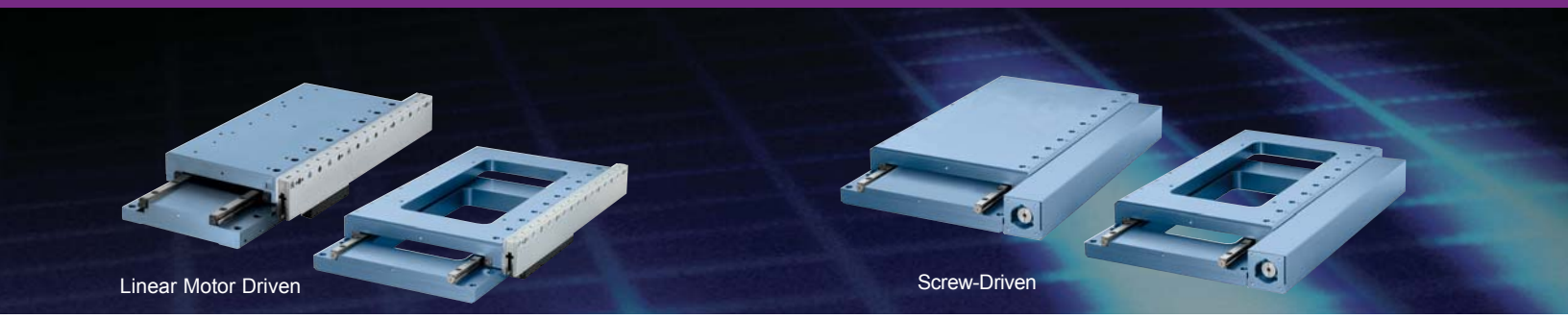
Ultra Series:
Crossed Roller Ultra Precision Stages

Bayside Motion Group, has developed Ultra Positioning Stages for applications requiring the ultimate in accuracy. Available with a linear motor, ball screw or lead screw drive, Ultra Stages offer total system flexibility and state-of-the-art performance. Our stages are available in single or multi-axis configurations for a variety of applications.

Two Stages for Superior Performance
Ultra Stages feature precision crossed roller bearing technology for high accuracy, low-friction linear motion. Built with a rugged aluminum construction, Ultra Stages are available with an optional open frame for through-stage lighting or inspection. Linear motor, ball screw or lead screw driven, Ultra Stages provide optimum performance and precision.



Linear Motor Ultra Stages utilize a non-contact optical linear encoder, integrated directly into the stage footprint. The encoder tape scale is mounted upside-down and referenced directly off the bearing surface, eliminating any Abbe error and protecting it from any debris. The encoder read head is mounted inside the stationary base, eliminating moving wires.

- Sub-micron accuracy
- 0.5 micron repeatability
- Travels from 100mm to 500mm
- Patented AutoFlex Preload
- Built-in encoder and limits
- Optional open frame construction

U200
Closed frame design
200mm wide
Maximum travel 400mm
Maximum load capacity 1,859kg
Maximum velocity to 1,500mm/sec

U300
Available in closed and open frame design
300mm wide
Maximum travel 500mm
Maximum load capacity 2187kg
Maximum velocity to 1,500mm/sec

U400
Available in closed and open frame design
400mm wide
Maximum travel 500mm
Maximum load capacity 2,187kg
Maximum velocity to 1,500mm/sec

U600
Available in open frame design
600mm wide
Maximum travel 500mm
Maximum load capacity 2 187kg
Maximum velocity to 1,500mm/sec

Screw-driven Ultra Stages are ideal for easy mounting to any servo or step motor. For increasing positional accuracy, optional linear encoders are offered.

- Variety of ball screw and lead screw pitches
- Travels from 100 to 500mm
- 2 micron repeatability
- Optional linear encoder for direct position feedback
- Optional open frame construction
- Available in closed and open frame design

U200
Available in closed frame design
200mm wide
Maximum travel 400mm
Maximum load capacity 1,859kg
NEMA 23 or 60mm BM Servo motor mounting

U300
Available in closed and open frame design
300mm wide
Maximum travel 500mm
Maximum load capacity 2,187kg
NEMA 23 or 60mm BM Servo motor mounting

U400
Available in closed and open frame design
400mm wide
Maximum travel 500mm
Maximum load capacity 2,187kg
NEMA 23 or 60mm BM Servo motor mounting

U600
Available in open frame design
600mm wide
Maximum travel 500mm
Maximum load capacity 2,187kg
NEMA 23 or 60mm BM Servo motor mounting

Ultra Series:
Ultra Precision

When to Use:

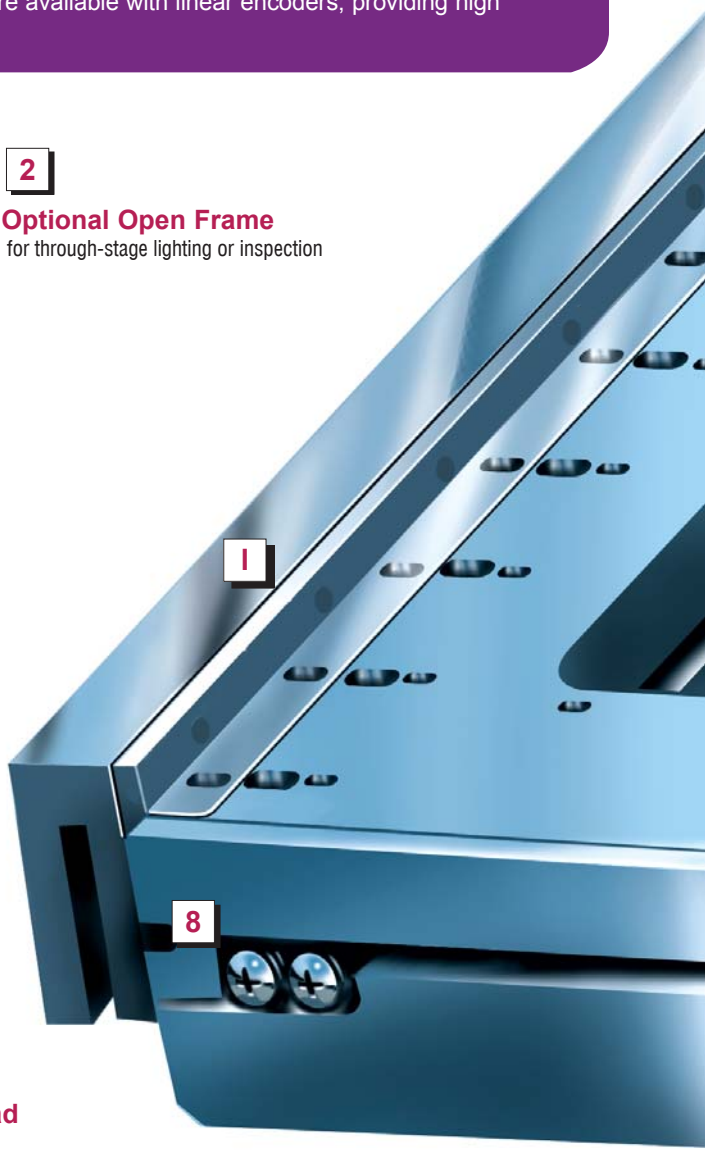
- High precision sub micron
- Precise repeatability
- Open or closed frame
- Thermal Compensation
- Smooth motion

Applications:

- Electronics
- Semiconductor
- Automation
- Medical
- Flat Panel

• Linear Motor Driven Ultra Stages
Linear Motor Ultra Stages can achieve sub-micron accuracy with position repeatability of ± 1 encoder count. Featuring Bayside's patented AutoFlex Preload, Linear Motor Ultra Stages provide exceptional smoothness of motion for constant velocity requirements in scanning applications. The AutoFlex preload provides a unique thermal compensation method, eliminating any effects of expansion / contraction on bearing performance. The brushless linear motor is mounted inverted, with the ironless coil attached to the stationary base, eliminating moving wires.

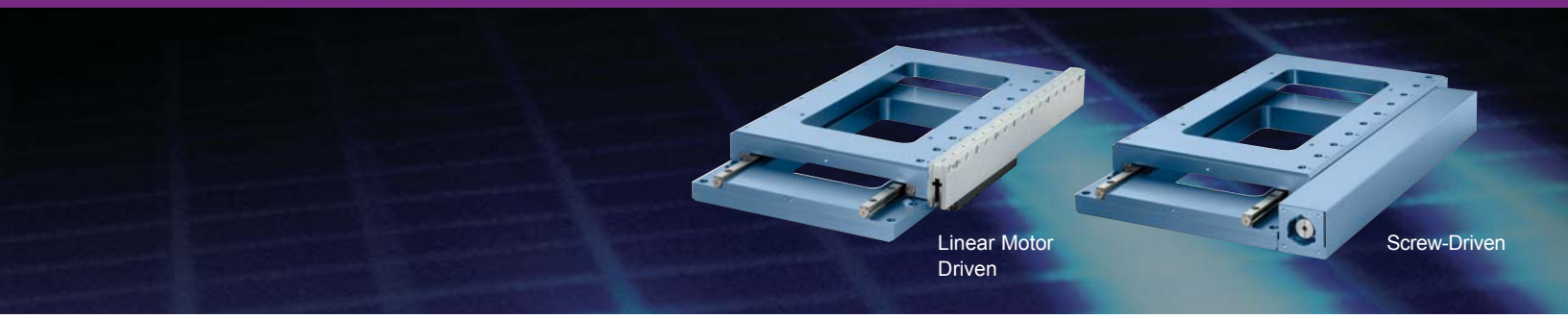
• Screw-Driven Ultra Stages
Traditional Ultra Stages are provided with either a ball screw or lead screw mounted alongside the stage. This stage configuration allows easy mounting of any step or servo motor with a flexible coupling. The ball screw version provides high speed and high force for dynamic move-and-settle applications. The lead screw version provides exceptional smoothness for slow speed scanning. Both the lead screw and ball screw models are available with linear encoders, providing high positional accuracy and repeatability.



2
Optional Open Frame
for through-stage lighting or inspection

I
Standard with Side Mounted Brushless Linear ServoMotor (Ironless) for smooth, high speed and high accuracy operation, or
Standard with C3 Class Precision Ground Ball Screw or Ground "V" Thread Screw
for high positioning accuracy

8
Patented AutoFlex™ Preload
for optimum performance during thermal expansion and high accelerations



4

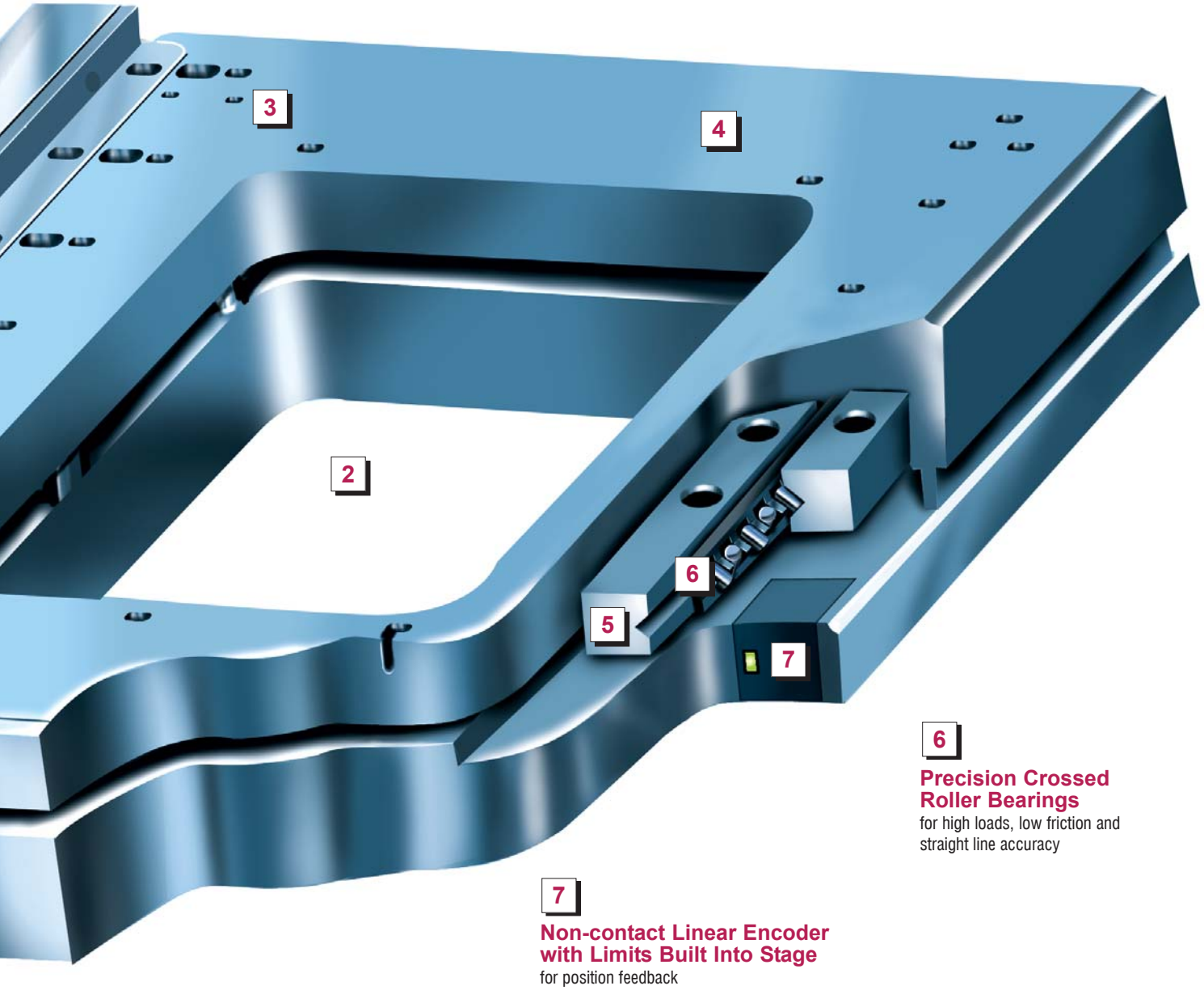
No Moving Wires
yields highest constant velocity and stage reliability

3

Rugged Aluminum Construction for high accuracy and stiffness

5

Optional Hollow Rollers
for air bearing-type smoothness



6

Precision Crossed Roller Bearings
for high loads, low friction and straight line accuracy

7

Non-contact Linear Encoder with Limits Built Into Stage
for position feedback

Ultra Series:
Linear Motor Drive

Performance and Accuracy Specifications(1)

Model No.	Travel Range (mm)	Travel Range (in)	Maximum Velocity(1) (mm/sec)	Maximum Velocity(1) (in/sec)	Maximum Acceleration(1A) (g)
U200	**100 to 400**	3.94 to 15.75	**1,500**	59.1	2
U300	**200 to 500**	7.87 to 19.69	**1,500**	59.1	2
U400	**300 to 500**	11.81 to 19.69	**1,500**	59.1	2
U600	**500**	19.69	**1,500**	59.1	2

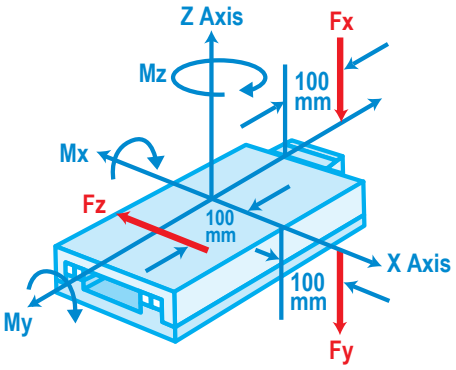
Model No.	Straightness / Flatness (microns/25mm)	Pitch & Yaw (arc sec/25mm)	Accuracy(2) (microns)	Repeatability(2) (microns)
U200	±1.25	±2.0	±2	± 0.5
U300	±1.25	±2.0	±2	± 0.5
U400	±1.25	±3.0	±2	± 0.5
U600	±1.25	±3.0	±2	± 0.5

Linear Motor Specifications

All Linear Motor Ultra Series come with a brushless, ironless dc linear servomotor. The standard motors provided yield performance based on the moving mass and the customer load. For additional motor sizes to increase stage performance, please contact the factory.

Specification	Symbol	Unit	Motors for U200-100 U200-200 U200-300	Motors for U200-400 All U300 Series	Motors for All U400 Series All U600 Series
Peak Force	F_p	**N**	**120**	**240**	**400**
		lb	27.0	54.0	90
Continuous Force	F_c	**N**	**38**	**76**	**122**
		lb	9	17	28
Motor Constant	K_m	**N/$\sqrt{W}$**	**4.7**	**6.6**	**9.5**
		lb/ $\sqrt{W}$	1.05	1.48	2.14
Max Continuous Dissipation	Pc	W	65	131	167
Peak Current	I_p	amps RMS	7.1	7.1	7.0
Continuous Current	I_c	amps RMS	2.3	2.3	2.1
Resistance	R_{L-L}	ohms	6.1	12.2	17.2
Inductance	L_{L-L}	mH	1.3	2.6	6.0
Back EMF Constant	**K_{EL-L}**	**Vpeak/mm/sec**	**13.7**	**27.5**	**46.5**
		Vpeak/in/sec	0.35	0.70	1.18
Force Constant	K_f	**N/amps**	**16.8**	**33.7**	**57**
		lb/Arms	3.8	7.6	12.8

(1) Maximum velocity is based on motor size and encoder resolution.
(1A) Maximum acceleration is load and motor size dependent. Actual acceleration may vary.
(2) Accuracy is based on a stage mounted to a flat granite surface and measured at 25mm above the center of the stage. Varies based on encoder length. Repeatability is based on encoder resolution selected and above specification is for 0.1µ resolution.



Fx is the load applied in the Z Axis direction, 100mm off end, causing Mx rotation around the X Axis.

Fy is the load applied in the Z Axis direction, 100mm off side, causing My rotation around the Y Axis.

Fz is the load applied around the Z Axis at a 100mm radius from the center, causing Mz rotation around the Z Axis.

Moment Loading[3]

Model No.	F(Mx) (Load applied at 100mm off end)		F(My) (Load applied at 100mm off side)		F(Mz) (Load applied at 100mm off center)	
	(kg)	(lb)	**(kg)**	(lb)	**(kg)**	(lb)
U200-100	**101**	222.67	**231**	509.27	**51**	112.44
U200-200	**108**	238.10	**313**	690.05	**54**	119.05
U200-300	**112**	246.92	**394**	868.62	**56**	123.46
U200-400	**115**	253.53	**476**	1049.40	**58**	127.87
U300-200	**108**	238.10	**398**	877.44	**54**	119.05
U300-300	**112**	246.92	**502**	1106.72	**56**	123.46
U300-400	**115**	253.53	**606**	1336.00	**58**	127.87
U300-500	**117**	257.94	**710**	1565.28	**59**	130.07
U400-300	**112**	246.92	**564**	1243.41	**56**	123.46
U400-400	**115**	253.53	**681**	1501.35	**58**	127.87
U400-500	**117**	257.94	**798**	1759.29	**59**	130.07
U600-500	**117**	257.94	**785**	1730.63	**59**	130.07

Linear Encoder Specifications

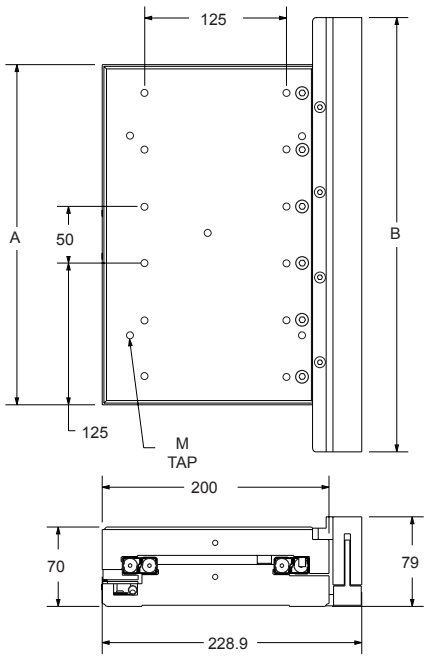
All Linear Motor Ultra Series are provided with a non-contact, optical linear encoder. Each encoder has two (2) magnetic travel limits and one (1) optical home reference built in. Available resolutions are: 0.1 micron, 0.5 micron, 1 micron, 5 microns

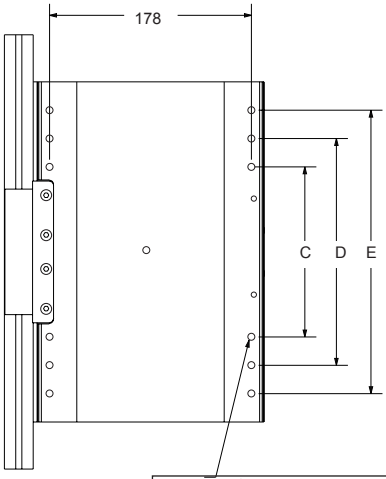
Encoder Power Supply	5 Vdc ± 5%
Operating Temperature	0 °C to 55 °C 32 °F to 131.0 °F
Output Signal [4]	Square wave differential line driver
Limit Signal	Magnetic, Normally Closed Sourcing
Home Signal	Optical Reference

(3) Maximum and moment loads are based on bearing capacity. Loading will effect acceleration and velocity capability. Specifications are subject to change without notice. Accuracy can be enhanced with mapping.
(4) Optional analog output head is available for use with external multipliers. Tape scale pitch is 20 microns. Please contact factory.

Ultra Series:
U200 Linear Motor Drive

Dimensions





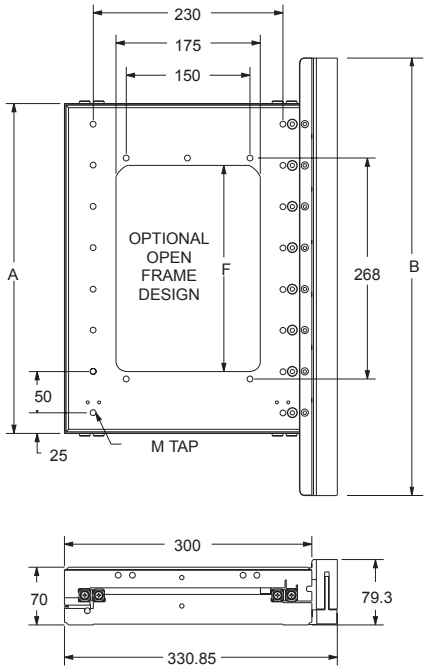
Model No.	H			
	Counterbore		Thru Hole	
	(mm)	(in)	(mm)	(in)
U200	**11x12 dp**	0.43x0.47	**7**	0.275

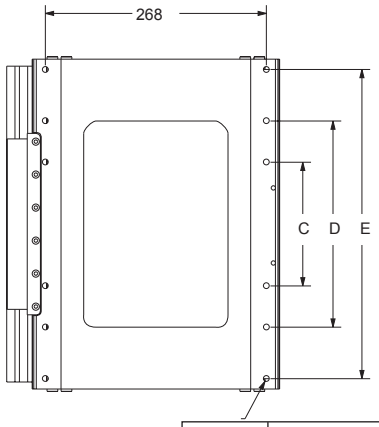
Model No.	Travel		A		B		C		D	
	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)
U200-100	**100**	3.94	**200**	7.87	**256**	10.08	**150**	5.91	—	—
U200-200	**200**	7.87	**300**	11.81	**384**	15.12	**150**	5.91	—	—
U200-300	**300**	11.81	**400**	15.75	**448**	17.64	**150**	5.91	—	—
U200-400	**400**	15.75	**500**	19.69	**640**	25.20	**150**	5.91	**300**	11.81

Model No.	E		M	Load Capacity		Stage Weight		Moving Slide Weight	
	(mm)	(in)	Tap	(kg)	(lb)	(kg)	(lb)	(kg)	(lb)
U200-100	—	—	M6 x 1	**875**	1,929	**11.39**	25.11	**6.8**	14.99
U200-200	**275**	10.83	M6 x 1	**1,203**	2,652	**16.68**	36.77	**9.9**	21.83
U200-300	**375**	14.76	M6 x 1	**1,531**	3,375	**21.56**	47.53	**12.58**	27.73
U200-400	**475**	18.70	M6 x 1	**1,859**	4,098	**27.68**	61.02	**16.35**	36.05

Ultra Series:
U300 Linear Motor Drive

Dimensions





Model No.	H			
	Counterbore		Thru Hole	
	(mm)	(in)	(mm)	(in)
U300	**11x12 dp**	0.43x0.47	**7**	0.275

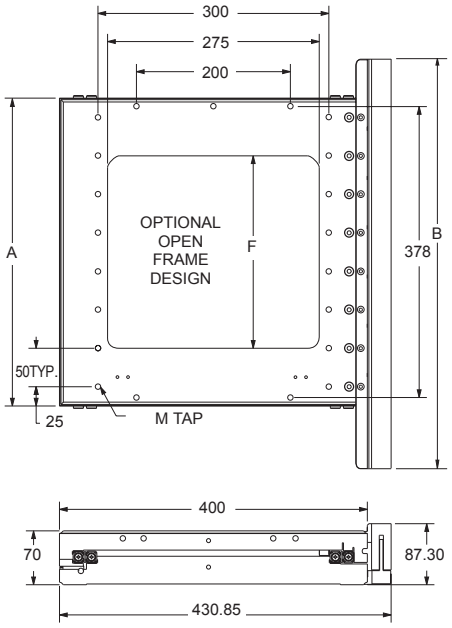
Model No.	Travel		A		B		C		D	
	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)
U300-200	**200**	7.87	**300**	11.81	**448**	17.64	**150**	5.91	**—**	—
U300-300	**300**	11.81	**400**	15.75	**576**	22.68	**150**	5.91	**200**	7.87
U300-400	**400**	15.75	**500**	19.69	**640**	25.20	**200**	7.87	**350**	13.78
U300-500	**500**	19.69	**600**	23.62	**768**	30.24	**200**	7.87	**400**	15.75

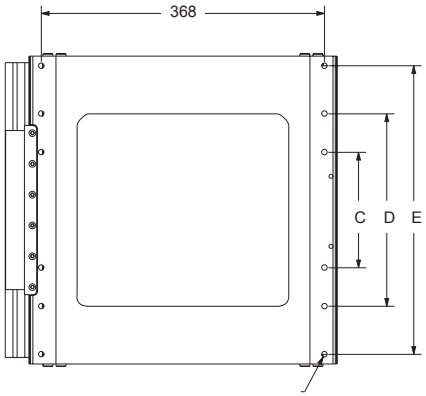
Model No.	E		F		M	Load Capacity	
	(mm)	(in)	(mm)	(in)	Tap	(kg)	(lb)
U300-200	**275**	10.83	**150**	5.91	M6 x 1	**1,203**	2,652
U300-300	**375**	14.76	**250**	9.84	M6 x 1	**1,531**	3,375
U300-400	**475**	18.70	**350**	13.78	M6 x 1	**1,859**	4,098
U300-500	**575**	22.64	**450**	17.72	M6 x 1	**2,187**	4,822

Model No.	Moving Slide Weight				Stage Weight			
	Open		Closed		Open		Closed	
	(kg)	(lb)	(kg)	(lb)	(kg)	(lb)	(kg)	(lb)
U300-200	**8.62**	19.00	**12.75**	28.11	**13.31**	29.34	**22.93**	50.55
U300-300	**11.26**	24.82	**16.78**	26.99	**17.37**	38.29	**30.24**	66.67
U300-400	**13.19**	29.58	**20.07**	44.25	**20.74**	45.72	**36.79**	81.11
U300-500	**15.84**	24.92	**24.12**	53.18	**24.80**	54.67	**44.11**	97.25

Ultra Series:
U400 Linear Motor Drive

Dimensions





Model No.	H			
	Counterbore		Thru Hole	
	(mm)	(in)	(mm)	(in)
U400	**11x12 dp**	0.43x0.47	**7**	0.275

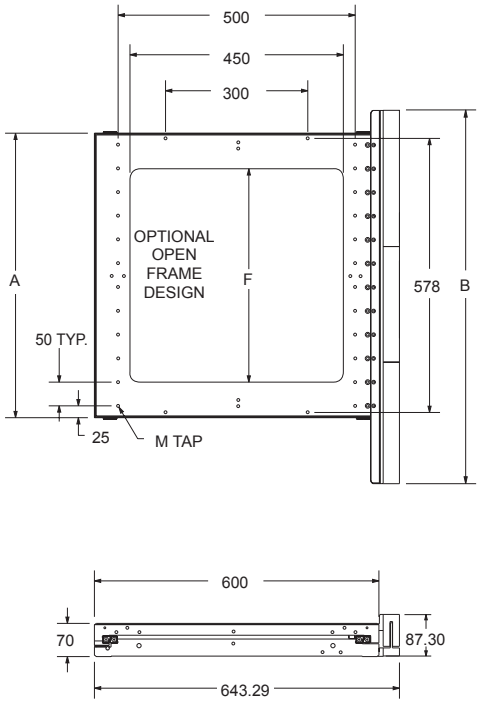
Model No.	Travel		A		B		C		D	
	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)
U400-300	**300**	11.81	**400**	15.75	**576**	22.68	**200**	7.87	—	—
U400-400	**400**	15.75	**500**	19.69	**640**	25.20	**200**	7.87	**350**	13.78
U400-500	**500**	19.69	**600**	23.62	**768**	30.24	**200**	7.87	**400**	15.75

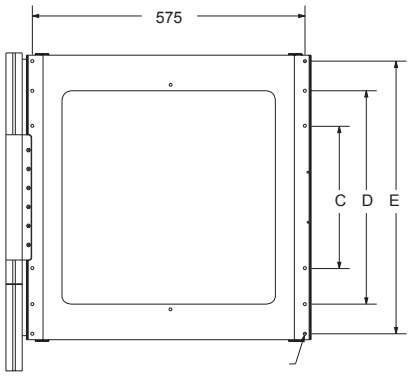
Model No.	E		F		M	Load Capacity	
	(mm)	(in)	(mm)	(in)	Tap	(kg)	(lb)
U400-300	**375**	14.76	**250**	9.84	M6 x 1	**1,531**	3,375
U400-400	**475**	18.70	**350**	13.78	M6 x 1	**1,859**	4,098
U400-500	**575**	22.64	**450**	17.72	M6 x 1	**2,187**	4,821

Model No.	Moving Slide Weight				Stage Weight			
	Open		Closed		Open		Closed	
	(kg)	(lb)	(kg)	(lb)	(kg)	(lb)	(kg)	(lb)
U400-300	**12.88**	28.40	**20.12**	44.36	**20.76**	45.77	**38.00**	83.77
U400-400	**15.31**	33.75	**33.75**	53.75	**25.00**	55.12	**46.60**	102.73
U400-500	**18.36**	40.48	**40.48**	64.44	**30.05**	66.25	**56.25**	124.01

Ultra Series:
U600 Linear Motor Drive

Dimensions





Model No.	H			
	Counterbore		Thru Hole	
	(mm)	(in)	**(mm)**	(in)
U600	**11x12 dp**	0.43x0.47	**7**	0.275

Model No.	Travel		A		B		C		D	
	(mm)	(in)	**(mm)**	(in)	**(mm)**	(in)	**(mm)**	(in)	**(mm)**	(in)
U600-500	**500**	19.69	**600**	23.62	**768**	30.24	**300**	11.81	**450**	17.72

Model No.	E		F		M	Load Capacity	
	(mm)	(in)	**(mm)**	(in)	Tap	**(kg)**	(lb)
U600-500	**575**	22.64	**450**	17.72	M6 x 1	**2,187**	4821

Model No.	Moving Slide Weight		Stage Weight	
	(kg)	(lb)	**(kg)**	(lb)
U600-500	**22.19**	48.92	**38.63**	85.16

Ultra Series:
Screw-Driven

Travel

Model No.	Travel Maximum Range	
	(mm)	(in)
U200	100 to 400	3.94 to 15.75
U300	200 to 500	7.87 to 19.69
U400	300 to 500	11.81 to 19.69
U600	500	19.69

Velocity and Thrust

Model No.	Velocity				Maximum Thrust			
	Lead Screw (1)		Ball Screw(2)		Lead Screw		Ball Screw	
	(mm / sec)	(in / sec)	(mm / sec)	(in / sec)	(kgf)	(lbf)	(kgf)	(lbf)
U200	100	3.94	300	11.81	11.3	24.9	90	198.4
U300	100	3.94	300	11.81	11.3	24.9	90	198.4
U400	100	3.94	300	11.81	11.3	24.9	90	198.4
U600	100	3.94	300	11.81	11.3	24.9	90	198.4

Accuracy Specifications

Model No.	Straightness/ Flatness		Pitch & Yaw
	(microns / 25mm)	(in/in)	(arc sec / 25mm)
U200	±1.25	±0.00005	±2.0
U300	±1.25	±0.00005	±2.0
U400	±1.25	±0.00005	±3.0
U600	±1.25	±0.00005	±3.0

Model No.	Accuracy(3)		Repeatability(4)	
	(microns / 25mm)	(in)	(microns)	(in)
U200	±2.5	0.0001	±2.0	0.00008
U300	±2.5	0.0001	±2.0	0.00008
U400	±2.5	0.0001	±2.0	0.00008
U600	±2.5	0.0001	±2.0	0.00008

(1) Based on 0.2in Ball Screw

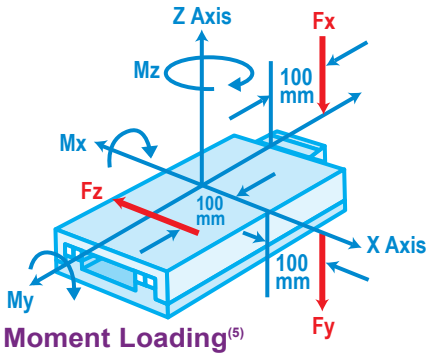
(2) Based on 10mm Lead Screw

(3) Accuracy is based on a stage mounted to a flat granite surface and measured at 25mm above the center of the stage.

(4) Repeatability is based on encoder resolution selected and above specification is for 0.1µ resolution. Lead accuracy of ball screw (open loop without encoder) is ± 6 µm over travel range.

(5) Maximum and moment loads are based on bearing capacity. Loading will effect acceleration and velocity capability.

Specifications are subject to change without notice.



Moment Loading[5]

Fx is the load applied in the Z Axis direction, 100mm off end, causing Mx rotation around the X Axis.

Fy is the load applied in the Z Axis direction, 100mm off side, causing My rotation around the Y Axis.

Fz is the load applied around the Z Axis at a 100mm radius from the center, causing Mz rotation around the Z Axis.

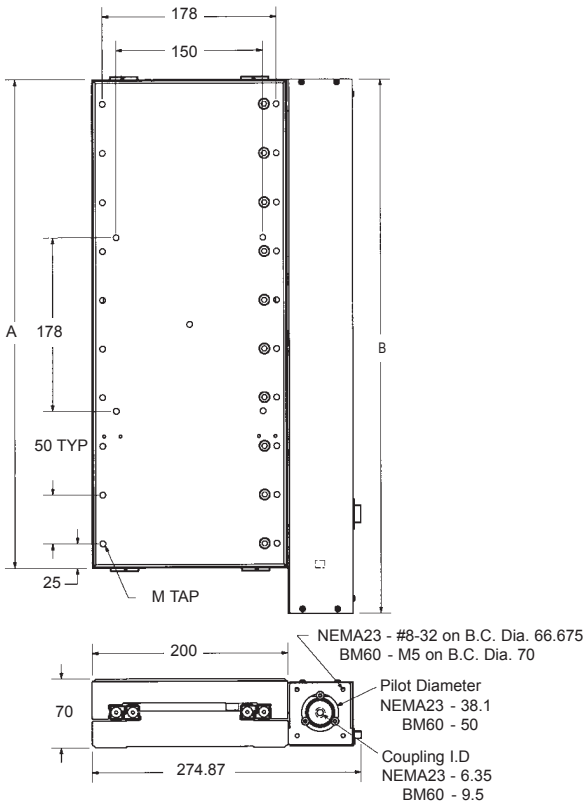
Model No.	F(Mx) (Load applied at 100mm off end)		F(My) (Load applied at 100mm off side)		F(Mz) (Load applied at 100mm off center)	
	(kg)	(lb)	**(kg)**	(lb)	**(kg)**	(lb)
U200-100	**101**	222.67	**231**	509.27	**51**	112.44
U200-200	**108**	238.10	**313**	690.05	**54**	119.05
U200-300	**112**	246.92	**394**	868.62	**56**	123.46
U200-400	**115**	253.53	**476**	1049.40	**58**	127.87
U300-200	**108**	238.10	**398**	877.44	**54**	119.05
U300-300	**112**	246.92	**502**	1106.72	**56**	123.46
U300-400	**115**	253.53	**606**	1336.00	**58**	127.87
U300-500	**117**	257.94	**710**	1565.28	**59**	130.07
U400-300	**112**	246.92	**564**	1243.41	**56**	123.46
U400-400	**115**	253.53	**681**	1501.35	**58**	127.87
U400-500	**117**	257.94	**798**	1759.29	**59**	130.07
U600-500	**117**	257.94	**785**	1730.63	**59**	130.07

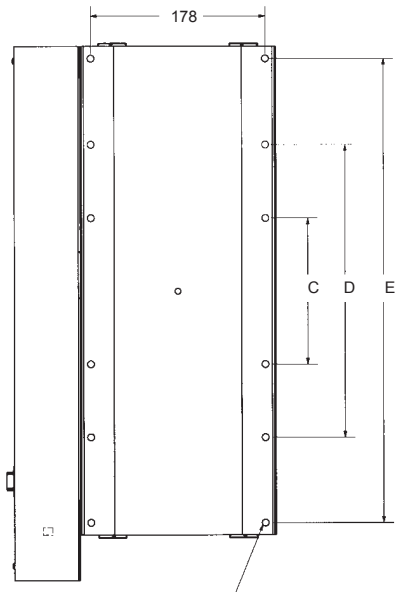
Screw Inertia

Model No.	Lead Screw		Ball Screw		Coupling Inertia		Moving Slide Weight Closed		Moving Slide Weight Open	
	(gm cm sec^2)	(oz in sec^2)	**(gm cm sec^2)**	(oz in sec^2)	**(gm cm sec^2)**	(oz in sec^2)	**(kg)**	(lb)	**(kg)**	(lb)
U200-100	**0.039**	0.00054	**0.104**	0.0015	**0.026**	0.00035	**4.26**	9.37	—	—
U200-200	**0.060**	0.00083	**0.157**	0.0022	**0.026**	0.00035	**6.16**	13.55	—	—
U200-300	**0.081**	0.00113	**0.209**	0.0029	**0.026**	0.00035	**8.11**	17.84	—	—
U200-400	**0.102**	0.00142	**0.262**	0.0036	**0.026**	0.00035	**10.09**	22.20	—	—
U300-200	**0.060**	0.00083	**0.157**	0.0022	**0.026**	0.00035	**8.4**	18.48	**4.27**	9.39
U300-300	**0.081**	0.00113	**0.209**	0.0029	**0.026**	0.00035	**11.11**	24.44	**5.29**	11.63
U300-400	**0.102**	0.00142	**0.261**	0.036	**0.026**	0.00035	**13.81**	30.38	**6.93**	15.25
U300-500	**0.123**	0.00171	**0.314**	0.0044	**0.026**	0.00035	**16.53**	36.36	**8.25**	18.15
U400-300	**0.081**	0.0011	**0.209**	0.0029	**0.026**	0.00035	**14.11**	31.04	**6.87**	15.11
U400-400	**0.102**	0.0014	**0.262**	0.0036	**0.026**	0.00035	**17.6**	38.72	**8.53**	18.76
U400-500	**0.123**	0.0017	**0.314**	0.0044	**0.026**	0.00035	**21.03**	46.27	**10.16**	22.35
U600-500	**0.123**	0.0017	**0.314**	0.0043	**0.026**	0.00035	—	—	**13.99**	30.77

Ultra Series:
U200 Screw-Driven

Dimensions





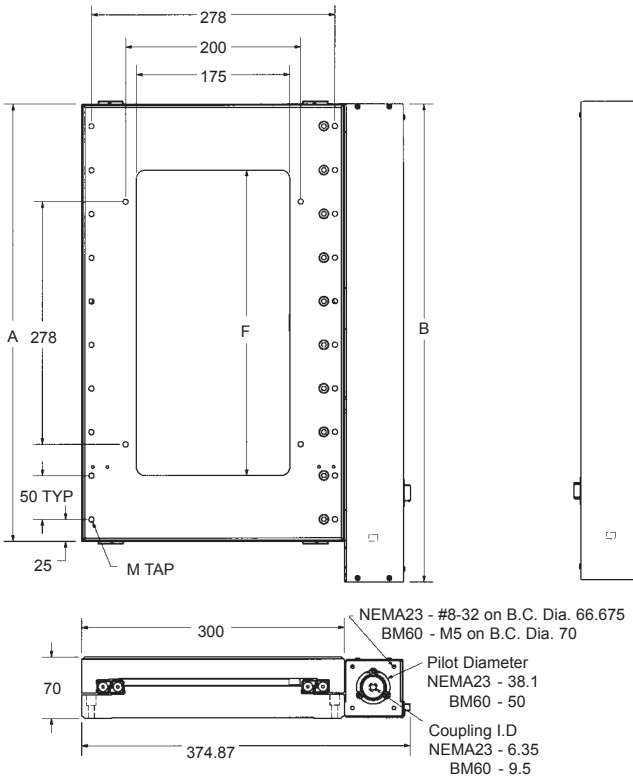
Model No.	H			
	Counterbore		Thru Hole	
	(mm)	(in)	**(mm)**	(in)
U200	**11x12 dp**	0.43x0.47	**7**	0.275

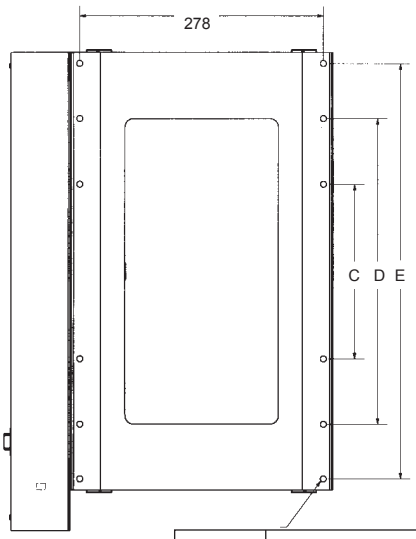
Model No.	Travel		A		B		C		D	
	(mm)	(in)	**(mm)**	(in)	**(mm)**	(in)	**(mm)**	(in)	**(mm)**	(in)
U200-100	**100**	3.94	**200**	7.87	**246**	9.7	**150**	5.9	—	—
U200-200	**200**	7.87	**300**	12.25	**346.5**	13.64	**150**	5.9	—	—
U200-300	**300**	12.25	**400**	15.75	**446.5**	17.59	**150**	5.9	—	—
U200-400	**400**	15.75	**500**	19.69	**546.5**	21.52	**150**	5.9	**300**	12.25

Model No.	E		M	Load Capacity		Stage Weight		Moving Slide Weight	
	(mm)	(in)	Tap	**(kg)**	(lb)	**(kg)**	(lb)	**(kg)**	(lb)
U200-100	—	—	M6 x 1	**875**	1,929	**9.48**	20.9	**4.26**	9.39
U200-200	**275**	10.83	M6 x 1	**1,203**	2,652	**13.72**	30.25	**6.16**	13.58
U200-300	**375**	14.76	M6 x 1	**1,531**	3,375	**18.02**	39.73	**8.11**	17.88
U200-400	**475**	18.7	M6 x 1	**1,859**	4,098	**22.35**	49.27	**10.09**	22.24

Ultra Series:
U300 Screw-Driven

Dimensions





Model No.	H			
	Counterbore		Thru Hole	
	(mm)	(in)	(mm)	(in)
U300	11x12 dp	0.43x0.47	7	0.275

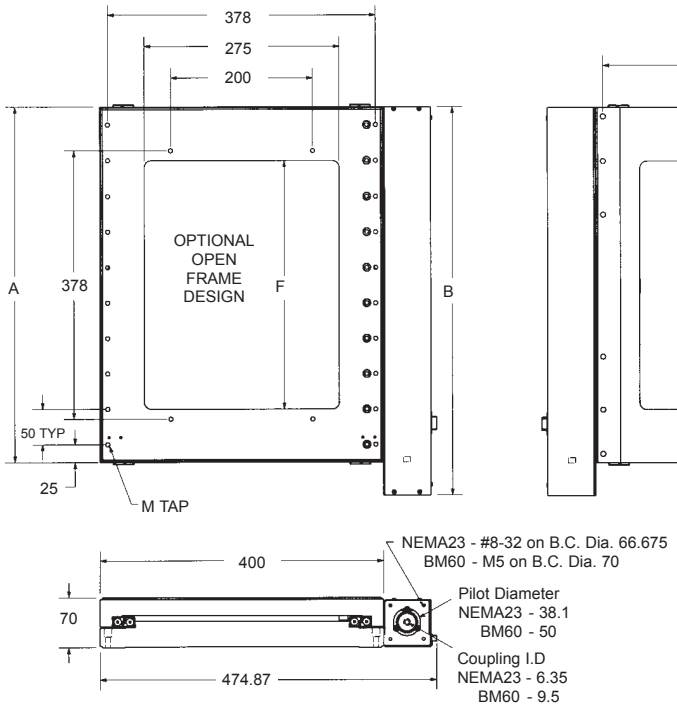
Model No.	Travel		A		B		C		D	
	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)
U300-200	200	7.87	300	12.25	346.5	13.6	150	5.9	—	—
U300-300	300	12.25	400	15.75	446.5	17.6	150	5.9	200	7.87
U300-400	400	15.75	500	19.69	546.5	21.5	200	7.9	350	13.78
U300-500	500	19.69	600	23.62	646.5	25.5	200	7.9	400	15.75

Model No.	E		F		M	Load Capacity	
	(mm)	(in)	(mm)	(in)	Tap	(kg)	(lb)
U300-200	275	10.83	150	5.9	M6 x 1	1,203	2,652
U300-300	375	14.76	250	9.84	M6 x 1	1,531	3,375
U300-400	475	18.7	350	13.78	M6 x 1	1,859	4,095
U300-500	575	22.64	450	17.72	M6 x 1	2,187	4,821

Model No.	Stage Weight				Moving Slide Weight			
	Open		Closed		Open		Closed	
	(kg)	(lb)	(kg)	(lb)	(kg)	(lb)	(kg)	(lb)
U300-200	9.59	21.1	19.21	42.35	4.27	9.41	8.4	18.5
U300-300	12.48	27.5	25.35	55.89	5.29	11.66	11.11	24.5
U300-400	15.41	33.9	31.46	69.36	6.93	15.28	13.81	30.4
U300-500	18.29	40.3	37.6	82.89	8.25	18.19	16.53	36.4

Ultra Series:
U400 Screw-Driven

Dimensions



Model No.	H			
	Counterbore		Thru Hole	
	(mm)	(in)	(mm)	(in)
U400	**11 x 12 dp**	0.43 x 0.47 dp	**7**	0.275

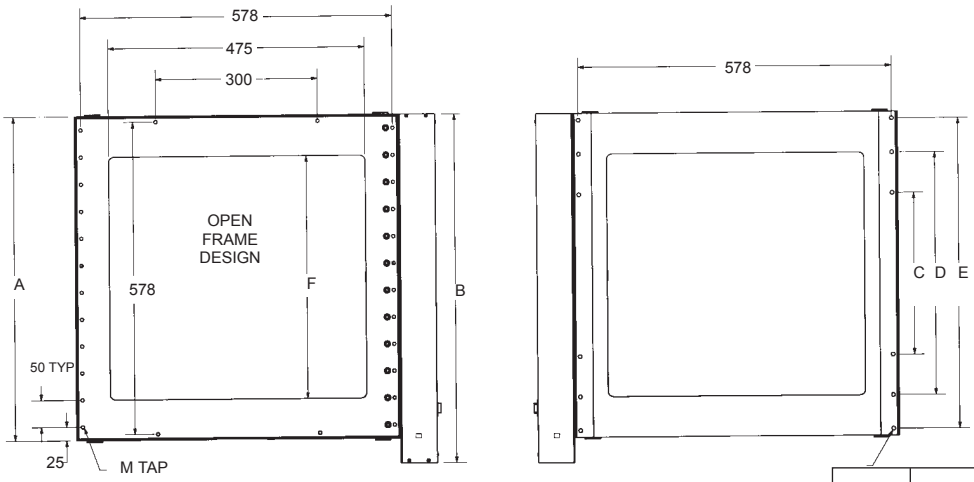
Model No.	Travel		A		B		C		D	
	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)
U400-300	**300**	11.81	**400**	15.75	**446.5**	17.58	**200**	7.87	—	—
U400-400	**400**	15.75	**500**	19.69	**546.5**	21.52	**200**	7.87	**350**	13.78
U400-500	**500**	19.69	**60**	23.62	**646.5**	25.45	**200**	7.87	**400**	15.75

Model No.	E		F		M	Load Capacity	
	(mm)	(in)	(mm)	(in)	Tap	(kg)	(lb)
U400-300	**375**	14.76	**250**	9.84	M6 x 1	**1,531**	3,375
U400-400	**475**	18.70	**350**	13.78	M6 x 1	**1,859**	4,098
U400-500	**575**	22.64	**450**	17.72	M6 x 1	**2,187**	4,822

Model No.	Stage Weight				Moving Slide Weight			
	Open		Closed		Open		Closed	
	(kg)	(lb)	(kg)	(lb)	(kg)	(lb)	(kg)	(lb)
U400-300	**15.28**	33.69	**32.52**	71.69	**6.87**	15.15	**14.11**	31.11
U400-400	**18.90**	40.34	**40.50**	88.29	**8.53**	18.81	**17.60**	38.80
U400-500	**22.68**	50.00	**48.88**	107.76	**10.16**	22.40	**21.03**	46.36

Ultra Series:
U600 Screw-Driven

Dimensions



Model No.	H			
	Counterbore		Thru Hole	
	(mm)	(in)	**(mm)**	(in)
U600	**11 x 12 dp**	0.43 x 0.47 dp	**7**	0.275

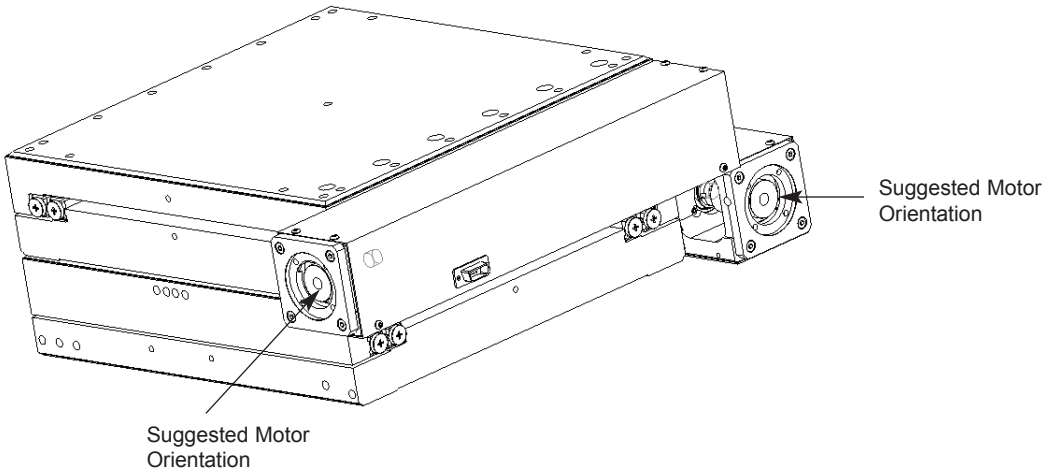
Model No.	Travel		A		B		C		D	
	(mm)	(in)	**(mm)**	(in)	**(mm)**	(in)	**(mm)**	(in)	**(mm)**	(in)
U600-500	**500**	19.69	**600**	23.62	**646.5**	25.45	**300**	11.81	**450**	17.72

Model No.	E		F		M	Load Capacity	
	(mm)	(in)	**(mm)**	(in)	Tap	**(kg)**	(lb)
U600-500	**575**	22.64	**450**	17.72	M6 x 1	**2,187**	4,822

Model No.	Stage Weight		Moving Slide Weight	
	(kg)	(lb)	**(kg)**	(lb)
U600-500	**31.41**	69.25	**13.99**	30.84

Ultra Series:
Configuration & Options

Suggested Orientation:



Options:

Calibration Option
Bayside provides laser calibrated and/or matched roller options to optimize your stage for the most demanding applications.

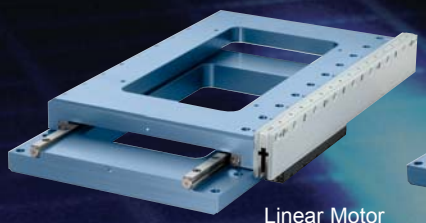
P.A.C.T.
Prevents crossed roller bearing creep in vertical and/or high speed applications.

Special Environment Option
Bayside can prepare your stage for a variety of environments including:

- Vacuum
- Clean Room
- Radiation
- Food Grade

Special Lubricants
Dry lubricant suitable for environments that need a dry, permanent lubrication (e.g. vacuum rated applications).

Ultra Series:
How to Order



Linear Motor Driven

Screw-Driven

Ordering Numbering Example:

U	300	X	3	2	1	3	1	1
A	B	C	D	E	F	G	H	I

A Stage Series

U	Ultra Series

B Metric Width of Stage

200	200 mm
300	300 mm
400	400 mm
600	600 mm

C Frame

	U200	U300	U400	U600
X	Closed	Closed	Closed	Closed
H	—	Open	Open	Open

D Travel

	U200	U300	U400	U600
1	100 mm	—	—	—
2	200 mm	200 mm	—	—
3	300 mm	300 mm	300 mm	—
4	400 mm	400 mm	400 mm	—
5	—	500 mm	500 mm	500 mm

E Drive Type

Lead Screw	Lead
1	0.1 in
2	0.2 in
3	1 mm
Ball Screw	
4	3 mm
5	5 mm
6	10 mm
Linear Motor	
7	Linear Motor Drive

Specifications are subject to change without notice.

F Limits

1	None
2	End of Travel
3	End of Travel and Home

G Linear Encoder (1)

1	None
2	0.1 µm
3	0.5 µm
4	1.0 µm
5	5.0 µm

H Motor Mounting

1	None
2	NEMA 23
3	BM60

I Roller Conf. / Environment

1	None (Standard)
2	PACT
3	Hollow Roller
4	Hollow Rollers with PACT
5	Clean Room (Class 10,000)
6	Clean Room (Class 10,000) with PACT
7	Clean Room (Class 10,000) Hollow Roller
8	Clean Room (Class 10,000) Hollow Roller with PACT
9	Vacuum (No Finish)
A	Vacuum (No Finish) Hollow Roller

NOTES:

(1) End-of-Travel and Home Limits integral to linear encoder will be provided, when a linear encoder is selected.

How to Order

Ultra Stages are supported by a worldwide network of offices and local distributors.
Call **1-800-305-4555** for application engineering assistance or for the name of your local distributor.
Information can also be obtained at **www.baysidemotion.com**.