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Note!
The following options are for factory build-ups only. For motor modifications see page 126.

For field kits and accessories contact your local sales office.

Prices and data subject to change without notice.

ADDITIONAL LEAD LENGTH (from 16 to 32 inches, in 4 inch increments)

AVAILABLE ON ALL MOTORS except those with NN in NOTES column and XP. Aeration Fan and Crop Dryer motors have extended lead lengths as standard.

HOW TO ORDER EXAMPLE: Modify the root Model Number SD 4 P 25 TC 61 **L16** or use Generic Description.

Additional lead length in inches follows suffix letter "L". For example, L16 adds 16 inches to normal lead length.

Option	Model Number Symbol	List Price ($) Addition - Frame Size Family										
		56	140	180	210	250	280	320	360	400	440	5000
Additional Lead Length – 16 to 32 inches (available in 4 inch increments)*	**L16, L20, L24, L28, or L32**	$32	$32	$43	$52	$57	$81	$92	$129	$173	$216	Contact Sales Office

* Contact your local sales office for longer lengths.

BEARINGS - DOUBLE SEALED (BOTH ENDS)

Also available as a Mod. See LEESON/Lincoln Modification section.

AVAILABLE ON ALL MOTORS except those with NN in NOTES column. Frame sizes 48, 56 and 143T-145T, Agriculture/Farm Duty, Wash-Thru™ and Washdown motors typically have double sealed bearings as standard.

HOW TO ORDER EXAMPLE: Modify the root Model Number SD 4 P 50 T 61Y **MB6** or use Generic Description.

Option	Model Number Symbol	List Price ($) Addition - Frame Size Family										
		56	140	180	210	250	280	320	360	400	440	5000
Bearings – Double Sealed (Both Ends)	**MB6**	Standard		$23	$43	$49	$64	$78	$102	$182	Contact Sales Office	

BEARING CURRENT PROTECTION FOR INVERTER-FED MOTORS

(Contact your local sales office for Grounding Provisions, Insulated Bearing and Shaft Grounding Brush)

Today's inverters produce a common mode voltage that can damage motor bearings. Newer three level control inverters significantly reduce this voltage but do not eliminate it. To protect a motor from this voltage, both bearings must be insulated or the motor shaft must be effectively grounded. Grounding the motor shaft bleeds the voltage to zero and will help protect the bearings of the connected load. The chart below lists Lincoln Motors' current practice for bearing protection for the standard motor product offering. Special application motors can deviate from this practice.

Installation Site	Model Frames	Shaft Grounding Brush				Insulated Bearings		
		Std	Optional	Qty		Std	Optional	Qty
Non-Hazardous Locations	**48-405T**		X	1	and/or		X	2
	444T-5011& 6811	X		1	and/or		X	2
	505-5011, 685 & 6811 Bar Rotor	X		1	and/or	X		1
	449T-5811 Form Wound	X		1	and/or	X		1
Division I or II	**48-5011 & 6811**	Not Permitted				Not Permitted		

UL and CSA prohibit the installation of shaft grounding brushes or insulated bearings on Hazardous Locations motors for use in Division I or Division II locations. For these installations shaft voltage mitigation techniques outside the motor must be employed. Inverter output-side R-C filters with ungrounded inverter input circuits are effective in reducing shaft voltages and may be used where permitted by the NEC. Certain motor construction designs may prohibit the installation of a shaft grounding brush or insulated bearing. In that event, no mitigation techniques can be employed within Lincoln Motors' control. The customer is then responsible for alternative protective options, such as special grounding or VFD output-side filters.

Grounding brushes must be maintained per the instructions on the motor decal. Bearing failures caused by inverter-source bearing currents are not covered under warranty.

BEARINGS – ROLLER (DRIVE END)

AVAILABLE ON MOTORS in frame sizes 284T and larger except those with NN in NOTES column. A drive end roller bearing is standard on Crusher Duty motors.

Option	Model Number Symbol	List Price ($) Addition - Frame Size Family											
		56	140	180	210	250	280	320	360	400	444-445	447-510	5000
Bearings – Roller (Drive End)	**RB**						$444	$467	$467	$556	$1058	$1245	Contact Sales Office

Prices and data subject to change without notice.

BRAKES

What is a Brake Motor?

The purpose of a brake is to stop and hold a load (absorb the kinetic energy or hold the potential energy). A spring-set disc brake is an electromechanical friction device that is spring engaged and electrically released. This style is commonly referred to as a "safety" or "fail-safe" brake since the brake mechanism automatically engages when power to the brake is turned off. A brake motor results from mounting a brake to an electric motor. It is only used in direct-coupled applications.

A brakeless-brake motor has the features necessary to mount a brake including:

- a shaft extension on opposite drive end (O.D.E.); ie, NEMA double end shaft
- C-Face bracket on the O.D.E.

Determining Brake Torque

Brake torque rating (size) is normally stated as nominal static torque and is expressed in pound-foot (lb-ft). The customer typically specifies the brake size required for an application. If the customer does not, the standard practice is to quote a brake with torque capability at least equal to 150% of the motor's full load torque, a brake service factor of 1.5. For service factors below 1.4, contact your local sales office for review.

Brake Torque Values for 60 Hz, Design B Motors

Multiply the motor's rated HP by the appropriate value listed below to forecast the proper brake size in lb-ft.

Motor Syn RPM	3600	1800	1200	900
Static	1.5	3.0	4.5	6.0
Dynamic	2.25	4.5	6.7	9.0

These Brake Torque Values are intended as a rule-of-thumb. Some applications such as frequent stops, high inertia loads and overhauling loads (loads which change elevation or height) require a more detailed analysis.

Manually-Adjusted verses Self-Adjusting Brakes

On manually-adjusted brakes, the user must periodically adjust the pressure pins in the brake to compensate for lining wear. The self-adjusting friction brake has an internal clutch that automatically adjusts the brake's solenoid air gap to compensate for wear of the friction disks. Manually-adjusted brakes are less expensive, but are only available in the smaller torque ratings.

Brake Enclosures

Stearns® brakes are supplied unless otherwise specified. They have a one (1) year warranty and are made in the U.S.A. Request the Spring-Set Disc Brake catalog (Catalog No. 200) from Stearns by phone 414-272-1100 or fax 414-277-4364. Web: www.rexnord.com

Standard: This enclosure is the normal selection for ODP and totally-enclosed, general purpose and hostile duty motors. The brake is enclosed, but not sealed and carries a NEMA 2 (IP 23) enclosure protection rating. The housing is stamped steel and the endplate is die cast aluminum for brakes with torque ratings less than 125 lb-ft. For brake torques 125 lb-ft and higher, the housing and endplate are cast iron. A manual release knob is standard.

Cast Iron: These brakes are similar to "Standard" except they have a cast iron end plate.

Dust-Tight Waterproof (DTWP): This enclosure adds a seal between the endplate and hub, housing to endplate and at the manual release. A drain plug is commonly provided. Enclosure protection rating is NEMA 4 (IP 54). This brake is mostly used for outdoor installations and in moist, abrasive or dusty environments. A manual release knob is standard. A full cast iron DTWP brake is available on special request for some torque ratings.

General Information - Pricing Guidelines

Standard brake voltages are listed in "Note 2" page 277. Other voltages require "Special Voltage" price addition. Unless otherwise specified, a brake with the same voltage and frequency rating as the motor will be furnished.

Brakes for vertically mounted motors may require factory modification. The direction of motor mounting, shaft-up or shaft-down, must be specified. See page 277 for List Price Addition.

Standard brake insulation is Class B with an ambient rating of 40°C. Operation in higher temperatures requires the Class H Insulation option. See page 277 for List Price Addition.

Two separate power conduits, one for the motor and one for the brake, are required.

Contact your local sales office if the system inertia is large or the required number of stops per minute exceed four.

In cases where a small motor and a large brake are combined (ie. a 182T frame with self-adjusting brake) the bottom of the brake may be below the motor feet. Check brake dimensions when designing the motor.

Contact your local sales office for brakes and options not listed.

BRAKES AND BRAKE PROVISIONS

Motor HP	Static Torque Rating of Brake (lb-ft) Brakemotor Shaft speed (RPM)						
	700	900	1200	1500	1800	3000	3600
1/6	3	1.5	1.5	1.5	0.75	0.5	0.5
1/4	3	3	3	1.5	1.5	0.75	0.5
1/3	6	3	3	3	1.5	1.5	0.75
1/2	6	6	3	3	3	1.5	1.5
3/4	10	6	6	6	6	3	3
1	15	10	6	6	6	3	3
1 1/2	20	15	10	10	10	6	3
2	25	20	15	10	10	6	6
3	35	25	20	15	15	10	6
5	75	50	35	25	20	15	10
7 1/2	105	75	50	50	35	25	15
10	105	105	75	50	50	25	25
15	175	125	105	75	75	50	35
20	230	175	125	105	105	50	50
25	330	230	175	125	105	75	50
30	330	330	230	175	125	75	75
40	440	330	330	230	175	105	105
50	550	440	330	330	230	—	—
60	750	550	440	330	330	—	—
75	1000	750	550	440	330	—	—
100	—	1000	750	500	440	—	—
125	—	1000	1000	750	500	—	—
150	—	—	1000	750	750	—	—
200	—	—	—	1000	1000	—	—
250	—	—	—	—	1000	—	—

Brake Torque (lb-ft) Continuous	Brake Enclosures – List Prices (Note 1)						Brake Options – List Price Additions			
	Stearns® Standard NEMA 2 (IP 23)		Stearns® Cast Iron NEMA 2 (IP 23)		Stearns® DTWP NEMA 4 (IP 54)		Special Voltage (Note 3)	Vertical Mount – Self Adjusting Type Only	Class H Insulation	Space Heaters 115V or 230
	Manually Adjusted	Self-Adjusting	Manually Adjusted	Self-Adjusting	Manually Adjusted	Self-Adjusting				
3	$665	-	$1169	-	$873	-	$186	-	$148	
6	777	$1042	1242	$2006	977	$1354	186	$121	180	
10	926	1042	1339	2006	1128	1354	186	121	180	
15	1065	1360	1826	2559	1264	2041	186	121	180	
25	1346	1538	2027	2870	1553	2396	186	121	180	
35	-	1760	-	3084	-	2648	186	121	180	
50	-	2160	-	3492	-	3107	186	134	180	
75	-	2382	-	3825	-	3624	186	134	180	
105	-	3098	-	4157	-	4053	186	180	180	
125	-	8195	-	Note 2	-	9540	266	303	370	
175	-	8431	-	Note 2	-	9837	266	303	370	
230	-	9053	-	Note 2	-	10577	266	384	370	
330	-	9999	-	Note 2	-	11730	266	384	370	
440	-	11197	-	Note 2	-	12721	266	651	370	
500	-	20154	-	Note 2	-	18742	266	858	370	
550	-	12484	-	Note 2	-	14526	266	858	370	
750	-	18490	-	Note 2	-	20473	266	858	370	
1000	-	20230	-	Note 2	-	22214	266	858	370	

Brake Provisions Only Add C-Face - Opposite Drive and Double Shaft Extension to Brake Price - See pages 197 & 285.
Note 1: Brake prices **DO NOT** include Double Shaft and Opposite Drive End C-Face - See pages 279 & 285.
Note 2: Use "Stearns Standard". Brakes with 125 lb-ft of torque capability or more are cast iron as standard.
Note 3: Standard brake voltages (single phase) are as follows: **60 Hz** – 115, 200, 230, 460, 575, 115/208-230, 200/400 & 208-230/460 V; **50 Hz** – 110, 190, 220, 380, 415, 110/220 & 190/380 V.

CE - FACTORY OPTION Also available as a Mod. See LEESON/Lincoln Modification section.

HOW TO ORDER EXAMPLE: Modify the root Model Number SD 4 P 100 T 61Y **AP1** or use Generic Description.

Available on motors having a Model Number which begins with...	Motor Efficiency Code(s)	Model Number Symbol	List Price ($) Addition – Frame Size Family										
			56H	140	180	210	250	280	320	360	400	444/445	447/449
CCD, SRD, SSD, SD SRF & SRN	S, H	AP1	$107	$107	$107	$155	$155						
AF, AAF & SF	P, B	AP1		107	107	107	107	$115	$115	$355	$573	$740	$740
(also includes AA, AB,	S, H	AP1		107	107	155	155	155	155	174	174	531	
AN, SB*)	P, B	AP1		107	107	107	107	155	155	391	174	235	640
CCS and CCF	P, B	AP1		107	107	107	107	155	155	174	174	235	640
MD and SE	S, G	AP1						142	154	154	443	622	

*Blower motor on TEBC CTAC® models, 284T frames and larger, is not CE compliant.

AB, AF, AAF, AN, SB, SF and CCS models qualify to IP54.

RD, SD, MD and SE models qualify to IP22.
Contact your local sales office for information on CCD, SPD, SRD and SSD models.

Useable voltage range is 380 to 575V (for other voltages, contact your local sales office). Price includes special nameplate with appropriate IEC data and CE mark, terminal strip suitable for six connections, and grounding lug. Some kits also include a larger than standard terminal box.

Copies of Lincoln's Declaration of Conformity for the Low Voltage Directive and Manufacturer's Declaration for the Machinery Directive are available on request.

Contact your local sales office for CE kit.

C-FACE - NORMAL DRIVE END (Factory Installed, NEMA Dimensions) Also available as a Mod. See LEESON/Lincoln Modification section.

AVAILABLE ON ALL MOTORS EXCEPT Crusher Duty, Close-Coupled Pump, Resilient Mount, certain Agriculture/Farm Duty and CCS models with B efficiency codes. Also excluded are motors with NN in NOTES column unless individually listed on pages 184-273.

HOW TO ORDER EXAMPLE: Modify the root Model Number CCF 4 P 75 T **C** 6Y or use Generic Description.

Option	Model Number Symbol	List Price ($) Addition – Frame Size Family											
		48/56	140	180	210	250	280	320	360	400	444/445	447/449	5000
C-Face – Normal Drive End	**C**	$39	$39	$58	$68	$91	$157	$260	$419	$497	$617	$660	Contact Sales Office

For Footless models see **NO FEET – ROUND BODY** on page 284.

Contact your local sales office for addition of C-face kit.

Prices and data subject to change without notice.

C-FACE - BOTH ENDS OF DOUBLE SHAFT (Factory Installed, NEMA Dimensions)

HOW TO ORDER EXAMPLE: Modify the root Model Number SD 4 P 75 T C TM C 61Y or use Generic Description.

Available on motors having a Model Number which begins with...	Model Number Symbol	List Price ($) Addition(1) - Frame Size Family											
		56	140	180	210	250	280	320	360	400	444/445	447/449	5000
SD, MD, CCD(4)	C C						$313	$522	$837	$994	$1232	$1321	
CCF, CCN, CCS(3), SRN		$117	$117	$177	$206	$270	469	782	1257	1490	1850	1944	
SRD, SRF, SSDS		Contact your local sales office for price and availability											

(1) Price does not include double shaft. See pages 285-286 for double shaft list price additions.
(3) Not available on Crusher Duty motors and CCS models with B efficiency codes.
(4) Cast iron construction for 280 frame.

C-FACE - OPPOSITE NORMAL DRIVE END OF DOUBLE SHAFT (Factory Installed, NEMA Dimensions)

HOW TO ORDER EXAMPLE: Modify the root Model Number SD 4 P 75 TS TS C 61Y or use Generic Description.

Available on motors having a Model Number which begins with...	Model Number Symbol	List Price ($) Addition(1) - Frame Size Family											
		56	140	180	210	250	280	320	360	400	444/445	447/449	5000
SD, MD, CCD(4)	C						$157	$260	$419	$497	$617	$628	
CCF, CCN, CCS(3), SRN		$78	$78	$117	$138	$179	313	522	837	994	1232	1321	
SRD, SRF, SSDS		Contact your local sales office for price and availability											

(1) Price does not include double shaft. See pages 285-286 for double shaft list price additions.
(3) Not available on Crusher Duty motors and CCS models with B efficiency codes.
(4) 280 cast iron construction.

NEMA DESIGN C – High Starting Torque - 1 to 200 HP

Most Ultimate E® motors and some Signature Series™ motors meet or exceed the NEMA starting torque (locked rotor) requirements for Design C motors. See individual catalog pages for details (look for the letter C in the NOTES column).

NEMA DESIGN D – High Slip (5-8%, 8-13%) - 444T Frame and Larger

Contact your local sales office for price and availability.

Prices and data subject to change without notice.

CONNECTIONS

PART WINDING START (PWS); WYE – DELTA (Y-D)
CONNECTIONS Y – WITH NEUTRAL

	List Price ($) Addition - Frame Size Family											
	140	180	210	250	280	320	360	400	444/448	447/449	500	5000
PWS	$34	$52	$77	$107	$129	$155	$227	$357	$595	$595	$595	
YD	34	52	77	107	129	155	227	357	595	595	595	
CONNECTIONS Y – WITH NEUTRAL	34	52	77	107	129	155	227	357	595	595	595	

NOTE: Most 284T-449T motors are designed for Y-delta start. Please check the features section of the catalog motor information page to verify this.

D-FLANGE - NORMAL DRIVE END (Factory Installed)

AVAILABLE ON AF, AAF, CCF, CCN and CCS Model Numbers with G, P and B efficiency codes. Excludes Crusher Duty motors, CCS Model Numbers with B efficiency codes and those motors with NN in NOTES column.

HOW TO ORDER EXAMPLE: Modify the root Model Number CCF 6 P 40 T **D** 61Y or use Generic Description.

Available on motors having a Model Number which begins with...	Model Number Symbol	List Price ($) Addition – Frame Size Family											
		48/56	140	180	210	250	280	320	360	400	444/445	447/449	5000
CCF, CCN, CCS, CCD	**D** (Note 2)		$122	$170	$291	$387	$468	$574	$837	$1214	$1305	$1388	Contact Sales Office

See **"NO FEET – ROUND BODY"** option on page 283 for footless models.

NOTES:

1. Most Ultimate E® motors with a factory installed D-Flange have a non-NEMA BA dimension (centerline of mounting hole in nearest foot to the shoulder on the drive end shaft). The Ultimate E® motor and NEMA standard values for BA are listed in the following chart. **All other motor and flange mounting dimensions meet NEMA standards.** The BA dimension is irrelevant on footless models.

Frame Sizes	NEMA BA	Ultimate E AF & AAF
182TD-184TD	3.50"	3.75"
213TD-215TD	4.25"	4.25"
254TD-256TD	4.75"	6.25"
284TD-286TD	4.75"	6.25"

2. Some Signature Series cast iron frame motors with factory installed D-Flange have a non-NEMA BA dimension (centerline of mounting hold in nearest foot to the shoulder on the drive end shaft). The Signature Series™ motor and NEMA standard values for BA are listed in the following chart. **All other motor and flange mounting dimensions meet NEMA standards.** The BA dimension is irrelevant on footless models.

Frame Sizes	NEMA T-Frame BA	NEMA U-Frame BA	Signature Series CCF,CCN,CCS,CCD
143-145	2.75"		Contact sales office for value
182-184	3.50"	2.75"	
213-215	4.25"	3.50"	
254-256	4.75"	4.25"	4.25"
284-286	4.75"	4.75"	4.75"

Frame Sizes	NEMA T-Frame BA	NEMA U-Frame BA	Signature Series CCF,CCN,CCS
324-326	5.25"	5.25"	5.25"
364-365	5.88"	5.88"	5.88"
404-405	6.62"	6.62"	6.62"
444-445	7.50"	7.50"	7.50"
447-449	7.50"		7.50"

FEEDBACK DEVICES - ENCODERS

Also available as a Mod. See LEESON/Lincoln Modification section.

AVAILABLE ON INVERTER DUTY CTAC® MOTORS THAT HAVE a Model Number ending with Q10

General purpose encoder feedback devices are suitable for all single and bidirectional velocity and position feedback system requirements. Encoder features include quadrature output, separate marker pulse and differential line drivers. Encoders are mounted and wired to terminals in a separate terminal box to preserve signal integrity. Other features include 2.5" mounting flange, 0.375" output shaft with heavy duty bearings, shaft seal, 80°C ambient rating and 5000 RPM maximum speed.

HOW TO ORDER EXAMPLE: Modify the root Q10 Model Number SB 4 H 60 T 61 **Q15D** or use Generic Description.

For Inverter Duty and Vector Duty CTAC® motors having a combination of space heater, thermostats or thermistors, order using Generic Description instead of a Model Number or Product Number.

Encoder Option	PPR Rating	Model Number Symbol Replace Q10 with...	List Price ($) Addition - Frame Size Family										
			56	140	180	210	250	280	320	360	400	440	5000
Dynapar HS35 Series	100	**Q15A**	$1561										Contact Sales Office
	240	**Q15B**											
	600	**Q15C**											
	2048	**Q15D**											
	2500	**Q15E**											
	4096	**Q15F**											
BEI HS35 Series	100	**Q15L**	$1561										Contact Sales Office
	240	**Q15M**											
	600	**Q15N**											
	1024	**Q15P**											
	2048	**Q15R**											
	2500	**Q15S**											

For encoders not listed contact your local sales office.

FIRE PUMP MOTORS - UL Listed (UL1004A) for Fire Pump Applications Per NFPA 20

Contact your local sales office.

FREQUENCY

On a production basis, 50 HZ designs can be furnished for three-phase ratings. Apply the following percentage price adder to the basic modified 60 HZ continuous duty rating of the required enclosure and rpm.

ADD 15% TO THE BASIC MOTOR LIST PRICE

See page 294 for voltage chart and "special voltage pricing."

FUNGUS PROOFING (Tropicalization)

Also available as a Mod. See LEESON/Lincoln Modification section.

AVAILABLE ON ALL MOTORS except those with Class H Insulation option, CCS models with B efficiency codes and motors with NN in NOTES column.

HOW TO ORDER EXAMPLE: Modify the root Model Number A F 4 P 7.5 T 61 **F** or use Generic Description.

Varnish per MIL-V-173C to coil winding surfaces and leads. Procedure per MIL-T-142B Type II.

Option	Model Number Symbol	List Price ($) Addition – Frame Size Family											
		48	56	140	180	210	250	280	320	360	400	440	5000
Fungus Proofing	**F**	$122	$122	$122	$146	$178	$223	$223	$276	$276	$334	$334	

Prices and data subject to change without notice.

IEEE 841 SPECIFICATION

Available on CCS models with B efficiency codes, frames 182T to 365T.

HOW TO ORDER EXAMPLE: Modify the root Model Number CCS 4 B 100 T 61Y **AP20** T5 or use Generic Description.

Modifications to stock motor as follows:

- Rust-inhibiting coatings of all internal motor components (except bearings).
- Motor component sealing of end brackets, terminal box and cover, and bearing caps using high temp RTV silicone, latex or anaerobic cure materials.
- All fastening hardware is hex head type with zinc, chrome, nickel or cadmium plating to prevent rust.
- Shaft extensions are sealed from the motor using positive lip-seals or labyrinth seals or a combination of both to exclude moisture and dirt from contaminating the motor bearings.
- The exterior of the motor is painted with a two-part epoxy.
- Cross-drilled replaceable brass/bronze condensate drains.
- Mounting foot flatness within +/-0.005 inches.
- Additional grounding lug on the motor frame (same side as terminal box).
- Fan rotation sticker.
- Additional nameplate detailing wattage, voltage and connection provided inside the terminal box when space heaters are included.
- Test card providing the following mechanical and electrical tests:
  (1) Motor precision balance/testing where by unfiltered vibration will not exceed 0.08 in/sec peak velocity.
  (2) Filtered vibration not to exceed 0.05 in/sec peak velocity at twice speed (2n) of twice frequency (2f).
  (3) Unfiltered axial vibration not to exceed 0.06 in/sec at the bearing housing.
  (4) Winding resistance.
  (5) No-load readings of current and speed at rated voltage and frequency.
  (6) Hi-potential test.
- Nameplate stamped IEEE 841-1994.

Option	Model Number Symbol	List Price ($) Addition – Frame Size Family					
		180	210	250	280	320	360
IEEE 841 Modification – Includes DE labyrinth seal and ODE lip seal	**AP19**	$357	$436	$509	$723	$1169	$1901
IEEE 841 Modification – Includes labyrinth seal on both ends	**AP20**	409	497	578	824	1329	2160

Contact your local sales office for availability.

INSULATION – CLASS H

AVAILABLE ON ALL MOTORS except those with Fungus Proofing option, CCS models with B efficiency codes and motors with NN in NOTES column.

HOW TO ORDER EXAMPLE: Modify the root Model Number CCS 4 P 150 T 61 **E3** or use Generic Description.

For heat stabilized bearings, contact your local sales office for price and availability.

Option	Model Number Symbol	List Price ($) Addition – Frame Size Family										
		56	140	180	210	250	280	320	360	400	440	5000
Class H Insulation and High Temperature Bearing Grease	**E5**	$234	$234	$278	$319	$379	$556	$722	$891	$1239	$1720	Contact Sales Office
Class H Insulation only	**E3**	208	208	255	291	337	496	661	832	1182	1609	Contact Sales Office

Prices and data subject to change without notice.

MOUNT - NEMA FLOOR (F-2), WALL (W1-W8) or CEILING (C1-C2) MOUNT

Also available as a Mod. See LEESON/Lincoln Modification section.

End brackets are rotated to position weep holes at the lowest point. Ineffective weep holes are sealed.

AVAILABLE ON ALL MOTORS except those with NN in NOTES column and as defined in Notes #1 and #2.

HOW TO ORDER EXAMPLE: Modify the root Model Number SD 4 P 40 T 61 **W1** or use Generic Description.

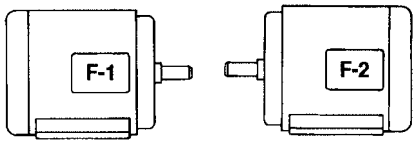
Option	Model Number Symbol	**List** Price ($) Addition – Frame Size Family										
		48/56	140	180	210	250	280	320	360	400	440	5000
NEMA Floor (F-2), Wall (W1-W) or Ceiling Mount (C1-C2)	**B** **W1 - W8** **C1 - C2**	N/C Note #1	N/C Note #2	N/C	N/C	N/C	N/C					Floor: N/C Wall & Ceiling: contact sales office

N.C. = No Charge
Note #1 = 56 Frame sizes available only as W2, W3, W6, W8 and C2.
Note #2 = Not available on SF Model Numbers.

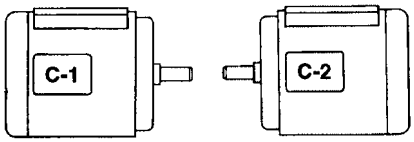
Drip Covers are available for some motors mounted vertically – contact your local sales office.

See **Terminal Box - 12 o'clock position** on page 289 for F3 mount and its Wall (W9-W12) and Ceiling (C3) derivatives.

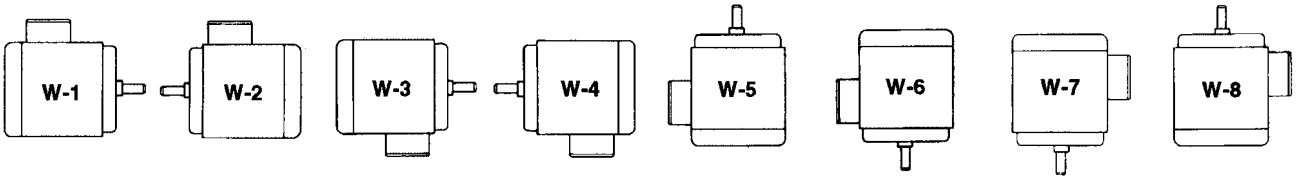
Floor Mount



Ceiling Mount



Wall Mount



NAMEPLATES - CHANGES and SPECIAL INFORMATION

AVAILABLE ON ALL MOTORS except CCS models with B efficiency codes and those with NN in NOTES column. Special information subject to approval by Lincoln/LEESON.

HOW TO ORDER: Use Generic Description and include HP, RPM, Frame size, Frame material, Enclosure, Voltage, Frequency, Ambient Rating, Service Factor and Altitude (if appropriate). Limited customer information such as a part number can also be included.

Option	Model Number Symbol	**Net** Price ($) Addition - Frame Size Family										
		56	140	180	210	250	280	320	360	400	440	5000
Special Information Required	—	$37										

Prices and data subject to change without notice.

NO FEET - ROUND BODY (FOOTLESS)

AVAILABLE ON ALL MOTORS except those motors with NN in NOTES column unless specifically listed on pages 184-273.
Normally requires C-Face or D-Flange option.

HOW TO ORDER EXAMPLE: Modify the root Model Number CCF 4 P 75 TC **N** 61Y or use Generic Description.

Option	Model Number Symbol	List Price ($) Addition – Frame Size Family										
		48/56	140	180	210	250	280	320	360	400	440	5000
No Feet (Footless)	**N**	No Charge										

PAINT - COLORS OTHER THAN STANDARD

Also available as a Mod. See LEESON/Lincoln Modification section.

AVAILABLE ON ALL MOTORS except Wash-Thru™, Washdown and those motors with NN in NOTES column. A minimum order quantity may apply to motors in frame sizes 48, 56 and 143T-145T.

HOW TO ORDER EXAMPLE: **Use Generic Description**; do not use a Model Number or Product Number. Stock Colors include Smoke Gray (X1), Severe Duty Blue (X3), Black and FDA Gloss White (X7). For Custom Colors, detail the paint specifications as much as possible with paint manufacturer's number and color. A paint chip is helpful. Prices do not include special finishes.

40 HP 1800 RPM 324T Ultimate E1® TEFC (steel) 230/460/3/60 painted (Brand Name) Yellow #2364.

Option	Model Number Symbol	**Net** Price ($) Setup Charge	List Price ($) Addition – Frame Size Family									
			48, 56 & 140	180	210	250	280	320	360	400	440	5000
Stock Colors	**Note 1**	No Charge	11 (Note 2)	$21	$21	$23	$80	$80	$91	$91	$122	$204
Custom Colors	**Note 1**	$148	79 (Note 2)	158	158	236	236	236	473	473	473	473

NOTES:
1. Model Number symbol for **PAINT – COLORS OTHER THAN STANDARD** is the letter "X" followed by a Lincoln assigned number.
2. Minimum order quantity may apply. Contact your local sales office for details.

PRECISION BALANCE

AVAILABLE ON ALL MOTORS except CCS models with B efficiency codes and motors with NN in NOTES column. Inverter Duty CTAC® motors are precision balanced as standard.

HOW TO ORDER EXAMPLE: Modify the root Model Number A F 4 B 7.5 T 61 **HS** or use Generic Description.

Option	Model Number Symbol	List Price ($) Addition – Frame Size Family											
		48	56	140	180	210	250	280	320	360	400	440	5000
Precision Balance	**HS**	$190	$190	$190	$190	$190	$218	$218	$247	$247	$312	$312	$962

Balanced per IEEE841:
3600,1800,1200 RPM (0.08 in/sec)
900RPM (0.06 in/sec)

Prices and data subject to change without notice.

SHAFTS - SINGLE AND DOUBLE END EXTENSION - NEMA DIMENSIONS

HOW TO ORDER: Use Generic Description or Modify the root Model Number.

EX1: SF 4 P 50 **T** 61 becomes SF 4 P 50 **TS** 61.
EX2: CCF 6 P 5 **T TM** 61
EX3: SD 4 B 25 **TS** C **TS** 61

T Frame Motors

	Available on T-Frame motors having a Model Number which begins with...	Model Number Symbol	List Price ($) Addition – T Frame Size Family									
			48/56	140	180	210	250	280	320	360	400	440(4)
Single End	Any(2)(3)	**T or TS**						No Charge				
Double End	AF(1), AAF, CCF(2), CCS(2)(3), MD, SD, SE, SPD, SRD & SSD	**T TM**	$37	$48	$53	$95	$122	$151	$197	$204	$257	$292
	SRN	**T T**	142									
	AF(1), AAF, CCF(2), CCS(2)(3) & SD(1)	**T T**		Contact your local sales office for price & availability								
	CCD, CCF(2), CCS(2)(3), MD, SD & SE	**TS TS**						151	197	204	257	292

U Frame Motors

	Available on T-Frame motors having a Model Number which begins with...	Model Number Symbol	List Price ($) Addition – T Frame Size Family									
			56	140	180	210	250	280	320	360	400	440(4)
Single End		**U or US**							No Charge			
Double End	CCF or CCN	**U U**			$53	$95	$122	$151	$197	$204	$257	$292
		U UM				95	122	151	197	204	257	292
		US US						151	197	204	257	292

(1) P and B efficiency codes only.
(2) Excludes motors with NN in NOTES column.
(3) Excludes Crusher Duty motors.
(4) 2-pole (3600 or 3000 RPM) motors in frames 444-449 are available only as “TS” or “US”.

Double End Extensions - Dimensions (all values in inches)

Frame Size	T		TM		TS		U		UM		US	
	Diameter (U or FU)	Length (N-W or FN-FW)	Diameter (FU)	Length Length (FN-FW)	Diameter (U or FU)	Length (N-W or FN-FW)	Diameter (U or FU)	Length (N-W or FN-FW)	Diameter (FU)	Length (FN-FW)	Diameter (U or FU)	Length (N-W or FN-FW)
56	5/8	1 7/8	5/8	1 5/8	-	-	-	-	-	-	-	-
56Z	7/8	2 1/4	-	-	-	-	-	-	-	-	-	-
143-145	7/8	2 1/4	5/8	1 5/8	-	-	-	-	-	-	-	-
182-184	1 1/8	2 3/4	7/8	2 1/4	-	-	7/8	2 1/4	-	-	-	-
213-215	1 3/8	3 3/8	1 1/8	2 3/4	-	-	1 1/8	3	7/8	2 1/4	-	-
254-256	1 5/8	4	1 3/8	3 3/8	-	-	1 3/8	3 3/4	1 1/8	3	-	-
284-286	1 7/8	4 5/8	1 5/8	4	1 5/8	3 1/4	1 5/8	4 7/8	1 3/8	3 3/4	-	-
324-326	2 1/8	5 1/4	1 7/8	4 5/8	1 7/8	3 3/4	1 7/8	5 5/8	1 5/8	4 7/8	1 5/8	3 1/4
364-365	2 3/8	5 7/8	1 7/8	4 5/8	1 7/8	3 3/4	2 1/8	6 3/8	1 7/8	5 5/8	1 7/8	3 3/4
404-405	2 7/8	7 1/4	2 1/8	5 1/4	2 1/8	4 1/4	2 3/8	7 1/8	1 7/8	6 3/8	2 1/8	4 1/4
444-449	3 3/8	8 1/2	2 3/8	5 7/8	2 3/8	4 3/4	2 7/8	8 5/8	2 1/8	7 1/8	2 1/8	4 1/4

Prices and data subject to change without notice.

FACTORY OPTIONS

SHAFT • SINGLE AND DOUBLE END • SPECIAL DIMENSIONS

Special shafts of standard material are available at the price additions and setup charges listed below, subject to the following restrictions.

SHAFT DIAMETER (U, FU)	Requested diameter must not exceed standard shaft diameter, but must be large enough to accept key seat and a 5/8" center.
SHAFT LENGTH (N-W, FN-FW, V, FV, AH, FAH)	**Single End Shaft** – Any length in 1/8" increments up to 5 inches longer than standard. **Double End Shaft** – Any overall length up to 5 inches longer than standard. For example, you may add 3 inches to the drive end shaft and add 2 inches to the opposite drive end shaft, but not 5 inches to both ends of the shaft. Each end's length must be in 1/8" increments.
KEY AND KEY SEAT (KEY, F KEY)	Size and length of key must be specified on order. See NEMA Standard MG-1 4.05 for square key sizes with appropriate shaft diameters or Lincoln dimension sheets for standard shaft and key dimensions. Unless otherwise specified, the useable length of the key seat will be 1/8" longer than the requested key length.
SPECIAL MACHINING OR MATERIALS	Consult your local sales office for price and availability on drilled and tapped, tapered, and threaded shafts or shafts of special materials.

HOW TO ORDER: Use Generic Description when ordering a motor with a special single or double end shaft. Include HP, Speed (RPM), Frame Size, Frame Material, Enclosure, efficiency code, Voltage and Frequency with all electrical and mechanical modifications detailed, plus values for the following "drive end" and "opposite drive end" dimensions when applicable.

DRIVE END	OPPOSITE DRIVE END
N-W (AH for motors with C-face or D-flange	FN-FW (FAH for motors with C-face or D-flange
V	FV
U	FU
KEY	F KEY

Single End Shaft - Special Dimensions - T and U Frame Motors

Available on motors having a Model Number which begins with...	List Price ($) Setup Charge	List Price ($) Addition – Frame Size Family											
		56	140	180	210	250	280	320	360	400	444/445	447/449	5000
Any prefix except those listed in (1) & (2)	$496	$66	$66	$76	$95	$122							
	566						$162	$218	$225	$274	$326	$367	$490

Double End Shaft - Special Dimensions - T and U Frame Motors

Available on motors having a Model Number which begins with...	List Price ($) Setup Charge	List Price ($) Addition – Frame Size Family											
		56	140	180	210	250	280	320	360	400	444/445	447/449	5000
AF(3), AAF, CCD, CCF(2), CCS(1)(2), MD, SD, SE,	$496	$122	$122	$157	$187	$245							
SPD, SRD & SSD	566						$309	$390	$473	$554	$652	$733	

(1) Excludes Crusher Duty, Wash-Thru, Washdown, Pump and Agriculture/Farm Duty motors.
(2) Excludes motors with NN in NOTES column.
(3) P & B efficiency codes only.

Prices and data subject to change without notice.

FACTORY OPTION PRICES FOR PRODUCTION MOTORS (BUILD UP)

Data, Prints and Software

		FOR EACH MOTOR RATING			
		Initial		Supplicate Additional	
Item	Description	Qty.	Net $	Min. Qty.	Net $
1	Standard Data Transmittal and Certification Sheet	1	N/C	5	$9
2	External Wiring / Connection Diagram (Includes Accessories Where Applicable)	1	N/C	5	$9
3	Certified Dimension Print (Standard 8.5” x 11”)	1	N/C	5	$9
4	Bulletins	1	N/C	5	$9
5	Parts List (Exploded View)	1	N/C	5	$9
6	Standard Tabulation Performance Data Sheet - Apply Addition For Each Specific Voltage Condition	1	$37	5	$5
7	Motor MFG & Bearing Manufactures Part Number	1	N/C	N/A	N/A
8	Customer Data Sheet Filled Out By Motor Mfg. Using Typical Performance Data Only	1	$74	N/A	N/A
9	Nameplate Data	1	N/C	N/A	N/A
10	City of New York Data Sheet	1	$74	N/A	N/A
11	Acceleration Time vs. AMPS Curve (Requires Customer’s WK2 & Load Speed Torque Curve)	1	$222	1	$5
12	Performance Curve (Slip or RPM, AMPS, EFF., PF, KW vs. HP)	1	$222	1	$5
13	Performance Data (Same As Curve Except In Data Form)	1	$37	1	$5
14	Equivalent Circuit Parameters At Full Load, 3/4 Load, 1/2 Load and Lock	1	$74	1	$5
15	Speed vs. Torque & AMPS Curve	1	$74	1	$5
16	Safe Stall Time Curve (Time vs. AMPS) Thermal Limit/Damage Curve	1	$222	1	$5
17	Deflection	1	$37	1	$5
18	Rotor Inertia	1	$37	1	$5
19	Shaft Stiffness / Modulus of Elasticity	1	$222	1	$5
20	Non-standard Outline Drawings or Special Construction or Accessories	1	$74	N/A	N/A
21	Special Calculated Data - Apply Addition For Each Specified Data	1	$222		
22	Certification of Compliance - A Copy of the Original Customer P.O. Must Accompany The Order	1	$58	1	$5
23	Special Tagging Or Special Marks On Software Not A Part Of Lincoln’s Standard Format Will Be Charged On A Per Sheet Basis	1	$74	N/A	N/A
24	UL Certificate	1	$518	N/A	N/A

This data is provided on quality black print on white paper, suitable for reproduction. Any data, curves or drawing can be supplied on vellum or mylar. Add an additional $50 net per each software item.

Prices and data subject to change without notice.

FACTORY OPTIONS

SPACE HEATERS

Also available as a Mod. See LEESON/Lincoln Modification section.

AVAILABLE ON ALL MOTORS except those with NN in NOTES column. Contact your local sales office for price and availability on space heaters for explosion-proof motors.

HOW TO ORDER EXAMPLE: Modify the root Model Number A F 4 P 7.5 T 61 **HT1** or use Generic Description.

For motors having a combination of space heater and thermal protection, order by Generic Description instead of a Model Number or Product Number.

Space heater leads on low voltage motors are located in the same terminal box as the motor leads. Space heater leads on medium voltage motors are located in a separate terminal box.

NOTE: List Price Addition varies based on Low Voltage (LV) or Medium Voltage (MV) motor in frames 444T & up.

Option	Model Number Symbol	List Price ($) Addition – Frame Size Family											
		48/56	140	180	210	250	280	320	360	440	444/445	447/449	5000
		Contact LEESON for Explosion-Proof Motors											
Space Heater - single voltage, 120V	**HT1**	$216	$216	$216	$280	$280	$308	$308	$308	$421	LV: $421 MV: $839	LV: $441 MV: $839	
Space Heater - single voltage, 240V	**HT2**	227	227	249	309	329	349	356	366	444	LV: $471 MV: $873	LV: $520 MV: $922	
Space Heater - dual voltage, 120/240V	**HT3**												LV: $796 MV: $1291

TERMINAL BLOCKS

See CE FACTORY Option on page 278 or CE Field Conversion Kits – contact your local sales office for price and availability.

TERMINAL BOX - OMIT

AVAILABLE ON ALL MOTORS except those with NN in NOTES column and some single phase motors with capacitors mounted in the terminal box.

HOW TO ORDER EXAMPLE: Modify the root Model Number SD 4 P 75 TSC 61Y **K** or use Generic Description.

Option	Model Number Symbol	Net Price ($) Addition – Frame Size Family											
		56	56H	140	180	210	250	280	320	360	400	440	5000
Omit Terminal Box	**K**			$10	$10	$10	$10	$10	$10	$10	$10	$10	

TERMINAL BOX - RESIZED

Also available as a Mod. See LEESON/Lincoln Modification section.

Contact your local sales office for price and availability on a resized terminal box.

Prices and data subject to change without notice.

TERMINAL BOX – 12 O'CLOCK POSITION
NEMA FLOOR (F3), WALL (W9-W12) or CEILING (C3) MOUNT

HOW TO ORDER EXAMPLE: Modify the root Model Number SSF 4 P 1 T 61 **H4** or use the Generic Description.

Available on motors having a Model Number which begins with...	Model Number Symbol	List Price ($) Addition - Frame Size Family											
		48	56	140	180	210	250	280	320	360	400	440	5000
SPD, SRD, SSD, SPF, SRF, SSF & SRN	**H4 (floor) W9 - W12 C3**	$91	$91	$179	$257	$357	$420						
				Contact Local Sales Office for availability of cast iron frame motors									
CCF, CCS, SD, SF	**H4**					$887	$887	$887	$887	$1331	$1331	$1775	$1775

TEMPERATURE SENSORS – BEARING – RTD's and THERMOCOUPLE

HOW TO ORDER: Use Generic Description. Make sure your specify "one or both ends" (and if "one end", is it on the drive or fan end) and type of RTD or thermocouple.

Thermal Protection – Bearing RTDs (pair)	List Price											
	56	143-145	182-184	213-215	254-256	284-286	324-326	364-365	404-405	444-445	447-510	5000
10 ohm Copper	—	—	—	—	$1363	$1363	$1363	$1363	$1363	$1363	$1363	$4437
120ohm Nickel	—	—	—	—	$1363	$1363	$1363	$1363	$1363	$1363	$1363	$4437
100 ohm Platinum	—	—	—	—	$2710	$2710	$2710	$2710	$2710	$2710	$2710	$4437
Thermocouples (specify type J, K or T)	$1358	$1358	$1775	$1775	$1775	$1775	$1775	$1775	$1775	$1775	$1775	$4437

TEMPERATURE SENSORS – WINDING – RTD's

Resistance Temperature Detectors (RTD's) imbedded in the stator winding. Leads are brought into a motor-mounted terminal box (separate box on medium voltage motors). When used with temperature indicator control, detector can monitor winding temperature. Lincoln does not supply control circuit or logic. Note: UL and CSA logos do not appear on the motor nameplate for this option.

HOW TO ORDER EXAMPLE: Modify the root Model Number CCF 6 P 30 TS 61Y **TD1** or use Generic Description.

For motors having any combination of space heaters and thermal protection, order by Generic Description instead of using a Model Number or Product Number.

NOTE: List Price Addition varies based on Low Voltage (LV) or Medium Voltage (MV) motor.

Thermal Protection – Bearing RTDs (pair)	List Price ($) Addition - Frame Size Family												
	48/56	140	180	210	250	254-256	284-286	324-326	364-365	404-405	444-445	447-510	5000
10 ohm Copper	—	—	—	—	$1754	$1754	$1754	$1754	$1754	$1754	$1754	$1754	$2115
120 ohm Nickel	—	—	—	—	$1754	$1754	$1754	$1754	$1754	$1754	$1754	$1754	$2308
100 ohm Platinum	—	—	—	—	$3494	$3494	$3494	$3494	$3494	$3494	$3494	$3494	$3494

Prices and data subject to change without notice.

TEMPERATURE SENSORS • WINDING • THERMOCOUPLE
Contact your local sales office for price and availability (444T frame and larger) on Type J, K or T thermocouples.

Test Reports and Cost for Built up motors

Test and Reports
All testing costs are net prices and are per motor for single speed designs, double price for two speeds.

All motors are tested prior to leaving any plant facility to assure their compliance with design standards. They are tested in accordance with NEMA and IEEE-112 test method B.

Short Commercial or Routine Test
This test is designed to meet the requirements of NEMA MG1-12.55.2

This test consists of no load current, locked rotor current (interpolated from a single-phase impedance test), winding resistance, high potential test and bearing inspection.

Complete Test
This test provides actual characteristics of each motor tested is made upon request and includes:

Full load heat run	Full, 3/4, and 1/2 load efficiency
Full load RPM	Full, 3/4, and 1/2 load power factor
No-load current	Locked rotor current
Starting torque	Winding resistance
Locked rotor torque	High potential test
Breakdown torque	Bearing inspection
Temperature rise	

Calibration Test
In addition to a complete test this test offers full range of data from 0-125% load efficiency, power factor speed, amp, kilowatts, and horsepower.

Duplicate Tests
Copies of tests done on electronically duplicate motors can be provided for the adder given.

Polarization Index Test
Knowing the polarization index of a motor or generator can be useful in appraising the fitness of the machine for service. The index is calculated from measurements of the winding insulation resistance.

$$\text{Polarization Index} = \frac{\text{Resistance after 10 minutes}}{\text{Resistance after 1 minute}}$$

The recommended minimum value of polarization index for ac and dc motors, and, generators is 2.0. Machines having windings with a lower index are less likely to be suited for operation.

The purpose of a polarization index test is useful in evaluating windings for:

- Buildup of dirt or moisture
- Gradual deterioration of the insulation (by comparing results of tests made earlier on the same machine)
- Fitness for over-potential tests
- Suitability for operation

The procedure for determining the polarization index is covered in detail by IEEE-43.

Prices and data subject to change without notice.

Inverter Tests
All requests should be forwarded to the home office. These tests are available after engineering and marketing approval.

Sound Test
This test is completed per test methods established by IEEE-85; any other requests should be forwarded to the home office for review.

Vibration Test
This is a certified copy of vibration test per NEMA standards on 2 vertical, two-horizontal and one-axial plane.

Witnessed Test
Are available for all designs at the net price given per frame size.

Table 1 Net Price Additions Per Frame Size

Test & Analysis	56	140	180	210	250	280	320	360	400	444/445	447/510	5000
Certified Routine	$81	$81	$81	$81	$81	$81	$81	$81	$81	$81	$81	$81
Certified Complete	448	448	448	448	448	693	897	1059	1467	3016	3016	3015
Calibration	448	448	448	448	448	538	611	702	873	1141	1141	1141
Duplicate Short Commercial	81	81	81	81	81	81	81	81	81	81	81	81
Duplicate Complete	122	122	122	122	122	122	122	122	122	122	122	122
Polarization Index	490	490	490	490	490	814	814	814	814	814	814	814
Sound	490	490	490	490	490	490	814	814	814	814	814	814
Vibration	245	245	245	245	245	245	245	245	245	245	245	245
Witnessed Short Commercial	448	448	448	448	448	621	621	702	873	1141	1141	1141
Witnessed Complete	684	684	684	684	684	1059	1345	1590	2202	4524	4524	4524
Witnessed Sound	733	733	733	733	733	733	1224	1224	1224	1224	1224	1224
Witnessed Vibration	448	448	448	448	448	538	611	702	873	1141	1141	1141

Prices and data subject to change without notice.

THERMAL PROTECTION - WINDING - THERMISTORS

Also available as a Mod. See LEESON/Lincoln Modification section.

AVAILABLE ON ALL LOW VOLTAGE (< 601 V) MOTORS. Contact your local sales office for price and availability on thermistors for medium voltage (> 600 V) motors.

Three phase motors have three (3) Texas Instruments® PTC thermistors wired in series; single phase motors have one (1).
Control module available from Lincoln – contact your local sales office for price and availability.

HOW TO ORDER EXAMPLE: Modify the root Model Number CCS 4 P 75 T 61 **TX1** or use Generic Description.

For motors having any combination of space heaters and thermal protection, order by Generic Description instead of using a Model Number or Product Number.

Option	Model Number Symbol	List Price ($) Addition – Frame Size Family										
		56	140	180	210	250	280	320	360	400	440	5000
Thermistors - 3-Phase Motors	**TX1**	$296	$296	$296	$296	$296	$296	$296	$296	$296	$296	$296
Thermistors - 1-Phase Motors	**TX2**	296	296	296	296							

Prices and data subject to change without notice.

THERMAL PROTECTION - WINDING - THERMOSTATS (CLASS F)

Also available as a Mod. See LEESON/Lincoln Modification section.

AVAILABLE ON ALL LOW VOLTAGE (< 601 V) MOTORS. Inverter Duty CTAC®, Explosion-Proof (CCFX models), Crop Dryer motors and CCS models with B efficiency codes have thermostats as standard. Contact your local sales office for price and availability on thermostats for medium voltage (> 600 V) motors.

Three phase motors have three (3) thermostats wired in series; single phase motors have one (1).

HOW TO ORDER EXAMPLE: Modify the root Model Number A F 4 B 7.5 T 61 **T1** or use Generic Description.

For motors having any combination of space heaters and thermal protection, order by Generic Description instead of using a Model Number or Product Number.

Option	Model Number Symbol	List Price ($) Addition – Frame Size Family										
		56	140	180	210	250	280	320	360	400	440	5000
Thermostats - 3-Phase Motors	**T1**	$92	$92	$92	$92	$92	$92	$92	$92	$92	$92	$92
Thermostats - 1-Phase Motors	**T2**	57	57	57	57							

TWO SPEED - ONE WINDING, VARIABLE OR CONSTANT TORQUE

Contact your local sales office for price and availability.

VERTICAL SOLID SHAFT MOTORS (P-BASE)

Contact your local sales office for price and availability.

Prices and data subject to change without notice.

FACTORY OPTIONS

60 HZ VOLTAGES • 3-PHASE • OTHER THAN STANDARD • FACTORY OPTIONS ONLY DOES NOT APPLY TO 911 RE-NAMEPLATES - Contact Your Local Sales Office

AVAILABLE ON ALL MOTORS except Fire Pump Motors (AP5 suffix), CCS models with B efficiency codes, those motors with NN in NOTES column, and others as noted in the following table.

HOW TO ORDER:

1. Use the following table to verify the required voltage and voltage code are available for a particular frame size or horsepower.
2. Determine which of the available voltage codes provides the required starting method.
3. Replace the voltage code in the root Model Number (e.g. 61, 61Y, 64, 64Y) with the voltage code identified in Step 2. EXAMPLE: CCS 4 P 10 T 61 becomes CCS 4 P 10 T **68Y** for 380 V with YDS capability. You may also order using a Generic Description. Contact your local sales office for availability of combinations not listed in the table.

3-Phase Voltage	Model Number Voltage Code	*Number of Leads	Voltage Availability by Frame Sizes			Starting Capabilities			Voltage Adders List Price Addition per Motor
			56-256T	284T-405T	444T-449T	Across the Line	YDS	PWS	
200/400	62 (1)	9	YES	NO	NO	•			$81
	62Y(1)	12(4)	YES	YES	NO	•	BOTH		$81
208	63(1)	3	YES	YES	NO	•			$81
	63Y(1)	6	YES	YES	NO	•	•		$81
220/380	6003(1)	6	YES	YES	NO	•	LOW ONLY		$81
220/440	6004(1)	9	YES	NO	NO	•			$81
	6004Y(1)	12(4)	YES	YES	up to 250 HP	•	BOTH		$81
230/460	61	9	YES(2)	NO	NO	•			$81
	61Y	12	YES	YES(2)	up to 250 HP	•	BOTH		$81
230	66	3	YES	YES	up to 250 HP	•			$81
	66Y	6	YES	YES	up to 250 HP	•	•		$81
	66P	6(3)	NO	YES	up to 250 HP	•		•	$81
	66PY	12(5)	NO	YES	up to 250 HP	•	•	•	$81
380	68(1)	3	YES	YES	YES	•			$81
	68Y(1)	6	YES	YES	YES	•	•		$81
	68P(1)	6	NO	YES	YES	•		•	$326
	68PY(1)	12(5)	NO	YES	YES	•	•	•	$326
440	67(1)	3	YES	YES	YES	•			$81
	67Y(1)	6	YES	YES	YES	•	•		$81
	67P(1)	6	NO	YES	YES	•		•	$326
	67PY(1)	12(5)	NO	YES	YES	•	•	•	$326
460	64	3	YES(2)	YES(2)	YES(2)	•			$81
	64Y	6	YES	YES	YES(2)	•	•		$81
	64P	6(3)	NO	YES	YES	•		•	$81
	64PY	12(5)	NO	YES	YES	•	•	•	$81
480	69	3	YES	YES	YES	•			$81
	69Y	6(4)	YES	YES	YES	•	•		$81
	69P	6(3)	NO	YES	YES	•		•	$326
	69PY	12(5)	NO	YES	YES	•	•	•	$326
575	65	3	YES(2)	YES(2)	YES(2)	•			$81
	65Y	6	YES	YES	YES(2)	•	•		$81
	65P	6(3)	NO	YES	YES	•		•	$81
	65PY	12(5)	NO	YES	YES	•	•	•	$81

(1) Available on motors with B and PY (except CCS models), S efficiency codes.
(2) Voltage code is standard on some models. Check individual item listings.
(3) Part winding start - PWS
(4) Wye - delta start - YDS
(5) PWS & YDS
* Adders for PWS, YDS, PWS – YDS see page 280

KEY: "YES" Identifies voltage codes which are available in the given frame sizes but are not typically a stock item.
• Designed for the particular starting method on voltage(s) listed.
"BOTH" Designed for YDS on both voltages.
"LOW ONLY" Designed for YDS on low voltage connection only.

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