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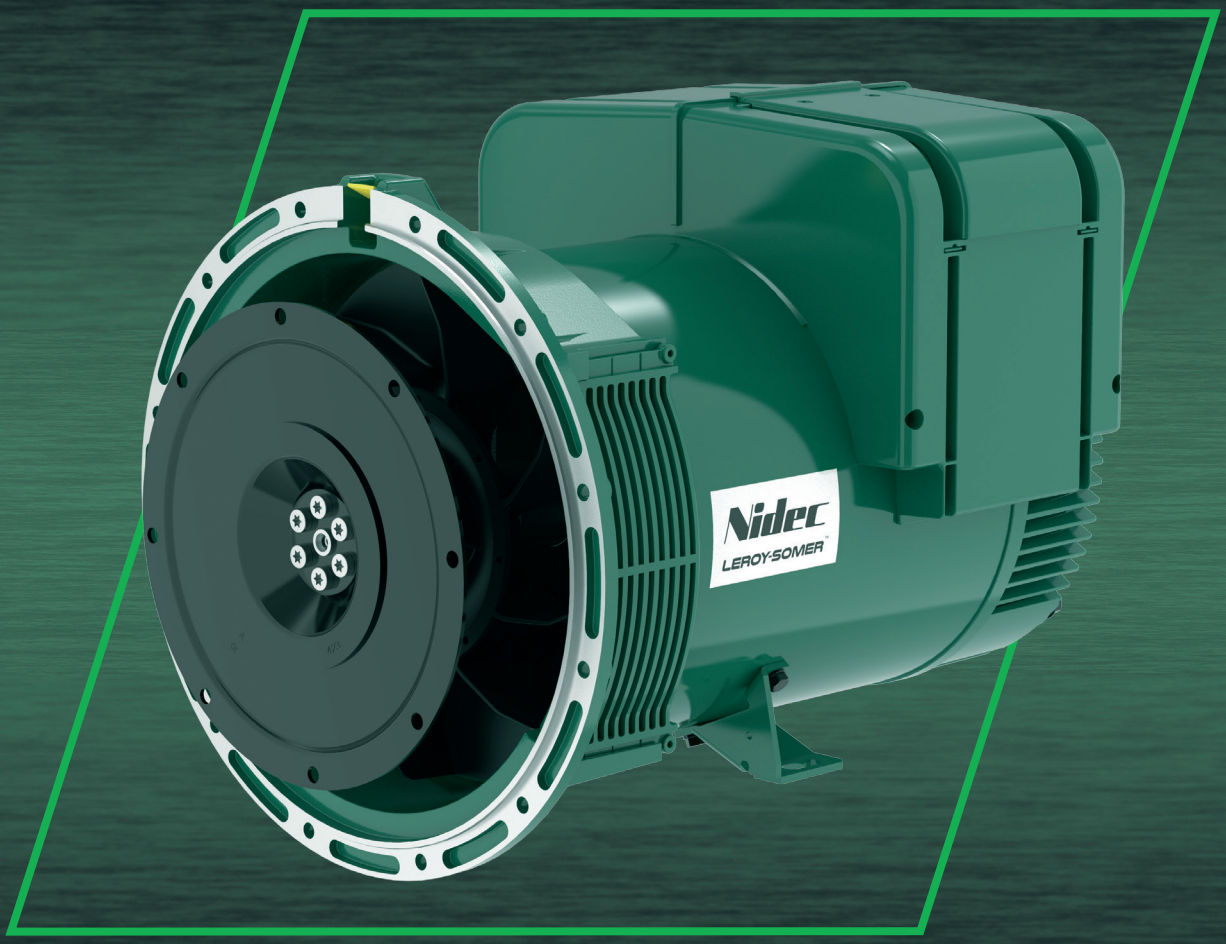
Power



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™

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 ≤ 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)

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 m³/s (50 Hz) / 0.13 m³/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	**230 V**	230 V	230 V	230 V
1 phase parallel	**115 V**	115 V	115 V	115 V
LSA 42.3 VS1	**18.2**	16.6	19.3	20
LSA 42.3 VS2	**20.3**	18.5	21.5	22.3
LSA 42.3 VS3	**22.4**	20.4	23.7	24.6
LSA 42.3 S4	**25**	22.8	26.5	27.5
LSA 42.3 S5	**28**	25.5	29.7	30.8
LSA 42.3 M7	**31.5**	28.7	33.4	34.7
LSA 42.3 M8	**35**	31.9	37.1	38.5
LSA 42.3 L9	**42**	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
	240 V	240 V	240 V	240 V
	120 V	120 V	120 V	120 V
	23	20.9	24.4	25.3
	26	23.7	27.6	28.6
	28.8	26.2	30.5	31.6
	31.5	28.7	33.4	34.7
	36	32.8	38.2	39.6
	40	36.4	42.4	44
	47.2	43	50	51.9
	53	48.2	56.2	58.3

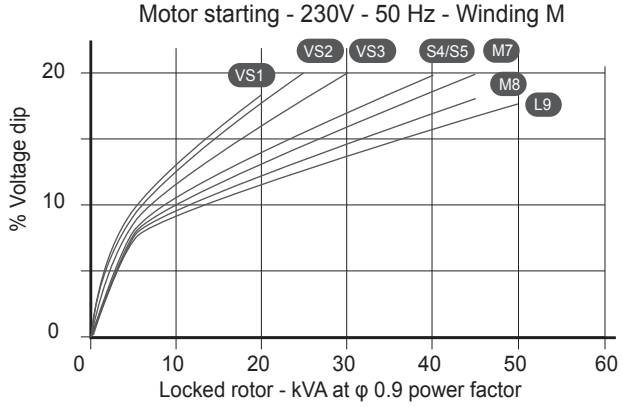
Rating kVA at P.F. 0.8 = rating kVA/kW at P.F. 1 x 0.85 - Derating (kVA) cl B = rating (kVA) class H x 0.80

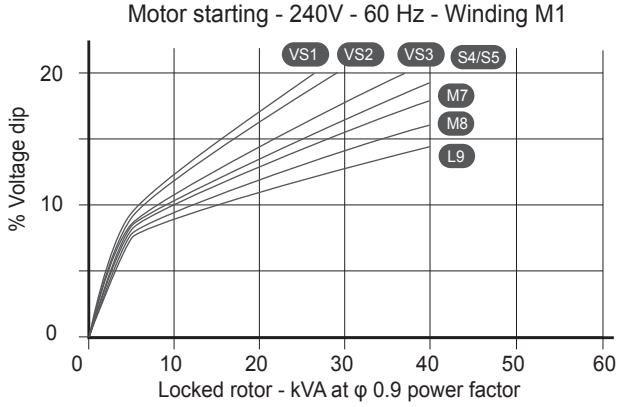
Efficiencies (%)

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
LSA 42.3 VS1	85.7	89.2	89	**88.7**	87.7
LSA 42.3 VS2	86.9	89.8	89.4	**88.1**	87.3
LSA 42.3 VS3	87.4	90.4	90.2	**89**	88.4
LSA 42.3 S4	87.6	91.1	91.3	**90.6**	90.2
LSA 42.3 S5	88.5	91.3	91.1	**90.1**	89.6
LSA 42.3 M7	89.3	91.7	91.3	**90.3**	89.7
LSA 42.3 M8	89	91.6	91.4	**90.5**	90
LSA 42.3 L9	89.7	92	91.7	**90.7**	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	**88.3**	87.7
86.3	89.6	89.5	**88.3**	87.7
86.3	89.9	90	**89.2**	88.6
87.9	91	91.2	**90.4**	90.1
88.6	91.2	90.9	**89.9**	89.4
89.1	91.5	91.2	**90.2**	89.6
89	91.5	91.2	**90.1**	89.9
89.1	91.7	91.6	**90.6**	90.2

Transient voltage variation





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