ITT

BAQUACPC

Commercial Water

Goulds Pumps

Aquavar® CPC Variable Speed Centrifugal Pump Controller

GOULDS PUMPS

Goulds Pumps is a brand of ITT Corporation.

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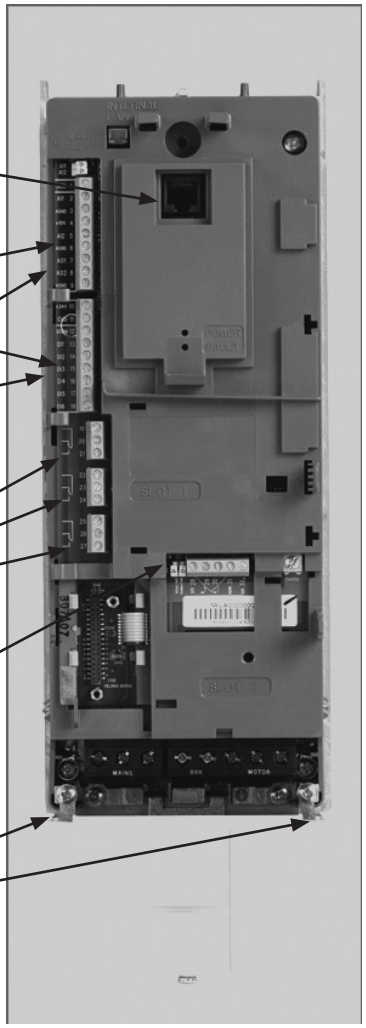
Introduction

The **Aquavar® CPC** (Centrifugal Pump Controller) from Goulds Pumps incorporates the latest state-of-the-art Aquavar technology, with over 10 years of experience providing variable speed pump controllers. 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:

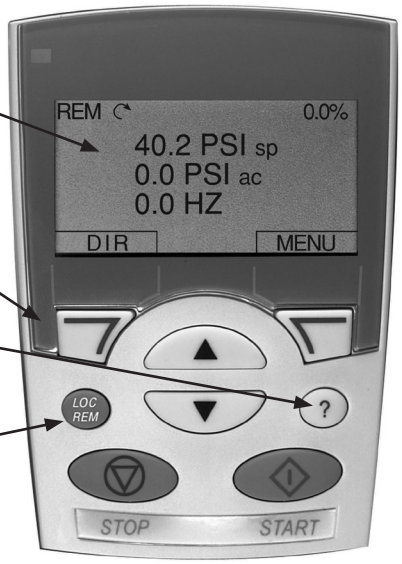
- Compatible with previous versions of Aquavar, using version 120 software.
- Start-up "wizards" expedite the programming process, for specific applications.
- Removable control panel/display.
- Fully backlit display with large text makes the control pad easy to read.
- Dedicated help key activates parameter descriptions to enable an easy reference to the programming guide.
- Transducer assembly (0-300 psi) and 30-foot shielded cable 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.
- Integrated line choke reduces harmonics and provides 3-5% impedence line reactor.
- 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. Onboard energy calculator.

Layout

- Port for quickly inserting / removing control panel (keypad).
- Easy to access terminal block for control wiring of transducer and other peripheral devices.
- Analog and digital inputs and outputs for start/stop, speed control, monitoring, etc.
- Relay outputs to provide control wiring for up to three fixed speed pumps (Note: fixed speed pumps require their own starters).
- Multipump RS 485 connection. Connect up to 4 pumps without additional PLCs!
- Conduit box is quickly removed with two screws providing easy access to main power and wiring terminals.



- 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.
- Local/Remote allows operator to run motor at full speed manual control or via transducer.



Product Chart

INPUT VOLTAGE	INPUT PHASE	NEMA 1 BASE MODEL	Cont. Output Amps Normal Duty ①	NORMAL DUTY HORSEPOWER ②	Frame Size
230	1	CPC20071	3.5	1	R1
		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	CPC20041	4.6	1	R1
		CPC20071	7.5	2	R1
		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
		CPC40451	45	30	R3
		CPC40591	59	40	R4
		CPC40721	72	50	R4
		CPC40781	78	60	R4
		CPC40971	97	75	R4
		CPC41251	125	100	R5
		CPC41571	157	125	R6
		CPC41801	180	150	R6
		CPC42451	246	200	R6
		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
575	3	CPC50031	2.7	2	R2
		CPC50041	3.9	3	R2
		CPC50061	6.1	5	R2
		CPC50091	9	7.5	R2
		CPC50111	11	10	R2
		CPC50171	17	15	R2
		CPC50221	22	20	R2
		CPC50271	27	25	R3
		CPC50321	32	30	R4
		CPC50411	41	40	R4
		CPC50521	52	50	R4
		CPC50621	62	60	R4
		CPC50771	77	75	R6
		CPC50991	99	100	R6
		CPC51251	125	125	R6
		CPC51441	144	150	R6

① **NOTE:** Drive output is 3 phase voltage. ② **ALWAYS** consult motor maximum amp rating before selecting drive.

Specifications

Ratings and Enclosures

- NEMA 1 (indoor use) standard; other enclosures are available upon request.
- 1 – 200 HP (frame R1 – R6) wall mounted; 250 – 550 HP (frame R7 and R8) floor mounted.
- Ambient temperature 5º F – 104º F. Higher temperatures can be achieved using optional enclosure upgrades and derating factor for up to 122º 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 approved.

Electrical Characteristics

Input Power

– 3 phase 380 V to 480 V +10%/-15%
– 1 phase 208 V to 240 V +10%/-15%
– 3 phase 208 V to 240 V +10%/-15%
– 3 phase 575 V +10%/-15%
– Frequency 48 to 63 Hz
– .98 power factor

Output Power

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

Nomenclature

TYPE CODE

CPC 4 370 1

AQUAVAR® CPC (Series)

Voltage
- 2 – 230 Volt
- 4 – 460 Volt
- 5 – 575 Volt

Amps
370 Amps *See Technical Section

NEMA Enclosure Rating
1 – NEMA 1 (indoor)
2 – NEMA 12 (indoor - dustproof)

Options
– Load Reactor
– Fused Disconnect

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

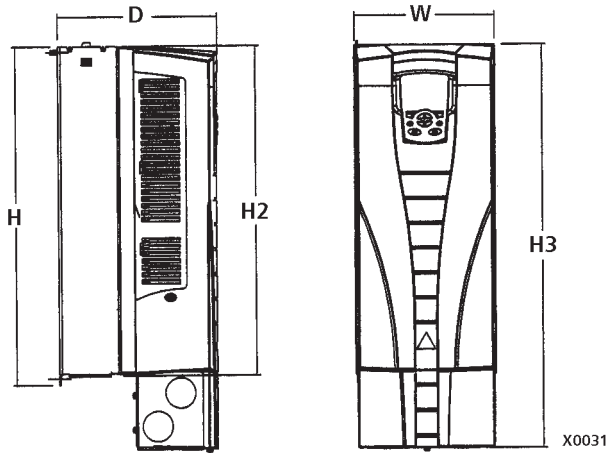
Weights and Dimensions

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

The dimensions and weight 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 of the IOM (Installation, Operation Manual).

Units with UL Type 1 Enclosures

Outside Dimensions



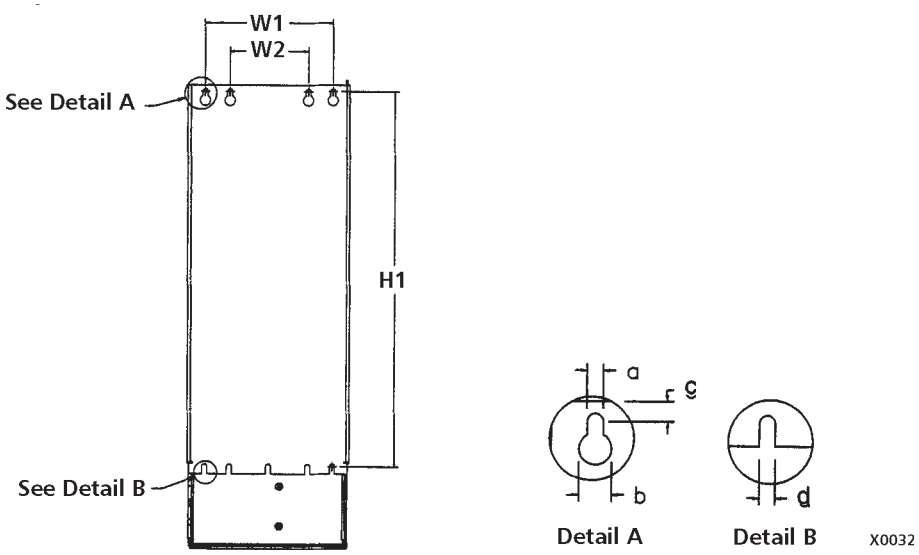
UL Type 1 – Dimensions for each Frame Size												
Ref.	R1		R2		R3		R4		R5		R6	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
W	125	4.9	125	4.9	203	8.0	203	8.0	265	10.4	300	11.8
H	330	13.0	430	16.9	490	19.3	596	23.4	602	23.7	700	27.6
H2	315	12.4	415	16.3	478	18.8	583	23.0	578	22.8	698	27.5
H3	369	14.5	469	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.*
For outdoor, NEMA 3R enclosures, consult factory.

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

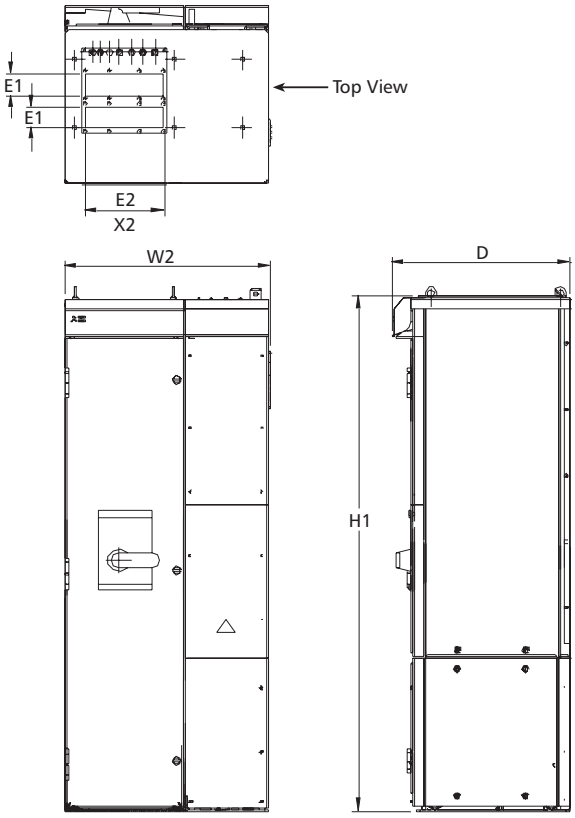
* Center to center dimension.

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.*

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