FACT SHEET 2– Coil Slump

FS2-Revision 1 : 30 July 2020

The objective of this fact sheet is served as a reference of possible causes of coil slump issue:

Coil Slump

Description

Coil slumping or collapse is where the coil cannot hold-up its own mass and maintain the integrity of its cylindrical shape when it is stacked on its horizontal position (Figure 1). In particular, the inner bore of a slumped coil is distorted from a circular cross-section, and subsequent handling of the coil is impeded.

Figure 1: Coil slump (horizontal position)

Causes of coil slump

Factors that can caused bore horizontal storage collapse:

- Insufficient, lack of or inaccurate placement chocks (Figure 4a).
- Failure to use either adequate end-stops or a properly designed chock to constrain coil product.
- Improper floor surface e.g. uneven, no level or very smooth concrete surface (Figure 2).
- Stacking over two-high and relying on an inadequate means of coil support.
- Base coil too far apart.
- Excessive variation in base coil diameters. i.e. placing larger diameter coils on top of smaller diameter coils.
- “Shock Loading” during the stacking process i.e. lowering the second-row coils down heavily onto the bottom row coils.
- Coil accidently dropped on the floor during coil transferring process.
- Gravity (self-weight of the coil) exerts a load on the bottom of the coil. This always occurred when the coil unable to support its own weight.
- Loose of coil tension (inter-wrap slippage) due to frequent start-stop operation during roll-forming.
- Over or under expanded mandrel causing inconsistent torque transmission from mandrel to coil (Figure 3).

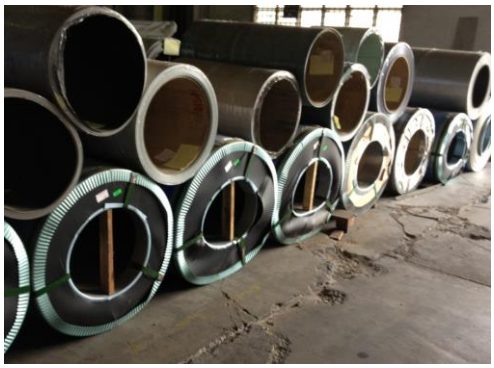

Figure 2: Improper coil storage areas

Figure 3: Over expanded mandrel caused by inconsistent torque transsimission from mandrel to coil.

Recommendation

- NS BlueScope supplies metallic coated steel and pre-painted steel coils in bore vertical position (eye to sky) as a standard practice. Please consult NS BlueScope for any exception to such requirement.
- However, if customers want to store the coils in bore horizontal storage position, then please refer to the following storage guidelines:

    1. Bore horizontal multi high storage (i.e. two or three high storage of bore horizontal coils using loosen wooden chocks for restraint) is not recommended due to increased risk of coil slump.
    2. Handle the coils gently to avoid “Shock Loading” phenomena.
    3. Avoid any accidentally coils dropped on the floor during coil transferring process.
    4. Ensure the uncoiler mandrel in good condition and expanding in optimum position to avoid any inconsistent transmission of torque from mandrel to the coil.
    5. Minimize frequency of using the coils repeatedly.
    6. Store the coils in bore vertical position (eye to sky) especially for wrinkled / textured / embossed finishing products such as VERMOE™ and BlueScope ZACS Natural® steel if the balance coil was intended to be kept for longer periods.
    7. Ensure the coil storage area is even or flat. Stored the coils with adequate end-stops and properly designed chock as illustrated in the Figure 4(b):

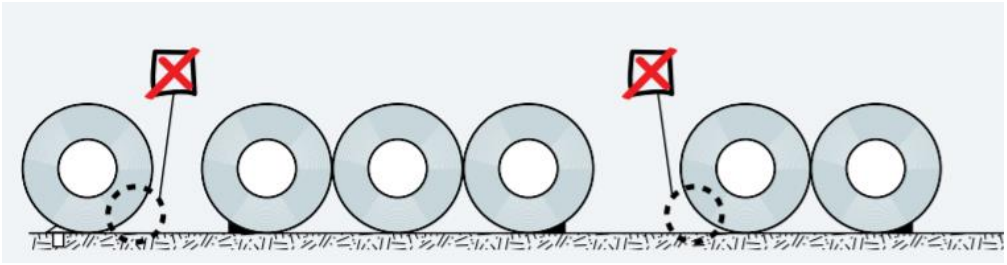

Figure 4a: Unacceptable or inappropriate coil restraint

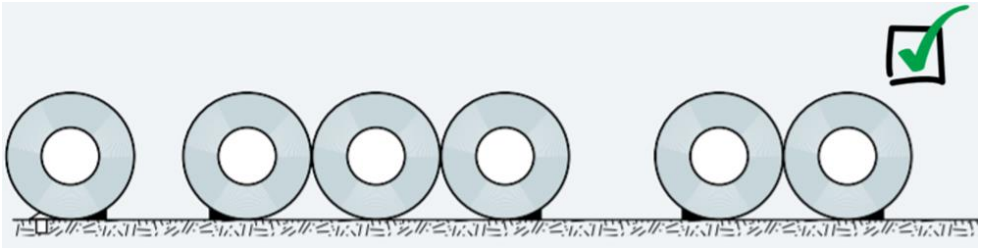

Figure 4b: Same coils with acceptable or appropriate restraints

- To further understand the good coil handling and storage practices, kindly refer to the “*Guidelines for Storage and Handling BlueScope Steel’s Products*” based on the following link:

    http://www.bluescopesteel.com.au/files/dmfile/GuidelinesStorageAndHandlingBlueScopSteelProductsMarch2013.pdf

- NS BlueScope will not accept any claim on coil slump due to improper coil storage and handling process.

Source of reference:
BlueScope Steel Research Laboratories – Coil Tension & Coil Slump by Daniel Yuen (Ref: 200408)
http://www.bluescopesteel.com.au/files/dmfile/GuidelinesStorageAndHandlingBlueScopSteelProductsMarch2013.pdf