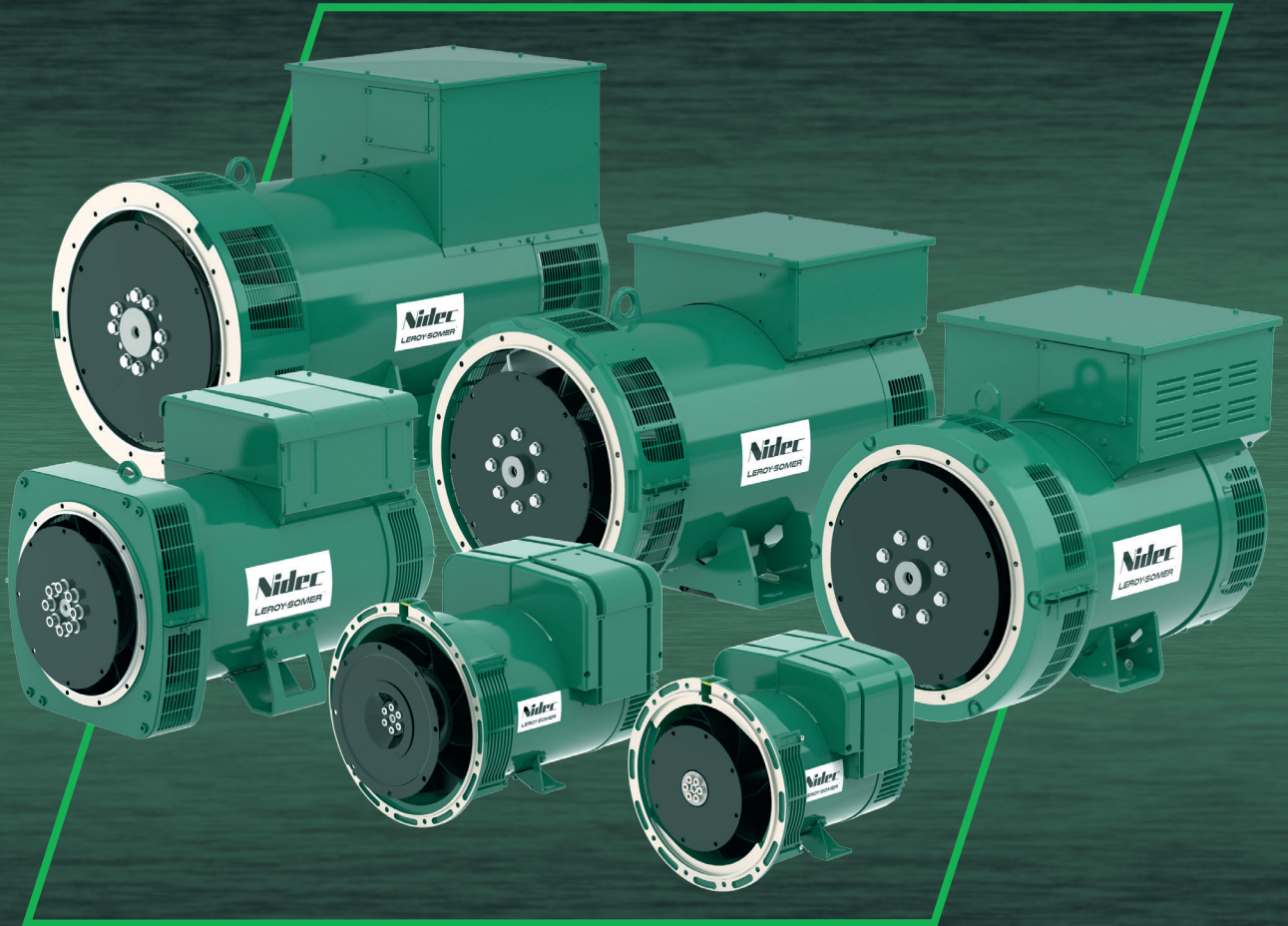


Nidec

Power



LSA Rating Table

Low Voltage Alternators - 4 poles

General features and ratings

LERROY-SOMER[™]

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Technical definitions

INTRODUCTION

This catalogue is a summary of ratings for the LSA low voltage range at the most common voltages around the world. For other voltages, please consult Nidec Power.

1 - NOMINAL RATING DEFINITION

- Continuous rating S1/40°C - IEC 60034-1 definition

Running at constant load limited to the insulation class ; permissible overload 1 h every 12 hours.

- Stand-by rating 40°C (H: 150K)

Running at constant load **without** over load, for a limited duration of maximum 500h/year, with a permissible increase of the temperature rise above class H.

- Stand-by rating 27°C (H: 163K)

Running at constant load **without** over load, for a limited duration of maximum 500h/year, with a permissible increase of the temperature rise above class H. The lower ambient temperature (27°C) allows to increase the nominal rating.

A same machine is capable of the following operations:

example: **S1/40°C = 100 kW - std by/40°C = 105 kW - std by/27°C = 110 kW**

2 - INSULATION CLASS AND TEMPERATURE RISE

The windings on all Leroy-Somer™ alternators are protected with class H insulation system.

The tables in this document give power values for class H (125K) and F (105K) temperature rises.

For more information on insulation and temperature rise classes, please read our technical note TN11 (ref. 5202).

3 - DERATING

Multiply nominal rating by derating factors indicated in the following table.

Altitude (m)	1000	1500	2000	2500	3000	3500	4000
Derating factor	1	0.975	0.949	0.922	0.894	0.866	0.837

Ambient T °C	25	40	45	50	55	60 (*)
Class H	1.076	1	0.973	0.946	0.918	0.889
Class F	1.095	1	0.966	0.931	0.894	0.856
Class B	1.140	1	0.949	0.894	0.837	0.775

(*) External AVR if $\geq 56^\circ\text{C}$

Lagging PF	0.6	0.7	0.8	0.9	1
Derating factor	0.86	0.93	1	1	1

For a rated P.F. at 0.8

4 - WINDING

The windings proposed by Nidec Power in this document are in 2/3 pitch.

- Standard winding No.: 6 (12 wires)

- Optimized winding No.: 7, 8, 9, 10, 22, 23 and 52

- Winding M or M1, dedicated 1-phase winding (4 wires)

“S” after the winding number means “6 leads” ex: 6S.

“T” or “+” after winding give an information about the saturation level of the stator.

Technical definitions

5 - GENERAL FEATURES

5.1 - Standards

The Leroy-Somer™ LSA alternators meet 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 alternators can be integrated in EC marked generator sets, and they bear EC, UKCA and CMIM markings. They are designed, manufactured and marketed in an ISO 9001 and ISO 14001 quality assurance environment.

5.2 - Electrical features

- Excitation systems

Nidec Power propose a large choice of excitation systems, depending on the customer needs:

- **SHUNT** system, without short-circuit capacity

- **AREP** or **PMG** system, with a short-circuit capacity of 3 times the nominal current for 10 seconds

- Voltage regulators

The 4-pole LSA alternators are fitted with reliable and performant AVR's, designed and manufactured by Nidec Power.

Available excitation systems depending on selected alternator and are indicated in nominal rating tables.

Alternators LSA	40	42.3	44.3	46.3	47.3	49.3	50.2	52.3	53.2	54.2
SHUNT	R220		R250			-	-	-	-	-
SHUNT dedicated 1-phase 50 and 60 Hz	R221		R251	-	-	-	-	-	-	-
AREP / PMG	D350*	D350		D350	D350	D350	D350	D550		
SHUNT / AREP / PMG	D550 (optional)									

*AREP only

- Frequency

LSA alternators may operate either 50 or 60 Hz. The standard winding (code 6) is suitable both for 50 and 60 Hz. For dedicated windings, see specific table or consult factory.

- Power factor: P.F.

LSA alternators are designed to operate between 0.8 and 1 power factor.

A derating is necessary below 0.8 power factor (see derating chart). Consult us for other P.F. needs.

- Waveform

Total harmonic distortion (THD), at no load or linear load is less than 5% according to IEC.

TIF/Telephone influence factor according to NEMA is less than 50.

- Transient features

Transient voltage dip for rated step load at 0.8 power factor is less than 18 %.

Recovery time for a 20 % transient voltage dip is less than 0.5 s.

- Parallel operation

All LSA alternators can operate in parallel with other alternators (2/3 pitch winding) with AREP/PMG (except LSA 40 with AREP only), or with the mains, when they are equipped with the appropriate devices (AVR, current transformer...).

- Overload acceptance

LSA alternators can be overloaded according to NEMA.

- Single phase operation

LSA 40, LSA 42.3, LSA 44.3 and LSA 46.3 alternators can be reconnected for single phase operation. The single phase rating is given in the various alternator data sheets. LSA 40, LSA 42.3 and LSA 44.3 can be supplied with a dedicated single phase winding (code M or M1).

5.3 - Mechanical features

- Mechanical arrangement

LSA alternators can be provided in single bearing or two bearing configurations. A large range of engine adaptors and coupling discs are available to fit the major engines.

- Enclosure

Standard enclosure is IP 23. Other enclosures such as IP 44, IP 55 can be proposed on request (possible derating).

Technical definitions

- Bearings

Sealed for life bearings up to LSA 50.2 (regreasable bearing option from LSA 46.3), regreasable bearings from LSA 52.3.

- Balancing

All rotors are dynamically balanced according to ISO 1940 and IEC 60034-14. Two bearing rotors are balanced with a half key.

- Direction of rotation

LSA alternators can operate in both directions (5% derating for anticlockwise running for LSA 47.3, LSA 49.3 and LSA 50.2). LSA 52.3, LSA 53.2 and LSA 54.2 alternators are designed to have only one direction of rotation, which has to be defined upon ordering.

- Overspeed

The maximum overspeed is 2250 R.P.M. (1.25 times the 60 Hz rated speed).

- Insulation and protection

LSA alternators are class H insulated. The standard winding protection can accept up to 95 % relative humidity and is suitable for indoors marine applications. Specific added coatings can be proposed for harsh environments. Refer to technical note TN12 (ref. 5338).

- Terminal box and connectors

LSA alternators are fitted with a large terminal box which facilitates access to the AVR and allows easy access to the connections. Current transformers and other optional modules can be fitted within the terminal box.

- Mechanical structure

Steel frame. Aluminum, cast iron or steel housings and flanges depending on models.

- Painting

LSA alternators are supplied painted. The color can be chosen by the customer. For more details on the paint specification LSA 52, refer to technical note TN18 (ref. 5727).

6 - ACCESSORIES AND OPTIONS

- Digital AVR D550 (includes three phase sensing and paralleling with the grid)
- EMI suppression module R791 for other areas than EC
- PMG (from LSA 42.3)
- Engine adaptors for two bearing alternators
- Air inlet filters (5% derating)
- Air inlet or outlet filters with IP44 (10% derating) (8% derating for LSA 52.3)
- Specific stator protections for harsh environments
- Specific painting
- Greasable bearings for LSA 46.3, LSA 47.3, LSA 49.3 and LSA 50.2
- Thermal sensors for bearings
- Thermal sensors for stator windings
- Anti condensation heaters (retrofitable)
- Remote voltage potentiometers
- Current transformers for paralleling with other alternators
- First emergency kits (AVR + diodes)

7 - PRODUCT DESCRIPTION

The machine name is defined according to various criteria (see below).

Example of description for:

LSA 49.3 M6 C6/4

- LSA: Range
- 49.3: Frame size
- M6: Core length
- C: Excitation system (C: AREP / J: SHUNT or SHUNT + PMG)
- 6/4: Winding number / number of poles




Voltage reconnections

8 - RECONNECTIONS 50 Hz

4 POLES - 1500 R.P.M.							
Phase - Code	3-ph - D	3-ph - F	3-ph - D	3-ph - F	3-ph - A	1-ph - FF	1-ph - G
Connections							
	star	delta	star	delta	parallel star	double delta	open delta
Number of wires	6	6	12	12	12	12	12
Winding 6 standard	380-400-415V (pages 7 & 9)	220 - 240V (pages 7 & 9)	380-400-415V (pages 7 & 9)	220 - 240V (pages 7 & 9)	190 - 208V (pages 7 & 9)	220 - 240V (page 15)	220 - 240V (page 15)
Winding 6 standard	440 V (page 8)	-	440 V (page 8)	-	220 V (page 8)	-	-
Winding 7 specific (on request)	415 - 440 V (page 10)	240 - 254 V (page 10)	415 - 440 V (page 10)	240 - 254 V (page 10)	208 - 220 V (page 10)	240 - 254 V (consult factory)	240 - 254 V (consult factory)
Winding 9 specific (on request)	500 - 525 V (page 11)	-	500 - 525 V (page 11)	-	-	-	-
Winding 22 or 23 specific (on request)	550 V (page 12) 600 V (page 13)	-	550 V (page 12) 600 V (page 13)	-	-	-	-
Winding 10 or 52 specific (on request)	660 - 690 V (page 14)	-	660 - 690 V (page 14)	-	-	-	-
Winding M specific, dedicated 1-phase 4 wires (on request)		220 - 240 V (page 15)		110 - 120 V (page 15)			
		SE (serie)		PA (parallel)			

50 Hz - 3-phase

1500 R.P.M. - P.F. 0.8

 Star (6 or 12 wires)	 Parallel Star (12 wires only)	 Delta (6 or 12 wires)
380 - 400 - 415 V	190 - 200 - 208 V	220 - 230 - 240 V

The connections "A" and "F" are not available for LSA 52.3, LSA 53.2 & LSA 54.2

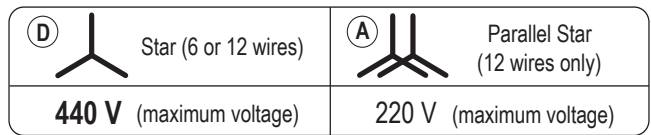
8.1 - Winding 6 standard

Excitation					kVA @ 190V, 220V, 380V				kVA @ 200V, 230V, 400V				kVA @ 208V, 240V, 415V			
					40 °C cont.		40 °C St.by	27 °C St.by	40 °C cont.		40 °C St.by	27 °C St.by	40 °C cont.		40 °C St.by	27 °C St.by
TYPE	SHUNT	AREP	PMG	wires	H:125 K	F:105 K	H: 150 K	H: 163 K	H:125 K	F:105 K	H: 150 K	H: 163 K	H:125 K	F:105 K	H: 150 K	H: 163 K
LSA 40 VS1	J6/4	C6/4	-	12	10	9	10.5	11	10	9	10.5	11	10	9	10.5	11
LSA 40 VS2	J6/4	C6/4	-	12	12.5	11.5	13.5	14	12.5	11.5	13.5	14	12.5	11.5	13.5	14
LSA 40 S3	J6/4	C6/4	-	12	15	14	16	16.5	15	14	16	16.5	15	14	16	16.5
LSA 40 S4	J6/4	C6/4	-	12	17.5	16	19	19.5	17.5	16	19	19.5	17.5	16	19	19.5
LSA 40 M5	J6/4	C6/4	-	12	20	18.5	21.5	22	20	18.5	21.5	22	20	18.5	21.5	22
LSA 42.3 VS1	J6/4	C6/4	Option	12	25	23	26.5	27.5	25	23	26.5	27.5	25	23	26.5	27.5
LSA 42.3 VS2	J6/4	C6/4	Option	12	27	24.5	28.5	30	27	24.5	28.5	30	27	24.5	28.5	30
LSA 42.3 VS3	J6/4	C6/4	Option	12	32	29	34	35	32	29	34	35	32	29	34	35
LSA 42.3 S4	J6/4	C6/4	Option	12	35	32	37	38.5	35	32	37	38.5	35	32	37	38.5
LSA 42.3 S5	J6/4	C6/4	Option	12	40	36.5	42.5	45	40	36.5	42.5	45	40	36.5	42.5	45
LSA 42.3 M7	J6/4	C6/4	Option	12	45	41	48	50	45	41	48	50	45	41	48	50
LSA 42.3 M8	J6/4	C6/4	Option	12	50	45.5	53	55	50	45.5	53	55	50	45.5	53	55
LSA 42.3 L9	J6/4	C6/4	Option	12	60	55	64	66	60	55	64	66	60	55	64	66
LSA 44.3 S2	J6/4	C6/4	Option	12	70	64	74	77	70	64	74	77	70	64	74	77
LSA 44.3 S3	J6/4	C6/4	Option	12	80	73	85	88	80	73	85	88	80	73	85	88
LSA 44.3 S4	J6/4	C6/4	Option	12	90	82	95	100	90	82	95	100	90	82	95	100
LSA 44.3 S5	J6/4	C6/4	Option	12	100	91	106	110	100	91	106	110	100	91	106	110
LSA 44.3 M6 *	J6/4	C6/4	Option	12	125	114	133	138	125	114	133	138	125	114	133	138
LSA 44.3 M8	J6/4	C6/4	Option	12	135	123	143	150	135	123	143	150	135	123	143	150
LSA 44.3 L10 *	J6/4	C6/4	Option	12	150	137	159	165	150	137	159	165	150	137	159	165
LSA 44.3 L12 *	J6/4	C6/4	Option	12	165	150	175	182	165	150	175	182	165	150	175	182
LSA 44.3 VL13	J6/4	C6/4	Option	12	180	164	191	200	180	164	191	200	180	164	191	200
LSA 44.3 VL14	J6/4	C6/4	Option	12	192	175	204	211	200	182	212	220	200	182	212	220
LSA 46.3 S4	J6/4	C6/4	Option	12	230	209	244	253	230	209	244	253	230	209	244	253
LSA 46.3 S5	J6/4	C6/4	Option	12	240	218	254	264	250	228	265	275	250	228	265	275
LSA 46.3 M7 *	J6/4	C6/4	Option	12	275	250	292	303	275	250	292	303	275	250	292	303
LSA 46.3 M8 *	J6/4	C6/4	Option	12	290	264	307	319	300	273	318	330	300	273	318	330
LSA 46.3 L10	J6/4	C6/4	Option	12	325	300	345	358	325	300	345	358	325	300	345	358
LSA 46.3 L11	J6/4	C6/4	Option	12	350	319	371	385	365	332	387	400	365	332	387	400
LSA 47.3 S4 *	J6/4	C6/4	Option	12	410	375	435	450	410	375	435	450	410	375	435	450
LSA 47.3 S5	J6/4	C6/4	Option	12	455	415	480	500	455	415	480	500	455	415	480	500
LSA 47.3 M7	J6/4	C6/4	Option	12	500	465	550	570	500	465	550	570	500	465	550	570
LSA 47.3 M8	J6/4	C6/4	Option	12	550	500	585	600	550	500	585	600	550	500	585	600
LSA 47.3 L9 *	J6/4	C6/4	Option	12	600	545	635	660	600	545	635	660	600	545	635	660
LSA 47.3 L10 *	J6/4	C6/4	Option	12	645	587	684	710	660	600	730	745	660	600	730	745
LSA 49.3 M6	-	C6S/4	Option	6	730	660	780	810	730	660	780	810	730	660	780	810
LSA 49.3 M8	-	C6S/4	Option	6	820	760	910	945	820	760	910	945	820	760	910	945
LSA 49.3 L9	-	C6S/4	Option	6	910	820	1000	1020	910	820	1000	1020	910	820	1000	1020
LSA 49.3 L10	-	C6S/4	Option	6	1000	900	1085	1130	1000	900	1085	1130	1000	900	1085	1130
LSA 50.2 M6	-	C6S/4	Option	6	1250	1125	1315	1375	1250	1125	1315	1375	1250	1125	1315	1375
LSA 50.2 L7 **	-	C6S/4	Option	6	1350	1215	1420	1485	1350	1215	1420	1485	1350	1215	1420	1485
LSA 50.2 L8	-	C6S/4	Option	6	1450	1320	1520	1595	1500	1350	1575	1650	1500	1350	1575	1650
LSA 50.2 VL10	-	C6S/4	Option	6	1600	1455	1680	1760	1640	1475	1720	1800	1600	1455	1680	1760
LSA 52.3 S5	-	C6S/4	Option	6	1860	1696	1953	2046	1860	1696	1953	2046	1860	1696	1953	2046
LSA 52.3 S6	-	C6S/4	Option	6	2000	1824	2100	2200	2000	1824	2100	2200	2000	1824	2100	2200
LSA 52.3 S7	-	C6S/4	Option	6	2200	2006	2310	2420	2200	2006	2310	2420	2200	2006	2310	2420
LSA 52.3 L9	-	C6S/4	Option	6	2360	2152	2478	2596	2360	2152	2478	2596	2360	2152	2478	2596
LSA 52.3 L12	-	C6S/4	Option	6	2560	2335	2688	2816	2560	2335	2688	2816	2560	2335	2688	2816
LSA 52.3 UL16	-	C6S/4	Option	6	2750	2508	2888	3025	2750	2508	2888	3025	2750	2508	2888	3025
LSA 53.2 M9	-	C6S/4	Option	6	3000	2736	3150	3300	3000	2736	3150	3300	3000	2736	3150	3300
LSA 53.2 M12	-	C6S/4	Option	6	3300	3010	3465	3630	3300	3010	3465	3630	3300	3010	3465	3630
LSA 54.2 M10	-	C6S/4	Option	6	3420	3118	3591	3762	3420	3118	3591	3762	3420	3118	3591	3762
LSA 54.2 L14	-	C6TS/4	Option	6	4320	3938	4536	4752	4320	3938	4536	4752	-	-	-	-

* Paralleling with the grid or between alternators, select the 6 wires configuration.

** Paralleling with the grid or between alternators, contact us.

50 Hz - 3-phase
1500 R.P.M. - P.F. 0.8



8.2 - Winding 6 standard




Excitation						kVA @ 220V, 440V ⁽¹⁾			
						40 °C cont.		40 °C St.by	27 °C St.by
TYPE	SHUNT	AREP	PMG	wires	H : 125 K	F : 105 K	H : 150 K	H : 163 K	
LSA 40 VS1	J6/4	C6/4	-	12	9	8	9.5	10	
LSA 40 VS2	J6/4	C6/4	-	12	11	10	12	12.5	
LSA 40 S3	J6/4	C6/4	-	12	13	12	14	15	
LSA 40 S4	J6/4	C6/4	-	12	16	14.5	17	17.5	
LSA 40 M5	J6/4	C6/4	-	12	18	16.5	19	20	
LSA 42.3 VS1	J6/4	C6/4	Option	12	24.5	22.5	26	27	
LSA 42.3 VS2	J6/4	C6/4	Option	12	26	23.5	27.5	28.5	
LSA 42.3 VS3	J6/4	C6/4	Option	12	30	27.5	32	33	
LSA 42.3 S4	J6/4	C6/4	Option	12	30.5	28	32.5	33.5	
LSA 42.3 S5	J6/4	C6/4	Option	12	35	32	37	38.5	
LSA 42.3 M7	J6/4	C6/4	Option	12	39	35.5	41.5	43	
LSA 42.3 M8	J6/4	C6/4	Option	12	43	39	45.5	47.5	
LSA 42.3 L9	J6/4	C6/4	Option	12	52	47.5	55	57	
LSA 44.3 S2	J6/4	C6/4	Option	12	63	57	67	69	
LSA 44.3 S3	J6/4	C6/4	Option	12	72	66	76	79	
LSA 44.3 S4	J6/4	C6/4	Option	12	81	74	86	89	
LSA 44.3 S5	J6/4	C6/4	Option	12	90	82	95	99	
LSA 44.3 M6	* J6/4	C6/4	Option	12	113	103	120	124	
LSA 44.3 M8	J6/4	C6/4	Option	12	122	111	129	134	
LSA 44.3 L10	* J6/4	C6/4	Option	12	135	123	143	149	
LSA 44.3 L12	* J6/4	C6/4	Option	12	138	126	150	157	
LSA 44.3 VL13	J6/4	C6/4	Option	12	171	156	181	188	
LSA 44.3 VL14	J6/4	C6/4	Option	12	192	175	204	211	
LSA 46.3 S4	J6/4	C6/4	Option	12	219	200	232	240	
LSA 46.3 S5	J6/4	C6/4	Option	12	238	216	252	261	
LSA 46.3 M7	* J6/4	C6/4	Option	12	261	238	277	287	
LSA 46.3 M8	* J6/4	C6/4	Option	12	285	259	302	313	
LSA 46.3 L10	J6/4	C6/4	Option	12	309	281	327	340	
LSA 46.3 L11	J6/4	C6/4	Option	12	347	316	368	380	
LSA 47.3 S4	* J6/4	C6/4	Option	12	400	364	424	440	
LSA 47.3 S5	J6/4	C6/4	Option	12	445	405	472	490	
LSA 47.3 M7	J6/4	C6/4	Option	12	490	449	519	539	
LSA 47.3 M8	J6/4	C6/4	Option	12	540	491	572	594	
LSA 47.3 L9	* J6/4	C6/4	Option	12	500	455	530	550	
LSA 47.3 L10	* J6/4	C6/4	Option	12	630	573	668	693	
LSA 49.3 M6	-	C6S/4	Option	6	665	600	730	765	
LSA 49.3 M8	-	C6S/4	Option	6	810	710	885	925	
LSA 49.3 L9	-	C6S/4	Option	6	820	740	920	965	
LSA 49.3 L10	-	C6S/4	Option	6	950	840	1030	1080	
LSA 50.2 M6	-	C6S/4	Option	6	1190	1095	1275	1330	
LSA 50.2 L7	**	-	C6S/4	Option	6	1260	1150	1365	1425
LSA 50.2 L8	-	C6S/4	Option	6	1440	1320	1555	1625	
LSA 50.2 VL10	-	C6S/4	Option	6	1545	1420	1670	1730	

(1) Use winding 7 for parallel operation with the main

* Paralleling with the grid or between alternators, select the 6 wires configuration.
 ** Paralleling with the grid or between alternators, contact us.

50 Hz - 3-phase

1500 R.P.M. - P.F. 0.8

 Star (6 or 12 wires)	 Parallel Star (12 wires only)	 Delta (*) (6 or 12 wires)
380 - 400 - 415 V	190 - 200 - 208 V	220 - 230 - 240 V

(*) LSA 50.2 not possible



8.3 - Winding 6 standard

Excitation					kVA @ 190V, 220V, 380V				kVA @ 200V, 230V, 400V				kVA @ 208V, 240V, 415V			
					40 °C cont.		40 °C St.by	27 °C St.by	40 °C cont.		40 °C St.by	27 °C St.by	40 °C cont.		40 °C St.by	27 °C St.by
TYPE	SHUNT	AREP	PMG	wires	H:125 K	F:105 K	H: 150 K	H: 163 K	H:125 K	F:105 K	H: 150 K	H: 163 K	H:125 K	F:105 K	H: 150 K	H: 163 K

OPTION: 12 wires

LSA 49.3 M6	-	C6/4	Option	12	730	660	780	810	730	660	780	810	730	660	780	810
LSA 49.3 M8	-	C6/4	Option	12	820	760	910	945	820	760	910	945	820	760	910	945
LSA 49.3 L9	-	C6/4	Option	12	910	820	1000	1020	910	820	1000	1020	910	820	1000	1020
LSA 49.3 L10	-	C6/4	Option	12	1000	900	1085	1130	1000	900	1085	1130	1000	900	1085	1130
LSA 50.2 M6	-	C6/4	Option	12	1045	940	1045	1045	1100	990	1100	1100	1140	1026	1140	1140
LSA 50.2 L8	-	C6/4	Option	12	1250	1125	1250	1250	1300	1170	1300	1300	1350	1215	1350	1350

1500 R.P.M. - P.F. 0.8

 Star (6 or 12 wires)	 Parallel Star (12 wires only)
440 V (maximum voltage)	220 V (maximum voltage)

8.4 - Winding 6 standard

Excitation					kVA @ 220V, 440V ⁽¹⁾			
					40 °C cont.		40 °C St.by	27 °C St.by
TYPE	SHUNT	AREP	PMG	wires	H: 125 K	F: 105 K	H: 150 K	H: 163 K




OPTION: 12 wires

LSA 49.3 M6	-	C6/4	Option	12	665	600	730	765
LSA 49.3 M8	-	C6/4	Option	12	810	710	885	925
LSA 49.3 L9	-	C6/4	Option	12	820	740	920	965
LSA 49.3 L10	-	C6/4	Option	12	950	840	1030	1080
LSA 50.2 M6	-	C6/4	Option	12	1210	1089	1210	1210
LSA 50.2 L8	-	C6/4	Option	12	1430	1287	1430	1430

(1) Use winding 7 for parallel operation with the main

50 Hz - 3-phase

1500 R.P.M. - P.F. 0.8

 Star (6 or 12 wires)	 Parallel Star (12 wires only)	 Delta (6 or 12 wires)
415 - 440 V	208 - 220 V	240 - 254 V

The connections "A" and "F" are not available for LSA 52.3, LSA 53.2 & LSA 54.2


8.5 - Winding 7 specific

Excitation						kVA @ 208V, 240V, 415V				kVA @ 220V, 254V, 440V			
						40 °C cont.		40 °C St.by	27 °C St.by	40 °C cont.		40 °C St.by	27 °C St.by
TYPE	SHUNT	AREP	PMG	wires	H:125 K	F:105 K	H: 150 K	H: 163 K	H:125 K	F:105 K	H: 150 K	H: 163 K	
LSA 40 VS1	*	J7/4	C7/4	-	12	10	9	10.6	11	10	9	10.6	11
LSA 40 VS2		J7/4	C7/4	-	12	12.5	11.4	13.5	14	12.5	11.4	13.5	14
LSA 40 S3		J7/4	C7/4	-	12	15	13.7	16	16.5	15	13.7	16	16.5
LSA 40 S4		J7/4	C7/4	-	12	17.5	16	18.6	19.5	17.5	16	18.6	19.5
LSA 40 M5		J7/4	C7/4	-	12	20	18.2	21.2	22	20	18.2	21.2	22
LSA 42.3 VS1		J7/4	C7/4	Option	12	25	23	26.5	27.5	25	23	26.5	27.5
LSA 42.3 VS2		J7/4	C7/4	Option	12	27	24.5	28.5	29.5	27	24.5	28.5	29.5
LSA 42.3 VS3		J7/4	C7/4	Option	12	30.5	28	32.5	33.5	32	29	34	35
LSA 42.3 S4		J7/4	C7/4	Option	12	33.5	30.5	35.5	37	35	32	37	38.5
LSA 42.3 S5		J7/4	C7/4	Option	12	38	34.5	40.5	42	40	36.5	42.5	44
LSA 42.3 M7		J7/4	C7/4	Option	12	43	39	45.5	47.5	45	41	47.5	49.5
LSA 42.3 M8		J7/4	C7/4	Option	12	47.5	43	50	52	50	45.5	53	55
LSA 42.3 L9		J7/4	C7/4	Option	12	57	52	60	63	60	55	64	66
LSA 44.3 S2		J7/4	C7/4	Option	12	70	64	74	77	70	64	74	77
LSA 44.3 S3		J7/4	C7/4	Option	12	80	73	85	88	80	73	85	88
LSA 44.3 S4	*	J7/4	C7/4	Option	12	90	82	95	99	90	82	95	99
LSA 44.3 S5	*	J7/4	C7/4	Option	12	100	91	106	110	100	91	106	110
LSA 44.3 M6		J7/4	C7/4	Option	12	121	110	128	133	125	114	133	138
LSA 44.3 M8	*	J7/4	C7/4	Option	12	134	122	142	147	135	123	143	149
LSA 44.3 L10		J7/4	C7/4	Option	12	149	136	158	164	150	137	159	165
LSA 44.3 L12		J7/4	C7/4	Option	12	160	146	170	176	165	150	175	182
LSA 44.3 VL13	*	J7/4	C7/4	Option	12	169	154	179	186	180	164	191	198
LSA 44.3 VL14	*	J7/4	C7/4	Option	12	178	162	189	196	192	175	204	211
LSA 46.3 S4	*	J7/4	C7/4	Option	12	215	196	228	237	225	205	239	248
LSA 46.3 S5	*	J7/4	C7/4	Option	12	230	209	244	253	240	218	254	264
LSA 46.3 M7		J7/4	C7/4	Option	12	245	223	260	270	260	237	276	286
LSA 46.3 M8		J7/4	C7/4	Option	12	265	241	281	292	280	255	297	308
LSA 46.3 L10	*	J7/4	C7/4	Option	12	285	259	302	314	300	273	318	330
LSA 46.3 L11	*	J7/4	C7/4	Option	12	310	282	329	341	325	296	345	358
LSA 47.3 S4		-	C7+I/4	Option	12	384	349	407	422	410	373	435	451
LSA 47.3 S5		-	-	-	-	-	-	-	-	-	-	-	-
LSA 47.3 M7		-	-	-	-	-	-	-	-	-	-	-	-
LSA 47.3 M8		-	-	-	-	-	-	-	-	-	-	-	-
LSA 47.3 L9		-	-	-	-	-	-	-	-	-	-	-	-
LSA 47.3 L10		-	-	-	-	-	-	-	-	-	-	-	-
LSA 49.3 S4		-	C7S/4	Option	6	600	546	636	660	620	564	657	682
LSA 49.3 M6		-	C7S/4	Option	6	730	664	774	803	730	664	774	803
LSA 49.3 M8		-	C7S/4	Option	6	785	714	832	864	820	746	869	902
LSA 49.3 L9		-	C7S/4	Option	6	850	774	901	935	910	828	965	1001
LSA 49.3 L10		-	C7S/4	Option	6	900	819	954	990	960	874	1018	1056
LSA 50.2 S4		-	C7S/4	Option	6	960	864	1008	1056	1010	910	1060	1110
LSA 50.2 M6		-	C7+S/4	Option	6	1120	1008	1176	1235	1150	1035	1207	1265
LSA 50.2 L7		-	C7S/4	Option	6	1325	1193	1391	1460	1325	1193	1391	1460
LSA 50.2 L8	**	-	C7S/4	Option	6	1370	1233	1440	1510	1370	1233	1440	1510
LSA 50.2 VL10		-	C7S/4	Option	6	1520	1368	1596	1672	1520	1368	1596	1672
LSA 52.3 S6		-	C7S/4	Option	6	-	-	-	-	1860	1696	1953	2046
LSA 52.3 S7		-	C7S/4	Option	6	-	-	-	-	2000	1823	2100	2200
LSA 52.3 L9		-	C7S/4	Option	6	-	-	-	-	2100	1914	2205	2310
LSA 52.3 L12		-	C7S/4	Option	6	-	-	-	-	2200	2006	2310	2420
LSA 53.2 M7		-	C7S/4	Option	6	-	-	-	-	2500	2279	2625	2750
LSA 53.2 M9		-	C7S/4	Option	6	-	-	-	-	2750	2507	2888	3025
LSA 53.2 M12		-	C7S/4	Option	6	-	-	-	-	3000	2735	3150	3300
LSA 54.2 M10		-	C7S/4	Option	6	-	-	-	-	3100	2826	3255	3410
LSA 54.2 L14		-	C7S/4	Option	6	-	-	-	-	4100	3738	4305	4510

* Paralleling with the grid or between alternators, select the 6 wires configuration.

** Paralleling with the grid or between alternators, contact us.

50 Hz - 3-phase
1500 R.P.M. - P.F. 0.8

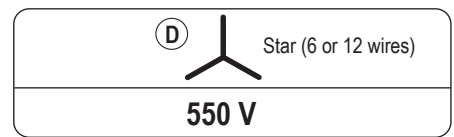

Star (6 or 12 wires)
500 - 525 V

8.6 - Winding 9 specific

Excitation						kVA @ 500V				kVA @ 525V			
						40 °C cont.		40 °C St.by	27 °C St.by	40 °C cont.		40 °C St.by	27 °C St.by
TYPE	SHUNT	AREP	PMG	wires	H :125 K	F :105 K	H : 150 K	H : 163 K	H :125 K	F :105 K	H : 150 K	H : 163 K	
LSA 40 VS1	-	C9/4	-	12	10	9	10.5	11	10	9	10.5	11	
LSA 40 VS2	-	C9/4	-	12	12.5	11.5	13.5	14	12.5	11.5	13.5	14	
LSA 40 S3	-	C9/4	-	12	15	14	16	16.5	15	14	16	16.5	
LSA 40 S4	-	C9/4	-	12	17.5	16	18.5	19.5	17.5	16	18.5	19.5	
LSA 40 M5	*	C9/4	-	12	20	18	21	22	20	18	21	22	
LSA 42.3 VS1	-	C9/4	Option	12	25	23	26.5	27.5	25	23	26.5	27.5	
LSA 42.3 VS2	-	C9/4	Option	12	27	24.5	28.5	29.5	27	24.5	28.5	29.5	
LSA 42.3 VS3	-	C9/4	Option	12	32	29	34	35	30.5	28	32.5	33.5	
LSA 42.3 S4	-	C9/4	Option	12	35	32	37	38.5	33.5	30.5	35.5	37	
LSA 42.3 S5	-	C9/4	Option	12	40	36.5	42.5	44	38	34.5	40.5	42	
LSA 42.3 M7	-	C9/4	Option	12	45	41	47.5	49.5	43	39	45.5	47.5	
LSA 42.3 M8	-	C9/4	Option	12	50	45.5	53	55	47.5	43	50	52	
LSA 42.3 L9	-	C9/4	Option	12	60	55	64	66	57	52	60	63	
LSA 44.3 S2	*	C9/4	Option	12	70	64	74	77	70	64	74	77	
LSA 44.3 S3	*	C9/4	Option	12	80	73	85	88	80	73	85	88	
LSA 44.3 S4	*	C9/4	Option	12	90	82	95	99	90	82	95	99	
LSA 44.3 S5	*	C9/4	Option	12	100	91	106	110	100	91	106	110	
LSA 44.3 M6	-	C9/4	Option	12	125	114	133	138	125	114	133	138	
LSA 44.3 M8	-	C9/4	Option	12	135	123	143	149	135	123	143	149	
LSA 44.3 L10	*	C9/4	Option	12	150	137	159	165	150	137	159	165	
LSA 44.3 L12	*	C9/4	Option	12	160	146	170	176	160	146	170	176	
LSA 44.3 VL13	-	C9+/4	Option	12	180	164	191	198	180	164	191	198	
LSA 44.3 VL14	-	C9+/4	Option	12	185	168	196	204	196	178	208	216	
LSA 46.3 S4	-	C9S/4	Option	6	225	205	239	248	235	214	249	259	
LSA 46.3 S5	-	C9S/4	Option	6	235	214	249	259	245	223	260	270	
LSA 46.3 M7	-	C9/4	Option	12	275	250	292	303	275	250	292	303	
LSA 46.3 M8	-	C9/4	Option	12	300	273	318	330	300	273	318	330	
LSA 46.3 L10	-	C9S/4	Option	6	320	291	339	352	325	296	345	358	
LSA 46.3 L11	-	C9S/4	Option	6	355	323	376	391	365	332	387	402	
LSA 47.3 S4	-	C9T/4	Option	12	410	373	435	451	410	373	435	451	
LSA 47.3 S5	*	C9/4	Option	12	450	410	477	495	455	414	482	501	
LSA 47.3 M7	*	C9T/4	Option	12	500	455	530	550	500	455	530	550	
LSA 47.3 M8	*	C9T/4	Option	12	547	498	580	602	550	501	583	605	
LSA 47.3 L9	-	C9+/4	Option	12	600	546	636	660	600	546	636	660	
LSA 47.3 L10	-	C9+/4	Option	12	625	569	663	688	660	601	700	726	
LSA 49.3 M6	-	C9S/4	Option	6	730	664	774	803	730	664	774	803	
LSA 49.3 M8	-	C9S/4	Option	6	770	701	816	847	775	705	822	853	
LSA 49.3 L9	-	C9S/4	Option	6	850	774	901	935	850	774	901	935	
LSA 49.3 L10	-	C9S/4	Option	6	910	828	965	1001	910	828	965	1001	
LSA 50.2 M6	-	C9TS/4	Option	6	1100	990	1144	1210	1100	990	1144	1210	
LSA 50.2 L7	-	C9+S/4	Option	6	1150	1035	1210	1265	1240	1115	1305	1364	
LSA 50.2 L8	-	C9S/4	Option	6	1335	1200	1400	1465	1380	1245	1450	1520	
LSA 50.2 VL10	**	C9S/4	Option	6	1500	1350	1575	1650	1545	1390	1625	1700	
LSA 52.3 S6	-	C9S/4	Option	6	1750	1596	1838	1925	1750	1596	1838	1925	
LSA 52.3 S7	-	C9S/4	Option	6	1925	1756	2021	2118	1925	1756	2021	2118	
LSA 52.3 L9	-	C9S/4	Option	6	2000	1824	2100	2200	2000	1824	2100	2200	
LSA 52.3 L12	-	C9S/4	Option	6	2100	1915	2205	2310	2100	1915	2205	2310	
LSA 52.3 UL16	-	C9S/4	Option	6	2700	2462	2835	2970	2700	2462	2835	2970	
LSA 53.2 M12	-	C9S/4	Option	6	2900	2644	3045	3190	2900	2644	3045	3190	
LSA 54.2 M10	-	C9S/4	Option	6	3000	2735	3150	3300	3000	2735	3150	3300	
LSA 54.2 L14	-	C9S/4	Option	6	3600	3282	3780	3960	3600	3282	3780	3960	

* Paralleling with the grid or between alternators, select the 6 wires configuration.
 ** Paralleling with the grid or between alternators, contact us.

50 Hz - 3-phase
1500 R.P.M. - P.F. 0.8

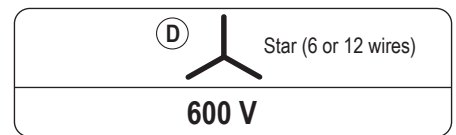


8.7 - Winding 22 or 23 specific

Excitation						kVA @ 550V			
						40 °C cont.		40 °C St.by	27 °C St.by
TYPE	SHUNT	AREP	PMG	wires	H : 125 K	F : 105 K	H : 150 K	H : 163 K	
LSA 42.3 VS1	-	C22T/4	Option	12	21.5	19.5	23	23.5	
LSA 42.3 VS2	-	C22T/4	Option	12	23	21	24.5	25.5	
LSA 42.3 VS3	-	C22T/4	Option	12	27	24.5	28.5	29.5	
LSA 42.3 S4	-	C22T/4	Option	12	30	27.5	32	33	
LSA 42.3 S5	-	C22T/4	Option	12	34	31	36	37.5	
LSA 42.3 M7	-	C22T/4	Option	12	38.5	35	41	42.5	
LSA 42.3 M8	-	C22T/4	Option	12	42.5	38.5	45	47	
LSA 42.3 L9	-	C22T/4	Option	12	51	46.5	54	56	
LSA 44.3 S2	-	C22TS/4	Option	6	67	61	71	74	
LSA 44.3 S3	-	C22TS/4	Option	6	76	69	81	84	
LSA 44.3 S4	-	C22T/4	Option	12	85	77	90	94	
LSA 44.3 S5	-	C22T/4	Option	12	94	86	100	103	
LSA 44.3 M6	-	C22T/4	Option	12	105	96	111	116	
LSA 44.3 M8	-	C22TS/4	Option	6	110	100	117	121	
LSA 44.3 L10	-	C22T/4	Option	12	128	116	136	141	
LSA 44.3 L12	-	C22T/4	Option	12	140	127	148	154	
LSA 44.3 VL13	-	C22T/4	Option	12	155	141	164	171	
LSA 44.3 VL14	-	C22T/4	Option	12	178	162	189	196	
LSA 46.3 S4	-	C22T/4	Option	12	210	191	223	231	
LSA 46.3 S5	-	C22T/4	Option	12	224	204	237	246	
LSA 46.3 M7	-	C22TS/4	Option	6	230	209	244	253	
LSA 46.3 M8	-	C22TS/4	Option	6	250	228	265	275	
LSA 46.3 L10	-	C22T/4	Option	12	260	237	276	286	
LSA 46.3 L11	-	C22T/4	Option	12	290	264	307	319	
LSA 47.3 S4	*	C22T/4	Option	12	380	346	403	418	
LSA 47.3 S5	-	C23/4	Option	12	400	364	424	440	
LSA 47.3 M7	-	C23/4	Option	12	425	387	451	468	
LSA 47.3 M8	-	C23/4	Option	12	450	410	477	495	
LSA 47.3 L9	-	C22T/4	Option	12	500	455	530	550	
LSA 47.3 L10	-	C22T/4	Option	12	596	542	632	656	
LSA 49.3 M6	-	C22TS/4	Option	6	650	592	689	715	
LSA 49.3 M8	-	C22TS/4	Option	6	720	655	763	792	
LSA 49.3 L9	-	C22TS/4	Option	6	860	783	912	946	
LSA 50.2 S4	-	C22S/4	Option	6	950	855	1000	1045	
LSA 50.2 M6	-	C22S/4	Option	6	1080	975	1135	1190	
LSA 50.2 L8	-	C23S/4	Option	6	1230	1110	1290	1355	
LSA 50.2 VL10	-	C22S/4	Option	6	1410	1270	1480	1550	

* Paralleling with the grid or between alternators, select the 6 wires configuration.

50 Hz - 3-phase
1500 R.P.M. - P.F. 0.8



8.8 - Winding 22 or 23 specific

Excitation						kVA @ 600V			
						40 °C cont.		40 °C St.by	27 °C St.by
TYPE	SHUNT	AREP	PMG	wires	H : 125 K	F : 105 K	H : 150 K	H : 163 K	
LSA 42.3 VS1	-	C23/4	Option	12	21.5	19.5	23	23.5	
LSA 42.3 VS2	-	C23/4	Option	12	23	21	24.5	25.5	
LSA 42.3 VS3	-	C23/4	Option	12	27	24.5	28.5	29.5	
LSA 42.3 S4	-	C23/4	Option	12	30	27.5	32	33	
LSA 42.3 S5	-	C23/4	Option	12	34	31	36	37.5	
LSA 42.3 M7	-	C23/4	Option	12	38.5	35	41	42.5	
LSA 42.3 M8	-	C23/4	Option	12	42.5	38.5	45	47	
LSA 42.3 L9	-	C23/4	Option	12	51	46.5	54	56	
LSA 44.3 S2	-	C23/4	Option	12	70	64	74	77	
LSA 44.3 S3	-	C23/4	Option	12	77	70	82	85	
LSA 44.3 S4	*	-	C23/4	Option	12	82	87	90	
LSA 44.3 S5	*	-	C23/4	Option	12	91	96	100	
LSA 44.3 M6	-	C23/4	Option	12	100	91	106	110	
LSA 44.3 M8	-	C23/4	Option	12	115	105	122	127	
LSA 44.3 L10	*	-	C23/4	Option	12	120	127	132	
LSA 44.3 L12	*	-	C23/4	Option	12	130	138	143	
LSA 44.3 VL13	-	C23S/4	Option	6	168	153	178	185	
LSA 44.3 VL14	-	C23S/4	Option	6	178	162	189	196	
LSA 46.3 S4	-	C23S/4	Option	6	205	187	217	226	
LSA 46.3 S5	-	C23S/4	Option	6	215	196	228	237	
LSA 46.3 M7	-	C23S/4	Option	6	225	205	239	248	
LSA 46.3 M8	-	C23S/4	Option	6	240	218	254	264	
LSA 46.3 L10	-	C23/4	Option	12	280	255	297	308	
LSA 46.3 L11	-	C23/4	Option	12	315	287	334	347	
LSA 47.3 S4	*	-	C22T/4	Option	12	400	424	440	
LSA 47.3 S5	-	C23/4	Option	12	425	387	451	468	
LSA 47.3 M7	-	C23/4	Option	12	450	410	477	495	
LSA 47.3 M8	-	C23/4	Option	12	475	432	504	523	
LSA 47.3 L10	-	C22T/4	Option	12	512	466	543	563	
LSA 49.3 S4	-	C23S/4	Option	6	585	532	620	644	
LSA 49.3 M6	-	C23S/4	Option	6	700	637	742	770	
LSA 49.3 M8	-	C23S/4	Option	6	750	683	795	825	
LSA 49.3 L9	-	C23S/4	Option	6	800	728	848	880	
LSA 49.3 L10	-	C23S/4	Option	6	870	792	922	957	
LSA 50.2 S4	-	C23S/4	Option	6	980	880	1030	1080	
LSA 50.2 M6	-	C23S/4	Option	6	1140	1026	1197	1254	
LSA 50.2 L7	-	C23S/4	Option	6	1210	1089	1271	1331	
LSA 50.2 L8	-	C23S/4	Option	6	1350	1215	1418	1485	
LSA 50.2 VL10	-	C22S/4	Option	6	1500	1350	1575	1650	
LSA 52.3 S6	-	C23S/4	Option	6	1700	1550	1785	1870	
LSA 52.3 S7	-	C23S/4	Option	6	1900	1733	1995	2090	
LSA 52.3 L9	-	C23S/4	Option	6	2000	1824	2100	2200	
LSA 52.3 L12	-	C23S/4	Option	6	2150	1961	2258	2365	
LSA 53.2 M9	-	C23S/4	Option	6	2450	2234	2573	2695	
LSA 53.2 M11	-	C23S/4	Option	6	2750	2508	2888	3025	
LSA 54.2 M10	-	C23S/4	Option	6	3100	2826	3255	3410	
LSA 54.2 L14	-	C23S/4	Option	6	3500	3191	3675	3850	

* Paralleling with the grid or between alternators, select the 6 wires configuration.

50 Hz - 3-phase
1500 R.P.M. - P.F. 0.8







8.9 - Winding 10 or 52 specific

Excitation						kVA @ 660V				kVA @ 690V			
						40 °C cont.		40 °C St.by	27 °C St.by	40 °C cont.		40 °C St.by	27 °C St.by
TYPE	SHUNT	AREP	PMG	wires	H:125 K	F:105 K	H: 150 K	H: 163 K	H:125 K	F:105 K	H: 150 K	H: 163 K	
LSA 42.3 VS1	-	C10/4	Option	12	21.5	19.5	23	23.5	21.5	19.5	23	23.5	
LSA 42.3 VS2	-	C10/4	Option	12	23	21	24.5	25.5	23	21	24.5	25.5	
LSA 42.3 VS3	-	C10/4	Option	12	27	24.5	28.5	29.5	27	24.5	28.5	29.5	
LSA 42.3 S4	-	C10/4	Option	12	30	27.5	32	33	30	27.5	32	33	
LSA 42.3 S5	-	C10/4	Option	12	34	31	36	37.5	34	31	36	37.5	
LSA 42.3 M7	-	C10/4	Option	12	38.5	35	41	42.5	38.5	35	41	42.5	
LSA 42.3 M8	-	C10/4	Option	12	42.5	38.5	45	47	42.5	38.5	45	47	
LSA 42.3 L9	-	C10/4	Option	12	51	46.5	54	56	51	46.5	54	56	
LSA 44.3 S2	-	C10/4	Option	12	70	64	74	77	70	64	74	77	
LSA 44.3 S3	-	C10/4	Option	12	80	73	85	88	80	73	85	88	
LSA 44.3 S4	-	C52/4	Option	12	85	77	90	94	85	77	90	94	
LSA 44.3 S5	-	C52/4	Option	12	90	82	95	99	92	84	98	101	
LSA 44.3 M6	-	C52/4	Option	12	95	86	101	105	100	91	106	110	
LSA 44.3 M8	-	C52/4	Option	12	111	101	118	122	115	105	122	127	
LSA 44.3 L10	-	C52/4	Option	12	127	116	135	140	132	120	140	145	
LSA 44.3 L12	-	C52/4	Option	12	135	123	143	149	145	132	154	160	
LSA 44.3 VL13	-	C10/4	Option	12	157	143	166	173	168	153	178	185	
LSA 44.3 VL14	-	C10/4	Option	12	166	151	176	183	178	162	189	196	
LSA 46.3 S4	-	C10/4	Option	12	208	189	220	229	215	196	228	237	
LSA 46.3 S5	-	C10/4	Option	12	220	200	233	242	228	207	242	251	
LSA 46.3 M7	-	C10/4	Option	12	244	222	259	268	253	230	268	278	
LSA 46.3 M8	-	C10/4	Option	12	265	241	281	292	275	250	292	303	
LSA 46.3 L10	-	C52S/4	Option	6	275	250	292	303	285	259	302	314	
LSA 46.3 L11	-	C52S/4	Option	6	295	268	313	325	305	278	323	336	
LSA 47.3 S4	-	C52T/4	Option	12	350	319	371	385	350	319	371	385	
LSA 47.3 S5	*	-	C52/4	Option	12	400	364	424	440	400	364	424	440
LSA 47.3 M7	*	-	C52/4	Option	12	425	387	451	468	450	410	477	495
LSA 47.3 M8	*	-	C52/4	Option	12	450	410	477	495	475	432	504	523
LSA 47.3 L9	*	-	C10/4	Option	12	500	455	530	550	550	501	583	605
LSA 47.3 L10	*	-	C10/4	Option	12	550	501	583	605	595	541	631	655
LSA 49.3 S4	-	C10S/4	Option	6	600	546	636	660	625	569	663	688	
LSA 49.3 M6	-	C10S/4	Option	6	650	592	689	715	680	619	721	748	
LSA 49.3 M8	-	C10S/4	Option	6	700	637	742	770	730	664	774	803	
LSA 49.3 L9	-	C10S/4	Option	6	775	705	822	853	800	728	848	880	
LSA 49.3 L10	-	C10S/4	Option	6	825	751	875	908	850	774	901	935	
LSA 50.2 S4	-	C52S/4	Option	6	935	845	985	1030	980	880	1030	1080	
LSA 50.2 M6	-	C52S/4	Option	6	1056	950	1110	1160	1100	990	1155	1210	
LSA 50.2 L7	-	C52S/4	Option	6	1165	1045	1220	1280	1210	1040	1270	1330	
LSA 50.2 L8	-	C52S/4	Option	6	1265	1145	1325	1390	1340	1210	1405	1475	
LSA 50.2 VL10	-	C52S/4	Option	6	1420	1280	1490	1555	1500	1350	1575	1650	
LSA 52.3 S6	-	C52S/4	Option	6	1825	1664	1916	2008	1825	1664	1916	2008	
LSA 52.3 S7	-	C52S/4	Option	6	2180	1988	2289	2398	2180	1988	2289	2398	
LSA 52.3 L9	-	C52S/4	Option	6	2290	2088	2405	2519	2290	2088	2405	2519	
LSA 52.3 L12	-	C52S/4	Option	6	2420	2207	2541	2662	2420	2207	2541	2662	
LSA 52.3 UL16	-	C52S/4	Option	6	2500	2280	2625	2750	2500	2280	2625	2750	
LSA 53.2 M9	-	C52S/4	Option	6	2600	2371	2730	2860	2600	2371	2730	2860	
LSA 53.2 M11	-	C52S/4	Option	6	2880	2627	3024	3168	2880	2627	3024	3168	
LSA 54.2 M11	-	C52S/4	Option	6	3050	2782	3203	3355	3050	2782	3203	3355	
LSA 54.2 L14	-	C52S/4	Option	6	3400	3101	3570	3740	3400	3101	3570	3740	

* Paralleling with the grid or between alternators, select the 6 wires configuration.

50 Hz - 1-phase

1500 R.P.M. - P.F. 0.8



  double Delta (12 wires)	  open Delta (12 wires)
220 - 240 V	220 - 240 V

8.10 - Winding 6 standard

Excitation					kVA @ 220V - 240V			
					40 °C cont.		40 °C St.by	27 °C St.by
TYPE	SHUNT	AREP	PMG	wires	H : 125 K	F : 105 K	H : 150 K	H : 163 K
LSA 40 VS1	J6/4	C6/4	-	12	7	6.5	7.5	8
LSA 40 VS2	J6/4	C6/4	-	12	9	8	9.5	10
LSA 40 S3	J6/4	C6/4	-	12	10.5	10	11.5	12
LSA 40 S4	J6/4	C6/4	-	12	12.5	11.5	13.5	14
LSA 40 M5	J6/4	C6/4	-	12	14	13	15	15.5
LSA 42.3 VS1	J6/4	C6/4	Option	12	15	13.5	16	16.5
LSA 42.3 VS2	J6/4	C6/4	Option	12	16	14.5	17	17.5
LSA 42.3 VS3	J6/4	C6/4	Option	12	19	17.5	20	21
LSA 42.3 S4	J6/4	C6/4	Option	12	22	20	23.5	24
LSA 42.3 S5	J6/4	C6/4	Option	12	25	23	26.5	27.5
LSA 42.3 M7	J6/4	C6/4	Option	12	27	24.5	28.5	29.5
LSA 42.3 M8	J6/4	C6/4	Option	12	30	27.5	32	33
LSA 42.3 L9	J6/4	C6/4	Option	12	36	33	38	39.5
LSA 44.3 S2	J6/4	C6/4	Option	12	42	38	45	46
LSA 44.3 S3	J6/4	C6/4	Option	12	48	44	51	53
LSA 44.3 S4	J6/4	C6/4	Option	12	54	49	57	59
LSA 44.3 S5	J6/4	C6/4	Option	12	60	55	64	66
LSA 44.3 M6	J6/4	C6/4	Option	12	67	61	71	74
LSA 44.3 M8	J6/4	C6/4	Option	12	73	66	77	80
LSA 44.3 L10	J6/4	C6/4	Option	12	80	73	85	88
LSA 44.3 L12	J6/4	C6/4	Option	12	88	80	93	97
LSA 44.3 VL13	J6/4	C6/4	Option	12	90	82	95	99
LSA 44.3 VL14	J6/4	C6/4	Option	12	100	91	106	110
LSA 46.3 S4	J6/4	C6/4	Option	12	138	126	146	152
LSA 46.3 S5	J6/4	C6/4	Option	12	150	137	159	165
LSA 46.3 M7	J6/4	C6/4	Option	12	165	150	175	182
LSA 46.3 M8	J6/4	C6/4	Option	12	180	164	191	200
LSA 46.3 L10	J6/4	C6/4	Option	12	195	177	207	215
LSA 46.3 L11	J6/4	C6/4	Option	12	210	191	225	231

50 Hz - Dedicated 1-phase

1500 R.P.M. - P.F. 1

 SE series (4 wires)	 PA parallel (*) (4 wires)
220 - 240 V	110 - 120 V

(*) LSA 44.3 not possible



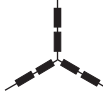

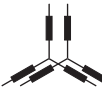


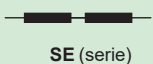

8.11 - Dedicated winding M

Excitation					kVA @ 110V - 120V, 220V - 240V			
					40 °C cont.		40 °C St.by	27 °C St.by
TYPE	SHUNT	AREP	PMG	wires	H : 125 K	F : 105 K	H : 150 K	H : 163 K
LSA 40 VS1	JM/4	-	-	4	10.5	9.5	11	11.4
LSA 40 VS2	JM/4	-	-	4	12	11	12.7	13.2
LSA 40 S3	JM/4	-	-	4	13.2	12	14	14.5
LSA 40 S4	JM/4	-	-	4	14.5	13.2	15.4	16
LSA 40 M5	JM/4	-	-	4	16	14.6	17	17.6
LSA 42.3 VS1	JM/4	-	-	4	18.2	16.6	19.3	20
LSA 42.3 VS2	JM/4	-	-	4	20.3	18.5	21.5	22.3
LSA 42.3 VS3	JM/4	-	-	4	22.4	20.4	23.7	24.6
LSA 42.3 S4	JM/4	-	-	4	25	22.8	26.5	27.5
LSA 42.3 S5	JM/4	-	-	4	28	25.5	29.7	30.8
LSA 42.3 M7	JM/4	-	-	4	31.5	28.7	33.4	34.7
LSA 42.3 M8	JM/4	-	-	4	35	31.9	37.1	38.5
LSA 42.3 L9	JM/4	-	-	4	42	38.2	44.5	46.2
LSA 44.3 S3	JM/4	-	-	4	57	51	60	63
LSA 44.3 S5	JM/4	-	-	4	69	62	73	76
LSA 44.3 M8	JM/4	-	-	4	82	74	87	90

kVA at P.F. 0.8 = kVA/kW at P.F. 1 x 0.85




Voltage reconnections

9 - RECONNECTIONS 60 Hz

4 POLES - 1800 R.P.M.							
Phase - Code	3-ph - D	3-ph - F	3-ph - D	3-ph - F	3-ph - A	1-ph - FF	1-ph - G
Connections							
	star	delta	star	delta	parallel star	double delta	open delta
Number of wires	6	6	12	12	12	12	12
Winding 6 standard	380 - 480 V (pages 17 to 19)	220 - 277 V (pages 17 to 19)	380 - 480 V (pages 17 to 19)	220 - 277 V (pages 17 to 19)	190 - 240 V (pages 17 to 19)	220 - 240 V (page 23)	220 - 240 V (page 23)
Winding 8 specific (on request)	380 - 416 V (page 20)	220 - 240 V (page 20)	380 - 416 V (page 20)	220 - 240 V (page 20)	190 - 208 V (page 20)	220 - 240 V (consult factory)	220 - 240 V (consult factory)
Winding 9 specific (on request)	600 V (page 21)	347 V (page 21)	600 V (page 21)	347 V (page 21)	-	-	-
Winding 22 or 23 specific (on request)	660 - 690 V (page 22)	-	660 - 690 V (page 22)	-	-	-	-
Winding M or M1 specific, dedicated 1-phase 4 wires (on request)			 230 - 240 V (page 23) SE (serie)		 115 - 120 V (page 23) PA (parallel)		

60 Hz - 3-phase

1800 R.P.M. - P.F. 0.8

 Star (6 or 12 wires)	 Parallel Star (12 wires only)	 Delta (6 or 12 wires)
380 - 416 V	190 - 208 V	220 - 240 V

9.1 - Winding 6 standard




Excitation						kVA @ 190V, 220V, 380V ⁽¹⁾				kVA @ 208V, 240V, 416V ⁽¹⁾			
						40 °C cont.		40 °C St.by	27 °C St.by	40 °C cont.		40 °C St.by	27 °C St.by
TYPE	SHUNT	AREP	PMG	wires	H:125 K	F:105 K	H: 150 K	H: 163 K	H:125 K	F:105 K	H: 150 K	H: 163 K	
LSA 40 VS1	J6/4	C6/4	-	12	10	9.5	11	11.5	11	10.5	11.5	12	
LSA 40 VS2	J6/4	C6/4	-	12	12.5	11.5	13.5	14	13.5	12.5	14.5	15	
LSA 40 S3	J6/4	C6/4	-	12	15	14	16	17	16.5	15.5	18	18.5	
LSA 40 S4	J6/4	C6/4	-	12	17.5	16.5	19	19.5	19	18	20.5	21	
LSA 40 M5	J6/4	C6/4	-	12	20	18.5	21.5	22	22	20.5	23.5	24.5	
LSA 42.3 VS1	J6/4	C6/4	Option	12	29	26.5	30.5	32	31.5	28.5	33.5	34.5	
LSA 42.3 VS2	J6/4	C6/4	Option	12	30	27.5	32	33	32	29	34	35	
LSA 42.3 VS3	J6/4	C6/4	Option	12	34.5	31.5	36.5	38	38	34.5	40.5	42	
LSA 42.3 S4	J6/4	C6/4	Option	12	37.5	34	40	41.5	40.5	37	43	44.5	
LSA 42.3 S5	J6/4	C6/4	Option	12	42	38	44.5	46	46	42	49	51	
LSA 42.3 M7	J6/4	C6/4	Option	12	46	42	49	51	50	45.5	53	55	
LSA 42.3 M8	J6/4	C6/4	Option	12	51.5	47	55	57	56.5	51	60	62.5	
LSA 42.3 L9	J6/4	C6/4	Option	12	59	54	63	65	65	59	69	72	
LSA 44.3 S2	J6/4	C6/4	Option	12	69	63	73	76	76	69	81	84	
LSA 44.3 S3	J6/4	C6/4	Option	12	79	72	84	87	87	79	92	96	
LSA 44.3 S4	J6/4	C6/4	Option	12	89	81	94	98	98	89	104	108	
LSA 44.3 S5	J6/4	C6/4	Option	12	99	90	105	109	108	99	114	119	
LSA 44.3 M6	* J6/4	C6/4	Option	12	124	113	131	136	135	123	143	149	
LSA 44.3 M8	J6/4	C6/4	Option	12	134	122	142	147	146	133	155	161	
LSA 44.3 L10	* J6/4	C6/4	Option	12	148	135	157	163	163	148	173	179	
LSA 44.3 L12	* J6/4	C6/4	Option	12	165	150	175	182	179	163	190	197	
LSA 44.3 VL13	J6/4	C6/4	Option	12	180	164	191	200	195	177	207	215	
LSA 44.3 VL14	J6/4	C6/4	Option	12	200	182	212	220	215	196	228	237	
LSA 46.3 S4	J6/4	C6/4	Option	12	226	206	240	250	250	227	264	274	
LSA 46.3 S5	J6/4	C6/4	Option	12	245	223	260	270	265	241	281	292	
LSA 46.3 M7	* J6/4	C6/4	Option	12	275	250	292	303	300	273	318	330	
LSA 46.3 M8	* J6/4	C6/4	Option	12	290	264	307	319	315	287	334	347	
LSA 46.3 L10	J6/4	C6/4	Option	12	315	287	334	347	345	314	366	380	
LSA 46.3 L11	J6/4	C6/4	Option	12	360	328	382	396	393	358	417	432	
LSA 47.3 S4	* J6/4	C6/4	Option	12	450	410	475	500	480	442	513	530	
LSA 47.3 S5	J6/4	C6/4	Option	12	475	441	505	527	510	473	543	562	
LSA 47.3 M7	J6/4	C6/4	Option	12	562	523	600	625	610	566	651	668	
LSA 47.3 M8	J6/4	C6/4	Option	12	562	523	600	625	610	566	651	671	
LSA 47.3 L9	* J6/4	C6/4	Option	12	602	556	643	667	661	609	707	728	
LSA 47.3 L10	* J6/4	C6/4	Option	12	650	590	690	720	715	650	760	785	
LSA 49.3 M6	-	C6S/4	Option	6	725	655	770	800	795	715	845	875	
LSA 49.3 M8	-	C6S/4	Option	6	815	735	865	895	890	805	945	980	
LSA 49.3 L9	-	C6S/4	Option	6	905	815	960	1000	990	895	1050	1090	
LSA 49.3 L10	-	C6S/4	Option	6	990	891	1049	1089	1083	975	1148	1192	
LSA 50.2 M6	-	C6S/4	Option	6	1285	1155	1350	1410	1405	1265	1475	1545	
LSA 50.2 L7	**	-	C6S/4	Option	6	1375	1240	1440	1510	1500	1350	1575	1650
LSA 50.2L8	-	C6S/4	Option	6	1485	1335	1560	1630	1625	1460	1705	1785	
LSA 50.2 VL10	-	C6S/4	Option	6	1635	1470	1715	1800	1785	1605	1875	1965	

(1) Use winding 8 for parallel operation with the main

- * Paralleling with the grid or between alternators, select the 6 wires configuration.
- ** Paralleling with the grid or between alternators, contact us.

60 Hz - 3-phase

1800 R.P.M. - P.F. 0.8

 Star (6 or 12 wires)	 Parallel Star (12 wires only)	 Delta (6 or 12 wires)
440 - 480 V	220 - 240 V	254 - 277 V

The connections "A" and "F" are not available for LSA 52.3, LSA 53.2 & LSA 54.2

9.2 - Winding 6 standard




Excitation						kVA @ 220V, 254V, 440V				kVA @ 240V, 277V, 480V			
						40 °C cont.		40 °C St.by	27 °C St.by	40 °C cont.		40 °C St.by	27 °C St.by
TYPE	SHUNT	AREP	PMG	wires	H:125 K	F:105 K	H: 150 K	H: 163 K	H:125 K	F:105 K	H: 150 K	H: 163 K	
LSA 40 VS1	J6/4	C6/4	-	12	11.5	10.5	12.5	13	12.5	11.5	13.5	14	
LSA 40 VS2	J6/4	C6/4	-	12	14.5	13.5	15.5	16	15.5	14.5	16.5	17	
LSA 40 S3	J6/4	C6/4	-	12	17.5	16.5	19	19.5	19	17.5	20	21	
LSA 40 S4	J6/4	C6/4	-	12	20	19	21.5	22	22	20.5	23.5	24.5	
LSA 40 M5	J6/4	C6/4	-	12	23	21.5	25	26	25	23	27	27.5	
LSA 42.3 VS1	J6/4	C6/4	Option	12	31.5	28.5	33.5	34.5	31.5	28.5	33.5	34.5	
LSA 42.3 VS2	J6/4	C6/4	Option	12	34	31	36	37.5	34	31	36	37.5	
LSA 42.3 VS3	J6/4	C6/4	Option	12	40	36.5	42.5	44	40	36.5	42.5	44	
LSA 42.3 S4	J6/4	C6/4	Option	12	43	39	45.5	47.5	44	40	46.5	48.5	
LSA 42.3 S5	J6/4	C6/4	Option	12	49	44.5	52	54	50	45.5	53	55	
LSA 42.3 M7	J6/4	C6/4	Option	12	53.5	48.5	57	59	56.5	51	60	62.5	
LSA 42.3 M8	J6/4	C6/4	Option	12	59.5	54	63	65.5	62.5	57	66.5	69	
LSA 42.3 L9	J6/4	C6/4	Option	12	69	63	73	76	75	68	80	82.5	
LSA 44.3 S2	J6/4	C6/4	Option	12	80	73	85	88	88	80	93	97	
LSA 44.3 S3	J6/4	C6/4	Option	12	92	84	98	101	100	91	106	110	
LSA 44.3 S4	J6/4	C6/4	Option	12	103	94	109	113	113	103	120	124	
LSA 44.3 S5	J6/4	C6/4	Option	12	115	105	122	127	125	114	133	138	
LSA 44.3 M6	* J6/4	C6/4	Option	12	143	130	152	157	156	142	165	172	
LSA 44.3 M8	J6/4	C6/4	Option	12	155	141	164	171	169	154	179	186	
LSA 44.3 L10	* J6/4	C6/4	Option	12	172	157	182	189	188	171	199	207	
LSA 44.3 L12	* J6/4	C6/4	Option	12	189	172	200	208	206	187	218	227	
LSA 44.3 VL13	J6/4	C6/4	Option	12	210	191	223	231	225	205	239	250	
LSA 44.3 VL14	J6/4	C6/4	Option	12	230	209	244	253	250	228	265	275	
LSA 46.3 S4	J6/4	C6/4	Option	12	262	238	278	288	288	262	305	316	
LSA 46.3 S5	J6/4	C6/4	Option	12	280	255	297	308	313	284	331	344	
LSA 46.3 M7	* J6/4	C6/4	Option	12	315	287	334	347	344	313	364	378	
LSA 46.3 M8	* J6/4	C6/4	Option	12	340	309	360	375	375	337	395	412	
LSA 46.3 L10	J6/4	C6/4	Option	12	365	332	387	402	406	370	431	447	
LSA 46.3 L11	J6/4	C6/4	Option	12	419	381	444	461	456	415	483	502	
LSA 47.3 S4	* J6/4	C6/4	Option	12	500	455	533	550	512	465	550	581	
LSA 47.3 S5	J6/4	C6/4	Option	12	531	493	566	585	570	520	605	625	
LSA 47.3 M7	J6/4	C6/4	Option	12	625	581	669	690	625	590	680	700	
LSA 47.3 M8	J6/4	C6/4	Option	12	630	587	672	705	690	632	730	750	
LSA 47.3 L9	* J6/4	C6/4	Option	12	685	634	734	763	750	685	795	825	
LSA 47.3 L10	* J6/4	C6/4	Option	12	755	685	800	830	825	750	875	910	
LSA 49.3 M6	-	C6S/4	Option	6	840	760	890	925	915	825	970	1005	
LSA 49.3 M8	-	C6S/4	Option	6	940	850	1000	1040	1025	925	1090	1130	
LSA 49.3 L9	-	C6S/4	Option	6	1045	940	1110	1155	1140	1025	1210	1255	
LSA 49.3 L10	-	C6S/4	Option	6	1146	1031	1215	1260	1250	1125	1325	1375	
LSA 50.2 M6	-	C6S/4	Option	6	1455	1310	1530	1600	1560	1405	1640	1720	
LSA 50.2 L7	**	-	C6S/4	Option	6	1555	1400	1630	1710	1680	1510	1765	1850
LSA 50.2 L8	-	C6S/4	Option	6	1720	1550	1805	1890	1875	1685	1965	2060	
LSA 50.2 VL10	-	C6S/4	Option	6	1860	1675	1950	2050	2000	1800	2100	2200	
LSA 52.3 S5	-	C6S/4	Option	6	2046	1866	2149	2250	2232	2036	2344	2455	
LSA 52.3 S6	-	C6S/4	Option	6	2200	2007	2310	2420	2400	2189	2520	2640	
LSA 52.3 S7	-	C6S/4	Option	6	2420	2207	2541	2662	2640	2408	2772	2904	
LSA 52.3 L9	-	C6S/4	Option	6	2596	2368	2726	2855	2832	2583	2974	3115	
LSA 52.3 L12	-	C6S/4	Option	6	2850	2599	2993	3135	3250	2964	3413	3575	
LSA 52.3 UL16	-	C6S/4	Option	6	3100	2827	3255	3410	3400	3101	3570	3740	
LSA 53.2 M9	-	C6S/4	Option	6	3300	3010	3465	3630	3600	3283	3780	3960	
LSA 53.2 M12	-	C6S/4	Option	6	3630	3311	3812	3993	3900	3557	4095	4290	
LSA 54.2 M10	-	C6S/4	Option	6	3760	3428	3948	4136	4050	3692	4253	4455	
LSA 54.2 L14	-	C6S/4	Option	6	4750	4330	4988	5225	5130	4677	5387	5643	

* Paralleling with the grid or between alternators, select the 6 wires configuration.

** Paralleling with the grid or between alternators, contact us.

60 Hz - 3-phase

1800 R.P.M. - P.F. 0.8

 Star (6 or 12 wires)	 Parallel Star (12 wires only)	 Delta (*) (6 or 12 wires)
380 - 416 V	190 - 208 V	220 - 240 V

(*) LSA 50.2 not possible

9.3 - Winding 6 standard




Excitation					kVA @ 190V, 220V, 380V (1)				kVA @ 208V, 240V, 416V (1)			
					40 °C cont.		40 °C St.by	27 °C St.by	40 °C cont.		40 °C St.by	27 °C St.by
TYPE	SHUNT	AREP	PMG	wires	H:125 K	F:105 K	H: 150 K	H: 163 K	H:125 K	F:105 K	H: 150 K	H: 163 K

OPTION: 12 wires

LSA 49.3 M6	-	C6/4	Option	12	725	655	770	800	795	715	845	875
LSA 49.3 M8	-	C6/4	Option	12	815	735	865	895	890	805	945	980
LSA 49.3 L9	-	C6/4	Option	12	905	815	960	1000	990	895	1050	1090
LSA 49.3 L10	-	C6/4	Option	12	990	891	1049	1089	1083	975	1148	1192
LSA 50.2 S4	-	C6/4	Option	12	990	891	990	990	1080	972	1080	1080
LSA 50.2 M6	-	C6/4	Option	12	1210	1089	1210	1210	1320	1188	1320	1320
LSA 50.2 L8	-	C6/4	Option	12	1430	1287	1430	1430	1565	1409	1565	1565

(1) Use winding 8 for parallel operation with the main

1800 R.P.M. - P.F. 0.8

 Star (6 or 12 wires)	 Parallel Star (12 wires only)	 Delta (*) (6 or 12 wires)
440 - 480 V	220 - 240 V	254 - 277 V

(*) LSA 50.2 not possible

9.4 - Winding 6 standard




Excitation					kVA @ 220V, 254V, 440V				kVA @ 240V, 277V, 480V			
					40 °C cont.		40 °C St.by	27 °C St.by	40 °C cont.		40 °C St.by	27 °C St.by
TYPE	SHUNT	AREP	PMG	wires	H:125 K	F:105 K	H: 150 K	H: 163 K	H:125 K	F:105 K	H: 150 K	H: 163 K

OPTION: 12 wires

LSA 49.3 M6	-	C6/4	Option	12	840	760	890	925	915	825	970	1005
LSA 49.3 M8	-	C6/4	Option	12	940	850	1000	1040	1025	925	1090	1130
LSA 49.3 L9	-	C6/4	Option	12	1045	940	1110	1155	1140	1025	1210	1255
LSA 49.3 L10	-	C6/4	Option	12	1146	1031	1215	1260	1250	1125	1325	1375
LSA 50.2 S4	-	C6/4	Option	12	1145	1030	1145	1145	1250	1125	1250	1250
LSA 50.2 M6	-	C6/4	Option	12	1400	1260	1400	1400	1525	1372	1525	1525
LSA 50.2 L8	-	C6/4	Option	12	1655	1490	1655	1655	1800	1620	1800	1800

60 Hz - 3-phase

1800 R.P.M. - P.F. 0.8

 Star (6 or 12 wires)	 Parallel Star (12 wires only)	 Delta (6 or 12 wires)
380 - 416 V	190 - 208 V	220 - 240 V

The connections "A" and "F" are not available for LSA 52.3, LSA 53.2 & LSA 54.2

9.5 - Winding 8 specific

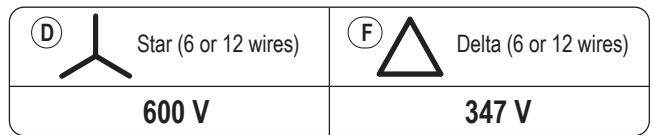
Système d'excitation						kVA @ 190V, 220V, 380V				kVA @ 208V, 240V, 416V			
						40 °C cont.		40 °C St.by	27 °C St.by	40 °C cont.		40 °C St.by	27 °C St.by
TYPE	SHUNT	AREP	PMG	wires	H:125 K	F:105 K	H: 150 K	H: 163 K	H:125 K	F:105 K	H: 150 K	H: 163 K	
LSA 40 VS1		J8/4	C8/4	-	12	11.5	10.5	12	12.7	12.5	11.5	13.5	14
LSA 40 VS2	*	J8/4	C8/4	-	12	14.5	13.2	15.5	16	15.5	14	16.5	17
LSA 40 S3	*	J8/4	C8/4	-	12	17.5	16	18.5	19.5	19	17.5	20	21
LSA 40 S4		J8/4	C8/4	-	12	20	18	21	22	22	20	23.5	24
LSA 40 M5		J8/4	C8/4	-	12	23	21	24.5	25.5	25	23	26.5	27.5
LSA 42.3 VS1		J8/4	C8/4	Option	12	30	27.5	32	33	30	27.5	32	33
LSA 42.3 VS2		J8/4	C8/4	Option	12	32	29	34	35	32	29	34	35
LSA 42.3 VS3		J8/4	C8/4	Option	12	38	34.5	40.5	42	38	34.5	40.5	42
LSA 42.3 S4		J8/4	C8/4	Option	12	41	37.5	43.5	45	41.5	38	44	45.5
LSA 42.3 S5		J8/4	C8/4	Option	12	46.5	42.5	49.5	51	47.5	43	50	52
LSA 42.3 M7		J8/4	C8/4	Option	12	51	46.5	54	56	54	49	57	59
LSA 42.3 M8		J8/4	C8/4	Option	12	56.5	51	60	62	59	54	63	65
LSA 42.3 L9		J8/4	C8/4	Option	12	65.5	60	69	72	71	65	75	78
LSA 44.3 S2		J8/4	C8/4	Option	12	80	73	85	88	88	80	93	97
LSA 44.3 S3		J8/4	C8/4	Option	12	90	82	95	99	100	91	106	110
LSA 44.3 S4	*	J8/4	C8/4	Option	12	103	94	109	113	113	103	120	124
LSA 44.3 S5	*	J8/4	C8/4	Option	12	115	105	122	127	125	114	133	138
LSA 44.3 M6		J8/4	C8/4	Option	12	140	127	148	154	159	139	162	168
LSA 44.3 M8	*	J8/4	C8/4	Option	12	155	141	164	171	169	154	179	186
LSA 44.3 L10		J8/4	C8/4	Option	12	172	157	182	189	188	171	199	207
LSA 44.3 L12		J8/4	C8/4	Option	12	185	168	196	204	200	182	212	220
LSA 44.3 VL13	*	J8/4	C8/4	Option	12	210	191	223	231	225	205	239	248
LSA 44.3 VL14	*	J8/4	C8/4	Option	12	228	207	242	251	245	223	260	270
LSA 46.3 S4	*	J8/4	C8/4	Option	12	265	241	281	292	290	264	307	319
LSA 46.3 S5	*	J8/4	C8/4	Option	12	285	259	302	314	315	287	334	347
LSA 46.3 M7		J8/4	C8/4	Option	12	320	291	339	352	330	300	350	363
LSA 46.3 M8		J8/4	C8/4	Option	12	355	323	376	391	360	328	382	396
LSA 46.3 L10	*	J8T/4	C8T/4	Option	12	375	341	398	413	-	-	-	-
LSA 46.3 L11	*	J8T/4	C8T/4	Option	12	440	400	466	484	-	-	-	-
LSA 47.3 S4		-	C8T/4	Option	12	500	455	530	550	-	-	-	-
LSA 47.3 S5	*	-	C8T/4	Option	12	530	482	562	583	-	-	-	-
LSA 47.3 M7	*	-	C8T/4	Option	12	575	523	610	633	-	-	-	-
LSA 47.3 M8	*	-	C8T/4	Option	12	600	546	636	660	-	-	-	-
LSA 47.3 L9	*	-	C8/4	Option	12	625	569	663	688	675	614	716	743
LSA 47.3 L10	*	-	C8/4	Option	12	655	596	694	721	715	651	758	787
LSA 49.3 S4		-	C8S/4	Option	6	715	651	758	787	775	705	822	853
LSA 49.3 M6		-	C8S/4	Option	6	840	764	890	924	915	833	970	1007
LSA 49.3 M8		-	C8S/4	Option	6	940	855	996	1034	1025	933	1087	1128
LSA 49.3 L9	**	-	C8S/4	Option	6	1045	951	1108	1150	1140	1037	1208	1254
LSA 49.3 L10	**	-	C8S/4	Option	6	1120	1019	1187	1232	1210	1101	1283	1331
LSA 50.2 S4		-	C8S/4	Option	6	1200	1080	1260	1320	1260	1135	1325	1390
LSA 50.2 M6		-	C8TS/4	Option	6	1450	1305	1520	1595	1450	1305	1520	1595
LSA 50.2 L7		-	C8TS/4	Option	6	1550	1400	1628	1705	1550	1400	1628	1705
LSA 50.2 L8		-	C8S/4	Option	6	1640	1475	1725	1805	1750	1575	1840	1925
LSA 50.2 VL10		-	C8S/4	Option	6	1800	1620	1890	1980	1900	1710	1995	2090
LSA 52.3 S6		-	C8S/4	Option	6	2300	2098	2415	2530	2300	2098	2415	2530
LSA 52.3 S7		-	C8S/4	Option	6	2500	2280	2625	2750	2500	2280	2625	2750
LSA 52.3 L9		-	C8S/4	Option	6	2700	2462	2835	2970	2700	2462	2835	2970
LSA 52.3 L12		-	C8S/4	Option	6	3000	2736	3150	3300	3000	2736	3150	3300
LSA 52.3 UL16		-	C8TS/4	Option	6	3200	2918	3360	3520	-	-	-	-
LSA 53.2 M9		-	C8S/4	Option	6	3400	3099	3570	3740	3400	3099	3570	3740
LSA 53.2 M12		-	C8S/4	Option	6	3750	3419	3938	4125	3750	3419	3938	4125
LSA 54.2 M10		-	C8TS/4	Option	6	3800	3464	3990	4180	-	-	-	-

* Paralleling with the grid or between alternators, select the 6 wires configuration.

** Paralleling with the grid or between alternators, contact us.

60 Hz - 3-phase

1800 R.P.M. - P.F. 0.8



The connection "F" is not available for LSA 52.3, LSA 53.2 & LSA 54.2

9.6 - Winding 9 specific

Excitation						kVA @ 347V, 600V			
						40 °C cont.		40 °C St.by	27 °C St.by
TYPE	SHUNT	AREP	PMG	wires	H : 125 K	F : 105 K	H : 150 K	H : 163 K	
LSA 40 VS1	-	C9/4	-	12	12.5	11.4	13.5	14	
LSA 40 VS2	-	C9/4	-	12	15.5	14	16.5	17	
LSA 40 S3	-	C9/4	-	12	19	17.5	20	21	
LSA 40 S4	-	C9/4	-	12	22	20	23.5	25	
LSA 40 M5	*	C9/4	-	12	25	23	26.5	27.5	
LSA 42.3 VS1	-	C9/4	Option	12	30	27.5	32	33	
LSA 42.3 VS2	-	C9/4	Option	12	32	29	34	35	
LSA 42.3 VS3	-	C9/4	Option	12	38	34.5	40.5	42	
LSA 42.3 S4	-	C9/4	Option	12	41.5	38	44	45.5	
LSA 42.3 S5	-	C9/4	Option	12	47.5	43	50	52	
LSA 42.3 M7	-	C9/4	Option	12	54	49	57	59	
LSA 42.3 M8	-	C9/4	Option	12	59.5	54	63	65	
LSA 42.3 L9	-	C9/4	Option	12	71	65	75	78	
LSA 44.3 S2	*	C9/4	Option	12	88	80	93	97	
LSA 44.3 S3	*	C9/4	Option	12	100	91	106	110	
LSA 44.3 S4	*	C9/4	Option	12	113	103	120	124	
LSA 44.3 S5	*	C9/4	Option	12	125	114	133	138	
LSA 44.3 M6	-	C9/4	Option	12	156	142	165	172	
LSA 44.3 M8	-	C9/4	Option	12	169	154	179	186	
LSA 44.3 L10	*	C9/4	Option	12	188	171	199	207	
LSA 44.3 L12	*	C9/4	Option	12	205	187	217	226	
LSA 44.3 VL13	-	C9+/4	Option	12	225	205	239	248	
LSA 44.3 VL14	-	C9+/4	Option	12	232	211	246	255	
LSA 46.3 S4	-	C9S/4	Option	6	273	248	289	300	
LSA 46.3 S5	-	C9S/4	Option	6	290	264	307	319	
LSA 46.3 M7	-	C9/4	Option	12	342	311	363	376	
LSA 46.3 M8	-	C9/4	Option	12	372	339	394	409	
LSA 46.3 L10	-	C9S/4	Option	6	390	355	413	429	
LSA 46.3 L11	-	C9S/4	Option	6	425	387	451	468	
LSA 47.3 S4	-	C9T/4	Option	12	512	466	543	563	
LSA 47.3 S5	*	C9/4	Option	12	570	519	604	627	
LSA 47.3 M7	*	C9T/4	Option	12	625	569	663	688	
LSA 47.3 M8	*	C9T/4	Option	12	675	614	716	743	
LSA 47.3 L9	-	C9+/4	Option	12	725	660	769	798	
LSA 47.3 L10	-	C9+/4	Option	12	760	692	806	836	
LSA 49.3 M6	-	C9S/4	Option	6	875	796	928	963	
LSA 49.3 M8	-	C9S/4	Option	6	955	869	1012	1051	
LSA 49.3 L9	-	C9S/4	Option	6	1000	910	1060	1100	
LSA 49.3 L10	-	C9S/4	Option	6	1100	1001	1166	1210	
LSA 50.2 M6	-	C9TS/4	Option	6	1420	1278	1490	1562	
LSA 50.2 L8	-	C9S/4	Option	6	1600	1440	1680	1760	
LSA 50.2 VL10	**	C9S/4	Option	6	1765	1590	1853	1940	
LSA 52.3 S6	-	C9S/4	Option	6	2100	1915	2205	2310	
LSA 52.3 S7	-	C9S/4	Option	6	2250	2052	2363	2475	
LSA 52.3 L9	-	C9S/4	Option	6	2355	2148	2473	2591	
LSA 52.3 L11	-	C9S/4	Option	6	2500	2280	2625	2750	
LSA 52.3 UL16	-	C9S/4	Option	6	3050	2782	3203	3355	
LSA 53.2 M12	-	C9S/4	Option	6	3300	3010	3465	3630	
LSA 54.2 M10	-	C9S/4	Option	6	3350	3054	3518	3685	
LSA 54.2 L14	-	C9S/4	Option	6	4100	3738	4305	4510	

* Paralleling with the grid or between alternators, select the 6 wires configuration.

** Paralleling with the grid or between alternators, contact us.

60 Hz - 3-phase
1800 R.P.M. - P.F. 0.8







9.7 - Winding 22 or 23 specific

Excitation						kVA @ 660V				kVA @ 690V			
						40 °C cont.		40 °C St.by	27 °C St.by	40 °C cont.		40 °C St.by	27 °C St.by
TYPE	SHUNT	AREP	PMG	wires	H:125 K	F:105 K	H: 150 K	H: 163 K	H:125 K	F:105 K	H: 150 K	H: 163 K	
LSA 42.3 VS1	-	C22T/4	Option	12	27	24.5	28.5	30	28	25.5	29.5	31	
LSA 42.3 VS2	-	C22T/4	Option	12	28	25.5	29.5	31	30	27.5	32	33	
LSA 42.3 VS3	-	C22T/4	Option	12	34	31	36	37.5	35	32	37	39	
LSA 42.3 S4	-	C22T/4	Option	12	40	36.5	42.5	44	40	36.5	42.5	44	
LSA 42.3 S5	-	C22T/4	Option	12	42	38	45	46	45	41	48	50	
LSA 42.3 M7	-	C22T/4	Option	12	45	41	48	50	48	44	51	53	
LSA 42.3 M8	-	C22T/4	Option	12	51	46.5	54	56	53	48	56	58	
LSA 42.3 L9	-	C22T/4	Option	12	60	55	64	66	61	56	65	67	
LSA 44.3 S2	-	C22TS/4	Option	6	74	67	78	81	75	68	80	83	
LSA 44.3 S3	-	C22TS/4	Option	6	88	80	93	97	94	86	100	103	
LSA 44.3 S4	-	C22T/4	Option	12	95	86	101	105	98	89	104	108	
LSA 44.3 S5	-	C22T/4	Option	12	110	100	117	121	115	105	122	127	
LSA 44.3 M6	-	C22T/4	Option	12	120	109	127	132	130	118	138	143	
LSA 44.3 M8	-	C22TS/4	Option	6	130	118	138	143	135	123	143	150	
LSA 44.3 L10	-	C22T/4	Option	12	150	137	159	165	160	146	170	176	
LSA 44.3 L12	-	C22T/4	Option	12	165	150	175	182	170	155	180	187	
LSA 44.3 VL13	-	C22T/4	Option	12	190	173	201	209	195	177	207	215	
LSA 44.3 VL14	-	C22T/4	Option	12	215	196	228	237	225	205	239	248	
LSA 46.3 S4	-	C22T/4	Option	12	255	232	270	281	263	239	279	289	
LSA 46.3 S5	-	C22T/4	Option	12	270	246	286	297	278	253	295	306	
LSA 46.3 M7	-	C22TS/4	Option	6	280	255	297	308	290	264	307	319	
LSA 46.3 M8	-	C22TS/4	Option	6	305	278	323	336	315	287	334	347	
LSA 46.3 L10	-	C22T/4	Option	12	325	296	345	358	330	300	350	363	
LSA 46.3 L11	-	C22T/4	Option	12	345	314	366	380	360	328	382	396	
LSA 47.3 S4	*	-	C22T/4	Option	12	400	364	424	440	450	410	477	495
LSA 47.3 S5	-	-	C23/4	Option	12	450	410	477	495	500	455	530	550
LSA 47.3 M7	-	-	C23/4	Option	12	500	455	530	550	550	501	583	605
LSA 47.3 M8	-	-	C23/4	Option	12	544	495	577	598	575	523	610	633
LSA 47.3 L9	-	-	C22T/4	Option	12	600	546	636	660	625	569	663	688
LSA 47.3 L10	-	-	C22T/4	Option	12	685	623	726	754	690	628	731	759
LSA 49.3 S4	-	-	C22TS/4	Option	6	740	673	784	814	770	701	816	847
LSA 49.3 M6	-	-	C22TS/4	Option	6	800	728	848	880	850	774	901	935
LSA 49.3 M8	-	-	C22TS/4	Option	6	885	805	938	974	940	855	996	1034
LSA 49.3 L9	-	-	C22TS/4	Option	6	1045	951	1108	1150	1045	951	1108	1150
LSA 50.2 M6	-	-	C22S/4	Option	6	1200	1092	1272	1320	1300	1183	1378	1430
LSA 50.2 L8	-	-	C23S/4	Option	6	1400	1274	1484	1540	1500	1365	1590	1650
LSA 50.2 VL10	-	-	C22S/4	Option	6	1600	1456	1696	1760	1700	1547	1802	1870
LSA 52.3 S6	-	-	C22S/4	Option	6	2190	1997	2300	2409	2190	1997	2300	2409
LSA 52.3 S7	-	-	C22S/4	Option	6	2580	2353	2709	2838	2580	2353	2709	2838
LSA 52.3 L9	-	-	C22S/4	Option	6	2700	2462	2835	2970	2700	2462	2835	2970
LSA 52.3 L12	-	-	C22S/4	Option	6	2800	2554	2940	3080	2800	2554	2940	3080
LSA 52.3 UL16	-	-	C22S/4	Option	6	2900	2645	3045	3190	2900	2645	3045	3190
LSA 53.2 M9	-	-	C22S/4	Option	6	3000	2736	3150	3300	3000	2736	3150	3300
LSA 53.2 M11	-	-	C22S/4	Option	6	3420	3119	3591	3762	3420	3119	3591	3762
LSA 54.2 L14	-	-	C22S/4	Option	6	4320	3940	4536	4752	4320	3940	4536	4752

* Paralleling with the grid or between alternators, select the 6 wires configuration.

60 Hz - 1-phase

1800 R.P.M. - P.F. 0.8



  double Delta (12 wires)	  open Delta (12 wires)
220 - 240 V	220 - 240 V

9.8 - Winding 6 standard

Excitation					kVA @ 220V - 240V			
					40 °C cont.		40 °C St.by	27 °C St.by
TYPE	SHUNT	AREP	PMG	wires	H : 125 K	F : 105 K	H : 150 K	H : 163 K
LSA 40 VS1	J6/4	C6/4	-	12	9	8.5	9.5	10
LSA 40 VS2	J6/4	C6/4	-	12	11.5	10.5	12	12.5
LSA 40 S3	J6/4	C6/4	-	12	13	12	14	14.5
LSA 40 S4	J6/4	C6/4	-	12	14.5	13	15.5	16
LSA 40 M5	J6/4	C6/4	-	12	16	15	17	17.5
LSA 42.3 VS1	J6/4	C6/4	Option	12	18.9	17	20	20.8
LSA 42.3 VS2	J6/4	C6/4	Option	12	19.2	17.5	20.5	21.1
LSA 42.3 VS3	J6/4	C6/4	Option	12	23	21	24.5	25.5
LSA 42.3 S4	J6/4	C6/4	Option	12	24	22	25.5	26.5
LSA 42.3 S5	J6/4	C6/4	Option	12	27.5	25	29	30.5
LSA 42.3 M7	J6/4	C6/4	Option	12	30	27.5	32	33
LSA 42.3 M8	J6/4	C6/4	Option	12	34	31	36	37.5
LSA 42.3 L9	J6/4	C6/4	Option	12	39	35.5	41.5	43
LSA 44.3 S2	J6/4	C6/4	Option	12	46	42	49	51
LSA 44.3 S3	J6/4	C6/4	Option	12	52	47	55	57
LSA 44.3 S4	J6/4	C6/4	Option	12	59	54	63	65
LSA 44.3 S5	J6/4	C6/4	Option	12	65	59	69	72
LSA 44.3 M6	J6/4	C6/4	Option	12	76	69	81	84
LSA 44.3 M8	J6/4	C6/4	Option	12	81	74	86	89
LSA 44.3 L10	J6/4	C6/4	Option	12	95	86	101	105
LSA 44.3 L12	J6/4	C6/4	Option	12	105	96	111	116
LSA 44.3 VL13	J6/4	C6/4	Option	12	113	102	119	124
LSA 44.3 VL14	J6/4	C6/4	Option	12	125	114	133	136
LSA 46.3 S4	J6/4	C6/4	Option	12	152	138	161	167
LSA 46.3 S5	J6/4	C6/4	Option	12	165	150	175	182
LSA 46.3 M7	J6/4	C6/4	Option	12	182	165	192	200
LSA 46.3 M8	J6/4	C6/4	Option	12	200	180	210	218
LSA 46.3 L10	J6/4	C6/4	Option	12	215	195	227	236
LSA 46.3 L11	J6/4	C6/4	Option	12	231	210	250	254

60 Hz - Dedicated 1-phase

1800 R.P.M. - P.F. 1

 SE series (4 wires)	 PA parallel (*) (4 wires)
230 - 240 V	115 - 120 V

(*) LSA 44.3 not possible

9.9 - Dedicated winding M or M1

Excitation					kVA @ 115V - 120V, 230V - 240V			
					40 °C cont.		40 °C St.by	27 °C St.by
TYPE	SHUNT	AREP	PMG	wires	H : 125 K	F : 105 K	H : 150 K	H : 163 K
LSA 40 VS1	JM/4	-	-	4	11.5	10.5	12	13
LSA 40 VS2	JM/4	-	-	4	13.5	12.5	14.5	15
LSA 40 S3	JM/4	-	-	4	14.5	13	15.5	16
LSA 40 S4	JM/4	-	-	4	16	14.5	17	17.5
LSA 40 M5	JM/4	-	-	4	17.5	16	19	19.5
LSA 42.3 VS1	JM1/4	-	-	4	23	20.9	24.4	25.3
LSA 42.3 VS2	JM1/4	-	-	4	26	23.7	27.6	28.6
LSA 42.3 VS3	JM1/4	-	-	4	28.8	26.2	30.5	31.6
LSA 42.3 S4	JM1/4	-	-	4	31.5	28.7	33.4	34.7
LSA 42.3 S5	JM1/4	-	-	4	36	32.8	38.2	39.6
LSA 42.3 M7	JM1/4	-	-	4	40	36.4	42.4	44
LSA 42.3 M8	JM1/4	-	-	4	47.2	43	50	51.9
LSA 42.3 L9	JM1/4	-	-	4	53	48.2	56.2	58.3
LSA 44.3 S3	JM1/4	-	-	4	80	73	85	88
LSA 44.3 S5	JM1/4	-	-	4	100	91	106	110
LSA 44.3 M6	JM1/4	-	-	4	115	105	122	127
LSA 44.3 L10	JM1/4	-	-	4	125	114	133	138

kVA at P.F. 0.8 = kVA/kW at P.F. 1 x 0.85



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