

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.

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.

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.

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.



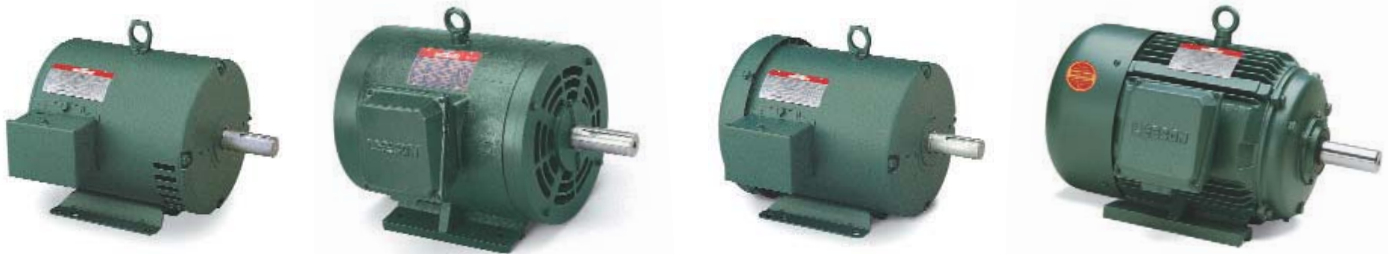
LEESON's Inverter Rated Insulation System (IRIS™) provides superior protection against voltage spikes induced by variable frequency drives. This *total insulation system* protects better than spike-resistant magnet wire alone. Specially formed phase insulation, cushioned and sleeved connections (from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



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	F.L. Amps 230V	3/4 Load Eff.	% F.L. Eff.	"C" Dim. (Inches)
1	3450	56	116128	\$285	A	29	✓	3.4	78.5	80.0	10.18
	1725	143T	121003▲	325	B	36	✓	3.4	84.7	85.5	12.12
	1160	145T	121517	379	B	41	✓	4.4	81.5	82.5	12.62
1½	3450	143T	121514	318	B	34	✓	4.2	83.5	84.0	12.12
	1725	145T	121004▲	340	B	35	✓	5.6	86.1	86.5	12.62
2	3450	145T	121515	374	B	36	✓	5.0	86.5	85.5	13.12
	1725	145T	121005	385	B	37	✓	5.8	86.7	86.5	13.62
3	3450	145T	121516	379	B	45	✓	7.2	85.5	86.5	13.12
	1760	182T	131519	393	B	75	...	8.2	89.2	87.5	13.69
5	1760	184T	131520	441	B	82	...	12.8	89.4	88.5	14.69
7½	1760	213T	170142	562	C	160	✓	19.8	91.2	91.0	16.38
	10	3510	213T	170143	643	C	150	✓	23.6	90.8	90.2
15	1760	215T	170144	665	C	200	✓	25.6	91.7	91.7	17.87
	3510	215T	170064	862	C	175	✓	34.6	91.2	91.0	17.87
20	1770	254T	170065	884	C	279	✓	37.0	93.2	93.0	20.94
	3525	254T	170032	1084	C	275	✓	46.0	92.6	91.7	20.94
25	1770	256T	170006	1079	C	324	✓	48.0	93.0	93.0	22.60
	3525	256T	170034	1344	C	327	✓	57.4	93.2	93.0	22.60
30	1770	284T	170009	1344	C	404	✓	59.6	93.7	93.6	23.54
	3550	284TS	170036	1561	C	396	✓	67.0	94.4	93.6	22.17
40	1770	286T	170013	1458	C	471	✓	71.0	94.5	94.1	25.00
	3550	286TS	170038	2057	C	441	✓	91.2	94.0	93.6	23.62
50	1780	324T	170017	1922	C	560	✓	96.0	94.1	94.1	26.02
	3550	324TS	170040	2507	C	548	✓	112.0	95.0	94.0	24.53
60	1780	326T	170021	2322	C	614	✓	118.0	94.5	94.5	27.52
	3550	326TS	170042	2999	C	590	✓	136.0	95.0	94.1	26.02
75	1780	364T	170025	2556	C	716	...	139.0	94.5	94.1	28.01
	3570	364TS	170044	3963	C	720	✓	176.0	94.7	94.5	26.89
100	1780	365T	170029	3153	C	766	...	172.0	94.5	94.1	31.18
	3570	365TS	170151	4481	C	775	✓	234.0	94.8	94.5	29.06

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

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	F.L. Amps 230V	3/4 Load Eff.	% F.L. Eff.	"C" Dim. (Inches)
1	3450	56	116129	\$333	A	29	✓	3.4	80.0	80.0	11.31
	1725	143T	120921▲	370	B	32	✓	3.4	84.7	85.5	13.25
	1160	145T	121520	438	B	47	✓	4.4	81.5	82.5	13.75
1½	3450	143T	121518	378	B	33	✓	4.2	83.0	84.0	13.25
	1725	145T	120922▲	384	B	34	✓	5.6	86.1	86.5	13.75
2	3450	145T	121519	415	B	44	✓	5.0	84.8	85.5	14.25
	1725	145T	120923	399	B	45	✓	5.8	86.7	86.5	14.76
3	1760	182T	131463	452	B	74	...	8.2	89.2	88.5	14.46
	1760	182T	171320	484	C	104	✓	8.0	88.5	90.2	16.14
5	1760	184T	131464	494	B	91	...	13.0	89.4	88.5	15.96
	1760	184T	171322	502	C	109	✓	12.4	89.1	90.2	16.14
7½	3510	213T	170158	699	C	147	✓	18.0	91.0	91.0	18.19
	1760	213T	170157	673	C	155	✓	18.6	91.7	91.7	18.19
10	1170	254T	170122	995	C	249	...	21.0	91.7	90.2	23.19
	3510	215T	170159	828	C	181	✓	23.4	91.8	91.7	19.61
15	1760	215T	170140	803	C	177	✓	25.0	92.2	91.7	19.61
	1170	256T	170123	1424	C	300	✓	29.0	92.0	91.7	24.92
20	3525	254T	170062	1125	C	282	✓	34.6	92.0	91.7	23.19
	1770	254T	170066	1088	C	280	✓	36.0	92.4	92.4	23.19
25	1170	284T	170068	1927	C	333	✓	40.6	92.0	92.4	26.26
	3525	256T	170033	1374	C	316	✓	46.0	93.0	92.4	24.92
30	1770	256T	170007	1359	C	322	✓	49.0	93.0	93.0	24.92
	1170	286T	170001	2410	C	392	✓	54.0	92.4	92.4	27.83
40	3550	284TS	170035	1786	C	383	✓	56.8	93.3	93.0	24.88
	1770	284T	170011	1687	C	385	✓	59.0	94.0	94.0	26.26
50	1190	324T	170003	2820	C	545	✓	66.0	92.8	93.0	29.53
	3550	286TS	170037	2108	C	385	✓	67.6	93.2	93.0	26.46
60	1770	286T	170015	1966	C	432	✓	70.0	94.1	93.6	27.83
	1190	326T	170005	3165	C	615	✓	77.2	93.6	93.6	31.02
75	3550	324TS	170039	2631	C	504	✓	90.0	93.6	93.6	28.03
	1780	324T	170019	2611	C	528	✓	92.0	94.0	94.1	29.53
100	1180	364T	170096	4338	C	636	✓	102.0	94.1	94.1	32.64
	3550	326TS	170041	3195	C	554	✓	110.0	94.3	94.1	29.53
150	1780	326T	170023	3155	C	587	✓	117.0	94.6	94.5	31.02
	1180	365T	170097	5206	C	672	...	120.0	94.1	93.6	33.62
200	3570	364TS	170043	4738	C	735	✓	136.0	94.5	94.1	30.51
	1780	364T	170027	4486	C	666	...	137.0	95.0	94.1	32.64
250	1190	404T	170098	6141	C	870	✓	142.0	94.5	94.5	36.42
	3570	365TS	170045	5805	C	780	✓	169.0	94.8	94.5	31.50
300	1780	365T	170031	5598	C	733	...	170.0	95.4	94.1	33.62
	1190	405T	170099	6474	C	975	✓	176.0	95.0	95.0	37.91
400	3570	405TS	170160	7147	C	955	✓	218.0	94.8	95.0	34.92
	1780	405T	170087	6960	C	992	✓	225.0	95.4	95.4	37.91
500	1790	444T	170369*	9243	C	1950	✓	280.0♦	95.4	95.4	42.87

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

SHADED FRAME INDICATES CAST IRON CONSTRUCTION

WATSAVER® PREMIUM EFFICIENCY MOTORS

GENERAL PURPOSE • THREE PHASE



WATSAVER®



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	\$214	A	22	N/A	1.7	73.5	77.0	10.81
1/2	1725	S56C	102200	\$230	A	25	N/A	2.1	73.8	76.5	10.74
3/4	1725	56C	114934	247	A	29	N/A	2.4	80.4	81.5	10.86
1	1725	143TC	121064▲	358	B	32	✓	3.4	84.7	85.5	12.12
1½	1725	145TC	121063▲	373	B	36	✓	5.6	86.1	86.5	13.12
2	1725	145TC	121071	419	B	41	✓	5.8	86.7	86.5	13.62
3	1760	182TC	131518	448	B	75	...	8.2	89.2	87.5	13.69
5	1760	184TC	131517	526	B	96	...	12.8	89.4	88.5	14.69

All WATSAVER® 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	\$420	C	260	10
115	1	210T	175675	438	C	260	11
115	1	250T	175676	471	C	260	17
115	1	280T	175677	566	C	500	24
115	1	320T	175678	605	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◆	\$375	C	115	4
115	1	182-4T	175895	420	C	115	4
115	1	213-5T	175896	438	C	235	5

- ▲ These motors are satisfactory for operation on 50 Hz power supply at full rated horsepower. See page 68 for details.
- † Class F insulated.
- ◆ Available Summer 2002

**SHADED FRAME INDICATES
CAST IRON CONSTRUCTION**

Catalog numbers in blue are NEW items.

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	\$269	A	22	N/A	1.7	73.5	77.0	10.81
1/2	1725	S56C	101780▲	289	A	25	N/A	2.1	73.8	76.5	10.69
3/4	1725	56C	114213▲	311	A	27	N/A	2.7	80.2	81.5	11.31
1	1725	56C	114638▲	433	A	34	N/A	3.4	84.7	85.5	12.81
	1725	143TC	121067▲	433	B	36	✓	3.4	84.7	85.5	13.25
1½	1725	145TC	121066▲	457	B	41	✓	5.6	86.1	86.5	13.75
2	1725	145TC	121065	479	B	45	✓	5.8	86.7	86.5	14.26
3	1760	182TC	131503	510	B	72	...	8.2	89.2	88.5	14.47
5	1760	184TC	131501	552	B	90	...	13.0	89.4	88.5	15.97
7½	1760	213TC	140486†	800	B	125	...	20.4	89.4	89.5	17.71
10	1760	215TC	140484†	893	B	179	...	26.0	89.8	89.5	18.71

All WATSAVER® 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	\$275	A	22	N/A	1.7	73.5	77.0	10.81
1/2	1725	S56C	102024▲	296	A	20	N/A	2.1	73.8	76.5	10.69
3/4	1725	56C	114624▲	317	A	25	N/A	2.7	80.2	81.5	11.31
1	1725	143TC	121179▲	447	B	34	✓	3.4	84.7	85.5	13.25
1½	1725	145TC	121180▲	464	B	37	✓	5.6	86.1	86.5	13.75
2	1725	145TC	121181	485	B	43	✓	5.8	86.7	86.5	14.26
3	1760	182TC	131504	522	B	75	...	8.2	89.2	88.5	14.47
5	1760	184TC	131502	564	B	99	...	13.0	89.4	88.5	15.97

All WATSAVER® 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	\$654	C
213-5T	175685	654	C
254-6T	175686	1056	C
284-6T	175687	1056	C

FOR ROLLED STEEL TEFC MOTORS

For NEMA Frame	Encoder Kit Catalog Number	List Price	Disc. Sym.
56/145T	175960◆	\$526	A
182-4T	175897	764	B
213-5T	175898	764	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☆	\$262	A	27	115/208-230	Man.	1.7	76.0	10.81
1/2	1725	56	113766☆	291	A	30	115/208-230	Man.	2.5	78.0	11.31
3/4	1725	56	113767☆	343	A	35	115/208-230	Man.	3.2	82.0	11.81
1	1725	56	113768☆	394	A	37	115/208-230	Man.	4.2	83.0	12.31
1 1/2	1725	56H	113769☆□	449	A	43	115/208-230	Man.	6.5	84.0	13.31
2	1725	56HZ	113770☆■	617	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	\$197	A	19	115	Auto.	2.5	71.0	9.88
1/3	1725	48	101405	233	A	19	115	Auto.	3.2	75.0	9.88
		56HZ	113771②	311	A	30	115	Auto.	3.0	73.0	11.44
		56HZ	113970②	285	A	30	115	Auto.	3.2	73.0	11.94
		56HZ	113674②	311	A	30	115	Auto.	3.1	70.0	11.44
		56HZ	113969②	285	A	30	115	Auto.	3.2	73.0	11.94
1/2	1725	48	101585	265	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.