# CUMMINS K50-DM PERFORMANCE DATA

| Engine Performance | | | |
|---|---|---|---|
| | | **Site Rated** | **Site Maximum (Overload)** |
| Engine Power | kW [hp] | 1291 [1730] | 1417 [1900] |
| Governed Speed | rpm | 1800 | |
| Horsepower Production Tolerance | ±% | 5 | |
| Torque | N.m [lb.ft] | 4341 [3202] | |
| Brake Mean Effective Pressure | kPa [psi] | 1705 [247] | 1872 [272] |
| Compression Ratio | | 13 : 9 : 1 | |
| Piston Speed | m/sec [ft/min] | 9.5 [1876] | |
| Friction Power | kW [hp] | 168 [225] | |
| **Exhaust System** | | | |
| Exhaust Gas Flow | l/sec [cfm] | 4108 [8705] | 4259 [9025] |
| Exhaust Gas Temperature (Turbine out) | ºC [º F] | 446 [835] | 464 [867.425] |
| Exhaust Gas Temperature (Manifold) | ºC [º F] | 582 [1078] | 604 [1118] |
| Heat Rejection to Exhaust | kW [Btu/min] | 966 [54971] | 1038 [59100] |
| **Emission** | | | |
| NOx (Oxides of Nitrogen) | g/kw.hr [g/bhp.hr] | 8.93 [6.66] | |
| HC (Hydrocarbons) | g/kw.hr [g/bhp.hr] | 0.40 [0.30] | |
| CO (Carbon Monoxide) | g/kw.hr [g/bhp.hr] | 0.64 [0.48] | |
| **Air Inlet** | | | |
| Intake Manifold Pressure | kPA [in Hg] | 207 [61] | |
| **Fuel System** | | | |
| Fuel Flow to pump (approx.) | l/hr [gal/hr] | 609.5 [161.0] | 609.5 [161.0] |
| Max. allowable Fuel supply to Pump temperature | ºC [º F] | 60 [140.0] | 60 [140.0] |
| Fuel flow return to tank (approx.) | l/hr [gal/hr] | 288.6 [76.3] | 260.6 [68.9] |
| Fuel return to tank temperature (approx.) | ºC [º F] | 71 [160] | 71 [160] |
| Fuel Rail Pressure | kPa [psi] | 924 [134] | 1148 [166.46] |
| Average Fuel Consumption-Emission ISO 8178 D2 Test Cycle | l/hr [gal/hr] | 168.6 [44.6] | |
| **Cooling System** | | | |
| **LTA – One Pump Two Loop Low Temperature Aftercooling** | | | |
| Main Engine Circuit | | | |
| Coolant flow to Main Cooler (open thermostat) | l/min [gal/min] | 1117 [295] | |
| Heat Rejection to Engine Coolant | kW [Btu/min] | 481 [27367] | |
| Aftercooler (LTA) circuit | | | |
| Coolant flow to LTA Cooler (open thermostat) | l/min [gal/min] | 288 [76] | |
| Heat Rejection to Engine Coolant | kW [Btu/min] | 227 [12908] | 250 [14250] |
| Max. Coolant Inlet Temp. from LTA Cooler – for Keel Cooled | ºC [º F] | 71 [160] | |

# LEROY-SOMER LSA 50.2 PERFORMANCE DATA

## GENERAL CHARACTERISTICS

| | | | |
|---|---|---|---|
| Insulation class | H | Excitation system | PMG |
| Winding pitch | 2/3 | AVR type | R450/D510C |
| Number of wires | 6 | Voltage Regulation | ± 0.5 % |
| Protection | IP 23 | Short-circuit current | 300% (3 IN): 10s |
| Altitude | ≤ 1000 m | Total Harmonic Distortion THD (**) in no load | < 3.5 % |
| Overspeed | 2250 min-1 | Total Harmonic Distortion THD (**) on linear load | < 3.5 % |
| Air Flow | 2.2 m3/s, 60Hz | Waveform: NEMA = TIF (**) | < 50 |

(*) Regulator input voltage, steady state, within the below total harmonic distortion (THD) limits.

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

**Ratings 60Hz – 1800 R.P.M**

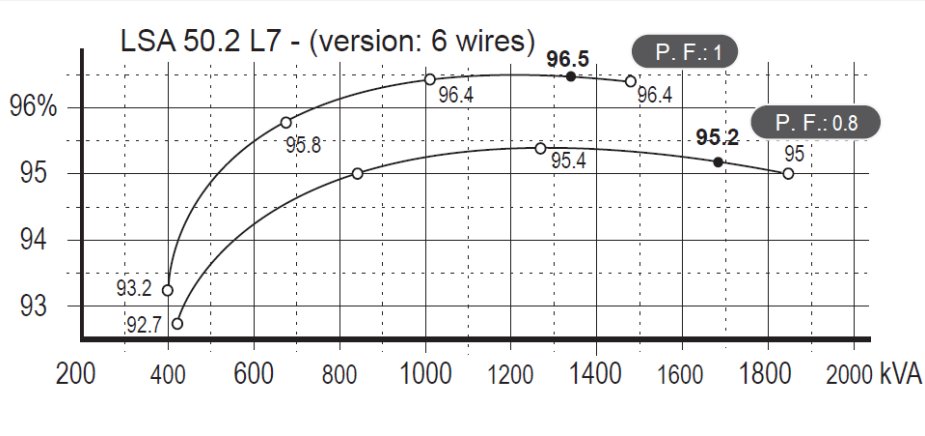
| **kVA / kW – P.F = 0.8** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Duty/ ºC | | Continuous duty /40 ºC | | Continuous duty /40 ºC | | Stand-by /40 ºC | | Stand-by /27 ºC | |
| Class/ ºK | | H / 125 ºK | | F / 105 ºK | | H / 150 ºK | | H / 163 ºK | |
| Phase | | **3 ph.** | | **3 ph.** | | **3 ph.** | | **3 ph.** | |
| **Y** | | 380V | 480V | 380V | 480V | 380V | 480V | 380V | 480V |
| **LSA 50.2 L7** | kVA | 1375 | 1680 | 1240 | 1510 | 1440 | 1765 | 1510 | 1850 |
| | kW | 1100 | 1344 | 992 | 1208 | 1152 | 1412 | 1208 | 1480 |

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

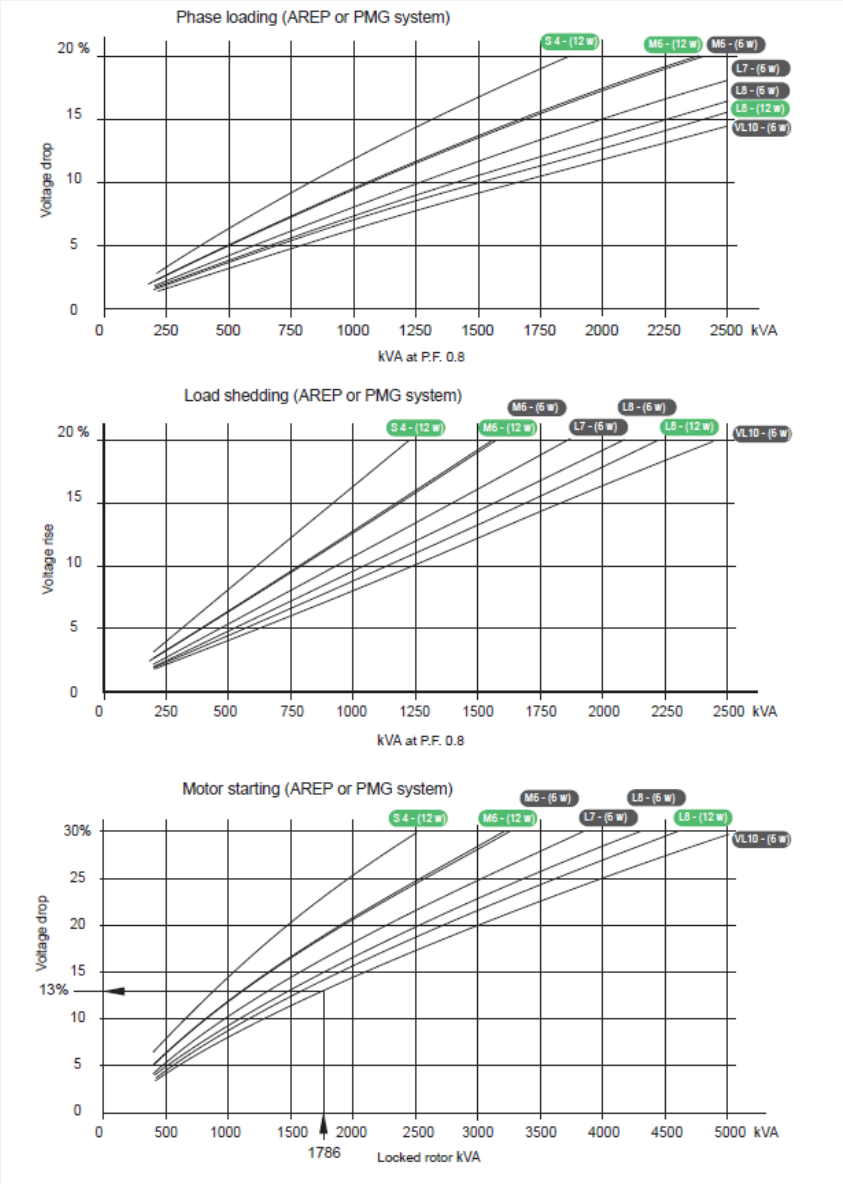
| | | **L7 (6f)** |
|---|---|---|
| Kcc | Short-circuit ratio | 0.33 |
| Xd | Direct-axis synchro. Reactance unsaturated | 377 |
| Xq | Quadrature-axis synchro. Reactance unsaturated | 226 |
| T'do | No-load transient time constant | 3750 |
| X'd | Direct-axis transient reactance saturated | 18.1 |
| T'd | Short-circuit transient time constant | 180 |
| X"d | Direct-axis sub transient reactance saturated | 15.4 |
| T"d | Sub transient time constant | 18 |
| X"q | Sub transient time constant | 16.1 |
| Xo | Quadrature-axis sub transient reactance saturated | 3.7 |
| X2 | Negative sequence reactance saturated | 15.8 |
| Ta | Armature time constant | 27 |
| | **Other class H / 480V data** | |
| io (A) | No-load excitation current | 0.9 |
| ic (A) | On-load excitation current | 4.1 |
| uc (V) | On-load excitation voltage | 45 |
| ms | Response time (ΔU=20% transient) | 500 |
| kVA | Start (ΔU=20% cont. or 50% trans.) | 3927 |
| % | Transient ΔU (on-load 4/4) – P.F: 0.8 | 12.8 |
| W | No-load losses | 23820 |
| W | Heat dissipation | 67290 |

# LEROY-SOMER LSA 50.2 PERFORMANCE DATA

## Efficiencies @ 60Hz




## Transient Voltage Variation 480V – 60Hz

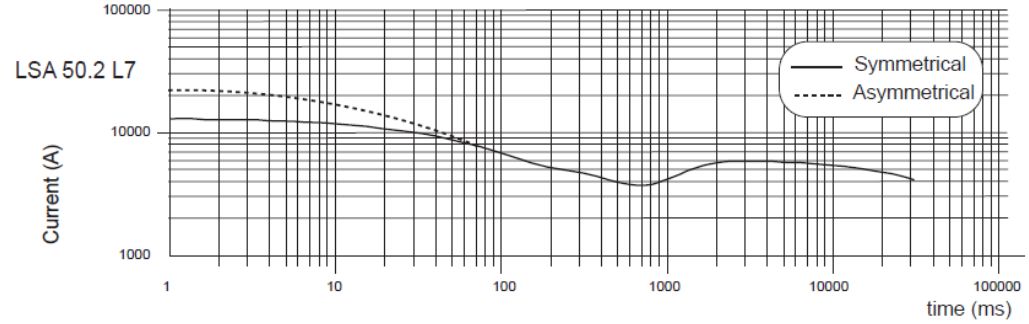


# LEROY-SOMER LSA 50.2 PERFORMANCE DATA

1) For a starting P.F other than 0.6, the starting kVA must be multiplied by K = sine P.F / 0.8
   Calculation example for a different P.F other than 0.6: Starter motor kVA calculated at 0.4 P.F = 1560 kVA.
   - Sin P.F 0.4 = 0.9165
   - K = 1.145
   - kVA corrected = 1786 kVA
   - Voltage dip corresponding to VL 10 = 13%
   -

2) For voltages other than 480V (Y), 277V (Δ), 240 (YY) at 60Hz, then kVA must be multiplied by $(\frac{480}{U})^2$

## 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 (PMG) | 10 sec. | 5 sec. | 2 sec. |