



LAFERT NORTHAMERICA

Your Best Source for Metric Motors, Gearboxes & Coolant Pumps



2014-2015

Product Catalogue & Price List



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Lafert Delivers High Performance

High Performance Motors - Permanent Magnet Synchronous Design

The HP range was specifically designed with energy saving in mind. IE4* - Super Premium Efficiency combines robust reliability with the targeted energy savings requirements of today. Both design types are suited for renewable energy applications.

The HPS/HPI ranges combines the mature and well proven technology of both AC Brushless Servomotors and AC Induction Motors, resulting in a cost optimized and reliable motor range in accordance with IE4*-Super Premium efficiency.

Stand Alone Design HPS

Lafert offers a wide range of unique stand-alone Permanent Magnet Motors classified as HPS (High Performance Stand-alone).

- Stocked Motors -

* Pending approval by IEC

Integral Drive Design HPI

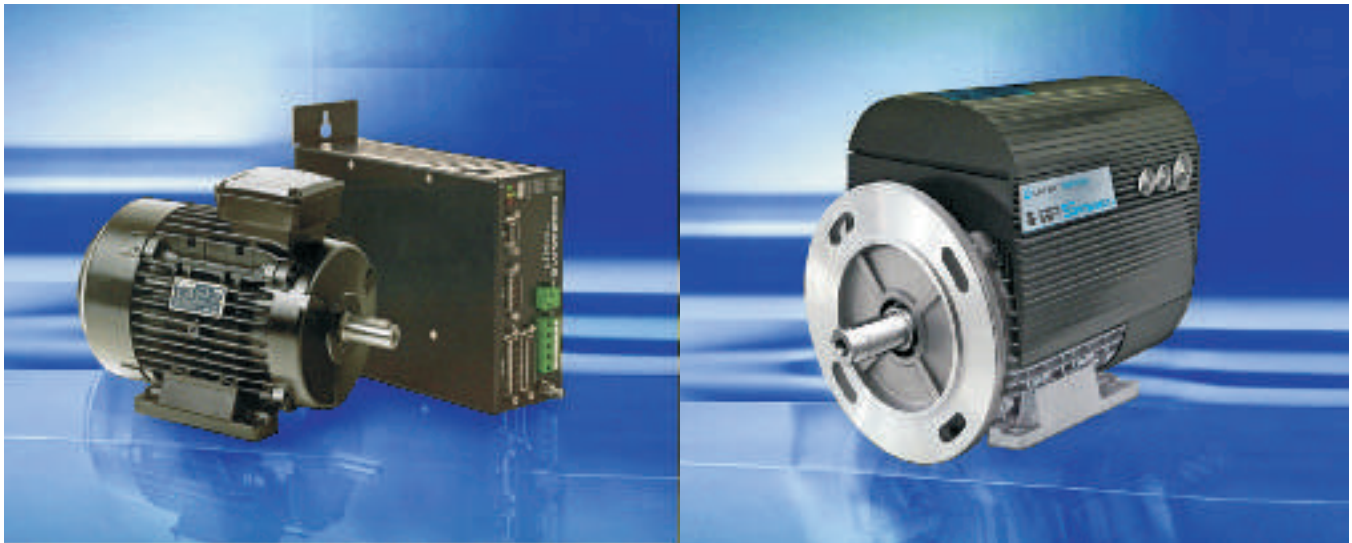
HPI (High Performance Integrated Drive) is the Lafert range of PM Motors with integrated sensorless drives.

The integration of the sensorless drive and the efficiency PMSM (Permanent Magnet Synchronous Motor) offers a state-of-the-art solution: compact, robust and efficient.

- OEM Specific Applications -

TARGET APPLICATIONS:

Pumps * Fans * Air compressors * Cooling compressors * Vacuum pumps * Conveyors



Compliance Certification (CC) number 046B



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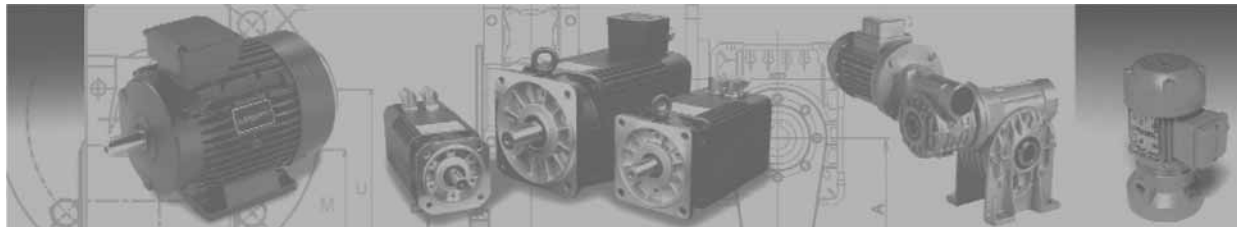
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GENERAL MECHANICAL CHARACTERISTICS

FRAME

The housing for frame sizes 56 & 63 as well as 180 - 315 feature motor pedestals that are integrally cast. Frame sizes 71 - 160 have pedestals that are removable as they are bolted on separately. Frame sizes 56 - 160 are pressure die cast aluminum. Frame sizes 180 - 315 are cast iron. 180 frame motors may be stocked in either material depending on motor design.

FLANGES

Frame sizes 56 - 160 have pressure die cast aluminum flanges. All types 180 - 315 have cast iron flanges and end shields. Special sizes and shapes are available upon request in die cast aluminum at additional charges.

BEARINGS

The bearings mounted on our motors are the best available. They are a rigid radial type with a single row of balls. The types used for different frame sizes are indicated in the table below. Roller bearings are used for frame sizes 315-4, 6 and 8 poles.

FRAME SIZE	56	63	71	80	90	100	112	132	160	180-2	180-4/6/8
Drive End	6201-2Z	6202-2Z	6203-2Z	6204-2Z	6205-2Z	6206-2Z	6306-2Z	6208-2Z	6309-2Z	6211	6311
Non-Drive End	6201-2Z	6202-2Z	6203-2Z	6204-2Z	6205-2Z	6206-2Z	6306-2Z	6208-2Z	6309-2Z	6211	6311
FRAME SIZE	200-2	200-4/6/8	225-2	225-4/6/8	250-2	250-4/6/8	280-2	280-4/6/8	315-2	315-4/6/8	
Drive End	6212	6312	6313	6313	6314	6314	6316	6316	6317	N319	
Non-Drive End	6212	6212	6313	6313	6314	6314	6316	6316	6314	6319	

Bearings of type designation "2Z" have two shields for each bearing which are pre-lubricated by the manufacturer. All bearings have clearance of (C3). Covers with grease lubricators can also be supplied. All our bearings are pre-loaded axially with compensating rings of tempered steel. 180-315 have regreasable bearings; both drive and non-drive end shields are equipped with grease fittings.

COOLING

A fan with bi-directional blades supplies cooling. The fan is made of glass-reinforced polyethylene which is resistant to temperatures of up to 160° Celsius. Pressure diecast aluminum fans can be supplied on request.

FAN COVER

Frame sizes 56 - 112 are either a plastic-nylon composite, aluminum, or rolled steel. Sizes 132 - 180 are rolled steel and larger than 200 frame sizes are cast iron or rolled steel depending on model.

ROTORS

Rotors are a "squirrel-cage" design, constructed of pressure die-cast aluminum or aluminum alloy and dynamically balanced. Steel shafts (C40) can be either standard or specially made to your requirements. Standard motors have the shaft extending from one end of the motor only. Extensions from both ends can be supplied on request.

PAINT

All motors with the exception of explosion proof design (AB/AC) are normally painted with a semi-gloss black paint (RAL9005). Explosion proof motors (AB/AC) are normally painted blue with RAL5010 which is an acid-protection coating for heavy duty applications.

NOISE

Motors are constructed to comply with international standards.

GENERAL MECHANICAL CHARACTERISTICS

TYPE OF PROTECTION

The type of protection against accidental contact and/or the entry of water or foreign particles is denoted by IEC 34-5. The standard is composed of two letters followed by two numbers.

- IP** The first two letters are a reference to the type of protection provided.
- 1st number** From 0 to 6, indicates progressively the level of protection against electrical contact, and/or protection of the motor against entry of foreign bodies.
- 2nd number** From 0 to 8, indicates progressively the level of protection against the entry of water.

DEGREE OF PROTECTION

IP54 ————— The first number indicates complete protection against contact with live or moving parts inside the casing.
 Protection against harmful dust deposits. Dust is not prevented from entering, but must not interfere with the proper functioning of the motor.
 The second number indicates protection against water sprayed on the motor from any direction.

IP55 ————— The first number indicates complete protection against contact with live or moving parts inside the casing.
 Protection against harmful dust deposits. Dust is not prevented from entering, but must not interfere with the proper functioning of the motor.
 The second number indicates protection against water jet from a nozzle onto the motor from any direction.

IP56 ————— The first number indicates complete protection against contact with live or moving parts inside the casing.
 Protection against harmful dust deposits. Dust is not prevented from entering, but must not interfere with the proper functioning of the motor.
 The second number indicates protection against heavy seas or water projected in powerful jets.

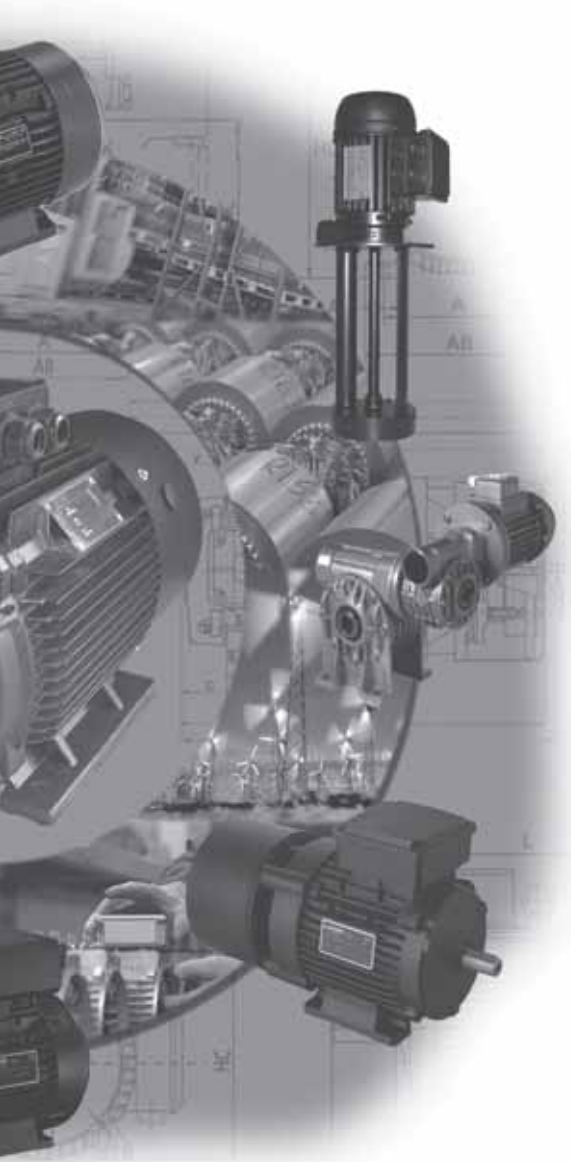
IP67 ————— The first number indicates complete protection against contact; no ingress of dust.
 The second number indicates ingress of water in harmful quantity shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time (up to 1 meter of submersion).

NOTE

All motors are Totally Enclosed Fan Cooled (TEFC) unless otherwise specified.

RECOMMENDATION

Lafert N.A. recommends the use of filters and/or reactors when using a variable frequency drive to prevent failures due to spikes & surges. Failure to install proper protection may void the motor warranty.



Permanent Magnet Synchronous & Brushless Servo Motors - High Performance Motors



HPI - Integral Drive Design - Targeted Towards OEM Specific Applications

Lafert's High Performance Drive motors are offered with the added convenience of a surface mounted, PWM output and electronic control. This marriage has garnered the HPI acronym.

The convergence of these technologies allows for simple set up and integration to the application, resulting in fast installation. Such a money saving feature is key, especially when considering large facilities with multiple installation requirements.

Simple and effective, this approach to motor control allows the user to effortlessly connect to line power, eliminating wire costs between the drive and motor. Thanks to our method of production, units are designed specifically to the application challenges. Such intimate knowledge serves as a large advantage as the limits will be preset to the controls and optimal performance will be guaranteed.

Our design surpasses that of those in the competition by utilizing Rare Earth surface mounted permanent magnets to a specially skewed rotor. Such standards ensure full and dense magnetic flux with demagnetizing resistance.

- Compact & Lightweight Design: Up to 50% smaller frame sizes than units with comparable power capacities.
- Eliminates Reflective Wave Voltage: Distance between control and motor can result in Standing Wave or Reflective Wave phenomena. With the controls integral to the unit, such distances are removed from the equation, thus successfully preventing premature failures.
- Saves on cabinet space: No requirement for separate control panel and cabinets.
- Simple and singular set up: On board, optimally selected controls provides for 1 spot set up and guaranteed compatible performance.
- Suitable for a vast array of applications. Typically they include: Ventilation (Fans), Fluid Transfer (Pumps), Conveyors, Web Handling & more!
- Production Range: 2 and 4 pole designs from 1 through to 30hp.
- Motor frame sizes from IEC 80 to 180.
- Versatile mounting capability: B3, B34, B35, B14 and B5 available.
- PTO Thermal Protection.
- Rotor is equipped with surface mount Rare Earth Permanent Magnets
- Insulation Class F with B rise.
- IP55 Ingress Protection across entire range
- Feedback options include: Resolver, Encoder, Hall Sensor and Tachometer. (Open Loop operation is standard)
- PWM Carrier frequency range: From 4kHz to 12kHz
- Output Frequency Limit: 400Hz
- Four 0-24VDC user selectable NPN/PNP Digital Inputs available
- 1 Programmable Analogue Voltage Input: 0-10VDC
- 1 Programmable Analogue Current Input: 0/4-20mA
- 1 Programmable Relay Output
- Unit can be programmed via keypad or via PC using Lafert Software
- Output Rating: 150% Overload for 60 seconds and 175% overload for 2 seconds.
- Serial Bus Communication: RS485 or CANbus. CANopen for cascade mode.
- Input Voltage Range: 1ph, 200-240V up to 3 horsepower & 3ph, 230/460V +/- 10% for the entire range.



Brushless Servo Motors

Boasting one of the most complete lines of servo motors available in the market, Lafert offers Servo units with nominal torques from 0.3Nm to 150Nm and Direct Drive motors from 8Nm to 1000Nm. Due to our integrated manufacturing process, we are one of the few independent manufacturers that can supply a wide range of tailor made and standard products for the Automation field, providing excellent flexibility, versatility and cost effectiveness. Subjected to gruelling climatic and strict load tests, our Brushless servo motors are specifically engineered to meet today's challenging automation applications.

Typical standard features include:

- Low loss Ferrite-Silicone core lamination stack and peripheral surface mounted Rare Earth Magnet rotor.
- Nickel Chromium steel alloy shafts
- Permanently lubricated 2ZC3 bearings (-40DegC to 140DegC rated)
- Die cast flange, endshields and cover.
- Extruded aluminium case.
- Feedback options: 2, 4 and 6 pole Resolvers, Encoder, brushless AC Tachometer and Hall-Effect Sensors.
- Thermal sensor over temperature protection.
- Right Angle, straight and swivel type connectors for both power and feedback connections.
- IMB5 Mounting (V1 and V3 available)
- Large Speed Range: 1200, 2000, 3000, 4000 and 6000 rpm designs to choose from.
- Natural Convection & Radiation Cooling.
- Class F Insulation
- IP65 degree of ingress Protection across the entire range with option to increase to IP67
- 140DegC trip PTO Thermal protection (NTC/PTC types available)
- Rapid acceleration and deceleration: Up to 90.00 rad/sec²
- Low Speed Torque Ripple elimination due to superior distribution of the rotor magnetic filed.
- Reduced dimentions

Additional optional features include:

Failsafe Holding Brake: Fitted in the flanged endshield, equipped with permanent magnets and electromagnetic release.

Forced Ventilation: Our typical design does not require this as we have allowed for heat dissipation in the most gruelling processes. However, in cases where extreme ambients are present or where the torque output needs to be increased, this method of cooling allows for up to 30% increase in output.

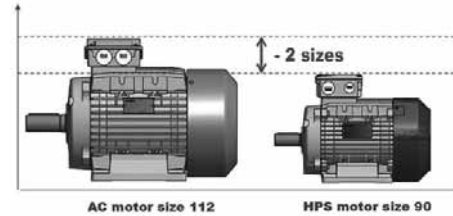
Water Cooling Jacket for high ambient applications and also where increasing output power is deemed necessary.

IE4* Efficiency Level - Super Premium Efficiency (Specially Designed for its energy saving potential and renewable energy applications)

The new Lafert High Performance motor combines the technology of both brushless permanent magnet servo motors and conventional AC induction motors.

The following features of our HP Motors may vary depending on series and type:

- Stand-alone drive (HPS range) • Sensorless control or with Feedback Device • Serial isolated RS485 (eventually for "Cascade" connection) or serial isolated CANBus • Mounting: IM B3, B5, B14, B34, B35 • Admissible environmental temperature: from -15 °C up to +40 °C, with altitudes 1000m above sea level
- Drive operating voltage: 230 or 460 Vac
- Insulation class: "F"; temperature rise to class B (TEFC execution)
- IP55 degree of protection for the whole range
- On-Off PTO switch for thermal protection (NTC and PTC are available)
- Optional feedback by choice: resolver, encoder, tacho and Hall sensors (several combinations may be added to this list)
- Reduced size & weight by approximately 50% compared to a standard AC motor
- Rare earth permanent magnet rotors
- Motor Power rating: .75HP - 40HP
- Available speeds: 1500, 1800, 3000, 3600, 4500 rpm



Notes:

"It is necessary to source a Variable Frequency Drive that can accept BEMF parameter details in order to successfully commutate the motor shaft." "Variable Frequency Drives must have a 0% slip algorithm to run PM synchronous motors."
 *Standard Lafert flange will be used - Surcharge may apply for installation,

see page 25 for dimensional drawing

* Pending approval by IEC

HPS - STAND ALONE MOTOR 3600 RPM - 400V

Part Number	Rated Power	Rated Torque	Peak Torque	Voltage Constant	Torque Constant Speed	BEMF at Rated Speed	Rated Current	Efficiency HPS	Weight	List Price
	Pn kW	Mn Nm	Mpk Nm	Ke Vs	Kt Nm/A	En Vrs	In Arms	η %	lbs	\$
3600 min⁻¹										
HPS71 3600 16	0.75	2.0	6.0	0.73	1.26	275	1.6	90.0%	11	767.00
HPS71 3600 23	1.1	2.9	8.8	0.73	1.26	275	2.3	90.9%	12	864.00
HPS71 3600 32	1.5	4.0	11.9	0.73	1.26	275	3.2	91.6%	13	938.00
HPS71 3600 46	2.2	5.8	17.5	0.73	1.26	275	4.6	91.8%	15	1,044.00
HPS90 3600 46	2.2	5.8	17.5	0.73	1.26	275	4.6	91.7%	22	1,135.00
HPS90 3600 64	3.0	8.0	23.9	0.73	1.26	275	6.3	92.4%	26	1,296.00
HPS90 3600 84	4.0	10.6	31.8	0.73	1.26	275	8.4	92.8%	31	1,392.00
HPS90 3600 116	5.5	14.6	43.8	0.73	1.26	275	11.6	93.3%	35	1,689.00
HPS112 3600 116	5.5	14.6	43.8	0.73	1.26	275	11.6	93.2%	51	1,966.00
HPS112 3600 158	7.5	19.9	59.7	0.73	1.26	275	15.8	93.9%	57	2,156.00
HPS112 3600 232	11.0	29.2	87.5	0.73	1.26	275	23.2	94.3%	66	2,404.00
HPS112 3600 317	15.0	39.8	119.4	0.73	1.26	275	31.7	94.5%	73	3,084.00
HPS132 3600 317	15.0	39.8	119.4	0.73	1.26	275	31.7	94.2%	112	4,427.00
HPS132 3600 391	18.5	49.1	147.2	0.73	1.26	275	39.1	94.6%	128	5,359.00
HPS132 3600 465	22.0	58.4	175.1	0.73	1.26	275	46.5	95.0%	143	6,143.00
HPS132 3600 634	30.0	79.6	238.7	0.73	1.26	275	63.4	95.1%	159	6,474.00

HPS - STAND ALONE MOTOR 1800 RPM - 400V

Part Number	Rated Power	Rated Torque	Peak Torque	Voltage Constant	Torque Constant Speed	BEMF at Rated Speed	Rated Current	Efficiency HPS	Weight	List Price
	Pn kW	Mn Nm	Mpk Nm	Ke Vs	Kt Nm/A	En Vrs	In Arms	η %	lbs	\$
1800 min⁻¹										
HPS71 1800 12	0.55	2.9	8.8	1.45	2.5	273	1.2	87.7%	11	767.00
HPS71 1800 16	0.75	4.0	11.9	1.45	2.5	273	1.6	88.4%	13	864.00
HPS71 1800 23	1.1	5.8	17.5	1.45	2.5	273	2.3	88.9%	15	938.00
HPS71 1800 32	1.5	8.0	23.9	1.45	2.5	273	3.2	89.4%	16	1,044.00
HPS90 1800 32	1.5	8.0	23.9	1.45	2.5	273	3.2	91.2%	22	1,135.00
HPS90 1800 46	2.2	11.7	35.0	1.45	2.5	273	4.6	91.6%	26	1,296.00
HPS90 1800 64	3.0	15.9	47.7	1.45	2.5	273	6.3	92.1%	31	1,392.00
HPS90 1800 84	4.0	21.2	63.7	1.45	2.5	273	8.4	92.4%	38	1,689.00
HPS112 1800 84	4.0	21.2	63.7	1.45	2.5	273	8.4	92.5%	57	1,966.00
HPS112 1800 116	5.5	29.2	87.5	1.45	2.5	273	11.6	92.6%	66	2,156.00
HPS112 1800 158	7.5	39.8	119.4	1.45	2.5	273	15.8	93.3%	72	2,404.00
HPS112 1800 232	11.0	58.4	175.1	1.45	2.5	273	23.2	94.0%	80	3,084.00
HPS132 1800 232	11.0	58.4	175.1	1.45	2.5	273	23.2	94.2%	112	4,427.00
HPS132 1800 317	15.0	79.6	238.7	1.45	2.5	273	31.7	94.6%	128	5,359.00
HPS132 1800 391	18.5	98.1	294.4	1.45	2.5	273	39.1	94.9%	143	6,143.00

Higher Powers in each Frame may have oversized bearings on drive-end.

3-Phase: 60Hz standard

1.15 Service Factor (SF) ▪ Available in 208 230/460V - 333/575V ▪ High in-rush current

Frame sizes 100 and above available in 575/990V version ▪ Frame sizes 132 and above available in 460/776V ▪ TEFC

Threaded hole in output shaft is standard ▪ Squirrel Cage ▪ Class F ▪ IP55 ▪ IEC - CEI - UNEL MEC - AMPH/LNP Motors (CSA Approved)

Motors (cURus approved) - (UL recognized are Class 'B') ▪ Compliant with EISA regulations

LNP = 15:1 (Constant Torque) Turn Down ▪ PTC's overload protection included

Higher turn down (Constant Torque) - Please inquire

See pages 27 to 29 for AMPH dimensional drawings (for frames 90 to 160L)
See pages 30 for LNP cast iron dimensional drawings (for frames 180 to 315L)

2 POLE - 3600 RPM

Part Number	Output Power		Speed min ⁻¹	Torque Nm	EFF. 100%	Full Load Amps		Weight (lbs)	List Price \$
	kW	HP				460 V	575 V		
AMPH 90S AA2 ⊙ 9L	1.5	2	3515	4.1	85.5	2.8	2.3	37	819.00
AMPH 90L BA2 ⊙ 9L	2.2	3	3480	6.0	86.5	3.8	3.1	41	1,073.00
AMPH 100L AA2 9L	3	4	3515	8.2	88.5	4.9	4.0	53	1,180.00
AMPH 112M BA2 9L	4	5.5	3540	10.8	88.5	6.5	5.2	79	1,520.00
AMPH 112M CA2 9L	5.5	7.5	3530	14.9	89.5	8.9	7.2	79	1,908.00
AMPH 132S ZA2 9L	5.5	7.5	3540	14.8	89.5	8.7	7.0	93	2,001.00
AMPH 132S TA2 9L	7.5	10	3540	20.2	90.2	11.9	9.6	106	2,495.00
AMPH 132M TA2 9L	9.2	12.4	3545	24.8	90.2	14.4	11.7	111	2,833.00
AMPH 132M RA2 9L	11	15	3535	29.7	91.0	17.7	14.3	133	3,055.00
AMPH 160M YA2 9L	11	15	3550	29.6	91.0	17.0	13.8	199	3,170.00
AMPH 160M ZA2 9L	15	20	3555	40.3	91.0	23.9	19.3	236	4,174.00
AMPH 160L ZA2 9L	18.5	25	3555	49.7	91.7	30.6	24.4	239	4,938.00
AMPH 160L TA2 9L	22	30	3540	59.3	91.7	35.3	28.7	239	5,408.00
LNP 180M E2 +	22	30	3555	59.1	91.7	33.8	27.1	464	4,967.00
LNP 200L D2 +	30	40	3555	80.6	92.4	46.3	37.1	520	7,102.00
LNP 200L E2 +	37	50	3560	99.3	93.0	55.5	44.4	552	7,749.00
LNP 225M E2 +	45	60	3560	120.7	93.6	68.6	54.9	710	9,611.00
LNP 250M E2 +	55	75	3565	147.3	93.6	83.8	67.0	926	11,948.00
LNP 280S D2 +	75	100	3565	200.9	94.1	111.2	88.9	1387	14,579.00
LNP 280M E2 +	90	120	3564	200.9	95.0	129.3	103.4	1433	16,564.00
LNP 315S D2 + +	110	125	3555	241.1	95.0	159.7	127.8	2048	30,298.00
LNP 315M E2 + +	132	180	125	295.5	95.4	191.7	153.3	2268	31,823.00
LNP 315L D2 + +	160	215	3560	295.5	95.4	233.9	187.1	2359	32,909.00
LNP 315L F2 + +	200	270	3565	354.1	95.8	294.4	235.5	2511	36,003.00

4 POLE - 1800 RPM

Part Number	Output Power		Speed min ⁻¹	Torque Nm	EFF. 100%	Full Load Amps		Weight (lbs)	List Price \$
	kW	HP				460 V	575 V		
AMPH 90S AA4 ⊙ 9L	1.1	1.5	1745	6.0	86.5	2.2	1.8	42	798.00
AMPH 90L BA4 ⊙ 9L	1.5	2	1735	8.2	86.5	2.9	2.4	42	904.00
AMPH 90L CA4 ⊙ 9L	1.8	2.4	1730	9.9	86.5	3.5	2.8	42	1,029.00
AMPH 112M BA4 9L	4	5.5	1760	21.7	89.5	6.9	5.6	79	1,537.00
AMPH 132S ZA4 9L	5.5	7.5	1760	29.9	91.7	9.3	7.5	120	2,150.00
AMPH 132M ZA4 9L	7.5	10	1760	40.7	91.7	13.0	10.4	133	2,456.00
AMPH 132M TA4 9L	9.2	12.4	1760	49.9	91.7	15.9	12.7	156	2,910.00
AMPH 160M ZA4 9L	11	15	1770	59.4	92.4	18.6	15.1	230	3,758.00
AMPH 160L ZA4 9L	15	20	1765	81.2	93.0	26.3	21.0	272	4,877.00
LNP 180M D4 +	18.5	25	1730	93.6	93.6	28.5	22.8	355	4,848.00
LNP 180L E4 +	22	30	1740	120.7	93.6	33.2	26.5	410	5,182.00
LNP 200L D4 +	30	40	1740	164.6	94.1	45.5	36.4	540	6,667.00
LNP 225S D4 +	37	50	1745	202.5	94.5	61.4	49.1	710	8,174.00
LNP 225M E4 +	45	60	1745	246.3	95.0	74.3	59.5	770	9,890.00
LNP 250M E4 +	55	75	1750	300.1	95.4	82.2	65.8	1015	12,222.00
LNP 280S D4 +	75	100	1755	408.1	95.4	109.6	87.7	1370	15,616.00
LNP 280M E4 +	90	120	1760	488.3	95.4	128.7	103.0	1485	17,451.00
LNP 315S D4 + +	110	125	1760	590.1	95.4	160.1	128.1	2249	29,883.00
LNP 315M E4 + +	132	180	1780	708.2	95.8	190.1	152.1	2337	32,464.00
LNP 315L D4 + +	160	215	125	857.9	95.8	229.4	183.5	2535	35,523.00
LNP 315L F4 + +	200	270	1781	1072.4	96.2	289.9	231.9	2712	38,601.00

⊙ = S/L dual set of holes on base (actual frame is 90L) (+) = indicates a cast iron frame / removeable feet optional

9L = indicates 9 lead hook up at 230/460V (YY/Y connection) (+ +) = indicates a cast iron frame / feet are not removable

Select sizes are available with dual mounting holes on the base

2 pole AMPH motors have high inrush current

1.15 Service Factor (SF) ▪ Available in 208 230/460V - 333/575V
 Frame sizes 100 and above available in 575/990V version ▪ Frame sizes 132 and above available in 460/776V ▪ TEFC
 Threaded hole in output shaft is standard ▪ Squirrel Cage ▪ Class F ▪ IP55 ▪ IEC - CEI - UNEL MEC - HE/LNA Motors (CSA Approved)
 AMH/AAMH motors (cURus approved) - (UL recognized are Class 'B') ▪ Compliant with EPACT regulations and are NRCAN approved

See pages 27 to 30 for dimensional drawings

2 POLE - 3600 RPM IE2 (USA only)

Part Number	HP	Speed min ⁻¹	EFF 100%	Full Load Amps 460 V	575 V	Weight (lbs)	List Price \$
HE 100L F2	9L 4.00	3500	87.5	4.8	4	51	962.00

4 POLE - 1800 RPM IE2 (USA only)

Part Number	HP	Speed min ⁻¹	EFF	Full Load Amps 460 V	575 V	Weight (lbs)	List Price \$
HE 100L E4	9L 3.00	1745	87.7	4.5	3.7	50	842.00
HE 100L F4	9L 4.00	1750	87.6	5.2	4.8	68	988.00

6 POLE - 1200 RPM IE2 Design H - High Torque

Part Number	HP	Speed min ⁻¹	EFF 100%	Full Load Amps 460 V	575 V	Weight (lbs)	List Price \$
AMH 90S AA6 ⊙ 9L	1.00	1145	80.0	2.0	1.6	40	841.00
AMH 90L BA6 ⊙ 9L	1.20	1150	80.0	2.5	2.0	41	975.00
AMH 100L AA6	1.50	1180	85.5	3.1	2.5	57	1,091.00
AMH 112M BA6 9L	2.00	1175	86.5	3.6	2.9	65	1,437.00
AMH 112M CA6 9L	3.00	1175	87.5	5.2	4.2	76	1,881.00
AMH 132S YA6 9L	4.00	1175	83.5	6.6	4.8	93	2,121.00
AMH 132M YA6 9L	5.50	1170	87.5	9.2	7.4	101	2,586.00
AMH 132 TA6 9L	7.50	1180	89.5	14.5	11.6	106	3,155.00
AMH 160M ZA6 9L	10.00	1170	89.5	13.7	11.0	185	3,560.00
AMH 160L TA6	15.00	1170	90.2	19.2	15.6	232	4,921.00

8 POLE - 900 RPM IE2

Part Number	HP	Speed min ⁻¹	EFF 100%	Full Load Amps 460 V	575 V	Weight (lbs)	List Price \$
LNP 180L E8+	15.00	875	88.5	20.8	16.6	415	5,135.00
LNP 200L E8+	20.00	860	89.5	25.6	20.5	485	7,108.00
LNP 225 S/M E8+	25.00	875	89.5	34.5	27.6	580	8,627.00
LNP 225 S/M D8+	30.00	880	91.0	39.8	31.8	648	9,460.00
LNP 250M E8+	40.00	880	91.0	52.4	41.9	900	11,468.00
LNP 280S D8+	50.00	880	91.7	65	51.9	1150	14,671.00
LNP 280M E8+	60.00	880	91.7	77.9	62.5	1300	16,386.00
LNP 315S D8++	75.00	880	93.0	93.7	74.9	2220	26,924.00
LNP 315M E8++	100.00	880	93.0	124.9	99.9	2435	31,072.00
LNP 315L D8++	120.00	880	93.6	148.9	119.2	2570	35,101.00
LNP 315L E8++	150.00	880	94.0	177	141	2728	37,935.00

6 POLE - 1200 RPM IE3

Part Number	HP	Speed min ⁻¹	EFF 100%	Full Load Amps 460 V	575 V	Weight (lbs)	List Price \$
LNP 180L D6+	20.00	1160	91.7	25.4	20.3	452	5,214.00
LNP 200L D6+	25.00	1165	93.0	31.3	25	509	6,592.00
LNP 200L E6+	30.00	1165	93.0	36.6	29.3	579	7,164.00
LNP 225 S/M D6+	40.00	1185	94.1	47.6	38.2	676	9,299.00
LNP 250 S/M E6+	50.00	1185	94.1	58.2	46.5	945	11,403.00
LNP 280 S/M D6+	60.00	1185	94.5	69.5	55.6	1241	14,606.00
LNP 280 S/M E6+	75.00	1185	94.5	86.8	69.5	1378	16,258.00
LNP 315S D6++	100.00	1185	95.0	115.2	92.1	1894	29,606.00
LNP 315M E6++	120.00	1185	95.0	144	115.2	2136	31,172.00
LNP 315L D6++	150.00	1185	95.8	171.4	137.2	2224	34,730.00
LNP 315L E6++	180.00	1185	95.8	205.7	164.5	2400	38,013.00

⊙ = S/L dual set of holes on base (actual frame is 90L)
 9L = indicates 9 lead hook up at 230/460V (YY/Y connection) except for 160L - 2 POLE ΔΔ/Δ
 (+) = indicates a cast iron frame / removable feet optional
 (+ +) = indicates a cast iron frame / feet are not removable
 Select sizes are available with dual mounting holes on the base
Frame sizes from 71 to 160 have removable feet.



3-Phase: 60Hz standard

ST / AM / AAM Motors ▪ 1.15 Service Factor (SF) ▪ Available in 208 230/460V - 333/575V

Frame sizes 100 and above available in 575/990V version ▪ Frame sizes 132 and above available in 460/776V ▪ TEFC ▪ IP55

Squirrel cage ▪ Threaded hole in output shaft is standard ▪ Class F ▪ IEC - CEI - UNEL MEC - ST Motors (CSA Approved)

AM/AAM motors (cURus approved) - (UL recognized are Class 'B')

See pages 27 to 29 for dimensional drawings

2 POLE - 3600 RPM

Part Number	HP	Full Load Amps		Speed min ⁻¹	Weight (lbs)	List Price \$
		460V	575V			
ST 56 S2	0.18	0.40	0.29	3300	7	355.00
ST 63 C2	0.25	0.60	0.44	3120	8	357.00
ST 63 S2	0.35	0.80	0.58	3310	9	363.00
ST 63 L2	0.50	1.2	0.87	3265	10	374.00
ST 71 C2	0.50	1.0	0.73	3300	13	380.00
ST 71 S2	0.75	1.5	1.1	3380	14	385.00
ST 71 L2	1.00	1.9	1.4	3320	16	432.00
ST 80 C2	1.00	2.0	1.5	3410	18	441.00
ST 80 S2	1.50	2.7	2.0	3400	21	500.00
ST 80 L2	2.00	3.4	2.5	3400	24	553.00
ST 100L S2*	5.50	8.2	5.9	3450	50	1,072.00
ST 100L T2*	7.50	11	5.6	3430	71	1,140.00

4 POLE - 1800 RPM

Part Number	HP	Full Load Amps		Speed min ⁻¹	Weight (lbs)	List Price \$
		460V	575V			
ST 56 S4	0.12	0.40	0.29	1560	6	355.00
ST 63 C4	0.18	0.50	0.36	1630	7	357.00
ST 63 S4	0.25	0.70	0.51	1590	9	361.00
ST 63 A4	0.33	0.80	0.58	1630	9	363.00
ST 71 C4	0.35	1.0	0.73	1600	13	373.00
ST 71 S4	0.50	1.3	0.91	1650	13	378.00
AM 71Z CA4	0.75	1.6	1.2	1660	16	424.00
ST 80 C4	0.75	1.7	1.2	1680	18	429.00
ST 80 S4	1.00	2.3	1.7	1690	20	461.00
AM 80Z CA4	1.50	2.9	2.1	1660	24	542.00
ST 100L S4*	4.00	6.9	5.0	1700	49	937.00
ST 100L /4*	5.50	8.7	6.5	1700	55	995.00

6 POLE - 1200 RPM

Part Number	HP	Full Load Amps		Speed min ⁻¹	Weight (lbs)	List Price \$	
		460V	575V				
ST 63 C6	0.12	0.47	0.36	980	10	560.00	
ST 71 C6	0.25	0.85	0.62	1050	14	579.00	
ST 71 S6	0.35	1.1	0.8	1020	15	586.00	
ST 80 C6	0.50	1.05	0.91	1090	18	601.00	
ST 80 S6	0.75	1.8	1.3	1090	21	651.00	
6-POLE: 1200 RPM IEC Design H - High Torque							
ST 100L C6 *	9L	2.00	4.5	3.6	1150	39	779.00
ST 100L S6 *	9L	2.50	4.7	3.6	1150	48	903.00

8 POLE - 900 RPM

Part Number	HP	Full Load Amps		Speed min ⁻¹	Weight (lbs)	List Price \$
		460V	575V			
ST 71 C8	0.20	.94	0.68	760	13	680.00
ST 80 C8	0.35	1.2	0.87	810	18	834.00
ST 90S C8	0.50	1.8	1.3	810	25	919.00
ST 90L S8	0.75	2.7	2	810	33	1,032.00
ST 100L C8 *	1.00	2.8	1.9	820	39	1,200.00
ST 100L S8 *	1.50	4	2.9	830	50	1,432.00
ST 112M C8 **	2.00	4.7	3.5	830	77	1,444.00
AAM 132S ZA8 **	3.00	6	4.8	850	112	1,967.00
AAM 132M ZA8 **	4.00	8.3	6.64	860	124	2,206.00
AAM 160M YA8 **	5.50	9	7.1	855	209	3,267.00
AAM 160M ZA8 **	7.50	11.4	9.1	860	231	3,654.00
AAM 160L ZA8 **	10.00	15	12.5	840	245	4,236.00

⊙ = S/L dual set of holes on base (actual frame is 90L)
 9L = indicates 9 lead hook up at 230/460V (YY/Y connection)
 * Available in United States ONLY
 ** Custom Build/Export

Frame sizes from 71 to 160 have removable feet.



3-Phase: 60 Hz standard - AC 6 Lead-Coil Brake

1.15 Service Factor (SF) ▪ Available in 208 230/460V or 333/575V ▪ Brake voltage same as motor voltage
Adjustable brake torque ▪ Manual Release ▪ TEFC ▪ Squirrel Cage ▪ Class F ▪ IP54
IEC - CEI - UNEL MEC - CSA Approved - (UL recognized are Class 'B')

See page 31 for dimensional drawings ▪ Older designed brake motors are referred to as AF

2 POLE - 3600 RPM

Part Number	HP	Full Load Amps 460V	575V	Speed min ⁻¹	Max Brake Torque (Nm)	Weight (lbs)	List Price \$
AAF 63 C2	0.25	0.60	0.44	3120	4.9	17	1,202.00
AAF 63 S2	0.35	0.80	0.58	3310	4.9	18	1,236.00
AAF 63 L2	0.50	1.2	0.87	3265	4.9	19	1,279.00
AAF 71 C2	0.50	1.0	0.73	3300	10.8	29	1,260.00
AAF 71 S2	0.75	1.5	1.1	3380	10.8	30	1,304.00
AAF 71 L2	1.00	1.9	1.4	3320	10.8	32	1,397.00
AAF 80 C2	1.00	2.0	1.5	3410	19.6	43	1,502.00
AAF 80 S2	1.50	2.7	2.0	3400	19.6	45	1,566.00
AAF 80 L2	2.00	3.4	2.5	3400	19.6	47	1,645.00
AAF 90S C2 ⊙	2.00	2.9	2.1	3410	34.3	57	1,862.00
AAF 90S L2 ⊙	2.50	3.4	2.5	3420	34.3	59	1,975.00
AAF 90L S2 ⊙	3.00	4.4	3.6	3420	34.3	64	2,053.00
AAF 100L C2	4.00	5.0	4.1	3445	54.0	73	2,403.00
AAF 100L S2	5.50	6.8	5.6	3380	54.0	80	2,646.00
AAF 112M C2	5.50	7.1	5.9	3430	88.3	112	2,993.00
AAF 112M S2	7.50	8.8	7.3	3460	88.3	119	3,279.00
AAF 132S L2	7.50	9.2	7.6	3480	166.8	149	4,524.00
AAF 132S C2	10.00	12.8	10.6	3450	166.8	162	4,996.00
AAF 132M S2	12.50	14.7	12.1	3510	166.8	177	5,578.00
AAF 132M A2	15.00	18.4	15.2	3455	166.8	184	5,828.00
AAF 160M C2	15.00	20.0	16.5	3530	264.9	272	7,668.00
AAF 160M S2	20.00	23.4	19.3	3530	264.9	298	8,384.00
AAF 160L L2	25.00	31.0	25.7	3540	264.9	326	9,371.00

6 POLE - 1200 RPM

Part Number	HP	Full Load Amps 460V	575V	Speed min ⁻¹	Max Brake Torque (Nm)	Weight (lbs)	List Price \$
AAF 63 C6	0.12	0.47	0.36	980	4.9	19	1,690.00
AAF 71 C6	0.25	0.85	0.62	1050	10.8	30	1,354.00
AAF 71 S6	0.35	1.1	0.80	1020	10.8	31	1,392.00
AAF 80 C6	0.50	1.1	0.91	1090	19.6	37	1,582.00
AAF 80 S6	0.75	1.8	1.3	1090	19.6	40	1,675.00
AAF 90S C6 ⊙	1.00	2.0	1.7	1140	34.3	51	1,929.00
AAF 90L S6 ⊙	1.50	3.5	2.5	1145	34.3	58	2,098.00
AAF 100L C6	2.00	4.5	3.6	1150	54.0	69	2,431.00
AAF 100L S6	2.50	4.7	3.6	1150	54.0	76	2,614.00
AAF 112M C6	3.00	5.1	4.1	1150	88.3	109	3,114.00
AAF 112M A6	4.00	5.7	4.6	1150	88.3	128	3,610.00
AAF 132S C6	4.00	6.5	5.2	1150	88.3	150	4,598.00
AAF 132M S6	5.50	8.7	7.0	1150	88.3	163	4,996.00
AAF 132M A6	7.50	11.7	9.4	1150	166.8	193	5,661.00
AAF 160M C6	10.00	14.5	11.6	1150	264.9	309	7,902.00
AAF 160L S6	15.00	19.5	15.6	1150	264.9	341	9,155.00

⊙ = S/L dual set of holes on base (actual frame is 90L)

NOTE:

- AF/AFB brake motors - the brake assembly has been redesigned to (AAF/AAFb) and is not compatible with previous designs
- Previous design brake parts are also available upon request. Please inquire
- Special brake voltages available. Please inquire

DIFFERENCES BETWEEN OLD & NEW STYLE BRAKES

(AF) Old Style Brake Motors

- Needs Thrust Bearings
- Needs Gear
- Metal Release Key
- Brake Support Separate From Endbell
- Small Hole On Brake Cover

(AAF) New Style Brake Motors

- No Thrust Bearings
- No Gear
- Plastic Release Key
- Brake Support Plus Endbell (One Assembly)
- Large Hole On Brake Cover

4 POLE - 1800 RPM

Part Number	HP	Full Load Amps 460V	575V	Speed min ⁻¹	Max Brake Torque (Nm)	Weight (lbs)	List Price \$
AAF 63 C4	0.18	0.50	0.36	1630	4.9	18	1,137.00
AAF 63 S4	0.25	0.70	0.51	1590	4.9	19	1,181.00
AAF 63 A4	0.33	0.80	0.58	1630	4.9	20	1,222.00
AAF 71 C4	0.35	1.0	0.73	1600	10.8	26	1,249.00
AAF 71 S4	0.50	1.3	0.91	1650	10.8	28	1,275.00
AAF 71 L4	0.70	1.6	1.2	1680	10.8	30	1,315.00
AAF 80 C4	0.75	1.7	1.2	1680	19.6	38	1,436.00
AAF 80 S4	1.0	2.3	1.7	1690	19.6	41	1,499.00
AAF 80 L4	1.30	2.6	1.9	1660	19.6	43	1,608.00
AAF 90S C4 ⊙	1.50	2.9	2.1	1680	34.3	50	1,752.00
AAF 90L S4 ⊙	2.0	3.4	2.7	1656	34.3	56	1,873.00
AAF 90L L4 ⊙	2.50	4.1	3.1	1680	34.3	60	2,047.00
AAF 100L C4	3.0	5.6	3.5	1690	54.0	76	2,240.00
AAF 100L S4	4.0	6.9	5.0	1700	54.0	84	2,441.00
AAF 112M S4	5.50	7.9	5.7	1720	88.3	118	3,057.00
AAF 112M L4	7.50	12.1	8.0	1725	88.3	136	3,217.00
AAF 132S S4	7.50	11.8	7.8	1715	166.8	161	4,473.00
AAF 132M A4	10.0	15.5	10.6	1730	166.8	184	4,992.00
AAF 132M L4	12.50	16.0	10.9	1750	166.8	217	5,256.00
AAF 160M C4	15.00	19.8	13.5	1750	264.9	315	7,675.00
AAF 160L S4	20.0	28.7	19.6	1750	264.9	344	8,458.00

8 POLE - 900 RPM

Part Number	HP	Full Load Amps 460V	575V	Speed min ⁻¹	Max Brake Torque (Nm)	Weight (lbs)	List Price \$
AAF 71 C8	0.20	.94	0.68	760	10.8	28	1,695.00
AAF 80 C8	0.35	1.2	0.87	810	19.6	36	2,031.00
AAF 90S C8 ⊙	0.50	1.8	1.3	810	34.3	56	2,190.00
AAF 90L S8 ⊙	0.75	2.7	2.0	810	34.3	62	2,313.00
AAF 100L C8	1.00	2.8	1.9	820	54.0	69	2,716.00
AAF 100L S8	1.50	4.0	2.9	830	54.0	80	3,010.00
AAF 112M C8	2.00	4.7	3.5	830	88.3	119	3,543.00
AAF 132S C8	3.00	5.7	4.2	850	88.3	163	5,083.00
AAF 132M S8	4.00	7.7	5.7	860	88.3	182	5,571.00
AAF 160M C8	5.50	8.7	6.5	860	264.9	266	7,896.00
AAF 160M S8	7.50	11.4	8.5	860	264.9	290	8,445.00
AAF 160L L8	10.00	14.8	11.0	850	264.9	306	9,382.00



Exploded View See Page 32

AFB/AAFB Motors - 2-Speed Brake Motors



3-Phase: 60 Hz standard - AC 6 Lead - Coil brake

1.0 Service Factor (SF) • Available in 230V or 460V or 575V • Adjustable brake torque • Manual release • TEFC Squirrel Cage • Class F • IP54 • IEC - CEI - UNEL MEC - CSA Approved - (UL recognized are Class 'B')

See page 31 for dimensional drawings • Older designed brake motors are referred to as AFB

2/4 POLE : 3600/1800 RPM - 1 WINDING

Part Number	HP	Weight (lbs)	List Price \$
AAFB 63 S2/4	0.40/0.27	19	1,608.00
AAFB 71 C2/4	0.60/0.40	33	1,785.00
AAFB 80 C2/4	0.80/0.60	43	1,987.00
AAFB 80 S2/4	1.00/0.75	50	2,054.00
AAFB 80 L2/4	1.50/1.10	57	2,123.00
AAFB 90L C2/4 ☉	2.10/1.60	63	2,440.00
AAFB 90L S2/4 ☉	2.60/1.90	66	2,555.00
AAFB 100L C2/4	3.40/2.50	76	3,037.00
AAFB 100L L2/4	4.00/3.00	77	3,171.00
AAFB 100L S2/4	4.50/3.50	80	3,461.00
AAFB 112M C2/4	6.00/4.50	121	4,465.00
AAFB 132S S2/4	7.50/6.00	163	6,149.00
AAFB 132M L2/4	11.00/9.00	180	6,898.00
AAFB 160M C2/4	15.00/12.00	317	10,126.00
AAFB 160L S2/4	20.00/17.00	332	11,207.00

4/6 POLE : 1800/1200 RPM - 2 WINDING

Part Number	HP	Weight (lbs)	List Price \$
AAFB 71 C4/6	0.35/0.25	16	2,054.00
AAFB 80 A4/6	0.50/0.35	18	2,340.00
AAFB 80 C4/6	0.75/0.50	22	2,427.00
AAFB 90L C4/6 ☉	1.20/0.80	36	2,746.00
AAFB 100L L4/6	1.50/1.00	54	3,179.00
AAFB 100L C4/6	2.00/1.20	73	3,368.00
AAFB 112M C4/6	2.50/1.80	74	4,064.00
AAFB 112M S4/6	3.50/2.50	81	4,645.00
AAFB 132M C4/6	5.50/3.50	118	6,428.00
AAFB 160M C4/6	7.50/5.00	174	9,823.00
AAFB 160M S4/6	10.00/6.50	198	10,360.00
AAFB 160L L4/6	13.00/9.00	220	11,318.00

2/8 POLE : 3600/900 RPM - 2 WINDING

Part Number	HP	Weight (lbs)	List Price \$
AAFB 80 C2/8	0.50/0.15	21	2,613.00
AAFB 80 S2/8	0.75/0.15	26	2,724.00
AAFB 90L C2/8 ☉	1.00/0.25	35	3,013.00
AAFB 90L S2/8 ☉	1.50/0.40	43	3,194.00
AAFB 100L S2/8	2.00/0.50	60	3,572.00
AAFB 100L L2/8	2.50/0.60	70	3,975.00
AAFB 112M C2/8	2.50/1.45	78	4,645.00
AAFB 112M L2/8	3.00/0.75	79	4,867.00
AAFB 132S C2/8	4.00/1.00	81	6,587.00
AAFB 132M S2/8	6.00/1.50	94	7,734.00

☉ = S/L dual set of holes on base (actual frame is 90L)

4/8 POLE : 1800/900 RPM - 1 WINDING

Part Number	HP	Weight (lbs)	List Price \$
AAFB 71 C4/8	0.35/0.18	31	2,009.00
AAFB 80 C4/8	0.50/0.25	45	2,224.00
AAFB 80 S4/8	0.70/0.35	45	2,278.00
AAFB 90S C4/8 ☉	1.00/0.50	58	2,568.00
AAFB 90L S4/8 ☉	1.30/0.70	63	2,768.00
AAFB 100L C4/8	1.90/0.90	75	3,149.00
AAFB 112M C4/8	2.40/1.40	111	3,882.00
AAFB 112M S4/8	3.00/1.80	117	4,286.00
AAFB 132S C4/8	5.00/2.80	158	6,209.00
AAFB 132M S4/8	6.50/3.50	195	6,765.00
AAFB 160M C4/8	8.50/5.50	256	9,599.00
AAFB 160L S4/8	10.00/6.50	278	10,629.00
AAFB 160L L4/8	14.00/8.00	299	11,631.00

6/8 POLE : 1200/900 RPM - 2 WINDING

Part Number	HP	Weight (lbs)	List Price \$
AAFB 71 C6/8	0.30/0.15	16	2,098.00
AAFB 80 C6/8	0.50/0.25	21	2,590.00
AAFB 90L C6/8 ☉	0.75/0.40	36	3,171.00
AAFB 100L C6/8	1.00/0.60	52	3,572.00
AAFB 112M C6/8	1.30/0.90	70	4,198.00
AAFB 112M S6/8	2.00/1.00	80	4,554.00
AAFB 132M A6/8	3.00/1.70	86	6,587.00
AAFB 132M C6/8	4.00/2.30	117	7,747.00
AAFB 160M C6/8	6.50/3.50	194	11,163.00
AAFB 160L S6/8	8.00/4.50	215	12,546.00

NOTE:

- AF/AFB brake motors - the brake assembly has been redesigned to (AAF/AAFB) and is not compatible with previous designs
- Previous design brake parts are also available upon request. Please inquire
- Source brake voltages available. Please inquire



1.0 Service Factor (SF) ▪ Available in 230V or 460V or 575V ▪ Constant torque ▪ Threaded hole in output shaft ▪ TEFC Squirrel Cage ▪ Class F ▪ IP55 ▪ IEC - CEI - UNEL MEC - CSA Approved - cURus approved - (UL recognized are Class 'B')

See pages 27 to 29 for dimensional drawings (For frames 63 to 160L)

See page 30 for dimensional drawings (For frames 180 and larger - same as LTE/LNP series)

2/4 POLE : 3600/1800 RPM - 1 WINDING

Part Number	HP	Weight (lbs)	List Price \$
FB 63 S2/4	0.40/0.27	10	765.00
FB 71 C2/4	0.60/0.40	17	903.00
FB 80 C2/4	0.80/0.60	19	1,017.00
FB 80 S2/4	1.00/0.75	25	1,084.00
FB 80 L2/4	1.50/1.10	32	1,149.00
FB 90L C2/4 ☉	2.10/1.60	34	1,336.00
FB 90L S2/4 ☉	2.60/1.90	38	1,456.00
FB 100L C2/4	3.40/2.50	47	1,732.00
FB 100L L2/4	4.00/3.00	50	1,755.00
FB 100L S2/4	4.50/3.50	51	2,038.00
FB 112M C2/4	6.00/4.50	80	2,817.00
FB 132S ZA2/4	8.00/6.40	101	3,791.00
FB 132M ZA2/4	11.00/9.00	121	4,432.00
FB 160M ZA2/4	14.50/11.70	192	6,874.00
FB 160L ZA2/4	22.50/17.00	225	10,464.00
FB 180M ZA2/4	26.50/20.00	287	11,434.00
FB 180L ZA2/4	31.00/24.00	309	13,568.00
FB 200L P2/4	39.00/32.50	507	18,269.00
FB 200L R2/4	45.00/35.00	562	19,338.00
FB 225S P2/4	52.00/40.00	716	22,365.00
FB 225M P2/4	63.00/46.00	728	25,264.00
FB 250M P2/4	79.00/68.00	1025	33,131.00
FB 280S V2/4	98.00/82.00	1279	44,949.00
FB 280M V2/4	114.00/95.00	1367	53,642.00
FB 315S ZE2/4	156.00/116.00	1896	64,413.00
FB 315M ZE2/4	170.00/136.00	2073	79,112.00
FB 315L ZE2/4	204.00/163.00	2470	85,325.00

4/6 POLE : 1800/1200 RPM - 2 WINDING

Part Number	HP	Weight (lbs)	List Price \$
FB 71 C4/6	0.35/0.25	16	1,166.00
FB 80 A4/6	0.50/0.35	18	1,347.00
FB 80 C4/6	0.75/0.50	22	1,432.00
FB 90L C4/6 ☉	1.20/0.80	36	1,573.00
FB 100L L4/6	1.50/1.00	54	1,831.00
FB 100L C4/6	2.00/1.20	73	2,021.00
FB 112M C4/6	2.50/1.80	74	2,522.00
FB 112M S4/6	3.50/2.50	81	3,106.00
FB 132S ZA4/6	4.00/3.00	95	3,486.00
FB 132M ZA4/6	6.70/4.30	119	6,806.00
FB 160M YA4/6	10.00/6.80	185	7,492.00
FB 160M ZA4/6	12.20/8.00	198	8,520.00
FB 160L ZA4/6	16.00/11.00	220	11,675.00
FB 180L ZA4/6	22.50/15.00	331	15,188.00

2/8 POLE : 3600/900 RPM - 2 WINDING

Part Number	HP	Weight (lbs)	List Price \$
FB 80 C2/8	0.50/0.15	21	1,621.00
FB 80 S2/8	0.75/0.15	26	1,747.00
FB 90L C2/8 ☉	1.00/0.25	35	1,892.00
FB 90L S2/8 ☉	1.50/0.40	43	2,071.00
FB 100L S2/8	2.00/0.50	45	2,242.00
FB 100L L2/8	2.50/0.60	45	2,632.00
FB 112M C2/8	2.50/1.45	78	3,106.00
FB 112M L2/8	3.00/0.75	79	3,331.00
FB 132S C2/8	4.00/1.00	81	4,053.00
FB 132M S2/8	6.00/1.50	94	5,220.00

4/8 POLE : 1800/900 RPM - 1 WINDING

Part Number	HP	Weight (lbs)	List Price \$
FB 71 C4/8	0.35/0.18	15	1,063.00
FB 80 C4/8	0.50/0.25	17	1,182.00
FB 80 S4/8	0.70/0.35	20	1,247.00
FB 90S C4/8 ☉	1.00/0.50	30	1,381.00
FB 90L S4/8 ☉	1.30/0.70	35	1,560.00
FB 100L C4/8	1.90/0.90	48	1,732.00
FB 112M C4/8	2.40/1.40	70	2,255.00
FB 112M S4/8	3.00/1.80	75	2,664.00
FB 132S ZA4/8	5.20/2.80	95	3,879.00
FB 132M ZA4/8	6.50/3.50	119	4,440.00
FB 132M L4/8	7.50/4.00	135	4,807.00
FB 160M C4/8	8.50/5.50	165	5,631.00
FB 160M YA4/8	10.00/5.50	185	6,847.00
FB 160M ZA4/8	12.20/7.00	198	8,662.00
FB 160L ZA4/8	17.00/10.00	220	10,392.00
FB 180L ZA4/8	24.00/15.00	331	14,778.00
FB 200L P4/8	31.00/20.00	485	18,742.00
FB 200L R4/8	39.00/24.00	562	23,147.00
FB 225S P4/8	43.00/28.00	684	25,297.00
FB 225M P4/8	50.00/35.00	695	29,578.00
FB 250M P4/8	63.00/43.00	1080	36,863.00
FB 280S V4/8	82.00/60.00	1279	47,150.00
FB 280M V4/8	95.00/71.00	1367	58,945.00
FB 315S ZE4/8	136.00/82.00	1742	72,451.00
FB 315M ZE4/8	163.00/100.00	1896	92,171.00
FB 315L ZE4/8	200.00/120.00	2183	111,460.00

6/8 POLE : 1200/900 RPM - 2 WINDING

Part Number	HP	Weight (lbs)	List Price \$
FB 71 C6/8	0.30/0.15	16	1,216.00
FB 80 C6/8	0.50/0.25	21	1,608.00
FB 90L C6/8 ☉	0.75/0.40	36	2,048.00
FB 100L C6/8	1.00/0.60	52	2,209.00
FB 112M C6/8	1.30/0.90	70	2,654.00
FB 112M S6/8	2.00/1.00	80	3,017.00
FB 132S ZA6/8	2.20/1.80	95	4,049.00
FB 132M ZA6/8	3.90/3.00	119	5,218.00
FB 160M YA6/8	5.50/4.00	185	6,797.00
FB 160M ZA6/8	7.50/5.50	198	8,632.00
FB 160L ZA6/8	10.00/7.50	220	9,569.00
FB 180L ZA6/8	15.00/11.50	331	13,716.00

* NOTE: 132 AND UP SUBJECT TO AVAILABILITY

* NOTE: LARGER 2-SPEED MOTORS AVAILABLE

☉ = S/L dual set of holes on base (actual frame is 90L)



MS Motor - Compact Rectified DC Brake



3-Phase : 60 Hz standard

1.15 Service Factor (SF) ▪ Available in 208 230/460V - 333/575V ▪ Brake voltage standard 230V-AC into rectifier with 460V motor or 333V-AC into rectifier with 575V motors ▪ Constant brake torque ▪ TEFC ▪ Squirrel Cage ▪ Class F ▪ IP54

IEC - CEI - UNEL MEC - CSA Approved - (UL recognized are Class 'B')

See page 27 to 29 for dimensional drawings

2 POLE - 3600 RPM

Part Number	HP	Full Load Amps 460V	575V	Speed min ⁻¹	Max Brake Torque (Nm)	Weight (lbs)	List Price \$
MS 63 C2	0.25	0.55	0.45	3120	3	11	1,076.00
MS 63 S2	0.35	0.75	0.60	3310	3	12	1,104.00
MS 63 L2	0.50	1.10	0.90	3265	3	12	1,118.00
MS 71 C2	0.50	0.95	0.75	3300	4	15	1,175.00
MS 71 S2	0.75	1.40	1.10	3380	4	16	1,238.00
MS 71 L2	1.00	1.85	1.50	3320	4	18	1,293.00
MS 80 C2	1.00	1.80	1.40	3410	7	23	1,371.00
MS 80 S2	1.50	2.30	1.90	3400	7	26	1,476.00
MS 80 L2	2.00	2.80	2.30	3400	7	29	1,565.00
MS 90S C2	2.00	3.20	2.50	3410	7	32	1,688.00
MS 90S L2	2.50	3.90	3.10	3420	7	36	1,874.00
MS 90L S2	3.00	4.60	3.70	3420	7	40	1,966.00
MS 100L C2	4.00	5.70	4.50	3445	13	51	2,323.00
MS 100L S2	5.50	7.50	6.00	3380	13	58	2,585.00
MS 112M C2	5.50	7.80	6.20	3430	13	67	2,806.00
MS 112M S2	7.50	10.10	8.10	3460	13	81	3,100.00
MS 132S L2	7.50	10.50	8.40	3480	30	95	3,955.00
MS 132S C2	10.00	13.50	10.80	3450	30	108	4,521.00
MS 132M S2	12.50	17.10	13.70	3510	30	127	4,927.00
MS 132M A2	15.00	19.80	15.80	3455	30	129	5,538.00

6 POLE - 1200 RPM

Part Number	HP	Full Load Amps 460V	575V	Speed min ⁻¹	Max Brake Torque (Nm)	Weight (lbs)	List Price \$
MS 63 C6	0.12	0.55	0.45	980	3	12	1,506.00
MS 71 C6	0.25	0.80	0.65	1050	4	16	1,315.00
MS 71 S6	0.35	1.00	0.80	1020	4	17	1,361.00
MS 80 C6	0.50	1.15	0.90	1090	7	23	1,488.00
MS 80 S6	0.75	1.60	1.30	1090	7	25	1,594.00
MS 90S C6	1.00	2.20	1.80	1140	7	30	1,733.00
MS 90L S6	1.50	3.10	2.50	1145	7	38	1,930.00
MS 100L C6	2.00	4.10	3.30	1150	13	46	2,251.00
MS 100L S6	2.50	4.70	3.80	1150	13	56	2,489.00
MS 112M C6	3.00	4.90	3.90	1150	13	73	2,998.00
MS 112M A6	4.00	6.50	5.20	1150	13	87	3,511.00
MS 132S C6	4.00	6.90	5.50	1150	30	95	4,173.00
MS 132M S6	5.50	9.20	7.40	1150	30	108	4,498.00
MS 132M A6	7.50	12.60	10.00	1150	30	136	5,218.00

* MS motors are approximately the same dimensions as the ST/AM (standard) type motors

⊙ = S/L dual set of holes on base (actual frame is 90L)
See Page 53 for connection diagram

Available options:

- * Single phase brake motors
- * Manual release lever
- * 2-Speed version
- * Rapid speed special diode rectifier bridge for quicker stops
- * Special coil voltages

MS Range Braking Torque (Kgm)
63/71 frame 0.40
80/90 frame 0.70
100/112 frame 1.4
132 frame 3.1

* To convert KGM to fl/lbs, multiply by 7.231

Different brake (DC) coil voltages
also available upon request

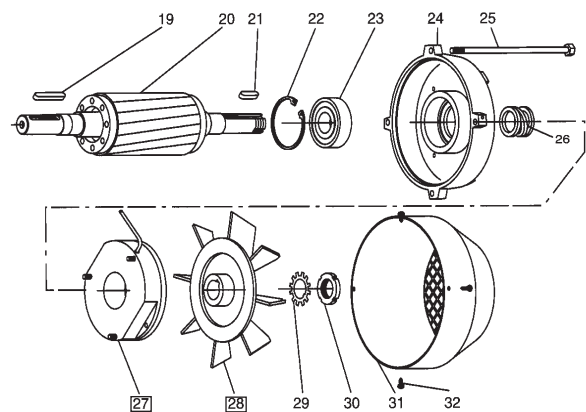
ACTUAL 148V-DC - for 575V Units (SS2 Half wave)
200V-DC - for 460V Units (Full Wave)
OPTIONAL 24V-DC
103V-DC - STD1

4 POLE - 1800 RPM

Part Number	HP	Full Load Amps 460V	575V	Speed min ⁻¹	Max Brake Torque (Nm)	Weight (lbs)	List Price \$
MS 63 C4	0.18	0.45	0.35	1630	3	10	1,045.00
MS 63 S4	0.25	0.60	0.50	1590	3	12	1,081.00
MS 63 A4	0.33	0.80	0.65	1630	3	12	1,112.00
MS 71 C4	0.35	0.85	0.65	1600	4	15	1,168.00
MS 71 S4	0.50	1.10	0.90	1650	4	16	1,210.00
MS 71 L4	0.70	1.60	1.25	1680	4	19	1,278.00
MS 80 C4	0.75	1.50	1.20	1680	7	23	1,353.00
MS 80 S4	1.00	2.00	1.60	1690	7	25	1,405.00
MS 80 L4	1.30	2.60	2.10	1660	7	28	1,528.00
MS 90S C4	1.50	2.50	2.00	1680	7	32	1,586.00
MS 90L S4	2.00	3.30	2.70	1656	7	36	1,730.00
MS 90L L4	2.50	3.90	3.10	1680	7	41	1,925.00
MS 100L C4	3.00	5.00	4.00	1690	13	50	2,124.00
MS 100L S4	4.00	6.30	5.10	1700	13	56	2,346.00
MS 112M S4	5.50	7.60	6.30	1720	13	74	2,842.00
MS 132S S4	7.50	10.50	8.40	1725	30	106	3,940.00
MS 132M A4	10.00	14.20	11.40	1715	30	126	4,628.00

8 POLE - 900 RPM

Part Number	HP	Full Load Amps 460V	575V	Speed min ⁻¹	Max Brake Torque (Nm)	Weight (lbs)	List Price \$
MS 71 C8	0.20	0.60	0.50	760	4	16	1,464.00
MS 80 C8	0.35	1.00	0.80	810	7	23	1,780.00
MS 90S C8	0.50	1.60	1.25	810	7	30	1,964.00
MS 90L S8	0.75	2.30	1.85	810	7	38	2,126.00
MS 100L C8	1.00	2.40	1.95	820	13	46	2,460.00
MS 100L S8	1.50	3.60	2.90	830	13	57	2,793.00
MS 112M C8	2.00	4.30	3.40	830	13	88	3,260.00
MS 132S C8	3.00	5.90	4.80	850	30	114	4,363.00
MS 132M S8	4.00	7.50	6.00	860	30	134	4,983.00



Part description:

- | | |
|----------------------------|--|
| 19 Motor Key | 27 Preassembled part of the brake (electromagnet, brake anchor with friction surface, braking springs fixing screws) |
| 20 Rotor complete | 28 Brake fan |
| 21 Brake key | 29 Lock washer |
| 22 Circlip | 30 Air gap adjustment ring nut |
| 23 Bearing non-drive end | 31 Fan cover |
| 24 Endshield non-drive end | 32 Fixing screw fan cover |
| 25 Tie rod | |
| 26 Main contrast spring | |

BOXED ITEMS ARE INCLUDED IN A BRAKE ASSEMBLY KIT

1.0 Service Factor (SF) ▪ Available in 208-230/460V or 333/575V ▪ Cooling fans in 115V or 230V - AC single phase

Threaded hole in output shaft ▪ TEFV ▪ Squirrel Cage ▪ Class F ▪ IP55

IEC - CEI - UNEL MEC - cURus Approved - (UL recognized are Class 'B')

See pages 27 to 29 for dimensional drawings

2 POLE - 3600 RPM

Part Number	HP	Weight (lbs)	List Price \$
AMFV 71 ZAA2	0.50	16	936.00
AMFV 71 ZBA2	0.75	17	987.00
AMFV 71 ZCA2	1.00	19	1,035.00
AMFV 80Z AA2	1.00	22	1,299.00
AMFV 80Z BA2	1.50	25	1,364.00
AMFV 80Z CA2	2.00	28	1,427.00
AMFV 90S AA2 ⊙	2.00	33	1,520.00
AMFV 90S BA2 ⊙	2.50	36	1,634.00
AMFV 90L CA2 ⊙	3.00	40	1,709.00
AMFV 100L AA2 △	4.00	49	2,378.00
AMFV 100L BA2 △	5.50	56	2,471.00
AMFV 100L CA2 △	7.50	77	2,640.00
AMFV 112M AA2 △	5.50	67	2,828.00
AMFV 112M BA2 △	7.50	81	3,071.00
AMFV 132S YA2	7.50	86	3,497.00
AMFV 132S ZA2	10.00	101	3,776.00
AMFV 132M ZA2	12.50	120	4,142.00
AMFV 132M RA2	15.00	122	4,647.00
AMFV 132M TA2	20.00	205	5,037.00
AMFV 160M VA2	15.00	183	5,457.00
AMFV 160M XA2	20.00	219	6,226.00
AMFV 160L XA2	25.00	250	7,131.00
AMFV 160L RA2	30.00	253	7,702.00

4 POLE - 1800 RPM

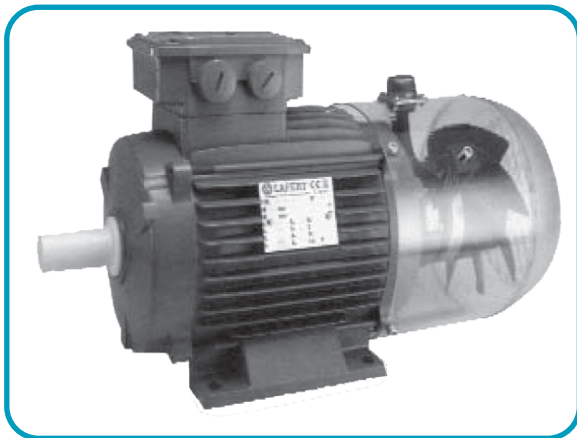
Part Number	HP	Weight (lbs)	List Price \$
AMFV 71 ZAA4	0.35	16	933.00
AMFV 71 ZBA4	0.50	16	965.00
AMFV 71 ZCA4	0.75	19	1,022.00
AMFV 80Z AA4	0.75	22	1,287.00
AMFV 80Z BA4	1.00	24	1,330.00
AMFV 80Z CA4	1.50	27	1,434.00
AMFV 90S AA4 ⊙	1.50	32	1,474.00
AMFV 90L BA4 ⊙	2.00	37	1,568.00
AMFV 90L CA4 ⊙	2.50	41	1,663.00
AMFV 100L AA4 △	3.00	48	2,231.00
AMFV 100L BA4 △	4.00	51	2,440.00
AMFV 112M AA4 △	5.50	74	2,828.00
AMFV 112M BA4 △	7.50	79	3,177.00
AMFV 132S ZA4	7.50	99	3,483.00
AMFV 132M ZA4	10.00	119	3,930.00
AMFV 132M LA4	12.50	150	4,503.00
AMFV 132M TA4	15.00	175	5,197.00
AMFV 160M XA4	15.00	208	5,708.00
AMFV 160L XA4	20.00	247	6,490.00
AMFV 160L ZA4	25.00	293	7,480.00

⊙ = S/L dual set of holes on base (actual frame is 90L)

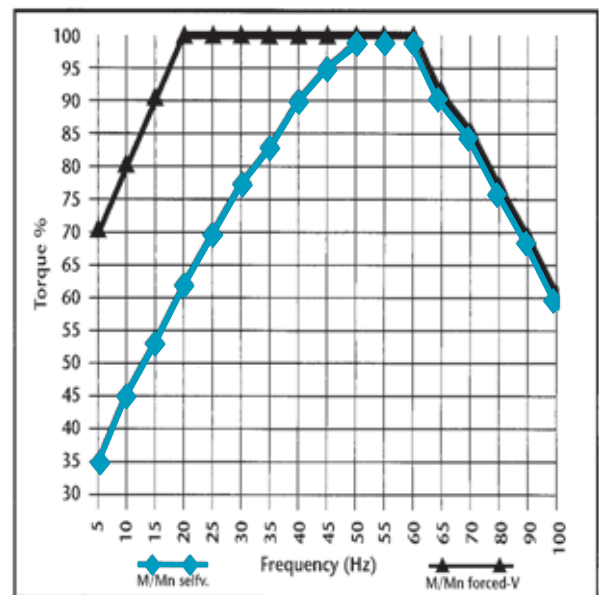
△ External Fans Available in 230V only

- 115V or 230V fan
- 0 - 100 Hz capability
- Full torque at a low as 20 Hz

See page 58 for fan connection diagram



Torque behaviour in forced-ventilated or self-ventilated motors



LM(E) Motors - Single Phase



60 Hz Standard

1.0 Service Factor (SF) • Available in 115V or 230V • TEFC • Squirrel Cage • Class F • IP54 • IEC - CEI - UNEL MEC - CSA Approved
(UL recognized are Class 'B')

See page 23 for connection diagram

See page 26 for dimensional drawings

Available options:

- Self braking
- Thermal protection
- Custom shafts and flanges available

2 POLE - 3600 RPM

Part Number	HP	Weight (lbs)	Run Cap (µf)	115V Start Cap (µf)	Current Relay	Run Cap (µf)	230V Start Cap (µf)	Current Relay	List Price \$ LM	List Price \$ LME
LM 56 C2	0.15	8	16	-	-	4	-	-	455.00	N/A
LM(E) 63 C2	0.15	10	16	30+20%	SE01	4	8	SE01	460.00	609.00
LM(E) 63 S2	0.25	11	25	53+20%	SE01	6.3	12.5	SE01	468.00	622.00
LM(E) 63 L2	0.33	12	25	53+20%	SE01	6.3	12.5	SE01	508.00	644.00
LM(E) 71 C2	0.50	16	25	43+20%	SE02	16	30+20%	SE02	562.00	738.00
LM(E) 71 S2	0.75	19	16	30+20%	SE02	16	30+20%	SE02	619.00	793.00
LM(E) 80 C2	1.00	25	60	124+20%	SE01	25	88+20%	SE01	720.00	911.00
LM(E) 80 S2	1.50	25	50	161+20%	SE02	25	124+20%	SE02	760.00	987.00
LM(E) 80 T2	2.00	32	60	189+20%	SE02	36	124+20%	SE02	1,000.00	1,299.00
LM(E) 90S C2 ⊙	1.50	36	2x60	161+20%	SE01	50	124+20%	SE03	848.00	1,055.00
LM(E) 90L S2 ⊙	2.00	38	70	189+20%	SE01	36	108+20%	SE01	927.00	1,136.00
LM(E) 90L L2 ⊙	2.50	41	50	161+20%	SE02	40	124+20%	SE02	1,017.00	1,224.00
LM(E) 100L C2	3.00	54	60	161+20%	SE01	50	161+20%	SE03	1,168.00	1,396.00

4 POLE - 1800 RPM

Part Number	HP	Weight (lbs)	Run Cap (µf)	115V Start Cap (µf)	Current Relay	Run Cap (µf)	230V Start Cap (µf)	Current Relay	List Price \$ LM	List Price \$ LME
LM 56 S4	0.12	8	25	-	-	6.3	-	-	455.00	N/A
LM(E) 63 A4	0.15	10	25	30+20%	SE02	8	16	SE01	460.00	609.00
LM(E) 63 C4	0.25	11	25	30+20%	SE01	8	16	SE01	486.00	636.00
LM(E) 71 C4	0.33	16	12.5	30+20%	SE02	10	16	SE01	544.00	720.00
LM(E) 71 S4	0.40	17	16	30+20%	SE02	12.5	30+20%	SE01	569.00	745.00
LM(E) 71 L4	0.50	19	25	30+20%	SE01	16	53+20%	SE02	633.00	809.00
LM(E) 80 C4	0.50	22	50	124+20%	SE01	12.5	30+20%	SE01	676.00	869.00
LM(E) 80 S4	0.75	25	50	124+20%	SE01	12.5	53+20%	SE01	705.00	895.00
LM(E) 80 L4	1.00	28	50	124+20%	SE01	20	88+20%	SE01	736.00	927.00
LM(E) 90L C4 ⊙	1.50	34	50	124+20%	SE02	25	108+20%	SE01	869.00	1,075.00
LM(E) 90L S4 ⊙	2.00	39	60	108+20%	SE02	31.5	161+20%	SE01	953.00	1,159.00
LM(E) 100L C4	2.50	50	50	161+20%	SE03	50	124+20%	SE01	1,166.00	1,392.00
LM(E) 100L S4	3.00	53	60+70	189+20%	SE02	50	189+20%	SE02	1,266.00	1,490.00
LM(E) 112M /4	5.00	76	-	-	-	60	189+20%	SE01	1,725.00	1,978.00

6 POLE - 1200 RPM

Part Number	HP	Weight (lbs)	Run Cap (µf)	115V Start Cap (µf)	Current Relay	Run Cap (µf)	230V Start Cap (µf)	Current Relay	List Price \$ LM	List Price \$ LME
LM(E) 71 C6	0.20	18	25	53+20%	SE01	6.3	16	SE01	791.00	1,036.00
LM(E) 80 C6	0.35	19	40	108+20%	SE02	10	30+20%	SE01	913.00	1,125.00
LM(E) 80 S6	0.50	22	50	124+20%	SE01	16	53+20%	SE01	1,017.00	1,230.00
LM(E) 90L C6 ⊙	0.75	36	40+50	124+20%	SE01	31.5	88+20%	SE01	1,211.00	1,520.00
LM(E) 90L S6 ⊙	1.00	40	50+50	161+20%	SE01	31.5	88+20%	SE01	1,299.00	1,614.00
LM(E) 100L C6	1.50	42	60+50+50	189+20%	SE02	40	88+20%	SE03	1,438.00	1,686.00
LM(E) 100L S6	2.00	50	70+70	189+20%	SE01	50	88+20%	SE01	1,516.00	1,760.00

⊙ = S/L dual set of holes on base (actual frame is 90L)

LM MOTORS

LM type motors are designed for no load or low starting torque applications such as fan duty. LM motors have two windings connected in parallel with a run capacitor connected in series giving the motor considerable overload capacity and high power factor. (LM type) Please call for availability.

LME MOTORS

LME type motors are designed for high torque applications. LME motors feature capacitor start and capacitor run making them suitable for most applications (i.e. Gearboxes, pumps, machine tools.)



1.0 Service Factor (SF) ▪ Available in 115/230V ▪ TEFC

Squirrel Cage ▪ Class F ▪ IP54 ▪ IEC - CEI - UNEL MEC - CSA Approved ▪ (UL recognized are Class 'B')

See page 26 for dimensional drawings

2 POLE - 3600 RPM

Part Number	HP	Weight (lbs)	RUN CAP (μF)	START CAP (μF)	Current Relay	List Price \$
DVE 63 C2	0.15	11	8	30+20%	SE01	760.00
DVE 63 S2	0.25	12	10	30+20%	SE01	773.00
DVE 63 L2	0.33	12	16	53+20%	SE01	802.00
DVE 71 C2	0.50	16	25	53+20%	SE01	917.00
DVE 71 S2	0.75	19	20	40	SE02	985.00
DVE 80 C2	1.00	25	31.5	108+20%	SE01	1,133.00
DVE 80 S2	1.50	33	50	161+20%	SE01	1,226.00
DVE 90S C2	1.50	34	70	124+20%	SE02	1,311.00
DVE 90L S2	2.00	40	70	161+20%	SE02	1,411.00
DVE 90L L2	2.50	41	40	161+20%	SE02	1,523.00
DVE 90L A2	3.00	43	60	161+20%	SE02	1,676.00
DVE 100L C2	3.00	54	50	161+20%	SE01	1,734.00

4 POLE - 1800 RPM

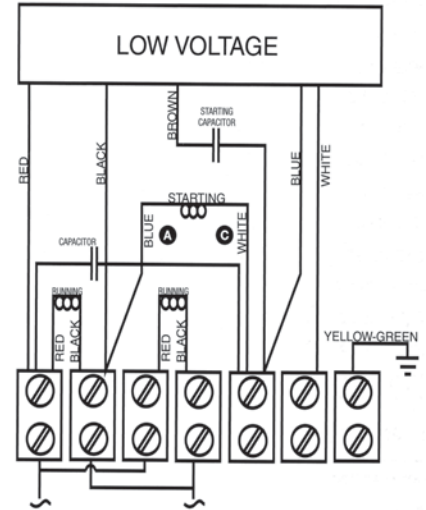
Part Number	HP	Weight (lbs)	RUN CAP (μF)	START CAP (μF)	Current Relay	List Price \$
DVE 63 A4	0.15	10	20	30+20%	SE02	760.00
DVE 63 C4	0.25	11	10	16	SE01	792.00
DVE 71 C4	0.33	16	16	30+20%	SE02	894.00
DVE 71 S4	0.40	17	12.5	25	SE02	927.00
DVE 71 L4	0.50	19	25	53+20%	SE02	1,005.00
DVE 80 C4	0.50	22	50	108+20%	SE02	1,080.00
DVE 80 S4	0.75	25	16	53+20%	SE02	1,111.00
DVE 80 L4	1.00	28	40	124+20%	SE01	1,152.00
DVE 90L D4	1.50	34	50	161+20%	SE02	1,335.00
DVE 90L E4	2.00	39	50	124+20%	SE02	1,442.00
DVE 100L C4	2.50	50	60	161+20%	SE02	1,730.00
DVE 100L S4	3.00	52	50	161+20%	SE02	1,850.00

6 POLE - 1200 RPM

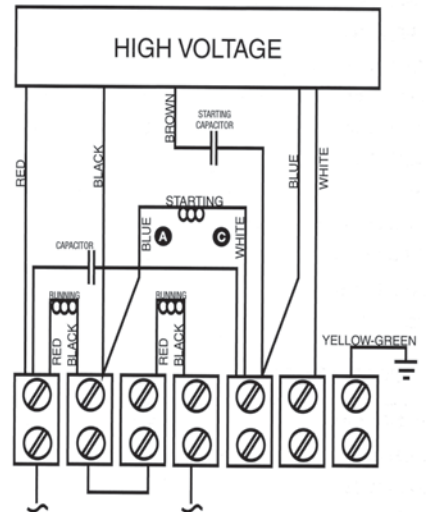
Part Number	HP	Weight (lbs)	RUN CAP (μF)	START CAP (μF)	Current Relay	List Price \$
DVE 71 C6	0.20	18	25	53+20%	SE02	1,288.00
DVE 80 C6	0.35	19	40	108+20%	SE02	1,398.00
DVE 80 S6	0.50	22	50	124+20%	SE02	1,527.00
DVE 90L C6	0.75	36	2x40	124+20%	SE02	1,889.00
DVE 90L S6	1.00	40	2x40	161+20%	SE02	2,008.00
DVE 100L C6	1.50	42	2x70	189+20%	SE02	2,095.00
DVE 100L S6	2.00	50	2x70	189+20%	SE01	2,190.00

⊙ = S/L dual set of holes on base (actual frame is 90L)

DVE Type



DVE Type - Single Phase Motor
Capacitor Start & Capacitor Run



**To Change Direction of Rotation,
Switch Lead "A" with Lead "C"**

DVE Motors are designed for high starting torque applications. DVE motors feature capacitor start and run making them suitable for most applications (i.e. Gearboxes, pumps, and machine tools).

Stainless Steel Motors - Cost effective stainless alternative

1.15 Service Factor (SF) ▪ Available in IEC 63 to 112 frame sizes in 2, 4 and 6 poles ▪ 230/460V or 333/575V 60 Hz
 All Stainless Steel Construction ▪ IP56 wash down ▪ Class F insulation ▪ Drain holes at 90° positions
 Etched nameplate ▪ Available in B3, B14 and B5 mounting ▪ TENV and TEFC ▪ CSA Safety approvals ▪ Turn Down Ratio 4:1 CT 10:1 VT

2 POLE - 3600 RPM

Part Number	Enclosure	HP	Weight (lbs)	List Price \$
LA63S2	TENV	0.33	18	740.00
LA71C2	TENV	0.50	26	842.00
LA71S2	TENV	0.75	31	878.00
LA80C2	TENV	1.00	33	1,089.00
LA80S2	TEFC	1.50	39	1,113.00
LA90SC2**	TEFC	2.00	53	1,382.00
LA90LS2**	TEFC	3.00	67	1,453.00
LA100LC2*	TEFC	4.00	82	2,044.00
LA112MC2**	TEFC	5.50	110	3,075.00

4 POLE - 1800 RPM

Part Number	Enclosure	HP	Weight (lbs)	List Price \$
LA63S4	TENV	0.25	18	732.00
LA71C4	TENV	0.35	19	846.00
LA71S4	TENV	0.50	24	880.00
LA80C4	TENV	0.75	39	1,061.00
LA80S4	TENV	1.00	45	1,164.00
LA90SC4**	TEFC	1.50	48	1,269.00
LA90LS4**	TEFC	2.00	60	1,405.00
LA100LC4*	TEFC	3.00	75	1,849.00
LA100LS4*	TEFC	4.00	93	2,041.00
LA112MS4**	TEFC	5.50	120	3,073.00

6 POLE - 1200 RPM

Part Number	Enclosure	HP	Weight (lbs)	List Price \$
LA71C6	TENV	0.25	25	989.00
LA71S6	TENV	0.35	25	1,030.00
LA80C6	TENV	0.50	40	1,218.00
LA80S6	TENV	0.75	45	1,377.00
LA90SC6**	TEFC	1.00	45	1,502.00
LA90LS6**	TEFC	1.50	60	1,785.00
LA100LC6*	TEFC	2.00	85	2,105.00
LA112MC6**	TEFC	3.00	105	3,380.00

FLS B5 Flanges

Part Number	List Price \$
FLS 63B5	127.00
FLS 71B5	218.00
FLS 80B5	232.00
FLS 90B5	267.00
FLS 100B5	316.00
FLS 112B5	679.00

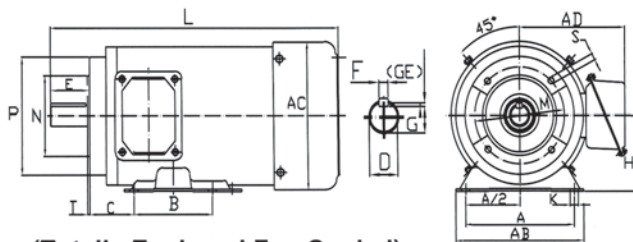
FLS B14 Flanges

Part Number	List Price \$
FLS 63B14	123.00
FLS 71B14	204.00
FLS 80B14	230.00
FLS 90B14	263.00
FLS 100B14	311.00
FLS 112B14	609.00

* USA only
 ** Export only

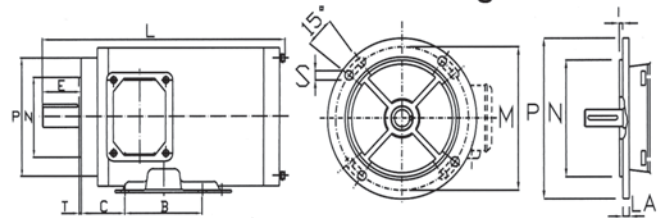
NOTE: Lowest drain plug must be removed to allow proper drainage

Base & B14 flange "C"



(Totally Enclosed Fan Cooled)

B5 flange "D"



(Totally Enclosed Non-Ventilated)

- Perfect for the food processing and pharmaceutical industries ▪ 300 series Stainless Steel construction on all exterior parts ▪ Double gaskets in conduit box
- Paint free housing ▪ Laser etched nameplate on frame body ▪ Wash down protected ▪ Sanitary ▪ Durable ▪ All IEC Frames

All dimensions in mm

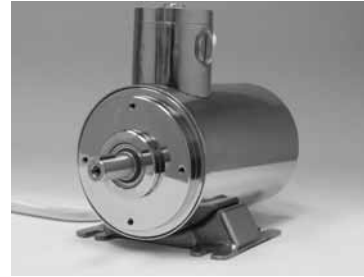
Motor Type	B14 FLANGE														B5 FLANGE										
	A	A/2	B	C	D	E	F	G	H	K	M	N	P	S	T	# HOLES	AB	AC	AD	L	M	N	P	S	T
(Totally Enclosed Non-Ventilated)																									
LA63	100	55.0	80	40	11	23	4	8.5	63	7	75	60	90	M5	2.5	4	125	114	112	241	115	95	140	10	3.0
LA71	112	56.0	90	45	14	30	5	11.0	71	7	85	70	105	M6	2.5	4	140	134	122	278	130	110	160	10	3.5
LA80	125	62.5	100	50	19	40	6	15.5	80	10	100	80	120	M6	3.0	4	150	144	127	322	165	130	200	12	3.5

Motor Type	B14 FLANGE														B5 FLANGE										
	A	A/2	B	C	D	E	F	G	H	K	M	N	P	S	T	# HOLES	AB	AC	AD	L	M	N	P	S	T
(Totally Enclosed Fan Cooled)																									
LA80	125	62.5	100	50	19	40	6	15.5	80	10	100	80	120	M6	3.0	4	150	156	127	361	165	130	200	12	3.5
LA90S	140	70.0	100	56	24	50	8	20.0	90	10	115	95	140	M8	3.0	4	165	176	140	369	165	130	200	12	3.5
LA90L	140	70.0	125	56	24	50	8	20.0	90	10	115	95	140	M8	3.0	4	165	176	140	414	165	130	200	12	3.5
LA100L	160	80.0	140	63	28	60	8	24.0	100	12	130	110	160	M8	3.5	4	190	202	153	433	215	180	250	15	4.0
LA112M	190	95.0	140	70	28	60	8	24.0	112	12	130	110	160	M8	3.5	4	220	231	171	469	215	180	250	15	4.0

See page 58 for connection diagrams

Stainless Steel Motors - IP67 "Ultra Protection"

IP67 * Class "F" * 1.15 Service Factor (SF) - Available in IEC 63 to 80 frame sizes in 2 & 4 poles * 230/460V or 333/575V 60hz * All stainless steel 304 construction (Shafts are made in SS420 steel grade) * Etched nameplate * Available in B3, B14, B5 mounting * TENV design * CSA safety approvals * lead box equipped with stainless steel cable glands & 1 meter of 4 core double insulated cable* Includes Thermistors (150° Celsius)



2 POLE - 3600 RPM

Part Number	HP	Full Load Amps 460V	Full Load Amps 575V	Speed min ⁻¹	Weight (lbs)	List Price \$
LA 63 1-2	0.25	0.34	0.27	3430	19	949.00
LA 63 2-2	0.35	0.44	0.35	3420	21	998.00
LA 71 1-2	0.50	0.63	0.5	3450	23	1,138.00
LA 71 2-2	0.75	0.92	0.74	3430	25	1,184.00
LA 80 1-2	1.00	1.2	0.96	3450	40	1,470.00
LA 80 2-2	1.50	1.8	1.44	3470	46	1,503.00

4 POLE - 1800 RPM

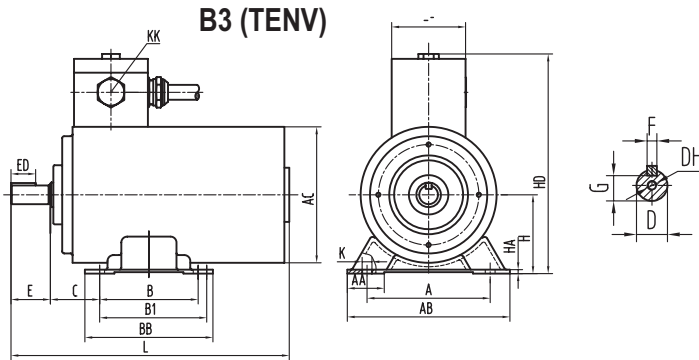
Part Number	HP	Full Load Amps 460V	Full Load Amps 575V	Speed min ⁻¹	Weight (lbs)	List Price \$
LA 63 2-4	0.25	0.44	0.35	1700	21	988.00
LA 71 1-4	0.35	0.53	0.43	1740	24	1,143.00
LA 71 2-4	0.50	0.78	0.63	1740	25	1,188.00
LA 80 1-4	0.75	1.2	0.96	1730	37	1,433.00
LA 80 2-4	1.00	1.5	1.2	1730	42	1,570.00

FLP 63B5 Flanges

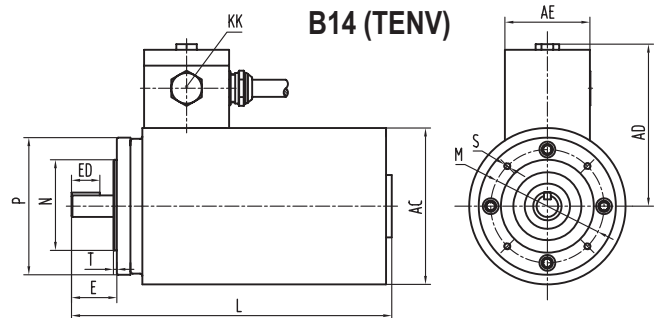
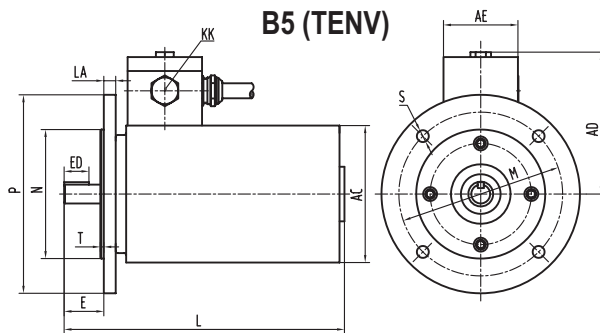
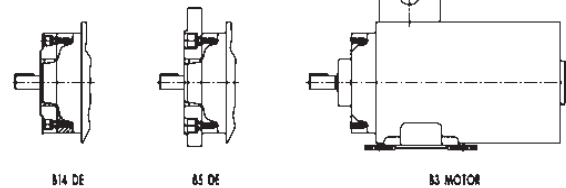
Part Number	List Price \$
FLP 63B5	127.00
FLP 71B5	218.00
FLP 80B5	232.00

FLP 63B14 Flanges

Part Number	List Price \$
FLP 63B14	123.00
FLP 71B14	204.00
FLP 80B14	230.00



Modular Flange Kit Design



B3	A	AA	AB	BB	HA	B	B1	C	D	DH	E	F	G	H	HD	K	KK METRIC	LD	AE	ED	L TENV
63	100	25.5	125	110	4	80	N/A	40	11	M3	23	4	8.5	63	180	7	2-M20X1.5	93	33.5	13	260
71	112	30	140	140	4	90	N/A	45	14	M4	30	5	11	71	200	7	2-M20X1.5	97.5	33.5	20	275
80	125	37.5	165	130	4	100	N/A	50	19	M6	40	6	15.5	80	225	10	2-M25X1.5	101.5	38	25	285

B5/B14	AC	AD	D	DH	E	F	G	K	KK METRIC	LD	AE	ED	L	B5	B14	B5	B14	B5	B14	B5	B14	B5	B14
63	118	128	11	M3	23	4	8.5	7	2-M20X1.5	93	33.5	13	260	115	75	95	60	140	90	10	M5	3.5	3
71	128	130	14	M4	30	5	11	7	2-M20X1.5	97.5	33.5	20	275	130	85	110	70	160	105	10	M6	3.5	3
80	138	145	19	M6	40	6	15.5	10	2-M25X1.5	101.5	38	25	285	165	100	130	80	200	120	12	M6	3.5	3.5

See page 58 for connection diagrams

Explosion Proof

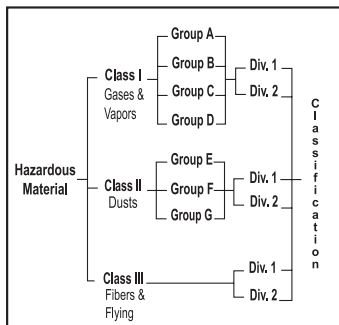
Important Note: Lafert North America offers and distributes 'Explosion Proof Motors' but it is the purchaser's responsibility to ensure that proper enclosure classification is obtained according to the 'Hazardous Area' in which the product is to be used in.

Descriptions and technical features listed on this chart may not be considered as binding. Under no circumstances should this publication be considered a contractual obligation.

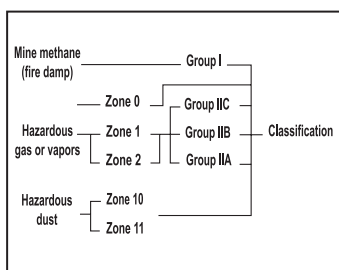
		N E C			A T E X		
		Class	Division	Zone	Zone	Motor Category	Type of protection
G A S	I Gases, vapors, liquids		1 May exist all the time	0 Exist all the time	0 Exist all the time	1G	CEI EN 50284 (double protection)
				1 Likely to exist	1 Likely to exist	2G	EEx-d • EEx-de EEx-e
			2 Not likely to exist	2 Not likely to exist	2 Not likely to exist	3G	EEx-nA
D U S T	II Combustible Dust		1 May exist all the time	▶	20 Exist all the time	1D	Currently not expected
				▶	21 Likely to exist	2GD	EEx-d • EEx-de IP6X
		2 Not likely to exist*	▶	22 Conductive dust Not likely to exist	2GD	EEx-d • EEx-de IP6X	
			▶	22 Non conductive dust Not likely to exist	3GD	EEx-nA • IP5X	
III Ignitable fibers & flying		1**	▶	22 Non conductive dust Not likely to exist	3D	IP5X	
		2**	▶				

* Conductive dust in Class II is always Division 1.
** Class III does not include conductive materials; Division 1 refers to manufacturing process areas; Division 2 refers to areas outside manufacturing process.

Classification for Hazardous Areas North American Classifications



European Classifications



COMBUSTION TEMPERATURES OF GASES, VAPOURS AND GROUPS

Combustible gases and vapors are divided into classes according to their ignition temperature and into groups according to their explosive capacity. Markings on motors and other electrical equipment with the symbols used to indicate the production mode, the enclosure group, and the temperature class, indicate the zone in which such equipment can be installed.

Classification of the more common combustible gases and vapours according to temperature class and group

Group	Temperature classes					
	T1	T2	T3	T4	T5	T6
I	Methane (firedamp)					
IIA	Acetic Acid Acetone Ammonia Benzole Benzene Butanone Carbon Monoxide Ethane Ethyl acetate Ethyl chloride Methane Methanol Methyl acetate Methyl alcohol Methyl chloride Naphtalene Propane Toluene Xylene	Acetic anhydride I amyl acetate n butane n butyl alcohol Amylic alcohol Butyl acetate Cyclohexanon Ethyl alcohol Iso butylic alcohol Liquified gas Natural gas Propyl acetate	Cyclohexane Cyclhexanal Decano Diesel fuels Gasoline Heating oil Heptane Hexane Jet fuels Pentane *Petroleum	Acetaldehyde Ether		
IIB	Coke-oven gas Water gas (carburetted)	1,3 butadiene Ethylene Ethylbenzene Ethylene oxide	Hydrogen sulfide Isoprene *Petroleum	Ethyl ether		
IIC	Hydrogen	Acetylene				Ethyl nitrate

* depending on composition

Dangerous Areas and Zones

Zones susceptible to gas

When the hazard is due to the presence of gas, vapors or mists of flammable substances, the European directive 1999/92/EC envisages a classification in three zones defined as follows:

Zone 0 - Areas constantly susceptible to an explosive atmosphere, or for long periods of time. Power equipment with double insulation must be installed in this area.

Zone 1 - Areas where an explosive atmosphere is likely to develop during normal conditions. Only flameproof electric motors or motors with added protection means can be installed in this zone (for the latter, restrictions by the standards apply).

Zone 2 - Areas rarely susceptible to an explosive atmosphere and for a short period of time. Flameproof motors or motors with added protection can be installed in this zone, as well as non-sparking motors.

Zones susceptible to dust

When the hazard is due to the presence of combustible dust, the European directive 1999/92/EC envisages a classification in three zones defined as follows:

Zone 20 - Areas constantly susceptible to an explosive atmosphere, or for long periods of time. Power apparatus cannot be installed in this zone.

Zone 21 - Areas where an explosive atmosphere is likely to develop during normal conditions. Electric motors certified in compliance with the ATEX directive with IP6X protection rating can be installed in this zone

Zone 22 - Areas rarely susceptible to an explosive atmosphere, and only for a short period of time. In the presence of conductive dust, electric motors certified in compliance with the ATEX directive with protection rating IP6X can be installed in this zone, whereas in the presence of non conductive dust, motors with protection rating IP5X and a declaration of conformity issued by the manufacturer can be installed.

Dangerous areas classified by zones

Usage area in the presence of GAS	Usage area in the presence of DUSTS	Hazardous level of the operational ZONE
Zone 0	Zone 20	Explosive atmosphere ALWAYS PRESENT
Zone 1	Zone 21	Explosive atmosphere PROBABLE
Zone 2	Zone 22	Explosive atmosphere UNLIKELY

Special Features & optional types

Main versions

- Motors with brakes.
- 2GD motors for areas classified as zone 21 and zone 22 (Dust).
- Group I motors (for mines).

Electrical variants

- Non-standard voltages and frequencies (maximum voltage 1000V).
- Motors suitable for frequency inverter drive.
- Motors with encoder.
- Motors with forced ventilation (from frame size 100).
- Motors for tropical climates.
- Motors for low ambient temperatures.
- Motors insulated to class H.
- Motors with bimetallic detector, thermistor PTC or thermistor PT100.
- Motors with anti-condensation heaters.
- Motors with special electrical design.
- Single-phase motors with capacitor fitted in a large-size terminal box (EEx-d, max 50 pF).

Mechanical variants

- Special flanges and shafts.
- Double ended shafts.
- Cable gland fitted to terminal box.
- Terminal box with special cable entries.
- Motors without terminal box and with loose cables.
- Motors protection IP56 - IP65 - IP66.
- Motors with condensation drainage valves.
- Motors with special bearings (uni-directional, with sensors, with rollers, insulated, oversized, thrust bearings).
- Motors with a rain cap or sun shield, water-shedding disc.
- (F1 or F2) Side terminal box, 180 to 225 frames only.
- Feet can be removed and repositioned to allow side orientation of 280 and 315 frames terminal boxes.
- Low noise emission version.

Temperature classes (for gas atmospheres)

The electrical apparatus is classified into 6 classes according to the maximum surface temperatures.

The maximum surface temperature is the highest temperature which is attained in service under conditions described in the standards, by any part of the electrical apparatus, which, could ignite the surrounding atmosphere.

For electric motors this is:

- the temperature of the outside surface of the enclosure for 'd' and 'p' protection modes;
- the temperature of any internal or external point for type of protection 'e' or 'n'.

Ignition temperature of medium relative to limit temperature [°C]	Temperature class	Maximum surface temperature of electrical equipment including 40° C ambient temperature	
		[°C]	[°F]
over 450	T 1	450	842
from 300 to 450	T 2	300	572
from 200 to 300	T 3	200	392
from 135 to 200	T 4	135	275
from 100 to 135	T 5	100	212
from 85 to 100	T 6	85	185

AB30 / AC35 Range Motors



Explosion Proof - Various Designs Available from Stock in North America

Available in 208-230/460V or 333/575V ▪ Threaded hole in output shaft is standard ▪ TEFC ▪ Squirrel Cage ▪ Class F ▪ Cast Iron Construction
IP55 - Terminal box IP56 ▪ ATEX Certification ▪ Flameproof enclosure EExd IIB T4 (other enclosures available such as EEx-d IIC T4) ▪ Class 'B' Rise

See page 34 and 35 for dimensional drawings ▪ Single Phase, Two Speed and Brake motor designs available on request.

Also available in AC30 and AC35 Designs (IEC - ex available upon order) - Please Enquire

2 POLE - 3600 RPM

Part Number	ATEX CERTIFIED		List Price \$
	HP	Weight (lbs)	
AB30 63 A2	0.25	35	1,558.00
AB30 63 B2	0.33	35	1,653.00
AB30 71 A2	0.50	42	1,754.00
AB30 71 B2	0.75	42	1,927.00
AB30 80 A2	1.00	57	1,968.00
AB30 80 B2	1.50	57	2,172.00
AB30 90S 2 **	2.00	73	2,341.00
AB30 90L 2 **	3.00	73	2,642.00
AB30 100L A2 *	4.00	102	3,296.00
AB30 112M 2 **	5.50	144	4,139.00
AB30 132S A2 **	7.50	210	5,308.00
AB30 132S B2 **	10.00	210	6,108.00
AB30 132M B2 **	12.50	232	7,516.00
AB30 132M L2 **	15.00	232	8,129.00
AB30 160M A2 **	15.00	397	8,919.00
AB30 160M B2 **	20.00	397	10,895.00
AB30 160L A2 **	25.00	430	12,668.00
AB30 180M 2 **	30.00	507	15,906.00
AB30 200L A2 **	40.00	630	21,155.00
AB30 200L B2 **	50.00	672	24,826.00
AB30 225M 2 **	60.00	850	31,207.00
AB30 250M 2 **	75.00	1115	41,107.00

4 POLE - 1800 RPM

Part Number	ATEX CERTIFIED		List Price \$
	HP	Weight (lbs)	
AB30 63 A4	0.18	35	1,526.00
AB30 63 B4	0.25	35	1,617.00
AB30 71 A4	0.33	42	1,686.00
AB30 71 B4	0.50	42	1,781.00
AB30 80 A4	0.75	57	1,892.00
AB30 80 B4	1.00	57	1,985.00
AB30 90S 4 **	1.50	73	2,291.00
AB30 90L 4 **	2.00	73	2,557.00
AB30 100L A4 *	3.00	102	3,060.00
AB30 100L B4 *	4.00	102	3,671.00
AB30 112M 4 **	5.50	144	4,701.00
AB30 132S B4 **	7.50	210	5,384.00
AB30 132M B4 **	10.00	210	6,661.00
AB30 132M L4 **	11.80	232	7,955.00
AB30 160M B4 **	15.00	397	9,423.00
AB30 160L B4 **	20.00	430	11,066.00
AB30 180M 4 **	25.00	504	14,203.00
AB30 180L 4 **	30.00	540	16,990.00
AB30 200L B4 **	40.00	672	21,750.00
AB30 225S 4 **	50.00	794	26,719.00
AB30 225M 4 **	60.00	850	31,207.00
AB30 250M 4 **	75.00	1191	40,782.00

6 POLE - 1200 RPM

Part Number	ATEX CERTIFIED		List Price \$
	HP	Weight (lbs)	
AB30 63 B6	0.12	35	1,695.00
AB30 71 A6	0.25	42	1,756.00
AB30 71 B6	0.35	42	1,914.00
AB30 80 A6	0.50	57	2,006.00
AB30 80 B6	0.75	57	2,086.00
AB30 90S 6 **	1.00	73	2,466.00
AB30 90L 6 **	1.50	73	2,747.00
AB30 100L B6 *	2.00	102	3,363.00
AB30 112M 6 **	3.00	144	4,057.00
AB30 132S B6 **	4.00	210	5,934.00
AB30 132M B6 **	5.50	210	6,375.00
AB30 132M L6 **	7.50	232	6,791.00
AB30 160M B6 **	10.00	397	9,842.00
AB30 160L 6 **	15.00	430	12,968.00
AB30 180L 6 **	20.00	540	18,173.00
AB30 200L A6 **	25.00	650	19,598.00
AB30 200L B6 **	30.00	672	24,339.00
AB30 225M 6 **	40.00	850	32,295.00
AB30 250M 6 **	50.00	1146	42,140.00

8 POLE - 900 RPM

Part Number	ATEX CERTIFIED		List Price \$
	HP	Weight (lbs)	
AB30 63 B8	0.06	35	1,779.00
AB30 71 B8	0.20	42	2,050.00
AB30 80 A8	0.25	57	2,372.00
AB30 80 B8	0.33	57	2,820.00
AB30 90S 8	0.50	73	3,257.00
AB30 90L 8	0.75	73	3,406.00
AB30 100L A8 *	1.00	102	3,893.00
AB30 100L B8 *	1.50	102	4,378.00
AB30 112M 8 **	2.00	144	4,778.00
AB30 132S B8 **	3.00	210	6,838.00
AB30 132M B8 **	4.00	232	7,516.00
AB30 160M A8 **	5.50	397	9,095.00
AB30 160M B8 **	7.50	397	11,110.00
AB30 160L 8 **	10.00	430	13,075.00
AB30 180L 8 **	15.00	540	18,782.00
AB30 200L B8 **	20.00	672	23,634.00
AB30 225S 8 **	25.00	794	31,390.00
AB30 225M 8 **	30.00	850	33,521.00
AB30 250M 8 **	40.00	1113	46,777.00

* USA only (No CSA nor UL Certification provided)

** Export only

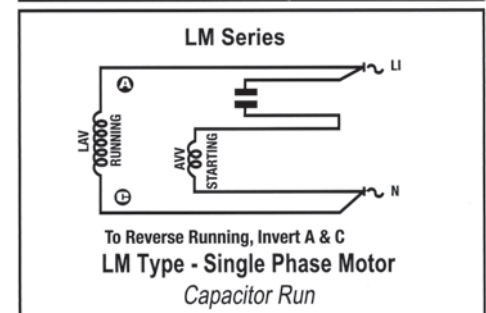
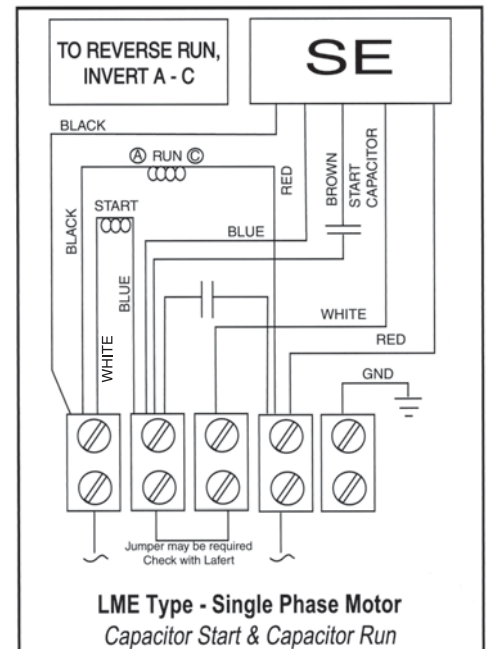
**Explosion Proof Motors do not meet
North American Energy Efficiency Regulations**

NORTH AMERICAN CERTIFICATION MUST BE OBTAINED BY USER

Part Number	Motor Type & Frame	Plastic Fans		List Price \$
		Bore	Blade	
XVN00011	ST/LM 56	9	90	65.00
XVN00021	ST/LM 63	14	90	65.00
XVN00032	ST/LM 71	14	130	75.00
XVN00041	ST/LM 80	19	130	75.00
XVN00051	ST/LM 90	24	155	79.00
XVN00061	ST/LM 100	28	160	120.00
XVN00071	ST/LM 112, AMH 112 (6P)	28	190	149.00
XVN00081	ST 132, AMH 132 (6P)	40	220	209.00
XVN00051-AMPH90	AMPH 90	24	135	79.00
XVN00061-AMPH	AMPH 100/112, HE100 (4P)	28	130	120.00
XVN00081-S2P	AMPH 132S (2P)	40	130	209.00
XVN00081-M-S4P	AMPH 132M, AMPH 132S (4P)	40	160	209.00

Part Number	Frame	Aluminum Fans		List Price \$
		Bore	Blade	
XVA00001	56	9	90	103.00
XVA00011	63	14	90	142.00
XVA00021	71	14	115	152.00
XVA00031	80	19	145	192.00
XVA00041	90	24	160	209.00
XVA00051	100	28	160	227.00
XVA00061	112	28	190	234.00
XVA00071	132	40	230	285.00
XVA00081	160	45	270	348.00

LM(E) Connection Diagram



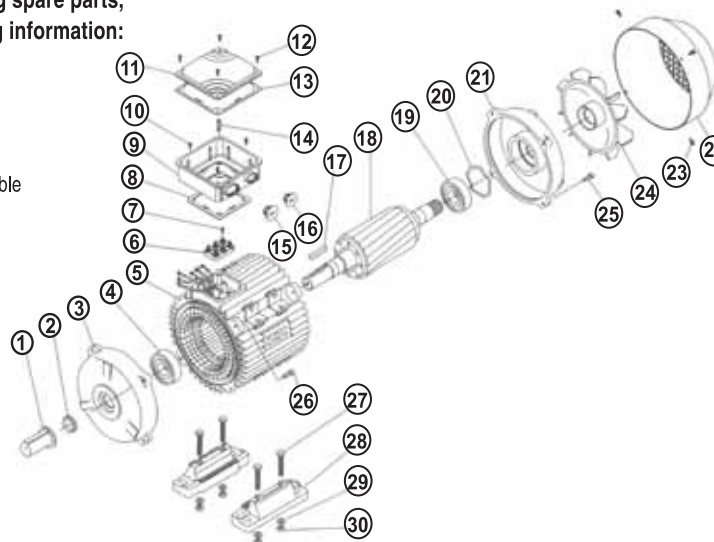
See Page 16 for Motor List

3 Phase Parts Breakdown

NOTE: Fans for newer designed motors may vary. Please check with the technical department for specific requirements.
 * = press-on fit ** = set on mounting + = set screw type † = 71(N) new design 71 frame plastic fans
 Cooling fans are also available for motor frame sizes 200, 225 and 250 on request • Metal fans are pressure die cast aluminum
 Plastic fans are glass reinforced 160C polypropylene • HE motors have non-standard fan sizes

When enquiring or ordering spare parts, please supply the following information:

- Designation of Spare Part
- Motor Type
- Mounting Arrangement
- Motor Serial Number
- Product # (E-No) - when available



PART DESCRIPTION:

1. Shaft protection
2. Dust seal drive end
3. Endshield drive end
4. Bearing drive end
5. Stator frame
6. Terminal board
7. Fixing screw terminal board
8. Gasket terminal board
9. Terminal box
10. Fixing screw terminal box
11. Terminal box lid
12. Fixing screw terminal box lid
13. Gasket terminal box lid
14. Earthing terminal
15. Blank gland plug
16. Blank gland plug
17. Key
18. Rotor complete
19. Bearing non-drive end
20. Pre-load washer
21. Endshield non-drive end
22. Fan cover
23. Fixing screw for fan cover
24. Fan
25. Fixing bolt endshield non-drive end
26. Fixing bolt endshield drive end
27. Fixing bolt motor feet
28. Motor feet
29. Fixing washer motor feet
30. Fixing nut motor feet

Combinations of Flanges &

Frame Sizes

For ST, HE, FB, AAF, MS, LME, DVE, AMFV (up to 132 frame) Series Motors

B14 'C' Flange	List Price \$	B5 'D' Flange	List Price \$
FL56B14	76.00	FL56B5	76.00
FL63B14	76.00	FL63B5	76.00
FL71B14	76.00	FL71B5	76.00
FL80B14	85.00	FL80B5	94.00
FL90B14	94.00	FL90B5	112.00
FL100B14	141.00	FL100B5	158.00
FL112B14	151.00	FL112B5	158.00
FL132B14	209.00	FL132B5	290.00
FL160B14	396.00	FL160B5	426.00

Machined for shaft oil seals
NEMA flanges available

For AB/AC Series Motors (Explosion Proof Motors)

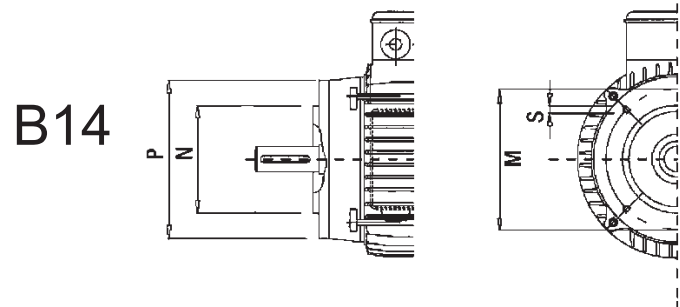
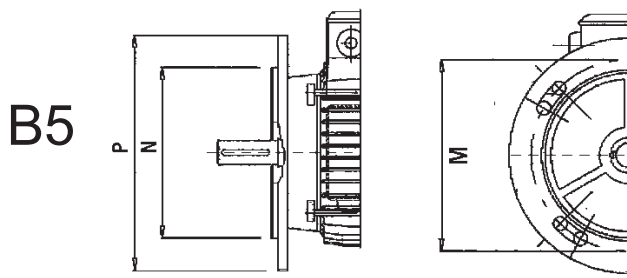
B14 'C' Flange	List Price \$	B5 'D' Flange	List Price \$
FLB63B14	472.00	FLB63B5	472.00
FLB71B14	472.00	FLB71B5	470.00
FLB80B14	557.00	FLB80B5	557.00
FLB90B14	613.00	FLB90B5	613.00
FLB100B14	763.00	FLB100B5	763.00
FLB112B14	920.00	FLB112B5	920.00
FLB132B14	1030.00	FLB132B5	1,030.00
FLB160B14	1184.00	FLB160B5	1,184.00
		FLB180B5	1,305.00
		FLB200B5	1,420.00
		FLB225B5	1,576.00
		FLB250B5	1,849.00

For LNP Series Motors (cast iron 180 frame and larger)

B5 'D' Flange	List Price \$
FLT 180B5	431.00
FLT 200B5	711.00
FLT 225B5	1,145.00
FLT 250B5	1,205.00
FLT 280B5	1,463.00
FLT 315B5	2,113.00

Increasing and Reducing Flanges

M = centre to centre bolt hole circle
N = Inside diameter
P = Outside diameter



B5 Flanges

Motor Frame Size	M	N	P	B5 Reduced	B5 Increased
56	100	80	120	-	-
63	115	95	140	56	71
71	130	110	160	63/56*	80/90
80	165	130	200	71/63	-
90	165	130	200	71*	100/112**
100	215	180	250	90/80/71*	-
112	215	180	250	90 */**	-
132S	265	230	300	112**	-
132M	265	230	300	112	-
160	300	250	350	132***	-
180	300	250	350	-	-
200	350	300	400	-	-
225	400	350	450	-	-
250	500	450	550	-	-
280	500	450	550	-	-

B14 Flanges

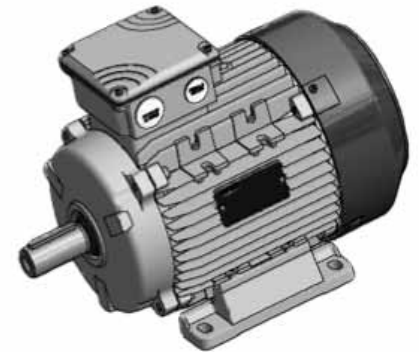
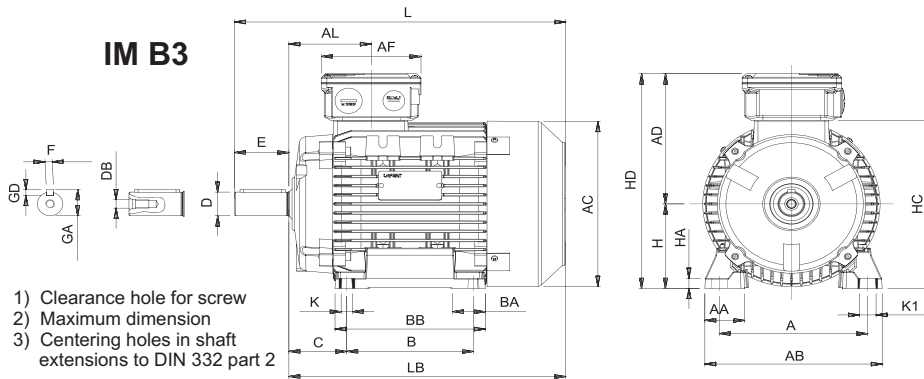
Motor Frame Size	M	N	P	B14 Reduced	B14 Increased
56	65	50	80	-	63
63	75	60	90	56	71/80
71	85	70	105	63	80/90
80	100	80	120	71/63	90/100
90	115	95	140	80/71	100/112
100	130	110	160	90	132
112	130	110	160	-	132
132S	165	130	200	112/100	-
132M	165	130	200	112/100	-
160***	215	180	250	-	-

NOTE: B5 increased and reducing flanges may require motor windings to be pressed.
An additional charge may be applicable.

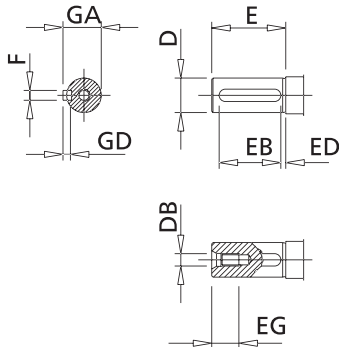
* = May require windings pressed at additional cost
** = Shaft machining required at additional cost
*** = If frame is 160L, shaft extension is required.
If frame is 160M, shaft extension and bearing repositioning is required

For increasing and reducing flanges please call for pricing
Flanges for AF and AAF brake motors require mounting hole-threads to be drilled out.

**HPS FRAME SIZE 71 - 132
ALUMINIUM ALLOY FRAME**

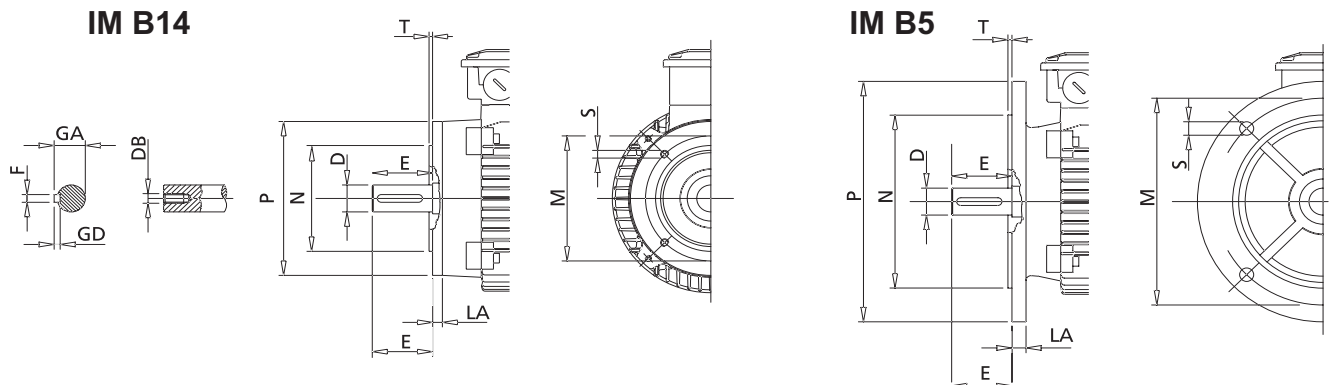


IEC	H	A	B	C	K ¹⁾	AB	BB	AD ²⁾	HD ²⁾	AC	HC	HA	K1	L	LB	AL	AF	BA	AA	D/DA	E/EA	F/FA	GD	GA/GC	DB ³⁾
71	71	112	90	45	7	144	109	112	183	142	142	9	17	245	215	75	93	22	30	14	30	5	5	16	M5
90S	90	140	100	56	10	170	150	148	238	180	181	11	15	317	267	85	110	28/53	37	24	50	8	7	27	MB
90L	90	140	125	56	10	170	150	148	238	180	181	11	15	317	267	85	110	28/53	37	24	50	8	7	27	MB
112M	112	190	140	70	12.5	220	175	171	283	225	226	15	19	388	328	92	110	46	48	28	60	8	7	31	M10
112XL	112	190	140	70	12	220	175	171	283	225	226	15	19	410	350	92	110	46	48	28	60	8	7	31	M10
132M	132	216	178	89	12	256	218	195	327	248	261	17	20	482	402	120	133	45	59	38	80	10	8	41	M12
132XL	132	216	178	89	12	256	218	195	327	248	261	17	20	505	425	120	133	45	59	38	80	10	8	41	M12
132XXL	132	216	178	89	12	256	218	195	327	248	261	17	20	556	476	120	133	45	59	38	80	10	8	41	M12



IEC	D	E	F h9	GD	GA	DB	EG	EB	ED
71	14j6	30	5	5	16	M5	12.5	20	4
90S-L	24j6	50	8	7	27	M8	19	40	4
112M-XL	28j6	60	8	7	31	M10	22	50	4
132M-XL-XXL	38k6	80	10	8	41	M12	28	70	5

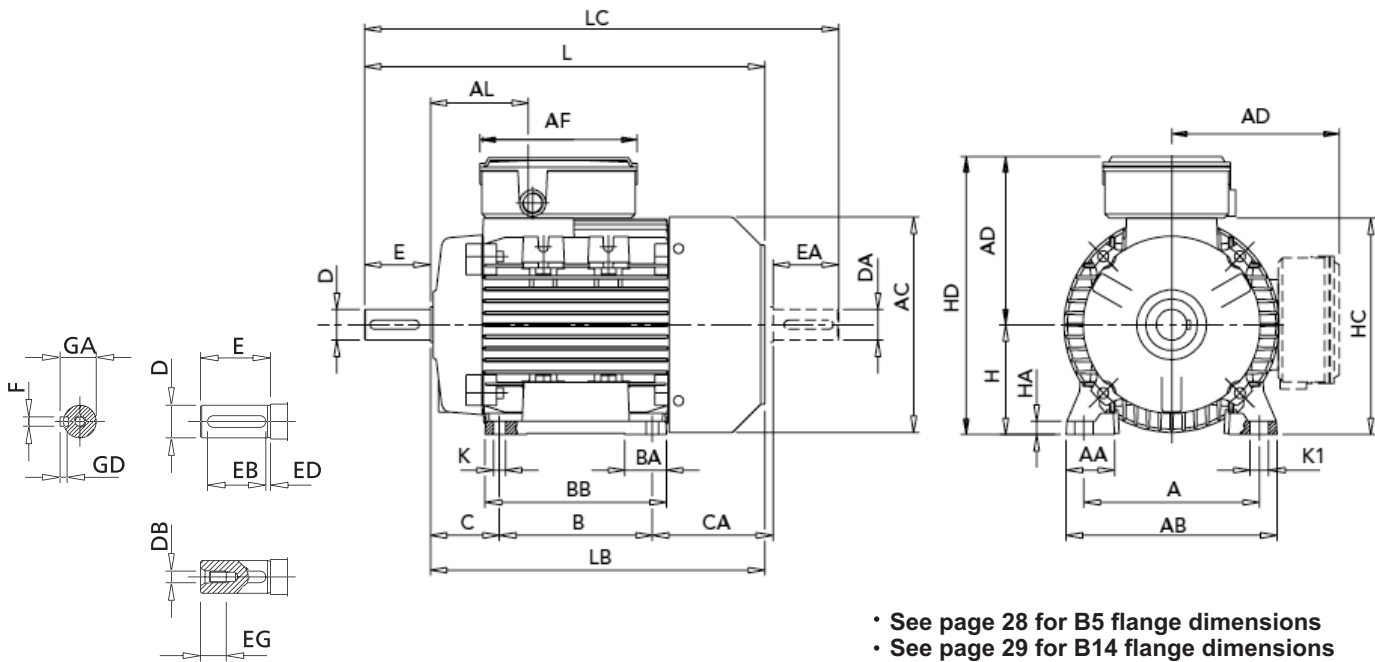
1) Centering holes in shaft extensions to DIN 332 part 2



IEC	SMALL FLANGE B14							INCREASED FLANGE B14							FLANGE B5						
	P	N	LA	M	T	S ¹⁾	P	N	LA	M	T	S ¹⁾	M	N	P	T	LA	S ¹⁾			
71	105	70	11	85	2.5	M6	140	95	8	115	2.5	M8	130	110	160	3.5	10	M8			
90S-L	140	95	10	115	3	M8	160	110	9	130	3.5	M8	165	130	200	3.5	12	M10			
112M-XL	160	110	10	130	3.5	M8	200	130	12	165	3.5	M10	215	180	250	4	14	M12			
132M-XL-XXL	200	130	30	165	3.5	M10	250	180	12	215	4	M12	265	230	300	4	14	M12			

Higher Horse Power rating in each frame may have oversized bearing on drive-end.

Single Phase



- See page 28 for B5 flange dimensions
- See page 29 for B14 flange dimensions
- F2 LEAD BOX IS STANDARD

NON-DRIVE END SHAFT IS OPTIONAL LC, EA, DA

Series LME & DVE Mounting IM B3

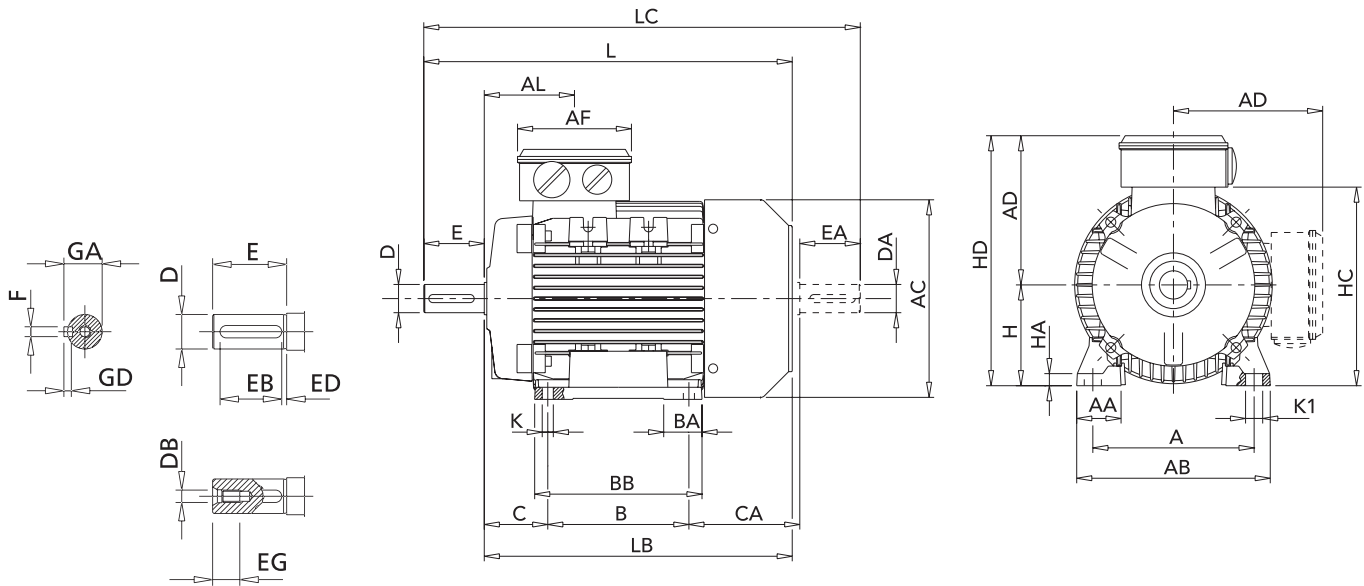
All dimensions in mm

Frame	H	A	B	C	K	AB	BB	CA	AD	HD	AC	HC	HA	K1	L	LB	LC	AL	AF	BA	AA	D/DAE/EA	F	GD	GA	DB	EG	EB	
56	56	90	71	36	6	107	86	63	98	154	104	110	8	9	189	169	210	68	143	27	27	9	20	3	3	10.2	M3	7.5	15
63	63	100	80	40	7	120	100	73	105	168	122	122	8	11	214	191	239	66	143	28	30	11	23	4	4	12.5	M4	10.5	15
71	71	112	90	45	7	135	109	80	119	190	142	144	9	11	243	213	275	73	143	28	31	14	30	5	5	16	M5	12.5	20
80	80	125	100	50	9	154	125	89	131	211	160	162	10	14	277	237	319	99	168	35	33	19	40	6	6	21.5	M6	19	30
90S	90	140	100	56	9	170	125	101	140	230	180	181	11	15	307	257	357	103	168	37	37	24	50	8	7	27	M8	19	40
90L	90	140	125	56	9	170	150	101	140	230	180	181	11	15	332	282	382	103	168	37	37	24	50	8	7	27	M8	19	40
100L	100	160	140	63	11	192	166	110	147	247	195	200	12	17	373	313	433	107	168	42	44	28	60	8	7	31	M10	22	50
112M	112	190	140	70	12	220	175	126	163	275	222	226	15	19	394	334	456	109	168	46	48	28	60	8	7	31	M10	22	50

LM Series (56-80) Mounting IM B3

All dimensions in mm

Frame	H	A	B	C	K	AB	BB	CA	AD	HD	AC	HC	HA	K1	L	LB	LC	AL	AF	BA	AA	D/DA	E/EA	F	GD	GA	DB
56	56	90	71	36	6	107	86	63	98	154	104	110	8	9	189	169	210	68	143	27	27	9	20	3	3	10.2	M3
63	63	100	80	40	7	120	100	73	105	168	122	122	8	11	214	191	239	66	143	28	30	11	23	4	4	12.5	M4
71	71	112	90	45	7	135	109	80	119	190	142	144	9	11	243	213	275	73	143	28	31	14	30	5	5	16	M5
80	80	125	100	50	9	154	125	89	131	211	160	162	10	14	277	237	319	99	168	35	33	19	40	6	6	21.5	M6



- See page 28 for B5 flange dimensions
- See page 29 for B14 flange dimensions
- F2 LEAD BOX IS STANDARD

NON-DRIVE END SHAFT IS OPTIONAL LC, EA, DA

MS Compact brake motor non-drive end shaft is not standard size - Please inquire

Frame Construction B3

All dimensions in mm

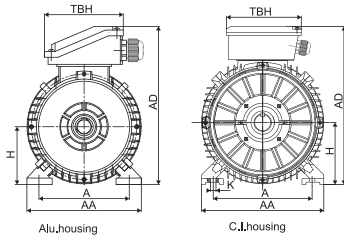
Forced Ventilation

Frame	H	A	B	C	K	AB	BB	CA	AD	HD	AC	HC	HA	K1	L	LB	LC	AL	AF	BA	AA	D/DA	E/EA	F	GD	GA	DB	EG	EB
56	56	90	71	36	6	107	86	64	92	148	110	109	8	9	188	168	211	61	92	27	27	9	20	3	3	10.2	M3	7.5	15
63	63	100	80	40	7	120	100	72	96	159	124	120	8	11	211	188	238	63	92	29	30	11	23	4	4	12.5	M4	10.5	15
71	71	112	90	45	8	135	108	83	110	181	139	142	9	11	246	216	278	69	92	28	31	14	30	5	5	16	M5	12.5	20
80	80	125	100	50	10	153	125	89	129	209	160	162	9.5	14	272	232	319	79	116	28.5	35	19	40	6	6	21.5	M6	19	30
90S	90	140	100	56	10	170	150	116	138	228	180	181	11	15	317	267	372	85	116	28/53	37	24	50	8	7	27	M8	19	40
90L	90	140	125	56	10	170	150	91	138	228	180	181	11	15	317	267	372	85	116	28/53	37	24	50	8	7	27	M8	19	40
100L	100	160	140	63	11	192	166	110	145	245	196	198	12	17	366	306	433	91	116	38	44	28	60	8	7	31	M10	22	50
HE100LF4	100	160	140	63	11	192	166	110	147	247	195	200	12	17	400	340	460	91	124	42	44	28	60	8	7	31	M10	22	50
112M	112	190	140	70	12.5	220	175	126	161	273	225	226	15	19	388	328	456	91.5	116	46	48	28	60	8	7	31	M10	22	50
132S	132	216	140	89	12	256	180	134	195	327	248	261	17	20	442	362	523	100	133	45	59	38	80	10	8	41	M12	28	70
132M	132	216	178	89	12	256	218	136	195	327	248	261	17	20	482	402	563	120	133	45	59	38	80	10	8	41	M12	28	70
132M*	132	216	178	89	12	256	218	166	195	327	248	261	17	20	500	420	593	120	133	45	59	38	80	10	8	41	M12	28	70
160M	160	254	210	108	14	320	270	180	238	398	317	316	23	18	608	498	718	145	150	65	76	42	110	12	8	45	M16	40	100
160L	160	254	254	108	14	320	310	180	238	398	317	316	23	18	652	542	762	168	150	65	76	42	110	12	8	45	M16	40	100

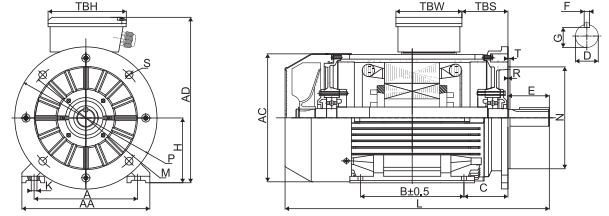
Verify dimensions for AMPH motors with Lafert

* = Only for MTA2

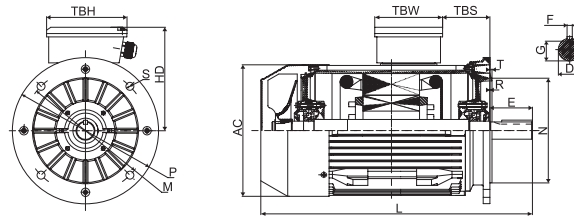
3-Phase: Premium Efficiency (Cast Iron Frames)



IM B3 **Figure 1**



IM B35 **Figure 2**

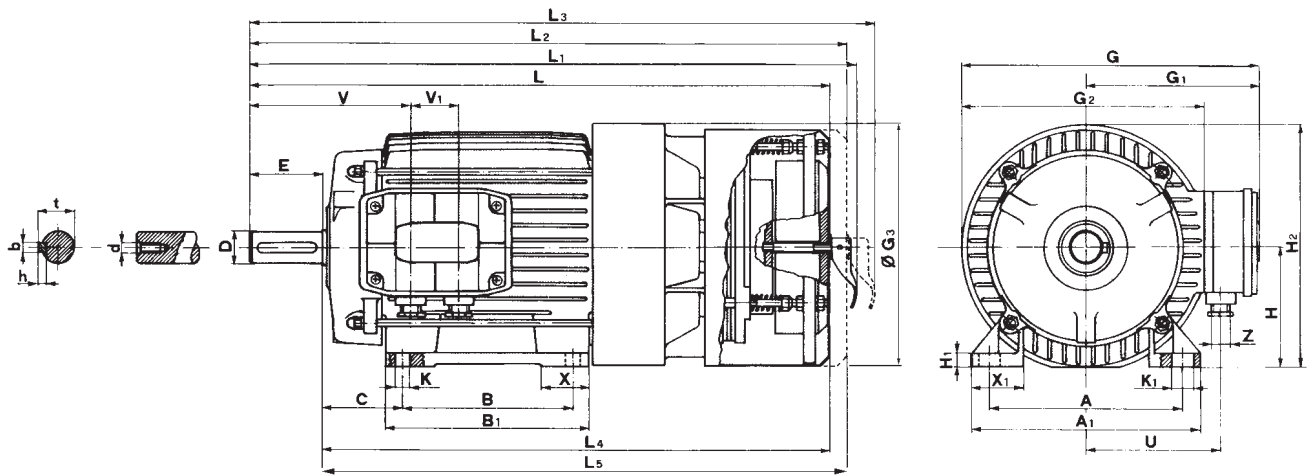


IM B5 **Figure 3**

Overall & Installation Dimensions (all in mm)

Frame	Poles	Foot Mounting				Shaft				General								
		H	A	B	C	D	E	F	G	K	AA	AD	HD	AC	L	TBS	TBW	TBH
180M/L	2,4,6,8	180	279	241/279	121	48	110	14	42.5	15	348	439	259	360	687/725	160/180	162	187
200L	2,4,6,8	200	318	305	133	55	110	16	49	19	388	497	297	399	768	192	186	233
225S	4,8	225	356	286	149	60	140	18	53	19	436	553	328	465	814	190	186	233
	2	225	356	311	149	55	110	16	49	19	436	553	328	465	809	202	186	233
225M	4,6,8	225	356	311	149	60	140	18	53	19	436	553	328	465	839	202	186	233
	2	250	406	349	168	60	140	18	53	24	484	616	366	506	918	233	218	260
250M	4,6,8	250	406	349	168	65	140	18	58	24	484	616	366	506	918	233	218	260
	2	280	457	368/419	190	65	140	18	58	24	557	668	388	559	984/1035	265	218	260
280S/M	4,6,8	280	457	368/419	190	75	140	20	67.5	24	557	668	388	559	984/1035	265	218	260
	2	315	508	406	216	65	140	18	58	28	630	840	525	680	1160	130	350	430
315S	4,6,8	315	508	406	216	80	170	22	71	28	630	840	525	680	1190	130	350	430
	2	315	508	457/508	216	65	140	18	58	28	630	840	525	680	1310	130	350	430
315M/L	4,6,8	315	508	457/508	216	80	170	22	71	28	630	840	525	680	1340	130	350	430

Frame	Poles	Bearings			Cable Gland	B5					
		Drive End	Non-Drive End			N	M	P	S	T	R
180M/L	2,4,6,8	6311C3	6311C3	2-M32×1.5	250	300	350	4-19	5	0	
200L	2,4,6,8	6312C3	6312C3	2-M40×1.5	300	350	400	4-19	5	0	
225S	4,8				350	400	450	8-19	5	0	
	2	6313C3	6313C3	2-M50×1.5	350	400	450	8-19	5	0	
225M	4,6,8				350	400	450	8-19	5	0	
	2	6314C3	6314C3	2-M50×1.5	450	500	550	8-19	5	0	
250M	4,6,8				450	500	550	8-19	5	0	
	2	6316C3	6316C3	2-M50×1.5	450	500	550	8-19	5	0	
280S/M	4,6,8				450	500	550	8-19	5	0	
	2	6317C3	6317C3	2-M50×1.5	550	600	660	8-24	6	0	
315S/M/L	4,6,8	NU319	6319C3	2-M63×1.5	550	600	660	8-24	6	0	



* See page 28 for B5 flange dimensions
* See page 29 for B14 flange dimensions

Frame Construction B3
with feet
All dimensions in mm

Frame	H	A	B	C	K	D	E	A1	B1	G	G1	G2	G3	H1	H2	K1	L	L1	L2*	L3*	L4	L5*	U	V	V1	Z	X	X1	b	h	t	d*
63	63	100	80	40	7	11	23	120	100	166.5	101.5	134	130	8	128	11	301	320	314	333	278	291	69	68	36	M16 M20	28	30	4	4	12.5	M4
71	71	112	90	45	7	14	30	135	109	189.5	114.5	147.5	150	9	146	11	340	360	353	373	310	323	82	84	36	M16 M20	28	31	5	5	16	M5
80	80	125	100	50	9	19	40	154	125	218	133	167	170	10	165	14	382	400	395	413	342	355	97	105	36	M20 M25	35	33	6	6	21.5	M6
90S	90	140	100	56	9	24	50	170	125	236.5	141.5	187	190	11	185	15	415	430	428	443	365	378	106	120	36	M20 M25	37	37	8	7	27	M8
90L	90	140	125	56	9	24	50	170	150	236.5	141.5	187	190	11	185	15	440	455	453	468	390	403	106	120	36	M20 M25	37	37	8	7	27	M8
100L	100	160	140	63	11	28	60	192	166	254	149	204	210	12	205	17	486	500	500	514	426	440	118	137	36	M20 M25	42	44	8	7	31	M10
112M	112	190	140	70	12	28	60	220	175	279.5	164.5	229	230	15	227	19	530	545	545	560	470	485	130	151	36	M20 M25	46	48	8	7	31	M10
132S	132	216	140	89	12	38	80	256	180	333	195	268	276	17	270	20	625	640	-	-	545	2 disc	150	194.5	45	M32 X2	45	59	10	8	41	M12
132M	132	216	178	89	12	38	80	256	218	333	195	268	276	17	270	20	665	680	-	-	585	2 disc	150	194.5	45	M32 X2	45	59	10	8	41	M12
160M	160	254	210	108	14	42	110	320	270	385	235	310	332	23	328	18	747	770	-	-	637	2 disc	172	260	50	M40 X2	65	76	12	8	45	M16
160L	160	254	254	108	14	42	110	310	310	385	235	310	332	23	328	18	791	814	-	-	681	2 disc	172	260	50	M40 X2	65	76	12	8	45	M16

AF (B) & AAF (B) Type Asynchronous

3-Phase Brake Motors

The main features of this type of motor are low weight and its ability to stop immediately, without recourse to external mechanical devices, if the supply voltage is cut off. This presents some obvious advantages...

SAFETY:

In the event of a power failure, the motor, and the machinery it is driving, will stop immediately.

BRAKING SPEED:

If the supply voltage is cut off, braking is SAFE, POWERFUL and FAST. The "dead" time created by the inertia of rotating parts is reduced to a minimum.

STOPPING POWER:

Braking power is independent of the direction of rotation.

BRAKING ACCURACY:

The instant braking action of these motors is particularly suited to situations where accurate positioning and ability to repeat is essential.

BRAKING TORQUE:

The braking torque can be manually adjusted over a wide range simply by varying the pressure of the springs acting on the moving armature of the electromagnet.

BRAKING WITHOUT AXIAL MOVEMENT OF THE MOTOR SHAFT:

Braking action is achieved by moving the mobile armature against a brake disc which is rigidly keyed to the motor shaft. Axial movement is blocked by the motor flange.

ABSENCE OF AUXILIARY ELECTRICAL DEVICES:

The need for current rectifiers or transformers is eliminated by using the same supply voltage and frequency as the motor.

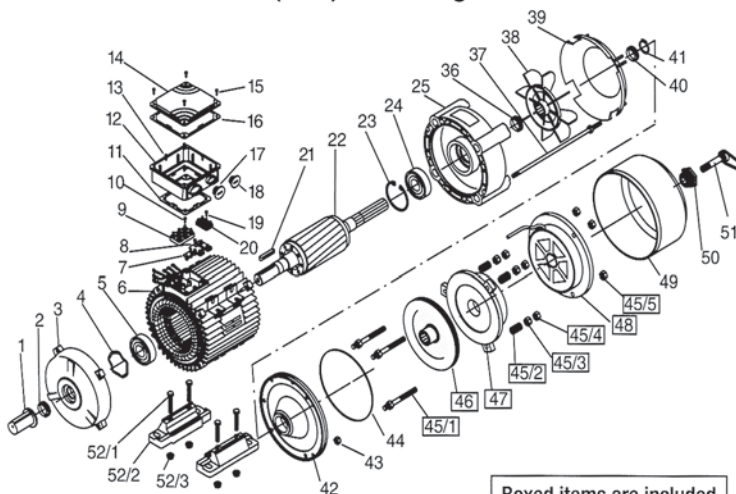
SEPARATE CONTROLS AND ELECTRICAL SUPPLY:

The standard configuration includes two separate terminal blocks supplying electrical current and controls. One supplies the brake, the other supplies the motor.

ENDURANCE:

The materials used in the construction of all friction surfaces are designed to withstand frequent stops per hour. Special care has been taken to ensure proper heat dissipation.

Parts Break-Down for (AAF) New Design Brake Motor



Part description:

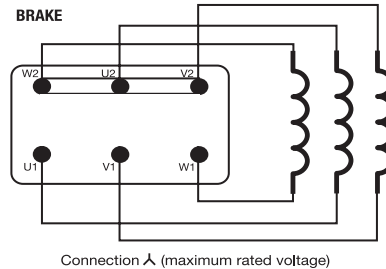
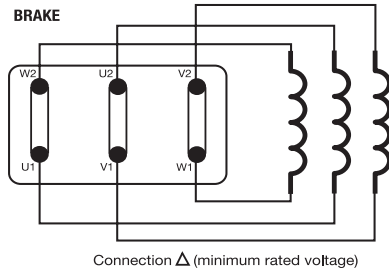
- | | |
|--|---|
| 1 Shaft protection | 36 Dust seal |
| 2 Dust seal drive end | 37 Tie rod |
| 3 Endshield drive end | 38 Fan |
| 4 Pre-load washer | 39 Fan cover |
| 5 Bearing drive end | 40 Dust seal (for IP55 only) |
| 6 Stator frame | 41 Circlip for fan locking |
| 7 Terminal board support (for sizes 63 ... 112) | 42 Brake support flange |
| 8 Fixing screw terminal board support (for sizes 63 ... 112) | 43 Tie rod fixing nit |
| 9 Motor terminal board | 44 O-ring (for IP55 only) |
| 10 Fixing screw motor terminal board | 45 Brake adjusting/fixing kit: |
| 11 Gasket terminal box | 45/1 guiding column |
| 12 Terminal box | 45/2 braking spring |
| 13 Fixing screw terminal box | 45/3 self locking nut |
| 14 Gasket terminal box lid | 45/4 electromagnet locking nut |
| 15 Terminal box lid | 45/5 electromagnet locking nut |
| 16 Fixing screw terminal box lid | 46 Brake disk |
| 17 Blank gland plug | 47 Brake anchor |
| 18 Blank gland plug | 48 Electromagnet |
| 19 Fixing screw brake terminal board (for sizes 63 ... 112) | 49 Brake cover |
| 20 Brake terminal board (for sizes 63 ... 112) | 50 Nipple |
| 21 Motor key | 51 Hand release |
| 22 Rotor complete | 52 Foot kit (1 foot) (for sizes 71 ... 132 a) |
| 23 Circlip | 52/1 fixing screw |
| 24 Bearing non-drive end | 52/2 foot |
| 25 Endshield non-drive end | 52/3 fixing nut b) |
- a) for size 63 feet integral with the case
b) for size 132 washer and nut

AF & AFB Ranges:

Lafert's classic AF and AFB range of brake motors are characterized by a powerful, precise and almost instant braking action. This series is especially suited to loads where high inertia masses must be driven from rest, and where the load could lead to dangerous

structural stresses.

This new feature has been achieved by fitting an additional mass onto the shaft of the motor and regulating the mechanical braking action by proper adjustment of the pressure springs.



All brake coils are designed with standard three phase voltage (AC) 230/460v or 333/575v - regardless of what voltage the Motor winding might be. Special brake coil voltage can be supplied upon request.

ELECTROMAGNET REPLACEMENT:

Unscrew the manual releasing lever (51) if the brake has one. Remove the brake cover (49). Release the six wires connecting the brake to the terminal board (20). Unscrew the nuts (45/5) and remove the electromagnet (48) from the pilot pin (45/1). Place the new electromagnet on the pilot pin. Replace and tighten the nuts (45/3). Adjust the nuts (45/4) to equalize the value of the air gap to factory specifications (between 0.5 - 0.8mm). Insert the feed cables through the hole from the braking section. Reconnect all previous connections.

DISK BRAKE REPLACEMENT:

Unscrew the manual release lever (51) if the brake has one. Unscrew the nuts (45/5) and remove the electromagnet (48). Unscrew nuts (45/4) and (45/3) and extract the spring (45/2) and countermagnet (47) and extract the disk brake (46).

With clean hands, install the new disk brake. Take precaution that the O-ring (44) is properly installed on the brake support flange (42). Make sure the disk brake has a minimum clearance of .2mm from the friction path.

Replace the countermagnet (47) and spring (45/2) and replace nuts (45/3) and (45/4).

Replace the electromagnet and nuts (45/5). Be sure to maintain an air gap of between 0.5 and 0.8mm.

Review the following paragraphs for information on how to

regulate the air gap and braking torque.

AIR GAP REGULATION:

The air gap ie., the distance between the electromagnet (48) and the countermagnet (47) must be carefully set between 0.5 and 0.8mm. If this distance is not carefully maintained because of worn disk brakes or incorrect adjustment procedures, vibration of the countermagnet or even the burning of the electromagnet could result.

It is recommended that you check the air gap periodically (every 1,000,000 insertions) since the gap tends to increase with usage of the disk brake. Regular inspection will ensure trouble-free operation and reduced down-time.

To regulate the air gap, adjust nuts (45/4) and (45/5). Be sure to maintain an air gap of between 0.5 and 0.8mm.

BRAKE TORQUE REGULATION:

The braking torque is proportional to the pressure exerted by the springs (45/2) and may be varied by adjusting the self-locking nuts (45/3). The pressure of the springs must be as uniform as possible.

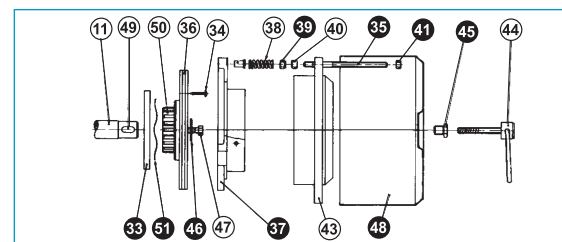
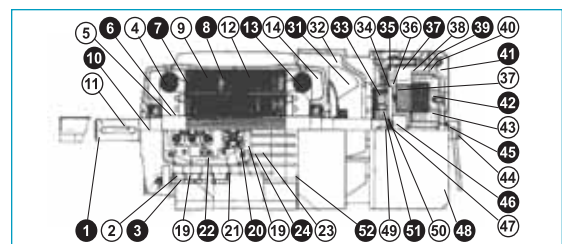
When applying the brake, the electromagnet (48) should attract the countermagnet (47) and hold it without creating vibration in order to achieve maximum braking torque.

To reduce the braking torque, loosen the self-locking nuts (45/3) further until the desired amount of torque has been achieved.

KEY to AF-AF/B SERIES

- | | |
|---|-----------------------------|
| 1. Axis Protection | 31. Fan |
| 2. Nut | 32. Brake Supporting Flange |
| 3. Spring Washer | 33. Thrust Bearing |
| 4. Front Cover | 34. Self Threading Screws |
| 5. Spring Ring | 35. Pilot Pin |
| 6. Front Bearing | 36. Disk Brake Pad |
| 7. Winding | 37. Countermagnet |
| 8. Stator | 38. Spring |
| 9. Frame | 39. Self Locking Nut |
| 10. Key | 40. Nut |
| 11. Shaft | 41. Nut |
| 12. Rotor | 42. Air Gap |
| 13. Rear Bearing | 43. Electromagnet |
| 14. Rear Cover | 44. Manual Release Handle |
| 19. Motor Terminal Board | 45. Connection |
| 19'. Brake Terminal Board | 46. Split Washer |
| 20. Self Threading Screws | 47. Screw |
| 21. Cable Pressure Bolt | 48. Brake Cover |
| 22. Terminal Board Cover (Inf. Section) | 49. Key |
| 23. Terminal Board Cover (Sup. Section) | 50. Gears |
| 24. Self Threading Screws | 51. Split Ring |
| | 52. Tension Rod |

Old Design Brake Parts (AF/AFB)



Explosion Proof Motors



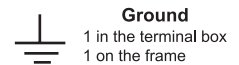
Single & 3-Phase Available

Explosion Proof - B3

All dimensions in mm

Note: New Design dimensions may vary - Please Inquire

Frame	A	AA	AB	AC	AD	AF	AL	B	BC	BB	C	H	HA	HD	K	L	LC	LM	AO	IEC 60423 n. x O
63	100	25	125	123	145	139	95	80	9.5	105	40	63	6	208	7	247	275.5	275	24	1xM25
71	112	32	140	140	155	139	106	90	11.0	112	45	71	7	226	7	276	311.0	305	24	1xM25
80	125	40	160	158	165	139	142	100	15.0	130	50	80	8	245	9	327	372.5	356	24	1xM25
90S	140	45	175	178	175	139	125	100	14.0	157	56	90	9	265	9	390	441.0	418	24	1xM25
90L	140	45	175	178	175	139	125	125	14.0	157	56	90	9	265	9	390	441.0	418	24	1xM25
100	160	45	200	196	185	139	125	140	15.0	170	63	100	10	285	12	430	490.5	458	24	1xM25
112	190	45	235	223	206	139	138	140	17.0	175	70	112	12	318	12	475	543.5	503	24	1xM25
132S	216	56	272	258	260	205	163	140	22.0	222	89	132	13	392	12	505	590.0	550	35	2xM32
132M	216	56	272	258	260	205	163	178	22.0	222	89	132	13	392	12	580	665.0	625	35	2xM32
160M	254	64	318	310	290	205	166	210	25.0	305	108	160	15	450	14	693	811.0	738	35	2xM32
160L	254	64	318	310	290	205	166	254	25.0	305	108	160	15	450	14	693	811.0	738	35	2xM32
180M	279	71	350	359	326	223	223	241	25.0	340	121	180	17	506	14	814	923.5	860	38	2xM40
180L	279	71	350	359	326	223	223	279	25.0	340	121	180	17	506	14	814	923.5	860	38	2xM40
200	318	75	393	395	346	223	230	305	27.0	360	133	200	18	546	18	867	985.0	913	38	2xM40
225S	356	78	431	445	371	223	240	286	38.0	380	149	225	20	596	18	945	1090.0	991	38	2xM40
225M2	356	78	431	445	371	223	240	311	38.0	380	149	225	20	596	18	915	1030.0	991	38	2xM40
225M4-8	356	78	431	445	371	223	240	311	38.0	380	149	225	20	596	18	945	1090.0	991	38	2xM40
250M2	406	95	500	467	396	223	221	349	33.0	415	168	250	22	646	24	963	1110.0	1006	38	2xM40
250M4-8	406	95	500	467	396	223	221	349	33.0	415	168	250	22	646	24	963	1110.0	1006	38	2xM40



Explosion Proof - B3, B34 & B35

All dimensions in mm

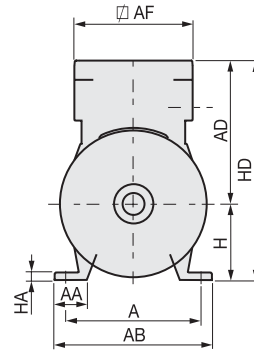
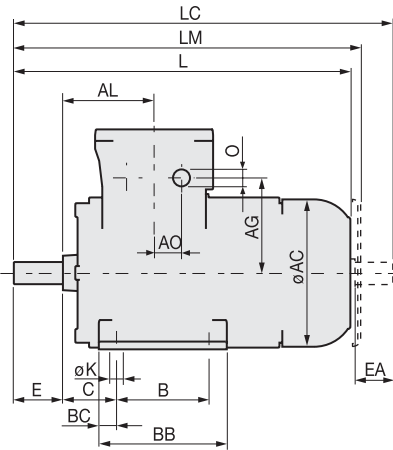
Frame	AG	D/DA	E/EA	F/FA	GA/GC	GD/GF	DB/DC	LA(B5)	M(B5)	N(B5)	P(B5)	S(B5)	T	M(B14)	N(B14)	P(B14)	S(B14)	T
63	100	11j6	23	4	12.5	4	M4	6.5	115	95j6	140	10	3	75	60j6	90	M5	2.5
71	110	14j6	30	5	16	5	M5	6.5	130	110j6	160	10	3.5	85	70j6	105	M6	2.5
80	120	19j6	40	6	21.5	6	M6	11.0	165	130j6	200	12	3.5	100	80j6	120	M6	3
90S	130	24j6	50	8	27	7	M8	12.0	165	130j6	200	12	3.5	115	95j6	140	M8	3
90L	130	24j6	50	8	27	7	M8	12.0	165	130j6	200	12	3.5	115	95j6	140	M8	3
100	140	28j6	60	8	31	7	M10	14.0	215	180j6	250	15	4	130	110j6	160	M8	3.5
112	161	28j6	60	8	31	7	M10	16.0	215	180j6	250	15	4	130	110j6	160	M8	3.5
132S	185	38k6	80	10	41	8	M12	17.0	265	230j6	300	15	4	165	130j6	200	M10	3.5
132M	185	38k6	80	10	41	8	M12	17.0	265	230j6	300	15	4	165	130j6	200	M10	3.5
160M	215	42k6	110	12	45	8	M16	18.0	300	250h6	350	19	5	215	180h6	250	M12	4.0
160L	215	42k6	110	12	45	8	M16	18.0	300	250h6	350	19	5	215	180h6	250	M12	4.0
180M	266	48k6	110	14	51.5	9	M16	20.0	300	250h6	350	19	5					
180L	266	48k6	110	14	51.5	9	M16	20.0	300	250h6	350	19	5					
200	286	55m6	110	16	59	10	M20	20.0	350	300h6	400	19	5					
225S	311	60m6	140	18	64	11	M20	22.0	400	350h6	450	19	5					
225M2	311	55m6	110	16	59	10	M20	22.0	400	350h6	450	19	5					
225M4-8	311	60m6	140	18	64	11	M20	22.0	400	350h6	450	19	5					
250M2	336	60m6	140	18	64	11	M20	22.0	500	450h6	550	19	5					
250M4-8	336	65m6	140	18	69	11	M20	22.0	500	450h6	550	19	5					

Note: 225 to 250 have 8 holes on flanges

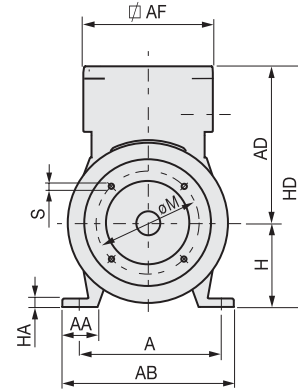
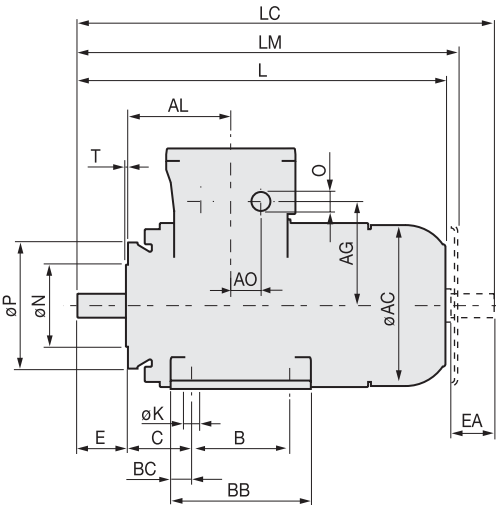
B34 = Motor with feet and B14 Flange

B35 = Motor with feet and B5 Flange

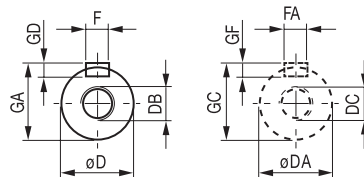
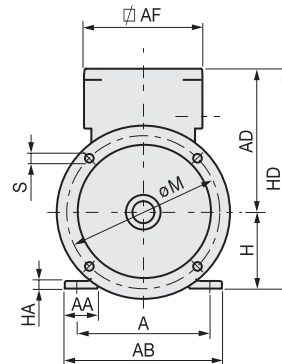
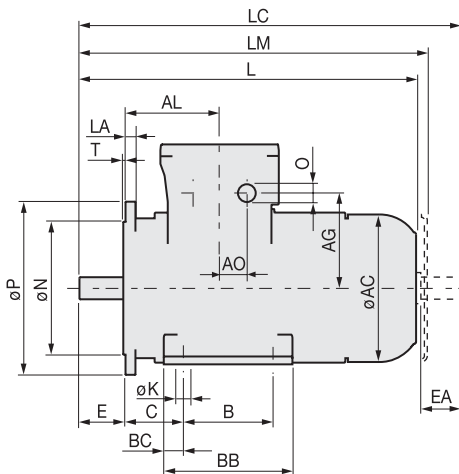
IM B3



IM B34



IM B35



3-Phase

Available in 208-230/460V or 333/575V • 3600 RPM

Immersion pumps • Approved by Electrical Safety Field Evaluation Group • SPV pumps are CUL/US approved

Single-Phase available at additional cost (made only on request with a typical lead time of 4-5 days)

CUL/US approved

Part Number	Full Load Amps			Suction Height B (mm)	Weight (lbs)	Price \$
	HP	460V	575V			
SPV 12	0.12	0.33	0.32	90-120-170-220-270-350	8	684.00
SPV 18	0.18	0.34	0.31	90-120-170-220-270-350	8	737.00
SPV 25	0.25	0.50	0.25	90-120-170-220-270-350	11	1,125.00
SPV 33	0.33	0.50	0.32	90-120-170-220-270-350	12	1,234.00
SPV 50	0.50	1.65	1.20	200-270-350-440-550	23	1,563.00
SPV 75	0.75	2.00	1.40	200-270-350-440-550	25	1,743.00
SPV 100	1.00	2.10	1.67	200-270-350-440-550	29	2,523.00
SPV 150	1.50	2.60	2.30	200-270-350-440-550	32	2,642.00

IMM 63/A	0.25	0.58	0.45	150-200-250-300	13	1,125.00
IMM 63/B	0.33	0.90	0.70	150-200-250-300	14	1,234.00
IMM 71/A	0.50	1.60	1.30	200-250-325-440	25	1,563.00
IMM 71/B	0.75	1.90	1.60	200-250-325-440	27	1,743.00
IMM 80/A	1.00	1.90	1.60	200-250-300-350-530	40	2,523.00
IMM 80/B	1.50	2.80	2.30	200-250-300-350-530	41	2,642.00
IMM 90/A 350				350	93	4,093.00
IMM 90/A 450				450	106	4,263.00
IMM 90/A 600	2.00	5.0	3.9	600	108	4,432.00
IMM 90/A 800				800	110	4,578.00
IMM 90/B 350				350	108	4,727.00
IMM 90/B 450				450	109	4,872.00
IMM 90/B 600	3.00	6.2	4.9	600	110	5,017.00
IMM 90/B 800				800	114	5,219.00
IMM 100/B 350				350	117	5,437.00
IMM 100/B 450				450	118	5,573.00
IMM 100/B 600	5.00	8.6	6.8	600	120	5,708.00
IMM 100/B 800				800	122	5,928.00



Economical replacement pumps for tool and cutting machines as well as for the glass grinding and printing industries.

High Pressure multi-stage pump designs are also available, please inquire

FLOW PERFORMANCE

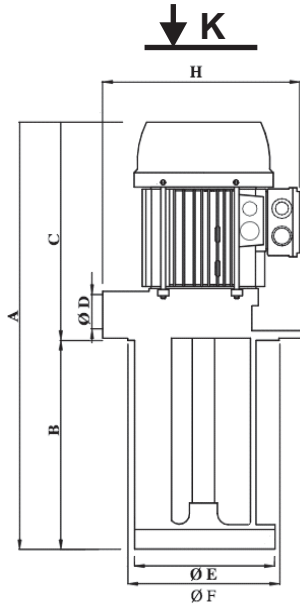
US Gallons per minute / Prevalence Head in feet

Head in feet

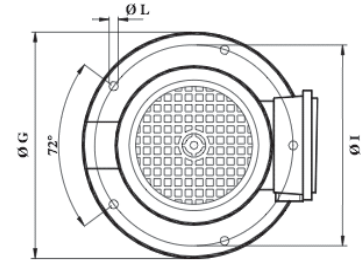
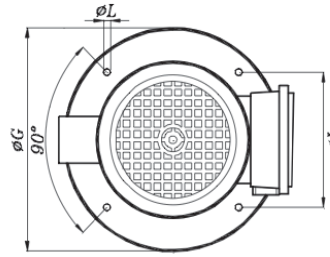
Part Number	HP	Gas Thread	0	3	6	9	12	15	20	23	26	30	33	39	46	52	60
SPV 12	0.12	3/4"	15	12	9	5	2	-	-	-	-	-	-	-	-	-	-
SPV 18	0.18	3/4"	17	15	12	9	6	1	-	-	-	-	-	-	-	-	-
SPV 25	0.25	3/4"	19	17	15	12	8	5	-	-	-	-	-	-	-	-	-
SPV 33	0.33	3/4"	21	18	16	13	11	7	1	-	-	-	-	-	-	-	-
SPV 50	0.50	1 1/4"	57	55	53	48	44	39	34	28	24	18	11	1	-	-	-
SPV 75	0.75	1 1/4"	63	61	57	53	48	43	39	34	29	24	17	8	-	-	-
SPV 100	1.00	1 1/4"	70	66	63	59	55	51	46	41	37	31	26	16	10	-	-
SPV 150	1.50	1 1/4"	75	72	68	64	60	56	52	46	41	37	29	24	15	6	-
IMM 63/A	0.25	3/4"	26	22	17	15	11	6	1	-	-	-	-	-	-	-	-
IMM 63/B	0.33	3/4"	28	25	23	20	18	15	11	7	2	-	-	-	-	-	-
IMM 71/A	0.50	1"	52	49	46	44	41	38	35	31	28	24	18	10	-	-	-
IMM 71/B	0.75	1"	57	54	52	49	47	45	42	39	36	32	29	20	10	-	-
IMM 80/A	1.00	1 1/4"	75	71	67	64	60	56	52	47	43	38	33	20	8	-	-
IMM 80/B	1.50	1 1/4"	102	101	97	94	91	88	84	80	76	72	67	59	48	34	14
IMM 90/A	2.00	2"	165	159	149	140	133	124	111	95	70	29	5	-	-	-	-
IMM 90/B	3.00	2"	223	219	209	200	191	180	170	160	150	138	126	102	22	-	-
IMM 100/B	5.00	2 1/2"	317	306	296	285	277	269	258	247	237	225	212	187	165	110	49

SPV versions Valox body (plastic)
 IMM sizes from 63 to 80 in cast aluminum pump body
 IMM sizes 90 and 100 in steel pump body

STANDARD IMPELLER DIRECTION OF ROTATION
 IS CLOCK-WISE WHEN FACING THE FAN COVER



VIEW FROM "K"



SPV 12 IMM 63/A
 SPV 18 IMM 63/B
 SPV 25 IMM 90/A
 SPV 33 IMM 90/B
 SPV 50 IMM 100/B
 SPV 75
 SPV 100
 SPV 150

IMM 71/A
 IMM 71/B
 IMM 80/A
 IMM 80/B

Sacemi Coolant Pumps

Part Number	HP	A	B	C	D - Gas Thread	E	F	G	H	I	L	Mounting Holes
SPV 12/SPV 18	0.12/0.18	255	90	165	3/4"	98	100	130	151	115	7	4
		285	120									
		335	170									
		385	220									
		435	270									
SPV 25/SPV 33	0.25/0.33	300	90	210	3/4"	98	100	130	170	115	7	4
		330	120									
		380	170									
		430	220									
		480	270									
SPV 50/SPV 75	0.50/0.75	460	200	260	1 1/4"	138	140	180	215	160	9	4
		530	270									
		610	350									
		700	440									
		810	550									
SPV 100/SPV 150	1.00/1.50	500	200	300	1 1/4"	138	140	180	230	160	9	4
		570	270									
		650	350									
		740	440									
		850	550									
IMM 63/A // IMM 63/B	0.25/0.33	355	150	205	3/4"	128	-	180	190	150	9	4
		405	200									
		455	250									
		505	300									
		565	325									
IMM 71/A // IMM 71/B	0.50/0.75	440	200	240	1"	190	-	230	225	204	9	5
		490	250									
		565	325									
		680	440									
		815	530									
IMM 80/A // IMM 80/B	1.00/1.50	485	200	285	1 1/4"	202	220	250	260	235	9	5
		535	250									
		585	300									
		635	350									
		815	530									
IMM 90/A // IMM 90/B	2.00/3.00	695	350	345	2"	235	240	300	130	270	13	4
		795	450									
		945	600									
		1145	800									
		1180	800									
IMM 100/B	5.00	730	350	380	2 1/2"	235	240	300	145	270	13	4
		830	450									
		980	600									
		1180	800									

Sacemi Electric Pumps

Type SQ - Side Mount

US Gallons per minute / Prevalence Head in feet

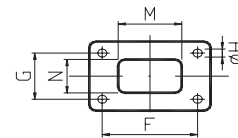
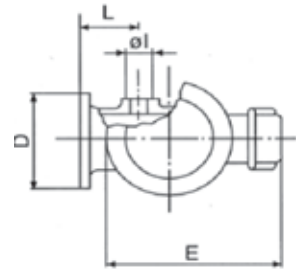
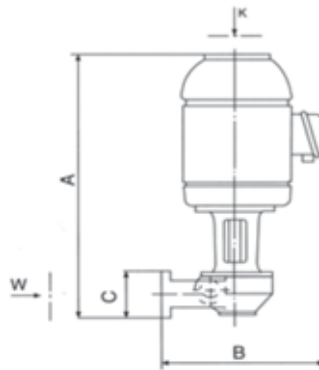
Part Number	A	B	C	D	E	F	G	H	I	L	Weight (lbs)	Price \$
SQ 56S	255	170	60	95	140	75	45	7	3/8"	53	9	705.00
SQ 63S	300	180	60	95	158	75	45	7	1/2"	53	11	1,059.00

Part Number	Absorbed kW	HP	0	3	6	9	12
SQ 56S	0.16	0.18	19	17	13	9	-
SQ 63S	0.30	0.25	26	24	21	16	10

TYPE SQ - Side Mounted

All dimensions in mm

View from "K"



	M	N
SQ 56 - 63	50	30
SQ 71 - 80	80	40

Detail of Flange from "W" view

Type AU - Self Priming

US Gallons per minute / Prevalence Head in feet

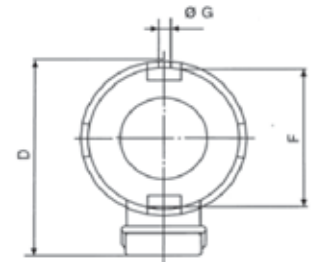
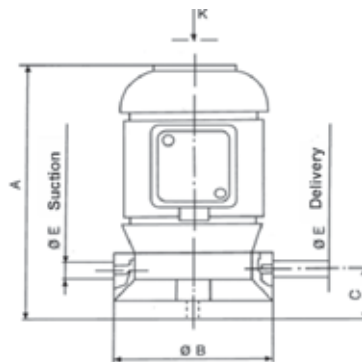
Part Number	A	B	C	D	E	F	G	Weight (lbs)	Price \$
AU 56	215	115	48	144	3/8"	95	7	10	879.00
AU 63	270	115	48	165	1/2"	95	7	12	1,308.00

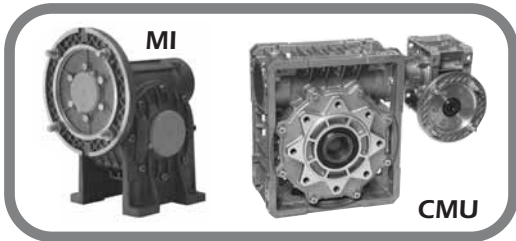
Part Number	Absorbed kW	HP	0	6	12	18	24	30	36
AU 56	0.16	0.18	3.7	3.2	2.7	2.2	1.8	1.3	0.8
AU 63	0.30	0.25	5.3	4.8	4.3	3.8	3.3	2.9	2.4

TYPE AU - Self Priming

All dimensions in mm

View from "K"





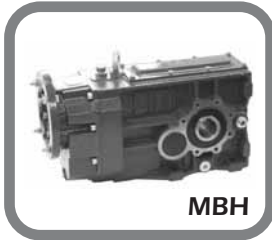
Right Angle Worm Gearboxes

- Hollow, single or double output shafts
- Double reduction available
- Ratios of 5:1 to 10,000:1
- IEC/NEMA Input sizes
- Available in stainless steel construction (INOX)



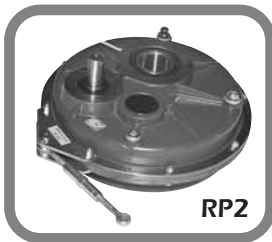
In-Line Helical Gearboxes

- Strengthened casing for heavy duty applications
- Tough - strengthened by ribs for maximum performance
- Base or various motor flange outputs
- IEC/Nema shaft & flange input/outputs
- Designed to fit standard IEC motors
- 2 stage ratios up to 50:1, 3 stage 465:1



Bevel Helical Gearboxes

- Wide range of mounting options
- Torque arms available
- Hollow, single or double output shafts
- Extremely compact, modular & versatile
- Power from 12kW to 80kW
- Output torque from 12Nm to 14000Nm
- Reduction ratios from 10:1 to 226:1



Shaft Mounted Helical Gearboxes

- High Versatility** ● 8 sizes that offer a wide range of possible mounting positions
- High Performance** ● Max input power 140kW
- Max torque 10,000 Nm
- Ratio up to 30:1
- High Reliability** ● Strengthened casing for heavy duty applications
- High resistant gears with oversized bearings
- Superior sealing for leak prevention



Motovariators

- Mechanical variable speed control
- IEC shaft & flange inputs/outputs
- Designed to fit standard IEC motors
- Zero speed option available



Planetary Gearbox

- Modular design with compact sub grouping for simple ratio replacement (maximum of 4 reduction stages)
- Strip resistant gears with oversized bearings.
- Superior sealing for leak prevention
- 6 sizes available with 4 available input & output configurations
- Direct, Foot Mount & Flange Mount options
- High Performance units suitable for heavy duty applications
- Ratio range up to 3657:1, 25000Nm Maximum Output Torque, 270HP Maximum Input Power.

Right Angle Worm Gear Reducers - Pricing

MI - I Series
Worm Gearboxes

Size	MI Series Price \$	I Series Price \$ (Factory Option)	ADDITIONAL FEATURES AND ACCESSORIES										Weight (lbs)	
			Base per Side Price (Add \$)	Output Flange F or FBR (Add \$)	Output Flange FR (Add \$)	Output Flange FBM (Add \$)	Single Output Shaft (Add \$)	Double Output Shaft (Add \$)	Torque Arm (Add \$)	Double Input Shaft (Add \$)	Torque Limited (Add \$)	Oil		
I 25	407.00	360.00	24.00	24.00F	-	-	-	-	-	-	101.00	-	*	3
MI 30	466.00	404.00	-	48.00FBC/F	-	-	86.00	95.00	-	-	117.00	-	*	5
MI 40	531.00	455.00	52.00	44.00	-	48.00	98.00	146.00	89.00	135.00	284.00	-	*	8
MI 50	682.00	591.00	57.00	51.00	-	57.00	155.00	170.00	115.00	172.00	355.00	-	*	10
MI 60	954.00	789.00	71.00	67.00	166.00	74.00	170.00	209.00	160.00	139.00	551.00	-	*	21
MI 70	982.00	882.00	83.00	76.00	398.00	86.00	187.00	233.00	190.00	247.00	621.00	-	*	24
MI 80	1,412.00	1,269.00	100.00	242.00	318.00	266.00	209.00	249.00	190.00	355.00	777.00	-	*	38
MI 90	1,531.00	1,359.00	123.00	317.00	339.00	350.00	222.00	255.00	249.00	386.00	925.00	-	*	48
MI 110	2,136.00	1,900.00	135.00	540.00	585.00	-	259.00	284.00	376.00	339.00	1,188.00	-	**	69
MI 130	3,428.00	3,084.00	406.00	731.00	754.00	-	341.00	416.00	376.00	865.00	-	-	**	107
MI 150	4,777.00	4,338.00	503.00	958.00	942.00	-	438.00	573.00	-	1,204.00	-	-	**	161
MI 175	7,398.00	6,849.00	770.00	1,851.00	ENQUIRE	-	581.00	698.00	-	1,864.00	-	-	**	248

* = Prelubricated for life
** = Oil available on request at extra cost

• ATEX Approved Gearboxes can be supplied - Please inquire

See pages 42 & 43 for performance rating tables
See pages 44 to 46 for dimensional drawings

MU - U Series
Worm Gearboxes

Size	MU Series Price \$	U Series Price \$ (Factory Option)	ADDITIONAL FEATURES AND ACCESSORIES							Oil	Weight (lbs)
			Output Flanges F, FBR, FBM, FBML Price \$	Single Output Shaft Price \$	Double Output Shaft Price \$	Torque Arm Price \$	Double Input Shaft Price \$				
MU 40	585.00	503.00	46.00	108.00	161.00	98.00	149.00	*	6		
MU 50	750.00	650.00	57.00	171.00	186.00	127.00	188.00	*	8		
MU 63	1080.00	970.00	74.00	186.00	229.00	174.00	263.00	*	12		
MU 75	1478.00	1396.00	86.00	205.00	272.00	209.00	390.00	*	20		
MU 90	1682.00	1493.00	266.00	243.00	283.00	209.00	424.00	*	30		
MU 110	2350.00	2090.00	350.00	285.00	314.00	272.00	592.00	*	42		

Inox version/stainless steel - add 40%

• ATEX Approved Gearboxes can be supplied - Please inquire

* = Prelubricated for life
** = Oil available on request at extra cost

See pages 48 & 49 for performance rating tables
See page 50 for dimensional drawing

P (Prestage Reducers)

Size	PAM Flange B14 Price \$	Oil	Weight (lbs)
P 63	512.00	**	3
P 71	585.00	**	5
P 80	649.00	**	11
P 90	748.00	**	16

** = Oil available on request at extra cost

Input Shaft Bushings

Steel Bushings	List Price \$
38mm to 28mm	105.00
28mm to 24mm	101.00
24mm to 19mm	86.00
19mm to 14mm	70.00
14mm to 11mm	60.00
11mm to 9mm	27.00

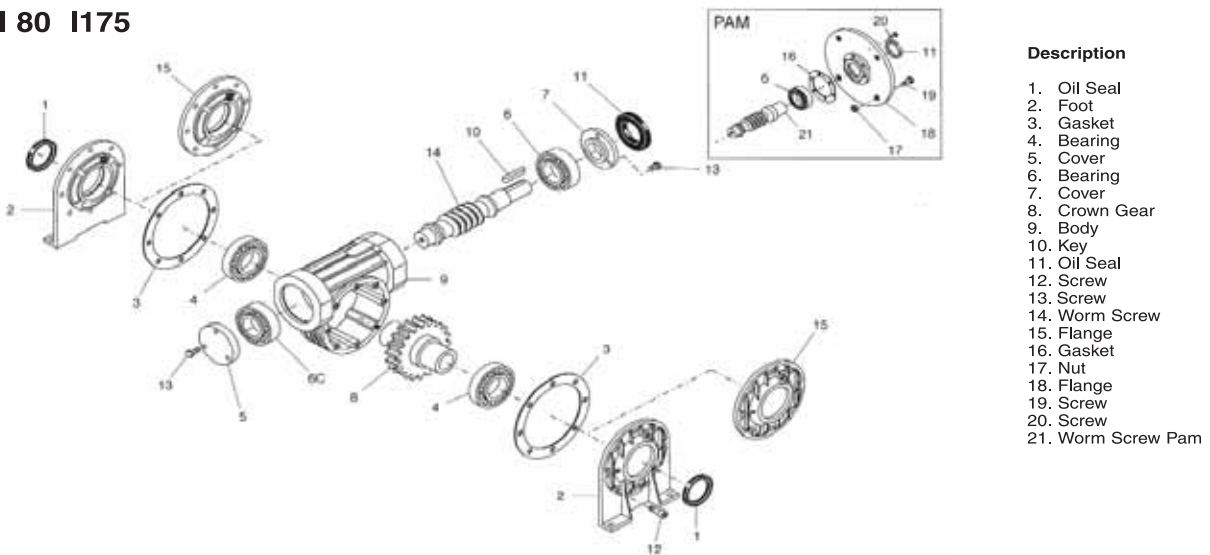
The following table gives the service factors relating to the most common applications. For applications that do not appear in the table, the relative value may be selected by talking into account the following characteristics:

Applied Load, Number of Working Hours per Day, and Number of Start/Stops per hour.

When brake motors are used, the values in the service factor table must be multiplied by 1.12.

Load Classification	Application	Starts/hr	Average operating hours per day			
			<2	2 to 8	9 to 16	17 to 24
Easy starting, smooth operation, small load acceleration.	Centrifugal pumps - Bottling equipment - Belt conveyors with uniform loads - low shock load applications - Can Filling Machines - Sewage Clarifiers	<10	0.75	1	1.25	1.5
		<10	1	1.25	1.5	1.75
Moderate load starting, uneven operating conditions, medium load accelerations	Shakers & Mixers - Kneading Drums - Screw Conveyors - Textile Machinery - Belt conveyors (uneven load distribution)- Heat Treatment Ovens - Bucket Elevators - Wire Drawing Machines - Meat Grinders.	10 to 50	1.25	1.5	1.75	2
		50 to 100	1.5	1.75	2	2.2
		100 to 200	1.5	1.75	2	2.2
Heavy load starting, Uneven loads, Heavy load accelerations	Deburring Drums, Milling Machines, Lifting Winches, Conveyor with Shock Loading, Concrete Mixers, shear Presses, Rotary Kilns, Punch Presses, Aggregate Conveyors - Heavy Duty Hoists - Recycling Machinery	<10	1.25	1.5	1.5	2
		10 to 50	1.5	1.75	1.75	2.2
		50 to 100	1.75	2	2	2.5
		100 to 200	2	2.2	2.2	3

I 80 I175



MOTOR SHAFT AND FLANGE DIAMETERS

PAM		56	63	71	80	90	100	112	132	160	180	200
	B5		9/120	11/140	14/160	19/200	24/200	28/250	28/250	38/300	42/350	48/350
B14		9/80	11/90	14/105	19/120	24/140	28/160	28/160				

Ratings Table

Ratings based on 1.0 service factor



Ratio	n1	n2	I-MI-25				I-MI-30				I-MI-40				I-MI-50			
			M2	kW	HP	RD	M2	kW	HP	RD	M2	kW	HP	RD	M2	kW	HP	RD
7.5	2800	373	8	0.35	0.48	85%	14	0.62	0.84	86%	24	1.06	1.44	88%	45	2.01	2.73	88%
	1750	233	9	0.25	0.33	83%	16	0.43	0.58	84%	27	0.74	0.99	86%	52	1.41	1.88	86%
	900	120	10	0.16	0.22	81%	18	0.28	0.38	82%	32	0.48	0.65	84%	61	0.91	1.24	84%
	500	67	12	0.11	0.15	79%	22	0.19	0.26	80%	38	0.32	0.44	82%	72	0.61	0.83	82%
10	2800	280	8	0.27	0.37	82%	15	0.54	0.73	84%	25	0.83	1.13	87%	49	1.69	2.29	86%
	1750	175	9	0.19	0.26	80%	17	0.38	0.51	82%	28	0.58	0.78	85%	56	1.18	1.58	84%
	900	90	10	0.12	0.02	78%	21	0.24	0.33	80%	33	0.38	0.51	83%	67	0.76	1.04	82%
	500	50	12	0.08	0.11	76%	24	0.16	0.22	78%	39	0.25	0.33	81%	78	0.51	0.7	80%
15	2800	187	8	0.19	0.26	78%	15	0.38	0.52	79%	27	0.64	0.88	83%	55	1.32	1.8	82%
	1750	117	9	0.13	0.18	76%	17	0.27	0.36	77%	31	0.45	0.6	81%	62	0.92	1.24	80%
	900	60	10	0.09	0.12	74%	21	0.17	0.23	75%	37	0.29	0.4	79%	75	0.60	0.81	78%
	500	33	12	0.06	0.08	72%	24	0.12	0.16	73%	43	0.2	0.27	77%	88	0.40	0.55	76%
20	2800	140	8	0.15	0.2	77%	15	0.03	0.42	73%	32	0.6	0.81	80%	49	0.91	1.24	80%
	1750	88	9	0.1	0.13	75%	18	0.21	0.29	72%	37	0.41	0.56	78%	56	0.64	0.85	78%
	900	45	10	0.07	0.09	74%	21	0.14	0.19	71%	44	0.27	0.37	76%	67	0.41	0.56	76%
	500	25	12	0.04	0.06	71%	24	0.09	0.13	68%	51	0.18	0.25	74%	78	0.28	0.38	74%
25	2800	112	9	0.14	0.2	69%	17	0.26	0.35	77%	21	0.46	0.63	78%	48	0.74	1.01	77%
	1750	70	9	0.1	0.13	68%	19	0.18	0.24	75%	35	0.33	0.44	76%	55	0.52	0.69	75%
	900	36	12	0.07	0.09	67%	23	0.12	0.16	74%	41	0.21	0.28	74%	66	0.34	0.46	74%
	500	20	14	0.04	0.06	65%	27	0.08	0.11	71%	49	0.14	0.19	72%	77	0.23	0.31	71%
30	2800	93	10	0.15	0.21	65%	19	0.28	0.37	66%	35	0.48	0.65	71%	62	0.84	1.14	72%
	1750	58	12	0.11	0.15	64%	21	0.19	0.26	65%	40	0.35	0.45	70%	71	0.59	0.79	71%
	900	30	14	0.07	0.09	63%	25	0.12	0.17	64%	47	0.22	0.29	69%	84	0.38	0.52	70%
	500	17	16	0.05	0.06	61%	30	0.08	0.11	62%	55	0.15	0.2	67%	99	0.25	0.35	67%
40	2800	70	9	0.11	0.15	63%	17	0.18	0.25	68%	34	0.38	0.52	65%	54	0.64	0.87	62%
	1750	44	11	0.08	0.1	62%	19	0.13	0.17	67%	38	0.27	0.36	64%	62	0.45	0.6	81%
	900	22	13	0.05	0.07	61%	23	0.08	0.11	66%	46	0.17	0.24	63%	74	0.29	0.39	60%
	500	13	15	0.03	0.04	59%	27	0.06	0.08	64%	54	0.12	0.16	61%	86	0.20	0.27	58%
50	2800	56	9	0.09	0.13	54%	16	0.15	0.20	64%	34	0.32	0.43	63%	53	0.50	0.68	62%
	1750	35	10	0.06	0.09	53%	19	0.1	0.13	63%	39	0.22	0.03	62%	60	0.35	0.46	61%
	900	18	12	0.04	0.06	52%	22	0.07	0.09	62%	46	0.14	0.19	61%	71	0.22	0.31	60%
	500	10	14	0.03	0.04	50%	26	0.04	0.06	60%	54	0.10	0.13	59%	84	0.15	0.21	58%
60	2800	47	8	0.07	0.1	52%	14	0.14	0.19	50%	32	0.26	0.36	60%	49	0.43	0.58	56%
	1750	29	9	0.05	0.07	51%	16	0.10	0.15	49%	36	0.18	0.24	59%	56	0.3	0.4	55%
	900	15	10	0.03	0.04	50%	20	0.06	0.09	48%	44	0.12	0.16	58%	67	0.19	0.26	54%
	500	8	12	0.02	0.03	48%	23	0.04	0.06	47%	51	0.08	0.11	56%	78	0.13	0.18	52%
80	2800	35	5	0.04	0.05	48%	10	0.07	0.09	56%	26	0.18	0.25	51%	48	0.32	0.43	55%
	1750	22	6	0.02	0.03	47%	11	0.05	0.06	55%	30	0.13	0.17	50%	54	0.22	0.3	54%
	900	11	7	0.02	0.02	46%	14	0.03	0.04	54%	35	0.08	0.11	49%	64	0.14	0.19	53%
	500	6	8	0.01	0.02	45%	16	0.02	0.03	52%	41	0.06	0.08	48%	76	0.10	0.13	51%
100	2800	28	3	0.02	0.03	42%	6	0.04	0.05	48%	24	0.14	0.19	49%	44	0.26	0.36	49%
	1750	18	5	0.01	0.01	41%	6	0.03	0.04	47%	27	0.01	0.13	48%	50	0.18	0.25	48%
	900	9	5	0.01	0.01	40%	8	0.02	0.02	46%	32	0.06	0.09	47%	60	0.12	0.16	47%
	500	5	5	0.01	0.01	39%	9	0.01	0.02	45%	38	0.04	0.06	46%	70	0.08	0.11	46%

Use factor 8.85 to convert Nm(M2) to in/lbs.

n1 = Input Speed
n2 = Output Speed

M2 = Output Torque
kW = Input KW

HP = Input HP
RD = Dynamic Efficiency



Ratings based on 1.0 service factor

I-MI-60				I-MI-70				I-MI-80				I-MI-90				I-MI-110			
M2	kW	HP	RD	M2	kW	HP	RD	M2	kW	HP	RD	M2	kW	HP	RD	M2	kW	HP	RD
88	3.85	5.24	90%	130	5.66	7.70	90%	166	7.22	9.82	90%	215	9.37	12.74	90%	340	14.98	20.37	89%
101	2.69	3.6	88%	148	3.96	5.3	88%	189	4.84	6.48	88%	244	6.53	8.75	88%	388	10.46	14.02	87%
120	1.74	2.37	86%	176	2.56	3.49	86%	224	3.27	4.44	86%	291	4.24	5.77	86%	460	6.78	9.22	85%
140	1.17	1.59	84%	207	1.72	2.34	84%	263	2.20	2.99	84%	342	2.85	3.88	84%	540	4.56	6.20	83%
81	2.70	3.67	88%	140	4.69	6.38	88%	148	4.94	6.72	88%	196	6.56	8.93	88%	383	12.78	17.39	88%
92	1.95	2.62	86%	160	3.26	4.37	86%	167	3.43	4.61	86%	223	4.56	6.11	86%	436	8.92	11.95	86%
109	1.22	1.66	84%	190	2.12	2.89	84%	200	2.24	3.04	84%	266	2.97	4.04	84%	518	5.79	7.87	84%
128	0.82	1.12	82%	223	1.43	1.94	82%	235	1.50	2.05	82%	312	2.00	2.72	82%	608	3.89	5.29	82%
105	2.46	3.35	84%	153	3.49	4.75	88%	215	4.91	6.67	86%	299	6.83	9.28	86%	459	10.6	14.41	85%
120	1.72	2.3	82%	174	2.42	3.24	84%	245	3.41	4.6	84%	340	4.75	6.37	84%	522	7.38	9.88	83%
143	1.11	1.52	80%	207	1.58	2.15	82%	291	2.22	3.02	82%	405	3.09	4.20	82%	621	4.80	6.52	81%
167	0.75	1.02	78%	243	1.06	1.44	80%	342	1.49	2.03	80%	175	2.08	2.82	80%	729	3.22	4.39	79%
93	1.62	2.21	84%	132	2.37	3.22	82%	196	3.48	4.74	83%	281	4.98	6.77	83%	374	6.80	9.25	81%
106	1.13	1.52	82%	150	1.65	2.2	80%	224	2.43	3.26	81%	323	3.5	4.69	81%	426	4.74	6.35	79%
125	0.74	1.00	80%	178	1.07	1.46	78%	266	1.58	2.14	79%	380	2.25	3.06	79%	506	3.08	4.19	77%
147	0.49	0.67	78%	209	0.72	0.98	76%	312	1.06	1.44	77%	446	1.51	2.06	77%	594	2.07	2.82	75%
104	1.53	2.08	80%	137	1.97	2.67	82%	187	2.69	3.66	82%	272	3.91	5.32	82%	400	5.74	7.81	82%
118	1.06	1.42	78%	155	1.36	1.83	80%	214	1.88	2.52	80%	310	2.72	3.65	80%	456	4.01	5.38	80%
140	0.69	0.94	76%	185	0.89	1.21	78%	253	1.22	1.65	78%	368	1.77	2.41	78%	541	2.60	3.53	78%
165	0.47	0.63	74%	217	0.60	0.81	76%	297	0.82	1.11	76%	432	1.19	1.62	76%	635	1.75	2.38	76%
118	1.57	2.14	73%	163	2.00	2.73	80%	243	2.99	4.06	80%	327	4.02	5.47	80%	519	6.37	8.66	80%
135	1.1	1.48	72%	186	1.4	1.87	78%	277	2.09	2.79	78%	375	2.82	3.78	78%	591	4.44	5.96	78%
160	0.71	0.97	71%	221	0.91	1.23	76%	329	1.35	1.84	76%	443	1.82	2.47	76%	702	2.88	3.92	76%
188	0.48	0.65	68%	259	0.61	0.83	74%	386	0.91	1.24	74%	520	1.22	1.66	74%	824	1.94	2.64	74%
109	1.10	1.50	72%	149	1.48	2.02	73%	224	2.24	3.05	73%	306	3.05	4.15	73%	510	4.89	6.65	77%
124	0.77	1.02	71%	170	1.04	1.39	72%	255	1.59	2.09	72%	348	2.13	2.85	72%	582	3.41	4.58	75%
147	0.50	0.68	70%	201	0.67	0.91	71%	304	1.01	1.38	71%	414	1.38	1.88	71%	690	2.21	3.01	74%
173	0.34	0.46	67%	236	0.45	0.61	68%	356	0.68	0.93	68%	486	0.93	1.26	68%	810	1.49	2.02	71%
98	0.84	1.14	68%	153	1.29	1.76	69%	190	1.61	2.19	69%	293	2.48	3.37	69%	468	3.79	5.15	72%
112	0.59	0.79	67%	174	0.9	1.2	68%	218	1.1	1.51	68%	332	1.72	2.30	68%	532	2.63	3.52	71%
132	0.38	0.52	66%	207	0.59	0.80	67%	258	0.73	0.99	67%	397	1.12	1.53	67%	633	1.71	2.33	70%
155	0.26	0.35	64%	243	0.39	0.54	65%	302	0.49	0.67	65%	466	0.75	1.03	65%	466	0.75	1.03	65%
90	0.69	0.93	64%	140	1.05	1.43	65%	187	1.40	1.90	65%	281	2.10	2.86	65%	451	3.08	4.19	71%
102	0.48	0.64	63%	160	0.73	0.98	64%	213	0.98	1.31	64%	320	1.46	1.97	64%	515	2.15	2.89	70%
122	0.31	0.42	62%	190	0.48	0.65	63%	253	0.63	0.86	63%	380	0.95	1.29	63%	610	1.40	1.90	69%
143	0.21	0.28	60%	223	0.32	0.43	61%	297	0.43	0.58	61%	446	0.64	0.87	61%	716	0.94	1.28	67%
88	0.55	0.75	58%	109	0.78	1.06	51%	182	1.19	1.62	56%	234	1.53	2.08	56%	383	2.22	3.01	63%
99	0.38	0.51	57%	125	0.55	0.74	50%	207	0.83	1.11	55%	266	1.06	1.42	55%	436	1.54	2.07	62%
118	0.25	0.34	56%	147	0.35	0.48	49%	246	0.54	0.73	54%	316	0.69	0.94	54%	518	1.00	1.36	61%
139	0.17	0.23	54%	173	0.24	0.32	48%	289	0.36	0.49	52%	371	0.46	0.63	52%	608	0.67	0.92	59%
77	0.43	0.58	53%	105	0.67	0.91	46%	161	0.89	1.21	53%	217	1.20	1.63	53%	340	1.66	2.25	60%
89	0.29	0.39	52%	120	0.47	0.63	45%	182	0.62	0.83	52%	346	1.17	1.58	52%	388	1.15	1.55	59%
105	0.19	0.26	51%	141	0.30	0.41	44%	217	0.40	0.55	51%	293	0.54	0.74	51%	460	0.75	1.02	58%
123	0.13	0.18	49%	166	0.20	0.28	43%	255	0.27	0.37	49%	344	0.36	0.50	49%	540	0.50	0.69	56%

Use factor 8.85 to convert Nm(M2) to in/lbs.

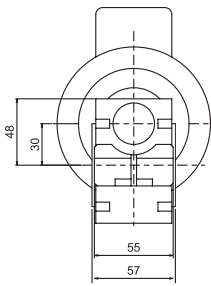
n1 = Input Speed
n2 = Output Speed

M2 = Output Torque
KW = Input KW

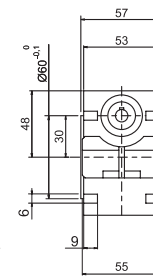
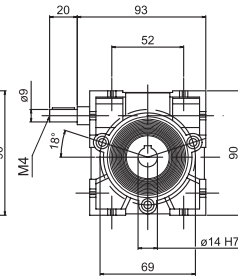
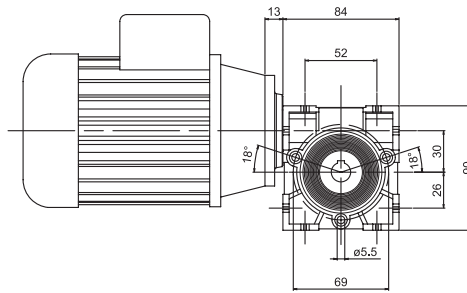
HP = Input HP
RD = Dynamic Efficiency

Dimensions

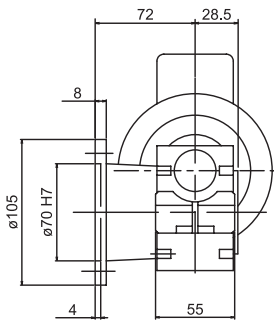
MI 30



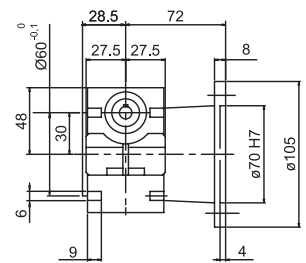
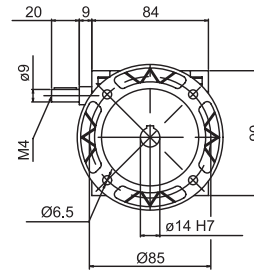
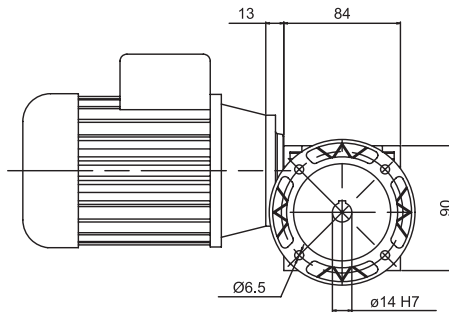
I 30



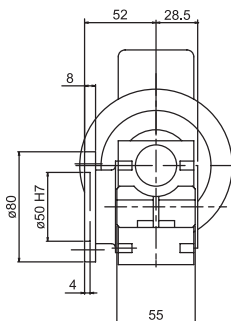
MI 30 F



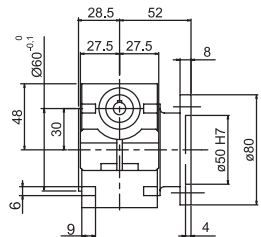
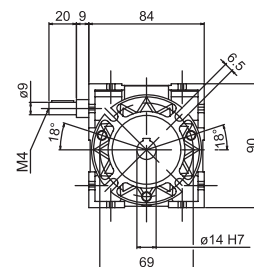
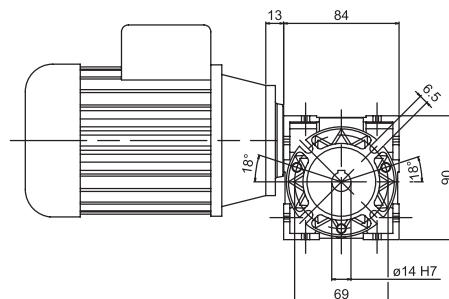
I 30 F



MI 30 FBC

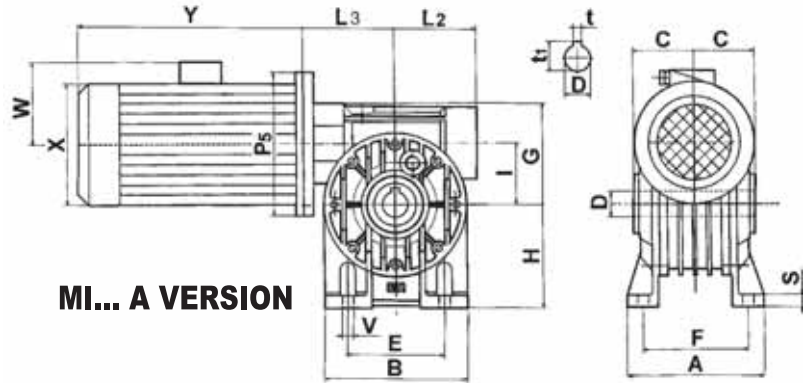


I 30 FBC

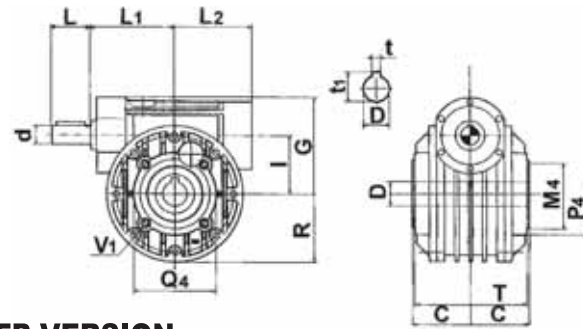


+ = x, y, w standard motor dimensions
* = According to IEC flange

L3	40	50	60	70
56B5	68.5	-	-	-
56B14	72	-	-	-
63B5	70	80	-	-
63B14	70	80	-	-
71B5	71	81	95	97
71B14	71	81	97	97
80B5	-	82	95	97
80B14	-	81	94	99
90B5	-	-	101	97
90B14	-	-	100	98
100B5	-	-	-	108.5
100B14	-	-	-	107



MI... A VERSION

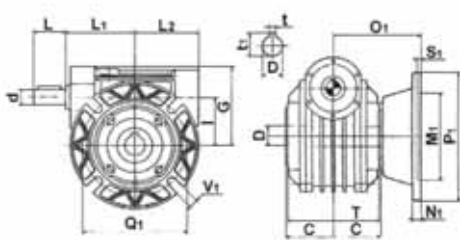


I... FP VERSION

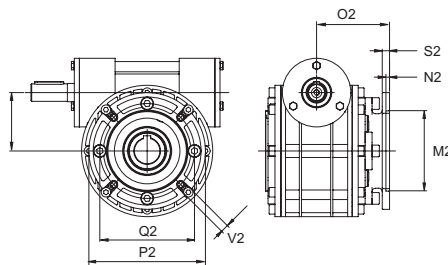
Worm Right Angle Base or Round Body

+ = x, y, w standard motor dimensions * = According to IEC flange

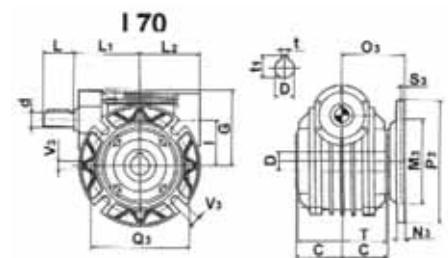
Frame Size	L ₃	L ₂	G	R	A	B	E	F	V	H	H ₁	H ₂	C	S	D/H ₇	t	t ₁	P ₅	d _{fj6}	L	L ₁	I	T	Q ₄	P ₄	M ₄ /h ₇	V ₁
40	+	57	70	48	100	96	70	84	7	71	111	31	41	8	19(18)	6	21.8	*	11	23	63	40	77	65	96	50	M6
50	+	64	84	56	114	112	85	96	9	85	135	35	49	10	24(25)	8	27.3	*	14	30	73	50	93	75	88	60	M6
60	+	80	99	75	137	140	95	111	11	100	160	40	60	12	25	8	28.3	*	19	40	86	60	104	85	105	70	M8
70	+	86	117	81	141	156	120	115	11	115	185	45	60.5	12	28	8	31.3	*	19	40	87	70	114	100	115	80	M8



I... F VERSION



FBM VERSION



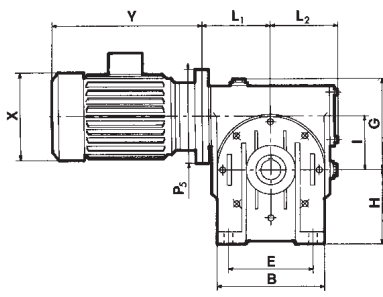
I... FBR VERSION

Worm Right Angle with Output Flanges

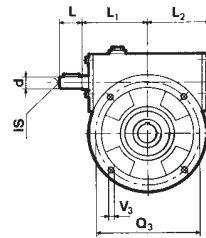
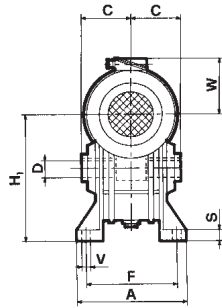
Frame Size	L	L ₁	L ₂	C	T	G	d _{fj6}	D _{H7}	Q ₁	Q ₂	Q ₃	M ₁ /H ₇	M ₂ /H ₇	M ₃ /H ₇	P ₁	P ₂	P ₃	O ₁	O ₂	O ₃	S ₁	S ₂	S ₃	V ₁	V ₂	V ₃	N ₁	N ₂	N ₃	t	t ₁
40	23	63	57	41	77	70	11	19(18)	115	87	100	95	60	80	140	120	120	82	60	60	4	3	3	9	9	9	11	8	8	6	21.8
50	30	73	67	49	93	84	14	24(25)	130	90	115	110	70	95	160	125	140	92	85	75	4	4	4	10	10	10	11	10	10	8	27.3
60	40	86	80	60	104	99	19	25	165	150	130	130	115	110	200	180	160	96.5	116	76	4	4	5	11	11	10	12	11	11	8	28.3
70	40	87	86	60.5	114	117	19	28	165	150	130	130	115	110	200	200	160	111.5	116	85	5	4	5	13	11	11	12	12	12	8	31.3

Note: FR Version now replaced by FBM Version - Please enquire - Refer to page 50 for dimensions

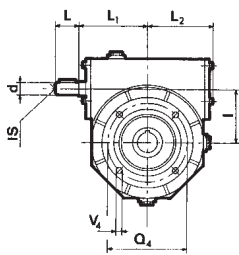
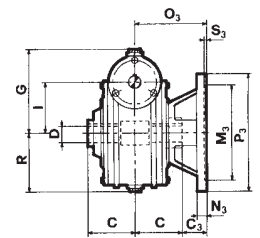
Gearbox Dimensions for sizes 80-175



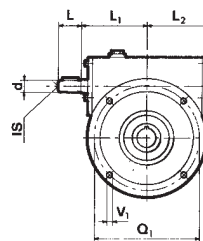
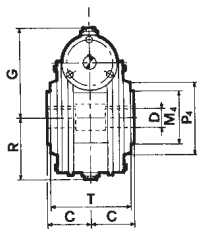
MI... A VERSION



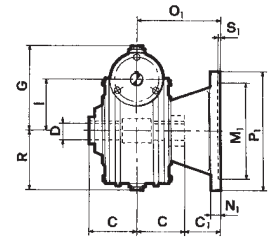
I... FBR VERSION



I... FP VERSION



I... F VERSION

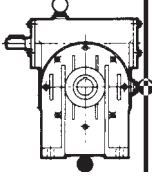
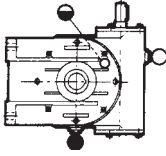
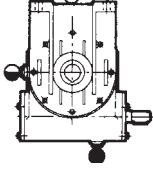
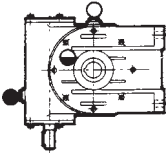
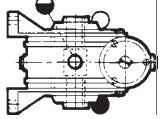
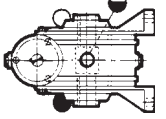
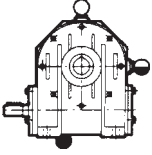
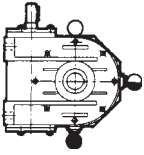
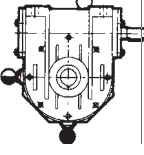
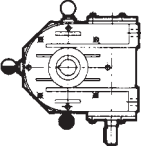
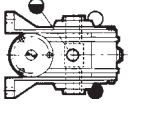
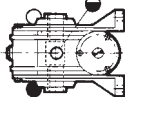
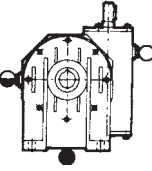
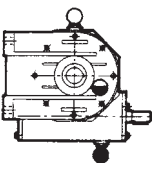
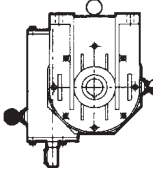
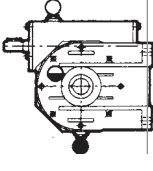
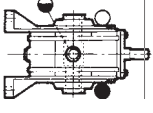
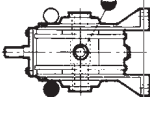


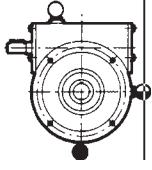
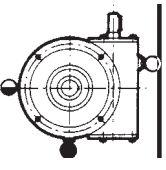
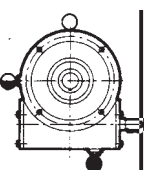
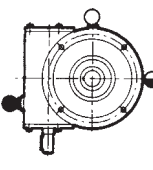
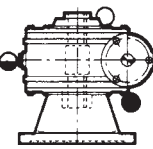
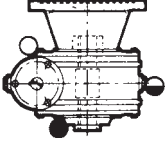
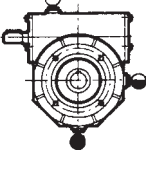
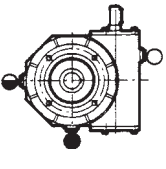
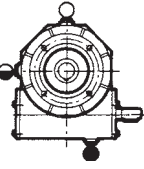
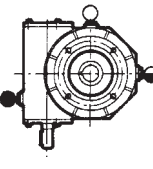
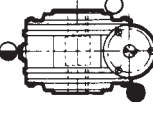
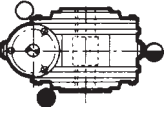
+ = x, y, w standard motor dimensions * = According to IEC flange

Frame Size	A	B	C	D/H ₇	E	F	S	V	G	H	H ₁	H ₂	I	L ₁	L ₂	R	t	t ₁	P ₅	C ₁	C ₂	C ₃
MI 80	181	180	70	35	140	147	13	11	127	142	222	62	80	108	105	95	10	38.3	*	50	80	30
MI 90	198	210	75	38	160	164	15	13	139	150	240	60	90	128	124	111	10	41.3	*	52	75	40
MI 110	190	250	77.5	42	200	160	18	13	170	172	282	62	110	149	144	141	12	45.3	*	72.5	100.5	52.5
MI 130	225	280	95	48	240	190	18	15	194	200	330	70	130	165	160	155	14	51.8	*	55	102.5	42.5
MI 150	260	334	110	55	280	220	20	19	225	230	380	80	150	192	190	182	16	60.3	*	65	110	-
MI 175	280	358	115	60	310	240	30	19	258	260	435	85	175	213	204	203	18	64.4	*	95	140	-

Please refer to dimensions Q2, P2, and M2 for FR output flange

Frame Size	M ₁ /H ₇	M ₂ /H ₇	M ₃ /H ₇	M ₄ /H ₇	N ₁	N ₂	N ₃	O ₁	O ₂	O ₃	P ₁	P ₂	P ₃	P ₄	Q ₁	Q ₂	Q ₃	Q ₄	S ₁	S ₂	S ₃	V ₁	V ₂	V ₃	V ₄	D/J ₆	IS	L	L ₁	T
MI 80	130	152	110	110	13	13	13	120	150	100	200	210	160	145	165	180	130	130	5	6	5	11.5	11.5	11.5	M10	24	M8	50	110	133
MI 90	180	152	130	110	14	15	15	127	150	115	250	250	200	160	215	180	165	130	5	5	5	14	11	11	M10	24	M8	50	126	143
MI 110	180	170	180	130	18	18	18	150	178	130	250	300	250	200	215	230	215	165	5	5	5	15	12.5	15	M12	28	M8	60	148	148
MI 130	230	180	230	180	18	20	18	150	198	137.5	300	300	300	240	265	255	265	215	5	6	5	15	12.5	15	M12	38	M10	80	167	172
MI 150	250	200	*	180	20	22	*	175	220	*	350	350	*	250	300	280	*	215	6	6	*	17	12.5	*	M14	42	M12	110	193	204
MI 175	300	280	*	230	22	22	*	210	255	*	400	400	*	300	350	350	*	265	6	6	*	18	12.5	*	M16	42	M12	110	210	222

Vers.	B3	V5	B8	V6	B6	B7
A	STANDARD 					
B	STANDARD 					
C	STANDARD 					

Vers.	B5	B51	B53	B52	V1	V3
F FBR FBM FBML	STANDARD 					
FP	STANDARD 					

○ Fill-in plug

◐ Oil level plug

● Unloading plug

Rating Table (Series 40-75)



Ratio	n1	n2	U-MU-40				U-MU-50				U-MU-63				U-MU-75			
			M2	kW	HP	RD	M2	kW	HP	RD	M2	kW	HP	RD	M2	kW	HP	RD
5	2800	560	32	2.09	2.85	90%	54	3.38	4.6	94%	95	6.16	8.38	90%				
	1800	360	36	1.85	2.5	90%	60	3.11	4.74	88%	106	5.4	7.39	89%				
	900	180	50	1.1	1.49	87%	84	1.82	2.48	87%	150	3.24	4.41	87%				
	500	100	58	0.72	0.98	84%	97	1.2	1.63	85%	170	2.08	2.83	86%				
7.5	2800	373	33	1.46	1.99	89%	55	2.35	3.2	91%	100	4.35	5.92	90%	166	7.18	9.77	91%
	1800	240	36	1.26	1.73	87%	60	2.1	3.5	88%	110	3.81	5.19	88%	185	6.35	8.64	89%
	900	120	49	0.74	1	84%	85	1.23	1.67	87%	151	2.17	2.96	87%	250	3.59	4.88	88%
	500	66	57	0.49	0.66	83%	96	0.81	1.11	83%	183	1.43	1.94	90%	290	2.4	3.27	84%
10	2800	280	34	1.15	0.56	88%	56	1.84	2.5	90%	104	3.44	4.68	89%	170	5.56	7.56	90%
	1800	180	36	0.95	1.3	86%	60	1.61	2.2	85%	108	2.84	3.86	87%	187	4.89	6.65	88%
	900	90	48	0.55	0.75	82%	85	0.95	1.29	84%	153	1.68	2.29	86%	250	2.73	3.72	86%
	500	50	57	0.37	0.51	80%	95	0.62	0.84	80%	185	1.11	1.51	87%	290	1.85	2.52	82%
15	2800	187	35	0.83	1.13	83%	59	1.35	1.83	86%	106	2.4	3.27	86%	178	3.92	5.33	89%
	1800	120	36	0.68	0.91	82%	60	1.11	1.51	83%	113	2.06	2.81	83%	190	3.38	4.59	86%
	900	60	49	0.4	0.54	78%	85	0.68	0.93	78%	159	1.23	1.68	81%	250	1.91	2.6	82%
	500	33	56	0.26	0.36	74%	106	0.49	0.67	75%	192	0.88	1.2	76%	290	1.31	1.78	77%
20	2800	140	34	0.62	0.84	80%	59	1.05	1.43	83%	108	1.18	2.5	87%	186	3.18	4.33	86%
	1800	90	34	0.51	0.7	77%	61	0.86	1.18	81%	110	1.54	2.1	82%	192	2.66	3.63	83%
	900	45	46	0.29	0.4	75%	80	0.5	0.68	76%	148	0.89	1.22	78%	250	1.48	2.01	80%
	500	25	53	0.2	0.27	70%	105	0.39	0.53	71%	177	0.59	0.8	79%	290	1.02	1.39	74%
25	2800	112	32	0.47	0.64	79%	56	0.82	1.11	81%	97	1.37	1.86	83%	169	2.39	3.25	83%
	1800	72	31	0.38	0.51	75%	58	0.70	0.95	76%	105	1.23	1.66	79%	174	1.99	2.71	80%
	900	36	45	0.23	0.31	74%	76	0.39	0.53	73%	137	0.68	0.93	75%	235	1.15	1.56	77%
	500	20	51	0.16	0.21	68%	86	0.27	0.36	68%	165	0.44	0.6	79%	265	0.78	1.06	71%
30	2800	93	38	0.49	0.67	75%	65	0.85	1.15	76%	121	1.49	2.03	79%	193	2.34	3.18	81%
	1800	60	37	0.39	0.52	74%	58	0.71	0.96	73%	128	1.31	1.79	74%	200	1.99	2.71	77%
	900	30	50	0.24	0.34	66%	91	0.42	0.57	70%	176	0.79	1.07	70%	265	1.13	1.54	74%
	500	17	61	0.16	0.22	65%	95	0.26	0.36	63%	199	0.54	0.73	65%	300	0.79	1.08	66%
40	2800	70	37	0.38	0.52	71%	64	0.64	0.87	73%	117	1.13	1.54	76%	195	1.84	2.5	78%
	1800	45	37	0.31	0.43	67%	64	0.53	0.71	70%	117	0.94	1.29	71%	202	1.6	2.19	72%
	900	23	47	0.17	0.24	65%	86	0.32	0.44	63%	161	0.57	0.77	67%	269	0.93	1.27	68%
	500	13	54	0.12	0.17	56%	98	0.22	0.3	58%	185	0.38	0.52	63%	300	0.64	0.87	61%
50	2800	56	35	0.31	0.42	67%	63	0.54	0.73	69%	116	0.94	1.28	72%	184	1.45	1.97	75%
	1800	36	35	0.26	0.35	62%	63	0.45	0.63	64%	116	0.8	1.09	67%	185	1.23	1.68	69%
	900	18	45	0.15	0.21	58%	85	0.27	0.37	60%	156	0.47	0.64	63%	246	0.72	0.99	64%
	500	10	51	0.1	0.14	52%	92	0.18	0.25	53%	173	0.31	0.42	59%	270	0.49	0.67	57%
60	2800	47	30	0.24	0.34	60%	57	0.4	0.55	68%	111	0.79	1.07	69%	177	1.21	1.65	72%
	1800	30	34	0.21	0.3	59%	58	0.38	0.51	60%	112	0.69	0.93	63%	178	1.04	1.43	65%
	900	15	41	0.12	0.17	54%	78	0.22	0.3	56%	148	0.4	0.54	59%	235	0.6	0.82	61%
	500	8	49	0.09	0.12	48%	84	0.15	0.2	49%	161	0.26	0.35	55%	256	0.41	0.56	54%
70	2800	40	28	0.21	0.28	57%	54	0.36	0.49	63%	102	0.66	0.9	64%	163	1.03	1.4	67%
	1800	26	28	0.19	0.25	50%	54	0.33	0.44	55%	103	0.58	0.79	58%	166	0.88	1.19	62%
	900	13	37	0.11	0.15	47%	71	0.19	0.26	50%	140	0.35	0.48	54%	224	0.54	0.73	56%
	500	7	42	0.07	0.1	42%	78	0.13	0.17	46%	139	0.21	0.29	49%	239	0.35	0.48	51%
80	2800	35	29	0.18	0.25	58%	52	0.31	0.43	61%	97	0.56	0.76	64%	153	0.85	1.16	66%
	1800	23	28	0.15	0.21	55%	54	0.29	0.39	54%	99	0.5	0.69	57%	154	0.74	1.00	60%
	900	11	38	0.09	0.13	47%	70	0.17	0.23	49%	130	0.29	0.4	52%	202	0.43	0.59	55%
	500	6	43	0.07	0.09	42%	75	0.11	0.15	45%	140	0.19	0.26	48%	220	0.3	0.4	49%
100	2800	28	33	0.18	0.25	53%	46	0.24	0.34	56%	89	0.44	0.61	59%	142	0.68	0.93	61%
	1800	18	34	0.15	0.21	49%	44	0.2	0.28	50%	114	0.5	0.69	52%	144	0.59	0.8	56%
	900	9	41	0.09	0.13	43%	60	0.13	0.17	44%	125	0.25	0.34	47%	174	0.32	0.44	51%
	500	6	37	0.05	0.07	38%	66	0.09	0.12	39%	138	0.17	0.23	43%	211	0.24	0.34	45%

Use factor 8.85 to convert Nm(M2) to in/lbs.

n1 = Input Speed
n2 = Output Speed

M2 = Output Torque
KW = Input KW

HP = Input HP
RD = Dynamic Efficiency

Rating Table (Series 90-110)

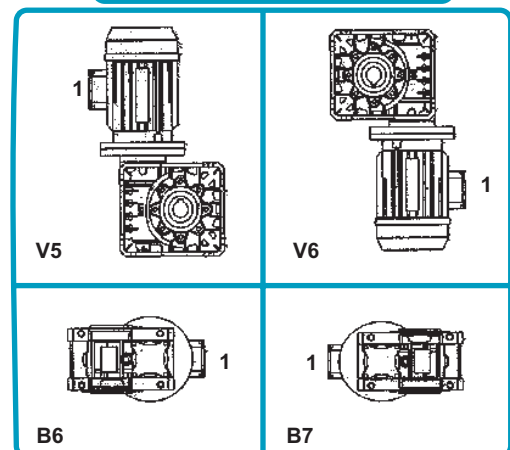
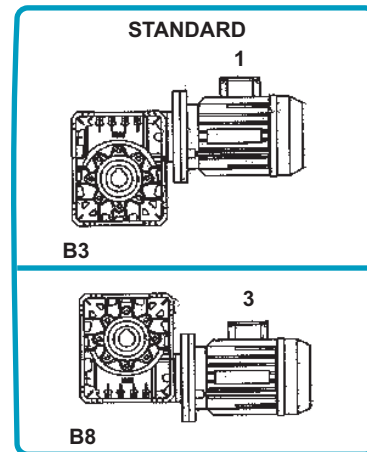


Ratio	N1	N2	U-MU-90				U-MU-110			
			M2	kW	HP	RD	M2	kW	HP	RD
5	2800	560								
	1800	360								
	900	180								
	500	100								
7.5	2800	373	267	11.4	15.5	92%	413	17.7	24.1	91%
	1800	240	296	9.97	13.5	91%	461	15.6	21.1	90%
	900	120	410	5.76	7.83	90%	630	8.9	12.1	89%
	500	66	470	3.87	5.26	85%	727	5.9	8.03	86%
10	2800	280	270	8.73	11.9	91%	446	14.4	19.6	91%
	1800	180	255	7.58	10.3	89%	489	12.6	17.1	89%
	900	90	405	4.35	5.92	88%	674	7.19	9.78	88%
	500	50	456	2.91	3.96	82%	759	4.72	6.42	84%
15	2800	187	276	6.24	8.49	86%	483	10.8	14.7	88%
	1800	120	299	5.29	7.19	86%	520	9.2	12.5	86%
	900	60	420	3.13	4.26	84%	704	5.18	7.05	85%
	500	33	490	2.19	2.98	78%	794	3.45	4.69	80%
20	2800	140	330	5.64	7.68	86%	543	9.17	12.5	87%
	1800	90	342	4.62	6.29	85%	570	7.65	10.4	85%
	900	45	450	2.61	3.55	81%	769	4.36	5.93	83%
	500	25	520	1.76	2.4	77%	863	2.91	3.96	78%
25	2800	112	288	3.96	5.39	85%	484	6.54	8.9	87%
	1800	72	298	3.31	4.5	83%	502	5.46	7.43	84%
	900	36	354	1.69	2.3	79%	680	3.15	4.29	81%
	500	20	451	1.28	1.74	74%	761	2.12	2.89	75%
30	2800	93	376	4.47	6.08	82%	546	6.4	8.71	83%
	1800	60	390	3.79	5.15	79%	502	5.46	7.4	84%
	900	30	520	2.17	2.95	75%	770	3.18	4.32	76%
	500	17	588	1.45	1.97	71%	865	2.14	2.91	71%
40	2800	70	349	3.27	4.35	78%	567	5.06	6.88	82%
	1800	45	366	2.79	3.79	75%	592	4.33	5.9	78%
	900	23	490	1.62	2.21	71%	799	2.54	3.45	74%
	500	13	542	1.08	1.47	66%	885	1.75	2.38	66%
50	2800	56	306	2.35	3.2	76%	652	4.85	6.6	79%
	1800	36	312	1.98	2.68	73%	526	3.21	4.36	75%
	900	18	425	1.17	1.6	68%	696	1.84	2.51	71%
	500	10	458	0.79	1.07	61%	771	1.29	1.76	62%
60	2800	47	291	1.97	2.68	72%	489	3.09	4.2	77%
	1800	30	294	1.6	2.21	69%	494	2.61	3.56	72%
	900	15	395	0.97	1.32	64%	563	1.53	2.08	68%
	500	8	427	0.65	0.89	57%	712	1.05	1.43	59%
70	2800	40	276	1.66	2.26	70%	468	2.73	3.72	72%
	1800	26	278	1.43	1.94	64%	475	2.21	3.01	70%
	900	13	369	0.84	1.14	59%	629	1.34	1.82	63%
	500	7	402	0.56	0.76	54%	684	0.91	1.24	56%
80	2800	35	254	1.34	1.83	69%	442	2.22	3.02	73%
	1800	23	255	1.16	1.55	63%	442	1.88	2.58	67%
	900	11	340	0.68	0.92	59%	585	1.09	1.48	63%
	500	6	367	0.48	0.65	50%	641	0.79	1.07	53%
100	2800	28	213	0.96	1.31	65%	396	1.68	2.29	69%
	1800	18	231	0.89	1.21	60%	400	1.45	1.98	63%
	900	9	305	0.53	0.72	55%	633	1.03	1.4	56%
	500	6	355	0.41	0.56	45%	573	0.62	0.84	49%

MOUNTING POSITIONS

Always recognize the required mounting position for the gearbox. Certain orientations require special lubricants and/or bearings to achieve the normal service life of the gearbox. Unless specified, the gearbox will be shipped in a B3 position.

Note: Sizes 30, 40 and 50 are suitable to be mounted in all positions.



Use factor 8.85 to convert Nm(M2) to in/lbs.

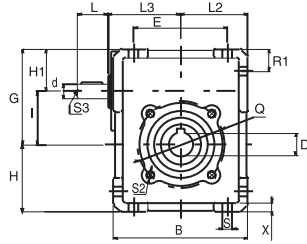
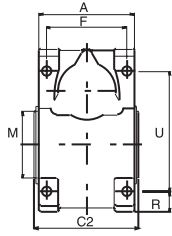
n1 = Input Speed
n2 = Output Speed

M2 = Output Torque
KW = Input KW

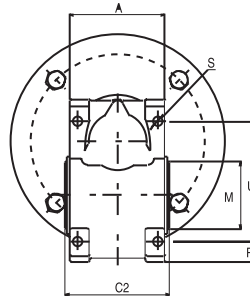
HP = Input HP
RD = Dynamic Efficiency

Right Angle Worm Gear Reducers (MU)

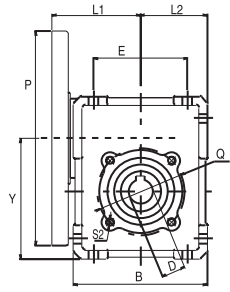
BASE-MOUNT VERSION



SOLID INPUT SHAFT (U)

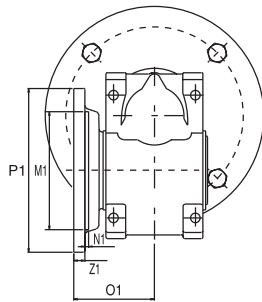
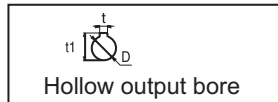


MOTOR INPUT SHAFT (MU)

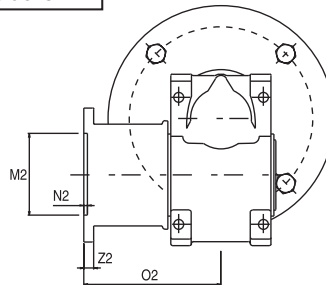
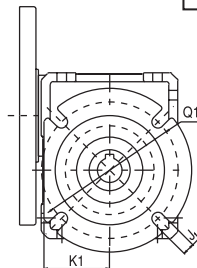


Size	I	D H7	t	t1	d J6	S3	L	L3	L2	E	F	U	A	B	Y	H	H1	G	C2	R	M g6	Q	S	S2	X	R1	P	L1
40	40	18(19)	6	20.8	11	M4	23	54	50	70	60	90	71	100	90	50	31.5	71.5	78	15	50	65	7	M6	6.5	16.5	**	**
50	50	25(24)	8	28.3	14	M5	30	64	60	80	70	104	85	120	110	60	34	84	92	20	60	75	9	M6	7	20	**	**
63	63	25(28)	8	28.3	19	M6	40	76	72	100	85	130	102	144	135	72	39	102	112	22	70	85	9	M8	7	22	**	**
75	75	28(35)	8	31.3	24	M8	50	90	86	120	90	153	112	172	161	86	44	119	120	26	80	100	11	M8	10	26	**	**
90	90	35(38)	10	38.3	24	M8	50	107	103	140	100	172	130	206	193	103	45	135	140	33	110	130	13	M10	11	33	**	**
110	110	42	12	45.3	28	M10	60	131.5	127.5	170	115	210	144	252.5	237.5	127.5	57.5	167.5	155	42.5	130	165	14	M12	14	42.5	**	**

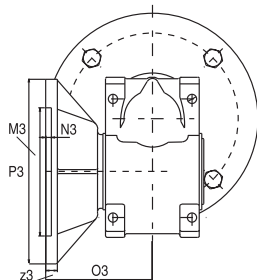
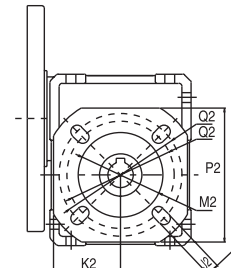
() = Optional output bore size
 * = Output flange holes are elongated
 P & L1 dimensions - please inquire



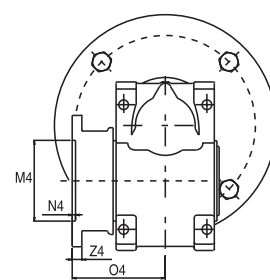
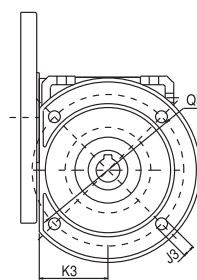
MU... FBR VERSION



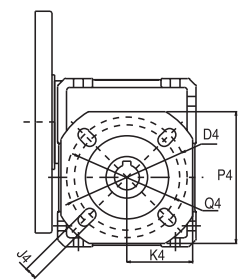
MU... FBML VERSION



MU... F VERSION



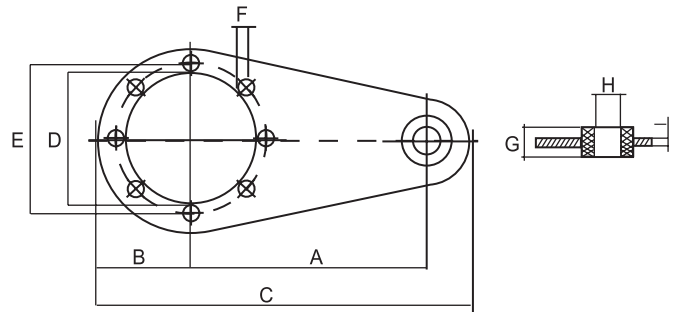
MU... FBM VERSION



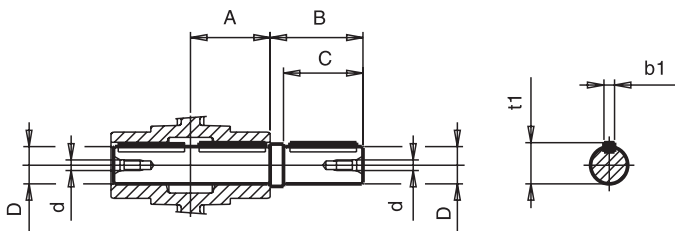
Size	FBR OUTPUT FLANGE								FBML OUTPUT FLANGE								F OUTPUT FLANGE								FBM OUTPUT FLANGE							
	Q1	M1H7	P1	K1	N1	Z1	O1	J1	Q2*	M2H7	P2	K2	N2	Z2	O2	J2	Q3	M3H7	P3	K3	N3	Z3	O3	J3	Q4*	M4H7	P4	K4	N4	Z4	O4	J4
40	100	80	120	48	3	8	59	9	76-87	60	95	47.5	4	7	97	9	115	95	140	52	4	9	81	9	76-87	60	95	47.5	4	7	67	9
50	115	95	140	58	4	10	72	10	85-92	70	110	55	5	10	120	11	130	110	160	61	4	10	89	10.5	85-92	70	110	55	5	10	90	11
63	130	110	160	70	5	11	77.35	11	138-150	115	142	71	6	11	112	11	165	130	200	74	4	12	97.3	11	138-150	115	142	71	6	11	82	11
75	-	-	-	-	-	-	-	-	165-188	130	200	85	5	12	111.3	14	-	-	-	-	-	-	-	-	130-140	110	160	80	5	12	84.8	11
90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	175-210	152	200	100	6	13	111	14	
110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	230-280	170	260	130	6	15	131	14	

MI Torque Arm Dimensions

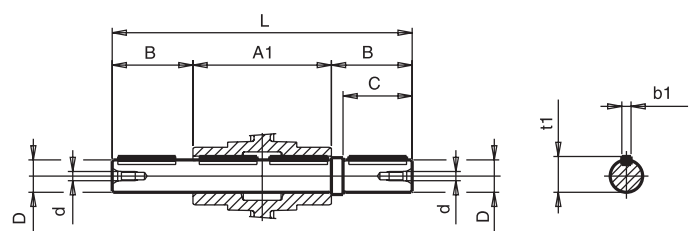
Size	A	B	C	D	E	F	G	H	I
I-MI 40	100	40	170	50	65	7	20	10	4
I-MI 50	100	44	180	60	75	7	20	10	4
I-MI 60	150	53	233	70	85	9	20	10	6
I-MI 70	200	62.5	300	80	100	9	25	14	6
I-MI 80	200	77.5	315	110	130	11	25	14	6
I-MI 90	200	77.5	315	110	130	11	25	14	6
I-MI 110	250	100	387.5	130	165	13	25	14	6
I-MI 130	300	120	465	180	215	13	30	16	8
I-MI 150	300	125	470	180	215	15	30	16	8



SINGLE OUTPUT SHAFT



DOUBLE OUTPUT SHAFT



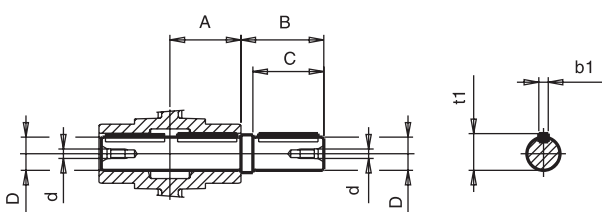
MI Output Shaft Dimensions

Size	A	A ₁	B	C	Dh ₇	d	L	b ₁	t ₁
I-MI 30	28.5	57	35	30	14	M5	127	5	16
I-MI 40	41	82	50	40	19	M8	182	6	21.5
I-MI 50	49	98	60	50	24	M8	218	8	27
I-MI 60	60	120	65	60	25	M8	250	8	28
I-MI 70	60.5	121	70	60	28	M8	261	8	31
I-MI 80	70	140	65	60	35	M8	270	10	38

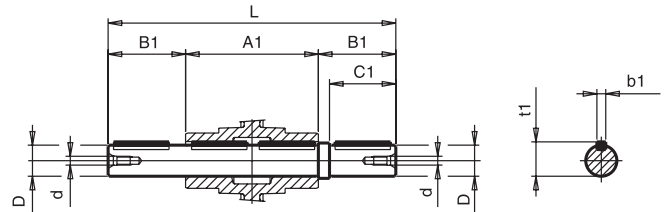
MI Output Shaft Dimensions

Size	A	A ₁	B	C	Dh ₇	d	L	b ₁	t ₁
I-MI 90	75	150	96	80	38	M8	342	10	41
I-MI 110	77.5	155	126	110	42	M10	407	12	45
I-MI 130	95	190	126	110	48	M10	442	14	51.5
I-MI 150	110	220	132	110	55	M12	484	16	59
I-MI 175	115	230	150	140	60	M12	530	18	64

SINGLE OUTPUT SHAFT



DOUBLE OUTPUT SHAFT

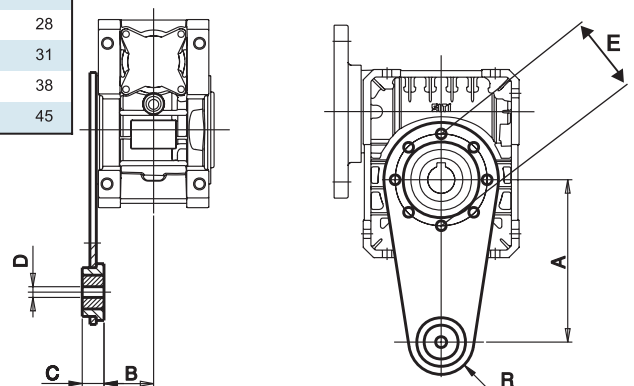


MU Single and Extended Output Shaft Dimensions

Size	A	A ₁	B	B ₁	C	C ₁	Dh ₇	d	L	b ₁	t ₁
U-MU 40	39	78	43	43	40	40	18	M5	164	6	20.5
U-MU 50	46	92	53.5	53.5	50	50	25	M8	199	8	28
U-MU 63	56	112	65	53.5	60	50	25	M8	219	8	28
U-MU 75	60	120	70	63.5	60	60	28	M8	247	8	31
U-MU 90	70	140	65	84.5	60	80	35	M8	309	8	38
U-MU 110	77.5	155	126	84.5	110	80	42	M10	324	12	45

MU Torque Arm Dimensions

Size	A	B	C	D	E	R
U-MU 40	100	29.5	20	10	65	30
U-MU 50	100	35.5	20	10	75	36
U-MU 63	150	46	20	10	85	30
U-MU 75	200	47.5	25	14	100	37.5
U-MU 90	200	57.5	25	14	130	37.5
U-MU 110	250	64.5	25	14	165	37.5



MBH/BH & Motovariator Gearboxes

Helical - Bevel Gearbox



- 16HP to 107HP
- Reduction Ratios from 10:1 to 226:1
- Universal Mounting Options
- Torque Arm
- Hollow, single or double output shafts

Size	Input Flange Size	Basic MBH with B5 Input Price \$	Basic BH Price \$	Output Flange Price \$	Torque Arm Price \$	Oil Price \$	Single Output Shaft Price \$	Double Output Shaft Price \$	OP Shaft Taper Roller Scoring Price \$	Backstop Price \$	Weight
MBH63	71-80-90	2,350.00	2,350.00	238.00	130.00	143.00	198.00	209.00	179.00	N/A	66
MBH63	100-112	2,556.00									
MBH80	71-80-90	3,656.00	3,628.00	266.00	209.00	241.00	243.00	234.00	311.00	N/A	88
MBH80	100-112	3,835.00									
MBH80	132	4,000.00									
MBH100	80-90	4,860.00	4,756.00	376.00	286.00	393.00	333.00	337.00	401.00	571.00	159
MBH100	100-112	5,009.00									
MBH100	132	5,260.00									
MBH125	80-90	6,362.00	6,234.00	585.00	415.00	548.00	521.00	390.00	477.00	856.00	214
MBH125	100-112	6,487.00									
MBH125	132	6,738.00									
MBH140	100-112	9,919.00	9,617.00	702.00	987.00	877.00	606.00	441.00	N/A	935.00	452
MBH140	132	11,045.00									
MBH160	100-112	13,275.00	12,924.00	797.00	987.00	1,402.00	694.00	467.00	N/A	1,220.00	573
MBH160	132	14,276.00									

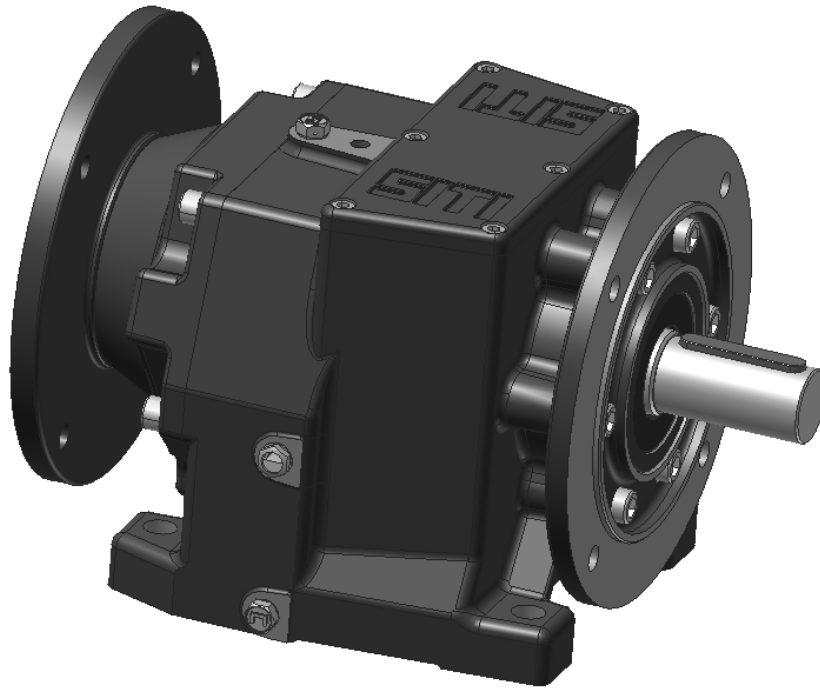
Motovariator Gearbox



MK-(F) Series

(MK - MKF : K - KF)

Size	PAM Flange MK Price \$	Male Input "K" Shaft Price \$	Zero Speed Option Price \$	Weight
MK2	1,144.00	1,256.00	N/A	20
MKF2	1,195.00	1,296.00	N/A	20
MK5	1,419.00	1,619.00	1,106.00	40
MKF5	1,503.00	1,667.00	1,106.00	40
MK10	1,814.00	2,064.00	1,262.00	66
MKF10	1,855.00	2,119.00	1,262.00	66
MK20	2,466.00	2,732.00	1,629.00	85
MKF20	2,528.00	2,790.00	1,629.00	85
MK30	3,620.00	3,979.00	2,158.00	120
MKF30	3,748.00	4,078.00	2,158.00	120
MK50	3,956.00	4,404.00	2,158.00	225
MKF50	4,063.00	4,424.00	2,158.00	225
MK100	6,294.00	7,121.00	4,296.00	355
MKF100	6,476.00	7,277.00	4,296.00	355



High Performance - Up to 210Kw, 12000 Nm output torque, 466/1 ratio
High Reliability - Gears are case-hardened, quenched and stressed relieved
High Versatility - 10 sizes with (3) input versions, multiple mounting positions.

MNHL - NHL Services

Helical Inline Gearboxes with 2 Stages of Reduction

Size	PAM Flange MNHL.../2 Price \$	Male Input Shaft NHL.../2 Price \$	PAM Flange+ MNHLF.../2 Price \$	Output Flange (ONLY) Price \$	Oil	Weight (lbs)
MHL 16/2	1,100.00	1,001.00	1,133.00	242.00	*	20
MHL 20/2	1,100.00	1,001.00	1,133.00	267.00	*	20
MHL 25/2	1,278.00	1,187.00	1,316.00	308.00	**	30
MHL 30/2	1,531.00	1,325.00	1,577.00	340.00	**	50
MHL 40/2	3,046.00	2,712.00	3,136.00	430.00	**	90
MHL 50/2	4,339.00	3,537.00	4,471.00	ENQUIRE	**	120
MHL 60/2	6,769.00	5,998.00	6,975.00	ENQUIRE	**	230
MHL 70/2	8,616.00	8,616.00	9,676.00	ENQUIRE	**	345

* = Prelubricated for life
 ** = Oil available on request
 + = Gearbox Available in Round Body when output flange is required

Helical Inline Gearboxes with 3 Stages of Reduction

Size	PAM Flange MNHL.../3 Price \$	Male Input Shaft NHL.../3 Price \$	PAM Flange+ MNHLF.../3 Price \$	Output Flange (ONLY) Price \$	Oil	Weight (lbs)
MHL 25/3	1,647.00	1,493.00	1,685.00	308.00	**	35
MHL 30/3	1,907.00	1,563.00	1,955.00	340.00	**	55
MHL 40/3	3,545.00	3,192.00	3,637.00	399.00	**	95
MHL 50/3	4,924.00	4,462.00	5,054.00	ENQUIRE	**	135
MHL 60/3	7,724.00	6,954.00	7,939.00	ENQUIRE	**	240
MHL 70/3	10,462.00	9,697.00	10,754.00	ENQUIRE	**	390

See page 56 for dimensional drawings.
 See pages 54 & 55 for performance rating tables.

Helical In-Line Reducers



NHL/MNHL

1750 Input RPM - 1.0 Service Factor

NHL 20				NHL 25				NHL 30				NHL 35			
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I	n2	M2	Kw	I	n2	M2	Kw	I	n2	M2	Kw	I	n2	M2	Kw
---	----	----	----	---	----	----	----	---	----	----	----	---	----	----	----

4.32	405	41	1.75	1.9	921	26	2.86	2.25	778	71	5.76	5.12	342	238	8.44
5.13	341	41	1.55	2.77	632	37	2.43	3.08	568	97	5.73	5.97	293	261	7.92
6.1	287	43	1.3	3.75	467	50	2.43	3.63	482	112	5.61	7	250	261	6.76
7.25	240	47	1.18	4.34	403	103	4.28	4.72	371	134	5.16	8.26	212	308	6.76
8.75	200	47	0.98	5.25	333	112	3.85	5.43	322	177	5.43	9.4	186	309	5.96
10.67	164	52	0.89	6.35	275	121	3.45	6.34	276	195	5.58	10.77	162	340	5.72
12.27	143	52	0.77	7.37	237	130	3.21	7.43	236	237	5.79	12.44	141	340	4.96
14.25	123	57	0.72	8.58	204	135	2.85	8.76	200	270	5.58	14.54	120	343	4.28
16.76	104	57	0.62	10.07	174	135	2.43	9.97	176	307	5.58	17.23	102	405	4.26
20.04	87	60	0.54	11.92	147	135	2.06	11.43	153	306	4.86	19.5	90	403	3.75
24.1	72.6	61	0.46	14.31	122	135	1.71	13.21	132	306	4.2	22.3	79	406	3.3
27.43	64	65	0.43	16.32	107	135	1.5	15.43	113	309	3.63	25.85	68	404	2.84
31.24	56	65	0.37	18.8	93	135	1.3	18.29	96	306	3.04	30.49	57	403	2.4
37.94	46	66	0.31	21.94	80	136	1.12	20.69	84.6	306	2.68	36.42	48	404	2.01
43.17	41	65	0.27	26.05	67	135	0.94	23.66	74	307	2.35	40.95	43	403	1.79
49.14	36	65	0.24	31.65	55	135	0.77	27.43	64	308	2.03	45.95	38	403	1.59
				35.29	50	149	0.76	32.35	54	308	1.73	54.56	32	443	1.5
				44.22	40	148	0.61	38.65	45	307	1.44	65.17	27	448	1.27
				49.12	36	149	0.55	43.43	40	305	1.28	78.44	22	447	1.05
				52.1	34	149	0.53	48.76	36	305	1.13	95.49	18	455	0.88
				59.93	29	149	0.46	57.9	30	325	1.04	109.9	16	459	0.77
				69.61	25	148	0.39	69.16	25	327	0.87	127.6	14	467	0.67
				81.87	21	148	0.41	83.24	21	326	0.72	150.1	12	461	0.57
				97.9	18	148	0.28	101.3	17	324	0.59	179.4	10	465	0.48
				117.7	15	148	0.23	116.6	15	327	0.52	215.8	8	464	0.4
				134	13	149	0.21	135.4	13	323	0.44	245.5	7	466	0.35
				152.6	11.5	149	0.18	159.2	11	326	0.38	279.6	5	465	0.31
				185.3	9	149	0.15	190.4	9	325	0.32	339.7	5	465	0.25
				210.9	8	149	0.13	229	8	325	0.26	386.5	5	465	0.22
				240	7	149	0.11	260.6	7	324	0.23	439.9	4	473	0.2

296.8	6	326	0.2
360.5	5	328	0.17
410.2	4	326	0.15
466.9	4	325	0.13

Use factor 8.85 to convert Nm(M2) to in/lbs.

n1 = Input Speed M2 = Output Torque HP = Input HP
 n2 = Output Speed KW = Input KW RD = Dynamic Efficiency
 I = Ratio

1750 Input RPM - 1.0 Service Factor

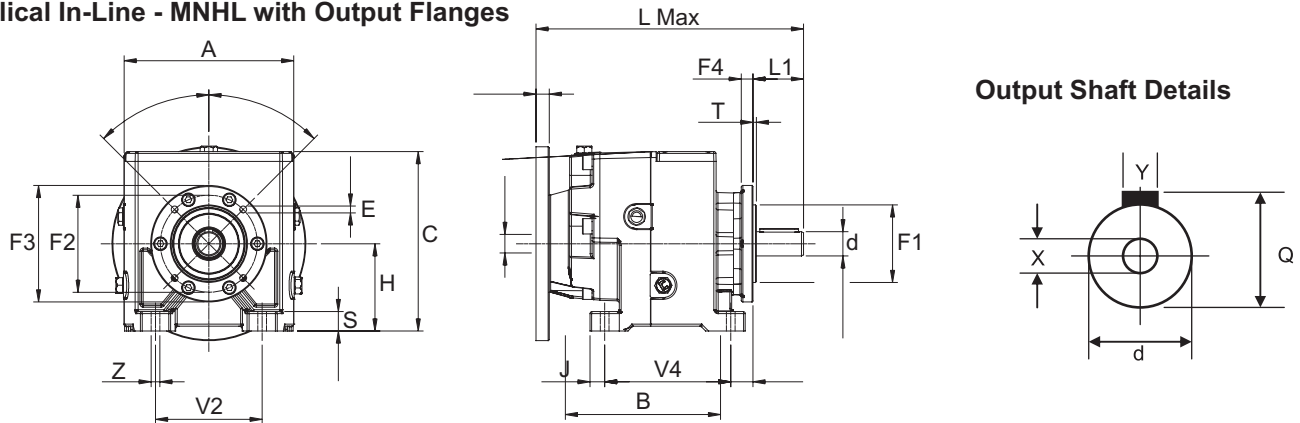
NHL 40				NHL 50				NHL 60				NHL 70			
I	n2	M2	Kw	I	n2	M2	Kw	I	n2	M2	Kw	I	n2	M2	Kw
2.27	771	128	10.24	3.07	570	283	16.73	3.76	465	694	33.48	5.52	317	1858	89.1
3.17	552	180	10.28	3.67	477	339	16.73	5.27	332	1161	39.96	6.53	268	1947	54
3.78	463	230	9.2	4.87	359	449	16.73	5.97	293	1102	33.48	7.42	236	2225	54
4.53	386	223	8.92	5.47	320	558	18.5	6.44	272	1209	34.04	8.86	198	2513	51.4
5.06	346	326	11.68	6.51	269	651	18.15	7.53	232	1352	32.56	10.2	172	2892	51.4
5.96	294	367	11.16	6.72	260	620	16.73	8.38	209	1487	32.19	11.25	156	3260	52.54
7.04	249	419	10.8	7.78	225	772	18	9.92	176	1740	31.82	13.14	133	3352	46.52
8.38	209	456	9.88	8.94	196	884	17.93	11.17	157	1949	31.64	14.67	119	3446	42.6
10.06	174	466	8.4	10.34	169	1022	17.93	13.51	130	1957	26.27	17.55	100	3542	36.6
11.45	153	513	8.12	12.07	845	1023	15.38	15.5	113	1945	22.76	20	88	3606	32.7
13.14	133	522	7.2	14.25	123	1026	13.05	17.99	97	1945	19.61	23.06	76	3699	29.1
15.22	115	520	6.2	16.04	109	1021	11.55	21.19	83	2138	18.3	27	64	3733	25.08
17.85	98	520	5.28	18.22	96	1025	10.2	25.46	69	2150	15.3	32.25	54	3717	20.9
21.3	82	522	4.44	20.9	84	1020	8.85	28.18	62	2136	13.75	35.59	49	3739	19.05
23.45	75	559	4.32	24.31	72	1105	8.25	31.44	56	2137	12.32	39.6	44	3756	17.2
29.05	60	558	3.48	28.76	61	1116	7.04	35.43	49	2139	10.96	44.5	39	3754	15.3
32.78	53	559	3.09	31.54	55	1114	6.4	40.74	43	2135	9.51	48.33	36	3694	14.08
37.96	46	562	2.68	38.77	45	1120	5.24	45.76	38	2136	8.47	57.77	30	3726	11.88
42.21	41	558	2.4	43.59	40	1116	4.64	53.3	33	2146	7.43	66.4	26	3727	10.34
47.4	37	558	2.1	49.93	35	1124	4.16	63.4	28	2138	6.21	76.81	23	3721	8.92
53.09	33	543	1.86	60.43	29	1122	3.42	76.1	23	2136	5.17	89.63	20	3722	7.65
56.28	31	559	1.83	70.83	25	1122	3.42	86.6	20	2144	4.56	105.8	17	3726	6.49
65.23	27	557	1.58	83.55	21	1117	2.46	99.4	18	2135	3.96	119.1	15	3734	5.78
75.97	23	557	1.35	95.1	18	1113	2.2	115.1	15	2137	3.42	135.3	13	3701	5.04
89.11	20	559	1.16	109	16	1119	1.89	135	13	2132	2.91	155.2	11	3708	4.4
105.5	17	555	0.97	125.9	14	1118	1.64	161	11	2154	2.46	180.5	10	3723	3.8
126.6	14	557	0.81	147.1	12	1115	1.4	177.3	10	2117	2.02	213.5	8	3721	3.21
144.4	12	558	0.71	174.4	10	1114	1.18	219.7	8	2125	1.78	234.2	7	3699	2.91
166.4	11	561	0.62	197.3	9	1109	1.04	247.9	7	2139	1.6	287.9	6	3713	2.38
194.2	9	557	0.53	225.6	7.8	1120	0.92	287	6	2140	1.38	323.7	5	3710	2.11
230.5	8	561	0.45	261.5	7	1118	0.79	319.2	5	2137	1.24	370.7	5	3719	1.85
280.1	6	558	0.367	308.5	6	1123	0.67	358.5	5	2134	1.1				
312.3	6	559	0.33	368.5	5	1115	0.56								
391.4	4	559	0.26	414.1	4	1118	0.5								
434.7	4	559	0.24	465	4	1115	0.44								

Use factor 8.85 to convert Nm(M2) to in/lbs.

n1 = Input Speed M2 = Output Torque HP = Input HP
n2 = Output Speed KW = Input KW RD = Dynamic Efficiency
I = Ratio

MNHL and MNHLF Dimensions

Helical In-Line - MNHL with Output Flanges



Size	A	B	H	L Max	S	V2	V4	Z	T	L1	C	J	Q	X	Y	d	Weight
20/2	140.5	90	75	208	13	110	50	9	1	40	129	30	22.5	M5x12.5	6x6x30	20	10
25/2	175	160	90	282	20	110	130	9	3.5	50	185	15	28	M8x19	8	25	34
25/3	175	160	90	282	20	110	130	9	3.5	50	185	15	28	M8x19	8	25	32
30/2	200	195	115	318	20	135	165	14	3.5	60	241	173.5	33	M8x19	8	30	57
30/3	200	195	115	318	20	135	165	14	3.5	60	241	17.5	33	M8x19	8	30	56
35/2	200	195	115	342	20	135	165	14	3.5	70	241	17.5	38	M10x22	10	35	62
35/3	200	195	115	342	20	135	165	14	3.5	70	241	17.5	38	M10x22	10	35	61
40/2	242	245	140	425	30	170	205	18	4	80	240	20	43	M10x22	12	40	77
40/3	242	245	140	425	30	170	205	18	4	80	240	20	43	M10x22	12	40	75
50/2	294	310	180	500	45	215	260	18	4	100	315	25	53.3	M12x28	14	50	115
50/3	294	310	180	500	45	215	260	18	4	100	315	25	53.3	M12x28	14	50	131
60/2	355	364	225	537	55	250	310	22	5	120	380	27	64	M16x36	18	60	231
60/3	355	364	225	537	55	250	310	22	5	120	380	27	64	M16x36	18	60	243
70/2	435	440	250	658	65	290	370	26	5	140	413	35	74.5	M16x36	20	70	353
70/3	435	440	250	658	65	290	370	26	5	140	413	35	74.5	M16x36	20	70	408

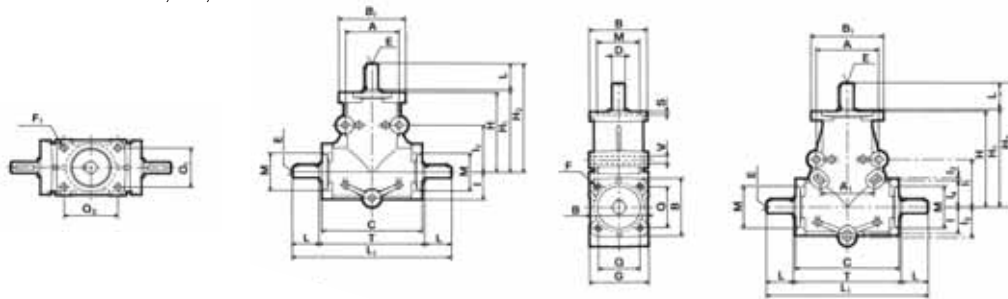
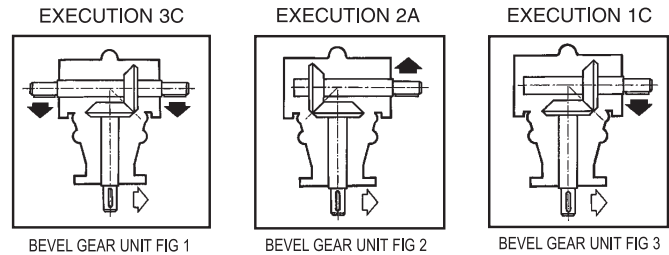
OUTPUT FLANGE DIMENSIONS

Size	20	25	30	35	40	50	60	70
STYLE 1	F1	80	80	110	110	180	230	250
	F2	100	100	130	130	215	265	300
	F3	120	120	160	160	250	300	350
	F4	9	12	10	10	13	13	18
	E	7	7	9	9	14	18	18
STYLE 2	F1	95	110	130	130	230	250	350
	F2	115	130	165	165	265	300	400
	F3	140	160	200	200	300	350	450
	F4	9	12	10	10	14	13	18
	E	9	9	11.5	11.5	14	18	18
STYLE 3	F1	110	130	180	180			
	F2	130	165	215	215			
	F3	160	200	250	250			
	F4	9	12	10	10			
	E	9	11.5	14	14			

R Series

Type	Configuration Figure #	Ratios	Price \$	Weight (lbs)
R 9	2/3	1:1, 2:1	482.00	4
R 9	1	1:1, 2:1	501.00	4
R 14	2/3	1:1, 2:1, 3:1	532.00	6
R 14	1	1:1, 2:1, 3:1	556.00	6
R 19	2/3	1:1, 2:1, 3:1	1,026.00	12
R 19	1	1:1, 2:1, 3:1	1,044.00	12
R 24	2/3	1:1, 2:1, 3:1	1,026.00	14
R 24	1	1:1, 2:1, 3:1	1,047.00	14

- Power from 0.12kW to 10 kW
- Output torque from 2Nm to 35Nm
- Reduction ratios available 1:1, 2:1, 3:1



Size	A	A ₁	C	G	H	H ₁	H ₂	I	I ₁	I ₂	I ₃	I ₄	L ₁	T	V	B	B ₁	F	F ₁	M _{h7}	Q	Q ₁	Q ₂	S	D _{h7}	E	L
R 9	40	-	75	43	60	61	81	20	35	-	-	-	117	77	5	42	50	M4	5	30	30	30	40	2.5	9	M4	20
R 14	60	-	110	70	90	91	121	32	63	-	-	-	172	112	9	64	64	M8	M8	47	46	46	46	4	14	M5	30
R 19	90	77.5	150	86	140	141	181	38	70	5	45	38	232	152	11	84	105	M10	10.5	62	60	60	80	5	19	M8	40
R 24	90	77.5	150	86	140	141	191	38	70	5	45	38	252	152	11	84	105	M10	10.5	62	60	60	80	5	24	M8	50

NRG Series

SITI Planetary Gearboxes



Base mount



Out put flange

High Modularity

- Modular design with compact subgroups for easy ratio replacement (up to 4 reduction stages)

High Versatility

- 6 sizes with 4 input & 4 output configurations
- 2 Output support connections:
 - SM (Standard)
 - SMR (reinforced for High load)
- 3 Options of mounting positions:
 - Direct Couple
 - Foot Mount
 - Flange Mount

High Performances

- Max Input power 200 kw
- Max torque 25000 Nm
- Ratios Upto 3657:1

High Reliability

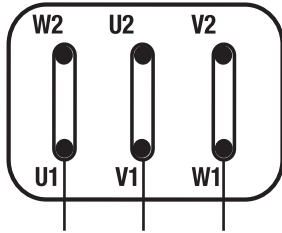
- Strengthened casing for heavy duty applications
- High resistant gears with oversized bearings
- Superior sealing for leak prevention

Wiring Diagrams

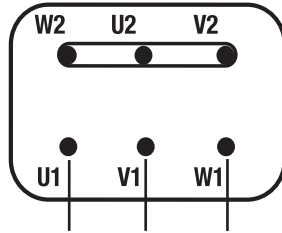
Refer to pages 17 and 23 for additional Connection Diagrams

6-LEAD MOTOR CONNECTION Δ/Y

Minimum Voltage

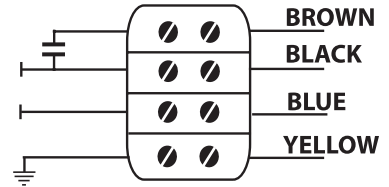


Maximum Voltage



AMFV Type - Forced Vent Kit
(1-phase fan 115v or 230v)

For 100 frame and larger

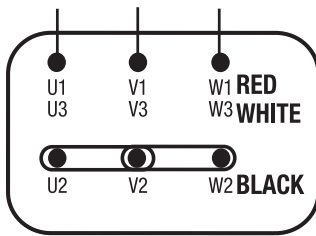


9-LEAD MOTOR CONNECTION YY/Y

6 Post Block (90 - 112 frame)

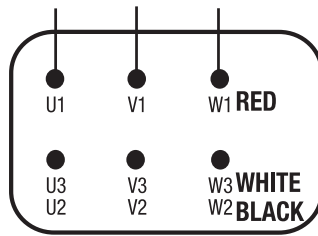
Minimum Voltage

208 / 230V

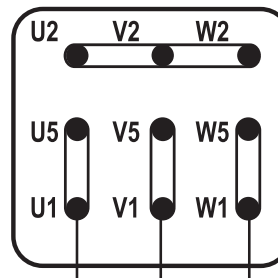


Maximum Voltage

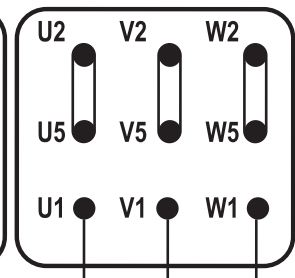
460V



9 Post Block (132 - 160 frame)

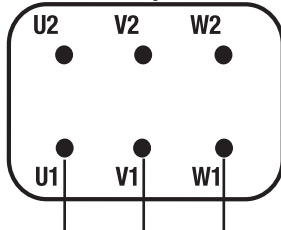


Minimum Voltage
208/230V YY

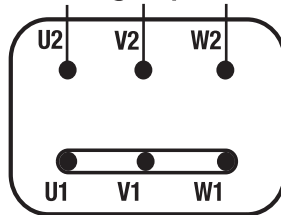


Maximum Voltage
460V Y

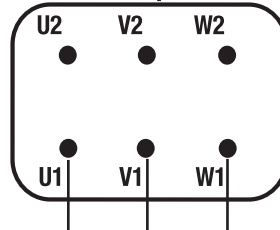
2 SPEED (1 WINDING) {2/4 & 4/8 POLES}
Low Speed



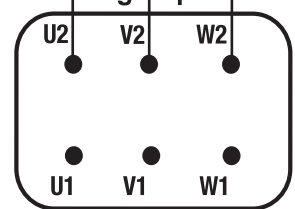
High Speed



2 SPEED (2 WINDINGS) {2/8 4/6 & 6/8 POLES}
Low Speed

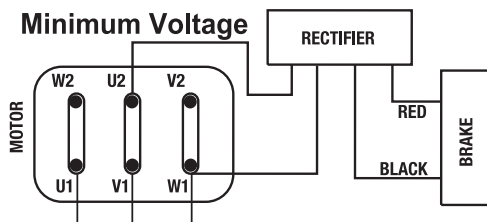


High Speed

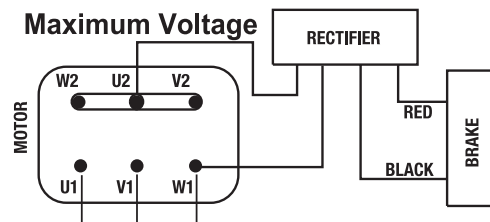


MS Type - Compact Brake Motor *D.C. Brake Coil*

Minimum Voltage

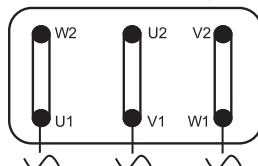


Maximum Voltage

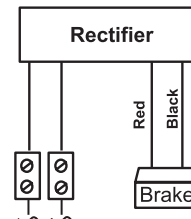
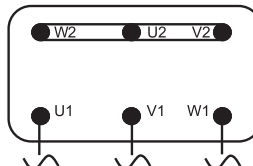


MS brake coils may also be wired separately by removing the leads from the motor block and connecting to an alternate/separate power source. Alternate voltage coils are available. Always check to ensure incoming voltage matches the coil voltage.

Δ Minimum Voltage



Y Maximum Voltage



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- SELLER LIMITATION:** The seller makes no warranties respecting the suitability or fitness of these motors for any particular purpose or use. The buyer shall not, in any event, be entitled to, and the seller shall not be liable for loss of profit, direct or indirect and incidental or consequential damages of any nature. Buyer recovery from seller for any claim shall not exceed the buyer purchase price for the product, irrespective of the claim whether in contract warranty or otherwise.
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- RETURN GOODS:** You must obtain prior authorization before returning any product. Product being returned must be properly packaged against breakage and be shipped freight pre-paid to LAFERT NORTH AMERICA or its authorized repair depot.

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