

# FACTORY MODIFICATION PRICING

Effective 08-01-06  
Supersedes 08-22-05

## MODIFICATION LEAD TIME

1. TWMC standard lead time for all modifications is 5-10 working days. If quicker lead time is required, please contact TWMC. Expediting fees may apply.
2. Modification lead time does not include transit time.
3. Lead time is based upon availability of parts.

MOD. NUMBER	DESCRIPTION	LIST PRICE									
		56-180T	210T	250T	280T	320T	360T	400T	440T	5000	5800-6800
M1	Nameplate Change	82	82	82	82	82	82	82	82	82	82
M1A	Additional Nameplate	110	110	110	110	110	110	110	110	110	110
M2	Space Heater	320	320	386	421	475	475	530	650	1,320	1,500
M2A	Space Heater with Aux. Box	694	694	785	846	906	966	1,026	1,147	1,666	1,850
M2X	Space Heater "Explosion Proof"	483	483	604	725	846	846	966	1,208	N/A	N/A
M2XA	Space Heater "Explosion Proof" with Aux. Box	936	936	1,087	1,208	1,327	1,389	1,510	1,751	N/A	N/A
M3C <sup>(1)</sup>	Installation of C-Face	260	333	405	586	713	906	1,277	1,812	4,831	5,435
M3C841 <sup>(1)</sup>	C-Face with INPRO™ SEAL (MAX-E2/841™ only)	531	755	9,096	1,208	1,510	1,691	2,054	2,054	N/A	N/A
M3D <sup>(1)</sup>	Installation of D-Flange	260	333	405	586	713	906	1,277	1,812	4,831	5,435
M3D841 <sup>(1)</sup>	D-Flange with INPRO™ SEAL (MAX-E2/841™ only)	531	755	9,096	1,208	1,510	1,691	2,054	2,054	N/A	N/A
M4	Winding RTDs, 100 Ohm Platinum	700	800	850	850	966	966	1,100	1,100	1,400	1,400
M4A	Winding RTDs with Aux. Box	1,100	1,200	1,208	1,208	1,450	1,510	1,510	1,510	1,933	1,993
M5	Thermistors	483	725	725	725	966	966	966	966	1,208	1,208
M5A	Thermistors with Aux. Box	1,100	1,200	1,208	1,208	1,450	1,510	1,510	1,510	1,933	1,993
M6	Thermostats	242	362	362	362	483	510	580	580	604	604
M6A	Thermostats with Aux. Box	694	815	846	846	966	1,026	1,026	1,026	1,329	1,389
M7 <sup>(2)</sup>	Bearing RTDs	N/A	N/A	N/A	N/A	N/A	N/A	1,300	1,300	1,300	1,300
M8 <sup>(2)</sup>	Bearings Covert to Roller / Ball	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2,975	4,400	4,800
M8A	Convert to Insulated or Ceramic Bearings	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE
M9	Change Rotation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2,240	2,240
M9A	Change to Non-Sparking Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1,450	2,240	2,240
M9B	Change to Low Noise Fan / Fan Cover	N/A	N/A	N/A	N/A	N/A	N/A	N/A	QUOTE	QUOTE	QUOTE
M10	Short Shaft	1,087	1,087	1,087	1,087	1,208	1,329	1,450	1,691	2,658	2,658

### Notes:

- (1) Price includes the flange.
- (2) Price is per bearing.
- (3) Not required for MAX-E2™ or MAX-E2/841™.
- (4) For frames 140T through 400T, please use MAX-E2/841™ motor.

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		56-180T	210T	250T	280T	320T	360T	400T	440T	5000	5800-6800
M11	F1 to F2 Mounting Conversion	182	228	326	326	326	435	435	510	8,213	8,213
M11A	Oversized Main Conduit Box	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4,000	4,000	4,000
M11B	Fully Loaded Main Conduit Box	N/A	N/A	N/A	N/A	N/A	N/A	N/A	25,000	25,000	25,000
M12	Stainless Steel Breather Drains	182	228	326	326	326	435	435	510	510	580
M13	Tropicalization / Fungus Protection	245	245	245	245	245	245	245	280	315	333
M14	Provisions for Vertical Jacking	N/A	N/A	N/A	N/A	N/A	N/A	1,026	1,026	Included	
M15	Grease	272	315	315	370	440	510	580	650	700	700
M16	Chico Motor Leads	182	228	326	326	326	435	475	475	580	580
M17 <sup>(3)</sup>	Epoxy Paint Finish	725	725	997	997	997	997	997	997	1,329	1,329
M18 <sup>(2)(4)</sup>	INPRO™ Seals	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2,600	2,600	2,600
M19	Grounding Provisions on Frame	121	121	121	121	121	121	121	Included		
M20	Drip Cover (TEFC)- Rolled Steel	300	350	500	833	1,050	1,200	1,900	N/A	N/A	N/A
M20A	Drip Cover (TEFC)- Cast Iron	495	667	798	966	1,256	1,462	2,265	N/A	N/A	N/A
M21	Extend Leads - Connections Behind Box	529+1/ft	529+1/ft	529+1/ft	529+3.25/ft	570+6.50/ft	570+12.70/ft	608+19/ft	608+23/ft	650+25/ft	690+41/ft
M21A	Extend Leads - Connections in Front of Box	375+1/ft	375+1/ft	375+1/ft	375+3.25/ft	420+6.50/ft	420+12.70/ft	450+19/ft	450+23/ft	490+25/ft	529+41/ft
M22 <sup>(2)</sup>	Shaft Grounding Ring	643	722	722	722	722	722	856	1,374	1,374	1,978
M23 <sup>(2)</sup>	Provision for Vibration Switch / Transmitter	176	255	255	255	255	255	255	333	333	333
M23A <sup>(2)</sup>	Furnish and Install Vibration Switch / Transmitter	2,980	3,059	3,059	3,059	3,059	3,059	3,059	3,059	3,059	3,059
M24	Mill Off Motor Feet	706	725	765	804	882	1,000	1,196	1,392	1,608	1,863
M25	Inline Blower for 1000:1 Speed Range	440	590	824	960	1,520	1,610	1,770	QUOTE	QUOTE	QUOTE
M26	Installation of Encoder	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE
M27	Installation of Brake	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE	QUOTE
M28	Lock Nut and Washer for Vertical Shaft Down	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2,941	2,941

### Notes:

- (1) Price includes the flange.
- (2) Price is per bearing.
- (3) Not required for MAX-E2™ or MAX-E2/841™.
- (4) For frames 140T through 400T, please use MAX-E2/841™ motor.

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## **M1. Nameplate Change:**

Add new nameplate displaying approved data changes such as new voltage and frequency, revised HP and service factor, higher or lower ambient temperature, etc.

## **M1A. Additional Nameplate:**

Add second data plate with customer part number, order number, or other data.

## **M2. Space Heater:**

Add wrap around space heaters with leads brought out to main terminal box. Standard voltage is 115V, however other voltages are available. Please specify voltage when ordering. All heaters are single phase.

## **M2A. Space Heater with Auxiliary Box:**

Same as M2, except an auxiliary terminal box is added to the side of the main terminal box and the space heater leads are brought out to the auxiliary terminal box.

## **M2X. Space Heater "Explosion Proof":**

Add wrap around space heaters with leads brought out to main terminal box. Standard voltage is 115V, however other voltages are available. Please specify voltage when ordering. All heaters are single phase. This applies only to TWMC's Explosion Proof line of motors.

## **M2XA. Space Heater "Explosion Proof" with Auxiliary Terminal Box:**

Same as M2 except an auxiliary terminal box is added to the side of the main terminal box and the space heater leads are brought out to the auxiliary terminal box. This applies only to TWMC's Explosion Proof line of motors.

## **M3C. Installation of C-Face:**

Remove drive-end bracket and replace with C-Face. Note: Modification price includes the C-Face.

## **M3C841. C-Face with INPRO™ Seals:**

Remove drive-end bracket and replace with C-Face and INPRO™ Seal. Note: Adder is only available with the MAX-E2/841™ motor line.

## **M3D. Installation of D-Flange:**

Remove drive-end bracket and replace with D-Flange. Note: Modification price includes the D-Flange.

## **M3D841. D-Flange with INPRO™ Seals:**

Remove drive-end bracket and replace with D-Flange and INPRO™ Seal. Note: Adder is only available with the MAX-E2/841™ motor line.

## **M4. Stator Winding RTDs:**

Provide 100 Ohm platinum resistant temperature detectors (RTDs), one per phase, on the winding end turns with leads brought out to main terminal box. Note TWMC's medium voltage line of products come standard with 100 Ohm platinum RTDs, two per phase.

## **M4A. Stator Winding RTDs with Auxiliary Box:**

Provide 100 Ohm platinum resistant temperature detectors (RTDs), one per phase, on the winding end turns with leads terminated in an auxiliary terminal box. Note that on motors 449T Frame and smaller, the auxiliary box will be located on the same side as the main terminal box. On 5000 frames and larger, the auxiliary box will be located on the F2 side, or on the opposite side as the main terminal box.

## **M5. Thermistors:**

Provide (3) PTC thermistors (140°C) on winding end turns with leads brought out to main terminal box. Note: these are STANDARD on the Metric motors with frames 160L and larger.

## **M5A. Thermistors with Auxiliary Box:**

Provide (3) PTC thermistors (140°C) on winding end turns with leads brought out to an auxiliary terminal box. The auxiliary box will be located of the main terminal box.

## **M6. Thermostats:**

Addition of (3) normally closed thermostats (140°C) to the winding end turns, connected in series with the leads brought out to main terminal box. This is standard on Explosion Proof Motors.

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## **M6A. Thermostats with Auxiliary Box:**

Addition of (3) normally closed thermostats (140°C) to the winding end turns, connected in series with the leads brought out to an auxiliary terminal box. The auxiliary box will be located off the side of the main terminal box.

## **M7. Bearing RTDs:**

Add 100 Ohm platinum bearing resistance temperature detectors; one per bearing. Specify if alternate type is required.

## **M8A. Convert to Insulated or Ceramic Bearings:**

Replace existing bearing(s) with either ceramic ball bearings or ceramic coated bearings. This would be to reduce / eliminate shaft currents.

## **M8. Convert Bearings (Roller / Ball):**

Convert from Roller Bearings to Ball Bearings or Ball Bearings to Roller Bearings. The Roller to Ball conversion requires some machining on bearing caps to allow for thermal growth.

## **M9A. Change to Non-Sparking Fan:**

Replace existing fan with a non-sparking fan. This is for motors that will be located in Class I, Division II environments.

## **M9. Change Rotation:**

This modification only applies to 2 pole (3600/3000 RPM) motors in 5000 frames and larger. Standard direction of rotation is counter clockwise, facing the drive-end of the motor. This modification will change either the internal or external fans for operation in the clockwise direction, facing the drive-end.

## **M10. Shorten Shaft:**

Machine shaft to TS dimensions per NEMA MG 1. Any other short shaft requirements will have to be approved by TWMC. Note, this does not include new bearings.

## **M11A. Supply Oversized Main Conduit Box:**

Replace existing conduit box with an oversized main conduit box. This would be done when TWMC standard box does not meet customer's requirement.

## **M11B. Supply Fully Loaded Main Conduit Box:**

Replace existing medium voltage main conduit box with a fully loaded box. The box will be TWMC standard size and will contain TWMC standard lightning arrestors, surge capacitors, and current transformers (50:5). Box is not self supporting and will require the customer to support.

## **M11. F1 to F2 Mounting Converters:**

Convert terminal box location from standard F1 to F2, or F2 to F1, depending on the product line. On medium voltage motors, the auxiliary terminal boxes will be on the opposite side as the main terminal box as standard. If the requirement is to have all terminal boxes on either the F1 side or the F2 side, please specify in the purchase order.

## **M12. Stainless Steel Breather Drains:**

Drill and tap the existing drain holes to accommodate a Crouse-Hinds stainless steel breather drain. Note, this is standard on MAX-E2™, MAX-E2/841™, and Explosion Proof motors.

## **M13. Tropicalization / Fungus Protection:**

Involves disassembling the motor and spraying the internal windings.

## **M14. Provisions for Vertical Jack Screws :**

Drill and tap (2) holes per motor.

## **M15. Alternate Grease:**

Purge and repack lubricant in end brackets to specified grease (e.g., a higher or lower temperature grease). Please specify type of grease with your purchase order.

## **M16. Chico Motors Leads:**

Apply a compound between terminal box and frame of motor. This feature is standard for Explosion Proof motors.

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## **M17. Epoxy Paint Finish:**

Standard paint finish will be changed to Epoxy paint like (e.g. MAX-E2™ Epoxy Paint (Blue)).

## **M18. Shaft INPRO™ Seals:**

Add INPRO™ seals to drive-end only of MAX-E2 /841™ motors 140T ~ 449T / TS frames. This modification is only available for frames 440T and larger. The price reflects drive-end only.

## **M19. Grounding Provisions on Frame:**

Drill and tap the motor frame. This is standard on MAX-E2™, MAX-E2/841™, and Oil Well Pump motors. All motors have a grounding lug inside the main terminal box as a standard.

## **M20. Drip Cover Rolled Steel:**

Replace the existing fan cover with a rolled steel drip cover. This is only for motors mounted vertically.

## **M20A. Drip Cover Cast Iron:**

Replace the existing fan cover with a cast iron drip cover. This is only for motors mounted vertically.

## **M21A. Extend Leads – Connection Behind Conduit Box:**

Extend existing leads to the length specified by customer. The splice will be made behind the conduit box so it is not seen.

## **M21B. Extend Leads – Connection in Conduit Box:**

Extend existing leads to the length specified by customer. The splice will be made in the conduit box.

## **M22. Supply Shaft Grounding Ring:**

Install AEGIS shaft grounding ring as made by ELECTRO STATIC TECHNOLOGY. This would be to reduce / eliminate shaft currents. For other methods of shaft grounding, please contact TWMC.

## **M23. Provisions for Vibration Sensor:**

Drill, tap, and machine end bracket(s) to accommodate vibration sensor. Customer is required to submit specifications of vibration sensor. Price is per bracket.

## **M23A. Provide and Install Vibration Switch:**

Drill, tap, and machine end bracket(s) to accommodate vibration sensor. TWMC standard switch will be provided as made by METRIX, ROBERTSHAW, PREDICTECH, or STI. For details or pricing to provide another brand, please contact TWMC. Price is per bracket.

## **M24. Mill Motor Feet Off:**

TWMC will cut off the feet of a footed motor to create round body type motor.

## **M25. Inline Blower for 1000:1 Speed Range:**

Remove existing fan and fan cover and replace with TWMC standard inline blower / fan cover configuration. Blower motor will require separate power source.

## **M26. Installation of Encoder:**

Please contact TWMC for pricing and delivery.

## **M27. Installation of Brake:**

Please contact TWMC for pricing and delivery.

## **M28. Lock Nut and Washer for Vertical Shaft Down Mounting**