

Bauer Production Concept - customer-focused and flexible

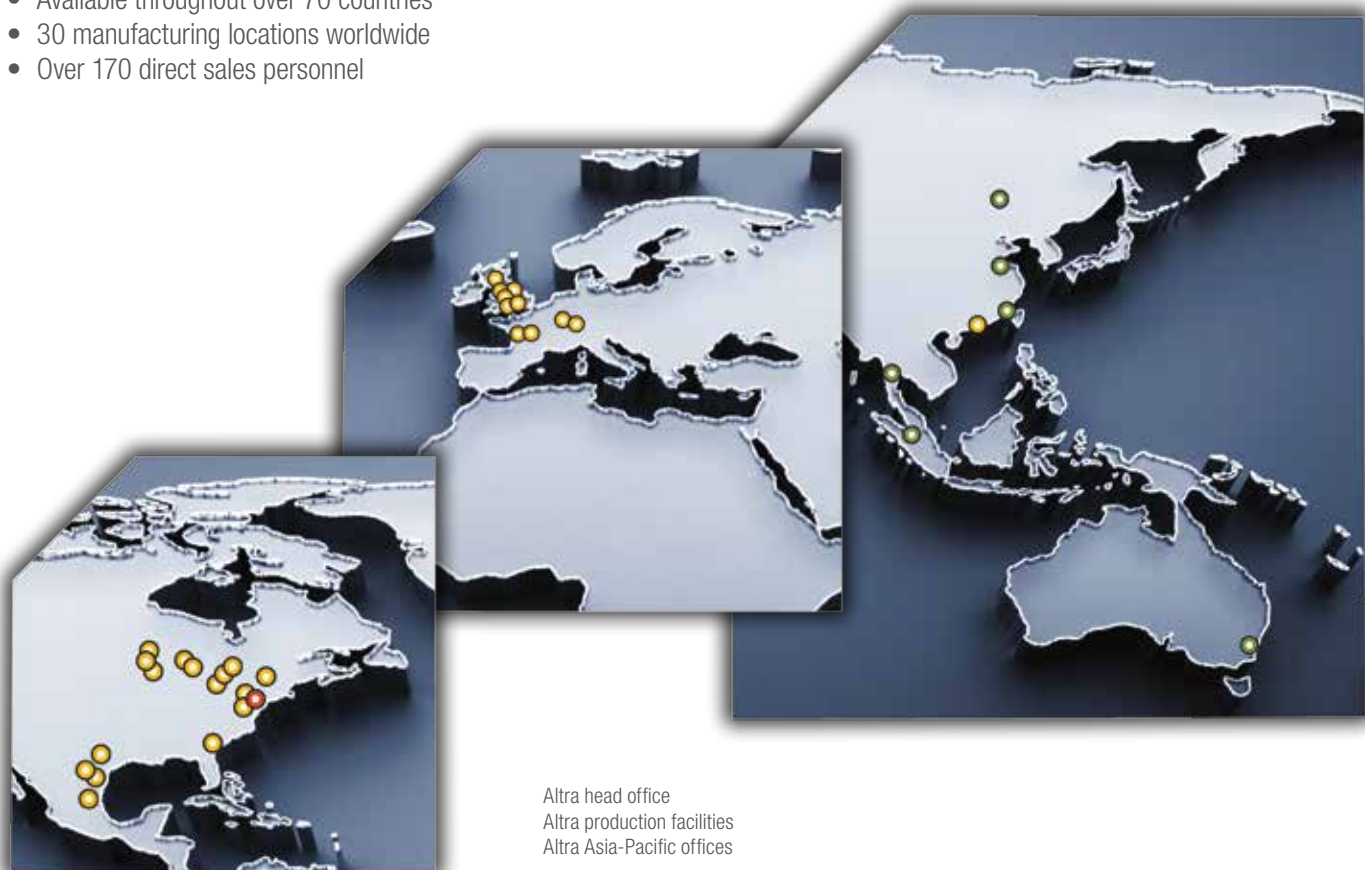


Ihre treibende Kraft
Your driving power since 1927

Altra

Global Presence - Local Support

- Available throughout over 70 countries
- 30 manufacturing locations worldwide
- Over 170 direct sales personnel



Altra has factories, sales points and services in many different countries across five continents and uses the industry's leading sales channels. As it increases its presence, Altra can offer its customers worldwide outstanding customer service and support.

Altra has comprehensive product offerings, including various types of clutches and brakes, overrunning clutches, customised ball bearings, linear actuators, belted drives along with gearing and geared motors.

Operating independently within the Altra Group, Bauer Gear Motor is committed to the guiding principles of operational excellence, continuous improvement and customer satisfaction.

The Bauer Production Concept

Prepared for Industry 4.0



Coated according to your specifications

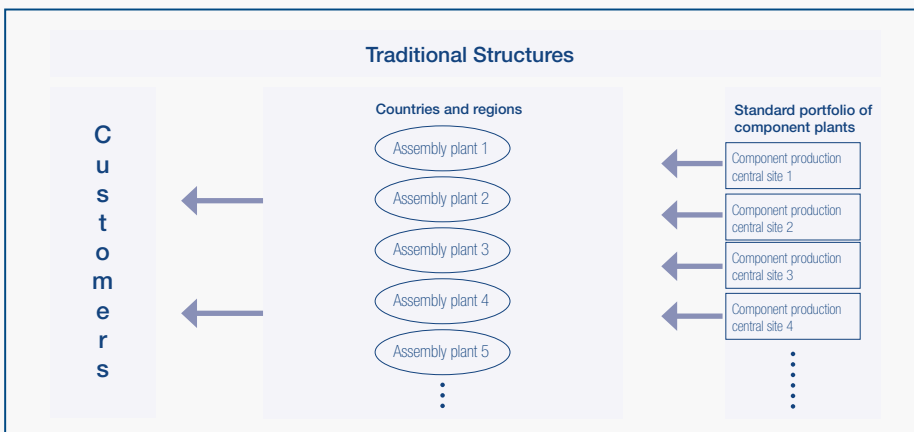


Traditional Production Structures

Until now assembly concepts have been based on the following structure:

- Standardisation of a modular system using standardised components.
- Based on this modular system, variants of geared motors are defined using a configurator.
- These are put together in local assembly centres to form complete geared motors and then delivered to the customers.

As a result, standardised geared motor variants are available quickly and locally. Special customised solutions, however, are complicated and can only be achieved through highly complex logistical efforts.



Prepared for the Future

More customised variants are required to optimise future applications. For example, IE3 motors have been established as the industry standard. However, these are most efficient at the rated performance and speed. In many applications these are, therefore, not suited for partial-load operations and, in the worst case scenario, can even cause high power loss. This implies that a high efficiency level is not aimed for in the real working environment. It is eco-

nomically feasible for an electric motor to be optimised for partial loads at the design phase, with the aim of sustaining less power loss and lower production costs in comparison with an IE3 standard motor. Partial load optimised motors often require a frequency converter and cannot be used on mains supply. These are for example, permanent-magnet motors or asynchronous motors with special coils. These variants need to be made available quickly and reliably.

Quick and Reliable Variants

A large variety of products are not economically compatible with decentralised assembly centres.

*"The aim is for a flexible, smart factory which stands out as flexible, resource-efficient and ergonomic, while integrating customers and business partners into the business and value added processes. Using computers and IT to produce more information is referred to as Industry 4.0."**

The Industrial Revolutions

- The First: Mechanisation using water and steam power
- The Second: Mass production through assembly lines and electrical power
- The Third: Digital revolution, using electronics
- The Fourth: Smart factories

The new networked production and manufacturing technologies of Industry 4.0 offer the chance to make improvements:

- Flexibility
- Resource efficiency
- Ergonomics
- Integration of customers and business partners in the value chain.

*Source: Wikipedia



The Bauer Production Concept

Prepared for Industry 4.0

BAUER PRODUCTION CONCEPT

Regional geared motor production

Factory Network
Bauer Esslingen / Zlate Moravce

Flexible mechanical manufacturing
Motor manufacturing
Geared motor assembly

Customers

Local Bauer service centre

Objectives of the Bauer Production Concept:

The conditions for versatility are:

- Flow production optimised for one-piece-flow.
- All manufacturing processes are standardised.
- The logistical flow of material and products contributes to customised one-piece-flow production.
- Both order registration and the delivery process are integral parts of the Bauer manufacturing concept.

With the production concept, which has now been rolled out for Bauer geared motors, we can achieve the flexibility required for Industry 4.0.

New Bauer Production Concept

Bauer sets up regional geared motor manufacturing factories for each large region of the world and has invested tens of millions in Esslingen and opened the first location in Europe with the new Bauer production concept. It works in association with the factories in Zlaté Moravce (Slovakia).

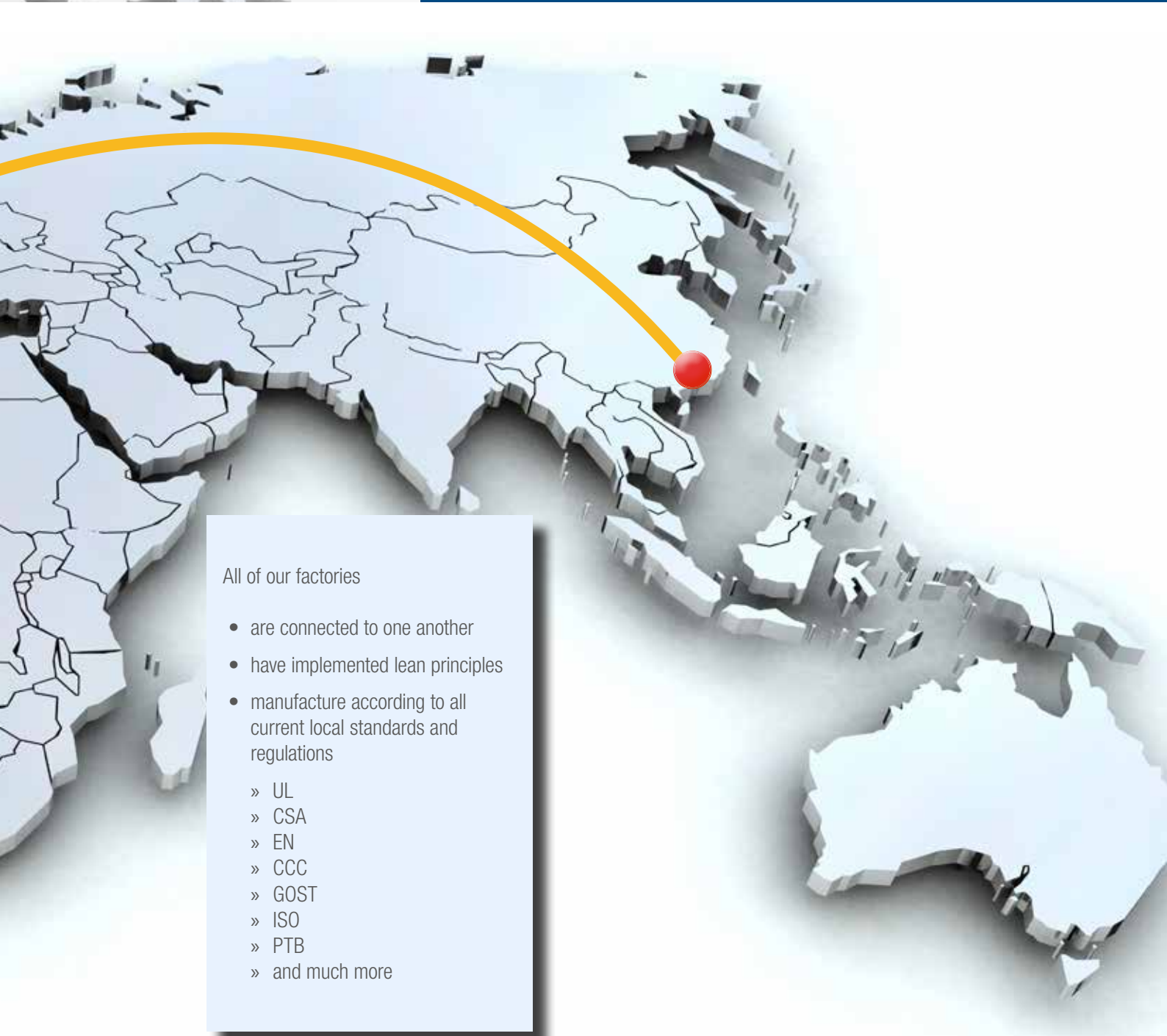
Another investment program worth several million euros to boost the flexibility of our mechanical manufacturing in Slovakia will further strengthen flexibility. Further investment is planned for China and USA to meet the rising demand for Bauer geared motors in these regions. Our local service centres ensure that replacement geared motors and replacement parts are made available quickly.





Regional Manufacturing Locations

Bauer Gear Motors - designed for the global market



All of our factories

- are connected to one another
- have implemented lean principles
- manufacture according to all current local standards and regulations
 - » UL
 - » CSA
 - » EN
 - » CCC
 - » GOST
 - » ISO
 - » PTB
 - » and much more



Knowledgeable and customer-focused

Bauer Gear Motor is a globally recognised geared motor company. We see ourselves as an integral part of our customers' value chain and work with them to increase productivity.

We will be by your side with our global sales force and expertise already during your drive's design phase. Our staff will make sure that you receive the best geared motor solution for your application.



Our quick response time to requests ensures that you receive the preferred product within 24 hours.

After your order has arrived, we check your order details and you will receive a confirmation of the order within 24 hours. You already have, therefore, the details for your own production planning process by the next day.

As we concentrate our production in regional factories, we are also able to deliver customised solutions from the factory reliably and directly, with an extremely short delivery period.

- Local presence through a global sales force
- Quick response time to requests
- Fast order confirmation enhances the security of your production planning
- Regional production centres also ensure customised geared motor solutions
- Our design meets all the conventional worldwide standards and can therefore be applied globally



promptly

we process your request

Bauer Gear Motor - your driving power

Bauer geared motors have been used for more than 85 years and are the driving power in drive technology.

Closer to the customer's needs thanks to greater flexibility

Your orders are processed immediately and passed on to our production team.

By reducing the lead times, we are able immediately to start producing the parts for orders. This is synchronised with the final assembly, ensuring that the parts are available according to just-in-time principles.

Through short response times to fluctuations in demands, we can reduce your own stock requirements. You can therefore place orders according to your current needs.

- In-house production with low set-up times ensures greater flexibility
- Production of asynchronous and permanent magnet motors
- High level of in-house production of mechanical core business parts.
- Specialist parts can also be delivered in just a few working days
- Expertise also guaranteed thanks to our own electric motor production
- Variety of production from efficiency classes IE1 to IE4 and partial-load optimised variants compliant with EN 50598

The entire manufacturing processes starting from the production of the motor, the mechanical geared motor parts and the electrical components, are perfectly coordinated to ensure greater process reliability and availability. This allows a high delivery reliability of over 95% to be achieved, while meeting Bauer's high quality.



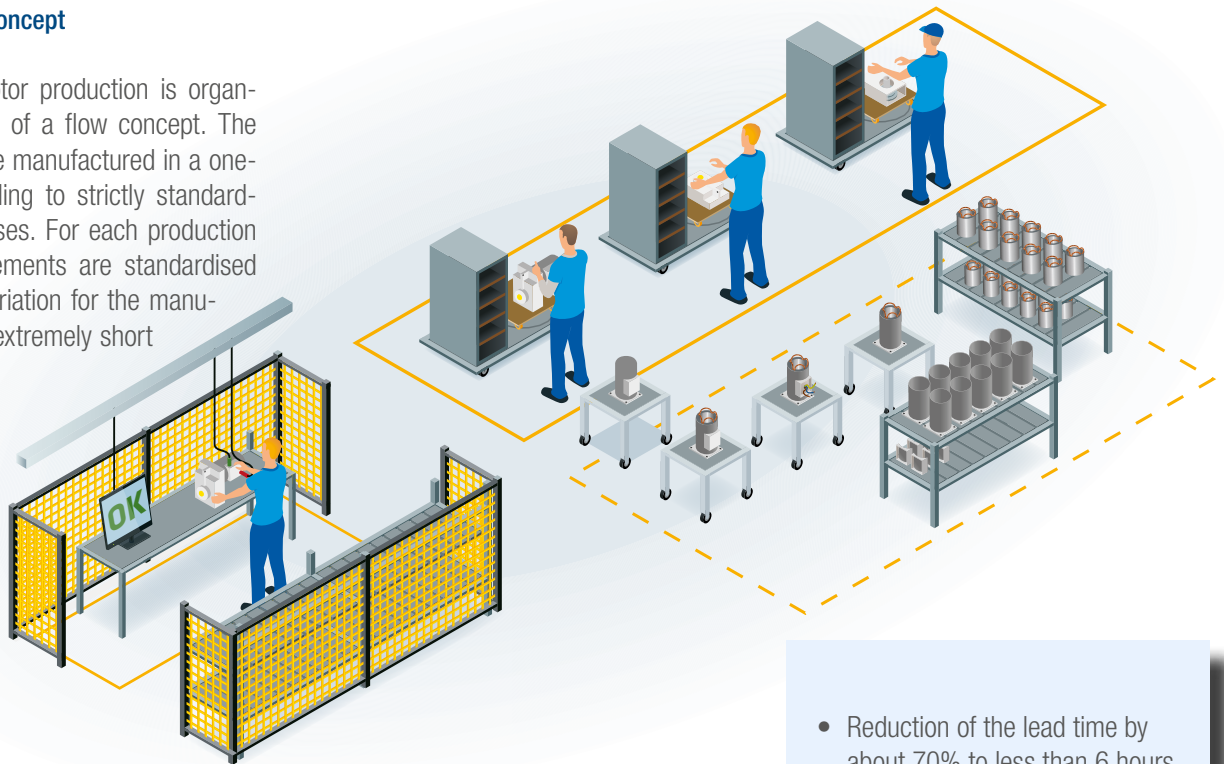
100%

Bauer Quality



The Bauer Flow Concept

Bauer geared motor production is organised on the basis of a flow concept. The geared motors are manufactured in a one-piece-flow according to strictly standardised work processes. For each production cycle, the job elements are standardised and allow high variation for the manufacturing and an extremely short lead time.



We can manufacture your standard configurations in five work days and special variations requested at short notice can be produced within 10 work days.

- Reduction of the lead time by about 70% to less than 6 hours
- Reduction of the material in the production (WIP) by 90%
- Structured work and fast identification and solving of problems
- Delivery reliability for our customers of over 95%
- Over 50% reduction in set-up time



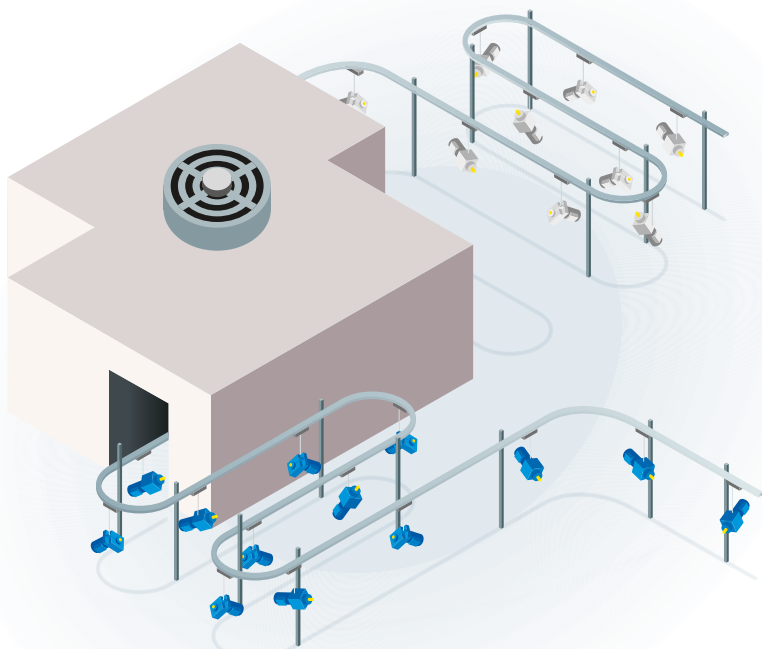
flexible

synchronised with the customer



Lean Manufacturing

Optimised work processes ensure shorter lead times



Coating according to your wishes

We offer a range of coating systems which are mainly water-based. This allows your drives to be coated in over 100 different colours of various corrosion protection classes.

We can adapt the top coat to your application. Our geared motor design enables enclosure protection ratings up to IP 69K. We also provide protection levels which can be used under water.

We provide coatings for your operations in hygiene-sensitive areas and are an FDA- and NSF-certified manufacturer.

- A variety of coating systems:
 - » Water-based coating
 - » Two-component coating
- Top coat tailored to your application
- Enclosure protection rating up to IP 69K
- Enclosure rating also suitable for submerged running
- Special coating for hygiene-sensitive areas



100

and more colours to choose from



Once your drives have been completed, they are shipped directly to the address that you provide.

Internal processes facilitate production throughout times from less than 6 hours, ensuring speedy delivery.

Our production concept is prepared for implementing customer kanban solutions. In this way, we want to be a partner in actively supporting your lean activities. Bauer production is, therefore, an integral part of your value chain.

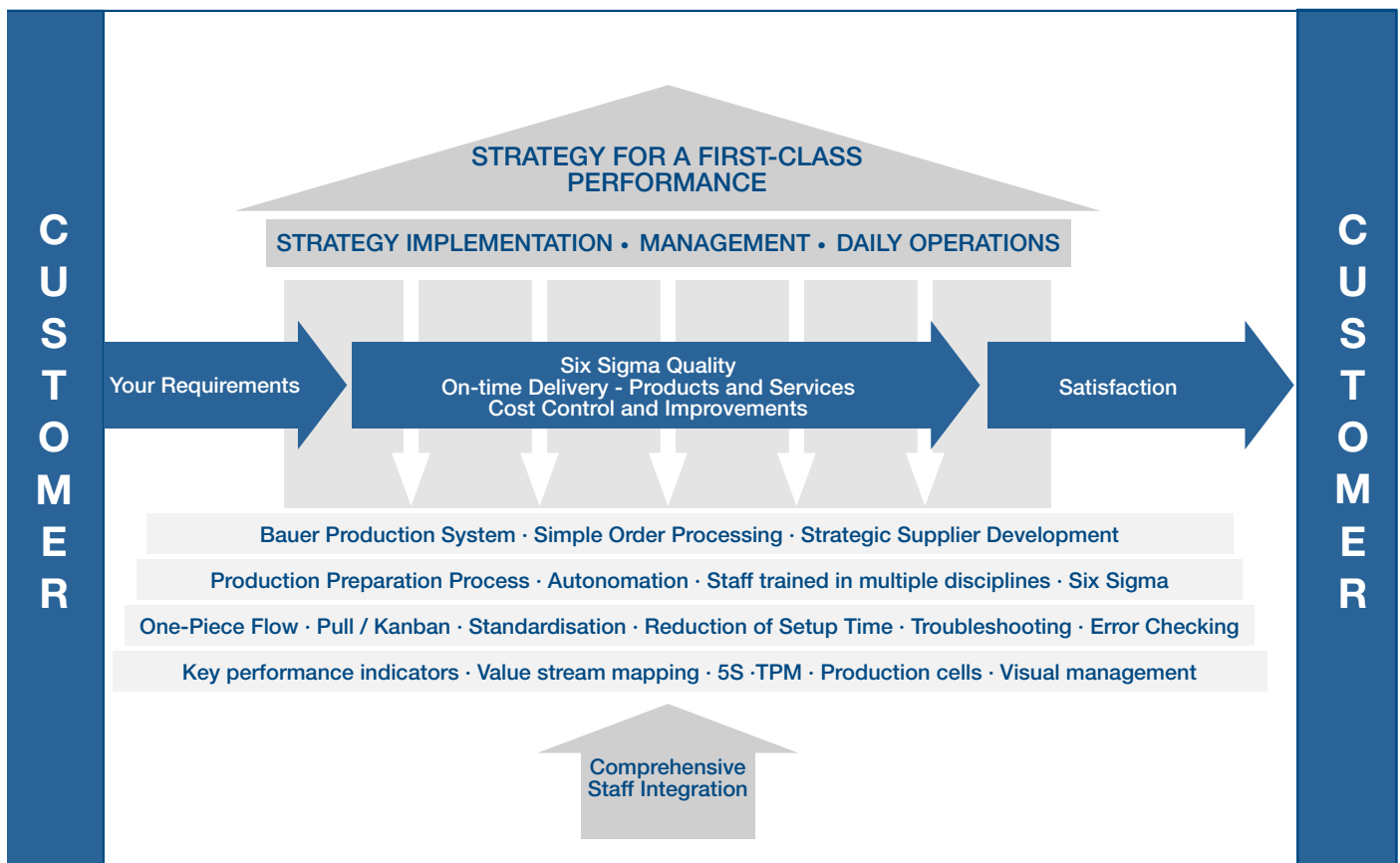
We support your “lean” activities

- Delivered in line with your needs
- Optimised batch and supply frequency
- Harmonised packaging to avoid further handling
- Customer kanban solutions



Bauer Gear Motor

Part of your value chain



- **Flexibility** means for us that we adjust our standardised production process to reflect changes in your requirements.
- **Resource efficiency** already begins for us with the construction of the geared motors. We make sure that power losses are cut to a minimum, which is why Bauer already today complies with the requirements of EN 50598.
- **Ergonomics** is achieved in our production by continuously adapting the workplace to ergonomic requirements.
- **Integration in the value chain** means for us that we produce exactly what you need immediately and deliver it according to your requirements.

Since 2011, Bauer has methodically adapted the production concept to the lean concept to ensure that we are a reliable supplier of geared motors for our customers.

We will continuously refine our activities and demand improvements to our flexibility to guarantee permanently high delivery reliability.

Bauer Production Concept - customer-focused and flexible

Couplings

Ameridrives Couplings

Mill Spindles, Ameriflex, Ameridisc
Erie, PA - USA
1-814-480-5000

Gear Couplings

San Marcos, TX - USA
1-800-458-0887

Bibby Turboflex

Disc, Gear, Grid Couplings,
Overload Clutches
Dewsbury, England
+44 (0) 1924 460801
Boksburg, South Africa
+27 (0) 11 918 4270

TB Wood's

Elastomeric Couplings
Chambersburg, PA - USA
1-888-829-6637 - Press #5
For application assistance:
1-888-829-6637 - Press #7

General Purpose Disc Couplings

San Marcos, TX - USA
1-888-449-9439

Ameridrives Power Transmission

Universal Joints, Drive Shafts,
Mill Gear Couplings
Green Bay, WI - USA
1-920-593-2444

Huco Dynatork

Precision Couplings
and Air Motors
Hertford, England
+44 (0) 1992 501900
Chambersburg, PA - USA
1-888-829-6637

Lamiflex Couplings

Flexible Couplings, Bearing Isolators,
and Coupling Guards
São Paulo, SP - Brasil
+55 (11) 5679-6533

Guardian Couplings

Flywheel, Jaw, Shear, Gear, Grid,
Disc and Engine Couplings
Michigan City, IN - USA
1-219-874-5248

Engineered Bearing Assemblies

Kilian Manufacturing

Engineered Bearing Assemblies
Syracuse, NY - USA
1-315-432-0700

Electromagnetic Clutches and Brakes

Warner Electric

Electromagnetic Clutches
and Brakes
New Hartford, CT - USA
1-800-825-6544
For application assistance:
1-800-825-9050

Saint Barthélemy d'Anjou, France
+33 (0) 2 41 21 24 24

Precision Electric Coils and Electro-
magnetic Clutches and Brakes
Columbia City, IN - USA
1-260-244-6183

Matrix International

Electromagnetic Clutches
and Brakes, Pressure Operated
Clutches and Brakes

Brechin, Scotland
+44 (0) 1356 602000
New Hartford, CT - USA
1-800-825-6544

Inertia Dynamics

Spring Set Brakes; Power On and
Wrap Spring Clutch/Brakes
New Hartford, CT - USA
1-800-800-6445

Belted Drives and Sheaves

TB Wood's

Belted Drives
Chambersburg, PA - USA
1-888-829-6637 - Press #5
For application assistance:
1-888-829-6637 - Press #7

Overrunning Clutches

Formsprag Clutch

Overrunning Clutches
and Holdbacks
Warren, MI - USA
1-800-348-0881 - Press #1
For application assistance:
1-800-348-0881 - Press #2

Marland Clutch

Roller Ramp and Sprag Type Over-
running Clutches and Backstops
South Beloit, IL - USA
1-800-216-3515
Stieber Clutch
Overrunning Clutches
and Holdbacks
Heidelberg, Germany
+49 (0) 6221 30 47 0

Heavy Duty Clutches and Brakes

Wichita Clutch

Pneumatic Clutches and Brakes
Wichita Falls, TX - USA
1-800-964-3262
Bedford, England
+44 (0) 1234 350311

Twiflex Limited

Caliper Brakes and Thrusters
Twickenham, England
+44 (0) 20 8894 1161

Industrial Clutch

Pneumatic and Oil Immersed
Clutches and Brakes
Waukesha, WI - USA
1-262-547-3357

Svendborg Brakes

Industrial Brakes and
Brake Systems
Vejstrup, Denmark
+45 63 255 255

Gearing

Boston Gear

Enclosed and Open Gearing,
Electrical and Mechanical
P.T. Components
Charlotte, NC - USA
1-800-825-6544
For application assistance:
1-800-816-5608

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Geared Motors
Esslingen, Germany
+49 (711) 3518-0
Somerset, NJ - USA
1-732-469-8770

Nuttall Gear and Delroyd Worm Gear

Worm Gear and
Helical Speed Reducers
Niagara Falls, NY - USA
1-716-298-4100

Linear Products

Warner Linear

Linear Actuators
Belvidere, IL - USA
1-800-825-6544
For application assistance:
1-800-825-9050

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