1 THRU 250HP
NEMA 140T THRU 449T
PREMIUM EFFICIENCY
VFD DUTY
ISO9001 CERTIFIED

CANADIAN STANDARDS ASSOCIATION

VOLUME I

Powerful + Efficient + Reliable

EEV

ULTRAline-PE

CAST IRON PREMIUM EFFICIENCY ELECTRIC MOTORS

5 YEAR WARRANTY
VFD DUTY

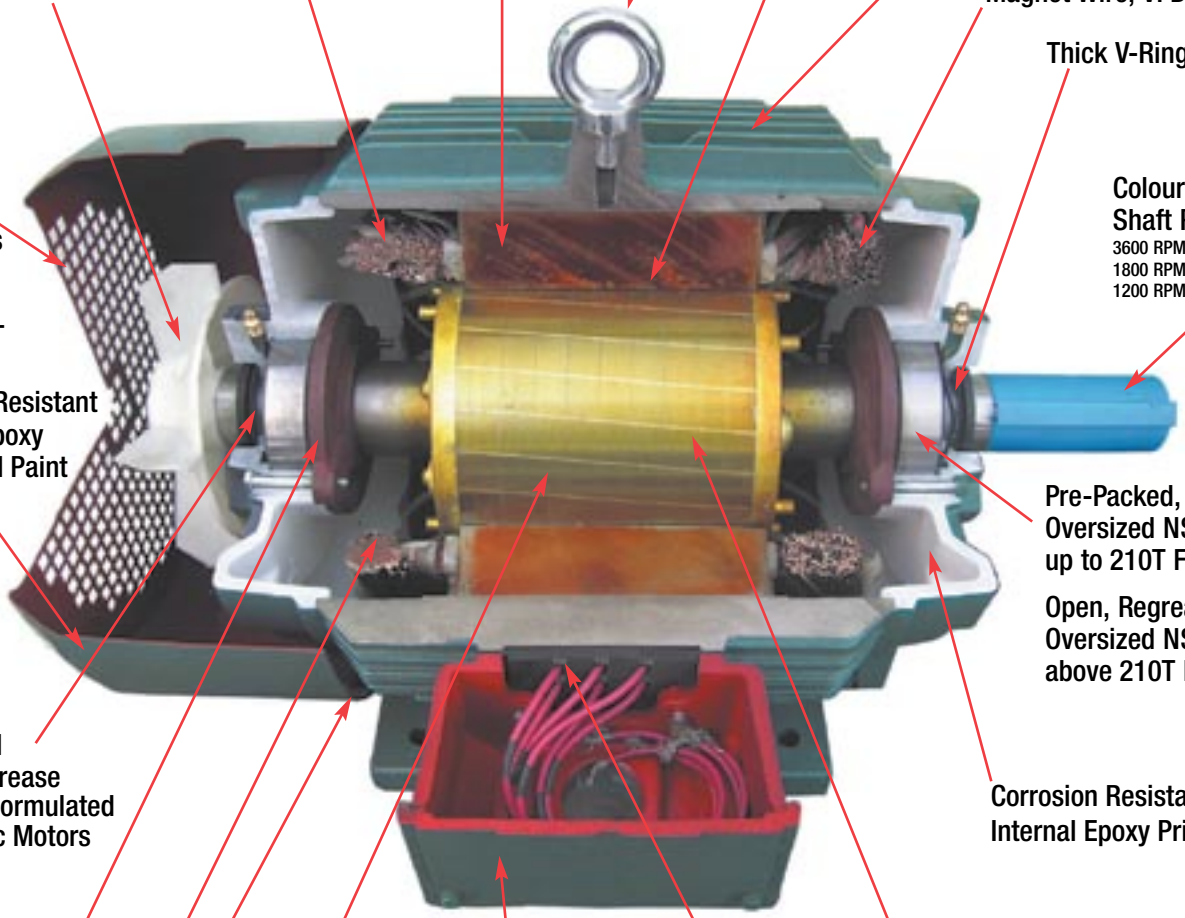
MEETS OR EXCEEDS NEMA MG-1 TABLE 12-12 PREMIUM EFFICIENCY
CORONA & SPIKE RESISTANT MAGNET WIRE
MG1, PART 31 INVERTER DUTY, 10:1 CONSTANT TORQUE, ZERO TO BASE SPEED VARIABLE TORQUE
TEFC SEVERE DUTY IP55
CLASS F INSULATED WITH CLASS B OR LOWER TEMPERATURE RISE
CAST IRON FRAMES
1.15 SERVICE FACTOR
OVERSIZED NSK/SKF BEARINGS
EXTRA LOW-LOSS ELECTRICAL GRADE LAMINATION STEEL
V-RING SLINGER KEEPS OUT MOISTURE AND CONTAMINATION
CORROSION RESISTANT EPOXY PAINT INSIDE AND OUTSIDE

MADISON ELECTRIC MOTORS

www.madisonelectricmotors.com

THINK QUALITY

ULTRAline-PE Cross-Section View



Extra Low Loss Magnetic Silicon Steel

Precision Air Gap

Class F Windings with Max. Class B Temperature Rise

Plated Hardware

Rigid Cast Iron Construction

High Efficiency Non-Sparking Fan

Corona & Spike Resistant Magnet Wire, VFD Duty

Thick V-Ring Slinger

Colour Coded Shaft Protectors
3600 RPM = Yellow
1800 RPM = Red
1200 RPM = Blue

Cast Iron Fan Covers Standard On Frames 405T–449T

Corrosion Resistant External Epoxy Primer And Paint

Pre-Packed, Double Sealed, Oversized NSK/SKF Bearings up to 210T Frame

Open, Regreaseable, Oversized NSK/SKF Bearings above 210T Frame

Polyrex EM Polyurea Grease Specially Formulated For Electric Motors

Corrosion Resistant Internal Epoxy Primer

Cast Iron Internal Bearing Caps

Non-Hygroscopic VPI Winding Treatment

Dynamically Balanced Rotor

Hex Head Fasteners

Clearly Numbered Lead Gasket and Lead Markers

Corrosion Resistant Coating

Oversized Cast Iron Conduit Box, Rotatable in 90° Increments

Note: Construction Varies With Frame Size.

THINK TOUGH

— 5 YEAR WARRANTY —
— VFD DUTY —
10:1 CONSTANT TORQUE, ZERO TO BASE SPEED VARIABLE TORQUE

ULTRAline-PE Construction Features
Optimized Design For Long Life and High Performance

- NEMA MG-1 table 12-12 premium efficiency.
- AC, 3-phase, squirrel cage induction motor.
- Totally enclosed fan cooled, IP55 protection.
- 60 hertz, 208-230/460 Volts and 575 Volts, at 1.15 SF.
- Usable on 50 hertz, 380/400/415 Volts at 1.0 SF.
- Supply voltage +/- 10%, supply frequency +/- 5%.
- Usable at altitudes to 1000 metres without de-rate.
- Rigid cast iron frame, end brackets, and conduit box. Cast iron fan covers standard on frames 405T–449T.
- NEMA MG.1, EEMAC M1-6, CSA C390.
- Continuous duty, 1.15 service factor.
- Colour coded shaft covers and rust inhibitor coating protects the shaft.
- Stainless Steel, 4 Rivet Nameplate.
- Wye-Delta start capability from Frame 210T and higher.
- Premium efficiency with high power factor.
- Bidirectional rotation.
- F1 mounting, field modifiable to F2 orientation.
- Standard ground lug in terminal box plus additional ground lug on motor foot for frames 324T and higher.
- Polyrex EM polyurea grease for -40° C to +40° C ambient temperatures.
- Oversized vacuum degassed NSK/SKF bearings.
- Corona and spike resistant magnet wire.
- Up to frame 210T are NSK/SKF pre-packed double sealed LL bearings which are greased for life at the factory and do not need re-lubrication.
- Frames 254T and higher use NSK/SKF open bearings, re-greasable while running, with integral grease fittings & drains, and cast iron internal bearing caps.
- Thick V-Ring slinger protects bearing against moisture and contaminants.
- Class B or lower temperature rise ensures cool running and increased insulation life.
- Non-hygroscopic, vacuum pressure impregnated, Class F rated insulation system ensures ample temperature reserve under all operating conditions.
- Polypropylene, high-efficiency, non-static, non-sparking external cooling fan.
- All fasteners are plated Hex Head bolts or Philips multi-head bolts.
- Plated eye-bolts accessible through the crate for lifting with the crate intact (except 140 frames).
- All internal surfaces coated with epoxy primer for corrosion protection.
- Rotor surface coated with a rust inhibitor treatment.
- Corrosion resistant epoxy primer and paint system on all external surfaces.

ULTRAline-PE Performance Data:

HP	Full Load r/min	Frame	Cat. No. Base Mount 460 Volt	Cat No. Base Mount 575 Volt	Code	Current at 460V		Current at 575V		Torque			Efficiency			Power Factor			Approx. Weight (lbs)
						Full Load (A)	Locked Rotor (A)	Full Load (A)	Locked Rotor (A)	Full Load (LB-FT)	Locked Rotor %	Break Down %	Full Load %	3/4 Load %	1/2 Load %	Full Load %	3/4 Load %	1/2 Load %	
1	3495	143T	MUV400	MUV500	K	1.5	11.0	1.2	8.8	1.51	250	300	77.0	76.3	75.0	82.0	76.8	64.8	56
1	1750	143T	MUV401	MUV501	K	1.5	11.0	1.2	8.8	3.02	250	300	85.5	85.0	83.6	78.0	70.6	58.1	51
1	1150	145T	MUV402	MUV502	H	1.7	8.0	1.4	6.4	4.60	230	275	82.5	82.1	81.0	68.0	67.5	54.4	67
1.5	3495	143T	MUV403	MUV503	K	2.0	16.0	1.6	12.8	2.26	250	300	84.4	85.2	84.9	84.0	84.7	75.4	59
1.5	1745	145T	MUV404	MUV504	J	2.1	15.0	1.7	12.0	4.52	265	280	86.5	86.3	85.4	78.0	72.8	60.9	61
1.5	1180	182T	MUV405	MUV505	H	2.2	14.0	1.8	11.2	6.69	200	285	87.5	87.2	85.5	75.0	68.1	54.3	97
2	3485	145T	MUV406	MUV506	J	2.6	19.0	2.1	15.2	3.01	220	265	85.5	86.1	86.3	85.0	88.3	81.7	59
2	1740	145T	MUV407	MUV507	J	2.8	19.0	2.2	15.2	6.04	260	280	86.5	86.8	86.2	78.0	75.4	64.2	64
2	1180	184T	MUV408	MUV508	J	2.9	18.0	2.3	14.4	8.90	200	280	88.5	88.1	86.6	75.0	68.8	54.7	108
3	3540	182T	MUV409	MUV509	J	3.8	30.0	3.0	24.0	4.46	200	280	87.1	87.3	86.5	87.0	85.1	76.3	106
3	1765	182T	MUV410	MUV510	J	3.7	29.0	3.0	23.2	8.94	210	300	89.5	89.2	88.4	86.0	81.2	71.2	106
3	1180	213T	MUV411	MUV511	J	4.2	29.0	3.4	23.2	13.38	200	250	89.5	89.6	88.5	75.0	73.1	61.1	161
5	3530	184T	MUV412	MUV512	H	6.1	44.0	4.9	35.2	7.45	200	280	88.5	89.0	88.7	88.0	87.9	81.0	112
5	1755	184T	MUV413	MUV513	H	6.1	42.0	4.9	33.6	14.98	220	270	89.5	89.2	88.7	86.0	82.2	72.8	112
5	1180	215T	MUV414	MUV514	J	6.9	46.0	5.5	36.8	22.28	200	250	89.5	90.0	89.5	76.0	77.1	66.4	170
7.5	3535	213T	MUV415	MUV515	H	9.0	59.0	7.2	47.2	11.19	210	280	89.7	90.0	89.5	88.0	89.3	83.6	176
7.5	1770	213T	MUV416	MUV516	G	9.1	56.0	7.3	44.8	22.30	210	260	91.7	91.5	91.1	85.0	82.6	73.7	176
7.5	1185	254T	MUV417	MUV517	G	10.3	59.0	8.2	47.2	33.07	220	250	91.0	91.1	90.4	75.0	74.0	63.2	278
10	3530	215T	MUV418	MUV518	G	11.8	78.0	9.4	62.4	14.89	220	270	90.4	90.8	90.5	88.0	90.7	86.0	187
10	1765	215T	MUV419	MUV519	F	12.1	69.0	9.7	55.2	29.79	200	250	91.7	91.8	91.6	85.0	84.5	76.8	194
10	1185	256T	MUV420	MUV520	G	13.8	79.0	11.0	63.2	37.00	220	250	91.2	91.5	90.9	75.0	74.8	64.3	278
15	3560	254T	MUV421	MUV521	G	17.4	113.0	13.9	90.4	22.15	210	260	91.2	91.2	90.9	89.0	91.9	88.1	291
15	1775	254T	MUV422	MUV522	G	17.9	111.0	14.3	88.8	44.43	210	260	92.4	92.2	91.8	85.0	87.1	80.5	297
15	1185	284T	MUV423	MUV523	G	19.0	108.0	15.2	86.4	66.55	210	250	91.7	91.6	91.1	81.0	79.6	70.0	421
20	3555	256T	MUV424	MUV524	F	23.2	140.0	18.6	112.0	29.58	200	250	91.2	91.3	91.2	89.0	92.5	89.5	304
20	1775	256T	MUV425	MUV525	G	23.7	144.0	19.0	115.2	59.24	200	250	93.0	92.6	92.2	85.0	87.8	81.8	322
20	1185	286T	MUV426	MUV526	G	25.3	143.0	20.2	114.4	88.74	200	230	91.7	91.7	91.4	81.0	80.7	72.0	452
25	3565	284TS	MUV427	MUV527	F	28.4	168.0	22.7	134.4	36.87	200	250	91.7	92.0	91.8	90.0	93.2	91.3	458
25	1775	284T	MUV428	MUV528	F	28.8	167.0	23.0	133.6	74.05	200	245	93.6	93.2	92.8	87.0	88.3	82.9	465
25	1185	324T	MUV429	MUV529	F	30.7	169.0	24.6	135.2	110.92	200	230	93.0	93.0	92.5	82.0	80.6	71.9	522
30	3560	286TS	MUV430	MUV530	F	34.1	201.0	27.3	160.8	44.31	200	240	91.9	92.3	92.2	90.0	93.1	91.3	500
30	1775	286T	MUV431	MUV531	F	34.5	194.0	27.6	155.2	88.86	210	250	93.6	93.4	93.1	87.0	89.0	84.3	507
30	1185	326T	MUV432	MUV532	E	36.9	188.0	29.5	150.4	133.11	210	230	93.0	93.1	92.8	82.0	81.4	73.5	617
40	3570	324TS	MUV433	MUV533	E	45.1	244.0	36.1	195.2	58.91	190	250	92.4	92.1	91.6	90.0	90.9	86.9	557
40	1780	324T	MUV434	MUV534	F	45.3	271.0	36.2	216.8	118.15	190	250	94.1	93.7	93.3	88.0	86.0	79.3	586
40	1190	364T	MUV435	MUV535	G	46.3	285.0	37.0	228.0	176.73	220	240	94.1	94.1	93.6	86.0	83.5	76.4	797
50	3570	326TS	MUV436	MUV536	E	56.0	299.0	44.8	239.2	73.64	185	250	93.0	92.8	92.4	90.0	91.4	87.9	709
50	1780	326T	MUV437	MUV537	F	56.3	340.0	45.0	272.0	147.69	200	250	94.5	94.0	93.7	88.0	87.2	81.1	749
50	1190	365T	MUV438	MUV538	F	57.9	341.0	46.3	272.8	220.91	200	230	94.1	94.2	93.8	86.0	84.3	77.8	848
60	3575	364TS	MUV439	MUV539	F	66.7	403.0	53.4	322.4	88.24	190	250	93.6	93.4	93.0	90.0	93.4	91.1	841
60	1785	364T	MUV440	MUV540	F	68.0	412.0	54.4	329.6	176.73	190	250	95.0	94.1	93.8	87.0	87.2	81.2	826
60	1190	404T	MUV441	MUV541	F	69.2	406.0	55.4	324.8	265.10	190	240	94.5	94.4	94.1	86.0	85.0	78.0	1002
75	3575	365TS	MUV442	MUV542	F	83.4	479.0	66.7	383.2	110.32	180	230	93.6	93.8	93.6	90.0	93.2	91.1	877
75	1785	365T	MUV443	MUV543	F	84.7	521.0	67.8	416.8	220.95	200	250	95.4	94.5	94.1	87.0	87.7	81.9	885
75	1190	405T	MUV444	MUV544	G	86.5	531.0	69.2	424.8	331.43	190	230	94.5	94.7	94.3	86.0	85.2	78.5	1178
100	3575	405TS	MUV445	MUV545	F	110.0	667.0	88.0	533.6	147.07	180	250	94.1	94.2	94.0	91.0	92.7	90.2	1070
100	1785	405T	MUV446	MUV546	F	113.0	674.0	90.4	539.2	294.55	180	250	95.4	94.8	94.4	87.0	86.2	79.7	1161
100	1190	444T	MUV447	MUV547	F	115.0	691.0	92.0	552.8	441.83	180	230	95.0	94.8	94.3	86.0	83.3	75.5	1496
125	3580	444TS	MUV448	MUV548	F	136.0	810.0	108.8	648.0	183.58	165	230	95.0	95.0	94.0	91.0	92.0	89.0	1445
125	1790	444T	MUV449	MUV549	F	140.0	828.0	112.0	662.4	367.16	180	240	95.4	95.0	94.7	88.0	89.5	85.1	1502
125	1190	445T	MUV450	MUV550	F	144.0	852.0	115.2	681.6	552.28	180	230	95.0	95.0	94.6	86.0	84.3	77.3	1720
150	3580	445TS	MUV451	MUV551	F	163.0	980.0	130.4	784.0	220.30	160	230	95.0	95.1	93.8	91.0	92.1	89.4	1599
150	1790	445T	MUV452	MUV552	F	167.0	982.0	133.6	785.6	440.59	170	240	95.8	95.3	94.9	88.0	90.3	86.6	1762
150	1190	447T	MUV453	MUV553	F	171.0	1041.0	136.8	832.8	662.74	170	230	95.8	95.3	94.8	86.0	85.3	78.8	2084
200	3580	447TS	MUV454	MUV554	F	214.0	1284.0	171.2	1027.2	293.73	170	220	95.4	95.1	93.8	92.0	92.3	90.5	1907
200	1790	447T	MUV455	MUV555	F	222.0	1325.0	177.6	1060.0	587.46	185	240	96.2	95.6	95.2	88.0	90.5	86.7	2018
200	1190	449T	MUV456	MUV556	F	228.0	1376.0	182.4	1100.8	883.65	170	220	95.8	95.5	95.1	86.0	86.1	80.3	2282
250	3580	449T	MUV457	MUV557	F	266.0	1550.0	212.8	1240.0	367.16	180	220	95.8	95.4	94.3	92.0	92.4	91.0	2216
250	1790	449T	MUV458	MUV558	F	277.0	1667.0	221.6	1333.6	734.32	185	230	96.2	95.8	95.5	88.0	91.1	88.0	2480

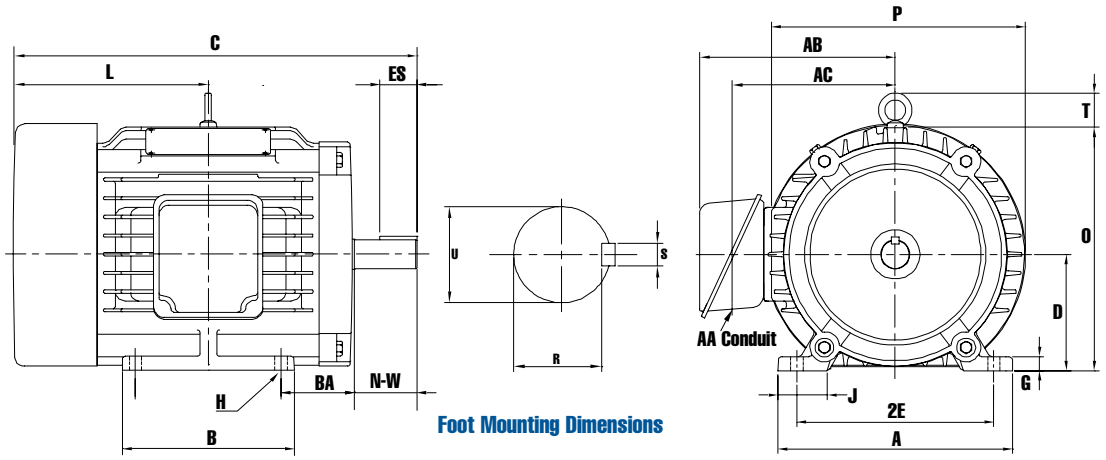
Note: For current at 230V, multiply 460V values by 2. For current at 208V, multiply 460V values by 2.2. For C-Flange, Add Suffix "C" to Cat. No. For D-Flange, Add Suffix "D" to Cat. No.

THINK RELIABLE

— 5 YEAR WARRANTY —
— VFD DUTY —
10:1 CONSTANT TORQUE, ZERO TO BASE SPEED VARIABLE TORQUE

ULTRAline-PE Features & Benefits
Optimized Design For Quality, Efficiency, and Reliability

- Premium efficiency per NEMA MG-1 table 12-12.
- Quiet running with minimum noise and vibration.
- NEMA Design B or C torques.
- Cool running with low temperature rise.
- Class F insulation with Class B or less temperature rise ensures long life.
- CSA approved and EEV verified.
- Oversize NSK/SKF bearings with specially formulated Polyrex EM polyurea bearing grease for smooth running, long life, and wide temperature range.
- Thick V-Ring slinger keeps out moisture and contamination.
- Extra low loss insulated silicon electro-magnetic steel laminations for controlled core loss and maximum efficiency.
- Heavy enamel coated copper windings with precise winding process ensures consistent motor performance and extended insulation life.
- Superior class F non-hygroscopic, vacuum pressure impregnated insulation system resists heat, contaminants, and coil movement.
- Die cast rotor of high conductivity aluminum eliminates variations in rotor bar and end ring resistance thereby assuring consistent motor performance.
- C & D Flange kits available.
- Corona & spike resistant magnet wire.
- Dynamically balanced rotor with half key meets or exceeds NEMA standards ensuring smooth running with no vibration.
- Clearly numbered, high visibility lead markers make connections easy.
- Clearly numbered lead gasket ensures lead numbers are always identifiable even if the lead markers are lost or dirty.
- Thick neoprene lead gasket between conduit box and motor protects against moisture, dirt, or dust entering the motor.
- Oversized, diagonally split, full gasket conduit box, fully rotatable at 90 degree increments for ease of installation wiring.
- Non-sparking, high efficiency, corrosion resistant polypropylene external cooling fan assures best motor cooling and quiet operation.
- Rotor surface is coated for outstanding corrosion resistance.
- External surfaces are coated with a corrosion resistant primer and paint system designed to protect the motor against severe environments.
- Plated hardware and non-corrodible 4-rivet stainless steel nameplate for further corrosion protection and readability under severe conditions.



Foot Mounting Dimensions

ULTRAline-PE TEFC Dimension Data (inches)

Frame	rpm	Fig.	H dia.	# of Holes	MOUNTING BA	D	2E	2F1	2F2	2FF1	2FF2	SHAFT U	N-W	KEYWAY R	ES min.	S	OVERALL A	AA	AB	AC	B	C	G	J	L	O	P	T	BEARINGS DE	NDE
143T	all	2	0.34	8	2.25	3.5	5.5	4	4	-	-	0.875	2.25	0.771	1.41	0.188	7	3/4 NPT	6.7	5	6.0	13.5	.512	1.45		7.3	7.2	No eye bolt	6205LL	6205LL
145T	all	4		12				5	5	4	4										6.8	14.5								
182T	3600	2	0.41	8	2.75	4.5	7.5	4.5	4.5	-	-	1.125	2.75	0.986	1.78	0.25	9	3/4 NPT	7.8	6.1	7.7	16.2	0.669	1.77	7.44	9.1	9.4	1.58	6206LL	6206LL
	1800	4		12				5.5	5.5	4.5	4.5																			
	1200	2		8				4.5	4.5	-	-																			
184T	all	4		12				5.5	5.5	4.5	4.5										8.7	17.1			7.95					
213T	all	1	0.41	4	3.5	5.25	8.5	5.5	5.5	-	-	1.375	3.38	1.201	2.41	0.312	10.5	1.00 NPT	10	7.1	7.5	18	0.787	1.97	8.19	10.9	10.9	1.97	6208LL	6208LL
215T		3		8				7	7	5.5	5.5										9.0	20			8.94					
254T	all	1	0.53	4	4.25	6.25	10	8.25	8.25	-	-	1.625	4.00	1.416	2.91	0.375	12.5	1.25 NPT	11	8.6	10.8	23.5	0.83	2.56	10.67	13.6	13.6	2.35	6309	6309
256T		3		8				10	10	8.25	8.25										12.5	25.2			11.57					
284T	all	1	0.53	4	4.75	7	11	9.5	9.5	-	-	1.875	4.62	1.591	3.28	0.5	14	1.50 NPT	14.2	10	12.5	26.6	0.94	2.76	11.95	14.6	15.1	2.35	6311	6311
284TS												1.625	3.25	1.416	1.91	0.375						25.2								
286T	all	3	0.53	8	4.75	7	11	11	11	9.5	9.5	1.875	4.62	1.591	3.28	0.5	14	1.50 NPT	14.2	10	14	28.1	0.94	2.76	12.70	14.6	15.1	2.35		
286TS												1.625	3.25	1.416	1.91	0.375						26.7								
324T	all	1	0.66	4	5.25	8	12.5	10.5	10.5	-	-	2.125	5.25	1.845	3.91	0.5	16	2.00 NPT	15	10.9	14.8	31.7	0.98	2.76	14.61	16.4	16.7	2.5	6312	6312
324TS												1.875	3.75	1.591	2.03	0.5						30.2								
326T	all	3	0.66	8	5.25	8	12.5	12	12	10.5	10.5	2.125	5.25	1.845	3.91	0.5	16	2.00 NPT	15	10.9	16.3	33.3	0.98	2.76	15.35	16.4	16.7	2.5		
326TS												1.875	3.75	1.591	2.03	0.5						31.7								
364T	all	1	0.66	4	5.88	9	14	11.25	11.25	-	-	2.375	5.88	2.021	4.28	0.625	18	3.00 NPT	17.5	12.85	16.3	33.7	0.98	3.11	15.12	18.31	18.1	2.5	6314	6314
364TS												1.875	3.75	1.591	2.03	0.5						31.5								
365T	all	3	0.66	8	5.88	9	14	12.25	12.25	11.25	11.25	2.375	5.88	2.021	4.28	0.625	18	3.00 NPT	17.5	12.85	18	37.1	0.98	3.11	16.79	18.31	18.1	2.5		
365TS												1.875	3.75	1.591	2.03	0.5						34.7								
404T	all	1	0.81	4	6.62	10	16	12.25	12.25	-	-	2.875	7.25	2.45	5.65	0.75	20	3.00 NPT	18.8	12.2	19.0	39	1.18	3.15	17.97	20.12	20.3	2.5	6316	6316
404TS												2.125	4.25	1.845	2.78	0.5						36								
405T	all	3	0.81	8	6.62	10	16	13.75	13.75	12.25	12.25	2.875	7.25	2.45	5.65	0.75	20	3.00 NPT	18.8	12.2	19.0	39	1.18	3.15	17.97	20.12	20.3	2.5		
405TS												2.125	4.25	1.845	2.78	0.5						36								
444T	all	1	0.81	4	7.5	11	18	14.5	14.5	-	-	3.375	8.5	2.88	6.91	0.875	22	3.00 NPT	19.7	14.76	20.0	45.1	1.38	3.46	20.18	22.5	23.1	3.7	NU318	6318
444TS												2.375	4.75	2.021	3.03	0.625						41.4							6316	6316
445T	all	3	0.81	8	7.5	11	18	16.5	16.5	14.5	14.5	3.375	8.5	2.88	6.91	0.875	22	3.00 NPT	19.7	14.76	20.0	45.1	1.38	3.46	20.18	22.5	23.1	3.7	NU318	6318
445TS												2.375	4.75	2.021	3.03	0.625						41.4							6316	6316
447T	all	3	0.81	8	7.5	11	18	20	20	16.5	16.5	3.375	8.5	2.88	6.91	0.875	22	3.00 NPT	19.7	14.76	28.0	53.6	1.38	3.46	24.43	22.5	23.1	3.7	NU320	6320
447TS		3	0.81	8	7.5	11	18	20	20	16.5	16.5	2.375	4.75	2.021	3.03	0.625	22		19.7	14.76	28.0	50.0	1.38	3.46	24.43	22.5	23.1	3.7	6316	6316
447TZ		3	0.81	8	7.5	11	18	20	20	16.5	16.5	3.375	10.125	2.88	8.54	0.875	22		19.7	14.76	28.0	55.4	1.38	3.46	24.43	22.5	23.1	3.7	NU320	6320
449T	all	3	0.81	8	7.5	11	18	25	25	20	20	3.375	8.5	2.88	6.91	0.875	22	3.00 NPT	19.7	14.76	28.0	53.6	1.38	3.46	24.43	22.5	23.1	3.7	NU320	6320
449TS		3	0.81	8	7.5	11	18	25	25	20	20	2.375	4.75	2.021	3.03	0.625	22		19.7	14.76	28.0	50.0	1.38	3.46	24.43	22.5	23.1	3.7	6316	6316
449TZ		3	0.81	8	7.5	11	18	25	25	20	20	3.375	10.125	2.88	8.54	0.875	22		19.7	14.76	28.0	55.4	1.38	3.46	24.43	22.5	23.1	3.7	NU320	6320

2F1 & 2FF1 dimensions (2FF1 only where present) are applicable in F1 mounting position. 2F2 & 2FF2 dimensions (2FF2 only where present) are applicable in F2 mounting position.

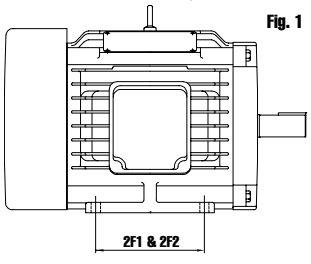


Fig. 1

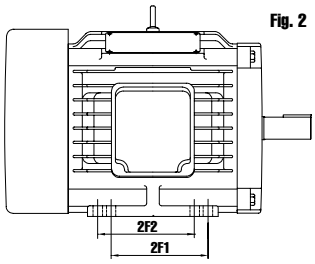


Fig. 2

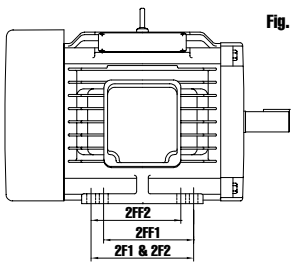


Fig. 3

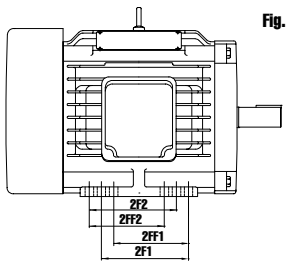


Fig. 4

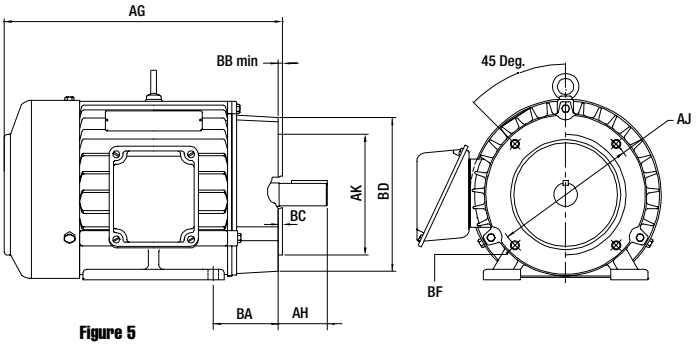


Figure 5

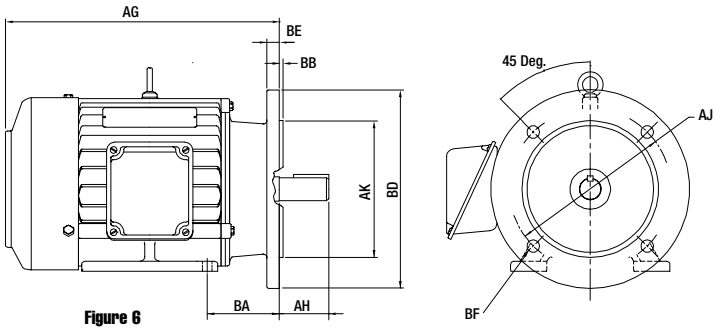


Figure 6

Dimensions (foot mount with drive end flange "kits" installed)

ULTRAline-PE TEFC C-Face Dimension Data (inches)

C Flange Kits (see Fig.5)												
										BF HOLE		
Frame	AG	AH	AJ	AK	NEMA BA*	Kit BA	BB min.	BC	BD max.	qty.	Tap Size	Bolt Penetration Allowance
143TC	11.50	2.12	5.875	4.5	2.75*	2.25	0.16	0.12	6.5	4	3/8-16	0.56
145TC	12.50											
182TC	13.74	2.62	7.25	8.5	3.50*	2.75	0.25	0.12	9	4	1/2-13	0.75
184TC	14.76											
213TC	15.13	3.12	7.25	8.5	4.25*	3.5	0.25	0.25	9	4	1/2-13	0.75
215TC	17.13											
254TC	19.95	3.75	7.25	8.5	4.75*	4.25	0.25	0.25	10	4	1/2-13	0.75
256TC	21.70											
284TC	22.47	4.38	9	10.5	4.75	4.75	0.25	0.25	11.25	4	1/2-13	0.75
284TSC	22.47	3										
286TC	23.97	4.38										
286TSC	23.97	53										
324TC	26.95	5	11	12.5	5.25	5.25	0.25	0.25	14	4	5/8-11	0.94
324TSC	26.95	3.5										
326TC	28.55	5										
326TSC	28.55	3.5										
364TC	28.33	5.62	11	12.5	5.88	5.88	0.25	0.25	14	8	5/8-11	0.94
364TSC	28.33	3.5										
365TC	31.73	5.62										
365TSC	31.73	3.5										
404TC	32.58	7	11	12.5	6.62	6.62	0.25	0.25	15.5	8	5/8-11	0.94
404TSC	32.58	4										
405TC	32.58	7										
405TSC	32.58	4										
444TC	37.15	8.25	14	16	7.5	7.5	0.25	0.25	18	8	5/8-11	0.94
444TSC	37.15	4.5										
445TC	37.15	8.25										
445TSC	37.15	4.5										
447TC	45.75	8.25	14	16	7.5	7.5	0.25	0.25	18	8	5/8-11	0.94
447TSC	45.75	4.5										
449TC	45.75	8.25										
449TSC	45.75	4.5										

* = NEMA BA dimension (C flange kits installed on foot mount motors in 143T through 256T frame sizes result in a non-standard NEMA BA dimension, as the resulting BA dimension is still the same as the foot mount BA dimension. This is common in the industry)

143TC through 256TC frame motors with NEMA BA dimensions are available by factory order.

284TC frames & up have NEMA BA dimensions for both factory built and with C flange kits installed.

ULTRAline-PE TEFC D-Face Dimension Data (inches)

D Flange Kits (see Fig.6)												
										BF HOLE		
Frame	AG	AH	AJ	AK	NEMA BA*	Kit BA	BB	BD max.	BE nom.	qty.	Tap Size	Recommended Bolt Length
143TD	11.50	2.25	10	9	2.75*	2.25	0.25	11	0.5	4	0.53	1.25
145TD	12.50											
182TD	13.74	2.75	10	9	3.50*	2.75	0.25	11	0.5	4	0.53	1.25
184TD	14.76											
213TD	15.13	3.38	10	9	4.25*	3.5	0.25	11	0.5	4	0.53	1.25
215TD	17.13											
254TD	19.95	4	12.5	11	4.75*	4.25	0.25	14	0.75	4	0.81	2
256TD	21.70											
284TD	22.47	4.62	12.5	11	4.75	4.75	0.25	14	0.75	4	0.81	2
284TSD	22.47	3.25										
286TD	23.97	4.62										
286TSD	23.97	3.25										
324TD	26.95	5.25	16	14	5.25	5.25	0.25	18	0.75	4	0.81	2
324TSD	26.95	3.75										
326TD	28.55	5.25										
326TSD	28.55	3.75										
364TD	28.33	5.88	16	14	5.88	5.88	0.25	18	0.75	4	0.81	2
364TSD	28.33	3.75										
365TD	31.73	5.88										
365TSD	31.73	3.75										
404TD	32.58	7.25	20	18	6.62	6.62	0.25	21.9	1	8	0.81	2.25
404TSD	32.58	4.25										
405TD	32.58	7.25										
405TSD	32.58	4.25										
444TD	37.15	8.5	20	18	7.5	7.5	0.25	21.9	1	8	0.81	2.25
444TSD	37.15	4.75										
445TD	37.15	8.5										
445TSD	37.15	4.75										
447TD	45.75	8.5	20	18	7.5	7.5	0.25	21.9	1	8	0.81	2.25
447TSD	45.75	4.75										
449TD	45.75	8.5										
449TSD	45.75	4.75										

* = NEMA BA dimension (D flange kits installed on foot mount motors in 143T through 256T frame sizes result in a non-standard NEMA BA dimension, as the resulting BA dimension is still the same as the foot mount BA dimension.This is common in the industry)

143TD through 256TD frame motors with NEMA BA dimensions are available by factory order.

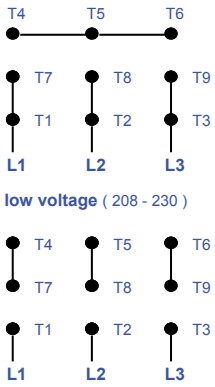
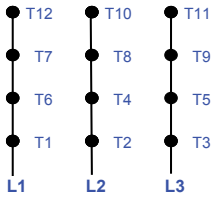
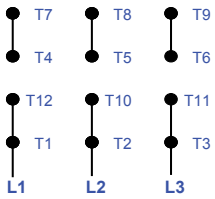
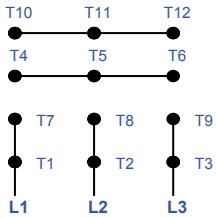
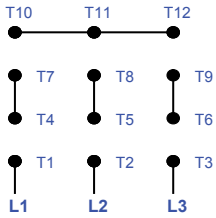
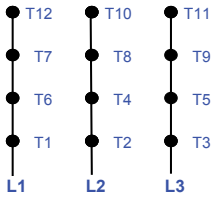
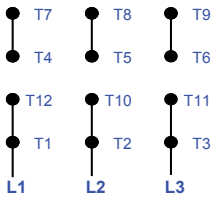
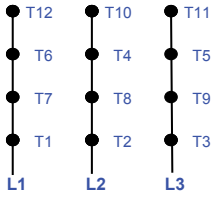
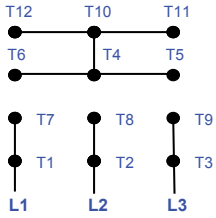
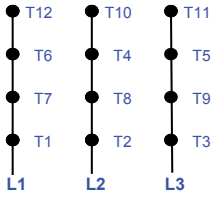
284TD frames & up have NEMA BA dimensions for both factory built and with D flange kits installed.

ULTRAline-PE Connection Diagrams

208 - 230 / 460V

connections for direct-on-line full voltage starting

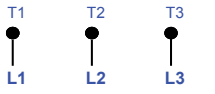
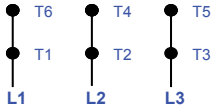
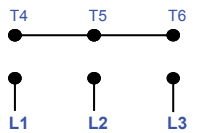
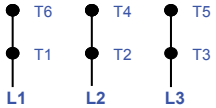
optional connections for wye-delta starting (wye start - delta run)
(these connections are only suitable for use with wye-delta type magnetic starters)

	connections for direct-on-line full voltage starting	optional connections for wye-delta starting (wye start - delta run) (these connections are only suitable for use with wye-delta type magnetic starters)
< = 5 HP (9 leads)	 **low voltage** (208 - 230) **high voltage** (460)	not applicable
7.5 HP to 125 HP (12 leads)	 **low voltage** (208 - 230)  **high voltage** (460)	 low voltage (208 - 230) Wye START  high voltage (460) Wye START  low voltage (208 - 230) Delta RUN  high voltage (460) Delta RUN
150 HP to 250 HP (12 leads) (**460** volt **only**)	 **high voltage** (460)	 high voltage (460) Wye START  high voltage (460) Delta RUN

575V

connections for direct-on-line full voltage starting

optional connections for wye-delta starting (wye start - delta run)
(these connections are only suitable for use with wye-delta type magnetic starters)

	connections for direct-on-line full voltage starting	optional connections for wye-delta starting (wye start - delta run) (these connections are only suitable for use with wye-delta type magnetic starters)
< = 5 HP (3 leads)		not applicable
> = 7.5 HP (6 leads)		 Wye START  Delta RUN

Inverter Capabilities of ULTRAline-PE Motors

VFD (PWM) Installation Guidelines:

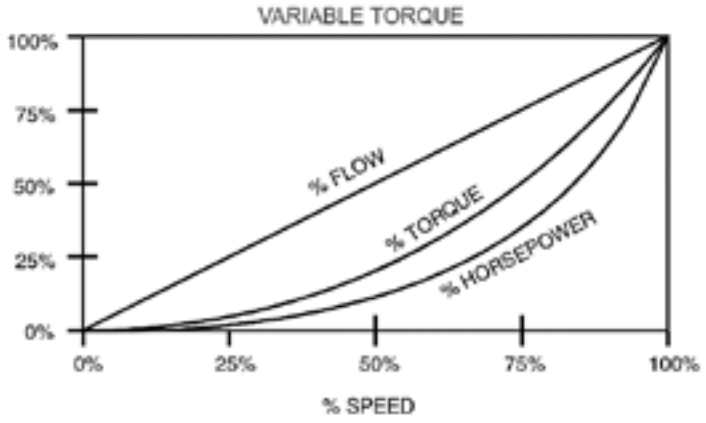
Voltage	Cable Length	Notes
200-230	unlimited	at any carrier frequency up to 12 kHz
460	unlimited	at any carrier frequency up to 12 kHz
575	600 feet	at 3 kHz carrier frequency
	350 feet	at 6 kHz carrier frequency
	250 feet	at 9 kHz carrier frequency
	200 feet	at 12 kHz carrier frequency

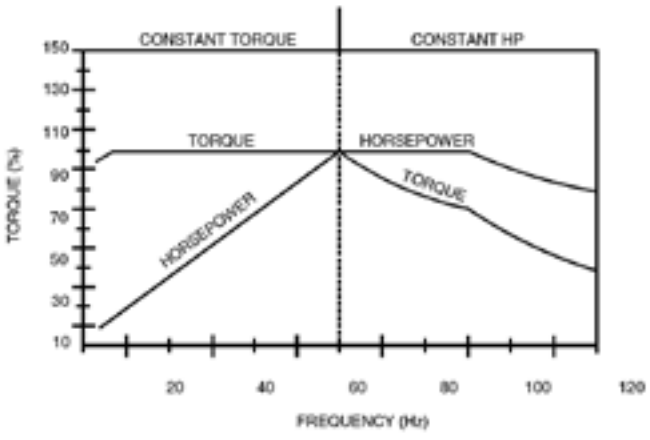
Note:
Higher carrier frequencies require shorter cable lengths. Contact your local distributor for details.

Variable frequency drives, and the loads they are applied to, can generally be divided into two groups: constant torque and variable torque. Constant torque loads include: vibrating conveyors, punch presses, rock crushers, and just about every other application that is not considered variable torque. Variable torque loads include centrifugal pumps and fans, which make up the majority of HVAC applications.

It is important to note that for variable torque loads, horsepower varies as the cube of the speed, i.e., it is a non-linear relationship.

Variable torque loads are governed by the affinity laws, which define the relationships between speed, flow, torque and horsepower. The diagram below illustrates these relationships:





POWERFUL + EFFICIENT + RELIABLE

ULTRAline

ADDITIONAL ULTRALINE MOTORS AVAILABLE FROM YOUR DISTRIBUTOR

RSC - TEFC SINGLE-PHASE, MULTI-MOUNT MOTORS.
C-FACE WITH REMOVABLE BASE ALLOWS MULTIPLE MOUNTING OPTIONS.

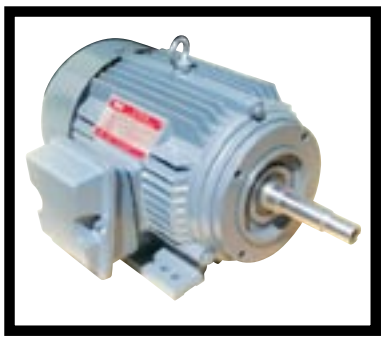
RSC - TEFC THREE-PHASE, MULTI-MOUNT MOTORS.
C-FACE WITH REMOVABLE BASE ALLOWS MULTIPLE MOUNTING OPTIONS.

RSD - ODP THREE-PHASE,
ROLLED STEEL MOTORS.
GENERAL PURPOSE RIGID BASE MOTORS.

RSF - TEFC SINGLE-PHASE,
FARM DUTY MOTORS.
GENERAL PURPOSE RIGID BASE MOTORS.

RSB - TEFC THREE-PHASE,
ROLLED STEEL MOTORS.
GENERAL PURPOSE RIGID BASE MOTORS.

SS - TENV & TEFC THREE-PHASE,
STAINLESS STEEL WASHDOWN MOTORS.
ALL STAINLESS STEEL CONSTRUCTION FOR USE IN SEVERE CORROSIVE ENVIRONMENTS.



MUJ - TEFC THREE PHASE, JM,
LONG SHAFT, CLOSE COUPLED
PUMP MOTORS.

MUY - WPI THREE PHASE,
VERTICAL HOLLOW SHAFT MOTORS
WITH NON-REVERSE RATCHETS.

ULTRAline

ABOVE NEMA MOTORS

300HP, 900RPM, 575V, TEBC

- 2 year warranty
- TEFC or TEBC (blower cooled)
- General Purpose & VFD rated
- 380, 400, 415, 460, 575 volts or 2300/4160 volts or higher, up to 10KV
- 50Hz & 60Hz
- Premium or high efficiency
- CSA, C-UL and CE certified
- NEMA 5800 (580) frame and larger

Grounded cast iron stator

Separately powered blower for VFD applications

Oversized NSK/SKF bearings with Polyrex EM grease

Locked drive end

Clearly labeled, separated, and gasketed leads

Copper wire VPI windings, extra winding ties, Class 'F' insulation

Contact Your Distributor for Information on Large and Very Large ULTRAline Above Nema Motors

THINK ULTRAline-PE

1 THRU 250HP
NEMA 140T THRU 449T
PREMIUM EFFICIENCY
VFD DUTY
ISO9001 CERTIFIED

CANADIAN STANDARDS ASSOCIATION

VOLUME I

Powerful + Efficient + Reliable

ULTRAline-PE

CAST IRON PREMIUM EFFICIENCY ELECTRIC MOTORS

MADISON ELECTRIC MOTORS has been engineering, designing, and supplying electric motors to the Canadian market since 1980. Our main distribution centres are located in Vancouver and Toronto with additional local stocks maintained at our distribution partners in each major Canadian city (see map).

Over the years we've prided ourselves in bringing to the Canadian market, motors that are rugged, dependable, practical, and designed for Canada's unique environments. We don't add unnecessary features that mainly just add cost to the motor. Our motors are workhorses. It is with this tradition of solid value that we proudly present to you our new **ULTRAline-PE** series of electric motors.

Based upon many years of experience with electric motors of all types, Madison's own engineers developed the exacting specifications for the **ULTRAline-PE** motor.

The motors are then designed, built, and assembled with the utmost precision.

It is this combination of comprehensive design, specification, and assembly that ensures a superb electric motor which will give long-term customer satisfaction.

From our large inventories, we can ship **ULTRAline-PE** motors promptly at all times. Inquiries for custom built or special purpose motors are also welcomed.

Our involvement does not stop with the sale. We service what we sell. Every motor is backed up by our extensive network of service shops across the country. Any problem is attended to immediately.

This brochure contains construction, performance, and dimension information. For further questions, please do not hesitate to contact us.

Vancouver
Madison Industrial Equipment Ltd.
1970 Alberta Street
Vancouver, B.C.
Canada V5Y 3X4

Phone: 604.872.8155
Fax: 604.872.4563
E-Mail: sales@madison.ca

MADISON ELECTRIC MOTORS

For Your Nearest Distributor Please Contact Our Vancouver or Toronto Office

www.madisonelectricmotors.com

Toronto
Madison Industrial Equipment Inc.
7855 Tranmere Drive
Mississauga, Ontario
Canada L5S 1V5

Phone: 905.612.9977
Fax: 905.612.9451
E-Mail: sales@madison-ont.com