



## ENGINE REGISTRATION SYSTEM (ERS)

### Why ERS?

All individual surveyors carry out surveys, unaware that the crankshaft failure they are inspecting is actually the 3rd. But the other 2 are being dealt with by other surveyors. All unaware of the fact that they are looking at the 3rd similar damage.

If they would have known, their approach would have been much more detailed, focused on the exact why, finding arguments for guarantee, financial compensation for the owner and/or insurer and required modifications.

Engine damages form a big part of negative results for insurers and have a negative effect on premiums and coverage.

This triggered insurers to gather statistics in reported engine failures and finding these possible structural issues. Not to exclude engine make or type from coverage, but to create awareness amongst manufacturers, owners and surveyors of structural failures and action for prevention. This resulted in the development of the Engine Registration System (ERS) by IVR in close co-operation with the insurers.

### PARTICIPANTS:



“When a crankshaft breaks once it’s an accident, twice it’s a coincidence, but the third time it might be a structural failure. The basic idea behind ERS is finding **the 3rd time.**”

### How does it work?

The system is straightforward and works with four set identification criteria being: kind / make / type / damaged item.

As kind are presently identified:  
Main engine / Auxiliary engine / Gearbox / Thruster / After treatment plant.

Damaged item is a set list of items of which one can be chosen to indicate which part is factually damaged.

To further identify the damage two causes must be chosen, being:

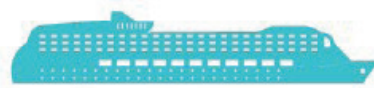
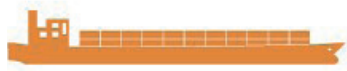
- ▶ the technical cause (for instance : coolant/ cooling system related or fuel/fuel system related)
- ▶ the related cause (for instance: cavitation or incorrect mounting or structural failure)

The ERS database contains data provided by ERS registered surveyors and is only accessible for this group. ERS surveyors can search the database for similar claims, to enhance their experience and knowledge about structural engine failures.



### Confidentiality

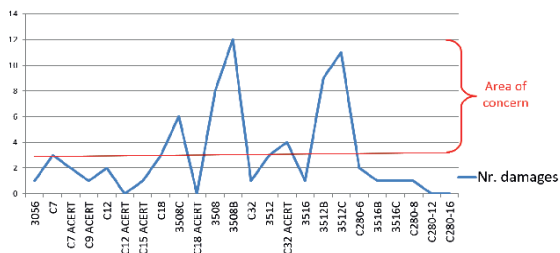
Only the technical data is shown. Personal data of the owner and the vessel cannot be viewed. ERS is therefore completely GDPR-proof.



## The results

Every week the system automatically generates statistics, like shown in the graph below. These statistics are analysed by IVR to see if there is any question of a possible structural failure.

Make / Type / Nr. damages



The IVR/ERS board of surveyors will, in case of a presumed structural failure, investigate the related technical data and a pre-alert is sent out to all ERS surveyors in order to get more information. If a factual structural failure is observed, ERS surveyors are informed by an ERS-alert message, informing them about the details of the found structural failure and actions to be undertaken by IVR.

IVR then contacts the manufacturer to discuss possible damage prevention measures, modifications to be carried out, as well as communication of the problem to the users. All ERS surveyors and participants are informed about the discussions outcome and solutions achieved with the manufacturer.

ERS has shown its value already in several cases in the past where structural failures were established and, in good consultation with manufacturers, solutions were found and future similar damages were avoided. Thus saving claim costs for insurers and owners. Also statics are generated of which some examples are shown below.

### Sea-going



Last 10 years **530**



2021 **28**

### Inland



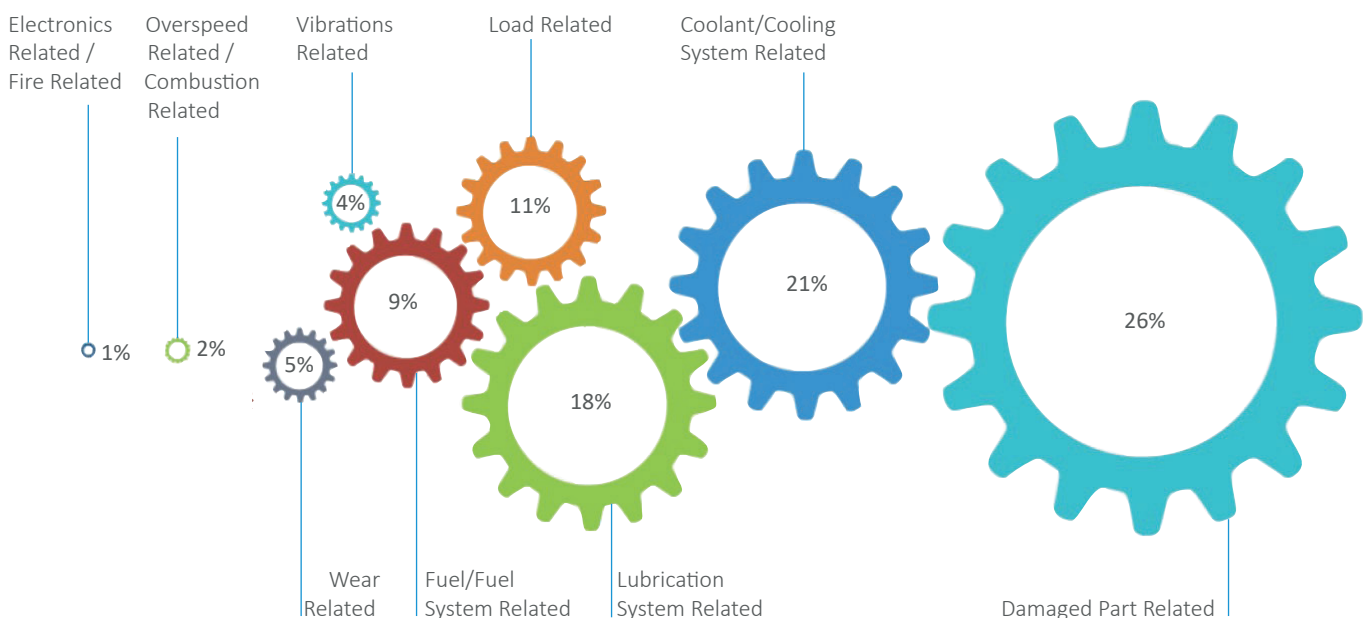
Last 10 years **760**



2021 **60**

This way ERS participants also have a more extensive information flow on damage statistics, structural failures and damage preventive technical information. The past has learned that this is not used to exclude machinery coverage or reject claims, but on the contrary, gave insurers the confidence that surveyors giving input to ERS are well informed about structural failures and damage preventive technical information.

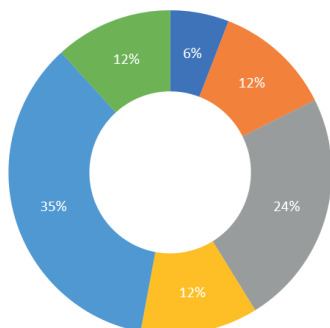
### Technical cause of damage





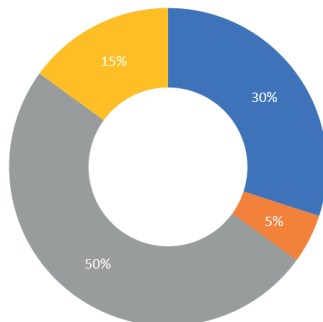
### Related causes

Related Technical causes of Coolant/cooling system



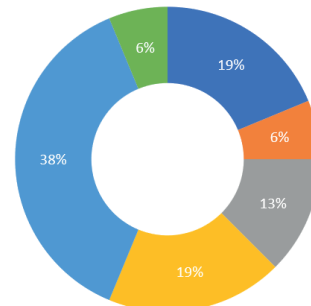
■ EXCESSIVE WEAR ■ CREW NEGLIGENCE ■ EXTERNAL CAUSE  
■ STRUCTURAL FAILURE ■ COMPONENT FAILURE ■ CAVITATION

Related Technical causes of Damaged part



■ EXTERNAL CAUSE ■ STRUCTURAL FAILURE  
■ INCORRECT MOUNTING / SETTING

Related Technical causes of Lubrication system



■ EXCESSIVE WEAR ■ AFTER TREATMENT INSTALLATION  
■ CREW NEGLIGENCE ■ EXTERNAL CAUSE  
■ COMPONENT FAILURE ■ INCORRECT MOUNTING / SETTING

## The platform

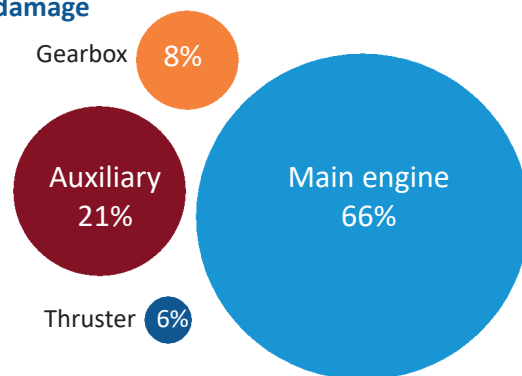
Apart from informing ERS participants and surveyors about alerts, IVR also informs ERS surveyors through the ERS platform, on technical leaflets received directly from engine manufacturers or via ERS surveyors, concerning items which require attention to prevent damages, maintenance issues and modifications.

For instance, through the platform, surveyors were informed about service letters stating details and explanation

This way ERS not only helps and informs the surveyor, but also is able to make vital technical information available to owners, thus avoiding damages and idle time of the vessel due to a damage.

In the near future, damages to electrical and hydrogen-powered systems, as well as damages to treatment systems and damages caused by bioadditives / biofuels will also be able to be registered in ERS.

### Kind of damage



## Owners participation

If owners can encourage the surveyors and brokers to contribute claims into the ERS database this would help in increasing the scope of information, statistics and the chance of finding more structural failures. If owners are of opinion they are confronted with a structural failure in their machinery they can ask their surveyor to search in the ERS database for similar claims or inform IVR about the supposed structural failure, for IVR to investigate if this indeed is the case and start up the process of a pre-alert or even an alert.



All surveyors who are a member of a recognized marine association - such as NIVRE, NAMS, FEMAS - can become an ERS surveyor. Visit [ers.ivr.nl](https://ers.ivr.nl) to watch the demo or contact [h.arntz@ivr-eu.com](mailto:h.arntz@ivr-eu.com).

### DISCLAIMER

The content of this leaflet has been written with the greatest possible care. However, IVR cannot guarantee the accuracy or completeness of the information. The IVR accepts no liability which might arise from the content of this leaflet.

©IVR Technical Leaflet Engine Registration System (ERS) - January 2022