

How to Select CCO Plate Thickness: A Technical Guide from HISAN

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/EINPresswire.com/ -- A coal preparation plant replacing a chute liner for the third time in a year is not facing a coating problem. It is facing a thickness problem, usually a mismatch between the overlay meant to resist wear and the base plate meant to hold everything together under load is the question that separates a durable liner from a recurring maintenance ticket. A chromium carbide overlay plate, known industry-wide as a [CCO plate](#), is a bimetallic wear material formed by cladding a chromium-carbide-rich overlay onto a mild steel base plate, and the thickness of each layer decides how the part performs once it is bolted or welded into a chute, bin, or crusher liner. Buyers across mining, cement, power generation, ports, steel mills, and bulk material handling face a version of the same sourcing question: how thick should the overlay be, how thick should the base be, and how do the two numbers work together.

Understanding CCO Plate Thickness in Heavy-Wear Applications



CCO plate thickness must be evaluated as more than one nominal value. It is a relationship between two layers doing two different jobs: the overlay carries the abrasion resistance, while the base material supplies structural integrity, weldability, and the strength needed for bolting or further fabrication. [HISAN](#)'s chromium carbide overlay plates use a fused structure in which

carbide-rich material bonds to the steel base, and that construction is judged as a whole, spanning uniform overlay thickness, macro-hardness in the 57 to 63 HRC range, ASTM G65 Procedure A wear-performance data, plate flatness, and available sheet sizes. A thicker overlay without the right base pairing can still underperform in a demanding application, which is why carbide distribution and processability are weighed alongside raw thickness for buyers in mining, cement, power plant, port, steel mill, and bulk material handling environments.

Define the Wear Environment Before Selecting Thickness

Every thickness decision should begin with the wear environment, not a catalog number. Severe abrasion, low-to-moderate impact, a tendency for material to hang up on a liner surface, and the shape of the component all shift which overlay and base combination makes sense. HS100 and HS200 are both positioned for severe abrasion with low-to-moderate impact, spanning an overlay thickness range of 2 to 80 millimeters and a base thickness range of 2 to 150 millimeters. HS-F targets environments where material hang-up is the dominant problem, using a no-weld-bead surface to reduce sticking, while HS-X extends that logic into custom territory, matching thickness and alloy system to a stated customer requirement. Chutes, bins, screens, transfer pipes, fan housings, crusher liners, and conveyor components each bring a different mix of abrasion and impact, so the environment should be identified first and the thickness range confirmed against it afterward.

Read Overlay Thickness and Base Thickness as One System

Overlay and base-plate thickness must be evaluated together; separating them removes the engineering logic that makes the pairing useful. The overlay determines how the wear surface behaves in service, while the base thickness determines how the plate can be installed, whether by welding, bolting, or stud attachment, and how much fabrication margin remains for cutting or forming. HS100 and HS200 list an overlay range of 2 to 80 millimeters paired with a base range of 2 to 150 millimeters; HS-F lists an overlay range of 4 to 35 millimeters with a base range of 5 to 50 millimeters; HS-X lists a coating range of 4 to 80 millimeters with a base range of 4 to 150 millimeters. Expressing thickness as an overlay-plus-base pairing, rather than a single figure, gives procurement and design teams a common specification language, reducing the chance of a mismatch between what is ordered and what the application needs.

Use HISAN Product Families to Match Grade, Surface, and Customization Needs

Thickness selection is ultimately a product-family decision, not an isolated spec lookup. HS100 provides the baseline chromium carbide overlay structure for general severe-abrasion service. HS200 suits the same abrasion and impact profile with a composition matched to high-wear conditions such as coal handling and power plant chutes. HS-F answers the problem of material hang-up through its smooth, weld-bead-free surface and uniform fusion line, while HS-X is built around customization, incorporating alloying elements available on request for conditions the standard families do not fully address. Hardness data reinforces these distinctions: HS100

carries a bulk hardness of HRC 58-65 with an ASTM G65 result of 0.20 grams or lower, HS200 carries the same HRC 58-65 range with an ASTM G65 result of 0.18 grams or lower, and HS-F carries a bulk hardness of 58 to 65 HRC. Matching a product family to the wear profile first, then confirming thickness within it, keeps the selection grounded in behavior rather than thickness alone.

Verify Thickness with Hardness, Abrasion Testing, and Inspection Equipment

A thickness specification becomes a reliable purchasing basis solely once verified against hardness and abrasion-test data. HISAN's quality process draws on a portable thickness tester, an ASTM G65 wear test machine, a desktop Rockwell hardness tester, a metallographic microscope, and a SPECTRO spectrometer, connecting stated thickness to measurable hardness and wear-resistance results within the same quality record. For buyers comparing suppliers, how thickness is verified, and against what equipment, matters as much as the range itself.

Why HISAN Makes Thickness Selection a Manufacturer-Level Decision

From an engineering perspective, thickness selection connects directly to what a manufacturer can produce and fabricate, which is why the decision belongs at the manufacturer level rather than the catalog level. HISAN (Tianjin) Co., Ltd. operates as a wear-resistant materials supplier integrating research and development, manufacturing, and sales across fused alloy smooth surface CCO plates, standard CCO plates, welding wire, overlay wear pipe, wear parts, and overlay welding and repair services. That range matters here because HISAN can cut plates to size and fabricate them through cutting, forming, welding, stud attachment, assembling, and grinding, so the thickness chosen at the specification stage carries through into the finished, installed part. Pairing overlay and base thickness with in-house fabrication removes a coordination risk buyers otherwise manage between a plate supplier and a separate fabrication shop.

Turn Thickness Selection into a Clear Project Inquiry

From an engineering perspective, the most useful outcome of a thickness discussion is a project inquiry specific enough to act on, not a general request for a wear plate. Buyers get better results by stating the wear environment, the abrasion and impact level, the component shape, the installation method, the target overlay and base pairing, and any surface or fabrication requirement before requesting a quote. HISAN's product pages and contact channels support this consultation, allowing drawings, sample parts, or component details to be reviewed alongside the stated operating conditions. Framing the inquiry this way keeps the decision tied to the actual application, and it tells the manufacturer whether a standard HS100, HS200, or HS-F specification fits, or an HS-X customized solution instead.

Choosing the right CCO plate thickness depends on reading overlay and base thickness as one system, matching that pairing to a specific wear environment, and confirming the result against

hardness and ASTM G65 abrasion data rather than a single number on a spec sheet. HISAN's product families, from HS100 and HS200 through HS-F and HS-X, along with the testing equipment behind them, give buyers a verifiable basis for the decision. High quality is our obligation; great service is our mission. Buyers ready to confirm a CCO plate thickness, an overlay and base pairing, or a customized complex carbide solution can submit application details and inquiries through <https://www.hisancco.com/>

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