

BENSHAW®
ADVANCED CONTROLS & DRIVES

A member of UNICO Technologies Group



Benshaw PowerPro™ Drive Series

Single AC Drives

0.5 HP to 700 HP @ 460 V

110% Overload and 150% Overload Capabilities

Dedicated Fan and Pump Drive and Heavy-Duty Multi-Purpose Vector Control Drive

Variable Frequency Drives

Benshaw PowerPro™ Drive Series

Multi-Purpose Vector Control Drives

The next generation in multi-purpose VFD technology.

The Benshaw PowerPro™ High Performance Single AC Drive is a multi-purpose and high-performance current vector AC drive. It is mainly used for controlling and adjusting the speed and torque of three-phase AC asynchronous motors.

Using high-performance vector control technology, the Benshaw PowerPro™ High Performance Single AC Drive features high torque output at a low speed, excellent dynamic characteristics and superior overload capability. It provides user-programmable features and PC monitoring software, and it supports multiple encoder types, delivering rich and powerful combined functions and stable performance. It can be used to drive textile, papermaking, drawing, machine tools, packaging, food, fans, water pumps and other automated production equipment.



Features

- Wide power range — 0.5 HP to 600 HP @ 460 V
- Compact design — high power density
- Modular construction
- Roll-in inverters for easier installation/service — 250 HP to 600 HP
- Flange mounting for better thermal management — Up to 200 HP
- Supports induction motors and PMAC permanent magnet motors
- Long design life $\geq 80,000$ hours; all PCBs conformal coated
- Superior control technology — open loop, closed loop, SVC and FVC
- High accuracy torque and current control
- High starting torque — 150% SVC, 180% FVC
- Auto torque boost for tough applications
- Supports Modbus, Profibus, CAN Open
- UL, cUL, CE Listed
- Easy programming and auto-tune for quick commissioning
- Built-in dynamic brake IGBT — Up to 100 HP
- Built-in DC link reactor compliant with EN61800-3 — 40 HP to 600 HP



Benshaw PowerPro™ Drive Series Fan and Pump Drives



The newest Benshaw fan and pump VFD.

The Benshaw PowerPro™ Fan and Pump Single AC Drive is a dedicated fan and pump drive for diverse variable torque applications such as fans, pumps, blowers and centrifugal compressors. A variable torque application is when the required torque is less at lower motor speeds but greater at higher speeds. A typical variable torque load is proportional to the square of the speed (e.g. fans). When the speed is reduced by $\frac{1}{2}$, the required torque is reduced by $\frac{1}{4}$ — thus reducing the energy consumed by the load. The drive supports V/F operations with 110% and 150% overloads for 60 seconds and is used primarily for speed control of three-phase AC asynchronous motors. Using high-performance V/F control technology, the Benshaw PowerPro™ Fan and Pump AC Drive delivers excellent dynamic characteristics and superior overload capability. It provides user-programmable features and PC monitoring software, and it supports multiple field buses for communication.

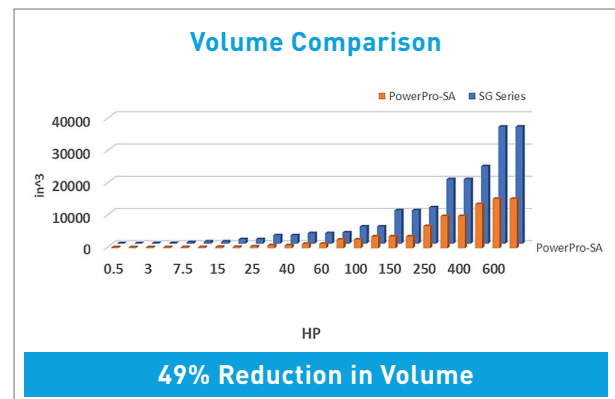
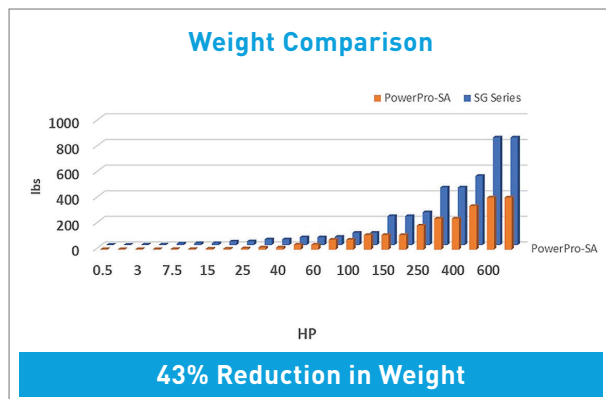
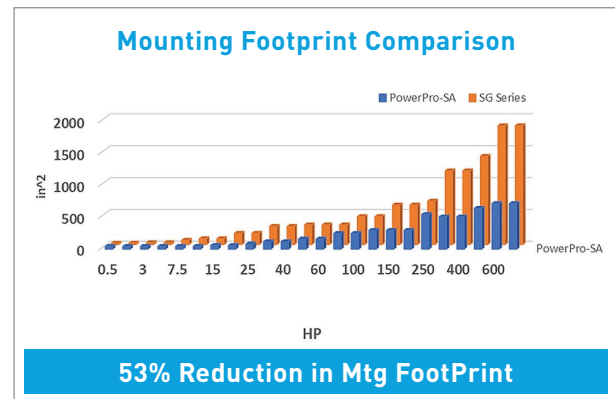
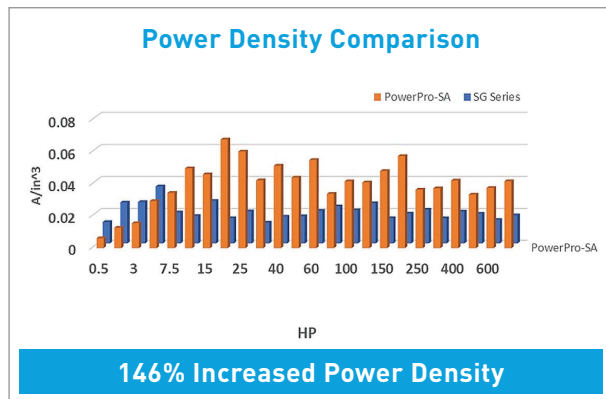
Features

- Wide power range — 0.5 HP to 700 HP @ 460 V
- Compact design — high power density
- Modular construction
- Roll-in inverters for easier installation/service — 250 HP to 700 HP
- Flange mounting for better thermal management — Up to 250 HP
- Long design life $\geq 80,000$ hours; all PCBs conformal coated
- Accurate speed control
- Auto torque boost for tough applications
- Supports Modbus, Profibus, CAN Open
- UL, cUL, CE Listed
- Easy programming and auto-tune for quick commissioning
- Built-in dynamic brake IGBT — Standard up to 25 HP; Optional 30 HP to 125 HP
- Built-in DC link reactor compliant with EN61800-3 — 50 HP to 700 HP

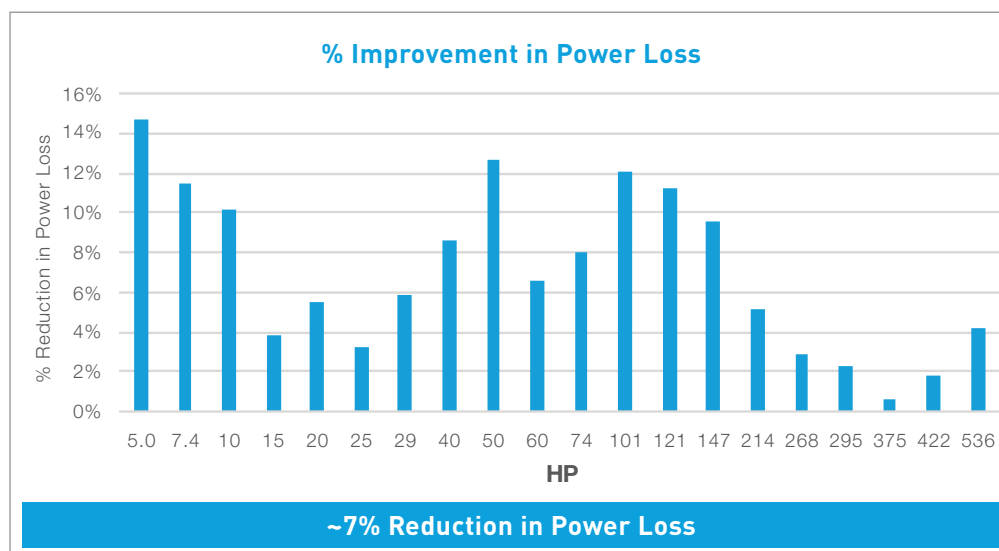


Benshaw PowerPro™ Drive Series

Comparison of Power Density — Benshaw PowerPro™ High Performance
Single AC Drive vs Legacy SG 460 VFD



Comparison of Efficiency and Thermal Losses



High Performance Single AC Drive Controller Option Cards

Main control board

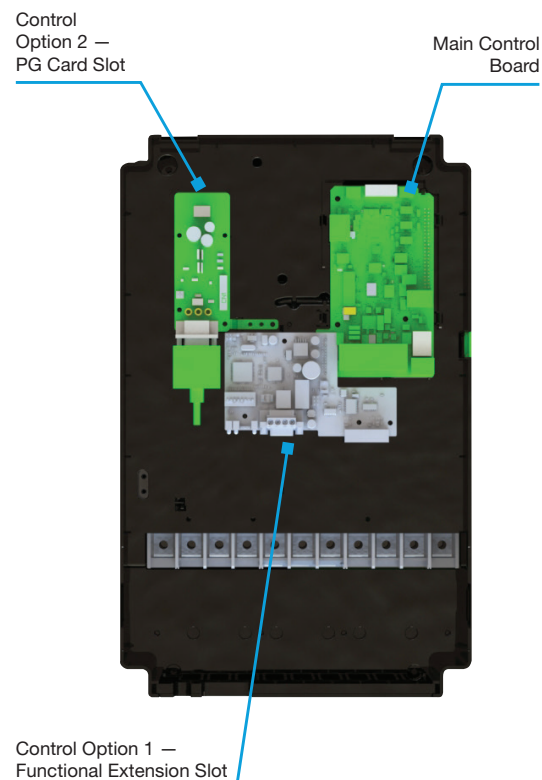
- 2 Analog inputs
- 5 Digital inputs
- 1 Analog output
- 1 Digital output
- 1 Relay

Function Extension (Optional)

- IO Card 1: 5 DI, 1 AI, 1 DO, 1 AO, 1 relay, Modbus (only for frame sizes T4 and above)
- IO Card 2: 3 DI
- Field Bus: Modbus
- Field Bus: Profibus (only for frame sizes T4 and above)
- Field Bus: CAN Open
- User-Programmable PLC Card: I/O - 5 DI, 1 AI, 1 AO, 2 Relay, Modbus (only for frame sizes T4 and above)

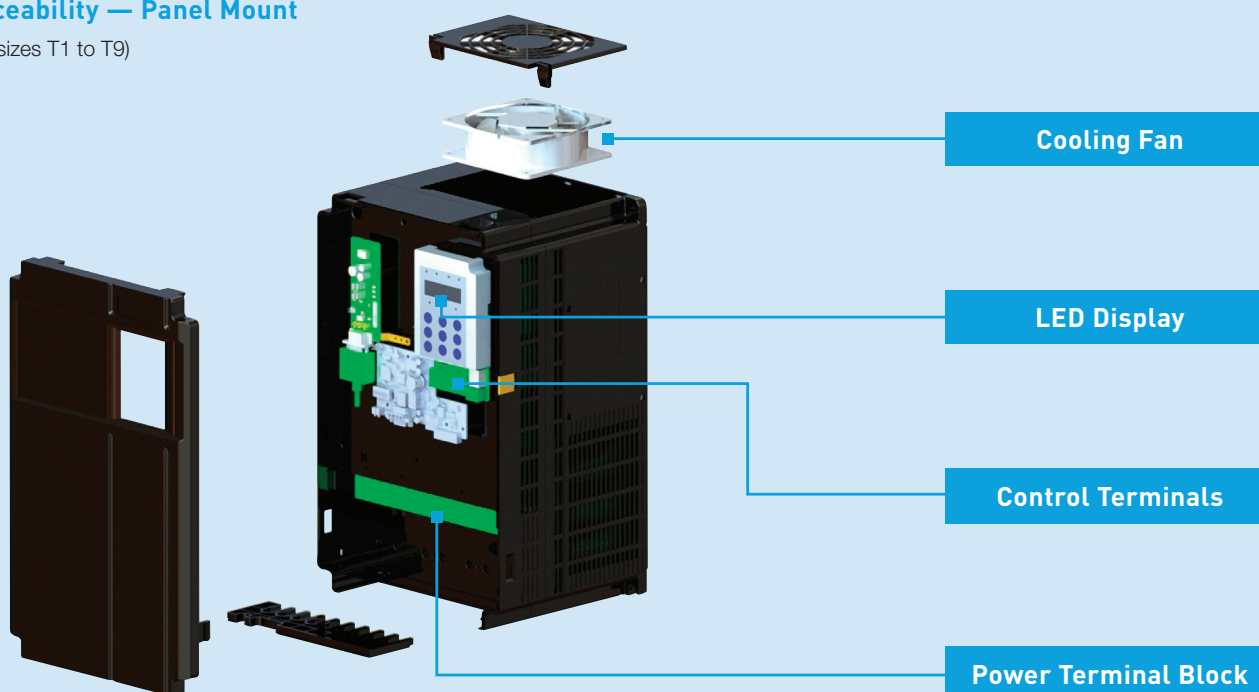
PG Card (Optional)

- Differential encoder interface card
- Resolver interface card
- Open-collector encoder interface card
- Open-collector encoder interface card with frequency dividing
- Differential encoder interface card
- Differential encoder interface card with frequency dividing
- Multifunctional encoder card



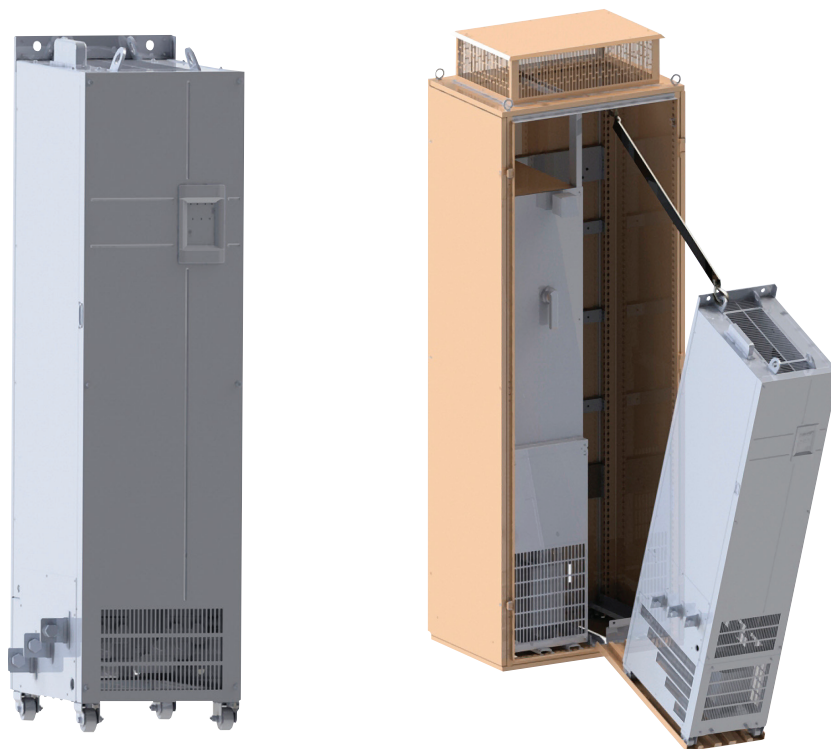
Modular Design for Easy Serviceability — Panel Mount

(Frame sizes T1 to T9)



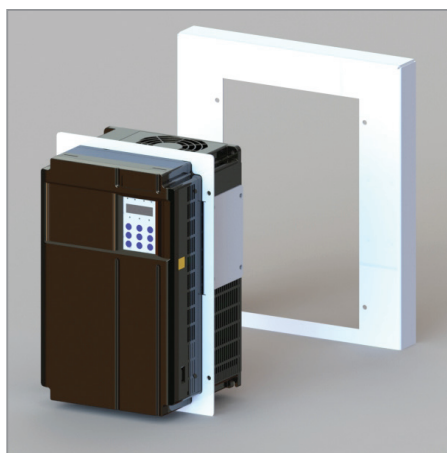
Benshaw PowerPro™ Drive Series

Roll-in Inverters >250 HP for Easy Serviceability



Flange Mounting <200 HP for Better Thermal Management

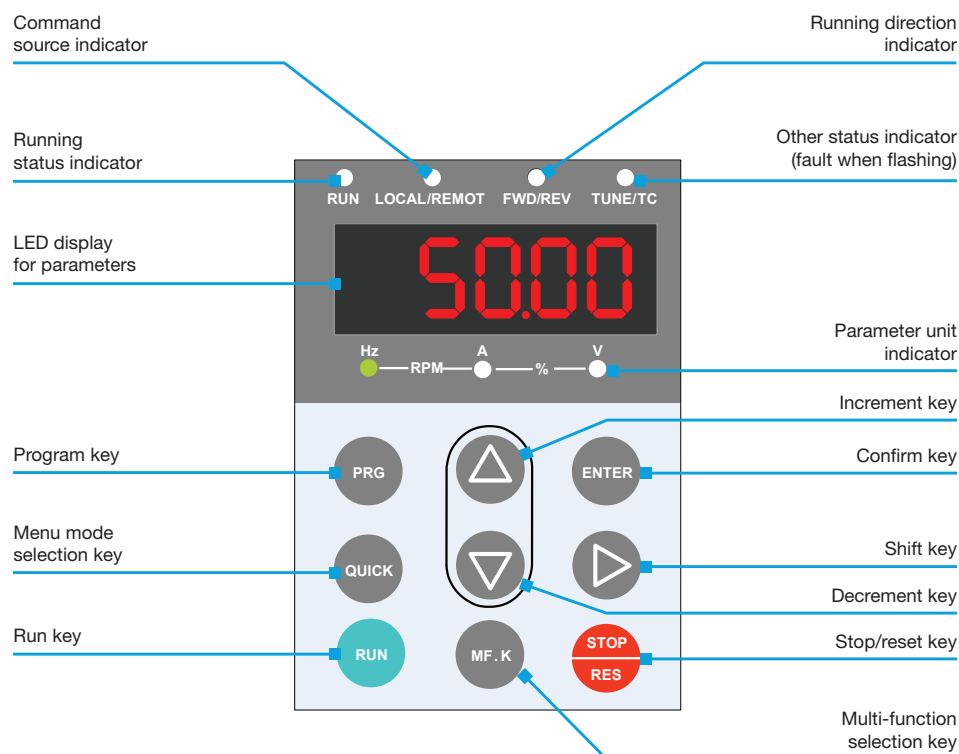
With these flange kits, the drive can be mounted with the heat sink outside of the enclosure. This reduces the heat dissipated within the enclosure. With the reduced air temperature, the enclosure can be smaller and the need for cooling of the enclosure is reduced or even eliminated.



Standard Keypad

Features

- Standard LED display
- Multiple status LEDs
- Programmable multi-function key
- Hand run/stop keys
- Quick access key

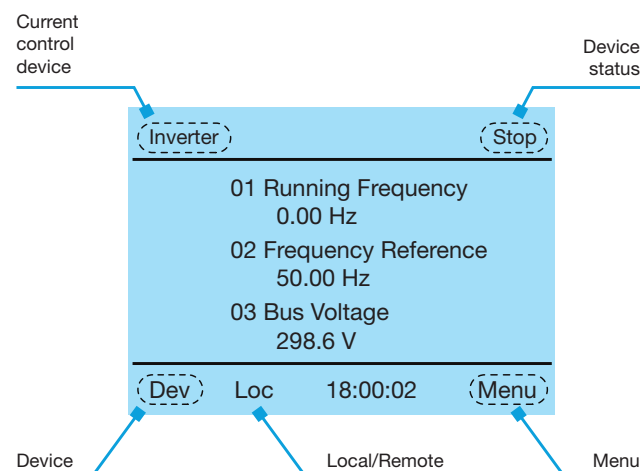


Standard keypad also available as a remote mountable keypad.

External Keypad

Features

- External keypad using RJ45 connector with cable up to 3m length
- LCD screen with bright backlight
- USB port for mass storage
- Real-time clock
- Status LED
- Optional cradle for door installation
- Wide temperature range: -20°C to 55°C
- Allows parameter storing/transfer
- Shortcut to favorite parameters
- Supervisory/restricted access



Benshaw PowerPro™ Drive Series

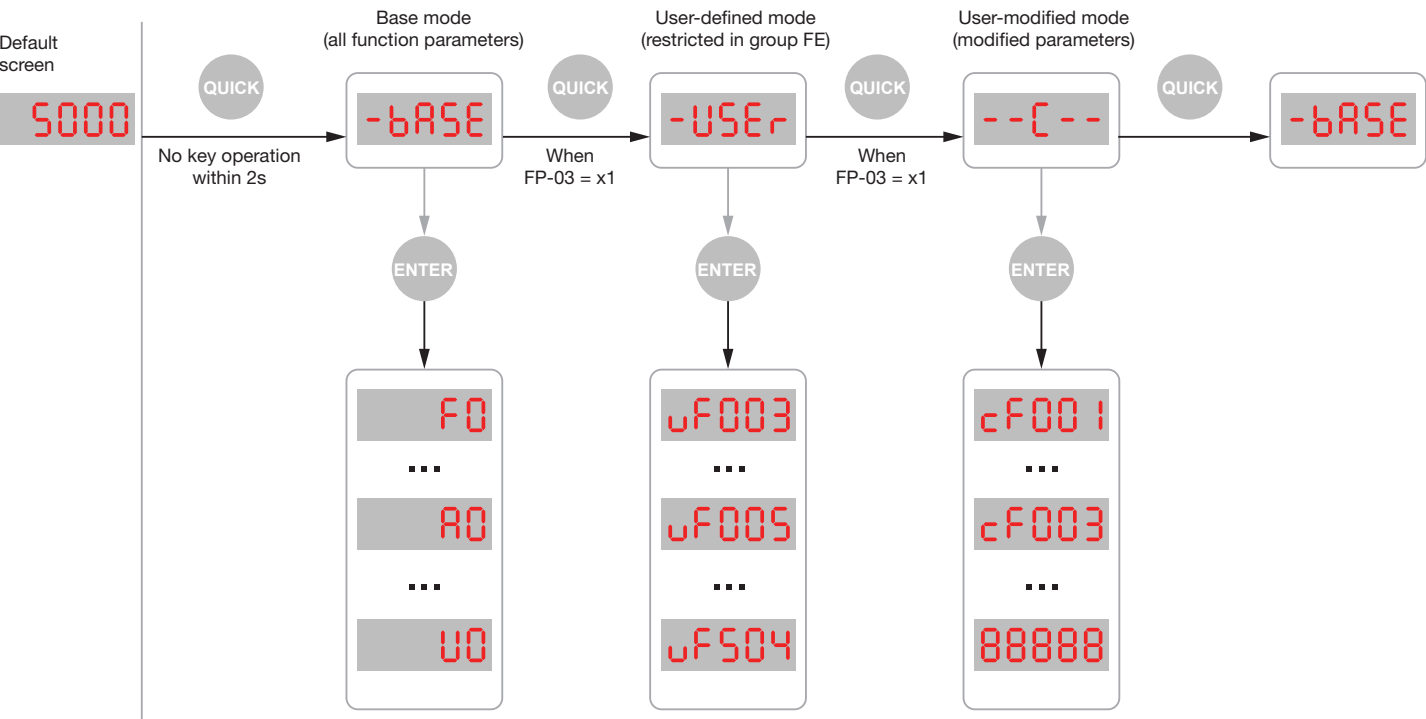
Easy Parameter Structure

Features

- Easy-to-use structure
- Logically grouped parameters
- User-configurable parameter settings
- Quick commission step-through sequence
- Detailed diagnostic parameter set
- Application macros
 - Pump applications
 - Fan applications
 - Conveyor applications
 - User-defined



Function Code Group	Description	Standard Function Parameters
F0 to FP	Standard Function Code Group	Standard Function Parameters
A0 to AC	Advanced Function Code Group	AI/AO Correction
U0 to U3	RUNNING Status Function Code Group	Display of Basic Parameters



Global Monitoring and Control (GMC®)

IIOT Ready — Delivering Actual Value

Varied Communication

- Ethernet
- Serial communication
- Cell modem
- Satellite modems

Multiple Access Tools

- Web portal
- iPhone app
- Android app

Rich Data Collection

- Any parameter authorized by user
- Lifetime archive

Increased Productivity

- Real-time access to multiple VFDs
- Minimize travel
- Automated reports
- Remote diagnostics

Minimize Downtime

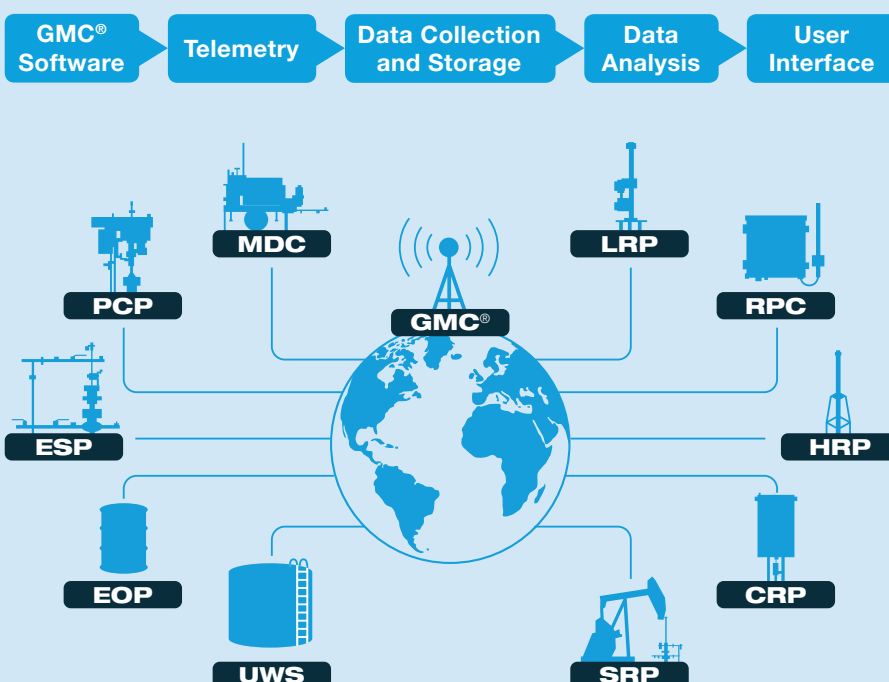
- Monitor device health
- Monitor process health
- Alarm notification via email, text, phone

Streamlined Maintenance

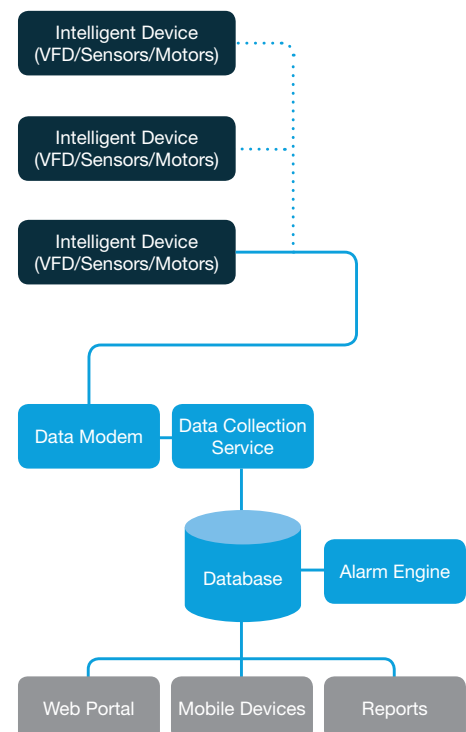
- Predictive maintenance
- Proactive service
- Archived setups



GMC® System



GMC® Architecture



Benshaw PowerPro™ Drive Series Multi-Purpose Vector Control Drives

Specifications

Power Specification

Input Voltage	Three-phase 380 to 480 V (-15% to 10%)
Input Frequency	50/60 Hz (±5%)
Power Rating	0.5 HP–600 HP
Current Rating	1.5 A–809 A
Motor Voltage	Three-phase 380 to 480 V (proportional to input voltage)
Output Frequency	0–500 Hz (resolution of 0.01 Hz)
Overload Capability	110%/150% for 60s/5mins
Braking Torque	125% Braking torque for 10s

Control Features

Motor Type	Induction motor/permanent magnet motor
Carrier Frequency	0.8 kHz to 8 kHz
Control Mode	Sensorless vector control (SVC), flux (closed loop) vector control (FVC), voltage/frequency (V/F) control
V/F Curve	Straight-line V/F curve, multi-point V/F curve, squared curve, complete V/F separation, half V/F separation
Speed stability accuracy	±0.5% (SVC), ±0.02% (FVC)
Torque control accuracy	±3% (FVC); ±5% for 5 Hz above (SVC)
Start-up Torque	0.25 Hz/150% (SVC) 0 Hz/180% (FVC)
Torque boost	Customized boost 0.1% to 30.0%
Ramp Mode	Linear ramp, S-curve ramp, four separate acceleration/deceleration time settings in the range of 0.0s to 6500.0s
Jog	Frequency range of jog running: 0.00 to max. frequency Acceleration/deceleration time of jog running: 0.0s to 6500.0s
Running Command	Allows different methods of switching between running commands: Operating panel (keypad and display); terminal I/O control; and serial communication
Speed Reference Command	Supports up to 10 frequency reference settings and allows different methods of switching between frequency reference setting channels: Digital setting Analog voltage reference Analog current reference Pulse reference Communication reference
Onboard Multiple Preset Speeds	16 speeds by using simple PLC function or by using digital input signals
Onboard PID	The system implements PID function in the closed-loop control
Automatic Voltage Regulation (AVR)	The system maintains a constant output voltage automatically when the grid voltage changes through the permissible range.
Torque Limit and Control	Limit torque and current in vector control
Power Dip Ride-Through	Load inertia used to power through intermittent voltage drops
Dual Motor Parameter Setup	Two motor parameter setup for control of two motors
DC Injection Braking	DC injection braking frequency: 0 Hz to max. frequency; DC injection braking active time: 0.0s to 36.0s; current level of DC injection braking: 0.0% to 100.0%
Input Terminals	Standard: 5 DI terminals, one of which supports up to 100 kHz high-speed pulse inputs 2 AI terminals, one of which supports 0 to 10 V input, and the other supports 0 to 10 V and 0 to 20 mA current input Extended IO Option: 5 DI, 1AI that supports -10 to 10 V voltage input and PT100/PT1000 motor temperature sensor inputs



Control Features (continued)

Output Terminals	Standard: 1 high-speed pulse output terminal (open-collector) for a square wave signal output frequency range 0 to 100 kHz 1 DO, 1AO that supports either a current output in the range 0 to 20 mA or a voltage output in the range 0 to 10 V, 1 relay
	Extended IO Option: 1 DO, 1 AO that supports either a current output in the range 0 to 20 mA or a voltage output in the range 0 to 10 V, 1 relay
Field Bus Options	Modbus, PROFIBUS-DP, CANlink and CANopen
Motor Encoders	5 different encoder types: Differential encoder, open-collector encoder and resolver
User-Programmable Processor	The optional programming card supports secondary development in a programming environment compatible with a programmable logic controller (PLC)
Display	LED and remote LCD display
	Upload/download parameters Partial and complete locking of keys

Protections

Input Protections	Phase loss
	Over voltage
	Under voltage
Output Protections	Overcurrent
	Over temperature
	Overload
	Brake unit protection
	Short circuit
	Ground fault
	Overvoltage and overcurrent stall protection Motor temperature protection

Mounting

Enclosure Option	IP20 from 0.5 HP to 50 HP (NEMA 1 with a kit), NEMA 1 standard 60 HP to 200 HP, chassis greater than 250 HP
Flange Mounting	<200 HP
Roll-in Inverters	>200 HP

Environmental

Location	Install the AC drive where it is indoors and protected from direct sunlight, dust, corrosive or combustible gases, oil smoke, vapor, ingress from water or any other liquid, and salt
Elevation	1000m without derating (de-rating by 1% per 100m increase, max. 3000m)
Ambient Temperature	-10°C to +40°C. If the ambient temperature is not in this range, de-rating by 1.5% per 1°C increase; max. temperature: 50°C
Humidity	Less than 95% RH non-condensing
Vibration	Less than 5.9 m/s² (0.6 G)
Storage Temperature	-20°C to +60°C

Benshaw PowerPro™ Drive Series Fan and Pump Drives

Specifications

Power Specification

Input Voltage	Three-phase 380 to 480 V (-15% to 10%)
Input Frequency	50/60 Hz (±5%)
Power Rating	0.5 HP–700 HP
Current Rating	1.5 A–868 A
Motor Voltage	Three-phase 380 to 480 V (proportional to input voltage)
Output Frequency	0–500 Hz (resolution of 0.01 Hz)
Overload Capability	110%/150% for 60s/5mins
Braking Torque	125% Braking torque for 10s

Control Features

Motor Type	Induction motor
Carrier Frequency	0.8 kHz to 8 kHz
Control Mode	Voltage/frequency (V/F) control
V/F Curve	Straight-line V/F curve, multi-point V/F curve, squared curve, complete V/F separation, half V/F separation
Torque Boost	Customized boost 0.1% to 30.0%
Ramp Mode	Linear ramp, S-curve ramp, four separate acceleration/deceleration time settings in the range of 0.0s to 6500.0s
Jog	Frequency range of jog running: 0.00 to max. frequency Acceleration/deceleration time of jog running: 0.0s to 6500.0s
Running Command	Allows different methods of switching between running commands: Operating panel (keypad and display); terminal I/O control; and serial communication
Speed Reference Command	Supports up to 10 frequency reference settings and allows different methods of switching between frequency reference setting channels: Digital setting Analog voltage reference Analog current reference Pulse reference Communication reference
Onboard Multiple Preset Speeds	16 speeds by using simple PLC function or by using digital input signals
Onboard PID	The system implements PID function in the closed-loop control
Automatic Voltage Regulation (AVR)	The system maintains a constant output voltage automatically when the grid voltage changes through the permissible range
Power Dip Ride-Through	Load inertia used to power through intermittent voltage drops
Dual Motor Parameter Setup	Two motor parameter setup for control of two motors
DC Injection Braking	DC injection braking frequency: 0 Hz to max. frequency; DC injection braking active time: 0.0s to 36.0s; current level of DC injection braking: 0.0% to 100.0%
Input Terminals	Standard: 5 DI terminals, one of which supports up to 100 kHz high-speed pulse inputs 2 AI terminals, one of which supports 0 to 10 V input, and the other supports 0 to 10 V and 0 to 20 mA current input Extended IO Option: 5 DI, 1AI that supports -10 to 10 V voltage input and PT100/PT1000 motor temperature sensor inputs



Control Features (continued)

Output Terminals	<p>Standard:</p> <p>1 high-speed pulse output terminal (open-collector) for a square wave signal output frequency range 0 to 100 kHz</p> <p>1 DO, 1AO that supports either a current output in the range 0 to 20 mA or a voltage output in the range 0 to 10 V, 1 relay</p> <p>Extended IO Option:</p> <p>1 DO, 1 AO that supports either a current output in the range 0 to 20 mA or a voltage output in the range 0 to 10 V, 1 relay</p>
Field Bus Options	Modbus, PROFIBUS-DP, CANlink and CANopen
User-Programmable Processor	The optional programming card supports secondary development in a programming environment compatible with programmable logic controller (PLC)
Display	LED and remote LCD display Upload/download parameters Partial and complete locking of keys
Protections	
Input Protections	Phase loss
	Over voltage
	Under voltage
Output Protections	Overcurrent
	Over temperature
	Overload
	Brake unit protection
	Short circuit
	Ground fault
	Overvoltage and overcurrent stall protection
	Motor temperature protection
Mounting	
Enclosure Option	IP20 from 0.5 HP to 50 HP (NEMA 1 with a kit), NEMA 1 standard 60 HP to 200 HP, chassis greater than 250 HP
Flange Mounting	<200 HP
Roll-in Inverters	>200 HP
Environmental	
Location	Install the AC drive where it is indoors and protected from direct sunlight, dust, corrosive or combustible gases, oil smoke, vapor, ingress from water or any other liquid, and salt
Elevation	1000m without derating (de-rating by 1% for per 100 m increase Max. 3000 m)
Ambient Temperature	-10°C to +40°C. If the ambient temperature is not in this range, de-rating by 1.5% per 1°C increase; max. temperature: 50°C
Humidity	Less than 95% RH non-condensing
Vibration	Less than 5.9 m/s² (0.6 G)
Storage Temperature	-20°C to +60°C

Benshaw PowerPro™ Drive Series

High Performance Single AC Drive Part Number Assembler

RSI - PPVC - 0125 - 4 - 3 - X - IP00 - IM

Prefix

Ready Start Inverter

Series

PPVC = Constant Torque/Heavy Duty
(multi-purpose drives)

PPFP = Variable Torque/Standard Duty
(fan and pump drives)

Power Size	HP	Power Size	HP
00H5	½	0060	60
0001	1	0075	75
01H5	1½	0100	100
0002	2	0125	125
0003	3	0150	150
0005	5	0200	200
07H5	7½	0250	250
0010	10	0300	300
0015	15	0350	350
0020	20	0400	400
0025	25	0450	450
0030	30	0500	500
0040	40	0600	600
0050	50	0700	700

Voltage Level

4 = 460 Volt

Motor Type

IM = Induction Motor

PM = Permanent Magnet Motor

Drive Enclosure

IP00 = Chassis

IP20 = Open Chassis

XN01 = NEMA 1

Brake

X = No Dynamic Brake

B = Dynamic Brake

Voltage Phase

3 = Three-phase

High Performance Single AC Drives

460 V — Variable Torque/Standard Duty (fan and pump drives)

Model Number	Frame Size	Light Duty (LD) 110% @ 60s				Heavy Duty (HD) 150% @ 60s			
		KW	HP	Rated Current (A) @ 440 V	Rated Current (A) @ 460 V	KW	HP	Rated Current (A) @ 440 V	Rated Current (A) @ 460 V
RSI-PPFP-0001-4-3-B-IP20-IM	T1	0.7	1	2.1	2.1	0.4	0.5	1.5	1.5
RSI-PPFP-01H5-4-3-B-IP20-IM	T1	1.1	1.5	3.1	3.1	0.7	1	2.1	2.1
RSI-PPFP-0002-4-3-B-IP20-IM	T1	1.5	2	3.8	3.7	1.1	1.5	3.1	3.1
RSI-PPFP-0003-4-3-B-IP20-IM	T1	2.2	3	5.1	5.0	1.5	2	3.8	3.7
RSI-PPFP-0005-4-3-B-IP20-IM	T1	3.7	5	9	8.9	3	4	7.2	7.1
RSI-PPFP-07H5-4-3-B-IP20-IM	T2	5.5	7.5	13	12.8	3.7	5	9	8.9
RSI-PPFP-0010-4-3-B-IP20-IM	T2	7.5	10	17	16.8	5.5	7.5	13	12.8
RSI-PPFP-0015-4-3-B-IP20-IM	T3	11	15	25	24.7	7.5	10	17	16.8
RSI-PPFP-0020-4-3-B-IP20-IM	T3	15	20	32	31.6	11	15	25	24.7
RSI-PPFP-0025-4-3-B-IP20-IM	T4	18.5	25	37	36.5	15	20	32	31.6
RSI-PPFP-0030-4-3-B-IP20-IM	T5	22	30	45	44.4	18.5	25	37	36.5
RSI-PPFP-0040-4-3-B-IP20-IM	T5	30	40	60	59.2	22	30	45	44.4
RSI-PPFP-0050-4-3-B-IP20-IM	T6	37	50	75	74.0	30	40	60	59.2
RSI-PPFP-0060-4-3-B-IP20-IM	T6	45	60	91	89.8	37	50	75	74.0
RSI-PPFP-0075-4-3-B-XN01-IM	T7	55	75	112	110.5	45	60	91	89.8
RSI-PPFP-0100-4-3-B-XN01-IM	T7	75	100	150	148.0	55	75	112	110.5
RSI-PPFP-0125-4-3-B-XN01-IM	T8	90	125	176	173.6	75	100	150	148.0
RSI-PPFP-0150-4-3-X-XN01-IM	T8	110	150	210	207.1	90	125	176	173.6
RSI-PPFP-0200-4-3-X-XN01-IM	T9	160	200	304	299.9	132	175	253	249.6
RSI-PPFP-0250-4-3-X-IP00-IM	T9	200	250	377	371.9	160	200	304	299.9
RSI-PPFP-0300-4-3-X-IP00-IM	T10	220	300	426	458.7	200	250	377	371.9
RSI-PPFP-0350-4-3-X-IP00-IM	T10	250	350	465	512.9	220	300	426	420.2
RSI-PPFP-0400-4-3-X-IP00-IM	T11	315	400	585	577.0	280	375	520	512.9
RSI-PPFP-0450-4-3-X-IP00-IM	T11	355	450	650	641.2	315	400	585	577.0
RSI-PPFP-0500-4-3-X-IP00-IM	T12	400	500	725	715.1	355	450	650	641.2
RSI-PPFP-0600-4-3-X-IP00-IM	T12	450	600	820	808.8	400	500	725	715.1
RSI-PPFP-0700-4-3-X-IP00-IM	T12	500	700	880	868.0	450	600	820	808.8

Benshaw PowerPro™ Drive Series

High Performance Single AC Drives

460 V — Constant Torque/Heavy Duty (multi-purpose drives)

Model Number	Frame Size	Light Duty (LD) 110% @ 60s				Heavy Duty (HD) 150% @ 60s			
		KW	HP	Rated Current (A) @ 440 V	Rated Current (A) @ 460 V	KW	HP	Rated Current (A) @ 440 V	Rated Current (A) @ 460 V
RSI-PPVC-00H5-4-3-B-IP20-IM	T1	0.7	1	2.1	2.1	0.4	0.5	1.5	1.5
RSI-PPVC-0001-4-3-B-IP20-IM	T1	1.1	1.5	3.1	3.1	0.7	1	2.1	2.1
RSI-PPVC-01H5-4-3-B-IP20-IM	T1	1.5	2	3.8	3.7	1.1	1.5	3.1	3.1
RSI-PPVC-0002-4-3-B-IP20-IM	T1	2.2	3	5.1	5.0	1.5	2	3.8	3.7
RSI-PPVC-0003-4-3-B-IP20-IM	T1	3	4	7.2	7.1	2.2	3	5.1	5.0
RSI-PPVC-0005-4-3-B-IP20-IM	T2	5.5	7.5	13	12.8	3.7	5	9	8.9
RSI-PPVC-07H5-4-3-B-IP20-IM	T2	7.5	10	17	16.8	5.5	7.5	13	12.8
RSI-PPVC-0010-4-3-B-IP20-IM	T3	11	15	25	24.7	7.5	10	17	16.8
RSI-PPVC-0015-4-3-B-IP20-IM	T3	15	20	32	31.6	11	15	25	24.7
RSI-PPVC-0020-4-3-B-IP20-IM	T4	18.5	25	37	36.5	15	20	32	31.6
RSI-PPVC-0025-4-3-B-IP20-IM	T5	22	30	45	44.4	18.5	25	37	36.5
RSI-PPVC-0030-4-3-B-IP20-IM	T5	30	40	60	59.2	22	30	45	44.4
RSI-PPVC-0040-4-3-B-IP20-IM	T6	37	50	75	74.0	30	40	60	59.2
RSI-PPVC-0050-4-3-B-IP20-IM	T6	45	60	91	89.8	37	50	75	74.0
RSI-PPVC-0060-4-3-B-XN01-IM	T7	55	75	112	110.5	45	60	91	89.8
RSI-PPVC-0075-4-3-B-XN01-IM	T7	75	100	150	148.0	55	75	112	110.5
RSI-PPVC-0100-4-3-B-XN01-IM	T8	90	125	176	173.6	75	100	150	148.0
RSI-PPVC-0125-4-3-X-XN01-IM	T8	110	150	210	207.1	90	125	176	173.6
RSI-PPVC-0150-4-3-X-XN01-IM	T8	132	175	253	249.6	110	150	210	207.1
RSI-PPVC-0200-4-3-X-XN01-IM	T9	200	250	377	371.9	160	200	304	299.9
RSI-PPVC-0250-4-3-X-IP00-IM	T10	220	300	426	458.7	200	250	377	371.9
RSI-PPVC-0300-4-3-X-IP00-IM	T10	250	350	465	512.9	220	300	426	420.2
RSI-PPVC-0350-4-3-X-IP00-IM	T11	315	400	585	577.0	250	350	465	458.7
RSI-PPVC-0400-4-3-X-IP00-IM	T12	400	500	725	715.1	315	400	585	577.0
RSI-PPVC-0450-4-3-X-IP00-IM	T12	450	600	820	808.8	355	450	650	641.2
RSI-PPVC-0500-4-3-X-IP00-IM	T12	500	700	880	868.0	400	500	725	715.1
RSI-PPVC-0600-4-3-X-IP00-IM	T12	—	—	—	—	450	600	820	808.8

Models listed above are for use with induction motor. For model used with permanent magnet motor, replace -IM suffix at the end of model number with -PM suffix.



High Performance Single AC Drive Dimensions

Mechanical Specs

Frame Size	Enclosure	Integrated DB Brake	Integrated DC Link Choke	Height (in)	Width (in)	Depth (in)	Weight (lbs)
T1	NEMA 1*	Yes	No	7.9	5.1	6.0	3.5
T2	NEMA 1*	Yes	No	7.9	5.1	6.4	4.4
T3	NEMA 1*	Yes	No	9.8	5.5	6.7	7.3
T4	NEMA 1*	Yes	No	11.0	7.1	6.7	9.5
T5	NEMA 1*	Yes*	No	13.8	8.3	7.6	16.7
T6	NEMA 1*	Yes*	Yes	15.7	9.8	8.7	38.5
T7	NEMA 1	Yes*	Yes	20.7	11.8	10.8	77.0
T8	NEMA 1	Yes*	Yes	21.8	13.3	12.4	113.3
T8	NEMA 1	No	Yes	21.8	13.3	12.4	113.3
T9	NEMA 1	No	Yes	34.4	15.7	12.6	187.0
T10	Chassis	No	Yes	42.8	11.8	19.7	242.0
T11	Chassis	No	Yes	49.1	13.0	21.5	341.0
T12	Chassis	No	Yes	53.3	13.4	21.5	407.0

*NEMA 1: IP20 standard, NEMA 1 with accessory kit

*Yes: Brake IGBT is a configured option



Benshaw PowerPro™ Drive Series

High Performance Single AC Drive Option Cards and Accessories

Type	Model Number	Description
Remote Keypad Options	RSI-PPXX-AXRY-RMKP-LED	Remote LED Keypad, for parameter programming and monitoring
	RSI-PPXX-AXRY-RMKP-LCD	Remote LCD Keypad, for parameter programming and upload and download of parameters
	RSI-PPXX-AXRY-RMKP-MNT	Mounting Base for Remote Keypad for installation on cabinet door
I/O Option Cards	RSI-PPXX-AXRY-IOMOD-STD	IO Card, for all series, 3xDIP
	RSI-PPXX-AXRY-IOMOD-ADV	IO and Comms Card, for 5 HP and above, 5xDIP, 1DOP, 1 relay, 1 analog IP isolated for ± 10 V or PT100 or PT1000 (jumper), CANlink or Modbus (jumper)
	RSI-PPXX-AXRY-IOMOD-PLC	PLC IO card, for 5 HP and above, 5xDIP, 2 relay, analog output, 1 analog IP isolated for ± 10 V or ± 20 mA or PT100 or PTC (jumper), isolated RS485 port
Communication Cards	RSI-PPXX-AXRY-COMM-CLNK	CANLink Bus Card, Supports only CANLink
	RSI-PPXX-AXRY-COMM-MDBS	RS485 Comms Card, Supports ModBus
	RSI-PPXX-AXRY-COMM-CNOP	CANOpen Bus Card, Supports only CANOpen
	RSI-PPXX-AXRY-COMM-PFBS	Profibus DP2 Bus Card, Supports Profibus DP2 and CANLink, for 5 HP and above
Encoder PG Cards*	RSI-PPXX-AXRY-ENPG-PG1	PG Card, UVW, 5 V differential, no emulated output, 500 KHz, DB15 connector
	RSI-PPXX-AXRY-ENPG-PG2	PG Card, 5 V differential encoder A+, A-, B+, B-, Z+, Z-, emulated output 1:1, 500 KHz, DB9 connector
	RSI-PPXX-AXRY-ENPG-PG3	PG Card, 5 V open collector/differential encoder A+, A-, B+, B-, Z+, Z-, multi-emulated output, 100 kHz/500 kHz, terminal connect
	RSI-PPXX-AXRY-ENPG-PG4	PG Card, 7 V rms, 12 bit, no emulation output, 10 KHz, DB9 connector
NEMA 1 Kits	RSI-PPXX-AXRY-NEMA1-T2	NEMA 1 Kit for T1 and T2
	RSI-PPXX-AXRY-NEMA1-T3	NEMA 1 Kit for T3
	RSI-PPXX-AXRY-NEMA1-T4	NEMA 1 Kit for T4
	RSI-PPXX-AXRY-NEMA1-T5	NEMA 1 Kit for T5
	RSI-PPXX-AXRY-NEMA1-T6	NEMA 1 Kit for T6
Flange Mounting Brackets	RSI-PPXX-AXRY-FLNG-FRA	Flange Mounting Bracket, frame A, for Frame T5
	RSI-PPXX-AXRY-FLNG-FRB	Flange Mounting Bracket, frame B, for Frame T6
	RSI-PPXX-AXRY-FLNG-FRC	Flange Mounting Bracket, frame C, for Frame T7
	RSI-PPXX-AXRY-FLNG-FRD	Flange Mounting Bracket, frame D, for Frame T8
	RSI-PPXX-AXRY-FLNG-FRE	Flange Mounting Bracket, frame E, for Frame T9
	RSI-PPXX-AXRY-FLNG-FRF	Flange Mounting Bracket, frame F, for Frame T1
	RSI-PPXX-AXRY-FLNG-FRG	Flange Mounting Bracket, frame G, for Frame T2
	RSI-PPXX-AXRY-FLNG-FRH	Flange Mounting Bracket, frame H, for Frame T3
	RSI-PPXX-AXRY-FLNG-FRI	Flange Mounting Bracket, frame I, for Frame T4
Dynamic Braking Units	RSI-PPXX-AXRY-DBRK-0200	Braking Unit, 200 A, 125% Brake Torque, 10% ED, max. 10 secs.
Cable Clamps	RSI-PPXX-AXRY-RAIL-T10_T12	Guide Rails for Roll-In Drives — Frames T10 to T12
	RSI-PPXX-AXRY-RAILCBLCLM-T1	Cable clamps for Frame T1
	RSI-PPXX-AXRY-RAILCBLCLM-T2	Cable clamps for Frame T2
	RSI-PPXX-AXRY-RAILCBLCLM-T3	Cable clamps for Frame T3
	RSI-PPXX-AXRY-RAILCBLCLM-T4	Cable clamps for Frame T4
	RSI-PPXX-AXRY-RAILCBLCLM-T5	Cable clamps for Frame T5
	RSI-PPXX-AXRY-RAILCBLCLM-T6	Cable clamps for Frame T6
	RSI-PPXX-AXRY-RAILCBLCLM-T7	Cable clamps for Frame T7
	RSI-PPXX-AXRY-RAILCBLCLM-T8	Cable clamps for Frame T8
	RSI-PPXX-AXRY-RAILCBLCLM-T9	Cable clamps for Frame T9

* PPVC only.



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