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GHA - PREMIUM

La serie PREMIUM rappresenta la serie di punta all'interno della gamma di riduttori GHA, in virtù delle speciali caratteristiche NANOTECCNOLOGICHE potenziate del rivestimento.

Il trattamento GHA potenziato e il particolare design esterno a superficie liscia rendono i riduttori della serie PREMIUM la soluzione ideale per un' ampia gamma di applicazioni in ambienti sensibili nei settori ALIMENTARE, FARMACEUTICO e MARINO.

Il riduttore non è adatto al contatto con gli alimenti.

GHA - PREMIUM

The PREMIUM series represents the flagship series within the range of GHA reducers, thanks to the special enhanced NANOTECHNOLOGICAL characteristics of the coating.

The enhanced GHA treatment and the particular external design with its smooth surface make the PREMIUM series reducers the ideal solution for a wide range of applications in sensitive environments in the FOOD, PHARMACEUTICAL and MARINE sectors.

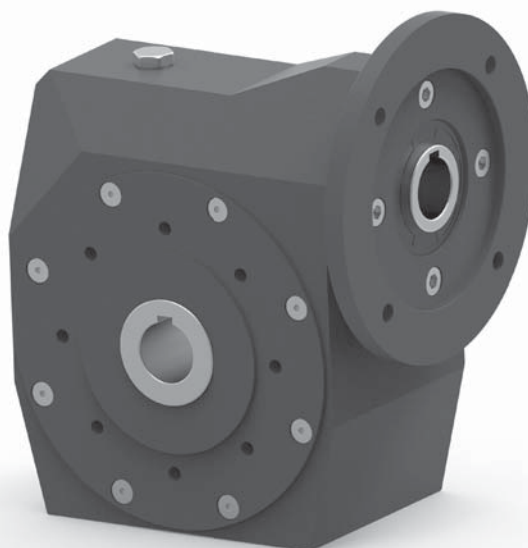
The reducer is not suitable for contact with food.

GHA - PREMIUM

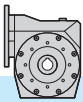
Die Serie PREMIUM stellt die Spitzenbaureihe der GHA-Getriebe dar, da sie über spezielle, verstärkte NANOTECHNOLOGISCHE Merkmale an der Beschichtung verfügt.

Dank der verstärkten GHA-Behandlung und dem besonderen äußeren Design mit glatter Außenoberfläche stellen die Getriebe der Serie PREMIUM die ideale Lösung für eine große Anzahl von Anwendungen in empfindlichen Bereichen in der LEBENSMITTEL-, PHARMA- UND SCHIFFFAHRTSBRANCHE dar.

Das Getriebe ist nicht für den Kontakt mit Lebensmitteln geeignet.



04/2018



2.1 Caratteristiche

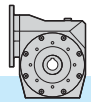
- I riduttori della serie a vite senza fine GHA si presentano estremamente leggeri grazie alla forma compatta della carcassa in alluminio per tutte le grandezze.
- La serie GHA è disponibile esclusivamente nella versione predisposta per attacco motore (PAM) e non con albero entrata maschio.
- La vite senza fine è in acciaio legato cementato-temprato ed è rettificata.
- La corona ha il mozzo in acciaio INOX AISI 316 e l'anello dentato in bronzo GCuSn12.
- Le carcasce e flange in alluminio sono sabbiato e trattate con tecnologia G.H.A. ®
- Viene fornito l'albero uscita cavo di serie ed esiste la disponibilità della seconda entrata.

2.1 Characteristics

- *The GHA worm gearboxes are extremely light thanks to the compact shape of the housing which is in die-cast aluminum for all sizes.*
- *The GHA series is available for motor mounting version (PAM) only and not with the male input shaft.*
- *The worm shaft is made of hardened-bonded steel and ground.*
- *The wheel has an AISI 316 stainless steel hub with a toothed ring made in bronze GCuSn12.*
- *Aluminum housings and flanges are sandblasted and treated in accordance with G.H.A. ® technology.*
- *The hollow output shaft is supplied as standard. A broad range of accessories is available: second input.*

2.1 Merkmale

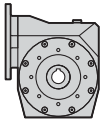
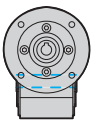
- Die Schneckengetriebe der Serie GHA sind, dank der kompakten Form des Gehäuses, sehr leicht. Das Gehäuse aller Baugrößen ist aus Druckgussaluminium gefertigt.
- Die Serie GK ist nur mit Motoranbau (IEC) Version und nicht mit einer freien Antriebswelle verfügbar.
- Die Schneckenwelle ist aus einsatzgehärtetem, abgeschrecktem und daraufhin geschliffenem Legierungsstahl
- Das Schneckenrad besteht aus einer Nabe aus Edelstahl AISI 316 und einer Bronze- Verzahnung GCuSn12.
- Die Aluminiumgehäuse und Flansche sind sandgestrahlt und mit G.H.A. ® - Technik behandelt.
- Die Hohlwelle gehört zur serienmäßigen Ausstattung. Eine breite Auswahl an Zubehör ist erhältlich: Zweiteingang



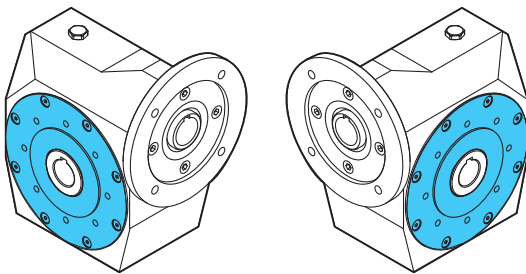
2.2 Designazione

2.2 Designation

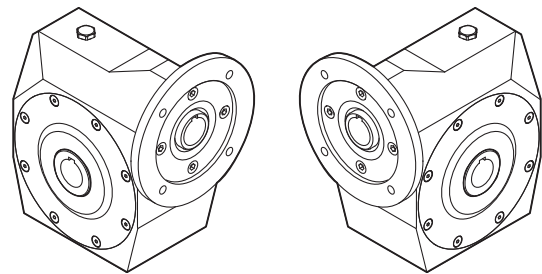
2.2 Bezeichnung

Riduttore Gearbox Getriebe	Grandezza Size Größe	Rapporto rid. Ratio Untersetzung	Predispos.att. mot. Motor coupling Motoranschluss	Posizione di mont. Mounting position Einbaulage	Versione Version Ausführung	Albero uscita cavo Hollow output shaft Abtriebshohlwelle
GHA	50	10/1	P.A.M	B3	PP	H25
	30 40 50 63 75	5 7.5 10 15 20 25 30 40 50 65 80 100	56 B14 63 B14 71 B14 80 B14 90 B14 100 B14 112 B14	B3, B6 B7, B8 V5, V6	PP CC PD PS	 H..

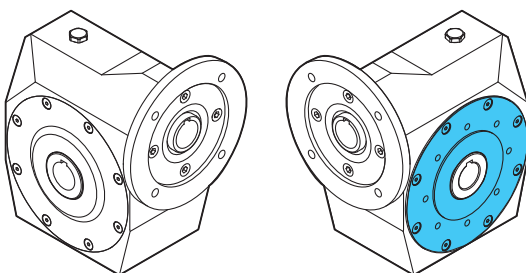
GHA...PP



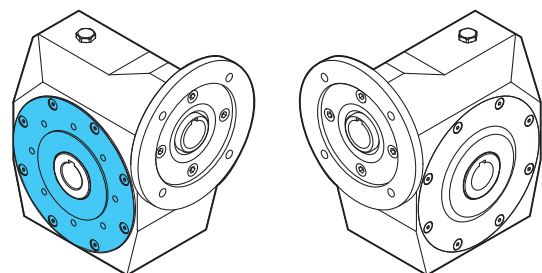
GHA...CC

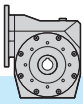


GHA...PD



GHA...PS





2.3 Rendimento

Rd - È il rendimento dinamico, definito come rapporto tra la potenza in uscita P_2 e quella in entrata P_1 . Dipende principalmente dalla velocità di strisciamento, dal tipo di lubrificante e dall'angolo d'elica. I valori indicati nelle tabelle sono validi se si applica la corrispondente coppia in uscita. In fase di rodaggio, circa le prime 300 ore di funzionamento sotto carico, il valore deve essere considerato inferiore del 30% rispetto a quello indicato in tabella.

Rs - È il rendimento statico che si ha al momento dell'avviamento del riduttore e varia in base al rapporto di riduzione. Risulta importante, per una corretta valutazione del riduttore da impiegare, nelle applicazioni in cui non si raggiungono mai le condizioni di regime come nei funzionamenti intermittenti. Analogamente al caso dinamico, anche il rendimento statico durante il rodaggio risulta inferiore del 30% rispetto al valore indicato in tabella.

2.3 Efficiency

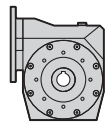
Rd - dynamic efficiency, defined as the ratio between P_2 output power and P_1 input power. It mainly depends on the slipping speed, the type of lubricant and the lead angle. The values reported in the table are valid when the corresponding output torque is applied. During the first 300 operating hours under load, the value to be considered is 30% lower than that reported in the table.

Rs - static efficiency at gearbox start-up; it changes depending on the reduction ratio. Rs value is important for selecting the right gearbox for applications where a steady state is never achieved, as for intermittent duty applications. Same as dynamic efficiency, static efficiency too during the running-in period will be 30% lower than the value reported in the table.

2.3 Wirkungsgrad

Rd - dynamischer Wirkungsgrad, ist das Verhältnis zwischen P_2 Abtriebsleistung und P_1 Antriebsleistung. Rd Wert wird durch Gleitgeschwindigkeit, Art des Schmiermittels und Steigungswinkel beeinflusst. Die Tabellen zeigen die Werte die gültig sind wenn das entsprechende Abtriebsdrehmoment gegeben ist. Während der Einlaufzeit in den ersten 300 Betriebsstunden unter Belastung, ist dieser Wert 30% niedriger als der in der Leistungstabelle angegebenen Wert.

Rs - statischer Wirkungsgrad beim Getriebebestart und in Abhängigkeit zur Unterersetzung. Der Wert Rs ist wichtig für die Auswahl des richtigen Getriebes für Anwendungen wo ein stetiger Betrieb nicht auftritt, wie bei Anwendungen mit Aussetzbetrieb. Der statischer Wirkungsgrad auch während der Einlaufzeit wird 30% niedriger als der in der Tabelle angegebenen Wert.



GHA	Rs											
	5	7.5	10	15	20	25	30	40	50	65	80	100
30	0.70	0.67	0.62	0.55	0.47	0.43	0.39	0.30	0.27	0.25	0.22	0.21
40	0.69	0.67	0.63	0.55	0.52	0.45	0.40	0.35	0.29	0.26	0.25	0.23
50	0.69	0.68	0.65	0.58	0.53	0.47	0.41	0.37	0.32	0.28	0.25	0.23
63	0.70	0.68	0.65	0.57	0.55	0.50	0.47	0.38	0.33	0.29	0.28	0.23
75	/	0.68	0.65	0.58	0.55	0.51	0.43	0.39	0.35	0.31	0.28	0.24

2.4 Irreversibilità

Nelle applicazioni dove è necessario evitare la trasmissione del moto retrogrado o sostenere il carico, in assenza di alimentazione elettrica, è consigliabile adottare freni esterni.

Nei riduttori a vite senza fine emerge questa caratteristica naturale, denominata grado di irreversibilità, che cresce con l'aumentare del rapporto di riduzione in quanto strettamente legata al relativo rendimento.

Per ottenere alti gradi di irreversibilità occorre quindi adottare i rapporti di riduzione più elevati, senza dimenticare che, il rendimento, tende a crescere durante le prime 500 ore di funzionamento per poi stabilizzarsi sui valori riportati a catalogo.

2.4 Irreversibility

The use of external brakes is advised in case of applications where backwards motion must be hindered and the load must be held should the feed be cut off.

Some worm gearboxes feature natural irreversibility. The higher the ratio, the higher is the irreversibility, since it is strictly dependent on the relative efficiency.

In order to achieve high irreversibility it is therefore necessary to select higher efficiency reduction ratios not to forget that the efficiency is growing during the first 500 hours life until it stabilizes to the values mentioned in the catalogue.

2.4 Selbsthemmung

Aussenbremsen sind bei Anwendungen zu benutzen, bei denen Rückbewegung vermeiden werden muss oder die Last auch im Falle von Fehlen an Speisung gehalten werden muss.

Einige Schneckengetriebe sind selbsthemmend. Je höher die Unterersetzung ist, desto höher ist die Selbsthemmung, da diese stark vom jeweiligen Wirkungsgrad abhängig ist. Um eine höhere Selbsthemmung zu erreichen, wählen Sie bitte höhere Untersetzungsverhältnisse.

Bitte beachten Sie, dass der Wirkungsgrad der Getriebe in den ersten 500 Betriebsstunden ansteigt und sich erst anschließend auf die im Katalog angegebenen Werte stabilisiert.

Irreversibilità statica

Condizione di impedimento alla rotazione comandata dall'albero lento senza escludere possibili ritorni lenti nel caso in cui il carico sia sottoposto a vibrazioni.

Rs < 0.45 si ha irreversibilità
Rs = 0.45 ÷ 0.55 irreversibilità incerta
Rs > 0.55 si ha reversibilità

Static irreversibility

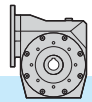
Static irreversibility occurs when the rotation controlled by the output shaft is hindered; possible slow returns cannot be excluded should the load be subject to vibrations.

Rs < 0.45 provides irreversibility
Rs = 0.45 ÷ 0.55 irreversibility is uncertain
Rs > 0.55 reversibility is possible

Statische Selbsthemmung

Statische Selbsthemmung liegt vor, wenn die von Abtriebswelle gesteuerten Drehung gehindert wird. Langsamer Rücklauf ist möglich, falls die Last Schwingungen ausgesetzt wird.

Rs < 0.45 es liegt Selbsthemmung vor
Rs = 0.45 ÷ 0.55 ungewisse Selbsthemmung
Rs > 0.55 es liegt Reversibilität vor



Irreversibilità dinamica

Condizione di arresto e quindi di sostegno del carico nel momento in cui cessa l'azione di comando. La condizione è più difficile da ottenere in quanto viene influenzata dal rendimento dinamico, dalla velocità di rotazione, da eventuali vibrazioni che il carico può generare e dalla direzione del movimento rispetto al carico.

Quest'ultima condizione è molto evidente nei sollevamenti: un carico in salita, cessando l'azione di comando, deve arrestarsi e quindi assumere velocità zero (rendimento statico) prima di invertire il moto e cadere per gravità.

Un carico in discesa tende invece a proseguire nel suo moto ostacolato, nella caduta, dal solo rendimento dinamico.

Rd < 0.45 si ha irreversibilità
Rd = 0.45 ÷ 0.55 irreversibilità incerta
Rd > 0.55 si ha reversibilità

Dynamic irreversibility

Dynamic irreversibility is characterized by stillstand and hold of the load when the drive stops. It is more difficult to achieve this condition because it is influenced by dynamic efficiency, speed of rotation and possible vibrations generated by the motion direction with regard to the load.

This last condition is much more evident during the lifting : if the drive stops during the lifting of the load this has to come to a speed equals to zero (static irreversibility) before the reversal of motion rotation and its drop for gravity.

On the contrary the load during its descent gets its motion obstructed by its dynamic efficiency.

Rd < 0.45 provides irreversibility
Rd = 0.45 ÷ 0.55 irreversibility is uncertain
Rd > 0.55 reversibility is possible

Dynamische Selbsthemmung

Stillstand und Stütze der Last beim Aussetzen der Steuerung. Diese Bedingung ist schwieriger zu erreichen, da sie vom dynamischen Wirkungsgrad, der Drehzahl und von der Last verursachten möglichen Vibrationen abhängig ist

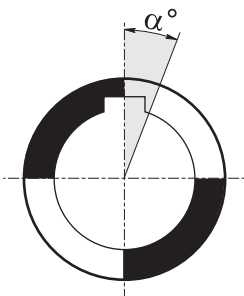
Dieser letzte Fall kommt bei Hubanwendungen stark zu tragen. Wenn der Antrieb während dem Hub stoppt, muss die Last eine Geschwindigkeit von annähernd null erreichen (statische Irreversibilität), bevor die Rotation sich umkehrt und die Last durch die Gravitation nach unten fährt. Dem entgegengesetzt bekommt die Last durch die Abwärtsbewegung Ihre dynamische Effizienz.

Rd < 0.45 es liegt Selbsthemmung vor
Rd = 0.45 ÷ 0.55 ungewisse Selbsthemmung
Rd > 0.55 es liegt Reversibilität vor

2.5 Gioco angolare

Gioco angolare standard

Misurato bloccando l'albero entrata, e ruotando l'albero uscita nelle due direzioni applicando la coppia strettamente necessaria a creare il contatto tra i denti degli ingranaggi, al massimo pari al 2% della coppia nominale (T_{2M}).



2.5 Backlash

Backlash

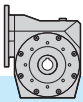
Angular backlash measured after having blocked the input shaft by rotating output shaft in both directions and applying the torque which is strictly necessary to create a contact between the teeth of the gears. The applied torque should be at most 2% of the max. torque (T_{2M}).

2.5 Winkelspiel

Winkelspiel

Nachdem die Antriebswelle blockiert worden ist, darf das Winkelspiel auf die Abtriebswelle bemessen werden. Dabei soll die Antriebswelle in beiden Richtungen gedreht werden und ein Drehmoment ausgeübt werden, das zur Entstehen eines Kontaktes zwischen den Zähnen genuegt. Das ausgeübte Drehmoment soll höchstens 2% des max. von Getrieben garantierten Drehmoment (T_{2M}) sein.

GHA					
i_n	30	40	50	63	75
	max	max	max	max	max
5	16'	13.5'	10.5'	10'	/
7.5	16'	13.5'	10.5'	10'	10'
10	16'	13.5'	10.5'	10'	10'
15	16'	13.5'	10.5'	10'	10'
20	14.5'	12'	9.5'	8.5'	8.5'
25	14.5'	12'	9.5'	8.5'	8.5'
30	14.5'	12'	8.5'	8.5'	8.5'
40	14.5'	12'	9.5'	8.5'	8.5'
50	14'	12'	9.5'	8.5'	8.5'
65	14'	12'	9'	8'	8'
80	13.5'	11.5'	9'	7.5'	7.5'
100	13'	11'	9'	7.5'	7.5'



2.6 Carichi radiali

Carichi radiali Fr_2 e assiali Fa_2 sull'albero uscita [N]

Se il carico radiale sull'albero non è applicato a metà della sporgenza dell'albero, il valore del carico ammissibile deve essere valutato utilizzando la formula che si riferisce ad Fry_2 , in cui i valori di a, b e Fr_2 sono riportati nelle tabelle relative ai carichi radiali.

Nel caso di alberi bisporgenti il valore del carico applicabile a ciascuna estremità è uguale ai 2/3 del valore di tabella, purché i carichi applicati siano uguali di intensità e direzione ed agiscano nello stesso senso. Diversamente contattare il servizio tecnico.

I carichi radiali indicati nelle tabelle si intendono applicati a metà della sporgenza dell'albero e sono riferiti ai riduttori operanti con fattore di servizio 1.

2.6 Radial load

Fr_2 radial loads and Fa_2 axial loads on the output shaft [N]

Should the radial load affect the shaft not at the half-way point of its projection but at a different point, the value of the admissible load has to be calculated using the Fry_2 formula: a, b and Fr_2 values are reported in the radial load tables.

With regard to double-projecting shafts, the load applicable at each end is 2/3 of the value given in the table, on condition that the applied loads feature same intensity and direction and that they act in the same direction.

Otherwise please contact the technical department.

The radial loads indicated in the chart are considered to be applied at the half-way point of the shaft projection, and refer to gear units operating with service factor 1.

2.6 Radialbelastungen

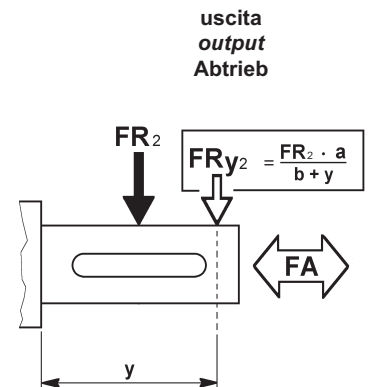
Fr_2 Radialbelastungen und Fa_2 Axialbelastungen auf die Abtriebswelle [N]

Falls die Radialbelastungen nicht in dem Mittelpunkt der herausragenden Welle sondern in einem anderen Punkt wirken, soll die zulässige Belastung mit der Formel bezüglich Fry_2 kalkuliert werden: a, b und Fr_2 Werte sind aus der Tabelle der Radialbelastungen zu entnehmen.

Bei doppelseitigen Abtriebswellen ist die Belastung, die an jedem Ende anwendbar ist, 2/3 des in der Tabelle angegebenen Wertes unter der Bedingung, dass die Belastungen die selbe Stärke und Richtung aufweisen und dass sie in der selben Richtung wirken. Andernfalls muß mit dem technischen Büro Rücksprache gehalten werden.

Die Radialbelastungen, die in den Tabellen angegeben werden, gelten für Ansatzpunkte in der Mitte des herausragenden Wellenteils und für Getriebe mit Betriebsfaktor 1.

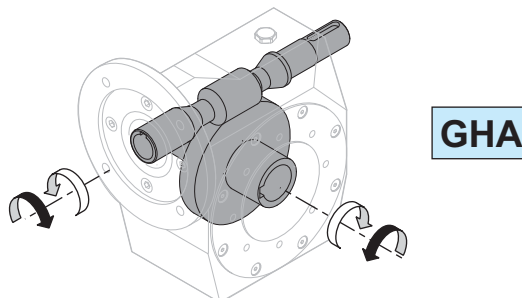
GHA											
$n_1=1400$ rpm		30		40		50		63		75	
i_n	n_2 [rpm]	a = 64.5	b = 47	a = 81.5	b = 58.5	a = 99	b = 70.5	a = 119.5	b = 90.5	a = 131	b = 97
		Fr_2	Fa_2	Fr_2	Fa_2	Fr_2	Fa_2	Fr_2	Fa_2	Fr_2	Fa_2
5	280	600	120	750	150	900	180	1050	210	/	/
7.5	187	620	125	850	170	1050	210	1200	240	1500	300
10	140	680	140	950	190	1150	230	1350	270	1700	340
15	93	720	145	1000	200	1250	250	1500	300	1900	380
20	70	750	150	1100	220	1400	280	1650	330	2050	410
25	56	800	160	1200	240	1500	300	1850	370	2250	450
30	47	850	170	1250	250	1650	330	2000	400	2450	490
40	35	900	180	1350	270	1750	350	2150	430	2600	520
50	28	920	185	1450	290	1850	370	2300	460	2800	560
60	23	970	195	1550	310	2000	400	2500	500	3000	600
63	22	1000	200	1600	320	2100	420	2650	530	3200	640
80	17.5	1050	210	1700	340	2250	450	2800	560	3350	670
100	14	1100	220	1800	360	2350	470	2950	590	3550	710

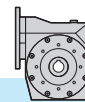


2.7 Senso di rotazione

2.7 Direction of rotation

2.7 Drehrichtung



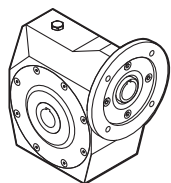


2.8 Lubrificazione

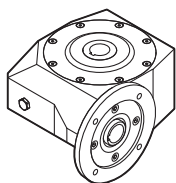
I riduttori a vite senza fine serie GHA sono forniti completi di lubrificante sintetico per uso alimentare: OLIO FUCHS CASSIDA FLUID 150.

Si raccomanda di precisare sempre, in fase di ordine, la posizione di montaggio desiderata.

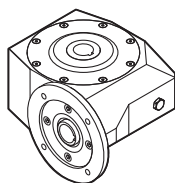
Posizioni di montaggio



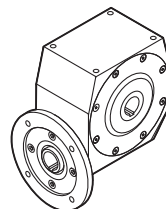
B3



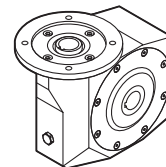
B6



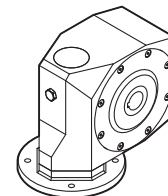
B7



B8



V5



V6

E' presente un solo tappo di riempimento olio.

There is only one filling plug only.

Es gibt nur eine Einfüllschraube.

2.8 Lubrication

The GHA series worm gearboxes are supplied complete with synthetic lubricant for food use: FUCHS CASSIDA FLUID 150 OIL.

Mounting position always to be specified when ordering.

Mounting positions

2.8 Schmierung

Die Schneckengetriebe der Serie GHA werden mit synthetischem Lebensmittelöl FUCHS CASSIDA FLUID 150 geliefert.

Bei der Bestellung bitte immer die gewünschte Einbaulage angeben.

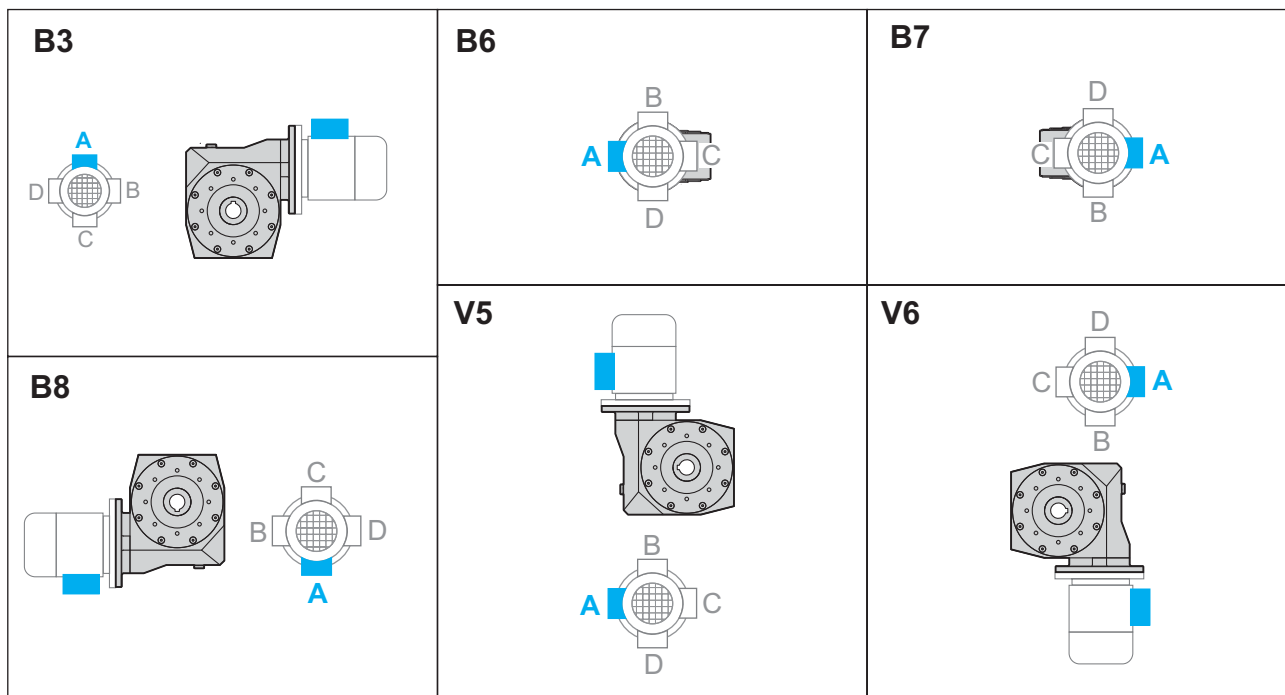
Einbaulagen

		Q.tà olio / Oil quantity / Schmiermittelmenge [lt]			
		Posizione di montaggio / Mounting position / Einbaulage			
		B3	B6 - B7	B8	V5 - V6
GHA	30	0.015	0.030	0.015	
	40	0.040	0.060	0.040	
	50	0.080	0.120	0.080	
	63	0.160	0.220	0.160	
	75	0.260	0.340	0.260	

2.9 Posizione morsettiera

2.9 Terminal board position

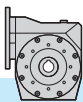
2.9 Lage der Klemmenkaste



Specificare sempre in fase di ordinazione la posizione di montaggio e la forma costruttiva.

Mounting position always to be specified when ordering.

Bei der Bestellung immer die gewünschte Montageposition und Bauform angeben.



2.10 Dati tecnici

2.10 Technical data

2.10 Technische Daten

GHA 30	$n_1 = 1400$				MOTORI / MOTORS / ENGINE							
	i_n	n_2 [min ⁻¹]	Rd	P_{t0}	GHA CLASSIC				MHA PREMIUM			
					T_2 [Nm]	P_1 [kW]	IEC B14	FS'	T_2 [Nm]	P_1 [kW]	IEC B14	FS'
Kg 1.4	5	280	0.87	0.40	6.5	0.22	63	2.9	5.3	0.18	63	3.6
	7.5	187	0.84	0.40	9	0.22		2.2	7.7	0.18		2.7
	10	140	0.82	0.40	12	0.22		1.8	10	0.18		2.2
	15	93	0.77	0.30	17	0.22		1.3	14	0.18		1.6
	20	70	0.72	0.20	18	0.18		1.1	18	0.18		1.1
	25	56	0.69	0.20	21	0.18		1.0	21	0.18		1.0
	30	47	0.66	0.20	18	0.13	1.1	17	0.13	1.2		
	40	35	0.59	0.20	21	0.13	1.0	21	0.13	1.0		
	50	28	0.55	0.20	17	0.09	1.1	24	0.13	0.8		
	65	22	0.51	0.10	20	0.09	1.0	-	-	-	-	
80	18	0.48	0.10	16	0.06	1.0	-	-	-	-		
100	14	0.45	0.10	18	0.06	0.8	-	-	-	-		

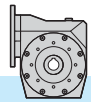
GHA 40	$n_1 = 1400$				MOTORI / MOTORS / ENGINE							
	i_n	n_2 [min ⁻¹]	Rd	P_{t0}	GHA CLASSIC				MHA PREMIUM			
					T_2 [Nm]	P_1 [kW]	IEC B14	FS'	T_2 [Nm]	P_1 [kW]	IEC B14	FS'
Kg 2.4	5	280	0.87	0.80	16.3	0.55	71	2.1	11	0.37	71	3.1
	7.5	187	0.85	0.80	24	0.55		1.7	16	0.37		2.5
	10	140	0.83	0.70	31	0.55		1.3	21	0.37		2.0
	15	93	0.79	0.50	30	0.37		1.4	30	0.37		1.4
	20	70	0.76	0.50	38	0.37		1.0	38	0.37		1.1
	25	56	0.72	0.40	31	0.25		1.1	31	0.25		1.2
	30	47	0.68	0.40	35	0.25	1.2	35	0.25	1.2		
	40	35	0.64	0.30	38	0.22	1.0	31	0.18	1.2		
	50	28	0.59	0.30	36	0.18	1.1	36	0.18	1.1		
	65	22	0.54	0.20	31	0.13	1.1	30	0.13	1.2		
80	18	0.52	0.20	35	0.13	0.9	36	0.13	0.9			
100	14	0.49	0.20	43	0.13	0.6	43	0.13	0.6			

GHA 50	$n_1 = 1400$				MOTORI / MOTORS / ENGINE							
	i_n	n_2 [min ⁻¹]	Rd	P_{t0}	GHA CLASSIC				MHA PREMIUM			
					T_2 [Nm]	P_1 [kW]	IEC B14	FS'	T_2 [Nm]	P_1 [kW]	IEC B14	FS'
Kg 4.0	5	280	0.87	1.2	26.7	0.9	80	2.3	22	0.75	80	2.8
	7.5	187	0.86	1.2	40	0.9		1.8	33	0.75		2.1
	10	140	0.84	1.0	52	0.9		1.4	43	0.75		1.7
	15	93	0.80	0.80	74	0.9		1.0	62	0.75		1.2
	20	70	0.78	0.70	58	0.55		1.3	53	0.5		1.4
	25	56	0.74	0.60	47	0.37		1.4	63	0.5		1.0
	30	47	0.71	0.60	53	0.37	1.2	53	0.37	1.2		
	40	35	0.67	0.50	68	0.37	1.0	68	0.37	1.0		
	50	28	0.62	0.40	53	0.25	1.3	53	0.25	1.3		
	65	22	0.58	0.40	64	0.25	1.0	63	0.25	1.0		
80	18	0.54	0.40	71	0.25	0.8	52	0.18	1.1			
100	14	0.51	0.30	86	0.25	0.6	45	0.13	1.2			

* **ATTENZIONE:** la coppia massima utilizzabile [T_{2M}] deve essere calcolata utilizzando il fattore di servizio: $T_{2M} = T_2 \times FS'$

* **WARNING:** Maximum allowable torque [T_{2M}] must be calculated using the following service factor: $T_{2M} = T_2 \times FS'$

* **ACHTUNG:** das max. anwendbare Drehmoment [T_{2M}] muss mit folgendem Betriebsfaktor berechnet werden: $T_{2M} = T_2 \times FS'$



2.10 Dati tecnici

2.10 Technical data

2.10 Technische Daten

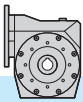
GHA 63	$n_1 = 1400$				MOTORI / MOTORS / ENGINE							
	i_n	n_2 [min ⁻¹]	Rd	P_{t0}	GHA CLASSIC				MHA PREMIUM			
					T_2 [Nm]	P_1 [kW]	IEC B14	FS'	T_2 [Nm]	P_1 [kW]	IEC B14	FS'
Kg 6.6	5	280	0.88	1.8	54	1.8	90	2.0	45	1.5	90	2.5
	7.5	187	0.87	1.8	80	1.8		1.5	67	1.5		1.8
	10	140	0.85	1.6	105	1.8		1.2	87	1.5		1.5
	15	93	0.81	1.2	125	1.5		1.1	125	1.5		1.1
	20	70	0.80	1.2	120	1.1		1.2	120	1.1		1.2
	25	56	0.77	1.0	118	0.9	1.0	98	0.75	1.2		
	30	47	0.73	0.90	134	0.9	1.1	111	0.75	1.3		
	40	35	0.69	0.80	142	0.75	1.1	141	0.75	1.1		
	50	28	0.65	0.70	122	0.55	80	1.0	111	0.5	80	1.1
	65	22	0.61	0.60	145	0.55	0.8	98	0.37	1.2		
80	18	0.58	0.60	169	0.55	0.6	113	0.37	1.0			
100	14	0.53	0.50	198	0.55	0.5	90	0.25	1.1			

GHA 75	$n_1 = 1400$				MOTORI / MOTORS / ENGINE							
	i_n	n_2 [min ⁻¹]	Rd	P_{t0}	GHA CLASSIC				MHA PREMIUM			
					T_2 [Nm]	P_1 [kW]	IEC B14	FS'	T_2 [Nm]	P_1 [kW]	IEC B14	FS'
Kg 11.0	7.5	187	0.87	2.5	80	1.8	90	2.7	67	1.5	90	2.7
	10	140	0.86	2.3	106	1.8		1.8	88	1.5		2.2
	15	93	0.83	1.9	153	1.8		1.3	128	1.5		1.6
	20	70	0.81	1.7	199	1.8		1.1	166	1.5		1.3
	25	56	0.78	1.5	200	1.5		1.0	200	1.5		1.0
	30	47	0.74	1.2	167	1.1		1.3	165	1.1		1.4
	40	35	0.71	1.1	213	1.1		1.1	213	1.1		1.1
	50	28	0.67	1.0	251	1.1		0.8	171	0.75		1.2
	65	22	0.63	0.90	300	1.1		0.6	137	0.5		1.4
	80	18	0.60	0.80	350	1.1		0.5	159	0.5		1.1
100	14	0.56	0.70	420	1.1	0.4	191	0.5	0.9			

* **ATTENZIONE:** la coppia massima utilizzabile [T_{2M}] deve essere calcolata utilizzando il fattore di servizio: $T_{2M} = T_2 \times FS'$

* **WARNING:** Maximum allowable torque [T_{2M}] must be calculated using the following service factor : $T_{2M} = T_2 \times FS'$


* **ACHTUNG:** das max. anwendbare Drehmoment [T_{2M}] muss mit folgendem Betriebsfaktor berechnet werden: $T_{2M} = T_2 \times FS'$





2.11 **Momenti d'inerzia** [Kg·cm²]
(riferiti all'albero veloce in entrata)

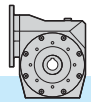
2.11 **Moments of inertia** [Kg·cm²]
(referred to input shaft)

2.11 **Trägheitsmoment** [Kg·cm²]
(bez. Antriebswelle)

GHA 30	i _n	 B14	
		IEC 56	IEC 63
		5	0.130
7.5	0.112	0.109	
10	0.103	0.100	
15	0.097	0.094	
20	0.095	0.092	
25	0.094	0.091	
30	0.093	0.090	
40	0.093	0.090	
50	0.092	0.089	
65	0.079	-	
80	0.079	-	
100	0.078	-	

GHA 40	i _n	 B14	
		IEC 63	IEC 71
		5	0.391
7.5	0.321	0.356	
10	0.272	0.347	
15	0.266	0.340	
20	0.263	0.338	
25	0.262	0.337	
30	0.262	0.337	
40	0.261	0.336	
50	0.261	-	
65	0.261	-	
80	0.261	-	
100	0.261	-	


GHA 50	i _n	 B14	
		IEC 71	IEC 80
		5	0.922
7.5	0.684	0.935	
10	0.602	0.853	
15	0.543	0.794	
20	0.523	0.774	
25	0.513	0.764	
30	0.508	0.759	
40	0.503	0.755	
50	0.501	-	
65	0.499	-	
80	0.498	-	
100	0.498	-	




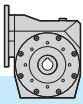
2.11 **Momenti d'inerzia** [Kg·cm²]
(riferiti all'albero veloce in entrata)

2.11 **Moments of inertia** [Kg·cm²]
(referred to input shaft)

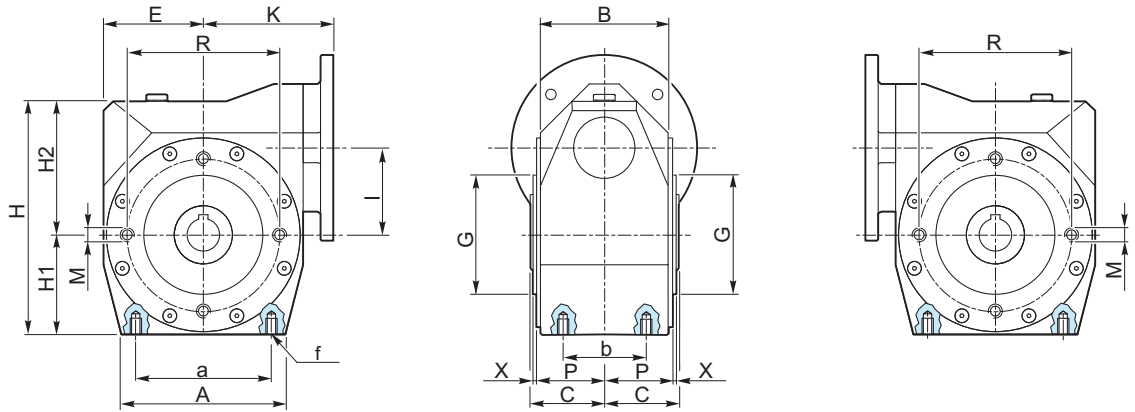
2.11 **Trägheitsmoment** [Kg·cm²]
(bez. Antriebswelle)

GHA 63	i _n		
		B14	
		IEC 80	IEC 90
5	2.431	2.671	
7.5	1.949	2.269	
10	1.744	2.063	
15	1.597	1.916	
20	1.545	1.864	
25	1.514	1.833	
30	1.508	1.828	
40	1.495	-	
50	1.488	-	
65	1.484	-	
80	1.482	-	
100	1.481	-	

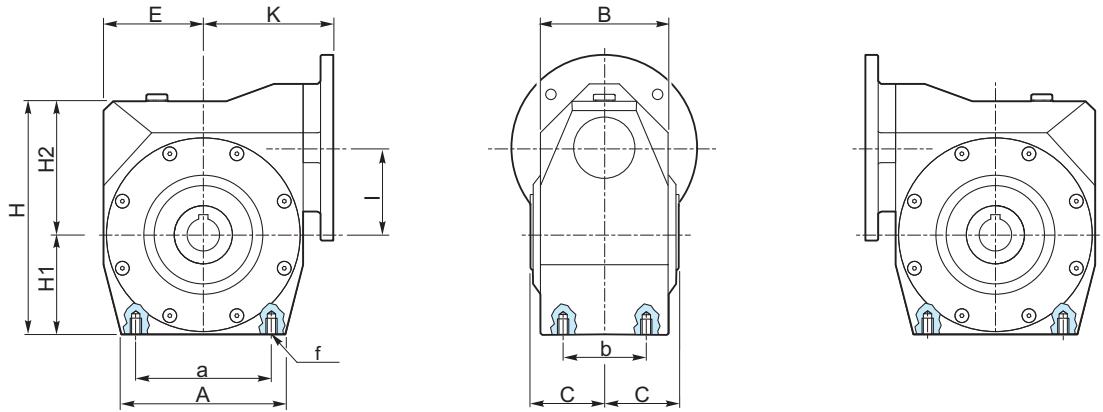
GHA 75	i _n	
		B14
		IEC 90
7.5	3.712	
10	3.234	
15	2.893	
20	2.774	
25	2.709	
30	2.689	
40	2.659	
50	2.642	
65	2.633	
80	2.629	
100	2.626	



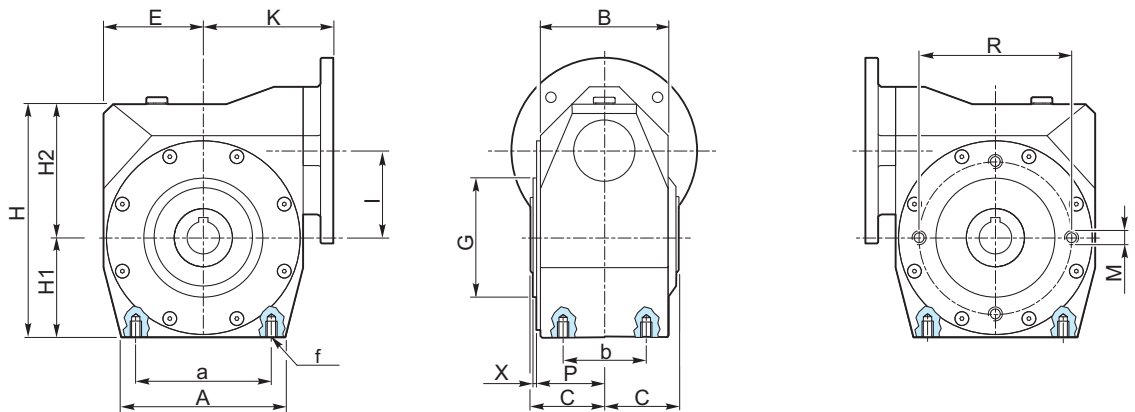
GHA.. PP



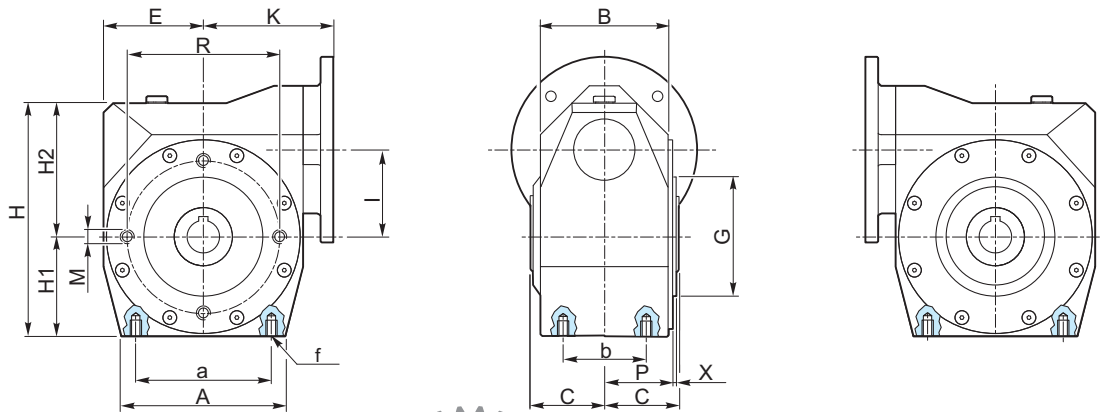
GHA.. CC

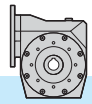


GHA.. PD



GHA.. PS





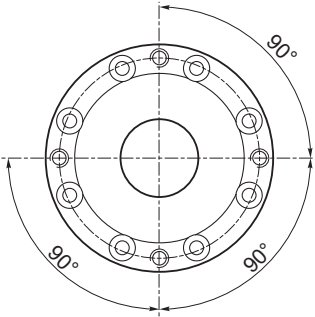
2.12 Dimensioni

2.12 Dimensions

2.12 Abmessungen

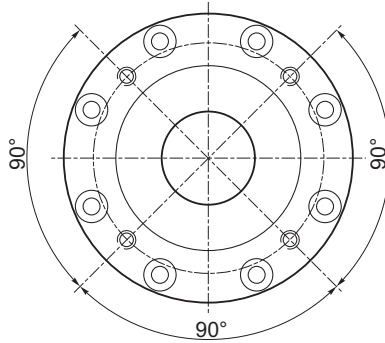
Flangia pendolare / Shaft-mounted flange / Aufsteckflansch

30



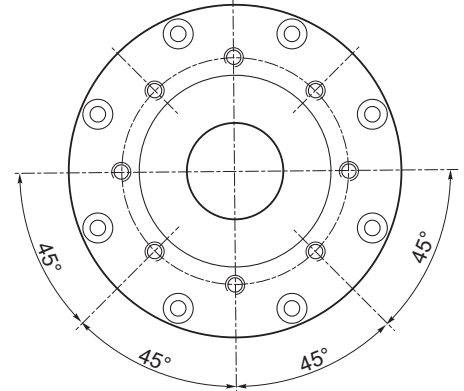
4 Fori / Holes / Bohrungen

40 - 50



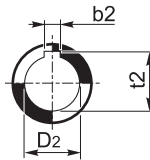
4 Fori / Holes / Bohrungen

63 - 75




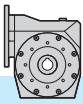
8 Fori / Holes / Bohrungen

Albero uscita cavo
Output hollow shaft
Abtriebshohlwelle

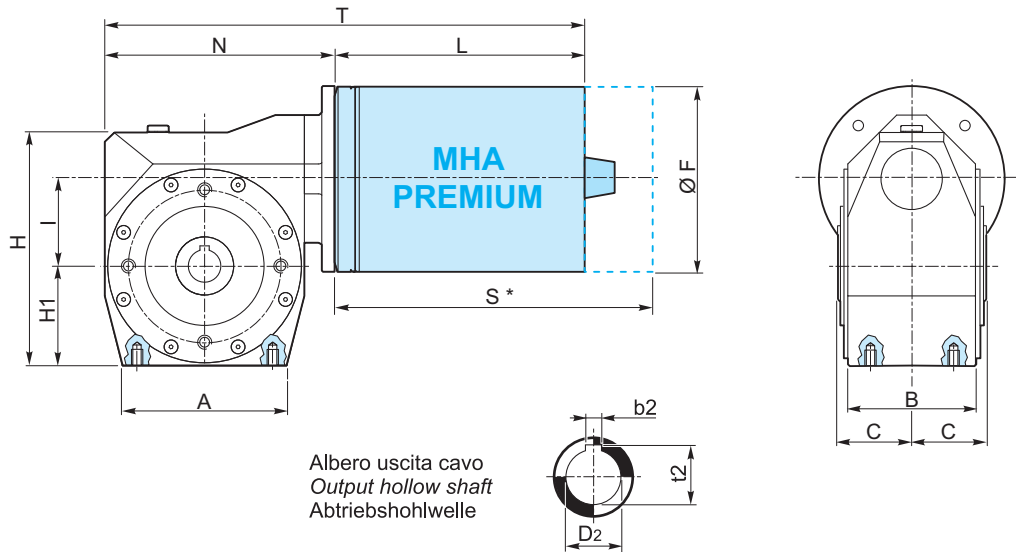


GHA	A	a	B	b	b ₂	C	D ₂ H8	E	f	G h8	H	H ₁	H ₂
30	66	54	56	44	5	31.5	14	40	M6 x 9	55	93	40	53
40	85	70	71	60	6	39	18	50	M6 x 11	60	116	50	66
50	95	80	84	70	8	46	25	60	M8 x 12	70	142	60	82
63	118	100	101	85	8	56	25	72	M8 x 16	80	173	72	101
75	142	120	110	90	8	60	28	86	M10 x 16	95	201	86	115

GHA	I	K	M	P	R	t ₂	X	
30	31.5	57	M6x8	29	65	16.3	1.5	1.5
40	40	75	M6X10	36.5	75	20.8	1.5	2.8
50	50	82	M8x10	43.5	85	28.3	1.5	4.5
63	63	96.8	M8x14	53	95	28.3	2	7.8
75	75	112	M8x14	57	115	31.3	2	12.8



GHA.. + MHA PREMIUM



GHA	A	B	b ₂	C	D ₂ H8	H	H ₁	I	t ₂	N
30	66	56	5	31.5	14	93	40	31.5	16.3	97
40	85	71	6	39	18	116	50	40	20.8	125
50	95	85	8	46	25	142	60	50	28.3	148
63	118	103	8	56	25	173	72	63	28.3	168.8
75	142	112	8	60	28	201	86	75	31.3	198

B14

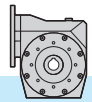
GHA... + MHA PREMIUM

	30	40		50			63		75	
MHA	71	71	80	71	80	90	80	90	90	112
F	118	118	134	118	134	150	134	150	150	190
L	223	223	234	223	234	239	234	239	239	307
T	320	348	359	371	382	387	402.8	407.8	437	505
kg	10.3 (0.13kW) 11 (0.18kW)	11.6 (0.13kW) 12.3 (0.18kW)	15.8 (0.25kW) 17.3 (0.37kW)	13.3 (0.13kW) 14 (0.18kW)	17.5 (0.25kW) 19 (0.37kW)	22.5 (0.5kW) 23.5 (0.75kW)	20.8 (0.25kW) 22.3 (0.37kW)	25.8 (0.5kW) 26.8 (0.75kW)	30.8 (0.5kW) 31.8 (0.75kW)	37.8 (1.1kW) 44.8 (1.5kW)

*S: quota valida solo per le versioni a richiesta (freno, encodeer, ecc.).

*S: value valid only for the versions on request (brake, encoder, ecc.).

*S: Wert gilt nur für die Versionen auf Anfrage (Bremse, Encoder, ecc.).

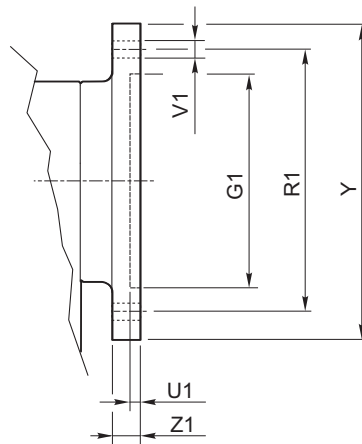


2.12 Dimensioni

2.12 Dimensions

2.12 Abmessungen

Flangia entrata / Input flange / Antriebsflansch



GHA	IEC	G ₁	R ₁	U ₁	V ₁		Y	Z ₁	Diametro fori PAM / Holes diameter IEC / IEC Durchmesser												
					∅				5	7.5	10	15	20	25	30	40	50	65	80	100	
30	56 B14	50	65	3.5	6	4	80	8	9	9	9	9	9	9	9	9	9	9	9	9	9
	63 B14	60	75	4	6	4	90	8	11	11	11	11	11	11	11	11	11	/	/	/	/
40	63 B14	60	75	3.5	6	4	90	8	11	11	11	11	11	11	11	11	11	11	11	11	11
	71 B14	70	85	3.5	7	4	105	8	14	14	14	14	14	14	14	14	/	/	/	/	
50	71 B14	70	85	3.5	7	4	105	8	14	14	14	14	14	14	14	14	14	14	14	14	14
	80 B14	80	100	4	7	4	120	10	19	19	19	19	19	19	19	19	/	/	/	/	
63	80 B14	80	100	4	7	4	120	10	19	19	19	19	19	19	19	19	19	19	19	19	19
	90 B14	95	115	4	8.5	4	140	10	24	24	24	24	24	24	24	/	/	/	/	/	
75	90 B14	95	115	4	9	4	140	11	/	24	24	24	24	24	24	24	24	24	24	24	

2.13 Lista parti di ricambio

2.13 Spare parts list

2.13 Ersatzteilliste

In fase di ordine delle parti di ricambio, specificare sempre n° particolare (vedi disegno esploso), data (1), n° codice (2) e n° variante (3). (Vedi targhetta).

When ordering please specify the spare part number (see exploded view) as well as the date (1), the article number (2) and the variant number (3) (see plate)

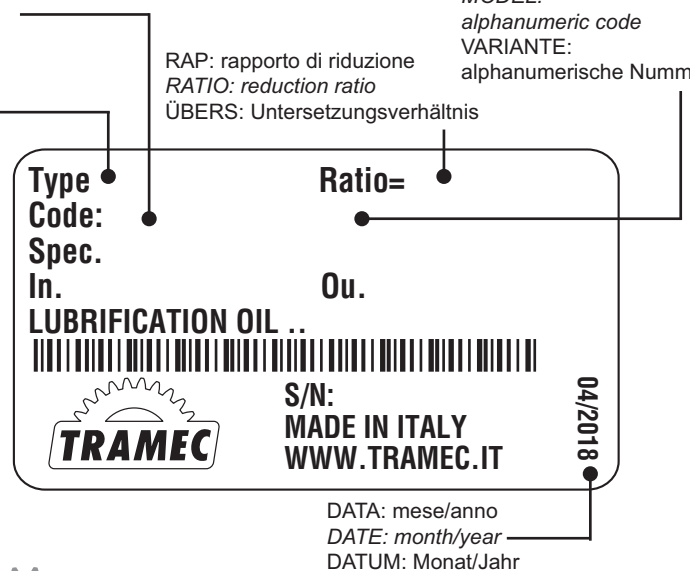
Bei der Bestellung von Ersatzteilen sind Ersatzteilnummer (s. Explosionszeichnung), Datum (1), Artikelnummer (2) und Variantennummer (3) anzugeben. (s. Schild)

CODICE: distinta base
CODE: base list
ART.-Nr.: Basisstückliste

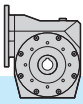
TIPO: descrizione
TYPE: description
TYP: Bezeichnung

RAP: rapporto di riduzione
RATIO: reduction ratio
ÜBERS: Untersetzungsverhältnis

VARIANTE:
codice alfanumerico
MODEL:
alphanumeric code
VARIANTE:
alphanumerische Nummer



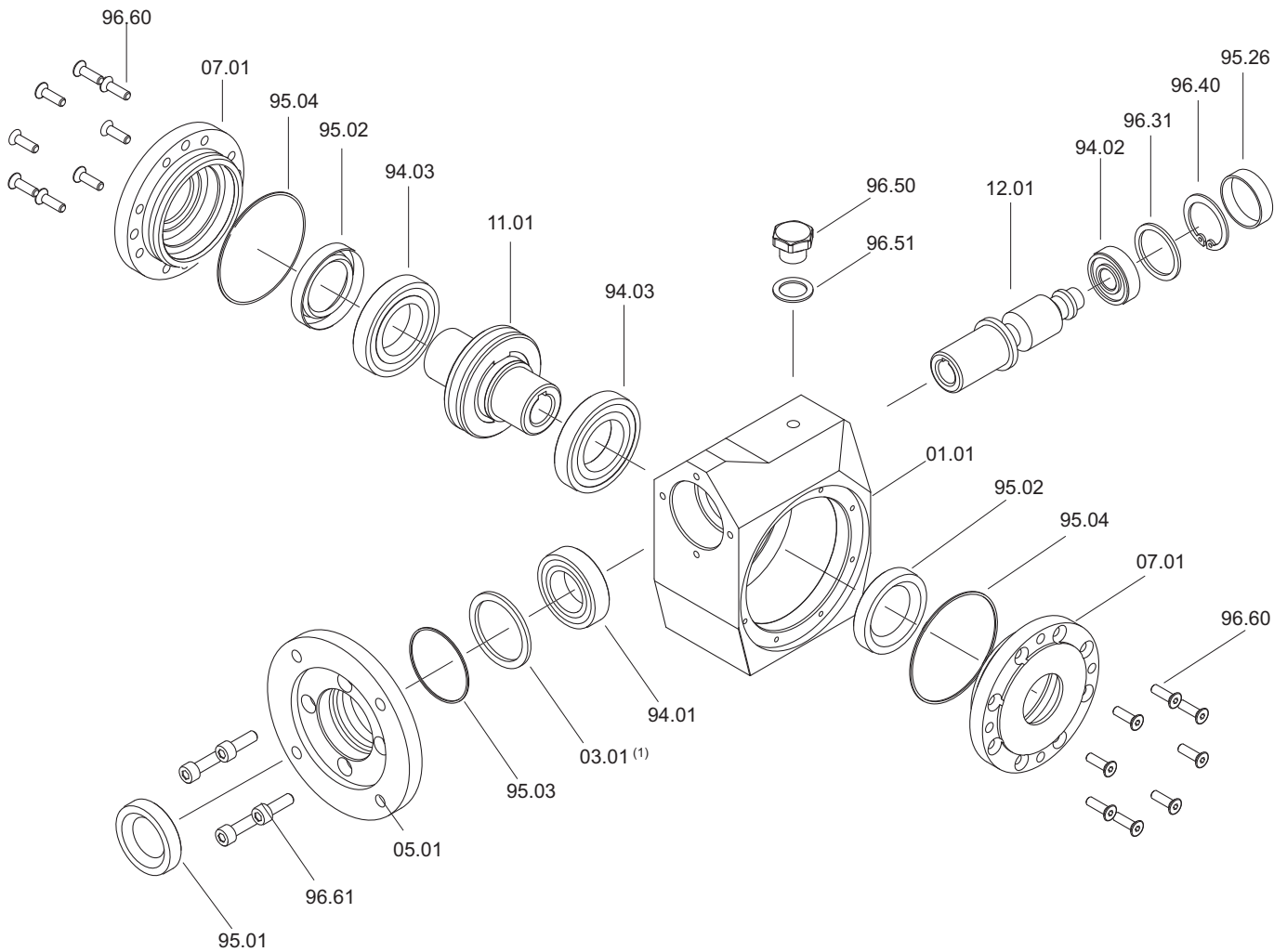
DATA: mese/anno
DATE: month/year
DATUM: Monat/Jahr



2.13 Lista parti di ricambio

2.13 Spare parts list

2.13 Ersatzteilliste



GHA	IEC	Cuscinetti / Bearings / Lager			Anelli di tenuta / Oilseals / Öldichtungen		OR		Cappello / Closed oil seal / Geschlossene Öldichtung
		94.01	94.02	94.03	95.01	95.02	95.03	95.04	95.26
30	56	61904 (20x37x9)	6000 (10x26x8)	16005 (25x47x8)	20/35/7	25/40/7	33x1.2	50x1.5	ø 26x7
	63				20/47/7	30/47/7			
40	63	6204 (20x47x14)	6201 (12x32x10)	16006 (30x55x9)	20/47/7	30/47/7	43x1.5	65x2	ø 32x7
	71	6005 (25x47x12)			25/47/7				
50	71	6005 (25x47x12)	6203 (17x40x12)	16008 (40x68x9)	25/47/7	40/62/8	50x1.5	82x2	ø 40x7
	80	6006 (30x55x13)			30/47/7				
63	80	6206 (30x62x16)	6204 C3 (20x47x14)	16008 (40x68x9)	30/62/7	40/62/8	56x1.5	102x2.5	ø 47x7
	90	6007 (35x62x14)			35/62/7				
75	90	6007 (35x62x14)	6205 C3 (25x52x15)	16010 (50x80x10)	35/62/7	50/72/8	60x3	123x3	ø 52x7

(1) Solo per GHA 63 PAM90 e 75 PAM 90 e 100 / Only for GHA 63 PAM 90 and 75 PAM 90 and 100 / Nur für GHA 63 PAM 90, 75 PAM 90 und 100