G-Rail Jib Cranes

Rethinking the Jib Crane...

Up to 2000kg

J250 Crane, 4m Boom

GIVENS ENGINEERING INC

London Ontario

Manufactured in Canada and United States

GIVENS LIFTING SYSTEMS INC

Toledo Ohio

Advantage: *A very lightweight boom!*

Why don't engineers choose jib cranes more often?

Usually it's because of the momentum of the boom, which tends to slow down the operator. We've attacked the inertia problem head-on, by creating one of the lightest booms on the market. The J250 shown here has an all-aluminum rail, diagonal and trolley for minimum weight.

Light weight begins with the G-Rail profiles, which feature an extremely high moment-of-inertia to weight ratio. They also have an unusually high torsional stiffness compared to traditional profiles. Notice the height of the profile relative to its width --maximizing the stiffness-to-weight ratio.

J250 (250kg) attached to one column of a bridge crane with a simple hook as end effector

G-Rail Track Profiles:

C100 Aluminum Profile
Nominal 100kg capacity, 130mm x 55mm

C250 Aluminum Profile
Nominal 250kg capacity, 150mm x 70mm

C1000 Aluminum Profile
Nominal 1000kg capacity, 250mm x 110mm

C2000 Aluminum Profile
Nominal 2000kg capacity, 295mm x 130mm


J1000 in a low-headroom design


Standard rotational soft stop (black sleeve), Optional brake, Optional intermediate stop (red ring)

Advantage: *Most G-Rail Jibs don't need foundations*

3 J250 cranes with balancers for lifting brake rotors

None of the jib cranes shown here required foundations! Our base plates are unusually large, so that in most cases, the jib can be bolted directly to a factory concrete floor. However, all jib crane installation details must be specified by a Professional Engineer.

< Soft stops at the end of rotation (red sleeve) are standard on G-Rail jibs!

J2000 with powered rotation

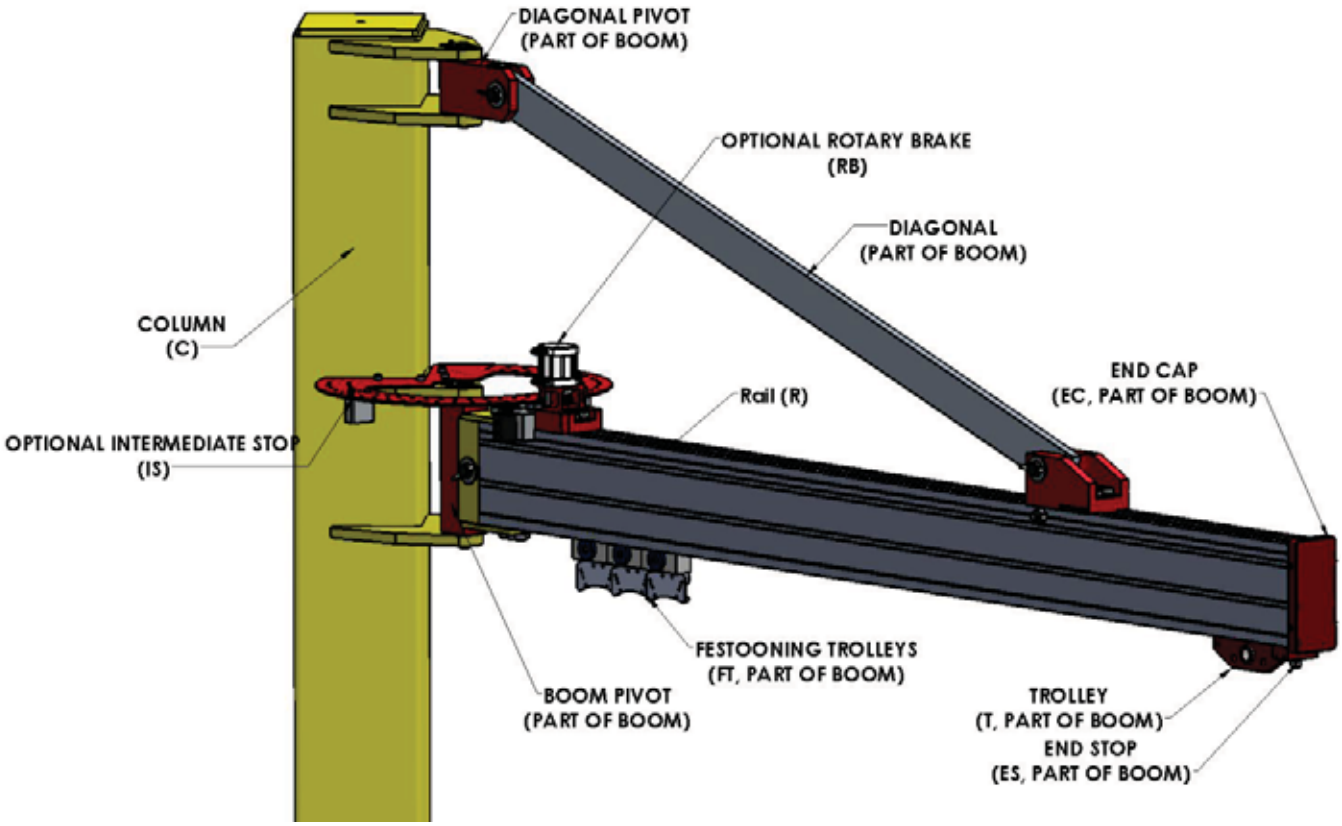
J1000 with 5m boom, at work--notice the large baseplate

Advantage: *Powered rotation - when you want it*

When you need powered rotation, we supply an air tractor to move the load, as with the J2000 at left. But when it's time to move the load manually, you still can, by turning the tractor drive off: the tractor is disengageable at the push of a button.

G-Rail™ Crane Components

BOOM ASSEMBLY



J 250 - B - _____

Load Capacity	
100	Up to 100kg
250	Up to 250kg
1000	Up to 1000kg
2000	Up to 2000kg

Crane Components	
B	Boom Assembly, includes: 1 Trolley, 1 End Stop, 1 End Cap 3 Festooning Trolleys, 1 Diagonal 1 Boom Pivot
C	Column Assembly (Specify HUB)
R	G-Rail™ (Specify Length)

FT	Festooning Trolley (Optional extra)
IS	Intermediate Stop (Optional)
RB	Rotary Brake (Optional)
T	Trolley (Optional extra)

For component R, C only:

Specify the required length for G-Rail™ Standard length is up to 5 meters.
eg: J250-R-4.0 (J250 Rail, 4-meter long)

Specify the Column height
eg: J1000-C-3.25 (J1000 Column, 3.25 m Height under Boom)

Unless an option is chosen, the crane can be specified entirely by the choice of Boom(B), Column(C), and Rail(R).

The method of attachment to the floor must always be specified by a Professional Engineer. Columns may be bolted to the floor or may require a foundation; if the engineer specifies floor mounting, the concrete has to be a minimum 6" thick, 3kpsi (or 20MPa) compressive strength sound concrete, using HILTI – HY200 or equivalent chemical bond with minimum 5-1/2" embedment.

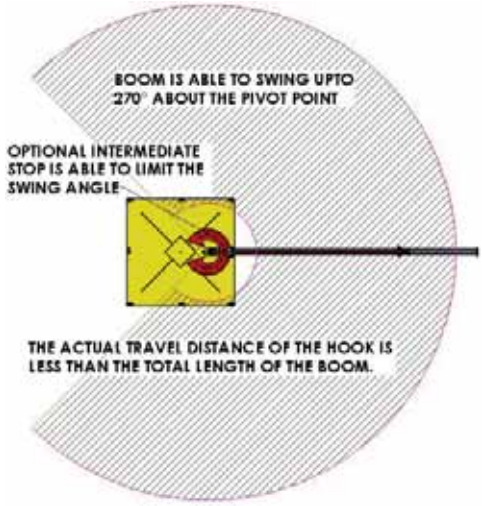
G-Rail™ Jib Crane

Column Sizes					
100kg Capacity	J100	BOOM LENGTH			
	HUB	2m [6'7"]	3m [9'10"]	4m [13'2"]	5m [16'5"]
	3.25m [10'8"]	7x7	7x7	8x8	10x10
	4.00m [13'1"]	7x7	8x8	8x8	10x10
250kg Capacity	J250				
	3.25m [10'8"]	8x8	10x10	10x10	10x10
	4.00m [13'1"]	10x10	10x10	10x10	10x10
500kg Capacity	J1000				
	3.25m [10'8"]	10x10 (H)	10x10 (H)	12X12	12X12
	4.00m [13'1"]	10x10 (H)	10x10 (H)	12X12	12X12
1000kg Capacity	J1000				
	3.25m [10'8"]	12X12	12X12	12X12(H)	12X12(HH)
	4.00m [13'1"]	12X12	12X12	12X12(HH)	N/A
2000kg Capacity	J2000				
	3.25m [10'8"]	Ø14"	Ø16"	Ø16"(XH)	Ø18"(XH)
	4.00m [13'1"]	Ø14"	Ø16"	Ø18"(XH)	Ø18"(XH)

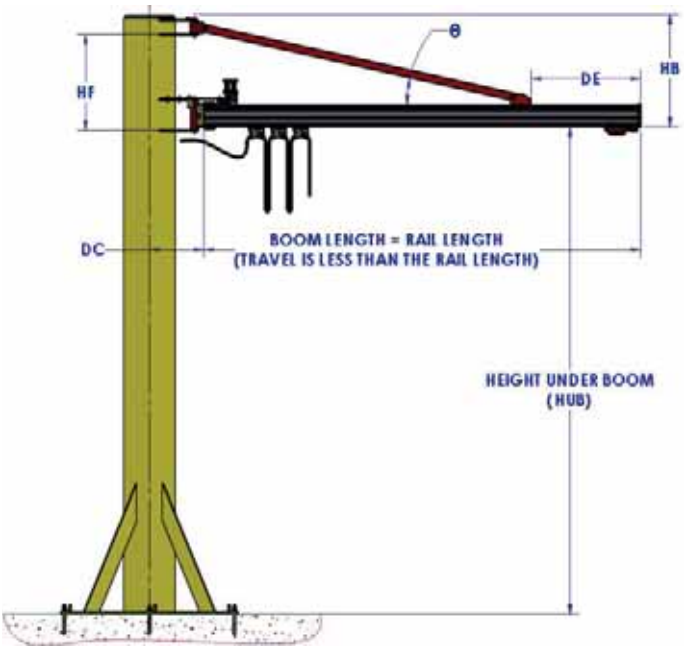
*NOTE: (H) is heavy, (HH) is heavier, (XH) is extra heavy.
Other HUBs are available upon request.

STEPS for selecting the right size

1. **Select the capacity.**
2. **Choose the HUB (Height Under Boom).**
3. **Choose the Boom length.**
4. **Check crane dimensions below**



Dimensions



Baseplate and "DC" Dimension				
Column Size	Base Plate Size	"DC" J100/250	"DC" J1000	"DC" J2000
7" x 7"	30" x 30" x 5/8"	12.50"	N/A	N/A
8" x 8"	38" x 38" x 3/4"	13.2"	N/A	N/A
10" x 10"	48" x 48" x 3/4"	15.3"	17.9"	N/A
12" x 12"	60" x 60" x 1"	N/A	19.4"	N/A
Ø14" PIPE	60" x 60" x 1.25"	N/A	N/A	22.5"
Ø16" PIPE	60" x 60" x 1.25"	N/A	N/A	23.5"
Ø18" PIPE	69" x 69" x 1.25"	N/A	N/A	24.5"

Other sizes are available, please call Givens Engineering for details.

Dimensions on this page are subject to change as our product undergoes design improvements. All dimensions can be customized to the requirements of any situation; consult GEI/GLS for modifications.

Standard "DE", "HF", and "HB" Dimensions						
		J100	J250	J1000	J2000	Max. "DE" (TYP.)
Boom Length 2m [6'7"]	"HF"	0.51m [1'8"]	0.51m [1'8"]	0.81m [2'8"]	0.97m [3'2"]	0.50m [1'8"]
	"HB"	0.64m [2'1"]	0.64m [2'1"]	0.97m [3'2"]	1.14m [3'9"]	
Boom Length 3m [9'10"]	"HF"	0.61m [2'0"]	0.61m [2'0"]	0.81m [2'8"]	0.97m [3'2"]	0.75m [2'6"]
	"HB"	0.74m [2'5"]	0.74m [2'5"]	0.97m [3'2"]	1.14m [3'9"]	
Boom Length 4m [13'2"]	"HF"	0.76m [2'6"]	0.76m [2'6"]	0.91m [3'0"]	1.17m [3'10"]	1.00m [3'4"]
	"HB"	0.89m [2'11"]	0.89m [2'11"]	1.07m [3'6"]	1.35m [4'5"]	
Boom Length 5m [16'5"]	"HF"	0.86m [2'10"]	0.86m [2'10"]	1.02m [3'4"]	1.17m [3'10"]	1.00m [3'4"]
	"HB"	0.99m [3'3"]	0.99m [3'3"]	1.17m [3'10"]	1.35m [4'5"]	

Stainless Jib Cranes

SJ125 stainless crane under construction

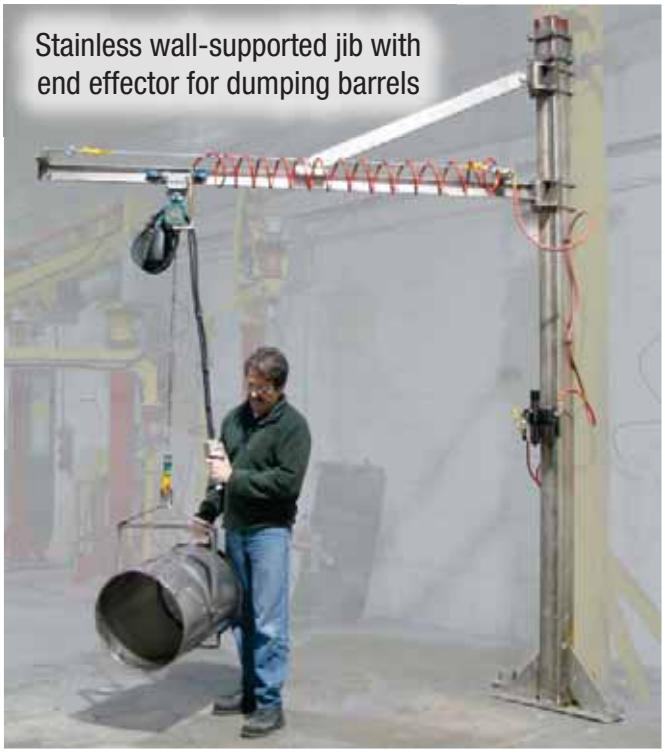
If you need jib cranes made entirely from stainless steel, we can help.

All components are designed to withstand repeated wash downs. The boom is made of an S-beam, which has sloped flanges to shed water. Surfaces are bead-blasted to remove imperfections that can trap dirt. Hoists are selected based on their wash-down rating.

SJ250 (250kg) stainless jib with an end effector made of 316 stainless and stainless chain

Trolleys are open-architecture, allowing water to shed and evaporate and making inspections easier. Trolley bearings are stainless with food-grade lubrication.

The use of fastened joints is minimized to avoid trapping liquids and welds are continuous and water-tight.



Stainless wall-supported jib with end effector for dumping barrels

Alternative: *Articulated Jibs for better performance*

An articulated jib has a joint at the midpoint. This allows the jib to wrap around obstructions, or to approach a wall, where a straight jib might not be able to operate. Articulated jibs are generally-speaking easier to move than straight jibs, but they are more expensive.

Articulated jibs have no crane rail and no trolley. The hoist is fixed at the end of the boom.

AJ60 equipped with air balancer and end effector for auto side bodies

AJ200 mounted on C2000 crane rail, equipped with rotational brakes and electric hoist

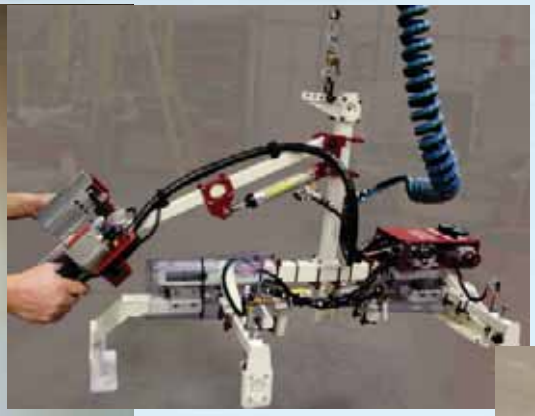
Arm lengths are chosen to suit the task at hand. Arm 1 (nearest the column) and Arm 2 are each available in 10” increments.

AJ60 carrying an auto part

Our articulated jibs are rated for their moment capacity, in in-lbs. For example, an AJ60 has a moment capacity of 60,000 in-lb from the column. The moment can be estimated by:

Boom length x (end effector weight + load weight) x1.35

We offer articulated jibs in these models: AJ60, AJ120 and AJ200.



End Effectors

We design and create specialized end effectors on a continuous basis, based on grippers, vacuum, magnets or mechanical latches. We mass-produce and stock handlebars, grippers, bearing assemblies, etc for fast turnaround.

No one knows end effectors like we do! We've built a vast number of a wide variety of lifting devices over a very long time. Chances are, we've lifted your product before.

Givens Engineering, established in 1993, provides manipulators, cranes and custom machinery to a wide range of customers in the United States, Canada and beyond.

Almost everything we manufacture is customized and engineered to some extent.

We employ engineers (mechanical and electrical), designers, machinists, millwrights, welders, electricians and controls specialists to manufacture cranes, manipulators, grippers and end effectors entirely in-house.

Installation, startup support, maintenance and annual inspections are services that we routinely provide.

We have supplied equipment to these large organizations:

Toyota, Honda, GM, Chrysler, Magna, International Truck, Hino Truck, GE, Volvo, NASA, TRW, Dana, GKN, Siemens, Kaiser and many others.

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