

MOD CENTRAL - Motor Modifications

Mod Central

Marathon Motors offers the capability to modify stock motors in a matter of days to meet our customer's special needs. Mod Central is centrally located in the motor industry's largest Distribution Center in Indianapolis, Indiana. This state-of-the-art facility stocks a vast array of motors and accessories along with a staff of skilled technicians who provide the highest quality of service. If you need motor modifications on 20 motors or less and want to avoid special engineering and manufacturing schedules, call Marathon Motors and take advantage of our **MOD CENTRAL** Motor Modification Program.

Lead-Time

All lead-times indicated are subject to availability of the stock motors and parts at the time of order placement. If a stock motor is shipped from a remote warehouse to Indianapolis for modification, the cost of the inbound freight will be added to the price of the modified motor and the delivery of the modified motor will be extended by the inbound transit time. **(Lead-times in working days are calculated from normal business hours excluding holidays and weekends and do not include the day the purchase order is received.)** Large quantities may require additional lead-time.

Mod Central Hours

The Modification Center is open from 7:00 a.m. to 5:00 p.m. CST Monday through Friday.

How to Order

First determine whether you need a kit to perform the modification, if you do not need a kit, then the modification list price includes all supplies to perform that modification. If a kit is needed, the modification list price is the labor to install the kit. The kit list price and the motor list price are not included. You must add the net price of the motor, and kit to the net price of the modification(s) to calculate the total price of the modified motor.

For example, to add a C-Face Kit and Thermostats to Catalog Motor U633, you would calculate the total price as follows:

	List Price	Mult Symbol
Kit 175191 (A653).....	\$165 list	S4
Modification MOD2L, add C-Face to 254T-256T Frame motor	\$195 list	S4
Modification MOD14E, add thermostats to 254T-256T Frame motor	\$278 list	S4
TOTAL	\$638 list	

Add the net price of U633 (\$1324 list price times (x) your motor multiplier) to the net adder for the kit and modifications (\$638 times (x) your Mod Center multiplier of S4) to find the total net price for the modified motor.

Freight Terms

Standard terms and conditions apply.

Exceptions

Some modifications do not apply to explosion proof motors.

Discount Multiplier

Discount symbol S4 applies to all list prices, except where noted.

Cancellation Policy

If a Mod Central order is cancelled after the motor is modified but before it ships, a cancellation charge of double the modification charge will be invoiced to the customer. Any Mod Central order cancelled before modifications are completed, is subject to a cancellation charge of 25% of the total modification charges for that item.

Once shipped, modified motors may not be returned for credit or restocking.

MOD CENTRAL - Motor Modifications

MODIFICATION DESCRIPTION	MODIFICATION NUMBER	PRODUCT	FRAME	LEAD-TIME DAYS*
Altitude/Ambient				
• AC Motor Altitude or Ambient Re-Rating	MOD7	All Non-EXP	48-449T	2
• AC Motor Altitude or Ambient Re-Rating	MOD7	Explosion Proof	143T-449T	2
Assembly (see Mounting)				
Bearings				
• Convert Ball to Roller (Drive End)	MOD18	TEFC	364T-449T	3
• Convert Roller to Ball (Drive End)	MOD18	TEFC	444T-449T	2
• Sealed Bearing	MOD18	All Non-EXP	143T-449T	Call
• Insulated Bearing	MOD18	Non Div 1 or 2	143T-449T	Call
Blowers				
• Axial Blower	MOD19	TEFC	213T-449T	3
Brackets				
• C-Face Non-Explosion Proof	MOD2	All Non-EXP	56-449T	2
• C-Face Explosion Proof	MOD2	Explosion Proof	56,254T-449T	Call
• C-Face IEEE 841	MOD2	All Non-EXP	143T-449T	2
• D-Flange	MOD17	All Non-EXP	254T-365T	Call
• B14 FT Flange (IEC C-Face)	MOD55	IEC	63-160	2
• B5 FF Flange (IEC D-Flange)	MOD55	IEC	63-225	2
Brake Motors				
• Brake Motors-Single Phase	MOD3	TEFC	56C	3
• Brake Motors-Three Phase	MOD3	TEFC	56C-145TC	3
• Brake Motors-Inverter Duty	MOD3	TENV	56C-326TC	3
• Electrical Modifications-Brake Coil	MOD3	Brake Motors	56-256TC	10
• Vercicle Brake Mounting (Shaft Up or Shaft Down)	MOD3	All Brakes	56-256TC	3
Conduit Box				
• Rotate Conduit Box Lead Opening	MOD56	All Non-EXP	143T-449T	2
• Convert to Cast Iron	MOD56	All Non-EXP	143T-326T	2
• Auxiliary Box (Condulet)	MOD56	All Non-EXP	182T-5013L	Call
Connections				
• SO Cord, Plug, and Switch-Single Phase	MOD0	TEFC	48-215T	Call
Drains				
• Condensation Drain Holes	MOD21	All Non-EXP	143T-449T	2
• Brass Drain & Breather	MOD21	All Non-EXP	143T-449T	2
• Stainless Steel Drain & Breather	MOD21	All Non-EXP	143T-449T	2
Drip Covers				
• Canopy Cover	MOD4	ODP, TEFC	48-256T	2
Encoders				
• Avtron AV56 - Black Max® / Blue Max®	MOD22	TENV, TEBC	56-449T	2
• Avtron HS25A & HS35A	MOD22	TENV, TEBC	56-449T	2
• Avtron M56/M85 - Black Max®/ Blue Max® brake motors	MOD24	TENV	143T-256T	2
• Northstar SL56 - Black Max®/Blue Max®	MOD22	TENV, TEBC	56-449T	2
• Northstar SL56/SL85 - Black Max®/ Blue Max® brake motors	MOD24	TENV	143T-256T	2
• Dynapar HS20, HS35R, & HSD38 - Black Max® / Blue Max®	MOD22	TENV, TEFC, TEBC	56-449T	2
• BEI HS35 - Black Max®/Blue Max®	MOD31	TENV, TEFC, TEBC	56-449T	2
• Stub Shaft (XRI®-SD & XRI®-841,TEFC only)	MOD42	TEFC	182-449T	2
Fan				
• Oversized fan (see Inverter Duty modification)	MOD43	TEFC	213T-449T	2
• Fan Removal	MOD44	All Non-EXP	56-449T	2
• Vane Axial	MOD43	All Non-Exp	143T-449T	4
Frequency				
• Frequency Re-Rate 60 Hz to 50 Hz	MOD7	All	56-449T	1
Grease/Fittings				
• Grease Relief Fittings	MOD15	All Non-EXP	143T-449T	2
• Zerk Fittings (Cast Iron Motors)	MOD15	All Non-EXP	182T-449T	2
• Low Temperature Grease	MOD0	All	48-449T	2
• High Temperature Grease	MOD0	All	48-449T	2

*Lead-time days does not include the day order is received

MOD CENTRAL - Motor Modifications

MODIFICATION DESCRIPTION	MODIFICATION NUMBER	PRODUCT	FRAME	LEAD-TIME DAYS*
Grounding				
• Conduit Box Grounding Lug	MOD20	All	48-215T	2
• On-Frame Grounding (Cast Iron Motors)	MOD20	All	143T-449T	2
• Shaft Grounding Ring	MOD20	Call	48-449T	2
Inverter Duty Motors				
• Variable Torque with Thermostats (R140)	MOD25	All	143T-449T	2
• Constant Torque with Thermostats (R142)	MOD26	All	143T-449T	2
• Constant Torque (R164)	MOD43	All	143T-449T	2
Leads				
• Reconnect Leads	MOD9	All	48-449T	2
• Terminal Lugs	MOD0	All	48-326T	2
• Remark Leads	MOD33	All	48-449T	2
• Longer Leads - Up to 24"	MOD0	All Non-EXP	48-449T	2
Mounting/Assembly (Example: F1 to F2)				
• Convert to Floor, Top, Ceiling, or Wall	MOD1	All Non-EXP	143T-449T	2
• Convert to Floor, Top, Ceiling, or Wall	MOD39	Explosion Proof	143T-449T	2
• Adjustable Bases	MOD39	All	143T-449T	2
Nameplates / Markings				
• Additional Data on Nameplate	MOD7	All	48-449T	1
• CE Marking	MOD7	All	48-449T	2
• Private Label	MOD7	All	48-449T	1
• Rotation Arrow	MOD7	Single Phase	48-215T	1
• Separate Nameplate for Customer Data	MOD7	All	48-449T	2
• Stainless Steel Nameplate	MOD7	All	48-449T	1
Packaging				
• Heat Treated Pallet	MOD29	All	48-449T	3
Paint				
• Repaint to a Marathon stock color	MOD8	All	48-449T	2-3
Screens				
• Rodent Screens	MOD0	ODP	364T-449T	Call
Service Factor				
• AC Motor Service Factor Re-Rating	MOD7	All Non-EXP	48-449T	1
Severe Duty Construction				
• Cast Iron Fan Cover and Conduit Box	MOD16	All Non-EXP	143T-449T	2
Shaft Grounding Ring (see Grounding)				
Shaft Modifications				
• Drill & Tap Hole	MOD42	All	56-449T	3
• TS Shaft	MOD42	All	284T-449T	2
• Mill Flat on Shaft	MOD0	All	56-184T	2
• Steps on Shaft	MOD0	All	143T-449T	Call
Space Heaters				
• Non Explosion Proof	MOD12	All Non-EXP	48-449T	2
• Explosion Proof	MOD41	Explosion Proof	56-449T	2
• IEC Frames	MOD12	IEC	100-250	2
Terminal Blocks				
• Terminal Block	MOD0	All Non-EXP	180-449T	Call
Thermal Protection				
• Thermostats - Windings	MOD14	All	56-449T	2
• Thermistors - Windings	MOD14	All	143T-449T	2
• Thermistors (including Control Module)	MOD14	All Non-EXP	143T-449T	2
• Thermocouples - Winding or Bearing	MOD0	All Non-EXP	145T-449T	2
Weatherproofing / Special Service				
• Tropical Anti-Fungus Treatment	MOD5	All	48-449T	2
• Division 2 Motors (CSA Certified)	MOD49	Blue Chip®/XRI®	143T-449T	Call

*Lead-time days does not include the day order is received

MOD CENTRAL - Stock Motors Only

Mult. Symbol is S4 (except as noted)

Contact Marathon Motors for all modification services on Explosion Proof and Blower (TEBC) motors.

NEMA MOTORS

DESCRIPTION	KIT REQ'D	LIST PRICE													
		MOD #	48	56	143-145	182-184	213-215	254-256	284-286	324-326	364-365	404-405	444-445	447- 449	
Altitude / Ambient		7	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	
Bearings															
Convert Ball to Roller (Drive End)	Yes	18	-----	-----	-----	-----	-----	-----	-----	-----	-----	\$200	\$200	\$250	\$250
Convert Roller to Ball (Drive End)	Yes	18	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	\$250	\$250
Sealed Bearings		18	\$197	\$197	\$197	\$263	\$263	\$362	\$461	\$625	\$1,084	\$1,084	\$1,478	\$1,478	
Insulated Bearings		18	-----	-----	\$461	\$526	\$526	\$1,530	\$1,645	\$1,645	\$1,737	\$1,776	\$1,882	\$2,061	
Blowers															
Axial Blower	Yes	19	-----	-----	-----	-----	\$308	\$270	\$270	\$270	\$520	\$520	\$520	\$520	
Brackets*															
C-Face (Non-Explosion Proof)	Yes	2	-----	\$143	\$143	\$168	\$168	\$195	\$290	\$329	\$329	\$329	\$329	\$329	
C-Face (Explosion Proof)	Yes	2	-----	\$238	-----	-----	-----	\$325	\$483	\$648	\$648	\$648	\$948	\$948	
C-Face (IEEE 841)	Yes	2	-----	-----	\$238	\$280	\$280	\$325	\$425	\$489	\$489	\$489	\$489	\$489	
D-Flange	Yes	17	-----	-----	-----	-----	-----	\$168	\$240	\$408	\$408	-----	-----	-----	
Brakes															
3 lb-ft for a TEFC motor	Yes	3	-----	\$165	\$165	-----	-----	-----	-----	-----	-----	-----	-----	-----	
6 lb-ft for a TEFC motor	Yes	3	-----	\$165	\$165	-----	-----	-----	-----	-----	-----	-----	-----	-----	
10 lb-ft for a TEFC motor	Yes	3	-----	\$165	\$165	-----	-----	-----	-----	-----	-----	-----	-----	-----	
6 lb-ft for a Black Max (TENV) motor	Yes	3	-----	\$165	\$165	\$165	\$165	-----	-----	-----	-----	-----	-----	-----	
10 lb-ft for a Black Max (TENV) motor	Yes	3	-----	\$165	\$165	\$165	\$165	\$165	\$165	-----	-----	-----	-----	-----	
Brake Coil (56000 Series)		3	-----	\$410	\$410	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Brake Coil (87000 Series)		3	-----	-----	-----	\$510	\$510	\$510	-----	-----	-----	-----	-----	-----	
Vertical Mounting - Up or Down	Yes	3	-----	-----	-----	-----	\$73	\$73	-----	-----	-----	-----	-----	-----	
Vertical Mounting - Shaft Down	Yes	3	-----	-----	-----	-----	\$73	\$73	-----	-----	-----	-----	-----	-----	
Conduit Box															
Rotate Conduit Box Lead Opening		56	-----	-----	\$145	\$145	\$145	\$145	\$145	\$145	\$145	\$145	\$145	\$145	
Convert to Cast Iron	Yes	56	-----	-----	\$158	\$158	\$158	\$174	\$188	\$217	-----	-----	-----	-----	
Auxiliary Box (Condulet)		56	-----	-----	-----	\$217	\$217	\$289	\$289	\$289	\$434	\$434	\$434	\$434	
Connections:															
SO Cord, Plug, and Switch Single Phase		0	\$287	\$287	\$287	\$287	\$287	-----	-----	-----	-----	-----	-----	-----	
Drains															
Condensation Drain Holes		21	-----	-----	\$171	\$171	\$171	\$191	\$191	\$191	\$191	\$191	\$191	\$191	
Brass Drain & Breather		21	-----	-----	\$182	\$182	\$182	\$326	\$326	\$326	\$326	\$326	\$326	\$326	
Stainless Steel Drain & Breather		21	-----	-----	\$263	\$263	\$263	\$471	\$471	\$471	\$471	\$471	\$471	\$471	
Drip Cover															
Canopy Cover (ODP & TEFC Motors)	Yes	4	\$121	\$121	\$121	\$121	\$160	\$256	-----	-----	-----	-----	-----	-----	
Encoders (NOTE: Multiplier Symbol E3)															
Avtron AV56	Yes	22	-----	\$0	\$0	\$0	\$0	\$0	-----	-----	-----	-----	-----	-----	
Avtron HS25A	Yes	22	-----	\$0	\$0	\$0	\$0	\$0	-----	-----	-----	-----	-----	-----	
Avtron HS35A	Yes	22	-----	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Avtron HS35M	Yes	22	-----	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Avtron M3	Yes	22	-----	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
BEI HS35	Yes	22	-----	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Dynapar HS20	Yes	22	-----	\$0	\$0	\$0	\$0	\$0	-----	-----	-----	-----	-----	-----	
Dynapar HS35R	Yes	22	-----	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
EPC 260	Yes	22	-----	\$0	\$0	\$0	\$0	\$0	\$0	-----	-----	-----	-----	-----	
NorthStar HSD35	Yes	22	-----	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
NorthStar SL56	Yes	22	-----	\$0	\$0	\$0	\$0	\$0	-----	-----	-----	-----	-----	-----	
Blue Max TEBC Encoders:															
Avtron HS35A	Yes	24	-----	-----	-----	-----	-----	-----	\$0	\$0	\$0	\$0	\$0	\$0	
Avtron AV56	Yes	24	-----	-----	-----	-----	-----	-----	\$0	\$0	\$0	\$0	\$0	\$0	
Dynapar HSD38	Yes	24	-----	-----	-----	-----	-----	-----	\$0	\$0	\$0	\$0	\$0	\$0	
NorthStar SL56	Yes	24	-----	-----	-----	-----	-----	-----	\$0	\$0	\$0	\$0	\$0	\$0	
Turck A02H	Yes	24	-----	-----	-----	-----	-----	-----	\$0	\$0	\$0	\$0	\$0	\$0	
Blue Max Brakemotor Encoders:															
Avtron AV56	Yes	24	-----	-----	\$0	\$0	-----	-----	-----	-----	-----	-----	-----	-----	
Avtron M85	Yes	24	-----	-----	-----	\$0	\$0	\$0	-----	-----	-----	-----	-----	-----	
NorthStar SL56	Yes	24	-----	-----	\$0	\$0	-----	-----	-----	-----	-----	-----	-----	-----	
NorthStar SL85	Yes	24	-----	-----	-----	\$0	\$0	\$0	-----	-----	-----	-----	-----	-----	
Stub Shaft: (XRI®-SD & XRI®-841, TEFC only)															
	Yes	42	-----	-----	-----	\$182	\$182	\$182	\$182	\$182	\$182	\$182	\$182	\$182	
Fan															
Oversized fan (Inverter Duty)		43	-----	-----	-----	-----	\$230	\$263	\$263	\$263	\$296	\$329	\$329	\$329	
Fan Removal		44	-----	\$145	\$145	\$182	\$182	\$217	\$217	\$217	\$254	\$254	\$254	\$254	
Vane Axial		43	-----	-----	\$315	\$623	\$623	\$934	\$934	\$934	\$1,231	\$1,231	\$1,231	\$1,231	
Frequency															
Re-Rate 60Hz to 50Hz		7	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	
Grease/Fittings															
Grease Relief Fittings		15	-----	-----	\$174	\$174	\$174	\$174	\$174	\$174	\$174	\$174	\$174	\$174	
Zerk Fittings (Cast Iron Motors)		15	-----	-----	-----	\$276	\$276	\$276	\$276	\$276	\$276	\$276	\$276	\$276	
Low Temperature Grease		0	\$461	\$461	\$461	\$816	\$816	\$816	\$816	\$816	\$1,092	\$1,461	\$1,461	\$1,461	
High Temperature Grease		0	\$461	\$461	\$461	\$816	\$816	\$816	\$816	\$816	\$1,092	\$1,461	\$1,461	\$1,461	

*Addition of C-Face Kits may result in non-NEMA "BA", dimension. For the resulting "BA" dimension consult chart found in modification section

MOD CENTRAL - Stock Motors Only

Mult. Symbol is S4 (except as noted)

Contact Marathon Motors for all modification services on Explosion Proof and Blower (TEBC) motors.

DESCRIPTION	KIT REQ'D	LIST PRICE												
		MOD #	48	56	143-145	182-184	213-215	254-256	284-286	324-326	364-365	404-405	444-445	447- 449
Grounding:														
Conduit Box Grounding Lug		20	\$105	\$105	\$105	\$118	\$118	-----	-----	-----	-----	-----	-----	-----
On-Frame Grounding (Cast Iron Motors)		20	-----	-----	\$145	\$158	\$158	\$239	\$239	\$239	\$334	\$334	\$334	\$334
Shaft Grounding Ring	Yes	20	\$177	\$177	\$177	\$204	\$204	\$292	\$292	\$403	\$531	\$553	\$776	\$776
Inverter Duty Motors:														
Variable Torque (R140)		25	-----	-----	\$278	\$278	\$278	\$278	\$278	\$278	\$278	\$278	\$278	\$278
Constant Torque (fan chg, t-stats, re-nameplate)		26	-----	-----	\$278	\$278	\$278	\$441	\$441	\$441	\$441	\$542	\$542	\$542
Constant Torque (R164, fan chg, re-nameplate)		43	-----	-----	\$230	\$230	\$230	\$263	\$263	\$263	\$296	\$329	\$329	\$329
Leads:														
Reconnect Leads (Non-Explosion Proof)		9	\$168	\$168	\$168	\$249	\$249	\$439	\$439	\$439	\$575	\$575	\$575	\$575
Reconnect Leads (Explosion Proof)		40	\$271	\$271	\$271	\$417	\$417	\$562	\$562	\$562	\$709	\$709	\$709	\$709
Remark Leads		33	\$176	\$176	\$176	\$176	\$176	\$176	\$176	\$176	\$176	\$176	\$176	\$176
Longer Leads - Up to 24"		0	\$138	\$138	\$138	\$207	\$207	\$362	\$362	\$362	\$507	\$507	\$507	\$507
Mounting/ Assembly: (Ex. F1 to F2):														
Non-Explosion Proof		1	-----	-----	\$209	\$209	\$209	\$278	\$278	\$278	\$347	\$347	\$347	\$347
Explosion Proof		39	-----	-----	\$487	\$487	\$487	\$555	\$555	\$555	\$626	\$626	\$626	\$626
Adjustable Motor Bases	Yes	39	-----	-----	\$143	\$143	\$143	\$143	\$143	\$143	\$143	\$143	\$143	\$143
Transition Motor Bases	Yes	39	-----	-----	\$143	\$143	\$143	\$143	\$143	\$143	\$143	\$143	\$143	\$143
Nameplates / Markings:														
Additional Data on Nameplate		7	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114
CE Marking		7	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114
Private Label		7	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114
Rotation Arrow		7	\$114	\$114	\$114	\$114	\$114	-----	-----	-----	-----	-----	-----	-----
Stainless Steel Nameplate		7	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114
Separate Nameplate for Customer Data		7	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114
Packaging:														
Heat Treated Pallets		29	\$50	\$50	\$50	\$50	\$125	\$125	\$250	\$250	\$250	\$250	\$250	\$250
Paint:														
Repaint to a Marathon Stock Color		8	\$211	\$211	\$211	\$211	\$211	\$263	\$263	\$263	\$461	\$461	\$461	\$592
Screens:														
Rodent Screens		0	-----	-----	-----	-----	-----	-----	-----	-----	\$661	\$661	\$661	\$661
Service Factor:														
AC Motor Service Factor Re-Rating		7	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114	\$114
Severe Duty Construction:														
Cast Iron Fan Cover and Conduit Box	Yes	16	-----	-----	\$147	\$181	\$200	\$225	\$225	\$225	\$273	\$273	\$273	-----
Shaft Modifications:														
Drill & Tap Hole		42	-----	\$174	\$174	\$197	\$257	\$316	\$316	\$458	\$507	\$572	\$724	\$724
TS Shaft		42	-----	-----	-----	-----	-----	-----	\$1,579	\$1,579	\$1,711	\$1,911	\$1,911	\$1,911
Mill Flat on Shaft		0	-----	\$174	\$174	\$197	-----	-----	-----	-----	-----	-----	-----	-----
Steps on Shaft		0	-----	-----	\$217	\$289	\$289	\$362	\$434	\$507	\$579	\$651	\$724	\$796
Space Heaters:														
Non Explosion Proof		12	\$278	\$278	\$278	\$400	\$400	\$471	\$471	\$471	\$661	\$661	\$661	\$661
Explosion Proof		41	-----	\$417	\$417	\$525	\$525	\$661	\$661	\$661	\$800	\$800	\$800	\$800
Terminal Blocks:														
Terminal Block	Yes	0	-----	-----	-----	\$294	\$294	\$351	\$351	\$351	\$358	\$358	\$437	\$437
Thermal Protection:														
Thermostats (Non Explosion Proof)		14	-----	\$278	\$278	\$278	\$278	\$278	\$278	\$278	\$278	\$278	\$278	\$278
Thermostats (Explosion Proof Motors)		14	-----	\$556	\$556	\$556	\$556	\$556	\$556	\$556	\$556	\$556	\$556	\$556
Thermistors (Non Explosion Proof motors)		14	-----	-----	\$522	\$522	\$522	\$522	\$522	\$522	\$522	\$522	\$522	\$522
Thermistors (Explosion Proof motors)		14	-----	-----	\$1,053	\$1,053	\$1,053	\$1,053	\$1,053	\$1,053	\$1,053	\$1,053	\$1,053	\$1,053
Thermistors (including Control Module)		14	-----	-----	\$1,391	\$1,391	\$1,391	\$1,391	\$1,391	\$1,391	\$1,391	\$1,391	\$1,391	\$1,391
Thermocouples - Winding or Bearing (Non XP)		0	-----	-----	\$305	\$305	\$305	\$399	\$399	\$399	\$575	\$575	\$575	\$575
Weatherproofing / Special Service:														
Tropical Anti- Fungus Treatment		5	\$242	\$242	\$242	\$242	\$242	\$313	\$313	\$313	\$382	\$382	\$382	\$382
Division 2 Hazardous (CSA Certified)		49	-----	-----	\$114	\$339	\$339	\$441	\$441	\$441	\$224	\$224	\$224	\$224
Other Modifications:		0	CONSULT FACTORY											

MODIFICATIONS THROUGH MOD CENTRAL

IEC Motors

DESCRIPTION	KIT REQ'D	LIST PRICE												
		MOD #	63	71	80	90	100	112	132	160	180	200	225	250
Brackets														
FF Flange (B5)	Yes	55	\$158	\$162	\$170	\$179	\$200	\$221	\$221	\$221	\$221	\$221	\$221	\$221
FT Flange (B14)	Yes	55	\$158	\$162	\$170	\$179	\$200	\$221	\$221	\$221	\$221	-----	-----	-----
Space Heaters:		12	-----	-----	-----	-----	\$405	\$502	\$502	\$554	\$554	\$554	\$639	\$693
Packaging:														
Heat Treated Pallets		29	\$95	\$95	\$95	\$95	\$250	\$250	\$250	\$325	\$325	\$325	\$325	\$325
Other Modifications:		0	CONSULT FACTORY											

MOD CENTRAL - Motor Modifications

Altitude/Ambient - MOD7 (Mult. Symbol S4)

The rating of standard motors assumes operation at sea level. Listed motors are suitable for operation at altitudes up to 3,300 feet in a maximum ambient temperature of 40°C. The ambient temperature is the temperature of the cooling medium surrounding the motor. All standard motors are suitable for operation over the range of -15°C to 40°C ambient per NEMA MG-1.

AC Motor Altitude or Ambient Re-Rating Re-rating of a non-explosion proof motor can be done by evaluating the performance data and possibly changing the Service Factor. Contact Marathon Motors for motor capabilities prior to motor selection and modification.

Bearings - MOD18 (Mult. Symbol S4)

Most standard motors use anti-friction deep groove Conrad type ball bearing, sized for the loads to be expected in industrial applications. Roller bearings are used on the drive end to handle heavy or overhung (radial) shaft loads.

Ball to Roller Bearing

Roller bearings have the capability to handle higher radial loads than ball bearings, but must have minimum radial loads to operate correctly. Roller bearings must only be used on belted loads. They are not suitable for direct-coupled loads. (Marathon Motors recommends that belting data is reviewed by Engineering prior to converting any motor to roller bearing.) This option includes replacing only the standard drive end bearing with a roller bearing and locking the opposite bearing axially. Available on TEFC Blue Chip® and Blue Chip®XRI® motors. Lead-time is 3 days.

Roller to Ball Bearing

Larger horsepower motors are stocked standard with a roller bearing on the drive end. For direct-coupled applications, a ball bearing must be installed on the drive-end. Lead-time is 2 days.

Sealed Bearing

This modification provides the option of replacing the standard bearings in AC motors with sealed bearings and replacing the grease fittings with plugs. May not be suitable for belted applications. 250 - 449 frame, 3600RPM, no sealed bearing option. 250 - 445, 1800RPM and below, non contact sealed only. 48 - 215, All RPM's are available for sealed bearings. Consult Marathon Motors for full application details. Call for lead-time.

Insulated Bearing

Insulated bearings are used to reduce the transmission of shaft currents. In accordance with NEMA MG1-31.4.4.3, both bearings must be insulated to protect inverter-driven motors from inverter-sourced shaft voltages. The connected load must also be insulated from the motor shaft to prevent damage to it's bearings. Per UL, insulated bearings may **not** be installed in Division 1 or Division 2 hazardous locations. Division 2 will be removed from XRI®-Severe Duty and IEEE 841 motors when this modification is performed. Call for lead-time.

Blowers - MOD19 (Mult. Symbol S4)

Low rotational speeds, common in many vector drive applications, cause additional heat within the motor. As a result, these motors are designed as TENV or TEBC. Marathon Motors offers two types of blower units, depending upon the application requirements. The axial blower is available on Marathon's XRI® and XRI®-Severe Duty.

Axial Blower

Most TEBC requirements are satisfied with Marathon's axial blower. The blower motor and fan are in the same (horizontal) plane as the motor drive shaft. Lead-time is 3 days.

C-Face Brackets - MOD2 (Mult. Symbol S4)

The addition of a C-Face kit to a standard foot mount (rigid base) motor, results in a non-NEMA "BA" dimension in 143-256 Frames due to NEMA's establishment of two distinct "BA" dimensions for each of the affected frame sizes: one for rigid base motors and another for C-Face/rigid base motors. No motor manufacturer can meet both prescribed dimensions on reworked motors. The following table identifies the "BA" dimensions (defined as the distance from the center of the front foot hole to the shaft shoulder) for 143T-256T and TC frames:

* C-Face Kit (rework) "BA" dimension is identical to foot mount "BA."

NEMA FRAME	FOOT MOUNT*	C-FACE
143T-145T	2.38"	2.75"
182T-184T	2.75"	3.50"
213T-215T	3.50"	4.25"
254T-256T	4.25"	4.75"

D-Flange Brackets - MOD17

(Mult. Symbol S4)

Add a D-Flange Kit to rigid base, cast iron motor. Available on Blue Chip 254T-365T and Dripproof 284T-286T ("TTDP" and "TTDC" designs). Addition of D-Flange Kit results in non-NEMA 'BA' dimension or 254T-256T. Lead time is 2 days.

IEC Brackets - MOD55 (Mult. Symbol S4)

B14 FT Flange (IEC C-Face)

IEC mounting arrangement with the motor flange at the drive end similar to a NEMA C-Face motor. Modification includes motor disassembly and installation of a FT Flange to a Globetrotter® motor. Lead-time is 2 days.

B5 FF Flange (IEC D-Flange)

IEC mounting arrangement with the motor flange at the drive end similar to a D-Flange. Modification includes motor disassembly and installation of a FF Flange to Globetrotter® motor. Lead-time is 2 days.

Brake Motors - MOD3 (Mult. Symbol S4)

Spring-set, electrically released mechanical disc brakes are available for stopping and/or holding the load. Marathon's brakes are suitable for any angle mounting. Price of modification includes brake kit and installation.

MOD CENTRAL - Motor Modifications

MOTOR HP	BRAKEMOTOR SHAFT R.P.M.		
	Lb-Ft @3600	Lb-Ft @1800	Lb-Ft @1200
1/4	---	---	3
1/3	---	3	3
1/2	3	3	3
3/4	3	6	6
1	3	6	6
1 1/2	6	10	10
2	6	10	---

Brake Selection Chart

** For normal (140%) torque rating, do not apply on motors larger than 2 HP. Reduced braking torque and /or longer stopping times can result from applying an undersized brake on higher HP motors.

Brake Addition - TEFC

This modification includes the addition of a 3,6, or 10 Lb-Ft brake to single or three phase, TEFC, 56 (5000 series model numbers) and 143/145T Frame motors. Operating voltages are 115/208-230, 208-230/460, and 575 volts. Lead-time is 3 days.

Brake Addition - Inverter Duty

This modification includes the addition of a 6 or 10 Lb-Ft brake to Marathon Motors's Black Max® or Blue Max® Vector Duty motors. Operating voltages are 115/208-230, 208-230/460, or 575 volts. Lead-time is 3 days.

Brake Coil Voltage (Stearns only)

Brake coil changes allow for operation of brakes at various voltages on 50 or 60 Hertz AC power supplies. Available coil voltages at 50 HZ are 110, 220, 415, and 110/220 volts. Coil voltages at 60 HZ are 115, 200, 575, and 200/400 volts. Coil voltages at 60/50 HZ are 230/190, 460/380, and 208-230/460-190/380 volts. External brake coil lead connections will be brought out from the brake. Specify brake lead location, brake coil voltage, and supply frequency at time of order. Lead-time is 10 days.

MOD NUMBER	BRAKE RATING	BRAKE SERIES	LIST PRICE PER MOTOR
MOD3X	3 Ft/Lb	56,000	\$410
	6 Ft/Lb		
	10 Ft/Lb		
	15 Ft/Lb		
MOD3Y	25 Ft/Lb	87,000	\$510
	35 Ft/Lb		
	50 Ft/Lb		
	75 Ft/Lb		
	105 Ft/Lb		

Vertical Modification Kit (Stearns 87,000 series)

Includes required hardware to accommodate vertical above (shaft down) or vertical below (shaft up) mounting.

TORQUE RATING (Lb/Ft)	MOUNTING	
	SHAFT UP	SHAFT DOWN
25,35	Not req'd	Required
50,75,105	Required	Required

Conduit Box - MOD56 (Mult. Symbol S4)

Standard conduit box construction is based on the individual product description, e.g. severe duty motors always have a cast iron conduit box, while some standard duty motors come with stamped steel and others cast iron. Conduit boxes meet or exceed NEC 430.12 requirements for volume.

Termination of protective or monitoring devices can be provided in a separate auxiliary conduit box or conduit. Auxiliary conduit boxes are not available on explosion proof motors.

Rotate Conduit Box Lead Opening

Standard motors have lead opening facing down toward motor base. Modifications include rotating the conduit box so the lead opening is facing the desired direction. Specify lead opening location facing conduit box. Available on non-explosion proof motors. Lead-time is 2 days.

Convert to Cast Iron

Replacement of steel conduit box with a cast iron conduit box. This modification is available on non-explosion proof cast iron motors as Marathon's explosion proof integral stock motors come standard with a cast iron conduit box. Lead-time is 2 days.

Auxiliary Box (Condulet)

A condulet can be added to the main motor conduit box for routing of accessory leads. Available on ODP and TEFC (non-explosion proof) motors. Call for lead-time.

Connections - MOD0 (Mult. Symbol S4)

Motor connections consist of special cords, plugs, and switches added to a single phase motor.

Drains - MOD21 (Mult. Symbol S4)

Standard duty motors include a weep hole as standard, while severe duty and explosion proof motors include a brass drain/breather as standard. These are located in the drive end bracket at the lowest point.

Condensation Drain Holes

Additional drilled holes will be made in both end brackets of TEFC motors. Not available on explosion proof motors. Lead-time is 2 days.

Brass Drain & Breather

Combination self-draining and breather plugs are available on TEFC motors. Not available on explosion proof motors. Lead-time is 2 days.

Stainless Steel Drain & Breather

Combination self-draining and breather plugs are available on TEFC motors. Not available on explosion proof motors. Lead-time is 2 days.

Drip Covers - MOD4 (Mult. Symbol S4)

Drip covers can be furnished on standard motors for extra protection from dripping liquids and falling objects when the motor is mounted in the vertical shaft down position. These covers are recommended on all open dripproof and totally enclosed motors for vertical shaft down operation. These covers have no vertical lifting provisions provided.

MOD CENTRAL - Motor Modifications

Canopy Cover (ODP and TEFC Motors)

Modification includes installation of a sheet metal drip cover to the motor for vertical shaft down mounting. Available on rolled steel Dripproof motors through 256T frame and select TEFC motors. Lead-time is 2 days.

Encoders - MOD22, and MOD24

(Mult. Symbol E3)

These electrical devices sense rotor speed and direction providing feedback to a control device. An encoder is a feedback device that translates mechanical motion into an electrical signal. A cable is connected from the encoder to the variable frequency drive to provide this feedback. Various mechanical provisions on the motor are required to attach the encoder. These may include C-Face on the non-drive end of the motor and special shaft extension. Various resolutions are available. All encoders offered have quadrature signal with line driver output.

Encoders can be mounted on Black Max[®] and Blue Max[®] 2000 Vector Duty motors, TENV 56 through 286T Frame, TEBC construction in 284T through 449T Frame.

Stub Shaft - MOD42 (Mult. Symbol S4)

Add Stub Shaft to Fan Cooled XRI-SD, XRI-841 (182-449 Frames) to accommodate addition of encoder on opposite drive end of motor. Lead-time 2 days.

Fan - MOD43, and MOD44 (Mult. Symbol S4)

Marathon Motors's XRI[®] Severe Duty and IEEE841 motors have non-sparking fans made with, high-temperature, reinforced corrosion resistant plastic that is impervious to chemical attack and has been specially designed for motor applications. All motors utilize bi-directional cooling fans.

Oversized fan (Inverter Duty) -

See MOD43 Inverter Duty

Fan Removal - MOD44

TEFC to TEAO. Convert a motor from totally enclosed, fan cooled construction to totally enclosed, air-over by removing fan cover, fan, and cutting off the fan end shaft. The modified motor must be mounted in the air stream of the driven fan for cooling purposes. The customer is responsible for providing adequate airflow over the motor. Lead-time is 2 days.

Vane Axial Fan - MOD43

The modification can be done on rigid or C-Face mount, TEFC, TENV, EPFC, EPNV, or DP enclosures. Motors will be modified for Vane Axial fan applications. All motors will get an additional nameplate, and 42" extended leads. TEFC models will have the fan and fan guard removed and enclosure changed to TEAO. A minimum airstream velocity of 3000' per minute is required. Lead time is 4 days.

Frequency - MOD7 (Mult. Symbol S4)

Most motors commonly operate on 60 hertz (HZ) within North America. However, 50 hertz systems are common in other countries.

Frequency Re-Rate 60 HZ to 50 HZ

Marathon Motors's standard motors rated at 60 HZ may be operated at 50 HZ at reduced voltage and horsepower or Service Factor. A label containing specific re-rating information will be attached to the motor. Frame size is subject to change. Lead-time is 1 day.

Grease/Fittings - MOD0, MOD15

(Mult. Symbol S4)

Standard grease is Exxon Polyrex[®] EM with a bearing operating temperature range of -30° to +150°C for ball and roller bearings. Devices for installing grease into the motors, such as zerk fittings, are available.

Grease Relief Fittings - MOD15

Install standard grease relief fitting on motor. Grease relief fittings serve as an outlet to equalize pressure in the motor. Not available on explosion proof motors. Lead-time is 2 days.

Zerk Fittings (Cast Iron Motors) - MOD15

Replace standard grease plugs on motors with zerk fittings. XRI[®] Severe Duty and IEEE841 motors come with zerk fittings as standard equipment. Not available on explosion proof motors. Lead-time is 2 days.

Low Temperature Grease - MOD0

Bearing grease may be changed to allow for a lower operation range. The motor bearings and end bells are purged and repacked with Beacon 325 grease or equivalent with a grease temperature range of -60°C to +120°C. Call for lead-time.

High Temperature Grease - MOD0

Bearing grease may be changed to allow for a higher operating range. The motor bearings and end bells are purged and repacked with Dow Corning DC44M grease or equivalent with a grease temperature range of -40° to +204°C. Call for lead-time.

Grounding - MOD20 (Mult. Symbol S4)

All motors 48 to 449T Frame have grounding provisions per NEMA and NEC Standards. Explosion proof motors are permitted to have a frame ground, but electrical ground in conduit box must also be connected.

Conduit Box Grounding Lug

Add clamp-type grounding lug in the conduit box. Lead-time is 2 days.

On-Frame Grounding (Cast Iron Motors)

Addition of drilled and tapped hole on conduit box side of frame with installation of grounding lug. Available on non-explosion proof cast iron ratings only. Lead-time is 2 days.

Shaft Grounding Ring

Shaft grounding rings are recommended (NEMA MG1 31.4.4.3) as an effective means of bearing protection for motors operated from inverter power. One ring is adequate to bleed down inverter-sourced shaft voltages, thereby protecting both bearings for motors as large as 5011 frame. May not be installed on motors used in Division 1 or Division 2 hazardous locations or motors with a modified shaft. Does not fit all motor types. Contact factory for lead-time.

Inverter Duty - MOD25, MOD26, and MOD43

(Mult. Symbol S4)

"Inverter Duty" describes a class of motors that are capable of operation from a variable frequency drive. Many Marathon general purpose motors are suitable for most variable torque and some limited constant torque applications.

These motors do not have provisions for mounting encoders, but are suitable for use with volts/hertz or open loop vector controls. As required under Federal law, these motors comply with EPA efficiency requirements when operating from utility power.

MOD CENTRAL - Motor Modifications

INV. DUTY (LEADTIME 2 DAYS)

Mod #	Appl.	Mtr. Type	Mod
25	Variable Torque	Any	Add thermostats, re-nameplate
26	10:1 CT	EPAct TEFC	Oversized fan, Add thermostats, re-nameplate
	20:1 CT	NEMA Premium® TEFC	
43	10:1 CT	EPAct TEFC	Oversized fan, re-nameplate
	20:1 CT	NEMA Premium® TEFC	

Operation of motor on VFD exempts motor from E pact mandated efficiency levels.

Leads - MOD0, MOD9, and MOD33, (Mult. Symbol S4)

All motors are provided with standard leads of ample length for easy connection in the conduit box to the power leads. Lead size and material are dependent upon the class of insulation system in the motor and the current capacity required.

Reconnection - MOD9

Reconnect dual voltage 9-lead or 12-lead motors to a 3-lead single voltage. Connection is made inside the motor frame. Specify desired voltage when ordering. On single phase motors, specify rotation. Lead-time is 2 days.

*Part Winding Start and Star-delta connections are excluded.

Remark Leads - MOD33

Using cloth markers, remark leads with numbers or letters. Please specify markings. Lead-time is 2 days.

Longer Leads - MOD0

Extend leads up to two feet longer than standard by splicing. Splice will be visible in conduit box. Not available on explosion proof motors. Lead-time is 2 days.

Mounting/Assembly - MOD1, and MOD39 (Mult. Symbol S4)

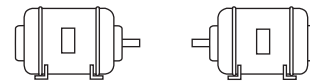
Motors listed are horizontal, foot mounted. Many stock motors can be furnished in assembly positions as illustrated. Modification may include repositioning of vents, baffles, drains, and conduit box. Also end brackets are assembled and grease fittings are properly installed for operation with the motor in the position shown. No attempt is made to locate fittings on any particular side of the motor. Horizontal ball bearing motor assemblies W5, W6, W7, and W8 are not suitable for external thrusts in excess of rotor weight and half-coupling. Cast Iron ODP and TEFC, 360 and larger, are not suitable for vertical operation. Consult Engineering for TEFC Build Up. Lead-time is 2 days.

Convert to Floor, Ceiling, or Wall Mount - MOD1

Convert standard F1 mount to F2, W1, W2, W3, W4, W5, W6, W7, W8, C1, or C2 mount. The mounting symbol is required when ordering to indicate the proper mounting. Lead-time is 2 days.

Example: Motor will be modified F1 to wall mounting W3.

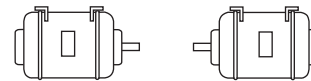
FLOOR MOUNTING ASSEMBLIES



F-1

F-2

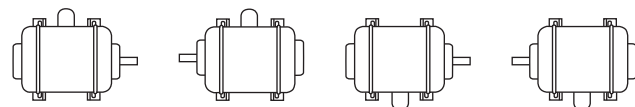
CEILING MOUNTING ASSEMBLIES



C-1

C-2

WALL MOUNTING ASSEMBLIES

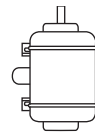


W-1

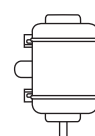
W-2

W-3

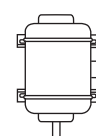
W-4



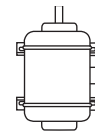
W-5



W-6



W-7



W-8

Adjustable Motor Bases - MOD39

Adjustable bases are a convenient means for adjusting belt tension or may be used as mounting plates. Adjustable motor bases are bolted to fixed base of motor prior to shipping. NEMA 215T and smaller bases feature one adjusting screw. Bases on NEMA 254T and larger feature two adjusting screws. Bases are not suitable for vertical mounting. Lead-time is 2 days.

Nameplates / Markings - MOD7 (Mult. Symbol S4)

Nameplate material is mylar or stainless steel depending on motor design and enclosure.

Additional Data on Nameplate

Motors can be re-nameplated for alternate ratings. Changes in horsepower, altitude, ambient, voltage, frequency, etc. Lead-time is 1 day.

CE Mark

CE compliant mark can be provided for all non explosion proof NEMA frame motors. Many stock motors already contain the CE mark. Lead-time is 2 days.

MOD CENTRAL - Motor Modifications

Rotation Arrow

All motors utilize bi-directional cooling fans. Specify rotation facing shaft extension on order entry form. Available on Single Phase only. Lead-time is 1 day.

Stainless Steel Nameplate

Replace existing mylar nameplate with 304 stainless steel nameplate. Lead-time is 1 day.

Separate Nameplate for Customer Data

A separate customer nameplate can be furnished. Information contained must be submitted at time of order. These additional nameplates cannot be supplied with CSA or UL Listings unless installed to motor in a Marathon Motors facility.

Lead-time is 2 days.

Packaging - MOD29 (Mult. Symbol S4)

Heat Treated Pallets

ISPM-15 requires the use of heat-treated wooden packaging materials when shipping into all foreign countries (a temporary exemption exists for Canada). Modification includes replacement of wooden pallet with heat-treated pallet. Does not include export crating for ocean freight (contact factory for export packaging cost).

Paint - MOD8 (Mult. Symbol S4)

The standard paint finish is a two-coat paint system. The first coat is a rust-inhibitive primer applied to protect the castings during storage and manufacturing. The second coat is a powder coat on 48-140 frame, enamel on non-severe duty motors, or a 2-part epoxy on severe duty 180-5000 frame motors.

Special paints and color options are available if compatible and reviewed by application engineering. Paint chips and material safety data sheets are required.

Repaint to a Marathon Stock Color

Repaint motor to another Marathon Motors stock paint color. Colors include: Marathon Motors Blue Chip® blue, PowerWash™ white, farm duty black, Fire Pump red, light gray, or dark gray. Specify color on order. Leadtime on enamel paint is 2 days. Epoxy paint requires a 3 day lead-time.

Screens - MOD0 (Mult. Symbol S4)

Corrosion resistant screens can be furnished over the air intake and discharge openings of cast iron dripproof motors. Dripproof motors equipped with these screens conform to the dripproof guarded definition appearing in NEMA MG-1, Part 1. Call for lead time.

Service Factor - MOD7 (Mult. Symbol S4)

A multiplier that may be applied to the rated horsepower of a motor, which indicates a permissible horsepower loading at rated voltage and frequency. Lead-time is 1 day.

AC Motor Service Factor Re-Rating

When a 1.15 Service Factor or higher is required, please refer to the list adder. Frame size is subject to change. Not available on explosion proof motors.

Lead-time is 1 day.

Severe Duty Construction - MOD16

(Mult. Symbol S4)

This modification starts with a Marathon Blue Chip® Totally Enclosed cast iron frame motor and reworks it to all cast iron construction. With additional enhancements, the motor is prepared for a severe or harsh industrial environment. (Domestic Built Product Only)

Remove polypropylene fan cover and sheet metal conduit box from the motor and replace with cast iron fan cover, threaded and gasketed conduit box, apply epoxy finish to motor exterior, and add brass drain and breather.

Lead-time is 2 days.

Shaft Modification - MOD0, and MOD42

(Mult. Symbol S4)

Motors are furnished with a single straight shaft with sled runner keyway and a rectangular key. For motors in frames 143T through 449T, a long shaft for V-Belt drive is supplied. 2-Pole motors in frames 324 through 449 and certain other 4-Pole ratings are furnished with short shafts for direct connections. Modifications are for existing shafts only. Not applicable if a new shaft is required.

Call for lead-time.

Drill & Tap Hole - MOD42

Drilled radially or in the end of the shaft. Drilled and tapped in the end of the shaft.

Lead-time is 3 days.

TS Shaft - MOD42

Convert "T" frame shaft to a "TS" Frame shaft. Modify motor by reducing the shaft, adding new keyway, and shortening the shaft length to the NEMA "TS" dimension.

Lead-time is 2 days.

Mill Flat on Shaft - MOD0

Mill a flat on the drive end shaft extension. Provide detail of flat with the order.

Lead-time is 2 days.

Steps on Shaft - MOD0

One to three reductions in shaft diameter. Customer to specify number of reductions at time of order.

Call for lead time.

MOD CENTRAL - Motor Modifications

Space Heaters - MOD12, and MOD41 (Mult. Symbol S4)

Space heaters are used to prevent the build-up of condensation on the windings of the motor when the motor is not operating. Space heaters are typically installed on the end-turns of the coils.

Space Heaters - ODP & TEFC - MOD12

Space heaters can be furnished on dripproof and totally enclosed motors. Heater leads are normally brought out to the motor conduit box. Heater voltage is available in three voltages for 60 Hz operation of 115, 230, or 460 volt, single-phase. Space heaters are sized per NEMA standards. Lead-time is 2 days.

Space Heaters - IEC Frames - MOD12

Space heaters can be furnished on IEC motors. Heater leads are normally brought out to the main terminal box. Heater voltage is available in two voltages for 50 Hz operation. Lead-time is 2 days.

Space Heaters - Explosion Proof - MOD41

Space heaters can be furnished on explosion proof motors. Heater leads are normally brought out to the motor conduit box. Heater voltage is available in three voltages for 60 Hz operation of 115, 230, or 460 volt, single-phase. Space heaters are sized per NEMA standards. Lead-time is 2 days.

Terminal Blocks - MOD0 (Mult. Symbol S4) Conduit box mounted terminal blocks provide for a convenient termination of power leads. The terminal blocks are sized for the proper amperage and voltage of the motor. The Globetrotter® IEC motor has IEC terminal blocks as standard.

Terminal Block

Install terminal blocks in conduit box of NEMA motor with lead connection. Customer to advise on lead connection. Call for lead-time. Contact factory to verify capability.

Thermal Protection - MOD0, and MOD14 (Mult. Symbol S4)

Thermal protection are built in protective devices that prevent motor overheating. They work either by interrupting the power supply when the motor overheats or by incorporating a pilot device that opens the holding circuit of a magnetic starter or energizes an alarm bell or warning light.

Thermostats - All Motors - MOD14

Thermostats are mounted on the stator winding and are temperature-sensing only, with normally closed snap action contacts. These devices are installed on the end-turns of the motor winding. Their purpose is to activate a warning device or shut down the motor upon excessive winding temperatures. The standard arrangement is the addition of 2 or 3 thermostats to the winding end-turns, connected in series with the leads brought out to the main motor conduit box. Class I Groups C & D / Class II Groups F & G Explosion Proof motors have hermetically sealed thermostats as standard. Lead-time is 2 days.

Thermistors - All Motors - MOD14

Thermistors are small, non-linear resistance devices placed on the stator windings. As the critical temperature is reached, the resistance of the thermistor changes radically, causing operation of a control relay. The standard arrangement is Q-3 positive temperature coefficient (PTC) type on winding end-turns with leads brought out to the main motor conduit box. On IEC motors the leads are brought into a conduit adjacent to the main conduit box and includes a terminal block. As standard, 3 Texas Instrument thermistors are furnished, one per phase. Control Module is available. Lead-time is 2 days.

Thermocouples - Non XP Motors - MOD0

Thermocouples sense temperature and offer inherent protection against abnormal stall and running conditions. The standard arrangement is the addition of an iron constantan thermocouple to the winding end turns or bearing housing with leads brought out to the main motor conduit box. Customer must specify number, type, and location at time of order. Lead-time is 2 days.

Weatherproofing/Special Service MOD5, and MOD49 (Mult. Symbol S4)

Weatherproofing or special service provides additional protection to windings and mechanical parts as well as special greases or modifications per industry specifications such as NEMA, or IEEE. Call for lead-time.

Tropical Anti-Fungus Treatment - MOD5

Windings and mechanical parts coated with polyurethane for superior protection to resist tropical environments. Not available on brake motors. Lead-time is 2 days.

Hazardous Duty™ Service Division 2 Hazardous Motors - MOD49

The Division 2 hazardous modification incorporates a new fan, fan guard, and nameplate on most TEFC motors. XRI®-SD and IEEE841 motors have Division 2 statement on the nameplate as standard. The nameplate will say "CSA Certified, Group I, Division 2, Groups A, B, C, and D, Temperature Code. (See chart below) Call for lead-time.

NEMA FRAME	SERVICE FACTOR	POWER SUPPLY	FREQUENCY RANGE	TEMP CODE
56-449T	1.0	SineWave	50-60Hz	T3
56-449T	1.0	PWM	3-120Hz	T2D
56-449T	1.15	SineWave	60Hz	T2B