Short bars in steel rolling mills: how Smart Bar Tracking (SBT) handles them



A short bar can occur during rolling.
Finding it is a challenge for the operator.
Its status can travel with the material.

From detection at the shear to follow-up on the bundle, two safeguards help keep short bars from reaching the customer.

HOW SHORT BARS OCCUR

Too little bar can remain for the final cut.

Variations in billet weight and material losses during rolling can leave the last bar rolled from a billet too short to yield all the cuts at the specified length.

SPECIFIED CUT LENGTH



Bar long enough for all cuts

Final segment shorter than specified

This is one possible cause. There are others.

Sampling and other work on the line can also reduce the length available, leaving a short segment at a later cut.

OTHER CAUSES

Removal on the cooling bed can leave a short bar at the shear.

Sampling

Part of a bar is removed for analysis or testing.



Bending or damage

A bent or damaged section has to be scrapped.



Other work on the line

Any section removed leaves less bar available for cutting.

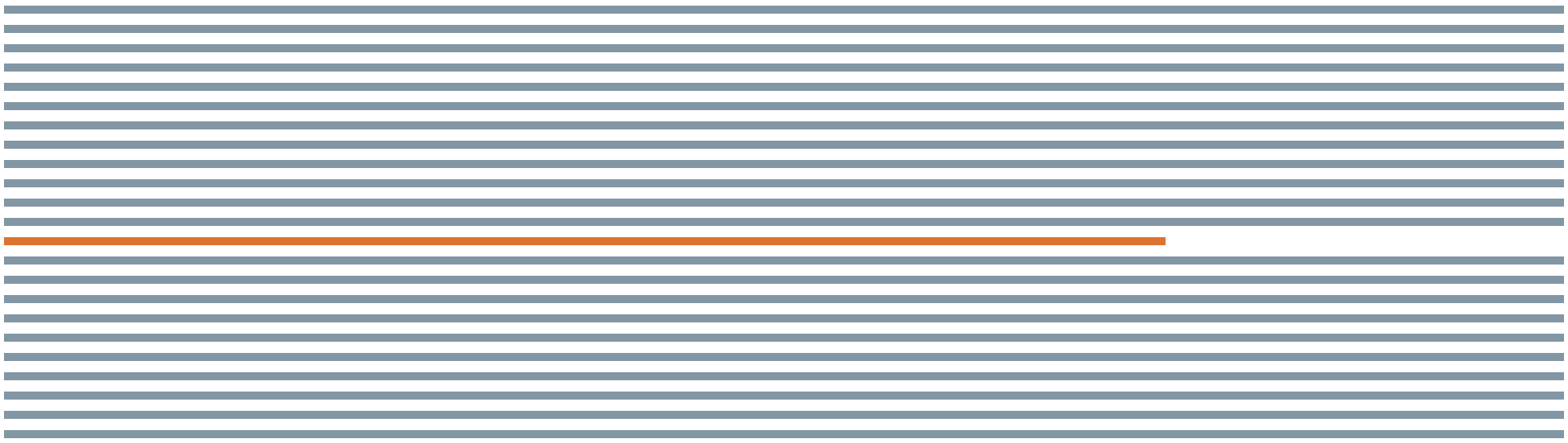
Any reduction in length can leave a short bar at a later cut.

The effect follows the material from the cooling bed to the trolley, along the roller table and on to the cold shear.

THE OPERATOR’S CHALLENGE

Knowing a short bar is there doesn’t mean you can find it.

Dozens of bars can be cut at once. In some mills, that number exceeds 100. A single short bar can be hard to see among the others.



On the line, other bars can hide the short one.

With conventional controls, the operator has to spot the problem, keep track of it and act at the shear while attending to other demands on the line.

SBT eases that burden by alerting the operator when it’s time to act.

DETECTION AND VISUAL ALERTS

The system flags the cut that will produce a short bar.

SBT tracks bar lengths and accounts for events that change them. Using the length still available and the actual length of the production cuts, it determines when a bar will fall short.

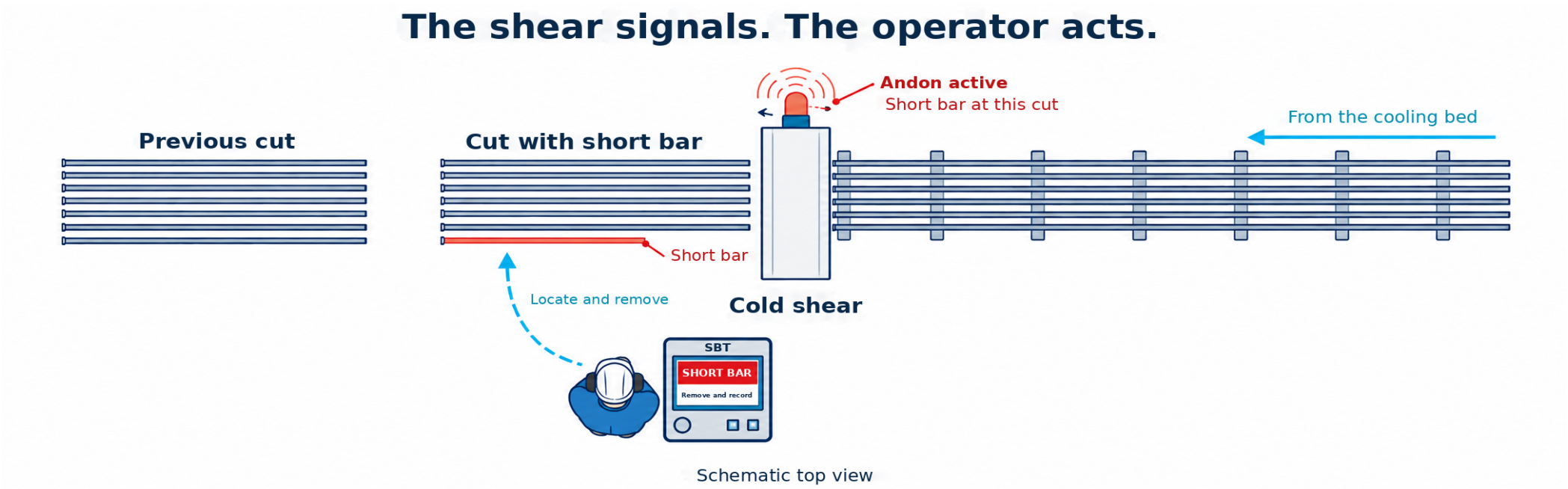
AFFECTED CUT

Short bar detected

Locate and remove the short bar.

The alert shows where and when to act.

At the flagged cut, the operator finds the short bar, removes it and records the removal.



TWO SAFEGUARDS

Can’t find the short bar? The case stays open.

Even with an alert, the bar can be hard to find. If the operator records that it could not be located, its status continues to travel with the material.

1 At the shear

Detect → flag → locate → remove → record

Removal confirmed

Removal recorded

↓

2 Bundle released

Not found or not removed

Case remains open

↓

At discharge

Andon alert → segregate and rework the bundle

A bundle with an open case is held back from routine release.

The second safeguard activates the bundle-specific alert and triggers the mill’s hold-and-release procedure.

TRACEABILITY AND MANAGEMENT

From an uncertain outcome to a traceable record.

Supervisors can follow a short bar from the event that caused it through to the action taken, helping the team apply procedures consistently.

When did it happen?

The source or event that reduced the available length.

Where was it flagged?

The cut at which the system indicated a short bar.

How was it handled?

Whether removal was recorded or the case stayed open.

What happened to the bundle?

Whether it was segregated, reworked and then released.

A record the team can use to improve the process.

The team can identify recurring problems, assess how well the two safeguards work and improve day-to-day operations.

CUSTOMER IMPACT

Handling a complaint won’t stop a short bar from shipping.

When a short bar reaches a customer, it can lead to a complaint, a hold or return, a credit, extra administrative work and a strained customer relationship.

The best short bar to manage is the one the customer never receives.

What if the bar could tell you it was there?

SBT puts that idea into practice: it flags the short bar, carries its status forward with the material and keeps the case open until it is resolved.

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