2018

PRODUCT CATALOGUE & PRICE LIST

LAFERT NORTHAMERICA

Your Best Source for Metric Motors, Gearboxes & Coolant Pumps

1.800.661.6413

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 standalone 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

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

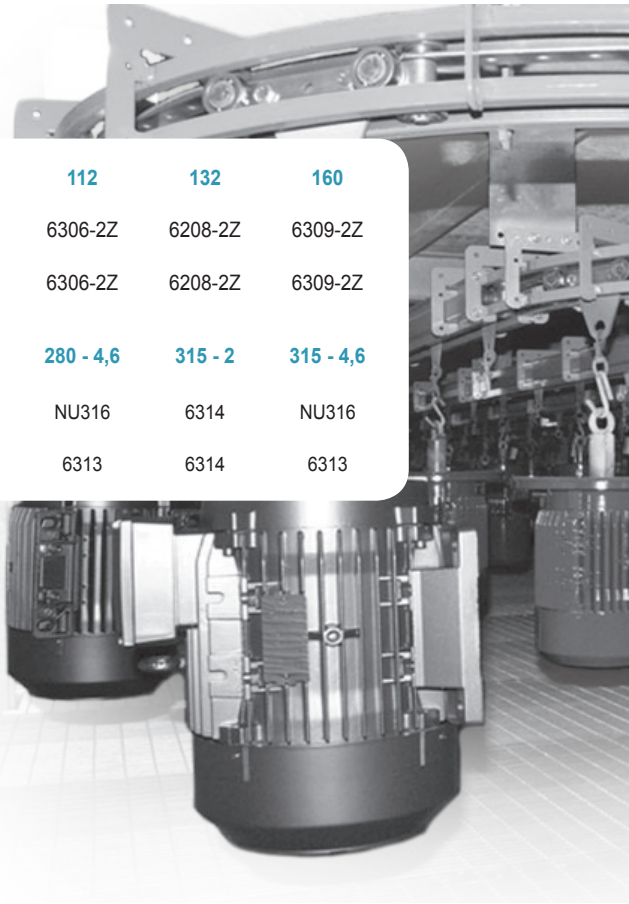
Frame sizes 56 - 160 have pressure die cast aluminum flanges. All types 180 - 315 have cast iron flanges and end shields. Special sizes and shapes are available upon request in die cast aluminum at additional cost.

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
Drive End	6201-2Z	6202-2Z	6203-2Z	6204-2Z	6205-2Z	6206-2Z	6306-2Z	6208-2Z	6309-2Z
Non-Drive End	6201-2Z	6202-2Z	6203-2Z	6204-2Z	6205-2Z	6206-2Z	6306-2Z	6208-2Z	6309-2Z

FRAME SIZE	180 - 2,4,6,8	200 - 2,4,6,8	225 - 2	225 - 4,6,8	250 - 2,4,6,8	280 - 2	280 - 4,6	315 - 2	315 - 4,6
Drive End	6311	6312	6312	6313	6313	6314	NU316	6314	NU316
Non-Drive End	6309	6312	6312	6313	6312	6314	6313	6314	6313



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 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 die cast 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 frames sizes are cast iron or rolled steel depending on model.

ROTORS

Rotors are “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.

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.

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 the 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.

HPS Series - High Performance Standalone Permanent Magnet AC Motors

HPS Series permanent magnet (PM) synchronous AC motors deliver IE4 Super Premium energy efficiency while reducing motor size and weight by up to 50%. The HPS Series combines the mechanical design of the standard induction motor with the high performance and energy efficiency of the brushless servo motor design. This uniquely engineered product was inspired and made possible through decades of Lafert experience and expertise in the design and manufacture of both motor designs.

The target of the HPS Series is motor-driven HVACR equipment such as pumps, fans, compressors and blowers where system size, weight or operating costs are key design considerations. The IE4 Super Premium energy efficiency levels achieved by HPS Series motors deliver significant energy savings (up to 14%) when compared to EISA Premium AC motors. The energy efficient performance of HPS Series motors allows equipment manufacturers to exceed minimum energy performance standards (MEPS) while reducing ownership costs.

- Increased power density reduces the motor frame size up to two sizes
- Size-reduced design provides savings up to 50% in dimensions, space envelope and weight compared to other aluminum-bodied motors
- Higher space and weight savings when compared to EISA Premium Efficient motor designs (with rolled steel or cast iron construction)
- Manufactured since 2005 in Italy in accordance to the ISO 9001 quality system
- 0.55 – 30 kW in volume production to catalogue standard or custom-build specifications
- UL Recognized (cULus) and CE marks, acceptable for use in the United States, Canada and other jurisdictions which recognize these approvals

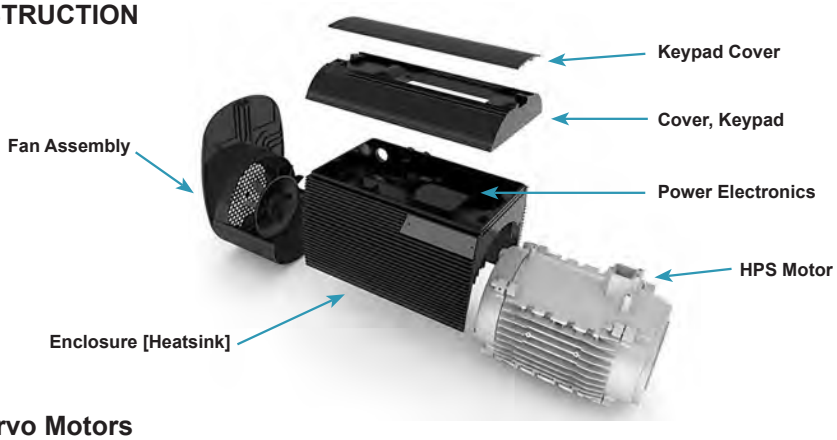
HPI Series – High Performance Integrated Permanent Magnet AC Motors with Frequency Drive

The HPI Series combines each high performance HPS Series permanent magnet motor with a matched variable frequency drives (VFD) design to produce seamlessly integrated motor and drive solutions. The onboard Lafert drive technology and control interface, deliver optimized system performance and energy efficiency without costly and time-consuming integration of discrete motor and drive systems.

Standard HPI Features Include:
- Space and weight savings up to 50% relative to equivalent EISA Premium Efficient Motors
- Includes IE4 Super Premium Efficient HPS Series Motor
- Design eliminates external frequency drive and enclosure
- High Performance sensorless AC vector control
- Onboard I/O (4 DIN, 1 AIN, 1 Relay, 1 fIN) and communications (Modbus, Serial, CANopen)
- Optimized for HVACR applications

At present the HPI Series is made available to equipment manufacturers in mass distribution. Lafert offers HPI Series products with the option and capability to customize the control, electrical and mechanical design to customer specification. Please visit the Lafert North America website or contact our Inside Sales staff for more information.

HPI SERIES – CONSTRUCTION



Lafert Brushless Servo Motors

The industry-leading Lafert expertise in production and design of permanent magnet motor technology has its foundation in twenty-five years of brushless servo motor manufacturing. The complete range of AC servo motors are manufactured to customer specifications at our Italian facility, for applications such as material handling, packaging, precision manufacture and robot applications.

Standard AC Brushless Servo Motor Features and Options:
- Standard range includes rated torque (0.25 - 390+ Nm) and speed (0 - 6000+ rpm)
- Available sensorless or with resolver, absolute or incremental encoder, synchro
- High overload, dynamic performance, power density
- Forced ventilation (fan cooled) and Brake Motor executions
- High torque / low speed “pancake” design for direct-drive applications
- Standard or optional marks and approvals include CE, UL and ATEX (hazardous location)

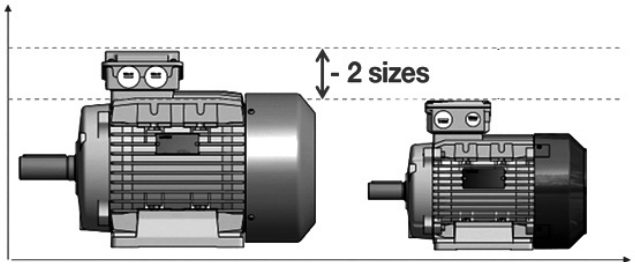
Lafert North America provides replacement support for current and legacy Lafert brushless servo motors. Please contact one of our Distributors or Inside Sales Representatives for more information.

HPS Series – High Performance Stand Alone Permanent Magnet AC Motors

IE4 Efficient Motor Solution for HVAC and Demanding Applications

- Standard range covers rated power (0.55 – 30 kW) and speeds (1500, 1800, 3000, 3600, 4500 RPM)
- Surface mount Permanent Magnet AC Synchronous Motor Design
- Broad power range within (4) IEC Frame Sizes: 71, 90, 112, 132
- IE4 energy efficiency (or better) according to IEC 60034-30-1
- Upgraded DE, NDE bearings to accommodate increased power density
- Onboard thermal protection – (3) 155C PTC thermistor
- Class F (155C) insulation, Class B (80C) thermal rise*
- Foot (IM B3) or flange (IM B5, IM B14) mounting (feet are removable)
- IP55 environmental rating
- Totally enclosed fan cooled (TEFC)
- Standard sensorless execution

* Class B thermal rise may not apply to all models



AC motor size 112 HPS motor size 90

Notes:
HPS Series motors require a frequency drive which supports synchronous motor control to start/run and cannot be started across-the-line. Most recognised manufacturers of frequency drives offer drive products suitable for use with the HPS Series.

See page 24 for dimensional drawing

HPS - STAND ALONE MOTOR 3600 RPM - 400V

Part Number	Rated Power Pn kW	Rated Torque Mn Nm	Peak Torque Mpk Nm	Voltage Constant Ke Vs	Torque Constant Speed Kt Nm/A	BEMF at Rated Speed En Vrs	Rated Current In Arms	Efficiency HPS η %	Weight lbs	List Price $
HPS71 3600 16	0.75	2.0	6.0	0.73	1.26	272	1.6	90.0%	11	805.00
HPS71 3600 23	1.1	2.9	8.8	0.73	1.26	272	2.3	90.9%	12	907.00
HPS71 3600 32	1.5	4.0	11.9	0.73	1.26	272	3.2	91.6%	14	985.00
HPS71 3600 46	2.2	5.8	17.5	0.73	1.26	272	4.6	91.8%	15	1,096.00
HPS90 3600 46	2.2	5.8	17.5	0.73	1.26	272	4.6	91.7%	23	1,192.00
HPS90 3600 64	3.0	8.0	23.9	0.73	1.26	272	6.3	92.4%	27	1,361.00
HPS90 3600 84	4.0	10.6	31.8	0.73	1.26	272	8.4	92.8%	31	1,462.00
HPS90 3600 116	5.5	14.6	43.8	0.73	1.26	272	11.6	93.3%	36	1,773.00
HPS112 3600 116	5.5	14.6	43.8	0.73	1.26	272	11.6	93.2%	51	2,064.00
HPS112 3600 158	7.5	19.9	59.7	0.73	1.26	272	15.8	93.9%	58	2,264.00
HPS112 3600 232	11.0	29.2	87.5	0.73	1.26	272	23.2	94.3%	67	2,524.00
HPS112 3600 317	15.0	39.8	119.4	0.73	1.26	272	31.7	94.5%	73	3,238.00
HPS132 3600 317	15.0	39.8	119.4	0.73	1.26	272	31.7	94.2%	113	4,648.00
HPS132 3600 391	18.5	49.1	147.2	0.73	1.26	272	39.1	94.6%	128	5,627.00
HPS132 3600 465	22.0	58.4	175.1	0.73	1.26	272	46.5	95.0%	144	6,450.00
HPS132 3600 634	30.0	79.6	238.7	0.73	1.26	272	63.4	95.1%	160	6,798.00

HPS - STAND ALONE MOTOR 1800 RPM - 400V

Part Number	Rated Power Pn kW	Rated Torque Mn Nm	Peak Torque Mpk Nm	Voltage Constant Ke Vs	Torque Constant Speed Kt Nm/A	BEMF at Rated Speed En Vrs	Rated Current In Arms	Efficiency HPS η %	Weight lbs	List Price $
HPS71 1800 12	0.55	2.9	8.8	1.45	2.5	272	1.2	87.7%	11	805.00
HPS71 1800 16	0.75	4.0	11.9	1.45	2.5	272	1.6	88.4%	12	907.00
HPS71 1800 23	1.1	5.8	17.5	1.45	2.5	272	2.3	88.9%	14	985.00
HPS71 1800 32	1.5	8.0	23.9	1.45	2.5	272	3.2	89.4%	16	1,096.00
HPS90 1800 32	1.5	8.0	23.9	1.45	2.5	272	3.2	91.2%	23	1,192.00
HPS90 1800 46	2.2	11.7	35.0	1.45	2.5	272	4.6	91.6%	27	1,361.00
HPS90 1800 64	3.0	15.9	47.7	1.45	2.5	272	6.3	92.1%	31	1,462.00
HPS90 1800 84	4.0	21.2	63.7	1.45	2.5	272	8.4	92.4%	38	1,773.00
HPS112 1800 84	4.0	21.2	63.7	1.45	2.5	272	8.4	92.5%	51	2,064.00
HPS112 1800 116	5.5	29.2	87.5	1.45	2.5	272	11.6	92.6%	58	2,264.00
HPS112 1800 158	7.5	39.8	119.4	1.45	2.5	272	15.8	93.3%	67	2,524.00
HPS112 1800 232	11.0	58.4	175.1	1.45	2.5	272	23.2	94.0%	73	3,238.00
HPS132 1800 232	11.0	58.4	175.1	1.45	2.5	272	23.2	94.2%	113	4,648.00
HPS132 1800 317	15.0	79.6	238.7	1.45	2.5	272	31.7	94.6%	128	5,627.00
HPS132 1800 391	18.5	98.1	294.4	1.45	2.5	272	39.1	94.9%	144	6,450.00

LAFERT NORTHAMERICA

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 output shaft is standard • Squirrel Cage • Class F • IP55 • IEC - CEI - UNEL MEC

AMPH Motors (cURus approved) - LAB (CSA Approved) are Cast based/ non removable - (UL recognized are class 'B') • Compliant with EISA regulations

LAB = 10:1 (Constant Torque) Turn Down • PTC's overload protection included on 180 frames and higher

Higher turn down (Constant Torque) - Please inquire

See pages 26 - 29 for dimensional drawings (for frames 90 to 160L)

See page 29 for LAB cast iron dimensional drawings (for frames 132 to 315L)

2 POLE - 3600 RPM

Part Number		Output Power kW	HP	Speed Min^{-1}	Torque Nm	EFF. 100%	Full Load Amps 460 V	575 V	Weight (lbs)	List Price
AMPH 80Z AA2	9L	0.75	1	3525	2.0	85.0	1.5	1.2	21	677.00
AMPH 80Z BA2	9L	1.1	1.5	3490	3.0	85.4	2.0	1.6	25	741.00
AMPH 80Z CA2	9L	1.5	2	3460	4.1	85.5	2.8	2.2	30	765.00
AMPH 90S AA2 ◉	9L	1.5	2	3515	4.1	85.5	2.8	2.2	37	860.00
AMPH 90L BA2 ◉	9L	2.2	3	3480	6.0	86.5	3.8	3.0	41	1,127.00
AMPH 90L DA2 ◉	9L	3	4	3510	8.2	88.5	5.3	4.2	40	1,166.00
AMPH 100L AA2	9L	3	4	3515	8.2	88.5	4.9	3.9	52	1,239.00
AMPH 100L CA2	9L	4	5.5	3530	10.8	88.5	6.7	5.9	59	1,457.00
AMPH 112M BA2	9L	4	5.5	3520	10.9	88.5	6.2	5.0	61	1,596.00
AMPH 112M CA2	9L	5.5	7.5	3530	14.9	89.5	8.9	7.1	78	2,003.00
AMPH 112M DA2	9L	7.5	10	3530	20.3	90.2	11.9	9.5	81	2,006.00
AMPH 132S ZA2	9L	5.5	7.5	3540	14.8	89.5	8.8	7.0	93	2,101.00
AMPH 132S TA2	9L	7.5	10	3540	20.2	90.2	12.0	9.6	106	2,620.00
AMPH 132M TA2	9L	9.2	12.4	3545	24.8	90.2	14.5	11.6	111	2,975.00
AMPH 132M RA2	9L	11	15	3535	29.7	91.0	17.7	14.2	133	3,208.00
AMPH 132M ZA2	9L	15	20	3530	40.6	91.0	23.5	18.8	150	3,794.00
AMPH 160M YA2	9L	11	15	3550	29.6	91.0	17.0	13.6	199	3,329.00
AMPH 160M ZA2	9L	15	20	3555	40.3	91.0	23.4	18.7	203	4,383.00
AMPH 160L ZA2	9L	18.5	25	3555	49.7	91.7	31.0	24.8	239	5,185.00
AMPH 160L TA2	9L	22	30	3540	59.3	91.7	35.8	28.6	239	5,678.00
LAB 180M E2		22	30	3570	60.5	91.7	34.1	28.1	400	4,604.00
LAB 200L D2		30	40	3570	79.9	92.4	45.1	36.7	503	6,584.00
LAB 200L E2		37	50	3570	99.3	93.0	56.0	44.8	553	7,183.00
LAB 225M E2		45	60	3570	120.2	93.6	66.8	54.6	710	8,910.00
LAB 250M E2		55	75	3570	149.1	93.6	83.5	68.2	904	11,076.00
LAB 280S D2		75	100	3570	200.7	94.1	110.7	88.4	1211	13,515.00
LAB 280M E2		93	125	3570	241.3	95.0	137.0	109.5	1334	15,355.00
LAB 315S D2		110	150	3580	298.3	95.0	164.5	131.4	1500	27,702.00
LAB 315L D2		150	200	3580	340.0	95.4	218.4	174.5	2154	30,043.00

4 POLE - 1800 RPM

Part Number		Output Power kW	HP	Speed Min^{-1}	Torque Nm	EFF. 100%	Full Load Amps 460 V	575 V	Weight (lbs)	List Price
AMPH 80Z AA4	9L	0.75	1	1740	4.1	85.5	1.45	1.2	24	809.00
AMPH 90S AA4 ◉	9L	1.1	1.5	1745	6.0	86.5	2.2	1.8	42	838.00
AMPH 90L BA4 ◉	9L	1.5	2	1735	8.3	86.5	2.9	2.3	42	949.00
AMPH 90L CA4 ◉	9L	1.8	2.4	1730	9.9	86.5	3.8	3.0	42	1,080.00
AMPH 100L AA4 *	9L	2.2	3	1760	11.9	89.5	3.8	3.0	55	1,258.00
AMPH 100L BA4 *	9L	3	4	1765	16.2	89.5	5.3	4.2	62	1,442.00
AMPH 112M BA4	9L	4	5.5	1760	21.7	89.5	6.9	5.5	79	1,614.00
AMPH 132S ZA4	9L	5.5	7.5	1760	29.9	91.7	9.3	7.4	120	2,258.00
AMPH 132M ZA4	9L	7.5	10	1760	40.7	91.7	13.0	10.4	133	2,579.00
AMPH 132M TA4	9L	9.2	12.4	1760	49.9	91.7	17.2	13.8	156	3,056.00
AMPH 160M ZA4	9L	11	15	1770	59.3	92.4	18.7	15.0	230	3,946.00
AMPH 160L ZA4	9L	15	20	1765	81.2	93.0	26.3	21.0	272	5,121.00
LAB 180M D4		18.5	25	1780	100.0	93.6	29.2	23.9	406	4,494.00
LAB 180L E4		22	30	1780	119.9	93.6	37.6	28.6	424	4,804.00
LAB 200L D4		30	40	1780	159.9	94.1	49.8	37.9	569	6,180.00
LAB 225S D4		37	50	1770	197.9	94.5	57.7	47.3	680	7,578.00
LAB 225M E4		45	60	1770	196.6	95.0	68.8	55.1	737	9,168.00
LAB 250M E4		55	75	1770	294.2	95.4	86.7	68.6	913	11,330.00
LAB 280S D4		75	100	1770	399.9	95.4	115.6	91.4	1277	14,476.00
LAB 280M E4		93	125	1770	479.9	95.4	144.5	114.3	1400	16,177.00
LAB 315S D4		110	150	1770	587.1	95.8	174.7	136.5	1881	27,702.00
LAB 315L D4		150	200	1770	799.9	96.2	232.2	181.3	2221	30,043.00

◉ S/L dual set of holes on base (actual frame is 90L)
* Special flanges required

9L indicates 9 lead hook up at 230/460V (YY/Y connection) except for 160L - 2 POLE △△/△

Select sizes are available with dual mounting holes on the base.

3-Phase: 60Hz standard

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 output shaft is standard • Squirrel Cage • Class F • IP55 • IEC - CEI - UNEL MEC - HE/LAB Motors (CSA Approved)

AMH motors (cURus approved) - (UL recognized are class 'B') • Compliant with EPACT regulations and are NRCAN approved

LAB = 10:1 (Constant Torque) Turn Down

LAB motors meet ExNa

See pages 26 to 29 for dimensional drawings

6 POLE - 1200 RPM IE2 Design H - High Torque

Part Number		HP	Speed Min^{-1}	EEF 100%	Full Load Amps 460 V	Full Load Amps 575 V	Weight (lbs)	List Price $
AMH 90S AA6 ◉	9L	1.00	1145	80.0	2.0	1.6	40	883.00
AMH 90L BA6 ◉	9L	1.20	1150	80.0	2.5	2.0	41	1,024.00
AMH 112M CA6	9L	3.00	1175	87.5	5.2	4.2	76	1,509.00
AMH 132S YA6	9L	4.00	1175	83.5	6.6	4.8	93	1,975.00
AMH 132M YA6	9L	5.50	1170	87.5	9.2	7.4	101	2,227.00
AMH 132M TA6	9L	7.50	1180	89.5	14.5	11.6	106	2,715.00
AMH 160M ZA6	9L	10.00	1170	89.5	13.7	11.0	185	3,313.00
AMH 160L TA6		15.00	1170	90.2	19.2	15.6	232	5,167.00

6 POLE - 1200 RPM IE3 (Premium)

Part Number	HP	Speed Min^{-1}	Torque Nm	EEF 100%	Full Load Amps 460 V	Full Load Amps 575 V	Weight (lbs)	List Price $
LAB 180L D6	20.0	1160	121.4	91.7	25.6	20.9	408	4,928.00
LAB 200L D6	25.0	1160	147.8	93.0	31.5	25.8	543	6,230.00
LAB 200L E6	30.0	1160	176.3	93.0	37.8	31.0	565	6,770.00
LAB 225M D6	40.0	1160	240.0	94.1	49.8	39.9	710	8,787.00
LAB 250M E6	50.0	1160	299.6	94.1	62.3	49.8	843	10,776.00
LAB 280S D6	60.0	1160	360.7	94.5	74.4	58.1	1092	13,802.00
LAB 280M E6	75.0	1160	442.0	94.5	93	72.6	1334	15,364.00
LAB 315L D6	150.0	1170	598.0	95.8	174.7	139.4	2181	32,820.00

8 POLE - 900 RPM IE3 (Premium)

Part Number	HP	Speed Min^{-1}	Torque Nm	EEF 100%	Full Load Amps 460 V	Full Load Amps 575 V	Weight (lbs)	List Price $
LAB 100L C8	1.0	870	8.1	75.5	1.9	1.6	48	1,260.00
LAB 100L S8	1.5	870	12.2	78.5	2.7	2.2	52	1,504.00
LAB 112M C8	2.0	870	16.3	84.0	3.3	2.6	76	1,516.00
LAB 132M ZA8	3.0	870	24.1	85.5	4.7	3.8	174	1,859.00
LAB 132M TA8	4.0	870	32.5	85.5	5.4	4.3	178	2,316.00
LAB 160M YA8	5.0	875	40.7	85.5	7.6	6.1	250	3,087.00
LAB 160M ZA8	7.5	875	59.9	85.5	11.6	9.1	280	3,453.00
LAB 160L ZA8	10.0	875	81.9	88.5	14.8	11.8	335	4,003.00
LAB 180L E8	15.0	870	120.8	88.5	21.4	17.2	426	4,853.00
LAB 200L E8	20.0	870	164.6	89.5	27.2	22.3	465	6,717.00
LAB 200L D8	25.0	880	200.7	89.5	34.9	27.9	498	7,418.00
LAB 225S E8	30.0	880	238.8	91.0	40.6	32.5	629	8,940.00
LAB 225M E8	40.0	880	225.4	91.0	54.2	43.4	710	9,879.00

◉ 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 △△/△

Select sizes are available with dual mounting holes on the base

AMPH frame sizes from 71 to 160 have removable feet.
LAB cast iron construction has non 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 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 26 to 28 for dimensional drawings

2 POLE - 3600 RPM

Part Number	HP	Full Load Amps 460 V	Full Load Amps 575 V	Speed Min^{-1}	Weight (lbs)	List Price $
ST 56 S2	0.18	0.40	0.29	3300	7	373.00
ST 63 C2	0.25	0.60	0.44	3120	8	375.00
ST 63 S2	0.35	0.80	0.58	3310	9	381.00
ST 63 L2	0.50	1.2	0.87	3265	10	393.00
ST 71 C2	0.50	1.0	0.73	3300	13	399.00
ST 71 S2	0.75	1.5	1.1	3380	14	404.00
ST 71 L2	1.00	1.9	1.4	3320	16	454.00
ST 80 C2	1.00	2.0	1.5	3410	18	463.00
ST 80 S2	1.50	2.7	2.0	3400	21	525.00
ST 80 L2	2.00	3.4	2.5	3400	24	581.00
ST 100L S2*	5.50	8.2	6.3	3450	50	1,126.00
ST 100L T2*	7.50	11	8.3	3430	71	1,197.00

4 POLE - 1800 RPM

Part Number	HP	Full Load Amps 460 V	Full Load Amps 575 V	Speed Min^{-1}	Weight (lbs)	List Price $
ST 56 S4	0.12	0.40	0.29	1560	6	373.00
ST 63 C4	0.18	0.50	0.36	1630	7	375.00
ST 63 S4	0.25	0.70	0.51	1590	9	379.00
ST 63 A4	0.33	0.80	0.58	1630	9	381.00
ST 71 C4	0.35	1.0	0.73	1600	13	392.00
ST 71 S4	0.50	1.3	0.91	1650	13	397.00
AM 71Z CA4	0.75	1.6	1.2	1660	16	445.00
ST 80 C4	0.75	1.7	1.2	1680	18	450.00
ST 80 S4	1.00	2.3	1.7	1690	20	484.00
AM 80Z CA4	1.50	2.9	2.1	1660	24	569.00
ST 100L S4*	4.00	6.9	5.0	1700	49	984.00
ST 100L /4*	5.50	8.7	6.5	1700	55	1,045.00

6 POLE - 1200 RPM

Part Number	HP	Full Load Amps 460 V	Full Load Amps 575 V	Speed Min^{-1}	Weight (lbs)	List Price $
ST 63 C6	0.12	0.47	0.36	980	10	588.00
ST 71 C6	0.25	0.85	0.62	1050	14	608.00
ST 71 S6	0.35	1.1	0.8	1020	15	615.00
ST 80 C6	0.50	1.05	0.91	1090	18	631.00
ST 80 S6	0.75	1.8	1.3	1090	21	684.00
6-POLE: 1200 RPM IEC Design H - High Torque						
ST 100L C6* 9L	2.00	4.5	3.6	1150	39	930.00
ST 100L S6* 9L	2.50	4.7	3.6	1150	48	1,076.00

8 POLE - 900 RPM

Part Number	HP	Full Load Amps 460 V	Full Load Amps 575 V	Speed Min^{-1}	Weight (lbs)	List Price $
ST 71 C8	0.20	.94	0.68	760	13	714.00
ST 80 C8	0.35	1.2	0.87	810	18	876.00
ST 90S C8 ◉	0.50	1.8	1.3	810	25	965.00
ST 90L S8 ◉	0.75	2.7	2	810	33	1,084.00
ST 100L C8*	1.00	2.8	1.9	820	39	1,260.00
ST 100L S8*	1.50	4	2.9	830	50	1,504.00

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

9L indicates 9 lead hook up at 230/460V (YY/Y connection)

Frame sizes from 71 to 160 have removable feet.

3-Phase: 60Hz standard

1.0 Service Factor (SF) • Available in 230V or 460V or 575V • Constant torque • Threaded hole output shaft • TEFC

Squirrel Cage • Class F • IP55 - IEC - CEI - UNEL MEC - CSA Approved - cURus approved - (UL recognized are Class 'B')

See pages 26 to 28 for dimensional drawings (For frames 63 to 160L)

See page 29 for dimensional drawings (For frames 180 and larger - same as LAB 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	803.00
FB 71 C2/4	0.60/0.40	17	948.00
FB 80 C2/4	0.80/0.60	19	1,068.00
FB 80 S2/4	1.00/0.75	25	1,138.00
FB 80 L2/4	1.50/1.10	32	1,206.00
FB 90L C2/4 ◉	2.10/1.60	34	1,403.00
FB 90L S2/4 ◉	2.60/1.90	38	1,529.00
FB 100L C2/4	3.40/2.50	47	1,819.00
FB 100L L2/4	4.00/3.00	50	1,843.00
FB 100L S2/4	4.50/3.50	51	2,140.00
FB 112M C2/4	6.00/4.50	80	2,958.00
FB 132S ZA2/4	8.00/6.40	101	3,981.00
FB 132M ZA2/4	11.00/9.00	121	4,654.00
FB 160M ZA2/4	14.50/11.70	192	7,218.00
FB 160L ZA2/4	22.50/17.00	225	10,987.00
FB 180M ZA2/4	26.50/20.00	287	12,006.00
FB 180L ZA2/4	31.00/24.00	309	14,246.00
FB 200L P2/4	39.00/32.50	507	19,182.00
FB 200L R2/4	45.00/35.00	562	20,305.00
FB 225S P2/4	52.00/40.00	716	23,483.00
FB 225M P2/4	63.00/46.00	728	26,527.00
FB 250M P2/4	79.00.68.00	1025	34,788.00
FB 280S V2/4	98.00/82.00	1279	47,196.00
FB 280M V2/4	114.00/95.00	1367	56,324.00
FB 315S ZE2/4	156.00/116.00	1896	67,634.00
FB 315M ZE2/4	170.00/136.00	2073	83,068.00
FB 315L ZE2/4	204.00/163.00	2470	89,591.00

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

Part Number	HP	Weight (lbs)	List Price $
FB 71 C4/8	0.35/0.18	15	1,116.00
FB 80 C4/8	0.50/0.25	17	1,241.00
FB 80 S4/8	0.70/0.35	20	1,309.00
FB 90S C4/8 ◉	1.00/0.50	30	1,450.00
FB 90L S4/8 ◉	1.30/0.70	35	1,638.00
FB 100L C4/8	1.90/0.90	48	1,819.00
FB 112M C4/8	2.40/1.40	70	2,368.00
FB 112M S4/8	3.00/1.80	75	2,797.00
FB 132S ZA4/8	5.20/2.80	95	4,073.00
FB 132M ZA4/8	6.50/3.50	119	4,662.00
FB 132M L4/8	7.50/4.00	135	5,047.00
FB 160M C4/8	8.50/5.50	165	5,913.00
FB 160M YA4/8	10.00/5.50	185	7,189.00
FB 160M ZA4/8	12.20/7.00	198	9,095.00
FB 160L ZA4/8	17.00/10.00	220	10,912.00
FB 180L ZA4/8	24.00/15.00	331	15,517.00
FB 200L P4/8	31.00/20.00	485	19,697.00
FB 200LR4/8	39.00/24.00	562	24,304.00
FB 225S P4/8	43.00/28.00	684	26,562.00
FB225M P4/8	50.00/35.00	695	31,057.00
FB 250M P4/8	63.00/43.00	1080	38,706.00
FB 280S V4/8	82.00/60.00	1279	49,508.00
FB 280M V4/8	95.00/71.00	1367	61,892.00
FB 315S ZE4/8	136.00/82.00	1742	76,074.00
FB315M ZE4/8	163.00/100.00	1896	96,780.00
FB 315L ZE4/8	200.00/120.00	2183	117,033.00

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

Part Number	HP	Weight (lbs)	List Price $
FB 71 C4/6	0.35/0.25	16	1,224.00
FB 80 A4/6	0.50/0.35	18	1,414.00
FB 80 C4/6	0.75/0.50	22	1,504.00
FB 90L C4/6 ◉	1.20/0.80	36	1,652.00
FB 100L L4/6	1.50/1.00	54	1,923.00
FB 100L C4/6	2.00/1.20	73	2,122.00
FB 112M C4/6	2.50/1.80	74	2,648.00
FB 112M S4/6	3.50/2.50	81	3,261.00
FB 132S ZA4/6	4.00/3.00	95	3,660.00
FB 132M ZA4/6	6.70/4.30	119	7,146.00
FB 160M YA4/6	10.00/6.80	185	7,867.00
FB 160M ZA4/6	12.20/8.00	198	8,946.00
FB 160L ZA4/6	16.00/11.00	220	12,259.00
FB180L ZA4/6	22.50/15.00	331	15,947.00

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

Part Number	HP	Weight (lbs)	List Price $
FB 71 C6/8	0.30/0.15	16	1,277.00
FB 80 C6/8	0.50/0.25	21	1,688.00
FB 90L C6/8 ◉	0.75/0.40	36	2,150.00
FB 100L C6/8	1.00/0.60	52	2,319.00
FB 112M C6/8	1.30/0.90	70	2,787.00
FB 112M S6/8	2.00/1.00	80	3,168.00
FB 132S ZA6/8	2.20/1.80	95	4,251.00
FB 132M ZA6/8	3.90/3.00	119	5,479.00
FB 160M YA6/8	5.50/4.00	185	7,137.00
FB 160M ZA6/8	7.50/5.50	198	9,064.00
FB 160L ZA6/8	10.00/7.50	220	10,047.00
FB 180L ZA6/8	15.00/11.50	331	14,402.00

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)

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

Part Number	HP	Weight (lbs)	List Price $
FB 80 C2/8	0.50/0.15	21	1,702.00
FB 80 S2/8	0.75/0.15	26	1,834.00
FB 90L C2/8 ◉	1.00/0.25	35	1,987.00
FB 90L S2/8	1.500/0.40	43	2,175.00
FB 100L S2/8	2.00/0.50	45	2,354.00
FB 100L L2/8	2.50/0.60	45	2,764.00
FB 112M C2/8	2.50/1.45	78	3,261.00
FB 112M L2/8	3.00/0.75	79	3,498.00
FB 132S C2/8	4.00/1.00	81	4,256.00
FB 132M S2/8	6.00/1.50	94	5,481.00

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

1.15 Service Factor (SF) - Available in 333/575V - Brake voltage same as motor voltage

TEFC - Squirrel Cage - Class F - IP54 - IEC - CEI - UNEL MEC - CSA Approved - (UL recognized are Class 'B') - S3 60% Duty Cycle

AMBY series available with DC brake coil

See page 30 for dimensional drawings

2 POLE - 3600 RPM

Part Number	HP	Full Load Amps 575 V	Speed Min^{-1}	Max Brake Torque (Nm)	Weight (lbs)	List Price $
AMBZ 63 ZAA2	0.25	0.44	3120	3.5	12	1,262.00
AMBZ 63 ZBA2	0.33	0.58	3310	3.5	13	1,248.00
AMBZ 63 ZCA2	0.50	0.87	3265	3.5	14	1,343.00
AMBZ 71 ZAA2	0.50	0.73	3300	3.5	18	1,323.00
AMBZ 71 ZBA2	0.75	1.1	3380	7.5	20	1,369.00
AMBZ 71 ZCA2	1.00	1.4	3320	7.5	22	1,467.00
AMBZ 80 ZAA2	1.00	1.5	3410	7.5	27	1,577.00
AMBZ 80 ZBA2	1.50	2.0	3400	15	32	1,644.00
AMBZ 80 ZCA2	2.00	2.5	3400	15	36	1,727.00
AMBZ 90S AA2	2.00	2.1	3410	15	41	1,955.00
AMBZ 90S BA2	2.50	2.5	3420	15	41	2,074.00
AMBZ 90L CA2	3.00	3.6	3420	15	48	2,156.00
AMBZ 90L DA2	4.00	4.5	3445	40	60	2,274.00
AMBZ 100L AA2	4.00	4.1	3445	40	63	2,523.00
AMBZ 100L BA2	5.50	5.6	3380	40	64	2,778.00
AMBZ 100L CA2	7.50	7.3	3400	40	78	2,961.00
AMBZ 112M AA2	5.50	5.9	3430	40	76	3,143.00
AMBZ 112M BA2	7.50	7.3	3460	40	83	3,443.00
AMBZ 112M CA2	10.00	10.0	3460	75	106	3,648.00
AMBZ 132S YA2	7.50	7.6	3480	75	124	4,750.00
AMBZ 132S ZA2	10.00	10.6	3450	75	137	5,246.00
AMBZ 132M ZA2	12.50	12.1	3510	75	148	5,857.00
AMBZ 132M RA2	15.00	15.2	3455	75	159	6,119.00
AMBZ 132M TA2	20.00	20.0	3504	150	183	6,533.00
AMBZ 160M VA2	15.00	16.5	3530	150	234	8,051.00
AMBZ 160M XA2	20.00	19.3	3530	150	271	8,803.00
AMBZ 160L XA2	25.00	25.7	3540	150	302	9,840.00
AMBZ 160L RA2	30.00	27.1	3530	150	302	11,460.00

6 POLE - 1200 RPM

Part Number	HP	Full Load Amps 575 V	Speed Min^{-1}	Max Brake Torque (Nm)	Weight (lbs)	List Price $
AMBZ 71 ZAA6	0.25	0.62	1050	7.5	20	1,422.00
AMBZ 71 ZBA6	0.33	0.80	1090	7.5	21	1,462.00
AMBZ 80 ZAA6	0.50	0.91	1090	7.5	26	1,661.00
AMBZ 80 ZBA6	0.75	1.3	1090	15	32	1,759.00
AMBZ 90S AA6	1.00	1.7	1140	15	39	2,025.00
AMBZ 90L BA6	1.50	2.5	1150	40	52	2,203.00
AMBZ 100L AA6	2.00	3.6	1150	40	59	2,553.00
AMBZ 100L BA6	2.50	3.6	1150	40	69	2,745.00
AMBZ 112M AA6	3.00	4.1	1150	40	80	3,270.00
AMBZ 112M CA6	4.00	4.6	1150	75	117	3,791.00
AMBZ 132S ZA6	4.00	5.2	1150	75	124	4,828.00
AMBZ 132M YA6	5.50	7.0	1150	75	137	5,246.00
AMBZ 132M ZA6	7.50	9.4	1150	150	177	5,944.00
AMBZ 160M ZA6	10.00	11.6	1150	150	269	8,297.00
AMBZ 160L ZA6	15.00	15.6	1150	150	315	9,613.00

4 POLE - 1800 RPM

Part Number	HP	Full Load Amps 575 V	Speed Min^{-1}	Max Brake Torque (Nm)	Weight (lbs)	List Price $
AMBZ 63 ZAA4	0.16	0.36	1630	3.5	12	1,192.00
AMBZ 63 ZBA4	0.25	0.51	1590	3.5	13	1,240.00
AMBZ 63 ZCA4	0.33	0.58	1630	3.5	14	1,283.00
AMBZ 71 ZAA4	0.33	0.73	1600	3.5	17	1,315.00
AMBZ 71 ZBA4	0.50	0.91	1650	7.5	19	1,339.00
AMBZ 71 ZCA4	0.75	1.2	1650	7.5	22	1,381.00
AMBZ 80 ZAA4	0.75	1.2	1680	7.5	27	1,508.00
AMBZ 80 ZBA4	1.00	1.7	1690	15	32	1,574.00
AMBZ 80 ZCA4	1.50	2.0	1660	15	34	1,688.00
AMBZ 90S AA4	1.50	2.1	1680	15	39	1,840.00
AMBZ 90L BA4	2.00	2.7	1656	40	48	1,967.00
AMBZ 90L CA4	2.50	3.1	1680	40	51	2,149.00
AMBZ 90L DA4	3.00	3.9	1680	40	56	2,214.00
AMBZ 100L AA4	3.00	3.5	1690	40	64	2,352.00
AMBZ 100L BA4	4.00	5.0	1700	40	70	2,563.00
AMBZ 100L CA4	5.50	6.4	1680	75	85	2,820.00
AMBZ 112M AA4	5.50	5.7	1720	75	97	3,210.00
AMBZ 112M BA4	7.50	8.0	1725	75	97	3,378.00
AMBZ 132S ZA4	7.50	7.8	1715	75	135	4,697.00
AMBZ 132M ZA4	10.00	10.6	1730	75	154	5,242.00
AMBZ 132M RA4	12.50	10.9	1750	150	196	5,519.00
AMBZ 132M TA4	15.00	16.0	1728	150	196	6,508.00
AMBZ 160M XA4	15.00	15.3	1750	150	260	8,059.00
AMBZ 160L XA4	20.00	19.6	1750	150	300	8,881.00
AMBZ 160L ZA4	25.00	26.6	1750	250	344	11,334.00
AMBZ 160L RA4	30.00	32.0	1750	250	340	11,788.00

8 POLE - 900 RPM

Part Number	HP	Full Load Amps 575 V	Speed Min^{-1}	Max Brake Torque (Nm)	Weight (lbs)	List Price $
AMBZ 71 ZAA8	0.16	0.65	760	7.5	20	1,780.00
AMBZ 80 ZAA8	0.33	0.87	810	7.5	26	1,908.00
AMBZ 90S AA8	0.50	1.3	810	15	38	2,300.00
AMBZ 90L BA8	0.75	2.0	810	15	46	2,429.00
AMBZ 100L AA8	1.00	1.9	820	40	59	2,852.00
AMBZ 100L BA8	1.50	2.9	830	40	70	3,161.00
AMBZ 112M AA8	2.00	3.5	830	40	100	3,720.00
AMBZ 132S ZA8	3.00	4.2	850	75	143	5,337.00
AMBZ 132M ZA8	4.00	5.7	860	150	163	5,850.00
AMBZ 160M YA8	5.50	6.5	860	150	229	8,291.00
AMBZ 160M ZA8	7.50	8.5	860	150	267	8,867.00
AMBZ 160L ZA8	10.00	11.0	850	150	313	9,851.00

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

1.15 Service Factor (SF) • Available in 208 230V/460V or 333/575V • Brake voltage same as motor voltage

Adjustable brake torque • Manual Release • TEFC • Squirrel Cage • Class F • IP54 • S3 60% Duty Cycle

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

See pages 30 for dimensional drawings

2 POLE - 3600 RPM

Part Number	HP	Full Load Amps 460 V	Full Load Amps 575 V	Speed Min^{-1}	Max Brake Torque (Nm)	Weight (lbs)	List Price $
AAF 63 C2	0.25	0.60	0.44	3120	4.9	17	1,262.00
AAF 63 S2	0.35	0.80	0.58	3310	4.9	18	1,298.00
AAF 63 L2	0.50	1.2	0.87	3265	4.9	19	1,343.00
AAF 71 C2	0.50	1.0	0.73	3300	10.8	29	1,323.00
AAF 71 S2	0.75	1.5	1.1	3380	10.8	30	1,369.00
AAF 71 L2	1.00	1.9	1.4	3320	10.8	32	1,467.00
AAF 80 C2	1.00	2.0	1.5	3410	19.6	43	1,577.00
AAF 80 S2	1.50	2.7	2.0	3400	19.6	45	1,644.00
AAF 80 L2	2.00	3.4	2.5	3400	19.6	47	1,727.00
AAF 90S C2 ◉	2.00	2.9	2.1	3410	34.3	57	1,955.00
AAF 90S L2 ◉	2.50	3.4	2.5	3420	34.3	59	2,074.00
AAF 90L S2 ◉	3.00	4.4	3.6	3420	34.3	64	2,156.00
AAF 100L C2	4.00	5.0	4.1	3445	54.0	73	2,523.00
AAF 100L S2	5.50	6.8	5.6	3380	54.0	80	2,778.00
AAF 112M C2	5.50	7.1	5.9	3430	88.3	112	3,143.00
AAF 112M S2	7.50	8.8	7.3	3460	88.3	119	3,443.00
AAF 132S L2	7.50	9.2	7.6	3480	166.8	149	4,750.00
AAF 132S C2	10.00	12.8	10.6	3450	166.8	162	5,246.00
AAF 132M S2	12.50	14.7	12.1	3510	166.8	177	5,857.00
AAF 132M A2	15.00	18.4	15.2	3455	166.8	184	6,119.00
AAF 160M C2	15.00	20.0	16.5	3530	264.9	2772	8,051.00
AAF 160M S2	20.00	23.4	19.3	3530	264.9	298	8,803.00
AAF 160L L2	25.00	31.0	25.7	3540	264.9	326	9,840.00

6 POLE - 1200 RPM

Part Number	HP	Full Load Amps 460 V	Full Load Amps 575 V	Speed Min^{-1}	Max Brake Torque (Nm)	Weight (lbs)	List Price $
AAF 63 C6	0.12	0.47	0.36	980	4.9	19	1,775.00
AAF 71 C6	0.25	0.85	0.62	1050	10.8	30	1,422.00
AAF 71 S6	0.35	1.1	0.80	1020	10.8	31	1,462.00
AAF 80 C6	0.50	1.1	0.91	1090	19.6	37	1,661.00
AAF 80 S6	0.75	1.8	1.3	1190	19.6	40	1,759.00
AAF 90S C6 ◉	1.00	2.0	1.7	1140	34.3	51	2,025.00
AAF 90L S6 ◉	1.50	3.5	2.5	1145	34.3	58	2,203.00
AAF 100L C6	2.00	4.5	3.6	1150	54.0	69	2,553.00
AAF 100L S6	2.50	4.7	3.6	1150	54.0	76	2,745.00
AAF 112M C6	3.00	5.1	4.1	1150	88.3	109	3,270.00
AAF 112M A6	4.00	5.7	4.6	1150	88.3	128	3,791.00
AAF 132S C6	4.00	6.5	5.2	1150	88.3	150	4,828.00
AAF 132M S6	5.50	8.7	7.0	1150	88.3	163	5,246.00
AAF 132M A6	7.50	11.7	9.4	1150	166.8	193	5,944.00
AAF 160M C6	10.00	14.5	11.6	1150	264.9	309	8,297.00
AAF 160L S6	15.00	19.5	15.6	1150	264.9	341	9,613.00

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

NOTE:
- Contact us for replacement brake components
- Special brake voltages available. Please inquire.

4 POLE - 1800 RPM

Part Number	HP	Full Load Amps 460 V	Full Load Amps 575 V	Speed Min^{-1}	Max Brake Torque (Nm)	Weight (lbs)	List Price $
AAF 63 C4	0.18	0.50	0.36	1630	4.9	18	1,194.00
AAF 63 S4	0.25	0.70	0.51	1590	4.9	19	1,240.00
AAF 63 A4	0.33	0.80	0.58	1630	4.9	20	1,283.00
AAF 71 C4	0.35	1.0	0.73	1600	10.8	26	1,311.00
AAF 71 S4	0.50	1.3	0.91	1650	10.8	28	1,339.00
AAF 71 L4	0.70	1.6	1.2	1680	10.8	30	1,381.00
AAF 80 C4	0.75	1.7	1.2	1680	19.6	38	1,508.00
AAF 80 S4	1.0	2.3	1.7	1690	19.6	41	1,574.00
AAF 80 L4	1.30	2.6	1.9	1660	19.6	43	1,688.00
AAF 90S C4	1.50	2.9	2.1	1680	34.3	50	1,840.00
AAF 90L S4	2.0	3.4	2.7	1656	34.3	56	1,967.00
AAF 90L L4	2.50	4.1	3.1	1680	34.3	60	2,149.00
AAF 100L C4	3.0	5.6	3.5	1690	54.0	76	2,352.00
AAF 100L S4	4.0	6.9	5.0	1700	54.0	84	2,563.00
AAF 112M S4	5.50	7.9	5.7	1720	88.3	118	3,210.00
AAF 112M/4	7.50	12.1	8.0	1725	88.3	136	3,378.00
AAF 132S S4	7.50	11.8	7.8	1715	166.8	161	4,697.00
AAF 132M A4	10.0	15.5	10.6	1730	166.8	184	5,242.00
AAF 132M L4	12.50	16.0	10.9	1750	166.8	217	5,519.00
AAF 160M C4	15.00	19.8	13.5	1750	264.9	315	8,059.00
AAF 160L S4	20.0	28.7	19.6	1750	264.9	344	8,881.00

8 POLE - 900 RPM

Part Number	HP	Full Load Amps 460 V	Full Load Amps 575 V	Speed Min^{-1}	Max Brake Torque (Nm)	Weight (lbs)	List Price $
AAF 71 C8	0.20	0.94	0.68	760	10.8	28	1,780.00
AAF 80 C8	0.35	1.2	0.87	810	19.6	36	2,133.00
AAF 90S C8 ◉	0.50	1.8	1.3	810	34.3	56	2,300.00
AAF 90L S8 ◉	0.75	2.7	2.0	810	34.3	62	2,429.00
AAF 100L C8	1.00	2.8	1.9	820	54.0	69	2,852.00
AAF 100L S8	1.50	4.0	2.9	830	54.0	80	3,161.00
AAF 112M C8	2.00	4.7	3.5	830	88.3	119	3,720.00
AAF 132S C8	3.00	5.7	4.2	850	88.3	163	5,337.00
AAF 132M S8	4.00	7.7	5.7	860	88.3	182	5,850.00
AAF 160M C8	5.50	8.7	6.5	860	264.9	266	8,291.00
AAF 160M S8	7.50	11.4	8.5	860	264.9	290	8,867.00
AAF 160L L8	10.00	14.8	11.0	850	264.9	306	9,851.00

Exploded View See Page 15

3-Phase: 60Hz 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 30 for dimensional drawings

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

Part Number	HP	Weight (lbs)	List Price $
AAFB 63 S2/4	0.40/0.27	19	1,688.00
AAFB 71 C2/4	0.60/0.40	33	1,874.00
AAFB 80 C2/4	0.80/0.60	43	2,086.00
AAFB 80 S2/4	1.00/0.75	50	2,157.00
AAFB 80 L2/4	1.50/1.10	57	2,229.00
AAFB 90L C2/4 ◉	2.10/1.60	63	2,562.00
AAFB 90L S2/4 ◉	2.60/1.90	66	2,683.00
AAFB 100L C2/4	3.40/2.50	76	3,189.00
AAFB 100L L2/4	4.00/3.00	77	3,330.00
AAFB 100L S2/4	4.500/3.50	80	3,634.00
AAFB 112M C2/4	6.00/4.50	121	4,688.00
AAFB 132S S2/4	7.50/6.00	163	6,456.00
AAFB 132M L2/4	11.00/9.00	181	7,243.00
AAFB 160M C2/4	15.00/12.00	317	10,632.00
AAFB 160L S2/4	20.00/17.00	333	11,767.00

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

Part Number	HP	Weight (lbs)	List Price $
AAFB 71 C4/6	0.35/0.25	32	2,157.00
AAFB 80 A4/4	0.50/0.35	42	2,457.00
AAFB 80 C4/6	0.75/0.50	46	2,548.00
AAFB 90L C4/6 ◉	1.20/0.80	64	2,883.00
AAFB 100L L4/6	1.50/1.00	83	3,338.00
AAFB 100L C4/6	2.00/1.20	102	3,536.00
AAFB 112M C4/6	2.50/1.80	115	4,267.00
AAFB 112M S4/6	3.50/2.50	124	4,877.00
AAFB 132M C4/6	5.50/3.50	187	6,749.00
AAFB 160M C4/6	7.50/5.00	265	10,314.00
AAFB 160M S4/6	10.00/6.50	289	10,878.00
AAFB 160L L4/6	13.00/9.00	311	11,884.00

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

Part Number	HP	Weight (lbs)	List Price $
AAFB 80 C2/8	0.50/0.15	40	2,744.00
AAFB 80 S2/8	0.75/0.15	51	2,860.00
AAFB 90L C2/8 ◉	1.00/0.25	58	3,164.00
AAFB 90L S2/8 ◉	1.50/0.40	73	3,354.00
AAFB 100L S2/8	2.00/0.50	76	3,751.00
AAFB 100L L2/8	2.50/0.60	77	4,174.00
AAFB 112M C2/8	2.50/1.45	119	4,877.00
AAFB 112M L2/8	3.00/0.75	120	5,110.00
AAFB 132S C2/8	4.00/1.00	158	6,916.00
AAFB 132M S2/8	6.00/1.50	184	8,121.00

◉ 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	2,109.00
AAFB 80 C4/8	0.50/0.25	45	2,335.00
AAFB 80 S4/8	0.70/0.35	45	2,392.00
AAFB 90S C4/8 ◉	1.00/0.50	58	2,696.00
AAFB 90L S4/8 ◉	1.30/0.70	63	2,906.00
AAFB 100L C4/8	1.90/0.90	75	3,306.00
AAFB 112M C4/8	2.40/1.40	111	4,076.00
AAFB 112M S4/8	3.00/1.80	117	4,500.00
AAFB 132S C4/8	5.00/2.80	159	6,519.00
AAFB 132M S4/8	6.50/3.50	195	7,103.00
AAFB 160M C4/8	8.50/5.50	256	10,079.00
AAFB 160L S4/8	10.00/6.50	278	11,160.00
AAFB 160L S4/8	14.50/8.00	299	12,213.00

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

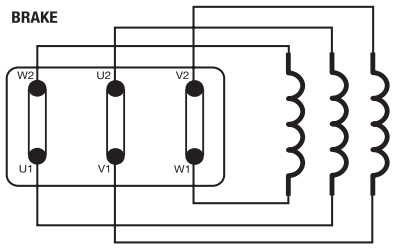
Part Number	HP	Weight (lbs)	List Price $
AAFB 71 C6/8	0.30/0.15	31	2,203.00
AAFB 80 C6/8	0.50/0.25	45	2,720.00
AAFB 90L C6/8 ◉	0.75/0.40	64	3,330.00
AAFB 100L C6/8	1.00/0.60	80	3,751.00
AAFB 112M C6/8	1.30/0.90	112	4,408.00
AAFB 112M S6/8	2.00/1.00	121	4,782.00
AAFB 132M A6/8	3.00/1.70	154	6,916.00
AAFB 132M C6/8	4.00/2.30	185	8,134.00
AAFB 160M C6/8	6.50/3.50	285	11,721.00
AAFB 160L S6/8	8.00/4.50	307	13,173.00

NOTE:
- Contact us for replacement brake components
- Special brake voltages available. Please inquire.

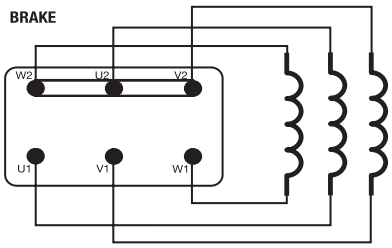
3-Phase Brake Motors

In the event of a power failure, the motor, and the machinery it is driving, will stop immediately, braking is SAFE, POWERFUL and FAST. The “dead” time created by the inertia of rotating parts is reduced to a minimum. Braking power is independent of the direction of rotation. The instant braking action of these motors is particularly suited to situations where accurate positioning and ability to repeat is essential.

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



Connection Δ (minimum rated voltage)



Connection Y (maximum rated voltage)

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 (45/5). 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 precautions that the O-ring (44) is properly installed on the brake support flange (42). Make sure the disk brake has a minimum clearance of 0.3mm 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. regulate the air gap and braking torque.

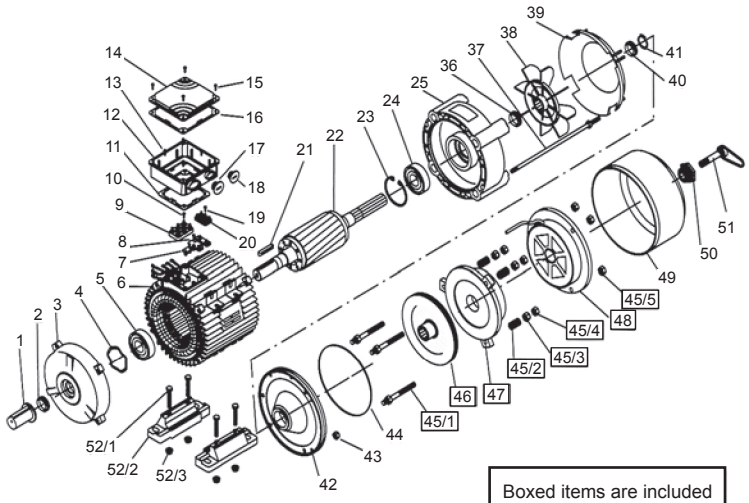
AIR GAP REGULATION:
The air gap i.e., the distance between the electromagnet (48) and the countermagnet (47) must be carefully set between 0.5 and 0.8mm. If this distance is not carefully maintained because of worn disk brakes or incorrect adjustment procedures, vibration of the countermagnet or even 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 even air gap of 0.5 and 0.8mm between the two mating surfaces.

BRAKE TORQUE REGULATION:
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 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

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.

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



Boxed items are included in a brake assembly kit.

Part description:

1 Shaft protection
2 Dust seal drive end
3 End shield drive end
4 Preload washer
5 Bearing drive end
6 Slater frame
7 Terminal board support (for sizes 63 ... 112)
8 Fixing screw terminal board support (for sizes 63... 112]
9 Motor terminal board
10 Fixing screw motor terminal board
11 Gasket terminal box
12 Terminal box
13 Fixing screw terminal box
14 Gasket terminal box lid
15 Terminal box lid
16 Fixing screw terminal box lid
17 Blank gland plug
18 Blank gland plug
19 Fixing screw brake terminal board (for sizes 63... 112)
20 Brake terminal board (for sizes 63... 112)
21 Motor key
22 Rotor complete
23 Circlip
24 Bearing non drive end
25 End shield non-drive end
36 Dust seal
37 Tie rod
38 Fan
39 Fan cover
40 Dust seal (for IP55 only)
41 Circlip for fan locking
42 Brake support flange
43 Tie rod fixing nut
44 0-ring (for IP55 only)
45 Brake adjusting fixing kit:
[45/1] guiding column
[45/2] braking spring
[45/3] self-locking nut
[45/4] electromagnet locking nut
[45/5] electromagnet locking nut
46 Brake disk
47 Brake anchor
48 Electromagnet
49 Brake cover
50 Nipple
51 Hand release
52 Foot kit (1 foot} (or sizes 71... 160)
52/1 fixing screw
52/2 foot
52/3 fixing nut

LAFERT NORTHAMERICA

3-Phase: 60Hz Standard - DC Brake Coil

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 • TEFC • Squirrel Cage • Class F • IP54 • S6 70% Duty Cycle

IEC - CEI - UNEL MEC - CSA approved - (UL recognized are class 'B')

See pages 26 to 28 for dimensional drawings

2 POLE - 3600 RPM

Part Number	HP	Full Load Amps 460 V	Full Load Amps 575 V	Speed Min^{-1}	Max Brake Torque (Nm)	Weight (lbs)	List Price $
MS 63 C2	0.25	0.55	0.45	3120	3	11	1,130.00
MS 63 S2	0.35	0.75	0.60	3310	3	12	1,159.00
MS 63 L2	0.50	1.10	0.90	3265	3	12	1,174.00
MS 71 C2	0.50	0.95	0.75	3300	4	15	1,234.00
MS 71 S2	0.75	1.4	1.1	3380	4	16	1,300.00
MS 71 L2	1.00	1.85	1.5	3320	4	18	1,358.00
MS 80 C2	1.00	1.8	1.4	3410	7	23	1,440.00
MS 80 S2	1.50	2.3	1.9	3400	7	26	1,550.00
MS 80 L2	2.00	2.8	2.3	3400	7	29	1,643.00
MS 90S C2 ◉	2.00	3.2	2.5	3410	7	32	1,772.00
MS 90S L2 ◉	2.50	3.9	3.1	3420	7	36	1,968.00
MS 90L S2 ◉	3.00	4.6	3.7	3420	7	40	2,064.00
MS 100L C2	4.00	5.7	4.5	3445	13	51	2,439.00
MS 100L S2	5.50	7.5	6.0	3380	13	58	2,714.00
MS 112M C2	5.50	7.8	6.2	3430	13	67	2,946.00
MS 112M S2	7.50	10.1	8.1	3460	13	81	3,255.00
MS 132S L2	7.50	10.5	8.4	3480	30	95	3,776.00
MS 132S C2	10.00	13.5	10.8	3450	30	108	4,747.00
MS 132M S2	12.50	17.1	13.7	3510	30	127	5,173.00
MS 132M A2	15.00	19.8	15.8	3455	30	129	5,815.00

6 POLE - 1200 RPM

Part Number	HP	Full Load Amps 460 V	Full Load Amps 575 V	Speed Min^{-1}	Max Brake Torque (Nm)	Weight (lbs)	List Price $
MS 63 C6	0.12	0.55	0.45	980	3	12	1,581.00
MS 71 C6	0.25	0.80	0.65	1050	4	16	1,381.00
MS 71 S6	0.35	1.0	0.80	1020	4	17	1,429.00
MS 80 C6	0.50	1.15	0.90	1090	7	23	1,562.00
MS 80 S6	0.75	1.6	1.3	1090	7	25	1,674.00
MS 90S C6 ◉	1.00	2.2	1.8	1140	7	30	1,820.00
MS 90S S6 ◉	1.50	3.1	2.5	1145	7	38	2,027.00
MS 100L C6	2.00	4.1	3.3	1150	13	46	2,364.00
MS 100L S6	2.50	4.7	3.8	1150	13	56	2,613.00
MS 112M C6	3.00	4.9	3.9	1150	13	73	3,148.00
MS 112M A6	4.00	6.5	5.2	1150	13	87	3,687.00
MS 132S C6	4.00	6.9	5.5	1150	30	95	4,382.00
MS 132M S6	5.50	9.2	7.4	1150	30	108	4,723.00
MS 132M A6	7.50	12.6	10	1150	30	136	5,479.00

* 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)

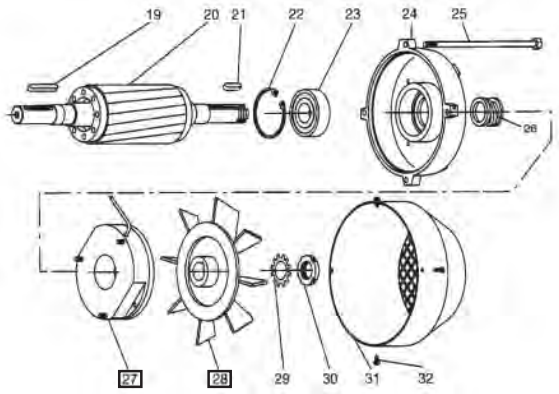
See Page 58 for connection diagram

4 POLE - 1800 RPM

Part Number	HP	Full Load Amps 460 V	Full Load Amps 575 V	Speed Min^{-1}	Max Brake Torque (Nm)	Weight (lbs)	List Price $
MS 63 C4	0.18	0.45	0.35	1630	3	10	1,097.00
MS 63 S4	0.25	0.60	0.50	1590	3	12	1,135.00
MS 63 A4	0.33	0.80	0.65	1630	3	12	1,168.00
MS 71 C4	0.35	0.85	0.65	1600	4	15	1,226.00
MS 71 S4	0.50	1.1	0.90	1650	4	16	1,271.00
MS 71 L4	0.70	1.6	1.25	1680	4	19	1,342.00
MS 80 C4	0.75	1.5	1.2	1680	7	23	1,421.00
MS 80 S4	1.00	2.0	1.6	1690	7	25	1,475.00
MS 80 L4	1.30	2.6	2.1	1660	7	28	1,604.00
MS 90S C4 ◉	1.50	2.5	2.0	1680	7	32	1,665.00
MS 90S L4 ◉	2.00	3.3	2.7	1656	7	36	1,817.00
MS 90L L4 ◉	2.50	3.9	3.1	1680	7	41	2,021.00
MS 100L C4	3.00	5.0	4.0	1690	13	50	2,230.00
MS 100L S4	4.00	6.3	5.1	1700	13	56	2,463.00
MS 112M S4	5.50	7.6	6.3	1720	13	74	2,984.00
MS 132S S4	7.50	10.5	8.4	1725	30	106	4,137.00
MS 132M A4	10.00	14.2	11.4	1715	30	126	4,859.00

8 POLE - 900 RPM

Part Number	HP	Full Load Amps 460 V	Full Load Amps 575 V	Speed Min^{-1}	Max Brake Torque (Nm)	Weight (lbs)	List Price $
MS 71 C8	0.20	0.6	0.50	760	4	16	1,537.00
MS 80 C8	0.35	1.00	0.80	810	7	23	1,869.00
MS 90S C8 ◉	0.50	1.60	1.25	810	7	30	2,062.00
MS 90L S8 ◉	0.75	2.30	1.85	810	7	38	2,232.00
MS 100L C8	1.00	2.40	1.95	820	13	46	2,583.00
MS 100L S8	1.50	3.6	2.9	830	13	57	2,933.00
MS 112M C8	2.00	4.3	3.4	830	13	88	3,423.00
MS 132S C8	3.00	5.9	4.8	850	30	114	4,581.00
MS 132M S8	4.00	7.5	6.0	860	30	134	5,232.00



Part description:

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

BOXED ITEMS ARE INCLUDED IN A BRAKE ASSEMBLY KIT

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)
206V-DC - for 460V units (STD1 full wave)

OPTIONAL 24V-DC
103V-DC - STD1

3-Phase: 60 Hz Standard - Inverter Duty

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 page 26 to 28 for dimensional drawings

2 POLE - 3600 RPM

Part Number	HP	Weight (lbs)	List Price $
AMFV 71Z AA2	0.50	16	983.00
AMFV 71Z BA2	0.75	17	1,036.00
AMFV 71Z CA2	1.00	19	1,087.00
AMFV 80Z AA2	1.00	22	1,364.00
AMFV 80Z BA2	1.50	25	1,432.00
AMFV 80Z CA2	2.00	28	1,498.00
AMFV 90S AA2 ◉	2.00	33	1,596.00
AMFV 90S BA2 ◉	2.50	36	1,716.00
AMFV 90L CA2 ◉	3.00	40	1,794.00
AMFV 100L AA2 △	4.00	49	2,497.00
AMFV 100L BA2 △	5.50	56	2,595.00
AMFV 100L CA2 △	7.50	77	2,772.00
AMFV 112M AA2 △	5.50	67	2,969.00
AMFV 112M BA2 △	7.50	81	3,225.00
AMFV 132S YA2	7.50	86	3,672.00
AMFV 132S ZA2	10.00	101	3,965.00
AMFV 132M ZA2	12.50	120	4,349.00
AMFV 132M RA2	15.00	122	4,879.00
AMFV 132M TA2	20.00	205	5,289.00
AMFV 160M VA2	15.00	183	5,730.00
AMFV 160M XA2	20.00	219	6,537.00
AMFV 160L XA2	25.00	250	7,488.00
AMFV 160L RA2	30.00	253	8,087.00

4 POLE - 1800 RPM

Part Number	HP	Weight (lbs)	List Price $
AMFV 71Z AA4	0.35	16	980.00
AMFV 71Z BA4	0.50	16	1,013.00
AMFV 71Z CA4	0.75	19	1,073.00
AMFV 80Z AA4	0.75	22	1,351.00
AMFV 80Z BA4	1.00	24	1,397.00
AMFV 80Z CA4	1.50	27	1,506.00
AMFV 90S AA4 ◉	1.50	32	1,548.00
AMFV 90L BA4 ◉	2.00	37	1,646.00
AMFV 90L CA4 ◉	2.50	41	1,746.00
AMFV 100L AA4 △	3.00	48	2,343.00
AMFV 100L BA4 △	4.00	51	2,562.00
AMFV 112M AA4 △	5.50	74	2,969.00
AMFV 112M BA4 △	7.50	79	3,336.00
AMFV 132S ZA4	7.50	99	3,657.00
AMFV 132M ZA4	10.00	119	4,127.00
AMFV 132M LA4	12.50	150	4,728.00
AMFV 132M TA4	15.00	175	5,457.00
AMFV 160M XA4	15.00	208	5,993.00
AMFV 160L XA4	20.00	247	6,815.00
AMFV 160L ZA4	25.00	293	7,854.00

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

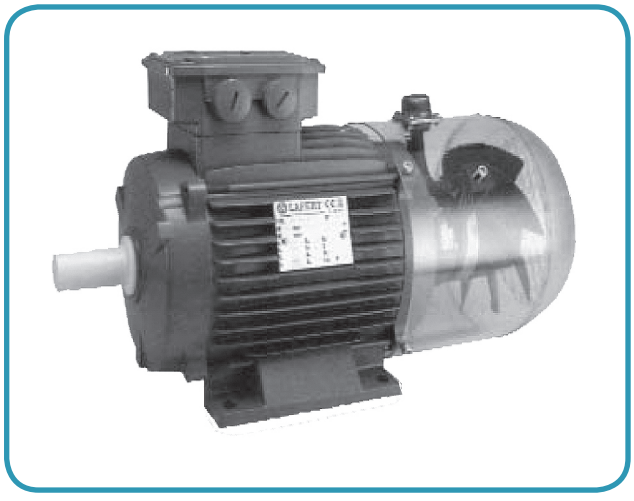
△ = External fans available in 230V only

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

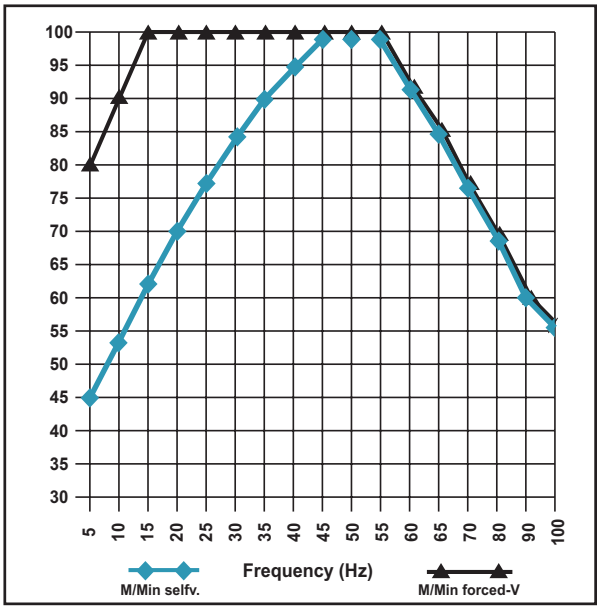
See page 58 for fan connection diagram

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.



Torque behaviour in forced-ventilation or self ventilated motors



1-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 22 for connection diagram

See page 25 for dimensional drawing

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	-	-	478.00	N/A
LM(E) 63 C2	0.15	10	16	30+20%	SE01	4	8	SE01	483.00	639.00
LM(E) 63 S2	0.25	11	25	53+20%	SE01	6.3	12.5	SE01	491.00	653.00
LM(E) 63 L2	0.33	12	25	53+20%	SE01	6.3	12.5	SE01	533.00	676.00
LM(E) 71 C2	0.50	16	25	43+20%	SE02	16	30+20%	SE02	590.00	775.00
LM(E) 71 S2	0.75	19	16	30+20%	SE02	16	30+20%	SE02	650.00	833.00
LM(E) 80 C2	1.00	25	60	124+20%	SE01	25	88+20%	SE01	756.00	957.00
LM(E) 80 S2	1.50	25	50	161+20%	SE02	25	124+20%	SE02	798.00	1,036.00
LM(E) 80 T2	2.00	32	60	189+20%	SE02	36	124+20%	SE02	1,050.00	1,364.00
LM(E) 90S C2 ◉	1.50	36	2x60	161+20%	SE01	50	124+20%	SE03	890.00	1,108.00
LM(E) 90L S2 ◉	2.00	38	70	189+20%	SE01	36	108+20%	SE01	973.00	1,193.00
LM(E) 90L L2 ◉	2.50	41	50	161+20%	SE02	40	124+20%	SE02	1,068.00	1,285.00
LM(E) 100L C2	3.00	54	60	161+20%	SE01	50	161+20%	SE03	1,226.00	1,466.00

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	-	-	478.00	N/A
LM(E) 63 A4	0.15	10	25	30+20%	SE02	8	16	SE01	483.00	639.00
LM(E) 63 C4	0.25	11	25	30+20%	SE01	8	16	SE01	510.00	668.00
LM(E) 71 C4	0.33	16	12.5	30+20%	SE02	10	16	SE01	571.00	756.00
LM(E) 71 S4	0.40	17	16	30+20%	SE02	12.5	30+20%	SE01	597.00	782.00
LM(E) 71 L4	0.50	19	25	30+20%	SE01	16	53+20%	SE02	665.00	849.00
LM(E) 80 C4	0.50	22	50	124+20%	SE01	12.5	30+20%	SE01	710.00	912.00
LM(E) 80 S4	0.75	25	50	124+20%	SE01	12.5	53+20%	SE01	740.00	940.00
LM(E) 80 L4	1.00	28	50	124+20%	SE01	20	88+20%	SE01	773.00	973.00
LM(E) 90L C4 ◉	1.50	34	50	124+20%	SE02	25	108+20%	SE01	912.00	1,129.00
LM(E) 90L S4 ◉	2.00	39	60	108+20%	SE02	31.5	161+20%	SE01	1,001.00	1,217.00
LM(E) 100L C4	2.50	50	50	161+20%	SE03	50	124+20%	SE01	1,224.00	1,462.00
LM(E) 100L S4	3.00	53	60+70	189+20%	SE02	50	189+20%	SE02	1,329.00	1,565.00
LM(E) 112M /4	5.00	76	-	-	-	60	189+20%*	SE01	1,811.00	2,077.00

* 230V Start Cap option: 106+25% (2) pieces, with SE02 current relay

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	831.00	1,088.00
LM(E) 80 C6	0.35	19	40	108+20%	SE02	10	30+20%	SE01	959.00	1,181.00
LM(E) 80 S6	0.50	22	50	124+20%	SE01	16	53+20%	SE01	1,068.00	1,292.00
LM(E) 90L C6 ◉	0.75	36	40+50	124+20%	SE01	31.5	88+20%	SE01	1,272.00	1,596.00
LM(E) 90L S6 ◉	1.00	40	50+50	161+20%	SE01	31.5	88+20%	SE01	1,364.00	1,695.00
LM(E) 100L C6	1.50	42	60+50+50	189+20%	SE02	40	88+20%	SE03	1,510.00	1,770.00
LM(E) 100L S6	2.00	50	70+70	189+20%	SE01	50	88+20%	SE01	1,592.00	1,848.00

◉ 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 25 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	798.00
DVE 63 S2	0.25	12	10	30+20%	SE01	812.00
DVE 63 L2	0.33	12	16	53+20%	SE01	842.00
DVE 71 C2	0.50	16	25	53+20%	SE01	963.00
DVE 71 S2	0.75	19	20	40	SE02	1,034.00
DVE 80 C2	1.00	25	31.5	108+20%	SE01	1,190.00
DVE 80 S2	1.50	33	50	161+20%	SE01	1,287.00
DVE 90S C2 ◉	1.50	34	70	124+20%	SE02	1,377.00
DVE 90L S2 ◉	2.00	40	70	161+20%	SE02	1,482.00
DVE 90L L2 ◉	2.50	41	40	161+20%	SE02	1,599.00
DVE90L A2 ◉	3.00	43	60	161+20%	SE02	1,760.00
DVE 100L C2	3.00	54	50	161+20%	SE01	1,821.00

4 POLE - 1800 RPM

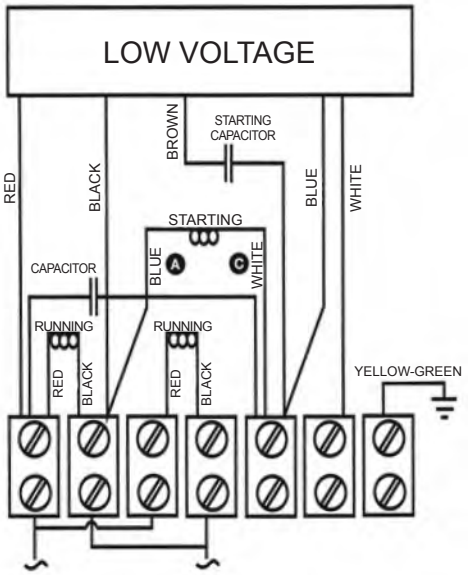
Part Number	HP	Weight (lbs)	Run Cap (µf)	Start Cap (µf)	Current Relay	List Price $
DVE 63 A4	0.15	10	20	30+20%	SE02	798.00
DVE 63 C4	0.25	11	10	16	SE01	832.00
DVE 71 C4	0.33	16	16	30+20%	SE02	939.00
DVE 71 S4	0.40	17	12.5	25	SE02	973.00
DVE 71 L4	0.50	19	25	53+20%	SE02	1,055.00
DVE 80 C4	0.50	22	50	108+20%	SE02	1,134.00
DVE 80 S4	0.75	25	16	53+20%	SE02	1,167.00
DVE 80 L4	1.00	28	40	124+20%	SE01	1,210.00
DVE 90L D4 ◉	1.50	34	50	161+20%	SE02	1,402.00
DVE 90L E4 ◉	2.00	39	50	124+20%	SE02	1,514.00
DVE 100L C4	2.50	50	60	161+20%	SE02	1,817.00
DVE 100L S4	3.00	52	50	161+20%	SE02	1,943.00

6 POLE - 1200 RPM

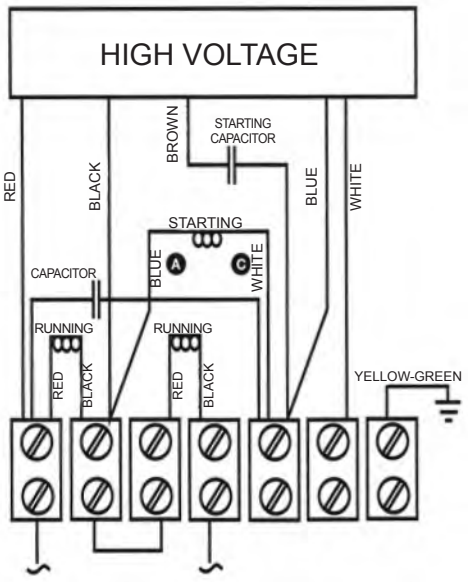
Part Number	HP	Weight (lbs)	Run Cap (µf)	Start Cap (µf)	Current Relay	List Price $
DVE 71 C6	0.20	18	25	53+20%	SE02	1,352.00
DVE 80 C6	0.35	19	40	108+20%	SE02	1,468.00
DVE 80 S6	0.50	22	50	124+20%	SE02	1,603.00
DVE 90L C6 ◉	0.75	36	2x40	124+20%	SE02	1,983.00
DVE 90L S6 ◉	1.00	40	2x40	161+20%	SE02	2,108.00
DVE 100L C6	1.50	42	2x70	189+20%	SE02	2,200.00
DVE 100L S6	2.00	50	2x70	189+20%	SE01	2,300.00

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

DVE Type Connection Diagram



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).

IP56 "Water Protection"

1.15 Service Factor (SF) • Available in IEC 63 to 80 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 safetly approvals • Turn Down Ratio 4:1 CT 10:1 VT

2 POLE - 3600 RPM

Part Number	Enclosure	HP	Full Load Amps 460 V	Full Load Amps 575 V	Speed Min^{-1}	Weight (lbs)	List Price $
LA63S2	TENV	0.33	0.53	0.43	3455	18	740.00
LA71C2	TENV	0.50	0.75	0.60	3515	26	842.00
LA71S2	TENV	0.75	1.05	0.84	3500	31	878.00
LA80C2	TENV	1.00	1.30	1.05	3500	33	1,089.00
LA80S2	TEFC	1.50	1.90	1.50	3505	39	1,113.00
LA100LC2*	TEFC	4.00	5.2	4.2	3515	82	2,044.00

4 POLE - 1800 RPM

Part Number	Enclosure	HP	Full Load Amps 460 V	Full Load Amps 575 V	Speed Min^{-1}	Weight (lbs)	List Price $
LA63S4	TENV	0.25	0.53	0.43	1740	18	732.00
LA71C4	TENV	0.33	0.58	0.47	1750	19	846.00
LA71S4	TENV	0.50	0.75	0.60	1745	24	880.00
LA80C4	TENV	0.75	1.10	0.88	1765	39	1,061.00
LA80S4	TENV	1.00	1.45	1.20	1750	45	1,164.00
LA100LC4*	TEFC	3.00	4.0	3.2	1760	75	1,849.00
LA100LS4*	TEFC	4.00	5.3	4.24	1740	93	2,044.00

6 POLE - 1200 RPM

Part Number	Enclosure	HP	Full Load Amps 460 V	Full Load Amps 575 V	Speed Min^{-1}	Weight (lbs)	List Price $
LA71C6	TENV	0.25	0.66	0.53	1145	23	989.00
LA71S6	TENV	0.33	0.78	0.62	1145	25	1,030.00
LA80C6	TENV	0.50	0.88	0.70	1150	40	1,218.00
LA80S6	TENV	0.75	1.20	0.95	1150	45	1,377.00
LA100LC6*	TEFC	2.00	3.1	2.48	1165	85	2,105.00

FLS B5 Flanges

Part Number	List Price $
FLS 63B5	127.00
FLS 71B5	218.00
FLS 80B5	232.00
FLS 100B5	316.00

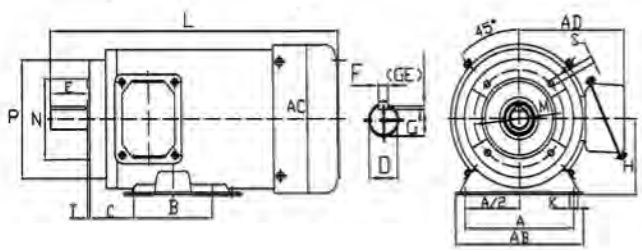
FLS B14 Flanges

Part Number	List Price $
FLS 63B14	123.00
FLS 71B14	204.00
FLS 80B14	230.00
FLS 100B14	311.00

*** USA only**

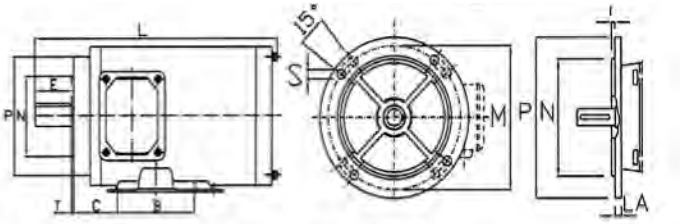
NOTE: Lowest drain plug must be removed to allow proper drainage

IM B3 & IM B34 - C Flange



(Totally Enclosed Fan Cooled)

IM B5 - D Flange



(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

									B14 FLANGE									B5 FLANGE							
Motor Type	A	A2	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)																									
LA 63	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
LA 71	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
LA 80	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

									B14 FLANGE									B5 FLANGE							
Motor Type	A	A2	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)																									
LA 80	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
LA 90S	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
LA 90L	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
LA 100L	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

See page 58 for connection diagrams

IP67 "Ultra Protection"

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

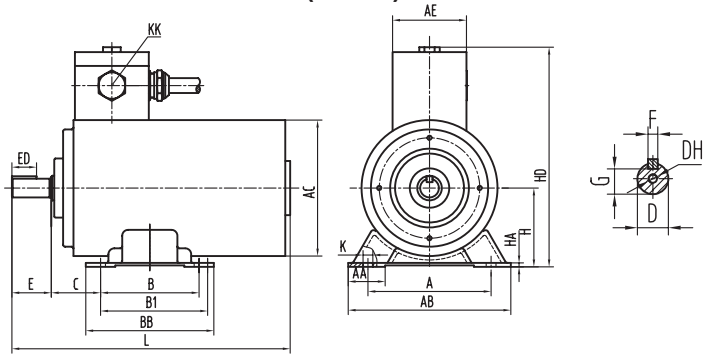
2 POLE - 3600 RPM – TENV

Part Number	HP	Full Load Amps 460 V	Full Load Amps 575 V	Speed Min^{-1}	Weight (lbs)	List Price $
LA 63 1-2	0.25	0.35	0.31	3430	19	949.00
LA 63 2-2	0.35	0.48	0.40	3420	21	998.00
LA 71 1-2	0.50	0.69	0.58	3450	24	1,138.00
LA 71 2-2	0.75	1.00	0.91	3430	25	1,184.00
LA 80 1-2	1.00	1.36	1.14	3450	40	1,470.00
LA 80 2-2	1.50	1.95	1.66	3470	47	1,503.00

4 POLE - 1800 RPM – TENV

Part Number	HP	Full Load Amps 460 V	Full Load Amps 575 V	Speed Min^{-1}	Weight (lbs)	List Price $
LA 63 2-4	0.25	0.48	0.39	1700	22	988.00
LA 71 1-4	0.35	0.58	0.47	1740	24	1,143.00
LA 71 2-4	0.50	0.83	0.67	1740	26	1,188.00
LA 80 1-4	0.75	1.24	0.99	1730	38	1,433.00
LA 80 2-4	1.00	1.62	1.31	1730	42	1,570.00

IM B3 (TENV)



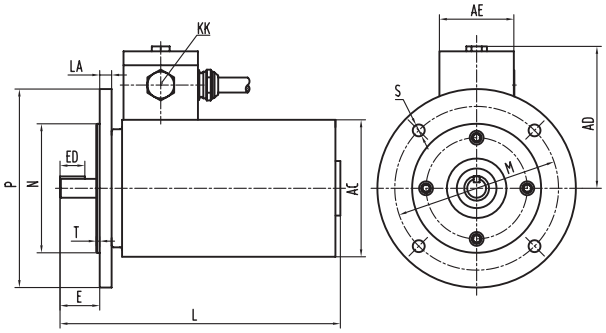
FLP B5 Flanges

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

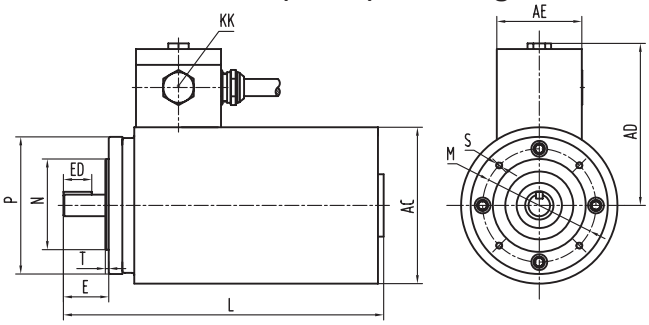
FLP B14 Flanges

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

IM B5 (TENV) - D Flange



IM B14 (TENV) - C Flange



Flanges are modular

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	M		N		P		S		T	
														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

LAFERT NORTHAMERICA

3-Phase Parts Breakdown

Lafert Fans

	Part Number	Dimensions (mm) Bore	OD	Height	# Fins	Weight (kg.)	ST/AM/LM Frame Size	Price
ALUMINUM	XVA000040000	9	85	20.5	8	0.07	56	$108.00
	XVA000110000	14	90	20	8	0.06	63	$149.00
	XVA003220000	14	128	23	12	0.08	71	$160.00
	XVA003320000	19	143	29	12	0.05	80	$202.00
	XVA003420000	24	162	30	12	0.07	90	$219.00
	XVA003540000	28	178	32.5	12	0.25	100/112	$246.00
	XVA000710000	40	230	42	12	0.45	132	$299.00
	XVA000810000	45	270	52	6	0.59	160	$365.00
PLASTIC	XVN003060000	9	90.5	24	12	0.02	56	$68.00
	XVN003160000	14	110	24.9	12	0.03	63	$68.00
	XVN003260000	15	129	28	12	0.04	71	$79.00
	XVN003310000	19	135	28	11	0.05	80	$79.00
	XVN003410000	24	155	27.5	11	0.07	90	$83.00
	XVN003520000	28	164	35.5	11	0.08	100	$126.00
	XVN003610000	28	190	41	11	0.11	112	$156.00
	XVN003710000	40	225	36	12	0.12	132	$219.00
	XVN003570000	28	129	24	12	0.04	N/A	–
	XVN003780000	40	190	41	11	0.16	N/A	–
	XVN003350000	19	110	19.7	11	0.03	N/A	–
	XVN003450000	24	135	28	11	0.06	N/A	–
	XVN003550000	28	135	28	11	0.06	N/A	–
	XVN003650000	28	135	28	11	0.06	N/A	–
	XVN003750000	40	135	28	11	0.08	N/A	–
	XVN003770000	40	164	35.5	11	0.12	N/A	–

Note: Select AMPH motors have specialized fans.
AMPH aluminum fans available upon request.

AMPH Frame Size			Price
100 4P	160 2P 4P	112MDA2	$126.00
N/A	–	–	–
N/A	–	–	–
100 2P	90LDA2	–	$126.00
–	132MZA2	–	$219.00
80 2P 4P	–	–	$79.00
90 2P* 4P	–	–	$83.00
100 2P	–	–	$126.00
112 2P* 4P	–	–	$126.00
–	132SZA2 / STA2	–	$219.00
132 4P	132MTA2 / MRA2	–	$219.00

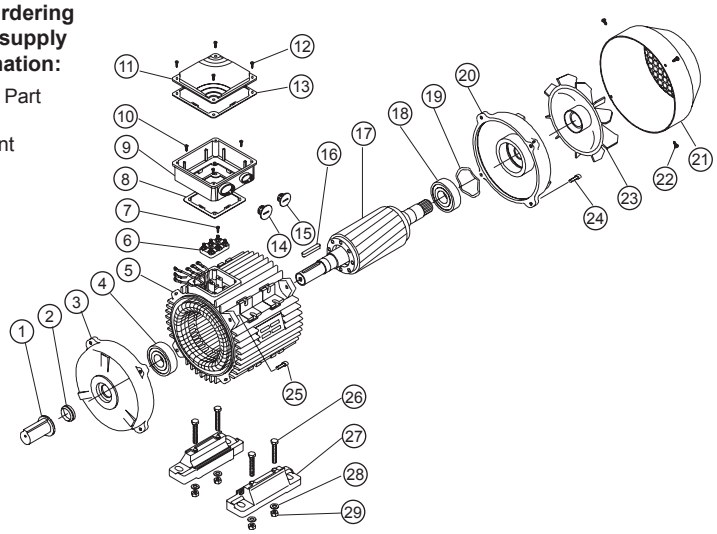
3 Phase Parts Breakdown

NOTE: Fans for newer designed motors may vary. Please check with the technical department for specific requirements.

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 inquiring or ordering spare parts, please supply the following information:

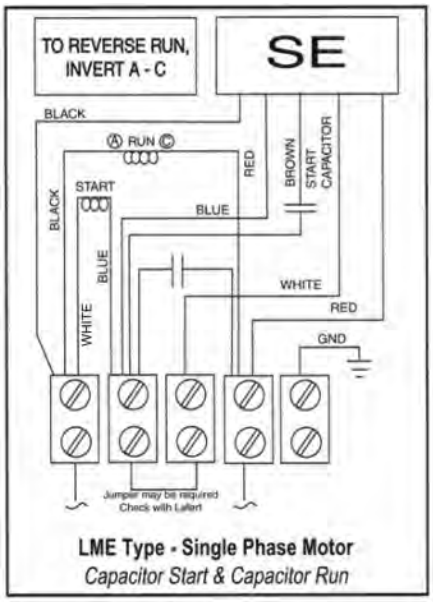
- Designation of Spare Part
- Motor Type
- Mounting Arrangement
- Motor Serial Number
- Product # (E-No)
  - when available



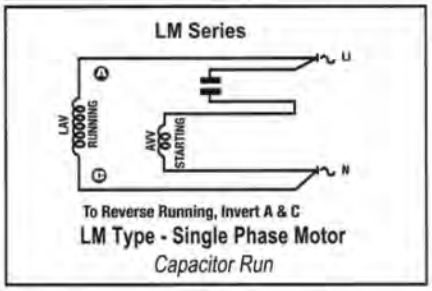
PART DESCRIPTION:

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 box
9. Terminal box
10. Fixing screw terminal box
11. Terminal box lid
12. Fixing screw terminal box lid
13. Gasket terminal box lid
14. Blank gland plug
15. Blank gland plug
16. Key
17. Rotor complete
18. Bearing non-drive end
19. Pre-load washer
20. Endshield non-drive end
21. Fan cover
22. Fixing screw fan cover
23. Fan
24. Fixing bolt endshield non-drive end
25. Fixing bolt endshield drive end
26. Fixing bolt motor feet
27. Motor feet
28. Fixing washer motor feet
29. Fixing nut motor feet

LM/LME Connection Diagram



LME Type - Single Phase Motor
Capacitor Start & Capacitor Run



To Reverse Running, Invert A & C
LM Type - Single Phase Motor
Capacitor Run

See Page 18 for Motor List.

Aluminum Flanges
ST, HE, FB, AAF, AMBZ, MS, LME, DVE, AMPH, AMFV Series Motors

B5 'D' Flange	List Price $	B14 'C' Flange	List Price $
FL56B5	80.00	FL56B14	80.00
FL63B5	80.00	FL63B14	80.00
FL71B5	80.00	FL71B14	80.00
FL80B5	99.00	FL80B14	89.00
FL90B5	118.00	FL90B14	99.00
FL100B5	166.00	FL100B14	148.00
FL112B5	166.00	FL112B14	159.00
FL132B5	305.00	FL132B14	219.00
FL160B5	447.00	FL160B14	416.00

Machined for shaft oil seals
NEMA flanges available

LAB Cast Iron Flanges Series Motors

B5 'D' Flange	List Price $	B14 'C' Flange	List Price $
FLD100B5	163.00	FLD100B14	145.00
FLD112B5	163.00	FLD112B14	156.00
FLD132B5	299.00	FLD132B14	215.00
FLD160B5	439.00	FLD160B14	408.00
FLD180B5	444.00		
FLD200B5	732.00		
FLD225B5	1,179.00		
FLD250B5	1,24100		
FLD280B5	1,507.00		
FLD315B5	2,176.00		

Explosion Proof Flanges
AC Series Motors

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

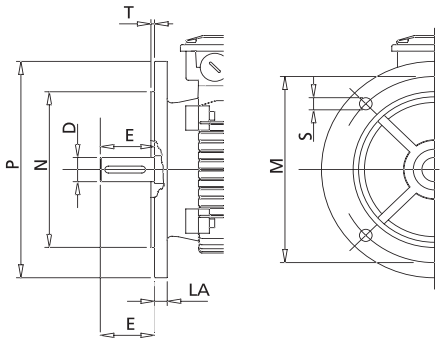
Increasing and Reducing Flanges

M = Centre to centre bolt hole circle

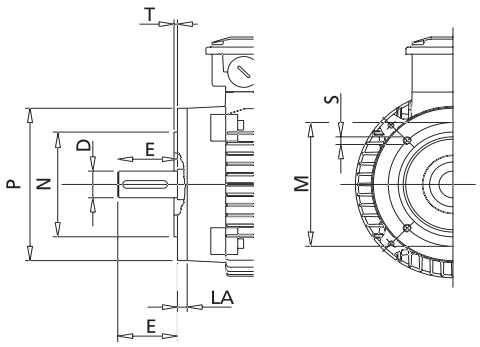
N = Inside diameter

P = Outside diameter

IM B5 - D Flange



IM B14 - C Flange



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	-	-

* 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

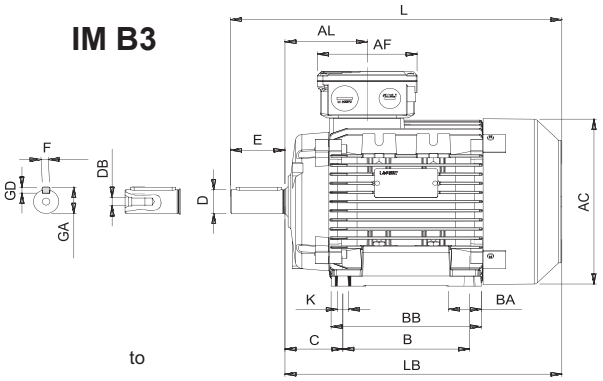
B14 Flanges

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	-	-

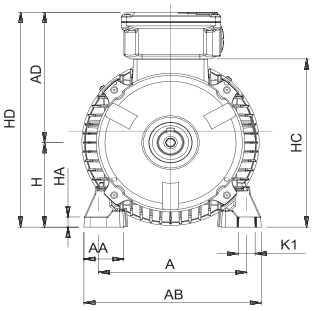
NOTE: **B5 increased and reducing flanges may require the motor to be customized to accept the flange. An additional charge may be applicable.**

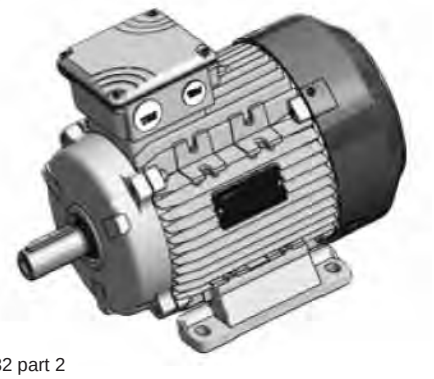
HPS FRAME SIZE 71 - 132
ALUMINUM ALLOY FRAME

IM B3



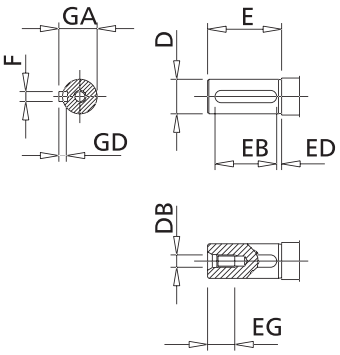
to





1) Clearance hole for screw 2) Maximum dimension 3) Centering holes in shaft extensions to DIN 332 part 2

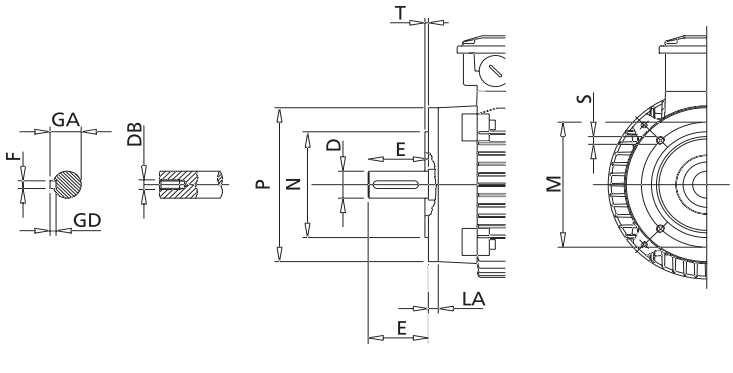
IEC	H	A	B	C	K[1]	AB	BB	AD[2]	HD[2]	AC	HC	HA	K1	L	LB	AL	AF	BA	AA	D/DA	E/EA	F/FA	GD	GA/GC	DB[3]
71	71	112	90	45	7	144	109	112	183	142	142	9	17	245	215	75	93	22	30	19	40	5	5	16	M5
90S/L	90	140	100/125	56	10	170	150	148	238	180	181	11	15	317	267	85	110	28/53	37	24	50	8	7	27	M8
90L	90	140	125	56	10	170	150	148	238	180	181	11	15	317	267	85	110	28/53	37	24	50	8	7	27	M8
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



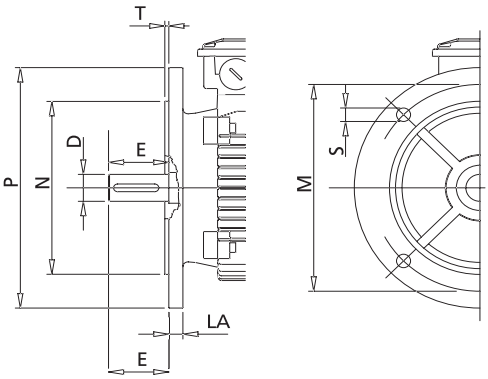
IEC	D	E	F h9	GD	GA	DB[3]	EG	EB	ED
71	19j6	30	5	5	16	M5	12.5	20	4
90S-L	24j6	50	8	7	27	M8	19	40	4
112M-XL	28j6	60	8	7	31	M10	22	50	4
132M-XL-XXL	38k6	80	10	8	41	M12	28	70	5

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

IM B14 - C Flange

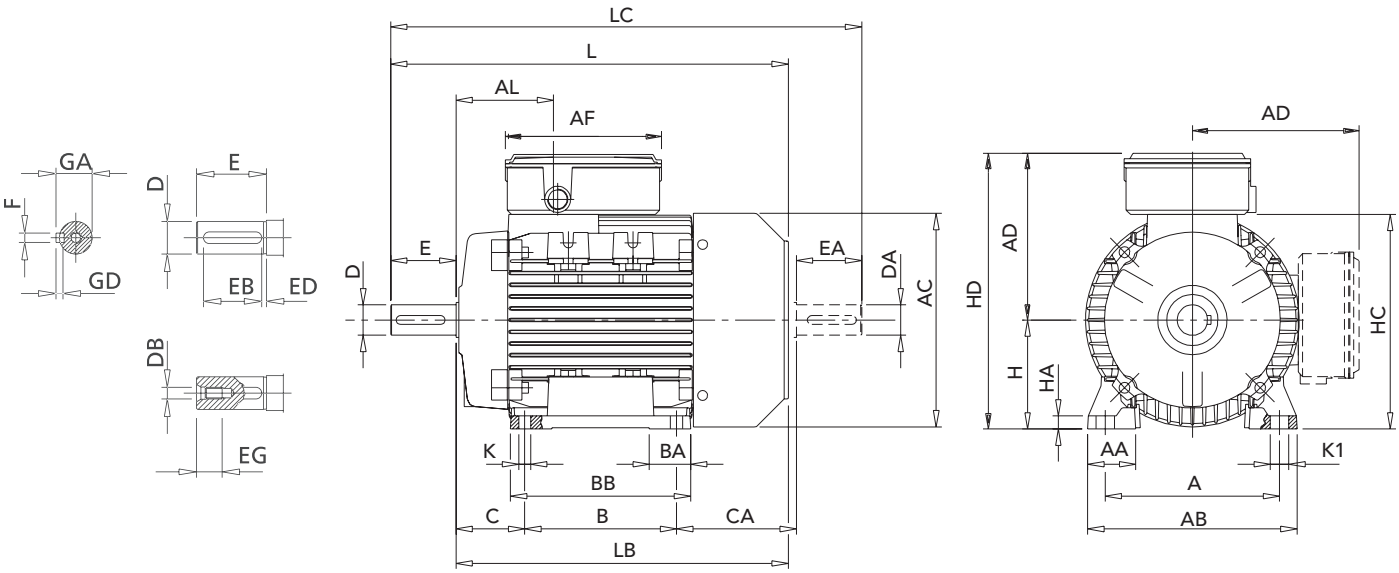


IM B5 - D Flange



	SMALL FLANGE B14						INCREASED FLANGE B14						FLANGE B5					
IEC	**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

Refer to table on pg. 7 for oversized bearing on drive-end.



- **See page 27 for B5 flange dimensions**
- **See page 28 for B14 flange dimensions**
- F2 LEAD BOX IS STANDARD

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

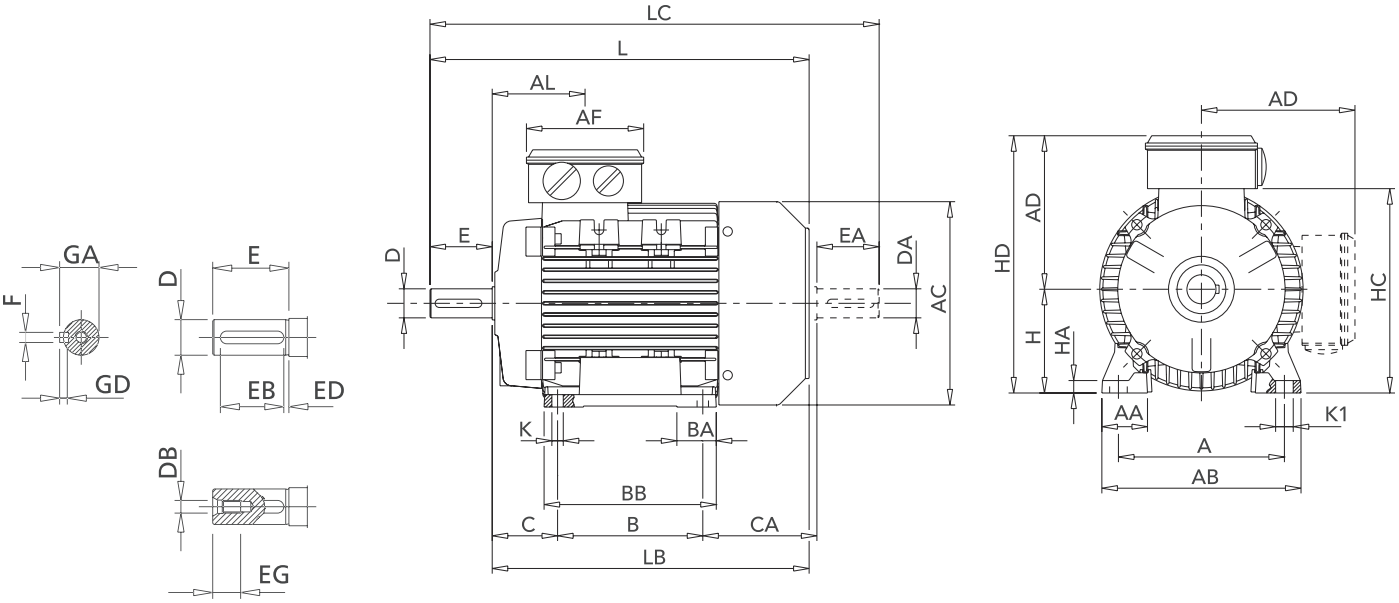
Series LME & DVE - IM B3
All dimensions in mm

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	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) - 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

3-Phase



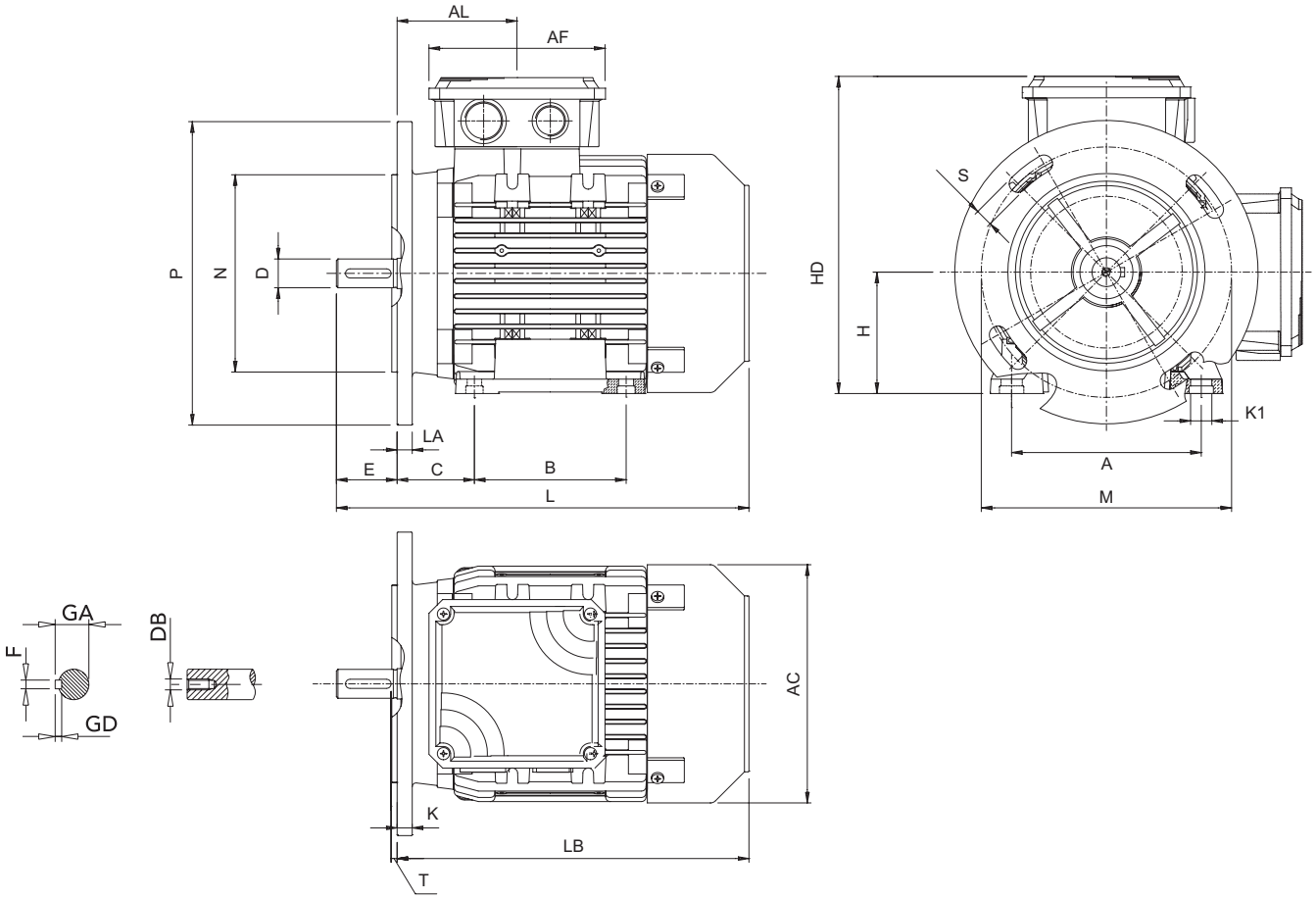
- **See page 27 for B5 flange dimensions**
- **See page 28 for B14 flange dimensions**
- F2 LEAD BOX IS STANDARD

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

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

IM B3
All dimensions in mm

																									AMPH				AMFV	AMBZ	MS
Frame	H	A	B	C	K	AB	BB	AD	HD	AC	HC	HA	K1	AL	AF	BA	AA	D/DA	E/EA	F	GD	GA	DB	EG	EB	CA	L	LB	LC	L	L	L
56	56	90	71	36	6	107	86	92	148	110	109	8	9	61	92	27	27	9	20	3	3	10.2	M3	7.5	15	64	188	168	211	-	-	-
63	63	100	80	40	7	120	100	96	159	124	120	8	11	63	92	29	30	11	23	4	4	12.5	M4	10.5	15	72	211	188	238	-	267	226
71	71	112	90	45	8	135	108	110	181	139	142	9	11	69	92	28	31	14	30	5	5	16	M5	12.5	20	83	246	216	278	308	300	255
80	80	125	100	50	10	153	125	129	209	160	162	9.5	14	79	116	28.5	34.5	19	40	6	6	21.5	M6	19	30	89	272	232	319	361	350	294
90S	90	140	100	56	10	170	150	138	228	180	181	11	15	85	116	28/53	37	24	50	8	7	27	M8	19	40	116	317	267	372	392	403	340
90L	90	140	125	56	10	170	150	138	228	180	181	11	15	85	116	28/53	37	24	50	8	7	27	M8	19	40	91	317	267	372	417	403	340
100L	100	160	140	63	11	192	166	145	245	196	198	12	17	91	116	38	44	28	60	8	7	31	M10	22	50	110	366	306	433	462	465	379
112M	112	190	140	70	12.5	220	175	161	273	225	226	15	19	91.5	116	46	48	28	60	8	7	31	M10	22	50	126	388	328	456	479	487	396
132S	132	216	140	89	12	256	180	195	326	248	261	17	20	100	133	45	59	38	80	10	8	41	M12	28	70	134	485	365	523	562	592	480
132S 2P 7.5 kW	132	216	140	89	12	256	180	195	326	248	261	17	20	100	133	45	59	38	80	10	8	41	M12	28	70	134	465	385	543	562	592	480
132M 2P	132	216	178	89	12	256	218	195	326	248	261	17	20	120	133	45	59	38	80	10	8	41	M12	28	70	136	505	425	583	582	612	500
132M 4P	132	216	178	89	12	256	218	195	326	248	261	17	20	120	133	45	59	38	80	10	8	41	M12	28	70	166	505	405	563	582	612	500
160M	160	254	210	108	14	320	270	238	398	317	316	23	18	145	150	65	76	42	110	12	8	45	M16	40	100	180	608	498	668	723	721	614
160L	160	254	254	108	14	320	310	238	398	317	316	23	18	168	150	65	76	42	110	12	8	45	M16	40	100	180	652	542	712	715	763	658



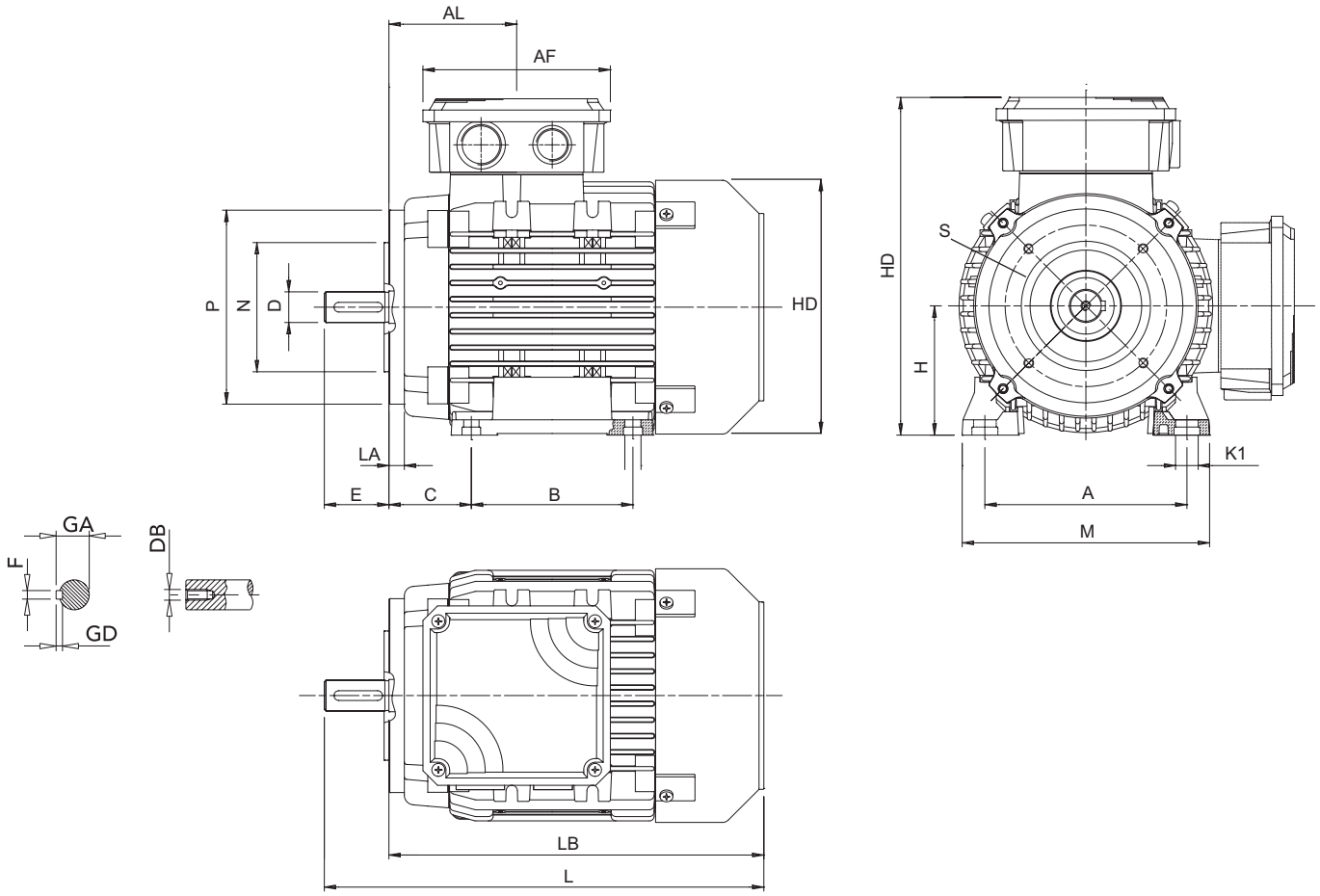
• F2 LEAD BOX IS STANDARD

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

IM B5 - D Flange
All dimensions in mm

																								AMPH		AMFV	AMBZ	MS
Frame	**M**	**N**	**P**	**T**	**LA**	**S**	**H**	**A**	**B**	**C**	**K**	**HD**	**AC**	**HA**	**K1**	**AL**	**AF**	**D**	**E**	**F**	**GD**	**GA**	**DB**	**L**	**LB**	**L**	**L**	**L**
56	100	80	120	2.5	7	7	56	90	71	36	6	148	110	8	9	61	92	9	20	3	3	10.2	M3	188	168	-	-	-
63	115	95	140	3	8	9.5	63	100	80	40	7	159	124	8	11	63	92	11	23	4	4	12.5	M4	211	188	-	267	226
71	130	110	160	3.5	10	9.5	71	112	90	45	8	181	139	9	11	69	92	14	30	5	5	16	M5	246	216	308	300	255
80	165	130	200	3.5	10	11.5	80	125	100	50	10	209	159.5	9.5	14	79	116	19	40	6	6	21.5	M6	272	232	361	350	294
90S	165	130	200	3.5	12	11.5	90	140	100	56	10	228	179.5	11	15	85	116	24	50	8	7	27	M8	317	267	392	403	340
90L	165	130	200	3.5	12	11.5	90	140	125	56	10	228	179.5	11	15	85	116	24	50	8	7	27	M8	317	267	417	403	340
100L	215	180	250	4	14	14	100	160	140	63	11	245	198	12	17	91	116	28	60	8	7	31	M10	366	306	462	465	379
112M	215	180	250	4	14	14	112	190	140	70	12	272	225	15	19	92	116	28	60	8	7	31	M10	388	328	479	487	396
132S	265	230	300	4	14	14	132	216	140	89	12	326	261	17	20	100	133	38	80	10	8	41	M12	485	365	562	592	480
132S 2P 7.5 kW	265	230	300	4	14	14	132	216	140	89	12	326	261	17	20	100	133	38	80	10	8	41	M12	465	385	562	592	480
132M 2P	265	230	300	4	14	14	132	216	178	89	12	326	261	17	20	120	133	38	80	10	8	41	M12	505	425	560	612	500
132M 4P	265	230	300	4	14	14	132	216	178	89	12	326	261	17	20	120	133	38	80	10	8	41	M12	505	405	560	612	500
160M	300	250	350	5	15	18	160	254	210	108	14	398	316	23	18	146	150	42	110	12	8	45	M16	608	498	723	721	614
160L	300	250	350	5	15	18	160	254	254	108	14	398	316	23	18	168	150	42	110	12	8	45	M16	652	542	715	763	658

3-Phase Motors

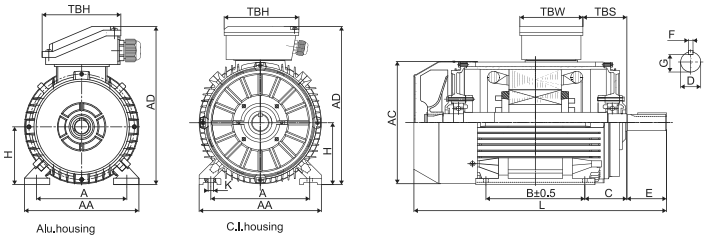


• F2 LEAD BOX IS STANDARD

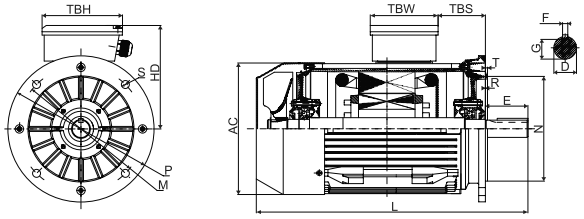
MS Compact brake motor non-drive end shaft is not standard size - Please inquire

IM B14 - C Flange
All dimensions in mm

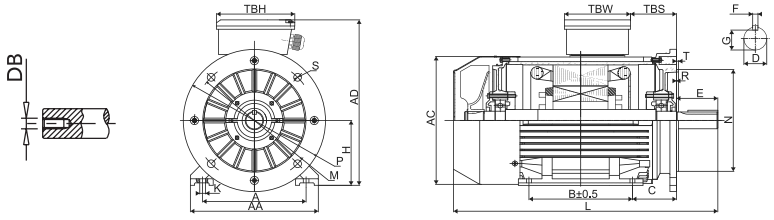
																								AMPH		AMFV	AMBZ	MS
Frame	**M**	**N**	**P**	**T**	**LA**	**S**	**H**	**A**	**B**	**C**	**K**	**HD**	**AC**	**HA**	**K1**	**AL**	**AF**	**D**	**E**	**F**	**GD**	**GA**	**DB**	**L**	**LB**	**L**	**L**	**L**
56	65	50	80	2.5	8	M5	56	90	71	36	6	148	110	8	9	61	92	9	20	3	3	10.2	M3	188	168	-	-	-
63	75	60	90	2.5	8	M5	63	100	80	40	7	159	124	8	11	63	92	11	23	4	4	12.5	M4	211	188	-	267	226
71	85	70	105	2.5	8	M6	71	112	90	45	8	181	139	9	11	69	92	14	30	5	5	16	M5	246	216	308	300	255
80	100	80	120	3	9	M6	80	125	100	50	10	209	159.5	9.5	14	79	116	19	40	6	6	21.5	M6	272	232	361	350	294
90S	115	95	140	3	9	M8	90	140	100	56	10	228	179.5	11	15	85	116	24	50	8	7	27	M8	317	267	392	403	340
90L	115	95	140	3	9	M8	90	140	125	56	10	228	179.5	11	15	85	116	24	50	8	7	27	M8	317	267	417	403	340
100L	130	110	160	3.5	10	M8	100	160	140	63	11	245	198	12	17	91	116	28	60	8	7	31	M10	366	306	462	465	379
112M	130	110	160	3.5	10	M8	112	190	140	70	12	272	225	15	19	92	116	28	60	8	7	31	M10	388	328	479	487	396
132S	165	130	200	3.5	30	M10	132	216	140	89	12	326	261	17	20	100	133	38	80	10	8	41	M12	485	365	562	592	480
132S 2P 7.5 kW	165	130	200	3.5	30	M10	132	216	140	89	12	326	261	17	20	100	133	38	80	10	8	41	M12	465	385	562	592	480
132M 2P	165	130	200	3.5	30	M10	132	216	178	89	12	326	261	17	20	120	133	38	80	10	8	41	M12	505	425	560	612	500
132M 4P	165	130	200	3.5	30	M10	132	216	178	89	12	326	261	17	20	120	133	38	80	10	8	41	M12	505	405	560	612	500
160M	215	180	250	4	36	M12	160	254	210	108	14	398	316	23	18	146	150	42	110	12	8	45	M16	608	498	723	721	614
160L	215	180	250	4	36	M12	160	254	254	108	14	398	316	23	18	168	150	42	110	12	8	45	M16	652	542	715	763	658



IM B3



IM B5 - D Flange



IM B35

Overall & Installation Dimensions

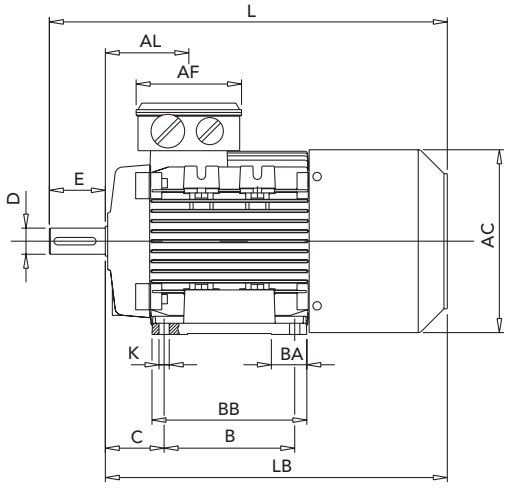
All dimensions in mm

Foot Mounting						Shaft					General						Terminal Box		
Frame	Poles	H	A	B	C	D	E	F	DB	G	K	AA	AD	HD	AC	L	TBS	TBW	TBH
100L	8	100	160	140	63	28	60	8	M10	24	12	205	270	180	215	435	33	100	100
112M	8	112	190	140	70	28	60	8	M10	24	12	230	300	190	240	470	33	108	116
132M	8	132	216	178	89	38	80	10	M12	33	12	270	345	210	275	560	48	108	116
160M/L	8	160	254	210/254	108	42	110	12	M16	37	15	320	420	255	330	670/700	69	150	160
180M/L	2,4,6,8	180	279	241/279	121	48	110	14	M16	42.5	15	348	455	275	380	700/740	81	150	160
200L	2,4,6,8	200	318	305	133	55	110	16	M20	49	19	388	505	305	420	770	92	188	208
225S	4,6,8	225	356	286	149	60	140	18	M20	53	19	436	560	335	470	815	95	188	208
225M	2	225	356	311	149	55	110	16	M20	49	19	436	560	335	470	820	95	188	208
	4,6,8	225	356	311	149	60	140	18	M20	53	19	436	560	335	470	845	95	188	208
250M	2	250	406	349	168	60	140	18	M20	53	24	484	615	365	510	910	99	216	246
	4,6,8	250	406	349	168	65	140	18	M20	58	24	484	615	365	510	910	99	216	246
280S/M	2	280	457	368/419	190	65	140	18	M20	58	24	557	680	400	580	985/1035	107	216	246
	4,6,8	280	457	368/419	190	75	140	20	M20	67.5	24	557	680	400	580	985/1035	107	216	246
315S	2	315	508	406	216	65	140	18	M20	58	28	630	845	530	645	1270	117	280	320
	4,6,8	315	508	406	216	80	170	22	M20	71	28	630	845	530	645	1270	117	280	320
315M/L	2	315	508	457/508	216	65	140	18	M20	58	28	630	845	530	645	1300	117	280	320
	4,6,8	315	508	457/508	216	80	170	22	M20	71	28	630	845	530	645	1300	117	280	320

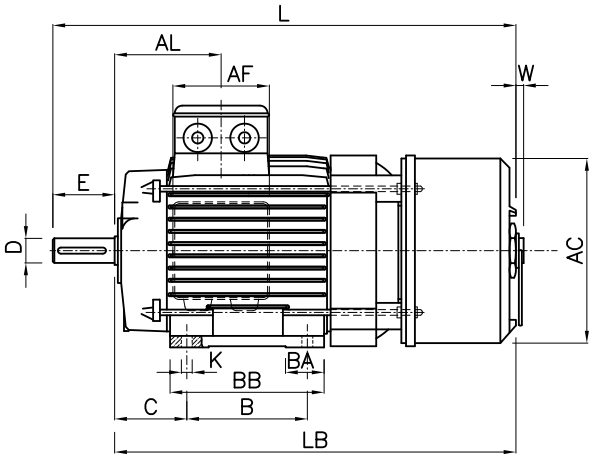
Bearings					B5					
Frame	Poles	Drive End	Non-drive End	Cable Gland	M	N	P	S	T	R
100L	8	6205	6205	M24x1.5	215	180	250	4-15	4	0
112M	8	6306	6306	M30x2	215	180	250	4-15	4	0
132M	8	6308	6308	M30x2	265	230	300	4-15	4	0
160M/L	8	6309	6309	M36x2	300	250	350	4-19	5	0
180M/L	2,4,6,8	6311	6309	2-M36x2	300	250	350	4-19	5	0
200L	2,4,6,8	6312	6312	2-M48x2	350	300	400	4-19	5	0
225S	4,8	6313	6313	2-M48x2	400	350	450	8-19	5	0
225M	2	6312	6312	2-M48x3	400	350	450	8-19	5	0
	4,6,8	6313	6313	2-M48x4	400	350	450	8-19	5	0
250M	2,4,6	6313	6312	2-M64x2	500	450	550	8-19	5	0
280S/M	2	6314	6414	2-M64x2	500	450	550	8-19	5	0
	4,6	6317	6317	2-M64x2	500	450	550	8-19	5	0
315S/L	2	NU317	6317	2-M64x3	600	550	660	8-24	6	0
	4,6	NU317	NU319	2-M64x4	600	550	660	8-24	6	0

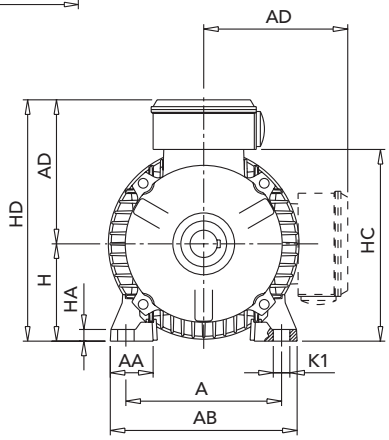
3-Phase - 60 Hz standard - Self Braking

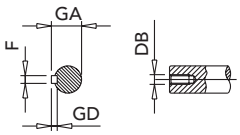
AMBZ



AAF







• See page 27 for B5 flange dimensions
• See page 28 for B14 flange dimensions

IM B3
All dimensions in mm

														AAF		AMBZ										
Frame	**H**	**A**	**B**	**C**	**K**	**AB**	**BB**	**AD**	**HD**	**AC**	**HC**	**HA**	**K1**	**L**	**LB**	**L**	**LB**	**AL**	**AF**	**BA**	**AA**	**D**	**E**	**F**	**GD**	**GA**	**DB**
63	63	100	80	40	7	120	100	96	159	124	120	8	11	302	279	267	244	63	92	29	30	11	23	4	4	12.5	M4
71	71	112	90	45	8	135	108	110	181	139	142	9	11	336	306	300	270	69	92	28	31	14	30	5	5	16	M5
80	80	125	100	50	10	153	125	129	208	157	161	9.5	14	384	344	350	310	79	116	29	35	19	40	6	6	21.5	M6
90S	90S	140	100	56	10	170	150	137	227	177	180	11	15	435	385	403	353	85	116	28/53	37	24	50	8	7	27	M8
90L	90L	140	125	56	10	170	150	137	227	178	180	11	15	435	385	403	353	85	116	28/53	37	24	50	8	7	27	M8
100	100	160	140	63	11	192	166	144	244	196	197	12	17	479	417	465	405	91	116	38	44	28	60	8	7	31	M10
112	112	190	140	70	12.5	220	175	160	272	222	225	15	19	507	447	487	427	92	116	46	48	28	60	8	7	31	M10
132S	132	216	140	89	12	256	180	194	326	248	261	17	20	613	533	592	512	100	133	45	59	38	80	10	8	41	M12
132M	132	216	178	89	12	256	218	194	326	248	261	17	20	633	553	612	532	120	133	45	59	38	80	10	8	41	M12
132M*	132	216	178	89	12	256	218	194	326	248	261	17	20	683	603	N/A	N/A	120	133	45	59	38	80	10	8	41	M12
160M	160	254	210	108	14	320	270	237	397	316	317	23	18	784	674	721	611	146	150	65	76	42	110	12	8	45	M16
160L	160	254	254	108	14	320	310	237	397	316	317	23	18	806	696	763	653	168	150	65	76	42	110	12	8	45	M16
160L**	160	254	254	108	14	320	310	237	397	316	317	23	18	N/A	N/A	790	680	168	150	65	76	42	110	12	8	45	M16

* Only for MTA2
** Only for LRA4

Combustion Temperatures of Gases and Vapors 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 vapors 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 Cloride Methane Methanol Methyl Acetate Methyl Alcohol Methyl Cloride Naphthalene Propane Toluene Xylene	Acetic Anhydride I Amyl Acetate N Butate N Butyl Alcohol Amylic Alcohol Butyl Acetate Cycylohexanon Ethyl Alcohol Iso Butylic Alcohol Liquefied Gas Natural Gas Propyl Acetate	Cyclohexane Cyclohexanal 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

Dangerous Areas and Zones

Zones susceptible to gas

When the hazard is due to the presence of gas, vapors or mist 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 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 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**

Explosion Proof

Temperature Classes (for gas atmosphere)

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 electrical 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)	Temperature Class	Maximum Surface Temperature of Electrical Equipment (including 40° C ambient temperature)	
[°C]		[°C]	[°F]
over 450	**T1**	450	842
from 300 to 450	**T2**	300	572
from 200 to 300	**T3**	200	392
from 135 to 200	**T4**	135	275
from 100 to 135	**T5**	100	212
from 85 to 100	**T6**	85	185

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 bearing (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.

Flameproof Motor Purchasing Guide

Power Rating	_____ kW
Synchronous Speed	_____ RPM
Phase	_____ Ph
Frequency	_____ Hz
Voltage	_____ V
Destination (Country)	
Starting & Control	_____ D.o.L _____ VFD
Torque	_____ Constant _____ Variable
Protection Scheme	_____ TEFC _____ Ex 'd' _____ Ex 'de' _____ Ex'na
Temperature Class	T _____ (1,2,3,4,5 or 6)
Zone Classification	_____ (Gas 0,1 or 2) _____ (Dust 20,21 or 22)
Grouping	_____ (I, IIA, IIB, IIC)
Environment (Chemical)	
Insulation Class	_____ Class F
Temperature Rise	_____ Class B
Ambient Temperature	_____ (40°C, 45°C, 50°C, 55°C)
IP rating	IP _____ (IP55, IP56, IP other)
IC Rating	_____ IC411 _____ IC416 _____ IC _____
Paint Standard	_____ C2 _____ C3 _____ C4 _____ C5i _____ Other _____
Finish Colour	_____ RAL 5010 _____ Other _____
Main Terminal Box (MTB)	_____ F0 _____ F _____
Termination IEC 60034-8	_____ Standard Terminal Block _____ Flying Leads
Bearings Arrangement	_____ Anti Friction Ball _____ Roller Type _____ Sealed _____ Other _____
Mounting	_____ B3 Foot Mounted _____ B5 _____ B14 _____ B34 _____ B35 _____ V1
Service Factor	_____ 1.0 _____ 1.15
Certifications	_____ ATEX _____ IEC ex (On Request) _____ Other _____
Efficiency Classification	_____ IE1 Standard High _____ IE2 ePACT _____ IE3 Premium
Special Features	_____ Thermistors _____ Thermistats _____ 100 Ω platinum RTDs 2-phase wired to MTB _____ Space Heaters _____ V AC _____ Other: _____

Various Designs Available from Stock in North America

Available in 230/460V or 333/575V 60 Hz • Threaded hole in output shaft is standard • TEFC • Squirrel Cage • Class F • Cast Iron Construction
IP55 - Terminal box IP56 • ATEX Certification • Flameproof enclosure EExd IIC T4 Gb • Class 'B' Rise
See page 34 and 35 for dimensional drawings • Single Phase, Two Speed and Brake motor designs available on request (as well as alternate levels of protection).
No CSA nor UL Certification provided
Available in 230/400V 50Hz in up to 355 frame & 375 HP

2 POLE - 3600 RPM

ATEX CERTIFIED Part Number	HP	Weight (lbs)	List Price $
AC35 63 A2	0.25	35	1,558.00
AC35 63 B2	0.33	35	1,653.00
AC35 71 A2	0.50	42	1,754.00
AC35 71 B2	0.75	42	1,927.00
AC35 80 A2 **	1.00	57	1,968.00
AC35 80 B2 **	1.50	57	2,172.00
AC35 90S 2 **	2.00	73	2,341.00
AC35 90L 2 **	3.00	73	2,642.00
AC35 100L A2 **	4.00	102	3,296.00
AC35 112M 2 **	5.50	144	4,139.00
AC35 132S A2 **	7.50	210	5,308.00
AC35 132S B2 **	10.00	210	6,108.00
AC35 132M B2 **	12.50	232	7,516.00
AC35 132M L2 **	15.00	232	8,129.00
AC35 160M A2 **	15.00	397	8,919.00
AC35 160M B2 **	20.00	397	10,895.00
AC35 160L A2 **	25.00	430	12,668.00
AC35 180M 2 **	30.00	507	15,906.00
AC35 200L A2 **	40.00	630	21,155.00
AC35 200L B2 **	50.00	672	24,826.00
AC35 225M 2 **	60.00	850	31,207.00
AC35 250M 2 **	75.00	1115	41,107.00

4 POLE - 1800 RPM

ATEX CERTIFIED Part Number	HP	Weight (lbs)	List Price $
AC35 63 A4	0.18	35	1,526.00
AC35 63 B4	0.25	35	1,617.00
AC35 71 A4	0.33	42	1,686.00
AC35 71 B4	0.50	42	1,781.00
AC35 80 A4	0.75	57	1,892.00
AC35 80 B4 **	1.00	57	1,985.00
AC35 90S 4 **	1.50	73	2,291.00
AC35 90L 4 **	2.00	73	2,557.00
AC35 100L A4 **	3.00	102	3,060.00
AC35 100L B4 **	4.00	102	3,671.00
AC35 112M 4 **	5.50	144	4,701.00
AC35 132S B4 **	7.50	210	5,384.00
AC35 132M B4 **	10.00	210	6,661.00
AC35 132M L4 **	11.80	232	7,955.00
AC35 160M B4 **	15.00	397	9,423.00
AC35 160L B4 **	20.00	430	11,066.00
AC35 180M 4 **	25.00	504	14,203.00
AC35 180L 4 **	30.00	540	16,990.00
AC35 200L B4 **	40.00	672	21,750.00
AC35 225S 4 **	50.00	794	26,719.00
AC35 225M 4 **	60.00	850	31,207.00
AC35 250M 4 **	75.00	1191	40,782.00

6 POLE - 1200 RPM

ATEX CERTIFIED Part Number	HP	Weight (lbs)	List Price $
AC35 63 B6	0.12	35	1,695.00
AC35 71 A6	0.25	42	1,756.00
AC35 71 B6	0.35	42	1,914.00
AC35 80 A6	0.50	57	2,006.00
AC35 80 B6	0.75	57	2,086.00
AC35 90S 6 **	1.00	73	2,466.00
AC35 90L 6 **	1.50	73	2,747.00
AC35 100L B6 **	2.00	102	3,363.00
AC35 112M 6 **	3.00	144	4,057.00
AC35 132S B6 **	4.00	210	5,934.00
AC35 132M B6 **	5.50	210	6,375.00
AC35 132M L6 **	7.50	232	6,791.00
AC35 160M B6 **	10.00	397	9,842.00
AC35 160L 6 **	15.00	430	12,968.00
AC35 180L 6 **	20.00	540	18,173.00
AC35 200L A6 **	25.00	650	19,598.00
AC35 200L B6 **	30.00	672	24,339.00
AC35 225M 6 **	40.00	850	32,295.00
AC35 250M 6**	50.00	1146	42,140.00

8 POLE - 900 RPM

ATEX CERTIFIED Part Number	HP	Weight (lbs)	List Price $
AC35 63 B8	0.06	35	1,779.00
AC35 71 B8	0.20	42	2,050.00
AC35 80 A8	0.25	57	2,372.00
AC35 80 B8	0.33	57	2,820.00
AC35 90S 8	0.50	73	3,257.00
AC35 90L 8	0.75	73	3,406.00
AC35 100L A8 **	1.00	102	3,893.00
AC35 100L B8 **	1.50	102	4,378.00
AC35 112M 8 **	2.00	144	4,778.00
AC35 132S B8 **	3.00	210	6,838.00
AC35 132M B8 **	4.00	232	7,516.00
AC35 160M A8 **	5.50	397	9,095.00
AC35 160M B8 **	7.50	397	11,110.00
AC35 160L 8 **	10.00	430	13,075.00
AC35 180L 8 **	15.00	540	18,782.00
AC35 200L B8 **	20.00	672	23,634.00
AC35 225S 8 **	25.00	794	31,390.00
AC35 225M 8 **	30.00	850	33,521.00
AC35 250M 8**	40.00	1113	46,777.00

** Export only

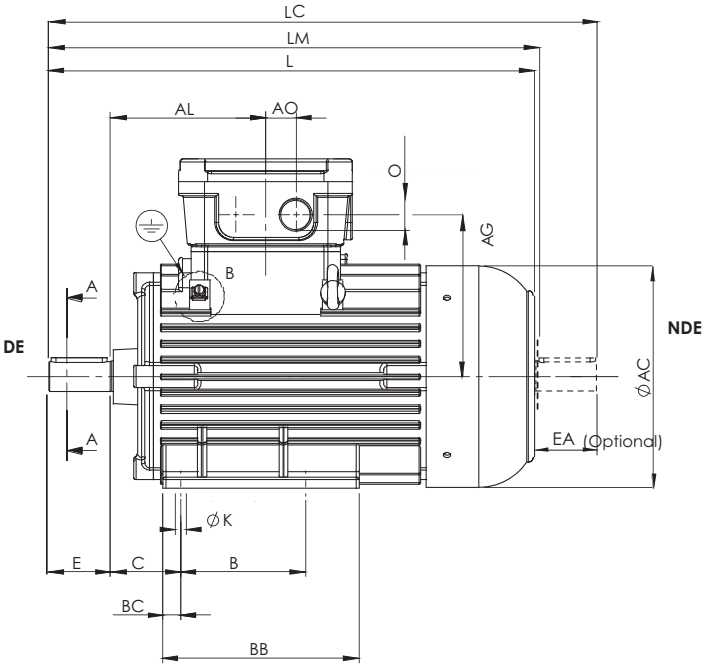
Non-sparking (Class 1 Div. 1) Motors are also available.

See LAB series on page 8 & 9.

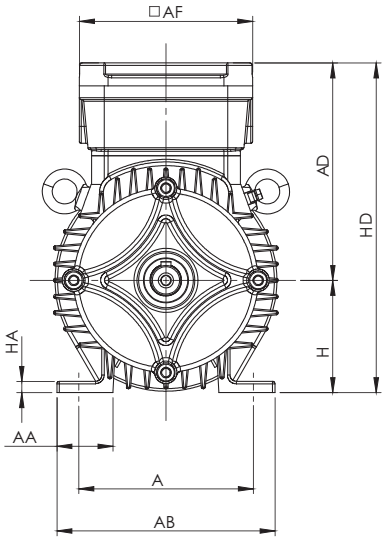
Explosion Proof Motors do not meet North American Energy Efficiency Regulations

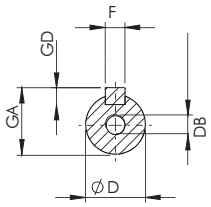
NORTH AMERICAN CERTIFICATION MUST BE OBTAINED BY USER

3-Phase



IM B3



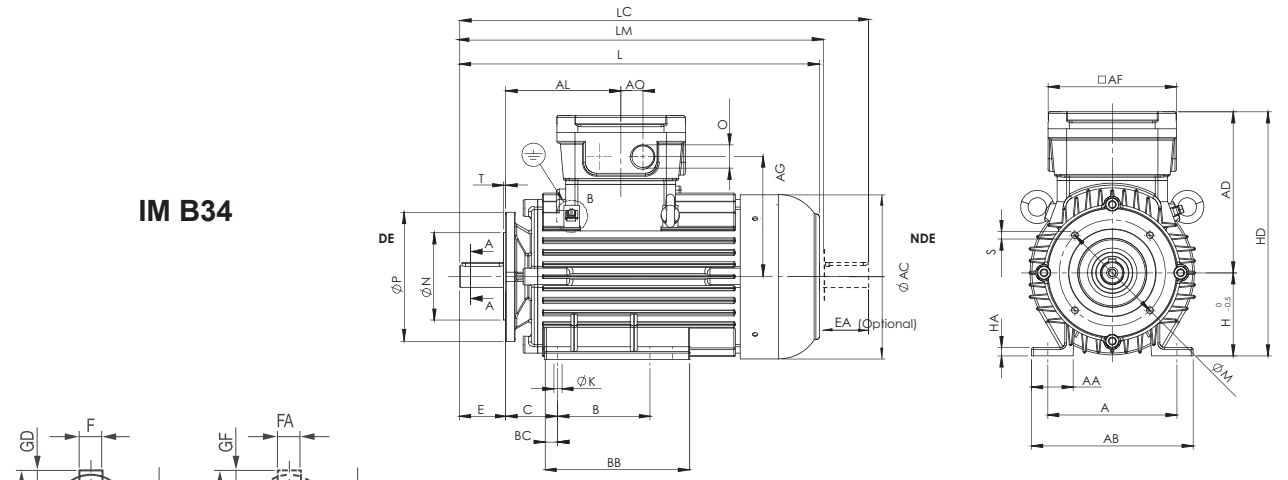


Explosion Proof - IM B3
All dimensions in mm

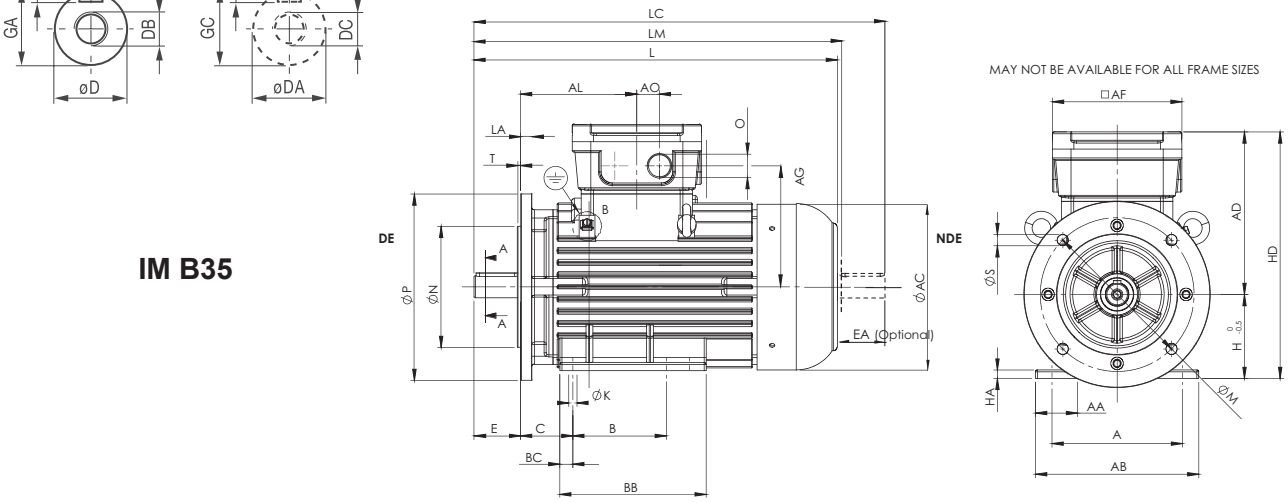
Frame	A	AA	AB	AC	AD	AF	AL	B	BC	BB	C	D	E	H	HA	HD	K	L	LC	LM	AO	IEC 60423 n. x O
63	100	25	125	123	145	139	95	80	9.5	105	40	11j6	23	63	6	208	7	247	275.5	275	24	1xM25
71	112	32	140	140	155	139	106	90	11.0	112	45	14j6	30	71	7	226	7	276	311.0	305	24	1xM25
80	125	40	160	158	165	139	142	100	15.0	130	50	19j6	40	80	8	245	9	327	372.5	356	24	1xM25
90S	140	45	175	178	175	139	125	100	14.0	157	56	24j6	50	90	9	265	9	390	441.0	418	24	1xM25
90L	140	45	175	178	175	139	125	125	14.0	157	56	24j6	50	90	9	265	9	390	441.0	418	24	1xM25
100	160	45	200	196	185	139	125	140	15.0	170	63	28j6	60	100	10	285	12	430	490.5	458	24	1xM25
112	190	45	235	223	206	139	138	140	17.0	175	70	28j6	60	112	12	318	12	475	543.5	503	24	1xM25
132S	216	56	272	258	260	205	163	140	22.0	222	89	38k6	80	132	13	392	12	505	590.0	550	35	2xM32
132M	216	56	272	258	260	205	163	178	22.0	222	89	38k6	80	132	13	392	12	580	665.0	625	35	2xM32
160M	254	64	318	310	290	205	166	210	25.0	305	108	42k6	110	160	15	450	14	693	811.0	738	35	2xM32
160L	254	64	318	310	290	205	166	254	25.0	305	108	42k6	110	160	15	450	14	693	811.0	738	35	2xM32
180M	279	71	350	359	326	223	223	241	25.0	340	121	48k6	110	180	17	506	14	814	923.5	860	38	2xM40
180L	279	71	350	359	326	223	223	279	25.0	340	121	48k6	110	180	17	506	14	814	923.5	860	38	2xM40
200	318	75	393	395	346	223	230	305	27.0	360	133	55m6	110	200	18	546	18	867	985.0	913	38	2xM40
225S	356	78	431	445	371	223	240	286	38.0	380	149	60m6	140	225	20	596	18	945	1090.0	991	38	2xM40
225M2	356	78	431	445	371	223	240	311	38.0	380	149	55m6	110	225	20	596	18	915	1030.0	961	38	2xM40
225M4-8	356	78	431	445	371	223	240	311	38.0	380	149	60m6	140	225	20	596	18	945	1090.0	991	38	2xM40
250M2	406	95	500	467	396	223	221	349	33.0	415	168	60m6	140	250	22	646	24	963	1110.0	1006	38	2xM40
250M4-8	406	95	500	467	396	223	221	349	33.0	415	168	65m6	140	250	22	646	24	963	1110.0	1006	38	2xM40

Ground
1 in the terminal box
1 on the frame

IM B34



IM B35



Explosion Proof - IM B3, IM B34 & IM 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	18	5	215	180h6	250	M12	4
160L	215	42k6	110	12	45	8	M16	18.0	300	250h6	350	18	5	215	180h6	250	M12	4
180M	266	48k6	110	14	51.5	9	M16	20.0	300	250h6	350	18	5					
180L	266	48k6	110	14	51.5	9	M16	20.0	300	250h6	350	18	5					
200	286	55m6	110	16	59	10	M20	20.0	350	300h6	400	18	5					
225S	311	60m6	140	18	64	11	M20	22.0	400	350h6	450	18	5					
225M2	311	55m6	110	16	59	10	M20	22.0	400	350h6	450	18	5					
225M4-8	311	60m6	140	18	64	11	M20	22.0	400	350h6	450	18	5					
250M2	336	60m6	140	18	64	11	M20	22.0	500	450h6	550	18	5					
250M4-8	336	65m6	140	18	69	11	M20	22.0	500	450h6	550	18	5					

Note: 225 to 250 have 8 holes on flanges

B34 = Motor with feet and B14 Flange
B35 = Motor with feet and B5 Flange

3 Phase

Available in 208-230/460V or 333/575V 60 Hz • 3600 RPM

Immersion pumps • Approved by Electrical Safety Field Evaluation Group • SPV pumps are cULus approved

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

cULus approved

Part Number	HP	Full Load Amps 460V	Full Load Amps 575V	Suction Height B (mm)	Weight (lbs)	Price $
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 90/A 350	2.00	5.0	3.9	350	93	4,093.00
IMM 90/A 450	2.00	5.0	3.9	450	106	4,263.00
IMM 90/A 600	2.00	5.0	3.9	600	108	4,432.00
IMM 90/A 800	2.00	5.0	3.9	800	110	4,578.00
IMM 90/B 350	3.00	6.2	4.9	350	108	4,727.00
IMM 90/B 450	3.00	6.2	4.9	450	109	4,872.00
IMM 90/B 600	3.00	6.2	4.9	600	110	5,017.00
IMM 90/B 800	3.00	6.2	4.9	800	114	5,219.00
IMM 100/B 350	5.00	8.6	6.8	350	117	5,437.00
IMM 100/B 450	5.00	8.6	6.8	450	118	5,573.00
IMM 100/B 600	5.00	8.6	6.8	600	120	5,708.00
IMM 100/B 800	5.00	8.6	6.8	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 / Prevalance Head in feet — Head in Feet

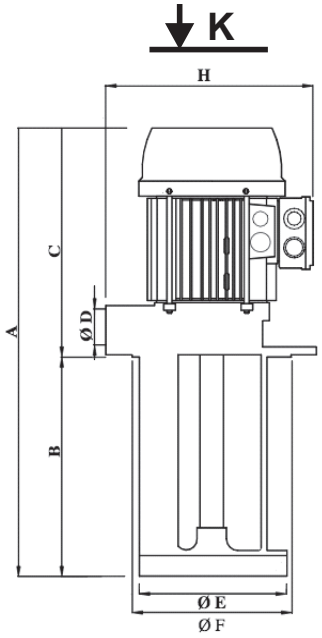
Part Number	HP	Gas Thread	0	3	6	9	12	15	20	23	26	30	33	39	46	52	60
SPV 12	0.12	3/4”	15	12	9	5	2	-	-	-	-	-	-	-	-	-	-
SPV 18	0.18	3/4”	17	15	12	9	6	1	-	-	-	-	-	-	-	-	-
SPV 25	0.25	3/4”	19	17	15	12	8	5	-	-	-	-	-	-	-	-	-
SPV 33	0.33	3/4”	21	18	16	13	11	7	1	-	-	-	-	-	-	-	-
SPV 50	0.50	1 1/4”	57	55	53	48	44	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 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 ½”	317	306	296	285	277	269	258	247	237	225	212	187	165	110	49

GALLONS PER MINUTE

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.

Dimensions



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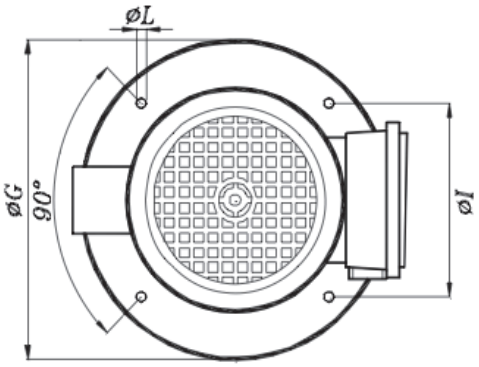


Sacemi Coolant Pumps

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									
		515	350									
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									
		560	350									
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 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									
IMM 100/B	5.00	730	350	380	2 1/2"	235	240	300	145	270	13	4
		830	450									
		980	600*									
		1180	800*									

* Cast iron

Dimensions

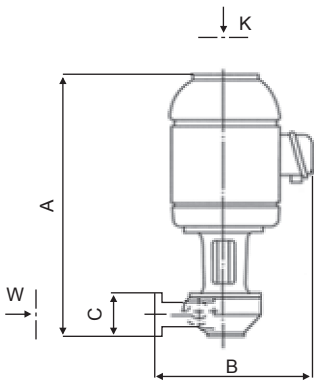
Type SQ - Side Mount

US Gallons per minute

Part Number	Absorbed kW	HP	Prevalence Head (ft) 0	3	6	9	12	Weight (lbs)	Price $
SQ 56S	0.16	0.18	19	17	13	9	-	9	705.00
SQ 63S	0.30	0.25	26	24	21	16	10	11	1,059.00

Part Number	A	B	C	D	E	F	G	H	I	L
SQ 56S	255	170	60	95	140	75	45	7	3/8”	53
SQ 63S	200	180	60	95	158	75	45	7	1/2”	53

All dimensions in mm



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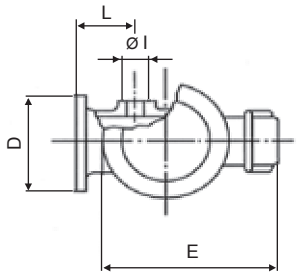
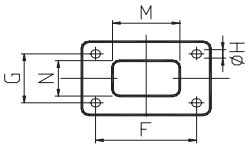




	M	N
SQ 56 - 63	50	30
SQ 71 - 80	80	40

Detail of Flange from “W” view

Type AU - Self Priming

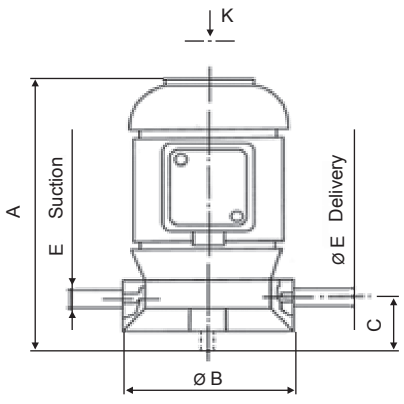
US Gallons per minute

Part Number	Absorbed kW	HP	Prevalence Head (ft) 0	6	12	18	24	30	36	Weight (lbs)	Price $
AU 56	0.16	0.18	3.7	3.2	2.7	2.2	1.8	1.3	0.8	10	879.00
AU 63	0.30	0.25	5.3	4.8	4.3	3.8	3.3	2.9	2.4	12	1,308.00

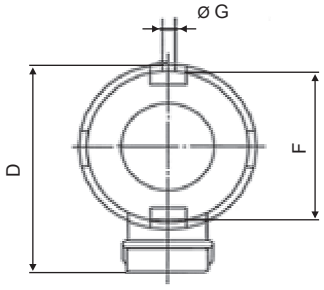
View from “K”

Part Number	A	B	C	D	E	F	G
AU 56	215	115	48	144	3/8”	95	7
AU 63	270	115	48	165	1/2”	95	7

All dimensions in mm



View from “K”

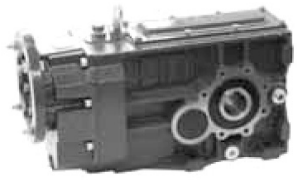


Right Angle Worm Gearboxes

- Hollow, single or double output shafts
- Double reduction available
- Ratios of 5:1 to 10,000:1
- IEC 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 mount and/or modular flange for output
- IEC shaft & flange input/outputs
- Designed to fit standard IEC motors
- 2 stage ratios up to 50:1, 3 stage 466:1



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

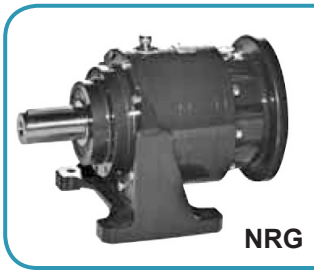
Shaft Mounted Helical Gearboxes

High Versatility
High Performance
- 8 sizes that offer a wide range of possible mounting positions
- 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.

NEMA Inputs for OEM/High Volume quantities may be available, please contact a Lafert Sales rep. for more information.

Pricing

MI - I Series Worm Gearboxes

			ADDITIONAL FEATURES AND ACCESSORIES										
Size	MI Series Price $	I Series Price $ (Factory)	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	Weight (lbs)
I 25	407.00	360.00	24.00	24.00/F	-	-	-	-	-	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	INQUIRE	-	581.00	698.00	-	1,864.00	-	**	248

** Prelubricated*
*** 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

			ADDITIONAL FEATURES AND ACCESSORIES						
Size	MU Series Price $	U Series Price $ (Factory Option)	Output Flanges F, FBR, FBM, FBML Price $	Single Output Shaft Price $	Double Output Shaft Price $	Torque Arm Price $	Double Input Shaft Price $	Oil	Weight (lbs)
MU 40	585.00	503.00	48.00	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	1,080.00	970.00	74.00	186.00	229.00	174.00	263.00	*	12
MU 75	1,478.00	1,396.00	86.00	205.00	272.00	209.00	390.00	*	20
MU 90	1,682.00	1,493.00	266.00	243.00	283.00	209.00	424.00	*	30
MU 110	2,350.00	2,090.00	350.00	285.00	314.00	272.00	592.00	*	42

Inox version/stainless steel - add 40%

** Prelubricated*
*** Oil available on request at extra cost*

ATEX Approved Gearboxes can be supplied - Please inquire

See pages 48 & 49 for performance rating tables
See page 50 & 51 for dimensional drawings

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

Service Factors

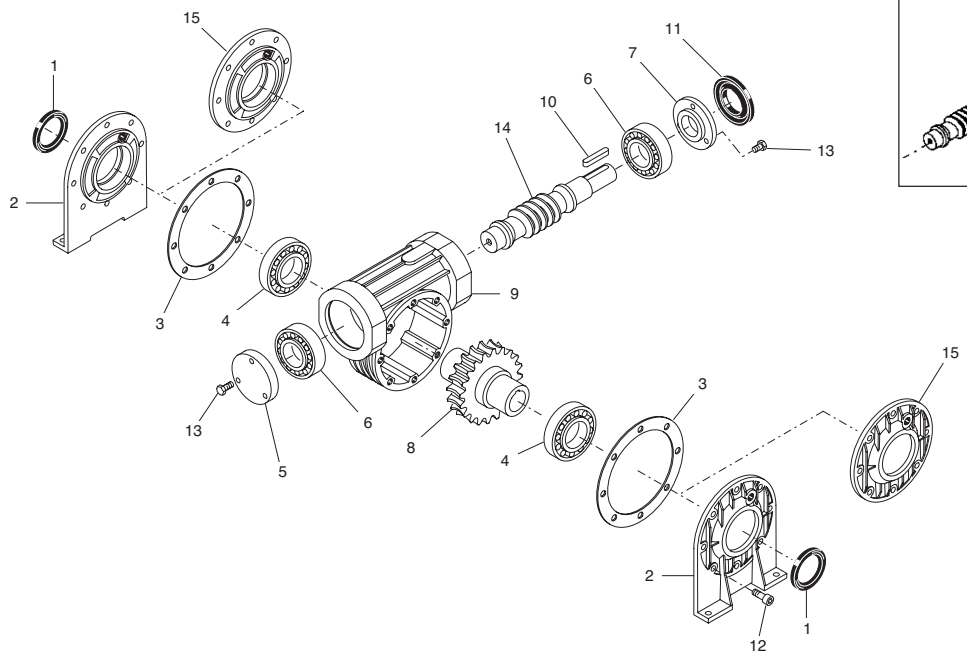
The following table give the service factors relating to the most common applications. For applications that do not appear in the table, the relative value may be selected by taking into account the following characteristics:

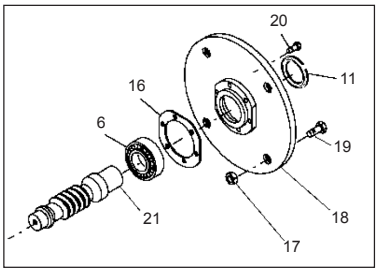
Applied Load, Number of Working Hours per Day, and Number of Start/Stops per hour.

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
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	1	1.25	1.5	1.75
		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





Description

1. Oil Seal
2. Foot
3. Gasket
4. Bearing
5. Cover
6. Bearing
7. Cover
8. Crown Gear
9. Body
10. Key
11. Oil Seal
12. Screw
13. Screw
14. Worm Screw
15. Flange
16. Gasket
17. Nut
18. Flange
19. Screw
20. Screw
21. Worm Screw Pam

MOTOR SHAFT AND FLANGE DIAMETERS

		56	63	71	80	90	100	112	132	160	180	200
PAM	B5	9/120	11/140	14/160	19/200	24/200	28/250	28/250	38/300	42/350	48/350	55/400
	B14	9/80	11/90	14/105	19/120	24/140	28/160	28/160				

Ratings Table

			I-MI-25				I-MI-30				I-MI-40				I-MI-50			
Ratio	n1	n2	M2	kW	HP	RD	M2	kW	HP	RD	M2	kW	HP	RD	M2	kW	HP	RD
	3360	448	7	0.4	0.54	85%	13	0.69	0.93	86%	22	1.15	1.57	88%	41	2.16	2.93	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%
7.5	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%
	3360	336	7	31	0.42	82%	14	0.57	0.77	84%	23	0.91	1.24	87%	44	1.8	2.45	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%
10	900	90	10	0.12	0.20	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%
	3360	224	7	0.22	0.29	78%	14	0.4	0.54	79%	24	0.69	0.93	83%	50	1.42	1.92	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%
15	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%
	3360	168	7	0.16	0.22	77%	14	0.33	0.44	73%	29	0.63	0.86	80%	44	0.97	1.32	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%
20	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%
	3360	135	8	0.17	0.22	69%	15	0.28	0.38	77%	19	0.34	0.46	78%	43	0.79	1.07	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%
25	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%
	3360	112	9	0.16	0.22	65%	17	0.3	0.41	66%	32	0.52	0.71	71%	56	0.91	1.24	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%
30	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%
	3360	84	8	0.11	0.15	63%	15	0.2	0.27	68%	31	0.41	0.56	65%	49	0.69	0.94	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%
40	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%
	3360	67	8	0.11	0.14	54%	14	0.16	0.22	64%	31	0.34	0.46	63%	48	0.54	0.74	62%
	1750	35	10	0.06	0.09	53%	19	0.1	0.13	63%	39	0.22	0.3	62%	60	0.35	0.46	61%
50	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%
	3360	56	7	0.08	0.11	52%	13	0.15	0.2	50%	29	0.28	0.38	60%	44	0.46	0.63	56%
	1750	29	9	0.05	0.07	51%	16	0.09	0.13	49%	36	0.18	0.24	59%	56	0.3	0.4	55%
60	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%
	3360	42	5	0.04	0.06	48%	9	0.07	0.1	56%	23	0.2	0.27	51%	43	0.35	0.47	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%
80	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%
	3360	34	3	0.02	0.03	42%	5	0.04	0.05	48%	22	0.16	0.21	49%	40	0.28	0.39	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%
100	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%

n1 = Input Speed
n2 = Output Speed

M2 = Output Torque (Nm)
kW = Input kW

HP = Input HP
RD = Dynamic Efficiency

Use factor 8.85 to convert Nm to in lbs.

Ratings Table

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
79	4.13	5.61	90%	117	6.1	8.29	90%	149	7.79	10.58	90%	194	10.09	13.71	90%	306	16.13	21.92	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%
73	2.91	3.96	88%	126	5.04	6.85	88%	133	5.33	7.24	88%	176	7.05	9.59	88%	345	13.78	18.73	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%
95	2.64	3.59	84%	138	3.67	4.99	88%	194	5.28	7.17	86%	269	7.34	9.98	86%	413	11.4	15.49	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%	475	2.08	2.82	80%	729	3.22	4.39	79%
84	1.75	2.38	84%	119	2.55	3.46	82%	176	3.74	5.08	83%	253	5.36	7.29	83%	337	7.31	9.94	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%
94	1.65	2.24	80%	123	2.12	2.88	82%	168	2.89	3.93	82%	245	4.2	5.71	82%	360	6.18	8.4	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%
106	1.71	2.32	73%	147	2.15	2.92	80%	219	3.21	4.36	80%	294	4.31	5.86	80%	467	6.85	9.31	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%
98	1.20	1.63	72%	134	1.62	2.2	73%	202	2.43	3.3	73%	275	3.32	4.51	73%	459	5.24	7.13	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%
88	0.91	1.24	68%	138	1.4	1.91	69%	171	1.74	2.37	69%	264	2.69	3.66	69%	421	4.12	5.6	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%
81	0.74	1.01	64%	126	1.14	1.55	65%	168	1.52	2.06	65%	253	2.28	3.1	65%	406	3.35	4.56	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%
79	0.60	0.82	58%	98	0.85	1.15	51%	164	1.29	1.75	56%	211	1.65	2.25	56%	345	2.41	3.27	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%
69	0.46	0.63	53%	95	0.72	0.98	46%	145	0.96	1.31	53%	195	1.3	1.76	53%	306	1.79	2.44	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%

n1 = Input Speed
n2 = Output Speed

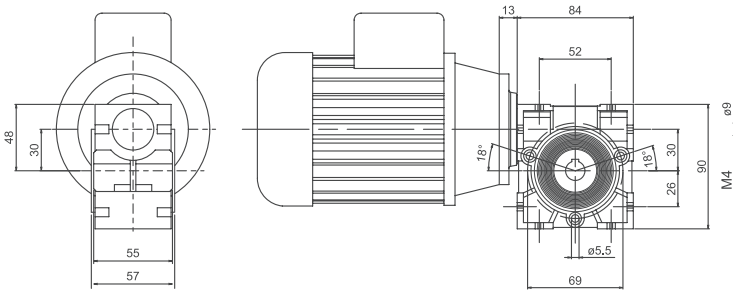
M2 = Output Torque (Nm)
kW = Input kW

HP = Input HP
RD = Dynamic Efficiency

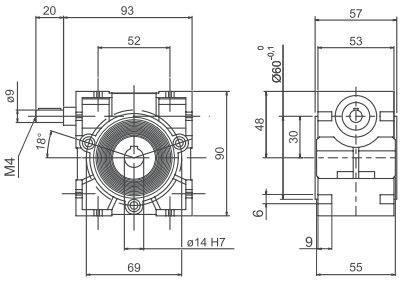
Use factor 8.85 to convert Nm to in lbs.

Dimensions

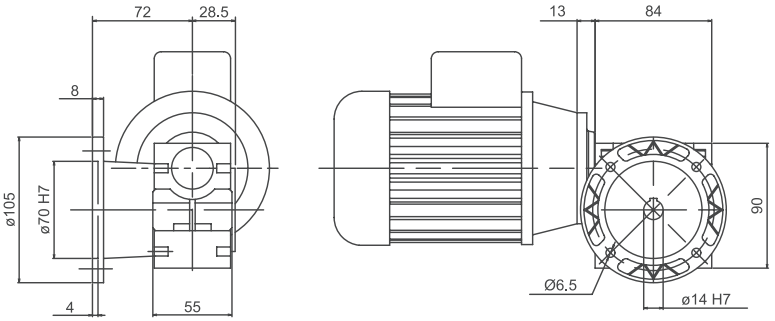
MI 30



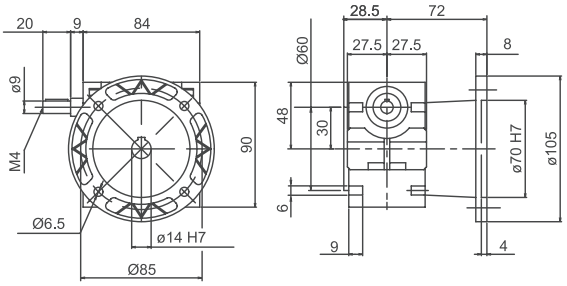
I 30



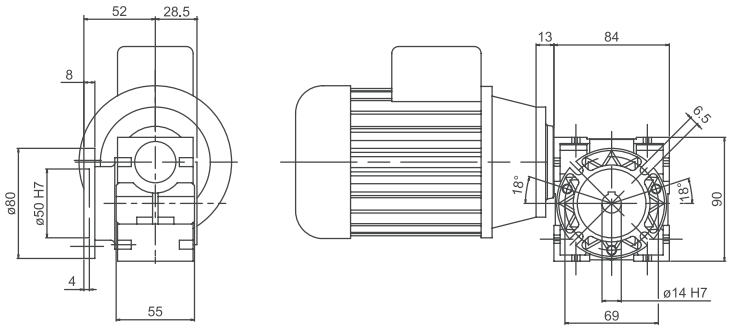
MI 30 F



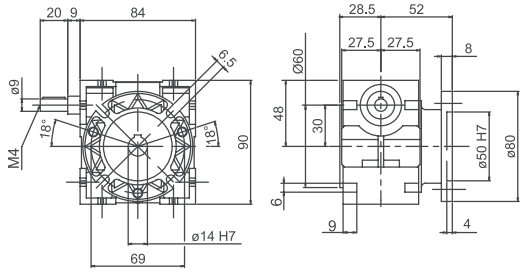
I 30 F



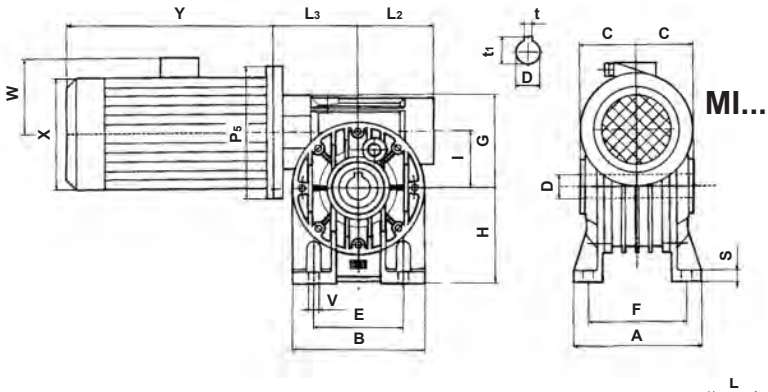
MI 30 FBC



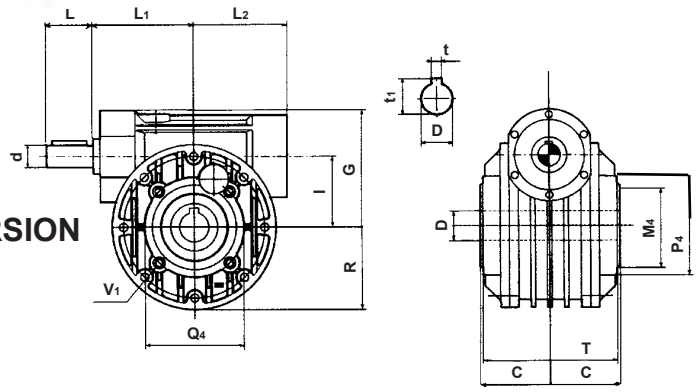
I 30 FBC



Dimensions for I-MI sizes 40 - 70



MI... A VERSION

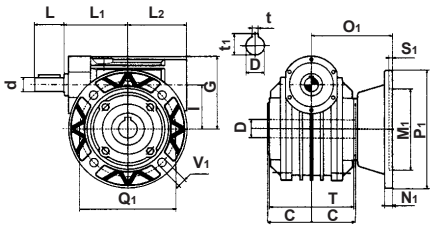


I... FP VERSION

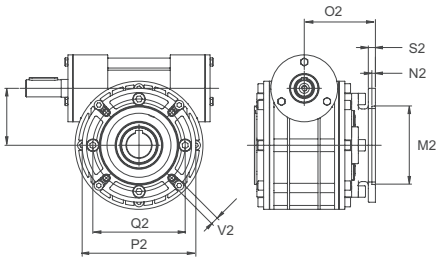
Worm Right Angle Base or Round Body

*** = According to IEC flange**

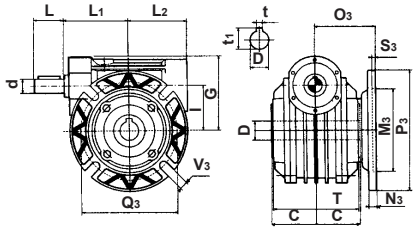
Frame Size	L_3	L_2	G	R	A	B	E	F	V	H	H_1	H_2	C	S	D/H_7	t	t_1	P_5	d/j_6	L	L_1	I	T	Q_4	P_4	M_4/h_7	V_1
40	71	57	70	48	100	96	70	84	7	71	111	31	41	8	19(18)	6	21.8	*	11	23	63	40	77	65	96	50	M6
50	82	64	84	56	114	112	85	96	9	85	135	35	49	10	24(25)	8	27.3	*	14	30	73	50	93	75	88	60	M6
60	101	80	99	75	137	140	95	111	11	100	160	40	60	12	25	8	28.3	*	19	40	86	60	104	85	105	70	M8
70	108	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

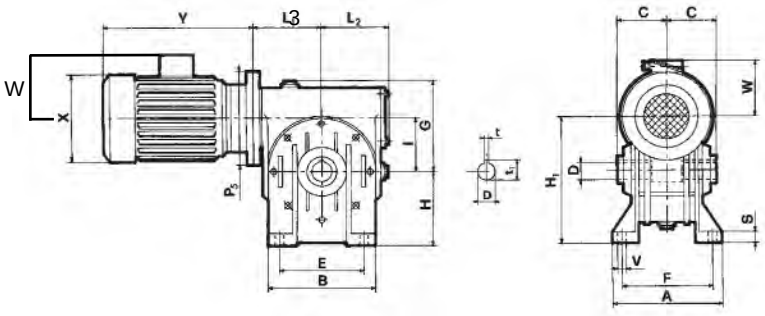


I... FBR VERSION

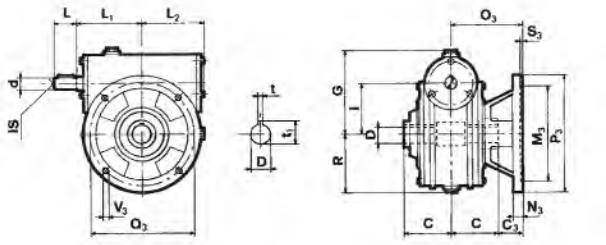
Worm Right Angle Base with Solid Input Shaft and Output Flanges

Frame Size	L	L_1	L_2	C	T	G	d/j_6	D/H_7	Q_1	Q2	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	76-87	100	95	60	80	140	95	120	82	69	60	4	3	3	9	9	9	11	8	8	6	21.8
50	30	73	67	49	93	84	14	24(25)	130	85-92	115	110	70	95	160	110	140	92	93	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	142	160	96.5	81	76	4	4	5	11	11	10	12	11	11	8	28.3
70	40	87	86	60.5	114	117	19	28	165	130	130	130	110	110	200	210	160	111.5	85	85	5	4	5	13	11	11	12	12	12	8	31.3

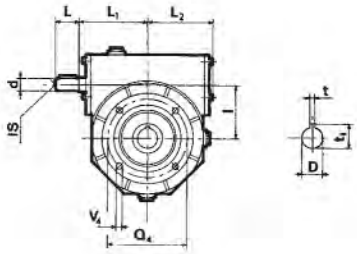
Dimensions for sizes 80-175



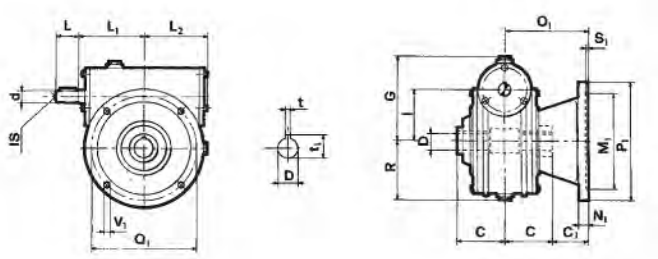
MI... A VERSION



I... FBR VERSION



I... FP VERSION



I... F VERSION

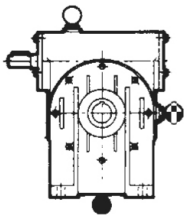
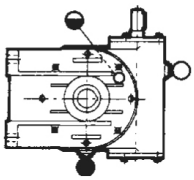
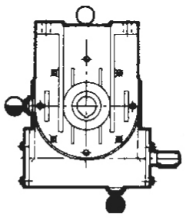
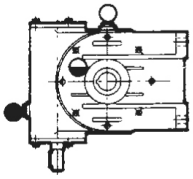
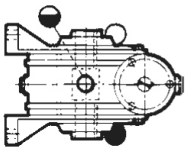
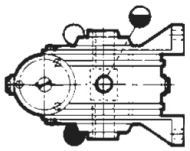
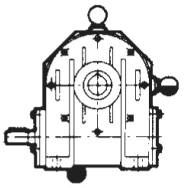
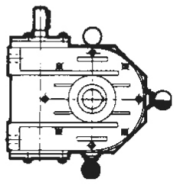
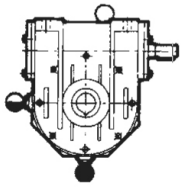
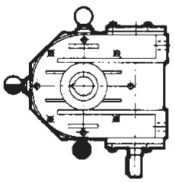
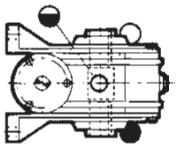
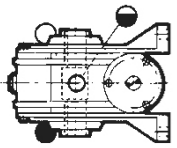
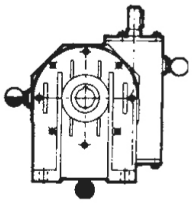
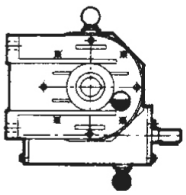
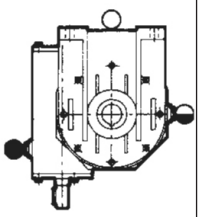
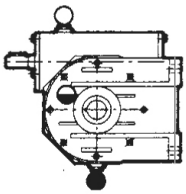
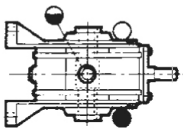
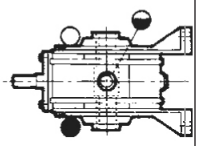
w, x, y standard motor dimensions * According to IEC flange

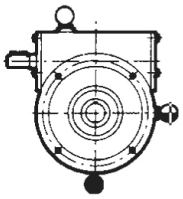
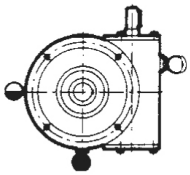
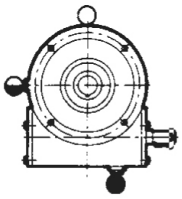
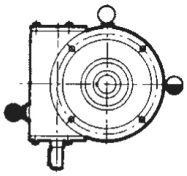
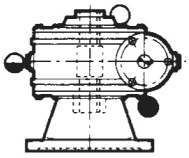
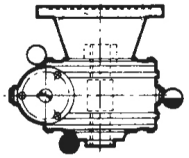
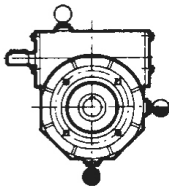
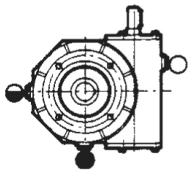
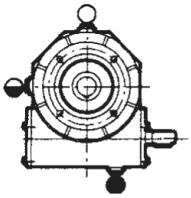
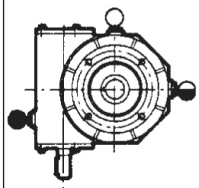
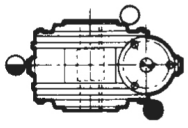
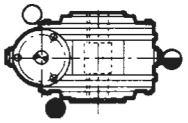
Frame Size	A	B	C	D/H7	E	F	S	V	G	H	H1	H2	I	L3	L2	R	t	t1	P5	C1	C2	C3
MI 80	181	180	70	35	140	147	13	11	127	142	222	62	80	108	105	95	10	38.3	*	50	80	30
MI 90	198	210	75	38	160	164	15	13	139	150	240	60	90	128	124	111	10	41.3	*	52	75	40
MI 110	190	250	77.5	42	200	160	18	13	170	172	282	62	110	149	144	141	12	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	M1/H7	M2/H7	M3/H7	M4/H7	N1	N2	N3	O1	O2	O3	P1	P2	P3	P4	Q1	Q2	Q3	Q4	S1	S2	S3	V1	V2	V3	V4	d/J6	IS	L	L1	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

Mounting Positions

Vers.	B3	V5	B8	V6	B6	B7
A						
B						
C						

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

○ Fill-in plug ◒ Oil level plug ● Drain plug

LAFERT NORTHAMERICA

Ratings Table

			U-MU-40				U-MU-50				U-MU-63				U-MU-75			
Ratio	n1	n2	M2	kW	HP	RD	M2	kW	HP	RD	M2	kW	HP	RD	M2	kW	HP	RD
	3360	672	29	2.25	3.06	90%	49	3.65	4.96	94%	86	6.66	9.05	90%				
	1800	360	36	1.85	2.5	90%	60	3.11	4.24	88%	106	5.4	7.39	89%				
5	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%				
	3360	448	30	1.57	2.13	89%	50	2.55	3.46	91%	90	4.69	6.38	90%	149	7.74	10.51	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%
7.5	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	66.7	57	0.49	0.66	83%	96	0.81	1.11	83%	183	1.43	1.94	90%	290	2.4	3.27	84%
	3360	336	31	1.22	1.66	88%	50	1.97	2.68	90%	94	3.7	5.03	89%	153	5.99	8.14	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%
10	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%
	3360	224	32	0.89	1.2	83%	53	1.44	1.96	86%	95	2.6	3.53	86%	160	4.24	5.76	89%
	1800	120	36	0.675	0.91	82%	60	1.11	1.51	83%	112.8	2.06	2.81	83%	190	3.38	4.59	86%
15	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%
	3360	168	31	0.67	0.91	80%	53	1.13	1.54	83%	97	1.98	2.69	87%	167	3.43	4.66	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%
20	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%
	3360	135	29	0.51	0.7	79%	50	0.88	1.19	81%	87	1.48	2.01	83%	152	2.57	3.5	83%
	1800	72	31	0.375	0.51	75%	58	0.70	0.95	76%	105	1.23	1.66	79%	174	1.99	2.71	80%
25	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%
	3360	112	34	0.53	0.73	75%	59	0.91	1.23	76%	109	1.61	2.19	79%	174	2.52	3.43	81%
	1800	60	37	0.39	0.52	74%	68	0.71	0.96	73%	128	1.31	1.79	74%	200	1.99	2.71	77%
30	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%
	3360	84	33	0.41	0.56	71%	58	0.69	0.94	73%	105	1.22	1.66	76%	176	1.98	2.69	78%
	1800	45	37	0.31	0.425	67%	64	0.53	0.71	70%	117	0.94	1.29	71%	202	1.6	2.19	72%
40	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%
	3360	67	32	0.33	0.45	67%	57	0.58	0.78	69%	104	1.02	1.38	72%	166	1.56	2.12	75%
	1800	36	35	0.26	0.35	62%	63	0.45	0.61	64%	116	0.8	1.09	67%	185	1.23	1.68	69%
50	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%
	3360	56	27	0.26	0.36	60%	51	0.44	0.6	68%	100	0.85	1.16	69%	159	1.31	1.78	72%
	1800	30	34	0.21	0.3	59%	58	0.38	0.51	60%	112	0.68	0.93	63%	178	1.04	1.43	65%
60	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%
	3360	48	25	0.22	0.3	57%	49	0.39	0.53	63%	92	0.72	0.98	64%	147	1.11	1.51	67%
	1800	26	28	0.19	0.25	50%	54	0.33	0.44	55%	103	0.58	0.79	58%	166	0.875	1.19	62%
70	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%
	3360	42	26	0.2	0.27	58%	47	0.34	0.46	61%	87	0.6	0.82	64%	138	0.92	1.25	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	60%
80	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%
	3360	34	30	0.2	0.27	53%	41	0.26	0.35	56%	80	0.48	0.65	59%	128	0.74	1	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%
100	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	5	37	0.05	0.07	38%	66	0.09	0.12	39%	138	0.17	0.23	43%	211	0.24	0.34	45%

n1 = Input Speed
n2 = Output Speed

M2 = Output Torque (Nm)
kW = Input kW

HP = Input HP
RD = Dynamic Efficiency

Use factor 8.85 to convert Nm to in lbs.

Ratings Table

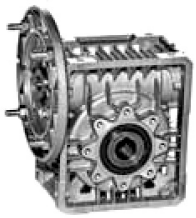
			U-MU-90				U-MU-110			
Ratio	n1	n2	M2	kW	HP	RD	M2	kW	HP	RD
	3360	672								
	1800	360								
5	900	180								
	500	100								
	3360	448	240	12.28	16.69	92%	372	19.14	26.02	91%
	1800	240	296	9.97	13.5	91%	461	15.6	21.1	90%
7.5	900	120	410	5.76	7.83	90%	630	8.9	12.11	89%
	500	66.7	470	3.87	5.26	85%	727	5.9	8.03	86%
	3360	336	243	9.42	12.8	91%	401	15.54	21.12	91%
	1800	180	295	7.58	10.3	89%	489	12.6	17.1	89%
10	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%
	3360	224	248	6.74	9.17	86%	435	11.63	15.8	88%
	1800	120	299	5.29	7.19	86%	520	9.2	12.5	86%
15	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%
	3360	168	297	6.1	8.3	86%	489	9.9	13.46	87%
	1800	90	342	4.62	6.29	85%	570	7.65	10.4	85%
20	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%
	3360	134	259	4.28	5.81	85%	436	7.07	9.61	87%
	1800	72	298	3.31	4.5	83%	502	5.46	7.43	84%
25	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%
	3360	112	338	4.83	6.65	82%	491	6.92	9.4	83%
	1800	60	390	3.79	5.15	79%	502	5.46	7.4	84%
30	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%
	3360	84	314	3.53	4.8	78%	510	5.46	7.42	82%
	1800	45	366	2.79	3.79	75%	592	4.33	5.9	78%
40	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%
	3360	67	275	2.54	3.45	76%	587	5.24	7.12	79%
	1800	36	312	1.98	2.68	73%	526	3.21	4.36	75%
50	900	18	425	1.17	1.6	68%	695	1.84	2.51	71%
	500	10	458	0.79	1.07	61%	771	1.29	1.76	62%
	3360	56	262	2.13	2.9	72%	440	3.33	4.53	77%
	1800	30	294	1.6	2.21	69%	494	2.61	3.56	72%
60	900	15	395	0.97	1.32	64%	663	1.53	2.08	68%
	500	8	427	0.65	0.89	57%	712	1.05	1.43	59%
	3360	48	248	1.8	2.44	70%	421	2.95	4.01	72%
	1800	26	278	1.43	1.94	64%	475	2.21	3.01	70%
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%
	3360	42	229	1.45	1.97	69%	398	2.4	3.26	73%
	1800	23	255	1.16	1.55	63%	442	1.88	2.58	67%
80	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%
	3360	34	192	1.04	1.41	65%	356	1.82	2.47	69%
	1800	18	231	0.89	1.21	60%	400	1.45	1.98	63%
100	900	9	305	0.53	0.72	55%	633	1.03	1.4	58%
	500	5	355	0.41	0.56	45%	573	0.62	0.84	49%

n1 = Input Speed
n2 = Output Speed

M2 = Output Torque (Nm)
kW = Input kW

HP = Input HP
RD = Dynamic Efficiency

Use factor 8.85 to convert Nm to in lbs.

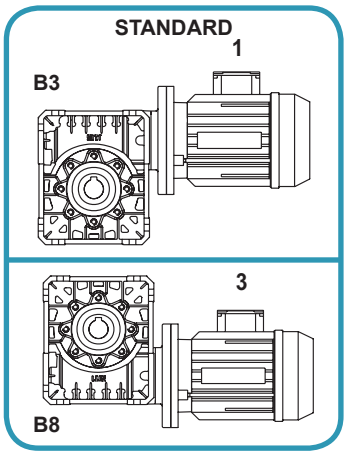


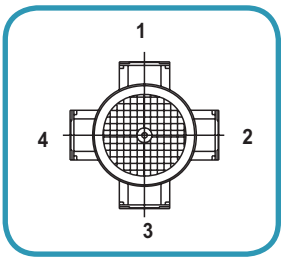
MOUNTING POSITIONS

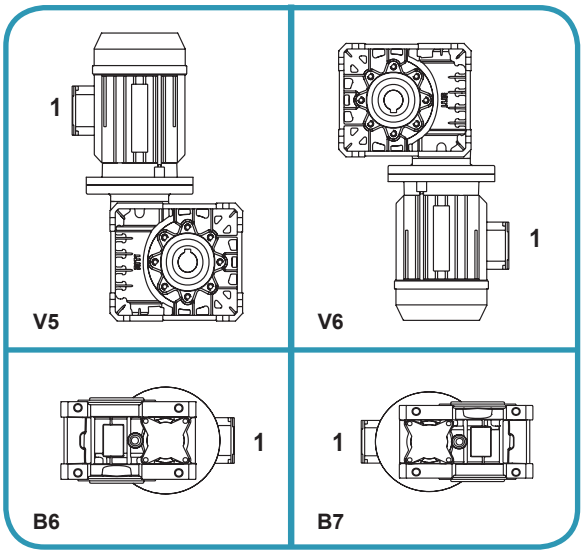
Always recognize the required mounting position for the gearbox. Certain orientations require special lubricants and/or bearings to achieve the normal service life of the gearbox.

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.

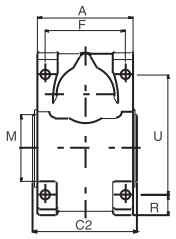


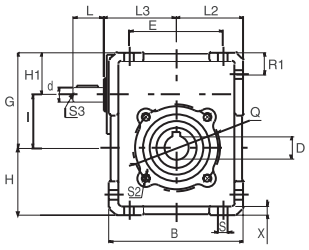




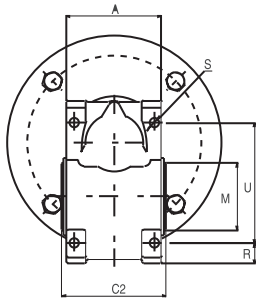
Dimensions

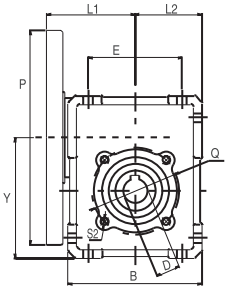
BASE MOUNT VERSION





SOLID INPUT SHAFT (U)

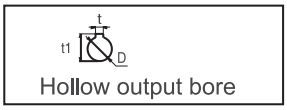


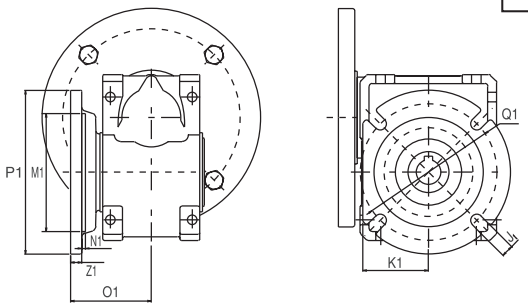


MOTOR INPUT SHAFT (MU)

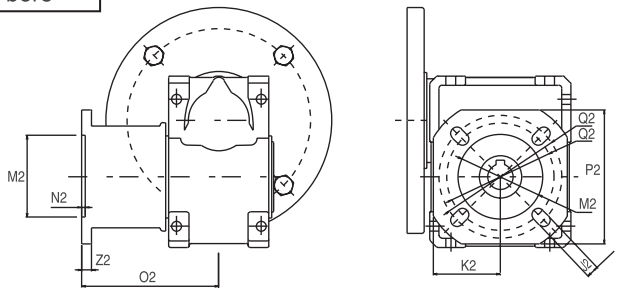
Size	I	D H7	t	t1	d J6	S3	L	L3	L2	E	F	U	A	B	Y	H	H1	G	C2	R	M g6	Q	S	S2	X	R1	P	L1
40	40	18(19)	6	20.8	11	M4	23	54	50	70	60	90	71	100	90	50	31.5	71.5	78	15	50	65	7	M6	6.5	16.5	**	**
50	50	25(24)	8	28.3	14	M5	30	64	60	80	70	104	85	120	110	60	34	84	92	20	60	75	9	M6	7	20	**	**
63	63	25(28)	8	28.3	19	M6	40	76	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
** P & L1 dimensions - please inquire for dimensions





MU... FBR VERSION



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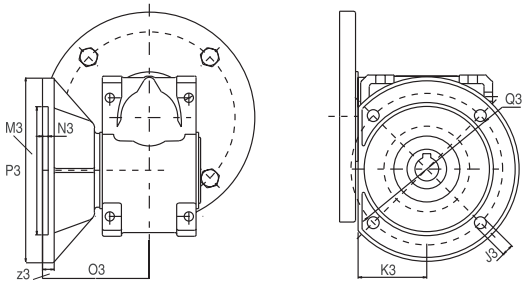
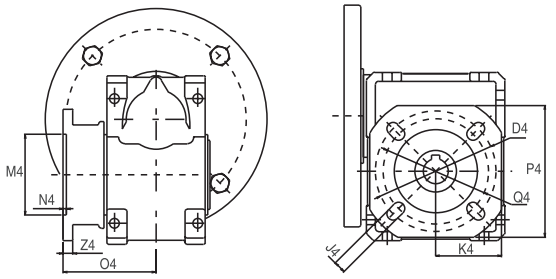


MU... F VERSION



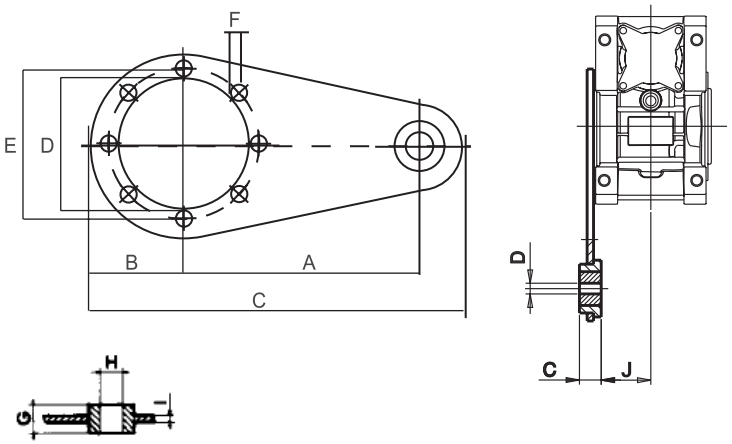
MU... FBM VERSION

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

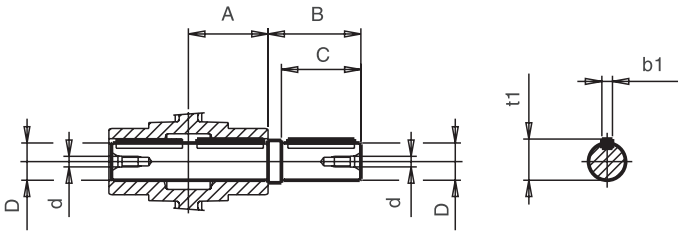
* Output flange holes are elongated

MI/MU Torque Arm Dimensions

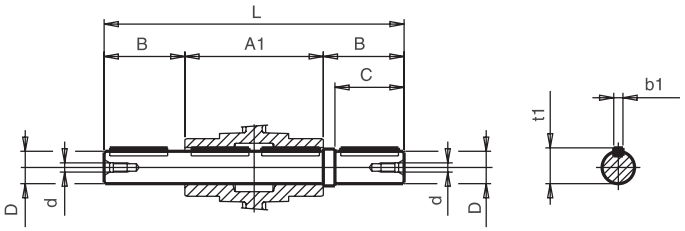
Size	A	B	C	D	E	F	G	H	I	J
40	100	40	170	50	65	7	20	10	4	29.5
50	100	44	180	60	75	7	20	10	4	35.5
60/63	150	53	233	70	85	9	20	10	6	46
70/75	200	62.5	300	80	100	9	25	14	6	47.5
80	200	77.5	315	110	130	11	25	14	6	
90	200	77.5	315	110	130	11	25	14	6	57.5
110	250	100	387.5	130	165	13	25	14	6	64.5
130	300	120	465	180	215	13	30	16	8	
150	300	125	470	180	215	15	30	16	8	



SINGLE OUTPUT SHAFT



DOUBLE OUTPUT SHAFT



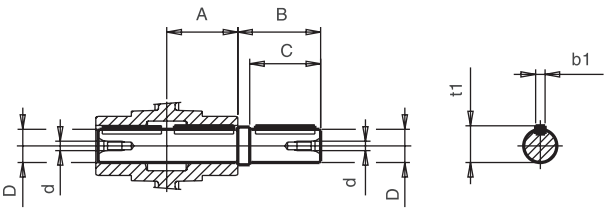
MI Output Shaft Dimensions

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



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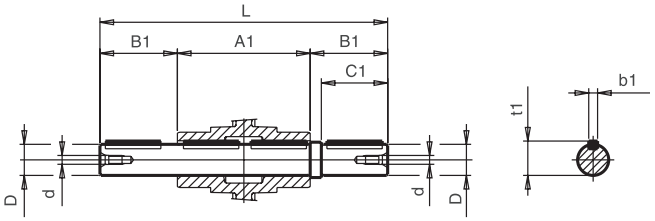
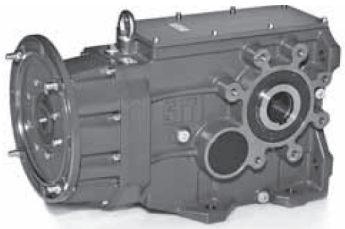


MU Single and Double Output Shaft Dimensions

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

Helical - Bevel Gearbox



- 16HP to 107HP
- Reduction Ratios from 10:1 to 226:1
- Universal Mounting Options
- 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 Bearing Price $	Backstop Price $	Weight (lbs)
MBH56	63-71-80-90	1,856.00	1,894.00	168.00	120.00	84.00	N/A	N/A	126.00	N/A	36
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									
MBH80	100-112	3,835.00	3,682.00	266.00	209.00	241.00	243.00	234.00	311.00	N/A	88
MBH80	132	4,000.00									
MBH100	80-90	4,860.00									
MBH100	100-112	5,009.00	4,756.00	376.00	286.00	393.00	333.00	337.00	401.00	571.00	159
MBH100	132	5,260.00									
MBH125	80-90	6,362.00									
MBH125	100-112	6,487.00	6,234.00	585.00	415.00	548.00	521.00	390.00	477.00	856.00	214
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									

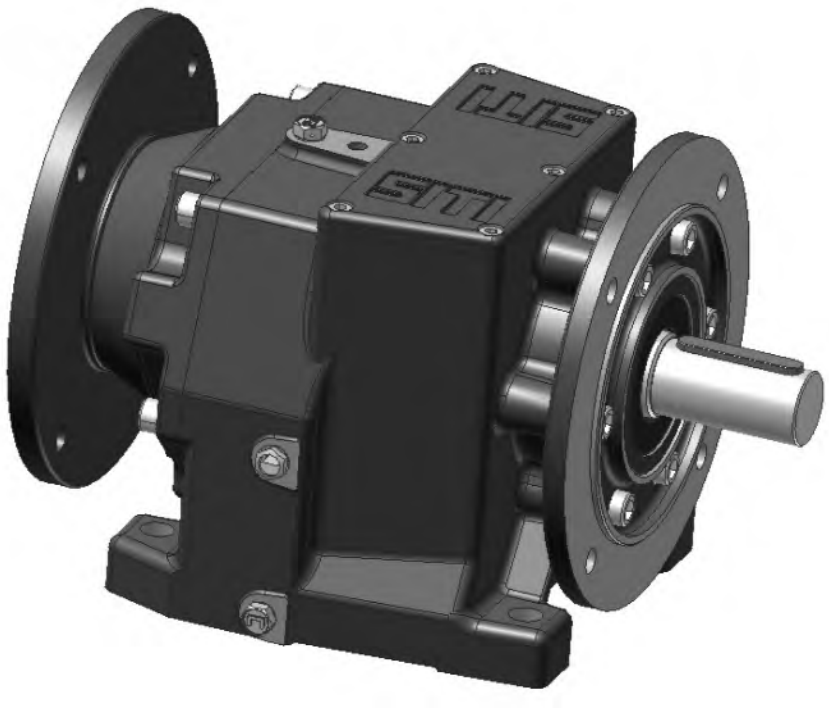
Motovariator Gearbox

MK-(F) Series

Contact a Lafert North America sales representative for Helical-Bevel and Motovariator Gearbox Dimensional Drawings.

(MK - MKF : K - KF)

Size	PAM Flange MK Price $	Male Input "K" Shaft Price $	Zero Speed Option Price $	Weight (lbs)
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 235 kW, 12,000 Nm output torque, 466/1 ratio

High Reliability - Gears are case-hardened, quenched and stress 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)
MNHL 16/2	1,074.00	978.00	1,159.00	85.00	*	20
MNHL 20/2	1,074.00	978.00	1,159.00	85.00	*	20
MNHL 25/2	1,247.00	1,156.00	1,436.00	189.00	*	30
MNHL 30/2	1,493.00	1,292.00	1,771.00	278.00	*	50
MNHL 35/2	2,039.00	1,937.00	2,317.00	278.00	**	62
MNHL 40/2	2,974.00	2,650.00	3,329.00	355.00	**	90
MNHL 50/2	4,235.00	3,450.00	4,644.00	408.00	**	120
MNHL 60/2	6,608.00	5,858.00	7,070.00	462.00	**	230
MNHL 70/2	8,664.00	8,411.00	9,126.00	462.00	**	345
MNHL 90/2	10,616.00	12,094.00	11,280.00	760.00	**	508
MNHL 100/2	17,271.00	19,530.00	18,269.00	998.00	**	882

* *Prelubricated*
** *Oil available on request*

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)
MNHL 25/3	1,607.00	1,457.00	1,797.00	189.00	*	35
MNHL 30/3	1,863.00	1,525.00	2,140.00	278.00	*	55
MNHL 35/3	2,409.00	2,170.00	2,686.00	278.00	**	62
MNHL 40/3	3,461.00	3,115.00	3,816.00	355.00	**	95
MNHL 50/3	4,806.00	4,356.00	5,214.00	408.00	**	135
MNHL 60/3	7,540.00	6,789.00	8,002.00	462.00	**	240
MNHL 70/3	9,658.00	9,462.00	10,120.00	462.00	**	390
MNHL 90/3	11,247.00	11,720.00	12,008.00	760.00	**	508
MNHL 100/3	19,584.00	20,402.00	20,582.00	998.00	**	882

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

Ratings Table

1750 Input RPM - 1.0 Service Factor

NHL 20				NHL 25				NHL 30				NHL 35			
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				

n2 = Output Speed
I = Ratio
M2 = Output Torque (Nm)
kW = Input kW

Use factor 8.85 to convert Nm to in lbs.

Ratings Table

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								

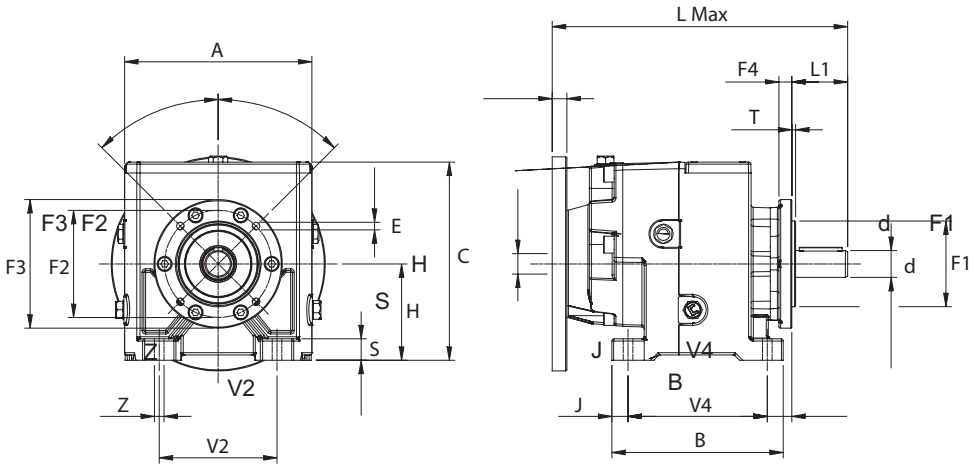
n2 = Output Speed
I = Ratio

M2 = Output Torque (Nm)
kW = Input kW

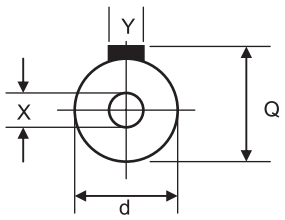
Use factor 8.85 to convert Nm to in lbs.

MNHL and MNHLF Dimensions

Helical In-Line - MNHL with Output Flanges



Output Shaft Details



Size	A	B	H	L Max	S	V2	V4	Z	T	L1	C	J	Q	X	Y	d	Weight (lbs)
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	17.5	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	220	245	140	425	30	170	205	18	4	80	240	20	43	M10x22	12	40	77
40/3	220	245	140	425	30	170	205	18	4	80	240	20	43	M10x22	12	40	75
50/2	261	310	180	500	45	215	260	18	4	100	315	25	53.3	M12x28	14	50	115
50/3	261	310	180	500	45	215	260	18	4	100	315	25	53.3	M12x28	14	50	131
60/2	310	364	225	551	55	250	310	22	5	120	380	27	64	M16x36	18	60	231
60/3	310	364	225	551	55	250	310	22	5	120	380	27	64	M16x36	18	60	243
70/2	350	440	250	658	65	290	370	26	5	140	413	35	74.5	M16x36	20	70	353
70/3	350	440	250	658	65	290	370	26	5	140	413	35	74.5	M16x36	20	70	408
90/2	390	490	315	936	75	340	410	26	5	170	490	40	95	M20x42	25	90	451
90/3	390	490	315	936	75	340	410	26	5	170	490	40	95	M20x42	25	90	506
100/2	455	590	345	1058	90	440	500	33	5	210	570	45	106	M20x50	28	100	836
100/3	455	590	345	1058	90	440	500	33	5	210	570	45	106	M20x50	28	100	880

OUTPUT FLANGE DIMENSIONS

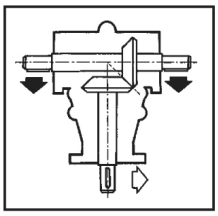
Size		20	25	30	35	40	50	60	70	90	100
STYLE 1	F1	80	80	110	110	180	230	250	250	300	450
	F2	100	100	130	130	215	265	300	300	350	500
	F3	120	120	160	160	250	300	350	350	400	550
	F4	7	12	10	10	13	13	18	18	22	25
	E	7	7	9	9	14	18	18	18	18	19
STYLE 2	F1	95	110	130	130	230	250	350	350	350	
	F2	115	130	165	165	265	300	400	400	400	
	F3	140	160	200	200	300	350	450	450	450	
	F4	7	12	10	10	14	13	18	18	22	
	E	9	9	11.5	11.5	14	18	18	18	18	
STYLE 3	F1	110	130	180	180						
	F2	130	165	215	215						
	F3	160	200	250	250						
	F4	7	12	10	10						
	E	9	11.5	14	14						

Dimensions

R Series

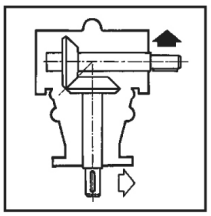
Type	Configuration Figure #	Ratios	Price $	Weight (lbs)
R9	2/3	1:1, 2:1	482.00	4
R9	1	1:1, 2:1	501.00	4
R14	2/3	1:1, 2:1, 3:1	532.00	6
R14	1	1:1, 2:1, 3:1	556.00	6
R19	2/3	1:1, 2:1, 3:1	1,026.00	12
R19	1	1:1, 2:1, 3:1	1,044.00	12
R24	2/3	1:1, 2:1, 3:1	1,026.00	14
R24	1	1:1, 2:1, 3:1	1,047.00	14

EXECUTION 3C



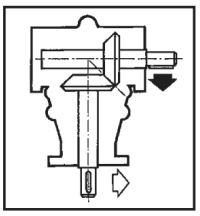
BEVEL GEAR UNIT FIG 1

EXECUTION 2A



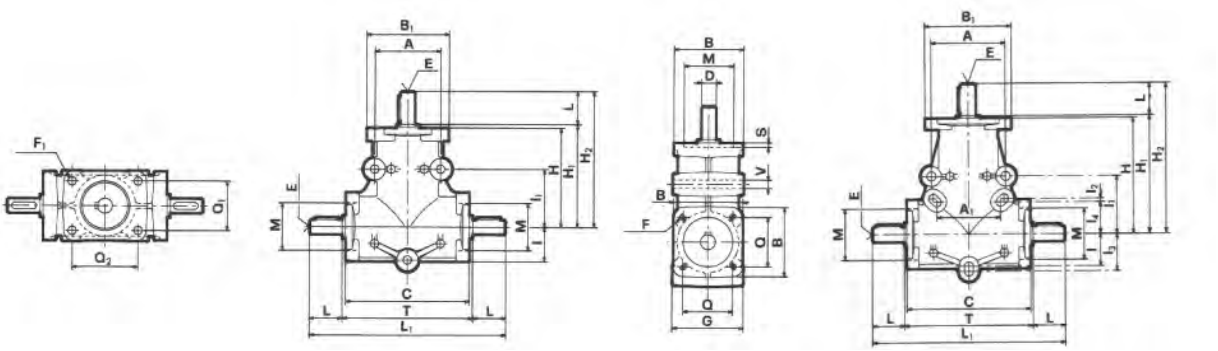
BEVEL GEAR UNIT FIG 2

EXECUTION 1C



BEVEL GEAR UNIT FIG 3

- Power from 0.12kW to 10kW
- 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

Planetary Gearbox

NRG Series

Base Mount

Output 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 up to 3657:1

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

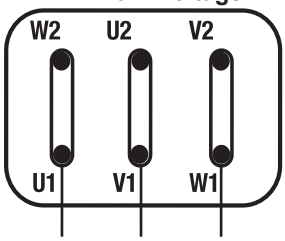
Inquire for Pricing and Technical Information

Wiring Diagrams

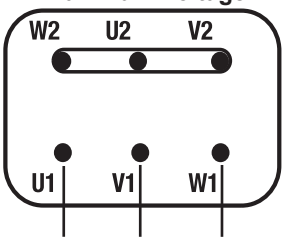
Refer to pages 19 and 22 for additional Connection Diagrams

6-LEAD MOTOR CONNECTION △ / Y

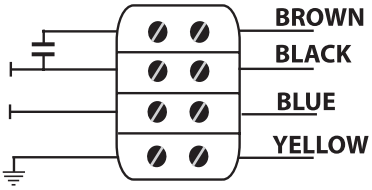
Minimum Voltage



Maximum Voltage



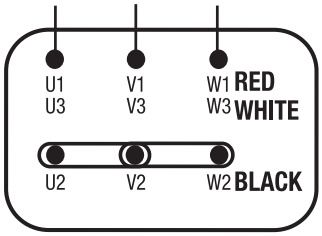
AMFV Type - Forced Vent Kit
(1-phase fan 115v pr 230v)
For 100 frame and larger



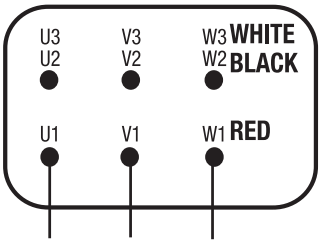
9-LEAD MOTOR CONNECTION Y Y / Y

6 Post Block (90 - 112 frame)

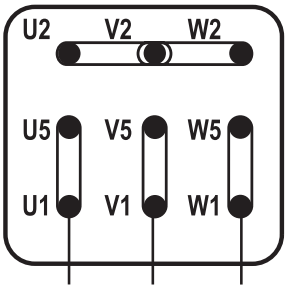
Minimum Voltage
208 / 230V



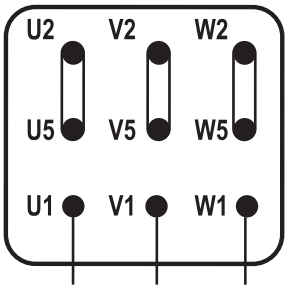
Maximum Voltage
460V



9 Post Block (132 - 160 frame)



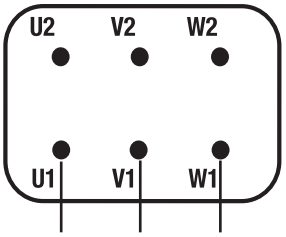
Minimum Voltage
208 / 230V Y Y



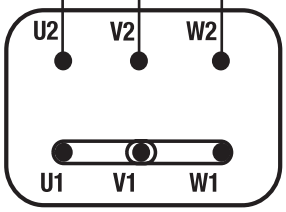
Maximum Voltage
460V Y

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

Low Speed

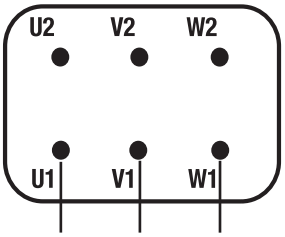


High Speed

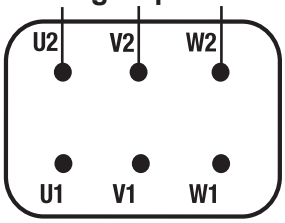


2 SPEED (2 WINDINGS) {2/8, 4/6 & 6/8 POLES}

Low Speed

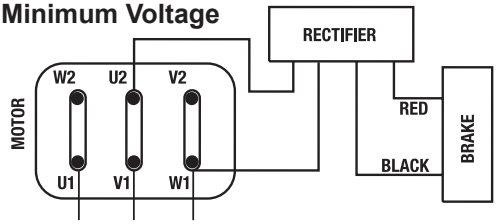


High Speed

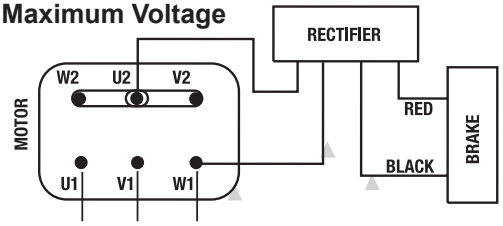


MS Type - Compact Brake Motor *D.C. Brake Coil*

Minimum Voltage

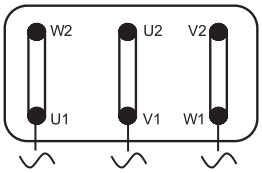


Maximum Voltage

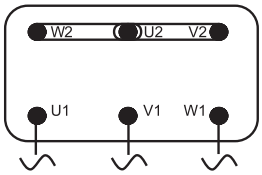


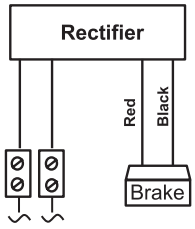
MS brake coils may also be wired separately by removing the leads from the motor block and connecting to an alternate/separate power source. Alternate voltage coils are available. Always check to ensure incoming voltage matches the coil voltage.

△ Minimum Voltage



Y Maximum Voltage





No warranty changes or credits will be issued without prior approval from Lafert NA.

TERMS AND CONDITIONS OF SALE

PRICES: Prices shown are F.O.B. Mississauga, Ontario, Canada. All taxes are extra, where applicable. Prices are subject to confirmation at the time of ordering.

PAYMENT TERMS: Payment is due 30 days from the date of shipment for credit approved accounts. 2% per month finance charge will be added to any overdue account not paid after 30 days or as allowed by law. Product will remain the property of LAFERT NORTH AMERICA until complete payment had been made by the purchaser.

CLAIM: Claims for shortage or damaged goods in transit must be made to the transportation company as risk passes to the customer at the point of F.O.B.

WARRANTY: Lafert Motors, Siti Gear Reducers and Sacemi Pumps are covered by a one-year warranty from date of sale or 18 months from date of manufacture, whichever comes first. This warranty is against defects in manufacture or defective material only. The seller will, at their option, either replace or repair the defective units. Warranty does not apply to improper storage, improper installation or use, modification or repair without our authorization and any other fault beyond our control.

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's purchase price for the product, irrespective of the claim whether in contract warranty or otherwise.
No liability will be accepted for field service, removal, replacement, inspection, freight or travel charges unless previously authorized by LAFERT NORTH AMERICA.

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.

We Appreciate Your Business and Will Serve You Well!

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