



ENERGY EFFICIENT MOTORS



ADVANTAGES

- Saves energy & money
- Near uniform efficiency from 50% to 100% of full load ensuring energy savings even at part load conditions also
- Short payback period
- Substantial savings after payback period

RANGE

"Hindustan" Energy efficient motors are designed as per the values specified in IS: 12615. They have near uniform efficiencies between 50 & 100% of load as shown in the figure. The motors are available from 2.2kW to 200.0kW in 2 & 4 pole variety as given in the performance tables. Performance figures of 6 & 8 pole motors are available upon request.

INTRODUCTION

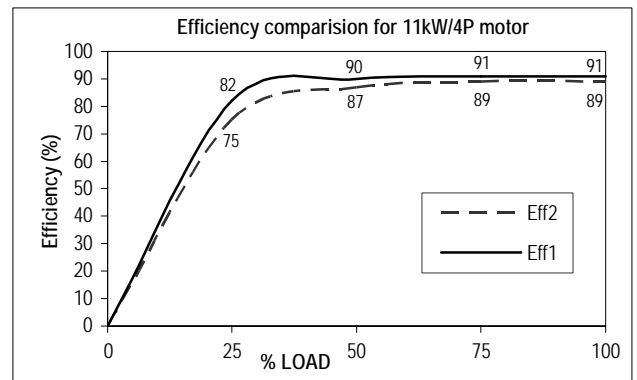
In today's power scenario, we are facing a major power crunch. Day by day, the gap between demand & supply of electric energy is widening at the rate of 3%. Bridging this gap from supply side is very difficult & expensive proposition. The only viable way in handling these crises, in addition to capacity addition, is the efficient use of available energy, which is possible by use of energy efficient devices.

Electric motors are industry's basic need. Electric motors consume around 70% of the total electricity used in the industrial sector. As motors are the largest users of electrical energy, even small efficiency improvements can produce very large savings across the country. Energy conservation measure taken by individual consumers in this direction can improve the national economy & benefit the environment on global scale.

An energy efficient motor produces the same shaft output power but draws less input power than a standard motor. Hence EE motor consumes less electricity than comparable standard motor.

FEATURES

Standards	: IS: 12615, IS: 325, IS: 1231 & IS: 2223
Mounting	: Foot (B3), flange (B5), face (B14) & combinations
Voltage	: 415V ± 10% or as required
Frequency	: 50Hz ± 5% or as required
Ambient	: 45°C.
Altitude	: upto 1000m above m. s. l.
Enclosure	: Totally enclosed fan cooled (TEFC)
Protection	: IP55
Insu. class	: Class F insul. with temp. rise limited to class B.



PAYBACK TIME

Efficiency of std. HM motor	: 89.0%
Efficiency of EE HM motor	: 91.0%
Motor power	: 11.0 kW
No. of hrs of operation p.a.	: 5000 hrs
Energy saved p.a. @ Rs. 4.0/kWh	: Rs. 5432.77
Additional cost of EE motor	: Rs. 2700.00
Payback period	: 6 months

APPLICATIONS

Energy efficient motors are specially suited for industries which are power intensive and equipments which run on constant load for long duration.

Electrical performance for energy efficient 3 Phase Sq. cage induction motors suitable for 415V±10%, 50Hz±5%, ambient temperature 45°C, Class 'F' insulation with class B temp. rise, IP 55 protection, continuous (S1) duty.

2 POLE MOTOR

Frame	Type Designation	Output		Speed (rpm)	Current (A)	Torque (kgm)	Efficiency % (EFF1)			Power Factor			STA	STT	POT	GD ² (kgm ²)
		KW	HP				FL	3/4L	1/2L	FL	3/4L	1/2L				
100L	2HS2 106-02	3.7	5.0	2910	6.9	1.24	87.5	87.5	85.0	0.85	0.83	0.75	6.5	2.5	3.0	0.0155
132S	2HS2 130-02	5.5	7.5	2920	10.0	1.83	88.6	88.6	84.0	0.86	0.84	0.77	6.5	2.5	3.0	0.0583
132S	2HS2 131-02	7.5	10.0	2925	13.3	2.50	89.5	89.5	84.5	0.88	0.85	0.77	6.5	2.4	2.8	0.0716
160M	2HS2 163-02	9.3	12.5	2935	16.3	3.09	90.0	90.0	86.0	0.88	0.85	0.80	7.0	2.3	2.8	0.1301
160M	2HS2 164-02	11.0	15.0	2935	19.2	3.65	90.5	90.5	87.0	0.88	0.85	0.80	7.0	2.3	2.8	0.1301
160M	2HS2 165-02	15.0	20.0	2940	26.0	4.97	91.3	91.3	88.0	0.88	0.85	0.80	7.0	2.3	2.8	0.1436
160L	2HS2 166-02	18.5	25.0	2940	31.5	6.13	91.8	91.8	89.0	0.89	0.86	0.81	7.0	2.3	2.8	0.1974
180M	2HS2 183-02	22.0	30.0	2945	37.5	7.28	92.2	92.2	90.0	0.89	0.86	0.80	7.0	2.3	2.7	0.3601
200L	2HS2 206-02	30.0	40.0	2955	50.0	9.89	92.9	92.9	90.5	0.90	0.87	0.82	7.0	2.3	2.7	0.4994
200L	2HS2 207-02	37.0	50.0	2960	61.0	12.18	93.3	93.3	91.5	0.90	0.87	0.82	7.0	2.3	2.7	0.6308
225M	2HS2 223-02	45.0	60.0	2960	73.5	14.81	93.7	93.7	92.0	0.91	0.89	0.84	7.0	2.3	2.7	0.9218
250M	2HS2 253-02	55.0	75.0	2965	88.5	18.07	94.0	94.0	93.0	0.92	0.90	0.86	7.0	2.2	2.6	1.1934
280S	2HS2 280-02	75.0	100.0	2975	122.0	24.55	94.6	94.6	92.0	0.90	0.88	0.82	7.0	2.2	2.6	2.9368
280M	2HS2 283-02	90.0	120.0	2975	146.0	29.47	95.0	95.0	92.0	0.90	0.88	0.82	7.0	2.2	2.6	3.3886
315S	2HS2 310-02	110.0	150.0	2980	178.0	35.95	95.0	95.0	92.5	0.90	0.88	0.82	7.0	2.1	2.5	4.6393
315M	2HS2 313-02	132.0	180.0	2980	212.0	43.14	95.3	95.3	93.0	0.91	0.89	0.83	7.0	2.1	2.5	5.5991
315L	2HS2 316-02	160.0	215.0	2980	252.0	52.30	95.5	95.5	93.5	0.92	0.90	0.85	7.0	2.1	2.5	7.0389

4 POLE MOTOR

Frame	Type Designation	Output		Speed (rpm)	Current (A)	Torque (kgm)	Efficiency % (EFF1)			Power Factor			STA	STT	POT	GD ² (kgm ²)
		KW	HP				FL	3/4L	1/2L	FL	3/4L	1/2L				
100L	2HS2 106-04	2.2	3.0	1435	4.2	1.49	86.4	86.4	84.0	0.84	0.76	0.63	6.0	2.3	2.6	0.0237
112M	2HS2 123-04	3.7	5.0	1440	7.0	2.50	88.3	88.3	86.0	0.83	0.77	0.65	6.0	2.3	2.6	0.0404
132S	2HS2 130-04	5.5	7.5	1450	10.2	3.69	89.2	89.2	88.0	0.84	0.79	0.69	6.5	2.3	2.6	0.0811
132M	2HS2 133-04	7.5	10.0	1450	13.8	5.04	90.1	90.1	88.5	0.84	0.80	0.70	6.5	2.3	2.6	0.1081
160M	2HS2 163-04	9.3	12.5	1455	17.0	6.23	90.5	90.5	88.5	0.84	0.80	0.71	6.5	2.3	2.6	0.1696
160M	2HS2 164-04	11.0	15.0	1455	20.0	7.36	91.0	91.0	90.0	0.84	0.80	0.71	6.5	2.3	2.6	0.1871
160L	2HS2 166-04	15.0	20.0	1455	26.5	10.04	91.8	91.8	91.0	0.86	0.82	0.73	6.5	2.3	2.6	0.2573
180M	2HS2 183-04	18.5	25.0	1460	33.0	12.34	92.2	92.2	91.0	0.85	0.82	0.74	6.5	2.3	2.6	0.3506
180L	2HS2 186-04	22.0	30.0	1460	38.5	14.68	92.6	92.6	91.5	0.86	0.83	0.75	6.5	2.3	2.6	0.4738
200L	2HS2 206-04	30.0	40.0	1465	52.0	19.95	93.2	93.2	91.2	0.86	0.84	0.77	6.5	2.2	2.5	0.9281
225SX	2HS2 220-04	37.0	50.0	1470	64.0	24.52	93.6	93.6	91.5	0.86	0.84	0.78	6.5	2.3	2.6	1.3970
225MX	2HS2 223-04	45.0	60.0	1475	77.0	29.72	93.9	93.9	92.0	0.87	0.84	0.78	6.5	2.3	2.6	1.6299
250MX	2HS2 253-04	55.0	75.0	1480	92.0	36.20	94.2	94.2	93.0	0.88	0.86	0.80	7.0	2.3	2.6	2.5271
280SX	2HS2 280-04	75.0	100.0	1482	128.0	49.29	94.7	94.7	93.5	0.86	0.83	0.80	7.0	2.3	2.6	4.3193
280MX	2HS2 283-04	90.0	120.0	1482	150.0	59.15	95.0	95.0	94.0	0.88	0.85	0.81	7.0	2.3	2.6	4.9592
315SX	2HS2 310-04	110.0	150.0	1485	185.0	72.15	95.2	95.2	94.0	0.87	0.85	0.81	6.5	2.3	2.6	8.1503
315MX	2HS2 313-04	132.0	180.0	1485	223.0	86.58	95.5	95.5	94.5	0.86	0.85	0.81	6.5	2.3	2.6	9.7803
315LX	2HS2 316-04	160.0	215.0	1485	268.0	104.94	95.8	95.8	94.5	0.87	0.85	0.81	6.5	2.3	2.6	11.8549

Note: All motors confirm to efficiency class eff1 as per IS 12615 : 2004 (Rev. 1).
All figures are subject to tolerance as per IS: 325.
Efficiency measurements are without seals.



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