



## Designing for Abrasive Bulk Materials

KWS designs and manufactures bulk material handling equipment to convey highly abrasive bulk materials such as glass cullet, fly ash, alumina, petroleum coke and silica sand. Conveying abrasive materials using carbon steel or stainless-steel components normally results in rapid wear, decreased equipment longevity, and higher operating costs. Abrasion resistant plate can be used as a material of construction for flights, troughs, discharges, inlets, and liners to enhance the performance and service life of your equipment.

Selection of the appropriate abrasion resistant material is crucial to ensure minimal maintenance and increased service life of your equipment. With extensive experience and knowledge of material handling applications, KWS will evaluate your specific requirements and supply the right equipment for your abrasive bulk material handling needs.

### Features

Variety of Materials –

**AR235** – Hardened steel with Brinell Hardness (BHN) between 200-250, 98-percent harder than A36 carbon steel. Typically used for moderately abrasive bulk materials.

**AR400** – Hardened steel with Brinell Hardness (BHN) between 360-440, 236-percent harder than A36 carbon steel and 70-percent harder than AR235. Typically used for highly abrasive bulk materials.

**AR500** – Hardened steel with Brinell Hardness (BHN) between 477-550, 333-percent harder than A36 carbon steel and 25-percent harder than AR400. Typically used for highly abrasive bulk materials.

**Chromium Carbide Overlay (CLAD)** – Clad plate starts with a mild steel base plate that is then fused by welding with a chrome carbide steel to create an extremely wear resistant surface perfect to convey materials like glass cullet. With a Brinell Hardness (BHN) greater than 700, clad plate can outlast AR400 plate by a factor of at least 10-to-1.

**Nitronic 60** – Anti-galling and wear-resistant austenitic stainless steel with superior corrosion resistance. Excellent high temperature oxidation resistance significantly outperforming 304 and 316. Typically used for high temperature and extremely abrasive applications.

### Benefits

**Reduced Downtime and Maintenance** – KWS abrasion resistant plate is selected based on the application requirements to ensure that downtime and maintenance are minimized. Utilizing abrasion resistant plate can significantly increase equipment longevity over standard carbon steel and stainless-steel plate.



AR 400 Liner in Trough  
Provides Excellent Abrasion Resistance



Chromium Carbide Overlay Plate is  
Used for Screws to Convey  
Glass Cullet and Alumina



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