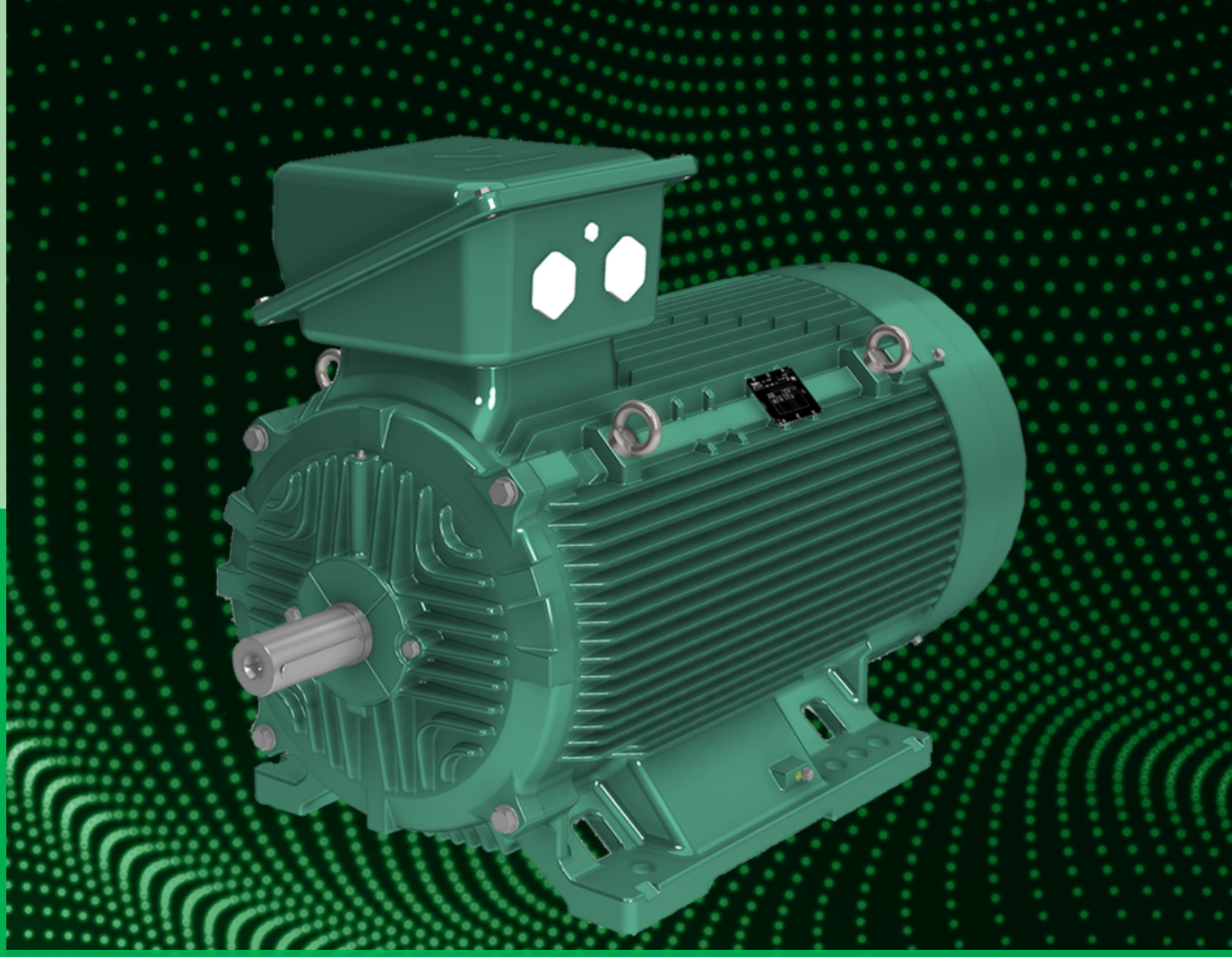


IMfinity® CILS
IE4 Cast Iron

Three-phase induction motors

280 & 315 frame sizes
75 to 200 kW – 2 & 4 poles

LEROY-SOMER™

Nidec
All for dreams

A complete range from a renowned drive system expert

Benchmark technologies

Cutting-edge technologies and technical expertise have made Nidec Leroy-Somer a reference in industrial & commercial drive systems. Whatever you are looking for, induction or synchronous motor range, geared motors, brake motors, variable speed drives, soft starters…, there is a Nidec Leroy-Somer solution for you.

For many years, the energy efficiency of its motors has been at the heart of Nidec Leroy-Somer research & development, enabling it to offer the most extensive range rating from IE2 to IE5 efficiency levels for various applications among which:

IMfinity®
The most complete induction motor range

IMfinity® a quality reference in induction motors

Among its iconic ranges, the proven multi-purpose IMfinity® induction motors provide extended features for a simple integration worldwide, in standard & safety environments:

- High reliability
- Fixed or variable speed
- Energy efficiency up to IE4
- Multi-voltage / multi-frequency for global compatibility
- Compliant to most international standards
- Easy commissioning & maintenance
- Multiple combinations (brake, gearbox, integrated drive)
- Many options available & Customization possible for specific projects
- Aluminium, steel or cast iron
  0.09 to 1,500 kW / Up to 4,500 rpm / IP23 & IP55 / 56 to 500 mm / 2,4,6 poles

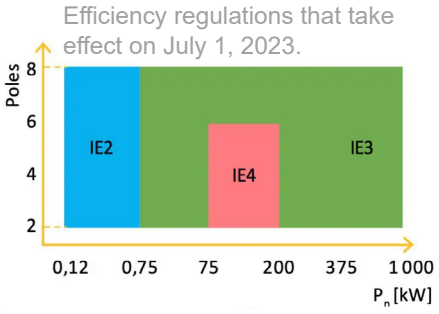
Quick 360° view of the IMfinity®

Nota: Features vary according to models.

CILS
The latest addition to the IMfinity® line

IMfinity® CILS the new cast iron IE4 series

Developed to reduce drastically the energy consumption of the machines while maintaining maximum level of robustness and performance, the new Super Premium IE4 cast iron CILS series is integrating the global IMfinity® range. The IMfinity® CILS is compliant to the ecodesign requirement of the EU 2009/125/EC directive and to the Commission Regulation UE 2019/1781 on induction electric motors. Indeed, starting July 2023, electric motors with a power between 75 kW and 200 kW and covered by the regulation must have an energy efficiency level of IE4 minimum.



The CILS cast iron 3-phase induction motor is a general-purpose range designed for industrial applications to offer robustness, IE4 energy efficiency and flexibility of mounting.
Based on the well-known IMfinity® motor platform, the CILS series is mainly oriented on Fan, Pump and Compressor applications, while benefiting from the great expertise of Nidec Leroy-Somer in manufacturing reliable, powerful and adaptable motors.

Developed from the electrical core of the IMfinity® range, the CILS series benefits from a new up-to-date cast iron mechanical design, optimized and adapted for standard application requirements:

Main features:

- IEC Standard
- 2, 4 poles
- IP55
- Frame sizes: 280-315
- IM1001 (B3), IM 2001 (B35), IM 3011 (V1)
- Standard Operating voltage: 400V / 50Hz
- IE4 Efficiency Level
- Ambient temperature: -20C ; +50°C
- Vibration levels (half-key balancing) of Grade A (IEC 60034-14)
- Winding thermal protection: PTC
- Multi-position terminal box
- Pre-drilled terminal box
- Earthing bolt on feet and terminal box
- Stainless steel nameplate
- Paint system: C3L / ISO 12944-2
- Certificates: CE, CURUS, UKCA

Internal Options:

- Winding thermal sensor (PT100, PTO)
- Space heater (230V)
- End-shield thermal protection (PTC, PT100, PTO)
- Special Bearing (roller bearing)
- NDE Isolated bearing
- Shaft Grounding ring

External Options:

- Left or right terminal box with mechanical adapter
- Nameplate adaptation
- Drip cover
- Plastic or metallic cable glands
- Specific color

IMfinity® CILS IE4 Super Premium energy efficiency

Reduce energy bill & carbon footprint

The IMfinity® CILS electric motors ensure energy consumption reduction thanks to its IE4 Super Premium efficiency level (defined in IEC 60034-30-1:2014), contributing to sustainability, lower carbon footprint and energy bill savings. It also offers an excellent cost-benefit ratio, as the total cost of ownership of an induction motor is mainly due to its electric consumption over its lifetime (see Figure 1).

With the IMfinity® CILS, it's also easy to upgrade the efficiency of an existing application/equipment as it's an IEC mechanics designed motor with an extended versatility of installation.

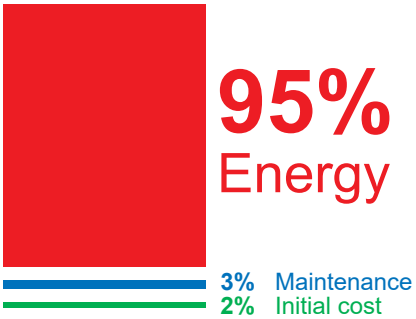
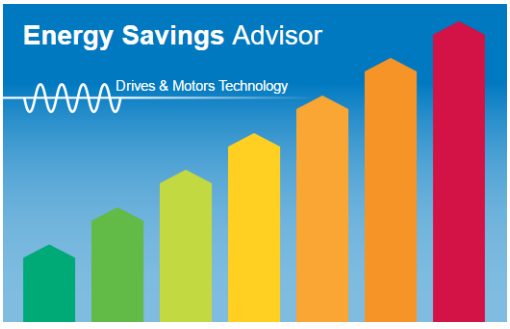


Fig. 1: Global cost of an electric motor over 10 years

IE4 vs IE3 savings comparison using ESA simulation tool

If you compare an IE4 IMfinity® CILS motor to a generic IE3 equivalent model, you will clearly see the savings you can achieve (see the example in Figure 2).



Application	
Pumping Without Mechanical Regulation	
Application Maximum Speed (rpm)	1500
Application Rated Power (kW)	132
Application Rated Torque (Nm)	840
Operating Time (hours per day)	18
Operating Time (days per year)	250

The IE4 4P CILS 315 frame size, 132 kW, offers an efficiency rate of 96.4% versus 95.6% for an IE3 equivalent model, generating more than 5100 kWh saved per year.

Motor		Existing - IE3	IMfinity - IE4
	Type	4P Generic IE3 315M 132 kW	4P CILS IE4 315M 132 kW
	Efficiency Class	IE3	IE4
	Power (kW)	132	132
	Efficiency (%)	95,6	96,4

Energy Consumption	Existing - IE3	IMfinity - IE4
(kWh/Year)	621 320	616 152
Savings (kWh/year)	5 168	

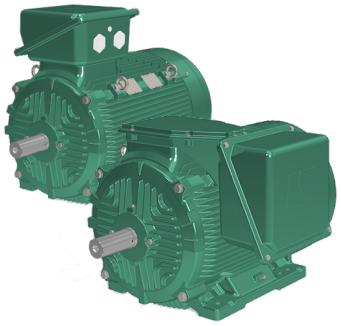
Fig. 2: Comparison of IE4 vs IE3 IMfinity® induction motor with the ESA application from Nidec Leroy-Somer

IMfinity® CILS
The flexibility of an adaptative design

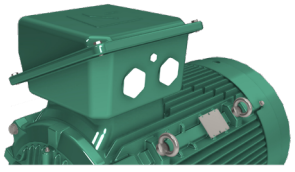
The IMfinity® CILS motor range has been ergonomically designed to make its adoption as simple and convenient as possible for the users whether they are OEM machine builders or end-users.

It includes as standard many arrangements to facilitate its adaptation and integration while limiting the number of references and spares in stock and improving lead times and availability.

Smart design of the terminal box for a greater flexibility of installation



Versatile multi-position terminal box
Placed as standard on the top of the motor, the terminal box can also be located on the left or right side as an option, as the same box is used. Thus, the airflow is improved, there are no more losses due to terminal box indentations on the left and right of the housing and the concentration of the volumes is optimized. The late adaptation in factory or at customer's facility is even easier, allowing reduced lead times.



Pre-drilled terminal box
For an effortless installation, the terminal box is pre-drilled in factory including plastic plugs as standard but can be optionally equipped with plastic or metal cable glands.

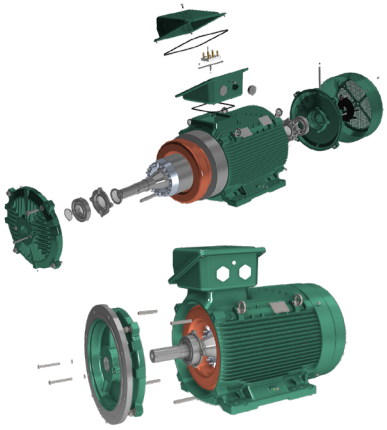
Earth terminal inside the terminal box
Grounding is easy thanks to special locations inside the terminal box and on the housing feet.

No grounding braid required for HF continuity
The metal-to-metal contact between the terminal box & the housing, and the cover & the body of the motor allows a continuous grounding without needing an additional braid. This brings simplicity, reliability and robustness for variable speed applications.

IMfinity® CILS
Less stock, more capabilities

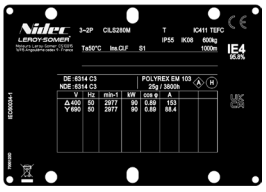
In addition to the versatile new terminal box, many other elements have been developed to reduce the number of references and related level of stock to manage while maximizing late customization capabilities and decreasing lead times.

Effortless and time saving!

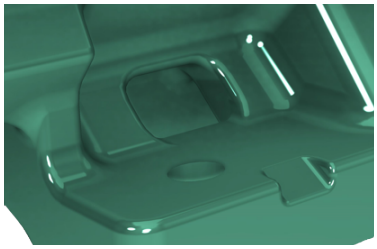


Only one stator diameter per frame size
To simplify and mutualize the management of mechanical options (flanges ...).

B3 convertible in B35
The feet-mounted CILS motors are easily converted to B35 configuration (with flange).



Nameplates on both sides
The CILS motor is provided with one nameplate on the right side as standard. A second nameplate can be positioned on the left side as an option if required.



Feet with 45° plane
To more easily align motor with the driven machine during installation, 45° planes on feet allow screw adjustment to facilitate the operation. Drilled holes can be done in factory as an option if needed.

Prepared for drip cover
The rear cover is pre-equipped for a drip cover integration in case of operation in vertical position, shaft end facing down.

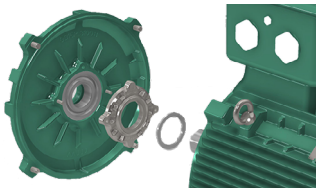
Shaft with captive keyway
To facilitate assembly in vertical shaft mounting.

IMfinity® CILS
The robustness of an advanced reliable design

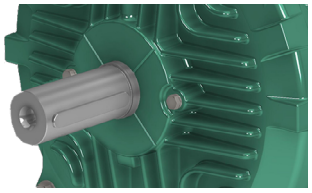
The IMfinity® CILS has been designed to further improve reliability and lifetime of the motor while facilitating its maintenance and serviceability.

Reinforced Protective design

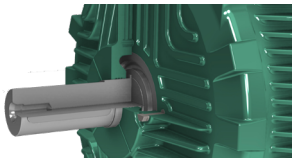
Internal grounding ring
The drive end shield is designed to receive an AEGIS ring (current between housing & shaft) thanks to specially adapted machining of the inner cover, enabling protected internal mounting. Late customisation is possible in factory or at customer facility reducing lead times (Mounting option on stock machine).



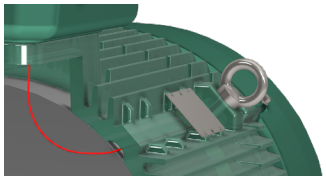
Front flange fins
Air-flow is improved enhancing bearing cooling.



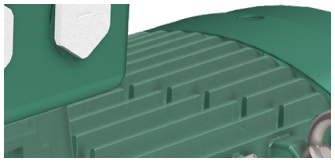
Rubber-free lipseal
Sealing at the front and rear without rubber seal, using decompression grooves to limit motor wear parts, simplify maintenance and reduce losses.



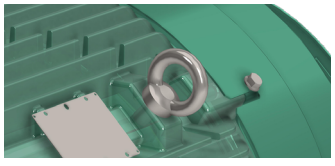
Internal sensor leads
Sensor cables (red line on illustration) are routed through internal housing pipes simplifying mounting, keeping IP55 protection and securing conductors. The reliability is therefore strengthened and there is more potential for late modification.



Profile on rear fins
To facilitate water drainage and extend lifetime, the rear fins include a water retention preventing profile.



Slotted holes on fan cover
The fan cover has slotted holes to enable easier mounting and maintenance.



Mechanically adapted to applications
The drive-end bearing is fixed mounted whereas the non drive-end bearing is mounting-free. This is particularly useful for pumping applications.

IMfinity® CILS Main Electrical & Mechanical Characteristics

IMfinity® CILS electrical data - Direct On Line

IMfinity® 3-phase induction motors
IP55 Cast iron frame
Electrical and mechanical characteristics
IE4 - Powered by the mains

Type	IE4 EFFICIENCY LEVEL - Direct On Line								400V / 50Hz							
	Nominal Power	Nominal Torque	Starting Torque / Nominal torque	Max. Torque / Nominal Torque	Starting Current / Nominal Current	Inertia	Mass (IM B3)	Noise level	Nominal speed	Nominal Current	Efficiency level - η			Power factor - Cos φ		
	Pn - kW	Mn - N.m	Md/Mn	Mm/Mn	Id/In	J - Kg.m²	kg	LP-db(A)	Nn - Min-1	In - A	4/4	3/4	2/4	4/4	3/4	2/4
2 pole																
CILS 280 S	75	241	2.15	3.20	6.90	1	810	80	2978	125	95.6	95.3	94.4	0.90	0.88	0.81
CILS 280 M	90	289	2.10	3.05	6.70	1.05	840	80	2978	153	95.8	95.6	94.7	0.89	0.87	0.79
CILS 315 S	110	353	2.20	3.09	6.75	1.2	890	80	2978	188	96.0	95.8	95.0	0.88	0.87	0.82
CILS 315 M	132	423	2.05	2.85	6.35	1.25	940	80	2976	223	96.2	95.8	95.3	0.88	0.87	0.82
CILS 315 L	160	512	2.85	3.69	8.35	1.44	1050	80	2982	273	96.3	96.0	95.0	0.88	0.85	0.77
CILS 315 L	200	642	2.06	2.65	6.25	1.62	1140	80	2976	329	96.5	96.3	95.8	0.91	0.90	0.86
4 pole																
CILS 280 S	75	481	2.81	3.41	8.80	1.82	860	70	1490	132	96.1	96.0	95.3	0.86	0.83	0.74
CILS 280 M	90	577	3.05	3.66	9.45	2.06	912	70	1490	156	96.2	96.1	95.4	0.87	0.85	0.74
CILS 315 S	110	706	3.11	3.60	9.05	2.31	980	75	1490	194	96.3	96.1	95.4	0.85	0.83	0.76
CILS 315 M	132	847	3.20	3.55	9.20	2.68	1090	75	1490	233	96.4	96.1	95.4	0.85	0.83	0.76
CILS 315 L	160	1026	2.90	3.20	8.40	2.92	1155	75	1488	275	96.6	96.5	95.9	0.87	0.83	0.75
CILS 315 L	200	1280	3.15	3.50	8.80	3.16	1240	75	1490	353	96.7	96.3	95.5	0.84	0.80	0.70

IMfinity® CILS Main Electrical & Mechanical Characteristics

IMfinity® CILS electrical data - on Variable Speed Drive

IMfinity® 3-phase induction motors
IP55 Cast iron frame
Electrical and mechanical characteristics
IE4 - Powered by the drive

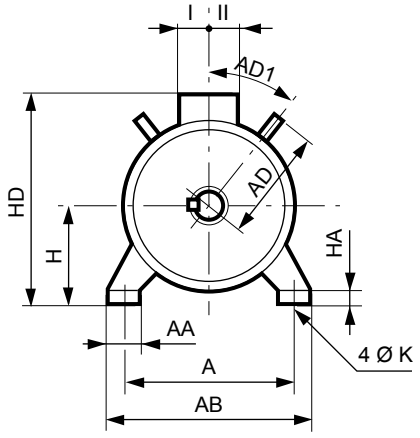
Type	400V / 50Hz				% Nominal Torque Mn at			
	Nominal Power	Nominal speed	Nominal Current	Power factor - Cos φ	5Hz	10Hz	17Hz	25Hz
	Pn - kW	Nn - Min-1	In - A	4/4				
2 pole								
CILS 280 S	75	2978	126	0.9	158	241	241	241
CILS 280 M	90	2978	151	0.89	189	288	288	288
CILS 315 S	110	2978	186	0.88	229	352	352	352
CILS 315 M	132	2976	220	0.88	275	423	423	423
CILS 315 L	160	2982	273	0.88	333.5	467	490	514
CILS 315 L	200	2976	329	0.91	417.3	575	600	642
4 pole								
CILS 280 S	75	1490	128	0.86	315.3	450	465	481
CILS 280 M	90	1490	153	0.87	377.7	577	577	577
CILS 315 S	110	1490	194	0.85	706	706	706	706
CILS 315 M	132	1490	230	0.85	735	772	797	848
CILS 315 L	160	1488	275	0.87	900	900	950	1028
CILS 315 L	200	1490	355	0.84	1100	1281	1281	1281

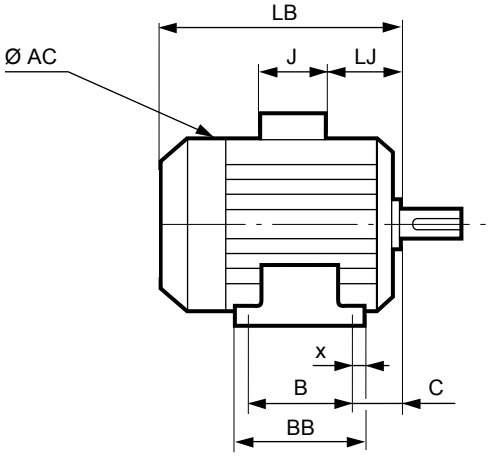
IMfinity® CILS
Main Mechanical Dimensions

IMfinity® 3-phase induction motors - IE4
IP55 Cast iron frame
Dimensions

IMfinity® CILS Dimensions - B3

Dimensions in millimetres





Type	Main dimensions																		
	A	AB	B	BB	C	x	AA	K	HA	H	AC*	HD	LB	LJ	J	I	II	AD	AD1
CILS 280 S	457	532	368	545	190	51.5	86	24	40	280	554	788.5	927	44	390	189	179	350	45
CILS 280 M	457	532	419	545	190	51.5	86	24	40	280	554	788.5	927	44	390	189	179	350	45
CILS 315 S	508	587	406	662	216	77.5	88	28	42	315	554	823.5	1107	44	390	189	179	350	45
CILS 315 M	508	587	457	662	216	77.5	88	28	42	315	554	823.5	1107	44	390	189	179	350	45
CILS 315 L	508	587	508	662	216	77.5	88	28	42	315	554	823.5	1107	44	390	189	179	350	45

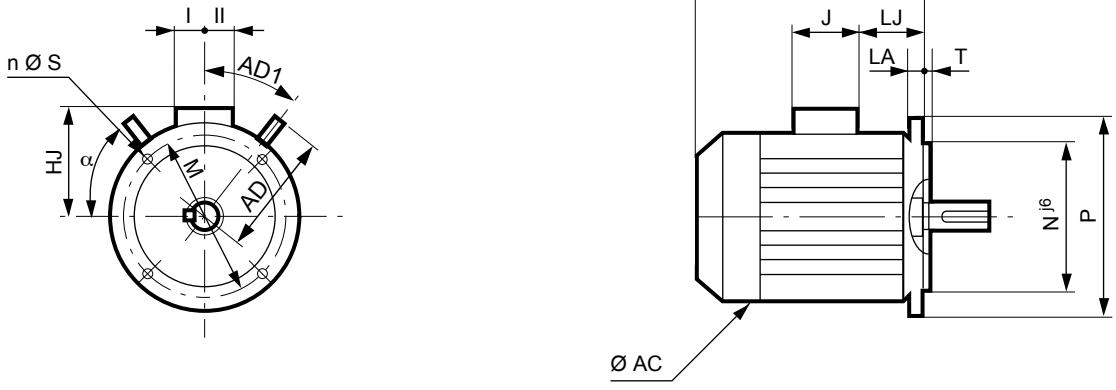
*AC: housing diameter without lifting rings

IMfinity® CILS
Main Mechanical Dimensions

IMfinity® 3-phase induction motors - IE4
IP55 Cast iron frame
Dimensions

IMfinity® CILS Dimensions - V1

Dimensions in millimetres



Type	Main dimensions										IEC	Flange dimensions							
	AC*	LB	HJ	LJ	J	I	II	AD	AD1	Symb	Symbol	M	N	P	T	n	α°	S	LA
CILS 280 S	554	927	508.5	44	390	189	179	355	45	FF500	FF500	500	450	550	5	8	22.5	18.5	25.5
CILS 280 M	554	927	508.5	44	390	189	179	355	45	FF500	FF600	600	550	660	6	8	22.5	24	22
CILS 315 S	554	1107	508.5	44	390	189	179	355	45	FF600									
CILS 315 M	554	1107	508.5	44	390	189	179	355	45	FF600									
CILS 315 L	554	1107	508.5	44	390	189	179	355	45	FF600									

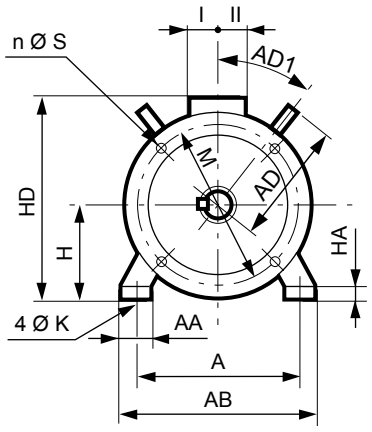
*AC: housing diameter without lifting rings

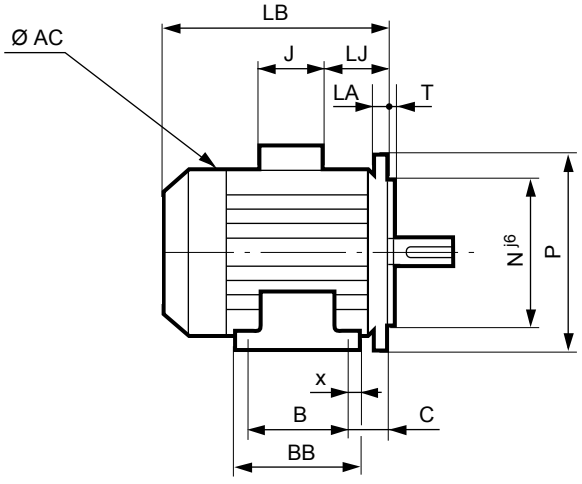
IMfinity® CILS
Main Mechanical Dimensions

IMfinity® 3-phase induction motors - IE4
IP55 Cast iron frame
Dimensions

IMfinity® CILS Dimensions - B35

Dimensions in millimetres





Type	Main dimensions																			
	A	AB	B	BB	C	x	AA	K	HA	H	AC*	HD	LB	LJ	J	I	II	AD	AD1	Symb
CILS 280S	457	532	368	545	190	51.5	86	24	40	280	554	788.5	927	44	390	189	179	355	45	FF500
CILS 280M	457	532	419	545	190	51.5	86	24	40	280	554	788.5	927	44	390	189	179	355	45	FF500
CILS 315S	508	587	406	662	216	77.5	88	28	42	315	554	823.5	1107	44	390	189	179	355	45	FF600
CILS 315M	508	587	457	662	216	77.5	88	28	42	315	554	823.5	1107	44	390	189	179	355	45	FF600
CILS 315L	508	587	508	662	216	77.5	88	28	42	315	554	823.5	1107	44	390	189	179	355	45	FF600

*AC: housing diameter without lifting rings

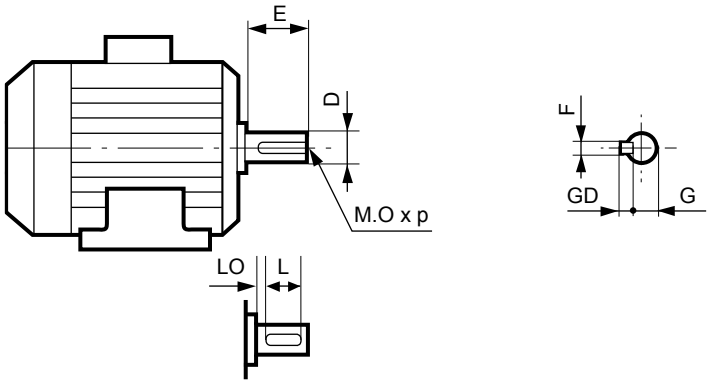
IEC	Flange dimensions							
Symbol	**M**	**N**	**P**	**T**	**n**	**α°**	**S**	**LA**
FF500	500	450	550	5	8	22.5	18.5	25.5
FF600	600	550	660	6	8	22.5	24	22

IMfinity® CILS
Main Mechanical Dimensions

IMfinity® 3-phase induction motors - IE4
IP55 Cast iron frame
Dimensions

IMfinity® CILS Dimensions - Shaft extension

Dimensions in millimetres



Type	Main Shaft Dimensions																	
	2 pole									4 pole								
	F	GD	D	G	E	O	p	L	LO	F	GD	D	G	E	O	p	L	LO
CILS 280S	18	11	65m6	58	140	M20	42	125	15	20	12	75m6	67.5	140	M20	42	125	15
CILS 280M	18	11	65m6	58	140	M20	42	125	15	20	12	75m6	67.5	140	M20	42	125	15
CILS 315S	18	11	65m6	58	140	M20	42	125	15	22	14	80m6	71	170	M20	42	140	30
CILS 315M	18	11	65m6	58	140	M20	42	125	15	22	14	80m6	71	170	M20	42	140	30
CILS 315L	18	11	65m6	58	140	M20	42	125	15	25	14	90m6	81	170	M24	50	140	30

IMfinity® CILS
Declaration of Conformity

Nidec	PS6 : DOCUMENT MANAGEMENT			Classement/*File*: S4T007
	EU & UK DECLARATION OF CONFORMITY AND INCORPORATION			Révision: L Date: 2023/05/02 — Page : 2 / 2
TECHNICAL MANAGEMENT	*Doc type : S6T002 Rev D du/from 16/03/2017*	M☐ R☐ I☒ CIMD-E		Cancels and replaces: S4T007 Révision K from 2022/10/21

We, **MOTEURS LEROY SOMER,** boulevard Marcellin Leroy CS10015, 16915 ANGOULEME cedex 9, France, and we,

Constructions Electriques de Beaucourt (CEB) 14, Rue de Dampierre, 90500 BEAUCOURT, France (company of **Nidec Leroy-Somer Holding SA** , boulevard Marcellin Leroy, CS 10015, 16915 ANGOULEME cedex 9, France**)**.

declare, under our own responsibility that the following products:

Moteurs Asynchrones des gammes : LS, FLS, PLS, LSES, FLSES, PLSES, LSP, LSPR, CILS.

comply with:

- European Directives & United Kingdom Statutory Instrument regulations:
  - Low Voltage Directive : **2014/35/EU & S.I. 2016:1101 ;**
  - ROHS 2 and 3 Directives : **2011/65/EU, 2015/863/EU & S.I. 2016:3032 ;**
  - Eco-design Erp Directive : **2009/125/EC and regulations (UE) 2019/1781 & S.I. 2010 :2617;**

- European standard : **EN 60034-1:2010, EN IEC 60034-7:2022, EN 60034-9:2005/A1:2007, EN IEC 60034-14 :2018 ; EN IEC 63000 :2018 ; EN 62262 :2002/A1 :2021.**

This conformity permits the use of these ranges of products in machines subject to the application of the Machinery Directive 2006/42/EC, provided that they are integrated or incorporated and/or assembled in accordance with, amongst others, the regulations of standard EN 60204(all parts) "Electrical Equipment for Machinery".

The products defined above may not be put into service until the machines in which they are incorporated have been declared as complying with the applicable Directive & Regulations.

Installation of these materials shall be done by a professional who is responsible to comply with the regulations, decrees, laws, orders, directives, application circulars, standards, rules or any other document relating to the installation site. He will be also responsible for the respect of values stamped on motor rating plate(s), instruction manual, installation instructions, maintenance manuals and/or any other document supplied by the manufacturer. MOTEURS LEROY-SOMER and CEB accepts no liability in the event of failure to comply with these rules and regulations.

Signature of technical manager:
A. MARINO

LEROY-SOMER™

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All for dreams

Moteurs Leroy-Somer SAS. Siège social : Bd Marcellin Leroy, CS 10015, 16915 Angoulême Cedex 9, France. Capital social : 32 239 235 €, RCS Angoulême 338 567 258.

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