

CARRY STAINLESS STEEL AXIAL-FLOW SUBMERSIBLE PUMP

CP10 SERIES - 3 PHASE OWNERS MANUAL



**Carry Manufacturing, Inc. · 1360 Prospect Ave. · Caro, MI 48723
www.carrypumps.com · 800-492-2779 · sales@carrypumps.com**



**CP10 SERIES - 3 PHASE HIGH VOLUME STAINLESS STEEL
VERTICAL AXIAL-FLOW SUBMERSIBLE PUMP
MODEL NUMBER EXPLANATION**

2018 MODEL NUMBER

EXAMPLE: CP10-0200-233-X

GENERAL DESCRIPTION:

CP10 = Carry High-Volume Pump with Impeller

HORSEPOWER:

0200 = 20 Horsepower

0250 = 25 Horsepower

0300 = 30 Horsepower

VOLTAGE/PHASE:

233 = 230 Volt/3 Phase

463 = 460 Volt/3 Phase

IMPELLER PITCH:

X = [10] = 10° Impeller

 [12.5] = 12.5° Impeller

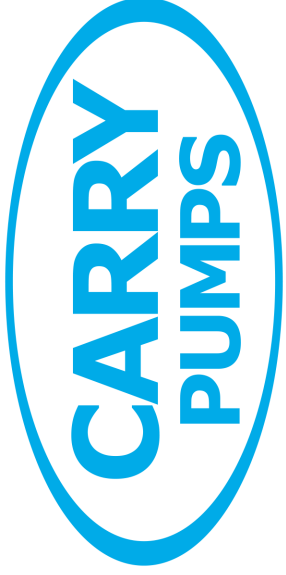
 [14] = 14° Impeller

 [18] = 18° Impeller

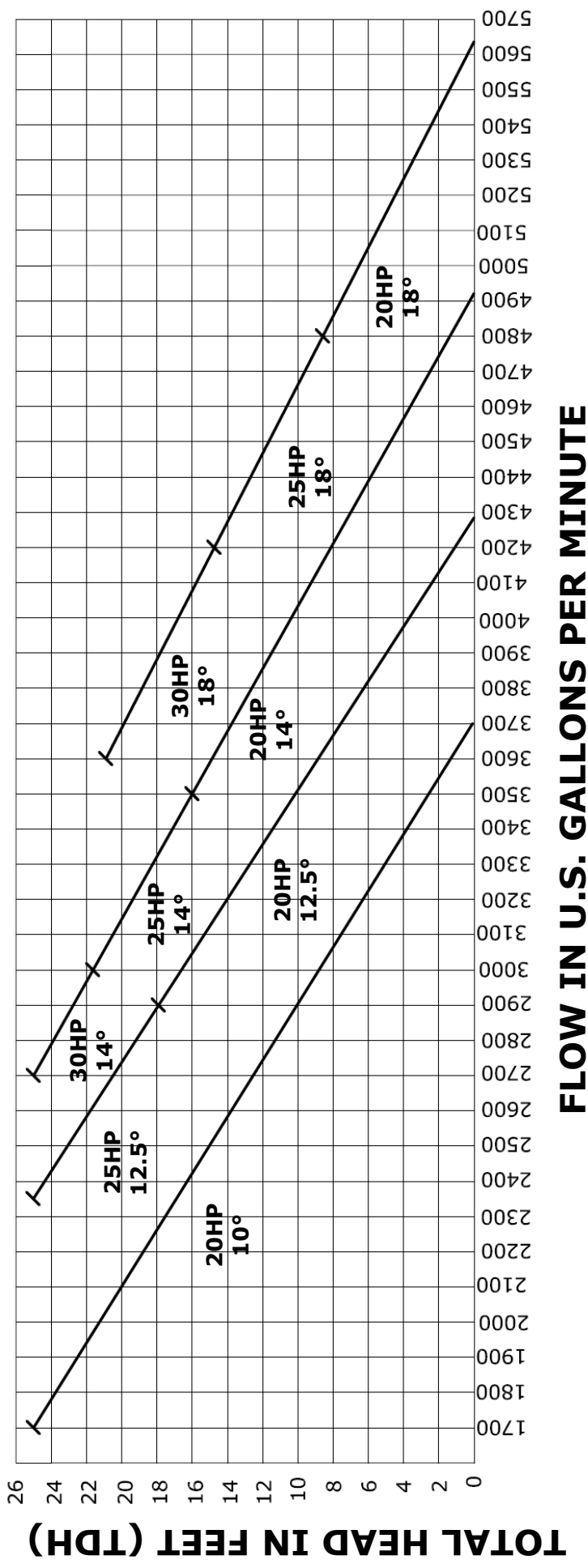
(chosen from pump curve chart)

PLEASE NOTE: All Carry CP10 Pumps come standard with a 30' power lead. Additional length may be added and is priced per foot.

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CP10 SERIES - 3 PHASE SUBMERSIBLE PUMP CURVES

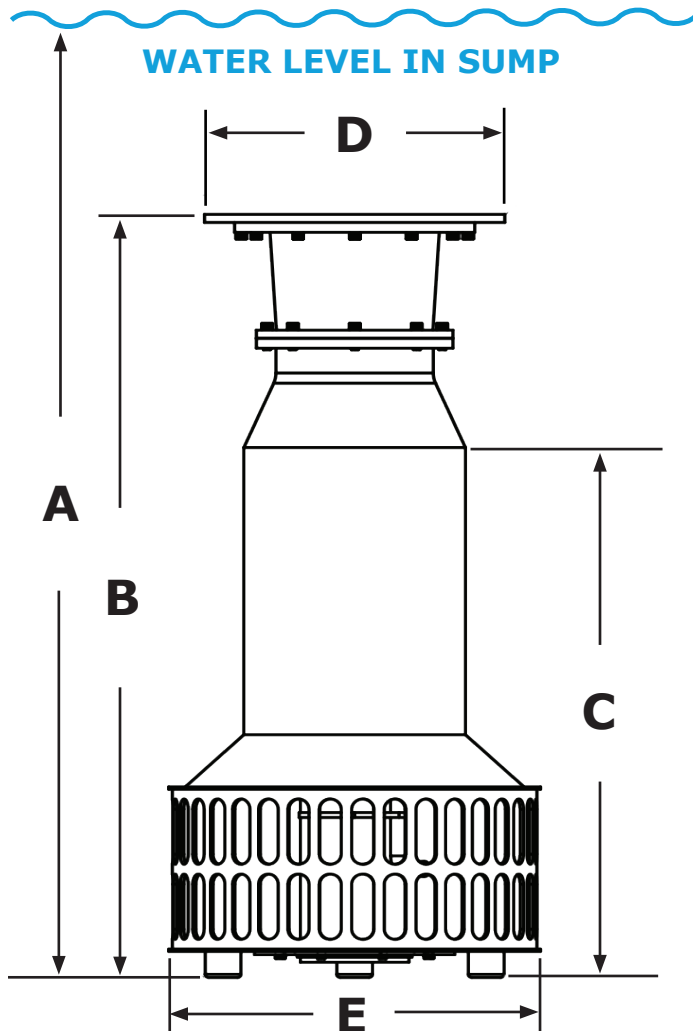


PLOT YOUR POINT: Follow the flow in U.S. gallons per minute required horizontally on the chart to your Gallons per Minute required; then follow up to your Total Dynamic Head required for your application.

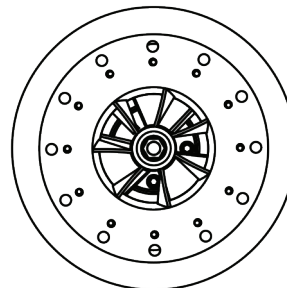
The location of the point plotted on the chart determines the horsepower of pump and the degree of impeller required.



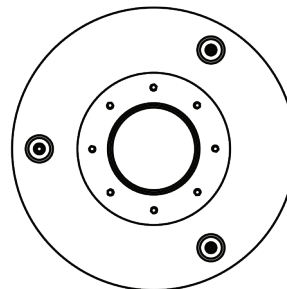
CP10 SERIES PUMP SPECIFICATIONS



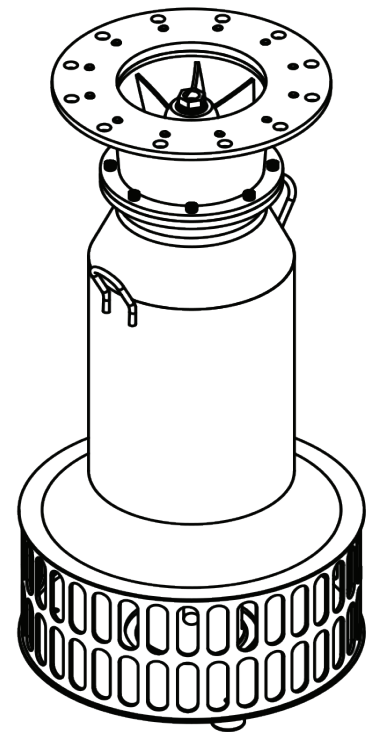
**14" DISCHARGE RECOMMENDED
FOR BEST PERFORMANCE**



TOP VIEW



BOTTOM VIEW



HP	(A) MINIMUM WATER PUMP ON	(B) OVERALL HEIGHT	(C) MINIMUM WATER PUMP OFF	(D) 14" ANSI FLANGE DIAMETER	(E) OVERALL DIAMETER	WEIGHT
20	64"	54"	34"	21"	26"	700 LBS
25	67"	57"	37"	21"	26"	730 LBS
30	70"	60"	40"	21"	26"	765 LBS



VFD PARAMETERS REQUIRED FOR NON-CARRY PUMPS VFDS USED TO OPERATE CP10 SERIES CARRY PUMPS

20 HP - 25 HP - 30 HP

- **460V MOTOR FULL LOAD AMPS**

20HP/460V: 28.0 Amps

25HP/460V: 34.0 Amps

30HP/460V: 40.0 Amps

- **230V MOTOR FULL LOAD AMPS**

20HP/230V: 58.0 Amps

25HP/230V: 70.0 Amps

30HP/230V: 80.0 Amps

- MOTOR RPM : 1,800
- MOTOR VOLTAGE: Enter the rated voltage from the motor nameplate.
- ACCEL TIME: 1 Second
- DECEL TIME: 1 Second
- LOW FREQUENCY LIMIT: 30 Hz (*MINIMUM*)
- HIGH FREQUENCY LIMIT: 60 Hz (*MAXIMUM*)
- INPUT PHASE: Single Phase or Three Phase
- LOAD ROTATION: FORWARD ONLY (The impeller may only turn counterclockwise when forward is enabled). Running pump in reverse may cause **CATASTROPHIC MOTOR FAILURE**.
- UNDERLOAD LEVEL: 40 Percent
- HIGH LOAD LEVEL: 110 Percent
- OVERCURRENT LIMIT OR STALL EVENT: 100 Percent

**** CAUTION ****

WHEN USING SINGLE PHASE IN, the VFD MUST BE sized up by **** AT LEAST **** TWO TIMES the motor rating. Always confirm the specific derating factor with the VFD manufacturer's guidelines.

**** WARNING ****

- MOTOR LEADS EXCEEDING 50 FT **** REQUIRE **** A LOAD REACTOR
- MOTOR LEADS EXCEEDING 100 FT **** REQUIRE **** A DV/DT FILTER



CAUTION

Motor must be phased to ensure proper rotation

PHASING THE MOTOR

- 3 Phase motors are capable of running in both forward and reverse, so the pump can pump water both directions.
- If wired incorrectly, the pump will run in the reverse direction, pumping little water.

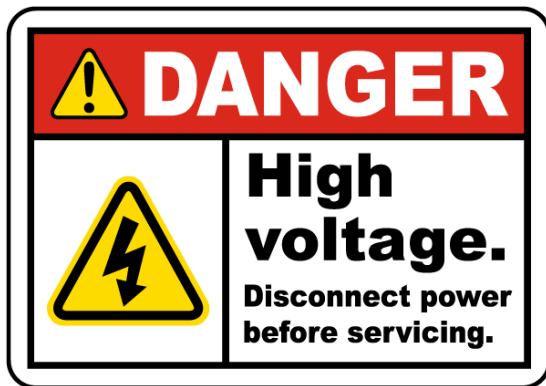
Continuously running the pump in reverse will cause premature motor failure that is not covered by warranty.

- When wired correctly, there will be a measurable increase in the amount of water pumped.
- Swapping any two red, yellow, or black wire connections will reverse the direction the motor is running.
- When in doubt, reverse any two red, yellow, or black wire connections and compare the water flow to determine the correct wiring configuration.



8" SAER MOTORS 3 PHASE SUBMERSIBLE MOTOR SPECIFICATIONS & TESTING PARAMETERS

HORSEPOWER MOTOR DIA. MAKE & RPM	VOLTS	PHASE	Hz	SERVICE FACTOR	FULL LOAD AMPS	MAX LOAD AMPS	LINE to LINE RESISTANCE IN OHMS	LOCKED ROTOR AMPS
20 HP 8" SAER 1800 RPM	230V	3 PH	60 Hz	1.15	58.0	66.7	0.10 - 0.30	N/A
	460V				28.0	32.0	0.90 - 1.1	N/A
25 HP 8" SAER 1800 RPM	230V	3 PH	60 Hz	1.15	70.0	80.5	0.22 - 0.26	N/A
	460V				34.0	40.0	0.87 - 1.07	N/A
30 HP 8" SAER 1800 RPM	230V	3 PH	60 Hz	1.15	80.0	92.0	0.13 - 0.33	N/A
	460V				40.0	45.0	0.70 - 0.90	N/A



IMPORTANT

- ✓ **DO NOT** test Winding resistance with the motor connected to the Control Box or Variable Frequency Drive (VFD).
- ✓ Test the windings by using a Multimeter or Ohmmeter to measure Ohms (Resistance) between Yellow or White to Red, Yellow or White to Black, and Red to Black.
- ✓ Resistance measured between any combination of wires should be a similar value.
- ✓ A bound pump will cause locked rotor amps and over-current fault/shut down. Check for obstructions in the pump and/or the amps on the Black wire at start-up.

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General Recommendations for SAER SUBMERSIBLE INVERTER DUTY MOTORS

SAER MS SERIES WATER-FILLED SUBMERSIBLE MOTORS

INSTALLATION

- Vertical installation only is highly recommended.
- Motor must be completely submersed in water that is completely free-flowing to ensure adequate cooling of internal components.

OPERATING FREQUENCY LIMITS

- Maximum working frequency should never exceed the nominal frequency of the motor.
- Minimum frequency should be calculated to ensure motor cooling and should never be lower than 30Hz.
- Operating at less than 30Hz can cause serious damage to thrust bearings, bushings, and motor windings.

START

- Starting ramp should last approximately 4-6 seconds (from start to reaching the minimum operating frequency of 30Hz)
- A starting ramp that is too short can cause a water hammer on the plant.
- A starting ramp that is too long can cause damage to the motor.

FREQUENCY VARIATION LIMITS PER MINUTE

- Max number of frequency variations in a minute = 6

STOP

Stopping can be achieved in two ways:

- Taking away the power source so that the motor stops by inertia. The inertia method safeguards the motor but can cause the appearance of water hammers.
- Setting a stopping ramp to slowly stop the motor

SERVICE FACTOR

- Variations in power supply voltage must be +/- 5% of the nominal value
- Service factor = 1.15 for 60Hz motors.



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TERMS, PAYMENT & INVOICING

Standard payment terms are NET 30 days from the date of invoice for approved accounts. Customers who do not have an approved account must prepay prior to order being shipped. Retaining a percentage of the contract sale amount is prohibited without prior, written agreement. Payment must be made in U.S. Funds. An invoice will be rendered as of the date product is ready for shipment. A service fee of 1-1/2% per month on all invoices over 30 days past due will be imposed. In the event of any default by the Purchaser, Carry Pumps, Inc. shall have the right to repossess the product as well as all other rights afforded to a conditional seller under the provisions of the Uniform Conditional Sales Act and any other applicable laws.

STANDARD WARRANTY AND CONDITIONS OF SALE

LIMITED WARRANTY: CARRY PUMPS, INC. warrants the product sold by it to be free from defects in materials and workmanship for a period of one (1) year from the date of purchase.

WARRANTY DISCLAIMER: *This warranty does not apply to pumps sold without compatible Carry electrical controls, horizontal pumps, and/or if the product is used in saltwater, aquaculture (fish farming), water feature applications, continuous-duty use (24/7 operation), or to pumps that have been subject to misuse (including use in a manner inconsistent with the design of the pump), abuse, neglect, accident or improper installation or maintenance, or to pumps that have been altered or repaired by anyone other than CARRY PUMPS, INC.* The warranties in this agreement are in lieu of all other warranties, express or implied, including without limitation, any warranties of merchantability or fitness for a particular purpose, said warranties being expressly disclaimed.

WARRANTY AMENDMENTS: Prior or subsequent courses of dealing, trade usage and verbal agreements not reduced to a writing signed by CARRY PUMPS, INC., to the extent they differ from, modify, add to or detract from this warranty shall not be binding upon CARRY PUMPS, INC.. There are no agreements, promises or understandings, either verbal or written, that are not fully expressed in this warranty. No statements, recommendations or assistance by either party have been relied upon by either party nor shall they be relied upon and shall not constitute a waiver by either party of any of the provisions hereof. This warranty may be amended or altered only if agreed to in writing signed by CARRY PUMPS, INC.

LIMITED REMEDY: CARRY PUMPS, INC. and Purchaser agree the repair or replacement of the pump at issue is a commercially reasonable allocation of risk and, therefore, Purchaser agrees that its sole and exclusive remedy against CARRY PUMPS, INC. shall be limited to the repair or replacement of the pump at issue. This exclusive remedy shall not be deemed to have failed of its essential purpose so long as CARRY PUMPS, INC. is willing and able to repair or replace the pump at issue. In the event CARRY PUMPS, INC. is unable to repair or replace the pump at issue in a manner acceptable to purchaser, or in the event it shall be determined by a court having jurisdiction thereof that any provisions of this warranty are unconscionable or fail in its essential purpose, then the maximum liability of CARRY PUMPS, INC. shall be that as set forth in the paragraph next following entitled "Limitation on Liability".

STANDARD WARRANTY AND CONDITIONS OF SALE

LIMITATION ON LIABILITY: CARRY PUMPS, INC. shall not be liable for any loss, damage or injury resulting from delay in delivery or installation of the pump or for any failure to perform which is due to circumstances beyond its control. CARRY PUMPS, INC. and Purchaser agree it is a commercially reasonable allocation of risk that the maximum liability, if any, of CARRY PUMPS, INC. for all damages, including without limitation contract damages and damages for injuries to persons or property, whether arising from CARRY PUMPS, INC.' breach of this agreement, breach of warranty, negligence, strict liability or other tort, is limited to an amount not to exceed the purchase price of the pump at issue in the dispute and said liability is so limited. In no event shall CARRY PUMPS, INC. be liable to Purchaser for any incidental, consequential or special damages, including without limitation, lost revenues and profits, even if it has been advised of the possibility of such damages.

WARRANTY CLAIM PROCEDURE: This warranty is valid only if the following conditions are complied with by the Purchaser: Purchaser shall notify CARRY PUMPS, INC. in writing of the defect in the pump at issue within 30 days of discovery of the defect. The notice shall include with it copies of the proof of purchase and the return receipt signed by a representative of CARRY PUMPS, INC. as provided above. In the event repair or replacement of the pump at issue is approved by CARRY PUMPS, INC., Purchaser shall, upon written notice by CARRY PUMPS, INC. of the approval, return the pump to CARRY PUMPS, INC., freight pre-paid. CARRY PUMPS, INC. will return the repaired or replaced pump to Purchaser, freight prepaid. The repair or replacement of the pump shall not extend the duration of the one-year warranty term.

GOVERNING LAW: This warranty shall be governed and controlled by and enforced in accordance with the laws of the State of Michigan, U.S.A., in all respects.

FORUM: The parties agree they are of equal bargaining power and irrevocably submit to the jurisdiction and venue of the Circuit Court for the County of Tuscola, State of Michigan, or if original jurisdiction can be established, the United States District Court for the Eastern District of Michigan, Northern Division, with respect to any performance or breach of this agreement. The parties hereby stipulate that the venues referenced in this agreement are convenient to each of them.

RETURNS: Authorization and shipping instructions for the return of any product must first be obtained by the Purchaser from CARRY PUMPS, INC. or shipment will be refused. Only unused standard product or materials of current design by CARRY PUMPS, INC. purchased within a will be considered for return. Products are not eligible for return more than 6 months after the initial ship date of the product. Custom products cannot be returned for credit. If the returned product is in sellable condition, a credit memorandum will be issued for the original purchase price, less a minimum restocking charge of 20%. If there are any shipping charges that were paid by Carry Pumps, Inc., the amount of those shipping charges will also be deducted from the credit amount.

GENERAL: These terms and conditions shall constitute a part of any contract which may be entered into and shall not be altered, modified, or added to unless specifically and expressly agreed to in writing by CARRY PUMPS, INC. All oral agreements and representations of CARRY PUMPS, INC. or its representative to the Purchaser shall be embodied in any written contract of which CARRY PUMPS, INC. is a part.