

**WATTSAYER**  
Inverter-Duty Premium Efficiency Motor

The WATTSAYER® line of premium efficiency motors is now *inverter capable*. LEESON's unique IRIS™ voltage-spike-resistant insulation system is standard at no extra cost. WATTSAYER® motors carry a three-year warranty in general purpose and inverter fed applications. These motors meet or exceed most utility rebate programs and the EPACT federally

mandated efficiency levels. The efficiency ratings have been verified to IEEE 112B test standards by LEESON's NVLAP-Certified lab.

Cast iron 170 series motors can be field modified for forced ventilation service to extend the inverter-fed operating range and an encoder package is stocked for closed-loop vector inverter systems.

**Efficiencies meet or exceed NEMA Premium** on all WATTSAYER® motors except as noted.

**Both 3/4 and full load efficiencies** are listed on the stainless steel nameplate for your convenience in calculating realistic energy savings. Unique serial number identifies each motor and is stamped clearly on the metal nameplate.

**Independently verified efficiencies** by the Canadian Standards Association, an internationally recognized testing laboratory. CSA Report Number EEV78720-1.

**Premium efficiency motors** finished with primer and chemical resistant green acrylic matte enamel.

**Modification to meet IEEE 841** available through Mod-Squad. (See page 89.) Includes addition of watertight Inpro shaft seals, two-part epoxy finish, and plated hardware.

**One-way, corrosion resistant condensate drains.** (TEFC models) release condensation and moisture.

**Second-generation, high temperature, spike-resistant magnet wire** for extended motor life. Stator impregnated with extra-heavy varnish system. 1.15 Service Factor.

**Connections include red leads** for NC thermostats attached to windings for over-temperature protection.

**Meets or exceeds the 1997 mandated efficiency standards** of the Energy Policy Act of 1992. Also meets or exceeds efficiency requirements of most electric utility rebate programs.

**Three phase models suitable for inverter duty**, as well as both 50 Hz and 60 Hz operation.

**Rugged cast iron construction** on three phase, 3-100 HP models. These motors share features with normal efficiency 150 Series motors detailed on page 11. Add an optional cast iron fan guard for severe duty applications.



**LEESON's Inverter Rated Insulation System (IRIS™)** provides superior protection against voltage spikes induced by variable frequency drives. This *total insulation system* protects better than spike-resistant magnet wire alone. Specially formed phase insulation, cushioned and sleeved connections (from the leads all the way into the turns), and deep-penetrating, non-

hygroscopic, high temperature varnish are just a few features contributing to extra protection. All this plus second generation spike-resistant magnet wire. The IRIS™ *total insulation system* is standard at no extra cost in all LEESON stock NEMA three-phase motors, 1 HP and larger.

**UL and CSA Recognition**

CSA certified under report number LR62104  
 CSA Energy Efficiency Verification report number EEV78720-1  
 UL recognized insulation system, file number E55555  
 UL recognized construction, file number E57948



# WATTS AVER® PREMIUM EFFICIENCY MOTORS

GENERAL PURPOSE • THREE PHASE



## THREE PHASE • DRIP-PROOF • RIGID BASE 208-230/460V

HP	RPM 60 Hz	NEMA Frame	Catalog Number	List Price	Disc. Sym.	App. Wgt. (lbs.)	Meets NEMA Premium	FL Amps 230V	3/4 Load Eff.	% F.L. Eff.	"C" Dim. (Inches)
1	3450	56	<b>116128</b>	\$309	A	29	✓	2.8	78.5	80.0	10.18
	1725	143T	<b>121003</b>	351	B	36	✓	3.2	84.7	85.5	12.12
	1160	145T	<b>121517</b>	410	B	41	✓	3.8	81.5	82.5	12.62
1½	3450	143T	<b>121514</b>	344	B	36	✓	3.6	83.5	84.0	12.12
	1725	145T	<b>121004</b>	368	B	35	✓	4.8	86.1	86.5	12.62
	1170	182T	<b>131971</b>	478	B	82	✓	5.6	86.0	86.5	14.69
2	3450	145T	<b>121515</b>	405	B	43	✓	4.8	86.5	85.5	13.12
	1725	145T	<b>121005</b>	416	B	37	✓	5.8	86.7	86.5	13.62
	1170	184T	<b>131972</b>	487	B	88	✓	7.2	87.5	87.5	15.19
3	3450	145T	<b>121516</b>	410	B	45	✓	7.2	85.5	86.5	13.12
	1760	182T	<b>131519</b>	423	B	75	✓	7.8	90.2	89.5	13.69
	1190	213T	<b>171574</b>	603	C	159	✓	10.0	87.5	88.5	16.38
5	3450	184T	<b>131986</b>	445	B	86	✓	12.0	86.8	86.5	15.19
	1760	184T	<b>131520</b>	475	B	86	✓	12.8	89.4	88.5	14.69
	1190	215T	<b>171575</b>	764	C	185	✓	15.0	89.5	90.2	16.38
7½	3450	184T	<b>131988</b>	644	B	106	✓	17.6	88.0	88.5	16.19
	1760	213T	<b>170142</b>	605	C	160	✓	19.8	91.7	91.0	16.38
	1175	254T	<b>170145</b>	955	C	281	✓	22.4	92.2	92.4	20.94
10	3510	213T	<b>170143</b>	692	C	150	✓	23.6	91.0	91.0	16.38
	1760	215T	<b>170144</b>	715	C	200	✓	25.6	91.7	91.7	17.87
	1190	256T	<b>170146</b>	1191	C	305	✓	29.6	92.3	91.7	22.60
15	3510	215T	<b>170064</b>	927	C	175	✓	34.6	91.0	91.0	17.87
	1770	254T	<b>170065</b>	951	C	279	✓	37.0	93.0	93.0	20.94
	1190	284T	<b>170067</b>	1568	C	414	✓	39.4	92.7	92.4	23.54
20	3525	254T	<b>170032</b>	1166	C	275	✓	46.0	93.0	93.0	20.94
	1770	256T	<b>170006</b>	1161	C	324	✓	51.0	93.0	93.0	22.60
	1190	286T	<b>170000</b>	1911	C	457	✓	55.0	92.4	92.4	25.00
25	3525	256T	<b>170034</b>	1445	C	327	✓	57.4	93.0	93.0	22.60
	1770	284T	<b>170009</b>	1445	C	404	✓	59.6	93.6	93.6	23.54
	1190	324T	<b>170002</b>	2275	C	695	✓	67.0	93.0	93.0	26.02
30	3550	284TS	<b>170036</b>	1679	C	396	✓	67.0	94.1	94.1	22.17
	1770	286T	<b>170013</b>	1568	C	471	✓	71.0	94.5	94.1	25.00
	1190	326T	<b>170004</b>	2374	C	760	✓	78.0	93.6	93.6	27.52
40	3550	286TS	<b>170038</b>	2212	C	441	✓	91.2	94.1	93.6	23.62
	1780	324T	<b>170017</b>	2067	C	560	✓	96.0	94.1	94.1	26.02
	1190	364T	<b>170147</b>	3383	C	892	✓	103.0	94.1	94.1	32.64
50	3550	324TS	<b>170040</b>	2696	C	548	✓	112.0	95.0	94.1	24.53
	1780	326T	<b>170021</b>	2497	C	614	✓	118.0	94.5	94.5	27.52
	1190	365T	<b>170148</b>	3872	C	918	✓	128.0	94.1	94.5	33.62
60	3550	326TS	<b>170042</b>	3225	C	590	✓	136.0	95.0	94.1	26.02
	1780	364T	<b>170025</b>	2748	C	716	...	139.0	94.5	94.1	28.01
	75	3570	364TS	<b>170044</b>	4262	C	720	✓	176.0	94.5	94.5
1780	365T	<b>170029</b>	3390	C	766	...	172.0	94.5	94.5	31.18	
100	3570	365TS	<b>170151</b>	4819	C	775	✓	234.0	94.5	94.5	29.06
	1780	404T	<b>170152</b>	4637	C	1141	✓	225.0	95.4	95.4	32.76
	125	1780	405T	<b>170155</b>	5870	C	1236	✓	280.0	95.4	95.4
200	1780	445T	<b>171523*</b>	7993	C	2037	✓	220.0♦	95.8	95.8	40.00

All WATTS AVER® motors have normally closed thermostats for over-temperature alert.

\* 460V only  
♦ Full Load Amps 460V

## THREE PHASE • TEFC • RIGID BASE 208-230/460V

HP	RPM 60 Hz	NEMA Frame	Catalog Number	List Price	Disc. Sym.	App. Wgt. (lbs.)	Meets NEMA Premium	FL Amps 230V	3/4 Load Eff.	% F.L. Eff.	"C" Dim. (Inches)
1	3450	56	<b>116129</b>	\$360	A	29	✓	2.8	80.0	80.0	11.31
	1725	143T	<b>120921</b>	401	B	32	✓	3.2	84.7	85.5	13.25
	1160	145T	<b>121520</b>	474	B	47	✓	3.8	81.5	82.5	13.75
1½	3450	143T	<b>121518</b>	409	B	33	✓	3.6	83.0	84.0	13.25
	1725	145T	<b>120922</b>	415	B	34	✓	4.8	86.1	86.5	13.75
	1170	182T	<b>131980</b>	684	B	89	✓	5.6	87.4	87.5	15.96
2	3450	145T	<b>121519</b>	448	B	44	✓	4.8	84.8	85.5	14.25
	1725	145T	<b>120923</b>	432	B	45	✓	5.8	86.7	86.5	14.76
	1170	184T	<b>131981</b>	696	B	89	✓	7.2	88.4	88.5	15.96
3	3450	182T	<b>131985</b>	616	B	66	✓	7.6	86.1	86.5	13.96
	1760	182T	<b>131463</b>	486	B	80	✓	7.8	89.0	89.5	14.96
	1760	182T	<b>171320</b>	521	C	104	✓	7.8	88.5	90.2	16.14
5	1180	213T	<b>171378</b>	736	C	170	✓	9.4	88.5	89.5	18.19
	3450	184T	<b>131987</b>	549	B	96	✓	12.0	88.0	88.5	16.46
	1760	184T	<b>131464</b>	532	B	94	✓	12.8	90.1	89.5	15.96
7½	1760	184T	<b>171322</b>	540	C	109	✓	12.8	89.9	89.5	16.80
	1180	215T	<b>171379</b>	821	C	176	✓	14.4	89.5	89.5	19.61
	3510	213T	<b>170158</b>	751	C	147	✓	18.0	91.0	91.0	18.19
10	1760	213T	<b>170157</b>	724	C	155	✓	18.6	91.7	91.7	18.19
	1170	254T	<b>170122</b>	1070	C	249	✓	22.2	91.0	91.7	23.19
	3510	215T	<b>170159</b>	890	C	181	✓	23.0	91.7	91.7	19.61
15	1760	215T	<b>170140</b>	863	C	177	✓	25.0	91.7	91.7	19.61
	1170	256T	<b>170123</b>	1531	C	300	✓	29.0	91.7	91.7	24.92
	3525	254T	<b>170062</b>	1209	C	282	✓	34.6	92.4	92.4	23.19
20	1770	254T	<b>170066</b>	1170	C	280	✓	36.0	92.4	92.4	23.19
	1170	284T	<b>170068</b>	2072	C	333	✓	40.6	92.0	92.4	26.26
	3525	256T	<b>170033</b>	1477	C	316	✓	46.0	92.4	92.4	24.92
25	1770	256T	<b>170007</b>	1462	C	322	✓	49.0	93.0	93.0	24.92
	1170	286T	<b>170001</b>	2591	C	392	✓	54.0	92.4	92.4	27.83
	3550	284TS	<b>170035</b>	1921	C	383	✓	56.8	93.0	93.0	24.88
30	1770	284T	<b>170011</b>	1814	C	385	✓	59.0	93.6	93.6	26.26
	1190	324T	<b>170003</b>	3033	C	545	✓	66.0	92.4	93.0	29.53
	3550	286TS	<b>170037</b>	2267	C	385	✓	67.6	93.6	93.0	26.46
40	1770	286T	<b>170015</b>	2114	C	432	✓	70.0	94.1	94.1	27.83
	1190	326T	<b>170005</b>	3404	C	615	✓	77.2	93.6	93.6	31.02
	3550	324TS	<b>170039</b>	2829	C	504	✓	90.0	93.6	93.6	28.03
50	1780	324T	<b>170019</b>	2807	C	528	✓	92.0	93.6	94.1	29.53
	1180	364T	<b>170096</b>	4665	C	636	✓	102.0	94.1	94.1	32.64
	3550	326TS	<b>170041</b>	3436	C	554	✓	111.0	95.0	94.5	29.53
60	1780	326T	<b>170023</b>	3392	C	587	✓	117.0	94.5	94.5	31.02
	1180	365T	<b>170097</b>	5598	C	672	...	124.0	94.1	94.1	33.62
	3570	364TS	<b>170043</b>	5095	C	735	✓	136.0	93.6	94.1	30.51
75	1780	364T	<b>170027</b>	4824	C	666	...	137.0	95.0	94.5	32.64
	1190	404T	<b>170098</b>	6604	C	870	✓	142.0	94.5	94.5	36.42
	3570	365TS	<b>170045</b>	6242	C	780	✓	169.0	94.5	94.5	31.50
100	1780	365T	<b>170031</b>	6020	C	733	...	171.0	95.8	95.8	33.62
	1190	405T	<b>170099</b>	6962	C	975	✓	176.0	95.0	95.0	37.91
	3570	405TS	<b>170160</b>	7685	C	955	✓	218.0	94.5	95.0	34.92
125	1780	405T	<b>170087</b>	7485	C	1070	✓	225.0	95.4	95.4	37.91
	1190	444T	<b>170369*</b>	9940	C	1950	✓	137.5♦	95.4	95.4	42.87
	150	1790	445T	<b>170260*</b>	11196	C	1596	✓	155.0♦	95.4	95.4
200	1790	445T	<b>170371*</b>	11372	C	1627	✓	163.0♦	95.8	95.8	44.88
	1790	447T	<b>170352*</b>	13025	C	2115	✓	217.0♦	96.2	96.2	48.00

All WATTS AVER® motors have normally closed thermostats for over-temperature alert.

SHADED FRAME INDICATES CAST IRON CONSTRUCTION

Catalog numbers in blue are new items.

# WATTSAYER® PREMIUM EFFICIENCY MOTORS

GENERAL PURPOSE • THREE PHASE



WATTSAYER®



## THREE PHASE • DRIP-PROOF • C FACE LESS BASE 208-230/460V

HP	RPM 60 Hz	NEMA Frame	Catalog Number	List Price	Disc. Sym.	App. Wgt. (lbs.)	Meets NEMA Premium	F.L. Amps 230V	3/4 Load Eff.	% F.L. Eff.	"C" Dim. (Inches)
1/3	1725	S56C	102695	\$232	A	22	N/A	1.3	73.5	77.0	10.24
1/2	1725	S56C	102200	249	A	25	N/A	1.8	73.8	77.0	10.74
3/4	1725	56C	114934	267	A	29	N/A	2.4	80.4	81.5	10.86
1	1725	143TC	121064	387	B	32	✓	3.4	84.7	85.5	12.12
1½	1725	145TC	121063	404	B	36	✓	5.6	86.1	86.5	13.12
2	1725	145TC	121071	454	B	41	✓	5.8	86.7	86.5	13.62
3	1760	182TC	131518	482	B	75	✓	7.8	90.2	89.5	14.20
5	1760	184TC	131517	566	B	96	✓	12.8	90.1	89.5	15.20

All WATTSAYER® motors have normally closed thermostats for over-temperature alert.

## BLOWER FAN KITS



Used for extended low speed operation of inverter-fed motors, these kits can be field-installed to provide constant velocity cooling. The 115 volt single phase, fan-drive motor is totally enclosed. The blower is mounted after removing the standard fan and fan cover. No shaft or other modifications to the motor are required.

### FOR CAST IRON 150 & 170 SERIES MOTORS

Blower Motor Voltage	Phase	For NEMA Frame	Catalog Number	List Price	Disc. Sym.	Blower CFM	App. Wgt. (lbs.)
115	1	180T	175674	\$456	C	260	10
115	1	210T	175675	476	C	260	11
115	1	250T	175676	511	C	260	17
115	1	280T	175677	614	C	500	24
115	1	320T	175678	656	C	500	28

### FOR ROLLED STEEL TEFC MOTORS

Blower Motor Voltage	Phase	For NEMA Frame	Catalog Number	List Price	Disc. Sym.	Blower CFM	App. Wgt. (lbs.)
115	1	56-145T	175876	\$407	C	115	4
115	1	182-4T	175895	456	C	115	4
115	1	213-5T	175896	476	C	235	5

† Class F insulated.

**SHADED FRAME INDICATES  
CAST IRON CONSTRUCTION**

## THREE PHASE • TEFC • C FACE LESS BASE 208-230/460V

HP	RPM 60 Hz	NEMA Frame	Catalog Number	List Price	Disc. Sym.	App. Wgt. (lbs.)	Meets NEMA Premium	F.L. Amps 230V	3/4 Load Eff.	% F.L. Eff.	"C" Dim. (Inches)
1/3	1725	S56C	102696	\$291	A	22	N/A	1.3	73.5	77.0	10.19
1/2	1725	S56C	101780	313	A	25	N/A	1.8	73.8	77.0	10.69
3/4	1725	56C	114213	337	A	27	N/A	2.7	80.2	81.5	11.31
1	1725	56C	114638	468	A	34	N/A	3.4	84.7	85.5	12.81
	1725	143TC	121067	468	B	36	✓	3.4	84.7	85.5	13.25
1½	1725	145TC	121066	494	B	41	✓	5.6	86.1	86.5	13.75
2	1725	145TC	121065	518	B	45	✓	5.8	86.7	86.5	14.26
3	1760	182TC	131503	549	B	72	✓	7.8	89.0	89.5	14.96
5	1760	184TC	131501	595	B	90	✓	12.8	90.1	89.5	15.97
7½	1760	213TC	140486†	862	B	125	...	20.4	89.4	89.5	17.71
10	1760	215TC	140484†	962	B	179	...	26.0	89.8	89.5	18.71

All WATTSAYER® motors have normally closed thermostats for over-temperature alert.

## THREE PHASE • TEFC • C FACE WITH BASE 208-230/460V

HP	RPM 60 Hz	NEMA Frame	Catalog Number	List Price	Disc. Sym.	App. Wgt. (lbs.)	Meets NEMA Premium	F.L. Amps 230V	3/4 Load Eff.	% F.L. Eff.	"C" Dim. (Inches)
1/3	1725	S56C	102697	\$297	A	22	N/A	1.3	73.5	77.0	10.19
1/2	1725	S56C	102024	320	A	20	N/A	1.8	73.8	77.0	10.69
3/4	1725	56C	114624	343	A	25	N/A	2.7	80.2	81.5	11.31
1	1725	143TC	121179	484	B	34	✓	3.4	84.7	85.5	13.25
1½	1725	145TC	121180	502	B	37	✓	5.6	86.1	86.5	13.75
2	1725	145TC	121181	525	B	43	✓	5.8	86.7	86.5	14.26
3	1760	182TC	131504	562	B	75	✓	7.8	89.0	89.5	14.96
5	1760	184TC	131502	607	B	99	✓	12.8	90.1	89.5	15.97

All WATTSAYER® motors have normally closed thermostats for over-temperature alert.

## ENCODER KITS • 150 & 170 SERIES



These kits include the parts and encoder for field assembly of a slim-line, through-shaft encoder to LEESON standard TEFC Motors. Designed to slip over the motor's fan end shaft. Blower kit sold separately.

Output is 1024 pulses per revolution, quadrature, 5 to 28 VDC line driver output. Short circuit protection is standard. Inputs are over voltage and

reverse voltage protected. Electrical noise immunity exceeds international standards. Encoders are isolated from shaft currents using hard anodized sleeves and non metallic anti-rotation hardware. Designed for long life in industrial environments using an all metal, shock resistant code disk. The encoder is protected by the motor's fan cover after mounting. Using a blower fan kit is suggested for proper motor cooling.

### FOR CAST IRON 150 & 170 SERIES TEFC MOTORS

For NEMA Frame	Encoder Kit Catalog Number	List Price	Disc. Sym.
182-4T	175684	\$709	C
213-5T	175685	709	C
254-6T	175686	1145	C
284-6T	175687	1145	C

### FOR ROLLED STEEL TEFC MOTORS

For NEMA Frame	Encoder Kit Catalog Number	List Price	Disc. Sym.
56/145T	175960	\$571	A
182-4T	175897	829	B
213-5T	175898	829	B



# WATTS AVER® PREMIUM EFFICIENCY MOTORS

GENERAL PURPOSE • SINGLE PHASE

## WATTS AVER® PREMIUM EFFICIENCY HIGH TORQUE

WATTS AVER® Premium Efficiency Motors provide enhanced operating efficiencies, cooler operating temperatures, and reduced running amperage. See page 15 for complete list of features.



## SINGLE PHASE • TEFC • RIGID BASE

HP	RPM 60 Hz	NEMA Frame	Catalog Number	List Price	Disc. Sym.	App. Wgt. (lbs.)	Voltage	Over- load Prot.	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/3	1725	56	113765☆	\$284	A	27	115/208-230	Man.	1.7	76.0	10.81
1/2	1725	56	113766☆	315	A	30	115/208-230	Man.	2.5	78.0	11.31
3/4	1725	56	113767☆	371	A	35	115/208-230	Man.	3.2	82.0	11.81
1	1725	56	113768☆	427	A	37	115/208-230	Man.	4.2	83.0	12.31
1 1/2	1725	56H	113769☆□	486	A	43	115/208-230	Man.	6.5	84.0	13.31
2	1725	56HZ	113770☆■	668	A	49	230	Man.	8.2	85.0	14.25

## WATTS AVER® PREMIUM EFFICIENCY FAN MOTORS

Premium efficiency motors for agricultural and industrial belted-fan applications.

Features include quiet bearings, resilient cradle base, and quiet flow-through ventilation. Class "F" insulated, with spade connectors on terminal board for quick and easy installation.



## SINGLE PHASE • DRIP-PROOF • RESILIENT BASE

HP	RPM 60 Hz	NEMA Frame	Catalog Number	List Price	Disc. Sym.	App. Wgt. (lbs.)	Voltage	Over- load Prot.	F.L. Amps 115V	% F.L. Eff.	"C" Dim. (Inches)
1/4	1725	48	101602	\$213	A	19	115	Auto.	2.5	71.0	9.88
1/3	1725	48	101405	252	A	19	115	Auto.	3.2	75.0	9.88
	1725/ 1140	56HZ	113771②	337	A	30	115	Auto.	3.0	73.0	11.44
	1725/ 1140	56HZ	113970②	309	A	30	115	Auto.	3.2	73.0	11.94
	1725/ 850	56HZ	113674②	337	A	30	115	Auto.	3.1	70.0	11.44
	1725/ 850	56HZ	113969②	309	A	30	115	Auto.	3.2	73.0	11.94
1/2	1725	48	101585	287	A	25	115	Auto.	4.6	76.0	10.88

② These combination 56H base motors have mounting holes for 56 and 143-5T, and a 1/2" diameter shaft with flat 1 1/2" long.

☆ Capacitor start/capacitor run design for reduced amperage, others are capacitor start/induction run.

□ Combination 56 H base motors have mounting holes for NEMA 56 and NEMA 143-5T and a standard NEMA 56 shaft.

■ Combination 56 HZ base has mounting holes for NEMA 56 and 143-5T and a standard NEMA 145T frame shaft of 7/8" diameter.