MATERIALS Handling PTY LTD Working with ease...

CRANES

FREE STANDING
WORK STATION BRIDGE CRANES

CAPACITIES:	Up to 4000 lbs
SPANS:	Up to 30'
ENCLOSED TRACKS:	Steel, Aluminum & Stainless Steel
PRODUCTIVITY:	Average 28% Increase

MATERIALS Handling PTY LTD

Working with ease...

Our website: www.materialshandling.com.au
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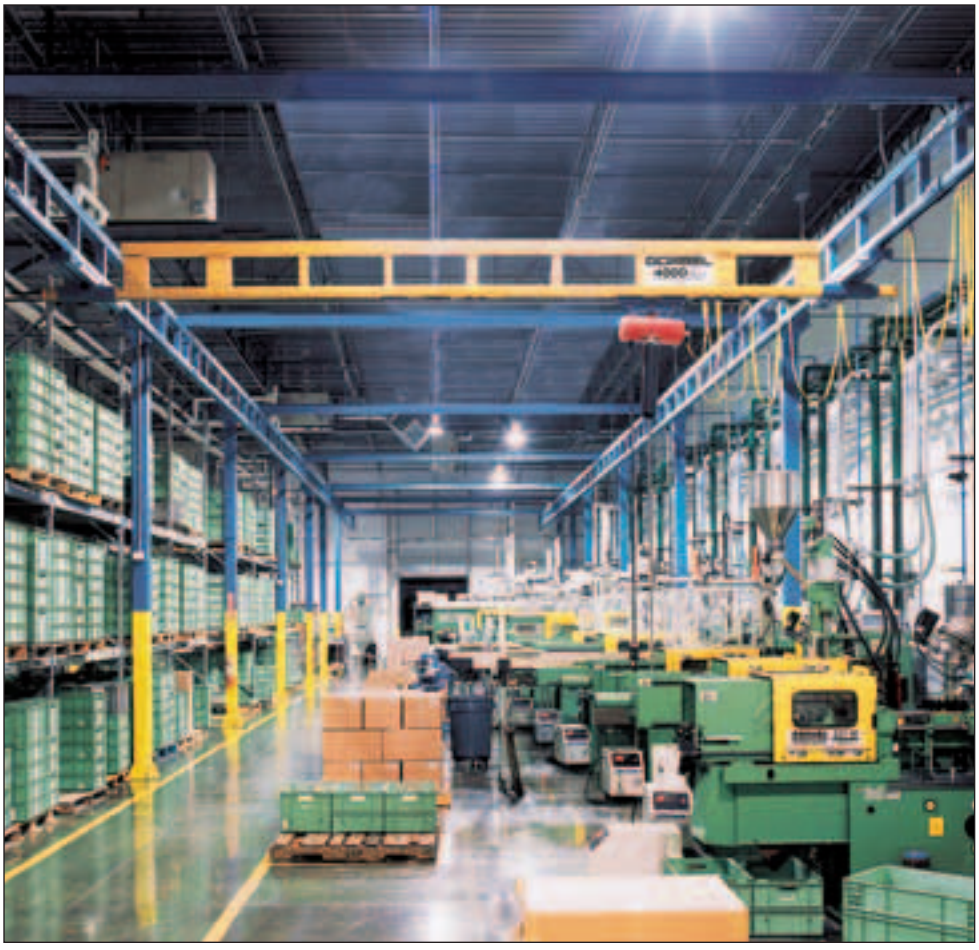
Email us: sales@materialshandling.com.au

Australia Wide Sales and Service

MATERIALS Handling PTY LTD *Working with ease...*

Maximise Productivity.
Increase Safety.
Ease of Positioning and Movement.
Efficient Installation.
Innovative Designs, Capacities and Spans.

It's no wonder more and more businesses like yours are choosing Materials Handling. As an innovator and leader in the enclosed track work station crane industry, Materials Handling provides a wide variety of overhead solutions. Our work station systems include free standing work station bridge cranes (covered in this brochure), ceiling mounted bridge cranes and monorails, and work station jib cranes. And we're also a leading distributor of high-performance manual and motorised jib cranes. All this, plus quick delivery and the industry's best warranty.



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How to Apply Ergonomic Overhead Work Station Cranes

These questions and answers can help you determine which type of overhead work station crane best meets your needs.

What Type of Crane Is Most Appropriate?

- Bridge cranes cover rectangular areas, while jib cranes cover circular areas.
- Bridge cranes can be floor supported (see this brochure) or hung from the ceiling (see the *Gorbel® Ceiling Mounted Bridge Crane & Monorail* brochure). Jib cranes can be wall or pillar mounted and may require a special foundation (see the *Gorbel® Work Station Jib Crane* brochure).
- An enclosed track work station bridge crane provides consistent ease of operation over the full range of movement.
- Jib cranes move more easily at the very end of the boom and are more difficult to move as the load approaches the pivot point.

Should the crane be manual or motorised?

Ease of movement and low weight are key features of enclosed track work station crane systems. In fact, manual work station cranes do the job faster than motorized cranes. If the operator cannot control the load throughout the operation (for instance, over a vat, pit, or other inaccessible area), then the crane should be motorized.

What type of suspension: free standing or ceiling mounted?

- Free standing (floor-supported) systems do not put stress on the building's overhead structure. Installation is usually more straightforward, and these cranes are also easier to relocate in the future. These systems require a reinforced concrete floor of at least 6 inches.
- With ceiling mounted systems, supporting steel does not interfere with the handling operation. Ceiling mounted systems require a building with an adequate overhead structure to hang the crane.

What capacity, bridge length, and height?

The general rule is "less is more"

- *Keep capacities to a minimum.* Gorbel® Work Station Cranes are designed with an adequate safety factor. If you "over-buy capacity," the operator will need to move extra bridge dead weight, which would not be a good ergonomic solution.
- *Keep bridge lengths to a minimum.* The less dead weight an operator has to move, the better. Short bridge lengths are better for higher-cycle production areas. Longer bridges are acceptable for lower-production cycle or maintenance areas.
- *Keep bridge heights (trolley saddle) to a minimum.* Keeping the trolley saddle (TS) height less than 14 feet is desirable because it makes it easier to control and position the load.

Can the operator safely move the load?

- A work cell should be designed so a task can be performed by 90% of the workers.
- A worker should not exceed 33% of his or her capacity; otherwise, the risk of chronic fatigue increases.
- To help determine if your worker can safely move the required loads, refer to *Ergonomic Study* by Shealy and Stibitz ©1993, which is available through your Gorbel Dealer.

Enclosed Track Design Makes for Easy Movement and Long Life

Both the aluminum and steel Gorbel® Work Station Crane Systems utilize enclosed track that is high in strength and low in weight. Major advantages:

- Enclosed track cranes are up to three times easier to move than traditional bridge cranes.
- The design virtually eliminates dirt and dust from the rolling surface, thus reducing wear on the wheels of the trolley and end trucks.
- The smooth running surface means lower rolling resistance.
- The low profile of the steel track allows the system to be installed where headroom is a problem.
- The low track weight reduces the applied forces exerted on the supporting structure.
- Long spans allow systems to be installed where support assemblies are infrequent (up to 30 feet with steel truss design). This reduces the possibility of the support columns interfering with the work cell layout.
- Four distinct sizes of track -- 250, 500, 1000, and 2000 series -- enable you to keep bridge weights and costs to a minimum.

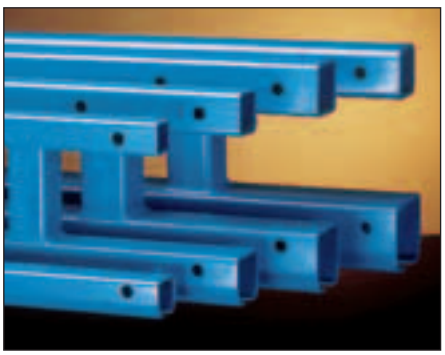
The 2° taper of the running flange helps to center the trolley in the track for smooth, effortless movement of trolleys and end trucks.

TRUSSED STEEL TRACK:

Permits longer spans which allows more flexibility in crane layout.

The trussed series uses the plain steel track profile but is enhanced for longer spans via a built-up truss design. This design increases the span, which decreases the frequency of hangers. Model numbers start with: GLCS-FS for spans up to 20 feet, GLCSL-FS for spans up to 25 feet, and GLCSLX-FS for spans up to 30 feet.

Long spans translate into fewer runway support points, less interference of work cell layout, longer bridge lengths, and free standing capabilities... just another reason why Gorbel® Work Station Cranes are among the most versatile to apply and easiest to install in the industry.



Trussed Steel Track

ALUMINUM TRACK:

For use where lower bridge weight and easier movement are required.

The patented shape of Gorbel's aluminum enclosed track provides for low weight, unparalleled spanning capability, and effortless movement. The low weight (up to 44% less than trussed steel track) results in easier movement, which makes for safe, productive, ergonomic work cells. Runway spans up to 20 feet and bridge lengths up to 34 feet meet a wide range of applications. Model numbers start with AL-FS.

Aluminum Track

Rigid Runways Provide for Superior Positioning of Loads

Gorbel® Work Station Bridge Cranes are installed so that the runways are rigid. They do not move laterally or longitudinally. In addition, Gorbel's floating end trucks with horizontal wheels prevent binding. The combination of these design features results in unmatched ease of positioning and ease of movement. The bridge travels smoothly down the runways, and movement is unvarying along the way, no matter where a load is positioned on the bridge. This allows superior load positioning.

Another advantage of rigid runways is that runways double as stringers between support columns. This eliminates the need for expensive intermediate support stringers, and it lowers overall installation cost.

Mixed Capacity Bridge Crane Systems:

Reduced bridge dead weight equals better ergonomic solutions.

Mixed-capacity systems allow multiple lower capacity bridges to be used on higher capacity runways, provided the equivalent center loads (ECL) are verified at the factory to ensure that runways and hangers are not overloaded. For example, using Gorbel's mixed-capacity end trucks, four 500 lb. bridges (utilizing 500 series rail) can be hung from a 2000 lb. runway, allowing side-by-side use of *all four bridges* without overloading the system. By mixing bridges of various sizes and capacities, mixed-capacity systems offer reduced bridge dead weight, easier movement, and reduced cost.

Easy to Install

Gorbel® Free Standing Work Station Bridge Cranes can be installed on any normal 6" reinforced concrete floor. Each column is anchored by four bolts, thus eliminating the need for field welding.

Support columns are designed to AISC specifications. If no movement of the support assemblies is required, then bracing to the building is recommended (not included).

Modular Design

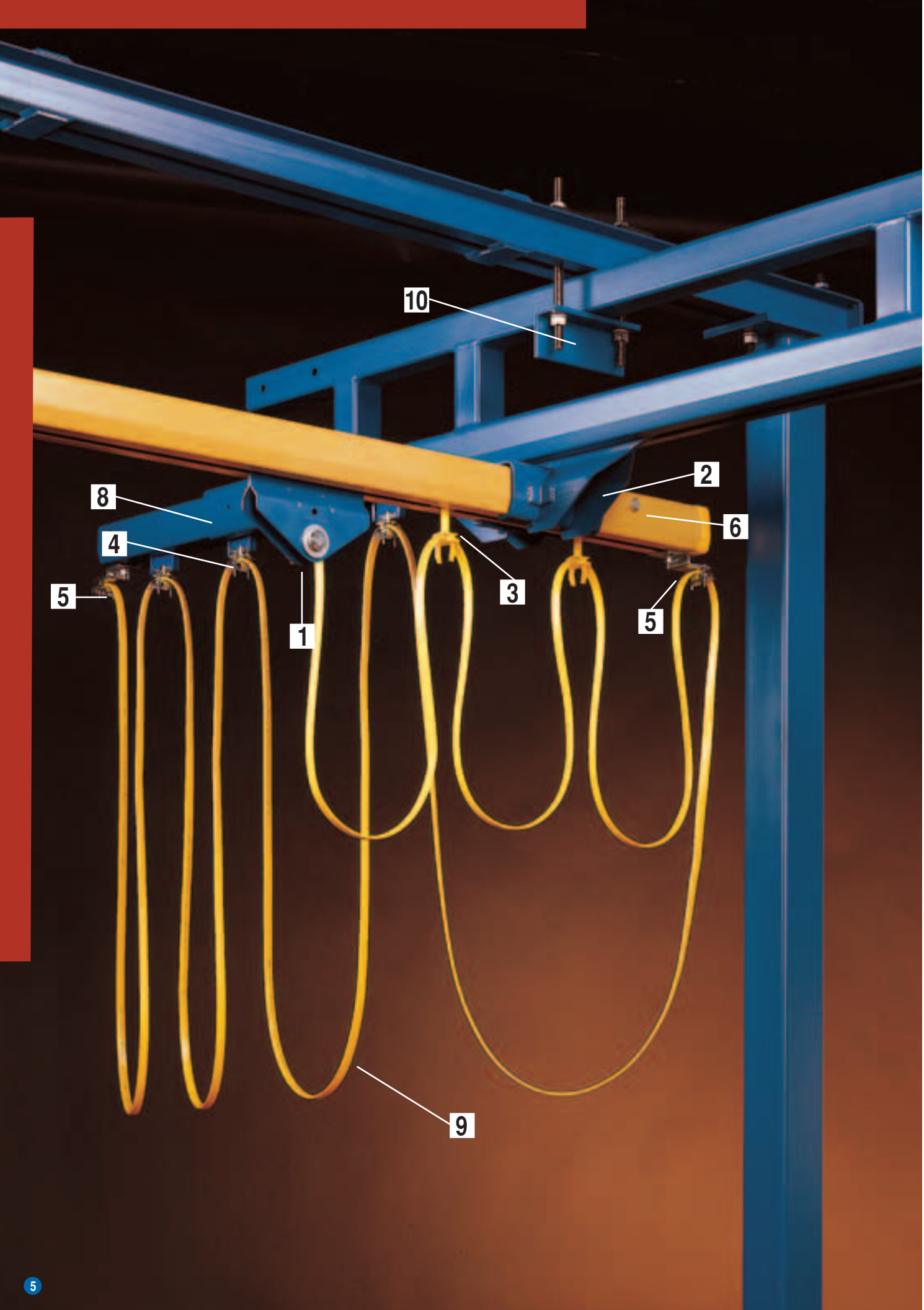
The pre-engineered modular kit design permits easy expansion or relocation. The runway length can be increased by adding runway sections, free standing support assemblies and additional bridges as needed.

What is meant by Rated Capacity?

The rated capacity is the live load that can be lifted by the crane system. The design load for the crane system is based on the rated capacity plus 15% for the weight of the hoist and trolley (capacity $\times$ 1.15) and an additional 25% for impact (capacity $\times$ 1.25) for a total design of capacity $\times$ 1.4 (Note, 25% impact factor is good for hoist speeds up to 50 f.p.m.). For example, a 1000 lb. Gorbel® crane allows you to pick up a 1000 lb. load, provided the hoist weighs 150 lb. or less and the hoist speed is less than 50 feet per minute.

Design load for deflection calculations is based on the rated capacity plus 15% for the weight of the hoist and trolley (capacity $\times$ 1.15). *Under no conditions should the crane be loaded beyond its rated capacity*. Gorbel® Work Station Cranes meet or exceed the ANSI B30.11 specifications for underhung bridge cranes.

WARNING: Equipment described in this brochure is not designed for, and should not be used for, lifting, supporting, or transporting humans. Failure to comply with any one of the limitations noted can result in serious bodily injury and/or property damage.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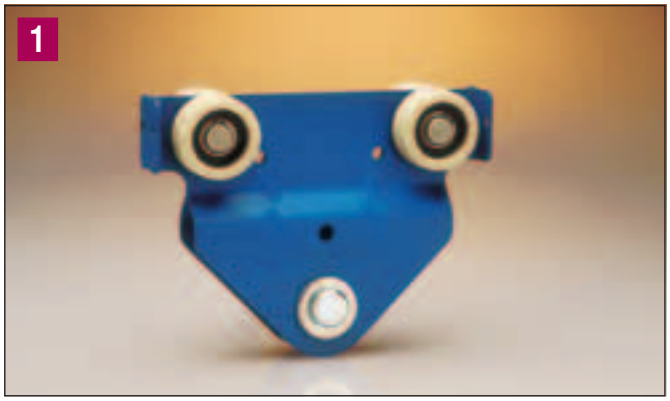
Anatomy of a Work Station Crane

1 HOIST TROLLEYS

Gorbel's hoist trolleys provide the connection between the lifting device and the bridge. The trolleys are designed for effortless movement along the bridge. The stamped body fits most rigid hook or eye lifting devices.

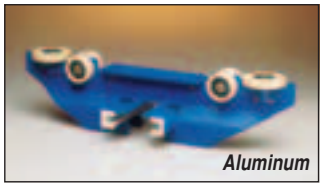
- Wheels are tapered to match the 2° taper of the track. This reduces rolling resistance and wheel wear. Wheels contain ball bearings that are sealed and lubricated for life.
- Trolleys are designed to operate in temperatures from +5°F to +200°F.
- All trolleys meet or exceed the ANSI B30.11 specification for underhung bridge cranes.

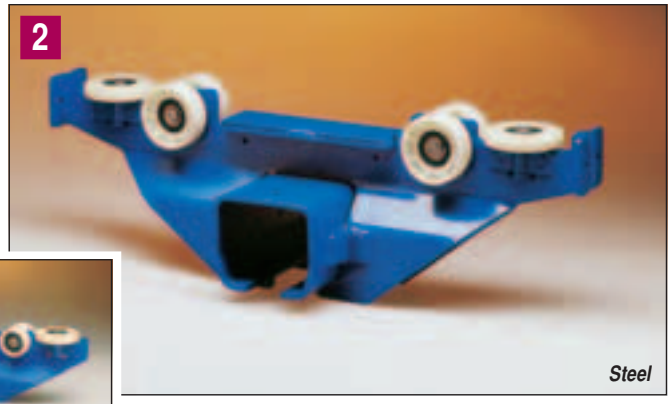


2 END TRUCKS

Gorbel® end trucks provide the connection between the bridge and runways. They are designed for effortless movement along the runway.

- Wheels are tapered to match the 2° taper of the track, which reduces rolling resistance and wheel wear. Wheels contain ball bearings that are sealed and lubricated for life.


Aluminum



Steel

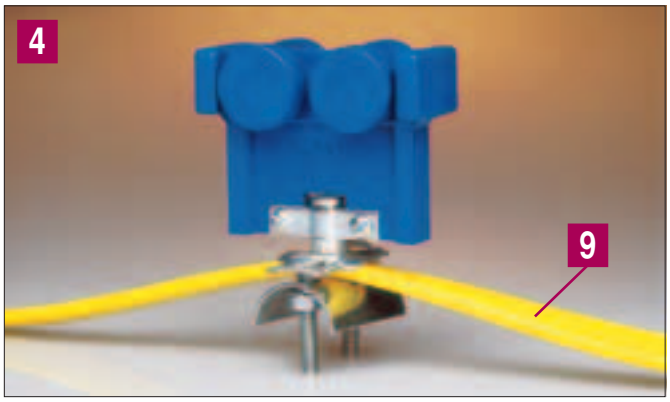
- Two horizontal wheels center the end truck within the runway which prevents binding of the bridge. As a result, the position of the load on the bridge has little effect on the amount of force needed to move the bridge along the runway.
- Any slight runway track misalignment is taken up by the bridge floating in one end truck, while the other end truck is firmly clamped to the bridge.
- All end trucks meet or exceed the ANSI B30.11 specification for underhung bridge cranes.

3 FESTOON GLIDERS

Festoon gliders are used to support flat cable along the runway and bridge, and they are standard on steel runways of 63 feet or less. No tools are required to attach the festooning to the gliders.

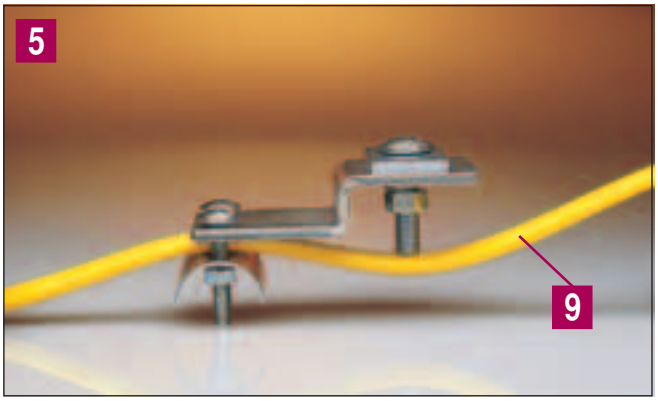
4 FESTOON TROLLEYS

Gorbel® festoon trolleys (optional) are used to support flat cable or air hose along the runway or bridge. The trolleys have four wheels and a pivoting festoon saddle support. They are ideally suited for long runways (greater than 63 feet) or with round cable or air hose. With runways greater than 63 feet or with an all aluminum system, festoon trolleys are standard. Special festoon trolleys for vacuum hose are also available.



5 FESTOON CLAMPS

Festoon clamps anchor the festooning at the start of the runway and bridge. They also prevent the festoon gliders from exiting the track and they can provide a redundant stop for the end trucks and trolley. Festoon tow clamps are also available for systems with standard end trucks.



6 END STOP BUMPERS

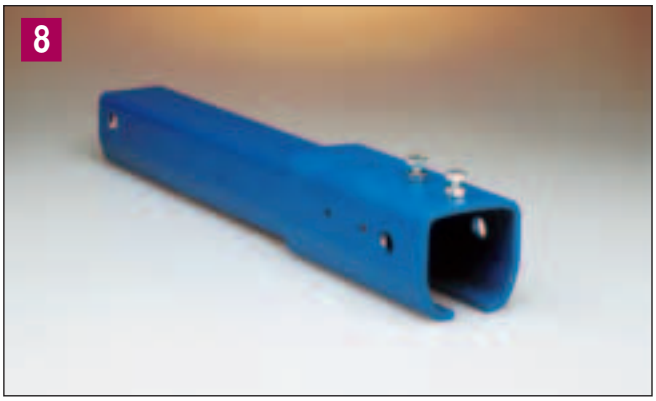
High-impact molded end stop bumpers are provided on all runways and bridges to prevent the end trucks and trolley from exiting the track. The bumpers are bolted to the track to physically limit the travel of the end truck and trolley.

7 UNIVERSAL BUMPERS (not shown on pg. 5)

A universal bumper can be used as an intermediate end stop, primarily for zoning purposes.

8 STACK SECTIONS

A stack section at one end of a runway serves as an extension that allows festoon carriers to be stored on the end of the runway without reducing crane coverage.



9 FLAT CABLE AND/OR AIR HOSE

A flat cable festooning system is included in all Gorbel® Work Station Bridge Cranes. Plenty of cable is provided for 3 foot loops on the runway and 1 foot 6 inch loops on the bridge.

Optional air hose is also available and is supported by optional festoon trolleys. Gorbel® Work Station Cranes can utilize optional conductor bar electrification, but this results in an increase up to 40% of the amount of effort required to move

10 HANGER ASSEMBLIES

Each Gorbel® Work Station Bridge Crane is provided with the appropriate number of hanger assemblies, based on the number of support assemblies shown in this brochure's dimensional pages.

Hangers for Trussed Steel Track

Hangers for steel runways are included with each assembly as shown. The runways are flush mounted under the free standing support assemblies via spine clamp angles, B7 alloy threaded rods, and the appropriate hardware.

Hangers for Trussed Steel Track

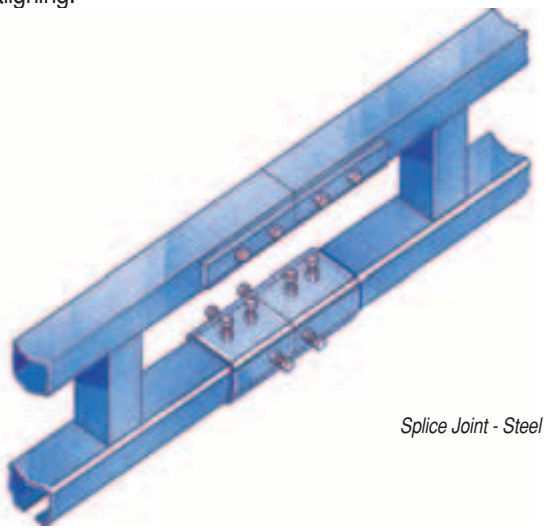
Hangers for Aluminum Track

Standard hangers for aluminum runways are included with each assembly shown. The runways are flush mounted under the free standing support assemblies via beam clips, B7 alloy threaded rods, and the appropriate hardware.

Hangers for Aluminum Track

SPLICE JOINTS FOR STEEL TRACK

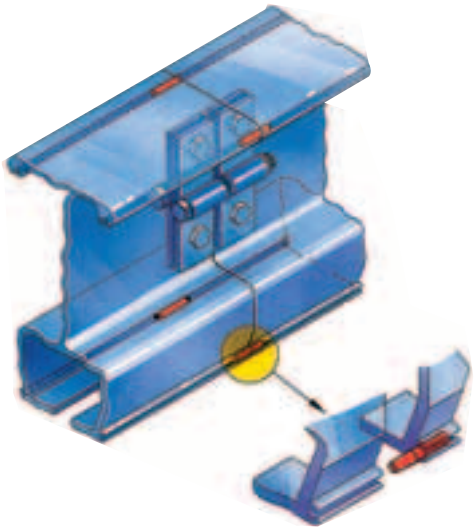
A splice joint is used to join track sections together and enable the installer to quickly and properly align the joined sections of track. Adjusting bolts are provided on the splice joint for leveling and aligning.



Splice Joint - Steel Track

SPLICE JOINTS FOR ALUMINUM TRACK

Patented splice joints for aluminum track allow for precise alignment. The aluminum track is extruded with four patented alignment slots. Four precision-ground pins are provided to accurately align runway sections, which provides for a smoother transition of wheels over the splice joint than is possible with bolted connections. In addition, clamp fasteners attach to the vertical web of the track to pull the track together and keep it from separating.



Splice Joint - AluminumTrack

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INSTALLATION GUIDELINES

CAPACITY	SERIES	WEIGHT PER FOOT	MAX. L1	MAX. L2	MAX. L5	MAX. L9
250#	GLCS	4.88 #	20'	48"	18"	48"
	AL	4.00 #	20'	30"	48"	48 "
	GLCSL	8.14 #	25'	48"	18"	48"
500#	GLCS	7.23 #	20'	48"	24"	48"
	AL	4.70 #	20'	30"	48"	48"
	GLCSL	10.94 #	25'	48"	24"	48"
	GLCSLX	11.26 #	30'	48"	24"	48"
1000#	GLCS	12.09 #	20'	48"	24"	48"
	AL	8.30 #	20'	30"	48"	48"
	GLCSL	13.37 #	25'	48"	24"	48"
	GLCSLX	15.31 #	30'	48"	24"	48"
2000#	GLCS	14.59 #	20'	48"	24"	48"
	AL	10.20 #	20'	30"	48"	48"
	GLCSL	20.14 #	25'	48"	24"	48"
	GLCSLX	20.95 #	30'	48"	24"	48"
4000#	GLCS	18.42 #	20'	48"	24"	48"
	GLCSL	23.83 #	25'	48"	24"	48"
	GLCSLX	28.02 #	30'	48"	24"	48"

Note: Depending on track series anti-kick-up end trucks may be required for the following:
bridges with ≤ 8' span (L4) and a bridge cantilever (L5) ≥ 12"
bridges with < 10' span (L4) and a bridge cantilever (L5) > 15"
bridges with < 15' span (L4) and a bridge cantilever (L5) > 18"

***Anti-kick-up end trucks are not included as part of the standard crane kits.**

Consult Gorbel® factory for information on bridges greater than 15' span (L4).

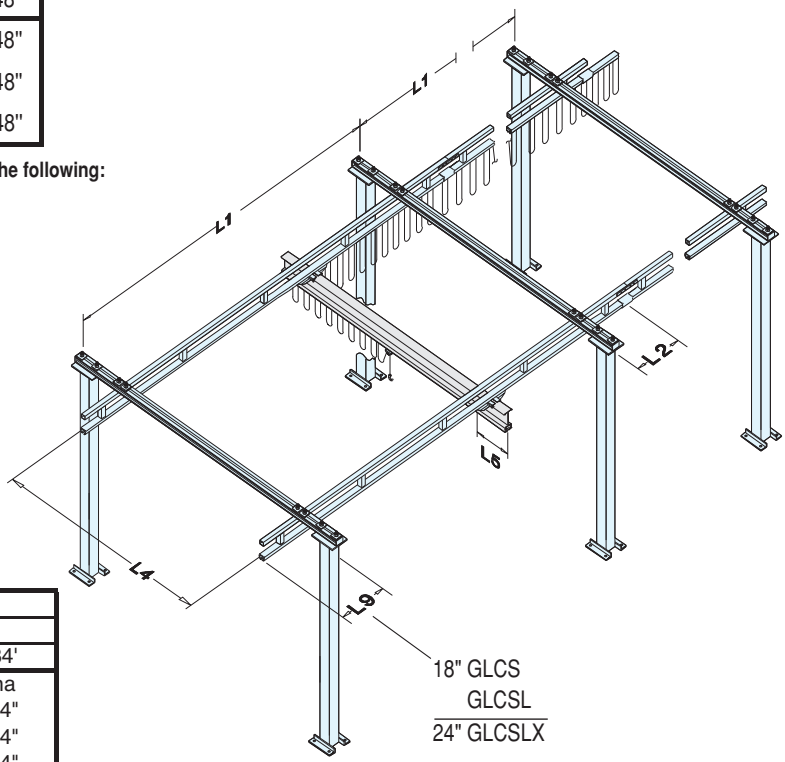
L 1 = MAXIMUM SUPPORT ASSEMBLY CENTERLINE
Maximum Support Assembly Centerline is considered from the center of a support assembly to the center of the neighboring support assembly.

L 2 = SPLICE JOINT CENTERLINE TO SUPPORT ASSEMBLY CENTERLINE
Splice Joint Centerline to Support Assembly Centerline is considered from center of a splice joint to the center of the nearest support assembly.

L 4 = BRIDGE SPAN
Bridge Span is considered from centerline to centerline of runways.
L4 = Bridge Overall Length — (2 X Bridge Cantilever)

L 5 = BRIDGE CANTILEVER
Bridge Cantilever is considered from the centerline of the runway to the end of the bridge (see table and notes).

L 9 = MAXIMUM RUNWAY CANTILEVER
Runway Cantilever is considered from the center of the end support assembly to the end of the runway.



STANDARD BRIDGE CANTILEVER

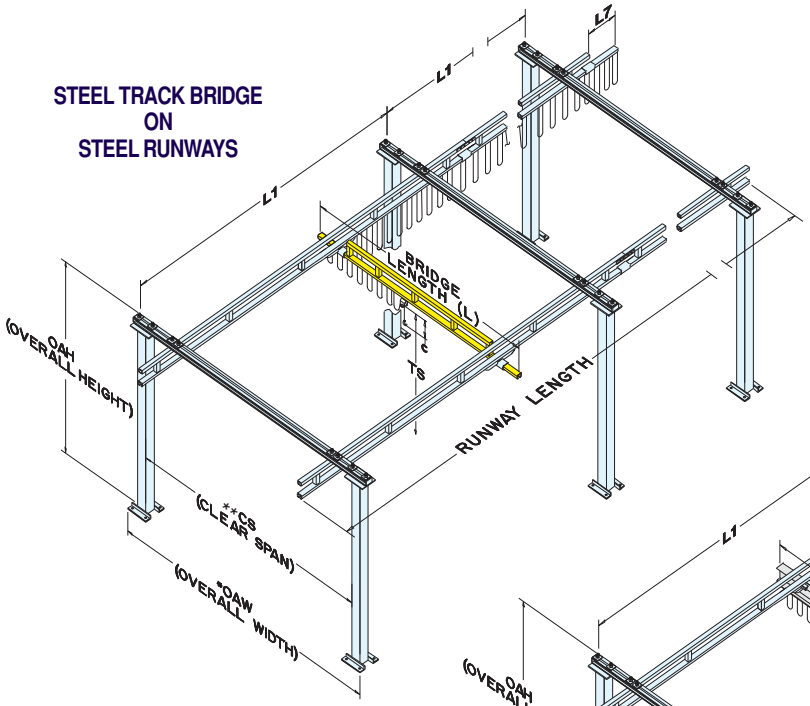
Bridge Series	Bridge Overall Length Steel				
	<=23'	28'	29'	33'	34'
250	12"	18"	24"	na	na
500	12"	18"	24"	18"	24"
1000	12"	18"	24"	18"	24"
2000	12"	18"	24"	18"	24"
4000	15"	18"	24"	18"	24"

Bridge Series	Bridge Overall Length Aluminum					
	<=20'	23'	28'	29'	33'	34'
250	12"	18"	18"	na	na	na
500	12"	18"	18"	24"	18"	24"
1000	12"	18"	18"	24"	18"	24"
2000	12"	18"	18"	24"	18"	24"
4000	12"	18"	18"	24"	18"	24"

Note: For Bridge OALs between lengths shown, round up to the larger lengths. Maximum L5 may not be achievable (dependent on truss design of bridge). The maximum L5 dimension using AL series rail does not pertain to coped aluminum bridges.

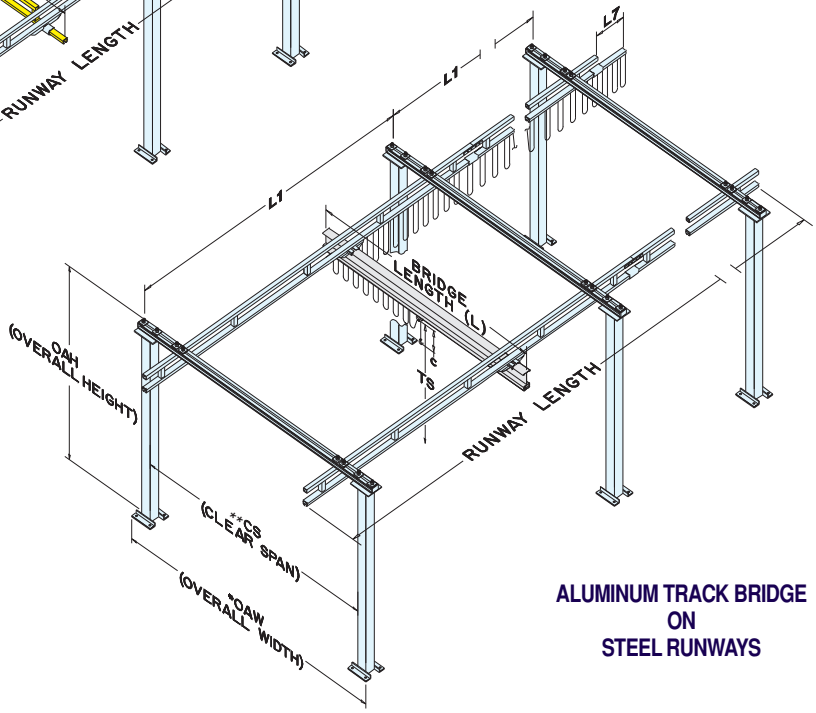
FREE STANDING WORK STATION BRIDGE CRANES
STEEL RUNWAYS WITH STEEL OR ALUMINUM BRIDGE
ISOMETRIC VIEW

STEEL TRACK BRIDGE ON STEEL RUNWAYS



* (4000# SYSTEMS ONLY)
THE HEADER WELDMENT LOCATED AT THE TOP OF THE SUPPORT COLUMNS IS THE WIDEST PART OF THE SYSTEM.

**CS = BRIDGE LENGTH (L) + 4"



ALUMINUM TRACK BRIDGE ON STEEL RUNWAYS

Model Number: _____

Capacity: _____Pounds

Bridge Length (L): _____ (OAL)

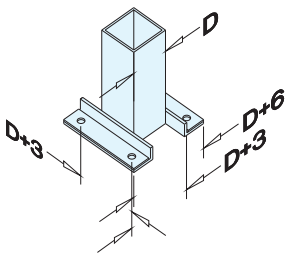
Runway Length: _____(OAL)

Trolley Saddle Height: _____ (TS)

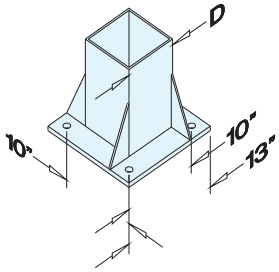
L1: _____ Are the number of support assemblies provided sufficient?
(See "SUPPORT" column on dimensional chart pages.)

C: _____ inches (hoist by others)

COLUMN BASE DETAIL FOR 5" COLUMNS OR SMALLER



COLUMN BASE DETAIL FOR 6" & 7" COLUMNS



Gorbel® Free Standing Work Station Crane kits include: bridge, runways, the appropriate number of support assemblies, hoist trolley, end trucks, end stops, flat wire festooning, festoon gliders (festoon trolleys on steel runway lengths greater than 63' and all aluminum systems), festoon stack-up section, splice joints and hanger brackets. Hoist and anchor bolts provided by others.

Dimensions are for reference only and are subject to change without notice.

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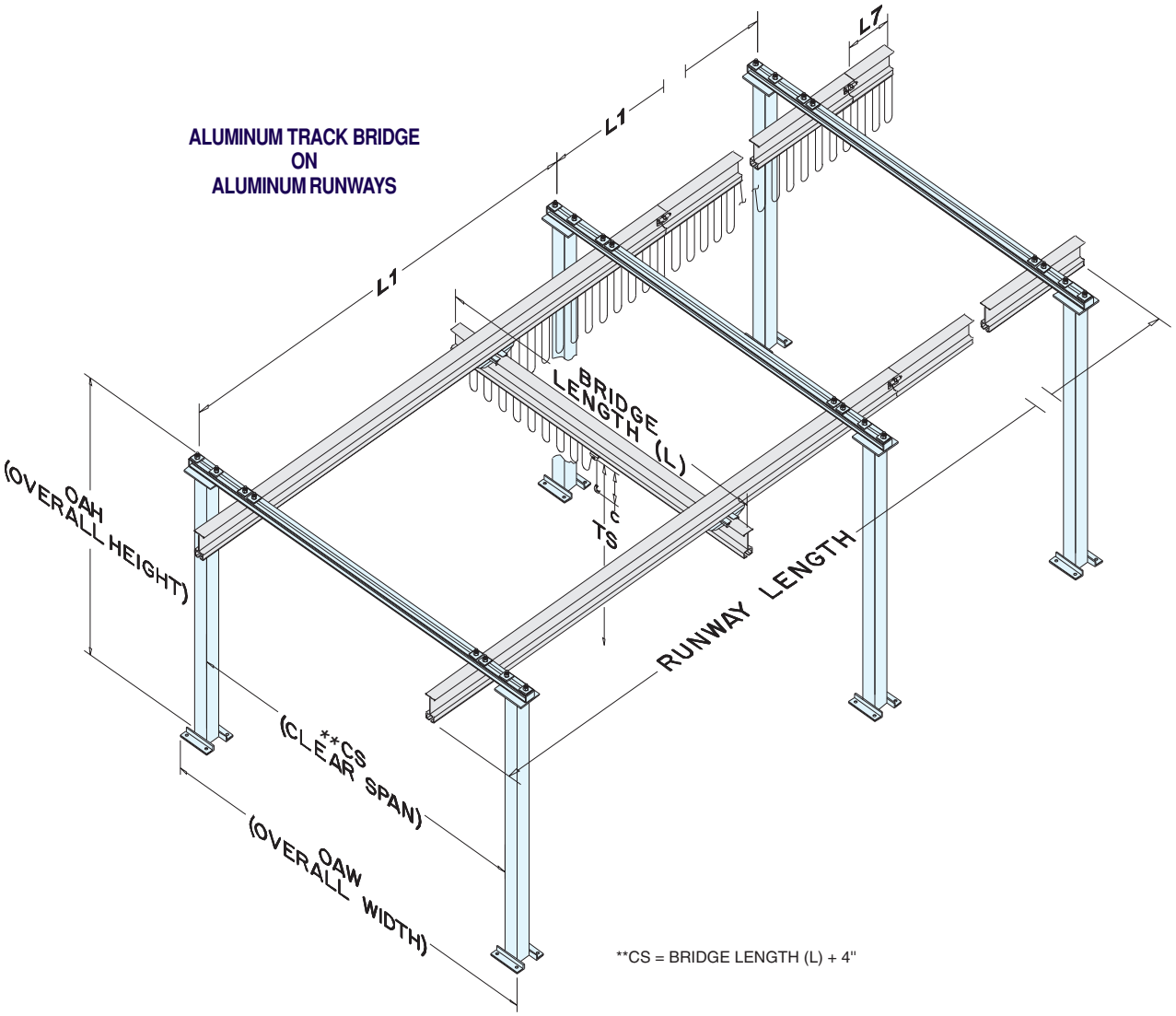
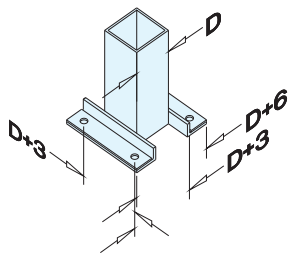
FREE STANDING WORK STATION BRIDGE CRANES ALUMINUM RUNWAYS WITH ALUMINUM BRIDGE ISOMETRIC VIEW



**CS = BRIDGE LENGTH (L) + 4"

COLUMN BASE DETAIL FOR 5" COLUMNS OR SMALLER



Gorbel® Free Standing Work Station Crane kits include: bridge, runways, the appropriate number of support assemblies, hoist trolley, end trucks, end stops, flat wire festooning, festoon gliders (festoon trolleys on steel runway lengths greater than 63' and all aluminum systems), festoon stack-up section, splice joints and hanger brackets. Hoist and anchor bolts provided by others.

Dimensions are for reference only and are subject to change without notice.

Model Number: _____

Capacity: _____Pounds

Bridge Length (L): _____ (OAL)

Runway Length: _____ (OAL)

Trolley Saddle Height: _____(TS)

L1: _____ Are the number of support assemblies provided sufficient?
(See "SUPPORT" column on dimensional chart pages.)

C: _____ inches (hoist by others)

MATERIALS Handling PTY LTD Working with ease...

FREE STANDING WORK STATION BRIDGE CRANES STEEL RUNWAYS WITH STEEL OR ALUMINUM BRIDGE

Model Number: _____

Capacity: _____Pounds

Bridge Length (L): _____ (OAL)

Runway Length: _____ (OAL)

Trolley Saddle Height: _____(TS)

L1: _____ Are the number of support assemblies provided sufficient?

(See "SUPPORT" column on dimensional chart pages.)

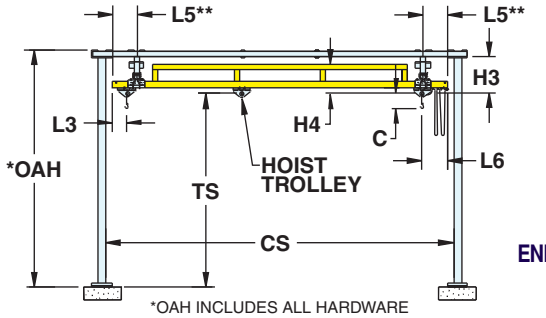
C: _____ inches (hoist by others)

Gorbel® Free Standing Work Station Crane kits include: bridge, runways, the appropriate number of support assemblies, hoist trolley, end trucks, end stops, flat wire festooning, festoon gliders (festoon trolleys on steel runway lengths greater than 63' and all aluminum systems), festoon stack-up section, splice joints and hanger brackets. Hoist and anchor bolts provided by others.

Dimensions are for reference only and are subject to change without notice.

**For L4 and L5 dimensions, refer to page 9.

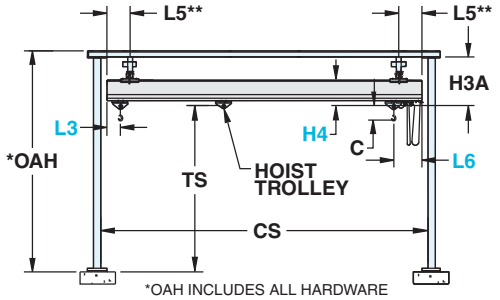
STEEL TRACK BRIDGE ON STEEL RUNWAYS



END VIEW

*OAH INCLUDES ALL HARDWARE

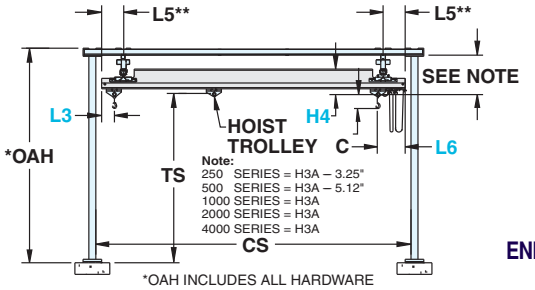
ALUMINUM TRACK BRIDGE ON STEEL RUNWAYS



END VIEW

*OAH INCLUDES ALL HARDWARE

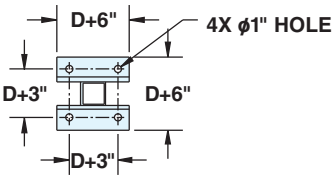
COPED ALUMINUM TRACK BRIDGE ON STEEL RUNWAYS



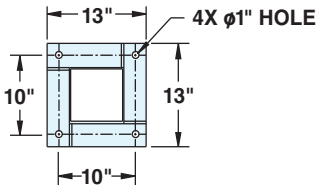
END VIEW

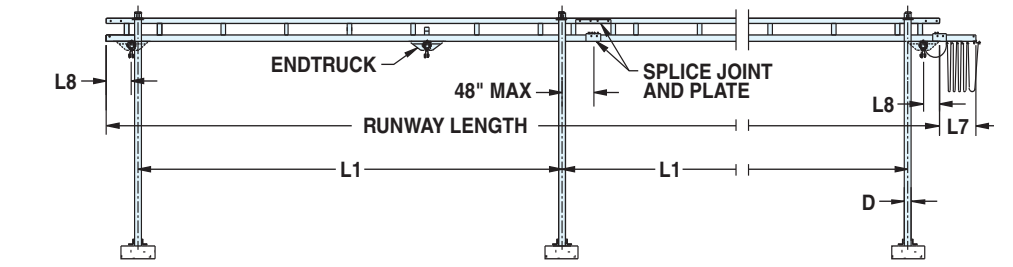
*OAH INCLUDES ALL HARDWARE
To find OAH when using an Aluminum bridge:
(H3A – H3) + OAH steel bridge

BASE BOLT PATTERN FOR 5" COLUMNS OR SMALLER

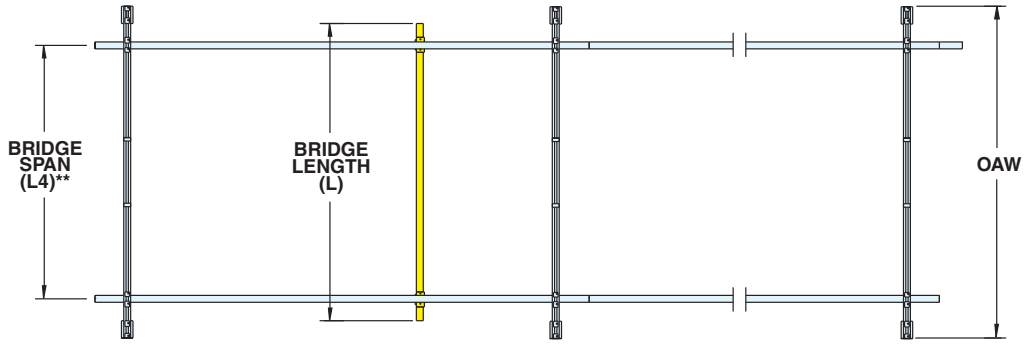


BASE BOLT PATTERN FOR 6" & 7" COLUMNS





SIDE VIEW



TOP VIEW