New Modules, Changes to Elevator Portal

Multiple calculations, functions and more supplement counterweight guide-rail calculations.

According to EN 81-20/-50, now in effect in Europe, the tare weight of guide rails for counterweights must be considered: small guide rails may require new brackets during modifications, incurring unnecessary costs. LIWETEC aims to avoid these by an alternative calculation method. According to EN 81-20, guide rails can be calculated according to EN 81-50:2014 or EN 1993-1-1, as well as by the Finite Element Method (FEM).

LIWETEC GmbH's **Elevator Portal** calculates the bending drill buckling of the guide rails using the FEM. As a result, general statements regarding bending crinkle, under-tare weight and additional weights can be made in the construction phase. The online portal is a database-driven system available anytime and anywhere. Continuously updated, it is intended to support planning, configuration selection and calculation of entire elevator systems or main components by using a product and system configurator and making technical calculations. The CompuLift module is the centerpiece of the portal and a calculation program for the following technical calculations, additional functions and tools. All calculations are carried out according to EN 81-20/-50 and EN 81-1/-2/-77.

Technical Calculations

- Cars: surface inspection
- Lifting cylinder: cylinder, cylinder bottom/piston
- Ropes: rope reliability calculation for steel ropes, plastic-covered ropes and Polyrope
- Traction sheaves: calculation of the driving ability and (optionally) surface pressure
- Radial load: verification of the permissible radial load
- Pullies/axles: calculation of the axles and bearing durability
- Beams: calculation of the pulley carriers or general carriers for deflection and permissible bending stress
- Guide rails: for central, eccentric, L-frame and diagonal guided lifts, including earthquake standard EN 81-77 and/or additional load on the rails
- Supports: calculation of buffer/cylinder supports for buckling
- Buffer: selection of permitted buffers for normal buffers and service support buffers
- Overspeed governors: review of the resulting clamping force and calculation of the rope safety for governor ropes
- Stopping distance calculation (optional): checks the unintended movement of the car in up and down movements for specified distances

Tools

- High frame calculation: tool for calculating the wrap angle or axles' distance by known wrap angle
- Tension weight calculation: calculation of the resulting clamping force
- Profile calculation: tool for configurating sheet-metal profiles that can be used in support and beam calculation
- Shaft calculation: simplified shaft calculation for flying/bilateral traction sheaves
- Car center of gravity: calculation of the car's center of gravity by entering the individual components and associated coordinates

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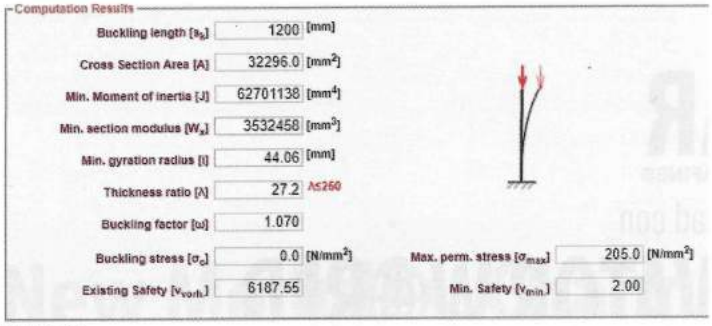
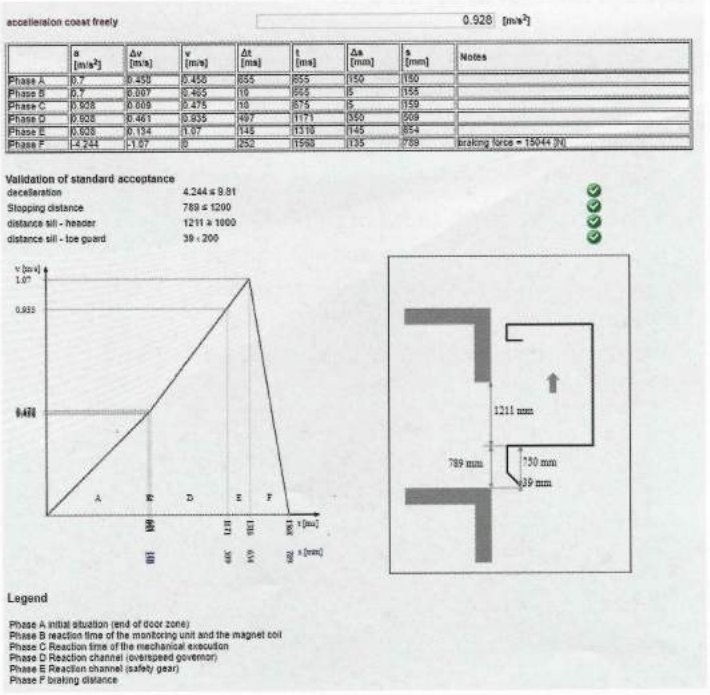
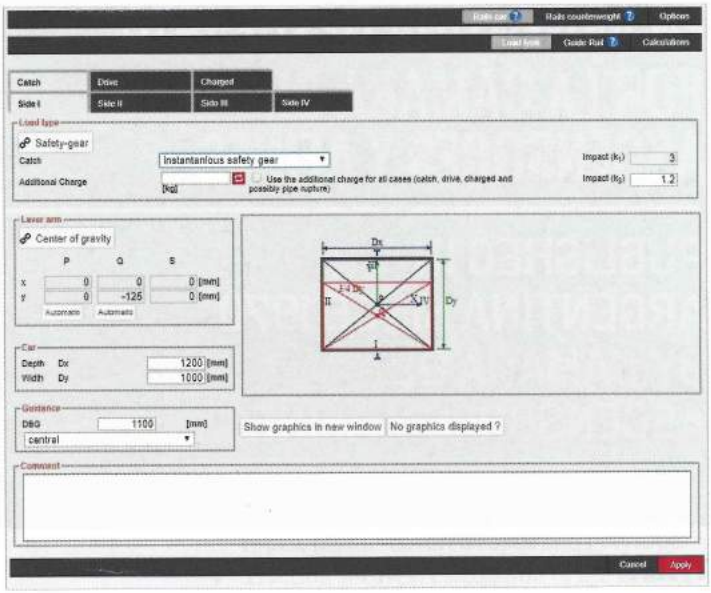


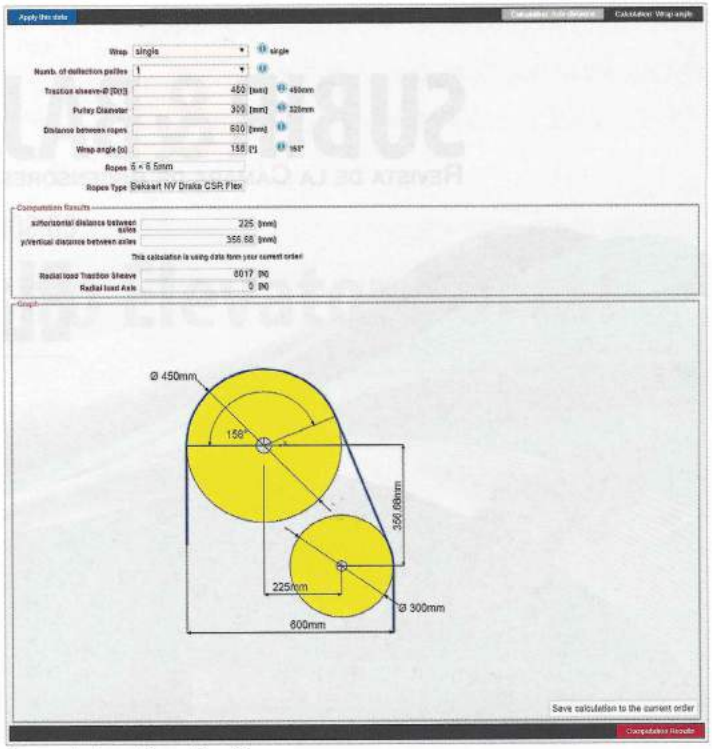
Supports



Unintended car movement



Guide rails



Computation of machine frames

- Safety-gear calculation: total permissible weight check (range of ±7.5%) for modernization
- Bearing durability: calculation of bearing durability for rolling bearings of rope pullies

Additional Functions

- Item list module: output of a list of parts of the calculated components and accessories
- Railplan module: review of a collision between connectors and brackets
- Force diagram module: automatic output of all forces in the pit and shaft wall
- Shaft sketch module: simplified sketch for the shaft cross-section
- Counterweight fillers selection: interpretation of the counterweight based on a maximum filling height and distance between rails
- Screw calculation: simplified calculation for transverse loads or tensile load of screws

Other Benefits

- Customizable
- Security validated annually by TÜV SÜD
- Automatic plausibility checks of selection after changes
- Saves time in the planning process through immediate validation and traceability
- Direct paperless transfer to Notified Bodies
- Personal onsite training with an expert available

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