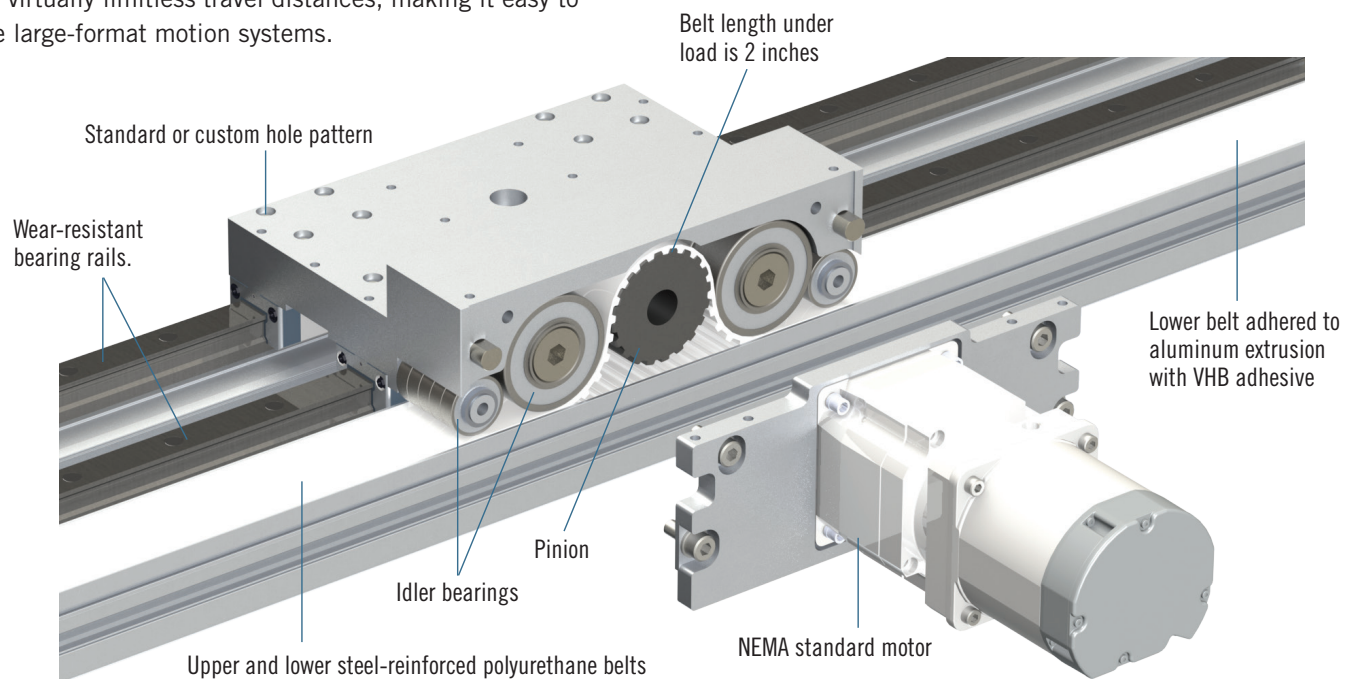# Bell+Everman
Embedded Motion Systems

SvervoBelt Linear Drive

Forget everything you thought you knew about belt drives.

- **High Performance, Low Cost.** With speeds up to 4 m/s, accuracy to ± 4 μm per meter, ServoBelt Linear compares favorably to high-end linear motor drives costing thousands more.

- **Limitless Scalability.** With a modular chassis based on standard Bosch-Rexroth T-slot extrusions, ServoBelt Linear offers virtually limitless travel distances, making it easy to create large-format motion systems.

- **Multiple Carriages and Axes.** A single ServoBelt Linear axis will support multiple carriages with independent motion. Multi-axis configurations include Cartesian motion systems and gantry robots.

Standard or custom hole pattern

Belt length under load is 2 inches

Wear-resistant bearing rails.

Lower belt adhered to aluminum extrusion with VHB adhesive

Pinion

Idler bearings

NEMA standard motor

Upper and lower steel-reinforced polyurethane belts

TECHNICAL SPECIFICATIONS	ServoBelt Linear		
	SBL-L ServoBelt Linear, Light Duty	**SBL-M** ServoBelt Linear, Medium Duty	**SBL-H** ServoBelt Linear, Heavy Duty
Type	Rotary Drive Linear, NEMA 23 or user motor	Rotary Drive Linear, NEMA 23, 34 or user motor	Rotary Drive Linear, NEMA 34 or user motor
Recommended Maximum Payload (lb) Payload x Acceleration = Linear Force	50	100	300
Linear travel per motor revolution (mm)	75		200
Bearing type	Preloaded 4-row recirculating ball, standard or corrosion resistant		
Maximum length	5.5 m with single-piece chassis Virtually limitless travel distances with chassis splices		
Motor type	3-phase brushless servo or user supplied of any type		
Accuracy (µm) Linear accuracy at stage centerline	Linear optical encoder: ±4/meter Rotary encoder: ±135/full travel		
Uni-directional repeatability (µm) Achievable under ideal conditions	±10		±15
Bi-directional repeatability (µm)	±25 to ±125 depending on deceleration profile		±80 to ±130 depending on deceleration profile
Angular deviation (±arc-sec) Yaw angle maximum in the plane of the base. Most chassis are flexible enough that this value is generally the achievable number when the unit is straightened on user surface.	±20		
Encoder type and resolutions: rotary (CPR), linear (µm)	16KCPR (NEMA 23) rotary motor encoder; 1µm magnetic linear; 1µm, 0.5µm, 0.2µm 0.1µm optical linear	16KCPR (NEMA 23), 16KCPR (NEMA 34) rotary motor encoder; 1µm magnetic linear; 1µm, 0.5µm, 0.2µm, 0.1µm optical linear	16KCPR (NEMA 34) rotary motor encoder; 1µm magnetic linear; 1µm, 0.5µm, 0.2µm, 0.1µm optical linear
Speed (m/sec)	4		
Max continuous linear force (lbf)	32 single carriage 25 dual carriage	70 single carriage 55 dual carriage	300 single carriage 240 dual carriage
Max shear for 10^6m @ 2m/sec (N)	840	2028 (single rail) 4057 (double rail)	
Max pitch and yaw moment for 10^6m @ 2m/sec (N-m)	5.6	110 (single rail) 220 (double rail)	
Max roll moment for 10^6m @ 2m/sec (N-m)	5.6	25 (single rail) 183, 365, 232 (-180, -270, -90S)	25 (single rail) 183, 365 (-180, -270)
Moving mass and Chassis mass	Refer to configurator, depends on carriage style and motor selections		
Ultimate dynamic belt life Out-and-back cycles to belt failure at load in Newtons.	30M cycles @ 56N 20M cycles @ 112N 15M cycles @ 168N 2M cycles @ 225N	30M cycles @ 112N 20M cycles @ 225N 15M cycles @ 337N 2M cycles @ 450N	5M Cycles @ 1334N
Minimum chassis size (mm)	30 x 60	45 x 45	45 x 90
Bearings style-size (mm)	single-15	dual-20 or single-20	

Configure and request a quote online at
www.bell-everman.com/servobelt-linear.