



The Sarens SPMT stability calculation tool has been designed to evaluate static and dynamic axle loading and tipping angles.

Maintaining stability

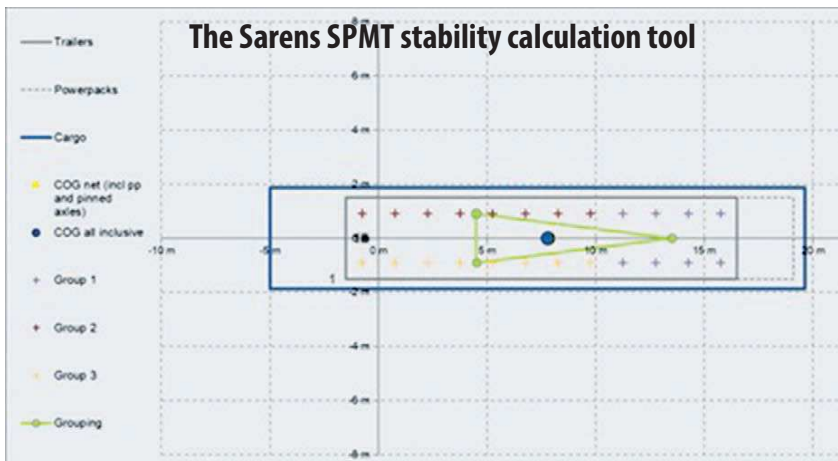
Stability in lifting and transportation operations is of utmost importance. HLPFI takes a look at Sarens' updated SPMT stability calculation tool, which it has rolled out across its special transport operations. Meanwhile, Eager.one highlights the importance of elasticities during heavy transport operations.

Sarens recently released an updated version of its SPMT stability calculation tool. It has been designed to evaluate static and dynamic axle loading and tipping angles, as well as ground bearing pressures and trailer bending.

First introduced two years ago as the Sarens Transport Calculation Sheet (STCS), the company has used the tool for its special transport operations. It has since been updated to apply to larger projects, as well as the various ranges of SPMTs.

Peter Huygebaert, engineering manager at Sarens, said: "Besides the static and dynamic axle loading and tipping angle evaluations that the old tool could perform, the new sheet also allows us to easily pin-up axle lines and evaluate ground-bearing pressures and trailer bending.

"The old tool could be used after a drawing of the transport had already been made, and so was missing a visual interface. The new tool lets us visualise the SPMT



configurations and saves considerable time.”

The newer version of the STCS also evaluates dynamic forces, such as accelerations and wind, in an even more detailed manner.

For the development and testing of the updated STCS, Huygebaert said Sarens started from a clean sheet “in order to not be bound by the restrictions that the old tool had”. The company then started trialling the new tool on specific projects, before it was launched to the entire Sarens Group.

Barges and SPMTs

What do barges and SPMTs have in common? More than you think, according to André van der Steen at Eager.one – a Netherlands-headquartered provider of consultancy, engineering and construction design services.

In both cases, stability is a crucial parameter to be aware of and, according to Eager.one, adding up ‘elasticities’ is essential.

Specifics such as mass and centre of gravity are crucial to determine and van der Steen said that these calculations can, in some cases, be quite complicated to work out.

He said: “In cases where stability is not the greatest issue, you may decide on stability by one of two simple rules of thumb.” They are:

- GM value (metacentric height) for barges
- Minimum tipping angle for trailers

However, during operations in which stability is a critical issue, these simple rules do not suffice. In these cases, it is necessary to quantify all elasticities that play a role, he explained.

The quantification of elasticity is the common factor during lifting operations and in SPMT operations. But, how do you determine all elasticities from top to bottom?

“For the barge, total elasticity is the sum



For barges, total elasticity is the sum of crane elasticity (bending) and the elasticity of the barge against rolling.

Credit: Viktor Baumann

of crane elasticity [bending] and the elasticity of the barge against rolling. In this so-called ‘roll stiffness’ of the barge, the GM value plays a major role,” explained van der Steen.

“For the trailer, it is the combination of

Three-point and four-point hydraulic tilts have different tipping lines, and a different elasticity occurs for different hydraulic layouts.

–André van der Steen, Eager.one

bending elasticity of the ramps, the elasticity of the tyres and the elasticity of the hydraulic setting. Three-point and four-point hydraulic tilts have different tipping lines, and a different elasticity occurs for different hydraulic layouts.”

Once you have quantified all elasticities and all external influences, such as wind, moments, and other forces, you can calculate all movements and rotations of the operation, said van der Steen. “These movements can easily be judged as acceptable or not. This establishes a clear basis for operations in which stability is critical.”

HLPFI

LEEA fine-tunes Technical Triage system

The Lifting Equipment Engineers Association (LEEA) has fine-tuned its Technical Triage system, which aims to resolve questions within 48 hours.

“We encourage members to send all technical queries in by email to technicaladvice@leeaint.com as the first port of call for the triage system,” said Ben Dobbs, head of technical services at LEEA.

“This is vital for members seeking answers to their questions, because LEEA cannot provide advice and guidance if the question is not logged in the triage system.”

Technical Triage will improve and expand the way

that frequently asked questions are dealt with, LEEA said. The system will also provide an opportunity for LEEA to learn more about its members and the challenges they face.

Examples include the possibility of monitoring industry issues; identifying training requirements; and spotting shortfalls in standards, legislation, LEEA guidance and industrial practices.

“With this greater awareness and knowledge, LEEA can commence the improvement process,” the association said.

The system will also maintain a single LEEA

interpretation of legislation, standards and industrial best practice, while enabling the LEEA team to focus technical resources on the most critical problems.

Members will receive reports containing data such as the number of technical queries received and responses sent, responses sent within 48 hours, questions requiring new guidance or changes to industry practices, and technical queries from specific geographical areas.

“To gain a more accurate picture of industry issues we need all members to use the Technical Triage system,” Dobbs pointed out.