

# AQUAVAR<sup>®</sup> CPC





# Introduction

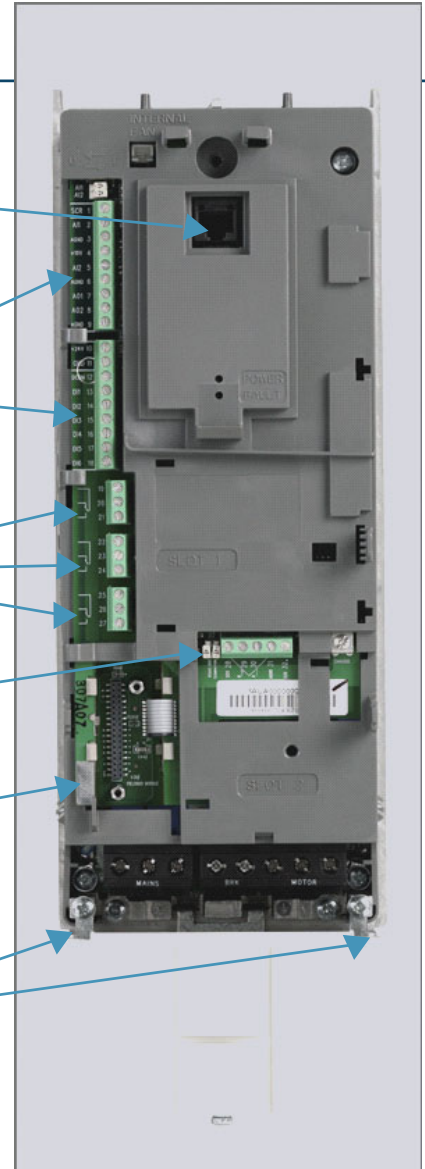
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The **Aquavar® CPC** (Centrifugal Pump Controller) from G&L Pumps incorporates the latest state-of-the-art Aquavar technology. The Aquavar CPC is a variable frequency drive and pump specific PLC in one compact unit, that will vary the speed of the motor to maintain a consistent pressure, flow, temperature or level. Here are just a few of the features and benefits of this innovative product:

- ◆ Compatible with previous versions of Aquavar, using version 120 software.
- ◆ Start-up “wizards” expedite the programming process, for specific applications.
- ◆ Removable control panel/display.
- ◆ Fully backlit display with large text makes the control pad easy to read.
- ◆ Dedicated help key activates parameter descriptions to enable an easy reference to the programming guide.
- ◆ Transducer assembly (0-300 psi) included for constant pressure.
- ◆ Helps protect the pump from cavitation, dead head and blocked suction.
- ◆ Helps protect the motor from short circuit, phase loss, overload, undervoltage, overvoltage.
- ◆ Help key activates parameter descriptions to aid in the programming process.
- ◆ Input choke reduces harmonics and provides 3-5% impedance line reactor. Built in!
- ◆ EMC/RFI filters reduces drive noise emissions and interference.
- ◆ Preventative maintenance reminders.
- ◆ Fault logger records the last 3 faults and drive characteristics at the time of fault.
- ◆ Detachable conduit box allows more space for incoming power and motor wiring.
- ◆ Fieldbus compatible, standard Modbus® Protocol (SCADA).
- ◆ Capable of controlling up to 3 fixed speed pumps, with one drive.
- ◆ Multipump control for up to 4 pumps, without additional PLC’s or control panels.
- ◆ Auto lead/lag and switching control built in.
- ◆ Two point pressure controls.
- ◆ Priming delay feature.
- ◆ Energy savings versus standard fixed speed system.

# Layout

- ◆ Port for quickly inserting / removing control panel.
- ◆ Easy to access terminal block for control wiring of transducer and other peripheral devices.
- ◆ Relay outputs to provide control wiring for up to three fixed speed pumps (**Note:** slave pumps require their own starters).
- ◆ Multipump RS 485 connection.
- ◆ Port for optional fieldbus communication cards (Modbus® included as standard).
- ◆ Conduit box is quickly removed with two screws providing easy access to main power and motor connections.



- ◆ Backlit display with large, easy-to-read characters.
- ◆ Cell phone style keypad allows the user to quickly change parameters and save modifications.
- ◆ Help key enables onboard parameter explanation to expedite the programming process.



# Product Overview

## Ratings and Enclosures

- ◆ NEMA 1 (indoor use) standard other enclosures are available upon request.
- ◆ 1 – 150 HP (frame R1 – R6) wall mounted.  
200 – 550 HP (frame R7 and R8) floor mounted.
- ◆ Ambient temperature 5° F – 104° F. Higher temperatures can be achieved using optional enclosure upgrades and derating factor for up to 122° F.
- ◆ At altitudes from 0 to 3300 feet rated current is available, for every 328 feet above 3300 feet the current must be derated 1%. Maximum 6600 feet (consult factory above 6600 feet).
- ◆ Relative humidity lower than 95% without condensation.
- ◆ UL 508C compliant. UL, cUL, CE approved.

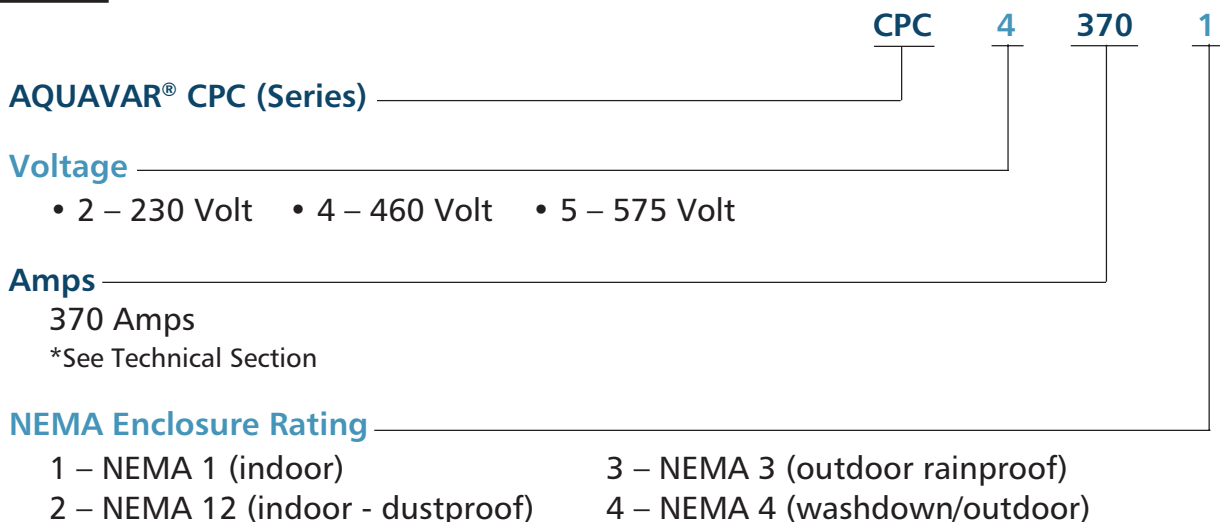
## Electrical Characteristics

**Input Power** – 3 phase 380 V to 480 V +10%/-15% – Frequency 48 to 63 Hz  
– 1 phase 208 V to 240 V +10%/-15% – .98 power factor  
– 3 phase 208 V to 240 V +10%/-15%

**Output Power** – 3 phase from 0 to  $V_{supply}$  (All motors must be 3 phase.)  
– 0 to 60 Hz frequency

# Model Number Interpretation

## Type Code



## Options

- Field Bus Card (requires part numbers)
- Fused Disconnect (requires part numbers)
- Load Reactor

\* Consult factory for other options, if available. Not all combinations may be available.

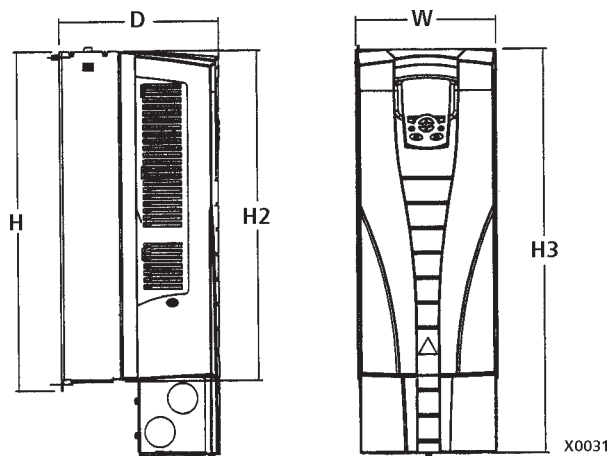
# Weights and Dimensions

## Frame Sizes R1 through R6 (see product chart for horsepower)

The dimensions and mass for the AQUAVAR depend on the frame size and enclosure type. If unsure of frame size, first, find the "Type" code on the drive labels. Then look up that type code in the "Technical Data", to determine the frame size. A complete set of dimensional drawings for AQUAVAR drives is located in the Technical Reference section.

### Units with UL Type 1 Enclosures

#### Outside Dimensions



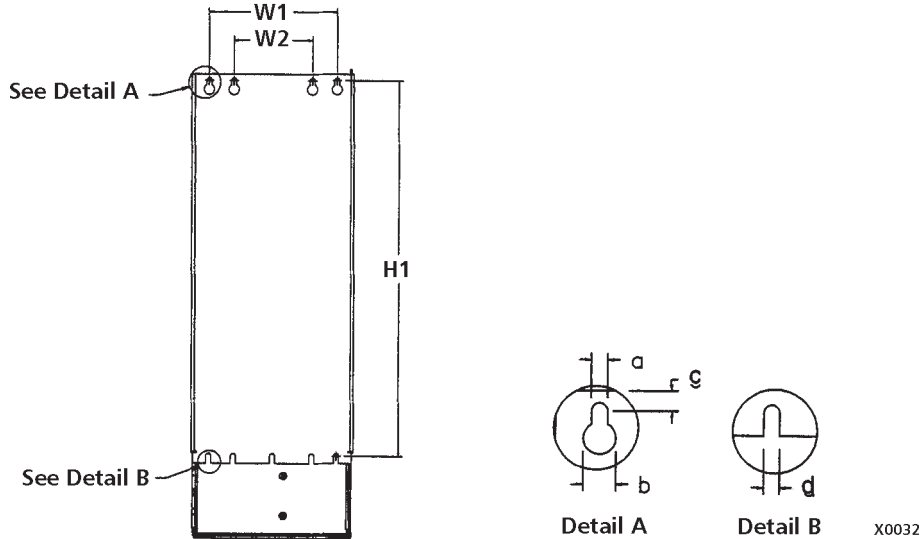
UL Type 1 – Dimensions for each Frame Size												
Ref.	R1		R2		R3		R4		R5		R6	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
W	125	4.9	125	4.9	203	8.0	203	8.0	265	10.4	300	11.8
H	330	13.0	430	16.9	490	19.3	596	23.4	602	23.7	700	27.6
H2	315	12.4	415	16.3	478	18.8	583	23.0	578	22.8	698	27.5
H3	369	14.5	469	18.5	583	23.0	689	27.1	739	29.1	880	34.6
D	212	8.3	222	8.7	231	9.1	262	10.3	286	11.3	400	15.8

**NOTE:** Enclosures are standard NEMA 1, indoor use only.

# Weights and Dimensions

## Frame Sizes R1 through R6 (see product chart for horsepower)

### Mounting Dimensions



UL Type 1 – Dimensions for each Frame Size

Ref.	R1		R2		R3		R4		R5		R6	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
W1*	98.0	3.9	98.0	3.9	160	6.3	160	6.3	238	9.4	263	10.4
W2*	—	—	—	—	98.0	3.9	98.0	3.9	—	—	—	—
H1*	318	12.5	418	16.4	473	18.6	578	22.8	588	23.2	675	26.6
a	5.5	0.2	5.5	0.2	6.5	0.25	6.5	0.25	6.5	0.25	9.0	0.35
b	10.0	0.4	10.0	0.4	13.0	0.5	13.0	0.5	14.0	0.55	14.0	0.55
c	5.5	0.2	5.5	0.2	8.0	0.3	8.0	0.3	8.5	0.3	8.5	0.3
d	5.5	0.2	5.5	0.2	6.5	0.25	6.5	0.25	6.5	0.25	9.0	0.35

\* Center to center dimension.

### Weight

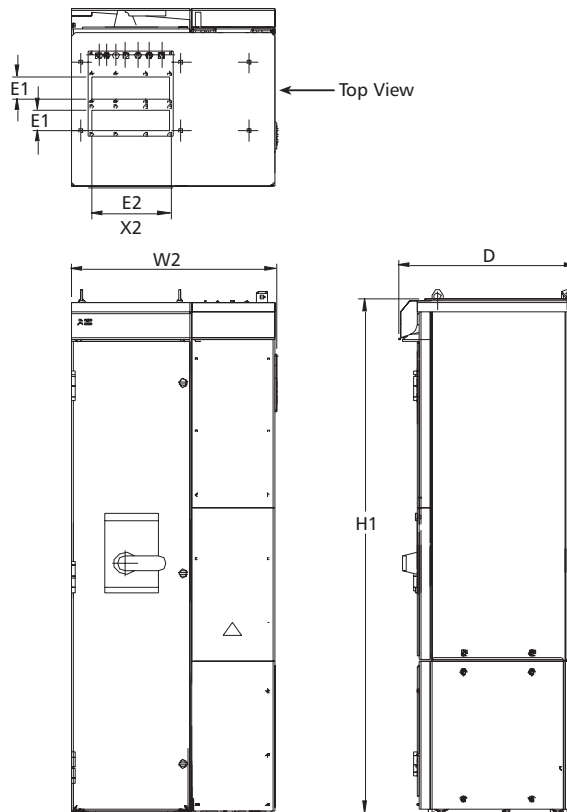
UL Type 1 – Weight for each Frame Size

R1		R2		R3		R4		R5		R6	
kg	lb.	kg	lb.	kg	lb.	kg	lb.	kg	lb.	kg	lb.
6.1	13.4	8.9	19.5	14.7	32.4	22.8	50.2	37	82	78	176



# Weights and Dimensions

## Frame Sizes R7 and R8 (see product chart for horsepower)



NEMA 1 Enclosure												
Frame	H1		W2		Depth		Weight		E1		E2	
	mm	in	mm	in	mm	in	kg	lb.	mm	in	mm	in
R7	1503	59.17	609	23.98	495	19.49	195	430	92	3.62	250	9.84
R8	2130	83.86	800	31.5	585	23.03	375	827	92	3.62	250	9.84

Drawing is not for engineering purposes.

**NOTE:** Fusible disconnect included for 200 through 550 HP.

## Product Chart

INPUT VOLTAGE	INPUT PHASE	NEMA 1 BASE MODEL	Cont. Output Amps Normal Duty ①	NORMAL DUTY HORSEPOWER ②	Frame Size
230	1	CPC20171	8.5	2	R1
		CPC20241	12	3	R2
		CPC20311	15.5	5	R2
		CPC20461	23	7.5	R3
		CPC20591	29.5	10	R3
		CPC20881	44.0	15	R4
		CPC21141	57.0	20	R4
		CPC21431	71.5	25	R6
		CPC21781	89.0	30	R6
		CPC22211	110.5	40	R6
		CPC22481	124.0	50	R6
230	3	CPC20121	11.8	3	R1
		CPC20171	16.7	5	R1
		CPC20241	24.2	7.5	R2
		CPC20311	30.8	10	R2
		CPC20461	46.2	15	R3
		CPC20591	59.4	20	R3
		CPC20751	74.8	25	R4
		CPC20881	88.0	30	R4
		CPC21141	114.0	40	R4
		CPC21431	143.0	50	R6
		CPC21781	178.0	60	R6
		CPC22211	221.0	75	R6
		CPC22481	248.0	100	R6
460	3	CPC40061	6.9	3	R1
		CPC40081	8.8	5	R1
		CPC40121	11.9	7.5	R1
		CPC40151	15.4	10	R2
		CPC40231	23	15	R2
		CPC40311	31	20	R3
		CPC40381	38	25	R3
		CPC40441	44	30	R4
		CPC40591	59	40	R4
		CPC40721	72	50	R4
		CPC40771	77	60	R5
		CPC40961	96	75	R5
		CPC41241	124	100	R6
		CPC41571	157	125	R6
		CPC41801	180	150	R6
		CPC42451	245	200	R7
		CPC43161	316	250	R7
		CPC43681	368	300	R8
		CPC44141	414	350	R8
		CPC44861	486	400	R8
CPC45261	526	450	R8		
CPC46021	602	500	R8		
CPC46451	645	550	R8		

① NOTE: Drive output is 3 phase voltage.

② ALWAYS consult motor maximum amp rating before selecting drive.

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