

**BENSHAW®**  
ADVANCED CONTROLS & DRIVES

*A member of UNICO Technologies Group*



# RSi Variable Frequency Drive Products and Systems

*With powerful, intuitive user interface*

Variable Frequency Drives

# Variable Speed Drive Solutions

*From a world leader in MISSION CRITICAL motor control and protection.*

- Complete family of ac drives
- Application / engineering support
- Multi-purpose micro drives
- NEMA 4X washdown drives
- High performance industrial drives
- QuickShip program
- IEEE 519 clean power drives
- Integrated communications/systems
- 24/7 service and support



## **Benshaw offers a complete family of variable speed drive solutions:**

- Multi-purpose micro drives
- High performance industrial drives
- IEEE 519 clean power drives
- NEMA 4X washdown drives
- Packaged drives
- Turnkey drive control systems

As a pioneer in the motor control industry, Benshaw has led the effort to expand the market for variable speed drives to include many applications that were once considered unobtainable.

Through extensive research, in-depth testing and real world applications experience, Benshaw offers a complete range of variable speed drive solutions—from multi-purpose micro drives and high performance industrial drives to IEEE 519 clean power drives, NEMA 4X washdown duty drives and custom configured packaged drive solutions—with services and support capabilities available to meet the motor control needs of a broad range of industries and applications.

## ***Rugged. Reliable. Ready.***

### **Reliable drive products**

A principle factor in Benshaw's rapid expansion in the variable speed marketplace is our focus on quality and the attention we've paid to the issues that are key to our customers—reliability and ease-of-use.

Benshaw's intuitive operator interface, rugged construction standards, ISO certified quality control systems and an integrated approach to engineering have resulted in a new generation of variable speed drive products that are easier to set up, easier to operate, easier to network and more reliable than ever.

In fact, when the application is demanding and the environment harsh, more customers now turn to Benshaw than any other motor control brand.

### **High performance, sensorless vector drives**

Benshaw's variable speed drive products have earned a solid reputation for rugged, reliable performance in a variety of demanding applications—from pumps, compressors and chillers to fans, blowers, crushers and conveyors.

All of Benshaw's drive products include an intuitive user interface, integrated control and power electronics, and can be provided with bypass and isolation contactors, and a myriad of user-friendly, user-selectable options.

Other capabilities include on-board metering, plain English data displays, Fieldbus communications capabilities and integrated motor/load protection.

### **Engineered drive packages**

Benshaw's engineering and design teams draw on extensive real-world drive applications experience. If a standard drive doesn't fit your needs, Benshaw can engineer and build one that does—with the shortest lead time in the industry.

### **Custom-engineered drive systems**

Benshaw can also design and manufacture a complete custom-engineered drive system or motor control center to meet your industry- or application-specific requirements.

### **World-class pre- and post-sale service and support**

Benshaw's dedicated, knowledgeable technical support staff is available to answer your questions before, during and after the sale. To help you select the best drive solution available, Benshaw can offer a wide range of engineering and applications support services, including harmonics analysis, application analysis, design consultations and retrofit services.

Drive repairs, spare parts, field engineering, retrofits and training—whenever and wherever needed—are all part of our commitment.



# World-Class Drive Products

*Benshaw offers a variable frequency drive for any industry and any application.*

Benshaw offers a wide range of standard drives and engineered drive packages—from 1 to 700 horsepower. All are rugged, reliable and easy to use, with intuitive, menu driven programming features and robust high quality power sections to support your toughest variable speed applications.

Whether your motor control application is simple or highly complex, Benshaw's flexible I/O functionality and user-selectable control strategies allow the user to optimize the drive to individual application and operating conditions.

## **GX Series micro drives**

Full featured GX Series micro drives combine exceptional performance and ease of use in a compact, economical unit.

## **SG Series high performance sensorless vector drives**

SG Series drives are designed for hard to start applications that require high starting torque. Benshaw's sophisticated auto-tuning algorithm senses internal motor parameters to optimize drive performance and provide precise speed regulation.

## **SG519 Series clean power 18 pulse drives**

Benshaw's clean power drive family meets IEEE519-1992 standards for harmonics. SG519 drives include an 18 pulse transformer and additional diode bridge rectifier to reduce harmonic distortion below 5%.

## **S4 Series washdown duty drives**

Benshaw's S4 drive family is designed to perform in wet, dirty or corrosive environments. The S4's standard NEMA 4X polycarbonate enclosure can be mounted in washdown environments and in the harshest operating conditions.

## **SGP built-to-order drives**

Benshaw is the world leader in quick shipment of built-to-order engineered drive packages. SGP packages feature SG Series drives with your choice of disconnect, bypass, line and load reactor and control options.



## Standard drives. Engineered drives. Integrated systems.



### Engineered solutions

Benshaw also provides complete custom engineered drive packages to your specification, with enclosures, bypass configurations and disconnects tailored to meet your application requirements.

In fact, Benshaw is widely recognized as an innovator in the machine control industry. We approach complex control applications with unrivaled engineering and design experience, and work closely with customers to find an optimal drive solution.

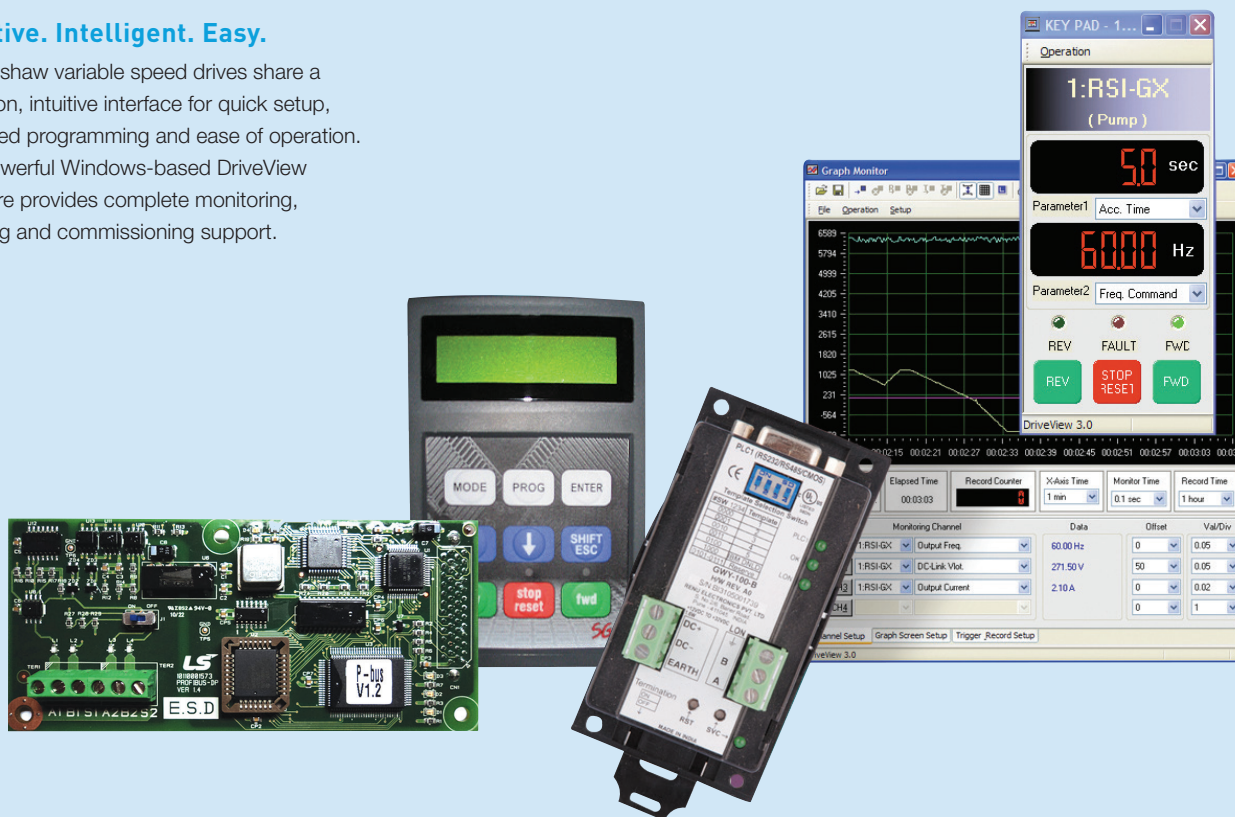
Benshaw's intuitive drive interface and expanded communications options simplify remote monitoring and connection of Benshaw controls to your network.

All drives include one integrated RS-485 port with Modbus RTU as the standard protocol. Additional communications protocols are supported through optional communications boards for simple, plug-and-play networking:

- Modbus TCP (Ethernet)
- Profibus
- DeviceNet
- Lon Works
- BacNet

### Intuitive. Intelligent. Easy.

All Benshaw variable speed drives share a common, intuitive interface for quick setup, simplified programming and ease of operation. The powerful Windows-based DriveView software provides complete monitoring, trending and commissioning support.



# World-Class Service and Support

*Benshaw provides COMPREHENSIVE SUPPORT before, during and after the sale.*



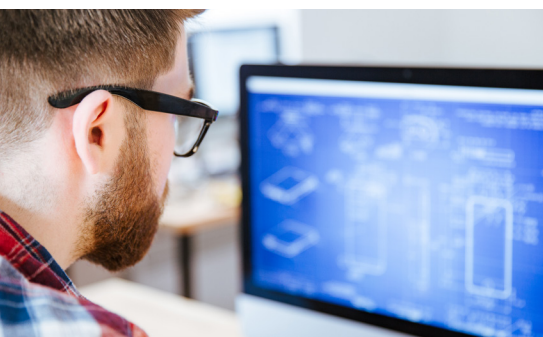
Benshaw provides world-class, comprehensive service and support—before, during and after the sale—to help you achieve your most demanding motor control objectives.

As the world leader in mission critical motor control and protection, Benshaw's drive engineering expertise and real world applications experience provides precise solutions to your motor control applications.

- Application analysis
- Environmental considerations
- Motor control parameters
- Drive quotation

## **Drives engineering**

If a standard drive package doesn't fit your requirements, Benshaw's product engineers will engineer one that does.



## **Applications support**

Benshaw's team of well-trained motor control experts is available to review your application and operational requirements. Specific recommendations are provided to help you select the right drive solution for your needs:



### Technical training

Benshaw's customer care centers provide both classroom and hands-on training for basic drive principles, electrical/electronic maintenance and diagnostics, customized maintenance programs and operations based systems.

### Repairs

Drive repairs are made by trained, experienced personnel, using the latest diagnostic and testing equipment to service printed circuit boards, power electronic control assemblies and electrical subassemblies.

### Field engineering

Benshaw can also dispatch experienced field engineering experts on short notice to help with drive commissioning, harmonics analysis, data collection, trending issues, field repairs, onsite training or preventive maintenance.

### Support

Benshaw offers 24/7 technical phone support to help you solve your drive problems as quickly as possible.

### Regional warehousing for standard products, spares and components

Standard drives, critical drive parts, packaged assemblies and components are stocked and ready to ship.



Every Benshaw variable speed drive is guaranteed for two full years. Other manufacturers limit their warranties to just one year. But at Benshaw, we believe that since we build them better, we can guarantee them longer.



# GX Series

*COMPACT, rugged sensorless vector drives.*

## Multipurpose Micro Drives

### Constant Torque:

- 1 to 5 HP @ 230 Vac
- 1 to 5 HP @ 460 Vac



GX Series micro drives from Benshaw provide a rugged, compact, economical chassis drive solution for low horsepower applications.

Each drive in the GX Series offers quick setup and preconfigured settings for common variable frequency drive applications, and a flexible, programmable I/O for more demanding applications or complex control strategies.

### Key features:

- Compact design
- Integral PID control
- Sensorless vector control or V/Hz control
- Adjustable carrier frequency
- Programmable I/O
- Standard dynamic brake transistor (external resistor required)

### Compact design

GX Series variable frequency drives pack substantial power and flexibility into an economical, space saving package.

### Intuitive interface

GX Series drives provide a user interface with a four digit LED display and four directional keys for simple, menu-based setup and operation.

### Heavy duty power rating

The GX drive family features a rugged power section that can provide up to 150% current for 60 seconds.

## High Performance Single AC Drive Part Number Assembler

### Integrated PID control

The GX Series drive includes standard PID control to regulate pressure, temperature or flow in fan and pump applications.

### Control method

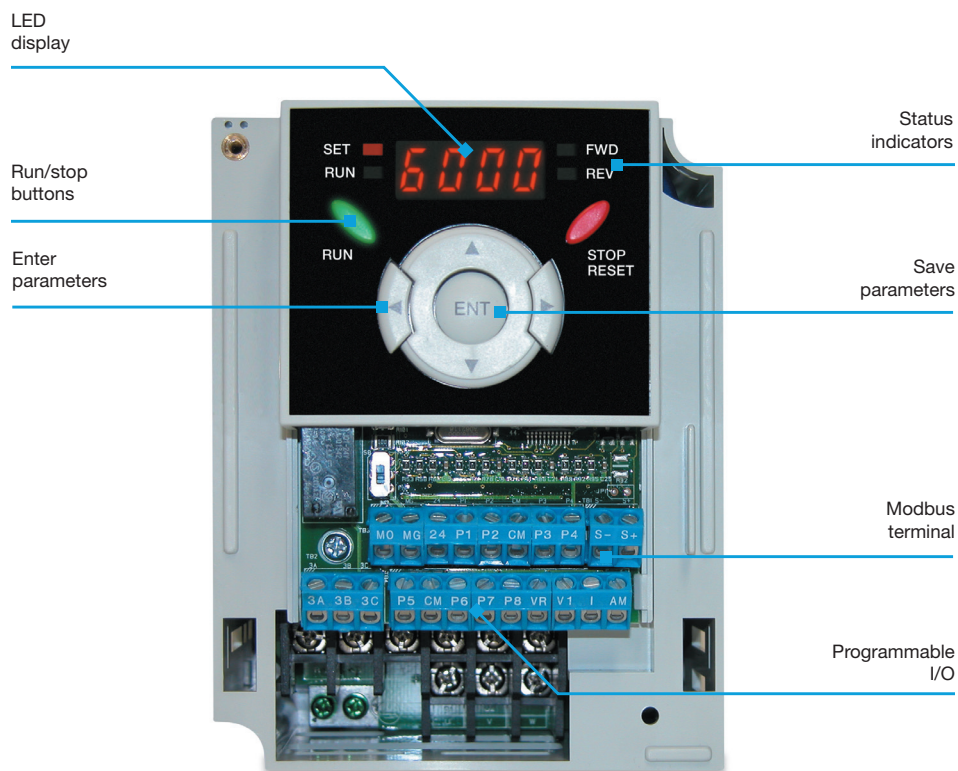
GX Series drives feature user selectable open loop V/Hz control and sensorless vector control.









### Flexible programming

Over 200 programmable parameters are available across four configuration groups.

### Global compliance

Benshaw's GX drive family meets CE and UL (Type 1) compliance standards.



Model Number	Constant Torque+		Dimensions (in)			Weight (lbs)
	HP	Amps	H	W	D	
230 Volt						
 RSI-001-GX-2	1	4.2	5	2.8	5.1	1.7
 RSI-002-GX-2	2	6.8	5	3.9	5.1	2.5
 RSI-003-GX-2	3	9.6	5	5.5	6.1	4
 RSI-005-GX-2	5	15.2	5	5.5	6.1	4.1
460 Volt						
 RSI-001-GX-4	1	2.1	5	2.8	5.1	1.7
 RSI-002-GX-4	2	3.4	5	3.9	5.1	2.5
 RSI-003-GX-4	3	4.8	5	5.5	6.1	4
 RSI-005-GX-4	5	7.6	5	5.5	6.1	4.1

### NEMA 1 Conduit Kits

GX-NEMA1KIT-A	Conduit Kit For 1 HP GX Drive
GX-NEMA1KIT-B	Conduit Kit For 2 HP GX Drive
GX-NEMA1KIT-C	Conduit Kit For 3 HP AND 5 HP GX Drive

### Remote Keypad

VFD-2M-GX-KEYPAD	Remote Mount Keypad and 2 Meter Cable
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• Units are stocked as protected chassis. If NEMA 1 enclosed is required, add NEMA 1 conduit kit. Conduit kits will need to be installed by customer.

Web stocked | + 150% / 1 min.

# S4 Series

*NEMA 4X WASHDOWN drives for severe environments.*

## NEMA 4X Washdown Drives

### Standard Duty:

- 1 HP @ 115 V
- 1 to 25 HP @ 230 Vac
- 1 to 200 HP @ 460 Vac
- 1 to 200 HP @ 600 Vac



Benshaw S4 Series sensorless vector drives, 100 HP and below, are designed for high pressure washdown applications and are built to withstand the harshest industrial environments.

S4 Series drives feature a rugged polycarbonate enclosure that exceeds NEMA 1, 12, 4 and 4X standards, with double labyrinth seals that keep dust, dirt, oil and water from entering the drive at pressures up to 1,000 psi.

230 V and 460 V S4 Series drive models are web stocked for immediate shipment. 600 V models are also available.

### Standard features:

- NEMA 4X / IP 66 washdown duty enclosure (100 HP and below)
- Gasketed, double labyrinth seal withstands high pressure washdown to 1,000 psi
- Standard and heavy duty ratings
- Standard braking transistor and resistor
- Sensorless vector control
- High starting torque
- Arctic Mode—maintains safe operation in cold environments
- LCD plain English display
- Integrated PID control
- Standard sequencer software
- Standard Modbus communications port

### Standard Duty power rating

The Standard Duty rating provides overload protection at 120% current for 60 seconds.

### Heavy Duty power rating

The Heavy Duty rating provides a more robust power section for loads requiring higher starting torque and higher peak overloads of 150% for 60 seconds.

### Integrated software





























Regenerative software is included to eliminate regen energy on over-hauling loads. Sequencer software is also included as standard.

### PID control

S4 drives feature an integrated PID control algorithm to regulate pressure, temperature or flow. PID process variables can be set in “real” values, eliminating the need for confusing conversions.

### Dynamic braking transistor and resistor

S4 drives include as standard a dynamic braking transistor and resistor to decrease deceleration times and eliminate regenerative energy. An optional external resistor can be added for even faster stopping times.

Model Number	Standard Duty		Heavy Duty		Dimensions (in)			Weight (lbs)
	HP	Amps	HP	Amps	H	W	D	
115 Volt input / 230 volt output								
 RSI-001-S4-1SW	1	4.2	0.5	2.5	9.5	6.5	6.1	9
230 Volt								
 RSI-001-S4-2W	1	4.2	0.5	2.5	9.5	6.5	6.1	9
 RSI-002-S4-2W	2	6.8	1	4.8	9.5	6.5	6.1	9
 RSI-003-S4-2W	3	9.6	2	7.8	9.5	6.5	8.5	9
 RSI-005-S4-2W	5	15.2	3	11	12	8.7	6.5	14
 RSI-007-S4-2W	7.5	22	5	17.5	12	8.7	6.5	14
 RSI-010-S4-2W	10	28	7.5	25.3	17.4	10.8	7.9	30
 RSI-015-S4-2W	15	42	10	37.2	17.4	10.8	7.9	30
 RSI-020-S4-2W	20	54	15	48.3	20.2	11.3	11.7	50
 RSI-025-S4-2W	25	68	20	62.1	20.2	11.3	11.7	50
460 Volt								
 RSI-001-S4-4W	1	2.1	0.5	1.1	9.5	6.5	6.1	9
 RSI-002-S4-4W	2	3.4	1	2.1	9.5	6.5	6.1	9
 RSI-003-S4-4W	3	4.8	2	3.4	9.5	6.5	8.5	9
 RSI-005-S4-4W	5	7.6	3	4.8	12	8.7	6.5	14
 RSI-007-S4-4W	7.5	11	5	7.6	12	8.7	6.5	14
 RSI-010-S4-4W	10	14	7.5	11	12	8.7	6.5	14
 RSI-015-S4-4W	15	21	10	14	17.4	10.8	7.9	30
 RSI-020-S4-4W	20	27	15	21	17.4	10.8	7.9	30
 RSI-025-S4-4W	25	34	20	27	17.4	10.8	7.9	30
 RSI-030-S4-4W	30	40	25	34	17.4	10.8	7.9	30
 RSI-040-S4-4W	40	52	30	40	20.2	11.3	11.7	50
 RSI-050-S4-4W	50	65	40	52	20.2	11.3	11.7	50
 RSI-060-S4-4W	60	77	50	65	29.4	12.9	13.8	95
 RSI-075-S4-4W	75	96	60	77	29.4	12.9	13.8	95
 RSI-100-S4-4W	100	124	75	96	29.4	12.9	13.8	95
 RSI-125-S4-4D*	125	156	100	124	50.5	16.5	18	305
 RSI-150-S4-4D*	150	180	125	156	50.5	16.5	18	305
 RSI-200-S4-4D*	200	240	150	180	50.5	16.5	18	305
600 Volt								
RSI-001-S4-6W	1	1.7	0.5	0.9	12	8.7	6.5	14
RSI-002-S4-6W	2	2.7	1	1.7	12	8.7	6.5	14
RSI-003-S4-6W	3	3.9	2	2.7	12	8.7	6.5	14
RSI-005-S4-6W	5	6.1	3	3.9	12	8.7	6.5	14
RSI-007-S4-6W	7.5	9	5	6.1	12	8.7	6.5	14
RSI-010-S4-6W	10	11	7.5	9	12	8.7	6.5	14
RSI-015-S4-6W	15	17	10	11	17.4	10.8	7.9	30
RSI-020-S4-6W	20	22	15	17	17.4	10.8	7.9	30
RSI-025-S4-6W	25	27	20	22	17.4	10.8	7.9	30
RSI-030-S4-6W	30	32	25	27	17.4	10.8	7.9	30
RSI-040-S4-6W	40	41	30	32	20.2	11.3	11.7	50
RSI-050-S4-6W	50	52	40	41	20.2	11.3	11.7	50
RSI-060-S4-6W	60	68	50	52	29.4	12.9	13.8	95
RSI-075-S4-6W	75	82	60	62	29.4	12.9	13.8	95
RSI-100-S4-6W	100	107	75	77	29.4	12.9	13.8	95
RSI-125-S4-6D*	125	125	100	99	50.5	16.5	18	305
RSI-150-S4-6D*	150	144	125	125	50.5	16.5	18	305
RSI-200-S4-6D*	200	192	150	140	50.5	16.5	18	305

Web Stocked | \* Units ending in "D" are NEMA 12 and not washdown.

# SG Series

## High Performance Industrial Drives

### Variable Torque:

- 7.5 to 40 HP @ 230 Vac
- 7.5 to 700 HP @ 460 Vac
- 7.5 to 400 HP @ 600 Vac

### Standard Duty:

- 7.5 to 40 HP @ 230 Vac
- 7.5 to 600 HP @ 460 Vac
- 7.5 to 400 HP @ 600 Vac

### Heavy Duty:

- 5 to 30 HP @ 230 Vac
- 5 to 500 HP @ 460 Vac
- 5 to 300 HP @ 600 Vac



Benshaw's rugged, flexible SG Series drives are designed to handle the most demanding variable speed drive applications.

SG Series sensorless vector drives are easy to install and configure. Standard drives are web stocked for immediate shipment. Custom SG Series drive packages are also available on a built-to-order basis, with enclosures, disconnects, bypasses, pilot devices and magnetics options available to meet more precise motor control requirements.

All SG Series units feature a flexible power stack with three power ratings.

### Key features:

- Rugged, reliable design
- Programmable I/O
- Integral PID control
- V/Hz or sensorless vector control
- Variable torque, standard and heavy duty ratings
- Start methods: accel, DC start, flying start
- Stop methods: coast, decel, DC inject, flux
- Uploadable, downloadable keypad
- Built-in protection features
- Standard Modbus communications
- Windows-based software
- Integral multiple motor control from one drive for pumping applications

### Standard Duty, Variable Torque Rating













































The standard duty, variable torque rating allows overloads of 110% for 60 seconds. For most fan and pump applications, energy savings can be optimized by setting the V/Hz pattern to squared.

### Standard Duty Rating, Constant Torque Rating

The standard duty, constant torque rating allows overloads of 120% for 60 seconds. Torque can be maintained by setting the V/Hz pattern to linear.

### Heavy Duty, Constant Torque Rating

Heavy duty ratings provide a more robust power section for loads requiring higher starting torque and higher peak overloads of 150% for 60 seconds.

Model Number	Variable Torque		Heavy Duty		Dimensions (in)		Dimensions (in)			Weight (lbs)
	HP	Amps	HP	Amps	HP	Amps	H	W	D	
230 Volt										
 RSI-007-SG-2B	7.5	24	7.5	22	5	17	11.2	5.9	6.2	11
 RSI-010-SG-2B	10	32	10	29	7.5	23	11.2	7.9	7.2	14
 RSI-015-SG-2B	15	46	15	42	10	33	11.2	7.9	7.2	14
 RSI-020-SG-2B	20	60	20	55	15	44	17.9	9.8	7.9	28
 RSI-025-SG-2B	25	74	25	67	20	54	17.9	9.8	7.9	29
 RSI-030-SG-2B	30	88	30	80	25	68	23.6	12	9.2	44
 RSI-040-SG-2B	40	115	40	105	30	84	23.6	12	9.2	44
460 Volt										
 RSI-007-SG-4B	7.5	12	7.5	11	5	8	11.2	5.9	6.2	11
 RSI-010-SG-4B	10	16	10	14	7.5	11	11.2	7.9	7.2	14
 RSI-015-SG-4B	15	24	15	22	10	17	11.2	7.9	7.2	14
 RSI-020-SG-4B	20	30	20	27	15	22	17.9	9.8	7.9	28
 RSI-025-SG-4B	25	39	25	35	20	28	17.9	9.8	7.9	29
 RSI-030-SG-4B	30	45	30	41	25	34	23.6	12	9.2	44
 RSI-040-SG-4B	40	61	40	55	30	44	23.6	12	9.2	44
 RSI-050-SG-4B	50	75	50	68	40	55	25.3	12.1	10.5	60
 RSI-060-SG-4B	60	91	60	83	50	66	25.3	12.1	10.5	60
 RSI-075-SG-4B	75	110	75	100	60	80	25.3	12.1	11.2	64
 RSI-100-SG-4B	100	152	100	139	75	111	30.2	14.5	12.1	95
 RSI-125-SG-4B	125	183	125	167	100	134	30.2	14.5	12.1	95
 RSI-150-SG-4* •	150	223	150	204	125	164	30.9	20.1	16.6	225
 RSI-200-SG-4* •	200	264	200	242	150	194	30.9	20.1	16.6	225
 RSI-250-SG-4* •	250	325	250	302	200	240	33.9	20.1	16.6	255
 RSI-350-SG-4* •	350	432	300	396	250	317	42.5	27.2	17.3	450
 RSI-400-SG-4* •	400	547	400	501	300	401	42.5	27.2	17.3	450
 RSI-500-SG-4 •	500	613	450	562	350	450	44.9	30.8	17.4	540
 RSI-600-SG-4 •	600	731	500	670	400	536	51.3	36.3	19.5	840
 RSI-700-SG-4 •	700	877	600	804	500	643	51.3	36.3	19.5	840
600 Volt										
 RSI-007-SG-6B	7.5	9	7.5	8.2	5	6.6	14	7.9	7.2	15
 RSI-010-SG-6B	10	12	10	11	7.5	9	14	7.9	7.2	16
 RSI-015-SG-6B	15	17	15	15.5	10	12	14	7.9	7.2	16
 RSI-020-SG-6B	20	23	20	21	15	17	17.9	9.8	7.9	28
 RSI-025-SG-6B	25	27	25	24.7	20	19.8	17.9	9.8	7.9	29
 RSI-030-SG-6B	30	34	30	31	25	25	23.6	12	9.2	44
 RSI-040-SG-6B	40	43	40	39	30	31.5	23.6	12	9.2	44
 RSI-050-SG-6B	50	55	50	50	40	43	25.3	11.8	11.5	71
 RSI-060-SG-6B	60	64	60	58.6	50	55	25.3	11.8	11.5	71
 RSI-075-SG-6B	75	80	75	73	60	64	25.3	11.8	11.5	71
 RSI-100-SG-6B	100	104	100	95	75	80	30.2	14.6	13.3	102
 RSI-125-SG-6B	125	128	125	117	100	104	30.2	14.6	13.3	102
 RSI-150-SG-6*	150	150	150	137	125	128	30.9	20	16.6	225
 RSI-200-SG-6*	200	200	200	184	150	147	33.9	20	16.6	255
 RSI-250-SG-6*	250	242	250	222	150	177	33.9	20	16.6	255
 RSI-350-SG-6*	350	333	300	305	250	244	42.5	27.2	17.7	450
 RSI-400-SG-6*	400	424	400	389	300	311	42.5	27.2	17.7	450

VARIABLE TORQUE = 110% current for 1 minute | STANDARD DUTY = 120% Current for 1 Minute | HEAVY DUTY = 150% Current for 1 Minute

Units ending in a "B" designate NEMA 1. Units not ending in a "B" are protected chassis units.

• Protected chassis only (no cover on control or power terminals) | \* DC Link Reactor | Web Stocked

# SGP Series

## Built-To-Order Drive Packages

### Variable Torque:

- 7.5 to 40 HP @ 230 Vac
- 7.5 to 125 HP @ 460 Vac

### Standard Duty:

- 7.5 to 40 HP @ 230 Vac
- 7.5 to 125 HP @ 460 Vac

### Heavy Duty:

- 5 to 30 HP @ 230 Vac
- 5 to 100 HP @ 460 Vac

### QUICKSHIPPED to your specification.

SGP Series QuickShip drive packages combine Benshaw's rugged SG Series sensorless vector drive unit with a NEMA 12 ventilated enclosure and any of the following options:

- Disconnect
  - Circuit breaker
  - Fused switch
  - Non-fused switch
- Inline fuses\*
- Line reactor\*
- Output reactor\*\*
- 3 contactor bypass
- Door mounted operator station (six configurations are available)

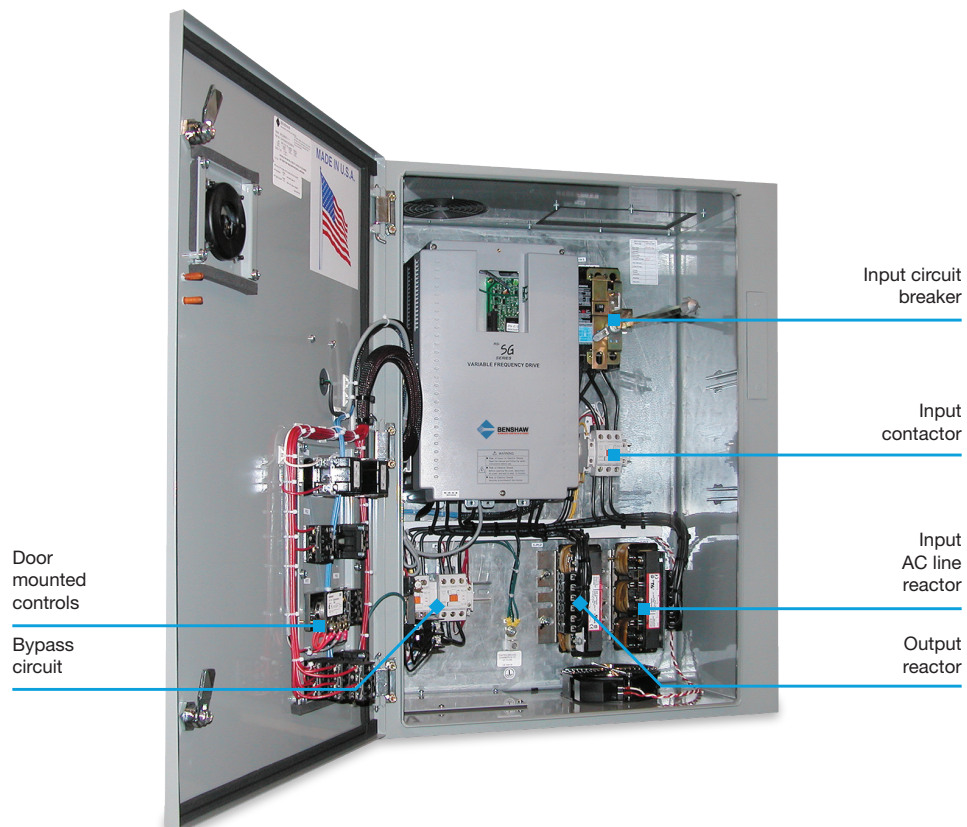
SGP QuickShip built-to-order drive packages meet UL and CE approvals and are available with standard (7.5 to 125 HP) and heavy duty (5 to 100 HP) ratings to meet your specialized drive requirements.

### Standard features:

- NEMA 12 ventilated enclosure with fans and filters
- SG Series sensorless vector drive unit
- User terminal strip
- Door mounted keypad
- Control power transformer
- User input and output power connections

\*Fusing and line reactor are recommended for drive protection.

\*\*Maximum lead length of 100 ft.



## QuickShip Modular Options:



### Horsepower

- 5 HP, 7.5 HP, 10 HP, 15 HP, 20 HP, 25 HP, 30 HP, 40 HP, 50 HP, 60 HP, 75 HP, 125HP

### Voltage

- 230 V
- 460 V

### Duty Type

- Standard duty
- Heavy duty

### Disconnect Options

- Non-combination
- Circuit breaker
- Fusible disconnect
- Non-fused disconnect
- Inline fuse

### Door Mounted Devices

- None
- Start/stop pushbuttons, reset pushbutton, HOA switch, speed pot
- Start/stop pushbuttons, reset pushbutton, HOA switch, speed pot, power on, VFD running, VFD fault light
- Start/stop pushbuttons, fault reset pushbutton, HOA switch, speed pot, jog pushbutton, forward/reverse switch, VFD fault light
- VFD/off/bypass switch, bypass running light
- Start/stop pushbuttons, reset pushbutton, HOA switch, speed pot, VFD running light, VFD/off/bypass switch, bypass running light

### Bypass Type

- None
- 3 contactor bypass

### Reactor Options

- None
- Input reactor
- Output reactor
- Input and output reactor

## Here's how to order:

1. Choose horsepower from the list of available ratings on above (see the Benshaw catalog for more detail).
2. Determine voltage and duty rating required for your application.
3. Select a disconnect option, door mounted devices, bypass type and reactor options.
4. Contact your Benshaw representative to place your SGP QuickShip drive order.

# SG 519 Series

## Clean Power Drives

### Variable Torque:

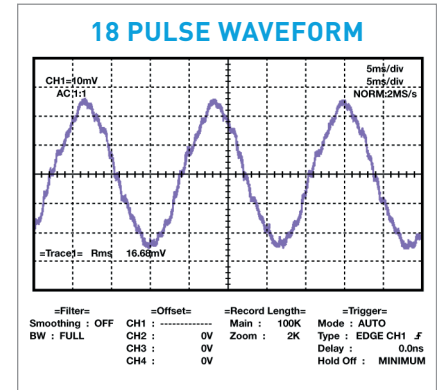
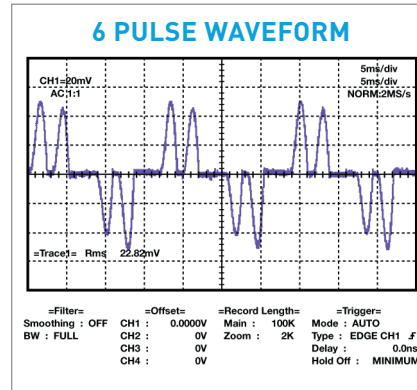
- 50 to 700 HP @ 460 Vac
- 50 to 400 HP @ 600 Vac+

### Standard Duty:

- 50 to 600 HP @ 460 Vac
- 50 to 400 HP @ 600 Vac+

### Heavy Duty:

- 50 to 500 HP @ 460 Vac
- 50 to 300 HP @ 600 Vac+



### IEEE 519-1992 compliant drives built to your specification.

Benshaw's SG519 Series drives are designed and manufactured to limit voltage and current distortion levels to within the levels defined by IEEE-519\*. This eliminates the need for expensive, time consuming harmonic analysis and avoids the resonance problems associated with inefficient harmonic filters.

Our municipal projects and engineering team will work with you to configure a clean power solution that meets your specifications and requirements.

### Standard features:

- UL listed
- Limits voltage and current harmonics to IEEE-519\* levels
- Addresses poor power factor
- Eliminates expensive harmonic analysis
- Avoids resonance problems associated with inefficient harmonic filters
- Prevents overloading of circuit breakers, feeders and transformers
- Run from motor/generator systems
- NEMA 1, 12V, 3R, 4 or 4X enclosures available, plus custom configurations

### Modular design

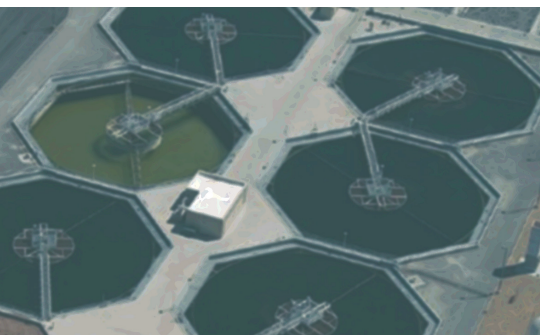
The modular design of Benshaw's SG519 Series drives eliminates maintenance problems inherent in older drive designs and improves drive reliability by significantly reducing power module part counts. This design approach also allows each drive unit to be custom-tailored to your specific requirements.

### Optional bypass

An optional bypass design configuration (ATL or RVSS) is available for SG519 drive packages when mission critical reliability is important and disruptive downtime cannot be tolerated.

\*IEEE-519, 1992 Table 10-2 and Table 10-3.

+ Consult factory.



Model Number	Standard Duty		Heavy Duty		Dimensions (in)		
	HP	Amps	HP	Amps	H	W	D
<b>IEEE-519 460 Volt, SG Series, NEMA 12, No Bypass</b>							
<b>RSI-519-050-SG-4-CB-A-12</b>	50	65	40	52	90	32	30
<b>RSI-519-060-SG-4-CB-A-12</b>	60	77	50	65	90	32	30
<b>RSI-519-075-SG-4-CB-A-12</b>	75	96	60	77	90	36	30
<b>RSI-519-100-SG-4-CB-A-12</b>	100	124	75	96	90	36	30
<b>RSI-519-125-SG-4-CB-A-12</b>	125	156	100	124	90	48	30
<b>RSI-519-150-SG-4-CB-A-12</b>	150	180	125	156	90	48	30
<b>RSI-519-200-SG-4-CB-A-12</b>	200	240	150	180	90	48	30
<b>RSI-519-250-SG-4-CB-A-12</b>	250	302	200	240	90	72	36
<b>RSI-519-350-SG-4-CB-A-12</b>	350	414	250	302	90	78	36
<b>RSI-519-400-SG-4-CB-A-12</b>	400	477	300	361	90	78	36
<b>RSI-519-500-SG-4-CB-A-12</b>	500	590	350	414	90	84	36
<b>RSI-519-600-SG-4-CB-A-12</b>	600	720	400	477	90	96	36
<b>RSI-519-700-SG-4-CB-A-12</b>	700	840	500	590	90	96	36
<b>IEEE-519 460 Volt, SG Series, NEMA 12, With Bypass (Three Contactor)</b>							
<b>RSI-519-050-SG-4-CB-C-12</b>	50	65	40	52	90	32	30
<b>RSI-519-060-SG-4-CB-C-12</b>	60	77	50	65	90	32	30
<b>RSI-519-075-SG-4-CB-C-12</b>	75	96	60	77	90	36	30
<b>RSI-519-100-SG-4-CB-C-12</b>	100	124	75	96	90	36	30
<b>RSI-519-125-SG-4-CB-C-12</b>	125	156	100	124	90	48	30
<b>RSI-519-150-SG-4-CB-C-12</b>	150	180	125	156	90	48	30
<b>RSI-519-200-SG-4-CB-C-12</b>	200	240	150	180	90	48	30
<b>RSI-519-250-SG-4-CB-C-12</b>	250	302	200	240	90	78	36
<b>RSI-519-350-SG-4-CB-C-12</b>	350	414	250	302	90	114	36
<b>RSI-519-400-SG-4-CB-C-12</b>	400	477	300	361	90	114	36
<b>RSI-519-500-SG-4-CB-C-12</b>	500	590	350	414	90	120	36
<b>RSI-519-600-SG-4-CB-C-12</b>	600	720	400	477	90	132	36
<b>RSI-519-700-SG-4-CB-C-12</b>	700	840	500	590	90	132	36
<b>IEEE-519 460 Volt, SG Series, NEMA 12, With Bypass (RVSS)</b>							
<b>RSI-519-050-SG-4-CB-D-12</b>	50	65	40	52	90	36	30
<b>RSI-519-060-SG-4-CB-D-12</b>	60	77	50	65	90	36	30
<b>RSI-519-075-SG-4-CB-D-12</b>	75	96	60	77	90	42	30
<b>RSI-519-100-SG-4-CB-D-12</b>	100	124	75	96	90	42	30
<b>RSI-519-125-SG-4-CB-D-12</b>	125	156	100	124	90	54	30
<b>RSI-519-150-SG-4-CB-D-12</b>	150	180	125	156	90	54	30
<b>RSI-519-200-SG-4-CB-D-12</b>	200	240	150	180	90	54	30
<b>RSI-519-250-SG-4-CB-D-12</b>	250	302	200	240	90	108	36
<b>RSI-519-350-SG-4-CB-D-12</b>	350	414	250	302	90	114	36
<b>RSI-519-400-SG-4-CB-D-12</b>	400	477	300	361	90	114	36
<b>RSI-519-500-SG-4-CB-D-12</b>	500	590	350	414	90	120	36
<b>RSI-519-600-SG-4-CB-D-12</b>	600	720	400	477	90	132	36
<b>RSI-519-700-SG-4-CB-D-12</b>	700	840	500	590	90	132	36

# Custom-Engineered Drive Solutions

*Whether you need simple modifications made to one of Benshaw's standard drive packages, a custom engineered, application-specific drive package or a turnkey drive solution, Benshaw can help.*



With engineering experience and complete motor control system production capabilities, Benshaw delivers all of the competence, convenience and value you'd expect from a leader in engineered control systems.

Whatever your motor control needs may be, Benshaw's engineering teams and application specialists can help you find a cost-effective, reliable solution.

## Quality assurance testing

Benshaw's assembly teams perform a preliminary quality assurance inspection before delivery is made to functional test cells. Drive assemblies undergo a variety of testing procedures, including motor operation testing, load testing, control circuit testing, wire pull testing, electrical performance checks, mechanical alignment inspection, torque measurement and user interface/pilot device functionality.

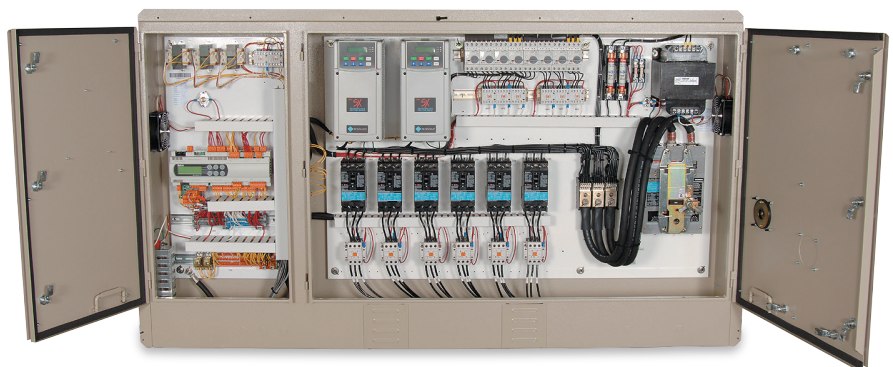
All test processes meet or exceed ISO 9001 requirements, and all tests are documented and archived for quality verification.

## Enclosures

- Standard NEMA 1, 12 and 3R enclosure designs
- Custom enclosures
- NEMA 4, 4X, air conditioned and other special enclosures
- Motor control centers

## Combination drive packages

- 15 to 2,000 A circuit breakers
- 40 to 2,000 A non-fused disconnects
- 30 to 800 A fusible disconnects
- Flange or rotary handle mechanisms



*For any drive application. In any configuration.*

### Control modifications

- Over 250 control modifications and accessories are available from Benshaw, including:
- Pilot devices
- PLCs
- Control power transformers
- Switches
- Meters
- Relays
- Space heaters
- Protective devices

### Bypass packages

- Two contactor
- Three contactor
- Reduced voltage solid state starters

### Filters

- Line reactors (3% and 5%)
- Long lead filters
- Active and passive harmonic filters
- 18 pulse systems (IEEE-519)



## Advanced Controls and Drives

Full Voltage Controls

Variable Frequency Drives

Low Voltage Solid State Starters

Medium Voltage Drives

Medium Voltage Controls

Medium Voltage Switchgear

## UNICO Technologies Group

### Power and Precision in Motion

Taking care of our customers' power needs has been our single focus for 88 years. Our two leading brands bring innovative control and electrical solutions to solve your challenges. Through thousands of systems in a broad array of applications, we've learned what it takes to make your system live up to its potential.

**At a glance:** With facilities in 12 countries, we combine the convenience of local service with the economies-of-scale and efficiency of a large global organization.

#### Innovative solutions via technology:

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**Engaged and knowledgeable:** We like to think of ourselves as "Application Smart," which always includes critical dependencies such as standards, compliance and regulatory issues.



Visit us online at [unicotg.com](http://unicotg.com), or contact:

#### UNICO Technologies Group

3725 Nicholson Road  
PO Box 0505  
Franksville, WI 53126-0505

#### After Hours Tech Support

Phone: 800.203.2416



## 24/7 Technical Support

- 24/7 hotline support from Pittsburgh (USA) and Listowel (Canada)
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- Coordination of all service capabilities — repair, spare parts, field engineering, retrofit and training

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- Trained, experienced, field personnel
- Equipped with the latest diagnostic and test equipment
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## Benshaw Product Line

- Solid state starters fractional to 30,000 HP at 15 kV
- LV AC drives to 700 HP
- MV AC drives to 12,000 HP
- Electromechanical controls to 800 A

## Benshaw Express

- 24/7 online inventory and order system for authorized Benshaw distributors
- 24/7 shipment
- Air or truck delivery

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