

# GENERATING SET GE 90 BSX



## FEATURES

- Electronic regulation of engine speed
- Fuel pre-filter and filter with indicator of the presence of water in the fuel
- Anti-tipping side pockets for handling with forklifts
- Central lifting hook
- Rounded edges to allow rainwater to flow
- Sealed base capable of containing any leaks of liquids present in the engine, avoiding environmental pollution
- Large capacity steel tank
- Large access doors to allow easy maintenance (replacing air, oil, fuel filters)
- Door with viewing porthole for the control panel
- External access for filling the radiator
- External cap for water drainage
- Oil extraction pump
- 3-way valve for transferring fuel from an external tank with quick filling connections housed in a special niche (OPTIONAL)
- Swinging rain cover at the exhaust gas outlet
- Low level of noise emissions
- Fuel level sensors, low radiator fluid level and crankcase leak detection
- Battery disconnect switch
- Emergency button
- Power cable connection terminal block
- Electrical distribution panel with three-phase and single-phase output sockets
- General four-pole thermomagnetic switch
- Electronic differential relay adjustable in current and trip time as standard with the electrical distribution panel
- Alternator with electronic voltage regulation "AVR" with three-phase sensing
- Alternator windings protected with marine impregnation

## POWER RATINGS

* Stand-By three-phase power (LTP)	90 kVA (72 kW) / 400V / 130A
* PRP three-phase power	80 kVA (64 kW) / 400V / 115.5 A
* PRP single-phase power	/
Frequency	50 Hz
Cos φ	0.8

\* Output powers according to ISO 8528-1

## ENGINE 1500 RPM



water cooled



diesel



three-phase



electric starter

### 4 STROKE, DIRECT INJECTION, TURBOCHARGED

Model	BAUDOUIN 4M10G4D3/5
* Stand-By net power	80 kW (108,8 hp)
* PRP net power	71 kW (96,6 hp)
* COP net power	/
Cylinders / Displacement	4 / 4088 cm <sup>3</sup> (4,088 lt.)
Bore / Stroke	105 / 118 (mm)
Compression ratio	17,5 : 1
BMEP (Brake Mean Effective Pressure : LTP - PRP)	1644 kPa
Speed governor type	Electronic
<b>FUEL CONSUMPTION</b>	
110 % (Stand-by power)	19,61 lt./h
100 % to PRP	17,29 lt./h
75 % to PRP	13,24 lt./h
50 % to PRP	9,24 lt./h
25 % to PRP	5,35 lt./h
<b>COOLING SYSTEM</b>	
Total system cap. - only engine	14,2 lt - 9,4 lt.
Fan air flow	175 m <sup>3</sup> /min.
<b>LUBRIFICATION SYSTEM</b>	
Total oil system capacity	12 lt ÷ 14 lt
Oil capacity in sump	/

Oil consumption at full load	0,1 % (fuel consumption)
<b>EXHAUST SYSTEM</b>	
Maximum exhaust gas flow	16,24 m <sup>3</sup> /min.
Max. exhaust gas temp.	720 °C
Maximum back pressure	5 kPa (0,05 bar)
External diameter exhaust pipe	80 mm
<b>ELECTRICAL SYSTEM</b>	
Starter motor power	3,8 kW
Battery charging alternator cap.	80 A
Cold start	-15 °C
With cold start aid	- 25 °C
<b>AIR FILTER</b>	
Combustion air flow	5,42 m <sup>3</sup> /min.
<b>HEAT REJECTED AT FULL LOAD</b>	
To exhaust system	53,7 kJ /s ( 53,7 kW/h)
To water and oil	44,9 kJ /s ( 44,9 kW/h)
Radiated to room	9,8 kJ /s ( 9,8 kW/h)
To charge cooler	9,9 kJ /s ( 9,9 kW/h)

\* Output powers according to ISO 3046-1

## ALTERNATOR

SYNCHRONOUS, THREE-PHASE, SELF-EXCITED, SELF-REGULATED, BRUSHLESS	
Continuous power	85 kVA
Stand-by power	96 kVA
Three phase voltage	380 - 440 Vac
Frequency	50 Hz
Cos $\varphi$	0.8
Model A.V.R.	HVR-30 (3ph. sensing)
Voltage regulation acc.	$\pm 1,0 \%$
Sustained short circuit current	$\geq 2,5 I_n$ (x10 sec.)
Transient dip (100% load)	$< 10 \%$
Recovery time	$< 0,3$ sec
Efficiency at 100% load	90,3 % (400V - Cos $\varphi$ 0,8)
Insulation	Class H
Connection - Terminals	Star - N°12
Electromagnetic compatibility ( R.F.I. suppr.)	EN 55011
Waveform distortion - THD	$< 3 \%$
Telephone interference - THF	$< 2 \%$

REACTANCES (85 kVA - 400V)	
Direct axis synchronuos - Xd	300 %
Direct axis transient - X'd	19,0 %
Subdirect axis transient - X''d	9,5 %
Quadrature axis synchronuos - Xq	202 %
Quadr. axis subtransient - X''q	/
Negative sequence - X2	/
Zero sequence - X0	/
TIME CONSTANTS	
Transient - T'd	0,021 sec
Subtransient - T''d	0,011sec
Open circuit - T'do	0,258 sec
Armature - Ta	/
Short-circuit ratio Kcc	0,45
Grado di Protezione IP	IP 23
Cooling air flow	0.3 m <sup>3</sup> /sec.
Coupling I Bearing	Direct SAE 3 -11 ½ - N°1

## GENERAL SPECIFICATIONS

Fuel tank capacity	350 lt.
Running time (75% to PRP)	26,4 h
Starter battery	12 Vdc -100Ah / 800A CCA(EN)

IP protection degree	IP 44
Acoustic pressure LpA	72 dB(A) @ 7m
Performance class (ISO 8528)	G3

## CONTROL PANEL

- Power switch
- Siren
- Emergency stop button
- Switch magnetermic
- Electronic differential relay
- Power terminal block
- Earth terminal (PE)
- Output sockets:
  - 1x 400V 125A 3P+N+T CEE IP67
  - 1x 400V 63A 3P+N+T CEE IP67
  - 1x 400V 32A 3P+N+T CEE IP67
  - 1x 400V 16A 3P+N+T CEE IP67
  - 1x 230V 16A 2P+T CEE IP67
  - 1x 230V 16A 2P+E SCHUKO IP67
- Differential circuit breaker for 400V 63A socket
- Differential circuit breaker for 400V 32A socket
- Differential circuit breaker for 400V 16A socket
- 2x Differential circuit breaker for 230V 16A socket



INTELLITE4 AMF9 CONTROLLER CHARACTERISTICS	
Operating mode	<ul style="list-style-type: none"> <li>• OFF - MAN - AUTO - TEST</li> </ul>
Display - Pulsanti-LEDs	<ul style="list-style-type: none"> <li>• Backlit display, LCD 132x64 pixels</li> <li>• Buttons / Buttons: START - STOP - RESET ALARMS / FAULT RESET</li> <li>• LEDs: Generator / GCB ON status - Grid status</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>• Frequency Hz</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> </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-Undervoltage</li> <li>• Over-Underfrequency</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-Under 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>• Event history, 150 stored events</li> <li>• 3 programmable test timers</li> <li>• Programming from panel or from PC</li> <li>• 3 selectable languages (other languages available)</li> <li>• Direct connection to engines with ECU (Stage V, Tier 4 Final) 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>• USB port</li> <li>• RS232- RS485 (optional)</li> <li>• Modbus RTU / TCP (optional)</li> <li>• GSM modem. Commands alarms, events via SMS (optional)</li> <li>• Internet connection with Ethernet (optional)</li> <li>• Online control and monitoring on web pages (embedded web server) (optional)</li> <li>• SNMP (optional)</li> <li>• GPS / 4G modem (optional) (geographical tracking via WebSupervisor)</li> <li>• Internal PLC support</li> </ul>



# WEIGHT - DIMENSIONS AND ACCESSORIES

GE 90 BSX

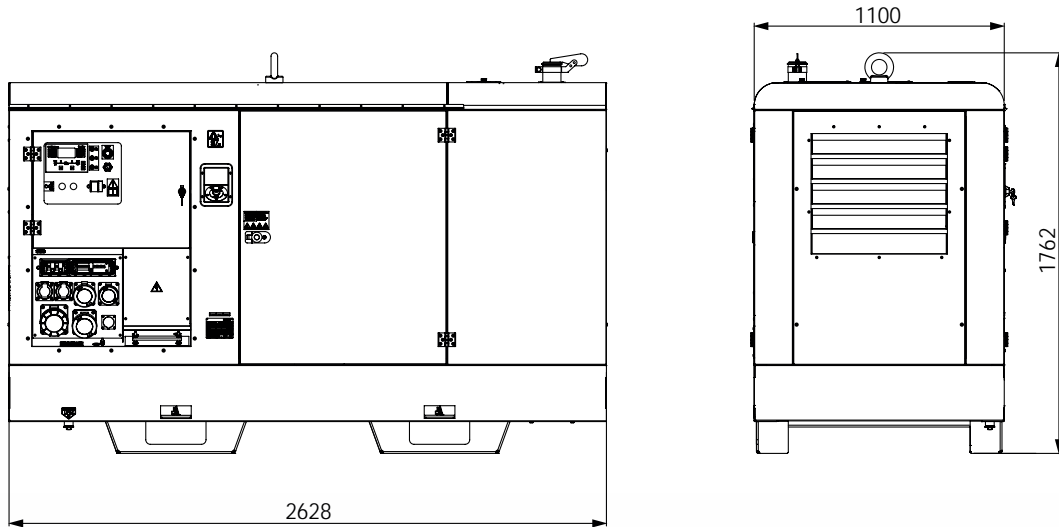


**DRY WEIGHT MACHINE:**  
• 1620 Kg

Generating set pictured may include optional accessories.



**DIMENSIONS DRAW**



## VERSIONS IN ADDITION TO THE STANDARD FEATURES

	HEATER	3WAY	PLUS	TOP
3-way valve		✓	✓	✓
Engine water heater	✓			✓
Spark extinguisher			✓	
Adjustment Volts from control panel				✓

## OPTIONS ON REQUEST

- Internet plug-in module
- GPS/4G modem with antenna
- Plug-in module with double RS232 and RS485 port
- Report card for 15 alarms/statuses (configurable)
- Teleswitching panel (ATS) PAC-I 111-M (12V - 160A)
- TCM35 remote control
- MT25 earthing

## VERSIONS AVAILABLE

CL9W20G6R	STANDARD
CL9W20G6AR	HEATER
CL9W20G6HR	3WAY
CL9W20G6CHR	PLUS
CL9W20G6AHRU	TOP

## 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)
- 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.

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