

Purpose

To provide dimension and specification information for the Series 3 Underhung Double Girder Crane Systems.

Table of Contents

<u>Page</u>	<u>Type</u>	<u>Description</u>
2	Info Table	Technical Information
3	Info Table	Product Codes
4	Line Drawing	Max-E-Trolley Dimensions
5	Data Chart	Max-E-Trolley Dimensions (Imperial)
5	Data Chart	Max-E-Trolley Dimensions (Metric)
6	Data Chart	Series 3 Underhung Motorized Specifications (Imperial)
7	Data Chart	Series 3 Underhung Motorized Specifications (Metric)
8	Line Drawing	Series 3 Underhung Motorized
8	Data Chart	Series 3 Underhung Motorized Dimensions (Imperial)
8	Data Chart	Series 3 Underhung Motorized Dimensions (Metric)
9	Line Drawing	Series 3 Underhung Geared
9	Data Chart	Series 3 Underhung Geared Dimensions (Imperial)
9	Data Chart	Series 3 Underhung Geared Dimensions (Metric)

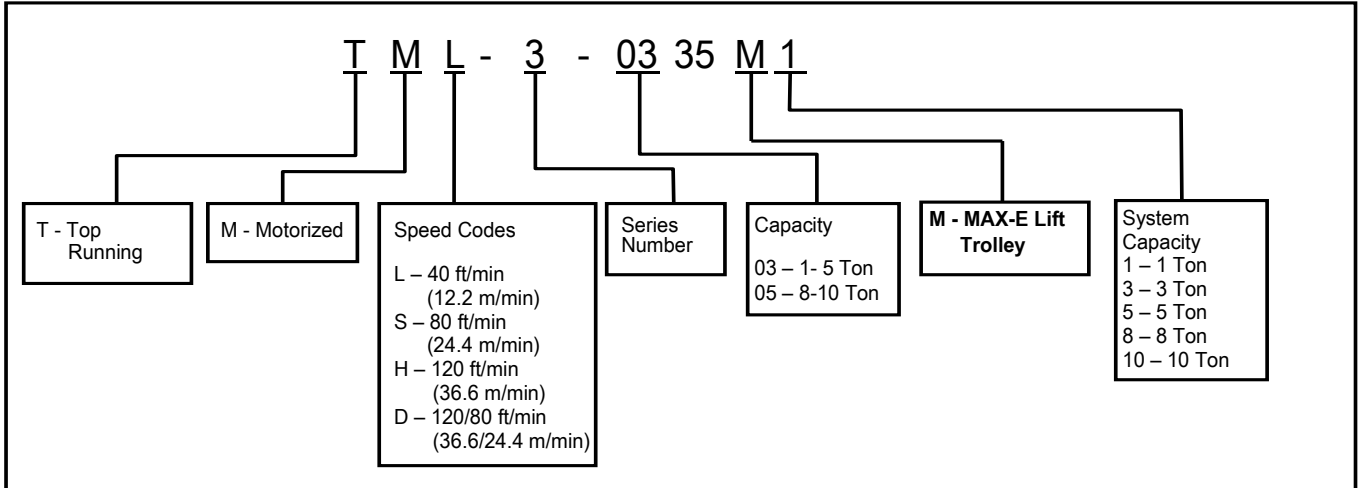
Technical Information

System Maximum Wheel Load	This value is given in lbs (or kg) per wheel pair for Bottom Runners. It is the maximum load that a wheel (or pair of wheels) will experience for the standard Harrington crane in question. It takes into consideration the weight of the crane and its appurtenances, as well as the hoist/trolley and its load located at its maximum end approach. The value listed in the charts is for a crane with maximum span and capacity, and with Harrington's standard ER2 hoist/Max-E trolley configured for 50 ft of lift with a steel chain container.
Clearance	OSHA regulations require minimum clearances between the crane and stationary obstructions. In the vertical direction this minimum clearance is 3 inches (76mm) from the upper most part of the crane. In the horizontal direction this minimum clearance is 2 inches (51mm) in any direction from any part of the crane.
Crane Service Class	The Crane Manufacturer's Association of America (CMAA) has established seven service classes for cranes. These classes are Class A through Class E, and are based on load cycles and load magnitude. Class A cranes are suited for the least severe service, and Class E cranes are suited for the most severe service.
Class C Service Class	The load cycle and magnitude combinations that define the Class C Service Class are: <ul style="list-style-type: none">• Load is usually between 1/3 and 2/3 of rated capacity, and is frequently equal to rated capacity, and design service life is 20,000 to 200,000 cycles.• Load is usually 1/3 of rated capacity and is rarely equal to rated capacity, and design service life is 200,000 to 600,000 cycles.• Load is usually very light and rarely is equal to rated capacity, and design service life is 600,000 to 2,000,000 cycles
Span to Length Ratio	The CMAA has established maximum recommended values for the ratio of a crane's span to its end truck's length. For Double Girder Cranes this value is 7 to 1. Harrington's cranes meet this based on the end truck's

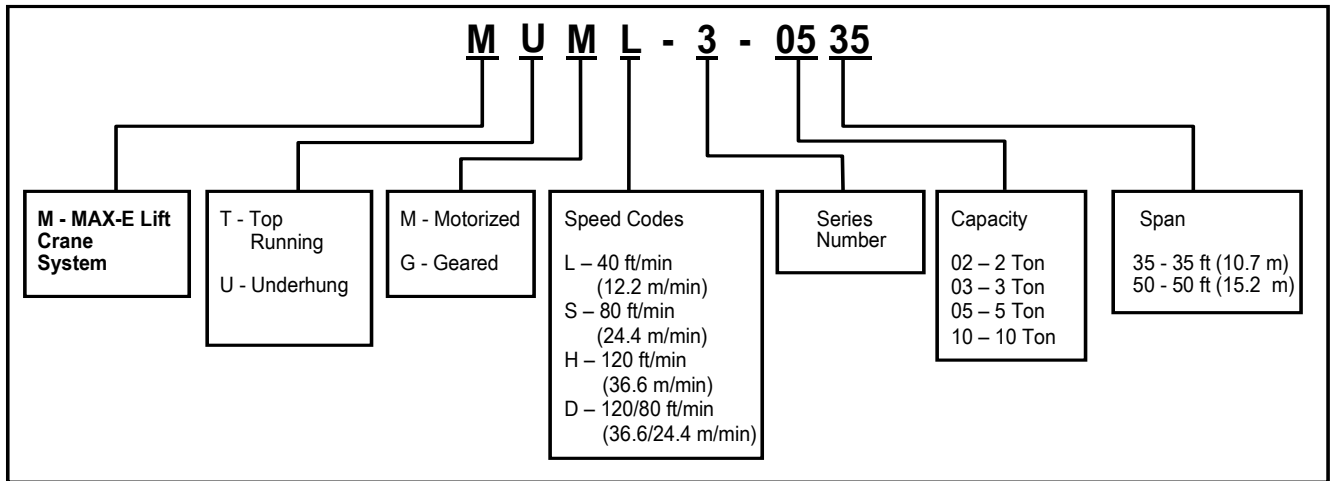
roller base.

Product Code:

Max-E Trolley



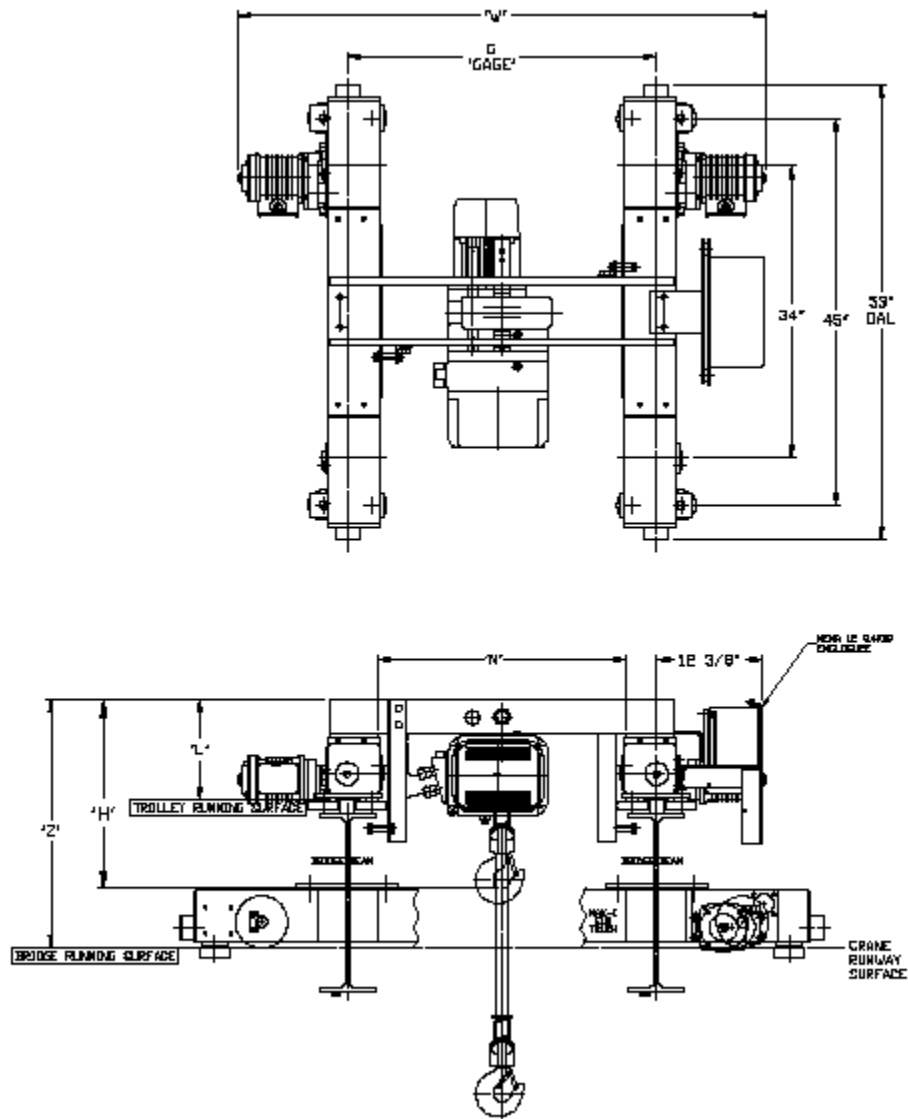
Series 3 End Truck



MAX-E Trolley Dimensions

Because of the basic concept of the "MAX-E-LIFT" system, the word 'headroom' as usually used in the crane and hoist industry is not meaningful in this system. The important dimension is the system's total height "H" which is the total distance from the top of the trolley to the inside of the load hook in its uppermost position as shown in the above illustration. This important dimension, which is the true meaning of the height to which a load can be lifted, *is one of the lowest in the industry.*

The following chart shows the "H" dimension for the various loads **regarding the ER2 hoist ONLY**. It also shows the dimension "Z" for the vertical positioning of the runway beams relative to the top of the trolley, the position of the bridge beam relative to the top of the trolley "L", the standard gauge width "G", the maximum width of the trolley "W", and weight of the MAX-E trolley.



MAX-E Trolley Dimensions (Imperial)

Capacity (Tons)	Model	Lift Speed (fpm)	Z (in)	H (in)	L (in)	W (in)		G (in)	N (in)
						Single Speed	Dual Speed		
1	L	14	28 11/16	17 9/32	11 3/4	61 1/2	64 1/8	36	29
	LD	14/2.5							
	S	28		17 5/16					
	SD	28/4.5							
2	L	14	28 11/16	22 9/32	11 3/4	61 1/2	64 1/8	36	29
	LD	14/2.5							
	S	28		23 1/8					
	SD	28/4.5							
	C	7		27 3/32					
3	L	16	29 11/16	25 15/16	12 3/4	61 1/2	64 1/8	36	29
	LD	17/6		28 7/16					
	C	17		28 7/8					
	CD	17/3							
5	L	12	31 15/16	32 5/16	12 3/4	61 1/2	64 1/8	36	29
	LD	12/4		34 21/32					

MAX-E Trolley Dimensions (Metric)

Capacity (Tons)	Model	Lift Speed (mpm)	Z (mm)	H (mm)	L (mm)	W (mm)		G (mm)	N (mm)
						Single Speed	Dual Speed		
1	L	4.3	729	439	298	1562	1588	914	737
	LD	4.3/0.8							
	S	8.5		440					
	SD	8.5/1.4							
2	L	4.3	729	566	298	1562	1588	914	737
	LD	4.3/0.8							
	S	8.5		587					
	SD	8.5/1.4							
	C	2.1		688					
3	L	4.9	754	659	324	1562	1588	914	737
	LD	5.2/1.8		722					
	C	5.2		733					
	CD	5.2/1							
5	L	3.7	811	821	324	1562	1588	3914	737
	LD	3.7/1.2		880					
	SD	3.4/1.1							

Series 3 Underhung Motorized Specifications (Imperial)

End Truck Product Code	One Motor Per End Truck, 3 Phase 60 Hz								
	Speed Codes L and S			Speed Code H			Speed Code D		
	Output (Hp)	Rated Current (amps ea.)		Output (Hp)	Rated Current (amps ea.)		Output (Hp)	Rated Current (amps ea.)	
		208-230V	380-460V		208-230V	380-460V		208-230V	380-460V
MUML/S/H/D-3-0235	0.33	1.5	0.9	0.50	1.8	1.1	0.33/0.08	1.3/1.0	0.8/0.7
MUML/S/H/D-3-0250									
MUML/S/H/D-3-0335									
MUML/S/H/D-3-0350									
MUML/S/H/D-3-0535	0.50	1.8	1.1	1.0	3.1	1.8	0.50/0.13	1.7/1.2	1.0/0.7
MUML/S/H/D-3-0550									

Speed Code

- L - Designates 40 ft/min
- S - Designates 80 ft/min
- H - Designates 120 ft/min
- D - Designates dual speed 80/20 ft/min

End Truck Product Code	One Motor Per End Truck, 3 Phase 50 Hz					
	Speed Codes L and S		Speed Code H		Speed Code D	
	Output (Hp)	Rated Current (amps/ea.)	Output (Hp)	Rated Current (amps/ea.)	Output (Hp)	Rated Current (amps/ea.)
		380V		380V		380V
MUML/S/H/D-3-0235	0.28	0.9	0.46	1.1	0.28/0.071	0.80/0.60
MUML/S/H/D-3-0250						
MUML/S/H/D-3-0335						
MUML/S/H/D-3-0350						
MUML/S/H/D-3-0535	0.46	1.1	0.84	1.8	0.46/0.113	1.0/0.7
MUML/S/H/D-3-0550						

Speed Code

- L - Designates 34 ft/min
- S - Designates 67 ft/min
- H - Designates 101 ft/min
- D - Designates dual speed 67/17 ft/min

Series 3 Underhung Motorized Specifications (Metric)

End Truck Product Code	One Motor Per End Truck, 3 Phase 60 Hz								
	Speed Codes L and S			Speed Code H			Speed Code D		
	Output (kW)	Rated Current (amps ea.)		Output (Hp)	Rated Current (amps ea.)		Output (Hp)	Rated Current (amps ea.)	
		208-230V	380-460V		208-230V	380-460V		208-230V	380-460V
MUML/S/H/D-3-0235	0.25	1.5	0.9	0.40	1.8	1.1	0.25/0.063	1.3/1.0	0.8/0.7
MUML/S/H/D-3-0250									
MUML/S/H/D-3-0335									
MUML/S/H/D-3-0350									
MUML/S/H/D-3-0535	0.40	1.8	1.1	0.75	3.1	1.8	0.40/0.10	1.7/1.2	1.0/0.7
MUML/S/H/D-3-0550									

*See explanation in Technical Information Section

Speed Code

L - Designates 12 m/min

S - Designates 24 m/min

H - Designates 36 m/min

D - Designates dual speed 24/6 m/min

End Truck Product Code	One Motor Per End Truck, 3 Phase 50 Hz					
	Speed Codes L and S		Speed Code H		Speed Code D	
	Output (kW)	Rated Current (amps/ea.)	Output (kW)	Rated Current (amps/ea.)	Output (kW)	Rated Current (amps/ea.)
		380V		380V		380V
MUML/S/H/D-3-0235	0.21	0.9	0.34	1.1	0.21/0.053	0.80/0.60
MUML/S/H/D-3-0250						
MUML/S/H/D-3-0335						
MUML/S/H/D-3-0350						
MUML/S/H/D-3-0535	0.34	1.1	0.63	1.8	0.34/0.084	1.0/0.7
MUML/S/H/D-3-0550						

*See explanation in Technical Information Section

Speed Code

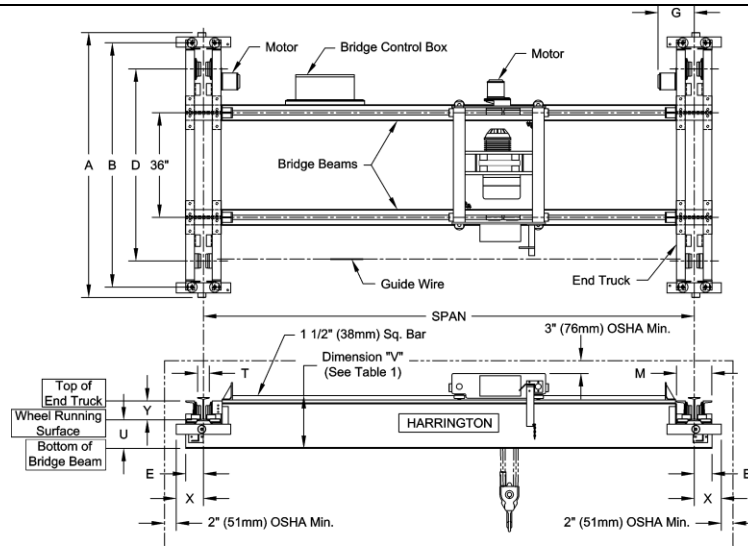
L - Designates 10 m/min

S - Designates 20 m/min

H - Designates 31 m/min

D - Designates dual speed 20/5 m/min

MOTORIZED UNDERHUNG DUAL DRIVE END TRUCKS



MAX-E-LIFT UNDERHUNG MOTORIZED (IMPERIAL)

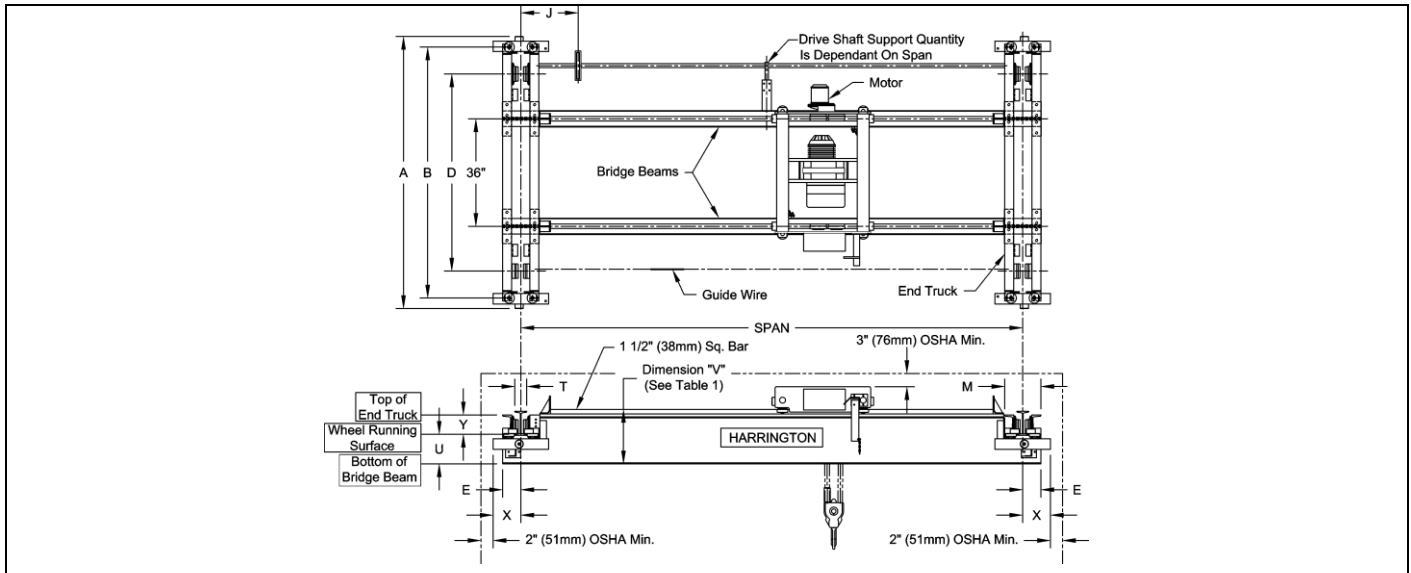
Max. Cap. (Tons)	Max. Span (ft)	End Truck Model #	Wheel Diameter (in)	Flange Range Std. (in)	A Overall Length (in)	B Roller Base (in)	D Wheel Base (in)	E * Beam Beyond Span (in)	M End Truck Frame Width (in)	U Wheel Run. Surf. to Bridge Beam Bottom (in)	X Width Beyond Span (in)	Y Height (in)	AA Span to Motor End (in)	Motor End Truck Weight (lbs./pr)	System Max. Wheel Load (lbs./ wheel)
2	35	MUML/S/H/D-3-0235	4.33	3 - 6	87	80	66	11-T/2	T+8.1	9.8	11.3-T/2	6.5	T/2+11.89	690	3805
	50	MUML/S/H/D-3-0250			99	92	78								
3	35	MUML/S/H/D-3-0335	4.92		91	84	66		T+8.2	9.8				811	5810
	50	MUML/S/H/D-3-0350		103	96	78	736	5328							
5	35	MUML/S/H/D-3-0535	5.51	4 - 6	95	88	68	T+9.8	10.0	888	8283	6.8	T/2+15.76	973	8732
	50	MUML/S/H/D-3-0550			107	100	80								

MAX-E-LIFT UNDERHUNG MOTORIZED (METRIC)

Max. Cap. (Tons)	Max. Span (m)	End Truck Model #	Wheel Diameter (mm)	Flange Range Std. (mm)	A Overall Length (mm)	B Roller Base (mm)	D Wheel Base (mm)	E * Beam Beyond Span (mm)	M End Truck Frame Width (mm)	U Wheel Run. Surf. to Bridge Beam Bottom (mm)	X Width Beyond Span (mm)	Y Height (mm)	AA Span to Motor End (mm)	Motor End Truck Weight (kg/pr)	System Max. Wheel Load (kg/ wheel)
2	10.7	MUML/S/H/D-3-0235	110	76 - 152	2210	2032	1676	279-T/2	T+206	249	287-T/2	165	T/2+302	313	1726
	15.2	MUML/S/H/D-3-0250			2515	2337	1981								
3	10.7	MUML/S/H/D-3-0335	125		2311	2134	1676		T+208	249				334	2417
	15.2	MUML/S/H/D-3-0350		2616	2438	1981	368	2635							
5	10.7	MUML/S/H/D-3-0535	140	102-152	2413	2235	1727	T+249	254	403	3757	173	T/2+400	441	3961
	15.2	MUML/S/H/D-3-0550			2718	2540	2032								

* Minimum overhang is M/2
T = Runway flange width

MANUAL GEARED UNDERHUNG DUAL DRIVE END TRUCKS



MAX-E-LIFT UNDERHUNG GEARED (IMPERIAL)

Max. Cap. (Tons)	Max. Span (ft)	End Truck Model #	Wheel Diameter (in)	Flange Range Std. (in)	A Overall Length (in)	B Roller Base (in)	D Wheel Base (in)	E* Beam Beyond Span (in)	J Hand Wheel Offset (in)	M End Truck Frame Width (in)	U** Wheel Run. Surf. to Bridge Beam Bottom (in)	X Width Beyond Span (in)	Y Height (in)	End Truck Weight (lbs./pr)	System Max. Wheel Load (lbs./wheel)	
2	35	MUG-3-0235	4.33	3 - 6	87	80	66	12	T/2+9.03	T+8.1	9.8	T/2+7.3	6.5	671	3801	
	50	MUG-3-0245			99	92	78							746	4864	
3	35	MUG-3-0335	4.92		91	84	66		T/2+8.86	9.8	10.0	T/2+7.0	6.4	722	5325	
	50	MUG-3-0345			103	96	78							797	5806	
5	35	MUG-3-0535	5.51		4 - 6	95	88		68	T/2+9.22	T+9.8	10.0	T/2+7.0	6.4	849	8273
	50	MUG-3-0545				107	100		80						931	8721

MAX-E-LIFT UNDERHUNG GEARED (METRIC)

Max. Cap. (Tons)	Max. Span (m)	End Truck Model #	Wheel Diameter (mm)	Flange Range Std. (mm)	A Overall Length (mm)	B Roller Base (mm)	D Wheel Base (mm)	E* Beam Beyond Span (mm)	J Hand Wheel Offset (mm)	M End Truck Frame Width (mm)	U** Wheel Run. Surf. to Bridge Beam Bottom (mm)	X Width Beyond Span (mm)	Y Height (mm)	End Truck Weight (kg/pr)	System Max. Wheel Load (kg/wheel)	
2	10.7	MUG-3-0235	110	76 - 152	2210	2032	1676	305	T/2+229	T+206	249	T/2+185	165	304	1724	
	15.2	MUG-3-0245			2515	2337	1981							338	2206	
3	10.7	MUG-3-0335	125		2311	2134	1676		T/2+225	249	254	T/2+18	163	328	2415	
	15.2	MUG-3-0345			2616	2438	1981							362	2634	
5	10.7	MUG-3-0535	140		102-152	2413	2235		1727	T/2+234	T+249	254	T/2+18	163	385	3753
	15.2	MUG-3-0545				2718	2540		2032						422	3656

* Minimum overhang is M/2,

** Includes 3/8" (9.5mm) thick beam mounting plates

T = Runway flange width

END