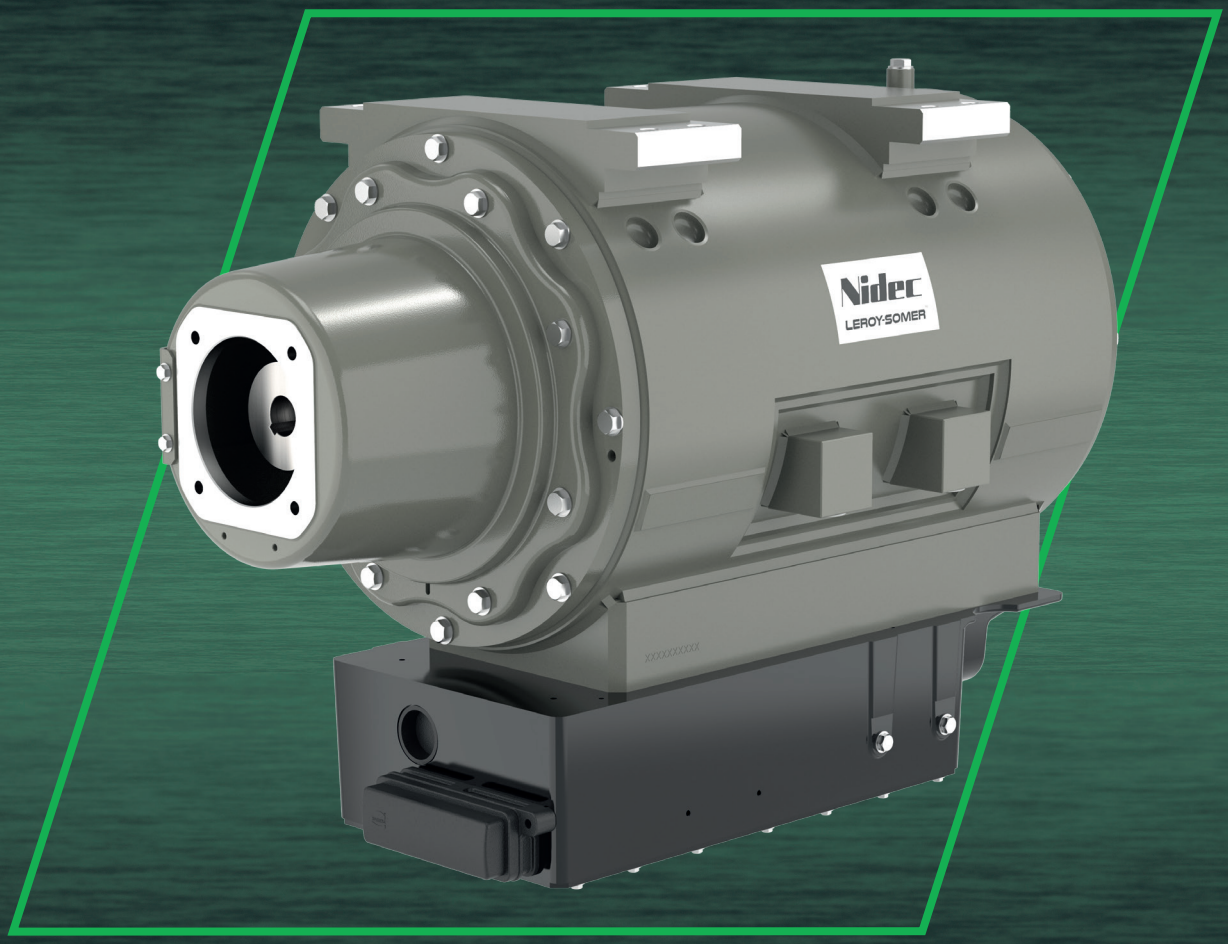
Nidec Power



LSA 43.3 L7

Low Voltage Alternator
IC7 - 2 poles

70 kVA - 50 Hz

Electrical and mechanical data

LEROY-SOMER™

The best of performance

The Leroy-Somer™ LSA 43.3 L7 IC7 alternator is a totally enclosed water-cooled machine for special applications.
Cooling is performed by an air/water exchanger (cooling index: IC7A1W7 in accordance with standard IEC 60034-6).

Standards

The Leroy-Somer™ LSA 43.3 L7 IC7 alternator meets all key international standards and regulations, including IEC 60034, NEMA MG 1.32-33, ISO 8528-3, CSA C22.2 n°100-14 and UL 1446 (UL 1004 on request). Also compliant with IEC 61000-6-2, IEC 61000-6-3, IEC 61000-6-4, VDE 0875G, VDE 0875N and EN 55011, group 1 class A for European zone.
The Leroy-Somer™ LSA 43.3 L7 IC7 alternator can be integrated in EC marked generator set, and bears EC, UKCA and CMIM markings. It is designed, manufactured and marketed in an ISO 9001 and ISO 14001 quality assurance environment.

Electrical characteristics and performances

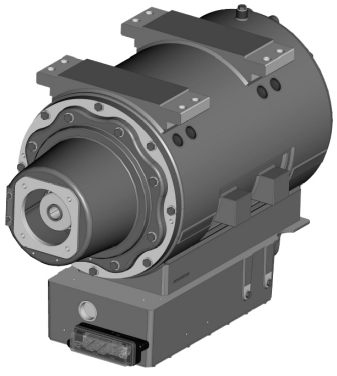
- Class H insulation
- Mixed winding 2/3 and 5/6, standard 4-wire (6S)
- 50 Hz voltage range: 220V - 240V and 380V - 415V
- High efficiency and motor starting capacity

Excitation and regulation system

Excitation system		Regulation options		
AVR	**SHUNT**	**C.T. Current transformer for paralleling**	**Mains paralleling**	**Remote voltage potentiometer**
D550	Standard	√	√	√

Protection system and options

- Designed for an operating environment up to 80°C and a maximum cooling liquid temperature of 93°C, as well as air cooling of the terminal box with a maximum temperature of 50°C
- pH of water: 7<pH<8
- Degree of protection: IP 6K9K
- Enclosed cooled alternator by heat transfer fluid
- Options:
  - Thermal protection for stator windings (PT100 sensors)
  - Shaft height: adapted on request



Mechanical construction

- Compact rigid assembly to better withstand generator vibrations
- Steel frame and aluminum terminal box
- Cast iron end shields
- Two-bearing mounting with Rotex coupling
- Half-key balancing
- Greased for life ball bearings
- Direction of rotation: clockwise and anti-clockwise (without derating)

Terminal box design

- Power and signal connection via 2 Harting connectors
- Cooling of the terminal box by an air flow with a maximum temperature:
  - of 1 to 25°C with minimum 0.8 m^3/min flow
  - of 50°C with minimum 2 m^3/min flow

General characteristics

Insulation class	H	Water flow	0.38 to 10 m³/h
Winding pitch	Mixed (wind. 6S)	Excitation system	SHUNT
Number of wires	4	AVR type	D550
Protection	IP 6K9K	Voltage regulation (*)	± 0.25 %
Cooling - Code	Glycol water - IC7A1W7	Total Harmonic Distortion THD (**) in no-load	< 2 %
Altitude	≤ 1000 m	Total Harmonic Distortion THD (**) in linear load	< 2 %
Overspeed	3600 R.P.M.	Waveform: NEMA = TIF (**)	< 80

(*) Steady state (**) Total harmonic distortion between phases, no-load or on-load (non-distorting)

Ratings 50 Hz - 3000 R.P.M.

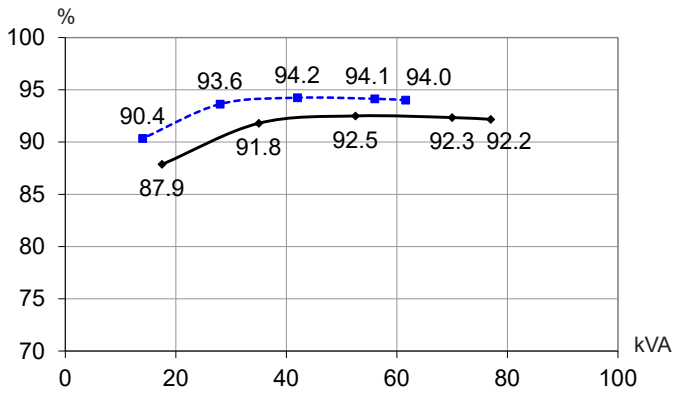
kVA / kW - P.F. = 0.8							
Duty / T° C		Continuous / 40 °C			Continuous / 40 °C		
Class / T° K		H / 125° K			F / 105° K		
Phase		**3 ph.**			**3 ph.**		
Y		380V	**400V**	415V	380V	**400V**	415V
Δ		220V	**230V**	240V	220V	**230V**	240V
YY			**200V**			**200V**	
LSA 43.3 L7	kVA	68	**70**	70	59	**61**	61
	kW	*54*	***56***	*56*	*47*	***49***	*49*

Temperature and power

Power adjustment factor according to the coolant temperature

Coolant T °C	40 - 50 °C	60 - 75 °C	85 - 95 °C
Factor	1.06	1.03	1

Efficiencies 400V - 50 Hz (— P.F.: 0.8) (--- P.F.: 1)



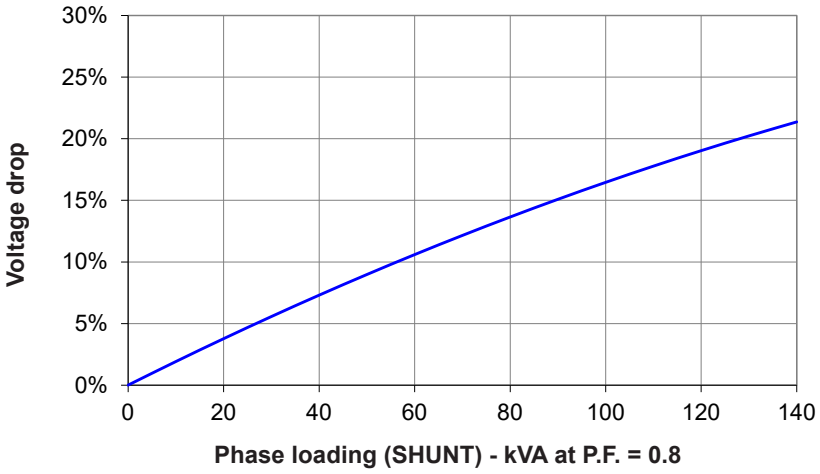
Reactances (%). Time constants (ms) - Class H / 400 V

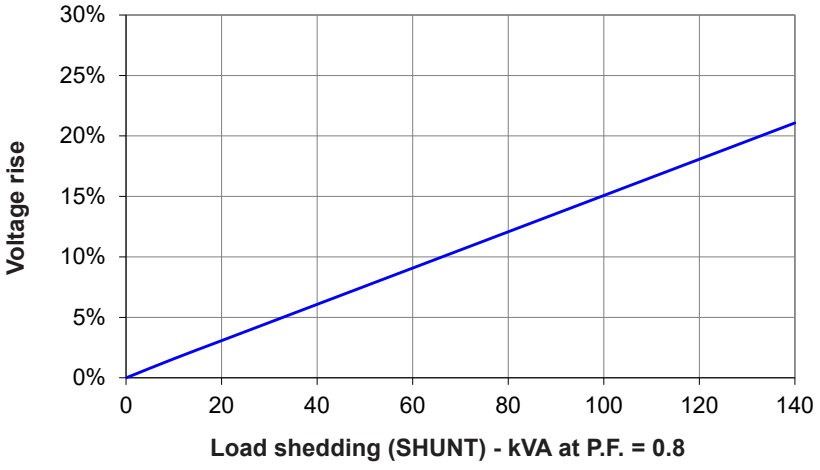
Kcc	Short-circuit ratio	0.32
Xd	Direct-axis synchronous reactance unsaturated	476
Xq	Quadrature-axis synchronous reactance unsaturated	2.43
T'do	No-load transient time constant	5919
X'd	Direct-axis transient reactance saturated	7.8
T'd	Short-circuit transient time constant	97
X"d	Direct-axis subtransient reactance saturated	6.5
T"d	Subtransient time constant	3.5
X"q	Quadrature-axis subtransient reactance saturated	9.7
Xo	Zero sequence reactance unsaturated	10.9
X2	Negative sequence reactance saturated	8.1
Ta	Armature time constant	6

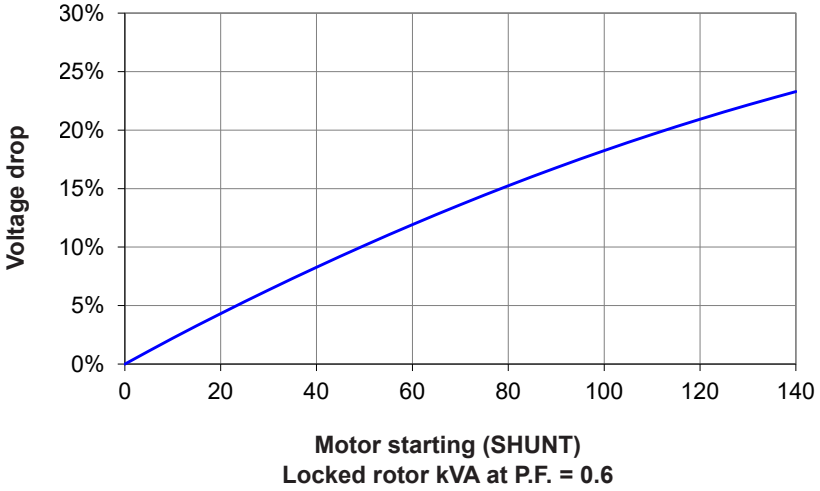
Other characteristics class H

io (A)	No-load excitation current	0.49
ic (A)	On-load excitation current	2.40
uc (V)	On-load excitation voltage	31.0
ms	Response time (ΔU = 20% transient)	500
kVA	Start (ΔU = 20% continuous or 50% transient) - P.F.: 0.6	338
%	Transient ΔU (on-load 4/4) - P.F.: 0.8_{LAG}	12.1
W	No-load losses	2267
W	Heat dissipation	4312

Transient voltage variation 400V - 50 Hz

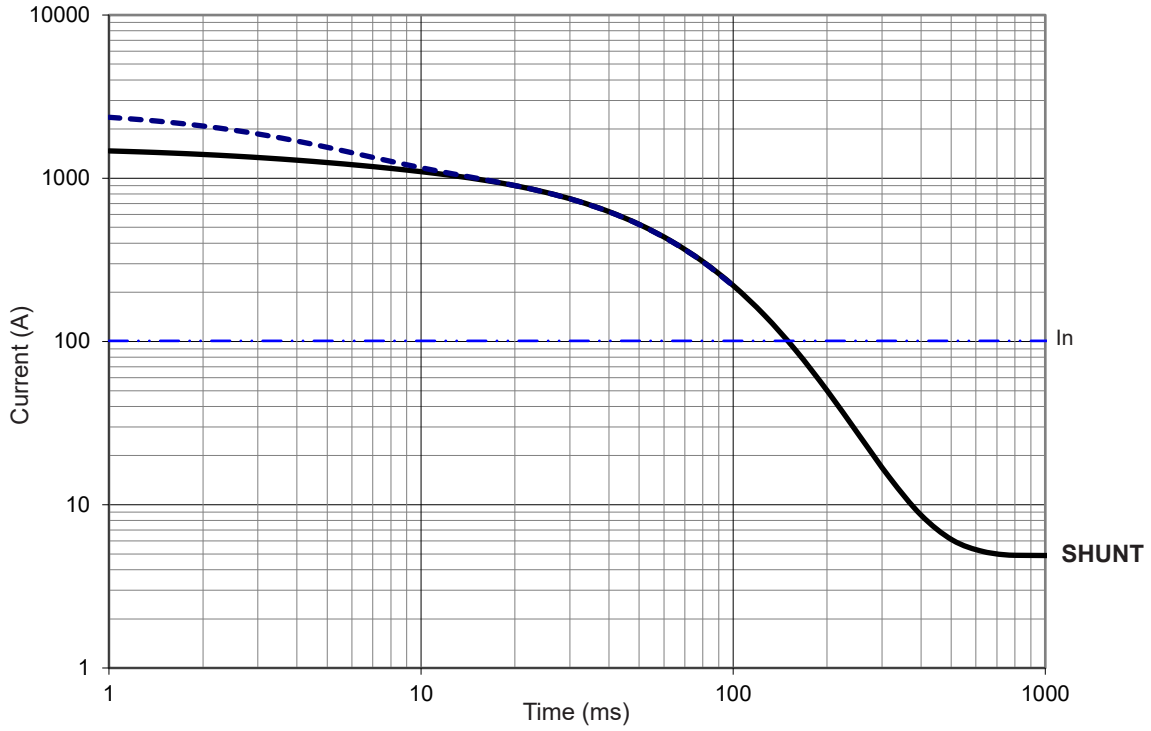






1) For a starting P.F. other than 0.6, the starting kVA must be multiplied by K = Sine P.F. / 0.8
2) For voltages other than 400V (Y), 230V(Δ) at 50 Hz, then kVA must be multiplied by $(400/U)^2$ or $(230/U)^2$.

3-phase short-circuit curves at no load and rated speed (star connection Y)



Symmetrical ——
Asymmetrical - - -

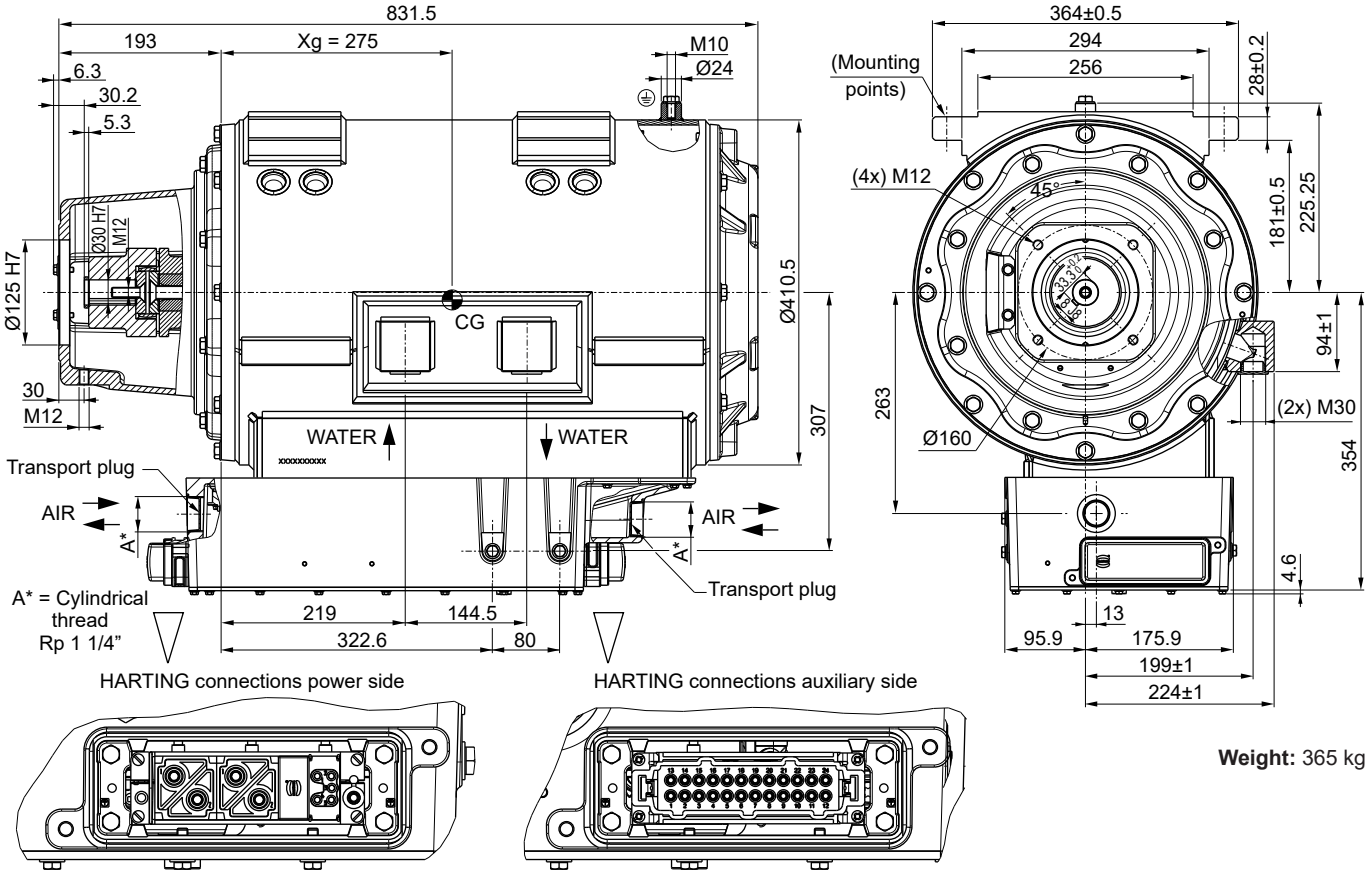
Influence due to connection
Curves shown are for star (Y) connection.
For other connections, use the following multiplication factors:
- Series delta: current value x 1.732
- Parallel star: current value x 2

Influence due to short-circuit
Curves are based on a three-phase short-circuit.
For other types of short-circuit, use the following multiplication factors.

	3-phase	2-phase L/L	1-phase L/N
Instantaneous (max.)	1	0.8	0.84

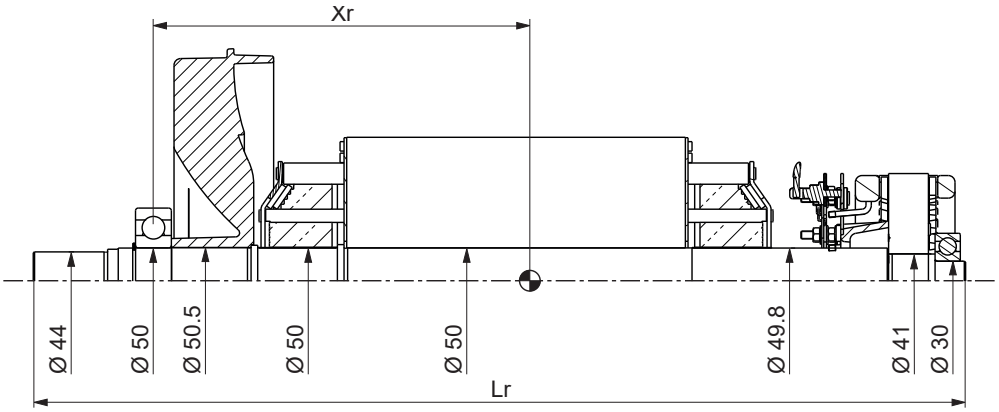
Two-bearing dimensions

Dimensions (mm)



Weight: 365 kg

Torsional analysis data



Centre of gravity: Xr (mm), Rotor length: Lr (mm), Weight: M (kg), Moment of inertia: J (kgm²): (4J = MD²)				
Type	Xr	Lr	M	J
LSA 43.3 L7	282.6	702	90	0.466

NOTE : Dimensions are for information only and may be subject to modifications. Contractual 2D drawings can be downloaded from the Nidec Power website, 3D drawing files are available upon request.
The torsional analysis of the transmission is imperative. All values are available upon request.

Nidec

All for dreams

www.nidecpower.com

Connect with us at:

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