

## Kegagalan proses manufaktur dan pengelasan dalam pembuatan gate leaf pintu air serta upaya penanggulangannya

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Abstrak

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Deformasi yang terjadi pada fabrikasi konstruksi Gate Leaf yang dipersiapkan untuk daun pintu air di bendungan, menimbulkan permasalahan. Permasalahan tersebut meliputi kesulitan perakitan, pemasangan unit di tempatnya, yang secara langsung mengurangi kekuatan konstruksi serta kesesuaian bentuk konstruksi, disamping biaya produksi.

Deformasi yang diuraikan di atas dalam penelitian ini dikaji secara literatur dengan tujuan untuk mengetahui dan mengeliminir permasalahan yang terjadi secara tepat, mengurangi kerja ulang dan peningkatan mutu. Data diambil dari catatan dan laporan kegagalan proses di lapangan.

Dan pengkajian secara teoritis deformasi terjadi akibat penerapan teknik pengelasan yang tidak tepat, yang meliputi deposisi logam las yang berlebihan dan urutan deposisi, penerapan welding jig yang tidak sesuai. Didapatkan bahwa konstruksi Gate Leaf perlu dukungan terhadap manajemen produksi yang tepat dan penerapan prinsip-prinsip manufaktur seperti persiapan prosedur produksi, pengendalian mutu secara bertahap dan berkesinambungan.

Saran untuk mengatasi permasalahan fabrikasi tersebut di atas, perlu ditingkatkan pengetahuan karyawan dalam bidang konstruksi dan pengetahuan teknik pengelasan dan perancangan konstruksi yang berorientasi pada ketrampilan manufaktur. Disamping hal tersebut diperlukan dukungan personil welding enginer, welding inspector untuk persiapan fabrikasi, prosedur produksi dan penyusunan teknik pengelasan yang benar sehingga dapat mengurangi terjadinya deformasi.

### <hr><i><b>ABSTRACT</b></i>

Deformation occurred during fabrication of Gate Leaf for water darn construction was found to cause severe problems. The problems involved can be categorized as difficulty in assembling and erecting of the component in the site plant. As a result construction strength would be lowered despite unfitted geometrical shape and inefficiency in production cost.

In this thesis, the deformation described above was investigated based on the literature studies. The discussion was focused on characterization and elimination of technical problems that arise from manufacturing operation. Therefore repairs would be reduced to a lower level besides quality improved. Research data was collected from direct observation in the field and report from previous production failures.

A careful theoretical assessment came to the conclusion that deformation was particularly due to welding

process which specifically could be identified as improper welding procedure, over deposited weld pool, unsuitable design and position of welding jigs. The studies also suggested that the manufacturing of the Gate Leaf component need to be supported with a correct implementation of production management, manufacturing operation procedure, as well as continuous quality inspection.

The investigation indicated that human resource quality need to be improved in their technical skill, (i.e.: welding technology and construction design)\_ This knowledge should have orientation in manufacturing skill and thereby improvement of welding engineer and welding inspector is essential in order to reduce risk of deformation.</i>