

# Worm gearboxes type M45 ÷ M85

A modular and compact product

2

### Single-piece aluminum alloy housing

Is vacuum impregnated (MIL-STD 276) for protection and sealing. No secondary finish required but readily accepts paint. Combines light weight with high tensile strength. Precision machined for alignment of bearings and gearing.

### Single piece alloy steel input shaft and worm shaft.

High helix angle worm is case-hardened (Rc 58-60), ground, teeth are profiled and radiused, for noise reduction and enhanced efficiency.

### Oversized bearings

Support positively-retained, high speed shaft for higher shock load capacity - ideal for frequent starting and reversing application. Premium, Nitrile® high temperature seals each end.

### Flange

Fully modular to IEC and compact integrated motor. NEMA C flange.

### Premium, high temperature

Nitrile® output seals

### Bronze alloy worm gears.

Is centrifugally cast onto an iron hub for maximum strenght and superior life.

### Oversize bearing

For radial load capability and maximum hollow output shaft diameter.

### Standard hollow output shaft mounting

Reduces total drive envelope size, weight and cost. Single and double solid output shaft is available.

### Impregnated and machined bearing caps

With exterior machined surfaces enable a variety of mounting accessories. Extra-deep thread engagement provided for greater support strength. Zinc plated hardware.

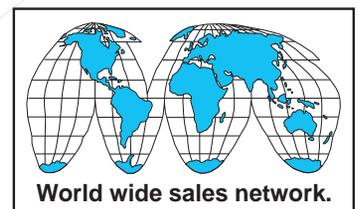
### Vent Free Design.

No breather or vents to leak! Factory lubricated for life with synthetic, semi-fluid gear lubricant with an operating range of -15°C to 130°C.

oil free



vent free



# Specific type datasheet on page...



Types / tipi / Tipos →

On page / A pagina / En la página

2-5	2-7	2-9	2-11
<b>M45</b> 416 lb in	<b>M50</b> 779 lb in	<b>M63</b> 1416 lb in	<b>M85</b> 3222 lb in

CODIFICA / HOW TO ORDER / TYPENBEZEICHNUNGEN / CODIFICATION / CODIFICACIÓN

Type - Tipo - Typ  
Type - Tipo

Size - Grandezza  
Größe - Taille  
Tamaño

Mounting - Montaggio - Montage Fixation  
Fixation - Tipo de montaje

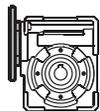
P

M45

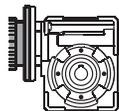
FC

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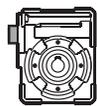
**Worm gearboxes**  
Riduttori a vite senza fine  
Schneckengetriebe  
Reducteurs a vis sans fin  
Reductores de corona sin fin



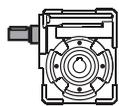
P



M



B

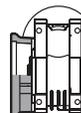


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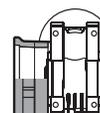
M45  
M50  
M63  
M85



FB



FC



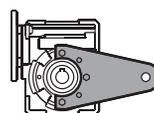
FL

F1

F2

F3

F4

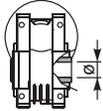
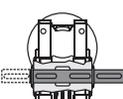
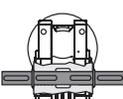
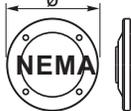
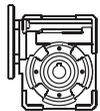
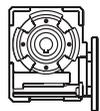
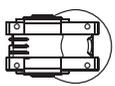
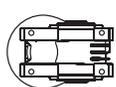
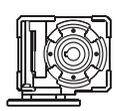
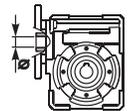
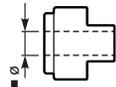
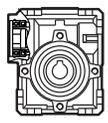
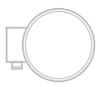
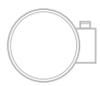


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A richiesta possiamo fornire i nostri prodotti secondo le normative ATEX  
Auf Anfrage können wir unsere Produkte den Richtlinien ATEX entsprechend liefern  
Sur demande nos produits peuvent se conformer à la réglementation ATEX  
A pedido, se pueden enviar nuestros productos de acuerdo con las normas ATEX.

CODIFICA / HOW TO ORDER / CODIFICACIÓN

Ratio Rapporto Relación	Hub Mozzo corona Nucleo corona	Output shaft Albero lento Eje solida	Motor size Grandezza motore Tamaño motor	Mounting position Posizione montaggio Position de montage	Input bore Foreo entrata Eingangshohlwelle Trou d'entree Eje hueco de entrada	Terminal box position Posizione morsettera Posición caja de bornes
<b>10</b>	<b>U</b>	<b>∅</b>	<b>-W</b>	<b>B3</b>	<b>UW</b>	
See technical data table Vedi tabelle dati tecnici. Ver tabla datos técnicos	 <b>U</b> INCH M45 ⇨ ∅0.750" M50 ⇨ ∅1.000" M63 ⇨ ∅1.125" M85 ⇨ ∅1.500"	 <b>∅</b>  <b>S</b>  <b>D</b>	 <b>NEMA</b> With Flange for type <b>P</b> <b>-W</b> ⇨ 56C <b>-X</b> ⇨ 143/5TC <b>-Y</b> ⇨ 182/4TC  <b>-N</b> without flange Senza flangia For Modular Base type <b>B</b> M45 ⇨ ∅0.625 M50 ⇨ ∅0.625 M63 ⇨ ∅0.875 M85 ⇨ ∅1.125  <b>-Z</b> For Type - R	 <b>B3</b>  <b>B8</b>  <b>B6</b>  <b>B7</b>  <b>V5</b>  <b>V6</b>	 Standard bore <b>UW</b> = ∅0.625" <b>UX</b> = ∅0.875" <b>UY</b> = ∅1.125"  <b>ST</b> standard type R Tipo R standard  COUPLING  <b>-W</b> = ∅0.625" <b>-X</b> = ∅0.875" <b>-Y</b> = ∅1.125"  <b>-0</b> Ready for input coupling Predisposto per giunto 	With Type M specify terminal box position Con tipo M specificare posizione morsettera  <b>A</b>  <b>B</b> STANDARD  <b>C</b>  <b>D</b>

FORMULE UTILI / USEFUL FORMULAS / FÓRMULAS ÚTILES

POTENZA RICHIESTA / REQUIRED POWER / POTENCIA NECESARIA

Lifting / sollevamento / elevación

$$P [KW] = \frac{M [Kg] \cdot g [9.81] \cdot v [m / s]}{1000}$$

Rotation / rotazione / rotation

$$P [KW] = \frac{M [Nm] \cdot n [rpm]}{9550}$$

Linear movement / traslazione / translacion

$$P [KW] = \frac{F [N] \cdot v [m / s]}{1000}$$

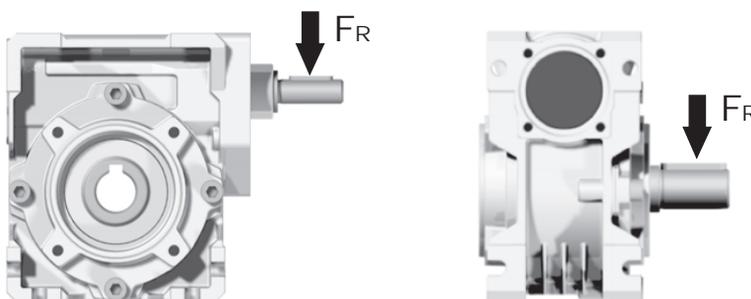
TORQUE / COPPIA / PAR

$$M [Nm] = \frac{9550 \cdot P[KW]}{n [rpm]}$$

$$M [lb in] = \frac{63030 \cdot P[HP]}{n [rpm]}$$

RADIAL LOADS / CARICHI RADIALI / CARGA RADIAL Y AXIAL

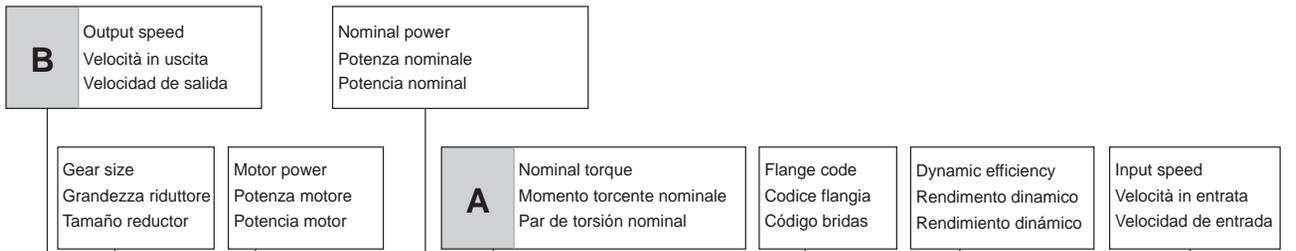
- Radial load generated by external transmissions keyed onto input and/or output shafts.
- Forza radiale generata da organi di trasmissione calettati sugli alberi di ingresso e/o uscita.
- Cargas radiales, generada por transmisiones externas, aplicadas sobre los ejes de entrada y/o salida



$F_R [N] = \frac{M [Nm] \cdot 2000}{d [mm]} \cdot f_k$		$F_R [N] = \frac{M [lb in] \cdot 8.9}{d [in]} \cdot f_k$	
<b>M</b>	Momento torcente / Output torque / Par torsion		
<b>d</b>	Diametro primitivo / Diam. of driving element / Diámetro primitivo		
<b>f<sub>k</sub></b>	Coefficiente di trasformazione / Factor / Coeficiente de transmisión 1.15 Ingranaggi / Gearwheels / Engranaje 1.25 Catena / Chain sprockets / Cadena 1.75 Cinghia Trapezoidale / Narrow v-belt pulley / Correa trapezoidal 2.50 Cinghia piatta / Flat-belt pulley / Correa plana		

- If your application requires higher radial loads, contact our technical office. Higher load may be possible.
- Nel caso la vostra applicazione richieda carichi radiali superiori consultare il nostro ufficio tecnico, valori maggiori possono essere accettati.
- En el caso en que una aplicación exija una carga radial superior a la especificada en el catálogo, consultar a nuestra oficinas técnica.

How to select a gearbox / Come selezionare un riduttore  
Cómo seleccionar un reductor

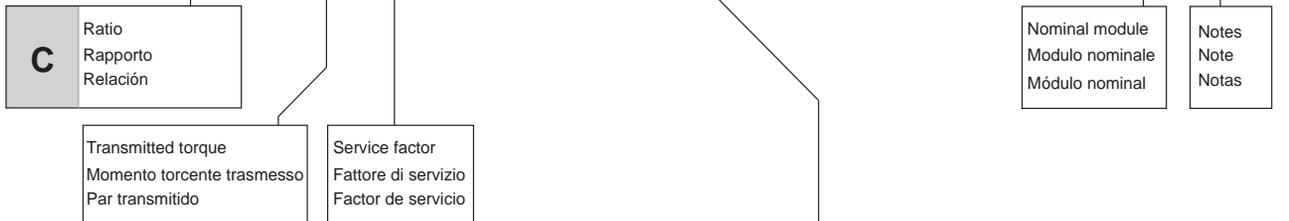


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**M45 M Square- Gear 416lb in** Rating - Alluminum WORM GEARBOXES

**QUICK SELECTION / Selezione veloce** 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 $P_{1B}$ [HP]	Nominal torque $M_{2B}$ [lb in]	Available NEMA motor flanges	Dynamic efficiency	Tooth Module [mm]	Notes Ratios code
250.0	7	1	202	1.8	1.34	363	-W	RD	2.2	01
175.0	10	1	285	1.4	1.02	389	-	79	2.2	02
125.0	14	0.75	291	1.3	0.75	389	56C	77	2.4	03



**fs**

Type of load and starts per hour Tipo di carico e avviamenti per ora		Oper. hours per day Ore di funz. giorn.			
		<2 h	2 - 8 h	8 - 16 h	
Continuous or intermittent appl. with start / hour Applicazione cont. o interm. con n.ro operazioni/ora	≤ 10	Uniform / Uniforme	0.9	1	1.25
	Moderate / Moderato	1	1.25	1.5	
		Heavy / Forte	1.25	1.5	1.75
Intermittent application with start / hour Applicazione intermittente con n.ro operazioni/ora	> 10	Uniform / Uniforme	1.25	1.5	1.75
	Moderate / Moderato	1.5	1.75	2	
		Heavy / Forte	1.75	2	2.25

**D** Motor flange available  
Flange disponibili  
Bridas disponibles

**B)** Mounting with reduction ring  
Montaggio con boccola di riduzione  
Montaje con casquillo de reducción

**C)** Motor flangeholes position/terminal box position  
Posizione fori flangia/basetta motore  
Posición agujeros brida / base motor

**B)** Available without reduction bushes  
Disponibile anche senza boccola  
Disponibile tambien sin casquillo

<b>A</b>	Select required torque (according to service factor)	Seleziona la coppia desiderata (comprensiva del fattore di servizio)	Seleccionar el par deseado (incluyendo el factor de servicio)
<b>B</b>	Select output speed	Seleziona la velocità in uscita	Seleccionar la velocidad de salida
<b>C</b>	On the same line of selected geared motor, you can find the gear ratio	Sulla riga corrispondente alla motorizzazione prescelta si può rilevare il rapporto di riduzione	En la línea correspondiente al motor preseleccionado es posible encontrar la relación de reducción
<b>D</b>	Select motor flange available (if requested)	Scegli la flangia disponibile (se richiesta)	Seleccionar la brida disponible (sobre pedido)

# Q Square worm gearboxes

A modular and compact product

3

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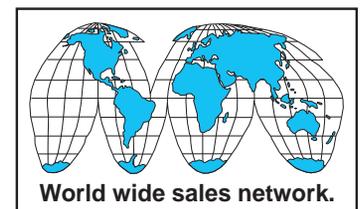
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oil free



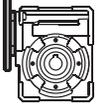
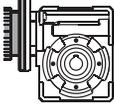
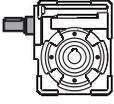
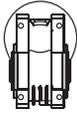
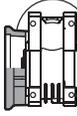
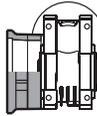
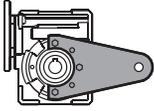
vent free



World wide sales network.



CODIFICA / HOW TO ORDER / CODIFICACIÓN

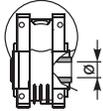
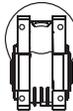
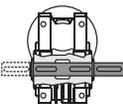
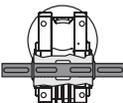
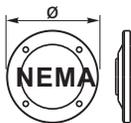
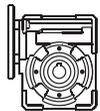
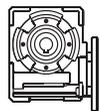
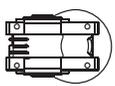
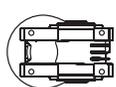
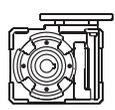
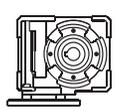
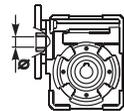
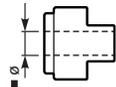
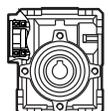
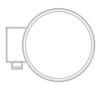
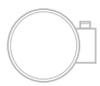
Type - Tipo	Size - Grandezza Tamaño	Mounting - Montaggio - Tipo de montaje
P	Q63	FC
<p>Worm gearboxes Riduttori a vite senza fine Reductores de corona sin fin</p>  <p>P</p>  <p>M</p>  <p>B</p>  <p>R</p>	<p>Q63 Q85</p>	 <p>FB</p>  <p>FC</p>  <p>FL</p> <p>F1 F2 F3 F4</p>  <p>BR</p>

3



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A pedido, se pueden enviar nuestros productos de acuerdo con las normas ATEX.

CODIFICA / HOW TO ORDER / CODIFICACIÓN

Ratio Rapporto Relación	Hub Mozzo corona Nucleo corona	Output shaft Albero lento Eje solida	Motor size Grandezza motore Tamaño motor	Mounting position Posizione montaggio Position de montage	Input bore Foreo entrata Eingangshohlwelle Trou d'entree Eje hueco de entrada	Terminal box position Posizione morsettiere Posición caja de bornes
<b>10</b>	<b>U</b>	<b>∅</b>	<b>-X</b>	<b>B3</b>	<b>UX</b>	
See technical data table Vedi tabelle dati tecnici. Ver tabla datos técnicos	 <b>U</b> INCH Q63 ⇒ ∅1.125" Q85 ⇒ ∅1.500"	 <b>∅</b>  <b>S</b>  <b>D</b>	 <b>NEMA</b> With Flange for type <b>P</b>  <b>-W</b> ⇒ 56C <b>-X</b> ⇒ 143/5TC <b>-Y</b> ⇒ 182/4TC  <b>-N</b> without flange Senza flangia  For Modular Base type <b>B</b>  <b>Q63</b> ⇒ ∅0.875 <b>Q85</b> ⇒ ∅1.125  <b>-Z</b> For Type - R 	 <b>B3</b>  <b>B8</b>  <b>B6</b>  <b>B7</b>  <b>V5</b>  <b>V6</b>	 Standard bore <b>UW</b> = ∅0.625" <b>UX</b> = ∅0.875" <b>UY</b> = ∅1.125"  <b>ST</b> standard type R Tipo R standard  COUPLING  <b>-W</b> = ∅0.625" <b>-X</b> = ∅0.875" <b>-Y</b> = ∅1.125"  <b>-0</b> Ready for input coupling Predisposto per giunto 	With Type M specify terminal box position Con tipo M specificare posizione morsettiere  <b>A</b>  <b>B</b> STANDARD  <b>C</b>  <b>D</b>

3

FORMULE UTILI / USEFUL FORMULAS / FÓRMULAS ÚTILES

POTENZA RICHIESTA / REQUIRED POWER / POTENCIA NECESARIA

Lifting / sollevamento / elevación

$$P [KW] = \frac{M [Kg] \cdot g [9.81] \cdot v [m / s]}{1000}$$

Rotation / rotazione / rotation

$$P [KW] = \frac{M [Nm] \cdot n [rpm]}{9550}$$

Linear movement / traslazione / translacion

$$P [KW] = \frac{F [N] \cdot v [m / s]}{1000}$$

3

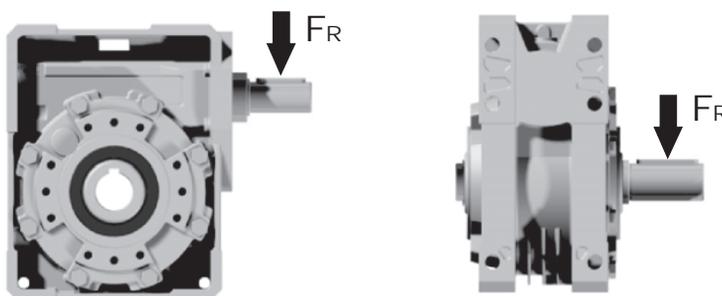
TORQUE / COPPIA / PAR

$$M [Nm] = \frac{9550 \cdot P[KW]}{n [rpm]}$$

$$M [lb in] = \frac{63030 \cdot P[HP]}{n [rpm]}$$

RADIAL LOADS / CARICHI RADIALI / CARGA RADIAL Y AXIAL

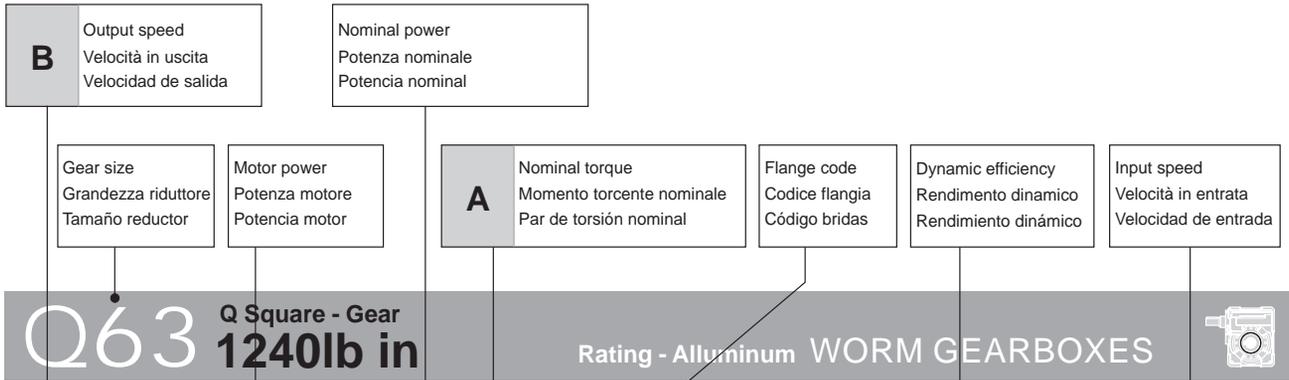
- Radial load generated by external transmissions keyed onto input and/or output shafts.
- Forza radiale generata da organi di trasmissione calettati sugli alberi di ingresso e/o uscita.
- Cargas radiales, generada por transmisiones externas, aplicadas sobre los ejes de entrada y/o salida



	$F_R [N] = \frac{M [Nm] \cdot 2000}{d [mm]} \cdot f_k$	$F_R [N] = \frac{M [lb in] \cdot 8.9}{d [in]} \cdot f_k$
<b>M</b>	Momento torcente / Output torque / Par torsion	
<b>d</b>	Diametro primitivo / Diam. of driving element / Diámetro primitivo	
<b>f<sub>k</sub></b>	Coefficiente di trasformazione / Factor / Coeficiente de transmisión 1.15 Ingranaggi / Gearwheels / Engranaje 1.25 Catena / Chain sprockets / Cadena 1.75 Cinghia Trapezoidale / Narrow v-belt pulley / Correa trapezoidal 2.50 Cinghia piatta / Flat-belt pulley / Correa plana	

- If your application requires higher radial loads, contact our technical office. Higher load may be possible.
- Nel caso la vostra applicazione richieda carichi radiali superiori consultare il nostro ufficio tecnico, valori maggiori possono essere accettati.
- En el caso en que una aplicación exija una carga radial superior a la especificada en el catálogo, consultar a nuestra oficinas técnica.

How to select a gearbox / Come selezionare un riduttore  
Cómo seleccionar un reductor



3

**QUICK SELECTION / Selezione veloce** 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	-X			
250.0	7	2	419	2.5	5.10	1053	B	143-5TC	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



**fs**

Type of load and starts per hour Tipo di carico e avviamenti per ora		Oper. hours per day Ore di funz. giorn.		
		<2 h	2 - 8 h	8 - 16 h
Continuous or intermittent appl. with start / hour Applicazione cont. o interm. con n.ro operazioni/ora	Uniform / Uniforme	0.9	1	1.25
	Moderate / Moderato	1	1.25	1.5
	Heavy / Forte	1.25	1.5	1.75
Intermittent application with start / hour Applicazione intermittente con n.ro operazioni/ora	Uniform / Uniforme	1.25	1.5	1.75
	Moderate / Moderato	1.5	1.75	2
	Heavy / Forte	1.75	2	2.25

**D** Motor flange available  
Flange disponibili  
Bridas disponibles

**B)** Mounting with reduction ring  
Montaggio con boccola di riduzione  
Montaje con casquillo de reducción

**C)** Motor flangeholes position/terminal box position  
Posizione fori flangia/basetta motore  
Posición agujeros brida / base motor

**B)** Available without reduction bushes  
Disponibile anche senza boccola  
Disponibile tambien sin casquillo

<b>A</b>	Select required torque (according to service factor)	Seleziona la coppia desiderata (comprensiva del fattore di servizio)	Seleccionar el par deseado (incluyendo el factor de servicio)
<b>B</b>	Select output speed	Seleziona la velocità in uscita	Seleccionar la velocidad de salida
<b>C</b>	On the same line of selected geared motor, you can find the gear ratio	Sulla riga corrispondente alla motorizzazione prescelta si può rilevare il rapporto di riduzione	En la línea correspondiente al motor preseleccionado es posible encontrar la relación de reducción
<b>D</b>	Select motor flange available (if requested)	Scegli la flangia disponibile (se richiesta)	Seleccionar la brida disponible (sobre pedido)