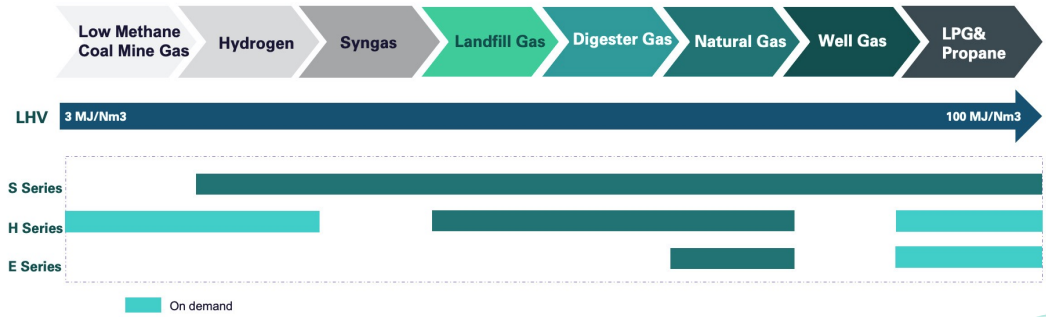
Guascor Energy

Fuel flexibility

Guascor Energy engines fuel flexibility



Natural gas fueled engines & gensets – MN>75

S Series

Engine Model	Cylinders	Disp. (l)	Mechanical Power (kWb)			Electrical Power (kWe)		
			1.200 rpm	1.500 rpm	1.800 rpm	1.200 rpm	1.500 rpm	1.800 rpm
18SL	6L	18	251	314	350	240	304	336
24SL	8L	24	335	419	453	320	405	436
36SL	12V	36	502	630	700	482	609	678
48SL	16V	48	670	838	906	642	812	880
56SL	16V	56	788	985	1.067	750	957	1028
56SM	16V	56	-	1.055	1.100	-	1.025	1.065

H Series

Engine Model	Cylinders	Disp. (l)	Mechanical Power (kWb)			Electrical Power (kWe)		
			1.200 rpm	1.500 rpm	1.800 rpm	1.200 rpm	1.500 rpm	1.800 rpm
24HM	8L	24	-	520	520	-	501	500
42HM	12V	42	-	1.040	1.040	-	1.011	1.011
56HM	16V	56	1.040	1.373	1.350	1.007	1.337	1.308

E Series

Engine Model	Cylinders	Disp. (l)	Mechanical Power (kWb)			Electrical Power (kWe)		
			1.200 rpm	1.500 rpm	1.800 rpm	1.200 rpm	1.500 rpm	1.800 rpm
86EM	12V	86	-	2.065	-	-	2.013	-
100EM	12V	100	2.065	-	-	2.007	-	-

Natural Gas MN>75. LHV: 38.500 kJ/Nm³. According to fuel gas specification IC-G-D-30-002. For other MN (Methane number) contact Guascor Energy. For checking availability of the S, H and E natural gas engines for running with propane contact Guascor Energy.

Guascor Energy engines- H2 ready

The current configuration of Guascor Energy natural gas engines enables natural gas mixtures with up to 25% hydrogen as fuel to be used while retaining the engine performance in terms of power generated. Furthermore, small changes in the configuration of the natural gas engines allow them to work with up to 50% hydrogen, only slightly affecting the output compared to the natural gas reference figures.

BioGas, Landfill, WWTP, Biodigestion, POME gas fueled engines & gensets

S Series

Engine Model	Cylinders	Disp. (l)	Mechanical Power (kWb)			Electrical Power (kWe)		
			1.200 rpm	1.500 rpm	1.800 rpm	1.200 rpm	1.500 rpm	1.800 rpm
18SL	6L	18	251	314	350	240	304	336
24SL	8L	24	335	419	453	320	405	436
36SL	12V	36	502	630	700	482	609	678
48SL	16V	48	670	838	906	642	812	880
56SL	16V	56	788	985	1.067	750	957	1028
56SM	16V	56	-	1.055	1.100	-	1.025	1.065

H Series

Engine Model	Cylinders	Disp. (l)	Mechanical Power (kWb)			Electrical Power (kWe)		
			1.200 rpm	1.500 rpm	1.800 rpm	1.200 rpm	1.500 rpm	1.800 rpm
24HM	8L	24	-	520	520	-	501	500
42HM	12V	42	-	1.040	1.040	-	1.011	1.011
56HM	16V	56	1.040	1.373	1.350	1.007	1.337	1.308

Reference Gas (CH_4: 62,5%, CO_2: 36% and N_2: 1,5%). Fuel Gas composition according to IC-G-D-30-003.

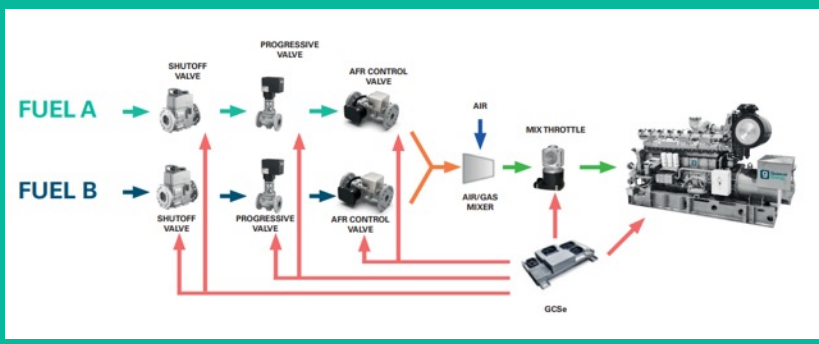
What is a fuel blending system?

Ability of an Engine to run on two fuels, fuel A, fuel B or a mixture of both, being biogas the primary fuel and natural gas the secondary one, being the blending done on the Engine and not outside.

What are Guascor Energy system´s Advantages & Benefits?

Change on the fly: Our fuel blending system allows the change between modes at full power from a real 100% Biogas consumption (0% natural gas - closed natural gas valve train) to any fuel blending ratio(>10%), including the possibility to run with 100% Natural Gas consumption (0% Biogas - closed biogas valve train).

Easy start capability: The customer can select 100% Biogas but start the Engine with Natural Gas. The control automatically changes to 100% Biogas once the Engine has reached the rated Speed. This helps to start a Biogas facility when the Biogas composition is very variable or unknown (for example after a long stop of the Engine/Facility).



Synthesis gas engines & gensets

S Series

Engine Model	Cylinders	Disp. (l)	Mechanical Power (kWb)			Electrical Power (kWe)		
			1.200 rpm	1.500 rpm	1.800 rpm	1.200 rpm	1.500 rpm	1.800 rpm
18SL	6L	18	209	263	283	199	253	271
24SL	8L	24	281	350	377	269	338	362
36SL	12V	36	418	526	565	401	508	544
48SL	16V	48	561	700	754	541	678	729
56SL	16V	56	663	827	882	639	801	849

Synthesis gas composition according to IC-G-D-30-004.

Propane gas engines & gensets

S Series

Engine Model	Cylinders	Disp. (l)	Mechanical Power (kWb)			Electrical Power (kWe)		
			1.200 rpm	1.500 rpm	1.800 rpm	1.200 rpm	1.500 rpm	1.800 rpm
18SM	6L	18	-	315	350	-	303	335
24SM	8L	24	-	419	453	-	404	436
36SM	12V	36	-	630	700	-	610	676
48SM	16V	48	-	838	906	-	811	873
56SM	16V	56	-	1.030	1.067	-	1.001	1.030

Propane gas composition according to IC-G-D-30-018.

Oil&gas wellgas, APG and flare gas engines & gensets

S Series

Engine Model	Cylinders	Disp. (l)	MN 35 (kWb / kWe)		MN 55 (kWb / kWe)		
			1.500 rpm	1.800 rpm	1.200 rpm	1.500 rpm	1.800 rpm
18SL	6L	18	290/279	240/325	252/242	315/303	350/335
24SL	8L	24	390/376	450/433	335/322	419/404	453/436
36SL	12V	36	580/562	675/652	503/485	60/610	700/676
48SL	16V	48	775/750	900/867	670/645	838/811	906/873
56SL	16V	56	900/872	1.050/1.012	788/760	1.055/1.025	1.067/1.028

Low Methane Number gas composition according to IC-G-D-30-013 and IC-G-D-30-038.

Lean Coal Mine Methane (LCMM) gas engines & gensets

H Series

Engine Model	Cylinders	Disp. (l)	Mechanical Power (kWb)			Electrical Power (kWe)		
			1.200 rpm	1.500 rpm	1.800 rpm	1.200 rpm	1.500 rpm	1.800 rpm
56HM	16V	56	-	1.240	-	-	1.204	-

CH4 content in gas between 9% and 13%. LCMM gas composition according to IC-G-C-30-039.

- For other gas qualities contact Guascor Energy.
- Engine performance data according ISO3046/1
- Data is for continuous rating, at ISO conditions, P=1 bar, T=25ºC.
- The values given in this data sheet are for information purposes only and are not binding.

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