

UtiliTrak®

Linear Guide

Built on
DUAL VEE
Motion Technology®



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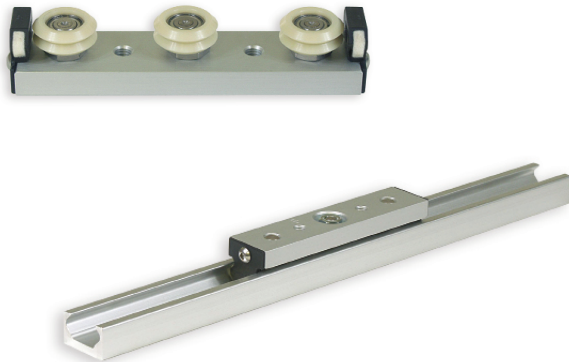
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UtiliTrak Applications

The UtiliTrak linear guide is designed for applications where low cost, easy installation and minimal maintenance requirements are the primary design objectives. Constructed with DualVee Motion Technology, UtiliTrak offers high reliability, easy installation and low maintenance in a sleek, compact design.

Designed primarily for transport type applications, UtiliTrak is intended for use where load capacity, stiffness, and positional accuracy are less demanding than machine tool grade applications. UtiliTrak offers a low cost alternative to square rail recirculating element technologies, which often require a significant amount of surface preparation, adding significantly to the total installed cost.



- Antifriction operation
- Low noise
- Smooth running
- High speed capacity
- Unlimited travel lengths
- High load capacity
- Impervious to contamination

What's Inside

3, 4 or 5-wheel carriage* assemblies with the guide wheels mounted in-line roll along (and are captured within) the channel guide rail. For the 3 and 4-wheel carriages, the two outside guide wheels are concentric, while the center wheels are eccentric. The 5-wheel carriage features concentric center wheel and outer wheels and eccentric second and fourth wheels.

Fit up is pre-set at the factory, but is easily field adjusted by rotating the eccentrically mounted center guide wheels. This allows modification of running characteristics such as drag, breakaway force and preload.

Each carriage assembly includes a standard lubricator, which distributes a light coat of oil along the length of the channel during normal operation. Lubrication of the channel increases life and speed capacity.

*PW Series polymer and CR Series stainless steel composite wheel carriages available in 3-wheel configuration only.

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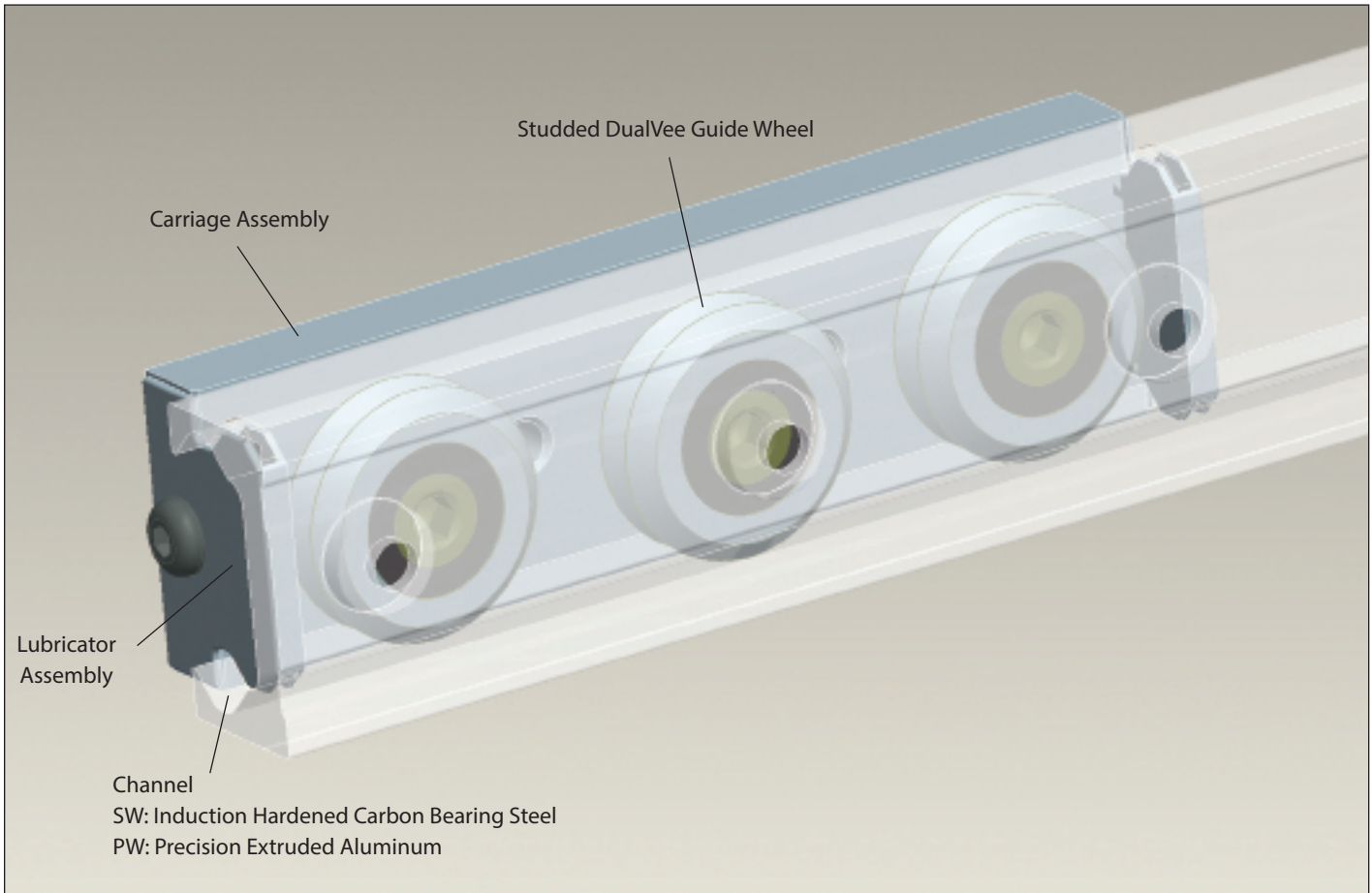


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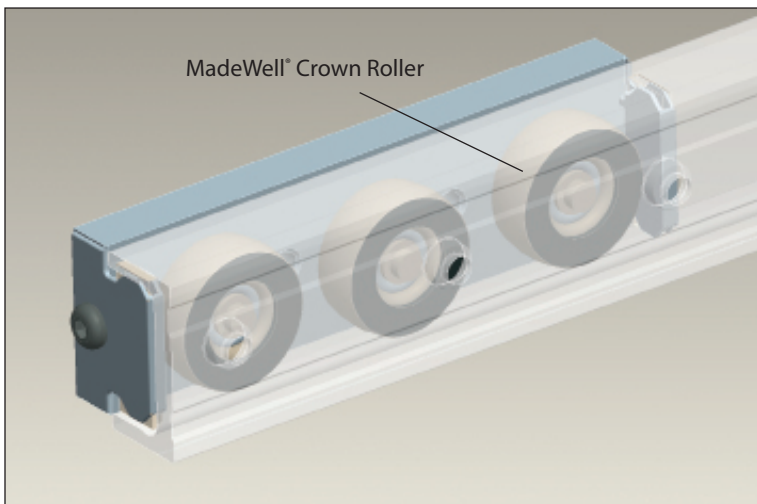
Product Comparison and Overview

Features	SW Series UtiliTrak	PW Series UtiliTrak	CR Series Stainless Steel Composite UtiliTrak
Channel/Channel Assembly	One-piece ground carbon bearing steel channel, running surface smooth to Ra 0.8µm, hardened steel raceways, RoHS compliant anti-corrosion plated.	6063-T6 aluminum alloy channel	Induction heat treated 420 stainless steel DualVee track mounted to an extruded aluminum channel
Studded DualVee Guide Wheels	52100 carbon steel, ground, double row, angular contact bearing arrangement, available sealed or shielded, internal lubrication	High temp polymer overmoulded on a stainless steel bearing arrangement, built-in wiper caps at each end clear debris from the channel surface	440C stainless steel, double row, angular contact bearing arrangement, sealed
MadeWell Crown Rollers	52100 carbon steel, ground, double row, angular contact bearing arrangement, available sealed or shielded, internal lubrication	High temp polymer overmoulded on a stainless steel single row deep groove conrad bearing, built-in wiper caps at each end clear debris from the channel surface	
Wheel Sizes	1, 2 and 3	0, 1 and 2	1, 2 and 3
Carriage Assembly	3, 4 or 5-wheel configuration	3-wheel configuration only	3-wheel configuration only
Lubricator & Wiper Assembly	Nylon end cap with felt lubricator, one lubricator assembly on each end, synthetic oil	Nylon end cap with felt lubricator, one lubricator assembly on each end, synthetic oil	Stainless steel stamped felt lubricator with synthetic oil, centrally located lubricator
Load Capacity	Up to 14,040N	Up to 311N	Up to 5,739N
Speeds	Up to 5.5 m/s	Up to 1.5 m/s	Up to 5.5 m/s
Acceleration	To 5 g's	To 3 g's	To 5 g's
Key Benefits	High speeds, excellent load capacity, smooth antifriction operation, debris tolerant	Lowest installed cost in its class, corrosion resistant, low noise, lightweight, wear resistant	High speeds, excellent load capacity, smooth antifriction operation, debris tolerant, corrosion resistant

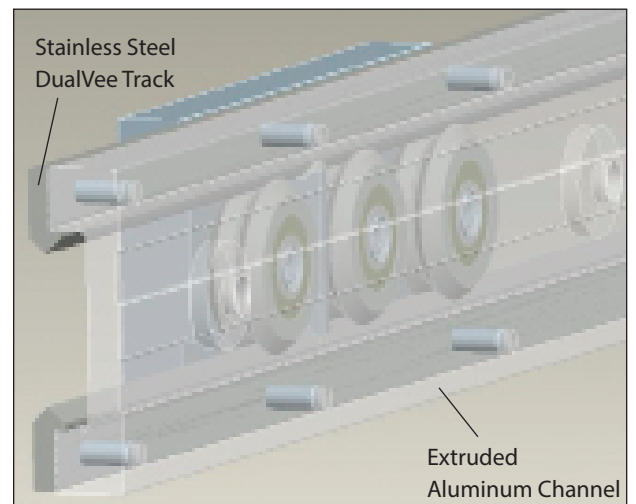
DualVee Wheel and Vee Channel Assembly



MadeWell® Crown Roller & Open Channel Assembly



CR Series Stainless Steel Composite Assembly



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3-Wheel Assemblies and Channel

PW/SW Series DualVee 3-Wheel Assembly

PW Series

- Vee style assembly for PW Series aluminum channel
- Light to medium duty transport applications
- Extremely low noise
- Lightweight and economical

SW Series

- Vee style assembly for SW Series steel channel
- Medium to heavy duty transport applications
- High speed capacity
- Smooth antifriction operation

Dimensions

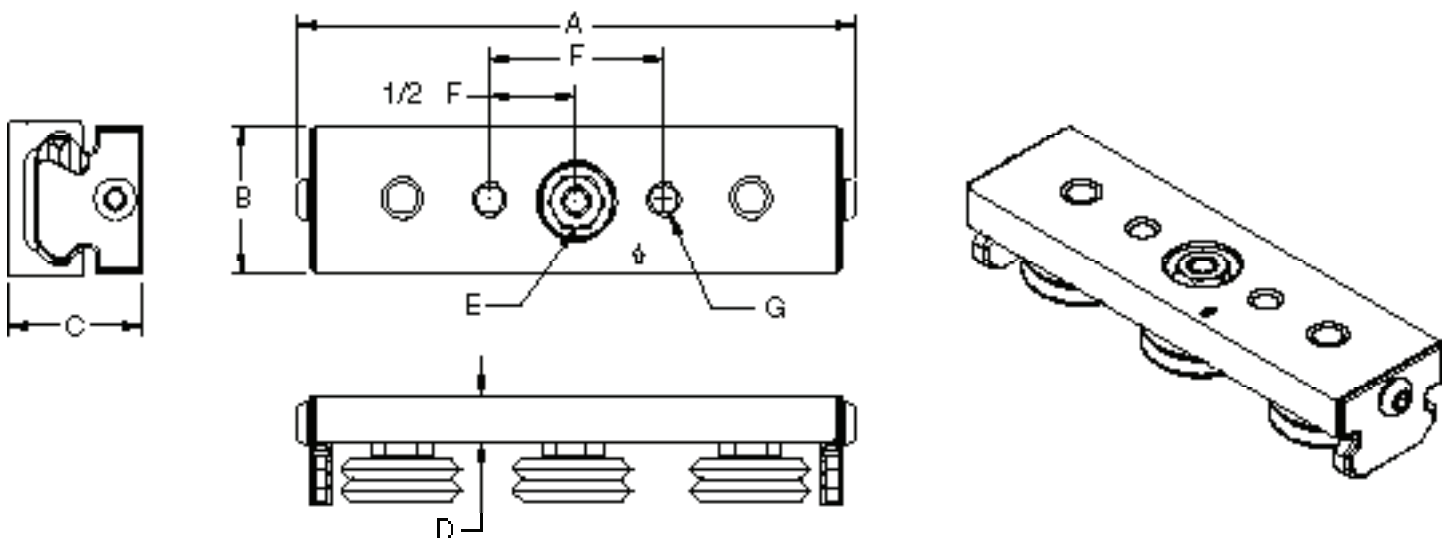
UtiliTrak Size	PW p/n	SW ¹ p/n	A	B	C	D	E Socket Size	F	G
0	UT0WPAP	-	79.9	18	22	7.9	8	22	M4x0.7
1	UT1WPAP	UT1WPA	113.5	24	26.3	8.8	10	40	M6x1
2	UT2WPAP	UT2WPA	144.2	38	35	11.8	13	45	M8x1.25
3	-	UT3WPA	201.3	55	50	15.8	15	60	M10x1.5

All dimensions in mm

Load Capacity (Max)

UtiliTrak Size	Radial F _R	Axial F _A	M _P	M _Y	M _R	C	Radial F _R	Axial F _A	M _P	M _Y	M _R	C
	PW Series Carriage						SW Series Carriage					
0	55	88	3	1.5	1	130	-	-	-	-	-	-
1	110	155	8	3	2	200	2440	719	18	30.5	7	5600
2	165	311	18	8	4	350	5300	1475	58	100	22.7	10200
3	-	-	-	-	-	-	11800	5100	229	346	118	21600

Loads in N, Moment loads in Nm



Notes

1. SW series comes standard with shielded wheels, for wheels with Nitrile seals add "X" to the end of the p/n as follows: UTOWPAPX, UT1PAX.
2. See page 13 for Load / Life formulas.
3. See page 12 for mounting orientation.

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PW/SW Series Vee Channel

PW Series

- Matched component for PW Series Vee carriage assemblies
- 6063-T6 aluminum alloy channel
- Light weight

SW Series

- Matched component for SW Series Vee carriage assemblies
- Carbon bearing steel with hardened steel raceways
- Running surface smooth to Ra 0.8µm

Dimensions

UtiliTrak Size	PW p/n	SW p/n	H	J	K	L Max ³	M	N Dia x Depth (Counterbore) ⁴	O (Mounting Hole)	Recommended Fastener ⁵	P
0	UTTA0	-	11	4	20	3600	See formula below	8.3 x 3	4.8	M4	80
1	UTTA1	UTTS1	15	4	26	3600		10 x 2.8	5.8	M5	80
2	UTTA2	UTTS2	19.7	4.5	40	3600		14.3 x 3	8.8	M8	80
3	-	UTTS3	30	8	58	3600		14.3 x 5	8.8	M8	80

All dimensions in mm

Weights

UtiliTrak Size	Channel Weight (Kg/m)	Carriage Weight (g)	Channel Weight (Kg/m)		Carriage Weight (g)	
			PW Series	SW Series	PW Series	SW Series
0	0.3	46				-
1	0.5	92	1.46			114
2	0.93	243	2.7			330
3	-	-	5.91			943

To Calculate M:

Step 1: Calculate number of spaces

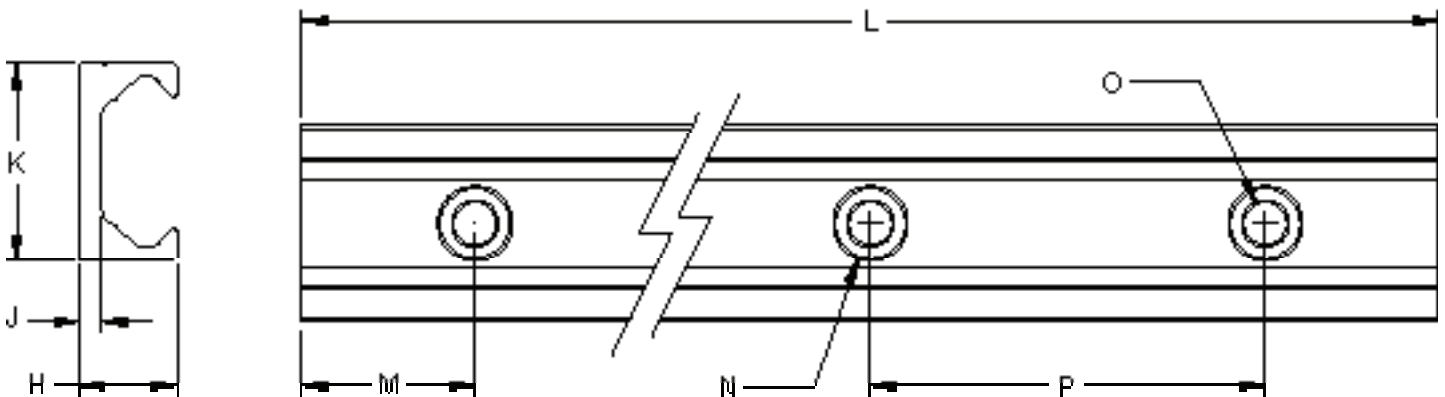
Length (in mm) – X = # of spaces (round down to nearest whole number)

80

- X = 14 (size 0)
- X = 16 (size 1)
- X = 18 (size 2)
- X = 20 (size 3)

Step 2: Calculate M

$$\frac{\text{Length} - (\# \text{ of spaces} \times 80)}{2} = M$$



Notes

1. "L" is maximum one piece length.
2. For ordering add length in mm after p/n. Ex. UTTA0-1000 (one meter length).
3. Overall length +/- 2 mm.
4. Counterbore hole tolerance is +/- 0.005.
5. Low head socket cap screw.

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3-Wheel Assemblies and Channel

PW Series

- Crown roller style assembly for PW Series aluminum channel
- Intended for radial loads only
- Extremely low noise
- Lightweight and economical

PW/SW Series MadeWell Crown Roller 3-Wheel Assembly

SW Series

- Crown roller style assembly for SW Series steel channel
- Intended for radial loads only
- High speed capacity
- Smooth antifriction operation

Dimensions

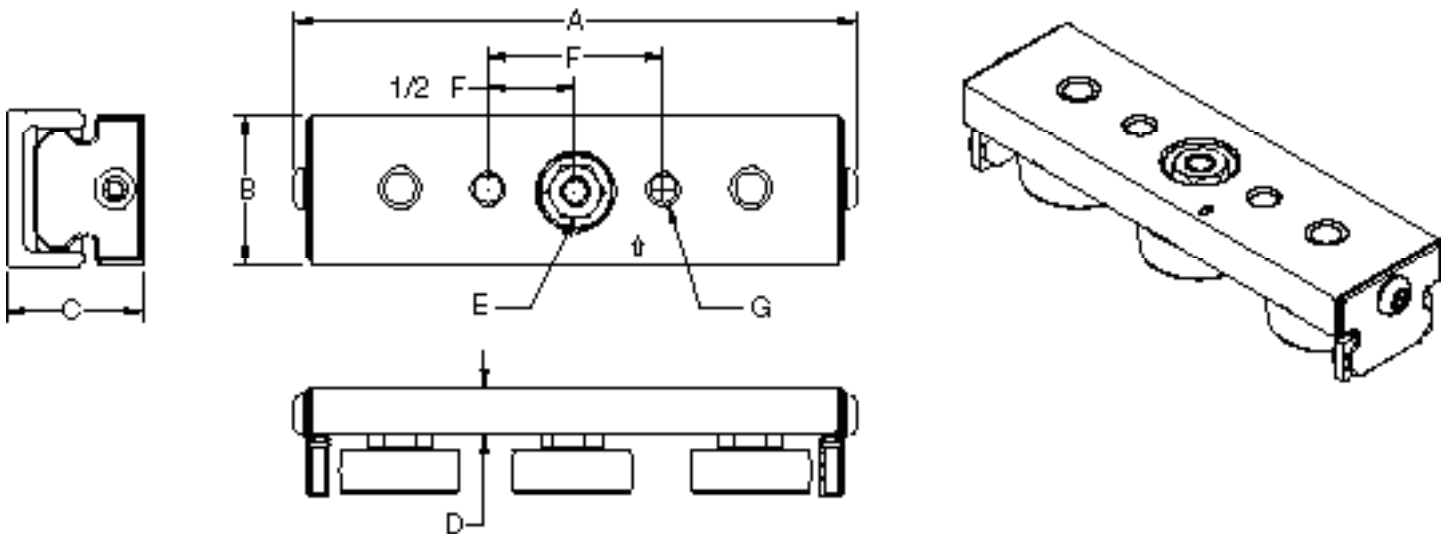
UtiliTrak Size	PW p/n	SW ¹ p/n	A	B	C Min-Max	D	E Socket Size	F	G
0	UT0WPAPR	-	79.9	18	22-23.1	7.9	8	22	M4x0.7
1	UT1WPAPR	UT1WPAR	113.5	24	25.3-27.6	8.8	10	40	M6x1
2	UT2WPAPR	UT2WPAR	144.2	38	34.7-37.4	11.8	13	45	M8x1.25
3	-	UT3WPAR	201.3	55	46.9-53.4	15.8	15	60	M10x1.5

All dimensions in mm

Load Capacity (Max)

UtiliTrak Size	Radial F _R	Axial F _A	M _P	M _Y	M _R	C	Radial F _R	Axial F _A	M _P	M _Y	M _R	C
	PW Series Carriage						SW Series Carriage					
0	55	0	0	1.5	0	130	-	-	-	-	-	-
1	110	0	0	3	0	200	2440	0	0	30.5	0	5600
2	165	0	0	8	0	350	5300	0	0	100	0	10200
3	-	-	-	-	-	-	11800	0	0	346	0	21600

Loads in N, Moment loads in Nm



Notes

1. SW series comes standard with shielded wheels, for wheels with Nitrile seals add "X" to the p/n as follows: UT1WPAPR, UT2WPAPR, UT3WPAPR.
2. See page 13 for Load / Life formulas.
3. See page 12 for mounting orientation.

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PW/SW Series Open Channel

PW Series

- Matched component for PW Series MadeWell crown roller carriage assemblies
- 6063-T6 aluminum alloy channel
- Light weight

SW Series

- Matched component for SW Series crown roller carriage assemblies
- Carbon bearing steel with hardened steel raceways
- Running surface smooth to Ra 0.8µm

Dimensions

UtiliTrak Size	PW p/n	SW p/n	H	J	K	L Max ⁴	M	N Dia x Depth (Counterbore) ⁵	O (Mounting Hole)	Recommended Fastener ⁶	P
0	UTTRA0	-	11	4	20	3600	See formula below	8.3 x 3	4.8	M4	80
1	UTTRA1	UTTRS1	15	4	26	3600		10 x 2.8	5.8	M5	80
2	UTTRA2	UTTRS2	19.7	4.5	40	3600		14.3 x 3	8.8	M8	80
3	-	UTTRS3	30	8	58	3600		14.3 x 5	8.8	M8	80

All dimensions in mm

Weights

UtiliTrak Size	Channel Weight (Kg/m)	Carriage Weight (g)	Channel Weight (Kg/m)		Carriage Weight (g)	
			PW Series	SW Series	PW Series	SW Series
0	0.29	47	-	-	-	-
1	0.43	94	1.33	121		
2	0.8	246	2.47	320		
3	-	-	5.36	910		

To Calculate M:

Step 1: Calculate number of spaces

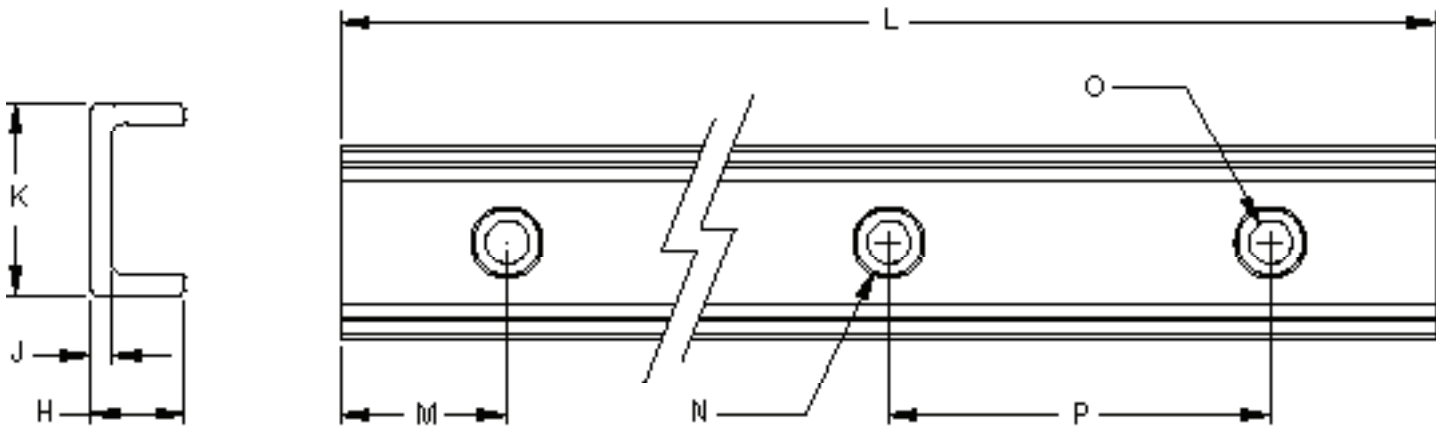
Length (in mm) – X = # of spaces (round down to nearest whole number)

80

- X = 14 (size 0)
- X = 16 (size 1)
- X = 18 (size 2)
- X = 20 (size 3)

Step 2: Calculate M

Length – (# of spaces x 80) = M
2



Notes

1. "L" is maximum one piece length.
2. For ordering add length in mm after p/n. Ex. UTTRA0-1000 (one meter length).
3. Any length up to "L" can be provided, for optimal price and delivery use "M" and spacing on both sides.
4. Overall length +/- 2 mm.
5. Counterbore hole tolerance is +/- 0.005.
6. Low head socket cap screw.



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4 and 5-Wheel Assemblies

SW Series DualVee 4 and 5-Wheel Assembly

- Vee style extended carriage for SW Series steel channel
- UtiliTrak's highest load capacity
- Larger surface area

Dimensions

UtiliTrak Size	4-Wheel ¹ p/n	5-Wheel ¹ p/n	A	B	C	D	E Socket Size	F	G
1	UT1WPA-4A	UT1WPA-5A	166.5	24	26.3	8.8	10	35	M6x1
2	UT2WPA-4A	UT2WPA-5A	224.2	38	35	11.8	13	45	M8x1.25
3	UT3WPA-4A	UT3WPA-5A	317.3	55	50	15.8	15	60	M10x1.5

All dimensions in mm

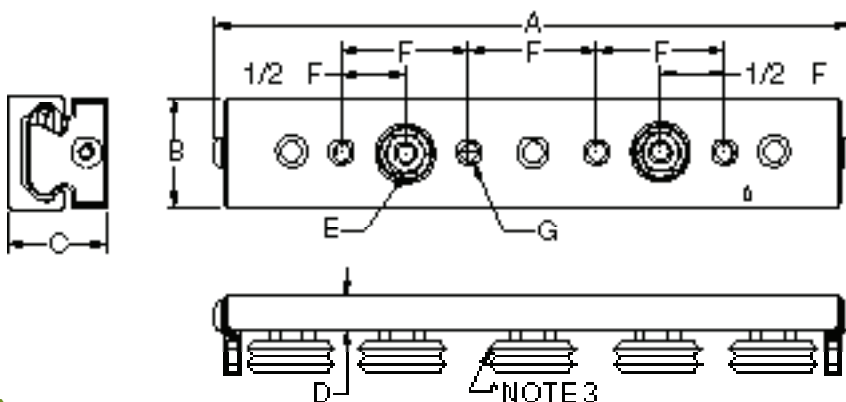
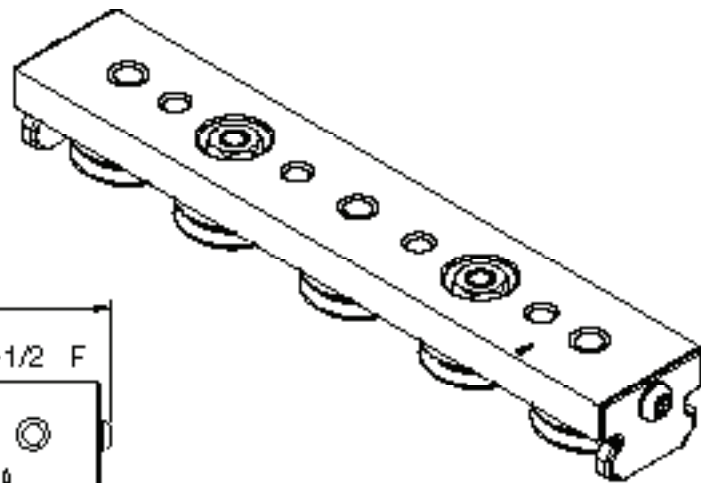
Load Capacity (Max)

UtiliTrak Size	Radial F _R	Axial F _A	M _P	M _V	M _R	C	Radial F _R	Axial F _A	M _P	M _V	M _R	C
	4-Wheel Carriage						5-Wheel Carriage					
1	2440	862	18	45.8	9.8	5600	2900	1014	18	45.8	12.6	6650
2	5300	1770	58	150	31.8	10200	6300	2080	58	150	40.9	12110
3	11800	6122	229	519	165.2	21600	14040	7140	229	519	212.4	25650

Loads in N, Moment loads in Nm

Weight

UtiliTrak Size	SW Series Only	
	4-Wheel Carriage Weight (g)	5-Wheel Carriage Weight (g)
1	163	181
2	479	543
3	1370	1533



Notes

1. SW series comes standard with shielded wheels, for wheels with Nitrile seals add "X" to the p/n as follows: UT1WPAX-4A, UT2WPAX-5A, etc.
2. See page 13 for Load / Life formulas.
3. This wheel omitted on 4-wheel assemblies.
4. See page 12 for mounting orientation.

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SW Series MadeWell Crown Roller 4 and 5-Wheel Assembly

- Crown roller style extended carriage for SW Series steel channel
- UtiliTrak's highest load capacity
- Larger surface area

Dimensions

UtiliTrak Size	4-Wheel ¹ p/n	5-Wheel ¹ p/n	A	B	C (Min-Max)	D	E Socket Size	F	G
1	UT1WPAR-4A	UT1WPAR-5A	166.5	24	25.3 - 27.6	8.8	10	35	M6x1
2	UT2WPAR-4A	UT2WPAR-5A	224.2	38	34.7 - 37.4	11.8	13	45	M8x1.25
3	UT3WPAR-4A	UT3WPAR-5A	317.3	55	46.9 - 53.4	15.8	15	60	M10x1.5

All dimensions in mm

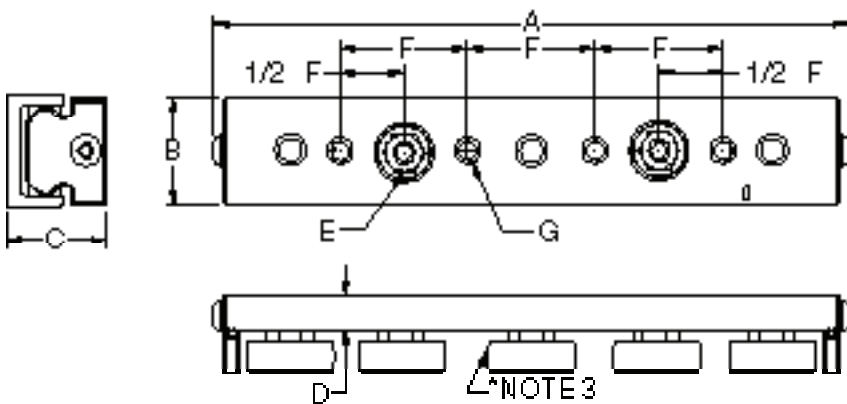
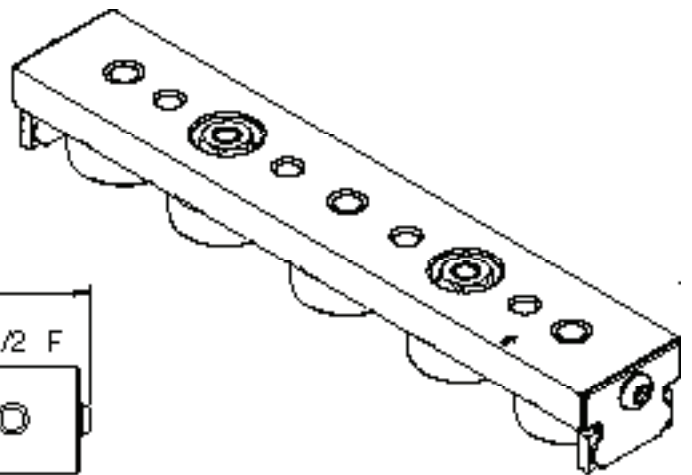
Load Capacity (Max)

UtiliTrak Size	Radial F _R	Axial F _A	M _P	M _Y	M _R	C	Radial F _R	Axial F _A	M _P	M _Y	M _R	C
	4-Wheel Carriage						5-Wheel Carriage					
1	2440	0	0	45.8	0	5600	2900	0	0	45.8	0	6650
2	5300	0	0	150	0	10200	6300	0	0	150	0	12110
3	11800	0	0	519	0	21600	14040	0	0	519	0	25650

Loads in N, Moment loads in Nm

Weight

UtiliTrak Size	SW Series Only	
	4-Wheel Carriage Weight (g)	5-Wheel Carriage Weight (g)
1	195	220
2	522	598
3	1478	1665



NOTES

- Carriages come standard with shielded wheels, for wheels with Nitrile seals add "X" to the p/n as follows: UT1WPAXR-4A, UT2WPAXR-5A, etc.
- See page 13 for Load / Life formulas.
- This wheel omitted on 4 wheel assemblies.
- See page 12 for mounting orientation.

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CR Series Stainless Steel Carriage and Channel Assemblies

CR Series DualVee 3-Wheel Assembly

- Vee style carriage assembly for stainless steel composite (CR Series) channel
- 440C stainless steel, corrosion resistant
- Available in 3-wheel assembly only

Dimensions

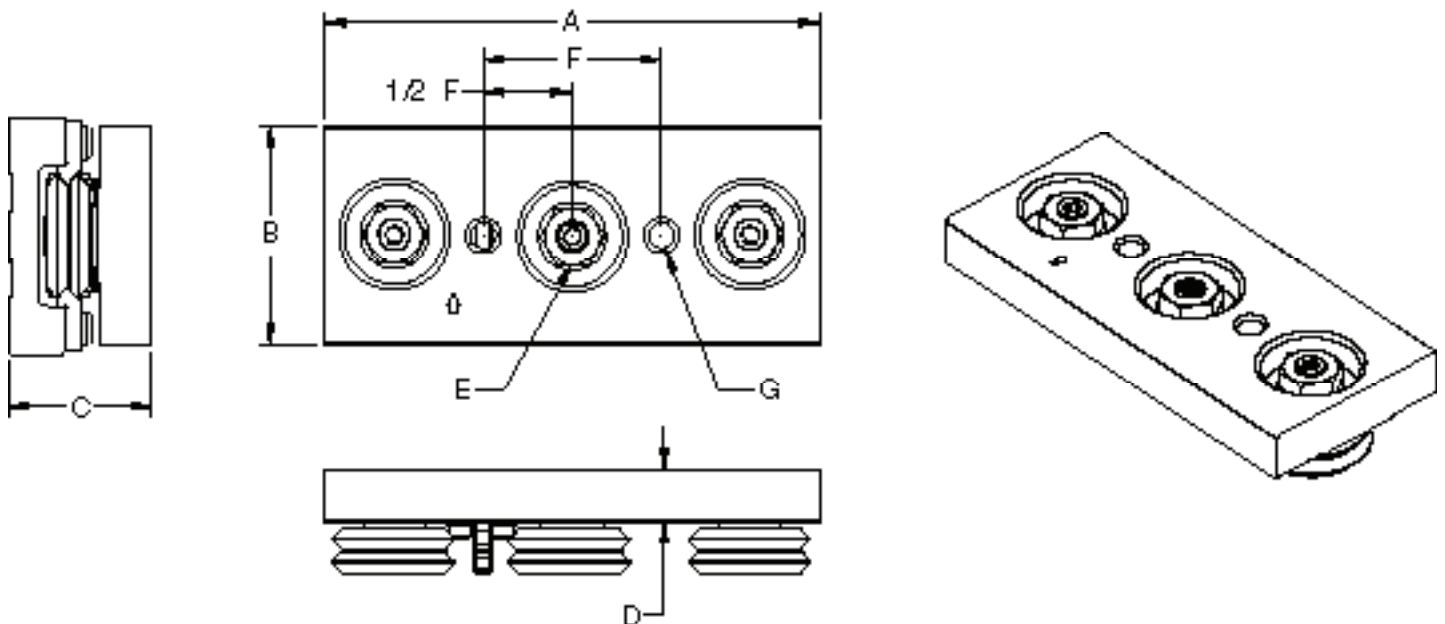
UtiliTrak Size	Part Number	A	B	C	D	E Socket Size	F	G
1	UTCCA1-SS	100	38	28	10.1	7	40	M6x1
2	UTCCA2-SS	125	55	36	13.7	13	45	M8x1.25
3	UTCCA3-SS	170	80	50	19.6	17	60	M10x1.5

All dimensions in mm

Load Capacity (Max)

UtiliTrak Size	Radial F_R	Axial F_A	M_P	M_Y	M_R	C
1	1111	705	14	21	3	1625
2	2671	1749	40	61	9	3900
3	5739	4763	146	176	35	8400

Loads in N, Moment loads in Nm



Notes

1. Clean room or high temperature guide wheel options are available. Contact Bishop-Wisecarver for a quotation.
2. Direction of arrow on carriage plate indicates how the load should be oriented to avoid radial loading on the two concentric guide wheels.
3. For clean room/high temperature compatible guide wheels, add "-227" to the end of the part number.

CR Series Vee Channel Assembly

- Matched component for CR Series Vee carriage assemblies
- Induction heat treated 420 stainless steel DualVee track mounted to an extruded aluminum channel
- Corrosion resistant
- Several standard lengths to choose from

Dimensions

UtiliTrak Size	Part Number	H	J	K	L Max	M	N Dia x Depth (Counterbore) ⁴	O (Mounting Hole)	Recommended Fastener	P
1	UTCTPA1-length-SS	17.7	5.9	40	3490	45	18.8 x 2	6.9	Pan Head M6	100
2	UTCTPA2-length-SS	21.5	7.3	60	3390	45	25.4 x 3	8.8	Pan Head M8	150
3	UTCTPA3-length-SS	29.5	9.0	85	3415	82.5	28.6 x 5	10.5	Pan Head M10	250

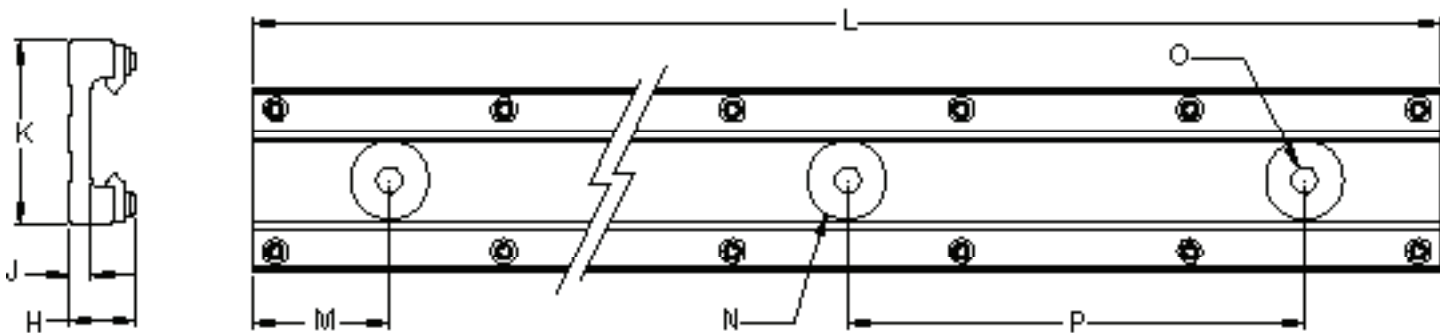
All dimensions in mm

Standard Lengths (mm)

Size 1	Size 2	Size 3
190	240	415
290	390	665
390	540	915
490	690	1165
590	840	1415
690	990	1665
790	1140	1915
890	1290	2165
990	1440	2415
1090	1590	2665
1990	2190	2915
2990	2790	3165
3490	3390	3415

Weight

UtiliTrak Size	Channel Weight (Kg/m)	Carriage Weight (g)
1	1.457	136
2	2.591	385
3	4.884	1107



Notes

1. Contact Bishop-Wisecarver for quotation on non-standard channel lengths.
2. "length" equals channel length in mm in the middle of the UT channel part number.
3. Channel length tolerance is ± 2 mm.
4. Counterbore hole tolerance is ± 0.005 .



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Fit up Adjustment

Fit up is pre-set at the factory, but is easily field adjusted by rotating the eccentric guide wheels. This allows modification of running characteristics such as drag and breakaway force.

1. Fit up adjustment should be performed while the carriage is engaged with the channel.
2. Looking down on the top of the carriage, as shown in Fig. 1, the eccentric stud is locked into place with a hex nut.



Fig.1: Fit up adjustment of a UtiliTrak linear guide

3. Loosen the eccentric wheel/stud assembly by turning the hex nut counter-clockwise with a socket wrench.
4. When the wheel/stud assembly is loose enough, it can be rotated with a wrench, as shown in Fig. 2. Rotating the eccentric wheel's stud will adjust the wheel location into or out of mesh with the channel.



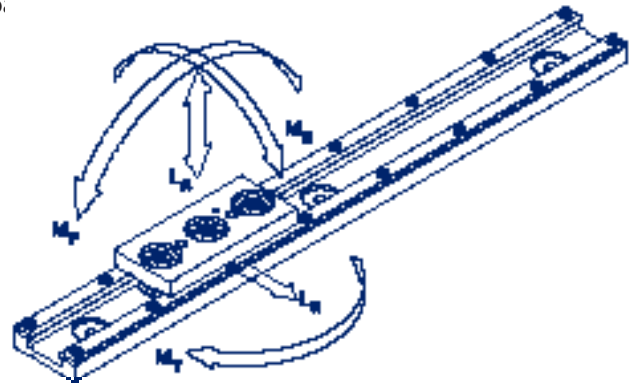
Fig. 2: Fit up adjustment

5. Begin with a small adjustment to the fit up and re-tighten the stud by turning the hex nut clockwise. If the fit up is too loose, the carriage will exhibit excessive play, such as rocking. If the fit up is too tight, the carriage will exhibit excessive drag. Move the carriage up and down the entire channel length to ensure that it does not feel too loose or tight at any given location along the channel. It may take a couple of attempts to find the proper fit up for your system. Take care not to over preload PW Series polymer wheel carriages. It is important for fit up to be correctly adjusted prior to operation.

Mounting Orientation

The UtiliTrak Vee guide assembly can be employed to accept loads in all orientations. However, it is primarily intended to support loads in the radial plane (L_R). As such, it is good engineering practice to orient the slide such that the two outside wheels support the load radially. Each carriage assembly includes an arrow pointing towards the optimal direction of load orientation. Loads oriented in this direction will produce a radial load on each of the concentrically mounted (outer) guide wheels.

The crown roller assembly should be subjected to radial loads.



Close-up of UtiliTrak carriage. Arrow indicates optimal direction of load orientation.

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Bishop-Wisecarver Corporation: Manufacturer of the original DualVee® guide wheel and industry leader in guided motion technology, and exclusive North and Central American partner and distributor for HepcoMotion products since 1984.

BISHOPWISECARVER®

3D CAD DRAWINGS

Bishop-Wisecarver

DualVee® Guide Wheels

LoPro® Actuated Linear Guidance System

MadeWell® Crown Rollers

MinVee® Linear Slide System

UtiliTrak® Linear Guide

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PRODUCT ORDERS



HepcoMotion®

DAPDU2 Double Acting Profile Driven Unit

DLS Driven Linear System

DTS Driven Track System

GV3 Linear Guidance and Transmission System

HDCB Heavy Duty Compact Beam

HDCS Heavy Duty Compact Screw

HDLS Heavy Duty Driven Linear System

HDRT Heavy Duty Ring Slides and Track System

HDS2 Heavy Duty Slide System

MHD Heavy Duty Track Roller Guidance System

MCS Machine Construction System

PDU2 Profile Driven Unit

PDU2M Belt Driven Unit for Moment Loads

PRT2 Precision Ring and Track System

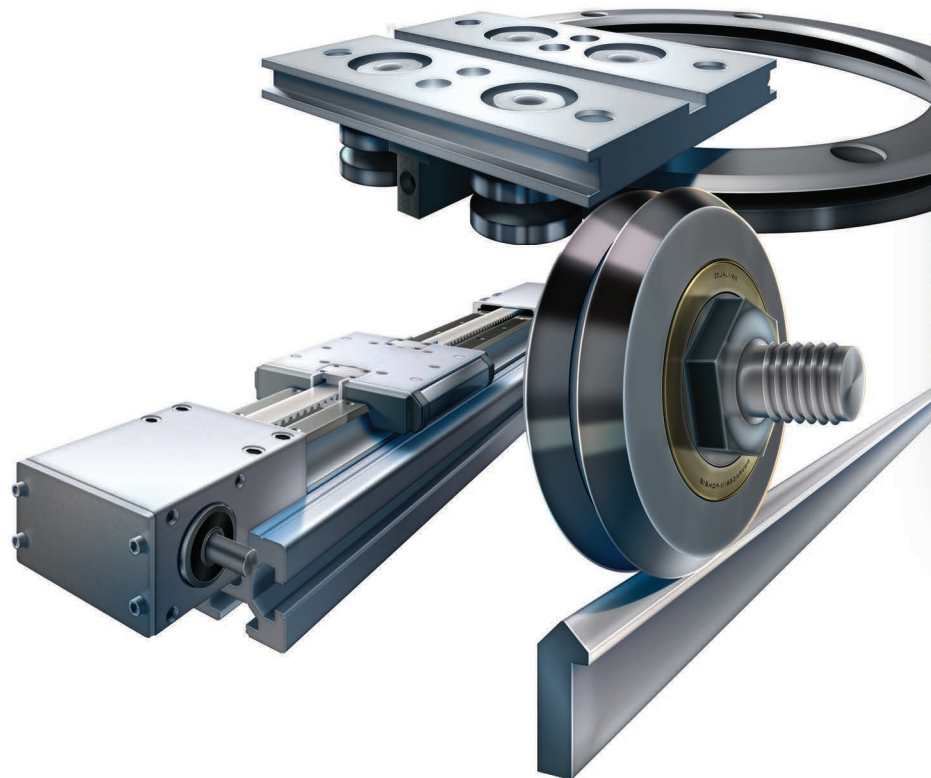
PSD80 Screw Driven Linear Actuator

PSD120 Profile Screw Driven Unit

SBD Sealed Belt Drive

Simple-Select®

SL2 Stainless Steel Based Slide System



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