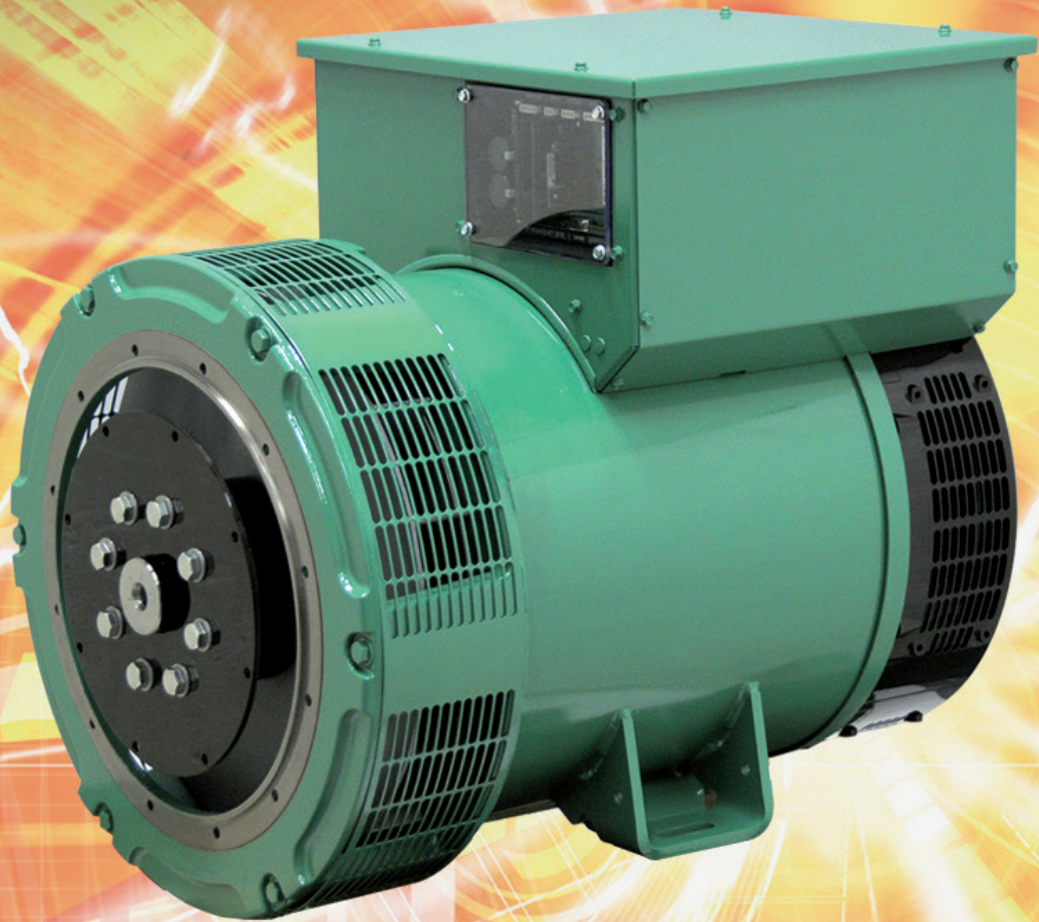


name="L
urlparam
pos="724
11
11



Low Voltage Alternators - 4 pole

LSA 46.3

180 to 365 kVA - 50 Hz / 225 to 456 kVA - 60 Hz
Electrical and mechanical data

Leroy-Somer™


EMERSON™

Low Voltage Alternators - 4 pole

LSA 46.3 - 180 to 365 kVA - 50 Hz / 225 to 456 kVA - 60 Hz

Specially adapted to applications

The LSA 46.3 alternator is designed to be suitable for typical generator applications, such as: backup, prime power, cogeneration, marine applications, rental, telecommunications, etc.

Compliant with international standards

The LSA 46.3 alternator conforms to the main international standards and regulations:

- IEC 60034, NEMA MG 1.32-33, ISO 8528-3, CSA C22.2 n°100-14, UL 1446 (UL 1004 on request), marine regulations, etc.

It can be integrated into a CE marked generator.

The LSA 46.3 is designed, manufactured and marketed in an ISO 9001 and ISO 14001 environment.

Top of the range electrical performance

- Class H insulation.
- Standard 12-wire re-connectable winding, 2/3 pitch, type no. 6.
- Voltage range 50 Hz: 220 V - 240 V and 380 V - 415 V (440 V).
- Voltage range 60 Hz: 208 V - 240 V and 380 V - 480 V.
- High efficiency and motor starting capacity.
- Other voltages are possible with optional adapted windings:
 - 50 Hz: 440 V (no. 7), 500 V (no. 9), 550 V (no. 22), 600 V (no. 23), 690 V (no. 10 or 52).
 - 60 Hz: 380 V and 416 V (no. 8), 600 V (no. 9).
- R 791 interference suppression conforming to standard EN 61000-6-3, EN 61000-6-2, EN 55011 group 1 class B standard for European zone (CE marking).

Excitation and regulation system suited to the application

| Excitation system | | | | Regulation options | | | |
|-------------------|--------|--------|--------------|--|-------------------|-----------------|------------------------------|
| Volage regulator | SHUNT | AREP | PMG (option) | C.T. Current transformer for paralleling | Mains paralleling | 3-phase sensing | Remote voltage potentiometer |
| R250 | R250 | - | - | - | - | - | √ |
| R450 M | Option | R450 M | R450 M | √ | - | - | √ |
| R450 T | Option | Option | Option | √ | - | Included | √ |
| D510 C | Option | Option | Option | √ | Included | Included | √ |

√ : possible mounting

Protection system suited to the environment

- The LSA 46.3 is IP 23.
- Standard 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%.
 - Winding protections for harsh environments and relative humidity greater than 95%.
 - Space heaters.
 - Thermal protection for winding and shields.

Reinforced mechanical structure using finite element modelling

- Compact and rigid assembly to better withstand generator vibrations.
- Steel frame.
- Cast iron flanges and shields.
- Twin-bearing and single-bearing versions designed to be suitable for engines on the market.
- Half-key balancing.
- Sealed for life ball bearings, regreasable bearings (optional).

Accessible terminal box proportioned for optional equipment

- Easy access to the voltage regulator and to the connections.
- Possible inclusion of accessories for paralleling, protection and measurement.
- 9-way terminal block for voltage reconnection.

Low Voltage Alternators - 4 pole

LSA 46.3 - 180 to 365 kVA - 50 Hz / 225 to 456 kVA - 60 Hz

General characteristics

| | | | | |
|------------------|---|-------------------------------------|---------------------------------|-------------------|
| Insulation class | H | Excitation system | SHUNT | AREP |
| Winding pitch | 2/3 (winding 6) | AVR type | R 250 | R 450 M |
| Number of wires | 12 | Voltage regulation (*) | ± 0.5 % | ± 0.5 % |
| Protection | IP 23 | Short-circuit current | - | 300% (3 IN) : 10s |
| Altitude | ≤ 1000 m | Totale Harmonic distortion THD (**) | no load < 2.5% - on load < 2.5% | |
| Overspeed | 2250 min ⁻¹ | Waveform: NEMA = TIF (**) | < 50 | |
| Air flow | 0.48 m ³ /s (50Hz) / 0.58 m ³ /s (60Hz) | Waveform: I.E.C. = THF (**) | < 2% | |

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

Ratings 50 Hz - 1500 R.P.M.

| kVA / kW - P.F. = 0.8 | | | | | | | | | | | | | | | | | | | | | |
|-----------------------|----------------------|------|------------|-------|------|----------------------|------|------------|-------|------|---------------|------|------------|-------|------|---------------|------|------------|-------|------|-----|
| Duty/T°C | Continuous duty/40°C | | | | | Continuous duty/40°C | | | | | Stand-by/40°C | | | | | Stand-by/27°C | | | | | |
| Class/T°C | H/125°K | | | | | F/105°K | | | | | H/150°K | | | | | H/163°K | | | | | |
| Phase | 3 ph. | | | 1 ph. | | 3 ph. | | | 1 ph. | | 3 ph. | | | 1 ph. | | 3 ph. | | | 1 ph. | | |
| Y | 380V | 400V | 415V | 440V | ΔΔ | 380V | 400V | 415V | 440V | ΔΔ | 380V | 400V | 415V | 440V | ΔΔ | 380V | 400V | 415V | 440V | ΔΔ | |
| Δ | 220V | 230V | 240V | 230V | | 220V | 230V | 240V | 230V | | 220V | 230V | 240V | 230V | | 220V | 230V | 240V | 230V | | |
| YY | | | | | 220V | | | | | 220V | | | | | 220V | | | | | 220V | |
| 46.3 S2 | kVA | 180 | 180 | 180 | 171 | 108 | 164 | 164 | 164 | 156 | 98 | 191 | 191 | 191 | 181 | 114 | 200 | 200 | 200 | 188 | 120 |
| | kW | 144 | 144 | 144 | 137 | 86 | 131 | 131 | 131 | 124 | 78 | 153 | 153 | 153 | 145 | 91 | 160 | 160 | 160 | 150 | 96 |
| 46.3 S3 | kVA | 200 | 200 | 200 | 190 | 120 | 182 | 182 | 182 | 173 | 109 | 212 | 212 | 212 | 201 | 127 | 220 | 220 | 220 | 209 | 132 |
| | kW | 160 | 160 | 160 | 152 | 96 | 146 | 146 | 146 | 138 | 87 | 170 | 170 | 170 | 161 | 102 | 176 | 176 | 176 | 167 | 106 |
| 46.3 S4 | kVA | 230 | 230 | 230 | 219 | 138 | 209 | 209 | 209 | 200 | 126 | 244 | 244 | 244 | 232 | 146 | 253 | 253 | 253 | 240 | 152 |
| | kW | 184 | 184 | 184 | 175 | 110 | 167 | 167 | 167 | 160 | 101 | 195 | 195 | 195 | 186 | 117 | 202 | 202 | 202 | 192 | 122 |
| 46.3 S5 | kVA | 240 | 250 | 250 | 238 | 150 | 218 | 228 | 228 | 216 | 137 | 254 | 265 | 265 | 252 | 159 | 264 | 275 | 275 | 261 | 165 |
| | kW | 192 | 200 | 200 | 190 | 120 | 174 | 182 | 182 | 173 | 110 | 204 | 212 | 212 | 202 | 127 | 211 | 220 | 220 | 209 | 132 |
| 46.3 M7 | kVA | 275 | 275 | 275 | 261 | 165 | 250 | 250 | 250 | 238 | 150 | 292 | 292 | 292 | 277 | 175 | 303 | 303 | 303 | 287 | 182 |
| | kW | 220 | 220 | 220 | 209 | 132 | 200 | 200 | 200 | 190 | 120 | 234 | 234 | 234 | 222 | 140 | 242 | 242 | 242 | 230 | 146 |
| 46.3 M8 | kVA | 290 | 300 | 300 | 285 | 180 | 264 | 273 | 273 | 259 | 164 | 307 | 318 | 318 | 302 | 191 | 319 | 330 | 330 | 313 | 200 |
| | kW | 232 | 240 | 240 | 228 | 144 | 211 | 218 | 218 | 207 | 131 | 246 | 254 | 254 | 242 | 153 | 255 | 264 | 264 | 250 | 160 |
| 46.3 L10 | kVA | 325 | 325 | 325 | 309 | 195 | 300 | 300 | 300 | 281 | 177 | 345 | 345 | 345 | 327 | 207 | 358 | 358 | 358 | 340 | 215 |
| | kW | 260 | 260 | 260 | 247 | 156 | 240 | 240 | 240 | 225 | 142 | 276 | 276 | 276 | 262 | 166 | 286 | 286 | 286 | 272 | 172 |
| 46.3 L11 | kVA | 350 | 365 | 365 | 347 | 210 | 319 | 332 | 332 | 316 | 191 | 371 | 387 | 387 | 368 | 225 | 385 | 400 | 400 | 380 | 231 |
| | kW | 280 | 292 | 292 | 277 | 168 | 255 | 266 | 266 | 253 | 153 | 297 | 310 | 310 | 294 | 180 | 308 | 320 | 320 | 304 | 185 |

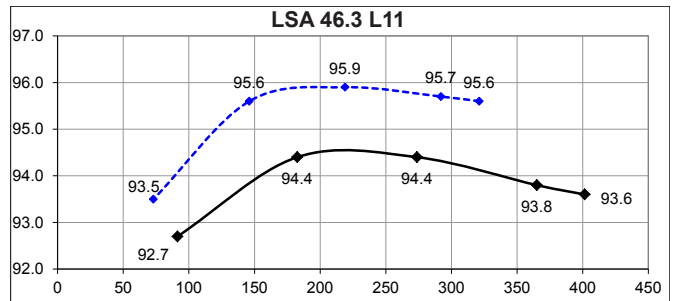
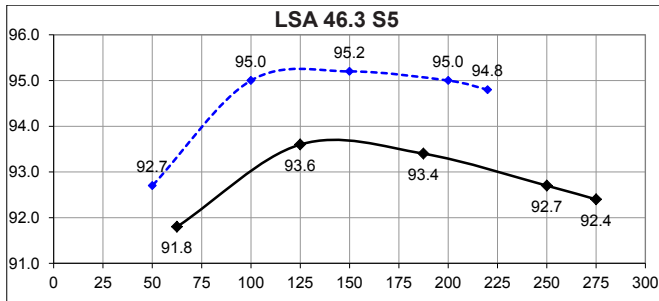
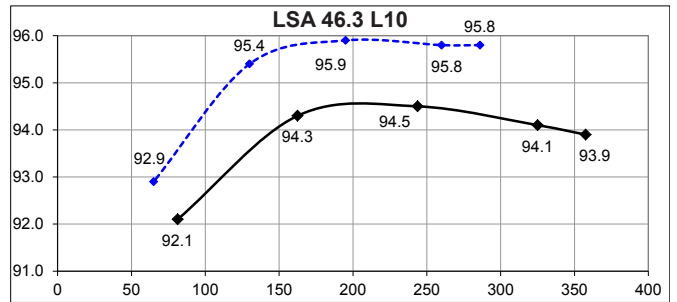
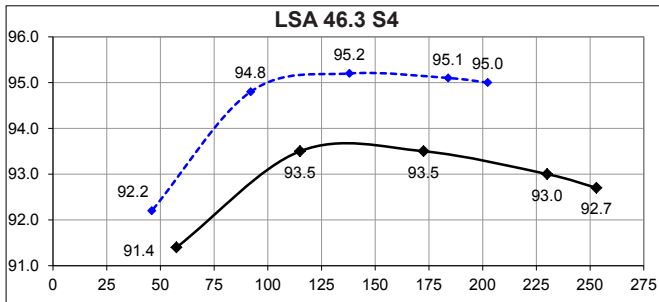
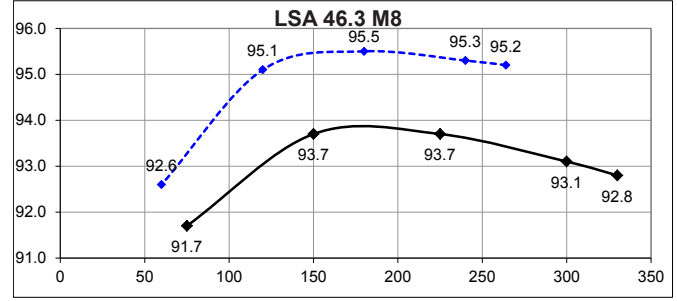
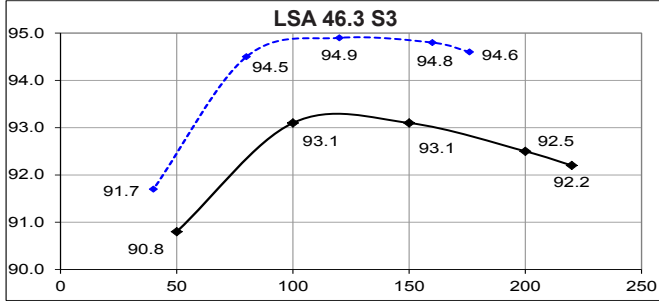
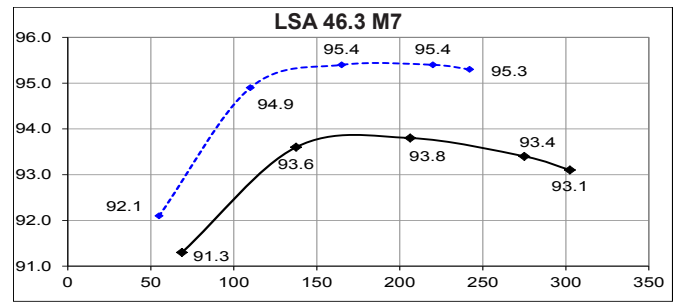
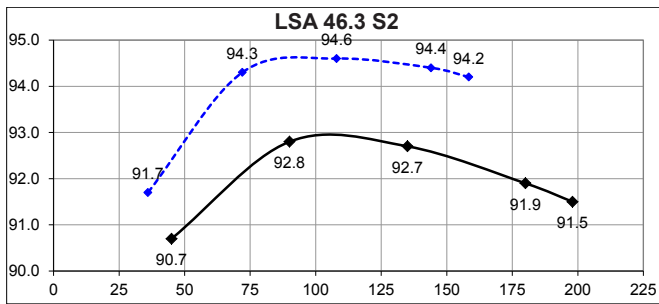
Ratings 60 Hz - 1800 R.P.M.

| kVA / kW - P.F. = 0.8 | | | | | | | | | | | | | | | | | | | | | |
|-----------------------|----------------------|------|------|-------|------------|----------------------|------|------|-------|------------|---------------|------|------|-------|------------|---------------|------|------|-------|------------|-----|
| Duty/T°C | Continuous duty/40°C | | | | | Continuous duty/40°C | | | | | Stand-by/40°C | | | | | Stand-by/27°C | | | | | |
| Class/T°C | H/125°K | | | | | F/105°K | | | | | H/150°K | | | | | H/163°K | | | | | |
| Phase | 3 ph. | | | 1 ph. | | 3 ph. | | | 1 ph. | | 3 ph. | | | 1 ph. | | 3 ph. | | | 1 ph. | | |
| Y | 380V | 416V | 440V | 480V | ΔΔ | 380V | 416V | 440V | 480V | ΔΔ | 380V | 416V | 440V | 480V | ΔΔ | 380V | 416V | 440V | 480V | ΔΔ | |
| Δ | 220V | 240V | 240V | 240V | | 220V | 240V | 240V | 240V | | 220V | 240V | 240V | 240V | | 220V | 240V | 240V | 240V | | |
| YY | | | | | 240V | | | | | 240V | | | | | 240V | | | | | 240V | |
| 46.3 S2 | kVA | 180 | 195 | 210 | 225 | 120 | 164 | 177 | 191 | 205 | 108 | 191 | 207 | 223 | 239 | 126 | 200 | 215 | 229 | 250 | 131 |
| | kW | 144 | 156 | 168 | 180 | 96 | 131 | 142 | 153 | 164 | 86 | 153 | 166 | 178 | 191 | 101 | 160 | 172 | 183 | 200 | 105 |
| 46.3 S3 | kVA | 200 | 215 | 230 | 250 | 132 | 182 | 196 | 209 | 228 | 120 | 212 | 228 | 244 | 265 | 140 | 220 | 237 | 253 | 275 | 145 |
| | kW | 160 | 172 | 184 | 200 | 106 | 146 | 157 | 167 | 182 | 96 | 170 | 182 | 195 | 212 | 112 | 176 | 190 | 202 | 220 | 116 |
| 46.3 S4 | kVA | 226 | 250 | 262 | 288 | 152 | 206 | 227 | 238 | 262 | 138 | 240 | 264 | 278 | 305 | 161 | 250 | 274 | 288 | 316 | 167 |
| | kW | 181 | 200 | 210 | 230 | 122 | 165 | 182 | 190 | 210 | 110 | 192 | 211 | 222 | 244 | 129 | 200 | 219 | 230 | 253 | 134 |
| 46.3 S5 | kVA | 245 | 265 | 280 | 313 | 165 | 223 | 241 | 255 | 284 | 150 | 260 | 281 | 297 | 331 | 175 | 270 | 292 | 308 | 344 | 182 |
| | kW | 196 | 212 | 224 | 250 | 132 | 178 | 193 | 204 | 227 | 120 | 208 | 225 | 238 | 265 | 140 | 216 | 234 | 246 | 275 | 146 |
| 46.3 M7 | kVA | 275 | 300 | 315 | 344 | 182 | 250 | 273 | 287 | 313 | 165 | 292 | 318 | 334 | 364 | 192 | 303 | 330 | 347 | 378 | 200 |
| | kW | 220 | 240 | 252 | 275 | 146 | 200 | 218 | 230 | 250 | 132 | 234 | 254 | 267 | 291 | 154 | 242 | 264 | 278 | 302 | 160 |
| 46.3 M8 | kVA | 290 | 315 | 340 | 375 | 200 | 264 | 287 | 309 | 337 | 180 | 307 | 334 | 360 | 395 | 210 | 319 | 347 | 375 | 412 | 218 |
| | kW | 232 | 252 | 272 | 300 | 160 | 211 | 230 | 247 | 270 | 144 | 246 | 267 | 288 | 316 | 168 | 255 | 278 | 300 | 330 | 174 |
| 46.3 L10 | kVA | 315 | 345 | 365 | 406 | 215 | 287 | 314 | 332 | 370 | 195 | 334 | 366 | 387 | 431 | 227 | 347 | 380 | 402 | 447 | 236 |
| | kW | 252 | 276 | 292 | 325 | 172 | 230 | 251 | 266 | 296 | 156 | 267 | 293 | 310 | 345 | 182 | 278 | 304 | 322 | 358 | 189 |
| 46.3 L11 | kVA | 345 | 375 | 400 | 456 | 231 | 314 | 341 | 364 | 415 | 210 | 366 | 398 | 424 | 483 | 250 | 380 | 413 | 440 | 502 | 254 |
| | kW | 276 | 300 | 320 | 365 | 185 | 251 | 273 | 291 | 332 | 168 | 293 | 318 | 339 | 386 | 200 | 304 | 330 | 352 | 402 | 203 |

Low Voltage Alternators - 4 pole

LSA 46.3 - 180 to 365 kVA - 50 Hz / 225 to 456 kVA - 60 Hz

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



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

| | | S2 | S3 | S4 | S5 | M7 | M8 | L10 | L11 |
|-------------|--|-------|-------|-------|-------|-------|-------|-------|-------|
| Kcc | Short-circuit ratio | 0.35 | 0.4 | 0.4 | 0.36 | 0.49 | 0.44 | 0.44 | 0.39 |
| Xd | Direct-axis synchro. reactance unsaturated | 366 | 339 | 339 | 369 | 316 | 344 | 316 | 355 |
| Xq | Quadrature-axis synchro. reactance unsaturated | 187 | 173 | 173 | 188 | 161 | 175 | 161 | 181 |
| T'do | No-load transient time constant | 2276 | 2351 | 2452 | 2452 | 2543 | 2543 | 2686 | 2686 |
| X'd | Direct-axis transient reactance saturated | 16.1 | 14.4 | 13.8 | 15 | 12.4 | 13.5 | 11.7 | 13.2 |
| T'd | Short-circuit transient time constant | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| X''d | Direct-axis subtransient reactance saturated | 12.8 | 11.5 | 11 | 12 | 9.9 | 10.8 | 9.4 | 10.5 |
| T''d | Subtransient time constant | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| X''q | Quadrature-axis subtransient reactance saturated | 16.8 | 15.1 | 14.6 | 15.9 | 13.1 | 14.3 | 12.6 | 14.1 |
| Xo | Zero sequence reactance unsaturated | 0.67 | 0.6 | 0.57 | 0.62 | 0.51 | 0.56 | 0.49 | 0.55 |
| X2 | Negative sequence reactance saturated | 14.88 | 13.35 | 12.86 | 13.98 | 11.57 | 12.62 | 11.01 | 12.37 |
| Ta | Armature time constant | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |

Other class H / 400 V data

| | | S2 | S3 | S4 | S5 | M7 | M8 | L10 | L11 |
|---------------|---|-------|-------|-------|-------|-------|-------|-------|-------|
| io (A) | No-load excitation current (SHUNT/AREP) | 0.68 | 0.76 | 0.75 | 0.75 | 0.9 | 0.9 | 0.78 | 0.78 |
| ic (A) | On-load excitation current (SHUNT/AREP) | 2.73 | 2.75 | 2.75 | 2.97 | 2.86 | 3.08 | 2.64 | 2.92 |
| uc (V) | On-load excitation voltage (SHUNT/AREP) | 38.2 | 38.4 | 38.3 | 41.1 | 43 | 46.2 | 39.6 | 43.7 |
| ms | Response time ($\Delta U = 20\%$ transient) | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 |
| kVA | Start ($\Delta U = 20\%$ cont. or 30% trans.) SHUNT | 409 | 498 | 580 | 581 | 667 | 664 | 791 | 790 |
| kVA | Start ($\Delta U = 20\%$ cont. or 30% trans.) AREP | 448 | 549 | 638 | 639 | 740 | 741 | 873 | 877 |
| % | Transient ΔU (on-load 4/4) SHUNT - P.F.: 0.8LAG | 14.2 | 13.3 | 13.2 | 14 | 13.6 | 14.4 | 13.6 | 14.7 |
| % | Transient ΔU (on-load 4/4) AREP - P.F.: 0.8LAG | 11.8 | 11.1 | 11 | 11.6 | 11.2 | 11.9 | 11.2 | 12.1 |
| W | No-load losses | 3035 | 3401 | 3658 | 3658 | 4443 | 4443 | 4767 | 4767 |
| W | Heat dissipation | 12584 | 12868 | 13811 | 15593 | 15499 | 17516 | 16145 | 19014 |

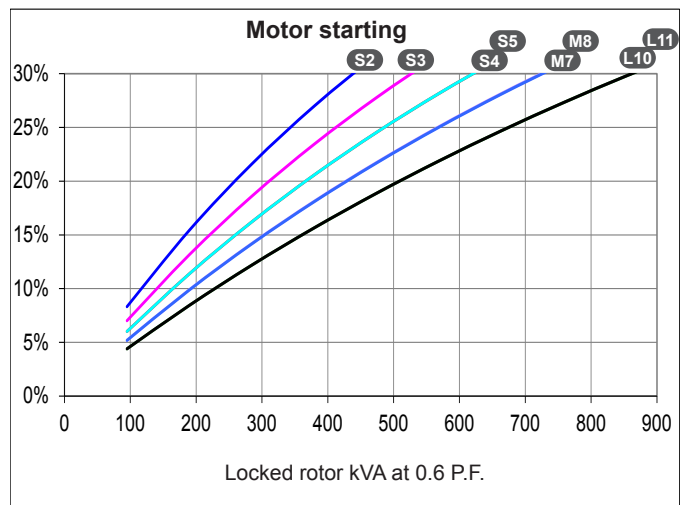
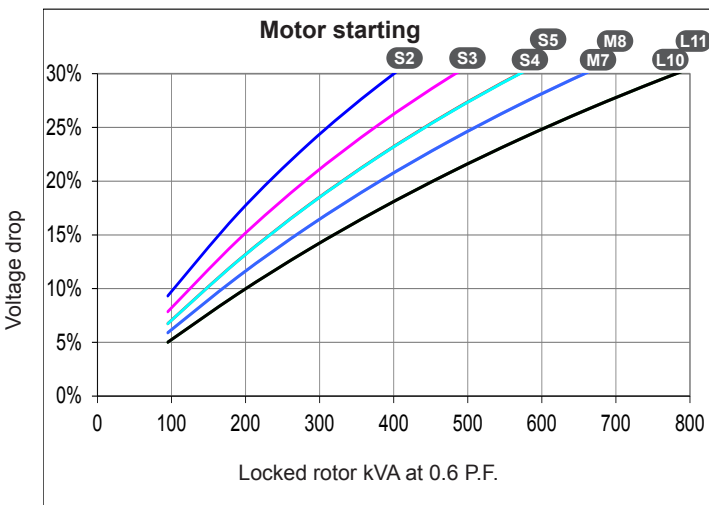
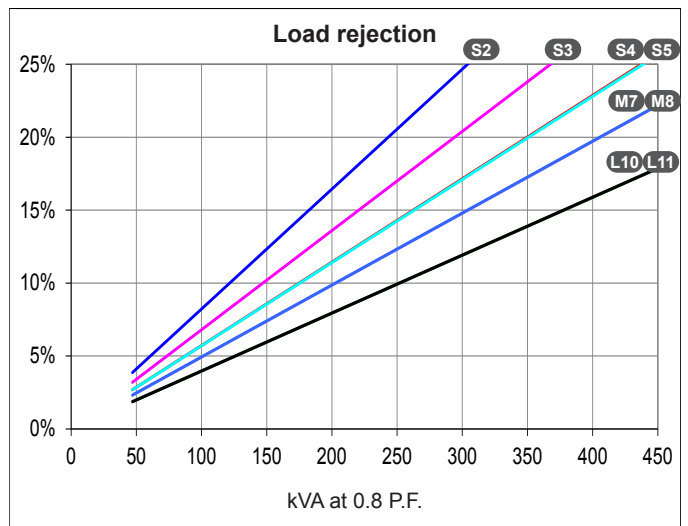
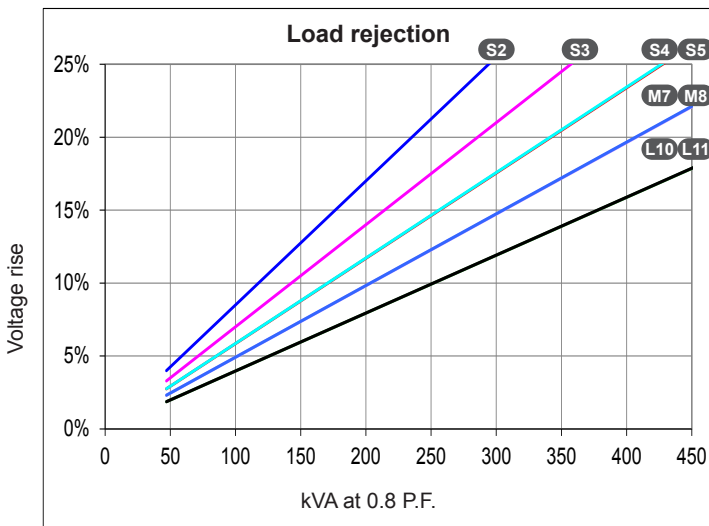
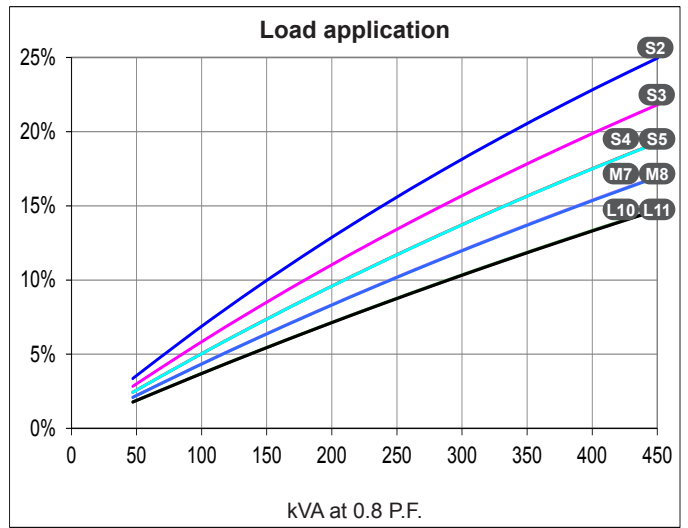
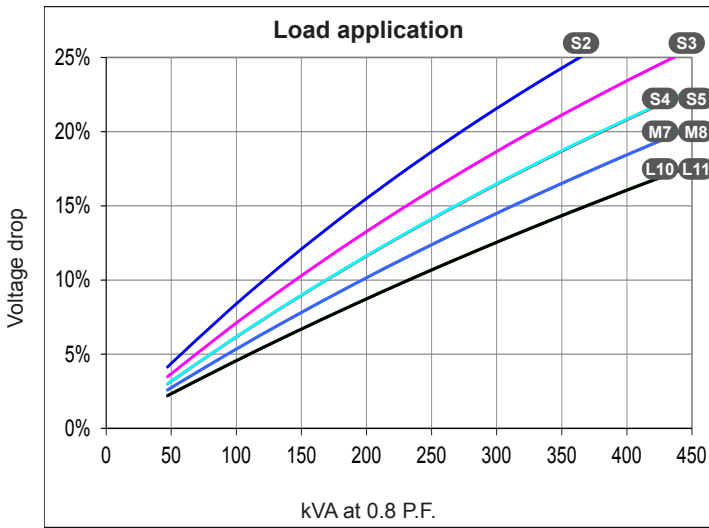
Low Voltage Alternators - 4 pole

LSA 46.3 - 180 to 365 kVA - 50 Hz / 225 to 456 kVA - 60 Hz

Transient voltage variation 400V - 50 Hz

SHUNT system

AREP/PMG system

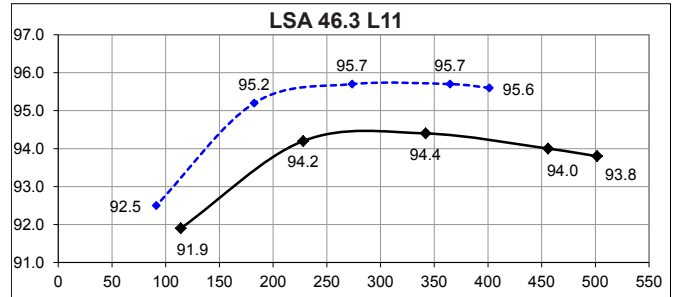
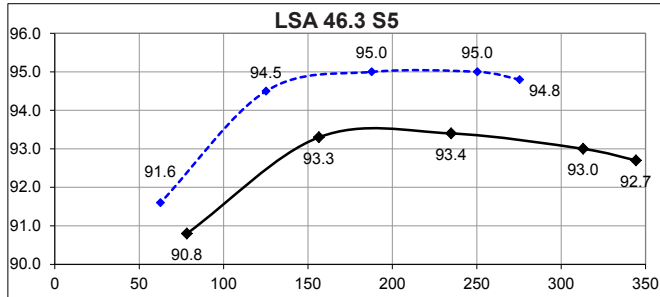
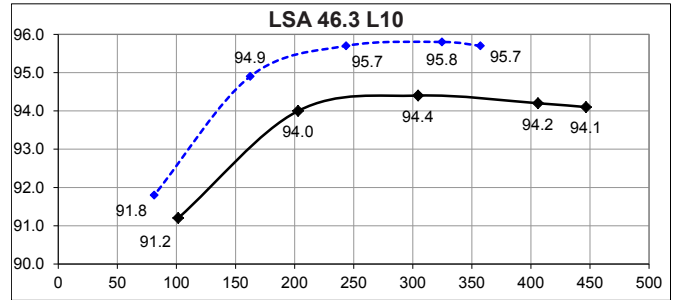
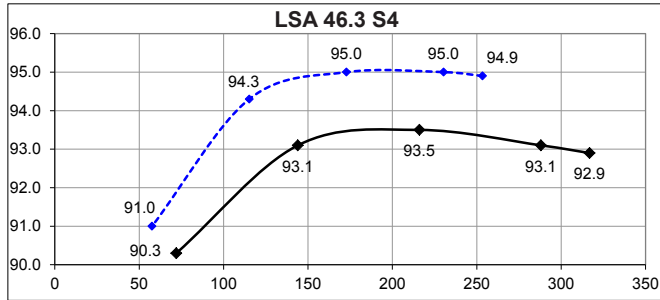
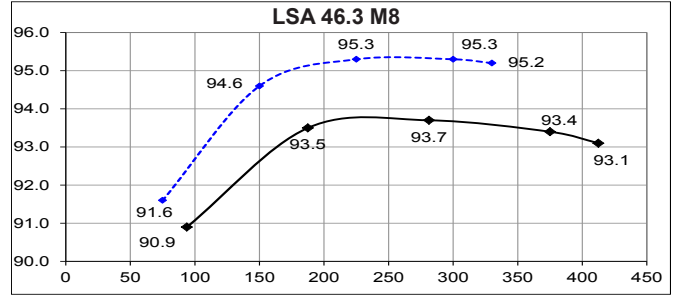
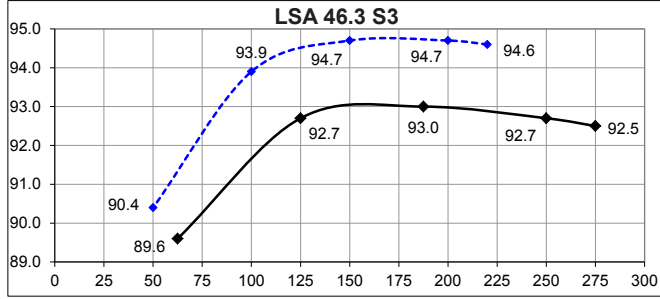
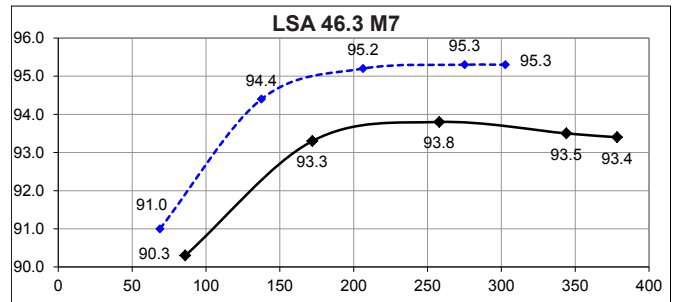
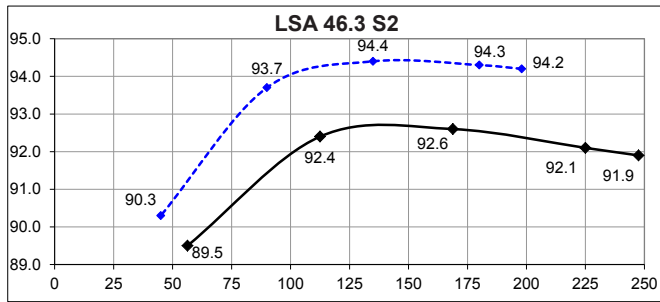


- 1) For a starting P.F. other than 0.6, the starting kVA must be multiplied by $K = \text{Sine P.F.} / 0.8$
- 2) For voltages other than 400V (Y), 230V (Δ) at 50 Hz, then kVA must be multiplied by $(400/U)^2$ or $(230/U)^2$.

Low Voltage Alternators - 4 pole

LSA 46.3 - 180 to 365 kVA - 50 Hz / 225 to 456 kVA - 60 Hz

Efficiencies 480V - 60 Hz (..... P.F.: 1) (— P.F.: 0.8)



Reactances (%). Time constants (ms) - Class H / 480 V

| | | S2 | S3 | S4 | S5 | M7 | M8 | L10 | L11 |
|-------------|--|------|-------|-------|-------|-------|-------|-------|-------|
| Kcc | Short-circuit ratio | 0.33 | 0.39 | 0.38 | 0.35 | 0.47 | 0.43 | 0.42 | 0.37 |
| Xd | Direct-axis synchro. reactance unsaturated | 382 | 353 | 354 | 385 | 329 | 359 | 329 | 370 |
| Xq | Quadrature-axis synchro. reactance unsaturated | 194 | 180 | 180 | 196 | 168 | 183 | 168 | 188 |
| T'do | No-load transient time constant | 2276 | 2351 | 2452 | 2452 | 2543 | 2543 | 2686 | 2686 |
| X'd | Direct-axis transient reactance saturated | 16.7 | 15 | 14.4 | 15.7 | 12.9 | 14.1 | 12.2 | 13.7 |
| T'd | Short-circuit transient time constant | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| X''d | Direct-axis subtransient reactance saturated | 13.4 | 12 | 11.5 | 12.5 | 10.3 | 11.2 | 9.8 | 11 |
| T''d | Subtransient time constant | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| X''q | Quadrature-axis subtransient reactance saturated | 17.5 | 15.8 | 15.2 | 16.6 | 13.7 | 14.9 | 13.1 | 14.1 |
| Xo | Zero sequence reactance | 0.69 | 0.62 | 0.6 | 0.65 | 0.53 | 0.58 | 0.51 | 0.57 |
| X2 | Negative sequence reactance saturated | 15.5 | 13.91 | 13.42 | 14.58 | 12.06 | 13.14 | 11.46 | 12.87 |
| Ta | Armature time constant | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |

Other class H / 480 V data

| | | S2 | S3 | S4 | S5 | M7 | M8 | L10 | L11 |
|---------------|---|-------|-------|-------|-------|-------|-------|-------|-------|
| io (A) | No-load excitation current (SHUNT/AREP) | 0.68 | 0.76 | 0.75 | 0.75 | 0.9 | 0.9 | 0.78 | 0.78 |
| ic (A) | On-load excitation current (SHUNT/AREP) | 2.76 | 2.78 | 2.78 | 2.99 | 2.88 | 3.09 | 2.67 | 2.94 |
| uc (V) | On-load excitation voltage (SHUNT/AREP) | 38.9 | 39.1 | 39 | 41.9 | 43.7 | 46.8 | 40.3 | 44.4 |
| ms | Response time ($\Delta U = 20\%$ transient) | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 |
| kVA | Start ($\Delta U = 20\%$ cont. or 30% trans.) SHUNT | 489 | 600 | 699 | 695 | 799 | 800 | 947 | 945 |
| kVA | Start ($\Delta U = 20\%$ cont. or 30% trans.) AREP | 540 | 657 | 764 | 765 | 891 | 887 | 1051 | 1050 |
| % | Transient ΔU (on-load 4/4) SHUNT - P.F.: 0.8LAG | 14.6 | 13.7 | 13.6 | 14.4 | 14 | 14.9 | 13.9 | 15.1 |
| % | Transient ΔU (on-load 4/4) AREP - P.F.: 0.8LAG | 12.1 | 11.4 | 11.3 | 12 | 11.5 | 12.2 | 11.5 | 12.4 |
| W | No-load losses | 4681 | 5182 | 5546 | 5546 | 6611 | 6611 | 7107 | 7107 |
| W | Heat dissipation | 15240 | 15649 | 16841 | 18838 | 18880 | 21116 | 19764 | 23002 |

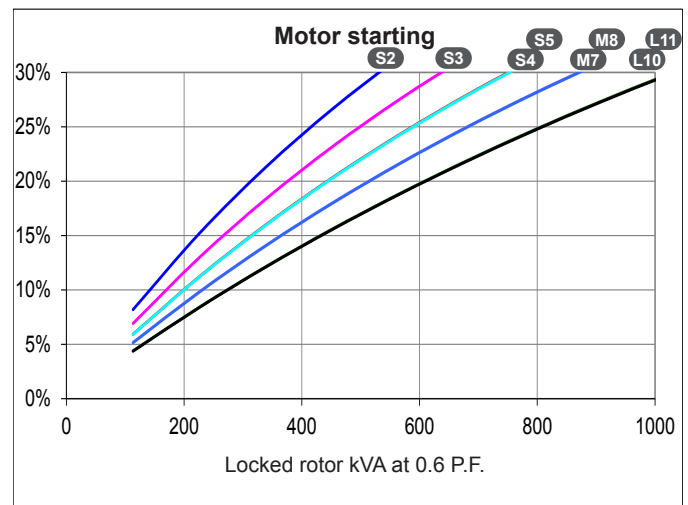
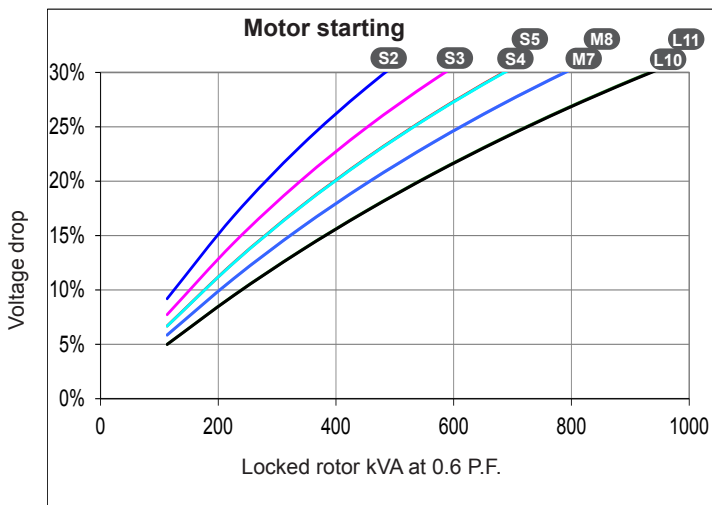
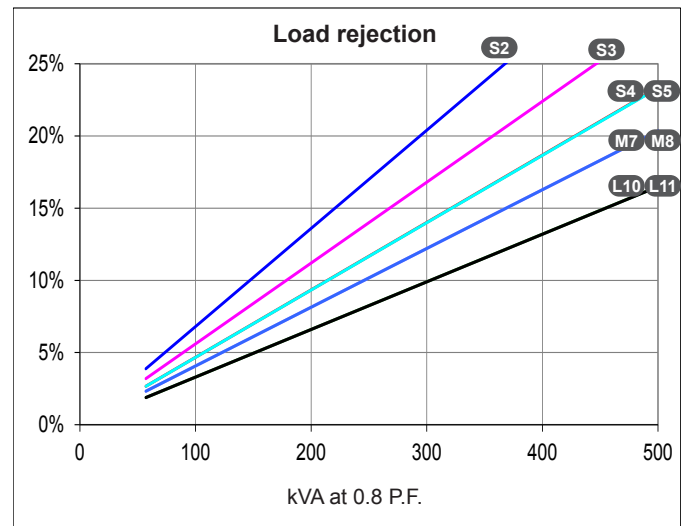
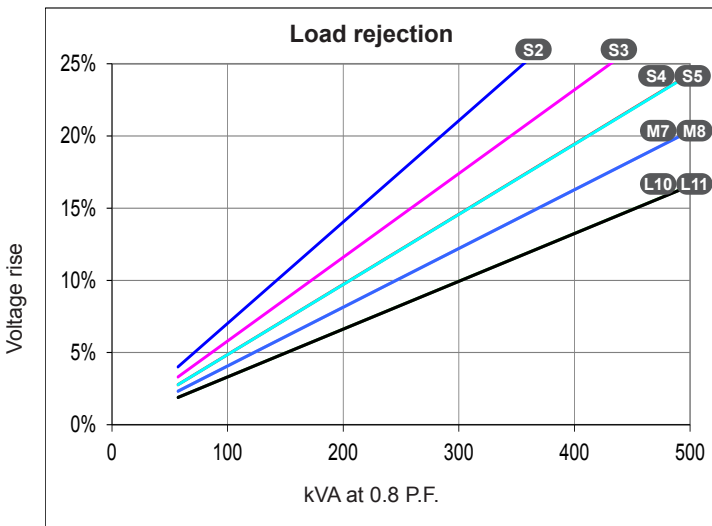
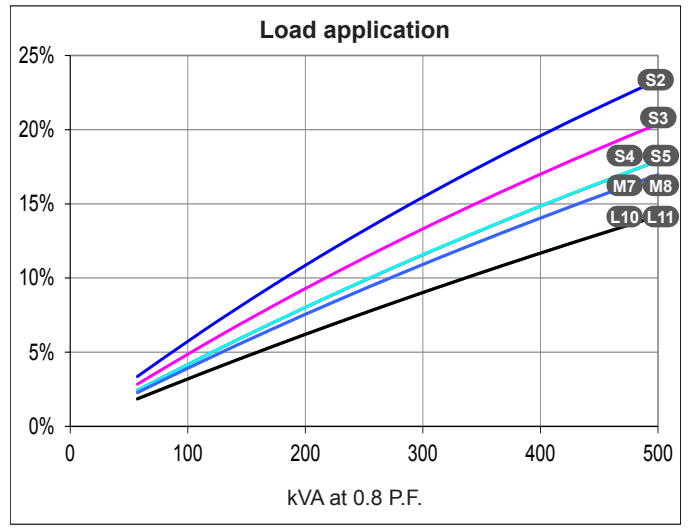
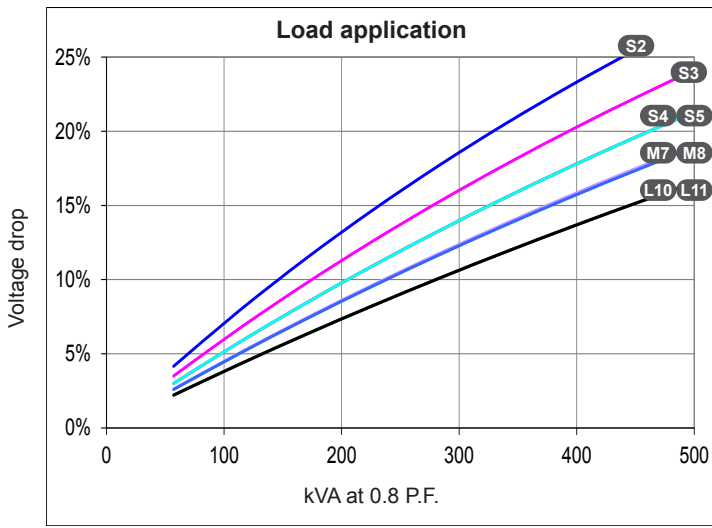
Low Voltage Alternators - 4 pole

LSA 46.3 - 180 to 365 kVA - 50 Hz / 225 to 456 kVA - 60 Hz

Transient voltage variation 480V - 60 Hz

SHUNT system

AREP/PMG system

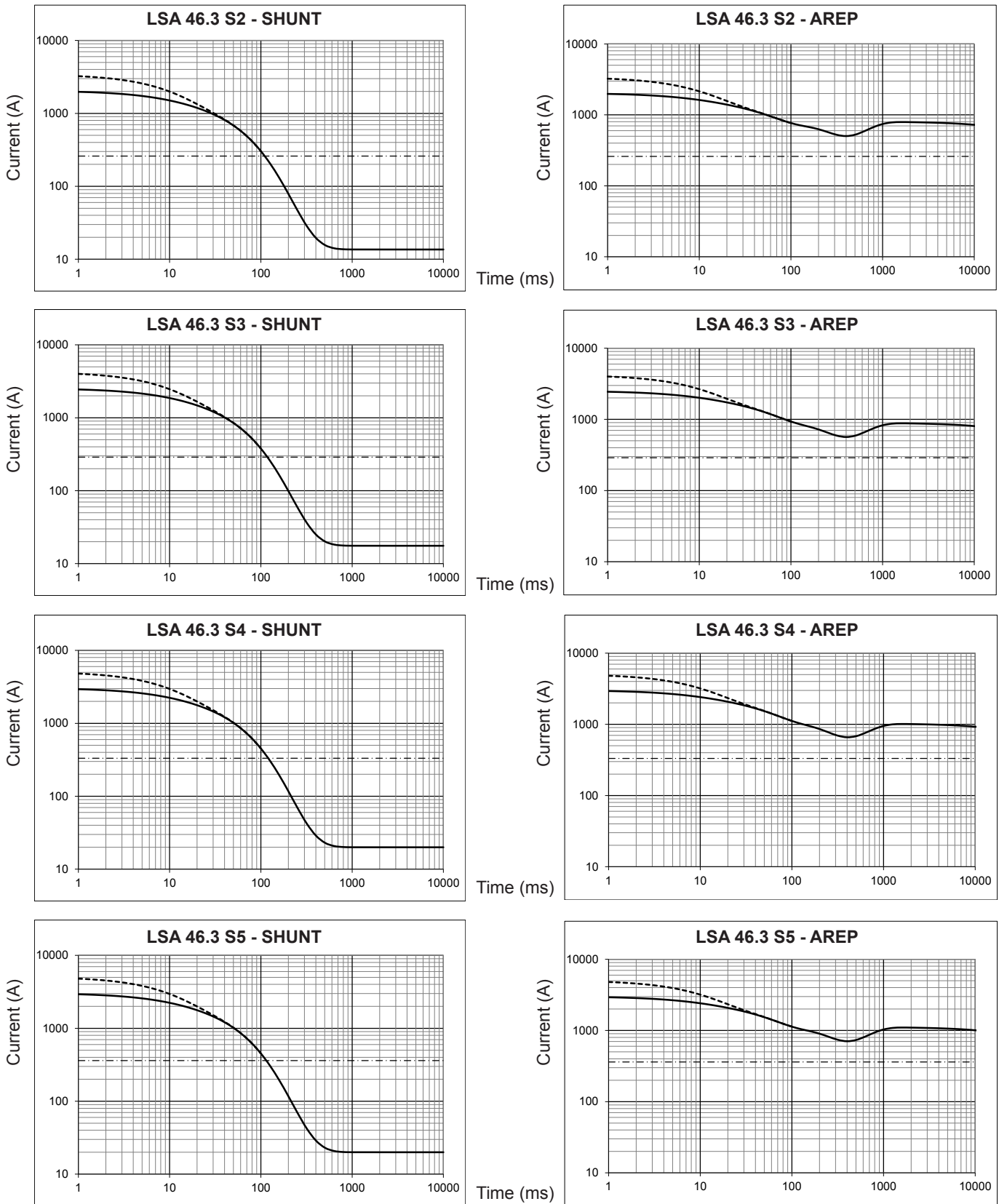


- 1) For a starting P.F. other than 0.6, the starting kVA must be multiplied by $K = \text{Sine P.F.} / 0.8$
- 2) For voltages other than 480V (Y), 277V (Δ), 240V (YY) at 60 Hz, then kVA must be multiplied by $(480/U)^2$ or $(277/U)^2$ or $(240/U)^2$.

Low Voltage Alternators - 4 pole

LSA 46.3 - 180 to 365 kVA - 50 Hz / 225 to 456 kVA - 60 Hz

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



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

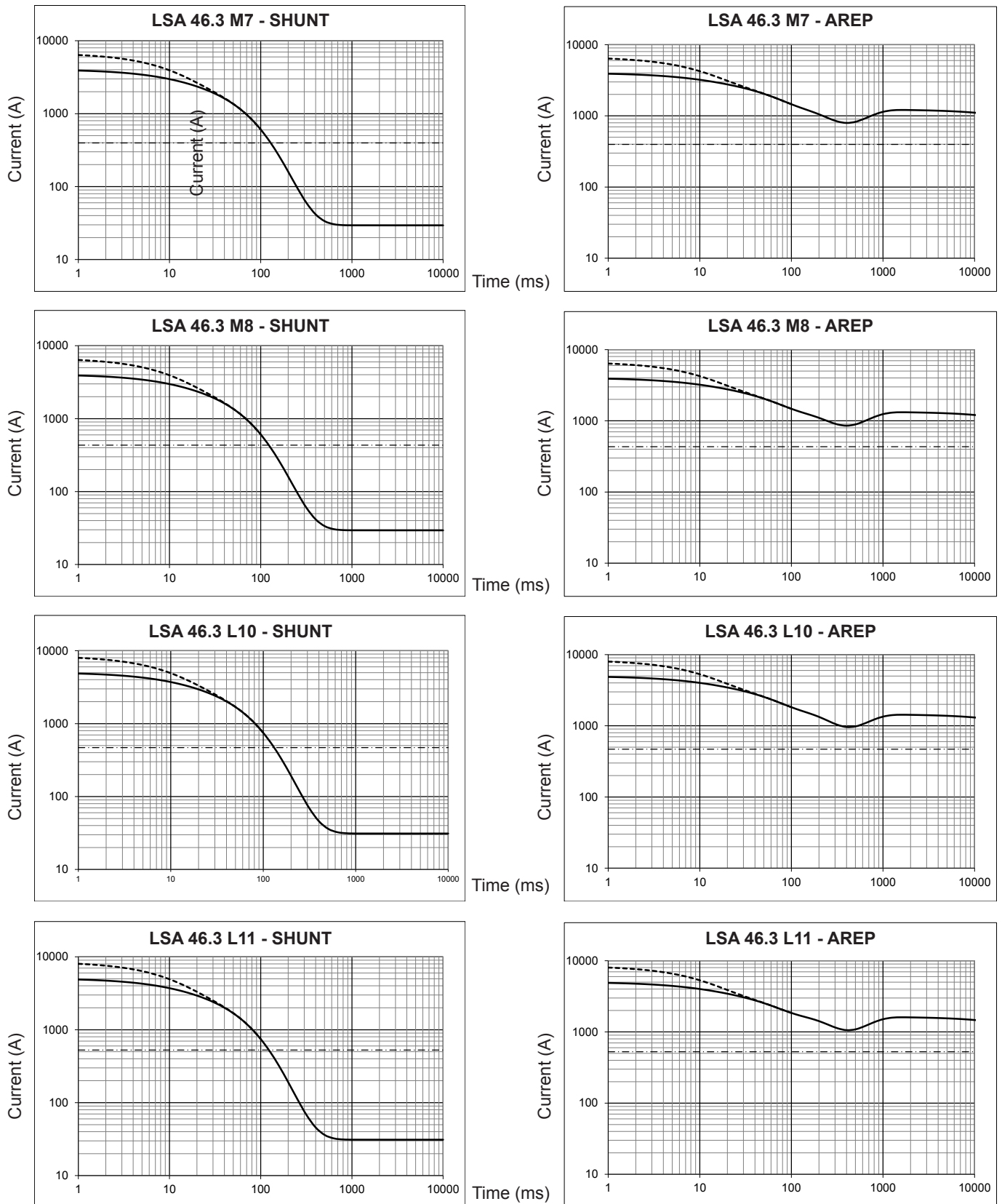
Symmetrical

Asymmetrical

Low Voltage Alternators - 4 pole

LSA 46.3 - 180 to 365 kVA - 50 Hz / 225 to 456 kVA - 60 Hz

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



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.

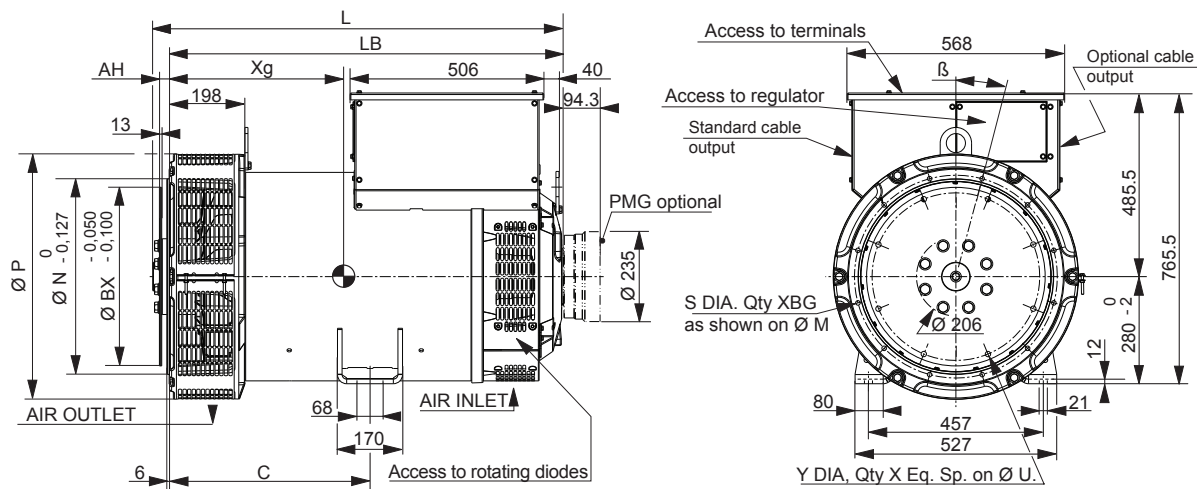
| | 3-phase | 2-phase L/L | 1-phase L/N |
|-----------------------------|---------|-------------|-------------|
| Instantaneous (max.) | 1 | 0.87 | 1.3 |
| Continuous | 1 | 1.5 | 2.2 |
| Maximum duration (AREP/PMG) | 10 sec. | 5 sec. | 2 sec. |

Symmetrical
Asymmetrical

Low Voltage Alternators - 4 pole

LSA 46.3 - 180 to 365 kVA - 50 Hz / 225 to 456 kVA - 60 Hz

Single bearing dimensions



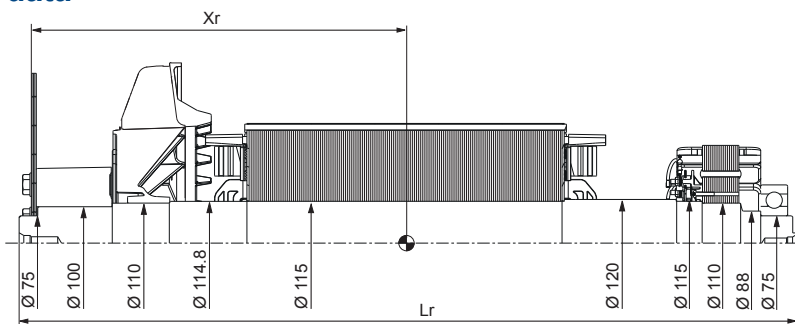
| Dimensions (mm) and weight | | | | | | | Coupling | | | |
|----------------------------|------|----------------|------|-----|-----|-------------|------------------|--------|----|----|
| Type | L | L (SAE 11 1/2) | LB | Xg | C | Weight (kg) | Flex plate | 11 1/2 | 14 | 18 |
| LSA 46.3 S2 | 935 | 944 | 892 | 408 | 429 | 569 | Flange S.A.E 3 | X | | |
| LSA 46.3 S3 | 935 | 944 | 892 | 414 | 429 | 599 | Flange S.A.E 2 | X | | |
| LSA 46.3 S4 | 935 | 944 | 892 | 423 | 429 | 674 | Flange S.A.E 1 | X | X | |
| LSA 46.3 S5 | 935 | 944 | 892 | 423 | 429 | 682 | Flange S.A.E 1/2 | | X | |
| LSA 46.3 M7 | 980 | 989 | 937 | 445 | 429 | 754 | Flange S.A.E 0 | | X | X |
| LSA 46.3 M8 | 980 | 989 | 937 | 445 | 429 | 754 | | | | |
| LSA 46.3 L10* | 1075 | 1084 | 1032 | 493 | 525 | 888 | | | | |
| LSA 46.3 L11* | 1075 | 1084 | 1032 | 493 | 525 | 888 | | | | |

| Flange (mm) | | | | | | |
|-------------|-----------|---------|---------|-----|----|---------|
| S.A.E. | P | N | M | XBG | S | β° |
| 3 | 600**/641 | 409.575 | 428.625 | 12 | 11 | 15° |
| 2 | 600**/641 | 447.675 | 466.725 | 12 | 11 | 15° |
| 1 | 600**/641 | 511.175 | 530.225 | 12 | 12 | 15° |
| 1/2 | 713 | 584.2 | 619.125 | 12 | 14 | 15° |
| 0 | 713 | 647.7 | 679.45 | 16 | 14 | 11° 15' |

| Flex plate (mm) | | | | | |
|-----------------|--------|--------|---|----|------|
| S.A.E. | BX | U | X | Y | AH |
| 11 1/2 | 352.42 | 333.38 | 8 | 11 | 39.6 |
| 14 | 466.72 | 438.15 | 8 | 14 | 25.4 |
| 18*** | 571.5 | 542.92 | 6 | 17 | 15.7 |

* Shaft height = 355 mm optional - ** Specific dimension LSA 463 S2/S3/S4 - *** Optional

Torsional analysis data



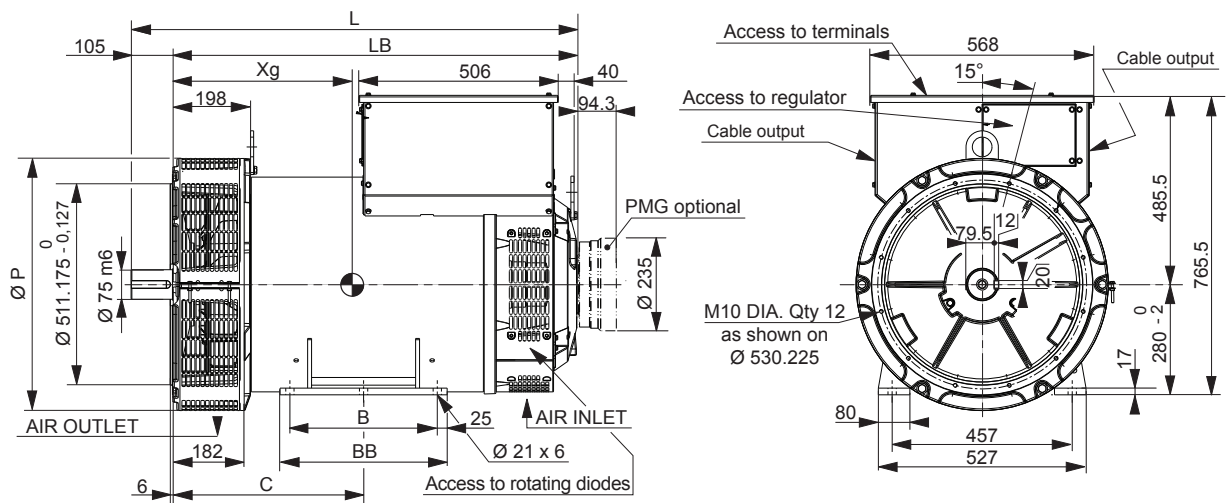
| Centre of gravity: Xr (mm), Rotor length: Lr (mm), Weight: M (kg), Moment of inertia: J (kgm ²): (4J = MD ²) | | | | | | | | |
|--|----------------------|------|-----|------|------------------|------|-----|------|
| Type | Flange S.A.E. 11 1/2 | | | | Flange S.A.E. 14 | | | |
| | Xr | Lr | M | J | Xr | Lr | M | J |
| LSA 46.3 S2 | 413 | 928 | 245 | 2.40 | 398 | 928 | 245 | 2.55 |
| LSA 46.3 S3 | 420 | 928 | 257 | 2.64 | 405 | 928 | 257 | 2.80 |
| LSA 46.3 S4 | 431 | 928 | 277 | 2.93 | 416 | 928 | 277 | 3.09 |
| LSA 46.3 S5 | 431 | 928 | 277 | 2.93 | 416 | 928 | 277 | 3.09 |
| LSA 46.3 M7 | 459 | 973 | 307 | 3.23 | 444 | 973 | 307 | 3.39 |
| LSA 46.3 M8 | 459 | 973 | 307 | 3.32 | 444 | 973 | 307 | 3.39 |
| LSA 46.3 L10 | 507 | 1068 | 362 | 3.96 | 493 | 1068 | 362 | 4.12 |
| LSA 46.3 L11 | 507 | 1068 | 362 | 3.96 | 493 | 1068 | 362 | 4.12 |

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

Low Voltage Alternators - 4 pole

LSA 46.3 - 180 to 365 kVA - 50 Hz / 225 to 456 kVA - 60 Hz

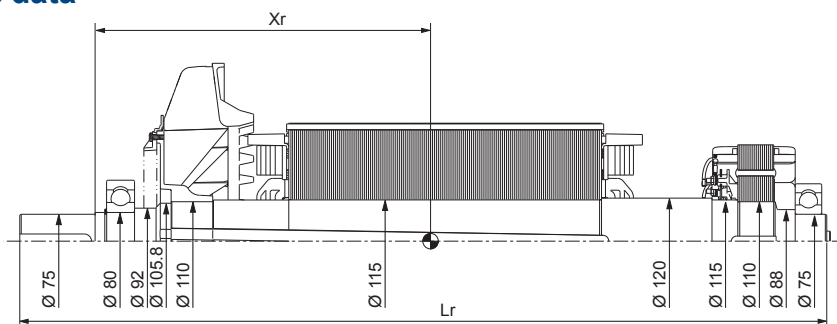
Two bearing dimensions



Dimensions (mm) and weight

| Type | L without PMG | LB | C | BB | B | P | Xg | Weight (kg) |
|--------------|---------------|------|-----|-----|-----|-----|-----|-------------|
| LSA 46.3 S2 | 997 | 892 | 389 | 368 | 318 | 600 | 413 | 569 |
| LSA 46.3 S3 | 997 | 892 | 389 | 368 | 318 | 600 | 418 | 599 |
| LSA 46.3 S4 | 997 | 892 | 389 | 368 | 318 | 600 | 427 | 674 |
| LSA 46.3 S5 | 997 | 892 | 389 | 368 | 318 | 640 | 427 | 682 |
| LSA 46.3 M7 | 1042 | 937 | 389 | 368 | 318 | 640 | 449 | 754 |
| LSA 46.3 M8 | 1042 | 937 | 389 | 368 | 318 | 640 | 449 | 754 |
| LSA 46.3 L10 | 1137 | 1032 | 485 | 424 | 374 | 640 | 496 | 888 |
| LSA 46.3 L11 | 1137 | 1032 | 485 | 424 | 374 | 640 | 496 | 888 |

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 46.3 S2 | 415 | 990 | 218 | 2.23 |
| LSA 46.3 S3 | 421 | 990 | 230 | 2.47 |
| LSA 46.3 S4 | 430 | 990 | 250 | 2.76 |
| LSA 46.3 S5 | 430 | 990 | 250 | 2.76 |
| LSA 46.3 M7 | 456 | 1035 | 280 | 3.06 |
| LSA 46.3 M8 | 456 | 1035 | 280 | 3.06 |
| LSA 46.3 L10 | 503 | 1130 | 336 | 3.79 |
| LSA 46.3 L11 | 503 | 1130 | 336 | 3.79 |

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

EMERSON. CONSIDER IT SOLVED.™

www.emerson.com/epg

© Emerson 2014. The information contained in this brochure is for guidance only and does not form part of any contract. The accuracy cannot be guaranteed as Emerson have an ongoing process of development and reserve the right to change the specification of their products without notice.

Moteurs Leroy-Somer SAS. Headquarters: Bd Marcellin Leroy, CS 10015, 16915 Angoulême Cedex 9, France. Share Capital: 65 800 512 €, RCS Angoulême 338 567 258.

Leroy-Somer™

