



Stretch your energy budget by installing NEMA Premium motors.

There was a time not too long ago when rewinding failed motors was an easy, cost-effective choice. But with the increases in motor efficiency, combined with the increases in energy costs, rewinding may no longer be the best choice in many situations. Consider the facts:

- For smaller motors, buying new can cost less than rewinding an older, less efficient motor.
- Life cycle analysis reveals that 97% of a motor's real cost is attributed to energy consumption.
- Larger premium efficiency motors offer fast payback when compared to rewinding.
- Rewinding old, less efficient motors can also reduce efficiency up to 1%, which further increases operating costs.*

*According to the BC Hydro and Ontario Hydro Studies.

In some cases, rewinding a motor remains the best choice — such as when a “special” non-stocked motor fails and needs to be back in service quickly. But for general purpose and type 2 motors covered by federal energy regulations, a replacement is often the most cost-effective solution.

Let us do the math — and show you how much you can save!

HP (1800 RPM)	Rewind Cost	Rewound Efficiency	Premium Efficient Motor Price	Efficiency %	New Price vs. Rewind Cost	Energy Savings Per Year	Payback Months
2	\$485	76.7%	\$536	86.5%	\$51	\$184	4
5	\$500	80.4%	\$718	89.5%	\$218	\$394	7
10	\$625	83.0%	\$1,031	91.7%	\$406	\$713	7
25	\$1,000	86.1%	\$1,805	93.6%	\$805	\$1,451	7
50	\$1,600	89.7%	\$2,930	94.5%	\$1,330	\$1,766	9
100	\$2,650	90.3%	\$6,872	95.4%	\$4,222	\$3,692	14
200	\$4,500	91.4%	\$13,352	96.2%	\$8,852	\$6,809	16

Rewound efficiency calculated from the Industry Average Motor Master 2.01. Energy savings based on \$.10/kwh and 8760 hours of use.

Working directly with the U.S. Department of Energy, Nidec Motor Corporation has developed a motor efficiency decision software tool that can analyze a meaningful sample of your motors to estimate your potential cost savings and generate a financial action plan for your facility.

The simple 3-step process requires very little time and effort on your part and can be completed by our support team or a Territory Manager.

1. Identify the top five motor ratings in your facility.
2. Complete a data sheet with information from motor nameplates.
3. Submit the data sheet to the U.S. MOTORS Energy Team.

Our energy experts will analyze your motor data and develop a detailed motor management plan, including recommended replacements, motor costs, estimated annual energy savings and your projected payback and return on investment.

There is absolutely no cost and no obligation for this valuable service.

NEMA Premium^{®†} Motors
The Energy Efficient Choice



It pays to replace your motors with U.S. MOTORS[®] brand
NEMA Premium Standard Motors.



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NEMA Premium® standard motors...the right thing for your business and the environment.



This brochure includes detailed information on what NEMA Premium standard motors can do for you and your company. But the environmental impact of these more efficient motors should not be overlooked. Considering that more than 40 million commercial and industrial motors are in use in the United States* today, it's easy to see how even small increases in motor efficiency can add up to significant reductions in overall energy usage.

Thanks to premium efficient motors, the potential reduction in energy usage is truly staggering. The implementation of EPAct electric motors is estimated to provide savings of 5,800 gigawatts of electricity over 10 years, and a reduction of carbon emissions by 80 million tons...the equivalent of keeping 16 million cars off the road.*

And now, with the introduction of EISA and the move toward using NEMA Premium motors, the reduction in energy usage can be even greater. An impact study by the American Council for an Energy Efficient Economy estimated that if all motors in the United States were upgraded to NEMA Premium, the annual energy savings could reach nearly 10,000 gigawatts of electricity every year. That's equal to the power generated by three coal burning power plants!

*According to The U.S. Department of Energy.



The new EISA regulation went into effect in 2010.

The Energy Independence and Security Act of 2007 (EISA) took effect on December 19, 2010, changing mandatory efficiency levels for 3-phase electric motors up to 600 volts, which are manufactured or imported into the USA. Under the EISA regulation, electric motors previously required to meet EPAct efficiency levels must move up to NEMA Premium standards. These include general purpose motors from 1 to 200 horsepower. In addition, products not previously covered by EPAct are required to meet EPAct levels. These include U-frame, design C, close coupled pump, footless, vertical solid shaft normal thrust, 8-pole motors, and 201 to 400 horsepower design B motors.

Cut your energy usage and start saving money right now!

NEMA Premium standard motors can significantly reduce your energy usage and costs — offering fast payback and long-term operating cost savings. Just take a look at this typical example:

- 50 HP Motor
- Repair cost: \$1,114
- Replacement cost (NEMA Premium): \$2,080
- Cost vs. repair: \$966
- Energy savings: \$1,184 per year*
- Payback: 10 months
- 10-year savings: \$11,840*
- Return on investment: Over 1,000%

*This is based on 0.10 cents a kilowatt hour (kwh), so if your energy costs are higher per kwh in your area, your savings can be even greater.



U.S. MOTORS® brand motors keep you EISA compliant.

U.S. MOTORS® brand NEMA Premium electric motors meet the EISA regulation requirements, including: Open Drip-Proof (ODP) motors, UNIMOUNT® Totally Enclosed Fan Cooled (TEFC) motors, TEFC HOSTILE DUTY™ motors, CORRO-DUTY® TEFC motors, 841 PLUS® TEFC motors, and TEFC Cooling Tower Duty motors. With U.S. MOTORS® brand NEMA Premium standard motors, you will meet EISA requirements and cut your monthly energy costs.

Want to learn more about motor efficiency?

Our online MotorPro® training tool features a new module on electric motor energy efficiency. Just visit www.usmotors.com/motorpro, and choose Module 3 for complete details on energy laws and efficiency — and on how you can reduce your energy usage and operating costs.

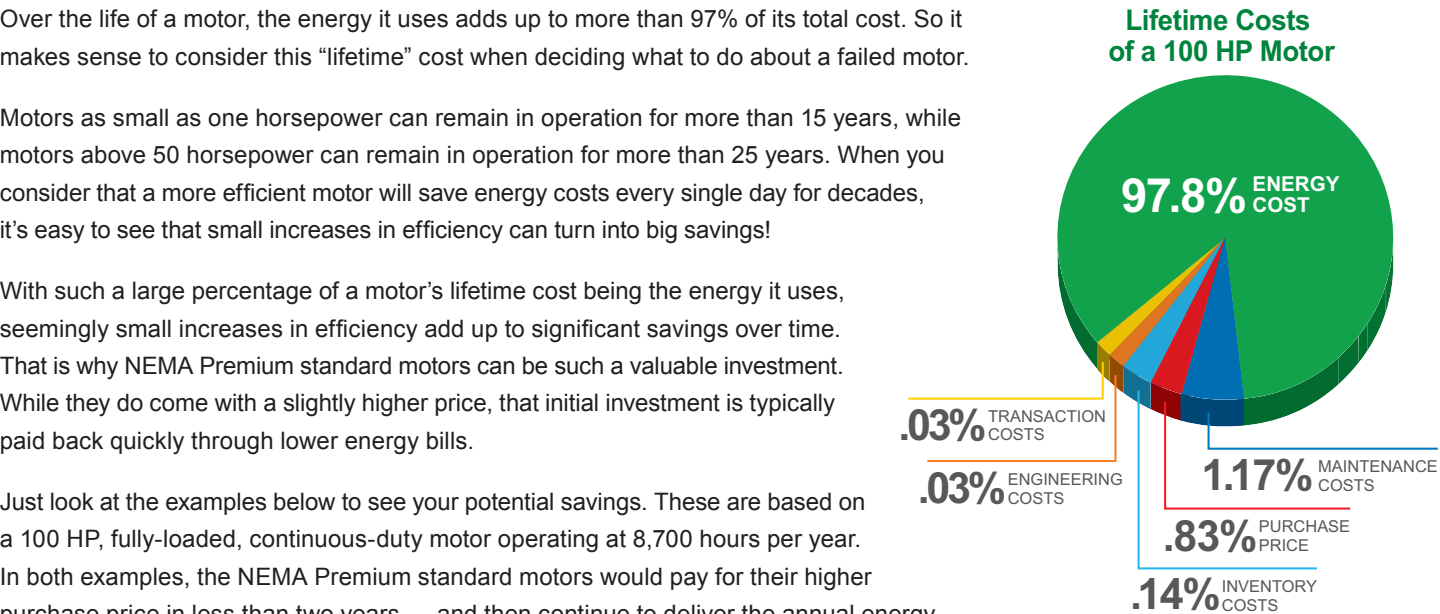
Small increases in efficiency can turn into big savings!

Over the life of a motor, the energy it uses adds up to more than 97% of its total cost. So it makes sense to consider this “lifetime” cost when deciding what to do about a failed motor.

Motors as small as one horsepower can remain in operation for more than 15 years, while motors above 50 horsepower can remain in operation for more than 25 years. When you consider that a more efficient motor will save energy costs every single day for decades, it's easy to see that small increases in efficiency can turn into big savings!

With such a large percentage of a motor's lifetime cost being the energy it uses, seemingly small increases in efficiency add up to significant savings over time. That is why NEMA Premium standard motors can be such a valuable investment. While they do come with a slightly higher price, that initial investment is typically paid back quickly through lower energy bills.

Just look at the examples below to see your potential savings. These are based on a 100 HP, fully-loaded, continuous-duty motor operating at 8,700 hours per year. In both examples, the NEMA Premium standard motors would pay for their higher purchase price in less than two years — and then continue to deliver the annual energy savings over their entire lifetimes! And remember, this is based upon 0.10 cents per kwh, so if your energy costs are higher in your area, your savings can be even greater.



Standard Efficiency vs. NEMA Premium

	Standard	NEMA Premium
Efficiency	92.5%	95.4%
Operating Cost	\$49,115 per yr	\$47,622 per yr
Annual Savings*		\$1,493
10-Year Savings*		\$14,930

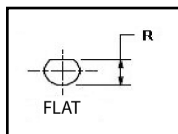
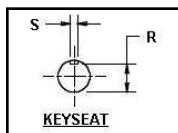
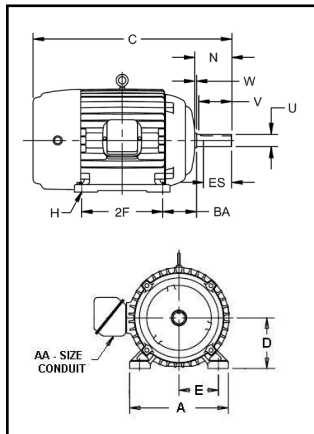
*This is based on 0.10 cents a kilowatt hour (kwh), so if your energy costs are higher per kwh in your area, your savings can be even greater.

EPAct vs. NEMA Premium

	Standard	NEMA Premium
Efficiency	94.5%	95.4%
Operating Cost	\$48,076 per yr	\$47,622 per yr
Annual Savings*		\$454
10-Year Savings*		\$4,540

NEMA^{®†} Dimension Guide

Dimensions for AC Foot-Mounted Motors with Single Straight-Shaft Extension



Frame	A Max	D	E	2F	BA	H	U	N-W	V Min.	R	Keyseat ES Min.	S	AA Min.
42	—	2.62	1.75	1.69	2.06	0.28 slot	0.375	1.12	—	0.328	—	flat	—
48	—	3.00	2.12	2.75	2.50	0.34 slot	0.500	1.50	—	0.453	—	flat	—
48H	—	—	—	4.75	—	—	—	—	—	—	—	—	—
56	—	3.50	2.44	3.00	2.75	0.34 slot	0.625	1.88	—	0.517	1.41	0.188	—
56H	—	—	—	5.00	—	—	—	—	—	—	—	—	—
143T	7.00	3.50	2.75	4.00	2.25	0.34 hole	0.875	2.25	2.00	0.771	1.41	0.188	3/4
145T	—	—	—	5.00	—	—	—	—	—	—	—	—	—
182	9.00	4.50	3.75	4.50	2.75	0.41 hole	0.875	2.25	2.00	0.771	1.41	0.188	3/4
184	—	—	—	5.50	—	—	—	—	—	—	—	—	—
182T	—	—	—	4.50	—	—	1.125	2.75	2.50	0.986	1.78	0.250	—
184T	—	—	—	5.50	—	—	—	—	—	—	—	—	—
213	10.50	5.25	4.25	5.50	3.50	0.41 hole	1.125	3.00	2.75	0.986	2.03	0.250	3/4
215	—	—	—	7.00	—	—	—	—	—	—	—	—	—
213T	—	—	—	5.50	—	—	1.375	3.38	3.12	1.201	2.41	0.312	1
215T	—	—	—	7.00	—	—	—	—	—	—	—	—	—
254U	12.50	6.25	5.00	8.25	4.25	0.53 hole	1.375	3.75	3.50	1.201	2.78	0.312	1
256U	—	—	—	10.00	—	—	—	—	—	—	—	—	—
254T	—	—	—	8.25	—	—	1.625	4.00	3.75	1.416	2.91	0.375	1-1/4
256T	—	—	—	10.00	—	—	—	—	—	—	—	—	—
284U	14.00	7.00	5.50	9.50	4.75	0.53 hole	1.625	4.88	4.63	1.416	3.78	0.375	1-1/4
286U	—	—	—	11.00	—	—	—	—	—	—	—	—	—
284T	—	—	—	9.50	—	—	1.875	4.62	4.38	1.591	3.28	0.500	1-1/2
286T	—	—	—	11.00	—	—	—	—	—	—	—	—	—
284TS	—	—	—	9.50	—	—	1.625	3.25	3.00	1.416	1.91	0.375	1-1/2
286TS	—	—	—	11.00	—	—	—	—	—	—	—	—	—
324U	16.00	8.00	6.25	10.50	5.25	0.66 hole	1.875	5.63	5.38	1.591	4.28	0.500	1-1/2
326U	—	—	—	12.00	—	—	—	—	—	—	—	—	—
324US	—	—	—	10.50	—	—	1.625	3.25	3.00	1.416	1.91	0.375	—
326US	—	—	—	12.00	—	—	2.125	5.25	5.00	1.845	3.91	0.500	2
324T	—	—	—	10.50	—	—	—	—	—	—	—	—	—
326T	—	—	—	12.00	—	—	—	—	—	—	—	—	—
324TS	—	—	—	10.50	—	—	1.875	3.75	3.50	1.591	2.03	—	—
326TS	—	—	—	12.00	—	—	—	—	—	—	—	—	—
364U	18.00	9.00	7.00	11.25	5.88	0.66 hole	2.125	6.38	6.13	1.845	5.03	0.500	2
366U	—	—	—	12.25	—	—	—	—	—	—	—	—	—
364US	—	—	—	11.25	—	—	1.875	3.75	3.50	1.591	2.03	—	—
366US	—	—	—	12.25	—	—	—	—	—	—	—	—	—
364T	—	—	—	11.25	—	—	2.375	5.88	5.62	2.021	4.28	0.625	3
366T	—	—	—	12.25	—	—	—	—	—	—	—	—	—
364TS	—	—	—	11.25	—	—	1.875	3.75	3.50	1.591	2.03	0.500	—
366TS	—	—	—	12.25	—	—	—	—	—	—	—	—	—
404U	20.00	10.00	8.00	12.25	6.62	0.81 hole	2.375	7.13	6.88	2.021	5.53	0.625	2
406U	—	—	—	13.75	—	—	—	—	—	—	—	—	—
404US	—	—	—	12.25	—	—	2.125	4.25	4.00	1.845	2.78	0.500	—
406US	—	—	—	13.75	—	—	—	—	—	—	—	—	—
404T	—	—	—	12.25	—	—	2.875	7.25	7.00	2.450	5.65	0.750	3
406T	—	—	—	13.75	—	—	—	—	—	—	—	—	—
404TS	—	—	—	12.25	—	—	2.125	4.25	4.00	1.845	2.78	0.500	—
406TS	—	—	—	13.75	—	—	—	—	—	—	—	—	—
444U	22.00	11.00	9.00	14.50	7.50	0.81 hole	2.875	8.63	8.38	2.450	7.03	0.750	2-1/2
446U	—	—	—	16.50	—	—	—	—	—	—	—	—	—
444US	—	—	—	14.50	—	—	2.125	4.25	4.00	1.845	2.78	0.500	—
446US	—	—	—	16.50	—	—	—	—	—	—	—	—	—
444T	—	—	—	14.50	—	—	3.375	8.50	8.25	2.880	6.91	0.875	3
446T	—	—	—	16.50	—	—	—	—	—	—	—	—	—
447T	—	—	—	20.00	—	—	—	—	—	—	—	—	—
449T	—	—	—	25.00	—	—	—	—	—	—	—	—	—
444TS	—	—	—	14.50	—	—	2.375	4.75	4.50	2.021	3.03	0.625	—
446TS	—	—	—	16.50	—	—	—	—	—	—	—	—	—
447TS	—	—	—	20.00	—	—	—	—	—	—	—	—	—
449TS	—	—	—	25.00	—	—	—	—	—	—	—	—	—
5004	25.00	12.50	10.00	16.00	8.50	0.94 hole	3.875	11.63	11.25	3.309	10.00	1.000	—
5004G	—	—	—	—	—	—	3.500	10.50	10.19	3.007	9.00	0.875	—
5004S	—	—	—	—	—	—	2.875	5.75	5.50	2.450	4.13	0.750	—
5004SS	—	—	—	—	—	—	2.375	4.75	4.50	2.021	3.13	0.625	—
5006L	28.50	—	—	20.00	—	—	4.875	14.63	14.38	4.168	12.88	1.250	—
5006S	—	—	—	—	—	—	2.875	5.75	5.50	2.450	4.00	0.750	—
5006MS	—	—	—	—	—	—	3.375	6.75	6.50	2.880	5.00	0.875	—
5008	25.00	—	—	25.00	—	—	3.875	11.63	11.25	3.309	10.00	1.000	—
5008G	—	—	—	—	—	—	3.500	10.50	10.19	3.007	9.00	0.875	—
5008L	28.50	—	—	—	—	—	4.875	14.63	14.38	4.168	12.88	1.250	—
5008S	25.00 [†]	—	—	—	—	—	2.875	5.75	5.50	2.450	4.13 [†]	0.750	—
5008MS	28.50	—	—	—	—	—	—	—	—	—	4.00 [†]	—	—
5008SS	25.00 [†]	—	—	—	—	—	3.375	6.75	6.50	2.880	5.00	0.875	—
5010L	28.50	—	—	32.00	—	—	2.375	4.75	4.50	2.021	3.13 [†]	0.625	—
5010S	—	—	—	—	—	—	—	—	—	—	3.00 [†]	—	—
5010MS	—	—	—	—	—	—	4.875	14.63	14.38	4.168	12.88	1.250	—
5010SS	—	—	—	—	—	—	2.875	5.75	5.50	2.450	4.00	0.750	—
5012L	—	—	—	40.00	—	—	3.375	6.75	6.50	2.880	5.00	0.875	—
5012S	—	—	—	—	—	—	2.375	4.75	4.50	2.021	3.00	0.625	—
5012MS	—	—	—	—	—	—	—	—	—	—	—	—	—
5012SS	—	—	—	—	—	—	—	—	—	—	—	—	—



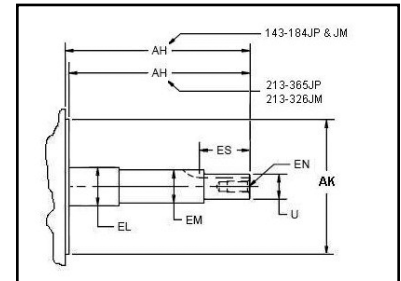
1. Totally Enclosed Motors 2. Open Drip Proof Motors † All marks shown within this document are properties of their other respective owners.

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NEMA^{®†} Dimension Guide

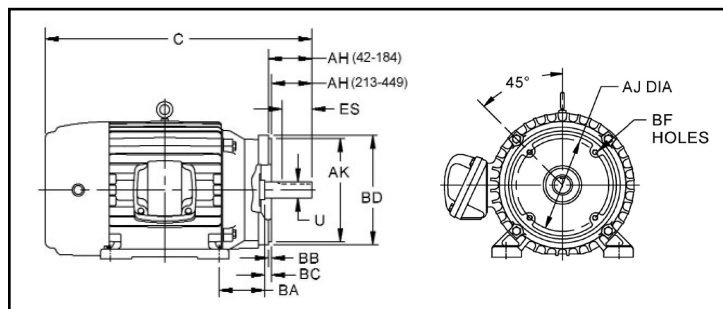
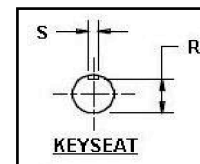
JP Shaft

Frame	AH	U	EM	EL	EN	AK	R	Keyseat ES Min.	S
143	7.313	0.8745	1.0000	1.156	3/8-16 x .75	4.500	0.771	1.65	0.188
145									
182	7.313	0.8745	1.0000	1.250	3/8-16 x .75	4.500	0.771	1.65	0.188
184									
213	8.125	1.2495	1.3750	1.750	3/8-16 x .75	8.500	1.112	1.65	0.250
215									
254	8.125	1.2495	1.3750	1.750	1/2-13 x 1.00	8.500	1.112	2.53	0.250
256									
284	8.125	1.2495	1.3750	1.750	1/2-13 x 1.00	12.500	1.112	2.53	0.250
286									
324	8.125	1.2495	1.3750	1.750	1/2-13 x 1.00	12.500	1.112	2.53	0.250
326									
364	8.125	1.6245	1.7500	2.125	1/2-13 x 1.00	12.500	1.416	2.53	0.375
365									



JM Shaft

Frame	AH	U	EM	EL	EN	AK	R	Keyseat ES Min.	S
143	4.250	0.8745	1.0000	1.156	3/8-16 x .75	4.500	0.771	1.65	0.188
145									
182	4.250	0.8745	1.0000	1.250	3/8-16 x .75	4.500	0.771	1.65	0.188
184									
213	4.250	0.8745	1.0000	1.250	3/8-16 x .75	8.500	0.771	1.65	0.188
215									
254	5.250	1.2495	1.3750	1.750	1/2-13 x 1.00	8.500	1.112	2.53	0.250
256									
284	5.250	1.2495	1.3750	1.750	1/2-13 x 1.00	12.500	1.112	2.53	0.250
286									
324	5.250	1.2495	1.3750	1.750	1/2-13 x 1.00	12.500	1.112	2.53	0.250
326									



**Dimensions for
Type C-Face AC Motors,
Footed or Footless**

Frame	AJ	AK	BA	BB Min.	BC	BD Max.	BF Hole			U	AH	Keyseat		
							Number	Tap Size	Bolt Penetration Allowance			R	ES Min.	S
42C	3.750	3.000	2.062	0.16	-0.19	5.00	4	1/4-20	—	0.375	1.312	0.328	—	flat
48C	3.750	3.000	2.50	0.16	-0.19	5.625	4	1/4-20	—	0.500	1.69	0.453	—	flat
56C	5.875	4.500	2.75	0.16	-0.19	6.50	4	3/8-16	—	0.625	2.06	0.515	1.41	0.188
143TC & 145TC	5.875	4.500	2.75	0.16	+0.12	6.50	4	3/8-16	0.56	0.875	2.12	0.771	1.41	0.188
182TC & 184TC	7.250	8.500	3.50	0.25	+0.12	9.00	4	1/2-13	0.75	1.125	2.62	0.986	1.78	0.250
182TCH & 184TCH	5.875	4.500	3.50	0.16	+0.12	6.50	4	3/8-16	0.56	1.125	2.62	0.986	1.78	0.250
213TC & 215TC	7.250	8.500	4.25	0.25	+0.25	9.00	4	1/2-13	0.75	1.375	3.12	1.201	2.41	0.312
254TC & 256TC	7.250	8.500	4.75	0.25	+0.25	10.00	4	1/2-13	0.75	1.625	3.75	1.416	2.91	0.375
284TC & 286TC	9.000	10.500	4.75	0.25	+0.25	11.25	4	1/2-13	0.75	1.875	4.38	1.591	3.28	0.500
284TSC & 286TSC	9.000	10.500	4.75	0.25	+0.25	11.25	4	1/2-13	0.75	1.625	3.00	1.416	1.91	0.375
324TC & 326TC	11.000	12.500	5.25	0.25	+0.25	14.00	4	5/8-11	0.94	2.125	5.00	1.845	3.91	0.500
324TSC & 326TSC	11.000	12.500	5.25	0.25	+0.25	14.00	4	5/8-11	0.94	1.875	3.50	1.591	2.03	0.500
364TC & 365TC	11.000	12.500	5.88	0.25	+0.25	14.00	4	5/8-11	0.94	2.375	5.62	2.021	4.28	0.625
364TSC & 365TSC	11.000	12.500	5.88	0.25	+0.25	14.00	8	5/8-11	0.94	1.875	3.50	1.591	2.03	0.500
404TC & 405TC	11.000	12.500	6.62	0.25	+0.25	15.50	8	5/8-11	0.94	2.875	7.00	2.450	5.65	0.750
404TSC & 405TSC	11.000	12.500	6.62	0.25	+0.25	15.50	8	5/8-11	0.94	2.125	4.00	1.845	2.78	0.500
444TC & 445TC	14.000	16.000	7.50	0.25	+0.25	18.00	8	5/8-11	0.94	3.375	8.25	2.880	6.91	0.875
444TSC & 445TSC	14.000	16.000	7.50	0.25	+0.25	18.00	8	5/8-11	0.94	2.375	4.50	2.021	3.03	0.625
447TC & 449TC	14.000	16.000	7.50	0.25	+0.25	18.00	8	5/8-11	0.94	3.375	8.25	2.880	6.91	0.875
447TSC & 449TSC	14.000	16.000	7.50	0.25	+0.25	18.00	8	5/8-11	0.94	2.375	4.50	2.021	3.03	0.625
5000 Frame Series	14.500	16.500	—	0.25	+0.25	18.00	4	5/8-11	0.94	—	—	—	—	—