

Aluminum and cast iron helical bevel gearboxes

A modular and compact product
Very energy efficient drive

Removable inspection cover

Allows periodic inspection of gearing during routine maintenance

Gears

Hardened and ground gears

Alloy housing

Is vacuum impregnated (MIL-STD 276) for protection and sealing. No secondary finish required but readily accepts paint.

Oil seals

Two oil seals on request

Single-piece aluminum

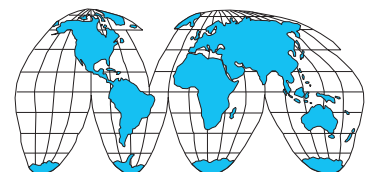
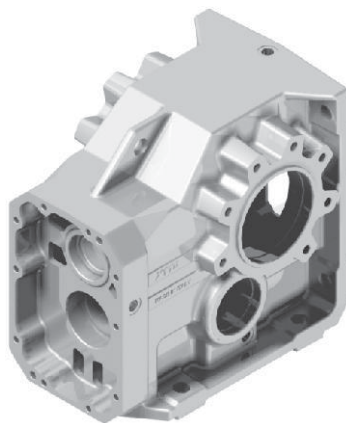
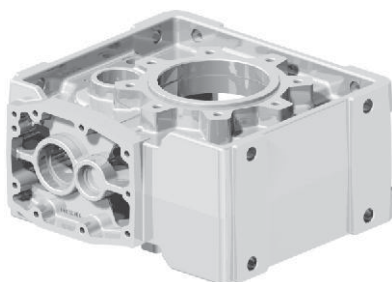
Combines light weight with high tensile strength. Precision machined for alignment of bearings and gearing

Flange

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

Cast Iron housing

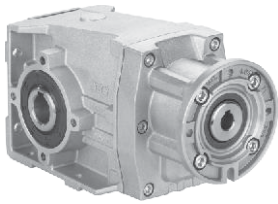
With high tensile strength. Precision machined for alignment of bearings and gearing



World wide sales network.

Specific type datasheet on page...

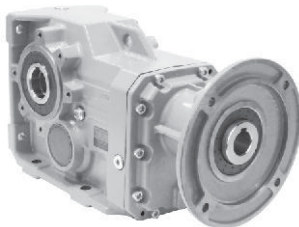
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Types / Tipi
Typen / Types
Tipos

7-5	7-7	7-9	7-11	7-13	7-15	7-17	7-19	7-21
X22S 50Nm	X32S 90Nm	X33S 100Nm	X42A 150Nm	X43A 160Nm	X52A 250Nm	X53A 250Nm	X62A 410Nm	X63A 410Nm

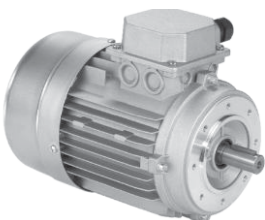
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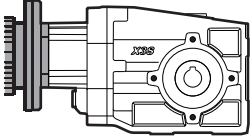
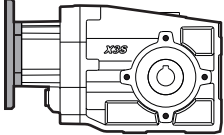
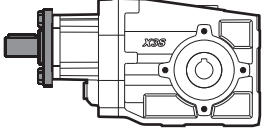
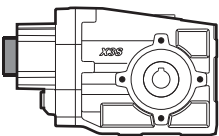
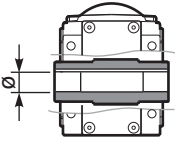
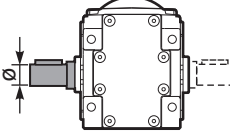
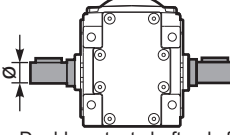
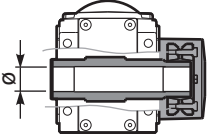
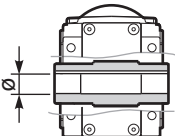
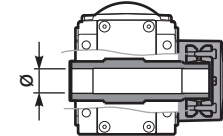
7-23	7-25	7-27	7-29	7-31	7-33	7-35	7-37	7-39	7-41
113C 675Nm	114C 675Nm	133C 1000Nm	134C 1000Nm	X93C 1600Nm	X94C 1650Nm	X103 3000Nm	X104 3000Nm	X113 4500Nm	X114 4600Nm

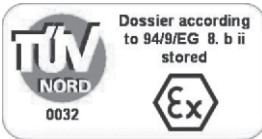
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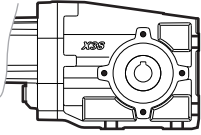
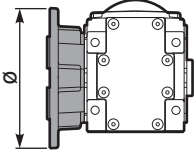



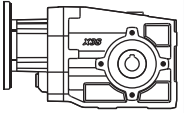
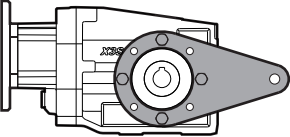


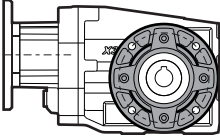

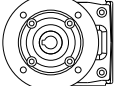


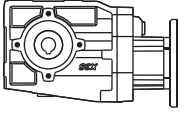
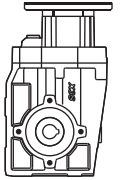
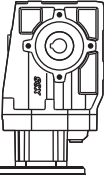
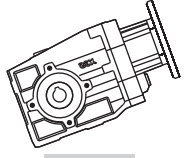
Types / Tipi
Typen / Types
Tipos

M-1									
56A 56B	63A 63B	71A 71B	80A 80B	90S 90L	100LA 100LB	112M	132S 132M	160M 160L	180M 180L

Type - Tipo - Typ Type - Tipo	Size - Grandezza - Größe Taille - Tomaño	Mounting - Montaggio Montage - Fixation Tipo de montaje	Rapporto - Ratio Untersetzung Reduction Relacion	Output shaft - Albero uscita Ausgangsflansch Arbre de sortie Brida en solida																																																																																				
M	X22S	C	4.83	-A																																																																																				
<p>Helical-bevel gear Riduttori ortogonali</p>  <p>With IEC motor M</p>  <p>With motor flange P</p>  <p>With male input shaft R</p>  <p>Modular base B</p> <p>Not available for: X93C, X103, X104, X113, X114.</p>	<p>2 Stages Riduzioni Stufen Trains Etapas</p> <p>3 Stages Riduzioni Stufen Trains Etapas</p> <p>Aluminum Alluminio Aluminium Aluminio</p> <p>X22S X32S X42A X52A X62A</p> <p>3 Stages Riduzioni Stufen Trains Etapas</p> <p>4 Stages Riduzioni Stufen Trains Etapas</p> <p>Cast Iron Ghisa Grauguss Fonte Fundicion</p> <p>113C 133C X93C X103 X113</p> <p>114C 134C X94C X104 X114</p>	<p>Hollow output shaft C</p>  <p>Single output shaft A</p>  <p>Double output shaft only for 113/4C, 133/4C, X93/4C X103/4 and X113/4 B</p>  <p>Shrink Disk (only on the DX side) D</p> <p>Only on request for Q.ty A richiesta per quantità</p>  <p>Stainless steel hub I</p> <p>Stainless steel hub Mozzo in acciaio Inox Edelstahlhohlwelle Moyeu en acier Inox Nucleo corona de acero Inox</p> <p>Only on request for Q.ty A richiesta per quantità</p> 	<p>See technical data table</p> <p>Vedi tabella dati tecnici.</p> <p>Technisches Datenblatt beachten</p> <p>Voir Tableau données techniques</p> <p>Ver tabla datos técnicos</p>	<p>→ STANDARD</p> <p>Hollow output shaft</p> <table border="1"> <tr> <td>X22S</td> <td>113C 114C</td> </tr> <tr> <td>-A ⇒ $\varnothing 18$</td> <td>-F ⇒ $\varnothing 40$</td> </tr> <tr> <td>-B ⇒ $\varnothing 20$</td> <td>-G ⇒ $\varnothing 42$</td> </tr> <tr> <td>X32S X33S</td> <td>133C 134C</td> </tr> <tr> <td>-B ⇒ $\varnothing 20$</td> <td>-F ⇒ $\varnothing 40$</td> </tr> <tr> <td>-C ⇒ $\varnothing 25$</td> <td>-H ⇒ $\varnothing 45$</td> </tr> <tr> <td>X42A X43A</td> <td>X93C X94C</td> </tr> <tr> <td>-C ⇒ $\varnothing 25$</td> <td>-H ⇒ $\varnothing 45$</td> </tr> <tr> <td>-D ⇒ $\varnothing 30$</td> <td>-J ⇒ $\varnothing 50$</td> </tr> <tr> <td>X52A X53A</td> <td>X103 X104</td> </tr> <tr> <td>-D ⇒ $\varnothing 30$</td> <td>-K ⇒ $\varnothing 60$</td> </tr> <tr> <td>-E ⇒ $\varnothing 35$</td> <td>X113 X114</td> </tr> <tr> <td>X62A X63A</td> <td>-T ⇒ $\varnothing 70$</td> </tr> <tr> <td>-E ⇒ $\varnothing 35$</td> <td></td> </tr> <tr> <td>-F ⇒ $\varnothing 40$</td> <td></td> </tr> </table> <p>Single and double output shaft</p> <table border="1"> <tr> <td>-I</td> <td>X22S X32/3S</td> <td>⇒ $\varnothing 20$</td> </tr> <tr> <td>-L</td> <td>X32/3S X42/3A</td> <td>⇒ $\varnothing 25$</td> </tr> <tr> <td>-M</td> <td>X52/3A</td> <td>⇒ $\varnothing 30$</td> </tr> <tr> <td>-N</td> <td>X52/3A X62/3A</td> <td>⇒ $\varnothing 35$</td> </tr> <tr> <td>-V</td> <td>113/4C</td> <td>⇒ $\varnothing 40^*$</td> </tr> <tr> <td>-O</td> <td>113/4C</td> <td>⇒ $\varnothing 42^*$</td> </tr> <tr> <td>-P</td> <td>133/4C</td> <td>⇒ $\varnothing 45^*$</td> </tr> <tr> <td>-1</td> <td>X93/4C</td> <td>⇒ $\varnothing 50^*$</td> </tr> <tr> <td>-3</td> <td>X103/4</td> <td>⇒ $\varnothing 60^*$</td> </tr> <tr> <td>-5</td> <td>X113/4</td> <td>⇒ $\varnothing 70^*$</td> </tr> </table> <p>* Also available double output shaft</p>  <p>Shrink Disk</p> <table border="1"> <tr> <td>-U</td> <td>X22S X32/3S</td> <td>⇒ $\varnothing 20$</td> </tr> <tr> <td>-Q</td> <td>X42/3A</td> <td>⇒ $\varnothing 30$</td> </tr> <tr> <td>-R</td> <td>X52/3A</td> <td>⇒ $\varnothing 35$</td> </tr> <tr> <td>-S</td> <td>X62/3A 113/4C</td> <td>⇒ $\varnothing 40$</td> </tr> <tr> <td>-6</td> <td>133/4C</td> <td>⇒ $\varnothing 45$</td> </tr> <tr> <td>-7</td> <td>X93/4C</td> <td>⇒ $\varnothing 50$</td> </tr> <tr> <td>-8</td> <td>X103/4</td> <td>⇒ $\varnothing 65$</td> </tr> <tr> <td>-9</td> <td>X113/4</td> <td>⇒ $\varnothing 75$</td> </tr> </table>	X22S	113C 114C	-A ⇒ $\varnothing 18$	-F ⇒ $\varnothing 40$	-B ⇒ $\varnothing 20$	-G ⇒ $\varnothing 42$	X32S X33S	133C 134C	-B ⇒ $\varnothing 20$	-F ⇒ $\varnothing 40$	-C ⇒ $\varnothing 25$	-H ⇒ $\varnothing 45$	X42A X43A	X93C X94C	-C ⇒ $\varnothing 25$	-H ⇒ $\varnothing 45$	-D ⇒ $\varnothing 30$	-J ⇒ $\varnothing 50$	X52A X53A	X103 X104	-D ⇒ $\varnothing 30$	-K ⇒ $\varnothing 60$	-E ⇒ $\varnothing 35$	X113 X114	X62A X63A	-T ⇒ $\varnothing 70$	-E ⇒ $\varnothing 35$		-F ⇒ $\varnothing 40$		-I	X22S X32/3S	⇒ $\varnothing 20$	-L	X32/3S X42/3A	⇒ $\varnothing 25$	-M	X52/3A	⇒ $\varnothing 30$	-N	X52/3A X62/3A	⇒ $\varnothing 35$	-V	113/4C	⇒ $\varnothing 40^*$	-O	113/4C	⇒ $\varnothing 42^*$	-P	133/4C	⇒ $\varnothing 45^*$	-1	X93/4C	⇒ $\varnothing 50^*$	-3	X103/4	⇒ $\varnothing 60^*$	-5	X113/4	⇒ $\varnothing 70^*$	-U	X22S X32/3S	⇒ $\varnothing 20$	-Q	X42/3A	⇒ $\varnothing 30$	-R	X52/3A	⇒ $\varnothing 35$	-S	X62/3A 113/4C	⇒ $\varnothing 40$	-6	133/4C	⇒ $\varnothing 45$	-7	X93/4C	⇒ $\varnothing 50$	-8	X103/4	⇒ $\varnothing 65$	-9	X113/4	⇒ $\varnothing 75$
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On request we can deliver our products according to the ATEX
 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.

Type - Tipo - Typ Type - Tipo	Output flange Flangia di uscita Ausgangs Flansch Bride de sortie Brida en salida	Motor size - Grandezza motore Motor Grösse Grandeur moteur - Tamaño motor	Terminal box position Posizione morsettieria Klemmkastenlage Position boîte à bornes Posición caja de bornes	Mounting position Posizione montaggio Einbaulage Position de montage Posición de montaje
BR	N	-O	B	B3
 <p>FB Forma base Universal</p>	 <p>N Senza flangia Without flange</p>	<p>Flange Flangia </p> <p>B5</p> <p>-A=56 (ø120) -B=63 (ø140) -C=71 (ø160) -D=80 (ø200) -E=90 (ø200) -F=100÷112 (ø250) -G=132 (ø300) -H=160 (ø350) -I=180 (ø350) -L=200 (ø400) CA=225 (ø450)</p> <p>Without flange Senza flangia </p> <p>X22S X33S X43A</p> <p>-Z ⇨ ø9 (56B5) -0 ⇨ ø11 (63B5) -1 ⇨ ø14 (71B5)</p> <p>X32S X42A X53A X63A 114C 134C</p> <p>-1 ⇨ ø14 (71B5) -2 ⇨ ø19 (80B5) -3 ⇨ ø24 (90B5)</p> <p>X52A X62A 113C 133C X94C</p> <p>-2 ⇨ ø19 (80B5) -3 ⇨ ø24 (90B5) -4 ⇨ ø28 (100B5)</p>	 <p>A</p>	 <p>B3 STANDARD</p>
 <p>BR Braccio di reazione Reaction arm</p>	<p>X22S</p> <p>0 ⇨ ø110 1 ⇨ ø120</p> <p>X32S X33S</p> <p>1 ⇨ ø120 2 ⇨ ø160</p>		 <p>B STANDARD</p>	 <p>B6</p>
 <p>-F Flangia uscita output flange</p>	<p>X42-3A X52-3A X62-3A</p> <p>2 ⇨ ø160 3 ⇨ ø200 4 ⇨ ø250</p> <p>113C 114C X93C X94C</p> <p>C ⇨ ø280 L ⇨ ø280</p> <p>133C 134C</p> <p>C ⇨ ø320</p>	<p>B14</p> <p>-O=56 (ø80) -P=63 (ø90) -Q=71 (ø105) -R=80 (ø120) -T=90 (ø140) -U=100÷112 (ø160) -V=132 (ø200)</p>	 <p>C</p>	 <p>B7</p>
	<p>X103 X104</p> <p>6 ⇨ ø350</p> <p>X113 X114</p> <p>7 ⇨ ø450</p>	<p>Type R Tipo R </p> <p>X22S X33S X43A</p> <p>-1 ⇨ ø14</p> <p>X32S X42A X53A X63A 114C 134C</p> <p>-2 ⇨ ø19</p> <p>X52A X62A 113C 133C X94C</p> <p>-3 ⇨ ø24</p> <p>X93C X104 X114</p> <p>-4 ⇨ ø28</p> <p>X103 X113</p> <p>-6 ⇨ ø42</p>	 <p>D</p>	 <p>B8</p>
				 <p>V5</p>
				 <p>V6</p>
				 <p>V8</p> <p>Specify only for vertical positions Specificare solo per posizione verticale</p>

POTENZA RICHIESTA / REQUIRED POWER / ERFORDERLICHE LEISTUNG / PUISSANCE NECESSAIRE / POTENCIA NECESARIA

Lifting / sollevamento / hubantriebe / levage / elevación

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

Rotation / rotazione / drehung / rotation / rotacion

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

Linear movement / traslazione / linearbewegung / translation / translacion

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

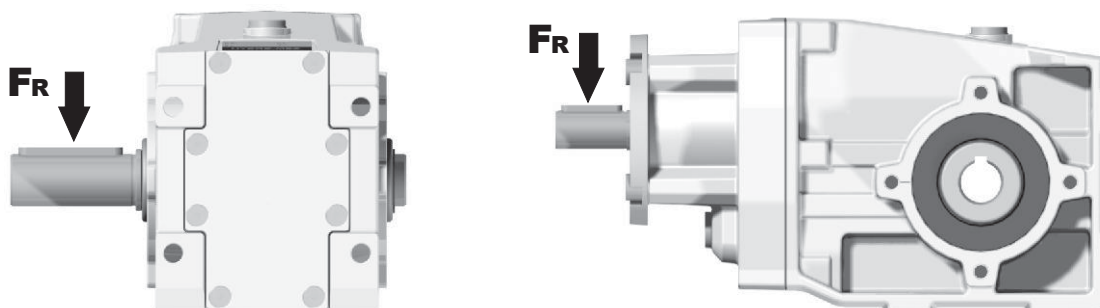
TORQUE / COPPIA / DREHMOMENT / COUPLE / PAR

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

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

RADIAL LOADS / CARICHI RADIALI / RADIALE - UND AXIALLASTEN / CHARGES RADIALES / 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.
- Belastungen der Antriebs- bzw. Abtriebswellen durch von aussen eingebrachte Radiallasten.
- Charge radiale générée par la transmissions calés sur les entrées et / ou des arbres de sortie
- Cargas radiales, generada por transmisiones externas, aplicadas sobre los ejes de entrada y/o salida



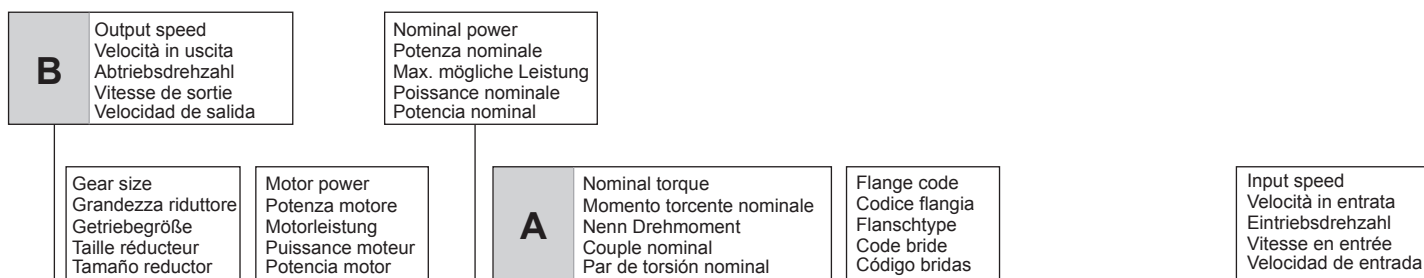
$$F_R [N] = \frac{M [Nm] \cdot 2000}{d [mm]} \cdot f_k$$

$$F_R [N] = \frac{M [lb in] \cdot 8.9}{d [in]} \cdot f_k$$

M	Momento torcente / Output torque / Abtriebsdrehmoment / Couple / Par torsion
d	Diametro primitivo / Diam. of driving element / Durchmesser der Abtriebseinheit / Diamètre primitif / Diámetro primitivo
f_k	Coefficiente di trasformazione / Factor / Faktor / Coefficient de transmission / Coeficiente de transmisión 1.15 Ingranaggi / Gearwheels / Zahnrad / Engrenage / Engranaje 1.25 Catena / Chain sprochets / Antriebskette / Chaîne / Cadena 1.75 Cinghia Trapezoidale / Narrow v-belt pulley / Keilriemen / Courroie trap. / Correa trapezoidal 2.50 Cinghia piatta / Flat-belt pulley / Flachzahnriem. / Courroie crantée / 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.
- Wenn Ihre Anwendung höhere Radialbelastungen erfordert, so wenden Sie sich bitte an unser technischen Büro.
- Si votre application demande des charges radiales supérieures, s'adresser à notre bureau technique.
- 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 / Wie wählt man ein Getriebe
Comment sélectionner un réducteur / Cómo seleccionar un reductor



X22S Angletech Gear **50Nm** Rating - Aluminum HELICAL-BEVEL GEARBOXES

QUICK SELECTION / Selezione veloce The dynamic efficiency is **0.96** for all ratios **input speed (n₁) = 1400 min⁻¹**

Output Speed n ₂ [min ⁻¹]	Ratio i	Motor power P _{1M} [kW]	Output torque M _{2M} [Nm]	Service factor f.s.	Nominal power P _{1R} [kW]	Nominal torque M _{2R} [Nm]	Available B5 motor flanges		Available B14 motor flanges			Output Shaft 	Ratios code
							-B	-C	-O	-P	-Q		
289.7	4.83	0.37	11.7	2.6	0.95	30	63	71	C	C		289	01
189.2	7.40	0.37	17.9	1.7	0.62	30			C	C		287	02
146.2	9.58	0.37	23.2	1.7	0.64	40			C	C		199	03
127.5	10.98	0.37	26.6	1.7	0.63	45			C	C		179	04



Type of load and starts per hour Tipo di carico e avviamenti per ora		Oper. hours per day Ore di funz. giorn.		
		3 h	10 h	24 h
Continuous or intermittent appl. with start / hour Applicazione cont. o interm. con n.ro operazioni/ora	Uniform / Uniforme	0.8	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	1.25	1.5
	Moderate / Moderato	1.25	1.5	1.75
	Heavy / Forte	1.5	1.75	2.15

D	Motor flange available Flange disponibili Erhältliche Motorflansche Brides disponibles Bridas disponibles	
B)	Mounting with reduction ring Montaggio con boccia di riduzione Reduzierhülsen Montage avec douille de réduction Montaje con casquillo de reducción	
C)	Motor flangeholes position/terminal box position Posizione fori flangia/basetta motore Bohrungsposition am Motorflansch/-socket Position trous bride/barrette à bornes moteur Posición agujeros brida / base motor	
B)	Available without reduction bushes Disponibile anche senza boccia Auch ohne Reduzierbuchse verfügbar Disponible aussi sans douille de réduction Disponible también sin casquillo	

A	Select required torque (according to service factor)	Seleziona la coppia desiderata (comprensiva del fattore di servizio)	Max. Drehmoment in Bezug zum Betriebsfaktor	Sélectionner le couple souhaité (comprenant le facteur de service)	Seleccionar el par deseado (incluyendo el factor de servicio)
B	Select output speed	Seleziona la velocità in uscita	Ausgewählte Abtriebsdrehzahl	Sélectionner la vitesse de sortie	Seleccionar la velocidad de salida
C	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	Auf der gleichen Linie wie die ausgewählte Motorleistung steht auch die Getriebeuntersetzung	Sur la ligne correspondante à la motorisation pré-choisie on peut relever le rapport de réduction	En la línea correspondiente al motor preseleccionado es posible encontrar la relación de reducción
D	Select motor flange available (if requested)	Scegli la flangia disponibile (se richiesta)	Erhältliche Motorflansche (auf Anfrage)	Choisir la bride disponible (si elle est demandée)	Seleccionar la brida disponible (sobre pedido)