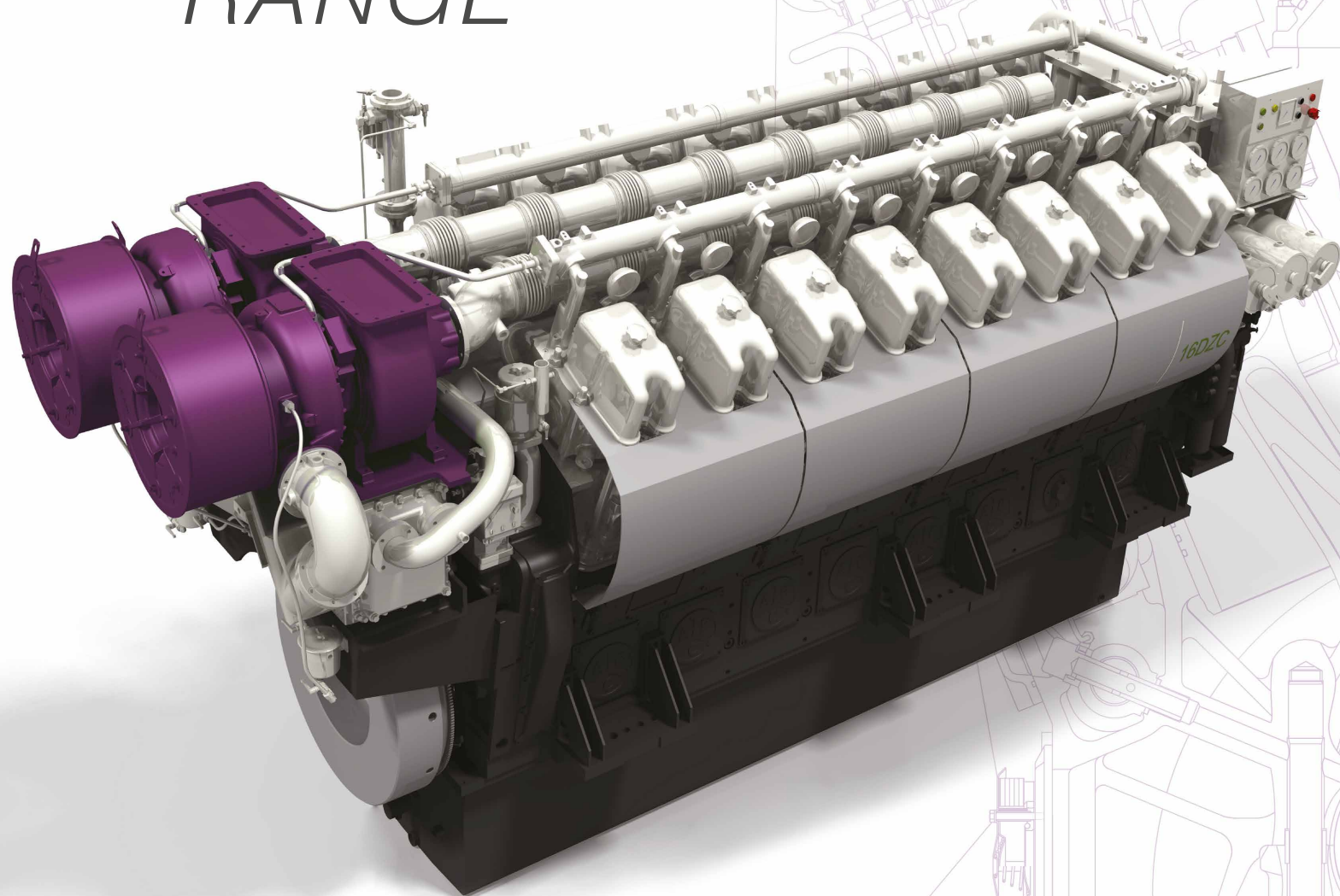


# MEDIUM SPEED RANGE



*The best reliability for the lowest operational cost*

ENERGY EVERYWHERE



# *Trustful and Reliable Power from Genset to Turn-Key Solutions*

The efficiency of processing fuel into electricity with minimal environmental impact will determine the most attractive solution.

**Grupel Medium Speed Gensets**, running always below 1000 rpm are renowned because of their reliability, low fuel consumption and easy maintenance. Those features are something more than technical advantages, because they result into financial saving. Less fuel, less spare parts and less works required than other fast speed solution soon reveal **Medium Speed Engines powered by ABC** as the best choice to ensure the profitability of the investment.

**Grupel** provides energy solutions in the most remote areas and extreme environments; from industrial and mine gensets, to complete turnkey projects such as containerized power plants, CHP projects and Bio-fuel powerstations.



## MEDIUM SPEED POWER PLANTS

### Plug & Play Concept

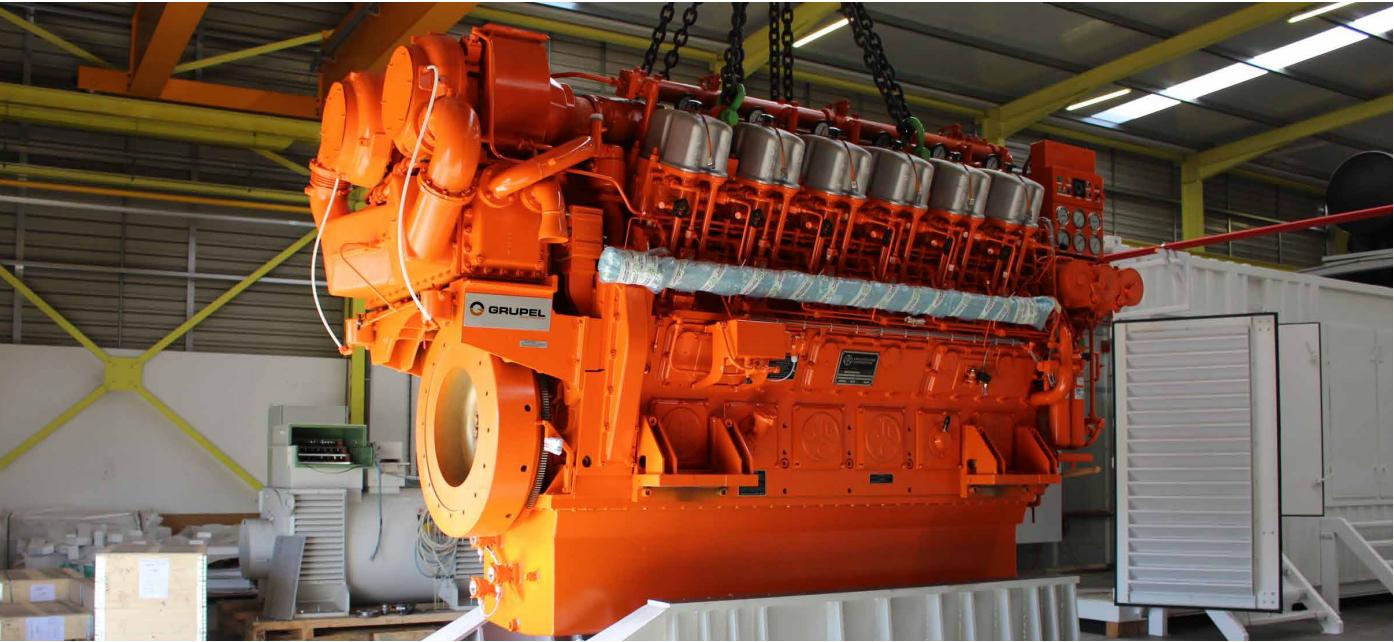
Modular Power Plants completely installed in Special Size maritime containers designed according to the needs of each project, including the necessary scope of supply and tailored to the environment requirements. This new design includes the incorporation of many elements needed on the plant in a "Plug-In" mode, fuel treatment systems, and electric switchgear, all integrated in containers, thereby increasing the flexibility, quick installation, and better adjustment to the total power output required on each application.

- Better for a future expansion of the power plant
- Reducing the cost of Civil Works
- Better time response on its shipping to site
- Logistics cost reduction
- Much easier to move the entire Power Plant to another site
- Easier maintenance





# POWER RANGE



## 6/8DZC & 12/16(V)DZC ENGINE RANGE

The DZ family range, both the line and V executions, has been proven to be a reliable partner in energy generation while offering very competitive operational costs. The characteristic fuel flexibility and low maintenance requirements made those engines a wise choice when operating in remote areas or using alternative fuel sources.

A low operation pressure and low speed leads to long periods between overhauling and long continuous operation times. The easy access to the components simplifies maintenance operations and a mechanical injection system ensures the simplicity and easiness of operation. Medium speed engine, turbocharged & intercooled, available in Anti-clock and Clock rotation.

Can run on diesel, heavy fuel, vegetable oil, animal greases, Dual fuel execution is also possible.



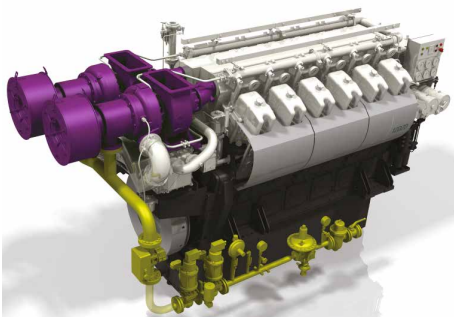
### 6/8DZC ENGINE

<b>6DZC</b>	<b>8DZC</b>
1500kW @ 1000rpm	2000kW @ 1000rpm



### 12/16VDZD ENGINE

<b>12 (V) DZD</b>	<b>16 (V) DZD</b>
2652kW @ 1000rpm	3536kW @ 1000rpm



### DUAL FUEL ENGINE RANGE

<b>12 (V) DZC</b>	<b>16 (V) DZC</b>
2000kW @ 1000rpm	2670kW @ 1000rpm

# OVERALL DATA

## 50Hz

			Engine power (ISO 3046-I)			50 Hz electric - 3 phase			
			kW		HP	Pw (kW)		Pn (kVA)	
	GENSET TYPE	rpm	mdo/hfo/bio	dual fuel	mdo/hfo/bio	mdo/hfo/bio	dual fuel	mdo/hfo/bio	dual fuel
DZ	GMS-6DZC-750-179	750	1065	750	1447	1012	713	1265	891
	GMS-6DZC-1000-166	1000	1326	1000	1802	1260	950	1575	1188
	GMS-8DZC-750-179	750	1420	1000	1929	1349	950	1686	1188
	GMS-8DZC-1000-166	1000	1768	1335	2402	1680	1268	2100	1585
VDZ	GMS-12VDZC-750-179	750	2130	1500	2894	2024	1425	2530	1781
	GMS-12VDZC-1000-166	1000	2652	2000	3603	2519	1900	3149	2375
	GMS-16VDZC-750-179	750	2840	2000	3859	2698	1900	3372	2375
	GMS-16VDZC-1000-166	1000	3536	2670	4804	3359	2537	4199	3171

## 60Hz

			Engine power (ISO 3046-I)			60 Hz electric - 3 phase			
			kW		HP	Pw (kW)		Pn (kVA)	
	GENSET TYPE	rpm	mdo/hfo/bio	dual fuel	mdo/hfo/bio	mdo/hfo/bio	dual fuel	mdo/hfo/bio	dual fuel
DZ	GMS-6DZC-720-181	720	1032	720	1402	980	684	1225	855
	GMS-6DZC-900-166	900	1194	900	1622	1134	855	1418	1069
	GMS-8DZC-720-181	720	1376	960	1870	1307	912	1634	1140
	GMS-8DZC-900-166	900	1592	1200	2163	1512	1140	1890	1425
VDZ	GMS-12VDZC-720-181	720	2064	1440	2804	1961	1368	2451	1710
	GMS-12VDZC-900-166	900	2388	1800	3245	2269	1710	2836	2138
	GMS-16VDZC-720-181	720	2752	1920	3739	2614	1824	3268	2280
	GMS-16VDZC-900-166	900	3184	2400	4326	3025	2280	3781	2850

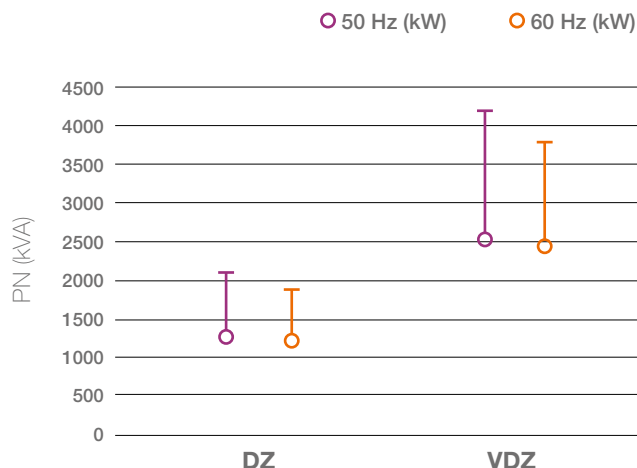
Conversion factors used: 1 metric HP= 0,736 kW • Generator efficiency:  $\eta_g = 0,95$  • Power factor:  $\cos \varphi = 0,8$

Natural gas with Methane Index = 73 → Lower Calorific Value gas = 39.000 kJ/Nm<sup>3</sup> → Lower Calorific Value diesel= 42.700 kJ/kg

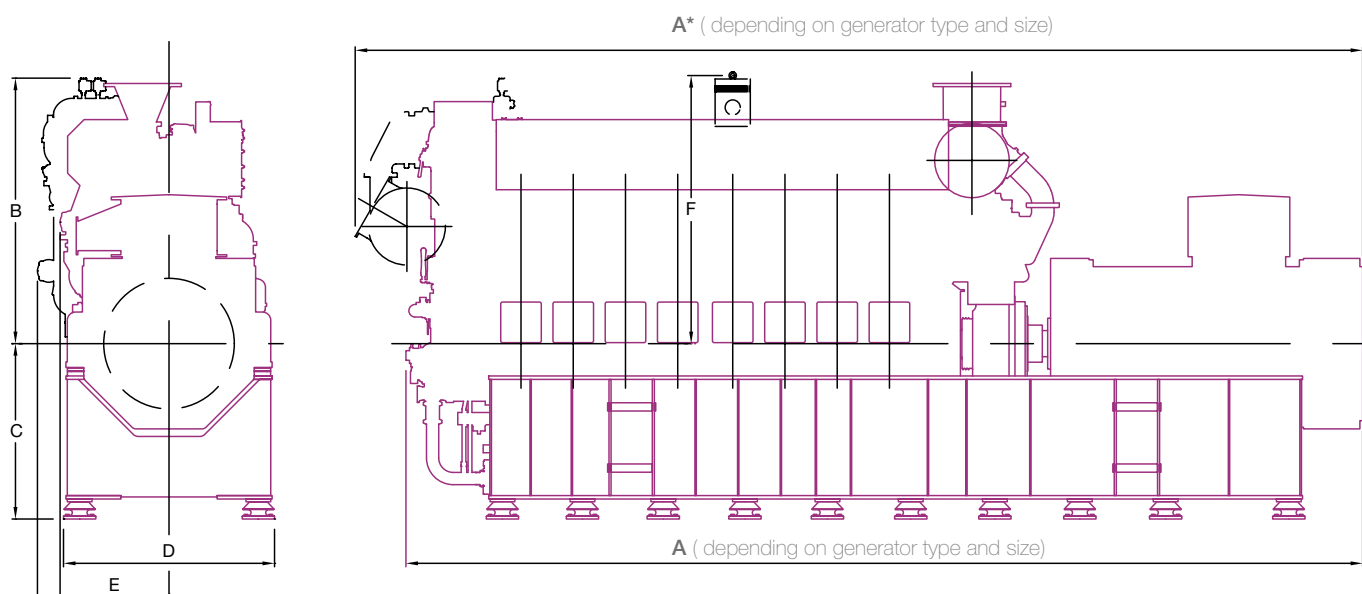
Possible gases: natural gas, waste gas, landfill gas (the ability to burn other gases should be done in consultation with ABC)

In Dual Fuel mode: (V) DZC engine BMEP set at 12,5 bar; DXC engine BMEP set at 10,87 bar

## GRUPEL MSR POWER RANGE

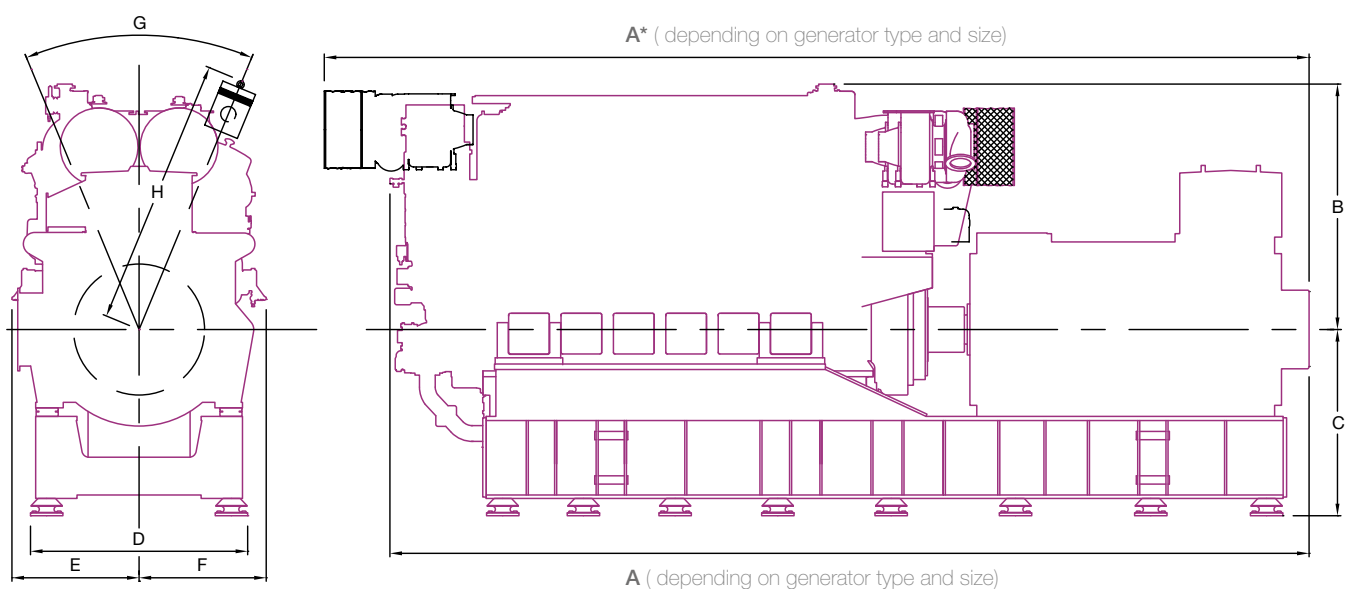


## DZC GENSET EXECUTION



	A (mm)	A* (mm)	B (mm)	C (mm)	D (mm)	E (mm)	E* (mm)	F (mm)	Dry mass** (kg)
<b>6DZ</b>	6037	6406	1931	1276	1535	793	957	1950	22100
<b>8DZ</b>	6959	7328	1931	1276	1535	793	957	1950	26500

## (V)DZC GENSET EXECUTION



	A (mm)	A* (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	Dry mass** (kg)
<b>12DZ</b>	6667	7143	1780	1351	1575	925	925	45	1950	33500
<b>16DZ</b>	7847	8323	1780	1351	1575	925	925	45	1950	43200

\* Turbocharger at free end side

\*\* Genset total mass depending on generator type and size

# ABOUT US

**Grupel** began its activity in **1976** where its main activity is the production and commercialization of a wide range of generators (open chassis or soundproof - canopy) equipped with best quality components and with a power range between **3 to 3500kVA**, dedicated to produce energy. Nowadays it has become the largest production unit of Gensets in Portugal, operating in the **5 continents with over 60 countries**. **Grupel** means **flexibility**, as it's perfectly empowered to produce since the standard genset to special projects, that involves a high complexity level of engineering and conception.

In the last years, the growth has been over **25% per year**, which reflects the quality of the generators and the trust of the customers.



**87%** of the company's business volume is currently due to its international presence.



**+ PRESENT IN OVER 60 COUNTRIES**

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