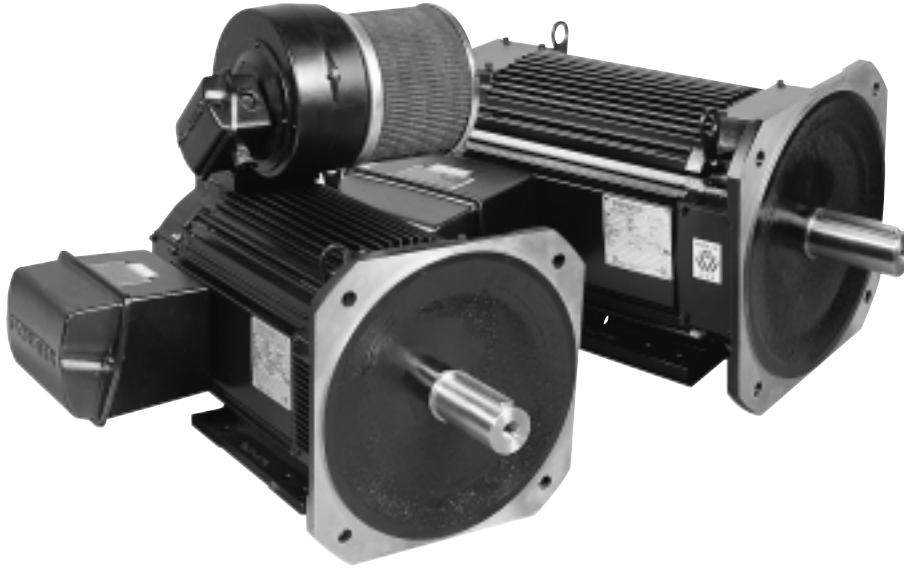
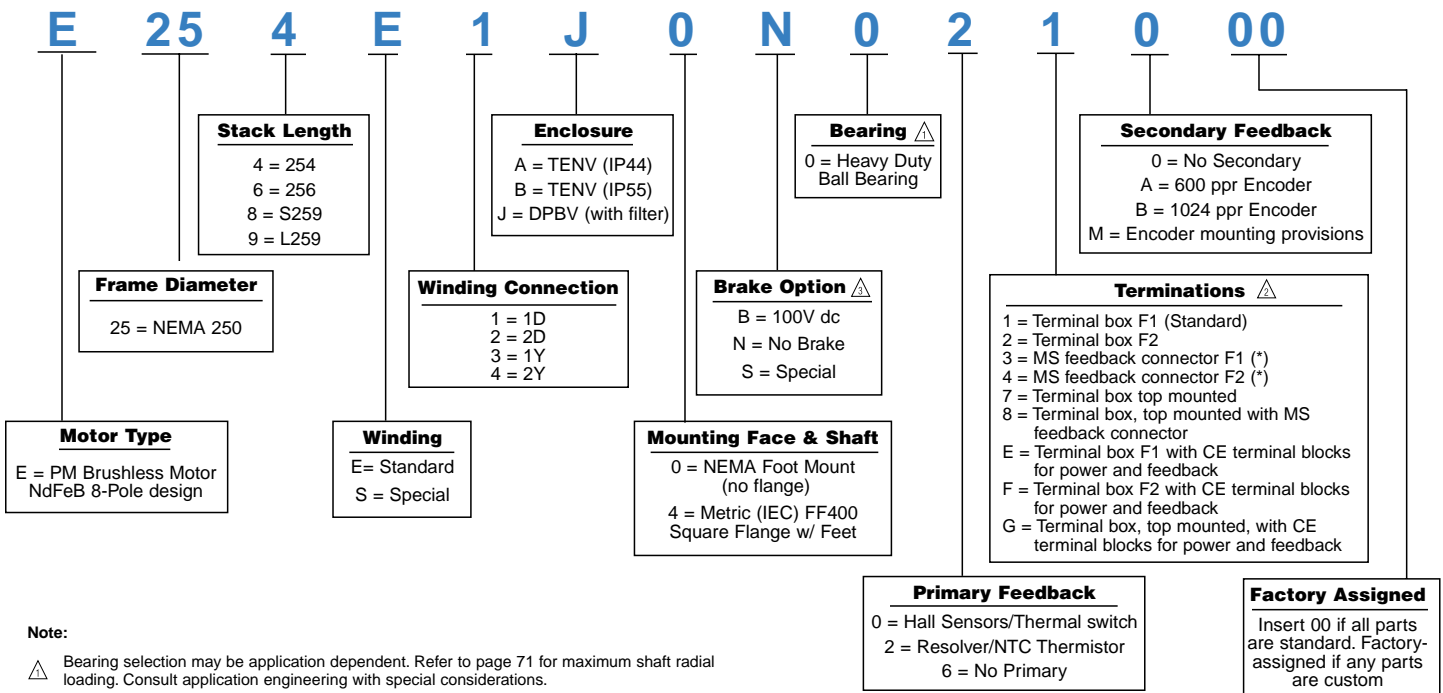


E250 DIAMETER FRAMES



MODEL NUMBER CODE...E250 FRAME

To construct a motor listing, select the combination of features required, and put all the coded information in the proper sequence. Please account for all the entries. The model number shown is an example of a properly specified motor.

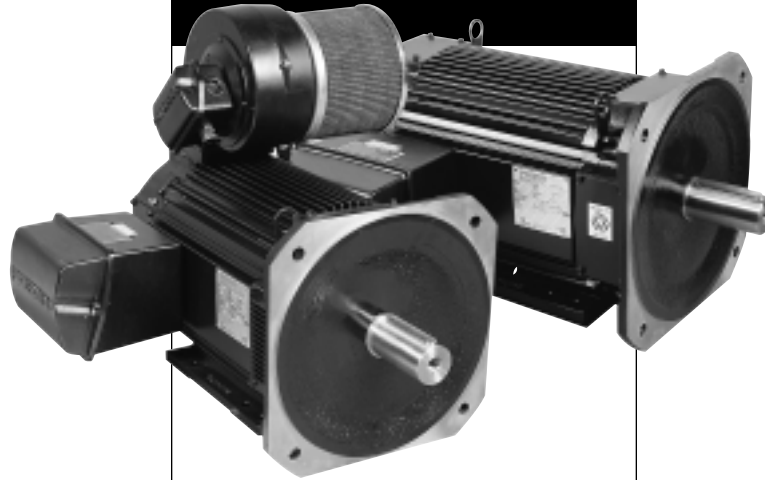


Note:

- ⚠ Bearing selection may be application dependent. Refer to page 71 for maximum shaft radial loading. Consult application engineering with special considerations.
- ⚠ Terminal box, top option not available with DPBV motor enclosures.
- ⚠ See page 68 for a detailed list of special options.

(*) 3,4,8: Terminal block mounted in terminal box for motor power and MS connector for feedback.

E250 DIAMETER FRAMES



RATINGS AND CHARACTERISTICS

Motor parameters and winding data

ENGLISH

METRIC

Parameters, DPBV & TENV	Symbol	Units	E254	E256	E258	E259	Symbol	Units	E254	E256	E258	E259
Continuous stall torque $\triangle \triangle$	T_{CS}	lb-ft	254 (139)	280 (173)	356 (211)	475 (245)	T_{CS}	Nm	344 (188)	379 (234)	482 (286)	644 (332)
Peak Torque (theoretical) \triangle	T_{PK}	lb-ft	462	558	775	945	T_{PK}	Nm	626	766	1050	1280
Inertia (motor only)	J_M	lb-ft-sec ²	.0762	.0903	.1180	.1470	J_M	kgm ² x 10 ⁻³	103	122	160	199
Static friction (max.)	T_f	lb-ft	.93	1.10	1.40	1.78	T_f	Nm	1,26	1,49	1,90	2,41
Viscous Damping coefficient \triangle	K_{DV}	lb-ft/Krpm	1.56	1.87	2.50	3.12	K_{DV}	Nm/Krpm	2,11	2,53	3,39	4,23
Thermal resistance \triangle	R_{TH}	°C/Watt	.025 (.080)	.024 (.067)	.023 (.065)	.021 (.064)	R_{TH}	°C/Watt	.025 (.080)	.024 (.067)	.023 (.065)	.021 (.140)
Thermal time constant \triangle	τ_{TH}	min.	36 (115)	38 (106)	47 (130)	49 (140)	τ_{TH}	min.	36 (115)	38 (106)	47 (130)	49 (140)
Weight \triangle	W	lbs.	295 (284)	345 (334)	440 (406)	515 (481)	M (mass)	kg	134 (129)	157 (152)	200 (185)	234 (219)

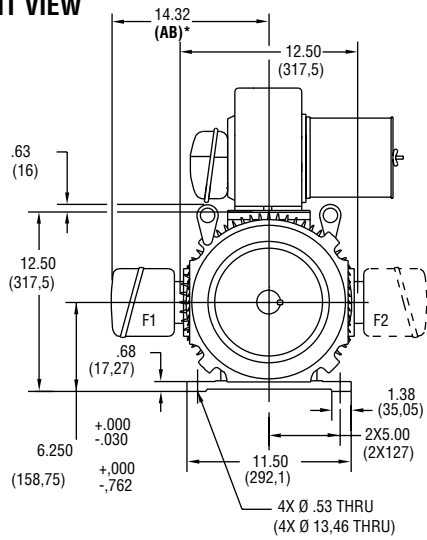
Winding data	Symbol	Units	E254				E256				E258				E259			
			E1	E2	E3	E4	E1	E2	E3	E4	E1	E2	E3	E4	E1	E2	E3	E4
Torque Constant line-line \triangle	K_T rms	lb-ft/A Nm/A	2.87 3.89	1.44 1.95	4.97 6.74	2.49 3.37	2.88 3.91	1.44 1.95	4.99 6.76	2.49 3.38	2.79 3.78	1.40 1.89	4.83 6.55	2.42 3.28	2.92 3.96	1.46 1.98	5.06 6.86	2.53 3.43
Voltage Constant line-line \triangle	K_e rms	V/Krpm V/rad/sec	235 2.24	118 1.12	407 3.89	204 1.94	236 2.25	118 1.13	409 3.90	204 1.95	229 2.19	115 1.09	397 3.79	198 1.89	239 2.28	120 1.14	414 3.95	207 1.98
Continuous stall current $\triangle \triangle \triangle$	I_{CS}	A	98(54)	196(107)	57(31)	113(62)	108(67)	216(133)	63(39)	125(77)	141(84)	282(167)	82(49)	163(97)	158(93)	317(187)	102(54)	183(93)
Current at peak torque $\triangle \triangle \triangle$	I_{PK}	A	161	322	93	186	194	388	112	224	277	554	160	320	324	648	187	374
Hot Resistance line-line \triangle	R_{TH}	Ohms	0.264	0.071	0.793	0.199	0.020	0.051	0.601	0.151	0.132	0.033	0.395	0.099	0.112	0.028	0.337	0.084
Cold Resistance line-line \triangle	R_c	Ohms	0.182	0.049	0.546	0.137	0.014	0.035	0.414	0.104	0.091	0.023	0.272	0.068	0.077	0.019	0.232	0.058
Inductance line-line	L	mH	3.863	0.97	11.6	2.90	3.20	0.80	9.60	2.40	2.08	0.52	6.23	1.56	1.90	0.48	5.70	1.42
Electrical time constant \triangle	τ_e	msec	19.8	19.8	19.8	19.8	23.2	23.2	23.2	23.2	22.9	22.9	22.9	22.9	24.9	24.9	24.9	24.9
Mechanical time constant \triangle	τ_m	msec	1.85	1.85	1.85	1.85	1.7	1.7	1.7	1.7	1.53	1.53	1.53	1.53	1.46	1.46	1.46	1.46
Rated base speed \triangle	ω_r	rpm	1750	3600	1000	2000	1750	3600	1000	2000	1750	3600	1000	2000	1750	3600	1000	2000
Rated current @ rated speed, RMS Amperes	I_r	A	86 (35)	138 (N/A)	53 (26)	97 (35)	92 (43)	129 (N/A)	57 (32.2)	102 (42)	123 (N/A)	158 (N/A)	77 (41)	137 (N/A)	156 (N/A)	217 (N/A)	97 (43)	174 (N/A)
Power @ rated speed \triangle	P_r	HP, DPBV (TENV)	76.4 (30.2)	124.8 (N/A)	46.2 (22.5)	85.3 (29.6)	81.4 (36.9)	116.4 (N/A)	50.2 (27.9)	90.1 (35.9)	101.8 (N/A)	132.6 (N/A)	63.4 (32.8)	112.1 (N/A)	138.2 (N/A)	196.0 (N/A)	85.2 (36.5)	153.0 (N/A)
Power @ rated speed \triangle	P_r	kW, DPBV (TENV)	57.0 (22.5)	93.1 (N/A)	34.5 (16.8)	63.6 (22.1)	60.7 (27.5)	86.8 (N/A)	37.4 (20.8)	67.2 (26.8)	75.9 (N/A)	98.9 (N/A)	47.3 (24.5)	83.6 (N/A)	103.1 (N/A)	146.2 (N/A)	63.6 (27.2)	114.1 (N/A)

Note: All values at 40°C unless otherwise noted.

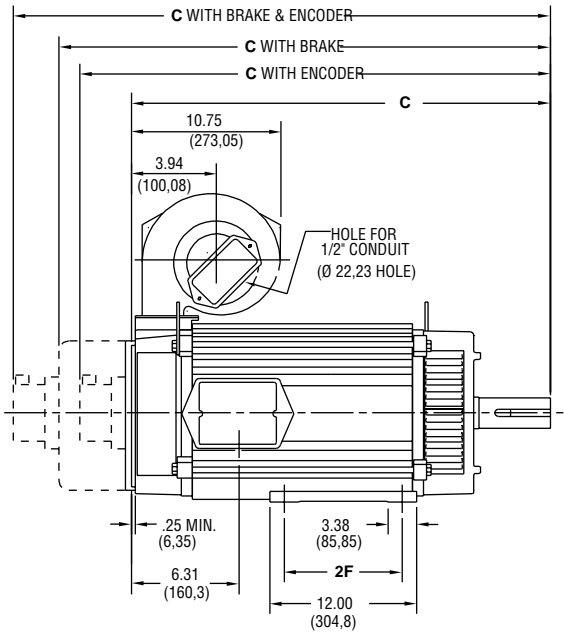
- \triangle 25°C ambient temperature
- \triangle () denotes TENV when dual ratings are shown. Single ratings apply to both
- \triangle Based on RMS (sine wave) amps
- \triangle 140°C winding temperature
- \triangle 640V dc
- \triangle Theoretical (cold) ratings at peak current, I_{PK} . For ratings at rated temperature, see Torque-Speed curves, pages 31-34
- \triangle Demagnetization current for 150°C magnet temperature

DIMENSIONS . . . E254 & E256 Diameter Frames; DPBV (Dripproof, Blower Ventilated)

FRONT VIEW



SIDE VIEW

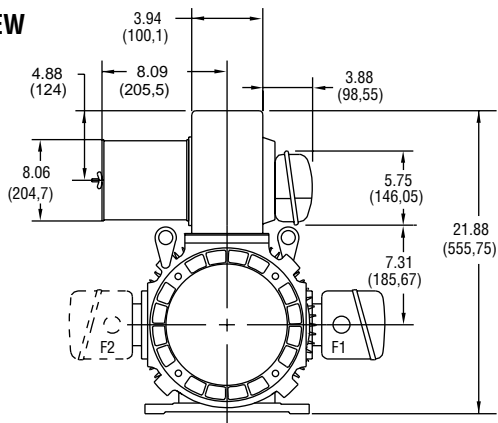


CALLOUT FOR "C" DIMENSION				
MODEL	MOTOR ONLY	WITH ENCODER	WITH BRAKE	WITH BRAKE & ENCODER
E254	<u>26.94</u> (684,28)	<u>29.73</u> (755,1)	<u>31.88</u> (809,8)	<u>33.85</u> (859,8)
E256	<u>31.44</u> (798,58)	<u>34.23</u> (869,4)	<u>36.38</u> (924,1)	<u>38.35</u> (974,1)

MODEL	2F DIMENSION
E254	<u>8.25</u> (209,56)
E256	<u>10.00</u> (254)

Dimensions in () are mm, all others in inches

REAR VIEW



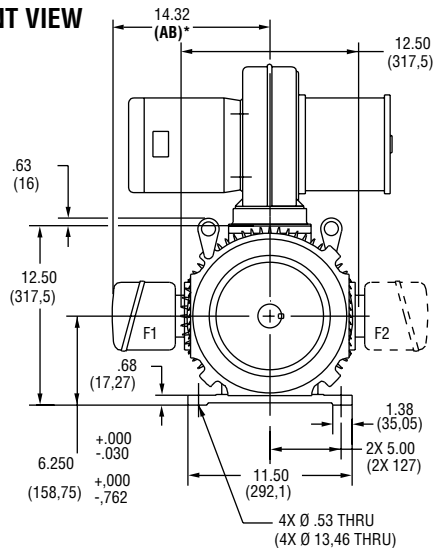
NOTE:

1. Reference pages 56, 57 for conduit box dimensions.
2. Conduit box can be rotated in 90° steps on its own axis and can be mounted on opposite side or top when specified.
3. Blower can be rotated 180° about its axis. Size #3 blower is used on E254 & E256 frames. See page 67.

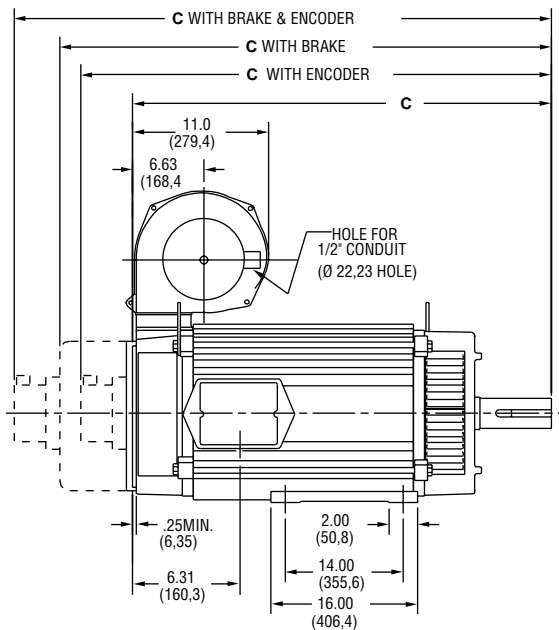
* See terminations, page 56.

DIMENSIONS . . . E258 & E259 Diameter Frames; DPBV (Dripproof, Blower Ventilated)

FRONT VIEW



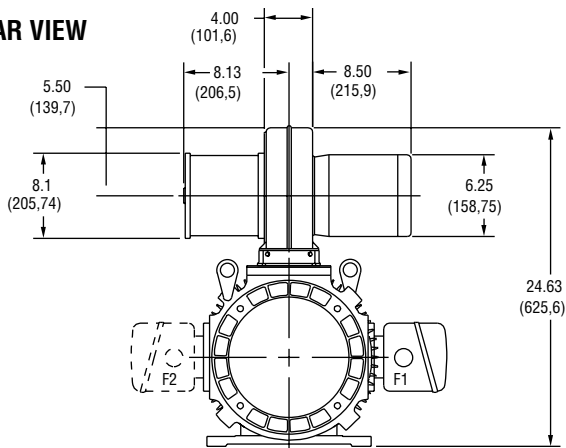
SIDE VIEW



CALLOUT FOR "C" DIMENSION				
MODEL	MOTOR ONLY	WITH ENCODER	WITH BRAKE	WITH BRAKE & ENCODER
E258	33.81 (858,77)	36.60 (929,6)	38.76 (984,5)	40.72 (1034,3)
E259	36.81 (934,97)	39.60 (1005,8)	41.76 (1060,7)	43.72 (1110,5)

Dimensions in () are mm, all others in inches

REAR VIEW



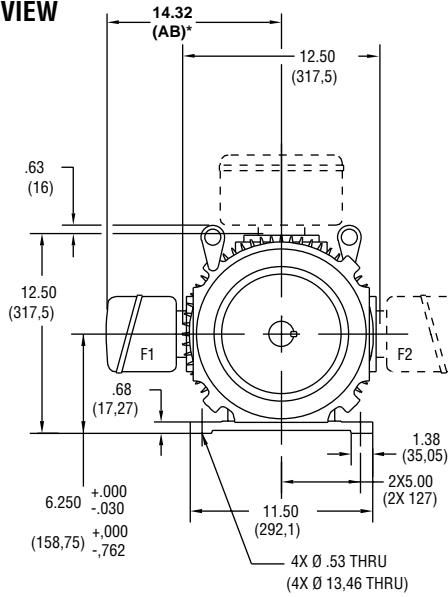
NOTE:

1. Reference pages 56, 57 for conduit box dimensions.
2. Conduit box can be rotated in 90° steps on its own axis and can be mounted on opposite side or top when specified.
3. Blower can be rotated 180° about its axis. Size #8 blower is used on E259 frames. See page 67.

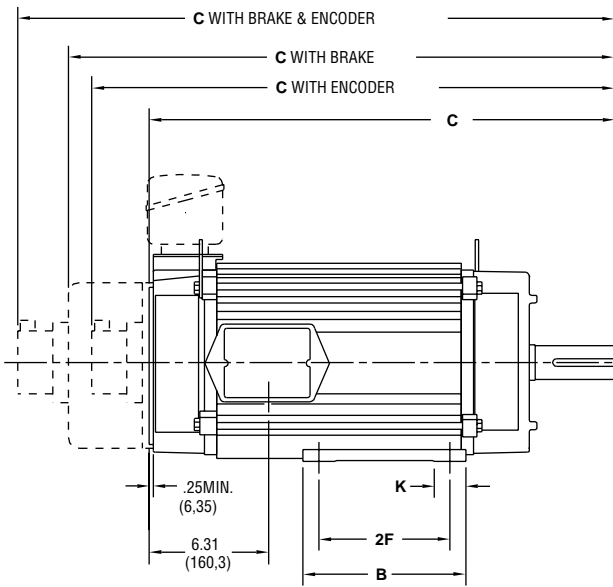
* See terminations, page 56.

DIMENSIONS . . . 250 Diameter Frames; TENV (Totally Enclosed, Non-Ventilated)

FRONT VIEW



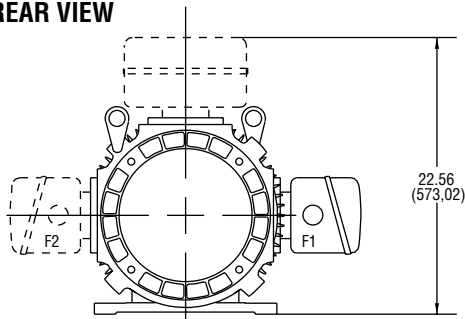
SIDE VIEW



MODEL	2F DIMENSION	B	K
E254	8.25	12.00	3.38
	(209,55)	(304,8)	(85,85)
E256	10.00	12.00	3.38
	(254)	(304,8)	(85,85)
E258	14.00	16.00	2.00
	(355,6)	(406,4)	(50,8)
E259	14.00	16.00	2.00
	(355,6)	(406,4)	(50,8)

Dimensions in () are mm, all others in inches

REAR VIEW



NOTE:

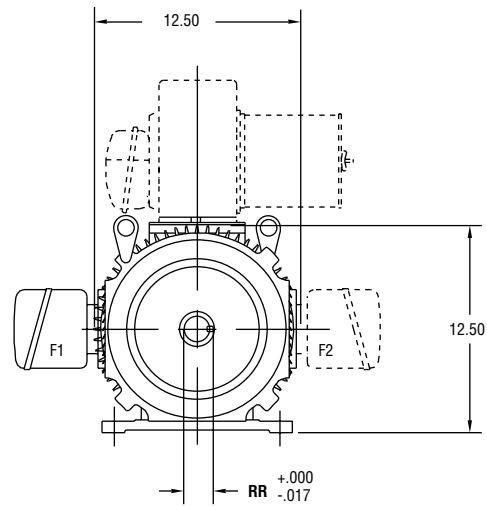
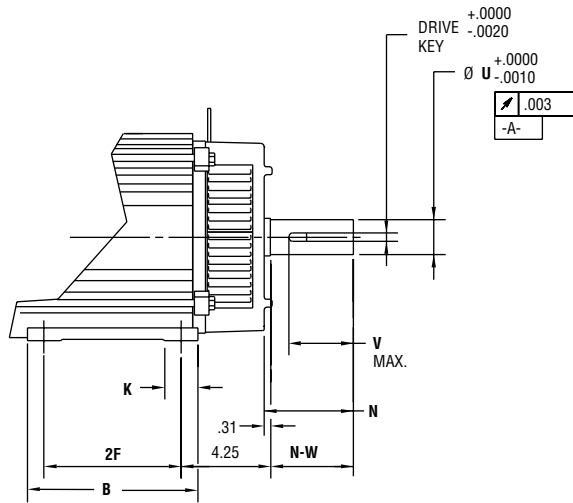
1. Reference pages 56, 57 for conduit box dimensions.
2. Conduit box can be rotated in 90° steps on its own axis and can be mounted on opposite side or top when specified.

* See terminations, page 56.

DIMENSIONS ... 250 Diameter Frame Mounting; NEMA and Metric

NEMA C FACE

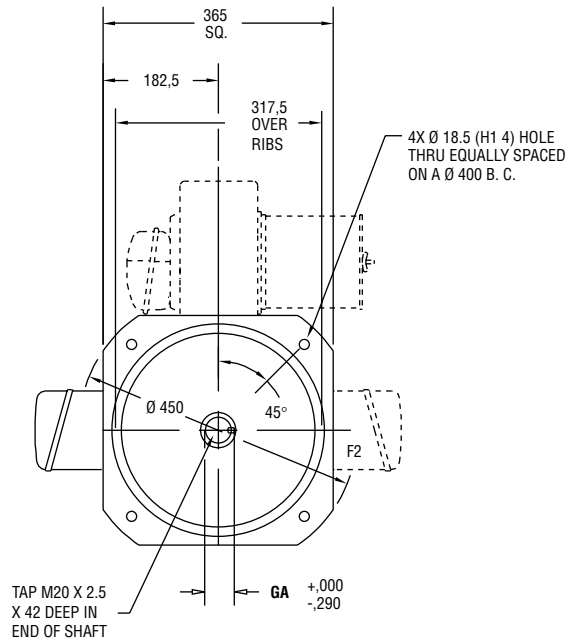
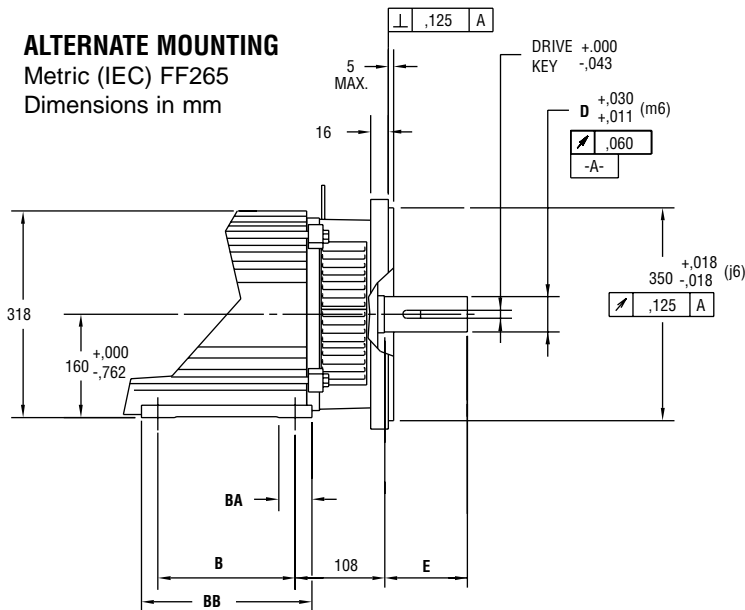
Dimensions in inches



MODEL	2F	B	K	N	N-W	U	V	RR	Drive Key
E254	8.25	12.00	3.38	5.56	5.25	2.125	4.75	2.345	.500
E256	10.00	12.00	3.38	6.18	5.87	2.375	5.37	2.646	.625
E258	14.00	16.00	2.00	6.18	5.87	2.375	5.37	2.646	.625
E259	14.00	16.00	2.00	6.18	5.87	2.375	5.37	2.646	.625

ALTERNATE MOUNTING

Metric (IEC) FF265
Dimensions in mm



EXCEPT FOR FOOT HEIGHT REFER TO DPBV, PAGES 27 & 28, FOR FRONT VIEW FEET DIMENSIONS



MODEL	D	E	BA	B	BB	GA	Drive Key
E254	55	110	86	209,55	305	59	16
E256	55	110	86	254	305	59	16
E258	60	140	51	355,6	406	64	18
E259	60	140	51	355,6	406	64	18

PERFORMANCE CURVES

250 FRAME E254

Test Conditions

- Motor operated in ambient temperature of 40° C maximum that results in a maximum motor stator winding temperature of 140° C
- 640V dc bus applied
- Sinusoidal drive output

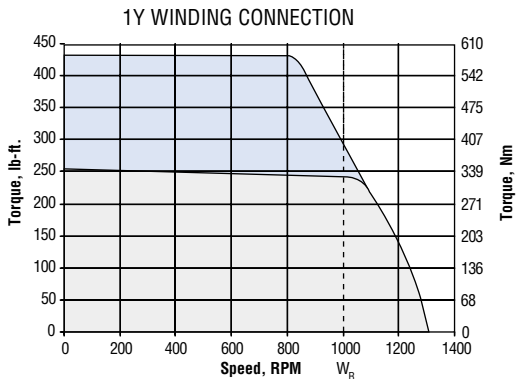
-  Intermittent duty
-  Continuous duty

DPBV
DRIPPROOF
BLOWER VENTILATED

TENV
TOTALLY ENCLOSED
NON-VENTILATED

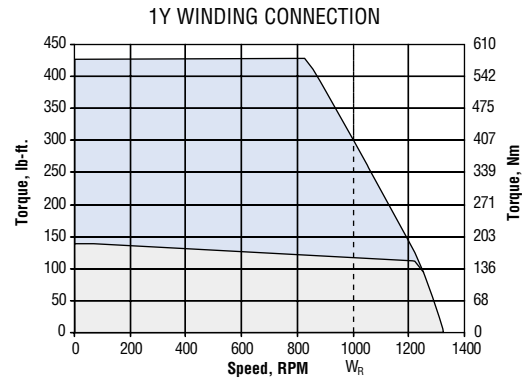
E254E3 MOTOR

Reference Points	
T_{PK}	430
T_{CS}	254
T_{CR}	242
W_R	1,000
I_{CS}	57.0
I_{CR}	53.0



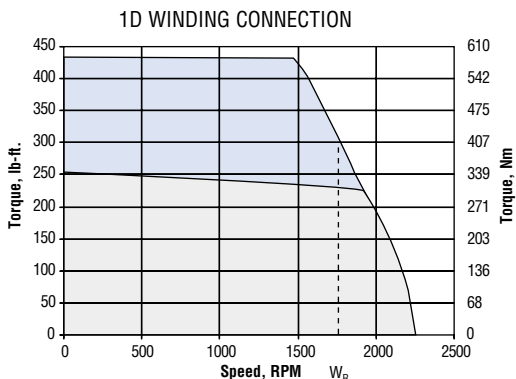
E254E3 MOTOR

Reference Points	
T_{PK}	430
T_{CS}	139
T_{CR}	118
W_R	1,000
I_{CS}	31.0
I_{CR}	26.0



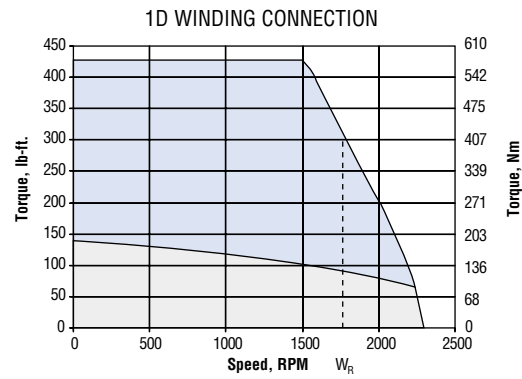
E254E1 MOTOR

Reference Points	
T_{PK}	430
T_{CS}	254
T_{CR}	229
W_R	1,750
I_{CS}	98.0
I_{CR}	86.0



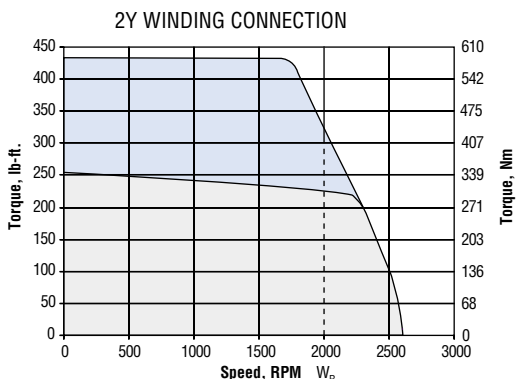
E254E1 MOTOR

Reference Points	
T_{PK}	430
T_{CS}	139
T_{CR}	90
W_R	1,750
I_{CS}	54.0
I_{CR}	35.0



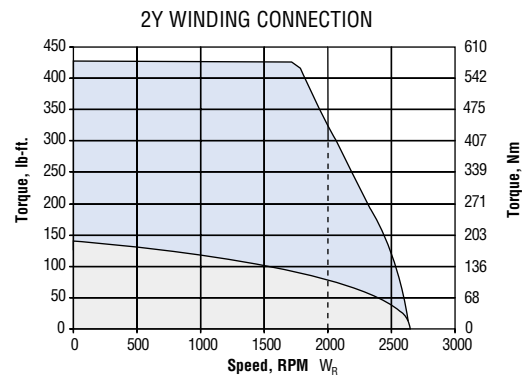
E254E4 MOTOR

Reference Points	
T_{PK}	430
T_{CS}	254
T_{CR}	224
W_R	2,000
I_{CS}	113.0
I_{CR}	97.0



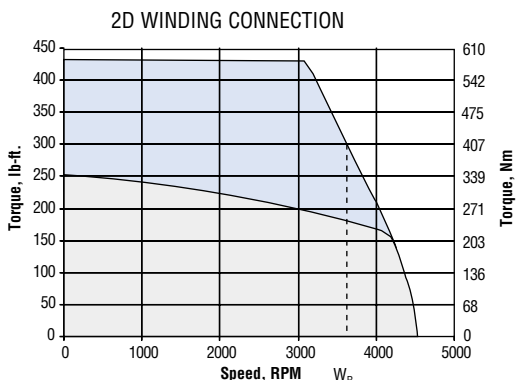
E254E4 MOTOR

Reference Points	
T_{PK}	430
T_{CS}	139
T_{CR}	77
W_R	2,000
I_{CS}	62.0
I_{CR}	35.0



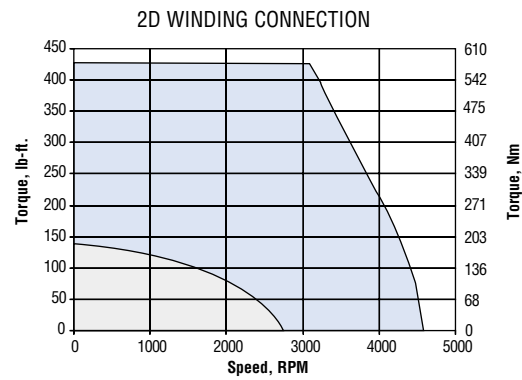
E254E2 MOTOR

Reference Points	
T_{PK}	430
T_{CS}	254
T_{CR}	182
W_R	3,600
I_{CS}	196.0
I_{CR}	138.0



E254E2 MOTOR

Reference Points	
T_{PK}	430
T_{CS}	139
T_{CR}	-
W_R	-
I_{CS}	107.0
I_{CR}	-



- △ See model number code, page 25.
- △ This is also the demagnetization limit. User should apply appropriate safety margins in its use.

- Notes:
1. See Motor Performance Curves, page 76.
 2. See Thermal Protection, page 69.
 3. See Power Curves, page 35.
 4. See Efficiency Curves, page 36.

PERFORMANCE CURVES

250 FRAME E256

Test Conditions

- Motor operated in ambient temperature of 40° C maximum that results in a maximum motor stator winding temperature of 140° C
- 640V dc bus applied
- Sinusoidal drive output

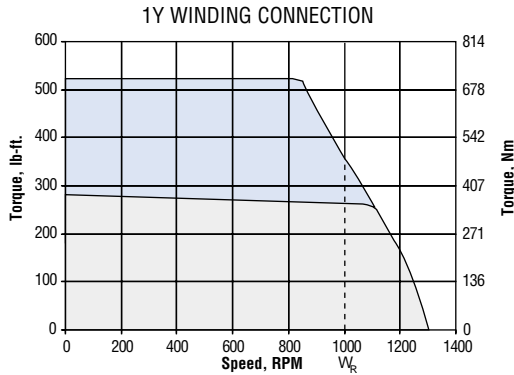
- Intermittent duty
- Continuous duty

DPBV
DRIPPROOF
BLOWER VENTILATED

TENV
TOTALLY ENCLOSED
NON-VENTILATED

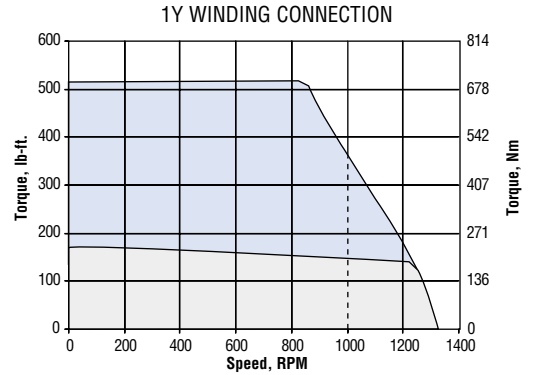
E256E3 MOTOR

Reference Points	
T_{PK}	520
T_{CS}	280
T_{CR}	263
W_R	1,000
I_{CS}	63.0
I_{CR}	57.0



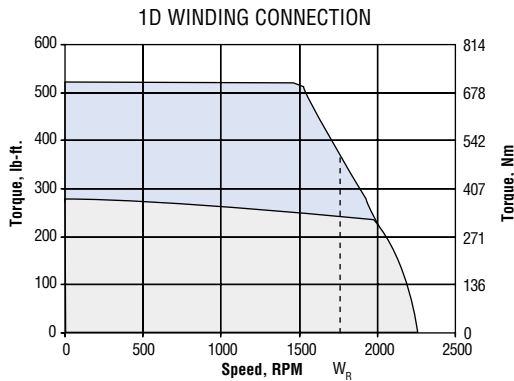
E256E3 MOTOR

Reference Points	
T_{PK}	520
T_{CS}	173
T_{CR}	146
W_R	1,000
I_{CS}	39.0
I_{CR}	32.2



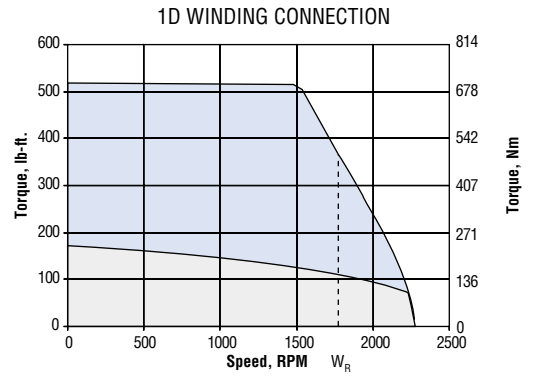
E256E1 MOTOR

Reference Points	
T_{PK}	520
T_{CS}	280
T_{CR}	244
W_R	1,750
I_{CS}	108.0
I_{CR}	92.0



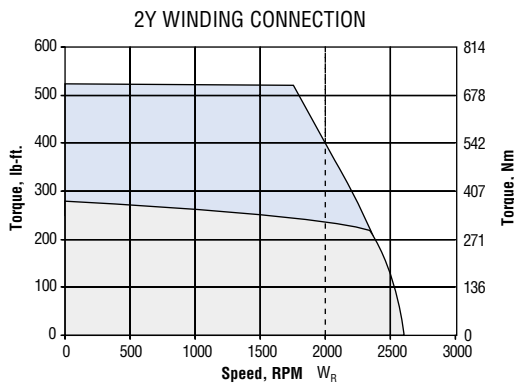
E256E1 MOTOR

Reference Points	
T_{PK}	520
T_{CS}	173
T_{CR}	11
W_R	1,750
I_{CS}	67.0
I_{CR}	42.6



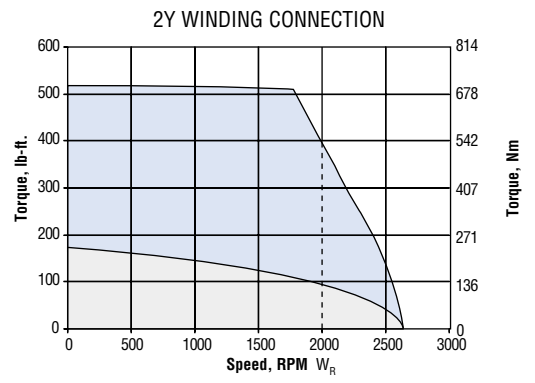
E256E4 MOTOR

Reference Points	
T_{PK}	520
T_{CS}	280
T_{CR}	237
W_R	2,000
I_{CS}	125.0
I_{CR}	102.0



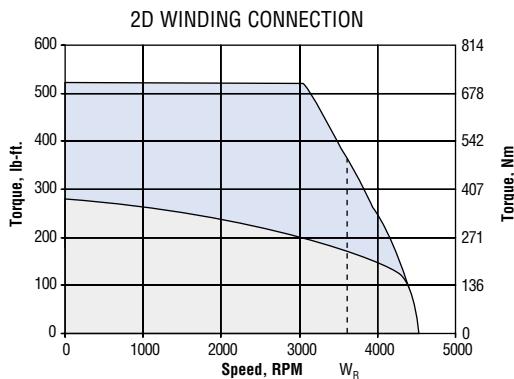
E256E4 MOTOR

Reference Points	
T_{PK}	520
T_{CS}	173
T_{CR}	94
W_R	2,000
I_{CS}	77.0
I_{CR}	42.0



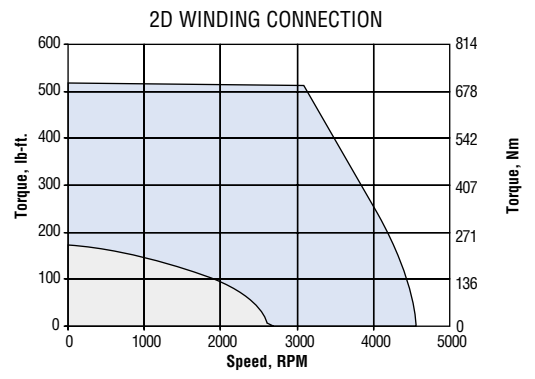
E256E2 MOTOR

Reference Points	
T_{PK}	520
T_{CS}	280
T_{CR}	170
W_R	3,600
I_{CS}	216
I_{CR}	129



E256E2 MOTOR

Reference Points	
T_{PK}	520
T_{CS}	173
T_{CR}	-
W_R	-
I_{CS}	133.0
I_{CR}	-



- See model number code, page 25.
- This is also the demagnetization limit. User should apply appropriate safety margins in its use.

- Notes:
1. See Motor Performance Curves, page 76.
 2. See Thermal Protection, page 69.
 3. See Power Curves, page 35.
 4. See Efficiency Curves, page 36.

PERFORMANCE CURVES

250 FRAME E258 (NEMA ES259)

□ Intermittent duty
□ Continuous duty

Test Conditions

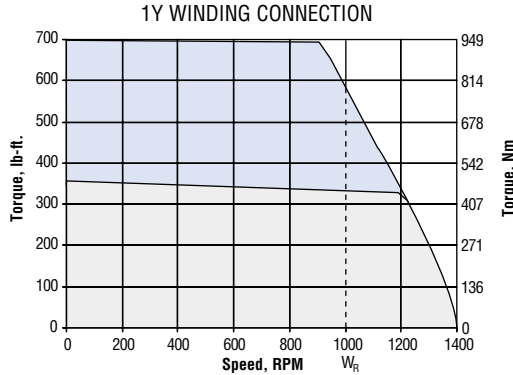
- Motor operated in ambient temperature of 40° C maximum that results in a maximum motor stator winding temperature of 140° C
- 640V dc bus applied
- Sinusoidal drive output

DPBV DRIPPROOF BLOWER VENTILATED

TENV TOTALLY ENCLOSED NON-VENTILATED

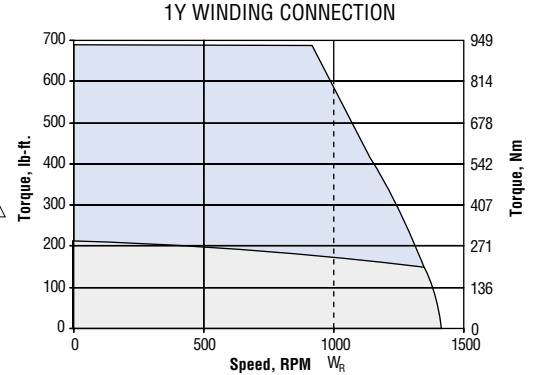
E258E3 MOTOR

Reference Points	
T_{PK}	690
T_{CS}	355
T_{CR}	333
W_R	1,000
I_{CS}	82.0
I_{CR}	77.0



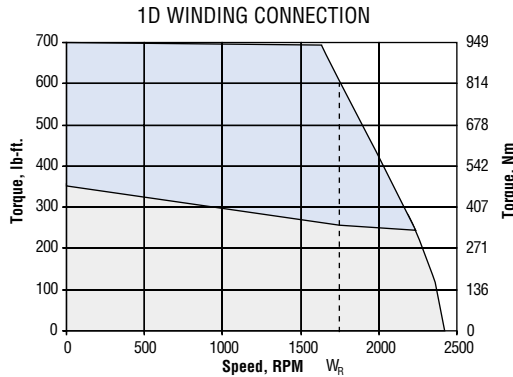
E258E3 MOTOR

Reference Points	
T_{PK}	690
T_{CS}	211
T_{CR}	172
W_R	1,000
I_{CS}	49.0
I_{CR}	41.0



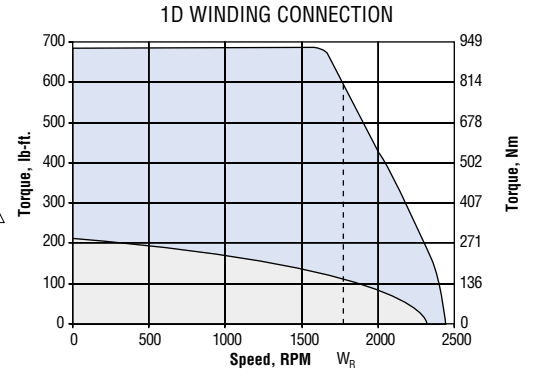
E258E1 MOTOR

Reference Points	
T_{PK}	690
T_{CS}	355
T_{CR}	305
W_R	1,750
I_{CS}	141
I_{CR}	123



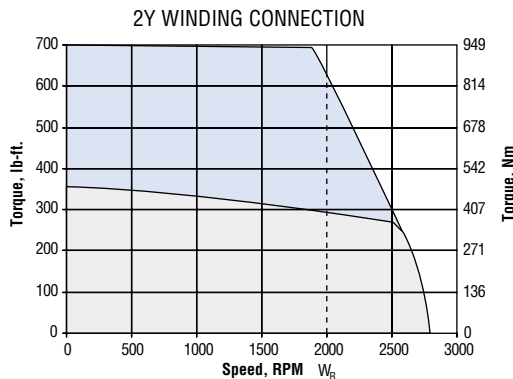
E258E1 MOTOR

Reference Points	
T_{PK}	690
T_{CS}	211
T_{CR}	115
W_R	1750
I_{CS}	84
I_{CR}	47.7



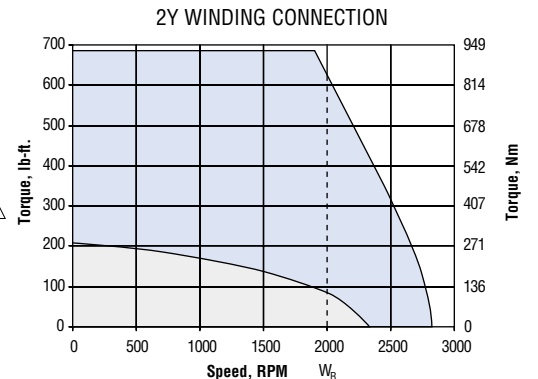
E258E4 MOTOR

Reference Points	
T_{PK}	690
T_{CS}	355
T_{CR}	294
W_R	2,000
I_{CS}	163
I_{CR}	137



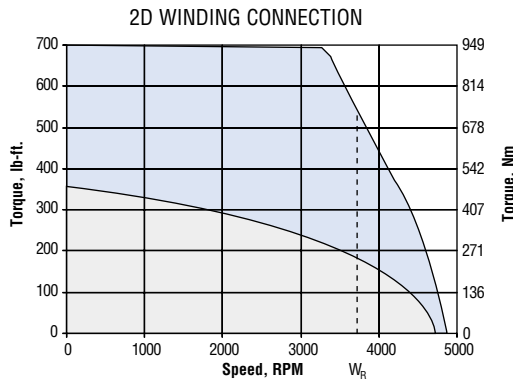
E258E4 MOTOR

Reference Points	
T_{PK}	690
T_{CS}	211
T_{CR}	84
W_R	2,000
I_{CS}	97
I_{CR}	41.0



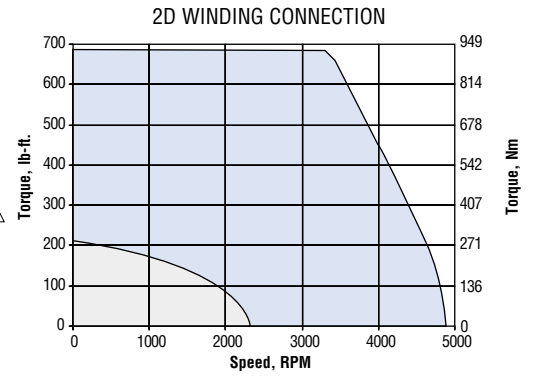
E258E2 MOTOR

Reference Points	
T_{PK}	690
T_{CS}	355
T_{CR}	193
W_R	3,600
I_{CS}	282.0
I_{CR}	158.0



E258E2 MOTOR

Reference Points	
T_{PK}	690
T_{CS}	211
T_{CR}	-
W_R	-
I_{CS}	167.0
I_{CR}	-



- △ See model number code, page 25.
- △ This is also the demagnetization limit. User should apply appropriate safety margins in its use.

- Notes:
1. See Motor Performance Curves, page 76.
 2. See Thermal Protection, page 69.
 3. See Power Curves, page 35.
 4. See Efficiency Curves, page 36.

PERFORMANCE CURVES

250 FRAME E259 (NEMA EL259)

Intermittent duty
 Continuous duty

Test Conditions

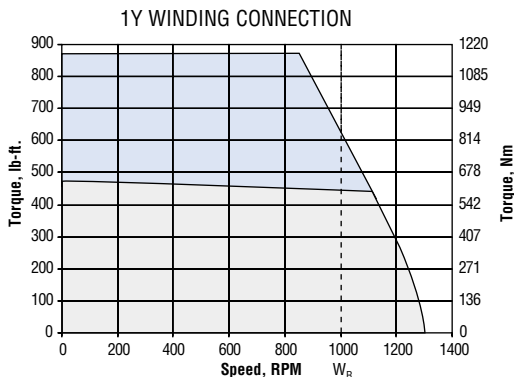
- Motor operated in ambient temperature of 40° C maximum that results in a maximum motor stator winding temperature of 140° C
- 640V dc bus applied
- Sinusoidal drive output

DPBV DRIPPROOF BLOWER VENTILATED

TENV TOTALLY ENCLOSED NON-VENTILATED

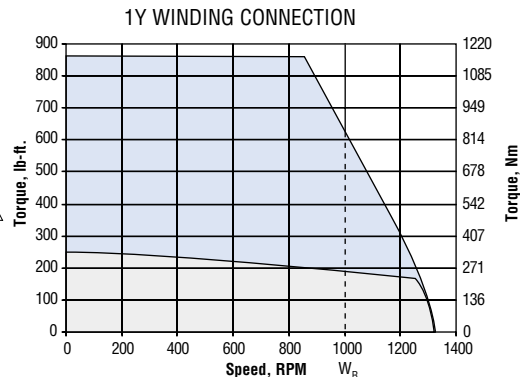
E259E3 MOTOR

Reference Points	
T_{PK}	870
T_{CS}	475
T_{CR}	447
W_R	1,000
I_{CS}	102.0
I_{CR}	97.0



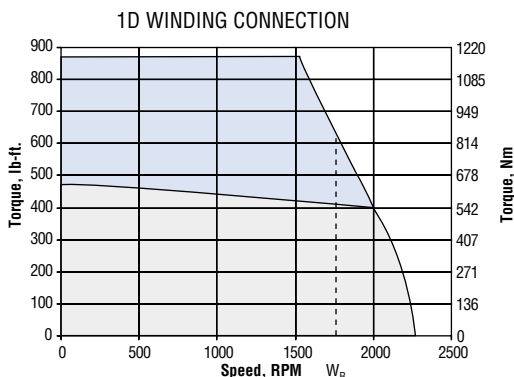
E259E3 MOTOR

Reference Points	
T_{PK}	870
T_{CS}	245
T_{CR}	191
W_R	1,000
I_{CS}	54.0
I_{CR}	43.0



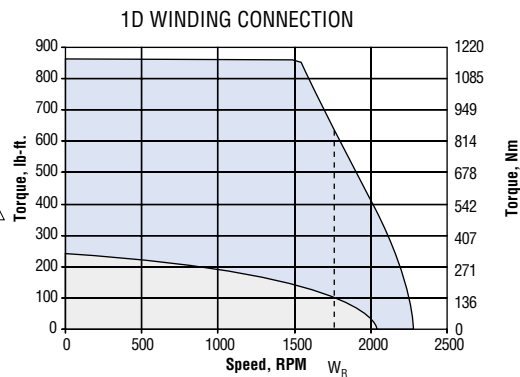
E259E1 MOTOR

Reference Points	
T_{PK}	870
T_{CS}	475
T_{CR}	447
W_R	1,750
I_{CS}	158
I_{CR}	156



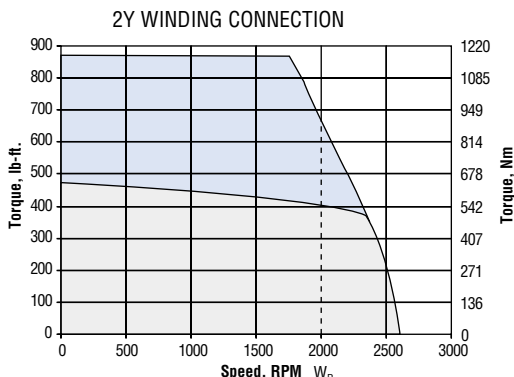
E259E1 MOTOR

Reference Points	
T_{PK}	870
T_{CS}	245
T_{CR}	103
W_R	1,750
I_{CS}	93.0
I_{CR}	40.4



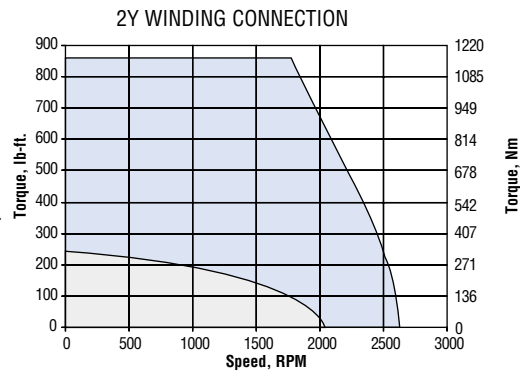
E259E4 MOTOR

Reference Points	
T_{PK}	870
T_{CS}	475
T_{CR}	401
W_R	2,000
I_{CS}	183.0
I_{CR}	174.0



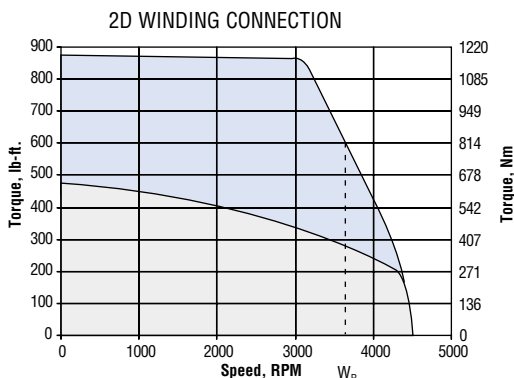
E259E4 MOTOR

Reference Points	
T_{PK}	870
T_{CS}	245
T_{CR}	34
W_R	-
I_{CS}	92.0
I_{CR}	-



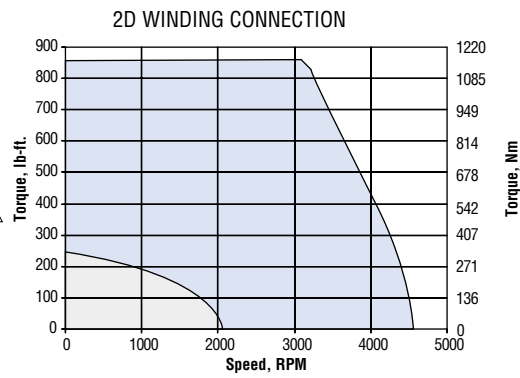
E259E2 MOTOR

Reference Points	
T_{PK}	870
T_{CS}	475
T_{CR}	286
W_R	3,600
I_{CS}	317.0
I_{CR}	217.0



E259E2 MOTOR

Reference Points	
T_{PK}	870
T_{CS}	245
T_{CR}	-
W_R	-
I_{CS}	187
I_{CR}	-



- △ See model number code, page 25.
- △ This is also the demagnetization limit. User should apply appropriate safety margins in its use.

- Notes:
1. See Motor Performance Curves, page 76.
 2. See Thermal Protection, page 69.
 3. See Power Curves, page 35.
 4. See Efficiency Curves, page 36.

CONTINUOUS POWER CURVES

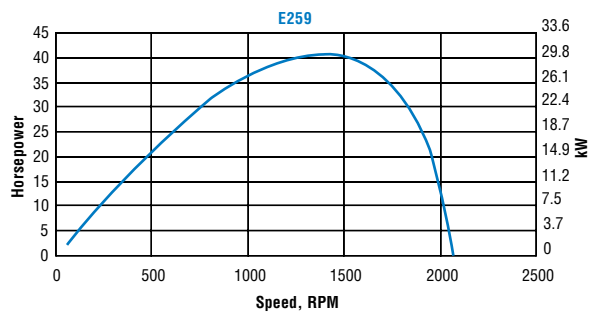
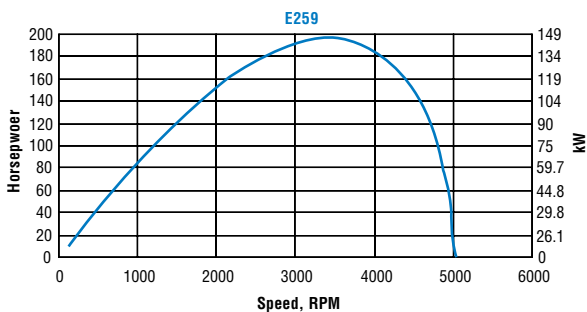
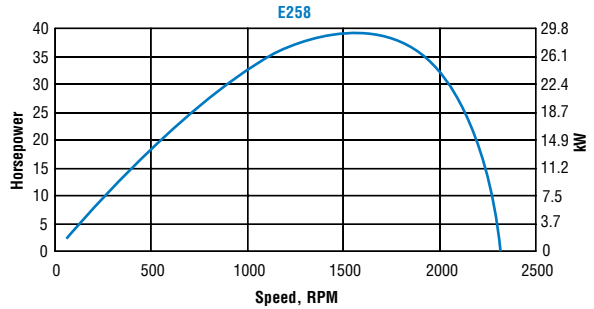
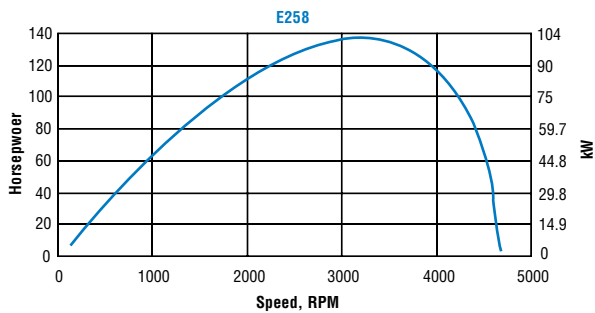
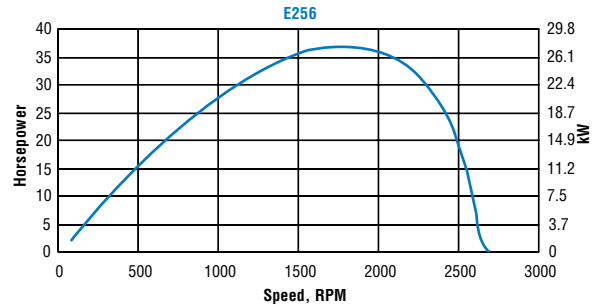
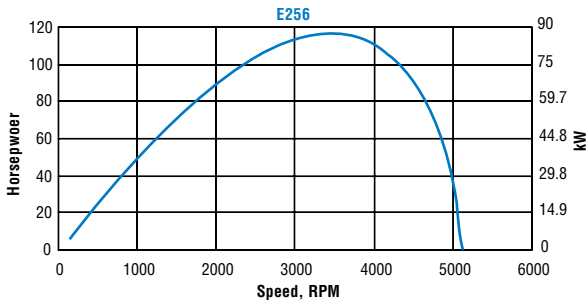
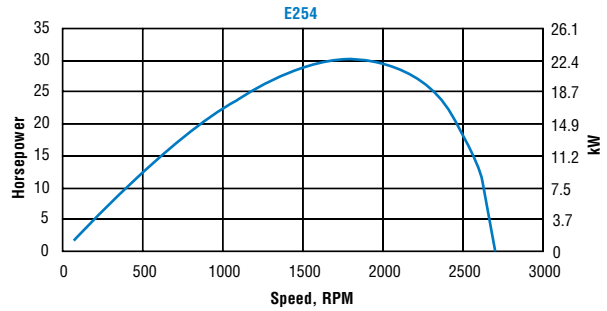
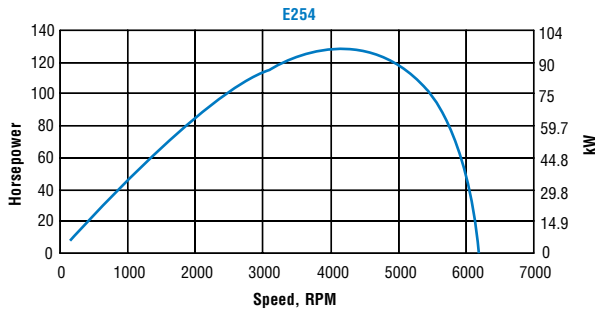
E250 DIAMETER FRAMES

Standard E250 frame motors are limited (mechanical design) to 4000 RPM. Special designs are available that allow operation to speeds indicated in the individual curves.

One power curve is shown for each stack length in both the DPBV and TENV enclosures. Four different winding connections are offered for each stack length, but the power curve is the same for all connections. Therefore, only one power curve is necessary for each stack length and enclosure.

DPBV DRIPPROOF BLOWER VENTILATED

TENV TOTALLY ENCLOSED NON-VENTILATED

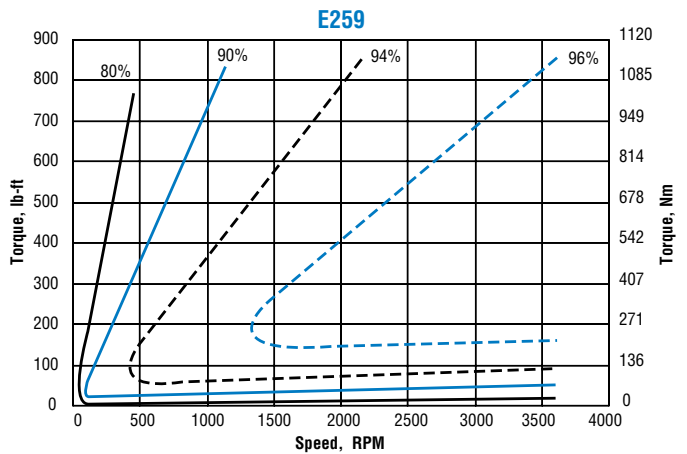
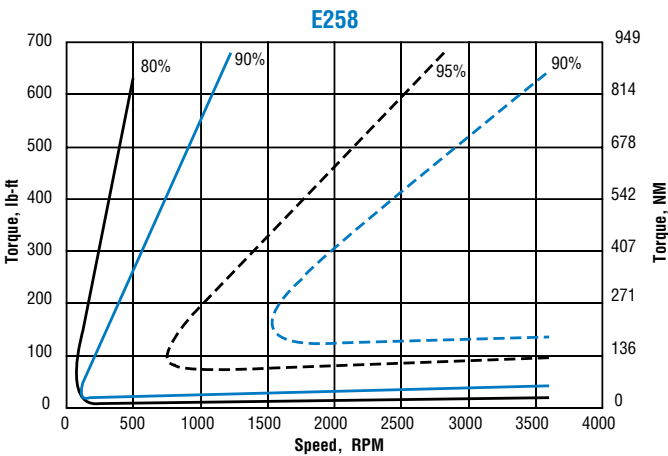
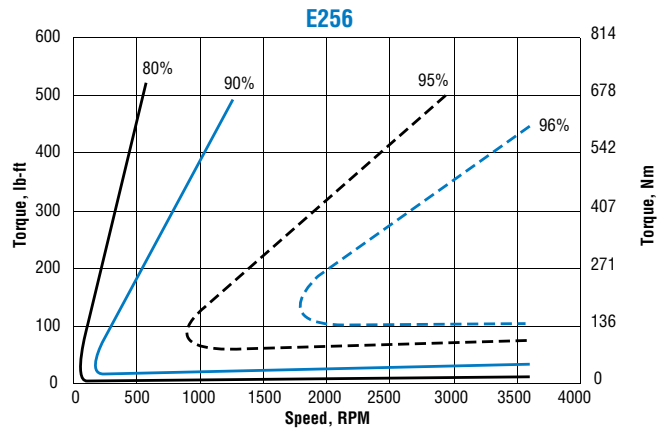
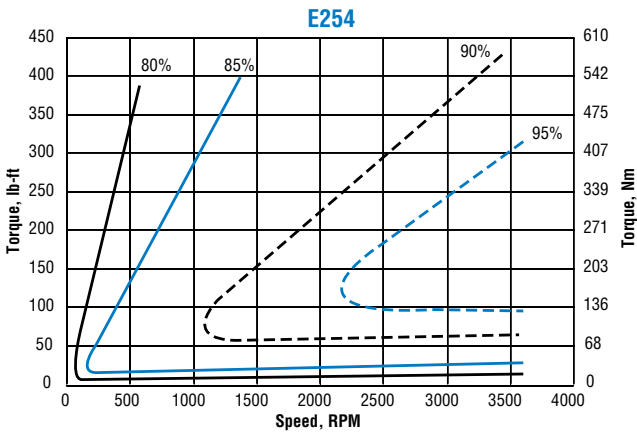


Note: see Motor Performance Curves, page 76.

EFFICIENCY CURVES

E250 DIAMETER FRAMES

One efficiency curve is shown for each stack length. Efficiencies for the DPBV and TENV enclosures are approximately the same, so a single curve represents both. In addition, although four different winding connections are offered for each stack length, the efficiency is the same for all connections.



Note: see Motor Performance Curves, page 76.