



Single Phase 3-Wire, 1/2-5 HP Motors

60 HZ, 3450 RPM – 1ST GENERATION

Residential Water Systems

FEATURES

- 304 SS casing and end bells for corrosion resistance
- Kingsbury type, 3 shoe, thrust bearing, see chart for ratings.
- Stainless steel, 17-4 PH splined shaft
- Removable, replaceable 48" motor lead on ½ - 2 HP, 100" on 3 and 5 HP
- Water lubricated with filter/check valve to maintain fluid fill
- Lightning and surge protection built-in
- Automatic reset, on-winding thermal overload protection on 3-wire up to 1 HP, 1½ - 5 HP have overloads in control box.

APPLICATIONS

- These 4" motors are designed and sized for installation in 4" diameter or larger water wells.
- Three wire motors are a capacitor start induction run design and require a control box with a starting relay and capacitor.
- Use the CSCR capacitor start/capacitor run control boxes on ½ - 1 HP motors to increase efficiency and motor life and reduce energy consumption.
- The 1½ HP and larger control boxes are all CSCR type.

MATERIALS OF CONSTRUCTION

Part	Material
Motor (Stator) Shell	304 SS
Shaft Extension	17-4 PH hardened SS
Motor End Bells	304 SS Castings
Upper and Lower Bearings	Carbon Sleeve
Thrust Bearing	Kingsbury Type
Overload Protection	Built-in, Auto Reset
Lead Wire	XLPE (14 AWG)
Lead Potting	Epoxy
Lead Connector	18-8 SS
Fasteners	18-8 SS
Sand Slinger / Slinger Seat	NBR / Delrin

- CSA Certified
- NEMA Mounting Dimensions
- Tested to ANSI/NSF 61
- Quick disconnect control boxes with voltage relays for motors up to 1 HP.
- CSCR control boxes available for ½ - 5 HP motors.
- MC (magnetic contactor) control boxes available for 1Ø, 4" motors from 1½ - 5 HP.

AGENCY LISTINGS



Tested by CSA to CSA and UL Standards

SPECIFICATIONS

- **Temperature Rating:** Rated for continuous duty in water of 86° F (30° C) maximum.
- **Cooling:** Proper motor cooling requires a water velocity past the motor of .25'/sec which translates into 1.2 gpm in a 4" casing, 7 gpm in a 5" casing and 13 gpm in a 6" casing.
- **Power Lead (14 AWG):** Removable and replaceable motor leads are held in place by two (2) stainless steel screws for positive compression and sealing. Leads are furnished with motors and are also available as replacement parts.
- **Rotation:** CCW, counterclockwise as you face the top or shaft end of the motor.
- **Control Box:** Required on single phase 3 wire models, available in quick disconnect or more efficient CSCR designs.

FUSE OR CIRCUIT BREAKER AMPS

Type	HP	Volts	Fuse or Circuit Breaker Amps		
			Standard Fuse	Dual Element Time Delay	Circuit Breaker
3-Wire QD (CSIR)	0.5	115	30	20	30
	0.5		15	10	15
	0.75		20	10	20
	1.0		25	15	25
3-Wire CSCR	0.5	230	15	10	10
	0.75		20	10	15
	1.0		20	10	15
	1.5		30	15	25
	2.0		30	20	25
	3.0		45	25	40
	5.0		80	45	60

THREE WIRE, SINGLE PHASE 4" MOTORS - ENGINEERING DATA

Type	Motor Order Number			Volts	Efficiency %		Power Factor %		Thrust Rating	KVA Code
	Goulds	Red Jacket	HP		F.L.	S.F.	F.L.	S.F.		
3-Wire	M05411	50C301	0.5	115	51	59	54	69	700 #	N
	M05412	50C311	0.5		50	58	58	71		M
	M07412	75C311	0.75		55	61	61	72		L
	M10412	100C311	1.0		59	62	66	75		L
	M15412	150C311	1.5		66	67	80	86	J	
	M20412	200C311	2		68	69	96	95	900 #	G
	M30412	300C311	3		72	72	96	97		G
	M50412	500C311	5		71	71	97	98	1500 #	E

3-WIRE 1Ø MOTOR WIRE SIZING CHART

Goulds Motor Lead Lengths - 3 Wire Motors, 1Ø, 4" Motors Based on Service Factor Amps, 30° C Ambient and 5% Voltage Drop																	
Motor Rating					60° C and 75° C Insulation - AWG Copper Wire Size												
HP	Volts	kW	FLA	SFA	14	12	10	8	6	4	3	2	1	1/0	2/0	3/0	4/0
½	115	0.37	11	12.6	87	138	221	349	544	867	1090	1376	1734	2188	2761	3485	4391
½	230	0.37	5.5	6.3	348	553	883	1398	2175	3467	4359	5505	6935	8753	11044	13942	17564
¾		0.55	7.2	8.3	264	420	670	1061	1651	2632	3309	4178	5264	6644	8383	10582	13332
1		0.75	8.4	9.7	226	359	573	908	1413	2252	2831	3575	4504	5685	7173	9055	11408
1½		1.1	9.7	11.1	197	314	501	793	1234	1968	2474	3124	3936	4968	6268	7913	9969
2		1.5	9.9	12.2	180	286	456	722	1123	1790	2251	2843	3581	4520	5703	7199	9070
3		2.2	14.3	16.5	133	211	337	534	830	1324	1664	2102	2648	3342	4217	5323	6706
5		3.7	24	27			206	326	507	809	1017	1284	1618	2042	2577	3253	

Tables based on values from NEC, Tables 310.16 and 310.17 and NEC, Chapter 9, Table 8 Conductor Properties.

NOTE: Motors and control boxes are designed to operate on 230V systems. Systems with low line voltage, between 200 - 207 volts require the next larger cable size than shown in the 230V charts. If using a 3-wire motor with control box on a low voltage application switch to a 208V start relay. The 208V start relay order numbers are found on control box repair part charts in this manual.

Another option is to use a boost transformer to increase voltage.

The 2-wire sizing chart above is only for use with PSC type, 2-wire motors.

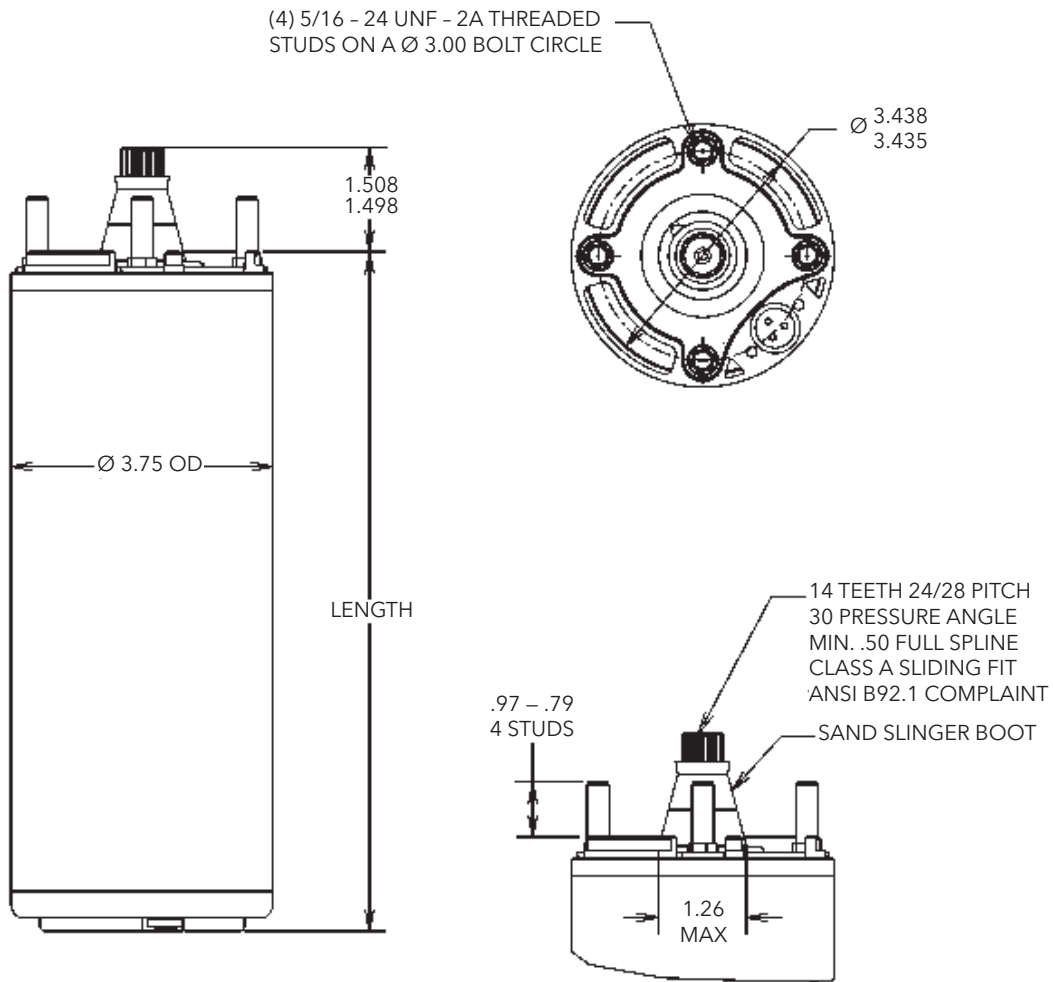
Temperature Conversions: 20° C = 68° F, 30° C = 86° F, 60° C = 140° F, 75° C = 167° F, 90° C = 194° F

THREE WIRE, SINGLE PHASE 4" MOTORS - ELECTRICAL DATA, 60 HERTZ, 3450 RPM

Type	Motor Order No.				Volts	SF	Full Load		Service Factor		Locked Rotor Amps	Winding Resistance		Required Control Box	
	Goulds	Red Jacket	HP	kW			Amps	Watts	Amps	Watts		Main (B-Y)	Start (R-Y)		
3-Wire with Q.D. Cap. Start Box	M05411	50C301	0.5	0.37	115	1.6	Y-11.0 B-11.0 R-0	733	Y-12.6 B-12.6 R-0	1021	49.6	.9-1.6	5.7-7.0	CB05411	
	M05412	50C311	0.5	0.37		1.6	Y-5.5 B-5.5 R-0	745	Y-6.3 B-6.3 R-0	1033	22.3	4.2-4.9	17.4-18.7	CB05412	
	M07412	75C311	0.75	0.55		1.5	Y-7.2 B-7.2 R-0	1014	Y-8.3 B-8.3 R-0	1381	32.0	2.6-3.6	11.8-13.0	CB07412	
	M10412	100C311	1.0	0.75		1.4	Y-8.4 B-8.4 R-0	1267	Y-9.7 B-9.7 R-0	1672	41.2	2.2-3.2	11.3-12.3	CB10412	
3-Wire with CSCR (CR) or Magnetic Contactor (MC) Control Box	M05412	50C311	0.5	0.37		230	1.6	Y-4.1 B-4.1 R-2.2	720	Y-4.9 B-4.4 R-2.1	955	22.3	4.2-4.9	17.4-18.7	CB05412CR
	M07412	75C311	0.75	0.55			1.5	Y-5.1 B-5.0 R-3.2	1000	Y-6.3 B-5.6 R-3.1	1300	32.0	2.6-3.6	11.8-13.0	CB07412CR
	M10412	100C311	1.0	0.75			1.4	Y-6.1 B-5.7 R-3.3	1205	Y-7.2 B-6.3 R-3.3	1530	41.2	2.2-3.2	11.3-12.3	CB10412CR
	M15412	150C311	1.5	1.1			1.3	Y-9.7 B-9.5 R-1.4	1693	Y-11.1 B-11.0 R-1.3	2187	47.8	1.6-2.3	7.9-8.7	CB15412CR or CB15412MC
	M20412	200C311	2	1.5	1.25		Y-9.9 B-9.1 R-2.6	2170	Y-12.2 B-11.7 R-2.6	2660	49.4	1.6-2.2	10.8-12.0	CB20412CR or CB20412MC	
	M30412	300C311	3	2.2	1.15		Y-14.3 B-12.0 R-5.7	3170	Y-16.5 B-13.9 R-5.6	3620	76.4	1.1-1.4	2.0-2.5	CB30412CR or CB30412MC	
	M50412	500C311	5	3.7	1.15		Y-24.0 B-19.1 R-10.2	5300	Y-27.0 B-22.0 R-10.0	6030	101.0	.62-.76	1.36-1.66	CB50412CR or CB50412MC	

WEIGHTS AND DIMENSIONS

Type	Motor Order No.		HP	Volts	Length		Motor Weight	
	Goulds	Red Jacket			Inches	mm	lb.	kg.
3-wire	M05411	50C301	.5	115	10.0	253	18.9	8.6
	M05412	50C311	.5		9.7	246	18.1	8.2
	M07412	75C311	.75		10.8	275	21.4	9.7
	M10412	100C311	1		11.7	297	23.1	10.5
	M15412	150C311	1.5		13.6	345	27.4	12.4
	M20412	200C311	2		15.1	383	31.0	14.1
	M30412	300C311	3		18.3	466	40.0	18.1
	M50412	500C311	5		27.7	703	70.0	31.8



xylem
Let's Solve Water

Xylem Inc.
Phone: (866) 325-4210
Fax: (888) 322-5877

www.xylem.com/goulds

Xylem is a registered trademark of Xylem Inc. or one of its subsidiaries. Goulds is a registered trademark of ITT Manufacturing Enterprises LLC and is used under license.

All other trademarks or registered trademarks are property of their respective owners.

© 2023 Xylem Inc. BC3WIRE-G1 R4 July 2023