Control
Regulate
Drive

with inverter driven geared motors series

EtaK2.0

Bauer® Gear Motor

An Altra Industrial Motion Company

Efficient and ideal for decentral systems

EtaK2.0 geared motors help you cut costs in several areas: in planning and installation, in operation and in maintenance. They help you control the efficiency of your installations, protect your mechanical components and reduce mains loading. In this way EtaK2.0 geared motors make a significant contribution to energy savings and efficiency optimisation in your application.

All EtaK2.0 geared motors are a combination of helical, shaft-mounted, bevel and worm geared motors and a variable frequency drive (VFD). They give you compact drive solutions with continuously variable speed and rated motor power up to 7.5 kW, with the VFD mounted directly on the motor. Thanks to their compact design, the entire drive needs only slightly more installation space than a conventional geared motor.

EtaK2.0 geared motors are smart power components for future-oriented system designs and can easily be adapted to specific working conditions and required process speeds. They are preferably controlled using a field bus system, but they also support control through digital and analogue inputs and outputs. The VFD provides valuable additional information for system protection and monitoring.

- Employing variable speed control usually increases the efficiency of the drive system.
- A variety of control schemes have become established as optimal solutions in different application areas.
- Bauer works with experts to determine the best solution for the control tasks in the application environment for each specific application. For example, the demands in the automobile industry, the metals industry and the food processing industry are distinctly different.
- Bauer‘s application experts work closely with our system partners to further optimise the electromechanical drive train.

Flexibility through modular design

The Drive Unit – power unit with low diversity

- Power units are available in three models with ten power ratings
  BF1: 3ph. 380–500 V, 0.37 to 1.5 kW
  BF2: 3ph. 380–500 V, 2.2 to 3.0 kW
  BF3: 3ph. 380–500 V, 4.0 to 7.5 kW
- Enclosure IP65

The Communication Unit– localised functionality

- Communication over CANopen, Profibus, Profinet, EtherCAT, EtherNet/IP and AS-i
- Safety functions in accordance with EN 60204 (STO, SS1)
- I/O signal processing
- Without field bus: I/O via cable glands
- With field bus: bus and two input signals via M12
- Customisable up to 8x M12
- Prefabricated M12 connectors available as accessories

The Connection Unit– flexible connection options

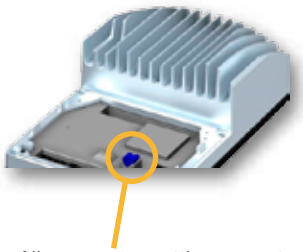
- Cable glands and various plug-and-socket connectors
- Brake resistor connector
- Control of spring-actuated brake

Functions and features

Control types	Suitable for asynchronous and synchronous motors
Control algorithms	- VFCplus: V/f control (linear or quadratic) - SLVC: Sensorless vector control (motor speed) - VFCplus eco: Energy-efficient V/f control
Basic functions	User-definable menu Parameter switching DC braking function Trap-and-trace S ramps for gentle acceleration PID controller Three fixed frequencies Exclusion frequencies
Engineering applications	Variable speed servo drive Switch-off positioning
Monitoring and protection	Short circuit Frame fault Overvoltage Motor phase dropout Overcurrent I^2t motor monitoring Motor overheating Mains phase dropout Protection against cyclic mains switching Motor stalling
Diagnostics	Data logger, logbook
Status indication	Readily visible LED
Diagnostic interface	Integrated For USB diagnostic adapter or keypad (hand-held terminal)
Braking	Integrated brake management - Integrated brake chopper - Braking resistor accessory module or external braking resistor
Power range	0.75 to 7.5 kW
Overload current	200% (3 s); 150% (60 s)
Wall mounting	Possible

- **Diagnostic interface**
  - For hand-held terminal
  - For PC through USB adapter
- **Potentiometer**
  - For 0–100% speed control
- Large **LED status indicator** for good visibility, even under difficult installation conditions

Hand-held terminal



- All parameter settings are stored in a **memory module** for quick transfer to a new unit in the event of service exchange.
- The memory module can also be duplicated using a copying station.
- Parameter download to memory module through USB adapter

Communication unit

The communication modules support the following functions:

- VFD control using digital and analogue signals
- VFD control using field bus systems
- Supports Safe Torque Off functionality
- Connection options for sensors and actuators
- Internal 24 V supply for sensor power (max. 100 mA)
- Connections can be made using cable glands and M12 connectors. Up to eight cable glands and/or connectors in total are possible. The individual communication units are provided with suitable connection options according to their functions.

Interfaces

	Controller enable	Digital inputs	Digital outputs	Relay outputs	Analogue inputs	Safety STO	External 24 V DC supply
	Number	Number	Number	Number	Number	Number	Number
I/O modules							
Standard I/O	1	5	1	1	1		1
Field bus							
AS-i	1	5	1				
CANopen	1	5	1				
EtherCAT	1	5	1				1
EtherNet/IP	1	5	1				1
Profibus	1	5	1				1
Profinet	1	5	1				
Field bus with safety	1	5	1	1	1	1	1
AS-i STO	1	5	1	1	1	1	1
CANopen STO	1	5	1	1	1	1	1
EtherCAT STO	1	5	1	1	1	1	1
EtherNet/IP STO	1	5	1	1	1	1	1
Profibus STO	1	5	1	1	1	1	1
Profinet STO	1	5	1	1	1	1	1

Flexible and versatile

Without field bus

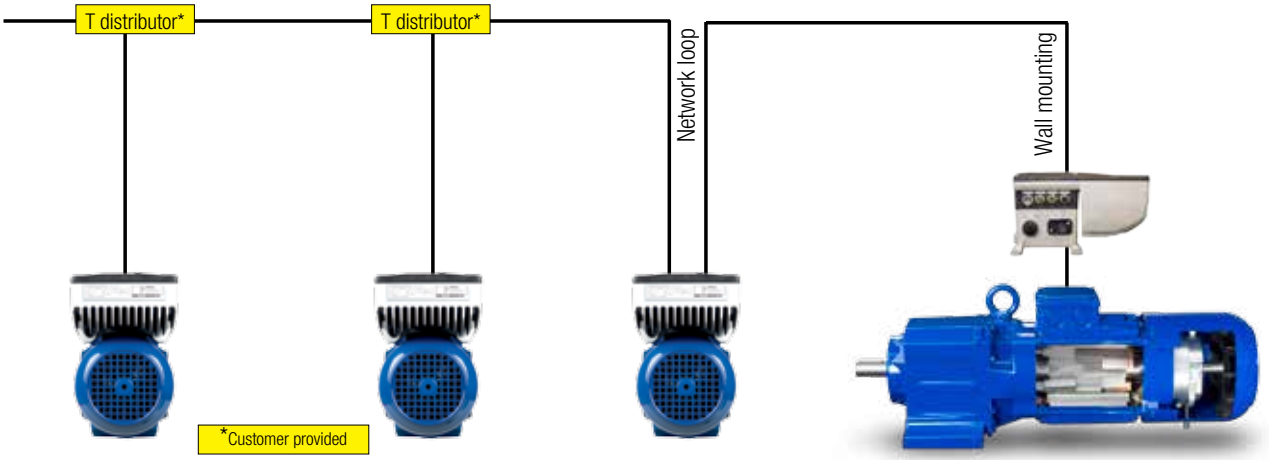
With field bus

With field bus and STO

Supported field busses

CANopen · PROFINET · EtherNet/IP · PROFIBUS · AS-i INTERFACE · EtherCAT

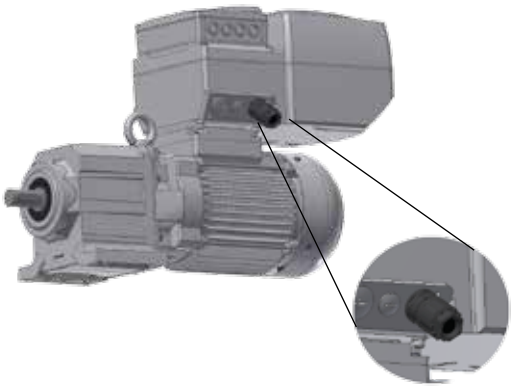
Power distribution scheme



Mains connection scheme

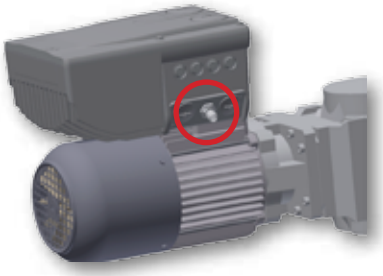
Standard

- **Up to 7.5 kW**
- Mains connection through integrated QuickOn power connector
- Max. load 20 A
- For inverters up to 7.5 kW
- Insulation displacement terminals
- Faster and easier connection



Option

- **Up to 3 kW**
- Mains connection through integrated M12 power connector
- Max. load 12 A
- For inverters up to 3.0 kW
- Straight and angle mating connectors available
- Pre-wired mating connectors available



Power bus – alternative connection options (special versions)

Wall mounting

Up to 3.0 kW

This wall mount option, with or without cable glands, is available for power levels up to **3.0 kW**.

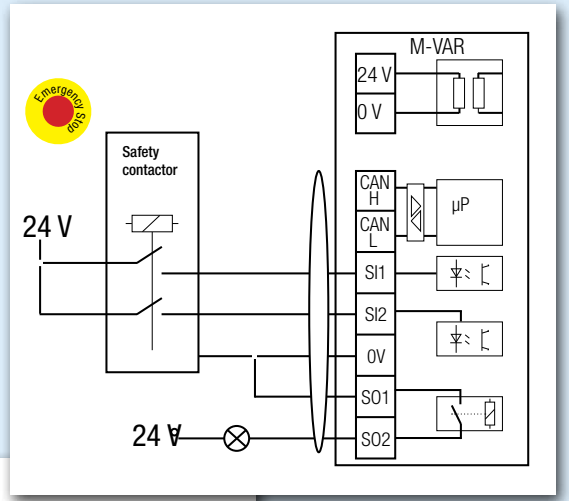
4.0 to 7.5 kW

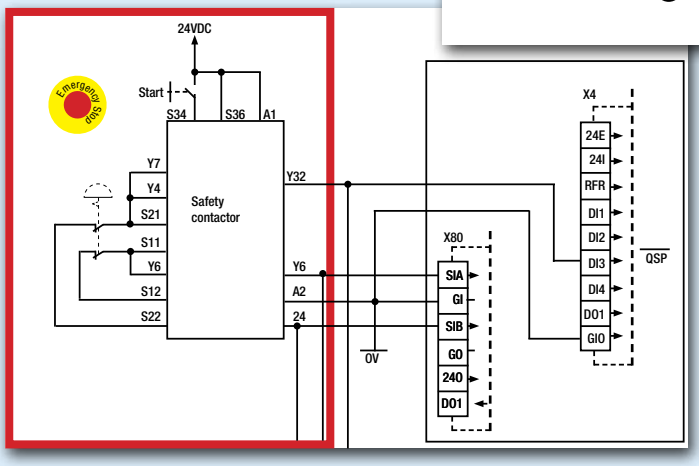
This wall mount option is available for power levels from **4.0 to 7.5 kW**.

Drive based safety

Safe Torque Off (STO)

Corresponds to EN 60204 stop category 0.
Power to the drive is cut off immediately and the drive is brought to an uncontrolled stop.
PL e Cat. 4 according to EN ISO 13849-1





* Additional safety contactor

Safe Stop 1 (SS1)

Corresponds to EN 60204 stop category 1
The drive is brought to a controlled stop, and then the STO safety function is activated.
PL e Cat. 4 according to EN ISO 13849-1

Advantages

- Mains contactor not necessary
- Fast restart
- Selective switch-off
- Communication remains active

Compact geared motor solution

- **Adapted motor windings** matched to VFD for optimised efficiency
- **Optimised motor parameters** over the entire speed and torque range
- Motor and VFD **combinations surpass** IES 2 system efficiency class according to EN 50598-2 and IEC 61800-9-2
- **All necessary options** integrated very compactly, including safety functions

Motor combinations

Permanent magnet synchronous motors (PMSM)

P_N [kW]	Type	n_N [rpm]	P_{VFD} [kW]
0.55	S08MA4	3000	0.55
0.55	S08MA4	1500	0.55
0.75	S08MA4	3000	0.75
0.75	S08MA4	1500	0.75
1.1	S08MA4	3000	1.1
1.1	S08LA4	1500	1.1
1.5	S08MA4	3000	1.5
1.5	S08LA4	1500	1.5
1.5	S09SA4	1500	1.5
2.2	S08MA4	3000	2.2
2.2	S08LA4	3000	2.2
2.2	S09SA4	1500	2.2
2.2	S09XA4	1500	2.2
3	S08LA4	3000	3
3	S09XA4	1500	3
3	S11SA6	1500	3
4	S09SA4	3000	4
4	S11SA6	1500	4
4	S11MA6	1500	4
5.5	S09XA4	3000	5.5
5.5	S11MA6	1500	5.5
5.5	S11LA6	1500	5.5
7.5	S11SA6	3000	7.5
7.5	S11MA6	3000	7.5
7.5	S11LA6	1500	7.5

Asynchronous motors (ASM)

		Base frequency 50 Hz Motor: 350V/50Hz/Y		Base frequency 87 Hz Motor: 202V/50Hz/D	
P_N 50 Hz [kW]	Type	P_{VFD} [kW]	I_N [A]	P_{VFD} [kW]	I_N [A]
0.12	DHE06LA4	0.37	1.3	0.37	1.3
0.18	DHE06LA4	0.37	1.3	0.37	1.3
0.25	DHE07LA4	0.37	1.3	0.55	1.8
0.37	DHE08MA4	0.37	1.3	0.75	2.4
0.55	DHE08LA4	0.55	1.8	1.1	3.2
0.75	DHE08XA4	0.75	2.4	1.5	3.9
1.1	DHE09LA4	1.1	3.2	2.2	5.6
1.5	DHE09XA4	1.5	3.9	3	7.3
2.2	DHE09XB4	2.2	5.6	4	9.5
3	DHE11MA4	3	7.3	5.5	13
4	DHE11LA4	4	9.5	7.5	16.5
5.5	DHE11LB4	5.5	13	-	-
7.5	DHE13LA4	7.5	16.5	-	-

The motor combinations listed here are subject to change. Please contact our staff for more information.

The benefits at a glance

The EtaK2.0 features maximum user friendliness in operation and installation. Especially for decentralised drive solutions, it demonstrates its high efficiency in terms of space, time and energy.

Space advantages

- Integrated safety technology and field bus communication according to specific needs
- Modular structure minimises spare parts stock

Time advantages

- Plug-and-socket connectors reduce assembly and installation time – „unpack, plug in and go“
- Easy memory module exchange simplifies series commissioning and enhances availability

Energy efficiency

- VFC eco mode provides intelligent adjustment of magnetising current
- Energy savings of up to 30% possible under partial load conditions

Mechanically and electrically robust

- Suited to extremely harsh environments thanks to IP65 enclosure rating

Added benefits

- 200% overload current (3 s)
- V/f control with or without encoder
- Sensorless vector control
- Short-circuit and frame fault protection
- Direct current braking
- S ramps for gentle acceleration
- Maximum output frequency 300 Hz
- CANopen, Profibus, Profinet, EtherCAT, EtherNet/IP and AS-i
- STO safety function

A plus for decentral applications

- The EtaK2.0 meets all demands on modern, universally deployable and cost-effective motor/VFD combinations. That makes it the ideal choice for descentral tasks in intralogistics domains, such as airports and distribution centres.

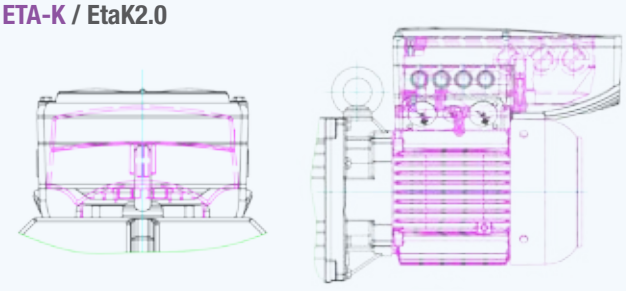
EtaK2.0

Eta-K vs. EtaK2.0

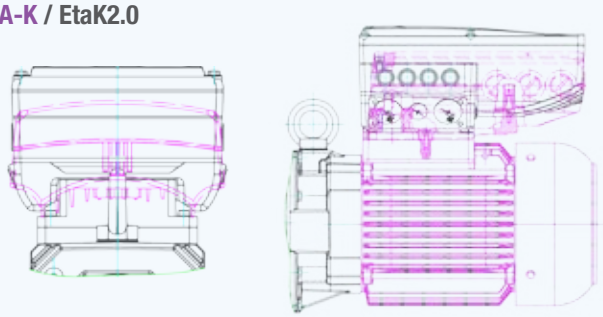
Feature	Eta-K	EtaK2.0
Power range	0.55 kW - 7.5 kW	0.37 kW - 7.5 kW
PMSM enabled	×	✓
Sensorless vector control	×	✓
V/f control	✓	✓
Digital inputs	4	5
Digital outputs	1	1 - 2
Analogue in	1	1
Field bus systems	RS 485 Profibus	Profinet EtherCAT CANOpen Profibus AS-i EtherNet/IP
Safety options	×	✓
Brake chopper	×	✓
Brake resistor	×	✓
Operating Temperature	-10°C to +40°C	-30°C to +55°C
Overload	160% 60 s	200% 3 s; 150% 60 s
Control of electromechanical brake	External	Optional

Contour comparison

D08 asynchronous motor with 0.55 kW inverter
ETA-K / EtaK2.0



D09 asynchronous motor with 1.5 kW inverter
ETA-K / EtaK2.0



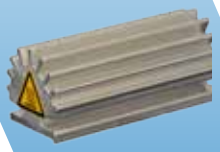
Accessories

Encoder

Holding brake

Hand-held terminal

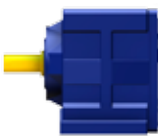
Brake resistor



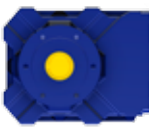
Wall mounting

Transmission Components

BF series



BG series



BK series

BS series

BM series

Gear Technology

Control/ Communication

Field bus

Digital / Analogue I/O

Permanent-magnet motors

Asynchronous motors

Motor & Control Electronics

Altra Industrial Motion

All Customer Service phone numbers shown in bold

Couplings

Ameridrives Couplings
Mill Spindles, Ameriflex, Ameridisc
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Gear Couplings
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Bibby Turboflex
Disc, Gear, Grid Couplings, Overload Clutches
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TB Wood's
Elastomeric Couplings
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1-888-829-6637– Press #5
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General Purpose Disc Couplings
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Ameridrives Power Transmission
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Matrix International
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Inertia Dynamics
Spring Set Brakes; Power On and Wrap Spring Clutch/Brakes
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Formsprag Clutch
Overrunning Clutches and Holdbacks
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Marland Clutch
Roller Ramp and Sprag Type Overrunning Clutches and Backstops
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Stieber Clutch
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Pneumatic Clutches and Brakes
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Industrial Brakes and Brake Systems
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Gearing

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