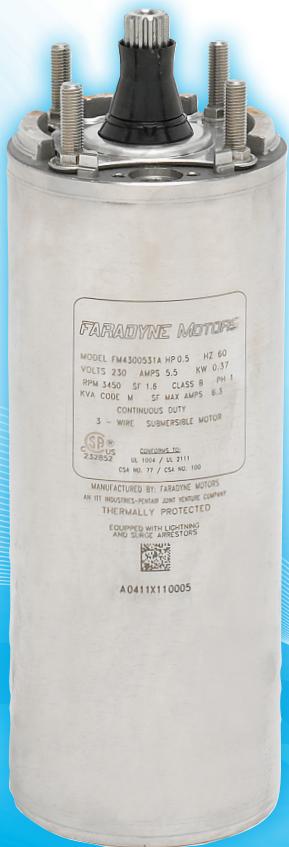




FARADYNE MOTORS

A higher standard in submersible motors.



4" MOTOR INSTALLATION MANUAL



TABLE OF CONTENTS

SAFETY INSTRUCTIONS

4

- Safety Decals
- Wiring Specifications

MOTOR RATINGS

6

- Single and Three Phase, Premium and Standard
- Severe Duty
- Thrust Bearing

SPECIFICATIONS

8

- Motor Lengths and Weights
- Fuse and Breaker Sizing
- Control Box Cross Reference
- 2- and 3-Wire Motor Lead Lengths

4" MOTOR INSTALLATION MANUAL

Use this information in addition to the pump installation data provided by pump manufacturer.

Owner's Information

Serial #: _____

Motor #: _____

Installation Date: _____

HP: _____

Phase: _____

Volts: _____

Purchase Date: _____

SAFETY INSTRUCTIONS

TO AVOID SERIOUS OR FATAL PERSONAL INJURY OR MAJOR PROPERTY DAMAGE, READ AND FOLLOW ALL SAFETY INSTRUCTIONS IN MANUAL AND ON PUMP.

THIS MANUAL IS INTENDED TO ASSIST IN THE INSTALLATION AND OPERATION OF THIS UNIT AND MUST BE KEPT WITH THE PUMP.



This is a SAFETY ALERT SYMBOL. When you see this symbol on the pump or in the manual, look for one of the following signal words and be alert to the potential for personal injury or property damage.



DANGER Warns of hazards that WILL cause serious personal injury, death or major property damage.



WARNING Warns of hazards that CAN cause serious personal injury, death or major property damage.



CAUTION Warns of hazards that CAN cause personal injury or property damage.

NOTICE: INDICATES SPECIAL INSTRUCTIONS WHICH ARE VERY IMPORTANT AND MUST BE FOLLOWED.

THOROUGHLY REVIEW ALL INSTRUCTIONS AND WARNINGS PRIOR TO PERFORMING ANY WORK ON THIS PUMP.

MAINTAIN ALL SAFETY DECALS.

Important notice: Read safety instructions before proceeding with any wiring.

WARNING All electrical work must be performed by a qualified technician. Always follow the National Electrical Code (NEC), or the Canadian Electrical Code, as well as all local, state and provincial codes. Code questions should be directed to your local electrical inspector. Failure to follow electrical codes and OSHA safety standards may result in personal injury or equipment damage. Failure to follow manufacturer's installation instructions may result in electrical shock, fire hazard, personal injury or death, damaged equipment, provide unsatisfactory performance, and may void manufacturer's warranty.

WARNING Faradyne Motors are not designed for use in swimming pools, open bodies of water, hazardous liquids, or where flammable gases exist. Well must be vented per local codes.

WARNING Disconnect and lock out electrical power before installing or servicing any electrical

equipment. Many motors are equipped with automatic thermal overload protection which may allow an overheated motor to restart unexpectedly.

CAUTION All three-phase (3Ø) controls for submersible motors must provide Class 10, quick-trip, overload protection.

WARNING Do not lift, carry or hang motor by the electrical cables. Damage to the electrical cables can cause shock, burns or death.

WARNING Use only stranded copper wire to pump/motor and ground. The ground wire must be at least as large as the power supply wires. Wires should be color-coded for ease of maintenance and troubleshooting.

DANGER Install wire and ground according to the National Electrical Code (NEC), or the Canadian Electrical Code, as well as all local, state and provincial codes.

WARNING Install an all leg disconnect switch where required by code.

WARNING The electrical supply voltage and phase must match all equipment requirements. Incorrect voltage or phase can cause fire, motor and control damage, and voids the warranty.

WARNING All splices must be waterproof. If using splice kits, follow manufacturer's instructions.

WARNING Select the correct type and NEMA grade junction box for the application and location. The junction box must insure dry, safe wiring connections.

WARNING Failure to permanently ground the pump, motor and controls before connecting to power can cause shock, burns or death.

WARNING 4" motors \geq 2 HP require a minimum flow rate of .25 ft/sec. or 7.62 cm/sec. past the motor for proper motor cooling. The following are the minimum flows in GPM per well diameter required for cooling: 1.2 GPM/4", 7 GPM/5", 13 GPM/6", 20 GPM/7", 30 GPM/8" or 50 GPM in a 10" well. Pumps \geq 2 HP installed in large tanks should be installed in a flow inducer sleeve to create the needed cooling flow or velocity past the motor.

CAUTION All motors require a minimum 5' submergence for proper refill check valve operation.

CAUTION This motor has been evaluated for use with Water Only.

SAFETY INSTRUCTIONS

Safety Instructions



WIRE SIZING, SPLICING and POWER SUPPLY

Always follow the National Electric Code (NEC), Canadian Electrical Code, and any state, provincial, or local codes.

Use only copper wire. Size wire from this manual, or an NEC code book. If discrepancies exist, the NEC book takes precedence over a manufacturer's recommendations.

Splicing Wire to Motor Leads

When the drop cable must be spliced or connected to the motor lead, it is necessary that the splice be watertight. The splice can be done with heat shrink kits or waterproof tape.

A. Heat Shrink Splice Instructions

To use a typical heat shrink kit: Strip 1/2" from the motor wires and drop cable wires; it is best to stagger the splices. Place the heat shrink tubes on the wires. Place the crimps on the wires and crimp the ends. Slide the heat shrink tubes over the crimps and heat from the center outward. The sealant and adhesive will ooze out the ends when the tube shrinks. The tube, crimps, sealant, and adhesive create a very strong, watertight seal.

B. Taped Splice Instructions

A) Strip individual conductor of insulation only as far as necessary to provide room for a stake type connector. Tubular connectors of the staked type are preferred. If connector O.D. is not as large as cable insulation, build up with rubber electrical tape.
B) Tape individual joints with rubber electrical tape, using two layers: the first extending two inches beyond each end of the conductor insulation end, the second layer two inches beyond the ends of the first layer. Wrap tightly, eliminating air spaces as much as possible.

C) Tape over the rubber electrical tape with #33 Scotch electrical tape, or equivalent, using two layers as in step B and making each layer overlap the end of the preceding layer by at least two inches.

In the case of a cable with three conductors encased in a single outer sheath, tape individual conductors as described, staggering joints.

Total thickness of tape should be no less than the thickness of the conductor insulation.



WIRING THE CONTROLS and SWITCH

Mounting the Motor Control Box

Single-phase 3-wire control boxes meet UL requirements for Type 3R enclosures. They are suitable for vertical mounting in indoor and outdoor locations. They will operate at temperatures between 14°F (-10°C) and 122°F (50°C). Select a

shaded, dry place to mount the box. Insure that there is enough clearance for the cover to be removed.

Verify Voltage and Turn Supply Power Off

Insure that your motor voltage and power supply voltage are the same.

Place the circuit breaker or disconnect switch in the OFF position to prevent accidentally starting the pump before you are ready.

Three-phase starter coils are very voltage-sensitive; always verify actual supply voltage with a voltmeter. High or low voltage, greater than $\pm 10\%$, will damage motors and controls and is not covered under warranty.

Connecting Motor Leads to Motor Control Box, Pressure Switch or Starter

Caution: Do not power the motor until all electrical and plumbing connections are completed. Verify that the disconnect or breaker is OFF before connecting the pressure switch line leads to the power supply. Follow all local and national codes. Use a disconnect where required by code.

A. Three-Wire Single-Phase Motor

Connect the color-coded motor leads to the motor control box terminals - Y (yellow), R (red), and B (black); and the green or bare wire to the green ground screw.

Connect wires between the Load terminals on the pressure switch and control box terminals L1 and L2. Run a ground wire between the switch ground and the control box ground.

B. Two-Wire Single-Phase Motor

Connect the black motor leads to the Load terminals on the pressure switch and the green or bare ground wire to the green ground screw.

C. Three-phase motors

Connect the motor leads to T1, T2, and T3 on the three-phase starter. Connect the ground wire to the ground screw in the starter box. Follow starter manufacturer's instructions for connecting pressure switch.

Connect to Power Supply

Complete the wiring by making the connection from the single-phase pressure switch Line terminals to the circuit breaker panel or disconnect where used.

Three-phase - make the connections between L1, L2, L3, and ground on the starter to the disconnect switch and then to the circuit breaker panel.

Three phase installations must be checked for motor rotation and phase unbalance. To reverse motor rotation, switch (reverse) any two leads. See the instructions for checking three-phase unbalance in pump IOM. Failure to check phase unbalance can cause premature motor failure and nuisance overload tripping. If using a generator, see Technical Data for generators in pump IOM.

MOTOR RATINGS

60Hz Single-Phase Standard Motor Ratings:

Type	Model	Rating				Full Load				Service Factor				Locked Rotor Amps	Winding Resistance		KVA Code
		HP	KW	Volts	SF	Amps (Y/B/R)	Watts	Efficiency	P.F.	Amps (Y/B/R)	Watts	Efficiency	P.F.		Main (B-Y)	Start (R-Y)	
2-Wire (PSC)	FM4200511-E	0.5	0.37	115	1.6	8.4	880	42.5	98.0	10.0	1090	55.0	99.0	25.0	2.0 - 2.5	-	G
	FM4200531-E	0.5	0.37	230	1.6	4.2	870	43.0	92.0	5.1	1050	57.0	97.0	14.0	7.2 - 8.8	-	H
	FM4200731-E	0.75	0.55	230	1.5	4.8	1040	54.0	99.0	6.1	1325	63.5	99.0	17.0	5.7 - 7.1	-	F
	FM4201031-E	1	0.75	230	1.4	7.0	1570	47.5	99.0	8.0	1820	57.5	99.0	22.0	4.7 - 5.8	-	E
	FM4201531-E	1.5	1.1	230	1.3	9.0	1980	56.5	99.0	10.6	2350	62.0	99.0	34.0	2.7 - 3.3	-	F
3-Wire (CSIR)	FM4300511-E	0.5	0.37	115	1.6	9.0/9.0/0	690	54.0	68.0	11.0/11.0/0	1020	58.5	82.0	41.0	1.5 - 1.9	3.1 - 3.9	L
	FM4300531-E	0.5	0.37	230	1.6	4.8/4.8/0	720	52.0	66.0	5.6/5.6/0	1055	56.5	81.0	18.0	6.2 - 7.7	13.0 - 16.0	K
	FM4300731-E	0.75	0.55	230	1.5	6.2/6.2/0	980	57.0	69.0	7.4/7.4/0	1390	60.5	81.0	29.0	4.0 - 4.9	9.5 - 11.6	K
	FM4301031-E	1	0.75	230	1.4	7.4/7.4/0	1235	60.5	74.0	9.0/9.0/0	1670	62.5	82.0	39.0	3.3 - 4.1	11.9 - 14.6	K
3-Wire CSCR	FM4300531-E	0.5	0.37	230	1.6	3.7/3.6/1.7	690	54.0	85.0	4.6/4.4/1.6	950	63.0	94.0	18.0	6.2 - 7.7	13.0 - 16.0	K
	FM4300731-E	0.75	0.55	230	1.5	4.9/4.8/2.8	1000	56.0	91.0	6.1/5.5/2.6	1300	64.5	96.0	29.0	4.0 - 4.9	9.5 - 11.6	K
	FM4301031-E	1	0.75	230	1.4	5.7/5.2/3.0	1185	63.0	92.0	7.1/5.9/2.9	1495	70.0	95.0	39.0	3.3 - 4.1	11.9 - 14.6	K
	FM4301531-E	1.5	1.1	230	1.3	8.9/8.5/1.3	1685	66.5	84.0	10.7/10.4/1.2	2170	67.0	89.0	43.0	2.6 - 3.3	8.0 - 9.8	H

60Hz Severe Duty Motor Ratings:

Type	Model	Rating				Full Load				Service Factor				Locked Rotor Amps	Winding Resistance		KVA Code
		HP	KW	Volts	SF	Amps (Y/B/R)	Watts	Efficiency	P.F.	Amps (Y/B/R)	Watts	Efficiency	P.F.		Main (B-Y)	Start (R-Y)	
3-Wire Single Phase	XD4302031A	2	1.5	230	1.25	9.9/9.1/2.6	2170	68.0	96.0	12.2/11.7/2.6	2660	69.0	95.0	49.0	1.6-2.2	4.8-5.9	G
	XD4303031A	3	2.2	230	1.15	14.3/12.0/5.7	3170	72.0	96.0	16.5/13.9/5.6	3620	72.0	97.0	76.0	1.0-1.4	2.0-2.5	G
	XD4305031A	5	3.7	230	1.15	24/19.1/10.2	5300	70.5	97.0	27.0/22.0/10.0	6030	71.0	97.5	101.0	.6-8	1.3-1.7	E
3 Phase	XD4303033A	3	2.2	230	1.15	9.2	2880	77.0	78.0	10.1	3280	77.0	81.0	59.0	1.6-2.0	-	J
	XD4305033A	5	3.7	230	1.15	15.7	4925	76.0	80.0	17.5	5650	76.0	83.0	93.0	.9-1.3	-	J
	XD4307533A	7.5	5.5	230	1.15	24.0	7480	75.0	79.0	26.4	8570	75.0	83.0	140.0	.5-9	-	J
	XD4303053A	3	2.2	460	1.15	4.8	2920	77.0	78.0	5.3	3320	77.0	81.0	30.0	6.3-7.7	-	J
	XD4305053A	5	3.7	460	1.15	7.6	4810	77.0	80.0	8.5	5530	77.0	82.0	48.0	3.9-4.9	-	J
	XD4307553A	7.5	5.5	460	1.15	12.2	7400	76.0	77.0	13.5	8560	76.0	80.0	87.0	2.1-2.7	-	L
	XD4310053A	10	7.5	460	1.15	15.6	9600	79.0	78.0	17.2	11000	80.0	82.0	110.0	1.8 - 2.2	-	K

Thrust Bearing Ratings:

Motor Size		Rating	
Hp	kW	lb.	kg.
0.5 - 1.5	.37 - 1.1	700	318
2 - 3	1.5 - 2.2	900	408
5 - 10	3.7 - 5.5	1500	680

SPECIFICATIONS

Motor Lengths and Weights:

Type	Model	Length		Weight	
		In.	mm.	Lb.	Kg.
2-Wire (PSC) Premium	FM4200511A-01	10.5	267	18.1	8.2
	FM4200531A-01	10.5	267	18.1	8.2
	FM4200731A-01	11.9	302	21.4	9.7
	FM4201031A-01	12.5	318	23.2	10.5
	FM4201531A-01	14.2	361	27.3	12.4
3-Wire Premium	FM4300511A-01	9.6	243	17.9	8.1
	FM4300531A-01	9.2	234	16.7	7.6
	FM4300731A-01	10.3	262	19.8	9.0
	FM4301031A-01	11.2	284	22.0	10.0
	FM4301531A-01	12.8	326	26.0	11.8
	FM4302031A-01	15.1	383	31.0	14.1
	FM4303031A-01	18.3	466	40.0	18.1
2-Wire (PSC) Standard	FM4200531-E	10.5	267	18.1	8.2
	FM4200531-E	10.5	267	18.1	8.2
	FM4200731-E	11.9	302	21.4	9.7
	FM4201031-E	12.5	318	23.2	10.5
	FM4201531-E	14.2	361	27.3	12.4
3-Wire Standard	FM4300511-E	9.6	243	17.9	8.1
	FM4300531-E	9.2	234	16.7	7.6
	FM4300731-E	10.3	262	19.8	9.0
	FM4301031-E	11.2	284	22.0	10.0
	FM4301531-E	12.8	326	26.0	11.8
3-Phase Premium	FM4300533A	10.0	254	18.9	8.6
	FM4300733A	10.8	274	21.4	9.7
	FM4301033A	11.7	297	23.1	10.5
	FM4301533A	11.7	297	23.1	10.5
	FM4302033A	13.8	351	27.4	12.4
	FM4303033A	15.3	389	32.0	14.5
	FM4305033A	21.7	550	55.0	24.9
	FM4307533A	27.7	703	70.0	31.8
	FM4300553A	10.0	254	18.9	8.6
	FM4300753A	10.8	274	21.4	9.7
	FM4301053A	11.7	297	23.1	10.5
	FM4301553A	11.7	297	23.1	10.5
	FM4302053A	13.8	351	27.4	12.4
	FM4303053A	15.3	389	32.0	14.5
	FM4305053A	21.7	550	55.0	24.9
	FM4307553A	27.7	703	70.0	31.8
	FM4300523A	10.0	254	18.9	8.6
	FM4300723A	10.8	275	21.4	9.7
	FM4301023A	11.7	297	23.1	10.5
	FM4301523A	11.7	297	23.1	10.5
	FM4302023A	13.8	351	27.4	12.4
	FM4303023A	15.3	389	32.0	14.5
	FM4305023A	21.7	550	55.0	24.9
	FM4307523A	27.7	703	70.0	31.8
	FM4301563A	11.7	297	23.1	10.5
	FM4302063A	15.3	389	32.0	14.5
	FM4303063A	15.3	389	32.0	14.5
	FM4305063A	27.7	703	70.0	31.8
	FM4310053A	30.7	780	78.0	35.5
3-Wire Severe Duty	XD4302031A	19.3	490	40.0	18.1
	XD4303031A	22.3	566	49.0	22.2
	XD4305031A	28.6	726	75.0	34.0
3-Phase Severe Duty	XD4303033A	19.3	491	32.0	14.5
	XD4305033A	22.6	573	55.0	24.9
	XD4307533A	28.6	726	70.0	31.8
	XD4303053A	19.3	491	32.0	14.5
	XD4305053A	22.6	573	55.0	24.9
	XD4307553A	28.6	726	70.0	31.8
	XD4310053A	31.6	802	78.0	35.4

Fuse and Breaker Sizing:

Type	Model	Standard Fuse	Dual Element Time Delay	Circuit Breaker
2-Wire (PSC) Premium	FM4200511A-01	25	15	20
	FM4200531A-01	15	10	10
	FM4200731A-01	15	10	15
	FM4201031A-01	20	15	20
	FM4201531A-01	30	20	25
3-Wire CSIR Premium	FM4300511A-01	30	20	30
	FM4300531A-01	20	10	15
	FM4300731A-01	20	15	20
	FM4301031A-01	25	15	25
	FM4301531A-01	30	20	25
3-Wire CSCR Premium	FM4300531A-01	15	10	10
	FM4300731A-01	15	10	15
	FM4301031A-01	20	15	15
	FM4301531A-01	30	20	25
	FM4303031A	45	25	40
2-Wire (PSC) Standard	FM4200531A-01	80	45	60
	FM4200731A-01	25	15	20
	FM4201031A-01	15	10	10
	FM4201531A-01	20	15	20
	FM4300511A-01	30	20	30
3-Wire CSIR Standard	FM4300531A-01	20	10	15
	FM4300731A-01	20	15	20
	FM4301031A-01	25	15	25
	FM4301531A-01	30	20	25
	FM4303031A	15	10	10
3-Wire CSCR Standard	FM4300531A-01	15	10	10
	FM4300731A-01	15	10	15
	FM4301031A-01	20	15	15
	FM4301531A-01	30	20	25
	FM4303031A	6	6	6
3-Phase Premium	FM4300533A	6	6	6
	FM4300733A	6	6	6
	FM4301033A	10	6	10
	FM4301533A	15	10	15
	FM4302033A	15	15	20
3-Phase Premium	FM4303033A	25	15	25
	FM4305033A	45	30	40
	FM4307533A	70	45	60
	FM4300553A	3	3	3
	FM4300753A	3	6	3
3-Phase Severe Duty	FM4301053A	6	3	6
	FM4301553A	10	6	6
	FM4302053A	15	6	10
	FM4303053A	15	10	15
	FM4305053A	25	15	15
3-Phase Severe Duty	FM4307553A	40	25	30
	FM4310053A	45	25	35
	FM4300523A	10	6	10
	FM4300723A	15	10	10
	FM4301023A	15	10	10
3-Phase Severe Duty	FM4301523A	20	10	15
	FM4302023A	25	15	20
	FM4303023A	35	20	30
	FM4305023A	60	35	50
	FM4307523A	80	50	70
3-Phase Severe Duty	FM4301563A	6	3	6
	FM4302063A	10	6	10
	FM4303063A	10	10	10
	FM4305063A	20	15	20
	FM4307563A	25	20	25
3-Phase Severe Duty	XD4302031A	30	20	25
	XD4303031A	45	25	40
	XD4305031A	80	45	60
	XD4303033A	25	15	25
	XD4305033A	45	30	40
3-Phase Severe Duty	XD4307533A	70	45	60
	XD4303053A	15	10	15
	XD4305053A	25	15	15
	XD4307553A	40	25	30
	XD4310053A	45	25	35

SPECIFICATIONS

Control Box Cross Reference:

Control Box Type	HP	Volts	Faradyne Control Box Number
CSIR	0.5	115	FM005CB-IR1
	0.5	230	FM005CB-IR2
	0.75	230	FM007CB-IR2
	1	230	FM010CB-IR2
CSCR or Integral	0.5	230	FM005CB-CR2
	0.75	230	FM007CB-CR2
	1	230	FM010CB-CR2
	1.5	230	FM015CB-CR2
	2	230	FM020CB-CR2
	3	230	FM030CB-CR2
	5	230	FM050CB-CR2
MC or Deluxe	2	230	FM020CB-CR2-D
	3	230	FM030CB-CR2-D
	5	230	FM050CB-CR2-D

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

2-Wire Motor Lead Lengths - Based on Service Factor Amps, 30C Ambient, & 5% Voltage Drop:

	Motor Rating				60C & 75C Insulation - AWG Copper Wire Size													
	Volts	HP	kW	FLA	SFA	14	12	10	8	6	4	3	2	1	1/0	2/0	3/0	4/0
Premium Motors	115	0.5	0.37	8.1	10.2	107	171	273	432	672	1071	1346	1700	2142	2703	3411	4305	5424
	230	0.5	0.37	4.3	4.8	457	726	1158	1835	2855	4551	5721	7225	9102	11489			
	230	0.75	0.55	5.0	6.4	342	545	869	1376	2141	3413	4291	5419	6826	8617	10871		
	230	1	0.75	6.7	8.2	267	425	678	1074	1671	2664	3349	4229	5328	6725	8485	10711	
	230	1.5	1.1	9.1	10.5	209	332	530	839	1305	2080	2615	3303	4161	5252	6626	8365	
Standard Motors	115	0.5	0.37	8.4	10.0	110	174	278	440	685	1092	1373	1734	2184	2757	3479	4392	5533
	230	0.5	0.37	4.2	5.1	430	684	1090	1727	2687	4283	5384	6800	8566	10813			
	230	0.75	0.55	4.8	6.1	359	571	912	1444	2246	3581	4502	5685	7162	9040	11406		
	230	1	0.75	7.0	8.0	274	436	695	1101	1713	2730	3433	4335	5461	6893	8697	10979	
	230	1.5	1.1	9.0	10.6	207	329	525	831	1293	2061	2591	3272	4121	5203	6564	8286	

3-Wire Motor Lead Lengths - Based on Service Factor Amps, 30C Ambient, & 5% Voltage Drop:

	Motor Rating				60C & 75C Insulation - AWG Copper Wire Size													
	Volts	HP	kW	FLA	SFA	14	12	10	8	6	4	3	2	1	1/0	2/0	3/0	4/0
CSIR Control Boxes																		
Premium Motors	115	0.5	0.37	9.8	11.6	94	150	240	380	591	942	1184	1495	1883	2377	2999	3786	4770
	230	0.5	0.37	5.7	6.3	348	553	883	1398	2175	3467	4359	5505	6935	8753			
	230	0.75	0.55	6.7	7.9	277	441	704	1115	1734	2765	3476	4390	5530	6981	8807		
	230	1	0.75	8.5	9.5	231	367	585	927	1442	2299	2891	3651	4599	5805	7324		
	CSCR Control Boxes																	
Standard Motors	230	0.5	0.37	4.4	5.0	438	697	1112	1761	2740	4369	5492	6936	8738	11029			
	230	0.75	0.55	4.6	6.1	359	571	912	1444	2246	3581	4502	5685	7162	9040	11406		
	230	1	0.75	6.2	7.4	296	471	751	1190	1852	2952	3711	4686	5904	7452	9402		
	230	1.5	1.1	9.2	11.0	199	317	505	801	1246	1986	2496	3153	3972	5013	6325		
	230	2	1.5	9.9	12.2	180	286	456	722	1123	1790	2251	2843	3581	4520	5703		
	230	3	2.2	14.3	16.5	133	211	337	534	830	1324	1664	2102	2648	3342	4217	5323	
	230	5	3.7	24.0	27.0			206	326	507	809	1017	1284	1618	2042	2577	3253	
CSIR Control Boxes																		
Severe Duty Motors	115	.5	0.37	9.0	11.0	100	158	253	400	623	993	1248	1576	1986	2507	3162	3992	5030
	230	.5	0.37	4.8	5.6	391	622	993	1573	2447	3901	4904	6193	7801	9848			
	230	.75	0.55	6.2	7.4	296	471	751	1190	1852	2952	3711	4686	5904	7452	9402		
	230	1	0.75	7.4	9.0	243	387	618	978	1522	2427	3051	3853	4854	6127	7731		
CSCR Control Boxes																		
Severe Duty Motors	230	0.5	0.37	3.7	4.6	476	758	1209	1914	2979	4749	5970	7539	9497	11988			
	230	0.75	0.55	4.9	6.1	359	571	912	1444	2246	3581	4502	5685	7162	9040	11406		
	230	1	0.75	5.7	7.1	309	491	783	1240	1930	3077	3868	4884	6153	7767	9799		
	230	1.5	1.1	8.9	10.7	205	326	520	823	1281	2041	2566	3241	4083	5154	6502		
Severe Duty Motors	230	2	1.5	9.9	12.2	180	286	456	722	1123	1790	2251	2843	3581	4520	5703		
	230	3	2.2	14.3	16.5	133	211	337	534	830	1324	1664	2102	2648	3342	4217	5323	
	230	5	3.7	24.0	27.0			206	326	507	809	1017	1284	1618	2042	2577	3253	

SPECIFICATIONS

3-Phase Motor Lead Lengths - Based on Service Factor Amps, 30C Ambient, & 5% Voltage Drop:

	Motor Rating				60C & 75C Insulation - AWG Copper Wire Size														
	Volts	HP	kW	FLA	SFA	14	12	10	8	6	4	3	2	1	1/0	2/0	3/0	4/0	
Premium Motors	200	0.5	0.37	2.9	3.5	629	1000	1595	2526	3931									
	200	0.75	0.55	3.9	4.7	468	745	1188	1881	2927									
	200	1	0.75	4.8	5.7	386	614	979	1551	2414	3848	4837							
	200	1.5	1.1	6.6	7.6	290	461	735	1163	1810	2886	3628							
	200	2	1.5	8.0	9.3	237	376	600	951	1479	2358	2965	3744	4717	5954				
	200	3	2.2	10.9	12.0	183	292	465	737	1147	1828	2298	2902	3656	4614				
	200	5	3.7	18.3	20.2	109	173	276	438	681	1086	1365	1724	2172	2741	3458	4366	5500	
	200	7.5	5.5	27.0	30	73	117	186	295	459	731	919	1161	1462	1846	2329	2940	3704	
	230	0.5	0.37	2.4	3.0	844	1342	2140	3389	5274	8408	10570							
	230	0.75	0.55	3.3	4.0	633	1006	1605	2542	3956	6306	7927	10011						
	230	1	0.75	4.1	4.9	516	821	1310	2075	3229	5148	6471	8172						
	230	1.5	1.1	5.8	6.6	383	610	973	1541	2397	3822	4804	6067	7643	9648				
	230	2	1.5	6.7	8.0	316	503	803	1271	1978	3153	3964	5006	6306	7960	10042			
	230	3	2.2	9.2	10.1	251	399	636	1007	1567	2497	3140	3965	4995	6305	7954	10042	12651	
	230	5	3.7	15.7	17.5				367	581	904	1441	1812	2288	2883	3639	4591	5795	7301
	230	7.5	5.5	24.0	26.4				385	599	955	1201	1517	1911	2412	3043	3842	4840	
	460	0.5	0.37	1.3	1.5	3374	5367	8561											
	460	0.75	0.55	1.7	2.0	2531	4025	6420	10168										
	460	1	0.75	2.2	2.5	2024	3220	5136	8135										
	460	1.5	1.1	3.0	3.4	1489	2368	3777	5981										
	460	2	1.5	3.6	4.1	1234	1964	3132	4960	7718									
	460	3	2.2	4.8	5.3	955	1519	2423	3837	5971									
	460	5	3.7	7.6	8.5	595	947	1511	2393	3723	5935								
	460	7.5	5.5	12.2	13.5	375	596	951	1506	2344	3737	4698	5933	7474					
	460	10	7.5	15.6	17.2	294	468	747	1182	1840	2933	3687	4656	5866					
	575	1.5	1.1	2.3	2.6	2433	3870	6173											
	575	2	1.5	2.7	3.3	1917	3049	4864	7703										
	575	3	2.2	3.7	4.1	1543	2454	3915	6200										
	575	5	3.7	7.0	7.6	832	1324	2112	3345	5205									
	575	7.5	5.5	9.1	10.0	633	1006	1605	2542	3956									
Severe Duty Motors	230	3	2.2	9.2	10.1	251	399	636	1007	1567	2497	3140	3965	4995	6305	7954	10042	12651	
	230	5	3.7	15.7	17.5				367	581	904	1441	1812	2288	2883	3639	4591	5795	7301
	230	7.5	5.5	24.0	26.4				385	599	955	1201	1517	1911	2412	3043	3842	4840	
	460	3	2.2	4.8	5.3	955	1519	2423	3837	5971									
	460	5	3.7	7.6	8.5	595	947	1511	2393	3723	5935								
	460	7.5	5.5	12.2	13.5	375	596	951	1506	2344	3737	4698	5933	7474					
	460	10	7.5	15.6	17.2	294	468	747	1182	1840	2933	3687	4656	5866					





2077 Division St. Palmyra, NY. 14522
315-502-0125