
No.77 Guidelines for the Surveyor on how to Control the Thickness Measurement Process

(Mar 2002)
(Rev.1
July 2004)
(Rev.2
Apr 2006)
(Rev.3
Oct 2016)

IACS Procedural Requirement PR 19 stipulates that:

1. Thickness measurements required in the context of hull structural classification surveys, if not carried out by the Society itself, are to be witnessed by a surveyor;
2. This requires the surveyor to be on board, while the gaugings are taken, to the extent necessary to control the process.

1. SURVEY MEETING

Prior to commencement of the survey, as required by UR Z7s or UR Z10s, a meeting is to be held between the attending surveyor(s), the master of the ship or an appropriately qualified representative appointed by the master or Company, the owner's representative(s) in attendance and the thickness measurement firm's representative(s) so as to ensure the safe and efficient execution of the surveys and thickness measurements to be carried out onboard.

It is recommended that thickness measurements should be carried out in a single operation, by one thickness measurement firm. If, however, thickness measurements are carried out in several operations during the allowable period for the survey and/or by different thickness measurement firms, separate survey meetings should be held at each time.

Items that should be addressed and agreed in this meeting are among others:

- 1.1 schedule for thickness measurements;
- 1.2 provisions for thickness measurements (personal safety, means of access, cleaning and de-scaling as appropriate, illumination, ventilation);
- 1.3 planned scope of survey:
 - mandatory extent of thickness measurements (according to classification rules)
 - areas subject to close-up surveys and thickness measurements including areas previously identified with substantial corrosion, if applicable.
- 1.4 availability onboard of drawings with original scantlings;
- 1.5 allowable thickness diminution;
- 1.6 taking representative readings in general and where uneven corrosion / pitting is found;
- 1.7 procedure for additional readings of areas with substantial corrosion, if applicable (according to classification rules);
- 1.8 communication between surveyor(s), thickness measurement operator(s) and owner's representative(s):
 - reporting of thickness measurements on regular basis;
 - prompt notification of the surveyor in case of findings;
 - excessive and/or extensive corrosion or pitting / grooving of any significance;

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- structural defects like buckling, fractures and deformed structures;
 - detached and/or holed structure;
 - corrosion of welds;
- 1.9 the thickness measurement firm should provide information related to:
- equipment to be used;
 - personnel records of operators scheduled for thickness measurements onboard.
- 1.10 documented record of the survey meeting.

2. MONITORING OF THE THICKNESS MEASUREMENT PROCESS ONBOARD

The surveyor should decide final extent and location of thickness measurements after overall survey of representative spaces onboard. In case the owner prefers to commence the thickness measurements prior to the overall survey then the surveyor shall advise that the planned extent and locations of thickness measurements are subject to confirmation during the overall survey. Based on findings, the surveyor may require that additional thickness measurements have to be taken.

- 2.1 Prior to commencing the thickness measurements, the surveyor should:
- check type of equipment and verify that equipment is calibrated according to recognized national / international standards and properly labelled;
 - witness calibration appropriate for size and type of material;
 - be satisfied with operator's skills and competence;
 - ensure that the thickness measurement operator will be using instruments using pulsed echo technique (either with oscilloscope or digital instruments using multiple echo). Single echo instruments may be used on uncoated surfaces, which have been properly cleaned.
- 2.2 The surveyor should direct the gauging operation by selecting locations such that readings taken represent, on average, the condition of the structure for that area.
- 2.3 Thickness measurements mainly to evaluate the extent of corrosion, which may affect the hull girder strength, should be carried out in a systematic manner of all longitudinal structural members. The surveyor should be in attendance during this process.
- 2.4 Thickness measurements of structures in areas where close-up surveys are required shall be carried out simultaneously with the close-up surveys in order to facilitate a meaningful survey.
- 2.5 The surveyor may specially consider the extent of thickness measurements of structures within spaces where the protective coating is found to be in GOOD condition.
- 2.6 Where thickness measurements indicate substantial corrosion or excessive diminution the surveyor should direct locations for additional thickness measurements in order to delineate areas of substantial corrosion and to identify structural members for repairs / renewals.

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3. REVIEW AND VERIFICATION

3.1 Upon completion of the thickness measurements, the surveyor should confirm that no further gaugings are needed, or specify additional gaugings.

3.2 If extent of thickness measurements have been reduced, the surveyor's special consideration should be reported.

3.3 In case thickness measurements are partly carried out, the extent of remaining thickness measurements should be reported for the use of the next surveyor.

3.4 Surveyor should confirm that the proper thickness measurement reporting forms were used if the ship is under the ESP programme.

3.5 Upon completion of the thickness measurements onboard, the surveyor should verify and keep a copy of the preliminary thickness measurement report signed by the operator.

3.6 Upon review that the final gauging report is consistent with the preliminary report, the Surveyor is to countersign the cover page of the final report. The Surveyor should keep the preliminary report, as a minimum, until the review is completed.

Note:

Excessive corrosion is an extent of corrosion that exceeds the allowable limit.

Extensive corrosion is an extent of corrosion consisting of hard and/or loose scale, including pitting, over 70% or more of the area under consideration, accompanied by evidence of thickness diminution.

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