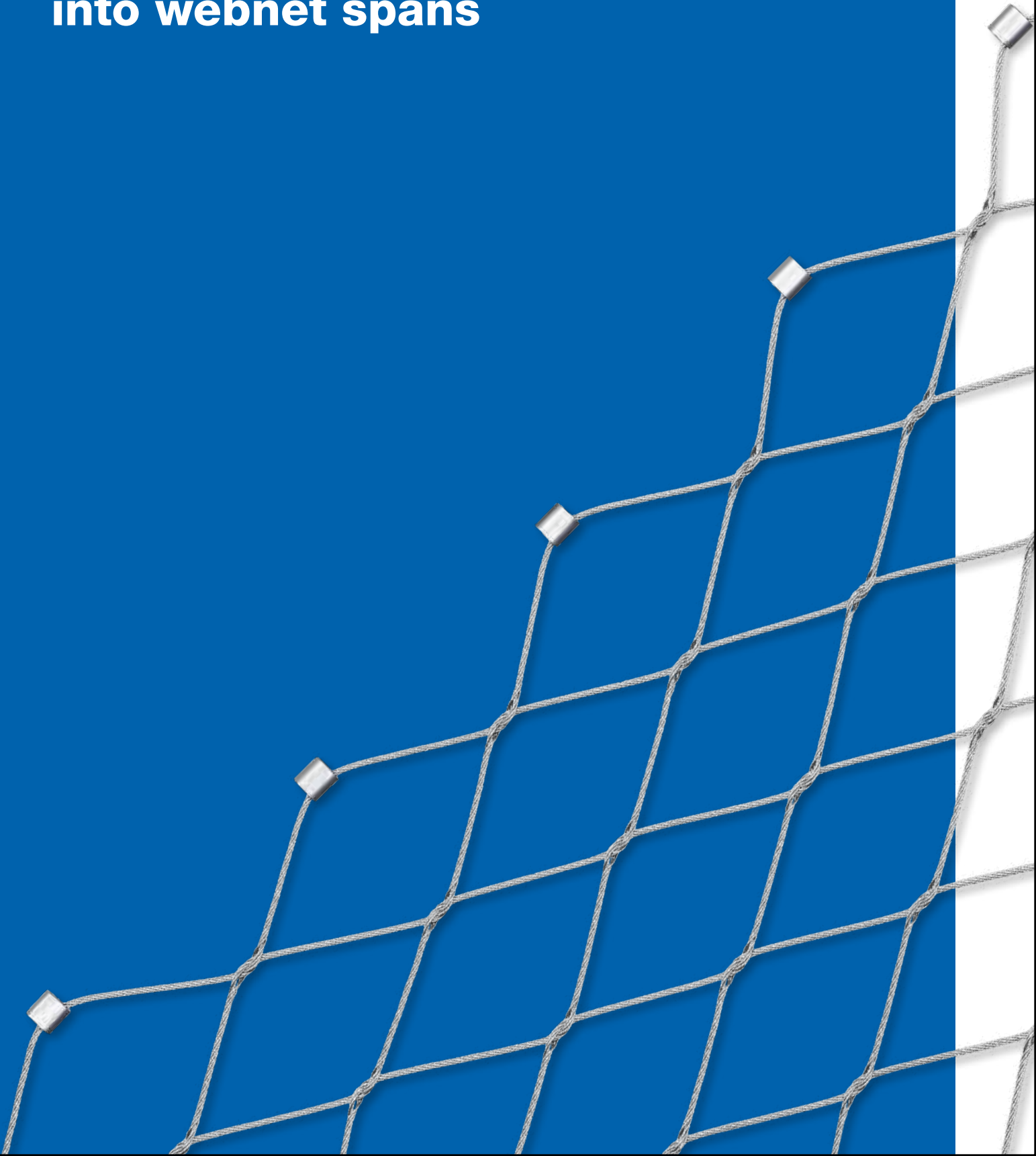


Technical information sheet

**Bird strikes
into webnet spans**



Bird strikes into webnet-spans

Fiche technique
Version: 19.02.2021

Introduction

Webnet-Products made by Jakob Rope Systems are often used outdoors, e.g. in function of guard rails in bridges. This leads to the question if there are any risks of collision existing for birds, the so-called "bird strike".

Bird strike typically happens at mirroring glass faces, but also against free, single span ropes. That is why bird control systems are often recommended e.g. for overhead lines or ziplines (flying fox or tiroliennes) in bird flying aisles.

Webnet-products often are implemented as an alternative for glass faces tending to be safer against vandalism. Hence, this bulletin shall show the differences between the two materials of glass and stainless steel wire rope networks with regard to their interaction with birds.

Flight and sight characteristics of birds

Birds' eyes are located sideways, which opens a larger visible range in comparison to human beings. But this fact is also reducing stereoscopic vision extremely for birds. Although birds have access to a very high visual resolution and vision at frequencies of UV-A, they are almost not able to spot and distinguish glass faces from the environment. Three constructional effects consistently lead to bird strikes, partially killing the animals: see-through layouts, mirroring and artificial illumination (at bad weather, fog or darkness). Especially transparent or mirroring parts in large covered areas can fake a "flying-through aisle".

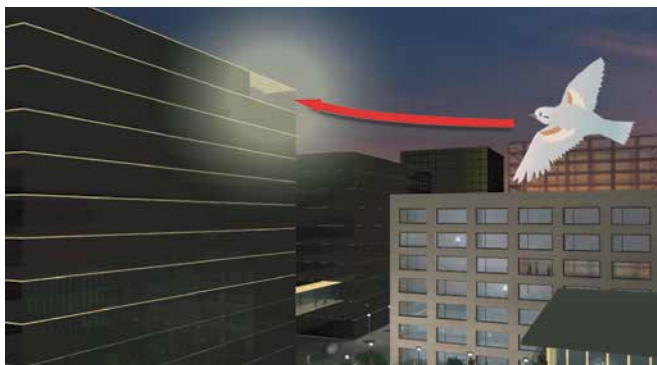


Image 1/2/3: Classic reasons for bird strikes: see-through layouts, mirroring and artificial illumination.¹ [Archiv Schweizerische Vogelwarte]

Technics for making glass faces visible

To turn glass visible for birds, one can distinguish roughly between the two technics of matting/frostening or texturing. Bird silhouette stickers can be neglected as birds just fly around them and do not recognize the shape as an enemy. There is no nameable deterrent impact exceeding the size of the sticker^{1/3/4}.



Image 4: Single bird silhouettes are without effect – birds just try flying around them.

Matting/Frostening

The simplest way to matt a glass face is to keep the natural dirt layer and reduce cleaning actions.

Alternatively, anti-reflecting or non-transparency of glass panels can be reached by applying frosted glass foils. Actual developments focus on UV-filter foils, as birds are capable of vision in ultra-violet range. UV-foils offer perceptibility for birds while they stay invisible for the human eye.

Texturing

For texturing, patterns, letterings or large covering drawings are applied to the glass panel. In addition, «metal elements and wire meshworks can be recognized by birds as a barrier. Hence, such frontages usually do not produce any danger for birds.»¹ Experts suggested the following examples as effective solutions. For demonstration, comparative, rather similar examples of Jakob products are shown next to those examples given in the literature:



Image 5: This glass noise barrier was made visible by using wire networks.³



Image 6: Similar solution of a birds aviary made of Webnet by Jakob Rope Systems in Zurich Zoo.



Image 7: Fishermen or cat-protection networks can function as a visible barrier.⁴



Image 8: Similar impression created by a fine-meshed Webnet of Jakob Rope Systems installed in a Zoo enclosure.



Image 9: Against expectations, black horizontal lines of a width of 2 mm spacing 28 mm showed good results in laboratory tests.¹ [Archiv Schweizerische Vogelwarte]



Image 10: Similar impression created by horizontal ropes used as guard rails by Jakob Rope Systems on a pedestrian bridge in England.



Image 11: Metal meshwork: translucent, economic, bird-friendly.¹ [Archiv Schweizerische Vogelwarte]



Image 12: Similar impression created by safety networks of Jakob Rope Systems at a parking garage in Zurich.



Image 14/15: Emphasizing of network-structures using Webnet-ID.

Limitation: Networks installed close to water level

Webnet products have been installed as guard rails at a lake's bank path, in addition, an expert opinion was ordered to analyze the possible impact on waterfowl.² As mainly ducks take off and land comparatively flat to water level, wire networks installed at bank paths or piers could be difficult for the birds to spot in darkness or at mist.



Image 13: Ducks taking off flat from water level. [Tim Wilson on Unsplash]

Amongst others, the experts recommend «marking the wire-network rails, which are difficult to see, more visible for waterfowl by plastic ribbons or other elements.»² Webnet-ID plates made by Jakob Rope Systems can provide a solution for emphasizing network-structures. They can be installed variably and in individual colors into the network. By using Webnet-ID, the network can be made visible in an esthetic way without installing a total separate system into the net-architecture. Occasionally, experts recommend observing the situation after erecting the construction and reacting only if necessary. It is easily possible to upgrade Webnet-ID into an existing network.

Abstract

Stainless steel rope networks of Jakob Rope Systems fulfill the recommendations of expert literature for making (glass) faces visible for birds. Fine-meshed networks are explicitly named e.g. as means to emphasize large glass faces.

Solely for networks being installed at water level in areas of waterfowl taking off and landing, the situation needs to be investigated case by case.

To make stainless steel networks more visible, Webnet-ID plates made by Jakob Rope Systems can be installed directly into the network structure and create an emphasis.

Literature

¹ Schmid, H.; Waldburger, P; Heynen, D.: Vogelfreundliches Bauen mit Glas und Licht. Schweizerische Vogelwarte, Sempach 2008 (vogelwarte.ch)

² Weggler, M.: Beurteilung über den Einfluss des geplanten Steges am Seeuferweg Wollishofen auf Wasservögel im Winter. Gutachtenbericht. Fa. Orniplan Zürich 2007

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⁴ Förster, J.: Gute und günstige Methoden zur Verhinderung von Vogelschlag an Glas. BUND, Düsseldorf (undatiert)