

# WASHDOWN HYGIENIC NEMA DRIVES

## GEARBOXES CATALOGUE

MADE IN ITALY



REGISTERED DESIGN



COMPONENT

On request

# CLEAN-GEARTECH



**CLEAN-GEARTECH**

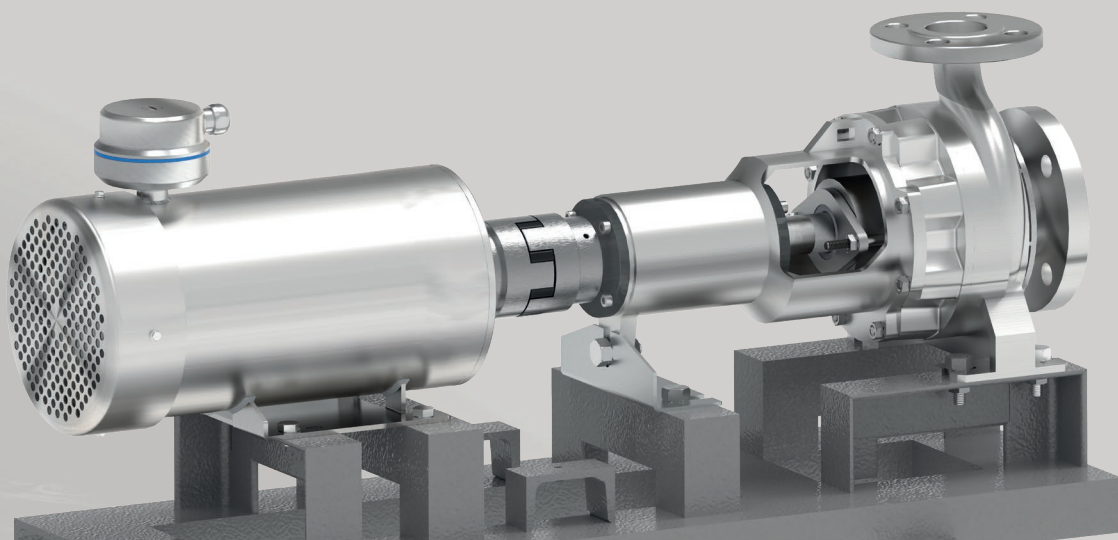
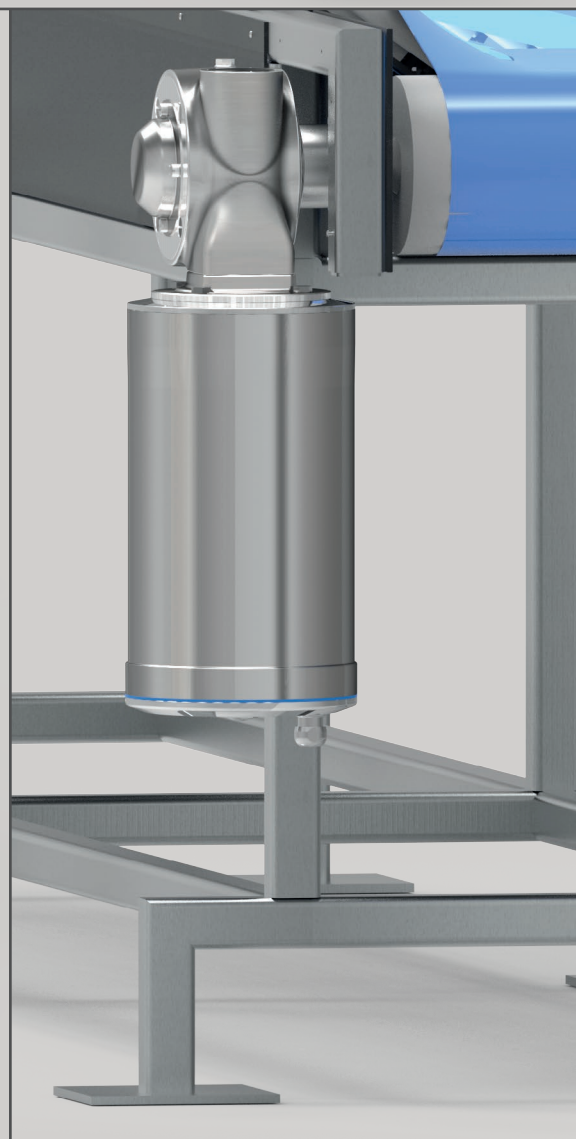
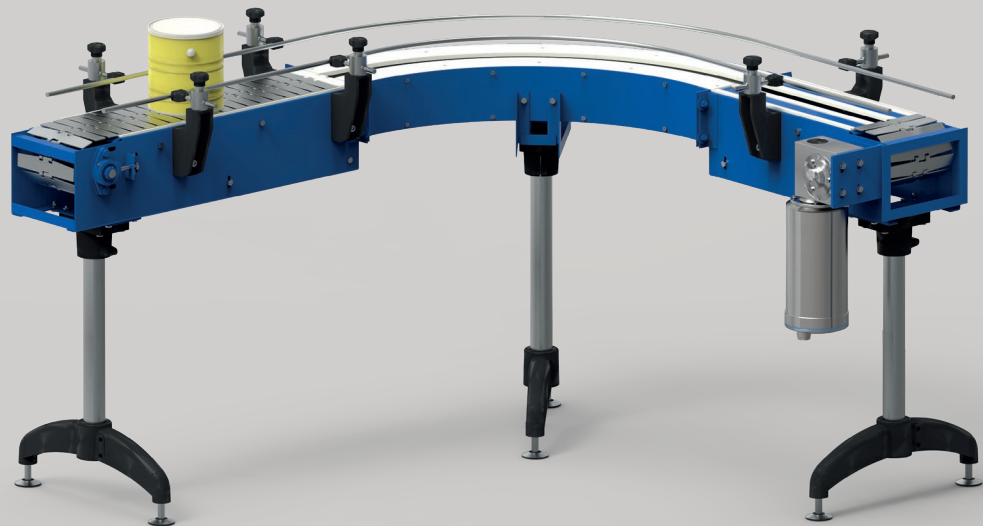
# HYGIENIC DESIGN ELECTRIC MOTORS

## MAIN FEATURES

- High pressure clean up
- Pooling free mounting
- Sealed holes
- Sealed oil plugs
- Simple washing
- Smooth surfaces
- No plastic plugs

## SECTORS OF USE

- Meat&Poultry
- Beverage
- Fruits & Vegetables
- Animal food
- Seafood / Fish farming
- Bakery
- Confectionery
- Cleaning systems
- Conveyors
- Dairy
- Food packaging
- Food processing
- Freezing Systems
- Mixers Agitators
- Pumps
- Ventilators
- Chemical
- Cosmetics
- Pharmaceutical
- Marine and fishing



# The CLEAN-GEARTECH philosophy

Protection level ↑

## BEST

**AISI 316L**

**Full stainless steel, the best for every application.**

**AISI 304**

*Completamente in acciaio inox, la miglior soluzione per qualsiasi applicazione.*

**Smooth surface aluminum worm gearboxes with additional white protective paint.**

*Riduttori a vite senza fine in alluminio a superficie liscia con ulteriore vernice protettiva bianca.*

**The starting base for avoiding dust accumulation.**

*Design adatto a consentire la miglior pulizia del prodotto. La base di partenza per evitare l'accumulo di polvere.*

● **VFN**



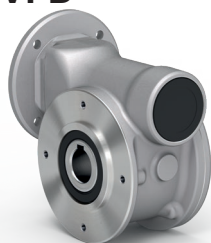
## MEDIUM

● **VFD on request**



## BASIC

● **VFD**



← ● These gearboxes are fully interchangeable on dimensions →

### ALUMINUM

### AISI 316L

#### STANDARD

#### PAINTED

**Smooth surface worm gearboxes for basic cleaning applications**

*Riduttori a vite senza fine a superficie liscia per applicazioni base*

**With white protective paint for outdoors and light detergents**

*Con vernice protettiva bianca per esterni e lavaggi con detergenti leggeri*

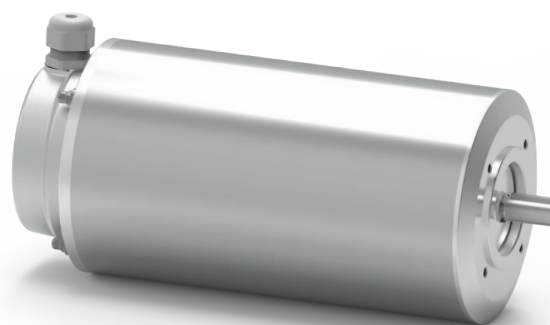
**Stainless Steel worm gearboxes**

*Riduttori a vite senza fine in acciaio inox*

## The APM Series

**Hygienic aluminum electric motors with protective high resistance coating**

*Motori elettrici igienici in alluminio con rivestimento protettivo ad alta resistenza*

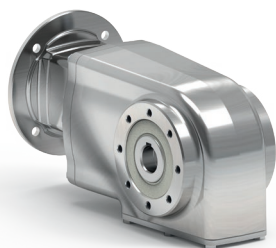


# Smooth surface and different materials

RCN



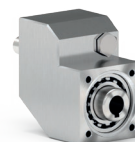
BVN



VFI



RCI



**Full stainless steel: the best solution for the resistance to corrosion. Suitable for all applications.**

*Interamente in acciaio inox: la migliore soluzione per la resistenza alla corrosione. Adatto a tutte le applicazioni.*



AISI 316L

AISI 304

## FULL STAINLESS FOR THE MOST HARSH APPLICATIONS

**Stainless Steel ratio multipliers**

*Riduttori ad uno stadio in acciaio inox*

**Stainless Steel helical bevel gearboxes**

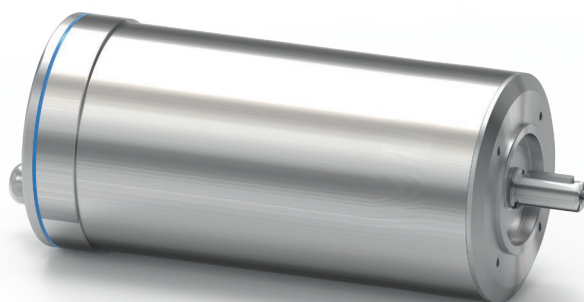
*Riduttori a coppia conica in acciaio inox*

**Stainless Steel square worm gearboxes**

*Riduttori a vite senza fine quadrato in acciaio inox*

**Stainless Steel ratio multipliers**

*Riduttori ad uno stadio in acciaio inox*

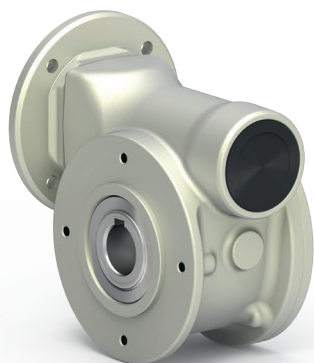
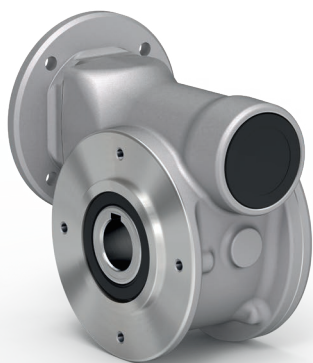


## The SPM Series

**Hygienic stainless steel 316L electric motors**

*Motori elettrici igienici in acciaio inox 316L*

# The VFD Series Smooth surface aluminum worm gearboxes



On request



On request

## The VFD - STANDARD Series

It is our most economical basic solution to reduce dust accumulation. Also available with aluminum electric motor APM series without ribs.

### La serie VFD - STANDARD

*E' la soluzione più economica per ridurre l'accumulo di polvere. Disponibile anche con motore in alluminio senza alette, serie APM.*

## The VFD - NTT Series

Gearbox with a protective coating to reduce dust accumulation and for water washing. Also available with aluminum electric motor APM series without ribs with protective coating.

### La serie VFD - NTT

*Riduttore con rivestimento protettivo per ridurre l'accumulo di polvere e per lavaggio con acqua. Disponibile anche con motore in alluminio senza alette con rivestimento protettivo, serie APM.*

## The VFD - PAINTED Series

It is also available with protective white paint, providing a good level of protection in medium aggressive environments. See the graph in the next page.

### La serie VFD - PAINTED

*E' disponibile anche con vernice protettiva bianca che permette un livello di protezione medio per ambienti aggressivi. Vedere il grafico nella prossima pagina.*

## VFD certification

worm gearboxes



On req.  
A rich.



## RCD certification

ratio multiplier



Ratio: 1 / 2.05 ÷ 1 / 9.83



IP69k when combined with on other gearbox

Type Tipo	Torque Coppia	Center distance Interasse	Input power Potenza in entrata	Hollow output shaft Albero cavo in uscita	
				Standard	On request
D45	345 lb in	1.772"	0.25 ÷ 1 HP	ø0.750"	-
D50	611 lb in	1.969"	0.25 ÷ 2 HP	ø1.000"	-
D63	1240 lb in	2.480"	0.5 ÷ 2 HP	ø1.250"	ø1.125"
D85	2921 lb in	3.346"	1 ÷ 5 HP	ø1.500"	-
211D	177 lb in	1.811 mm	0.33 ÷ 0.75 HP	ø0.625"	-

# THE BASIC PROTECTION

## Vacuum impregnated housing

Single piece aluminum alloy housing vacuum impregnated MIL-STD 276.

*Design adatto a consentire la miglior pulizia del prodotto. Cassa monoblocco impregnata sotto vuoto MIL-STD 276.*

## Hardened and ground worm

Hardened and ground worm, teeth radiused for noise reduction.

*La vite senza fine è temprata ed i denti sono profilati e raggiati per ridurre il rumore.*



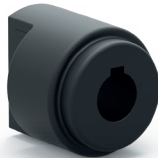
## Options Coupling

Premium input coupling:

- Direct mounting
- No settings
- No screw

*Giunto in entrata:*

*Montaggio diretto - No settaggi - No viti.*



## Output hollow shaft

Cast iron hollow shaft. CuSn12Ni (C91700) Nickel bronze worm gear for superior life.

*Mozzo in ghisa. Corona in bronzo al Nickel CuSn12Ni (C91700) centrifugato per massima resistenza e durata superiore.*



## Options Stainless steel hollow shaft in AISI 316L

*Mozzo in uscita in AISI 316L.*

## Hardware

Output male shaft in carbon steel. Zinc plated: feet screws and reaction arms.

*Albero maschio in uscita removibile in acciaio.*

*Piedi, viteria e bracci di reazione zincati.*



## Options Stainless steel hardware

Stainless steel output male shaft, protection cap, feet, screws and reaction arms.

*Albero maschio in uscita removibile, coperchietto di protezione, piedi, viteria e bracci di reazione in AISI 316L.*



## NBR seals

NBR seals on hollow output shaft.

*Anelli di tenuta in NBR su mozzo in uscita.*



## Options Viton seals

Single viton seal for harsh environment.

*Anelli di tenuta in viton per ambienti aggressivi.*



Twin viton seals with stainless steel 316L shield for IP69k protection.

*Doppi anelli di tenuta in viton con schermo protettivo in acciaio inox AISI 316L per protezione IP69k.*



## On request White protective painting RAL 7035

The graph below shows the behavior of an aluminum gearbox (not painted) and of a gearbox with protective paint during the salt spray test.

The time (hours spent in the test) is indicated on the horizontal axis, while the degree of corrosion on the surface of the reducer is indicated on the vertical axis. The curve of the aluminum reducer (not painted) shows that only after about 100 hours of testing the first signs of corrosion are formed (the curve enters the "corrosion starting" zone) and then spreads rapidly ("corrosion" zone). **The curve of the reducer with protective coating instead shows that after 1200 hours of permanence in saline mist, there are still no signs of corrosion.**



*Il grafico seguente riporta il comportamento di un riduttore in alluminio (non verniciato) e di un riduttore con vernice bianca protettiva durante il test in nebbia salina.*

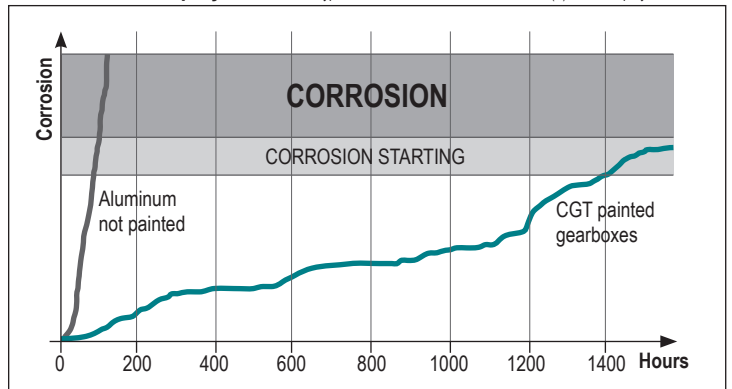
*Sull'asse orizzontale è indicato il tempo (ore di permanenza nel test) mentre sull'asse verticale il grado di corrosione sulla superficie del riduttore.*

*La curva del riduttore in alluminio (non verniciato) evidenzia come solo dopo circa 100 ore di test si formano già i primi segni di corrosione (la curva entra nella zona "corrosion starting") e poi si propaga rapidamente (zona "corrosion").*

*La curva del riduttore con verniciatura protettiva mostra invece come dopo 1200 ore di permanenza in nebbia salina, non vi siano ancora segni di corrosione.*

## NSS Neutral Salt Spray Test

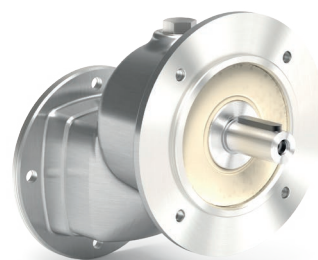
Type DCTC 1200 P n° L79 SO 9227:2006 (E) with salt spray test: 5% NaCl



This graph is an indication, since some chemical components may be more aggressive than the salt spray test. Test are suggested on special cases (in case use type "N series", full stainless steel gearboxes).

*Il grafico va considerato come indicativo perché altri agenti chimici potrebbero risultare più aggressivi del test in nebbia salina. Sugeriamo prove specifiche nell'ambiente di lavoro e nel caso non vengano soddisfatti i requisiti minimi si consiglia di utilizzare la gamma in acciaio inox "Serie N".*

# The VFN Series Stainless steel worm gearboxes



## The VFN Series

It is the best solution for the resistance to corrosion.  
Suitable for all applications.  
Entirely in stainless steel with smooth surfaces for easy cleaning.  
Also available with stainless steel motor SPM series.

### La serie VFN

*E' la migliore soluzione per la resistenza alla corrosione.  
Adatto a tutte le applicazioni.  
Interamente in acciaio inox con superfici lisce per facilitare la pulizia.  
Disponibile anche con motore in acciaio inox, serie SPM.*

## The RCN Series

It is the best solution where hygiene and cleanliness are required.  
The ratio multiplier gearbox has smooth surfaces for easy cleaning.  
Also available with stainless steel motor SPM series.

### La serie RCN

*E' la migliore soluzione dove è richiesta igiene e pulizia.  
Il riduttore ad uno stadio ha superfici lisce per facilitare la pulizia.  
Disponibile anche con motore in acciaio inox, serie SPM.*

## VFN certification

worm gearboxes



## RCN certification

ratio multiplier



**Ratio:** 1 / 1.57 ÷ 1 / 10.86

**IP69k** when combined with on other gearbox

Type <i>Tipo</i>	Torque <i>Coppia</i>	Center distance <i>Interasse</i>	Input power <i>Potenza in entrata</i>	Hollow output shaft <i>Albero cavo in uscita</i>	
				Standard	On request
N45	345 lb in	1.772"	0.25 ÷ 1 HP	ø0.750"	-
N50	611 lb in	1.969"	0.25 ÷ 2 HP	ø1.000"	-
N63	1240 lb in	2.480"	0.5 ÷ 2 HP	ø1.250"	ø1.125"
N85	2921 lb in	3.346"	1 ÷ 5 HP	ø1.500"	-
211N	177 lb in	1.181"	0.33 ÷ 0.75 HP	ø0.625"	-
411N	336 lb in	1.496"	0.5 ÷ 2 HP	ø0.625"	-



# THE BEST PROTECTION IN 316L

## Housing

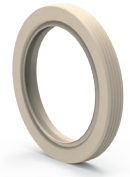
Special high tech full stainless steel housing with accurate polished finishing and strong rigidity.

*Cassa speciale interamente in acciaio inox estremamente rigida e con una finitura accurata.*

## Viton seals

Single viton seal for harsh environment.

*Anelli di tenuta in viton per ambienti aggressivi.*



## Options Twin viton seals

Twin viton seals with stainless steel 316L shield for IP69k protection.

*Doppi anelli di tenuta in viton con schermo protettivo in acciaio inox AISI 316L per protezione IP69k.*



## Hardened and ground worm

Hardened and ground worm, teeth radiused for noise reduction.

*La vite senza fine è temprata ed i denti sono profilati e raggiati per ridurre il rumore.*



## Options Coupling

Premium input coupling with direct mounting  
No settings - No screw.

*Giunto in entrata: Montaggio diretto  
No settaggi - No viti.*



## Output hollow shaft

Stainless steel hollow shaft in AISI 316L.

CuSn12Ni (C91700) Nickel bronze for superior life.

*Mozzo in acciaio inox 316L.  
Corona in bronzo al Nickel CuSn12Ni (C91700) centrifugato per massima resistenza e durata superiore.*



## STANDARD POLISHED FINISHING

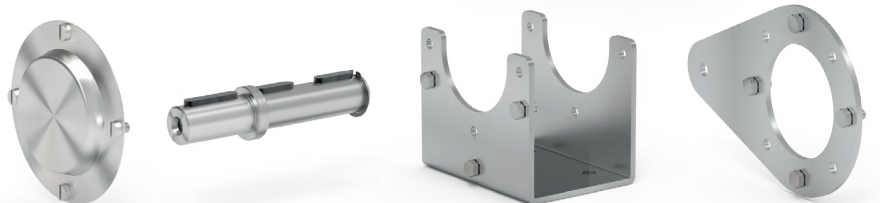
*Finitura lucida standard*



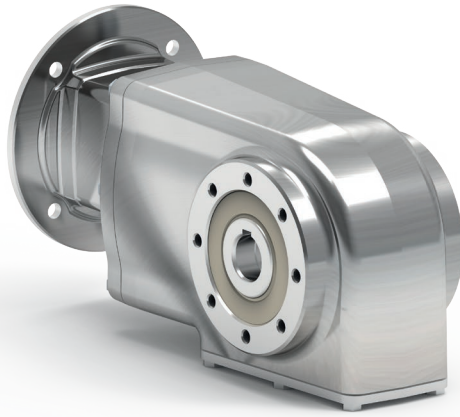
## Stainless steel hardware

Stainless steel output male shaft, protection cap, feet, screws and reaction arms.

*Albero maschio in uscita removibile, coperchietto di protezione, piedi, viteria e bracci di reazione in AISI 316L.*



# The BVN Series Stainless steel helical bevel gearboxes



## The BVN Series

The best high efficiency solution for the resistance to corrosion. Suitable for all applications.  
It is a strong and clean helical bevel gear.  
Entirely in stainless steel with smooth surfaces for easy cleaning.  
Also available with stainless steel motor SPM series.

### La serie BVN

La migliore soluzione ad alta efficienza per la resistenza alla corrosione. Adatto a tutte le applicazioni.  
Riduttore a coppia conica resistente e dal design pulito.  
Interamente in acciaio inox con superfici lisce per facilitare la pulizia.  
Disponibile anche con motore in acciaio inox, serie SPM.

## BVN certification

Helical bevel gearboxes



On req.  
A rich.



Type <i>Tipo</i>	Torque <i>Coppia</i>	Input power <i>Potenza in entrata</i>	Hollow output shaft <i>Albero cavo in uscita</i>	
			Standard	On request
X42N	1328 lb in	0.5 ÷ 2 HP	ø1.000"	-
X43N	1416 lb in	0.25 ÷ 0.75 HP	ø1.000"	-
X62N	3629 lb in	1 ÷ 5 HP	ø1.375"	-
X63N	3629 lb in	0.25 ÷ 1.5 HP	ø1.375"	-
X73N	5974 lb in	2 ÷ 5 HP	ø1.500"	-
X74N	5974 lb in	0.25 ÷ 2 HP	ø1.500"	-

# THE BEST PROTECTION IN 316L

## Housing

Special high tech full stainless steel housing with accurate polished finishing and strong rigidity.

*Cassa speciale interamente in acciaio inox estremamente rigida e con finitura lucida accurata.*

## Input bore

Input bore is available for IEC and NEMA versions.

*Albero in entrata disponibile per versioni IEC e NEMA.*



## Options Coupling

Premium input coupling with direct mounting  
No settings - No screw.

*Giunto in entrata:  
Montaggio diretto - No settaggi - No viti.*



## Gears

Hardened and ground gears.

*Ingranaggi temprati e rettificati.*



## Output hollow shaft

Stainless steel hollow shaft in AISI 316L.

*Mozzo in acciaio inox 316L*



## Stainless steel hardware

Stainless steel output male shaft, protection cap, feet, screws and reaction arms.

*Albero maschio in uscita removibile, coperchietto di protezione, piedi, viteria e bracci di reazione in AISI 316L.*



## Viton seals

Single viton seal for harsh environment.

*Anelli di tenuta in viton per ambienti aggressivi.*



## Options Twin viton seals

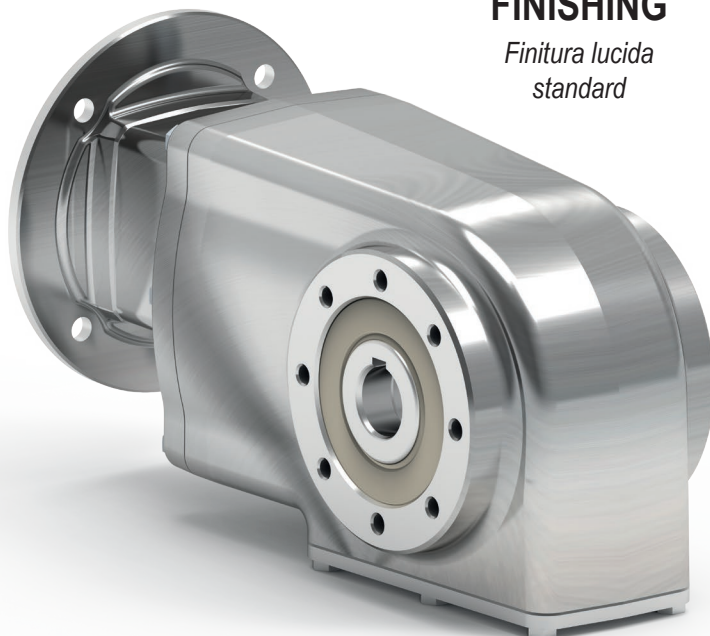
Twin viton seals with stainless steel 316L shield for IP69k protection.

*Doppi anelli di tenuta in viton con schermo protettivo in acciaio inox AISI 316L per protezione IP69k.*

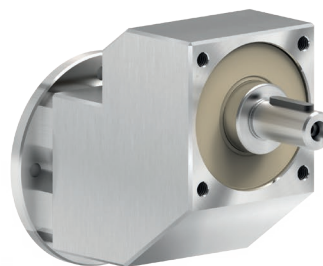


## STANDARD POLISHED FINISHING

*Finitura lucida standard*



# The VFI Series Stainless steel worm gearboxes



## The VFI Series

It is the best solution for the resistance to corrosion. Suitable for all applications. Entirely in stainless steel, the surfaces do not have grooves or other elements that could attract dirt. Also available with stainless steel motor SPM series.

### La serie VFI

*E' la migliore soluzione per la resistenza alla corrosione. Adatto a tutte le applicazioni. Interamente in acciaio inox, le superfici non presentano solchi o altri elementi che potrebbero attirare lo sporco. Disponibile anche con motore in acciaio inox, serie SPM.*

## The RCI Series

The best solution where hygiene and cleanliness are required. The ratio multiplier gearbox with smooth surfaces for easy cleaning. Also available with stainless steel motor SPM series.

### La serie RCI

*La migliore soluzione dove è richiesta igiene e pulizia. Il riduttore ad uno stadio con superfici lisce per facilitare la pulizia. Disponibile anche con motore in acciaio inox, serie SPM.*

## VFI certification

worm gearboxes



On req.  
A rich. IP69k

## RCI certification

ratio multiplier



Ratio: 1 / 1.57 ÷ 1 / 10.86

IP69k when assembled with on other gearbox

Type Tipo	Torque Coppia	Center distance Interasse	Input power Potenza in entrata	Hollow output shaft Albero cavo in uscita	
				Standard	On request
I45	345 lb in	1.772"	0.25 ÷ 1 HP	ø0.750"	-
I50	611 lb in	1.969"	0.25 ÷ 2 HP	ø1.000"	-
I63	1240 lb in	2.480"	0.5 ÷ 2 HP	ø1.250"	ø1.125"
I85	2921 lb in	3.346"	1 ÷ 5 HP	ø1.500"	-
I11	5847 lb in	4.331"	2 ÷ 10 HP	ø2.000"	-
411I	336 lb in	1.496"	0.5 ÷ 2 HP	ø0.625"	-

# THE BEST PROTECTION IN 304

## Housing

**Strong and modular square housing.**

*Cassa con forma quadrata robusta e modulare.*

## Hardened and ground worm

**Hardened and ground worm, teeth radiused for noise reduction.**

*La vite senza fine è temprata ed i denti sono profilati e raggiati per ridurre il rumore.*



## Options Coupling

**Premium input coupling with direct mounting  
No settings - No screw.**

*Giunto in entrata:  
Montaggio diretto - No settaggi - No viti.*



## Output hollow shaft

**Stainless steel hollow shaft in AISI 316L.  
CuSn12Ni (C91700) Nickel bronze for superior life.**

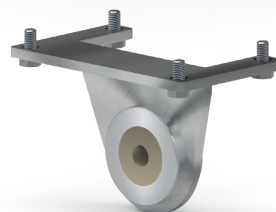
*Mozzo in acciaio inox 316L.  
Corona in bronzo al Nickel CuSn12Ni (C91700) centrifugato per massima resistenza e durata superiore.*



## Stainless steel hardware

**Stainless steel output male shaft, protection cap, feet, screws and reaction arms.**

*Albero maschio in uscita removibile, coperchietto di protezione, piedi, viteria e bracci di reazione in AISI 316L.*



## Viton seals

**Single viton seal for harsh environment.**

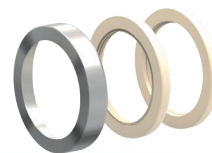
*Anelli di tenuta in viton per ambienti aggressivi.*



## Options Twin viton seals

**Twin viton seals with stainless steel 316L shield for IP69k protection.**

*Doppi anelli di tenuta in viton con schermo protettivo in acciaio inox AISI 316L per protezione IP69k.*



## STRONG SQUARE DESIGN

*Solida forma quadrata*



# How to select a gearbox Come selezionare un riduttore

<b>A</b>	Select required torque (according to service factor) <i>Seleziona la coppia desiderata (comprensiva del fattore di servizio)</i>	<b>C</b>	Select gear ratio in the line corresponding to the chosen motor power <i>Sulla riga corrispondente alla motorizzazione prescelta si può rilevare il rapporto</i>
<b>B</b>	Select output speed <i>Seleziona la velocità in uscita</i>	<b>D</b>	Select motor flange available (if requested) <i>Scegli la flangia disponibile (se richiesta)</i>

## Worm gearboxes

Technical data example *Esempio di dati tecnici*

<b>C</b>		Ratio <i>Rapporto</i>	Transmitted torque <i>Momento torcente</i>	Nominal power <i>Potenza nominale</i>	Flange code <i>Codice flangia</i>	Dynamic efficiency <i>Rendimento dinamico</i>	Nominal module <i>Modulo nominale</i>	Input speed <i>Velocità in entrata</i>		
Output speed $n_2$ [min <sup>-1</sup> ]	Ratio <i>i</i>	Motor power $P_{1M}$ [HP]	Output torque $M_{2M}$ [lb in]	Service factor <i>f.s</i>	Nominal power $P_{1R}$ [HP]	Nominal torque $M_{2R}$ [lb in]	Available NEMA motor flanges	Dynamic efficiency	Tooth module [mm]	Ratio code
							-W 56C	-	RD	
250.0	<b>7</b>	1	202	1.3	1.29	257			80	01
175.0	<b>10</b>	0.75	213	1.2	0.91	257			79	02
125.0	<b>14</b>	0.5	194	1.3	0.67	257			77	03
83.3	<b>21</b>	0.5	253	1.4	0.69	345			67	04



Type of load and starts per hour <i>Tipo di carico e avviamenti per ora</i>	Worm gearboxes <i>Vite senza fine</i>			
Operating hours per day - <i>Ore di funzionamento giornaliero</i>	<2h	2÷8h	8÷16h	
Continuous or intermittent application with start / hour <i>Applicazione continua o intermittente con numero operazioni/ora</i>	Uniform - <i>Uniforme</i>	0.9	1	1.25
	Moderate - <i>Moderato</i>	1	1.25	1.5
	Heavy - <i>Forte</i>	1.25	1.5	1.75
Intermittent application with start / hour <i>Applicazione intermittente con numero operazioni/ora</i>	Uniform - <i>Uniforme</i>	1.25	1.5	1.75
	Moderate - <i>Moderato</i>	1.5	1.75	2
	Heavy - <i>Forte</i>	1.75	2	2.25

## Ratio multipliers and Helical bevel gearboxes

Technical data example *Esempio di dati tecnici*

<b>B</b>		Output speed <i>Velocità in uscita</i>	Motor power <i>Potenza motore</i>	Service factor <i>Fattore di servizio</i>	<b>A</b>		Nominal torque <i>Momento torcente nominale</i>	Output shaft diam. <i>Diam. albero uscita</i>	Notes <i>Note</i>
Output speed $n_2$ [min <sup>-1</sup> ]	Ratio <i>i</i>	Motor power $P_{1M}$ [HP]	Output torque $M_{2M}$ [lb in]	Service factor <i>f.s</i>	Nominal power $P_{1R}$ [HP]	Nominal torque $M_{2R}$ [lb in]	Available NEMA motor flanges	Output shaft	Ratio code
							-W 56C	-X 143-5TC	
240	<b>7.29</b>	2	504	1.4	2.81	708		2811	01
156	<b>11.20</b>	2	774	1.5	2.97	1151		288	02
133	<b>13.18</b>	2	911	1.3	2.53	1151		1911	03
115	<b>15.27</b>	2	1056	1.1	2.18	1151		1711	04



Type of load and starts per hour <i>Tipo di carico e avviamenti per ora</i>	Ratio multipliers <i>Riduttori ad uno stadio</i>			
Operating hours per day - <i>Ore di funzionamento giornaliero</i>	3h	10h	24h	
Continuous or intermittent application with start / hour <i>Applicazione continua o intermittente con numero operazioni/ora</i>	Uniform - <i>Uniforme</i>	0.8	1	1.25
	Moderate - <i>Moderato</i>	1	1.25	1.5
	Heavy - <i>Forte</i>	1.25	1.5	1.75
Intermittent application with start / hour <i>Applicazione intermittente con numero operazioni/ora</i>	Uniform - <i>Uniforme</i>	1	1.25	1.5
	Moderate - <i>Moderato</i>	1.25	1.5	1.75
	Heavy - <i>Forte</i>	1.5	1.75	2.15

# Useful formulas

Formule utili

## Required power - Potenza richiesta

Lifting - Sollevamento

Rotation - Rotazione

Linear movement - Traslazione

$$P_{[kW]} = \frac{M_{[Kg]} \cdot g_{[9.81]} \cdot v_{[m/s]}}{1000}$$

$$P_{[kW]} = \frac{M_{[Nm]} \cdot n_{[rpm]}}{9550}$$

$$P_{[kW]} = \frac{F_{[N]} \cdot v_{[m/s]}}{1000}$$

## Torque - Coppia

$$M_{[Nm]} = \frac{9550 \cdot P_{[kW]}}{n_{[rpm]}}$$

$$M_{[lb\ in]} = \frac{63030 \cdot P_{[HP]}}{n_{[rpm]}}$$

## Radial loads - Carichi radiali

Radial load generated by external transmissions keyed onto input and/or output shafts.

Forza radiale generata da organi di trasmissione calettati sugli alberi di ingresso e/o uscita.

$$F_R_{[N]} = \frac{M_{[Nm]} \cdot 2000}{d_{[mm]}} \cdot f_k$$

$$F_R_{[N]} = \frac{M_{[lb\ in]} \cdot 8.9}{d_{[in]}} \cdot f_k$$

**M:** Output torque - *Momento torcente*

**d:** Diam. of driving element - *Diametro primitivo*

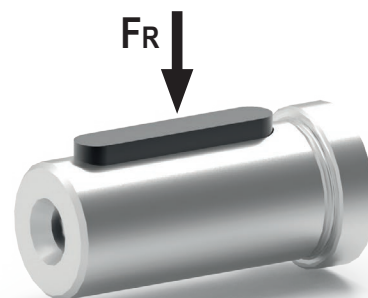
**f<sub>k</sub>:** Factor - *Coefficiente di trasformazione*

1.15: Gearwheels - *Ingranaggi*

1.25: Chain sprockets - *Catena*

1.75: Narrow v-belt pulley - *Cinghia Trapezoidale*

2.50: Flat-belt pulley - *Cinghia piatta*



**If your application requires higher radial loads, contact our technical office. Higher loads may be possible.**






Nel caso la vostra applicazione richieda carichi radiali superiori consultare il nostro ufficio tecnico, valori maggiori possono essere accettati.

# Notes on protective white paint

Note sulla vernice bianca protettiva

On request RAL 7035 painted  
A richiesta verniciato RAL 7035

Comparison on salt mist corrosion tests after 1000 hours.  
Confronto sulle prove di corrosione in nebbia salina dopo 1000 ore.

	0 hours		1000 hours
<p><b>Standard aluminum worm gearboxes</b></p> <p><i>Riduttori a vite senza fine in alluminio</i></p>		<p>After short time it deteriorates <i>Dopo poco tempo si deteriorano</i></p>	 <p>1000 hours</p>
			
<p><b>Same product with white protective paint</b></p> <p><i>Stesso prodotto con vernice protettiva bianca</i></p>		<p>It allows acceptable results <i>Consente risultati accettabili</i></p> <p>Beginning of the catalogue see the VFD series protective coating graph <i>All'inizio del catalogo vedere il grafico del rivestimento protettivo della serie VFD</i></p>	 <p>1000 hours</p>

Two-component polyurethane product formulated with unmodified hydroxylated acrylic resin, to be crosslinked exclusively with an aliphatic isocyanic catalyst which gives rise to more elastic and non-yellowing films.

It can be applied in thick layers with limited solvent emission. This product guarantees excellent adhesion on steel, galvanized steel and other metals, excellent wetting of the substrate and high chemical resistance, hardness and flexibility.

The presence of zinc phosphate allows a high protection against anodic dissolution and delay in the formation of rust.

Show tolerance to non-optimal application and substrate conditions.

It remains strongly recommended where you want to offer high level protection in various painting cycles a different degree of resistance.

The primer also has, together with an excellent resistance to abrasion, a high adhesion.

*Prodotto poliuretano bicomponente formulato con resina acrilica ossidrilata non modificata, da reticolare esclusivamente con catalizzatore isocianico alifatico che dà luogo a film più elastici e non ingiallenti.*

*Può essere applicato ad alto spessore con contenuta emissione di solventi.*

*Tale prodotto garantisce eccellente adesione su acciaio, acciaio zincato ed altri metalli, ottima bagnatura del substrato ed elevata resistenza chimica, durezza e flessibilità.*

*La presenza di fosfato di zinco permette un' elevata protezione contro la dissoluzione anodica e ritardo nella formazione della ruggine.*

*Mostra tolleranza a condizioni di applicazione e del supporto non ottimali.*

*Resta decisamente raccomandato ove si desideri offrire protezione ad alto livello in vari cicli di verniciatura a diverso grado di resistenza.*

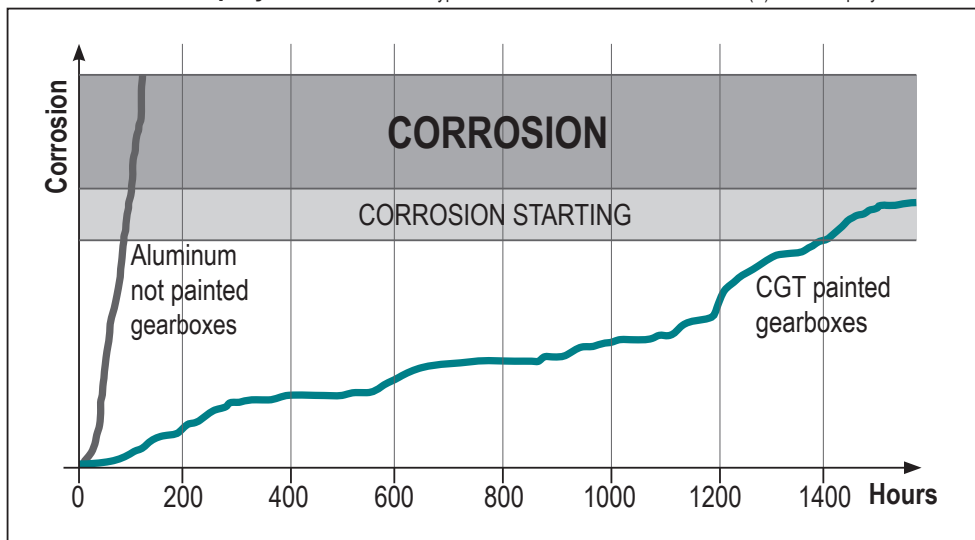
*Il fondo possiede inoltre, unitamente ad un'ottima resistenza all'abrasione, una elevata adesione.*

<b>Finish</b> <i>Aspetto</i>	<b>Satin, 30-40 gloss according to ISO 2813</b> Satinato, 30-40 gloss secondo norma ISO 2813
<b>Finish</b> <i>Colore</i>	<b>RAL 7035</b> Ral 7035
<b>Specific gravity</b> <i>Peso specifico</i>	<b>1,44 ± 0,05 kg/dm<sup>3</sup> at 23°C, referring to 7721933 red RAL 3009 cured according to ISO 2811-1</b> 1,44 ± 0,05 kg/dm <sup>3</sup> a 23°C, riferito al 7721933 rosso RAL 3009 catalizzato secondo ISO 2811-1



## NSS Neutral Salt Spray Test

Type DCTC 1200 P n° L79 SO 9227:2006 (E) with salt spray test: 5% NaCl



This graph is an indication, since some chemical components may be more aggressive than the salt spray test. Test are suggested on special cases (in case use type "N series", full stainless steel gearboxes).

*Il grafico va considerato come indicativo perchè altri agenti chimici potrebbero risultare più aggressivi del test in nebbia salina. Sugeriamo prove specifiche nell'ambiente di lavoro e nel caso non vengano soddisfatti i requisiti minimi si consiglia di utilizzare la gamma in acciaio inox "Serie N".*

## Suggestions on application of the gearboxes

Suggerimenti sull'applicazione dei riduttori

### Close protection cap

Coperchio di protezione chiuso

Closed protection cap seals the output hollow shaft end and provides protection against the rotating shaft. The cover can be mounted on both sides of the housing, matching screws are included in the scope of delivery.

*Il coperchio di protezione chiuso sigilla l'estremità dell'albero cavo di uscita e fornisce protezione contro l'albero rotante. Il coperchio può essere montato su entrambi i lati dell'alloggiamento, le viti corrispondenti sono incluse nella fornitura.*

### Continuous duty on bevel gear

Servizio continuo su coppie coniche

If the application requires a gearbox for continuous duty operation, then choose a torque rating that is higher than the expected application torque and **avoid if possible vertical positions**.

For more information, contact our technical service.

*Se l'applicazione richiede un riduttore per servizio continuo, sceglierne un valore di coppia superiore alla coppia di applicazione prevista **evitare se possibile posizioni verticali**.*

*Per maggiori informazioni, contattare il nostro servizio tecnico.*

### Input speed

Velocità di ingresso

When choosing a gearbox for a specific application, consider that with the input speed exceeding 1800 rpm, the temperature can rise.

*Quando si sceglie un riduttore per un'applicazione specifica, considerare la velocità di ingresso superiore ai 1800 giri/min la temperatura può salire.*



rpm







# Coupling possible combination

Tabella combinazione giunti possibili



INPUT  
DIAMETER

Z = Zamak

ALUMINUM	STAINLESS STEEL			GROUP	Ø	Material	Kit Code			
D45	N45	I45	X43N	<b>KB</b>	5/8	Z	KC355096UZ 			
D50	N50	I50	-	<b>KC</b>	5/8	Z	K0505096UZ 			
D63	N63	I63	X42N	<b>KD</b>	5/8	Z	KC405096UZ 			
			X63N					7/8	Z	KC405097UZ 
D85	N85	I85	X74N	<b>KE</b>	5/8	Z	KC505096UZ 			
			X62N					7/8	Z	KC505097UZ 
			X73N							

# Input coupling assembly *Montaggio Giunto in entrata*

**PATENTED**

The coupling is only suitable for the use of standard IEC / NEMA motors. The motor shaft must always have the shoulder to hold the coupling in position. The diameter of the coupling must always correspond to the IEC / NEMA flange applied to the reducer, reduced or increased dimensions of the hole are not allowed.

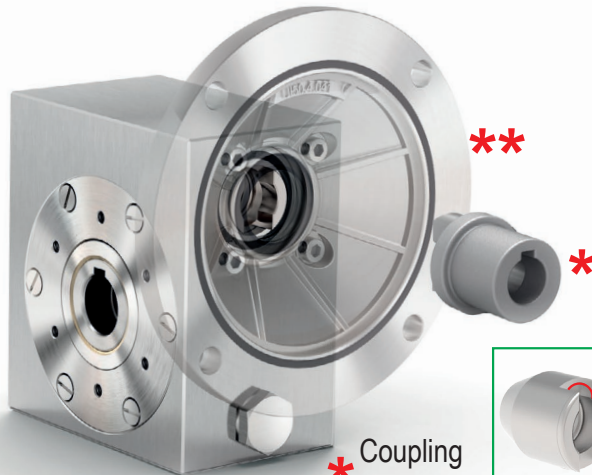
*Il giunto è adatto solo per l'utilizzo di motori standard IEC / NEMA. L'albero motore deve avere sempre lo spallamento per tenere in posizione il giunto.*

*Il diametro del giunto deve sempre corrispondere alla flangia IEC / NEMA applicata al riduttore, non sono consentite dimensioni ridotte o maggiorate del foro.*

## Direct mounting - No settings - No screw

*Montaggio diretto - No settaggi - No viti*

**1**

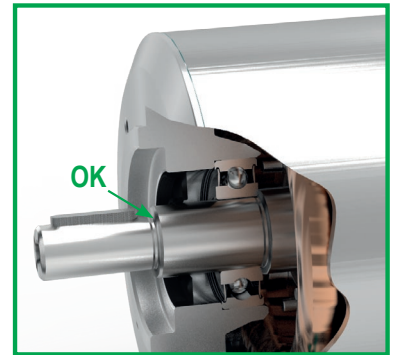


**\*\***  
Do not mount  
oil seals on  
motor flange  
*Non montare anelli di  
tenuta nella flangia motore*

**\*** Coupling  
orientation  
*Orientamento  
giunto*

**Motor shaft only allowed with shoulder**

*Usare un albero motore solo con spallamento*



**Do not use motor shaft without shoulder**

*Non utilizzare un albero motore senza spallamento*

**2**



**Motor assembly**

*Assemblaggio motore*

**3**



Available as an option for the motor range from 56C to 182/4TC

*Disponibile come opzione per motori da 56C a IEC 182/4TC*

# INDEX

## Section 1



### Smooth surface aluminum worm gearboxes

*Riduttori a vite senza fine in alluminio con superficie liscia*

**ALUMINUM**

## Section 2



### Smooth surface aluminum ratio multipliers

*Riduttori ad uno stadio in alluminio con superficie liscia*

**ALUMINUM**

## Section 3



### Full stainless steel round worm gearboxes

*Riduttori a vite senza fine tondo completamente in acciaio inox*

**AISI 316L**

## Section 4

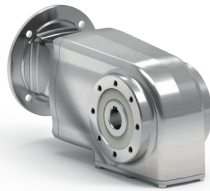


### Full stainless steel ratio multipliers

*Riduttori ad uno stadio completamente in acciaio inox*

**AISI 316L**

## Section 5



### Full stainless steel helical bevel gearboxes

*Riduttori a coppia conica completamente in acciaio inox*

**AISI 316L**

## Section 6

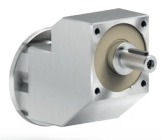


### Full stainless steel square worm gearboxes

*Riduttori a vite senza fine quadrati completamente in acciaio inox*

**AISI 304**

## Section 7



### Full stainless steel ratio multipliers

*Riduttori ad uno stadio completamente in acciaio inox*

**AISI 304**

## The starting base for avoiding dust accumulation

(Clean aluminum motors also available)

*La base di partenza per evitare l'accumulo di polvere  
(disponibili anche con motori in alluminio)*

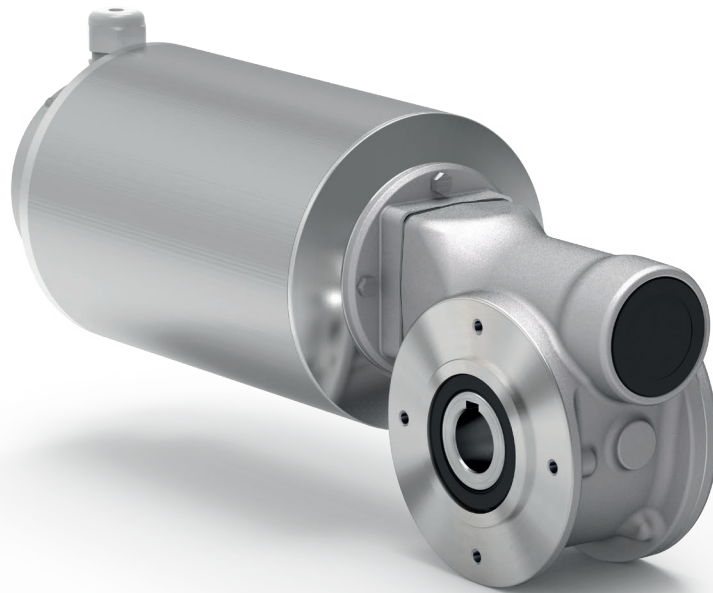
**ALUMINUM**

IP66






















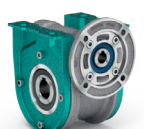
CE



















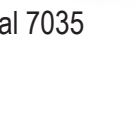






On req.  
A rich.

IP69k



# How to order Codifica

<b>P</b>	<b>D45</b>	<b>UNI</b>	<b>N</b>	<b>10</b>	<b>0</b>	<b>IB</b>	<b>C</b>	
Type <i>Tipo</i>	Size <i>Grandezza</i>	Mounting <i>Montaggio</i>	Position <i>Posizione</i>	Ratio <i>Rapporto</i>	Hub Output shaft <i>Mozzo corona Albero uscita</i>	Diameter <i>Diametro</i>	Input / output shaft material <i>Materiale alberi in entrata e uscita</i>	
<b>P</b>  <b>Worm gearboxes</b> <i>Riduttori a vite senza fine</i>	 <b>D45</b> <b>D50</b> <b>D63</b> <b>D85</b>	<b>UNI</b> 	<b>N</b>    	See technical data table <i>Vedi tabelle dati tecnici</i>	<b>0</b> Hollow Mozzo 	<b>→ Standard</b> D45	<b>C</b> Cast iron / Carbon steel <i>Ghisa</i> <b>I</b> Stainless steel <i>In acciaio inox</i>	
<b>M</b> 		<b>FLC</b> 	 		<b>S</b> Solid output shaft <i>Albero in uscita</i> 	<b>IB</b> → $\varnothing 0.750''$ D50 <b>ID</b> → $\varnothing 1.000''$ D63		The quill input hollow bore is always in carbon steel <i>Il foro cavo in entrata è sempre in acciaio</i>
<b>B</b> 		<b>FLL</b> 	Select L or R position for output flange <i>Selezionare la posizione L o R per la flangia in uscita</i>			<b>IE</b> → $\varnothing 1.125''$ <b>IF</b> → $\varnothing 1.250''$ D85		
<b>R</b> 		<b>BRI</b> Stainless steel <i>Acciaio inox</i> <b>BRZ</b> Zinc plated <i>Zincato</i> 				<b>L</b> Left <i>Sinistra</i> 		
	<b>PAI</b> Stainless steel <i>Acciaio inox</i> <b>PAB</b> Zinc plated <i>Zincato</i> 	<b>R</b> Right <i>Destra</i> 						
	<b>PVI</b> Stainless steel <i>Acciaio inox</i> <b>PVB</b> Zinc plated <i>Zincato</i> 							
	<b>PBB</b> Zinc plated <i>Zincato</i> 							

<b>N</b>	<b>C</b>	<b>-W</b>	<b>B3</b>	<b>UW</b>	<b>A</b>	For M type specify terminal box position <i>Per tipo M specificare posizione morsettiera</i>
<b>Protection cap</b> <i>Coperchio di protezione</i>		<b>Motor size</b> <i>Grandezza motore</i>	<b>Mounting position</b> <i>Posizione di montaggio</i>	<b>Input bore</b> <i>Foro entrata</i>	<b>Coating</b> <i>Trattamento</i>	
<b>Left</b> <i>Sinistra</i>	<b>Right</b> <i>Destra</i>	<b>Motor flanges</b> <i>Flange motore</i>	<b>B3</b>	<b>Standard bore</b> <i>Foro standard</i>	<b>A</b> Standard in aluminum <i>Standard in alluminio</i>	<b>A</b>
						
<b>N</b> Without protection cap <i>Senza coperchietto di protezione</i>	<b>N</b> Without protection cap <i>Senza coperchietto di protezione</i>	<b>NEMA</b> <b>-W</b> → 56C (ø6.5") <b>-X</b> → 143/5TC (ø6.5") <b>-Y</b> → 182/4TC (ø8.88")	<b>B8</b> 	<b>UW</b> → ø0.625" <b>UX</b> → ø0.875" <b>UY</b> → ø1.125"	<b>N</b> NTT coating <i>NTT Rivestimento</i> 	<b>B</b> 
		<b>Without flange</b> <i>Senza flangia</i> 	<b>B6</b> 		<b>V</b> Painted <i>Verniciato</i> 	<b>C</b> 
<b>C</b> Closed <i>Chiuso</i>	<b>C</b> Closed <i>Chiuso</i>	<b>-N</b> → Nema	<b>B7</b> 	<b>ST</b> Standard Kit R <i>Kit R standard</i>	<b>Ral 7035</b> 	<b>D</b> 
		<b>Type R</b> <i>Tipo R</i> 	<b>B7</b>	<b>With coupling</b> <i>Con giunto</i> 		
		<b>-Z</b> → Nema	<b>V5</b> 	<b>-W</b> → ø0.625" <b>-X</b> → ø0.875" <b>-Y</b> → ø1.125"		
			<b>V6</b> 	<b>Ready for input coupling</b> <i>Predisposto per giunto</i> 		
				<b>-0</b> Type B <i>Tipo B</i>		

Input speed ( $n_1$ ) = 1750 min<sup>-1</sup>

Output speed $n_2$ [min <sup>-1</sup> ]	Ratio $i$	Motor power $P_{1M}$ [HP]	Output torque $M_{2M}$ [lb in]	Service factor $f.s$	Nominal power $P_{1R}$ [HP]	Nominal torque $M_{2R}$ [lb in]	Available NEMA motor flanges		Dynamic efficiency $RD$	Tooth module [mm]	Ratio code
							-W 56C	-			
250.0	7	1	202	1.3	1.29	257			80	2.2	01
175.0	10	0.75	213	1.2	0.91	257			79	2.2	02
125.0	14	0.5	194	1.3	0.67	257			77	2.4	03
83.3	21	0.5	253	1.4	0.69	345			67	1.6	04
62.5	28	0.5	328	1.1	0.53	345			65	2.5	05
47.3	37	0.33	277	1.2	0.42	345			63	1.8	06
38.0	46	0.33	323	1.1	0.36	345			59	1.5	07
29.2	60	0.25	303	1.1	0.29	345			56	1.2	08
25.0	70	0.25	340	0.8	0.19	257			54	1.0	09
17.2	102	0.25*	450	<0.8	0.14	248			49	0.72	10

\* Power higher than the maximum one which can be supported by the gearbox. Select according to the torque  $M_{2R}$

\* Potenza superiore a quella massima sopportabile dal riduttore. Selezionare in base al momento torcente  $M_{2R}$

Motor flanges available  
Flange motore disponibili



B) Supplied with reduction bushing  
Fornito con bussola di riduzione



B) Available on request without reduction bushing  
Disponibile a richiesta senza bussola di riduzione



C) Motor flange holes position  
Posizione fori flangia motore

## Lubrication

Lubrificazione

Unit D45 is supplied with synthetic oil to assure long life lubrication. Food grade oil is available on request.

See Table 1 for lubrication and recommended quantity.

See Table 2 for possible radial and axial loads on the gearbox.

Il riduttore tipo D45 viene fornito con olio sintetico e lubrificazione tipo "long life".

Disponibile a richiesta olio alimentare.

Vedi Tabella 1 per oli e quantità consigliati.

Vedi Tabella 2 per i carichi radiali e assiali applicabili al riduttore.

Oil quantity for all positions: 3.17 oz. Quantità olio per tutte le posizioni: 3.17 oz.	Shell Omala S4 WE 320	Eni Telium VSF 320
---	--------------------------	-----------------------

Tab. 1

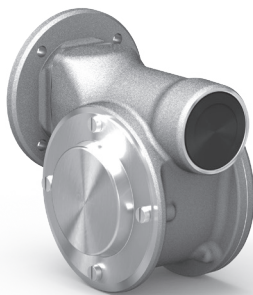
## Suggested

Suggerito

Stainless steel protection cap (on request).

Coperchio di protezione in acciaio inox a richiesta.

Kit cod. KN300209



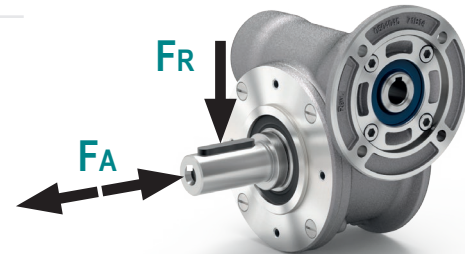
## Radial and axial loads

Carichi radiali e assiali

### Output shaft

Albero di uscita

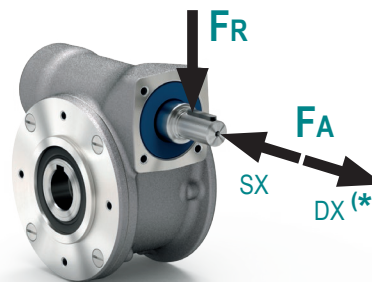
$n_2$ [min <sup>-1</sup> ]	$F_A$ [lb]	$F_R$ [lb]
200	40	202
150	45	225
100	49	247
75	54	270
50	58	315
25	67	405
15	90	450



### Input shaft

Albero in entrata

$n_1$ [min <sup>-1</sup> ]	$F_A$ [lb]	$F_R$ [lb]
1750	9	47



\* Strong axial loads in the DX direction are not allowed.

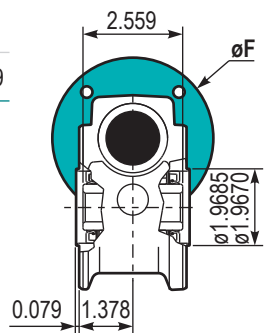
\* Non sono consentiti forti carichi assiali con direzione DX

Tab. 2

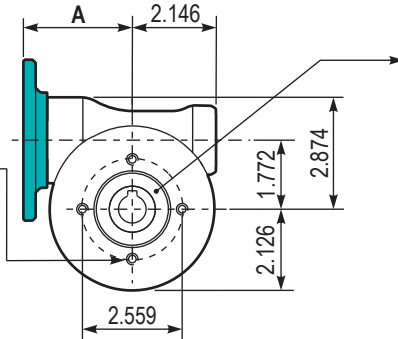


PD45**UNI**.. Basic gearbox  
Riduttore base

M. flanges	Kit code	øF	A
56C	KUD454041	6.5	3.709

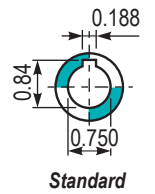


4 holes  
M6x0.55  
Mounting holes  
position  
Posizione fori  
di montaggio



Gearbox weight  
Peso riduttore 5.30 lb

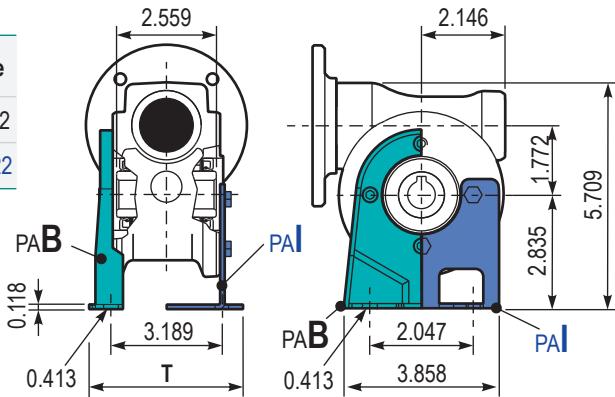
Hollow shaft  
Foro in uscita



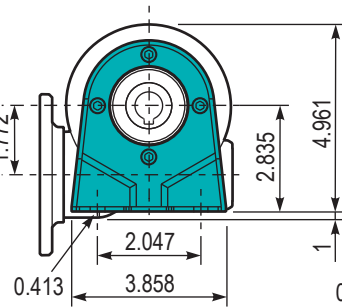
PD45**PA**... Feet  
Piedini

Type	T	Kit code
B**	4.016	K0459022
I*	3.937	KN459022

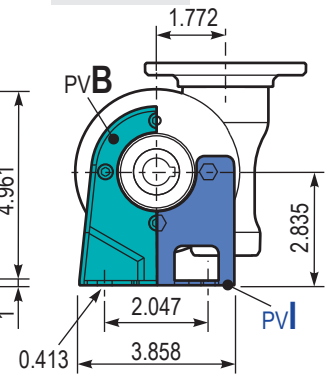
\*\* Zink plated  
\* Stainless steel



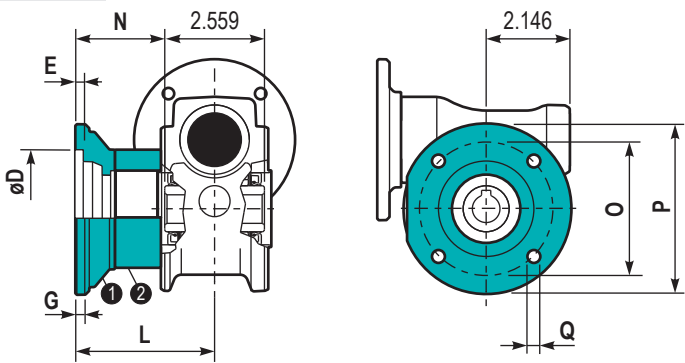
PD45**PBB**.. Feet  
Piedini



PD45**PV**... Feet  
Piedini

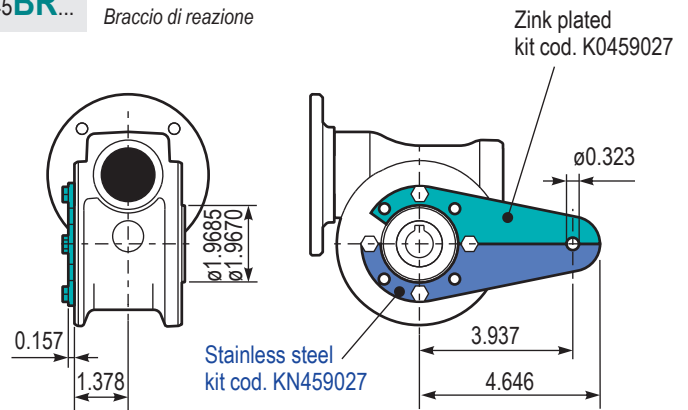


PD45**FL**.. Output flange  
Flangia uscita

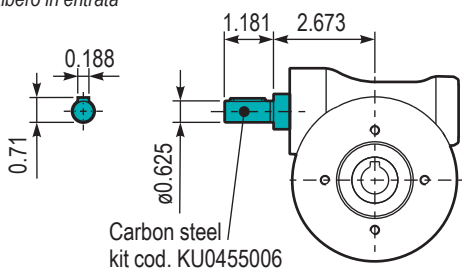


Type	øD	E	G	L	N	O	P	Q	Kit code
C	2.3681 2.3642	0.35	0.35	2.382	1.102	3.425	4.331	0.33	① K0459010 ② -
L	2.3681 2.3642	0.35	0.35	3.563	2.283	3.425	4.331	0.33	① K0459010 ② K0450200

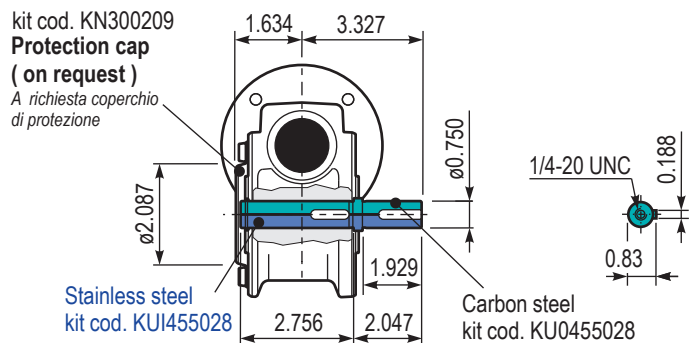
PD45**BR**... Reaction arm  
Braccio di reazione



**RD45UNI**.. Input shaft  
Albero in entrata



PD45..**SIB** Single output shaft  
Albero semplice in uscita



Input speed ( $n_1$ ) = 1750 min<sup>-1</sup>

Output speed $n_2$ [min <sup>-1</sup> ]	Ratio $i$	Motor power $P_{1M}$ [HP]	Output torque $M_{2M}$ [lb in]	Service factor f.s	Nominal power $P_{1R}$ [HP]	Nominal torque $M_{2R}$ [lb in]	Available NEMA motor flanges		Dynamic efficiency RD	Tooth module [mm]	Ratio code
							-W 56C	-			
250.0	7	2	413	1.2	2.34	478			82	2.5	01
175.0	10	1.5	432	1.2	1.84	522			80	2.4	02
125.0	14	1	398	1.4	1.46	575			79	2.6	03
97.2	18	1	486	1.1	1.09	522			75	2.0	04
67.3	26	0.75	485	1.2	0.87	558			69	2.7	05
58.3	30	0.75	567	1.1	0.82	611			70	2.5	12
48.6	36	0.5	447	1.4	0.69	611			69	2.1	06
40.7	43	0.5	511	1.1	0.57	575			66	1.8	07
35.0	50	0.5	558	1.0	0.51	558			62	1.5	13
29.2	60	0.33	414	1.3	0.42	522			58	1.3	08
25.7	68	0.33	461	1.1	0.35	487			57	1.2	09
21.9	80	0.25	389	1.2	0.31	478			54	1.0	10
17.5	100	0.25	450	1.0	0.24	434			50	0.8	11

Motor flanges available  
Flange motore disponibili



B) Supplied with reduction bushing  
Fornito con bussola di riduzione



B) Available on request without reduction bushing  
Disponibile a richiesta senza bussola di riduzione



C) Motor flange holes position  
Posizione fori flangia motore

## Lubrication

Lubrificazione

Unit D50 is supplied with synthetic oil to assure long life lubrication.  
Food grade oil is available on request.  
See Table 1 for lubrication and recommended quantity.  
See Table 2 for possible radial and axial loads on the gearbox.

Il riduttore tipo D50 viene fornito con olio sintetico e lubrificazione tipo "long life".  
Disponibile a richiesta olio alimentare.  
Vedi Tabella 1 per oli e quantità consigliati.  
Vedi Tabella 2 per i carichi radiali e assiali applicabili al riduttore.

Oil quantity for  
all positions:  
4.93 oz.

Quantità olio per tutte  
le posizioni: 4.93 oz.

Shell  
Omala S4 WE 320

Eni  
Telium VSF 320

Tab. 1

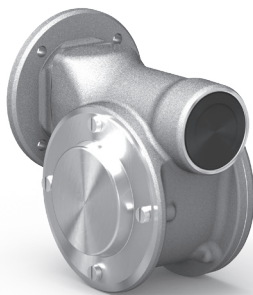
## Suggested

Suggerito

Stainless steel protection cap  
(on request).

Coperchio di protezione in  
acciaio inox a richiesta.

Kit cod. KN500209



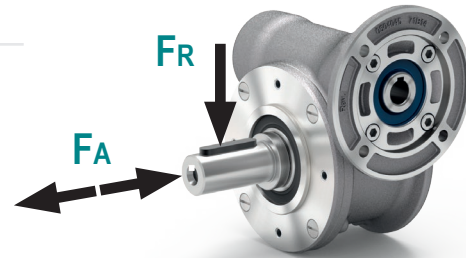
## Radial and axial loads

Carichi radiali e assiali

### Output shaft

Albero di uscita

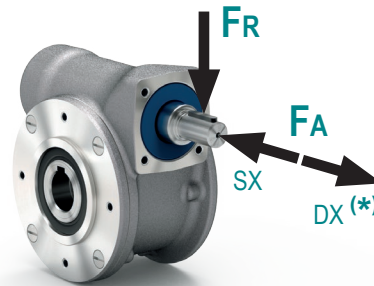
$n_2$ [min <sup>-1</sup> ]	FA [lb]	FR [lb]
200	54	270
150	63	315
100	67	337
75	76	382
50	85	427
25	108	562
15	126	629



### Input shaft

Albero in entrata

$n_1$ [min <sup>-1</sup> ]	FA [lb]	FR [lb]
1750	17	85



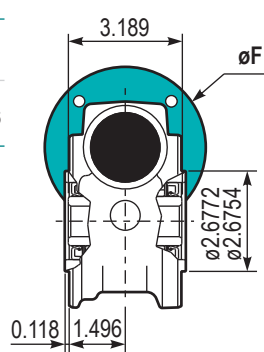
\* Strong axial loads in the DX direction are not allowed.

\* Non sono consentiti forti carichi assiali con direzione DX

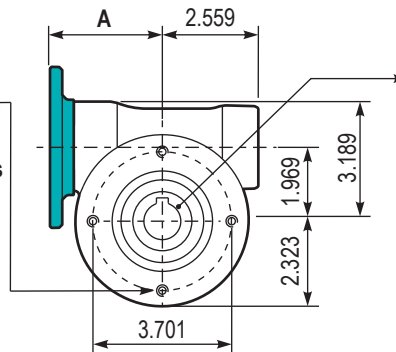
Tab. 2

PD50UNI.. Basic gearbox  
Riduttore base

M. flanges	Kit code	øF	A
56C	KUD504041	6.5	3.886

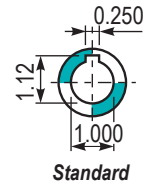


4 holes  
M6x0.35  
Mounting holes  
position  
Posizione fori  
di montaggio



Gearbox weight  
Peso riduttore 6.61 lb

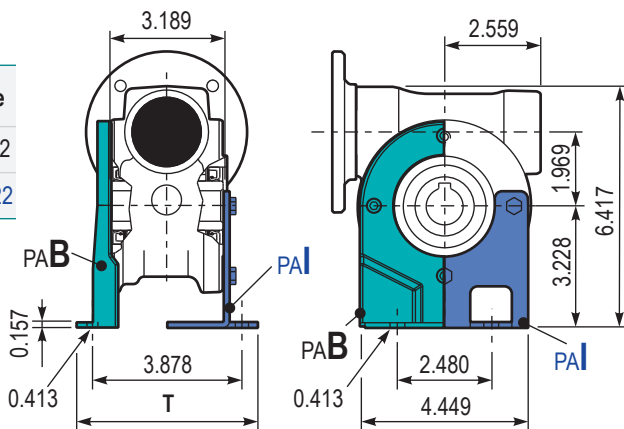
Hollow shaft  
Foro in uscita



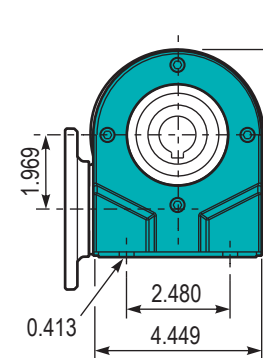
PD50PA... Feet  
Piedini

Type	T	Kit code
B**	4.843	K0509022
I*	4.803	KN509022

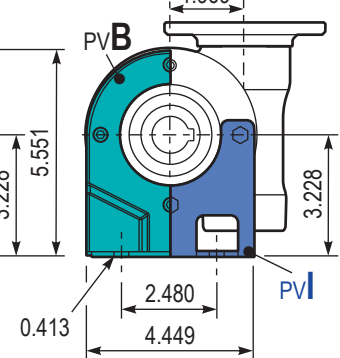
\*\* Zink plated  
\* Stainless steel



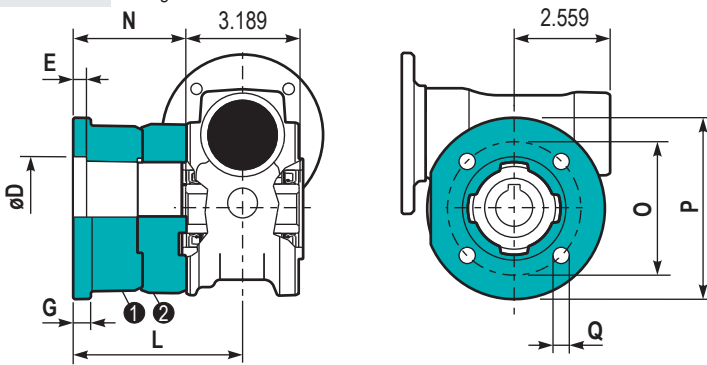
PD50PBB... Feet  
Piedini



PD50PV... Feet  
Piedini

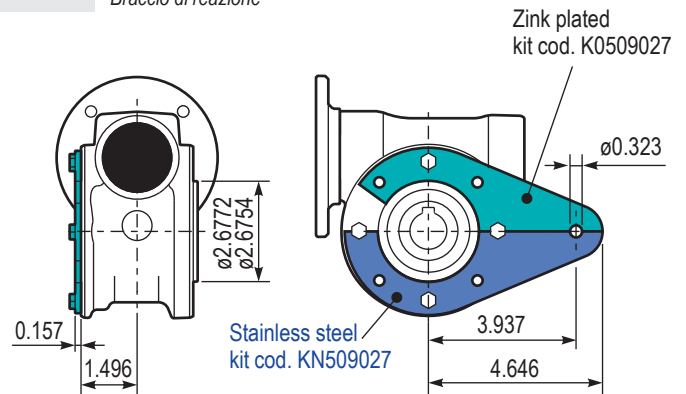


PD50FL... Output flange  
Flangia uscita

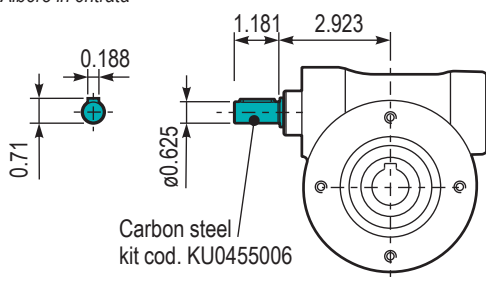


Type	øD	E	G	L	N	O	P	Q	Kit code
C	2.7638 2.7618	0.35	0.47	3.346	1.752	3.543	4.843	0.41	① K0509010 ② -
L	2.7638 2.7618	0.35	0.47	4.508	2.913	3.543	4.843	0.41	① K0509010 ② K0500200

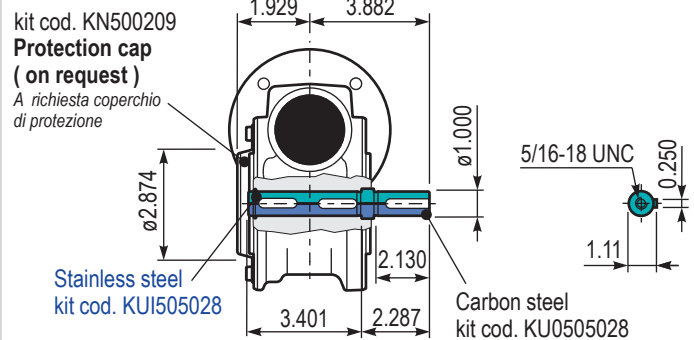
PD50BR... Reaction arm  
Braccio di reazione



RD50UNI.. Input shaft  
Albero in entrata



PD50..SID Single output shaft  
Albero semplice in uscita



# D63

# 1240 lb in

# VFD series Smooth surface aluminum worm gearboxes

Riduttori a vite senza fine in alluminio

Input speed ( $n_1$ ) = 1750 min<sup>-1</sup>

Output speed $n_2$ [min <sup>-1</sup> ]	Ratio $i$	Motor power $P_{1M}$ [HP]	Output torque $M_{2M}$ [lb in]	Service factor f.s	Nominal power $P_{1R}$ [HP]	Nominal torque $M_{2R}$ [lb in]	Available NEMA motor flanges		Dynamic efficiency RD	Tooth module [mm]	Ratio code
							-W 56C	-X 143-5TC			
250.0	7	2	419	2.5	5.10	1053	B		83	3.1	01
175.0	10	2	583	1.9	3.93	1133	B		81	3.1	02
116.7	15	2	854	1.4	2.75	1159	B		79	3.1	03
92.1	19	2	1068	1.1	2.20	1159	B		78	2.6	04
72.9	24	1.5	972	1.2	1.87	1195	B		75	2.0	05
58.3	30	1.5	1199	1.0	1.56	1230	B		74	3.2	06
48.6	36	1	882	1.4	1.42	1239	B		68	2.7	07
43.8	40	1	951	1.2	1.25	1177	B		66	2.5	13
38.9	45	1	1070	1.1	1.08	1142	B		66	2.1	08
29.2	60	0.75	1005	1.1	0.83	1097	B		62	1.6	12
26.1	67	0.5	724	1.4	0.73	1044	B		60	1.5	09
21.9	80	0.5	821	1.2	0.62	1000	B		57	1.3	10
18.6	94	0.5	880	1.1	0.58	1000	B		52	1.1	11

Motor flanges available  
Flange motore disponibili



B) Supplied with reduction bushing  
Fornito con bussola di riduzione



B) Available on request without reduction bushing  
Disponibile a richiesta senza bussola di riduzione



C) Motor flange holes position  
Posizione fori flangia motore

## Lubrication

Lubrificazione

Unit D63 is supplied with synthetic oil to assure long life lubrication. Food grade oil is available on request.

See Table 1 for lubrication and recommended quantity.

See Table 2 for possible radial and axial loads on the gearbox.

Il riduttore tipo D63 viene fornito con olio sintetico e lubrificazione tipo "long life". Disponibile a richiesta olio alimentare.

Vedi Tabella 1 per oli e quantità consigliati.

Vedi Tabella 2 per i carichi radiali e assiali applicabili al riduttore.

Oil quantity for all positions:  
14.08 oz.

Shell  
Omala S4 WE 320

Eni  
Telium VSF 320

Quantità olio per tutte le posizioni: 14.08 oz.

Tab. 1

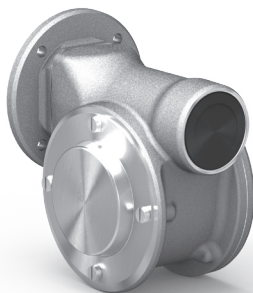
## Suggested

Suggerito

Stainless steel protection cap (on request).

Coperchio di protezione in acciaio inox a richiesta.

Kit cod. KN630209



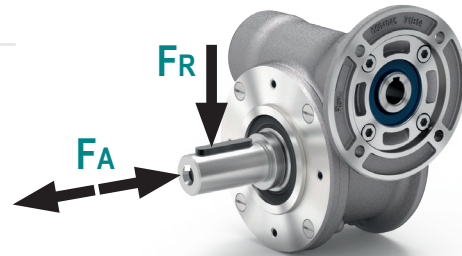
## Radial and axial loads

Carichi radiali e assiali

### Output shaft

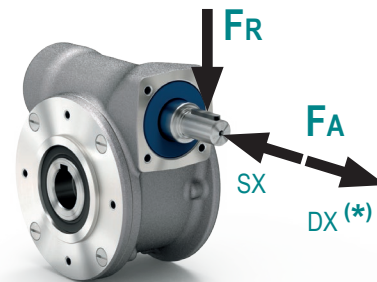
Albero di uscita

$n_2$ [min <sup>-1</sup> ]	FA [lb]	FR [lb]
200	81	404.5
150	90	450
100	103.5	517
75	112.5	562
50	135	674.5
25	157	854
15	180	899



### Input shaft

Albero in entrata



$n_1$ [min <sup>-1</sup> ]	FA [lb]	FR [lb]
1750	20	101

\* Strong axial loads in the DX direction are not allowed.

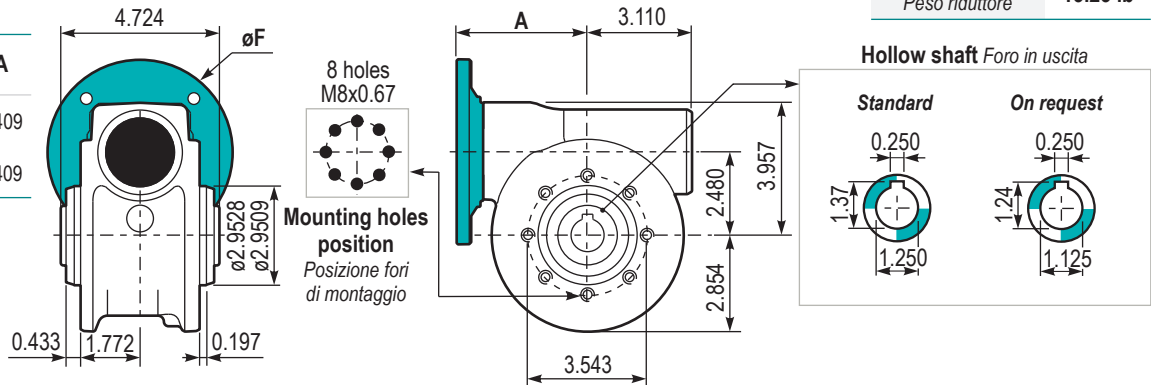
\* Non sono consentiti forti carichi assiali con direzione DX

Tab. 2

PD63UNI... **Basic gearbox**  
Riduttore base

**Gearbox weight**  
Peso riduttore **13.23 lb**

M. flanges	Kit code	øF	A
56C	KUD634041	6.50	4.409
143/5 TC	KUD634041	6.50	4.409



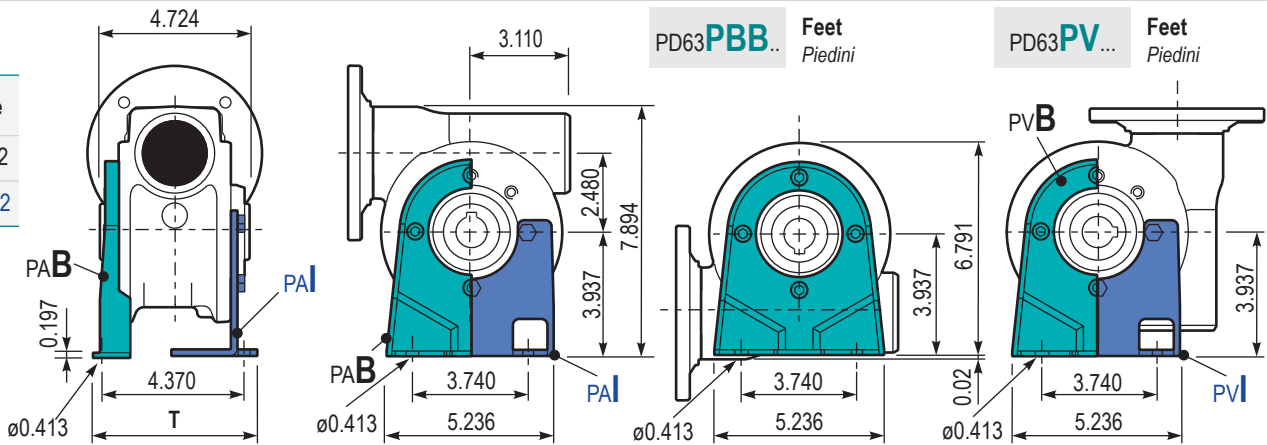
PD63PA... **Feet**  
Piedini

PD63PBB... **Feet**  
Piedini

PD63PV... **Feet**  
Piedini

Type	T	Kit code
B**	5.669	K0639022
I*	5.118	KN639022

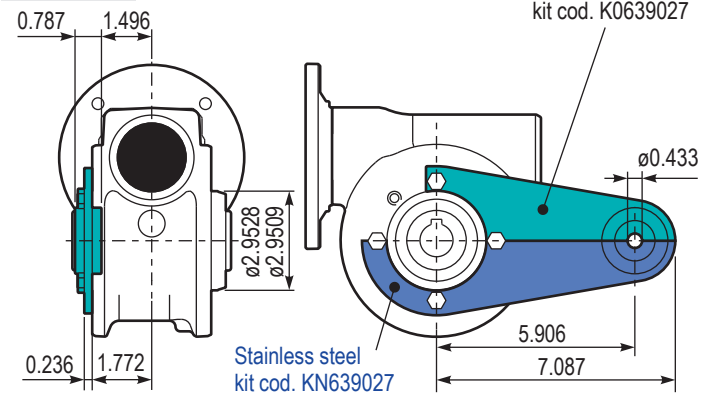
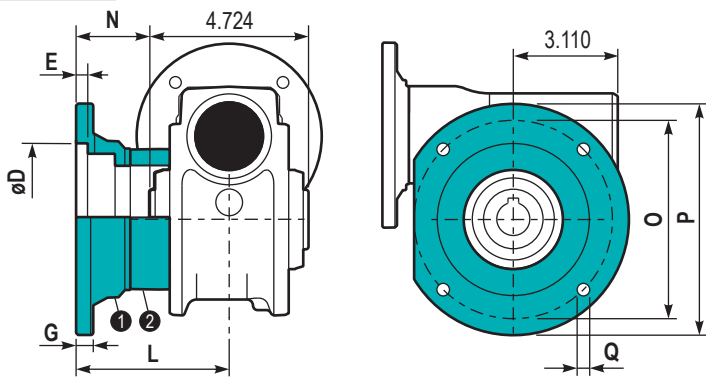
\*\* Zink plated  
\* Stainless steel



PD63FL... **Output flange**  
Flangia uscita

PD63BR... **Reaction arm**  
Braccio di reazione

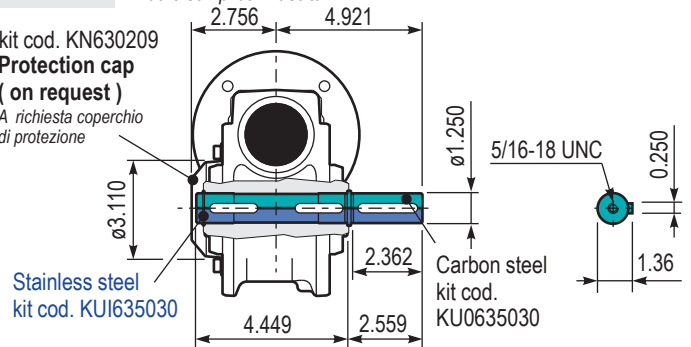
Zink plated  
kit cod. K0639027



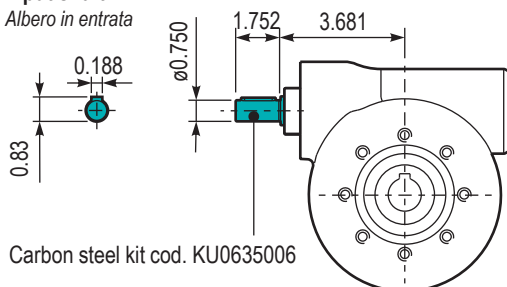
Type	øD	E	G	L	N	O	P	Q	Kit code
C	4.5354 4.5335	0.28	0.51	3.386	1.024	5.906	6.890	0.43	1 K0639010 2 -
L	4.5354 4.5335	0.28	0.51	4.567	2.205	5.906	6.890	0.43	1 K0639010 2 K0630200

PD63..SIE **Single output shaft**  
Albero semplice in uscita

kit cod. KN630209  
**Protection cap**  
(on request)  
A richiesta coperchio di protezione



RD63UNI... **Input shaft**  
Albero in entrata



Input speed ( $n_1$ ) = 1750 min<sup>-1</sup>

Output speed $n_2$ [min <sup>-1</sup> ]	Ratio $i$	Motor power $P_{1M}$ [HP]	Output torque $M_{2M}$ [lb in]	Service factor $f.s$	Nominal power $P_{1R}$ [HP]	Nominal torque $M_{2R}$ [lb in]	Available NEMA motor flanges			Dynamic efficiency RD	Tooth module [mm]	Ratio code
							-W 56C	-X 143-5TC	-Y 182-4TC			
250.0	7	5	1109	2.0	9.90	2168	B	B		88	4.23	01
175.0	10	5	1441	1.7	8.40	2390	B	B		80	4.2	02
125.0	14	5	1967	1.3	6.61	2567	B	B		78	4.5	03
87.5	20	3	1707	1.5	4.41	2478	B	B		79	3.4	04
79.5	22	3	1854	1.3	4.06	2478	B	B		78	3.1	05
62.5	28	3	2269	1.3	3.91	2921	B	B		75	4.7	06
46.1	38	3	2915	1.0	2.95	2832	B	B		71	3.5	07
38.0	46	2	2253	1.2	2.47	2744	B	B		68	3.1	08
33.7	52	2	2472	1.0	1.99	2434	B	B		66	2.7	09
26.1	67	1.5	2353	1.0	1.57	2434	B	B		65	2.1	10
23.6	74	1.5	2319	1.0	1.48	2257	B	B		58	1.9	11
18.2	96	1	1833	1.1	1.13	2036	B	B		53	1.5	12

- Motor flanges available**  
Flange motore disponibili
- B) Supplied with reduction bushing**  
Fornito con bussola di riduzione
- B) Available on request without reduction bushing**  
Disponibile a richiesta senza bussola di riduzione
- C) Motor flange holes position**  
Posizione fori flangia motore

## Lubrication

Lubrificazione

Unit D85 is supplied with synthetic oil to assure long life lubrication. Food grade oil is available on request. See Table 1 for lubrication and recommended quantity. See Table 2 for possible radial and axial loads on the gearbox.

Il riduttore tipo D85 viene fornito con olio sintetico e lubrificazione tipo "long life". Disponibile a richiesta olio alimentare. Vedi Tabella 1 per oli e quantità consigliati. Vedi Tabella 2 per i carichi radiali e assiali applicabili al riduttore.

Oil quantity for all positions: 42.23 oz.	Shell Omala S4 WE 320	Eni Telium VSF 320
Quantità olio per tutte le posizioni: 42.23 oz.		

Tab. 1

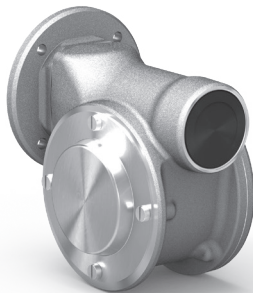
## Suggested

Suggerito

**Stainless steel protection cap (on request).**

Coperchio di protezione in acciaio inox a richiesta.

Kit cod. KN850209



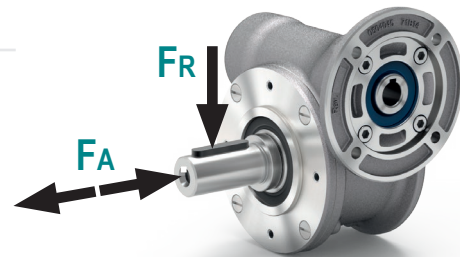
## Radial and axial loads

Carichi radiali e assiali

### Output shaft

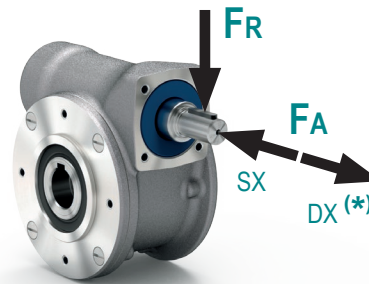
Albero di uscita

$n_2$ [min <sup>-1</sup> ]	$F_A$ [lb]	$F_R$ [lb]
200	112	562
150	130	652
100	135	674
75	157	787
50	180	899
25	225	1124
15	261	1304



### Input shaft

Albero in entrata



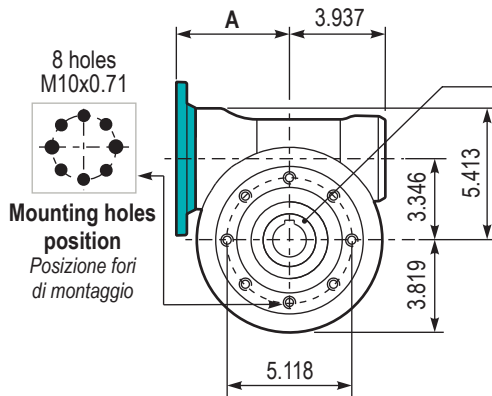
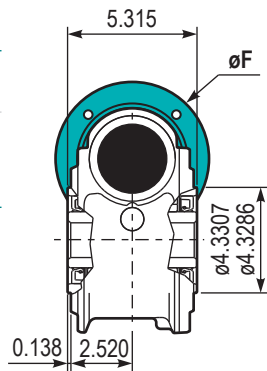
$n_1$ [min <sup>-1</sup> ]	$F_A$ [lb]	$F_R$ [lb]
1750	36	182

\* Strong axial loads in the DX direction are not allowed.  
\* Non sono consentiti forti carichi assiali con direzione DX

Tab. 2

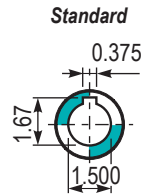
PD85 **UNI..** Basic gearbox  
Riduttore base

M. flanges	Kit code	øF	A
56C	KUD854041	6.50	4.823
143/5 TC	KUD854041	6.50	4.823
182/4 TC	KUD854042	8.88	5.527



Gearbox weight  
Peso riduttore 24.25 lb

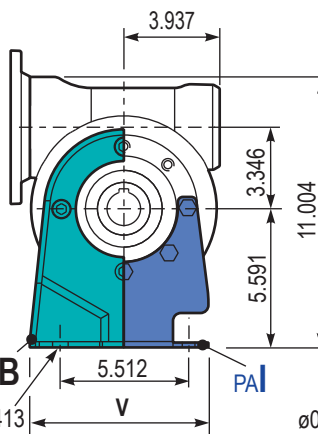
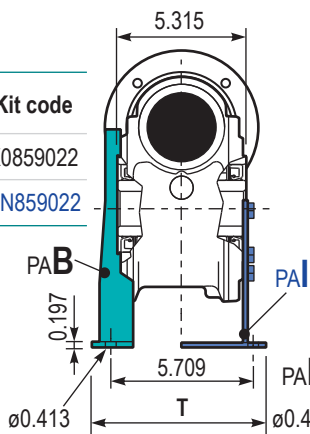
Hollow shaft  
Foro in uscita



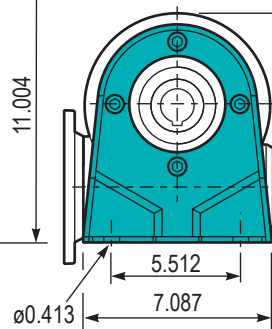
PD85 **PA...** Feet  
Piedini

Type	T	V	Kit code
B**	7.165	7.087	K0859022
I*	6.929	6.772	KN859022

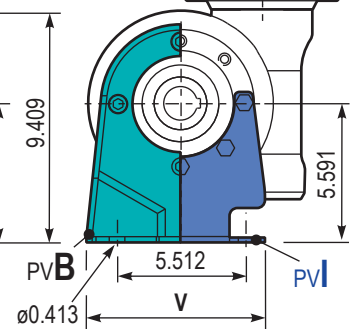
\*\* Zink plated  
\* Stainless steel



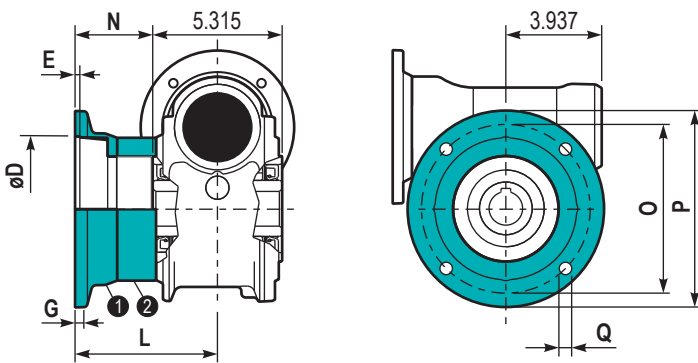
PD85 **PBB..** Feet  
Piedini



PD85 **PV...** Feet  
Piedini

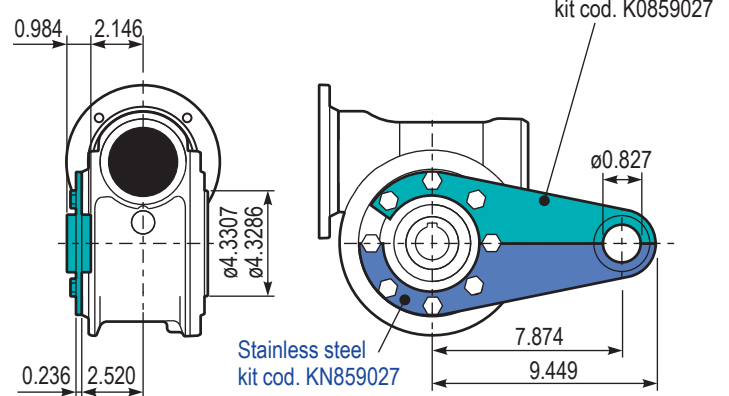


PD85 **FL..** Output flange  
Flangia uscita

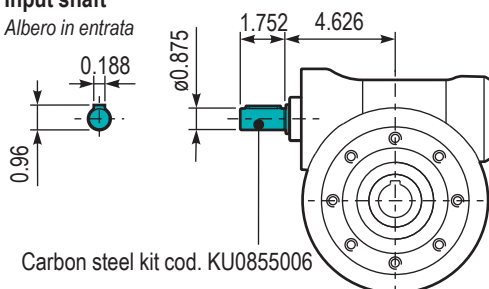


Type	øD	E	G	L	N	O	P	Q	Kit code
C	5.9867 5.9843	0.20	0.63	4.252	1.594	6.929	8.071	0.51	① K0859010 ② -
L	5.9867 5.9843	0.20	0.63	5.846	3.189	6.929	8.071	0.51	① K0859010 ② K0850201

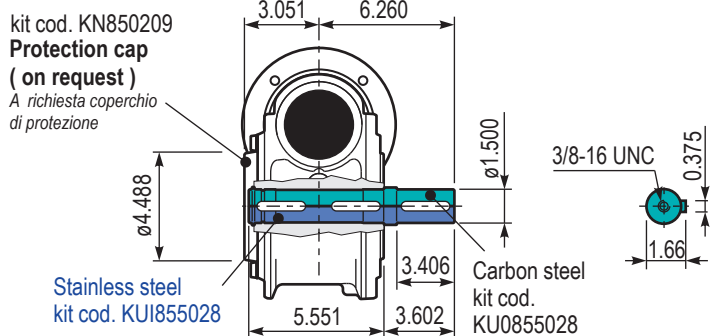
PD85 **BR...** Reaction arm  
Braccio di reazione



RD85 **UNI..** Input shaft  
Albero in entrata



PD85.. **SIH** Single output shaft  
Albero semplice in uscita



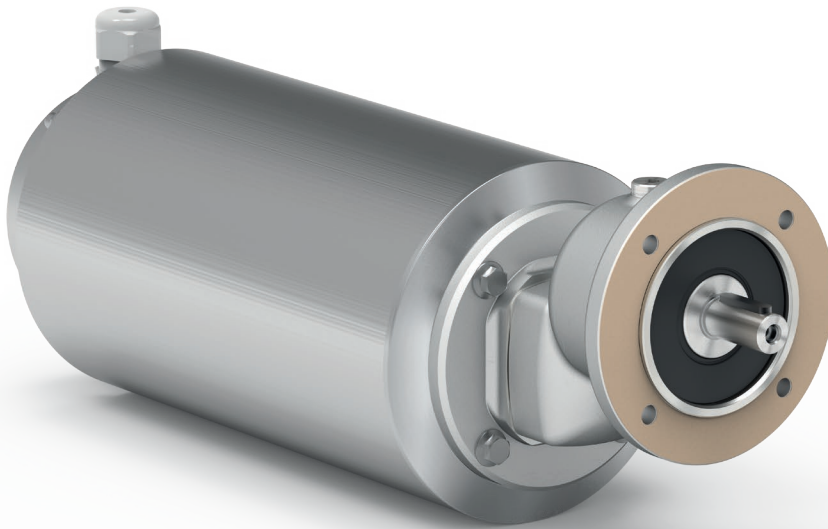





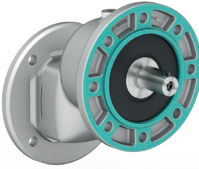
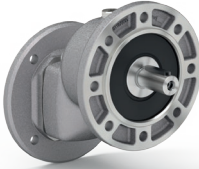
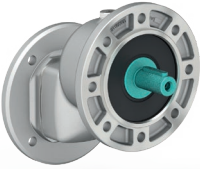
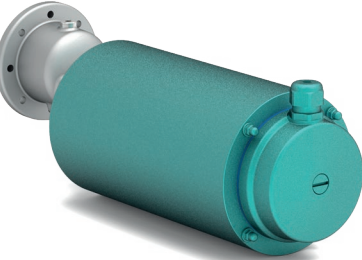


**ALUMINUM**

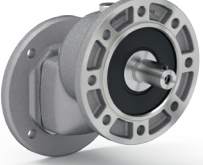

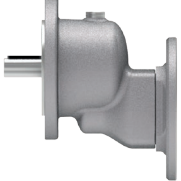









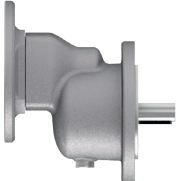




IP66

CE






# How to order Codifica

<b>P</b>	<b>211D</b>	<b>-F</b>	<b>2.05</b>	<b>X</b>	<b>C</b>
Type <i>Tipo</i>	Size <i>Grandezza</i>	Mounting <i>Montaggio</i>	Ratio <i>Rapporto</i>	Output shaft <i>Albero lento</i>	Shaft material <i>Materiale albero</i>
<b>P</b> 	<b>211D</b>	<b>-F</b> 	See technical data table <i>Vedi tabelle dati tecnici</i>	 <b>→ Standard</b>	 <b>C</b> Carbon steel <i>Acciaio</i>
<b>M</b> 		<b>X</b> → $\varnothing 0.625''$		<b>I</b> Stainless steel (Only for standard shaft) <i>Acciaio inox</i> (Solo per albero standard)	
<b>B</b> 					
<b>R</b> 					

<b>I</b>	<b>-W</b>	<b>B3</b>	<b>ST</b>	<b>A</b>	With Type M specify terminal box position  Con tipo M specificare posizione morsetteria
Output flange <i>Flangia uscita</i>	Motor size <i>Grandezza motore</i>	Mounting position <i>Posizione di montaggio</i>	Input bore <i>Foro entrata</i>	Coating <i>Trattamento</i>	
 <p><b>I</b> → ø4.13"</p>	<p><b>Motor flanges</b> <i>Flange motore</i></p> 	<p><b>B3</b></p> 	<p><b>ST</b> Standard bore <i>Foro standard</i></p>	<p><b>A</b> Standard in aluminum <i>Standard in alluminio</i></p> 	<p><b>A</b></p> 
	<p><b>NEMA</b></p> <p><b>-W</b> → 56C (ø6.5")</p> <p><b>Without flange</b> <i>Senza flangia</i></p>	<p><b>B6</b></p> 		<p><b>N</b> NTT coating <i>NTT Rivestimento</i></p> 	<p><b>B</b></p> 
 <p><b>-K</b> → ø0.625"</p>		<p><b>B7</b></p> 		<p><b>V</b> Painted <i>Verniciato</i></p> 	<p><b>C</b></p> 
<p><b>Type R</b> <i>Tipo R</i></p>		<p><b>B8</b></p> 			
 <p><b>-1</b> → ø0.625"</p>		<p><b>V5</b></p> 			<p><b>D</b></p> 
		<p><b>V6</b></p> 			

The dynamic efficiency is **0.98** for all ratios

Input speed ( $n_1$ ) = 1750 min<sup>-1</sup>

Output speed $n_2$ [min <sup>-1</sup> ]	Ratio $i$	Motor power $P_{1M}$ [HP]	Output torque $M_{2M}$ [lb in]	Service factor f.s	Nominal power $P_{1R}$ [HP]	Nominal torque $M_{2R}$ [lb in]	Available NEMA motor flanges			Output shaft  Ø	Ratios code 
							-W 56C	-			
853	<b>2.05</b>	0.75	54	1.6	<b>1.22</b>	<b>89</b>			1939		01
744	<b>2.35</b>	0.75	62	1.7	<b>1.28</b>	<b>106</b>			1740		02
625	<b>2.80</b>	0.75	74	1.7	<b>1.25</b>	<b>124</b>			1542		03
517	<b>3.38</b>	0.75	90	1.7	<b>1.26</b>	<b>150</b>			1344	standard ø0.625	04
372	<b>4.70</b>	0.75	124	1.4	<b>1.07</b>	<b>177</b>			1047		05
281	<b>6.22</b>	0.75	165	1.2	<b>0.93</b>	<b>204</b>			956		06
211	<b>8.29</b>	0.5	146	1.2	<b>0.61</b>	<b>177</b>			758		07
178	<b>9.83</b>	0.33	115	1.2	<b>0.41</b>	<b>142</b>			659		08

Motor flanges available  
Flange motore disponibili

 B) Supplied with reduction bushing  
Fornito con bussola di riduzione

B) Available on request without reduction bushing  
Disponibile a richiesta senza bussola di riduzione

 C) Motor flange holes position  
Posizione fori flangia motore

## Lubrication

### Lubrificazione

Unit 211D is supplied with synthetic oil to assure long life lubrication.  
Food grade oil is available on request.

See Table 1 for lubrication and recommended quantity.

See Table 2 for possible radial and axial loads on the gearbox.

*Il riduttore tipo 211D viene fornito con olio sintetico e lubrificazione tipo "long life".*

*Disponibile a richiesta olio alimentare.*

*Vedi Tabella 1 per oli e quantità consigliati.*

*Vedi Tabella 2 per i carichi radiali e assiali applicabili al riduttore.*

**Oil quantity for  
all positions:  
1.76 oz.**

Quantità olio per tutte  
le posizioni: 1.76 oz.

**Shell**  
Omala S4 WE 320

**Eni**  
Telium VSF 320

## Radial and axial loads

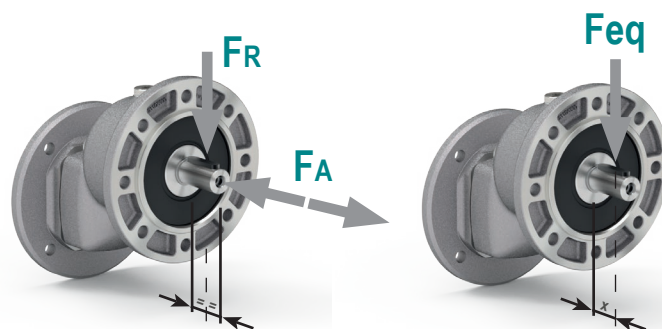
### Carichi radiali e assiali

#### Output shaft

#### Albero di uscita

$n_2$ [min <sup>-1</sup> ]	FA [lb]	FR [lb]
<b>700</b>	22.7	113.3
<b>600</b>	27.0	134.9
<b>400</b>	31.0	156.5
<b>300</b>	33.9	170.0
<b>200</b>	39.3	196.9
<b>140</b>	43.2	215.8

$$F_{eq} = F_R \cdot \frac{1.54}{X + 0.77}$$



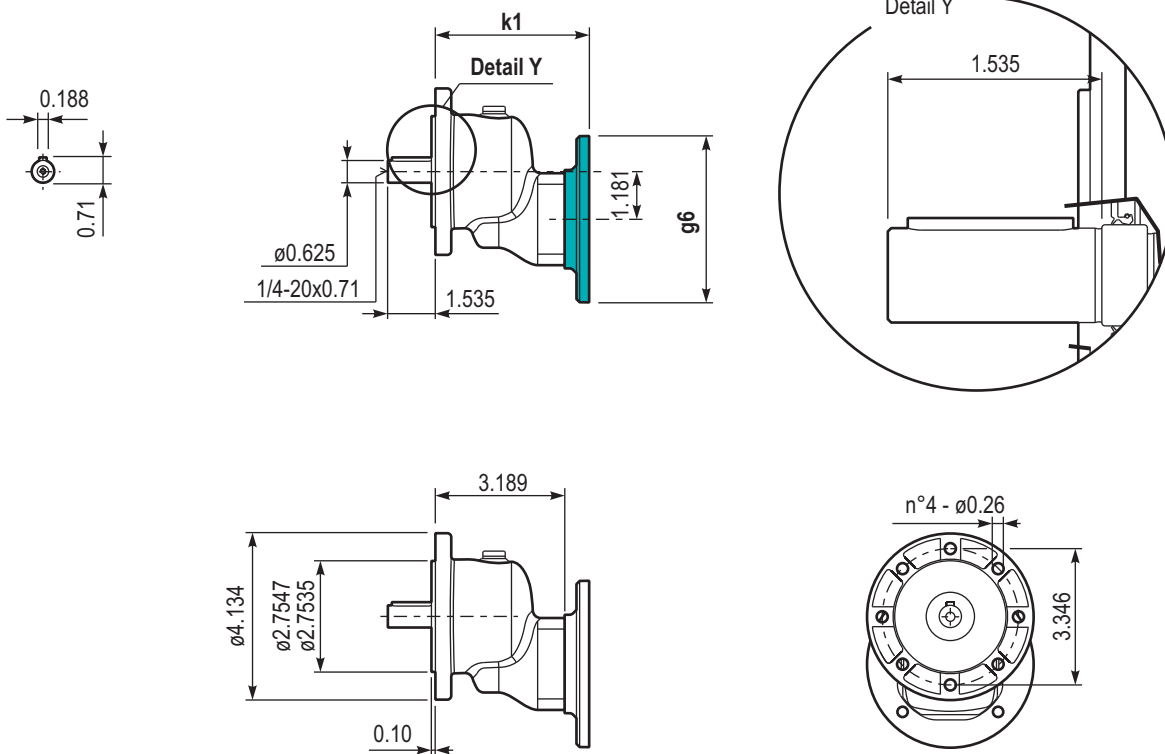
Tab. 1

Tab. 2

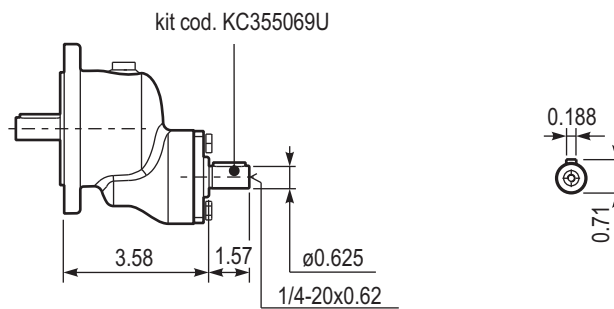
P211D-F...I **Basic gearbox**  
Riduttore base

**Gearbox weight** 3.09 lb  
Peso riduttore

M. flanges	Kit code	k1	g6
56C	KUD504041	4.713	6.5



R211D-F... **Basic gearbox**  
Riduttore base





# N VFN series Full stainless steel round worm gearboxes

*Riduttori a vite senza fine tondo completamente in acciaio inox*

Section **3**  
Sezione 3

## The best solution for the resistance to the corrosion. Suitable for all applications.

*La migliore soluzione per la resistenza alla corrosione.  
Adatto a tutte le applicazioni.*

**AISI 316L**

IP66

CE





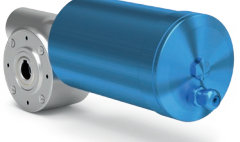











On req.  
A rich.






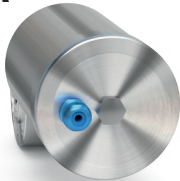
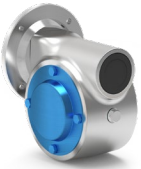


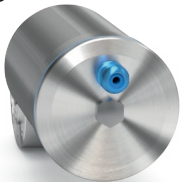



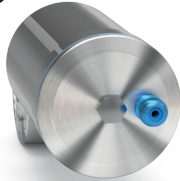


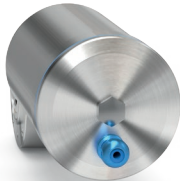
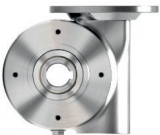
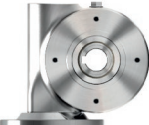
IP69k




# How to order Codifica

<b>P</b>	<b>N45</b>	<b>UNI</b>	<b>N</b>	<b>10</b>	<b>0</b>	<b>IB</b>	<b>I</b>
Type <i>Tipo</i>	Size <i>Grandezza</i>	Mounting <i>Montaggio</i>	Position <i>Posizione</i>	Ratio <i>Rapporto</i>	Hub Output shaft <i>Mozzo corona Albero uscita</i>	Diameter <i>Diametro</i>	Input / output shaft material <i>Materiale albero in entrata e uscita</i>
<b>P</b>  <b>Worm gearboxes</b> <i>Riduttori a vite senza fine</i>	<b>N45</b> <b>N50</b> <b>N63</b> <b>N85</b>	<b>UNI</b> 	<b>N</b> 	See technical data table <i>Vedi tabelle dati tecnici</i>	<b>0</b> Hollow Mozzo 	<b>→ Standard</b> N45 <b>IB → ø0.750</b>	<b>I</b> Stainless steel <i>Acciaio inox</i>  The quill input hollow bore is always in carbon steel <i>Il foro cavo in entrata è sempre in acciaio</i>
<b>M</b> 		<b>FLL</b> 			<b>S</b> Solid output shaft <i>Albero in uscita</i> 	N50 <b>ID → ø1.000</b> N63 <b>IE → ø1.125"</b> <b>IF → ø1.250"</b> N85 <b>IH → ø1.500</b>	
<b>B</b> 		<b>BRI</b> Stainless steel <i>Acciaio inox</i> 	Select L or R position for output flange <i>Selezionare la posizione L o R per la flangia in uscita</i>		<b>L</b> Left <i>Sinistra</i> 	Output male shaft is available only for standard bore <i>Albero maschio in uscita è disponibile solo per fori standard</i>	
	<b>PAI</b> Stainless steel <i>Acciaio inox</i> 	<b>R</b> Right <i>Destra</i> 					
		<b>PVI</b> Stainless steel <i>Acciaio inox</i> 					



<b>N</b>		<b>C</b>		<b>-W</b>		<b>B3</b>		<b>UW</b>		For M type specify terminal box position		
Protection cap <i>Coperchio di protezione</i>				Motor size <i>Grandezza motore</i>				Mounting position <i>Posizione di montaggio</i>		Input bore <i>Foro entrata</i>		<i>Per tipo M specificare posizione morsettiera</i>
Left <i>Sinistra</i>		Right <i>Destra</i>		Motor flanges <i>Flange motore</i>		<b>B3</b>		Standard bore <i>Foro standard</i>		<b>A</b>		
												
<b>N</b> Without protection cap <i>Senza coperchietto di protezione</i>		<b>N</b> Without protection cap <i>Senza coperchietto di protezione</i>		<b>NEMA</b>		<b>B8</b>		<b>UW</b> → $\varnothing 0.625''$ <b>UX</b> → $\varnothing 0.875''$ <b>UY</b> → $\varnothing 1.125''$		<b>B</b>		
				<b>Without flange</b> <i>Senza flangia</i>				<b>With coupling</b> <i>Con giunto</i>				
<b>C</b> Closed <i>Chiuso</i>		<b>C</b> Closed <i>Chiuso</i>				<b>B6</b>				<b>C</b>		
				<b>-N</b> → Nema				<b>-W</b> → $\varnothing 0.625''$ <b>-X</b> → $\varnothing 0.875''$ <b>-Y</b> → $\varnothing 1.125''$				
						<b>B7</b>		<b>Ready for input coupling</b> <i>Predisposto per giunto</i>		<b>D</b>		
												
						<b>V5</b>		<b>-0</b> Type B <i>Tipo B</i>				
												
						<b>V6</b>						
												

Input speed ( $n_1$ ) = 1750 min<sup>-1</sup>

Output speed	Ratio	Motor power	Output torque	Service factor	Nominal power	Nominal torque	Available NEMA motor flanges	Dynamic efficiency	Tooth module	Ratio code
$n_2$ [min <sup>-1</sup> ]	i	$P_{1M}$ [HP]	$M_{2M}$ [lb in]	f.s	$P_{1R}$ [HP]	$M_{2R}$ [lb in]	-W 56C	RD	[mm]	
250.0	7	1	202	1.3	1.29	257		80	2.2	01
175.0	10	0.75	213	1.2	0.91	257		79	2.2	02
125.0	14	0.5	194	1.3	0.67	257		77	2.4	03
83.3	21	0.5	253	1.4	0.69	345		67	1.6	04
62.5	28	0.5	328	1.1	0.53	345		65	2.5	05
47.3	37	0.33	277	1.2	0.42	345		63	1.8	06
38.0	46	0.33	323	1.1	0.36	345		59	1.5	07
29.2	60	0.25	303	1.1	0.29	345		56	1.2	08
25.0	70	0.25	340	0.8	0.19	257		54	1.0	09
17.2	102	0.25*	450	<0.8	0.14	248		49	0.72	10

\* Power higher than the maximum one which can be supported by the gearbox. Select according to the torque  $M_{2R}$

\* Potenza superiore a quella massima sopportabile dal riduttore. Selezionare in base al momento torcente  $M_{2R}$

The nominal power should be reduced if the ambient temperature is  $\geq 30^\circ\text{C}$ , or when a cooler gearbox is required.

Diminuire la potenza nominale in caso di temperatura ambiente  $\geq 30^\circ\text{C}$  o se è richiesta una bassa temperatura di utilizzo del riduttore.

-  Motor flanges available  
Flange motore disponibili
-  B) Supplied with reduction bushing  
Fornito con bussola di riduzione
-  B) Available on request without reduction bushing  
Disponibile a richiesta senza bussola di riduzione
-  C) Motor flange holes position  
Posizione fori flangia motore

## Lubrication

### Lubrificazione

Unit N45 is supplied with synthetic oil to assure long life lubrication.

Food grade oil is available on request.

See Table 1 for lubrication and recommended quantity.

See Table 2 for possible radial and axial loads on the gearbox.

*I riduttore tipo N45 viene fornito con olio sintetico e lubrificazione tipo "long life".*

*Disponibile a richiesta olio alimentare.*

*Vedi Tabella 1 per oli e quantità consigliati.*

*Vedi Tabella 2 per i carichi radiali e assiali applicabili al riduttore.*

Oil quantity for all positions: 4.58 oz.	Shell	Eni
Quantità olio per tutte le posizioni: 4.58 oz.	Omala S4 WE 320	Telium VSF 320

Tab. 1

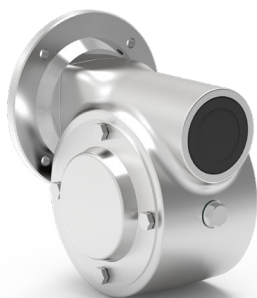
## Suggested

### Suggerito

Stainless steel protection cap  
(on request).

Coperchio di protezione in acciaio inox a richiesta.

Kit cod. KN300209



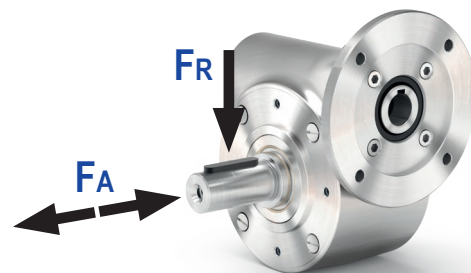
## Radial and axial loads

### Carichi radiali e assiali

### Output shaft

Albero di uscita

$n_2$ [min <sup>-1</sup> ]	$F_A$ [lb]	$F_R$ [lb]
200	40	202
150	45	225
100	49	247
75	54	270
50	58	315
25	67	405
15	90	450

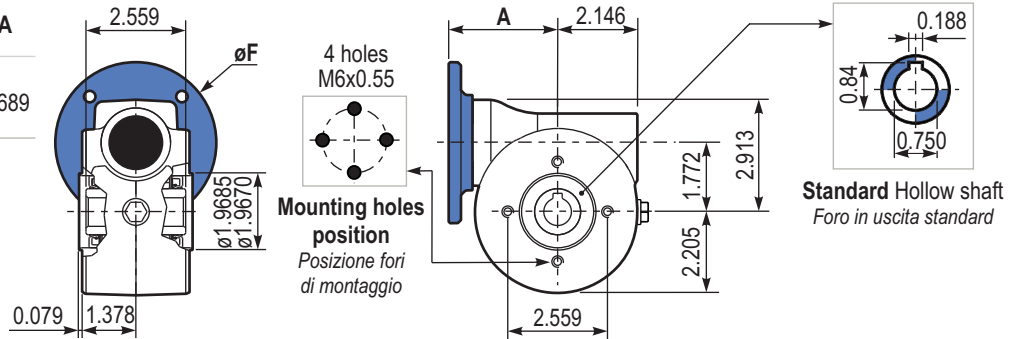


Tab. 2

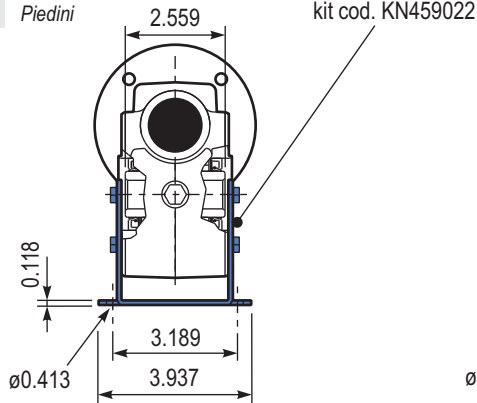
PN45**UNI**.. Basic gearbox  
Riduttore base

Gearbox weight  
Peso riduttore 9.04 lb

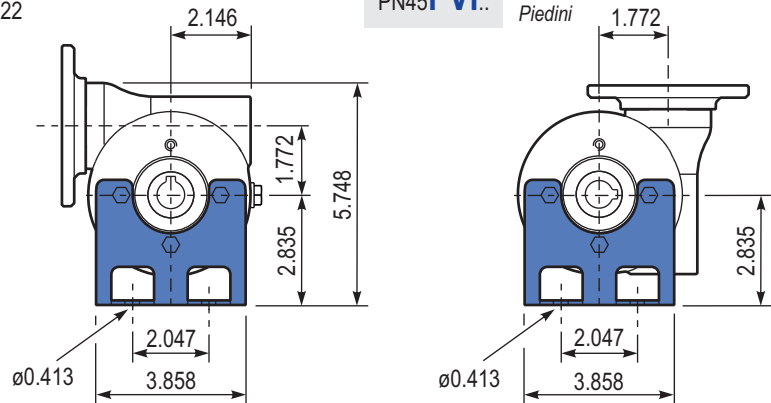
M. flanges	Kit code	øF	A
56C	KUI504041	6.5	3.689



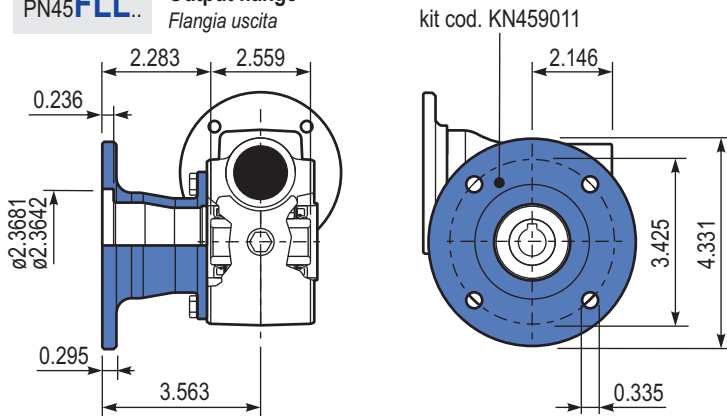
PN45**PAI**.. Feet  
Piedini



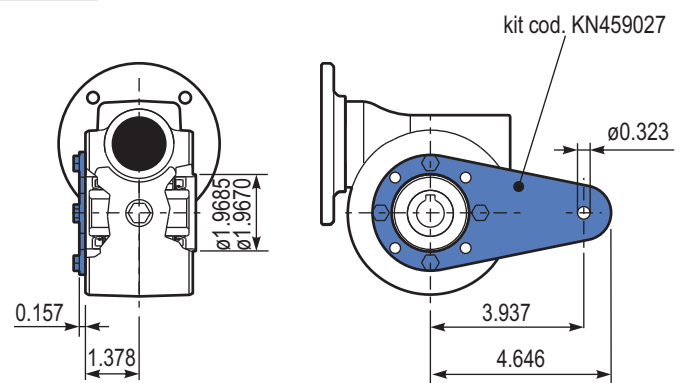
PN45**PVI**.. Feet  
Piedini



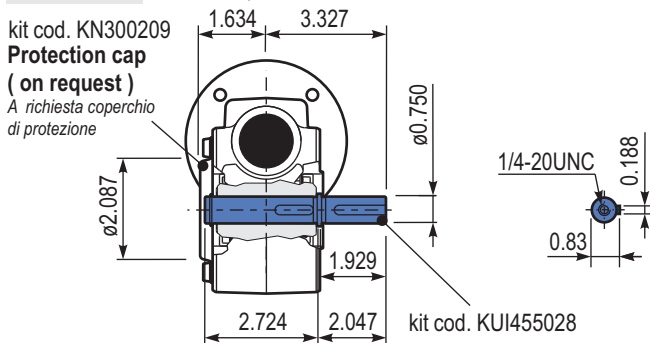
PN45**FLL**.. Output flange  
Flangia uscita



PN45**BRI**.. Reaction arm  
Braccio di reazione



PN45..**SIB** Single output shaft  
Albero semplice in uscita



Input speed ( $n_1$ ) = 1750 min<sup>-1</sup>

Output speed $n_2$ [min <sup>-1</sup> ]	Ratio $i$	Motor power $P_{1M}$ [HP]	Output torque $M_{2M}$ [lb in]	Service factor f.s	Nominal power $P_{1R}$ [HP]	Nominal torque $M_{2R}$ [lb in]	Available NEMA motor flanges		Dynamic efficiency RD	Tooth module [mm]	Ratio code
							-W 56C	- -			
250.0	7	2	413	1.2	2.34	478			82	2.5	01
175.0	10	1.5	432	1.2	1.84	522			80	2.4	02
125.0	14	1	398	1.4	1.46	575			79	2.6	03
97.2	18	1	486	1.1	1.09	522			75	2.0	04
67.3	26	0.75	485	1.2	0.87	558			69	2.7	05
58.3	30	0.75	567	1.1	0.82	611			70	2.5	12
48.6	36	0.5	447	1.4	0.69	611			69	2.1	06
40.7	43	0.5	511	1.1	0.57	575			66	1.8	07
35.0	50	0.5	558	1.0	0.51	558			62	1.5	13
29.2	60	0.33	414	1.3	0.42	522			58	1.3	08
25.7	68	0.33	461	1.1	0.35	487			57	1.2	09
21.9	80	0.25	389	1.2	0.31	478			54	1.0	10
17.5	100	0.25	450	1.0	0.24	434			50	0.8	11

The nominal power should be reduced if the ambient temperature is  $\geq 30^\circ\text{C}$ , or when a cooler gearbox is required.

Diminuire la potenza nominale in caso di temperatura ambiente  $\geq 30^\circ\text{C}$  o se è richiesta una bassa temperatura di utilizzo del riduttore.

- Motor flanges available *Flange motore disponibili*
- B) Supplied with reduction bushing** *Fornito con bussola di riduzione*
- B) Available on request without reduction bushing** *Disponibile a richiesta senza bussola di riduzione*
- C) Motor flange holes position** *Posizione fori flangia motore*

## Lubrication

Lubrificazione

Unit N50 is supplied with synthetic oil to assure long life lubrication. Food grade oil is available on request.

See Table 1 for lubrication and recommended quantity.

See Table 2 for possible radial and axial loads on the gearbox.

Il riduttore tipo N50 viene fornito con olio sintetico e lubrificazione tipo "long life".

Disponibile a richiesta olio alimentare.

Vedi Tabella 1 per oli e quantità consigliati.

Vedi Tabella 2 per i carichi radiali e assiali applicabili al riduttore.

Oil quantity for all positions: 6.34 oz. <i>Quantità olio per tutte le posizioni: 0.34 oz.</i>	Shell <i>Omala S4 WE 320</i>	Eni <i>Telium VSF 320</i>
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Tab. 1

## Suggested

Sugerito

Stainless steel protection cap (on request).

Coperchio di protezione in acciaio inox a richiesta.

Kit cod. KN500209



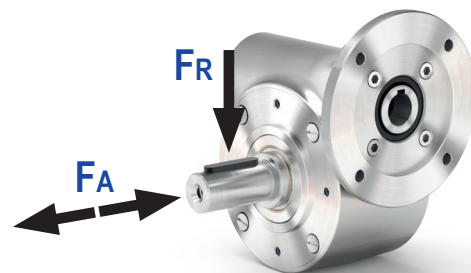
## Radial and axial loads

Carichi radiali e assiali

### Output shaft

Albero di uscita

$n_2$ [min <sup>-1</sup> ]	$F_A$ [lb]	$F_R$ [lb]
200	54	270
150	63	315
100	67	337
75	76	382
50	85	427
25	108	562
15	126	629

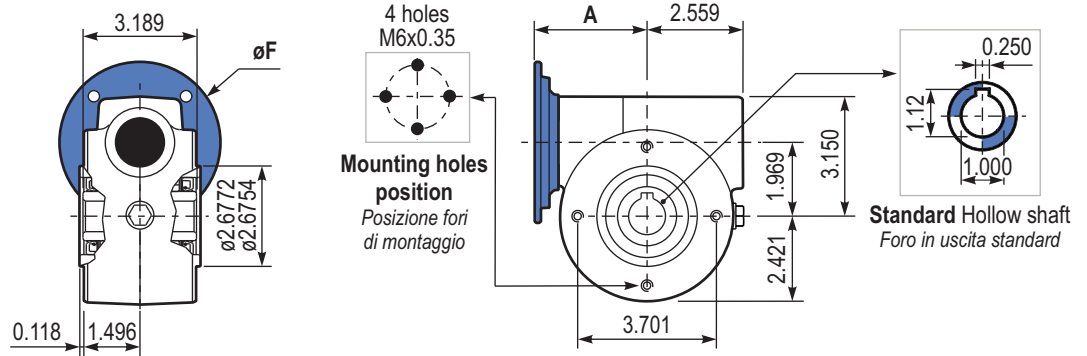


Tab. 2

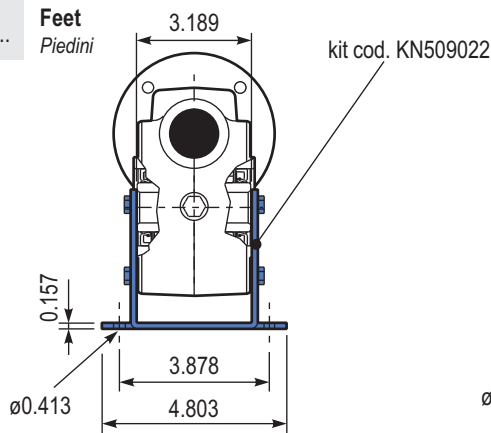
PN50**UNI**.. Basic gearbox  
Riduttore base

M. flanges	Kit code	øF	A
56C	KUI504041	6.5	3.866

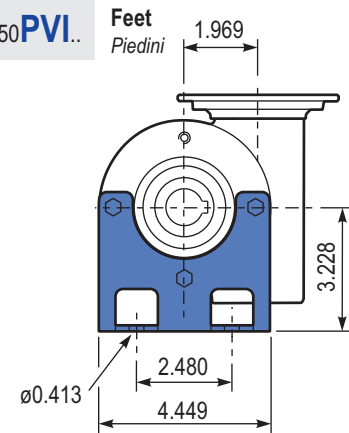
Gearbox weight  
Peso riduttore 11.68 lb



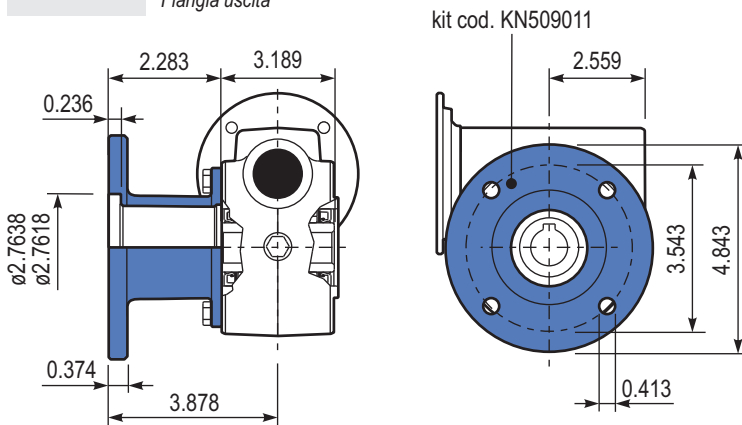
PN50**PAI**.. Feet  
Piedini



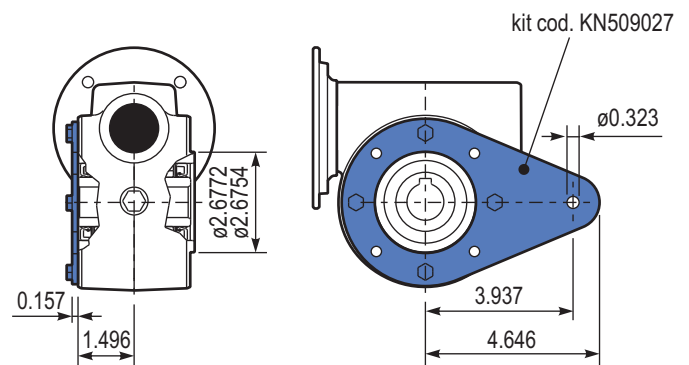
PN50**PVI**.. Feet  
Piedini



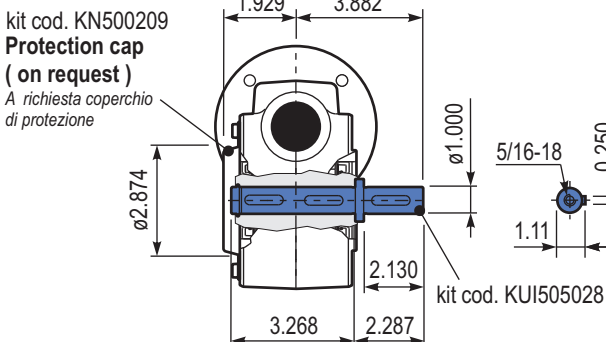
PN50**FLL**.. Output flange  
Flangia uscita



PN50**BRI**.. Reaction arm  
Braccio di reazione



PN50..**SID** Single output shaft  
Albero semplice in uscita



Input speed ( $n_1$ ) = 1750 min<sup>-1</sup>

Output speed $n_2$ [min <sup>-1</sup> ]	Ratio $i$	Motor power $P_{1M}$ [HP]	Output torque $M_{2M}$ [lb in]	Service factor f.s	Nominal power $P_{1R}$ [HP]	Nominal torque $M_{2R}$ [lb in]	Available NEMA motor flanges		Dynamic efficiency RD	Tooth module [mm]	Ratio code
							-W 56C	-X 143-5TC			
250.0	7	2	419	2.5	5.10	1053	B		83	3.1	01
175.0	10	2	583	1.9	3.93	1133	B		81	3.1	02
116.7	15	2	854	1.4	2.75	1159	B		79	3.1	03
92.1	19	2	1068	1.1	2.20	1159	B		78	2.6	04
72.9	24	1.5	972	1.2	1.87	1195	B		75	2.0	05
58.3	30	1.5	1199	1.0	1.56	1230	B		74	3.2	06
48.6	36	1	882	1.4	1.42	1239	B		68	2.7	07
43.8	40	1	951	1.2	1.25	1177	B		66	2.5	13
38.9	45	1	1070	1.1	1.08	1142	B		66	2.1	08
29.2	60	0.75	1005	1.1	0.83	1097	B		62	1.6	12
26.1	67	0.5	724	1.4	0.73	1044	B		60	1.5	09
21.9	80	0.5	821	1.2	0.62	1000	B		57	1.3	10
18.6	94	0.5	880	1.1	0.58	1000	B		52	1.1	11

The nominal power should be reduced if the ambient temperature is  $\geq 30^\circ\text{C}$ , or when a cooler gearbox is required.

Diminuire la potenza nominale in caso di temperatura ambiente  $\geq 30^\circ\text{C}$  o se è richiesta una bassa temperatura di utilizzo del riduttore.

- Motor flanges available Flange motore disponibili
- B) Supplied with reduction bushing** Fornito con bussola di riduzione
- B) Available on request without reduction bushing** Disponibile a richiesta senza bussola di riduzione
- C) Motor flange holes position** Posizione fori flangia motore

## Lubrication

Lubrificazione

Unit N45 is supplied with synthetic oil to assure long life lubrication.

Food grade oil is available on request.

See Table 1 for lubrication and recommended quantity.

See Table 2 for possible radial and axial loads on the gearbox.

*I riduttore tipo N45 viene fornito con olio sintetico e lubrificazione tipo "long life".*

*Disponibile a richiesta olio alimentare.*

*Vedi Tabella 1 per oli e quantità consigliati.*

*Vedi Tabella 2 per i carichi radiali e assiali applicabili al riduttore.*

Oil quantity for all positions: 15.85 oz.	Shell Omala S4 WE 320	Eni Telium VSF 320
Quantità olio per tutte le posizioni: 15.85 oz.		

Tab. 1

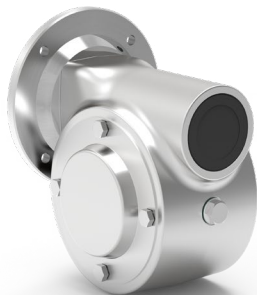
## Suggested

Sugerito

Stainless steel protection cap (on request).

Coperchio di protezione in acciaio inox a richiesta.

Kit cod. KN630209



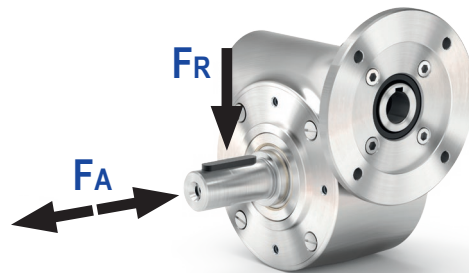
## Radial and axial loads

Carichi radiali e assiali

### Output shaft

Albero di uscita

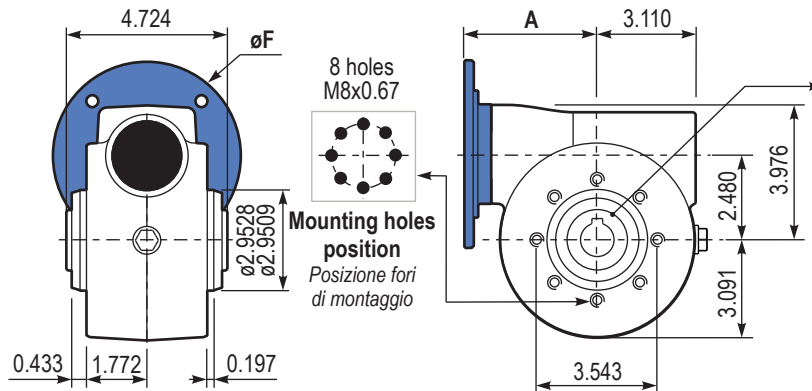
$n_2$ [min <sup>-1</sup> ]	$F_A$ [lb]	$F_R$ [lb]
200	81	404.5
150	90	450
100	103.5	517
75	112.5	562
50	135	674.5
25	157	854
15	180	899



Tab. 2

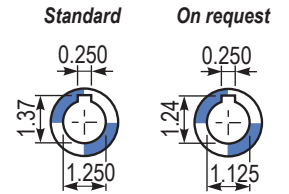
PN63 **UNI..** Basic gearbox  
Riduttore base

M. flanges	Kit code	øF	A
56C	KUI634041	6.50	4.390
143/5 TC	KUI634041	6.50	4.390

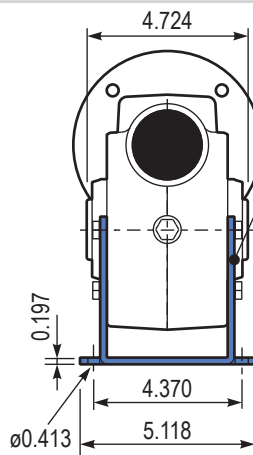


Gearbox weight  
Peso riduttore **22.05 lb**

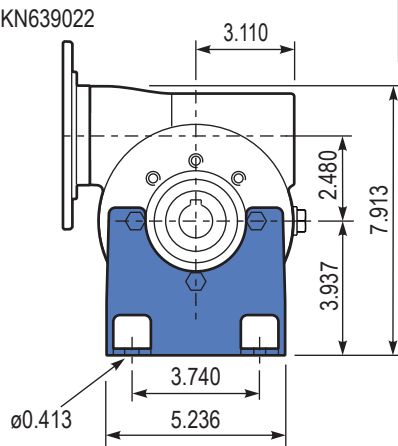
Hollow shaft *Foro in uscita*



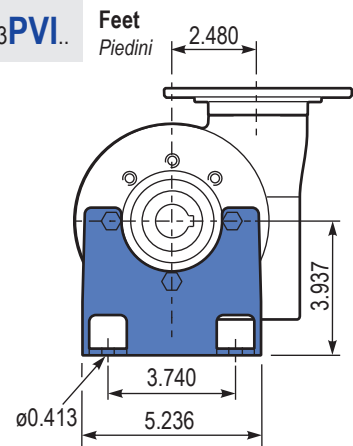
PN63 **PAI..** Feet  
Piedini



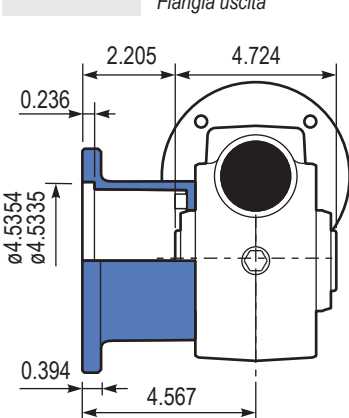
kit cod. KN639022



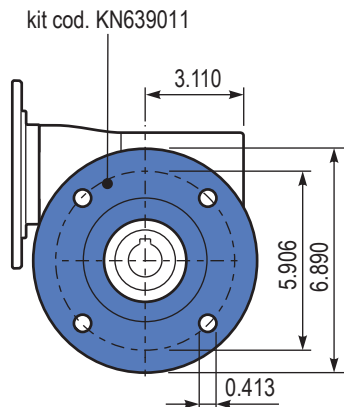
PN63 **PVI..** Feet  
Piedini



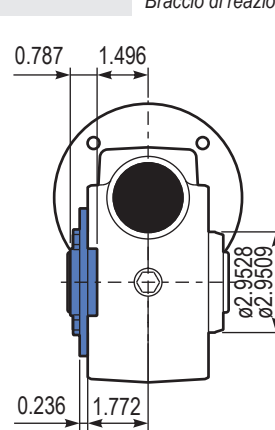
PN63 **FLL..** Output flange  
Flangia uscita



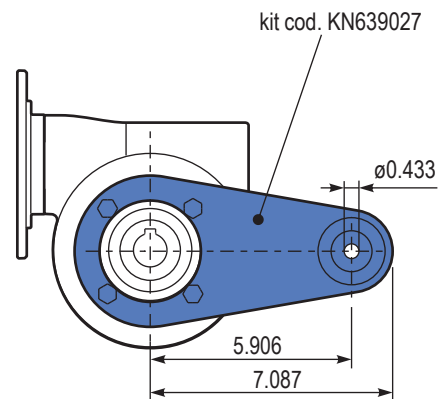
kit cod. KN639011



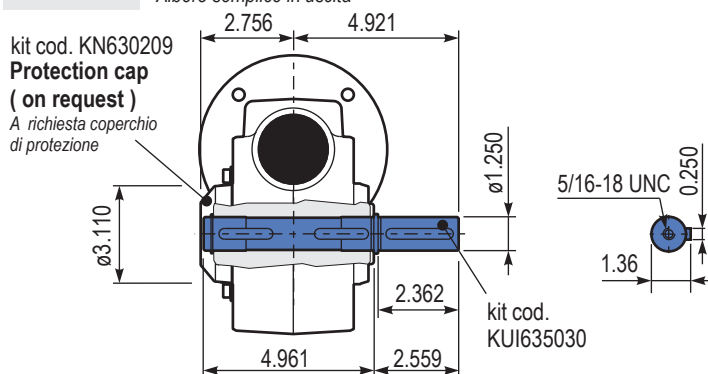
PN63 **BRI..** Reaction arm  
Braccio di reazione



kit cod. KN639027



PN63.. **SIF** Single output shaft  
Albero semplice in uscita



kit cod. KUI635030

kit cod. KN630209  
**Protection cap  
(on request)**  
*A richiesta coperchio  
di protezione*

Input speed ( $n_1$ ) = 1750 min<sup>-1</sup>

Output speed $n_2$ [min <sup>-1</sup> ]	Ratio $i$	Motor power $P_{1M}$ [HP]	Output torque $M_{2M}$ [lb in]	Service factor f.s	Nominal power $P_{1R}$ [HP]	Nominal torque $M_{2R}$ [lb in]	Available NEMA motor flanges			Dynamic efficiency RD	Tooth module [mm]	Ratio code
							-W 56C	-X 143-5TC	-Y 182-4TC			
250.0	7	5	1109	2.0	9.90	2168	B	B		88	4.23	01
175.0	10	5	1441	1.7	8.40	2390	B	B		80	4.2	02
125.0	14	5	1967	1.3	6.61	2567	B	B		78	4.5	03
87.5	20	3	1707	1.5	4.41	2478	B	B		79	3.4	04
79.5	22	3	1854	1.3	4.06	2478	B	B		78	3.1	05
62.5	28	3	2269	1.3	3.91	2921	B	B		75	4.7	06
46.1	38	3	2915	1.0	2.95	2832	B	B		71	3.5	07
38.0	46	2	2253	1.2	2.47	2744	B	B		68	3.1	08
33.7	52	2	2472	1.0	1.99	2434	B	B		66	2.7	09
26.1	67	1.5	2353	1.0	1.57	2434	B	B		65	2.1	10
23.6	74	1.5	2319	1.0	1.48	2257	B	B		58	1.9	11
18.2	96	1	1833	1.1	1.13	2036	B	B		53	1.5	12

The nominal power should be reduced if the ambient temperature is  $\geq 30^\circ\text{C}$ , or when a cooler gearbox is required.

Diminuire la potenza nominale in caso di temperatura ambiente  $\geq 30^\circ\text{C}$  o se è richiesta una bassa temperatura di utilizzo del riduttore.

- Motor flanges available  
Flange motore disponibili
- B) Supplied with reduction bushing  
Fornito con bussola di riduzione
- B) Available on request without reduction bushing  
Disponibile a richiesta senza bussola di riduzione
- C) Motor flange holes position  
Posizione fori flangia motore

## Lubrication

Lubrificazione

Unit N85 is supplied with synthetic oil to assure long life lubrication.

Food grade oil is available on request.

See Table 1 for lubrication and recommended quantity.

See Table 2 for possible radial and axial loads on the gearbox.

*I riduttore tipo N85 viene fornito con olio sintetico e lubrificazione tipo "long life".*

*Disponibile a richiesta olio alimentare.*

*Vedi Tabella 1 per oli e quantità consigliati.*

*Vedi Tabella 2 per i carichi radiali e assiali applicabili al riduttore.*

Oil quantity for all positions: 35.21 oz.	Shell Omala S4 WE 320	Eni Telium VSF 320
Quantità olio per tutte le posizioni: 35.21 oz		

Tab. 1

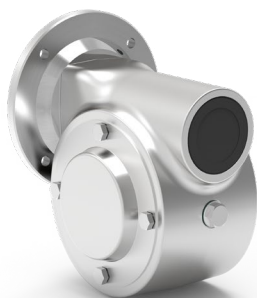
## Suggested

Sugerito

Stainless steel protection cap (on request).

Coperchio di protezione in acciaio inox a richiesta.

Kit cod. KN850209



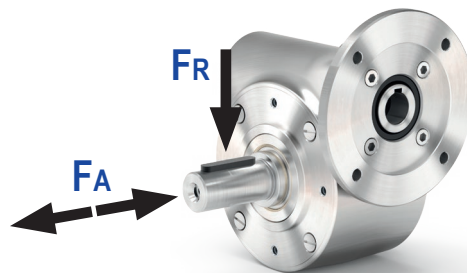
## Radial and axial loads

Carichi radiali e assiali

### Output shaft

Albero di uscita

$n_2$ [min <sup>-1</sup> ]	$F_A$ [lb]	$F_R$ [lb]
200	112	562
150	130	652
100	135	674
75	157	787
50	180	899
25	225	1124
15	261	1304



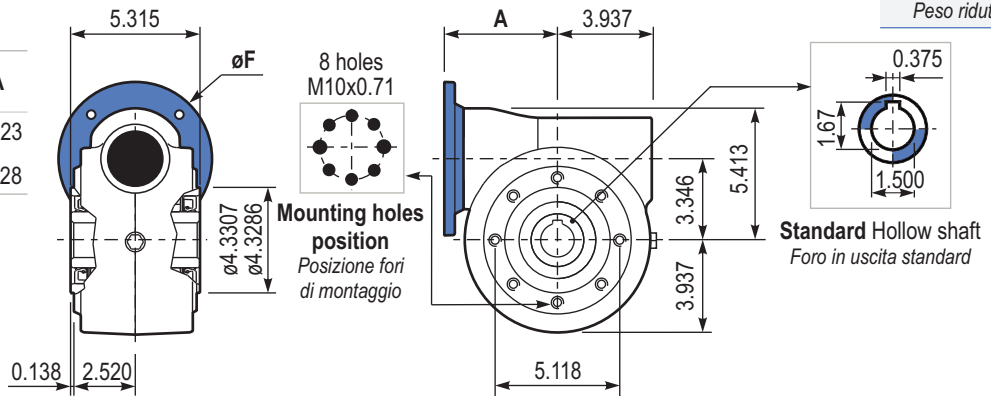
Tab. 2



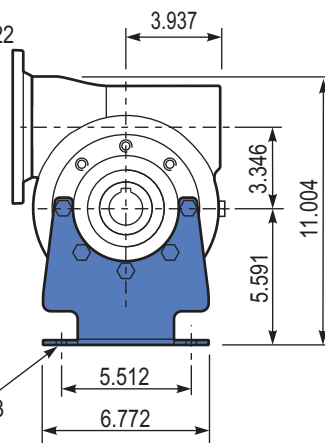
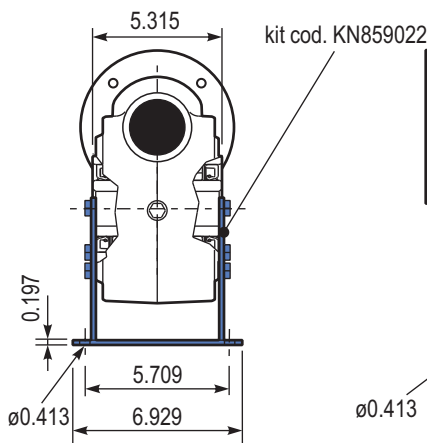
PN85 **UNI..** Basic gearbox  
Riduttore base

Gearbox weight  
Peso riduttore **46.30 lb**

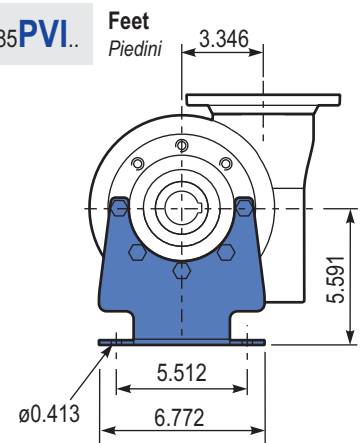
M. flanges	Kit code	øF	A
56C-143/5TC	KUI854041	6.50	4.823
182/4TC	KUI854042	8.88	5.528



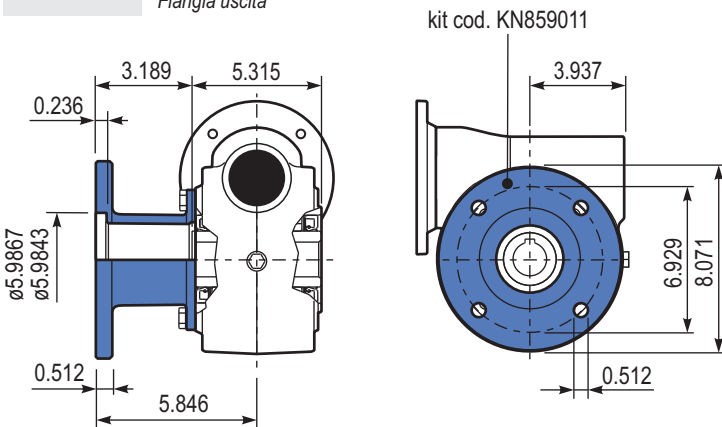
PN85 **PAI..** Feet  
Piedini



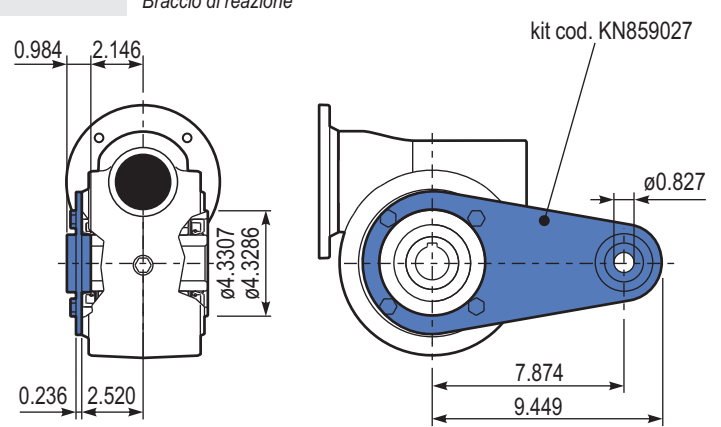
PN85 **PVI..** Feet  
Piedini



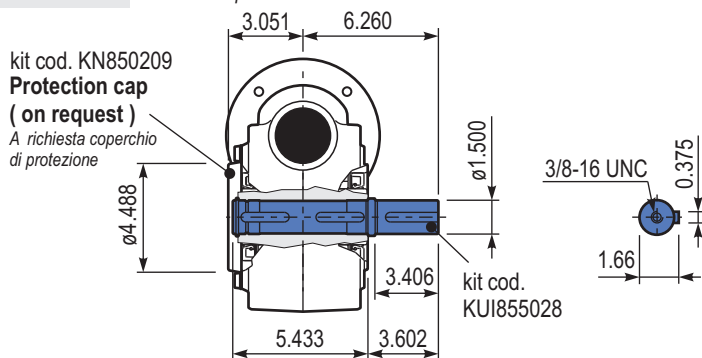
PN85 **FLL..** Output flange  
Flangia uscita



PN85 **BRI..** Reaction arm  
Braccio di reazione



PN85 **SIH** Single output shaft  
Albero semplice in uscita





**RCN series**  
**Full stainless steel ratio multipliers**

*Riduttori ad uno stadio completamente in acciaio inox*

**Section 4**  
Sezione 4

**AISI 316L**

IP66


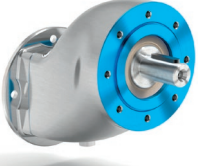


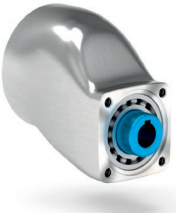
CE



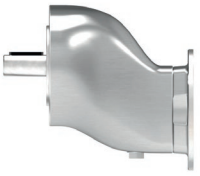

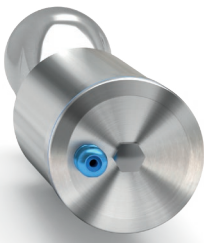
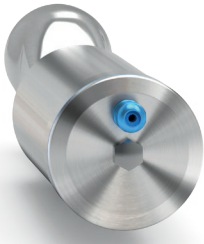

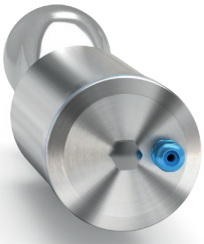

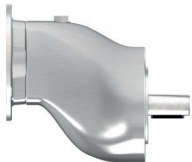


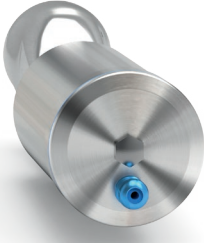
NSF

COMPONENT






# How to order *Codifica*

<b>P</b>	<b>411N</b>	<b>-F</b>	<b>1.57</b>	<b>X</b>
Type <i>Tipo</i>	Size <i>Grandezza</i>	Mounting <i>Montaggio</i>	Ratio <i>Rapporto</i>	Output shaft <i>Albero lento</i>
<b>P</b> 	<b>211N</b> <b>411N</b>	<b>-F</b> 	See technical data table <i>Vedi tabelle dati tecnici</i>	<b>→ Standard</b> 
<b>M</b> 		211N		<b>X</b> → $\varnothing 0.625$
<b>B</b> 		411N		<b>X</b> → $\varnothing 0.625$

<b>U</b>	<b>-X</b>	<b>B3</b>	<b>ST</b>	For M type specify terminal box position
Output flange <i>Flangia uscita</i>	Motor size <i>Grandezza motore</i>	Mounting position <i>Posizione di montaggio</i>	Input bore <i>Foro entrata</i>	<i>Per tipo M specificare posizione morsettiera</i>
 <p>211N I → ø4.13</p>	<p><b>Motor flanges</b> <i>Flange motore</i></p>  <p><b>NEMA</b></p>	<p><b>B3</b></p>  <p><b>B6</b></p> 	<p><b>ST</b> Standard bore <i>Foro standard</i></p>	<p><b>A</b></p>  <p><b>B</b></p> 
<p>411N I → ø4.13 U → ø6.50</p>	<p><b>-W</b> → 56C (ø6.5") <b>-X</b> → 143/5TC (ø6.5")</p>	<p><b>B7</b></p> 		<p><b>C</b></p> 
	<p><b>Without flange</b> <i>Senza flangia</i></p>  <p>211N <b>-K</b> → ø0.625</p> <p>411N <b>-K</b> → ø0.625 <b>-N</b> → ø0.875</p>	<p><b>B8</b></p>  <p><b>V5</b></p>  <p><b>V6</b></p> 		<p><b>D</b></p> 

The dynamic efficiency is **0.98** for all ratios

Input speed ( $n_1$ ) = 1750 min<sup>-1</sup>

Output speed $n_2$ [min <sup>-1</sup> ]	Ratio <i>i</i>	Motor power $P_{1M}$ [HP]	Output torque $M_{2M}$ [lb in]	Service factor f.s	Nominal power $P_{1R}$ [HP]	Nominal torque $M_{2R}$ [lb in]	Available NEMA motor flanges			Output shaft  ø0.625	Ratios code 
							-W 56C	-			
853	<b>2.05</b>	0.75	54	1.6	<b>1.22</b>	<b>89</b>			1939	01	
744	<b>2.35</b>	0.75	62	1.7	<b>1.28</b>	<b>106</b>			1740	02	
625	<b>2.80</b>	0.75	74	1.7	<b>1.25</b>	<b>124</b>			1542	03	
517	<b>3.38</b>	0.75	90	1.7	<b>1.26</b>	<b>150</b>			1344	04	
372	<b>4.70</b>	0.75	124	1.4	<b>1.07</b>	<b>177</b>			1047	05	
281	<b>6.22</b>	0.75	165	1.2	<b>0.93</b>	<b>204</b>			956	06	
211	<b>8.29</b>	0.5	146	1.2	<b>0.61</b>	<b>177</b>			758	07	
178	<b>9.83</b>	0.33	115	1.2	<b>0.41</b>	<b>142</b>			659	08	

Motor flanges available  
Flange motore disponibili

 B) Supplied with reduction bushing  
Fornito con bussola di riduzione

B) Available on request without reduction bushing  
Disponibile a richiesta senza bussola di riduzione

 C) Motor flange holes position  
Posizione fori flangia motore

## Lubrication

Lubrificazione

Unit 211N is supplied with synthetic oil to assure long life lubrication.  
Food grade oil is available on request.  
See Table 1 for lubrication and recommended quantity.  
See Table 2 for possible radial and axial loads on the gearbox.

Il riduttore tipo 211N viene fornito con olio sintetico e lubrificazione tipo "long life".  
Disponibile a richiesta olio alimentare.  
Vedi Tabella 1 per oli e quantità consigliati.  
Vedi Tabella 2 per i carichi radiali e assiali applicabili al riduttore.

**Oil quantity for  
all positions:  
1.76 oz.**

Quantità olio per tutte  
le posizioni: 1.76 oz.

**Shell**  
Omala S4 WE 320

**Eni**  
Telium VSF 320

## Radial and axial loads

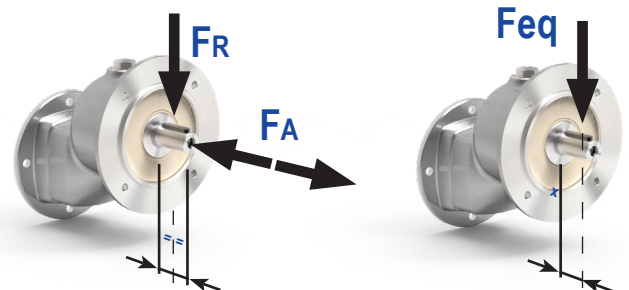
Carichi radiali e assiali

### Output shaft

Albero di uscita

$n_2$ [min <sup>-1</sup> ]	FA [lb]	FR [lb]
700	22.7	113.3
600	27.0	134.9
400	31.0	156.5
300	33.9	170.0
200	39.3	196.9
140	43.2	215.8

$$F_{eq} = F_R \cdot \frac{1.54}{X + 0.77}$$



Tab. 1

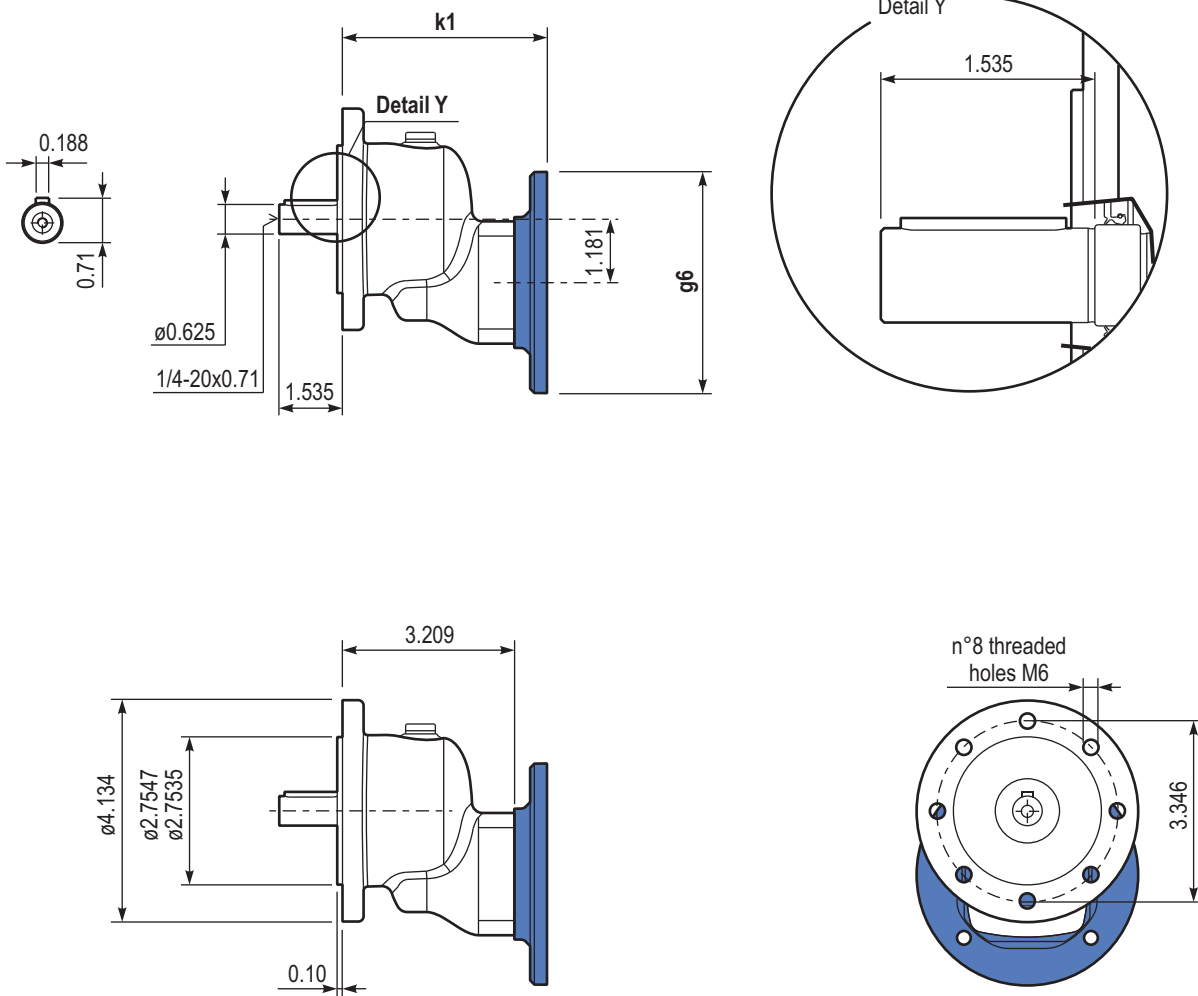
Tab. 2

P211N-F... **Basic gearbox**  
Riduttore base

Gearbox weight  
peso riduttore **5.51 lb**




**Input flanges / flange di entrata**

	Kit code	k1	g6
<b>56C</b>	KUI504041	4.713	6.50



The dynamic efficiency is **0.98** for all ratios

Input speed ( $n_1$ ) = 1750 min<sup>-1</sup>

Output speed $n_2$ [min <sup>-1</sup> ]	Ratio $i$	Motor power $P_{1M}$ [HP]	Output torque $M_{2M}$ [lb in]	Service factor f.s	Nominal power $P_{1R}$ [HP]	Nominal torque $M_{2R}$ [lb in]	Available NEMA motor flanges			Output shaft  ø0.625	Ratios code 
							-W 56C	-X 143-5TC			
1114	<b>1.57</b>	2	111	1.6	<b>3.19</b>	<b>177</b>			2844		01
616	<b>2.84</b>	2	201	1.5	<b>3.09</b>	<b>310</b>			1954		02
531	<b>3.29</b>	2	233	1.4	<b>2.89</b>	<b>336</b>			1756		03
453	<b>3.87</b>	2	273	1.3	<b>2.59</b>	<b>354</b>			1558	standard	04
379	<b>4.62</b>	2	326	1.3	<b>2.55</b>	<b>416</b>			1360	ø0.625	05
278	<b>6.30</b>	1.5	334	1.2	<b>1.83</b>	<b>407</b>			1063		06
213	<b>8.22</b>	0.75	218	1.5	<b>1.16</b>	<b>336</b>			974		07
161	<b>10.86</b>	0.5	192	1.3	<b>0.65</b>	<b>248</b>			776		08

The nominal power should be reduced if the ambient temperature is  $\geq 30^\circ\text{C}$ , or when a cooler gearbox is required.

Diminuire la potenza nominale in caso di temperatura ambiente  $\geq 30^\circ\text{C}$  o se è richiesta una bassa temperatura di utilizzo del riduttore.

-  **Motor flanges available**  
Flange motore disponibili
-  **B) Supplied with reduction bushing**  
Fornito con bussola di riduzione
- B) Available on request without reduction bushing**  
Disponibile a richiesta senza bussola di riduzione
-  **C) Motor flange holes position**  
Posizione fori flangia motore

## Lubrication

Lubrificazione

Unit 211N is supplied with synthetic oil to assure long life lubrication.

Food grade oil is available on request.

See Table 1 for lubrication and recommended quantity.

See Table 2 for possible radial and axial loads on the gearbox.

Il riduttore tipo 211N viene fornito con olio sintetico e lubrificazione tipo "long life".

Disponibile a richiesta olio alimentare.

Vedi Tabella 1 per oli e quantità consigliati.

Vedi Tabella 2 per i carichi radiali e assiali applicabili al riduttore.

Oil quantity for all positions: 4.93 oz. Quantità olio per tutte le posizioni: 4.93 oz.	Shell Omala S4 WE 320	Eni Telium VSF 320
---	--------------------------	-----------------------

## Radial and axial loads

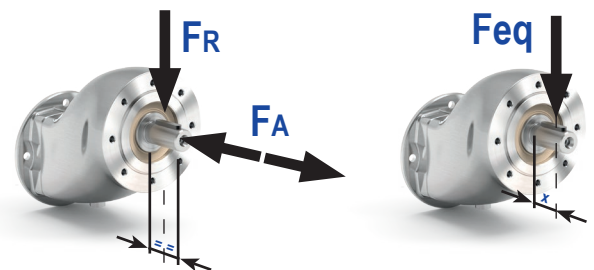
Carichi radiali e assiali

### Output shaft

Albero di uscita

$n_2$ [min <sup>-1</sup> ]	FA [lb]	FR [lb]
700	40.9	204.4
600	44.9	224.7
400	51.7	258.4
300	56.2	280.8
200	65.1	325.8
140	71.9	359.5

$$F_{eq} = F_R \cdot \frac{2.35}{X + 1.32}$$



Tab. 1

Tab. 2

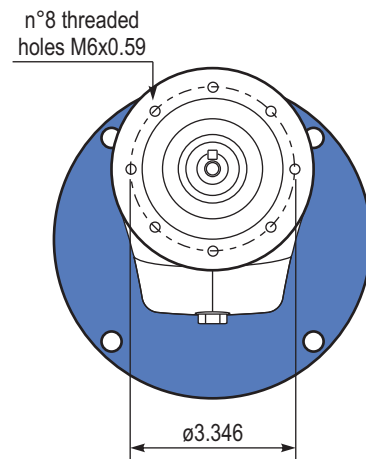
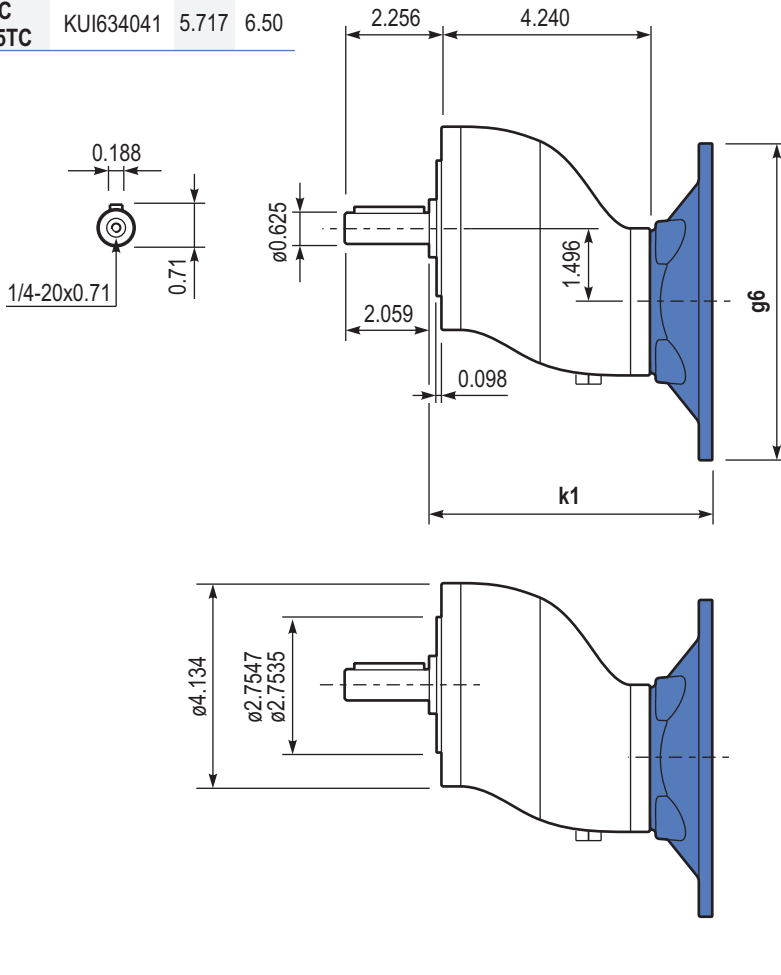


P411N-F...I **Basic gearbox**  
Riduttore base

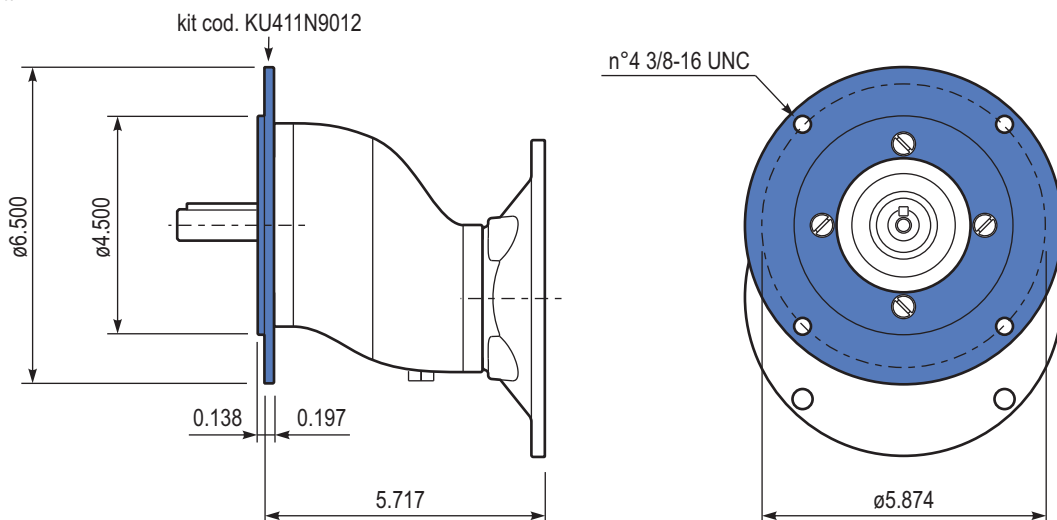
Gearbox weight  
peso riduttore **11.68 lb**

**Input flanges / flange di entrata**

	Kit code	k1	g6
<b>56C</b> <b>143-5TC</b>	KUI634041	5.717	6.50



P411N-F...U **Output flange**  
Flangia uscita





# **I** BVN series Full stainless steel helical bevel gearboxes

*Riduttori a coppia conica completamente in acciaio inox*

Section **5**  
Sezione 5

## The best high efficiency solution to resist corrosion. Suitable for all applications.

*La migliore soluzione ad alta efficienza per la resistenza alla corrosione.  
Adatto a tutte le applicazioni.*

**AISI 316L**

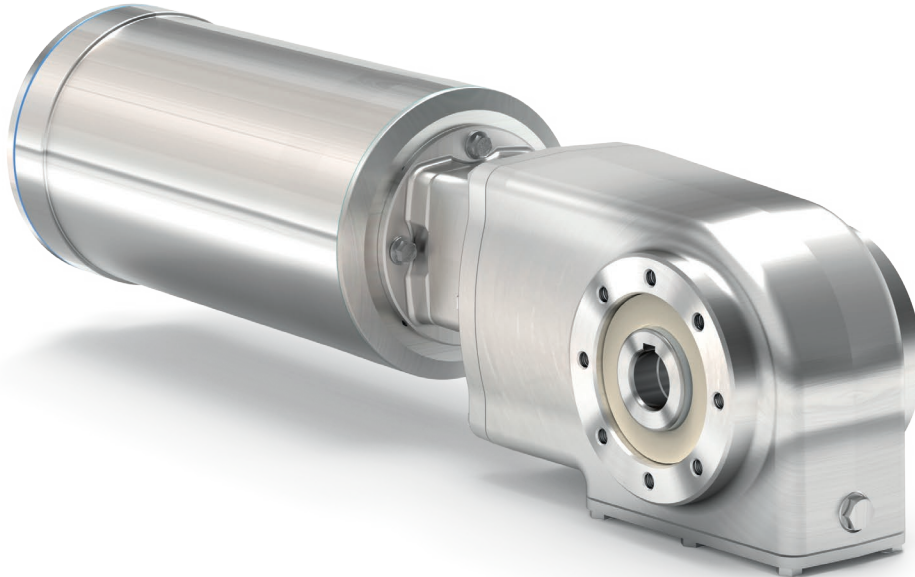
IP66

CE

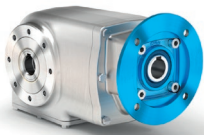


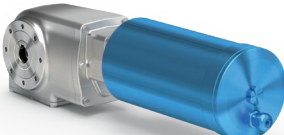

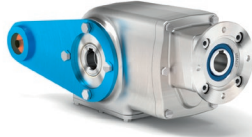

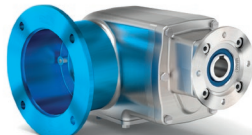





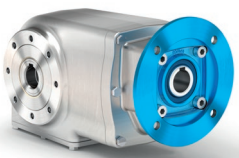


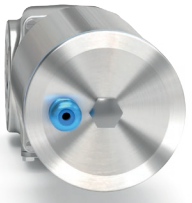
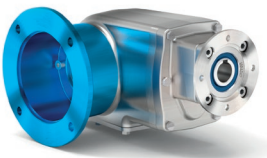


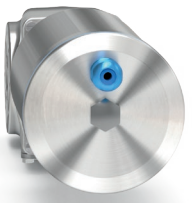
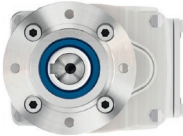
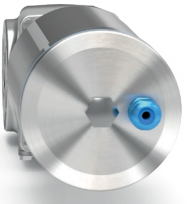



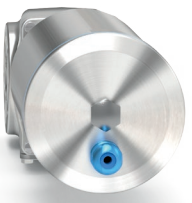



On req.  
A rich.

IP69k






# How to order Codifica

<b>M</b>	<b>X42N</b>	<b>I</b>	<b>7.29</b>	<b>UD</b>	<b>BR</b>
Type <i>Tipo</i>	Size <i>Grandezza</i>	Hub <i>Mozzo</i>	Ratio <i>Rapporto</i>	Output shaft <i>Albero uscita</i>	Type <i>Tipo</i>
<b>P</b>  	<b>2 Stages</b> <i>2 Riduzioni</i>	<b>I</b> Stainless steel hollow output shaft <i>Foro albero uscita in acciaio inox</i>  	See technical data table <i>Vedi tabelle dati tecnici</i>	<b>Hollow output shaft</b> <i>Foro albero uscita</i>	<b>FB</b> Universal <i>Forma base</i>  
	<b>X42N</b> <b>X62N</b>			<b>→ Standard</b> X42N - X43N <b>UD → ø1.000</b> X62N - X63N <b>UG → ø1.375</b> X73N - X74N <b>UH → ø1.500</b>	
<b>M</b>  	<b>3 Stages</b> <i>3 Riduzioni</i>	<b>S</b> Stainless steel single output shaft <i>Albero uscita singolo in acciaio inox</i>  		<b>Single output shaft</b> <i>Albero uscita singolo</i>	<b>BR</b> Reaction arm <i>Braccio di reazione</i>  
	<b>X43N</b> <b>X63N</b> <b>X73N</b>			<b>→ Standard</b> X42N - X43N <b>UD → ø1.000</b> X62N - X63N <b>UG → ø1.375</b> X73N - X74N <b>UH → ø1.500</b>	
<b>B</b>  	<b>4 Stages</b> <i>4 Riduzioni</i>			<b>Single output shaft</b> <i>Albero uscita singolo</i>	<b>-F</b> Output flange <i>Flangia uscita</i>  
	<b>X74N</b>			<b>→ Standard</b> X42N - X43N <b>UD → ø1.000</b> X62N - X63N X73N - X74N <b>UG → ø1.375</b>	
					<b>PA</b>  
					<b>PV</b>  

<b>N</b>	<b>-X</b>	<b>B3</b>	<b>ST</b>	For M type specify terminal box position
Output flange <i>Flangia in uscita</i>	Motor size <i>Grandezza motore</i>	Mounting position <i>Posizione di montaggio</i>	Input bore <i>Foro entrata</i>	<i>Per tipo M specificare posizione morsettiera</i>
<b>N</b> Without flange <i>Senza flangia</i>  	<b>Motor flanges</b> <i>Flange motore</i>  	<b>B3</b>  	<b>ST</b> Standard bore <i>Foro standard</i>  	<b>A</b>  
	<b>NEMA</b>  <b>-W</b> → 56C (ø6.5") <b>-X</b> → 143/5TC (ø6.5") <b>-Y</b> → 182/4TC (ø8.88") <b>AA</b> → 213/5TC (ø8.88")	<b>B6</b>  	<b>With coupling</b> <i>Con giunto</i>    <b>-W</b> → ø0.625 <b>-X</b> → ø0.875 <b>-Y</b> → ø1.125	<b>B</b>  
X42N - X43N <b>2</b> → ø6.890  X62N - X63N X73N - X74N	<b>Without flange</b> <i>Senza flangia</i>  <b>-M</b> Ready for coupling <i>Predisposto per giunto</i>	<b>B7</b>  	<b>Ready for input coupling</b> <i>Predisposto per giunto</i>	<b>C</b>  
<b>3</b> → ø8.071	  X43N <b>-K</b> → ø0.625	<b>B8</b>  	<b>-0</b> Type B <i>Tipo B</i>  	<b>D</b>  
	X42N - X63N - X74N  <b>-K</b> → ø0.625 <b>-N</b> → ø0.875	<b>V5</b>  		
	X62N - X73N <b>-K</b> → ø0.625 <b>-N</b> → ø0.875 <b>-S</b> → ø1.125	<b>V6</b>    <b>V8</b>  		

The dynamic efficiency is **0.96** for all ratios

Input speed ( $n_1$ ) = 1750 min<sup>-1</sup>

Output speed $n_2$ [min <sup>-1</sup> ]	Ratio $i$	Motor power $P_{1M}$ [HP]	Output torque $M_{2M}$ [lb in]	Service factor f.s	Nominal power $P_{1R}$ [HP]	Nominal torque $M_{2R}$ [lb in]	Available NEMA motor flanges			Output shaft  Standard ø1.000	Ratio code 
							-W 56C	-X 143-5TC			
240	<b>7.29</b>	2	504	1.4	<b>2.81</b>	<b>708</b>			2811	01	
156	<b>11.20</b>	2	774	1.5	<b>2.97</b>	<b>1151</b>			288	02	
133	<b>13.18</b>	2	911	1.3	<b>2.53</b>	<b>1151</b>			1911	03	
115	<b>15.27</b>	2	1056	1.1	<b>2.18</b>	<b>1151</b>			1711	04	
98	<b>17.93</b>	2	1240	0.9	<b>1.86</b>	<b>1151</b>			1511	05	
86	<b>20.25</b>	1.5	1050	1.1	<b>1.64</b>	<b>1151</b>			198	06	
82	<b>21.40</b>	1.5	1110	1.0	<b>1.56</b>	<b>1151</b>			1311	07	
75	<b>23.47</b>	1.5	1217	0.9	<b>1.42</b>	<b>1151</b>			178	08	
64	<b>27.55</b>	1	953	1.2	<b>1.21</b>	<b>1151</b>			158	09	
60	<b>29.21</b>	1	1010	1.1	<b>1.14</b>	<b>1151</b>			1011	10	
53	<b>32.88</b>	1	1137	1.0	<b>1.01</b>	<b>1151</b>			138	11	
45.9	<b>38.12</b>	1	1318	0.9	<b>0.87</b>	<b>1151</b>			911	12	
39.0	<b>44.89</b>	0.75	1164	1.0	<b>0.74</b>	<b>1151</b>			108	13	
34.8	<b>50.34</b>	0.5	870	1.1	<b>0.56</b>	<b>974</b>			711	14	
29.9	<b>58.58</b>	0.5	1013	1.1	<b>0.57</b>	<b>1151</b>			98	15	
22.6	<b>77.36</b>	0.5	1337	0.9	<b>0.43</b>	<b>1151</b>			78	16	

Motor flanges available  
Flange motore disponibili

 B) Supplied with reduction bushing  
Fornito con bussola di riduzione

B) Available on request without reduction bushing  
Disponibile a richiesta senza bussola di riduzione

 C) Motor flange holes position  
Posizione fori flangia motore

## Lubrication

Lubrificazione

Unit X42N is supplied with synthetic oil to assure long life lubrication.

Food grade oil is available on request.

See Table 1 for lubrication and recommended quantity.

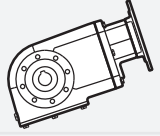
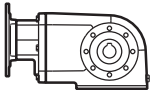
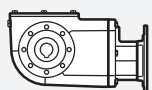
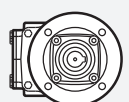
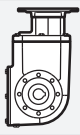
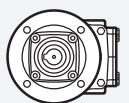
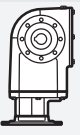
See Table 2 for possible radial and axial loads on the gearbox.

Il riduttore tipo X42N viene fornito con olio sintetico e lubrificazione tipo "long life".

Disponibile a richiesta olio alimentare.

Vedi Tabella 1 per oli e quantità consigliati.

Vedi Tabella 2 per i carichi radiali e assiali applicabili al riduttore.

<b>Shell</b> Omala S4 WE 320	<b>Eni</b> Telium VSF 320	<b>V8</b> On request ASK	
<b>B3</b> Standard 17.60 oz		<b>B8</b> On request 29.92 oz	
<b>B6</b> On request 28.16 oz		<b>V5</b> On request 45.75 oz	
<b>B7</b> On request 26.40 oz		<b>V6</b> On request 31.68 oz	

For more details on lubrication and plugs check our website.

Per maggiori dettagli su lubrificazione e tappi olio vedi il nostro sito web.

Tab. 1

## Radial and axial loads

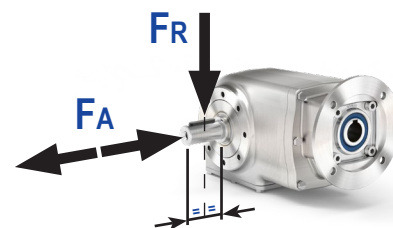
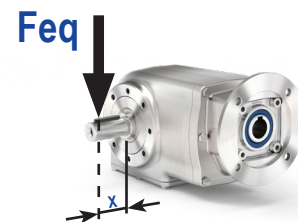
Carichi radiali e assiali

### Output shaft

Albero di uscita

$n_2$ [min <sup>-1</sup> ]	$F_A$ [lb]	$F_R$ [lb]
250	112	562
150	135	674
100	157	786
75	180	899
50	216	1079
25	216	1079
15	216	1079

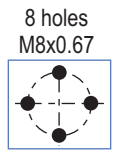
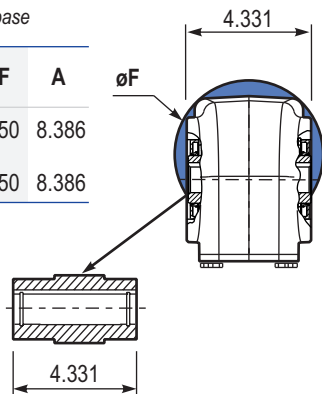
$$F_{eq} = F_R \cdot \frac{4.75}{X + 3.69}$$



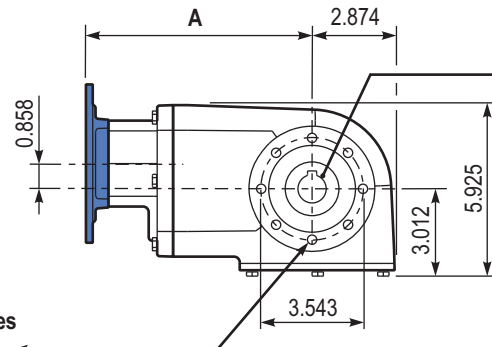
Tab. 2

**PX42NI...FB** Basic gearbox  
*Riduttore base*

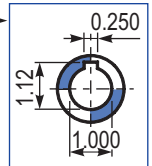
M. flanges	Kit code	øF	A
56C	KUI634041	6.50	8.386
143/5 TC	KUI634041	6.50	8.386



8 holes  
M8x0.67  
Mounting holes position  
*Posizione fori di montaggio*

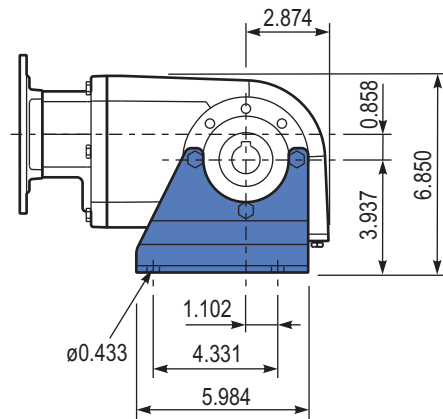
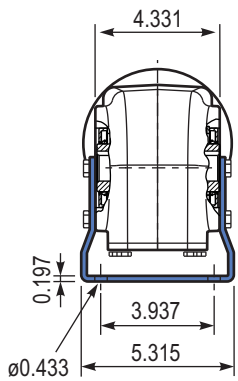


Gearbox weight  
*peso riduttore* **28.2 lb**

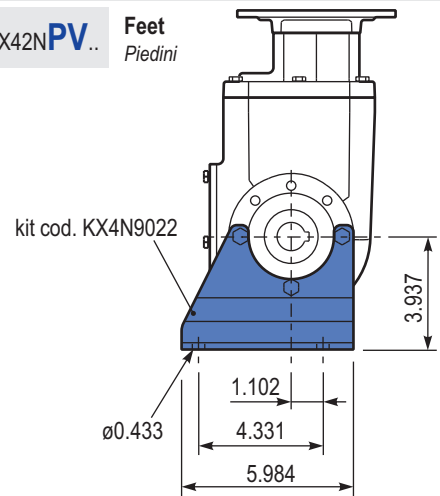


Standard Hollow shaft  
*Foro in uscita standard*

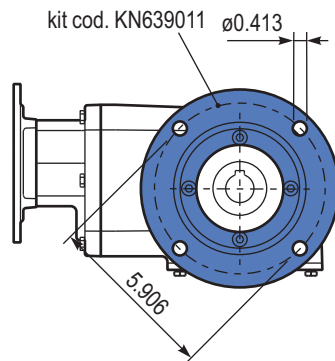
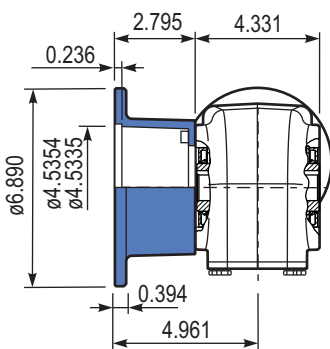
**PX42NPA..** Feet  
*Piedini*



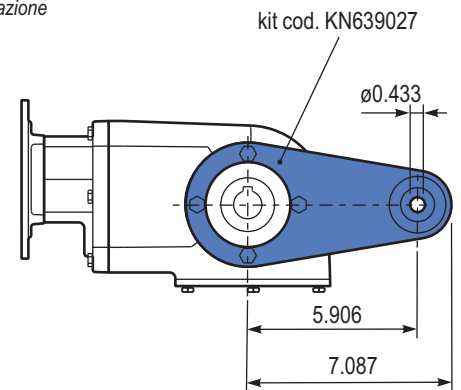
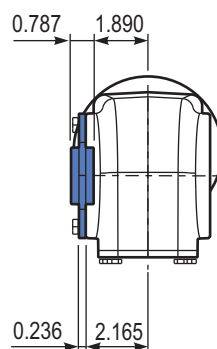
**PX42NPV..** Feet  
*Piedini*



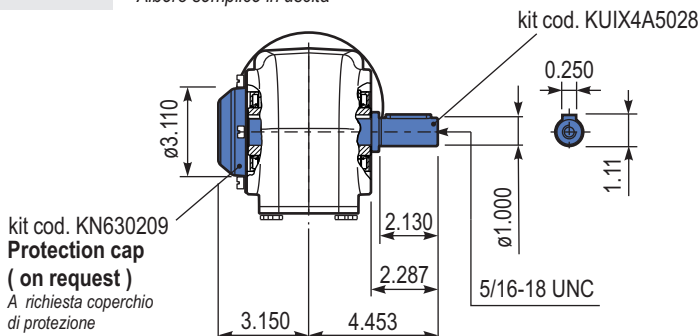
**PX42NFL..** Output flange  
*Flangia uscita*



**PX42NBR..** Reaction Arm  
*Braccio di reazione*



**PX42NA..** Single output shaft  
*Albero semplice in uscita*



kit cod. KN630209  
**Protection cap**  
(on request)  
*A richiesta coperchio di protezione*

**Suggested**  
*Suggerito*

**Stainless steel protection cap**  
(on request).




*Coperchio di protezione in acciaio inox a richiesta.*

**Kit cod. KN630209**



The dynamic efficiency is **0.94** for all ratios

Input speed ( $n_1$ ) = 1750 min<sup>-1</sup>

Output speed $n_2$ [min <sup>-1</sup> ]	Ratio $i$	Motor power $P_{1M}$ [HP]	Output torque $M_{2M}$ [lb in]	Service factor f.s	Nominal power $P_{1R}$ [HP]	Nominal torque $M_{2R}$ [lb in]	Available NEMA motor flanges			Output shaft 	Ratio code 
							-W 56C	-			
34.8	<b>50.35</b>	0.75	1278	0.9	<b>0.67</b>	<b>1151</b>			171311		01
31.7	<b>55.22</b>	0.5	935	1.2	<b>0.62</b>	<b>1151</b>			17178		02
29.2	<b>59.92</b>	0.5	1014	1.1	<b>0.57</b>	<b>1151</b>			151311		03
26.6	<b>65.72</b>	0.5	1112	1.0	<b>0.52</b>	<b>1151</b>			15178		04
24.4	<b>71.78</b>	0.5	1215	0.9	<b>0.47</b>	<b>1151</b>			101711		05
22.0	<b>79.44</b>	0.5	1345	0.9	<b>0.43</b>	<b>1151</b>			13178		06
19.0	<b>92.08</b>	0.33	1029	1.1	<b>0.37</b>	<b>1151</b>			15138		07
18.4	<b>95.03</b>	0.33	1062	1.1	<b>0.36</b>	<b>1151</b>			91711	Standard ø1.000	08
13.8	<b>126.55</b>	0.33	1414	0.9	<b>0.28</b>	<b>1204</b>			71711		09
13.1	<b>133.15</b>	0.25	1127	1.1	<b>0.27</b>	<b>1204</b>			91311		10
11.7	<b>150.18</b>	0.25	1271	0.9	<b>0.24</b>	<b>1204</b>			61711		11
9.9	<b>177.30</b>	0.25	1501	0.8	<b>0.20</b>	<b>1204</b>			71311		12
8.3	<b>210.42</b>	0.25*	1781	0.7	<b>0.17</b>	<b>1204</b>			61311		13
7.6	<b>230.79</b>	0.25*	1953	0.6	<b>0.15</b>	<b>1204</b>			6178		14
6.4	<b>272.47</b>	0.25*	2306	0.5	<b>0.13</b>	<b>1204</b>			7138		15
5.4	<b>323.37</b>	0.25*	2737	0.4	<b>0.11</b>	<b>1204</b>			6138		16

\* Power higher than the maximum one which can be supported by the gearbox. Select according to the torque  $M_{2R}$

\* Potenza superiore a quella massima sopportabile dal riduttore. Selezionare in base al momento torcente  $M_{2R}$

-  **Motor flanges available**  
Flange motore disponibili
-  **B) Supplied with reduction bushing**  
Fornito con bussola di riduzione
-  **B) Available on request without reduction bushing**  
Disponibile a richiesta senza bussola di riduzione
-  **C) Motor flange holes position**  
Posizione fori flangia motore

## Lubrication

### Lubrificazione

Unit X43N is supplied with synthetic oil to assure long life lubrication.  
Food grade oil is available on request.

See Table 1 for lubrication and recommended quantity.

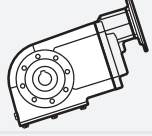
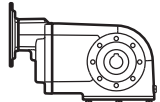
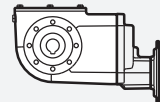
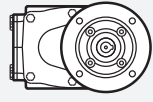
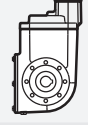
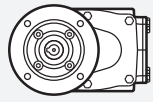
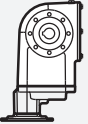
See Table 2 for possible radial and axial loads on the gearbox.

Il riduttore tipo X43N viene fornito con olio sintetico e lubrificazione tipo "long life".

Disponibile a richiesta olio alimentare.

Vedi Tabella 1 per oli e quantità consigliati.

Vedi Tabella 2 per i carichi radiali e assiali applicabili al riduttore.

<b>Shell</b> Omala S4 WE 320	<b>Eni</b> Telium VSF 320	<b>V8</b> On request ASK	
<b>B3</b> Standard 31.68 oz		<b>B8</b> On request 29.92 oz	
<b>B6</b> On request 33.44 oz		<b>V5</b> On request 49.27 oz	
<b>B7</b> On request 26.40 oz		<b>V6</b> On request 31.68 oz	

For more details on lubrication and plugs check our website.

Per maggiori dettagli su lubrificazione e tappi vedi il nostro sito web.

Tab. 1

## Radial and axial loads

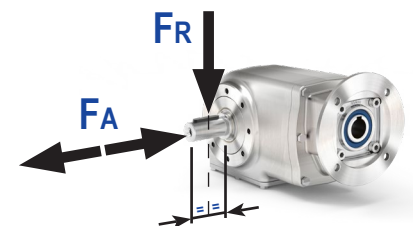
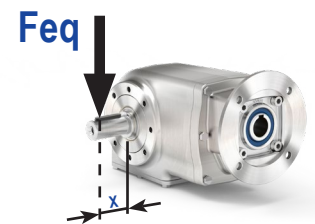
### Carichi radiali e assiali

## Output shaft

### Albero di uscita

$n_2$ [min <sup>-1</sup> ]	$F_A$ [lb]	$F_R$ [lb]
250	112	562
150	135	674
100	157	786
75	180	899
50	216	1079
25	216	1079
15	216	1079

$$F_{eq} = F_R \cdot \frac{4.75}{X + 3.69}$$

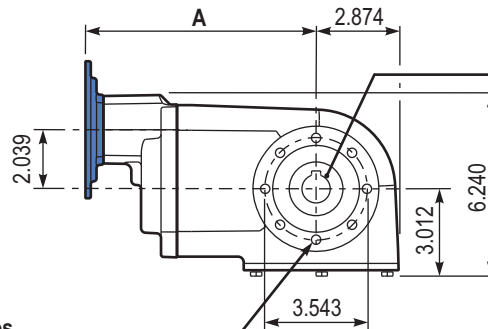
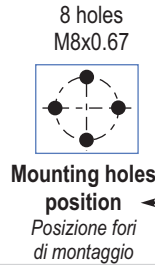
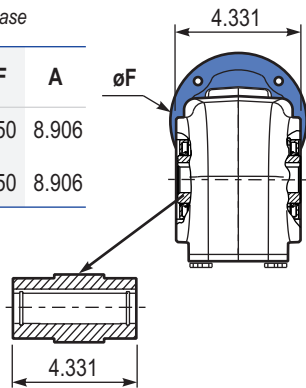


Tab. 2

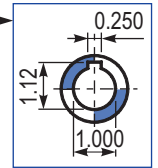


**PX43NI...FB** Basic gearbox  
*Riduttore base*

M. flanges	Kit code	øF	A
56C	KUI504041	6.50	8.906
143/5 TC	KUI504041	6.50	8.906

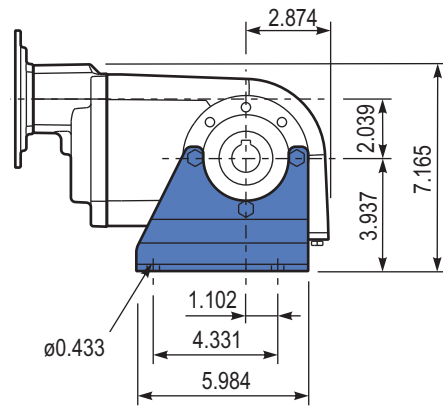
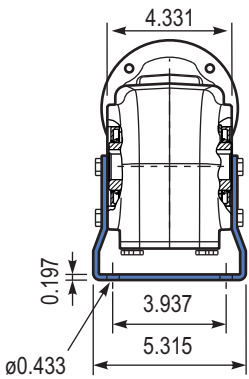


Gearbox weight  
peso riduttore **28.7 lb**

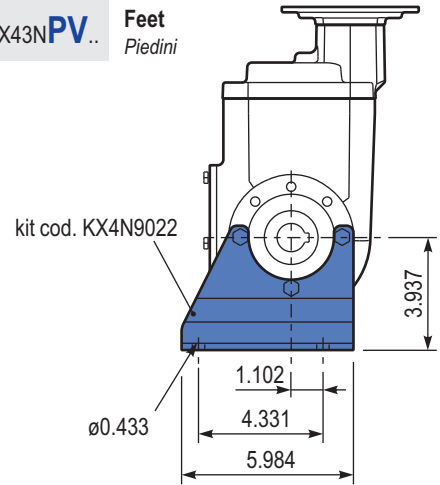


Standard Hollow shaft  
*Foro in uscita standard*

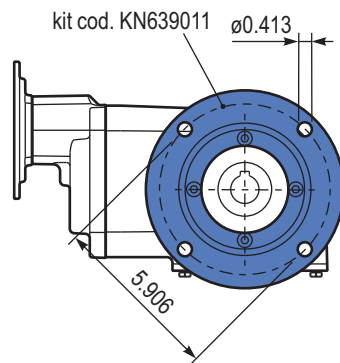
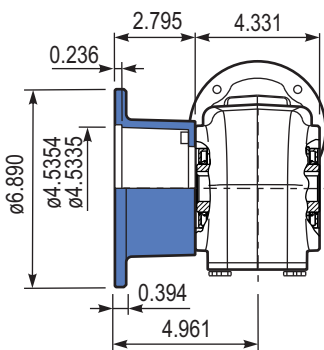
**PX43NPA..** Feet  
*Piedini*



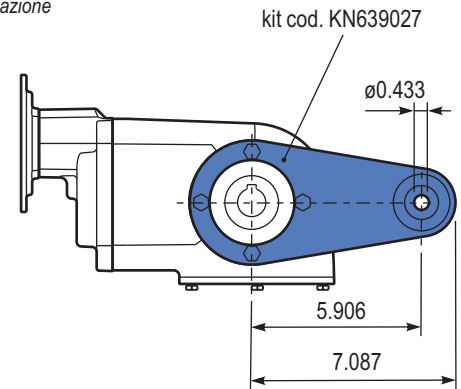
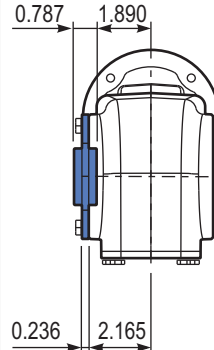
**PX43NPV..** Feet  
*Piedini*



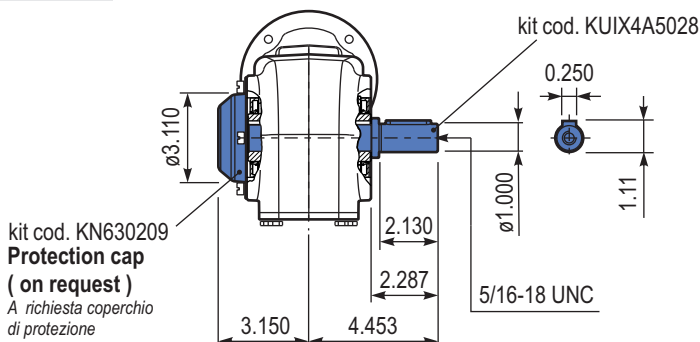
**PX43N-FL..** Output flange  
*Flangia uscita*



**PX43NBR..** Reaction Arm  
*Braccio di reazione*



**PX43N.A..** Single output shaft  
*Albero semplice in uscita*



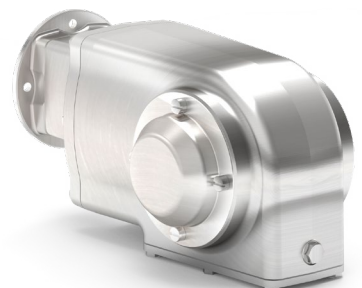
kit cod. KN630209  
**Protection cap**  
(on request)  
*A richiesta coperchio di protezione*

**Suggested**  
*Suggerito*

**Stainless steel protection cap**  
(on request).




*Coperchio di protezione in acciaio inox a richiesta.*

**Kit cod. KN630209**



The dynamic efficiency is **0.96** for all ratios

Input speed ( $n_1$ ) = 1750 min<sup>-1</sup>

Output speed $n_2$ [min <sup>-1</sup> ]	Ratio $i$	Motor power $P_{1M}$ [HP]	Output torque $M_{2M}$ [lb in]	Service factor $f.s$	Nominal power $P_{1R}$ [HP]	Nominal torque $M_{2R}$ [lb in]	Available NEMA motor flanges				Output shaft  Ø	Ratio code 
							-W 56C	-X 143-5TC	-Y 182/4TC			
290	<b>6.03</b>	5	1042	2.0	<b>10.19</b>	<b>2124</b>				3011	01	
189	<b>9.26</b>	5	1601	1.5	<b>7.46</b>	<b>2390</b>				308	02	
154	<b>11.36</b>	5	1964	1.6	<b>7.89</b>	<b>3098</b>				2011	03	
114	<b>15.36</b>	5	2655	1.3	<b>6.42</b>	<b>3408</b>				1611	04	
100	<b>17.46</b>	5	3018	1.2	<b>5.87</b>	<b>3540</b>				208	05	
88	<b>19.97</b>	5	3453	1.1	<b>5.25</b>	<b>3629</b>				1311	06	
74	<b>23.60</b>	5	4080	0.9	<b>4.45</b>	<b>3629</b>				168	07	
72	<b>24.45</b>	5	4226	0.9	<b>4.29</b>	<b>3629</b>				1111	08	
57	<b>30.69</b>	3	3184	1.1	<b>3.42</b>	<b>3629</b>				138	09	
49.5	<b>35.35</b>	3	3667	1.0	<b>2.97</b>	<b>3629</b>				811	10	
46.6	<b>37.57</b>	3	3897	0.9	<b>2.79</b>	<b>3629</b>				118	11	
35.9	<b>48.68</b>	2	3366	1.0	<b>1.92</b>	<b>3231</b>				611	12	
32.2	<b>54.33</b>	2	3757	1.0	<b>1.93</b>	<b>3629</b>				88	13	
23.4	<b>74.81</b>	1	2587	1.2	<b>1.23</b>	<b>3186</b>				68	14	

Motor flanges available  
Flange motore disponibili

 B) Supplied with reduction bushing  
Fornito con bussola di riduzione

B) Available on request without reduction bushing  
Disponibile a richiesta senza bussola di riduzione

 C) Motor flange holes position  
Posizione fori flangia motore

## Lubrication

Lubrificazione

Unit X43N is supplied with synthetic oil to assure long life lubrication.  
Food grade oil is available on request.

See Table 1 for lubrication and recommended quantity.

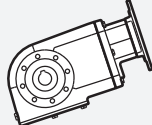
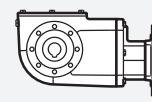
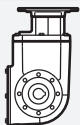
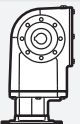
See Table 2 for possible radial and axial loads on the gearbox.

Il riduttore tipo X43N viene fornito con olio sintetico e lubrificazione tipo "long life".

Disponibile a richiesta olio alimentare.

Vedi Tabella 1 per oli e quantità consigliati.

Vedi Tabella 2 per i carichi radiali e assiali applicabili al riduttore.

Shell	Eni	V8	
Omala S4 WE 320	Telium VSF 320	On request ASK	
B3		B8	
Standard 36.95 oz		On request 66.87 oz	
B6		V5	
On request 65.11 oz		On request 112.62 oz	
B7		V6	
On request 59.83 oz		On request 79.19 oz	

For more details on lubrication and plugs check our website.

Per maggiori dettagli su lubrificazione e tappi olio vedi il nostro sito web.

Tab. 1

## Radial and axial loads

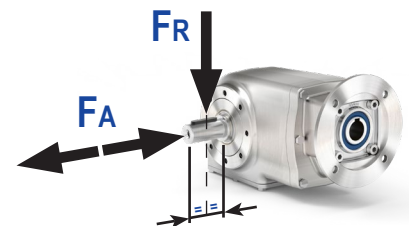
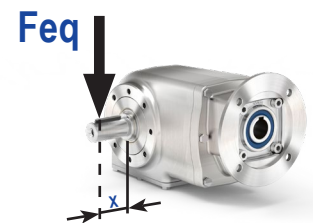
Carichi radiali e assiali

### Output shaft

Albero di uscita

$n_2$ [min <sup>-1</sup> ]	$F_A$ [lb]	$F_R$ [lb]
250	135	674
150	157	787
100	175	877
75	200	1000
50	256	1281
25	299	1495
15	373	1866

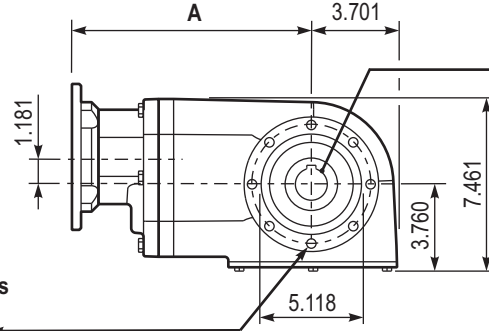
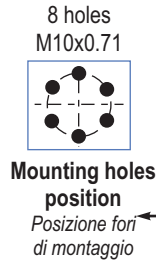
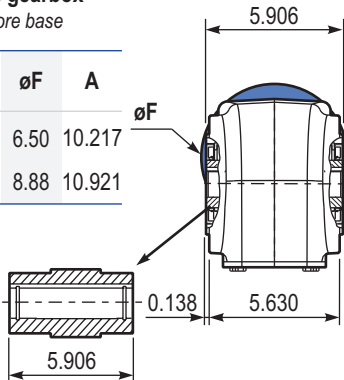
$$F_{eq} = F_R \cdot \frac{6.60}{X + 5.22}$$



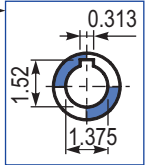
Tab. 2

**PX62NI...FB** Basic gearbox  
*Riduttore base*

M. flanges	Kit code	øF	A
56C-143/5TC	KUI854041	6.50	10.217
182/4TC	KUI854042	8.88	10.921

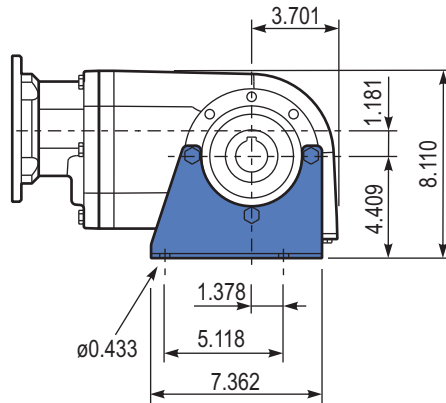
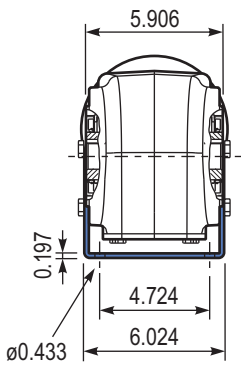


Gearbox weight  
*peso riduttore* **51.1 lb**

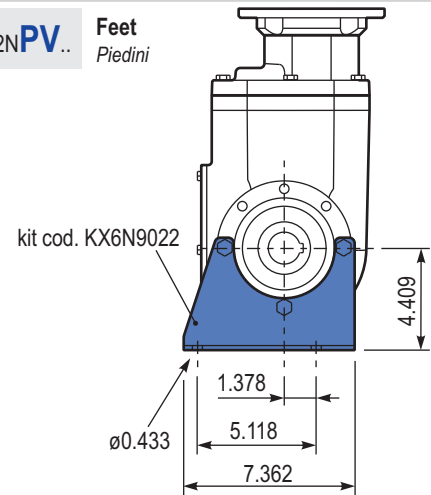


Standard Hollow shaft  
*Foro in uscita standard*

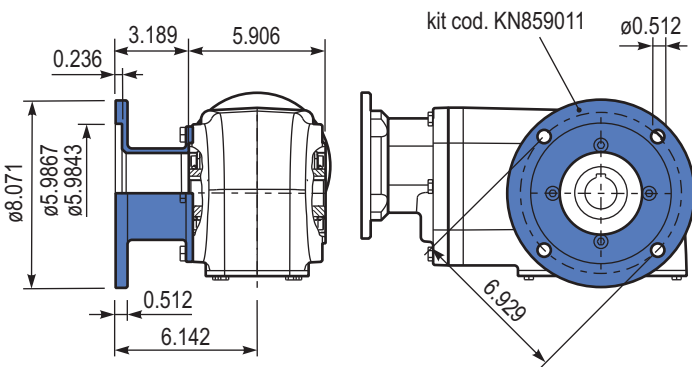
**PX62NPA..** Feet  
*Piedini*



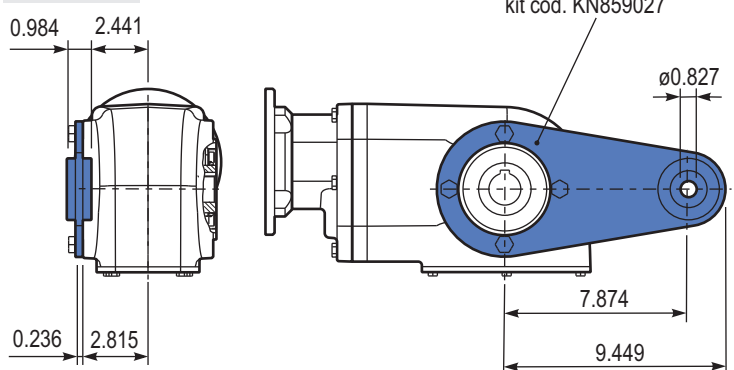
**PX62NPV..** Feet  
*Piedini*



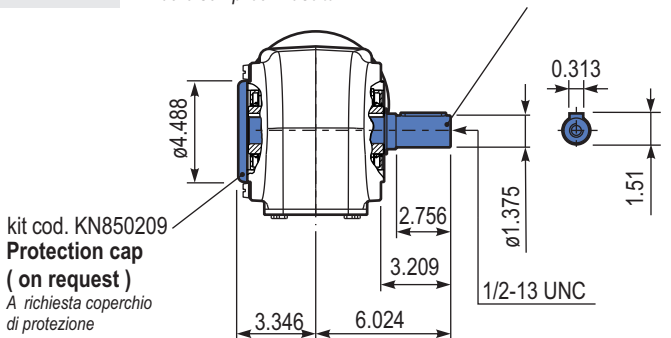
**PX62NFL..** Output flange  
*Flangia uscita*



**PX62NBR..** Reaction Arm  
*Braccio di reazione*



**PX62NA..** Single output shaft  
*Albero semplice in uscita*



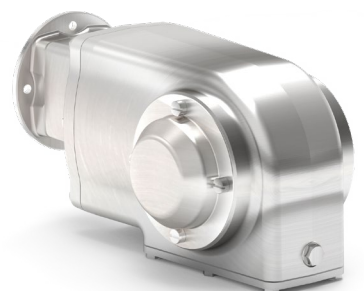
kit cod. KN850209  
**Protection cap**  
**(on request)**  
*A richiesta coperchio di protezione*

**Suggested**  
*Suggerito*

**Stainless steel protection cap**  
**(on request).**




*Coperchio di protezione in acciaio inox a richiesta.*

**Kit cod. KN850209**



The dynamic efficiency is **0.94** for all ratios

Input speed ( $n_1$ ) = 1750 min<sup>-1</sup>

Output speed $n_2$ [min <sup>-1</sup> ]	Ratio $i$	Motor power $P_{1M}$ [HP]	Output torque $M_{2M}$ [lb in]	Service factor f.s	Nominal power $P_{1R}$ [HP]	Nominal torque $M_{2R}$ [lb in]	Available NEMA motor flanges			Output shaft  Standard ø1.375	Ratio code 
							-W 56C	-X 143-5TC			
30.8	<b>56.76</b>	1.5	2883	1.3	1.89	3629			191311	01	
26.6	<b>65.79</b>	1.5	3341	1.1	1.63	3629			171311	02	
22.7	<b>77.23</b>	1.5	3922	0.9	1.39	3629			151311	03	
20.1	<b>87.23</b>	1	2953	1.2	1.23	3629			19138	04	
19.0	<b>92.18</b>	1	3121	1.2	1.16	3629			131311	05	
17.4	<b>100.47</b>	1	3402	1.1	1.07	3629			19811	06	
15.0	<b>116.45</b>	1	3943	0.9	0.92	3629			17811	07	
13.9	<b>125.82</b>	0.75	3195	1.1	0.85	3629			101311	08	
12.4	<b>141.66</b>	0.75	3597	1.0	0.76	3629			13138	09	
10.7	<b>163.16</b>	0.5	2762	1.3	0.66	3629			13811	10	
9.8	<b>178.96</b>	0.5	3030	1.2	0.60	3629			1788	11	
9.1	<b>193.36</b>	0.5	3273	1.1	0.55	3629			10138	12	
8.1	<b>216.84</b>	0.5	3671	1.0	0.49	3629			71311	13	
6.9	<b>252.36</b>	0.33	2819	1.3	0.42	3629			9138	14	
6.0	<b>290.67</b>	0.33	3248	1.1	0.37	3629			9811	15	
5.3	<b>333.23</b>	0.33	3723	1.0	0.32	3629			7138	16	
4.6	<b>383.82</b>	0.25	3249	1.1	0.28	3629			7811	17	
3.9	<b>446.70</b>	0.25	3781	1.0	0.24	3629			988	18	
3.0	<b>589.85</b>	0.25*	4992	0.7	0.18	3629			788	19	

\* Power higher than the maximum one which can be supported by the gearbox. Select according to the torque  $M_{2R}$

\* Potenza superiore a quella massima sopportabile dal riduttore. Selezionare in base al momento torcente  $M_{2R}$

Motor flanges available  
Flange motore disponibili



B) Supplied with reduction bushing  
Fornito con bussola di riduzione



B) Available on request without reduction bushing  
Disponibile a richiesta senza bussola di riduzione



C) Motor flange holes position  
Posizione fori flangia motore

## Lubrication

Lubrificazione

Unit X63N is supplied with synthetic oil to assure long life lubrication.  
Food grade oil is available on request.

See Table 1 for lubrication and recommended quantity.

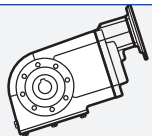
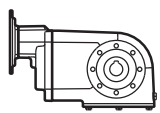
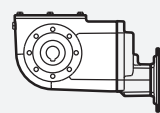
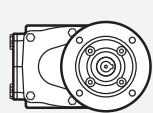
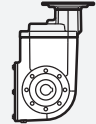
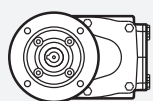
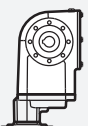
See Table 2 for possible radial and axial loads on the gearbox.

Il riduttore tipo X63N viene fornito con olio sintetico e lubrificazione tipo "long life".

Disponibile a richiesta olio alimentare.

Vedi Tabella 1 per oli e quantità consigliati.

Vedi Tabella 2 per i carichi radiali e assiali applicabili al riduttore.

<b>Shell</b> Omala S4 WE 320	<b>Eni</b> Telium VSF 320	<b>V8</b> On request ASK	
<b>B3</b> Standard 72.15 oz		<b>B8</b> On request 66.87 oz	
<b>B6</b> On request 65.11 oz		<b>V5</b> On request 117.90 oz	
<b>B7</b> On request 59.83 oz		<b>V6</b> On request 80.95 oz	

For more details on lubrication and plugs check our website.

Per maggiori dettagli su lubrificazione e tappi olio vedi il nostro sito web.

## Radial and axial loads

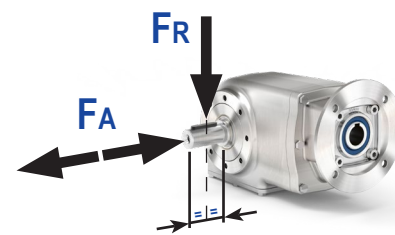
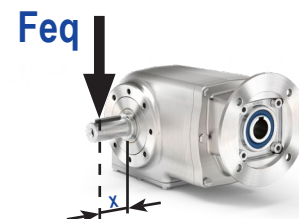
Carichi radiali e assiali

### Output shaft

Albero di uscita

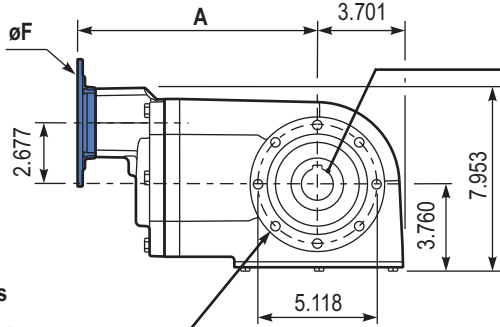
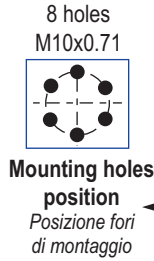
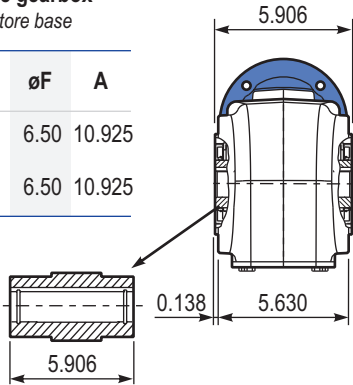
$n_2$ [min <sup>-1</sup> ]	FA [lb]	FR [lb]
250	135	674
150	157	787
100	175	877
75	200	1000
50	256	1281
25	299	1495
15	373	1866

$$F_{eq} = F_R \cdot \frac{6.60}{X + 5.22}$$

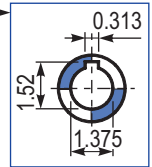


**PX63NI...FB** Basic gearbox  
*Riduttore base*

M. flanges	Kit code	øF	A
56C	KUI634041	6.50	10.925
143/5 TC	KUI634041	6.50	10.925

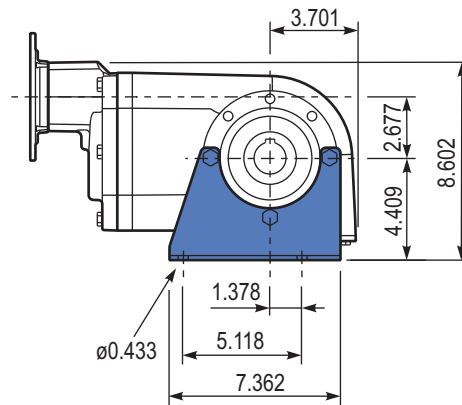
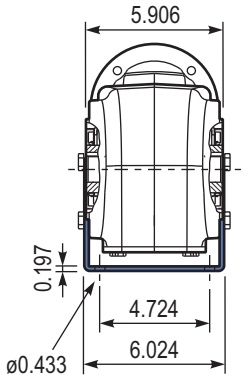


Gearbox weight  
*peso riduttore* **51.1 lb**

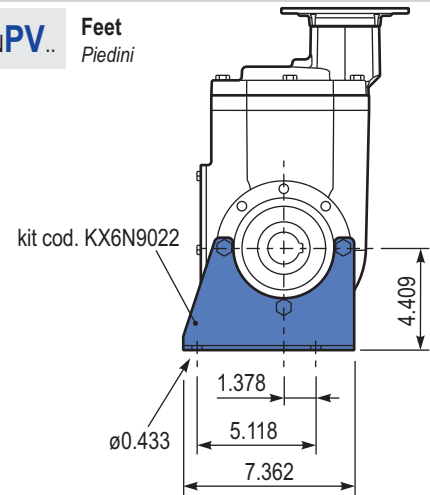


Standard Hollow shaft  
*Foro in uscita standard*

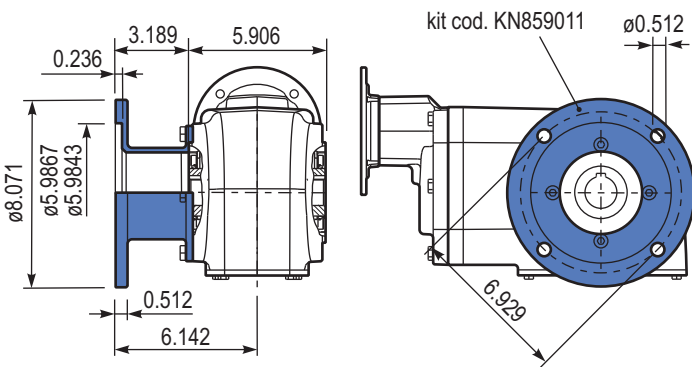
**PX63NPA..** Feet  
*Piedini*



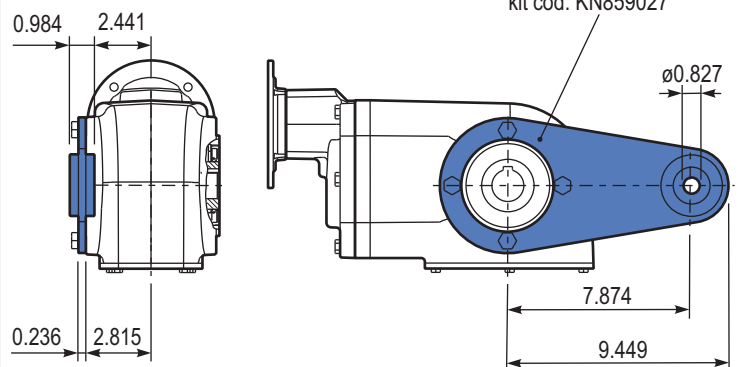
**PX63NPV..** Feet  
*Piedini*



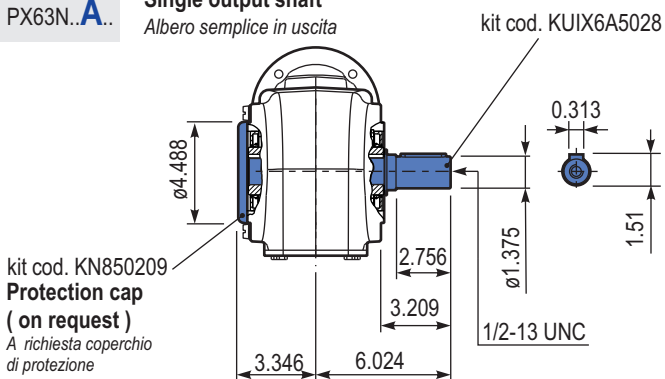
**PX63NFL..** Output flange  
*Flangia uscita*



**PX63NBR..** Reaction Arm  
*Braccio di reazione*



**PX63NA..** Single output shaft  
*Albero semplice in uscita*



kit cod. KN850209  
**Protection cap**  
**(on request)**  
*A richiesta coperchio di protezione*

**Suggested**  
*Suggerito*

**Stainless steel protection cap**  
**(on request).**




*Coperchio di protezione in acciaio inox a richiesta.*

**Kit cod. KN850209**



The dynamic efficiency is **0.94** for all ratios

Input speed ( $n_1$ ) = 1750 min<sup>-1</sup>

Output speed $n_2$ [min <sup>-1</sup> ]	Ratio $i$	Motor power $P_{1M}$ [HP]	Output torque $M_{2M}$ [lb in]	Service factor f.s	Nominal power $P_{1R}$ [HP]	Nominal torque $M_{2R}$ [lb in]	Available NEMA motor flanges				Output shaft  Standard ø1.500	Ratio code 
							-W 56C	-X 143-5TC	-Y 182/4TC			
220	<b>7.94</b>	5	1344	2.5	<b>12.51</b>	<b>3363</b>				302418	01	
192	<b>9.13</b>	5	1546	2.2	<b>11.17</b>	<b>3452</b>				302416	02	
164	<b>10.66</b>	5	1804	2.0	<b>10.06</b>	<b>3629</b>				302414	03	
117	<b>14.97</b>	5	2534	2.0	<b>10.13</b>	<b>5133</b>				202418	04	
102	<b>17.21</b>	5	2913	1.8	<b>9.12</b>	<b>5310</b>				202416	05	
86	<b>20.24</b>	5	3425	1.7	<b>8.72</b>	<b>5974</b>				162418	06	
75	<b>23.27</b>	5	3938	1.5	<b>7.58</b>	<b>5974</b>				162416	07	
67	<b>26.31</b>	5	4455	1.3	<b>6.71</b>	<b>5974</b>				132418	08	
58	<b>30.25</b>	5	5122	1.2	<b>5.83</b>	<b>5974</b>				132416	09	
49.5	<b>35.32</b>	5	5979	1.0	<b>5.00</b>	<b>5974</b>				132414	10	
47.3	<b>37.03</b>	5	6269	1.0	<b>4.76</b>	<b>5974</b>				112416	11	
40.5	<b>43.23</b>	3	4391	1.4	<b>4.08</b>	<b>5974</b>				112414	12	
37.6	<b>46.58</b>	3	4731	1.3	<b>3.79</b>	<b>5974</b>				82418	13	
32.7	<b>53.55</b>	3	5439	1.1	<b>3.30</b>	<b>5974</b>				82416	14	
28.0	<b>62.52</b>	3	6350	0.9	<b>2.82</b>	<b>5974</b>				82414	15	
23.7	<b>73.75</b>	2	4994	1.0	<b>2.06</b>	<b>5133</b>				62416	16	
20.3	<b>86.09</b>	2	5830	1.0	<b>2.05</b>	<b>5974</b>				62414	17	

\* Power higher than the maximum one which can be supported by the gearbox. Select according to the torque  $M_{2R}$

\* Potenza superiore a quella massima sopportabile dal riduttore. Selezionare in base al momento torcente  $M_{2R}$

-  Motor flanges available  
Flange motore disponibili
-  B) Supplied with reduction bushing  
Fornito con bussola di riduzione
-  B) Available on request without reduction bushing  
Disponibile a richiesta senza bussola di riduzione
-  C) Motor flange holes position  
Posizione fori flangia motore

## Lubrication

Lubrificazione

Unit X73N is supplied with synthetic oil to assure long life lubrication.

Food grade oil is available on request.

See Table 1 for lubrication and recommended quantity.

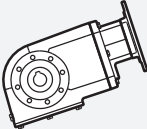
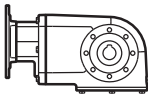
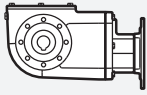
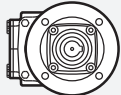
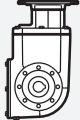
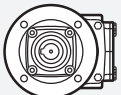
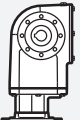
See Table 2 for possible radial and axial loads on the gearbox.

Il riduttore tipo X73N viene fornito con olio sintetico e lubrificazione tipo "long life".

Disponibile a richiesta olio alimentare.

Vedi Tabella 1 per oli e quantità consigliati.

Vedi Tabella 2 per i carichi radiali e assiali applicabili al riduttore.

<b>Shell</b> Omala S4 WE 320	<b>Eni</b> Telium VSF 320	<b>V8</b> On request ASK	
<b>B3</b> Standard 56.31 oz		<b>B8</b> On request 102.07 oz	
<b>B6</b> On request 98.55 oz		<b>V5</b> On request 161.90 oz	
<b>B7</b> On request 73.91 oz		<b>V6</b> On request 161.90 oz	

For more details on lubrication and plugs check our website.

Per maggiori dettagli su lubrificazione e tappi olio vedi il nostro sito web.

## Radial and axial loads

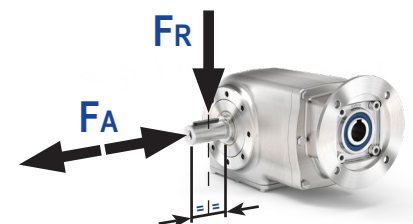
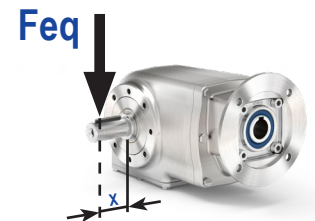
Carichi radiali e assiali

### Output shaft

Albero di uscita

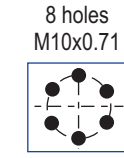
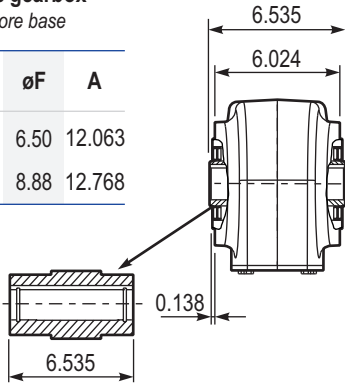
$n_2$ [min <sup>-1</sup> ]	FA [lb]	FR [lb]
300	306	1529
250	315	1574
200	324	1619
140	333	1664
120	342	1709
85	351	1754
70	387	1934
40	414	2068
15	432	2158

$$F_{eq} = F_R \cdot \frac{7.03}{X + 5.65}$$

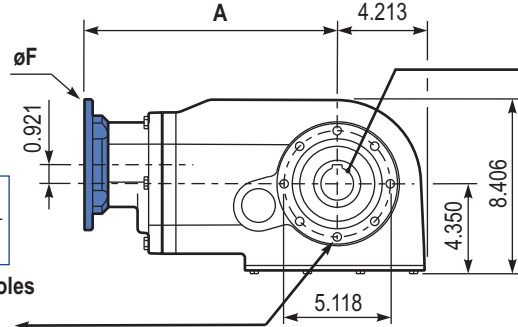


**PX73NI...FB** Basic gearbox  
*Riduttore base*

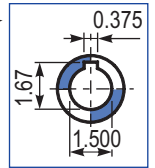
M. flanges	Kit code	øF	A
56C-143/5TC	KUI854041	6.50	12.063
182/4TC	KUI854042	8.88	12.768



Mounting holes position  
*Posizione fori di montaggio*

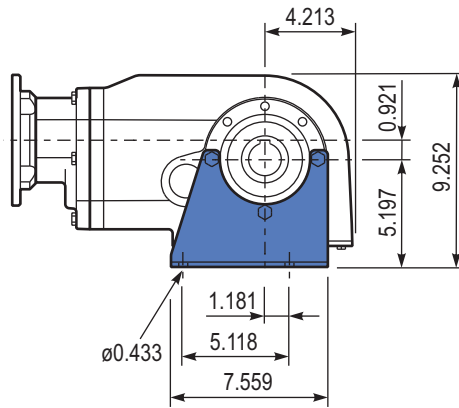
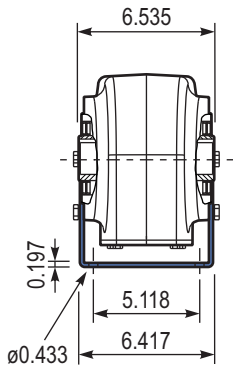


Gearbox weight  
*peso riduttore* **68.3 lb**

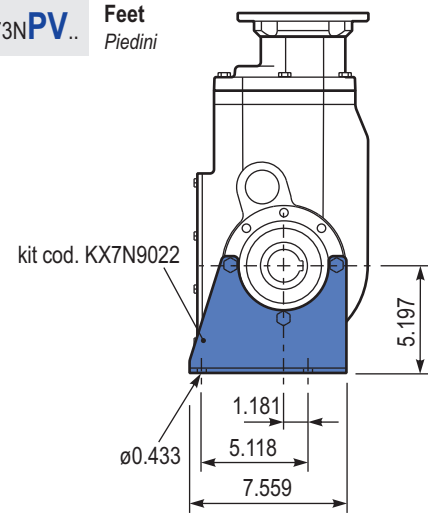


Standard Hollow shaft  
*Foro in uscita standard*

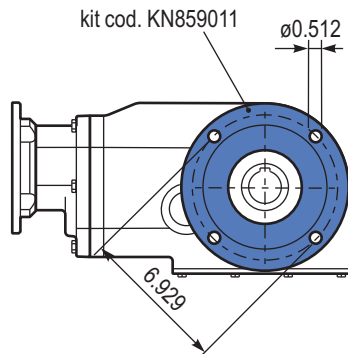
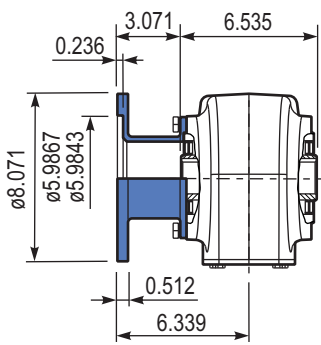
**PX73NPA..** Feet  
*Piedini*



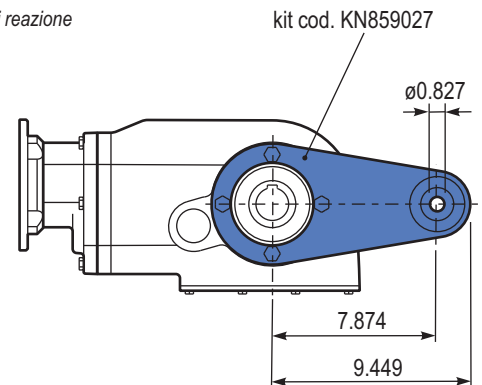
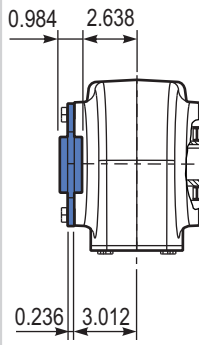
**PX73NPV..** Feet  
*Piedini*



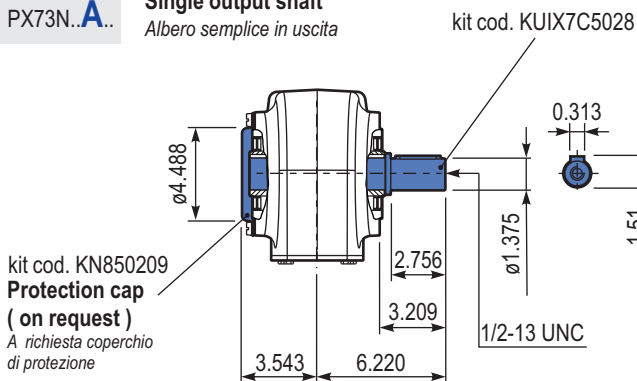
**PX73NFL..** Output flange  
*Flangia uscita*



**PX73NBR..** Reaction Arm  
*Braccio di reazione*



**PX73NA..** Single output shaft  
*Albero semplice in uscita*



**Suggested**  
*Suggerito*

Stainless steel protection cap  
( on request ).




*Coperchio di protezione in acciaio inox a richiesta.*

Kit cod. KN850209



The dynamic efficiency is **0.92** for all ratios

Input speed ( $n_1$ ) = 1750 min<sup>-1</sup>

Output speed $n_2$ [min <sup>-1</sup> ]	Ratio $i$	Motor power $P_{1M}$ [HP]	Output torque $M_{2M}$ [lb in]	Service factor f.s	Nominal power $P_{1R}$ [HP]	Nominal torque $M_{2R}$ [lb in]	Available NEMA motor flanges			Output shaft  Standard ø1.500	Ratio code 
							-W 56C	-X 143-5TC			
23.4	<b>74.79</b>	2	4956	1.2	2.41	5974					01
20.4	<b>85.99</b>	2	5699	1.0	2.10	5974					02
17.6	<b>99.66</b>	1.5	4954	1.2	1.81	5974					03
15.0	<b>116.35</b>	1.5	5783	1.0	1.55	5974					04
14.4	<b>121.45</b>	1.5	6037	1.0	1.48	5974					05
12.5	<b>139.64</b>	1	4627	1.3	1.29	5974					06
11.5	<b>152.21</b>	1	5043	1.2	1.18	5974					07
10.7	<b>163.02</b>	1	5402	1.1	1.11	5974					08
9.8	<b>177.69</b>	1	5888	1.0	1.01	5974					09
8.5	<b>205.95</b>	0.75	5118	1.2	0.88	5974					10
7.9	<b>222.52</b>	0.75	5530	1.1	0.81	5974					11
7.0	<b>248.76</b>	0.75	6182	1.0	0.72	5974					12
6.0	<b>290.41</b>	0.5	4812	1.2	0.62	5974					13
5.2	<b>337.39</b>	0.5	5590	1.1	0.53	5974					14
4.4	<b>393.88</b>	0.5	6526	0.9	0.46	5974					15
4.0	<b>440.33</b>	0.33	4815	1.2	0.41	5974					16
3.4	<b>514.06</b>	0.33	5621	1.1	0.35	5974					17
3.0	<b>581.44</b>	0.25	4817	1.2	0.31	5974					18
2.6	<b>678.79</b>	0.25	5623	1.1	0.27	5974					19

\* Power higher than the maximum one which can be supported by the gearbox. Select according to the torque  $M_{2R}$

Potenza superiore a quella massima sopportabile dal riduttore. Selezionare in base al momento torcente  $M_{2R}$

-  Motor flanges available  
Flange motore disponibili
-  B) Supplied with reduction bushing  
Fornito con bussola di riduzione
-  B) Available on request without reduction bushing  
Disponibile a richiesta senza bussola di riduzione
-  C) Motor flange holes position  
Posizione fori flangia motore

## Lubrication

### Lubrificazione

Unit X74N is supplied with synthetic oil to assure long life lubrication.

Food grade oil is available on request.

See Table 1 for lubrication and recommended quantity.

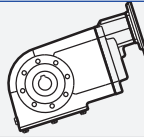
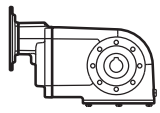
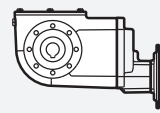
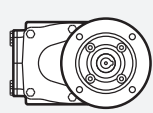
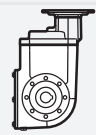
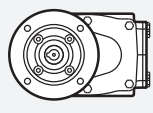
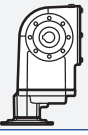
See Table 2 for possible radial and axial loads on the gearbox.

Il riduttore tipo X74N viene fornito con olio sintetico e lubrificazione tipo "long life".

Disponibile a richiesta olio alimentare.

Vedi Tabella 1 per oli e quantità consigliati.

Vedi Tabella 2 per i carichi radiali e assiali applicabili al riduttore.

Shell	Eni	V8	
Omala S4 WE 320	Telium VSF 320	On request ASK	
B3		B8	
Standard 91.51 oz		On request 102.07 oz	
B6		V5	
On request 98.55 oz		On request 168.94 oz	
B7		V6	
On request 73.91 oz		On request 116.14 oz	

For more details on lubrication and plugs check our website.

Per maggiori dettagli su lubrificazione e tappi olio vedi il nostro sito web.

## Radial and axial loads

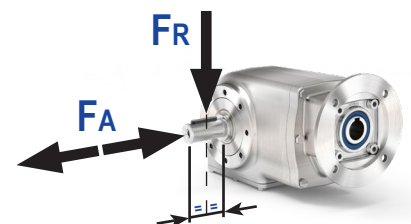
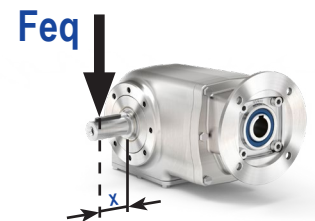
### Carichi radiali e assiali

### Output shaft

#### Albero di uscita

$n_2$ [min <sup>-1</sup> ]	FA [lb]	FR [lb]
300	306	1529
250	315	1574
200	324	1619
140	333	1664
120	342	1709
85	351	1754
70	387	1933
40	414	2068
15	432	2158

$$F_{eq} = F_R \cdot \frac{7.03}{X + 5.65}$$

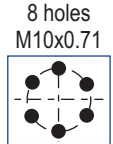
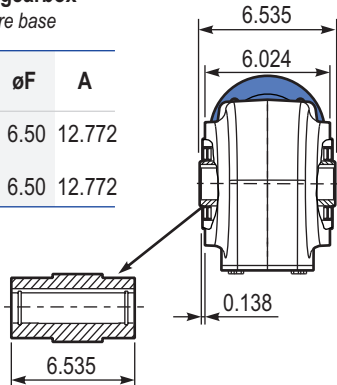




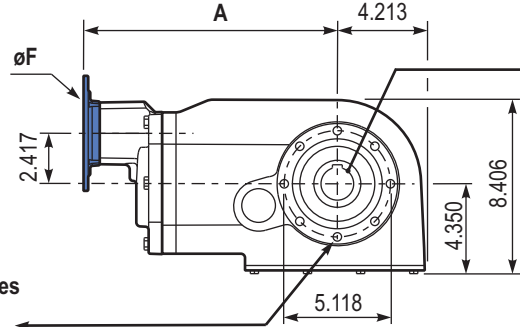
PX74NI...FB

Basic gearbox  
Riduttore base

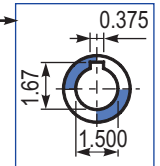
M. flanges	Kit code	øF	A
56C	KUI634041	6.50	12.772
143/5 TC	KUI634041	6.50	12.772



8 holes  
M10x0.71  
Mounting holes  
position  
Posizione fori  
di montaggio



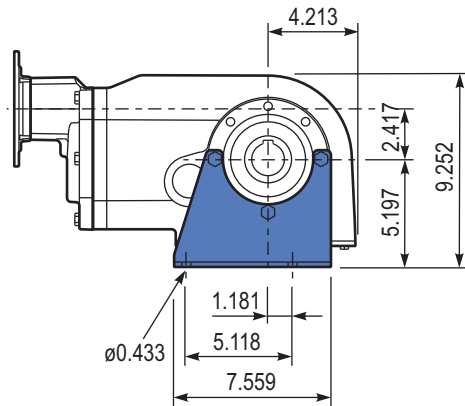
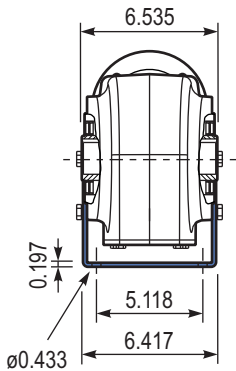
Gearbox  
weight  
peso riduttore **68.3 lb**



Standard Hollow shaft  
Foro in uscita standard

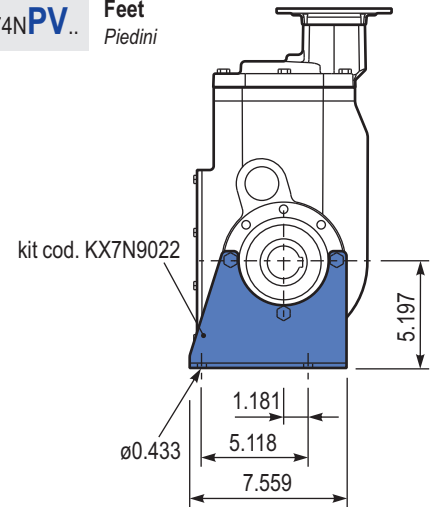
PX74NPA..

Feet  
Piedini



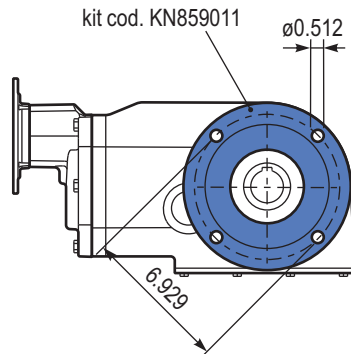
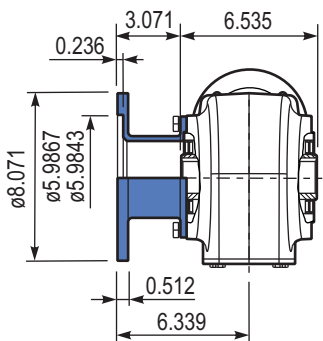
PX74NPV..

Feet  
Piedini



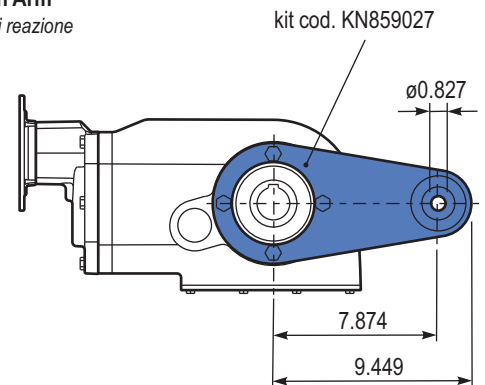
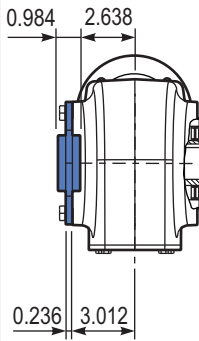
PX74NFL..

Output flange  
Flangia uscita



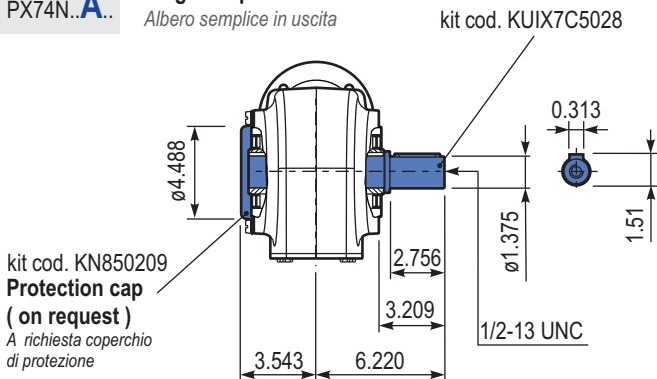
PX74NBR..

Reaction Arm  
Braccio di reazione



PX74NA..

Single output shaft  
Albero semplice in uscita



kit cod. KN850209  
Protection cap  
(on request)  
A richiesta coperchio  
di protezione

Suggested  
Suggerito

Stainless steel protection cap  
(on request).

Coperchio di protezione in  
acciaio inox a richiesta.

Kit cod. KN850209





## Uniblock design. Suitable for all applications.

*Design compatto.  
Adatto a tutte le applicazioni.*

**AISI 304**

IP66

CE

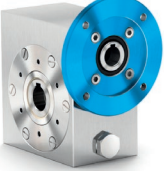
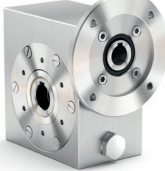
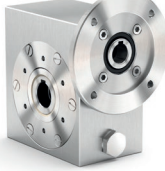
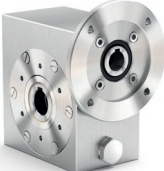
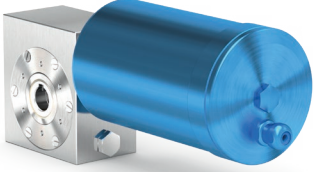
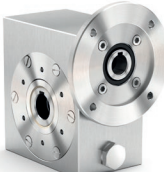
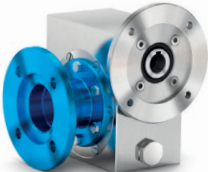

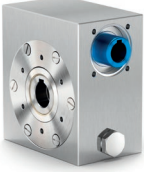

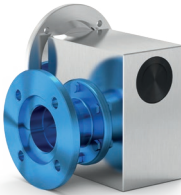

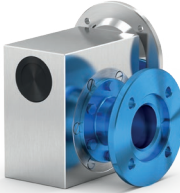



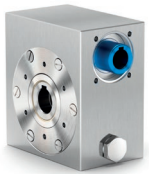
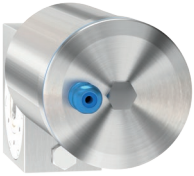
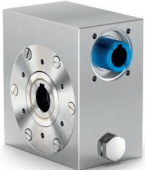

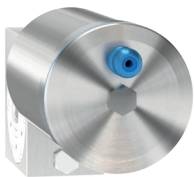
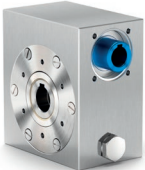


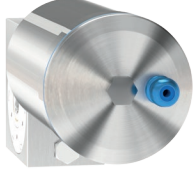

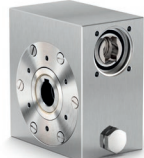
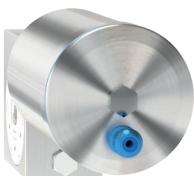

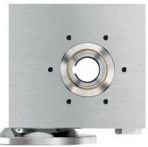
On req.  
A rich.

IP69k



# How to order Codifica

<b>P</b>	<b>I45</b>	<b>UNI</b>	<b>N</b>	<b>10</b>	<b>0</b>	<b>IB</b>		
Type <i>Tipo</i>	Size <i>Grandezza</i>	Mounting <i>Montaggio</i>	Position <i>Posizione</i>	Ratio <i>Rapporto</i>	Hub Output shaft <i>Mozzo corona Albero uscita</i>	Diameter <i>Diametro</i>		
<b>P</b> 	<b>Worm gearboxes</b> <i>Riduttori a vite senza fine</i>	<b>UNI</b> 	<b>N</b> 	See technical data table <i>Vedi tabelle dati tecnici</i>	<b>0</b> Hollow Mozzo 	<b>→ Standard</b>		
							I45	
<b>M</b> 			<b>FLL</b> 		Select L or R position for output flange <i>Selezionare la posizione L o R per la flangia in uscita</i>		<b>S</b> Solid output shaft <i>Albero in uscita</i> 	<b>IB→ø0.750</b>
								I50
<b>B</b> 	<b>I45</b> <b>I50</b> <b>I63</b> <b>I85</b> <b>I11</b>	<b>BRI</b> Stainless steel <i>Acciaio inox</i> 	<b>L</b> Left <i>Sinistra</i> 			<b>IE→ ø1.125"</b> <b>IF→ ø1.250"</b>		
							I85	
<b>R</b> 				<b>R</b> Right <i>Destra</i> 			<b>IH→ø1.500</b>	
							I11	
						<b>IK→ø2.000</b>		
						Output male shaft is available only for standard bore <i>Albero maschio in uscita è disponibile solo per fori standard</i>		

I	N	C	-W	B3	UW	For M type specify terminal box position
Input / output shaft material <i>Materiale albero in entrata e uscita</i>	Protection cap <i>Coperchio di protezione</i>		Motor size <i>Grandezza motore</i>	Mounting position <i>Posizione di montaggio</i>	Input bore <i>Foro entrata</i>	<i>Per tipo M specificare posizione morsettera</i>
<b>I</b> Stainless steel <i>Acciaio inox</i>  The quill input hollow bore is always in carbon steel <i>Il foro cavo in entrata è sempre in acciaio</i>	<b>Left</b> <i>Sinistra</i>	<b>Right</b> <i>Destra</i>	<b>Motor flanges</b> <i>Flange motore</i>  <b>NEMA</b> <b>-W</b> → 56C (ø6.5") <b>-X</b> → 143/5TC (ø6.5") <b>-Y</b> → 182/4TC (ø8.88") <b>AA</b> → 213/5TC (ø8.88")	<b>B3</b>  	<b>Standard bore</b> <i>Foro standard</i>  	<b>A</b>  
	<b>N</b> Without protection cap <i>Senza coperchietto di protezione</i>	<b>N</b> Without protection cap <i>Senza coperchietto di protezione</i>	<b>Without flange</b> <i>Senza flangia</i>  	<b>B8</b>  	<b>UW</b> → ø0.625" <b>UX</b> → ø0.875" <b>UY</b> → ø1.125" <b>UZ</b> → ø1.375"	<b>B</b>  
	<b>C</b> Closed cap <i>Tappo chiuso</i>	<b>C</b> Closed cap <i>Tappo chiuso</i>	<b>-N</b> → Nema  	<b>B6</b>  	<b>With coupling</b> <i>Con giunto</i>  	<b>C</b>  
	<b>O</b> Open cap <i>Tappo aperto</i>	<b>O</b> Open cap <i>Tappo aperto</i>		<b>B7</b>  	<b>Ready for input coupling</b> <i>Predisposto per giunto</i>  <b>-0</b> Type B <i>Tipo B</i>  	<b>D</b>  
				<b>V5</b>  		
				<b>V6</b>  		



# I45

# 345 lb in

# VFI series Full stainless steel square worm gearboxes

Riduttori a vite senza fine completamente in acciaio inox

Input speed ( $n_1$ ) = 1750 min<sup>-1</sup>

Output speed	Ratio	Motor power	Output torque	Service factor	Nominal power	Nominal torque	Available NEMA motor flanges	Dynamic efficiency	Tooth module	Ratios code	
$n_2$ [min <sup>-1</sup> ]	i	$P_{1M}$ [HP]	$M_{2M}$ [lb in]	f.s	$P_{1R}$ [HP]	$M_{2R}$ [lb in]	-W 56C	- -	RD	 [mm]	
250.0	7	1	202	1.3	1.29	257			80	2.2	01
175.0	10	0.75	213	1.2	0.91	257			79	2.2	02
125.0	14	0.5	194	1.3	0.67	257			77	2.4	03
83.3	21	0.5	253	1.4	0.69	345			67	1.6	04
62.5	28	0.5	328	1.1	0.53	345			65	2.5	05
47.3	37	0.33	277	1.2	0.42	345			63	1.8	06
38.0	46	0.33	323	1.1	0.36	345			59	1.5	07
29.2	60	0.25	303	1.1	0.29	345			56	1.2	08
25.0	70	0.25	340	0.8	0.19	257			54	1.0	09
17.2	102	0.25*	450	<0.8	0.14	248			49	0.72	10

\* Power higher than the maximum one which can be supported by the gearbox. Select according to the torque  $M_{2R}$

\* Potenza superiore a quella massima supportabile dal riduttore. Selezionare in base al momento torcente  $M_{2R}$

The nominal power should be reduced if the ambient temperature is  $\geq 30^\circ\text{C}$ , or when a cooler gearbox is required.

Diminuire la potenza nominale in caso di temperatura ambiente  $\geq 30^\circ\text{C}$  o se è richiesta una bassa temperatura di utilizzo del riduttore.

-  Motor flanges available  
Flange motore disponibili
-  B) Supplied with reduction bushing  
Fornito con bussola di riduzione
-  B) Available on request without reduction bushing  
Disponibile a richiesta senza bussola di riduzione
-  C) Motor flange holes position  
Posizione fori flangia motore

## Lubrication

Lubrificazione

Unit I45 is supplied with synthetic oil to assure long life lubrication.

Food grade oil is available on request.

See Table 1 for lubrication and recommended quantity.

See Table 2 for possible radial and axial loads on the gearbox.

Il riduttore tipo I45 viene fornito con olio sintetico e lubrificazione tipo "long life".

Disponibile a richiesta olio alimentare.

Vedi Tabella 1 per oli e quantità consigliati.

Vedi Tabella 2 per i carichi radiali e assiali applicabili al riduttore.

## Shell

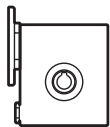
Omala S4 WE 320

## Eni

Telium VSF 320

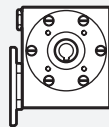
### B3

Standard  
5.28 oz



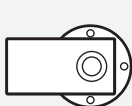
### B8

On request  
5.28 oz



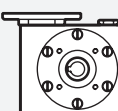
### B6

On request  
5.28 oz



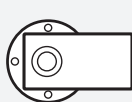
### V5

On request  
5.28 oz



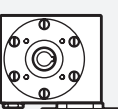
### B7

On request  
7.04 oz



### V6

On request  
5.28 oz



For more details on lubrication and plugs check our website.

Per maggiori dettagli su lubrificazione e tappi olio vedi il nostro sito web.

Tab. 1

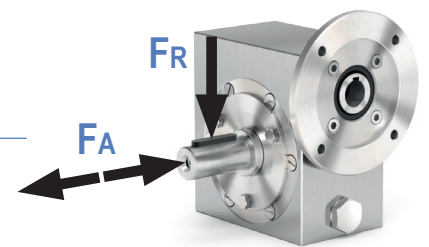
## Radial and axial loads

Carichi radiali e assiali

## Output shaft

Albero di uscita

$n_2$ [min <sup>-1</sup> ]	$F_A$ [lb]	$F_R$ [lb]
200	40	202
150	45	225
100	49	247
75	54	270
50	58	315
25	67	405
15	90	450



Tab. 2

## Suggested

Suggerito

Stainless steel protection cap  
(on request).

Coperchio di protezione in  
acciaio inox a richiesta.

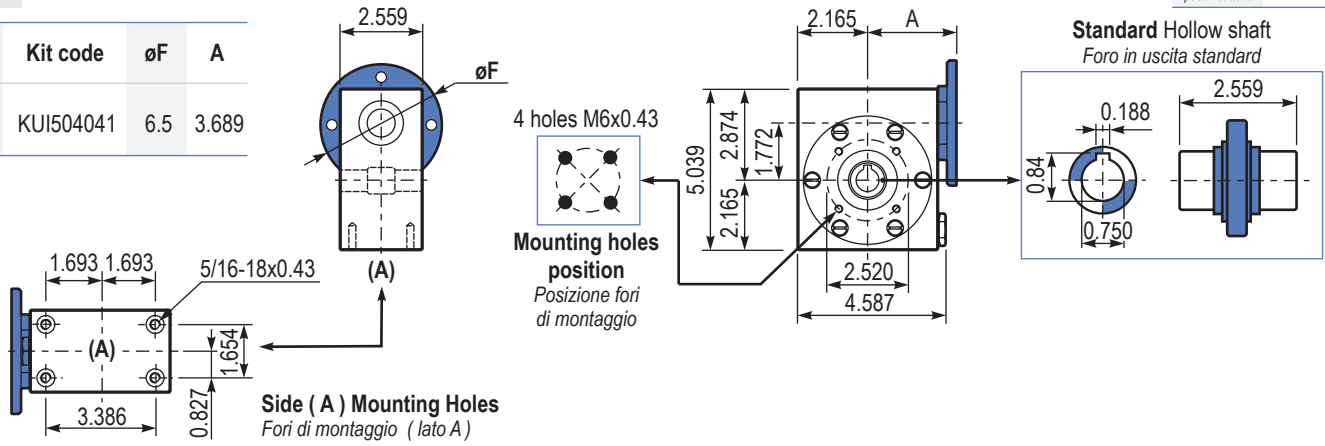
Kit cod. KI450211



PI45UNI... **Basic gearbox**  
*Riduttore base*

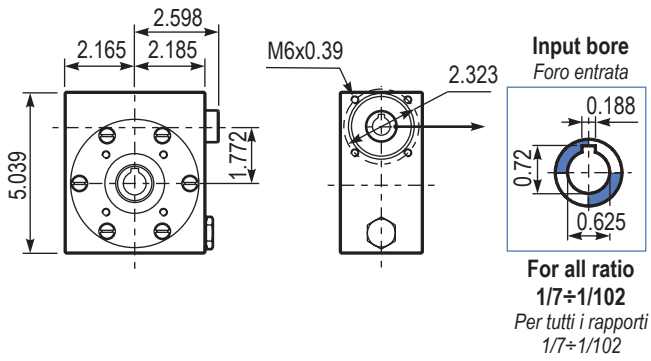
Gearbox weight  
peso riduttore **11.0 lb**

M. flanges	Kit code	øF	A
56C	KUI504041	6.5	3.689

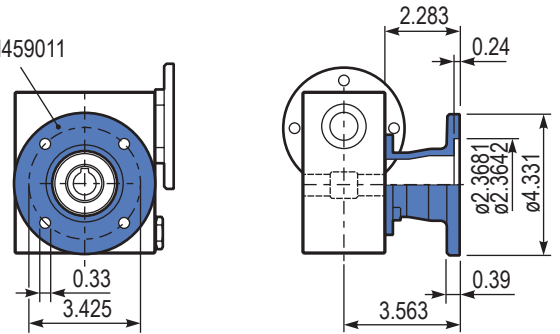


B<sub>I</sub>45UNI... **Modular base**  
*Base modulare*

PI45FLL... **Output flange**  
*Flangia uscita*

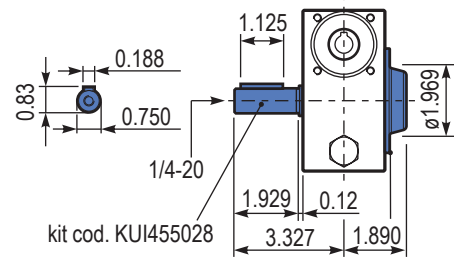
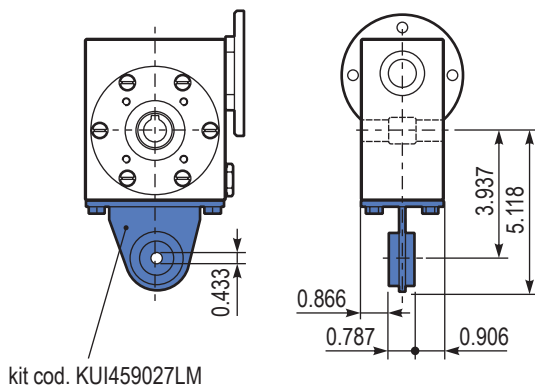


kit cod. KI459011




PI45BRI... **Reaction arm**  
*Braccio di reazione*

PI45.....SIB **Single Shaft**  
*Albero lento semplice*



kit cod. KI450211  
**Protection cup**  
**( on request )**  
*A richiesta coperchio di protezione*

Input speed ( $n_1$ ) = 1750 min<sup>-1</sup>

Output speed	Ratio	Motor power	Output torque	Service factor	Nominal power	Nominal torque	Available NEMA motor flanges	Dynamic efficiency	Tooth module	Ratios code
$n_2$ [min <sup>-1</sup> ]	i	$P_{1M}$ [HP]	$M_{2M}$ [lb in]	f.s	$P_{1R}$ [HP]	$M_{2R}$ [lb in]	-W 56C	RD	[mm]	
250.0	7	2	413	1.2	2.34	478		82	2.5	01
175.0	10	1.5	432	1.2	1.84	522		80	2.4	02
125.0	14	1	398	1.4	1.46	575		79	2.6	03
97.2	18	1	486	1.1	1.09	522		75	2.0	04
67.3	26	0.75	485	1.2	0.87	558		69	2.7	05
58.3	30	0.75	567	1.1	0.82	611		70	2.5	12
48.6	36	0.5	447	1.4	0.69	611		69	2.1	06
40.7	43	0.5	511	1.1	0.57	575		66	1.8	07
35.0	50	0.5	558	1.0	0.51	558		62	1.5	13
29.2	60	0.33	414	1.3	0.42	522		58	1.3	08
25.7	68	0.33	461	1.1	0.35	487		57	1.2	09
21.9	80	0.25	389	1.2	0.31	478		54	1.0	10
17.5	100	0.25	450	1.0	0.24	434		50	0.8	11

The nominal power should be reduced if the ambient temperature is  $\geq 30^\circ\text{C}$ , or when a cooler gearbox is required.

Diminuire la potenza nominale in caso di temperatura ambiente  $\geq 30^\circ\text{C}$  o se è richiesta una bassa temperatura di utilizzo del riduttore.

-  Motor flanges available  
Flange motore disponibili
-  B) Supplied with reduction bushing  
Fornito con bussola di riduzione
-  B) Available on request without reduction bushing  
Disponibile a richiesta senza bussola di riduzione
-  C) Motor flange holes position  
Posizione fori flangia motore

## Lubrication

### Lubrificazione

Unit I45 is supplied with synthetic oil to assure long life lubrication.

Food grade oil is available on request.

See Table 1 for lubrication and recommended quantity.

See Table 2 for possible radial and axial loads on the gearbox.

Il riduttore tipo I45 viene fornito con olio sintetico e lubrificazione tipo "long life".

Disponibile a richiesta olio alimentare.

Vedi Tabella 1 per oli e quantità consigliati.

Vedi Tabella 2 per i carichi radiali e assiali applicabili al riduttore.

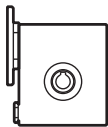
### Shell

Omala S4 WE 320

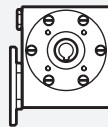
### Eni

Telium VSF 320

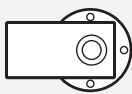
**B3**  
Standard  
7.74 oz



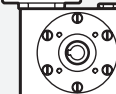
**B8**  
On request  
7.74 oz



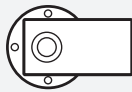
**B6**  
On request  
7.74 oz



**V5**  
On request  
7.74 oz



**B7**  
On request  
9.85 oz



**V6**  
On request  
7.74 oz



For more details on lubrication and plugs check our website.

Per maggiori dettagli su lubrificazione e tappi olio vedi il nostro sito web.

Tab. 1

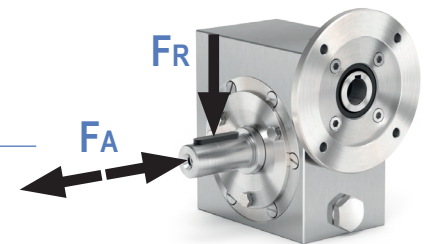
## Radial and axial loads

### Carichi radiali e assiali

### Output shaft

Albero di uscita

$n_2$ [min <sup>-1</sup> ]	FA [lb]	FR [lb]
200	54	270
150	63	315
100	67	337
75	76	382
50	85	427
25	108	562
15	126	629



Tab. 2

## Suggested

### Suggerito

Stainless steel protection cap  
(on request).

Coperchio di protezione in  
acciaio inox a richiesta.

Kit cod. KI500211

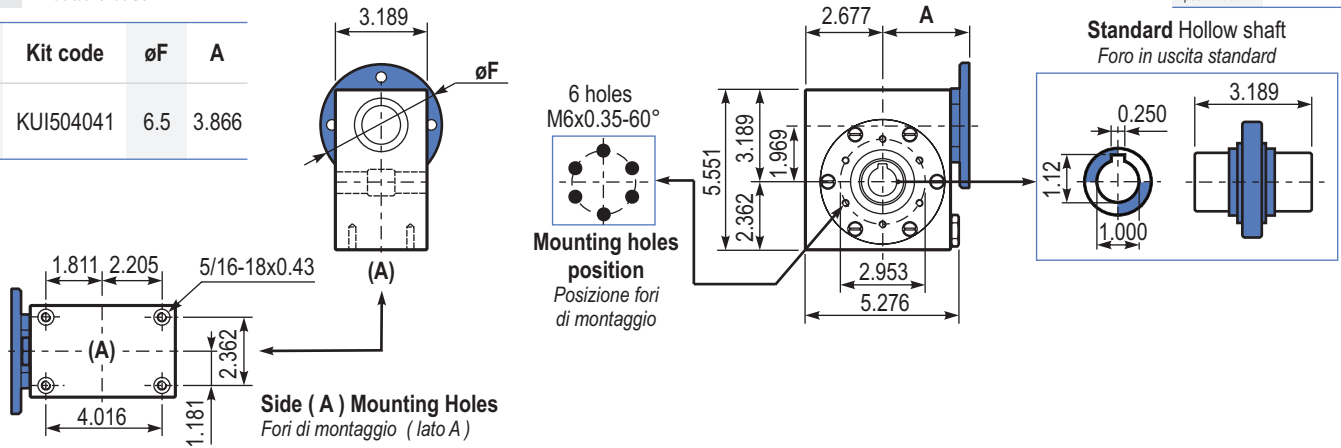




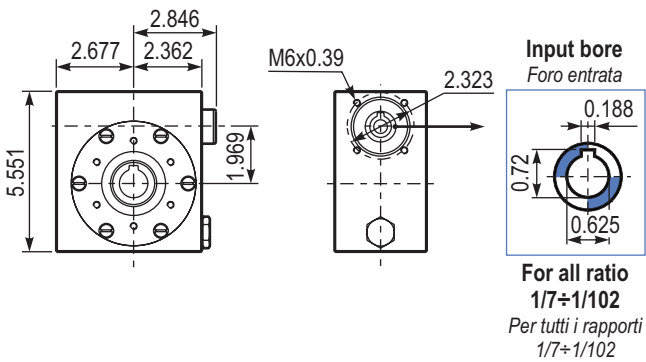
PI50 **UNI...** Basic gearbox  
Riduttore base

Gearbox weight  
peso riduttore **16.1 lb**

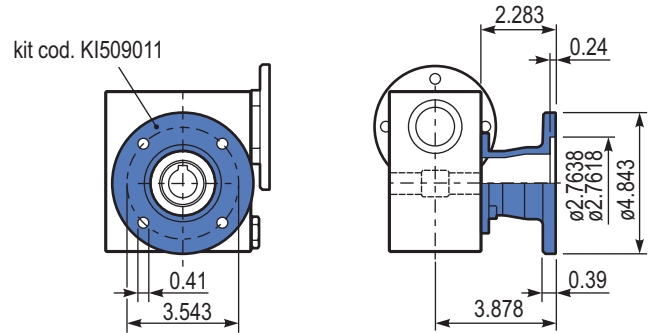
M. flanges	Kit code	øF	A
56C	KUI504041	6.5	3.866



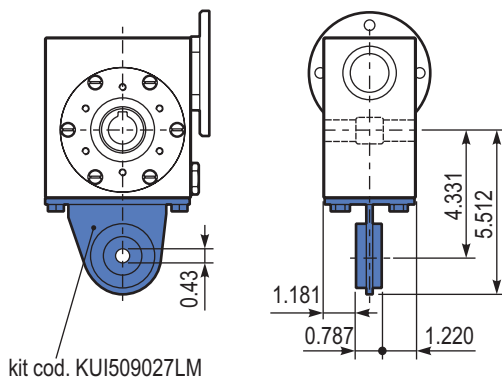
B150UNI... **Modular base**  
Base modulare



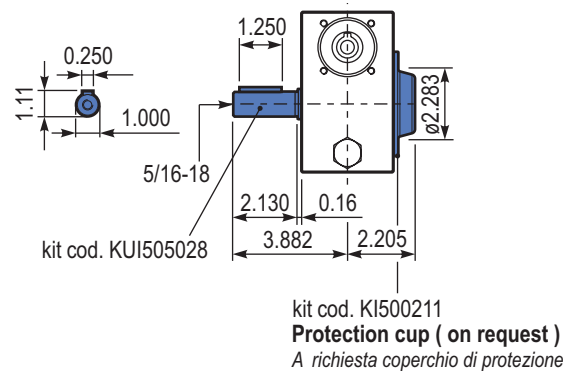
PI50 **FLL...** **Output flange**  
Flangia uscita



PI50 **BRI...** **Reaction arm**  
Braccio di reazione



PI50.....**SID** **Single Shaft**  
Albero lento semplice



Input speed ( $n_1$ ) = 1750 min<sup>-1</sup>

Output speed $n_2$ [min <sup>-1</sup> ]	Ratio $i$	Motor power $P_{1M}$ [HP]	Output torque $M_{2M}$ [lb in]	Service factor $f.s$	Nominal power $P_{1R}$ [HP]	Nominal torque $M_{2R}$ [lb in]	Available NEMA motor flanges		Dynamic efficiency $RD$	Tooth module [mm]	Ratios code
							-W 56C	-X 143-5TC			
250.0	7	2	419	2.5	5.10	1053	B		83	3.1	01
175.0	10	2	583	1.9	3.93	1133	B		81	3.1	02
116.7	15	2	854	1.4	2.75	1159	B		79	3.1	03
92.1	19	2	1068	1.1	2.20	1159	B		78	2.6	04
72.9	24	1.5	972	1.2	1.87	1195	B		75	2.0	05
58.3	30	1.5	1199	1.0	1.56	1230	B		74	3.2	06
48.6	36	1	882	1.4	1.42	1239	B		68	2.7	07
43.8	40	1	951	1.2	1.25	1177	B		66	2.5	13
38.9	45	1	1070	1.1	1.08	1142	B		66	2.1	08
29.2	60	0.75	1005	1.1	0.83	1097	B		62	1.6	12
26.1	67	0.5	724	1.4	0.73	1044	B		60	1.5	09
21.9	80	0.5	821	1.2	0.62	1000	B		57	1.3	10
18.6	94	0.5	880	1.1	0.58	1000	B		52	1.1	11

The nominal power should be reduced if the ambient temperature is  $\geq 30^\circ\text{C}$ , or when a cooler gearbox is required.

Diminuire la potenza nominale in caso di temperatura ambiente  $\geq 30^\circ\text{C}$  o se è richiesta una bassa temperatura di utilizzo del riduttore.

-  Motor flanges available  
Flange motore disponibili
-  B) Supplied with reduction bushing  
Fornito con bussola di riduzione
-  B) Available on request without reduction bushing  
Disponibile a richiesta senza bussola di riduzione
-  C) Motor flange holes position  
Posizione fori flangia motore

## Lubrication

Lubrificazione

Unit I45 is supplied with synthetic oil to assure long life lubrication.

Food grade oil is available on request.

See Table 1 for lubrication and recommended quantity.

See Table 2 for possible radial and axial loads on the gearbox.

Il riduttore tipo I45 viene fornito con olio sintetico e lubrificazione tipo "long life".

Disponibile a richiesta olio alimentare.

Vedi Tabella 1 per oli e quantità consigliati.

Vedi Tabella 2 per i carichi radiali e assiali applicabili al riduttore.

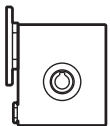
### Shell

Omala S4 WE 320

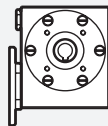
### Eni

Telium VSF 320

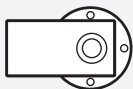
**B3**  
Standard  
21.1 oz



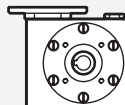
**B8**  
On request  
21.1 oz



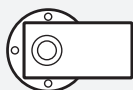
**B6**  
On request  
21.1 oz



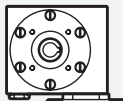
**V5**  
On request  
21.1 oz



**B7**  
On request  
28.9 oz



**V6**  
On request  
21.1 oz



For more details on lubrication and plugs check our website.

Per maggiori dettagli su lubrificazione e tappi olio vedi il nostro sito web.

Tab. 1

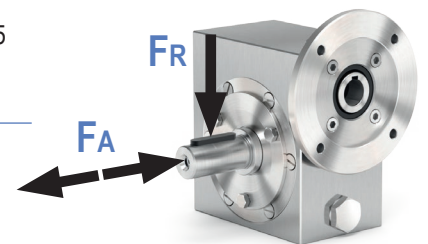
## Radial and axial loads

Carichi radiali e assiali

### Output shaft

Albero di uscita

$n_2$ [min <sup>-1</sup> ]	$F_A$ [lb]	$F_R$ [lb]
200	81	404.5
150	90	450
100	103.5	517
75	112.5	562
50	135	674.5
25	157	854
15	180	899



Tab. 2

## Suggested

Suggerito

Stainless steel protection cap  
(on request).

Coperchio di protezione in  
acciaio inox a richiesta.

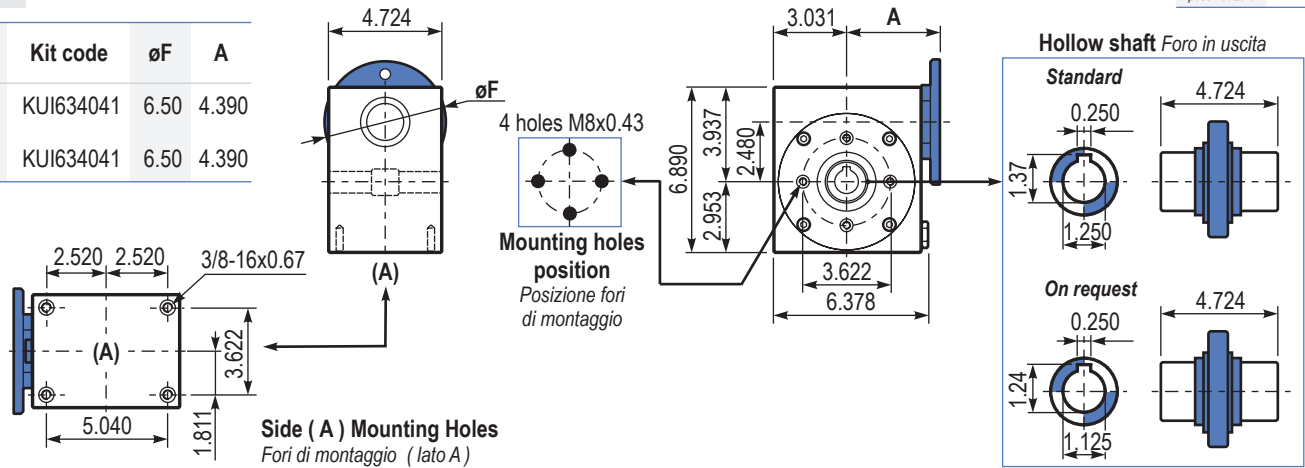
Kit cod. KI630211



PI63UNI... **Basic gearbox**  
Riduttore base

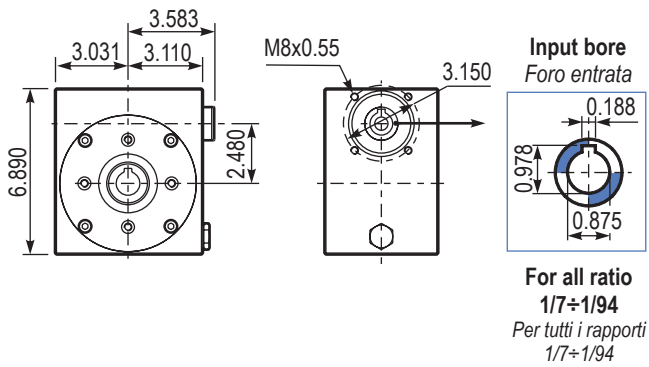
Gearbox weight  
peso riduttore **32.2 lb**

M. flanges	Kit code	øF	A
56C	KUI634041	6.50	4.390
143/5 TC	KUI634041	6.50	4.390

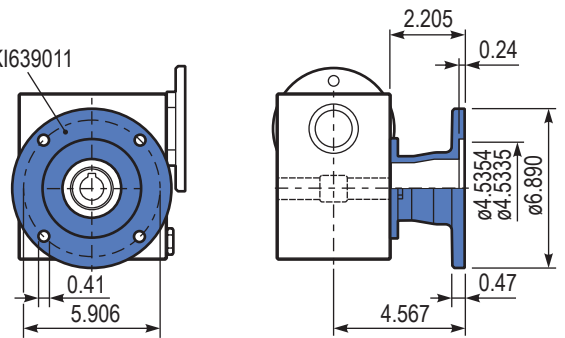


B163UNI... **Modular base**  
Base modulare

PI63FLL... **Output flange**  
Flangia uscita

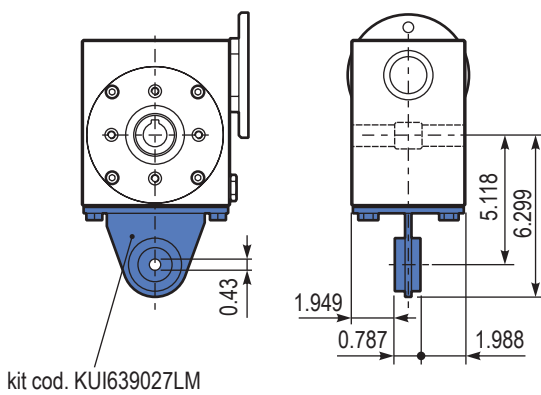


kit cod. KI639011

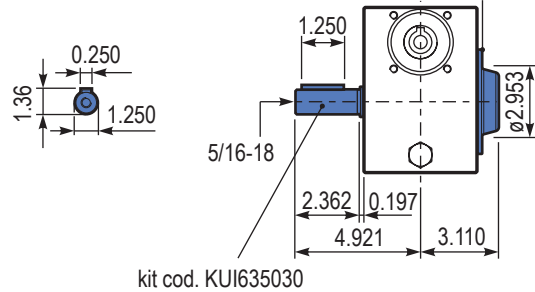


PI63BRI... **Reaction arm**  
Braccio di reazione

PI63.....SIF **Single Shaft**  
Albero lento semplice



kit cod. KI630211  
**Protection cup (on request)**  
A richiesta coperchio di protezione



Input speed ( $n_1$ ) = 1750 min<sup>-1</sup>

Output speed $n_2$ [min <sup>-1</sup> ]	Ratio $i$	Motor power $P_{1M}$ [HP]	Output torque $M_{2M}$ [lb in]	Service factor $f.s$	Nominal power $P_{1R}$ [HP]	Nominal torque $M_{2R}$ [lb in]	Available NEMA motor flanges			Dynamic efficiency RD	Tooth module [mm]	Ratios code
							-W 56C	-X 143-5TC	-Y 182-4TC			
250.0	7	5	1109	2.0	9.90	2168	B	B		88	4.23	01
175.0	10	5	1441	1.7	8.40	2390	B	B		80	4.2	02
125.0	14	5	1967	1.3	6.61	2567	B	B		78	4.5	03
87.5	20	3	1707	1.5	4.41	2478	B	B		79	3.4	04
79.5	22	3	1854	1.3	4.06	2478	B	B		78	3.1	05
62.5	28	3	2269	1.3	3.91	2921	B	B		75	4.7	06
46.1	38	3	2915	1.0	2.95	2832	B	B		71	3.5	07
38.0	46	2	2253	1.2	2.47	2744	B	B		68	3.1	08
33.7	52	2	2472	1.0	1.99	2434	B	B		66	2.7	09
26.1	67	1.5	2353	1.0	1.57	2434	B	B		65	2.1	10
23.6	74	1.5	2319	1.0	1.48	2257	B	B		58	1.9	11
18.2	96	1	1833	1.1	1.13	2036	B	B		53	1.5	12

The nominal power should be reduced if the ambient temperature is  $\geq 30^\circ\text{C}$ , or when a cooler gearbox is required.

Diminuire la potenza nominale in caso di temperatura ambiente  $\geq 30^\circ\text{C}$  o se è richiesta una bassa temperatura di utilizzo del riduttore.

-  **Motor flanges available**  
Flange motore disponibili
-  **B) Supplied with reduction bushing**  
Fornito con bussola di riduzione
- B) Available on request without reduction bushing**  
Disponibile a richiesta senza bussola di riduzione
-  **C) Motor flange holes position**  
Posizione fori flangia motore

## Lubrication

Lubrificazione

Unit I85 is supplied with synthetic oil to assure long life lubrication.

Food grade oil is available on request.

See Table 1 for lubrication and recommended quantity.

See Table 2 for possible radial and axial loads on the gearbox.

Il riduttore tipo I85 viene fornito con olio sintetico e lubrificazione tipo "long life".

Disponibile a richiesta olio alimentare.

Vedi Tabella 1 per oli e quantità consigliati.

Vedi Tabella 2 per i carichi radiali e assiali applicabili al riduttore.

### Shell

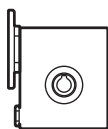
Omala S4 WE 320

### Eni

Telium VSF 320

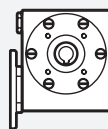
#### B3

Standard  
49.3 oz



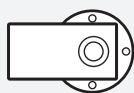
#### B8

On request  
49.3 oz



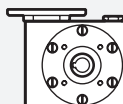
#### B6

On request  
49.3 oz



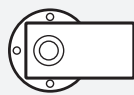
#### V5

On request  
49.3 oz



#### B7

On request  
59.8 oz



#### V6

On request  
49.3 oz



For more details on lubrication and plugs check our website.

Per maggiori dettagli su lubrificazione e tappi olio vedi il nostro sito web.

Tab. 1

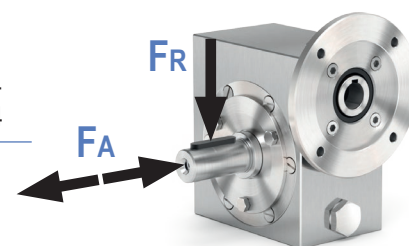
## Radial and axial loads

Carichi radiali e assiali

### Output shaft

Albero di uscita

$n_2$ [min <sup>-1</sup> ]	FA [lb]	FR [lb]
200	112	562
150	130	652
100	135	674
75	157	787
50	180	899
25	225	1124
15	261	1304



Tab. 2

## Suggested

Suggerito

Stainless steel protection cap  
(on request).

Coperchio di protezione in  
acciaio inox a richiesta.

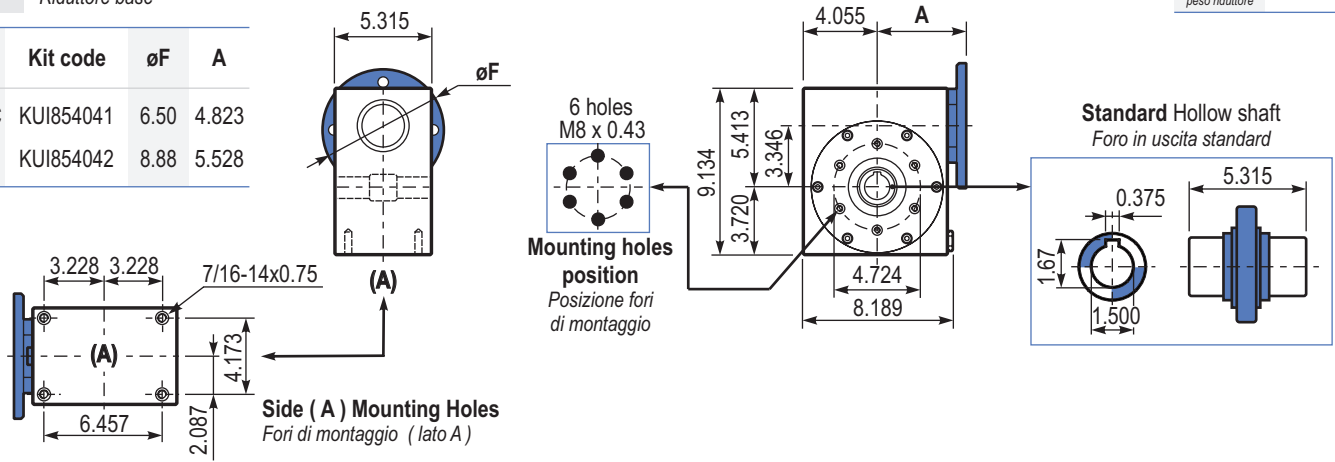
Kit cod. KI850211



PI85UNI... **Basic gearbox**  
Riduttore base

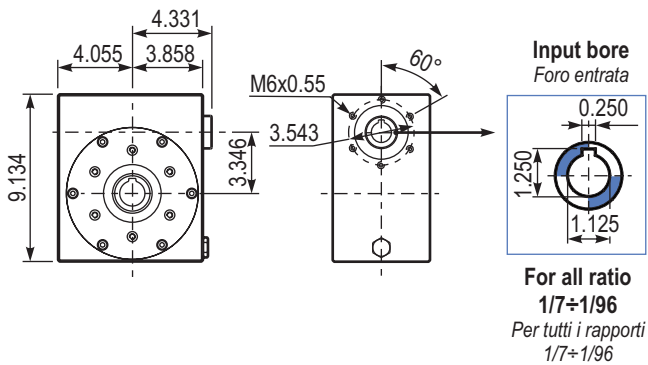
Gearbox weight  
peso riduttore **51.4 lb**

M. flanges	Kit code	øF	A
56C-143/5TC	KUI854041	6.50	4.823
182/4TC	KUI854042	8.88	5.528

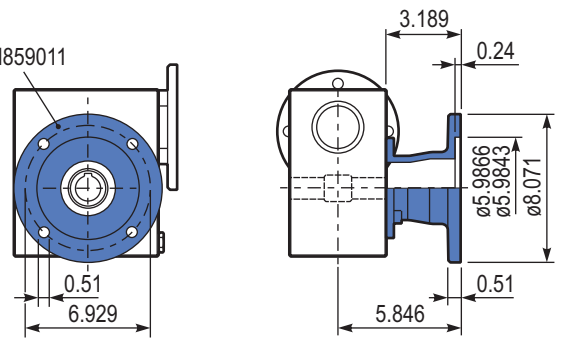


BI85UNI... **Modular base**  
Base modulare

PI85FLL... **Output flange**  
Flangia uscita

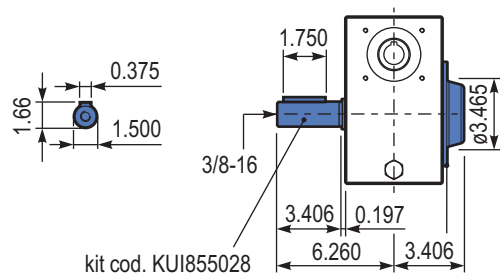
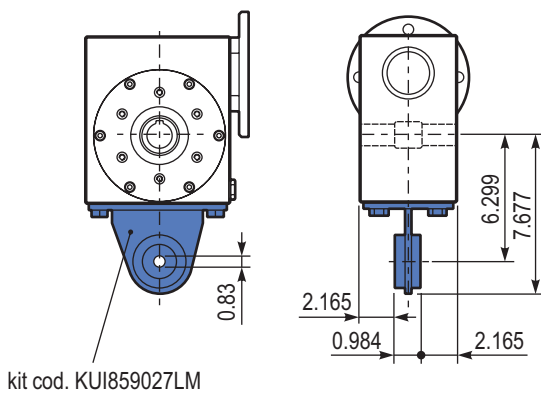


kit cod. KI859011



PI85BRI... **Reaction arm**  
Braccio di reazione

PI85....SIH **Single Shaft**  
Albero lento semplice



kit cod. KI850211  
**Protection cup (on request)**  
A richiesta coperchio di protezione

Input speed ( $n_1$ ) = 1750 min<sup>-1</sup>

Output speed $n_2$ [min <sup>-1</sup> ]	Ratio $i$	Motor power $P_{1M}$ [HP]	Output torque $M_{2M}$ [lb in]	Service factor f.s	Nominal power $P_{1R}$ [HP]	Nominal torque $M_{2R}$ [lb in]	Available NEMA motor flanges			Dynamic efficiency RD	Tooth module [mm]	Ratios code
							-X 143-5TC	-Y 182-4TC	AA 213-5TC			
250	7	10	2219	1.8	18.59	4071	B			88	5.5	01
175	10	10	3097	1.4	14.48	4425	B			86	5.4	02
109.4	16	10	4725	1.0	9.68	4514	B			82	5.3	03
87.5	20	7.5	4430	1.0	7.89	4602	B			82	4.5	04
76.1	23	5	3314	1.3	6.63	4337	B			80	3.9	05
58.3	30	5	4106	1.3	6.77	5487	B			76	5.6	06
46.1	38	5	5132	1.1	5.33	5399	B			75	4.7	07
38.9	45	3	3549	1.4	4.32	5045	B			73	4.0	08
33.0	53	3	4009	1.3	3.96	5222	B			70	3.5	09
27.3	64	2	3181	1.4	2.88	4514	B			69	2.9	10
20.8	84	2	3933	1.1	2.14	4160	B			65	2.2	11
17.7	99	2	4279	1.0	1.93	4071	B			60	1.9	12

The nominal power should be reduced if the ambient temperature is  $\geq 30^\circ\text{C}$ , or when a cooler gearbox is required.

Diminuire la potenza nominale in caso di temperatura ambiente  $\geq 30^\circ\text{C}$  o se è richiesta una bassa temperatura di utilizzo del riduttore.

-  Motor flanges available  
Flange motore disponibili
-  B) Supplied with reduction bushing  
Fornito con bussola di riduzione
-  B) Available on request without reduction bushing  
Disponibile a richiesta senza bussola di riduzione
-  C) Motor flange holes position  
Posizione fori flangia motore

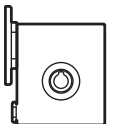
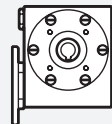
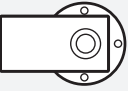
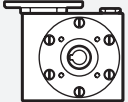
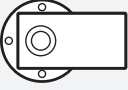
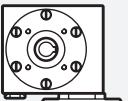
## Lubrication

### Lubrificazione

Unit I11 is supplied with synthetic oil to assure long life lubrication.  
Food grade oil is available on request.  
See Table 1 for lubrication and recommended quantity.  
See Table 2 for possible radial and axial loads on the gearbox.

Il riduttore tipo I11 viene fornito con olio sintetico e lubrificazione tipo "long life".  
Disponibile a richiesta olio alimentare.  
Vedi Tabella 1 per oli e quantità consigliati.  
Vedi Tabella 2 per i carichi radiali e assiali applicabili al riduttore.

**Shell** Omala S4 WE 320  
**Eni** Telium VSF 320

<b>B3</b> Standard 123.2 oz		<b>B8</b> On request 73.9 oz	
<b>B6</b> On request 88 oz		<b>V5</b> On request 56.3 oz	
<b>B7</b> On request 88 oz		<b>V6</b> On request 56.3 oz	

For more details on lubrication and plugs check our website.  
Per maggiori dettagli su lubrificazione e tappi olio vedi il nostro sito web.

Tab. 1

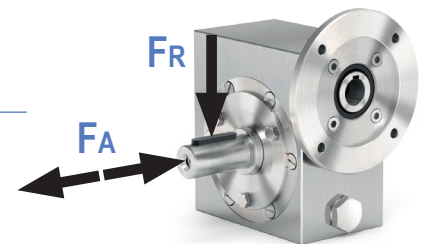
## Radial and axial loads

### Carichi radiali e assiali

### Output shaft

Albero di uscita

$n_2$ [min <sup>-1</sup> ]	FA [lb]	FR [lb]
200	135	652
150	157	742
100	169	809
75	180	899
50	207	1034
25	270	1349
15	315	1574

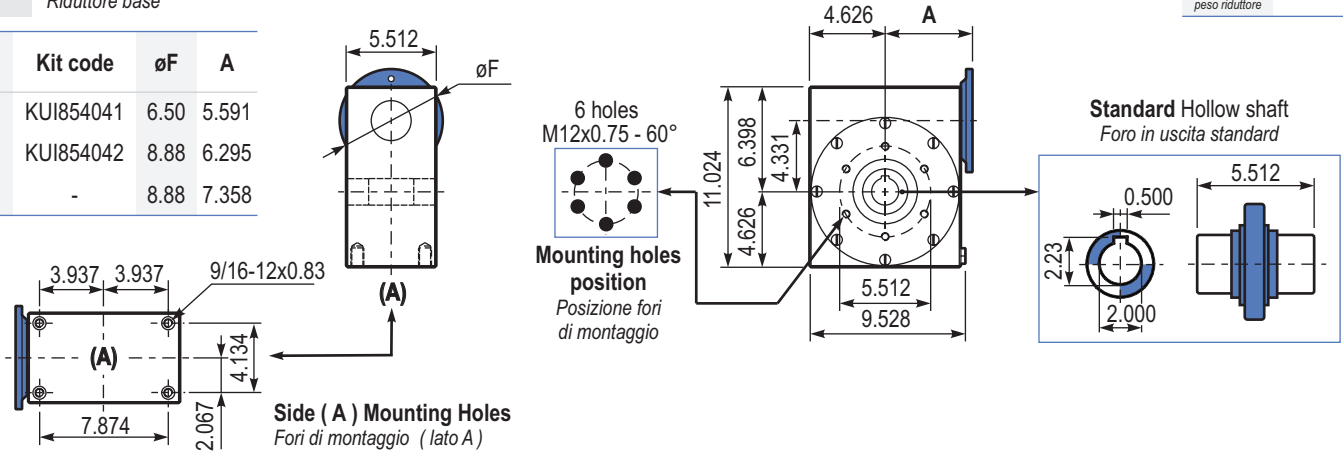


Tab. 2

PI11 **UNI...** **Basic gearbox**  
*Riduttore base*

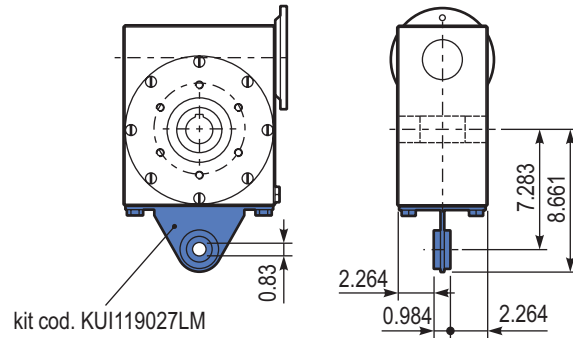
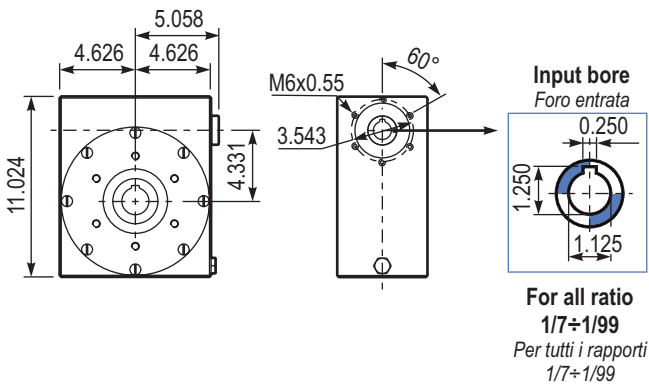
Gearbox weight  
peso riduttore **88.0 lb**

M. flanges	Kit code	øF	A
143/5 TC	KUI854041	6.50	5.591
182/4 TC	KUI854042	8.88	6.295
213/5 TC	-	8.88	7.358

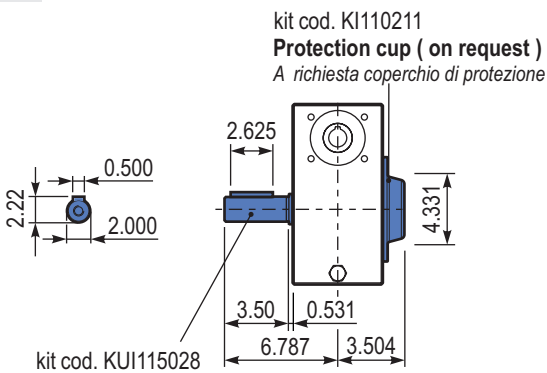


B111 **UNI...** **Modular base**  
*Base modulare*

PI11 **BRI...** **Reaction arm**  
*Braccio di reazione*



PI11... **SIK** **Single Shaft**  
*Albero lento semplice*







I RCI series  
**Full stainless steel ratio multipliers**

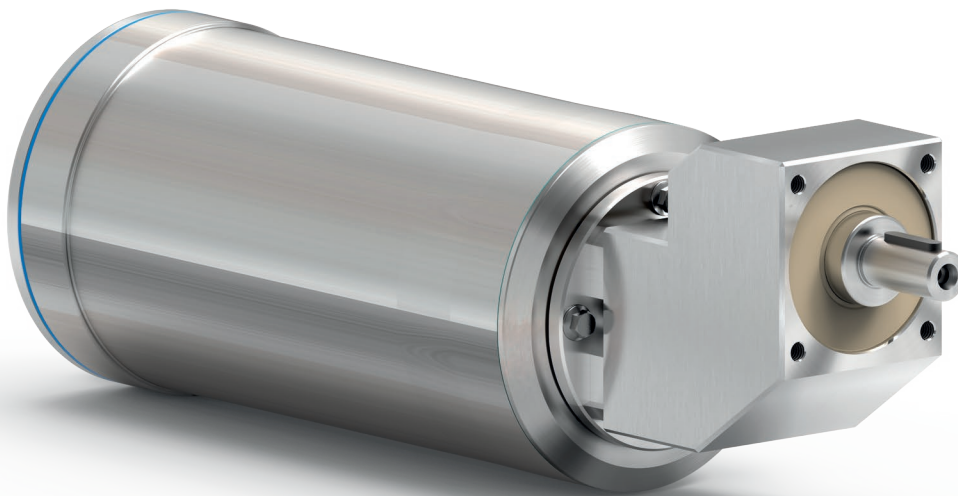
*Riduttori ad uno stadio completamente in acciaio inox*

Section **7**  
Sezione 7

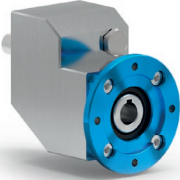
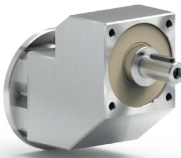
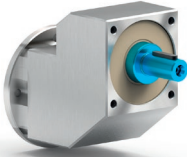
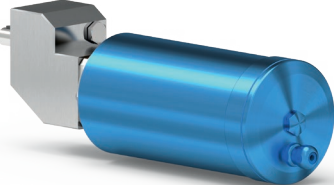
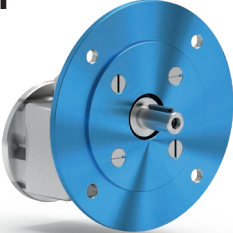
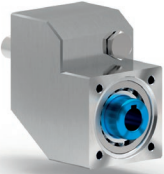
**AISI 304**


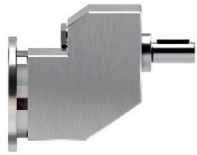

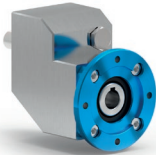
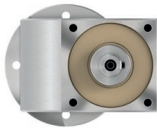
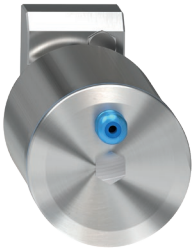
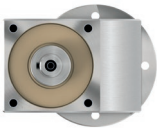

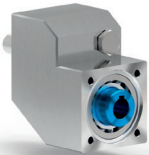
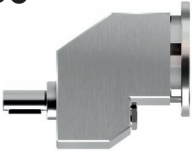
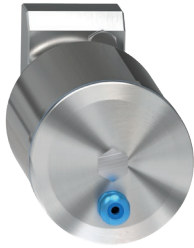



IP66

CE






# How to order *Codifica*

<b>P</b>	<b>411I</b>	<b>-F</b>	<b>1.57</b>	<b>X</b>
Type <i>Tipo</i>	Size <i>Grandezza</i>	Mounting <i>Montaggio</i>	Ratio <i>Rapporto</i>	Output shaft <i>Albero lento</i>
<b>P</b> 	<b>411I</b>	<b>-N</b> 	See technical data table <i>Vedi tabelle dati tecnici</i>	
<b>M</b> 		<b>-F</b> 		→ Standard <b>X</b> → $\varnothing 0.625$
<b>B</b> 				

<b>U</b>	<b>-X</b>	<b>B3</b>	<b>ST</b>	For M type specify terminal box position
Output flange <i>Flangia uscita</i>	Motor size <i>Grandezza motore</i>	Mounting position <i>Posizione di montaggio</i>	Input bore <i>Foro entrata</i>	<i>Per tipo M specificare posizione morsettiera</i>
 <p><b>N</b> Without flange <i>Senza flangia</i></p> <p><b>U</b> → <math>\varnothing 6.50</math></p>	<b>Motor flanges</b> <i>Flange motore</i>	<b>B3</b> 	<b>ST</b> Standard bore <i>Foro standard</i>	<b>A</b> 
	 <p><b>-W</b> → 56C</p> <p><b>-X</b> → 143-5TC</p>	<b>B6</b> 		<b>B</b> 
	<b>Without flange</b> <i>Senza flangia</i>	<b>B7</b> 		<b>C</b> 
	 <p><b>-K</b> → <math>\varnothing 0.625</math></p> <p><b>-N</b> → <math>\varnothing 0.875</math></p>	<b>B8</b> 		<b>D</b> 
		<b>V5</b> 		
		<b>V6</b> 		
		<b>V8</b> 		

The dynamic efficiency is **0.98** for all ratios

Input speed ( $n_1$ ) = 1750 min<sup>-1</sup>

Output speed $n_2$ [min <sup>-1</sup> ]	Ratio $i$	Motor power $P_{1M}$ [HP]	Output torque $M_{2M}$ [lb in]	Service factor f.s	Nominal power $P_{1R}$ [HP]	Nominal torque $M_{2R}$ [lb in]	Available NEMA motor flanges			Output shaft  ∅	Ratios code 
							-W 56C	-X 143-5TC			
1114	<b>1.57</b>	2	111	1.6	<b>3.19</b>	<b>177</b>			standard ∅0.625	01	
616	<b>2.84</b>	2	201	1.5	<b>3.09</b>	<b>310</b>		02			
531	<b>3.29</b>	2	233	1.4	<b>2.89</b>	<b>336</b>		03			
453	<b>3.87</b>	2	273	1.3	<b>2.59</b>	<b>354</b>		04			
379	<b>4.62</b>	2	326	1.3	<b>2.55</b>	<b>416</b>		05			
278	<b>6.30</b>	1.5	334	1.2	<b>1.83</b>	<b>407</b>		06			
213	<b>8.22</b>	0.75	218	1.5	<b>1.16</b>	<b>336</b>		07			
161	<b>10.86</b>	0.5	192	1.3	<b>0.65</b>	<b>248</b>		08			

The nominal power should be reduced if the ambient temperature is  $\geq 30^\circ\text{C}$ , or when a cooler gearbox is required.

Diminuire la potenza nominale in caso di temperatura ambiente  $\geq 30^\circ\text{C}$  o se è richiesta una bassa temperatura di utilizzo del riduttore.

-  **Motor flanges available**  
Flange motore disponibili
-  **B) Supplied with reduction bushing**  
Fornito con bussola di riduzione
- B) Available on request without reduction bushing**  
Disponibile a richiesta senza bussola di riduzione
-  **C) Motor flange holes position**  
Posizione fori flangia motore

## Lubrication

Lubrificazione

Unit 4111 is supplied with synthetic oil to assure long life lubrication.

Food grade oil is available on request.

See Table 1 for lubrication and recommended quantity.

See Table 2 for possible radial and axial loads on the gearbox.

Il riduttore tipo 4111 viene fornito con olio sintetico e lubrificazione tipo "long life".

Disponibile a richiesta olio alimentare.

Vedi Tabella 1 per oli e quantità consigliati.

Vedi Tabella 2 per i carichi radiali e assiali applicabili al riduttore.

Oil quantity for all positions: <b>4.93 oz.</b> Quantità olio per tutte le posizioni: 4.93 oz.	Shell Omala S4 WE 320	Eni Telium VSF 320
--	--------------------------	-----------------------

## Radial and axial loads

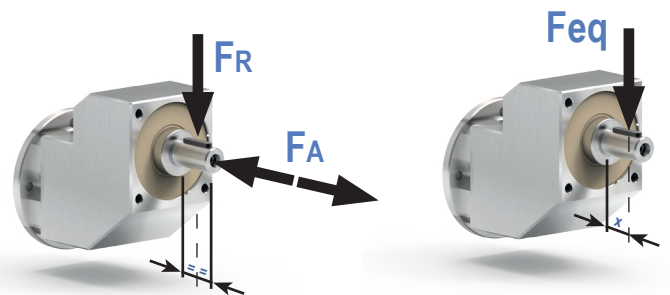
Carichi radiali e assiali

### Output shaft

Albero di uscita

$n_2$ [min <sup>-1</sup> ]	$F_A$ [lb]	$F_R$ [lb]
<b>700</b>	40.9	204.4
<b>600</b>	44.9	224.7
<b>400</b>	51.7	258.4
<b>300</b>	56.2	280.8
<b>200</b>	65.1	325.8
<b>140</b>	71.9	359.5

$$F_{eq} = F_R \cdot \frac{2.15}{X + 1.12}$$



Tab. 1

Tab. 2

P4111-N... **Basic gearbox**  
*Riduttore base*

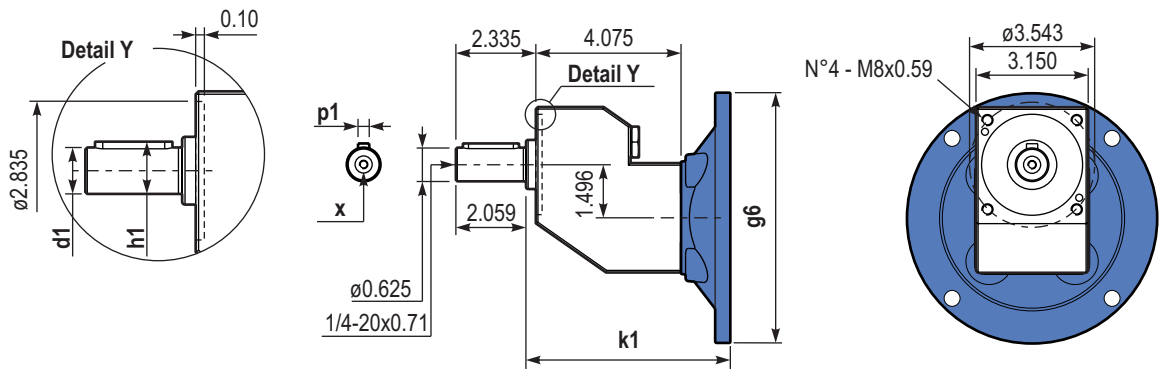
Gearbox weight  
*peso riduttore* **12.5 lb**

**Output shafts** / *albero di uscita*

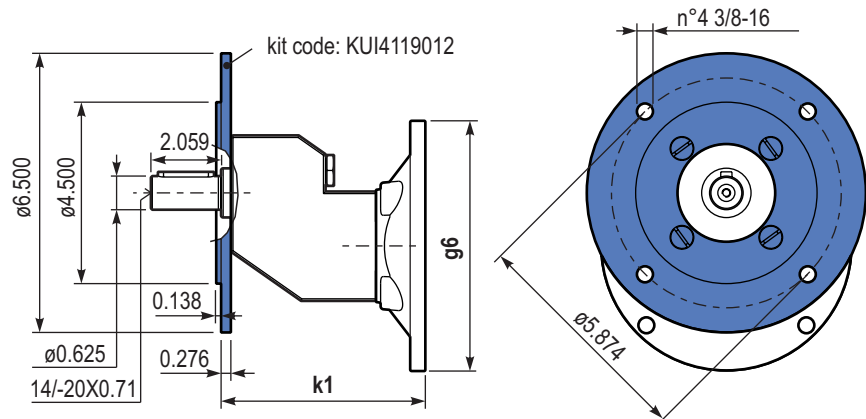
	Shaft - d1	p1	h1	x
<b>Standard</b>	ø0.625	0.188	0.71	1/4-20x0.71

**Input flanges** / *flange di entrata*

	Kit code	k1	g6
<b>56C-143/5TC</b>	KUI634041	5.63	6.50



P4111-F... **Output flange**  
*Flangia di uscita*



**SINCE CLEAN-GEARTECH IS A DIVISION OF HYDRO-MEC SPA.  
HYDROMECS SPA IS THE LEGAL RESPONSABLE FOR WARRANTY ISSUES.**

### PLEASE READ CAREFULLY

The following WARNING and CAUTION information are supplied to you for the proper functioning of your product.

Read ALL instructions prior to operating reducer.

Injury to personnel or reducer failure may be caused by improper installation, maintenance or operation.

### WARNING:

- Written authorization is required to operate or use reducers in man lift or people moving devices.
  - Check to make sure that certain applications do not exceed the allowable load capacities published in the current catalog.
  - Buyer shall be solely responsible for determining the adequacy of the product for any and all uses to which Buyer shall apply the product. The application by Buyer shall not be subject to any implied warranty of fitness for a particular purpose.
  - For safety, Buyer or User should provide protective guards over all shaft extensions and any moving apparatus mounted thereon. The User is responsible for checking all applicable safety codes in his area and providing suitable guards. Failure to do so may result in bodily injury and/or damage to equipment.
  - Gearboxes operating in high position should have a protective shield for any possible parts falling down for casual accidents where people are moving under them.
  - Hot oil and reducers can cause severe burns. Use extreme care when removing lubrication plugs and vents.
  - Make certain that the power supply is disconnected before attempting to service or remove any components. Lock out the power supply and tag it to prevent unexpected application power.
  - Reducers are not to be considered fail safe or self-locking devices. If these features are required, a properly sized, independent holding device should be utilized.
- Reducers should not be used as a brake.
- Any brakes that are used in conjunction with a reducer must be sized or positioned in such a way so as to not subject the reducer to loads beyond the catalog rating.
  - Lifting supports including eyebolts are to be used for vertically lifting the gearbox only and not other associated attachments or motors.
  - Use of an oil with an EP additive on units with backstops may prevent proper operation of the backstop. Injury to personnel, damage to the reducer or other equipment may result.
  - Overhung loads subject shaft bearings and shafts to stress which may cause premature bearing failure and or shaft breakage from bending fatigue, it not sized properly.

### SELLING CONDITIONS

Warranty for manufacturing defects will expire one-year after the invoicing date. Cleangeartech will replace or repair defective parts but will not accept any further changes for direct or indirect damages of any kind. The warranty will become null and void if repairs or changes are carried out without our prior written authorization.

**Our company will not be responsible for any direct or indirect damages, caused by a wrong use of the products or for not observing the catalogue/web indication.**

**If the process requires total protections the customers should consider additional measures to avoid any contaminations arising from the gearboxes.**

**CLEAN-GEARTECH È UNA DIVISIONE DI HYDRO-MEC SPA PER QUESTO MOTIVO HYDROMECS SPA È LEGALMENTE IL RESPONSABILE DEI PROBLEMI DI GARANZIA.**

### LEGGERE ATTENTAMENTE

Le seguenti raccomandazioni sono fondamentali per un buon funzionamento del vostro prodotto.

Leggere attentamente tutte le istruzioni prima di azionare il riduttore.

L'inappropriata installazione, manutenzione o funzionamento del riduttore può causare incidenti al personale addetto edanni al riduttore stesso.

### ATTENZIONE:

- E' richiesta autorizzazione scritta per azionare riduttori in ascensori o dispositivi per il movimento delle persone.
- Controllare che alcune applicazioni non eccedano la massima capacità di carico ammessa pubblicata in questo catalogo.
- L'acquirente è l'unico responsabile per la determinazione dell'adeguatezza del prodotto per qualcuna o tutte le utilizzazioni che l'acquirente stesso farà del riduttore. L'applicazione dell'acquirente non potrà essere soggetta ad alcuna implicita garanzia di montaggio per uno scopo particolare.
- Per ragioni di sicurezza l'acquirente dovrà provvedere a porre protezioni adeguate su tutta la lunghezza dell'albero a tutti gli organi in movimento. L'utilizzatore è responsabile del controllo di tutti i codici di sicurezza e la predisposizione di protezioni adeguate. In assenza di tali precauzioni si possono verificare incidenti alle persone e danni agli apparati.
- Su riduttori installati in posizioni elevate utilizzare protezioni adeguate per qualsiasi distacco accidentale di parti nel caso di passaggio di persone al di sotto.
- Olio e riduttori bollenti possono causare gravi ustioni. Usare estrema cautela nella rimozione dei tappi e delle ventole.
- Assicurarsi che la corrente di alimentazione sia scollegata prima di riparare o rimuovere alcun componente. Chiudere l'alimentazione e contrassegnare tale operazione per evitare accensioni accidentali.
- I riduttori non devono essere considerati esenti da guasti o a bloccaggio automatico. Se sono indispensabili queste caratteristiche, deve essere utilizzato un dispositivo indipendente della dimensione adatta. I riduttori non devono essere utilizzati come freni.
- Qualsiasi freno sia utilizzato insieme al riduttore deve essere della giusta grandezza e posizionato in modo da non causare carichi eccessivi non previsti dai dati forniti nel catalogo.
- I dispositivi di sollevamento come le golfare devono essere usati solo per sollevare verticalmente il riduttore e non altri dispositivi associati o motori.
- L'utilizzo di un olio con un additivo EP su gruppi provvisti di dispositivo di arresto possono inficiare l'uso corretto del freno e provocare danni alle persone, alle cose ed al riduttore stesso nonché ad altri apparecchi.
- I Carichi sospesi assoggettano i cuscinetti della vite e la vite stessa a sollecitazioni che possono causare, se non adeguatamente dimensionati, l'usura prematura dei cuscinetti e/o l'arottura della vite a causa della resistenza alla flessione.

### CONDIZIONI DI VENDITA

La garanzia relativa a difetti di costruzione ha la durata di un anno dalla data di fatturazione della merce. Tale garanzia comporta per Cleangeartech l'onere della sostituzione o riparazione delle parti difettose ma non ammette ulteriori addebiti per eventuali danni diretti o indiretti di qualsiasi natura. La garanzia decade nel caso in cui siano state eseguite riparazioni o apportate modifiche senza nostro consenso scritto.

**La nostra ditta non si ritiene responsabile per eventuali danni diretti o indiretti derivanti da un uso improprio dei prodotti e dalla mancata osservanza delle indicazioni riportate a catalogo o web.**

**Se il processo richiede una protezione totale, i clienti dovrebbero prendere in considerazione misure aggiuntive per evitare qualsiasi contaminazione derivante dai riduttori.**

# International General sales and warranty conditions

## Quotations:

Unless differently agreed, the validity of all quotations is 2 months. The quotations are provided according to the RFQ (request for quotation) which shall contain the complete and detailed specification of the Product, the correctness of which is fully under responsibility of RFQ applicant.

## Orders:

Only official orders issued on the Customer's letter-head are accepted. The Order Confirmation (OC) is issued within few days from the order receipt unless the Products configuration issues arise. The OC shall be confirmed in writing within few working days from the OC date and in all its parts – the product code and description, quantities and price, other specific information, if any. The OC is considered confirmed by tacit approval in case no written confirmation is provided by the Customer within 7 days.

## Production time:

The average production time for the standard Products is normally 3-4 weeks from the OC confirmation date and/or payment receipt in case of advanced payment term. For some configurations of the standard Products the production time can be longer and shall be advised in the quotation and/or in any case in OC. In the period of Christmas holidays and August holidays the days of company closure are excluded from the abovementioned production term. Possible delays due to production picks, do not give the buyer a right to require any kind of penalty or indemnity.

## Delivery terms:

FCA Sovizzo, Italy (Incoterms 2016).

## Packaging:

The products are packed in wooden boxes as a standard packaging. Europallets can be also used on request. The prices and details of the packaging are indicated in the specific section of the Price List.

## Payment terms:

The payment should be performed in terms indicated in the invoice and by wire transfer.

## Prices:

The prices are indicated in the invoice and intended ex-works, unless differently specified, and do not include any kind of taxes, shipment or other type of costs.

## Standard Products orders cancellation:

Modification or cancellation of the orders is accepted only if notified to the Manufacturer in writing and not later than 5 days from the Order Confirmation and in any case before the production of the ordered Products is launched.

## Special execution of customized products:

The Products that are not included in the catalogue or configurations of the products that cannot be realized using catalogue, options and accessories brochure and/or online configurator are considered Customized Products.

- (a) The Manufacturer is entitled to examine feasibility of Special Execution of Customized Products and define the minimum quantity, production time and eventually other special sales and production conditions issuing thereafter a Special Execution Quotation that shall be confirmed by the Customer in writing.
- (b) Once the Quotation is confirmed, The Manufacturer shall realize a Special Execution (SE) data sheet with its unique code for each Customized product. The SE data sheet shall be confirmed in full and in writing by the Customer.

(c) The production time of SE is definitely settled by The Manufacturer and notified to the Customer after the SE data sheet confirmation. As a rule, the production time for SE of Customized products is longer than standard.

(d) The orders of Special Execution of Customized products cannot be cancelled unless special written agreement is made before the production of SE is launched.

## WARRANTY Conditions:

- (a) Warranty period is 12 months from the shipment date.
- (b) Warranty period could be extended to 18 months prior written agreement of the parties and in any case excluding wearable parts.
- (c) Warranty covers only manufacturing defects. Wearable parts (for example, oil seals or lubricants leakages caused by normal wear) and failures due to the wrong assembling by the Customer are not covered by warranty.
- (d) This warranty is also void in any case in which the products have been misused, used in improper environment conditions, configured beyond design limits indicated in the catalogue (especially service factor, loads and type of motors) or damaged, even accidentally or whenever installation instructions have not been strictly followed and in case of any natural disasters, in case of negligence of the Customer and the end user.
- (e) The Customer is fully responsible to assure the compatibility of applications and correct mechanical couplings and electrical connections with the specifications of the Products according to The Manufacturer catalogues and technical documentation.
- (f) The liability of The Manufacturer is strictly limited to the above-stated obligations and it is therefore clearly agreed that The Manufacturer takes no responsibility for any damage to persons and/or property deriving from accidents of any nature that may occur during use of the Products, whether the warranty is confirmed or otherwise, also in cases of the choice of the Product configuration being recommended by The Manufacturer.

## WARRANTY Procedure:

- (a) The Customer shall fill in the COMPLAINT FORM and forward it to The Manufacturer along with other relevant information.
- (b) The Manufacturer examines the COMPLAINT FORM and confirms or declines the warranty.
- (c) The Manufacturer has the right to ask the Customer to send the malfunctioning product back to the Seller for further examination. In case the warranty is not confirmed the Product will be shipped back to the Customer at the Customer expense. If the warranty is confirmed, The Manufacturer shall compensate the shipment costs to the Customer within the limits of the best shipment quotation.
- (d) In case the warranty is confirmed the Products shall be substituted at The Manufacturer's expense using ordinary shipment procedure. The express shipment can be used prior the agreement of the parties.
- (e) In case the Product cannot be substituted The Manufacturer shall reimburse the value of the Product by issuing of Credit Note or in any other way agreed by the Parties.



IP69K

**IP69k is a rating of German standard DIN 40050-9 extending the IEC 60529 that provides the maximum protection degree against close range high pressure (100 bar), high temperature (80°C) spray downs, applied at a variety of angles, as well as against dust penetration. In many industries, where dust and dirt can be an issue or where hygiene and cleanliness are essential, like in food and beverage industry, this certification is indispensable for the equipment that must be sanitized, withstanding rigorous high pressure and high temperature wash-down procedures.**

*Il codice IP indica il grado di protezione del prodotto contro l'intrusione di particelle solide e di liquidi. IP69K è il massimo grado di protezione: contro la penetrazione della polvere e dei getti d'acqua/vapore ad alta pressione (100 bar) ed alta temperatura (80°C), da angolazioni differenti.*

*In molte industrie dove la polvere e la sporcizia possono essere un problema oppure dove l'igiene e la pulizia sono essenziali, come nell'industria alimentare, questa certificazione è indispensabile per la sanitizzazione dell'apparecchiatura, in grado di sopportare le procedure di lavaggio ad alta pressione e temperatura.*



NTT  
NANOTECHNOLOGY  
TREATMENT

**NTT™ stands for a special treatment which results in modified external properties of the mechanical parts with complex geometry.**

**It is a highly technological process which benefits from the expertise in many industrial and scientific fields. An excellent resistance to corrosion and long durability are the main features of NTT™ finishing, which makes NTT™ treated products a first choice and unique solution for variety of applications in many industries.**

*NTT™ è uno speciale trattamento che come risultato ha la modifica delle proprietà superficiali delle parti meccaniche con geometria complessa. E' un processo altamente tecnologico che trae benefici dalle competenze in vari campi sia industriali che scientifici. Ottima resistenza alla corrosione e durabilità sono le caratteristiche principali della finitura NTT™ che fa del trattamento la soluzione unica e di prima scelta per la molteplicità delle applicazioni in numerosi settori industriali.*



NSF  
COMPONENT

**NSF International is an accredited, independent third-party certification organization that tests and certifies products to verify they meet these public health and safety standards. The NSF certification mark on a product means that the product complies with all standard requirements referring to the hygienic and health. NSF conducts periodic unannounced inspections and product testing to verify that the product continues to comply with the standard.**

*NSF International è un'organizzazione indipendente accreditata di certificazione che testa e certifica i prodotti per verificare che essi garantiscano i requisiti delle norme di Salute e Sicurezza. Il marchio NSF su un prodotto significa che il prodotto stesso è conforme agli standard richiesti in riferimento alle norme di igiene e salute. NSF esegue controlli periodici non annunciati per verificare che il prodotto continui ad essere conforme agli standard delle norme.*



CE

**By applying CE mark a manufacture declares the conformity of the product to the safety requirements settled in European regulations. It means that the product is compliant to all the directives of European Community regarding its usage: from design and manufacturing to release to the market, functioning and recycling.**

*Mediante l'applicazione della marcatura CE al prodotto, si dichiara alle autorità che esso è conforme ai requisiti di sicurezza previsti dalle norme Europee.*

*La marcatura CE indica che il prodotto è conforme a tutte le disposizioni della Comunità Europea che prevedono il suo utilizzo: dalla progettazione, alla fabbricazione, all'immissione sul mercato, alla messa in servizio del prodotto fino allo smaltimento.*





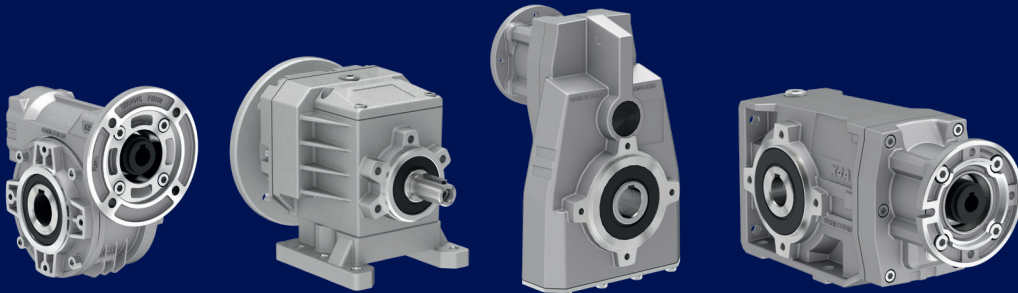
# CLEAN-GEARTECH

Via Cordellina, 81, 36077 Altavilla Vicentina VI - ITALY  
Tel. +39 0444 1240920 - Fax +39 0444 1240921  
info@cleangeartech.com - www.cleangeartech.com

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