

Premium Severe Duty/Chemical Processing/IEEE-841, Three Phase, NEMA Premium® Efficiency, Blue Chip XRI®

Totally Enclosed, Rigid Base

SEVERE DUTY

Applications: For extreme applications in the process industries such as chemical plants, pulp and paper mills, refineries, above-ground mines, food processing, foundries, and other severe duty environments where long life and ultra-high efficiency are required. Guaranteed efficiencies offer an eXtra Return on your Investment when using these premium efficiency motors on high cycle or long run time applications.



Features:

- Meets or exceeds NEMA Premium® efficiencies, except where noted
- Meets IEEE-841 standard for severe duty applications
- Blue Chip® quality, 100% cast iron construction for rigidity and reduced vibration
- Inpro/Seal® VBX® bearing isolators on drive end shaft extension TENV and on both ends of TEFC
- Provisions to add stub shaft for an encoder (182T-449T, TEFC only)
- Internal and external epoxy paint
- MAX GUARD® Class F insulation system
- 1.15 Service Factor on sinewave, 1.0 Service Factor on IGBT power
- Bearing caps (254T and larger)
- Precision balanced
- Extended grease tubes, regreasable in service
- Brass drain and breather
- Meets IEEE45 USCG Marine Duty, API RPI4F for offshore platforms, IP56
- Meets NEMA MG1 - 1.26.6 Waterproof specification
- Hazardous Duty™ Division 2 CSA certification nameplate, for hazardous locations, Class I, Groups A, B, C, and D
- Meets temperature code T2B
- Actual test and vibration data supplied with each motor
- Ball bearings, except where noted
- UL Recognized (through 449T), CSA Certified
- Five year warranty



Available with Nameplate Modification (through 40 HP):

- 2:1, 20:1, or 1000:1 Constant Torque, 1.0 Service Factor on IGBT (PWM) power
- 1.25 Service Factor through 40 HP (sinewave only)
- 50HZ at same HP, 1.0 Service Factor through 40 HP (sinewave only)
- Contact Marathon Electric for optional nameplate markings on 50 HP and larger

Suitable for use on VFD per guidelines on page 15.

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	CT SPEED RANGE*	LIST PRICE	MULT. SYMB.	NOM. EFF.	F.L. AMPS	APPROX. WGH. LBS.	"C" DIM.	FOOT NOTES	C FACE KIT
3/4	1200	460	143T	W500	-----	---	\$808	E9	80.0	1.4	53	10.43	75,76,N	----
1	1800	460	143T	W501 ★	143THTN9026	1000:1	\$618	E9	85.5	1.5	55	10.43	75,76,N	A181
	1800	575	143T	W502	143THTN19033	1000:1	\$618	E9	85.5	1.2	55	10.43	75,76,N	A181
	1200	460	145T	W503	145THTN9076	1000:1	\$778	E9	80.0	1.65	60	11.43	75,76,N,NP	A262
	1200	575	145T	W638	145THTN19079	1000:1	\$778	E9	80.0	1.3	60	11.43	75,76,N,NP	A262
	900	460	182T	W504	182THFS9102	20:1	\$1,367	E9	74.0	2.2	110	15.19	75,NE	A182
1 1/2	3600	460	143T	W505	143THTN9001	1000:1	\$774	E9	86.5	2.0	58	10.43	75,76,N	A181
	3600	575	143T	W506	143THTN9005	1000:1	\$774	E9	86.5	1.6	58	10.43	75,76,N	A181
	1800	460	145T	W507 ★	145THTN9026	1000:1	\$670	E9	84.0	2.2	65	11.43	75,76,N,NP	A262
	1800	575	145T	W508 ★	145THTN19045	1000:1	\$670	E9	84.0	1.75	65	11.43	75,76,d,N,NP	A262
	1200	460	182T	W509 ★	182THTS9076	1000:1	\$996	E9	87.5	2.2	100	12.71	75,d,N	A182
	900	460	184T	W510	-----	---	\$1,577	E9	80.0	3.0	120	16.19	75,NE	A182
2	3600	460	145T	W511	145THTN9001	1000:1	\$811	E9	85.5	2.5	68	11.43	75,76,N	A262
	3600	575	145T	W512	145THTN19002	1000:1	\$811	E9	85.5	2.0	68	11.43	75,76,N	A262
	1800	460	145T	W513 ★	145THTN9027	1000:1	\$736	E9	85.5	3.0	68	11.43	75,76,N,NP	A262
	1800	575	145T	W514 ★	145THTN19033	1000:1	\$736	E9	85.5	2.4	68	11.43	75,76,d,N,NP	A262
	1200	460	184T	W515	184THTS9076	1000:1	\$1,230	E9	88.5	3.0	112	13.71	75,N	A182
	900	460	213T	W516	-----	---	\$1,837	E9	84.0	3.8	170	18.22	NE	----
3	3600	460	182T	W517 ★	182THTS9001	1000:1	\$1,114	E9	87.5	3.8	105	12.71	d,75,N	A182
	3600	575	182T	W518	-----	---	\$1,114	E9	87.5	3.0	105	12.71	75,N	----
	1800	460	182T	W519 ★	182THTS9026	1000:1	\$999	E9	90.2	4.0	100	12.71	75,N	A182
	1800	575	182T	W520 ★	182THTS19033	1000:1	\$999	E9	90.2	3.2	100	12.71	d,75,N	A182
	1200	460	213T	W521 ★	213THFS9076	20:1	\$1,515	E9	89.5	4.4	176	18.22	75	A183
	900	460	215T	W522	215THFS9101	20:1	\$2,269	E9	86.5	5.0	180	19.72	75,NE	A183

Blue shaded areas are Cast Iron Frames ★ **Stock Model** * **Requires nameplate modification** Catalog numbers (Cat No.) highlighted in bold blue have efficiency levels that meet or exceed U.S. EPA and/or NRC Canadian standards.

Footnotes:

- d Will become build-up item when current stock is gone
- N Totally Enclosed, Non-Ventilated
- NE Exempt NEMA Premium efficiency requirement
- NP Does not meet NEMA Premium efficiency
- 75 Addition of C-Face Kits may result in non-NEMA "BA" dimension; for the resulting "BA" dimension consult chart found in modification section
- 76 Addition of C-Face Kits in non-NEMA "AH" dimension "AH" is 2.12", rework "AH" is 2.38".

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Premium Severe Duty/Chemical Processing/IEEE-841, Three Phase, NEMA Premium® Efficiency, Blue Chip XRI®

Totally Enclosed, Rigid Base

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	CT SPEED RANGE*	LIST PRICE	MULT. SYMB.	NOM. EFF.	F.L. AMPS	APPROX. WGT. LBS.	"C" DIM.	FOOT NOTES	C FACE KIT
5	3600	460	184T	W523 *	184THFS9001	2:1	\$1,238	E9	89.5	5.9	142	16.19	75	A182
	3600	575	184T	W524	184THFS19006	2:1	\$1,238	E9	89.5	4.7	142	16.19	75	A182
	1800	460	184T	W525 *	184THFS9026	20:1	\$1,158	E9	90.2	6.2	130	16.19	75	A182
	1800	575	184T	W526 *	184THFS9030	20:1	\$1,158	E9	90.2	5.0	130	16.19	75	A182
	1200	460	215T	W527 *	215THFS9076	20:1	\$1,860	E9	89.5	6.9	202	19.72	75	A183
	1200	575	215T	W528	215THFS19077	20:1	\$1,860	E9	89.5	5.5	202	19.72	75	A183
	900	460	254T	W529	254THFNA9101		\$2,958	E9	88.5	7.5	375	23.52	75,NE	A184
7 1/2	3600	460	213T	W530 *	213THTS9001	2:1	\$1,495	E9	91.7	8.9	200	17.18	75,N	A183
	3600	575	213T	W531	213THTS19005	2:1	\$1,495	E9	91.7	7.1	200	17.18	75,N	A183
	1800	460	213T	W532 *	213THFS9026	20:1	\$1,419	E9	91.7	9.6	200	19.73	75	A183
	1800	575	213T	W533 *	213THFS9030	20:1	\$1,419	E9	91.7	7.7	200	19.72	75	A183
	1200	460	254T	W534 *	254THFNA9076	20:1	\$2,233	E9	91.0	9.9	326	23.52	75	A184
	1200	575	254T	W535	-----		\$2,233	E9	91.0	7.9	326	23.52	75	
	900	460	256T	W536	256THFNA9101	20:1	\$3,668	E9	88.5	11.0	425	25.27	75,NE	A185
10	3600	460	215T	W537 *	215THFS9001	2:1	\$1,746	E9	91.7	11.9	218	19.72	75	A183
	3600	575	215T	W538	215THFS19006	2:1	\$1,746	E9	91.7	9.5	218	19.72	75	A183
	1800	460	215T	W539 *	215THFS9026	20:1	\$1,709	E9	91.7	12.5	225	19.72	75	A183
	1800	575	215T	W540 *	215THFS19033	20:1	\$1,709	E9	91.7	10.0	225	19.73	75	A183
	1200	460	256T	W541	256THFNA9076	20:1	\$2,727	E9	91.0	13.1	405	25.27	75	A184
	1200	575	256T	W542	256THFNA19081	20:1	\$2,727	E9	91.0	10.5	405	25.27	75	A184
	900	460	284T	W543	284THFNA19102	20:1	\$4,459	E9	90.2	16.0	550	27.88	NE	A185
15	3600	460	254T	W544 *	254THFNA9001	20:1	\$2,165	E9	91.7	17.5	345	23.52		A184
	3600	575	254T	W545	-----		\$2,165	E9	91.7	14.2	345	23.52		
	1800	460	254T	W546 *	254THFNA9026	20:1	\$2,033	E9	92.4	18.8	350	23.52		A184
	1800	575	254T	W547 *	254THFNA9030	20:1	\$2,033	E9	92.4	15.1	350	23.52		A184
	1200	460	284T	W548 *	284THFNA9076	20:1	\$3,620	E9	91.7	20.4	479	27.88		A186
	1200	575	284T	W549 *	284THFNA16585	20:1	\$3,620	E9	91.7	16.3	479	26.34		A186
	900	460	286T	W550	286THFNA19101	20:1	\$5,594	E9	90.2	22.0	575	27.84	NE	A186
20	3600	460	256T	W551 *	256THFNA9001	2:1	\$2,683	E9	92.4	23.4	375	25.27	75	A184
	3600	575	256T	W552	-----		\$2,683	E9	92.4	18.7	375	25.27	75	
	1800	460	256T	W553 *	256THFNA9026	20:1	\$2,533	E9	93.0	24.1	425	25.27	75	A184
	1800	575	256T	W554 *	256THFNA19033	20:1	\$2,533	E9	93.0	19.3	425	25.27	75	A184
	1200	460	286T	W555	286THFNA9076	20:1	\$4,410	E9	91.7	26.8	550	27.84		A186
	1200	575	286T	W556	286THFNA19077	20:1	\$4,410	E9	91.7	21.4	550	27.84		A186
	900	460	324T	W557	-----		\$6,751	E9	89.5	29.0	625	28.75	NE	
25	3600	460	284TS	W558 *	284TSHFNA9001	2:1	\$3,305	E9	93.6	28.1	481	24.97		A186
	3600	575	284TS	W559	284TSHFNA9005	2:1	\$3,305	E9	93.6	22.4	481	24.97		A186
	1800	460	284T	W560 *	284THFNA9026	20:1	\$3,015	E9	93.6	31.0	478	26.44		A186
	1800	575	284T	W561 *	284THFNA19033	20:1	\$3,015	E9	93.6	24.8	478	26.34		A186
	1200	460	324T	W562	324THFS9076	20:1@	\$5,346	E9	93.0	32.5	675	28.87		A187
	1200	575	324T	W563	324THFS9080	20:1@	\$5,346	E9	93.0	26.0	675	28.87		A214
	900	460	326T	W564	-----		\$7,786	E9	90.2	36.5	690	30.25	NE	
30	3600	460	286TS	W565 *	286TSHFNA9001	2:1	\$3,860	E9	93.6	33.8	500	26.44		A186
	3600	575	286TS	W566	-----		\$3,860	E9	93.6	27.0	500	26.47		
	1800	460	286T	W567 *	286THFNA9026	20:1	\$3,507	E9	94.1	36.5	525	27.84		A186
	1800	575	286T	W568	286THFNA19033	20:1	\$3,507	E9	94.1	29.2	525	27.84		A186
	1200	460	326T	W569 *	326THFS9076	20:1@	\$6,157	E9	93.0	38.5	725	30.37		A187
	1200	575	326T	W643 *	326THFS19078	20:1@	\$6,157	E9	93.0	31.0	725	30.37	d	A187
	900	460	364T	W570	-----		\$9,115	E9	91.7	41.0	875	31.50	NE	
40	3600	460	324TS	W571 *	324TSHFS9001	2:1	\$5,090	E9	93.6	47.0	656	27.37		A187
	3600	575	324TS	W572	-----		\$5,090	E9	93.6	37.5	656	27.37		
	1800	460	324T	W573 *	324THFS9026	20:1@	\$4,657	E9	94.1	47.5	700	28.87		A187
	1800	575	324T	W574 *	324THFS19033	20:1@	\$4,657	E9	94.1	38.0	700	30.37	d	A187
	1200	460	364T	W575	364THFS9086	20:1@	\$7,677	E9	93.6	50.0	950	31.50	NP	A188
	1200	575	364T	W639	364THFS19077	20:1@	\$7,677	E9	93.6	40.0	950	31.50	NP	A188
	900	460	365T	W576	365THFS19101	20:1@	\$10,946	E9	91.7	53.0	975	32.50	NE	A188

Blue shaded areas are Cast Iron Frames

Footnotes:

d Will become build-up item when current stock is gone
N Totally Enclosed, Non-Ventilated

* **Stock Model*** **Requires nameplate modification**© **Requires larger fan**

Catalog numbers (Cat No.) highlighted in bold blue have efficiency levels that meet or exceed U.S. EPAact and/or NRCan Canadian standards.

NE Exempt from NEMA Premium efficiency requirements
NP Does not meet NEMA Premium efficiency
75 Addition of C-Face Kits may result in non-NEMA "BA" dimension; for the resulting "BA" dimension consult chart found in modification section

Premium Severe Duty/Chemical Processing/IEEE-841, Three Phase, NEMA Premium® Efficiency, Blue Chip XRI®

Totally Enclosed, Rigid Base

SEVERE DUTY

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	CT SPEED RANGE*	LIST PRICE	MULT. SYMB.	NOM. EFF.	F.L. AMPS	APPROX. WGT. LBS.	"C" DIM.	FOOT NOTES	C FACE KIT	
50	3600	460	326TS	W577	326TSHFS9001	2:1	\$6,584	E9	93.6	58.0	725	28.87		A187	
	3600	575	326TS	W578	326TSHFS9005	2:1	\$6,584	E9	93.6	46.5	725	28.87		A187	
	1800	460	326T	W580 *	326THFS9026	20:1@	\$5,720	E9	94.5	60.0	775	30.37		A187	
	1800	460	326TS	W579	326TSHFS9036	20:1@	\$5,720	E9	94.5	60.0	775	28.87		A187	
	1800	575	326T	W581	326THFS19033	20:1@	\$5,720	E9	94.5	48.0	775	30.37		A187	
	1200	460	365T	W582 *	365THFS9086	20:1@	\$8,816	E9	93.6	61.5	975	32.50	NP	A188	
	1200	575	365T	W640	365THFS19077	20:1@	\$8,816	E9	93.6	49.0	975	32.50	NP	A188	
	900	460	404T	W583	404THFS9101	20:1@	\$12,316	E9	93.6	66.0	1264	35.62	NE	A190	
60	3600	460	364TS	W584 *	364TSHFS9001	2:1	\$7,969	E9	94.5	67.0	925	29.38		A189	
	3600	575	364TS	W585	-----	2:1	\$7,969	E9	94.5	54.0	925	29.38		A189	
	1800	460	364T	W587 *	364THFS9036	20:1@	\$7,549	E9	95.0	69.0	1000	31.50		A188	
	1800	460	364TS	W586	364TSHFS9026	20:1@	\$7,549	E9	95.0	69.0	1000	29.38		A189	
	1800	575	364T	W588	364THFS19033	20:1@	\$7,549	E9	95.0	55.0	1000	31.50		A188	
	1200	460	404T	W589	404THFS9086	20:1@	\$10,330	E9	94.5	72.0	1156	35.62		A190	
	900	460	405T	W590	405THFS19101	20:1@	\$13,819	E9	93.6	80.0	1350	37.12	NE	A190	
	75	3600	460	365TS	W591 *	365TSHFS9001	2:1	\$10,007	E9	94.5	84.0	1002	30.38		A189
3600		575	365TS	W592	365TSHFS19002	2:1	\$10,007	E9	94.5	67.0	1002	30.38		A189	
1800		460	365T	W594 *	365THFS9036	20:1@	\$9,571	E9	95.4	86.0	1100	32.50		A188	
1800		460	365TS	W593	365TSHFS9026	20:1@	\$9,571	E9	95.4	86.0	1100	30.38		A189	
1800		575	365T	W595 *	365THFS9044	20:1@	\$9,571	E9	95.4	69.0	1100	32.50		A188	
1200		460	405T	W596	405THFS9086	20:1@	\$12,159	E9	95.0	90.0	1280	37.12		A190	
900		460	444T	W597	444THFS9101	20:1@	\$18,375	E9	93.6	100	1734	41.25	NE	A192	
100		3600	460	405TS	W598 *	405TSHFS9001	2:1	\$13,409	E9	95.0	108	1295	34.12		N/A
	1800	460	405T	W600 *	405THFS9036	20:1	\$11,824	E9	95.4	113	1330	37.12		A190	
	1800	460	405TS	W599	405TSHFS9026	20:1@	\$11,824	E9	95.4	113	1330	34.12		N/A	
	1800	575	405T	W601 *	405THFS9040	20:1@	\$11,824	E9	95.4	90.0	1330	37.12		A190	
	1200	460	444T	W636	444THFN19081	20:1@	\$17,931	E9	95.0	124	2100	41.25		A192	
	900	460	445T	W603	445THFN9106	20:1@	\$22,518	E9	94.1	142	2350	43.19	NE	A192	
	125	3600	460	444TS	W604	444TSHFS9001	2:1@	\$17,530	E9	95.4	136	1725	37.50		A193
		1800	460	444T	W606	444THFS9036	20:1@	\$15,566	E9	95.4	141	1725	41.25		A192
1800		575	444T	W607 *	444THFS9040	20:1@	\$15,566	E9	95.4	113	1725	41.25		A192	
1200		460	445T	W608	445THFN9086	20:1@	\$20,412	E9	95.0	155	2000	43.19		A192	
900		460	445T	W609	445THFN9102	20:1@	\$23,128	E9	94.5	172	2515	43.19	NE	A194	
150	3600	460	445TS	W610	445TSHFN9001	2:1	\$21,058	E9	95.8	165	2187	39.37		A195	
	1800	460	445T	W612 *	445THFN9036	20:1@	\$18,096	E9	95.8	172	2070	43.19		A194	
	1800	575	445T	W641	445THFN19033	20:1@	\$18,096	E9	95.8	138	2070	43.19		A194	
	1800	575	445T	W613	445THFN9037	20:1@	\$18,096	E9	95.8	138	2070	43.19		A194	
	1200	460	445T	W614	445THFN9087	20:1@	\$22,839	E9	95.8	181	2500	43.19	H, RB	A194	
	900	460	L447/9T	W615	449THFS9101	20:1@	\$29,415	E9	95.4	205	3150	51.88	NE		
200	3600	460	445TS	W616	445TSHFN9005	2:1@	\$26,639	E9	95.8	223	2300	39.37	H, SL	A195	
	1800	460	445T	W618	445THFN9038	20:1@	\$22,009	E9	96.2	226	2437	43.19	RB	A194	
	1800	460	445TS	W617	445TSHFN9028	20:1@	\$22,009	E9	96.2	226	2700	39.37		A195	
	1800	460	447/9T	W619	449THFS9030	20:1@	\$25,310	E9	96.5	225	2700	51.69			
	1800	460	447/9T	W620	-----	20:1@	\$25,310	E9	96.5	225	2700	51.69	RB		
	1800	575	445T	W642 *	445THFN19034	20:1@	\$25,310	E9	96.2	181	2437	43.19		A194	
	1200	460	447/9T	W621	449THFS19092	20:1@	\$27,957	E9	95.8	225	2927	51.84			
	1200	460	447/9T	W622	449THFS9088	20:1@	\$27,957	E9	95.8	240	2927	51.69	RB		
	1200	575	447/449T	W630	449THFS19079	20:1@	\$27,957	E9	95.8	192	2927	51.69	RB		

Blue shaded areas are Cast Iron Frames

* **Stock Model**

* **Requires nameplate modification**
@ **Requires larger fan**

Catalog numbers (Cat No.) highlighted in bold blue have efficiency levels that meet or exceed U.S. EPA act and/or NRCan Canadian standards.

Footnotes:

- H Class H Insulation
- NE Exempt from NEMA Premium efficiency requirement
- NP Does not meet NEMA Premium efficiency
- RB Roller Bearing on shaft end for belted loads only.
- SL Sound level exceeds standard

Continued on next page.

Premium Severe Duty/Chemical Processing/IEEE-841, Three Phase, NEMA Premium® Efficiency, Blue Chip XRI®

Totally Enclosed, Rigid Base

HP	RPM	VOLTS	FRAME	CAT. NO.	MODEL NO.	CT SPEED RANGE*	LIST PRICE	MULT. SYMB.	NOM. EFF.	F.L. AMPS	APPROX. WGT. LBS.	"C" DIM.	FOOT NOTES	C FACE KIT
250	3600	460	447/9TS W624	449TSHFS9003	449TSHFS9003	2:1	\$33,596	E9	96.5	274	2700	47.94		N/A
	1800	460	445T W625	-----	-----	20:1@	\$27,612	E9	95.8	285	2450	43.19	H, RB, SL	A194
	1800	460	447/9T W626	449THFS9028	449THFS9028	20:1@	\$31,755	E9	96.5	285	2830	51.69		N/A
	1800	460	447/9T W627	-----	-----	20:1@	\$31,755	E9	96.5	285	2830	51.69	RB	N/A
	1200	460	447/9T W629	-----	-----	20:1@	\$32,138	E9	95.8	300	3415	51.69	RB	
	1200	460	447/9T W628	-----	-----	20:1@	\$32,138	E9	95.8	300	3415	51.69		
300	3600	460	447/9TS W631	-----	-----	2:1	\$43,547	E9	96.2	330	2700	47.94	SL	
	1800	460	447/9T W632	449THFS9027	449THFS9027	20:1@	\$32,390	E9	96.5	339	3211	51.84		
	1800	460	447/9T W633	-----	-----	20:1@	\$32,390	E9	96.5	339	3211	51.69	RB	
350	3600	460	447/9TS W634	449TSHFS9007	449TSHFS9007	2:1	\$49,938	E9	96.2	382	3064	47.94	SL	
	1800	460	447/9T W635	449THFS9036	449THFS9036	20:1@	\$41,174	E9	96.2	395	3350	51.84	RB, SL	

Blue shaded areas are Cast Iron Frames

* **Requires nameplate modification**
@ **Requires "R164" rework (reduces efficiency)**

Catalog numbers (Cat No.) highlighted in bold blue have efficiency levels that meet or exceed U.S. EPCa and/or NRCa Canadian standards.

Footnotes:

- H Class H insulation
- RB Roller Bearing on shaft end for belted loads only
- SL Sound level exceeds standard