

MagForce™ High Efficiency Systems





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MAGFORCE™ HIGH EFFICIENCY SYSTEMS

Get the streamlined solution needed for pumping power at maximum efficiency: MagForce High Efficiency Systems are engineered for high performance, simple startup and incredible long-term cost savings. Owners and operators benefit from electrical cost savings as a result of 94% efficiency rating in the motor for an investment payback of less than two years in typical duty rate systems*.

**Results based on field trial data*

Each MagForce High Efficiency System is powered with a permanent magnet motor that operates at a fraction of the energy consumption when compared to traditional induction systems. Plus, each system is paired with an innovative Franklin Electric engineered drive for intuitive startup and reliable protection for submersible pumping application.

FEATURES

- **GROUNDBREAKING EFFICIENCY:** Powered by MagForce High Efficiency Motor with up to 94% efficiency rating that is 8-12% greater than standard induction motor construction. Typical duty rate systems can have a payback* of 1 to 2 years.
- **SIMPLIFIED INVENTORY MANAGEMENT:** Available motor options cover a wide range of pump horsepower needs (up to 300 hp) with fewer SKUs to manage.
- **SLASH ELECTRICITY CONSUMPTION:** Since the motor has rare earth magnets, there is less electrical energy loss, which translates into greater power output per dollar spent on power input. This saves operational costs every time the motor is run; the more it is used, the more can be saved.
- **SMALLER FOOTPRINT:** Lighter and easier to handle than standard induction motors and, like all submersible motor systems, provides a smaller above ground footprint when compared to other pumping solutions.
- **BUILT TOGETHER TO WORK TOGETHER:** All components come from a single source for the ultimate in operational compatibility and optimized operation.
- **INTUITIVE STARTUP:** Each system is controlled by a Franklin Electric variable frequency drive with application-specific firmware that pre-programs settings for quick, easy startups and reliable protection for any project.
- **FULLY SUPPORTED:** Comes fully supported by the industry's leading Technical Support professionals and Field Service Engineers.

**Field trial data.*

APPLICATIONS

Ideal for long-run applications such as:

- Groundwater remediation
- Drainage water level control
- Municipal/Utility water supply
- Construction site dewatering
- Well supply geothermal HVAC system
- High volume and industrial livestock operations
- Mine site dewatering and tank level control



6" MAGFORCE HIGH EFFICIENCY MOTOR

ENCAPSULATED THREE-PHASE 7.5-60 HP, 460 V 60 HZ

STANDARD SPECIFICATIONS

- Sand Fighter® models are equipped with Franklin's robust Sand Fighter sealing system for durability against sand or other abrasives.
- Max 3600 rpm (4 pole, 120 Hz); Nominal 3450 rpm (4 pole, 115 Hz) Maximum temperature winding wire NEMA class 200
- Hermetically sealed windings
- Double-flange design
- Over-molded lead for cable resilience
- Stainless steel shell
- Kingsbury-type, water lubricated, thrust bearing
- Pressure-equalizing diaphragm
- Sand slinger

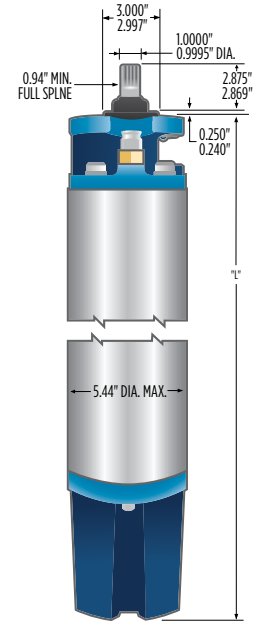
MOTOR COMPARISON

Feature	Induction Motor	MagForce High Efficiency Motor	"L" Dimension	
			in	cm
Input Voltage	230, 460, 575	460	17.25	25.0
Minimum Frequency	30	60	34.5	31.2
Maximum Frequency	60	120	66.0	39.8
Voltage Variance	±10%	±10%		101
Construction	Sand Fighter	Sand Fighter (Permanent Magnet)		
Speed (rpm)	3450	3600		

CONSTRUCTION MATERIALS

Component	Construction Type
	Sand Fighter
Motor Ambient Temp. Rating	86 °F/30 °C
Stator Resin Type	Standard
Motor Fill Solution (Water Soluble/Non-Toxic)	FES91
Top End Bell and Thrust Housing	Epoxy-coated Gray Iron
Stator Shell	300 Series SS
Stator Ends	Carbon Steel
Shaft Extension	EN 1.4462
Bushing	Bronze
Bushing Retainer	300 Series SS
Shaft Mechanical Seal	Sand Fighter Seal System
Mechanical Seal/Rubber Components	Nitrile
Diaphragm Material	Nitrile
Diaphragm Plate	300 Series SS
Diaphragm Spring	300 Series SS
Shaft Slinger	Nitrile
Lead Jam Nut	Brass
Thrust Bearing Rating (86°F/30°C)	3500 lbs (7.5-30 hp)
	6000 lbs (40-60 hp)
Method Of Connecting System Ground to Motor	Ground wire in power lead connector

NOTE: Specifications subject to change without notice; contact Franklin Electric if current material types are required for bid specifications





6" MAGFORCE HIGH EFFICIENCY SYSTEM: ORDER INFORMATION

SYSTEM WITH SUBDRIVE CONNECT PLUS

The system includes: MagForce High Efficiency Motor with lead and a compatible SubDrive Connect Plus variable frequency drive with pressure transducer and built-in dv/dt filter. Its easy-to-install platform helps you save time during installation and servicing using an array of setup, monitoring, and troubleshooting solutions.

HP	Drive Input Voltage	Kit Order No.	Description	MagForce High Efficiency Motor					SubDrive Connect Plus*					Output Filter Options**
				Motor Only	Max Amps at HP Load	Volts/Hz	S.F.	Motor Lead	Model No.	Max Amps	Height (in)	Width (in)	Depth (in)	Sine Wave Filter
														NEMA 1/3R
7.5	460	305612911	SubDrive Connect Plus MagForce 7.5/10HP	2360809566E	11.6	460/120	1.15	DOL (3)	SDCP-SUB1043	18	27.2	10.7	9.4	MSD0023A300
10	460			2360809566E	14.2				SDCP-SUB1043	18	27.2	10.7	9.4	MSD0023A300
15	460	305612912	SubDrive Connect Plus MagForce 15HP	2360809566E	20.5				SDCP-SUB1543	26	27.2	10.7	9.4	MSD0030A300
20	460	305612913	SubDrive Connect Plus MagForce 20HP	2360849566E	28.9				SDCP-SUB2043	31	27.2	10.7	9.4	MSD0035A300
25	460	305612914	SubDrive Connect Plus MagForce 25HP	2360849566E	34.6				SDCP-SUB2543	39	34.3	13.8	10.0	MSD0045A300
30	460	305612915	SubDrive Connect Plus MagForce 30HP	2360849566E	41				SDCP-SUB3043	46	34.3	13.8	10.0	MSD0065A300

*NOTE: Firmware version 1.7.0 or newer is required for permanent magnet motor (or MagForce) functionality.

**Sine wave filters are required when using a SubDrive Connect Plus with a permanent magnet motor with lead lengths greater than 1,000'.

SYSTEM WITH CERUS X-DRIVE

The system includes: MagForce High Efficiency Motor with lead and Cerus X-Drive in NEMA 3R panel configurations or as a standalone NEMA drive. The Cerus® X-Drive Variable Frequency Drive (VFD) is Franklin Electric's all-inclusive drive solution for a variety of markets.

HP	Drive Input Voltage	MagForce High Efficiency Motor					Cerus X-Drive*								Output Filter Options**		
		Motor Only	Max Amps at HP Load	Volts/Hz	S.F.	Motor Lead	NEMA 3R Panel***				NEMA 1 Drive Only				dV/dt Filter		Sine Wave Filter
							Model No.	Height (in)	Width (in)	Depth (in)	Model No.	Height (in)	Width (in)	Depth (in)	NEMA 1	NEMA 3R	NEMA 1/3R
7.5	460	2360809566E	11.6	460/120	1.15	DOL (3)	XS4B007-3A	36.5	26	16.4	CXD-013A-4V	5.1	9.8	6.7	V1K18A01	V1K18A03	MSD0012A300
10	460	2360809566E	14.2				XS4B010-3A	36.5	26	16.4	CXD-018A-4V	5.1	9.8	6.7	V1K25A01	V1K25A03	MSD0016A300
15	460	2360809566E	20.5				XS4B015-3A	36.5	26	16.4	CXD-024A-4V	7.5	12.6	7.5	V1K27A01	V1K27A03	MSD0023A300
20	460	2360849566E	28.9				XS4B020-3A	36.5	26	16.4	CXD-032A-4V	7.5	12.6	7.5	V1K55A01	V1K55A03	MSD0030A300
25	460	2360849566E	34.6				XS4B025-3A	41.5	29	16.4	CXD-038A-4V	7.5	12.6	7.3	V1K80A01	V1K80A03	MSD0035A300
30	460	2360849566E	41				XS4B030-3A	41.5	29	16.4	CXD-045A-4V	9.8	15.8	8.3	V1K80A01	V1K80A03	MSD0045A300
40	460	2360862166E	56.5	XS4B040-3A	41.5	29	16.4	CXD-060A-4V	9.8	15.8	8.3	V1K80A01	V1K80A03	MSD0065A300			
50	460	2360862166E	69.2	XS4B050-3A	41.5	29	16.4	CXD-073A-4V	9.8	15.8	8.3	V1K110A01	V1K110A03	MSD0080A300			
60	460	2360862166E	80	XS4B060-3A	46.5	29	16.4	CXD-091A-4V	11.0	19.7	10.0	V1K110A01	V1K110A03	MSD0080A300			
7.5	575	2360809566E	11.6	460/120	1.15	DOL (3)	XP6B007-3A	36.5	26	16.4	CXD-012A-6V	7.5	12.6	7.5	V1K18A01	V1K18A03	MSD0012A300
10	575	2360809566E	14.2				XP6B010-3A	36.5	26	16.4	CXD-018A-6V	7.5	12.6	7.5	V1K25A01	V1K25A03	MSD0016A300
15	575	2360809566E	20.5				XP6B015-3A	36.5	26	16.4	CXD-024A-6V	9.8	15.8	8.3	V1K27A01	V1K27A03	MSD0023A300
20	575	2360849566E	28.9				XP6B020-3A	41.5	29	16.4	CXD-030A-6V	9.8	15.8	8.3	V1K55A01	V1K55A03	MSD0030A300
25	575	2360849566E	34.6				XP6B025-3A	41.5	29	16.4	CXD-036A-6V	9.8	15.8	8.3	V1K80A01	V1K80A03	MSD0035A300
30	575	2360849566E	41				XP6B030-3A	51.5	34	20.5	CXD-045A-6V	7.5	12.6	7.5	V1K80A01	V1K80A03	MSD0045A300
40	575	2360862166E	56.5				XP6B040-3A	51.5	34	20.5	CXD-067A-6V	13.0	21.7	10.8	V1K80A01	V1K80A03	MSD0065A300
50	575	2360862166E	69.2				XP6B050-3A	51.5	34	20.5	CXD-086A-6V	14.6	23.2	11.8	V1K110A01	V1K110A03	MSD0080A300
60	575	2360862166E	80				XP6B060-3A	51.5	34	20.5	CXD-086A-6V	14.6	23.2	11.8	V1K110A01	V1K110A03	MSD0080A300

*NOTE: Firmware version 1.1 or newer is required for permanent magnet motor (or MagForce) functionality.

**Output filters are required when using an X-Drive with a permanent magnet motor. dV/dt filters cover motor lead lengths up to 800'. A sine wave filter is required for lead lengths greater than 800'.

***NEMA 3R panels include door-mounted keypad with HOA functionality, a circuit breaker, dV/dt filter, and line reactor or integrated DC Choke

ACCESSORIES

Accessories	Detail	Used With	Part Number
PT-100 Sensors	15HP System (UL and non)	SubDrive Connect Plus & Cerus X-Drive models	305327903
	30HP (UL and non)		305327903
	60HP (UL)	Cerus X-Drive models	305327903
	60HP (non)		305327903
Pressure Transducer	Pressure Transducer, 100PSIG, 4-20mA	Cerus X-Drive models	PSIG-100-20FT
	Pressure Transducer, 200PSIG, 4-20mA		PSIG-200-20FT
	Pressure Transducer, 300PSIG, 4-20mA		PSIG-300-20FT
Optional Cards & Other	Modbus TCP/IP Communication Card		CMC-EIP01
	I/O Card - Additional 4 digital inputs and 2 transistor outputs		EMC-D42A
	I/O Card - Additional 6 digital inputs		EMC-D611A
	I/O Card - Additional 6 relay outputs	EMC-R6AA	



8" MAGFORCE HIGH EFFICIENCY MOTOR

REWINDABLE THREE-PHASE 75-175 HP, 460/575 V 120 HZ

STANDARD SPECIFICATIONS

- Sand Fighter® models are equipped with Franklin's robust Sand Fighter sealing system for durability against sand or other abrasives.
- Max 3600 rpm (4 pole, 120 Hz); Nominal 3450 rpm (4 pole, 115 Hz) Maximum temperature winding wire NEMA class 200
- Standard rewindable motor with PEZ/PA winding insulation
- 8" double flange NEMA mounting design
- All motors with factory installed leads, motor lead length: 19 ft
- Stainless steel shell
- Liquid lubricated radial bearings and high capacity Kingsbury type 10000 lb thrust bearing for 100% maintenance free operation
- Pressure-equalizing diaphragm, spring pre-loaded
- Sand slinger
- Nominal ambient temperature: 86°F with 1.5 ft/s cooling flow
- Stainless steel splined shaft
- Max. storage temperature: 5°F to 140°F
- System Supply Voltage: 460/575 V (120 Hz)
- Voltage Tolerance: $\pm 10\% U_N$
- DOL-start
- Frequency of starts: 10 starts/hour (with min. 3 minutes resting time), equally distributed
- Motor ingress protection IP68
- NSF/ANSI 61 Certified
- Motor installation orientation: Vertical / horizontal (shaft end heightened)
- Rotation counter clockwise facing shaft end (rotation reversible)

MOTOR PERFORMANCE DATA 460 V / 120 HZ

Motor Model No.	P _N [HP/kW]	P _{MAX} [HP/kW]	n _N [rpm]	I _{MAX} [A]	I _A /I _{MAX} * [A]	n [%]	cos phi	T _A /T _N * [lb-in]
2630145331	75 / 55	86 / 63	3600	91	1	93.3	0.95	1
2630145331	100 / 75	115 / 86	3600	124	1	92.5	0.95	1
2630165331	125 / 93	143 / 107	3600	160	1	93.0	0.95	1
2630185331	150 / 112	172 / 128	3600	182	1	93.3	0.95	1
2630185331	175 / 130	201 / 149	3600	216	1	92.6	0.95	1

Performance data are based on measurements with Franklin Electric original equipment.
 *Since this is an integrated system (motor plus electronics) these figures relate to VFD input.

MOTOR PERFORMANCE DATA 575 V / 120 HZ

Motor Model No.	P _N [HP/kW]	P _{MAX} [HP/kW]	n _N [rpm]	I _{MAX} [A]	I _A /I _{MAX} * [A]	n [%]	cos phi	T _A /T _N * [lb-in]
2630245331	75 / 55	86 / 63	3600	79	1	93.3	0.95	1
2630245331	100 / 75	115 / 86	3600	99	1	92.5	0.95	1
2630265331	125 / 93	143 / 107	3600	128	1	93.0	0.95	1
2630285331	150 / 112	172 / 128	3600	146	1	93.3	0.95	1
2630285331	175 / 130	201 / 149	3600	173	1	92.6	0.95	1

Performance data are based on measurements with Franklin Electric original equipment.
 *Since this is an integrated system (motor plus electronics) these figures relate to VFD input.

MOTOR COMPARISON

Feature	Induction Motor	MagForce High Efficiency Motor
Input Voltage [V]	230, 460, 575	460/575
Minimum Frequency [Hz]	30	60
Maximum Frequency [Hz]	60	120
Voltage Frequency	$\pm 10\%$	$\pm 10\%$
Construction	Sand Fighter	Sand Fighter (Permanent Magnet)
Speed [rpm]	3450	3600
Max Efficiency Range [%]	85-86	92-93
VFD Requirement	No	Yes
Weight Example (125 HP) [lbs]	700	373
Length Example (125HP) [in]	69	52



8" MAGFORCE HIGH EFFICIENCY SYSTEM: ORDER INFORMATION

SYSTEM WITH CERUS X-DRIVE

The system includes: MagForce High Efficiency Motor with lead and Cerus X-Drive in NEMA 3R panel configurations or as a standalone NEMA drive. The Cerus® X-Drive Variable Frequency Drive (VFD) is Franklin Electric's all-inclusive drive solution for a variety of markets.

HP	Drive Input Voltage	MagForce High Efficiency Motor						Cerus X-Drive*								Output Filter Options**			
		Motor Only	Max Amps at HP Load	Volts/ Hz	S.F.	Motor Lead	"L" Dimension	NEMA 3R Panel***				NEMA 1 Drive Only				dV/dt Filter		Sine Wave Filter	
								in	mm	Model No.	Height (in)	Width (in)	Depth (in)	Model No.	Height (in)	Width (in)	Depth (in)	NEMA 1	NEMA 3R
75	460	2630145331	91	460/120	1.15	DOL (3)	47.4	1205	XS4BH075-3A	48	30	16	CXD-091A-4V	19.69	11.02	10.04	VIK130A01	VIK130A03	MSD0110A300
100		2630145331	124				47.4	1205	XS4BH100-3A	48	30	16	CXD-150A-4V	21.65	12.99	10.83	VIK160A01	VIK160A03	MSD0130A300
125		2630165331	160				51.8	1316	XS4BH125-3A	53	35	16	CXD-180A-4V	21.65	12.99	10.83	VIK200A01	VIK200A03	MSD0160A300
150		2630185331	182				58.3	1482	XS4BH150-3A	53	35	16	CXD-220A-4V	23.19	14.57	11.81	VIK250A01	VIK250A03	MSD0200A300
175		2630185331	216				58.3	1482	XS4BH175-3A	53	35	16	CXD-220A-4V	23.19	14.57	11.81	VIK305A01	VIK305A03	MSD0250A300
75	575	2630245331	79	575/120	1.15	DOL (3)	47.4	1205	XP6BH075-3A	48	30	16	CXD-104A-6V	23.19	14.57	11.81	VIK130A01	VIK130A03	MSD0110A300
100		2630245331	99				47.4	1205	XP6BH100-3A	48	30	16	CXD-150A-6V	23.19	14.57	11.81	VIK160A01	VIK160A03	MSD0130A300
125		2630265331	128				51.8	1316	XP6BH125-3A	53	35	16	CXD-180A-6V	31.50	16.54	11.81	VIK200A01	VIK200A03	MSD0160A300
150		2630285331	146				58.3	1482	XP6BH150-3A	53	35	16	CXD-220A-6V	31.50	16.54	11.81	VIK250A01	VIK250A03	MSD0200A300
175		2630285331	173				58.3	1482	XP6BH175-3A	53	35	16	CXD-220A-6V	31.50	16.54	11.81	VIK305A01	VIK305A03	MSD0250A300

The system includes: MagForce High Efficiency Motor with lead and Cerus X-Drive in NEMA 3R panel configurations or as a standalone NEMA drive.

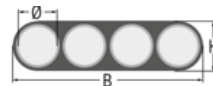
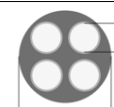
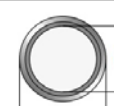
The Cerus® X-Drive Variable Frequency Drive (VFD) is Franklin Electric's all-inclusive drive solution for a variety of markets.

*NOTE: Firmware version 1.1 or newer is required for permanent magnet motor (or MagForce) functionality.

**Output filters are required when using an X-Drive with a permanent magnet motor. dV/dt filters cover motor lead lengths up to 800'. A sine wave filter is required for lead lengths greater than 800'.

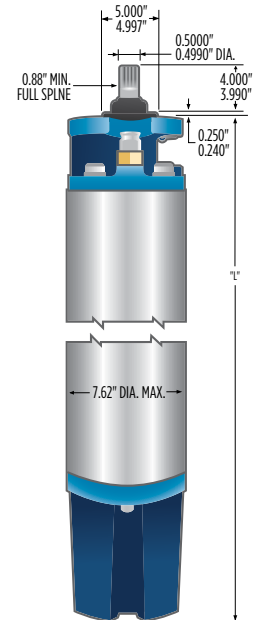
***NEMA 3R panels include door-mounted keypad with HOA functionality, a circuit breaker, dV/dt filter, and line reactor or integrated DC Choke

MOTOR LEADS

Lead	HP	Ø [mm2]	Dim. [in]	Length [ft]
	75-100	4G16	B 1.50 H 0.50	19
	125	4G25	D 1.26	19
	150-175	3RD 1x35 + Ground lead 1x35	D 0.60	19

Leads are designed for submerged operation. For air operation please consult Franklin Electric.

Leads are factory installed, consult Franklin Electric prior to removal.



ACCESSORIES & KITS

Accessories	Detail	Used With	Part Number
Fill Solution	FES92 concentrated solution	8 & 10" MagForce High Efficiency Motors	151300907*
Fill Solution Tool Kit	Syringe & Test Pin		308018263
PT-100 Sensor	6-12" Rewindable & PM Motors - 32ft lead length		308016401**
Pressure Transducer	Pressure Transducer, 100PSIG, 4-20mA	Cerus X-Drive models	PSIG-100-20FT
	Pressure Transducer, 200PSIG, 4-20mA		PSIG-200-20FT
	Pressure Transducer, 300PSIG, 4-20mA		PSIG-300-20FT
Optional Cards & Other	Modbus TCP/IP Communication Card		CMC-EIP01
	I/O Card - Additional 4 digital inputs and 2 transistor outputs		EMC-D42A
	I/O Card - Additional 6 digital inputs		EMC-D611A
	I/O Card - Additional 6 relay outputs	EMC-R6AA	

*Mix 1 part FES92 with 2 parts deionized water, shake concentrate prior to using

**Reference installation guide for appropriate sensor depth



10" MAGFORCE HIGH EFFICIENCY MOTOR

REWINDABLE THREE-PHASE 250-300 HP, 460/575 V, 120 HZ

STANDARD SPECIFICATIONS

- Sand Fighter® models are equipped with Franklin's robust Sand Fighter sealing system for durability against sand or other abrasives.
- Max 3600 rpm (4 pole, 120 Hz); Nominal 3450 rpm (4 pole, 115 Hz) Maximum temperature winding wire NEMA class 200
- Standard rewindable motor with PE2/PA winding insulation
- 10" double flange mounting design
- All motors with factory installed leads, motor lead length: 19 ft
- Stainless steel shell
- Liquid lubricated radial bearings and high capacity Kingsbury type 13500 lb thrust bearing for 100% maintenance free operation
- Pressure-equalizing diaphragm, spring pre-loaded
- Sand slinger
- Nominal ambient temperature: 86°F with 1.5 ft/s cooling flow
- Stainless steel splined shaft
- Max. storage temperature: 5°F to 140°F
- System Supply Voltage: 460/575 V (120 Hz)
- Voltage Tolerance: ± 10 % UN
- DOL-start
- Frequency of starts: 10 starts/hour (with min. 3 minutes resting time), equally distributed
- Motor ingress protection IP68
- NSF/ANSI 61 Certified
- Motor installation orientation: Vertical / horizontal (shaft end heightened)
- Rotation counter clockwise facing shaft end (rotation reversible)

MOTOR PERFORMANCE DATA 460 V / 120 HZ

Motor Model No.	P _N [HP/kW]	P _{MAX} [HP/kW]	n _N [rpm]	I _{MAX} [A]	I _A /I _{MAX} * [A]	n [%]	cos phi	T _A /T _N * [lb-in]
2640285331	250 / 185	288 / 214	3600	354	1	93.6	0.95	1
2640295331	300 / 220	345 / 258	3600	423	1	94.2	0.95	1

Performance data are based on measurements with Franklin Electric original equipment.
 *Since this is an integrated system (motor plus electronics) these figures relate to VFD input.

MOTOR PERFORMANCE DATA 575 V / 120 HZ

Motor Model No.	P _N [HP/kW]	P _{MAX} [HP/kW]	n _N [rpm]	I _{MAX} [A]	I _A /I _{MAX} * [A]	n [%]	cos phi	T _A /T _N * [lb-in]
2640385331	250 / 185	288 / 214	3600	17	1	93.6	0.95	1
2640395331	300 / 220	345 / 258	3600	20	1	94.2	0.95	1

Performance data are based on measurements with Franklin Electric original equipment.
 *Since this is an integrated system (motor plus electronics) these figures relate to VFD input.

MOTOR COMPARISON

Feature	Induction Motor	MagForce High Efficiency Motor
Input Voltage	460,575	460/575
Minimum Frequency	30	60
Maximum Frequency	60	120
Voltage Frequency	±10%	±10%
Construction	Sand Fighter	Sand Fighter (Permanent Magnet)
Speed (rpm)	3450	3600
10" 200 HP Weight (lbs)	990	659
10" 200 HP Length (in)	76	65



10" MAGFORCE HIGH EFFICIENCY SYSTEM: ORDER INFORMATION

SYSTEM WITH CERUS X-DRIVE

The system includes: MagForce High Efficiency Motor with lead and Cerus X-Drive in NEMA 3R panel configurations or as a standalone NEMA drive. The Cerus® X-Drive Variable Frequency Drive (VFD) is Franklin Electric's all-inclusive drive solution for a variety of markets.

HP	Drive Input Voltage	MagForce High Efficiency Motor							Cerus X-Drive*							Output Filter Options**			
		Motor Only	Max Amps at HP Load	Volts/Hz	S.F.	Motor Lead	"L" Dimension		NEMA 3R Panel***				NEMA 1 Drive Only				dV/dt Filter		Sine Wave Filter
							in	mm	Model No.	Height (in)	Width (in)	Depth (in)	Model No.	Height (in)	Width (in)	Depth (in)	NEMA 1	NEMA 3R	NEMA 1/3R
250	460	2640285331	354	460/120	1.15	DOL (3)	65.3	1659	XS4BH250-3A	75"	68"	29"	CXD-370A-4V	31.50	16.54	11.81	V1K480A01	V1K480A03	MSD0362A300
300		2640295331	423						XS4BH300-3A				CXD-460A-4V	39.37	19.69	15.63	V1K600A01	V1K600A03	MSD0480A300
250	575	2640385331	284	575/120			69.6	1769	XP6BH250-3A	CXD-350A-6V	39.37	19.69	15.63	V1K480A01	V1K480A03	MSD0362A300			
300		2640395331	339		XP6BH300-3A	CXD-430A-6V	56.50	27.56	15.91	V1K600A01	V1K600A03	MSD0480A300							

The system includes: MagForce High Efficiency Motor with lead and Cerus X-Drive in NEMA 3R panel configurations or as a standalone NEMA drive.

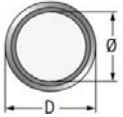
The Cerus® X-Drive Variable Frequency Drive (VFD) is Franklin Electric's all-inclusive drive solution for a variety of markets.

*NOTE: Firmware version 1.1 or newer is required for permanent magnet motor (or MagForce) functionality.

**Output filters are required when using an X-Drive with a permanent magnet motor. dV/dt filters cover motor lead lengths up to 800'. A sine wave filter is required for lead lengths greater than 800'

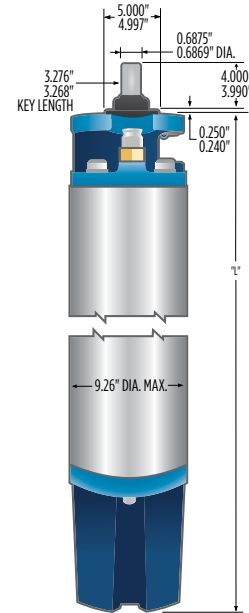
***NEMA 3R panels include door-mounted keypad with HOA functionality, a circuit breaker, dV/dt filter, and line reactor or integrated DC Choke

MOTOR LEADS

Lead	HP	Wire Type	Ø [mm2]	D [in]	Length [ft]
	all ratings	Power	3RD 1x70	0.81	19
		Ground (optional)	1RDx35	0.60	19

Leads are designed for submerged operation. For air operation please consult Franklin Electric.

Leads are factory installed, consult Franklin Electric prior to removal.



ACCESSORIES & KITS

Accessories	Detail	Used With	Part Number
Fill Solution	FES92 concentrated solution	8 & 1 0" MagForce High Efficiency Motors	151300907*
Fill Solution Tool Kit	Syringe & Test Pin		308018263
PT-100 Sensor	6-12" Rewindable & PM Motors - 32ft lead length	Cerus X-Drive models	308016401**
Pressure Transducer	Pressure Transducer, 100PSIG, 4-20mA		PSIG-100-20FT
	Pressure Transducer, 200PSIG, 4-20mA		PSIG-200-20FT
	Pressure Transducer, 300PSIG, 4-20mA		PSIG-300-20FT
Optional Cards & Other	Modbus TCP/IP Communication Card		CMC-EIP01
	I/O Card - Additional 4 digital inputs and 2 transistor outputs		EMC-D42A
	I/O Card - Additional 6 digital inputs		EMC-D611A
	I/O Card - Additional 6 relay outputs	EMC-R6AA	

*Mix 1 part FES92 with 2 parts deionized water, shake concentrate prior to using

**Reference installation guide for appropriate sensor depth



franklinwater.com
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