



# BRUSHLESS MOTOR

MINAS-BL **GV** series  
**KV** series (Will be released soon)  
**GP** series

Panasonic Corporation, Appliances Company, Motor Business Unit

[http://industrial.panasonic.com/ww/i\\_e/25000/motor\\_fa\\_e/motor\\_fa\\_e.html](http://industrial.panasonic.com/ww/i_e/25000/motor_fa_e/motor_fa_e.html)

# Compact and high-efficiency brushless motors

High-efficiency energy saving eco-friendly MINAS series\* technology is incorporated into smaller and higher output motors.

\* MINAS series is a registered trademark for Panasonic AC servo motors.



•90 mm square 130 W



•60 mm square 200 W

MINAS-BL **GV** Series  
Speed Control Type 50 W to 130 W

MINAS-BL **KV** Series  
Speed Control Type 50 W to 750 W

(Will be released soon)

Typical options

Typical options



Console A



Digital key pad



Console A



Digital key pad

# MINAS-BL



•80 mm square 50 W

## MINAS-BL **GP** Series

Position Control Type 50 W to 130 W

### Typical options



Digital key pad

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# Motor Business coexisting

**Panasonic Corporation, Appliances Company,  
Motor Business Unit promotes preservation of  
the environment together with industrial activities and  
aims to “Company Coexisting with Global Environment”**

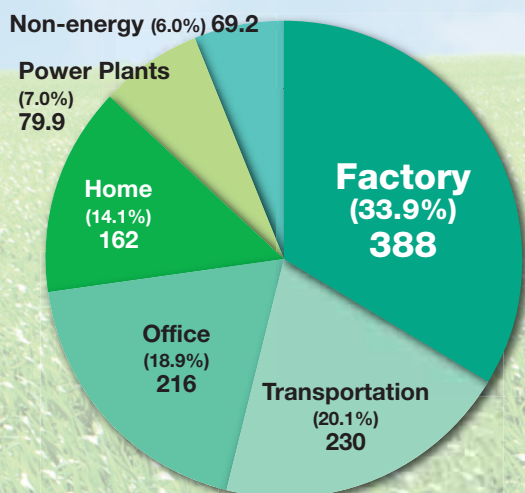
## Environmental conservation activities in industrial field

Environmental conservation activities have been required widely from home level to company level nowadays, and the role of conservation in the industrial sector has become more important. Total emissions of CO<sub>2</sub> in 2009 in Japan were approximately 1.1 billion tons, out of which 380 million tons belong to factory and industrial field.

It has become a huge amount which significantly exceeded transportation and business sectors.

### CO<sub>2</sub> Emissions (2009)

Source: CO<sub>2</sub> Inventory Office “Japan CO<sub>2</sub> emission data” (Units: million tons)



**With the spread of high-efficiency motors  
that minimizes the loss of electrical energy,  
We aim to achieve significant energy savings  
for the entire industry.**

# with Global Environment

## Basic attitude

Based on "Environmental Declaration" of Panasonic, Motor Business Unit of Appliances Company also established the "Environmental Policy" as the basic attitude to environmental conservation. Based on this, we create more specific policies and manuals, and have been promoting environmental conservation activities.

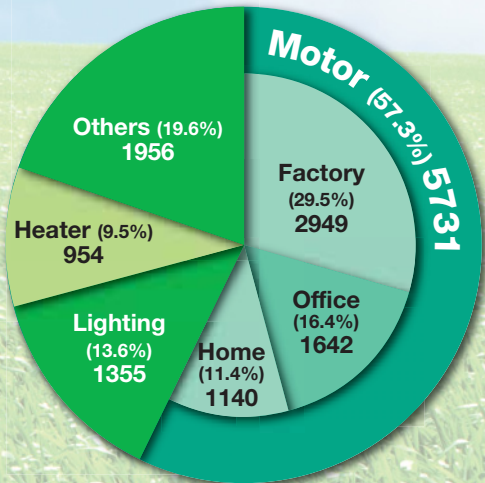
## Environmental Policy

Motor Business Unit of Appliances Company of Panasonic Corporation recognizes that the preservation of global environment is the important mission as a good corporate citizen of society. Our philosophy is "Coexisting with the Global Environment", and run sound business activities harmonized with nature.

## Motor holds the key to global environmental protection

From small one used in mobile phones, to big one used in factories, motor has become indispensable in every aspect of our society. It has been consuming more than half part of electricity in Japan which is equal to 573 billion kWh.

■ Japan Domestic electricity consumption (2005)  
Source: Motor Business Unit Research (Units: Hundred million kWh)



If motor power consumption reduced by 1% (4.59 billion kWh)



Equivalent to annual one thermal power plant stop (500K kWh x 8760H)



**KV** Series • 60 mm square 200 W  
(Will be released soon)



**GV** Series • 80 mm square 50 W



**GP** Series • 80 mm square 50 W

## eco ideas

Panasonic group always aims for environmentally-friendly products.



# Brushless motors of MINAS-BL series

Commutation brushless motor with advanced controlling technology features high efficiency and low power loss.

In addition, “Split Core Structure” developed for and proven in MINAS series AC servo motors is introduced to these new brushless motors to further reduce their sizes but increase power.

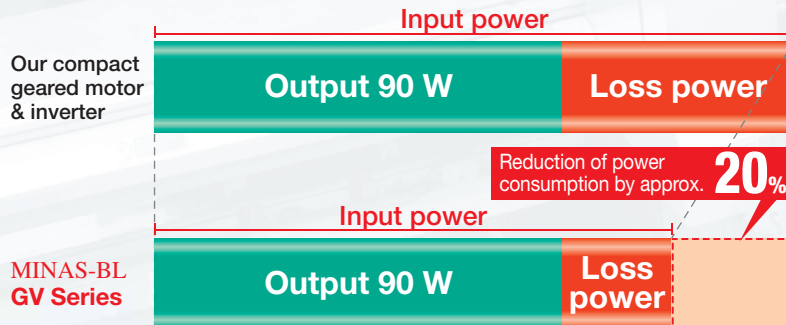
These motors promote “three saving” activities – Energy saving, Cost saving and Space saving.



## GV KV GP Reduce loss and increase efficiency

A permanent magnet on a rotor reduces secondary loss. It also reduces power consumption by 20% compared with those of our small geared motors.

■ Comparison of input power with our conventional motors (90 W)



Energy saving effects are significantly seen when these new models are used on multi-axis machines, e.g. textile machinery.

## MINAS-BL Series Provide More Features

GV GP

Speed control range **30~4000**<sup>\*1</sup> r/min

Proprietary CS sensor for sinewave driving

**Wide 1:133 variable speed range**

\*1 Rated rotational speed: 3000 r/min

GV KV GP

Start torque **150** % (comparison of rated values)

Unlike induction motor

**Stable operation startup at lower speed**

GV KV GP

### Flat torque characteristic

Proprietary CS sensor for

**Smooth operation**

# realize “Three Savings”.

## Space Saving

**GV KV GP** For simultaneous pursuit of miniaturization and high power

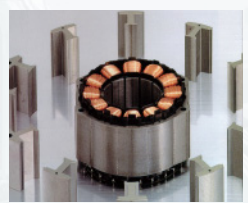
“Split core structure” developed for and proven in MINAS series AC servo motors is introduced to these new models to significantly reduce size and weight but increase output power compared with induction motors.

■ Comparison in size between GV/GP series and our compact geared motors (90 W)

Reduction in profile by approx. **55%**

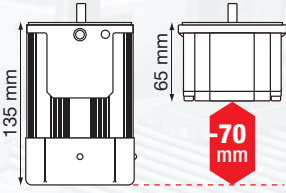
■ Comparison in mass between GV/GP series and our compact geared motors

Lighter by approx. **1/3**



▲ Split core structure

Our compact geared motor **90 W** (90 mm square)



MINAS-BL **GV/GP series 90 W** (90 mm square)

Output	GV/GP series (motor)	Our compact geared motor
50 W	0.7 kg	2.4 kg(40 W)
90 W	1.0 kg	3.2 kg
130 W	1.2 kg	—

● The size of a GV/GP series brushless amplifier is almost equal to that of a postcard and weights approx. 370 g.

Comparison of KV series with general purpose induction motors: **Approx. 1/7 in volume and approx. 1/4 in mass**

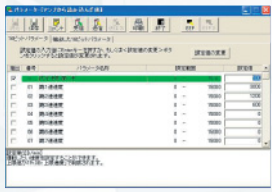
Enable downsizing of embedded device.

## Cost Saving

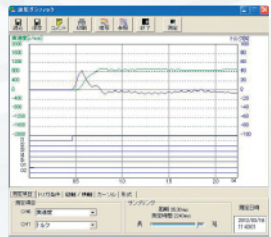
**GV KV GP** They also reduce maintenance and setup cost.

Commutatorless and brushless design reduces associated costs such as maintenance cost. Our setup support software helps prompt startup and reduction in operation management process.

■ Setup support software PANATERM for BL



▲ Parameter setting  
File saving (Batch reading/writing)

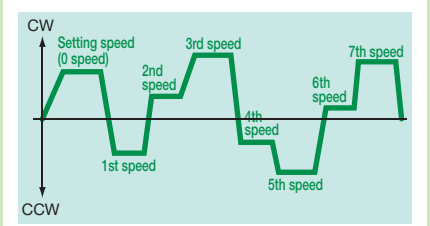


▲ Waveform graphical display  
Example: Velocity and torque  
Status of I/O can also be monitored.

The PANATERM for BL allows easy setup of parameters. Waveform graphical display can be used for precisely and accurately monitoring motor conditions, reducing setup and maintenance workload.

**GV KV**

### 8-speed operation

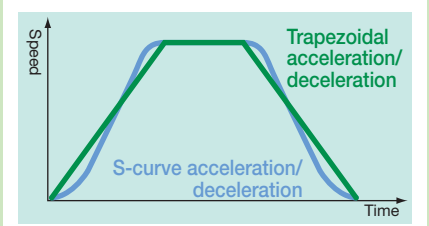


Stable operation maintains high productivity and yield ratio.  
**The speed is regulated at 0.5% or less variation.**

\*2 Within rated torque

**GP**

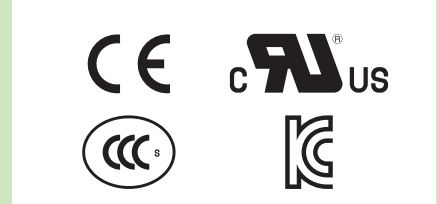
### Positioning at 4 points



Not only trapezoidal waveform, **S-curve acceleration/deceleration can be set.**

(Under application)  
**GV KV GP**

### Compatible with international standards



**Compatible with wider power source voltage range**  
(Single-phase: 100-120 V  
Single-/Three-phase: 200-240 V)



# Speed Control Type

GV Series KV Series



•90 mm square 130 W

MINAS-BL **GV** Series  
Speed Control Type 50 W to 130 W

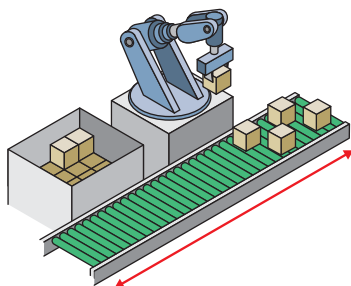


•60 mm square 200 W

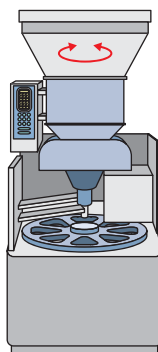
MINAS-BL **KV** Series  
Speed Control Type 50 W to 750 W  
(Will be released soon)

- High efficiency brushless motors realize energy saving.
- Distinctively controlled CS signal provides smooth operation through sinewave driving.
- Compatible with international standards, CE, UL, CCC and KC (KV series will also be compatible with the standards in the near future), and wider power source voltage range.
- The digital keypad (sold separately) and setup support software PANATERM for BL (available from our website, free of charge) enable parameter setting and monitoring.
- The proprietary CS sensor extends variable speed control range.
- Installation compatibility:GV series is compatible with our compact geared motors  
KV series is compatible with our AC servo motors
- Environment resistance: IP65

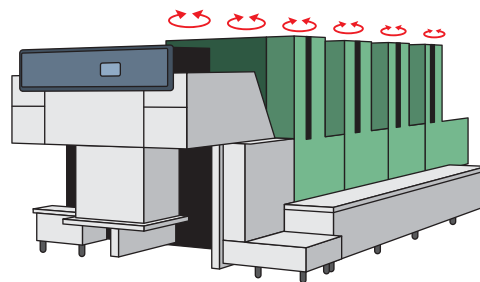
## Typical applications



Carrier machine



Food processor (agitating member)



Textile machinery



# Position Control Type GP Series

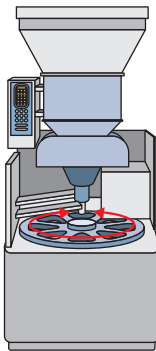


•80 mm square 50 W

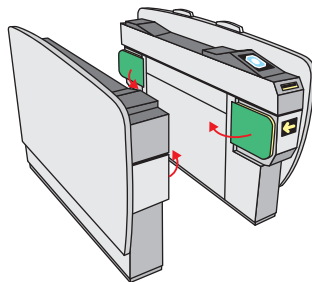
## MINAS-BL GP Series Position Control Type 50 W to 130 W

- Simple NC function enables easier positioning without help of a pulse unit.
- The proprietary CS sensor enables positioning without help of an external encoder.
- Compatible with international standards (CE, UL, CCC and KC), and wider power source voltage range.
- Internal teaching capability simplifies positioning operation.
- The digital keypad (sold separately) and setup support software PANATERM for BL (available from our website, free of charge) enable parameter setting and monitoring.
- Installation is compatible with our compact geared motors.
- Environment resistance: IP65

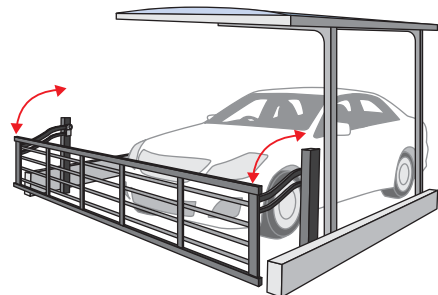
### Typical applications



Food processor (turntable)



Automatic ticket gate



Gate

