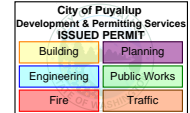


March 12, 2013

Client: Alpha Modalities
10002 Aurora Ave N#36
PMB 3326
Seattle, WA 98133



Re: Structural Review of Ceiling Hung Patient Lift Components:

Materials have been analyzed in strict accordance with the 2010 Aluminum Design Guide, American Institute of Steel Construction, 13th Ed, and the 2009 International Building Code. The following compounds are acceptable for the loads and span conditions shown below. These capacities assume that the components are properly installed per the manufacturer's recommendations and properly installed with an adequate engineer support system. The capacities are dependent on the operators using the hoists in compliance with Alpha Modalities directions otherwise undue stresses could occur on the individual components.

Components and Listed Design Criteria Capacity (Safe Working Load Capacity):

1. AM-Midi-15/AM-Midi-S-15/AM-Midi-S-15CC Sections - Futura Die # 9702 (See attached Appendix A, Page 1 & 2) - Aluminum 6061-T6
 - a. 600 lb vertical load with a span of 11'-6" and a 1'-6" cantilever.
 - b. 1000 lb vertical load with of 8'-3" span and a 1'-6" cantilever.

The AM-Midi-15 series sections can span the above conditions while meeting the allowable stress criteria. Further, we find that the resulting deflections do not affect the serviceability of the track or the function of the track under load. We find that the AM-Midi-15 is acceptable to use under the above conditions.

2. AM-Jumbo-20 Section - Futura Die # 9903 (See attached Appendix A, Page 3 & 4) - Aluminum 6061-T6
 - a. 600 lb vertical load with a span of 20'-0" and a 1'-6" cantilever.
 - b. 1000 lb vertical load with of 17'-2" span and a 1'-6" cantilever.

The AM-Jumbo-20 section can span the above conditions while meeting the allowable stress criteria. Further, we find that the resulting deflections do not affect the serviceability of the track or the function of the track under load. We find that the AM-Jumbo-20 is acceptable to use under the above conditions.

3. AM-Traverse Trolley (See attached Appendix A, Page 5) - Stainless Steel A304
 - a. 600 lb vertical load.

The Traverse Trolley segment has been analyzed by the above conditions while meeting the allowable stress criteria. We find that the Transverse Trolley is acceptable to use under the above conditions.

4. AM-Portable Trolley (See attached Sheet Appendix A, Page 6) - Stainless Steel A304
 - a. 600 lb vertical load.

The Portable Trolley segment has been analyzed by the above conditions while meeting the allowable stress criteria. We find that the Portable Trolley is acceptable to use under the above conditions.

5. AM-Standard Ceiling Bracket (See attached Appendix A, Page 7) - Stainless Steel A304
 - a. 1500 lb vertical load.

The Standard Bracket has been analyzed by the above conditions while meeting the allowable stress criteria. We find that the Standard Bracket is acceptable to use under the above conditions.

6. AM-Hanger Bar (See attached Appendix A, Page 8) - Aluminum 6061-T6
 - a. 660 lb vertical load.

The Hanger Bar has been analyzed by the above conditions while meeting the allowable stress criteria. We find that the Hanger Bar - 2P is acceptable to use under the above conditions.

7. AM-Four-Point HangerBar- (See attached Appendix A, Page 9) - Aluminum 6061-T6
 - a. 660 lb vertical load.

The Four Point Hanger Bar has been analyzed by the above conditions while meeting the allowable stress criteria. We find that the Four Point Hanger Bar is acceptable to use under the above conditions.

8. AM-Bariatric Four-Point HangerBar- (See attached Appendix A, Page 10) - Aluminum 6061-T6
 - a. 1000 lb vertical load.

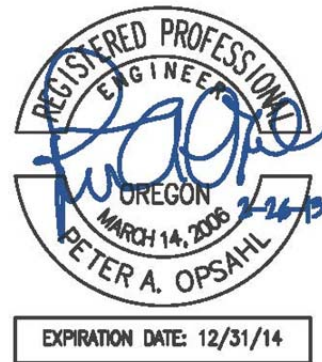
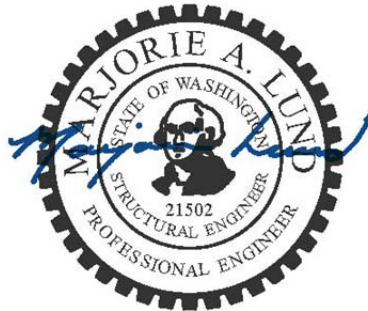
The Bariatric Four Point Hanger Bar has been analyzed by the above conditions while meeting the allowable stress criteria. We find that the Bariatric Four Point Hanger Bar is acceptable to use under the above conditions.

See Alpha Modalities Specification Sheets for further information. Please note, before installation, a localized structural analysis of the building will be required for the prescribed loads. Alpha Modalities has load tested these components and attachments to 150% of their capacity during all installations.

Sincerely,

Marjorie Lund P.E., S.E.
Principal

Lund Wright Opsahl LLC



Appendix A

Alpha Modalities



SPECIFICATIONS SHEET

Midi Rail



Item Number: AM-Midi-15

Weight per Unit: 34 lb. (15.5 kg)

Materials: Rail: High-grade extruded Aluminum
Liner: Plastic tracking with brass contact strips

Expected Useful Life: 15 years

General Comments: Compatible with:
Alpha Modalities C625 (requires charging kit and liner)
Molift Nomad
Ergolet Luna (charging kit and liner optional)

Rail can be cut to length, as required

Weight capacity depends on support spacing
See span chart below

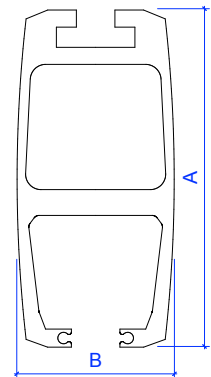
When recessed into ceiling, ceiling grid must be supported independently from rail
Rails and parts must be inspected annually

Cleaning Instructions: Standard cleaning solutions for other wipe-downs
Do not use abrasive cleaners or tools

Span Chart:	Capacity	Max Span	Max Overhang
	600# (272 kg)	11' 6"	1' 6"
	1000# (454 kg)	8' 3"	1' 6"

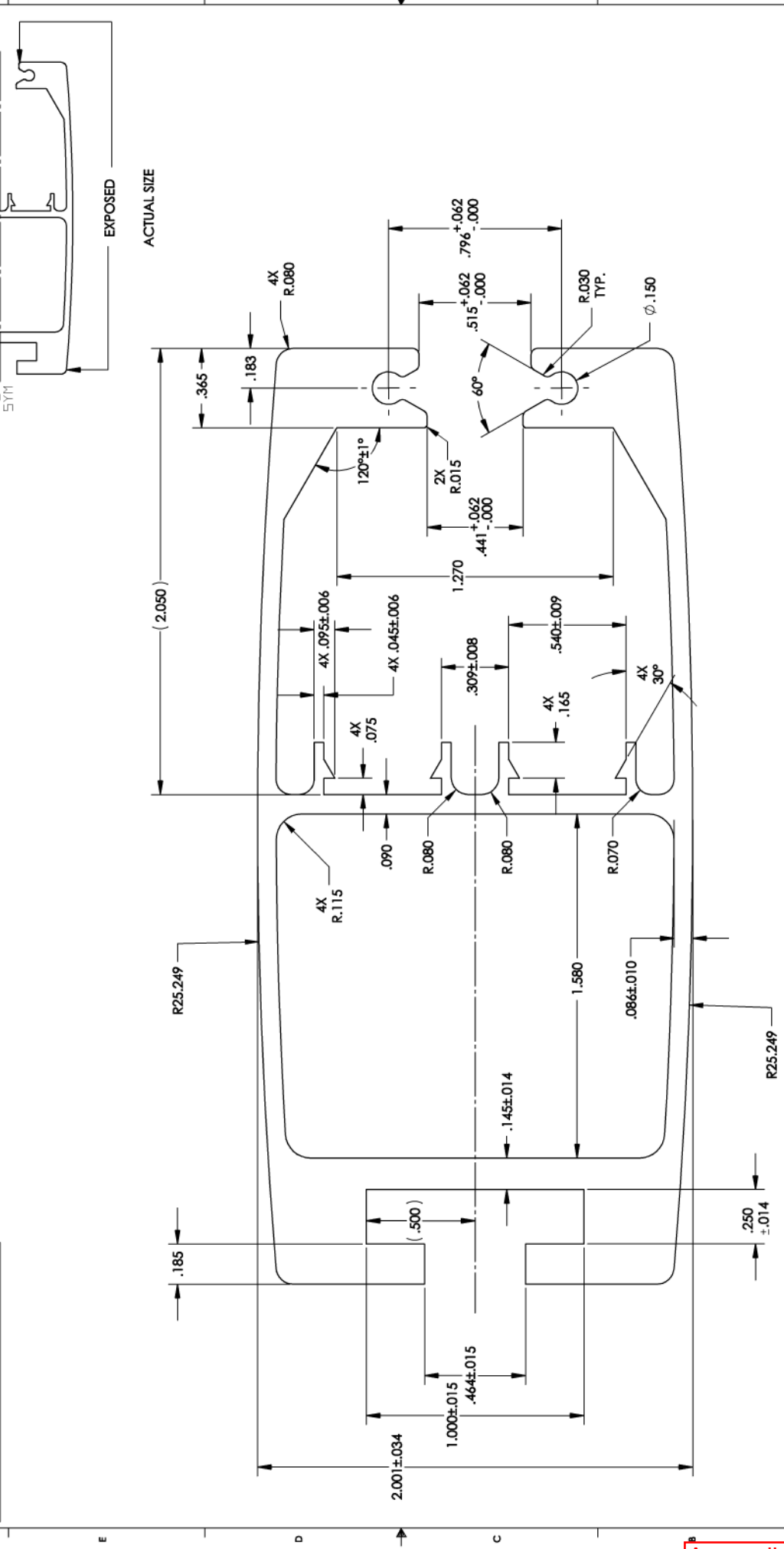
Dimensions:

A: 4 1/4" (109 mm)
B: 2" (51 mm)
C: 15' (4,572 mm)



DRAWING APPROVAL
 DATE _____ BY _____
 CUST _____
 THIS PRINT HAS BEEN DRAWN TO OUR BEST ABILITY ACCORDING TO THE PRINT OR INFORMATION SUPPLIED BY THE CUSTOMER. BEFORE SIGNING PLEASE REVIEW THE PRINT FOR ANY ERRORS. PLEASE NOTIFY FUTURA OF YOUR CONCERNS AND WE WILL WORK TOGETHER TO MAKE THIS PERFECT!!

ECN#	REV.	DESCRIPTION	DATE	APPROVED
3086	A	CHANGED GAP FROM .481 TO .441 AND SAVED TOLERANCE	7/16/09	RL
	B	DECREASED TWO INSIDE RADIUS FROM .080 TO .075	3/8/12	RL



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AREA	2.076
WT/LT	2.491
PERIMETER	29.657
ANODIZE PER.	23.122
FACTOR	11.910
CIRCLE SIZE	4.743
DRAWN BY	RL
ENG.	-

UNLESS OTHERWISE SPECIFIED:
 DIMENSIONS ARE IN INCHES
 DECIMALS: 1/1000
 ANGULAR: DECIMAL
 THREE PLACE DECIMAL

RFQ #	12637	FINISH	EA	DO NOT SCALE DRAWING
SCALE	3:1	DATE	5/15/09	SHEET 1 OF 1

ALPHA MODALITIES
 02430

DIE # **9702** REV **B**

3. MAX BURR HEIGHT .030" - SQUARENESS OF CUT +/- 1°
2. ALL MATERIAL SUBJECT TO THERMAL EXPANSION. .000013 PER INCH PER DEGREE. MATERIAL CHECKED AT 68° F.
1. ALL UNSPECIFIED CORNERS R.010. ALL UNSPECIFIED TOLERANCES PER ALUMINUM ASSOCIATION STANDARDS

Appendix A
 Page 2

Jumbo Rail

Item Number: AM-Jumbo-20

Weight per Unit: 88 lb. (40 kg)

Materials: High-grade extruded Aluminum

Expected Useful Life: 15 years

General Comments: Compatible with:
Guldmann GH2HD DC (requires charging kit)
Molift Nomad
Ergolet Luna



Rail can be cut to length, as required

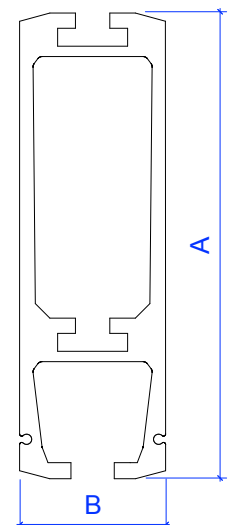
Weight capacity depends on support spacing
See span chart below

When recessed into ceiling, ceiling grid must be supported
independently from rail
Rails and parts must be inspected annually

Cleaning Instructions: Standard cleaning solutions for other wipe-downs
Do not use abrasive cleaners or tools

Span Chart:	Capacity	Max Span	Max Overhang
	600# (272 kg)	20' 0"	2' 4"
	1000# (454 kg)	17' 2"	2' 4"

Dimensions:	A:	(mm)
	6 3/4"	170
	2 1/8"	53
	C: 20'	6,096



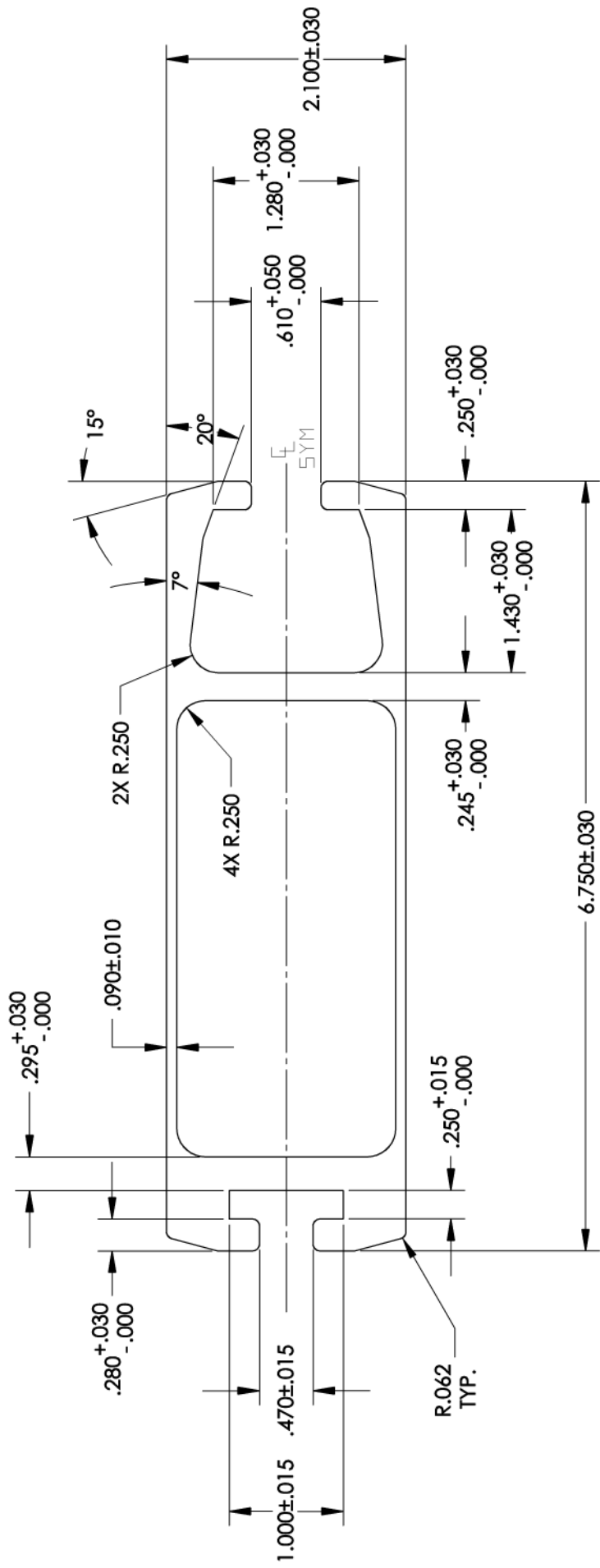
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DATE _____ BY _____

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ECN #	REV.	DESCRIPTION	DATE	APPROVED



ALL OUTSIDE SURFACES EXPOSED



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UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES	AREA	3.694
TOLERANCES:	WEIGHT PER FT	4.433
FRACTIONAL:	PERIMETER	35.481
DECIMAL:	FACTOR	8.003
TWO PLACE DECIMAL:	CIRCLE SIZE	7.069
THREE PLACE DECIMAL:	ANODIZE PERIMETER	24.070
FINISH	DRAWN BY	RL
DO NOT SCALE DRAWING	ENG.	—

ALPHA MODALITIES

JUMBO RAIL

SIZE	DIE #	REV
B	9903	

SCALE: 1:2 DATE: 1/8/10 SHEET 1 OF 1

Appendix A
Page 4

3. MAX BURR HEIGHT .030" - SQUARENESS OF CUT +/- 1 °
2. ALL MATERIAL SUBJECT TO THERMAL EXPANSION. .00013 PER INCH PER DEGREE. MATERIAL CHECKED AT 68°
1. ALL UNSPECIFIED CORNERS R.010. ALL UNSPECIFIED TOLERANCES PER ALUMINUM ASSOCIATION STANDARDS

SPECIFICATIONS SHEET

Transverse Trolley



Item Number: AM-TTrolley

Weight per Unit: 1.7 lb. (0.8 kg)

Materials:
 Main frame: Steel
 Wheel: Steel axis, ball bearings, Delrin wheels
 Spindle Bolt: Steel
 Nut: Steel
 Nut Cap: Plastic

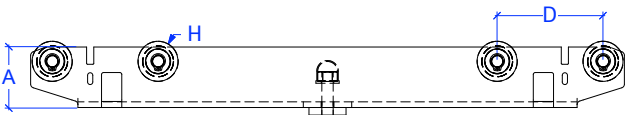
Expected Useful Life: 8 years

General Comments: Compatible with Midi and Jumbo rail
 Used for transverse rail connection to fixed rails
 Allows travel of transverse rail on fixed rails
 Transverse rail may be mounted above or below the trolley
 Will allow travel across a rail gap of up to 1"

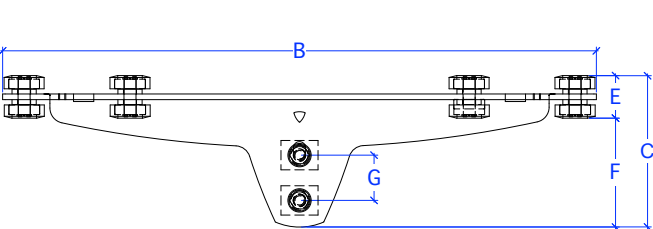
Safe Working Load (SWL) 600 lb. (272 kg)

Trolley and rail connections must be inspected annually

Cleaning Instructions: No cleaning required
 Occasionally clean wheels of rail dust with a clean dry cloth
 Installed with wheels inside rail



Dimensions:
 A: 2" (51 mm)
 B: 19 5/8" (498 mm)
 C: 5" (127 mm)
 D: 3 1/2" (89 mm)
 E: 1 3/8" (35 mm)
 F: 3 5/8" (92 mm)
 G: 1 1/2" (38 mm)
 H: \varnothing 1 3/8" (\varnothing 35 mm)



Portable Trolley

Item Number: AM-PortableTrolley

Weight per Unit: 1.1 lb. (0.5 kg)

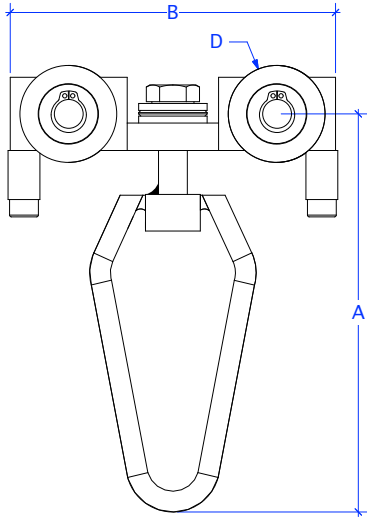
Materials:
 Main frame: Steel
 Wheel: Steel axis, ball bearings, Delrin
 Spindle and Harp: Steel

Expected Useful Life: 8 years

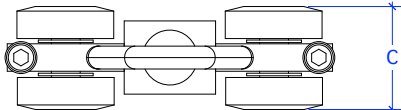
General Comments: Compatible with Midi and Jumbo rail
 Used for portable hoist connection to rail
 Used for IV Hooks on transverse rail,
 so IV will move with the patient

Safe Working Load (SWL) 600 lb. (272 kg)

Cleaning Instructions: No cleaning required
 Occasionally clean wheels of rail dust with a clean dry cloth
 Installed with wheels inside rail

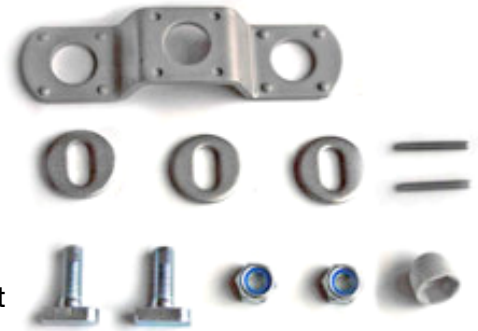


Dimensions:
 A: 5 3/8" (137 mm)
 B: 4 1/2" (114 mm)
 C: 1 3/8" (35 mm)
 D: \varnothing 1 3/8" (\varnothing 35 mm)



Standard Ceiling Bracket

Item Number: AM-StdBracket
Weight per Unit: 2.5 oz. (0.1 kg)
Materials: Main bracket: Stamped Steel
 Slot Washer: Stamped Steel
 Roll Pin: Stainless Steel
 T-Bolt: Drop-forged Steel
 Lock Nut: Steel with Nylon insert
 Nut Cap: Plastic



Expected Useful Life: 15 years

General Comments: Compatible with Midi, Jumbo, Mini Rails
 Can be used with all-thread rod or lag screws
 Roll pins secure rail splices

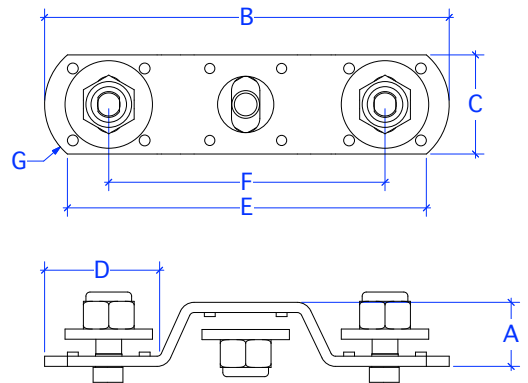
Safe Working Load (SWL) 1500 lb. (682 kg)

Local Jurisdiction may required stamped drawings and/or permits
 Must be inspected annually

Cleaning Instructions: Standard cleaning solutions used for other wipe-downs
 Same protocols for window blinds

Dimensions:

A:	1"	(25 mm)
B:	6"	(152 mm)
C:	1 1/2"	(38 mm)
D:	1 3/4"	(44 mm)
E:	5 1/4"	(133 mm)
F:	4 1/8"	(105 mm)
G:	∅ 1 7/8"	(∅ 48 mm)



SPECIFICATIONS SHEET

2-Point Hanger Bar

Item Number: AM-HangerBar-2P

Weight per Unit: 3 lb. (1.4 kg)

Materials: Powder-coated Aluminum
Stainless steel pin and shackle
Nylon washer

Expected Useful Life: 8 years

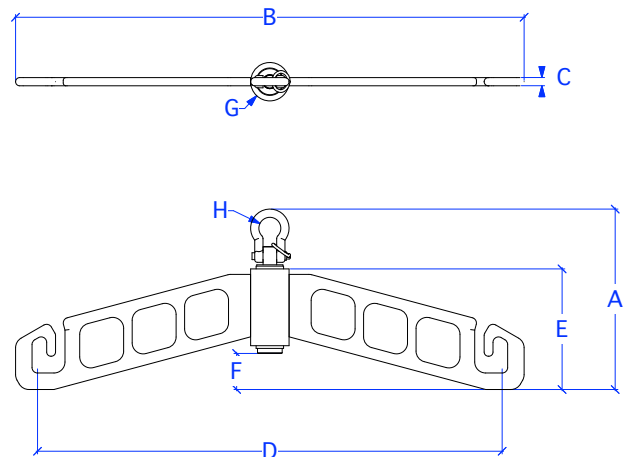
General Comments: Shackle allows attachment of hoist strap via carabiner
Safe Working Load (SWL) 660 lb. (300 kg)
Inspect shackle yearly for wear

Cleaning Instructions: Standard cleaning solutions used for other wipe-downs
Same protocols for beds and mattresses



Dimensions:

A:	8 1/4"	(210 mm)
B:	23 1/8"	(587 mm)
C:	0 3/8"	(10 mm)
D:	21 1/8"	(537 mm)
E:	5 1/2"	(140 mm)
F:	1 5/8"	(41 mm)
G:	∅ 1 3/4"	(∅ 44 mm)
H:	∅ 1"	(∅ 25 mm)



4-Point Mini Hanger Bar

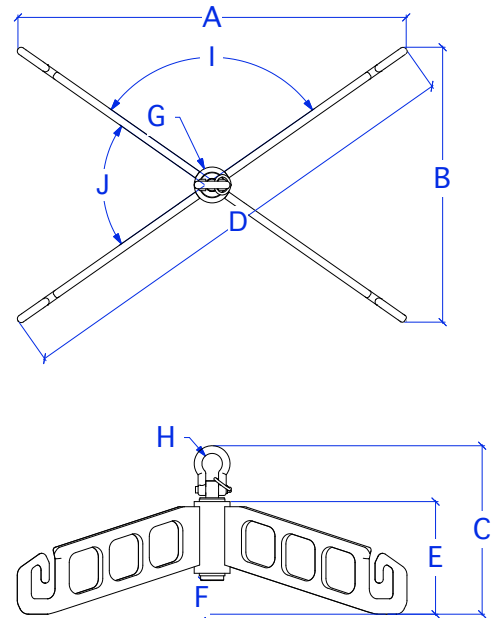
Item Number: AM-HangerBar-4P
Weight per Unit: 5 lb. (2.3 kg)
Materials: Powder-coated Aluminum
 Stainless steel pin and shackle
 Nylon washer



Expected Useful Life: 8 years
General Comments: Shackle allows attachment of hoist strap via carabiner
 Safe Working Load (SWL) 660 lb. (300 kg)
 Inspect Shackle yearly for wear
Cleaning Instructions: Standard cleaning solutions used for other wipe-downs
 Same protocols for beds and mattresses

Dimensions:

A:	19"	(480 mm)
B:	13 1/4"	(340 mm)
C:	8 1/4"	(210 mm)
D:	23"	(588 mm)
E:	5 1/2"	(140 mm)
F:	1 5/8"	(41 mm)
G:	∅ 1 3/4"	(∅ 44 mm)
H:	∅ 1"	(∅ 25 mm)
I:	110°	
J:	70°	



Bariatric Hanger Bar

Item Number: AM-BariHangerBar

Weight per Unit: Total Unit: 22 lb. (10 kg)
 Cross Bar: 7 lb. (3.2 kg)
 4-point Hanger Bar: 15 lb. (6.8 kg)

Materials: Powder-coated Aluminum
 Stainless steel pin and shackle
 Nylon washer

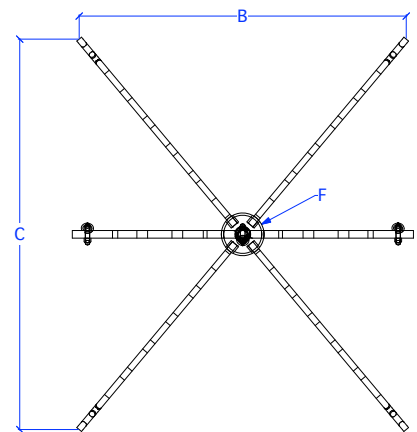
Expected Useful Life: 8 years

General Comments: Connect to two hoists
 Includes cross bar
 Shackles allow attachment of hoist strap via carabiner

Safe Working Load (SWL) 1000 lb. (454 kg)

Inspect Shackles yearly for wear

Cleaning Instructions: Standard cleaning solutions used for other wipe-downs
 Same protocols for beds and mattresses



Dimensions:

A: 15 5/8" (210 mm)
 B: 26 7/8" (587 mm)
 C: 32" (10 mm)
 D: 9" (537 mm)
 E: 25 1/2" (140 mm)
 F: \varnothing 3 1/2" (\varnothing 44 mm)

