YASKAWA

iQPUMP® AC DRIVES

INTELLIGENT PUMP CONTROL

IT'S PERSONAL

INTELLIGENT PUMP DESIGN

Yaskawa's family of iQpump® drives offers a wide variety of package options and the most advanced comprehensive pump and motor protection in the industry, while still maintaining ease of setup and diagnostics designed for pump operators and service technicians. Our integrated pump specific software allows for a wide range of pumping applications from constant pressure, flow, geothermal, multiple pump booster systems to wet well lift stations and many others. Designed with the user in mind, iQpump drives use intuitive pump related terminology, with simple process control selection of engineering units such as psi, gpm, feet, meters, degrees, inches of mercury, and many other units.

USER-IN-MIND DESIGN

iQpump drives are designed with the user in mind. Our goal is to ensure that the pump is operating at the best efficiency point (BEP), saving energy and decreasing life-cycle costs.

iQPUMP 1000
0.75-175 HP, 200-240 VAC 3-Phase Input
1-1000 HP, 380-480 VAC 3-Phase Input
2-250 HP, 500-600 VAC 3-Phase Input

iQPUMP Micro
1-5 HP 200-230 VAC 1-Phase Input
1-25 HP 200-240 VAC 3-Phase Input
1-25 HP 380-480 VAC 3-Phase Input

iQpump1000 is your total pumping solution for whatever your system demands, while maintaining the simple pump terminology and programming customers have come to expect.

Yaskawa understands that many light commercial, industrial, agricultural and ground water well systems are looking for a more cost effective simplex and multiplex constant pressure pump control solution without sacrificing what they have come to enjoy from Yaskawa.

iQpump Micro offers many of the same comprehensive software features and control along with the same programming interface as iQpump1000, but in a package that saves cost.

BENEFITS

Proven Process Control and System Reliability

By matching pump output flow or pressure directly to the process requirements, applications can be fine tuned more rapidly by iQpump drives than by other control forms. Speed reduction results in reduced pump wear, particularly in bearings and seals.

Reduce Total System Cost

iQpump drives lower system cost by eliminating sensors, jockey pumps, and restriction valves, as well as reducing pressure tank sizing.

Energy Savings

iQpump drives reduce energy demand 20% to 50% by adjusting pump speed to match a lower flow/pressure.

Ease of Installation and Setup

iQpump drives use pump terminology on all setup parameters and monitors. Application presets apply most of the parameters for you. Also included is a "Pump Quick Setup" and "Modified Constants" menu.

Eliminate Complex Control Panels

iQpump drive installation eliminates many electro-mechanical controls. This reduces maintenance requirements.

Cooler Running Pump Motor

Soft starts eliminate high inrush current, dramatically increasing winding insulation life.

PC SOFTWARE TOOLS

DriveWizard® iQpump

Provides users a startup wizard, parameter management tools, drive status monitoring and trending.

Utility Harmonics Estimator

Estimation of harmonics contribution back to main power source.

Energy Savings Predictor

Analysis of energy savings with carbon footprint calculation.

Application Simulator Software

Allows for the user to program multiple pump applications and then simulate operation without the need for a drive.

THE DIFFERENCE THAT MATTERS

Yaskawa continually trains its people, partners and end-users. We design products to specifically prevent defects and qualify products through arduous testing procedures. This is all part of the way we differentiate ourselves from our competition.

TECHNICAL TRAINING

Both standard and customized courses are available with hands-on activities and demonstrations. Instruction is offered at Yaskawa locations, as well as during traveling road shows. This is supplemented by live web classes and e-Learning modules / videos to provide the right level of training to fit your needs. Trainers are degreed engineers with extensive industry experience.

DEFECT PREVENTION

Yaskawa manufacturing processes are designed to prevent defects. Production associates have paperless on-line resources at their workstations, providing highly detailed and up-to-date work instructions for every process step. Practice mechanisms are available in the Kaizen center for them to improve their assembly skills. Complex assemblies are made simple with the use of animations and video. These processes enable us to approach our ultimate goal of zero-defect manufacturing.

PRODUCT QUALIFICATION AND TESTING

No other manufacturer puts its products through as many tests, or as arduous a testing process, as Yaskawa. All printed circuit boards are functionally tested while under power. All Yaskawa products are 100% tested under full current. Yaskawa conducts its own product qualification testing in its ISO certified test lab. Products are tested not only under normal spec conditions, but also for the following:

- Extreme Temperature/Humidity
- Vibration
- Package Drop
- Input Voltage Tolerance
- Noise Immunity
- Electrical Insulation Stress
- Under/Over Voltage Protection
- Momentary Power Loss
- Output Short Circuit Protection
- Overload Protection
- Ground Fault Protection
- Washdown Test
- Input/Output Phase Loss Test
- Power ON/OFF and Start-Up Iterations

ENVIRONMENTAL CONSIDERATIONS

Yaskawa maintains a corporate commitment to sustainability goals with an emphasis on the following environmental guidelines:

RoHS — Restriction of Hazardous Substances

Leadership in Energy and Environmental Design

LEARN MORE AT energystar.gov — EPA Program to Promote Superior Energy Efficiency

Energy Efficiency with Reduction of Carbon Footprint

PACKAGES FOR ANY ENVIRONMENT

Yaskawa offers quick lead time on cost-effective iQpump drive standard packages. You can also get standard packages configured to meet your custom requirements.

UL TYPE 1 PACKAGES FOR IQPUMP1000

Yaskawa offers a standard UL Type 1 package for iQpump1000 drives and configured units. All units are UL rated, with the configured packages built to UL 508A (Industrial Control Panel) standards. Installation, setup, service and quick delivery have all been considered in these package designs.

UL TYPE 12 PACKAGES FOR IQPUMP1000

iQpump1000 configured packages are available with a UL Type 12 enclosure option. Fans, when required, are provided with Type 12 rated filters to maintain a Type 12 rating on the enclosure.

Standard construction features include:

- 12-Gauge Steel
- Padlock Hasp
- Whole Door Gasket
- Integral ¼ Turn Door Latches
- Lifting Eyes
- Removable Air Filter from Outside of Cabinet

UL TYPE 3R PACKAGES FOR IQPUMP1000

iQpump1000 configured packages are also offered with a UL Type 3R enclosure option. This enclosure can be installed in direct sunlight without the need for additional cooling or sunshade protection.

Standard construction features include:

- 12-Gauge Steel
- Padlock Hasp
- Whole Door Gasket
- Integral ¼ Turn Door Latches
- Brass Hinges
- UV/Type 3R Keypad Membrane
- Lifting Eyes
- Sun Reflective White Powder Coat Paint
- Stainless Steel Hardware

FULLY-ENGINEERED PACKAGES FOR IQPUMP1000

Both end users and OEM customers have come to rely on our custom product engineering capabilities. These products are based off of our standard configurations, but can evolve into a totally customized package.

Engineered packages include:

- Redundant Drive Packages
- 12- or 18-Pulse Configurations
- Soft Start Bypass Packages
- Integrated Trap Filter Packages
- Multiple Motor Configurations

Engineered packages can be provided as UL Type 1, 12 or 3R. They are supported with custom engineered drawings and documentation.

DESIGNED WITH THE USER IN MIND

iQpump drives use intuitive pump-related terminology with simple process control selection of engineering units such as PSI, GPM, feet, meters, degrees, inches of mercury and many other units.

REAL-TIME CLOCK

iQpump drives are supported with a real-time clock that will log the last 10 fault events with a date and time stamp to provide pump service technicians with real data for troubleshooting. This feature also enables the user to set calendar run and stop configurations, allowing the system to avoid high utility kW rates during peak operation hours.

DATE & TIME STAMP

PUMP SPECIFIC HAND-OFF-AUTO (H-O-A) OPERATOR

What makes iQpump drives the industry standard is the simplicity of the operator keypad messages that are formatted in pump terminology. This informs the user about the status of the system operation, along with alarms or specific pump algorithm functions that are being initiated.

KEYPAD SCREEN

1 — SYSTEM PRESSURE SETPOINT
2 — CONTROL OPERATION STATUS
3 — PUMP MOTOR OUTPUT FREQUENCY
4 — TRANSDUCER FEEDBACK
5 — DRIVE STATUS MONITORS

PRE-PROGRAMMED APPLICATION MACROS

Pre-programmed application presets reduce start-up time significantly. Users enter simple motor and application information within the pump quick setup menu for each of the application macros.

Constant Pressure

Geothermal Control

General Purpose

Vertical Turbine Pressure Control

Pump Quick Setup

Advanced Pressure Control

Submersible Motor General Purpose

Pivot Panel Vertical Turbine Pressure Control

Pump Down Level Control

APPLICATION MACROS

- Constant Pressure
- Pump Down Level Control
- General Purpose Mode
- Submersible Motor, General Purpose Operator Control
- Geothermal Control*
- Vertical Turbine Pump Pressure Control (VTC)*
- Pivot Panel VTC*
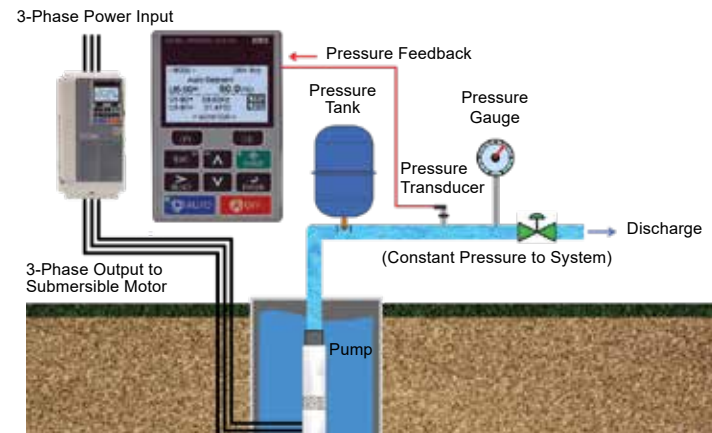- Advanced Constant Pressure*
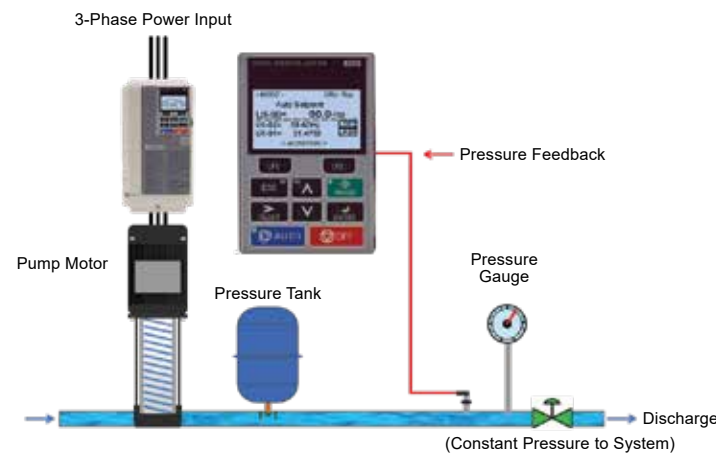
*Not Supported with iQpump Micro

SIMPLEX PUMP FEATURES

The most common applications are simplex (single pump) constant pressure and pump down level control. For these applications, iQpump drives are an easy investment choice with preset application macros, dedicated pump control features and pump system protection.
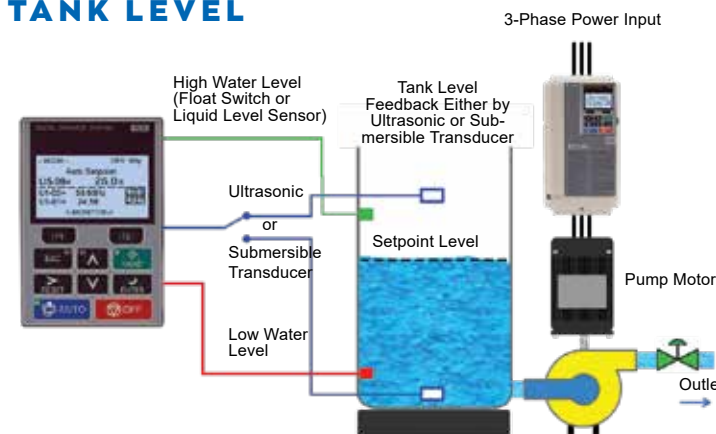
iQPUMP 1000   **iQPUMP Micro**

WELL PUMP

3-Phase Power Input
Pressure Feedback
Pressure Tank
Pressure Gauge
Pressure Transducer
Discharge
(Constant Pressure to System)
3-Phase Output to Submersible Motor
Pump

BOOSTER PUMP

3-Phase Power Input
Pressure Feedback
Pump Motor
Pressure Tank
Pressure Gauge
Discharge
(Constant Pressure to System)

TANK LEVEL

3-Phase Power Input
High Water Level (Float Switch or Liquid Level Sensor)
Tank Level Feedback Either by Ultrasonic or Submersible Transducer
Ultrasonic or Submersible Transducer
Setpoint Level
Pump Motor
Low Water Level
Outlet

SLEEP MODE MINIMUM FLOW PROTECTION

Protects and shuts down the pump at low speeds or in low flow conditions.

NO FLOW / DEADHEAD PROTECTION

Detects changes in pressure and flow when the system has been closed off via mechanical valves or restrictions. If a system is not protected from this condition, the water within the pump can vaporize, building up excessive heat that can damage the pump and the discharge piping.

SUBMERSIBLE MOTOR THRUST BEARING CONTROL

Protects the bearings of submersible pump motors by ensuring proper start-up speeds and times.

AUTOMATIC SYSTEM RESTART

Programmable timers allow iQpump drives to automatically restart the system in Auto Mode for faults relating to brown outs, loss of power and pump specific faults.

LOSS OF PRIME (LOP) / PUMP DRY-RUN PROTECTION

Loss of prime protection is a feature protecting the pump and motor from damage caused by running the pump without water. If a pump were to lose prime and continue to operate without water moving through the pump, the pump would develop heat which would eventually damage the pump seal, motor, pipe manifold and related components.

LOW- AND HIGH-PRESSURE FEEDBACK DETECTION

iQpump drives continuously monitor the system feedback device to provide a warning alarm or fault based on the programmed level.

IMPELLER ANTI-JAM AUTOMATIC CONTROL

Provides a method for the iQpump drive to detect high current and attempt to expel corrosion or solids which are impeding the pump impeller. The system will perform a quick reversal attempt to dislodge a jam.

POWER LOSS UTILITY START DELAY TIMER

Used in conjunction with "Automatic Restart", a programmable timer will delay starting to allow for multiple pumps to sequence start on loss of power. This function ensures that the power system is not stressed when utility power has returned and the pump system is automatically restarted.

SLEEP BOOST

Intended for use with a pressure tank, the iQpump drive boosts the set pressure prior to shutdown, extending the pump's sleep time, reducing cycling and saving energy.

PRE-CHARGE CONTROL (CONTROLLED PIPE FILL)

This programmable feature eliminates water hammer and extends system life by gradually filling a pipeline before normal full pressure and flow operation. Pump motor speed can be controlled with a system timer, level or pressure control device to indicate when normal operation may begin.

CONSTANT PRESSURE WITH WELL DRAW DOWN CONTROL*

This function allows the iQpump drive to control constant pressure when there is adequate water in the well, while monitoring a second down hole transducer for water level. If the water level drops below user settings, the iQpump drive reduces pump speed to maximize well output. The system will return automatically to normal operation when well water is recharged to an adequate level.

## SECONDARY TRANSDUCER BACKUP*

This option used for Simplex control allows for a secondary backup transducer to be automatically used if the main transducer has failed. The keypad text message will alert what feedback transducer is being used.

* Not Supported with iQpump Micro

DRIVE-TO-DRIVE MULTIPLEXING FEATURES

iQpump drives have enhanced software not available in standard variable frequency drives, allowing for multiple drives to operate as a coordinated system. This allows pump system engineers the ability to add more modular pump systems together (duplex, triplex, etc.) to meet customer specifications and minimize cost by eliminating external control via PLCs and HMIs.
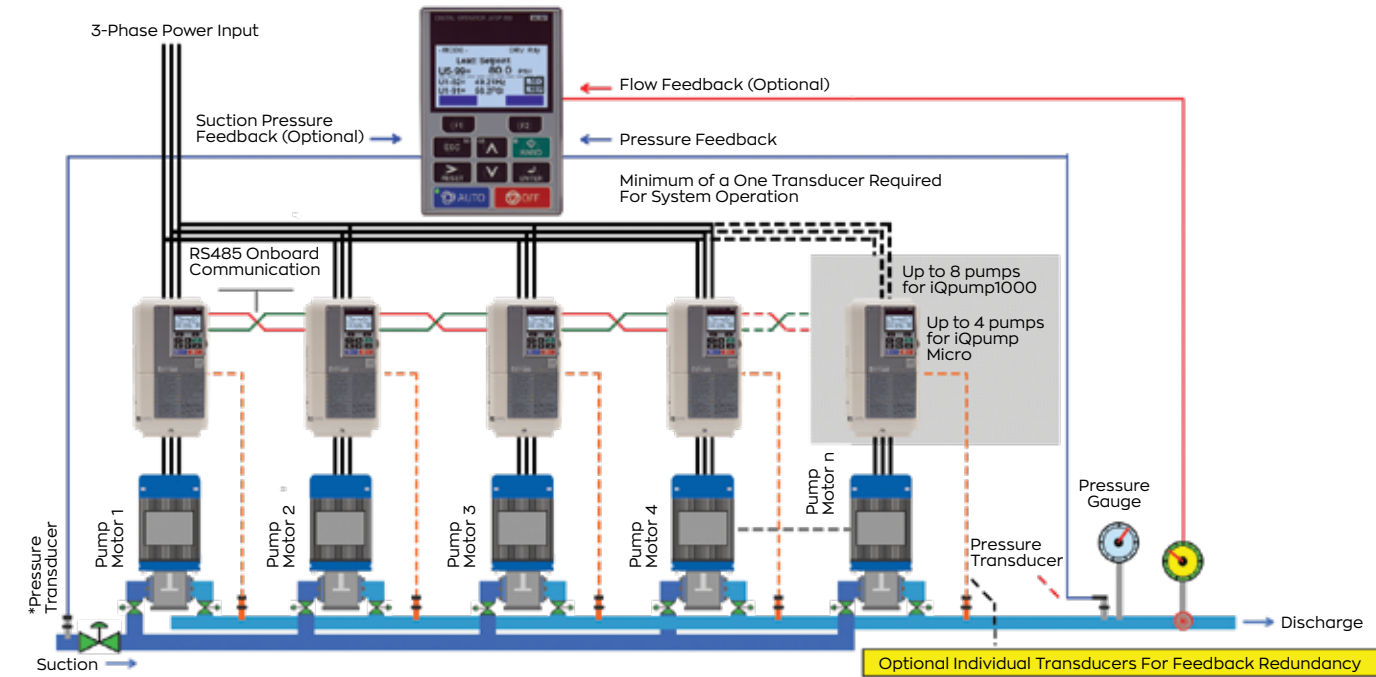
APPLICATION NOTES:

- Automatically alternates all pumps with a system programmable timer to provide even mechanical pump wear.
- Configurable transducer feedback settings to provide redundant backup, if failure occurs.
- With the use of an optional suction transducer, all iQpump drives will monitor inlet pressure with programmable PSI settings for faults, alarms and station controlled shutdown.
- Digital switch inputs for Low Suction / Low City Pressure / Low Water in Break Tank can be configured with a selectable keypad message to match application. With the use of an optional flow input, all iQpump drives can be configured to control staging and de-staging of lag pumps on GPM.

PUMP ALTERNATION

From duplex to quadplex systems, the pumps will be exercised evenly to ensure that they receive equal run times, thereby increasing the life cycle of the pumps and motors.

PUMP AND DRIVE REDUNDANCY

If a drive or pump fails during operation, or is taken out of service for maintenance, the remaining pumps continue to operate. The other drives on the network will automatically recognize when the drive and pump are restored to active healthy status and put them back into the pump rotation.

TRANSDUCER FEEDBACK REDUNDANCY

Systems can be configured using multiple transducers on the discharge, allowing for redundancy. A minimum of one transducer is required for system operation.

JOCKEY PUMP CONTROL

Pressure booster systems that use a jockey pump to maintain minimum water flow with larger secondary booster pumps for peak demand require the jockey pump to always be defined as the lead pump. The larger booster pumps will alternate based on time or run cycle for even pump wear.

LAG PUMP LEAD SPEED FOLLOWER MODE

When enabled, all lag iQpump drives will follow the main output speed (Hz or RPM) of the lead iQpump drives, thereby allowing all lead and lag pumps to run at the same speed for better system efficiency.

PUMP STAGE AND DE-STAGE

System dynamics and pump curves will determine the best method of pump staging and de-staging. The user can select a variety of methods such as: pump output speed, pressure differential to setpoint, combination of output speed and differential pressure and flow rate using an in-line flow meter.

Typical multiplex keypad messages

The iQpump LCD keypad (recommended option on iQpump Micro) will provide the user with all the necessary system status operation and pump fault messages to ensure that service operators can efficiently monitor and diagnose any condition.

iQpump drive is in Off Mode (stopped) and has not been given an Auto Run command. Drive is taken out of the running queue.

iQpump drive is in Auto Mode and waiting for a run command from the network.

iQpump drive is in Auto Mode and is the Lead pump.

iQpump drive is in Auto Mode and when a new Lead pump is staged, the Lag pump will be locked at a fixed speed.

CONSTANT SPEED LAG PUMP MULTIPLEXING

Many agricultural farms use multiple large vertical turbine pumps to provide pressurized water to large pivot irrigation systems. Applying a VFD to each of the booster pumps on these systems may not be practical. However, an iQpump drive, using its on-board digital outputs, can control up to 5 lag pump starters from a single VFD to maintain pressure by staging and de-staging the lag pumps..
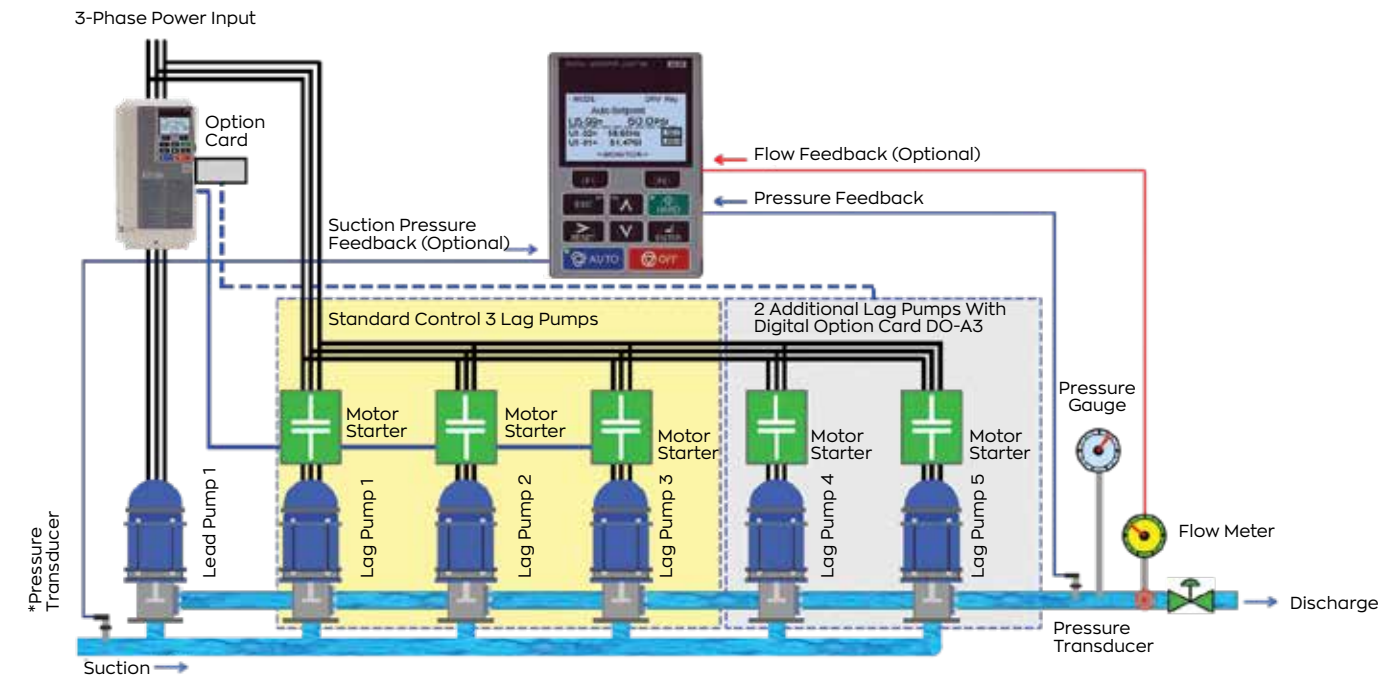
APPLICATION NOTES:

• Automatically starts and stops up to 5 Lag pumps based on the system demand, and will automatically stage and de-stage the booster pumps.
• Alternation of lag pumps to provide even wear.
• Allows a single lag pump to be selected during Pre-Charge (Pipe Fill) to reduce fill rate time.
• For large water consumers, acre-feet can be selected for water accumulation units.
• When the discharge pressure exceeds a high level setting, all running lag pumps will be quickly de-staged to prevent unsafe high pressure conditions.
• When using Pre-Charge, Lag Pump Staging and De-Staging functions, the drive's keypad will provide a message of time remaining before pre-charge is finished and/or time remaining before lag pumps are to stage and de-stage.

INLET SUCTION CONTROL

When installed with an inlet suction transducer, the iQpump drive monitors suction pressure drop to a programmed pressure setpoint. It seamlessly switches over to control suction pressure, so the system runs efficiently. If the inlet pressure returns to the suction pressure setpoint, the iQpump drive will switch back to controlling outlet pressure. A suction pressure alarm/fault detection is available if the suction pressure drops below the Low Suction Pressure Detection Level for more than the Low Suction Pressure Detection Time.

SPEED REDUCTION "GO TO SPEED" AFTER LAG PUMP STAGING

Forces the lead iQpump drive, when in VTC mode, to operate at a lower fixed speed for a specified amount of time whenever a lag pump is staged on. This dampens the shock loading of a lag pump starting across the line to the system.

SETPOINT BOOST AFTER DE-STAGING

Automatically boosts the auto setpoint pressure to a new specified incremental amount for a programmable time whenever a pump is de-staged. This allows the lead iQpump drive, when in VTC mode, to accelerate more quickly to lessen the pressure drop on the system of a lag pump that is being de-staged.

LOW FLOW AND HIGH FLOW (GPM) PROTECTION

iQpump drives continuously monitor the system flow signal feedback to provide a warning alarm or fault based on the programmed level.

FLOW METER DATA LOGGING

Through a secondary analog or pulse train input, a flow sensor can be connected inline with the pump system back to the iQpump drive to read and accumulate total system flow to report to authorities. The system can be configured to detect "No Flow" and switch to "Sleep" on low demand.

HARD CURRENT LIMIT

As the pump impeller wears over time, it changes the efficiency of the pump. In order to maintain a constant pressure or flow, the pump speed will increase, resulting in greater motor current. This can cause the drive to trip on nuisance motor overload (OL).

BACK SPIN TIMER

After "Stop" or "Hand" command, the iQpump drive will not restart until the timer expires, allowing the water column to flow back down the well.

Multi-Plex River Booster System.

MAKING THE MOST OF SINGLE-PHASE

Single-phase motor control is limited and challenging. Yaskawa makes the complicated simple, combining the latest in power conversion technology with our straightforward iQpump drives.
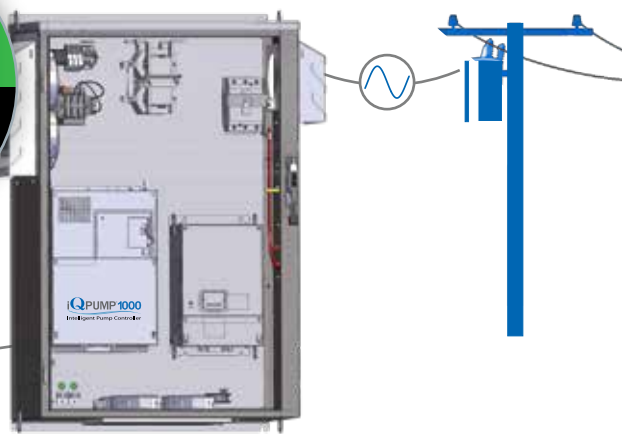
Yaskawa's industry leading Single Phase Converter (SPC) cleanly converts single-phase AC power to DC power for Yaskawa variable frequency drives. The SPC marries Yaskawa reliability and drive technology with motor control solutions for businesses in remote areas.

The SPC eliminates the need to oversize variable frequency drives for single-phase applications while reducing distortion to less than 10% iTHD. With lower input harmonics and near unity power factor, the SPC also eliminates the need to significantly oversize transformers in single-phase applications, reducing overall installation costs.

SIMPLE, EFFICIENT PHASE CONVERSION

EASY TO INSTALL

2 wires in - 3 wires out!

Item	Specifications
Power Range	230 VAC: 20-60 HP 460 VAC: 30-125 HP
Input Voltage	230-240 VAC, Single-Phase 460-480 VAC, Single-Phase

UL LISTED

Type-3R Enclosure

SYSTEM ADVANTAGES

- Less than 10% iTHD reduces installation costs
- Eliminates the need for drive oversizing
- Three-phase motors are more efficient and less expensive than single-phase motors
- No rotating parts needed for phase conversion
- UL listed.

PUMP FAULT AND ALARMS

iQpump drives provide a comprehensive set of pump related alarms and faults. Faults are displayed on the keypad in clear text to eliminate confusion (the following is just a sample):

- Over Cycling
- Set Point Not Met
- Transducer Feedback Lost (Broken Pipe Detection)
- No Flow
- Over Torque
- Low and High Feedback Detection
- Pumping Over Cycle Protection
- Loss of Prime/Dry Run
- Pump Cavitation Protection

IQPUMP DRIVE PROTECTION

- Over / Under Voltage
- Short Circuit
- Input Phase Loss
- Over Temperature
- Phase Imbalance
- Heatsink Fan Failure

MOTOR PROTECTION

- Output Phase Loss
- Motor Over Temperature
- Hard Current Limit
- Ground Fault
- Broken Shaft
- Motor Overload
- Minimum Speed

HARDWARE COMPARISON

Features	iQpump1000	iQpump Micro
Voltage / HP Range	1 - 175 HP 200 - 240 V 3-Phase 1 - 500 HP 380 - 480 V 3-Phase 2 - 250 HP 500 - 600 V 3-Phase	1 - 5 HP 200 - 240 V 1-Phase 1 - 25 HP 200 - 240 V 3-Phase 1 - 25 HP 380 - 480 V 3-Phase
Real Time Clock	Standard (Mounted on Drive)	With Optional Remote H-O-A Operator Installed
H-O-A Operator	Standard (Mounted on Drive)	Option (Externally Mounted)
Transducer Power Supply	24 V @ 150 mA	24 V @ 30 mA
Analog Inputs	Qty 3 - Programmable 0-10 VDC or 4-20 mA	Qty 1 - Non-Programmable 0-10 VDC Qty 1 - Programmable 0-10 VDC or 4-20 mA
Analog Outputs	Qty 2 - Programmable 0-10 VDC or 4-20 mA	Qty 1 - Programmable 0-10 VDC
Digital Inputs	8 Programmable	7 Programmable
Digital Outputs	Qty 1 - Form C Fault Relay (Non-Programmable) Qty 1 - Form C Programmable Relay Qty 2 - Form A Programmable Relay	Qty 1 - Form C Fault Relay Programmable Qty 2 - Programmable Photo-Couplers
Pulse Input	Standard	Not Used
Expansion I/O Adapters	2 Additional Programmable Analog Outputs 2 Additional Programmable Digital Outputs	Not Available
Standard Communications	RS-485/422	RS-485/422
Communications Network Options	EtherNet/IP, Modbus TCP/IP, PROFIBUS-DP, PROFINET, DeviceNet, MetaSys, Apogee, BACnet, LonWorks	Not Available

SOFTWARE COMPARISON

Features	iQpump1000	iQpump Micro
Pump Control Configurations (P1-01 Group):		
Simplex	✔	✔
Drive to Drive Multiplexing	Up to 8 Pumps	Up to 4 Pumps
Simplex with Constant Speed Lag Multiplexing (VTC Mode)	✔	✘
Pre-Programmed Application Macros (A1-03 Group):		
Constant Pressure	✔	✔
Pump Down Constant Level	✔	✔
General Purpose Mode - External Run and Speed Reference	✔	✔
Submersible Motor General Purpose Mode Using Digital Operator	✔	✘
Geothermal Mode	✔	✘
VTC (Vertical Turbine) Pressure Control with Lag Pump Multiplexing	✔	✘
Advanced Pressure Control	✔	✘
Pivot Panel Run VTC (Vertical Turbine) Pressure Control	✔	✘
Pump Specific Software Features:		
Selectable Engineering System Units	✔	✔
Sleep Mode / Minimum Flow	✔	✔
Start Level / Drawdown	✔	✔
Hand Mode Control Operations	✔	✔
Minimum Pump Speed	✔	✔
Transducer feedback Scaling	✔	✔
No Flow / Deadhead Protection	✔	✔
Submersible Thrust Bearing Control	✔	✔
Automatic Fault Restarts for Drive and Pump Protection	✔	✔
Sleep Boost	✔	✔
Low and High Feedback Detection	✔	✔
Low and High Water Float Inputs	✔	✔
Pump Over Cycle Protection	✔	✔
Impeller Anti-jam Protection	✔	✔
Loss of Prime (LOP) / Well Dry Run	✔	✔
Automatic Power Loss Utility Start Delay	✔	✔
Broken Pipe Protection	✔	✔
Transducer Feedback Loss	✔	✔
Transducer Feedback Loss with Programmable GOTO speeds	✔	✔
Pre-Charge / Controlled Pipe Fill	✔	✔
Hard Current Limit	✔	✔
Over Torque Detection	✔	✔
Pump Back Spin Timer	✔	✔
Single Phase Loss Speed Foldback Protection	✔	✔
Multiplex Drive to Drive Pump Setup and Adjustments	✔	✔
Pulse Input for Flow Meter Control and Water Usage Data Logging	✔	✘
Pump De-Scale / De-Ragging	✔	✘
Measuring Water Well Drawdown via transducer with Constant Discharge Pressure	✔	✘
Inlet Suction Pressure Control via Transducer Feedback	✔	✘
Real Time Clock Sequence Drive On/Off Run Timers	✔	✘
Secondary Transducer Input for Redundancy in Simplex and Multiplex Mode	✔	✘

✔ = Supported   ✘ = Not Supported

iQPUMP Micro — MODEL SPECIFICATIONS

CIMR-PW 2 V 0006 F A A

AC Drive
iQpump Series

No.	Voltage Class
BV	1-phase, 240V iQpump Micro
2V	3-phase, 240V iQpump Micro
4V	3-phase, 480V iQpump Micro

No.	Output Current Code (A)
	See charts below

Current codes are equivalent to the current rating.

Design Revision

No.	Environmental Specification
A	Standard

No.	Enclosure Type
F	IP20/NEMA 1 Type
G	NEMA Type 4X (IP66)
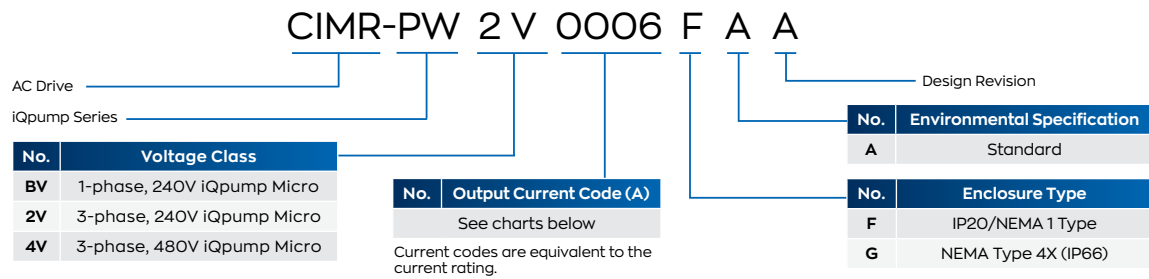
240V - DEDICATED SINGLE-PHASE MODELS

Model Number	Dedicated Single-Phase, 240 V		Dimensions (in.)					
			NEMA 1 (CIMR-PWBV-XXXX-FAA)			NEMA-4X (CIMR-PWBV-XXXX-GAA)		
	Max Capacity (HP)	Rated Current (A)	Height	Width	Depth	Height	Width	Depth
CIMR-PWBV0006	1	6.0	5.89	4.25	6.47	10.04	7.36	9.25
CIMR-PWBV0010	3	9.6	5.89	4.25	7.12	10.04	7.36	9.25
CIMR-PWBV0012	3	12.0	6.02	5.51	7.48	10.04	7.36	9.25
CIMR-PWBV0018	5	17.5	6.02	6.69	8.15	Not Available		

240V - THREE-PHASE MODELS

Model Number	3-Phase, 240V Ratings		Single-Phase, 240 V De-Rate (NEMA 1, 4X) - (Continuous Full Power)				Dimensions (in.)					
			Without Additional Input Reactor		With Additional Input Reactor		NEMA 1 (CIMR-PWBV-XXXX-FAA)			NEMA-4X (CIMR-PWBV-XXXX-GAA)		
	Max Capacity (HP)	Rated Current (A)	Max Capacity (HP)	Rated Current (A)	Max Capacity (HP)	Rated Current (A)	Height	Width	Depth	Height	Width	Depth
CIMR-PW2V0006	1.5	6.0	1	4.9	1	4.9	5.89	2.68	6.10	8.74	6.38	7.28
CIMR-PW2V0010	2 / 3	9.6	1.5	6.8	1.5	6.8	5.89	4.25	6.14	10.04	7.36	9.25
CIMR-PW2V0012	3	12.0	2	7.5	2	7.5	5.89	4.25	6.47	10.04	7.36	9.25
CIMR-PW2V0020	5	19.6	2	9.7	3	12.3	6.02	5.51	6.69	10.04	7.36	9.25
CIMR-PW2V0030	7.5 / 10	30	2	7.5	3	15.2	10.0	5.51	6.57	16.54	11.42	12.01
CIMR-PW2V0040	10	40	5	16.7	5	21.0	10.0	5.51	6.57	16.54	11.42	12.01
CIMR-PW2V0056	15 / 20	56	5	23.4	7.5	27.7	11.42	7.09	7.48	16.54	11.42	12.01
CIMR-PW2V0069	25	69	7.5	25.8	10	30.8	14.09	8.66	8.42	18.31	11.42	12.01

480V- THREE-PHASE MODELS

Model Number	3-Phase, 480 V Ratings		Single-Phase, 480 V De-Rate (NEMA 1, 4X) - (Continuous Full Power)				Dimensions (in.)					
			Without Additional Input Reactor		With Additional Input Reactor		NEMA 1			NEMA-4X		
	Max Capacity (HP)	Rated Current (A)	Max Capacity (HP)	Rated Current (A)	Max Capacity (HP)	Rated Current (A)	Height	Width	Depth	Height	Width	Depth
CIMR-PW4V0002	1	2.1	0.5	1.3	0.5	1.7	5.89	4.25	4.96	8.74	6.38	7.28
CIMR-PW4V0004	2	4.1	1	2.4	1	2.8	5.89	4.25	6.47	8.74	6.38	7.28
CIMR-PW4V0005	3	5.4	1.5	3.5	2	3.9	5.89	4.25	7.12	10.04	7.36	9.25
CIMR-PW4V0007	3	6.9	1.5	3.5	2	5.4	5.89	4.25	7.12	10.04	7.36	9.25
CIMR-PW4V0009	5	8.8	2	5.1	3	5.5	5.89	4.25	7.12	10.04	7.36	9.25
CIMR-PW4V0011	7.5	11.1	3	5.5	3	7.5	6.02	5.51	6.69	10.04	7.36	9.25
CIMR-PW4V0018	10	17.5	2	4.5	5	8.7	10.0	5.51	6.57	16.54	11.42	12.01
CIMR-PW4V0023	15	23	3	5.5	5	10.5	10.0	5.51	6.57	16.54	11.42	12.01
CIMR-PW4V0031	20	31	3	7.9	7.5	13.5	11.42	7.09	6.69	16.54	11.42	12.01
CIMR-PW4V0038	25	38	5	11.3	10	16.1	11.42	7.09	7.48	16.54	11.42	12.01

Reference User Manual for proper drive sizing when using service factors larger than 1.15
When two or more drives in the same voltage class have the same power rating any drive with that rating can be selected

iQPUMP 1000 — MODEL SPECIFICATIONS

CIMR-PW 2 A 0004 F A A

AC Drive
iQpump1000 Series

No.	Voltage Class
2A	3-phase, 240V
4A	3-phase, 480V
4T	6-phase, 12-pulse, 480V
5A	3-phase, 600V

No.	Output Current Code (A)
	See charts below

Current codes are equivalent to the current rating.

Design Revision

No.	Environmental Specification
A	Standard

No.	Enclosure Type
A	IP00 (Protected Chassis)
F	NEMA Type 1
U	Flange (Type 12 backside)
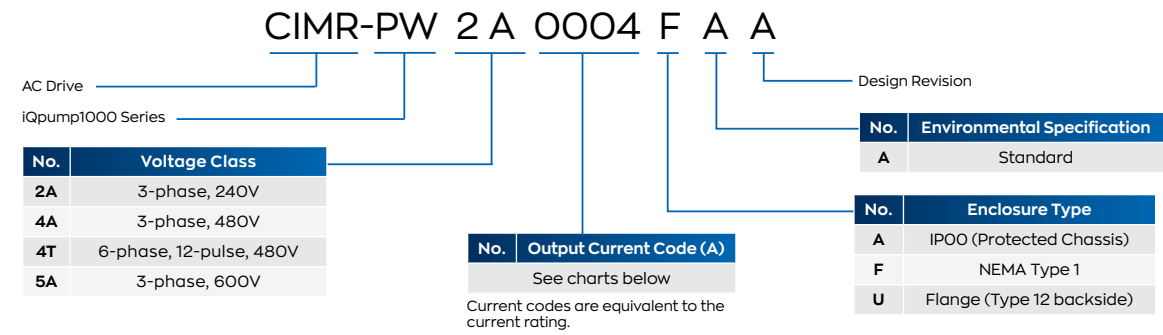
240V - THREE-PHASE MODELS

Model Number	3-Phase Input, 240V		Single-Phase Input, 240V; 3-Phase Output, 208-230V Maximum 1.15 Service Factor		iQpump1000 Dimensions			Weight (lb)	
			Without Additional Input Reactor	With Additional Reactor					
	Rated Current (A)	Max Capacity (HP)	Max Capacity (HP)	Max Capacity (HP)	Height	Width	Depth	NEMA 1	Protected Chassis
CIMR-PW2A0004	3.5	3/4	1/3	1/2	12.06	5.51	5.79	7.3	--
CIMR-PW2A0006	6	1	3/4	3/4	12.06	5.51	5.79	7.3	--
CIMR-PW2A0008	8	2	1	1	12.06	5.51	5.79	7.5	--
CIMR-PW2A0010	9.6	3	1	1	12.06	5.51	5.79	7.5	--
CIMR-PW2A0012	12	3	1.5	2	12.06	5.51	5.79	7.5	--
CIMR-PW2A0018	17.5	5	2	3	12.06	5.51	6.46	8.2	--
CIMR-PW2A0021	21	7.5	2	3	12.06	5.51	6.46	8.2	--
CIMR-PW2A0030	30	10	3	3	12.06	5.51	6.57	9.3	--
CIMR-PW2A0040	40	15	3	5	12.06	5.51	6.57	9.3	--
CIMR-PW2A0056	56	20	7.5	7.5	13.38	7.09	7.36	13.0	--
CIMR-PW2A0069	69	25	7.5	10	15.47	8.66	7.76	20.1	--
CIMR-PW2A0081	81	30	10	15	15.47	8.66	7.76	22.0	--
CIMR-PW2A0110	110	40	10	10	21.37	10.00	10.16	50.7	46.2
CIMR-PW2A0138	138	50	15	15	24.52	10.98	10.16	61.7	55.0
CIMR-PW2A0169	169	60	20	20	30.08	12.95	11.14	90.2	81.4
CIMR-PW2A0211	211	75	25	25	30.08	12.95	11.14	92.4	83.6
CIMR-PW2A0250	250	100	30	30	37.80	17.95	12.99	191.8	167.6
CIMR-PW2A0312	312	125	40	40	37.80	17.95	12.99	191.8	176.4
CIMR-PW2A0360	360	150	50	50	45.98	19.84	13.78	233.7	216.1
CIMR-PW2A0415	415	175	60	60	45.98	19.84	13.78	233.7	218.3

Reference User Manual for proper drive sizing when using service factors larger than 1.15
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480V - THREE-PHASE MODELS

Model Number	3-Phase Input, 480 V		Single-Phase Input, 240 V; 3-Phase Output, 208-230 V Maximum 1.15 Service Factor		iQpump1000 Dimensions			Weight (lb)	
	Rated Current (A)	Max Capacity (HP)	Without Additional Input Reactor — Max Capacity (HP)	With Additional Reactor — Max Capacity (HP)	Height	Width	Depth	NEMA 1	Protected Chassis
CIMR-PW4A0002_AA	2.1	1	1/3	1/2	12.06	5.51	5.79	7.3	--
CIMR-PW4A0004_AA	4.1	2	3/4	1	12.06	5.51	5.79	7.3	--
CIMR-PW4A0005_AA	5.4	3	1	1.5	12.06	5.51	5.79	7.3	--
CIMR-PW4A0007_AA	6.9	4	1.5	2	12.06	5.51	6.46	8.2	--
CIMR-PW4A0009_AA	8.8	5	2	3	12.06	5.51	6.46	8.2	--
CIMR-PW4A0011_AA	11.1	7.5	2	3	12.06	5.51	6.46	8.2	--
CIMR-PW4A0018_AA	17.5	10	3	3	12.06	5.51	6.57	9.3	--
CIMR-PW4A0023_AA	23	15	3	5	12.06	5.51	6.57	9.3	--
CIMR-PW4A0031_AA	31	20	7.5	7.5	13.38	7.09	6.88	12.5	--
CIMR-PW4A0038_AA	38	25	7.5	10	13.38	7.09	7.36	13.0	--
CIMR-PW4A0044_AA	44	30	10	10	15.47	8.66	7.76	20.1	--
CIMR-PW4A0058_AA	58	40	15	15	18.65	10.37	10.16	50.6	50.6
CIMR-PW4A0072_AA	72	50	20	20	20.62	11.35	10.16	59.4	59.4
CIMR-PW4A0088_AA	88	60	20	20	25.16	13.32	10.27	85.8	79.2
CIMR-PW4A0103_AA	103	75	20	20	25.16	13.32	10.27	85.8	79.2
CIMR-PW4A0139_AA	139	100	40	40	30.08	12.95	11.14	99.0	90.2
CIMR-PW4A0165_AA	165	125	40	40	30.08	12.95	11.14	101	92.4
CIMR-PW4A0208_AA	208	150	50	50	37.80	17.95	12.99	191	174
CIMR-PW4A0250_AA	250	200	60	60	45.98	19.84	13.78	233	211
CIMR-PW4A0296_AA	296	250	60	75	45.98	19.84	13.78	246	224
CIMR-PW4A0362_AA	362	300	75	100	45.98	19.84	13.78	257	235
CIMR-PW4A0414_AA UUX000861[C]	414	350	125	125	48.3	20.29	14.68	292	275
CIMR-PW4A0515_AA UUX000862[C]	515	400	125	125	61.3	26.86	14.72	504	475
CIMR-PW4A0675_AA UUX000863[C]	675	500 - 550	150	150	61.3	26.86	14.72	515	486
CIMR-PW4A0930_AA	930	600 - 800	Consult Yaskawa Factory		80.4	50.2	14.73	1394	1195
CIMR-PW4A1200_AA	1200	900 - 1000	Consult Yaskawa Factory		80.4	50.2	14.73	1420	1221

Reference User Manual for proper drive sizing when using service factors larger than 1.15
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600V - THREE-PHASE MODELS

Model Number	3-Phase Input, 600 V		Single-Phase Input, 240 V; 3-Phase Output, 208-230 V Maximum 1.15 Service Factor		iQpump1000 Dimensions			Weight (lb)	
	Rated Current (A)	Max Capacity (HP)	Without Additional Input Reactor — Max Capacity (HP)	With Additional Reactor — Max Capacity (HP)	Height	Width	Depth	NEMA 1	Protected Chassis
CIMR-PW5A0003_AA	2.7	1 & 2	1	1.5	12.06	5.51	5.79	7.3	--
CIMR-PW5A0004_AA	3.9	3	1.5	2	12.06	5.51	5.79	7.3	--
CIMR-PW5A0006_AA	6.1	5	2	3	12.06	5.51	6.46	8.2	--
CIMR-PW5A0009_AA	9	7.5	3	5	12.06	5.51	6.46	8.2	--
CIMR-PW5A0011_AA	11	10	2	3	12.06	5.51	6.57	9.3	--
CIMR-PW5A0017_AA	17.5	15	5	5	13.38	7.09	7.36	13.0	--
CIMR-PW5A0022_AA	22	20	5	7.5	13.38	7.09	7.36	13.0	--
CIMR-PW5A0027_AA	27	25	7.5	10	15.47	8.66	7.76	20.1	--
CIMR-PW5A0032_AA	32	30	7.5	10	15.47	8.66	7.76	20.1	--
CIMR-PW5A0041_AA	41	40	15	15	20.62	11.35	10.16	59.4	59.4
CIMR-PW5A0052_AA	52	50	15	15	20.62	11.35	10.16	59.4	59.4
CIMR-PW5A0062_AA	62	60	25	25	30.08	12.95	11.14	99.0	90.2
CIMR-PW5A0077_AA	77	75	30	30	30.08	12.95	11.14	99.0	90.2
CIMR-PW5A0099_AA	99	100	30	30	30.08	12.95	11.14	99.0	90.2
CIMR-PW5A0125_AA	125	125	50	50	37.80	17.95	12.99	191	174
CIMR-PW5A0145_AA	145	150	50	50	37.80	17.95	12.99	191	174
CIMR-PW5A0192_AA	192	200	75	75	45.98	19.84	13.78	233	235
CIMR-PW5A0242_AA	242	250	75	75	45.98	19.84	13.78	257	235

Reference User Manual for proper drive sizing when using service factors larger than 1.15
When two or more drives in the same voltage class have the same power rating any drive with that rating can be selected

Yaskawa is the leading global manufacturer of low and medium voltage variable frequency drives, servo systems, machine controllers and industrial robots. Our standard products, as well as tailor-made solutions, are well known and have a high reputation for outstanding quality and reliability.

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