

# SUBMITTAL DATA SHEET

A.Y. McDonald

## 4" Submersible Motors - Three Wire



A.Y. McDonald offers a full line of four inch asynchronous two-pole submersible motors ranging from 1/2 HP through 10 HP. Cooling and lubrication of the thrust bearing assembly is provided by a mixture of water and Glycol. Our two-wire motors have the capacitor placed in a Noryl cartridge directly connected to the motor. Two-wire motors do not require an external control box.

### 4" Water Well - Three Wire - Single Phase - 60 HZ (Control Box Required)



A.Y. McDonald Part No.	A.Y. McDonald Model No.	HP	Voltage	kw	Service Factor	AMP (in)	Downward Thrust	Cable length (ft).
3132-003	SM0413 0.5HP115V	1/2	115	0.37	1.6	10	500	5 1/2
3132-004	SM0413 0.5HP230V	1/2	230	0.37	1.6	5.5	500	5 1/2
3132-000	SM0413 0.75HP230V	3/4	230	0.55	1.5	7.4	500	5 1/2
3132-001	SM0413 1HP230V	1	230	0.75	1.4	8.3	700	5 1/2
3132-002	SM0413 1.5HP230V	1 1/2	230	1.1	1.3	10.1	700	5 1/2
3132-510	SM0413 2HP230V	2	230	1.5	1.25	10.6	700	5 1/2
3132-512	SM0413 3HP230V	3	230	2.2	1.15	14.3	1500	5 1/2
3132-513	SM0413 5HP230V	5	230	3.7	1.15	22.2	1500	8 3/4

### 4" Water Well - Three Wire - Three Phase - 60 HZ (Starter Kit Required)



A.Y. McDonald Part No.	A.Y. McDonald Model No.	HP	Voltage	kw	Service Factor	AMP (in)	Downward Thrust	Cable length (ft).
3132-525	SM0433 0.5HP230V	1/2	230	0.37	1.6	3.2	500	5 1/2
3132-526	SM0433 0.5HP460V		460	0.37	1.6	1.6	500	5 1/2
3132-527	SM0433 0.75HP230V	3/4	230	0.55	1.5	4.4	500	5 1/2
3132-528	SM0433 0.75HP460V		460	0.55	1.5	2.2	500	5 1/2
3132-529	SM0433 1HP230V	1	230	0.75	1.4	5.2	500	5 1/2
3132-530	SM0433 1HP460V		460	0.75	1.4	2.6	500	5 1/2
3132-531	SM0433 1.5HP230V	1 1/2	230	1.1	1.3	7.2	700	5 1/2
3132-532	SM0433 1.5HP460V		460	1.1	1.25	3.6	700	5 1/2
3132-533	SM0433 1.5HP575V		575				700	5 1/2
3132-534	SM0433 2HP230V	2	230	1.5	1.15	9.2	700	5 1/2
3132-535	SM0433 2HP460V		460	1.5	1.15	4.6	700	5 1/2
3132-536	SM0433 2HP575V		575	1.5	1.15		700	5 1/2
3132-514	SM0433 3HP230V	3	230	2.2	1.15	11.2	1500	5 1/2
3132-515	SM0433 3HP460V		460	2.2	1.15	5.6	1500	5 1/2
3132-516	SM0433 3HP575V		575	2.2	1.15		1500	5 1/2
3132-517	SM0433 5HP230V	5	230	4	1.15	17.8	1500	8 3/4
3132-518	SM0433 5HP460V		460	4	1.15	8.9	1500	8 3/4
3132-519	SM0433 5HP575V		575	4	1.15		1500	8 3/4
3132-520	SM0433 7.5HP230V	7 1/2	230	5.5	1.15	24	1500	8 3/4
3132-521	SM0433 7.5HP460V		460	5.5	1.15	12	1500	8 3/4
3132-522	SM0433 7.5HP575V		575	5.5	1.15		1500	8 3/4
3132-523	SM0433 10HP460V	10	460	7.5	1.15	15.4	1500	11 1/2
3132-524	SM0433 10HP575V		575	7.5	1.15		1500	11 1/2



### SUBMITTAL INFORMATION

- 304 Stainless Steel for all parts that come in contact with water.
- 304 Stainless Steel motor shaft.
- Squirrel-cage rotor mounted on a self-centering thrust bearing.
- Stator housed in an airtight 304L Stainless Steel casing (can-type)
- Temp Rating 95°F.
- Two-Wire - the controls are in the motor
- Three-Wire - requires the control box
- **Do NOT use motors in swimming areas**



NO-LEAD: The weighted average of the wetted surface of this no-lead product contacted by consumable water contains less than one quarter of one percent (0.25%) lead.



A.Y. McDonald Mfg. Co.  
P.O. Box 508  
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Submitted by:

# SUBMITTAL DATA SHEET

## 4" A.Y. McDonald 4" Submersible Motors - Three Wire



4" Asynchronous two-pole submersible motor, made in AISI 304 stainless steel for parts in contact with water. Cooling and lubrication of the thrust bearing assembly and carbon bushes is provided by a mixture of water and glycol. Squirrel-cage rotor mounted on self-centering thrust bearing. Stator housed in an airtight stainless steel casing (canned-type) with both flanges and shell in AISI 304L stainless steel. Removable cable connector to allow fast and easy maintenance. Motor suitable for use with variable frequency drive (60 Hz). For the single-phase 60 Hz version the thermal protection is included in the motor (from 1/2 HP to 1 HP). Overload protection must be provided by user for the three-phase version.

### Technical Specification

Flange	NEMA 4"	Voltage tolerance	+ 6% / -10%
Insulation class	F	Max starts	20/h
Degree of protection	IP68	Max operating depth	984 ft
Cooling flow	1.0 ft/sec @ 95 °F	Horizontal operation	1/2 HP - 1 1/2 HP

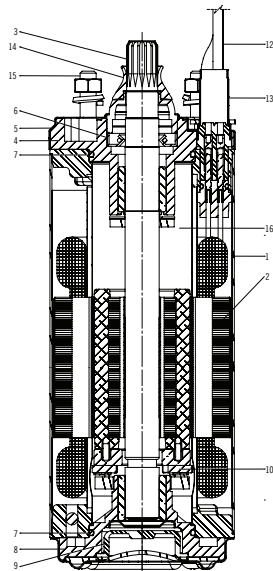
### Components



Canned stator with external shell and flanges made in AISI 304L stainless steel. The stator has 24 slots for better elasticity and regularity of operation. Class F double insulated copper wire.

Kingsbury type thrust bearing unit consisting of tilting pads made of highly-resistant stainless steel and machined by using the spherical lapping process.

Shafts with end part made of stainless steel AISI 304/Duplex with a special process of surface hardening and polishing of the working area of the bushes. Squirrel-cage rotor made in aluminium for motor power 1/2HP through 3 HP and in copper for motor power 5 HP and above.



### Materials

COMPONENTS		
1	Int. and external sleeve	AISI 304
2	Stator	AISI 304L / Duplex
3	Shaft end	AISI 304
4	Upper bracket	Cast Iron
5	Bracket cover	AISI 304
6	Lip seal	NBR
7	Gasket	NBR
8	Lower Bracket	Cast Iron
9	Diaphragm	EPDM
10	Thrust Bearing	Stainless Steel - Graphite
11	Valve	AISI 303
12	Cable	EPDM
13	Connecting Plug	AISI 316
14	Sand guard (fixed-removable)	NBR
15	Bolts & Screws	AISI 304
16	Cooling Liquid	Glycol + water

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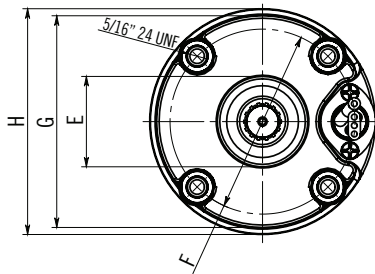
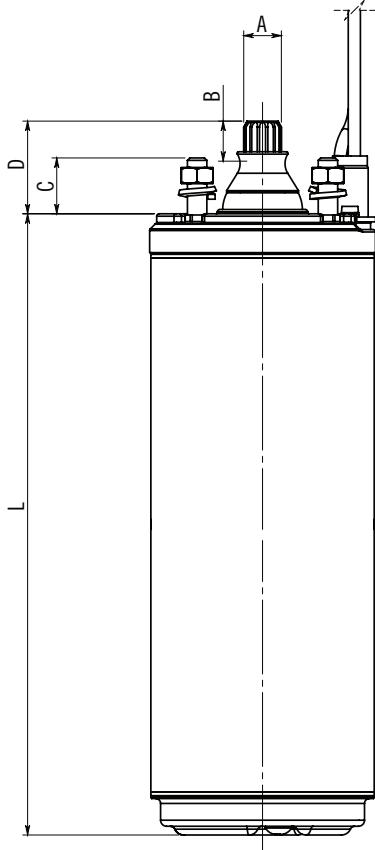
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# SUBMITTAL DATA SHEET

## 4" A.Y. McDonald Submersible Motors 4" Submersible Motors - Three Wire



### 60 Hz Dimensions / Single Phase Motors

Type	[HP]	[kW]	L [inch]	WT [lbs]	Axial Thrust [lbf]
60 Hz 3W	1/2	0.37	10.472	19.4	500
	3/4	0.55	11.260	21.4	500
	1	0.75	13.622	27.8	700
	1 1/2	1.1	16.181	32.5	700
	2	1.5	16.181	32.7	700
	3	2.2	21.417	45.2	1500
5	3.7	26.929	59.8	1500	

### 60 Hz Dimensions / Three Phase Motors

Type	[HP]	[kW]	L [inch]	Wt. [lbs]	Axial Thrust [lbf]
60 Hz	1/2	0.37	9.291	16.3	500
	3/4	0.55	10.472	19.4	500
	1	0.75	11.260	21.4	500
	1 1/2	1.1	13.622	25.8	700
	2	1.5	15.394	30.5	700
	3	2.2	19.843	40.8	1500
	5	4	24.173	51.9	1500
	7 1/2	5.5	26.929	59.8	1500
	10	7.5	30.079	68.7	1500

### 60 Hz Dimensions

Pos.	inch	Pos.	inch
A	0.61 <sup>+0.002</sup> <sub>-0.003</sub>	E	1.465 <sup>+0.016</sup> <sub>-0.016</sub>
B	0.591 <sup>+0.02</sup> <sub>-0</sub>	F	3 <sup>+0.004</sup> <sub>-0</sub>
C	0.906 <sup>+0.005</sup> <sub>-0.005</sub>	G	3.437 <sup>+0</sup> <sub>-0.004</sub>
D	1 1/2 <sup>+0.02</sup> <sub>-0.02</sub>	H	3.662 <sup>+0.004</sup> <sub>-0.004</sub>

- CSA Certified



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# SUBMITTAL DATA SHEET

## 4" A.Y. McDonald Submersible Motors 4" Submersible Motors - Three Wire



### Electrical Data 60 Hz Single Phase Motors

P2	V	SF	In	In (SF)	Is/In	Cs/Cn	P1	N	Cos φ	η	C1	C2	ø	LC	
[HP]	[kW]	[V]	[A]	[A]			[W]	[min <sup>-1</sup> ]		%	[uF]	[uF]	[AWG]	[ft]	
1/2	0.37	115	1.6	10	12.6	4.2	0.65	1050	3450	0.80	56	-	250-300	4x14	5 1/2
		230	1.6	5.5	6.6	4.6	0.65	1130	3450	0.78	54	-	59-71	4x14	5 1/2
3/4	0.55	230	1.5	7.4	8.6	4.0	0.65	1420	3450	0.80	56	-	86-103	4x14	5 1/2
1	0.75	230	1.4	8.3	9.8	4.9	0.68	1650	3450	0.80	62	-	105-126	4x14	5 1/2
1 1/2	1.1	230	1.3	10.1	11.5	4.6	0.70	2100	3450	0.88	67	10	105-126	4x14	5 1/2
2	1.5	230	1.25	10.6	13.0	5.4	0.65	2700	3450	0.95	70	20	105-126	4x14	5 1/2
3	2.2	230	1.15	14.3	16.2	3.6	0.50	3500	3450	0.94	71	45	208-250	4x14	5 1/2
5	3.7	230	1.15	22.2	24.3	3.3	0.50	5700	3450	0.98	76	2x40	270-324	4x14	8 3/4

### Electrical Data 60 Hz Three Phase Motors

P2	V	SF	In	In (SF)	Is/In	Cs/Cn	P1	N	Cos φ	η	C	ø	LC	
[HP]	[kW]	[V]	[A]	[A]			[W]	[min <sup>-1</sup> ]		%	[uF]	[mm <sup>2</sup> ]	[ft]	
1/2	0.37	230	1.6	3.2	3.8	4.4	3.2	870	3450	0.40	42	-	4x14	5 1/2
		460	1.6	1.6	1.9	5.0	3.2	870	3450	0.40	42	-	4x14	5 1/2
3/4	0.55	230	1.5	4.4	4.8	5.2	3.6	1140	3450	0.47	48	-	4x14	5 1/2
		460	1.5	2.2	2.4	5.5	3.6	1140	3450	0.47	48	-	4x14	5 1/2
1	0.75	230	1.4	5.2	5.6	6.4	4.2	1260	3450	0.59	59	-	4x14	5 1/2
		460	1.4	2.6	2.8	5.8	4.2	1260	3450	0.59	59	-	4x14	5 1/2
1 1/2	1.1	230	1.3	7.2	7.8	5.9	4.1	1875	3450	0.53	60	-	4x14	5 1/2
		460	1.25	3.6	3.9	6.7	4.1	1875	3450	0.53	60	-	4x14	5 1/2
2	1.5	230	1.15	9.2	9.8	6.1	3.8	2230	3450	0.57	67	-	4x14	5 1/2
		460	1.15	4.6	4.9	6.7	3.8	2230	3450	0.57	67	-	4x14	5 1/2
3	2.2	230	1.15	11.2	12.0	7.5	4.8	3160	3450	0.69	71	-	4x14	5 1/2
		460	1.15	5.6	6.0	7.1	4.8	3160	3450	0.69	71	-	4x14	5 1/2
5	4	230	1.15	17.8	19.2	7.4	4.0	5230	3450	0.70	77	-	4x14	8 3/4
		460	1.15	8.9	9.6	7.4	4.0	5230	3450	0.70	77	-	4x14	8 3/4
7 1/2	5.5	230	1.15	24.0	26.0	7.5	3.8	7100	3450	0.71	78	-	4x14	8 3/4
		460	1.15	12.0	13.0	7.5	3.8	7100	3450	0.71	78	-	4x14	8 3/4
10	7.5	460	1.15	15.4	16.6	7.1	3.9	9300	3450	0.78	80	-	4x14	11 1/2

- P2:** Rated output
- In:** Rated current (Full-Load AMP)
- Cs/Cn:** Locked rotor Torque/Rated Torque
- Cos φ:** Power factor
- ø:** Cable section
- V:** Rated voltage
- In (SF):** Service factor current (Max AMP)
- P1:** Power consumption
- η:** Efficiency
- LC:** Cable length
- SF:** Service factor
- Is/In:** Locked rotor current/Rated current
- N:** R.P.M
- C:** Capacitor

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