







TIME TO CHANGE





... TIME FOR A CLEAN SOLUTION



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

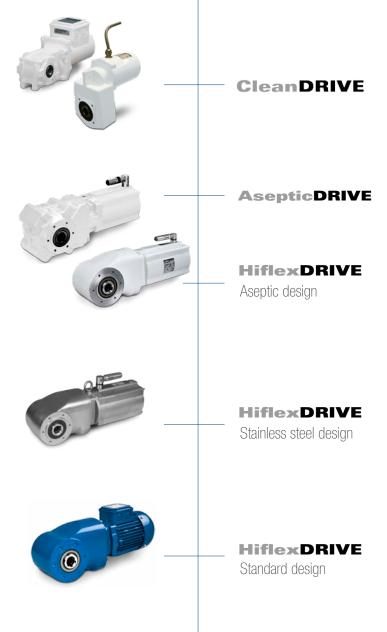
Safety guards for sensitive components are increasingly becoming a thing of the past. With their new designs, Bauer gear motors, stainless steel and aseptic solutions guarantee that these components can be cleaned with water and even aggressive cleaning agents. This enables better heat extraction and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

With its new range, Bauer has succeeded in meeting the needs of the food and drinks 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.



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

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 (Ra = $0.8 \mu m$), and the series offers a variety of connection options.

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.

The HiflexDRIVE range consists of three gear sizes **BK04**, **BK08**, **BK17** and is the perfect fit in all areas of material handling where durability, maintainability and efficiency are crucial.

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Filling and Capping

Case Stackers

Palletiser

Transporting

Drive solutions for production and logistics

Labelling

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.



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.**

Inspection

Bottle Washer

stretchi

Packing (Shrink Wrap)

Case Forming





CleanDRIVE

Highest hygienic safety in moderate applications

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



AsepticDRIVE

Highest hygienic safety in extreme 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 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.



Packing (Heat Shrink Tunnel)

Blow Moulding Machine

Highest hygienic safety in extreme applications

The aseptic design of the HiflexDRIVE similarly combines the benefits of the AsepticDRIVE with Bauer's permanentmagnet 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.

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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

Rounded edges on the motor

No cooling fins, smooth surface

Standard steel or stainless steel (V4A) shaft material

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

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

IE4 0.55 kW - 3.0 kW Motor power^[2] IE2, IE3 0.06 kW - 1.5 kW Gear torque [1] 200 Nm - 1,050 Nm Gear type BG, BF, BK Hygienically enclosed brakes and/or encoder unit Connection optionally via terminal box (IP66) IE4 0.55 kW - 1.5 kW Motor power^[2] none, IE2, IE3 0.06 kW - 0.55kW BK06 80 Nm Gear torque [1] BF06 95 Nm BK, BF Gear type

 ${}^{\scriptscriptstyle [1]}$ Torque depends on gear ratio ${}^{\scriptscriptstyle [2]}$ Gear reduction and output depend on motor size

- 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

Notor power [2]	IE4 IE2, IE3	0.55 kW – 3.0 kW 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-resistar	nt coating (pH2 to pH12)							
Notor power [2]		0.55 kW – 3.0 kW 0.25 kW – 2.2 kW						
Gear torque [1]	200 - 1,050 Nm							
Gear types BG, BF, BK								
Surface with alkali- and acid-resistant coating (pH2 to pH12)								
Hygienically enclosed brakes and/or encoder								
	ear torque ^[1] ear type urface with alkali- and acid-resistar fotor power ^[2] ear torque ^[1] ear types urface with alkali- and acid-resistar	InterviewInter						

 ${}^{[1]}$ Torque depends on gear ratio ${}^{[2]}$ Gear reduction and output depend on motor size ${}^{[3]}$ on demand

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

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StainlessSERIES

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-IE4

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



Motor power [2]	IE2, IE3 0.25 kW – 0.55 kW								
Motor sizes	DA08, DA09								
Gear torque [1]	BK04 ^[3] BK08 BK17	80 Nm 200 Nm 330 Nm							
Gear type	Gear type BK								
Hollow shafts in various diameters									
Various fittings available (Flange C, torque restraining arm)									
No gear venting	o gear venting								
Motor power [2]	IE4	0.75 kW – 2.2 kW							
Motor sizes	SA08, SA09								
Gear torque [1]	BK04 ^[3] BK08 BK17	80 Nm 200 Nm 330 Nm							
Gear type	ВК								
Hollow shafts in various di	ameters								
Various fittings available (F	lange C, torque	e restraining arm)							
No gear venting									
	Motor sizes Gear torque ^[1] Gear type Hollow shafts in various di Various fittings available (f No gear venting Motor power ^[2] Motor sizes Gear torque ^[1] Gear type Hollow shafts in various di	Motor sizesDA08, DA09Gear torque [1]BK04 [3] BK08 BK17Gear typeBKHollow shafts in various dittings available ("Tange C, torque 10")No gear ventingIE4Motor power [2]IE4Motor sizesSA08, SA09Gear torque [1]BK04 [3] BK08 BK17Gear typeBKHollow shafts in various dittings available ("Tange C, torque 10")Yarious fittings available ("Tange C, torque 10")Gear typeBKYarious fittings available ("Tange C, torque 10")							

^[1] Torque depends on gear ratio ^[2] Gear reduction and output depend on motor size ^[3] on demand

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

Specifications

BK04 gear ^[3]	
Torque ^[1]	80 Nm
Gear reductions [2]	7.25 – 63.33
Motor sizes	Standard:D04, S04, D06, S06, D08, S08Aseptic:DA08, SA08Stainless steel:DA08, SA08
BK08 gear	
Torque ^[1]	200 Nm
Gear reductions [2]	4.44 - 102.5
Motor sizes	Standard:D08, S08Aseptic:DA08, SA08Stainless steel:DA08, SA08, DA09, SA09
BK17 gear	
Torque ^[1]	330 Nm
Gear reductions [2]	4.54 - 108.6
Motor sizes	Standard:D08, S08, D09, S09Aseptic:DA08, SA08, DA09, SA09Stainless steel:DA09, SA09
Motors	
Power [2]	0.12 kW 6.3 kW
Efficiency classes	no rating and IE1 to IE4
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 request



Your Benefits

- Variation in materials (aluminium, V4A)
- Range of fittings (various flanges, shaft diameters)
- Shape and radius adapted to material handling
- Efficiency classes IE1-IE4; 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.

Technical Features

Lubricants

٠	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.

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.

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

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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

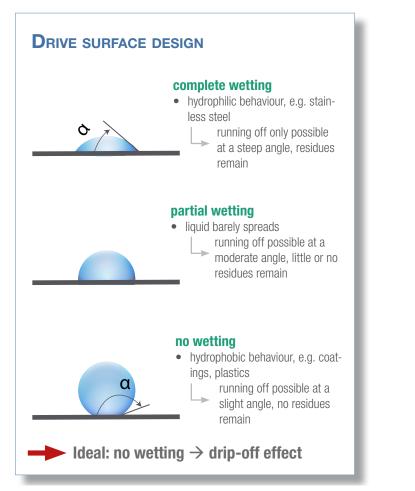
- The special paint coating on the aseptic drive produces an unstructured surface which has an extremely low level of roughness, preventing mechanical adhesion.
- The paint for the topcoat is nonpolar (uncharged molecules), i.e. liquids of the opposite polarity cannot be attracted as it behaves in a 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.

for additional coats.



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

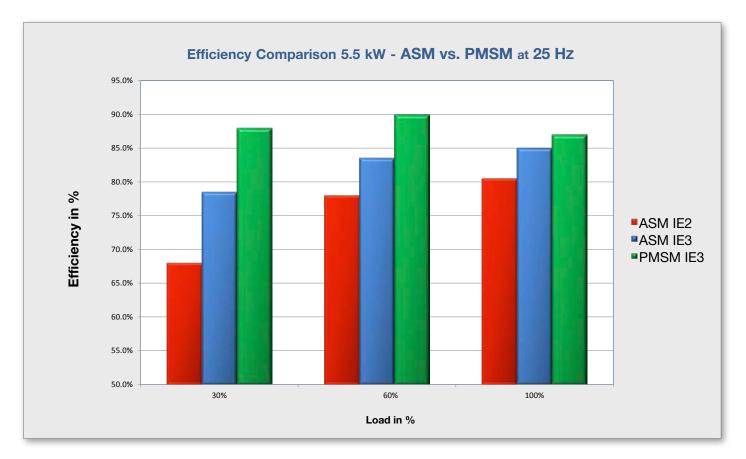
Clean in Place (CIP)

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.

. 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



The Motor Portfolio of Bauer Gear Motor

IE- kW Class	0.12	0.18	0.25	0.37	0.55	0.75	<u> </u>	1.5	2.2	S	4	5.5	7.5	9.5	<u>, </u>	15	18.5	22	30	37	45
IE1 Asynchronous	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
IE2 Asynchronous	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
IE3 Asynchronous	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
IE4 Asynchronous					•	•	•	•	•	•	•	•	•	•	•	•	•	•			
IE3 PMSM								•	•	•	•	•	•	•	•	•					
IE4 PMSM					•	•	•	•	•	•	•	•	•	•	•						
IE5 PMSM							•	•	•	•											

 \bullet = in planning

Customer Specific Options

		HiflexDRIVE Stainless Steel	HiflexDRIVE Aseptic	Series BG Stainless Steel	Series BG, BF, BK Aseptic
Exterior Design I	Features	0	0		
Graded Surfaces	0	\checkmark	\checkmark	\checkmark	\checkmark
Rounded Edges and Corners		\checkmark	\checkmark	\checkmark	\checkmark
Aseptic Coating		_	\checkmark	_	\checkmark
Shaft Material					
Stainless Steel		\checkmark	optional	\checkmark	optional
Standard Steel		—	\checkmark	—	\checkmark
Certification for FDA conform Coating		_	\checkmark	_	\checkmark
Mounting Features					
Stainless Steel Torque Arm		optional	_	_	—
Output Flange		_	optional	optional	optional



Sealing Featur	es	HiflexDRIVE Stainless Steel	HiflexDRIVE Aseptic	Series BG Stainless Steel	Series BG, BF, BK Aseptic
Non-Vented Housing	· · · · · · · · · · · · · · · · · · ·	\checkmark	\checkmark	\checkmark	\checkmark
Double-Lipped Shaft Seal		\checkmark	\checkmark	\checkmark	\checkmark
Shaft Cover Stainless Steel Plastic Cast Iron		optional optional —	— optional optional	_ _ _	— optional optional
Non-Ventilated Motor		\checkmark	\checkmark	\checkmark	\checkmark
Motor Connection Plug Connector Cable Terminal Box		✓ 	✓ optional optional	✓ optional optional	✓ optional optional
Protection Class IP66 IP67 IP69K		optional optional	_ ✓ optional	optional ✓ optional	_ ✓ optional
Integral Brake/ Encoder		optional	optional	optional	optional

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The Brands of Altra Industrial 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

Geared Cam Limit Switches

Stromag www.stromag.com

Electric Clutches & Brakes

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Linear Products Warner Linear

www.warnerlinear.com

Engineered Bearing Assemblies

Kilian www.kilianbearings.com

Heavy Duty Clutches & Brakes

Industrial Clutch www.indclutch.com

Twiflex Limited www.twiflex.com

Stromag www.stromag.com

Svendborg Brakes www.svendborg-brakes.com

Wichita Clutch www.wichitaclutch.com

Belted Drives

TB Wood's www.tbwoods.com

Gearing

Bauer Gear Motor www.bauergears.com

Boston Gear www.bostongear.com

Delroyd Worm Gear www.delrovd.com

Nuttall Gear www.nuttallgear.com

Overrunning Clutches

Formsprag Clutch www.formsprag.com

Marland Clutch www.marland.com

Stieber Clutch www.stieberclutch.com

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