Bulletin N° BU220003

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Guy ropes

The guy ropes hold the masts in an upright position and transmit the tension that is introduced into the masts by the circulating rope to the anchorages. In most cases, two guy ropes are used per mast, which are built with a spreading angle of 30 – 90 degrees behind the mast. The spread makes it possible to absorb transverse forces such as wind, waves or deflections caused by riders. Further versions are central bracing with smaller bracing on the side or a mast as an A-support and a central voltage. The type and diameter of the guy rope are individually designed to meet the needs of the system and statically calculated.

Figure 1: Guy ropes

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Breakage of guy ropes

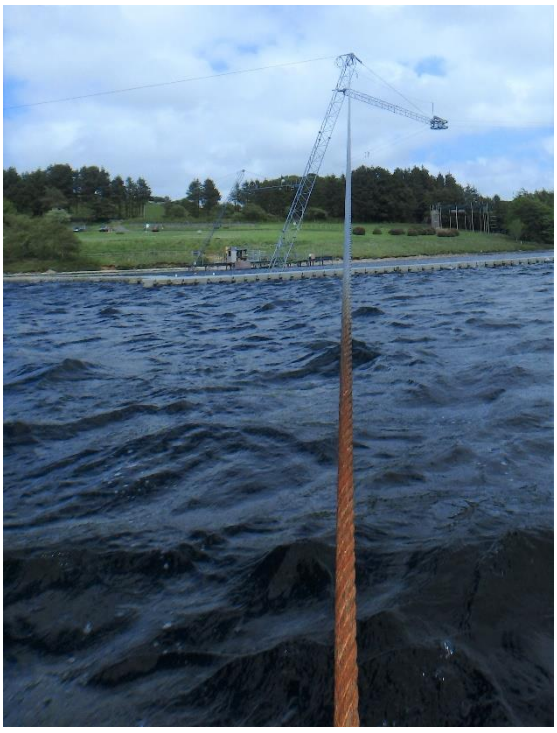
The breakage of a guy rope usually causes serious damage to the system and can also endanger people who are nearby. Therefore, regularly check the condition of the guy ropes and the environment for possible hazards.

Guy rope tear due to tree throwing

Keep the rope guide road free of larger tree growth and regularly check the condition of the surrounding trees. After heavy storms or heavy snowfall, the guy ropes must be checked before commissioning the system.

Guy rope tear due to corrosion

Check the guy ropes regularly for corrosion. This occurs particularly frequently in the wave impact area of a guy rope (see picture). But also in the anchor point at the anchor often form hollows in which water stands and it comes to increased corrosion. Further points are an increased salinity or aggressive media as they often occur in opencast mining. An overview of the severity of corrosion damage can be found on bulletin BU22001 Wire ropes.



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Guy rope tear due to external damage

Lightning, squeezing and shearing can also lead to damage to the circulating rope and possibly also to a crack of the guy rope in the long term. Lightning can often be detected by a discoloration of the circulating rope. Squeezing and shearing, on the other hand, can usually only be determined by close examination of the ropes. Often there is also damage caused by vandalism, such as sawing or fire under a guy rope. Only regular checks and additional protective measures in particularly exposed areas can help here. Pylon anchors, anchor tanks made of solid material or fences, the endangered area, can help here.

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Guy rope tear due to material fatigue

Constant tension load, shock loads and vibrations lead to material fatigue of the steel cable. A regular check of the rope condition by a testing body is mandatory. The intervals for the rope test are determined by the local test center. The filing maturity is regulated by DIN EN 12385-4 and DIN EN 12927-7. Rixen recommends changing all guy ropes after 30 years at the latest.

Replacement of tension ropes

When replacing ropes, use only ropes approved by the manufacturer. During the exchange, this must be documented by means of a corresponding rope certificate (material certificate 2.2). Rope type, breaking strength and design must correspond to the original part! Since guy ropes are highly loaded structural elements, we recommend that you have them replaced by our service!

If you have any doubts or questions, please do not hesitate to contact our service team.

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Please include this bulletin in the operating instructions of the system!

Thank you in advance for your understanding and for your cooperation. The Rixen service team is looking forward to a continued good cooperation.