### BRETZEL GmbH Antriebs- und Elektrotechnik Am Rotböll 8 64331 Weiterstadt

www.bretzel-gmbh.de info@bretzel-gmbh.de Telefon: 0 61 50 / 8 65 60 - 0 The **BLH** Series has been updated with a range of new Features.

- High torque at high speeds
- Speed range 80 to 3000 r/min\*
- Decelerate stop according to the set deceleration rate\*
- Quieter: 13 dB quieter than before
- Set operation data from your computer\*
- Monitor operating status in real time\*
- Torque adjustment\*
- 8 data setting points<sup>\*</sup>

(Conventional product: 2 points)

\* When using the **MEXEO2** support software and digital setting type driver.

#### 2 Driver Types to Choose From



### **Compact, Lightweight Drivers**



Pictured is a 15 W / 30 W / 50 W driver.

## Increased performance and value with new drivers.

### **Reduced product cycle time**



### **Suitable for Applications in Quiet Environments**

#### Reduced Audible Noise

Noise is approx. half that of conventional products

- 30 W with parallel shaft gearhead Gear ratio of 5
- Measurement of noise.
- OA value

#### Noise value approx. 44 dB (Reduced by approx. 13 dB)



The sound of leaves rustling The suburbs at night A quiet park The second hand of a clock A whisper A library

An air conditioner (outdoor unit)

The BLH Series uses a sinusoidal drive method. With little torque ripple and smooth, stable rotation even at low speeds, the motor's audible volume is reduced.

### Synchronized Operation and Operation with Little Speed Fluctuation

#### Synchronized Operation



 With digital settings, speeds can be set at 1 rpm increments. The speed accuracy is improved, and synchronized operations are made possible.

# Speed Stability



•Speed remains stable even if the weight of the load changes (Speed regulation ±0.2 % max.)

#### Speed Regulation

Speed Setting Method	Analog Setting Type	Digital Setting Type			
Analog Setting	±0.5% max.				
Digital Setting	_	±0.2% max.			
PWM Input Setting	_	±0.5% max.			



This is a demo of an Automated Guided Vehicle (AGV) using the **BLH** Series. You can see the synchronization and high level of response.



## Startup and maintenance with digital settings + support software.

### **Equipment Startup Assistance**

#### Teaching and Remote Operation



Operating Data Copy Reading Master Reading EXE02 Support softwar MEXEO2 Support software Duplicate MEXEO2

Operation data can be set up on your computer. This makes it possible to create the motion profile without being connected to the machine's motion control system, then save the operation data in place.

When using multiple units, the operation data used in the first unit can be treated as a master file, and duplicated into subsequent units. Helping to reduce setup time.

### **Predictive Maintenance with Visualization**

What is predictive maintenance? By constantly monitoring the status of the motor and performing maintenance when signs of change are observed, machine down time can be avoided.



#### Status Monitoring

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The load factor, driver temperature, and other conditions can be constantly checked.

#### Information Monitoring

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Output signals can be set to trigger at preset thresholds, showing that periodic maintenance is now due.

#### Alarm Monitoring (When an abnormality occurs)



Alarm information can also be monitored. The cause of the alarm is listed, with suggested solutions to resolve the problem. There is also a history record of any previous alarms

### **Torque Adjustment**

#### Torque Limiting Function

What is torque limiting? It is a limiting function that suppresses the motor's torque by limiting the current to the motor.



- Adjustment of tightening force, etc.
- Damage prevention (Low thrust)
- Load factor monitoring is possible



As well as tightening applications, torque limiting can also be used as a safety measure. By showing operational status outside the norm, such as pinching, or wear, damage can be prevented. The max. instantaneous torque range can be set between 0 and 200% by assuming the rated torque to be 100%.

### **Operating Data Setting**

With the digital settings type, you can set up to 8 different types of driving data (Rotational speed, torque limit value, acceleration time, deceleration time).

#### Setting Method

Setting Method Setting Item Digital Setting			Externa Potenti	l Analog ometer	Inte Potenti (Dri	PWM Input	
			Oriental motor	0~5 VDC 1 mA min.			
		Support software <b>MEXE02</b>	External speed potentiometer	External DC Voltage	VR1	VR2	PWM signal
Speed	Analog setting type	_	•	•	•	_	_
	Digital setting type	•	•	•	•	•	•
ration / tion Time	Analog setting type	_	_	_	_	•	_
Accelei Decelerat	Digital setting type	•	_	_	•	•	_
imiting	Analog setting type	—	_	_	_	-	_
Torque	Digital setting type	•	•	•	•	•	•

### **Functions List**

	Function	Analog Setting Type	Digital Setting Type
1	Digital Speed Indicator	Pulse signals can be converted to an external device	Monitoring function for the <b>MEXEO2</b> support software
2	Instantaneous Stop	•	•
3	Acceleration / Deceleration Time Setting	• 0.1 to 12.0 seconds*1	0.1 to 15.0 seconds (Individual settings)
4	Multistep Speed-Change Operation	•	•
5	Parallel-Motor Operation	•	•
6	Protective Function	•	•
0	Torque Limiting	—	•
8	Speed Upper and Lower Limit Setting	_	•
9	Shock Alleviation Filter	_	•
10	I/O Signal Assignment	—	•
1	I/O Signal Operation Selection	-	•
12	Overload Alarm Detection Time Setting	 Fixed at 10.0 seconds <sup>*2</sup>	0.1 to 10.0 seconds
(13)	Prevention of Operation at Power-on Alarm	_	•
(14)	Various Information Detection	_	•

For (2) to (3), when using the **MEXEO2** support software and digital setting type driver.
 \*1 0.5 to 10.0 seconds for 100 W
 \*2 Fixed at 5.0 seconds for 100 W

### **Product Line**

Motor, driver, connection cables (Flexible connection cables), and cable sets (Power supply cable, I/O signals cable) sold separately.

Motor				Driver			Connection Cables / Flexible Connection Cables		Cable Sets
Туре	Output / Frame Size	Gear Ratio		Туре	Voltage / Output		Туре		Power Supply Cable Cable for I/O Signals
Parallel Shaft Gearhead <b>GFS</b> Gear <sup>*1</sup>				Analog Setting Type			Connection Cable (1.5 m)		Power Supply Cable (300 mm)
Hollow Shaft		5, 10, 15 20, 30, 50 100, 200			24 VDC • 15 W 30 W 50 W 100 W		$\mathbf{O}$		
Flat Gearhead FR Gear*2	15 W / □ 42 mm 30 W / □ 60 mm 50 W / □ 80 mm 100 W / □ 90 mm	not have a gear ratio of <b>200</b>	+	Digital Setting Type		+	Flexible Connection Cable (1.5 m)	+	Cable for I/O Signals (300 mm)
Round Shaft		_			24 VDC 15 W 30 W 50 W		$\mathbf{Q}$		

**\***1 The 15 W geared motor has an integrated motor and gearhead.

\*2 Excluding 15 W.

 $\ensuremath{\ast}3$  Power supply cable and I/O signal cable are included with the 100 W driver.

### Features of Brushless Motors

Brushless motors have slim bodies and provide high output and high efficiency due to the built-in permanent magnets. The built-in sensor (Hall IC) constantly monitors the motor's speed. No matter the load conditions, feedback control is carried out at all times so that the command speed and actual speed remain consistent.

### Speed stability with feedback control

Brushless motors compare the setting speed with the speed feedback signals from the motor at all times and adjust the motor's applied voltage. Speed is kept stable over the entire speed range from low to high even when the load fluctuates.



### IE4-equivalent\* high-efficiency and energy-saving motor

Brushless motors are higher efficiency than three-phase motors (Induction motors). For example, with the **BMU** Series 200 W, motor and driver efficiency is increased by 86%, and the IE4 standard is increased 75.8%, thus giving consideration to energy-saving requirements.



Induction motors 120 W and higher are subject to the efficiency classes under the international standard IEC 60034-30-1.
IEL efficiency values are at 50 Hz and 1500 r/min, while brushless motor efficiency values are at rated speed.

### Broad speed control range and even torque

Rated torque is consistent over the entire speed range from low to high. Sufficient torque is obtained without limiting the applied torque at low speeds, in the same way as three-phase AC motors when driven with an inverter.



### Compact, lightweight, and high power

Since these are brushless motors with built-in permanent magnets, they offer high output even though they are compact.

Installation is easy, and both equipment weight and space can be reduced.

