

## Electro- mechanical Application Solutions

The efficient  
and open drive  
technology  
platform



 **Bauer Gear Motor®**  
*Altra Industrial Motion*



**WORKING MACHINE**

## TRANSMISSION ELEMENTS

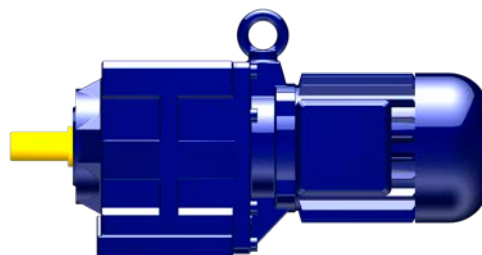
Simple mechanical connection to your machine



**Couplings**

## GEAR TECHNOLOGY

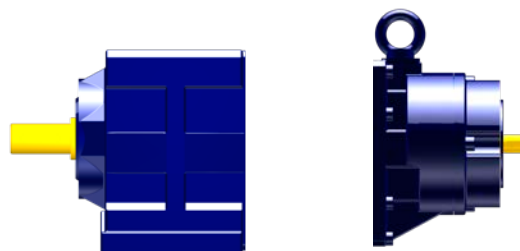
Low complexity through intelligent modular system



**Integral motor connection**



**Flange motor connection (C/IEC, C/NEMA)**



**Free running input shaft (SN)**



**Your own solution for series production (SSD)**

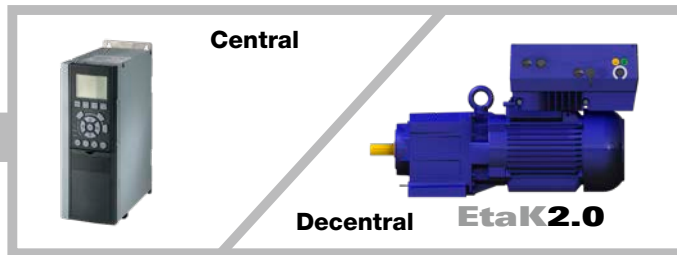


## TRANSMISSION ELEMENTS

Simple mechanical connection between motor, machine and gearbox

## CONTROL ELECTRONICS

Open systems for your application

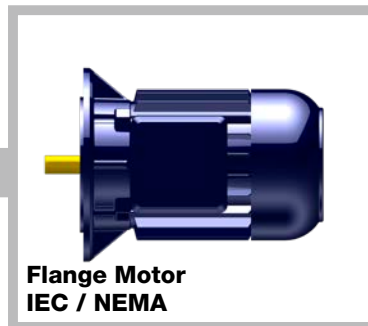


## MOTOR TECHNOLOGIES

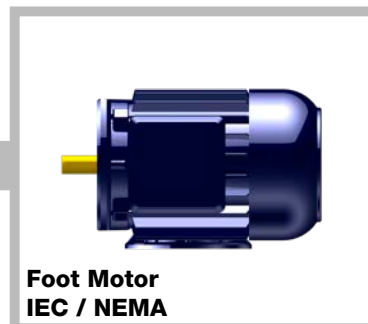
Open systems for your application



**Couplings**



**Flange Motor  
IEC / NEMA**

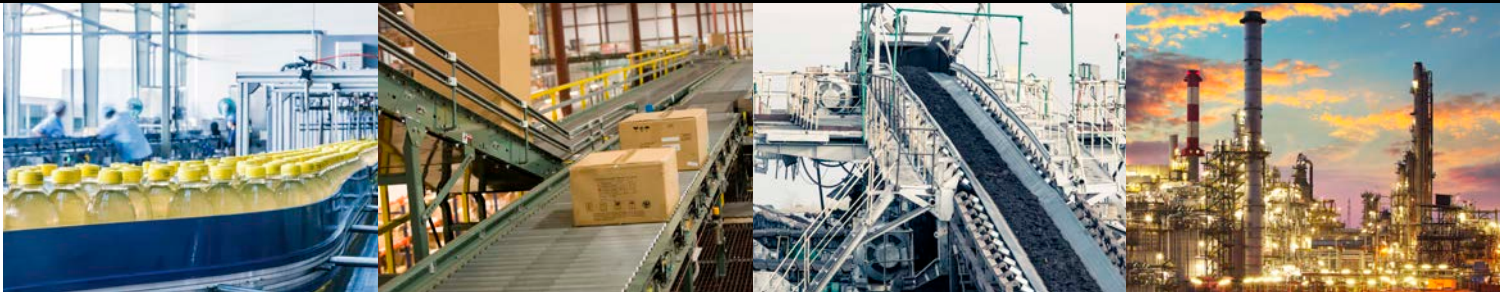


**Foot Motor  
IEC / NEMA**

**MAINS SUPPLY**

## THE ALTRA-BAUER DRIVETRAIN





## BAUER - HOLISTIC OPTIMISATION APPROACH

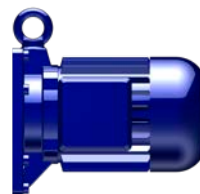
Energy Efficiency and Conservation of Resources in the complete System

- The **optimisation** of the Altra Bauer drivetrain is achieved in the **individual components** (I - III) using the holistic approach, **integrating your machine** and your application.
- Besides achieving greater **energy efficiency of the drivetrain**, the aim is to simplify the system (for example, by way of reducing the components).

**Working Machine**

**Drive Concept**

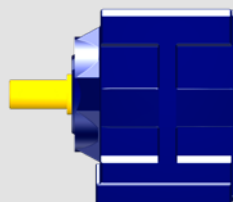
**Driving Machine**



**Motors**



**Speed Control**



**Gear Technologies**



**Optimisation of your Drivetrain**





## ENERGY SAVING POTENTIAL

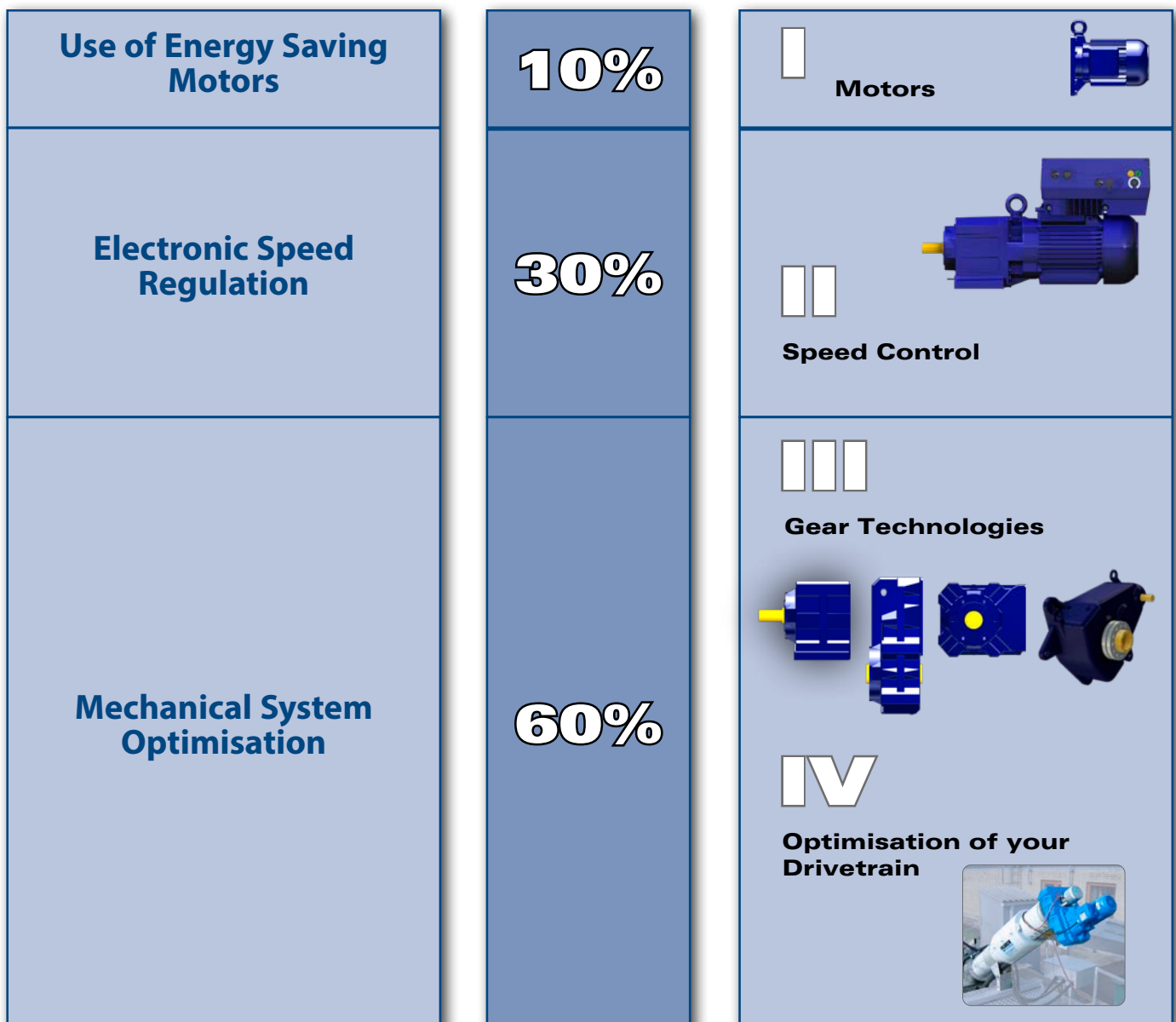
### Consideration of the complete Electromechanical Drive System

- The potential energy savings in electro-mechanical drive systems are distributed according to the ZVEI model as shown in the graphic below.
- BAUER provides **products for all areas of the system** and, on the basis of the Pareto Principle, focuses on the **optimisation** of the **mechanical system** as that is where the **greatest saving potential** lies.

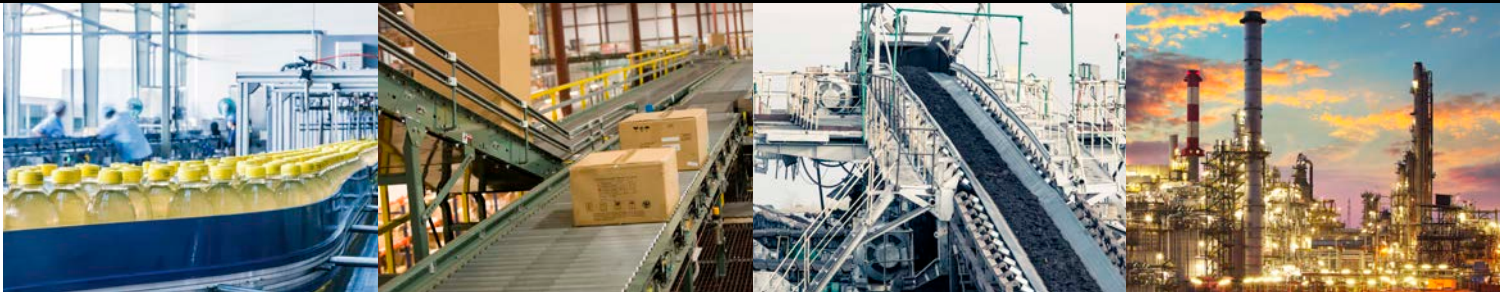
### Where do your potential savings lie?

%

### Which solutions does Bauer provide?

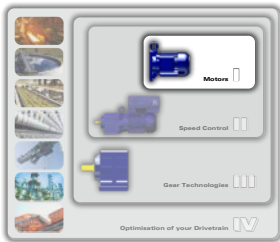


Source: ZVEI - Energiesparen mit Elektrische Antrieben

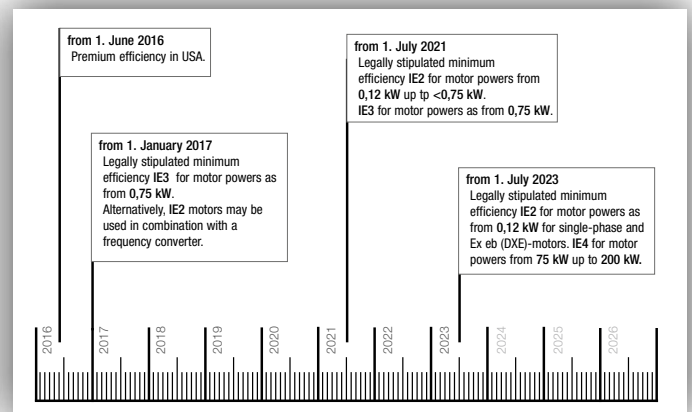
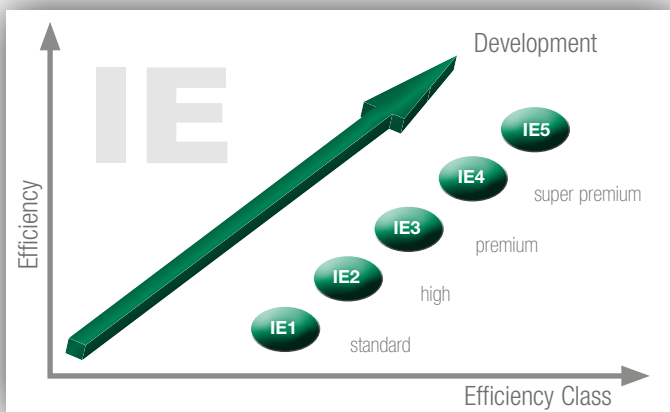


## BAUER MOTORS - AHEAD OF THE TIMES

The first step to success -  
Motor Competence in-House



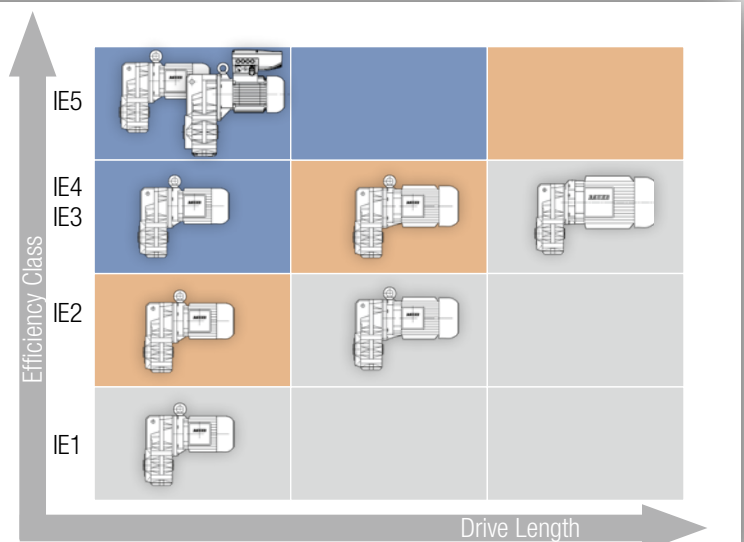
- Bauer's development of the **Permanent Magnet Synchronous Motor** – which meets the requirements up to energy efficiency class IE5 according to IEC TS 60034-30-2 – means Bauer is far **ahead of schedule** regarding the timeline for the **statutory regulations**.
- Bauer supplies a **full modular range of motors for all energy efficiency classes (IE1 to IE5)** to ensure the optimal motor choice can be made for each application.



Through the flexible implementation of three available rotor systems - aluminium, copper, and permanent magnet - highly efficient drive solutions in efficiency classes IE1 to IE5 can be attained without additional space requirements.

	ALU	COPPER	PMSM*
IE5			x
IE4	x	x	x
IE3	x	x	x
IE2	x	x	
IE1	x		

\*according to IEC TS 60034-30-2



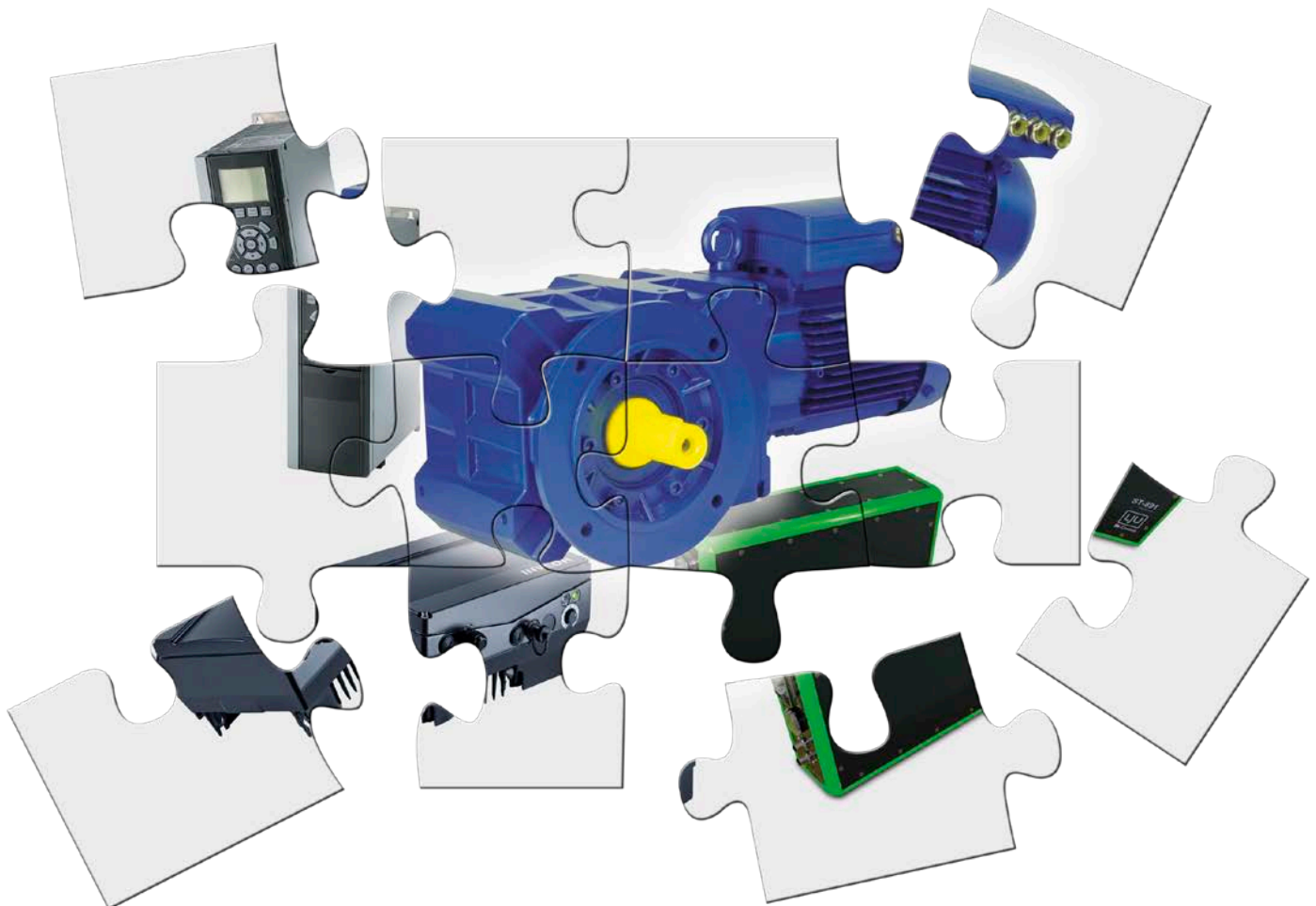
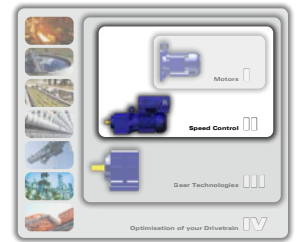


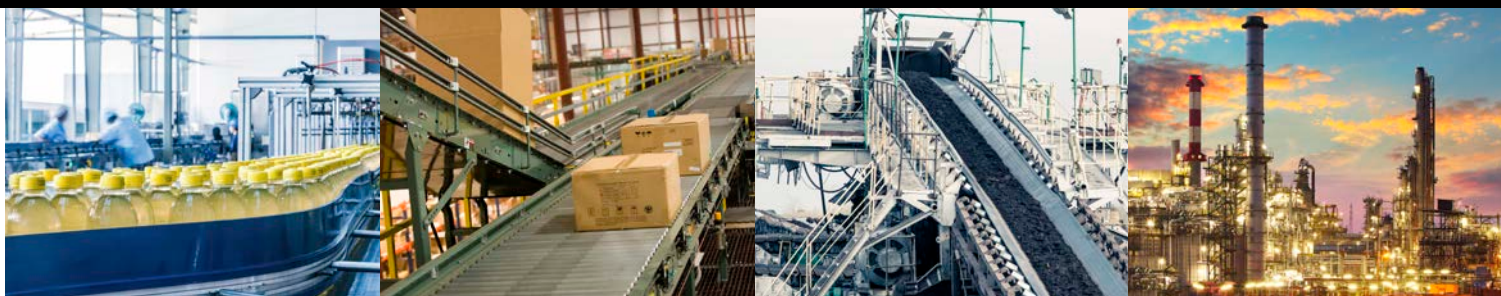


## SPEED CONTROL

The second step to success -  
System experts through strong partnerships

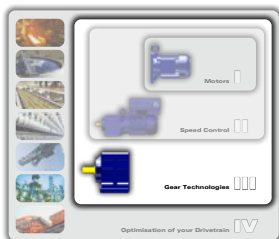
- The use of a speed control device generally leads to an increase in the efficiency of the drive system.
- Various control and monitoring concepts have established themselves for optimal use in several application areas.
- Based on the particular application, Bauer works with **experts** who **understand the monitoring and control tasks for the application environment the best**. There are different challenges, for example, in the automobile industry, in iron and metallurgical engineering or in the food processing industry.
- The application experts at Bauer work hand-in-hand with our system partners to further optimise the electro-mechanical drivetrain.





## GEAR TECHNOLOGIES

The third step to success -  
The Gear Motor Specialist since 1927



- Bauer supplies a **standard modular gear programme** and develops **special gearboxes**.
- Supported by the **Bauer Pilot Plant**, the application experts optimise gears in relation to energy efficiency, smoothness of running, noise characteristics, impact resistance and much more.
- Through the use of a rapid prototyping process, Bauer achieves the **shortest time to market for special gearing solutions**.
- Bauer provides **small industrial gear motors** in a torque range of **less than 100Nm** in all four ranges BG, BF, BK, and BS. This means that you can find exactly the right drive for your application and avoid unnecessary oversizing. **That saves money!**



### Modular

The "All-Rounder" for multiple applications.

- Conveying
- Material Handling

#### Helical BG-Range

Power	0,03 ... 75	kW
Torque	20 ... 18.500	Nm
Your Benefit	Robust design leads to long service intervals.	

#### Parallel Shaft BF-Range

Power	0,03 ... 75	kW
Torque	90 ... 18.500	Nm
Your Benefit	Compact mounting and multiple possibilities for attachment reduce the space requirements.	

#### Bevel BK-Range

Power	0,03 ... 75	kW
Torque	80 ... 18.500	Nm
Your Benefit	Energy efficient due to the highly efficient two-stage base design.	

#### Worm BS-Range

Power	0,03 ... 5,5	kW
Torque	25 ... 1.000	Nm
Your Benefit	Compact and resilient through high quality worm gearing. Thus long lifetime and low servicing costs.	



### Application Specific

The "Application Master" - the perfect fit for your application.

- Basic Metal
- Food & Beverage
- Crane Technologies
- Bulk Material Handling
- Water / Waste Water
- Textile
- Chemical Industry
- Automotive



### Customer Specific

The "Integration Expert" - optimally integrated in your machine.

- Textile Industry
  - Flat bed knitting machine
  - Circular knitting machine
  - Weaving machine
- Printing Industry
  - Offset printing machine:
  - Web and sheet offset
- Packaging Industry
  - Band strapping devices
  - Pallet packing presses
  - Rotary arm winder

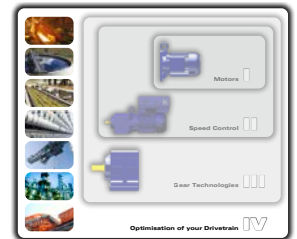




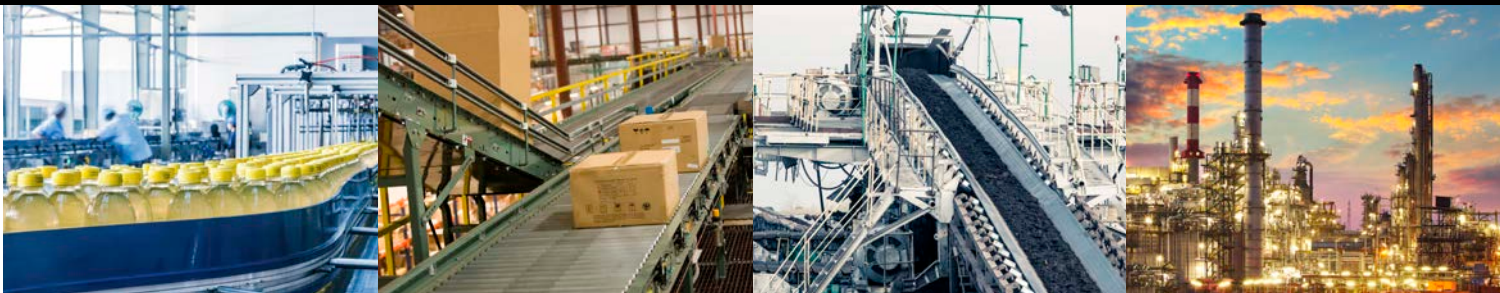
## IV WORKING MACHINE

## The fourth step to success - Application Consultancy and Integration

- The aim of optimising the drivetrain in several dimensions (energy efficiency, dynamic, static, vibrations, etc.) requires a systemic view including the machine and the customer application.
- Bauer has built up an **organisation with application experts** who consider in great detail the requirements of the respective application and develop an appropriate solution.
- Application solutions are characterised, for example, by gearing that takes over the bearing functions from the machine, thereby **reducing the components in the entire electro-mechanical drivetrain**.



	<h3>Automotive</h3> <p>Application</p> <ul style="list-style-type: none"> <li>• Monorail</li> <li>• Points</li> <li>• Heat Exchanger</li> </ul>	<h3>Basic Metal</h3> <p>Application</p> <ul style="list-style-type: none"> <li>• Roller Table</li> <li>• Chain Conveyor</li> <li>• Swedish Lever</li> </ul>	
	<h3>Logistics</h3> <p>Application</p> <ul style="list-style-type: none"> <li>• Monorail</li> <li>• Floor transport</li> <li>• Automatic Stocking</li> </ul>	<h3>Food &amp; Beverage</h3> <p>Application</p> <ul style="list-style-type: none"> <li>• Chain Conveyor</li> <li>• Turning Drive</li> <li>• Guidance Rollers</li> </ul>	
	<h3>Packaging</h3> <p>Application</p> <ul style="list-style-type: none"> <li>• Plastic</li> <li>• Box</li> <li>• Automatic Arm Winder</li> </ul>	<h3>Crane Technologies</h3> <p>Application</p> <ul style="list-style-type: none"> <li>• Drive</li> <li>• Hoist</li> <li>• Turn</li> </ul>	
	<h3>Wood Processing</h3> <p>Application</p> <ul style="list-style-type: none"> <li>• Chain Conveyor</li> <li>• Needle Roller</li> <li>• Guidance Rollers</li> </ul>	<h3>Bulk Material Handling</h3> <p>Application</p> <ul style="list-style-type: none"> <li>• Bucket Conveyor</li> <li>• Conveyors</li> <li>• Separator</li> </ul>	
	<h3>Machine Tooling</h3> <p>Application</p> <ul style="list-style-type: none"> <li>• Tube Processing</li> <li>• Swarf Conveyor</li> <li>• Pallet Changer</li> </ul>	<h3>Water / Waste Water</h3> <p>Application</p> <ul style="list-style-type: none"> <li>• Clarifier</li> <li>• Disk Thickener</li> <li>• Agitator / Aerator</li> </ul>	
	<h3>Pumps</h3> <p>Application</p> <ul style="list-style-type: none"> <li>• Centrifuge</li> <li>• Spinning</li> <li>• Screw</li> </ul>	<h3>Textile</h3> <p>Application</p> <ul style="list-style-type: none"> <li>• Pumps</li> <li>• Carding</li> <li>• Weaving</li> </ul>	
	<h3>Printing Industry</h3> <p>Application</p> <ul style="list-style-type: none"> <li>• Offset</li> <li>• Digital</li> <li>• Cutting and Folding</li> </ul>	<h3>Chemical Industry</h3> <p>Application</p> <ul style="list-style-type: none"> <li>• Agitator</li> <li>• Mixer</li> <li>• Centrifuge</li> </ul>	



## ELECTROMECHANICAL APPLICATION SOLUTIONS

- In addition to motor and transmission components, electro-mechanical drivetrains usually include joining elements such as clutches or belt drives.
- Within the Altra Group, application experts from various product areas work together to ensure the optimal combination of these drive components.
- An example of a vibration optimised drive system for a roller table in a steel plant, is the combination of the Bauer helical gear motor from the BG series and the highly elastic DURA-FLEX couplings.
- Bauer application experts select the **best suited gear-clutch combination** for every application from the comprehensive range of **Altra couplings**, ensuring the optimal electro-mechanical system in terms of energy efficiency and conservation of resources.
- However, should couplings not be desired due to design or space considerations, Bauer engineers will **integrate** the entire gear motor **directly into the machine**.

### BG-Range

#### Helical Geared Motors

- Motor power from 0.03 kW to 75 kW
- 13 gearbox sizes for torques from 20 Nm to 18500 Nm
- High efficiency through 2 stage base design
- Enclosure IP 65 as standard
- New attachment possibilities with low design height



### BF-Range

#### Parallel Shaft Geared Motors

- Motor power from 0.03 kW to 75 kW
- 10 gearbox sizes for torques from 90 Nm to 18500 Nm
- High efficiency through 2 stage base design
- Enclosure IP 65 as standard
- Gearbox housing with integral torque arm



### BK-Range

#### Bevel Geared Motors

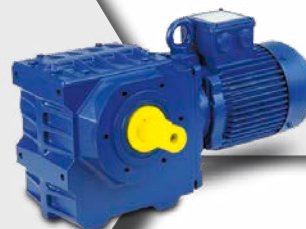
- Motor power from 0.03 kW to 75 kW
- 10 gearbox sizes for torques from 80 Nm to 18500 Nm
- High efficiency through 2 stage base design
- Enclosure IP 65 as standard
- The right angle gearbox with universal attachment



### BS-Range

#### Worm Geared Motors

- Motor power from 0.03 kW to 5.5 kW
- 8 gearbox sizes for torques from 25 Nm to 1000 Nm
- Hollow shaft version already available from 25 Nm
- High loadable worm gearing for long lifetime
- Enclosure IP 65 as standard



Source: Hans Huber AG





## Energy Efficiency and Conservation of Resources in the complete System



### DURA-FLEX

up to 4.500 Nm

- Easy to assemble/replace
- High misalignment ratings
- No maintenance/lubrication
- Part-for-part interchangeable with industry standard design
- In-stock versatile spacer design can accommodate many configurations with few parts

#### Typical Applications

- Pumps
- Fans/Blowers
- Compressors
- Electric Motors
- Conveyors



### FORM-FLEX

up to 270.000 Nm

- No maintenance
- Zero backlash
- Close couple, spacer and floating shaft designs available
- Easy interchangeability

#### Typical Applications

- Engine Driven Equipment
- Printing Presses
- Machine Tools
- Positioning Systems
- Food Processing Equipment
- Reciprocating compressors



### III Series

up to 147.000 Nm

- Models available for use on vertical and/or horizontal shafts
- Bore capacity up to 510 mm
- High torque to weight ratio
- Half per half interchangeability

#### Typical Applications

- Steam Turbines
- Printing Presses
- High Torque Motors



### SURE-FLEX

up to 8.200 Nm

- Easy assembly
- Spacer, bushed hub, and clamping hub designs in stock
- Flexible design accommodates misalignment and protects equipment
- No maintenance/lubrication

#### Typical Applications

- Pumps
- Fans/Blowers
- Compressors
- Electric Motors
- Mixers
- Conveyors



### L-JAW

up to 700 Nm

- No maintenance/lubrication
- Part-for-part interchangeable with industry standard design
- Fail-safe design – equipment will continue to drive if elastomer fails
- Wide range of in-stock inch and metric bore sizes

#### Typical Applications

- Pumps
- Fans/Blowers
- Electric Motors
- Compressors



### TORSIFLEX

up to 60.000 Nm

- No maintenance
- Zero backlash
- Custom designs including close coupled, long spacer arrangements available
- Easy interchangeability
- Standard sizes available from stock

#### Typical Applications

- API610 Pumps
- Screw Compressors
- Turbo Compressors
- Electric Motors



## Bauer Gear Motor Facilities

### Europe

#### Germany

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73734 Esslingen - Germany  
+49 711 3518 0

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+44 1606 868600

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ShaJing Town - BaoAn District  
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+86 755 27246308

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+358 207 189700

#### France

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#### Italy

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+39 049 8792327

#### Russia

Volokolamskoye sh., 142, of.321/4  
Business Center „Irbis“  
125464 Moscow - Russia  
+7 495 6420468

## The Brands of Altra Motion

### Couplings

**Ameridrives**  
[www.ameridrives.com](http://www.ameridrives.com)

**Bibby Turboflex**  
[www.bibbyturboflex.com](http://www.bibbyturboflex.com)

**Guardian Couplings**  
[www.guardiancouplings.com](http://www.guardiancouplings.com)

**Huco**  
[www.huco.com](http://www.huco.com)

**Lamiflex Couplings**  
[www.lamiflexcouplings.com](http://www.lamiflexcouplings.com)

**Stromag**  
[www.stromag.com](http://www.stromag.com)

**TB Wood's**  
[www.tbwoods.com](http://www.tbwoods.com)

### Linear Systems

**Thomson**  
[www.thomsonlinear.com](http://www.thomsonlinear.com)

### Geared Cam Limit Switches

**Stromag**  
[www.stromag.com](http://www.stromag.com)

### Engineered Bearing Assemblies

**Kilian**  
[www.kilianbearings.com](http://www.kilianbearings.com)

### Electric Clutches & Brakes

**Matrix**  
[www.matrix-international.com](http://www.matrix-international.com)

**Stromag**  
[www.stromag.com](http://www.stromag.com)

**Warner Electric**  
[www.warnerelectric.com](http://www.warnerelectric.com)

### Belted Drives

**TB Wood's**  
[www.tbwoods.com](http://www.tbwoods.com)

### Heavy Duty Clutches & Brakes

**Twiflex**  
[www.twiflex.com](http://www.twiflex.com)

**Stromag**  
[www.stromag.com](http://www.stromag.com)

**Svendborg Brakes**  
[www.svendborg-brakes.com](http://www.svendborg-brakes.com)

**Wichita Clutch**  
[www.wichitaclutch.com](http://www.wichitaclutch.com)

### Gearing & Specialty Components

**Bauer Gear Motor**  
[www.bauergears.com](http://www.bauergears.com)

**Boston Gear**  
[www.bostongear.com](http://www.bostongear.com)

**Delevan**  
[www.delevan.com](http://www.delevan.com)

**Delroyd Worm Gear**  
[www.delroyd.com](http://www.delroyd.com)

**Nuttall Gear**  
[www.nuttallgear.com](http://www.nuttallgear.com)

### Engine Braking Systems

**Jacobs Vehicle Systems**  
[www.jacobsvehiclesystems.com](http://www.jacobsvehiclesystems.com)

### Precision Motors & Automation

**Kollmorgen**  
[www.kollmorgen.com](http://www.kollmorgen.com)

### Miniature Motors

**Portescap**  
[www.portescap.com](http://www.portescap.com)

### Overrunning Clutches

**Formsprag Clutch**  
[www.formsprag.com](http://www.formsprag.com)

**Marland Clutch**  
[www.marland.com](http://www.marland.com)

**Stieber**  
[www.stieberclutch.com](http://www.stieberclutch.com)

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