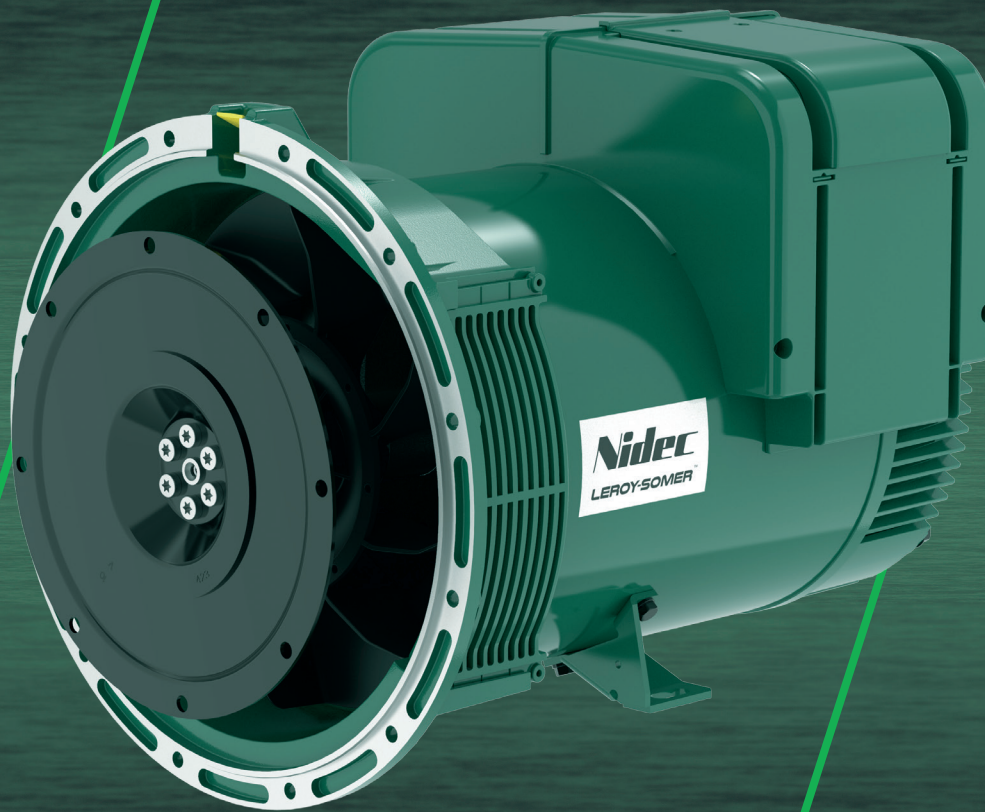


**Nidec**

Power



# LSA 42.3

Low Voltage Alternator - 4 poles

Dedicated single-phase

18.2 to 42 kVA - 50 Hz / 23 to 53 kVA - 60 Hz

Electrical and mechanical data

**LEROY-SOMER**<sup>™</sup>

## LSA 42.3

### The best of performance

The Leroy-Somer™ single-phase LSA 42.3 alternator has been designed to offer you the best power generation performances. With its meticulous design and optimized architecture, the single-phase LSA 42.3 strikes the perfect balance between compactness, reliability, performance and longevity.

The Leroy-Somer™ single-phase LSA 42.3 alternator is a machine with a dedicated single-phase winding. It has 10 to 40% more power than an equivalent three-phase alternator connected with the same single-phase voltage.

### Standards

The Leroy-Somer™ single-phase LSA 42.3 alternator meets all key international standards and regulations such as IEC 60034, NEMA MG 1.32-33, ISO 8528-3, CSA C22.2 n°100-14, UL 1446, UL 1004-1 and UL 1004-4.

EC, UKCA, CMIM, CSA, UL 1446, UL recognized and UL listed declarations and certifications are available for the LSA 42.3. The standards IEC 61000-6-2, IEC 61000-6-3, IEC 61000-6-4, VDE 0875G, VDE 0875N and EN 55011 allow compliance with group 1 class A for the European zone.

The Leroy-Somer™ single-phase LSA 42.3 alternator is designed, manufactured and marketed in an ISO 9001 and ISO 14001 quality assurance environment.

### Electrical characteristics and performances

- Class H insulation
- 2/3 pitch winding, dedicated single-phase, 4-wire (M or M1) reconnectable (optimized for 240 V / 60 Hz, P.F. = 1) (15% derating for use at PF = 0.8) (PF = 1 corresponds to general use for single-phase voltage)
- Possible voltages:
  - 50 Hz: 230 V in series, 115 V in parallel
  - 60 Hz: 240 V in series, 120 V in parallel

### Excitation and regulation system

Excitation system		Regulation options		
AVR	SHUNT	C.T. Current transformer for paralleling	Mains paralleling	Remote voltage potentiometer
R221	Standard			√

### Protection system and options

- Degree of protection: IP 23
- Complete winding protection for clean environments with relative humidity  $\leq$  95%, including indoor marine environments
- Options:
  - Filters on air inlet: derating 5%
  - Filters on air inlet and air outlet (IP 44): derating 10%
  - Reinforced winding protection for harsh environments and relative humidity greater than 95%
  - Space heater
  - Thermal protection for stator windings
  - Shaft height: H = 225 mm (to be specified when ordering)

### Mechanical construction

- Compact rigid assembly to better withstand generator vibrations
- Steel frame and terminal box
- Aluminum flanges and shields
- Two-bearing and single-bearing versions designed to be suitable for commercially-available heat engines
- Half-key balancing two-bearing
- Greased for life bearings (20 000h)
- Direction of rotation: clockwise and anti-clockwise (without derating)

### Terminal box design

- Easy access to the voltage regulator (lid) and to the connections
- 8-way terminal block for reconnecting the voltage
- Predrilled holes for cable gland

### Frame dimensions

- Dimensions, weight and coupling are identical to LSA 42.3 three-phase (see catalogue ref. 6246)

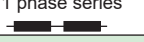
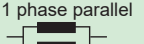
# LSA 42.3 - Dedicated single-phase 18.2 to 42 kVA - 50 Hz / 23 to 53 kVA - 60 Hz

## General characteristics

Insulation class	H	Excitation system	SHUNT
Winding pitch	2/3 (wind. M 50 Hz, M1 60 Hz)	AVR type	R221
Number of wires	4	Voltage regulation (*)	± 0.5 %
Protection	IP 23	Short-circuit current	-
Altitude	≤ 1 000 m	Total Harmonic Distortion THD (**)	< 4 %
Overspeed	2 250 R.P.M.	Waveform: NEMA = TIF (**)	< 50
Air flow	0.10 m <sup>3</sup> /s (50 Hz) / 0.13 m <sup>3</sup> /s (60 Hz)		

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

## Ratings : 50 Hz - 1 500 R.P.M. - Winding M

kVA / kW - Power factor = 1				
Duty / T° C	Continuous/40°C		Stand-by/40°C	Stand-by/27°C
Class / T° K	H / 125° K	F / 105° K	H / 150° K	H / 163° K
1 phase series 	<b>230 V</b>	230 V	230 V	230 V
1 phase parallel 	<b>115 V</b>	115 V	115 V	115 V
<b>LSA 42.3 VS1</b>	<b>18.2</b>	16.6	19.3	20
<b>LSA 42.3 VS2</b>	<b>20.3</b>	18.5	21.5	22.3
<b>LSA 42.3 VS3</b>	<b>22.4</b>	20.4	23.7	24.6
<b>LSA 42.3 S4</b>	<b>25</b>	22.8	26.5	27.5
<b>LSA 42.3 S5</b>	<b>28</b>	25.5	29.7	30.8
<b>LSA 42.3 M7</b>	<b>31.5</b>	28.7	33.4	34.7
<b>LSA 42.3 M8</b>	<b>35</b>	31.9	37.1	38.5
<b>LSA 42.3 L9</b>	<b>42</b>	38.2	44.5	46.2

## 60 Hz - 1 800 R.P.M. - Winding M1

kVA / kW - Power factor = 1			
Continuous/40°C		Stand-by/40°C	Stand-by/27°C
H / 125° K	F / 105° K	H / 150° K	H / 150° K
<b>240 V</b>	240 V	240 V	240 V
<b>120 V</b>	120 V	120 V	120 V
<b>23</b>	20.9	24.4	25.3
<b>26</b>	23.7	27.6	28.6
<b>28.8</b>	26.2	30.5	31.6
<b>31.5</b>	28.7	33.4	34.7
<b>36</b>	32.8	38.2	39.6
<b>40</b>	36.4	42.4	44
<b>47.2</b>	43	50	51.9
<b>53</b>	48.2	56.2	58.3

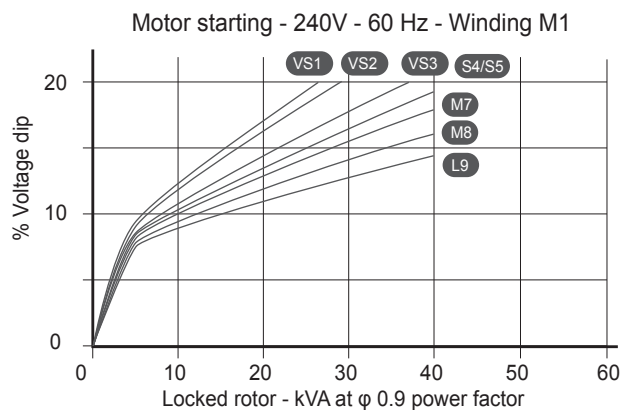
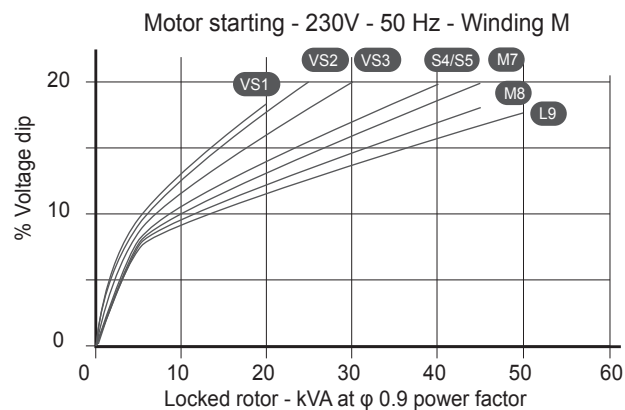
Rating kVA at P.F. 0.8 = rating kVA/kW at P.F. 1 x 0.85 - Derating (kVA) cl B = rating (kVA) class H x 0.80

## Efficiencies (%)

Class H / 40°C - Power factor = 1 - Winding M					
	Single-phase: 230 V - 50 Hz				
	1/4	2/4	3/4	4/4	Stand-by
<b>LSA 42.3 VS1</b>	85.7	89.2	89	<b>88.7</b>	87.7
<b>LSA 42.3 VS2</b>	86.9	89.8	89.4	<b>88.1</b>	87.3
<b>LSA 42.3 VS3</b>	87.4	90.4	90.2	<b>89</b>	88.4
<b>LSA 42.3 S4</b>	87.6	91.1	91.3	<b>90.6</b>	90.2
<b>LSA 42.3 S5</b>	88.5	91.3	91.1	<b>90.1</b>	89.6
<b>LSA 42.3 M7</b>	89.3	91.7	91.3	<b>90.3</b>	89.7
<b>LSA 42.3 M8</b>	89	91.6	91.4	<b>90.5</b>	90
<b>LSA 42.3 L9</b>	89.7	92	91.7	<b>90.7</b>	90.2

Class H / 40°C - Power factor = 1 - Winding M1					
	Single-phase: 240 V - 60 Hz				
	1/4	2/4	3/4	4/4	Stand-by
	85.2	89.1	89.2	<b>88.3</b>	87.7
	86.3	89.6	89.5	<b>88.3</b>	87.7
	86.3	89.9	90	<b>89.2</b>	88.6
	87.9	91	91.2	<b>90.4</b>	90.1
	88.6	91.2	90.9	<b>89.9</b>	89.4
	89.1	91.5	91.2	<b>90.2</b>	89.6
	89	91.5	91.2	<b>90.1</b>	89.9
	89.1	91.7	91.6	<b>90.6</b>	90.2

## Transient voltage variation





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