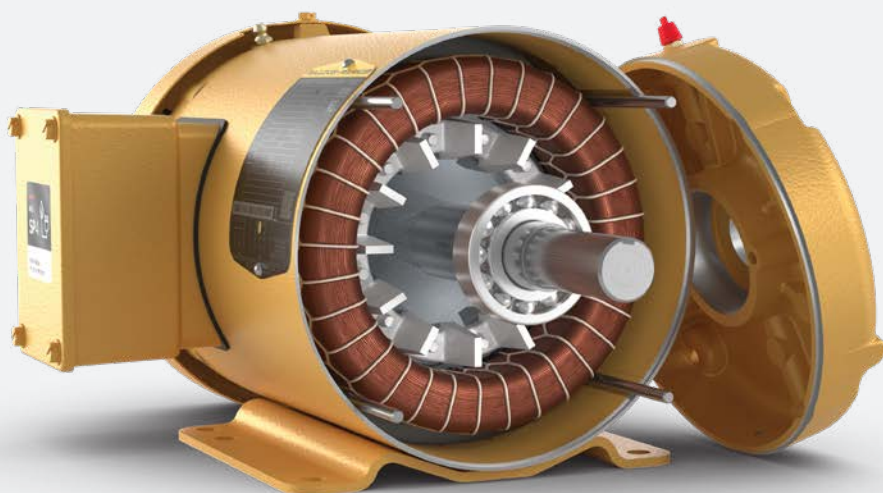


BROCHURE

Baldor-Reliance® SP4™ motors

NEMA Super Premium

BALDOR • RELIANCE



When it comes to electric motors, you trust in ABB. Leading the way in energy efficiency yet again, Baldor-Reliance® SP4™ motors give you a shortcut in energy savings that makes a difference to your bottom line. These motors achieve NEMA Super Premium® efficiency across-the-line, independently of a drive. DOL or inverter duty, runs cooler, longer and quieter – now with a 48-month warranty.



Baldor-Reliance® SP4™ motors

Revolutionizing the motor industry – again



Install base

There are more than 300 million industrial electric motor-driven systems in operation worldwide



DOL motors still run the world

Roughly 80% of the world's electric motors operate DOL (direct on line) without a drive



Lower energy costs

NEMA Super Premium® (comparable to IEC's IE4 efficiency) can offer up to 40% lower energy loss in comparison with a NEMA standard efficient (IE2) induction motor



Rising cost of energy

- Electricity prices (KWh) continue to rise in all sectors and regions, making it more expensive to operate businesses
- Higher electricity prices directly impact operational expenses and increase production costs



Solving the problem

- Take the best and proven AC induction motor design and make it better by reducing motor losses by an average of 20% while maintaining simplicity of AC induction motors
- Simple drop-in design



Cooler running operation

- Able to achieve cooler running operation for longer life
- Achieve longer bearing life
- Industry-leading 4-year warranty



ABB
SP4



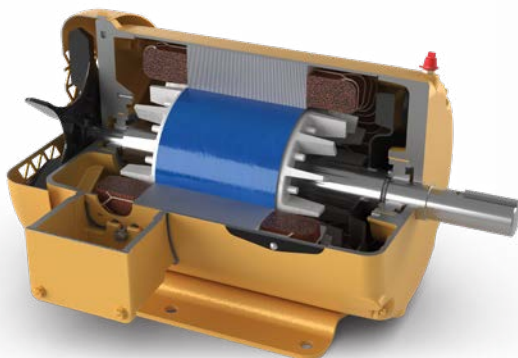
INVERTER DUTY
**NEMA Super
Premium Motors**

The magic is inside the motor

How to achieve higher efficiency

The idea is simple.

Take the best and proven AC induction design and make it better by reducing motor losses by an average of 20% while maintaining the simplicity of today's installed base of AC induction motors.



Baldor-Reliance® Super-E®
NEMA Premium Efficient (IE3)

AC induction motor

- Slip losses in rotor (I^2R)
- Heats bearings and motor
- Lower efficiency adds to heat generated

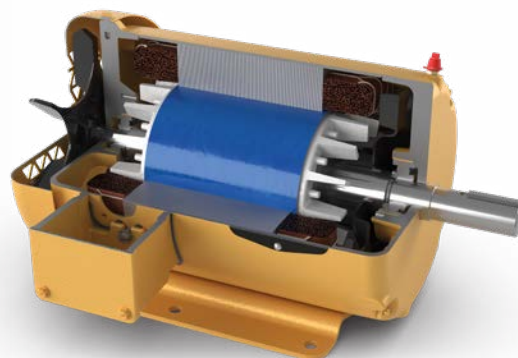
Higher rotor and stator losses



I^2R rotor

Other

I^2R stator



Baldor-Reliance® SP4™
NEMA Super Premium Efficient (IE4)

AC induction motor

- Longer stack (both stator and rotor) – less loss
- Runs cooler – less loss in bearing and motor
- Higher efficiency

Lower rotor and stator losses



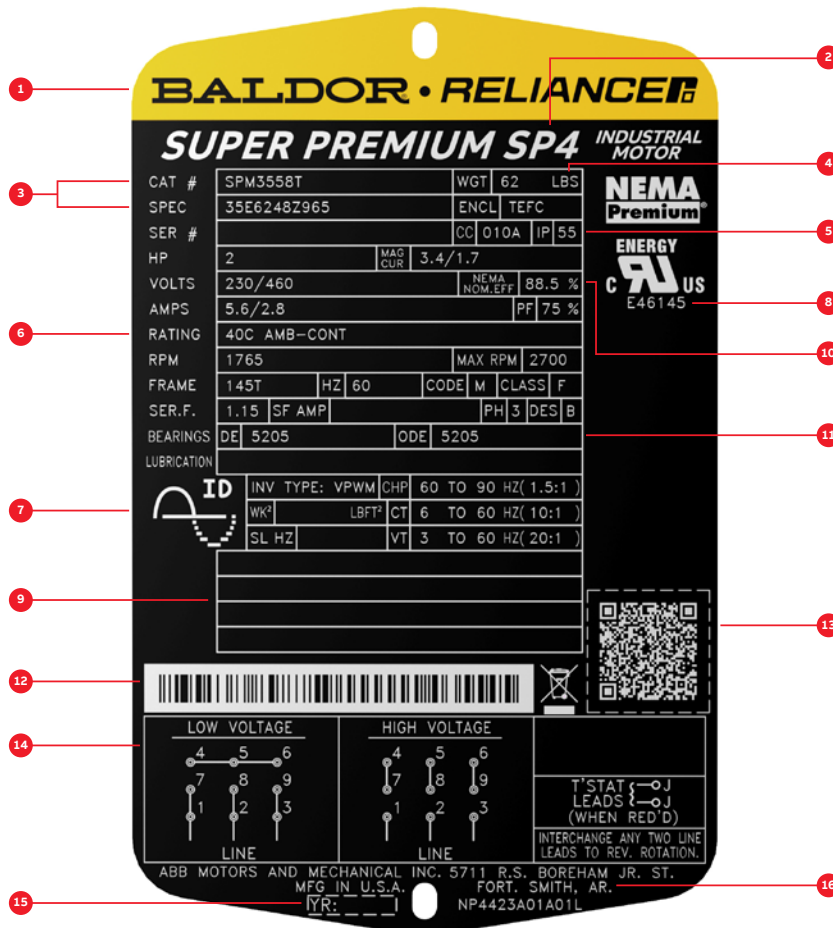
I^2R rotor

Other

I^2R stator

Baldor-Reliance® SP4™ motor nameplates

New and improved



- | | |
|--|---|
| 1 - Baldor-Reliance® logo | 9 - Blank lines for customer information |
| 2 - NEMA Super Premium | 10 - Efficiency |
| 3 - Catalog & spec number | 11 - Bearing information |
| 4 - Product weight | 12 - Bar code for serial number information |
| 5 - IP protection class | 13 - QR code to product landing page |
| 6 - Rating data - Voltage, frequency, output, speed, current, power factor, duty cycle | 14 - Connection diagram |
| 7 - Inverter duty data | 15 - Manufacturing year |
| 8 - Agency mark for fulfilling regulations | 16 - Manufacturing location |

General purpose, three phase, totally enclosed, foot mounted, 230/460V 1/4 - 20 Hp



Features

- 60 Hz designs
- 2,4,6 pole
- 1-20 Hp ratings
- Suitable for inverter use per NEMA MG1 Part 31.4.4.2 *
- Designed for longevity with a 4 year warranty on Super Premium efficient SP4™ motors
- Cooler operation for longer lifespan

Applications

- Fans
- Pumps
- Blowers
- Conveyors
- Compressors
- Industrial machines
- Other general purpose applications

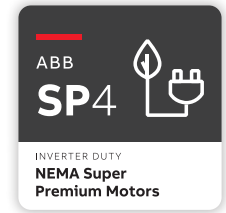
Hp	RPM	NEMA frame	Enclosure	Catalog number	List price	Disc. sym.	"C" dim.	Aprx. Wt. (lb)	Full load efficiency	Full load amps	Notes
1/4	1800	48	TEFC	SPM3454	558	GE4	10.72	24	74	0.4	1,2
		48	TENV	SPNM3454	585	GE4	9.63	24	74	0.4	1,2
	1200	48	TEFC	SPM3455	877	GE4	10.72	27	74	0.65	1,2
		48	TENV	SPNM3455	808	GE4	10.25	27	74	0.65	1,2
1/3	3600	56	TEFC	SPM3531	869	GE4	12.84	27	74	0.65	1,2
		48	TENV	SPM3457	567	GE4	9.63	24	74	0.5	1,2
	1800	48	TEFC	SPM3458	680	GE4	10.72	24	77	0.52	1,2
		56	TEFC	SPM3534	610	GE4	12.84	24	77	0.52	1,2
	1200	56	TENV	SPNM3534	655	GE4	11.76	24	77	0.52	1,2
		56	TEFC	SPM3535	977	GE4	12.84	27	75.5	0.7	1,2
1/2	3600	48	TEFC	SPM3460	657	GE4	10.72	27	77	0.8	1,2
		56	TEFC	SPM3537	657	GE4	12.84	27	77	0.8	1,2
	1800	48	TEFC	SPM3461	797	GE4	10.72	27	81.5	0.75	1,2
		56	TEFC	SPM3538	1,052	GE4	12.84	27	81.5	0.75	1,2
	56	TENV	SPNM3538	760	GE4	11.76	27	81.5	0.75	1,2	
		56	TEFC	SPM3539	1,052	GE4	13.72	42	78.5	1	1,2
	1200	56	TENV	SPNM3539	1,155	GE4	12.64	42	78.5	1	1,2
		56	TEFC	SPM3463	724	GE4	11.34	30	80	1	1,2
3/4	3600	56	TEFC	SPM3541	724	GE4	12.84	30	80	1	1,2
		48	TEFC	SPM3464	861	GE4	13.10	44	84	0.95	1,2
	1800	56	TEFC	SPM3542	747	GE4	13.72	45	84	0.95	1,2
		56	TENV	SPNM3543	816	GE4	12.63	42	84	0.95	1,2
	1200	56	TEFC	SPM3543	1,074	GE4	12.91	41	82.5	1.4	1,2
		143T	TEFC	SPM3543T	1,074	GE4	13.29	41	82.5	1.4	1,2

Notes:

1) Class F insulated motor with 1.15 service factor or higher that operates within Class "B" temperature limits at rated horsepower.

2) Usable at 208 volts

* 48 frame Inverter Duty only available on low voltage input



Hp	RPM	NEMA frame	Enclosure	Catalog number	List price	Disc. sym.	"C" dim.	Aprx. Wt. (lb)	Full load efficiency	Full load amps	Notes
1	3600	56	TEFC	SPM3545	1,151	GE4	12.91	35	82.5	1.3	1,2
	1800	56	TEFC	SPM3546	1,176	GE4	12.91	37	85.5	1.6	1,2
		56	TENV	SPNM3546	1,324	GE4	11.74	37	85.5	1.67	1,2
		143T	TEFC	SPM3546T	1,176	GE4	12.29	37	85.5	1.6	1,2
	1200	143T	TENV	SPNM3546T	1,324	GE4	12.12	37	85.5	1.67	1,2
		56	TEFC	SPM3556	1,518	GE4	13.78	47	84	1.66	1,2
145T		TEFC	SPM3556T	1,518	GE4	14.19	47	84	1.66	1,2	
1-1/2	3600	56	TEFC	SPM3550	1,303	GE4	12.91	38	85.5	2.05	1,2
		143T	TEFC	SPM3550T	1,303	GE4	12.29	38	85.5	2.05	1,2
	1800	56	TEFC	SPM3554	1,307	GE4	12.91	45	87.5	2.25	1,2
		145T	TEFC	SPM3554T	1,307	GE4	13.29	44	87.5	2.25	1,2
	1200	145T	TENV	SPNM3554T	1,472	GE4	13.00	48	87.5	2.3	1,2
		182T	TEFC	SPM3607T	1,776	GE4	18.04	90	88.5	2.5	1,2
2	3600	56	TEFC	SPM3555	1,427	GE4	13.78	50	86.5	2.4	1,2
		145T	TEFC	SPM3555T	1,427	GE4	14.19	50	86.5	2.4	1,2
	1800	145T	TEFC	SPM3558T	1,382	GE4	15.56	62	88.5	2.8	1,2
	1200	184T	TEFC	SPM3614T	1,862	GE4	18.48	100	89.5	3.3	1,2
3	3600	145T	TEFC	SPM3559T	1,563	GE4	16.55	81	88.5	3.4	1,2
		182T	TEFC	SPM3610T	1,583	GE4	16.55	81	88.5	3.4	1,2
	1800	182T	TEFC	SPM3611T	1,418	GE4	18.04	93	91	4.2	1,2
	1200	213T	TEFC	SPM3704T	2,421	GE4	19.02	127	90.2	4.5	1,2
5	3600	184T	TEFC	SPM3613T	1,755	GE4	18.04	94	89.5	5.5	1,2
	1800	184T	TEFC	SPM3615T	1,465	GE4	18.04	100	91	6.6	1,2
	1200	215T	TEFC	SPM3708T	2,736	GE4	20.52	149	90.2	7.4	1,2
7-1/2	3600	213T	TEFC	SPM3709T	2,629	GE4	17.89	121	90.2	9	1,2
	1800	213T	TEFC	SPM3710T	2,112	GE4	20.52	165	92.4	9.9	1,2
10	3600	215T	TEFC	SPM3711T	2,665	GE4	20.52	187	91.7	10.3	1,2
	1800	215T	TEFC	SPM3714T	2,385	GE4	20.52	187	92.4	12.6	1,2
15	3600	215T	TEFC	SPM3713T	3,761	GE4	20.52	187	92.4	17	1,2
	1800	254T	TEFC	SPM3910T	4,150	GE4	24.56	205	93.6	18.3	1,2
20	1800	256T	TEFC	SPM3914T	4,950	GE4	27.57	275	94.1	24	1,2

Notes:

- 1) Class F insulated motor with 1.15 service factor or higher that operates within Class "B" temperature limits at rated horsepower.
- 2) Usable at 208 volts

General purpose, three phase, open drip proof, foot mounted, 230/460V

1/4 - 20 Hp



Features

- 60 Hz designs
- 2,4,6 pole
- 1-20 Hp ratings
- Suitable for inverter use per NEMA MG1 Part 31.4.4.2 *
- Designed for longevity with a 4 year warranty on Super Premium efficient SP4™ motors
- Cooler operation for longer lifespan

Applications

- Fans
- Pumps
- Blowers
- Conveyors
- Compressors
- Industrial machines
- Other general purpose applications

Hp	RPM	NEMA frame	Catalog number	List price	Disc. sym.	"C" dim.	Aprx. Wt. (lb)	Full load efficiency	Full load amps	Notes	
1/4	1800	48	SPM30003	766	GO4	9.62	24	74	0.4	1,2	
		48	SPM30004	847	GO4	9.75	27	74	0.65	1,2	
		56	SPM31101	847	GO4	11.75	27	74	0.65	1,2	
1/3	3600	48	SPM30006	804	GO4	9.62	24	74	0.40	1,2	
		48	SPM30007	810	GO4	9.13	24	77	0.52	1,2	
	1800	56	SPM31104	810	GO4	11.75	24	77	0.52	1,2	
		48	SPM30008	886	GO4	9.75	27	75.5	0.70	1,2	
		56	SPM31105	886	GO4	11.75	27	75.5	0.70	1,2	
1/2	3600	48	SPM30009	865	GO4	10.25	27	77	0.80	1,2	
		56	SPM31107	865	GO4	11.75	27	77	0.80	1,2	
	1800	48	SPM30010	892	GO4	10.25	27	81.5	0.75	1,2	
		56	SPM31108	892	GO4	11.75	27	81.5	0.75	1,2	
		48	SPM30011	974	GO4	11.51	42	78.5	1.00	1,2	
		56	SPM31109	974	GO4	12.63	42	78.5	1.00	1,2	
3/4	3600	48	SPM30012	861	GO4	10.63	30	80	1.00	1,2	
		56	SPM31111	861	GO4	11.75	30	80	1.00	1,2	
	1800	56	SPM31112	982	GO4	12.63	46	84	0.95	1,2	
		1200	56	SPM31153	1,199	GO4	11.75	41	82.5	1.40	1,2
			143T	SPM3153T	1,052	GO4	12.13	41	82.5	1.40	1,2
1	3600	56	SPM31115	883	GO4	11.75	35	82.5	1.30	1,2	
		56	SPM31116	1,033	GO4	11.75	37	85.5	1.63	1,2	
	1800	143T	SPM3116T	1,133	GO4	11.12	37	85.5	1.20	1,2	
		1200	56H	SPM31156	1,511	GO4	12.63	47	84	1.66	1,2
			145T	SPM3156T	1,305	GO4	13	47	84	1.66	1,2

Notes:

1) Class F insulated motor with 1.15 service factor or higher that operates within Class "B" temperature limits at rated horsepower.

2) Usable at 208 volts

* 48 frame Inverter Duty only available on low voltage input



Hp	RPM	NEMA frame	Catalog number	List price	Disc. sym.	"C" dim.	Aprx. Wt. (lb)	Full load efficiency	Full load amps	Notes
1-1/2	3600	56	SPM31120	912	GO4	11.75	38	85.5	2.05	1,2
		143T	SPM3120T	1,099	GO4	11.12	38	85.5	2.05	1,2
	1800	56	SPM31154	1,133	GO4	11.75	45	87.5	2.25	1,2
		145T	SPM3154T	1,185	GO4	12.13	45	87.5	2.25	1,2
	1200	56H	SPM31159	1,454	GO4	16.49	90	88.5	2.50	1,2
		182T	SPM3207T	1,527	GO4	17.99	90	88.5	2.50	1,2
2	3600	56	SPM31155	1,027	GO4	11.75	43	86.5	2.50	1,2
		143T	SPM3155T	1,288	GO4	11.62	43	86.5	2.50	1,2
	1800	56H	SPM31157	1,188	GO4	14.00	56	88.5	2.7	1,2
		145T	SPM3157T	1,269	GO4	14.38	56	88.5	2.7	1,2
	1200	184T	SPM3215T	1,562	GO4	18.43	100	89.5	3.30	1,2
3	3600	56H	SPM31158	1,151	GO4	14	64	88.5	3.45	1,2
		145T	SPM3158T	1,305	GO4	14.38	64	88.5	3.45	1,2
	1800	182T	SPM3211T	1,368	GO4	17.99	92	91	4	1,2
	1200	213T	SPM3305T	1,987	GO4	17.45	127	90.2	4.50	1,2
5	3600	182T	SPM3212T	1,425	GO4	16.49	81	91	5.60	1,2
	1800	184T	SPM3218T	1,499	GO4	18.43	100	91	6.6	1,2
	1200	215T	SPM3309T	2,604	GO4	17.45	141	90.2	7.30	1,2
7-1/2	3600	184T	SPM3219T	2,260	GO4	17.99	36	90.2	8.40	1,2
	1800	213T	SPM3311T	2,201	GO4	18.20	158	92.4	9.5	1,2
	1200	254T	SPM2506T	3,122	GO4	23.19	248	91.7	11.00	1,2
10	3600	213T	SPM3312T	2,584	GO4	17.45	130	91.7	11.50	1,2
	1800	215T	SPM3313T	2,664	GO4	18.20	158	92.4	12.1	1,2
	1200	256T	SPM2511T	4,061	GO4	24.21	288	92.4	14.50	1,2
15	3600	215T	SPM3314T	3,670	GO4	18.95	187	92.4	17.00	1,2
	1800	254T	SPM2513T	3,771	GO4	24.21	290	93.6	18.3	1,2
20	3600	254T	SPM2514T	4,311	GO4	21.69	242	92.4	23.00	1,2
	1800	256T	SPM2515T	4,661	GO4	25.21	436	94.1	24.00	1,2

Notes:

1) Class F insulated motor with 1.15 service factor or higher that operates within Class "B" temperature limits at rated horsepower.

2) Usable at 208 volts

Severe duty, three phase, totally enclosed, foot mounted

25 - 300 Hp



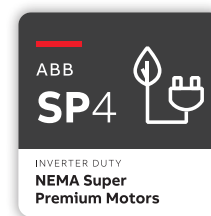
Features

- Robust cast iron TEFC construction
- IP55 ingress protection
- Regreasable bearings all frames
- 304 stainless steel nameplates
- Suitable for inverter use per NEMA MG1 Part 31.4.4.2
- Class I, Div 2 Groups A, B, C & D
- Class II, Div 2 Groups F & G
- NEMA Design B torques at Design A inrush
- Designed with longevity with a 4 year warranty on Super Premium efficient SP4™ motors

Applications

- Grain handling
- Chemical, oil & gas
- Pulp & paper, forest products
- Metals & foundries
- Cement, aggregate & above ground mining
- Food processing
- Power generation
- Water & wastewater treatment

Hp	RPM	NEMA frame	Catalog number	List price	Disc. sym.	"C" dim.	Aprx. Wt. (lb)	Full load efficiency	Voltage	Full load amps
25	3600	284TS	SPM4107T	7,017	SD4	26.75	396	93.0	230/460	28
	1800	284T	SPM4103T	6,600	SD4	28	490	94.5	230/460	29
	1200	324T	SPM4111T	10,355	SD4	30.71	680	94.1	230/460	31
30	3600	286TS	SPM4108T	8,554	SD4	26.63	445	93.0	230/460	33
	1800	286T	SPM4104T	7,836	SD4	27.93	475	94.5	230/460	35
	1200	326T	SPM4117T	13,348	SD4	30.71	675	94.1	230/460	39
40	3600	324TS	SPM4109T	11,751	SD4	29.13	451	93.6	230/460	45
	1800	324T	SPM4110T	10,253	SD4	30.71	720	95.0	230/460	46
	1200	364T	SPM4308T	16,314	SD4	33.48	990	95.0	230/460	45
50	3600	326TS	SPM4114T	12,315	SD4	29.21	587	94.1	230/460	56
	1800	326T	SPM4115T	12,034	SD4	30.71	720	95.4	230/460	60
		326T	SPM4115TS	12,034	SD4	29.21	720	95.4	230/460	60
	1200	365T	SPM4312T	19,317	SD4	33.48	928	95.0	230/460	55.1
60	3600	364TS	SPM4310T	17,372	SD4	31.35	929	94.5	230/460	65.4
	1800	364T	SPM4314T	17,179	SD4	33.49	965	95.4	230/460	70
		364TS	SPM4314TS	17,179	SD4	31.35	933	95.4	230/460	70
	1200	404T	SPM4403T	24,206	SD4	38.19	1,281	95.4	230/460	72.4
75	3600	365TS	SPM4313T	19,900	SD4	31.35	1,005	95.0	230/460	80.7
	1800	365T	SPM4316T	19,766	SD4	33.48	958	95.8	230/460	88
		365TS	SPM4316TS	19,766	SD4	31.35	958	95.8	230/460	88
	1200	405T	SPM4404T	29,458	SD4	38.2	1,275	95.4	230/460	90.8



Hp	RPM	NEMA frame	Catalog number	List price	Disc. sym.	"C" dim.	Aprx. Wt. (lb)	Full load efficiency	Voltage	Full load amps
100	3600	405TS	SPM4402T-4	25,111	SD4	35.19	1,272	96.2	460	113
	1800	405T	SPM4400T	24,738	SD4	38.19	1,296	96.2	460	115
		405TS	SPM4400TS	24,738	SD4	35.19	1,304	96.2	460	115
	1200	444T	SPM4409T-4	32,401	SD4	44.96	1,625	95.0	460	118
125	3600	444TS	SPM4412T-4	29,507	SD4	41.08	1,539	95.0	460	137
	1800	444T	SPM4410T-4	29,246	SD4	44.96	1,950	96.2	460	142
		444TS	SPM4410TS-4	29,246	SD4	41.08	1,950	96.2	460	142
		444T	SPM4410TR-4	31,349	SD4	44.97	1,950	96.2	460	142
	1200	445T	SPM4411T-4	36,604	SD4	60.35	3,407	95.8	460	150
150	3600	445TS	SPM4413T-4	34,593	SD4	44.58	2,017	96.2	460	164
	1800	447T	SPM4406T-4	54,060	SD4	48.46	2,184	96.2	460	170
		447T	SPM4406TR-4	36,365	SD4	44.97	2,184	96.5	460	170
		447TS	SPM4406TS-4	54,060	SD4	44.58	2,184	96.2	460	170
	1200	447T	SPM44156T-4	41,270	SD4	48.46	2,546	96.2	460	175
200	3600	447TS	SPM4416T-4	40,961	SD4	44.58	2,330	95.4	460	216
	1800	447T	SPM4407T-4	41,215	SD4	53.47	2,545	96.5	460	224
		447T	SPM4407TR-4	43,316	SD4	53.47	2,621	96.5	460	224
		447TS	SPM4407TS-4	41,215	SD4	49.72	2,573	96.5	460	224
	1200	L449T	SPM44206T-4	54,060	SD4	60.35	3,282	96.2	460	229
250	3600	449TS	SPM44252T-4	62,638	SD4	49.72	2,995	96.2	460	266
	1800	L449T	SPM4408T-4	52,301	SD4	60.35	3,389	96.5	460	280
		L449T	SPM4408TR-4	54,402	SD4	60.34	3,389	96.5	460	280
		L449TS	SPM4408TS-4	54,402	SD4	56.71	3,389	96.5	460	280
	1200	L449T	SPM44256T-4	75,415	SD4	60.34	3,683	96.2	460	293
300	3600	449TS	SPM44302T-4	96,585	SD4	49.72	2,595	96.2	460	318
	1800	L449T	SPM44304T-4	76,054	SD4	60.35	3,061	96.8	460	342
		L449TS	SPM44304TS-4	76,054	SD4	56.71	3,061	96.8	460	342

Energy savings

How does this translate to power consumption reduction and energy savings?

Here are results on actual customer test result in the US market; however, depending on energy costs, these savings could be significantly greater.

Motor: 10Hp/1800 RPM

NEMA Premium®	Upgrade: SP4™ NEMA Super Premium®
Average unit consumption per day (based on seven-day average) 200.1 kWh	Average unit consumption per day (based on seven-day average) 193.8 kWh
Estimated annual energy cost (based on 0.12 \$ per kWh) \$8,764	Estimated annual energy cost (based on 0.12 \$ per kWh) \$8,488
Tons/Year CO ₂ 31 Tons	Tons/Year CO ₂ 30 Tons
Energy cost savings per motor	\$276/motor



Energy reduction:
3% of 1 Ton



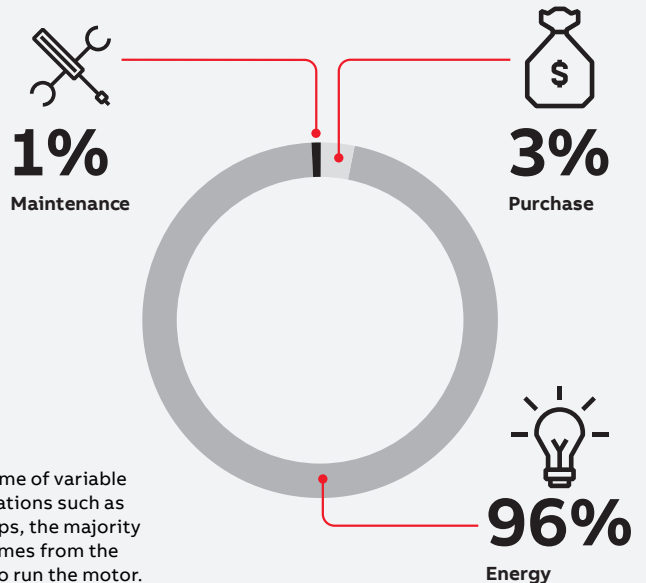
Annual Savings
\$276 per unit



Estimated return on investment
18 to 24 months

Better lifetime efficiency for the whole system

Upgrading to NEMA Super Premium not only future-proofs your installation, it improves the performance of your overall system. Replacing older motor systems with more efficient ones does carry an initial financial cost, the long-term savings over the lifetime of the application far outweigh the cost of purchase. In fact, the initial investment can often be paid back in as little as one to three years.



Sustainability

ABB has set ourselves the ambitious target of helping our customers reduce their annual CO₂ emissions in excess of 100 megatonnes by 2030. This is equivalent to the annual emissions of 30 million combustion cars. An example of how this can be accomplished is the ability of ABB drives powering electric motors that can reduce electricity consumption by up to 25%.

Smart sensor for energy consumption

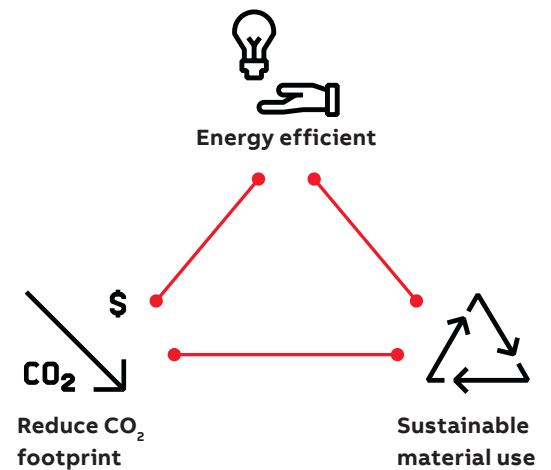
The ABB Ability™ calculates several parameters of datapoints including speed, motor power and torque. With this information, we can accurately calculate energy usage and help our customers optimize their operations.



White paper:
Improving end-to-end
system efficiency



Learn more about:
Energy Efficiency
Movement



Time to make a difference

Join the Energy Efficiency Movement



45%

Electric motors consume
over 45% of the world's
electricity.



By 2040 the number of
motors will double.



Adoption of high-efficiency motor
systems would cut global electricity
consumption by up to 10%.



Changing just one
motor can make a
difference.

ABB, your global value partner

Partnering with ABB gives you access to some of the world's most innovative technology and thinking

Global reach

ABB operates in over 100 countries with its own manufacturing, logistics and sales operations together with a wide network of local channel partners that can quickly respond to your needs. They bring our products and services straight to your front door. ABB channel partners have in-depth knowledge of local markets and are conversant with the defined ABB products and processes.

Energy efficiency

ABB has what it takes to help every industry and application reach new levels of efficiency and energy savings even under the most demanding conditions. Combining the best available materials with superior technology, our motors are designed to operate reliably no matter how challenging the process or application, and to have low life cycle costs.

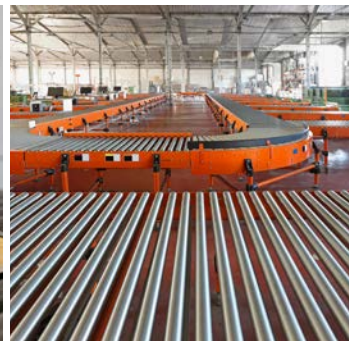




ABB Motors and Mechanical Inc.

5711 R.S. Boreham, Jr. Street
Fort Smith, AR 72901
Ph: 1.479.646.4711

new.abb.com/motors-generators