

KBVF

Hybrid Drive™

A Digital AC Drive with Analog Interface IP20 Enclosure

Primary Features

Horsepower 1/10 to 5 HP
115/230/460 VAC - 1ph & 3ph Input
Output 230/460 VAC - 3ph
200% Starting Torque
Power and Status Indicators

GFCI Compatible

Allows equipment to operate with Ground Fault Circuit Interruption circuit breakers or outlets. (Factory programming required.)

Benefits

Saves Time

Easy to Install and Simple to Operate
Does not require commissioning.
Up and running in less than 10 minutes.

Motors Last Longer

Proprietary CL Software
Provides overload protection, prevents motor burnout and eliminates nuisance tripping. UL approved as electronic overload protector for motors.

Energy Saving

Uses only the power the application requires. Replacing constant speed with variable speed will significantly reduce energy costs.

Customization for OEM's

When an off the shelf drive does not meet your needs, KB will work with you to provide a custom drive solution, Ready to Use, "Out-of-the-Box."
Customization includes: Pre-calibrating or programming of a stock control, adding a custom label or branding, custom software, PLC functions or designing a new control.



Additional Features

Sensorless Flux Vector Control

Flux Vector Compensation with Static Auto-Tune provides excellent speed regulation with high torque loads throughout the entire speed range. Auto energy saving at light loads. Smooth motor torque.

Electronic Inrush Current Limit (EICL™) Protection

Eliminates harmful inrush AC line current during power up.

Ride-Through

Provides smooth recovery to the previous set speed during a momentary power loss.

Holding Torque at Zero Speed

Resists motor shaft rotation when the drive is in "Stop" mode.

Regeneration Protection

Eliminates tripping due to high bus voltage caused by rapid deceleration of high inertial loads.

Undervoltage and Overvoltage Protection

Shuts down the drive if the AC line input voltage goes above or below the operating range.

Short Circuit Protection

Shuts down the drive if a short circuit occurs at the motor (phase-to-phase).

Trimpot Adjustments

Min. Speed, Max. Speed, Accel, Decel, Current Limit, Slip Comp.

Drive Options

SIVFR Signal Isolator and Run Fault Relay*

Provides isolation between a non-isolated signal source and the drive.

DIVF Modbus Serial Communication Module

Class "A" or "B" (CE) RFI Filter

Installs on drive.

DBVF Dynamic Brake Module

Provides faster braking.

Multi-Speed Board

Provides up to four independently adjustable preset speeds.

Main Speed Potentiometer

5 k Ω (supplied).

**Standard on 460 VAC models. ** OEM applications only.*



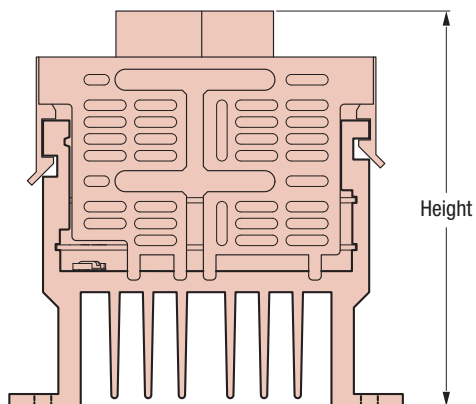
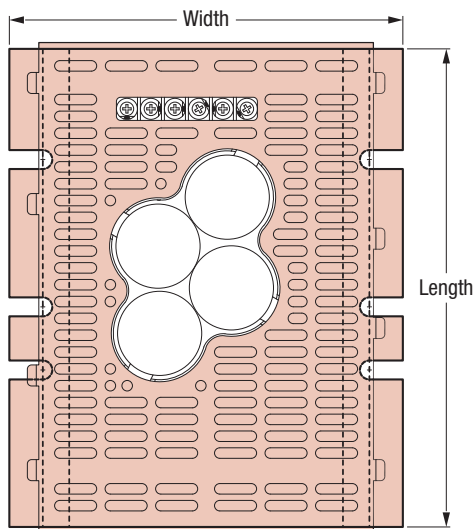
Applications

- Actuators • Air Cleaners • Amusement Rides
- Ball Pitching Machines • Blowers • Boat Lifts
- Bowling Alley Lane Cleaners • CNC • Conveyors
- Door and Gate Openers • Drilling • Duct Cleaners
- Dumbwaiters • Elevators and Hoists
- Exercise Equipment • Fabric Processing • Fans
- Feeders • Film Processing • Floor Cleaning
- Food Processing • Garment Cutting
- Grinding and Polishing • Hoppers • Horse Walkers
- HVAC • Indexers • Irrigation • Laminating
- Lift Station Pumps • Machine Tools
- Medical • Milling • Mixers • Oven Conveyors
- Packaging • Paint Blenders, Shakers, and Sprayers
- Paper Handling • Portable Equipment Used with GFCIs
- Pottery Wheels • Printing
- Pumps • Range Hoods • Sandblasting • Saws
- Sewing • Stretch Wrap • Textile • Treadmills
- Therapeutic Vibrators • Washing Machines
- Wave Soldering • Web Processing • Wheelchair Lifts
- Whole House Vacuums and Attic Fans
- Wire Feeders • Wood and Metal Lathes and Cutters
- Winders and Unwinders

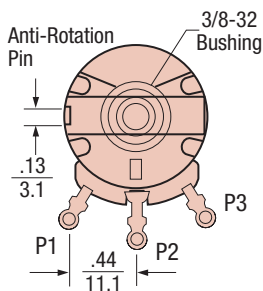
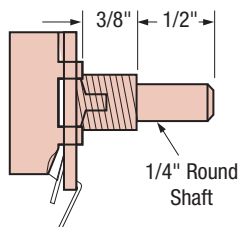
Visit kbelectronics.com

to learn about Build-A-Drive™, KB's New AC Inverter Program.

Ratings & Dimensions



Main Speed Potentiometer
5 kΩ (Supplied)



115 VAC 1-Phase Input • 230 VAC 3-Phase Output

| Model No. | Part No. | Ratings | | Dimensions – Inches, (mm) | | | Net Weight | |
|-----------|----------|-------------|------|---------------------------|------------|------------|------------|-----|
| | | HP, (kW) | Amps | Width | Length | Height | Lbs. | kg |
| KBVF-13 | 9957 | 1/2, (0.37) | 2.4 | 3.9, (99) | 4.3, (109) | 2.75, (70) | 1.3 | 0.6 |
| KBVF-14 | 9977 | 1, (0.75) | 4.0 | 4.7, (119) | 4.3, (109) | 5, (127) | 2.2 | 1.0 |

230 VAC 1-Phase Input • 230 VAC 3-Phase Output

| Model No. | Part No. | Ratings | | Dimensions – Inches (mm) | | | Net Weight | |
|-----------|----------|-------------|------|--------------------------|------------|------------|------------|-----|
| | | HP, (kW) | Amps | Width | Length | Height | Lbs. | kg |
| KBVF-23 | 9958 | 1/2, (0.37) | 2.4 | 3.9, (99) | 4.3, (109) | 2.75, (70) | 1.3 | 0.6 |
| KBVF-24 | 9978 | 1, (0.75) | 4.0 | 4.7, (119) | 4.3, (109) | 5, (127) | 2.2 | 1.0 |

115/230 VAC 1-Phase Input • 230 VAC 3-Phase Output

| Model No. | Part No. | Ratings | | Dimensions – Inches, (mm) | | | Net Weight | |
|-----------|----------|--------------|------|---------------------------|------------|------------|------------|-----|
| | | HP, (kW) | Amps | Width | Length | Height | Lbs. | kg |
| KBVF-21D | 9581 | 1/10, (0.07) | 1.0 | 3.9, (99) | 4.3, (109) | 2, (51) | 0.7 | 0.3 |
| KBVF-22D | 9572 | 1/4, (0.18) | 1.5 | 3.9, (99) | 4.3, (109) | 2.75, (70) | 1.3 | 0.6 |
| KBVF-23D | 9959 | 1/2, (0.37) | 2.4 | 3.9, (99) | 4.3, (109) | 2.75, (70) | 1.3 | 0.6 |
| KBVF-24D | 9979 | 1, (0.75) | 4.0 | 4.7, (119) | 4.3, (109) | 5, (127) | 2.2 | 1.0 |
| KBVF-26D | 9496 | 1½, (1.13) | 5.5 | 4.7, (119) | 5.7, (145) | 4.5, (114) | 2.9 | 1.3 |

230 VAC 3-Phase Input • 230 VAC 3-Phase Output

| Model No. | Part No. | Ratings | | Dimensions – Inches, (mm) | | | Net Weight | |
|-----------|----------|-------------|------|---------------------------|------------|-------------|------------|-----|
| | | HP, (kW) | Amps | Width | Length | Height | Lbs. | kg |
| KBVF-23P | 9676 | 1/2, (0.37) | 2.4 | 3.9, (99) | 4.3, (109) | 2.75, (70) | 1.1 | 0.5 |
| KBVF-24P | 9677 | 1, (0.75) | 4.0 | 4.7, (119) | 4.3, (109) | 5, (127) | 2.2 | 1.0 |
| KBVF-27* | 9591 | 2, (1.5) | 6.7 | 4.7, (119) | 7.5, (191) | 4.45, (113) | 4.1 | 1.9 |
| KBVF-29* | 9593 | 3, (2.25) | 9.0 | 4.7, (119) | 7.5, (191) | 4.45, (113) | 4.6 | 2.1 |

460 VAC 3-Phase Input • 460 VAC 3-Phase Output**

| Model No. | Part No. | Ratings | | Dimensions – Inches (mm) | | | Net Weight | |
|-----------|----------|-----------|------|--------------------------|-------------|-------------|------------|-----|
| | | HP, (kW) | Amps | Width | Length | Height | Lbs. | kg |
| KBVF-42 | 9645 | 1, (0.75) | 2.0 | 4.1, (103) | 9.31, (236) | 2.75, (70) | 2.8 | 1.3 |
| KBVF-45 | 9590 | 3, (2.25) | 4.6 | 4.7, (119) | 8.75, (222) | 4.45, (113) | 4.1 | 1.9 |
| KBVF-48 | 9592 | 5, (3.75) | 8.3 | 4.7, (119) | 8.75, (222) | 4.45, (113) | 4.6 | 2.1 |

*Rated 2 HP (1.5 kW), 6.7 Amps with 1-Phase Input. **Contains SIVFR signal input isolation and Run/Fault output relay.

Specifications

| | |
|---|------------------------|
| Maximum Load (% of Current Overload for 2 Minutes) | 150 |
| Carrier, Switching Frequency (kHz) | 16, 8 |
| Output Frequency Resolution (Hz) | 0.06 |
| Minimum Output Frequency to Motor (Hz) | 0.3 |
| Acceleration Time (Seconds) | 0.3 – 20 |
| Deceleration Time (Seconds) | 0.3 – 20 |
| Speed Range (Ratio) | 60:1 |
| Speed Regulation (30:1 Speed Range, 0 – Full Load) (% Base Speed) | 2.5 |
| Stalled Motor Trip Time (Seconds) | 6 |
| Braking | Regenerative* |
| Operating Temperature Range (°C / °F) | 0 – 40 / 32 – 104 |
| Storage Temperature (°C / °F) | -25 – +85 / -13 – +185 |

*DC Injection Braking available – requires factory programming.

General Connection Diagram

