IMfinity®
3-phase induction motors

IE4 Super Premium efficiency
Variable speed and fixed speed
Frame size 280 to 355
Power rating 75 to 355 kW

Leroy-Somer™

EMERSON™
Industrial Automation

The IE4 Super Premium efficiency class is the highest efficiency class defined by standard IEC 60034-30-1. It is accepted that from an economic point of view, it is the highest efficiency class possible with induction technology.
Cast iron IE4 induction motors in the IMfinity® range offer an excellent solution when it comes to cutting electricity consumption, for both fixed and variable speed processes. Thus, for a 250 kW power rating, the IE4 motor will consume, on average and depending on the various fixed-speed applications, approximately 12,000 kW/h(1) less than an IE3 motor with the same power rating.
IE4 Super Premium motors are the latest induction motors to grace the IMfinity® platform and they complement the existing IE2 and IE3 motor ranges.
The motors in this document are manufactured in accordance with standard IEC 60034-1. They are designed with a class F winding insulation system for a class B temperature rise.

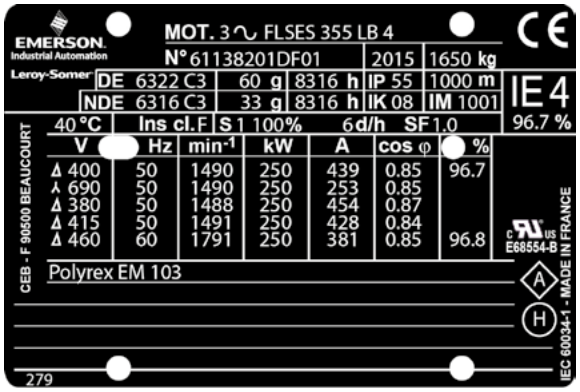
(1) EDF source: Energy savings certificates Calculation sheet no. IND-UT-102-112-123-127

Peak energy efficiency with Dyneo® motor and drive solutions.
Leroy-Somer's **Dyneo®** solutions combine all permanent magnet motor technologies with variable speed technologies. Benefiting from more than 15 years' experience and the largest industrial base installed worldwide, these solutions offer not only tried-and-tested technology, a robust mechanism, a rapid return on investment, but also one of the most favorable overall costs of ownership on the market.
Tests conducted by the Swedish Energy Agency ranked **Dyneo®** motor and drive packages best in the high efficiency category.

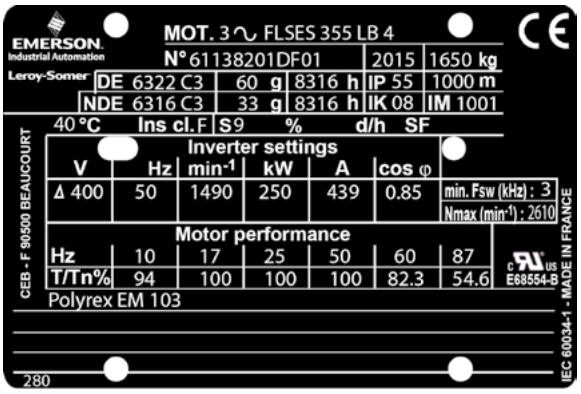
Identification

NAMEPLATES*

AC power supply nameplate



Drive power supply nameplate



For all other information relating to the:
- environment and atmosphere
- construction: axial and radial loads, bearings, lubrication
- operation: duty cycles, insulation class, performance, vibration
- optional equipment, etc.

refer to the technical catalogue “IMfinity® 3-phase induction motors” ref. 5147.

*Values on the nameplate given for information only.

IMfinity® 3-phase induction motors - IE4 Super Premium efficiency
Cast Iron IP 55
Electrical and mechanical characteristics

IE4 AC power supply

Type	Rated output power	Rated torque	Starting torque/ Rated torque	Maximum torque/ Rated torque	Starting current/ Rated current	Moment of inertia	Weight	Noise (50 Hz)	400 V 50 Hz							
									Rated speed	Rated current	Efficiency IEC 60034-2-1 2007			Power factor		
	P_n kW	M_n N.m	M_d/M_n	M_m/M_n	I_d/I_n	J kg.m²	IM B3 kg	LP db(A)	N_n rpm	I_n A	η 4/4	η 3/4	η 2/4	Cos φ 4/4	Cos φ 3/4	Cos φ 2/4
2 poles																
FLSES 280 M	75	241	2.6	3.4	8.9	0.57	615	80	2977	126	95.6	95.9	95.8	0.90	0.89	0.85
FLSES 315 S	90	288	2.5	3.1	8.1	1.17	940	80	2982	150	96.0	96.0	95.5	0.90	0.89	0.85
FLSES 315 M	110	352	2.5	3.0	8.0	1.25	1015	80	2984	186	96.1	96.2	95.7	0.89	0.88	0.83
FLSES 315 LA	132	423	2.5	3.4	8.0	1.34	1070	80	2983	222	96.5	96.6	96.2	0.89	0.88	0.83
FLSES 315 LA	160	514	2.1	2.8	6.7	1.34	1070	80	2972	266	96.4	96.5	96.1	0.90	0.89	0.84
FLSES 315 LB	200	642	2.1	2.9	6.9	1.45	1150	80	2973	332	96.5	96.7	96.5	0.90	0.88	0.84
FLSES 355 LB	250	799	3.2	3.8	9.7	3.62	1650	83	2988	434	96.6	96.6	96.4	0.86	0.84	0.89
FLSES 355 LB	315	1009	2.6	3.0	7.9	3.62	1650	83	2982	534	96.8	96.8	96.6	0.88	0.86	0.81
FLSES 355 LC	355	1137	2.8	2.7	7.2	3.64	1660	83	2981	610	96.6	96.7	96.5	0.87	0.86	0.80
4 poles																
FLSES 315 S	75	481	2.7	4.5	9.6	1.84	940	67	1490	137	96.2	96.3	95.8	0.82	0.79	0.70
FLSES 315 S	90	577	2.5	4.1	8.4	1.84	940	67	1490	163	96.1	96.2	95.7	0.83	0.81	0.70
FLSES 315 M	110	706	3.3	3.3	8.0	2.09	980	70	1488	199	96.3	96.3	96.0	0.83	0.81	0.74
FLSES 315 LA	132	848	2.8	3.1	7.8	2.35	1055	70	1487	230	96.4	96.7	96.5	0.86	0.84	0.77
FLSES 315 LB	160	1028	3.4	3.8	8.8	2.86	1245	70	1487	288	96.7	96.9	96.5	0.83	0.79	0.71
FLSES 355 LAL	200	1281	3.3	4.1	9.8	5.80	1560	74	1491	364	96.7	97.0	96.8	0.82	0.80	0.71
FLSES 355 LB	250	1602	3.0	3.7	9.4	6.56	1650	74	1490	439	96.7	96.9	96.6	0.85	0.82	0.75
FLSES 355 LC	315	2022	2.7	3.1	8.4	6.60	1700	74	1488	540	96.7	97.0	96.9	0.87	0.85	0.79
FLSES 355 LD	355	2271	1.9	3.2	8.8	6.60	1765	75	1493	594	96.9	97.1	95.5	0.89	0.86	0.80

Type	Rated output power	380 V 50 Hz				415 V 50 Hz				460 V 60 Hz			
		Rated speed	Rated current	Efficiency	Power factor	Rated speed	Rated current	Efficiency	Power factor	Rated speed	Rated current	Efficiency	Power factor
	P_n kW	N_n rpm	I_n A	η 4/4	Cos φ 4/4	N_n rpm	I_n A	η 4/4	Cos φ 4/4	N_n rpm	I_n A	η 4/4	Cos φ 4/4
2 poles													
FLSES 280 M	75	2967	131	95.6	0.91	2976	122	95.6	0.895	1572	110	95.4	0.90
FLSES 315 S	90	2977	159	95.8	0.90	2981	147	96.0	0.89	3584	133	95.4	0.89
FLSES 315 M	110	2975	193	96.0	0.90	2979	179	96.0	0.89	3583	162	95.6	0.89
FLSES 315 LA	132	2975	232	96.2	0.90	2979	214	96.4	0.89	3583	194	95.8	0.89
FLSES 315 LA	160	2970	284	96.3	0.89	2975	260	96.3	0.89	3581	233	95.8	0.90
FLSES 315 LB	200	2969	350	96.5	0.90	2974	324	96.6	0.89	3580	293	96.2	0.89
FLSES 355 LB	250	2984	452	96.6	0.87	2989	424	96.6	0.85	3586	378	96.4	0.86
FLSES 355 LB	315	2978	564	96.5	0.88	2984	521	96.7	0.87	3582	467	96.2	0.88
FLSES 355 LC	355	2977	635	96.5	0.88	2982	586	96.8	0.87	3582	532	96.2	0.87
4 poles													
FLSES 315 S	75	1487	143	96.1	0.83	1491	134	96.3	0.81	1792	121	96.2	0.81
FLSES 315 S	90	1488	169	96.1	0.84	1491	161	96.2	0.81	1791	145	96.2	0.81
FLSES 315 M	110	1487	205	96.0	0.85	1490	194	96.1	0.82	1791	173	96.2	0.83
FLSES 315 LA	132	1485	239	96.4	0.87	1488	224	96.5	0.85	1788	202	96.5	0.85
FLSES 315 LB	160	1486	300	96.6	0.84	1488	281	96.6	0.82	1787	251	96.5	0.83
FLSES 355 LAL	200	1488	374	96.7	0.84	1490	355	96.7	0.81	1791	317	96.6	0.82
FLSES 355 LB	250	1488	454	96.7	0.865	1491	428	96.8	0.84	1791	381	96.8	0.85
FLSES 355 LC	315	1489	562	96.7	0.88	1489	526	96.8	0.86	1788	469	96.8	0.87
FLSES 355 LD	355	1490	634	96.7	0.88	1494	580	96.8	0.88	1793	523	96.8	0.88

IMfinity® 3-phase induction motors - IE4 Super Premium efficiency
Cast Iron IP 55
Electrical and mechanical characteristics

IE4 drive power supply

Type	400 V 50 Hz				% Rated torque M_n at					Maximum mechanical speed
	Rated output power	Rated speed	Rated current	Power factor	10 Hz	17 Hz	25 Hz	50 Hz	60 Hz	
	P_n kW	N_n rpm	I_n A	Cos φ 4/4						
2 poles										
FLSES 280 M	75	2977	137	0.91	241	241	241	241	200	3600
FLSES 315 S	90	2982	166	0.90	288	288	288	288	226	3600
FLSES 315 M	110	2984	212	0.90	352	352	352	352	292	3600
FLSES 315 LA	132	2983	240	0.90	423	423	423	423	350	3600
FLSES 315 LA	160	2972	293	0.89	467	490	514	514	424	3600
FLSES 315 LB	200	2973	365	0.90	575	600	642	642	530	3600
FLSES 355 LB	250	2988	460	0.87	799	799	799	799	665	3600
FLSES 355 LB	315	2982	580	0.88	850	930	1009	1009	840	3600
FLSES 355 LC	355	2981	630	0.88	1000	1070	1137	1137	950	3600
4 poles										
FLSES 315 S	75	1490	142	0.83	450	465	481	481	401	2610
FLSES 315 S	90	1488	173	0.84	577	577	577	577	481	2610
FLSES 315 M	110	1487	212	0.85	706	706	706	706	588	2610
FLSES 315 LA	132	1487	260	0.87	840	870	884	884	737	2610
FLSES 315 LB	160	1487	316	0.84	900	950	1028	1028	857	2610
FLSES 355 LAL	200	1491	381	0.84	1281	1281	1281	1281	1068	2610
FLSES 355 LB	250	1490	460	0.87	1500	1602	1602	1602	1335	2610
FLSES 355 LC	315	1488	570	0.88	1620	1825	2022	2022	1685	2610
FLSES 355 LD	355	1493	635	0.88	2000	2100	2271	2271	1893	2610

Summary of recommended protection devices

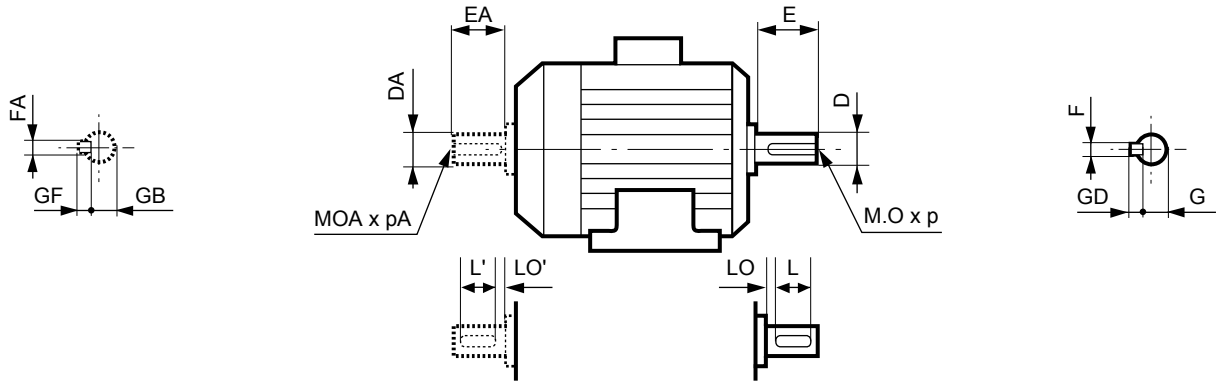
AC voltage	Cable length	Frame size	Winding protection	Insulated bearings
≤ 480 V	< 20 m	All frame sizes	Standard	No
	> 20 m and < 100 m	< 315	Standard	No
		≥ 315	RIS or drive filter	NDE
> 480 V and ≤ 690 V	< 20 m	< 250	Standard	No
		≥ 250	RIS or drive filter	NDE
	> 20 m and < 100 m	< 250	RIS or drive filter	NDE
		≥ 250	RIS or drive filter	NDE (or DE+NDE if no filter for ≥ 315)

RIS: *Reinforced insulation system.*
The filter is recommended above frame size 315.
Standard insulation = ***1,500 V peak and 3,500 V/µs.***
Service solutions exist (insulation of windings and bearings).
For different cable length(s) and/or voltage(s), please consult Leroy-Somer.

IMfinity® 3-phase induction motors - IE4 Super Premium efficiency
Cast Iron IP 55
Dimensions

Shaft extensions

Dimensions in millimeters



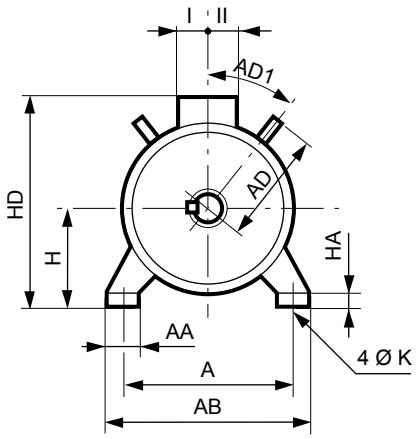
Type	Main shaft extensions								
	4 poles								
	F	GD	D	G	E	O	p	L	LO
FLSES 280 M	20	12	75m6	67.5	140	20	42	125	15
FLSES 315 S/M	22	14	80m6	71	170	20	42	140	30
FLS 315 LA/LB	25	14	90m6	81	170	24	50	140	30
FLSES 355 LAL	28	16	100m6	90	210	24	50	180	30
FLSES 355 LB	28	16	100m6	90	210	24	50	180	30
FLS 355 LC/LD	28	16	100m6	90	210	24	50	180	30

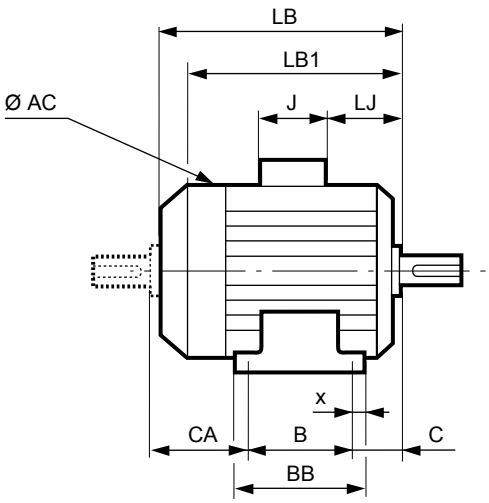
Type	Main shaft extensions								
	2 poles								
	F	GD	D	G	E	O	p	L	LO
FLSES 280 M	18	11	65m6	58	140	20	42	125	14
FLSES 315 S/M	18	11	65m6	58	140	20	42	125	15
FLS 315 LA/LB	20	12	70m6	62.5	140	20	42	125	15
FLSES 355 LAL	-	-	-	-	-	-	-	-	-
FLSES 355 LB	22	14	80m6	71	170	20	42	140	30
FLS 355 LC/LD	22	14	80m6	71	170	20	42	140	30

IMfinity® 3-phase induction motors - IE4 Super Premium efficiency
Cast Iron IP 55
Dimensions

Foot mounted IM 1001 (IM B3)

Dimensions in millimeters

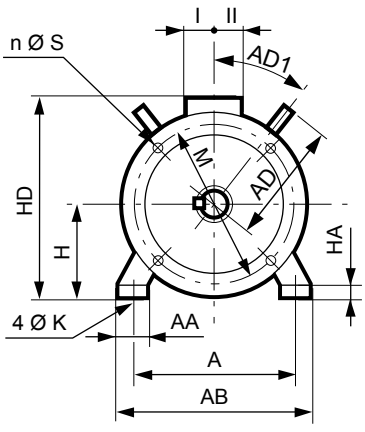


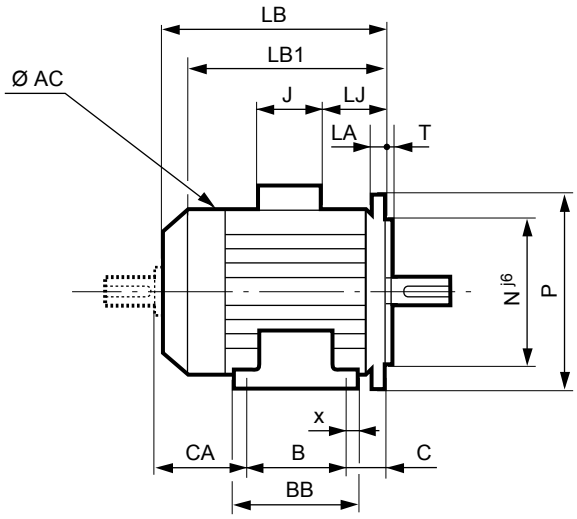


Type	Main dimensions																				
	A	AB	B	BB	C	X	AA	K	HA	H	AC*	HD	LB	LB1**	LJ	J	I	II	AD	AD1	CA
FLSES 280 M	457	527	419	486	190	33	80	24	30	280	481	729	959		69.5	352	176	305	-	45	
FLS 315 LA/LB	508	600	508	610	216	58	100	28	35	315	600	840	1177		101	452	219	269	343	45	
FLSES 315 S	508	600	406	610	216	58	100	28	35	315	600	840	1177		101	452	219	269	343	45	
FLSES 315 M	508	600	457	610	216	58	100	28	35	315	600	840	1177		101	452	219	269	343	45	
FLSES 355 LAL	610	710	630	756	254	76	100	28	35	355	822	925	1303		121	452	219	269	-	-	
FLSES 355 LB/LC/LD	610	710	630	756	254	76	100	28	35	355	822	922	1303		121	452	219	269	-	-	

** AC: housing diameter without lifting rings*
*** LB1: non-ventilated motor*

Foot and flange mounted IM 2001 (IM B35)





Type	Main dimensions																					
	A	AB	B	BB	C	X	AA	K	HA	H	AC*	HD	LB	LB1**	LJ	J	I	II	AD	AD1	CA	Symb
FLSES 280 M	457	527	419	483	190	32	80	24	26	280	540	719	959		69.5	352	173	210	-	-		FF 500
FLSES 315 LA/LB	508	600	505	610	216	58	100	28	35	315	600	840	1177		101	452	219	269	343	45		FF 600
FLSES 315 S	508	600	406	610	216	58	100	28	35	315	600	840	1177		101	452	219	269	343	45		FF 600
FLSES 315 M	508	600	457	610	216	58	100	28	35	315	600	840	1177		101	452	219	269	343	45		FF 600
FLSES 355 LAL	610	710	630	756	254	76	100	28	35	355	822	925	1303		121	452	219	269	-	-		FF 740
FLSES 355 LB/LC/LD	610	710	630	756	254	76	100	28	35	355	822	922	1303		121	452	219	269	-	-		FF 740

** AC: housing diameter without lifting rings*
*** LB1: non-ventilated motor*
For any other type of mounting, refer to the technical catalogue reference 5147.

Leroy-Somer™

EMERSON™
Industrial Automation

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Capital social : 65 800 512 €, RCS Angoulême 338 567 258.

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