



# GENERATING SET GE 455 SSX

The images are for reference



## FEATURES

- Engine with the lowest fuel consumption in its class
- Electronic speed governor
- Alternator with automatic voltage regulation "AVR"
- Four pole circuit breaker
- Bunded base suitable to contain any liquids leakage from engine avoiding environmental pollution
- Oil drain pump
- Fuel pre-filter with water separator
- Low level water radiator sensor
- Main battery switch
- Large doors for better and easy maintenance (air, oil, fuel filters replacement)
- 2 lifting eyes
- Control panel with digital control unit available with automatic or manual version
- Suitable for a wide range of uses in general construction
- Meets EC directives



water cooled



diesel



three-phase power



electric



silenced

## POWER RATINGS

|                                    |                                  |
|------------------------------------|----------------------------------|
| * Stand-By three-phase power (LTP) | 450 kVA (360 kW) / 400V / 649.5A |
| * PRP three-phase power            | 410 kVA (328 kW) / 400V / 592A   |
| * COP single-phase power           | 350 kVA (280 kW) / 400V / 505A   |
| Frequency                          | 50 Hz                            |
| Cos φ                              | 0.8                              |

\* Output powers according to ISO 8528-1

## DEFINITION

Valid declared powers up to the followings environmental conditions: temperature 25°C, altitude 100 meters above sea level)

**LTP power: stand-by power:** Maximum available power for use with variable loads for a yearly number of hours limited at 500 h. No overload is admitted.

**PRP power:** continue power with variable loads. Maximum power for use with variable loads for a yearly unlimited numbers of hours.

**COP power:** continuous power with constant load. Maximum power for use with constant loads for a yearly unlimited numbers of hours.

## ENGINE 1500 RPM

### 4 STROKE, DIRECT INJECTION, TURBOCHARGED

|  |   |
|--|---|
| Model  | SCANIA DC13 072A 02-12                          |
| * Stand-By net power                             | 397 kW  |
| * PRP net power                                  | 359 kW  |
| * COP net power                                  | 302 kW  |
| Cylinders / Displacement                         | 6 in linea / 12.7 lit. (12700 cm <sup>3</sup> ) |
| Bore / Stroke                                    | 130 / 160 (mm)                                  |
| Compression ratio                                | 16.3: 1   |
| BMEP (Brake Mean Effective Pressure : LTP - PRP) | /   |
| Speed governor type                              | Electronic                                      |
| <b>FUEL CONSUMPTION</b>                          |   |
| 110 % (Stand-by power)                           | 89.2 lit./h                                     |
| 100 % to PRP                                     | 79.5 lit./h                                     |
| 75 % to PRP                                      | 60 lit./h                                       |
| 50 % to PRP                                      | 40.5 lit./h                                     |
| <b>COOLING SYSTEM</b>                            |   |
| Total system cap. - only engine                  | 54 lit. - 16 lit.                               |
| Fan air flow                                     | 540 kg/min                                      |
| <b>LUBRIFICATION SYSTEM</b>                      |   |
| Total oil system capacity                        | 38 lit.   |
| Oil capacity in sump                             | 30 lit. (min) - 36 lit. (max)                   |
| Oil consumption at full load                     | < 0.35 lit./h                                   |

|                                   |                  |
|-----------------------------------|------------------|
| <b>EXHAUST SYSTEM</b>             |                  |
| Maximum exhaust gas flow          | 32 kg/mim.       |
| Max. exhaust gas temp.            | 509 °C           |
| Maximum back pressure             | 10 kPa (0.1 bar) |
| External diameter exhaust pipe    | /                |
| <b>ELECTRICAL SYSTEM</b>          |                  |
| Starter motor power               | 6 kW             |
| Battery charging alternator cap.  | 100 A            |
| Cold start                        | - 10 °C          |
| With cold start aid               | /                |
| <b>AIR FILTER</b>                 |                  |
| Air filter                        | Dry              |
| Combustion air flow               | 30 kg/min        |
| <b>HEAT REJECTED AT FULL LOAD</b> |                  |
| To exhaust system                 | 271 kW           |
| To water and oil                  | 119 kW           |
| Radiated to room                  | 31 kW            |
| To charge cooler                  | 75 kW            |

\* Output powers according to ISO 3046-1



## ALTERNATOR

### SYNCHRONOUS, THREE-PHASE, SELF-EXCITED, SELF-REGULATED, BRUSHLESS

|  |                                   |
|--|-----------------------------------|
| Continuous power                               | 410 kVA                           |
| Stand-by power                                 | 450 kVA                           |
| Three phase voltage                            | 380-440 Vac                       |
| Frequency                                      | 50 Hz                             |
| Cos $\varphi$                                  | 0.8                               |
| Model A.V.R.                                   | Digital MEC-20                    |
| Voltage regulation acc.                        | $\pm 0.5\%$                       |
| Sustained short circuit current                | 1800 A                            |
| Transient dip (100% load)                      | < 20 %                            |
| Recovery time                                  | < 0.3 sec                         |
| Efficiency at 100% load                        | 93,7 % (400V - Cos $\varphi$ 0,8) |
| Insulation                                     | Class H                           |
| Connection - Terminals                         | Star - N°12                       |
| Electromagnetic compatibility ( R.F.I. suppr.) | EN 55011- ClassB, group 1         |
| Waveform distorsion - THD                      | < 2 %                             |
| Telephone interference - THF                   | < 2 %                             |

### REACTANCES (410 kVA - 400V)

|                                  |                           |
|----------------------------------|---------------------------|
| Direct axis synchronuos - Xd     | 330 %                     |
| Direct axis transient - X'd      | 29.5 %                    |
| Subdirect axis transient - X''d  | 13.2 %                    |
| Quadrature axis synchronuos - Xq | 175 %                     |
| Quadr. axis subtransient - X''q  | 15.6 %                    |
| Negative sequence - X2           | 14.4 %                    |
| Zero sequence - X0               | 3.3 %                     |
| <b>TIME CONSTANTS</b>            |                           |
| Transient - T'd                  | 0.14 sec                  |
| Subtransient - T''d              | 0.014 sec                 |
| Open circuit - T'do              | 1.6 sec                   |
| Armature - Ta                    | 0.018 sec                 |
| Short-circuit ratio Kcc          | 0.38                      |
| Grado di Protezione IP           | IP 23                     |
| Cooling air flow                 | 0,83 m <sup>3</sup> /sec. |
| Coupling   Bearing               | Direct SAE 1 -14 - N°1    |

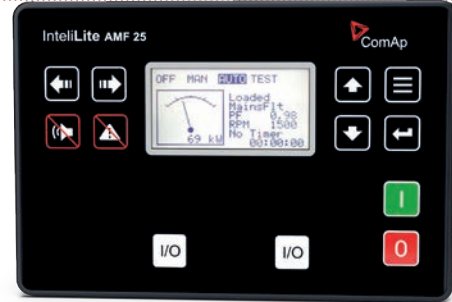
## GENERAL SPECIFICATIONS

|                           |                                      |
|---------------------------|--------------------------------------|
| Fuel tank capacity        | 580 lt.                              |
| Running time (75% to PRP) | 9.6 h                                |
| Starter battery           | 24 Vdc [2x12Vdc-180Ah 1100A CCA(EN)] |

|                                   |                          |
|-----------------------------------|--------------------------|
| IP protection degree              | IP 44                    |
| Acoustic power LwA (pressure LpA) | 99 dB(A) (74 dB(A) @ 7m) |
| Performance class (ISO 8528)      | G2                       |

## CONTROL PANEL

- Controller IntiLite AMF25
- Controller supply switch
- Siren
- Emergency stop button
- TCM 35 remote control plug
- Circuit breaker
- PAC (ATS) plug - Automatic control panel only
- Battery charger - Automatic control panel only
- Earth terminal (PE)



| AMF25 CONTROLLER CHARACTERISTICS |   |
|----------------------------------|---|
| Operating mode                   | <ul style="list-style-type: none"> <li>• OFF - MAN. - AUTO - TEST</li> </ul>  |
| Display                          | <ul style="list-style-type: none"> <li>• Graphic back-light LCD display 128x64 pixels</li> </ul>  |
| LEDs                             | <ul style="list-style-type: none"> <li>• Gen-set voltage OK</li> <li>• Gen-set failure</li> <li>• GCB ON (only for Automatic transfer unit)</li> <li>• Mains voltage OK (only for Automatic transfer unit)</li> <li>• Mains failure (only for Automatic transfer unit)</li> <li>• MCB ON (only for Automatic transfer unit)</li> </ul>  |
| Buttons                          | <ul style="list-style-type: none"> <li>• START button</li> <li>• STOP button</li> <li>• FAULT RESET button</li> <li>• RESET HORN button</li> <li>• MODE selection button</li> <li>• Pulsante chiusura/apertura GCB button</li> <li>• Pulsante chiusura/apertura MCB button</li> <li>• N° 4 buttons for controller programming</li> </ul>  |
| Generator Measures               | <ul style="list-style-type: none"> <li>• Voltage : L1-L2 / L2-L3 / L3-L1 - N-L1/N-L2/N-L3</li> <li>• Current : I1 - I2 - I3</li> <li>• Powers : kVA - kW - kVAR (totali e per fase)</li> <li>• Energy : kVAh - kWh - kVARh</li> <li>• Cos φ (medium and per phase)</li> <li>• Frequency</li> </ul>  |
| Engine Measures                  | <ul style="list-style-type: none"> <li>• Water temperature</li> <li>• Oil pressure</li> <li>• Fuel level</li> <li>• Rpm meter</li> <li>• Battery voltage</li> <li>• Maintance</li> <li>• Hours meter</li> <li>• Starts number</li> </ul>  |
| Generator Protections            | <ul style="list-style-type: none"> <li>• Overload</li> <li>• Overcurrent</li> <li>• Short circuit</li> <li>• Over-Udervoltage</li> <li>• Over-Uderfrequency</li> <li>• Voltage asymmetry</li> <li>• Unbalanced current</li> <li>• Phase sequence</li> </ul>   |
| Engine Protections               | <ul style="list-style-type: none"> <li>• Overspeed</li> <li>• High water temperature warning</li> <li>• Low oil pressure warning</li> <li>• Low fuel level warning</li> <li>• Over-Uder battery voltage</li> <li>• Battery charge alternator failure</li> <li>• Start failure</li> <li>• Stop failure</li> <li>• Emergency stop</li> <li>• Low water level shutdown (option)</li> </ul> |

|   |  |
|---|--|
| AMF functins (Automatic control panel only) | <ul style="list-style-type: none"> <li>• Measure mains voltage : L1-L2 / L2-L3 / L3-L1 - N-L1/N-L2/N-L3</li> <li>• Measure mains frequency</li> <li>• Three phase detection</li> <li>• Over-Under mains voltage</li> <li>• Over-Under mains frequency</li> <li>• Voltage asymmetry</li> <li>• Phase sequence</li> <li>• Dual mutual stand-by application</li> </ul>  |
| Features                                    | <ul style="list-style-type: none"> <li>• Historical events</li> <li>• 3 programmable test timers</li> <li>• Panel or PC programming</li> <li>• 3 selectable languages</li> <li>• Direct connection to engines with ECU via Can Bus J1939</li> <li>• External start and stop</li> <li>• Programmable inputs and outputs</li> <li>• Alternative configurations (50 / 60Hz)</li> <li>• IP 65 protection</li> <li>• Operating temperature: -20 ° C - + 70 ° C</li> </ul>   |
| Communication                               | <ul style="list-style-type: none"> <li>• RTU Modbus (optional board with RS232 &amp; RS485 outputs is needed)</li> <li>• TCP/IP Modbus (optional Ethernet board with RJ45 output is needed)</li> <li>• SNMP Modbus (optional Ethernet board with RJ45 output is needed)</li> <li>• Internet (optional Ethernet board optional is needed)</li> <li>• GSM/GPRS (integrated Modem board optional is needed) for Gen-set remote control via SMS or internet</li> <li>• GPS / 4G modem (optional) (geographical tracking via WebSupervisor</li> </ul> |

| CONTROL PANEL VERSION WITH OUTPUT SOCKETS            |                          |
|--|--------------------------|
| <b>SOCKETS</b>                                       | 1x 125A 400V 3P-N-T IP67 |
| Each socket is protect by own automatic switch.      | 1x 63A 400V 3P-N-T IP67  |
| Circuit breaker for 125A and 63A sockets.            | 1x 32A 400V 3P-N-T IP67  |
| GFI and circuit breaker 30mA for 32A and 16A socket. | 1x 16A 400V 3P-N-T IP67  |
|  | 1x 230V 2P-T IP67        |
|  | 1x 230V 2P-T Schuko IP54 |

# WEIGHT - DIMENSIONS AND ACCESSORIES

GE 455 SSX



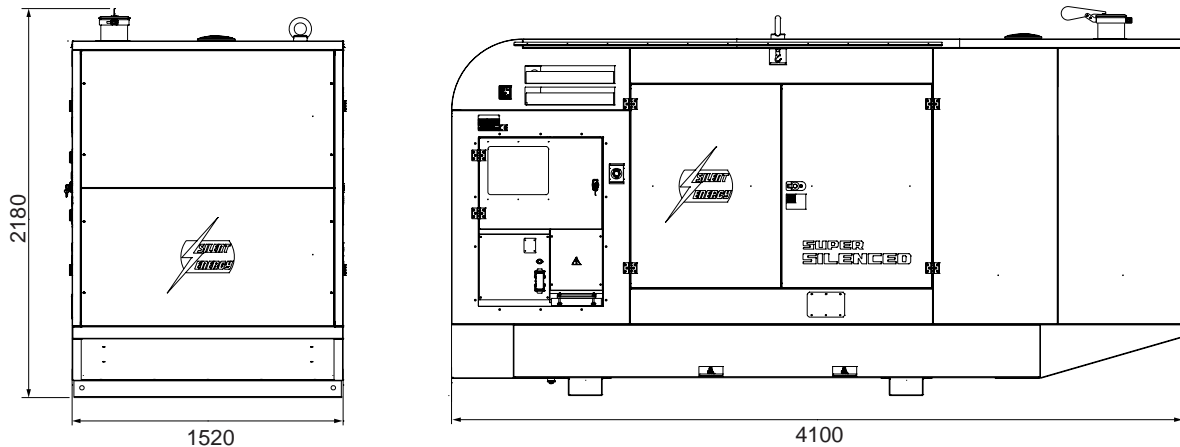
## DRY WEIGHT MACHINE:

- 4370 kg

Generating set pictured may include optional accessories.



## DIMENSIONS DRAW



## OPTIONS ON REQUEST

- Automatic transfer switch unit (ATS) PAC 550-M (800A)
- Remote control TCM35
- Earthing kit



## VERSIONS ON REQUEST

- Version with manual control panel 6 output sockets EC and SCHUKO (see Control board with output sockets section)
- Manual digital control panel (without sockets)
- Parallel switch board



## FACTORY INSTALLATION OPTIONS

- Electronic leakage relay
- Isometer
- Volt adjustable from control panel
- Radio control
- Automatic fuel transfer pump
- 3-way valve fuel system with quick connection for external fuel tank supply
- Engine water heater WH
- Plug-in module with double RS232 and RS485 port
- GSM modem with antenna
- GPS / 4G modem with antenna
- Internet / Ethernet plug-in module with Web Server
- Input / Output extension module (No. 16 tot.)

## GENERAL INFORMATION

### COMPLIANCE GENERATING SETS WITH EC DIRECTIVES AND STANDARDS

- 2006/42 / EC (Machines Directive)
- 2014/35 / EU (Low Voltage Directive)
- 2014/30 / EU (EMC Directive)
- 2000/14 / EC (Directive Acoustic Emission for machines for use outdoors)
- ISO 8528 (Reciprocating internal combustion engine driven alternating current generating sets)



ISO 9001:2008 - Cert. 0192

### WARRANTY

All devices are covered by the manufacturer's warranty.

Non-contractual document. Specification subject to change without notice.

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