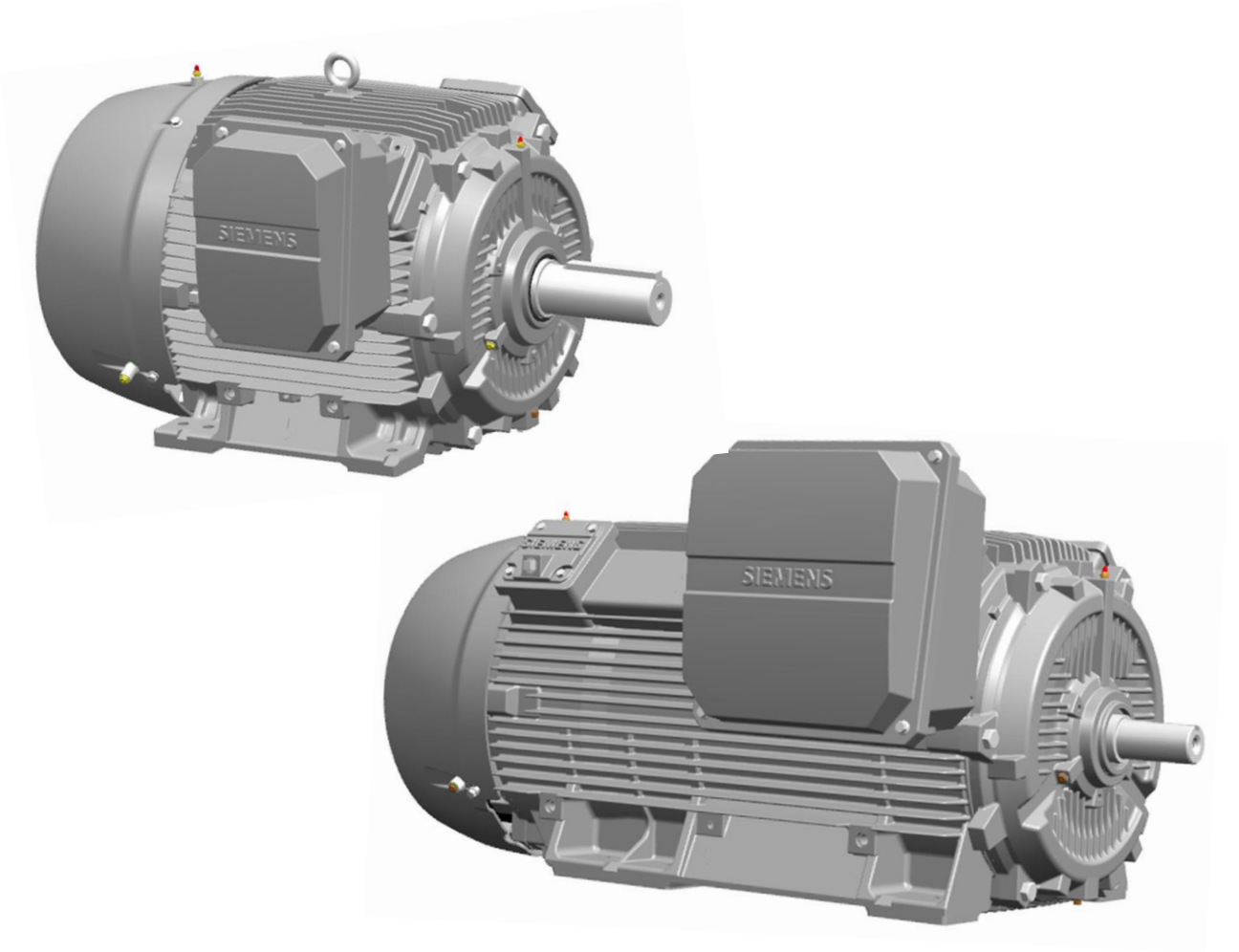
SIEMENS



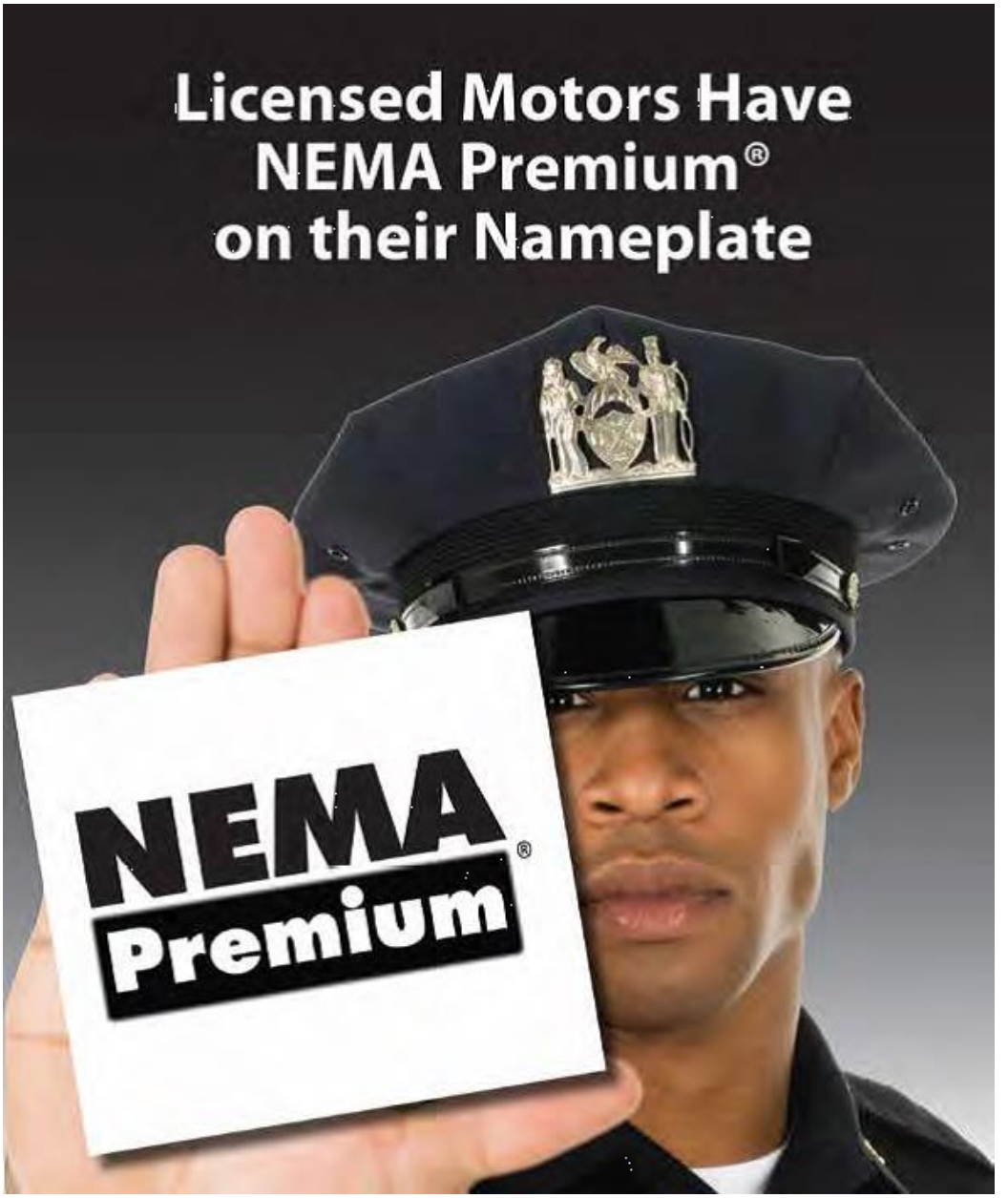
Catalog D81.2 | Special 2021

SIMOTICS NEMA Motors

Low Voltage AC Motors
Next Generation 200 Series

SD, DP FS444-5013
Selection and Pricing Guide

siemens.com/nema-motors



Buy with Confidence

Buying a motor can be a difficult process. Is it the right size for the application? Is it the right design? Is it going to last? Is it going to perform to its specifications? Will it meet efficiency claims? The last question is easy to answer if NEMA Premium® is on the label.

NEMA Premium® Licensees Meet a Higher Standard

All motor manufacturers are required to submit efficiency test data to the US Department of Energy to receive their Certificate of Compliance. Data must be compiled at any qualified testing facility, including the manufacturers' own test laboratory. It takes extra to wear the NEMA Premium® label. A NEMA Premium® Licensee has agreed to go beyond minimum US DOE requirements.

NEMA Premium® Licensees Must Prove Efficiency Claims

What's on the nameplate is not what you always get when it comes to efficiency. Most manufacturers will attempt to ship what is on the nameplate, but do not always deliver. If you want assurance that a motor meets its efficiency claims, look for a NEMA Premium® certified motor.

NEMA Premium® Licensees Must Submit to Third Party Testing

NEMA Premium® Licensees are required to ship motors from distributor's inventory to a third party qualified laboratory for efficiency verification testing on a regular schedule. The specified motor is randomly selected. NEMA Premium® Licensees deliver what they claim, and you can buy with assurance.

SIMOTICS NEMA Motors

Table of Contents

1 Introduction

General information regarding the range of motor, efficiency, Warranty, cancellation and tools.

1-1 Wide Selection of Motors

Wide selection

Providing value also means having the right motor for the job. At Siemens, we strive to offer a wide variety of motor types, in all frame sizes and power ratings with a comprehensive set of options and quick modifications.

Our LV NEMA motor portfolio consists of motors with power ratings of 1HP up to 900HP with a variety of voltages up to 600V, stocked to meet the needs of the North American market.

Need a motor for a special project...Siemens has that covered as well with a wide selection of modification and custom options available and a highly skilled quotation team to help ensure that the best selection for the job is offered.

Our highly qualified research and development group is working to add to this list as part of our commitment to become your single source for motors

The world's most energy efficient line of motors

Lower your energy costs today with the world's most energy efficient line of motors. New regulatory standards and rising energy costs create increasing pressure to maximize energy efficiency and reduce your carbon footprint.

To meet your cost of ownership and motor management needs, Siemens offers several levels of energy efficiency in many of its motors:

- NEMA Premium® (MG1 Table 12-12)
- NEMA Super Premium® (IE4)

Total customer support

Siemens is known as a Global leader in technology while also providing outstanding collaboration with partners and ensuring the success of our customers. A dedicated sales force with in-depth product knowledge and training is only a phone call away and available to provide a complete solution from a breadth of available products. Application and project support by dedicated teams have the customer's best interest in mind while reviewing technical content and offering competitive quotations. The Order Management team on and takes great pride in putting our customers first. Fielding customer questions, providing order status updates and expediting shipments are just a few examples of this team's expertise and support.

Availability

Siemens has hundreds of distributor stocking locations throughout North America with a wide selection of NEMA and IEC frame sizes and ratings. Motors are available same day from a local source you can trust.

Need something special? Our modification centers have complete motor modification capabilities to help you get the exact motor you need, when you need it.

Iron-clad quality

The quality of our motors begins with the design experience we have gained through more than 100 years of manufacturing and installing motors. We build on this experience every day with new designs that incorporate the latest materials and techniques to provide even higher levels of performance, operating efficiency and reliability.

These advanced motor designs are manufactured in a state-of-the-art, ISO 9001 certified facility. Here, our manufacturing technicians subject each motor to more than 100 separate quality inspections before it leaves our plant ensuring it meets the high standards our customers expect.

U.S. Dept. of Energy Integral Horsepower Motor Rule Effective June 1, 2016

The United States Department of Energy passed a final rule in 2014 that covers 1-500 HP (0.75 – 370 KW) 3-phase electric motors. The new law will supersede the Energy Independence & Security Act (EISA) of 2007 and become effective June 1, 2016. For reference and complete wording of the law, refer to: https://www.regulations.gov/document?D=EERE-2010-BT-STD-0027-0117

The new legislation broadens the number of motor types covered and closes most of the loopholes that permitted exceptions in both EPAct 1992 and EISA 2007 legislation. In essence, most 3-phase industrial motors manufactured will be required to meet the efficiencies listed in NEMA MG-1, table 12-12 (reference NEMA Premium® efficiency).

Additional motor types covered include, but are not limited to:

- 201-500 HP (previously 1- 200 HP)
- Footless (C-face & D-flange)
- Vertical (HP & LP)
- 8-pole (900 RPM)
- Brake motors (integral and add-on)
- Motors with customer special shafts, flanges, and mountings
- IEC 100 flame

Motors that are not covered by mandated efficiency regulations are:

- Multi-speed
- Inverter duty only

The majority of Siemens low voltage motors listed in this price guide currently meets, or exceeds, the June 1, 2016 mandatory regulations. Industry-leading, die cast copper rotor motors, exceed all efficiency requirements.

SIMOTICS NEMA Motors

Warranty procedure

Standard terms and conditions of sale

Warranty – Company warrants that on the date of shipment to purchaser the goods will be of the kind and quality described herein, merchantable, and free of defects in workmanship and material.

If within one year from date of operation, but not more than eighteen months from date of shipment by Company, of any item of the goods, purchaser discovers that such item was not as warranted above and promptly notifies company in written thereof, Company shall remedy such defect by, at Company's option, adjustment, repair, or replacement of the item and any affected part of the goods.

Purchaser shall assume all responsibility and expense for removal, reinstallation and freight in connection with the foregoing remedy. The same obligations and conditions shall extend to replacement items furnished by company here under. Company shall have the right of disposal of items replaced by it. Purchaser shall grant Company to determine any defect in the goods. In the event that adjustment, repair, or replacement does not remedy the defect, the Company and Purchaser shall negotiate in good faith an equitable adjustment in the contract price.

Service calls and overtime are not covered under Siemens warranty policy.

The Company's responsibility does not extend to any item of the goods which has not been manufactured and sold by Company. Such item shall be covered only by express warranty, if any, of the manufacture thereof. The Company and its suppliers shall also have no responsibility if the goods have been improperly stored, handled, or installed or if the goods have not been operated or maintained according to their ratings or according to instructions in Company or supplier furnished manuals, or if unauthorized repairs or modifications have been made to the goods.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES (EXCEPT TITLE), INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, AND CONSTITUTES THE ONLY WARRANTY OF COMPANY WITH RESPECT TO THE GOODS.

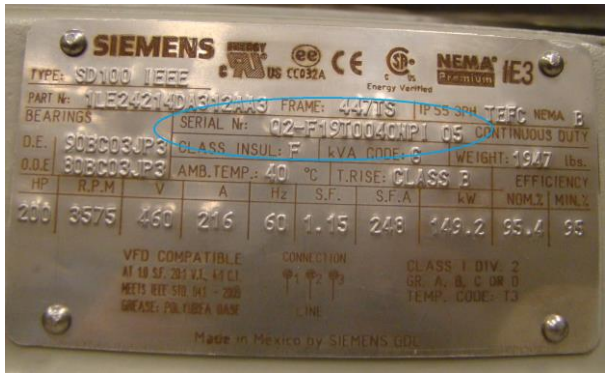
The foregoing states Purchasers exclusive remedy against Company and its suppliers for any defect in the goods or for failure of the goods to be as warranted, whether Purchaser's remedy is based on contract, warranty, failure of such remedy to achieve its essential purpose, tort (including negligence), indemnity or any other legal theory, and whether arising out of warranties, representations, instructions, or defects from *any cause*.

SIMOTICS Warranty type		
A	SD200	3 Years, after shipment
	SD200 + K10	5 Years, after shipment
B	Remedy	Siemens option to repair or replace
C	Purchaser's Responsibility	Transportation damage claims, Order management, Removal and freight
D	Exclusions	Improper storage, In and out costs, Disassembly and installation, transportation damages
E	Shipment Normal	FOB our dock, Freight allowed

Reference notes

1. After the inspection, contact warranty office for authorization of repair or replacement. ***Unapproved repairs will be denied.***
2. Removal, installation, freight, and service calls are NOT covered by warranty.
3. A standard EASA Warranty report must be filled out and, a Siemens job/purchase order # issued. The Warranty report and nameplate (if motor scrapped in the field) plus the invoice must be sent to the warranty office.
4. Replacement Parts – will be furnished at no charge from the factory, i.e., bearings fans, etc.
5. Replacement Motors – will be furnished at no charge from the factory. Should it be necessary for reasons of expediency for the service shop to replace a motor from their stock, a replacement motor will be furnished at no charge from the factory, shipped freight allowed.
6. Defective parts, i.e., bearings, are subject to return upon request to the factory for inspection and approval for reimbursement.

Date coding



Siemens SIMOTICS motors date coded by the model number/date code/serial number on the nameplate.

The first two digits in the serial number represent the factory (Q2 in the example). The following three digits represent the date code. Siemens date codes for NEMA frame size, low voltage motors built in USA and Mexico is as follows: The first digit is alphabetic and represents the month. The second and third digits are numeric and are the last two digits of the year.

A = January	G = July
B = February	H = August
C = March	J = September
D = April	K = October
E = May	L = November
F = June	M = December

IMPORTANT NOTICE

MAIL or EMAIL A PROPER WARRANTY REPAIR REPORT, AND SUPPORTING EVIDENCE OF FAILURE TO THE WARRANTY ADMINISTRATOR, IF SIEMENS IS TO BE BILLED FOR OVERTIME, AUTHORIZATION MUST BE OBTAINED FROM WARRANTY ADMINISTRATOR BEFORE OVERTIME WORK IS PERFORMED. MATERIAL AND SERVICES ARE PURCHASED FOR RESALE AND ARE EXEMPT FROM STATE AND LOCAL SALES AND USE TAX.

Cancellation charges

Note: A minimum charge of $100 will be assessed for any order cancellation for modified or custom motors.

Stock motors and Spares

- No charges will be incurred if an order is cancelled prior to shipment.
- A stock motor is returnable (freight paid by purchaser) immediately after shipment if returned in "new" condition (original, undamaged packaging) for a minimum restocking charge of 20% of the motor net price.

Non-stock motors

- For non-stock motors, the following table will apply to determine cancellation charges after the order is received and entered at the factory. Completion week will be determined by a Siemens Customer Service Representative.
- A charge of 15% of the total net motor price will be assessed if an order is cancelled after it has been released for engineering and drafting whether or not the drawings have been completed and/or submitted for approval.

	Motor Cancellation charges		
Week	**Contract A1**	**Contract A2**	**Contract B**
1	0%	0%	0%
2	50%	25%	
3	95%	50%	25%
4	100%	90%	50%
5		100%	75%
6			90%
7			100%
8			
9			
10			
>10			

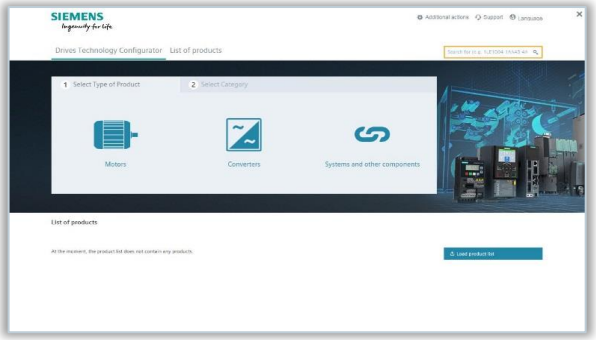
Change notice

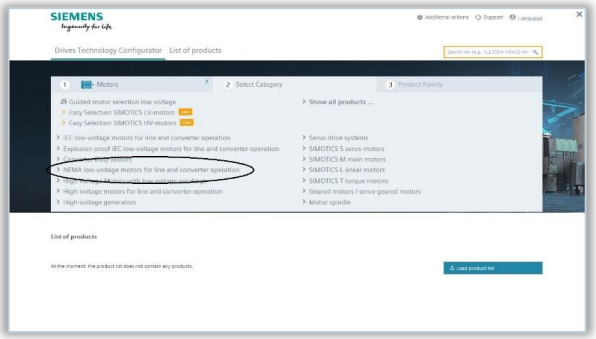
All change notices applied to in-process orders logged into the Siemens customer service department and requiring a product change will be subject to a $100 net charge plus the applicable modification adder. Delivery dates will be adjusted according to the type of change/modification requested. This policy does not pertain to commercial changes such as "ship to" or "bill to" addresses.

In our **website** you will find all sorts of useful information, pre-sales information, technical information, contacts and local partners as well as on-line support.
www.usa.siemens.com/nema-motors

The **DT configurator** has been developed to facilitate the selection of motors and its wide range of special features. It is integrated as an offline "Selection Tool" in the interactive catalog CA01 and is also available online. The DT Configurator not only renders the correct ordering part number for you, but also provides all relevant documentation to the selection, operating instructions, data sheets, curves and dimensional drawings.

www.siemens.com/dtconfigurator

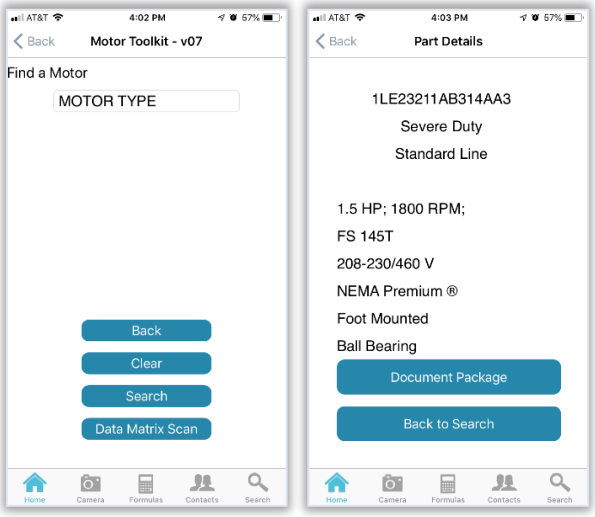




The **SIMOTICS Quick Selection** Tool provides a simple 5 click selection process to configure your motor and check stock. This tool also provides direct links to the Industry Mall for ordering or the DT- Configurator to add options.

http://www.usa.siemens.com/lvm-quickselect

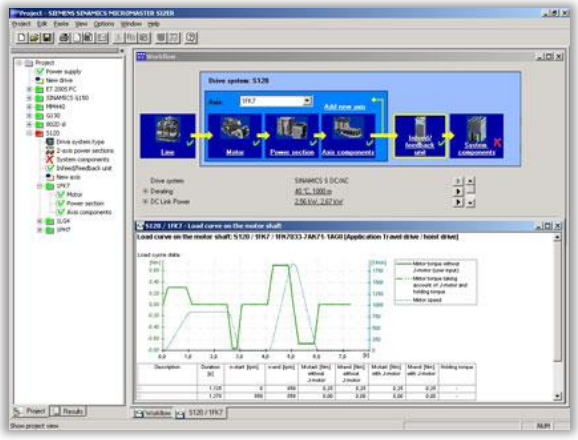
"The Most Powerful Motor App Ever Designed for a Mobile Device." **Motor Toolkit** delivers comprehensive industry resources and connects industry professional motor support anywhere, anytime. Motor Toolkit provides a wealth of information, whether you're looking to upgrade your equipment with a new motor, order spares or troubleshoot your application in the field. The camera features connect you to our Siemens product or service teams.



The energy-saving program **SinaSave** is suitable for application with motors for on-line fed operation (fixed speed) and inverter-fed (variable speed). With on-line operation, you can calculate the cost savings as well as the amortization time for the additional cost of the Siemens energy-saving motors with three different comparisons and overall plant analysis.

Sizer configuration tool provides an easy-to-use means for configuring drives and controls while at the same time supports all engineering steps in
one workflow:

- Configuring the power supply
- Motor and gearbox design, including calculations of mechanical transmission elements
- Configuring the drive components
- Selecting the required accessories
- Selecting the line-side and motor-side power options, e.g., cables, filters, and reactors



2 SIMOTICS Next Generation NEMA Motors

SD200, DP200 HPS

Technical Details, Options, Motor Selection, and pricing

2-1-2 Technical Details – MLFB Structure

MLFB Structure	1	2	3	4	5	6	7	–	8	9	10	11	12	–	13	14	15	16	-Z
Motor Series	**1**	**2**	**3**					–						–					
Standard GP, SD Motors	1	L	E					–						–					
Definite Purpose Motors	1	P	C					–						–					
Main Series				**4**				–						–					
Next Generation NEMA Motors				6				–						–					
Motor Type/Enclosure/Efficiency					**5**	**6**	**7**	–						–					
SD200	1	L	E	6	3	2	1	–						–					
SD200 841	1	L	E	6	3	2	2	–						–					
DP200 HPS	1	P	C	6	5	2	1	–						–					
Motor HP and Frame								–	**8**	**9**		**11**		–					
Number of Poles (Speed)								–			**10**			–					
2 Pole (3000/3600 RPM)								–			A			–					
4 Pole (1500/1800 RPM)								–			B			–					
6 Pole (1000/1200 RPM)								–			C			–					
8 Pole (750/900 RPM)								–			D			–					
Winding Design/Voltage/Frequency								–					**12**	–	**13**				
Mounting								–						–		**14**			
Winding Protection								–						–			**15**		
Terminal Box Position								–						–				**16**	
With Additional Options								–						–					**-Z**

Note: SD200 841 and SD200 6 and 8 poles are not yet available

2-1-3-1 Technical Details – Technical Information - Voltage and Connection

			440-S449 Frames	500 Frame
MLFB DIGITS 12 & 13	12	460V	12 Lead Delta Fig. 1-4	12 Lead Delta Fig. 1-4
	13	575V	6 Lead Delta Fig. 1-1	12 Lead Delta Fig. 1-4
	22	PWS 460V 60Hz	Part Winding Start Fig. 1-5	Part Winding Start Fig. 1-5
	23	PWS 575V 60HZ	Part Winding Start Fig. 1-3	Part Winding Start Fig. 1-5
	32	Y/D 460V 60Hz	12 Lead Wye-Start Delta-Run Fig. 1-6	12 Lead Wye-Start Delta-Run Fig. 1-6
	33	Y/D 575V 60HZ	6 Lead Wye-Start Delta-Run Fig. 1-3	6 Lead Wye-Start Delta-Run Fig. 1-3
	90	Special Winding (M6Y)	As Specified	

Voltage

LV NEMA motors can operate from 200-600V according to the winding selection. Windings up to 230V can only be applied to motors with 75HP or less.

Part-Winding-Start and Wye-Start/ Delta-Run are special windings that help to limit the amount of inrush current at startup. Both options require a special motor starter to operate correctly.

Special voltage, **M6Y**, can be used for any voltage within the voltage range listed for each.

AC NEMA motors are designed with the following tolerances in accordance with NEMA MG-1:

Voltage tolerance: +/-10% of rated voltage

Frequency tolerance: +/- 5% of rated frequency

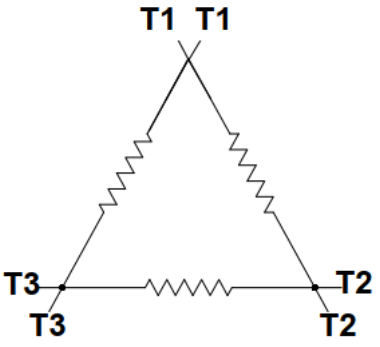
Voltage & Frequency combined tolerance: +/-10% (sum of absolute values)

Winding Connection:

440 frames with 460V will have 12 lead connection as standard. When 575V is selected the motor will have 6 lead connection with paired leads for flexibility in connection as seen in Figure 1-1.

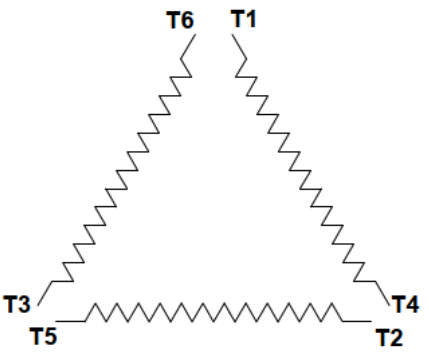
500 frames will have 12 lead connection as seen in Figure 1-4.

See Terminal Box and Leads section for additional information on motor leads.



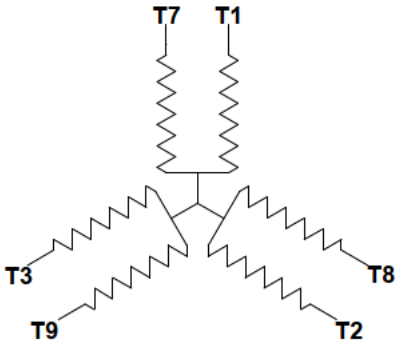
6 LEAD DELTA			
LINES			CONN.
L1	L2	L3	
T1	T2	T3	Δ

Fig. 1-1



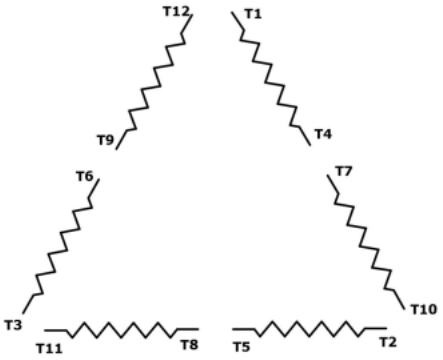
WYE-START DELTA-RUN					
LINES	L1	L2	L3	CONNECTED TOGETHER	CONN.
START	T1	T2	T3	T4 T5 T6	Y
RUN	T1 T6	T2 T4	T3 T5		Δ

Fig. 1-2



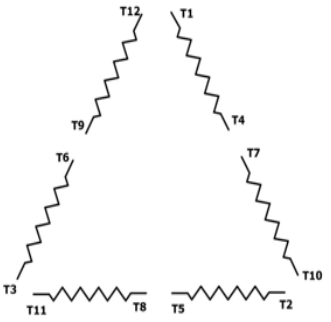
PART WINDING START				
LINES	L1	L2	L3	
START	T1	T2	T3	T7 T8 T9 OPEN
RUN	T1 T7	T2 T8	T3 T9	

Fig. 1-3



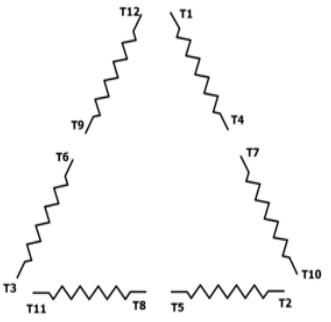
12 LEAD DELTA		
LINES	CONNECT TOGETHER	CONN.
L1	T12 -T7 - T6 - T1	ΔΔ
L2	T10 - T8 - T4 - T2	
L3	T11 - T9 - T5 - T3	

Fig. 1-4



12 LEAD PART WINDING START				
	LINES			CONN.
	L1	L2	L3	
Start	T6-T1	T4-T2	T5-T3	Δ
Run	T12-T7-T6-T1	T10-T8-T4-T2	T11-T9-T5-T3	ΔΔ

Fig. 1-5



12 LEAD Y - Δ					
	LINES			CONNECTED TOGETHER	CONN.
	L1	L2	L3		
Start	T7-T1	T8-T2	T9-T3	T12-T6-T11-T5-T10-T4	YY
Run	T12-T7-T6-T1	T10-T8-T4-T2	T11-T9-T5-T5-T3		ΔΔ

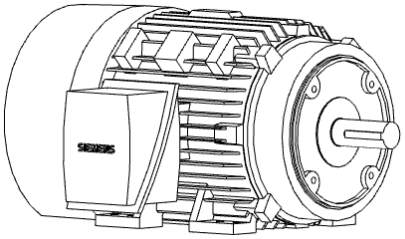
Fig. 1-6

2-1-3-2 Technical Details – Technical Information – Mounting

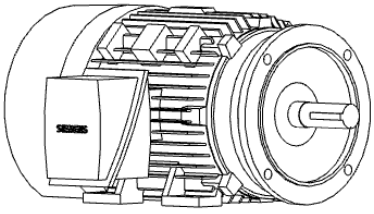
	Codes	Description	1LE6	1PC6 HPS
MLFB DIGIT 14	A	Foot Mounted (Horizontal IMB3)	✓	✓
	C	Foot Mounted Vertical Shaft-down without Canopy (IMV5)	✓	✓
	D	Foot Mounted Vertical Shaft-Up (IMV6)	✓	✓
	J	Foot Mounted D-Flange Horizontal (IMB35 – F1/F2/F3)	✓	✓
	N	Foot Mounted C-face Horizontal (IMB3 – F1 / F2 / F3)	✓	✓
	P	Foot Mounted C-Face Vertical Shaft-down w/o Canopy - W6 / W7 / W12	✓	✓
	Q	Foot Mounted C-Face Vertical Shaft-up – W5 / W8 / W11	✓	✓
	R	Foot Mounted D-Flange Vertical Shaft-Down – W6/W7/W12	✓	✓
	S	Foot Mounted D-Flange Vertical Shaft-Up – W5/W8/W11	✓	✓
	T	Foot Wall Mount Horizontal (MB6 – W2 / W4)	✓	✓
	U	Foot Wall Mounted Horizontal (IMB7 – W1 / W3)	✓	✓
	V	Foot Ceiling Mount Horizontal (IMB8 – C1/ C2 / C3)	✓	✓

✓ Available
■ Standard
-- Not Available

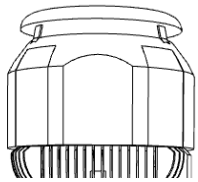
Note: Round frame mounting options will be released in Phase 2



C-Face Foot Mount



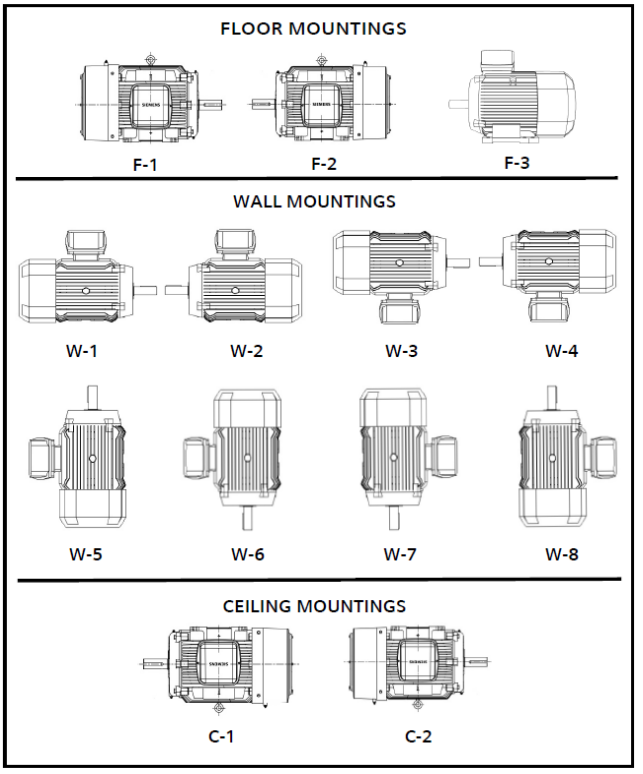
D-Flange Foot Mount



Vertical with Drip Cover

Foot Mounting (no flange)

Foot mount motors without a flange will have universal mounting feet with mounting holes to cover a range of sizes. Motors may be configured to mount in vertical, horizontal, wall, or ceiling mount. The proper configuration may be critical to ensure the motor has proper drain locations, lifting provisions and bearing configuration.



Flange Mounting

The drive end bearing housing can be replaced with flange mounting for direct coupling to the driven equipment. Flanges can be supplied with or without feet (coming soon) and as vertical or horizontal as required by the application. L449 frame must use the motor feet as support with flange mounting in either vertical or horizontal mounting positions.

Foot mounted motors can be offered with self-supporting D-flange on request, Contact Siemens Low Voltage Motor Quotation Team for a quotation.

C-Face

The NEMA C-face has threaded holes in the flange and the mounting hardware will be introduced from the driven equipment side. The C-face can be added to a stock motor as a modification where applicable.

D-Flange

The NEMA D-flange will have through holes that are unthreaded. The D-Flange can be custom built with NEMA dimensions.

Coming Soon: can be added to stock motor with deviated NEMA dimensions with added option P03. Note: P03 will result in non-standard BA and AH dimensions.

	Codes	Description	1LE6	1PC6 HPS
MLFB DIGIT 15	A	No Protection	✓	✓
	B	PTC 3 Embedded, 1 Per Phase	✓	✓
	C	PTC 6 Embedded, 2 Per Phase	✓	✓
	G	Thermostats Normally Closed, Temp Code T3C, 1 Per Phase	✓	✓
	J	Thermocouples Coil Head	✓	✓
	K	Stator RTD's 100-Ohm Platinum w Aux Box-Terminal Strip 2/Phase	✓	✓
	L	Winding Protection - G + K	✓	✓
	P	PT1000, 2 Embedded Temperature Sensors	✓	✓
Short Codes	A46	Space Heaters 115V Single Phase, Max Temp 160°C	✓	✓
	A47	Space Heaters 230V Single Phase, Max Temp 160°C	✓	✓
	A48	Space Heaters 115/230V Single Phase, Max Temp 160°C	✓	✓
	A90	Control Module for PTC Thermistors	✓	✓
	C01	Insulation Vacuum Pressure Impregnation (VPI)	✓	✓
	C03	Spike Resistant Wire	✓	✓
	C04	Insulation Moisture/Powerhouse (Extra Dip & Bake)	✓	✓
	C07	Insulation Fungus Protection - No UL	✓	✓
	C08	Insulation Tropicalization (Extra Dip & Bake + Fungus Spray) – No UL	✓	✓

✓ Available
▪ Standard
-- Not Available

Winding Insulation

Siemens NEMA stator is random wound and insulated with Class F insulation system which is compliant with NEMA MG-1 part 31 and is rated for 155 deg C. Spike resistant wire, **C03**, can be used to meet those more stringent specifications that require part 31 to be exceeded. The stator is protected from moisture with acrylic impregnation though a dip and bake process. The stator is designed to have a temp rise no greater than class B at nameplate horsepower.

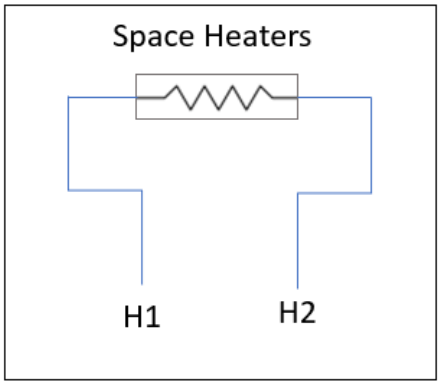
Class H insulation is rated for 180 deg C and is used to better protect the stator when the temp rise may be higher due to ambient conditions or harsher VSD applications. Frame size 440 to 500 will have Class H insulation as a standard feature.

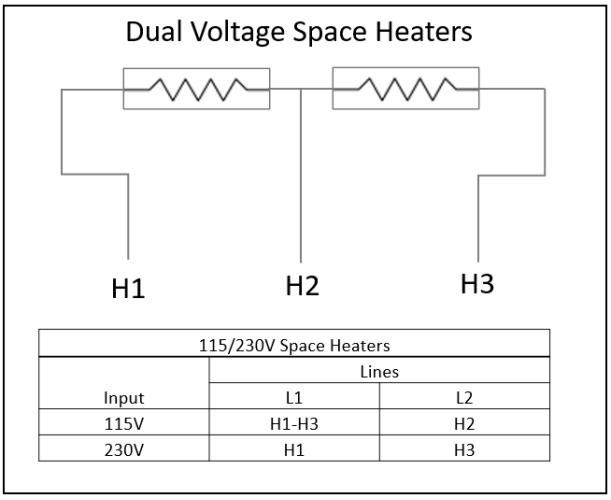
Moisture Powerhouse (extra dip and bake), **C04**, adds and extra layer of varnish to the winding for added protection against moisture. Vacuum Pressure Impregnation (VPI), **C01**, is an alternative to the standard dip and bake process. VPI uses a vacuum system to pull the varnish into the winding to reduce air bubbles in the varnish. Fungus protection, **C07, C08**, is an anti-fungal spray that is applied to the windings after the dip and bake process to help reduce fungus from growing on the windings during storage prior to operation.

Space Heaters

Space heaters help to reduce the humidity inside the motor during idle times of operation and storage. Siemens uses flexible silicone rubber space heaters that have been proven to provide long life which either meets or exceeds the overall life of the AC induction motor. Space heaters will have wattage corresponding to the voltage and motor size as seen in Table 3-1 and will have leads to the main box as standard or an aux box as an option with leads marked per Figure 3-1.

Siemens offers low temp space heaters rated for a max surface temperature of 160 deg C for use in safe area or Division 2 areas. The heaters can be configured for operation on 115V supply, **A46**, 230V supply, **A47,** or 115/230V**, A48.**





115/230V Space Heaters		
	Lines	
Input	L1	L2
115V	H1-H3	H2
230V	H1	H3

Fig. 3-1

Order Code	Frame	Voltage	Qty	Size	Watts
A46	400-S449	115	2	2.5 x 20	100
A47	400-S449	230	2	2.5 x 20	100
A48	400-S449	115/230	2	2.5 x 20	100
A46	FS500	115	2	2.5 x 20	100
A47	FS500	230	2	2.5 x 20	100
A48	FS500	115/230	2	2.5 x 20	100

Table 3-1

Winding temperature protection

Thermostats, **MLFB Position 15 "G"**, are supplied as normally closed. When the temperature of the motor reaches the rated temperature of the device, the switch will open and cause a trip condition. Thermostats will have leads to the main box as standard or an aux box as an option with leads marked per Figure 3-2.

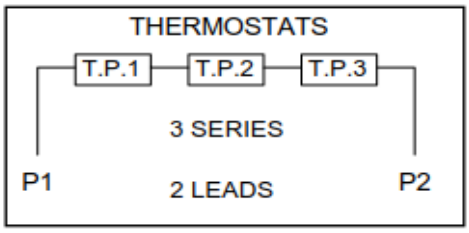


Fig. 3-2

PTC (positive temperature coefficient) thermistors, **MLFB Position 15 "B or C"**, are resistive devices that increase in resistance as the temperature increases. They are set to jump to a very high resistance at a rated temperature. Options are available to have one per phase for trip only, "B", or two per phase for alarm and trip, "C". PTC thermistors will have leads to the main box as standard or an aux box as an option with leads marked per Figure 3-3 and Figure 3-4.

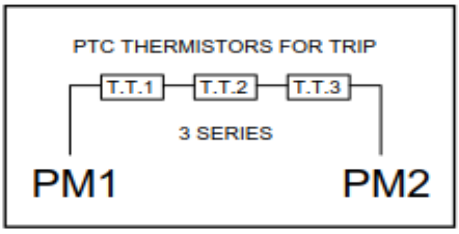


Fig. 3-3

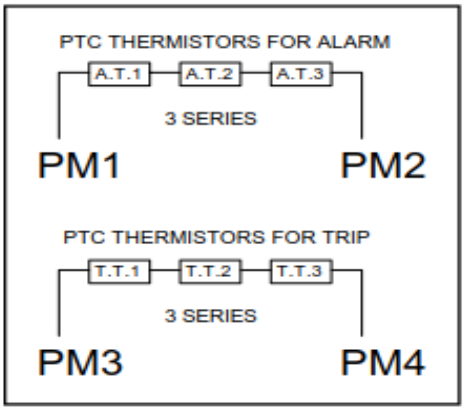


Fig. 3-4

Stator RTDs, **MLFB Position 15 "K",** are PT100 resistive thermal devices that can be used to monitor the temperature of the motor based on the measured resistance of the device. The resistance range will be 100 ohms at 0 degrees C and increase at a rate of .385 ohms per degree C. RTDs are supplied with two sets per phase (one set active and one set as spares) embedded in the DE end turn of the winding. This option also includes an aux box with a terminal strip with terminals marked per Figure 3-5.

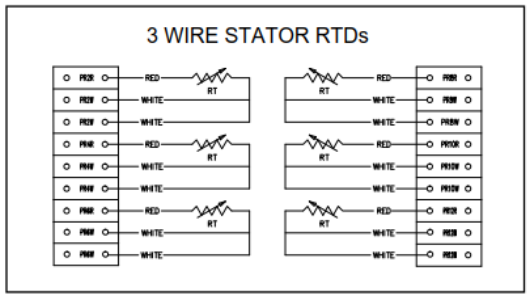


Fig. 3-5

PT1000 sensors, **MLFB Position 15 "P**", function like the PT100 stator RTDs. The resistance range for the PT1000 sensors is 1000 ohms at 0 degrees C and increases at a rate of 3.85 ohms per degree C. This option comes with two independent sensors (one active and one spare) embedded in the DE end turn of the winding. PT1000 sensors will have leads to the main box as standard or an aux box as an option with leads marked per Figure 3-6.

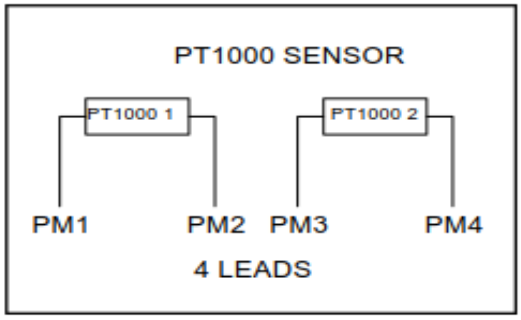


Fig. 3-6

	Codes	Description	1LE6	1PC6 HPS
MLFB DIGIT 16	1	LHS Mount - View from DE -Drive End	✓	✓
	2	RHS Mount - View from DE -Drive End Side	✓	✓
	3	Top Mounted Terminal Box from LHS -Drive End Side	✓	✓
	4	LHS Mount - View from DE -Non Drive End Side	✓	✓
	5	RHS Mount - View from DE -Non Drive End Side	✓	✓
	6	Top Mounted Terminal Box from RHS -Non Drive End Side	✓	✓
Short Codes	J84	Conduit Box Orientation 90° CCW (Entry from DE)	✓	✓
	J85	Conduit Box Orientation 180° CCW (Entry from Top)	✓	✓
	J86	Conduit Box Orientation 270° CCW (Entry from NDE)	✓	✓
	K80	BURNDY HYDENT YA Type Terminals	✓	✓
	K81	Special Cable Leads, 60" Long	✓	✓
	K82	Special Cable Leads, 120" Long	✓	✓
	K83	Terminal Block - 3 Lead Only	✓	✓
	K89	Sealed Leads	✓	✓
	*Rx0	Cast Iron Aux Box for - Position 1 (F1 DE)	✓	✓
	*Rx1	Cast Iron Aux Box for - Position 2 (F2 DE)	✓	✓
	*Rx2	Cast Iron Aux Box for - Position 4 (F1 NDE)	✓	✓
	*Rx3	Cast Iron Aux Box for - Position 5 (F2 NDE)	✓	✓
	*Rx4	Condulet Box for - Position 1 (F1 DE)	✓	✓
	*Rx5	Condulet Box for - Position 2 (F2 DE)	✓	✓
	*Rx6	Condulet Box for - Position 4 (F1 NDE)	✓	✓
	*Rx7	Condulet Box for - Position 5 (F2 NDE)	✓	✓
	T00	Main Terminal Box – at 45° Angle	✓	✓
	T50	Dual Entry Hole Terminal Box	✓	✓
	Y96	Non-Standard NPT entry	✓	✓

✓ Available
■ Standard
-- Not Available

Terminal Leads

All NEMA motors come standard with flying leads (no terminal block) terminated using ring terminals. The leads are Class F insulated and identified with permanent marking. Terminal block, **K83**, is available as an option. As standard terminal leads will be of sufficient length to execute the termination to the power leads inside the terminal box or convert to one of the DE terminal box positions. Special cable length can be supplied with leads extended to 60", **K81**, or 120", **K82**, outside the motor frame.

Main Terminal Boxes

The main conduit box is diagonally split with a single entrance hole (see drawing section for standard entry hole size) with internal grounding lug provided as standard. The standard terminal box will be cast iron and have a volume that is greater than required by NEMA/NEC. Terminal box will be supplied with a gasket between conduit box and frame and between cover and base.

Dual entry terminal box is available as an option, **T50**, and will have NPT size per drawings and dimensions section. Non-standard NPT, Y96, must be defined in the order and meet the criteria defined in Table 4-1. Options **T50** and **Y96** may be used in combination to achieve a non-standard dual entry.

The Next Generation NEMA motors has a variety of terminal box mounting options. There are 4 locations for L449-FS500 and 2 locations (DE only) for FS444-449 on the frame where the main box or auxiliary boxes can be mounted. The motors will come as standard with the box on the DE at a 90 deg angle and can be modified to 45 deg, **T00**, with a simple conversion. See figure 4-1 for illustrations of terminal box mounting possibilities

The main terminal box position is defined by the 16th position of the MLFB as illustrated in Figure 4-1. The connection entry will be facing the motor feet as standard when supplied on the side of the motor or facing the F2 side when top mounted. The terminal box may be rotated in 90-degree increments in the field or by ordering with options **J84, J85, J86**.

Frame	Max single NPT	Max Dual NPT
444-447	4.5"	2.5”
449-L440	5"	4”
500	5"	4”

Table 4-1

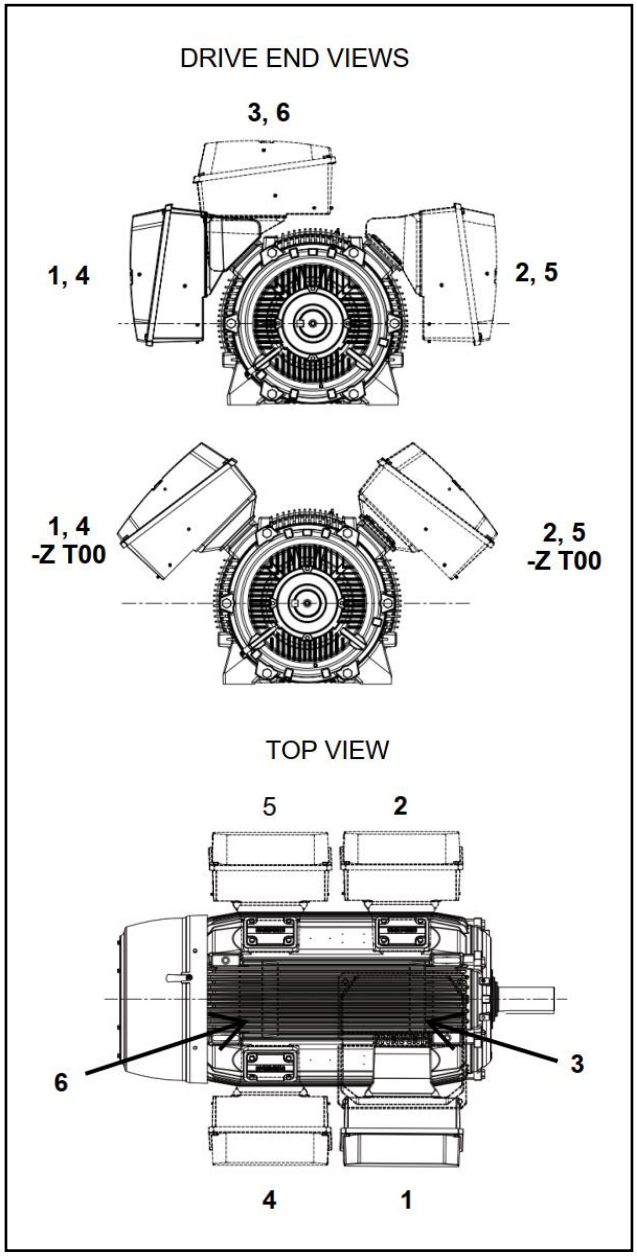


Figure 4-1

Auxiliary Boxes

Auxiliary terminal boxes are available for accessories included in the motor selection. The auxiliary box can be attached to the motor frame or to the side of the main terminal box. Aux box, R**x0**, R**x1**, **Rx2**, Rx3 will be a cast iron auxiliary box. Condulet, R**x4**, R**x5**, R**x6, Rx7** is an aluminum electrical condulet with a steel cover. The auxiliary box option should be selected according to the accessory that it will be paired with.

Space Heaters and other thermal protection will route to main box unless aux box is selected.

If Aux box/Condulet is configured in the same position as main box, the aux will be attached to the main, Figure 4-3.

Positions 4 and 5 will be attached to motor frame at 90 degrees with pipe nipple for frames 444-449, Figure 4-5, and attached to cover plate for frames L449-500, Figure 4-4.

Stator RTDs will come with an aux box with a terminal strip included as standard. As standard the aux box will be on the same side as the main box. This box may be relocated using one of the Cast Iron Thermal protection options at no additional charge. Bearing RTDs, **A51**, does not require an auxiliary terminal box, as it comes standard with terminal heads on each bearing housing.

	[1]Thermal Protection	Space Heaters	All Accessories in the same box
Cast Iron Aux Box - Position 1 (F1 DE)	[2]R00	R10	[2]R20
Cast Iron Aux Box - Position 2 (F2 DE)	[2]R01	R11	[2]R21
Cast Iron Aux Box - Position 4 (F1 NDE)	[2]R02	R12	[2]R22
Cast Iron Aux Box - Position 5 (F2 NDE)	[2]R03	R13	[2]R23
Condulet Box - Position 1 F1 DE)	[3]R04	R14	R24
Condulet Box - Position 2 (F2 DE)	[3]R05	R15	R25
Condulet Box - Position 4 (F1 NDE)	[3]R06	R16	R26
Condulet Box - Position 5 (F2 NDE)	[3]R07	R17	R27

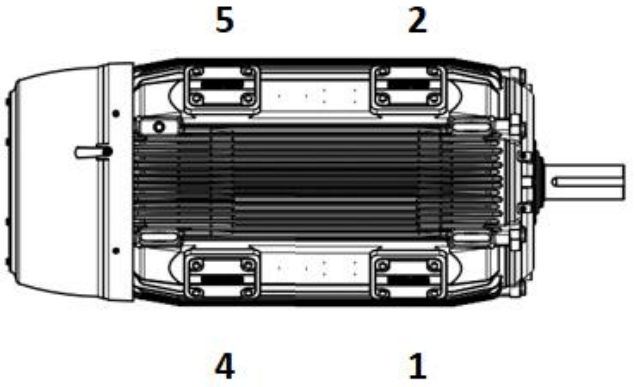


Figure 4-2

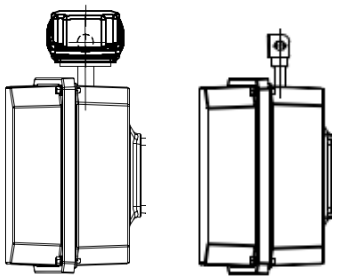


Figure 4-3

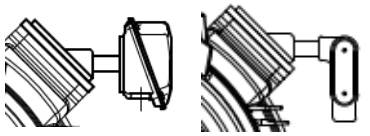


Figure 4-4

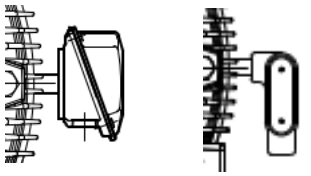


Figure 4-5

[2] No Charge when Stator RTDs are included in MLFB Pos 15 as (K) or (L)

[3] Condulet boxes cannot be used with stator RTDs

	Codes	Description	1LE6	1PC6 HPS
Short Codes	A50	Install BRG RTD's-100 Ohm Platinum- Both Ends & Terminal Heads/Block	--	✓
	A51	Bearing RTD's-100 Ohm Platinum- Both Ends & Terminal Heads/Block	✓	--
	L49	Automatic Grease Relief Fitting	✓	✓
	L54	Provisions for Oil Mist	✓	✓
	L55	Oil Mist Ready	✓	✓
	L57	MOBIL 28 - High or Low – Special Grease	✓	✓
	L58	MOBILITH SHC 100 – Special Grease	✓	✓
	L61	Insulated Bearing – INSOCOAT (Both Ends)	✓	✓
	L62	Insulated bearing -INSOCOAT (on DE)	✓	✓
	L64	Insulated Bearing – INSOCOAT (NDE Only)	✓	✓
	L68	Sealed Ball Bearings (Both Ends)	✓	--
	L69	Hybrid (Ceramic Ball) Bearings – Both Ends	✓	✓
	L70	Hybrid (Ceramic Ball) Bearings – NDE	✓	✓
	L71	Hybrid (Ceramic Ball) Bearings – DE	✓	✓

✓ Available
■ Standard
-- Not Available

Lubrication

Standard lubrication for All Siemens LV NEMA motors is EXXONMOBIL POLYREX EM (Polyurea-based grease).

MOBIL 28 Grease, **L57**, has a wide temperature range with a clay base thickener ideal for low ambient conditions below minus 29C. This option is supplied as standard for low ambient option codes **B27**, **B28**, and **B29**.

MOBILITH SCH 100, **L58**, is a Lithium base alternative to our standard POLYREX EM.

Grease inlet (Alemite fitting) is standard on all SD, and DP NEMA products. SD200 841 motors include Alemite and automatic grease relief fittings as standard, **L49** option is available for other severe duty motors.

Oil mist ready, **L55**, and Provisions for oil mist, **L54**, are possible on Severe Duty motors horizontal foot mount only. Bearings must be single shield ball bearings with shields to inboard side. Motor leads are sealed to prevent mist from entering conduit box and lead material used is resistant to oil mist.

Oil mist ready will only have enough grease in the bearings to complete the routine test.

Provisions for oil mist will include the required machining on the bearings housings to be switched to oil mist in the future. The motor will be supplied as a fully greased motor with standard re-greasing provisions. Hardware and instructions will be included with the motor to switch from grease lubrication to oil mist.

Sealed Bearings, **L68**, are greased for life bearings and will not require re-lubrication. When sealed bearings are supplied on SD200 841 motors, the motors will be marked as "IEEE 841 features".

Bearings

Siemens standard re-greasable bearings have an L10 bearing life of 100,000 hours for direct coupled applications and 50,000 hours for belted applications when properly sized for the application and with proper maintenance. See Technical Tables section for standard bearings sizes.

Bearing Temperature Protection

Bearing RTDs, **A51,** included temperature monitoring on both the drive end and non-drive end bearing. The bearing housing is drilled and tapped for the temperature probe to rest on the outer race of the bearing with the leads in a terminal head on each end (Fig. 5-1). This allows for independent temperature monitoring for each bearing.

DP200 HPS motors will include provisions for bearing RTDs as standard. The installation of the RTDs, **A50**, can be added as a modification on this product.

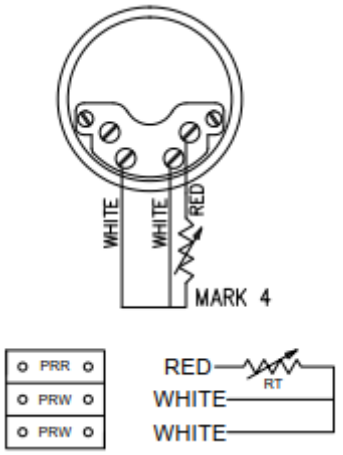


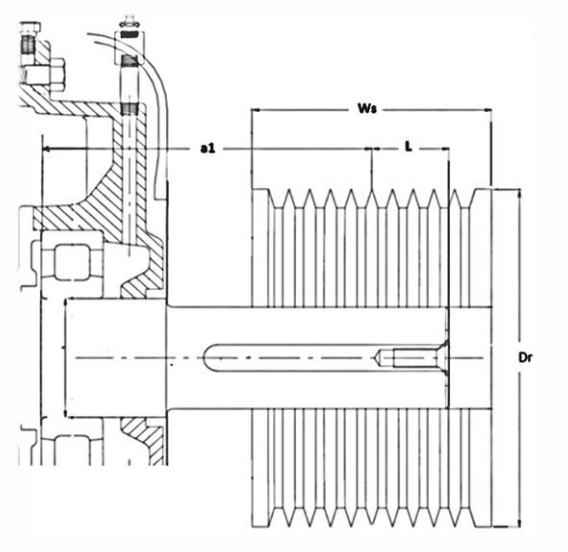
Fig. 5-1

Overhung Load/Belted Considerations

Siemens recommends a roller bearing on the DE for overhung load applications. Roller bearing on DE is standard on R440 and R500 frame.

Belting details can be evaluated, **F09**, by Siemens Engineering on request. The belting form can be requested through the Siemens LOW VOLTAGE MOTOR Quotation Team. Minimum criteria for belting evaluation is listed below and cannot be properly evaluated without this data.

- Operating Application Horsepower (Can be less than the rated motor HP)
- Operating RPM
- Frame size of selected motor
- Dr = Motor Sheave Diameter (Must be within Table 5-1)
- Dn = Driven Sheave Diameter
- Number of belts
- Type of Belts (e.g. 3V, 5V, 8V, A, B, C, etc.)
- C = Distance between sheaves (center to center)
- L = Distance from center of motor sheave to end of shaft
- Orientation of motor (Horizontal/Vertical shaft up/Vertical shaft down)
- Ws = Face width of motor sheave



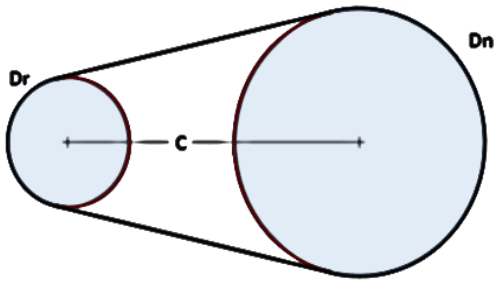


Fig. 5-2

Recommended Sheave Diameters for V-belts					
Frame	HP Synchronous RPM			Standard V Minimum Diameter (in.)	Narrow V Minimum Diameter (in.)
	1800	1200	900		
444T	125	--	--	12	10.5
445T	150	--	--	13.2	10.5
447T	200	--	--	15.8	13.2
449T	250	--	--	18.4	13
449T	300	--	--	24.8	15.4
L449L	350	--	--	--	15.8
L449L	400	--	--	--	18

- Narrow V Example: 3V, 5V, 8V.
- Standard V Example: A, B, C, D section
- Do not exceed belt service factor of 1.6.
- Maximum speed reduction of 5:1
- Shaft center distance approximately equal to diameter of largest sheave
- The motor sheave should be located as close as possible to the bearing (1/2" from shaft shoulder).
- The center of the belt system should never extend beyond the end of the motor shaft.

Table 5-1

VSD Application Considerations for bearings

Shaft currents caused by VSD supply can cause damage to bearings that can result in bearing failure. The shaft currents tend to increase as the frame size increases. Siemens recommends the use of an insulated bearing on the NDE of frames 400 and larger to reduce the risk of the shaft current passing through the bearing.

Hybrid Ceramic Bearings, **L69**, **L70** and **L71**, are a direct replacement for the standard bearing size and are fully regreasable. They utilize ceramic balls to eliminate the currents from passing through the bearings.

INSOCOAT Bearings, **L61**, L62, **L64**, are a direct replacement for the standard bearing size and are fully regreasable. An insulated coating on the outer race of the bearing is used to reduce the risk of the currents passing through the bearing.

See Shafts and Seals for additional options to reduce bearing damage due to shaft currents.

	Codes	Description	1LE6	1PC6 HPS
Short Codes	K41	Keyless Shaft	✓	✓
	L29	Shaft Grounding Brush	✓	✓
	L76	Shaft Slinger & O Ring	✓	--
	L79	INPRO/SEAL DE	✓	✓
	L80	INPRO/SEAL NDE	✓	✓
	L81	INPRO/SEAL Both Ends	✓	✓
	L86	INPRO/SEAL MGS Shaft Grounding - DE	✓	✓
	L87	ORION Labrinth Copper Seal – DE	✓	■
	L88	ORION Labrinth Copper Seal – NDE	✓	✓
	L89	ORION Labrinth Copper Seal - Both Ends	--	--
	M52	NEMA Std Long Shaft - NDE	✓	--
	M53	NEMA Std Short Shaft - NDE	✓	--
	M57	(C4140) Carbon Steel Shaft	✓	✓
	Y50	Special Shaft on Drive End	✓	✓
	Y51	Special Shaft on Non Drive End	✓	✓

✓ Available
■ Standard
-- Not Available

Shafts

The standard shaft material will be C1045 or C4140 as noted in Table 6-1. C4140 shaft material is available as a custom option, **M57**, on frames with C-1045 as standard. Siemens NEMA motors are designed with the shaft dimensions and tolerances to meet the standards of NEMA MG-1 single shaft extension. Any exceptions will be noted on the motor drawings. DE shaft will have drill and tap shaft as standard as provisions for shaft locking device for shipment, see drawings and dimensions section for details.

Frame	Standard Shaft Material
444-L449	C-1045
500 (2 Pole)	C-4140
500 (4 & 6 Pole)	C-1045

Table 6-1

Motors in frame 444-449 can be custom built with a double shaft extension with NDE shaft according to NEMA MG-1. This can be offered as either long shaft, **M52**, or short shaft, **M53**. See drawings and dimensions section for reference.

Keyless DE shaft extension, **K41**, is available as a custom feature. All other shaft dimensions will remain in accordance with NEMA MG-1 (unless otherwise noted in drawing).

Motors can be custom built with a special shaft extension on DE, **Y50**, or NDE, **Y51**. These options can be used for special dimensions of N-W, U, and keyway only and will be limited to max dimensions noted in Table 6-2. If **Y50** and **Y51** are used together the combined N-W may not exceed value noted in Table 6-2.

Any special features to shaft (special drill and tap) must be quoted by the Siemens LOW VOLTAGE MOTOR Quotation Team.

Frame	Max U dim	Max N-W dim	Max FU dim	Max FN-FW dim	Max N-W + FN-FW
444-L449	3.875″	15″	2.875″	15″	15″
500 (2 Pole)	3″	9″	3″	3″	9″
500 (4 & 6 Pole)	4.25″	CF	3″	CF	CF

Table 6-2

Seals

Shaft seals are used to protect the bearings from liquid and dust contaminates that lead to premature bearing failure. NEMA motor are equipped with v-ring shaft seals as standard on all severe duty motors unless otherwise noted. The v-ring shaft seal provides protection to meet IP55.

Labyrinth Seals (Inpro Seals, **L79**, **L80**, and **L81**) (Orion Seals, **L87**, **L88**, **L89**), are shaft rotating seals that provide extra ingress protection from water and dust while the motor is in operation. Motors that are noted to meet IEEE 841 or when IEEE 841 features, **K10**, will include labyrinth seals on both ends. The 500 frame motors will have a labyrinth seal on the DE as standard.

Shaft slinger and O-ring, **L76**, is used in shaft up applications to help reduce liquid from running down the shaft and settling in the seal area.

VSD Application Considerations for Shaft Grounding

Shaft grounding can reduce the risk of shaft currents from passing through the bearings.

This allows the current generated in the shaft to flow harmlessly to the frame and ultimately to ground bypassing the bearings in the process. Shaft grounding options are considered sparking devices and cannot be used in hazardous areas. When selected for SD products, the Division 2 information will be removed from the nameplate.

SGS™ MOTOR GROUNDING BRUSH & RING SYSTEMS, **L29**, mounts on the fan housing with a carbon brush that makes contact with the motor shaft. The carbon brush is rated at 100,000 hours before being changed.

Bearing Isolator + grounding brush, (INPRO Seal, **L86**), uses the labyrinth sealing protection of an INPRO Seal combined with shaft grounding brushes that rest on the shaft behind the sealing mechanism. The brushes reduce the shaft currents from passing through the bearings while the seal reduces contamination build up on the grounding brushes and in the bearing.

	Codes	Description	1LE6	1PC6 HPS
Short Codes	K33	Drip Cover	✓	✓
	K38	Provisions for Dowel Holes	✓	■
	K71	Rotation Arrow Clockwise (from NDE)	✓	✓
	K72	Rotation Arrow Counterclockwise (from NDE)	✓	✓
	L22	Stainless Steel Hardware (Includes T Drain SS)	✓	✓
	L27	Ground Bolts - Qty 2	✓	✓
	L45	SS T-Slot Breather Drain	✓	✓
	L46	CROUSE HINDS UL Approved Breather/ Drain	✓	✓
	L90	IP66 Ingress Protection	✓	--
	L91	IP56 Ingress Protection	✓	--
	M10	Bronze Fan	✓	--
	M39	Vertical Jacking Provisions	✓	■

✓ Available
■ Standard
-- Not Available

Feet

Motors with cast iron frame will have cast in feet as standard.

Provisions for dowel holes, **K38**, provides a hole drilled at an angle in each of the motor feet. The holes will be used as a guide for drilling the mounting plate for the addition of the dowel once the motor is aligned to the driven equipment. Dowels can be used to pinpoint the alignment of the motor to the driven equipment when the motor is taken out for service. Provisions for dowels is a standard feature on the SD200 500 frame motors.

Motors will be delivered as standard with dual/tri drilled mounting holes in the feet for increased flexibility in mounting.

Provisions for vertical jacking, **M39**, provides threads in the non-mounting holes on the feet in order that a bolt may be added for leveling of the motor during installation. Jacking provisions are required on motors that exceed 500 lbs to meet API610 requirements for horizontal pump applications.

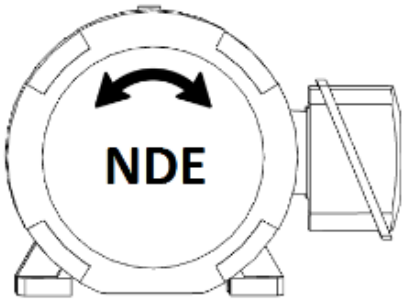
Lifting

Horizontal cast iron motors up to L449 will be supplied with an eye bolt located in the center line of the center of gravity on the motor frame. 500 frame motors are provided with two lifting eye bolts located at opposite corners of the motor frame. They will also include alternate locations on the motor where the eye bolts can be relocated. Vertical mounted motors, as defined in position 14 of the MLFB, will include swivel lifting hooks to provide safer movement of the motor.

Fan and Fan Cover

The standard bidirectional cooling fan is non-sparking polypropylene design, unless otherwise noted. Directional fans will have polypropylene blades with metallic mounting. Bronze fans, **M10**, are non-sparking and may be used on bi-directional motors.

Unidirectional rotation arrows, **K71**, **K72**, can be added to the fan housing when a single direction of rotation is desired. Direction of rotation will be as viewed from the NDE.



Metallic fan cover will be included as standard on all SD motors.

Drip cover, **K33**, can be added to the fan cover of motors used in vertical shaft down applications in order to protect the motor from water or liquids from falling directly into the fan housing.
See Drawings and Dimensions section for drip cover dimensions.

Hardware

Standard hardware is grade 5 zinc plated corrosion resistant hardware. Stainless steel hardware, **L22**, includes all external nuts and bolts as well as the T-Drain and eyebolt(s). Stainless steel hardware is included with options for low ambient temperature, **B29**. Stainless steel T-drain, **L45**, will include only the drain as stainless steel.

All NEMA motors will include tapped holes on each side of the frame near the feet for frame grounding. Bronze ground bolts, **L27**, can be added for additional provisions.

Drain plugs require the user to unscrew the plug to allow the moisture to escape during times of idle use. T-slot drains allow for moisture to drain from the motor freely without user intervention. Crouse Hinds drains, **L46**, are UL approved breather/ drains that can be added.

Ingress Protection

The ingress protection (IP) rating is the protection grade against water and dust. The IP rating on the nameplate applies to completed motor, including shaft seals, bearing housing fits, and terminal box. The first number designation in the IP rating, IP_*, relates to the protection against water. The second number designation in the IP rating, IP*_, relates to the protection against dust. SD200 motors will have IP55 rating that can be increased to IP56, **L91**.

	Codes	Description	1LE6	1PC6 HPS
Short Codes	M21	Additional Nameplate (Without Logos)	✓	✓
	M22	Class I, Division 2, CSA Tag	✓	✓
	Y80	Derate-Altitude-Ambient (Nameplate Change)	✓	✓
	Y82	Auxiliary n/p Max. 40 Characters (Aux Tag)	✓	✓

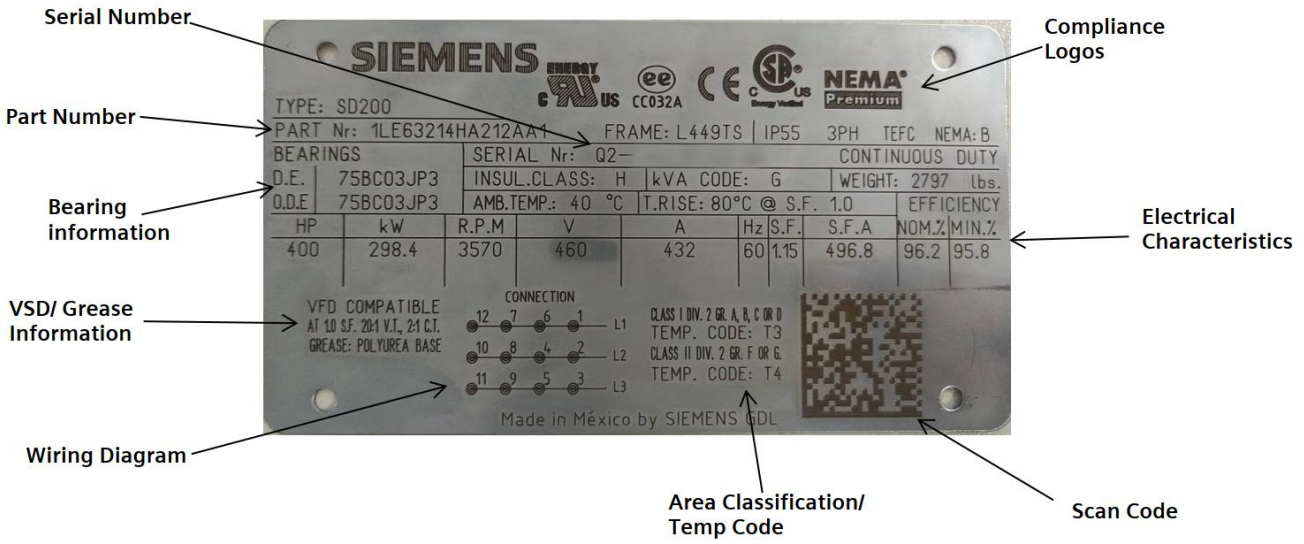


Fig. 8-1

Motor Main Nameplate

SD200 Main Nameplate will be provided with data as seen in Figure 8-1.

Motor main nameplate may be modified, **Y80**, for de-rate, re-rate, deviated altitude, deviated ambient, or information added to the main nameplate. Information must be consistent with guidelines listed in catalog for de-rate or re-rate and within the limitations set in the ambient and altitude section (unless custom quotation is referenced).

Note: Siemens reserves the right to reject/ hold an order based on inconsistent information or the lack of information provided for option Y80. When additional information is requested on the nameplate, it may result in standard information being displaced or removed due to space restrictions.

Auxiliary Plate

Additional information can be provided on an auxiliary plate, **Y82**, for free text provided by customer in PO. This is often used for customer tagging or customer instructions. The tag has a character limit of 40 which includes spaces and special characters. Note: Siemens will not be held accountable for free text provided by customer that is provided in the PO that proves to be inconsistent with the motor design (unless specified in a Siemens custom quotation).

Hazardous Area Classification

SIMOTICS Next Generation Severe Duty motors will include Class I, Division 2 and Class II, Division 2 information standard on the main nameplate.

An auxiliary Class I, Division 2 plate, **M22**, may be selected that contains additional details as seen in Figure 8-2.

This tagging will not be included when one of the following options are selected: **L29**, **L86** or any other feature that may be deemed as a sparking device.

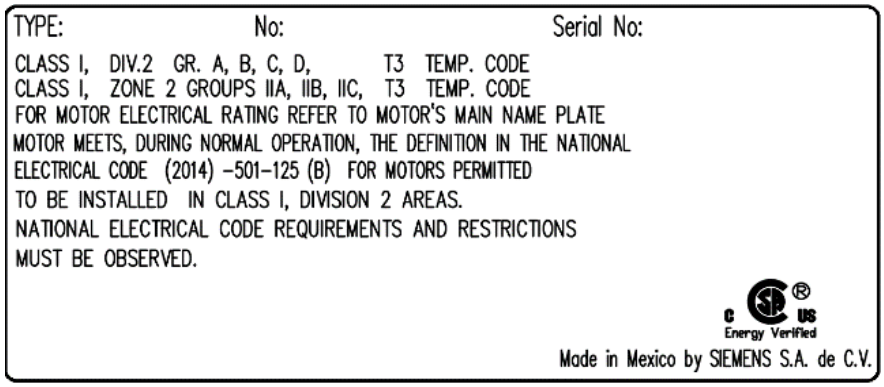


Fig. 8-2

	Codes	Description	1LE6	1PC6 HPS
Short Codes	B27	+40C to -30C Ambient Temp	✓	✓
	B28	+40C to -40C Ambient Temp	✓	✓
	B29	+40C to -50C Ambient Temp	✓	✓

✓ Available
■ Standard
-- Not Available

Standard Ambient and Altitude

General Purpose and Severe Duty NEMA motors are suitable for operation at an altitude up to 3300 feet (1000 meters) above sea level with an ambient temperature range of -25C to 40C with 1.15 service factor as standard.

Increased Ambient or Altitude

Altitude can be adjusted up to 9900 feet or Ambient can be adjusted up to 55C with a reduction in service factor to 1.0 using **Y80** option code.

Motors with Class H insulation may be re-nameplated for up to 50C ambient with 1.15SF and Class F temp rise.

Altitude may also be increased with reduction in ambient per Figure 9-1.

For altitude above 9900 feet or ambient above 55C please contact the Siemens LOW VOLTAGE MOTOR quotation team.

Maximum Altitude	Maximum Ambient
3300 ft (1000m)	40°C (104°F)
6600 ft (2000m)	30°C (56°F)
9900 ft (3000m)	20°C (68°F)

Table 9-1

Low Ambient Conditions

Ambient temperatures below -25C can cause standard grease to become ineffective and some standard metals to become brittle leading to motor failure or damage. Features for low ambient conditions, **B27** for down to -30C, **B28** for down to -40C, **B29** for down to -50C, include special grease, external hardware, shaft material, lead material, and seals for suitability for the low temperatures.

	Codes	Description	1LE6	1PC6 HPS
Short Codes	A67	Provision for Vibration Sensors (PMC/BETA)	✓	■
	A68	Metrix Sensors (PMC/Beta) Installed on DE and NDE, top of the endshield	✓	✓
	K10	IEEE 841 Features	✓	✓
	M69	Precision	✓	--
	M70	Extra Precision Balance	✓	■

✓ Available
■ Standard
-- Not Available

Standards

IEEE 841 Features, **K10**, adds the applicable features of IEEE 841 to the motor. This option is only available for frame size 500 motors. Motors over 500 HP fall outside the scope of IEEE 841 and will be nameplated with "IEEE 841 Features."

Balance

SD200 motors up to L449 frame are dynamically balanced to commercial limits measure in accordance with NEMA MG1-12.06. Precision and Extra Precision balance, **M69**, **M70**, provides more stringent balancing guidelines per Table 10-1. FS500 motors will have extra precision balance as standard.

Balance	NEMA	Precision Balance		Extra Precision Balance		
Frames	140-449	140-320	360-449	140-256	280-320	360-500
RPM						
Maximum amplitude, inches, peak to peak (mils P/P)						
0 - 999	2.5	0.5	0.75	0.2	0.3	0.4
1000 - 1999	2.0	0.5	0.75	0.2	0.3	0.4
2000 - 2999	1.5	0.5	0.75	0.2	0.3	0.4
3000 - 4000	1.0	0.5	0.75	0.2	0.3	0.4
Velocity, inches, inches/seconds (in/sec)						
0 - 999	0.1308	0.0262	0.0392	0.105	0.0157	0.0209
1000 - 1999	0.2093	0.0523	0.0785	0.0209	0.0314	0.0419
2000 - 2999	0.2355	0.0785	0.1178	0.0314	0.0471	0.0628
3000 - 4000	0.2094	0.1047	0.1571	0.0419	0.0628	0.0838

Table 10-1

Vibration Monitoring

Provisions for vibration sensors, **A67**, will provide 1/4"–28 UNF drilled and tapped holes on each bearing housing when selected with no additional instruction. This option can also be adapted to the required drill and tap required for a customer specified vibration sensor with quote from LOW VOLTAGE MOTOR quotation team. DP200 HPS motors in 500 frame will have provisions for vibration sensors as a standard feature.

Metrix vibration sensors, **A68**, includes the provisions and install of one ST5484E 4-20 MA transmitter on each end of the motor.

	Codes	Description	1LE6	1PC6 HPS
Short Codes	B09	Export Packaging Sea freight - Siemens Standard	✓	✓
	B11	Export Packaging Sea freight - Siemens Standard + sensors	✓	✓
	N01	2 Part Epoxy (Industrial-Coastal Low Salt)	✓	✓
	N02	3 Part Epoxy (Industrial-Coastal Moderate Salt)	✓	✓
	N03	Primer Only	✓	✓
	N05	3 Part Epoxy (Coastal-Offshore High Salt)	✓	✓
	N06	2 Part Epoxy C4 (Industrial-Coastal Moderate Salt)	✓	✓
	N07	2 Part Epoxy C5I/C5M (Coastal-Offshore High Salt)	✓	✓
	Y60	Special color (Provide RAL#)	✓	✓
	Y61	Special color with Special Paint system (Provide RAL#)	✓	✓

✓ Available
■ Standard
-- Not Available

Packaging

Frames 280 and larger will be bolted to an open wood pallet and wrapped in plastic to protect the finish. See standard packaging weights in dims in drawing section.

Export packing, **B09**, the motor will be secured into a fully enclosed wood crate. See Export box weights and dimensions in drawing section. Special packing, **B11**, will include B09+shock and tilt sensors.

Shipping weights and dimensions can be calculated using the standard packing weights and dimensions table combined with the motor information. The weights and dimensions listed in the tables do not include the weight and dimensions of the motor unless otherwise noted.

Paint

NEMA motors as standard are protected against corrosion (C2 category) and external influences with high-quality coatings based on (Alkyd Modified + Epoxy). If a higher corrosive class is required, a special paint system must be included.

Motors can be provided with primer only, **N03**, to allow the customer to apply their own final paint in the field.

The 2 Parts Epoxy paint system, **N01**, offers excellent resistance to the corrosive action of chemical agents, prolonged weathering and to the action of direct sunlight.

The 3 Parts Epoxy paint system, **N02**, is an organic base of Epoxy Zinc, provides a high resistance to humid environments (saline or no-saline) but not for offshore ocean climate, excellent inhibitory capacity to corrosion, excellent resistance to abrasion, high temperatures (ambient temperatures > 59°C) and to the most of industrial solvents (splashes). This Paint System is recommended to apply in high relative humidity environments (>60%).

2 Parts Epoxy paint system, **N06**, offers the same level of protection as **N02** at a reduced price and shorter process time.

The 3 parts epoxy (Coastal-Offshore High Salt) paint system, **N05**, is recommended for offshore installation , provides good chemical resistance to splash/spillage, fumes and immersion in neutral, fresh and salt water. Effectively protects the motor from corrosion resulting from industrial and marine exposures as it is safeguarding the environment.

2 Parts Epoxy paint system, **N07**, offers the same level of protection as **N05** at a reduced price and shorter process time.

See table 11-1 for additional details.

Siemens Paint Systems for LV NEMA Motors							
	Standard Siemens Paint System	**Special Paint Systems Offered by Siemens**					
	Standard Alkyed + Epoxy	**2 Part Epoxy (N01)**	**3 Part Epoxy (N02)**	**Prime Only (N03)**	**3 Part Epoxy Paint (Coastal-Offshore High Salt) (N05)**	**2 Part Epoxy Paint C4 (N06)**	**2 Part Epoxy Paint C5-I/ C5-M (N07)**
Priming of internal and external surfaces							
Type	Modified Alkyd	Epoxy Polyamide	Zinc Inorganic	Modified Alkyd	Zinc Inorganic	Zinc Inorganic	Zinc Inorganic
Color	Blue	Red Iron Oxide	Metallic Gray	Blue	Metallic Gray	Metallic Gray	Metallic Gray
Sheen	Flat	Flat	Flat	Flat	Flat	Flat	Flat
Dry film thickness	2.0 – 3.0 mils.	8.0 - 12.0 mils	3.0 - 4.0 mils	2.0 mils	3.0 - 5.0 mils	4.0 -5.0 mils	5.0 -6.0 mils
Intermediate coat of external surfaces							
Type	N/A	N/A	Epoxy	N/A	Epoxy	N/A	N/A
Color	N/A	N/A	White	N/A	White	N/A	N/A
Sheen	N/A	N/A	Flat	N/A	Flat	N/A	N/A
Dry film thickness	N/A	N/A	5.0 – 6.0 mils	N/A	5.0 – 6.0 mils	N/A	N/A
Top coat on external surfaces							
Type	PROMETAL E-26-B (Epoxy)	Epoxy Polyamide	Modified polyurethane	N/A	Modified polyurethane	EPX-80 (Epoxy)	EPX-80 (Epoxy)
Color	RAL 7030 Stone Gray	RAL 7030 Stone Gray	RAL 7030 Stone Gray	N/A	RAL 7030 Stone Gray	RAL 7030 Stone Gray	RAL 7030 Stone Gray
Sheen	Flat	Semi Gloss	Gloss	N/A	Gloss	Gloss	Gloss
Dry film thickness	3.0 – 6.0 mils.	3.0 - 4.0 mils	3.0 - 4.0 mils	N/A	5.0 – 6.0 mils	8.0 – 9.0 mils	8.0 – 11.0 mils
Total film thickness	**5.0 – 9.0 mils**	**11.0 - 16.0 mils**	**11.0 - 14.0 mils**	**2.0 mils**	**13.0 – 17.0 mils**	**12.0 – 14.0 mils**	**13.0 – 17.0 mils**
Salt Spray resistance (hours)	400	1500	2000		2000+	2000	2000+
Corrosity Category	C2	C3	C4		C5I & C5M	C4	C5I & C5M

Table 11-1

Paint Color

The standard color for all paint systems will be RAL7030 Stone Gray. Special colors with our standard paint, **Y60**, or special color with one of our special paint systems, **Y61**, are available as RAL color only and must be specified at time of order.
RAL color website: http://www.ralcolor.com/

	1LE2	1MB2	1PC2	1LE6	1PC6 HPS	Codes	Description
Short Codes	✓	✓	✓	✓	✓	D05	Nameplate and Documentation in Spanish
	✓	✓	✓	✓	✓	F00	Certificate of Compliance
	✓	✓	✓	✓	✓	F01	Certificate of Origin - Stamped by Chamber of Commerce
	✓	✓	✓	✓	✓	F03	Standard Performance Curve
	✓	✓	✓	✓	✓	F04	Acceleration Time Calculation
	✓	✓	✓	✓	✓	F05	Polarization Index
	✓	✓	✓	✓	✓	F07	Curve Package at 100% and 80% voltage (S-T, PERF)
	✓	✓	✓	✓	✓	F08	Shaft Torsional Analysis (includes shaft drawing)
	✓	✓	✓	✓	✓	F09	Bearing L10 Calculation
	✓	✓	✓	✓	✓	F40	Stall Time (Thermal Limit Curve)
	✓	✓	✓	✓	✓	F42	Standard Dimension Sheet
	✓	✓	✓	✓	✓	F43	Nonstandard Dimension Sheet
	✓	✓	✓	✓	✓	F44	Conduit Box Dimension Sheet
	✓	✓	✓	✓	✓	F45	Wiring Diagram
	✓	✓	✓	✓	✓	F46	Instruction and Operation Manual
	✓	✓	✓	✓	✓	F47	Renewal Parts
	✓	✓	✓	✓	✓	F48	CAD Drawing (Dwg Format) Customer/Application Specific
	✓	✓	✓	✓	✓	F49	Performance Data Sheets
	✓	✓	✓	✓	✓	F50	Customer Specific Data Sheets
	✓	✓	✓	✓	✓	F60	Visual Inspection Proof (Max 8X Photos)
	✓	✓	✓	✓	✓	F70	Inspection Test Plan
	✓	✓	✓	✓	✓	F71	Paint Report (thickness and adherence)
	✓	✓	✓	✓	✓	F81	Advanced Document Package
	✓	✓	✓	✓	✓	F82	Project Document Package

✓ Available
■ Standard
-- Not Available

Siemens offers much of our documentation and certificates for download through our online DT-Configurator tool. This allows the data to be tailored to the motor configuration.

In addition to our online documentation we also offer a wide variety of order specific documentation through order codes as individual documents or as documentation packages. Ordered documents be provided in Siemens standard electronic format unless otherwise noted.

Information that is proprietary to Siemens will not be included in documentation supplied.

Drawings

Motor drawings can be provided in either pdf or dxf format as specified in the purchase order. The standard drawing, **F42**, can be used for a standard F1 configuration with no special options. This drawing is also available for download through the DT-Configurator.

The non-standard drawing in pdf format, **F43**, or in CAD (.dxf) format, **F48**, can be used for motors with mechanical modifications that would add on accessories or change the standard dimensions of the motor.

Conduit box drawing, **F44**, can be used for a standard conduit box drawing and auxiliary boxes.

Curves

Standard performance curves, **F03**, will include the motor calculated speed torque curve and calculated performance curve (Efficiency, Power Factor, and Amps Over percent of rated horsepower) at rated voltage. This curve is also available for download through the DT-Configurator.

Stall Time Curve, **F40**, is a logarithmic curve of current (in present of full load) over time. The curve will be shown for both hot and cold conditions and graphically illustrates the safe stall time.

Curves at 100% and 80% voltage, **F07**, will included speed torque curve and performance curves.

Data Sheets

Typical Data sheet, **F49**, will provide an electrical data sheet for the motor ordered in Siemens standard format.

Customer specific data sheet, **F50**, provides the customer with the project data sheet filled out by Siemens engineering. The customer data sheet must be supplied in excel format at the time the purchase order is placed.

Special Calculations and Reports

Acceleration time calculation, **F04**, will be calculated based on the load inertia value provided by the customer. The inertia value must be provided with the PO.

Polarization Index, **F05**, provides a reference winding impendence to gauge deterioration of the winding insulation.

Shaft Torsional Analysis, **F08**, provides motor shaft torsional data for each step on the shaft with the shaft drawing.

Bearing L10 calculation, **F09**, calculates the estimated life of the bearings based on customer supplied application details. See bearings section for minimum application details required.

Other Documentation

Documentation and nameplates can be provided in Spanish, **D05**. This option will also include NOM on the nameplate.

Certificate of compliance, **F00**, can be issued to certify compliance with ISO standards.

Certificate of origin stamped by the Chamber of Commerce, **F01**, can be required when motors are exported for select countries.

Inspection Test Plan, **F70**, provides formal documentation of the factory standard tests and inspections.

Wiring diagram, **F45**, will provide a pdf copy of the motor wiring diagram for the motor ordered. This document is also available for download through the DT-Configurator.

Instruction and Operation Manual, **F46**, is general instructions for installation, operation and maintenance for NEMA motors.
This document is also available for download through the DT-Configurator.

Replacement parts list, **F47**, will provide part numbers and general descriptions for the following spare parts:

- Bearings, Fan, Fan housing, Conduit Box, Bearing housings (flange if applicable), and seals

Visual inspection Proof, **F60**, provides up to 8 photos of the motor prior to shipment. Photos will include nameplate and tagging, at lease 3 views of overall motors, and detail special features.

Paint Report, **F71**, provides a measure of paint thickness and overall paint adherence.

Additional specialized documentation and calculations may be offered by the factory through the Siemens LOW VOLTAGE MOTOR quotation team.

Documentation Packages

Order specific documentation packages provide many of the common documents required for special projects and OEMs packaged into a zip file. Additional documentation options may be added with order codes as required by the project.

Advanced Document Package, **F81**, will include:

- (F46) Instruction Operation Manual
- (F00) Certificate of Compliance
- (F49) Data Sheet
- Nameplate Drawing
- (F45) Connection Diagram
- (F07) Speed vs Torque / Current Curve and Performance Curve (at 80% and 100% Voltage)
- (F47) Spare Parts List
- (F43) Outline Drawing (pdf)

Project Documentation Package, **F82**, will include:

- (F46) Instruction Operation Manual
- (F00)Certificate of Compliance
- (F49) Data Sheet
- Nameplate Drawing
- (F45) Connection Diagram
- (F07) Speed vs Torque / Current Curve and Performance Curve (at 80% and 100% Voltage)
- (F47) Spare Parts List
- (F43) Outline Drawing (pdf)
- (F48) CAD Dimension drawing
- Thermal Limit Curve (at 80% and 100% Voltage)
- (F44) Terminal box drawing
- (F50) Customer specific data sheets
- (F70) ITP
- Hazardous Area Certs (UL or CSA)
- Details of Paint System

	Codes	Description	1LE6	1PC6 HPS
Short Codes	F10	Routine Test Report	✓	✓
	F12	Routine Test Report (Witnessed)	✓	✓
	F15	Complete Test	✓	✓
	F17	Complete Test (Witnessed)	✓	✓
	F20	Routine Test + Vibration	✓	✓
	F22	Routine Test + Vibration (Witnessed)	✓	✓
	F27	Performance Load Test (Curve Report)	✓	✓
	F30	Noise Test	✓	✓
	F32	Noise Test (Witnessed)	✓	✓
	F36	Routine Test Report of Electrical Duplicate Design	✓	✓
	F37	Type Test Report of Electrical Duplicate Design	✓	✓

✓ Available
■ Standard
-- Not Available

Routine Test, F10, F12

Routine test consists of the following items tested in accordance with IEEE standard 112.

- No Load Current
- No Load Speed
- Nominal Current at Locked Rotor
- Winding Resistance
- High Potential
- Bearings/Vibration Check

Routine Test with vibration, F20, F22

Includes all tests from standard routine test with additional records of vibration testing. A hard copy of the Routine Test with vibration is included on all IEEE 841 compliant motors, adding **F20** will get you the test report in electronic format.

Test report of routine test is based on IEEE Std. 112 Form A-1 and includes complete nameplate information.

Electrical Duplicate Routine Test, **F36**, is an electronic copy of a test report of the same electrical design as the motor on order.

Noise Test, F30, F32

Motors are tested according to IEEE 85 standard in unloaded condition only. Test report will be provided with Sound Pressure (L_p) and sound power (L_w) in octave bands of 125Hz, 250Hz, 500Hz, 1kHz, 2kHz, 4kHz, and 8kHz.

Complete Test, F15, F17

Complete test consists of the following items tested in accordance with NEMA and IEEE-112 test standards.

- Full Load Heat Run
- Temperature Rise at F.L.
- Winding Resistance
- Rated F.L. Slip
- No Load Current
- Breakdown Torque
- Locked Rotor Torque-Amps
- High Potential Tests
- Efficiencies @ 100, 75, 50 Percent Load
- Power Factor @ 100, 75, 50 Percent Load

Test report of complete test is based on IEEE Std. Form A-2 and includes complete nameplate information.

Electrical Duplicate Complete Test, **F37**, is an electronic copy of a test report of the same electrical design as the motor on order.

Performance Load Test, F27

Performance Load Tests the motors at select points from 0-125% of the rated load recording speed, torque, current, power factor and efficiency, at rated voltage. Data is curve plotted, on Siemens standard format. Foot mounted motors only.

2-2-1 Motor Selection and Pricing – SIMOTICS Sever Duty Motors

Introduction

Siemens SIMOTICS Next Generation Severe Duty motors are designed and built to operate under harsh environments in the industry, including but not limited to petrochemical, pulp and paper mills and waste-water treatment. With an expanded configurations and options, this motor will be ideal for diverse applications... Fans, Compressors, Pumps, Conveyors, Hoists, Winders to name a few. These motors are design to meet or exceed the NEMA Premium® efficiency and also available in NEMA Super Premium® efficiency[3]. Built for long, trouble-free life, they are backed up by a 3-year warranty for SD200.

Performance Specification			
		SD200	SD200 841
HP Range	3600 RPM	125 - 800 HP	Coming Soon
	1800 RPM	125 - 800 HP	Coming Soon
	1200 RPM	Coming Soon	Coming Soon
	900 RPM	Coming Soon	
Frame Size	440T - 500	440T-500	Coming Soon
Standard Voltage (3 phase)	460V, 60HZ	125-800 HP	Coming Soon
	575V, 60HZ	125-800 HP	Coming Soon
Efficiency	NEMA Premium® (MG1-Table 12-12)	125 - 500 HP	
Service Factor	1.15 @ 40°C	125-800HP	
Insulation	440 Frame	Class H	
	500 Frame	Class H	
Temperature Rise	Class B	@ 1.0SF	
	Class F	@ 1.15SF	
Conduit Box (Oversized)	Oversized	Cast Iron	
Fan Cover		Cast Iron	
Cooling Fan	Bi-Directional	Polypropylene	
Rotor	Die Cast Aluminum	FS 440-500	
Ingress Protection	NEMA	IP55	Coming Soon
Hazardous Location	Gas [2]	CL 1, Div 2 Gr. A,B,C or D Temp Code T3	
	Dust [4]	CL 2, Div 2 Gr. F & G Temp Code T3C	
Inverter Duty	Variable Torque 20:1	FS 440-500	
	Constant Torque CT 4:1	4 Pole, 125 – 300HP	
	Constant Torque CT 2:1	FS L449, 4 Pole 350-400HP	
	Constant Torque CT 4:1	FS500, 4 Pole, 350 – 600HP	
	Constant Torque CT 2:1	4 Pole, 700 - 800HP	
	Constant Torque CT 4:1	2 Pole, 125 – 300HP	
	Constant Torque CT 2:1	2 Pole, 350 – 800HP	

1) IEEE841 Features above 500HP
2) FS 449 and FS L449: Temperature Code T2D
3) NEMA Super Premium® efficiency on request with special quote
4) FS500 with option M25

2-2-1 Motor Selection and Pricing – SIMOTICS Sever Duty Motors

Frame and End Shields

The SIMOTICS Severe Duty motor,SD200, feature cast iron frame, end shields, and an easy-to-access, diagonally-split, oversize terminal box; the terminal box is provided with a neoprene gasket and includes a heavy-duty ground lug and non-wicking clearly and permanently marked leads. These characteristics, its high strength zinc-plated hardware, epoxy paint and stainless steel nameplate provide exceptional structural integrity and resistance to rust and corrosion, making them suitable for severe duty applications in harsh environments.

Rotor and Stator Windings

A unique offset rotor bar design provides improved efficiency, while larger bars and end rings reduce resistance for lower rotor losses. Each die cast aluminum rotor assembly is dynamically balanced for extended bearing life and includes a high-strength carbon steel (C1045) shaft for maximum rotor performance.

The stator is manufactured with premium electrical C5 grade steel lamination and copper electrical magnet wire that furthers the reduction in losses.

Insulation

The proprietary Class H non-hygroscopic insulation system is rated for 180 deg C, NEMA Class B temperature rise, providing extra margin of thermal life. The varnish system application ensures maximum wire penetration to provide protection from moisture, corrosion and electrical shock. This insulation system meets or exceeds NEMA MG1 2014 Part 31 making the motors suitable for variable speed drives in constant torque (as noted) and variable torque (20:1). All windings are tested for CIV.

Cooling System

A non-sparking, bi-directional fan is locked and keyed to the shaft. Its low-inertia design reduces windage losses, improves airflow, reduces noise and provides dependable cooling. Cast Iron fan covers are provided for all frames sizes.

Bearings

Single shielded bearings are used for better bearing protection against contaminants.

2-2-1 Motor Selection and Pricing – SIMOTICS Sever Duty Motors – SD200

SD200 Rotor: Die Cast Aluminum Eff: NEMA Premium				Stock ✓ Digits 12-13				
Power HP	Speed Rpm	NEMA Frame	Base Part Number ■ - ■ = digits 12-13	Voltage 1-2 460V	 1-3 575V	List Price	Eff	Weight Lbs
125	3600	444TS	1LE6321-4FA1■ - ■AA1	✓		15,730	95.4	1462
125	1800	444T	1LE6321-4BB1■ - ■AA1	✓	✓	14,660	95.4	1490
125	1800	444TS	1LE6321-4FB1■ - ■AA1	✓		14,660	95.4	1435
125	1800	R444T	1LE6321-4SB1■ - ■AA1	✓		15,280	95.4	1502
150	3600	445TS	1LE6321-4FA2■ - ■AA1	✓		18,900	95.8	1557
150	1800	445T	1LE6321-4BB2■ - ■AA1	✓	✓	17,050	96.2	1575
150	1800	445TS	1LE6321-4FB2■ - ■AA1	✓		17,050	96.2	1523
150	1800	R445T	1LE6321-4SB2■ - ■AA1	✓		17,660	96.2	1588
200	3600	447TS	1LE6321-4GA1■ - ■AA1	✓		23,900	96.2	1767
200	1800	447T	1LE6321-4CB1■ - ■AA1	✓	✓	20,730	96.2	1765
200	1800	447TS	1LE6321-4GB1■ - ■AA1	✓		20,730	96.2	1716
200	1800	R447T	1LE6321-4TB1■ - ■AA1	✓		21,350	96.2	1778
250	3600	449TS	1LE6321-4GA2■ - ■AA1	✓		30,150	96.2	2049
250	1800	449T	1LE6321-4CB2■ - ■AA1	✓		26,010	96.2	2085
250	1800	449TS	1LE6321-4GB2■ - ■AA1	✓		26,010	96.2	2035
250	1800	R449T	1LE6321-4TB2■ - ■AA1	✓		26,630	96.2	2097
300	3600	449TS	1LE6321-4GA3■ - ■AA1	✓		41,270	96.2	2155
300	1800	449T	1LE6321-4CB3■ - ■AA1	✓		30,340	96.2	2170
300	1800	449TS	1LE6321-4GB3■ - ■AA1	✓		30,340	96.2	2231
300	1800	R449T	1LE6321-4TB3■ - ■AA1	✓		30,950	96.2	2182
350	3600	L449TS	1LE6321-4HA1■ - ■AA1	✓		42,410	96.2	2680
350	1800	L449T	1LE6321-4DB1■ - ■AA1	✓		39,390	96.2	2574
350	1800	L449TS	1LE6321-4HB1■ - ■AA1	✓		39,390	96.2	2574
350	1800	RL449T	1LE6321-4UB1■ - ■AA1	✓		40,010	96.2	2632
400	3600	L449TS	1LE6321-4HA2■ - ■AA1	✓		52,890	96.2	2797
400	1800	L449T	1LE6321-4DB2■ - ■AA1	✓		49,140	96.2	2685
400	1800	L449TS	1LE6321-4HB2■ - ■AA1	✓		49,140	96.2	2685
400	1800	RL449T	1LE6321-4UB2■ - ■AA1	✓		49,750	96.2	2734

2-2-1 Motor Selection and Pricing – SIMOTICS Sever Duty Motors – SD200

SD200 Rotor: Die Cast Aluminum Eff: NEMA Premium									
Power HP	Speed Rpm	NEMA Frame	Part Number	Voltage	Stock ✓	List Price	FLC	Eff	Weight Lbs
350	1200	5010	1LE6321-5AC21-2AA1	460	✓	56,690	400	95.80%	4,387
350	1200	5010S	1LE6321-5EC21-2AA1	460		54,760	400	95.80%	4,387
350	1200	R5010	1LE6321-5RC21-2AA1	460		57,940	400	95.80%	4,387
400	3600	509S	1LE6321-5EA11-2AA1	460		55,650	435	96.20%	4,219
400	1800	509	1LE6321-5AB11-2AA1	460	✓	54,380	455	96.50%	4,105
400	1800	509S	1LE6321-5EB11-2AA1	460		54,380	455	96.50%	4,105
400	1800	R509	1LE6321-5RB11-2AA1	460		55,630	455	96.50%	4,105
400	1200	5011	1LE6321-5AC81-2AA1	460	✓	59,920	457	95.80%	4,529
400	1200	5011S	1LE6321-5EC81-2AA1	460		59,920	457	95.80%	4,529
400	1200	R5011	1LE6321-5RC81-2AA1	460		61,170	457	95.80%	4,529
450	3600	5010S	1LE6321-5EA21-2AA1	460	✓	56,780	490	96.20%	4,357
450	1800	509	1LE6321-5AB21-2AA1	460		56,120	515	96.50%	4,302
450	1800	509S	1LE6321-5EB21-2AA1	460		56,120	515	96.50%	4,302
450	1800	R5010	1LE6321-5RB21-2AA1	460		57,370	515	96.50%	4,302
450	1200	L5011	1LE6321-5BC31-2AA1	460		68,490	507	95.80%	5,083
450	1200	L5011S	1LE6321-5FC31-2AA1	460		63,670	507	95.80%	5,083
450	1200	RL5011	1LE6321-5SC31-2AA1	460		69,740	507	95.80%	5,083
500	3600	5011S	1LE6321-5EA81-2AA1	460		57,530	535	96.20%	4,504
500	1800	5011	1LE6321-5AB81-2AA1	460	✓	56,960	565	96.50%	4,509
500	1800	5011S	1LE6321-5EB81-2AA1	460		56,960	565	96.50%	4,509
500	1800	R5011	1LE6321-5RB81-2AA1	460		58,210	565	96.50%	4,509
500	1200	5012	1LE6321-5BC51-2AA1	460		72,600	563	95.80%	5,289
500	1200	5012S	1LE6321-5FC51-2AA1	460		70,670	563	95.80%	5,289
500	1200	R5012	1LE6321-5SC51-2AA1	460		73,850	563	95.80%	5,289
600	3600	5011S	1LE6321-5EA01-2AA1	460		64,200	650	96.50%	4,936
600	1800	5011	1LE6321-5AB01-2AA1	460		64,420	680	96.50%	4,993
600	1800	5011S	1LE6321-5EB01-2AA1	460		64,200	680	96.50%	4,993
600	1800	R5011	1LE6321-5RB01-2AA1	460		65,680	680	96.50%	4,993
600	1200	5013	1LE6321-5BC71-2AA1	460		79,170	675	95.80%	5,391
600	1200	5013S	1LE6321-5FC71-2AA1	460		79,170	675	95.80%	5,391
600	1200	R5013	1LE6321-5SC71-2AA1	460		80,420	675	95.80%	5,390
700	3600	5013S	1LE6321-5FA71-2AA1	460		73,880	760	96.70%	5,538
700	1800	5013	1LE6321-5BB71-2AA1	460		75,990	790	96.70%	5,592
700	1800	5013S	1LE6321-5FB71-2AA1	460		75,990	790	96.70%	5,592
700	1800	R5013	1LE6321-5SB71-2AA1	460		77,240	790	96.70%	5,592
800	3600	5013S	1LE6321-5FA81-2AA1	460		77,580	850	96.70%	5,798

Note - 'R' before the frame designates the motor has roller bearing on DE
NEMA Premium is a certification mark of the National Electrical Manufacturer's Association.

2-2-1 Motor Selection and Pricing – SIMOTICS Sever Duty Motors – SD200

SD200
Rotor: Die Cast Aluminum
Eff: NEMA Premium

Power HP	Speed Rpm	NEMA Frame	Part Number	Voltage	Stock ✓	List Price	FLC	Eff	Weight Lbs
350	1200	5010	1LE6321-5AC21-3AA1	575		59,970	328	95.80%	4,387
350	1200	5010S	1LE6321-5EC21-3AA1	575		58,040	328	95.80%	4,387
350	1200	R5010	1LE6321-5RC21-3AA1	575		61,220	328	95.80%	4,387
400	3600	509S	1LE6321-5EA11-3AA1	575		58,930	345	96.20%	4,219
400	1800	509	1LE6321-5AB11-3AA1	575		57,660	368	96.50%	4,105
400	1800	509S	1LE6321-5EB11-3AA1	575		57,660	638	96.50%	4,105
400	1800	R509	1LE6321-5RB11-3AA1	575		58,910	368	96.50%	4,105
400	1200	5011	1LE6321-5AC81-3AA1	575		63,200	376	95.80%	4,529
400	1200	5011S	1LE6321-5EC81-3AA1	575		63,200	376	95.80%	4,529
400	1200	R5011	1LE6321-5RC81-3AA1	575		64,450	376	95.80%	4,529
450	3600	5010S	1LE6321-5EA21-3AA1	575		60,060	385	96.20%	4,357
450	1800	509	1LE6321-5AB21-3AA1	575		59,400	415	96.50%	4,302
450	1800	509S	1LE6321-5EB21-3AA1	575		59,400	412	96.50%	4,302
450	1800	R509	1LE6321-5RB21-3AA1	575		60,650	412	96.50%	4,302
450	1200	L5011	1LE6321-5BC31-3AA1	575		71,770	420	95.80%	5,083
450	1200	L5011S	1LE6321-5FC31-3AA1	575		66,950	420	95.80%	5,083
450	1200	RL5011	1LE6321-5SC31-3AA1	575		73,020	420	95.80%	5,083
500	3600	5011S	1LE6321-5EA81-3AA1	575		60,810	430	96.20%	4,504
500	1800	5011	1LE6321-5AB81-3AA1	575		60,240	456	96.50%	4,509
500	1800	5011S	1LE6321-5EB81-3AA1	575		60,240	456	96.50%	4,509
500	1800	R5011	1LE6321-5RB81-3AA1	575		61,490	456	96.50%	4,509
500	1200	5012	1LE6321-5BC51-3AA1	575		75,880	464	95.80%	5,289
500	1200	5012S	1LE6321-5FC51-3AA1	575		73,950	464	95.80%	5,289
500	1200	R5012	1LE6321-5SC51-3AA1	575		77,130	464	95.80%	5,289
600	3600	5011S	1LE6321-5EA01-3AA1	575		67,480	520	96.50%	4,936
600	1800	5011	1LE6321-5AB01-3AA1	575		67,700	548	96.50%	4,993
600	1800	5011S	1LE6321-5EB01-3AA1	575		67,700	548	96.50%	4,993
600	1800	R5011	1LE6321-5RB01-3AA1	575		68,960	548	96.50%	4,993
600	1200	5013	1LE6321-5BC71-3AA1	575		82,450	556	95.80%	5,391
600	1200	5013S	1LE6321-5FC71-3AA1	575		82,450	556	95.80%	5,391
600	1200	R5013	1LE6321-5SC71-3AA1	575		83,700	556	95.80%	5,390
700	3600	5013S	1LE6321-5FA71-3AA1	575		77,160	600	96.70%	5,538
700	1800	5013	1LE6321-5BB71-3AA1	575		79,270	664	96.70%	5,592
700	1800	5013S	1LE6321-5FB71-3AA1	575		79,270	664	96.70%	5,592
700	1800	R5013	1LE6321-5SB71-3AA1	575		80,520	664	96.70%	5,592
800	3600	5013S	1LE6321-5FA81-3AA1	575		80,860	680	96.70%	5,798

Note - 'R' before the frame designates the motor has Roller bearings
NEMA Premium is a certification mark of the National Electrical Manufacturer's Association.

2-2-2 Motor Selection and Pricing – SIMOTICS Definite Purpose Motors

Introduction

Siemens Definite Purpose Motors are designed and built to operate under harsh environments in the industry, including but not limited to petrochemical, pulp and paper mills and waste-water treatment. DP200 HPS motors use the SD200 as a base with added features (Provisions for Bearing RTDs, Provisions for Vibration detectors, and **Insulated NDE shaft) that are key in the Horizontal Pump Systems motors. A wide selection of options, among them bearing isolator and ceramic bearings on drive end, make these motors suitable almost any requirement. The construction of these motors is backed up by its three year warranty and 5 years when order with IEEE841 features.

Performance Specification		
		DP200 HPS
HP Range	3600 RPM	450-800
Frame Size		FS 509-5013S
Standard Voltage	460V, 575V	FS 509-5013S
Efficiency	NEMA Premium® (MG1-Table 12-12)	FS 509-5013S
Service Factor	1.15 @ 40°C	FS 509-5013S
	1.00 @ 40°C	--
Insulation	Non-Hygroscopic	Class H
Temperature Rise	Class B	@ 1.0SF
	Class F	@ 1.15SF
Conduit Box (Oversized)	Oversized	Cast Iron
Fan Cover		Metallic
Cooling Fan	Bi-Directional	Polypropylene
Rotor	Die Cast Aluminum	FS 509-5013S
Ingress Protection	NEMA	IP55
Hazardous Location	Gas	CL 1, Div 2 Gr. A,B,C or D Temp Code T3
Inverter Duty	Variable Torque 20:1	FS 509-5013S
	Constant Torque CT 3:1	450-600 HP
	Constant Torque CT 2:1	700-800 HP
		CE CSA c UL us ee NEMA Premium

** Note: INSOCOAT Bearing on NDE prior to January 2021

Frame and End Shields

Definite purpose motors feature cast iron frame, end shields and an easy to access, diagonally split, oversize terminal box; the terminal box is provided with a neoprene gasket and includes a heavy duty ground lug and non-wicking clearly and permanently marked leads. These characteristics, its zinc-plated hardware, epoxy paint and stainless steel nameplate provide exceptional structural integrity and resistant to rust and corrosion, and make them suitable for severe duty applications in harsh environments

Rotor and Stator Windings

A unique offset rotor bar design provides improved efficiency, while larger bars and end rings reduce resistance for lower rotor losses. Each die cast aluminum rotor assembly is dynamically balanced with half key for extended bearing life and includes a high-strength steel (C4140) shaft for maximum rotor performance.

The stator is manufactured with premium electrical C5 grade steel lamination and copper electrical magnet wire that reduce losses.

Insulation

The proprietary Class H non-hygroscopic insulation system, NEMA Class B temperature rise, provides an extra margin of thermal life. The varnish system application ensures maximum wire penetration to provide protection from moisture, corrosion and electrical shock. This insulation system meets or exceeds NEMA MG1 2014 Part 31 making the motors suitable for variable speed drives in constant torque (3:1, 2:1) and variable torque (20:1). All windings are tested for CIV.

Cooling System

A non-sparking, bi-directional fan is locked and keyed to the shaft. Its low-inertia design reduces windage losses, improves airflow, reduces noise and provides dependable cooling. Metal sheet fan covers are provided for all frames sizes.

Bearings

DP200 HPS motors have 63 series bearings on both ends with Insulated shaft on NDE as standard to help minimize bearing failure due to shaft currents. (INSOCOAT bearing on NDE prior to January 2021)

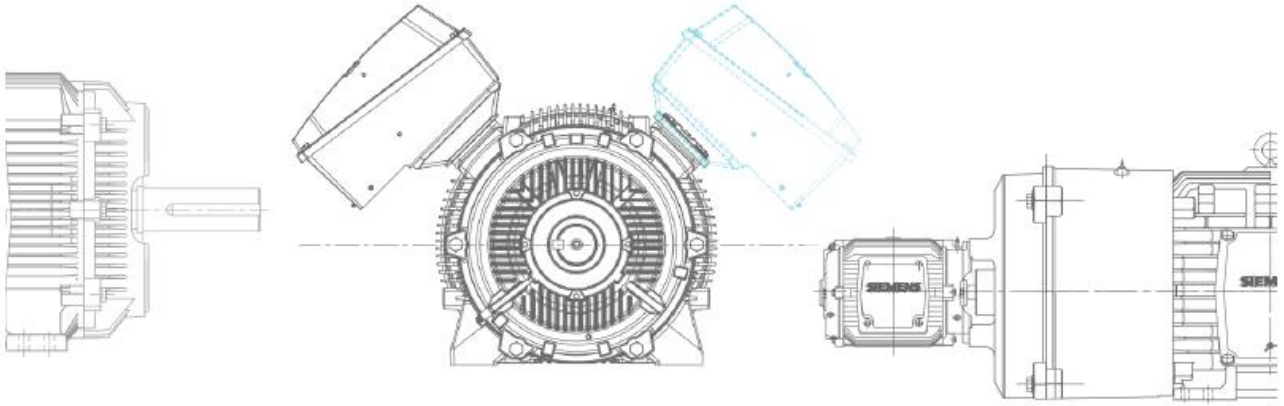
2-2-2 Motor Selection and Pricing – SIMOTICS Definite Purpose Motors – DP200 HPS

DP200 HPS
Rotor: Die Cast Aluminum
Eff: NEMA Premium

Power HP	Speed Rpm	NEMA Frame	Part Number	Voltage	Stock ✓	List Price	FLC	Eff	Weight Lbs
400	3600	509S	1PC6521-5EA11-2AA1	460		59,220	435	96.20%	4,219
450	3600	5010S	1PC6521-5EA21-2AA1	460		60,350	490	96.20%	4,357
500	3600	5011S	1PC6521-5EA81-2AA1	460		59,430	535	96.20%	4,504
600	3600	5011S	1PC6521-5EA01-2AA1	460	✓	66,900	650	96.50%	4,936
700	3600	5013S	1PC6521-5FA71-2AA1	460		77,450	760	96.70%	5,538
800	3600	5013S	1PC6521-5FA81-2AA1	460		81,140	850	96.70%	5,798
400	3600	509S	1PC6521-5EA11-3AA1	575		57,460	345	96.20%	4,219
450	3600	5010S	1PC6521-5EA21-3AA1	575		58,590	385	96.20%	4,357
500	3600	5011S	1PC6521-5EA81-3AA1	575		57,670	430	96.20%	4,504
600	3600	5011S	1PC6521-5EA01-3AA1	575		65,140	520	96.50%	4,936
700	3600	5013S	1PC6521-5FA71-3AA1	575		75,690	600	96.70%	5,538
800	3600	5013S	1PC6521-5FA81-3AA1	575		79,380	680	96.70%	5,798
400	3600	509S	1PC6521-5EA11-2AK1	460		65,780	435	96.20%	4,219
450	3600	5010S	1PC6521-5EA21-2AK1	460		66,910	490	96.20%	4,357
500	3600	5011S	1PC6521-5EA81-2AK1	460	✓	65,990	535	96.20%	4,504
600	3600	5011S	1PC6521-5EA01-2AK1	460	✓	73,460	650	96.50%	4,936
700	3600	5013S	1PC6521-5FA71-2AK1	460		84,010	760	96.70%	5,538
800	3600	5013S	1PC6521-5FA81-2AK1	460	✓	87,700	850	96.70%	5,798
400	3600	509S	1PC6521-5EA11-3AK1	575		64,020	345	96.20%	4,219
450	3600	5010S	1PC6521-5EA21-3AK1	575		65,150	385	96.20%	4,357
500	3600	5011S	1PC6521-5EA81-3AK1	575		64,230	430	96.20%	4,504
600	3600	5011S	1PC6521-5EA01-3AK1	575		71,700	520	96.50%	4,936
700	3600	5013S	1PC6521-5FA71-3AK1	575		82,250	600	96.70%	5,538
800	3600	5013S	1PC6521-5FA81-3AK1	575		85,940	680	96.70%	5,798

*Stator RTD's 100 ohm platinum w aux box-terminal strip 2/phase
NEMA Premium is a certification mark of the National Electrical Manufacturer's Association.
QuikMOD Delivery is for stocked motors only.

2-3 Option Selection and Pricing - Introduction



Siemens offers a wide selection of options to increase the suitability of our motors to the specific customer needs.

Modified Stock Options:
QM = QuikMOD
MOD = Modification

Custom Build Options:
Case A-1: Base Custom Delivery
Case A-2: One additional week
Case B: Three additional weeks

Definitions:

MLFB Digit – Modifications or Custom features that are built into the motor part number (MLFB).
Short Codes – Modifications or Custom features that are added after the part number.

Ordering Instructions:

1. Select a stock motor from the **Motor Selection and Pricing Section.** (Note Part Number)
2. **Verify applicability of desired Option(s) at the end of the section.** (Per motor type and frame)
3. **Select applicable Option(s).**
4. **Construct new Part Number and List Price.** (See example below)
   a. If the MLFB Position is 12, 13, 14, 15 or 16, replace the number(s) or letter(s) at the same position(s) in the stock motor **Part Number** with the **MLFB Code**.
   b. If the option is a **Short Code**, then add a **'-Z'** to the end of the motor **Part Number and add the short code.** Then add a '+' sign followed by the **additional short Code(s).**

Custom Options combined with QuikMOD Motor Pricing Example:

Example: 15HP, 1800RPM, 208-230/460V, 254T, SD100, Copper Rotor, D-flange with feet, PTC thermistors (3 embedded temperature sensors for tripping) with condulet to main box and Class H insulation.

Base List Price:	$2,131	Part Number 1LE23112BB114AA3
List Price Adders:		
D-Flange with Feet	$774	Order Code **F**, Order Code Position **14**
PTC Thermistors	$634	Order Code **B**, Order Code Position **15**
Condulet to Main Box	$251	Order Code **J02**, Order Code Position **Z**
Class H Insulation	$157	Order Code **C00**, Order Code Position **Z**
Total List Price:	**$3,947**	**New Part Number** – 1LE23112BB114**FB**3-**Z J02**+**C00**
Delivery:		Please contact Siemens for delivery

2-3-1 Option Selection and Pricing – Modified Stock Options

	Codes	Description	Case	440	L449	500	SD200	DP200 HPS	Notes
Voltage and Connection									
	12	460V	STD	0	0	0	■	■	
	13	575	STD	0	0	3280	■	C	Custom if non-stock
Mounting									
MLFB DIGIT 14	A	Foot Mounted Horizontal (IMB3)	STD	0	0	0	■	■	
	C	Foot Mounted Vertical Shaft-Down w/o Canopy (IMV5)	MOD	2100	2100	7440	✓	✓	
	D	Foot Mounted Vertical Shaft-Up (IMV6)	MOD	2100	2100	7440	✓	✓	
	J	Foot Mounted D-Flange Horizontal (IMB35)	QM	2140	2140	2140	✓	✓	Modification Coming Soon
	N	Foot Mounted C-face Horizontal (IMB3 – F1 / F2 / F3)	QM	1300	1300	--	✓	--	
	P	Foot Mounted C-Face Vertical Shaft-down w/o Canopy – W6 / W7 / W12]	MOD	3200	3200	--	✓	--	
	Q	Foot Mounted C-Face Vertical Shaft-up – W5 / W8 / W11	MOD	3200	3200	--	✓	--	
	R	Foot Mounted D-Flange Vertical Shaft-Down w/o Canopy [W6/W7/W12]	MOD	3900	3900	9260	✓	✓	Modification Coming Soon
	S	Foot Mounted D-Flange Vertical Shaft-Up [W5/W8/W11]	MOD	3900	3900	9260	✓	✓	Modification Coming Soon
	T	Foot Wall Mount Horizontal (MB6, – W2 / W4)	MOD	2100	2100	14870	✓	--	
	U	Foot Wall Mounted Horizontal (IMB7 – W1 / W3)	MOD	2100	2100	14870	✓	✓	
	V	Foot Ceiling Mount Horizontal (IMB8 – C1/ C2 / C3)	MOD	2100	2100	14870	✓	✓	
Short Code	P03	D-Flange (Modified from stock) Non-standard shaft	QM	200	200	200	✓	✓	Modification Coming Soon
Winding Protection									
MLFB DIGIT 15	G	Thermostats normally closed, Temp code T3C, 1 per phase	QM	550	550	670	✓	✓	
	L	Winding Protection - G + K	QM	C	C	670	C	✓	Only for motor stocked with "K"
Short Codes	A46	Space Heaters 115V single phase, max temp 160°C	QM	610	610	610	✓	✓	
	A47	Space Heaters 230V single phase, max temp 160°C	QM	610	610	610	✓	✓	
	A48	Space Heaters 115V/230V Single Phase, Max Temp 160°C	QM	610	610	610	✓	✓	
	C07	Insulation Fungus Protection - No UL	QM	500	500	500	✓	✓	

Legend

✓	Available
■	Standard
C	Custom - See Custom Options
--	Not Available

Note: Delivery time subject to change based on stock at time of order.
QM = Quick Modification – 2-3 days modification
MOD = Engineered Modification – 10 days modification

2-3-1 Option Selection and Pricing – Modified Stock Options

	Codes	Description	Case	440	L449	500	SD200	DP200 HPS	Notes
Terminal boxes and Leads									
MLFB DIGIT 16	1	LHS Mount - View From DE -Drive End Side (F1)	STD	0	0	0	■	■	
	2	RHS Mount - View From DE -Drive End Side (F2)	QM	300	300	300	✓	✓	
	3	Top Mounted Terminal Box from LHS -Drive End Side	QM	300	300	300	✓	✓	
Short Options	R00	Cast Iron Aux Box for thermal protection - Position 1 (F1 DE)	QM	400	400	600	✓	✓	
	R01	Cast Iron Aux Box for thermal protection - Position 2 (F2 DE)	QM	400	400	600	✓	✓	
	R02	Cast Iron Aux Box for thermal protection - Position 4 (F1 NDE)	QM	400	400	600	✓	✓	
	R03	Cast Iron Aux Box for thermal protection - Position 5 (F2 NDE)	QM	400	400	600	✓	✓	
	R04	Condulet Box for thermal protection - Position 1 (F1 DE)	QM	250	250	400	✓	✓	
	R05	Condulet Box for thermal protection - Position 2 (F2 DE)	QM	250	250	400	✓	✓	
	R06	Condulet Box for thermal protection - Position 4 (F1 NDE)	QM	250	250	400	✓	✓	
	R07	Condulet Box for thermal protection - Position 5 (F2 NDE)	QM	250	250	400	✓	✓	
	R10	Cast Iron Aux Box for space heaters - Position 1 (F1 DE)	QM	400	400	600	✓	✓	
	R11	Cast Iron Aux Box for space heaters - Position 2 (F2 DE)	QM	400	400	600	✓	✓	
	R12	Cast Iron Aux Box for space heaters - Position 4 (F1 NDE)	QM	400	400	600	✓	✓	
	R13	Cast Iron Aux Box for space heaters - Position 5 (F2 NDE)	QM	400	400	600	✓	✓	
	R14	Condulet Box for space heaters - Position 1 (F1 DE)	QM	250	250	400	✓	✓	
	R15	Condulet Box for space heaters - Position 2 (F2 DE)	QM	250	250	400	✓	✓	
	R16	Condulet Box for space heaters - Position 4 (F1 NDE)	QM	250	250	400	✓	✓	
	R17	Condulet Box for space heaters - Position 5 (F2 NDE)	QM	250	250	400	✓	✓	
	R20	Cast Iron Aux Box for all accessories - Position 1 (F1 DE)	QM	400	400	600	✓	✓	
	R21	Cast Iron Aux Box for all accessories - Position 2 (F2 DE)	QM	400	400	600	✓	✓	
	R22	Cast Iron Aux Box for all accessories - Position 4 (F1 NDE)	QM	400	400	600	✓	✓	
	R23	Cast Iron Aux Box for all accessories - Position 5 (F2 NDE)	QM	400	400	600	✓	✓	
	R24	Condulet Box for all accessories - Position 1 (F1 DE)	QM	250	250	400	✓	✓	
	R25	Condulet Box for all accessories - Position 2 (F2 DE)	QM	250	250	400	✓	✓	
	R26	Condulet Box for all accessories - Position 4 (F1 NDE)	QM	250	250	400	✓	✓	
	R27	Condulet Box for all accessories - Position 5 (F2 NDE)	QM	250	250	400	✓	✓	

Note: Delivery time subject to change based on stock at time of order.
QM = Quick Modification – 2-3 days modification
MOD = Engineered Modification – 10 days modification

Legend

✓	Available
■	Standard
C	Custom - See Custom Options
--	Not Available

2-3-1 Option Selection and Pricing – Modified Stock Options

	Codes	Description	Case	440	L449	500	SD200	DP200 HPS	Notes
Terminal boxes and Leads									
Short Options	J84	Conduit Box Orientation 90° CCW (Entry from DE)	QM	100	100	270	✓	✓	
	J85	Conduit Box Orientation 180° CCW (Entry from Top)	QM	100	100	270	✓	✓	
	J86	Conduit Box Orientation 270° CCW (Entry from ODE)	QM	100	100	270	✓	✓	
	K80	BURNDY HYDENT YA Type Terminals	QM	150	150	150	✓	✓	
	K83	Terminal Block – 3 Lead Only	QM	2800	2800	**	✓	**	** coming soon
	T00	Main Terminal Box - at a 45° Angle	QM	150	150	150	✓	✓	
	T50	Dual Entry Hole Terminal Box	QM	800	800	**	✓	**	** coming soon
Bearings and Lubrication									
Short Options	A50	Install Bearing RTD's-100 Ohm Platinum -Both Ends & Terminal Heads/Block	QM	--	--	3070	--	✓	
	L49	Automatic Grease Relief Fitting	QM	150	150		✓	✓	
	L57	MOBIL 28- High or Low - Special Grease	MOD	1500	1500	1650	✓	✓	
	L58	MOBILITH SHC 100 -Special Grease	MOD	650	650	850	✓	✓	
	L61	Insulated Bearing -INSOCOAT (Both Ends)	QM	8000	8000	8000	✓	✓	Not for Roller Bearing
	L62	Insulated Bearing -INSOCOAT (DE Only)	QM	4000	4000		✓	✓	Not for Roller Bearing
	L64	Insulated Bearing -INSOCOAT (NDE Only)	QM	4200	4200	4200	✓	✓	
	L68	Sealed Ball Bearings (Both Ends)	QM	1000	1000	--	✓	--	No 2 pole, Not for Roller Bearing
	L69	Hybrid (Ceramic Ball) Bearings - Both Ends	QM	12000	12000	19730	✓	✓	Not for Roller Bearing
	L70	Hybrid (Ceramic Ball) Bearings – NDE	QM	6000	6000	9870	✓	✓	
	L71	Hybrid (Ceramic Ball) Bearings – DE	QM	7000	7000	9870	✓	✓	Not for Roller Bearing
Shafts and Seals									
Short Options	L29	Shaft Grounding Brush	MOD	5200	5200	9860	✓	✓	Removes Division 2
	L76	Shaft Slinger & O Ring	QM	200	200	--	✓	--	
	L79	INPRO/SEAL DE	QM	1000	1000	1150	✓	✓	
	L80	INPRO/SEAL ODE	QM	1000	1000	1150	✓	✓	
	L81	INPRO/SEAL - Both Ends	QM	2000	2000	2300	✓	✓	
	L86	INPRO/SEAL MGS Shaft Grounding – DE	QM	2050	2050	4170	✓	✓	Removes Division 2
	L87	ORION Labrinth Copper Seal - DE	QM	250	250	■	✓	■	
	L88	ORION Labrinth Copper Seal - ODE	QM	250	250	250	✓	✓	
	L89	ORION Labrinth Copper Seal- Both Ends	QM	500	500	--	✓	--	

Note: Delivery time subject to change based on stock at time of order.
QM = Quick Modification – 2-3 days modification
MOD = Engineered Modification – 10 days modification

Legend

✓	Available
■	Standard
C	Custom - See Custom Options
--	Not Available

2-3-1 Option Selection and Pricing – Modified Stock Options

	Codes	Description	Case	440	L449	500	SD200	DP200 HPS	Notes
Frame									
Short Options	K33	Drip Cover	QM	400	400	2970	✓	✓	Vertical mounting must be selected.
	K38	Provisions for Dowel Holes	MOD	900	900	■	✓	■	
	K71	Rotation Arrow Clockwise (From NDE)	QM	150	150	150	✓	✓	
	K72	Rotation Arrow Counterclockwise (From NDE)	QM	150	150	150	✓	✓	
	L22	Stainless Steel Hardware (Includes T Drain SS)	QM	600	600	650	✓	✓	
	L27	Ground Bolts - Qty 2	QM	150	150	150	✓	✓	
	L45	SS T - Slot Breather Drain	QM	300	300	300	✓	✓	
	L46	CROUSE HINDS UL Approved Breather Drain	QM	350	350	380	✓	✓	
	M10	Bronze Fan	MOD	3500	3500	--	✓	--	
	M39	Vertical Jacking Provisions	MOD	800	800	Cust.	✓	C	
Rating Plates and Tagging									
Short Options	M22	Class I, Division 2 CSA Tag	QM	150	150	150	✓	✓	
	Y80	Derate-Alt-Amb (Nameplate Change)	QM	170	170	170	✓	✓	
	Y82	Auxiliary n/p Max. 40 Characters (Aux Tag)	QM	100	100	100	✓	✓	
Mechanical Design and Accessories									
Short Options	M69	Precision Balance	MOD	340	340	--	✓	--	
	M70	Extra Precision Balance	MOD	620	620	--	✓	--	
Paint and Packaging									
Short Options	B09	Export Packaging Sea Freight – Siemens Standard	QM	1010	1010	2430	✓	✓	

Note: Delivery time subject to change based on stock at time of order.
QM = Quick Modification – 2-3 days modification
MOD = Engineered Modification – 10 days modification

Legend

✓	Available
■	Standard
C	Custom - See Custom Options
--	Not Available

2-3-1 Option Selection and Pricing – Modified Stock Options

	Codes	Description	Case	440	L449	500	SD200	DP200 HPS	Notes
Documentation									
Short Options	F00	Certificate of Compliance	QM	300	300	300	✓	✓	
	F01	Certificate of Origin - Stamped by Chamber of Commerce	MOD	900	900	900	✓	✓	
	F03	Standard Performance Curves	QM	450	450	450	✓	✓	
	F04	Acceleration Time Calculation	MOD	190	190	190	✓	✓	
	F07	Curve Package at 100% and 80% voltage (S-T, PERF)	MOD	750	750	750	✓	✓	
	F08	Shaft Torsional Analysis (includes shaft drawing)	MOD	500	500	500	✓	✓	
	F09	Bearing L10 Calculation	MOD	550	550	550	✓	✓	
	F40	Stall Time Curve (Thermal Limit Curve)	QM	310	310	310	✓	✓	
	F42	Standard Dimensional Sheet	QM	150	150	150	✓	✓	
	F43	Non-Standard Dimension Sheet	MOD	550	550	550	✓	✓	
	F44	Conduit Box Dimension Sheet	QM	310	310	310	✓	✓	
	F45	Wiring Diagram	QM	150	150	150	✓	✓	
	F46	Instruction & Operation Manual in English	QM	150	150	150	✓	✓	
	F47	Renewal Parts	MOD	150	150	150	✓	✓	
	F48	CAD Drawing (Dwg Format) Customer/Application Specific	MOD	610	610	610	✓	✓	
	F49	Performance Data Sheets	MOD	260	260	260	✓	✓	
	F50	Customer Specific Data Sheets	MOD	550	550	550	✓	✓	
	F60	Visual Inspection Proof (Max 8X Photos)	MOD	340	340	340	✓	✓	
Tests									
Short Options	F10	Routine Test Report	QM	250	250	250	✓	✓	
	F12	Routine Test Report (Witnessed)	MOD	2750	2750	3470	✓	✓	
	F15	Complete Test	MOD	12050	12050	C	✓	C	
	F17	Complete Test (Witnessed)	MOD	18050	18050	C	✓	C	
	F20	Routine Test + Vibration	QM	600	600	600	✓	✓	
	F22	Routine Test + Vibration (Witnessed)	MOD	3250	3250	3780	✓	✓	
	F27	Performance Load Test (Curve Report)	MOD	7210	7210	7210	✓	✓	
	F36	Routine Test Report of Electrical Duplicate Design	MOD	250	250	250	✓	✓	
	F37	Type Test Report of Electrical Duplicate Design	MOD	455	455	455	✓	✓	

Note: Delivery time subject to change based on stock at time of order.
QM = Quick Modification – 2-3 days modification
MOD = Engineered Modification – 10 days modification

Legend

✓	Available
■	Standard
C	Custom - See Custom Options
--	Not Available

2-3-2 Option Selection and Pricing – Custom Build Options

	Codes	Description	Case	440	L449	500	SD200	DP200 HPS	Notes
Voltage and Connection									
MLFB DIGIT 12-13	12	460V	STD	0	0	0	■	■	
	13	575	STD	0	0	3280	✓	✓	
	22	460V PWS 60HZ	A-1	750	750	1520	✓	✓	
	23	575V PWS 60HZ	A-1	800	800	1520	✓	✓	
	32	WyeStrt-DeltaRun460, 60Hz	A-1	750	750	1520	✓	✓	
	33	WyeStrt-DeltaRun575, 60Hz	A-1	800	800	1520	✓	✓	
	90	(M6Y) Special Winding 200-600V	A-1	1200	1200	2930	✓	✓	
Mounting									
MLFB DIGIT 14	A	Foot Mounted Horizontal (IMB3)	STD	0	0	0	■	■	
	C	Foot Mounted Vertical Shaft-Down w/o Canopy (IMV5)	A-1	2100	2100	7440	✓	✓	
	D	Foot Mounted Vertical Shaft-Up (IMV6)	A-1	2100	2100	7440	✓	✓	
	F	Footless D-flange Horizontal (IMB5)	A-1	**	**	**	**	**	** Coming Soon
	G	Footless D-flange Vertical Shaft-down w/o canopy (IMV1)	A-1	**	**	**	**	**	** Coming Soon
	H	Footless D-flange Vertical Shaft-up (IMV3)	A-1	**	**	**	**	**	** Coming Soon
	J	Foot Mounted D-Flange Horizontal (IMB35)	A-1	2140	2140	2140	✓	✓	
	K	Footless C-Face Horizontal (IMB14)	A-1	**	**	**	**	**	** Coming Soon
	L	Footless C-Face Vertical Shaft-down w/o canopy (IMV19)	A-1	**	**	**	**	**	** Coming Soon
	M	Footless C-Face Vertical Shaft-up (IMV18)	A-1	**	**	**	**	**	** Coming Soon
	N	Foot Mounted C-face Horizontal (IMB3 – F1 / F2 / F3)	A-1	1300	1300	--	✓	--	
	P	Foot Mounted C-Face Vertical Shaft-down w/o Canopy – W6 / W7 / W12]	A-1	3200	3200	--	✓	--	
	Q	Foot Mounted C-Face Vertical Shaft-up – W5 / W8 / W11	A-1	3200	3200	--	✓	--	
	R	Foot Mounted D-Flange Vertical Shaft-Down w/o Canopy [W6/W7/W12]	A-1	3900	3900	9260	✓	✓	
	S	Foot Mounted D-Flange Vertical Shaft-Up [W5/W8/W11]	A-1	3900	3900	9260	✓	✓	
	T	Foot Wall Mount Horizontal (MB6, – W2 / W4)	A-1	2100	2100	14870	✓	--	
	U	Foot Wall Mounted Horizontal (IMB7 – W1 / W3)	A-1	2100	2100	14870	✓	✓	
	V	Foot Ceiling Mount Horizontal (IMB8 – C1/ C2 / C3)	A-1	2100	2100	14870	✓	✓	

Note: See Weekly Stock List for updated lead times on delivery cases
Case A-1: Base Custom Delivery
Case A-2: One additional week
Case B: Three additional weeks

Legend
✓ Available
■ Standard
-- Not Available

2-3-2 Option Selection and Pricing – Custom Build Options

	Codes	Description	Case	440	L449	500	SD200	DP200 HPS	Notes
Winding Protection									
MLFB DIGIT 15	A	Without Winding Protection	A-1	0	0	0	✓	✓	
	B	3 PTC Thermistor Sensors for tripping	A-1	640	640	640	✓	✓	
	C	6 PTC Thermistor Sensors for alarm and trip	A-1	1280	1280	1280	✓	✓	
	G	Thermostats normally closed, Temp code T3C, 1 per phase	A-1	550	550	670	✓	✓	
	J	Thermocouples Coil Head	A-1	1800	1800	3710	✓	✓	
	K	Stator RTD's, 2 Per Phase, with aux box	A-1	5000	5000	6560	✓	✓	
	L	Winding Protection - G + K	A-1	5500	5500	7230	✓	✓	
	P	PT1000 Resistance Thermometers, 2 Embedded	A-1	1120	1120	1120	✓	✓	
Short Codes	A46	Space Heaters 115V single phase, max temp 160°C	A-1	610	610	610	✓	✓	
	A47	Space Heaters 230V single phase, max temp 160°C	A-1	610	610	610	✓	✓	
	A48	Space Heaters 115V/230V Single Phase, Max Temp 160°C	A-1	610	610	610	✓	✓	
	A90	Control Module for Thermistors	B	725	725	725	✓	✓	
	C01	Insulation Vacuum Pressure Impregnation (VPI)	A-2	9000	9000	34270	✓	✓	
	C03	Spike resistant wire	A-2	500	500	3480	✓	✓	
	C04	Insulation moisture/Powerhouse (extra dip & bake)	A-2	1800	1800	1877	✓	✓	
	C07	Insulation Fungus Protection - No UL	A-1	500	500	500	✓	✓	
	C08	Insulation tropicalization (extra dip & bake + fungus spray)	A-2	2300	2300	2300	✓	✓	
Terminal boxes and Leads									
MLFB DIGIT 16	1	LHS Mount - View From DE -Drive End Side (F1)	A-1	0	0	0	■	■	
	2	RHS Mount - View From DE -Drive End Side (F2)	A-1	300	300	300	✓	✓	
	3	Top Mounted Terminal Box from LHS -Drive End Side	A-1	300	300	300	✓	✓	
	4	LHS Mount - View From DE –Non-Drive End Side (F1)	A-1	--	300	300	✓	✓	
	5	RHS Mount - View From DE -Non-Drive End Side (F2)	A-1	--	300	300	✓	✓	
	6	Top Mounted Terminal Box from LHS -Non-Drive End Side	A-1	--	300	300	✓	✓	
Short Codes	J84	Conduit Box Orientation 90° (entry from DE)	A-1	100	100	270	✓	✓	
	J85	Conduit Box Orientation 180°	A-1	100	100	270	✓	✓	
	J86	Conduit Box Orientation 270° (entry from ODE)	A-1	100	100	270	✓	✓	
	K80	BURNDY HYDENT YA type terminals	A-2	150	150	150	✓	✓	
	K81	Special cable leads, 60" long	A-1	500	500	3040	✓	✓	
	K82	Special cable leads, 120" long	A-1	900	900	6620	✓	✓	
	K83	Terminal Block in Main Box	A-1	2800	2800	**	✓	**	** Coming Soon
	K89	Sealed Leads	A-1	740	740	--	✓	--	

Note: See Weekly Stock List for updated lead times on delivery cases
Case A-1: Base Custom Delivery
Case A-2: One additional week
Case B: Three additional weeks

Legend
✓ Available
■ Standard
-- Not Available

2-3-2 Option Selection and Pricing – Custom Build Options

	Codes	Description	Case	440	L449	500	SD200	DP200 HPS	Notes
Terminal boxes and Leads									
Short Options	R00	Cast Iron Aux Box for thermal protection - Position 1 (F1 DE)	A-1	400	400	600	✓	✓	No cost when used with stator RTDs
	R01	Cast Iron Aux Box for thermal protection - Position 2 (F2 DE)	A-1	400	400	600	✓	✓	No cost when used with stator RTDs
	R02	Cast Iron Aux Box for thermal protection - Position 4 (F1 NDE)	A-1	400	400	600	✓	✓	No cost when used with stator RTDs
	R03	Cast Iron Aux Box for thermal protection - Position 5 (F2 NDE)	A-1	400	400	600	✓	✓	No cost when used with stator RTDs
	R04	Condulet Box for thermal protection - Position 1 (F1 DE)	A-1	250	250	400	✓	✓	
	R05	Condulet Box for thermal protection - Position 2 (F2 DE)	A-1	250	250	400	✓	✓	
	R06	Condulet Box for thermal protection - Position 4 (F1 NDE)	A-1	250	250	400	✓	✓	
	R07	Condulet Box for thermal protection - Position 5 (F2 NDE)	A-1	250	250	400	✓	✓	
	R10	Cast Iron Aux Box for space heaters - Position 1 (F1 DE)	A-1	400	400	600	✓	✓	
	R11	Cast Iron Aux Box for space heaters - Position 2 (F2 DE)	A-1	400	400	600	✓	✓	
	R12	Cast Iron Aux Box for space heaters - Position 4 (F1 NDE)	A-1	400	400	600	✓	✓	
	R13	Cast Iron Aux Box for space heaters - Position 5 (F2 NDE)	A-1	400	400	600	✓	✓	
	R14	Condulet Box for space heaters - Position 1 (F1 DE)	A-1	250	250	400	✓	✓	
	R15	Condulet Box for space heaters - Position 2 (F2 DE)	A-1	250	250	400	✓	✓	
	R16	Condulet Box for space heaters - Position 4 (F1 NDE)	A-1	250	250	400	✓	✓	
	R17	Condulet Box for space heaters - Position 5 (F2 NDE)	A-1	250	250	400	✓	✓	
	R20	Cast Iron Aux Box for all accessories - Position 1 (F1 DE)	A-1	400	400	600	✓	✓	No cost when used with stator RTDs
	R21	Cast Iron Aux Box for all accessories - Position 2 (F2 DE)	A-1	400	400	600	✓	✓	No cost when used with stator RTDs
	R22	Cast Iron Aux Box for all accessories - Position 4 (F1 NDE)	A-1	400	400	600	✓	✓	No cost when used with stator RTDs
	R23	Cast Iron Aux Box for all accessories - Position 5 (F2 NDE)	A-1	400	400	600	✓	✓	No cost when used with stator RTDs
	R24	Condulet Box for all accessories - Position 1 (F1 DE)	A-1	250	250	400	✓	✓	
	R25	Condulet Box for all accessories - Position 2 (F2 DE)	A-1	250	250	400	✓	✓	
	R26	Condulet Box for all accessories - Position 4 (F1 NDE)	A-1	250	250	400	✓	✓	
	R27	Condulet Box for all accessories - Position 5 (F2 NDE)	A-1	250	250	400	✓	✓	
	T00	Main Terminal Box - at a 45° angle	A-1	150	150	150	✓	✓	
	T50	Dual Entry Hole Terminal Box	A-1	350	350	**	✓	**	** Coming Soon
	Y96	Non-Standard NPT entry	A-1	400	400	**	✓	**	** Coming Soon

Note: See Weekly Stock List for updated lead times on delivery cases
Case A-1: Base Custom Delivery
Case A-2: One additional week
Case B: Three additional weeks

Legend

✓	Available
■	Standard
--	Not Available

2-3-2 Option Selection and Pricing – Custom Build Options

	Codes	Description	Case	440	L449	500	SD200	DP200 HPS	Notes
Bearings and Lubrication									
Short Options	A50	Install Bearing RTD's-100 Ohm Platinum -Both Ends & Terminal Heads/Block	A-1	--	--	3070	--	✓	
	A51	Bearing RTD's-100 Ohm Platinum -Both Ends & Terminal Heads/Block	A-2	3350	3350	3390	✓	--	
	L49	Automatic Grease Relief Fitting	A-1	150	150		✓	✓	
	L54	Provisions for oil mist (within 6 months)	A-2	4200	4200	--	✓	--	
	L55	Oil Mist Ready (must use oil mist)	A-2	4200	4200	--	✓	--	
	L57	MOBIL 28- High or Low - Special Grease	A-2	1500	1500	1650	✓	✓	
	L58	MOBILITH SHC 100 -Special Grease	A-2	650	650	850	✓	✓	
	L61	Insulated Bearing -INSOCOAT (Both Ends)	A-1	8000	8000	8000	✓	✓	Not for Roller Bearing
	L62	Insulated Bearing -INSOCOAT (DE Only)	A-1	4000	4000	--	✓	--	Not for Roller Bearing
	L64	Insulated Bearing -INSOCOAT (NDE Only)	A-1	4200	4200	4200	✓	✓	
	L68	Sealed Ball Bearings (Both Ends)	A-1	1000	1000	--	✓	--	No 2 pole, Not for Roller Bearing
	L69	Hybrid (Ceramic Ball) Bearings - Both Ends	B	12000	12000	19730	✓	✓	Not for Roller Bearing
	L70	Hybrid (Ceramic Ball) Bearings – NDE	B	6000	6000	9870	✓	✓	
	L71	Hybrid (Ceramic Ball) Bearings – DE	B	7000	7000	9870	✓	✓	Not for Roller Bearing
Shafts and Seals									
Short Options	K41	Keyless shaft	A-1	100	100	420	✓	✓	
	L29	Shaft Grounding Brush	A-2	5200	5200	9860	✓	✓	Removes Division 2
	L76	Shaft Slinger & O Ring	A-1	200	200	--	✓	--	
	L79	INPRO/SEAL DE	A-1	1000	1000	1150	✓	✓	
	L80	INPRO/SEAL ODE	A-2	1000	1000	1150	✓	✓	
	L81	INPRO/SEAL - Both Ends	A-2	2000	2000	2300	✓	✓	
	L86	INPRO/SEAL MGS Shaft Grounding – DE	A-1	2050	2050	4170	✓	✓	Removes Division 2
	L87	ORION Labrinth Copper Seal - DE	A-1	250	250	■	✓	■	
	L88	ORION Labrinth Copper Seal - ODE	A-1	250	250	250	✓	✓	
	L89	ORION Labrinth Copper Seal- Both Ends	A-1	500	500	--	✓	--	
	M52	Nema std long shaft - ODE	A-2	550	550	--	✓	--	
	M53	Nema std short shaft - ODE	A-2	550	550	--	✓	--	
	M57	(C4140) Carbon steel shaft	A-2	1800	1800	3040	✓	✓	
	Y50	Special shaft on Drive End	B	800	800	CF	✓	✓	
	Y51	Special shaft on Non Drive End	B	800	800	CF	✓	✓	

Note: See Weekly Stock List for updated lead times on delivery cases
Case A-1: Base Custom Delivery
Case A-2: One additional week
Case B: Three additional weeks

Legend
✓ Available
■ Standard
-- Not Available

2-3-2 Option Selection and Pricing – Custom Build Options

	Codes	Description	Case	440	L449	500	SD200	DP200 HPS	Notes
Frame									
Short Options	K33	Drip Cover	A-1	400	400	2970	✓	✓	
	K38	Provisions for Dowel Holes	A-1	900	900	■	✓	✓	
	K71	Rotation Arrow Clockwise (From NDE)	A-1	150	150	150	✓	✓	
	K72	Rotation Arrow Counterclockwise (From NDE)	A-1	150	150	150	✓	✓	
	L22	Stainless Steel Hardware (Includes T Drain SS)	A-1	600	600	650	✓	✓	
	L27	Ground Bolts - Qty 2	A-1	150	150	150	✓	✓	
	L45	SS T - Slot Breather Drain	A-1	300	300	300	✓	✓	
	L46	CROUSE HINDS UL Approved Breather Drain	A-1	350	350	380	✓	✓	
	L90	IP66 Ingress Protection	A-1	**	**	**	**	**	** Coming Soon
	L91	IP56 Ingress Protection	A-1	500	500	**	✓	**	** Coming Soon for FS500
	M10	Bronze Fan	A-1	3500	3500	--	✓	--	
	M39	Vertical Jacking Provisions	A-1	800	800	890	✓	✓	
Rating Plates and Tagging									
Short Options	B12	Sales Order Number on Nameplate	A-1	0	0	0	✓	✓	Required for all Custom Motors
	M21	Additional nameplate (without logos)	A-1	200	200	200	✓	✓	
	M22	Class I, Division 2 CSA Tag	A-1	150	150	150	✓	✓	
	Y80	Derate-Alt-Amb (Nameplate Change)	A-1	170	170	170	✓	✓	
	Y82	Auxiliary n/p Max. 40 Characters (Aux Tag)	A-1	100	100	100	✓	✓	
Ambient Temperature									
Short Options	B27	+40C to -30C Ambient temp	A-2	1450	1450	4200	✓	✓	
	B28	+40C to -40C Ambient temp	B	1600	1600	4200	✓	✓	
	B29	+40C to -50C Ambient temp	B	2200	2200	4500	✓	✓	
Mechanical Design and Accessories									
Short Options	A67	Provision only for vibration sensors (PMC/Beta)	A-2	500	500	1010	✓	✓	
	A68	Metrix Sensors (PMC/Beta) Installed on DE and NDE, top of the endhsield	B	14000	14000	**	✓	**	
	G05	Dynapar Encoder HS35R 1024 PPR	B	**	**	3500	**	✓	** Coming Soon
	G06	C-Face Mounted Slim Tach Encoder	B	**	**	**	**	**	** Coming Soon
	H04	C-Face Mounted Brake	B	**	**	**	**	**	** Coming Soon
	K10	IEEE 841 Features	B	--	--	960	--	✓	
	M05	Larger Fan for increased CT - VSD Only Operation	A-2	**	**	**	**	**	** Coming Soon
	M08	Separately Driven Fan for 1000:1 CT - VSD Only Operation	A-2	**	**	**	**	**	** Coming Soon
	M69	Precision Balance	A-1	340	340	--	✓	--	
	M70	Extra Precision Balance	A-1	620	620	--	✓	--	

Note: See Weekly Stock List for updated lead times on delivery cases
Case A-1: Base Custom Delivery
Case A-2: One additional week
Case B: Three additional weeks

Legend
✓ Available
■ Standard
-- Not Available

2-3-2 Option Selection and Pricing – Custom Build Options

	Codes	Description	Case	440	L449	500	SD200	DP200 HPS	Notes
Paint and Packaging									
Short Options	B09	Export Packaging Sea Freight – Siemens Standard	A-1	1010	1010	2430	✓	✓	
	B11	Export Packaging Sea freight - Siemens Standard + sensors	A-1	1050	1050	**	✓	**	** Coming Soon
	N01	2 Part Epoxy (Industrial-Coastal low salt)	B	1400	1400	3210	✓	✓	
	N02	3 Part Epoxy (Industrial-Coastal moderate salt)	B	3950	3950	3450	✓	✓	
	N03	Primer only	A-1	550	550	550	✓	✓	
	N05	3 Part Epoxy (Coastal-offshore high salt)	B	4600	4600	7120	✓	✓	
	N06	2 Part Epoxy C4 (Industrial-Coastal moderate salt)	A-2	1520	1650	3105	✓	**	** Coming Soon
	N07	2 Part Epoxy C5I/C5M (Coastal-offshore high salt)	A-2	2050	2255	4985	✓	**	** Coming Soon
	Y60	Special color for standard paint system (Provide RAL#)	A-1	550	550	550	✓	✓	
	Y61	Special color for special paint system (Provide RAL#)	A-1	100	100	100	✓	✓	Must include N01, N02, N05, N06, or N07
Documentation									
Short Options	D05	Documentation in Spanish	A-1	0	0	0	✓	✓	
	F00	Certificate of Compliance	A-1	300	300	300	✓	✓	
	F01	Certificate of Origin - Stamped by Chamber of Commerce	A-1	900	900	900	✓	✓	
	F03	Standard Performance Curves	A-1	450	450	450	✓	✓	
	F04	Acceleration Time Calculation	A-1	190	190	190	✓	✓	
	F05	Polarization Index	A-1	150	150	150	✓	✓	
	F07	Curve Package at 100% and 80% voltage (S-T, PERF)	A-1	750	750	750	✓	✓	
	F08	Shaft Torsional Analysis (includes shaft drawing)	A-1	500	500	500	✓	✓	
	F09	Bearing L10 Calculation	A-1	550	550	550	✓	✓	
	F40	Stall Time Curve (Thermal Limit Curve)	A-1	310	310	310	✓	✓	
	F42	Standard Dimensional Sheet	A-1	150	150	150	✓	✓	
	F43	Non-Standard Dimension Sheet	A-2	550	550	550	✓	✓	
	F44	Conduit Box Dimension Sheet	A-1	310	310	310	✓	✓	
	F45	Wiring Diagram	A-1	150	150	150	✓	✓	
	F46	Instruction & Operation Manual in English	A-1	150	150	150	✓	✓	
	F47	Renewal Parts	A-1	150	150	150	✓	✓	
	F48	CAD Drawing (Dwg Format) Customer/Application Specific	A-1	610	610	610	✓	✓	
	F49	Performance Data Sheets	A-1	260	260	260	✓	✓	
	F50	Customer Specific Data Sheets	A-2	550	550	550	✓	✓	
	F60	Visual Inspection Proof (Max 8X Photos)	A-1	340	340	340	✓	✓	
	F70	Inspection Test Plan	A-1	500	500	500	✓	✓	
	F71	Paint Report (thickness and adherence)	A-1	150	150	150	✓	✓	
	F81	Advanced Document Package	A-1	1650	1650	1650	✓	✓	
	F82	Project Document Package	A-2	3000	3000	3000	✓	✓	

Note: See Weekly Stock List for updated lead times on delivery cases
Case A-1: Base Custom Delivery
Case A-2: One additional week
Case B: Three additional weeks

Legend

✓	Available
■	Standard
--	Not Available

2-3-2 Option Selection and Pricing – Custom Build Options

	Codes	Description	Case	440	L449	500	SD200	DP200 HPS	Notes
Tests									
Short Options	F10	Routine Test Report	A-1	250	250	250	✓	✓	
	F12	Routine Test Report (Witnessed)	A-2	2750	2750	3470	✓	✓	
	F15	Complete Test	A-1	12050	12050	**	✓	**	** Coming Soon
	F17	Complete Test (Witnessed)	A-2	18050	18050	**	✓	**	** Coming Soon
	F20	Routine Test + Vibration	A-1	600	600	600	✓	✓	
	F22	Routine Test + Vibration (Witnessed)	A-2	3250	3250	3780	✓	✓	
	F27	Performance Load Test (Curve Report)	A-1	7210	7210	7210	✓	✓	
	F30	Noise test	A-1	3870	3870	3870	✓	✓	
	F32	Noise test (Witnessed)	A-2	7865	7865	7865	✓	✓	
	F36	Routine Test Report of Electrical Duplicate Design	A-1	250	250	250	✓	✓	
	F37	Type Test Report of Electrical Duplicate Design	A-1	455	455	455	✓	✓	

Note: See Weekly Stock List for updated lead times on delivery cases
Case A-1: Base Custom Delivery
Case A-2: One additional week
Case B: Three additional weeks

Legend

✓	Available
■	Standard
--	Not Available

3 Technical Tables

VSD Capabilities, Bearing Details, Typical Performance Data

3-1-1 VSD Capabilities – SIMOTICS Next Generation – SD200, SD200 841, DP200

For additional information on options related to VSD operation see sections on Bearings and Lubrication, Shafts and Seals, and Mechanical Design and Accessories

Severe Duty Motors (SD200, SD200 841, DP200)							
Frame	Poles	Standard		M05 Option	C00+C03+ M08 Options	Temp Codes	
						Standard Class I, Division 2	[1)]Standard Class II, Division 2
		Constant Torque	Variable Torque	Constant Torque	Constant Torque	Temp Code	Temp Code
444T - 445T	2, 4	4:1	20:1	Coming soon	Coming soon	T3 (200°C)	T3C (160°C)
447T	2, 4	4:1	20:1	Coming soon	Coming soon	T3 (200°C)	T3C (160°C)
449T	2, 4	4:1	20:1	Coming soon	Coming soon	T3 (200°C)	T3C (160°C)
L449	2, 4	2:1	20:1	Coming soon	Coming soon	T2D (215°C)	T3C (160°C)

Frame Size 500							
400 - 600 HP	2	3:1	20:1	NA	NA	T3 (200°C)	T3C (160°C)
	4	4:1	20:1	NA	NA	T3 (200°C)	T3C (160°C)
350 - 400 HP	6	2:1	20:1	NA	NA	T3 (200°C)	T3C (160°C)
700 - 800 HP	2	2:1	20:1	NA	NA	T2D (215°C)	T3C (160°C)
	4	2:1	20:1	NA	NA	T2D (215°C)	T3C (160°C)
500 - 600 HP	6	2:1	20:1	NA	NA	T2D (215°C)	T3C (160°C)

[1)] Option M25 required for FS500

3-2-1 Bearing Tables– SIMOTICS Next Generation – SD200, SD200 841, DP200 HPS

SIMOTICS Next Generation - Standard Bearing Information			
Motor Type	**Frame**	**Standard Bearing Size DE**	**Standard Bearing Size NDE**
SD200 (2 pole)	444TS-L449TS	6315 Z C3 S0	6315 Z C3 S0
SD200 (4 pole)	444TS-L449TS	6315 Z C3 S0	6315 Z C3 S0
SD200 (4 pole)	444T-L449T	6320 Z C3 S0	6315 Z C3 S0
SD200 (4 pole)	R444T-RL449T	NU 320	6315 Z C3 S0
SD200 (2 Pole)	509-5013S	6316 Z C3 S0	6316 Z C3 S0
DP200 (2 Pole)	509-5013S	6316 Z C3 S0	6316 Z C3 S0 (Insulated Shaft)
SD200 (4,6 Pole)	509-5013/S	6322 Z C3 S0	6322 Z C3 S0
SD200	R509-R5013	NU 322	6322 Z C3 S0

3-3-1 Typical Performance Data– SIMOTICS Next Generation – SD200, SD200 841, DP200 HPS

SIMOTICS Severe Duty - 60Hz
SD200 / SD200 841/ DP200 HPS
NEMA Premium
Aluminum Rotor

HP	FL RPM	Frame	Current (A)						KVA/ HP Code	Nominal Efficiency (%)			Power Factor			Torque			Locked Rotor Stall Time		NEMA Design	Approx. Weight (LBS)
			No Load		Full Load		Locked Rotor															
			460V	575V	460V	575V	460V	575V		1/2 Load (%)	3/4 Load (%)	Full Load (%)	1/2 Load (%)	3/4 Load (%)	Full Load (%)	Full Load Lb-FT	Locked Rotor TA/TN (%)	Break Down Tk/TN (%)	Hot (sec)	Cold (sec)		
125	3575	444TS	57	45.6	145	116	907.5	726	G	94.8	95.4	95.4	70	80.5	85	185	150	300	18	23	B	1462
125	1785	444T	63	50.4	154	123.2	907.5	726	G	95.2	95.6	95.4	66.3	76	80	366	200	280	20	25	B	1435
150	3575	445TS	58	46.4	170	136	1085	868	G	95.1	95.8	95.8	75.07	83.19	86.5	218	160	290	15	18	B	1557
150	1785	445T	79	63.2	187	149.6	1085	868	G	96.3	96.3	96.2	63.1	73.6	78	440	230	290	20	30	B	1523
200	3570	447TS	75	60	225	180	1450	1160	G	95.8	96.2	96.2	75.69	83.4	86.5	294	160	280	16	20	B	1767
200	1785	447T	100	80	247	197.6	1450	1160	G	96.3	96.3	96.2	65	74.9	79	587	220	280	18	25	B	1716
250	3570	449TS	97	77.6	275	220	1825	1460	G	95.8	96.2	96.2	75	83.5	87.5	370	170	290	12	18	B	2049
250	1785	449T	120	96	305	244	1825	1460	G	96.6	96.5	96.2	65.8	76	80	735	200	220	18	25	B	2035
300	3570	449TS	99	79.2	322	257.6	2200	1760	G	95.9	96.3	96.2	82	88	90	441	160	280	12	13	B	2155
300	1785	449T	144	115.2	365	292	2200	1760	G	96.8	96.6	96.2	66.9	80	80	882	200	220	22	30	B	2231
350	3570	L449TS	102	81.6	380	304	2550	2040	G	95.5	96.1	96.2	83.4	88.5	90	515	170	300	20	26	B	2680
350	1785	L449T	156	124.8	421	336.8	2550	2040	G	96.1	96.2	96.2	67.6	77	81	1028	235	235	25	32	B	2574
400	3570	L449TS	111	88.8	432	345.6	2900	2320	G	95.7	96.2	96.2	83.9	88.9	90	586	170	300	17	24	B	2797
400	1785	L449T	183	146.4	487	389.6	2900	2320	G	96.2	96.3	96.2	66.1	76.1	80	1179	235	235	21	26	B	2685

3-3-1 Typical Performance Data– SIMOTICS Next Generation – SD200, DP200 HPS – FS500

SIMOTICS Severe Duty - 60Hz
SD200, DP200 HPS
NEMA Premium

HP	FL RPM	Frame	Current (A)						KVA/ HP Code	Nominal Efficiency (%)			Power Factor			Torque			Locked Rotor Stall Time		NEMA Design	Approx. Weight (LBS)
			No Load		Full Load		Locked Rotor															
			460V	575V	460V	575V	460V	575V		1/2 Load (%)	3/4 Load (%)	Full Load (%)	1/2 Load (%)	3/4 Load (%)	Full Load (%)	Full Load Lb-FT	Locked Rotor TA/TN (%)	Break Down Tk/TN (%)	Hot (sec)	Cold (sec)		
350	1190	5010	140	112	410	328	2550	2040	G	96.6	96.6	96.2	74.3	81.5	84.1	1543	270	250	30	35	B	4387
400	3585	509S	85	70	430	345	2900	2320	G	96	96.4	96.5	85.1	89.6	90.8	585	190	230	23	28	B	4219
400	1790	509	140	112	460	368	2900	2320	G	96.2	96.7	96.5	76.3	81.8	84.4	1174.6	230	250	19	23	B	4105
400	1190	5011	160	128	470	376	2900	2320	G	96.6	96.6	96.2	74.3	81.5	84.1	1763.5	270	250	30	35	B	4529
450	3585	5010S	100	80	480	385	3250	2600	G	96	96.4	96.5	85.1	89.6	90.8	659.3	190	230	23	28	B	4357
450	1790	5010	150	120	515	412	3250	2600	G	96.4	96.7	96.5	76.7	82.7	84.8	1325.3	230	250	17	21	B	4302
450	1190	L5011	170	136	525	420	3250	2600	G	96.6	96.6	96.2	74.3	81.5	84.1	1984	270	250	30	35	B	5083
500	3585	5011S	105	84	535	430	3625	2900	G	96	96.4	96.5	85.1	89.6	90.8	732.5	190	230	19	24	B	4504
500	1790	5011	160	128	570	456	3625	2900	G	96.5	96.8	96.7	78.2	85.3	84.9	1469.2	230	250	18	22	B	4509
500	1190	5012	185	148	580	464	3625	2900	G	96.6	96.6	96.2	74.3	81.5	84.1	2204.4	270	250	30	35	B	5289
600	3585	5012S	145	115	650	520	4250	3400	G	96.3	96.8	96.7	80.6	87	89.1	877.7	190	230	17	22	NA	4936
600	1790	5012	190	152	686	548.8	4400	3520	G	96.6	96.9	96.7	77.5	83.6	84.7	1767.6	230	250	19	23	NA	4993
600	1190	5013	245	196	695	556	4518	3614	G	96.6	96.6	96.2	74.3	81.5	84.1	2644.9	270	250	30	35	NA	5391
700	3585	5013S	160	128	750	600	5285	4228	G	94.8	95.6	95.8	86.5	90.4	91.1	1025.5	250	290	23	28	NA	5538
700	1790	5013	305	244	830	664	5395	4316	G	97.3	97.2	96.7	81.2	85.7	81.7	2056.3	230	250	18	22	NA	5592
800	3585	5013S	210	170	870	680	6300	5040	G	95.1	96	96.2	82.4	87.7	89.4	1172	250	290	19	24	NA	5798
800	1790	5013	335	268	920	736	5980	4784	G	97.4	97.2	96.7	80.9	85.6	84.2	2349.9	230	250	17	21	NA	5840
900	3585	5013S	225	180	980	785	7100	5700	G	95.1	96	96.2	82.4	87.7	89.4	1320	250	290	17	22	NA	6098

3 Technical Tables

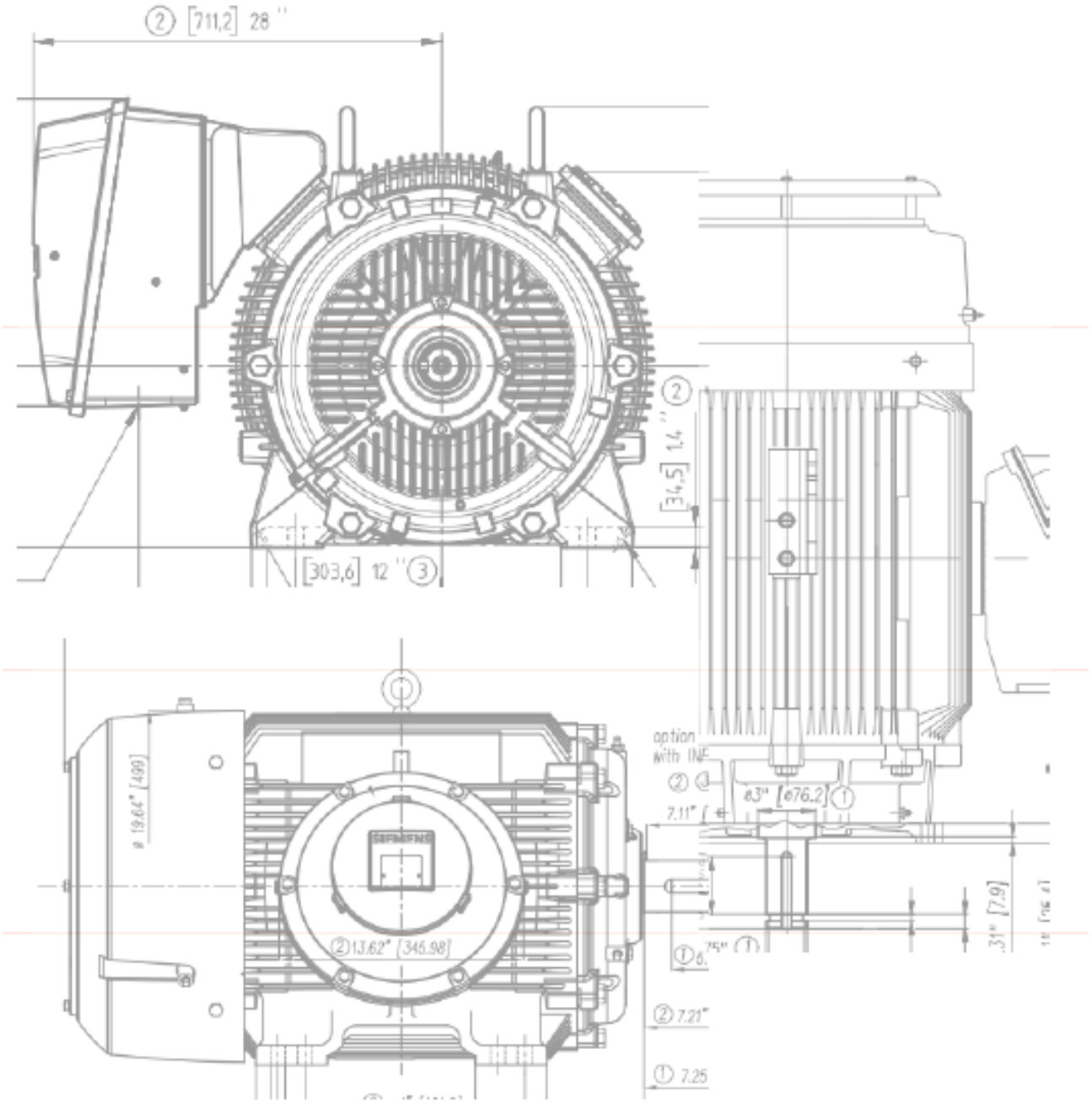
4 Drawings and Dimensions

General Motor Drawings, Dimensions of accessories,
General packing weights and dimensions

4 Drawings and Dimensions

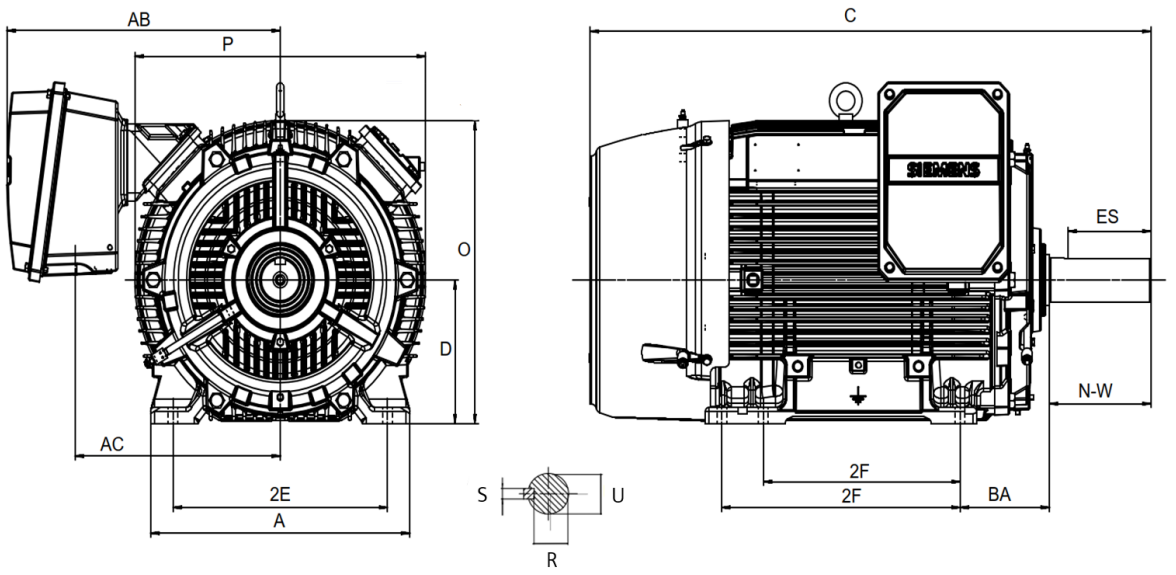
Overview

Siemens NEMA motors are built to meet the dimension criteria set by the NEMA MG-1 standards. Mounting dimensions will be per NEMA unless otherwise noted. Dimensions in this section are typical dimensions of standard motor designs and are subject to change without notification. Certified standard and configured drawings are available through order codes listed in the modification section.

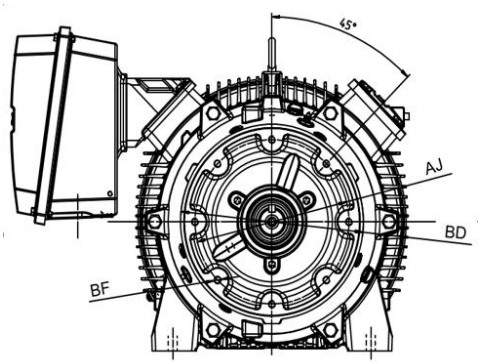


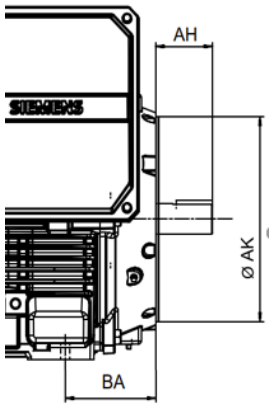
4-1-1 General Motor Dimensions - SIMOTICS Next Generation – Schematics SD200 – 444 – L449 Frame

Foot Mount

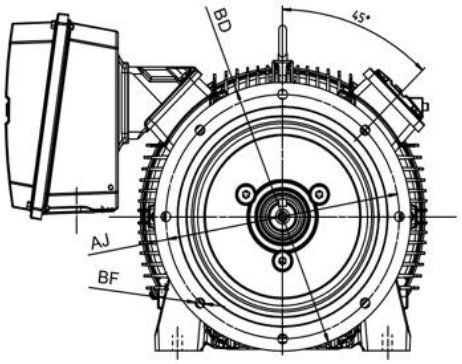


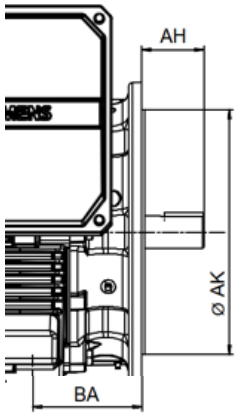
C-Face





D-Flange





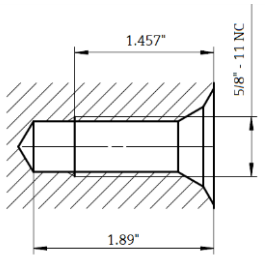
Dimension in Inches; Typical dimensions data, not guaranteed.
Note: See Technical Notes for Drip Cover and Accessory Dimensions

4-1-1 General Motor Dimensions - SIMOTICS Next Generation – SD200 – 444 – L449 Frame

Frame	A	C	2F	2F	P	BA	AB	AC	2E	D	O
444T	21.76	43.6	14.5	16.5	24.39	7.5	22.93	17.21	18	11	23.19
445T	21.76	43.6	16.5	14.5	24.39	7.5	22.93	17.21	18	11	23.19
444TS	21.76	39.81	14.5	16.5	24.39	7.5	22.93	17.21	18	11	23.19
445TS	21.76	39.81	16.5	14.5	24.39	7.5	22.93	17.21	18	11	23.19
447T	21.76	47.03	20	16.5	24.39	7.5	22.93	17.21	18	11	23.19
447TS	21.76	43.28	20	16.5	24.39	7.5	22.93	17.21	18	11	23.19
449T	21.76	52.06	25	20	24.39	7.5	23.46	17.31	18	11	23.19
449TS	21.76	48.31	25	20	24.39	7.5	23.42	17.31	18	11	23.19
L449T	21.79	60.06	25	20	24.39	7.5	23.76	17.65	18	11	23.78
L449TS	21.79	56.43	25	20	24.39	7.5	23.76	17.65	18	11	23.78

Shaft Dimensions					
Frame	N-W	U	Keyseat		
			R	S	ES
444T	8.5	3.38	2.880	0.875	6.88
445T	8.5	3.38	2.880	0.875	6.88
444TS	4.75	2.38	2.021	0.625	3.05
445TS	4.75	2.38	2.021	0.625	3.05
447T	8.5	3.38	2.880	0.875	6.88
447TS	4.75	2.38	2.021	0.625	3.05
449T	8.5	3.38	2.880	0.875	6.88
449TS	4.75	2.38	2.021	0.625	3.05
L449T	8.5	3.38	2.880	0.875	6.88
L449TS	4.75	2.38	2.021	0.625	3.05

DE Drill and Tap Detail

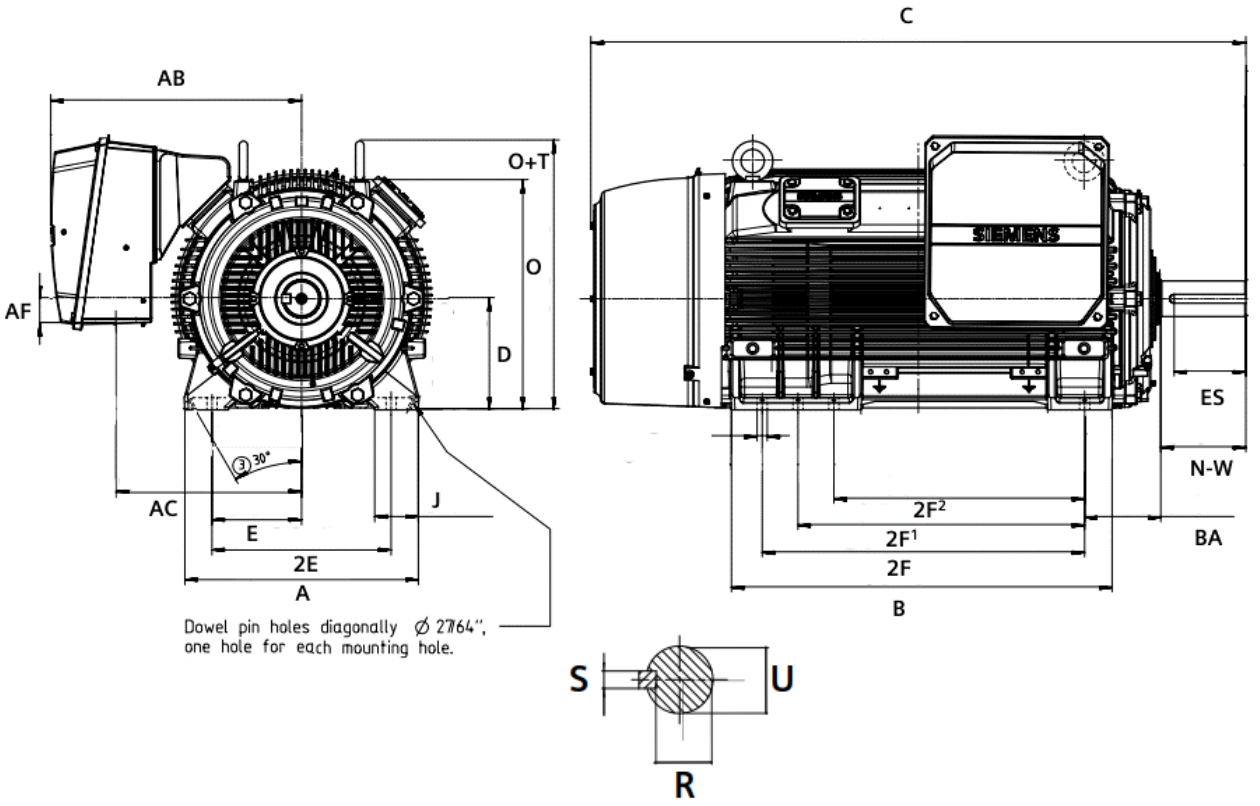


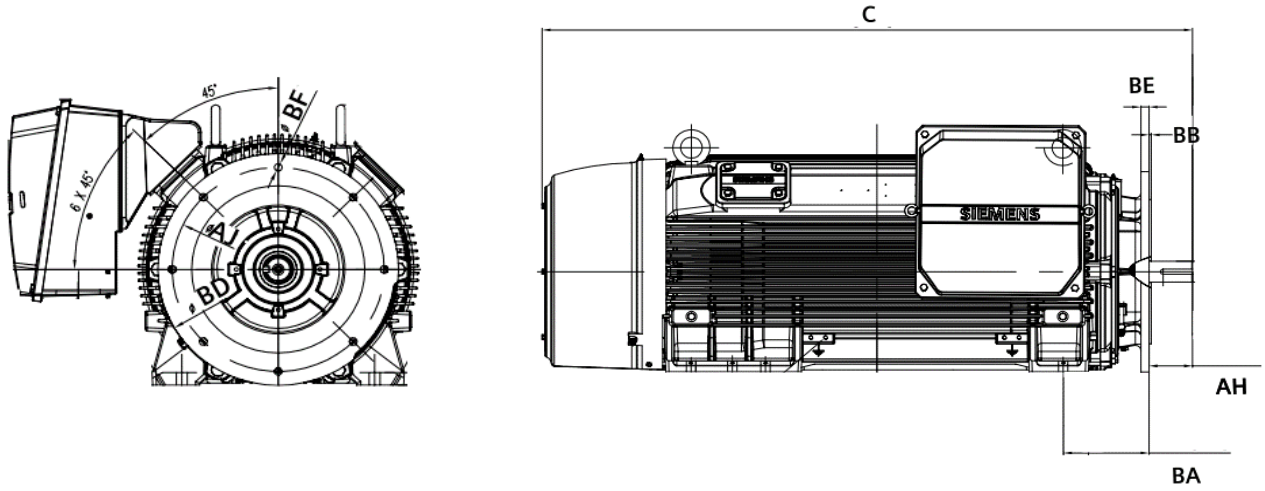
Frame	C-Face						
	BA	AH	AJ	AK	BD	BF #	BF
444TC	7.5	8.25	14	16	18	8	5/8"-11 NC
445TC	7.5	8.25	14	16	18	8	5/8"-11 NC
444TSC	7.5	4.5	14	16	18	8	5/8"-11 NC
445TSC	7.5	4.5	14	16	18	8	5/8"-11 NC
447TC	7.5	8.25	14	16	18	8	5/8"-11 NC
447TSC	7.5	4.5	14	16	18	8	5/8"-11 NC
449TC	7.5	8.25	14	16	18	8	5/8"-11 NC
449TSC	7.5	4.5	14	16	18	8	5/8"-11 NC
L449TC	7.5	8.25	14	16	18	8	5/8"-11 NC
L449TSC	7.5	4.5	14	16	18	8	5/8"-11 NC

Frame	D-Flange							
	C	BA*	AH	AJ	AK	BD	BF #	BF
444TD	44.47	8.38	8.50	20	18	22	8	0.81
445TD	44.47	8.38	8.50	20	18	22	8	0.81
444TSD	40.72	8.38	4.75	20	18	22	8	0.81
445TSD	40.72	8.38	4.75	20	18	22	8	0.81
447TD	47.94	8.38	8.50	20	18	22	8	0.81
447TSD	44.19	8.38	4.75	20	18	22	8	0.81
449TD	52.98	8.38	8.50	20	18	22	8	0.81
449TSD	49.23	8.38	4.75	20	18	22	8	0.81
L449TD	61.60	8.38	8.50	20	18	22	8	0.81
L449TSD	57.85	8.38	4.75	20	18	22	8	0.81

Dimension in Inches; Typical dimensions data, not guaranteed.
Note: See Technical Notes for Drip Cover and Accessory Dimensions
Note: D-Flange may change standard "C" dimension as noted
* Not according to NEMA

4-1-1 General Motor Dimensions - SIMOTICS Next Generation – Schematics SD200, DP200 HPS – 500 Frame





Dimension in Inches; Typical dimensions data, not guaranteed.
Note: See Technical Notes for Drip Cover and Accessory Dimensions

4-1-1 General Motor Dimensions - SIMOTICS Next Generation - SD200, DP200 HPS – 500 Frame

Frames	A	2E	AC	AB	AF	O	D	C	2F	2F[1]	2F[2]	B	BA	N-W	U	Keyseat		
																R	S	ES
509	26.1	20.00	20.70	28.00	2.80	25.7	12.5	73.1	--	--	28	42.5	8.5	9.50	4.00	3.4	1.000	8
5010	26.1	20.00	20.70	28.00	2.80	25.7	12.5	73.1	--	32	--	42.5	8.5	9.50	4.00	3.4	1.000	8
5011	26.1	20.00	20.70	28.00	2.80	25.7	12.5	73.1	36.00	--	--	42.5	8.5	9.50	4.00	3.4	1.000	8
L5011	26.1	20.00	20.70	28.00	2.80	25.7	12.5	81	--	--	36.00	51.1	8.5	9.50	4.00	3.4	1.000	8
5012	26.1	20.00	20.70	28.00	2.80	25.7	12.5	81	--	40.00	--	51.1	8.5	9.50	4.00	3.4	1.000	8
5013	26.1	20.00	20.70	28.00	2.80	25.7	12.5	81	45.00	--	--	51.1	8.5	9.50	4.00	3.4	1.000	8
509S	26.1	20.00	20.70	28.00	2.80	25.7	12.5	68.9	--	--	28	42.5	8.5	5.20	2.625	2.275	0.625	3.6
5010S	26.1	20.00	20.70	28.00	2.80	25.7	12.5	68.9	--	32	--	42.5	8.5	5.20	2.625	2.275	0.625	3.6
5011S	26.1	20.00	20.70	28.00	2.80	25.7	12.5	68.9	36.00	--	--	42.5	8.5	5.20	2.625	2.275	0.625	3.6
L5011S	26.1	20.00	20.70	28.00	2.80	25.7	12.5	76.7	--	--	36.00	51.1	8.5	5.20	2.625	2.275	0.625	3.6
5012S	26.1	20.00	20.70	28.00	2.80	25.7	12.5	76.7	--	40.00	--	51.1	8.5	5.20	2.625	2.275	0.625	3.6
S013S	26.1	20.00	20.70	28.00	2.80	25.7	12.5	76.7	45.00	--	--	51.1	8.5	5.20	2.625	2.275	0.625	3.6

Frames	BD	AJ	C	BA*	AH	BE	BB	BF
509D	25	22.00	73.99	10.37	8.50	1.00	0.25	0.81
5010D	25	22.00	73.99	10.37	8.50	1.00	0.25	0.81
5011D	25	22.00	73.99	10.37	8.50	1.00	0.25	0.81
L5011D	25	22.00	81.89	10.37	8.50	1.00	0.25	0.81
5012D	25	22.00	81.89	10.37	8.50	1.00	0.25	0.81
5013D	25	22.00	81.89	10.37	8.50	1.00	0.25	0.81
509SD	25	22.00	70.80	10.37	5.25	1.00	0.25	0.81
5010SD	25	22.00	70.80	10.37	5.25	1.00	0.25	0.81
5011SD	25	22.00	70.80	10.37	5.25	1.00	0.25	0.81
L5011SD	25	22.00	78.60	10.37	5.25	1.00	0.25	0.81
5012SD	25	22.00	78.60	10.37	5.25	1.00	0.25	0.81
S013SD	25	22.00	78.60	10.37	5.25	1.00	0.25	0.81

Dimension in Inches; Typical dimensions data, not guaranteed.
Note: Drip Cover and Accessory Dimensions

4-1-3 General Motor Dimensions - Terminal Boxes– Schematics SD200, DP200 HPS

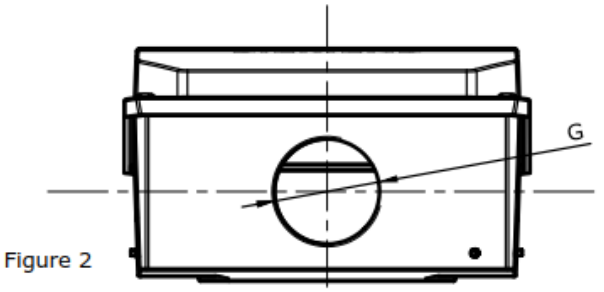


Figure 2

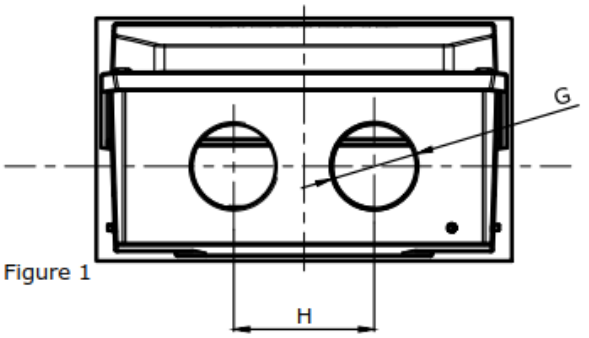
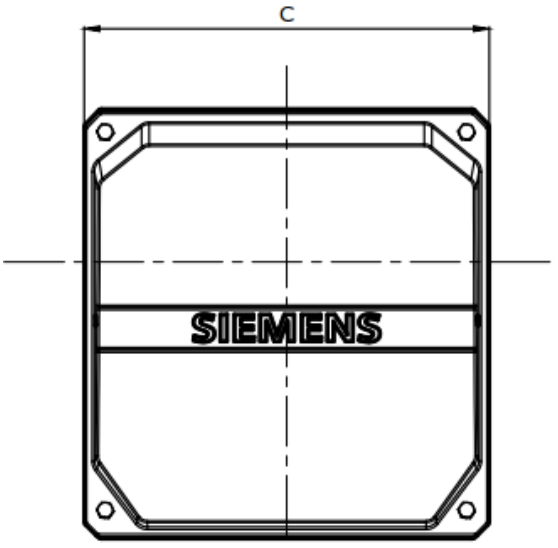
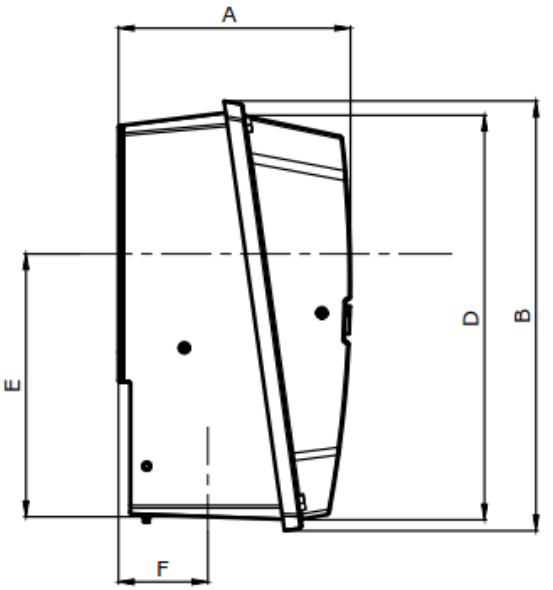


Figure 1





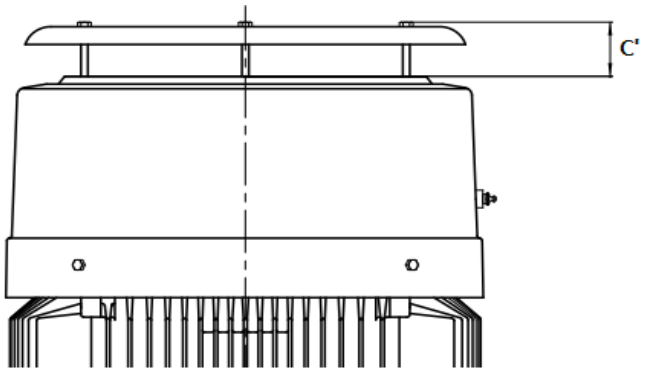
Typical dimensions data, not guaranteed.

4-1-3 General Motor Dimensions - Terminal Boxes– SD200, DP200 HPS

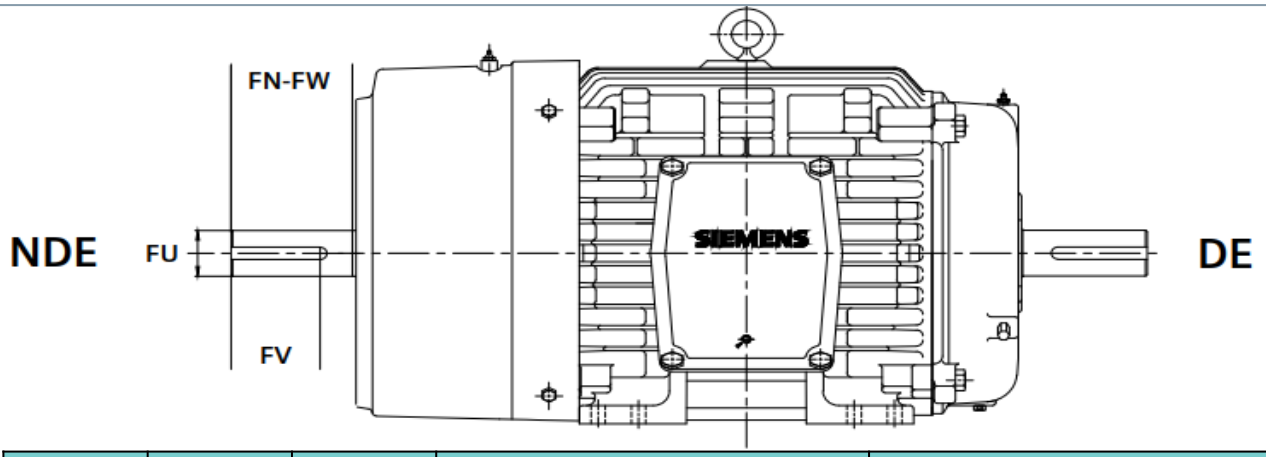
Frame	General Dimensions							Qty.	H	Figure	Approx. internal volume (in^3)	Number of cover bolts
	A	B	C	D	E	F	G					
444-447	10.15	15.31	11.02	13.86	8.59	4.43	3 - NPT	1	--	1	1066	4
444-447	10.15	15.31	11.02	13.86	8.59	4.43	2.5 – NPT	2	3.54	2	1066	4
449-L449	10.54	16.87	15.35	15.42	8.98	4.43	4 - NPT	1	--	1	1718	4
449-L449	10.54	16.87	15.35	15.42	8.98	4.43	4 - NPT	2	5.80	2	1718	4
500	11.73	21.71	20.47	20.43	13.28	4.52	4 - NPT	2	7.10	1	3480	4
500	11.73	21.71	20.47	20.43	13.28	4.52	5 - NPT	1	--	2	3480	4

Typical dimensions data, not guaranteed.

4-2-2 Dimensions of Accessories – Drip Cover and NDE Shaft



Drip Cover Dimensions	
Frame	C'
440	2.68



Frame	FU	Key	Order Code = M53			Order Code = M52		
			NEMA Standard Short Shaft			NEMA Standard Long Shaft		
			FN-FW	FV	Key Length	FN-FW	FV	Key Length
444-449T	2.375	0.625	4.75	4.5	3	5.87	5.62	4.25

NEMA Motors Standard Packing Weights and Dimensions

Pallet Dimensions

Frame	Length (Inches)	Width (Inches)	Height (Inches)	Weight (Lbs)
444	53.00	42.00	6.50	62
447	53.00	42.00	6.50	62
449	67.00	42.00	7.00	85
S449	67.00	42.00	7.00	85
500	87.40	49.21	9.45	303.6

Export Packing Weights and Dimensions

Frame	Length (Inches)	Width (Inches)	Height (Inches)	Weight (Lbs)	Motors per Box
444-447	53.0	42.0	31.0	210	1
449	67.0	42.0	31.0	285	1
L449	67.0	42.0	31.0	285	1
500	98.4	49.2	41.3	396.0	1

Note: Weight of wood creates are for estimate purpose only and may change due to climate conditions.
Note: Based on factory packing, weights and dims may vary as modification in mod center
Note: Subject to change with motor configuration.

7-1 Short Code Index (alphabetical)

		For further information, see page(s)	For price information, see page(s)
Codes	**Description**		
A46	Space Heaters 115V Single Phase, Max Temp 160°C	2-1-3-3/2	2-3-1/1, 2-3-2/2
A47	Space Heaters 230V Single Phase, Max Temp 160°C	2-1-3-3/2	2-3-1/1, 2-3-2/2
A48	Space Heaters 115V/230V Single Phase, Max Temp 160°C	2-1-3-3/2	2-3-1/1, 2-3-2/2
A50	Install BRG RTD's-100 Ohm Platinum- Both Ends & Terminal Heads/Block	2-1-3-5/2	2-3-1/3, 2-3-2/4
A51	Bearing RTD's-100 Ohm Platinum – Both Ends & Terminal Heads/Block	2-1-3-5/2	2-3-2/4
A67	Provision Only for Vibration Sensors (PMC/Beta)	2-1-3-10/1	2-3-2/5
A68	Metrix Sensors (PMC/Beta) Installed on DE and NDE, top of the endhsield	2-1-3-10/1, 2-1-3-8/2	2-3-2/5
A90	Control Module	2-1-3-3/1	2-3-2/2
B09	Export Packaging Sea Freight - Siemens Standard	2-1-3-11/1	2-3-1/4, 2-3-2/6
B11	Export Packaging Sea freight - Siemens Standard + sensors	2-1-3-11/1	2-3-2/6
B12	Additional Information, Sales Order on Nameplate		2-3-2/5
B27	+40C to -30C Ambient Temp	2-1-3-9/1	2-3-2/5
B28	+40C to -40C Ambient Temp	2-1-3-9/1	2-3-2/5
B29	+40C to -50C Ambient Temp	2-1-3-7/2, 2-1-3-9/1	2-3-2/5
C00	Insulation Class H	2-1-3-3/1	2-3-2/2
C01	Insulation Vacuum Pressure Impregnation (VPI)	2-1-3-3/1	2-3-2/2
C03	Spike Resistant Wire	2-1-3-3/1	2-3-2/2
C04	Insulation Moisture/Powerhouse (Extra Dip & Bake)	2-1-3-3/1	2-3-2/2
C07	Insulation Fungus Protection - No UL	2-1-3-3/1	2-3-1/1, 2-3-2/2
C08	Insulation Tropicalization (Extra Dip & Bake + Fungus Spray)	2-1-3-3/1	2-3-2/2
D05	Documentation in Spanish	2-1-3-12/3	2-3-2/6
F00	Certificate of Compliance	2-1-3-12/3	2-3-1/5, 2-3-2/6
F01	Certificate of Origin - Stamped by Chamber of Commerce	2-1-3-12/3	2-3-1/5, 2-3-2/6
F03	Standard Performance Curves	2-1-3-12/2	2-3-1/5, 2-3-2/6
F04	Acceleration Time Calculation	2-1-3-12/2	2-3-1/5, 2-3-2/6
F05	Polarization Index	2-1-3-12/2	2-3-2/6
F07	Special Calculated Data	2-1-3-12/2	2-3-1/5, 2-3-2/6
F08	Shaft Torsional Analysis (includes shaft drawing)	2-1-3-12/2	2-3-1/5, 2-3-2/6
F09	Bearing L10 Calculation	2-1-3-12/2	2-3-1/5, 2-3-2/6
F10	Routine Test Report	2-1-3-13/1	2-3-1/5, 2-3-2/7
F12	Routine Test Report (Witnessed)	2-1-3-13/1	2-3-1/5, 2-3-2/7
F15	Complete Test	2-1-3-13/1	2-3-1/5, 2-3-2/7
F17	Complete Test (Witnessed)	2-1-3-13/1	2-3-1/5, 2-3-2/7
F20	Routine Test + Vibration	2-1-3-13/1	2-3-1/5, 2-3-2/7
F22	Routine Test + Vibration (Witnessed)	2-1-3-13/1	2-3-1/5, 2-3-2/7
F27	Performance Load Test (Curve Report)	2-1-3-13/1	2-3-1/5, 2-3-2/7
F30	Noise Test	2-1-3-13/1	2-3-2/7
F32	Noise Test (Witnessed)	2-1-3-13/1	2-3-2/7
F36	Routine Test Report of Electrical Duplicate Design	2-1-3-13/1	2-3-1/5, 2-3-2/7
F37	Type Test Report of Electrical Duplicate Design	2-1-3-13/1	2-3-1/5, 2-3-2/7
F40	Stall Time Curve (Thermal Limit Curve)	2-1-3-12/2	2-3-1/5, 2-3-2/6
F42	Standard Dimensional Sheet	2-1-3-12/2	2-3-1/5, 2-3-2/6
F43	Non-Standard Dimension Sheet	2-1-3-12/2	2-3-1/5, 2-3-2/6
F44	Conduit Box Dimension Sheet	2-1-3-12/2	2-3-1/5, 2-3-2/6
F45	Wiring Diagram	2-1-3-12/3	2-3-1/5, 2-3-2/6
F46	Instruction and Operation Manual in English	2-1-3-12/3	2-3-1/5, 2-3-2/6
F47	Renewal Parts	2-1-3-12/3	2-3-1/5, 2-3-2/6
F48	CAD Drawing (Dwg Format) Customer/Application Specific	2-1-3-12/2	2-3-1/5, 2-3-2/6
F49	Performance Data Sheets	2-1-3-12/2	2-3-1/5, 2-3-2/6
F50	Customer Specific Data Sheets	2-1-3-12/2	2-3-1/5, 2-3-2/6
F60	Visual Inspection Proof (Max 8X Photos)	2-1-3-12/3	2-3-1/5, 2-3-2/6
F70	Inspection Test Plan	2-1-3-12/3	2-3-1/5, 2-3-2/6

7-1 Short Code Index (alphabetical)

Codes	Description	For further information, see page(s)	For price information, see page(s)
F71	Paint Report (thickness and adherence)	2-1-3-12/3	2-3-2/6
F81	Advanced Document Package	2-1-3-12/3	2-3-2/6
F82	Project Document Package	2-1-3-12/3	2-3-2/6
G05	DYNAPAR Encoder HS35 1024 PPR		2-3-2/5
G06	C-Face Mounted SLIM Tach Encoder		2-3-2/5
H04	C-Face Mounted Brake		2-3-2/5
J84	Conduit Box Orientation 90° CCW (Entry from DE)	2-1-3-4/2	2-3-1/3, 2-3-2/2
J85	Conduit Box Orientation 180° CCW (Entry from Top)	2-1-3-4/2	2-3-1/3, 2-3-2/2
J86	Conduit Box Orientation 270° CCW (Entry from ODE)	2-1-3-4/2	2-3-1/3, 2-3-2/2
K10	IEEE 841 Features	2-1-3-10/1	2-3-2/5
K33	Drip Cover	2-1-3-7/2	2-3-1/4, 2-3-2/5
K38	Provisions for Dowel Holes	2-1-3-7/1	2-3-1/4, 2-3-2/5
K41	Keyless Shaft	2-1-3-6/1	
K71	Rotation Arrow Clockwise (From NDE)	2-1-3-7/2	2-3-1/4, 2-3-2/5
K72	Rotation Arrow Counterclockwise (From NDE)	2-1-3-7/2	2-3-1/4, 2-3-2/5
K80	BURNDY HYDENT YA Type Terminals		2-3-1/3, 2-3-2/2
K81	Special Cable Leads, 60" Long	2-1-3-4/1	2-3-2/2
K82	Special Cable Leads, 120" Long	2-1-3-4/1	2-3-2/2
K83	Terminal Block - 3 Lead Only	2-1-3-4/1	2-3-1/3, 2-3-2/2
K89	Sealed Leads		2-3-1/3, 2-3-2/2
L22	Stainless Steel Hardware (Includes T Drain SS)		2-3-1/4, 2-3-2/5
L27	Ground Bolts - Qty 2	2-1-3-7/2	2-3-1/4, 2-3-2/5
L29	Shaft Grounding Brush	2-1-3-6/2, 2-1-3-8/2	2-3-1/3, 2-3-2/4
L45	SS T-Slot Breather Drain	2-1-3-7/2	2-3-1/4, 2-3-2/5
L46	CROUSE HINDS UL Approved Breather Drain	2-1-3-7/2	2-3-1/4, 2-3-2/5
L49	Automatic Grease Relief Fitting	2-1-3-5/1	2-3-1/3, 2-3-2/4
L54	Provisions for Oil Mist	2-1-3-5/1	2-3-2/4
L55	Oil Mist Ready	2-1-3-5/1	2-3-2/4
L57	MOBIL 28 - High or Low - Special Grease	2-1-3-5/1	2-3-1/3, 2-3-2/4
L58	MOBILITH SHC 100 - Special Grease	2-1-3-5/1	2-3-1/3, 2-3-2/4
L61	Insulated Bearing - INSOCOAT (Both Ends)	2-1-3-5/3	2-3-1/3, 2-3-2/4
L62	Insulated Bearing - INSOCOAT (DE only)	2-1-3-5/3	2-3-1/3, 2-3-2/4
L64	Insulated Bearing - INSOCOAT (NDE only)	2-1-3-5/3	2-3-1/3, 2-3-2/4
L68	Sealed Ball Bearings (Both Ends)	2-1-3-5/1	2-3-1/3, 2-3-2/4
L69	Hybrid (Ceramic Ball) Bearings - Both Ends	2-1-3-5/3	2-3-1/3, 2-3-2/4
L70	Hybrid (Ceramic Ball) Bearings – NDE	2-1-3-5/3	2-3-1/3, 2-3-2/4
L71	Hybrid (Ceramic Ball) Bearings – DE	2-1-3-5/3	2-3-1/3, 2-3-2/4
L76	Shaft Slinger & O Ring	2-1-3-6/2	2-3-1/3, 2-3-2/4
L79	INPRO/SEAL DE	2-1-3-6/2	2-3-1/3, 2-3-2/4
L80	INPRO/SEAL ODE	2-1-3-6/2	2-3-1/3, 2-3-2/4
L81	INPRO/SEAL Both Ends	2-1-3-6/2	2-3-1/3, 2-3-2/4
L86	INPRO/SEAL MGS Shaft Grounding - Both Ends	2-1-3-6/2, 2-1-3-2/2	2-3-1/3, 2-3-2/4
L87	ORION Labrinth Copper Seal – DE	2-1-3-6/2	2-3-1/3, 2-3-2/4
L88	ORION Labrinth Copper Seal – ODE	2-1-3-6/2	2-3-1/3, 2-3-2/4
L89	ORION Labrinth Copper Seal – Both Ends	2-1-3-6/2	2-3-1/3, 2-3-2/4
L91	IP56 Ingress Protection	2-1-3-7/2	2-3-2/5

7-1 Short Code Index (alphabetical)

		For further information, see page(s)	For price information, see page(s)
Codes	**Description**		
M05	Larger Fan		2-3-2/5
M08	Separately Driven Fan		2-3-2/5
M10	Bronze Fan	2-1-3-7/2	2-3-1/4, 2-3-2/5
M21	Additional Nameplate (Without Logos)		2-3-2/5
M22	Class I, Division 2 Tag	2-1-3-8/2	2-3-1/4, 2-3-2/5
M6Y	Special Voltage 200-460V		2-3-2/1
M39	Vertical Jacking Provisions	2-1-3-7/1	2-3-1/4, 2-3-2/5
M52	NEMA Std Long Shaft – NDE	2-1-3-6/1	
M53	NEMA Std Short Shaft – NDE	2-1-3-6/1	
M57	(C4140) Carbon Steel Shaft	2-1-3-6/1	
M69	Precision Balance	2-1-3-10/1	2-3-1/4, 2-3-2/5
M70	Extra Precision Balance	2-1-3-10/1	2-3-1/4, 2-3-2/5
N01	2 Part Epoxy (Industrial – Coastal Low Salt)	2-1-3-11/1	2-3-2/6
N02	3 Part Epoxy (Industrial – Coastal Moderate Salt)	2-1-3-11/1	2-3-2/6
N03	Primer Only	2-1-3-11/1	2-3-2/6
N05	3 Part Epoxy (Coastal – Offshore High Salt)	2-1-3-11/1	2-3-2/6
N06	2 Part Epoxy C4 (Industrial-Coastal moderate salt)	2-1-3-11/1	2-3-2/6
N07	2 Part Epoxy C5I/C5M (Coastal-offshore high salt)	2-1-3-11/1	2-3-2/6
R00	Cast Iron Aux Box for thermal protection - Position 1 (F1 DE)	2-1-3-4/3	2-3-1/2, 2-3-2/3
R01	Cast Iron Aux Box for thermal protection - Position 2 (F2 DE)	2-1-3-4/3	2-3-1/2, 2-3-2/3
R02	Cast Iron Aux Box for thermal protection - Position 4 (F1 NDE)	2-1-3-4/3	2-3-1/2, 2-3-2/3
R03	Cast Iron Aux Box for thermal protection - Position 5 (F2 NDE)	2-1-3-4/3	2-3-1/2, 2-3-2/3
R04	Condulet Box for thermal protection - Position 1 (F1 DE)	2-1-3-4/3	2-3-1/2, 2-3-2/3
R05	Condulet Box for thermal protection - Position 2 (F2 DE)	2-1-3-4/3	2-3-1/2, 2-3-2/3
R06	Condulet Box for thermal protection - Position 4 (F1 NDE)	2-1-3-4/3	2-3-1/2, 2-3-2/3
R07	Condulet Box for thermal protection - Position 5 (F2 NDE)	2-1-3-4/3	2-3-1/2, 2-3-2/3
R10	Cast Iron Aux Box for space heaters - Position 1 (F1 DE)	2-1-3-4/3	2-3-1/2, 2-3-2/3
R11	Cast Iron Aux Box for space heaters - Position 2 (F2 DE)	2-1-3-4/3	2-3-1/2, 2-3-2/3
R12	Cast Iron Aux Box for space heaters - Position 4 (F1 NDE)	2-1-3-4/3	2-3-1/2, 2-3-2/3
R13	Cast Iron Aux Box for space heaters - Position 5 (F2 NDE)	2-1-3-4/3	2-3-1/2, 2-3-2/3
R14	Condulet Box for space heaters - Position 1 (F1 DE)	2-1-3-4/3	2-3-1/2, 2-3-2/3
R15	Condulet Box for space heaters - Position 2 (F2 DE)	2-1-3-4/3	2-3-1/2, 2-3-2/3
R16	Condulet Box for space heaters - Position 4 (F1 NDE)	2-1-3-4/3	2-3-1/2, 2-3-2/3
R17	Condulet Box for space heaters - Position 5 (F2 NDE)	2-1-3-4/3	2-3-1/2, 2-3-2/3
R20	Cast Iron Aux Box for all accessories - Position 1 (F1 DE)	2-1-3-4/3	2-3-1/2, 2-3-2/3
R21	Cast Iron Aux Box for all accessories - Position 2 (F2 DE)	2-1-3-4/3	2-3-1/2, 2-3-2/3
R22	Cast Iron Aux Box for all accessories - Position 4 (F1 NDE)	2-1-3-4/3	2-3-1/2, 2-3-2/3
R23	Cast Iron Aux Box for all accessories - Position 5 (F2 NDE)	2-1-3-4/3	2-3-1/2, 2-3-2/3
R24	Condulet Box for all accessories - Position 1 (F1 DE)	2-1-3-4/3	2-3-1/2, 2-3-2/3
R25	Condulet Box for all accessories - Position 2 (F2 DE)	2-1-3-4/3	2-3-1/2, 2-3-2/3
R26	Condulet Box for all accessories - Position 4 (F1 NDE)	2-1-3-4/3	2-3-1/2, 2-3-2/3
R27	Condulet Box for all accessories - Position 5 (F2 NDE)	2-1-3-4/3	2-3-1/2, 2-3-2/3
T00	Main Terminal Box – at 45° Angle	2-1-3-4/2	2-3-1/3, 2-3-2/3
T50	Dual Entry Hole Terminal Box (standard dimension unless Y96 is used)	2-1-3-4/2	2-3-1/3, 2-3-2/3
Y50	Special Shaft on Drive End	2-1-3-6/2	
Y51	Special Shaft on Non Drive End	2-1-3-6/2	
Y60	Special Color (Provide RAL#)	2-1-3-11/2	2-3-2/6
Y61	Special color (with special system only) (Provide RAL#)	2-1-3-11/2	2-3-2/6
Y80	Derate-Alt-Amb (Nameplate Change)	2-1-3-8/1, 2-1-3-9/1	2-3-1/4, 2-3-2/5
Y82	Auxiliary Nameplate Max. 40 Characters (Aux Tag)	2-1-3-8/1	2-3-1/4, 2-3-2/5
Y85	Special Cable Length		
Y96	Non-Standard NPT entry (increments of 1/2 inch with a max diam.)	2-1-3-4/2	2-3-2/3

7 Indexes

7-1 Short Code Index (alphabetical)

7-2 SIMOTICS NEMA to Next Generation Cross over index

			Phase Out - NEMA Motor 1LE2			Next Generation NEMA 1LE6		
HP	RPM	Voltage	Frame	Type	Part Number	Frame	Type	Part Number
125	1800	460	SD100	444TS	1LE23214DB112AA3	SD200	444TS	1LE63214FB112AA1
125	1800	460	SD100	R444T	1LE23214CB112AA3	SD200	R444T	1LE63214SB112AA1
125	1800	460	SD100	444T	1LE23214EB112AA3	SD200	444T	1LE63214BB112AA1
125	1800	575	SD100	444TS	1LE23214DB113AA3	SD200	444TS	1LE63214FB113AA1
125	1800	575	SD100	R444T	1LE23214CB113AA3	SD200	R444T	1LE63214SB113AA1
125	1800	575	SD100	444T	1LE23214EB113AA3	SD200	444T	1LE63214BB113AA1
125	3600	460	SD100	444TS	1LE23214DA112AA3	SD200	444TS	1LE63214FA112AA1
125	3600	575	SD100	444TS	1LE23214DA113AA3	SD200	444TS	1LE63214FA113AA1
150	1800	460	SD100	445TS	1LE23214DB212AA3	SD200	445TS	1LE63214FB212AA1
150	1800	460	SD100	R445T	1LE23214CB212AA3	SD200	R445T	1LE63214SB212AA1
150	1800	460	SD100	445T	1LE23214EB212AA3	SD200	445T	1LE63214BB212AA1
150	1800	575	SD100	445TS	1LE23214DB213AA3	SD200	445TS	1LE63214FB213AA1
150	1800	575	SD100	R445T	1LE23214CB213AA3	SD200	R445T	1LE63214SB213AA1
150	1800	575	SD100	445T	1LE23214EB213AA3	SD200	445T	1LE63214BB213AA1
150	3600	460	SD100	445TS	1LE23214DA212AA3	SD200	445TS	1LE63214FA212AA1
150	3600	575	SD100	445TS	1LE23214DA213AA3	SD200	445TS	1LE63214FA213AA1
200	1800	460	SD100	447TS	1LE23214DB312AA3	SD200	447TS	1LE63214GB112AA1
200	1800	460	SD100	R447T	1LE23214CB312AA3	SD200	R447T	1LE63214TB112AA1
200	1800	460	SD100	447T	1LE23214EB312AA3	SD200	447T	1LE63214CB112AA1
200	1800	575	SD100	447TS	1LE23214DB313AA3	SD200	447TS	1LE63214GB113AA1
200	1800	575	SD100	R447T	1LE23214CB313AA3	SD200	R447T	1LE63214TB113AA1
200	1800	575	SD100	447T	1LE23214EB313AA3	SD200	447T	1LE63214CB113AA1
200	3600	460	SD100	447TS	1LE23214DA312AA3	SD200	447TS	1LE63214GA112AA1
200	3600	575	SD100	447TS	1LE23214DA313AA3	SD200	447TS	1LE63214GA113AA1
250	1800	460	SD100	449TS	1LE23214DB512AA3	SD200	449TS	1LE63214GB212AA1
250	1800	460	SD100	R449T	1LE23214CB512AA3	SD200	R449T	1LE63214TB212AA1
250	1800	460	SD100	449T	1LE23214EB512AA3	SD200	449T	1LE63214CB212AA1
250	1800	460	SD100	449T	1LE23214EB512GA3	SD200	449T	1LE63214CB212AA1
250	1800	575	SD100	449TS	1LE23214DB513AA3	SD200	449TS	1LE63214GB213AA1
250	1800	575	SD100	R449T	1LE23214CB513AA3	SD200	R449T	1LE63214TB213AA1
250	1800	575	SD100	449T	1LE23214EB513AA3	SD200	449T	1LE63214CB213AA1
250	1800	575	SD100	449T	1LE23214EB513GA3	SD200	449T	1LE63214CB213AA1
250	3600	460	SD100	449TS	1LE23214DA512AA3	SD200	449TS	1LE63214GA212AA1
250	3600	575	SD100	449TS	1LE23214DA513AA3	SD200	449TS	1LE63214GA213AA1
300	1800	460	SD100	449TS	1LE23214DB612AA3	SD200	449TS	1LE63214GB312AA1
300	1800	460	SD100	R449T	1LE23214CB612AA3	SD200	R449T	1LE63214TB312AA1
300	1800	460	SD100	449T	1LE23214EB612AA3	SD200	449T	1LE63214CB312AA1
300	1800	460	SD100	449T	1LE23214EB612GA3	SD200	449T	1LE63214CB312AA1

7-2 SIMOTICS NEMA to Next Generation Cross over index

			Phase Out - NEMA Motor 1LE2			Next Generation NEMA 1LE6		
HP	RPM	Voltage	Frame	Type	Part Number	Frame	Type	Part Number
300	1800	575	SD100	449TS	1LE23214DB613AA3	SD200	449TS	1LE63214GB313AA1
300	1800	575	SD100	R449T	1LE23214CB613AA3	SD200	R449T	1LE63214TB313AA1
300	1800	575	SD100	449T	1LE23214EB613AA3	SD200	449T	1LE63214CB313AA1
300	1800	575	SD100	449T	1LE23214EB613GA3	SD200	449T	1LE63214CB313AA1
300	3600	460	SD100	449TS	1LE23214DA612AA3	SD200	449TS	1LE63214GA312AA1
300	3600	575	SD100	449TS	1LE23214DA613AA3	SD200	449TS	1LE63214GA313AA1
350	1800	460	SD100	S449SS	1LE23214GB212AA3	SD200	L449TS	1LE63214HB112AA1
350	1800	460	SD100	RS449LS	1LE23214FB212AA3	SD200	RL449T	1LE63214UB112AA1
350	1800	575	SD100	S449SS	1LE23214GB213AA3	SD200	L449TS	1LE63214HB113AA1
350	1800	575	SD100	RS449LS	1LE23214FB213AA3	SD200	RL449T	1LE63214UB113AA1
350	3600	460	SD100	S449SS	1LE23214GA112AA3	SD200	L449TS	1LE63214HA112AA1
350	3600	575	SD100	S449SS	1LE23214GA113AA3	SD200	L449TS	1LE63214HA113AA1
400	1800	460	SD100	S449SS	1LE23214GB312AA3	SD200	L449TS	1LE63214HB212AA1
400	1800	460	SD100	RS449LS	1LE23214FB312AA3	SD200	RL449T	1LE63214UB212AA1
400	1800	575	SD100	S449SS	1LE23214GB313AA3	SD200	L449TS	1LE63214HB213AA1
400	1800	575	SD100	RS449LS	1LE23214FB313AA3	SD200	RL449T	1LE63214UB213AA1
400	3600	460	SD100	S449SS	1LE23214GA312AA3	SD200	L449TS	1LE63214HA212AA1
400	3600	575	SD100	S449SS	1LE23214GA313AA3	SD200	L449TS	1LE63214HA213AA1
125	1800	460	SD100 IEEE841	R444T	1LE24214CB112AA3	SD200 841	R444T	1LE63224SB112AA1
125	1800	460	SD100 IEEE841	444TS	1LE24214DB112AA3	SD200 841	444TS	1LE63224FB112AA1
125	1800	460	SD100 IEEE841	444T	1LE24214EB112AA3	SD200 841	444T	1LE63224BB112AA1
125	1800	575	SD100 IEEE841	R444T	1LE24214CB113AA3	SD200 841	R444T	1LE63224SB113AA1
125	1800	575	SD100 IEEE841	444TS	1LE24214DB113AA3	SD200 841	444TS	1LE63224FB113AA1
125	1800	575	SD100 IEEE841	444T	1LE24214EB113AA3	SD200 841	444T	1LE63224BB113AA1
125	3600	460	SD100 IEEE841	444TS	1LE24214DA112AA3	SD200 841	444TS	1LE63224FA112AA1
125	3600	575	SD100 IEEE841	444TS	1LE24214DA113AA3	SD200 841	444TS	1LE63224FA113AA1
150	1800	460	SD100 IEEE841	R445T	1LE24214CB212AA3	SD200 841	R445T	1LE63224SB212AA1
150	1800	460	SD100 IEEE841	445TS	1LE24214DB212AA3	SD200 841	445TS	1LE63224FB212AA1
150	1800	460	SD100 IEEE841	445T	1LE24214EB212AA3	SD200 841	445T	1LE63224BB212AA1
150	1800	575	SD100 IEEE841	R445T	1LE24214CB213AA3	SD200 841	R445T	1LE63224SB213AA1
150	1800	575	SD100 IEEE841	445TS	1LE24214DB213AA3	SD200 841	445TS	1LE63224FB213AA1
150	1800	575	SD100 IEEE841	445T	1LE24214EB213AA3	SD200 841	445T	1LE63224BB213AA1
150	3600	460	SD100 IEEE841	445TS	1LE24214DA212AA3	SD200 841	445TS	1LE63224FA212AA1
150	3600	575	SD100 IEEE841	445TS	1LE24214DA213AA3	SD200 841	445TS	1LE63224FA213AA1
200	1800	460	SD100 IEEE841	R447T	1LE24214CB312AA3	SD200 841	R447T	1LE63224TB112AA1
200	1800	460	SD100 IEEE841	447TS	1LE24214DB312AA3	SD200 841	447TS	1LE63224GB112AA1
200	1800	460	SD100 IEEE841	447T	1LE24214EB312AA3	SD200 841	447T	1LE63224CB112AA1
200	1800	575	SD100 IEEE841	R447T	1LE24214CB313AA3	SD200 841	R447T	1LE63224TB113AA1

7-2 SIMOTICS NEMA to Next Generation Cross over index

			Phase Out - NEMA Motor 1LE2			Next Generation NEMA 1LE6		
HP	RPM	Voltage	Frame	Type	Part Number	Frame	Type	Part Number
200	1800	575	SD100 IEEE841	447TS	1LE24214DB313AA3	SD200 841	447TS	1LE63224GB113AA1
200	1800	575	SD100 IEEE841	447T	1LE24214EB313AA3	SD200 841	447T	1LE63224CB113AA1
200	3600	460	SD100 IEEE841	447TS	1LE24214DA312AA3	SD200 841	447TS	1LE63224GA112AA1
200	3600	575	SD100 IEEE841	447TS	1LE24214DA313AA3	SD200 841	447TS	1LE63224GA113AA1
250	1800	460	SD100 IEEE841	R449T	1LE24214CB512AA3	SD200 841	R449T	1LE63224TB212AA1
250	1800	460	SD100 IEEE841	449TS	1LE24214DB512AA3	SD200 841	449TS	1LE63224GB212AA1
250	1800	460	SD100 IEEE841	449T	1LE24214EB512AA3	SD200 841	449T	1LE63224CB212AA1
250	1800	575	SD100 IEEE841	R449T	1LE24214CB513AA3	SD200 841	R449T	1LE63224TB213AA1
250	1800	575	SD100 IEEE841	449TS	1LE24214DB513AA3	SD200 841	449TS	1LE63224GB213AA1
250	3600	460	SD100 IEEE841	449TS	1LE24214DA512AA3	SD200 841	449TS	1LE63224GA212AA1
250	3600	575	SD100 IEEE841	449TS	1LE24214DA513AA3	SD200 841	449TS	1LE63224GA213AA1
300	1800	460	SD100 IEEE841	RS449LS	1LE24214FB112AA3	SD200 841	R449T	1LE63224TB312AA1
300	1800	460	SD100 IEEE841	S449SS	1LE24214GB112AA3	SD200 841	449TS	1LE63224GB312AA1
300	1800	575	SD100 IEEE841	RS449LS	1LE24214FB113AA3	SD200 841	R449T	1LE63224TB313AA1
300	1800	575	SD100 IEEE841	S449SS	1LE24214GB113AA3	SD200 841	449TS	1LE63224GB313AA1
300	3600	460	SD100 IEEE841	449TS	1LE24214DA612AA3	SD200 841	449TS	1LE63224GA312AA1
300	3600	575	SD100 IEEE841	449TS	1LE24214DA613AA3	SD200 841	449TS	1LE63224GA313AA1
350	1800	460	SD100 IEEE841	RS449LS	1LE24214FB212AA3	SD200 841	RL449T	1LE63224UB112AA1
350	1800	460	SD100 IEEE841	S449SS	1LE24214GB21-2AA3	SD200 841	L449TS	1LE63224HB112AA1
350	1800	575	SD100 IEEE841	RS449LS	1LE24214FB213AA3	SD200 841	RL449T	1LE63224UB113AA1
350	1800	575	SD100 IEEE841	S449SS	1LE24214GB213AA3	SD200 841	L449TS	1LE63224HB113AA1
350	3600	460	SD100 IEEE841	S449SS	1LE24214GA112AA3	SD200 841	L449TS	1LE63224HA112AA1
350	3600	575	SD100 IEEE841	S449SS	1LE24214GA113AA3	SD200 841	L449TS	1LE63224HA113AA1
400	1800	460	SD100 IEEE841	RS449LS	1LE24214FB312AA3	SD200 841	RL449T	1LE63224UB212AA1
400	1800	460	SD100 IEEE841	S449SS	1LE24214GB312AA3	SD200 841	L449TS	1LE63224HB212AA1
400	1800	575	SD100 IEEE841	RS449LS	1LE24214FB313AA3	SD200 841	RL449T	1LE63224UB213AA1
400	1800	575	SD100 IEEE841	S449SS	1LE24214GB313AA3	SD200 841	L449TS	1LE63224HB213AA1
400	3600	460	SD100 IEEE841	S449SS	1LE24214GA312AA3	SD200 841	L449TS	1LE63224HA212AA1
400	3600	575	SD100 IEEE841	S449SS	1LE24214GA313AA3	SD200 841	L449TS	1LE63224HA213AA1

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