



ADJUST-A-RACK™ Battery Racks

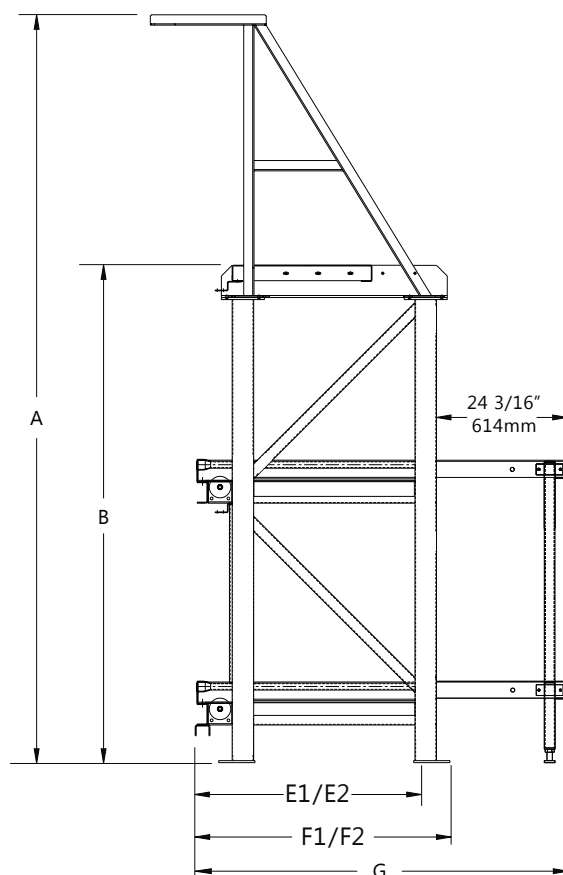
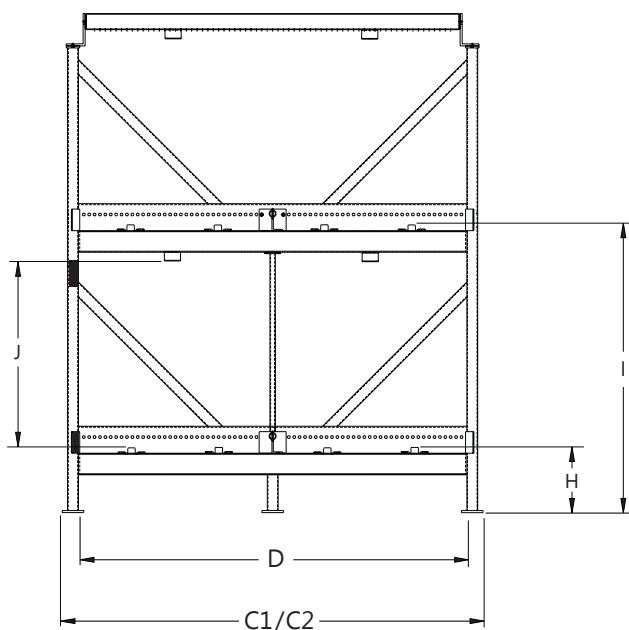
Two Levels to Six Levels High



TWO, THREE, FOUR, FIVE & SIX HIGH STACKING MODELS AVAILABLE

SS-1015-ADJ

ADJUST-A-RACK DESIGN SPECIFICATIONS



MODEL SHOWN: DSAR-88-TCS-RCS

DOUBLE STACKING ADJUST-A-RACK
WITH TOP AND REAR CHARGER SHELVES

* PLEASE REFERENCE THE DIMENSIONAL DATA CHART ON PAGES 3-4
TO MATCH THE LETTERS TO THE CORRESPONDING SPECIFICATIONS.

General Specifications¹

MODEL NO. ¹		MSAR-76		MSAR-88		MSAR-100		MSAR-124	
A	O. A. Height With Electrical Support Frame								
	Double Stacking	141 5/8"	3597mm	141 5/8"	3597mm	141 5/8"	3597mm	141 5/8"	3597mm
	Triple Stacking	187 5/8"	4768mm	187 5/8"	4768mm	187 5/8"	4768mm	187 5/8"	4768mm
	Quad Stacking	224 5/8"	5705mm	224 5/8"	5705mm	224 5/8"	5705mm	224 5/8"	5705mm
	Five Stacking	265 7/8"	6753mm	265 7/8"	6753mm	265 7/8"	6753mm	265 7/8"	6753mm
	Six Stacking	307 5/8"	7814mm	307 5/8"	7814mm	307 5/8"	7814mm	307 5/8"	7814mm
B	O. A. Height (To Top Charger Shelf)								
	Double Stacking	92 1/2"	2349mm	92 1/2"	2349mm	92 1/2"	2349mm	92 1/2"	2349mm
	Triple Stacking	133 3/4"	3397mm	133 3/4"	3397mm	133 3/4"	3397mm	133 3/4"	3397mm
	Quad Stacking	175 1/2"	4456mm	175 1/2"	4456mm	175 1/2"	4456mm	175 1/2"	4456mm
	Five Stacking	216 3/4"	5505mm	216 3/4"	5505mm	216 3/4"	5505mm	216 3/4"	5505mm
	Six Stacking	258 1/2"	6566mm	258 1/2"	6566mm	258 1/2"	6566mm	258 1/2"	6566mm
C1	O. A. Width With Standard Feet (All Stacking Heights)	78"	1981mm	90"	2286mm	102"	2591mm	126"	3200mm
C2	O. A. Width With Seismic Feet (All Stacking Heights)	82"	2063mm	94"	2388mm	106"	2692mm	130"	3302mm
D	Useable Width Per Level	72"	1829mm	84"	2134mm	96"	2438mm	120"	3048mm
E1	Useable Depth Per Level (Standard Model With Rubber Backstops)	41 1/2"	1054mm	41 1/2"	1054mm	41 1/2"	1054mm	41 1/2"	1054mm
E2	Useable Depth Per Level (Special 45" Depth Model With Rubber Backstops)	48 1/4"	1226mm	48 1/4"	1226mm	48 1/4"	1226mm	48 1/4"	1226mm
F1	O. A. Depth								
	Less Rear Charger Shelf With Standard Feet – Standard Model / Special 45" Depth Model	47" / 53 3/4"		47" / 53 3/4"		47" / 53 3/4"		47" / 53 3/4"	
		1194/1365mm		1194/1365mm		1194/1365mm		1194/1365mm	
F2	O. A. Depth								
	Less Rear Charger Shelf With Seismic Feet – Standard Model / Special 45" Depth Model	46 1/2" / 53 1/4"		46 1/2" / 53 1/4"		46 1/2" / 53 1/4"		46 1/2" / 53 1/4"	
		1181/1353mm		1181/1353mm		1181/1353mm		1181/1353mm	
G	O.A. Depth With Rear Charger Shelf – All Stacking Heights	68 11/16"	1745mm	68 11/16"	1745mm	68 11/16"	1745mm	68 11/16"	1745mm
H	Min. Height From Floor to Lead-in Roller of First Rack Level	12"	305mm	12"	305mm	12"	305mm	12"	305mm
I	Min. Height From Floor to Lead-in Roller of.....								
	Second Rack Level	53 1/4"	1350mm	53 1/4"	1350mm	53 1/4"	1350mm	53 1/4"	1350mm
	Third Rack Level	94 1/2"	2400mm	94 1/2"	2400mm	94 1/2"	2400mm	94 1/2"	2400mm
	Fourth Rack Level	135 3/4"	3448mm	135 3/4"	3448mm	135 3/4"	3448mm	135 3/4"	3448mm
	Fifth Rack Level	177 1/2"	4508mm	177 1/2"	4508mm	177 1/2"	4508mm	177 1/2"	4508mm
	Sixth Rack Level	218 3/4"	5556mm	218 3/4"	5556mm	218 3/4"	5556mm	218 3/4"	5556mm
J	Clearance Between Lead-In Roller and Plug-In Mount	34 1/2"	876mm	34 1/2"	876mm	34 1/2"	876mm	34 1/2"	876mm
1	Rubber Backstop Size	2.5" O.D. x 1" TK.		2.5" O.D. x 1" TK.		2.5" O.D. x 1" TK.		2.5" O.D. x 1" TK.	
		63mm O.D. x 25mm TK.		63mm O.D. x 25mm TK.		63mm O.D. x 25mm TK.		63mm O.D. x 25mm TK.	
2	Qty. of Base Support Feet	4		4		4		4	
3	Qty. of Intermediate Support Feet Required	1		1		2		2	
4	Qty. of Front Rack Supports Required Per Level (Excluding Top Level)	1		1		2		2	
5	Size of Support Foot Anchoring Hole (Standard Foot / Seismic Foot)	11/16" / 11/16"		11/16" / 11/16"		11/16" / 11/16"		11/16" / 11/16"	
		17/17mm		17/17mm		17/17mm		17/17mm	
6	Slide Strip Mounting Hole Sizes ^{2,3}	13/32"	10mm	13/32"	10mm	13/32"	10mm	13/32"	10mm
7	Backstop Mounting Hole Sizes	17/32"	13mm	17/32"	13mm	17/32"	13mm	17/32"	13mm
8	Compartment Divider Mounting Hole Sizes (Front Channel / Rear Channel)	13/32" / 17/32"		13/32" / 17/32"		13/32" / 17/32"		13/32" / 17/32"	
		10/13mm		10/13mm		10/13mm		10/13mm	
9	Mounting Hole Spacing ⁴	1"	25mm	1"	25mm	1"	25mm	1"	25mm
10	Total Weight Capacity (Battery Compts. Only)								
	Double Stacking	21,600 lbs.	9798kgs.	25,200 lbs.	11430kgs.	28,800 lbs.	13063kgs.	36,000 lbs.	16329kgs.
	Triple Stacking	32,400 lbs.	14696kgs.	37,800 lbs.	17146kgs.	43,200 lbs.	19595kgs.	54,000 lbs.	24494kgs.
	Quad Stacking	43,200 lbs.	19595kgs.	50,400 lbs.	22861kgs.	57,600 lbs.	26127kgs.	72,000 lbs.	32659kgs.
	Five Stacking	54,000 lbs.	24494kgs.	63,000 lbs.	28576kgs.	72,000 lbs.	32657kgs.	90,000 lbs.	40823kgs.
	Six Stacking	64,800 lbs.	29393kgs.	75,600 lbs.	34292kgs.	86,400 lbs.	39190kgs.	108,000 lbs.	48988kgs.

Notes:

- The "MSAR" model number designation is read as "Multi-Stacking Adjust-A-Rack". This acronym is a generic designator and should not be used when placing orders. The correct model number designation for each rack type is as follows:

Double Stacking Adjust-A-Racks = DSAR-76, DSAR-88, DSAR-100, or DSAR-124

Quad Stacking Adjust-A-Racks = QSAR-76, QSAR-88, QSAR-100, or QSAR-124

Six High Stacking Adjust-A-Racks = XSAR-76, XSAR-88, XSAR-100, or XSAR-124

Triple Stacking Adjust-A-Racks = TSAR-76, TSAR-88, TSAR-100, or TSAR-124

Five High Stacking Adjust-A-Racks = FSAR-76, FSAR-88, FSAR-100, or FSAR-124

MTC ADJUST-A-RACK SPECIFICATIONS*

Battery Size Specifications

MODEL NO. ¹		MSAR-76		MSAR-88		MSAR-100		MSAR-124	
11	Max. Battery Height Per Compartment	32"	813mm	32"	813mm	32"	813mm	32"	813mm
12	Max. Battery Length Per Compartment (Standard Model With Rubber Backstops/ Special 45" Depth Model With Rubber Backstops)	41 1/2" / 48 1/4"		41 1/2" / 48 1/4"		41 1/2" / 48 1/4"		41 1/2" / 48 1/4"	
		1054/1226mm		1054/1226mm		1054/1226mm		1054/1226mm	
13	Min. Battery Length Per Compartment (With Rubber Backstops)	20"	508mm	20"	508mm	20"	508mm	20"	508mm
14	Min. Battery Width Per Compartment (With Standard (-M2) Slide Strip Kits) ⁵	11"	279mm	11"	279mm	11"	279mm	11"	279mm
15	Max. Number of Batteries Per Rack Level	See Table On Page 5		See Table on Page 5		See Table on Page 5		See Table on Page 5	

Charger Shelf Specifications

MODEL NO. ¹		MSAR-76		MSAR-88		MSAR-100		MSAR-124	
16	O. A. Width								
	Top Charger Shelf – All Models	69"	1753mm	81"	2057mm	93"	2362mm	117"	2972mm
	Rear Charger Shelf	71"	1803mm	83"	2108mm	95"	2413mm	119"	3023mm
	Side Charger Shelf – 30-1 Model / 33-1 Model	30" / 33"	762/838mm	30" / 33"	762/838mm	30" / 33"	762/838mm	30" / 33"	762/838mm
	36-1 Model / 40-1 Model	36" / 40"	914/1016mm	36" / 40"	914/1016mm	36" / 40"	914/1016mm	36" / 40"	914/1016mm
	60-2 Model	60"	1524mm	60"	1524mm	60"	1524mm	60"	1524mm
	66-2 Model	66"	1676mm	66"	1676mm	66"	1676mm	66"	1676mm
	72-2 Model	72"	1829mm	72"	1829mm	72"	1829mm	72"	1829mm
17	Useable Width								
	Top Charger Shelf – All Models	69"	1753mm	81"	2057mm	93"	2362mm	117"	2972mm
	Rear Charger Shelf	71"	1803mm	83"	2108mm	95"	2413mm	119"	3023mm
	Side Charger Shelf – 30-1 Model / 33-1 Model	26 5/8" / 29 5/8"		26 5/8" / 29 5/8"		26 5/8" / 29 5/8"		26 5/8" / 29 5/8"	
		676/752mm		676/752mm		676/752mm		676/752mm	
	36-1 Model / 40-1 Model	32 5/8" / 36 5/8"		32 5/8" / 36 5/8"		32 5/8" / 36 5/8"		32 5/8" / 36 5/8"	
		829/930mm		829/930mm		829/930mm		829/930mm	
	60-2 Model	27 5/8" per cmpt		27 5/8" per cmpt		27 5/8" per cmpt		27 5/8" per cmpt	
		702mm per cmpt		702mm per cmpt		702mm per cmpt		702mm per cmpt	
	66-2 Model	30 5/8" per cmpt		30 5/8" per cmpt		30 5/8" per cmpt		30 5/8" per cmpt	
		778mm per cmpt		778mm per cmpt		778mm per cmpt		778mm per cmpt	
	72-2 Model	33 5/8" per cmpt		33 5/8" per cmpt		33 5/8" per cmpt		33 5/8" per cmpt	
		854mm per cmpt		854mm per cmpt		854mm per cmpt		854mm per cmpt	
18	O. A. Depth								
	Top Charger Shelf – Std. Model / -30 Model / -40 Model	26" / 30" / 40"		26" / 30" / 40"		26" / 30" / 40"		26" / 30" / 40"	
		660/762/1016mm		660/762/1016mm		660/762/1016mm		660/762/1016mm	
	Rear Charger Shelf	26"	660mm	26"	660mm	26"	660mm	26"	660mm
	Side Charger Shelf – All Models	32"	813mm	32"	813mm	32"	813mm	32"	813mm
19	Useable Depth								
	Top Charger Shelf – Std. Model / -30 Model / -40 Model	26" / 30" / 40"		26" / 30" / 40"		26" / 30" / 40"		26" / 30" / 40"	
		660/762/1016mm		660/762/1016mm		660/762/1016mm		660/762/1016mm	
	Rear Charger Shelf	24 3/16"	614mm	24 3/16"	614mm	24 3/16"	614mm	24 3/16"	614mm
	Side Charger Shelf – All Models	32"	813mm	32"	813mm	32"	813mm	32"	813mm
20	Charger Shelf Capacity								
	Top Charger Shelf	1,600 lbs.	723kgs.	1,600 lbs.	723kgs.	2,400 lbs.	1087kgs.	3,200 lbs.	1451kgs.
	Rear Charger Shelf	800 lbs.	363kgs.	1,000 lbs.	454kgs.	1,200 lbs.	544kgs.	1,600 lbs.	726kgs.
	Side Charger Shelf	850 lbs.	386kgs.	850 lbs.	386kgs.	850 lbs.	386kgs.	850 lbs.	386kgs.

Available Options: - Acid Resistant Drip Pans, Catwalk Systems

* All Specifications Subject to Change Without Notice.

Notes (continued):

- To select slide strip kits (SSK-M2-ADJ, SSK-M2-RB, SSK-M3-ADJ, SSK-M3-RB) use the following parameters:
BL = battery length, BW = battery width, BH = battery height, BU = battery weight.
If 11"/279mm ≤ BW ≤ 30"/762mm, then use M2.
If BW ≥ 30"/762mm or BU ≥ 3,000lbs./1361kg, then use M3.
If 20"/508mm ≤ BL ≤ 37.5"/953mm, then use ADJ.
If BL ≥ 37.5"/953mm, then use RB.
Example combinations:
If using battery 12-125-13, BL = 30.6"/777mm, BW = 12.7"/322mm, then use SSK-M2-ADJ.
If using battery 18-85-27, BL = 38.25"/974mm, BW = 31.50"/800mm, then use SSK-M3-RB.

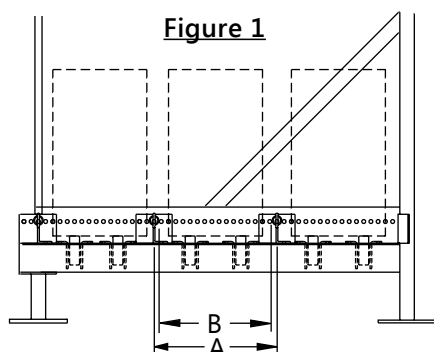
- To select slide strip kits in special 45"/1143mm depth model Adjust-A-Racks, use the following parameters:
All parameters described on note 2 for M2 and M3 still apply, with the following exceptions:
If BW ≥ 24"/609mm and BL ≥ 43"/1092mm or BU ≥ 3,000lbs./1361kg, then use M3.
If 26.75"/678mm ≤ BL ≤ 44.25"/1124mm, then use ADJ.
If BL ≥ 44.25"/1124mm, then use RB.
- All slide strip kits and compartment dividers are adjustable in one inch increments.
- For batteries less than 11"/279mm wide, but larger than 6"/152mm wide, special slide strip trays may be required. For batteries less than 6"/152mm wide, special roller trays are required. Consult factory for more information.

BATTERY GROUP NUMBER	BATTERY WIDTH (inches / millimeters)		BATTERY LENGTH (inches / millimeters)		SLIDE STRIP KITS	RACK COMPARTMENT SIZE REQUIRED (inches / millimeters) CL to CL of Compartment Divider		RACK COMPARTMENT SIZE REQUIRED (inches / millimeters) Inside to Inside of Compartment Divider		MAX. NUMBER OF BATTERIES PER RACK LEVEL			
										MSAR-76	MSAR-88	MSAR-100	MSAR-124
6-85-13	7.78	198	30.56	776	SST-8-ADJ	Consult Factory		Consult Factory		--	--	--	--
12-85-7	8.81	224	25.19	640	SST-10-ADJ	Consult Factory		Consult Factory		--	--	--	--
12-85-13	13.00	330	30.56	776	SSK-M2-ADJ	15	381	13.69	348	4.00	5.00	6.00	8.00
12-125-13	13.00	330	30.56	776	SSK-M2-ADJ	15	381	13.69	348	4.00	5.00	6.00	8.00
12-125-15	13.00	330	25.06	636	SSK-M2-ADJ	15	381	13.69	348	4.00	5.00	6.00	8.00
18-125-11	13.50	343	37.88	962	SSK-M2-RB	16	406	14.69	373	4.00	5.00	6.00	7.00
18-125-13	15.75	400	37.88	962	SSK-M2-RB	18	457	16.69	424	4.00	4.00	5.00	6.00
18-125-15	17.90	455	38.25	972	SSK-M2-RB	20	508	18.69	475	3.00	4.00	4.00	6.00
18-85-17	20.40	518	38.25	972	SSK-M2-RB	24	610	22.69	576	3.00	3.00	4.00	5.00
18-125-17	20.40	518	38.25	972	SSK-M2-RB	24	610	22.69	576	3.00	3.00	4.00	5.00
24-85-13	21.00	533	37.88	962	SSK-M2-RB	24	610	22.69	576	3.00	3.00	4.00	5.00
24-125-13	21.00	533	37.88	962	SSK-M2-RB	24	610	22.69	576	3.00	3.00	4.00	5.00
18-85-19	22.50	571	38.25	972	SSK-M2-RB	26	660	24.69	627	2.00	3.00	3.00	4.00
24-85-15	23.75	603	38.25	972	SSK-M2-RB	27	686	25.69	652	2.00	3.00	3.00	4.00
24-125-15	23.75	603	38.25	972	SSK-M2-RB	27	686	25.69	652	2.00	3.00	3.00	4.00
18-85-21	24.60	625	38.25	972	SSK-M2-RB	28	711	26.69	678	2.00	3.00	3.00	4.00
18-85-17	26.59	675	32.00	813	SSK-M2-ADJ	30	762	28.69	729	2.00	2.00	3.00	4.00
24-85-17	27.00	686	38.25	972	SSK-M2-RB	30	762	28.69	729	2.00	2.00	3.00	4.00
18-85-23	27.19	691	38.25	972	SSK-M2-RB	30	762	28.69	729	2.00	2.00	3.00	4.00
18-85-25	29.50	749	38.25	972	SSK-M2-RB	32	813	30.69	779	2.00	2.00	3.00	3.00
24-85-19	30.00	762	38.25	972	SSK-M3-RB	32	813	30.69	779	2.00	2.00	3.00	3.00
18-85-27	31.69	805	38.25	972	SSK-M3-RB	35	889	33.69	856	2.00	2.00	2.00	3.00
24-85-21	32.88	835	38.25	972	SSK-M3-RB	36	914	34.69	881	2.00	2.00	2.00	3.00
18-85-29	33.94	862	38.25	972	SSK-M3-RB	36	914	34.69	881	2.00	2.00	2.00	3.00
24-85-23	36.00	914	38.25	972	SSK-M3-RB	39	991	37.69	957	1.00	2.00	2.00	3.00
18-85-31	36.28	921	38.25	972	SSK-M3-RB	40	1016	38.69	983	1.00	2.00	2.00	3.00
18-85-33	38.25	972	38.25	972	SSK-M3-RB	42	1067	40.69	1033	1.00	2.00	2.00	2.00
24-85-25	38.63	981	38.25	972	SSK-M3-RB	42	1067	40.69	1033	1.00	2.00	2.00	2.00
24-85-27	38.63	981	41.75	1060	SSK-M3-RB	42	1067	40.69	1033	1.00	2.00	2.00	2.00

* The shaded boxes in the chart indicate which rack model(s) would best accommodate a battery with the given width.

Notes:

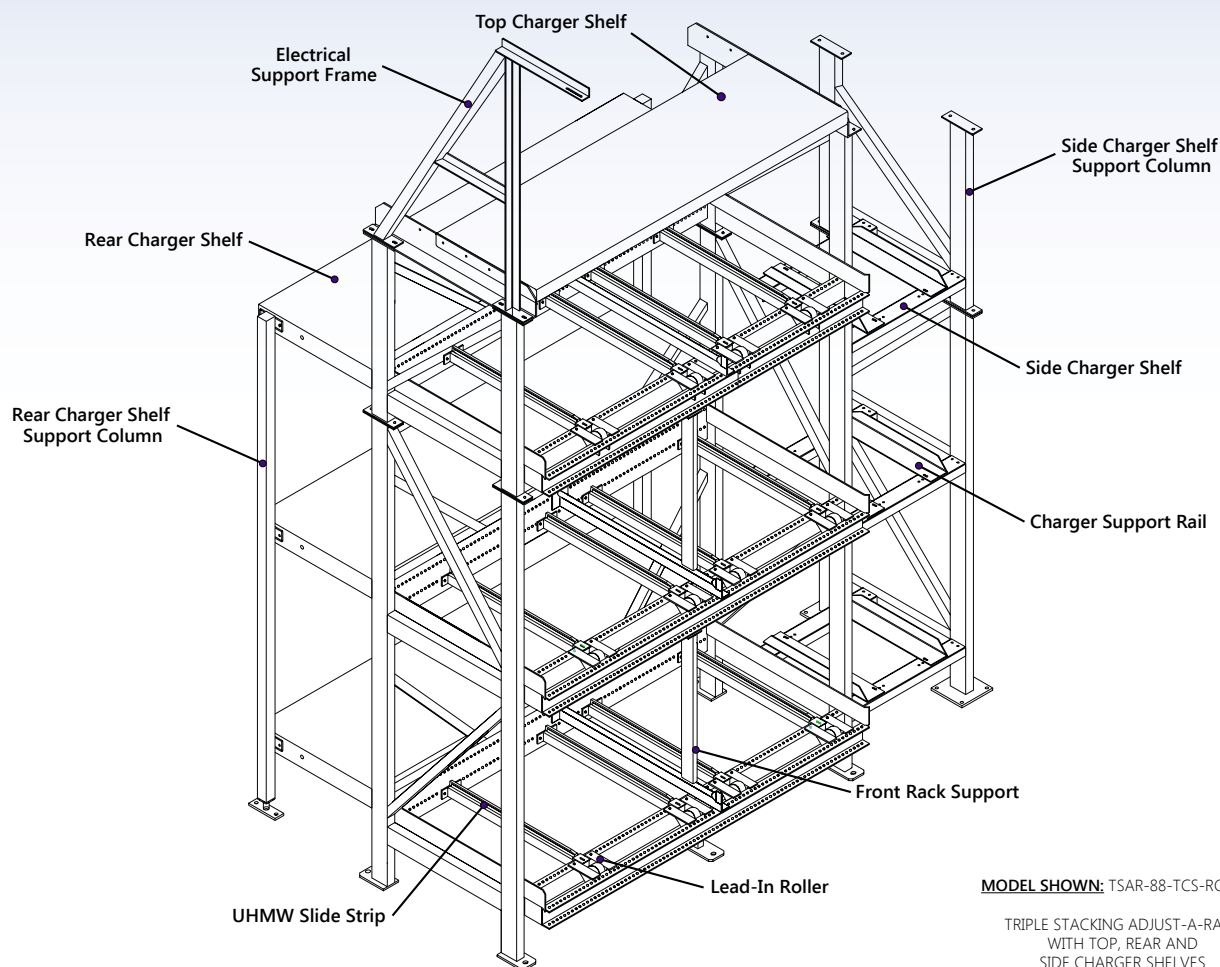
- Figure 1 below illustrates the differences between the two "Rack Compartment Size Required" dimensions shown in the chart above. "Dimension A" represents the rack compartment size as measured from centerline to centerline of compartment divider. "Dimension B" represents the rack compartment size as measured from inside to inside of compartment divider.



- 1A. If your battery group or battery width is not shown, you can calculate the maximum number of batteries per rack level by using the following formula:

English:
$$\frac{\text{Useable Space Per Rack Level (Choose 72", 84", 96" or 120")}}{\text{Battery Width Rounded Up To Nearest Inch} + [3 \text{ Inches or 2 Inches Depending On Battery Width}]}$$

Metric:
$$\frac{\text{Useable Space Per Rack Level (Choose 1829mm, 2134mm, 2438mm or 3048mm)}}{\text{Battery Width Rounded Up To Nearest Inch} + [76mm \text{ or } 51mm \text{ Depending On Battery Width}]}$$



FEATURES	BENEFITS
1. Modular Design 2. Top, Rear, And Side Charger Shelves And Catwalk Systems Available 3. Fully Adjustable Battery Compartments 4. Ultra High Molecular Weight (UHMW) Slide Strips Used Inside Each Battery Compartment	• Makes it easy to expand as your battery system grows • Maximizes the amount of space available for battery charger storage • Provides smooth battery placement and retrieval and holds the battery securely in place during charging

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