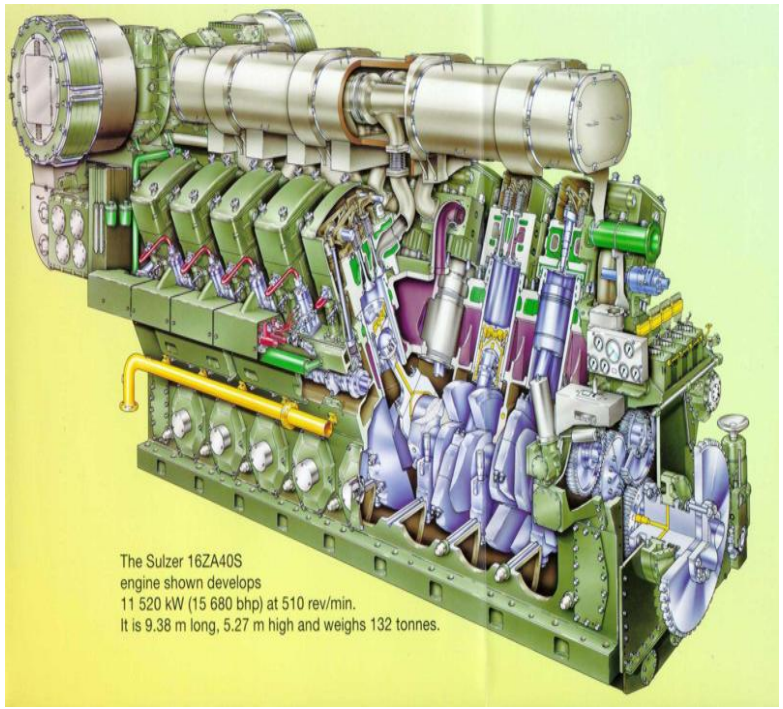
Different types of marine engine

There are four main types of *marine engine*:

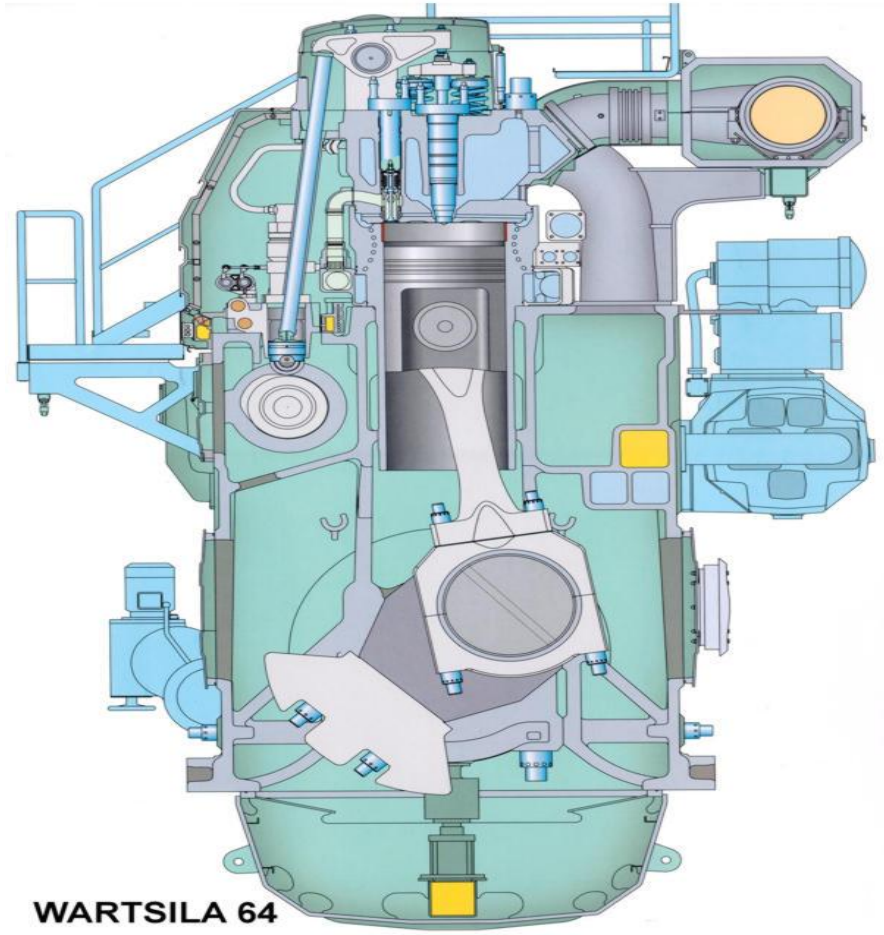
- the diesel engine
- the steam turbine
- the gas turbine
- the marine nuclear plant

Each type of engine has its own particular application.

Diesel Engine



The diesel engine is a form of internal combustion engine.
Its power is expressed as break horse power (b.h.p).
This is the power put out by the engine.
Effective horse power is the power developed by the piston in the cylinder, but some of is lost by friction within the engine.
This power is now expressed in kilowatts.



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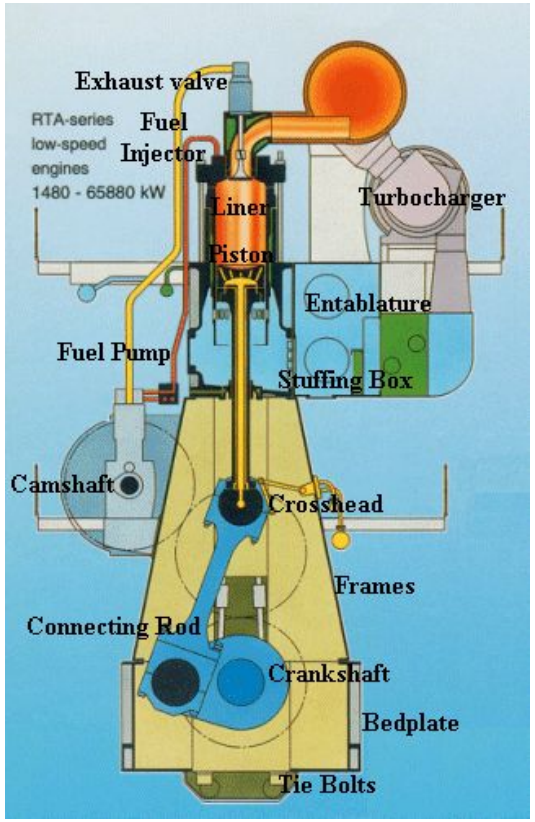
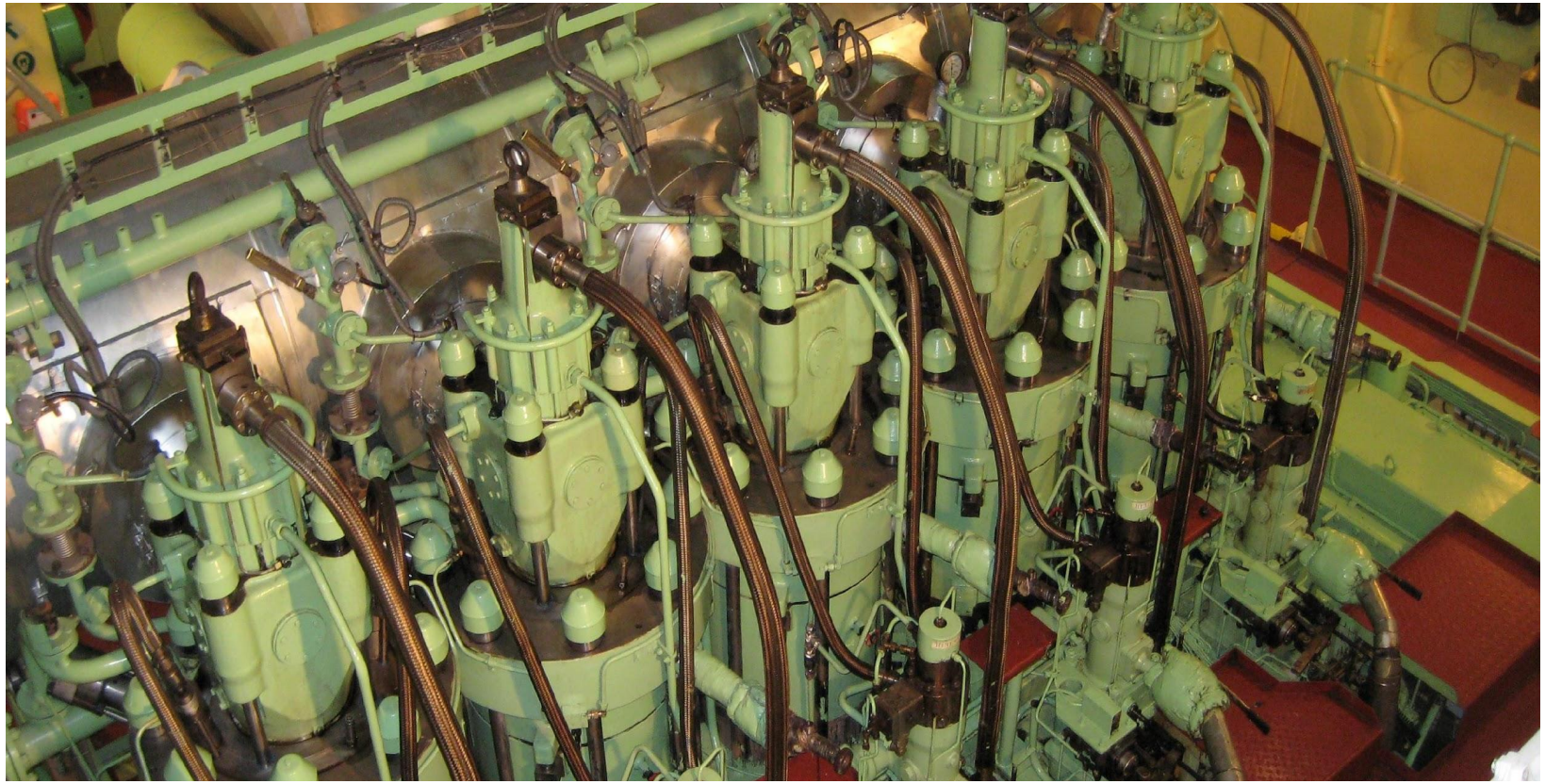
Low-Speed Engine



Large diesel engines, which have cylinder nearly 900 mm in diameter, turn at the relatively slow speed of about 145 rpm and less. They are known as *low-speed diesel* engines. They can be connected differently to the propeller without gearing. Although higher power could be produced by higher revolutions, this would reduce the efficiency of the propeller, because the propeller is more efficient the larger it is and the slower it turns.



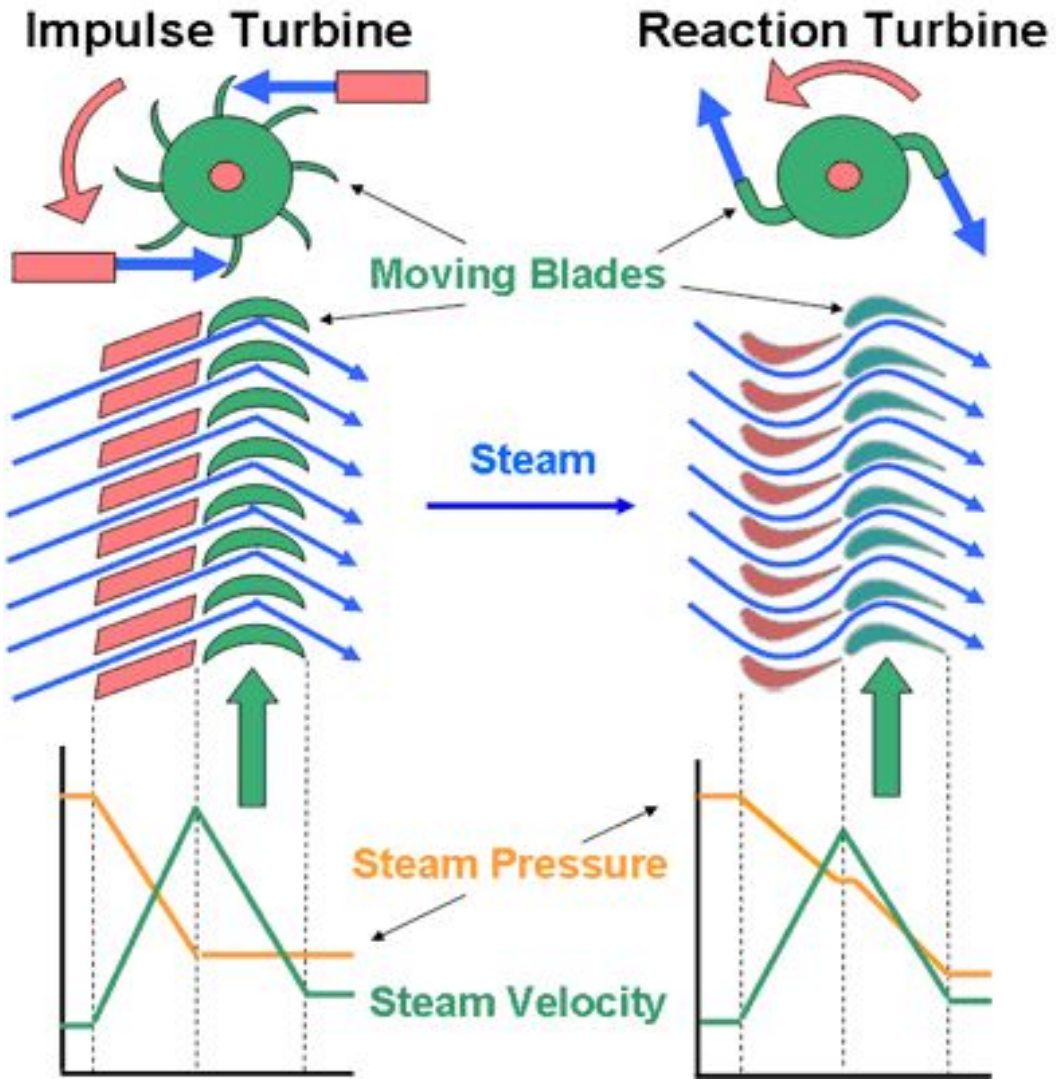
The MAN B&W 5S50MC 5-cylinder, 2-stroke, low-speed marine diesel engine.

Medium-Speed Diesel Engine

More and more of the larger merchant vessels are being powered by *medium-speed diesel engines*. These operate between 150 and 450 r.p.m, therefore they are connected to the propeller by gearing. They are cheaper than slow-speed diesel engines, and their smaller size and weight can result in the smaller cheaper ships.

Steam Turbine

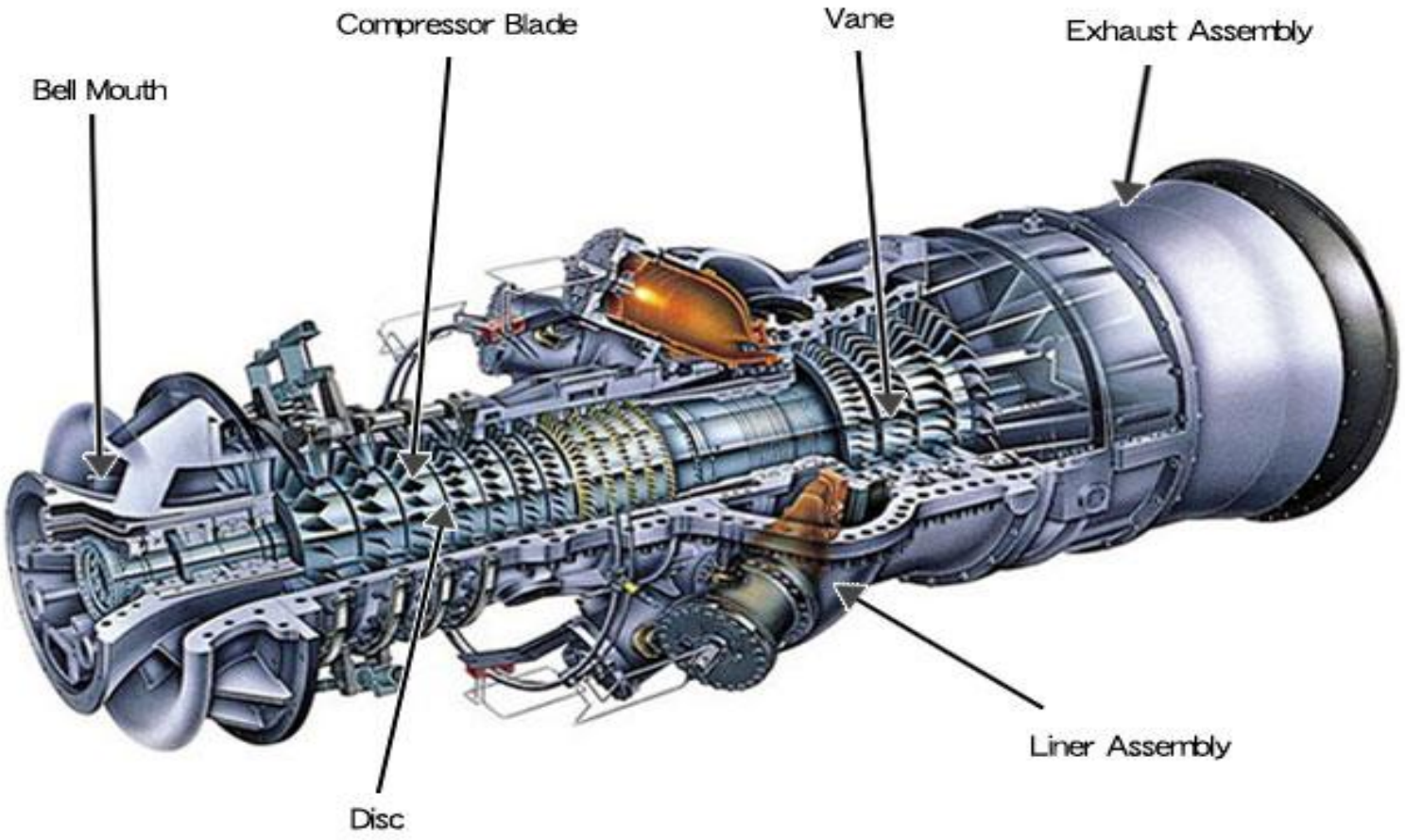
In *steam turbines* high pressure steam is directed into a series of blades or vanes attached to the shaft, causing it to rotate. This rotary motion is transferred to the propeller shaft by gears. Steam is produced by boiling water in the boiler, which is fired by oil. Recent developments in steam turbines which have reduced fuel consumption and raised power output have made them more attractive as an alternative to diesel power in ships. Turbines are often used in container ships.


Impulse Turbine
Reaction Turbine
Moving Blades
Steam
Steam Pressure
Steam Velocity

Turbines are often used in container ships.

Gas turbine

Gas turbines differ from steam turbines if that gas rather than steam is used to turn the shaft. These have also become more suitable for use in ships.



A gas turbine engine is very light and easily removed for maintenance. It is also suitable for complete automation.

Marine Nuclear Plant

Nuclear power in ship has mainly been confined to ice-breakers. A nuclear-powered ship differs from a conventional turbine ship in that it uses the energy released by the decay of radioactive fuel to generate steam. The steam is used to turn a shaft via a turbine in the conventional way.

Thank You For Attention!