

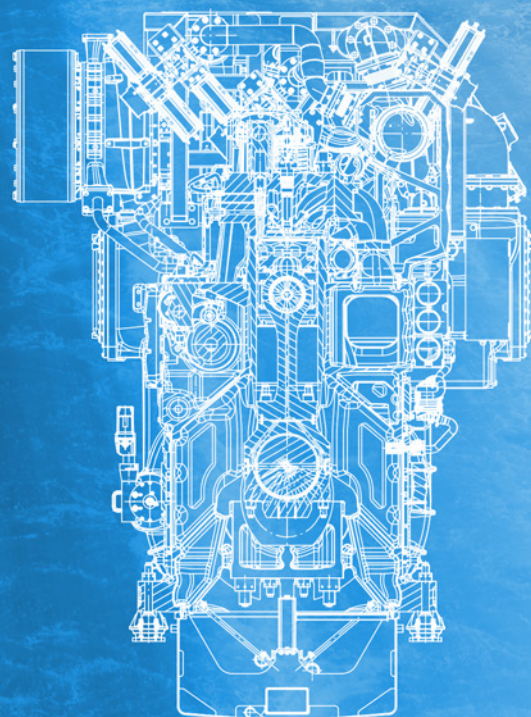


**ANGLO BELGIAN
CORPORATION**

We power your future

Marine engines

Propulsion & power solutions





ANGLO BELGIAN CORPORATION

We power your future

Anglo Belgian Corporation (ABC) is one of Europe's leading medium speed diesel engine manufacturers. The company can offer a century of expertise in ship propulsion, locomotive traction, marine and industrial power generating systems.

ABC was originally established in 1912 by a group of industrialists, with participation of the inventor of the diesel engine, Rudolf Diesel himself.

An important step in ABC's history was the acquisition by **OGEPAR** (1985), a strong financial holding with a large base in metal industry and engineering. Today, ABC has risen far above the standard of engine manufacturer.

The company is constantly evolving, developing new solutions in the field of **marine propulsion**, **power generation** and **railway traction**.

Through innovative thinking, ABC aims to increase sustainability and supply reliable and efficient products within a framework of ecological development. All engines are designed for **heavy duty** and **continuous operation**, straightforward applications and **maintenance**.

ABC engines, since always, your heavy duty partner in the sea

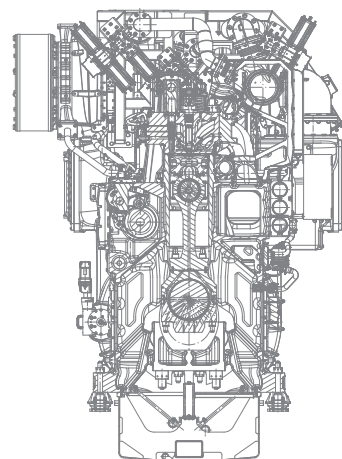
For **100 years** ABC supplies power solutions to all those people who know that the engine is the heart of their vessels. ABC engines are synonymous with **reliability** and **good performance** under the hardest and most demanding conditions while still offering **low fuel** and lube oil **consumption**. As important as the performance, is the easy maintenance, ensuring long periods between overhauling and offering an engine with a low engine noise level for a user-friendly work space.

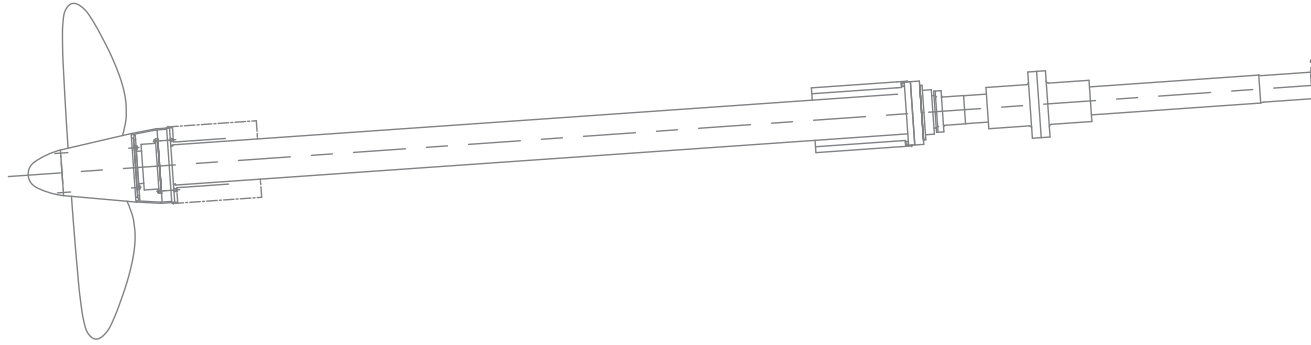
The characteristic medium speed **below 1000 rpm** and cleverly engineered distribution of the loads ensure a low mechanical deterioration and therefore guaranties a **long life** of the **engine** and its components.

The best quality indicator of our work and engines are those **clients** who have **trusted us**, already for **4 generations**, installing our engines in their ships and who share this trust from father to son.

Only by **listening** to the **people** who work with our engines and understanding them and their needs, we have managed to earn their trust.

ABC wants to **thank** to **all those people**, who along this time, have become part of the ABC family and who have allowed us to be part of theirs.





Since the very start ABC has been supplying engines for ship propulsion

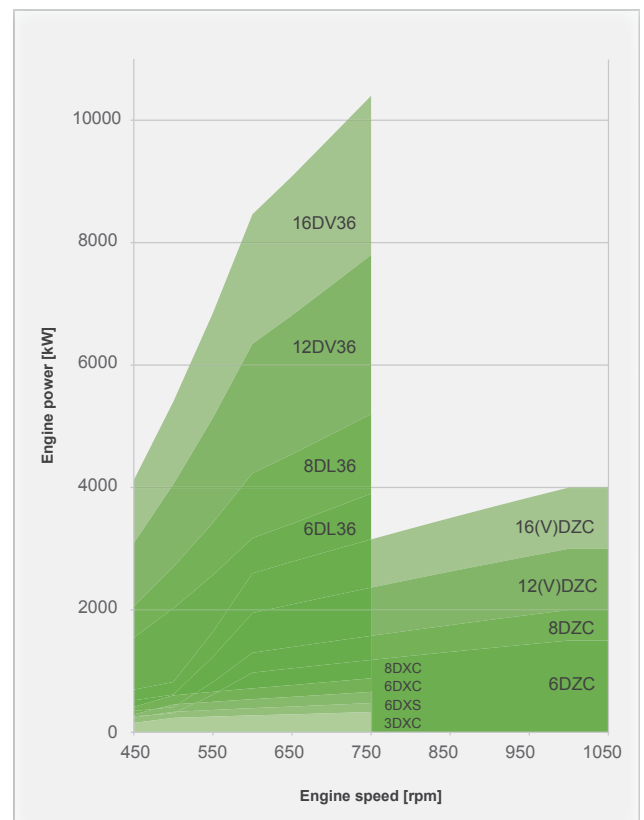
This experience, allows us to deliver reliable power solutions for those professional heavy duty applications where reliability can be a matter of survival.

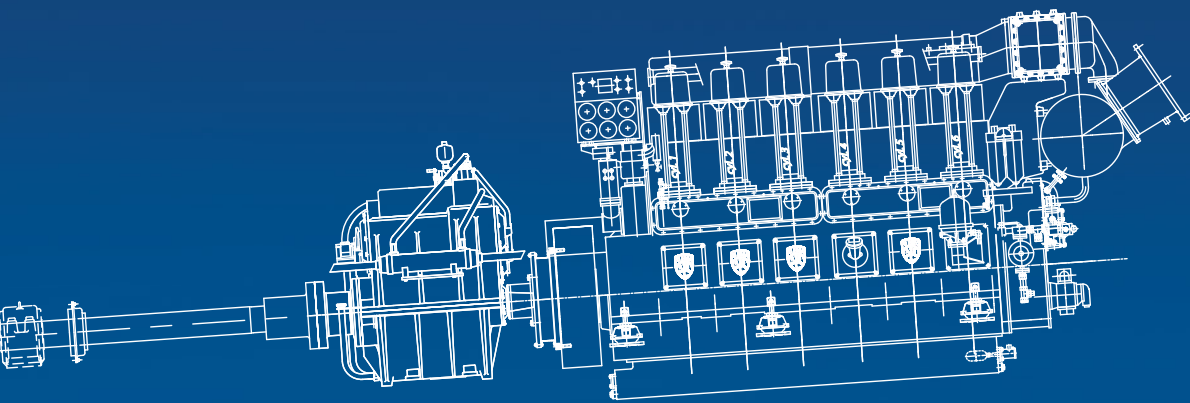
A high total cylinder volume, a **low Bmep**, a mechanical injection system and an **increasing torque curve** are the main technical advantages of an ABC engine in tugboats, fishing boats, workboats, barges, warships and other heavy duty vessels.

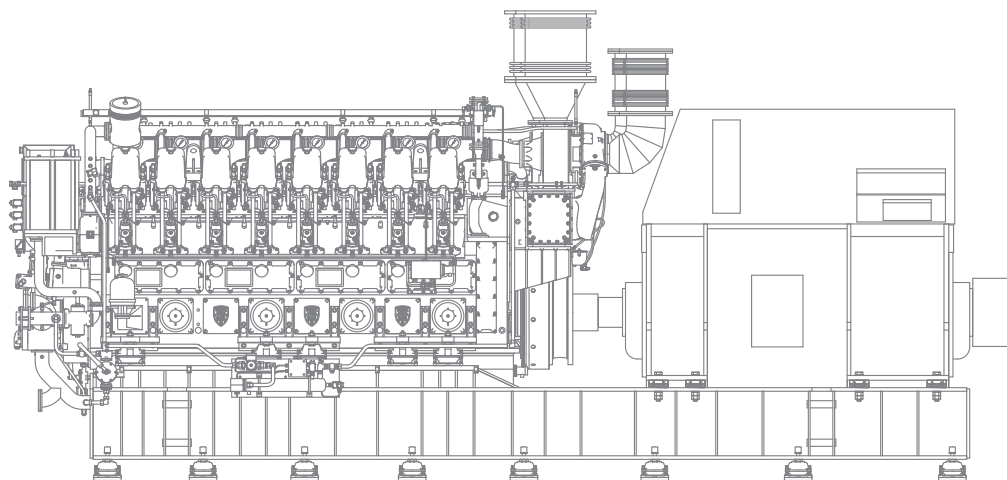
The high delivered torque from the ABC engine with a **well designed** propulsion system will ensure a perfect performance of the ABC engine and the **lowest fuel consumption** while complying with the existing and future emission regulations.

An **easy access** to the engine components design and **low noise** levels will ensure a more efficient work space that together with the smooth and **good performance** of engine makes that the users of ABC engines recommend them all around the world.

Engine power range







Anglo Belgian Corporation also manufactures gensets based on ABC engines

This technology combines all the **technical advantages** of our engines in order to obtain a reliable **source** of **electricity** for vessels, offshore platforms or any other maritime application.

ABC gensets are widely used **around the world** as main power gensets in tankers, dredges, offshore ships, floating cranes and ports. A low fuel and oil consumption in addition of our characteristic **high reliability** ensure a safe investment.

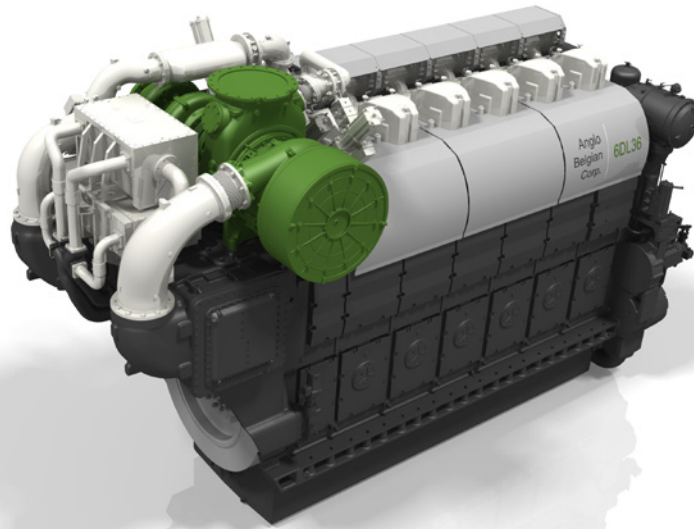
Anglo Belgian Corporation is much more than an engine manufacturer, ABC Engineering Department provides complete Diesel Electric Propulsion solutions in order to **power** those **ships** with the highest **technical requirements**.

We like to listen to you

Our engineers' goal is to deliver the most **customized attention** to each project and find the power **solution** that you are **looking for**.



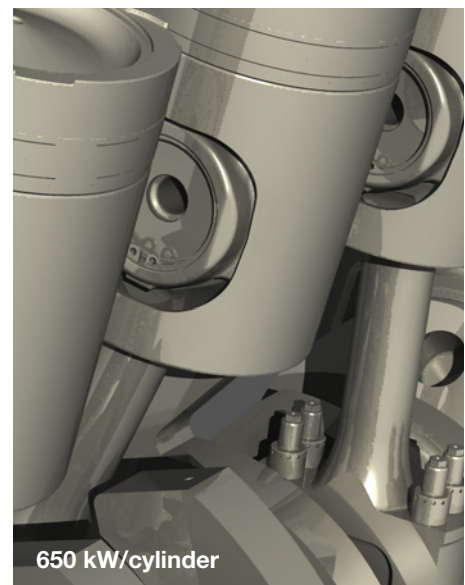
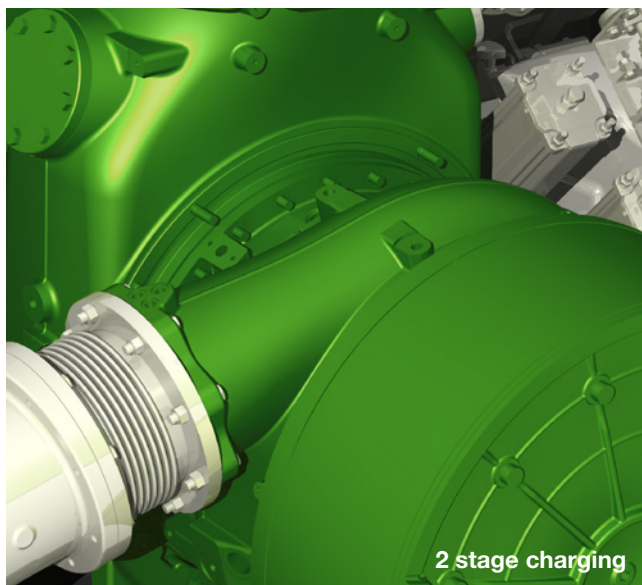
Engine range

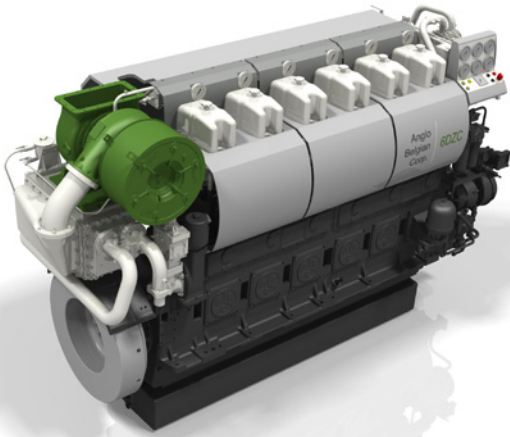


6/8DL36

With the design and development of this new engine family, ABC confirms its intention to become one of the major players on the **medium speed engine** market. Introducing state-of-the-art technology such as **EGR**, **2-stage turbo-charging** and a radically optimized common rail system, the engines' emissions will comply with IMO-3 using a very competitive fuel consumption.

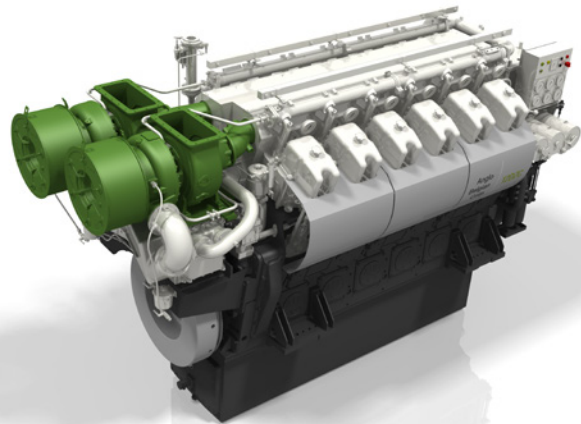
To be as versatile as possible, a wide variety of fuels like **MDO**, **HFO**, **dual fuel** and **bio-fuels** will be possible. The 6- and 8-cylinder in-line engines will focus mainly on the marine market where the V-engines (12 and 16 cylinders) will penetrate the large generator set applications as the V16 will produce over 10 MW.





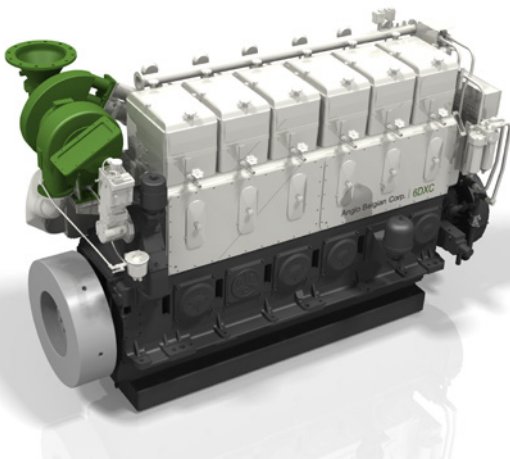
6/8DZC

ABC's four-stroke line engine earned its good reputation thanks to its **reliability** and durability. The ease to install made this engine to one of the most wanted ones for inland vessels, tug boats and various power applications. Repairing or renewing defective or damaged components, adjusting settings and controls to maintain the required or specified performance was **never as easy** as with this engine.



12/16(V)DZC

Our medium speed V-engine based on the DZ family is offering a perfect balance between performance and required investment. This makes the engine most suitable for **tugs, inland vessels** as well as for locomotive or power-plants. All these engines are able to run on **HFO** as well, which makes them very suitable for marine applications.



3/6/8DX(S)(C)

Reliability and **robustness** are the key words for this engine, a proven concept offering durability. It is this four stroke medium speed engine which made ABC to one of the most recognized and respected manufacturers of diesel engines in Europe. A design which lasts more than 40 years is still available and in operation all over the world **proof against** the most **aggressive atmospheric** regimes.

Some references

More references on our website www.abcdiesel.be

Tugboat	SMIT-URS	Union Boxer, 90 btp	2 x 12VDZC 2 x 3600 hp
	FAIRPLAY	Fairplay 30, 92 btp	2 x 12VDZC 2 x 3600 hp
	URAG	Hunte, 90 btp	2 x 8DZC 2 x 2600 hp
	CITY OF ANTWERP	SB21, 70t	2 x 8DZC 2 x 2600 hp
	ISKES	Ginger, 83 btp	2 x 12VDZC 2 x 3600 hp
	TURKEY GOV.	Kutarma	2 x 16VDZC 2 x 4800 hp
Dredger	JAN DE NUL	Capitan Nuñez	5 x 8DZC + 1 x 6DZC 5 x 2200 kVA + 1 x 1655 kVA
Fishing Vessel: Trawler	TANIS	G07	12VDZC 3000 hp
	PESCANOVA	Leonardo	6DZC 1224 hp
Fishing Vessel: Long Liner	GUDE ARMADORES	Glacial	6DZC 1500 hp
Inland navigation: ice breaker	WSA	Keiler	6DZC 1500 hp
Coaster	FEHN REEDEREI	Courage	6DZC 1800 hp
	KORNET	Eems Solar	6DZC 1500 hp
	VAN ECK	Van Eck V	12VDZC 3000 hp
Tanker (gensets)	PEMEX	Guadalupe Vict. II	2 x 8DZC 1300 kVA
Multi purpose offshore vessel	VROON OFFSHORE	Base & pool Express	4 x 6DZC 4 x 1500 kVA
Navy Diving support vessel	MARINE NATIONALE	A645 Alize	2 x 6DZC 2 x 1500 hp
Navy OPV	MARINE NATIONALE	OPV L'Adroit	2 x 12VDZC 2 x 3600 hp
Navy Tugboat	TURKISH NAVY	Darcia	2 x 8DZC 2 x 3250 hp
Floating cranes	CITY OF ANTWERP	De Neus	6DZC 1065 kW
Ferries	TUNISIA FERRIES	m/s Habib	2 x 6DZC 2 x 1500 kVA
Inland navigation: bulk carrier	DE VOS E.	Colombia	8DZC 2400 hp
Inland navigation: tanker	MERCURIUS	Zuidwal	6DZC 1800 hp
	GEFO	Schloss Fontainebleau	6DZC 1650 hp
Seismic research	SANCO	Sanco Spirit	4 x 8DZC 1900 kVA
Oceanographic vessel	Belgian Navy	A962 Belgica	6DZC 1570 hp

Classification

All engines are individually tested on test benches, with possibility of the presence of the client and are certified by classifications societies like:



Overall data

				Engine power (ISO 3046 – I)		Nominal power of gensets							
						50 Hz electric - 3 phase				60 Hz electric - 3 phase			
						P _w (kW)		P _n (kVA)		P _w (kW)		P _n (kVA)	
						mdo/hfo/bio	dual fuel **	mdo/hfo/bio	dual fuel **	mdo/hfo/bio	dual fuel **	mdo/hfo/bio	dual fuel **
DL36	Engine type	rpm	kW		HP	P _w (kW)		P _n (kVA)		P _w (kW)		P _n (kVA)	
	6 DL36-600	600	3120	---	4239	2995	---	3744	---	2995	---	3744	---
	6 DL36-720	720	3744	---	5087	---	---	---	---	3594	---	4493	---
	6 DL36-750	750	3900	---	5299	3744	---	4680	---	---	---	---	---
	8 DL36-600	600	4160	---	5652	3994	---	4992	---	3994	---	4992	---
	8 DL36-720	720	4992	---	6783	---	---	---	---	4792	---	5990	---
	8 DL36-750	750	5200	---	7065	4992	---	6240	---	---	---	---	---

Conversion factors used: 1 metric HP = 0,736 kW • Generator efficiency: η_g = 0,96 • Power factor: cos φ = 0,8

VDZ	12 DZC-720-181	720	2064	1440	2804	---	---	---	---	1961	1368	2451	1710
	12 DZC-750-179	750	2130	1500	2894	2024	1425	2530	1781	---	---	---	---
	12 DZC-900-166	900	2388	1800	3245	---	---	---	---	2269	1710	2836	2138
	12 DZC-900-188	* 900	2700	1800	3668	---	---	---	---	2565	1710	3206	2138
	12 DZC-1000-166	1000	2652	2000	3603	2519	1900	3149	2375	---	---	---	---
	12 DZC-1000-176	1000	2800	2000	3805	2660	1900	3325	2375	---	---	---	---
	12 DZC-1000-188	* 1000	3000	2000	4076	2850	1900	3563	2375	---	---	---	---
	16 DZC-720-181	720	2752	1920	3739	---	---	---	---	2614	1824	3268	2280
	16 DZC-750-179	750	2840	2000	3859	2698	1900	3372	2375	---	---	---	---
	16 DZC-900-166	900	3184	2400	4326	---	---	---	---	3025	2280	3781	2850
	16 DZC-900-188	* 900	3600	2400	4891	---	---	---	---	3420	2280	4275	2850
	16 DZC-1000-166	1000	3536	2670	4804	3359	2537	4199	3171	---	---	---	---
	16 DZC-1000-176	1000	3750	2670	5095	3562	2537	4453	3171	---	---	---	---
	16 DZC-1000-188	* 1000	4000	2670	5435	3800	2537	4750	3171	---	---	---	---

DZ	6 DZC-720-181	720	1032	720	1402	---	---	---	---	980	684	1225	855
	6 DZC-750-179	750	1065	750	1447	1012	713	1265	891	---	---	---	---
	6 DZC-900-166	900	1194	900	1622	---	---	---	---	1134	855	1418	1069
	6 DZC-900-188	* 900	1350	900	1834	---	---	---	---	1283	855	1603	1069
	6 DZC-1000-166	1000	1326	1000	1802	1260	950	1575	1188	---	---	---	---
	6 DZC-1000-176	1000	1405	1000	1910	1335	950	1668	1188	---	---	---	---
	6 DZC-1000-188	* 1000	1500	1000	2038	1425	950	1781	1188	---	---	---	---
	8 DZC-720-181	720	1376	960	1870	---	---	---	---	1307	912	1634	1140
	8 DZC-750-179	750	1420	1000	1929	1349	950	1686	1188	---	---	---	---
	8 DZC-900-166	900	1592	1200	2163	---	---	---	---	1512	1140	1890	1425
	8 DZC-900-188	* 900	1800	1200	2446	---	---	---	---	1710	1140	2138	1425
	8 DZC-1000-166	1000	1768	1335	2402	1680	1268	2100	1585	---	---	---	---
	8 DZC-1000-176	1000	1875	1335	2545	1780	1268	2225	1585	---	---	---	---
	8 DZC-1000-188	* 1000	2000	1335	2717	1900	1268	2375	1585	---	---	---	---

DX	3 DX-600-000	600	138	---	188	131	---	164	---	131	---	164	---
	3 DXS-720-045	720	236	---	321	---	---	---	---	224	---	280	---
	3 DXC-750-100	750	331	300	450	314	285	393	356	---	---	---	---
	6 DX-600-000	600	276	---	375	262	---	328	---	262	---	328	---
	6 DXS-720-045	720	470	---	639	---	---	---	---	447	---	558	---
	6 DXC-750-100	750	662	600	899	629	570	786	713	---	---	---	---
	8 DX-600-000	600	368	---	500	350	---	437	---	350	---	437	---
	8 DXC-720-100	720	864	768	1174	---	---	---	---	821	730	1026	912
	8 DXC-750-100	750	883	800	1200	839	760	1049	950	---	---	---	---

Conversion factors used: 1 metric HP = 0,736 kW • Generator efficiency: η_g = 0,95 • Power factor: cos φ = 0,8

* For special applications

** Natural gas with Methane Index = 73 → Lower Calorific Value gas = 39.000 kJ/Nm³ → 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: [VDZC engine BMEP set at 12,5 bar; DXC engine BMEP set at 10,87 bar



Fuel flexibility and dual fuel engines

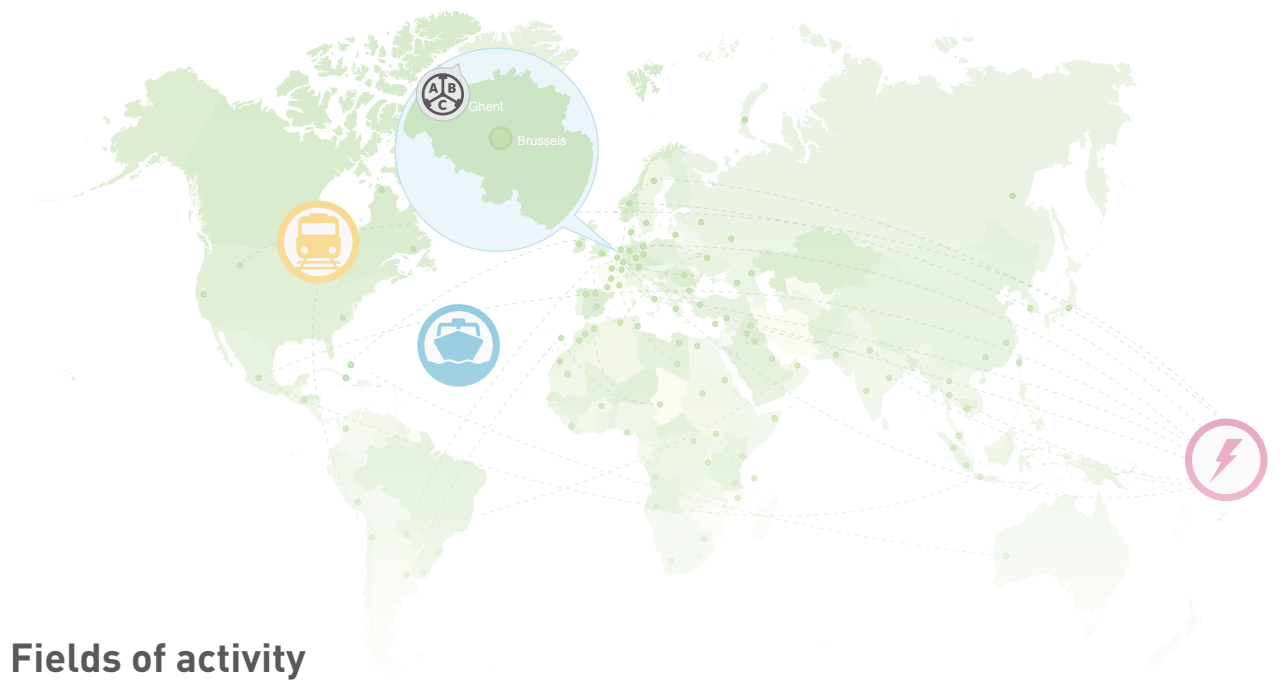
Fuel Flexibility is one of the house brands of Anglo Belgian Corporation. ABC engines can operate within a **wide range of fuels** and qualities. Besides regular diesel, ABC engines can be **specially adapted** for operating using HFO, vegetal oil, animal fats, dual fuel and other alternative fuels.

When price of gas fuels offer an advantage over liquid conventional fuels, investing in an ABC Dual Fuel solution can be an interesting option.

ABC Dual Fuel engines are **specially modified** diesel engines able to run **using gas** with a **small** amount of **diesel** as pilot fuel. Furthermore, the Dual Fuel design still allows operating the engine using 100% diesel when gas supply is not readily available.

ABC Dual Fuel engines are able to operate using natural gas, LNG, landfill gas and other alternative gases.

ABC Dual Fuel engines have worked successfully as **decentralized energy generation** units around the world. Now, with special certification of **Bureau Veritas**, the dual fuel engines take on a very important role in maritime propulsion using LNG, especially in those ships operating **close to regasification stations** and in LNG tankers.



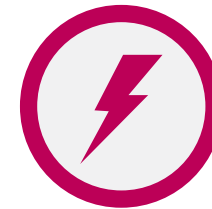
Fields of activity



Marine engines

Propulsion & power solutions

Originally, it is the marine sector where ABC has established its brand. The company is known for decades in propulsion and generating of inland ships, fishing boats, tugboats, dredgers, ferries, coasters, etc.



Generating sets

and turn-key solutions

Anglo Belgian Corporation 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.



Traction engines

Since 1950, the company is supplying diesel engines for railway companies. Since then, over 300 engines were delivered for traction applications both shunting and mainline service. As such, ABC is powering the world's largest diesel-hydraulic locomotive.

Service and training

Anglo Belgian Corporation operates throughout the world with branches in **more than 70 countries**. These divisions provide on-site commissioning, installation works, repairs and preventive maintenance and advice for ABC engines **24/7**.

The service organization and **certified technicians** ensure to exceed the required **service level** standard. The service staff is dedicated to help ABC's customers, **maximizing** the **productivity** and uptime of the engines.

ABC's **large-scale stock** of **spare parts** ensures that components can be sent **within hours** to any location in the world. In addition to this service, **local** service stations provide the **fastest delivery** with their individual substantial stock of spares and consumables.

ABC Academy

The service department offers **tailored training** programs for clients and new partners, according to **specific requirements** and can take place at the plant in Ghent or anywhere else in the world. ABC training courses are taught by veteran and **experienced technicians** who will be glad to share their **know-how** and enthusiasm for ABC engines.

To find out more detailed information about our service and sales support, please visit our website **www.abcdiesel.be**



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