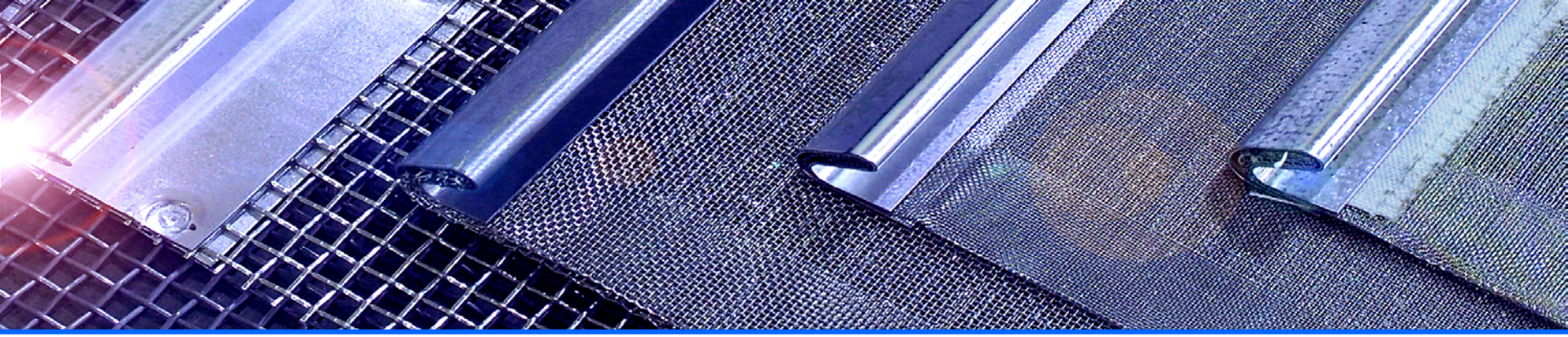

SCREEN BASICS, MAINTENANCE +TROUBLESHOOTING

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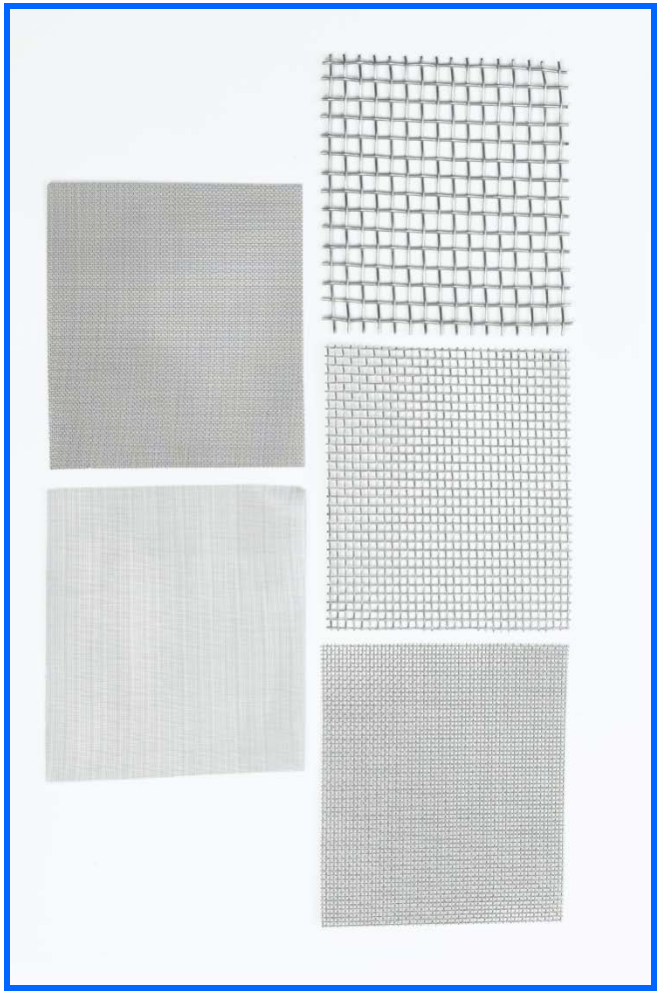
WIRE MESH BASICS

- aka “woven wire” or “wire cloth”
- Range from 1 to 635 mesh
- Typically in metal alloys
- Synthetics (polyester and nylon) offered in similar opening referred to as microns



MEASUREMENTS

- Mesh count
- Wire diameter
- Square opening (aperture)
- % of open area
- How to measure mesh vs. opening

Fig 1

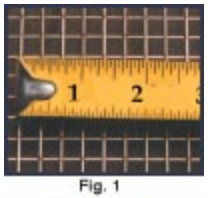


Fig. 1

Fig 2

Fig. 2

Fig 3

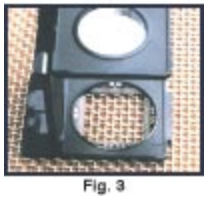


Fig. 3

Fig 4

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GRADES AND ALLOYS

- GRADES
  - Market Grade (standard): High strength for industrial uses. Heavy wire thickness. Stainless steel (most widely used), other alloys such as carbon steel also available.
  - Mill Grade: Medium wire thickness. Often used in flour milling and sifting or seed and feed sifting. Available in stainless and carbon steel.
  - Bolting Cloth: High capacity, high strength, Light wire thickness. Often used in food processing. Smooth, durable stainless steel
  - U.S. Sieve Series: Used in test sieves.

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ALLOYS

- Stainless steel 300 series
- Stainless steel 400 series
- Other alloys
  - Nickel 200, Monel 400, Hastalloy Alloy A, B, C, Carpenter No. 20, Aluminum 5056 and 6061, Copper, Common and Phosphor Bronze, and Carbon Steel

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VIBRATORY OR GYRATORY?

Refers to movement of the screener

(not the screen)

– Vibratory = shaking (vibrating)

– Gyratory = movement in a specific pattern (gyration in a circular motion)

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WHICH SCREEN?

Depends on type of equipment

- Round separator screen (example Sweco, Kason, Midwestern)
- Hooked screen (ex. Tyler, FMC, Derrick, Midwestern, Andritz Sprout Bauer)
- Edged screens (ex. Rotex, Fred Pfening, Great Western)
- Ultrasonics (Telsonic, Compassonic)

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HOW TO ORDER SCREENS

- Specify opening (aperture) or mesh count, wire diameter and alloy required.
- Give finished dimensions (per industry standards)
- Make and model of machine (if known)
- Edging, hook alloy and profile (type of hook)
- Is there an overlap required?
- Special requirements

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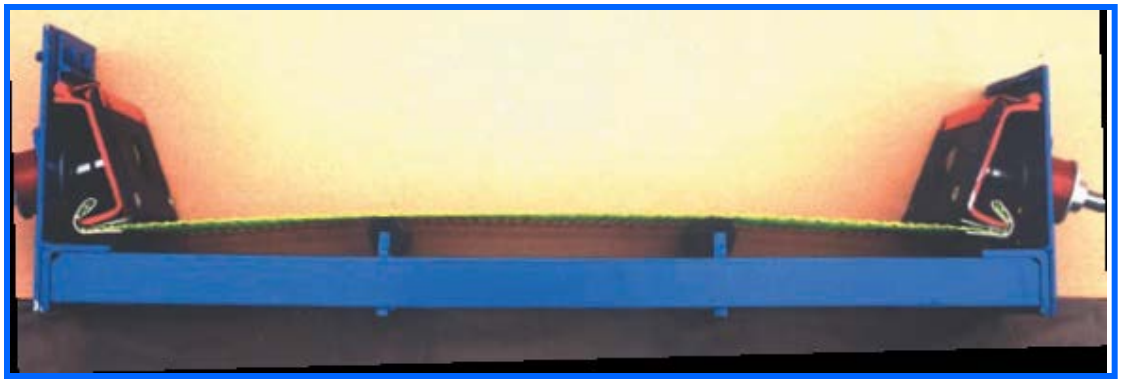
GUIDELINES FOR ORDERING HOOKED SCREENS



Measure the inside width of the screen box and subtract 1-1/2” -2”

This supplies the “OCW” (outside clamping width) required for screen

Note: “ICW” (inside clamping width)

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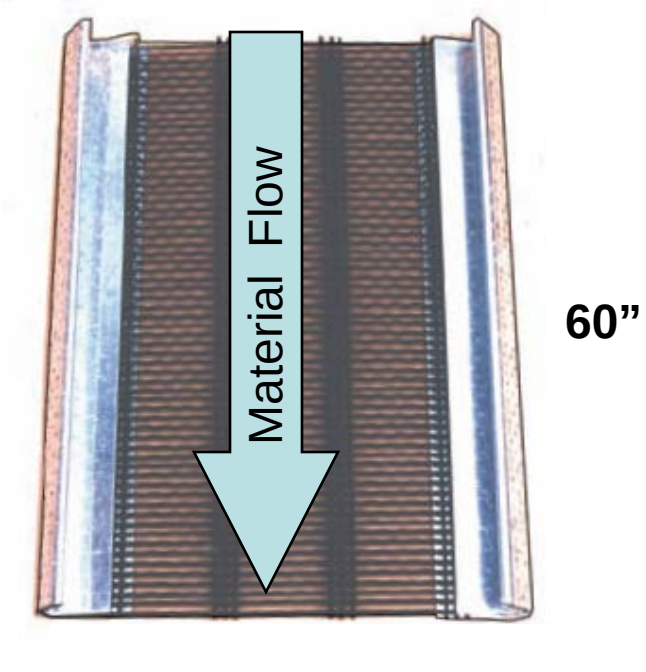
SLOT DIRECTION

- If a slotted opg is required, the direction of the slot should be specified in relation to the hook strips or product flow.
- Number of clusters should also be specified
- RA = “Right angle”
- SP = “Slots parallel”

MEASURING A SIDE TENSION SCREEN

Slots parallel to 47”

47” OCW



60”

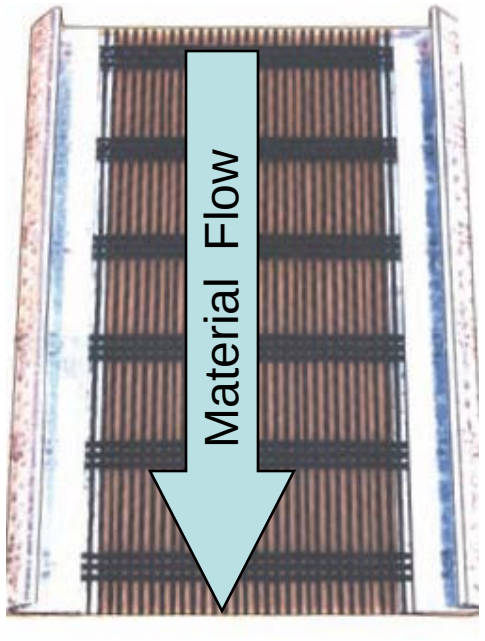
AKA:

- Slots RA
- Slots right angle to flow
- Slots against flow
- Slots right angle to hooks

Terminology changes for end tension screens

MEASURING A SIDE TENSION SCREEN

47” OCW



60”

Slots parallel to 60”

AKA:

- Slots SP
- Slots parallel to flow
- Slots with flow
- Slots parallel to hooks

Terminology changes for end tension screens

LAP REQUIRED?

Fig 1

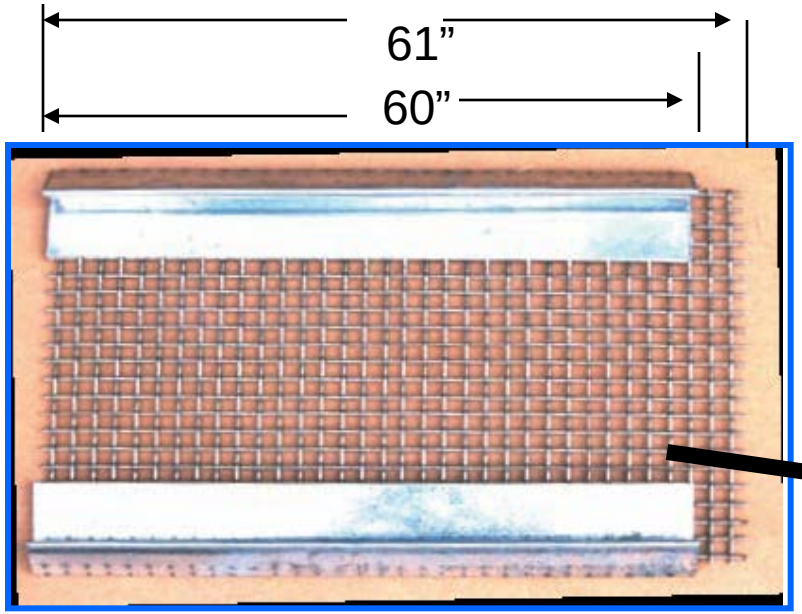
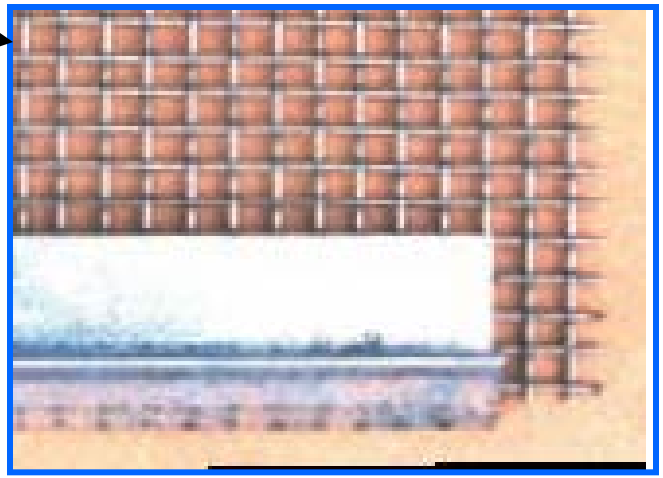


Fig 2



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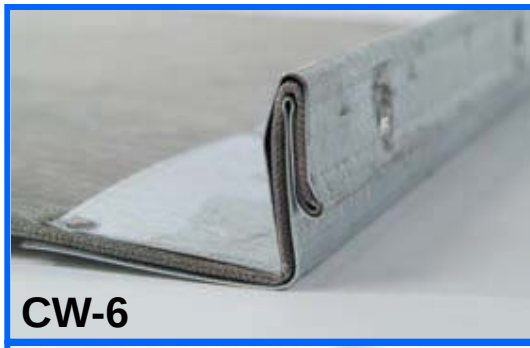
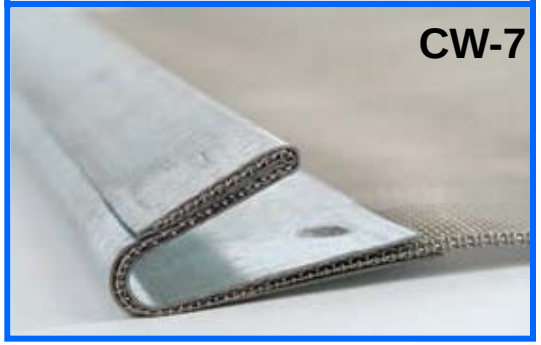
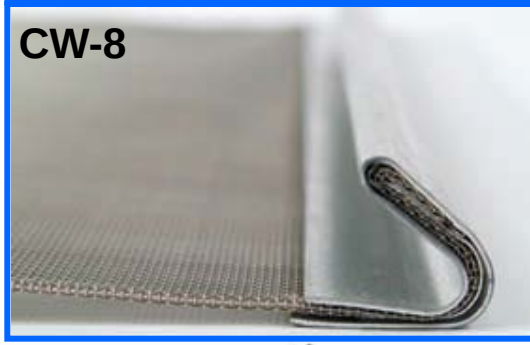
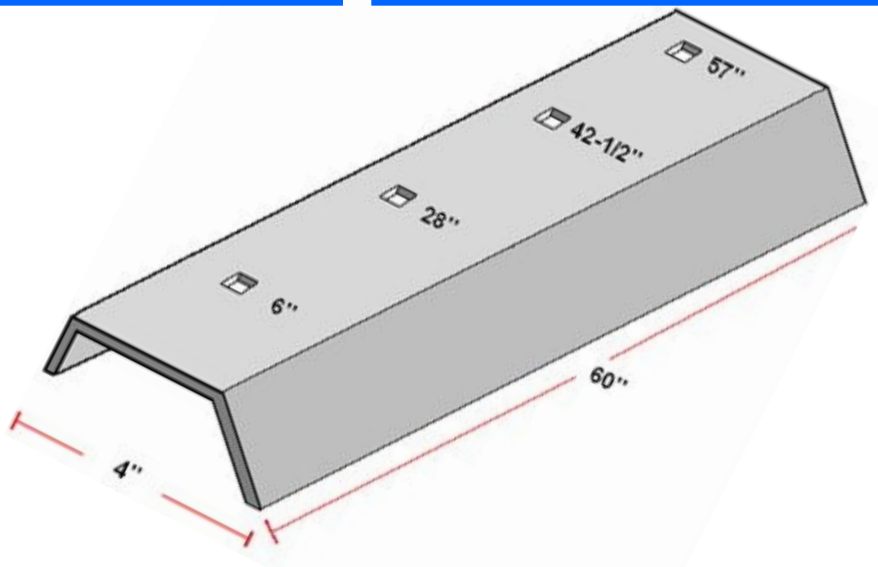
HOOK SCREENS









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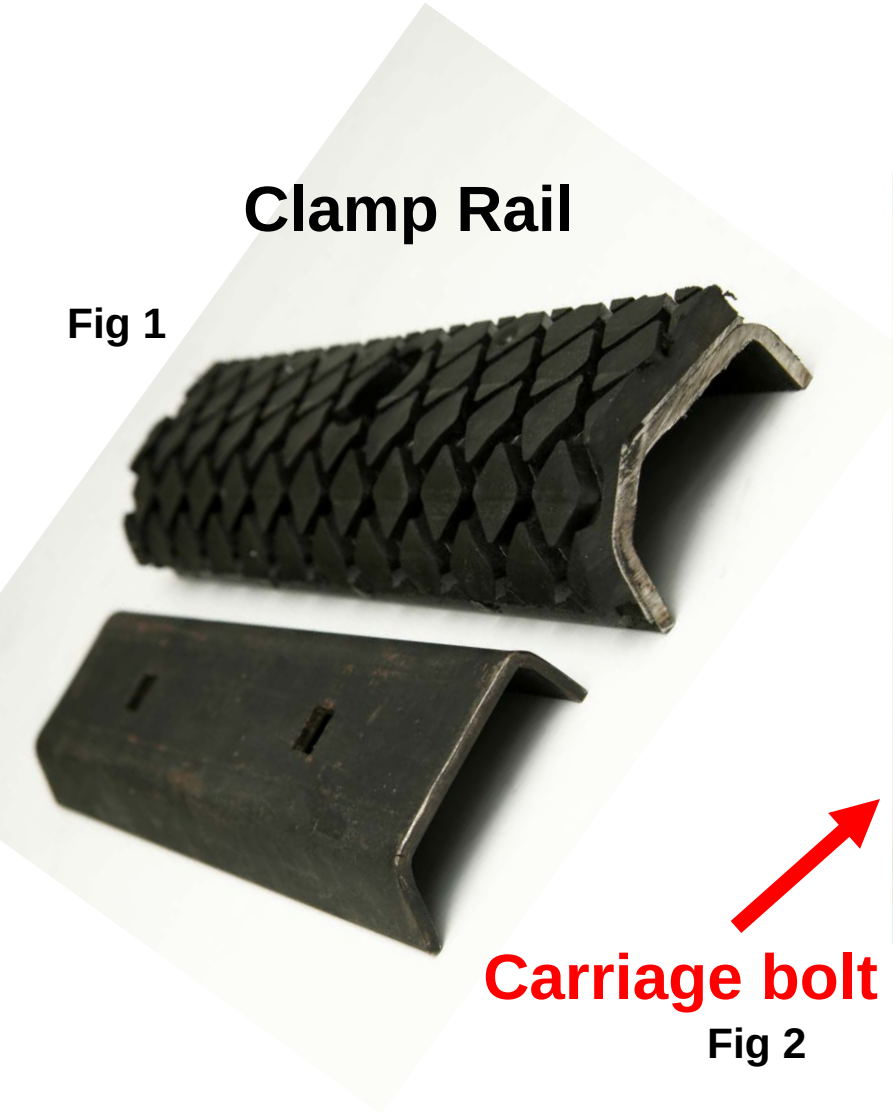
HOOK SCREENS: Industries

- Minerals, sand, rock, coal, metal powders, limestone, bricks, glass and recycling

HOOK SCREENS: Clamping & Tensioning

Clamp Rail

Fig 1

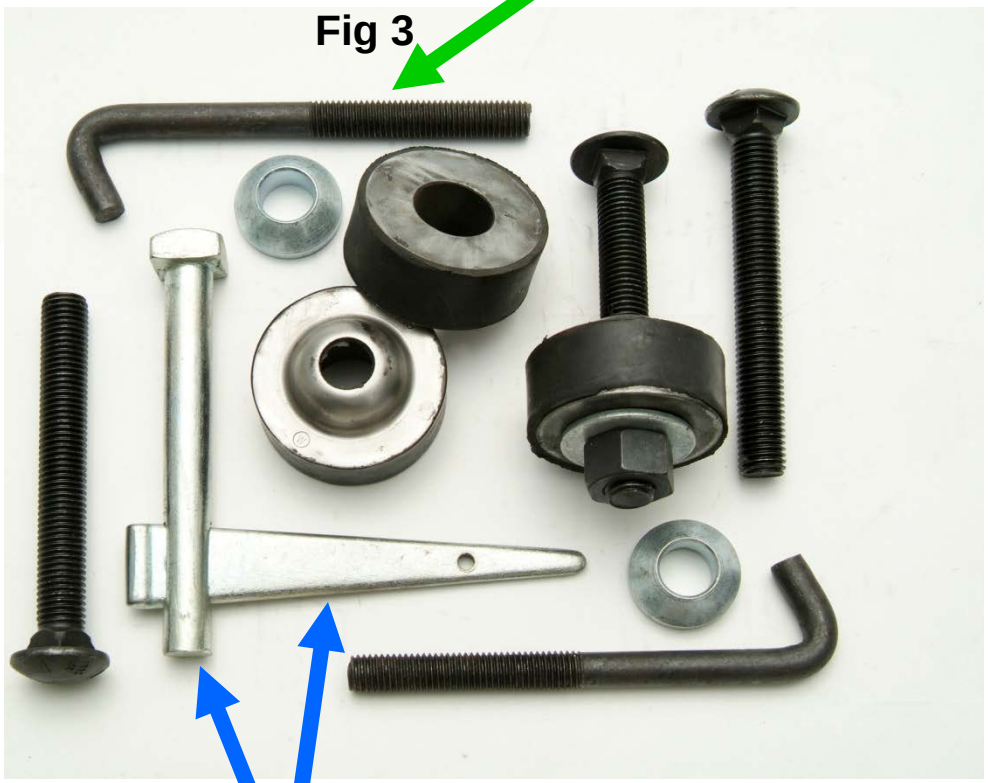


Carriage bolt

Fig 2

J-Bolt

Fig 3



Pin and Wedge

Fig 4

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Tensioning Systems

HOOKED SCREENS

Fig 1

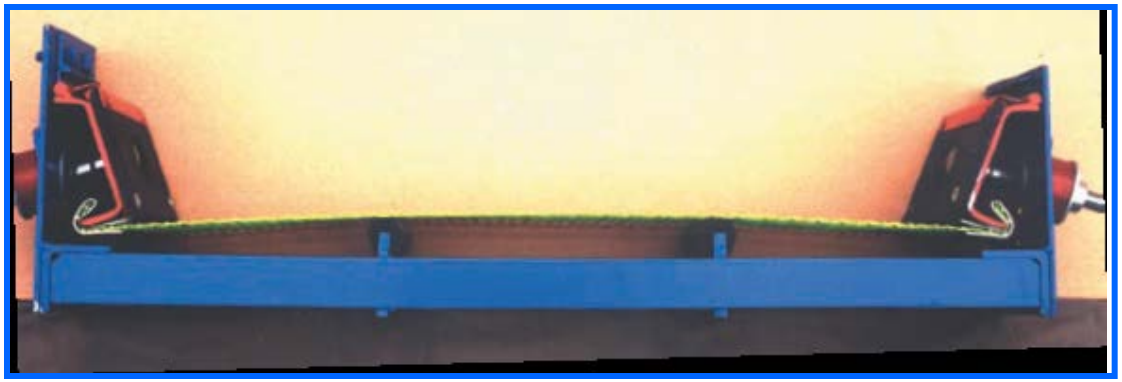
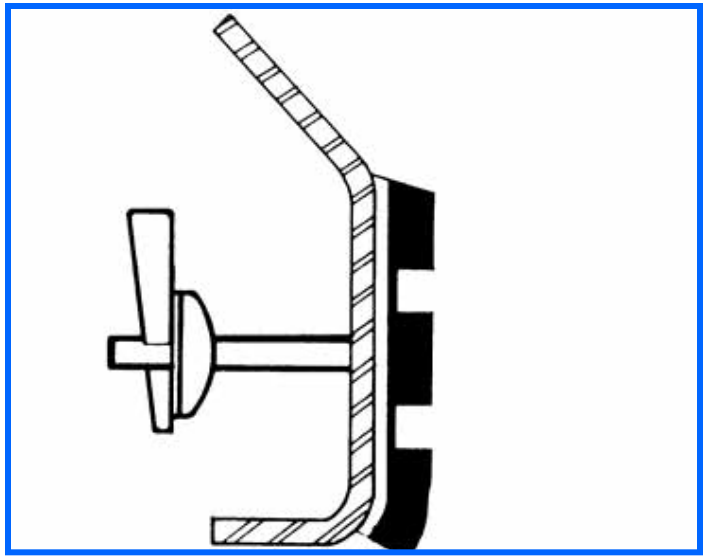


Fig 2

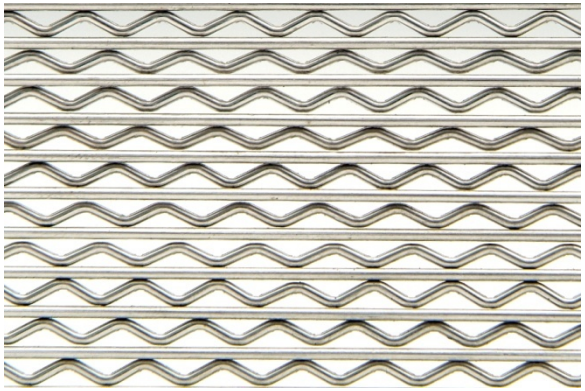


HOOK SCREENS: Blinding

- Backing screens
- Balls
- Change rpms to pulse the machine
- Heated decks

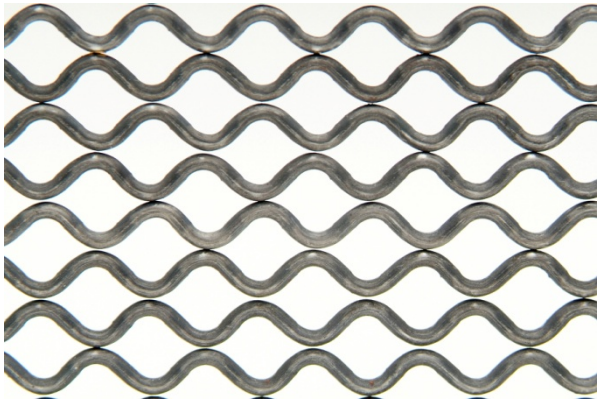
HOOK SCREENS: Blinding

- In aggregate applications, pattern aids in de-blinding



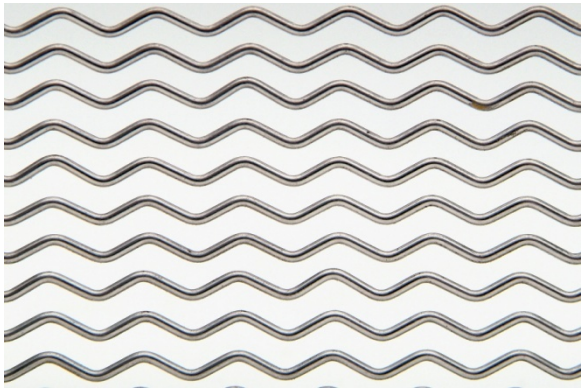
A-Style

- triangular
- resilient to damage from oversized material
- most accurate



B-Style

- diamond
- dry or damp material
- also High Carbon



C-Style

- herringbone
- prevents clogging
- gradation not significant

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EDGED SCREENS

Fig 1

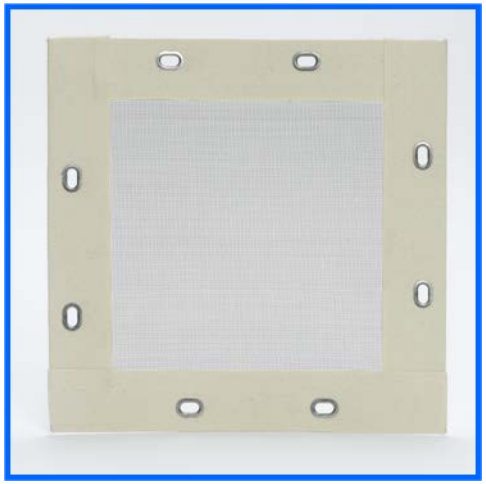

Fig 3

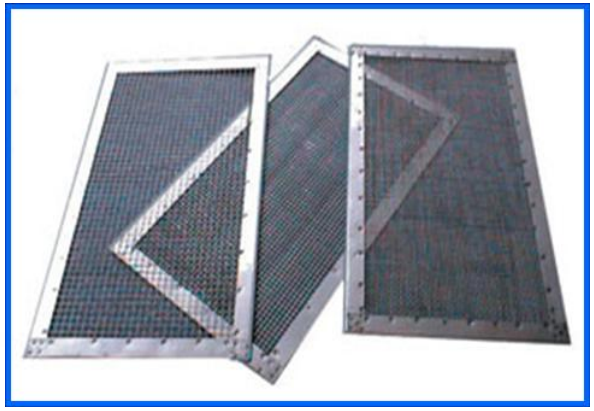

Fig 5

Fig 2

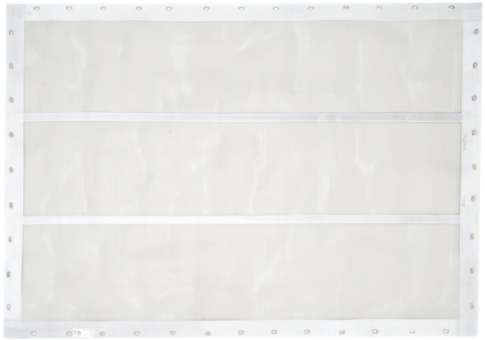

Fig 4

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EDGED SCREENS: Industries

- Food, soy soybeans, pharmaceuticals, polymers, resins, metal powders (bonded edge)
- Flour, sugar, (synthetic screen)
- Salt, metal powder, anything coming off a dryer (Nomex)
- Food, wet applications (vinyl)
- Minerals, anything requiring high temperature tolerance (metal)
- Can be FDA approved

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EDGED SCREENS: Blinding

- Balls

- Change rpms to pulse the machine

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EDGED SCREENS: Clamping & Tensioning

- Grommets

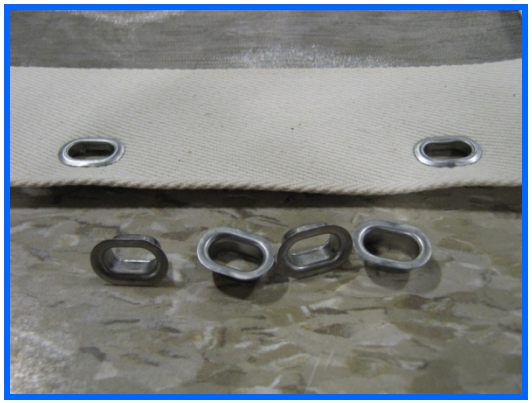

Fig 1

- Bars and rods

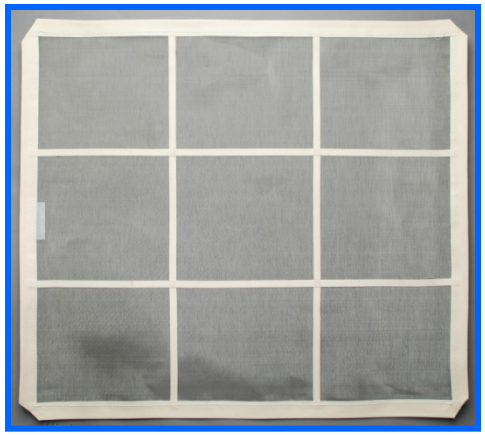

Fig 2

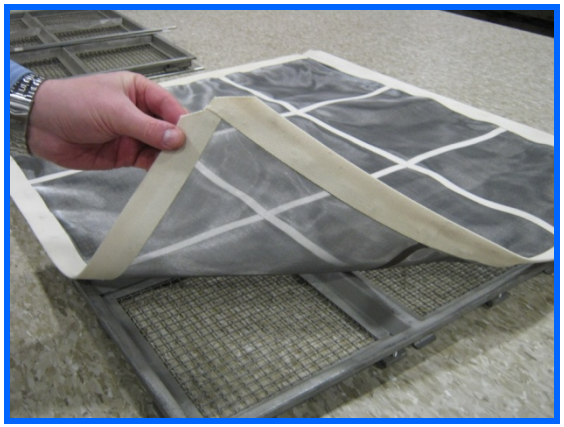

Fig 3

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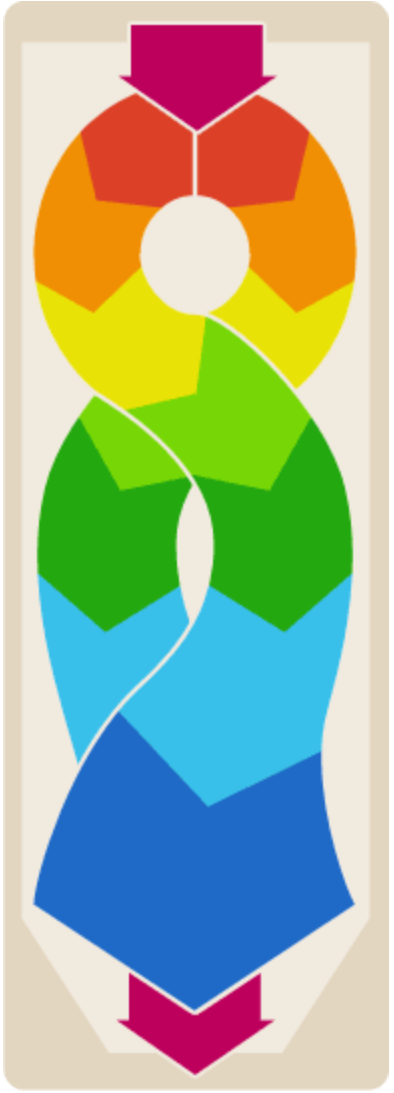
EDGED SCREENS: Product Pattern

- Depends on machine

- Even flow is essential



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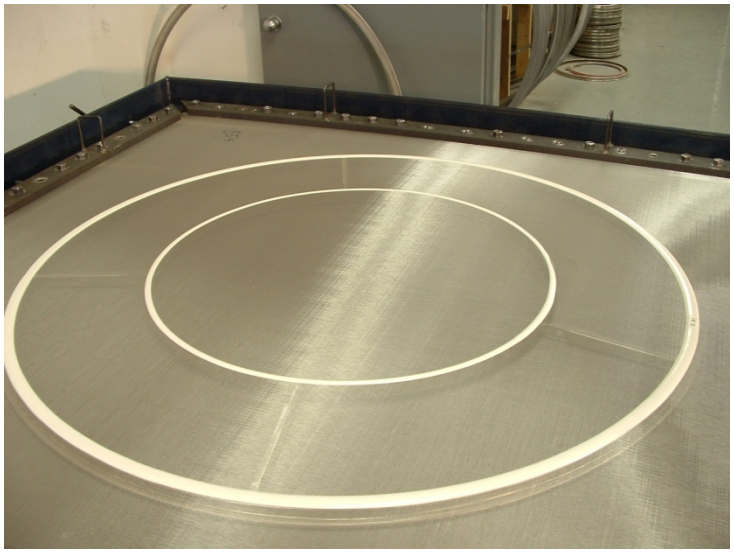
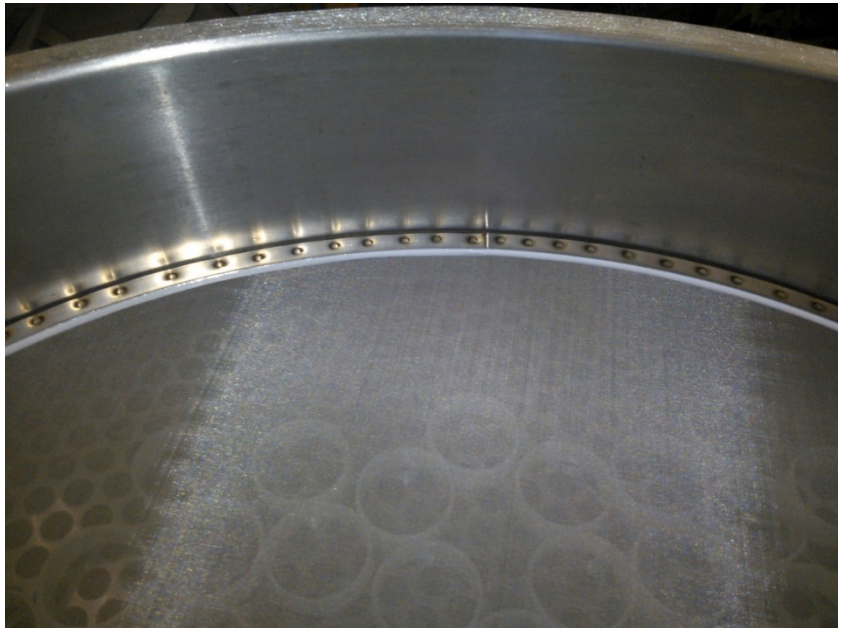
ROUND SEPARATOR SCREENS





ROUND SCREENS: Industries

- Food, polymers and resins, metal powders, ink toner

ROUND SCREENS: Clamping

- Center hole → threaded rod → washer and nut
- Clamping ring

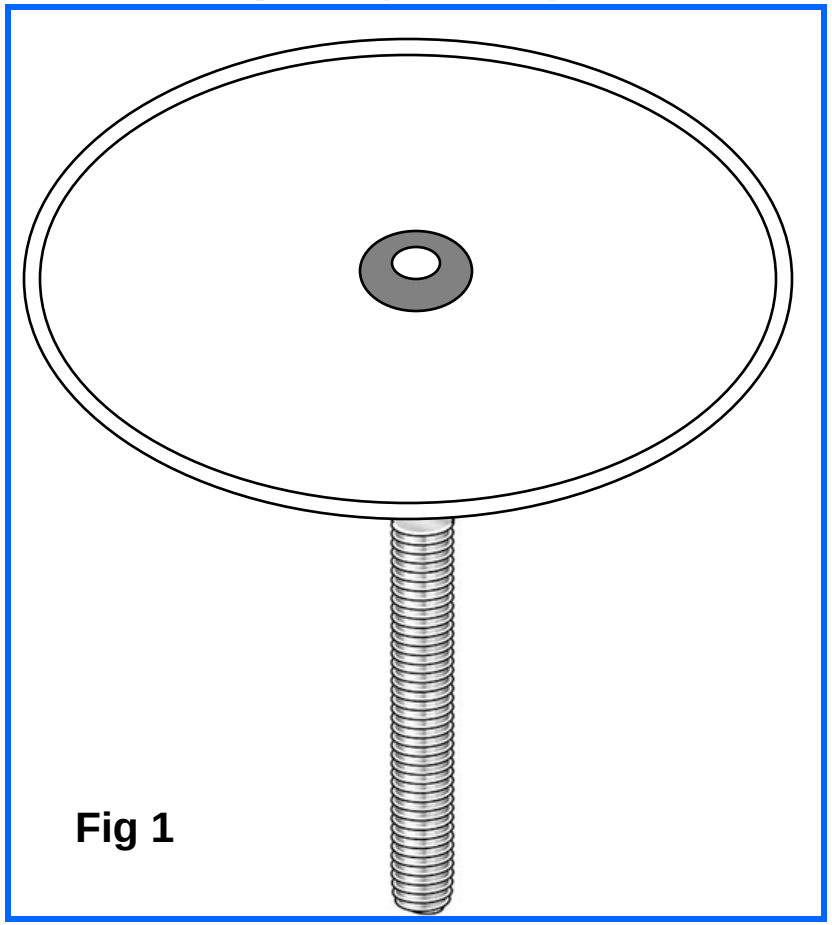


Fig 1

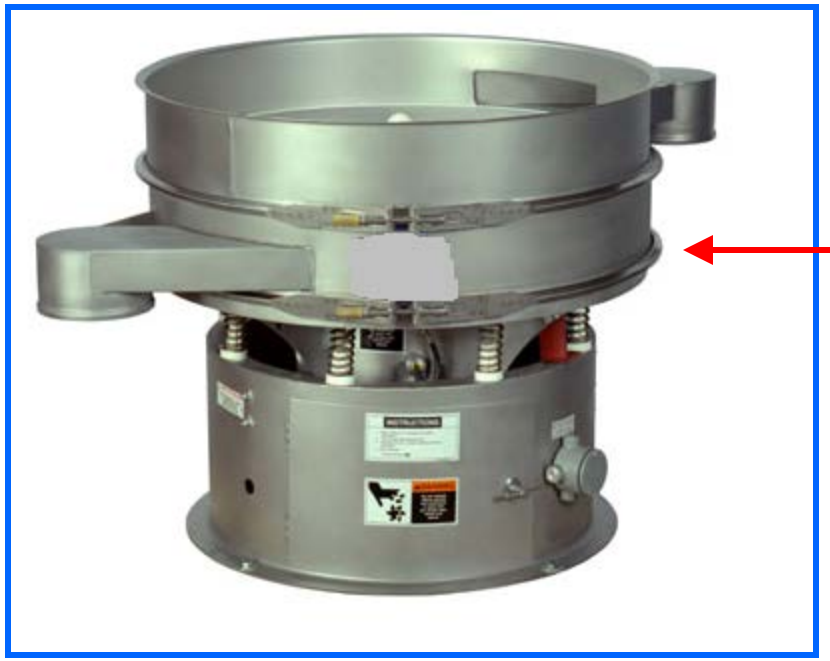


Fig 2

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ROUND SCREENS: Blinding

- **Balls**

Fig 1

- **Sliders (single or cluster)**

- **Combination of the two**

Fig 2

- **Ultrasonics**

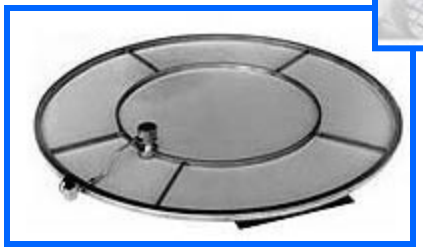


Fig 3

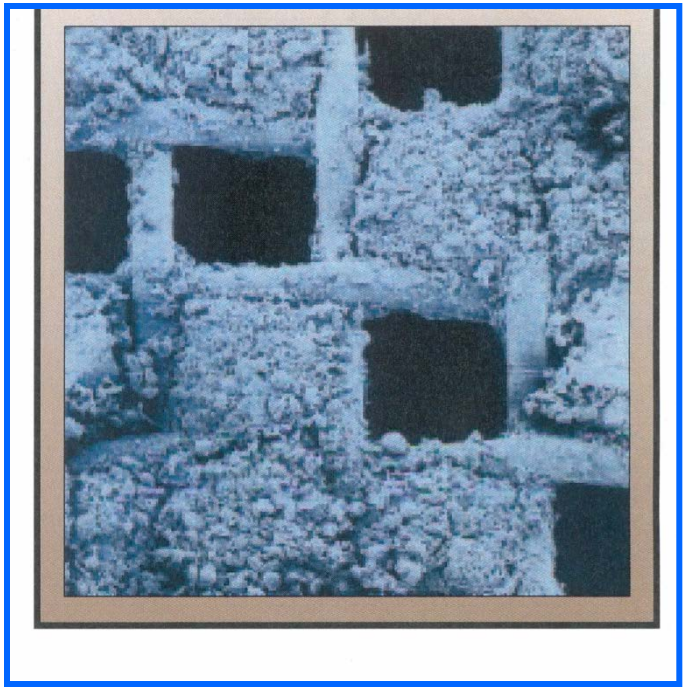
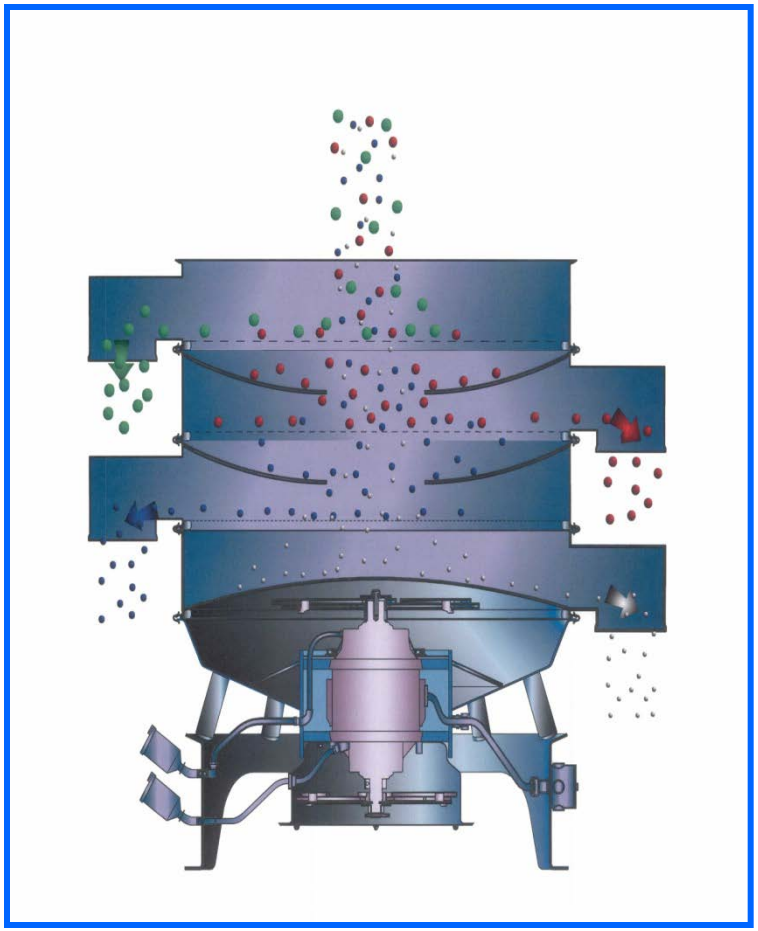


Fig 4

ROUND SCREENS: Product Pattern

- Circular pattern
- Vertical and horizontal



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SCREEN MAINTENANCE

- Re-tension screens regularly
- Regularly inspect all clamping bars for corrosion and wear
- Inspect all nuts and bolts
- Make sure support deck is in good repair
- Inspect and replace channel rubber

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MAINTENANCE cont.

- Use correct tension clips
- Check impact and spread of material feed
- Basic visual inspection of equipment