

GORBEL WORKSTATION BRIDGE CRANES



Australia Wide Sales & Service

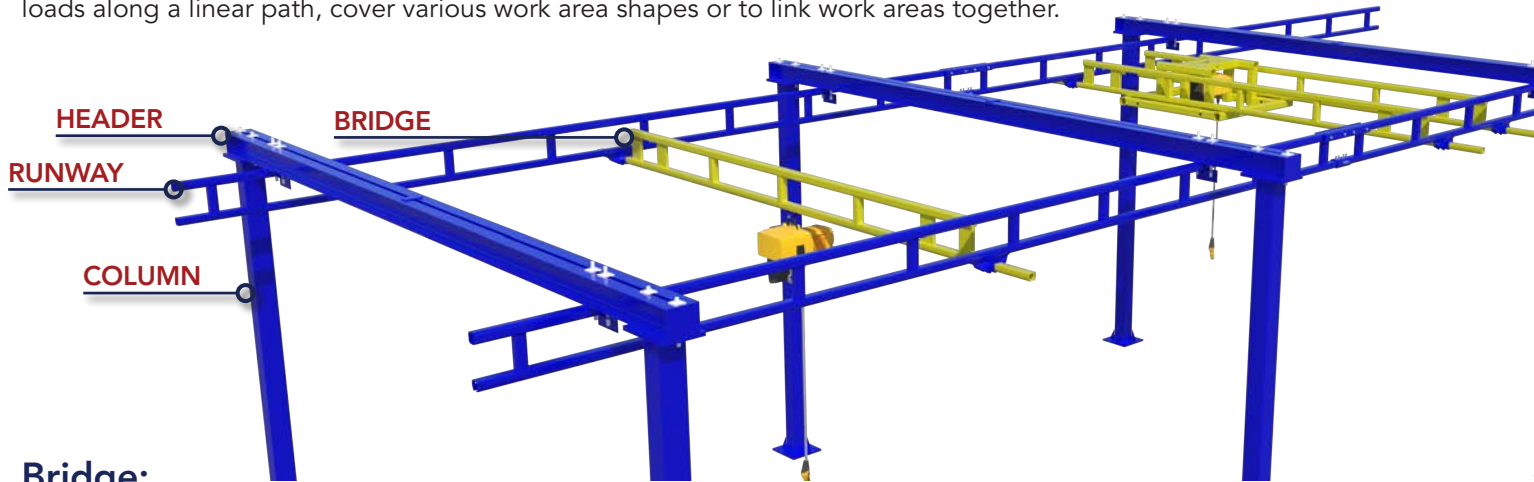
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MATERIALS
Handling PTY LTD *Working with ease*

Work Station Cranes and Monorails

Work Station Cranes

Bridge cranes cover rectangular work areas, while monorail systems can be used to move loads along a linear path, cover various work area shapes or to link work areas together.



Bridge:

The bridge is the only part of the work station crane in motion. It supports the lifting device, and facilitates movement of your load along the X and Y axis. Bridges can be as long as 10 metres, and are available in steel or aluminium.

Runways:

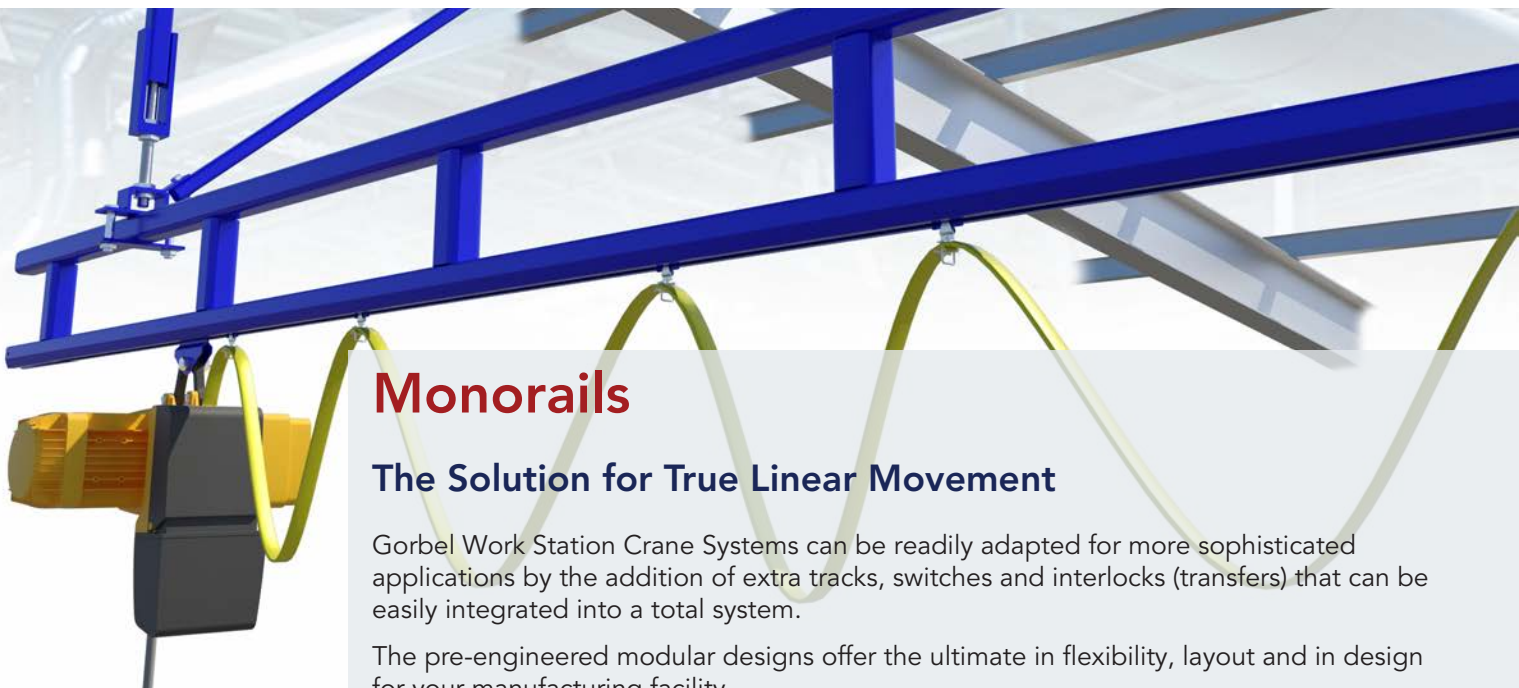
The bridge's end trucks ride within the track of the crane's runways, which determine the overall coverage area of your work station crane. The track used for runways can be spliced together to span any distance.

Column (free standing only):

The columns are the "legs" of a free-standing work station crane and are bolted to the floor while supporting the columns and runways. The distance between columns is determined by your crane's overall capacity and the selected track type.

Header (free standing only):

The work station crane system's header is made of back-to-back "C" channel, which allows for easy connection to the runway hanger support hardware.



Monorails

The Solution for True Linear Movement

Gorbel Work Station Crane Systems can be readily adapted for more sophisticated applications by the addition of extra tracks, switches and interlocks (transfers) that can be easily integrated into a total system.

The pre-engineered modular designs offer the ultimate in flexibility, layout and in design for your manufacturing facility.

The Right Track Makes a Difference



Why Buy Enclosed Track?

Gorbel cold-rolled enclosed track design gives you unmatched ease of use. Gorbel's steel and aluminium work station crane systems are both strong and lightweight. They are modular and can be added to at any time.

The 2° taper of the running flange helps to centre wheels in the track and prevents debris from settling on the rolling surface. This allows for smooth, effortless movement of loads.

Major Advantage:

Enclosed track cranes are up to three times easier to move than traditional bridge cranes.

The design protects the rolling surface from the build-up of dirt and dust, making the wheels easier to move.

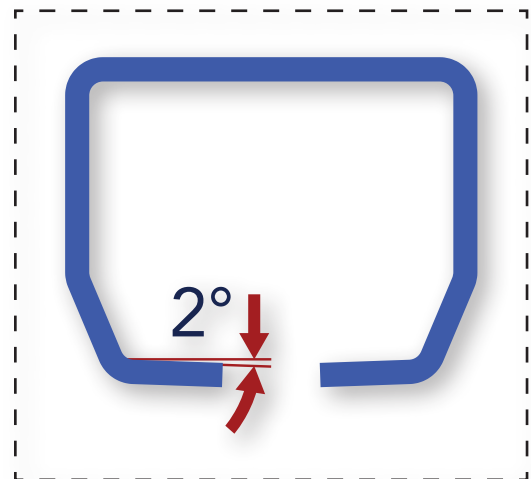
The smooth running surface means lower rolling resistance.

The low profile of the steel track allows the system to be installed where headroom is a problem.

The low track weight reduces operator push-pull forces.

Long spans allow systems to be installed where support assemblies are infrequent (up to 9 metres with steel truss design). This reduces the possibility of the support columns interfering with the work cell layout.

Four distinct sizes of track - 125, 250, 500, <2000 series enables you to keep bridge weights and costs to a minimum.

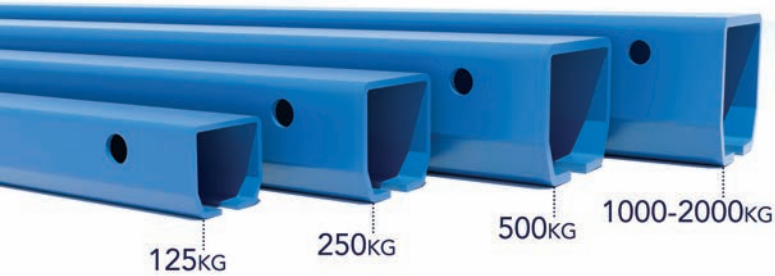


SPECIFICATIONS

Capacities	Up to 2000 kg
Max Bridge Lengths	10 metres
Std support distances	1.6, 6, 7.5, 9 meters

Track Profiles

Whether your application requires long spans between supports or making the most of limited headroom, Gorbelt offers track profiles that create opportunities to customize the perfect solution.

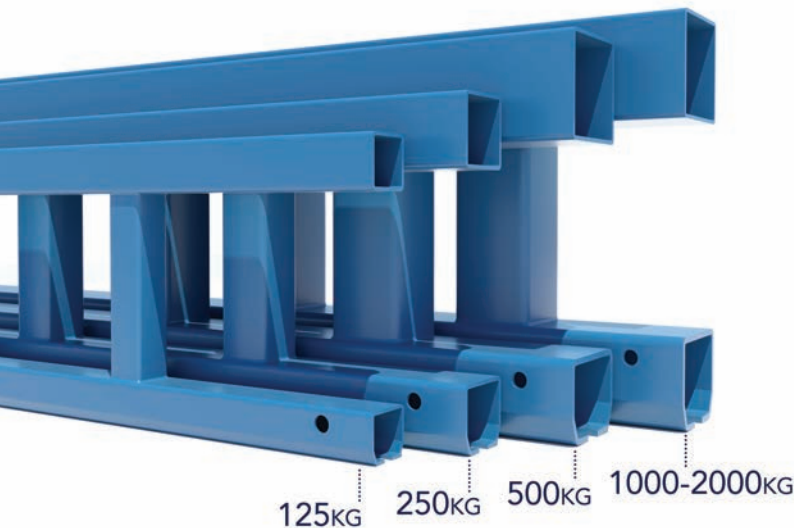


Plain Steel Track

For use where frequent support points are available or where maximum headroom is required.

The standard cold-rolled steel track profile offers a low-weight to high-strength ratio.

Maximum Support Distance	Lifting Capacity
1.6 metres	125 - 2000 kgs



Trussed Track Profile

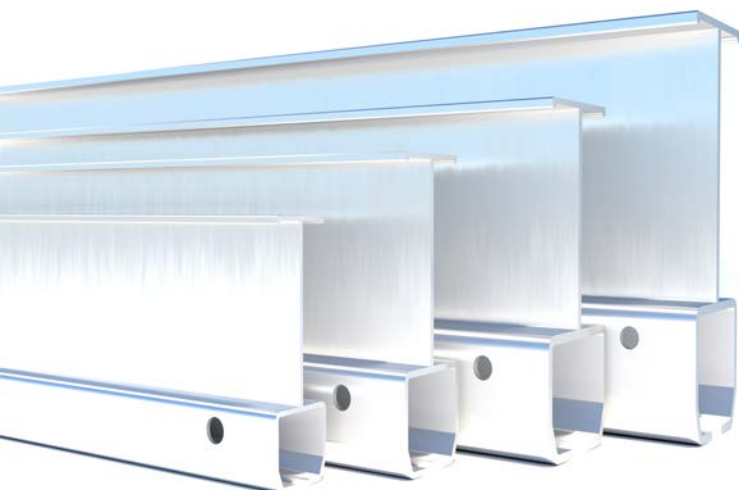
Permits longer spans when frequent support points are not available, giving you more flexibility in crane layout.

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 need for frequent hangers.

Long spans translate into fewer runway support points, longer bridge lengths, and free-standing capabilities.

Maximum Support Distance	Lifting Capacity
7.5 metres	125 kgs
9 metres	250 - 2000 kgs



Aluminium Bridges (Available to order)

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

The patented shape of Gorbelt's aluminium enclosed track provides for low weight, unparalleled spanning capability and effortless movement.

Weighing as much as 44% less than trussed steel track results in easier movement, which makes for safe, productive, ergonomic work cells.

Runway spans up to 6 metres and bridge lengths up to 10 metres meet a wide range of applications.

Design Your Crane



Should it be 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.

Free standing systems require a reinforced concrete floor of at least 150 millimetre. 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 do I need?

The general rule is "less is more"

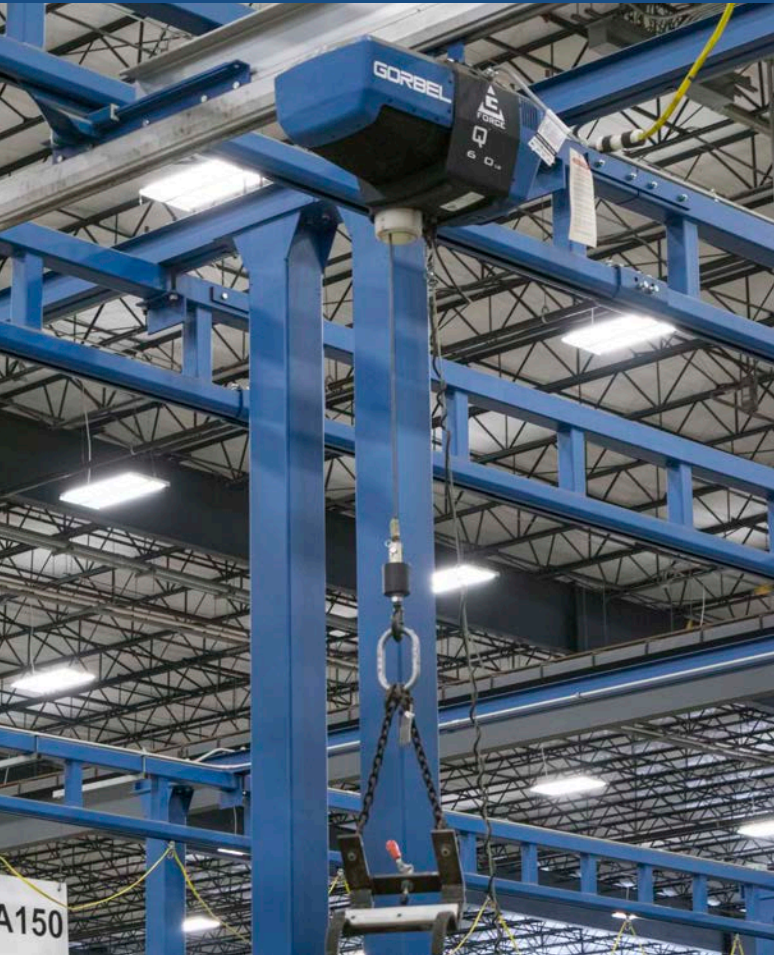
Keep capacity to a minimum - Gorbel Work Station Cranes are designed with an adequate safety factor. If you "over-buy" capacity, the operator will need to move extra bridge dead weight, which would not be a good ergonomic solution.

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 to a minimum - Keeping the height less than 4 metres is desirable because it makes it easier to control and position the load.



What is 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 x 1.15) and an additional 25% for impact (capacity x 1.25) for a total design of capacity x 1.4 (Note, 25% impact factor is good for hoist speeds up to 15 metres/min).

For example, a 500 kg Gorbelt crane allows you to pick up a 500kg of load, provided the hoist weighs 70kg or less and the hoist speed is less than 15 metres/min.

Design load for deflection calculations is based on the rated capacity plus 15% for the weight of the hoist and trolley (capacity x 1.5).

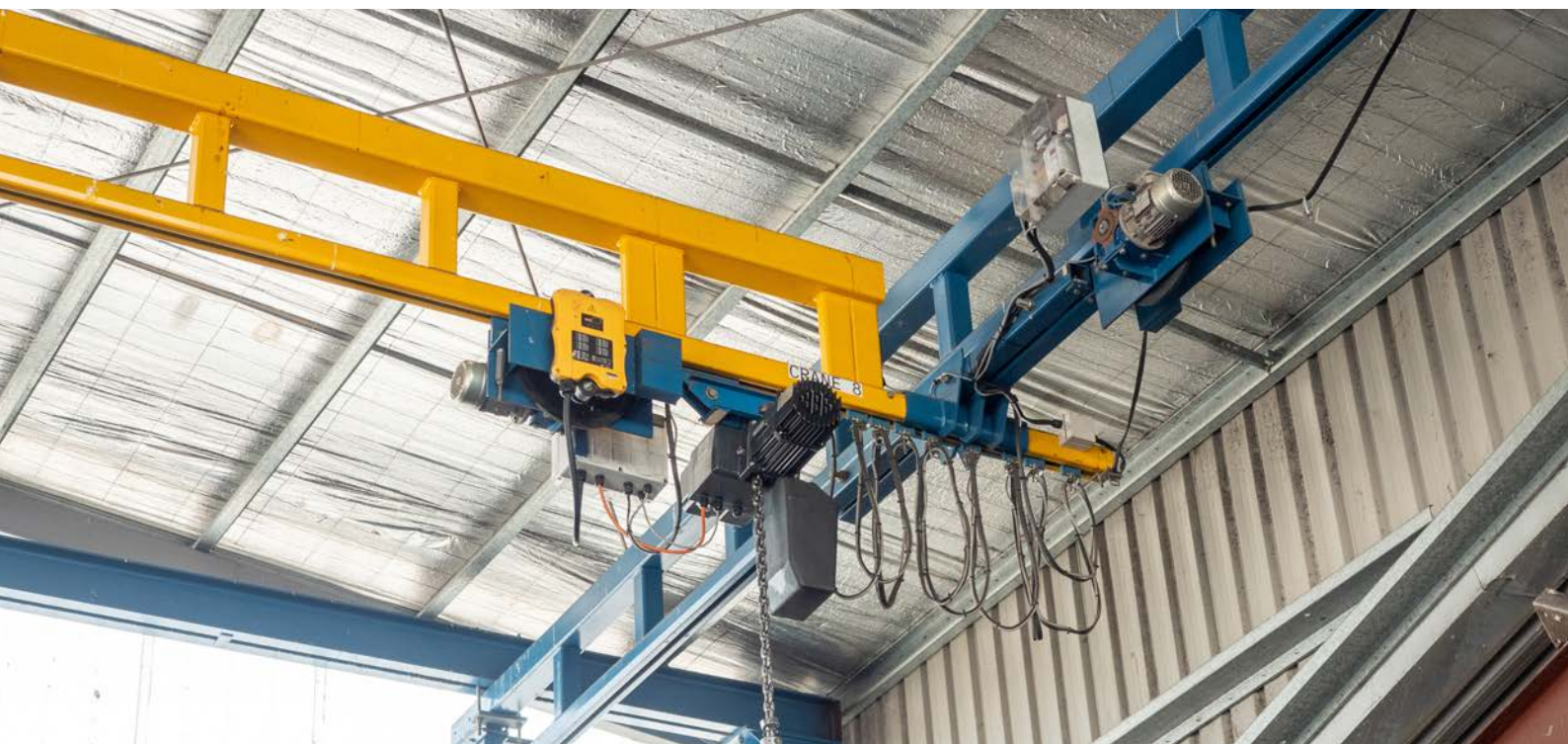
Under no circumstances should the crane be loaded beyond its rated capacity.

Gorbelt work station cranes meet or exceed the ANSI B30.11 specifications for under-hung bridge cranes.

Should the Crane be manual or motorised?

Ease of movement and light 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, a pit, or other inaccessible area), then the crane should be motorised.



Crane Components

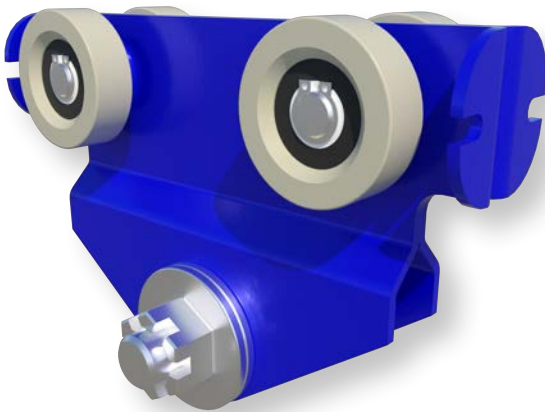


1. Hoist Trolley
2. End Truck
3. Festoon Glider
4. Festoon Trolley
5. Festoon Clamp
6. End Stop Bumper
7. Universal Bumper
(not shown)
8. Stack Section
9. Flat Cable/Air Hose
10. Hanger Assembly

Workstation Crane Components



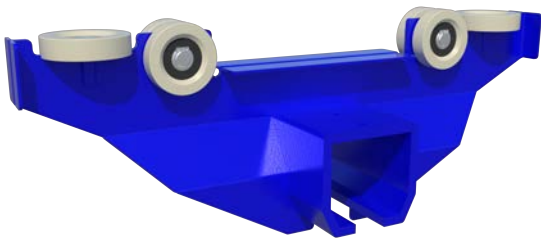
Hoist Trolley



Gorbel 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.

End Trucks



STANDARD END TRUCK

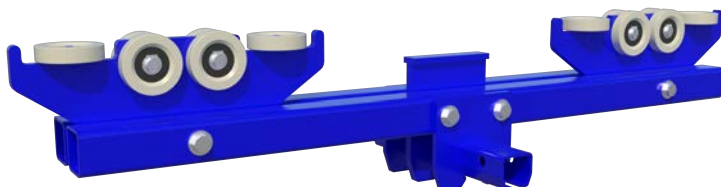
Gorbel end trucks provide the connection between the bridge and runways.

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.

Two horizontal wheels centre 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.

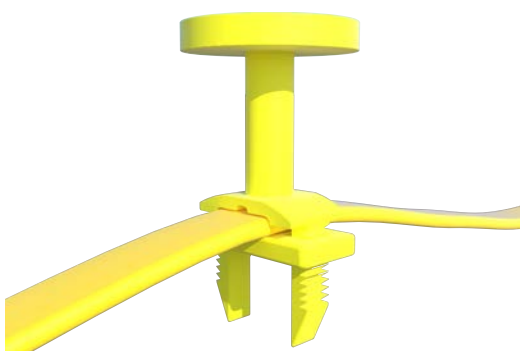
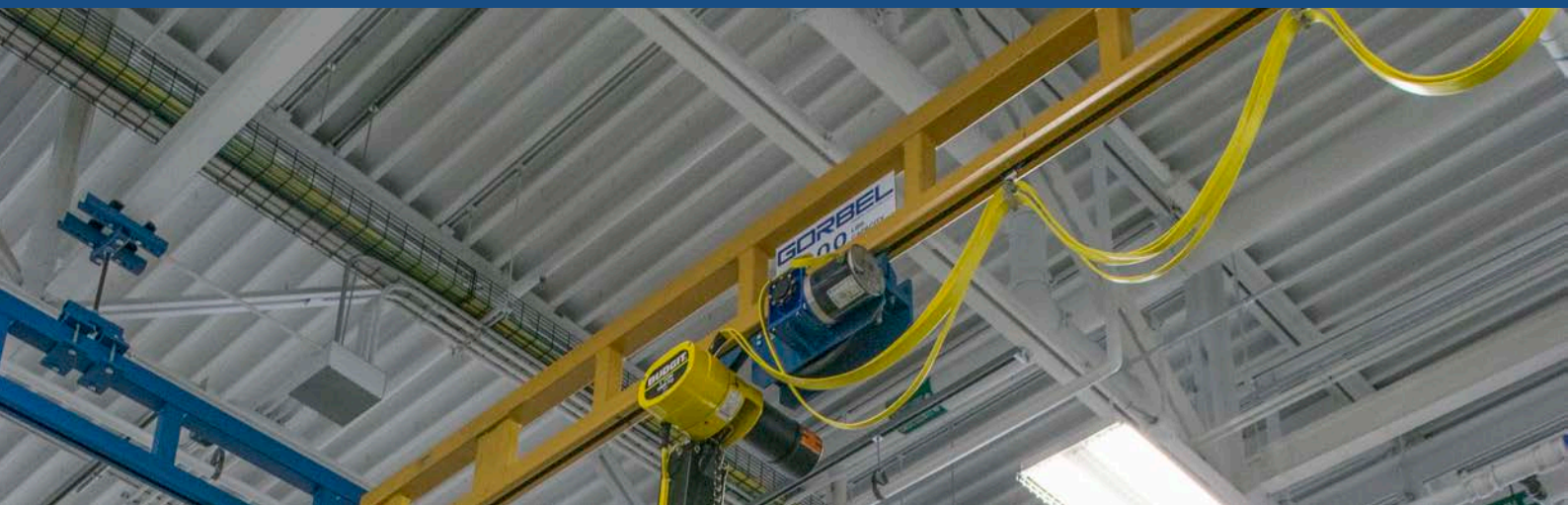


EXTENDED END TRUCK

Extended End Trucks

The extended end truck is designed for longest bridge lengths and helps evenly distribute the weight of the load to maintain easy bridge movement and prevent binding.

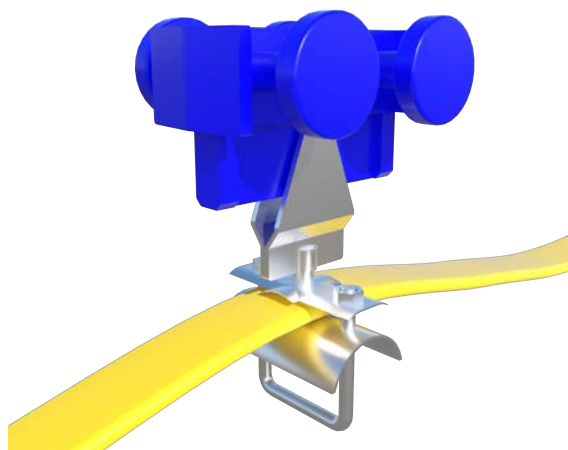
Festooning: Cables, Hoses & Conductor Bars



Festoon Gliders

Festoon gliders are used to support flat cable along the runway and bridge and they are standard on steel runways of 19m or less.

No tools are required to attach the festooning to the gliders.

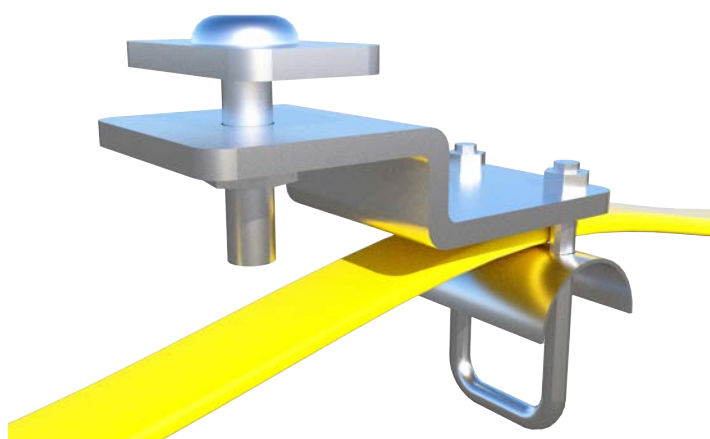


Festoon Trolleys

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 19 metres) or with round cable or air hose.

With runways greater than 19 metres or with an all aluminium system, festoon trolleys are standard. Special festoon trolleys for vacuum hose are also available.



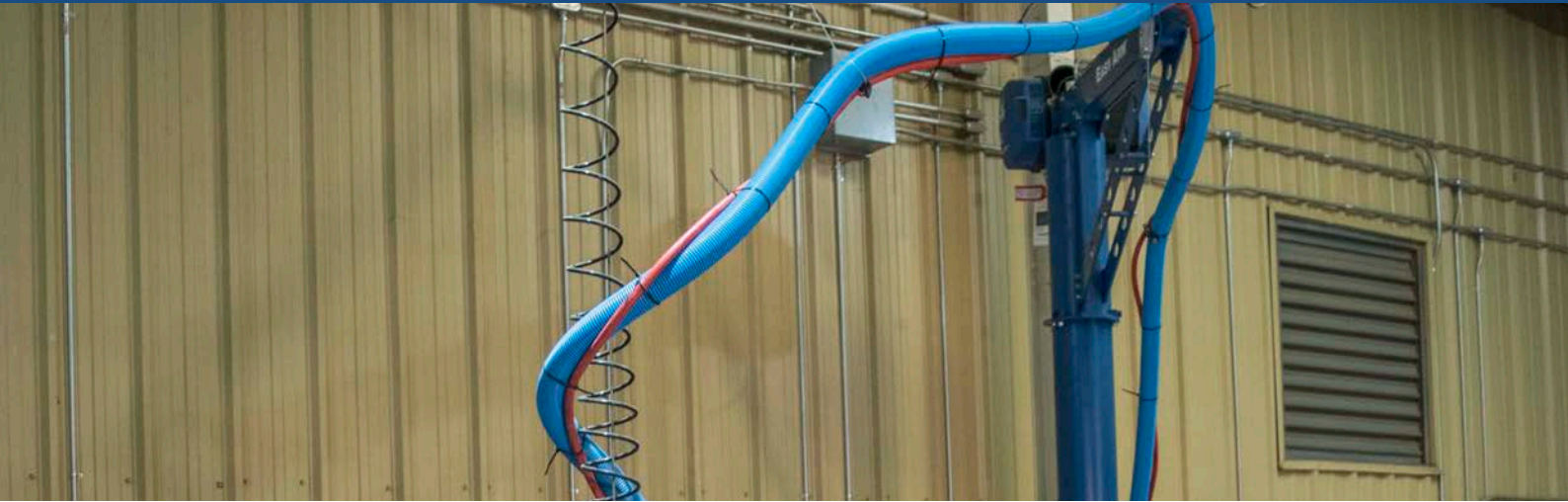
Festoon Clamps

Festoon clamps anchor the festooning at the start of the runway and bridge.

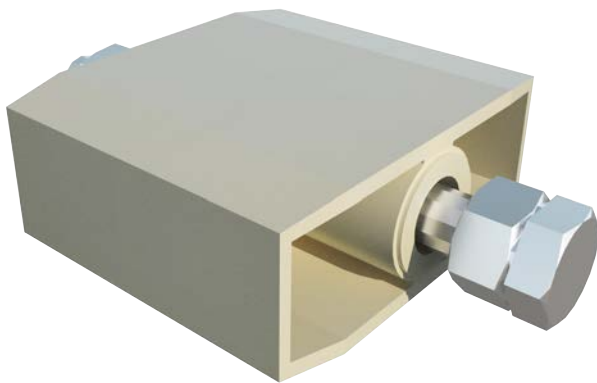
They also prevent the festoon gliders from exiting the track and they can provide a redundant stop for the end trucks and trolley.

Festoon tow clamps are also available for systems with standard end trucks.

Festooning: Cables, Hoses & Conductor Bars

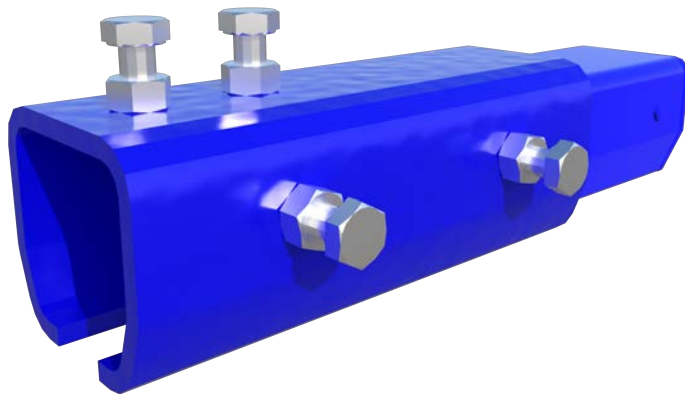


End Stop Bumpers



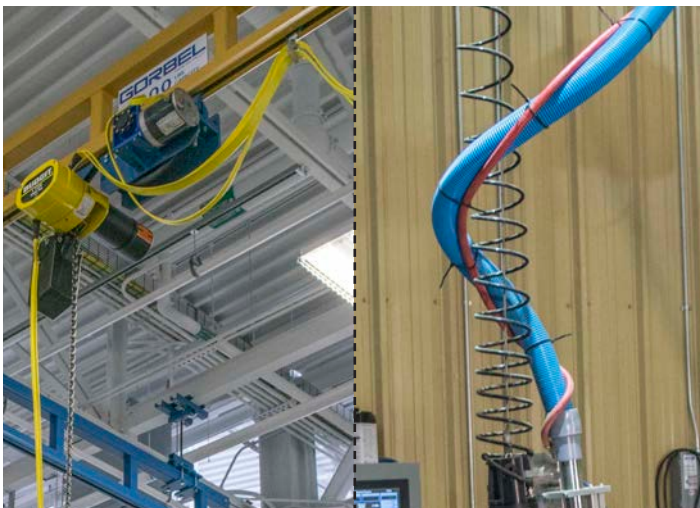
High-impact moulded end stop bumpers are provided on all runways and bridges to prevent the end trucks and trolley from exiting the track.

The bumpers are bolted to the track to physically limit the travel of the end truck and trolley.



Festoon Stack Section

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.



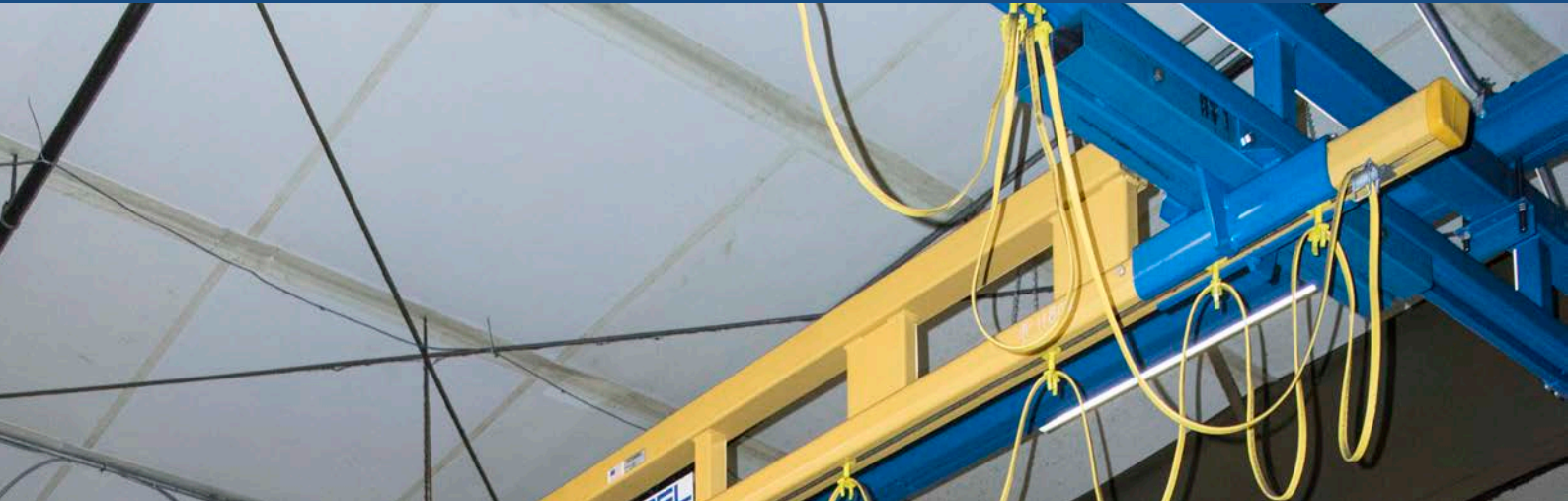
Flat Cable and/or Air Hose

A flat cable festooning system is included in all Gorbel Work Station Bridge Cranes. Plenty of cable is provided for 1 metre loops on the runway and 500 millimetre 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 of up to 40% of the amount of effort required to move the system.

Hanger Assemblies (suspensions)



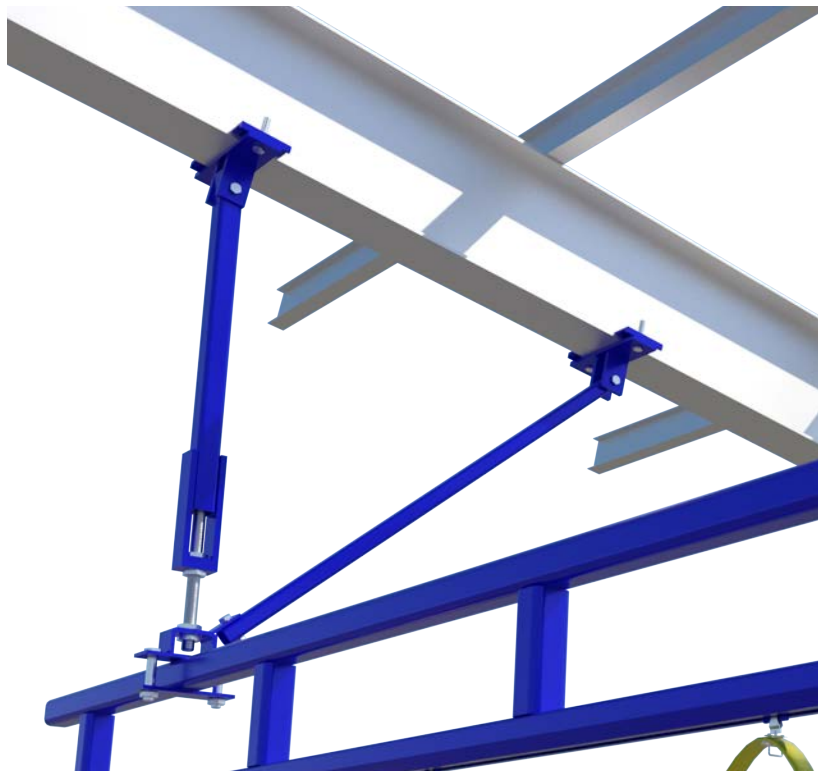
Ceiling Mounted

Ceiling mount setups are the perfect solution to minimizing obstructions at ground level.

Each Gobel Workstation Bridge Crane is provided with the necessary number of hanger assemblies.

Various hanger and bracing assemblies are available to suit the wide range of building configurations seen in the Australian market. This includes our rigid parallel and perpendicular hangers and adjustable angle upper hangers

Working with our technical specialists to find the best configuration to suit your building, we utilize architectural drawings and site measurements to find support combinations to suit even the most difficult sites.



Free Standing

Hangers for all runways are included with each assembly as shown.

The runways are flush mounted under the free standing support assemblies via spine clamp angles, threaded rods and the appropriate hardware.



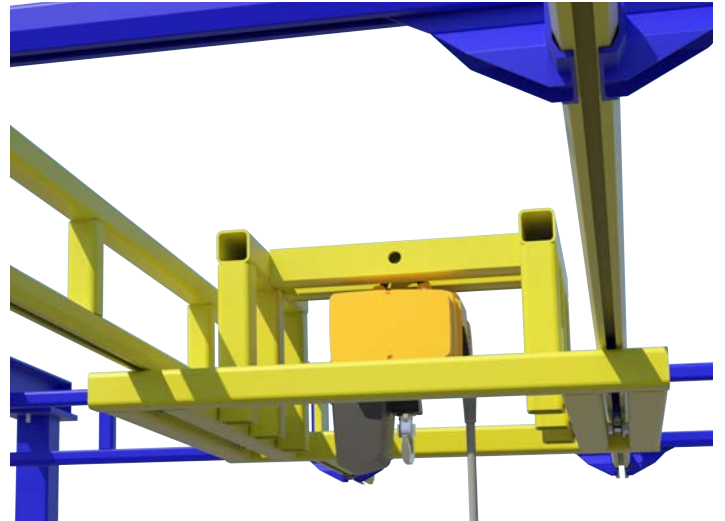
Custom Crane Configurations

Nested Trolley

Ideal for low headroom applications, our nested trolleys enable you to raise the height of the hoist and increase the available lift.

A nested trolley consists of a dual girder bridge with a box shaped assembly (a "nest") that travels between the bridge girders.

With this custom designed "nest", the hoist is mounted up inside the bridge structure, which allows you to get back the lift typically taken up by the body of the hoist.

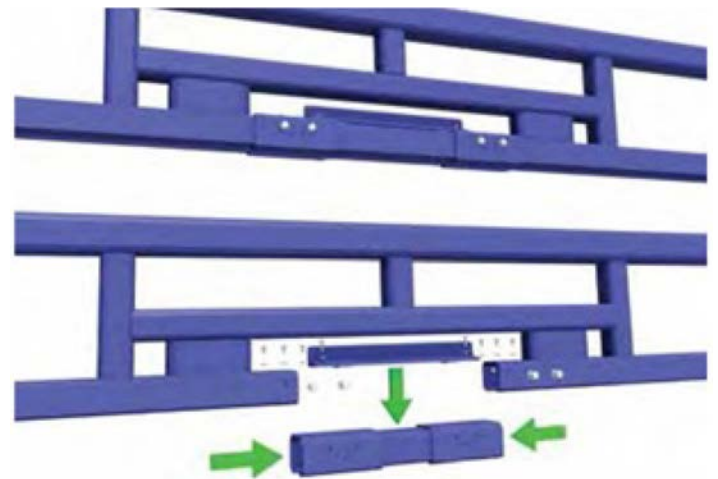


Maintenance Gates

Gorbel's Maintenance Gates allow access points in the middle of long systems.

This eliminates the need to remove end bridges when inspecting or servicing individual bridges in the middle of long systems.

They also make it easier to install bridges on systems that have little or no space at the end of the runways.



Options When Using Multiple Bridges

Mixed Capacity Systems

In mixed capacity systems, each bridge is sized for an individual rated load. Runways on the other hand, are sized for the combined weight of all loads, so they use a heavier track set than any individual bridge.

Systems with Intermediate Stops

In systems with intermediate stops, bridges are sized for each individual rated load. Runways are sized for the heaviest individual load, so the runways are the same size as the largest bridge. Bridges are physically separated by internal stops or bumpers. Extra hangers are usually required to eliminate overload.

Bridge Buffer Systems

In bridge buffer systems, bridges are sized for each individual rated load. Runways are sized for the heaviest individual load, so the runways are the same size as the largest bridge. Bridges are physically separated by wheeled, movable bridge buffers.

Installation Guidelines

Capacity	Series	Weight p/meter	Max L1	Max L2	Max L5	Max L9
100	GLC	3.77	3	4	8	8
	GLCS	7.32	9	22	8	22
	AL	6.03	9	14	22	22
	GLCSL	12.55	11	22	8	22
250	GLC	6.18	3	4	11	9
	GLCS	11.07	9	22	11	22
	AL	7.25	9	14	22	22
	GLCSL	15.94	11	22	11	22
	GLCSLX	16.39	14	22	11	22
500	GLC	9.26	3	4	11	9
	GLCS	18.23	9	22	11	22
	AL	12.44	9	14	22	22
	GLCSL	20.95	11	22	11	22
	GLCSLX	26.00	14	22	11	22
1000	GLC	13.57	3	4	11	11
	GLCS	25.14	9	22	11	22
	AL	14.90	9	14	22	22
	GLCSL	28.81	11	22	11	22
	GLCSLX	29.96	14	22	11	22
2000	GLC	13.57	2	4	11	11
	GLCS	30.78	9	22	11	22
	GLCSL	39.01	11	22	11	22
	GLCSLX	42.00	14	22	11	22

Note: Same guidelines apply for Monorails (GLMS, GLMSL, GLMSLX, ALM).

With the exception of the "L5" dimension (not applicable).

Note: Typical L5 is 305mm, Max. L5 may not be achievable (dependent on truss design of bridge)

Note: Anti-kick-up end trucks* are required for the following:

Bridges with 2400mm Span (L4) & a bridge cantilever (L5) is 305mm

Bridges with < 3m Span (L4) & a bridge cantilever (L5) > 380mm

Bridges with < 4570mm Span (L4) & a bridge cantilever (L5) > 450mm

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

**1000kg @ 3m span (L4) and bridge cantilever (L5) 380mm need anti-kick-up end trucks.

Consult for information on bridges greater than 4570mm span (L4).

L1 = Maximum Hanger Centreline

Maximum Hanger Centreline is considered from the centre of a hanger to the centre of the neighbouring hanger.

L2 = Splice Joint Centreline to Hanger

Splice Joint Centreline to Hanger Centreline is considered from centre of a splice joint to the centre of the nearest hanger.

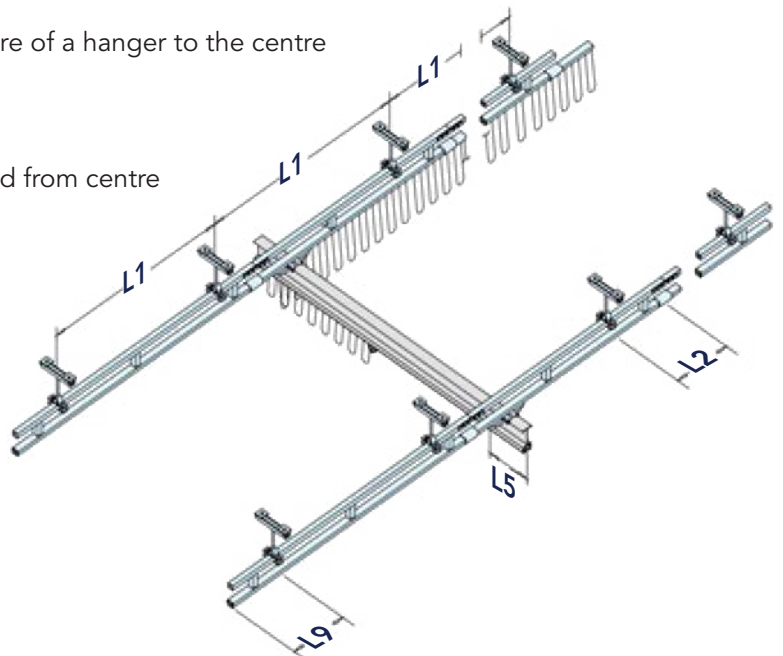
Bridge Cantilever is considered from the centreline of the runway to the end of the bridge.

L5 = Bridge Cantilever**

Bridge Cantilever is considered from the centreline of the runway to the end of the bridge.

L9 = Maximum Runway Cantilever

Runway Cantilever is considered from the centre of the end hanger to the end of the runway.



Installation Guidelines

Standard Bridge Cantilever Overall Length

Bridge Series	Steel Track				
	≤ 7	9	9	10	10
76	4	5	n/a	n/a	n/a
152	4	5	7	5	7
305	4	5	7	5	7
610	5	5	7	5	7
1219	5	5	7	5	7

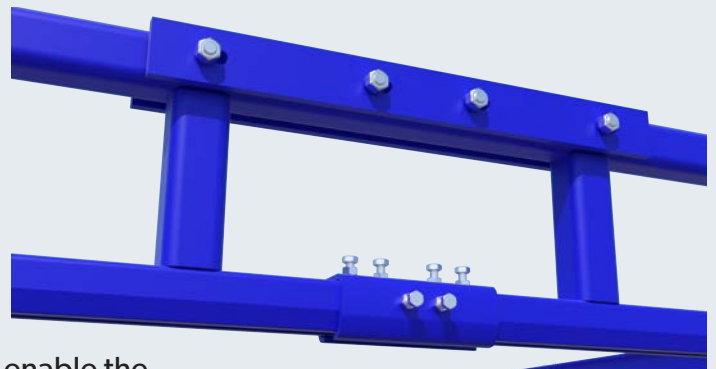
Bridge Series	Aluminium Track					
	≤ 6	7	9	9	10	10
76	4	5	5	n/a	n/a	n/a
152	4	5	5	7	5	7
305	4	5	5	7	5	7
610	4	5	5	7	5	7
1219	4	5	5	7	5	7

Splice Joints for Runways

Extending the length of your work station crane is easy with splice joints for both steel and aluminium 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 levelling and aligning.



Splice Joints for Aluminium Runways (125 & 250 only)

Patented splice joints for aluminium track allow for precision alignment. The aluminium track is extended 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 spike 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.

