

## Superior coatings and underwater cleaning equipment

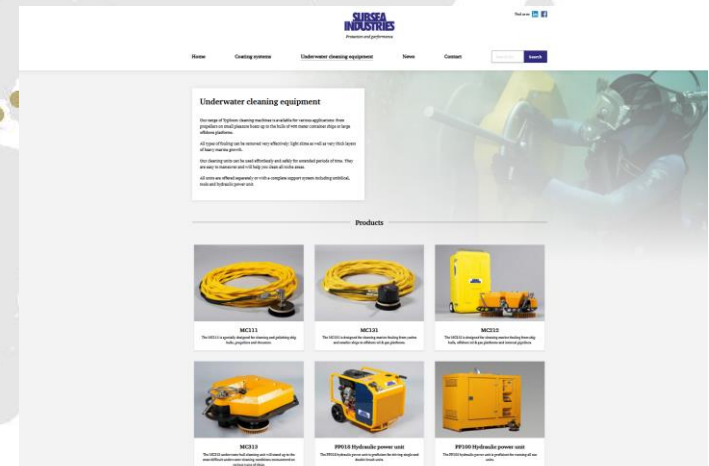
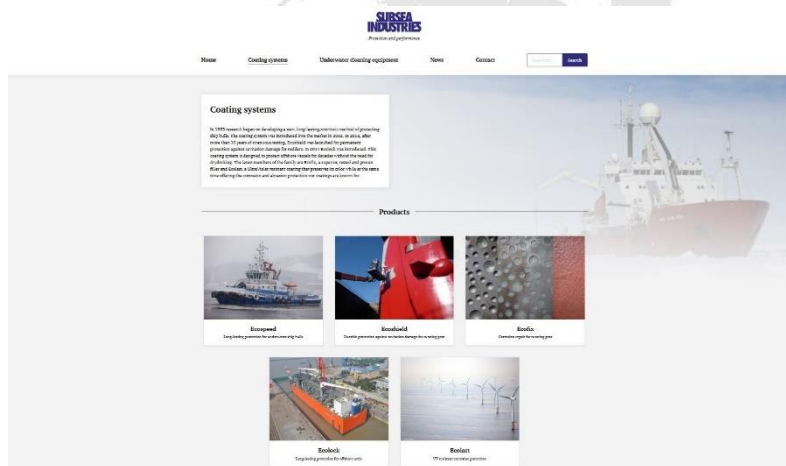


## Subsea Industries products

**SURSEA  
INDUSTRIES**

Coating systems

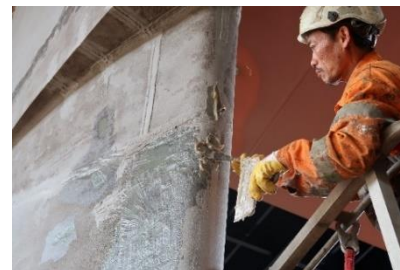
Underwater cleaning equipment



## Coating systems

| ECOSPEED®<br>SHIP HULL PERFORMANCE TECHNOLOGY   | ECOSHIELD®<br>THE DIAMOND STANDARD IN RUBBER PROTECTION  | ECOFIX®<br>CORROSION REPAIR  | ECOLOCK®<br>FLOATING OFFSHORE UNIT PROTECTION  | ECOLAST®<br>LONG TERM UV RESISTANT   |
|---|--|--|--|--|
| <p>Durable VEGF coating used for corrosion protection and ship hull performance.</p> <ul style="list-style-type: none"> <li>- Ship hulls</li> <li>- Ballast tanks</li> <li>- Storage tanks</li> <li>- Pipelines</li> <li>- Scrubbers</li> </ul> | <p>Extremely durable VEGF coating used for cavitation damage prevention.</p> <ul style="list-style-type: none"> <li>- Rudders</li> <li>- Nozzles</li> <li>- Thrusters</li> <li>- Thruster tunnels</li> </ul> | <p>Pitting repair before Ecoshield/Ecospeed application. Superior adhesion between substrate and VEGF.</p> <ul style="list-style-type: none"> <li>- Pitting repair</li> <li>- Rudder slot welds</li> </ul> | <p>Superior corrosion protective VEGF coating for stationary submerged objects.</p> <ul style="list-style-type: none"> <li>- Floating offshore units</li> <li>- Stationary structures</li> </ul> | <p>Superior corrosion protective and color stable VEGF coating for offshore splash zones.</p> <ul style="list-style-type: none"> <li>- Offshore monopiles</li> <li>- Offshore foundations</li> </ul> |

VEGF: vinylester glassflake



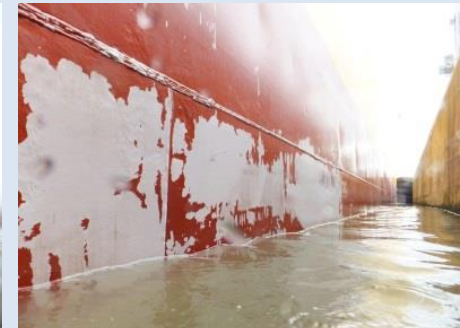
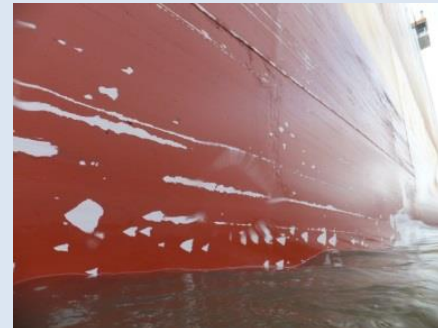


## Classic problems with conventional coating systems

### SPC coatings systems



### Foul release coatings systems



## Conventional system versus Ecospeed

*Conventional system after 2 years*



*ECOSPEED® after 2 years*





## Ecospeed application

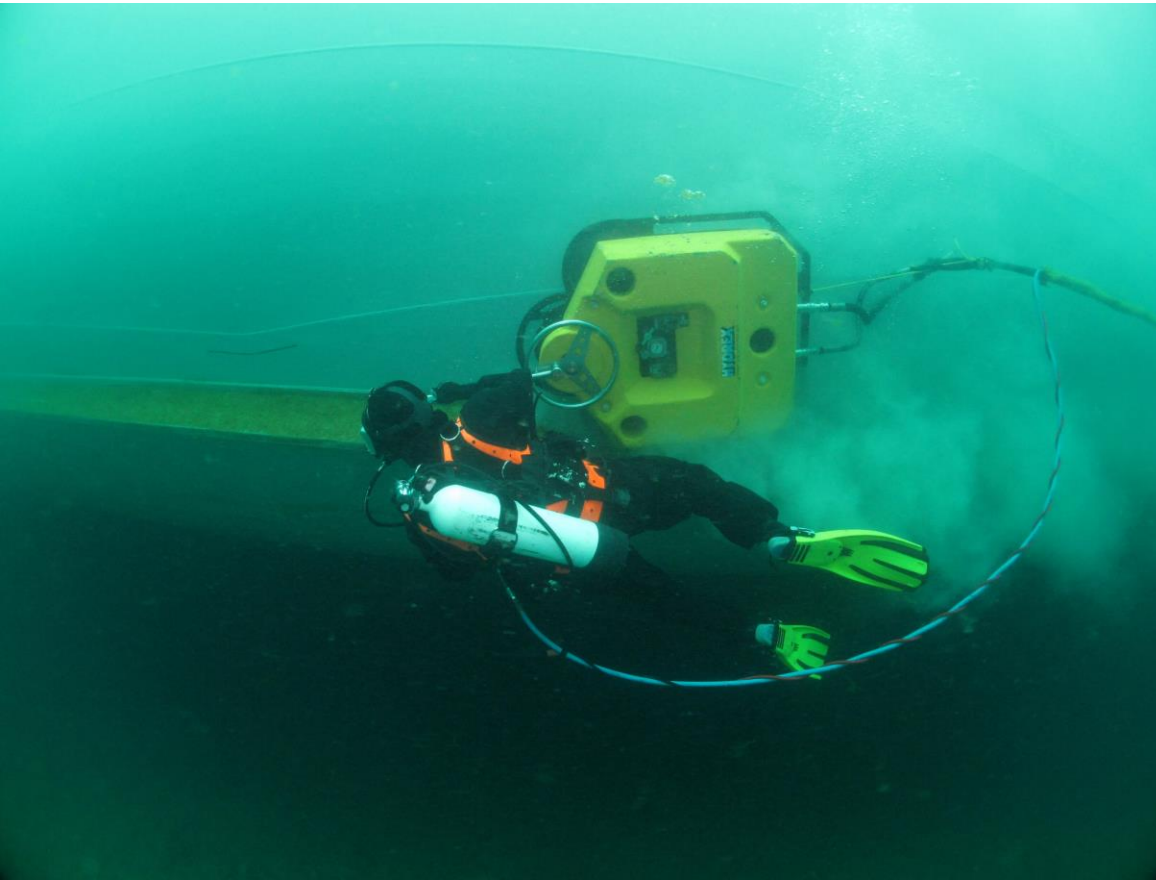
### *New build applications*



### *Application in shipyards*

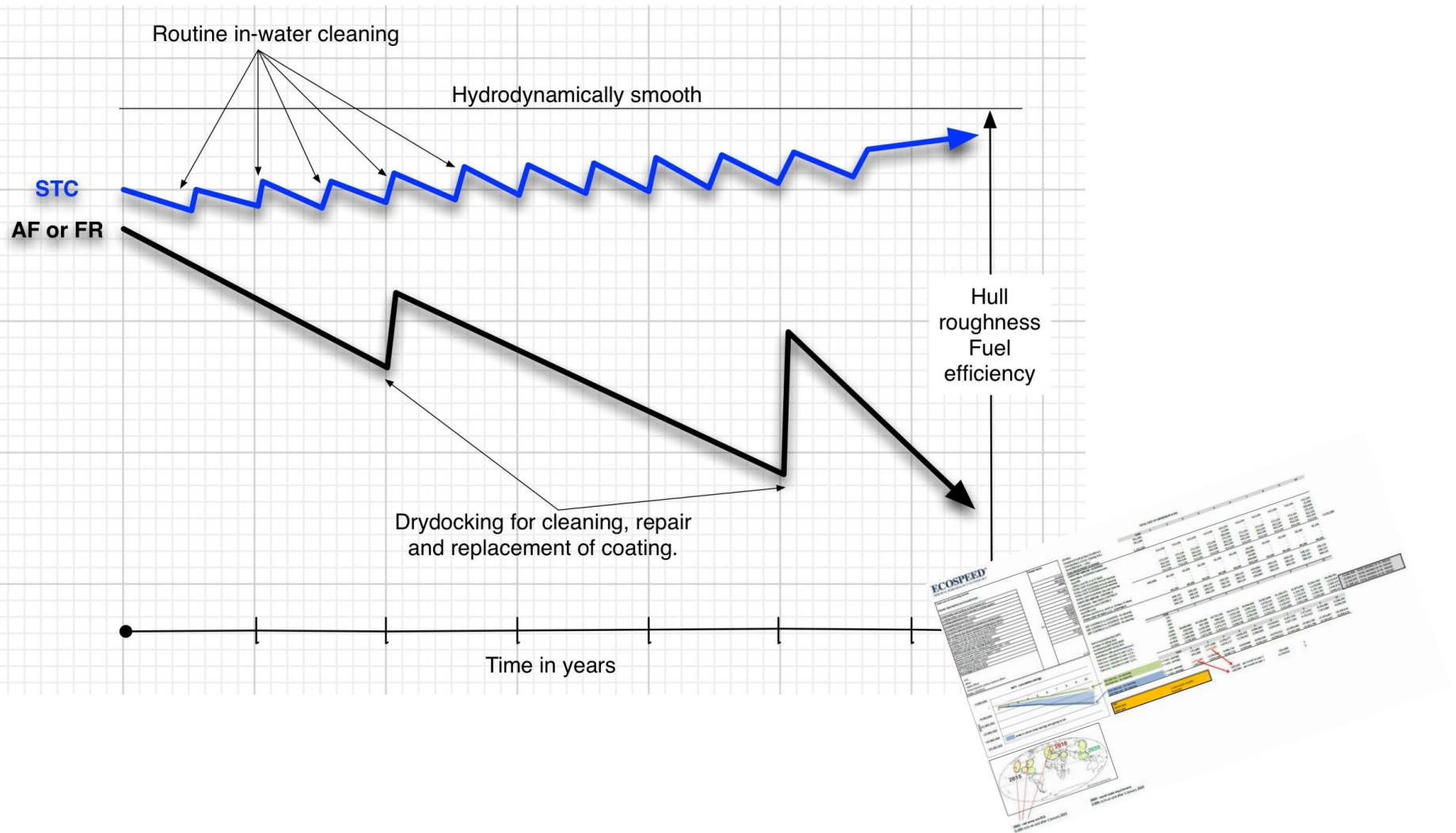


## Ecospeed cleaning





## Hull performance (TCO/ROI calculation)





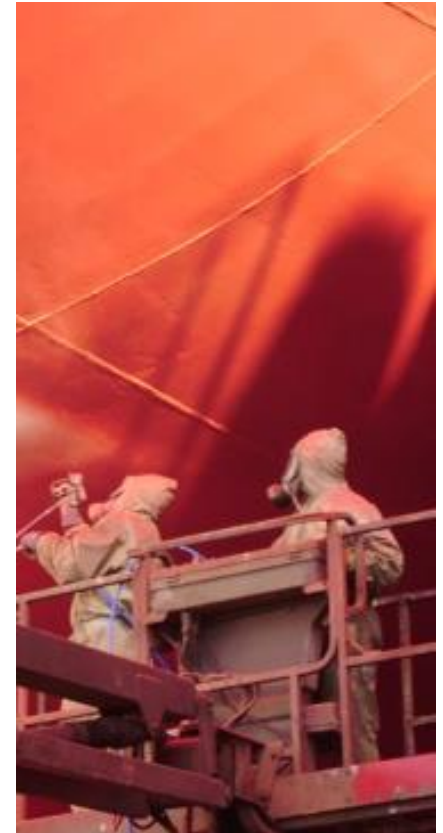
## RRS Ernest Shackleton (Antarctic icebreaker)



Docking 2008 with ice coating



Docking 2009 with ice coating



Ecospeed application in 2009

## RRS Ernest Shackleton (Antarctic icebreaker)



### RECOGNISED ABRASION RESISTANT ICE COATING

Certificate No: MNDE/2011/4335

The product below is recognised as an abrasion resistant ice coating for ships intending to navigate in ice conditions.

Providing the coating is applied in way of the ice belt of ships intending to navigate in first- year ice conditions and is maintained in good condition during service, the thickness of steel plating in way of the ice belt may be reduced by up to 1 mm in accordance with relevant Rules and Regulations.

The recognition is subject to Lloyd's Register being informed of any changes in and modifications to the product's formulation or specification and the product being used in accordance with the manufacturer's instruction and with the relevant requirements of Lloyd's Register's Rules and Regulations.

Company: Subsea Industries NV,  
Haven 29,  
Noorderlaan 9,  
2030 Antwerp,  
Belgium

Product name: ECOSPEED

Product colours: Unspecified

Film thickness: 1000 µm

Surface cleanliness: Minimum Sa 2½ (ISO 8501-1)

Surface profile: Minimum 75 µm

Valid until: 1 September 2016  
Date of issue: 16 August 2011

Jian-Zhong Zhang  
Surveyor to Lloyd's Register EMEA  
A member of Lloyd's Register Group

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Stephen Lee: “Are you sure you’ve taken this ship in the ice?”



Docking 2011 with Ecospeed



## RRS Ernest Shackleton (Antarctic icebreaker)

*“Ice coating” after 1 year*



*ECOSPEED® after 2 years*



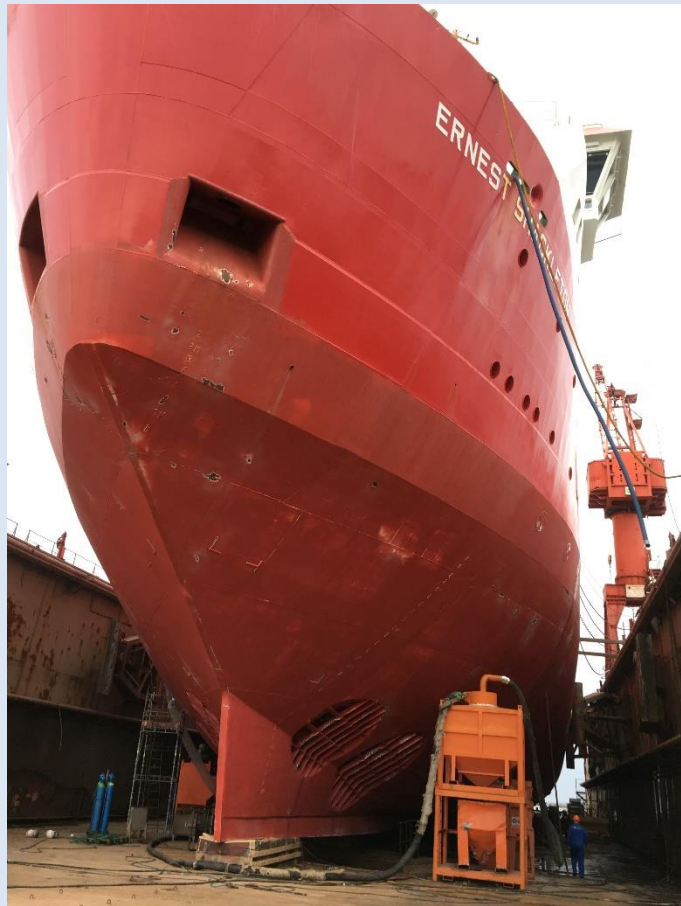
*ECOSPEED® after 4 years*





## RRS Ernest Shackleton (Antarctic icebreaker)

*ECOSPEED® after 7 years*



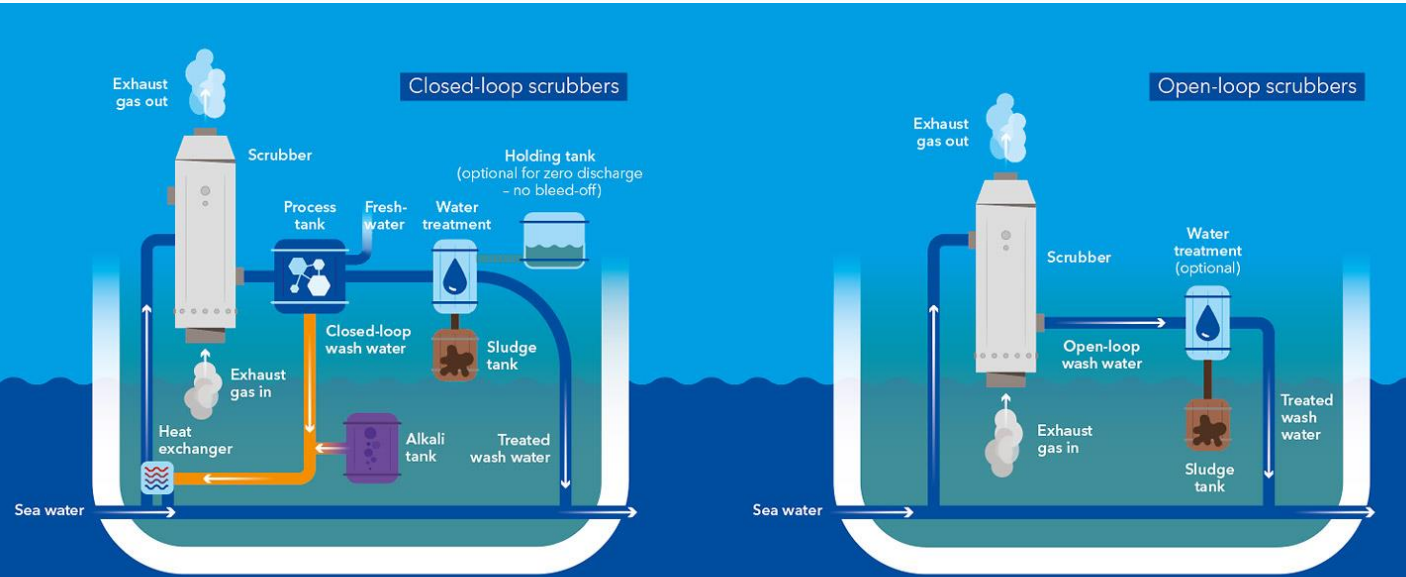
Andrew Webb:  
“The hull on  
*Shackleton* is  
better than I’ve  
ever seen.”

## RRS Sir David Attenborough (new polar research vessel)





## Scrubber protection (chemical resistance properties)



### Ecospeed possibilities





## Cavitation erosion

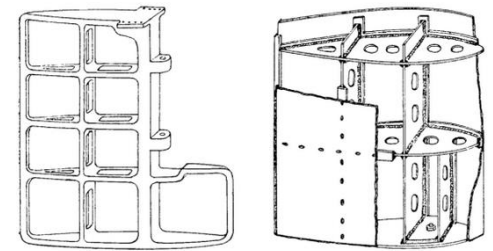




## Ecofix (repair) + Ecoshield (protection)



### *Ecofix for slot welds*



## Ecoshield after 10 years

*Application 2010*



*ECOSHIELD® after 5 years.....and after 10 years*





## Underwater cleaning systems

| MC111  | MC131   | MC212   | MC313  | Power units  |
|--|---|---|--|--|
| <p>Is designed for cleaning and polishing ship hulls, propellers and thrusters.</p> <p>Weight: 5 kg<br/>20 ltr/min @ 140 bar</p> | <p>Is designed for cleaning marine fouling from smaller ships to offshore oil and gas platforms.</p> <p>Weight in air: 9 kg<br/>Weight in water: 1 kg<br/>Cleaning: 300 m<sup>2</sup>/hour<br/>20 ltr/min @ 140 bar</p> | <p>Is designed for cleaning marine fouling from ship hulls, offshore oil and gas platforms and pipelines.</p> <p>Weight in air: 23 kg<br/>Weight in water: 1 kg<br/>Cleaning: 450 m<sup>2</sup>/hour<br/>40 ltr/min @ 140 bar</p> | <p>This underwater hull cleaning unit will stand up to the most difficult underwater cleaning conditions encountered on various types of ships.</p> <p>Weight in air: 133 kg<br/>Weight in water: 10 kg<br/>Cleaning: 1500 m<sup>2</sup>/hour<br/>80 ltr/min @ 140 bar</p> | <p><b><u>PP018 power unit</u></b><br/>Suitable for running:<br/>MC111/MC131/MC212</p>  <p><b><u>PP100 power unit</u></b><br/>Suitable for running:<br/>MC111/MC131/MC212 /MC313</p>  |
|    |   |    |    |  |

