



Design Standards

All Gorbel Work Station and Jib Cranes are structurally designed in accordance with the *AISC Steel Construction Manual*.

All Gorbel Jib and Work Station Cranes are in accordance with *OSHA Specification 1910.179* and *ANSI Specification B30.11*, as they apply to Jib and Overhead Cranes. All Gorbel Work Station Cranes meet or exceed the requirements of *MMA MH27.2* specification for enclosed track systems. All Gorbel Cleveland Tramrail™ systems meet or exceed the requirements of *MMA MH27.1*.

All Work Station Cranes are in accordance with the following Canadian Standards as they apply to Overhead Cranes: *CSA Standard B167-96 and CSA Standard C22.2 No.33-M1984 (re-affirmed 2004)*

All Gorbel Jib and Work Station Cranes have a design factor of 15% of the allowable capacity for hoist weight and 25% of the allowable capacity for impact.

Fabrication Standards: All welding is in accordance with *AWS D14.1*, and is performed by certified welders.

All holes in steel with bearing loads are either punched or drilled. Flame cut holes are not permitted in these applications.

Material Standards: All structural shapes used by Gorbel are a minimum of *ASTM A-36* designation. All pipes are structural grade *ASTM A-53* and all tubing is *ASTM A-500*.

All plate and round bar has *minimum yield strength of 36 KSI*.

Painting Procedure: All structural components are shotblasted and/or washed utilizing a high pressure/high temperature iron phosphate solution prior to painting. A conventional air-assisted airless paint system is used to apply a high solids industrial baking enamel which is cured at elevated temperatures inside an industrial oven.

Some pre-assembled components (example: Work Station Crane endtrucks and hoist trolleys) are powder-coated finish.

Deflection Guideline:

Consider both deflection and stress. The difference in elevation of the track between an unloaded crane and fully loaded crane; measure in inches. L= support center distance. Gorbel tends to have stricter deflection guidelines than others in the industry because we consider both deflection and stress.

- **Work Station Cranes:** Typical design guidelines are L/450 for bridge cranes
- **Work Station Jib Cranes:** Typical design guidelines are L/320 for wall mounted(WSJ200), L/200 for free standing(WSJ360), and L/450 for aluminum work station jibs (AL100).
- **Jib Cranes:** Typical design guidelines are L/150 for wall cantilever (WC), free standing (FS), and mast type (MT), and L/450 for wall bracket (WB) cranes. Due to configuration restrictions some models may not meet these guidelines.