

# Aluminum in line gearboxes

## A modular and compact product

### Alloy housing

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

### Flange

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

### Removable inspection cover

Allows periodic inspection of gearing during routine maintenance

### Oil seals

Two oil seals on request

### Output shaft

With well proportioned bearings

### Gears

Hardened and ground gears.

### Feet

Removable feet. With patented locking system.

### Foot prints

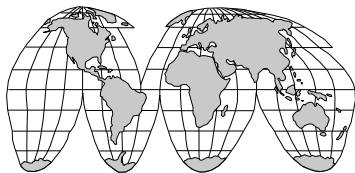
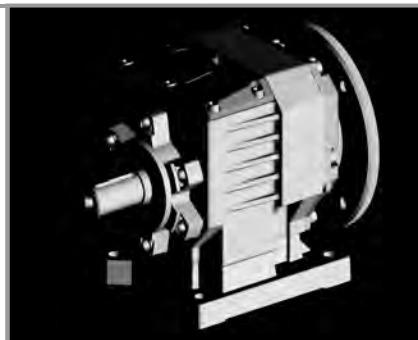
Compatible to the main standard of the market.

Lubricated for life with synthetic oil with operative range from  $-15^{\circ}$  to  $+130^{\circ}\text{C}$



### Single-piece aluminum alloy housing

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



World wide sales network.

# Specific type datasheet on page...

On page / A pagina / Auf Seite / En la página



Types / Tipi /  
Arten / Tipos →

6-5	6-7	6-9	6-11	6-13	6-15	6-17	6-19	6-21
202A 70Nm	302A 120Nm	402A 150Nm	403A 150Nm	452A 300Nm	502A 320Nm	503A 320Nm	602A 460Nm	603A 460Nm

On page / A pagina / Auf Seite / En la página



Types / Tipi /  
Arten / Tipos →

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

## ● Get on our web for the selected type/size the detailed informations

For : / Per : / Für : / Para :

**Selection guide - fs**  
Guida alla selezione

**Mounting pos. - Lubrication**  
Pos. di montaggio - lubrificazione

**2 - 6 poles selection**  
Selezione 2 - 6 poli

**Radial - axial loads**  
Carichi radiali e assiali

**Reversibility**  
Reversibilità

**Thermal limit**  
Limite termico

**Atex certification**  
Certificazione Atex

**Accessories**  
Accessori

**Download 3D drawings**  
Download disegni 3D

**Interchangeability**  
Intercambiabilità

**Installation and maintenance**  
Installazione, uso e manutenzione

**Spare parts list**  
Liste parti di ricambio

Type - Tipo - Typ - Tipo

Size - Grandezza  
Grösse - Tomaño

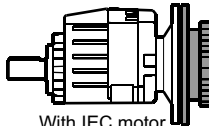
Mounting - Montaggio - Montage - Tipo de montaje

**P**

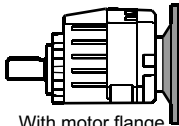
**402A**

**B2**

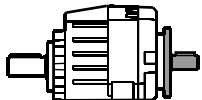
Aluminum coaxial gear boxes  
Riduttori coassiali in alluminio



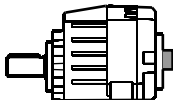
With IEC motor  
**M**



With motor flange  
**P**



With male input shaft  
**R**



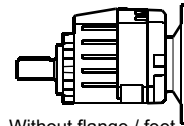
Modular base  
**B**

2 Stages  
Riduzioni  
Stufen  
Etapas

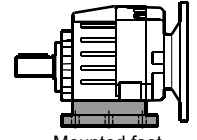
202A  
302A  
402A  
452A  
502A  
602A

3 Stages  
Riduzioni  
Stufen  
Etapas

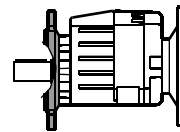
403A  
503A  
603A



Without flange / feet  
**-N**



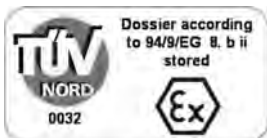
Mounted feet  
**B..**



Output flange mounted  
**-F**

Feet / piedini		G	H	R	L	L1	S
Feet Code	Market reference						
B1	112	18	85	110	87	50	
B2	212/3	18	100	130	107.5		
S1	17	18	75	110	90+20		
S2	27	25	90	110	130		
M1	42/3	25	80	110+120	85		
L4	04	13	80	105			
L5	05	16	100	125			

You see feet code in the chart of the dimensions  
Vedi codice piede nella tabella delle dimensioni

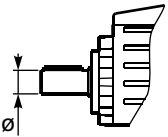
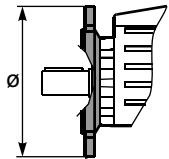
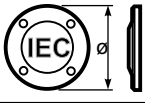


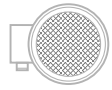



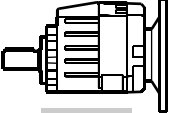
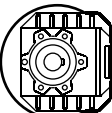
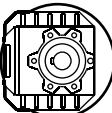
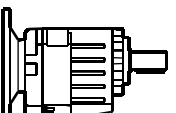
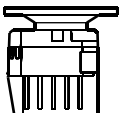

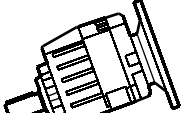


A richiesta possiamo fornire i nostri prodotti secondo le normative ATEX

On request we can deliver our products according to the ATEX

Auf Anfrage können wir unsere Produkte den Richtlinien ATEX entsprechend liefern

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

Ratio - Rapporto Untersetzung Relación	Output shaft Albero lento Abtriebswelle Eje en solida	Output flange Flangia uscita Ausgangsflansch Brida en salida	Motor size Grandezza motore Motor Größe Tamaño motor	Terminal box position Posizione morsettiere Klemmkastenlage Posición caja de bornes	Mounting position Posizione montaggio Einbaulage Position de montaje																												
<b>7.33</b>	<b>V</b>	<b>2</b>	<b>C</b>	<b>B</b>	<b>B3</b>																												
<p>See technical data table</p> <p>Vedi tabelle dati tecnici.</p> <p>Technisches Datenblatt beachten.</p> <p>Ver tabla datos técnicos</p>	 <p>→ <b>STANDARD</b></p> <p>202A</p> <p><b>S</b> ⇒ Ø14 <b>B</b> → <b>Ø16</b> <b>D</b> ⇒ Ø20 <b>V</b> ⇒ Ø25</p> <p>302A</p> <p><b>S</b> ⇒ Ø14 <b>B</b> ⇒ Ø16 <b>C</b> ⇒ Ø19 <b>D</b> → <b>Ø20</b> <b>E</b> ⇒ Ø24 <b>V</b> ⇒ Ø25 <b>G</b> ⇒ Ø28</p> <p>402A 403A</p> <p><b>S</b> ⇒ Ø14 <b>B</b> ⇒ Ø16 <b>C</b> ⇒ Ø19 <b>D</b> ⇒ Ø20 <b>E</b> ⇒ Ø24 <b>V</b> → <b>Ø25</b></p> <p>452A 502A 503A</p> <p><b>E</b> ⇒ Ø24 <b>V</b> ⇒ Ø25 <b>G</b> ⇒ Ø28 <b>H</b> → <b>Ø30</b> <b>I</b> ⇒ Ø35</p> <p>602A 603A</p> <p><b>G</b> ⇒ Ø28 <b>H</b> ⇒ Ø30 <b>I</b> → <b>Ø35</b> <b>L</b> ⇒ Ø38 <b>M</b> ⇒ Ø40</p>	 <p><b>N</b> Senza flangia Without flange</p> <p>202A 302A</p> <p><b>1</b> ⇒ Ø120 <b>2</b> → <b>Ø140</b> <b>3</b> ⇒ Ø160 <b>4</b> ⇒ Ø200</p> <p>402A 403A</p> <p><b>1</b> ⇒ Ø120 <b>2</b> → <b>Ø140</b> <b>3</b> ⇒ Ø160 <b>4</b> ⇒ Ø200 <b>5</b> ⇒ Ø250</p> <p>452A 502A 503A</p> <p><b>3</b> ⇒ Ø160 <b>4</b> → <b>Ø200</b> <b>5</b> ⇒ Ø250</p> <p>602A 603A</p> <p><b>3</b> ⇒ Ø160 <b>4</b> ⇒ Ø200 <b>5</b> → <b>Ø250</b></p>	<p><b>Standard Flange</b> Flangia Standard</p>  <table border="1"> <tr> <td><b>B5</b></td> <td><b>B14</b></td> </tr> <tr> <td><b>A</b>=56 (Ø120)</td> <td><b>O</b>=56 (Ø80)</td> </tr> <tr> <td><b>B</b>=63 (Ø140)</td> <td><b>P</b>=63 (Ø90)</td> </tr> <tr> <td><b>C</b>=71 (Ø160)</td> <td><b>Q</b>=71 (Ø105)</td> </tr> <tr> <td><b>D</b>=80 (Ø200)</td> <td><b>R</b>=80 (Ø120)</td> </tr> <tr> <td><b>E</b>=90 (Ø200)</td> <td><b>T</b>=90 (Ø140)</td> </tr> <tr> <td><b>F</b>=100+112 (Ø250)</td> <td><b>U</b>=100+112 (Ø160)</td> </tr> <tr> <td></td> <td><b>V</b>=132 (Ø200)</td> </tr> </table> <p><b>Type R / Tipo R</b></p>  <table border="1"> <tr> <td>202A 403A</td> <td>302A 402A 503A 603A</td> </tr> <tr> <td><b>1</b> → Ø14</td> <td><b>2</b> → Ø19</td> </tr> </table> <p>452A 502A 602A</p> <p><b>3</b> → Ø24</p> <p><b>Without flange / Senza flangia</b></p>  <table border="1"> <tr> <td>202A 403A</td> <td>302A 402A 503A 603A</td> </tr> <tr> <td><b>Z</b> ⇒ Ø9 (56B5)</td> <td><b>1</b> ⇒ Ø14 (71B5)</td> </tr> <tr> <td><b>0</b> ⇒ Ø11 (63B5)</td> <td><b>2</b> ⇒ Ø19 (80B5)</td> </tr> <tr> <td><b>1</b> → Ø14 (71B5)</td> <td><b>3</b> → Ø24 (90B5)</td> </tr> </table> <p>452A 502A 602A</p> <p><b>2</b> ⇒ Ø19 (80B5) <b>3</b> ⇒ Ø24 (90B5) <b>4</b> → <b>Ø28</b> (100B5)</p> <p>→ <b>STANDARD</b></p>	<b>B5</b>	<b>B14</b>	<b>A</b> =56 (Ø120)	<b>O</b> =56 (Ø80)	<b>B</b> =63 (Ø140)	<b>P</b> =63 (Ø90)	<b>C</b> =71 (Ø160)	<b>Q</b> =71 (Ø105)	<b>D</b> =80 (Ø200)	<b>R</b> =80 (Ø120)	<b>E</b> =90 (Ø200)	<b>T</b> =90 (Ø140)	<b>F</b> =100+112 (Ø250)	<b>U</b> =100+112 (Ø160)		<b>V</b> =132 (Ø200)	202A 403A	302A 402A 503A 603A	<b>1</b> → Ø14	<b>2</b> → Ø19	202A 403A	302A 402A 503A 603A	<b>Z</b> ⇒ Ø9 (56B5)	<b>1</b> ⇒ Ø14 (71B5)	<b>0</b> ⇒ Ø11 (63B5)	<b>2</b> ⇒ Ø19 (80B5)	<b>1</b> → Ø14 (71B5)	<b>3</b> → Ø24 (90B5)	 <p><b>A</b></p>  <p><b>B</b> STANDARD</p>  <p><b>C</b></p>  <p><b>D</b></p>	 <p><b>B3/B5</b> STANDARD</p>  <p><b>B6</b></p>  <p><b>B7</b></p>  <p><b>B8</b></p>  <p><b>V5</b></p>  <p><b>V6</b></p>  <p><b>V8</b></p> <p>Specify only for vertical positions</p> <p>Specificare solo per posizione verticale</p>
<b>B5</b>	<b>B14</b>																																
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POTENZA RICHIESTA / REQUIRED POWER / ERFORDERLICHE LEISTUNG / POTENCIA NECESARIA

Lifting / sollevamento / hubantriebe / elevación

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

Rotation / rotazione / drehung / rotation

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

Linear movement / traslazione / linearbewegung / translacion

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

TORQUE / COPPIA / DREHMOMENT / PAR

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

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

RADIAL LOADS / CARICHI RADIALI / RADIALE - UND AXIALLASTEN / 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.
- Cargas radiales, generada por transmisiones externas, aplicadas sobre los ejes de entrada y/o salida



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

**B** Output speed  
Velocità in uscita  
Abtriebsdrehzahl  
Velocidad de salida

Nominal power  
Potenza nominale  
Max. mögliche Leistung  
Potencia nominal

**A** Nominal torque  
Momento torcente nominale  
Nenn Drehmoment  
Par de torsión nominal

Flange code  
Codice flangia  
Flanschttype  
Código bridas

Input speed  
Velocità in entrata  
Eintriebsdrehzahl  
Velocidad de entrada

Gear size  
Grandezza riduttore  
Getriebegröße  
Tamaño reductor

Motor power  
Potenza motore  
Motorleistung  
Potencia motor

# 402A

## Coaxial - Gear 150Nm

Rating - Aluminum COAXIAL GEARBOXES

**QUICK SELECTION / Selezione veloce** input speed (n<sub>1</sub>) = 1400 min<sup>-1</sup>

Output Speed n <sub>2</sub> [min <sup>-1</sup> ]	Ratio i	Motor power P <sub>1M</sub> [kW]	Output torque M <sub>2M</sub> [Nm]	Service factor f.s.	Nominal power P <sub>1R</sub> [kW]	Nominal torque M <sub>2R</sub> [Nm]	Available B5 motor flanges				Available B14 motor flanges				Output Shaft			
							B	C	D	E	Q	R	T	U				Ratio code
398	<b>3.52</b>	3	69	1.2	3.5	80	B				C	C			2821			-
320	<b>4.37</b>	3	86	1.0	3.1	90	B				C	C			2818			
252	<b>5.55</b>	3	109	0.9	2.8	100	B				C	C			2813			
220	<b>6.36</b>	2.2	92	1.0	2.3	95	B				C	C			1921			
191	<b>7.33</b>	2.2	106	1.1	2.5	120	B				C	C			2812			

**C** Ratio  
Rapporto  
Untersetzung  
Relación

Transmitted torque  
Momento torcente trasmesso  
Mögliche Drehmomente  
Par transmitido

Service factor  
Fattore di servizio  
Betriebsfaktor  
Factor de servicio

Output shaft diam.  
Diam. albero uscita  
Durchmesser abtriebswelle  
Diametro eje de salida

Notes  
Note  
Anmerkungen  
Notas

**fs**

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  
Bridas disponibles

<b>B)</b>	Mounting with reduction ring Montaggio con boccia di riduzione Reduzierhülsen Montaje con casquillo de reducción	
<b>C)</b>	Motor flangeholes position/terminal box position Posizione fori flangia/basetta motore Bohrungsposition am Motorflansch/-sockel Posición agujeros brida / base motor	
<b>B)</b>	Available without reduction bushes Disponibile anche senza boccia Auch ohne Reduzierbuchse verfügbar Disponible tambien sin casquillo	

<b>A</b>	Select required torque (according to service factor)	Seleziona la coppia desiderata (comprensiva del fattore di servizio)	Max. Drehmoment in Bezug zum Betriebsfaktor	Seleccionar el par deseado (incluyendo el factor de servicio)
<b>B</b>	Select output speed	Seleziona la velocità in uscita	Ausgewählte Abtriebsdrehzahl	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	Auf der gleichen Linie wie die ausgewählte Motorleistung steht auch die Getriebeuntersetzung	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)	Erhältliche Motorflansche (auf Anfrage)	Seleccionar la brida disponible (sobre pedido)