

# *LoPro<sup>®</sup> Series*



***ACTUATED LINEAR  
GUIDANCE SYSTEM***

***EXPERTLY DESIGNED, DELIVERED TO PERFORM***

Courtesy of Steven Engineering, Inc - (800) 258-9200 - [sales@steveneng.com](mailto:sales@steveneng.com) - [www.stevenengineering.com](http://www.stevenengineering.com)

Revised 1/22

# ***EXPERTLY DESIGNED, DELIVERED TO PERFORM***

Powered by nearly 70 years of relentless problem-solving and steadfast reliability, Bishop-Wisecarver delivers innovative motion solutions around the world that thrive in harsh and extreme conditions. Our linear and rotary motion solutions, custom complex assemblies, and embedded intelligence systems lead the manufacturing industry, and they are backed by The Signature Experience promise of expert guidance, confidence and customer satisfaction.

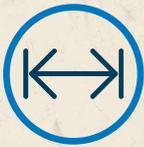
## ***PERFECT FOR HARSH AND EXTREME ENVIRONMENTS***

When you purchase from Bishop-Wisecarver, you aren't just getting a product that works; you're getting products, systems, and industry-leading expertise you can trust, especially in harsh conditions and critical environments—always exceeding our customers' reliability requirements.

### ***Our Motion Products and Solutions Are Also Perfect For:***



HARSH ENVIRONMENTS



LONG LENGTH



LOW NOISE



HIGH/LOW TEMPERATURE



LOW TOTAL COST OF OWNERSHIP



SMOOTH, LOW FRICTION MOTION



MOIST ENVIRONMENTS



FOOD GRADE



CLEAN ROOM



VACUUM

## PRODUCT OVERVIEW

### LoPro® Linear Motion Systems

LoPro linear motion systems are available in four sizes and in belt, lead screw, ball screw and chain driven configurations, as well as un-driven. LoPro provides a tough, cost effective, low friction, low profile modular solution, built to withstand a wide range of operating environments. LoPro is the system of choice for wood, packaging and textile machinery, as well as the clean room or laboratory.

LoPro has the lowest profile in the industry, accomplished by mounting two lengths of our hardened steel track to a low profile milled aluminum track plate. The veeways are pre-aligned and parallel to within .002in (0.05mm). Track plate is available in single piece lengths up to 10 feet (3m), but are routinely butt-joined with a staggered track arrangement for long custom lengths.

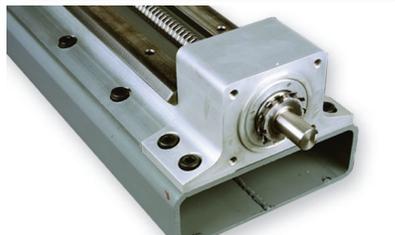
### Complete Integrated Package

- Belt, chain, ball screw, lead screw, or un-driven
- 4 wheel plate sizes to accommodate axial loads from 222 lbs to 3,526 lbs (988N to 15,684N)
- Corrosion resistant versions available



#### **Belt Drive**

AT style steel reinforced polyurethane belting



#### **Lead Screw**

Lead accuracies to .0006 in/in (mm/mm)



#### **Ball Screw**

Accurate to .004 in/ft (100 µm/300mm)

#### **Chain Drive**

Standard or corrosion resistant ANSI roller chain

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### Need Help

#### Application + Design Assistance

925.439.8272

#### 3D Modeling + CAD Drawing

BWC.com

# PRODUCT OVERVIEW

## Proven Technology

DualVee Motion Technology® has been successfully employed in industrial linear motion systems for 40 years.

## High Speed

Speeds up to 5.5 m/s, and acceleration up to 5 g's.

## Low Profile

Sleek, compact design.

## Low Noise/Low Vibration

Reduces noise and vibration substantially over recirculating ball designs.

## Vibration Resistance

**NEW** Options to maintain wheel-to-track fit-up in moderate vibration settings, such as vehicle mounting.

## System Components

### Linear Guide

The linear guide consists of a track plate assembly(ies) and wheel plate assembly(ies), each wheel plate assembly containing four DualVee wheels.



Wiper wheel plate assembly shown consisting of four DualVee wheels, bushings and a wheel plate



Track plate assembly consisting of two or more lengths of induction hardened steel track mounted to an anodized aluminum substrate

### Support Beams

- Aluminum (standard)
- Steel (standard)
- Stainless Steel (custom)



## Long Stroke Lengths

Tracks can be butt-joined to create systems of virtually any length (screw driven system lengths are limited by available screw lengths and critical speed).

## Tolerant of Contamination and Debris

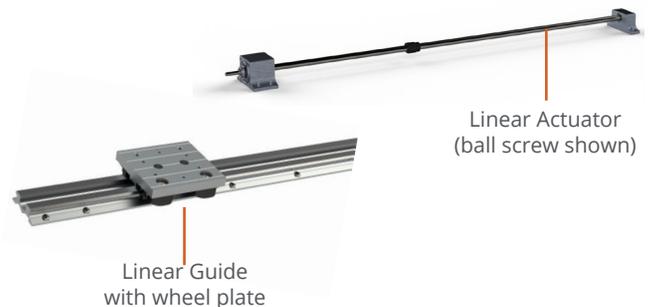
Matching 90-degree vee angle guide wheels and track generate a surface velocity gradient as the motion system runs, providing a constant sweeping action that clears debris out of the way.

## Flexibility and Simplicity

Modular system permits optimized engineered solutions for specific application requirements. Wheel-to-track fit-up makes assembly and field maintenance easy to perform.

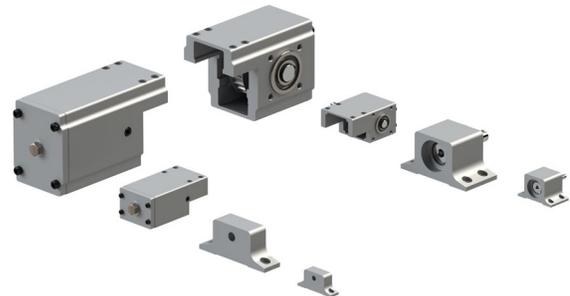
## Linear Actuator

Belt, chain, lead screw, or ball screw driven



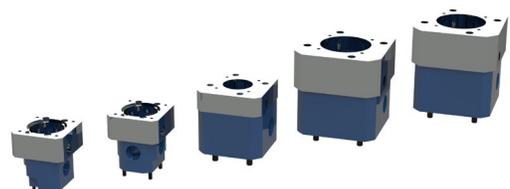
## Drive and Idler Ends

Drive and idler ends contain support bearings for the drive mechanism.



## Motor Mounts (Optional)

Install a wide range of drive motors, shaft couplings and gearboxes with simple and customized motor mounts.



# TYPICAL CONFIGURATIONS & WHEEL PLATE OPTIONS



**Single Axis Linear Motion**



**X-Y Gantry Arrangement**



**X-Y-Z Multi-Axis Arrangement**

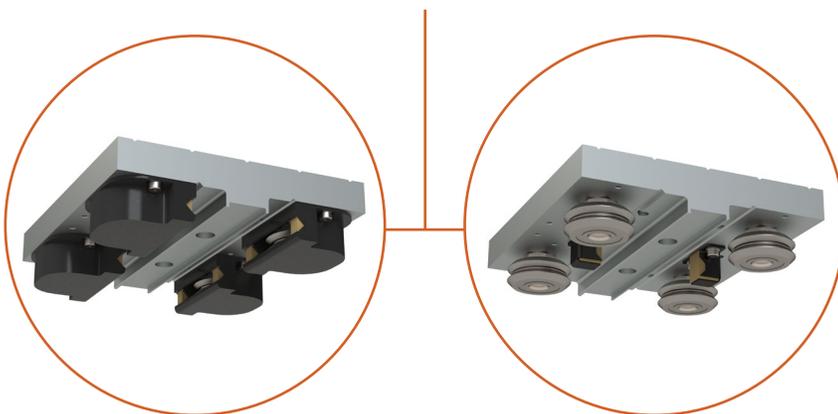
## Wheel Plate Options



**LoPro® Basic Wheel Plate**



**LoPro® Wiper Wheel Plate**



**Wheel Cover Option**

**Track Lubricator Option**



**Vibration-Resistant Lock Nut (Optional)**

## MULTI-INDUSTRY APPLICATIONS

DualVee-based linear guides are popular worldwide and used throughout a broad range of industries.

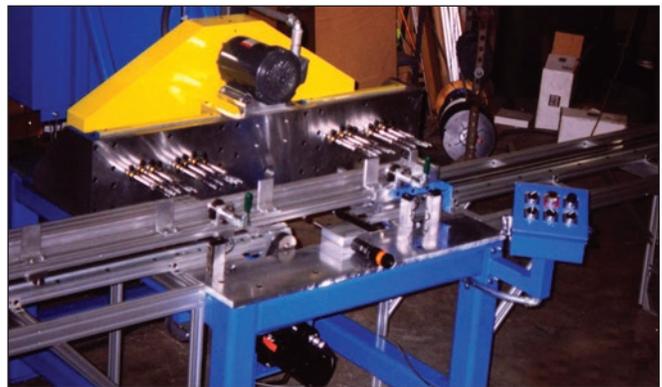
- Machine Tool
- Laboratory
- Automotive Production
- Industrial Automation
- Biomedical
- Inspection Equipment
- Material Handling Equipment
- Textile Machinery
- Paper Processing and Converting
- Semiconductor
- Packaging Machinery
- Electronics Assembly
- Non-contact Machining Equipment



Bishop-Wisecarver specializes in long length challenges. Belt and chain driven LoPro linear actuators have been fabricated up to 80 feet.



In the food product packaging industry, a LoPro system provides long overhead actuation for an automated material transfer system.



LoPro's precise travel and fast acceleration allow exact and repeatable hole drilling for door manufacturing, despite the presence of carbon fiber debris.



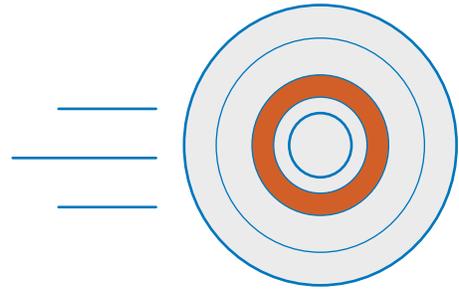
This multi-axis plasma cutter, using a LoPro ball screw driven system, operates in a harsh environment consisting of smoke, abrasive dust, weld splatter, hot sparks and elevated temperatures.



In precision agriculture, this high-speed automated picker uses corrosion-resistant LoPro actuators to work consecutive 20 hour days in all weather conditions and heavy debris.

# QUICKSHIP PROGRAM

SELECT LOPRO® CONFIGURATIONS  
SHIP FROM OUR FACILITY IN **≤ 1 WEEK**  
(SUBJECT TO HOLIDAY SHIPPING SCHEDULE)



**Wiper Wheel Plate**



**Basic Wheel Plate  
+ Lubricators**



**Basic Wheel Plate  
+ Wheel Covers**

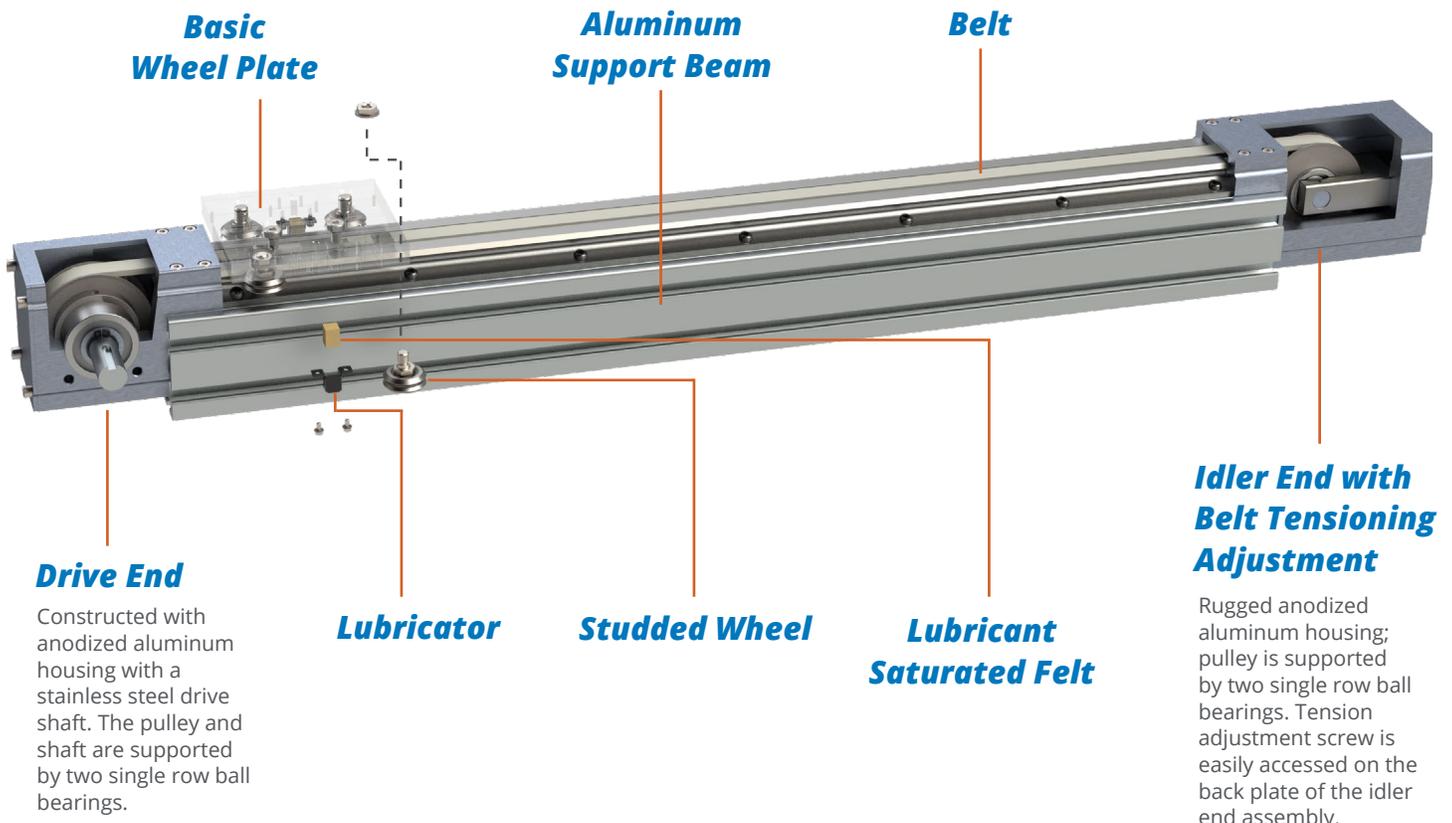
## QuickShip Program Qualifying Configurations:

- Undriven or belt-driven
- Sizes: 1 – 4 (1, 2S, 2L, 3, & 4)
- Order quantity: 1 – 5 systems
- System travel: < 2.4 meters (7.8 feet)
- Unmounted or aluminum beam mounted for sizes 1 – 3
- Unmounted for size 4
- Corrosion-resistant wheels available
- Wiper or basic wheel plate options
- May include multiple wheel plates on a single system
- May include gantry bracket kits and/or gantry plate kits (assembly required)
- Excludes system that include a motor, motor mount, or gearhead



# BELT DRIVEN SYSTEMS

- Complete belt actuated system, ready for installation
- Long stroke, high speed and acceleration capability
- AT style reinforced polyurethane belting
- Linear accuracy of .008 in/ft (0.2mm/300mm)
- Repeatable within .004 in. (0.1mm)
- Small and large drive options available on size 2
- Aluminum support beams, steel beams or un-mounted (without beams)
- Basic wheel plate or wiper wheel plate
- Standardized motor mount pattern can adapt to virtually any motor or gearbox manufacturer specifications.
- Standard and corrosion resistant versions available
- Aluminum alloy drive end pulleys with aluminum or plated steel flanges
- Vibration-resistant basic wheel plate option **NEW**



# BELT DRIVEN SYSTEMS

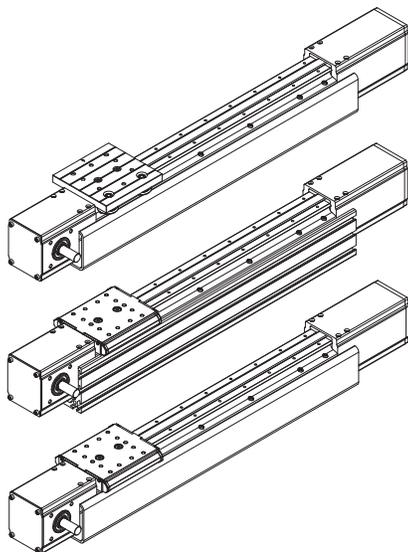
WHEEL PLATE ASSEMBLY LOAD CAPACITIES	SYSTEM SIZE	AXIAL $L_A$		RADIAL $L_R$		PITCH $M_P$		YAW $M_Y$		ROLL $M_R$	
		N	LBF	N	LBF	N-M	LBF-FT	N-M	LBF-FT	N-M	LBF-FT
	1	988	222	2391	538	26	18.9	62	45.7	27	19.8
2S/2L	2450	551	5194	1168	95	70.3	202	148.9	100	73.8	
3	6668	1499	11564	2600	346	254.9	599	442.1	372	274.1	
4	15684	3526	19012	4274	1220	899.5	1478	1090.3	1174	865.6	

LOPRO SYSTEM BELT LOAD CAPACITIES				DRIVE END PULLEYS PITCH DIAMETER		BELT TEETH SHEAR STRENGTH FORMULA (N)* (APPROX.)	BELT TEETH SHEAR STRENGTH AT V=0 M/S (N)*	BELT TEETH SHEAR STRENGTH AT V=5.5 M/S (N)*
SYSTEM SIZE	BELT SIZE	WORKING TENSILE LOAD		IN	MM			
		N	LBF					
1	10AT5	630	142	1.128	28.7	$F = 315 - 1.17V^3 + 15.3V^2 - 75.3V$	315	169
2S	16AT5	1008	227	1.504	38.2	$F = 672 - 1.06V^3 + 18.4V^2 - 120V$	672	392
2L	16AT10	2085	469	3.133	79.6	$F = 1407 - 2.59V^3 + 34.2V^2 - 208V$	1407	867
3	20AT10	2606	586	3.759	95.5	$F = 1761 - 2.98V^3 + 37.3V^2 - 230V$	1761	1128
4	32AT10	4170	937	3.759	95.5	$F = 2818 - 4.80V^3 + 60.0V^2 - 369V$	2818	1805

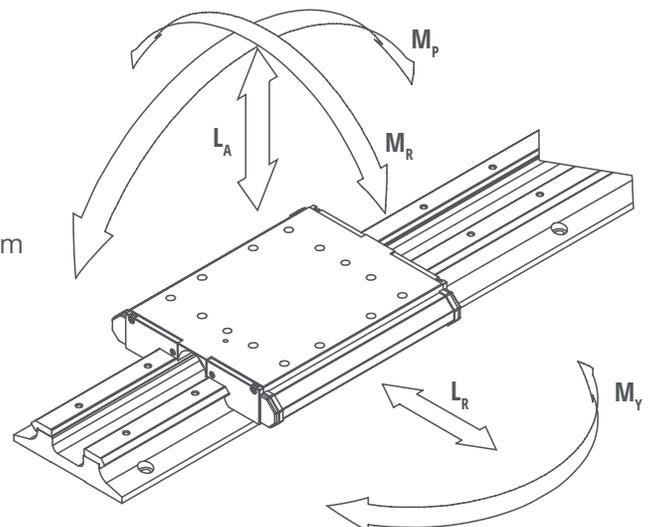
If the wheel plate will be subjected to shock loads, divide the permissible linear force by a safety factor of 1.4 (light shock) to 2 (high shock).

\*The belt teeth shear strength is the permissible linear force which the drive pulley can apply to the wheel plate. The sum of the linear force applied to the wheel plate and the belt pretension load must not exceed the working tensile load. V = Linear Speed.

See the Technical Data catalog for more information on sizing, selection, loads, life, and mass.



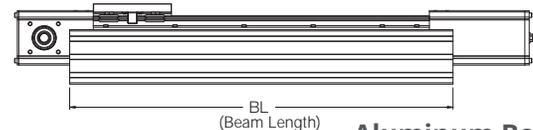
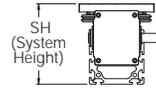
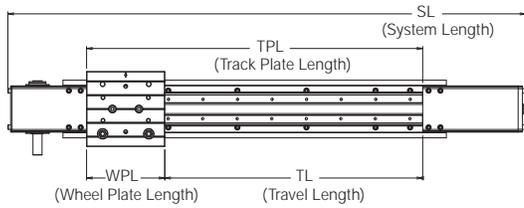
- Basic Wheel Plate
- Aluminum Support Beam
- Wiper Wheel Plate
- Steel Support Beam
- Wiper Wheel Plate
- Aluminum Support Beam



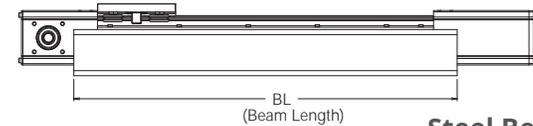
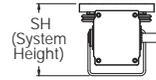
# BELT DRIVEN SYSTEMS

## Basic Wheel Plate

### Beam Mounted

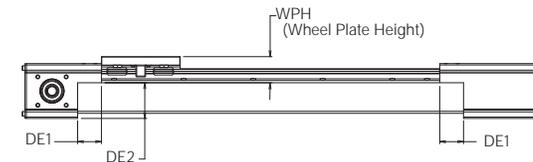
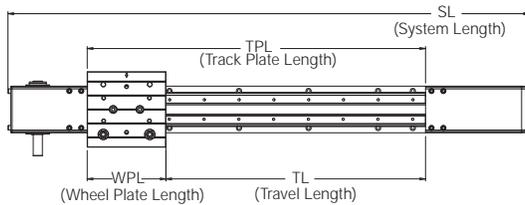


Aluminum Beam



Steel Beam

### Un-mounted\*



### Dimensions

SIZE	TRACK PLATE LENGTH TPL = (TL+WPL)		SYSTEM LENGTH (SL)		SYSTEM HEIGHT (SH)						BEAM LENGTH (BL)		WHEEL PLATE HEIGHT (WPH)	
	IN	MM	IN	MM	ALUMINUM		STEEL		UN-MOUNTED		BEAM-MOUNTED		UN-MOUNTED	
					IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
1	TL+3.543	TL+90.0	TPL+6.833	TPL+173.6	2.840	72.1	2.765	70.2	1.895	48.1	TL+5.906	TL+150.0	1.265	32.1
2S	TL+5.000	TL+127.0	TPL+8.960	TPL+227.6	3.269	83.0	3.194	81.1	2.796	71.0	TL+8.150	TL+207.0	1.694	43.0
2L	TL+5.000	TL+127.0	TPL+12.522	TPL+318.1	4.844	123.0	4.694	119.2	4.371	110.0	TL+8.150	TL+207.0	1.694	43.0
3	TL+6.772	TL+172.0	TPL+15.751	TPL+400.1	6.969	177.0	6.245	158.6	5.320	135.1	TL+10.866	TL+276.0	2.244	57.0
4	TL+9.528	TL+242.0	TPL+17.358	TPL+440.9	N/A	N/A	6.718	170.6	5.671	144.0	TL+13.780	TL+350.0	2.718	69.0

### Dimensions

SIZE	DRIVE END CUTOUT WIDTH (DE1)		DRIVE END CUTOUT HEIGHT (DE2)		SYSTEM INERTIA J = (A + B + C)					
	UN-MOUNTED		UN-MOUNTED		(A)		(B')		(C')	
	IN	MM	IN	MM	IN <sup>2</sup>	MM <sup>2</sup>	IN	MM	IN <sup>2</sup>	MM <sup>2</sup>
1	1.181	30.0	.630	16.0	.315lb in <sup>2</sup>	92.2kg mm <sup>2</sup>	.00142lb in x TL	.0164kg mm x TL	.318in <sup>2</sup> x M	205mm <sup>2</sup> x M
2S	1.575	40.0	1.102	28.0	1.48lb in <sup>2</sup>	433kg mm <sup>2</sup>	.00380lb in x TL	.0438kg mm x TL	.566in <sup>2</sup> x M	365mm <sup>2</sup> x M
2L	1.575	40.0	2.677	68.0	8.35lb in <sup>2</sup>	2440kg mm <sup>2</sup>	.0275lb in x TL	.317kg mm x TL	2.45in <sup>2</sup> x M	1580mm <sup>2</sup> x M
3	2.047	52.0	3.075	78.1	27.1lb in <sup>2</sup>	7930kg mm <sup>2</sup>	.0515lb in x TL	.593kg mm x TL	3.53in <sup>2</sup> x M	2280mm <sup>2</sup> x M
4	2.126	54.0	2.953	75.0	57.8lb in <sup>2</sup>	16900kg mm <sup>2</sup>	.0792lb in x TL	.912kg mm x TL	3.53in <sup>2</sup> x M	2280mm <sup>2</sup> x M

\* Un-mounted systems are designed for mounting to a customer-supplied mounting surface. System straightness and flatness are determined by mounting surface accuracy. Continuous support along the entire track plate length is recommended.

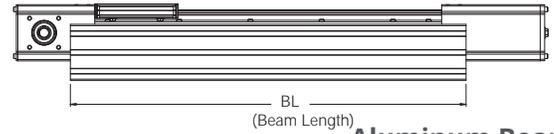
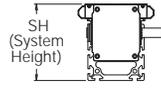
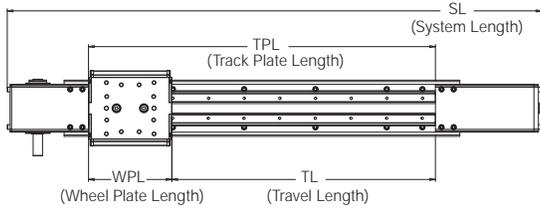
### Notes:

1. TL (Travel Length) must be in mm for metric calculation, inches for Imperial calculation.
2. M (Mass of payload on the wheel plate) must be in kg for metric calculation, lbm for Imperial calculation.

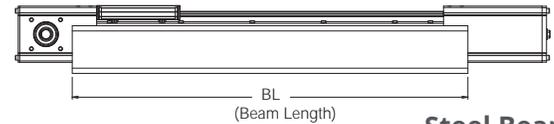
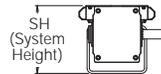
# BELT DRIVEN SYSTEMS

## Wiper Wheel Plate

### Beam Mounted

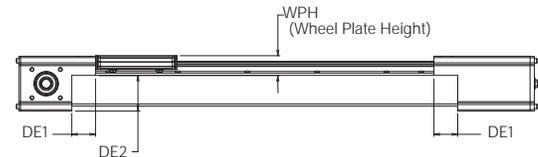
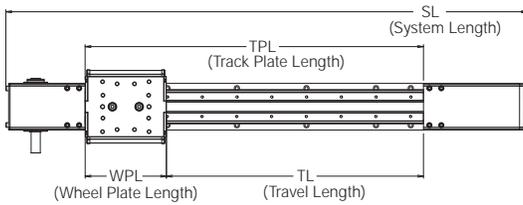


**Aluminum Beam**



**Steel Beam**

### Un-mounted\*



### Dimensions

SIZE	TRACK PLATE LENGTH TPL = (TL+WPL)		SYSTEM LENGTH (SL)		SYSTEM HEIGHT (SH)						BEAM LENGTH (BL)		WHEEL PLATE HEIGHT (WPH)	
	IN	MM	IN	MM	ALUMINUM		STEEL		UN-MOUNTED		BEAM-MOUNTED		UN-MOUNTED	
					IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
1	TL+3.701	TL+94.0	TPL+6.833	TPL+173.6	2.482	63.0	2.407	61.1	1.537	39.0	TL+6.063	TL+154.0	.907	23.0
2S	TL+5.114	TL+129.9	TPL+8.960	TPL+227.6	2.874	73.0	2.799	71.1	2.401	61.0	TL+8.264	TL+209.9	1.299	33.0
2L	TL+5.114	TL+129.9	TPL+12.522	TPL+318.1	4.449	113.0	4.299	109.2	3.976	101.0	TL+8.264	TL+209.9	1.299	33.0
3	TL+6.990	TL+177.6	TPL+15.751	TPL+400.1	6.417	163.0	5.693	144.6	4.768	121.1	TL+11.084	TL+281.6	1.693	43.0
4	TL+9.600	TL+243.8	TPL+17.358	TPL+440.9	N/A	N/A	6.167	156.6	5.120	130.0	TL+13.852	TL+351.8	2.167	55.0

### Dimensions

SIZE	DRIVE END CUTOUT WIDTH (DE1)		DRIVE END CUTOUT HEIGHT (DE2)		SYSTEM INERTIA J = (A + B + C)					
	UN-MOUNTED		UN-MOUNTED		(A)		(B')		(C')	
	IN	MM	IN	MM	IN <sup>2</sup>	MM <sup>2</sup>	IN	MM	IN <sup>2</sup>	MM <sup>2</sup>
1	1.181	30.0	.630	16.0	.234lb in <sup>2</sup>	68.4kg mm <sup>2</sup>	.00142lb in x TL	.0164kg mm x TL	.318in <sup>2</sup> x M	205mm <sup>2</sup> x M
2S	1.575	40.0	1.102	28.0	1.21lb in <sup>2</sup>	355kg mm <sup>2</sup>	.00380lb in x TL	.0438kg mm x TL	.566in <sup>2</sup> x M	365mm <sup>2</sup> x M
2L	1.575	40.0	2.677	68.0	7.15lb in <sup>2</sup>	2090kg mm <sup>2</sup>	.0275lb in x TL	.317kg mm x TL	2.45in <sup>2</sup> x M	1580mm <sup>2</sup> x M
3	2.047	52.0	3.075	78.1	22.9lb in <sup>2</sup>	6690kg mm <sup>2</sup>	.0515lb in x TL	.593kg mm x TL	3.53in <sup>2</sup> x M	2280mm <sup>2</sup> x M
4	2.126	54.0	2.953	75.0	49.9lb in <sup>2</sup>	14600kg mm <sup>2</sup>	.0792lb in x TL	.912kg mm x TL	3.53in <sup>2</sup> x M	2280mm <sup>2</sup> x M

\* Un-mounted systems are designed for mounting to a customer-supplied mounting surface. System straightness and flatness are determined by mounting surface accuracy. Continuous support along the entire track plate length is recommended.

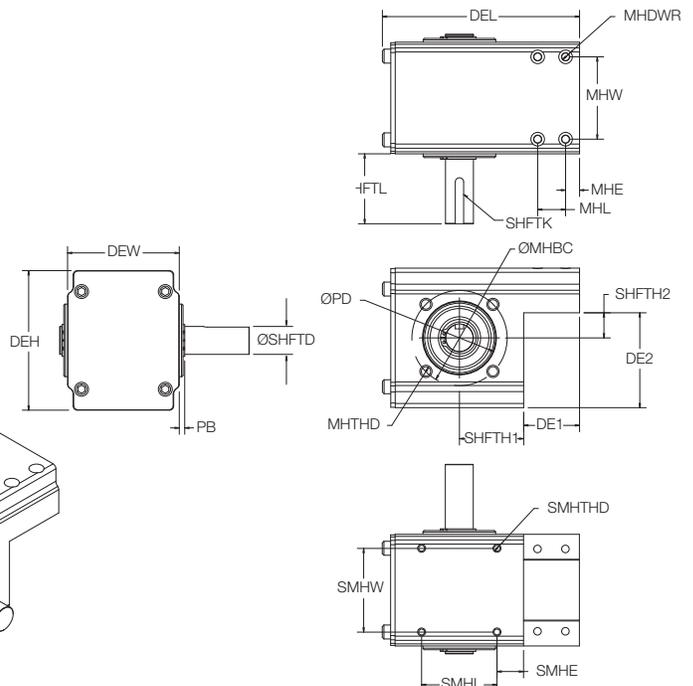
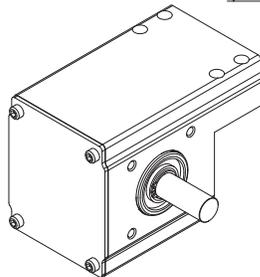
### Notes:

1. TL (Travel Length) must be in mm for metric calculation, inches for Imperial calculation.
2. M (Mass of payload on the wheel plate) must be in kg for metric calculation, lbm for Imperial calculation.

# BELT DRIVEN SYSTEMS

## Drive Ends

- Designed for high performance, high cycling linear motion
- Incorporates high quality radial bearings with a high strength aircraft grade aluminum housing
- Drive ends are available with optional relief holes (open bottom) for extremely aggressive environments with high particulate matter. Contact Bishop-Wisecarver for details.
- Dual shaft, left hand, and right hand versions available (right hand version shown).
- Corrosion resistant versions available. Contact Bishop-Wisecarver for details.



### Dimensions

SIZE	DRIVE END LENGTH (DEL)		DRIVE END WIDTH (DEW)		DRIVE END HEIGHT (DEH)		SHAFT LENGTH (SHFTL)		SHAFT DIAMETER (SHFTD)		SHAFT SQUARE KEY SIZE (SHFTK)	SHAFT LOCATIONS				DRIVE END CUTOUT WIDTH (DE1)		DRIVE END CUTOUT HEIGHT (DE2)		MOUNTING HARDWARE (MHDWR)
												(SHFTH1)		(SHFTH2)*						
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM		IN	MM	IN	MM	IN	MM	IN	MM	
1	2.999	76.2	1.969	50.0	1.496	38.0	1.166	29.6	.354	9.0	3mm	.787	20.0	-.118	-3.0	1.181	30.0	.630	16.0	M3x22mm
2S	3.748	95.2	2.835	72.0	2.362	60.0	1.445	36.7	.472	12.0	4mm	.945	24.0	-.079	-2.0	1.575	40.0	1.102	28.0	M5x30mm
2L	5.558	141.2	3.150	80.0	3.937	100.0	1.973	50.1	.787	20.0	6mm	1.811	46.0	.709	18.0	1.575	40.0	2.677	68.0	M5x35mm
3	6.818	173.2	4.016	102.0	4.724	120.0	1.973	50.1	.787	20.0	6mm	2.205	56.0	.713	18.1	2.047	52.0	3.075	78.1	M6x45mm
4	7.212	183.2	5.512	140.0	5.039	128.0	1.973	50.1	.787	20.0	6mm	2.323	59.0	.434	11.0	2.126	54.0	2.953	75.0	M8x55mm

\* Negative SHFTH2 dimensions indicate the cutout height is below the center of the shaft.

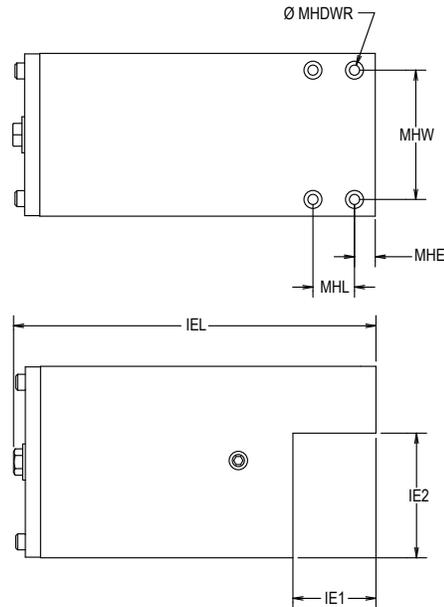
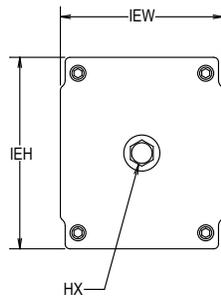
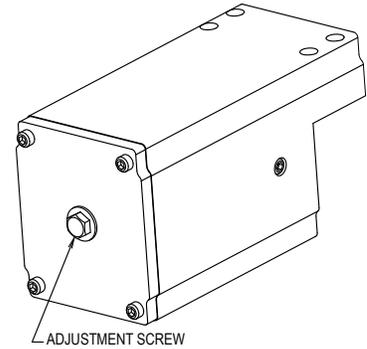
### Dimensions

SIZE	MOUNTING HOLES						MOTOR MOUNT						MOUNTING HOLE THREAD (MHTHD)
	WIDTH (MHW)		EDGE SPACING (MHE)		LENGTH (MHL)		PILOT DIAMETER (PD)		PILOT BEARING HEIGHT (PB)		BOLT CIRCLE DIAMETER (MHBC)		
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	
1	1.575	40.0	.236	6.0	.709	18.0	.945	24.0	.067	1.7	1.670	42.4	M4 x 0.7
2S	2.323	59.0	.394	10.0	.787	20.0	1.102	28.0	.067	1.7	2.004	50.9	M5 x 0.8
2L	2.323	59.0	.394	10.0	.787	20.0	2.047	52.0	.106	2.7	2.673	67.9	M8 x 1.25
3	3.189	81.0	.512	13.0	1.024	26.0	2.047	52.0	.106	2.7	3.452	87.7	M8 x 1.25
4	4.370	110.0	.532	13.5	1.064	27.0	2.047	52.0	.106	2.7	3.564	90.5	M8 x 1.25

# BELT DRIVEN SYSTEMS

## Idler Ends

- Belt tension adjustment is easily accomplished via rotation of a single, easy-to-access adjustment screw
- High quality radial bearings and high strength aluminum housing provides smooth, accurate linear motion
- Idler ends are available with optional relief holes (open bottom) for extremely aggressive environments with high particulate matter. Contact Bishop-Wisecarver for details.
- Corrosion resistant versions available. Contact Bishop-Wisecarver for details.



### Dimensions

SIZE	IDLER END LENGTH (IEL)		IDLER END WIDTH (IEW)		IDLER END HEIGHT (IEH)		IDLER END CUTOUT WIDTH (IE1)		IDLER END CUTOUT HEIGHT (IE2)		MOUNTING HARDWARE (MHDWR)	MOUNTING HOLES						HEX HEAD ADJ. SCREW (HX)
												WIDTH (MHW)		EDGE SPACING (MHE)		LENGTH (MHL)		
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM		IN	MM	IN	MM	IN	MM	
1	3.834	97.4	1.969	50.0	1.496	38.0	1.181	30.0	.630	16.0	M3x22mm Min.	1.575	40.0	.236	6.0	.709	18.0	7/16in
2S	5.212	132.4	2.835	72.0	2.362	60.0	1.575	40.0	1.102	28.0	M5x30mm Min.	2.323	59.0	.394	10.0	.787	20.0	7/16in
2L	6.964	176.9	3.150	80.0	3.937	100.0	1.575	40.0	2.677	68.0	M5x35mm Min.	2.323	59.0	.394	10.0	.787	20.0	1/2in
3	8.933	226.9	4.016	102.0	4.724	120.0	2.047	52.0	3.075	78.1	M6x45mm Min.	3.189	81.0	.512	13.0	1.024	26.0	1/2in
4	10.146	257.7	5.512	140.0	5.039	128.0	2.126	54.0	2.953	75.0	M8x55mm Min.	4.370	111.0	.532	13.5	1.063	27.0	9/16in

# BELT DRIVEN SYSTEMS

## Basic Wheel Plate Options

### Dimensions

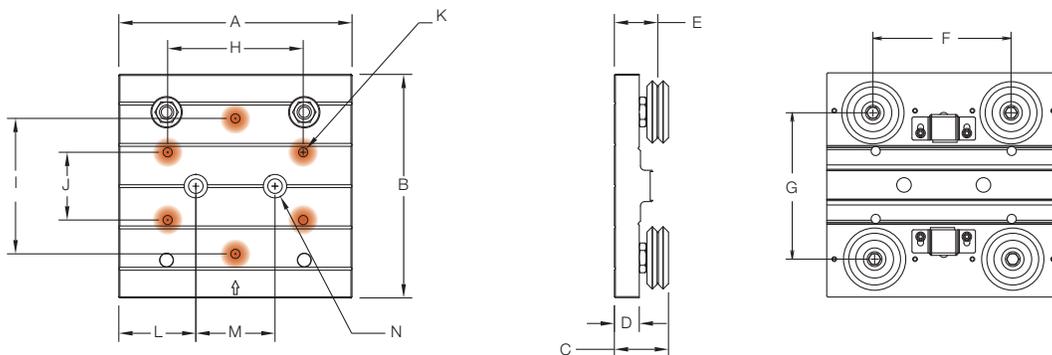
SIZE	STOCK CODE		OVERALL LENGTH (A)		OVERALL WIDTH (B)		ASSEMBLY HEIGHT (C)		WHEEL PLATE HEIGHT (D)		WHEEL VEE HEIGHT (E)		WHEEL SPACING LENGTH (F)		WHEEL SPACING WIDTH (G)	
	TRACK LUBRICATOR	WHEEL COVER	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
1	BWP1XSWTLBC	BWP1XSWWCBC	3.54	90.0	3.15	80.0	.91	23.1	.45	11.3	.73	18.6	2.00	50.8	2.10	53.3
2	BWP2XSWTLBC	BWP2XSWSWCBC	5.00	127.0	4.57	116.0	1.16	25.6	.57	14.4	.95	24.0	3.00	76.2	3.15	80.0
3	BWP3XSWTLBC	BWP3XSWSWCBC	6.77	172.0	6.50	165.0	1.57	39.9	.72	18.4	1.26	32.0	4.00	101.6	4.30	109.2
4	BWP4XSWTLBC	BWP4XSWSWCBC	9.53	242.0	8.74	222.0	1.87	47.5	.85	21.6	1.50	38.0	6.00	152.4	5.77	146.6

Part numbers above are for wheel plate assemblies with carbon steel linear guide wheels with SWS swaged studs and flanged nuts. Other swaged guide wheel materials and versions are available including: stainless steel (SSX), stainless steel high temperature (SS227), stainless steel low temperature (SS300). For vibration-resistant lock nuts, add "L" to the end of the stock code (e.g. BWP2XSWTLBCL). For secondary wheel plate assembly, contact Bishop-Wisecarver for details.

### Dimensions

SIZE	WEIGHT IN GRAMS <sup>1</sup>	MOUNTING HOLE LENGTH (H)		MOUNTING HOLE WIDTH 1 (I)		MOUNTING HOLE WIDTH 2 (J)		MOUNTING HOLE THREAD (K)	COUPLER MOUNTING HOLE TO EDGE (L)		COUPLER MOUNTING HOLE LENGTH (M)		COUPLER FASTENER (N)
		IN	MM	IN	MM	IN	MM		IN	MM	IN	MM	
1	307	1.97	50.0	1.97	50.0	.98	25.0	M4x0.7	1.25	31.7	1.05	26.7	M5
2	835	2.99	76.0	2.99	76.0	1.50	38.0	M6x1.0	1.60	40.6	1.80	45.7	M8
3	2135	3.94	100.0	3.94	100.0	1.97	50.0	M8x1.25	2.24	56.8	2.30	58.4	M10
4	4765	5.98	152.0	5.98	152.0	2.60	66.0	M10x1.5	2.76	70.2	4.00	101.6	M12

Highlighted holes indicate customer mounting holes



Above wheel plate assembly shown with track lubricators. Wheel plate assemblies are included with complete systems. See system ordering information, page 17.

#### Notes:

- Weights shown are for wheel plates with wheel covers without couplings. Basic wheel plates with track lubricators weigh slightly less.

# BELT DRIVEN SYSTEMS

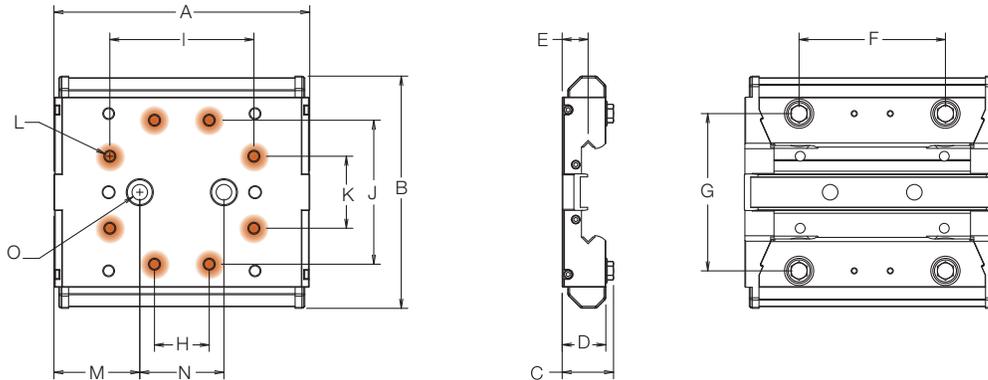
## Wiper Wheel Plate Options

Dimensions															
SIZE	STOCK CODE	OVERALL LENGTH (A)		OVERALL WIDTH (B)		ASSEMBLY HEIGHT (C)		WHEEL PLATE HEIGHT (D)		WHEEL VEE HEIGHT (E)		WHEEL SPACING LENGTH (F)		WHEEL SPACING WIDTH (G)	
		IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
1	LP1WPADG	3.700	94.0	3.070	78.0	.730	18.5	.650	16.5	.375	9.5	2.00	50.8	2.098	53.3
2	LP2WPADG	5.114	129.9	4.540	115.3	1.041	26.4	.916	23.3	.551	14.0	3.00	76.2	3.150	80.0
3	LP3WPADG	6.990	177.6	6.350	161.3	1.403	35.6	1.193	30.3	.709	18.0	4.00	101.6	4.300	109.2
4	LP4WPADG	9.6000	243.8	8.394	213.2	1.798	45.7	1.553	39.5	.945	24.0	6.00	152.4	5.774	146.7

Part numbers above are for wheel plate assemblies with carbon steel linear guide wheels with SWS swaged studs and flanged nuts. Other swaged guide wheel materials and versions are available including: stainless steel (SSX), stainless steel high temperature (SS227), stainless steel low temperature (SS300). For secondary wheel plate assembly, contact Bishop-Wisecarver for details.

Dimensions															
SIZE	WEIGHT IN GRAMS	MOUNTING HOLE LENGTH 1 (H)		MOUNTING HOLE LENGTH 2 (I)		MOUNTING HOLE WIDTH 1 (J)		MOUNTING HOLE WIDTH 2 (K)		MOUNTING HOLE THREAD (L)	COUPLER MOUNTING HOLE TO EDGE (M)		COUPLER MOUNTING HOLE LENGTH (N)		COUPLER FASTENER (O)
		IN	MM	IN	MM	IN	MM	IN	MM		IN	MM	IN	MM	
1	194	N/A	N/A	1.969	50.0	1.969	50.0	.984	25.0	M4x0.7	1.325	33.7	1.05	26.7	M5
2	628	1.181	30.0	2.992	76.0	2.992	76.0	1.496	38.0	M6x1.0	1.657	42.1	1.80	45.7	M8
3	1629	1.496	38.0	3.937	100.0	3.937	100.0	1.969	50.0	M8x1.25	2.345	59.6	2.30	58.4	M10
4	3816	2.598	66.0	5.984	152.0	5.984	152.0	2.598	66.0	M10x1.5	2.800	71.1	4.00	101.6	M12

Highlighted holes indicate customer mounting holes

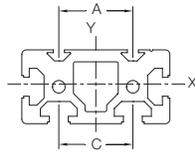


Wheel plate assemblies included with complete systems. See system ordering information, page 17.

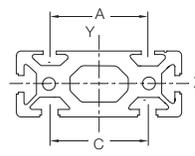
# BELT DRIVEN SYSTEMS

## Aluminum Support Beams

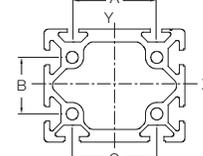
- Designed with industry standard cross section and T-slot (10mm) geometry
- Compatible with HepcoMotion® MCS aluminum frame and machine construction system from Bishop-Wisecarver, as well as other industry profile extrusions



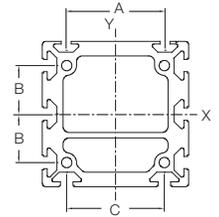
Size 1  
LP1SBEXT



Size 2S  
LP2SSBEXT



Size 2L  
LP2LSBEXT



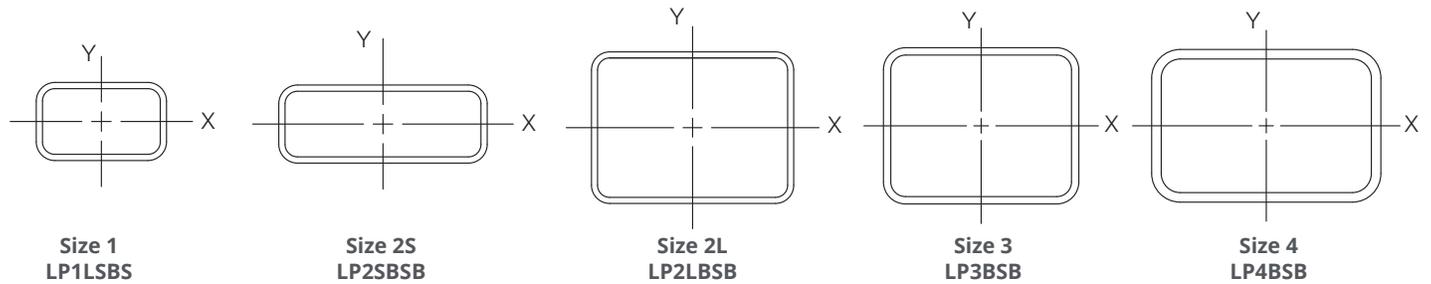
Size 3  
LP3SBEXT

### Dimensions

SIZE	WIDTH		HEIGHT		CROSS SECTIONAL AREA		MOMENT OF INERTIA X-AXIS		MOMENT OF INERTIA Y-AXIS		LOPRO T-SLOT (A)		LOPRO T-SLOT (B)		LOPRO T-SLOT (C)		MAX LENGTH	
	IN	MM	IN	MM	IN <sup>2</sup>	MM <sup>2</sup>	IN <sup>4</sup>	MM <sup>4</sup>	IN <sup>4</sup>	MM <sup>4</sup>	IN	MM	IN	MM	IN	MM	FT	M
1	3.150	80.0	1.575	40.0	2.60	1679.9	.66	2.772x10 <sup>5</sup>	2.42	1.007x10 <sup>6</sup>	1.575	40.0	N/A	N/A	1.575	40.0	18.37	5.6
2S	3.937	100.0	1.575	40.0	3.30	2130.1	.84	3.512x10 <sup>5</sup>	4.26	1.773x10 <sup>6</sup>	2.322	59.0	N/A	N/A	2.362	60.0	18.37	5.6
2L	3.937	100.0	3.150	80.0	4.18	2698.3	5.15	2.142x10 <sup>6</sup>	7.14	2.974x10 <sup>6</sup>	2.322	59.0	1.575	40.0	2.362	60.0	18.37	5.6
3	4.724	120.0	4.724	120.0	7.98	5146.6	20.51	8.537x10 <sup>6</sup>	20.40	8.490x10 <sup>6</sup>	3.189	81.0	1.575	40.0	3.150	80.0	18.37	5.6

Aluminum beams are not available in size 4.

## Steel Support Beams



Size 1  
LP1LSBS

Size 2S  
LP2SBSB

Size 2L  
LP2LBSB

Size 3  
LP3BSB

Size 4  
LP4BSB

### Dimensions

SIZE	WIDTH		HEIGHT		THICKNESS		CROSS SECTIONAL AREA		MOMENT OF INERTIA X-AXIS		MOMENT OF INERTIA Y-AXIS		MAX LENGTH <sup>1</sup>	
	IN	MM	IN	MM	IN	MM	IN <sup>2</sup>	MM <sup>2</sup>	IN <sup>4</sup>	MM <sup>4</sup>	IN <sup>4</sup>	MM <sup>4</sup>	FT	M
1	2.50	63.5	1.50	38.1	.12	3.1	.84	541.0	.29	1.215x10 <sup>5</sup>	.64	2.679x10 <sup>5</sup>	24	7.3
2S	4.00	101.6	1.50	38.1	.12	3.1	1.20	774.6	.46	1.933x10 <sup>5</sup>	2.17	9.045x10 <sup>5</sup>	40	12.2
2L	4.00	101.6	3.00	76.2	.12	3.1	1.56	1006.8	2.27	9.468x10 <sup>5</sup>	3.53	1.469x10 <sup>6</sup>	24	7.3
3	5.00	127.0	4.00	101.6	.19	4.8	3.09	1994.1	7.73	3.216x10 <sup>6</sup>	10.87	4.524x10 <sup>6</sup>	48	14.6
4	6.00	152.4	4.00	101.6	.25	6.4	4.48	2891.4	11.30	4.702x10 <sup>6</sup>	21.09	8.777x10 <sup>6</sup>	48	14.6

Aluminum beams are 6061-T6 or 6063-T6 aluminum alloy. Steel beams are structural steel tubing ASTM A500 Grade A. Note: drawings are not to scale.

#### Notes:

1. Sizes 3 and 4 - up to 48 ft lengths stock. Longer lengths available upon request. Contact factory for availability.

# BELT DRIVEN SYSTEMS

## Stock Code Builder

LP B 1Z C C C Z R S B 400.0

**System**  
LP: LoPro

**Drive System**  
B: Belt

**Size**  
1Z: Size 1  
2S: Size 2S  
2L: Size 2L  
3Z: Size 3  
4Z: Size 4

**System Material**  
C: Carbon Steel (Standard)  
S: Stainless Steel (Corrosion Resistant)

**Wheel Plate Type<sup>2</sup>**  
W: Wiper Wheel Plate  
L: Basic Wheel Plate w/ Track Lubricators  
M: Basic Wheel Plate w/ Track Lubricators & Lock Nuts  
C: Basic Wheel Plate w/ Wheel Covers  
D: Basic Wheel Plate w/ Wheel Covers & Lock Nuts

**Wheel Type**  
C: Carbon Steel  
S: Stainless Steel  
H: Stainless Steel 227 High Temp.  
L: Stainless Steel 300 Low Temp.  
W: Stainless Steel Washdown  
V: Stainless Steel Vacuum

**Travel Length**  
Enter Value in 0.1mm increments

**Version**  
B: Version B

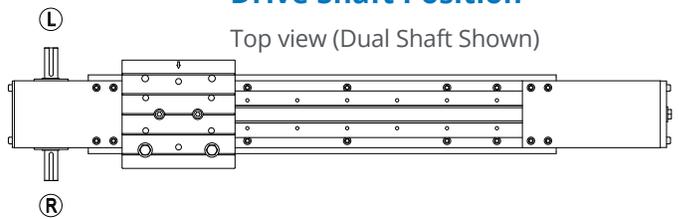
**Support Beam**  
U: Un-mounted  
A: Aluminum Beam<sup>1</sup>  
S: Steel Beam  
D: Stainless Steel Beam<sup>2</sup>

**Drive Configuration**  
L: Left Hand Output Shaft  
R: Right Hand Output Shaft  
D: Dual L/R Output Shaft  
E: Left Hand Output Shaft Open Bottom  
F: Right Hand Output Shaft Open Bottom  
G: Dual L/R Output Shaft Open Bottom

**Additional Wheel Plate Options**  
R: Sensor Flag Right Side  
L: Sensor Flag Left Side  
Y: Sensor Flags Right & Left Sides  
Z: No Sensor Flag

### Drive Shaft Position

Top view (Dual Shaft Shown)



## Ordering Example

LPB1ZCCCZRSB 400.0

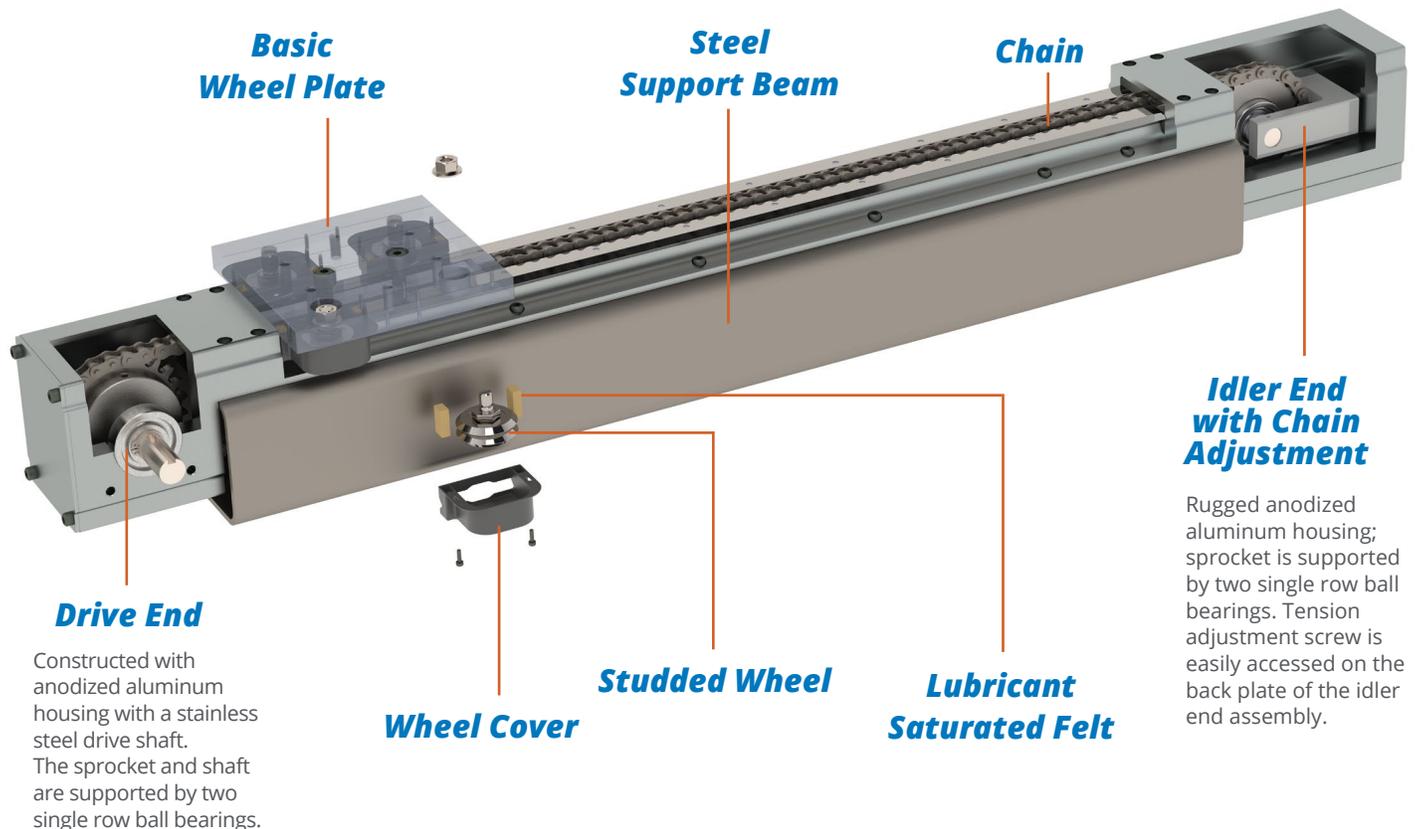
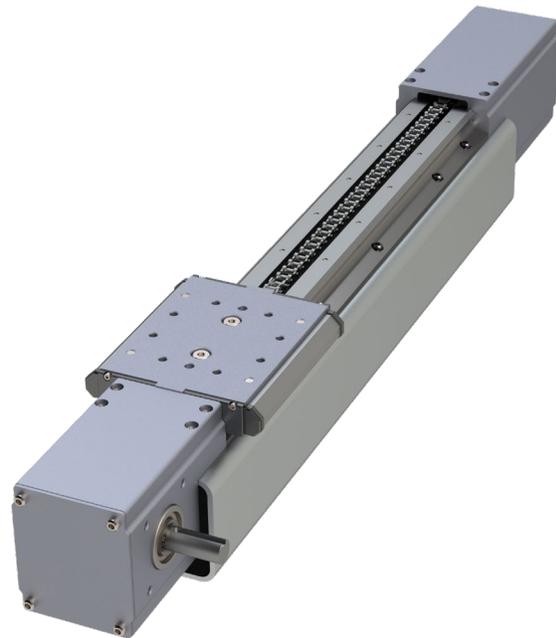
LoPro, Belt, Size 1, Carbon Steel, Basic Wheel Plate with Wheel Covers, Carbon Steel Wheels, No Sensor Flags, Right Hand Output Shaft Configuration, Steel Beam Mounted, Version B, 400.0mm Travel.

### Notes:

1. Aluminum beam is not available in size 4.
2. Corrosion resistant systems are available with basic wheel plate or wiper wheel plate. Corrosion resistant systems on stainless steel beams are custom. Contact Bishop-Wisecarver for details.

# CHAIN DRIVEN SYSTEMS

- Complete chain actuated system, ready for installation
- Ideal for vertical hoisting and large load actuation over long lengths
- Standard or corrosion resistant ANSI roller chain
- Accurate to .015 in/ft (0.4mm/300mm)  
Repeatable within .008 in (0.2mm)
- Small and large drive options available on size 2
- Aluminum support beams, steel beams or un-mounted (without beams)
- Basic wheel plate or wiper wheel plate
- Standardized motor mount pattern can adapt to virtually any motor or gearbox manufacturer specifications.
- Steel or stainless steel drive end sprockets
- Vibration-resistant basic wheel plate option **NEW**



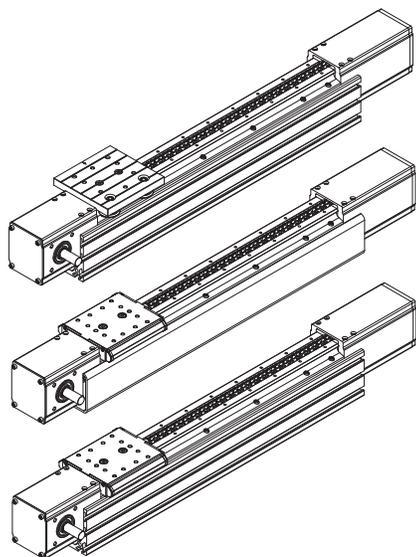
# CHAIN DRIVEN SYSTEMS

WHEEL PLATE ASSEMBLY LOAD CAPACITIES	SYSTEM SIZE	AXIAL $L_A$		RADIAL $L_R$		PITCH $M_P$		YAW $M_Y$		ROLL $M_R$	
		N	LBF	N	LBF	N-M	LBF-FT	N-M	LBF-FT	N-M	LBF-FT
	1	988	222	2391	538	26	18.9	62	45.7	27	19.8
2S/2L	2450	551	5194	1168	95	70.3	202	148.9	100	73.8	
3	6668	1499	11564	2600	346	254.9	599	442.1	372	274.1	
4	15684	3526	19012	4274	1220	899.5	1478	1090.3	1174	865.6	

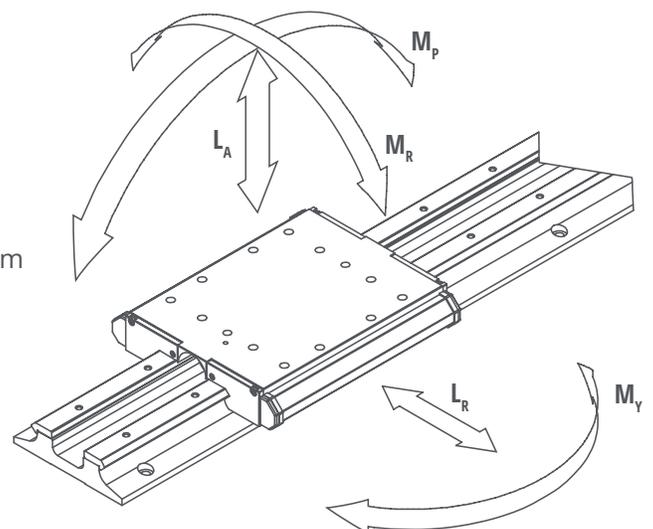
LOPRO SYSTEM CHAIN LOAD CAPACITIES										DRIVE END SPROCKETS		
SYSTEM SIZE	CHAIN SIZE SINGLE STRAND	STATIC/SLOW SPEED WORKING LOAD*				WORKING LOAD AT 0.5 M/S*				PITCH DIAMETER		NUMBER OF TEETH
		STEEL		STAINLESS STEEL		STEEL		STAINLESS STEEL		IN	MM	
		N	LBF	N	LBF	N	LBF	N	LBF			
1	25	431	97	347	78	267	60	214	48	.966	24.5	12
2S	35	1036	233	841	189	618	139	494	111	1.449	36.8	12
2L	35	1036	233	841	189	645	145	516	116	3.111	79.0	26
3	40	1975	444	1481	333	1152	259	863	194	3.672	93.3	23
4	50	3261	733	2322	522	1788	402	1272	286	3.599	91.4	18

\*Working load varies with speed. Contact Bishop-Wisecarver for specific application information.

See the Technical Data catalog for more information on sizing, selection, loads, life, and mass.



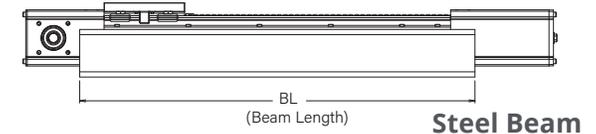
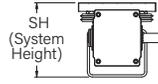
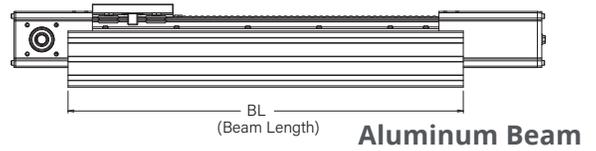
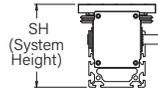
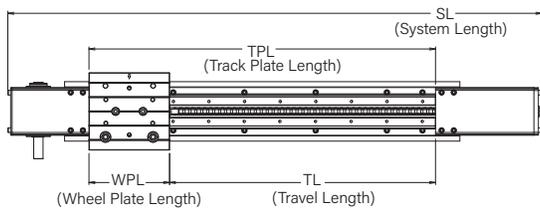
- Basic Wheel Plate
- Aluminum Support Beam
- Wiper Wheel Plate
- Steel Support Beam
- Wiper Wheel Plate
- Aluminum Support Beam



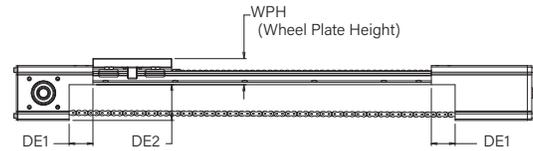
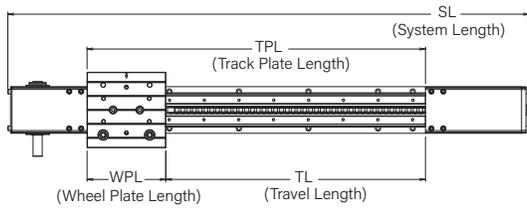
# CHAIN DRIVEN SYSTEMS

## Basic Wheel Plate

### Beam Mounted



### Un-mounted\*



### Dimensions

SIZE	TRACK PLATE LENGTH TPL = (TL+WPL)		SYSTEM LENGTH (SL)		SYSTEM HEIGHT (SH)						BEAM LENGTH (BL)		WHEEL PLATE HEIGHT (WPH)	
	IN	MM	IN	MM	ALUMINUM		STEEL		UN-MOUNTED		BEAM-MOUNTED		UN-MOUNTED	
					IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
1	TL+3.543	TL+90.0	TPL+6.833	TPL+173.6	2.840	72.1	2.765	70.2	1.895	48.1	TL+5.906	TL+150.0	1.265	32.1
2S	TL+5.000	TL+127.0	TPL+8.960	TPL+227.6	3.269	83.0	3.194	81.1	2.796	71.0	TL+8.150	TL+207.0	1.694	43.0
2L	TL+5.000	TL+127.0	TPL+12.522	TPL+318.1	4.844	123.0	4.694	119.2	4.371	110.0	TL+8.150	TL+207.0	1.694	43.0
3	TL+6.772	TL+172.0	TPL+15.751	TPL+400.1	6.969	177.0	6.245	158.6	5.320	135.1	TL+10.866	TL+276.0	2.244	57.0
4	TL+9.528	TL+242.0	TPL+17.358	TPL+440.9	N/A	N/A	6.718	170.6	5.671	144.0	TL+13.780	TL+350.0	2.718	69.0

### Dimensions

SIZE	DRIVE END CUTOUT WIDTH (DE1)		DRIVE END CUTOUT HEIGHT (DE2)		SYSTEM INERTIA J = (A + B + C)					
	IN	MM	IN	MM	(A)		(B')		(C')	
					IN <sup>2</sup>	MM <sup>2</sup>	IN	MM	IN <sup>2</sup>	MM <sup>2</sup>
1	1.181	30.0	.630	16.0	.256lb in <sup>2</sup>	74.8kg mm <sup>2</sup>	.0037lb in x TL	.0421kg mm x TL	.234in <sup>2</sup> x M	151mm <sup>2</sup> x M
2S	1.575	40.0	1.102	28.0	1.62lb in <sup>2</sup>	474kg mm <sup>2</sup>	.020lb in x TL	.230kg mm x TL	.525in <sup>2</sup> x M	339mm <sup>2</sup> x M
2L	1.575	40.0	2.677	68.0	9.78lb in <sup>2</sup>	2860kg mm <sup>2</sup>	.092lb in x TL	1.06kg mm x TL	2.42in <sup>2</sup> x M	1560mm <sup>2</sup> x M
3	2.047	52.0	3.075	78.1	31.7lb in <sup>2</sup>	9260kg mm <sup>2</sup>	.241lb in x TL	2.78kg mm x TL	3.36in <sup>2</sup> x M	2170mm <sup>2</sup> x M
4	2.126	54.0	2.953	75.0	60.2lb in <sup>2</sup>	17600kg mm <sup>2</sup>	.388lb in x TL	4.47kg mm x TL	3.24in <sup>2</sup> x M	2090mm <sup>2</sup> x M

\* Un-mounted systems are designed for mounting to a customer-supplied mounting surface. System straightness and flatness are determined by mounting surface accuracy. Continuous support along the entire track plate length is recommended.

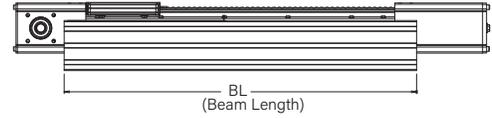
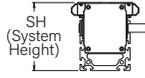
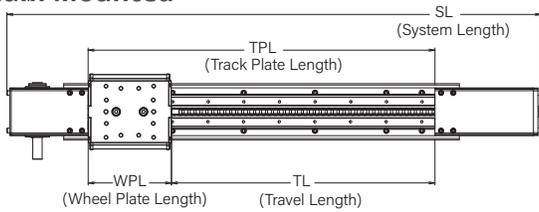
### Notes:

1. TL (Travel Length) must be in mm for metric calculation, inches for Imperial calculation.
2. M (Mass of payload on the wheel plate) must be in kg for metric calculation, lbf for Imperial calculation.

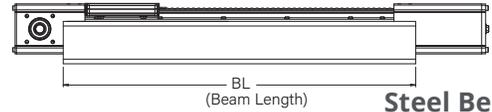
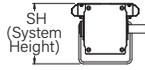
# CHAIN DRIVEN SYSTEMS

## Wiper Wheel Plate

### Beam Mounted

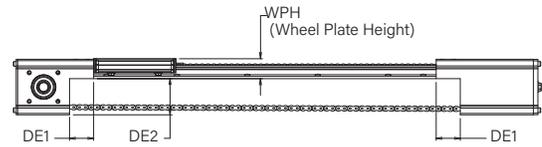
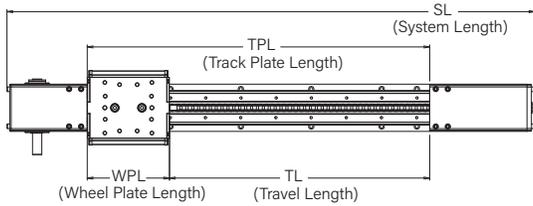


Aluminum Beam



Steel Beam

### Un-mounted\*



### Dimensions

SIZE	TRACK PLATE LENGTH TPL = (TL+WPL)		SYSTEM LENGTH (SL)		SYSTEM HEIGHT (SH)						BEAM LENGTH (BL)		WHEEL PLATE HEIGHT (WPH)	
	IN	MM	IN	MM	ALUMINUM		STEEL		UN-MOUNTED		BEAM-MOUNTED		UN-MOUNTED	
					IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
1	TL+3.701	TL+94.0	TPL+6.833	TPL+173.6	2.482	63.0	2.407	61.1	1.537	39.0	TL+6.063	TL+154.0	.907	23.0
2S	TL+5.114	TL+129.9	TPL+8.960	TPL+227.6	2,874	73.0	2.799	71.1	2.401	61.0	TL+8.264	TL+209.9	1.299	33.0
2L	TL+5.114	TL+129.9	TPL+12.522	TPL+318.1	4.449	113.0	4.299	109.2	3.976	101.0	TL+8.264	TL+209.9	1.299	33.0
3	TL+6.990	TL+177.6	TPL+15.751	TPL+400.1	6.417	163.0	5.693	144.6	4.768	121.1	TL+11.084	TL+281.6	1.693	43.0
4	TL+9.600	TL+243.8	TPL+17.358	TPL+440.9	N/A	N/A	6.167	156.6	5.120	130.0	TL+13.852	TL+351.8	2.167	55.0

### Dimensions

SIZE	DRIVE END CUTOUT WIDTH DE1		DRIVE END CUTOUT HEIGHT DE2		SYSTEM INERTIA J = (A + B + C)					
	UN-MOUNTED		UN-MOUNTED		(A)		(B')		(C')	
	IN	MM	IN	MM	IN <sup>2</sup>	MM <sup>2</sup>	IN	MM	IN <sup>2</sup>	MM <sup>2</sup>
1	1.181	30.0	.630	16.0	.197lb in <sup>2</sup>	57.6kg mm <sup>2</sup>	.00366lb in x TL	.0421kg mm x TL	.234in <sup>2</sup> x M	151mm <sup>2</sup> x M
2S	1.575	40.0	1.102	28.0	1.37lb in <sup>2</sup>	402kg mm <sup>2</sup>	.020lb in x TL	.23kg mm x TL	.525in <sup>2</sup> x M	339mm <sup>2</sup> x M
2L	1.575	40.0	2.677	68.0	8.65lb in <sup>2</sup>	2530kg mm <sup>2</sup>	.092lb in x TL	1.06kg mm x TL	2.42in <sup>2</sup> x M	1560mm <sup>2</sup> x M
3	2.047	52.0	3.075	78.1	27.7lb in <sup>2</sup>	8090kg mm <sup>2</sup>	.241lb in x TL	2.78kg mm x TL	3.36in <sup>2</sup> x M	2170mm <sup>2</sup> x M
4	2.126	54.0	2.953	75.0	53.4lb in <sup>2</sup>	15600kg mm <sup>2</sup>	.388lb in x TL	4.47kg mm x TL	3.24in <sup>2</sup> x M	2090mm <sup>2</sup> x M

\* Un-mounted systems are designed for mounting to a customer-supplied mounting surface. System straightness and flatness are determined by mounting surface accuracy. Continuous support along the entire track plate length is recommended.

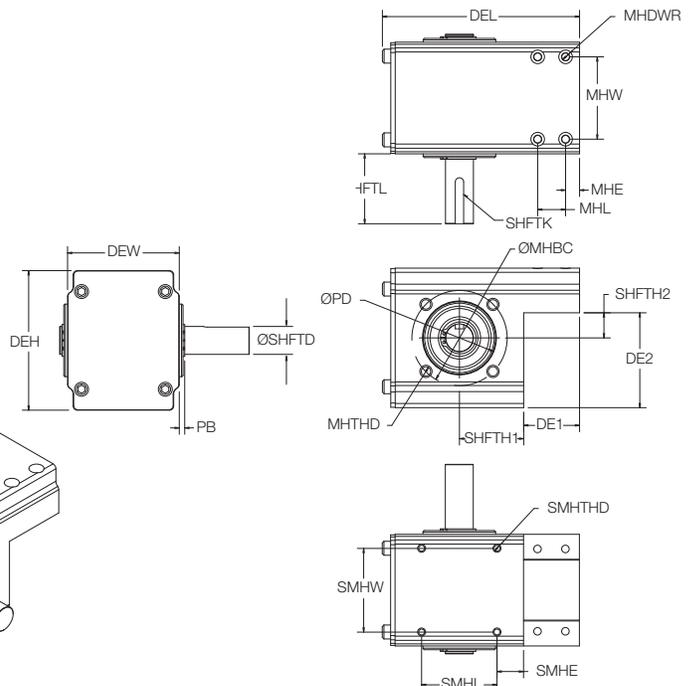
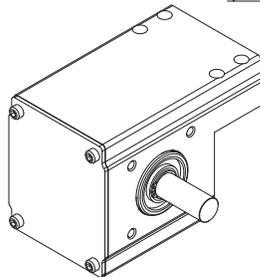
### Notes:

1. TL (Travel Length) must be in mm for metric calculation, inches for Imperial calculation.
2. M (Mass of payload on the wheel plate) must be in kg for metric calculation, lbm for Imperial calculation.

# CHAIN DRIVEN SYSTEMS

## Drive Ends

- Designed for high performance, high cycling linear motion
- Incorporates high quality radial bearings with a high strength aircraft grade aluminum housing
- Drive ends are available with optional relief holes (open bottom) for extremely aggressive environments with high particulate matter. Contact Bishop-Wisecarver for details.
- Dual shaft, left hand, and right hand versions available (right hand version shown).
- Corrosion resistant versions available. Contact Bishop-Wisecarver for details.



### Dimensions

SIZE	DRIVE END LENGTH (DEL)		DRIVE END WIDTH (DEW)		DRIVE END HEIGHT (DEH)		SHAFT LENGTH (SHFTL)		SHAFT DIAMETER (SHFTD)		SHAFT SQUARE KEY SIZE (SHFTK)	SHAFT LOCATIONS				DRIVE END CUTOUT WIDTH (DE1)		DRIVE END CUTOUT HEIGHT (DE2)		MOUNTING HARDWARE (MHDWR)
												(SHFTH1)		(SHFTH2)*						
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM		IN	MM	IN	MM	IN	MM	IN	MM	
1	2.999	76.2	1.969	50.0	1.496	38.0	1.166	29.6	.354	9.0	3mm	.787	20.0	-.118	-3.0	1.181	30.0	.630	16.0	M3x22mm
2S	3.748	95.2	2.835	72.0	2.362	60.0	1.445	36.7	.472	12.0	4mm	.945	24.0	-.079	-2.0	1.575	40.0	1.102	28.0	M5x30mm
2L	5.558	141.2	3.150	80.0	3.937	100.0	1.973	50.1	.787	20.0	6mm	1.811	46.0	.709	18.0	1.575	40.0	2.677	68.0	M5x35mm
3	6.818	173.2	4.016	102.0	4.724	120.0	1.973	50.1	.787	20.0	6mm	2.205	56.0	.713	18.1	2.047	52.0	3.075	78.1	M6x45mm
4	7.212	183.2	5.512	140.0	5.039	128.0	1.973	50.1	.787	20.0	6mm	2.323	59.0	.434	11.0	2.126	54.0	2.953	75.0	M8x55mm

\* Negative SHFTH2 dimensions indicate the cutout height is below the center of the shaft.

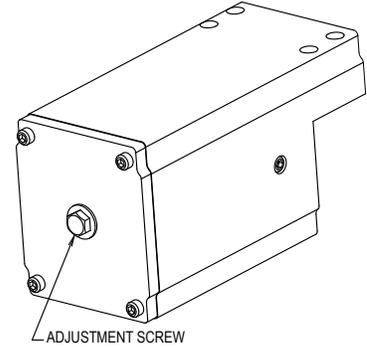
### Dimensions

SIZE	MOUNTING HOLES						MOTOR MOUNT						MOUNTING HOLE THREAD (MHTHD)
	WIDTH (MHW)		EDGE SPACING (MHE)		LENGTH (MHL)		PILOT DIAMETER (PD)		PILOT BEARING HEIGHT (PB)		BOLT CIRCLE DIAMETER (MHBC)		
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	
1	1.575	40.0	.236	6.0	.709	18.0	.945	24.0	.067	1.7	1.670	42.4	M4 x 0.7
2S	2.323	59.0	.394	10.0	.787	20.0	1.102	28.0	.067	1.7	2.004	50.9	M5 x 0.8
2L	2.323	59.0	.394	10.0	.787	20.0	2.047	52.0	.106	2.7	2.673	67.9	M8 x 1.25
3	3.189	81.0	.512	13.0	1.024	26.0	2.047	52.0	.106	2.7	3.452	87.7	M8 x 1.25
4	4.370	110.0	.532	13.5	1.064	27.0	2.047	52.0	.106	2.7	3.564	90.5	M8 x 1.25

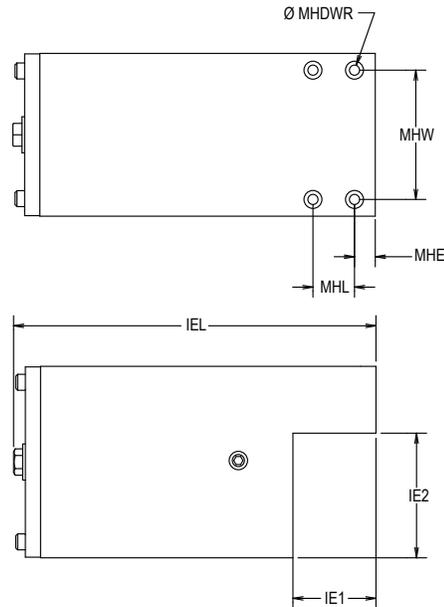
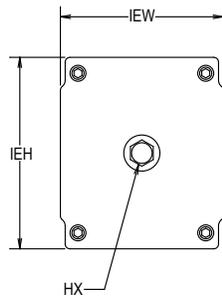
# CHAIN DRIVEN SYSTEMS

## Idler Ends

- Chain adjustment is easily accomplished via rotation of a single, easy-to-access adjustment screw
- High quality radial bearings and high strength aluminum housing provides smooth, accurate linear motion
- Idler ends are available with optional relief holes (open bottom) for extremely aggressive environments with high particulate matter. Contact Bishop-Wisecarver for details.
- Corrosion resistant versions available. Contact Bishop-Wisecarver for details.



ADJUSTMENT SCREW



### Dimensions

SIZE	IDLER END LENGTH (IEL)		IDLER END WIDTH (IEW)		IDLER END HEIGHT (IEH)		IDLER END CUTOUT WIDTH (IE1)		IDLER END CUTOUT HEIGHT (IE2)		MOUNTING HARDWARE (MHDWR)	MOUNTING HOLES						HEX HEAD ADJ. SCREW (HX)
												WIDTH (MHW)		EDGE SPACING (MHE)		LENGTH (MHL)		
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM		IN	MM	IN	MM	IN	MM	
1	3.834	97.4	1.969	50.0	1.496	38.0	1.181	30.0	.630	16.0	M3x22mm Min.	1.575	40.0	.236	6.0	.709	18.0	7/16in
2S	5.212	132.4	2.835	72.0	2.362	60.0	1.575	40.0	1.102	28.0	M5x30mm Min.	2.323	59.0	.394	10.0	.787	20.0	7/16in
2L	6.964	176.9	3.150	80.0	3.937	100.0	1.575	40.0	2.677	68.0	M5x35mm Min.	2.323	59.0	.394	10.0	.787	20.0	1/2in
3	8.933	226.9	4.016	102.0	4.724	120.0	2.047	52.0	3.075	78.1	M6x45mm Min.	3.189	81.0	.512	13.0	1.024	26.0	1/2in
4	10.146	257.7	5.512	140.0	5.039	128.0	2.126	54.0	2.953	75.0	M8x55mm Min.	4.370	111.0	.532	13.5	1.063	27.0	9/16in

# CHAIN DRIVEN SYSTEMS

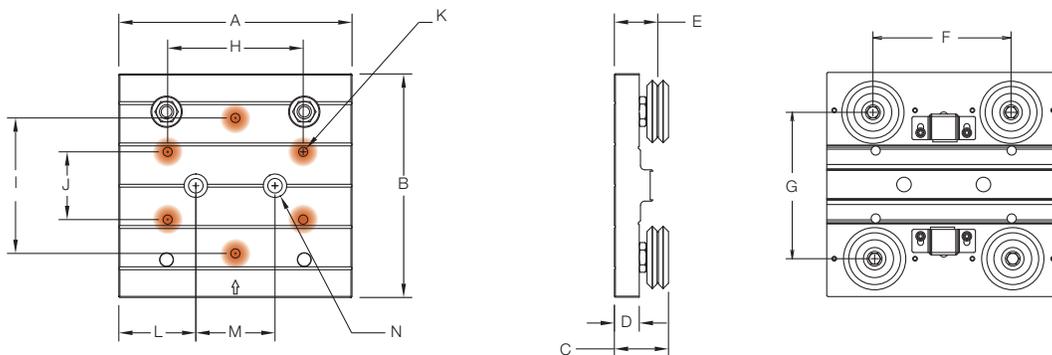
## Basic Wheel Plate Options

Dimensions																
SIZE	STOCK CODE		OVERALL LENGTH (A)		OVERALL WIDTH (B)		ASSEMBLY HEIGHT (C)		WHEEL PLATE HEIGHT (D)		WHEEL VEE HEIGHT (E)		WHEEL SPACING LENGTH (F)		WHEEL SPACING WIDTH (G)	
	TRACK LUBRICATOR	WHEEL COVER	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
1	BWP1XSWTLBC	BWP1XSWWCBC	3.54	90.0	3.15	80.0	.91	23.1	.45	11.3	.73	18.6	2.00	50.8	2.10	53.3
2	BWP2XSWTLBC	BWP2XSWSWCBC	5.00	127.0	4.57	116.0	1.16	25.6	.57	14.4	.95	24.0	3.00	76.2	3.15	80.0
3	BWP3XSWTLBC	BWP3XSWSWCBC	6.77	172.0	6.50	165.0	1.57	39.9	.72	18.4	1.26	32.0	4.00	101.6	4.30	109.2
4	BWP4XSWTLBC	BWP4XSWSWCBC	9.53	242.0	8.74	222.0	1.87	47.5	.85	21.6	1.50	38.0	6.00	152.4	5.77	146.6

Part numbers above are for wheel plate assemblies with carbon steel linear guide wheels with SWS swaged studs and flanged nuts. Other swaged guide wheel materials and versions are available including: stainless steel (SSX), stainless steel high temperature (SS227), stainless steel low temperature (SS300). For vibration-resistant lock nuts, add "L" to the end of the stock code (e.g. BWP2XSWTLBCL). For secondary wheel plate assembly, contact Bishop-Wisecarver for details.

Dimensions													
SIZE	WEIGHT IN GRAMS <sup>1</sup>	MOUNTING HOLE LENGTH (H)		MOUNTING HOLE WIDTH 1 (I)		MOUNTING HOLE WIDTH 2 (J)		MOUNTING HOLE THREAD (K)	COUPLER MOUNTING HOLE TO EDGE (L)		COUPLER MOUNTING HOLE LENGTH (M)		COUPLER FASTENER (N)
		IN	MM	IN	MM	IN	MM		IN	MM	IN	MM	
1	307	1.97	50.0	1.97	50.0	.98	25.0	M4x0.7	1.25	31.7	1.05	26.7	M5
2	835	3.00	76.0	3.00	76.0	1.50	38.0	M6x1.0	1.60	40.6	1.80	45.7	M8
3	2135	3.94	100.0	3.94	100.0	1.97	50.0	M8x1.25	2.24	56.8	2.30	58.4	M10
4	4765	5.98	152.0	5.98	152.0	2.60	66.0	M10x1.5	2.76	70.2	4.00	101.6	M12

### Highlighted holes indicate customer mounting holes



Above wheel plate assembly shown with track lubricators. Wheel plate assemblies are included with complete systems. See system ordering information, page 27.

#### Notes:

- Weights shown are for wheel plates with wheel covers and without couplings. Basic wheel plates with track lubricators weigh slightly less.

# CHAIN DRIVEN SYSTEMS

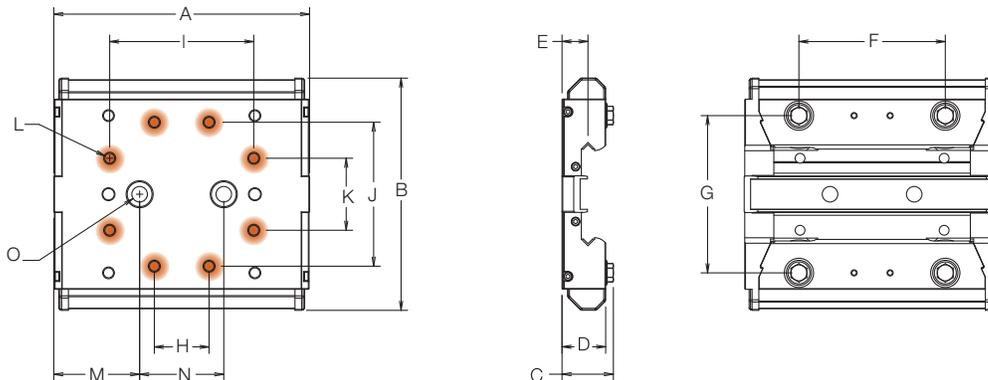
## Wiper Wheel Plate Options

Dimensions		OVERALL LENGTH (A)		OVERALL WIDTH (B)		ASSEMBLY HEIGHT (C)		WHEEL PLATE HEIGHT (D)		WHEEL VEE HEIGHT (E)		WHEEL SPACING LENGTH (F)		WHEEL SPACING WIDTH (G)	
SIZE	STOCK CODE	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
1	LP1WPADG	3.700	94.0	3.070	78.0	.730	18.5	.650	16.5	.375	9.5	2.00	50.8	2.098	53.3
2	LP2WPADG	5.114	129.9	4.540	115.3	1.041	26.4	.916	23.3	.551	14.0	3.00	76.2	3.150	80.0
3	LP3WPADG	6.990	177.6	6.350	161.3	1.403	35.6	1.193	30.3	.709	18.0	4.00	101.6	4.300	109.2
4	LP4WPADG	9.6000	243.8	8.394	213.2	1.798	45.7	1.553	39.5	.945	24.0	6.00	152.4	5.774	146.7

Part numbers above are for wheel plate assemblies with carbon steel linear guide wheels with SWS swaged studs and flanged nuts. Other swaged guide wheel materials and versions are available including: stainless steel (SSX), stainless steel high temperature (SS227), stainless steel low temperature (SS300). For secondary wheel plate assembly, contact Bishop-Wisecarver for details.

Dimensions		MOUNTING HOLE LENGTH 1 (H)		MOUNTING HOLE LENGTH 2 (I)		MOUNTING HOLE WIDTH 1 (J)		MOUNTING HOLE WIDTH 2 (K)		MOUNTING HOLE THREAD (L)	COUPLER MOUNTING HOLE TO EDGE (M)		COUPLER MOUNTING HOLE LENGTH (N)		COUPLER FASTENER (O)
SIZE	WEIGHT IN GRAMS	IN	MM	IN	MM	IN	MM	IN	MM		IN	MM	IN	MM	
1	194	N/A	N/A	1.969	50.0	1.969	50.0	.984	25.0	M4x0.7	1.325	33.7	1.05	26.7	M5
2	628	1.181	30.0	2.992	76.0	2.992	76.0	1.496	38.0	M6x1.0	1.657	42.1	1.80	45.7	M8
3	1629	1.496	38.0	3.937	100.0	3.937	100.0	1.969	50.0	M8x1.25	2.345	59.6	2.30	58.4	M10
4	3816	2.598	66.0	5.984	152.0	5.984	152.0	2.598	66.0	M10x1.5	2.800	71.1	4.00	101.6	M12

Highlighted holes indicate customer mounting holes

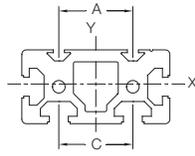


Wheel plate assemblies included with complete systems. See system ordering information, page 27.

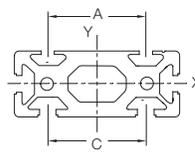
# CHAIN DRIVEN SYSTEMS

## Aluminum Support Beams

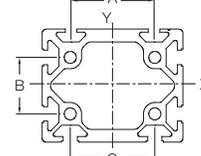
- Designed with industry standard cross section and T-slot (10mm) geometry
- Compatible with HepcoMotion® MCS aluminum frame and machine construction system from Bishop-Wisecarver, as well as other industry profile extrusions



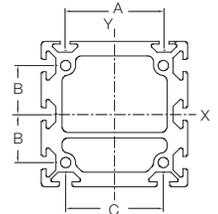
Size 1  
LP1SBEXT



Size 2S  
LP2SSBEXT



Size 2L  
LP2LSBEXT



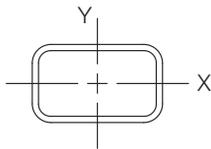
Size 3  
LP3SBEXT

### Dimensions

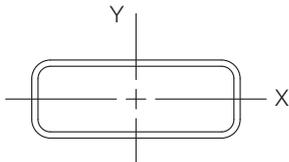
SIZE	WIDTH		HEIGHT		CROSS SECTIONAL AREA		MOMENT OF INERTIA X-AXIS		MOMENT OF INERTIA Y-AXIS		LOPRO T-SLOT (A)		LOPRO T-SLOT (B)		LOPRO T-SLOT (C)		MAX LENGTH	
	IN	MM	IN	MM	IN <sup>2</sup>	MM <sup>2</sup>	IN <sup>4</sup>	MM <sup>4</sup>	IN <sup>4</sup>	MM <sup>4</sup>	IN	MM	IN	MM	IN	MM	FT	M
1	3.150	80.0	1.575	40.0	2.60	1679.9	.66	2.772x10 <sup>5</sup>	2.42	1.007x10 <sup>6</sup>	1.575	40.0	N/A	N/A	1.575	40.0	18.37	5.6
2S	3.937	100.0	1.575	40.0	3.30	2130.1	.84	3.512x10 <sup>5</sup>	4.26	1.773x10 <sup>6</sup>	2.322	59.0	N/A	N/A	2.362	60.0	18.37	5.6
2L	3.937	100.0	3.150	80.0	4.18	2698.3	5.15	2.142x10 <sup>6</sup>	7.14	2.974x10 <sup>6</sup>	2.322	59.0	1.575	40.0	2.362	60.0	18.37	5.6
3	4.724	120.0	4.724	120.0	7.98	5146.6	20.51	8.537x10 <sup>6</sup>	20.40	8.490x10 <sup>6</sup>	3.189	81.0	1.575	40.0	3.150	80.0	18.37	5.6

Aluminum beams are not available in size 4.

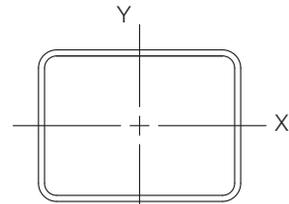
## Steel Support Beams



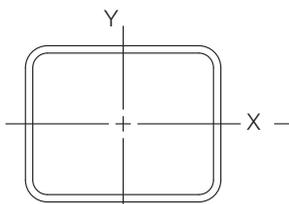
Size 1  
LP1LSBS



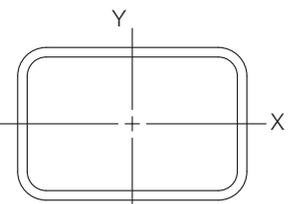
Size 2S  
LP2SBSB



Size 2L  
LP2LBSB



Size 3  
LP3BSB



Size 4  
LP4BSB

### Dimensions

SIZE	WIDTH		HEIGHT		THICKNESS		CROSS SECTIONAL AREA		MOMENT OF INERTIA X-AXIS		MOMENT OF INERTIA Y-AXIS		MAX LENGTH <sup>1</sup>	
	IN	MM	IN	MM	IN	MM	IN <sup>2</sup>	MM <sup>2</sup>	IN <sup>4</sup>	MM <sup>4</sup>	IN <sup>4</sup>	MM <sup>4</sup>	FT	M
1	2.50	63.5	1.50	38.1	.12	3.1	.84	541.0	.29	1.215x10 <sup>5</sup>	.64	2.679x10 <sup>5</sup>	24	7.3
2S	4.00	101.6	1.50	38.1	.12	3.1	1.20	774.6	.46	1.933x10 <sup>5</sup>	2.17	9.045x10 <sup>5</sup>	40	12.2
2L	4.00	101.6	3.00	76.2	.12	3.1	1.56	1006.8	2.27	9.468x10 <sup>5</sup>	3.53	1.469x10 <sup>6</sup>	24	7.3
3	5.00	127.0	4.00	101.6	.19	4.8	3.09	1994.1	7.73	3.216x10 <sup>6</sup>	10.87	4.524x10 <sup>6</sup>	48	14.6
4	6.00	152.4	4.00	101.6	.25	6.4	4.48	2891.4	11.30	4.702x10 <sup>6</sup>	21.09	8.777x10 <sup>6</sup>	48	14.6

Aluminum beams are 6061-T6 or 6063-T6 aluminum alloy. Steel beams are structural steel tubing ASTM A500 Grade A. Note: drawings are not to scale.

### Notes:

- Sizes 3 and 4 - up to 48 ft lengths stock. Longer lengths available upon request. Contact factory for availability.

# CHAIN DRIVEN SYSTEMS

## Stock Code Builder

LP C 1Z C W C Z R A B 1475.5

### System

LP: LoPro

### Drive System

C: Chain

### Size

1Z: Size 1  
2S: Size 2S  
2L: Size 2L  
3Z: Size 3  
4Z: Size 4

### System Material

C: Carbon Steel (Standard)  
S: Stainless Steel (Corrosion Resistant)

### Wheel Plate Type<sup>2</sup>

W: Wiper Wheel Plate  
L: Basic Wheel Plate w/ Track Lubricators  
M: Basic Wheel Plate w/ Track Lubricators & Lock Nuts  
C: Basic Wheel Plate w/ Wheel Covers  
D: Basic Wheel Plate w/ Wheel Covers & Lock Nuts

### Wheel Type

C: Carbon Steel  
S: Stainless Steel  
H: Stainless Steel 227 High Temp.  
L: Stainless Steel 300 Low Temp.  
W: Stainless Steel Washdown  
V: Stainless Steel Vacuum

### Travel Length

Enter Value in 0.1mm increments

### Version

B: Version B

### Support Beam

U: Un-mounted  
A: Aluminum Beam<sup>1</sup>  
S: Steel Beam  
D: Stainless Steel Beam<sup>2</sup>

### Drive Configuration

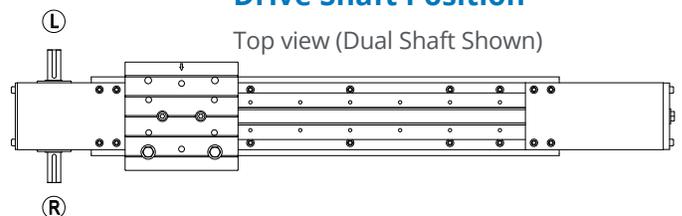
L: Left Hand Output Shaft  
R: Right Hand Output Shaft  
D: Dual L/R Output Shaft  
E: Left Hand Output Shaft Open Bottom  
F: Right Hand Output Shaft Open Bottom  
G: Dual L/R Output Shaft Open Bottom

### Additional Wheel Plate Options

R: Sensor Flag Right Side  
L: Sensor Flag Left Side  
Y: Sensor Flags Right & Left Sides  
Z: No Sensor Flag

### Drive Shaft Position

Top view (Dual Shaft Shown)



## Ordering Example

LPC1ZWCZRAB 1475.5

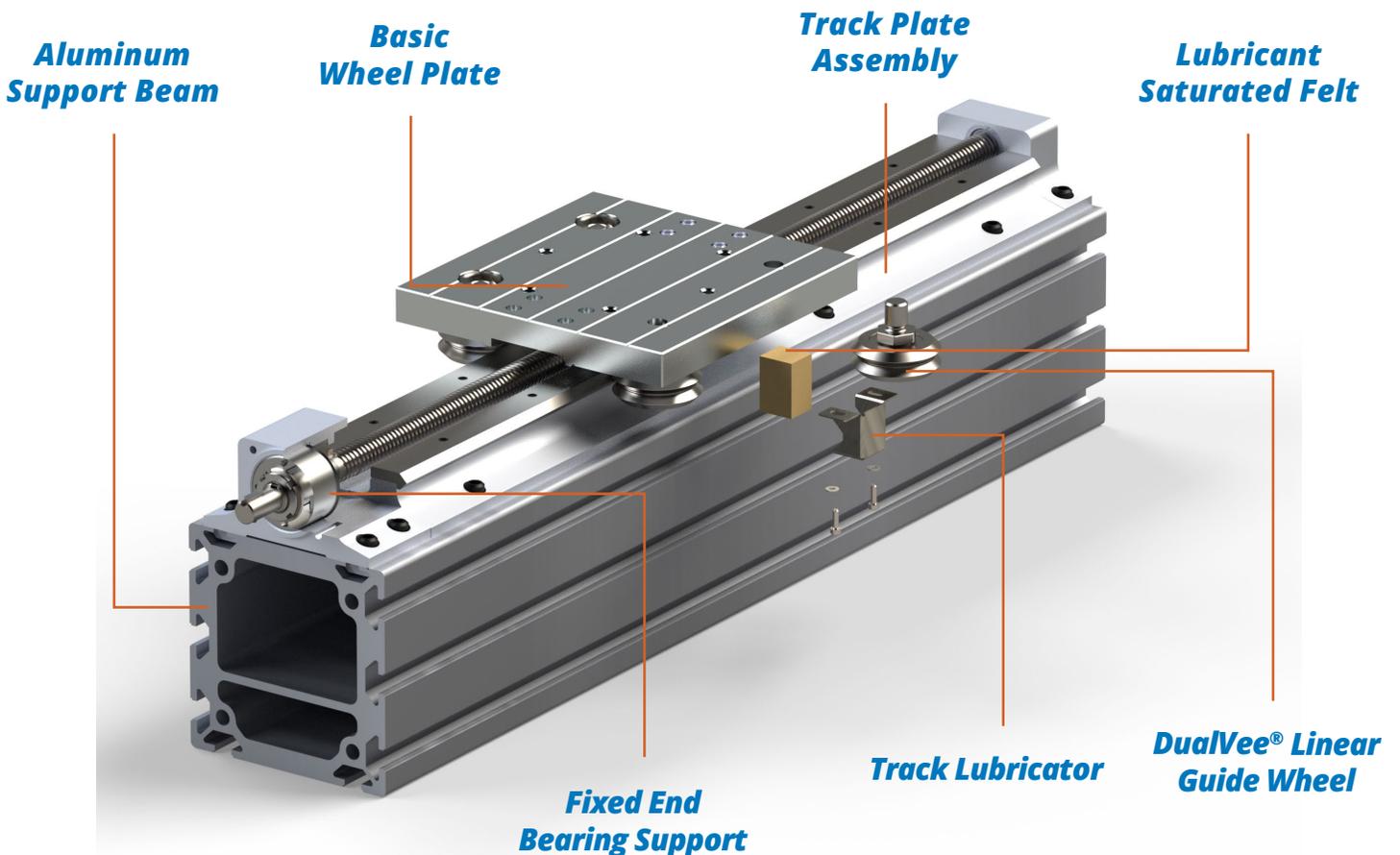
LoPro, Chain, Size 1, Carbon Steel, Wiper Wheel Plate, Carbon Steel Wheels, No Sensor Flags, Right Hand Output Shaft Configuration, Aluminum Beam Mounted, Version B, 1475.5mm Travel.

### Notes:

1. Aluminum beam is not available in size 4.
2. Corrosion resistant systems are available with basic wheel plate or wiper wheel plate. Corrosion resistant systems on stainless steel beams are custom. Contact Bishop-Wisecarver for details.

## LEAD SCREW DRIVEN SYSTEMS

- Complete lead screw actuated system, ready for installation
- Standard (BY) or anti-backlash (NTBY & VHDY) nuts
- Lead accuracies to .0006 in/in (mm/mm)
- Repeatable within .0005 in (0.01mm)
- Aluminum support beams, steel beams or un-mounted (without beams)
- Basic wheel plate or wiper wheel plate
- Standardized motor mount pattern can adapt to virtually any motor or gearbox manufacturer specifications.
- Standard and corrosion resistant versions available
- Vibration-resistant basic wheel plate option **NEW**

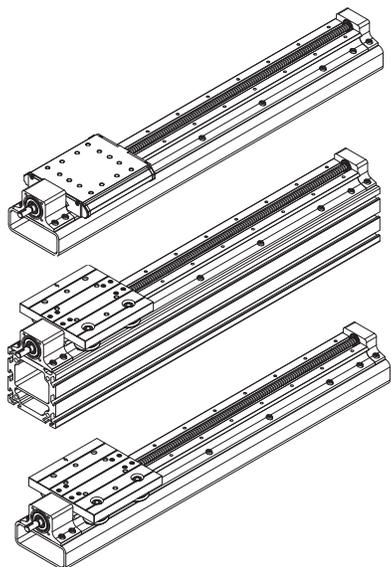


# LEAD SCREW DRIVEN SYSTEMS

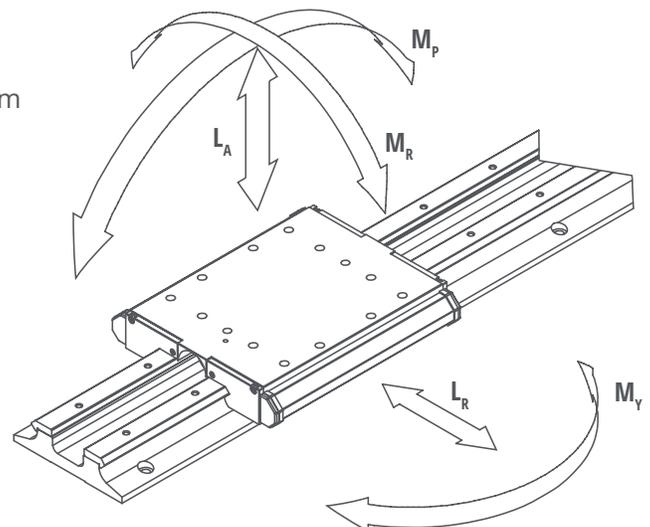
WHEEL PLATE ASSEMBLY LOAD CAPACITIES	SYSTEM SIZE	AXIAL $L_A$		RADIAL $L_R$		PITCH $M_P$		YAW $M_Y$		ROLL $M_R$	
		N	LBF	N	LBF	N-M	LBF-FT	N-M	LBF-FT	N-M	LBF-FT
	1	988	222	2391	538	26	18.9	62	45.7	27	19.8
2S/2L	2450	551	5194	1168	95	70.3	202	148.9	100	73.8	
3	6668	1499	11564	2600	346	254.9	599	442.1	372	274.1	
4	15684	3526	19012	4274	1220	899.5	1478	1090.3	1174	865.6	

LEAD SCREW THRUST CAPACITIES	SYSTEM SIZE	SCREW DIAMETER	NUT TYPE	DYNAMIC THRUST LOAD CAPACITY	
		IN		N	LBS
1		1/4	BY	222	50.0
			NTBY	44	9.9
2		3/8	BY	334	75.0
			NTBY	89	20.0
3		1/2	NTBY	444	100.0
			BY	1000	225.0
4		3/4	BY	1556	350.0
			VH DY	1556	350.0

See the Technical Data catalog for more information on sizing, selection, loads, life, and mass / inertia.



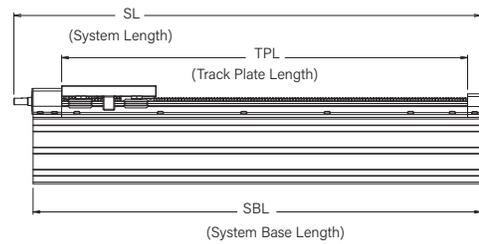
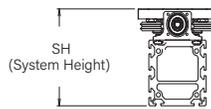
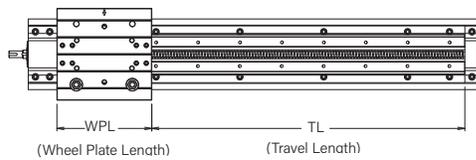
- Wiper Wheel Plate
- Steel Support Beam
- Basic Wheel Plate
- Aluminum Support Beam
- Basic Wheel Plate
- Steel Support Beam



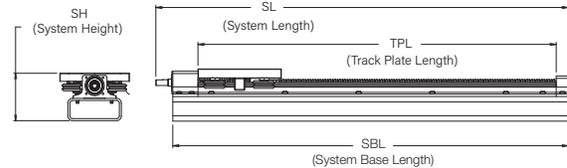
# LEAD SCREW DRIVEN SYSTEMS

## Basic Wheel Plate

### Beam Mounted

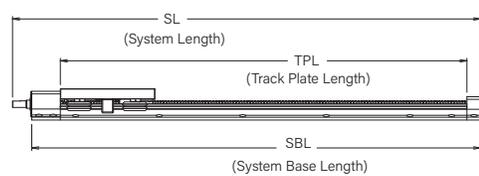
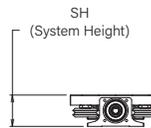
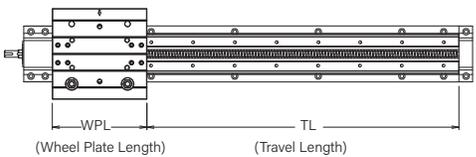


### Aluminum Beam



### Steel Beam

### Un-mounted\*



## Dimensions

SIZE	SCREW DIAMETER	TRACK PLATE LENGTH TPL = (TL+WPL)						SYSTEM LENGTH (SL)		SYSTEM BASE LENGTH (SBL)	
		BY		NTBY		VHDY		IN	MM	IN	MM
		IN	MM	IN	MM	IN	MM				
1	1/4	TL+3.543	TL+90.0	TL+3.543	TL+90.0	N/A	N/A	TPL+2.588	TPL+65.7	TPL+1.691	TPL+43.0
2	3/8	TL+5.391	TL+136.9	TL+6.061	TL+154.0	N/A	N/A	TPL+3.617	TPL+91.9	TPL+2.325	TPL+59.1
3	1/2	N/A	N/A	TL+6.772	TL+172.0	N/A	N/A	TPL+4.434	TPL+112.6	TPL+3.027	TPL+76.9
	5/8	TL+6.772	TL+172.0	N/A	N/A	N/A	N/A	TPL+4.434	TPL+112.6	TPL+3.027	TPL+76.9
4	3/4	TL+10.558	TL+268.2	N/A	N/A	TL+11.678	TL+296.6	TPL+4.792	TPL+121.7	TPL+3.385	TPL+86.0

## Dimensions

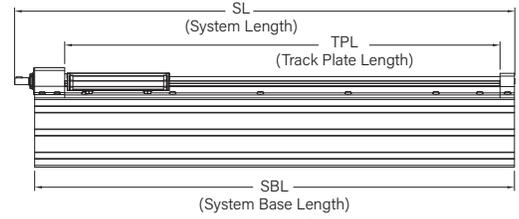
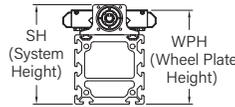
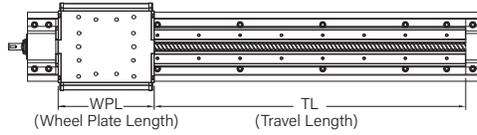
SIZE	SYSTEM HEIGHT (SH)					
	ALUMINUM		STEEL		UN-MOUNTED	
	IN	MM	IN	MM	IN	MM
1	2.840	72.1	2.765	70.2	1.265	32.1
2	3.269	83.0	3.194	81.1	1.694	43.0
3	6.969	177.0	4.245	107.8	2.244	57.0
4	N/A	N/A	4.718	119.8	2.718	69.0

\*Un-mounted systems are designed for mounting to a customer-supplied mounting surface and are shipped with temporary mounting plates affixing the fixed and simple ends to the track plate. System straightness and flatness are determined by mounting surface accuracy. Continuous support along the entire system base length is required.

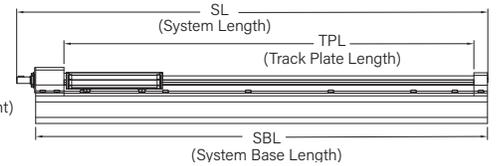
# LEAD SCREW DRIVEN SYSTEMS

## Wiper Wheel Plate

### Beam Mounted

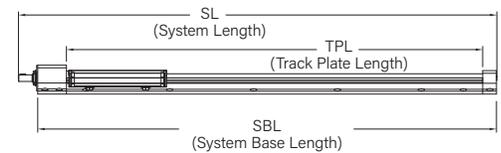
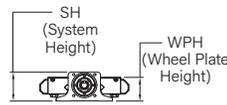
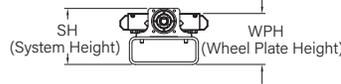
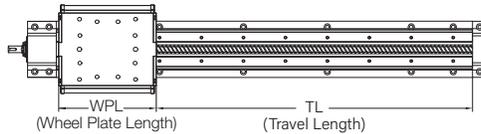


### Aluminum Beam



### Steel Beam

### Un-mounted\*



### Dimensions

SIZE	SCREW DIAMETER	TRACK PLATE LENGTH TPL = (TL+WPL)						SYSTEM LENGTH (SL)		SYSTEM BASE LENGTH (SBL)	
		BY		NTBY		VHDY		IN	MM	IN	MM
		IN	MM	IN	MM	IN	MM				
1	1/4	TL+3.770	TL+95.8	TL+3.807	TL+96.7	N/A	N/A	TPL+2.588	TPL+65.7	TPL+1.691	TPL+43.0
2	3/8	TL+5.114	TL+129.9	TL+5.783	TL+146.9	N/A	N/A	TPL+3.617	TPL+91.9	TPL+2.325	TPL+59.1
3	1/2	N/A	N/A	TL+7.694	TL+195.4	N/A	N/A	TPL+4.434	TPL+112.6	TPL+3.027	TPL+76.9
	5/8	TL+7.099	TL+180.3	N/A	N/A	N/A	N/A	TPL+4.434	TPL+112.6	TPL+3.027	TPL+76.9
4	3/4	TL+10.630	TL+270.0	N/A	N/A	TL+11.750	TL+298.5	TPL+4.792	TPL+121.7	TPL+3.385	TPL+86.0

### Dimensions

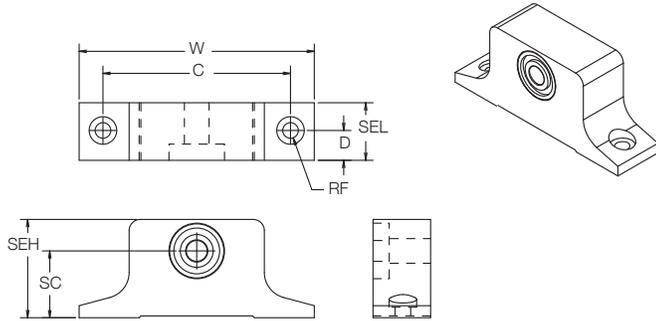
SIZE	WHEEL PLATE HEIGHT (CH)						SYSTEM HEIGHT (SH)					
	ALUMINUM		STEEL		UN-MOUNTED		ALUMINUM		STEEL		UN-MOUNTED	
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
1	2.481	63.0	2.406	61.1	.906	23.0	2.775	70.5	2.700	68.6	1.200	30.5
2	2.874	73.0	2.799	71.1	1.299	33.0	3.275	83.2	3.200	81.3	1.700	43.2
3	6.417	163.0	3.693	93.8	1.693	43.0	6.784	172.3	4.060	103.1	2.060	52.3
4	N/A	N/A	4.167	105.8	2.167	55.0	N/A	N/A	4.700	119.4	2.700	68.6

\*Un-mounted systems are designed for mounting to a customer-supplied mounting surface and are shipped with temporary mounting plates affixing the fixed and simple ends to the track plate. System straightness and flatness are determined by mounting surface accuracy. Continuous support along the entire system base length is required.

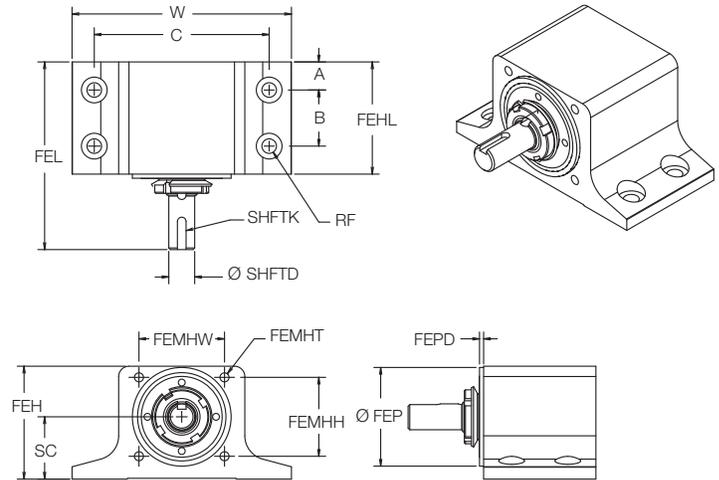
# LEAD SCREW DRIVEN SYSTEMS

## Fixed End & Simple End Assemblies

- Designed for high performance, high cycling linear motion
- Incorporates radial or angular contact ball bearings and high strength aluminum housings



Simple End



Fixed End

### Dimensions

SIZE	(C)		(W)		(SC)		MOUNTING HARDWARE (RF)	SIMPLE END						FIXED END			
	LENGTH (SEL)		HEIGHT (SEH)		(D)			(A)		(B)							
	IN	MM	IN	MM	IN	MM		IN	MM	IN	MM	IN	MM	IN	MM		
1	1.574	40.0	2.000	50.8	.625	15.88	M3	.510	13.0	.896	22.8	.234	5.9	.236	6.0	.709	18.0
2	2.324	59.0	2.850	72.4	.877	22.28	M5	.750	19.1	1.280	32.5	.396	10.1	.394	10.0	.787	20.0
3	3.189	81.0	4.000	101.6	1.137	28.88	M6	.980	24.9	1.673	42.5	.508	12.9	.512	13.0	1.024	26.0
4	4.370	111.0	5.500	139.7	1.407	35.74	M8	1.260	32.0	2.146	54.5	.532	13.5	.532	13.5	1.063	27.0

### Dimensions

SIZE	FIXED END																	
	LENGTH (FEL)		HEIGHT (FEH)		HOUSING LENGTH (FEHL)		SHAFT DIAMETER (SHFTD)		SHAFT KEY SIZE <sup>2</sup> (SHFTK)	MOUNTING HOLE WIDTH (FEMHW)		MOUNTING HOLE HEIGHT (FEMHH)		MOUNTING HOLE THREAD (FEMHT)	PILOT DIAMETER <sup>1</sup> (FEP)		PILOT DEPTH (FEPD)	
	IN	MM	IN	MM	IN	MM	IN	MM		IN	MM	IN	MM		IN	MM	IN	MM
1	2.048	52.0	1.200	30.5	1.181	30.0	.197	5.0	N/A	.980	24.9	.840	21.3	M3 ↓ 13	1.061	26.9	.075	1.9
2	2.837	72.1	1.700	43.2	1.575	40.0	.236	6.0	N/A	1.460	37.1	1.200	30.5	M5 ↓ 13	1.424	36.2	.075	1.9
3	3.424	87.0	2.060	52.3	2.047	52.0	.472	12.0	4mm x10mm	1.560	39.6	1.440	36.6	M5 ↓ 13	1.800	45.7	.075	1.9
4	3.502	89.0	2.700	68.6	2.125	54.0	.591	15.0	5mm x10mm	2.500	63.5	2.000	50.8	M6 ↓ 17	2.236	56.8	.075	1.9

### Notes:

1. Pilot diameter tolerance is +.001/-.005in (+.00/-0.12mm)
2. Square keys

# LEAD SCREW DRIVEN SYSTEMS

## Basic Wheel Plate Options

Dimensions																
SIZE	STOCK CODE		OVERALL LENGTH (A)		OVERALL WIDTH (B)		ASSEMBLY HEIGHT (C)		WHEEL PLATE HEIGHT (D)		WHEEL VEE HEIGHT (E)		WHEEL SPACING LENGTH (F)		WHEEL SPACING WIDTH (G)	
	TRACK LUBRICATOR	WHEEL COVER	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
1	BWP1XSWTLLS	BWP1XSWWCLS	3.54	90.0	3.15	80.0	.91	23.1	.45	11.3	.73	18.6	2.00	50.8	2.10	53.3
2	BWP2XSWSTLLS	BWP2XSWSWCLS	5.00	127.0	4.57	116.0	1.16	29.6	.57	14.4	.95	24.0	3.00	76.2	3.15	80.0
3	BWP3XSWSTLLS	BWP3XSWSWCLS	6.77	172.0	6.50	165.0	1.57	39.9	.72	18.4	1.26	32.0	4.00	101.6	4.30	109.2
4	BWP4XSWSTLLS	BWP4XSWSWCLS	9.53	242.0	8.74	222.0	1.87	47.5	.85	21.6	1.50	38.0	6.00	152.4	5.77	146.6

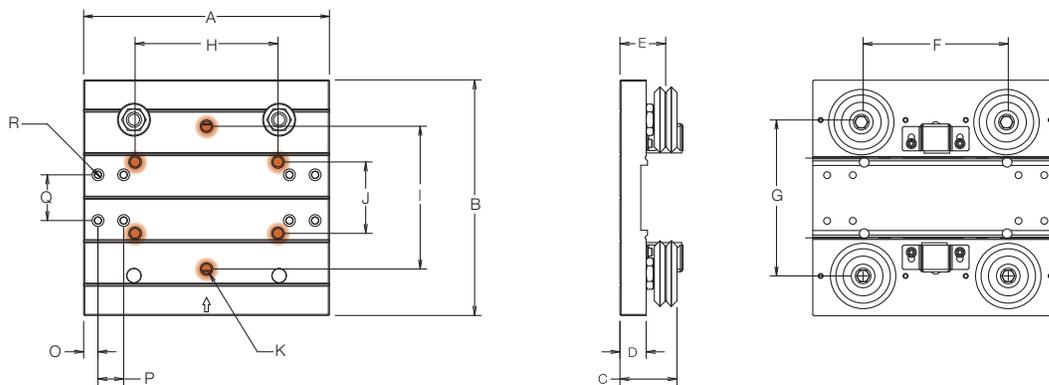
Part numbers above are for wheel plate assemblies with carbon steel linear guide wheels with SWS swaged studs and flanged nuts. Other swaged guide wheel materials and versions are available including: stainless steel (SSX), stainless steel high temperature (SS227), stainless steel low temperature (SS300).

For vibration-resistant lock nuts, add "L" to the end of the stock code (e.g. BWP2XSWSTLLSL).

For secondary wheel plate assembly, contact Bishop-Wisecarver for details.

Dimensions																
SIZE	WEIGHT IN GRAMS <sup>1</sup>	MOUNTING HOLE LENGTH (H)		MOUNTING HOLE WIDTH 1 (I)		MOUNTING HOLE WIDTH 2 (J)		MOUNTING HOLE THREAD (K)	COUPLER MOUNTING HOLE TO EDGE (O)		COUPLER MOUNTING HOLE TO HOLE LENGTH (P)		COUPLER MOUNTING HOLE WIDTH (Q)		COUPLER FASTENER (R)	
		IN	MM	IN	MM	IN	MM		IN	MM	IN	MM	IN	MM		
1	280	1.97	50.0	1.97	50.0	.98	25.0	M4x0.7	.236	6.0	.394	10.0	.551	14.0	M3	
2	762	3.00	76.0	3.00	76.0	1.50	38.0	M6x1.0	.394	10.0	.709	18.0	.944	24.0	M4	
3	1984	3.94	100.0	3.94	100.0	1.97	50.0	M8x1.25	.394	10.0	.709	18.0	1.260	32.0	M4	
4	4269	5.98	152.0	5.98	152.0	2.60	66.0	M10x1.5	.472	12.0	.866	22.0	2.047	52.0	M6	

### Highlighted holes indicate customer mounting holes



Above wheel plate assembly shown with track lubricators. Wheel plate assemblies are included with complete systems. See system ordering information, page 36.

#### Notes:

- Weights shown are for wheel plates with wheel covers and without couplings. Basic wheel plates with track lubricators weigh slightly less.

# LEAD SCREW DRIVEN SYSTEMS

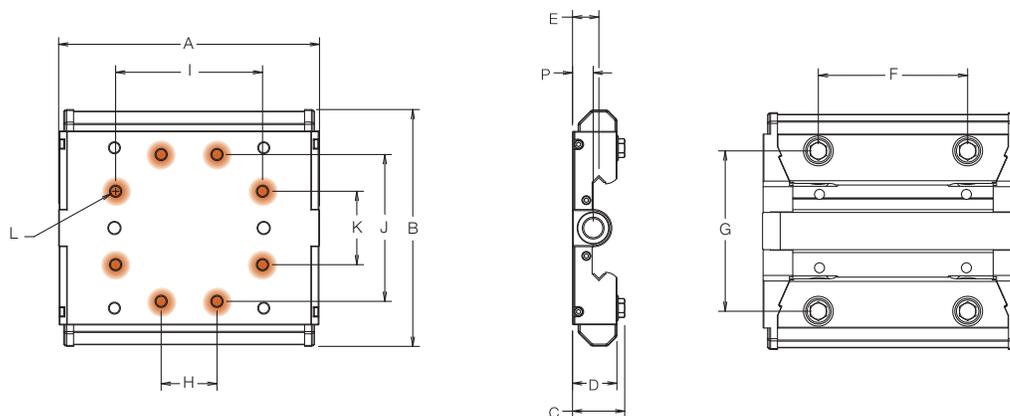
## Wiper Wheel Plate Options

Dimensions		OVERALL LENGTH (A)		OVERALL WIDTH (B)		ASSEMBLY HEIGHT (C)		WHEEL PLATE HEIGHT (D)		WHEEL VEE HEIGHT (E)		WHEEL SPACING LENGTH (F)		WHEEL SPACING WIDTH (G)	
SIZE	STOCK CODE	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
1	LP1WPALS	3.700	94.0	3.070	78.0	.730	18.5	.650	16.5	.375	9.5	2.00	50.8	2.098	53.3
2	LP2WPALS	5.114	129.9	4.540	115.3	1.041	26.4	.916	23.3	.551	14.0	3.00	76.2	3.150	80.0
3	LP3WPALS	6.990	177.6	6.350	161.3	1.403	35.6	1.193	30.3	.709	18.0	4.00	101.6	4.300	109.2
4	LP4WPALS	9.600	243.8	8.394	213.2	1.798	45.7	1.553	39.5	.945	24.0	6.00	152.4	5.774	146.7

Part numbers above are for wheel plate assemblies with carbon steel linear guide wheels with SWS swaged studs and flanged nuts. Other swaged guide wheel materials and versions are available including: stainless steel (SSX), stainless steel high temperature (SS227), stainless steel low temperature (SS300). For secondary wheel plate assembly, contact Bishop-Wisecarver for details.

Dimensions		MOUNTING HOLE LENGTH 1 (H)		MOUNTING HOLE LENGTH 2 (I)		MOUNTING HOLE WIDTH 1 (J)		MOUNTING HOLE WIDTH 2 (K)		MOUNTING HOLE THREAD (L)	COUPLER MOUNTING HEIGHT (P)	
SIZE	WEIGHT IN GRAMS	IN	MM	IN	MM	IN	MM	IN	MM		IN	MM
1	201	N/A	N/A	1.969	50.0	1.969	50.0	.984	25.0	M4x0.7	.281	7.1
2	651	1.181	30.0	2.992	76.0	2.992	76.0	1.496	38.0	M6x1.0	.422	10.7
3	1651	1.496	38.0	3.937	100.0	3.937	100.0	1.969	50.0	M8x1.25	.556	14.1
4	4034	2.598	66.0	5.984	152.0	5.984	152.0	2.598	66.0	M10x1.5	.758	19.3

### Highlighted holes indicate customer mounting holes

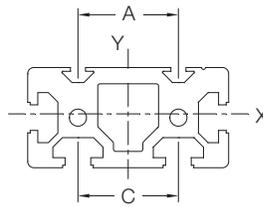


Wheel plate assemblies included with complete systems. See system ordering information, page 36.

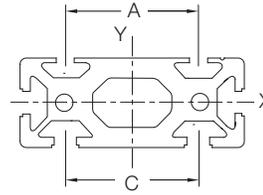
# LEAD SCREW DRIVEN SYSTEMS

## Aluminum Support Beams

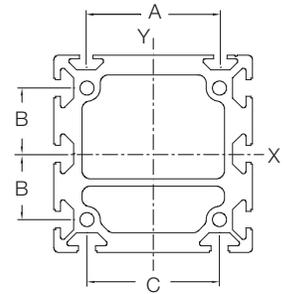
- Designed with industry standard cross section and T-slot (10mm) geometry
- Compatible with HepcoMotion® MCS aluminum frame and machine construction system from Bishop-Wisecarver, as well as other industry profile extrusions



Size 1  
LP1SBEXT



Size 2  
LP2SSBEXT

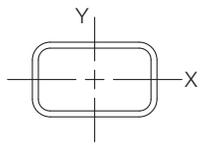


Size 3  
LP3SBEXT

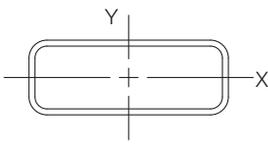
### Dimensions

SIZE	WIDTH		HEIGHT		CROSS SECTIONAL AREA		MOMENT OF INERTIA X-AXIS		MOMENT OF INERTIA Y-AXIS		LOPRO T-SLOT (A)		LOPRO T-SLOT (B)		LOPRO T-SLOT (C)		MAX LENGTH	
	IN	MM	IN	MM	IN <sup>2</sup>	MM <sup>2</sup>	IN <sup>4</sup>	MM <sup>4</sup>	IN <sup>4</sup>	MM <sup>4</sup>	IN	MM	IN	MM	IN	MM	FT	M
1	3.150	80.0	1.575	40.0	2.60	1679.9	.66	2.772x10 <sup>5</sup>	2.42	1.007x10 <sup>6</sup>	1.575	40.0	N/A	N/A	1.575	40.0	18.37	5.6
2	3.937	100.0	1.575	40.0	3.30	2130.1	.84	3.512x10 <sup>5</sup>	4.26	1.773x10 <sup>6</sup>	2.322	59.0	N/A	N/A	2.362	60.0	18.37	5.6
3	4.724	120.0	4.724	120.0	7.98	5146.6	20.51	8.537x10 <sup>6</sup>	20.40	8.490x10 <sup>6</sup>	3.189	81.0	1.575	40.0	3.150	80.0	18.37	5.6

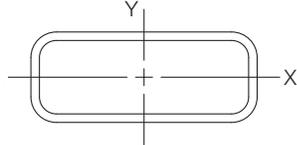
## Steel Support Beams



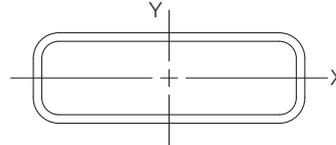
Size 1  
LP1LSBS



Size 2  
LP2LSBS



Size 3  
LP3LSBS



Size 4  
LP4LSBS

### Dimensions

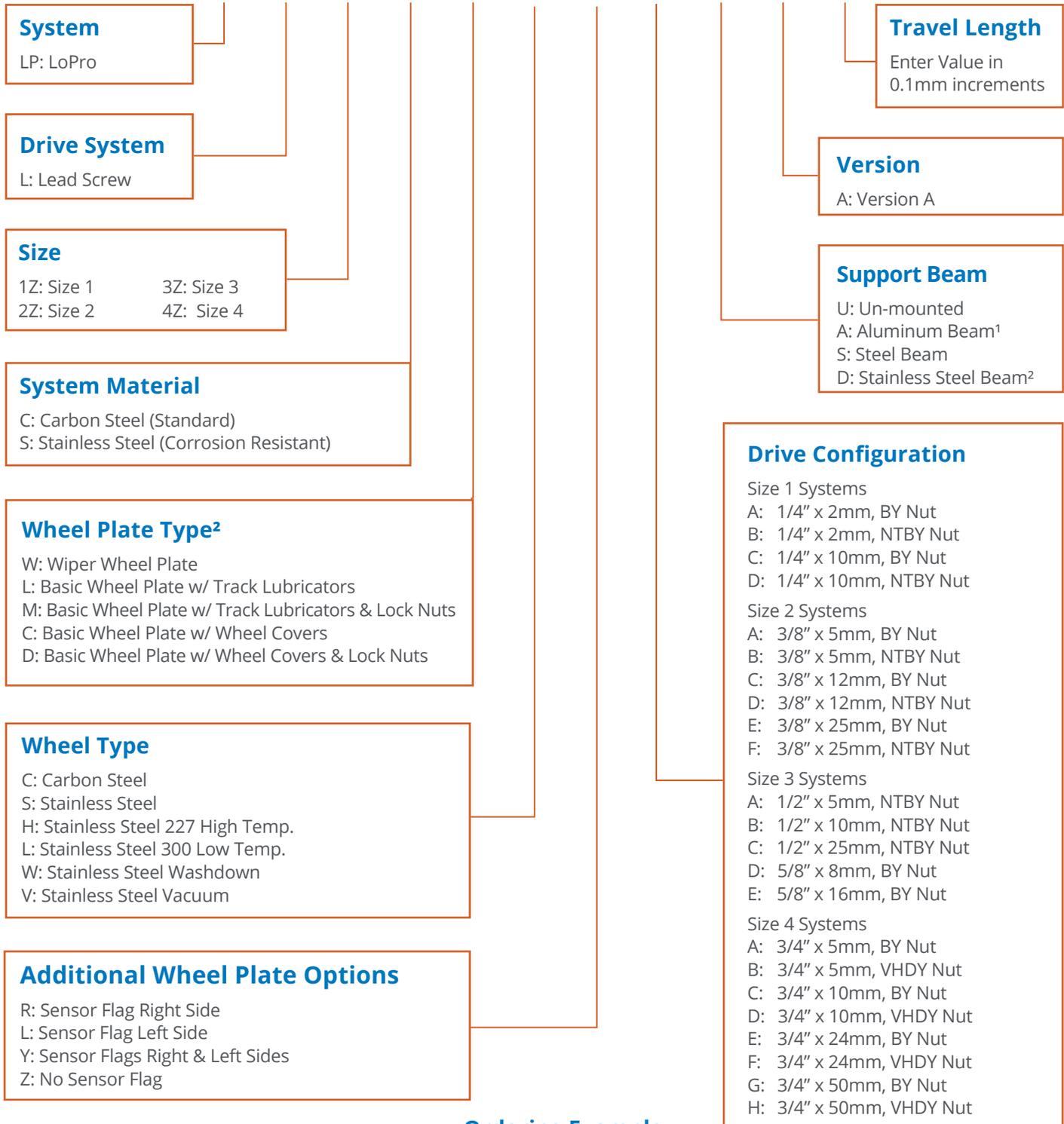
SIZE	WIDTH		HEIGHT		THICKNESS		CROSS SECTIONAL AREA		MOMENT OF INERTIA X-AXIS		MOMENT OF INERTIA Y-AXIS		MAX LENGTH'	
	IN	MM	IN	MM	IN	MM	IN <sup>2</sup>	MM <sup>2</sup>	IN <sup>4</sup>	MM <sup>4</sup>	IN <sup>4</sup>	MM <sup>4</sup>	FT	M
1	2.50	63.5	1.50	38.1	.12	3.1	.84	542.3	.29	1.218x10 <sup>5</sup>	.65	2.688x10 <sup>5</sup>	24	7.3
2	4.00	101.6	1.50	38.1	.12	3.1	1.20	774.6	.46	1.933x10 <sup>5</sup>	2.17	9.045x10 <sup>5</sup>	40	12.2
3	5.00	127.0	2.00	50.8	.19	4.8	2.34	1509.0	1.54	6.394x10 <sup>5</sup>	6.51	2.711x10 <sup>6</sup>	48	14.6
4	6.00	152.4	2.00	50.8	.19	4.8	2.71	1751.6	1.85	7.683x10 <sup>5</sup>	10.57	4.400x10 <sup>6</sup>	48	14.6

Aluminum beams are 6061-T6 or 6063-T6 aluminum alloy. Steel beams are structural steel tubing ASTM A500 Grade A. Note: drawings are not to scale.

# LEAD SCREW DRIVEN SYSTEMS

## Stock Code Builder

LP L 3Z C L C Y D S A 500.0



### Notes:

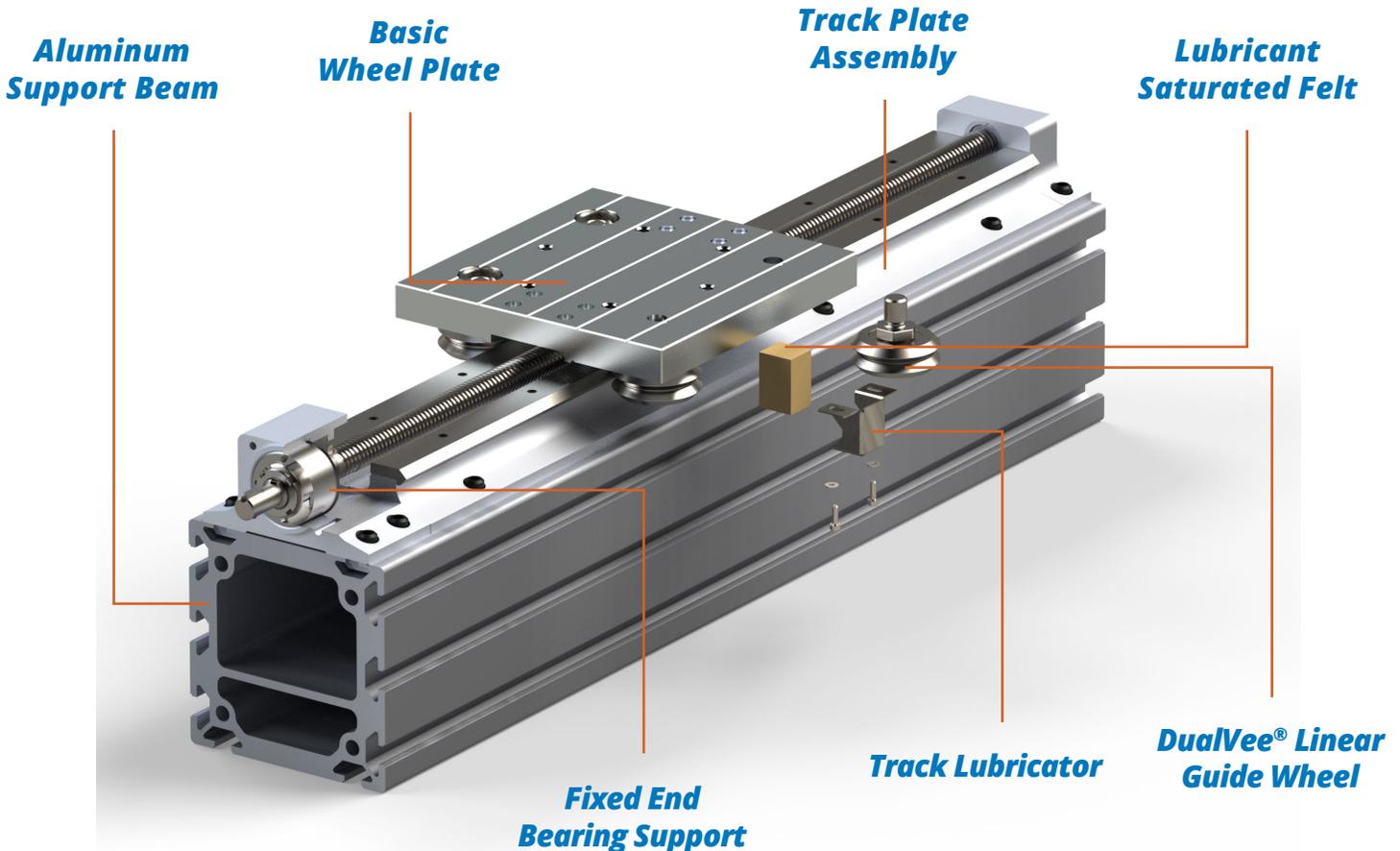
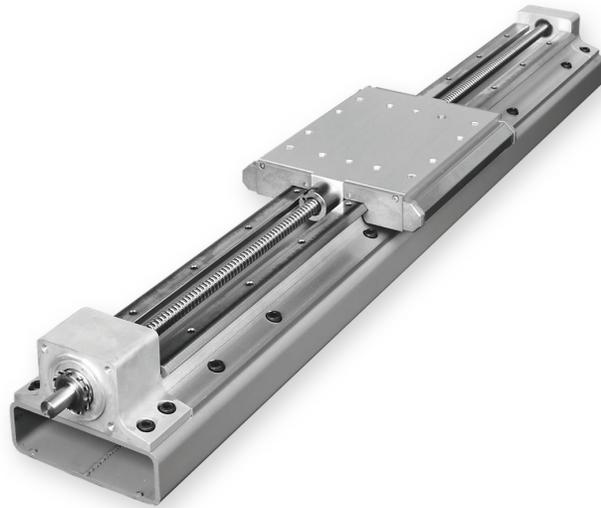
1. Aluminum beam is not available in size 4.
2. Corrosion resistant systems are available with basic wheel plate or wiper wheel plate. Corrosion resistant systems on stainless steel beams are custom. Contact Bishop-Wisecarver for details.

### Ordering Example

LPL3ZCLCYDSA 500.0  
 LoPro, Lead Screw, Size 3, Carbon Steel, Basic Wheel Plate, Carbon Steel Wheels, Sensor Flags Right & Left, 5/8" x 8mm BY Nut, Steel Beam Mounted, Version A, 500.0mm Travel.

# BALL SCREW DRIVEN SYSTEMS

- Complete ball screw actuated system, ready for installation
- Accurate to .004 in/ft (100µm/300mm)
- Repeatable within .003 in (0.07mm) or better, depending on size of lead
- Aluminum support beams, steel beams or un-mounted (without beams)
- Basic wheel plate or wiper wheel plate
- Standardized motor mount pattern can adapt to virtually any motor or gearbox manufacturer specifications.
- Vibration-resistant basic wheel plate option **NEW**



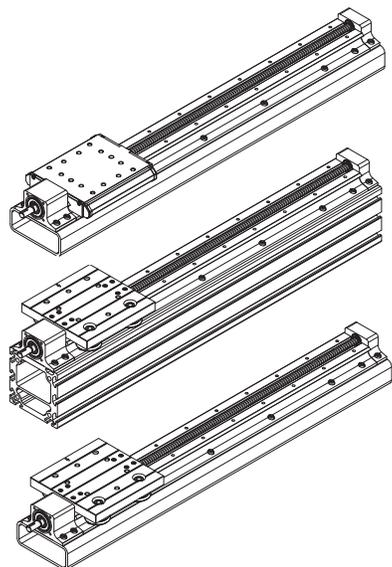
# BALL SCREW DRIVEN SYSTEMS

WHEEL PLATE ASSEMBLY LOAD CAPACITIES	SYSTEM SIZE	AXIAL $L_A$		RADIAL $L_R$		PITCH $M_P$		YAW $M_Y$		ROLL $M_R$	
		N	LBF	N	LBF	N-M	LBF-FT	N-M	LBF-FT	N-M	LBF-FT
	2	2450	551	5194	1168	95	70.3	202	148.9	100	73.8
3	6668	1499	11564	2600	346	254.9	599	442.1	372	274.1	
4	15684	3526	19012	4274	1220	899.5	1478	1090.3	1174	865.6	

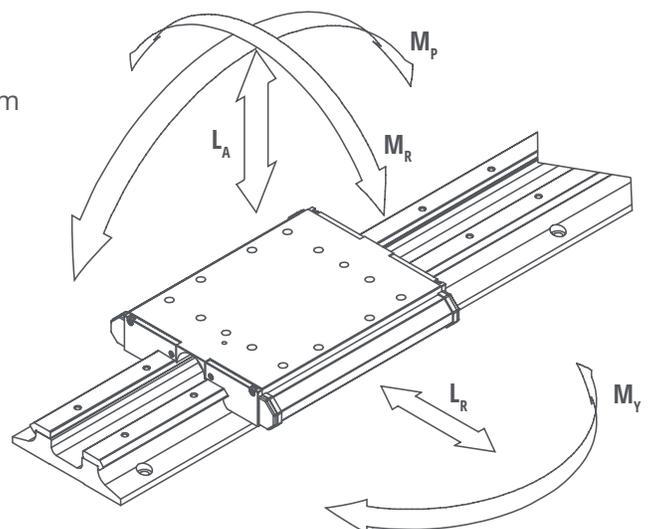
BALL SCREW THRUST CAPACITIES	SYSTEM SIZE	SCREW DIAMETER	LEAD	BASIC WHEEL PLATE MAX SYSTEM TRAVEL LENGTH*	WIPER WHEEL PLATE MAX SYSTEM TRAVEL LENGTH*	DYNAMIC THRUST LOAD CAPACITY	
		MM	MM	MM	MM	N	LBS
	2	10		2	912	914	1250
3				892	914	2800	629.4
3	12		5	1458	1449	2300	517.0
			10	1512	1499	1500	337.2
4	16		5	1363	1361	5600	1258.9
			10	1349	1347	5800	1303.8
			20	2023	2016	8600	1933.3

\* System configured with ball screw drive nut toward Fix End

See the Technical Data catalog for more information on sizing, selection, loads, life, and mass / inertia.



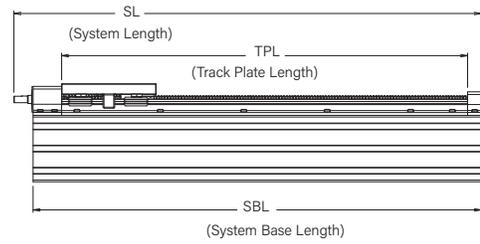
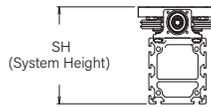
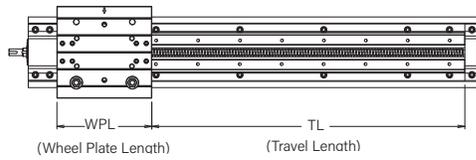
- Wiper Wheel Plate
- Steel Support Beam
- Basic Wheel Plate
- Aluminum Support Beam
- Basic Wheel Plate
- Steel Support Beam



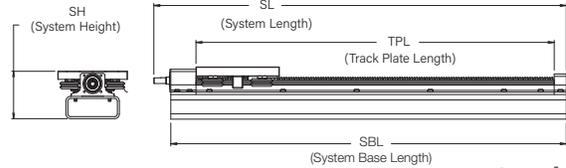
# BALL SCREW DRIVEN SYSTEMS

## Basic Wheel Plate

### Beam Mounted

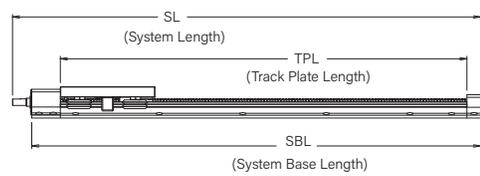
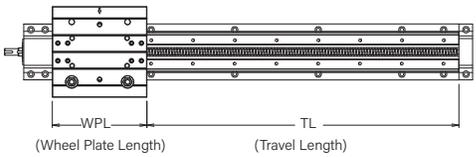


### Aluminum Beam



### Steel Beam

### Un-mounted\*



## Dimensions

SIZE	SCREW DIAMETER	TRACK PLATE LENGTH TPL = (TL+WPL)								SYSTEM LENGTH (SL)		SYSTEM BASE LENGTH (SBL)	
		2MM LEAD		3MM LEAD		5MM LEAD		10MM LEAD		IN	MM	IN	MM
		MM	IN	MM	IN	MM	IN	MM	IN				
2	10	TL+5.192	TL+131.9	TL+5.984	TL+152.0	N/A	N/A	N/A	N/A	TPL+3.617	TPL+91.9	TPL+2.325	TPL+59.1
3	12	N/A	N/A	N/A	N/A	TL+6.772	TL+172.0	TL+6.772	TL+172.0	TPL+4.434	TPL+112.6	TPL+3.027	TPL+76.9
4	16	N/A	N/A	N/A	N/A	TL+10.161	TL+258.1	TL+10.712	TL+272.1	TPL+4.792	TPL+121.7	TPL+3.385	TPL+86.0
	20	N/A	N/A	N/A	N/A	TL+10.264	TL+260.7	N/A	N/A	TPL+4.792	TPL+121.7	TPL+3.385	TPL+86.0

## Dimensions

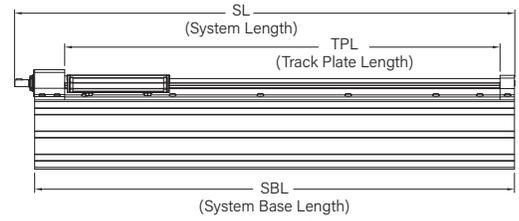
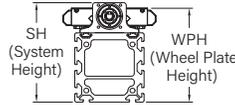
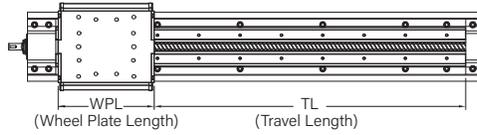
SIZE	SYSTEM HEIGHT (SH)					
	ALUMINUM		STEEL		UN-MOUNTED	
	IN	MM	IN	MM	IN	MM
2	3.269	83.0	3.194	81.1	1.694	43.0
3	6.969	177.0	4.245	107.8	2.244	57.0
4	N/A	N/A	4.718	119.8	2.718	69.0

\*Un-mounted systems are designed for mounting to a customer-supplied mounting surface and are shipped with temporary mounting plates affixing the fixed and simple ends to the track plate. System straightness and flatness are determined by mounting surface accuracy. Continuous support along the entire system base length is required.

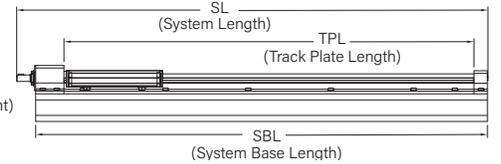
# BALL SCREW DRIVEN SYSTEMS

## Wiper Wheel Plate

### Beam Mounted

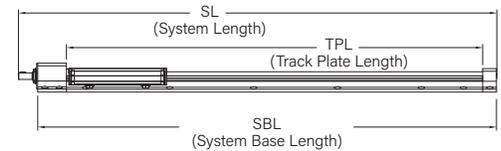
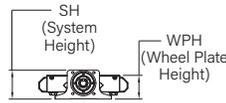
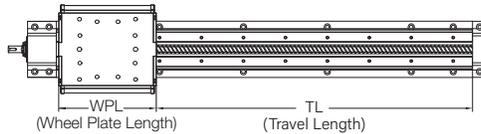


### Aluminum Beam



### Steel Beam

### Un-mounted\*



## Dimensions

SIZE	SCREW DIAMETER	TRACK PLATE LENGTH TPL = (TL+WPL)								SYSTEM LENGTH (SL)		SYSTEM BASE LENGTH (SBL)	
		2MM LEAD		3MM LEAD		5MM LEAD		10MM LEAD		IN	MM	IN	MM
		MM	IN	MM	IN	MM	IN	MM	IN				
2	10	TL+5.114	TL+129.9	TL+5.114	TL+129.9	N/A	N/A	N/A	N/A	TPL+3.617	TPL+91.9	TPL+2.325	TPL+59.1
3	12	N/A	N/A	N/A	N/A	TL+7.098	TL+180.3	TL+7.256	TL+184.3	TPL+4.434	TPL+112.6	TPL+3.027	TPL+76.9
4	16	N/A	N/A	N/A	N/A	TL+10.233	TL+259.9	TL+10.784	TL+273.9	TPL+4.792	TPL+121.7	TPL+3.385	TPL+86.0
	20	N/A	N/A	N/A	N/A	TL+10.547	TL+267.9	N/A	N/A	TPL+4.792	TPL+121.7	TPL+3.385	TPL+86.0

## Dimensions

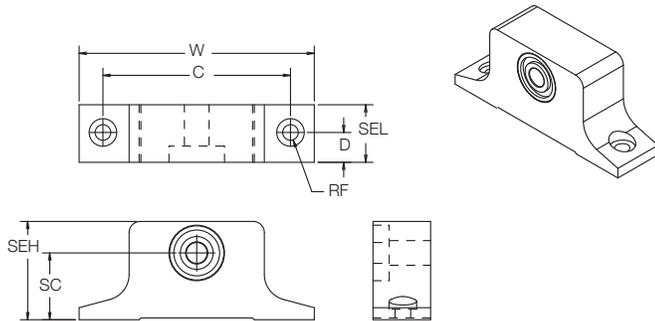
SIZE	WHEEL PLATE HEIGHT (CH)						SYSTEM HEIGHT (SH)					
	ALUMINUM		STEEL		UN-MOUNTED		ALUMINUM		STEEL		UN-MOUNTED	
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
2	2.874	73.0	2.799	71.1	1.299	33.0	3.275	83.2	3.200	81.3	1.700	43.2
3	6.417	163.0	3.693	93.8	1.693	43.0	6.784	172.3	4.060	103.1	2.060	52.3
4	N/A	N/A	4.167	105.8	2.167	55.0	N/A	N/A	4.700	119.4	2.700	68.6

\*Un-mounted systems are designed for mounting to a customer-supplied mounting surface and are shipped with temporary mounting plates affixing the fixed and simple ends to the track plate. System straightness and flatness are determined by mounting surface accuracy. Continuous support along the entire system base length is required.

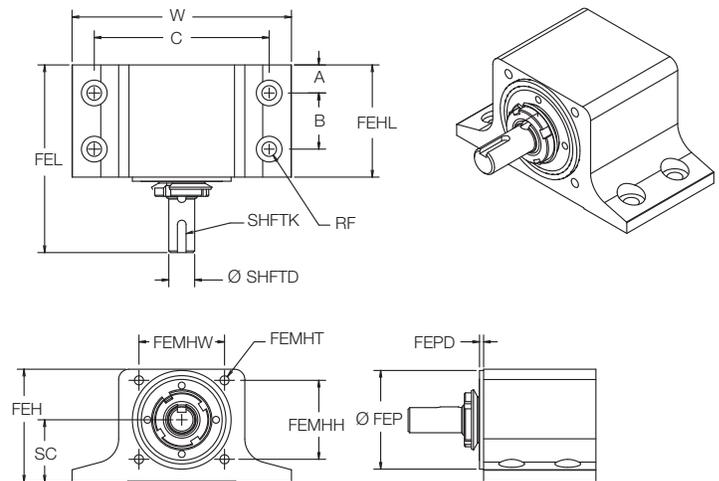
# BALL SCREW DRIVEN SYSTEMS

## Fixed End & Simple End Assemblies

- Designed for high performance, high cycling linear motion
- Incorporates radial or angular contact ball bearings and high strength aluminum housings



Simple End



Fixed End

### Dimensions

SIZE	(C)		(W)		(SC)		MOUNTING HARDWARE (RF)	SIMPLE END						FIXED END			
	LENGTH (SEL)		HEIGHT (SEH)		(D)			(A)		(B)							
	IN	MM	IN	MM	IN	MM		IN	MM	IN	MM	IN	MM	IN	MM		
2	2.324	59.0	2.850	72.4	.877	22.28	M5	.750	19.1	1.280	32.5	.396	10.1	.394	10.0	.787	20.0
3	3.189	81.0	4.000	101.6	1.137	28.88	M6	.980	24.9	1.673	42.5	.508	12.9	.512	13.0	1.024	26.0
4	4.370	111.0	5.500	139.7	1.407	35.74	M8	1.260	32.0	2.146	54.5	.532	13.5	.532	13.5	1.063	27.0

### Dimensions

SIZE	FIXED END																	
	LENGTH (FEL)		HEIGHT (FEH)		HOUSING LENGTH (FEHL)		SHAFT DIAMETER (SHFTD)		SHAFT KEY SIZE <sup>2</sup> (SHFTK)	MOUNTING HOLE WIDTH (FEMHW)		MOUNTING HOLE HEIGHT (FEMHH)		MOUNTING HOLE THREAD (FEMHT)	PILOT DIAMETER <sup>1</sup> (FEP)		PILOT DEPTH (FEPD)	
	IN	MM	IN	MM	IN	MM	IN	MM		IN	MM	IN	MM		IN	MM	IN	MM
2	2.837	72.1	1.700	43.2	1.575	40.0	.236	6.0	N/A	1.460	37.1	1.200	30.5	M5 ↓ 13	1.424	36.2	.075	1.9
3	3.424	87.0	2.060	52.3	2.047	52.0	.472	12.0	4mm x10mm	1.560	39.6	1.440	36.6	M5 ↓ 13	1.800	45.7	.075	1.9
4	3.502	89.0	2.700	68.6	2.125	54.0	.591	15.0	5mm x10mm	2.500	63.5	2.000	50.8	M6 ↓ 17	2.236	56.8	.075	1.9

### Notes:

1. Pilot diameter tolerance is +.001/-0.005in (+.00/-0.12mm)
2. Square keys

# BALL SCREW DRIVEN SYSTEMS

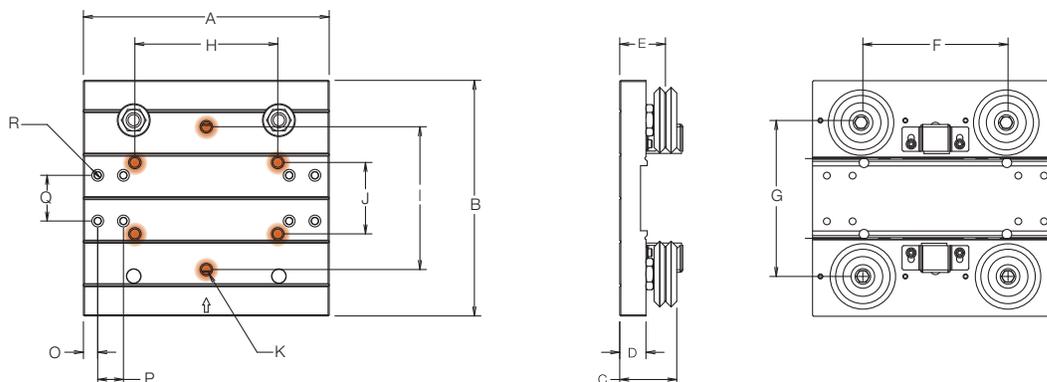
## Basic Wheel Plate Options

Dimensions																
SIZE	STOCK CODE		OVERALL LENGTH (A)		OVERALL WIDTH (B)		ASSEMBLY HEIGHT (C)		WHEEL PLATE HEIGHT (D)		WHEEL VEE HEIGHT (E)		WHEEL SPACING LENGTH (F)		WHEEL SPACING WIDTH (G)	
	TRACK LUBRICATOR	WHEEL COVER	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
2	BWP2XSWSTLLS	BWP2XSWSWCLS	5.00	127.0	4.57	116.0	1.16	25.6	.57	14.4	.95	24.0	3.00	76.2	3.15	80.0
3	BWP3XSWSTLLS	BWP3XSWSWCLS	6.77	172.0	6.50	165.0	1.57	39.9	.72	18.4	1.26	32.0	4.00	101.6	4.30	109.2
4	BWP4XSWSTLLS	BWP4XSWSWCLS	9.53	242.0	8.74	222.0	1.87	47.5	.85	21.6	1.50	38.0	6.00	152.4	5.77	146.6

Part numbers above are for wheel plate assemblies with carbon steel linear guide wheels with SWS swaged studs and flanged nuts. Other swaged guide wheel materials and versions are available including: stainless steel (SSX), stainless steel high temperature (SS227), stainless steel low temperature (SS300). For vibration-resistant lock nuts, add "L" to the end of the stock code (e.g. BWP2XSWSTLLSL). For secondary wheel plate assembly, contact Bishop-Wisecarver for details.

Dimensions																
SIZE	WEIGHT IN GRAMS <sup>1</sup>	MOUNTING HOLE LENGTH (H)		MOUNTING HOLE WIDTH 1 (I)		MOUNTING HOLE WIDTH 2 (J)		MOUNTING HOLE THREAD (K)	COUPLER MOUNTING HOLE TO EDGE (O)		COUPLER MOUNTING HOLE TO HOLE LENGTH (P)		COUPLER MOUNTING HOLE WIDTH (Q)		COUPLER FASTENER (R)	
		IN	MM	IN	MM	IN	MM		IN	MM	IN	MM	IN	MM		
2	762	3.00	76.0	3.00	76.0	1.50	38.0	M6x1.0	.394	10.0	.709	18.0	.944	24.0	M4	
3	1984	3.94	100.0	3.94	100.0	1.97	50.0	M8x1.25	.394	10.0	.709	18.0	1.260	32.0	M4	
4	4269	5.98	152.0	5.98	152.0	2.60	66.0	M10x1.5	.472	12.0	.866	22.0	2.047	52.0	M6	

Highlighted holes indicate customer mounting holes



Above wheel plate assembly shown with track lubricators. Wheel plate assemblies are included with complete systems. See system ordering information, page 45.

### Notes:

- Weights shown are for wheel plates with wheel covers and without couplings. Basic wheel plates with track lubricators weigh slightly less.

# BALL SCREW DRIVEN SYSTEMS

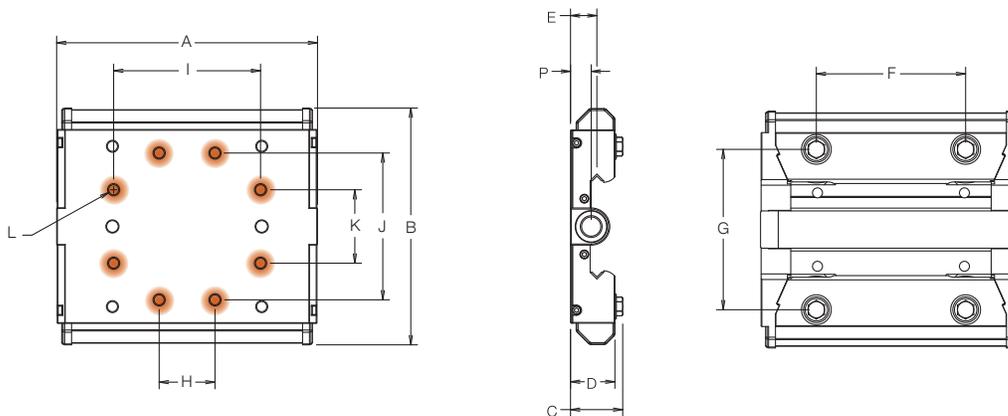
## Wiper Wheel Plate Options

Dimensions		OVERALL LENGTH (A)		OVERALL WIDTH (B)		ASSEMBLY HEIGHT (C)		WHEEL PLATE HEIGHT (D)		WHEEL VEE HEIGHT (E)		WHEEL SPACING LENGTH (F)		WHEEL SPACING WIDTH (G)	
SIZE	STOCK CODE	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
2	LP2WPABS	5.114	129.9	4.540	115.3	1.041	26.4	.916	23.3	.551	14.0	3.00	76.2	3.150	80.0
3	LP3WPABS	6.990	177.6	6.350	161.3	1.403	35.6	1.193	30.3	.709	18.0	4.00	101.6	4.300	109.2
4	LP4WPABS	9.6000	243.8	8.394	213.2	1.798	45.7	1.553	39.5	.945	24.0	6.00	152.4	5.774	146.7

Part numbers above are for wheel plate assemblies with carbon steel linear guide wheels with SWS swaged studs and flanged nuts. Other swaged guide wheel materials and versions are available including: stainless steel (SSX), stainless steel high temperature (SS227), stainless steel low temperature (SS300). For secondary wheel plate assembly, contact Bishop-Wisecarver for details.

Dimensions		MOUNTING HOLE LENGTH 1 (H)		MOUNTING HOLE LENGTH 2 (I)		MOUNTING HOLE WIDTH 1 (J)		MOUNTING HOLE WIDTH 2 (K)		MOUNTING HOLE THREAD (L)	COUPLER MOUNTING HEIGHT (P)	
SIZE	WEIGHT IN GRAMS	IN	MM	IN	MM	IN	MM	IN	MM		IN	MM
2	651	1.181	30.0	2.992	76.0	2.992	76.0	1.496	38.0	M6x1.0	.422	10.7
3	1651	1.496	38.0	3.937	100.0	3.937	100.0	1.969	50.0	M8x1.25	.556	14.1
4	4034	2.598	66.0	5.984	152.0	5.984	152.0	2.598	66.0	M10x1.5	.758	19.3

Highlighted holes indicate customer mounting holes

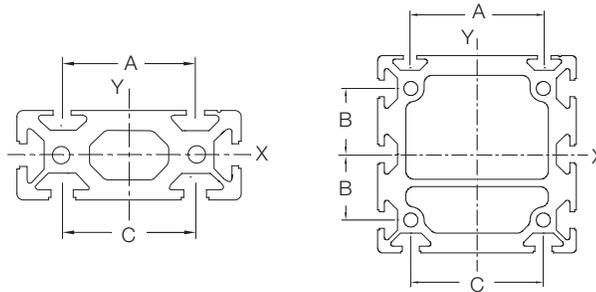


Wheel plate assemblies included with complete systems. See system ordering information, page 45.

# BALL SCREW DRIVEN SYSTEMS

## Aluminum Support Beams

- Designed with industry standard cross section and T-slot (10mm) geometry
- Compatible with HepcoMotion®'s MCS aluminum frame and machine construction system from Bishop-Wisecarver, as well as other industry profile extrusions



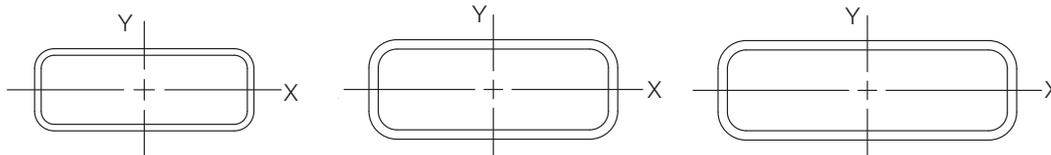
Size 2  
LP2SSBEXT

Size 3  
LP3SBEXT

### Dimensions

SIZE	WIDTH		HEIGHT		CROSS SECTIONAL AREA		MOMENT OF INERTIA X-AXIS		MOMENT OF INERTIA Y-AXIS		LOPRO T-SLOT (A)		LOPRO T-SLOT (B)		LOPRO T-SLOT (C)		MAX LENGTH	
	IN	MM	IN	MM	IN <sup>2</sup>	MM <sup>2</sup>	IN <sup>4</sup>	MM <sup>4</sup>	IN <sup>4</sup>	MM <sup>4</sup>	IN	MM	IN	MM	IN	MM	FT	M
2	3.937	100.0	1.575	40.0	3.30	2130.1	.84	3.512x10 <sup>5</sup>	4.26	1.773x10 <sup>6</sup>	2.322	59.0	N/A	N/A	2.362	60.0	18.37	5.6
3	4.724	120.0	4.724	120.0	7.98	5146.6	20.51	8.537x10 <sup>6</sup>	20.40	8.490x10 <sup>6</sup>	3.189	81.0	1.575	40.0	3.150	80.0	18.37	5.6

## Steel Support Beams



Size 2  
LP2SLSBS

Size 3  
LP3LSBS

Size 4  
LP4LSBS

### Dimensions

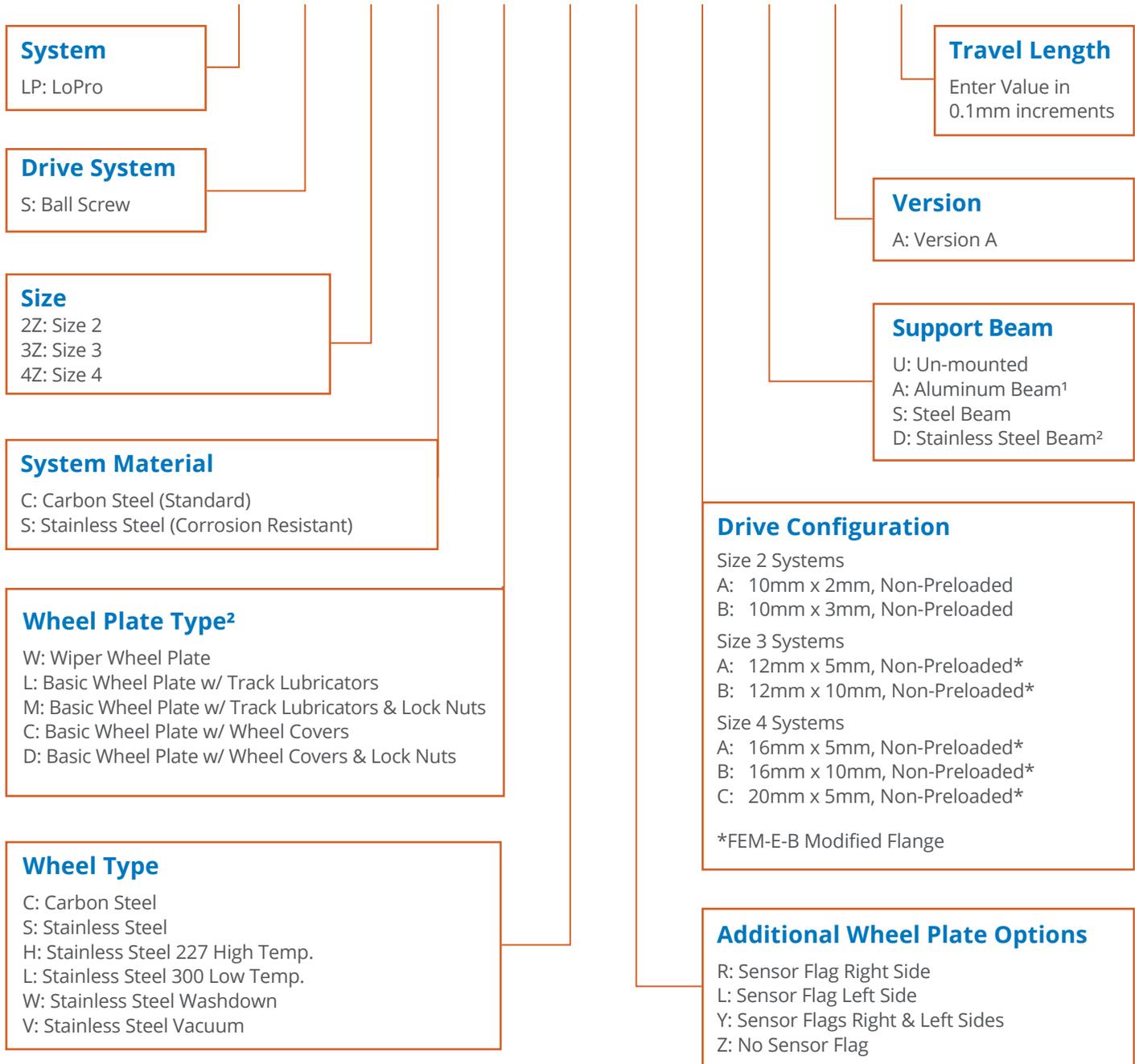
SIZE	WIDTH		HEIGHT		THICKNESS		CROSS SECTIONAL AREA		MOMENT OF INERTIA X-AXIS		MOMENT OF INERTIA Y-AXIS		MAX LENGTH <sup>1</sup>	
	IN	MM	IN	MM	IN	MM	IN <sup>2</sup>	MM <sup>2</sup>	IN <sup>4</sup>	MM <sup>4</sup>	IN <sup>4</sup>	MM <sup>4</sup>	FT	M
2	4.00	101.6	1.50	38.1	.12	3.1	1.20	774.6	.46	1.933x10 <sup>5</sup>	2.17	9.045x10 <sup>5</sup>	40	12.2
3	5.00	127.0	2.00	50.8	.19	4.8	2.34	1509.0	1.54	6.394x10 <sup>5</sup>	6.51	2.711x10 <sup>6</sup>	48	14.6
4	6.00	152.4	2.00	50.8	.19	4.8	2.71	1751.6	1.85	7.683x10 <sup>5</sup>	10.57	4.400x10 <sup>6</sup>	48	14.6

Aluminum beams are 6061-T6 or 6063-T6 aluminum alloy. Steel beams are structural steel tubing ASTM A500 Grade A. Note: drawings are not to scale.

# BALL SCREW DRIVEN SYSTEMS

## Stock Code Builder

LP S 4Z S W S R B S A 1250.5



## Ordering Example

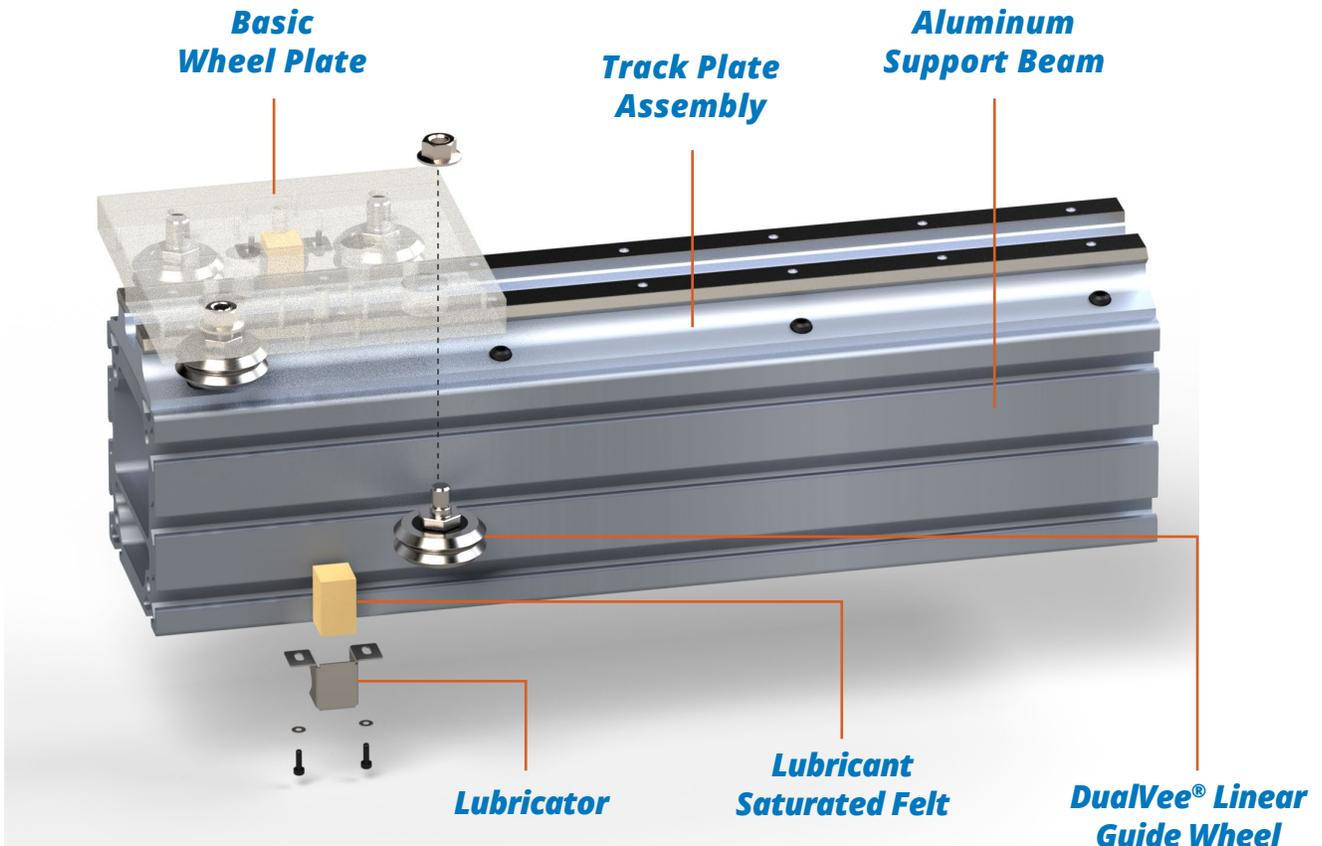
LPS4ZSWSRBSA 1250.5

LoPro, Ball Screw, Size 4, Stainless Steel, Wiper Wheel Plate, Stainless Steel Wheels, Sensor Flag Right, 16mm x 10 mm Ball Screw, Steel Beam Mounted, Version A, 1250.5mm Travel.

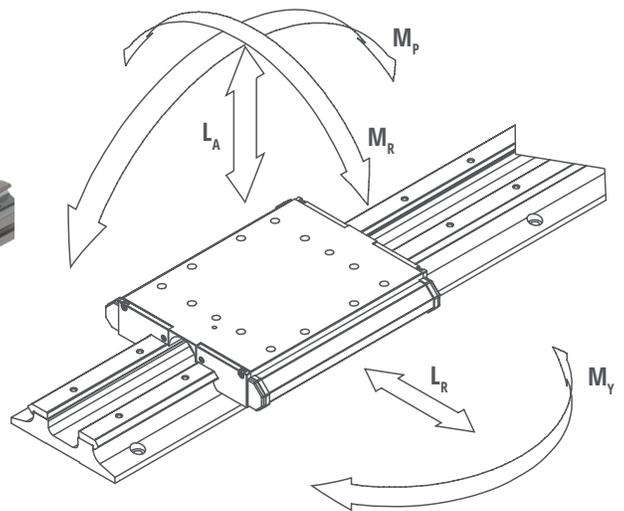
### Notes:

1. Aluminum beam is not available in size 4.
2. Corrosion resistant systems are available with basic wheel plate or wiper wheel plate. Corrosion resistant systems on stainless steel beams are custom. Contact Bishop-Wisecarver for details.
3. Ball screws are carbon steel. Stainless steel ball screws are custom.

# UN-DRIVEN SYSTEMS



- Complete non-actuated system, ready for installation
- Standard aluminum and steel support beam options available
- Two standard available wheel plate options
- Available in standard and corrosion resistant versions
- High speed and acceleration capacity
- Long stroke length capability (virtually unlimited)
- Vibration-resistant basic wheel plate option  
**NEW**



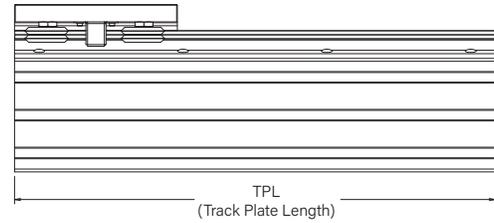
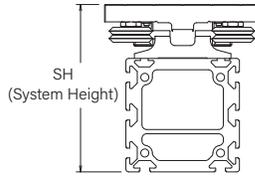
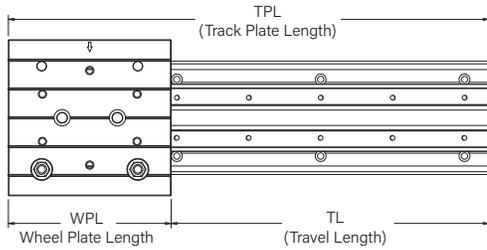
WHEEL PLATE ASSEMBLY LOAD CAPACITIES	SYSTEM SIZE	AXIAL $L_A$		RADIAL $L_R$		PITCH $M_P$		YAW $M_Y$		ROLL $M_R$	
		N	LBF	N	LBF	N-M	LBF-FT	N-M	LBF-FT	N-M	LBF-FT
	1	988	222	2391	538	26	18.9	62	45.7	27	19.8
2S/2L	2450	551	5194	1168	95	70.3	202	148.9	100	73.8	
3	6668	1499	11564	2600	346	254.9	599	442.1	372	274.1	
4	15684	3526	19012	4274	1220	899.5	1478	1090.3	1174	865.6	

See the Technical Data catalog for more information on sizing, selection, loads, life, and mass.

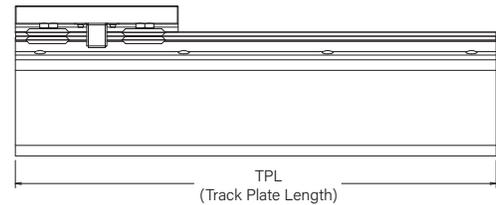
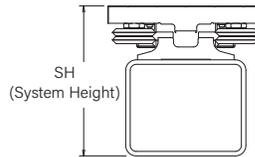
# UN-DRIVEN SYSTEMS

## Basic Wheel Plate

### Beam Mounted

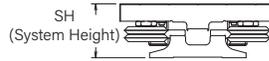
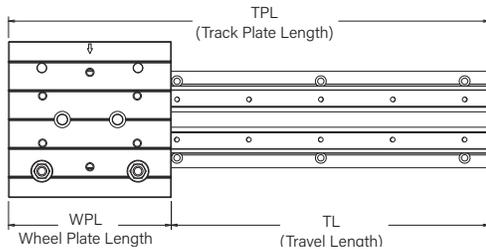


### Aluminum Beam



### Steel Beam

### Un-mounted\*



## Dimensions

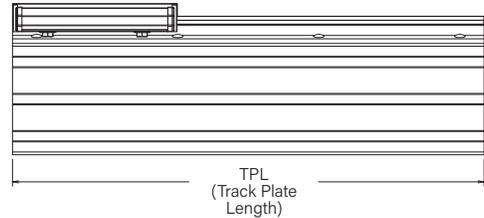
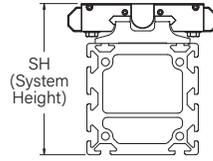
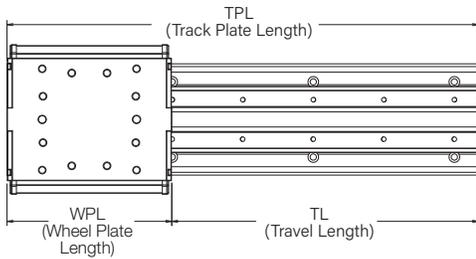
SIZE	TRACK PLATE LENGTH TPL = (TL+WPL)		SYSTEM HEIGHT (SH)					
			ALUMINUM		STEEL		UN-MOUNTED	
	IN	MM	IN	MM	IN	MM	IN	MM
1	TL+3.543	TL+90.0	2.840	72.1	2.765	70.2	1.265	32.1
2S	TL+5.000	TL+127.0	3.269	83.0	3.194	81.1	1.694	43.0
2L	TL+5.000	TL+127.0	4.844	123.0	4.694	119.2	1.694	43.0
3	TL+6.772	TL+172.0	6.969	177.0	4.245	107.8	2.244	57.0
4	TL+9.528	TL+242.0	N/A	N/A	4.718	119.8	2.718	69.0

\* Un-mounted systems are designed for mounting to a customer-supplied mounting surface. System straightness and flatness are determined by mounting surface accuracy. Continuous support along the entire track plate length is recommended.

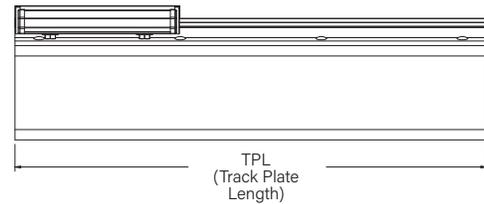
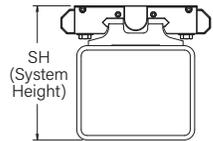
# UN-DRIVEN SYSTEMS

## Wiper Wheel Plate

### Beam Mounted

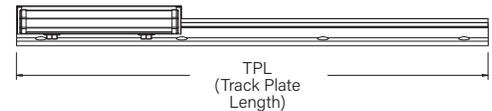
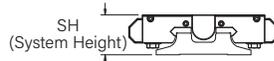
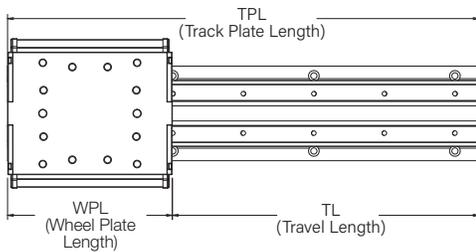


**Aluminum Beam**



**Steel Beam**

### Un-mounted\*



### Dimensions

SIZE	TRACK PLATE LENGTH TPL = (TL+WPL)		SYSTEM HEIGHT (SH)					
			ALUMINUM		STEEL		UN-MOUNTED	
	IN	MM	IN	MM	IN	MM	IN	MM
1	TL+3.700	TL+94.0	2.482	63.0	2.407	61.1	.907	23.0
2S	TL+5.114	TL+129.9	2.874	73.0	2.799	71.1	1.299	33.0
2L	TL+5.114	TL+129.9	4.449	113.0	4.299	109.2	1.299	33.0
3	TL+6.990	TL+177.5	6.417	163.0	3.693	93.8	1.693	43.0
4	TL+9.600	TL+243.8	N/A	N/A	4.167	105.8	2.167	55.0

\* Un-mounted systems are designed for mounting to a customer-supplied mounting surface. System straightness and flatness are determined by mounting surface accuracy. Continuous support along the entire track plate length is recommended.

# UN-DRIVEN SYSTEMS

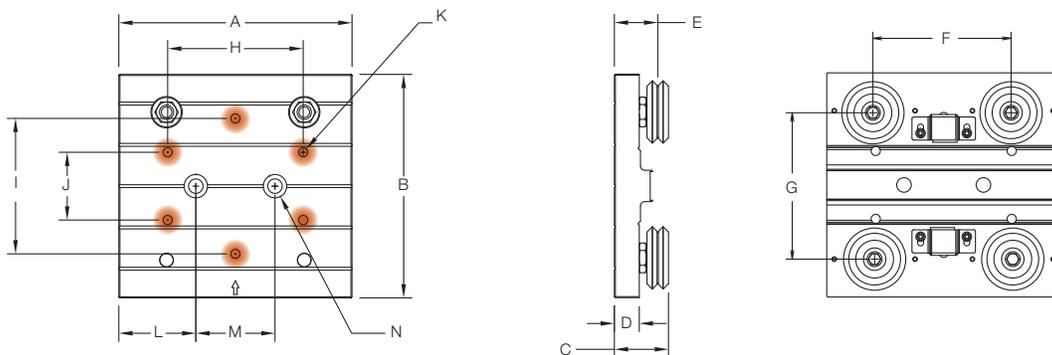
## Basic Wheel Plate Options

Dimensions																
SIZE	STOCK CODE		OVERALL LENGTH (A)		OVERALL WIDTH (B)		ASSEMBLY HEIGHT (C)		WHEEL PLATE HEIGHT (D)		WHEEL VEE HEIGHT (E)		WHEEL SPACING LENGTH (F)		WHEEL SPACING WIDTH (G)	
	LUBRICATOR	WHEEL COVER	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
1	BWP1XSWTLBC	BWP1XSWWCBC	3.543	90.0	3.150	80.0	.909	23.1	.446	11.3	.733	18.6	2.000	50.8	2.098	53.3
2	BWP2XSWTLBC	BWP2XSWSWCBC	5.000	127.0	4.567	116.0	1.165	25.6	.567	14.4	.946	24.0	3.000	76.2	3.150	80.0
3	BWP3XSWTLBC	BWP3XSWSWCBC	6.772	172.0	6.496	165.0	1.572	39.9	.723	18.4	1.260	32.0	4.000	101.6	4.300	109.2
4	BWP4XSWTLBC	BWP4XSWSWCBC	9.528	242.0	8.740	222.0	1.871	47.5	.852	21.6	1.496	38.0	6.000	152.4	5.774	146.6

Part numbers above are for wheel plate assemblies with carbon steel linear guide wheels with SWS swaged studs and flanged nuts. Other swaged guide wheel materials and versions are available including: stainless steel (SSX), stainless steel high temperature (SS227), stainless steel low temperature (SS300). For vibration-resistant lock nuts, add "L" to the end of the stock code (e.g. BWP2XSWTLBCL). For secondary wheel plate assembly, contact Bishop-Wisecarver for details.

Dimensions													
SIZE	WEIGHT IN GRAMS <sup>1</sup>	MOUNTING HOLE LENGTH (H)		MOUNTING HOLE WIDTH 1 (I)		MOUNTING HOLE WIDTH 2 (J)		MOUNTING HOLE THREAD (K)	COUPLER MOUNTING HOLE TO EDGE (L)		COUPLER MOUNTING HOLE LENGTH (M)		COUPLER FASTENER (N)
		IN	MM	IN	MM	IN	MM		IN	MM	IN	MM	
1	307	1.969	50.0	1.969	50.0	.984	25.0	M4x0.7	1.247	31.7	1.05	26.7	M5
2	835	2.992	76.0	2.992	76.0	1.496	38.0	M6x1.0	1.600	40.6	1.80	45.7	M8
3	2135	3.937	100.0	3.937	100.0	1.969	50.0	M8x1.25	2.236	56.8	2.30	58.4	M10
4	4765	5.984	152.0	5.984	152.0	2.598	66.0	M10x1.5	2.764	70.2	4.00	101.6	M12

Highlighted holes indicate customer mounting holes



Above wheel plate assembly shown with track lubricators. Wheel plate assemblies are included with complete systems. See system ordering information, page 52.

### Notes:

- Weights shown are for wheel plates with wheel covers and without couplings. Basic wheel plates with track lubricators weigh slightly less.

# UN-DRIVEN SYSTEMS

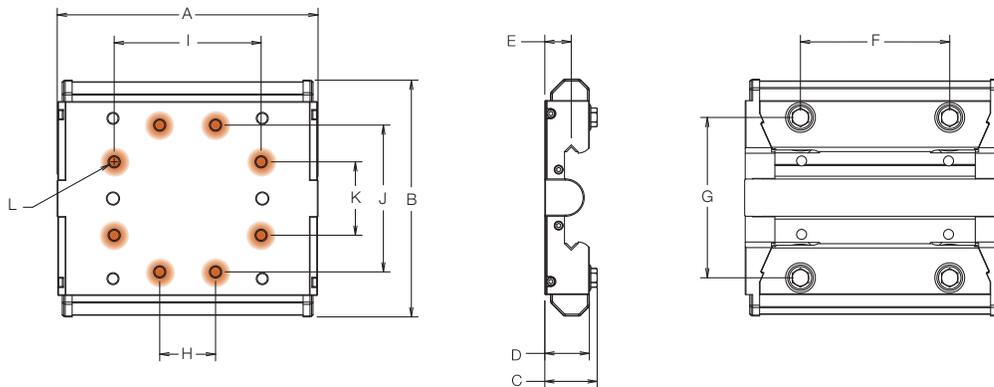
## Wiper Wheel Plate Options

Dimensions		OVERALL LENGTH (A)		OVERALL WIDTH (B)		ASSEMBLY HEIGHT (C)		WHEEL PLATE HEIGHT (D)		WHEEL VEE HEIGHT (E)		WHEEL SPACING LENGTH (F)		WHEEL SPACING WIDTH (G)	
SIZE	STOCK CODE	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
1	M1AWPW	3.700	94.0	3.070	78.0	.730	18.5	.650	16.5	.375	9.5	2.00	50.8	2.098	53.3
2	M2AWPW	5.114	129.9	4.540	115.3	1.041	26.4	.916	23.3	.551	14.0	3.00	76.2	3.150	80.0
3	M3AWPW	6.990	177.6	6.350	161.3	1.403	35.6	1.193	30.3	.709	18.0	4.00	101.6	4.300	109.2
4	M4AWPW	9.6000	243.8	8.394	213.2	1.798	45.7	1.553	39.5	.945	24.0	6.00	152.4	5.774	146.7

Part numbers above are for wheel plate assemblies with carbon steel linear guide wheels with SWS swaged studs and flanged nuts. Other swaged guide wheel materials and versions are available including: stainless steel (SSX), stainless steel high temperature (SS227), stainless steel low temperature (SS300). For secondary wheel plate assembly, contact Bishop-Wisecarver for details.

Dimensions		MOUNTING HOLE LENGTH 1 (H)		MOUNTING HOLE LENGTH 2 (I)		MOUNTING HOLE WIDTH 1 (J)		MOUNTING HOLE WIDTH 2 (K)		MOUNTING HOLE THREAD (L)
SIZE	WEIGHT IN GRAMS	IN	MM	IN	MM	IN	MM	IN	MM	
1	216	N/A	N/A	1.969	50.0	1.969	50.0	.984	25.0	M4x0.7
2	692	1.181	30.0	2.992	76.0	2.992	76.0	1.496	38.0	M6x1.0
3	1768	1.496	38.0	3.937	100.0	3.937	100.0	1.969	50.0	M8x1.25
4	4231	2.598	66.0	5.984	152.0	5.984	152.0	2.598	66.0	M10x1.5

Highlighted holes indicate customer mounting holes

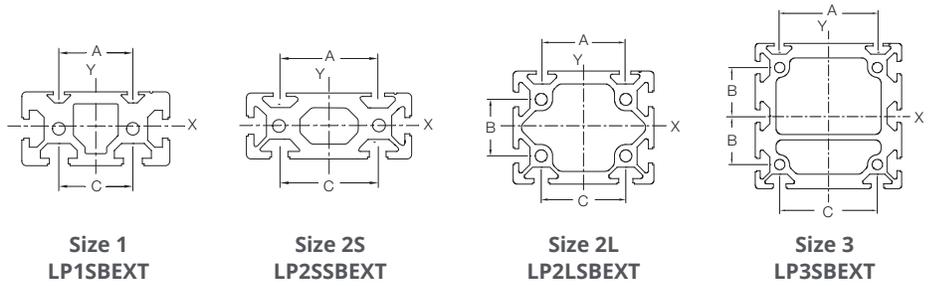


Wheel plate assemblies included with complete systems. See system ordering information, page 52.

# UN-DRIVEN SYSTEMS

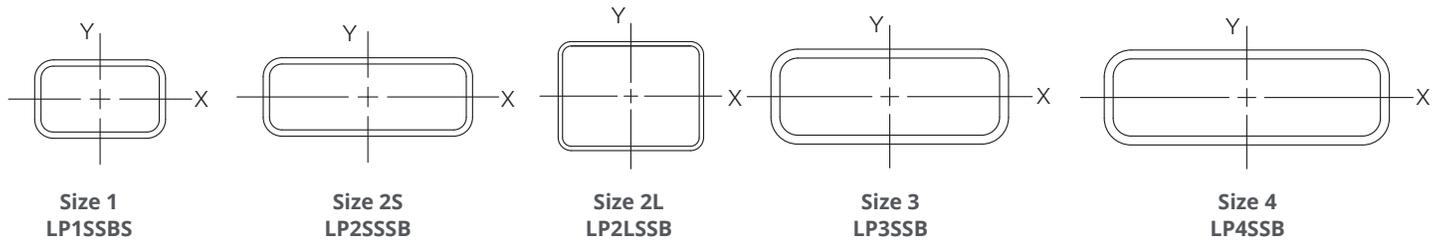
## Aluminum Support Beams

- Designed with industry standard cross section and T-slot (10mm) geometry
- Compatible with HepcoMotion® MCS aluminum frame and machine construction system from Bishop-Wisecarver, as well as other industry standard profile extrusions



Dimensions																		
SIZE	WIDTH		HEIGHT		CROSS SECTIONAL AREA		MOMENT OF INERTIA X-AXIS		MOMENT OF INERTIA Y-AXIS		LOPRO T-SLOT (A)		LOPRO T-SLOT (B)		LOPRO T-SLOT (C)		MAX LENGTH	
	IN	MM	IN	MM	IN <sup>2</sup>	MM <sup>2</sup>	IN <sup>4</sup>	MM <sup>4</sup>	IN <sup>4</sup>	MM <sup>4</sup>	IN	MM	IN	MM	IN	MM	FT	M
1	3.150	80.0	1.575	40.0	2.60	1679.9	.66	2.772x10 <sup>5</sup>	2.42	1.007x10 <sup>6</sup>	1.575	40.0	N/A	N/A	1.575	40.0	18.37	5.6
2S	3.937	100.0	1.575	40.0	3.30	2130.1	.84	3.512x10 <sup>5</sup>	4.26	1.773x10 <sup>6</sup>	2.322	59.0	N/A	N/A	2.362	60.0	18.37	5.6
2L	3.937	100.0	3.150	80.0	4.18	2698.3	5.15	2.142x10 <sup>6</sup>	7.14	2.974x10 <sup>6</sup>	2.322	59.0	1.575	40.0	2.362	60.0	18.37	5.6
3	4.724	120.0	4.724	120.0	7.98	5146.6	20.51	8.537x10 <sup>6</sup>	20.40	8.490x10 <sup>6</sup>	3.189	81.0	1.575	40.0	3.150	80.0	18.37	5.6

## Steel Support Beams



Dimensions														
SIZE	WIDTH		HEIGHT		THICKNESS		CROSS SECTIONAL AREA		MOMENT OF INERTIA X-AXIS		MOMENT OF INERTIA Y-AXIS		MAX LENGTH <sup>1</sup>	
	IN	MM	IN	MM	IN	MM	IN <sup>2</sup>	MM <sup>2</sup>	IN <sup>4</sup>	MM <sup>4</sup>	IN <sup>4</sup>	MM <sup>4</sup>	FT	M
1	2.50	63.5	1.50	38.1	.12	3.1	.84	542.3	.29	1.218x10 <sup>5</sup>	.65	2.688x10 <sup>5</sup>	24	7.3
2S	4.00	101.6	1.50	38.1	.12	3.1	1.20	774.6	.46	1.933x10 <sup>5</sup>	2.17	9.045x10 <sup>5</sup>	40	12.2
2L	4.00	101.6	3.00	76.2	.12	3.1	1.56	1006.8	2.27	9.468x10 <sup>5</sup>	3.53	1.469x10 <sup>6</sup>	24	7.3
3	5.00	127.0	2.00	50.8	.19	4.8	2.34	1509.0	1.54	6.394x10 <sup>6</sup>	6.51	2.711x10 <sup>6</sup>	48	14.6
4	6.00	152.4	2.00	50.8	.19	4.8	2.71	1751.6	1.85	7.683x10 <sup>6</sup>	10.57	4.400x10 <sup>6</sup>	48	14.6

Aluminum beams are 6061-T6 or 6063-T6 aluminum alloy. Steel beams are structural steel tubing ASTM A500 Grade A. Note: drawings are not to scale.

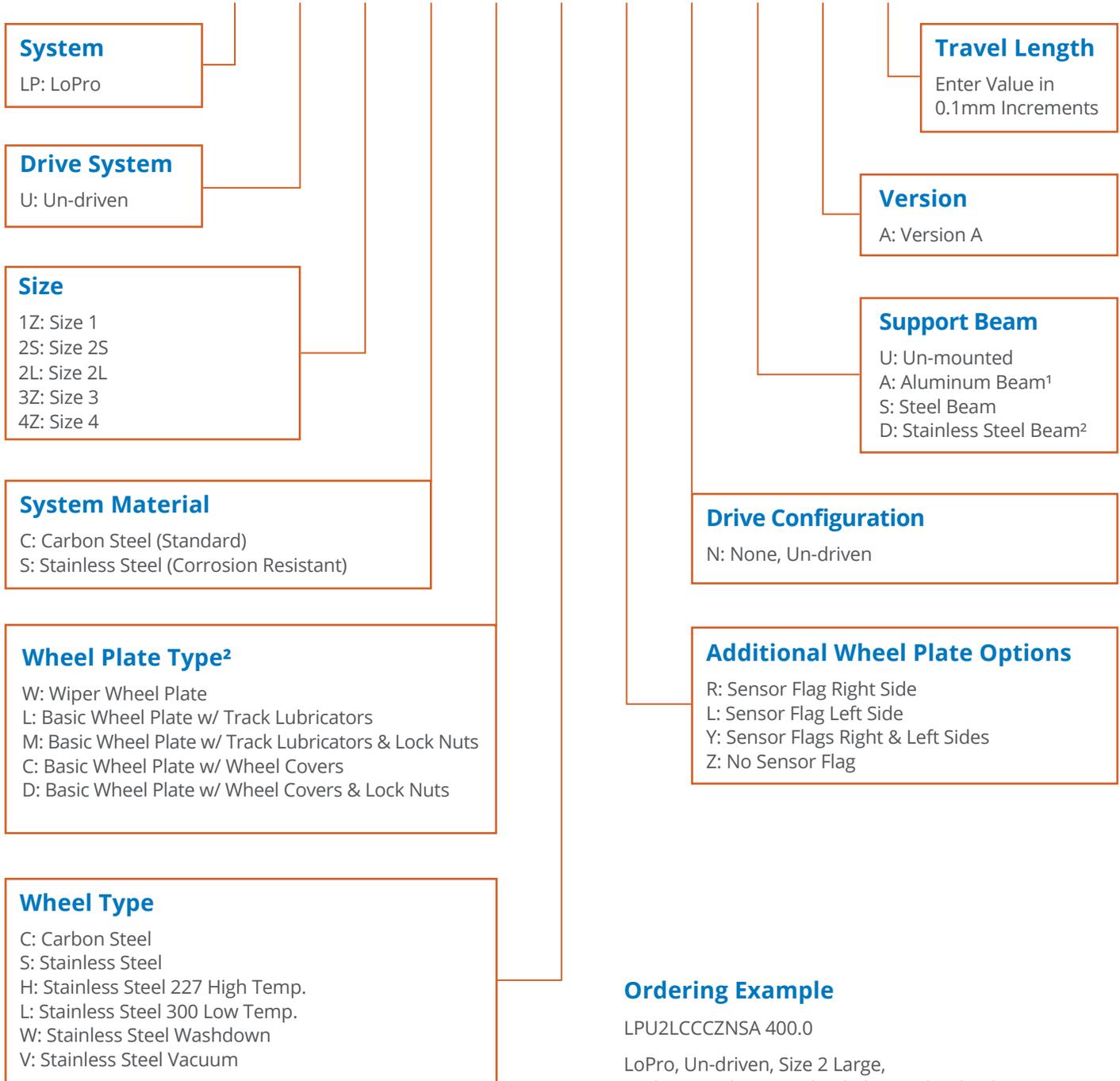
### Notes:

1. Sizes 3 and 4 - up to 48 ft lengths stock. Longer lengths available upon request. Contact factory for availability.

# UN-DRIVEN SYSTEMS

## Stock Code Builder

LP U 2L C C C Z N S A 400.0



## Ordering Example

LPU2LCCCZNSA 400.0

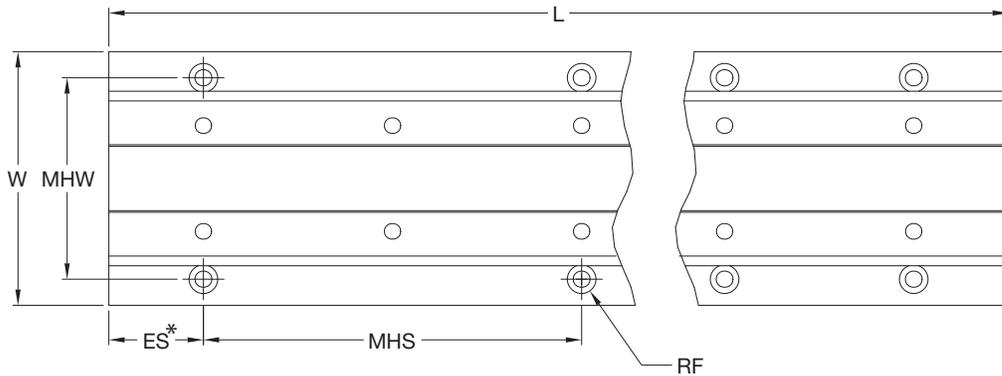
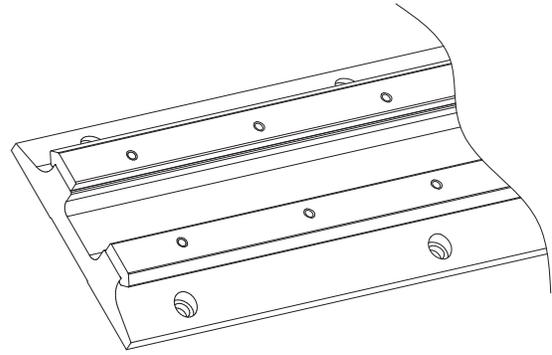
LoPro, Un-driven, Size 2 Large, Carbon Steel, Basic Wheel Plate with Wheel Covers, Carbon Steel Wheels, No Sensor Flags, Un-driven, Steel Beam Mounted, Version A, 400.0mm Travel.

### Notes:

1. Aluminum beam is not available in size 4.
2. Corrosion resistant systems are available with basic wheel plate or wiper wheel plate. Corrosion resistant systems on stainless steel beams are custom. Contact Bishop-Wisecarver for details.

# TRACK PLATE ASSEMBLIES

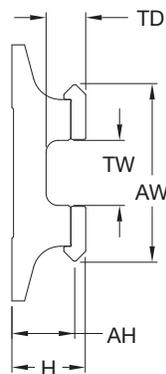
- Provides the lowest profile linear guidance
- Induction hardened, single edge track is available in either carbon steel or stainless steel
- Track plate assemblies are butt-joinable for long stroke requirements
- Lightweight anodized aluminum substrate



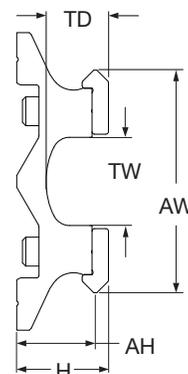
Dimensions		WIDTH (W)		OVERALL HEIGHT (H)		VEE HEIGHT (AH)		VEE WIDTH (AW)		INNER WIDTH (TW)		INNER DEPTH (TD)		MOUNTING HOLE WIDTH (MHW)		MOUNTING HOLE LENGTH SPACE (MHS)		MOUNTING HARDWARE (RF)
		IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	
1	M1ATP	1.969	50.0	.625	15.9	.532	13.5	1.473	37.4	.500	12.7	.365	9.3	1.575	40.0	2.992	76.0	M3
2	M2ATP	2.835	72.0	.873	22.2	.748	19.0	2.150	54.6	.840	21.3	.593	15.1	2.323	59.0	4.961	126.0	M5
3	M3ATP	4.016	102.0	1.156	29.4	.985	25.0	2.799	71.1	1.020	25.9	.622	15.8	3.189	81.0	5.984	152.0	M6
4	M4ATP	5.512	140.0	1.440	36.6	1.222	31.0	3.773	95.8	1.550	39.4	.900	22.9	4.370	111.0	7.008	178.0	M8

\*ES = End spacing dimension is contingent upon Track Plate Length.  
Add SS to the end of the part number for stainless steel track and hardware.

## Track Size 1, 3 and 4



## Track Size 2



# TOOLS AND ACCESSORIES

## Gantry Kits

Multi-axis gantry attachment kits extend the working envelope of LoPro linear actuators and enable the fast and simple connection of several actuators into a more complex motion system.

Gantry plate kits and gantry bracket kits are designed for use on all drive types, including: Undriven, Belt, Chain, Lead Screw, and Ball Screw. All hardware is included, and installation can be completed quickly with simple hand tools. Cable carrier mounting points simplify wire management.

Please consult Bishop-Wisecarver's applications engineers for additional assistance. In addition, the Lopro gantry system assembly manual is available at [bwc.com/LoPro-Gantry-Manual](http://bwc.com/LoPro-Gantry-Manual).

### Gantry Bracket Kits

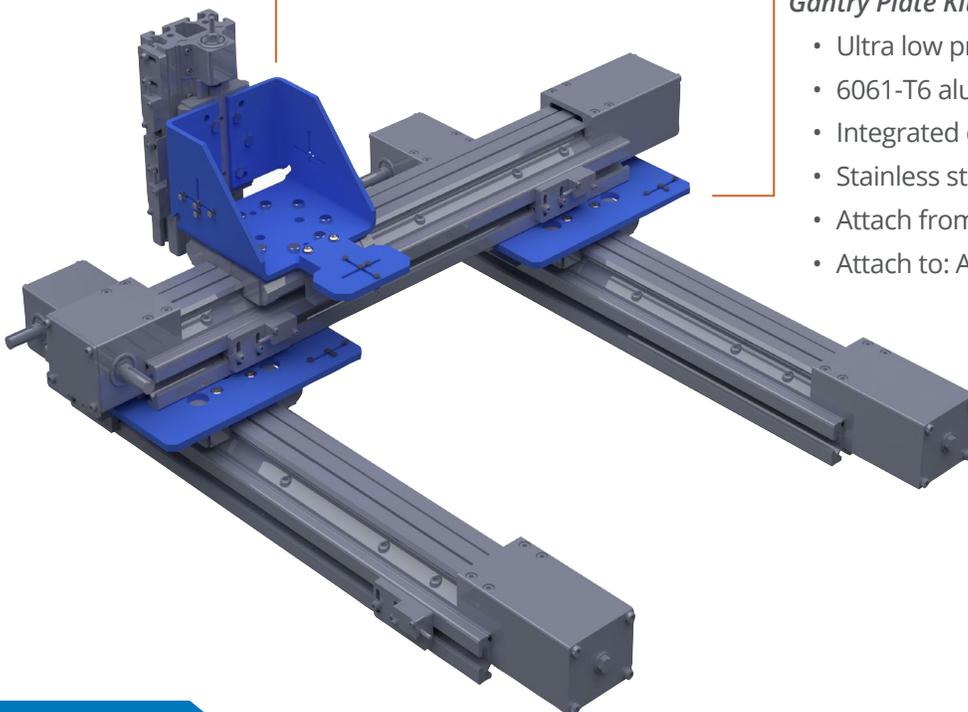


- 304 stainless steel (corrosion-resistant) bracket with milled matte finish
- Two integrated cable carrier mount points; an additional mount point is provided for assembly if required
- Stainless steel mounting hardware included
- Attach from: Basic Wheel Plate, Wiper Wheel Plate
- Attach to: Basic Wheel Plate, Wiper Wheel Plate, Aluminum Beam



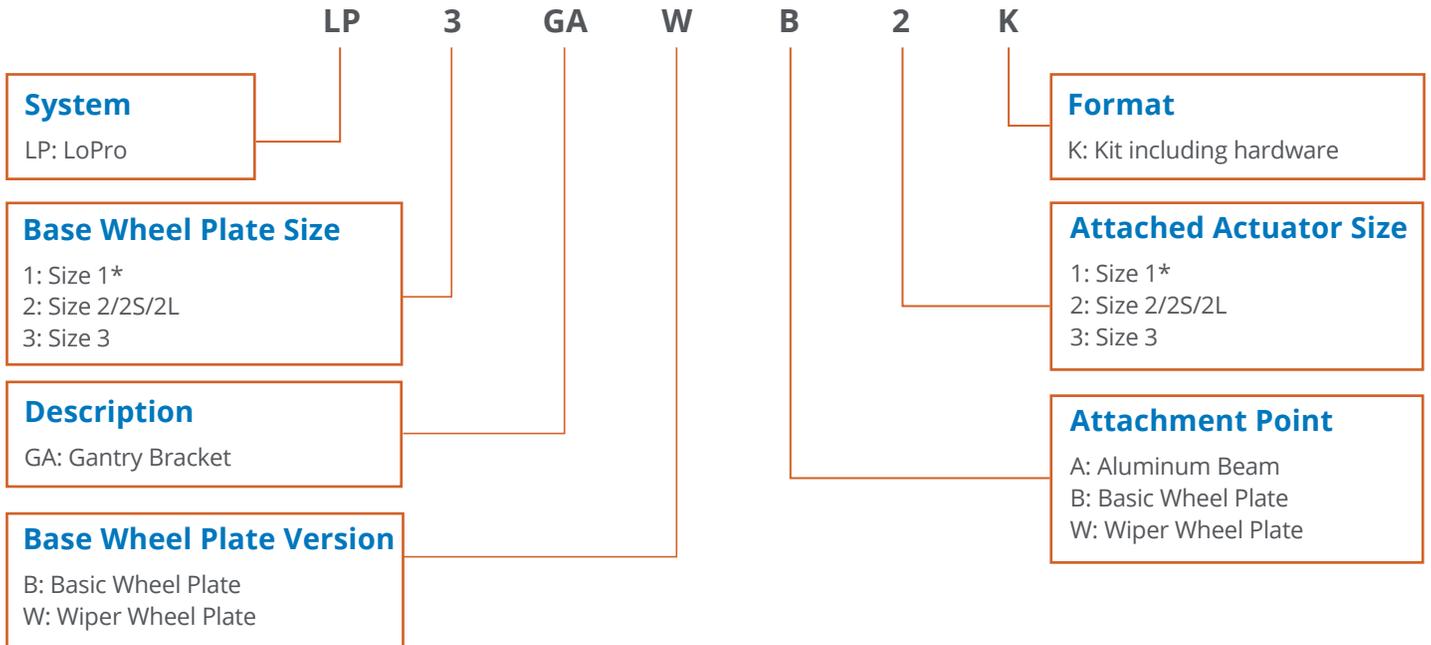
### Gantry Plate Kits

- Ultra low profile attachment method
- 6061-T6 aluminum plate with black anodize finish
- Integrated cable carrier mount point
- Stainless steel mounting hardware included
- Attach from: Basic Wheel Plate, Wiper Wheel Plate
- Attach to: Aluminum Beam



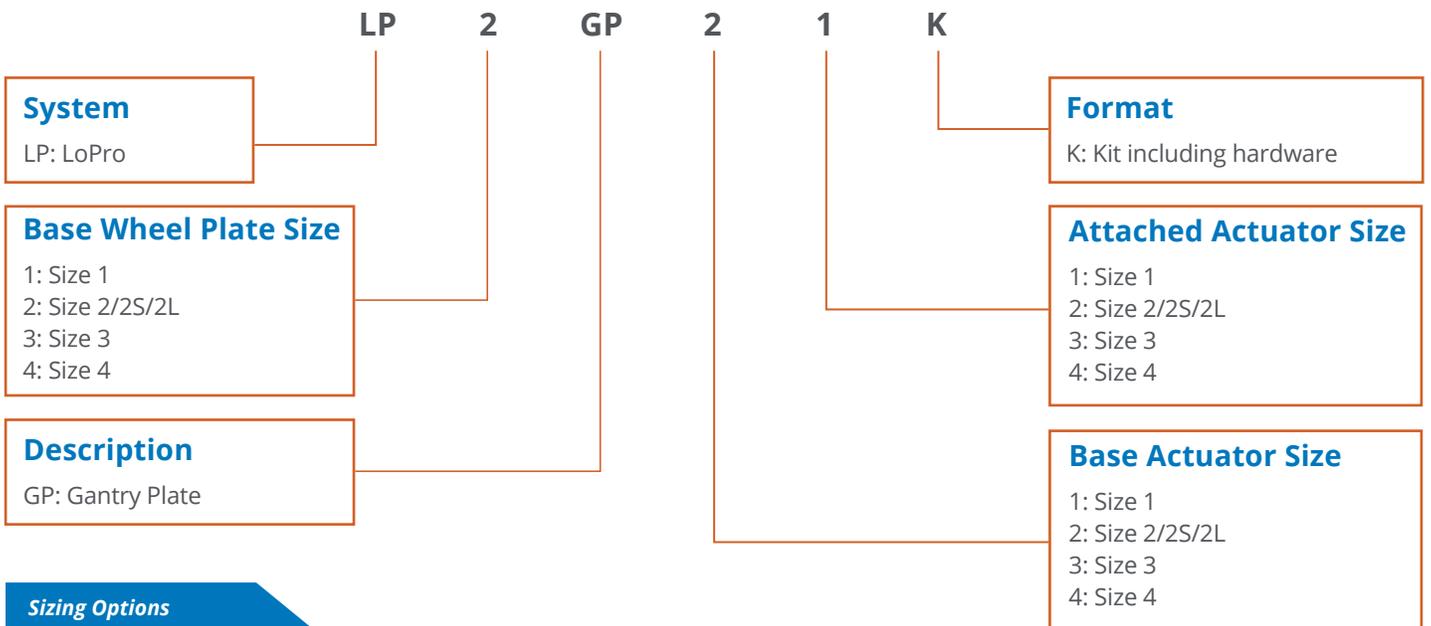
# TOOLS AND ACCESSORIES

## Gantry Bracket Kit Stock Code Builder



\*Size 1 basic and wiper wheel plates have identical hole patterns, so when configuring use "B" for Wheel Plate Version and Attachment Point, resulting in either LP1GABB1K or LP1GABA1K.

## Gantry Plate Kit Stock Code Builder



Sizing Options				
BASE ACTUATOR SIZE	ATTACHED ACTUATOR SIZE			
	1	2	3	4
1	Bracket; Plate	N/A	N/A	N/A
2	Bracket; Plate	Bracket; Plate	N/A	N/A
3	N/A	Bracket; Plate	Bracket; Plate	N/A
4	N/A	N/A	Plate	Plate

### Ordering Examples

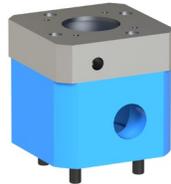
LP3GAWB2K  
LoPro, Size 3 (base wheel plate), Gantry Bracket, Wiper Wheel Plate (base wheel plate version), Basic Wheel Plate (attachment point), Size 2 (attached actuator), Kit including hardware

LP2GP21K  
LoPro, Size 2 (base wheel plate), Gantry Plate, Size 2 (base actuator), Size 1 (attached actuator), Kit including hardware

# TOOLS AND ACCESSORIES

## Motor Mounts

- Available to fit ANY manufacturer's motor or gearbox
- Supplied as a kit, complete with shaft coupling and mounting hardware
- Two-piece design
- Dual access holes

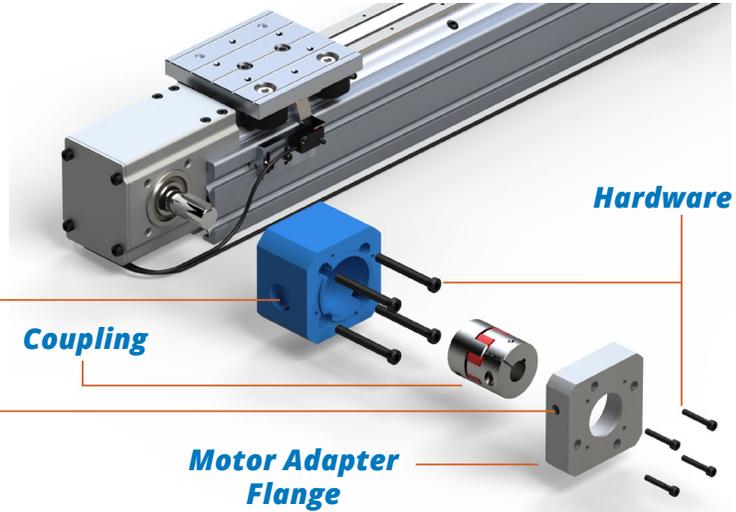


Access Holes

Coupling

Motor Adapter Flange

Hardware



## Coupling Options

- Zero Backlash
- Vibration dampening
- Three-piece pluggable design
- Ideal choice where high stiffness is not critical



Elastomer

- Zero Backlash
- High stiffness (7 to 10 times stiffer than an elastomer coupling)
- High speeds (up to 25,000 rpm)
- Can withstand harsh environments, where glue connections cannot



Bellows

## Stock Code Builder

LP3BC E 1 K CR L

### System Size/Drive Type

LP1BC: Size 1 Belt or Chain  
 LP2SBC: Size 2S Belt or Chain  
 LP2LBC: Size 2L Belt or Chain  
 LB3BC: Size 3 Belt or Chain  
 LB4BC: Size 4 Belt or Chain  
 LP1LS: Size 1 Lead Screw  
 LP2BL: Size 2 Ball or Lead Screw  
 LP3BL: Size 3 Ball or Lead Screw  
 LP4BL: Size 4 Ball or Lead Screw

### Coupling

E: Elastomer      B: Bellows

### Motor or Gearhead

Enter Manufacturer Name and Model Number

### Shaft Configuration (size 1 belt/chain only; for all other systems, leave blank)

L: Left Hand      R: Right Hand

### Corrosion Resistance

Blank: Standard Hardware  
 CR: Corrosion Resistant Hardware

### Keyways

N: No Keyways      K: Keyways

### Torque Rating N•m / (Bore Range)

LP1BC:	Elastomer	Bellows	LP3BC:	Elastomer	Bellows	LP2BL:	Elastomer	Bellows
1:	8 / (8-16mm)	4 / (3-14mm)	1:	60 / (14-29mm)	50 / (15-34mm)	1:	5 / (5-8mm)	5 / (6-11mm)
			2:	90 / (.750"-29mm)	--			
LP2SBC:	Elastomer	Bellows	LP4BC:	Elastomer	Bellows	LP3BL:	Elastomer	Bellows
1:	8 / (8-16mm)	10 / (8-16mm)	1:	150 / (22-38mm)	100 / (22-38mm)	1:	15 / (.375"-.750")	10 / (8-16mm)
						2:	20 / (12mm-.750")	20 / (10-20mm)
LP2LBC:	Elastomer	Bellows	LP1LS:	Elastomer	Bellows	LP4BL:	Elastomer	Bellows
1:	30 / (.500"-26mm)	25 / (10-28mm)	1:	5 / (5-8mm)	2 / (3-10mm)	1:	30 / (.500"-26mm)	40 / (12-28mm)
2:	45 / (18-26mm)	--	2:	--	5 / (3-10mm)	2:	45 / (18-26mm)	--

# TOOLS AND ACCESSORIES

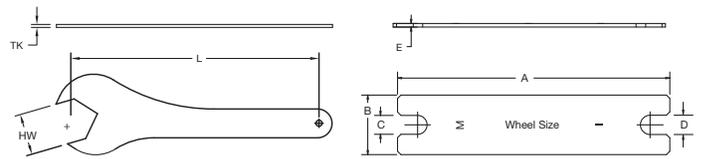
## Other Accessories

- Various inductive proximity sensors, sensor mounting kits, and sensor flags
- Elastomer line shafts in a variety of lengths and diameters
- Additional custom accessories are available to fit your application needs. Contact our applications engineers for assistance.



## Fit-up Wrenches

- Eccentric adjustment mounting tools
- Wrenches are included with system orders
- For basic wheel plate, use wheel stud wrench and socket wrench to adjust eccentric wheels (socket wrench not supplied)
- Allows for fit-up adjustment between opposing wheels by rotating eccentric bushing



**Wiper Wheel Plate**

**Basic Wheel Plate**

## Wiper Wheel Plate Wrench

Dimensions								
WRENCH TYPE	WHEEL SIZE	STOCK CODE	WRENCH SIZE (HW)		LENGTH (L)		THICKNESS (TK)	
			IN	MM	IN	MM	IN	MM
Wheel Bolt	1	1PWRB	.220	5.6	3.99	101.3	.091	2.3
	2	2PWRB	.344	8.7	4.50	114.3	.125	3.2
	3	3PWRB	.440	11.2	5.00	127.0	.133 to .165	3.4 to 4.2
	4	4PWRB	.503	12.8	5.50	138.9	.133 to .165	3.4 to 4.2
Eccentric Bushing	1	1PWRX	.439	11.2	4.00	101.6	.063	1.6
	2	2PWRX	.564	14.3	4.50	114.3	.063	1.6
	3	3PWRX	.752	19.1	5.10	129.5	.105	2.7
	4	4PWRX	.877	22.3	5.80	147.3	.105	2.7

## Basic Wheel Plate Wrench

Dimensions							
WRENCH TYPE	WHEEL SIZE	STOCK CODE	LENGTH (A)	WIDTH (B)	WRENCH SIZE (C)	WRENCH SIZE (D)	THICKNESS (E)
Wheel Stud	1	BAW1	7.00	1.50	.474 - .479	.439 - .444	.0747 + .0143/-0050
	2	BAW2	8.00	1.75	.553 - .558	.565 - .570	.1046 + .0244/-0136
	3	BAW3	9.00	2.00	.750 - .755	.752 - .757	.1345 + .0055/-0165
	4	BAW4	9.00	2.00	.868 - .873	.877 - .882	.1345 + .1275/-0165

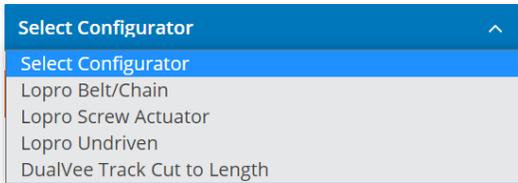
Values are in inches. Wrenches are universal for metric and inch.

# ONLINE CONFIGURATOR

Looking to configure, quote, and purchase an actuator system online? Then check out our self-service product configurator at BWC.com. If at any point you want assistance, our Customer Service Representatives and Application Engineering team are just a click or phone call away.

**1. Log in to BWC.com (or create an account) and select Product Configurator in the Resource Center**

**2. Select the configurator for your desired drive type**



WHEEL TYPE ⓘ

Your LoPro linear motion system is based on

Please select



CARBON STEEL

**Carbon Steel**

Made from AISI1045 carbon steel, these linear guide wheel bearings are suited for general purpose applications. These wheels contain general purpose grease lubrication.

resistance is unnecessary. These wheels contain general purpose grease lubrication.



STAINLESS STEEL

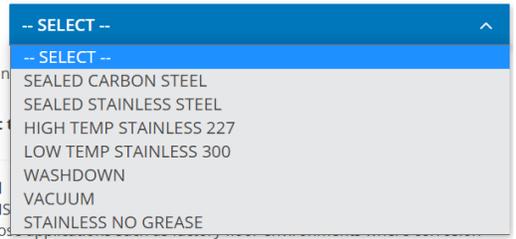
**Stainless Steel**

Made from AISI440C stainless steel, these linear guide wheel bearings are suited for applications requiring corrosion resistance such as in the presence of moisture, corrosives, and fluids. These wheels contain general purpose grease lubrication.



**Stainless Steel, High Temperature, 227**

Made from AISI440C stainless steel, these linear guide wheel bearings are suited for



**3. Read about and configure the various options for your system**

**4. Get a part number and quote with a single click!**

**5. View and download CAD models for your configuration**

**6. Add your LoPro® Linear Actuator to your cart and purchase online. If you have custom pricing associated with your account, your discount is automatically applied!**

**ADD TO CART**

**LOAD CAD GENERATOR** **QUOTE**

**Note :** Some travel lengths are not supported by Cadenas. Please contact Bishop Wisecarver if incorrect.



## CUSTOM ENGINEERED LINEAR MOTION SYSTEMS

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In addition to the standard line of LoPro® linear system products, Bishop-Wisecarver's capabilities extend beyond these standard systems and into the realm of custom engineered products. Custom engineered solutions from Bishop-Wisecarver range from slight modifications made to standard systems to complete ground-up system designs using DualVee® components and/or linear guides.

### Value added modifications and capabilities include but are not limited to

- Multi-axis/Gantry Bracketing
- Limit Switches
- Gearboxes
- Elastomer or Bellows Couplings
- Connecting Shafts
- Bellows
- Foot Mounts for Steel Support Beams
- Special Machining
- Track Plating Options
- Custom Wheel Plate Designs
- Custom Design Assistance
- Assembly Services (prior to shipping)

Custom engineered products are typically designed in collaboration with the customer's design team, taking into account the major design parameters including envelope restrictions, material considerations, accuracy, repeatability, thrust requirements, duty cycle, and service life objectives. Non-recurring engineering fees may apply depending on the level of customization involved. Typical projects entail varying levels of prototype sketching, detailing, and prototype design modification as the system specifications are refined. Prior to fabrication, prototype designs are formally detailed and documented for "sign-off" approval by the customer. JIT and Kanban-type arrangements can be accommodated for custom engineered OEM requirements.



When engaging with Bishop-Wisecarver, customers can expect a Signature Experience as it relates to prompt customer service, technical collaboration and exceptional lead times. As a result, our commitment consistently fulfills expectations with reliable motion solutions that are on time and on budget, with no surprises.

# MOTION SOLUTIONS FROM BISHOP-WISECARVER ARE LIMITED ONLY BY YOUR IMAGINATION

## **Components & Accessories**

DualVee®  
MadeWell®  
GV3  
SL2  
PRT2  
HDS2  
HDRT  
MCS  
Motor Mounts  
Gantry Brackets  
Wrenches

## **Manual Linear Guide Systems**

DualVee®  
UtiliTrak®  
MinVee®  
GV3  
Simple Select®  
SL2  
HDS2  
MHD  
HTS

## **Actuated Linear Guide Systems**

LoPro®  
XLA™  
ECO60™  
SlickStick™  
SteadyRail™  
HDLS  
HDCS  
PDU2  
DAPDU2  
SBD  
PSD  
SDM  
DLS

## **Rotary Guide Systems**

PRT2  
DTS2  
DTS  
ALR  
HDRT  
1-Trak  
GFX

## **Custom Solutions**

Extruded Profile Guides  
Custom Bearings  
Custom Subassemblies  
Engineering Services  
Large Diameter Ring Guides and Track

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## **Contact**

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Email: [Sales@bwc.com](mailto:Sales@bwc.com)

2104 Martin Way  
Pittsburg, CA 94565