Metso

Screening solutions

Screening media challenges and how to solve them

Three factors to consider

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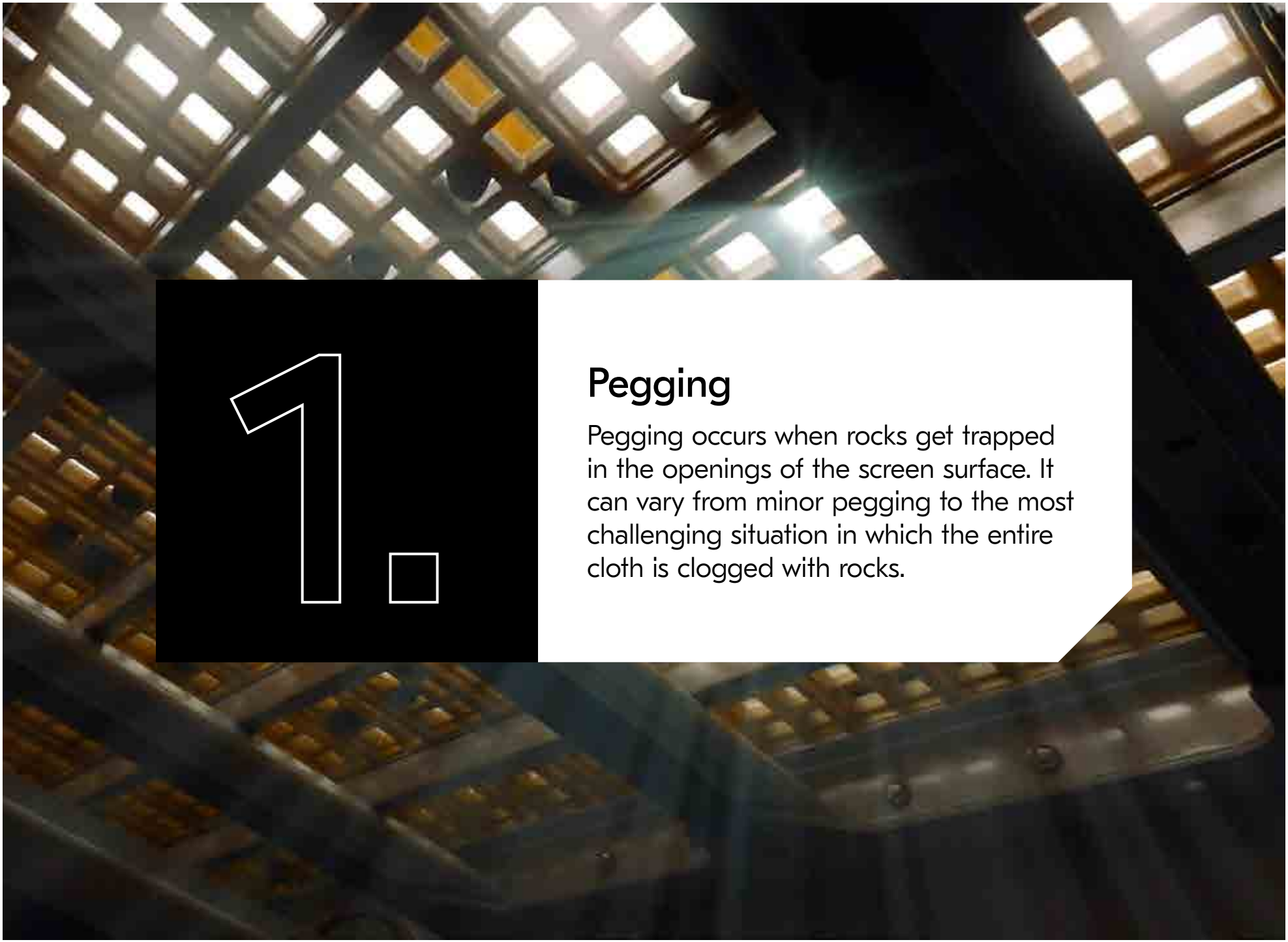
Boost performance by tackling screening challenges

Your choice of screening media has a great impact on your screening process. Making a wrong choice may not only lead to broken cloth and damaged screen structure, but it can also limit performance and therefore reduce output. The right solution can extend the lifetime of your screen and screening media, while at the same time increasing performance.

When inspecting a screening process, the suggested improvements are always dependent on the customer specific processing conditions and exact application. Sometimes the solution is more complex than at other times. In the image to the left, taken at a customer site, the problem and solution is fairly obvious as the screening media apertures were located just above the cross beams. The stones therefore had a hard time passing through and were easily getting stuck.

The pegged stones resulted in unnecessary wear on the screen. By removing the troublesome apertures, a blank surface was created, thereby protecting the screen. There is no universal solution to solve all screening media related challenges. A good start is to look at pegging, blinding and maintenance — three areas which greatly impact the screening process.



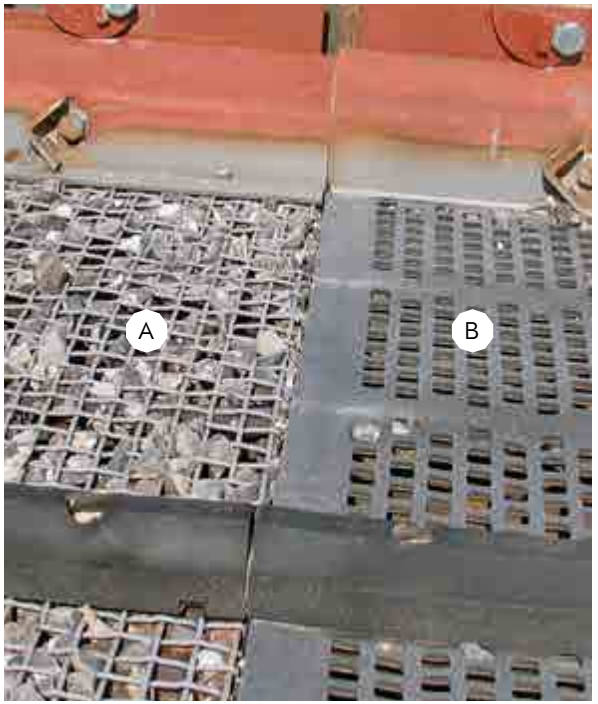
1.

Pegging

Pegging occurs when rocks get trapped in the openings of the screen surface. It can vary from minor pegging to the most challenging situation in which the entire cloth is clogged with rocks.

Two ways to reduce pegging - aperture size matters!

Pegging limits screening capacity, and it can be difficult to know exactly what is the best solution for the problem. Initially, you should look at the size of the apertures to investigate why pegging occurs in your production.



A wire cloth (A) compared to a rubber tension mat (B). It is evident that pegging occurs more in the wire cloth. The main reason for this is that wire cloth is a less flexible screening media compared to rubber cloth. The rubber cloth also has the advantage of blank areas above the supports which prevents pegging between the hole and support on the rubber cloth.

1

Smaller aperture size
In the case of smaller openings (typically less than 30x30 mm), factors such as screen settings and conditions, level of flexibility and cloth design should be taken into consideration. The thickness and stiffness of a traditional, or woven, wire cloth can cause rocks to peg in the cloth. The wires in a self-cleaning wire cloth are not interlocked, so they are able to flex between each other, which results in less pegging. Therefore, choosing the right mesh for a screen, changing the screen cloth design, using smaller apertures, having blank areas, and using more flexible media options may all be options which can prevent pegging. A blank area is a part of a screening media without apertures.

2

Larger aperture size
With larger openings (typically larger than 30x30 mm), crossbeams, ledge angles and other mechanical parts are factors to consider to prevent pegging. Making sure that the cloth opening is not interfering with the screen cross beams or similar is important. One way of addressing this is to introduce blank areas in the screening media on top of the cross beams and also to modify the aperture patterns to avoid exposing parts of the screen.

2.

Blinding

Reducing the effects of blinding in a specific application, is about finding the right balance between the lifetime of the screen cloth and how much blinding is actually acceptable.

Three ways to reduce blinding

With the right combination of reinforcement and material hardness both cloth life and blinding issues can be solved. For example, there is no blinding with a panel that is too soft, but a high screen load can cause the membrane to bend and thus increase the wear on the panel, resulting in increased service time as panels fail too early. When there is strong support but no flexibility, fines tend to blind up excessively in that area. The key is to find the right combination between the load of the screen in relation to the softness of the materials and media flexibility.

1

Minimize the blank area on the screen
Blank area is the part of the screening media panel which has no apertures/holes. Depending on media type and aperture size, this area varies in size. When reducing the blank area, there will be less surface for moist particles to stick to and begin gradual blinding buildup. It is important to keep in mind that blank areas in some cases are important parts of the screen deck. As mentioned earlier, blank areas sometimes can be used to protect the screen structure.

2

Reduce thickness of media if possible
A thinner media is more flexible, thereby continuously getting rid of the particles which potentially could stick to the deck and gradually cause blinding. A heavy material load can however cause higher wear on thinner screen media, so it is important to weigh the pros and cons of choosing a thinner media option.

3

Try softer synthetic materials
Due to its larger flexibility, rubber screening media usually results in less clogging. Read more about the benefits that can come from using a synthetic screening media in aggregate production by clicking or scanning the QR below.

3.

Maintenance

Maintenance and simple measures are often overlooked as factors that affect the performance of the screening media. In some cases, it is discovered that the problem is actually related to other underlying issues.

The following image shows a premature damage discovered due to the screen cloth support being worn down. The wear was so heavy that the screen cloth could not be tensioned, therefore leading to premature cloth damage.

Some parts have been completely worn down, and others are missing. It is important to check the condition of existing or missing supports.

Without making the proper repairs and ensuring the supporting profiles are in good condition, it is not possible to install screen media properly.

Many producers are focused on eliminating pegging or blinding — forgetting that it might be possible to improve media performance by simply reviewing the installation.

Condition of the supporting profiles before repair.

The above image shows an uneven material distribution on screening media. The material has been fed more towards the left hand side of the screen (seen from the top of the screen). The feed bed is thinner towards the right hand side of the screen. An even material flow is to be preferred to ensure your equipment and component's lifespan.

Three ways to improve screening media performance by reviewing your installation

There are three key areas that need to be considered: tension level, feed chute distribution and condition of the screen cloth supporting profiles. Let's look at each of these factors to see how they can impact performance.

1

Tension levels
The wrong level of tension can lead to severe damage to your screen. The cloth, for example, can be torn if the panel is not properly tensioned. During screening, the rubber panel will move against the supports in the screen deck causing wear. This can be resolved by rebuilding the screen frame to the original height of the supports, reinstalling the capping rubber on top of the support, and setting the tension so that there is no vibration between the supports and underneath the rubber cloth. An improperly tensioned cloth can lead to premature failure either by cracks in the wire or damages to the synthetic materials.

2

Feed chute distribution and location of the feed area
Another maintenance task that is typically overlooked relates to feed and the uneven feed distribution and/or wrong location of the feed area. Feeding in the wrong location shortens the lifetime of the installation since the screen panel will not last as long as the feed box.

3

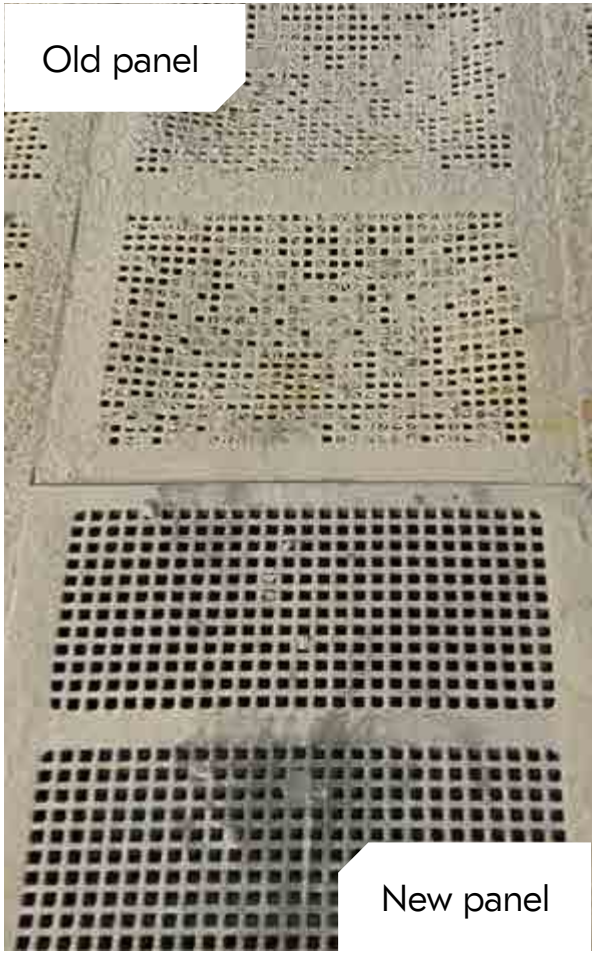
Condition of the supporting profiles
During maintenance and change-out of screen media it is also important to review the condition of the supporting profiles. It is important to check the profiles carefully for wear and other damages and change them if necessary. Keeping profiles and other supporting steel structures in good condition results in longer lifetimes and increased operation hours of the whole screening media installation.

4.

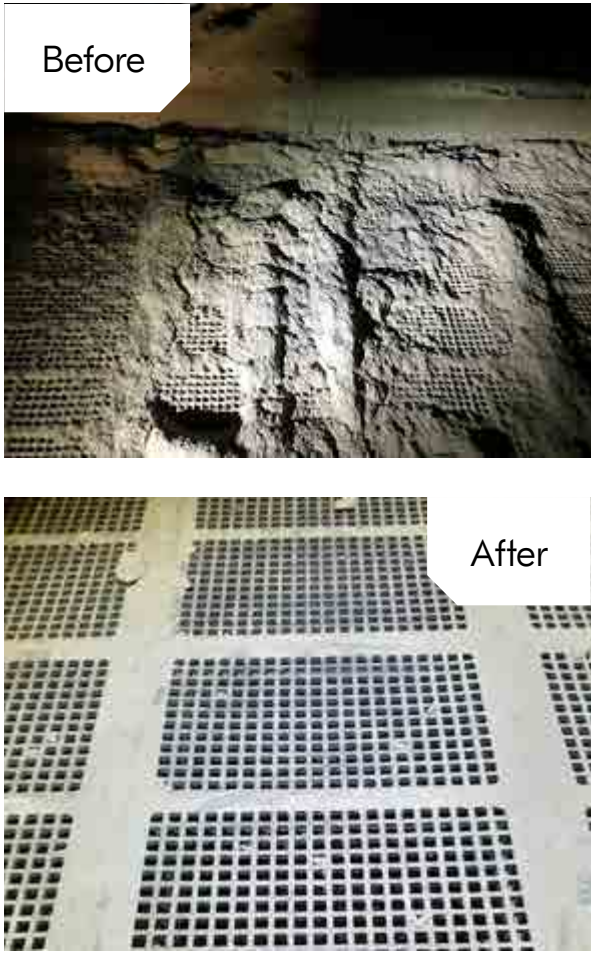
Before and after

Screening media issues aren't just "normal" - blinding, wear, and lost production can be fixed. Discover real examples of how we have helped customers optimize performance and transform results with tailored solutions.

Heavy pegging and blinding caused by moisture and fines on wire mesh - solved with Trellex TCO rubber (60 shore). Result: 3 times longer wear life and zero pegging and blinding.



Pegging and blinding in thin polyurethane membranes solved with soft/flexible Trellex rubber modules (T40). Result: pegging and blinding removed and smoother screening of final aggregate products.



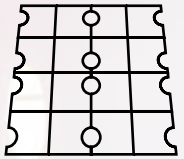
Blinding with competitor polyurethane drum skin media - solved using Trellex LS T40 rubber (5 mm membrane). Result: 0% wear after 3 weeks and significantly increased wear life.

Short wear life and reduced efficiency with competitor tensioned media - solved using Trellex LS modular panels. Result: longer wear life, less pegging, reduced shaft wear, and safer, easier maintenance.

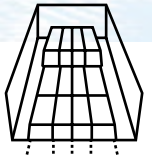
Conclusion

Whether your issues come down to pegging, blinding or a service related issue, the key is to take a step back and look for the root cause to the issue before deciding on a quick fix. Bringing in a screening expert can also help you choose a solution that works for your application and specific site/ screening operation.

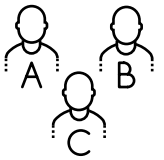
Key takeaways



Choose flexible media and adjust aperture size to reduce pegging and blinding



Review installation factors like tension, feed distribution, and support profiles



There's no one-size-fits-all solution - let's tailor the media setup to your needs

Visit our website →

metso.com/screeningmedia

Screening media recommender →

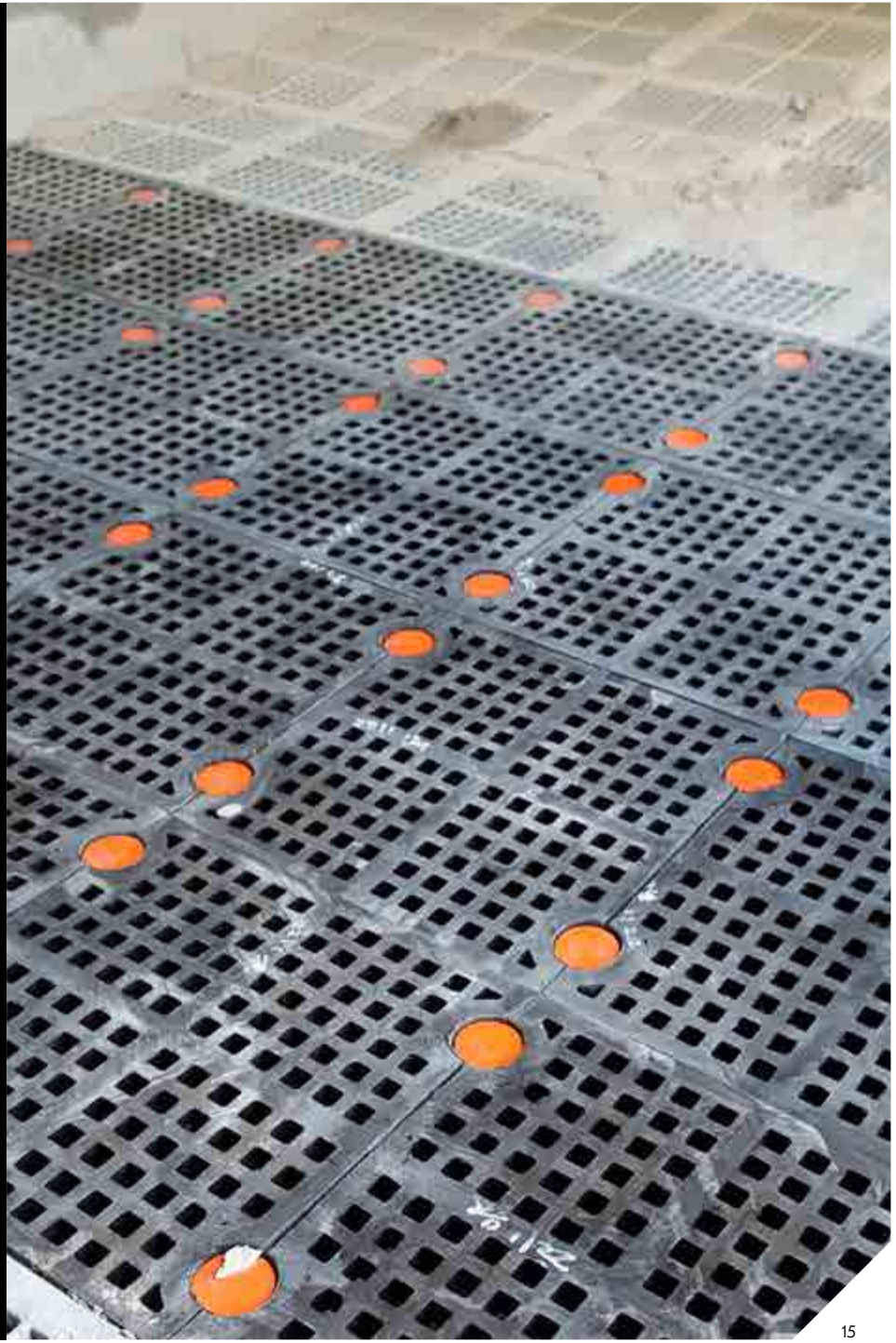
Get a recommendation for your needs

Screening media handbook →

Everything you need to know about Trellex® screening media

Contact us →

Find your closest Metso sales office or ditributor



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