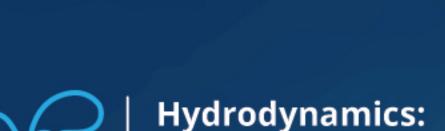


# MSC GRANDIOSA ENVIRONMENTAL SPECS



optimised hull design and latest generation azipods and propellers.



98% less sulphur oxide (SOx) through a system which can operate in closed loop.

## Selective catalytic reduction system:

90% less nitrogen oxide (NOx) through active emissions control technology.



## Smart heating, ventilation and air conditioning system:

two high- and low-heat recovery loops to intelligently redistribute heat and cold from the laundry room and machinery spaces to warm up the swimming pools or other parts of the ship.



#### LED lighting:

all MSC Cruises ships use only energy efficient LED and fluorescent lighting.



#### Trim optimisation:

this technology supports ship officers to keep the vessel's trim optimised to reduce fuel consumption and optimise performance.



### Advanced waste management:

comprehensive systems to reduce, recycle and reuse all waste aspects on board.



#### **Advanced wastewater** treatment:

the system treats wastewater to a very high quality that is of a better standard than most shoreside municipal waste standards around the world.



#### Shore-to-ship power:

ready to connect to local power grid to reduce emissions while at berth in port.



#### **Ballast water treatment** system:

a system to avoid introducing invading species through ballast water.



# **Energy-efficient:**

28% less fuel and 255 kg less CO2 per passenger per cruise compared to Fantasia Class ships equal to a reduction of 255kg CO2 per passenger, per cruise.



## **Anti-fouling paints:**

the hulls of all MSC Cruises'\_ ships are coated with special environmentally-friendly paints which impede the growth of barnacles, algae and marine organisms to reduce drag significantly.