A-C-F
Servo gearmotors
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New combination of gearboxes for dynamic acceleration and more precise performance.
A new generation of gearmotors

Bonfiglioli’s impressive offering of industrial gearmotors reaches new heights of excellence when combined with BMD permanent magnet synchronous motors. The range and modularity of the A-C-F platform, which includes Bonfiglioli’s famous bevel-helical, parallel shaft and shaft-mounted units, have been extended by the synergy with next generation servomotors designed and developed entirely by Bonfiglioli’s own mechatronic division. The result is a perfectly balanced power transmission system with far better dynamic performance, efficiency and precision than could ever be achieved using conventional induction motors. Superior performance and an extended torque range make this new combination of gearboxes and motors both a premium alternative to conventional gearmotors and a logical extension to Bonfiglioli’s existing range of low backlash gearboxes.
**Benefits**

- Servomotors with high accelerating torque combined with robustly designed industrial gearboxes guarantee improved productivity in applications involving cyclical movements, and drastically reduce cycle times too.
- And if precision is a requirement, gearboxes are also available in low backlash versions to make full use of the positioning accuracy provided by the servomotors.
- Thanks to the high power density of the synchronous motors, this new generation of gearmotor is ideal for applications where limited space is available for the drive system.
- A wide range of construction types and mountings allows customers to choose the most suitable configuration for their application.
- These new concept gearmotors also benefit from a combination that offers high efficiency in excess of class IE3.

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**OVERVIEW**

- Extended range and close progression of torque ratings
- Extended range and close progression of reduction ratios
- Optional low backlash version available
- High efficiency drive line
- Large number of conventional gearbox versions and options
- Quick and easy connection of the motor
- Perfect solution for significant dynamics, cyclical applications
Typical applications

- **ROTARY TABLE SOLUTIONS**
- **MATERIAL HANDLING SOLUTIONS**
- **ROTARY MACHINE SOLUTIONS**
- **PACKAGING SOLUTIONS**
- **PHOTOVOLTAIC PANEL SOLUTIONS**
- **PICK AND PLACE SOLUTIONS**
# Range

<table>
<thead>
<tr>
<th></th>
<th>A_BMD</th>
<th>C_BMD</th>
<th>F_BMD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sizes</strong></td>
<td>9</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td><strong>Number of stages</strong></td>
<td>2, 3, 4</td>
<td>2, 3, 4</td>
<td>2, 3, 4</td>
</tr>
<tr>
<td><strong>Accelerating torque range (Nm)</strong></td>
<td>110-2800</td>
<td>45-1600</td>
<td>140-2900</td>
</tr>
<tr>
<td><strong>Output speed range (rpm)</strong></td>
<td>1.9-571</td>
<td>1.6-1077</td>
<td>0.9-437</td>
</tr>
<tr>
<td><strong>Reduction ratio range</strong></td>
<td>4.9-793</td>
<td>2.6-885</td>
<td>6.4-1539</td>
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<tr>
<td><strong>Motor efficiency class</strong></td>
<td>Comparable to IE4</td>
<td>Comparable to IE4</td>
<td>Comparable to IE4</td>
</tr>
<tr>
<td><strong>Low backlash values</strong></td>
<td>4-12</td>
<td>7-13</td>
<td>-</td>
</tr>
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## VERSIONS

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<tr>
<th>Provisions for servomotor</th>
<th>Input with keyway</th>
<th>Input with clamping device</th>
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<td><strong>Provisions for output</strong></td>
<td>• Hollow shaft with keyway</td>
<td>• Casing with integral feet</td>
</tr>
<tr>
<td></td>
<td>• Solid single sided shaft</td>
<td>• Casing with integral flange</td>
</tr>
<tr>
<td></td>
<td>• Solid through shaft</td>
<td>• UNIBOX universal casing</td>
</tr>
<tr>
<td></td>
<td>• Hollow shaft with shrink disc</td>
<td>• UNIBOX casing with machined flange</td>
</tr>
<tr>
<td></td>
<td>• Hollow shaft with splines (DIN 5480)</td>
<td>• Hollow shaft with keyway</td>
</tr>
<tr>
<td></td>
<td>• Hollow shaft with adapter bushes and shrink disc</td>
<td>• Hollow shaft with shrink disc</td>
</tr>
<tr>
<td><strong>Surface protection</strong></td>
<td>C3, C4</td>
<td>Fluoroelastomer seals</td>
</tr>
<tr>
<td><strong>Seals</strong></td>
<td></td>
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</tbody>
</table>
Combination and performance examples

**CONFIGURATION 1**

A 10 2 stages (ratio i ~ 20) flange SK95B + BMD 82 4.4 3000 rpm 400 115 19

Potential application:
Duty S3 20%
Resisting torque (load) $M_2 \sim 100$Nm
Output speed $n^2 \sim 150$rpm

Gearmotor performance:
Efficiency in nominal service: >IE3
Inertia: $4.7 \times 10^{-4}$ kgm$^2$
Accelerating torque: 171 Nm

**CONFIGURATION 2**

F 31 2 stages (ratio i ~ 20) flange SK110B + BMD 118 14 3000 rpm 400 130 24

Potential application:
Duty S3 20%
Resisting torque (load) $M_2 \sim 300$Nm
Output speed $n^2 \sim 150$rpm

Gearmotor performance:
Efficiency in nominal service: >IE3
Inertia: $13.6 \times 10^{-4}$ kgm$^2$
Accelerating torque: 562 Nm
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