		242	251	323	—	
HDP 140 2	**24.9**	44	71700	345	150	248	283	232	276	—		242	251	323	—	
HDP 140 3	**25.1**	44	70400	344	119	188	221	190	221	319	—	221	203	271	—	—
HDP 140 3	**27.7**	40	77950	344	119	188	221	190	221	319	—	221	203	271	—	—
HDP 140 3	**32.9**	33	77100	287	119	188	221	190	221	—	—	221	203	271	—	—
HDP 140 3	**36.4**	30	79150	266	119	188	221	190	221	—	—	221	203	—	—	—
HDP 140 3	**41.1**	26.7	77100	229	119	188	221	190	221	—	—	221	203	—	—	—
HDP 140 3	**45.5**	24.2	79150	213	119	188	—	190	—	—	—	—	203	—	—	—
HDP 140 3	**50.7**	21.7	74700	180	119	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**56.2**	19.6	79150	173	119	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**65.1**	16.9	77100	145	119	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**72.0**	15.3	79150	135	119	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**81.3**	13.5	77100	116	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**90.0**	12.2	79150	108	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**100.3**	11.0	74700	91	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**111.0**	9.9	79150	87	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**124.7**	8.8	71700	70	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**141.6**	7.8	76700	68	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**160.0**	6.9	77116	60	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**177.0**	6.2	79150	56	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**197.3**	5.6	74700	47	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**225.0**	4.9	79150	44	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**250.8**	4.4	74700	37	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**277.5**	4.0	79150	36	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**315.9**	3.5	77116	30	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**349.6**	3.1	79150	28	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**401.6**	2.7	77116	24	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**444.4**	2.5	79150	22	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**495.3**	2.2	74700	18.8	—	—	—	—	—	—	—	—	—	—	—	—

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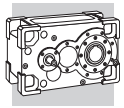

HDP 140 — n_1 = 900 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C											
					P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [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]
HDP 140 2	**8.4**	108	58300	684	*	*	*	*	438	681		292	301	395	555	
HDP 140 2	**9.3**	97	64550	685	*	*	*	365	438	681		292	301	395	555	
HDP 140 2	**9.9**	91	61600	610	*	306	356	365	438	—		292	301	395	555	
HDP 140 2	**11.0**	82	68200	610	206	306	356	365	438	—		292	301	395	555	
HDP 140 2	**13.0**	69	69900	527	206	306	356	365	438	—		292	301	395	—	
HDP 140 2	**14.4**	63	77350	527	206	306	356	365	438	—	⛔	292	301	395	—	⛔
HDP 140 2	**16.3**	55	77116	465	206	306	356	365	438	—		292	301	395	—	
HDP 140 2	**18.0**	50	79150	431	206	306	356	365	—	—		292	301	395	—	
HDP 140 2	**20.1**	45	74700	365	206	306	356	365	—	—		292	301	—	—	
HDP 140 2	**22.2**	41	79150	350	206	306	—	—	—	—		292	301	—	—	
HDP 140 2	**24.9**	36	71700	282	206	—	—	—	—	—		—	—	—	—	
HDP 140 3	**25.1**	36	70400	281	184	257	—	—	—	—	—	—	268	—	—	—
HDP 140 3	**27.7**	32	77950	281	184	257	—	—	—	—	—	—	268	—	—	—
HDP 140 3	**32.9**	27.3	77100	235	184	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**36.4**	24.7	79150	218	184	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**41.1**	21.9	77100	188	184	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**45.5**	19.8	79150	174	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**50.7**	17.7	74700	147	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**56.2**	16.0	79150	141	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**65.1**	13.8	77100	119	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**72.0**	12.5	79150	110	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**81.3**	11.1	77100	95	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**90.0**	10.0	79150	88	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**100.3**	9.0	74700	75	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**111.0**	8.1	79150	71	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**124.7**	7.2	71700	58	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**141.6**	6.4	79150	57	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**160.0**	5.6	77116	49	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**177.0**	5.1	79150	46	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**197.3**	4.6	74700	39	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**225.0**	4.0	79150	36	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**250.8**	3.6	74700	30	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**277.5**	3.2	79150	29	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**315.9**	2.8	77116	25	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**349.6**	2.6	79150	23	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**401.6**	2.2	77116	19.6	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**444.4**	2.0	79150	18.2	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**495.3**	1.8	74700	15.4	—	—	—	—	—	—	—	—	—	—	—	—

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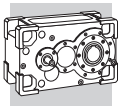

HDP 140 — n_1 = 900 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 40°C											
		[min^{-1}]	[Nm]	[kW]	P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [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]
HDP 140 2	**8.4**	108	58300	684	*	*	*	*	*	387		*	*	*	481	
HDP 140 2	**9.3**	97	64550	685	*	*	*	*	*	387		*	*	352	481	
HDP 140 2	**9.9**	91	61600	610	*	*	*	*	266	387		*	243	352	481	
HDP 140 2	**11.0**	82	68200	610	*	*	*	228	266	387		238	243	352	481	
HDP 140 2	**13.0**	69	69900	527	148	224	261	228	266	387		238	243	352	481	
HDP 140 2	**14.4**	63	77350	527	148	224	261	228	266	387	⛔	238	243	352	481	⛔
HDP 140 2	**16.3**	55	77116	465	148	224	261	228	266	387		238	243	352	—	
HDP 140 2	**18.0**	50	79150	431	148	224	261	228	266	387		238	243	352	—	
HDP 140 2	**20.1**	45	74700	365	148	224	261	228	266	—		238	243	352	—	
HDP 140 2	**22.2**	41	79150	350	148	224	261	228	266	—		238	243	—	—	
HDP 140 2	**24.9**	36	71700	282	148	224	261	228	266	—		238	243	—	—	
HDP 140 3	**25.1**	36	70400	281	126	179	205	197	228	—	—	228	210	278	—	—
HDP 140 3	**27.7**	32	77950	281	126	179	205	197	228	—	—	228	210	278	—	—
HDP 140 3	**32.9**	27.3	77100	235	126	179	205	197	228	—	—	228	210	—	—	—
HDP 140 3	**36.4**	24.7	79150	218	126	179	205	197	—	—	—	—	210	—	—	—
HDP 140 3	**41.1**	21.9	77100	188	126	179	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**45.5**	19.8	79150	174	126	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**50.7**	17.7	74700	147	126	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**56.2**	16.0	79150	141	126	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**65.1**	13.8	77100	119	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**72.0**	12.5	79150	110	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**81.3**	11.1	77100	95	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**90.0**	10.0	79150	88	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**100.3**	9.0	74700	75	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**111.0**	8.1	79150	71	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**124.7**	7.2	71700	58	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**141.6**	6.4	79150	57	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**160.0**	5.6	77116	49	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**177.0**	5.1	79150	46	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**197.3**	4.6	74700	39	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**225.0**	4.0	79150	36	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**250.8**	3.6	74700	30	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**277.5**	3.2	79150	29	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**315.9**	2.8	77116	25	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**349.6**	2.6	79150	23	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**401.6**	2.2	77116	19.6	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**444.4**	2.0	79150	18.2	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**495.3**	1.8	74700	15.4	—	—	—	—	—	—	—	—	—	—	—	—

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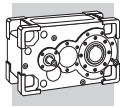

HDP 150 — n_1 = 1750 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C												
					P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [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]
HDP 150 2	**7.9**	221	67450	1628	*	*	*	*	*	*	*		*	*	*	*	
HDP 150 2	**9.3**	189	79000	1627	*	*	*	*	*	*	*		*	*	*	*	
HDP 150 2	**10.1**	173	83950	1588	*	*	*	*	*	*	*		*	*	*	*	
HDP 150 2	**11.1**	158	83250	1436	*	*	*	*	*	*	*		*	*	*	*	
HDP 150 2	**13.0**	135	90950	1339	*	*	*	*	*	*	*	⛔	*	*	*	*	⛔
HDP 150 2	**14.1**	124	93050	1258	*	*	*	*	*	*	*		*	*	*	860	
HDP 150 2	**15.4**	114	88250	1096	*	444	537	*	482	725	900		*	439	599	860	
HDP 150 2	**18.0**	97	101200	1072	236	444	537	*	482	725	900		*	439	599	860	
HDP 150 2	**19.6**	89	103500	1007	236	444	537	*	482	725	900		*	439	599	860	
HDP 150 3	**21.5**	81	79400	719	*	*	*	*	*	*	*	—	*	*	*	655	—
HDP 150 3	**25.2**	69	93050	719	*	*	380	*	*	*	*	—	*	*	*	655	—
HDP 150 3	**27.4**	64	101300	719	170	317	380	*	*	*	656	—	*	*	*	655	—
HDP 150 3	**29.9**	59	106550	694	170	317	380	*	367	543	656	—	267	335	451	655	—
HDP 150 3	**35.0**	50	106450	592	170	317	380	*	367	543	—	—	267	335	451	—	—
HDP 150 3	**38.1**	46	104350	533	170	317	380	313	367	—	—	—	267	335	451	—	—
HDP 150 3	**43.5**	40	106550	477	170	317	380	313	367	—	—	—	267	335	451	—	—
HDP 150 3	**50.9**	34	106450	407	170	317	380	313	367	—	—	—	267	335	—	—	—
HDP 150 3	**55.5**	32	104350	366	170	317	—	313	—	—	—	—	267	335	—	—	—
HDP 150 3	**60.4**	29.0	106550	344	170	317	—	313	—	—	—	—	267	335	—	—	—
HDP 150 3	**70.8**	24.7	106450	293	170	—	—	—	—	—	—	—	267	—	—	—	—
HDP 150 3	**77.0**	22.7	104350	264	170	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**89.0**	19.7	100200	224	159	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**104.3**	16.8	101300	193	159	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**113.6**	15.4	104350	183	159	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**123.6**	14.2	106550	171	159	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**144.9**	12.1	106450	146	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**157.8**	11.1	104350	131	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**170.9**	10.2	104100	121	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**200.3**	8.7	106450	106	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**218.1**	8.0	104350	95	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**237.5**	7.4	106550	89	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**278.3**	6.3	106450	76	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**303.1**	5.8	104350	68	—	—	—	—	—	—	—	—	—	—	—	—	—

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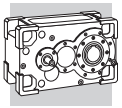

HDP 150 — n_1 = 1750 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C												
					P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [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]
HDP 150 2	**7.9**	221	67450	1628	*	*	*	*	*	*	*		*	*	*	*	
HDP 150 2	**9.3**	189	79000	1627	*	*	*	*	*	*	*		*	*	*	*	
HDP 150 2	**10.1**	173	83950	1588	*	*	*	*	*	*	*		*	*	*	*	
HDP 150 2	**11.1**	158	83250	1436	*	*	*	*	*	*	*		*	*	*	*	
HDP 150 2	**13.0**	135	90950	1339	*	*	*	*	*	*	*	⊖	*	*	*	*	⊖
HDP 150 2	**14.1**	124	93050	1258	*	*	*	*	*	*	*		*	*	*	*	
HDP 150 2	**15.4**	114	88250	1096	*	*	*	*	*	408	505		*	*	502	808	
HDP 150 2	**18.0**	97	101200	1072	*	*	*	*	*	408	505		*	*	502	808	
HDP 150 2	**19.6**	89	103500	1007	*	*	370	*	*	408	505		*	*	502	808	
HDP 150 3	**21.5**	81	79400	719	*	*	*	*	*	*	*	*	*	*	*	*	—
HDP 150 3	**25.2**	69	93050	719	*	*	*	*	*	*	*	*	*	*	*	*	—
HDP 150 3	**27.4**	64	101300	719	*	*	*	*	*	*	*	*	*	*	*	*	—
HDP 150 3	**29.9**	59	106550	694	*	*	*	*	*	*	*	*	*	*	*	*	—
HDP 150 3	**35.0**	50	106450	592	*	*	*	*	*	*	*	411	*	*	*	601	—
HDP 150 3	**38.1**	46	104350	533	*	221	268	*	*	*	*	411	*	*	381	—	—
HDP 150 3	**43.5**	40	106550	477	150	221	268	221	252	350	420	411	234	302	381	—	—
HDP 150 3	**50.9**	34	106450	407	150	221	268	221	252	350	—	—	234	302	381	—	—
HDP 150 3	**55.5**	32	104350	366	150	221	268	221	252	350	—	—	234	302	—	—	—
HDP 150 3	**60.4**	29.0	106550	344	150	221	268	221	252	—	—	—	234	302	—	—	—
HDP 150 3	**70.8**	24.7	106450	293	150	221	268	221	252	—	—	—	234	—	—	—	—
HDP 150 3	**77.0**	22.7	104350	264	150	221	—	221	252	—	—	—	234	—	—	—	—
HDP 150 4	**89.0**	19.7	100200	224	103	185	—	158	183	—	—	—	169	—	—	—	—
HDP 150 4	**104.3**	16.8	101300	193	103	185	—	158	183	—	—	—	169	—	—	—	—
HDP 150 4	**113.6**	15.4	104350	183	103	—	—	158	—	—	—	—	169	—	—	—	—
HDP 150 4	**123.6**	14.2	106550	171	103	—	—	158	—	—	—	—	169	—	—	—	—
HDP 150 4	**144.9**	12.1	106450	146	103	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**157.8**	11.1	104350	131	103	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**170.9**	10.2	104100	121	103	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**200.3**	8.7	106450	106	103	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**218.1**	8.0	104350	95	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**237.5**	7.4	106550	89	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**278.3**	6.3	106450	76	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**303.1**	5.8	104350	68	—	—	—	—	—	—	—	—	—	—	—	—	—

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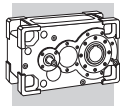

HDP 150 — n_1 = 1400 min^{-1}

					Tamb = 20°C												
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [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]
HDP 150 2	**7.9**	177	72100	1392	*	*	*	*	*	*	*		*	*	*	*	
HDP 150 2	**9.3**	151	84500	1392	*	*	*	*	*	*	*		*	*	*	*	
HDP 150 2	**10.1**	139	89750	1358	*	*	*	*	*	*	*		*	*	*	833	
HDP 150 2	**11.1**	127	89000	1228	*	*	*	*	*	*	882		*	*	581	833	
HDP 150 2	**13.0**	108	97250	1145	220	407	488	*	*	716	882	⛔	*	*	581	833	⛔
HDP 150 2	**14.1**	99	99500	1076	220	407	488	*	477	716	882		*	434	581	833	
HDP 150 2	**15.4**	91	94350	937	220	407	488	433	477	716	882		374	434	581	833	
HDP 150 2	**18.0**	78	106450	902	220	407	488	433	477	716	882		374	434	581	833	
HDP 150 2	**19.6**	71	104350	812	220	407	488	433	477	716	—		374	434	581	—	
HDP 150 3	**21.5**	65	84900	615	190	318	374	317	374	550	—	—	274	342	458	—	—
HDP 150 3	**25.2**	56	99450	615	190	318	374	317	374	550	—	—	274	342	458	—	—
HDP 150 3	**27.4**	51	104350	592	190	318	374	317	374	550	—	—	274	342	458	—	—
HDP 150 3	**29.9**	47	106550	555	190	318	374	317	374	—	—	—	274	342	458	—	—
HDP 150 3	**35.0**	40	106450	473	190	318	374	317	374	—	—	—	274	342	—	—	—
HDP 150 3	**38.1**	37	104350	426	190	318	374	317	374	—	—	—	274	342	—	—	—
HDP 150 3	**43.5**	32	106550	382	190	318	—	317	—	—	—	—	274	—	—	—	—
HDP 150 3	**50.9**	27.5	106450	326	190	—	—	—	—	—	—	—	274	—	—	—	—
HDP 150 3	**55.5**	25.2	104350	293	190	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 3	**60.4**	23.2	106550	275	190	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 3	**70.8**	19.8	106450	234	190	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 3	**77.0**	18.2	104350	211	190	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**89.0**	15.7	106550	190	180	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**104.3**	13.4	106450	162	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**113.6**	12.3	104350	146	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**123.6**	11.3	106550	137	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**144.9**	9.7	106450	117	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**157.8**	8.9	104350	105	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**170.9**	8.2	106550	99	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**200.3**	7.0	106450	84	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**218.1**	6.4	104350	76	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**237.5**	5.9	106550	71	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**278.3**	5.0	106450	61	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**303.1**	4.6	104350	55	—	—	—	—	—	—	—	—	—	—	—	—	—

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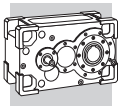

HDP 150 — n_1 = 1400 min^{-1}

					Tamb = 40°C												
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	$P_{TFANL\ /\ R}$ [kW]	P_{TFANLR} [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]
HDP 150 2	**7.9**	177	72100	1392	*	*	*	*	*	*	*		*	*	*	*	
HDP 150 2	**9.3**	151	84500	1392	*	*	*	*	*	*	*		*	*	*	*	
HDP 150 2	**10.1**	139	89750	1358	*	*	*	*	*	*	*		*	*	*	*	
HDP 150 2	**11.1**	127	89000	1228	*	*	*	*	*	*	*		*	*	*	*	
HDP 150 2	**13.0**	108	97250	1145	*	*	*	*	*	*	496	⛔	*	*	*	800	⛔
HDP 150 2	**14.1**	99	99500	1076	*	*	*	*	*	404	496		*	*	498	800	
HDP 150 2	**15.4**	91	94350	937	162	299	359	*	*	404	496		*	372	498	800	
HDP 150 2	**18.0**	78	106450	902	162	299	359	*	*	404	496		*	372	498	800	
HDP 150 2	**19.6**	71	104350	812	162	299	359	*	*	404	496		*	372	498	*	
HDP 150 3	**21.5**	65	84900	615	*	210	251	*	*	316	386	416	*	268	384	606	—
HDP 150 3	**25.2**	56	99450	615	*	210	251	*	*	316	386	416	*	268	384	606	—
HDP 150 3	**27.4**	51	104350	592	*	210	251	*	*	316	386	416	*	268	384	—	—
HDP 150 3	**29.9**	47	106550	555	130	210	251	*	232	316	386	416	214	268	384	—	—
HDP 150 3	**35.0**	40	106450	473	130	210	251	203	232	316	386	416	214	268	384	—	—
HDP 150 3	**38.1**	37	104350	426	130	210	251	203	232	316	386	—	214	268	384	—	—
HDP 150 3	**43.5**	32	106550	382	130	210	251	203	232	316	—	—	214	268	—	—	—
HDP 150 3	**50.9**	27.5	106450	326	130	210	251	203	232	—	—	—	214	268	—	—	—
HDP 150 3	**55.5**	25.2	104350	293	130	210	251	203	232	—	—	—	214	—	—	—	—
HDP 150 3	**60.4**	23.2	106550	275	130	210	251	203	232	—	—	—	214	—	—	—	—
HDP 150 3	**70.8**	19.8	106450	234	130	210	—	203	232	—	—	—	—	—	—	—	—
HDP 150 3	**77.0**	18.2	104350	211	130	—	—	203	—	—	—	—	—	—	—	—	—
HDP 150 4	**89.0**	15.7	106550	190	114	—	—	169	—	—	—	—	—	—	—	—	—
HDP 150 4	**104.3**	13.4	106450	162	114	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**113.6**	12.3	104350	146	114	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**123.6**	11.3	106550	137	114	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**144.9**	9.7	106450	117	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**157.8**	8.9	104350	105	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**170.9**	8.2	106550	99	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**200.3**	7.0	106450	84	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**218.1**	6.4	104350	76	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**237.5**	5.9	106550	71	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**278.3**	5.0	106450	61	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**303.1**	4.6	104350	55	—	—	—	—	—	—	—	—	—	—	—	—	—

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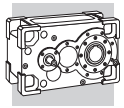

HDP 150 — n_1 = 1100 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C												
					P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [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]
HDP 150 2	**7.9**	139	77500	1176	*	*	*	*	*	*	*		*	*	*	862	
HDP 150 2	**9.3**	119	90850	1176	*	*	*	*	*	*	868		*	*	*	862	
HDP 150 2	**10.1**	109	96500	1147	*	*	*	*	*	698	868		*	*	572	862	
HDP 150 2	**11.1**	99	95700	1038	243	411	484	*	496	698	868		*	453	572	862	
HDP 150 2	**13.0**	85	104550	967	243	411	484	425	496	698	868	⛔	366	453	572	862	⛔
HDP 150 2	**14.1**	78	104350	887	243	411	484	425	496	698	868		366	453	572	862	
HDP 150 2	**15.4**	72	101400	791	243	411	484	425	496	698	—		366	453	572	—	
HDP 150 2	**18.0**	61	106450	709	243	411	484	425	496	698	—		366	453	572	—	
HDP 150 2	**19.6**	56	104350	638	243	411	484	425	496	—	—		366	453	572	—	
HDP 150 3	**21.5**	51	91250	519	208	323	374	335	392	—	—	—	292	360	476	—	—
HDP 150 3	**25.2**	44	106450	517	208	323	374	335	392	—	—	—	292	360	476	—	—
HDP 150 3	**27.4**	40	104350	465	208	323	374	335	392	—	—	—	292	360	—	—	—
HDP 150 3	**29.9**	37	106550	436	208	323	374	335	392	—	—	—	292	360	—	—	—
HDP 150 3	**35.0**	31	106450	372	208	323	—	335	—	—	—	—	292	360	—	—	—
HDP 150 3	**38.1**	28.8	104350	335	208	323	—	—	—	—	—	—	292	—	—	—	—
HDP 150 3	**43.5**	25.3	106550	300	208	—	—	—	—	—	—	—	292	—	—	—	—
HDP 150 3	**50.9**	21.6	106450	256	208	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 3	**55.5**	19.8	104350	230	208	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 3	**60.4**	18.2	106550	216	208	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 3	**70.8**	15.5	106450	184	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 3	**77.0**	14.3	104350	166	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**89.0**	12.4	106550	150	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**104.3**	10.5	106450	127	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**113.6**	9.7	104350	115	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**123.6**	8.9	106550	108	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**144.9**	7.6	106450	92	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**157.8**	7.0	104350	83	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**170.9**	6.4	106550	78	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**200.3**	5.5	106450	66	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**218.1**	5.0	104350	60	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**237.5**	4.6	106550	56	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**278.3**	4.0	106450	48	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**303.1**	3.6	104350	43	—	—	—	—	—	—	—	—	—	—	—	—	—

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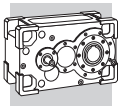

HDP 150 — n_1 = 1100 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C												
					P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [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]
HDP 150 2	**7.9**	139	77500	1176	*	*	*	*	*	*	*		*	*	*	*	
HDP 150 2	**9.3**	119	90850	1176	*	*	*	*	*	*	*		*	*	*	*	
HDP 150 2	**10.1**	109	96500	1147	*	*	*	*	*	*	*		*	*	*	781	
HDP 150 2	**11.1**	99	95700	1038	*	*	*	*	*	*	*		*	*	517	781	
HDP 150 2	**13.0**	85	104550	967	*	*	331	*	*	*	527	⊖	*	*	517	781	⊖
HDP 150 2	**14.1**	78	104350	887	*	280	331	*	*	433	527		*	367	517	781	
HDP 150 2	**15.4**	72	101400	791	184	280	331	281	325	433	527		300	367	517	781	
HDP 150 2	**18.0**	61	106450	709	184	280	331	281	325	433	527		300	367	517	—	
HDP 150 2	**19.6**	56	104350	638	184	280	331	281	325	433	527		300	367	517	—	
HDP 150 3	**21.5**	51	91250	519	135	220	256	206	237	335	405	435	219	287	403	—	—
HDP 150 3	**25.2**	44	106450	517	135	220	256	206	237	335	405	435	219	287	403	—	—
HDP 150 3	**27.4**	40	104350	465	135	220	256	206	237	335	405	435	219	287	403	—	—
HDP 150 3	**29.9**	37	106550	436	135	220	256	206	237	335	405	435	219	287	403	—	—
HDP 150 3	**35.0**	31	106450	372	135	220	256	206	237	335	—	—	219	287	—	—	—
HDP 150 3	**38.1**	28.8	104350	335	135	220	256	206	237	335	—	—	219	287	—	—	—
HDP 150 3	**43.5**	25.3	106550	300	135	220	256	206	237	—	—	—	219	287	—	—	—
HDP 150 3	**50.9**	21.6	106450	256	135	220	256	206	237	—	—	—	219	—	—	—	—
HDP 150 3	**55.5**	19.8	104350	230	135	220	—	206	—	—	—	—	219	—	—	—	—
HDP 150 3	**60.4**	18.2	106550	216	135	—	—	206	—	—	—	—	—	—	—	—	—
HDP 150 3	**70.8**	15.5	106450	184	135	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 3	**77.0**	14.3	104350	166	135	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**89.0**	12.4	106550	150	123	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**104.3**	10.5	106450	127	123	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**113.6**	9.7	104350	115	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**123.6**	8.9	106550	108	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**144.9**	7.6	106450	92	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**157.8**	7.0	104350	83	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**170.9**	6.4	106550	78	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**200.3**	5.5	106450	66	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**218.1**	5.0	104350	60	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**237.5**	4.6	106550	56	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**278.3**	4.0	106450	48	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**303.1**	3.6	104350	43	—	—	—	—	—	—	—	—	—	—	—	—	—

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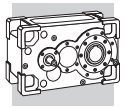

HDP 150 — n_1 = 900 min^{-1}

					Tamb = 20°C												
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [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]
HDP 150 2	**7.9**	114	82350	1022	*	*	*	*	*	714	889		*	*	*	894	
HDP 150 2	**9.3**	97	96450	1022	*	*	*	*	480	714	889		*	*	597	894	
HDP 150 2	**10.1**	89	102500	997	232	*	*	407	480	714	889		348	442	597	894	
HDP 150 2	**11.1**	81	101650	902	232	*	*	407	480	714	889		348	442	597	894	
HDP 150 2	**13.0**	69	106450	806	232	402	459	407	480	714	—	⛔	348	442	597	—	⛔
HDP 150 2	**14.1**	64	104350	725	232	402	459	407	480	714	—		348	442	597	—	
HDP 150 2	**15.4**	59	106550	680	232	402	459	407	480	—	—		348	442	597	—	
HDP 150 2	**18.0**	50	106450	580	232	402	459	407	480	—	—		348	442	—	—	
HDP 150 2	**19.6**	46	104350	522	232	402	459	407	480	—	—		348	442	—	—	
HDP 150 3	**21.5**	42	96900	451	221	311	350	348	405	—	—	—	305	373	—	—	—
HDP 150 3	**25.2**	36	106450	423	221	311	350	348	405	—	—	—	305	373	—	—	—
HDP 150 3	**27.4**	33	104350	381	221	311	350	348	—	—	—	—	305	373	—	—	—
HDP 150 3	**29.9**	30	106550	357	221	311	350	348	—	—	—	—	305	—	—	—	—
HDP 150 3	**35.0**	25.7	106450	304	221	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 3	**38.1**	23.6	104350	274	221	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 3	**43.5**	20.7	106550	245	221	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 3	**50.9**	17.7	106450	209	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 3	**55.5**	16.2	104350	188	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 3	**60.4**	14.9	106550	177	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 3	**70.8**	12.7	106450	151	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 3	**77.0**	11.7	104350	136	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**89.0**	10.1	106550	122	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**104.3**	8.6	106450	104	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**113.6**	7.9	104350	94	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**123.6**	7.3	106550	88	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**144.9**	6.2	106450	75	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**157.8**	5.7	104350	68	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**170.9**	5.3	106550	64	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**200.3**	4.5	106450	54	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**218.1**	4.1	104350	49	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**237.5**	3.8	106550	46	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**278.3**	3.2	106450	39	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**303.1**	3.0	104350	35	—	—	—	—	—	—	—	—	—	—	—	—	—

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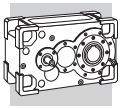

HDP 150 — n_1 = 900 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C												
					P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [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]
HDP 150 2	**7.9**	114	82350	1022	*	*	*	*	*	*	*		*	*	*	*	
HDP 150 2	**9.3**	97	96450	1022	*	*	*	*	*	*	504		*	*	*	*	
HDP 150 2	**10.1**	89	102500	997	*	*	273	*	*	411	504		*	*	*	841	
HDP 150 2	**11.1**	81	101650	902	*	265	273	*	310	411	504		*	349	539	841	
HDP 150 2	**13.0**	69	106450	806	174	265	273	271	310	411	504	⛔	*	349	539	—	⛔
HDP 150 2	**14.1**	64	104350	725	174	265	273	271	310	411	504		293	349	539	—	
HDP 150 2	**15.4**	59	106550	680	174	265	273	271	310	411	504		293	349	539	—	
HDP 150 2	**18.0**	50	106450	580	174	265	273	271	310	411	504		293	349	539	—	
HDP 150 2	**19.6**	46	104350	522	174	265	273	271	310	411	504		293	349	—	—	
HDP 150 3	**21.5**	42	96900	451	147	213	241	218	249	347	417	447	231	299	415	—	—
HDP 150 3	**25.2**	36	106450	423	147	213	241	218	249	347	417	—	231	299	415	—	—
HDP 150 3	**27.4**	33	104350	381	147	213	241	218	249	347	—	—	231	299	—	—	—
HDP 150 3	**29.9**	30	106550	357	147	213	241	218	249	347	—	—	231	299	—	—	—
HDP 150 3	**35.0**	25.7	106450	304	147	213	241	218	249	—	—	—	231	299	—	—	—
HDP 150 3	**38.1**	23.6	104350	274	147	213	241	218	249	—	—	—	231	—	—	—	—
HDP 150 3	**43.5**	20.7	106550	245	147	213	241	218	—	—	—	—	231	—	—	—	—
HDP 150 3	**50.9**	17.7	106450	209	147	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 3	**55.5**	16.2	104350	188	147	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 3	**60.4**	14.9	106550	177	147	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 3	**70.8**	12.7	106450	151	147	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 3	**77.0**	11.7	104350	136	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**89.0**	10.1	106550	122	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**104.3**	8.6	106450	104	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**113.6**	7.9	104350	94	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**123.6**	7.3	106550	88	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**144.9**	6.2	106450	75	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**157.8**	5.7	104350	68	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**170.9**	5.3	106550	64	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**200.3**	4.5	106450	54	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**218.1**	4.1	104350	49	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**237.5**	3.8	106550	46	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**278.3**	3.2	106450	39	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**303.1**	3.0	104350	35	—	—	—	—	—	—	—	—	—	—	—	—	—

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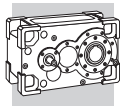

HDP 160 — n_1 = 1750 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C												
					P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [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]
HDP 160 2	**9.0**	195	76600	1628	*	*	*	*	*	*	*	⊖	*	*	*	*	⊖
HDP 160 2	**10.5**	167	89400	1628	*	*	*	*	*	*	*		*	*	*	*	
HDP 160 2	**11.4**	154	94700	1587	*	*	*	*	*	*	*		*	*	*	*	
HDP 160 2	**12.6**	139	92350	1403	*	*	*	*	*	*	*		*	*	*	*	
HDP 160 2	**14.7**	119	100150	1303	*	*	*	*	*	*	*		*	*	*	*	
HDP 160 2	**15.9**	110	102300	1225	*	*	*	*	*	690	865		*	*	*	*	
HDP 160 2	**17.5**	100	100200	1095	240	455	548	*	493	690	865		*	*	610	916	
HDP 160 2	**20.4**	86	111450	1044	240	455	548	425	493	690	865		*	*	610	916	
HDP 160 2	**22.1**	79	113750	980	240	455	548	425	493	690	865		*	*	610	916	
HDP 160 3	**24.4**	72	90150	719	*	*	*	*	*	*	*	—	*	*	*	*	—
HDP 160 3	**28.5**	61	105250	719	*	*	*	*	*	*	662	—	*	*	*	671	—
HDP 160 3	**31.0**	56	114400	719	*	*	*	*	*	*	662	—	*	*	*	671	—
HDP 160 3	**33.9**	52	122050	700	*	342	407	*	379	555	662	—	*	*	463	671	—
HDP 160 3	**39.6**	44	133000	654	*	342	407	325	379	555	—	—	282	350	463	—	—
HDP 160 3	**43.1**	41	133700	605	200	342	407	325	379	555	—	—	282	350	463	—	—
HDP 160 3	**49.4**	35	121550	480	200	342	407	325	379	—	—	—	282	350	463	—	—
HDP 160 3	**57.6**	30	131850	446	200	342	407	325	379	—	—	—	282	350	—	—	—
HDP 160 3	**62.6**	28.0	133700	416	200	342	407	325	379	—	—	—	282	350	—	—	—
HDP 160 3	**68.6**	25.5	130400	370	200	342	—	325	—	—	—	—	282	350	—	—	—
HDP 160 3	**80.0**	21.9	133000	324	200	—	—	—	—	—	—	—	282	—	—	—	—
HDP 160 3	**87.0**	20.1	133700	299	200	—	—	—	—	—	—	—	282	—	—	—	—
HDP 160 4	**101.1**	17.3	113800	224	171	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**117.9**	14.8	132850	224	171	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**128.2**	13.7	124550	193	171	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**140.4**	12.5	130400	185	171	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**163.9**	10.7	133000	161	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**178.1**	9.8	133700	149	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**194.1**	9.0	118250	121	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**226.6**	7.7	133000	117	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**246.3**	7.1	133700	108	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**269.7**	6.5	130400	96	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**314.8**	5.6	133000	84	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**342.2**	5.1	133700	78	—	—	—	—	—	—	—	—	—	—	—	—	—

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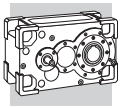

HDP 160 — n_1 = 1750 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C												
					P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [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]
HDP 160 2	**9.0**	195	76600	1628	*	*	*	*	*	*	*	⊖	*	*	*	*	⊖
HDP 160 2	**10.5**	167	89400	1628	*	*	*	*	*	*	*		*	*	*	*	
HDP 160 2	**11.4**	154	94700	1587	*	*	*	*	*	*	*		*	*	*	*	
HDP 160 2	**12.6**	139	92350	1403	*	*	*	*	*	*	*		*	*	*	*	
HDP 160 2	**14.7**	119	100150	1303	*	*	*	*	*	*	*		*	*	*	*	
HDP 160 2	**15.9**	110	102300	1225	*	*	*	*	*	*	*		*	*	*	*	
HDP 160 2	**17.5**	100	100200	1095	*	*	*	*	*	*	511		*	*	*	814	
HDP 160 2	**20.4**	86	111450	1044	*	*	373	*	*	423	511		*	*	517	814	
HDP 160 2	**22.1**	79	113750	980	*	309	373	*	*	423	511		*	*	517	814	
HDP 160 3	**24.4**	72	90150	719	*	*	*	*	*	*	*	*	*	*	*	*	—
HDP 160 3	**28.5**	61	105250	719	*	*	*	*	*	*	*	*	*	*	*	*	—
HDP 160 3	**31.0**	56	114400	719	*	*	*	*	*	*	*	*	*	*	*	*	—
HDP 160 3	**33.9**	52	122050	700	*	*	*	*	*	*	*	417	*	*	*	607	—
HDP 160 3	**39.6**	44	133000	654	*	225	272	*	*	*	*	417	*	*	*	607	—
HDP 160 3	**43.1**	41	133700	605	*	225	272	*	*	*	392	417	*	*	390	—	—
HDP 160 3	**49.4**	35	121550	480	160	225	272	231	262	360	392	417	244	312	390	—	—
HDP 160 3	**57.6**	30	131850	446	160	225	272	231	262	360	392	417	244	312	390	—	—
HDP 160 3	**62.6**	28.0	133700	416	160	225	272	231	262	360	392	—	244	312	390	—	—
HDP 160 3	**68.6**	25.5	130400	370	160	225	272	231	262	360	—	—	244	312	—	—	—
HDP 160 3	**80.0**	21.9	133000	324	160	225	272	231	262	—	—	—	244	312	—	—	—
HDP 160 3	**87.0**	20.1	133700	299	160	225	272	231	262	—	—	—	244	—	—	—	—
HDP 160 4	**101.1**	17.3	113800	224	111	193	—	166	191	—	—	—	177	—	—	—	—
HDP 160 4	**117.9**	14.8	132850	224	111	193	—	166	191	—	—	—	177	—	—	—	—
HDP 160 4	**128.2**	13.7	124550	193	111	193	—	166	191	—	—	—	177	—	—	—	—
HDP 160 4	**140.4**	12.5	130400	185	111	—	—	166	—	—	—	—	177	—	—	—	—
HDP 160 4	**163.9**	10.7	133000	161	111	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**178.1**	9.8	133700	149	111	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**194.1**	9.0	118250	121	111	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**226.6**	7.7	133000	117	111	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**246.3**	7.1	133700	108	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**269.7**	6.5	130400	96	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**314.8**	5.6	133000	84	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**342.2**	5.1	133700	78	—	—	—	—	—	—	—	—	—	—	—	—	—

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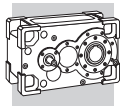

HDP 160 — n_1 = 1400 min^{-1}

					Tamb = 20°C												
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [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]
HDP 160 2	**9.0**	156	81900	1393	*	*	*	*	*	*	*		*	*	*	*	
HDP 160 2	**10.5**	134	95600	1393	*	*	*	*	*	*	*		*	*	*	*	
HDP 160 2	**11.4**	123	101250	1357	*	*	*	*	*	*	*		*	*	*	*	
HDP 160 2	**12.6**	111	98750	1200	*	*	*	*	*	717	892		*	*	*	*	
HDP 160 2	**14.7**	95	107100	1115	*	*	*	*	485	717	892	⛔	*	*	*	908	⛔
HDP 160 2	**15.9**	88	109350	1047	237	424	505	412	485	717	892		*	*	607	908	
HDP 160 2	**17.5**	80	107150	937	237	424	505	412	485	717	892		388	482	607	908	
HDP 160 2	**20.4**	69	119150	893	237	424	505	412	485	717	892		388	482	607	908	
HDP 160 2	**22.1**	63	121600	838	237	424	505	412	485	717	892		388	482	607	908	
HDP 160 3	**24.4**	57	96400	615	202	330	386	329	386	562	—	—	286	354	470	—	—
HDP 160 3	**28.5**	49	112500	615	202	330	386	329	386	562	—	—	286	354	470	—	—
HDP 160 3	**31.0**	45	122300	615	202	330	386	329	386	562	—	—	286	354	470	—	—
HDP 160 3	**33.9**	41	130400	598	202	330	386	329	386	562	—	—	286	354	470	—	—
HDP 160 3	**39.6**	35	133000	523	202	330	386	329	386	—	—	—	286	354	470	—	—
HDP 160 3	**43.1**	33	133700	484	202	330	386	329	386	—	—	—	286	354	—	—	—
HDP 160 3	**49.4**	28.4	130000	410	202	330	386	329	386	—	—	—	286	354	—	—	—
HDP 160 3	**57.6**	24.3	133000	360	202	330	—	329	—	—	—	—	286	—	—	—	—
HDP 160 3	**62.6**	22.4	133700	333	202	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 3	**68.6**	20.4	130400	296	202	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 3	**80.0**	17.5	133000	259	202	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 3	**87.0**	16.1	133700	239	202	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**101.1**	13.9	121700	191	182	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**117.9**	11.9	133000	179	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**128.2**	10.9	133200	165	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**140.4**	10.0	130400	148	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**163.9**	8.5	133000	129	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**178.1**	7.9	133700	119	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**194.1**	7.2	126300	103	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**226.6**	6.2	133000	93	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**246.3**	5.7	133700	86	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**269.7**	5.2	130400	77	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**314.8**	4.4	133000	67	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**342.2**	4.1	133700	62	—	—	—	—	—	—	—	—	—	—	—	—	—

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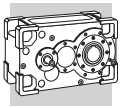

HDP 160 — n_1 = 1400 min^{-1}

	i	n_2	Mn_2	Pn_1	Tamb = 40°C												
		[min^{-1}]	[Nm]	[kW]	P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [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]
HDP 160 2	**9.0**	156	81900	1393	*	*	*	*	*	*	*	⊖	*	*	*	*	⊖
HDP 160 2	**10.5**	134	95600	1393	*	*	*	*	*	*	*		*	*	*	*	
HDP 160 2	**11.4**	123	101250	1357	*	*	*	*	*	*	*		*	*	*	*	
HDP 160 2	**12.6**	111	98750	1200	*	*	*	*	*	*	*		*	*	*	*	
HDP 160 2	**14.7**	95	107100	1115	*	*	*	*	*	*	*		*	*	*	805	
HDP 160 2	**15.9**	88	109350	1047	*	*	*	*	*	*	507		*	*	*	805	
HDP 160 2	**17.5**	80	107150	937	170	307	367	*	*	446	507		*	380	540	805	
HDP 160 2	**20.4**	69	119150	893	170	307	367	*	*	446	507		*	380	540	805	
HDP 160 2	**22.1**	63	121600	838	170	307	367	*	*	446	507		*	380	540	805	
HDP 160 3	**24.4**	57	96400	615	*	218	259	*	*	*	394	424	*	*	392	614	—
HDP 160 3	**28.5**	49	112500	615	*	218	259	*	*	*	394	424	*	280	392	614	—
HDP 160 3	**31.0**	45	122300	615	*	218	259	*	*	329	394	424	*	280	392	614	—
HDP 160 3	**33.9**	41	130400	598	139	218	259	210	241	329	394	424	223	280	392	—	—
HDP 160 3	**39.6**	35	133000	523	139	218	259	210	241	329	394	424	223	280	392	—	—
HDP 160 3	**43.1**	33	133700	484	139	218	259	210	241	329	394	424	223	280	392	—	—
HDP 160 3	**49.4**	28.4	130000	410	139	218	259	210	241	329	—	—	223	280	—	—	—
HDP 160 3	**57.6**	24.3	133000	360	139	218	259	210	241	329	—	—	223	280	—	—	—
HDP 160 3	**62.6**	22.4	133700	333	139	218	259	210	241	—	—	—	223	280	—	—	—
HDP 160 3	**68.6**	20.4	130400	296	139	218	259	210	241	—	—	—	223	280	—	—	—
HDP 160 3	**80.0**	17.5	133000	259	139	218	—	210	—	—	—	—	223	—	—	—	—
HDP 160 3	**87.0**	16.1	133700	239	139	218	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**101.1**	13.9	121700	191	123	—	—	178	—	—	—	—	—	—	—	—	—
HDP 160 4	**117.9**	11.9	133000	179	123	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**128.2**	10.9	133200	165	123	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**140.4**	10.0	130400	148	123	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**163.9**	8.5	133000	129	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**178.1**	7.9	133700	119	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**194.1**	7.2	126300	103	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**226.6**	6.2	133000	93	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**246.3**	5.7	133700	86	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**269.7**	5.2	130400	77	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**314.8**	4.4	133000	67	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**342.2**	4.1	133700	62	—	—	—	—	—	—	—	—	—	—	—	—	—

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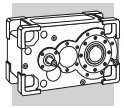

HDP 160 — n_1 = 1100 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 20°C												
					P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [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]
HDP 160 2	**9.0**	123	88050	1176	*	*	*	*	*	*	*		*	*	*	*	
HDP 160 2	**10.5**	105	102750	1176	*	*	*	*	*	*	877		*	*	*	*	
HDP 160 2	**11.4**	97	108850	1146	*	*	*	*	*	709	877		*	*	*	889	
HDP 160 2	**12.6**	88	106150	1013	256	424	497	431	466	709	877		*	*	626	889	
HDP 160 2	**14.7**	75	115150	942	256	424	497	431	466	709	877	⛔	*	*	626	889	⛔
HDP 160 2	**15.9**	69	117600	885	256	424	497	431	466	709	877		385	479	626	—	
HDP 160 2	**17.5**	63	115150	791	256	424	497	431	466	709	—		385	479	626	—	
HDP 160 2	**20.4**	54	128100	754	256	424	497	431	466	709	—		385	479	626	—	
HDP 160 2	**22.1**	50	130750	708	256	424	497	431	466	—	—		385	479	626	—	
HDP 160 3	**24.4**	45	103650	519	222	337	388	349	406	—	—	—	306	374	490	—	—
HDP 160 3	**28.5**	39	120950	519	222	337	388	349	406	—	—	—	306	374	490	—	—
HDP 160 3	**31.0**	35	131500	519	222	337	388	349	406	—	—	—	306	374	490	—	—
HDP 160 3	**33.9**	32	130400	470	222	337	388	349	406	—	—	—	306	374	—	—	—
HDP 160 3	**39.6**	27.8	133000	411	222	337	388	349	406	—	—	—	306	374	—	—	—
HDP 160 3	**43.1**	25.5	133700	380	222	337	—	349	—	—	—	—	306	374	—	—	—
HDP 160 3	**49.4**	22.3	130400	323	222	—	—	—	—	—	—	—	306	—	—	—	—
HDP 160 3	**57.6**	19.1	133000	283	222	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 3	**62.6**	17.6	133700	261	222	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 3	**68.6**	16.0	130400	233	222	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 3	**80.0**	13.7	133000	203	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 3	**87.0**	12.6	133700	188	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**101.1**	10.9	126300	156	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**117.9**	9.3	133000	141	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**128.2**	8.6	133700	130	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**140.4**	7.8	130400	116	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**163.9**	6.7	133000	101	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**178.1**	6.2	133700	94	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**194.1**	5.7	126300	81	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**226.6**	4.9	133000	73	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**246.3**	4.5	133700	68	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**269.7**	4.1	130400	60	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**314.8**	3.5	133000	53	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**342.2**	3.2	133700	49	—	—	—	—	—	—	—	—	—	—	—	—	—

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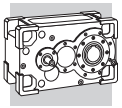

HDP 160 — n_1 = 1100 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C												
					P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [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]
HDP 160 2	**9.0**	123	88050	1176	*	*	*	*	*	*	*		*	*	*	*	
HDP 160 2	**10.5**	105	102750	1176	*	*	*	*	*	*	*		*	*	*	*	
HDP 160 2	**11.4**	97	108850	1146	*	*	*	*	*	*	*		*	*	*	*	
HDP 160 2	**12.6**	88	106150	1013	*	*	*	*	*	*	527		*	*	*	830	
HDP 160 2	**14.7**	75	115150	942	162	*	*	*	*	438	527	⛔	*	*	532	830	⛔
HDP 160 2	**15.9**	69	117600	885	162	289	343	*	307	438	527		*	376	532	830	
HDP 160 2	**17.5**	63	115150	791	162	289	343	291	307	438	527		310	376	532	—	
HDP 160 2	**20.4**	54	128100	754	162	289	343	291	307	438	527		310	376	532	—	
HDP 160 2	**22.1**	50	130750	708	162	289	343	291	307	438	527		310	376	532	—	
HDP 160 3	**24.4**	45	103650	519	144	229	265	215	246	344	414	444	228	296	412	—	—
HDP 160 3	**28.5**	39	120950	519	144	229	265	215	246	344	414	444	228	296	412	—	—
HDP 160 3	**31.0**	35	131500	519	144	229	265	215	246	344	414	444	228	296	412	—	—
HDP 160 3	**33.9**	32	130400	470	144	229	265	215	246	344	414	444	228	296	412	—	—
HDP 160 3	**39.6**	27.8	133000	411	144	229	265	215	246	344	—	—	228	296	—	—	—
HDP 160 3	**43.1**	25.5	133700	380	144	229	265	215	246	344	—	—	228	296	—	—	—
HDP 160 3	**49.4**	22.3	130400	323	144	229	265	215	246	—	—	—	228	296	—	—	—
HDP 160 3	**57.6**	19.1	133000	283	144	229	265	215	246	—	—	—	228	—	—	—	—
HDP 160 3	**62.6**	17.6	133700	261	144	229	—	215	246	—	—	—	228	—	—	—	—
HDP 160 3	**68.6**	16.0	130400	233	144	229	—	215	—	—	—	—	228	—	—	—	—
HDP 160 3	**80.0**	13.7	133000	203	144	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 3	**87.0**	12.6	133700	188	144	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**101.1**	10.9	126300	156	131	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**117.9**	9.3	133000	141	131	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**128.2**	8.6	133700	130	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**140.4**	7.8	130400	116	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**163.9**	6.7	133000	101	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**178.1**	6.2	133700	94	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**194.1**	5.7	126300	81	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**226.6**	4.9	133000	73	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**246.3**	4.5	133700	68	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**269.7**	4.1	130400	60	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**314.8**	3.5	133000	53	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**342.2**	3.2	133700	49	—	—	—	—	—	—	—	—	—	—	—	—	—

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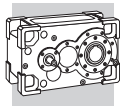
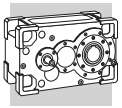


HDP 160 — n_1 = 900 min^{-1}

					Tamb = 20°C												
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [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]
HDP 160 2	**9.0**	100	93500	1022	*	*	*	*	*	724	899		*	*	*	904	
HDP 160 2	**10.5**	86	109150	1022	*	*	*	*	492	724	899		*	*	*	904	
HDP 160 2	**11.4**	79	115600	996	245	376	433	420	492	724	899		*	*	615	904	
HDP 160 2	**12.6**	72	112750	881	245	376	433	420	492	724	—		396	490	615	—	
HDP 160 2	**14.7**	61	122250	818	245	376	433	420	492	724	—	⛔	396	490	615	—	⛔
HDP 160 2	**15.9**	56	124900	769	245	376	433	420	492	724	—		396	490	615	—	
HDP 160 2	**17.5**	52	122300	688	245	376	433	420	492	—	—		396	490	615	—	
HDP 160 2	**20.4**	44	133000	641	245	376	433	420	492	—	—		396	490	615	—	
HDP 160 2	**22.1**	41	133700	592	245	376	433	420	492	—	—		396	490	—	—	
HDP 160 3	**24.4**	37	110050	451	235	325	364	362	419	—	—	—	319	387	503	—	—
HDP 160 3	**28.5**	32	128450	451	235	325	364	362	419	—	—	—	319	387	—	—	—
HDP 160 3	**31.0**	29.0	133700	432	235	325	364	362	419	—	—	—	319	387	—	—	—
HDP 160 3	**33.9**	26.5	130400	385	235	325	364	362	—	—	—	—	319	—	—	—	—
HDP 160 3	**39.6**	22.7	133000	336	235	325	—	—	—	—	—	—	319	—	—	—	—
HDP 160 3	**43.1**	20.9	133700	311	235	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 3	**49.4**	18.2	130400	265	235	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 3	**57.6**	15.6	133000	231	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 3	**62.6**	14.4	133700	214	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 3	**68.6**	13.1	130400	190	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 3	**80.0**	11.2	133000	166	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 3	**87.0**	10.3	133700	154	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**101.1**	8.9	126300	128	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**117.9**	7.6	133000	115	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**128.2**	7.0	133700	107	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**140.4**	6.4	130400	95	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**163.9**	5.5	133000	83	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**178.1**	5.1	133700	77	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**194.1**	4.6	126300	66	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**226.6**	4.0	133000	60	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**246.3**	3.7	133700	55	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**269.7**	3.3	130400	49	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**314.8**	2.9	133000	43	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**342.2**	2.6	133700	40	—	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

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



HDP 160 — n_1 = 900 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	Tamb = 40°C												
					P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [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]
HDP 160 2	**9.0**	100	93500	1022	*	*	*	*	*	*	*		*	*	*	*	
HDP 160 2	**10.5**	86	109150	1022	*	*	*	*	*	*	510		*	*	*	*	
HDP 160 2	**11.4**	79	115600	996	*	*	*	*	*	418	510		*	*	512	818	
HDP 160 2	**12.6**	72	112750	881	177	*	*	*	318	418	510		*	387	512	818	
HDP 160 2	**14.7**	61	122250	818	177	280	322	281	318	418	510	⛔	300	387	512	818	⛔
HDP 160 2	**15.9**	56	124900	769	177	280	322	281	318	418	510		300	387	512	—	
HDP 160 2	**17.5**	52	122300	688	177	280	322	281	318	418	510		300	387	512	—	
HDP 160 2	**20.4**	44	133000	641	177	280	322	281	318	418	510		300	387	512	—	
HDP 160 2	**22.1**	41	133700	592	177	280	322	281	318	418	510		300	387	512	—	
HDP 160 3	**24.4**	37	110050	451	157	223	251	228	259	357	427	457	241	309	425	—	—
HDP 160 3	**28.5**	32	128450	451	157	223	251	228	259	357	427	—	241	309	425	—	—
HDP 160 3	**31.0**	29.0	133700	432	157	223	251	228	259	357	427	—	241	309	425	—	—
HDP 160 3	**33.9**	26.5	130400	385	157	223	251	228	259	357	—	—	241	309	—	—	—
HDP 160 3	**39.6**	22.7	133000	336	157	223	251	228	259	—	—	—	241	309	—	—	—
HDP 160 3	**43.1**	20.9	133700	311	157	223	251	228	259	—	—	—	241	309	—	—	—
HDP 160 3	**49.4**	18.2	130400	265	157	223	251	228	259	—	—	—	241	—	—	—	—
HDP 160 3	**57.6**	15.6	133000	231	157	223	—	228	—	—	—	—	—	—	—	—	—
HDP 160 3	**62.6**	14.4	133700	214	157	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 3	**68.6**	13.1	130400	190	157	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 3	**80.0**	11.2	133000	166	157	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 3	**87.0**	10.3	133700	154	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**101.1**	8.9	126300	128	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**117.9**	7.6	133000	115	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**128.2**	7.0	133700	107	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**140.4**	6.4	130400	95	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**163.9**	5.5	133000	83	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**178.1**	5.1	133700	77	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**194.1**	4.6	126300	66	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**226.6**	4.0	133000	60	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**246.3**	3.7	133700	55	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**269.7**	3.3	130400	49	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**314.8**	2.9	133000	43	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**342.2**	2.6	133700	40	—	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

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

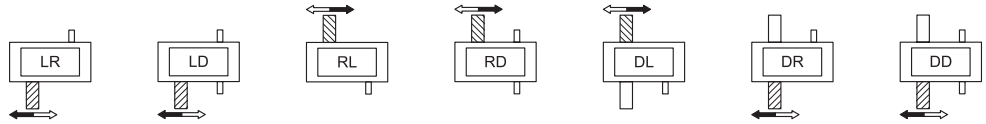
4.2 - CARICHI RADIALI ALBERO LENTO

4.2 - PERMITTED OVERHUNG LOADS ON OUTPUT SHAFT

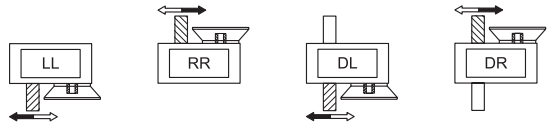
4.2 - RADIALKRÄFTE ABTRIEBSWELLE

HDP 60 — LP | H | S

input VP / GL / GR



input AD

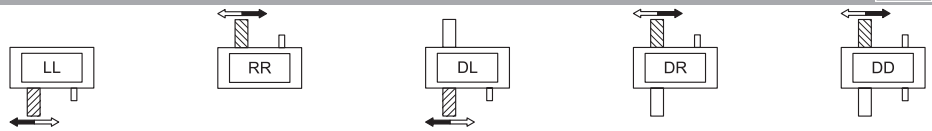


Rn_2 [kN]

n_2 x h		M_2 = 4300 Nm		M_2 = 3400 Nm		M_2 = 2850 Nm		M_2 = 2150 Nm	
250 000	⇨	34.4	35.0	35.0	—	35.0	—	35.0	—
	⇦	32.0	35.0	34.1	35.0	35.0	—	35.0	—
500 000	⇨	25.0	29.9	28.1	32.0	29.1	32.9	30.2	34.1
	⇦	24.2	28.0	26.2	30.1	27.5	31.3	29.0	32.9
750 000	⇨	19.9	24.4	23.9	27.6	25.2	28.6	26.4	29.8
	⇦	20.3	23.7	22.3	25.7	23.6	27.0	25.1	28.5
1 000 000	⇨	16.5	20.8	20.7	24.7	22.7	25.8	23.9	27.0
	⇦	17.8	20.9	19.8	23.0	21.1	24.2	22.7	25.8
1 250 000	⇨	14.0	18.1	18.4	22.2	20.8	23.8	22.1	25.0
	⇦	15.1	19.0	18.1	21.0	19.3	22.2	20.9	23.8
2 500 000	⇨	—	10.5	11.9	15.1	14.5	17.6	17.2	19.6
	⇦	—	11.2	12.8	15.6	14.5	16.8	16.0	18.4
3 750 000	⇨	—	—	8.4	11.4	11.3	14.1	14.5	17.0
	⇦	—	—	9.0	12.4	12.1	14.2	13.6	15.7
5 000 000	⇨	—	—	—	9.0	9.2	11.9	12.5	15.0
	⇦	—	—	—	9.6	9.9	12.5	12.1	14.0

HDP 60 — LP | H | S

input VP / GL / GR



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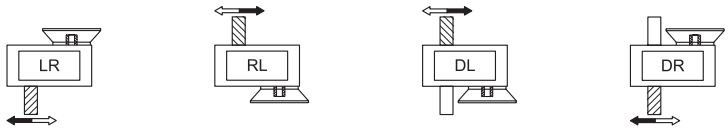


Rn_2 [kN]

n_2 x h		M_2 = 4300 Nm		M_2 = 3400 Nm		M_2 = 2850 Nm		M_2 = 2150 Nm	
250 000	⇨	27.6	32.3	30.6	35.0	32.4	35.0	34.7	35.0
	⇦	25.1	29.9	28.6	33.3	30.7	35.0	33.4	35.0
500 000	⇨	19.8	23.6	22.7	26.6	24.5	28.4	26.8	30.7
	⇦	17.3	21.1	20.8	24.6	22.9	26.7	25.6	29.4
750 000	⇨	15.9	19.3	18.8	22.2	20.6	24.0	22.9	26.3
	⇦	13.4	16.8	16.9	20.3	19.0	22.4	21.7	25.1
1 000 000	⇨	13.4	16.5	16.4	19.5	18.2	21.3	20.5	23.6
	⇦	10.9	14.0	14.4	17.5	16.5	19.7	19.2	22.3
1 250 000	⇨	11.6	14.5	14.6	17.5	16.4	19.3	18.7	21.6
	⇦	9.1	12.1	12.6	15.5	14.7	17.7	17.4	20.4
2 500 000	⇨	—	9.1	9.7	12.1	11.5	13.9	13.8	16.2
	⇦	—	—	7.8	10.1	9.9	12.3	12.6	15.0
3 750 000	⇨	—	—	7.3	9.4	9.1	11.2	11.4	13.5
	⇦	—	—	—	7.5	7.5	9.6	10.2	12.3
5 000 000	⇨	—	—	—	7.7	7.6	9.5	9.9	11.8
	⇦	—	—	—	—	—	7.9	8.7	10.6

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.

Carichi radiali ammissibili relativi ai cuscinetti secondo variante HDB.

(—) 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.

Rated overhung loads relevant to reinforced bearings type HDB.

(—) Contact the Bonfiglioli Technical Service.

h: Lebensdauer in Stunden für das Lager der Abtriebswelle.

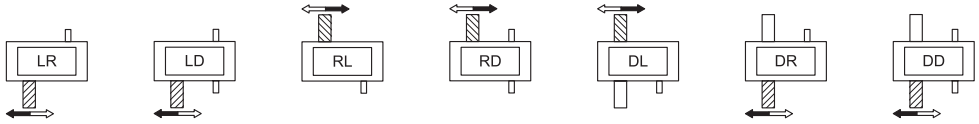
Welle, auf die sich die zulässigen Radialkräfte beziehen. Für die Wellen mit zwei Wellenzapfen kann die Kraft nur auf das so gekennzeichnete Wellenende ausgeübt werden. Andernfalls mit dem technischen Kundendienst von Bonfiglioli Rücksprache halten.

Zulässige Radialkräfte der Lager gemäß Variante HDB.

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

HDP 70 — LP H S

input VP GL GR



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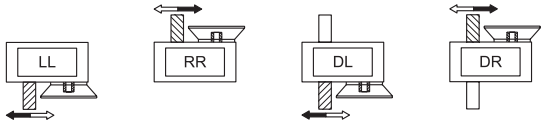
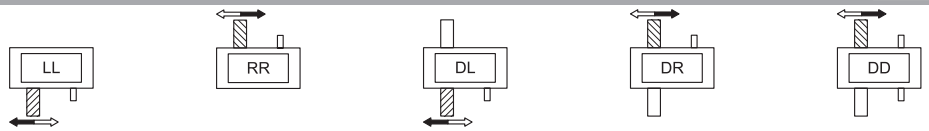


Rn_2 [kN]

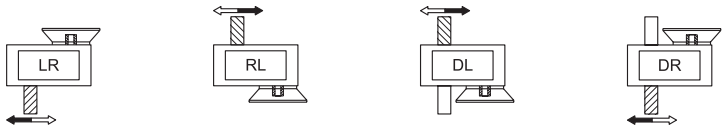
n_2 x h		M_2 = 6350 Nm		M_2 = 5050 Nm		M_2 = 4200 Nm		M_2 = 3150 Nm	
250 000	⇨	35.2	40.0	37.2	40.0	38.1	40.0	39.2	40.0
	⬅	32.8	40.0	34.8	40.0	36.1	40.0	37.8	40.0
500 000	⇨	25.1	34.5	28.9	37.0	30.1	37.9	31.2	39.0
	⬅	24.8	32.7	26.8	34.7	28.1	36.0	29.7	37.6
750 000	⇨	20.0	28.5	23.9	32.1	26.1	33.1	27.2	34.2
	⬅	20.8	27.9	22.8	29.8	24.2	31.1	25.8	32.7
1 000 000	⇨	16.5	24.6	20.7	28.3	23.2	30.0	24.7	31.1
	⬅	17.8	24.8	20.3	26.7	21.6	28.0	23.2	29.6
1 250 000	⇨	13.0	21.8	18.4	25.5	20.9	27.7	22.9	28.8
	⬅	15.1	22.5	18.4	24.5	19.8	25.8	21.4	27.4
2 500 000	⇨	—	12.7	11.2	18.0	14.6	20.5	17.7	22.8
	⬅	—	14.7	12.6	18.5	14.8	19.7	16.5	21.3
3 750 000	⇨	—	—	—	14.1	11.4	16.7	14.6	19.7
	⬅	—	10.0	—	15.1	12.2	16.7	14.0	18.3
5 000 000	⇨	—	—	—	11.0	—	14.3	12.7	17.3
	⬅	—	—	—	12.3	—	14.8	12.4	16.4

HDP 70 — LP H S

input VP GL GR



input AD



Rn_2 [kN]

n_2 x h		M_2 = 6350 Nm		M_2 = 5050 Nm		M_2 = 4200 Nm		M_2 = 3150 Nm	
250 000	⇨	26.0	35.7	29.4	39.1	31.6	40.0	34.4	40.0
	⬅	23.1	32.8	27.1	36.8	29.7	39.4	33.0	40.0
500 000	⇨	18.0	25.9	21.4	29.3	23.6	31.5	26.4	34.2
	⬅	15.1	23.0	19.1	27.0	21.7	29.6	25.0	32.8
750 000	⇨	14.0	21.0	17.4	24.4	19.7	26.6	22.4	29.3
	⬅	11.1	18.1	15.1	22.1	17.7	24.7	21.0	27.9
1 000 000	⇨	11.4	17.9	14.9	21.3	17.1	23.5	19.9	26.2
	⬅	—	15.0	12.6	19.0	15.2	21.6	18.4	24.8
1 250 000	⇨	—	15.7	13.0	19.1	15.3	21.3	18.0	24.0
	⬅	—	12.8	10.7	16.8	13.4	19.4	16.6	22.6
2 500 000	⇨	—	9.7	—	13.0	10.3	15.2	13.1	18.0
	⬅	—	—	—	10.7	—	13.3	11.7	16.5
3 750 000	⇨	—	—	—	10.0	—	12.2	10.6	15.0
	⬅	—	—	—	—	—	10.3	—	13.5
5 000 000	⇨	—	—	—	8.1	—	10.3	—	13.0
	⬅	—	—	—	—	—	8.4	—	11.6

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.

Carichi radiali ammissibili relativi ai cuscinetti secondo variante HDB.

(—) 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.

Rated overhung loads relevant to reinforced bearings type HDB.

(—) Contact the Bonfiglioli Technical Service.

h: Lebensdauer in Stunden für das Lager der Abtriebswelle.

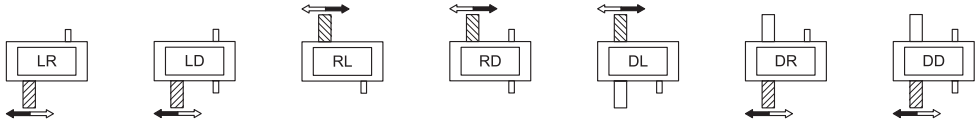
Welle, auf die sich die zulässigen Radialkräfte beziehen. Für die Wellen mit zwei Wellenzapfen kann die Kraft nur auf das so gekennzeichnete Wellenende ausgeübt werden. Andernfalls mit dem technischen Kundendienst von Bonfiglioli Rücksprache halten.

Zulässige Radialkräfte der Lager gemäß Variante HDB.

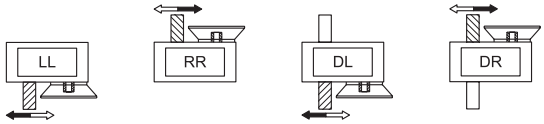
(—) Bitte wenden Sie sich an den technischen Kundendienst von Bonfiglioli.

HDP 80 — LP H S

input VP GL GR



input AD

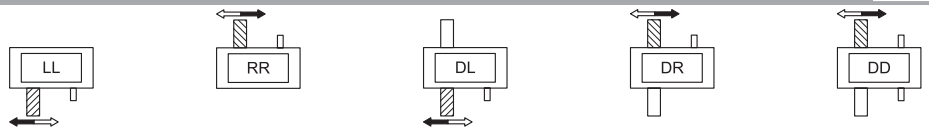


Rn_2 [kN]

n_2 x h		M_2 = 11450 Nm		M_2 = 9150 Nm		M_2 = 7600 Nm		M_2 = 5700 Nm	
250 000	⇨	39.3	46.0	43.7	46.0	45.3	46.0	47.2	46.0
	⬅	37.1	46.0	40.3	46.0	42.4	46.0	45.1	46.0
500 000	⇨	26.0	41.7	32.3	46.0	35.3	46.0	37.2	46.0
	⬅	27.1	39.9	30.3	43.1	32.5	45.2	35.1	46.0
750 000	⇨	16.7	33.5	25.8	39.3	29.8	41.6	32.3	43.5
	⬅	20.0	33.5	25.4	36.7	27.5	38.8	30.2	41.4
1 000 000	⇨	10.4	28.1	21.5	34.2	25.8	37.6	29.1	39.5
	⬅	14.8	29.4	22.2	32.6	24.4	34.7	27.0	37.3
1 250 000	⇨	—	24.2	17.8	30.5	22.8	34.3	26.9	36.5
	⬅	—	25.7	19.5	29.7	22.1	31.8	24.8	34.4
2 500 000	⇨	—	10.1	—	20.0	13.5	24.3	19.7	28.6
	⬅	—	13.0	—	21.3	15.2	23.9	18.6	26.5
3 750 000	⇨	—	—	—	13.8	—	19.1	15.7	24.1
	⬅	—	—	—	15.3	—	19.9	15.6	22.5
5 000 000	⇨	—	—	—	—	—	15.8	13.1	21.0
	⬅	—	—	—	11.2	—	16.8	13.6	20.0

HDP 80 — LP H S

input VP GL GR



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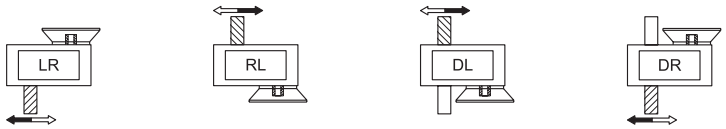


Rn_2 [kN]

n_2 x h		M_2 = 11450 Nm		M_2 = 9150 Nm		M_2 = 7600 Nm		M_2 = 5700 Nm	
250 000	⇨	27.5	43.6	32.6	46.0	36.1	46.0	40.3	46.0
	⬅	23.3	39.4	29.2	45.2	33.3	46.0	38.2	46.0
500 000	⇨	17.5	30.7	22.7	35.7	26.1	39.1	30.3	43.2
	⬅	13.3	26.5	19.3	32.4	23.3	36.3	28.2	41.1
750 000	⇨	12.6	24.3	17.7	29.3	21.2	32.7	25.4	36.8
	⬅	—	20.1	14.4	26.0	18.3	29.9	23.3	34.7
1 000 000	⇨	—	20.2	14.5	25.3	18.0	28.6	22.2	32.8
	⬅	—	16.1	11.2	21.9	15.2	25.8	20.2	30.7
1 250 000	⇨	—	17.3	12.3	22.3	15.7	25.7	20.0	29.8
	⬅	—	13.1	—	19.0	13.0	22.9	17.9	27.7
2 500 000	⇨	—	9.4	—	14.4	—	17.8	13.8	21.9
	⬅	—	—	—	11.0	—	15.0	11.8	19.8
3 750 000	⇨	—	—	—	10.4	—	13.8	—	18.0
	⬅	—	—	—	—	—	11.0	—	15.9
5 000 000	⇨	—	—	—	—	—	11.3	—	15.4
	⬅	—	—	—	—	—	—	—	13.4

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.

Carichi radiali ammissibili relativi ai cuscinetti secondo variante HDB.

(—) 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.

Rated overhung loads relevant to reinforced bearings type HDB.

(—) Contact the Bonfiglioli Technical Service.

h: Lebensdauer in Stunden für das Lager der Abtriebswelle.

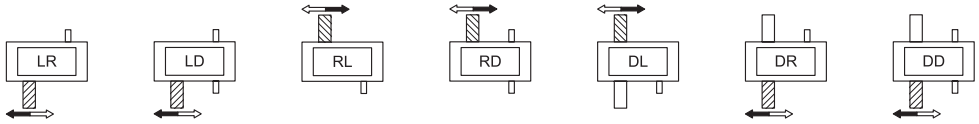
Welle, auf die sich die zulässigen Radialkräfte beziehen. Für die Wellen mit zwei Wellenzapfen kann die Kraft nur auf das so gekennzeichnete Wellenende ausgeübt werden. Andernfalls mit dem technischen Kundendienst von Bonfiglioli Rücksprache halten.

Zulässige Radialkräfte der Lager gemäß Variante HDB.

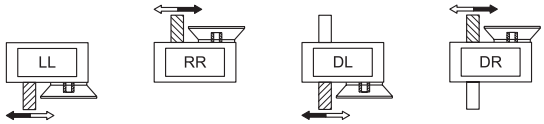
(—) Bitte wenden Sie sich an den technischen Kundendienst von Bonfiglioli.

HDP 90 — LP | H | S

input **VP** **GL** **GR**



input **AD**

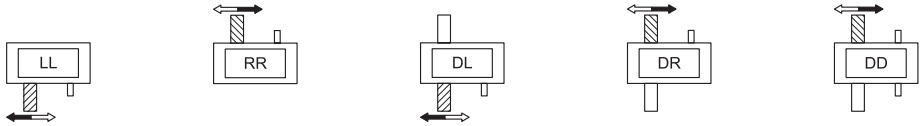


Rn_2 [kN]

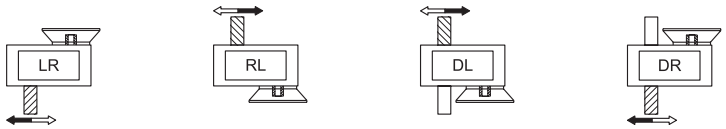
n_2 x h		M_2 = 15250 Nm		M_2 = 12200 Nm		M_2 = 10150 Nm		M_2 = 7600 Nm	
250 000	⇨	49.1	62.0	56.9	62.0	61.5	62.0	63.7	—
	⬅	50.3	62.0	54.4	62.0	57.1	62.0	60.4	62.0
500 000	⇨	31.9	52.0	40.4	60.7	45.7	62.0	50.5	62.0
	⬅	34.9	53.4	41.1	57.9	43.8	60.8	47.2	62.0
750 000	⇨	23.0	40.7	32.0	49.9	37.5	55.5	43.9	59.3
	⬅	25.0	44.3	34.5	49.2	37.3	52.2	40.6	55.9
1 000 000	⇨	17.0	33.3	26.5	42.8	32.1	48.6	38.7	53.8
	⬅	18.3	36.2	28.9	43.7	33.1	46.6	36.4	50.3
1 250 000	⇨	—	27.9	22.4	37.6	28.3	43.7	35.0	49.8
	⬅	—	30.2	24.4	39.6	30.1	42.7	33.4	46.4
2 500 000	⇨	—	11.9	—	23.3	17.5	29.8	24.7	37.2
	⬅	—	—	—	25.2	19.0	31.9	25.2	35.6
3 750 000	⇨	—	—	—	15.6	—	22.8	19.5	30.6
	⬅	—	—	—	16.7	—	24.7	21.2	30.2
5 000 000	⇨	—	—	—	—	—	18.1	16.1	26.2
	⬅	—	—	—	—	—	19.6	17.6	26.8

HDP 90 — LP | H | S

input **VP** **GL** **GR**



input **AD**



Rn_2 [kN]

n_2 x h		M_2 = 15250 Nm		M_2 = 12200 Nm		M_2 = 10150 Nm		M_2 = 7600 Nm	
250 000	⇨	40.7	62.0	46.7	62.0	50.7	62.0	55.7	62.0
	⬅	33.0	54.4	40.5	62.0	45.6	62.0	51.8	62.0
500 000	⇨	27.5	44.5	33.5	50.8	37.5	54.9	42.4	60.2
	⬅	19.7	37.0	27.3	44.7	32.3	49.9	38.6	56.4
750 000	⇨	20.9	35.8	26.9	42.1	30.9	46.3	35.9	51.5
	⬅	13.1	28.3	20.7	36.0	25.7	41.3	32.0	47.7
1 000 000	⇨	16.4	30.3	22.7	36.5	26.7	40.7	31.7	45.9
	⬅	—	22.7	16.5	30.5	21.5	35.7	27.8	42.2
1 250 000	⇨	—	26.3	19.7	32.5	23.7	36.8	28.7	41.9
	⬅	—	18.7	13.5	26.5	18.5	33.3	24.8	38.2
2 500 000	⇨	—	—	—	21.7	15.5	25.9	20.5	31.2
	⬅	—	—	—	15.7	—	20.9	16.6	27.4
3 750 000	⇨	—	—	—	14.8	—	20.6	16.4	25.8
	⬅	—	—	—	—	—	15.5	12.6	22.0
5 000 000	⇨	—	—	—	—	—	17.1	—	22.4
	⬅	—	—	—	—	—	—	—	18.6

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.

Carichi radiali ammissibili relativi ai cuscinetti secondo variante HDB.

(—) 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.

Rated overhung loads relevant to reinforced bearings type HDB.

(—) Contact the Bonfiglioli Technical Service.

h: Lebensdauer in Stunden für das Lager der Abtriebswelle.

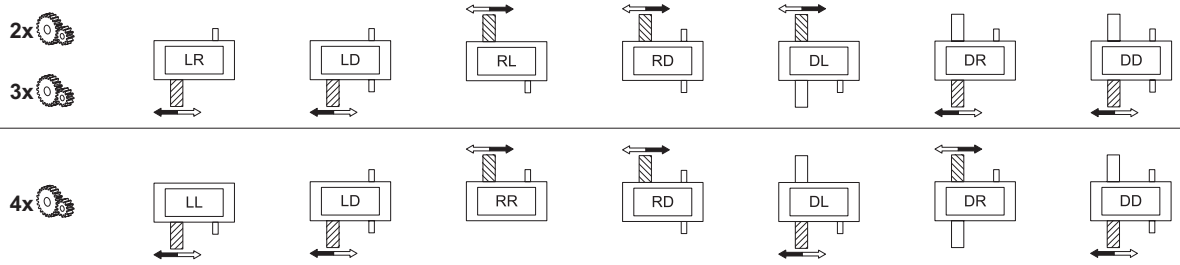
Welle, auf die sich die zulässigen Radialkräfte beziehen. Für die Wellen mit zwei Wellenzapfen kann die Kraft nur auf das so gekennzeichnete Wellenende ausgeübt werden. Andernfalls mit dem technischen Kundendienst von Bonfiglioli Rücksprache halten.

Zulässige Radialkräfte der Lager gemäß Variante HDB.

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

HDP 100

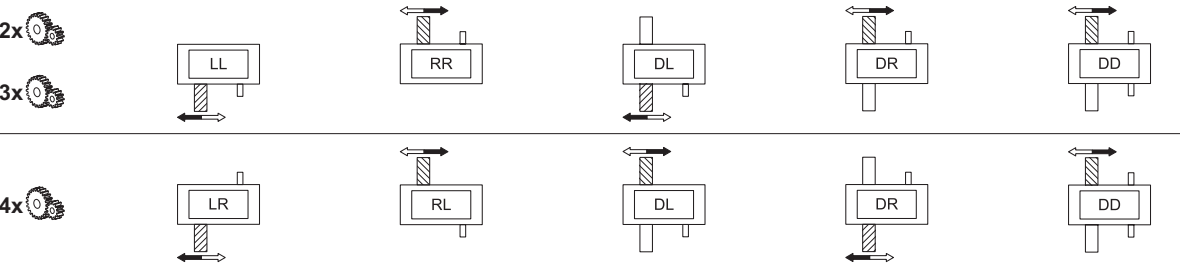
LP H S



n_2 x h		M_2 = 20000 Nm	M_2 = 16000 Nm	M_2 = 13300 Nm	M_2 = 10000 Nm
		Rn_2 [kN]			
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

HDP 100

LP H S



n_2 x h		M_2 = 20000 Nm	M_2 = 16000 Nm	M_2 = 13300 Nm	M_2 = 10000 Nm
		Rn_2 [kN]			
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.

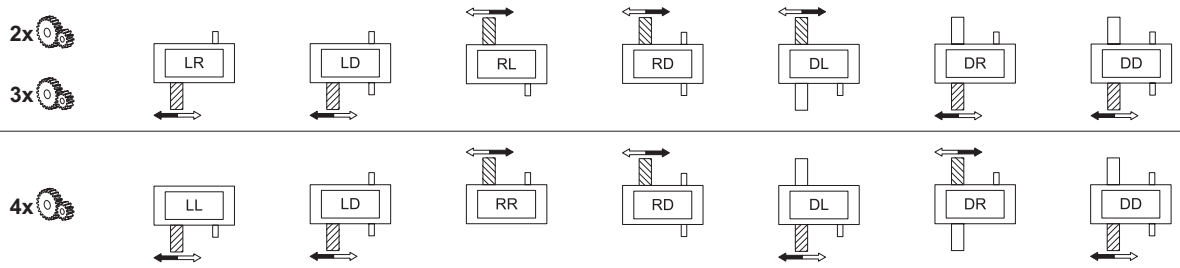
h: Lebensdauer in Stunden für das Lager der Abtriebswelle.

Welle, auf die sich die zulässigen Radialkräfte beziehen. Für die Wellen mit zwei Wellenzapfen 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.

HDP 110

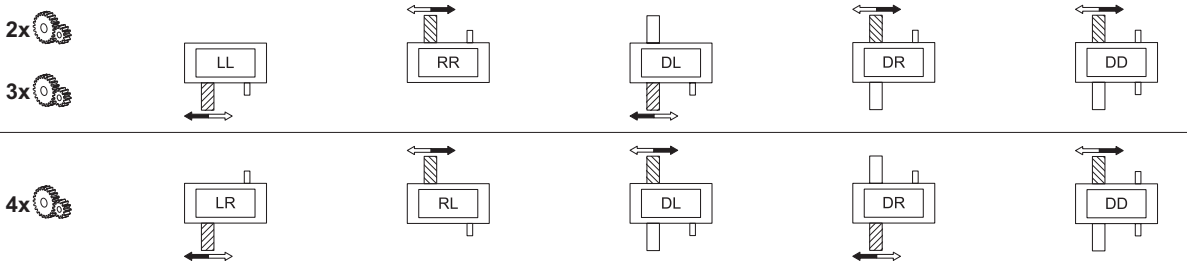
LP H S



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

HDP 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.

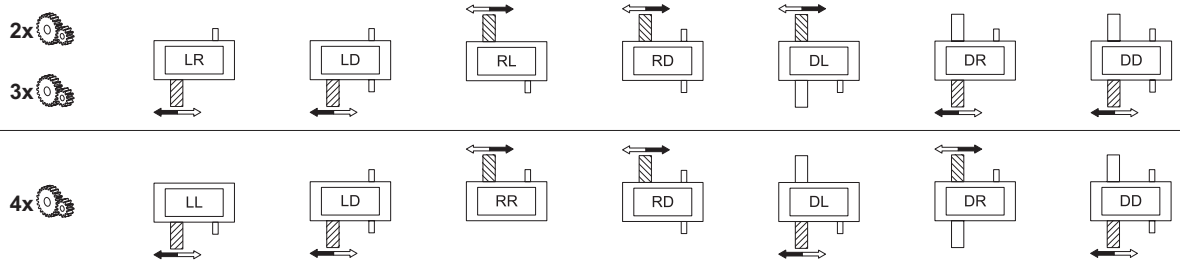
h: Lebensdauer in Stunden für das Lager der Abtriebswelle.

Welle, auf die sich die zulässigen Radialkräfte beziehen. Für die Wellen mit zwei Wellenzapfen 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.

HDP 120

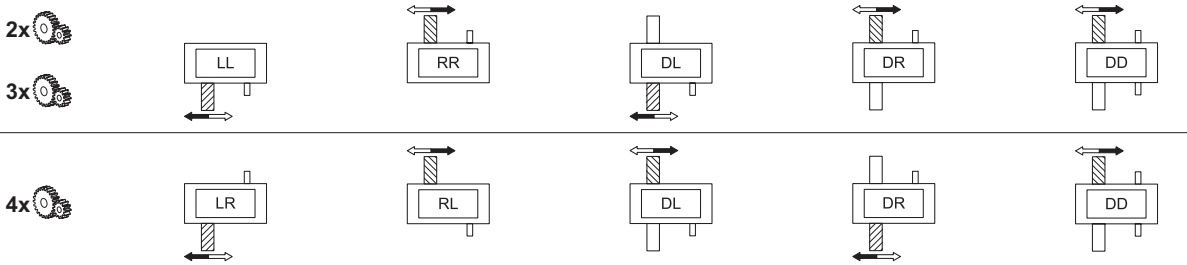
LP H S



n_2 x h		M_2 = 31750 Nm	M_2 =25400 Nm	M_2 = 21150 Nm	M_2 = 15850 Nm
		Rn_2 [kN]			
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

HDP 120

LP H S



n_2 x h		M_2 = 31750 Nm	M_2 = 25400 Nm	M_2 = 21150 Nm	M_2 = 15850 Nm
		Rn_2 [kN]			
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.

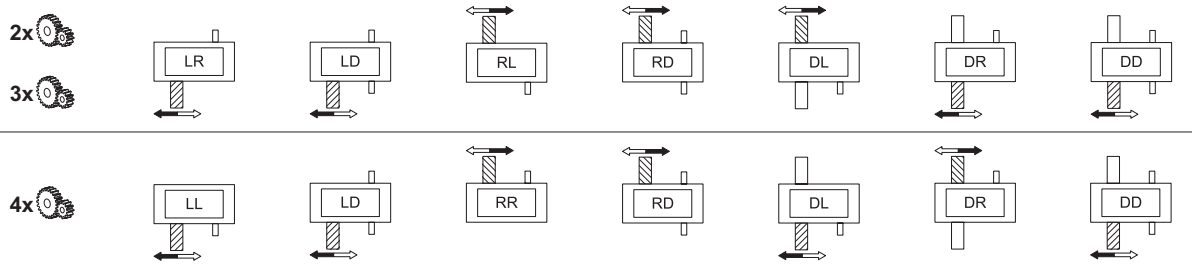
(—) Contact the Bonfiglioli Technical Service.

h: Lebensdauer in Stunden für das Lager der Abtriebswelle.

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

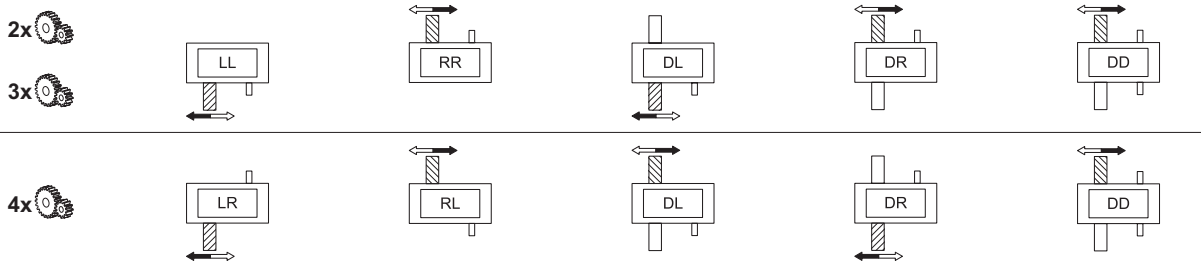
(—) Bitte wenden Sie sich an den technischen Kundendienst von Bonfiglioli.

HDP 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

HDP 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.

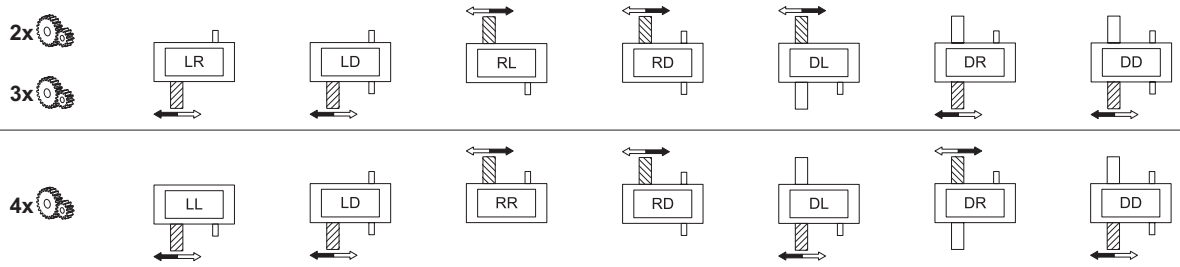
h: Lebensdauer in Stunden für das Lager der Abtriebswelle.

Welle, auf die sich die zulässigen Radialkräfte beziehen. Für die Wellen mit zwei Wellenzapfen 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.

HDP 140

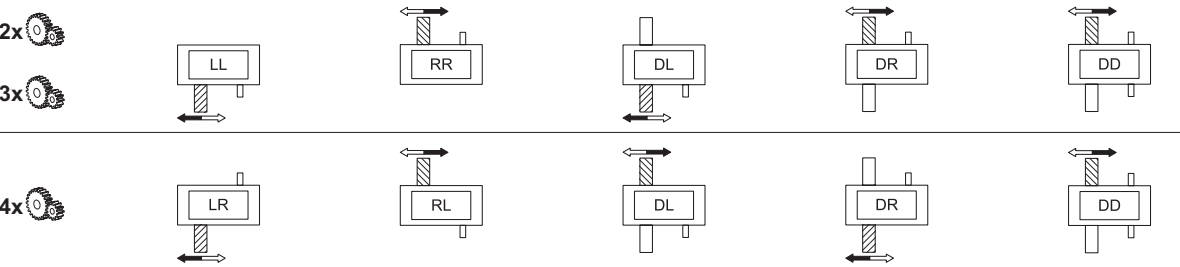
LP H S



n_2 x h		M_2 = 67200 Nm	M_2 = 53750 Nm	M_2 = 44800 Nm	M_2 = 33600 Nm
		Rn_2 [kN]			
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

HDP 140

LP H S



n_2 x h		M_2 = 67200 Nm	M_2 = 53750 Nm	M_2 = 44800 Nm	M_2 = 33600 Nm
		Rn_2 [kN]			
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.

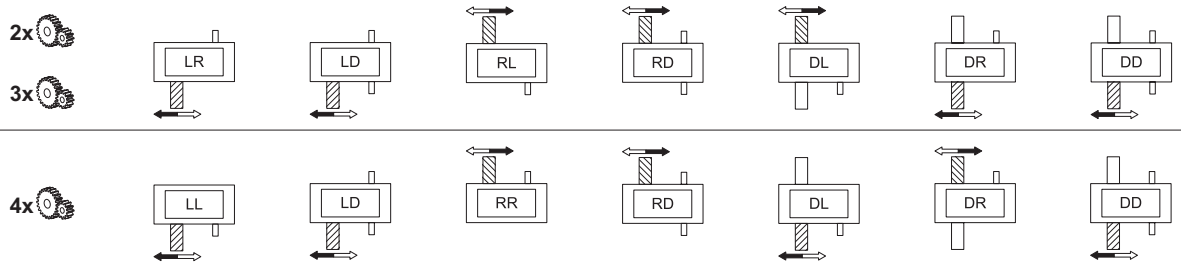
(—) Contact the Bonfiglioli Technical Service.

h: Lebensdauer in Stunden für das Lager der Abtriebswelle.

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

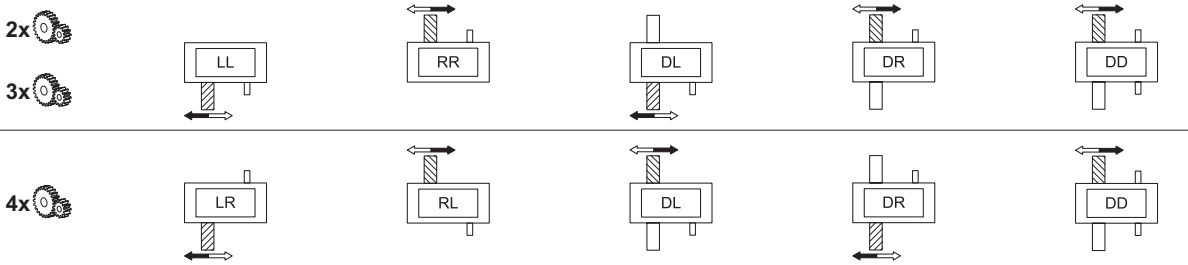
(—) Bitte wenden Sie sich an den technischen Kundendienst von Bonfiglioli.

HDP 150 — LP



n_2 x h		M_2 = 96250 Nm	M_2 = 77000 Nm	M_2 = 64150 Nm	M_2 = 48100 Nm
		Rn_2 [kN]			
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

HDP 150 — LP



n_2 x h		M_2 = 96250 Nm	M_2 = 77000 Nm	M_2 = 64150 Nm	M_2 = 48100 Nm
		Rn_2 [kN]			
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.

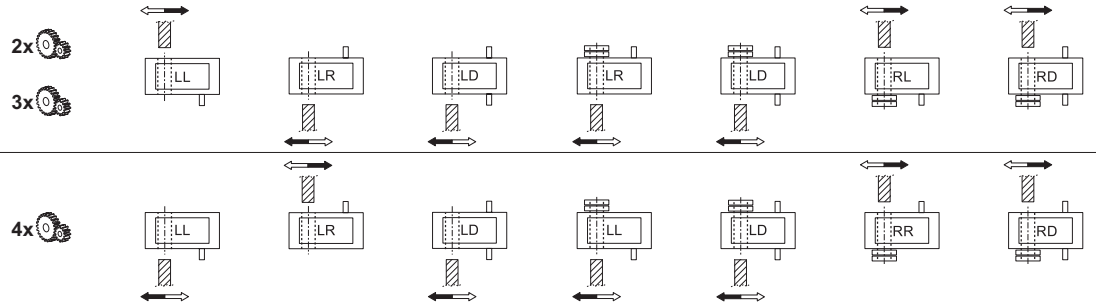
(—) Contact the Bonfiglioli Technical Service.

h: Lebensdauer in Stunden für das Lager der Abtriebswelle.

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

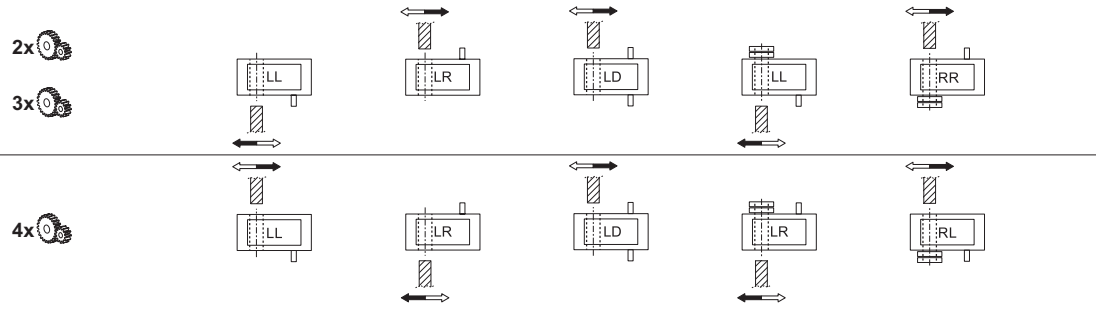
(—) Bitte wenden Sie sich an den technischen Kundendienst von Bonfiglioli.

HDP 150 H S



n_2 x h		M_2 = 96250 Nm	M_2 = 77000 Nm	M_2 = 64150 Nm	M_2 = 48100 Nm
		Rn_2 [kN]			
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

HDP 150 H S



n_2 x h		M_2 = 96250 Nm	M_2 = 77000 Nm	M_2 = 64150 Nm	M_2 = 48100 Nm
		Rn_2 [kN]			
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.

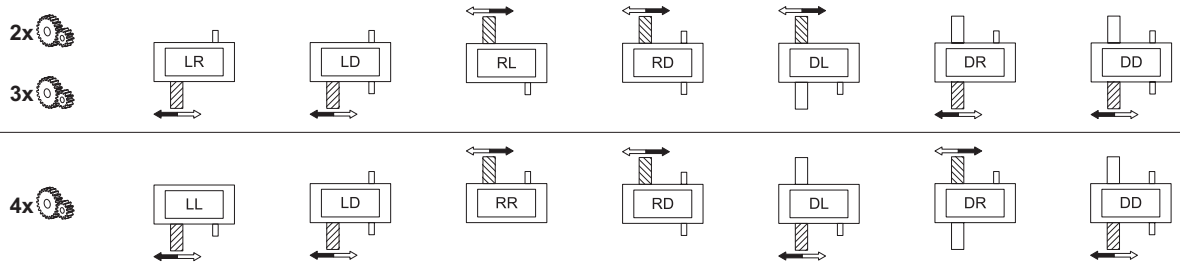
h: Lebensdauer in Stunden für das Lager der Abtriebswelle.

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.

Bonfiglioli Riduttori

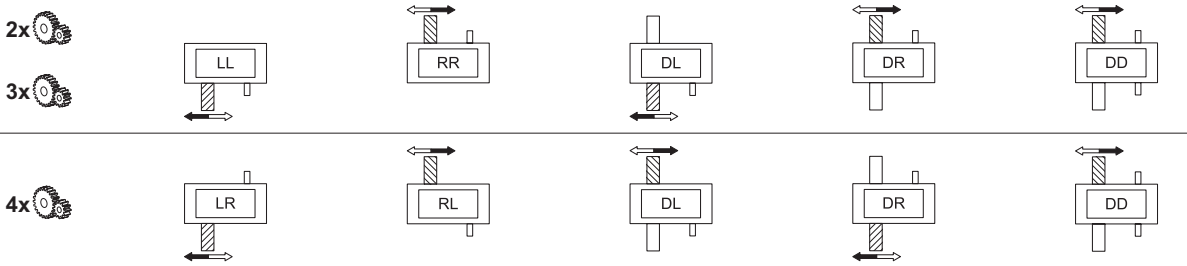
HDP 160 — LP



Rn_2 [kN]

n_2 x h		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	⇨	—	—	—	—
	⇦	—	—	—	—

HDP 160 — LP



Rn_2 [kN]

n_2 x h		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.

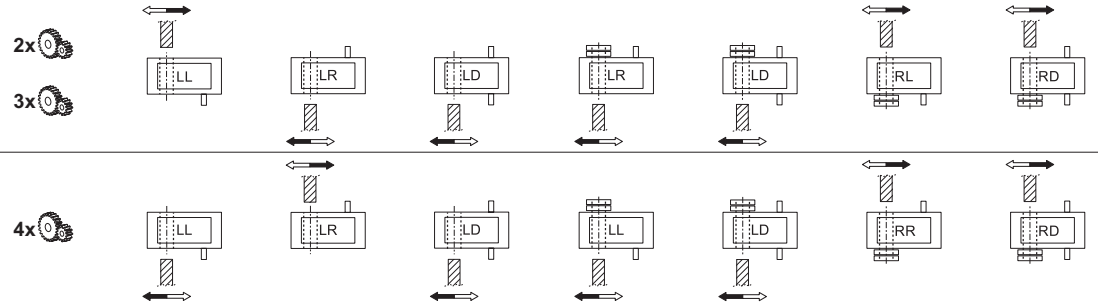
(—) Contact the Bonfiglioli Technical Service.

h: Lebensdauer in Stunden für das Lager der Abtriebswelle.

Welle, auf die sich die zulässigen Radialkräfte beziehen. Für die Wellen mit zwei Wellenzapfen 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.

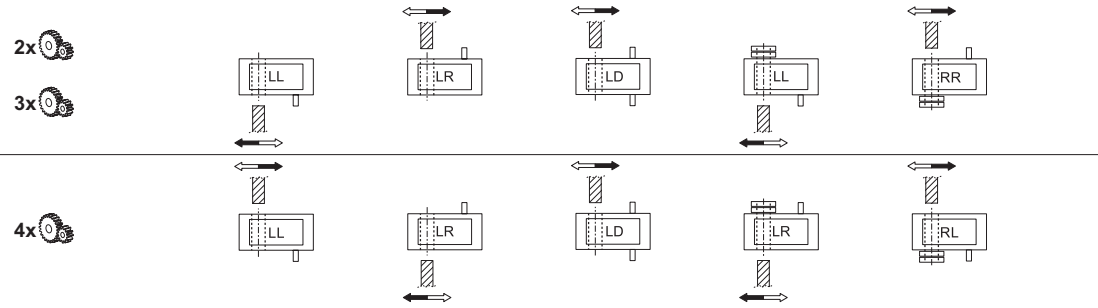
HDP 160 H S



Rn_2 [kN]

n_2 x h		M_2 = 123200 Nm	M_2 = 98550 Nm	M_2 = 82100 Nm	M_2 = 61600 Nm
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

HDP 160 H S



Rn_2 [kN]

n_2 x h		M_2 = 123200 Nm	M_2 = 98550 Nm	M_2 = 82100 Nm	M_2 = 61600 Nm
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 das Lager 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.

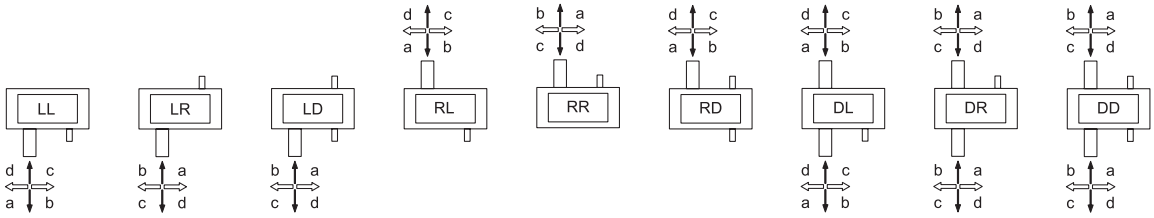
4.3 - CARICHI ASSIALI ALBERO LENTO

4.3 - PERMITTED THRUST LOAD ON OUTPUT SHAFT

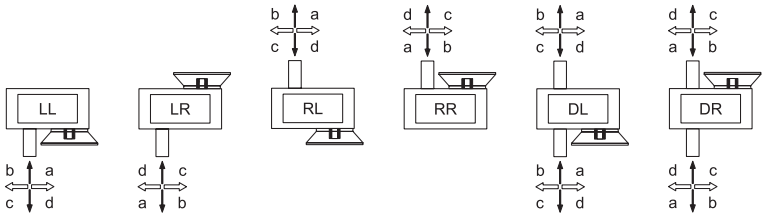
4.3 - AXIALKRÄFTE ABTRIEBSWELLE

HDP 60 — **LP** | **H** | **S**

input **VP** / **GL** / **GR**



input **AD**



An_2 [kN]

n_2 x h		M_2 = 4300 Nm		M_2 = 3400 Nm		M_2 = 2850 Nm		M_2 = 2150 Nm	
250 000	a	17.5	—	17.5	—	17.5	—	17.5	—
	b	17.5	—	17.5	—	17.5	—	17.5	—
	c	17.5	—	17.5	—	17.5	—	17.5	—
	d	17.5	—	17.5	—	17.5	—	17.5	—
500 000	a	17.5	—	17.5	—	17.5	—	17.5	—
	b	17.5	—	17.5	—	17.5	—	17.5	—
	c	17.5	—	17.5	—	17.5	—	17.5	—
	d	17.5	—	17.5	—	17.5	—	17.5	—
750 000	a	16.5	17.5	17.5	—	17.5	—	17.5	—
	b	17.5	—	17.5	—	17.5	—	17.5	—
	c	15.7	17.5	17.5	—	17.5	—	17.5	—
	d	17.5	—	17.5	—	17.5	—	17.5	—
1 000 000	a	13.4	17.3	17.5	—	17.5	—	17.5	—
	b	17.5	—	17.5	—	17.5	—	17.5	—
	c	12.6	16.6	17.3	—	17.5	—	17.5	—
	d	17.5	—	17.5	—	17.5	—	17.5	—
1 250 000	a	11.1	14.8	15.6	17.5	17.5	—	17.5	—
	b	17.5	—	17.5	—	17.5	—	17.5	—
	c	10.3	14.0	15.0	17.5	17.5	—	17.5	—
	d	17.5	—	17.5	—	17.5	—	17.5	—
2 500 000	a	4.9	7.9	9.5	12.5	12.2	15.3	15.8	17.5
	b	17.5	—	17.5	—	17.5	—	17.5	—
	c	4.1	7.1	8.8	11.9	11.7	14.7	15.4	17.5
	d	17.5	—	17.5	—	17.5	—	17.5	—
3 750 000	a	—	4.5	6.4	9.1	9.2	11.9	12.7	15.4
	b	17.5	—	17.5	—	17.5	—	17.5	—
	c	—	3.7	5.8	8.4	8.7	11.3	12.3	15.0
	d	17.5	—	17.5	—	17.5	—	17.5	—
5 000 000	a	—	—	4.4	6.9	7.2	9.7	10.8	13.2
	b	—	17.5	17.5	—	17.5	—	17.5	—
	c	—	—	3.8	6.3	6.7	9.2	10.4	12.8
	d	—	17.5	16.8	17.5	17.5	—	17.5	—

⟺ 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

Carichi assiali ammissibili relativi ai cuscinetti secondo variante HDB.

Rated overhung loads relevant to reinforced bearings type HDB.

Zulässige Radialkräfte der Lager gemäß Variante HDB.

(—) Consultare il Servizio Tecnico Bonfiglioli

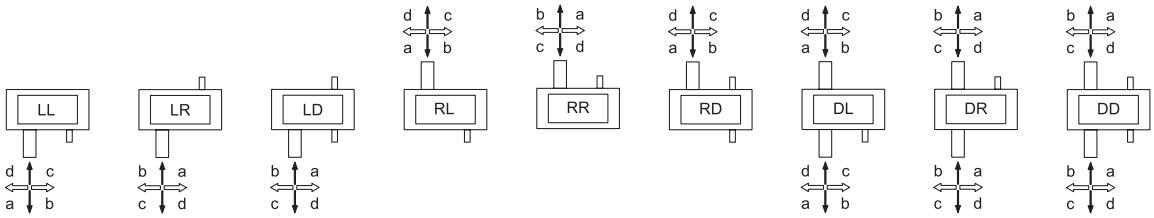
(—) Contact the Bonfiglioli Technical Service.

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

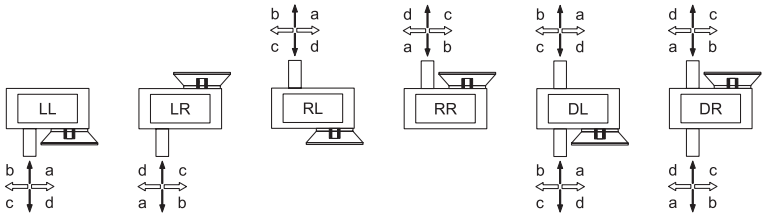
HDP 70

LP | H | S

input VP / GL / GR



input AD



An_2 [kN]

n_2 x h		M_2 = 6350 Nm		M_2 = 5050 Nm		M_2 = 4200 Nm		M_2 = 3150 Nm	
250 000	a	25.0	—	25.0	—	25.0	—	25.0	—
	b	25.0	—	25.0	—	25.0	—	25.0	—
	c	25.0	—	25.0	—	25.0	—	25.0	—
	d	25.0	—	25.0	—	25.0	—	25.0	—
500 000	a	25.0	—	25.0	—	25.0	—	25.0	—
	b	25.0	—	25.0	—	25.0	—	25.0	—
	c	25.0	—	25.0	—	25.0	—	25.0	—
	d	25.0	—	25.0	—	25.0	—	25.0	—
750 000	a	20.6	25.0	25.0	—	25.0	—	25.0	—
	b	25.0	—	25.0	—	25.0	—	25.0	—
	c	19.3	25.0	25.0	—	25.0	—	25.0	—
	d	25.0	—	25.0	—	25.0	—	25.0	—
1 000 000	a	16.6	25.0	22.1	25.0	25.0	—	25.0	—
	b	25.0	—	25.0	—	25.0	—	25.0	—
	c	15.4	24.9	21.2	25.0	24.9	25.0	25.0	—
	d	25.0	—	25.0	—	25.0	—	25.0	—
1 250 000	a	13.8	22.7	19.3	25.0	22.9	25.0	25.0	—
	b	25.0	—	25.0	—	25.0	—	25.0	—
	c	12.6	21.5	18.3	25.0	22.1	25.0	25.0	—
	d	25.0	—	25.0	—	25.0	—	25.0	—
2 500 000	a	6.2	13.5	11.7	18.9	15.3	22.4	19.7	25.0
	b	24.0	25.0	25.0	—	25.0	—	25.0	—
	c	—	12.3	10.7	17.9	14.5	21 .6	19.1	25.0
	d	22.3	25.0	24.5	25.0	25.0	—	25.0	—
3 750 000	a	—	8.9	7.9	14.3	11.5	17.8	15.9	22.2
	b	—	25.0	22.1	25.0	23.3	25.0	24.8	25.0
	c	—	7.7	6.9	13.4	10.7	17.0	15.3	21.6
	d	—	25.0	20.7	25.0	22.2	25.0	23.9	25.0
5 000 000	a	—	6.0	5.5	11.4	9.1	14.9	13.5	19.3
	b	—	23.9	19.6	25.0	20.8	25.0	22.3	25.0
	c	—	—		10.4	8.2	14.1	12.9	18.7
	d	—	22.2	18.3	24.3	19.7	25.0	21.5	25.0

⟺ 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

Carichi assiali ammissibili relativi ai cuscinetti secondo variante HDB.

Rated overhung loads relevant to reinforced bearings type HDB.

Zulässige Radialkräfte der Lager gemäß Variante HDB.

(—) Consultare il Servizio Tecnico Bonfiglioli

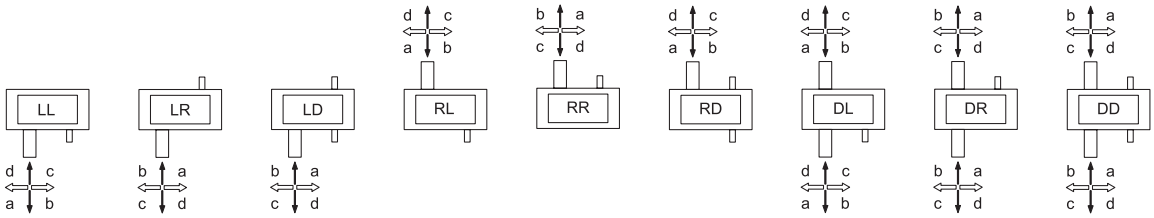
(—) Contact the Bonfiglioli Technical Service.

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

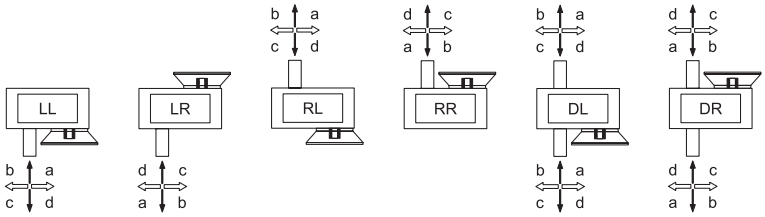
HDP 80

LP | H | S

input VP / GL / GR



input AD



An_2 [kN]

n_2 x h		M_2 = 11450 Nm		M_2 = 9150 Nm		M_2 = 7600 Nm		M_2 = 5700 Nm	
250 000	a	30.0	—	30.0	—	30.0	—	30.0	—
	b	30.0	—	30.0	—	30.0	—	30.0	—
	c	30.0	—	30.0	—	30.0	—	30.0	—
	d	30.0	—	30.0	—	30.0	—	30.0	—
500 000	a	25.3	30.0	30.0	—	30.0	—	30.0	—
	b	30.0	—	30.0	—	30.0	—	30.0	—
	c	23.5	30.0	30.0	—	30.0	—	30.0	—
	d	30.0	—	30.0	—	30.0	—	30.0	—
750 000	a	17.7	30.0	26.0	30.0	30.0	—	30.0	—
	b	30.0	—	30.0	—	30.0	—	30.0	—
	c	15.8	30.0	24.5	30.0	30.0	—	30.0	—
	d	30.0	—	30.0	—	30.0	—	30.0	—
1 000 000	a	12.7	26.8	21.1	30.0	26.8	30.0	30.0	—
	b	30.0	—	30.0	—	30.0	—	30.0	—
	c	10.9	25.1	19.6	30.0	25.5	30.0	30.0	—
	d	30.0	—	30.0	—	30.0	—	30.0	—
1 250 000	a	9.2	22.5	17.6	30.0	23.2	30.0	30.0	—
	b	30.0	—	30.0	—	30.0	—	30.0	—
	c	7.3	20.8	16.1	29.2	22.0	30.0	29.2	30.0
	d	30.0	—	30.0	—	30.0	—	30.0	—
2 500 000	a	—	10.8	8.0	18.8	13.7	24.2	20.6	30.0
	b	—	30.0	29.6	30.0	30.0	—	30.0	—
	c	—	9.1	6.5	17.5	12.4	23.1	19.7	29.9
	d	—	30.0	27.7	30.0	30.0	—	30.0	—
3 750 000	a	—	—	—	13.0	8.9	18.4	15.8	25.0
	b	—	30.0	—	30.0	26.8	30.0	29.3	30.0
	c	—	—	—	11.6	7.7	17.3	14.9	24.2
	d	—	29.9	—	30.0	25.3	30.0	28.1	30.0
5 000 000	a	—	—	—	9.3	—	14.7	12.8	21.3
	b	—	—	—	30.0	23.8	30.0	26.2	30.0
	c	—	—	—	7.9	—	13.6	11.9	20.4
	d	—	—	—	29.1	22.2	30.0	25.1	30.0

⟺ verso di rotazione albero lento

↕ verso di applicazione del carico assiale

Carichi assiali ammissibili relativi ai cuscinetti secondo variante HDB.

(—) Consultare il Servizio Tecnico Bonfiglioli

⟺ *direction of rotation of output shaft*

↕ *direction of application of axial force*

Rated overhung loads relevant to reinforced bearings type HDB.

(—) Contact the Bonfiglioli Technical Service.

⟺ Drehrichtung der Abtriebswelle

↕ Wirkrichtung der Axialkraft

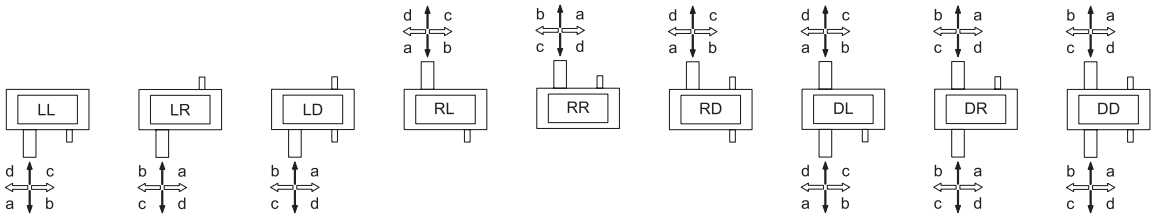
Zulässige Radialkräfte der Lager gemäß Variante HDB.

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

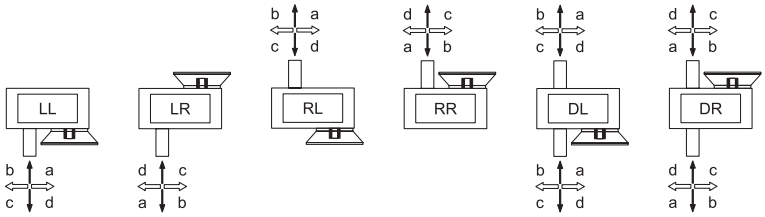
HDP 90

LP | H | S

input VP / GL / GR



input AD



An_2 [kN]

n_2 x h		M_2 = 15250 Nm		M_2 = 12200 Nm		M_2 = 10150 Nm		M_2 = 7600 Nm	
250 000	a	37.5	—	37.5	—	37.5	—	37.5	—
	b	37.5	—	37.5	—	37.5	—	37.5	—
	c	37.5	—	37.5	—	37.5	—	37.5	—
	d	37.5	—	37.5	—	37.5	—	37.5	—
500 000	a	34.1	37.5	37.5	—	37.5	—	37.5	—
	b	37.5	—	37.5	—	37.5	—	37.5	—
	c	32.2	37.5	37.5	—	37.5	—	37.5	—
	d	37.5	—	37.5	—	37.5	—	37.5	—
750 000	a	23.6	37.3	35.1	37.5	37.5	—	37.5	—
	b	37.5	—	37.5	—	37.5	—	37.5	—
	c	21.7	35.5	33.5	37.5	37.5	—	37.5	—
	d	37.5	—	37.5	—	37.5	—	37.5	—
1 000 000	a	16.9	29.8	28.4	37.5	36.1	37.5	37.5	—
	b	37.5	—	37.5	—	37.5	—	37.5	—
	c	15.0	28.0	26.8	37.5	34.8	37.5	37.5	—
	d	37.5	—	37.5	—	37.5	—	37.5	—
1 250 000	a	12.1	24.3	23.6	35.2	31.3	37.5	37.5	—
	b	37.5	—	37.5	—	37.5	—	37.5	—
	c	10.2	22.5	22.0	33.7	30.0	37.5	37.5	—
	d	37.5	—	37.5	—	37.5	—	37.5	—
2 500 000	a	—	9.5	10.5	20.4	18.2	27.7	27.8	36.8
	b	—	37.5	37.5	—	37.5	—	37.5	—
	c	—	7.8	9.0	19.0	16.9	26.5	26.9	35.9
	d	—	37.5	37.5	—	37.5	—	37.5	—
3 750 000	a	—	—	—	13.1	11.8	20.4	21.4	29.4
	b	—	37.5	36.0	37.5	37.5	—	37.5	—
	c	—	—	—	11.6	10.5	19.2	20.4	28.6
	d	—	37.5	33.5	37.5	36.3	37.5	37.5	—
5 000 000	a	—	—	—	8.4	7.6	15.7	17.2	24.8
	b	—	—	—	37.5	34.2	37.5	37.1	37.5
	c	—	—	—	—	—	14.5	16.3	23.9
	d	—	—	—	37.5	32.1	37.5	35.6	37.5

⟺ 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

Carichi assiali ammissibili relativi ai cuscinetti secondo variante HDB.

Rated overhung loads relevant to reinforced bearings type HDB.

Zulässige Radialkräfte der Lager gemäß Variante HDB.

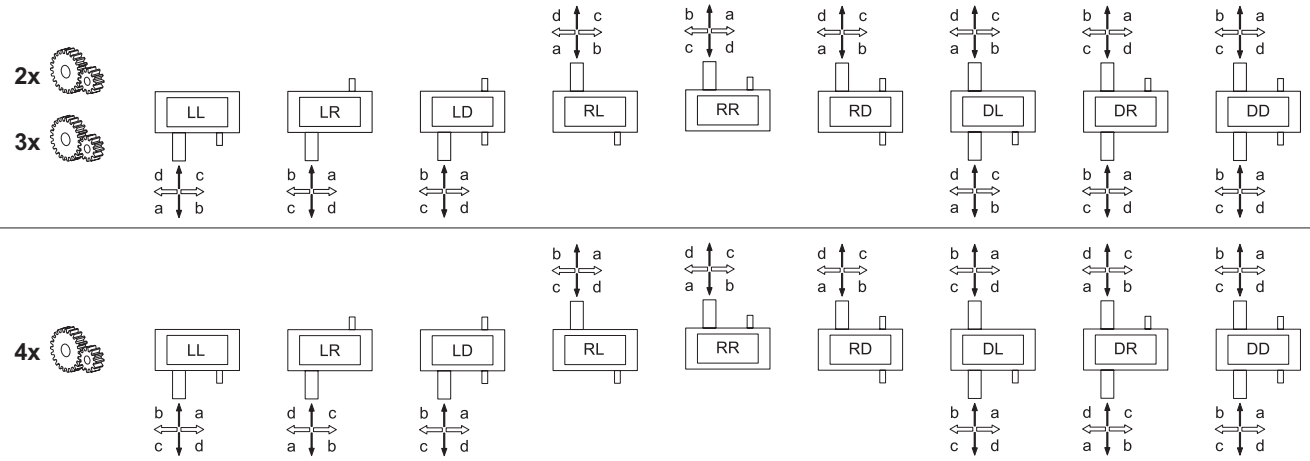
(—) Consultare il Servizio Tecnico Bonfiglioli

(—) Contact the Bonfiglioli Technical Service.

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

HDP 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.*

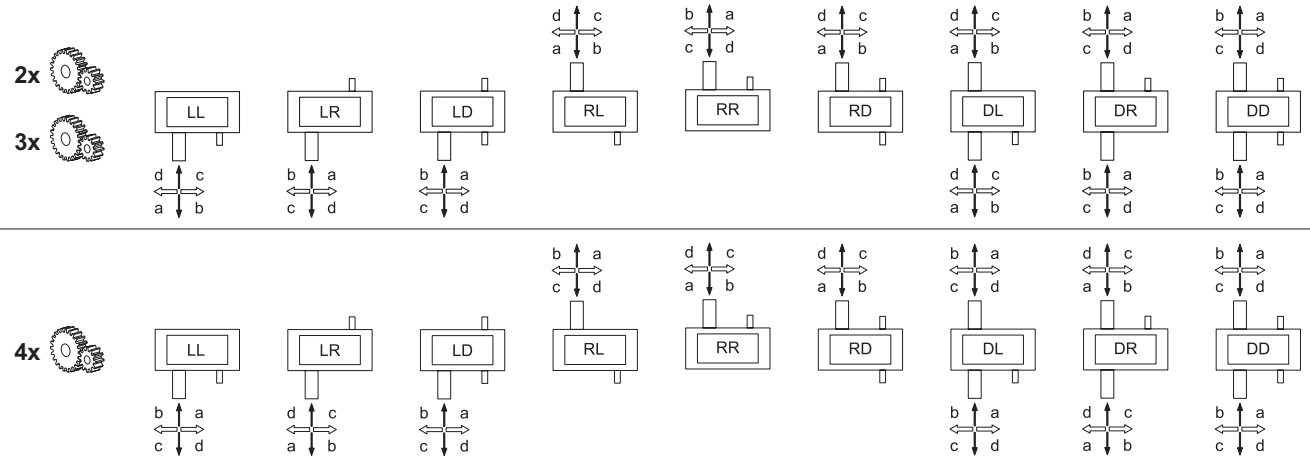
⟺ Drehrichtung der Abtriebswelle

↕ Wirkrichtung der Axialkraft

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

HDP 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

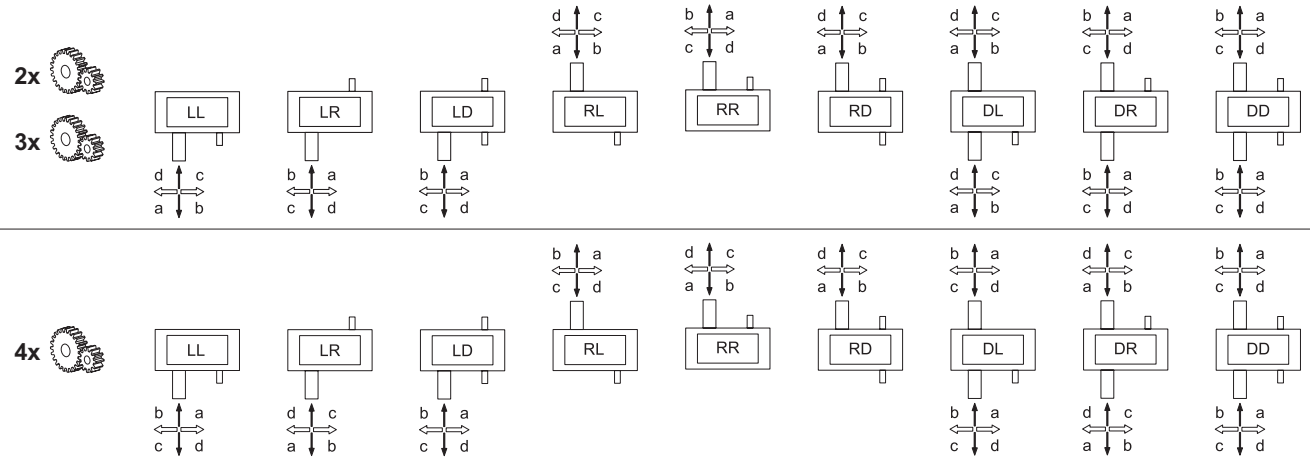
(—) Consultare il Servizio Tecnico Bonfiglioli

(—) Contact the Bonfiglioli Technical Service.

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

HDP 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

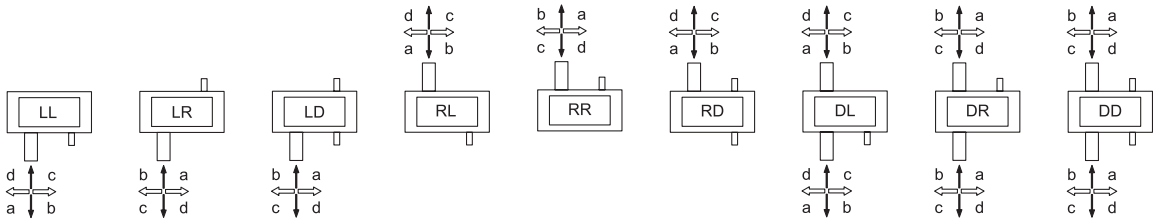
(—) Contact the Bonfiglioli Technical Service.

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

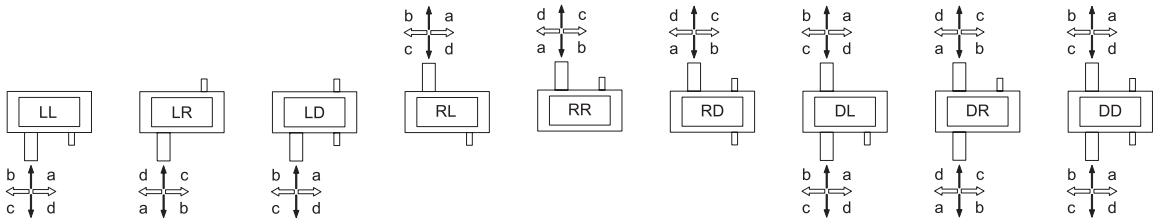
HDP 130

LP | H | S

2x / 3x



4x



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

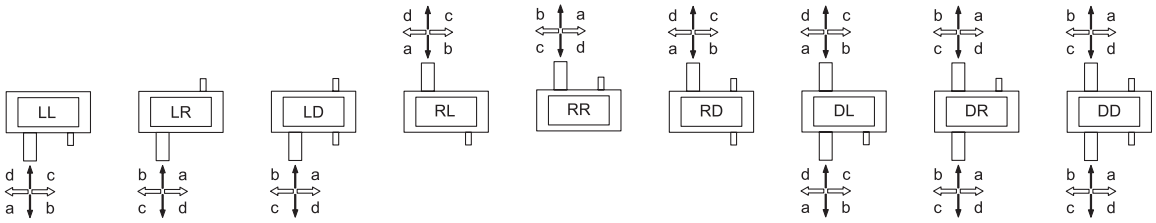
(—) Contact the Bonfiglioli Technical Service.

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

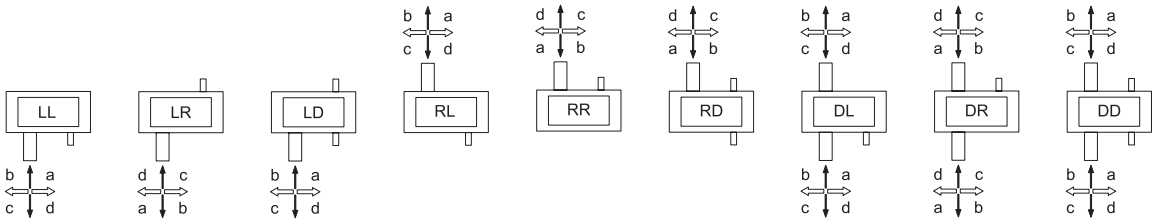
HDP 140

LP | H | S

2x
3x



4x



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

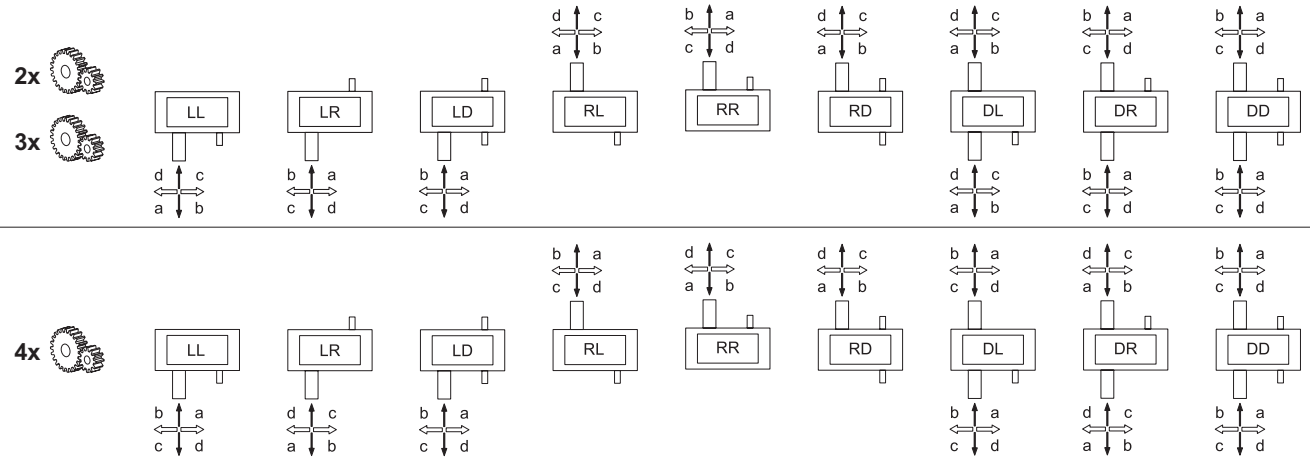
(—) Consultare il Servizio Tecnico Bonfiglioli

(—) Contact the Bonfiglioli Technical Service.

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

HDP 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

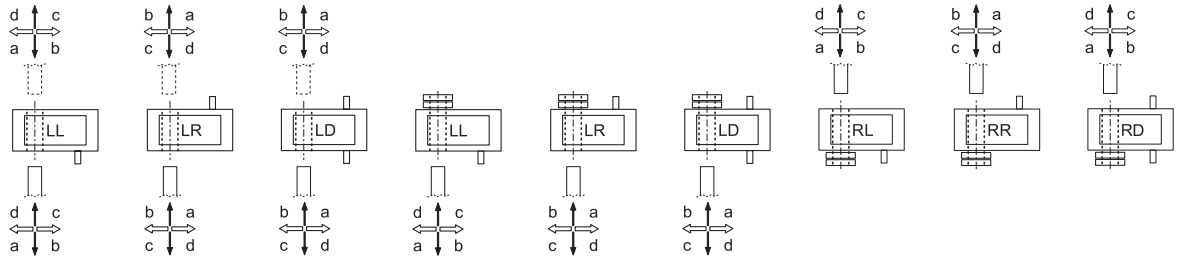
(—) *Contact the Bonfiglioli Technical Service.*

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

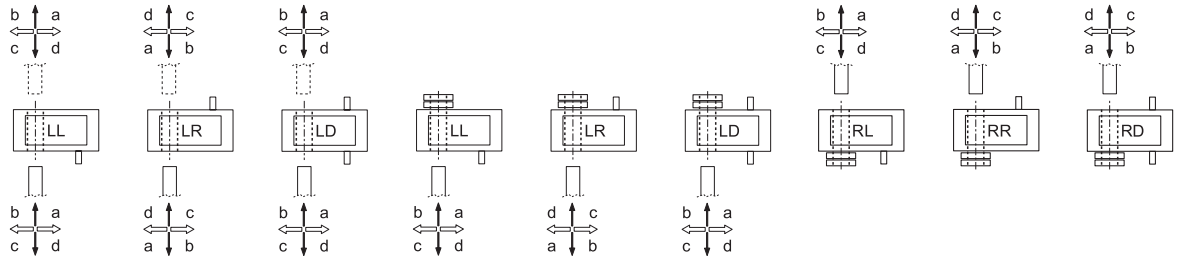
HDP 150 H S

2x

3x



4x



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

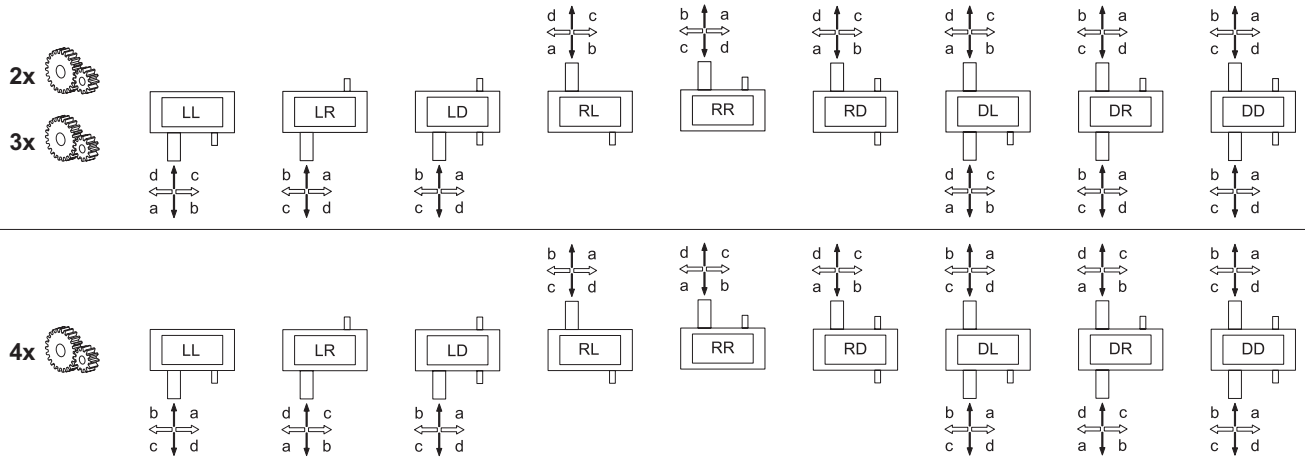
(—) Consultare il Servizio Tecnico Bonfiglioli

(—) *Contact the Bonfiglioli Technical Service.*

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

HDP 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

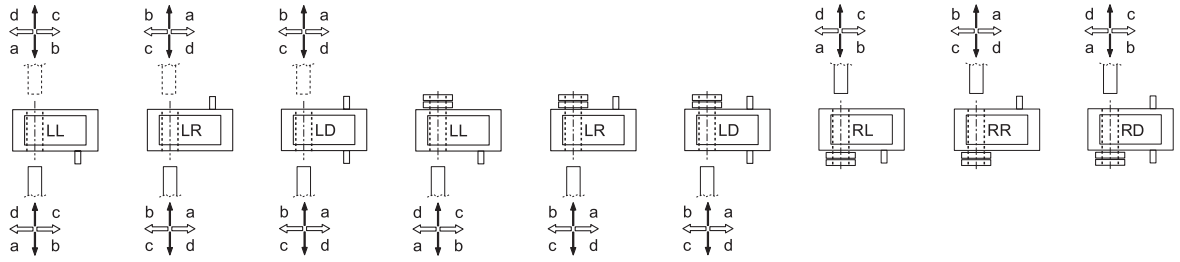
(—) Consultare il Servizio Tecnico Bonfiglioli

(—) *Contact the Bonfiglioli Technical Service.*

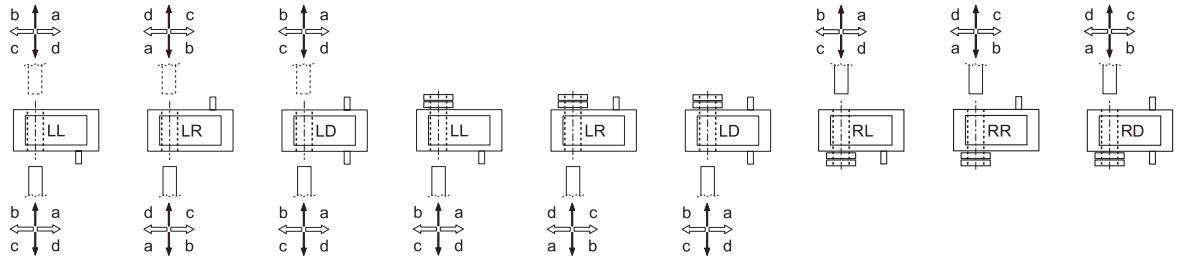
(—) Bitte wenden Sie sich an den technischen Kundendienst von Bonfiglioli.

HDP 160 H S

2x
3x



4x



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

⟸ ⟹ *direction of rotation of output shaft*

⟸ ⟹ Drehrichtung der Abtriebswelle

↓ ↑ verso di applicazione del carico assiale

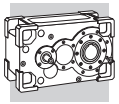
↓ ↑ *direction of application of axial force*

↓ ↑ Wirkrichtung der Axialkraft

(—) Consultare il Servizio Tecnico Bonfiglioli

(—) *Contact the Bonfiglioli Technical Service.*

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



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.

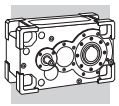
4.4 - MASS MOMENT OF INERTIA

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.

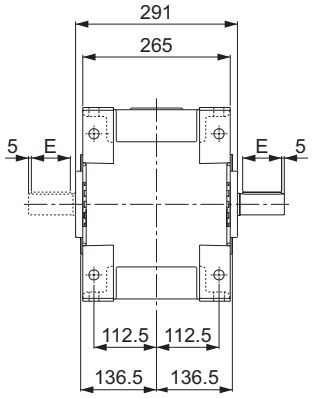
	i_N	$J \bullet 10^{-4}$ [kg m^2]										
		HDP 60	**HDP 70**	**HDP 80**	**HDP 90**	**HDP 100**	**HDP 110**	**HDP 120**	**HDP 130**	**HDP 140**	**HDP 150**	**HDP 160**
2x	**7.1**	120	—	—	—	1220	—	—	5602	—	—	—
	8.0	116	143	335	600	1170	1288	2558	5402	6157	12297	—
	9.0	95	133	314	570	918	1232	2481	4446	5858	11477	13554
	10.0	92	109	263	440	884	963	1804	4303	4840	11094	12503
	11.2	68	103	248	421	682	926	1759	3050	4627	7584	12014
	12.5	67	77	183	324	661	712	1285	2967	3279	7165	8226
	14.0	54	74	175	311	508	688	1256	1916	3155	6970	7689
	16.0	53	60	132	226	494	526	1038	1863	2062	4651	7439
	18.0	33	58	127	219	388	511	1019	1418	1983	4434	4983
	20.0	33	40	99	171	379	399	717	1383	1514	4332	4705
	22.4	—	38	95	166	374	390	705	1621	1462	—	4576
	25.0	—	—	—	—	—	378	689	—	1401	—	—
3x	**22.4**	33	—	—	—	346	—	—	1365	—	4112	—
	25.0	33	36	85	177	341	354	468	1343	1427	4002	4282
	28.0	29	35	83	174	307	348	461	1147	1394	3950	4140
	31.5	29	30	68	156	304	312	382	1134	1183	3433	4074
	35.5	27	30	67	154	279	308	378	1031	1163	3375	3521
	40.0	27	28	67	91	277	282	341	1023	1054	3348	3447
	45.0	24	27	66	90	261	280	338	959	1041	1306	3413
	50.0	24	25	44	82	260	263	296	953	974	1278	1347
	56.0	11	25	44	82	110	262	294	414	966	1266	1312
	63.0	11	12	41	77	109	111	137	410	451	1139	1296
	71.0	11	12	41	77	102	110	136	384	446	1125	1161
	80.0	11	11	21	39	102	103	126	382	390	1118	1143
	90.0	10	11	21	38	97	103	126	365	387	—	1134
	100.0	10	10	20	36	97	98	112	364	369	—	—
	112.0	—	10	20	36	97	97	111	374	367	—	—
	125.0	—	—	—	—	—	97	111	—	365	—	—
4x	**90.0**	—	—	—	—	—	—	—	—	—	510	—
	100.0	—	—	—	—	—	—	—	—	—	503	519
	112.0	—	—	—	—	46	—	—	244	—	500	511
	125.0	—	—	—	—	46	47	51	243	—	470	507
	140.0	—	—	—	—	45	46	51	237	245	466	475
	160.0	—	—	—	—	44	45	49	239	238	465	471
	180.0	—	—	—	—	43	40	49	214	237	184	469
	200.0	—	—	—	—	43	44	46	214	233	182	187
	224.0	—	—	—	—	39	43	46	212	215	181	184
	250.0	—	—	—	—	39	16	41	211	212	173	183
	280.0	—	—	—	—	16	16	41	74	212	172	175
	315.0	—	—	—	—	16	16	17	73	74	172	173
	355.0	—	—	—	—	15	16	17	68	74	—	173
	400.0	—	—	—	—	15	15	15	68	68	—	—
	450.0	—	—	—	—	14	15	16	67	68	—	—
	500.0	—	—	—	—	14	14	15	67	67	—	—

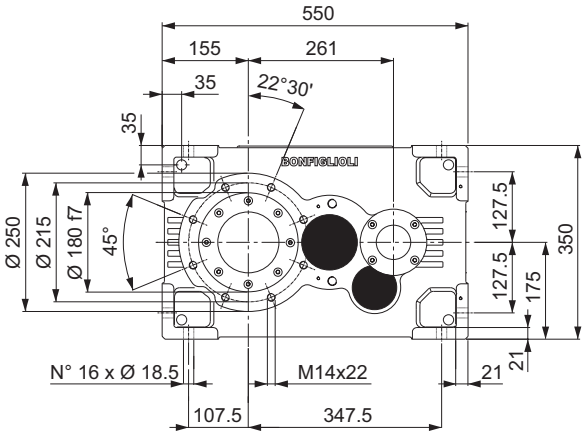


4.5 - RAPPORTI ESATTI — *4.5 - EXACT RATIOS* — 4.5 - EXAKTE ÜBERSETZUNG

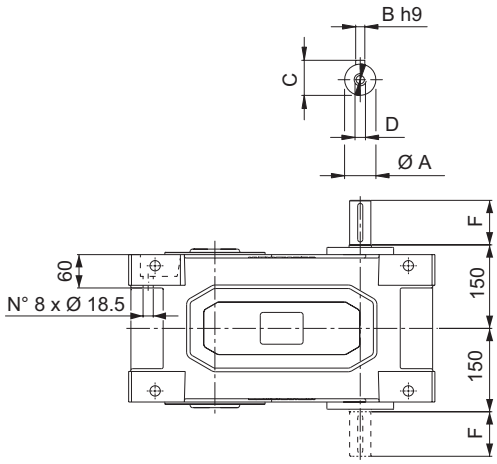
	i_N	i										
		HDP 60	HDP 70	HDP 80	HDP 90	HDP 100	HDP 110	HDP 120	HDP 130	HDP 140	HDP 150	HDP 160
2x	**7.1**	7.146	—	—	—	7.400	—	—	7.263	—	—	—
	8.0	8.031	8.039	8.063	7.929	8.222	8.085	7.907	7.929	8.359	7.905	—
	9.0	8.969	9.333	9.361	8.828	9.106	8.956	8.611	8.613	9.250	9.263	8.977
	10.0	10.079	10.090	9.844	10.059	10.118	9.949	10.302	9.402	9.913	10.087	10.478
	11.2	11.156	11.714	11.429	11.200	11.250	11.021	11.219	11.307	10.969	11.063	11.389
	12.5	12.538	12.551	12.600	12.214	12.500	12.292	13.013	12.343	13.013	12.963	12.563
	14.0	13.533	14.571	14.629	13.600	14.160	13.616	14.171	14.133	14.400	14.116	14.663
	16.0	15.209	15.225	15.488	15.807	15.733	15.471	15.976	15.429	16.267	15.370	15.938
	18.0	17.267	17.676	17.981	17.600	18.000	17.138	17.398	17.431	18.000	18.010	17.454
	20.0	19.404	19.425	19.441	20.086	20.000	19.667	20.624	19.029	20.062	19.612	20.371
	22.4	—	22.552	22.571	22.364	21.786	21.786	22.459	21.652	22.200	—	22.143
	25.0	—	—	—	—	—	25.000	25.357	—	24.941	—	—
3x	**22.4**	22.686	—	—	—	22.765	—	—	21.785	—	21.510	—
	25.0	25.494	25.521	25.800	25.406	25.294	24.873	25.756	23.781	25.073	25.205	24.427
	28.0	28.219	29.630	29.954	28.288	28.125	27.553	28.048	28.599	27.744	27.448	28.510
	31.5	31.713	31.746	31.713	32.878	31.250	30.729	32.533	31.220	32.916	29.886	30.990
	35.5	34.231	36.857	36.818	36.608	35.400	34.040	35.429	35.749	36.424	35.019	33.938
	40.0	38.470	38.510	39.809	40.036	39.333	38.678	39.940	39.025	41.145	38.135	39.611
	45.0	43.675	44.710	46.218	44.578	45.000	42.845	43.495	44.090	45.529	43.460	43.056
	50.0	49.082	49.134	51.625	51.811	50.000	49.167	51.560	48.131	50.746	50.924	49.353
	56.0	56.578	57.044	59.937	57.689	55.547	54.464	56.148	56.533	56.153	55.456	57.603
	63.0	63.583	63.650	64.805	65.837	61.719	60.690	64.253	61.714	65.067	60.381	62.612
	71.0	68.633	73.898	75.238	73.306	69.915	67.229	69.971	70.667	72.000	70.752	68.568
	80.0	77.131	77.213	76.405	77.818	77.683	76.389	78.882	77.143	81.333	77.048	80.031
	90.0	87.567	89.644	88.706	86.646	88.875	84.619	85.902	87.156	90.000	—	86.990
	100.0	98.408	98.513	95.911	98.884	98.750	97.104	101.830	95.143	100.311	—	—
	112.0	—	114.373	111.352	110.102	107.567	107.567	110.892	108.259	111.000	—	—
	125.0	—	—	—	—	—	123.438	125.201	—	124.704	—	—
4x	**90.0**	—	—	—	—	—	—	—	—	—	88.989	—
	100.0	—	—	—	—	—	—	—	—	—	104.273	101.055
	112.0	—	—	—	—	110.625	—	—	111.182	—	113.553	117.948
	125.0	—	—	—	—	122.917	120.868	127.964	121.371	—	123.638	128.205
	140.0	—	—	—	—	139.240	133.891	139.352	138.978	141.600	144.873	140.402
	160.0	—	—	—	—	154.711	168.525	157.099	151.714	159.956	157.765	163.872
	180.0	—	—	—	—	177.000	190.972	171.080	176.667	177.000	170.942	178.122
	200.0	—	—	—	—	196.667	193.389	202.801	192.857	197.279	200.301	194.121
	225.0	—	—	—	—	222.188	214.226	220.849	217.889	225.000	218.127	226.571
	250.0	—	—	—	—	246.875	248.643	254.575	237.857	250.778	237.499	246.272
	280.0	—	—	—	—	286.437	275.434	277.231	274.481	277.500	278.290	269.702
	315.0	—	—	—	—	318.263	312.958	323.176	299.636	315.912	303.056	314.787
	355.0	—	—	—	—	359.563	346.679	351.936	348.917	349.575	—	342.160
	400.0	—	—	—	—	399.514	392.856	405.681	380.893	401.583	—	—
	450.0	—	—	—	—	457.071	440.694	454.317	469.768	444.375	—	—
	500.0	—	—	—	—	507.857	499.393	523.697	534.530	495.286	—	—

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



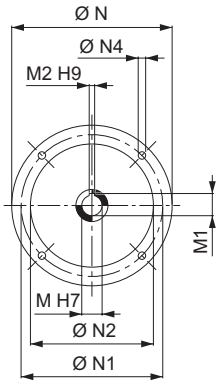


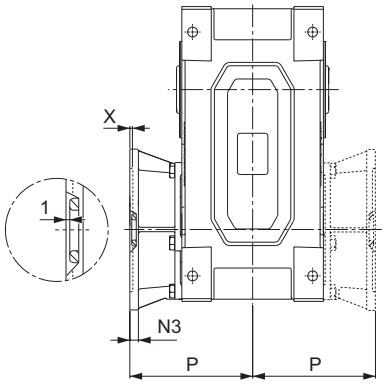
VP



VP	i =	A	B	C	D	E	F	kg
HDP 60 2	**7.1 ... 15.2**	38 k6	10	41	M12x28	70	80	161
HDP 60 2	**17.3 ... 19.4**	32 k6	10	35	M12x28	70	80	161
HDP 60 3	**22.7 ... 49.1**	32 k6	10	35	M12x28	70	80	164
HDP 60 3	**56.6 ... 98.4**	28 j6	8	31	M10x22	50	60	164

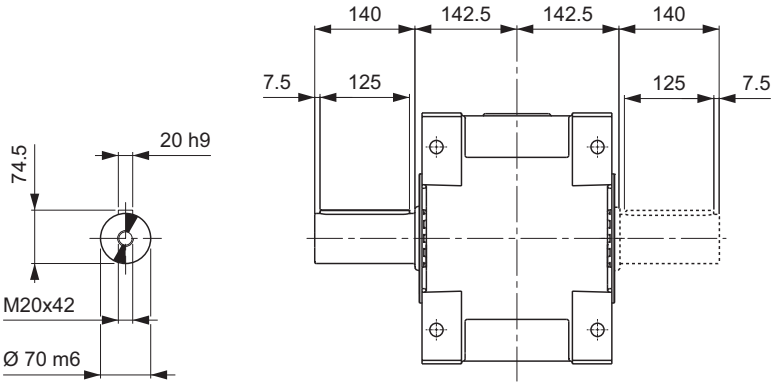
AD





AD	M	M1	M2	N	N1	N2	N3	N4	X	P
HDP 60 3_ 112	28	31.3	8	250	215	180	15	14	5	220
HDP 60 3_ 132	38	41.3	10	300	265	230	16	14	5	230
HDP 60 3_ 160	42	45.3	12	350	300	250	23	18	6	261
HDP 60 3_ 180	48	51.8	14	350	300	250	23	18	6	261

LP



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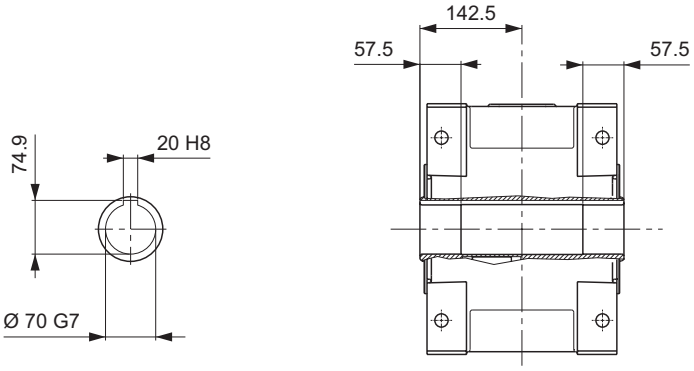

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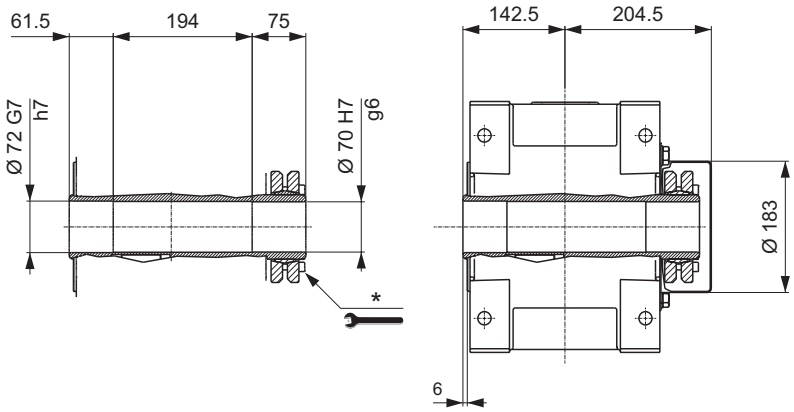
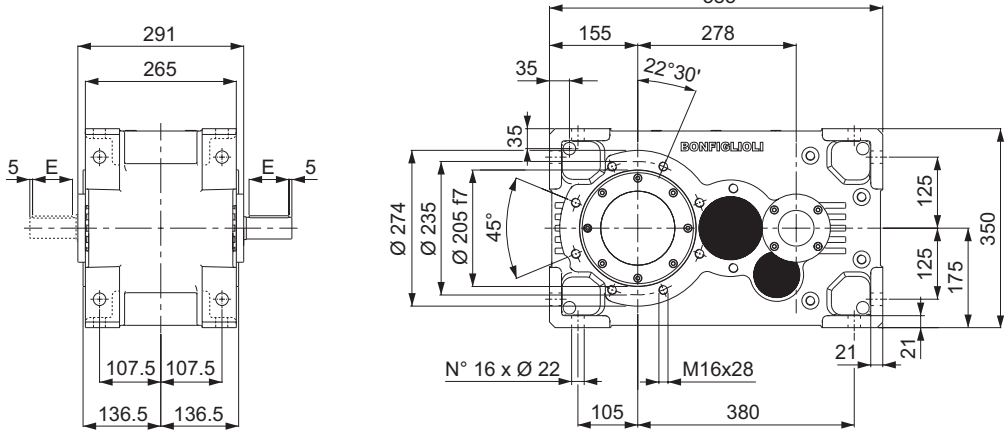


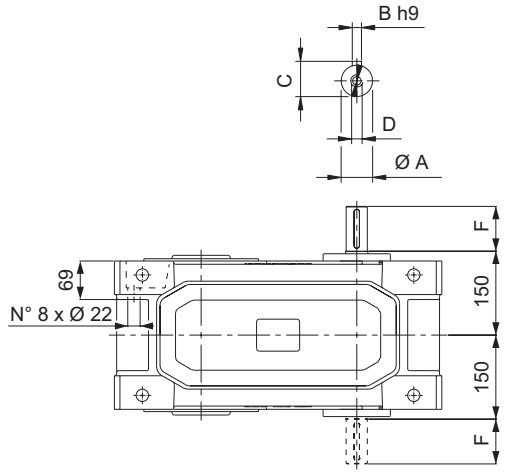
* Per un corretto utilizzo riferirsi al "MANUALE USO E MANUTENZIONE".

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

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

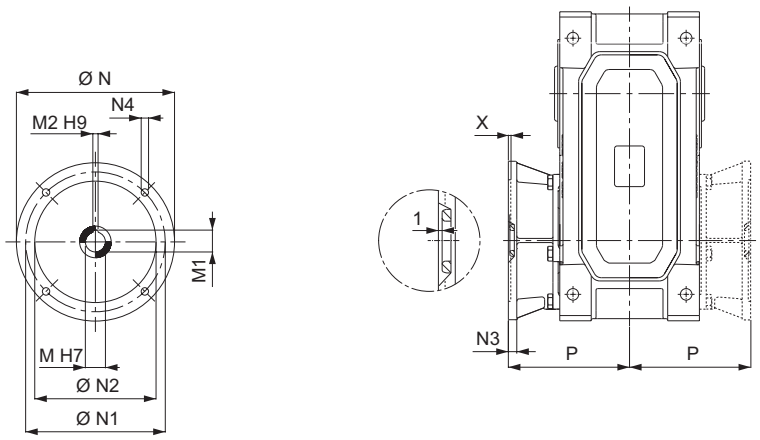


VP



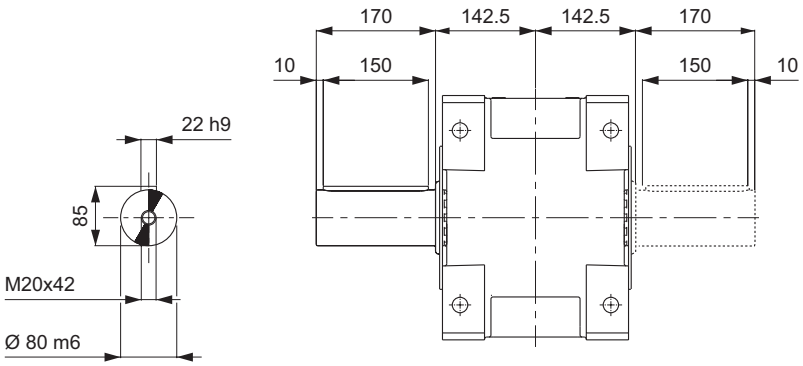
VP	i =	A	B	C	D	E	F	Kg
HDP 70 2	**8.0 ... 17.7**	38 k6	10	41	M12x28	70	80	189
HDP 70 2	**19.4 ... 22.6**	32 k6	10	35	M12x28	70	80	189
HDP 70 3	**25.5 ... 57.0**	32 k6	10	35	M12x28	70	80	192
HDP 70 3	**63.7 ... 114.4**	28 j6	8	31	M10x22	50	60	192

AD



AD	M	M1	M2	N	N1	N2	N3	N4	X	P
HDP 70 3_ 112	28	31.3	8	250	215	180	15	14	5	220
HDP 70 3_ 132	38	41.3	10	300	265	230	16	14	5	230
HDP 70 3_ 160	42	45.3	12	350	300	250	23	18	6	261
HDP 70 3_ 180	48	51.8	14	350	300	250	23	18	6	261
HDP 70 3_ 200	55	59.3	16	400	350	300	-	M16x23	7	286

LP



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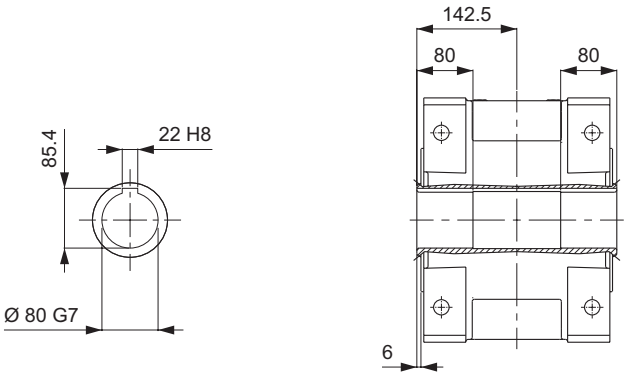
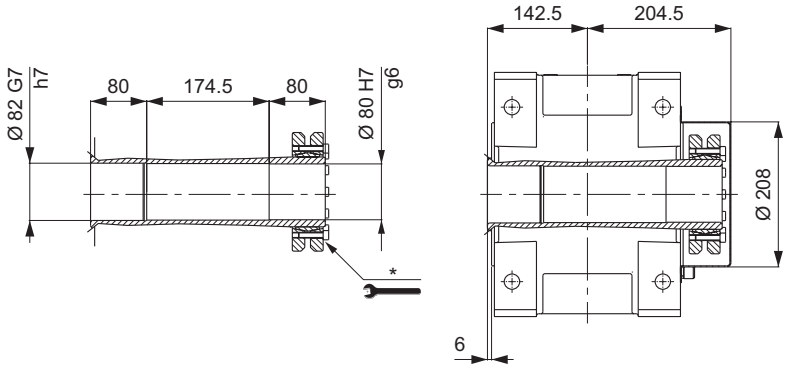


S



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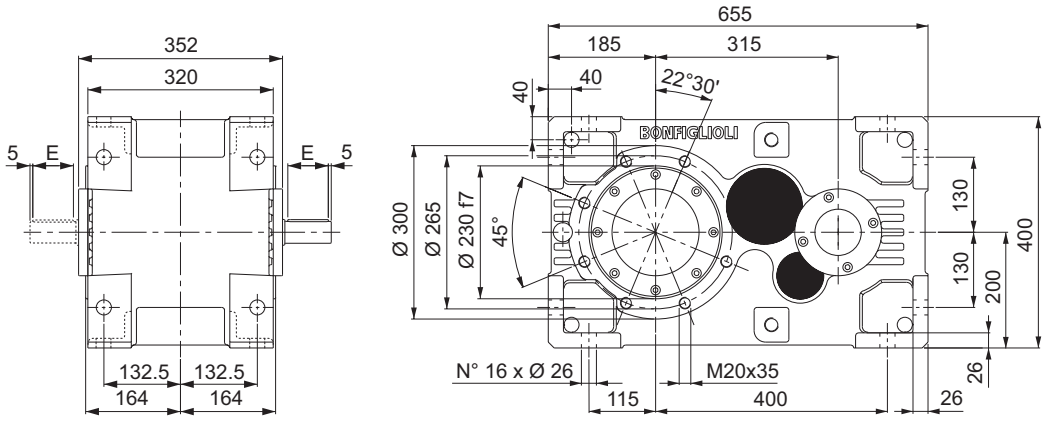
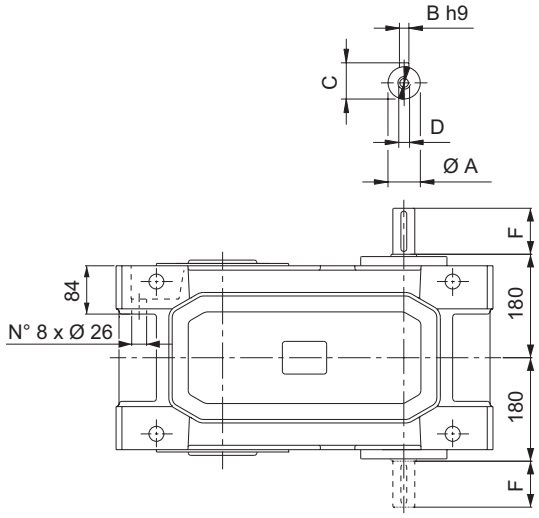
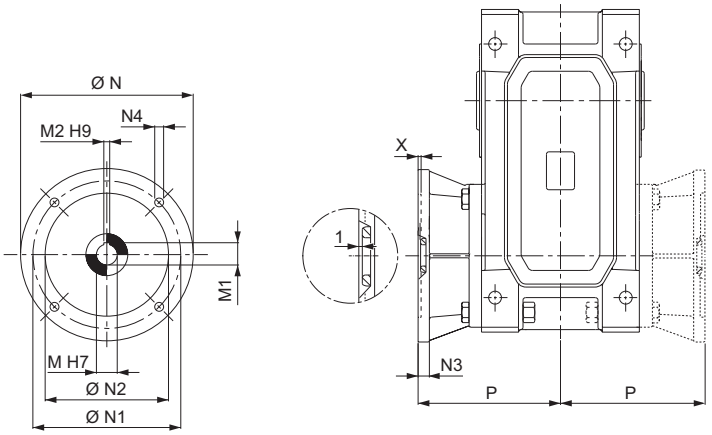


VP



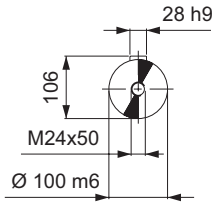
VP	i =	A	B	C	D	E	F	Kg
HDP 80 2	**8.1 ... 14.6**	45 k6	14	48.5	M16x36	100	110	301
HDP 80 2	**15.5 ... 22.6**	38 k6	10	41	M12x28	70	80	301
HDP 80 3	**25.8 ... 75.2**	38 k6	10	41	M12x28	70	80	306
HDP 80 3	**76.4 ... 114.4**	28 j6	8	31	M10x22	50	60	306

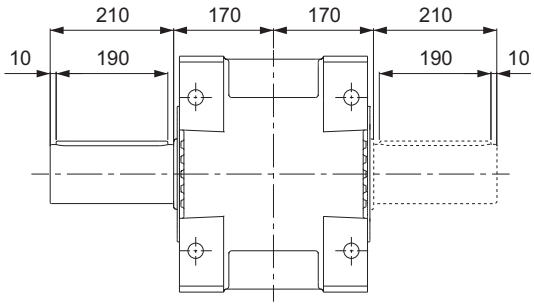
AD



AD	M	M1	M2	N	N1	N2	N3	N4	X	P
HDP 80 3_ 132	38	41.3	10	300	265	230	16	14	5	257.5
HDP 80 3_ 160	42	45.3	12	350	300	250	23	18	6	288.5
HDP 80 3_ 180	48	51.8	14	350	300	250	23	18	6	288.5
HDP 80 3_ 200	55	59.3	16	400	350	300	-	M16x23	7	313.5

LP





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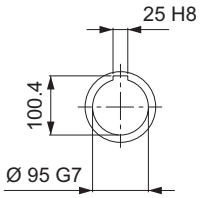
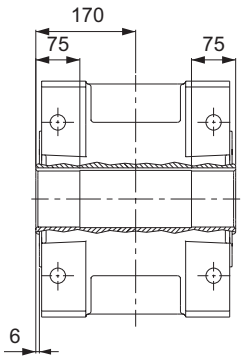
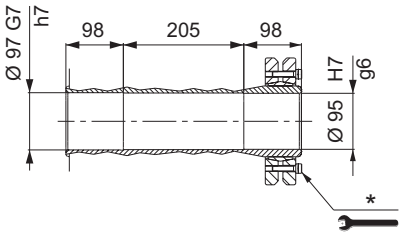
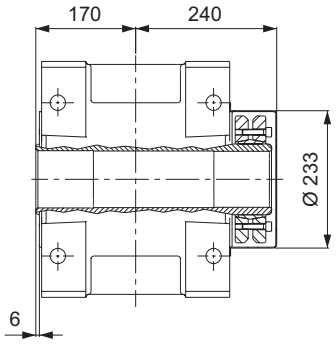




S





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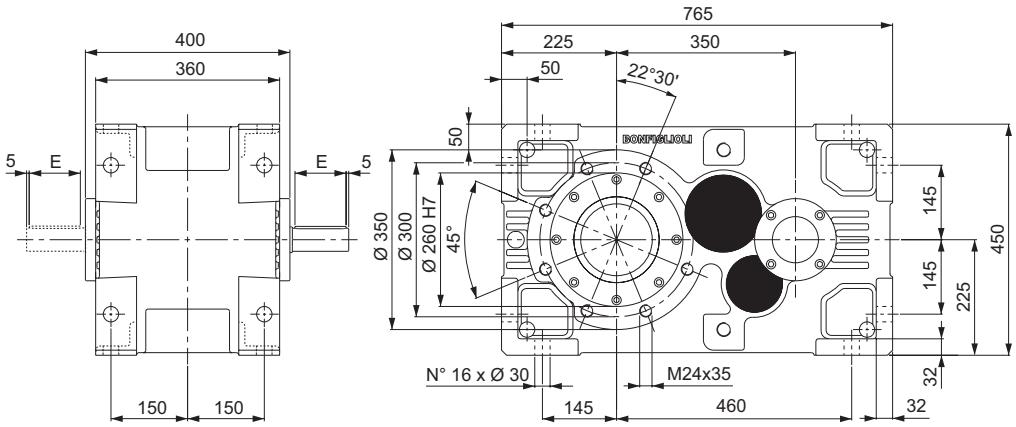
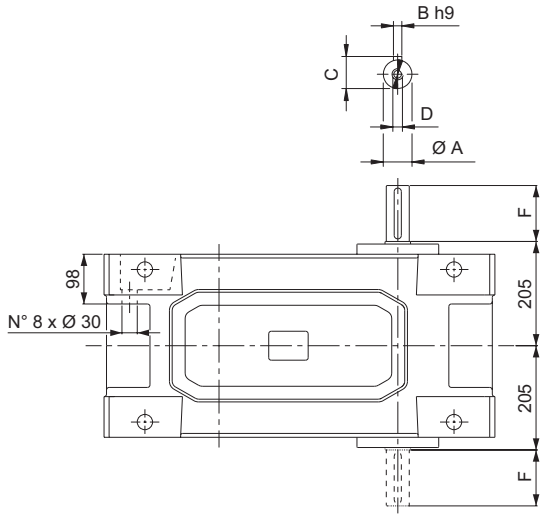
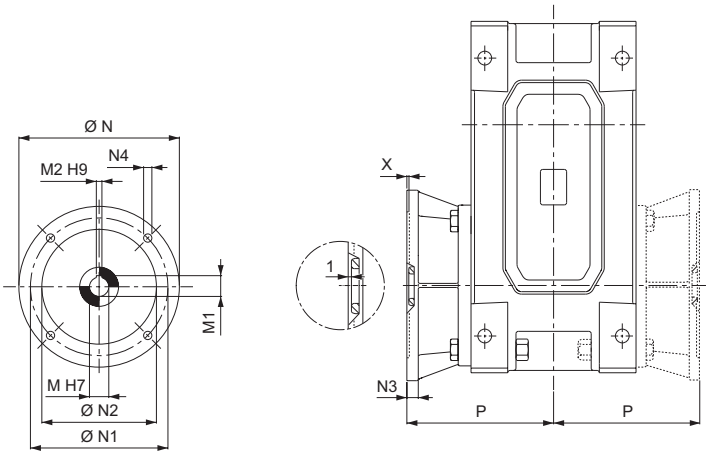


VP



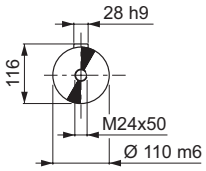
VP	i =	A	B	C	D	E	F	Kg
HDP 90 2	**7.9 ... 13.6**	50 k6	14	53.5	M16x36	100	110	429
HDP 90 2	**15.8 ... 22.4**	45 k6	14	48.5	M16x36	100	110	429
HDP 90 3	**25.4 ... 73.3**	45 k6	14	48.5	M16x36	100	110	440
HDP 90 3	**77.8 ... 110.1**	32 k6	10	35	M12x28	70	80	440

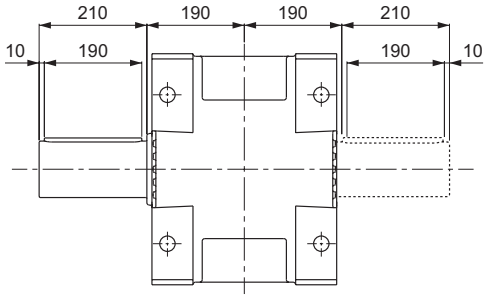
AD



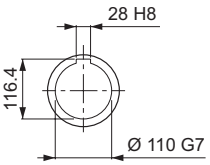
AD	M	M1	M2	N	N1	N2	N3	N4	X	P
HDP 90 3_ 160	42	45.3	12	350	300	250	23	18	6	308.5
HDP 90 3_ 180	48	51.8	14	350	300	250	23	18	6	308.5
HDP 90 3_ 200	55	59.3	16	400	350	300	-	M16x23	7	333.5

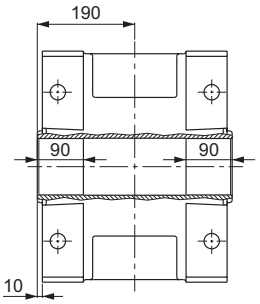
LP





H





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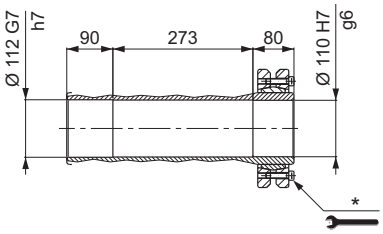

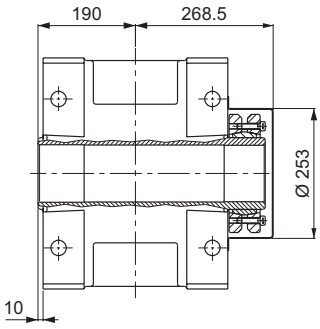

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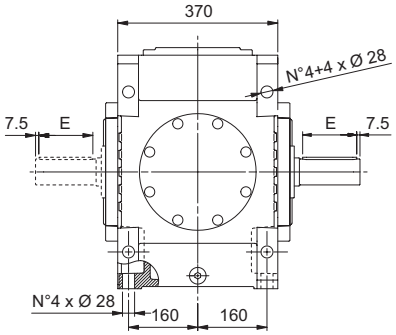
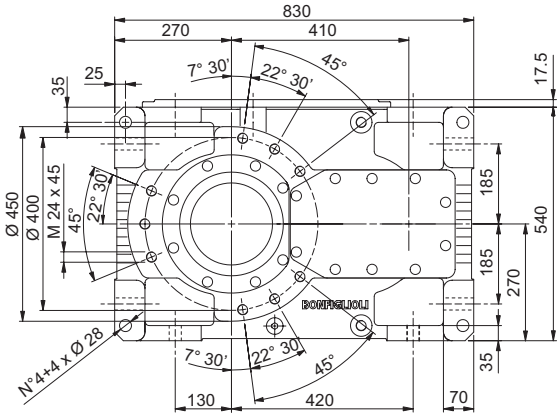
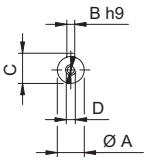
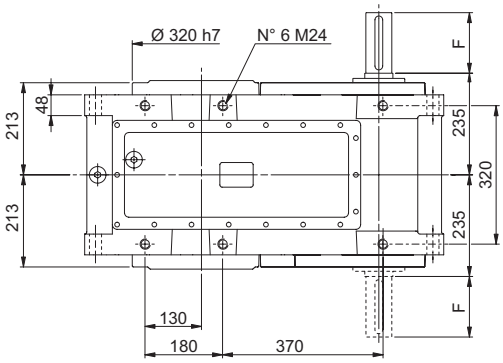
HDP 100 2

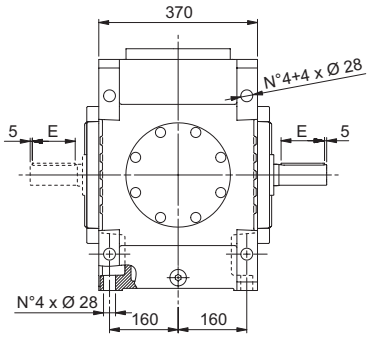


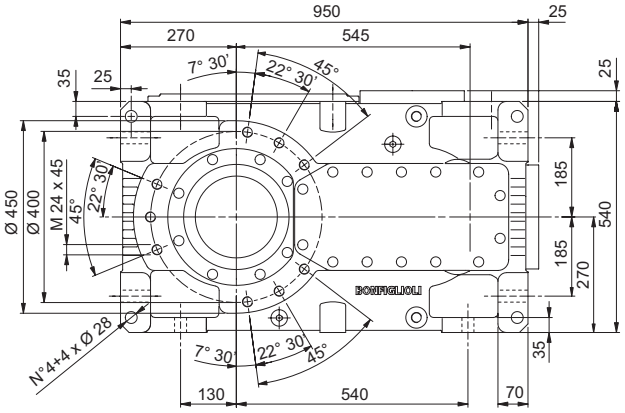


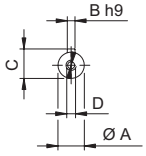


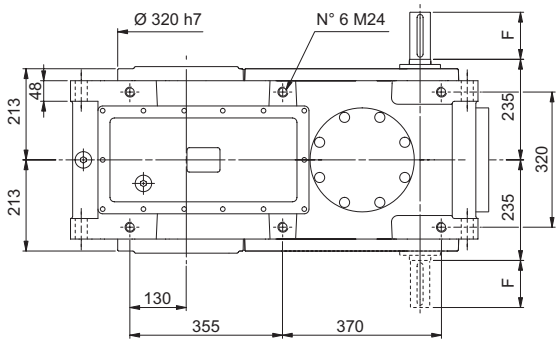


HDP 100 3
HDP 100 4



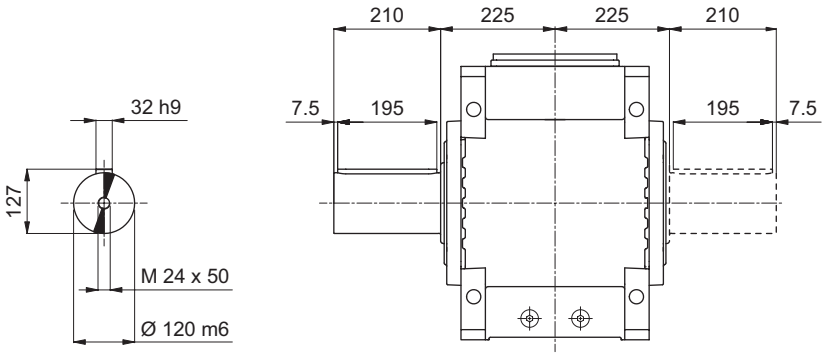




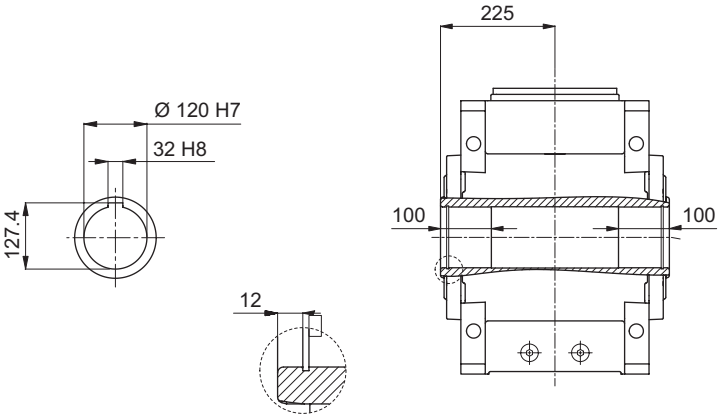


VP	i =	A	B	C	D	E	F	Kg
HDP 100 2	**7.4 … 21.8**	60 m6	18	64	M20x42	125	140	645
HDP 100 3	**22.8 … 50**	48 k6	14	51.5	M16x36	100	110	735
HDP 100 3	**55.5 … 107.8**	45 k6	14	48.5	M16x36	100	110	735
HDP 100 4	**110.6 … 507.9**	32 k6	10	35	M12x28	70	80	730

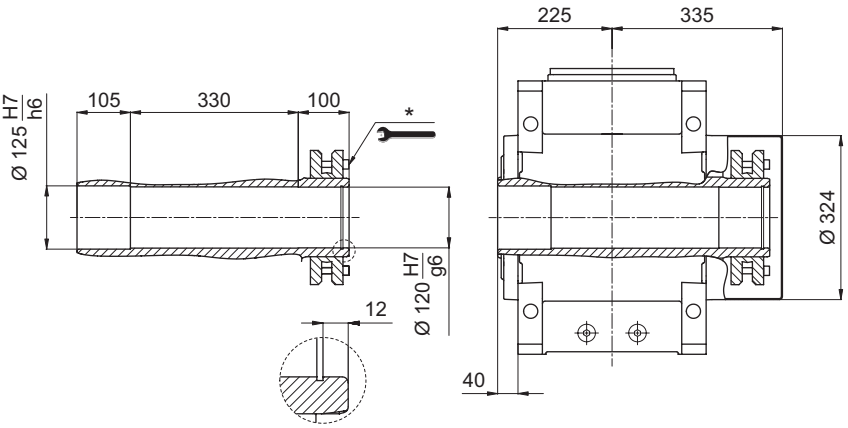
LP



H



S



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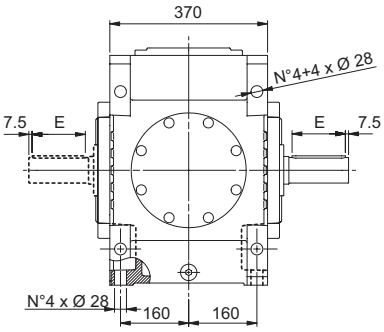
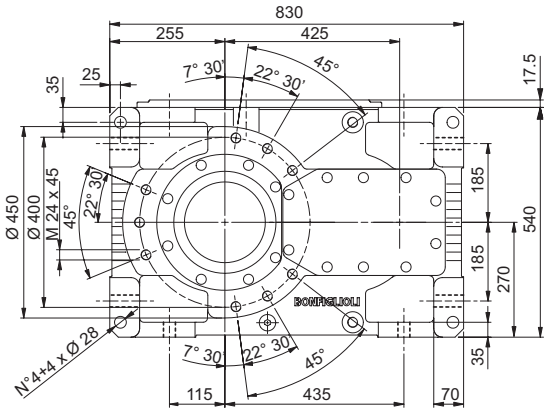
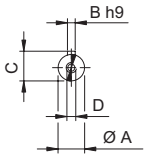
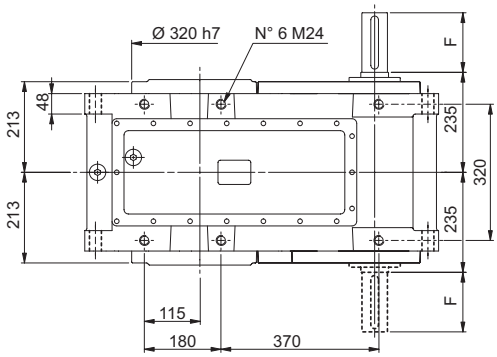
HDP 110 2

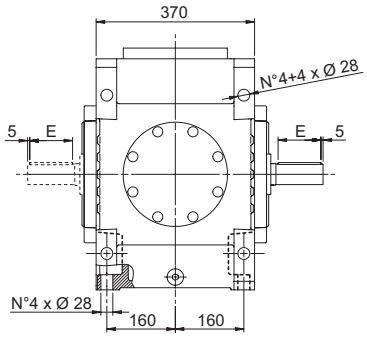


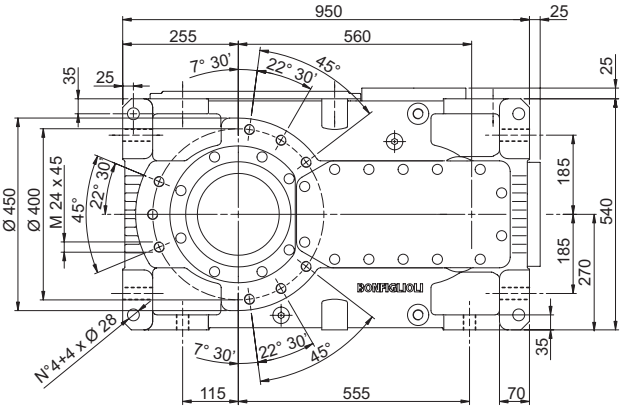


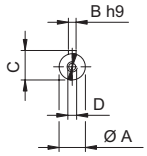


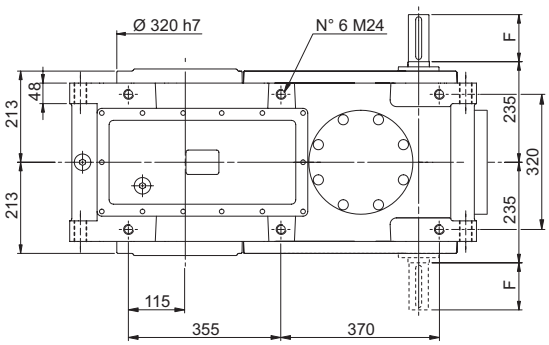


HDP 110 3
HDP 110 4



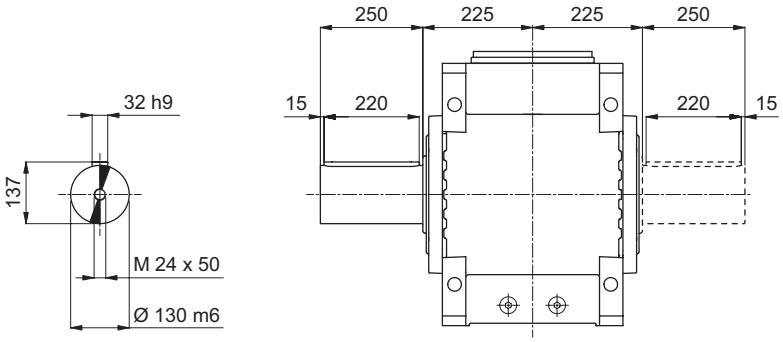




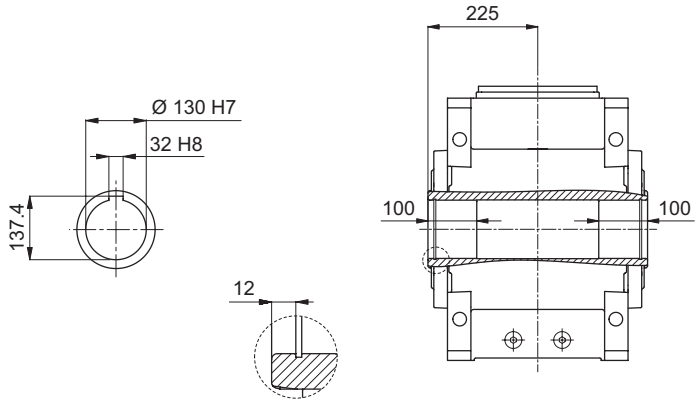


VP	i =	A	B	C	D	E	F	Kg
HDP 110 2	**8.1 … 25.0**	60 m6	18	64	M20x42	125	140	690
HDP 110 3	**24.9 … 54.5**	48 k6	14	51.5	M16x36	100	110	770
HDP 110 3	**60.7 … 123.5**	45 k6	14	48.5	M16x36	100	110	770
HDP 110 4	**120.9 … 499.4**	32 k6	10	35	M12x28	70	80	755

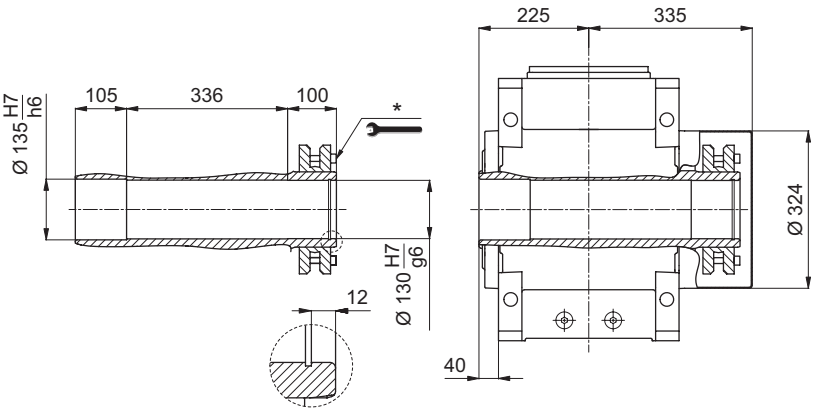
LP



H



S



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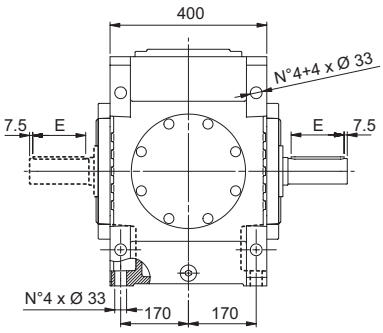
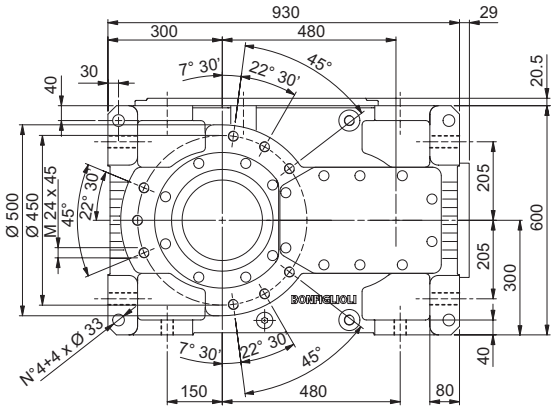
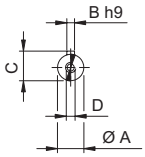
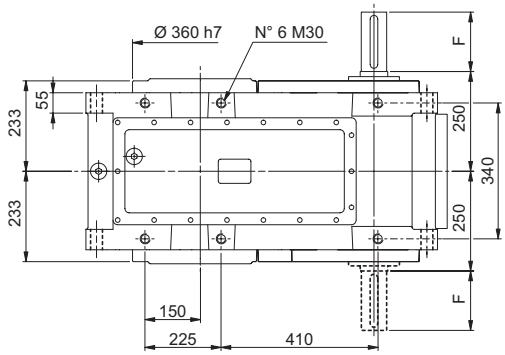
HDP 120 2

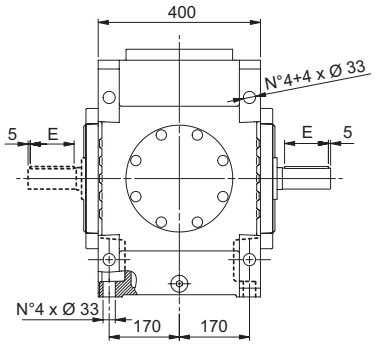


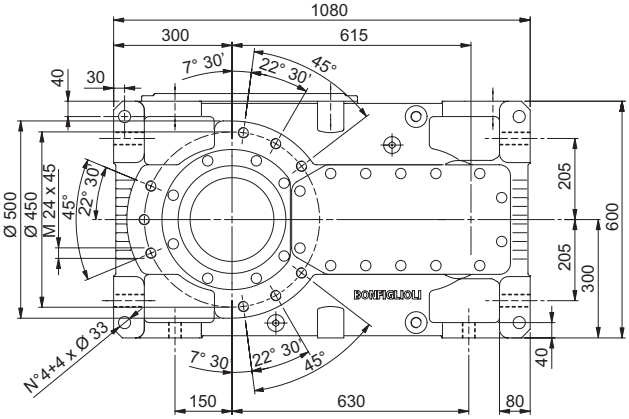


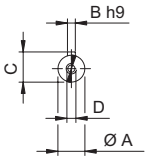


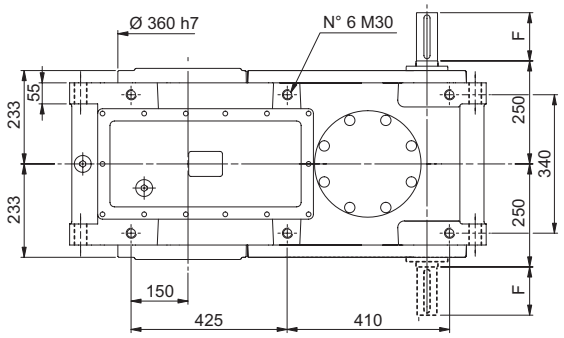


HDP 120 3
HDP 120 4



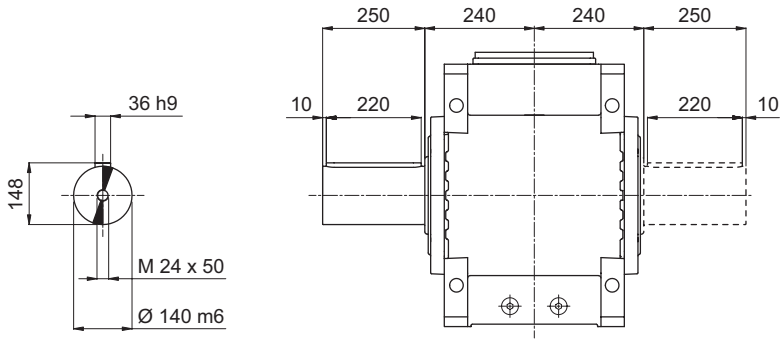




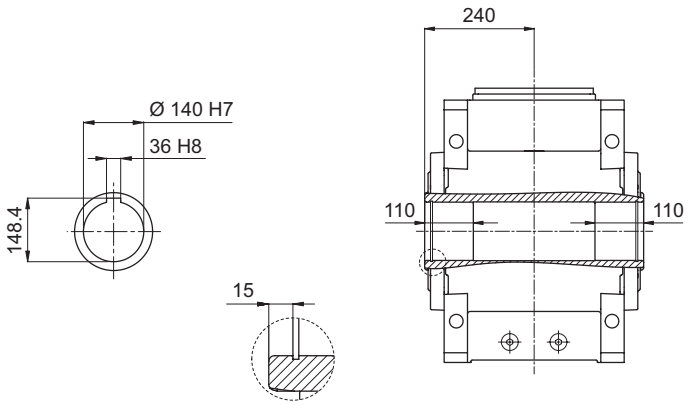


VP	i =	A	B	C	D	E	F	Kg
HDP 120 2	**7.9 … 25.4**	70 m6	20	74.5	M20x42	125	140	940
HDP 120 3	**25.8 … 56.1**	48 k6	14	51.5	M16x36	100	110	1045
HDP 120 3	**64.3 … 125.2**	45 k6	14	48.5	M16x36	100	110	1045
HDP 120 4	**128 … 523.7**	32 k6	10	35	M12x36	70	80	1030

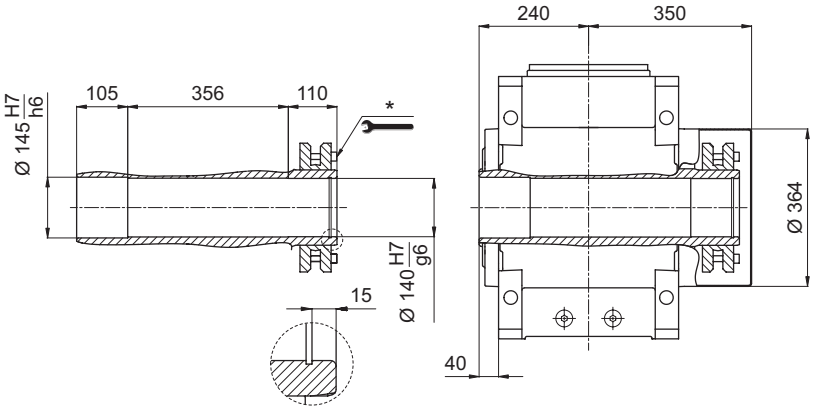
LP



H



S



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

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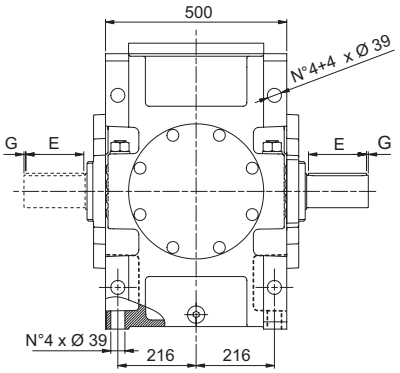
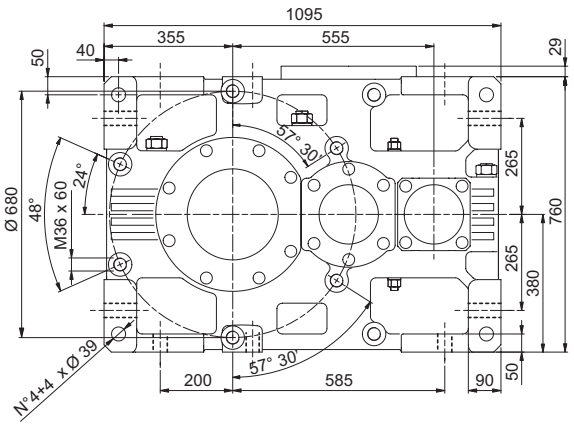
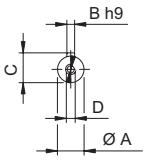
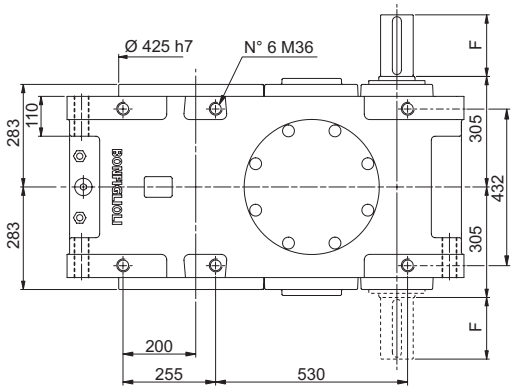
* Zur Gewährleistung eines korrekten Gebrauchs die "BETRIEBS- UND WARTUNGSANLEITUNG" konsultieren.

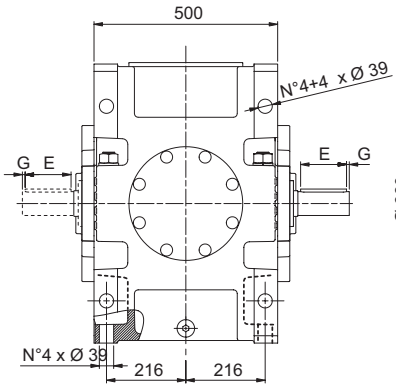


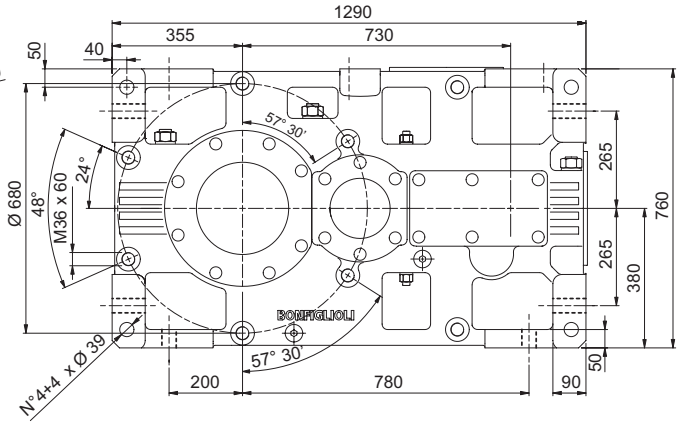


HDP 130 2

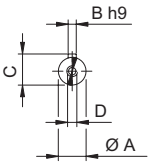


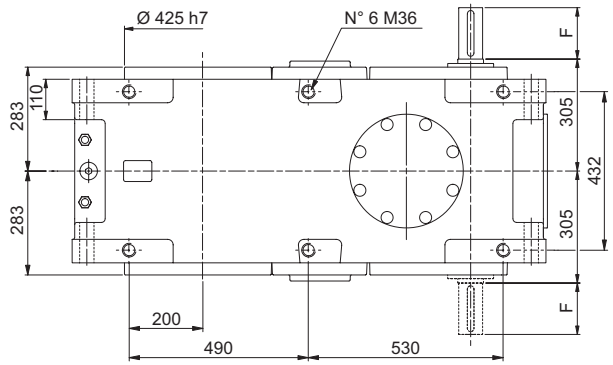






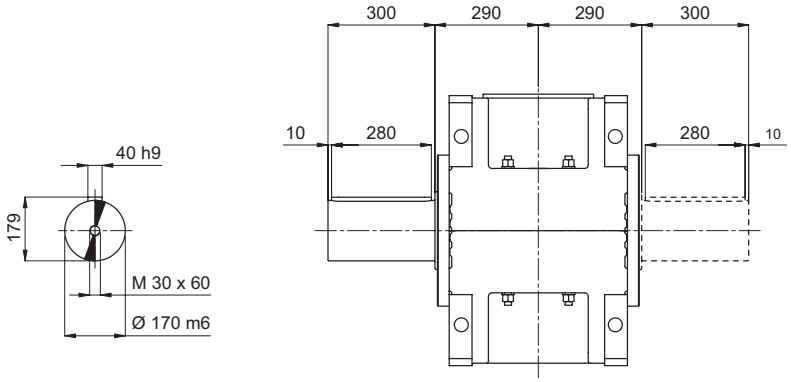
HDP 130 3
HDP 130 4



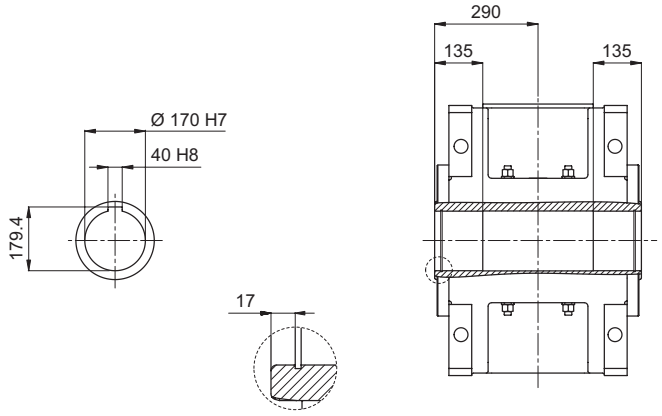


VP	i =	A	B	C	D	E	F	G	Kg
HDP 130 2	**7.3 … 12.3**	90 m6	25	95	M24x50	160	170	5	1695
HDP 130 2	**14.1 … 21.7**	70 m6	20	74.5	M20x42	125	140	7.5	1695
HDP 130 3	**21.8 … 48.1**	65 m6	18	69	M20x42	125	140	7.5	1810
HDP 130 3	**56.5 … 108.3**	50 k6	14	53.5	M16x36	100	110	5	1810
HDP 130 4	**111.2 … 237.9**	42 k6	12	45	M16x36	100	110	5	1845
HDP 130 4	**274.5 … 534.5**	32 k6	10	35	M12x28	70	80	5	1845

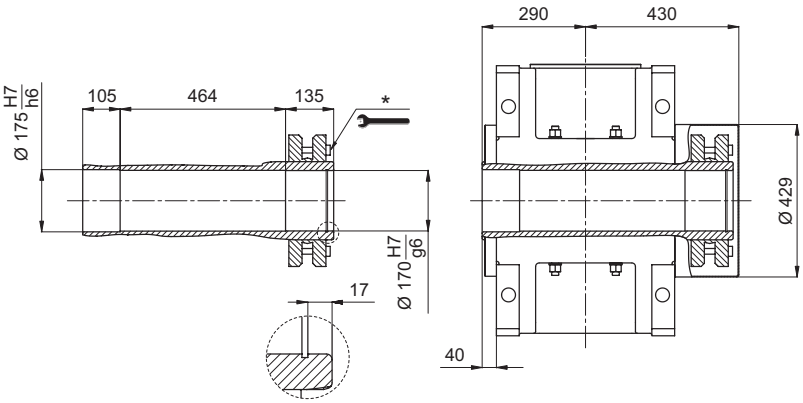
LP



H



S



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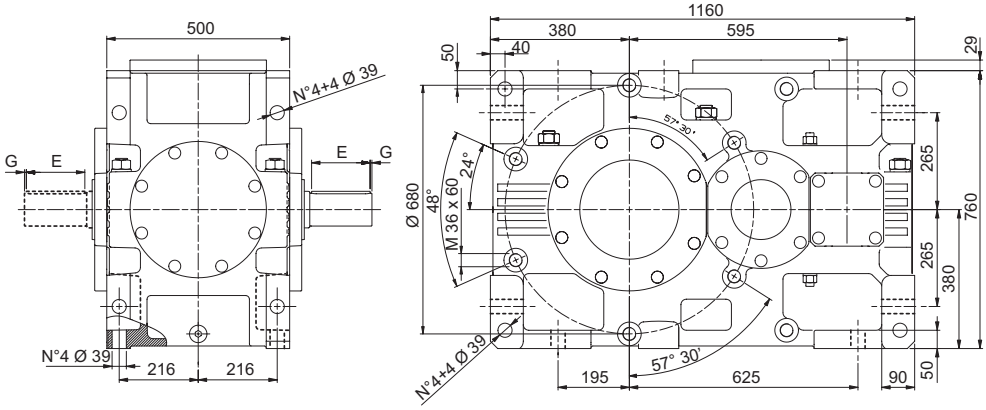
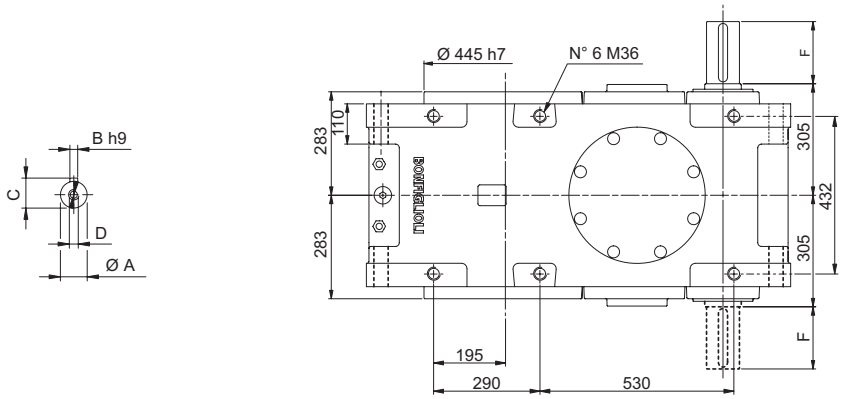
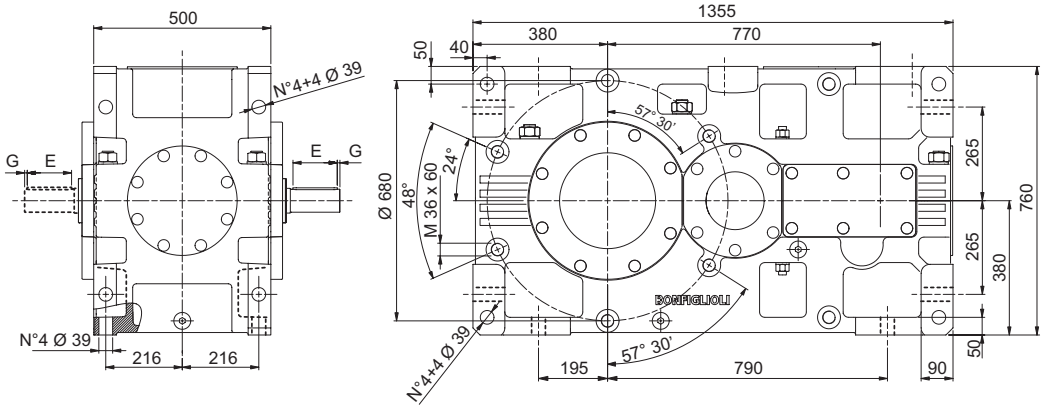
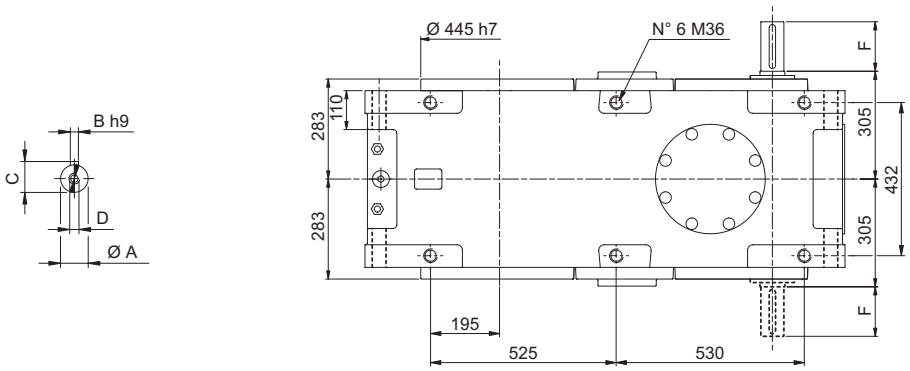


HDP 140 2



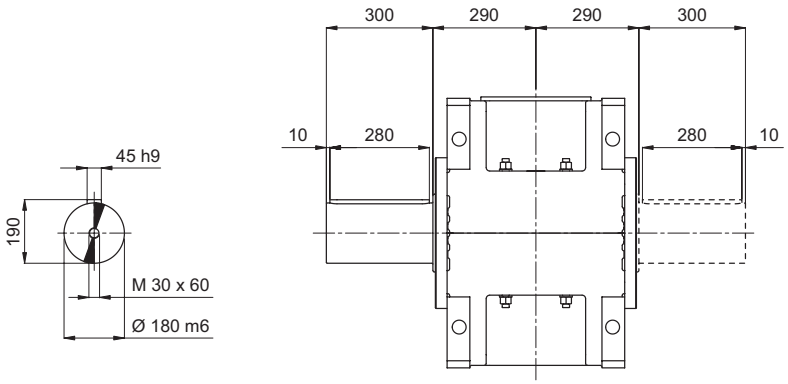


HDP 140 3
HDP 140 4



VP	i =	A	B	C	D	E	F	G	Kg
HDP 140 2	**8.4 … 14.4**	90 m6	25	95	M24x50	160	170	5	1870
HDP 140 2	**16.3 … 24.9**	70 m6	20	74.5	M20x42	125	140	7.5	1870
HDP 140 3	**25.1 … 56.2**	65 m6	18	69	M20x42	125	140	7.5	1995
HDP 140 3	**65.1 … 124.7**	50 k6	14	53.5	M16x36	100	110	5	1995
HDP 140 4	**141.6 … 277.5**	42 k6	12	45	M16x36	100	110	5	2040
HDP 140 4	**315.9 … 495.3**	32 k6	10	35	M12x28	70	80	5	2040

LP



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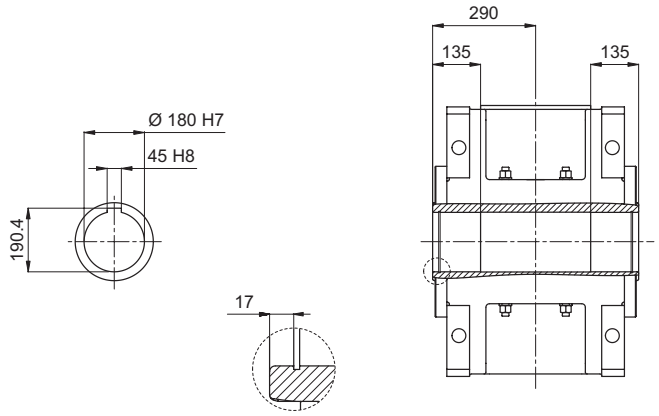
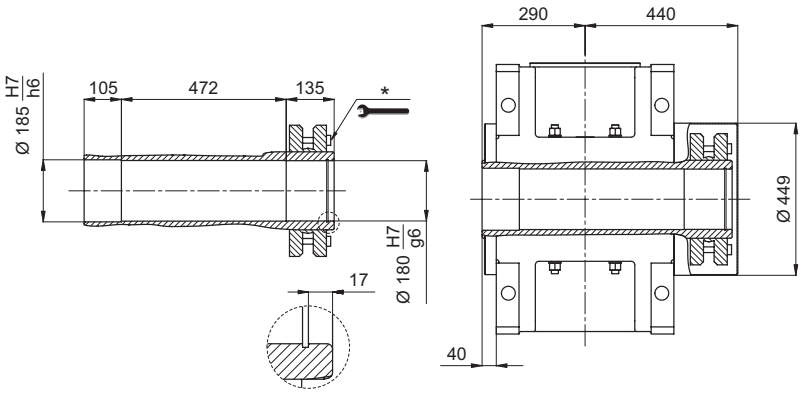


S



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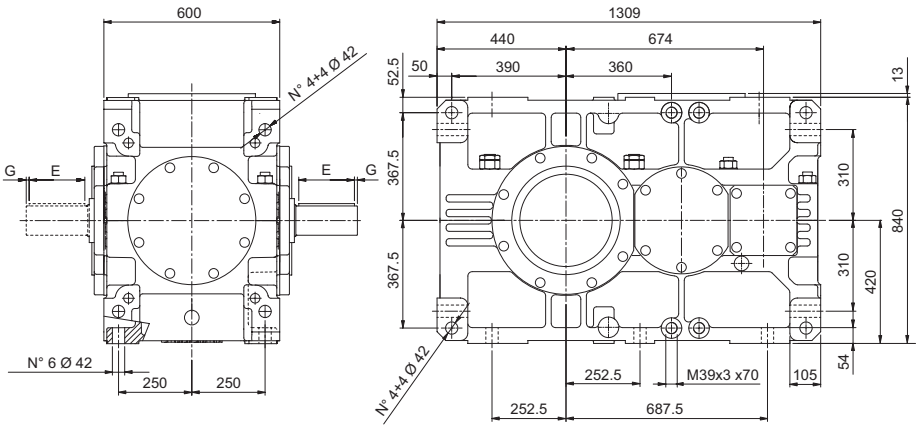
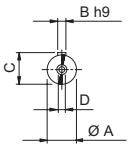
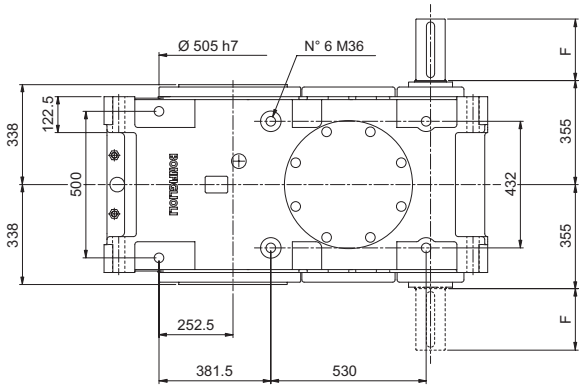
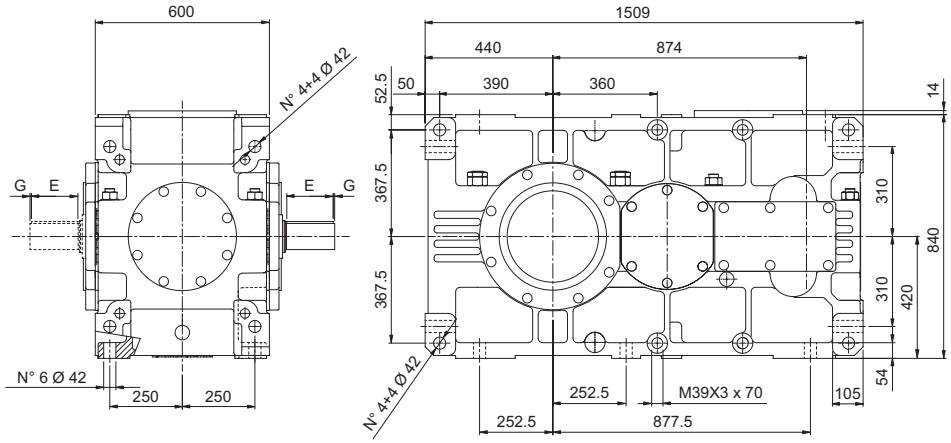
HDP 150 2

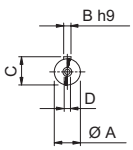


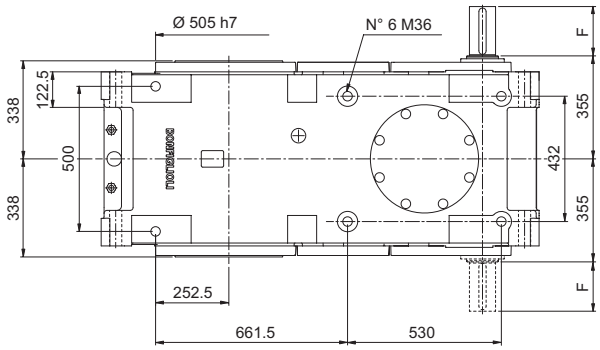




HDP 150 3
HDP 150 4

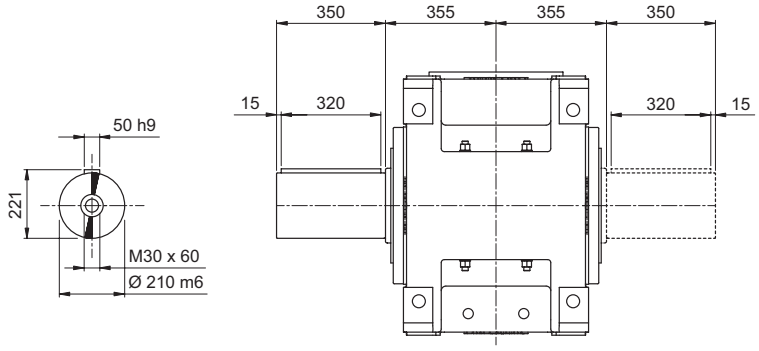




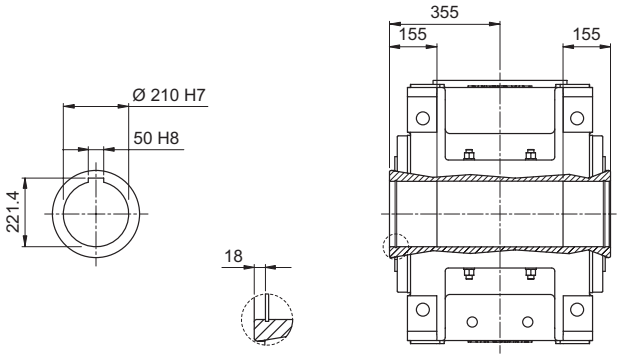


VP	i =	A	B	C	D	E	F	G	Kg
HDP 150 2	**7.9 … 14.1**	100 m6	28	106	M24x50	190	210	10	2585
HDP 150 2	**15.4 … 19.6**	90 m6	25	95	M24x50	160	170	5	2585
HDP 150 3	**21.5 … 38.1**	90 m6	25	95	M24x50	160	170	5	2835
HDP 150 3	**43.5 … 77.0**	70 m6	20	74.5	M20x42	125	140	7.5	2835
HDP 150 4	**89.0 … 157.8**	55 m6	16	59	M20x42	90	110	10	2870
HDP 150 4	**170.9 … 303.1**	45 k6	14	48.5	M16x36	100	110	5	2870

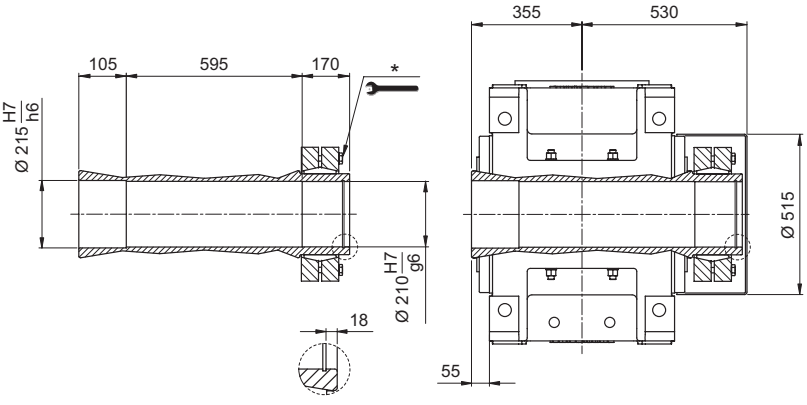
LP



H



S



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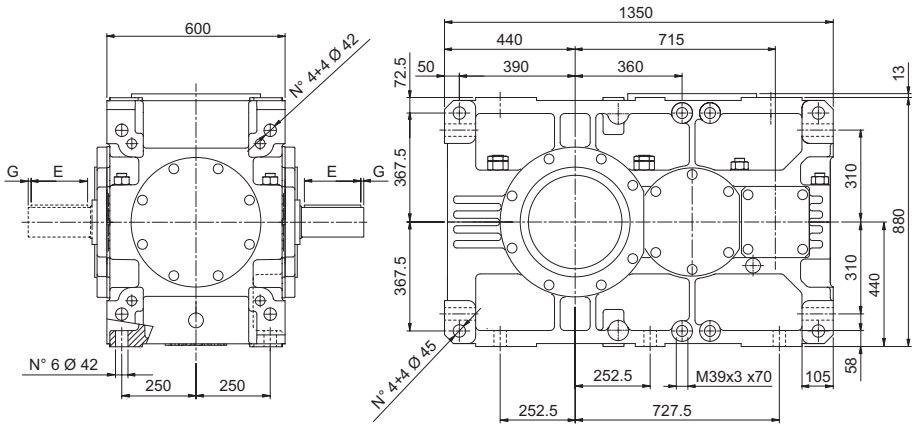
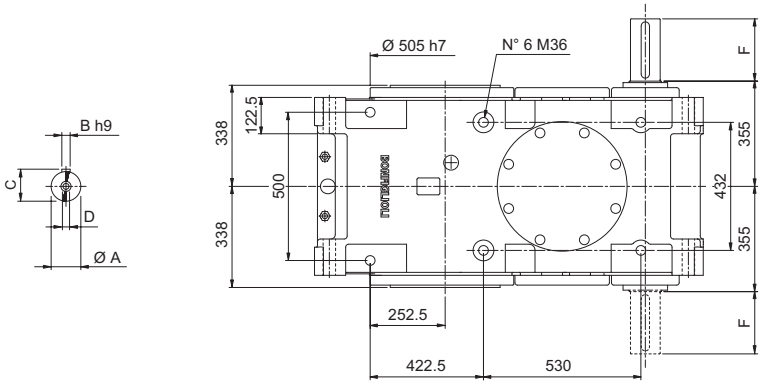
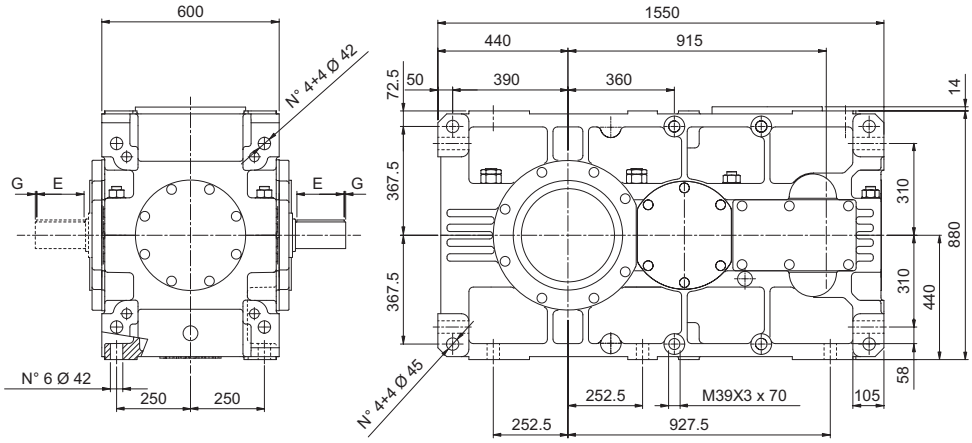
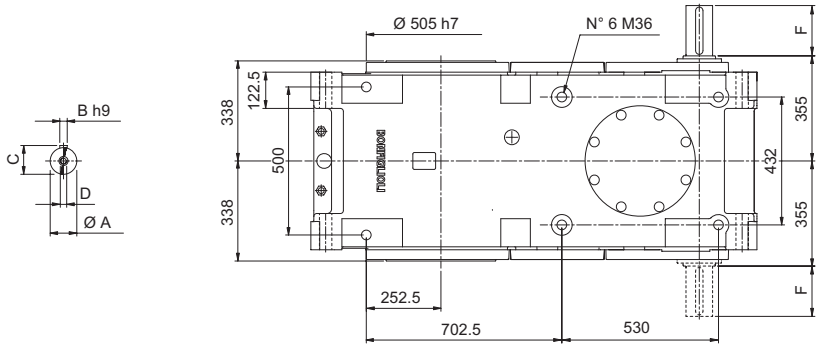
HDP 160 2





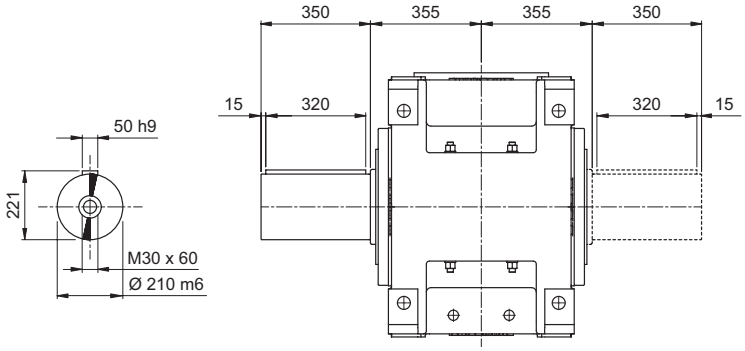
HDP 160 3
HDP 160 4



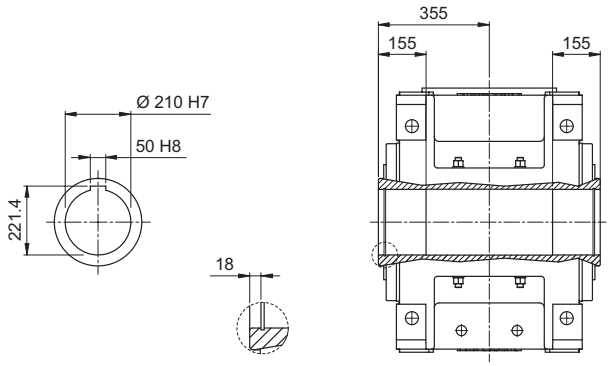


VP	i =	A	B	C	D	E	F	G	Kg
HDP 160 2	**9.0 … 15.9**	100 m6	28	106	M24x50	190	210	10	2860
HDP 160 2	**17.5 … 22.1**	90 m6	25	95	M24x50	160	170	5	2860
HDP 160 3	**24.4 … 43.1**	90 m6	25	95	M24x50	160	170	5	3120
HDP 160 3	**49.4 … 87.0**	70 m6	20	74.5	M20x42	125	140	7.5	3120
HDP 160 4	**101.1 … 178.1**	55 m6	16	59	M20x42	90	110	10	3145
HDP 160 4	**194.1 … 342.2**	45 k6	14	48.5	M16x36	100	110	5	3145

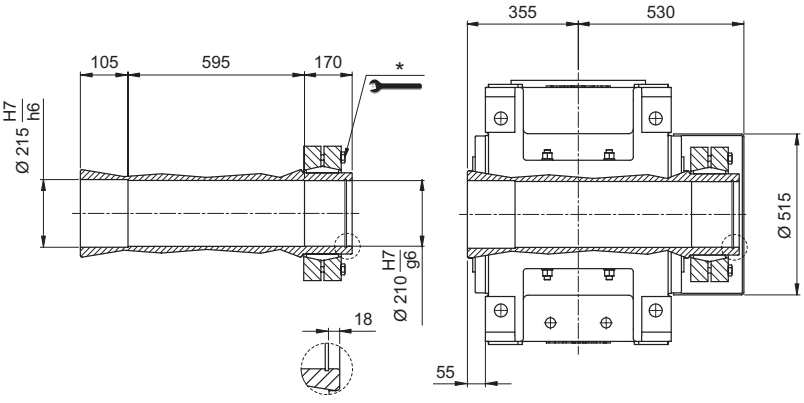
LP



H



S



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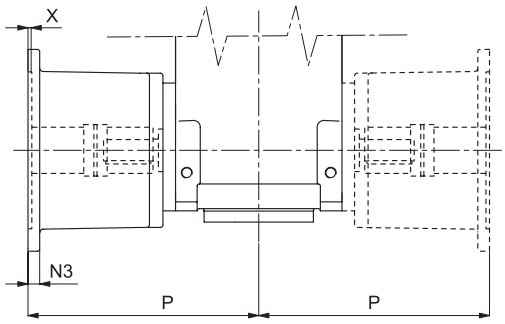
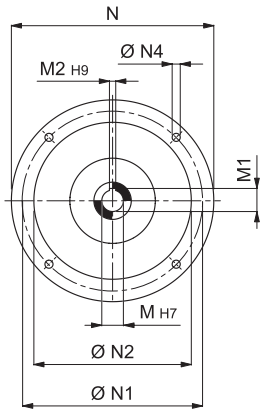
5.1 - PREDISPOSIZIONE ATTACCO MOTORE CON CAMPANA E GIUNTO ELASTICO

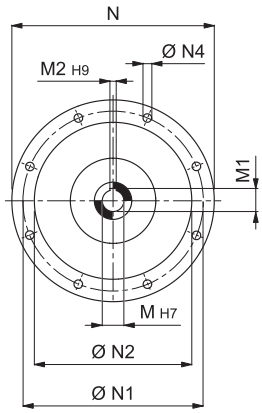
5.1 - MOTOR MOUNTING WITH BELL HOUSING AND FLEXIBLE COUPLING

5.1 - AUSLEGUNG FÜR MOTORANSCHLUSS MIT GLOCKE UND ELASTISCHER KUPPLUNG



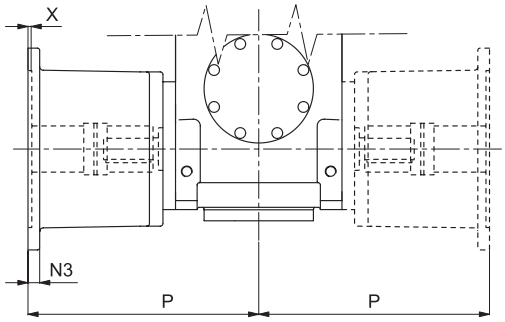


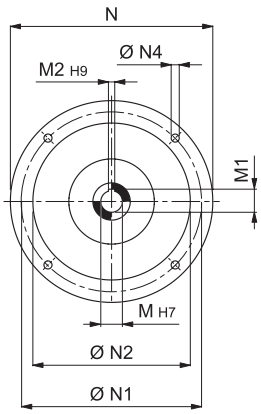
Ø N1 ≤ 350



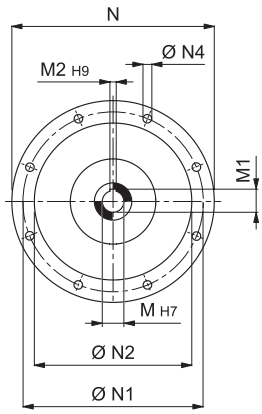
Ø N1 ≥ 400

	M	M1	M2	N	N1	N2	N3	N4	X	P
HDP 60_132	38	41.3	10	300	265	230	16	14	5	311
HDP 60_160	42	45.3	12	350	300	250	23	18	6	341
HDP 60_180	48	51.8	14	350	300	250	23	18	6	341
HDP 60_200	55	59.3	16	400	350	300	—	M16x23	7	366
HDP 60_225	60	64.4	18	450	400	350	25	18	7	374
HDP 70_132	38	41.3	10	300	265	230	16	14	5	311
HDP 70_160	42	45.3	12	350	300	250	23	18	6	341
HDP 70_180	48	51.8	14	350	300	250	23	18	6	341
HDP 70_200	55	59.3	16	400	350	300	—	M16x23	7	366
HDP 70_225	60	64.4	18	450	400	350	25	18	7	374
HDP 80_160	42	45.3	12	350	300	250	23	18	6	371
HDP 80_180	48	51.8	14	350	300	250	23	18	6	371
HDP 80_200	55	59.3	16	400	350	300	—	M16x23	7	396
HDP 80_225	60	64.4	18	450	400	350	25	18	7	432
HDP 80_250	65	69.4	18	550	500	450	30	18	6	462
HDP 80_280	75	79.9	20	550	500	450	30	18	6	462
HDP 90_160	42	45.3	12	350	300	250	23	18	6	427
HDP 90_180	48	51.8	14	350	300	250	23	18	6	427
HDP 90_200	55	59.3	16	400	350	300	—	M16x23	7	452
HDP 90_225	60	64.4	18	450	400	350	25	18	7	457
HDP 90_250	65	69.4	18	550	500	450	30	18	6	487
HDP 90_280	75	79.9	20	550	500	450	30	18	6	487



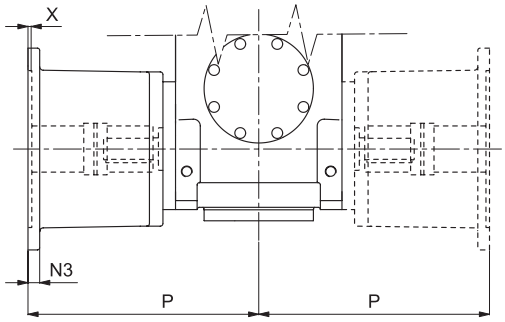


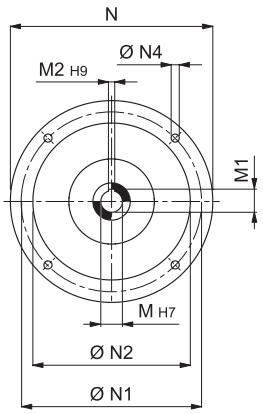
Ø N1 ≤ 350



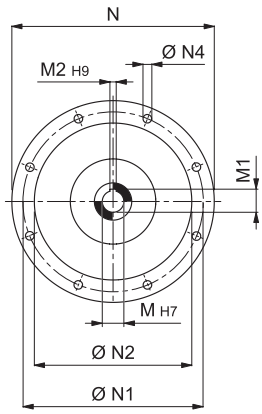
Ø N1 ≥ 400

	M	M1	M2	N	N1	N2	N3	N4	X	P
HDP 100_112	28	31.3	8	250	215	180	15	14	5	395
HDP 100_132	38	41.3	10	300	265	230	—	M12x20	6	415
HDP 100_160	42	45.3	12	350	300	250	23	18	6	481
HDP 100_180	48	51.8	14	350	300	250	23	18	6	481
HDP 100_200	55	59.3	16	400	350	300	—	M16x23	7	506
HDP 100_225	60	64.4	18	450	400	350	26	18	7	513
HDP 100_250	65	69.4	18	550	500	450	30	18	6	543
HDP 100_280	75	79.9	20	550	500	450	30	18	6	543
HDP 100_315	80	85.4	22	660	600	550	22	22	10	579.5
HDP 110_112	28	31.3	8	250	215	180	15	14	5	395
HDP 110_132	38	41.3	10	300	265	230	—	M12x20	6	415
HDP 110_160	42	45.3	12	350	300	250	23	18	6	481
HDP 110_180	48	51.8	14	350	300	250	23	18	6	481
HDP 110_200	55	59.3	16	400	350	300	—	M16x23	7	506
HDP 110_225	60	64.4	18	450	400	350	26	18	7	513
HDP 110_250	65	69.4	18	550	500	450	30	18	6	543
HDP 110_280	75	79.9	20	550	500	450	30	18	6	543
HDP 110_315	80	85.4	22	660	600	550	22	22	10	579.5
HDP 120_132	38	41.3	10	300	265	230	—	M12x20	6	430
HDP 120_160	42	45.3	12	350	300	250	23	18	6	496
HDP 120_180	48	51.8	14	350	300	250	23	18	6	496
HDP 120_200	55	59.3	16	400	350	300	—	M16x23	7	521
HDP 120_225	60	64.4	18	450	400	350	26	18	7	528
HDP 120_250	65	69.4	18	550	500	450	30	18	6	558
HDP 120_280	75	79.9	20	550	500	450	30	18	6	558
HDP 120_315	80	85.4	22	660	600	550	22	22	10	594.5





Ø N1 ≤ 350



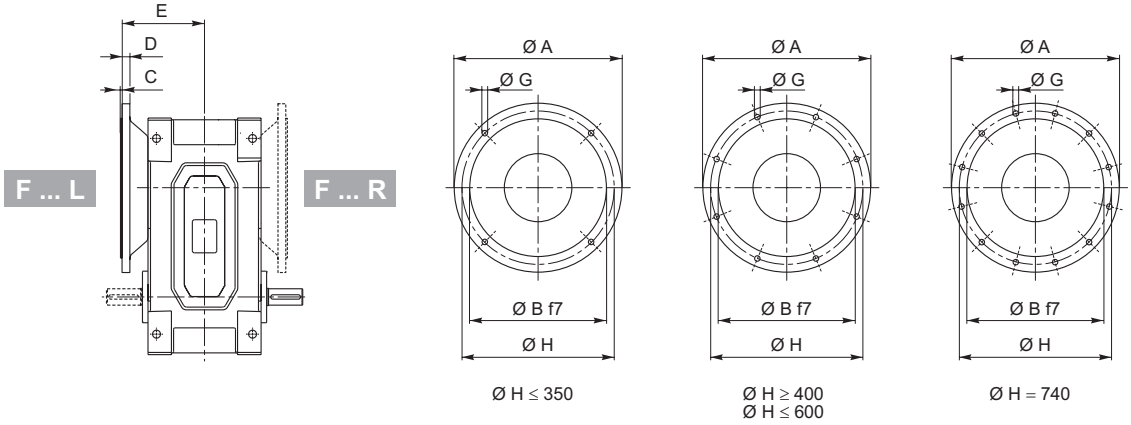
Ø N1 ≥ 400

	M	M1	M2	N	N1	N2	N3	N4	X	P
HDP 130_160	42	45.3	12	350	300	250	23	18	6	551
HDP 130_180	48	51.8	14	350	300	250	23	18	6	551
HDP 130_200	55	59.3	16	400	350	300	—	M16x23	7	576
HDP 130_225	60	64.4	18	450	400	350	26	18	7	583
HDP 130_250	65	69.4	18	550	500	450	30	18	6	613
HDP 130_280	75	79.9	20	550	500	450	30	18	6	613
HDP 130_315	80	85.4	22	660	600	550	22	22	10	649.5
HDP 140_160	42	45.3	12	350	300	250	23	18	6	551
HDP 140_180	48	51.8	14	350	300	250	23	18	6	551
HDP 140_200	55	59.3	16	400	350	300	—	M16x23	7	576
HDP 140_225	60	64.4	18	450	400	350	26	18	7	583
HDP 140_250	65	69.4	18	550	500	450	30	18	6	613
HDP 140_280	75	79.9	20	550	500	450	30	18	6	613
HDP 140_315	80	85.4	22	660	600	550	22	22	10	649.5
HDP 150_160	42	45.3	12	350	300	250	23	18	6	601
HDP 150_180	48	51.8	14	350	300	250	23	18	6	601
HDP 150_200	55	59.3	16	400	350	300	—	M16x23	7	626
HDP 150_225	60	64.4	18	450	400	350	26	18	7	633
HDP 150_250	65	69.4	18	550	500	450	30	18	6	663
HDP 150_280	75	79.9	20	550	500	450	30	18	6	663
HDP 150_315	80	85.4	22	660	600	550	22	22	10	699.5
HDP 160_160	42	45.3	12	350	300	250	23	18	6	601
HDP 160_180	48	51.8	14	350	300	250	23	18	6	601
HDP 160_200	55	59.3	16	400	350	300	—	M16x23	7	626
HDP 160_225	60	64.4	18	450	400	350	26	18	7	633
HDP 160_250	65	69.4	18	550	500	450	30	18	6	663
HDP 160_280	75	79.9	20	550	500	450	30	18	6	663
HDP 160_315	80	85.4	22	660	600	550	22	22	10	699.5

5.2 - FLANGIA DI FISSAGGIO

5.2 - MOUNTING FLANGE

5.2 - BEFESTIGUNGSFLANSCH



		A	B	C	D	E	G	H
HDP 60	**F350_**	350	250	5	18	187.5	18	300
	F400_	400	300	5	20	187.5	18	350
HDP 70	**F450_**	450	350	5	22	210	18	400
	F550_	550	450	5	24	210	18	500
HDP 80	**F450_**	450	350	5	22	240	18	400
	F550_	550	450	5	24	240	18	500
HDP 90	**F550_**	550	450	5	24	260	18	500
HDP 100	**F660_**	660	550	7	30	335	22	600
HDP 110	**F660_**	660	550	7	30	335	22	600
HDP 120	**F660_**	660	550	7	30	355	26	600
HDP 130	**F800_**	800	680	7	40	460	26	740
HDP 140	**F800_**	800	680	7	40	460	26	740
HDP 150		BONFIGLIOLI TECHNICAL SERVICE						
HDP 160								

5.3 - FLANGIA A MANICOTTO

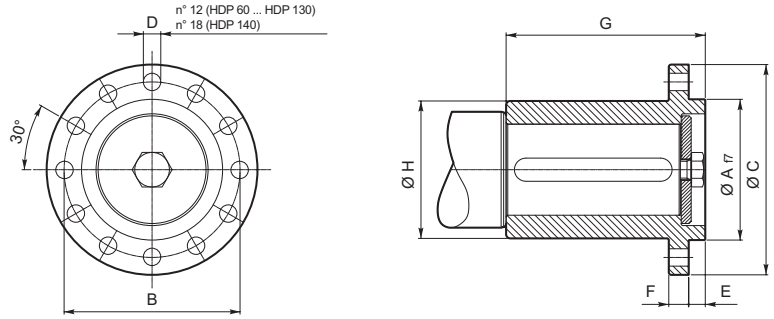
Disponibile per le configurazioni con disposizioni degli alberi tipo: LL, LR, LD, RL, RR e RD, caratterizzate da una sola sporgenza d'albero in uscita.

5.3 - MANIFOLD FLANGE

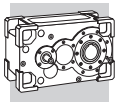
Available for shaft arrangement: LL, LR, LD, RL, RR and RD, all featuring a single output shaft extension.

5.3 - AUFSTECKFLANSCH

Verfügbar für die entsprechenden Konfigurationen mit den Wellenanordnungen LL, LR, LD, RL, RR und RD mit nur einem Wellemzapfen.

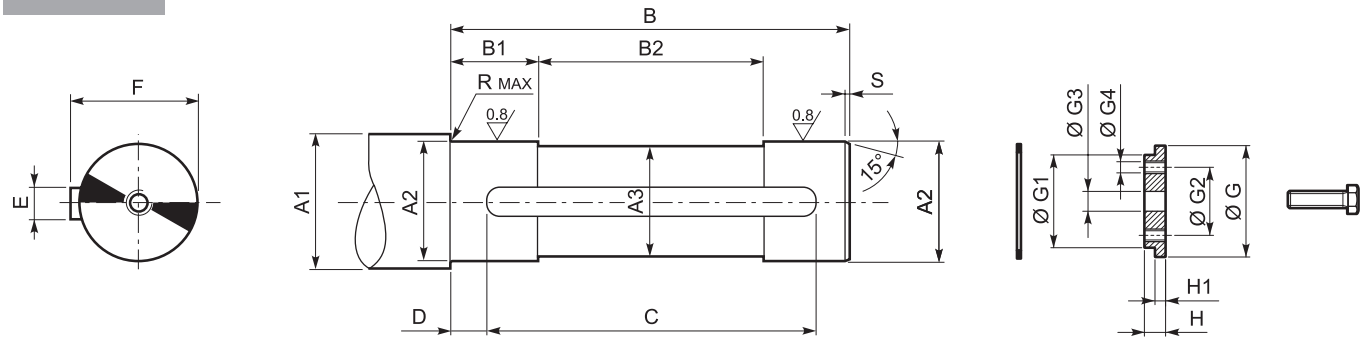


	A	B	C	D	E	F	G	H
HDP 60_ FM	125	175	208	19	14	21	165	135
HDP 70_ FM	125	175	208	19	14	21	195	135
HDP 80_ FM	170	212	254	21	20	24	240	166
HDP 90_ FM	170	212	254	21	20	24	240	166
HDP 100_ FM	200	260	309	25	19	31	244	200
HDP 110_ FM	200	260	309	25	19	31	289	200
HDP 120_ FM	200	260	309	25	19	31	289	200
HDP 130_ FM	220	320	384	32	19	31	344	250
HDP 140_ FM	250	380	450	32	19	40	344	310
HDP 150	BONFIGLIOLI TECHNICAL SERVICE							
HDP 160								



5.4 - PERNO MACCHINA — 5.4 - CUSTOMER'S SHAFT — 5.4 - MASCHINENZAPFEN

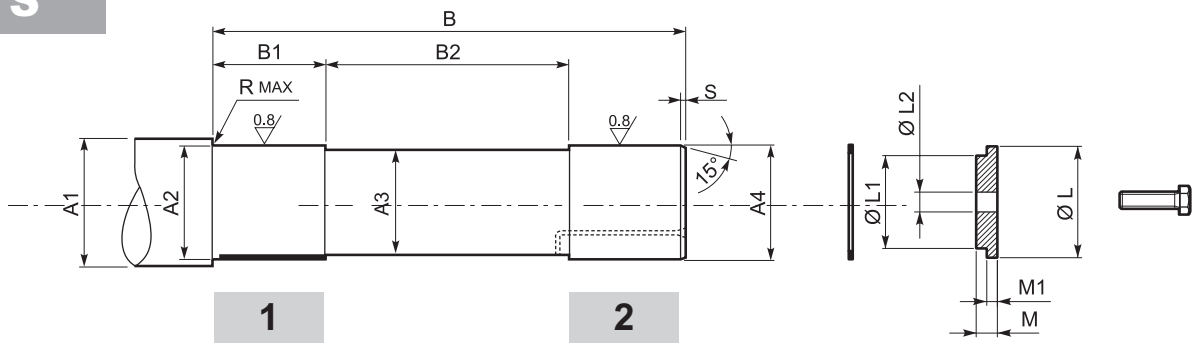
H



	A1	A2	A3	B	B1	B2	C	D	E	F	R	S	UNI6604
HDP 60	≥ 78	70 h6	69	283	56	172	220	30	20 h9	74.5	2.5	2	20x12x220A
HDP 70	≥ 89	80 h6	79	283	78	127	220	30	22 h9	85	2.5	2.5	22x14x220A
HDP 80	≥ 104	95 h6	94	338	73	192	280	30	25 h9	100	2.5	2.5	25x14x280A
HDP 90	≥ 121	110 h6	109	378	88	202	320	30	28 h9	116	2.5	2.5	28x16x320A
HDP 100	≥ 133	120 h6	119.5	420	100	250	360	30	32 h9	127	3	2.5	32x18x360A
HDP 110	≥ 143	130 h6	129.5	420	100	250	360	30	32 h9	137	3	2.5	32x18x360A
HDP 120	≥ 153	140 h6	139.5	444	110	260	400	40	36 h9	148	3	2.5	36x20x400A
HDP 130	≥ 183	170 h6	169.5	540	135	310	400	80	40 h9	179	3	2.5	40x22x400A
HDP 140	≥ 193	180 h6	179.5	540	135	310	400	80	45 h9	190	3	2.5	45x25x400A
HDP 150	≥ 223	210 h6	209.5	667	155	400	500	100	50 h9	221	3	3	50x28x450B
HDP 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
HDP 60	—	90	70 d9	—	22	—	10	8.5	M20x50
HDP 70	—	100	80 d9	—	22	—	10	8.5	M20x50
HDP 80	—	115	95 d9	—	26	—	15	13.5	M24x60
HDP 90	—	130	110 d9	—	26	—	15	13.5	M24x60
HDP 100	120x4	120 d9	96	64	26	M16	24	12	M24x70
HDP 110	130x4	130 d9	105	69	26	M20	24	12	M24x70
HDP 120	140x4	140 d9	115	79	26	M20	30	15	M24x80
HDP 130	170x4	170 d9	142	102	33	M24	34	17	M30x90
HDP 140	180x4	180 d9	150	110	33	M24	34	17	M30x90
HDP 150	210x5	210 d9	178	140	33	M24	36	18	M30x100
HDP 160	210x5	210 d9	178	140	33	M24	36	18	M30x100

S



	A1	A2	A3	A4	B	B1	B2	R	S
HDP 60	≥ 90	72 h7	69	70 g6	328	59	194	2.5	2.5
HDP 70	≥ 104	82 h7	79	80 g6	332	77	174	2.5	2.5
HDP 80	≥ 119	97 h7	94	95 g6	398	95	205	2.5	2.5
HDP 90	≥ 136	112 h7	109	110 g6	440	87	273	2.5	2.5
HDP 100	≥ 138	125 h6	119.5	120 g6	517	104	328	3	2.5
HDP 110	≥ 148	135 h6	129.5	130 g6	523	104	334	3	2.5
HDP 120	≥ 158	145 h6	139.5	140 g6	550	104	354	3	2.5
HDP 130	≥ 188	175 h6	169.5	170 g6	681	104	462	3	2.5
HDP 140	≥ 198	185 h6	179.5	180 g6	689	104	470	3	2.5
HDP 150	≥ 228	215 h6	209.5	210 g6	839	104	593	3	3
HDP 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**
HDP 60	—	90	70 d9	22	10	8.5	M20x50
HDP 70	—	100	80 d9	22	10	8.5	M20x50
HDP 80	—	115	95 d9	26	15	13.5	M24x60
HDP 90	—	130	110 d9	26	15	13.5	M24x60
HDP 100	120x4	120 d9	96	26	16	12	M24x65
HDP 110	130x4	130 d9	105	26	16	12	M24x65
HDP 120	140x4	140 d9	115	26	19	15	M24x70
HDP 130	170x4	170 d9	142	33	21	17	M30x80
HDP 140	180x4	180 d9	150	33	21	17	M30x80
HDP 150	210x5	210 d9	178	33	29	18	M30x90
HDP 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).

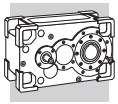
In presenza di carichi assiali esterni, vibrazioni, problemi di sicurezza, richiesta di elevata affidabilità o posizioni di montaggio sfavorevoli (es. V5, albero lento verso il basso) è necessario prevedere opportuni dispositivi atti a fissare assialmente l'albero ed ad impedirne lo smontaggio accidentale.

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)**

R4			
	Descrizione	***Description***	**Beschereibung**

110509

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.

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