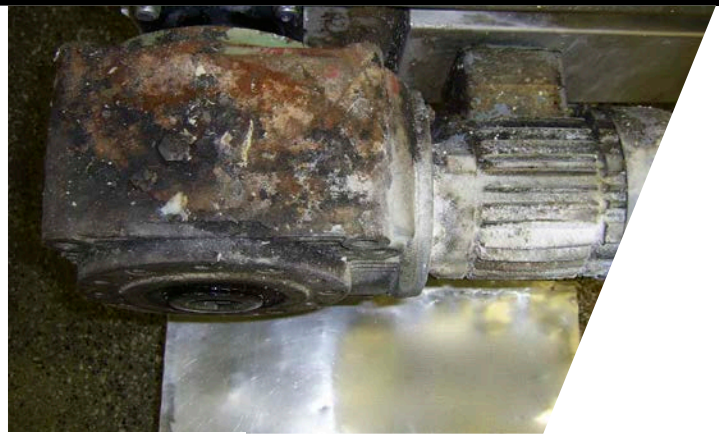
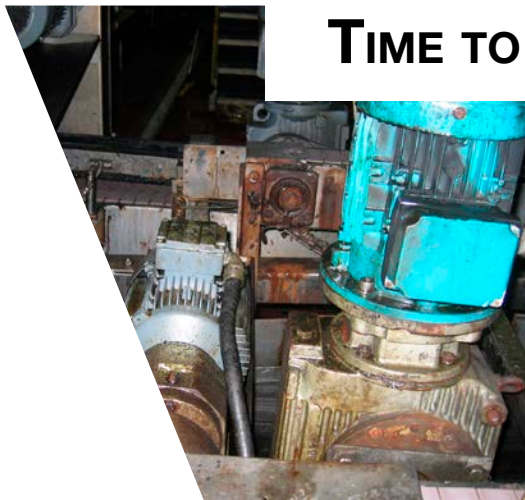


**Hygienic
drive
solutions
for the
beverage
industry**



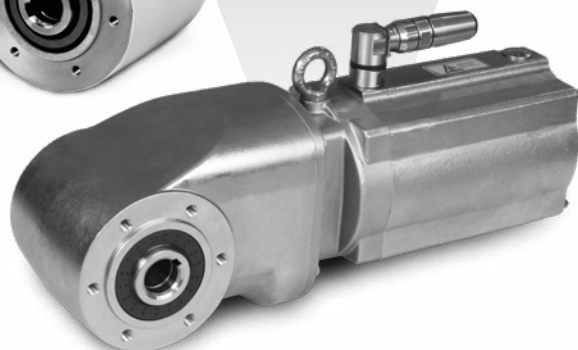


TIME TO CHANGE



**... TIME FOR A
CLEAN SOLUTION!**

NEW



Highly resilient components make machines more compact, fast, hygienic, efficient and precise.

Safety guards for sensitive components are increasingly becoming a thing of the past. With their new designs, Bauer gear motors, stainless steel and aseptic solutions guarantee that these components can be cleaned with water and even aggressive cleaning agents. This enables better heat extraction and easier cleaning and maintenance from the word go.

With its new range, Bauer has succeeded in meeting the needs of the food and beverage industry. Bauer gear motors meet requirements for cleanliness and also withstand regular cleaning using steam, high-pressure cleaners and corrosive chemicals.

Bauer drive solutions in compliance with IFS, HACCP and CIP requirements

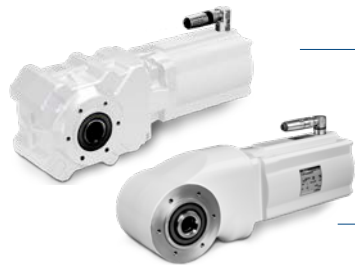
For all areas, such as raw material handling, processing, packing and storage, where, based on a risk analysis and analysis of the associated risks, product contamination may occur, Bauer supplies geared motors in accordance with the IFS food provisions and the checklist for unannounced works tours (IFS food checks). Accordingly, we provide you with solutions which apply to the provisions for the implementation of **HACCP** (Hazard Analysis Critical Control Point), i.e. the risk analysis of critical control points, and to guarantee general hygiene and damage prevention. The unique design of our products helps you to reduce the risk factor in your HACCP concept and guarantee traceability in the food process.

Bauer's **hygienic design** drives are intended as a well-thought-out range, i.e. various gear/motor types and gear/motor sizes can be combined with each other based on a **modular principle** and can be adapted to your individual needs using **brake and encoder solutions**. **Stainless steel hollow shafts** are available as standard in various diameters for many gear types and sizes.



CleanDRIVE

All CleanDRIVE geared motor combinations have protection ratings **IP66/ IP67**, depending on the selected connection type.



AsepticDRIVE

All gear motor combinations in the **aseptic design** have protection ratings **IP67/IP69K** and a smooth surface with a special aseptic coating which complies with **FDA Guidelines Title 21 CFR 175.300** regarding contact with food and is resistant to cleaning agents with **pH values 2-12**. The specially coated surface sheds liquids reliably and completely. The aseptic coating also complies with the **EHEDG**-recommended surface roughness ($R_a = 0.8 \mu\text{m}$), and the series offers a variety of connection options.

HiflexDRIVE

Aseptic design

The HiflexDRIVE gear motors in stainless steel design are completely produced in **washdown design** and are designed especially for **extreme environmental conditions**. **Stainless steel hollow shafts** are available as standard in various diameters for each gear size. As standard, these gear motor combinations have protection rating IP65. IP67/ IP69K are also optionally available for very high cleaning intervals. In connection with the **permanent magnet synchronous motor technology (PMSM)**, this ensures an improved and energy-conscious conversion of electrical energy into mechanical output.

HiflexDRIVE

Stainless steel design



HiflexDRIVE

Standard design





Drive solutions for production and logistics

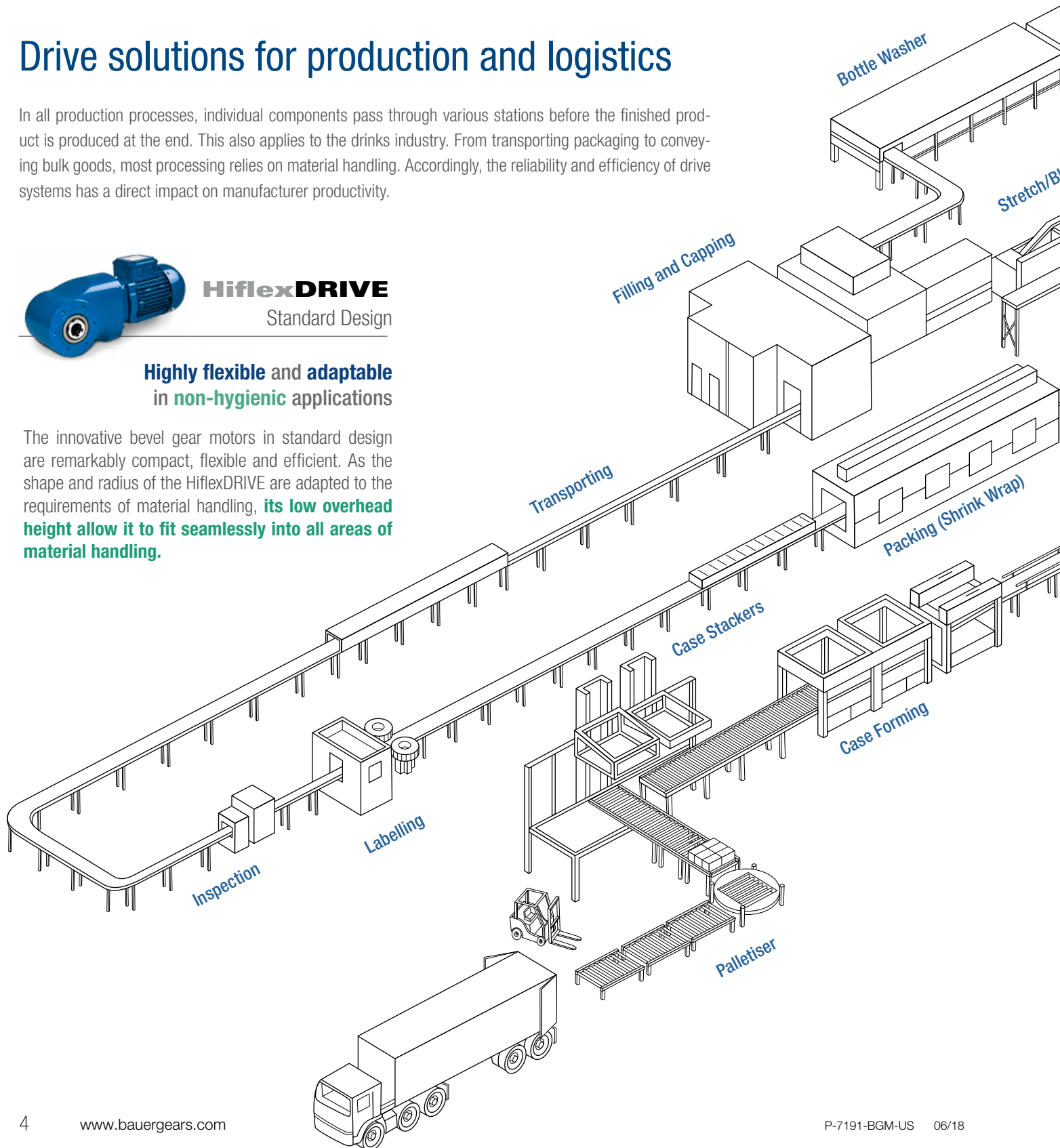
In all production processes, individual components pass through various stations before the finished product is produced at the end. This also applies to the drinks industry. From transporting packaging to conveying bulk goods, most processing relies on material handling. Accordingly, the reliability and efficiency of drive systems has a direct impact on manufacturer productivity.

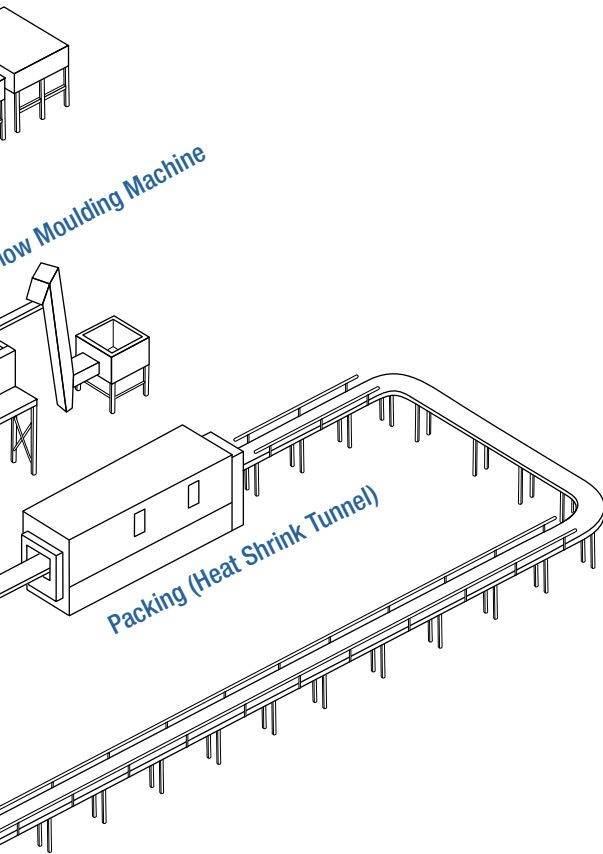


HiflexDRIVE
Standard Design

Highly flexible and adaptable
in **non-hygienic** applications

The innovative bevel gear motors in standard design are remarkably compact, flexible and efficient. As the shape and radius of the HiflexDRIVE are adapted to the requirements of material handling, **its low overhead height allow it to fit seamlessly into all areas of material handling.**





CleanDRIVE

Highest hygienic safety
in **extreme** applications

The CleanDRIVE motors boast impressive alkali- and acid-resistant coating as standard and are used **in wet areas with low hygienic requirements.**



AsepticDRIVE

Highest hygienic safety
in **moderate** applications

In open production processes, the aseptic gear motors guarantee excellent hygiene with their smooth, water-resistant, easy-clean surfaces. The motor design which takes into account the high hygienic requirements, with no cooling fins or fans, prevents air turbulence and subsequent re-infection of the production facility.

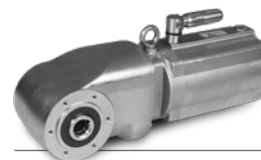


HiflexDRIVE

Aseptic Design

Highest hygienic safety
in **extreme** applications

The aseptic design of the HiflexDRIVE similarly combines the benefits of the AsepticDRIVE with Bauer's permanent-magnet synchronous motor technology. These motors are perfectly suited for use **in areas which require high levels of hygiene,** where a consistent torque and low overhead height are required.



HiflexDRIVE

Stainless Steel Design

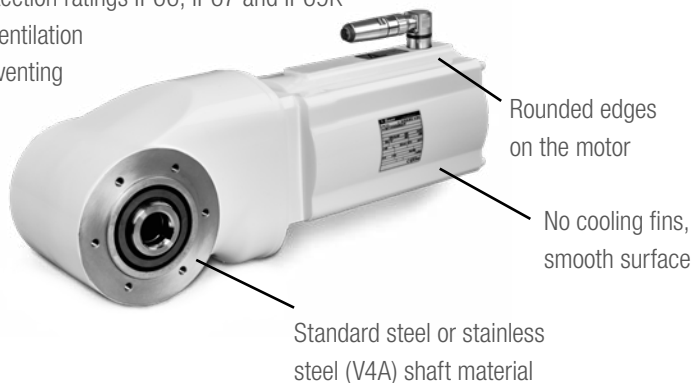
Highest mechanical resilience
in **the hardest** applications

Stainless steel allows the use of cleaning materials containing acids and alkalis, which, when combined with disinfectants, help to kill germs and bacteria. The stainless steel design eliminates hygiene risks caused by damage as a result of impact or long-term use **in intensive cleaning areas** and is particularly resistant to mechanical influences.

Modular System Solutions

Main Features

- Special paints protect against aggressive acids, alkalis and salts, as well as aggressive environmental conditions
- Efficient motor technology and dimensioning
- High protection ratings IP66, IP67 and IP69K
- No self-ventilation
- No gear venting
- H1 oil



YOUR BENEFITS

- No hidden dirt pockets in the motor
- Proven, rapid connection technology
- Coating suitable for cleaning and resistant to cleaning agents between pH2 and pH12
- Water runs off easily, hydrophobic behaviour
- No air intake and distribution of germs through air flows; reduced re-infection risk
- Energy efficiency IE2-IE4
- Hygienic overall system design

CleanDRIVE

Highest hygienic safety in moderate applications

- Non-ventilated, preventing re-infection in the surrounding area
- Motor connection through a stainless steel screwed cable gland
- Surface with alkali- and acid-resistant coating (pH2 to pH12)
- Standard steel or stainless steel (V4A) shafts
- Protection rating IP66 in terminal box design
- Protection rating IP67 in cable design
- H1 oil optional
- High energy efficiency IE2-IE4
- Integrated brake and/or encoder
- Thermistors as standard
- Iso class F as standard
- All RAL colours available

	Motor power ^[2]	IE4 0.55 kW – 3.0 kW none, IE2, IE3 0.06 kW – 1.5 kW
	Gear torque ^[1]	45 Nm - 1,050 Nm
	Gear type	BG, BF, BK
	Hygienically enclosed brakes and/or encoder unit Connection optionally via terminal box (IP66)	
	Motor power ^[2]	IE4 0.55 kW – 1.5 kW none, IE2, IE3 0.06 kW – 0.55kW
	Gear torque ^[1]	BK06 80 Nm BF06 95 Nm
	Gear type	BK, BF

^[1] Torque is dependent on ratio

^[2] Ratio and power is dependent on the motor size

YOUR BENEFITS

- Cable can be assembled in any desired length for screwed cable gland
- Terminal box version equipped with WAGO terminal block reduces connection times
- Suitable for moderate conditions with regard to cleaning methods and agents
- Clean In Place (CIP) – fully automatic cleaning without dismantling the system
- Reduced cleaning time
- Cost savings due to smooth and highly efficient drive

AsepticDRIVE

Highest hygienic safety in extreme applications

- Motor connection through round stainless steel plug (Clean Connect), rotation-locked
- Short connection times
- Plug cable can be freely assembled
- High protection rating IP67 / IP69K
- H1 oil optional
- Stainless steel hollow shafts (V4A) as standard in various diameters
- High energy efficiency IE2-IE4
- Integrated brake and/or encoder
- All RAL colours available
- Thermistors as standard
- Iso class F as standard
- Non-ventilated, preventing re-infection in the surrounding area

Hiflex	Motor power ^[2]	IE4 0.55 kW – 3.0 kW IE2, IE3 0.25 kW – 1.1 kW
	Gear torque ^[1]	80, 200 and 330 Nm
	Gear type	BK 04 ^[3] , 08, 17
	Surface with alkali- and acid-resistant coating (pH2 to pH12)	
Standard	Motor power ^[2]	IE4 0.55 kW – 3.0 kW IE2, IE3 0.25 kW – 2.2 kW
	Gear torque ^[1]	45 Nm - 1,050 Nm
	Gear types	BG, BF, BK
	Surface with alkali- and acid-resistant coating (pH2 to pH12)	
	Hygienically enclosed brakes and/or encoder	

^[1] Torque is dependent on ratio ^[2] Ratio and power is dependent on the motor size ^[3] On request

YOUR BENEFITS

- Short connection times
- Standard cleaning agents safe to use on the coated surface
- Standard cleaning procedures can be performed without additional measures (covering the drive etc.)
- Strong resistance to rust
- CIP-ready design
- Reduced cleaning time
- Cost savings due to smooth and highly efficient drive



Stainless**SERIES**

Highest mechanical resilience in the hardest applications

- Highly robust housing withstands cleaning agents and methods and mechanical influences
- Connection using stainless steel plug connection (Clean Connect) or cable
- Stainless steel shafts (V4A) in various diameters as standard
- Protection rating IP65, optional IP67/69K
- CIP-ready design
- High energy efficiency IE2-IE5

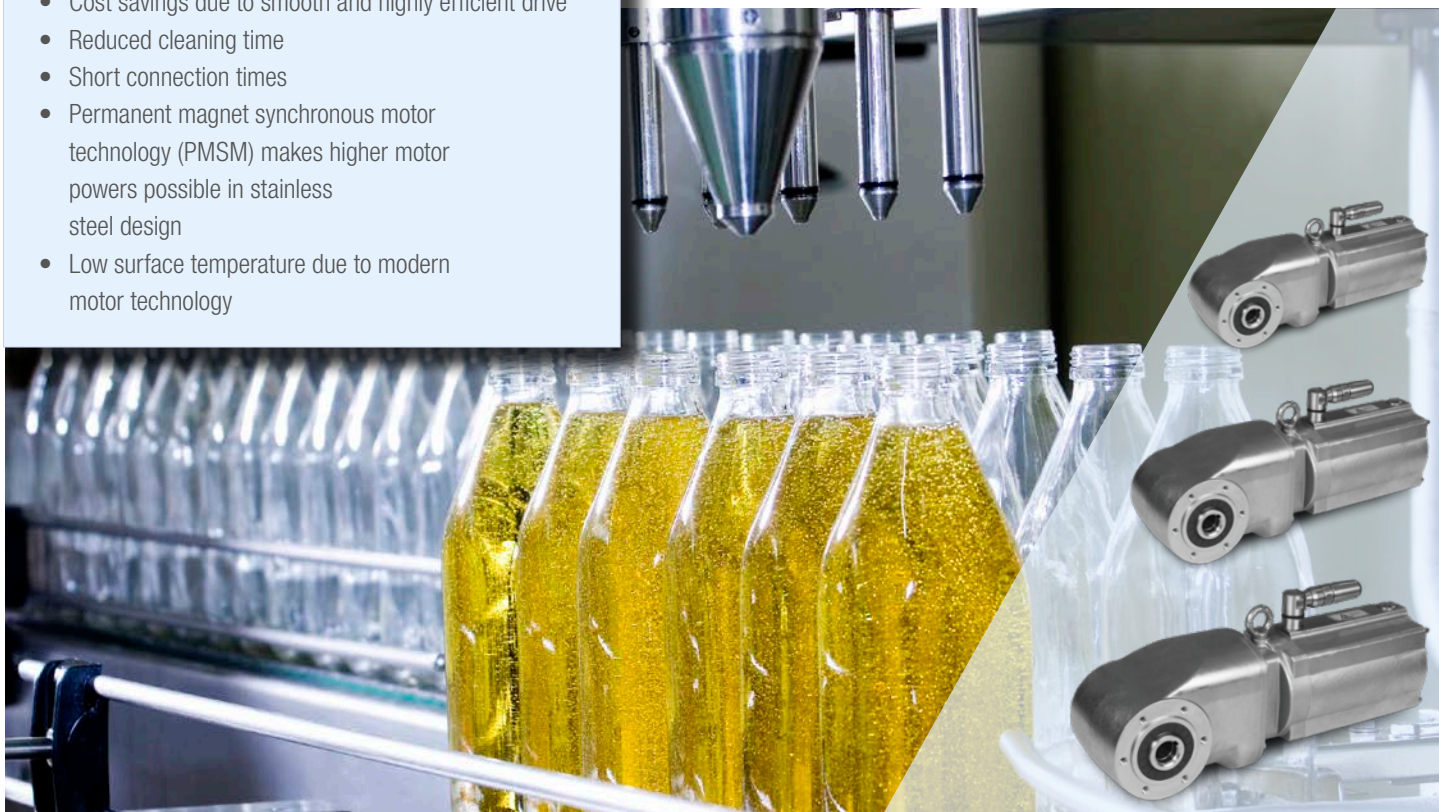
YOUR BENEFITS

- Suitable for the toughest conditions (fish, milk, meat industry)
- Standard cleaning agents safe to use on the stainless steel surface
- Standard cleaning methods and brush cleaning can be performed without additional measures (covering the drive etc.)
- CIP-ready design
- Cost savings due to smooth and highly efficient drive
- Reduced cleaning time
- Short connection times
- Permanent magnet synchronous motor technology (PMSM) makes higher motor powers possible in stainless steel design
- Low surface temperature due to modern motor technology

Asynchronous technology	Motor power ^[2]	IE2, IE3 0.18 kW – 0.55 kW	
	Motor sizes	DA08, DA09	
	Gear torque ^[1]	BK04	80 Nm
		BK08	200 Nm
		BK17	330 Nm
	Gear type	BK	
	Hollow shafts in various diameters		
Various fittings available (Flange C, torque restraining arm)			
No gear venting			
PMSM technology	Motor power ^[2]	IE5 0.25 kW – 1.1 kW	
	Motor sizes	SA08, SA09	
	Gear torque ^[1]	BK04	80 Nm
		BK08	200 Nm
		BK17	330 Nm
	Gear type	BK	
	Hollow shafts in various diameters		
	Various fittings available (Flange C, torque restraining arm)		
No gear venting			

^[1] Torque is dependent on ratio

^[2] Ratio and power is dependent on the motor size



HiflexDRIVE

Highly flexible and adaptable

- Special design for bevel gear BK04, BK08, BK17
- **EHEDG** certification for the HiflexDRIVE in Aseptic design in process
- Available as standard, AsepticDRIVE, CleanDRIVE and in stainless steel
- Asynchronous and PMSM motors can be fitted
- Encoder and brakes fitted as standard, in stainless steel on request
- Hollow shafts in various standard diameters
- Housing in aluminium and stainless steel
- Standard design with C-Flange
- Optional A-Flange available
- Flexible shaft diameter
- All standard shaft types
- No interference contours
- Shape and radius adapted to material handling
- Special aseptic coating (not for stainless steel)
- Modular design



Your Benefits

- Variation in housing materials (aluminium, V2A)
- Range of fittings (various flanges, shaft diameters)
- Shape and radius adapted to material handling
- Efficiency classes IE1-IE5; operating modes S1-S9
- Protection ratings IP65, IP66, IP67 and IP69K
- Cost reduction due to lower mains connection output
- Scalable motor technologies for global use
- PSM technology enables energy savings of more than 30% in comparison with IE3 under partial-load conditions
- Fast and secure connection
- FDA-compliant coating
- High process safety due to prevention of germ and dirt build-up
- Low weight
- Easy to use and compact assembly
- Cost reduction in system dimensioning
- High efficiency due to 2-stage gear design
- Low overhead height
- Smooth, water-resistant surfaces make it easy to clean and reduce cleaning times
- Stainless steel solutions offer mechanical resilience
- Aseptic coating - withstands almost all standard industrial cleaning agents
- Food-grade gear oil and shaft seals

EHEDG Certification

The **HiflexDRIVE Aseptic Range** of geared motors are at present running through the certification process according to the newest and to date most stringent EHEDG-Guidelines.



Specifications

Gears	BK04	BK08	BK17
Torque ^[1]	80 Nm	200 Nm	330 Nm
Gear reductions ^[2]	7.25 – 63.33	4.44 - 102.5	4.54 - 108.6
Motor sizes	Aseptic ^[4] /Clean Drive ^[4] : DA08, SA08 Stainless steel: DA08, SA08	Standard: D08, S08 Aseptic/Clean Drive: DA08, SA08 Stainless steel: DA08, DA09, SA08, SA09	Standard: D08, D09, S08, S09 Aseptic/Clean Drive: DA08, DA09, SA08, SA09 Stainless steel: DA09, SA09
Motors			
Power ^[2]	0.18 kW ... 6.3 kW		
Efficiency classes	w/o rating and IE1 up to IE5		
Protection rating	IP65 (standard) IP67/IP69K (optional)		

^[1] Torque is dependent on ratio

^[2] Ratio and power is dependent on the motor size

^[3] On demand

^[4] In preparation

Technical Features

Gears

Lubricants



- The gears can be filled with **food-grade H1 lubricant**, depending on the specific application. In that case the design is chosen to avoid the need for a gear vent valve.
- The ball bearings of the motor are also lubricated with a suitable **food-grade H1 bearing grease**.

Motors

Non-ventilated asynchronous motors



- **Smooth housing surface without cooling fins** prevents formation of dirt pockets and spread of germs.
- The smooth motor housing prevents the accumulation of dirt deposits.
- In addition, the **fanless motor does not cause any air turbulence**, thereby avoiding food recontamination and the spread of germs.
- The motor dimensioning is selected to ensure that losses are very low and to enable high efficiency accordingly.
- **Brakes and encoders** are completely **integrated into the motor housing**, i.e. the high protection rating **IP67/IP69K** and the aseptic design are completely retained.

Non-ventilated Permanent Magnet Synchronous Motors (PMSM)



- **Smooth housing surface without cooling fins** prevents formation of dirt pockets and spread of germs.
- The smooth motor housing prevents the accumulation of dirt deposits.
- In addition, the **fanless motor does not cause any air turbulence**, thereby avoiding food recontamination, as no air intake of dirt or germs are spread through air flow.
- The motor dimensioning is selected to ensure that losses are very low and to enable **high efficiency** accordingly.
- **Brakes and encoders** are completely **integrated into the motor housing**, i.e. the high protection rating **IP67/IP69K** and the aseptic design are completely retained.
- PMSM motors can achieve additional **energy savings of up to 30%** compared to asynchronous motors, especially in partial-load operation. Permanent magnet synchronous motors always require a frequency inverter. Most standard frequency inverters are suitable for this purpose.

Connections

CleanConnect plug connector



- The Clean Connect stainless steel plug meets the toughest requirements for corrosion protection and allows **rapid installation** of the drive in a few easy steps.
- The stainless steel connector maintains the ingress protection of the drive. It ensures **reliable connection** without accidental detachment, along with a high **IP67/IP69K** protection rating.
- The associated power cable, as counterpart to the stainless steel plug, resists cleaning agents from **pH2 to pH12** and can be assembled in any desired length.

Stainless steel cable gland



- Direct cable connection with a **stainless steel cable gland in IP67** combines extremely high corrosion protection with compact installation. The length of the power cable included can be assembled in any desired length and withstands cleaning agents from **pH2 to pH12**. **Low start-up costs** and **minimal interfering contours** are standout features of this type of connection technology.

Terminal boxes



- Terminal box connection with proven **Wago terminal block technology** ensures **shake-proof and reliable cable connection**. Not having cable ferrules **reduces installation time, eliminating time-consuming screw clamping** of conductors on a terminal board. The terminal box option has **IP66** protection rating due to the terminal box opening.

Hygiene and Process Safety

Paint System of an Aseptic Drive

- The special paint coating on the aseptic drive produces an unstructured surface which has an extremely low level of roughness, preventing mechanical adhesion.
- The paint for the topcoat is nonpolar (uncharged molecules), i.e. liquids of the opposite polarity cannot be attracted as it behaves in a hydrophobic manner.
- The topcoat is **FDA-compliant** in accordance with **Title 21 CFR 175.300** and is therefore authorised for use in the food processing industry.
- The surface coating of the aseptic drive is resistant to cleaning agents from **pH 2 to pH 12**.
- The active surface for specific adhesion is reduced dramatically.

Despite being carefully selected for use in F&B processes, **housing surfaces** still have surface imprecisions (rippling, roughness).

Primer reduces roughness and provides an elastic base for additional coats.



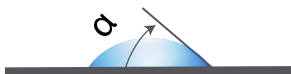
The **topcoat** minimises roughness as much as possible and produces a smooth, unstructured surface with macroscopic ripples.

The **base coat** reduces roughness even further.

DRIVE SURFACE DESIGN

complete wetting

- hydrophilic behaviour, e.g. stainless steel
- running off only possible at a steep angle, residues remain



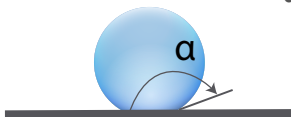
partial wetting

- liquid barely spreads
- running off possible at a moderate angle, little or no residues remain



no wetting

- hydrophobic behaviour, e.g. coatings, plastics
- running off possible at a slight angle, no residues remain



➔ Ideal: no wetting → drip-off effect

Your benefits

- Reduced bacterial growth allows production times to be extended by reducing cleaning intervals. Furthermore, the consumption of cleaning agents is lowered, reducing costs and helping protect the environment.
- Separate estimation of various stages of production not required as chemical resistance towards
 - **product-specific substances**
 - such as butanoic and lactic acids
 - ammonia and soap solution
 - **process-specific substances**
 - standard cleaning agents and disinfectants
 - alkalis and acids, chlorine dioxide, peracetic acid
 is guaranteed.
- Increased safety in the entire production area

Clean in Place (CIP)

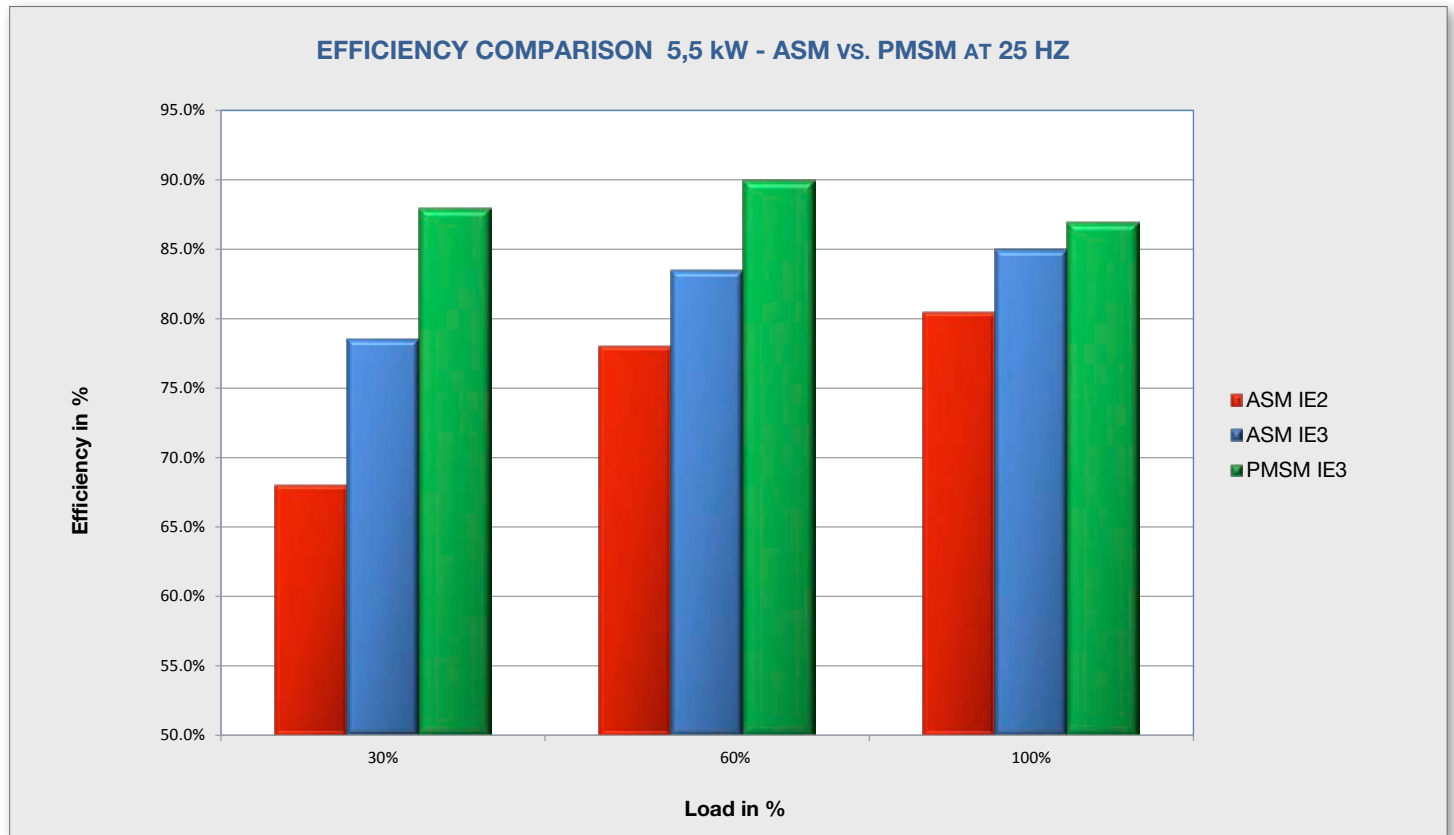
CIP cleaning methods allow cleaning of technical processing machinery on surfaces which come into contact with the product without major dismantlement. The high **IP67/IP69K** protection rating and the smooth design of Bauer geared motors without potential dirt pockets (such as cooling fins on the motor housing) allow the geared motor to be cleaned together with the machinery.

Degrees of protection provided by enclosures (IP xx)

1. Code number	Protected against foreign objects	2. Code number	Protected against water
0	Not protected	0	Not protected
1	Protected against solid foreign bodies of 50 mm diameter and greater	1	Protected against dripping water from above
2	Protected against solid foreign bodies of 12.5 mm diameter and greater	2	Protected against dripping water from above - up to 15° slanted housing
3	Protected against solid foreign bodies of 2.5 mm diameter and greater	3	Protected against spray water from above - up to 60° slanted housing
4	Protected against solid foreign bodies of 1.0 mm diameter and greater	4	Protected against splash water - all directions
5	Dust-proof	5	Protected against jets of water - all directions
6	Dust-tight	6	Protected against strong jets of water under higher pressure
		7	Protected against temporary immersion
		8	Protected against prolonged submersion
		9K	Protected against water during high pressure or steam jet cleaning



Energy efficient with Bauer's Permanent Magnet Motors



Our Motor Portfolio according IEC 60034-30-x

IE-Class \ kW	0,12	0,18	0,25	0,37	0,55	0,75	1,1	1,5	2,2	3	4	5,5	7,5	9,5	11	15	18,5	22	30	37	45
IE1 Asynchronous	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
IE2 Asynchronous	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
IE3 Asynchronous	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
IE4 Asynchronous					●	●	●	●	●	●	●	●	●	●	●	●	●	●			
IE3 PMSM								●	●	●	●	●	●	●	●	●					
IE4 PMSM		●	●	●	●	●	●	●	●	●	●	●	●	●	●						
IE5 PMSM							●	●	●	●	●	●									

● = in planning

Customer Specific Options

Exterior Design Features

HiflexDRIVE
Stainless Steel



HiflexDRIVE
Aseptic









Series BG
Stainless Steel



Series BG, BF, BK
Aseptic



Graded Surfaces		✓	✓	✓	✓
Rounded Edges and Corners		✓	✓	✓	✓
Aseptic Coating		—	✓	—	✓
Shaft Material		✓	optional	✓	optional
Stainless Steel		—	✓	—	✓
Standard Steel		—	✓	—	✓
Certification for FDA conform Coating		—	✓	—	✓
Mounting Features		optional	—	—	—
Stainless Steel Torque Arm		—	optional	optional	optional
Output Flange		—			



Sealing Features

HiflexDRIVE
Stainless Steel



HiflexDRIVE
Aseptic



Series BG
Stainless Steel



Series BG, BF, BK
Aseptic



Non-Vented Housing		✓	✓	✓	✓
Double-Lipped Shaft Seal		✓	✓	✓	✓
Shaft Cover					
Stainless Steel		optional	—	—	—
Plastic		optional	optional	—	optional
Cast Iron		—	optional	—	optional
Non-Ventilated Motor		✓	✓	✓	✓
Motor Connection					
Plug Connector		✓	✓	✓	✓
Cable		—	optional	optional	optional
Terminal Box		—	optional	optional	optional
Protection Class					
IP66		optional	—	optional	—
IP67		✓	✓	✓	✓
IP69K		optional	optional	optional	optional
Integral Brake/Encoder		optional	optional	optional	optional

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+7 495 6420468

The Brands of Altra Motion

Couplings

Ameridrives
www.ameridrives.com

Bibby Turboflex
www.bibbyturboflex.com

Guardian Couplings
www.guardiancouplings.com

Huco
www.huco.com

Lamiflex Couplings
www.lamiflexcouplings.com

Stromag
www.stromag.com

TB Wood's
www.tbwoods.com

Linear Systems

Thomson
www.thomsonlinear.com

Warner Linear
www.warnerlinear.com

Geared Cam Limit Switches

Stromag
www.stromag.com

Engineered Bearing Assemblies

Kilian
www.kilianbearings.com

Electric Clutches & Brakes

Matrix
www.matrix-international.com

Stromag
www.stromag.com

Warner Electric
www.warnerelectric.com

Deltran
www.thomsonlinear.com

Belted Drives

TB Wood's
www.tbwoods.com

Heavy Duty Clutches & Brakes

Twiflex
www.twiflex.com

Stromag
www.stromag.com

Svendborg Brakes
www.svendborg-brakes.com

Wichita Clutch
www.wichitaclutch.com

Gearing & Specialty Components

Bauer Gear Motor
www.bauergears.com

Boston Gear
www.bostongear.com

Delevan
www.delevan.com

Delroyd Worm Gear
www.delroyd.com

Nuttall Gear
www.nuttallgear.com

Engine Braking Systems

Jacobs Vehicle Systems
www.jacobsvehiclesystems.com

Precision Motors & Automation

Kollmorgen
www.kollmorgen.com

Miniature Motors

Portescap
www.portescap.com

Overrunning Clutches

Formsprag Clutch
www.formsprag.com

Marland Clutch
www.marland.com

Stieber
www.stieberclutch.com

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