

**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. These motors can be converted to IEEE841 compliant using the Custom PDQ Program. Contact LEESON.



**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





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

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)
50	3550	324TS	<b>170040</b>	\$4203	C	548	✓	112.0	95.0	94.1	24.53
	1780	326T	<b>170021</b>	3891	C	614	✓	118.0	94.5	94.5	27.52
	1190	365T	<b>170148</b>	6031	C	918	✓	128.0	94.7	94.5	31.18
60	3550	326TS	<b>170042</b>	5026	C	590	✓	136.0	95.0	94.1	26.02
	1780	364T	<b>170025</b>	4283	C	716	✓	139.0	95.0	95.4	28.01
	1190	404T	<b>170149</b>	6676	C	1031	✓	159.0	94.0	94.5	32.76
75	3570	364TS	<b>170044</b>	6641	C	720	✓	176.0	94.5	93.6	26.89
	1780	365T	<b>170029</b>	5282	C	766	✓	172.0	95.4	95.4	31.18
	1190	405T	<b>170150</b>	7913	C	1095	✓	196.0	94.0	94.5	34.25
100	3570	365TS	<b>170151</b>	7508	C	775	✓	234.0	94.5	94.5	29.06
	1780	404T	<b>170152</b>	7227	C	1141	✓	225.0	95.4	95.4	32.76
	1190	444T	<b>170255*</b>	9345	C	1975	✓	118.0♦	95.4	95.4	40.00
125	3570	404TS	<b>170154</b>	8678	C	1015	✓	284.0	94.5	94.5	29.76
	1780	405T	<b>170155</b>	9146	C	1236	✓	280.0	95.4	95.4	34.25
	1190	445T	<b>170259*</b>	12148	C	2022	✓	148.0♦	95.8	95.8	40.00
150	3570	405TS	<b>171449*</b>	10707	C	1085	✓	169.0♦	94.5	94.5	31.26
	1780	444T	<b>171522*</b>	10800	C	2000	✓	164.0♦	95.8	95.8	40.00
	1190	445T	<b>171576*</b>	13033	C	2040	✓	206.0♦	95.8	95.8	40.00
200	3570	444TS	<b>171573*</b>	12134	C	1765	✓	216.0♦	95.4	95.4	36.25
	1780	445T	<b>171523*</b>	12455	C	2037	✓	220.0♦	95.8	95.8	40.00
	1190	447T	<b>171577*</b>	17132	C	2820	✓	239.0♦	95.8	96.2	43.12

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	<b>175674</b>	\$744	C	260	10
115	1	210T	<b>175675</b>	777	C	260	11
115	1	250T	<b>175676</b>	835	C	260	17
115	1	280T	<b>175677</b>	1004	C	500	24
115	1	320T	<b>175678</b>	1069	C	500	28
230/460	3	360T	<b>175879</b>	2221	C	500	35
230/460	3	400T	<b>175880</b>	2464	C	500	45
230/460	3	440T	<b>175558G</b>	2819	C	500	55

⊗ For 444T/445T motors

**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	<b>175876</b>	\$664	C	115	4
115	1	56-145T	<b>175775</b> ⊗	664	A	115	4
115	1	182-4T	<b>175895</b>	744	C	115	4
115	1	213-5T	<b>175896</b>	777	C	235	5

⊗ For 56/145T motors having face mounted (plastic) fan guards.

**SHADED FRAME INDICATES CAST IRON CONSTRUCTION**

All three phase motors, 1 HP and above, are inverter rated. Refer to page 5 for speed ranges.

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

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)
40	3550	324TS	<b>170039</b>	\$4408	C	504	✓	90.0	93.6	93.6	28.03
	1780	324T	<b>170019</b>	4375	C	528	✓	92.0	93.6	94.1	29.53
	1180	364T	<b>170096</b>	7269	C	636	✓	102.0	94.1	94.1	32.64
50	3550	326TS	<b>170041</b>	5353	C	554	✓	111.0	95.0	94.5	29.53
	1780	326T	<b>170023</b>	5284	C	587	✓	117.0	94.5	94.5	31.02
	1180	365T	<b>170097</b>	8724	C	672	✓	124.0	94.1	94.1	33.62
60	3570	364TS	<b>170043</b>	7939	C	735	✓	136.0	93.6	94.1	30.51
	1780	364T	<b>170027</b>	7516	C	666	✓	137.0	95.0	95.4	32.64
	1190	404T	<b>170098</b>	10290	C	870	✓	142.0	94.5	94.5	36.42
75	3570	365TS	<b>170045</b>	9725	C	780	✓	169.0	94.5	94.5	31.50
	1780	365T	<b>170031</b>	9380	C	733	✓	171.0	95.8	95.8	33.62
	1190	405T	<b>170099</b>	10846	C	975	✓	176.0	95.0	95.0	37.91
100	3570	405TS	<b>170160</b>	10975	C	955	✓	218.0	94.5	95.0	34.92
	1780	405T	<b>170087</b>	11664	C	1070	✓	225.0	95.4	95.4	37.91
	1190	444T	<b>170256*</b>	15440	C	1457	✓	121.0♦	95.0	95.0	42.87
125	1790	444T	<b>170369*</b>	15486	C	1950	✓	137.5♦	95.4	95.4	42.87
	1190	445T	<b>170260*</b>	17445	C	1596	✓	155.0♦	95.4	95.4	44.88
	3570	444TS	<b>171580*</b>	14298	C	1316	✓	132.0	94.5	95.0	39.10
150	1790	445T	<b>170371*</b>	17718	C	1627	✓	163.0♦	95.8	95.8	44.88
	1190	447T	<b>171315*</b>	19672	C	2230	✓	185.5♦	95.8	95.8	48.00
	3570	445TS	<b>171578*</b>	17647	C	1445	✓	161.0	94.5	95.0	44.88
200	1790	447T	<b>170352*</b>	20294	C	2227	✓	216.0♦	96.2	96.2	48.00
	1190	449T	<b>171316*</b>	25766	C	2542	✓	241.5♦	95.8	95.8	52.80
	3570	447TS	<b>171579*</b>	20325	C	1977	✓	216.5	95.0	95.4	48.00

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

\* 460V only  
♦ Full Load Amps 460V

**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 No.	List Price	Disc. Sym.
182-4T	<b>175684</b>	\$1157	C
213-5T	<b>175685</b>	1157	C
254-6T	<b>175686</b>	1869	C
284-6T	<b>175687</b>	1869	C
320T	<b>175641</b>	1906	C
360T	<b>175642</b>	1906	C
400T	<b>175643</b>	1906	C
440T (2 pole)	<b>175644</b>	1906	C
440T (4/6 pole)	<b>175645</b>	1906	C

**FOR ROLLED STEEL  
TEFC MOTORS**

For NEMA Frame	Encoder Kit Catalog Number	List Price	Disc. Sym.
56/145T	<b>175960</b>	\$934	A
182-4T	<b>175897</b>	1353	B
213-5T	<b>175898</b>	1353	B





# WATSAVER® PREMIUM EFFICIENCY MOTORS

GENERAL PURPOSE • THREE PHASE



## 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	\$343	A	22	N/A	1.3	73.5	77.0	10.24
1/2	1725	S56C	102200	368	A	25	N/A	1.8	73.8	77.0	10.74
3/4	1725	56C	114934	394	A	29	N/A	2.4	80.4	81.5	10.86
1	1725	56C	116740	572	A	32	✓	3.4	84.7	85.5	11.68
	1725	143TC	121064	572	B	32	✓	3.4	84.7	85.5	12.12
1½	1725	56C	116741	597	A	36	✓	5.6	86.1	86.5	12.68
	1725	145TC	121063	597	B	36	✓	5.6	86.1	86.5	13.12
2	1725	56C	116742	671	A	41	✓	5.8	86.7	86.5	13.18
	1725	145TC	121071	671	B	41	✓	5.8	86.7	86.5	13.62
3	1760	182TC	131518	719	B	75	✓	7.8	90.2	89.5	14.20
5	1760	184TC	131517	845	B	96	✓	12.8	90.1	89.5	15.20
7½	1760	213TC	140483	936	B	132	✓	20.6	91.7	91.0	16.25
10	1760	215TC	140485	1058	B	144	✓	26.8	92.2	91.7	17.25

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

## THREE PHASE • DRIP-PROOF • 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	103021	\$361	A	23	N/A	1.3	73.5	77.0	10.24
1/2	1725	S56C	103022	381	A	26	N/A	1.8	73.8	77.0	10.74
3/4	1725	56C	116762	404	A	30	N/A	2.4	80.4	81.5	10.86
1	1725	56C	116763	577	A	33	✓	3.4	84.7	85.5	11.68
	1725	143TC	121674	577	B	34	✓	3.4	84.7	85.5	12.12
1½	1725	56C	116764	599	A	37	✓	5.6	86.1	86.5	12.68
	1725	145TC	121675	599	B	37	✓	5.6	86.1	86.5	13.12
2	1725	56HC	116765	676	A	42	✓	5.8	86.7	86.5	13.18
	1725	145TC	121676	676	B	42	✓	5.8	86.7	86.5	13.62
3	1760	182TC	132081	732	B	76	✓	7.8	90.2	89.5	14.20
5	1760	184TC	132082	858	B	97	✓	12.8	90.1	89.5	15.20
7½	1760	213TC	140767	943	B	132	✓	20.6	91.7	91.0	16.25
10	1760	215TC	140768	1070	B	144	✓	26.8	91.7	91.7	17.25

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



## 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	\$430	A	22	N/A	1.3	73.5	77.0	10.19
1/2	1725	S56C	101780	461	A	25	N/A	1.8	73.8	77.0	10.69
3/4	1725	56C	114213	497	A	27	N/A	2.7	80.2	81.5	11.31
1	3450	56C	116748	545	A	29	✓	2.8	80.0	80.0	11.31
	1725	56C	114638	691	A	34	N/A	3.4	84.7	85.5	12.81
	1725	143TC	121067	691	B	36	✓	3.4	84.7	85.5	13.25
	1160	56C	116749	726	A	47	✓	3.8	81.5	82.5	13.75
1½	3450	56C	116750	619	A	33	✓	4.0	83.0	84.0	13.25
	1725	56C	116743	729	A	41	✓	4.8	86.1	86.5	13.31
	1725	145TC	121066	729	B	41	✓	5.6	86.1	86.5	13.75
2	3450	56C	116751	717	A	44	✓	4.8	84.8	85.5	14.25
	1725	56C	116744	765	A	45	✓	5.8	86.7	86.5	13.82
1725	145TC	121065	765	B	45	✓	5.8	86.7	86.5	14.26	
3	1760	182TC	131503	819	B	72	✓	7.8	89.0	89.5	14.96
5	1760	184TC	131501	886	B	90	✓	12.8	90.1	89.5	15.97
7½	1760	213TC	140486	1029	B	144	✓	21.4	90.6	91.7	18.70
10	1760	215TC	140484	1242	B	160	✓	26.6	91.6	91.7	19.70

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

All 180 and 210 frame Rolled Steel motors have Class F Insulation.

**SHADED FRAME INDICATES CAST IRON CONSTRUCTION**

All three phase motors, 1 HP and above, are inverter rated. Refer to page 5 for speed ranges.

## 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	\$439	A	22	N/A	1.3	73.5	77.0	10.19
1/2	1725	S56C	102024	472	A	23	N/A	1.8	73.8	77.0	10.69
3/4	1725	56C	114624	507	A	25	N/A	2.7	80.2	81.5	11.31
1	1725	56C	116745	715	A	34	✓	3.4	84.7	85.5	12.81
	1725	143TC	121179	715	B	34	✓	3.4	84.7	85.5	13.25
1½	3450	143TC	121672	645	B	33	✓	3.6	83.0	84.0	13.25
	1725	56C	116746	741	A	37	✓	5.6	86.1	86.5	13.31
	1725	145TC	121180	741	B	37	✓	5.6	86.1	86.5	13.75
2	3450	145TC	121673	661	B	44	✓	4.8	84.8	85.5	13.75
	1725	56HC	116747	775	A	43	✓	5.8	86.7	86.5	13.82
1725	145TC	121181	775	B	43	✓	5.8	86.7	86.5	14.26	
3	3450	182TC	132079	954	B	70	✓	7.6	86.1	86.5	13.96
	1760	182TC	131504	836	B	75	✓	7.8	89.0	89.5	14.96
5	3450	184TC	132080	943	B	100	✓	12.8	88.0	88.5	16.46
	1760	184TC	131502	905	B	99	✓	12.8	90.1	89.5	15.97
7½	3450	213TC	140770	1166	B	160	✓	17.8	89.5	90.2	19.64
	1760	213TC	140521	1035	B	144	✓	21.4	90.6	91.7	18.70
10	3510	215TC	140769	1317	B	175	✓	23.6	92.4	91.7	21.09
	1760	215TC	140522	1250	B	160	✓	26.6	91.6	91.7	19.70
15	3525	254TC	171586	2084	C	292	✓	34.6	92.0	92.4	23.19
	1770	254TC	171587	2184	C	290	✓	36.0	92.4	92.4	23.19
20	3525	256TC	171588	2560	C	326	✓	46.0	93.0	92.4	24.92
	1770	256TC	171589	2608	C	332	✓	49.0	93.0	93.0	24.92
25	3550	284TSC	171590	3217	C	393	✓	56.8	93.3	93.0	24.88
	1770	284TC	171591	3328	C	395	✓	59.0	94.0	93.6	26.26
30	1770	286TC	171592	4010	C	442	✓	70.0	94.1	94.1	27.83
40	1780	324TC	171593	5184	C	538	✓	92.0	94.0	94.1	29.53
50	1780	326TC	171594	5695	C	597	✓	117.0	94.6	94.5	31.02
60	1780	364TC	171595	9032	C	676	✓	137.0	95.0	95.4	32.64
75	1780	365TC	171596	10392	C	743	✓	170.0	95.8	95.8	33.62
100	1780	405TC	171597	12725	C	1002	✓	225.0	95.4	95.4	37.91

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

# WATTS AVER® PREMIUM EFFICIENCY MOTORS



GENERAL PURPOSE • SINGLE PHASE • FHP THREE PHASE

WATTS AVER®

## WATTS AVER® PREMIUM EFFICIENCY HIGH TORQUE

WATTS AVER® Premium Efficiency Motors provide enhanced operating efficiencies, cooler operating temperatures, and reduced running amperage. See page 13 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☆	\$425	A	27	115/208-230	Man.	1.7	76.0	10.81
1/2	1725	56	113766☆	472	A	30	115/208-230	Man.	2.5	78.0	11.31
3/4	1725	56	113767☆	557	A	35	115/208-230	Man.	3.2	82.0	11.81
1	1725	56	113768☆	639	A	37	115/208-230	Man.	4.2	83.0	12.31
1 1/2	1725	56H	113769 ☆□	726	A	43	115/208-230	Man.	6.5	84.0	13.31
2	1725	56HZ	113770 ☆■	999	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	\$319	A	19	115	Auto.	2.5	71.0	10.39
1/3	1725/ 1140	48	101405	378	A	19	115	Auto.	3.2	75.0	10.39
		56HZ	113771 ②D	505	A	30	115	Auto.	3.0	73.0	11.44
		56HZ	113970 ②D	464	A	30	115	Auto.	3.2	73.0	11.94
		56HZ	113674 ②D	505	A	30	115	Auto.	3.1	70.0	11.44
1/2	1725/ 850	56HZ	113969 ②D	464	A	30	115	Auto.	3.2	73.0	11.94
		48	101585	431	A	25	115	Auto.	4.6	76.0	11.39

- 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.
- D Motors are to be discontinued once the inventory is depleted.

## FHP MOTORS FOR AC DRIVES

- Compact 48-frame design with keyed shaft
- Class F insulation
- 20:1 Constant torque rated
- Inverter IRIS™ insulation system
- 1/2" diameter keyed shaft with 48-C Face
- 115/230V 3-phase design optimized for FHP drives



## THREE PHASE • TEFC • C FACE WITH BASE

HP	RPM 60 Hz	NEMA Frame	Catalog Number	List Price	Disc. Sym.	App. Wgt. (lbs.)	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/6	1725	48CZ	102792	\$273	A	25	1.25	56.0	8.94
1/4	1725	48CZ	102793	310	A	26	1.4	58.0	8.94
1/3	1725	48CZ	102794	339	A	28	1.6	64.3	9.19
1/2	1725	48CZ	102795	380	A	30	1.8	77.0	10.19

All three phase motors, 1 HP and above, are inverter rated. Refer to page 5 for speed ranges.