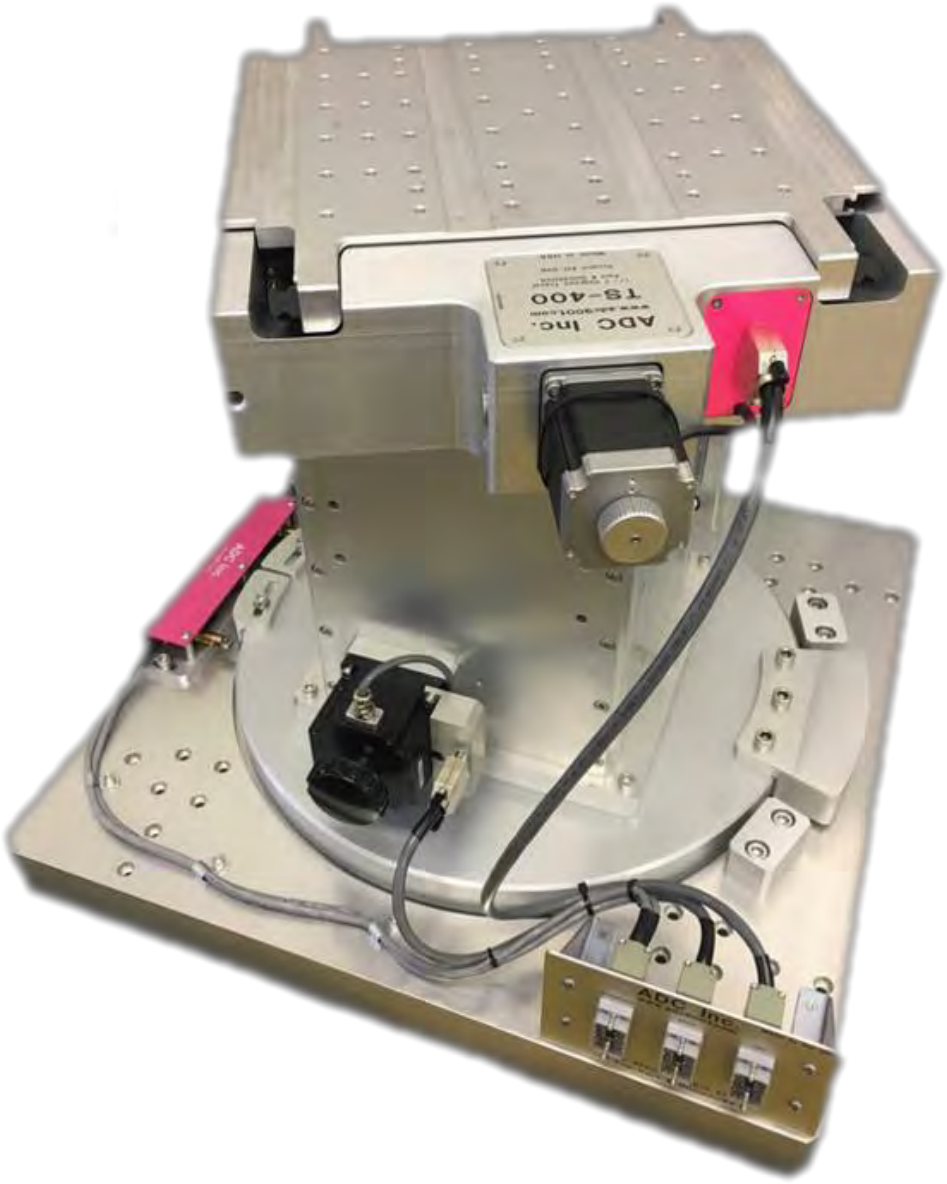
ADC's Motion Products

High Precision Motion Stages



2019

www.adc9001.com

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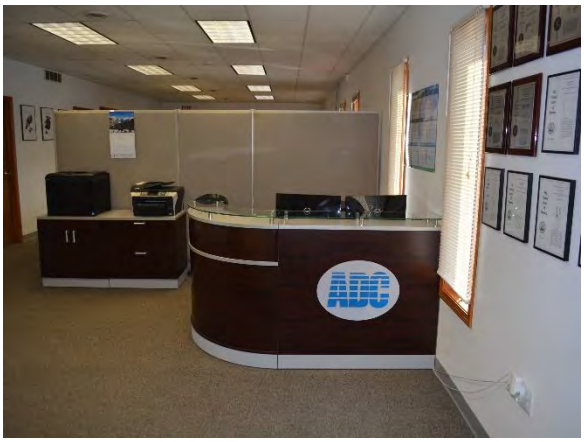
ADC USA, Inc.

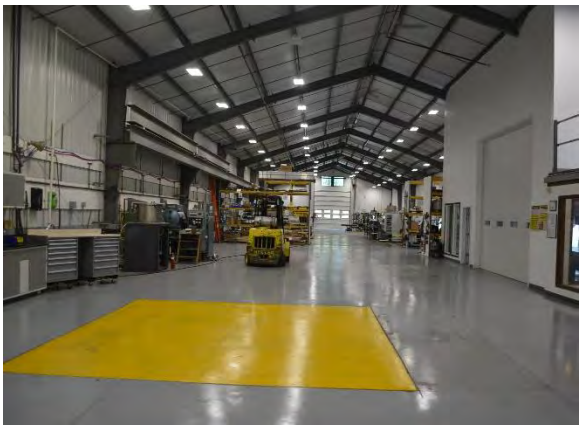
ADC USA, Inc. (ADC) is a leading developer and supplier of complex scientific components and instruments for large government laboratories and corporations around the world.



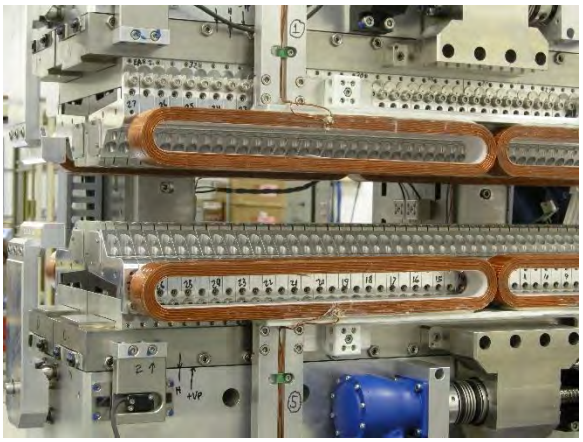
ADC, like many successful companies (and rock bands), got its start in a garage in 1995. Our garage was in Ithaca, NY on the banks of Cayuga Lake and home of Cornell University. ADC has since grown into a worldwide leader in the field of design and manufacturing of complex research instrumentation.

ADC provides machining systems and products to our diverse customers from structural metal fabrication to turn key design products with complex control systems.

We specialize in engineered experimental tables and beamline components.



ADC occupies over 22,000 square feet of space. This includes our in-house machine shop. We use precision equipment to verify each order and are committed to delivering precision machined parts. We are very proud of our shop and the capabilities we can offer because of our state-of-the-art precision CNC milling and CNC turning machines.



Our engineering department works closely with our customers to realize designs that meet their technical requirements. Through an iterative process, we have developed standard designs that can be optimally customized for each new project. Our engineers provide incisive trouble shooting and technical recommendations to our customers resulting in high performing cutting-edge instruments.

Company History

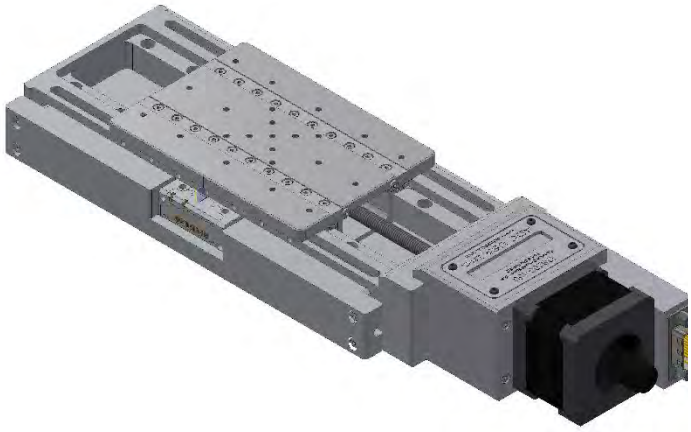
ADC was incorporated in 1995, starting in a small office at Cornell Business and Technology Park. ADC established itself as a custom design manufacturing prime contractor. In 1995, ADC won its first contract for $10,700 working with Crouse-Hinds-Cooper Industries. By 1998, ADC had expanded enough to occupy its first building with 3,000 square feet of office and workshop space. The company grew steadily throughout the next decade, always reinvesting in the people and new engineering design, manufacturing and assembly equipment to provide the most cost-effective solutions to our customers.

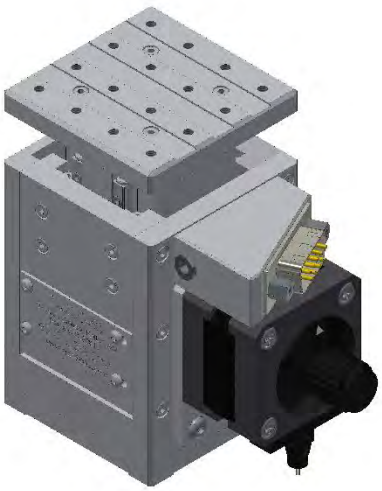
We have come a long way from our modest beginnings by developing our expertise and capabilities while continuing to provide excellence in products and service. ADC now consists of different departments to make up the framework of our operations: Engineering Design and Analysis, Manufacturing and Planning, Temperature Control/Clean Room Assembly/Testing Facility, Ultra-High Vacuum (UHV) Facility, Metrology Laboratory, Magnetic Measurement Facility (Undulator Testing Facility), and Electronics and Instrumentation. Our comprehensive facilities give our engineers the capacity and freedom to innovate.

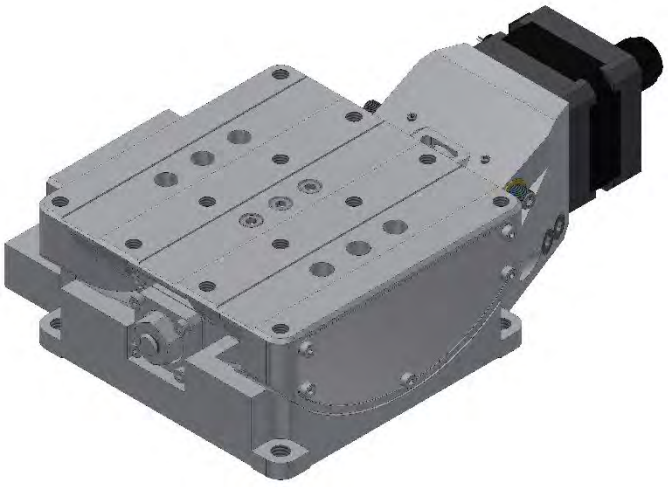
Today, ADC has a worldwide reach. ADC's vision is to be a global leader in the development and manufacturing of innovative products for scientific and research markets.

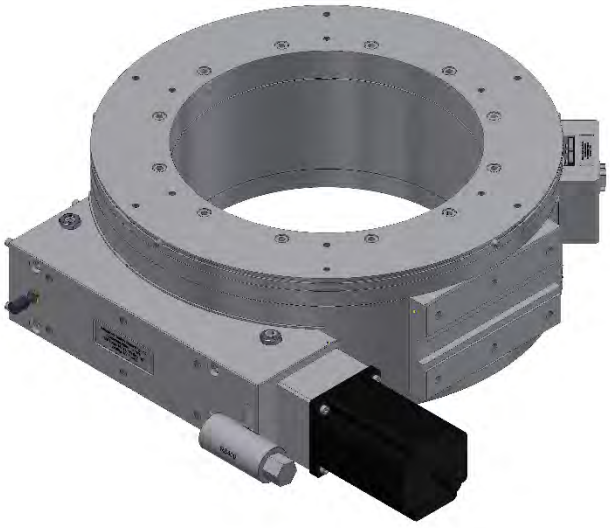
High Precision Motion Stages

ADC manufactures high quality motion control products and systems that are suitable for Semi-conductor, Automation, and Aerospace industries. Our extensive product line includes linear stages (slides), lift stages (jacks), rotation stages, and tilt stages (goniometers).



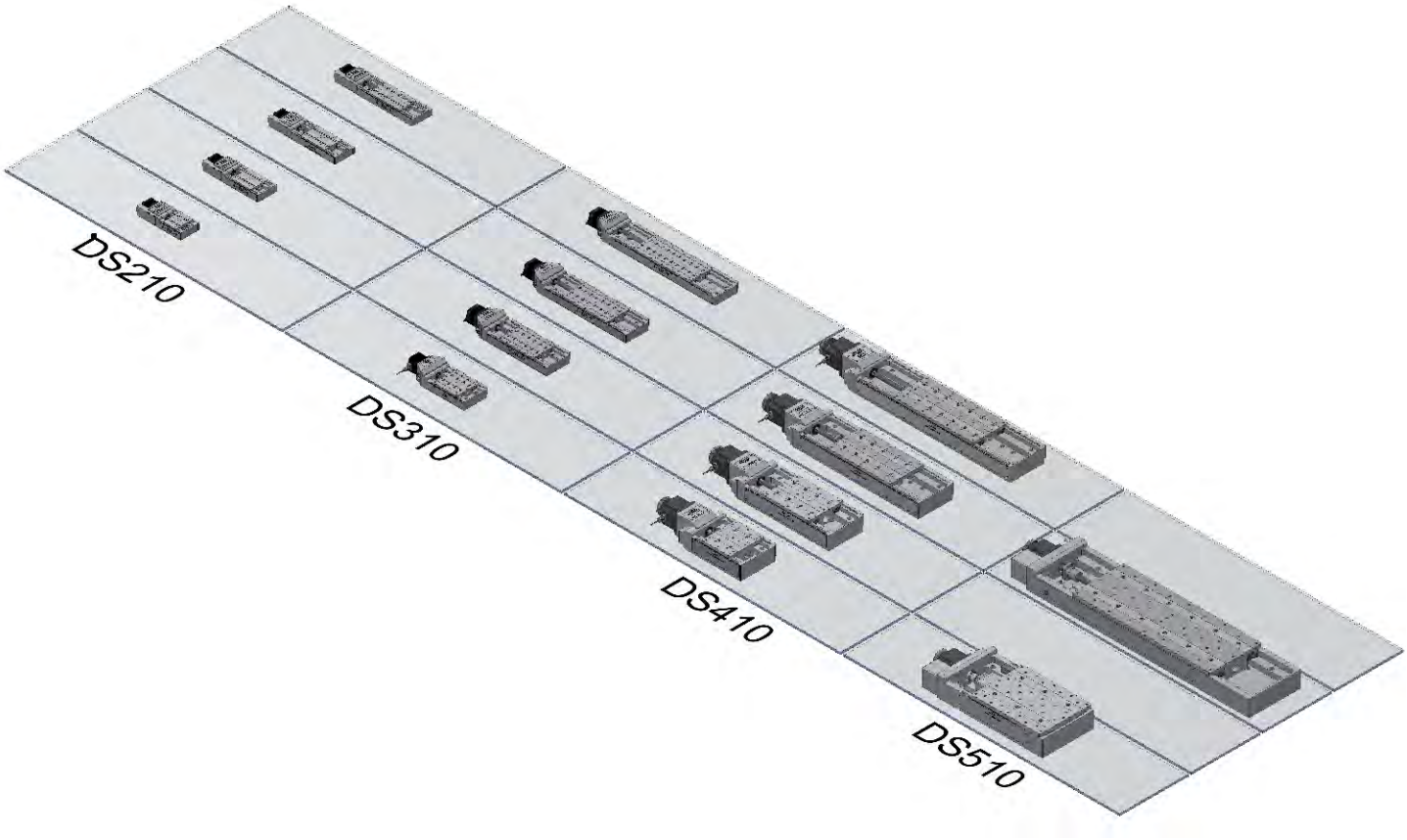






Linear Stages

ADC's linear slides are driven by a high class preloaded ballscrew coupled to a high torque 200 step per revolution stepper motor which can be run in full, half, or micro stepping mode to meet customer resolution requirements. Maximum rigidity is assured through the of preloaded crossed roller linear bearings. Each slide also features two fully adjustable, normally closed limit switches to define the extents of travel.



Mounting plates are available for mounting jacks to slides and slides to slides. See page 49 for the corresponding part number per slide and jack combination.

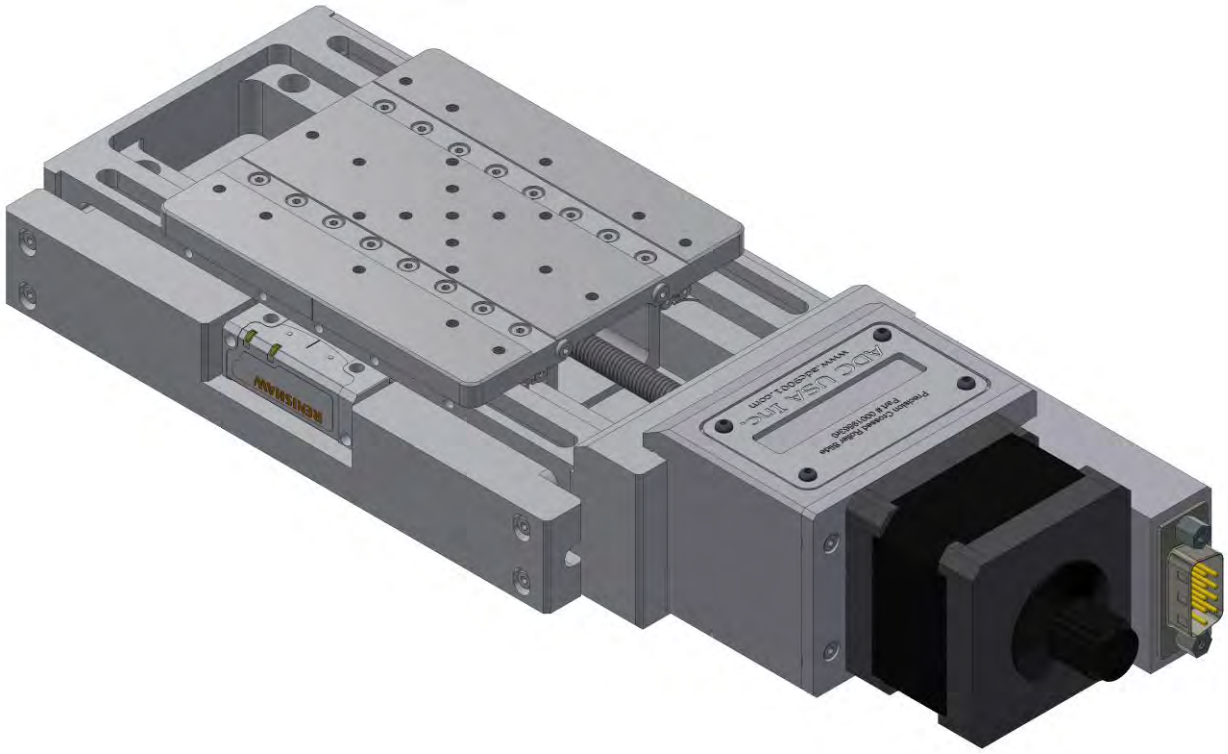
Travels 30-100mm

1 µm Repeatability

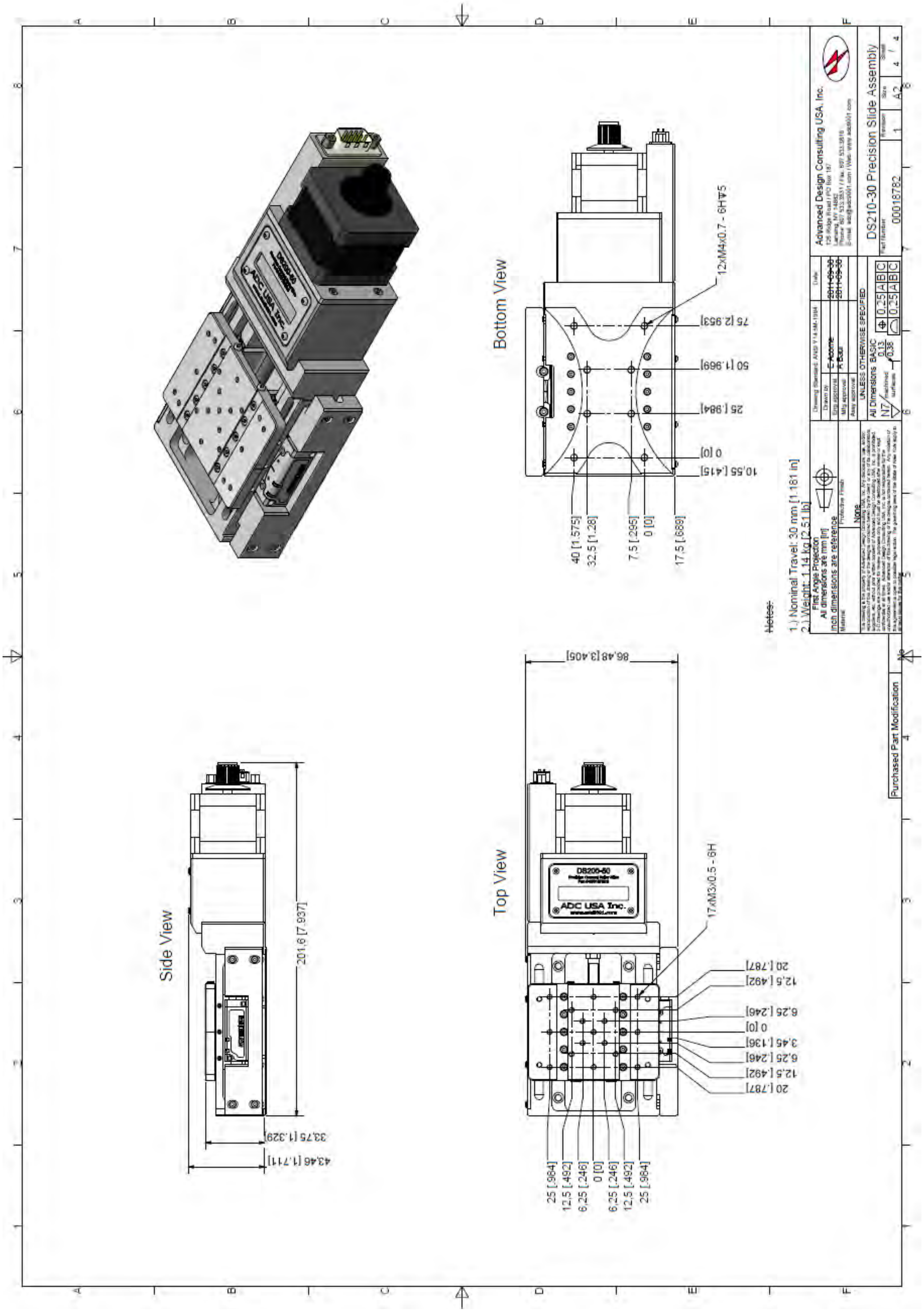
Various Motor Options

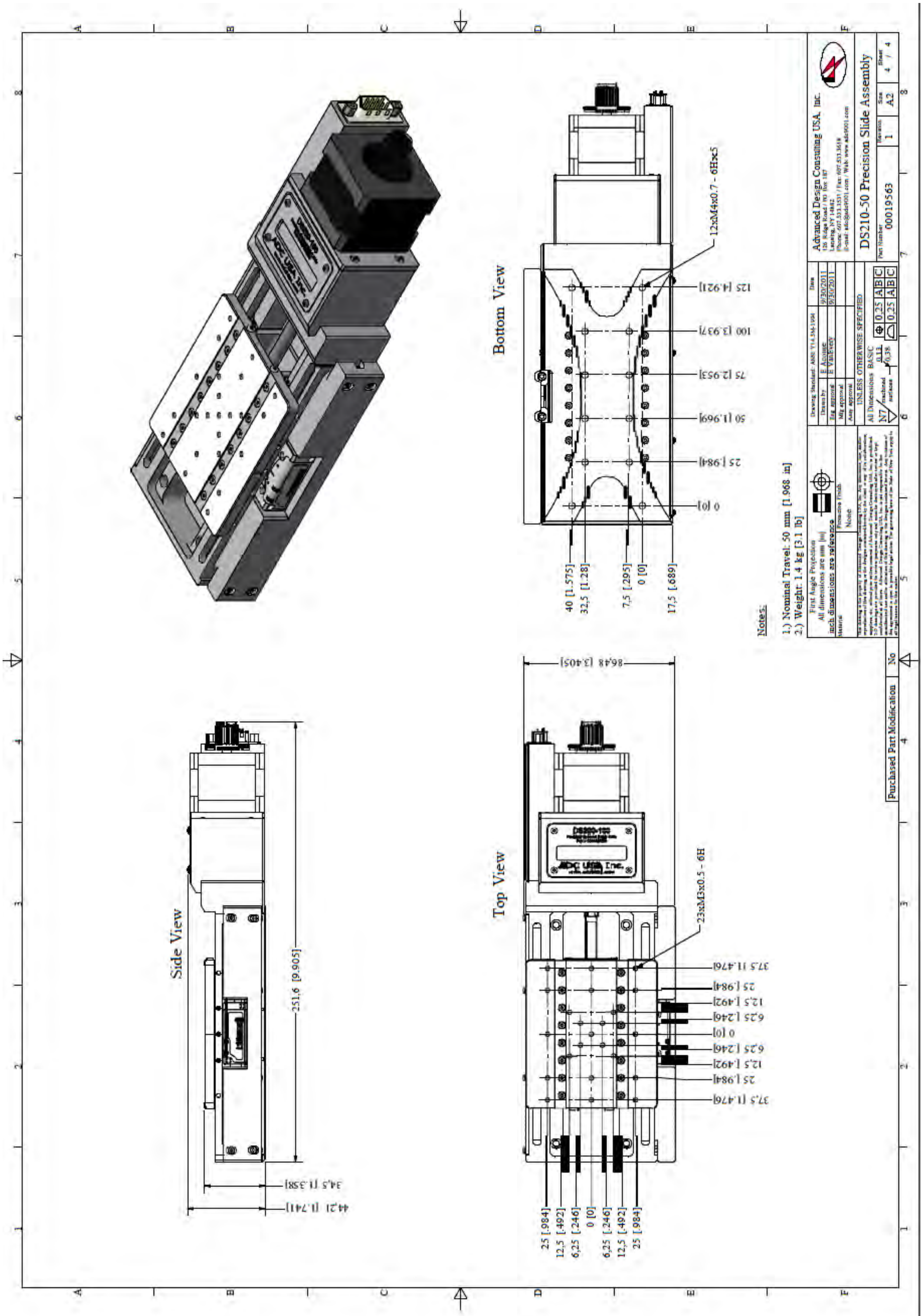
Load Capacity up to 10.5 kg

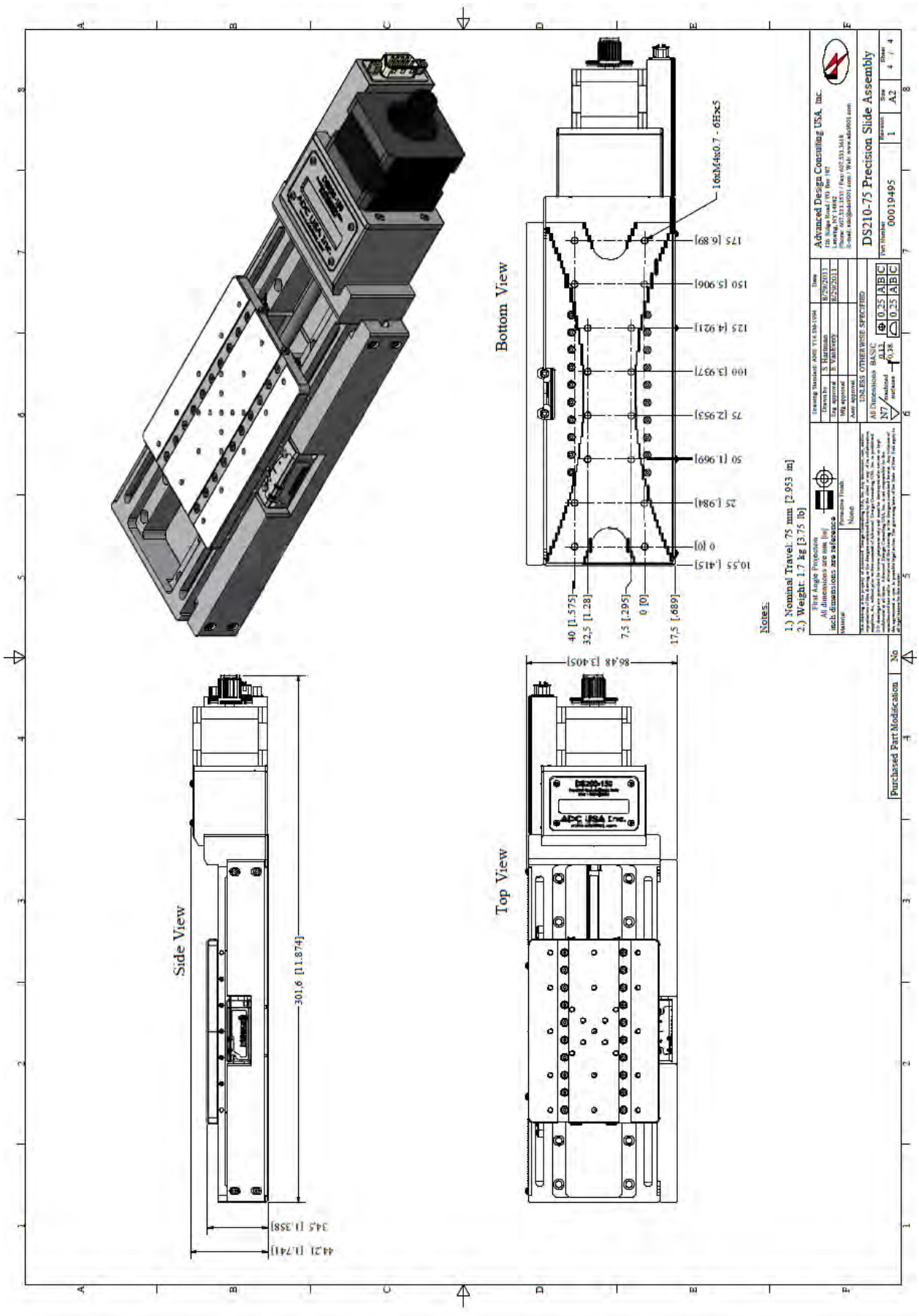
Ultra-fine Resolution

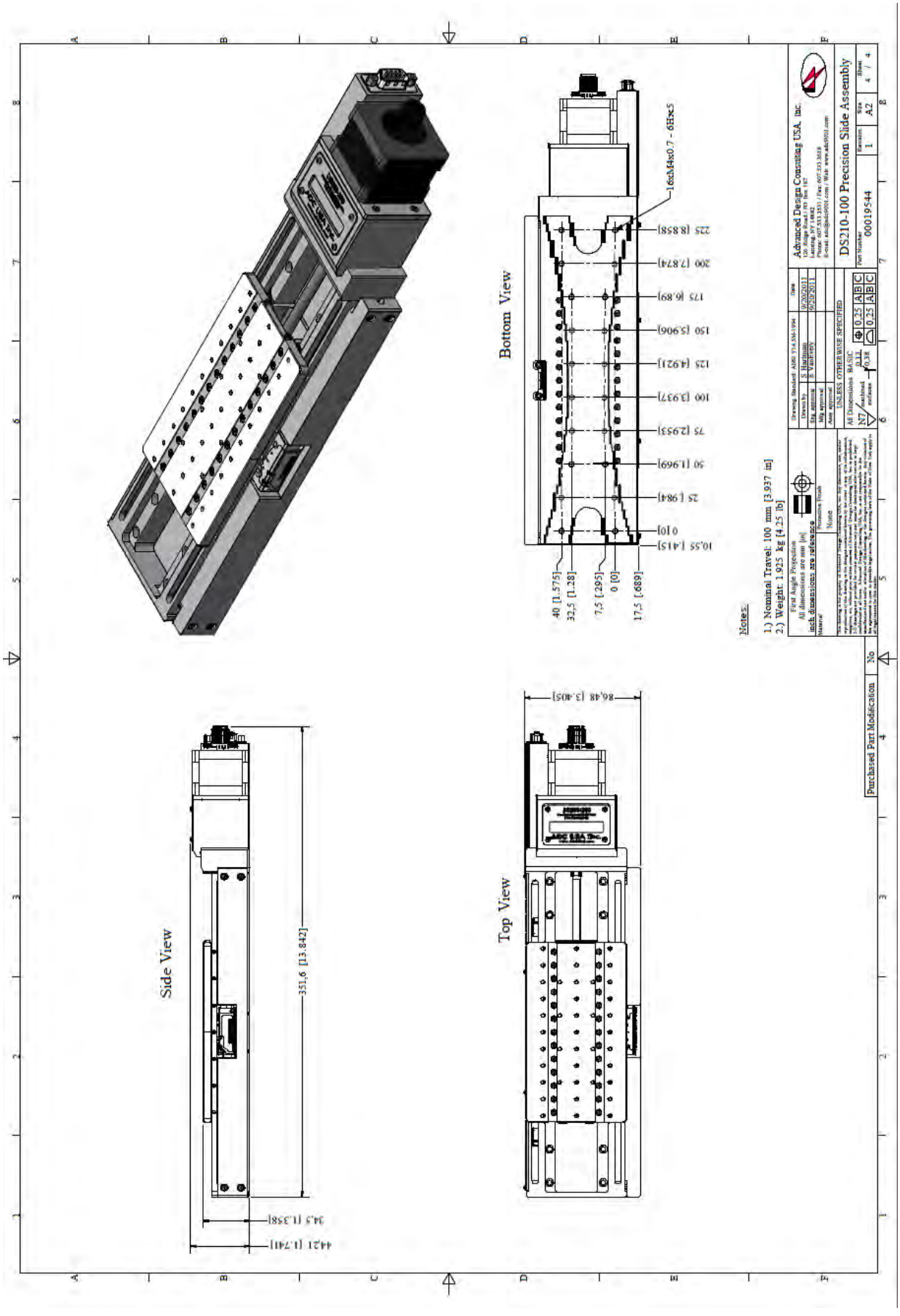


Description	30	50	75	100
Travel (mm)	30	50	75	100
Optional Linear Encoder	Yes	Yes	Yes	Yes
Repeatability (um RMS)	1	1	1	1
Lead Accuracy (um/25mm)	2.5	2.5	2.5	2.5
Trajectory Straightness (um/25mm)	2.5	2.5	2.5	2.5
Ball Screw Lead (mm)	1	1	1	1
Maximum Speed (mm/sec)	50	50	50	50
Load Capacity (kg)	10.5	10.5	10.5	10.5
Mass (kg)	1.1	1.4	1.6	1.9


Side View
Top View
Bottom View
201.6 [7.937]
33.75 [1.329]
43.46 [1.711]
86.48 [3.405]
17xM3x0.5 - 6H
12xM4x0.7 - 6H↧5
Notes:
1.) Nominal Travel: 30 mm [1.181 in]
2.) Weight: 1.14 kg [2.51 lb]
Advanced Design Consulting USA, Inc.
DS210-30 Precision Slide Assembly
Purchased Part Modification


Side View
Top View
Bottom View
Notes:
1.) Nominal Travel: 50 mm [1.968 in]
2.) Weight: 1.4 kg [3.1 lb]
Advanced Design Consulting USA, Inc.
DS210-50 Precision Slide Assembly
00019563
Purchased Part Modification


Bottom View
Top View
Side View
Notes:
1.) Nominal Travel: 75 mm [2.953 in]
2.) Weight: 1.7 kg [3.75 lb]
DS210-75 Precision Slide Assembly
Advanced Design Consulting USA, Inc.
00019495


Bottom View
Top View
Side View
Notes:
1.) Nominal Travel: 100 mm [3.937 in]
2.) Weight: 1.925 kg [4.25 lb]
DS210-100 Precision Slide Assembly
Advanced Design Consulting USA, Inc.
Part Number
00019544
Purchased Part Modification

DS210 ORDERING INFORMATION

DS210	-30	-A	-N	-B	-2PH	-G
Series	Model	Air Type	Encoder	Brake	Motor	Gearbox
	-30	-A	-E	-B	-2PH	3:1
	-50	-HV	-N	-N	-5PH	to
	-75				-DC	100:1
	-100					ratio

Travel Options

-30	30mm Stage Travel
-50	50mm Stage Travel
-75	75mm Stage Travel
-100	100mm Stage Travel

Air Preparation Options

-A	Standard Air Stage
-HV	High Vacuum Air Stage, 10^{-7} torr

Optical Encoder Options

-E	With Optical Encoder
-N	Without Optical Encoder

Brake Options

-B	With Brake, 24VDC
-N	Without Brake

Motor Options

-2PH	Standard 2 Phase Bi-Polar Stepper Motor
-5PH	5 Phase Stepper Motor
-DC	DC Motor

Gearbox Option

Available from 3:1 to 100:1 ratios

Example Order

DS210-50-A-N-B-2PH

This is an order for a DS210 Precision Crossed Roller Slide with 50 mm travel, in air, with no encoder, with a brake, and a 2-phase motor.

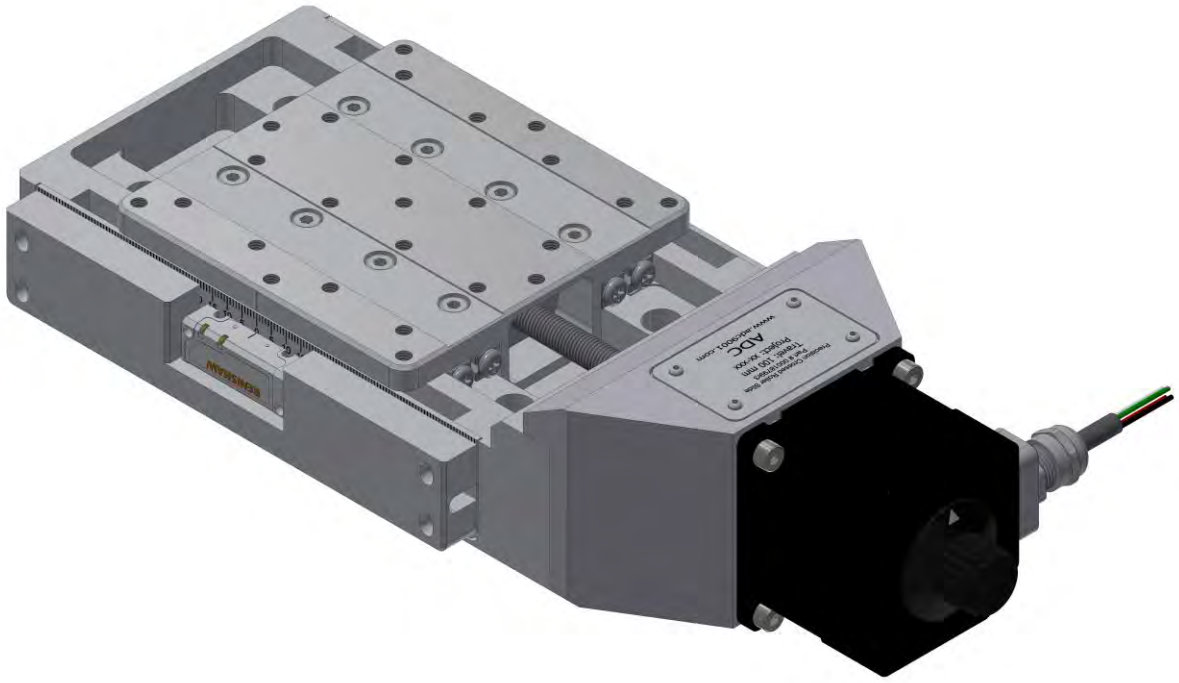
Travels 50-200mm

1 µm Repeatability

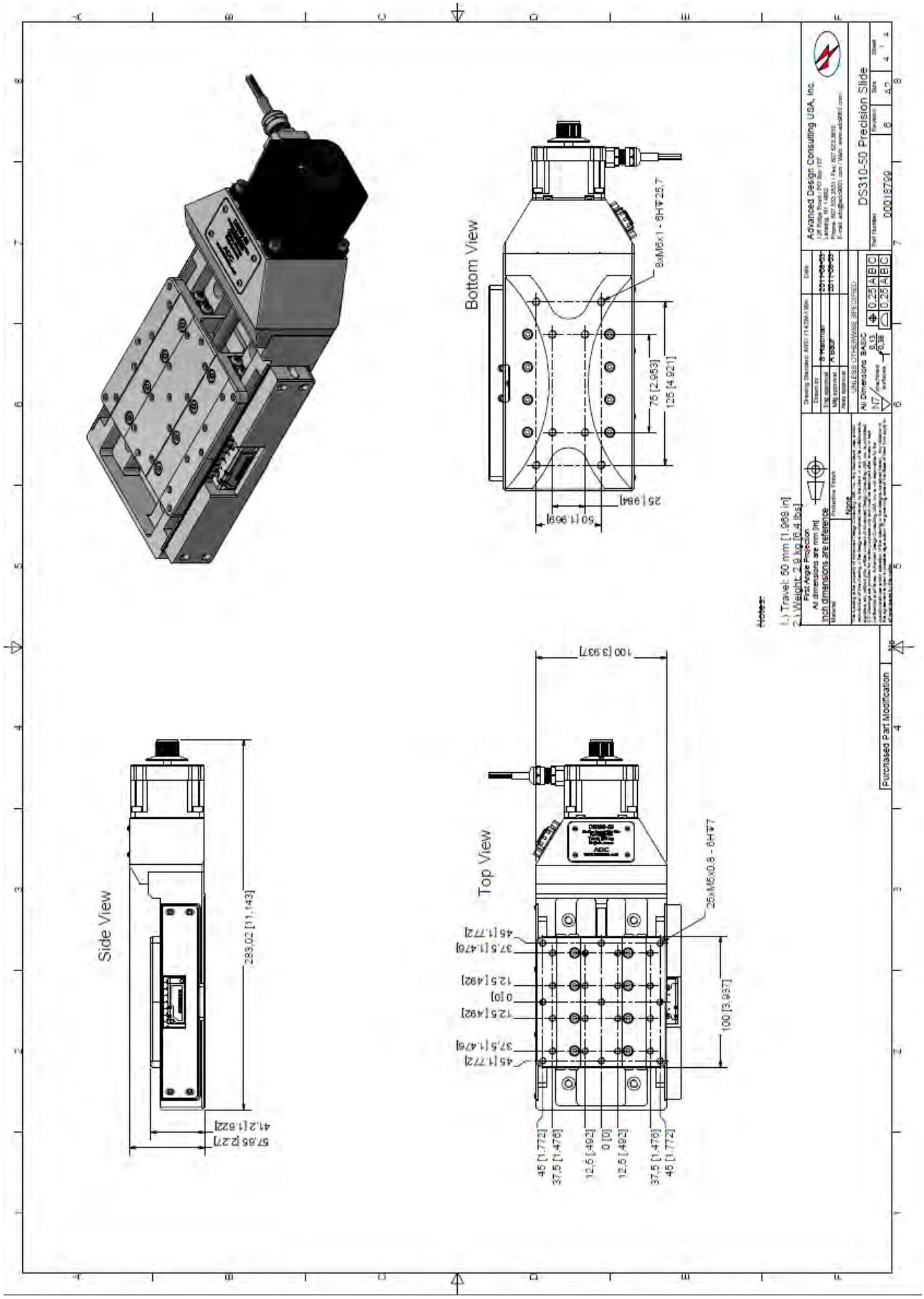
Various Motor Options

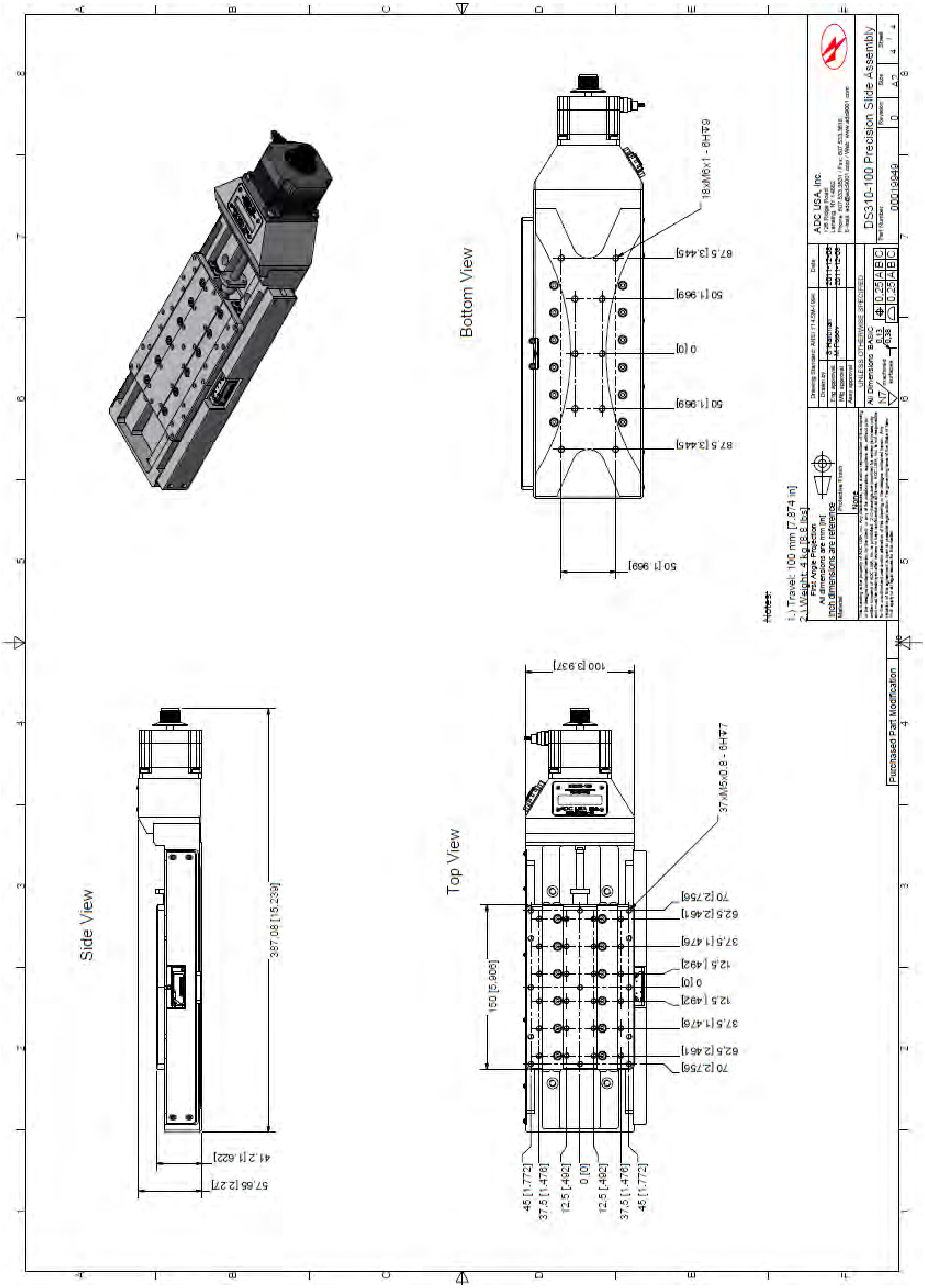
Load Capacity up to 46 kg

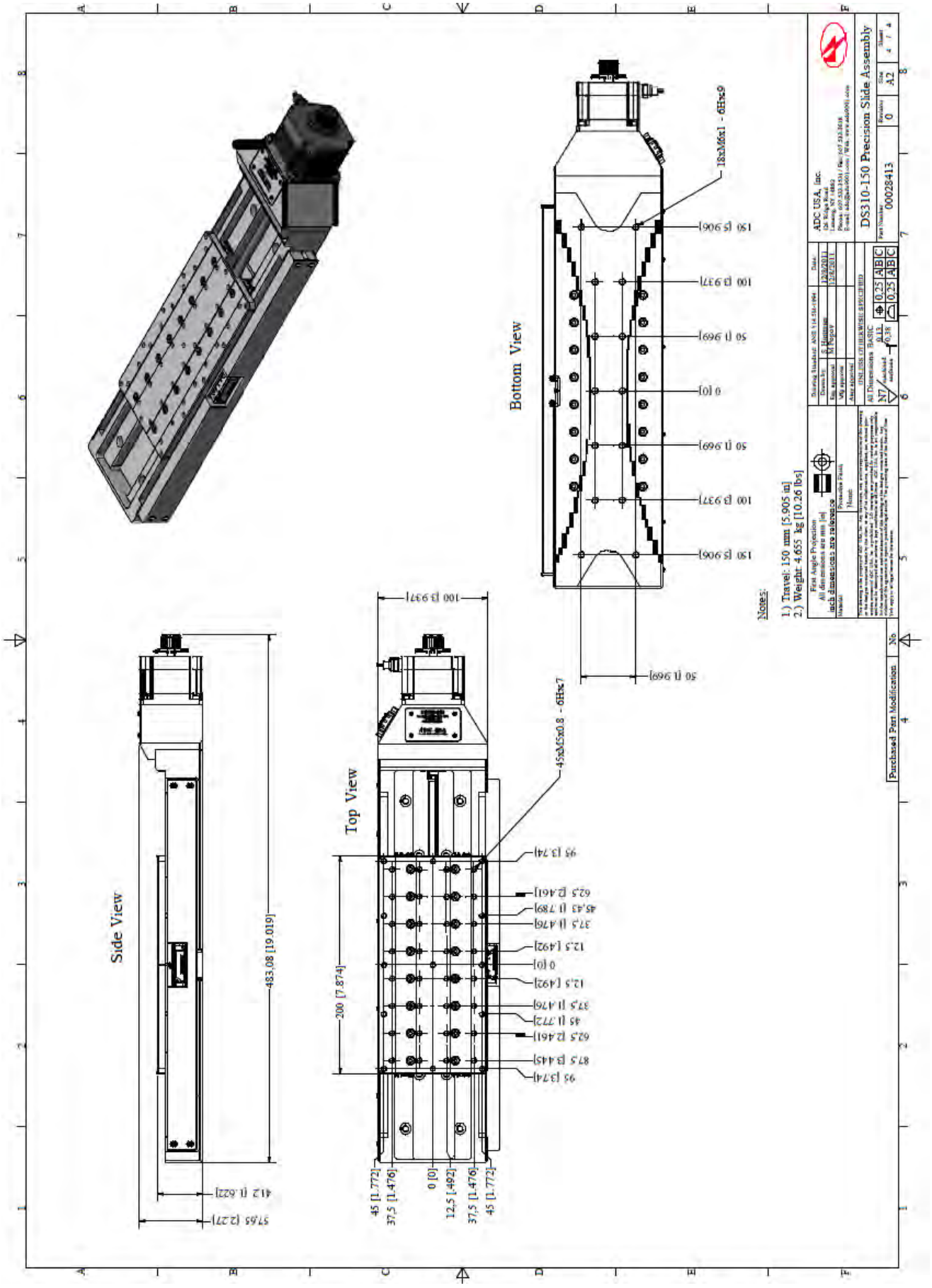
Ultra-fine Resolution

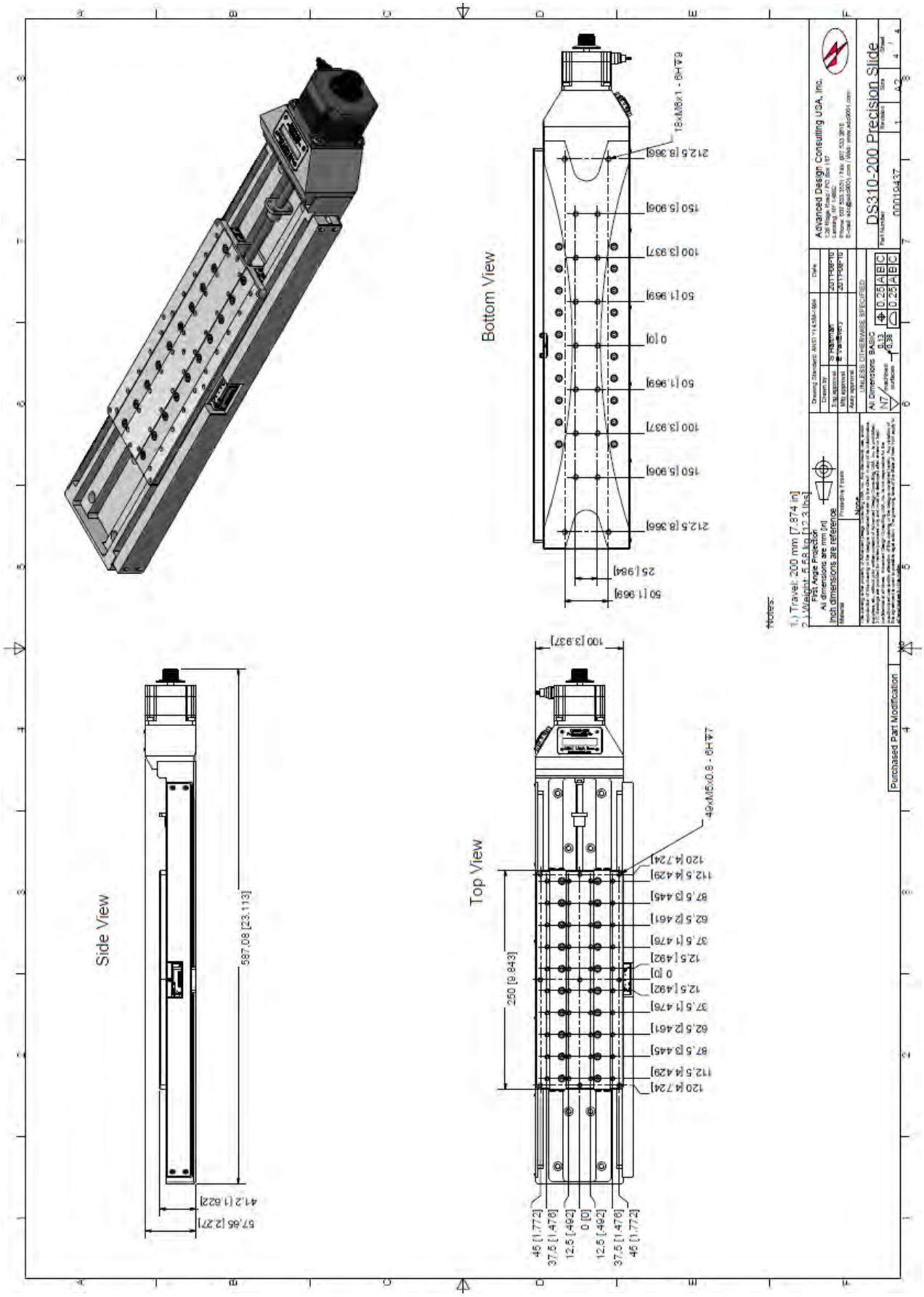


Description	50	100	150	200
Travel (mm)	50	100	150	200
Optional Linear Encoder	Yes	Yes	Yes	Yes
Repeatability (um RMS)	1	1	1	1
Lead Accuracy (um/25mm)	5	5	5	5
Trajectory Straightness (um/25mm)	4	4	4	4
Ball Screw Lead (mm)	1	1	1	1
Maximum Speed (mm/sec)	25	25	25	25
Load Capacity (kg)	46	46	46	46
Mass (kg)	2.9	4	4.7	5.6


Bottom View
Top View
Side View
DS310-50 Precision Slide
Advanced Design Consulting USA, Inc.
Notes:
1.) Travel: 50 mm [1.968 in]
2.) Weight: 2 kg [6.4 lbs]
First Angle Projection
All dimensions are mm [in]
Inch dimensions are reference
All Dimensions BASIC
UNLESS OTHERWISE SPECIFIED
Purchased Part Modification


Side View
Top View
Bottom View
Notes:
1.) Travel: 100 mm [3.937 in]
2.) Weight: 4 kg [8.8 lbs]
DS310-100 Precision Slide Assembly
ADC USA, Inc.
Purchased Part Modification
387.08 [15.239]
100 [3.937]
150 [5.906]
50 [1.969]
41.2 [1.622]
57.65 [2.27]


DS310-150 Precision Slide Assembly
ADC USA, Inc.
00028413
Bottom View
Top View
Side View
Notes:
1.) Travel: 150 mm [5.905 in]
2.) Weight: 4.655 kg [10.26 lbs]
483.08 [19.019]
200 [7.874]
18x M6x1 - 6H


DS310-200 Precision Slide
Advanced Design Consulting USA, Inc.
Bottom View
Top View
Side View
Notes:
1.) Travel: 200 mm [7.874 in]
2.) Weight: 6.84 kg [15.1 lbs]
Purchased Part Modification

DS310 ORDERING INFORMATION

DS310	-50	-A	-N	-B	-2PH	-G
Series	Model	Air Type	Encoder	Brake	Motor	Gearbox
	-50	-A	-E	-B	-2PH	3:1
	-100	-HV	-N	-N	-5PH	to
	-150				-DC	100:1
	-200					ratio

Travel Options

-50	50mm Stage Travel
-100	100mm Stage Travel
-150	150mm Stage Travel
-200	200mm Stage Travel

Air Preparation Options

-A	Standard Air Stage
-HV	High Vacuum Air Stage, 10^{-7} torr

Optical Encoder Options

-E	With Optical Encoder
-N	Without Optical Encoder

Brake Options

-B	With Brake, 24VDC
-N	Without Brake

Motor Options

-2PH	Standard 2 Phase Bi-Polar Stepper Motor
-5PH	5 Phase Stepper Motor
-DC	DC Motor

Gearbox Option

Available from 3:1 to 100:1 ratios

Example Order

DS310-50-A-N-B-2PH

This is an order for a DS310 Precision Crossed Roller Slide with 50 mm travel, in air, with no encoder, with a brake, and a 2-phase motor.

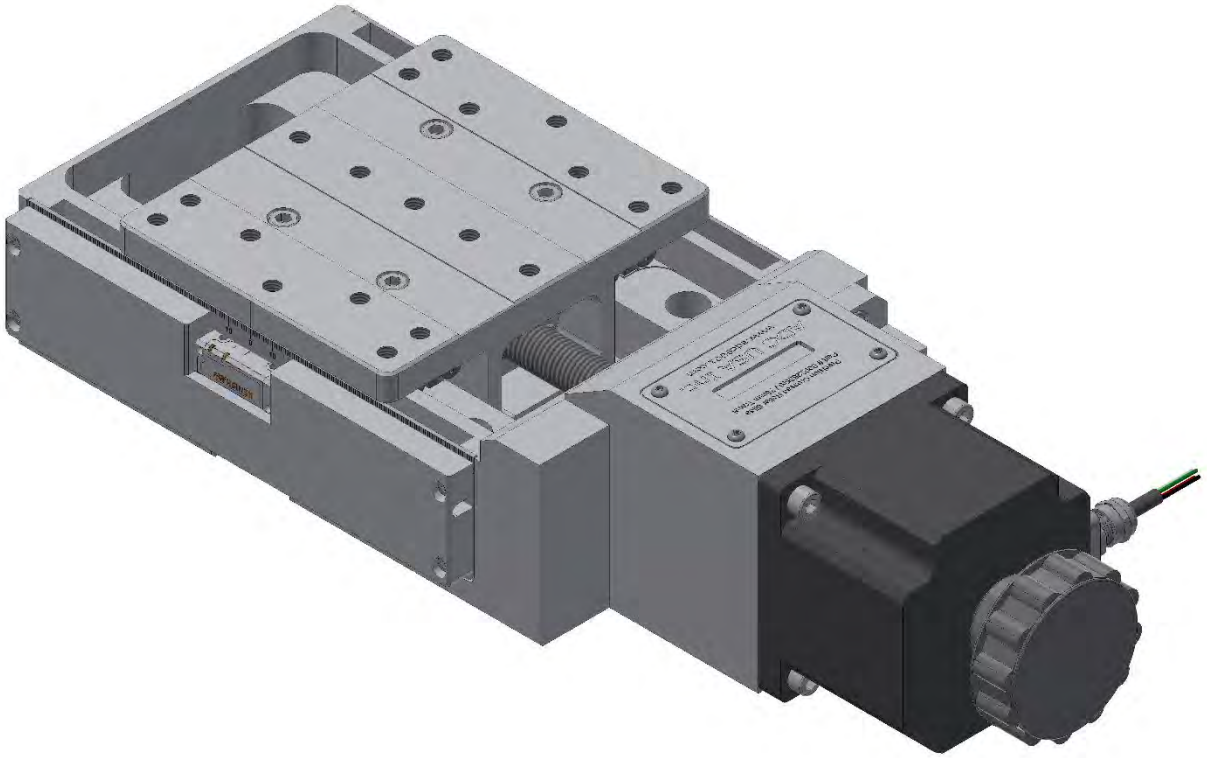
Travels 75-300mm

1 µm Repeatability

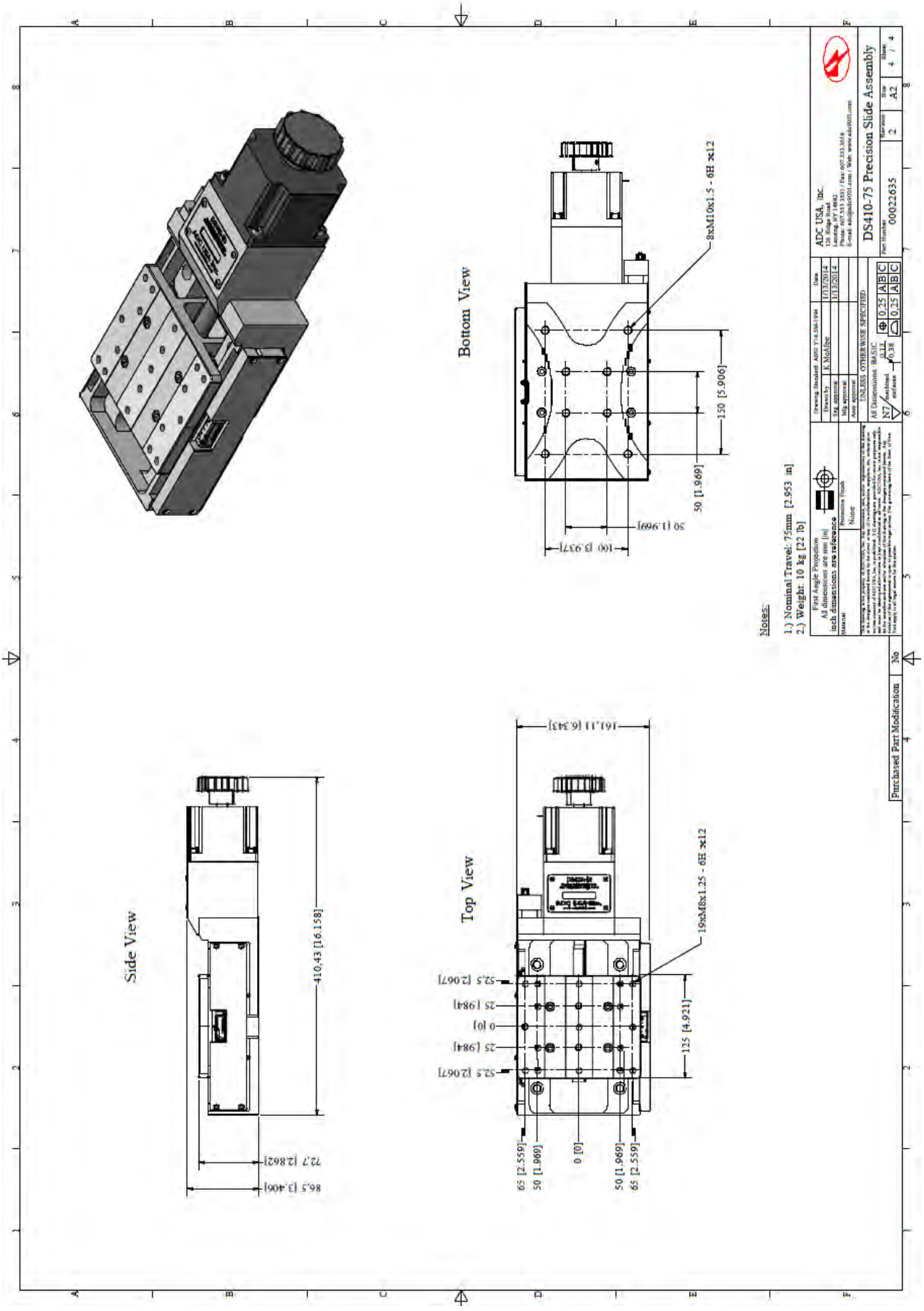
Various Motor Options

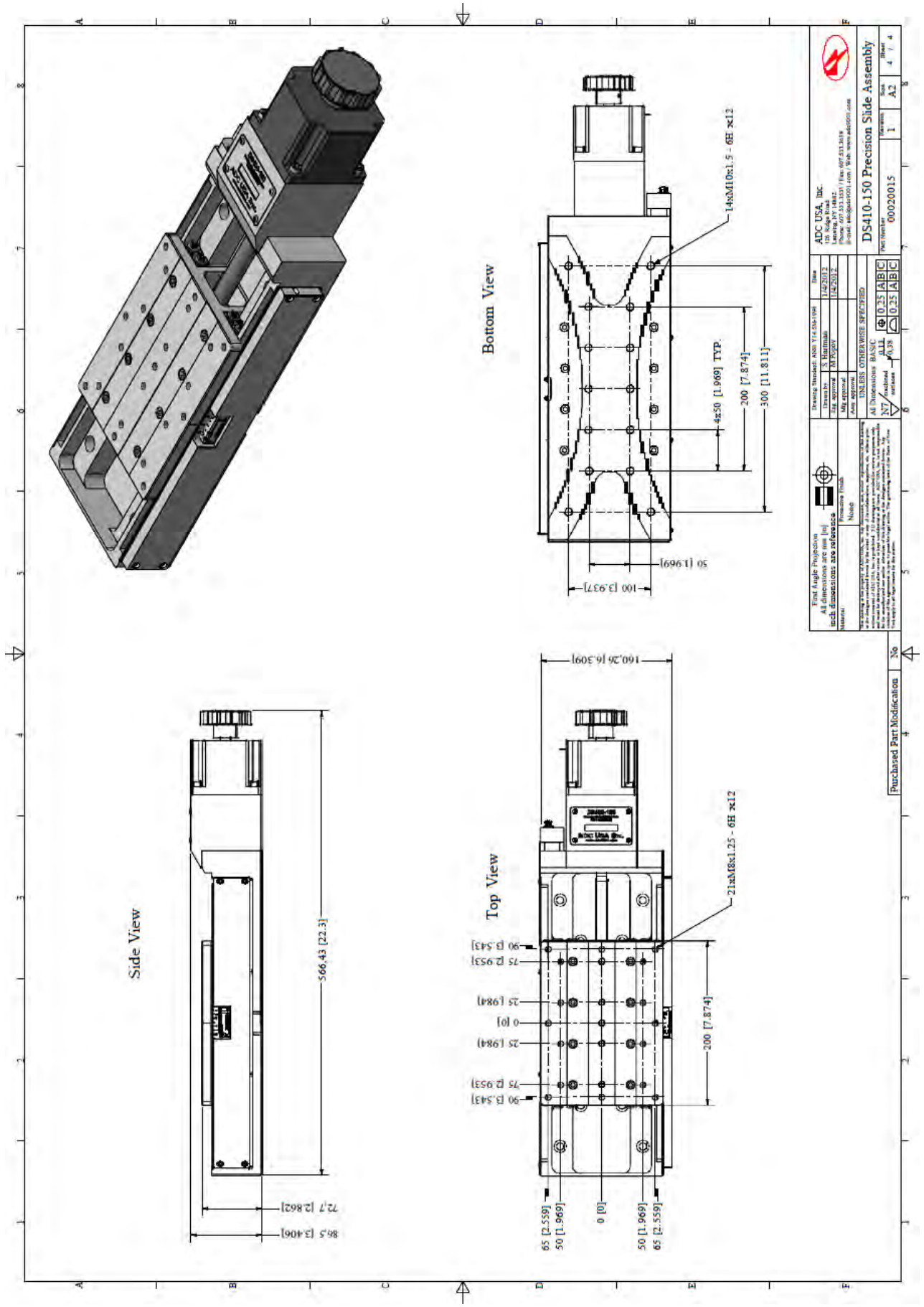
Load Capacity up to 280 kg

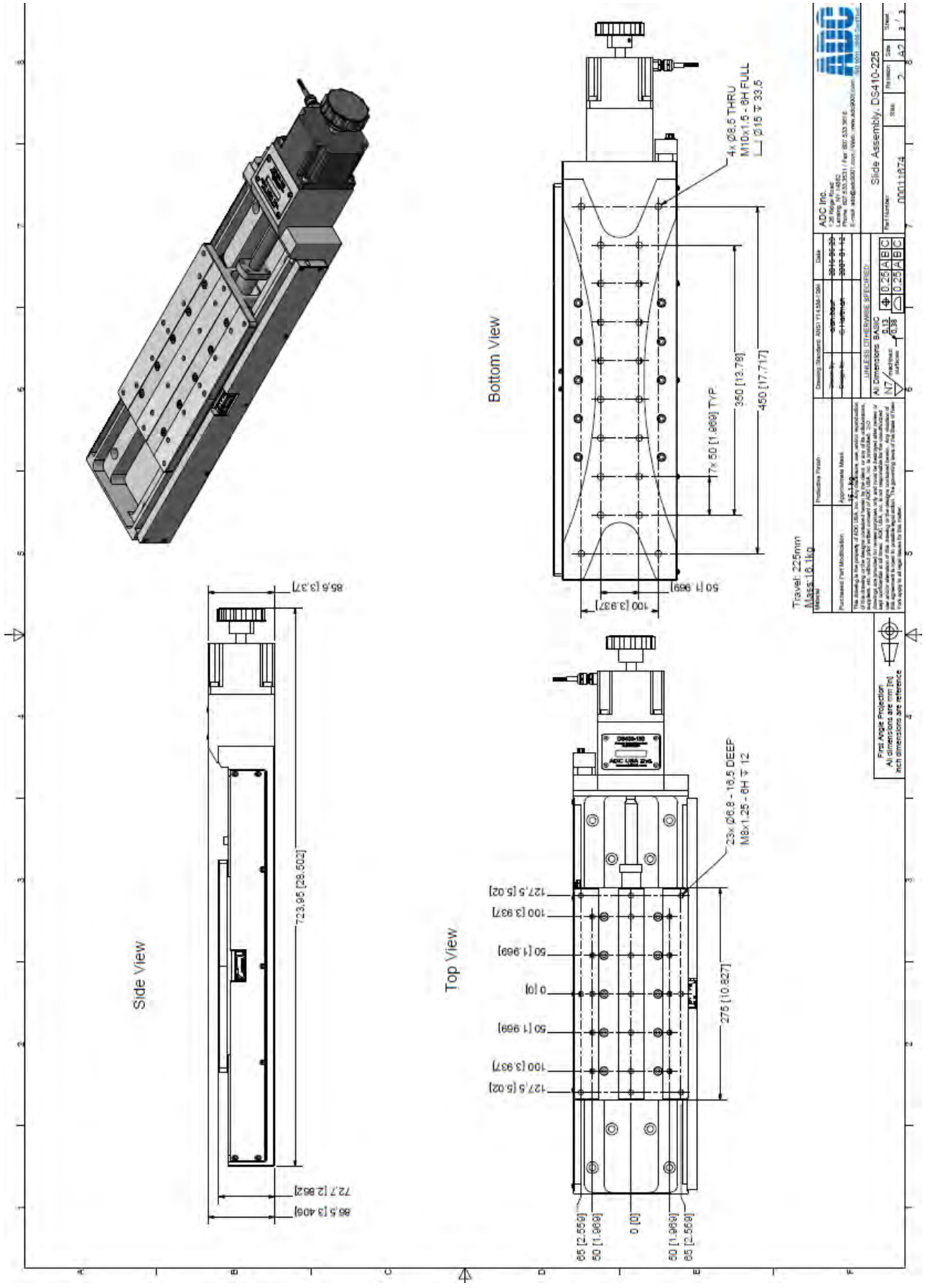
Ultra-fine Resolution

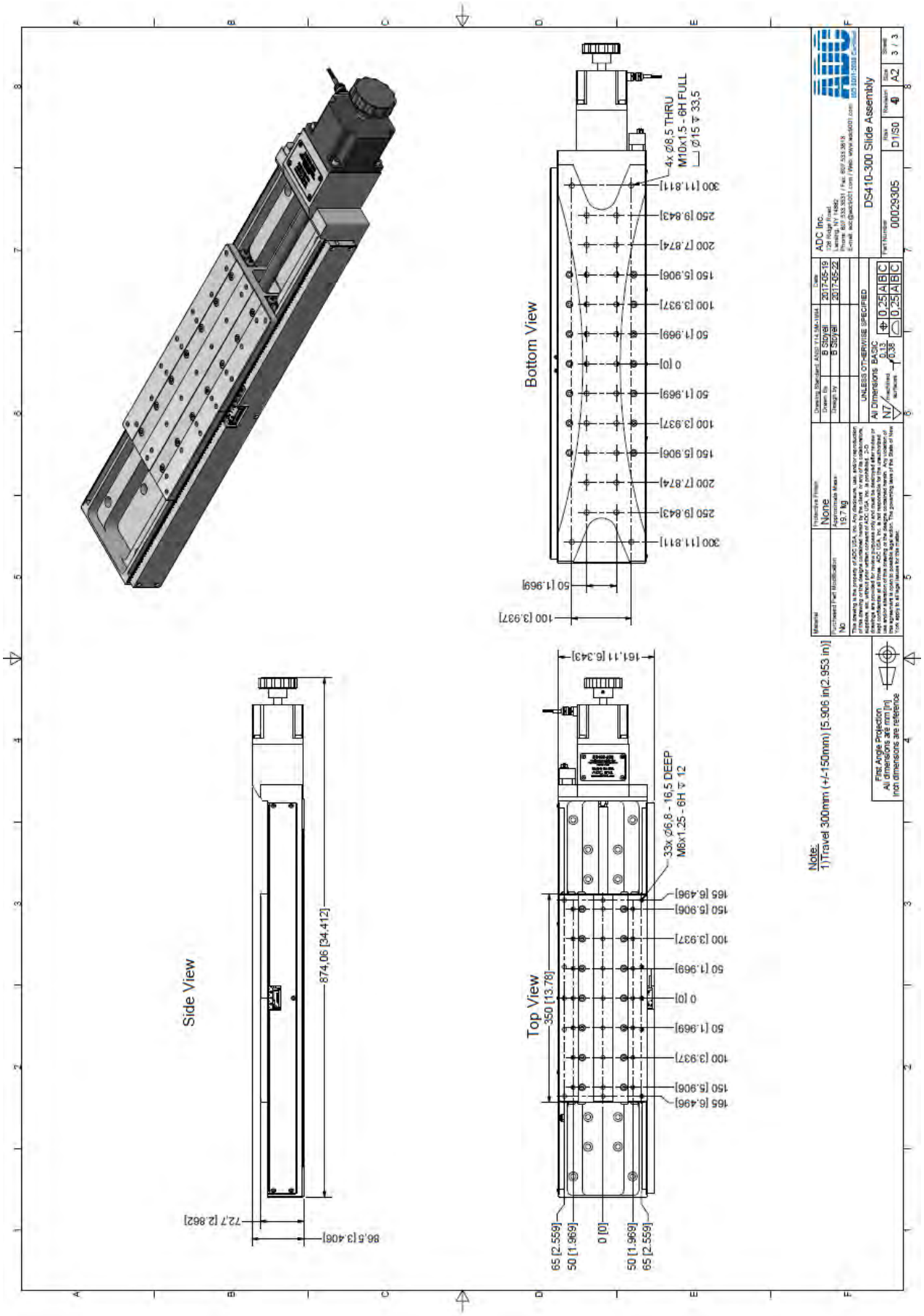


Description	75	150	225	300
Travel (mm)	75	150	225	300
Optional Linear Encoder	Yes	Yes	Yes	Yes
Repeatability (um RMS)	1	1	1	1
Lead Accuracy (um/25mm)	6	6	6	6
Trajectory Straightness (um/25mm)	5	5	5	5
Ball Screw Lead (mm)	2	2	2	2
Maximum Speed (mm/sec)	40	40	40	40
Load Capacity (kg)	280	280	280	280
Mass (kg)	10	13.3	16	19.7


Bottom View
8xM10x1.5 - 6H x12
150 [5.906]
50 [1.969]
100 [3.937]
50 [1.969]
Top View
19xM8x1.25 - 6H x12
125 [4.921]
52.5 [2.067]
25 [.984]
0 [0]
25 [.984]
52.5 [2.067]
161.11 [6.343]
65 [2.559]
50 [1.969]
0 [0]
50 [1.969]
65 [2.559]
Side View
410.43 [16.158]
72.7 [2.862]
86.5 [3.406]
Notes:
1.) Nominal Travel: 75mm [2.953 in]
2.) Weight: 10 kg [22 lb]
ADC USA, Inc.
DS410-75 Precision Slide Assembly
Part Number
00022635
Revision
2
Size
A2
Sheet
4 / 4
Purchased Part Modification
No


DS410-150 Precision Slide Assembly
ADC USA, INC.
Bottom View
Top View
Side View
14xM10x1.5 - 6H x12
21xM8x1.25 - 6H x12
4x50 [1.969] TYP.
200 [7.874]
300 [11.811]
160.36 [6.309]
566.43 [22.3]
72.7 [2.862]
86.5 [3.406]


Bottom View
4x Ø8.5 THRU
M10x1.5 - 6H FULL
⌴ Ø15 ↧ 33.5
7x 50 [1.969] TYP
350 [13.78]
450 [17.717]
50 [1.969]
100 [3.937]
Travel: 225mm
Mass: 18.1kg
Slide Assembly, DS410-225
ADC Inc.
UNLESS OTHERWISE SPECIFIED
All Dimensions BASIC
Side View
85.6 [3.37]
723.95 [28.502]
72.7 [2.862]
85.5 [3.406]
Top View
23x Ø6.8 - 16.5 DEEP
M8x1.25 - 6H ↧ 12
275 [10.827]
127.5 [5.02]
100 [3.937]
50 [1.969]
0 [0]
65 [2.559]
50 [1.969]
50 [1.969]
65 [2.559]


Bottom View
Side View
Top View
4x Ø8,5 THRU
M10x1,5 - 6H FULL
⌴ Ø15 ↧ 33,5
33x Ø6,8 - 16,5 DEEP
M6x1,25 - 6H ↧ 12
874,06 [34.412]
72,7 [2.862]
86,5 [3.406]
161,11 [6.343]
350 [13.78]
DS410-300 Slide Assembly
00029305
ADC Inc.
Note:
1)Travel 300mm (+/-150mm) [5.906 in(2.953 in)]

DS410 ORDERING INFORMATION

DS410	-75	-A	-N	-B	-2PH	-G
Series	Model	Air Type	Encoder	Brake	Motor	Gearbox
	-75	-A	-E	-B	-2PH	3:1
	-150	-HV	-N	-N	-5PH	to
	-225				-DC	100:1
	-300					ratio

Travel Options

-75	75mm Stage Travel
-150	150mm Stage Travel
-225	225mm Stage Travel
-300	300mm Stage Travel

Air Preparation Options

-A	Standard Air Stage
-HV	High Vacuum Air Stage, 10^{-7} torr

Optical Encoder Options

-E	With Optical Encoder
-N	Without Optical Encoder

Brake Options

-B	With Brake, 24VDC
-N	Without Brake

Motor Options

-2PH	Standard 2 Phase Bi-Polar Stepper Motor
-5PH	5 Phase Stepper Motor
-DC	DC Motor

Gearbox Option

Available from 3:1 to 100:1 ratios

Example Order

DS410-75-A-N-B-2PH

This is an order for a DS410 Precision Crossed Roller Slide with 75 mm travel, in air, with no encoder, with a brake, and a 2-phase motor.

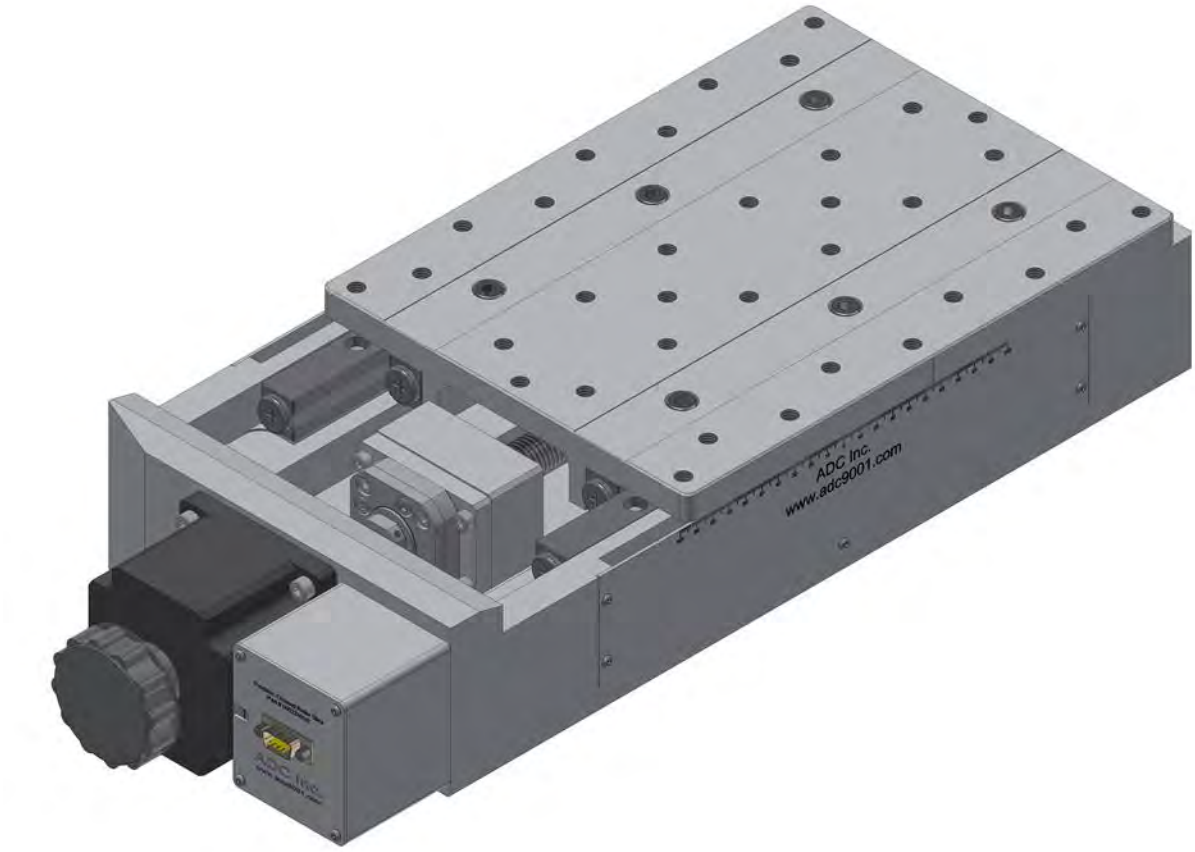
Travels 100-300mm

1 µm Repeatability

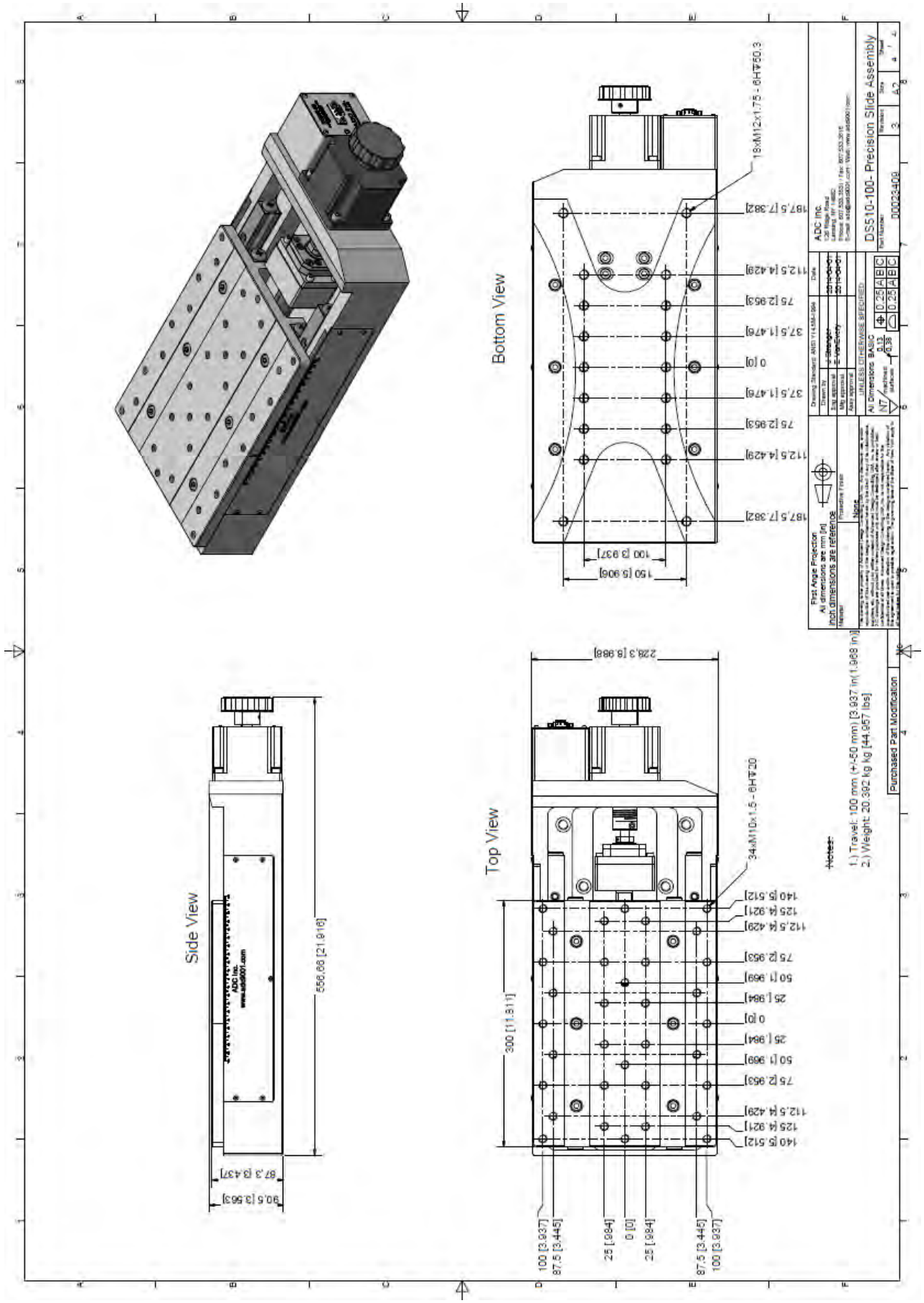
Various Motor Options

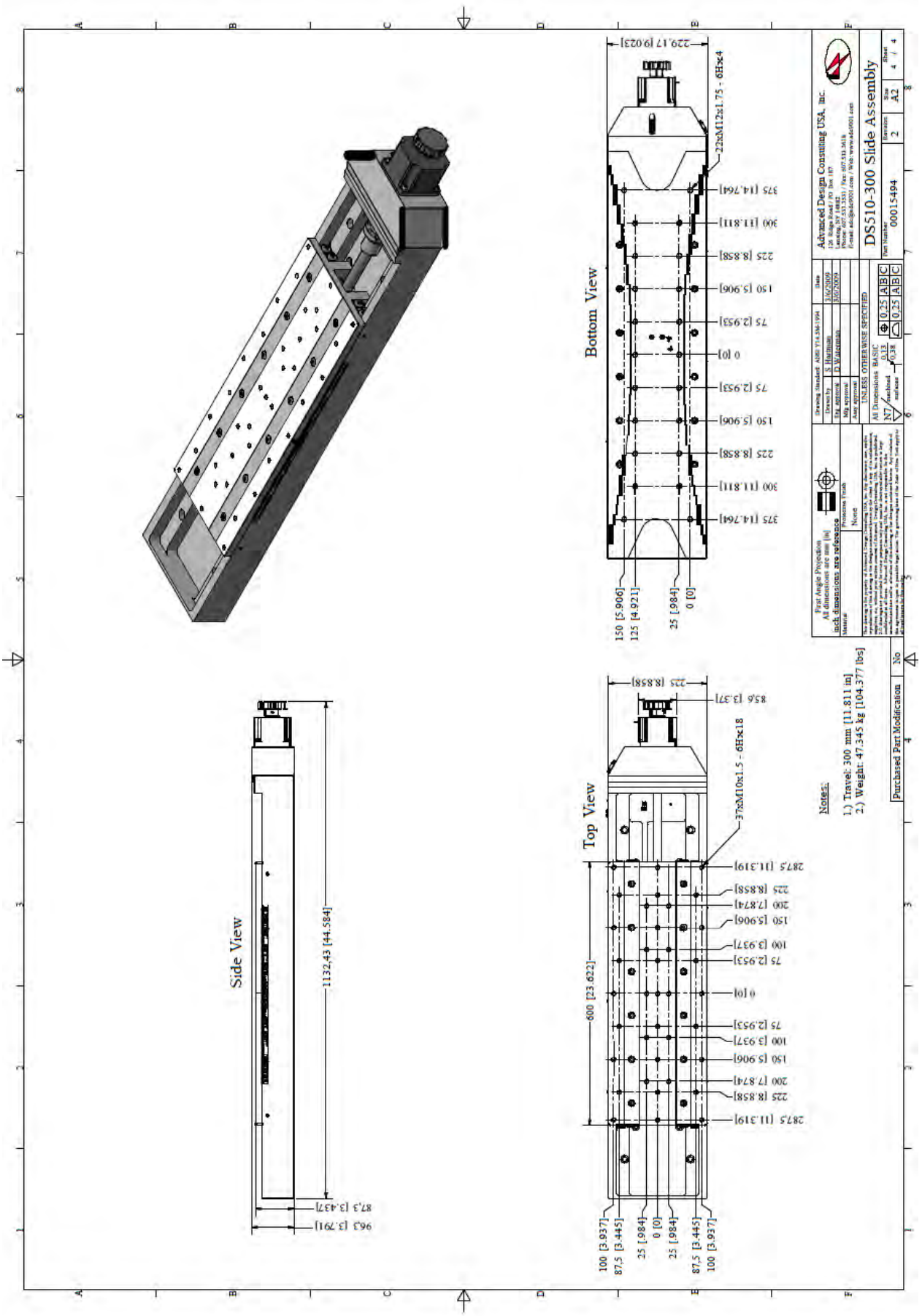
Load Capacity up to 575 kg

Ultra-fine Resolution



Description	100	300
Travel (mm)	100	300
Optional Linear Encoder	Yes	Yes
Repeatability (um RMS)	1	1
Lead Accuracy (um/25mm)	6	6
Trajectory Straightness (um/25mm)	5	5
Ball Screw Lead (mm)	3	3
Maximum Speed (mm/sec)	100	100
Load Capacity (kg)	575	575
Mass (kg)	20.5	47.4


DS510-100- Precision Slide Assembly
ADC Inc.
Bottom View
Top View
Side View
Notes:
1.) Travel: 100 mm (+/-50 mm) [3.937 in(1.968 in)]
2.) Weight: 20.392 kg [44.957 lbs]
First Angle Projection
All dimensions are mm [in]
Inch dimensions are in reference
All Dimensions BASIC
Purchased Part Modification
556.66 [21.916]
300 [11.811]
228.3 [8.988]
150 [5.906]
100 [3.937]


Bottom View
Top View
Side View
Notes:
1.) Travel: 300 mm [11.811 in]
2.) Weight: 47.345 kg [104.377 lbs]
DS510-300 Slide Assembly
Advanced Design Consulting USA, Inc.
00015494

DS510 ORDERING INFORMATION

DS510	-100	-A	-N	-B	-2PH	-G
Series	Model	Air Type	Encoder	Brake	Motor	Gearbox
	-100	-A	-E	-B	-2PH	3:1
	-300	-HV	-N	-N	-5PH	to
					-DC	100:1
						ratio

Travel Options

-100	100mm Stage Travel
-300	300mm Stage Travel

Air Preparation Options

-A	Standard Air Stage
-HV	High Vacuum Air Stage, 10^{-7} torr

Optical Encoder Options

-E	With Optical Encoder
-N	Without Optical Encoder

Brake Options

-B	With Brake, 24VDC
-N	Without Brake

Motor Options

-2PH	Standard 2 Phase Bi-Polar Stepper Motor
-5PH	5 Phase Stepper Motor
-DC	DC Motor

Gearbox Option

Available from 3:1 to 100:1 ratios

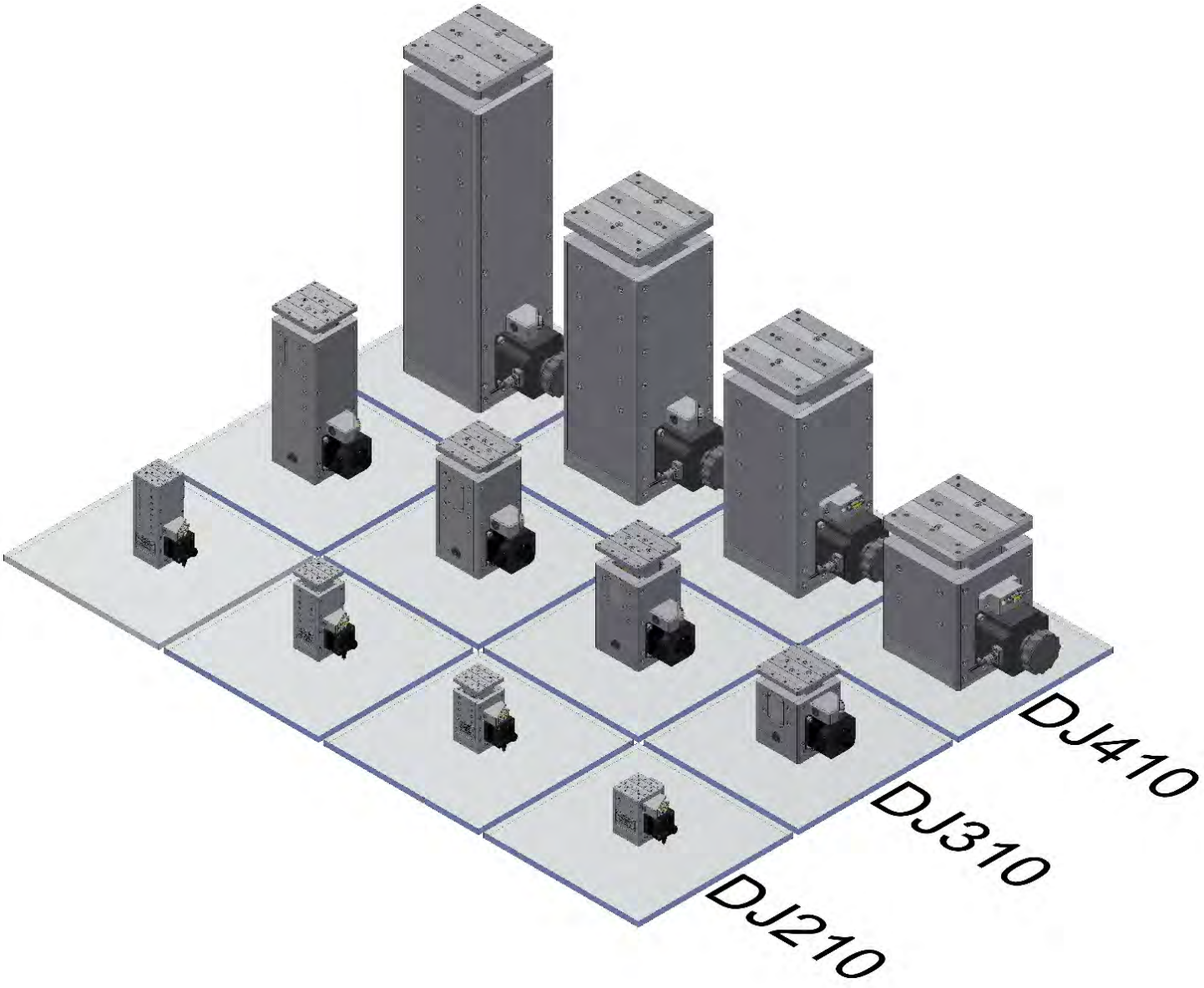
Example Order

DS510-100-A-N-B-2PH

This is an order for a DS510 Precision Crossed Roller Slide with 100 mm travel, in air, with no encoder, with a brake, and a 2-phase motor.

Lift Stages

ADC's lift stages are driven by a high class preloaded ballscrew coupled to a high torque 200 step per revolution stepper motor which can be run in full, half, or micro stepping mode to meet customer resolution requirements. Maximum rigidity is assured through the use of preloaded crossed roller linear bearings. Each jack also features two fully adjustable, normally closed limit switches to define the extents of travel.



ADC has created a new family of jacks, called the Big Jacks. These lift stages have a very high load capacity. For more information on these jacks, see page 50.

Mounting plates are available for mounting jacks to slides and slides to slides. See page 49 for the corresponding part number per slide and jack combination.

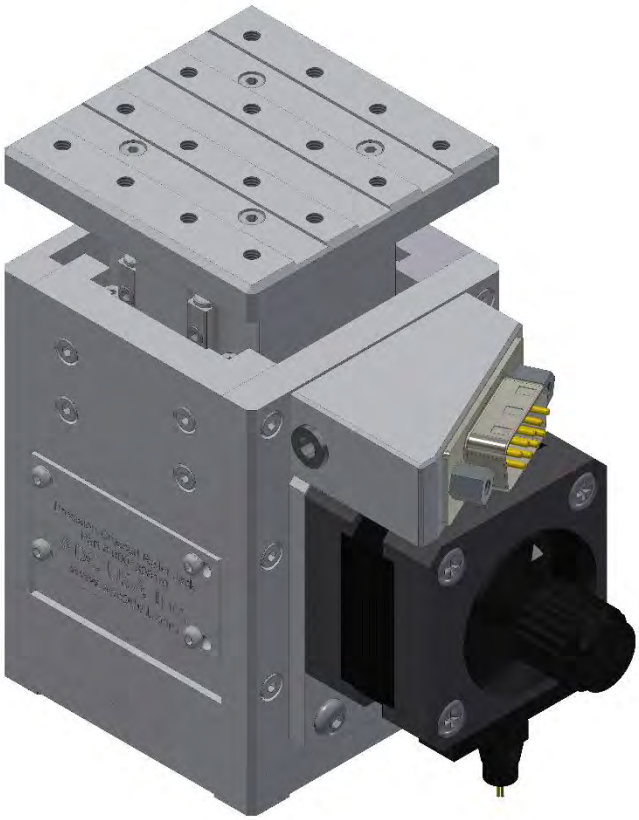
Travels 10-50mm

2 µm Repeatability

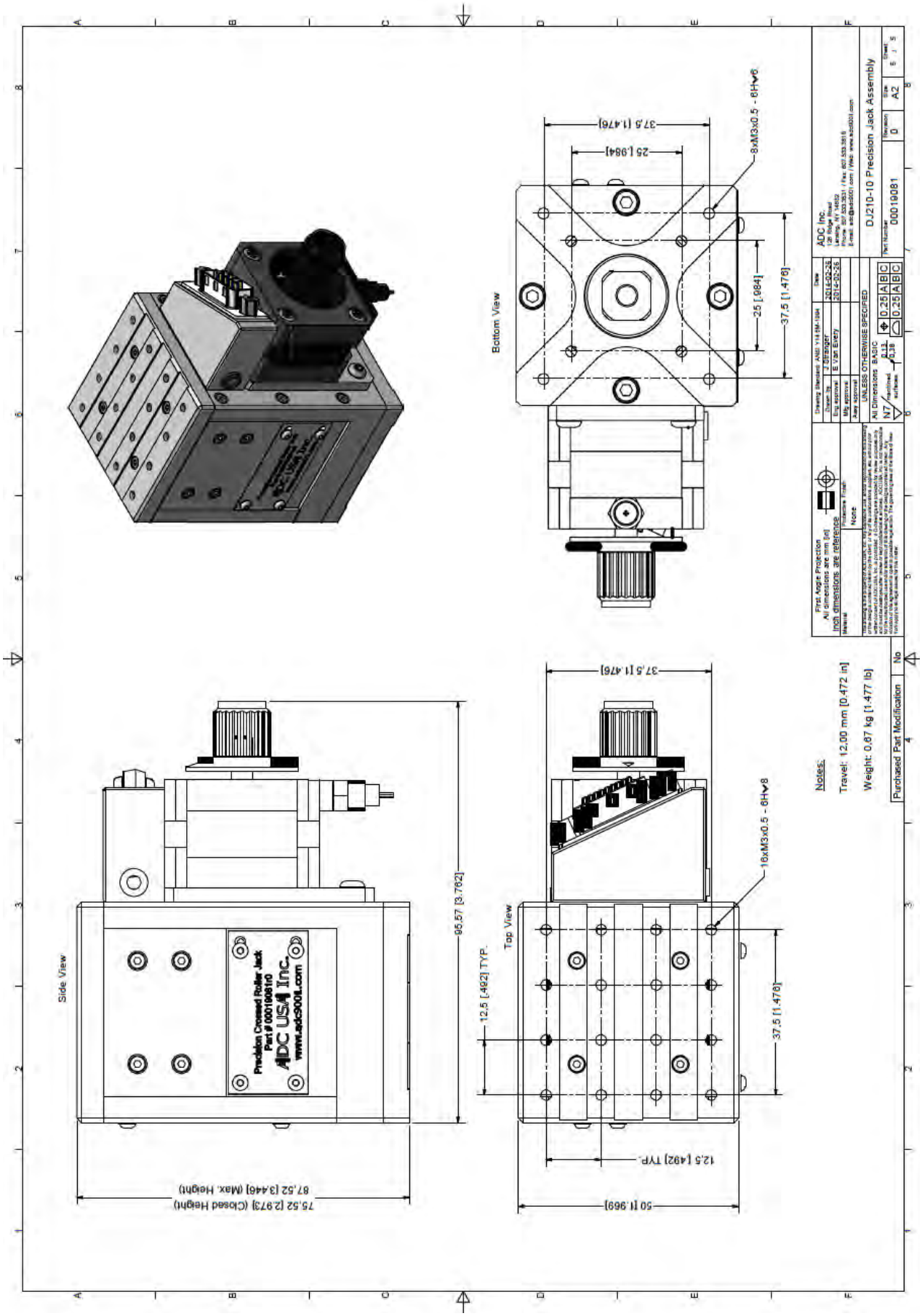
Various Motor Options

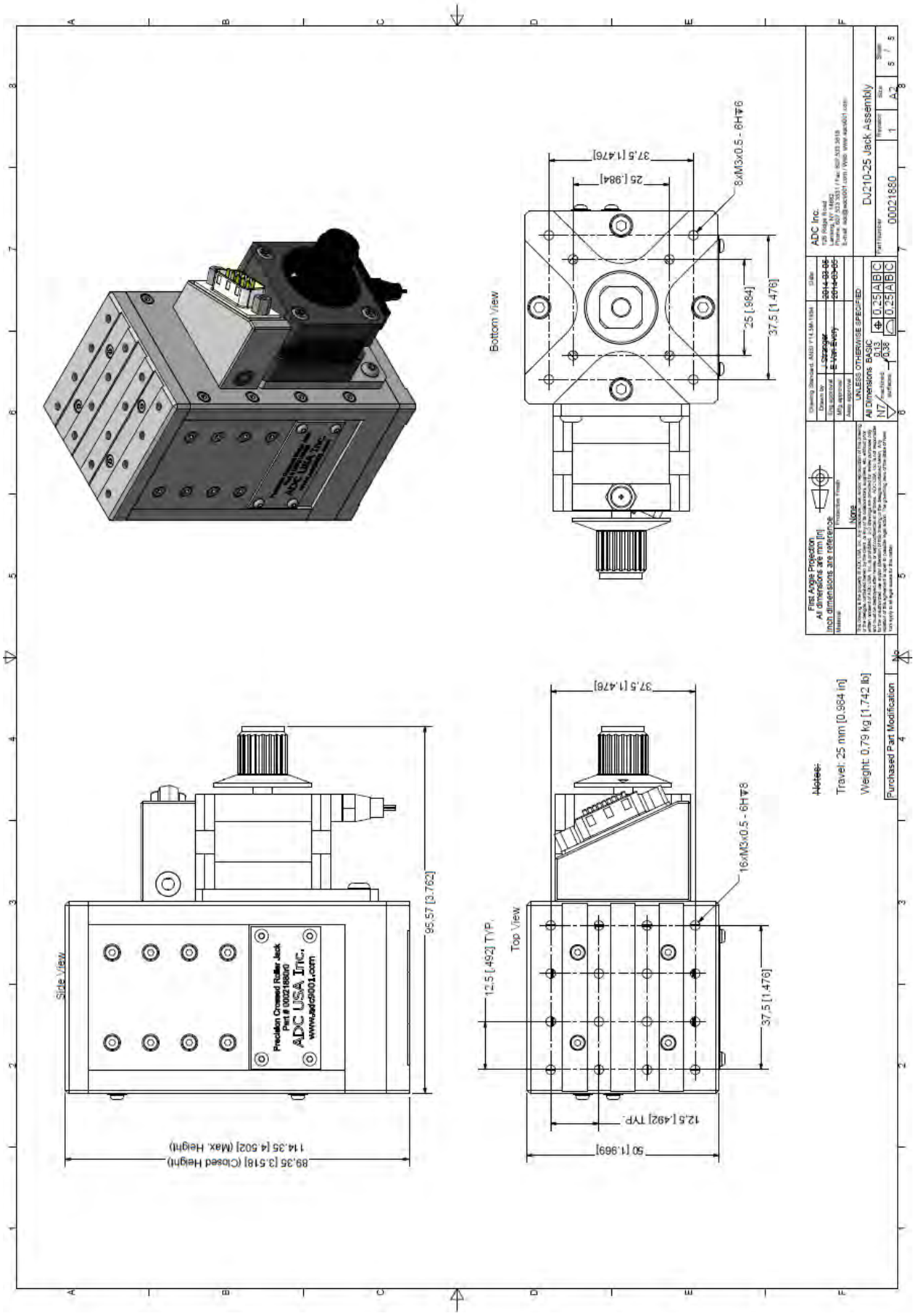
Load Capacity up to 31 kg

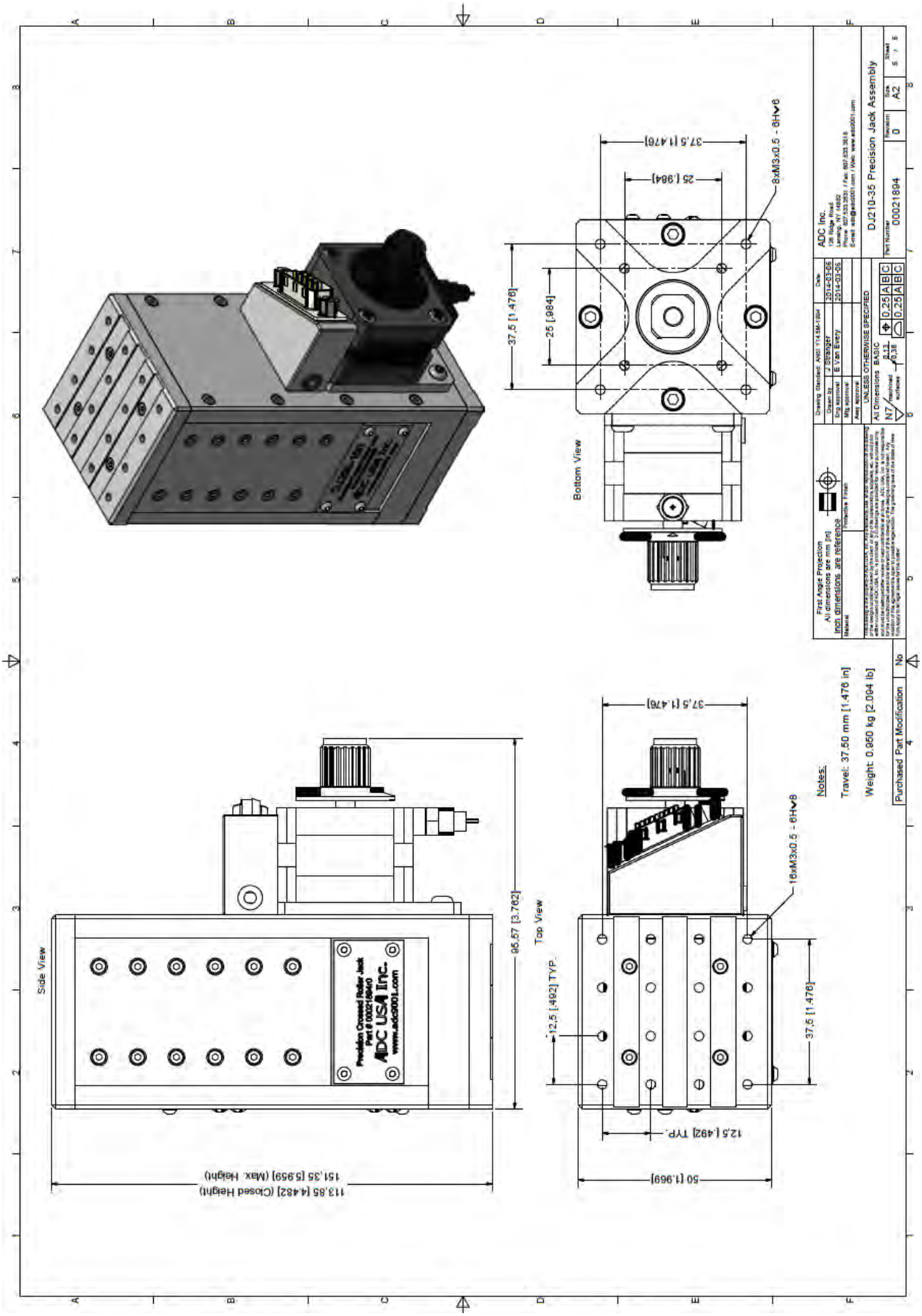
High Dynamic Performance

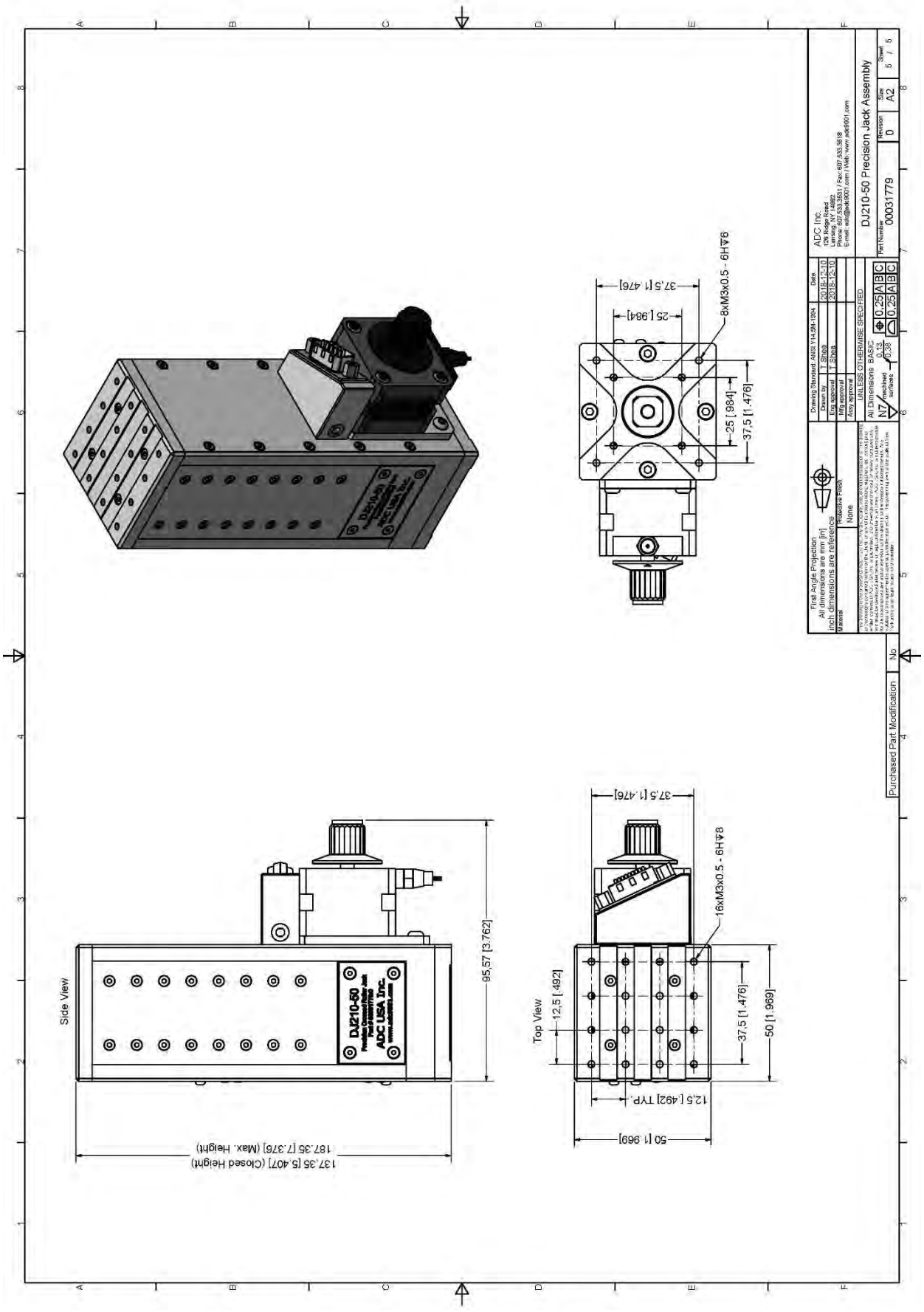


Description	10	25	35	50
Travel (mm)	10	25	35	50
Optional Linear Encoder	No	No	No	No
Repeatability (um RMS)	2	2	2	2
Lead Accuracy (um/25mm)	2.5	2.5	2.5	2.5
Trajectory Straightness (um/25mm)	2.5	2.5	2.5	2.5
Ball Screw Lead (mm)	1	1	1	1
Maximum Speed (mm/sec)	25	25	25	25
Load Capacity (kg)	31	31	31	31
Mass (kg)	0.6	.8	1	1.1


DJ210-10 Precision Jack Assembly
ADC Inc.
Part Number 00019081
Size A2
Bottom View
8xM3x0.5 - 6H↧6
37.5 [1.476]
25 [.984]
Top View
16xM3x0.5 - 6H↧8
12.5 [.492] TYP.
50 [1.969]
Side View
95.57 [3.762]
75.52 [2.973] (Closed Height)
87.52 [3.446] (Max. Height)
Precision Crossed Roller Jack
Part # 00019081r0
ADC USA Inc.
www.adc9001.com
Notes:
Travel: 12.00 mm [0.472 in]
Weight: 0.87 kg [1.477 lb]
Purchased Part Modification


DJ210-25 Jack Assembly
ADC Inc.
00021880
Bottom View
8xM3x0.5 - 6H↧6
37.5 [1.476]
25 [.984]
37.5 [1.476]
Top View
16xM3x0.5 - 6H↧8
12.5 [.492] TYP.
37.5 [1.476]
12.5 [.492] TYP.
50 [1.969]
Side View
95.57 [3.762]
89.35 [3.518] (Closed Height)
114.35 [4.502] (Max. Height)
Precision Crossed Roller Jack
Part # 00021880
ADC USA, Inc.
www.adc9001.com
Notes:
Travel: 25 mm [0.984 in]
Weight: 0.79 kg [1.742 lb]
Purchased Part Modification


DJ210-35 Precision Jack Assembly
ADC Inc.
Part Number 00021894
Revision 0
Size A2
Sheet 5 / 5
Bottom View
Top View
Side View
Notes:
Travel: 37.50 mm [1.476 in]
Weight: 0.950 kg [2.094 lb]
Purchased Part Modification No
8xM3x0.5 - 6H↧8
16xM3x0.5 - 6H↧8
37,5 [1.476]
25 [.984]
37.5 [1.476]
12.5 [.492] TYP.
50 [1.969]
86.57 [3.762]
113.85 [4.482] (Closed Height)
151.35 [5.959] (Max. Height)
Precision Crossed Roller Jack
Part # 00021894r0
ADC USA Inc.
www.adc9001.com


DJ210-50 Precision Jack Assembly
ADC Inc.
Part Number
00031779
Revision
0
Size
A2
Sheet
5 / 5
Drawing Standard: ANSI Y14.5M-1994
Drawn by
Engineering
Mfg approval
Assy approval
Date
2018-12-10
2018-12-10
UNLESS OTHERWISE SPECIFIED
All Dimensions BASIC
Machined surfaces
Material
Protective Finish
None
First Angle Projection
All dimensions are in millimeters [in]
inch dimensions are reference
Purchased Part Modification
No
8xM3x0.5 - 6H↧6
37,5 [1.476]
25 [.984]
Side View
95,57 [3.762]
137.35 [5.407] (Closed Height)
187.35 [7.376] (Max. Height)
Top View
16xM3x0.5 - 6H↧8
12,5 [.492]
12.5 [.492] TYP.
50 [1.969]

DJ210 ORDERING INFORMATION

DJ210	-50	-A	-N	-B	-2PH	-G
Series	Model	Air Type	Encoder	Brake	Motor	Gearbox
	-10	-A	-N	-B	-2PH	3:1
	-25	-HV		-N	-5PH	to
	-35				-DC	100:1
	-50					ratio

Travel Options

-10	10mm Stage Travel
-25	25mm Stage Travel
-35	35mm Stage Travel
-50	50mm Stage Travel

Air Preparation Options

-A	Standard Air Stage
-HV	High Vacuum Air Stage, 10^{-7} torr

Optical Encoder Options

-N	Without Optical Encoder

Brake Options

-B	With Brake, 24VDC
-N	Without Brake

Motor Options

-2PH	Standard 2 Phase Bi-Polar Stepper Motor
-5PH	5 Phase Stepper Motor
-DC	DC Motor

Gearbox Option

Available from 3:1 to 100:1 ratios

Example Order

DJ210-50-A-N-B-2PH

This is an order for a DJ210 Precision Crossed Roller Jack with 50 mm travel, in air, with no encoder, with a brake, and a 2-phase motor.

Travels 25-100mm

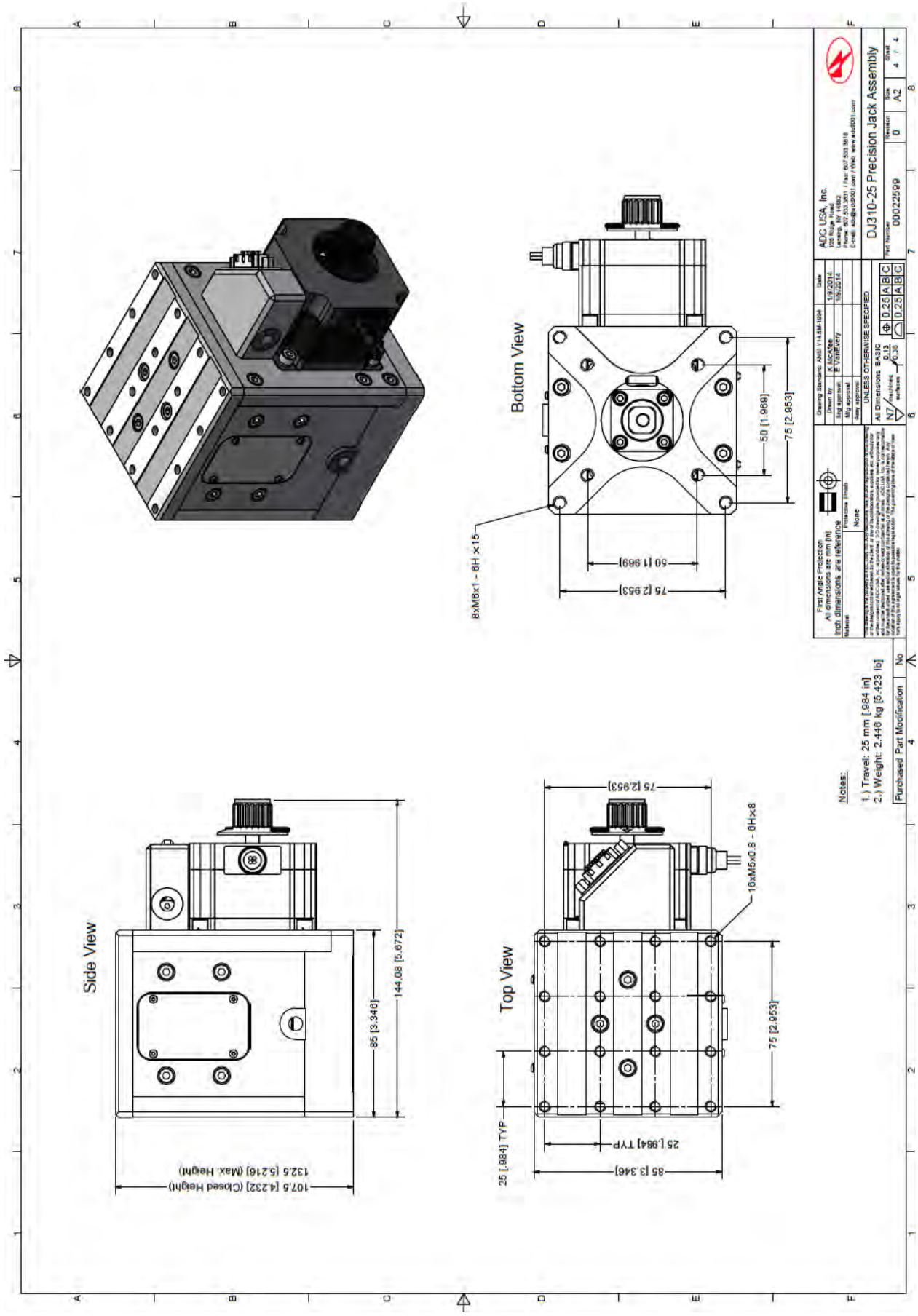
1 µm Repeatability

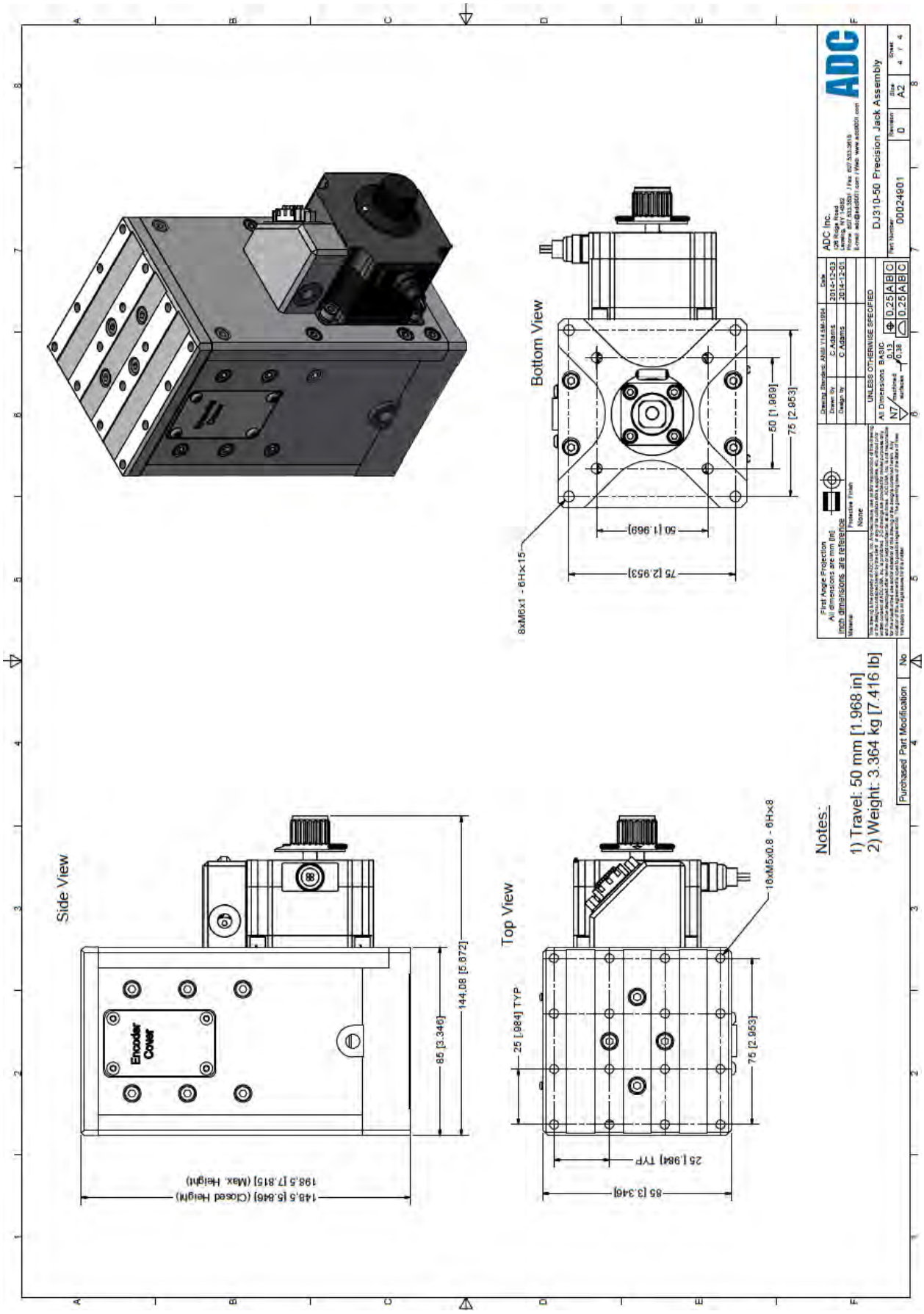
Various Motor Options

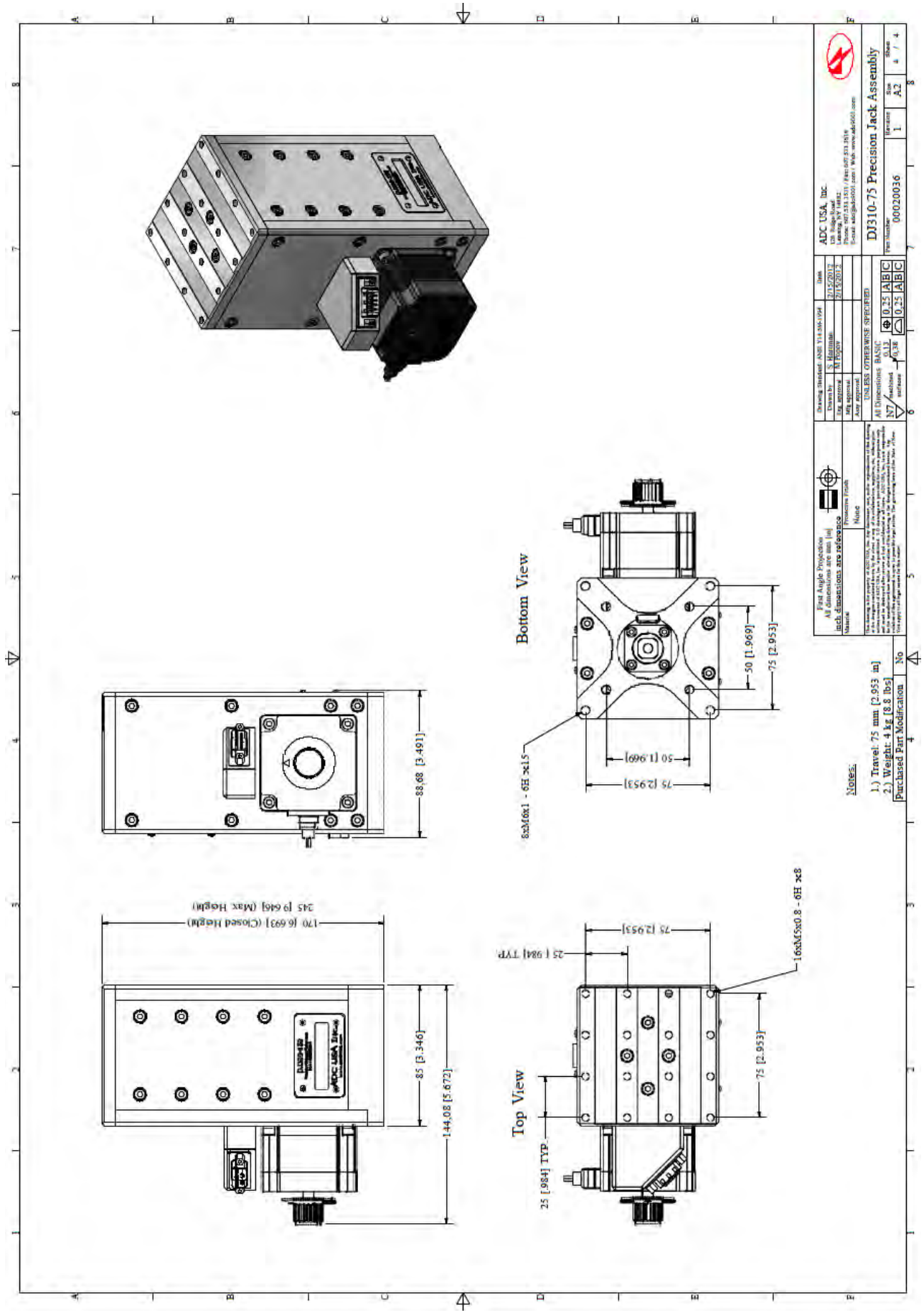
Load Capacity up to 46 kg

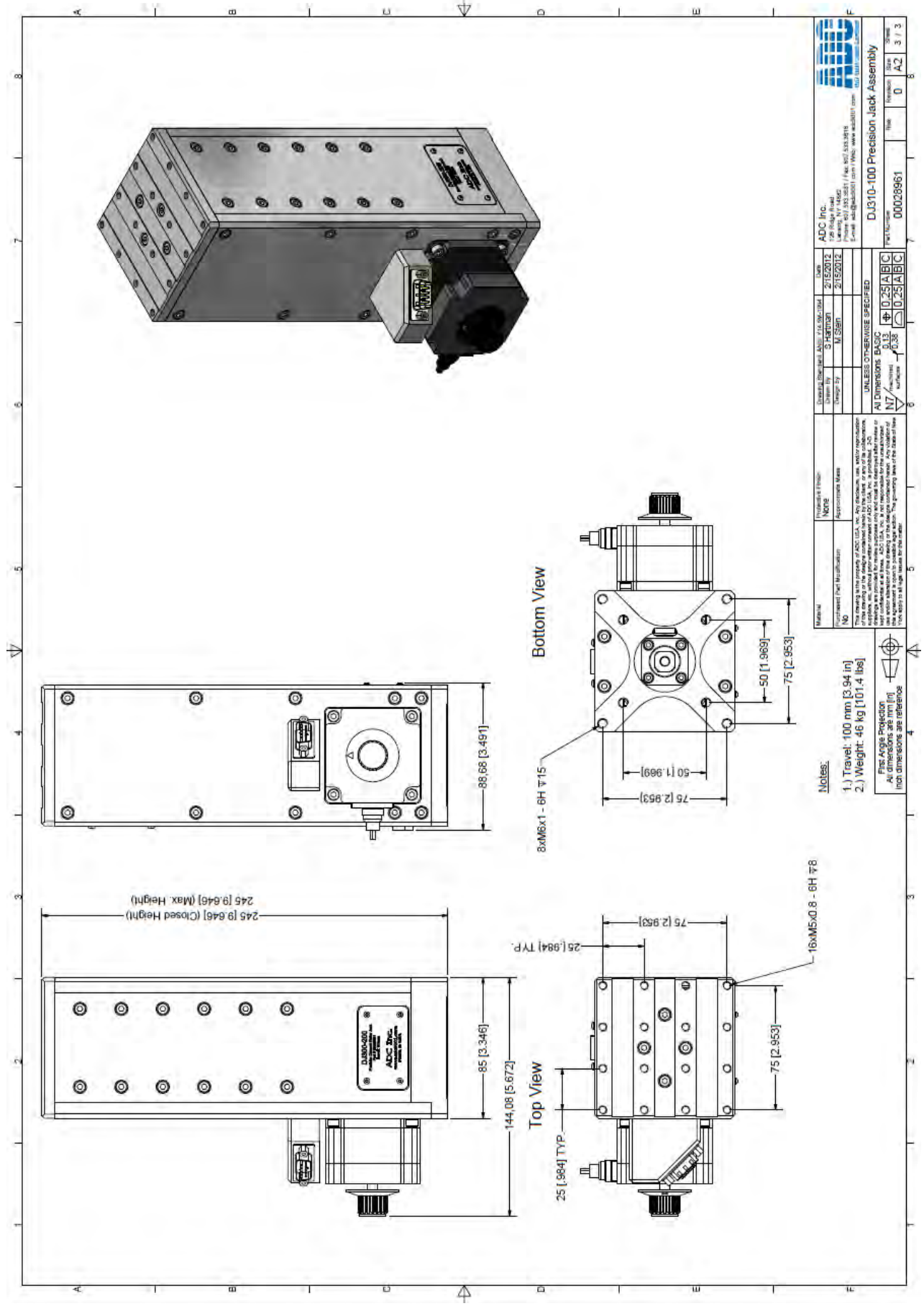
High Dynamic Performance

Description	25	50	75	100
Travel (mm)	25	50	75	100
Optional Linear Encoder	Yes	Yes	Yes	Yes
Repeatability (um RMS)	1	1	1	1
Lead Accuracy (um/25mm)	5.0	5.0	5.0	5.0
Trajectory Straightness (um/25mm)	3.0	3.0	3.0	3.0
Ball Screw Lead (mm)	1.0	1.0	1.0	1.0
Maximum Speed (mm/sec)	12.5	12.5	12.5	12.5
Load Capacity (kg)	46	46	46	46
Mass (kg)	2.6	3.4	3.9	5.1


Bottom View
8xM8x1 - 6H ×15
50 [1.969]
75 [2.953]
60 [1.969]
75 [2.953]
Top View
16xM5x0.8 - 6H×8
75 [2.953]
25 [.984] TYP
85 [3.346]
25 [.984] TYP
85 [3.346]
Side View
144.08 [5.672]
85 [3.346]
107.5 [4.232] (Closed Height)
132.5 [5.216] (Max. Height)
Notes:
1.) Travel: 25 mm [.984 in]
2.) Weight: 2.448 kg [5.423 lb]
ADC USA, Inc.
DJ310-25 Precision Jack Assembly
00022599
A2


Bottom View
Side View
Top View
Encoder Cover
8xM6x1 - 6Hx15
50 [1.988]
75 [2.953]
144.08 [5.672]
85 [3.346]
148.5 [5.846] (Closed Height)
198.5 [7.815] (Max. Height)
25 [.984] TYP
16xM5x0.8 - 6Hx8
Notes:
1) Travel: 50 mm [1.968 in]
2) Weight: 3.364 kg [7.416 lb]
ADC Inc.
DJ310-50 Precision Jack Assembly
Part Number
00024901
Revision
0
Size
A2
Sheet
4 of 4
UNLESS OTHERWISE SPECIFIED
Purchased Part Modification


DJ310-75 Precision Jack Assembly
ADC USA, Inc.
Bottom View
Top View
Notes:
1.) Travel: 75 mm [2.953 in]
2.) Weight: 4 kg [8.8 lbs]
88,68 [3.491]
85 [3.346]
144,08 [5.672]
75 [2.953]
50 [1.969]
25 [.984] TYP
8xM6x1 - 6H x15
16xM5x0.8 - 6H x8


DJ310-100 Precision Jack Assembly
ADC Inc.
Bottom View
Top View
Notes:
1.) Travel: 100 mm [3.94 in]
2.) Weight: 46 kg [101.4 lbs]
88.68 [3.491]
85 [3.346]
144.08 [5.672]
245 [9.646] (Closed Height)
245 [9.646] (Max. Height)
75 [2.953]
50 [1.969]
25 [.984] TYP.
16xM5x0.8 - 6H ↧8
8xM6x1 - 6H ↧15

DJ310 ORDERING INFORMATION

DJ310	-50	-A	-N	-B	-2PH	-G
Series	Model	Air Type	Encoder	Brake	Motor	Gearbox
	-25	-A	-E	-B	-2PH	3:1
	-50	-HV	-N	-N	-5PH	to
	-75				-DC	100:1
	-100					ratio

Travel Options

-25	25mm Stage Travel
-50	50mm Stage Travel
-75	75mm Stage Travel
-100	100mm Stage Travel

Air Preparation Options

-A	Standard Air Stage
-HV	High Vacuum Air Stage, 10^{-7} torr

Optical Encoder Options

-E	With Optical Encoder
-N	Without Optical Encoder

Brake Options

-B	With Brake, 24VDC
-N	Without Brake

Motor Options

-2PH	Standard 2 Phase Bi-Polar Stepper Motor
-5PH	5 Phase Stepper Motor
-DC	DC Motor

Gearbox Option

Available from 3:1 to 100:1 ratios

Example Order

DJ310-50-A-N-B-2PH

This is an order for a DJ310 Precision Crossed Roller Jack with 50 mm travel, in air, with no encoder, with a brake, and a 2-phase motor.

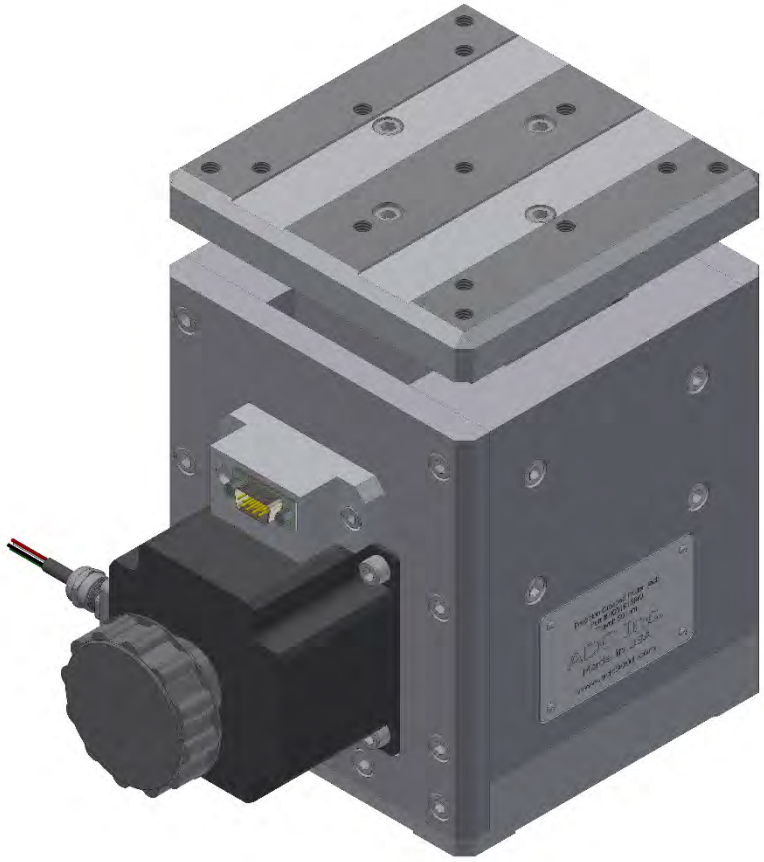
Travels 50-200mm

1 µm Repeatability

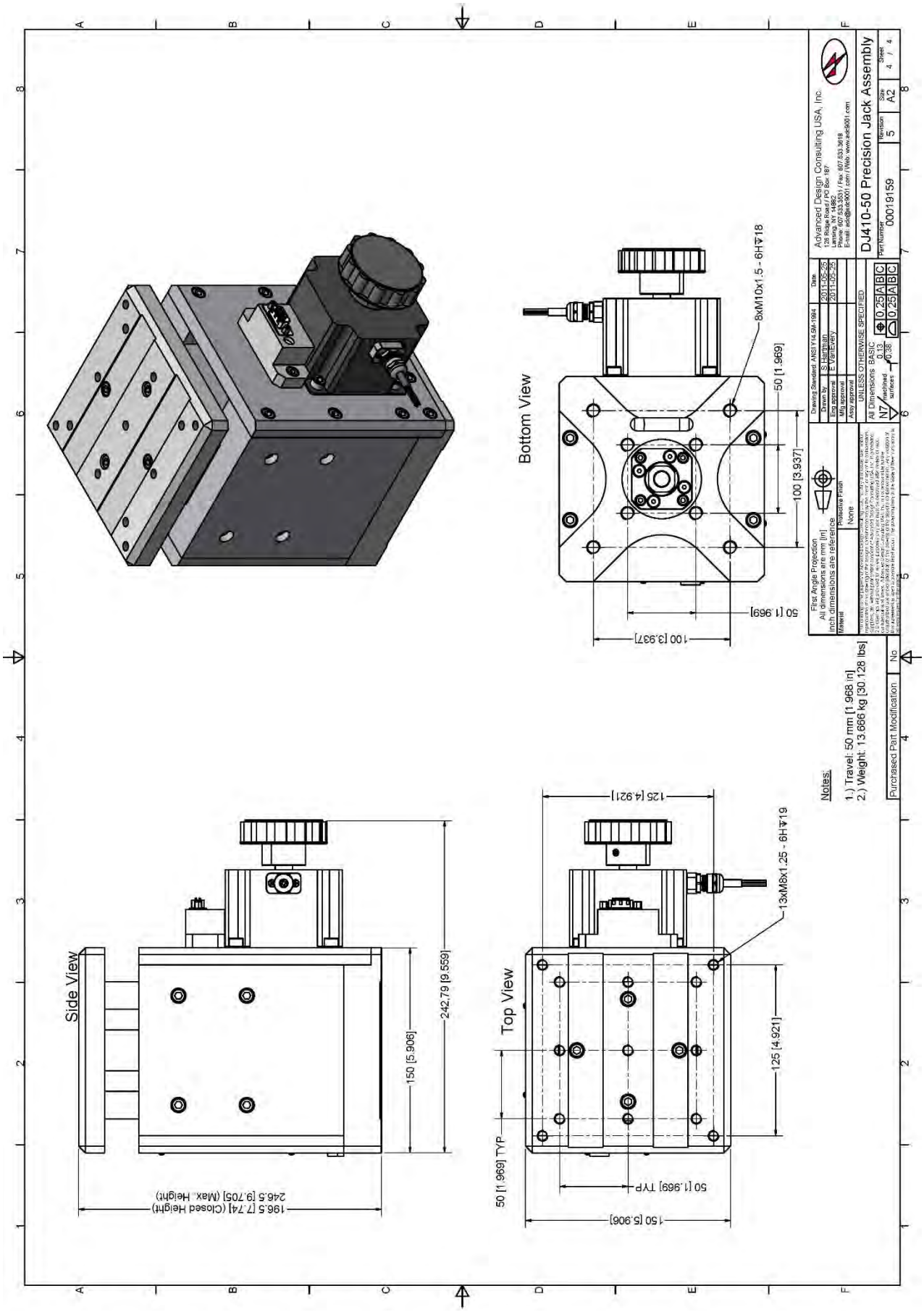
Various Motor Options

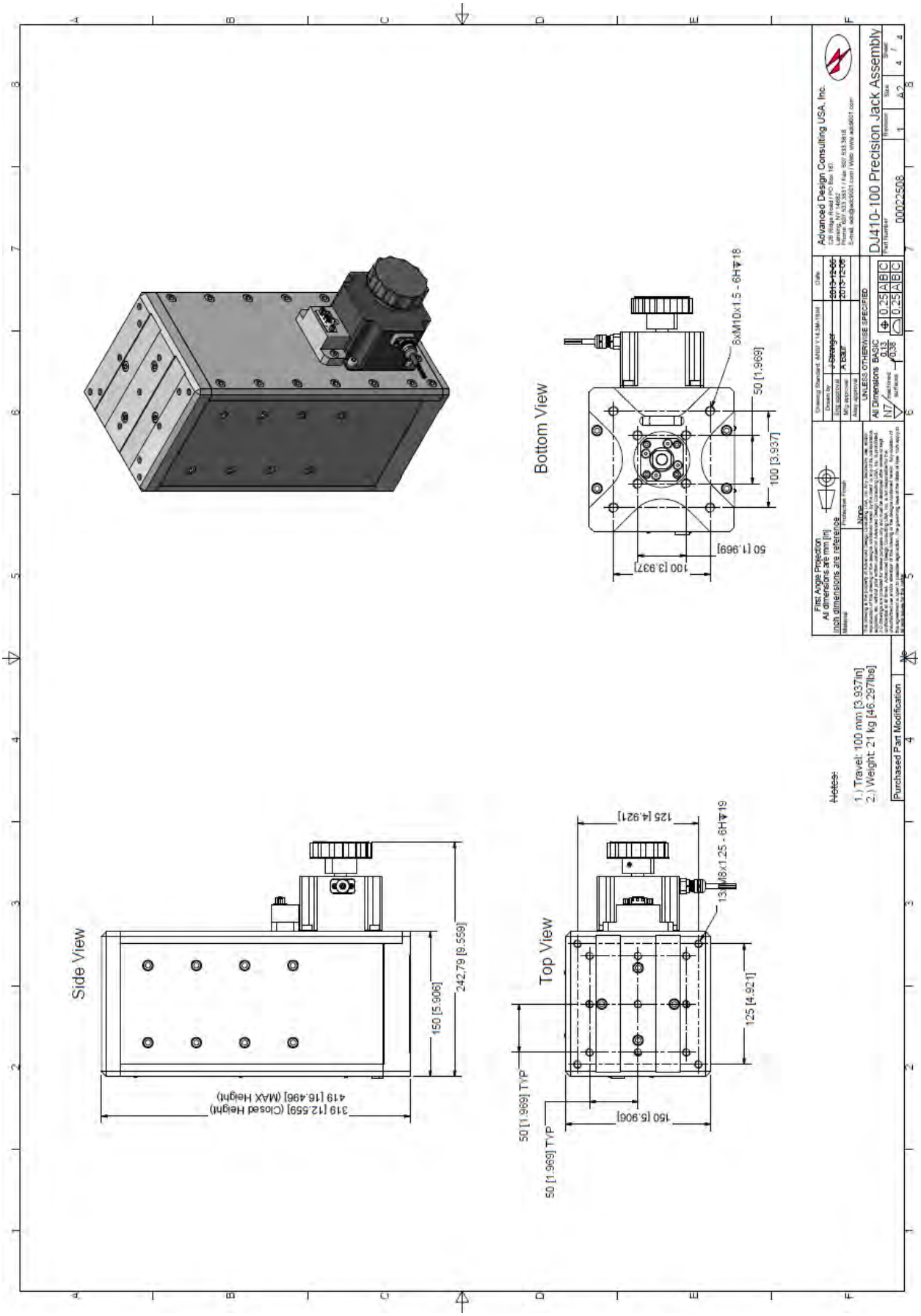
Load Capacity up to 46 kg

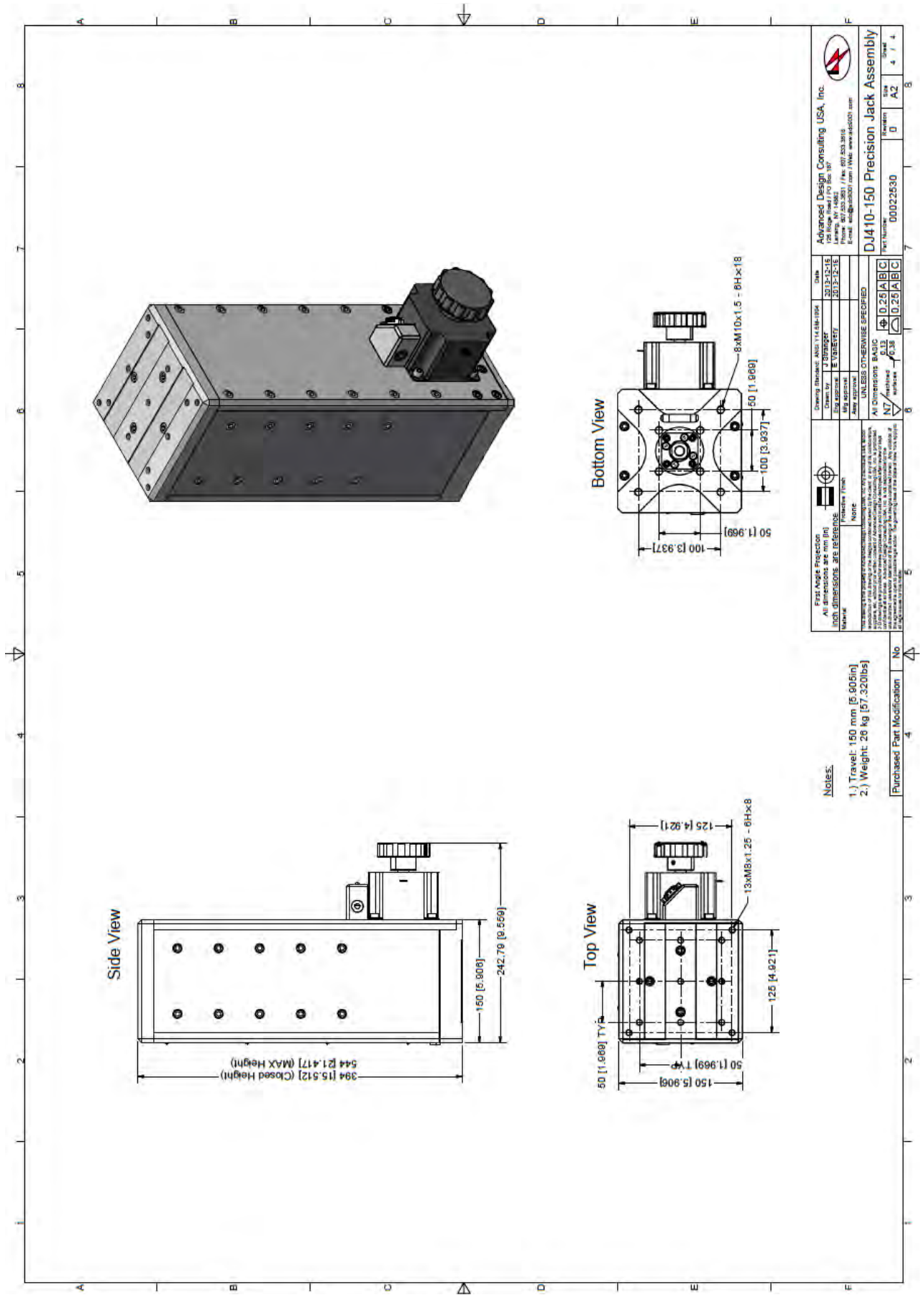
High Dynamic Performance

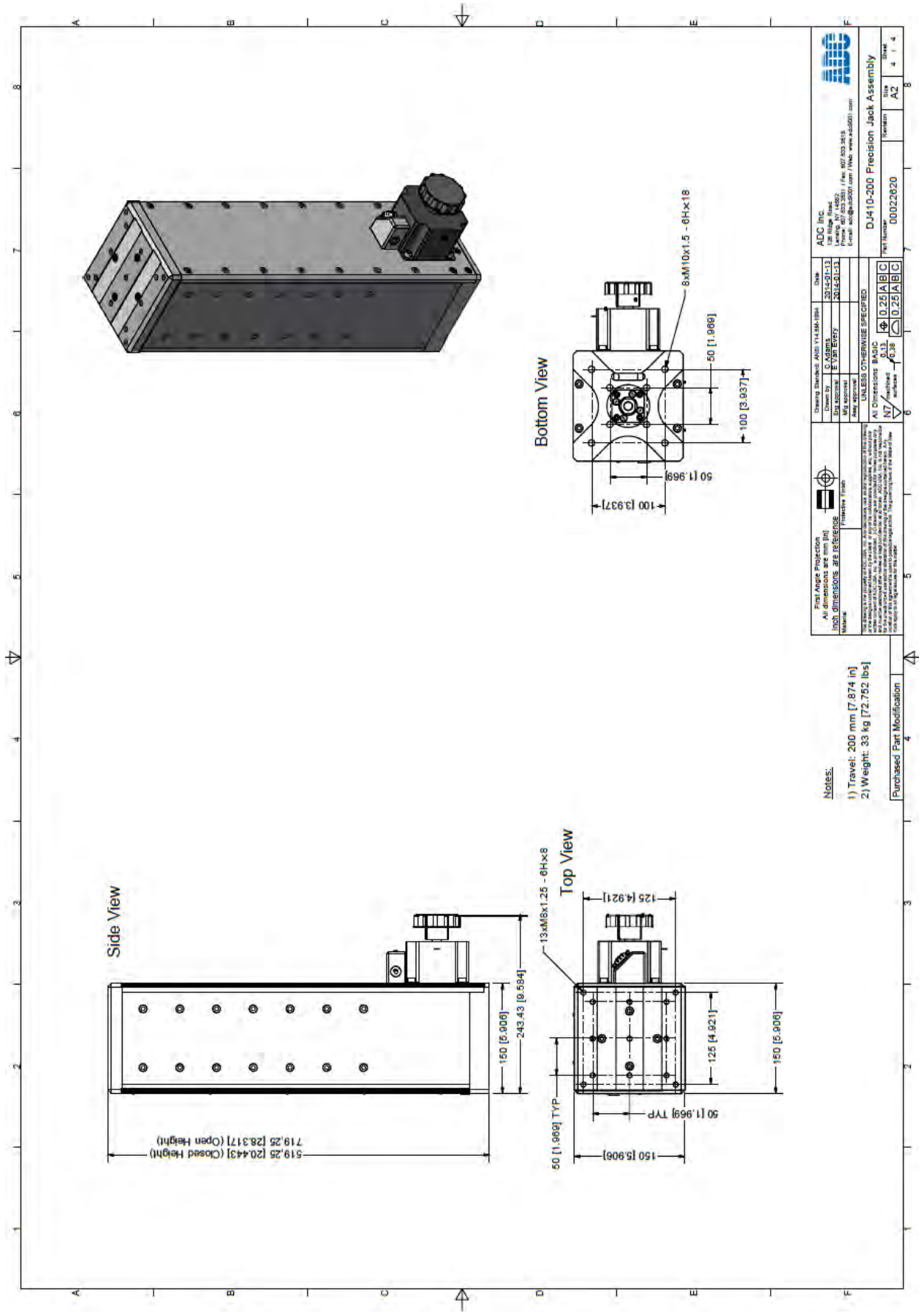


Description	50	100	150	200
Travel (mm)	50	100	150	200
Optional Linear Encoder	Yes	Yes	Yes	Yes
Repeatability (um RMS)	1	1	1	1
Lead Accuracy (um/25mm)	5.0	5.0	5.0	5.0
Trajectory Straightness (um/25mm)	4.0	4.0	4.0	4.0
Ball Screw Lead (mm)	2.0	2.0	2.0	2.0
Maximum Speed (mm/sec)	20	20	20	20
Load Capacity (kg)	280	280	280	280
Mass (kg)	13.6	21.1	25.6	33


Bottom View
8xM10x1.5 - 6H↧18
50 [1.969]
100 [3.937]
50 [1.969]
100 [3.937]
Side View
242.79 [9.559]
150 [5.906]
196.5 [7.74] (Closed Height)
246.5 [9.705] (Max. Height)
Top View
13xM8x1.25 - 6H↧19
125 [4.921]
50 [1.969] TYP
50 [1.969] TYP
150 [5.906]
Notes:
1.) Travel: 50 mm [1.968 in]
2.) Weight: 13.666 kg [30.128 lbs]
Advanced Design Consulting USA, Inc.
DJ410-50 Precision Jack Assembly
Part Number 00019159
Revision 5
Size A2
Sheet 4 / 4
Purchased Part Modification No
First Angle Projection
All dimensions are mm [in]
Inch dimensions are reference
Material
Finish None
Drawing Standard: ANSI Y14.5M-1994
Drawn by S. Hartman 2011-05-25
Eng approval E. VanEvery 2011-05-25
Mfg approval
Assy approval
UNLESS OTHERWISE SPECIFIED
All Dimensions Basic
N7 machined surfaces 0.38
0.25 A B C
0.25 A B C


Advanced Design Consulting USA, Inc.
DJ410-100 Precision Jack Assembly
Bottom View
6xM10x1.5 - 6H↧18
50 [1.968]
100 [3.937]
50 [1.969]
100 [3.937]
Top View
125 [4.921]
M8x1.25 - 6H↧19
125 [4.921]
150 [5.906]
50 [1.969] TYP
50 [1.969] TYP
Side View
242.79 [9.559]
150 [5.906]
319 [12.559] (Closed Height)
419 [16.496] (MAX Height)
Notes:
1.) Travel: 100 mm [3.937in]
2.) Weight: 21 kg [46.297lbs]
Purchased Part Modification


Bottom View
8xM10x1.5 - 8H×18
50 [1.969]
100 [3.937]
50 [1.969]
100 [3.937]
Side View
150 [5.906]
242.79 [9.559]
394 [15.512] (Closed Height)
544 [21.417] (MAX Height)
Top View
13xM8x1.25 - 6H×8
125 [4.921]
125 [4.921]
50 [1.969] TYP
50 [1.969] TYP
150 [5.906]
Notes:
1.) Travel: 150 mm [5.905in]
2.) Weight: 26 kg [57.320lbs]
Advanced Design Consulting USA, Inc.
DJ410-150 Precision Jack Assembly
00022530
Purchased Part Modification


Bottom View
8xM10x1.5 - 6H×18
50 [1.988]
100 [3.937]
50 [1.969]
100 [3.937]
Side View
150 [5.906]
243.43 [9.584]
519.25 [20.443] (Closed Height)
719.25 [28.317] (Open Height)
Top View
13xM8x1.25 - 6H×8
125 [4.921]
150 [5.906]
50 [1.969] TYP
50 [1.969]
150 [5.906]
Notes:
1) Travel: 200 mm [7.874 in]
2) Weight: 33 kg [72.752 lbs]
Purchased Part Modification
DJ410-200 Precision Jack Assembly
ADC Inc.
Part Number
00022820
Size
A2
Sheet
4 / 4
UNLESS OTHERWISE SPECIFIED
All Dimensions BASIC
Drawn by
C Adams
Eng approval
E Van Every
2014-01-13

DJ410 ORDERING INFORMATION

DJ410	-50	-A	-N	-B	-2PH	-G
Series	Model	Air Type	Encoder	Brake	Motor	Gearbox
	-50	-A	-E	-B	-2PH	3:1
	-100	-HV	-N	-N	-5PH	to
	-150				-DC	100:1
	-200					ratio

Travel Options

-50	50mm Stage Travel
-100	100mm Stage Travel
-150	150mm Stage Travel
-200	200mm Stage Travel

Air Preparation Options

-A	Standard Air Stage
-HV	High Vacuum Air Stage, 10^{-7} torr

Optical Encoder Options

-E	With Optical Encoder
-N	Without Optical Encoder

Brake Options

-B	With Brake, 24VDC
-N	Without Brake

Motor Options

-2PH	Standard 2 Phase Bi-Polar Stepper Motor
-5PH	5 Phase Stepper Motor
-DC	DC Motor

Gearbox Option

Available from 3:1 to 100:1 ratios

Example Order

DJ410-50-A-N-B-2PH

This is an order for a DJ400 Precision Crossed Roller Jack with 50 mm travel, in air, with no encoder, with a brake, and a 2-phase motor.

Mounting Plates and Brackets

The chart below shows the corresponding part number per slide and jack combination.

	Mounting Bracket				Mounting Plate
	DS210-30	**DS210-50**	**DS210-75**	**DS210-100**	**DJ210-X**
DS210-30	MB-200-1	MB-200-2	N/A	N/A	MP-200-6
DS210-50	MB-200-1	MB-200-3	N/A	N/A	MP-200-7
DS210-75	MB-200-1	MB-200-3	MB-200-4	MB-200-5	MP-200-8
DS210-100	MB-200-1	MB-200-3	MB-200-4	MB-200-5	MP-200-7
	DS310-50	**DS310-100**	**DS310-150**	**DS310-200**	**DJ310-X**
DS310-50	MB-300-1	MB-300-2	N/A	N/A	MP-300-5
DS310-100	MB-300-1	MB-300-2	N/A	N/A	MP-300-5
DS310-150	MB-300-1	MB-300-2	MB-300-3	MB-300-4	MP-300-5
DS310-200	MB-300-1	MB-300-2	MB-300-3	MB-300-4	MP-300-5
	DS410-75	**DS410-150**	**DS410-225**	**DS410-300**	**DJ410-X**
DS410-75	MB-400-1	MB-400-2	N/A	N/A	MP-400-5
DS410-150	MB-400-1	MB-400-2	N/A	N/A	MP-400-6
DS410-225	MB-400-1	MB-400-2	MB-400-3	MB-400-4	MP-400-7
DS410-300	MB-400-1	MB-400-2	MB-400-3	MB-400-4	MP-400-7

Big Jacks

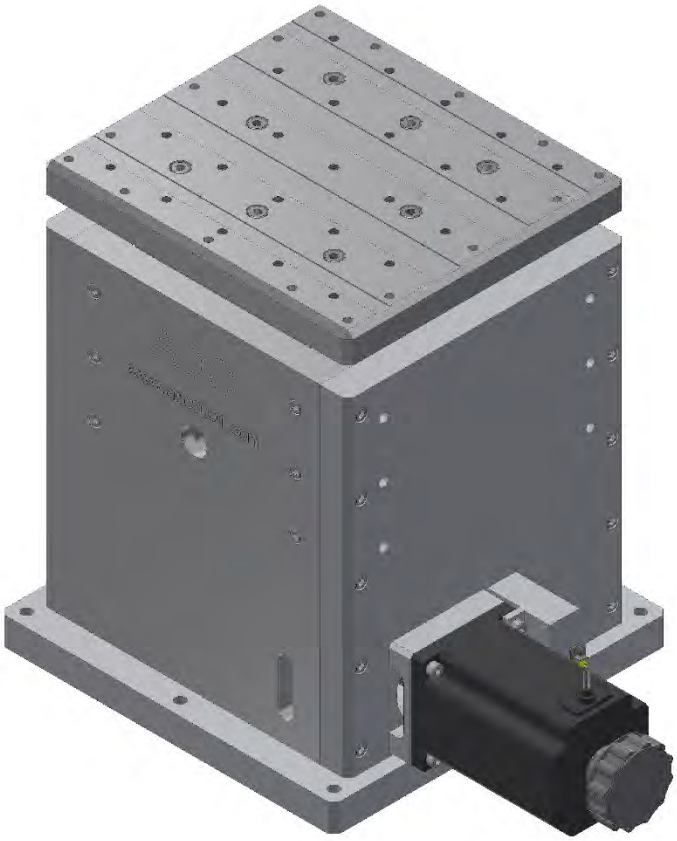
Travels 50-200mm

3 µm Repeatability

Various Motor Options

High Resolution

High Dynamic Performance



Description	50	100	150	200
Travel (mm)	50	100	150	200
Optional Linear Encoder	Yes	Yes	Yes	Yes
Repeatability (um RMS)	3	3	3	3
Lead Accuracy (um/25mm)	8.3	8.3	8.3	8.3
Trajectory Straightness (um/25mm)	10	15	15	20
Travel Resolution (mm/rev)	6.35	6.35	6.35	6.35
Maximum Speed (mm/sec)	5	5	5	5
Load Capacity (kg)	2268	2268	2268	2268
Mass (kg)	76.2	85.4	94.6	103.8

BJ25 ORDERING INFORMATION

BJ25	-50	-N	-2PH	-G
Series	Model	Encoder	Motor	Gearbox
BJ25	-50	-E	-2PH	3:1
	-100	-N	-5PH	to
	-150		-DC	100:1
	-200			ratio

Travel Options

-50	50mm Stage Travel
-100	100mm Stage Travel
-150	150mm Stage Travel
-200	200mm Stage Travel

Optical Encoder Options

-E	With Optical Encoder
-N	Without Optical Encoder

Motor Options

-2PH	Standard 2 Phase Bi-Polar Stepper Motor
-5PH	5 Phase Stepper Motor
-DC	DC Motor

Gearbox Option

Available from 3:1 to 100:1 ratios

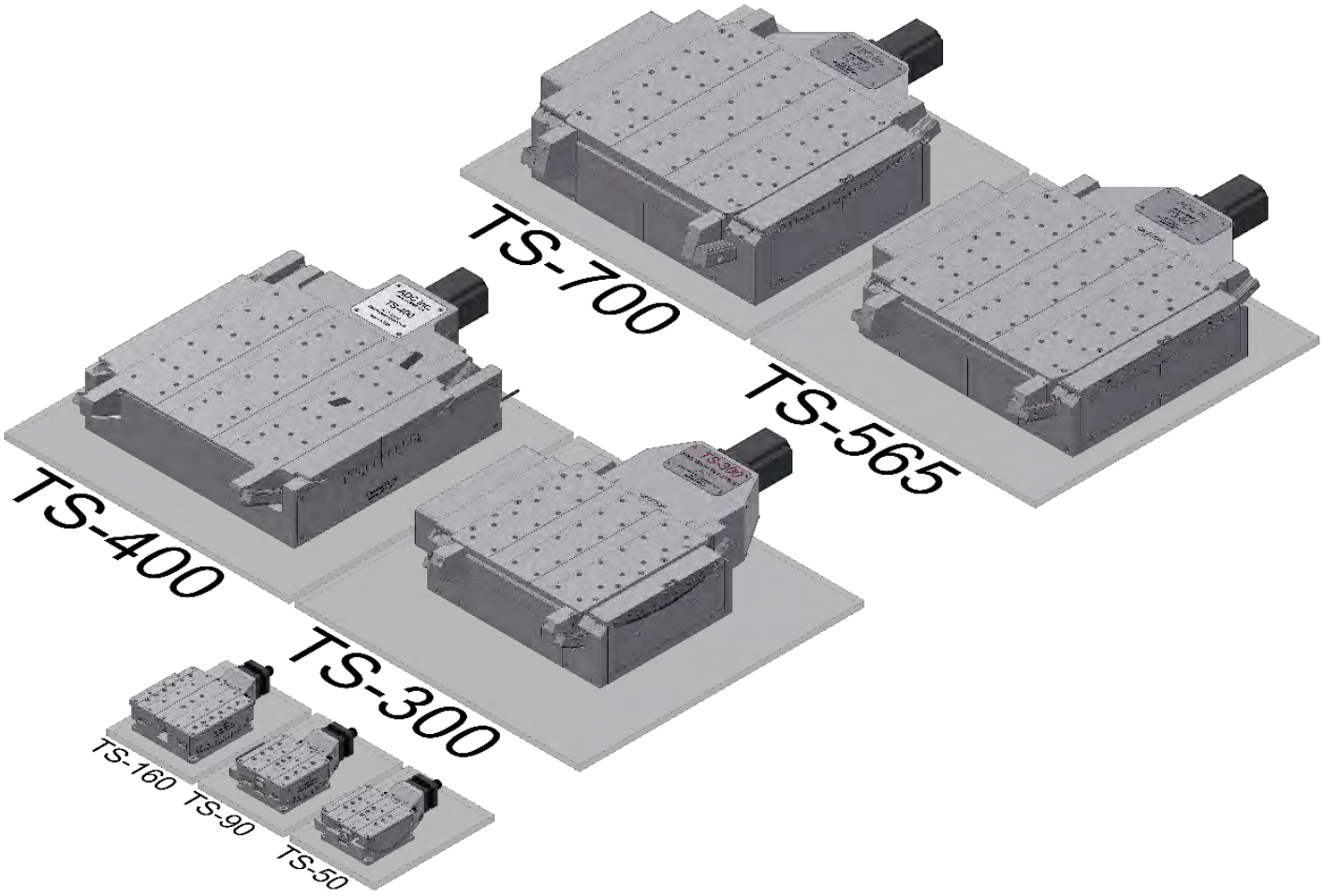
Example Order

BJ25-50-N-2PH

This is an order for a BJ25 Precision Crossed Roller Jack with 50 mm travel, with no encoder, and a 2-phase motor.

Tilt Stages/Goniometers

ADC's tilt stages are based on precision curved guide rails combined with a tangent bar (HD Series) or worm gear drive (LD Series) system providing fine angular resolution and accuracy. The stages can be paired to create an orthogonal (X-Y) tilt stage system. All tilt stages come standard with a stepper motor.



TS-LD Series

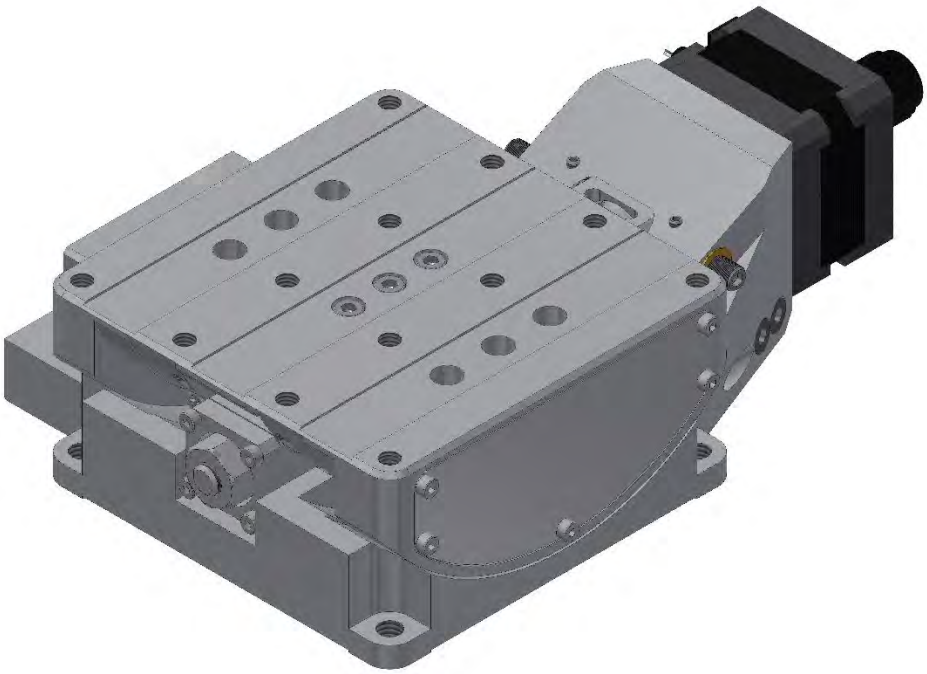
The TS-LD Series tilt stage(s) provide a rigid, accurate motion for general goniometric use. The TS-LD Series is stepper motor driven, guided with curved linear bearings, and has a rugged anodized aluminum body. The top and bottom mounting surfaces are precision ground to provide an optimal interface. The TS-LD Series uses curved crossed roller bearings for the highest possible rigidity and profiled trajectory. The drive mechanism is a precision ground worm wheel segment and stepper motor driven worm.

Travels +/-10°

Load Capacity up to 250 kg

Precision Ground Worm Gear

Incredible Stability



Model	50	90	160
Travel Range (°)	+/-10	+/-10	+/-10
Actuation Mechanism	Worm Gear	Worm Gear	Worm Gear
Gear Reduction	360:1	360:1	360:1
Repeatability (µrad RMS)	280	280	160
Trajectory Straightness (µm/25mm)	5.0	5.0	5.0
Runnout (µm)	3.0	3.0	15
Full Step Resolution (µrad)	26	28	27
Load Capacity (kg)	84	188	268
Optional Linear Encoder	Yes	Yes	Yes

TS-LD Series ORDERING INFORMATION

TS	-LD	-A	-N	-2PH
Series	Model	Air Type	Encoder	Motor
	-50	-A	-E	-2PH
	-90	-HV	-N	-5PH
	-160			-DC

Travel Options

-50	+/-10º of Travel
-90	+/-10º of Travel
-160	+/-10º of Travel

Air Preparation Options

-A	Standard Air Stage
-HV	High Vacuum Air Stage, 10^{-7} torr

Optical Encoder Options

-E	With Optical Encoder
-N	Without Optical Encoder

Motor Options

-2PH	Standard 2 Phase Bi-Polar Stepper Motor
-5PH	5 Phase Stepper Motor
-DC	DC Motor

Example Order

TS-50-A-N-2PH

This is an order for a TS-50 Precision Goniometer with 10° of travel, in air, without an encoder, and a 2-phase motor.

TS-HD Series

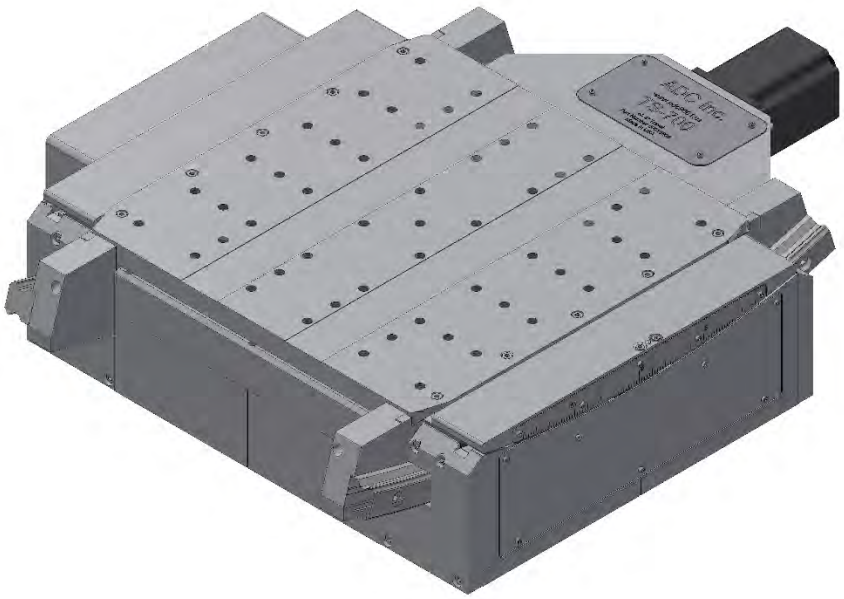
The TS-HD Series tilt stage(s) provide a rigid, accurate motion for general goniometric use. Each stage is stepper motor driven and curved linear bearing guided stages with a rugged anodized aluminum body. The top and bottom mounting surfaces are precision ground to provide an optimal interface. The TS-HD Series uses a tangent bar type mechanism to facilitate the rotary motion. A stepper motor driven linear actuator interfaces to the stage through a limited rotation flexure style bearing. This interface results in a highly resolved, very rigid rotary motion. The stage is guided by preloaded ball type profiled linear rails. An optional optical encoder gives closed loop feedback for the device.

Travels up to +/-8°

Load Capacity of up to 1600 kg

High Resolution

Incredible Stability



Model	300	400	565	700
Travel Range (°)	+/-8	+/-7	+/-4	+/-4
Actuation Mechanism	Tangent Bar	Tangent Bar	Tangent Bar	Tangent Bar
Repeatability (µrad RMS)	17	17	80	40
Trajectory Straightness (µm/25mm)	20	20	5.0	5.0
Runnout (µm)	15	15	3.0	3.0
Full Step Resolution (µrad)	38	29	38	87
Load Capacity (kg)	680	680	680	1624
Mass (kg)	23.3	27	27.3	33.4
Optional Linear Encoder	Yes	Yes	Yes	Yes

TS-HD ORDERING INFORMATION

TS	-XL	-A	-N	-2PH
Series	Model	Air Type	Encoder	Motor
	-300	-A	-E	-2PH
	-400	-HV	-N	-5PH
	-565			-DC
	-700			

Travel Options

-300	+/-8º of Travel
-400	+/-7º of Travel
-565	+/-4º of Travel
-700	+/-4º of Travel

Air Preparation Options

-A	Standard Air Stage
-HV	High Vacuum Air Stage, 10^{-7} torr

Optical Encoder Options

-E	With Optical Encoder
-N	Without Optical Encoder

Motor Options

-2PH	Standard 2 Phase Bi-Polar Stepper Motor
-5PH	5 Phase Stepper Motor
-DC	DC Motor

Example Order

TS-300-A-E-2PH

This is an order for a TS-300 Precision Goniometer with 8° of travel, in air, with an encoder, and a 2-phase motor.

Rotation Stages

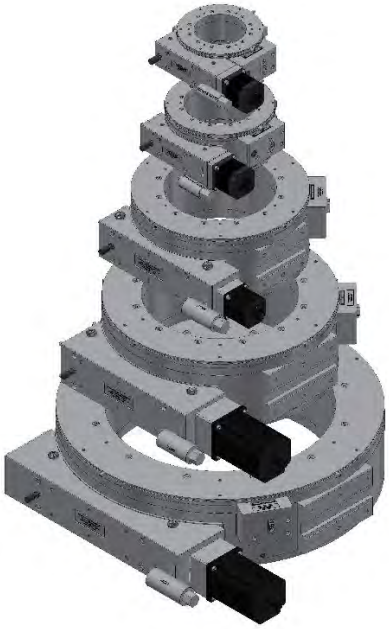
The Precision Mechanical Rotation Stages are precision rotation stages are built upon an industry leading, preloaded, duplexed angular contact bearing set. These stages not only give an exceptionally high running accuracy but allow for large radial and thrust loads as well. Each stage is driven by a precision ground worm gear set and a high resolution, high torque stepper motor. Backlash is reduced by employing a flexure style shimming technique to preload the worm and worm wheel.

Precision Repeatability

Large Axial Load Capacity

Precision Ground Worm Gear

Minimized Backlash



Model	100	200	300	400	500
Travel Range (°)	+/-360	+/-360	+/-360	+/-360	+/-360
Accuracy (µrad)	150	125	125	100	125
Gear Reduction	360:1	356:1	364:1	380:1	260:1
Repeatability (µrad RMS)	1.5	1.0	1.0	1.0	30
Runnout (µm)	7.5	7.5	10	15	15
Load Capacity Radial (kg)	23	39	103	123.5	243.5
Stiffness (µrad/Nm)	1.26	.556	.112	.051	.021
Mass (kg)	4.6	6.8	25.3	48	76
Optional Linear Encoder	Yes	Yes	Yes	Yes	Yes

ROTATION STAGE ORDERING INFORMATION

Stage	Model	-A	-N	-B	-2PH	-G
Stage	Model	Air Type	Encoder	Brake	Motor	Gearbox
RS	-100	-A	-E	-B	-2PH	3:1
	-200	-HV	-N	-N	-5PH	to
	-300				-DC	100:1
	-400					ratio
	-500					

Model Number

-100	100 Model
-200	200 Model
-300	300 Model
-400	400 Model
-500	500 Model

Air Preparation Options

-A	Standard Air Stage
-HV	High Vacuum Air Stage, 10^{-7} torr

Optical Encoder Options

-E	With Optical Encoder
-N	Without Optical Encoder

Brake Options

-B	With Brake, 24VDC
-N	Without Brake

Motor Options

-2PH	Standard 2 Phase Bi-Polar Stepper Motor
-5PH	5 Phase Stepper Motor
-DC	DC Motor

Gearbox Option

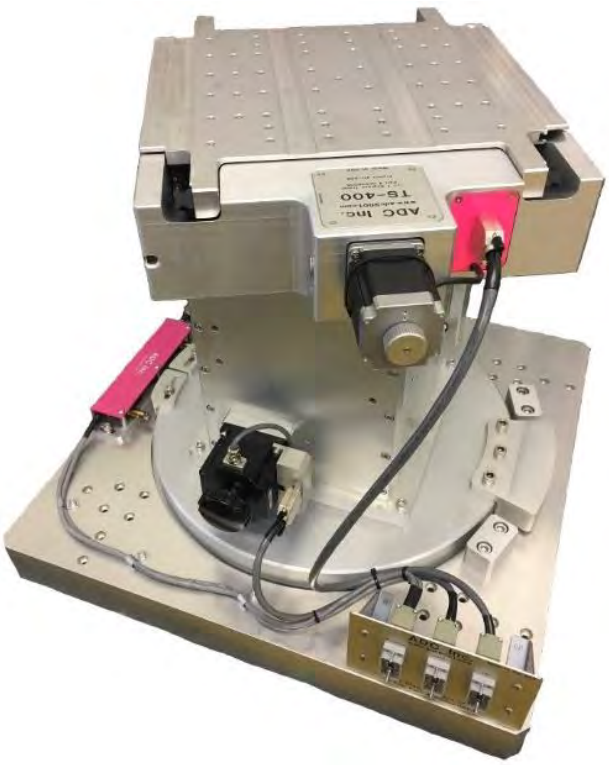
Available from 3:1 to 100:1 ratios

Example Order

RS200-A-N-B-2PH
This is an order for a RS200 Precision Rotation Stage
in air, with no encoder, with a brake, and a 2-phase motor.

Custom Systems

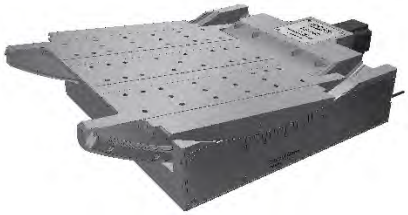
3-Axis Stage Stack



Customer:

CHESS
Wilson Laboratory
161 Synchrotron Drive
Ithaca, NY 14853

A set of five (5) vertical lift stages (jacks), three (3) tilt stages (horizontal rotation axis), and three (3) rotation stages (vertical rotation axis) were delivered to the Cornell High Energy Synchrotron Source (CHESS) as three stacks containing one of each stage type, and two more lone jacks. This equipment was part of the CHESS-U upgrade effort, with the 3-axis stacks supporting and moving components to divert the x-ray beam and allow multiple experimental stations to be served by a single front end. The system was designed as an assembly of standard or semi-standard components and remains very modular. Each axis of motion was provided by an independent stage which could be separated and used elsewhere. All were driven by stepper motors, and no position feedback was required by the customer, though it could easily have been supplied.



Tilt Stage

Jack

Rotation Stage

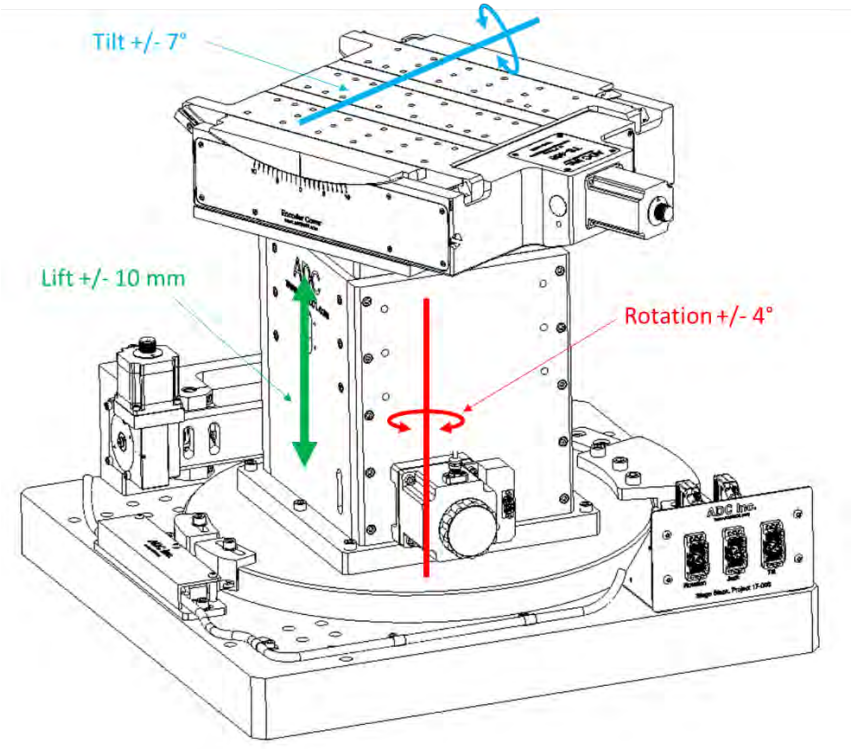
The tilt stages were the latest generation of ADC standard TS-400, but with the encoder omitted at the customer's request. These updated standard stages were improved with a reduced parts count to simplify manufacturing, assembly, and maintenance, and to increase robustness. The default orientation of the tilt axis relative to the rotation stage base was set using a special adapter plate, with two different angles set amongst the three stacks of stages.

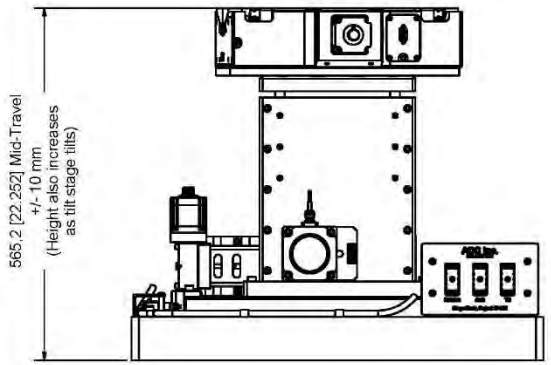
The jacks were a slight modification to ADC's standard BJ25 series of jacks. Developed from the BJ25-50, these BJ25-20 jacks traded travel for stiffness by adding rollers to the roller pack of each set of crossed-roller bearings guiding the vertical trajectory. Adjustability of hard stops required by the customer was accommodated through provision of attachment points on the exterior of the jack to mount customer-produced shims which could further limit the jack's travel.

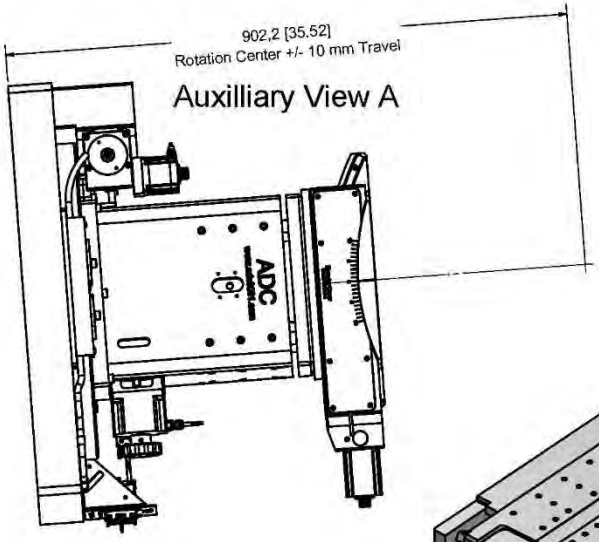
The rotation stage was a new design based on an update of existing ADC worm driven stages. The base and electrical panel were custom to this application, but the large ball bearing had been used previously. Improvements to the worm drive increased stiffness, robustness, and tunability. An electrical panel with connectors for each of the three stages in the stack was added to one corner of the rotation stage.

Key Specifications:

Description	Value	Units
Rotation Range	+/- 4	°
Tilt Range	+/- 7	°
Vertical Travel Range	+/- 0.393 [10]	In [mm]
System Weight/Mass	450 [210]	lbf [kg]
Max. Lifted Load	275 [125]	lbf [kg]
Max. Tilted Load	150 [203]	lbf*ft [N*m]



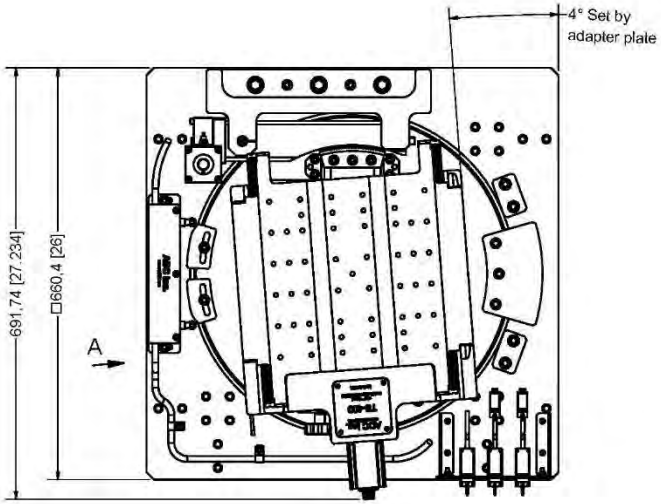


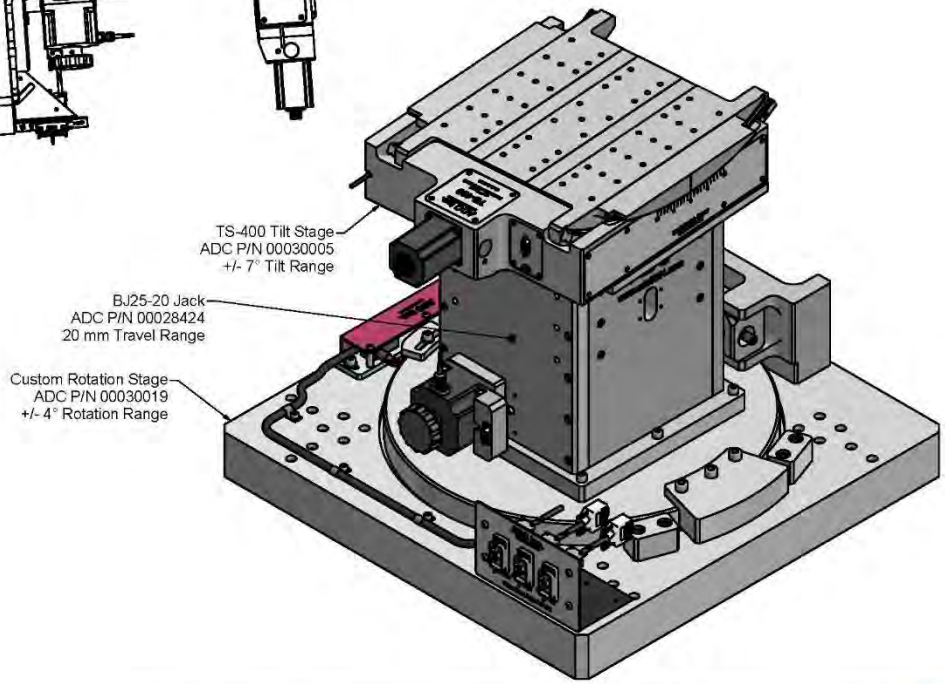


NOTES:

1. See individual stage literature for full data on each stage

2. Patch panel with EDAC connectors shown (other connects available on request)





Material	Protective Finish: None	Drawing Standard: ANSI Y14.5M-1994		Date
Purchased Part Modification: No	Approximate Mass: 206.4 kg [454 lbs]	Drawn by: T Shea		2017-09-07
		Design by: T Shea		2017-09-07
		UNLESS OTHERWISE SPECIFIED		
		All Dimensions BASIC		
		N7 machined surfaces	0.13 / 0.38	⌖ 0.25 A B C / ⌭ 0.25 A B C

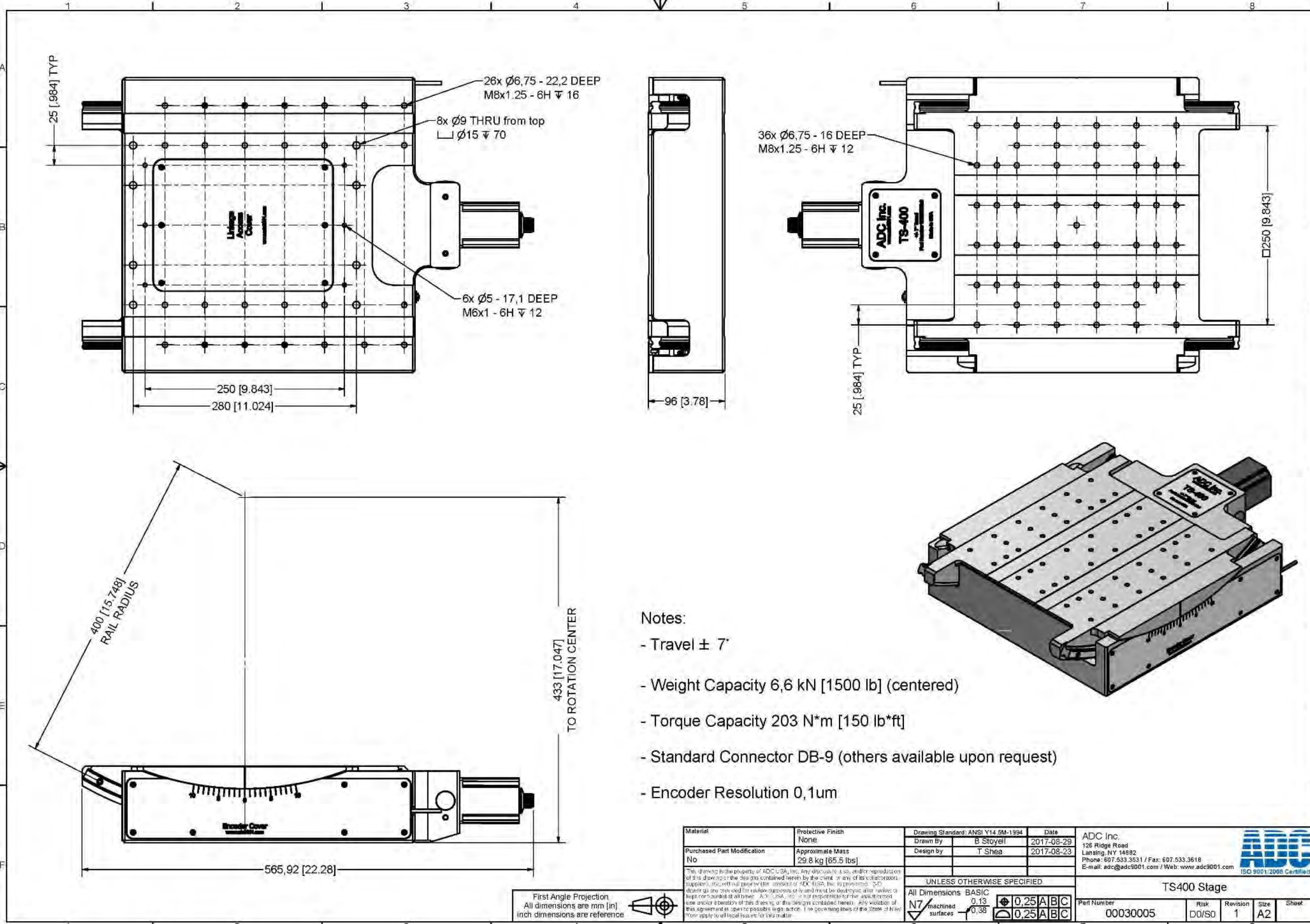
First Angle Projection
All dimensions are mm [in]
inch dimensions are reference

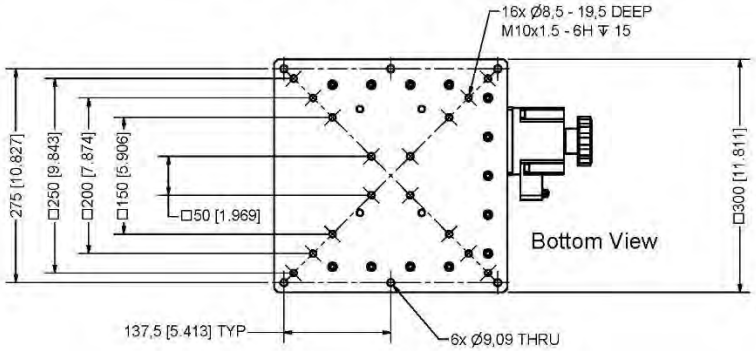
ADC Inc.
126 Ridge Road
Lansing, NY 14882
Phone: 607.533.3631 / Fax: 607.533.3616
E-mail: adc@adc9001.com / Web: www.adc9001.com

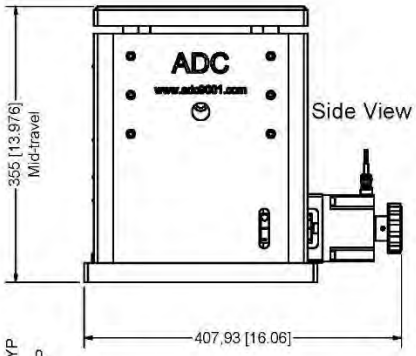
ISO 9001:2008 Certified

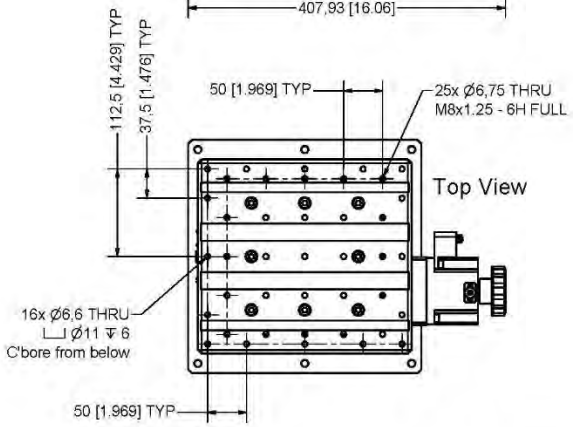
Stage Stack Assembly, Sector 4, Project 17-006

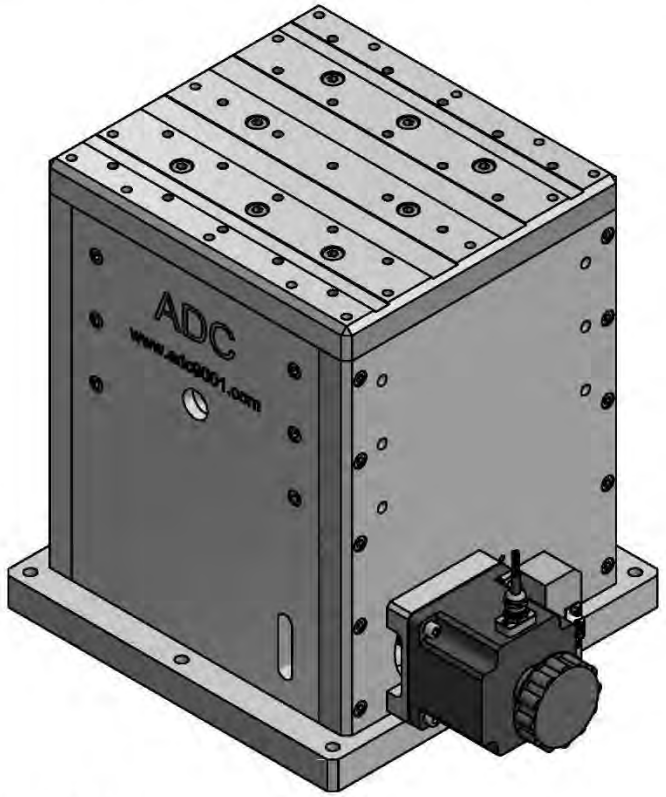
Part Number	Risk	Revision	Size	Sheet
00030056	D2/S0	0	A2	


26x Ø6,75 - 22,2 DEEP
M8x1.25 - 6H ↧ 16
8x Ø9 THRU from top
⌴ Ø15 ↧ 70
6x Ø5 - 17,1 DEEP
M6x1 - 6H ↧ 12
25 [.984] TYP
250 [9.843]
280 [11.024]
96 [3.78]
36x Ø6,75 - 16 DEEP
M8x1.25 - 6H ↧ 12
□250 [9.843]
25 [.984] TYP
400 [15.748]
RAIL RADIUS
433 [17.047]
TO ROTATION CENTER
565,92 [22.28]
Notes:
- Travel ± 7˚
- Weight Capacity 6,6 kN [1500 lb] (centered)
- Torque Capacity 203 N*m [150 lb*ft]
- Standard Connector DB-9 (others available upon request)
- Encoder Resolution 0,1um
First Angle Projection
All dimensions are mm [in]
inch dimensions are reference
Material
Protective Finish
None
Purchased Part Modification
No
Approximate Mass
29.8 kg [65.5 lbs]
Drawing Standard: ANSI Y14.5M-1994
Date
Drawn By
B Stoyell
2017-08-29
Design by
T Shea
2017-08-23
UNLESS OTHERWISE SPECIFIED
All Dimensions BASIC
N7 machined surfaces
0.13
0,38
0,25 A B C
0,25 A B C
ADC Inc.
126 Ridge Road
Lansing, NY 14882
Phone: 607.533.3531 / Fax: 607.533.3618
E-mail: adc@adc9001.com / Web: www.adc9001.com
ISO 9001:2008 Certified
TS400 Stage
Part Number
00030005
Risk
D0/S0
Revision
1
Size
A2
Sheet







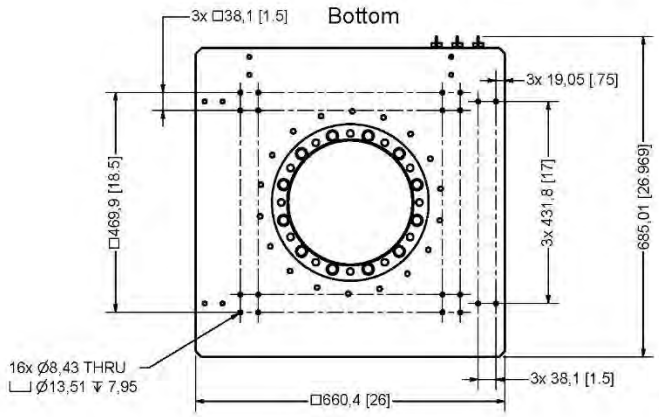


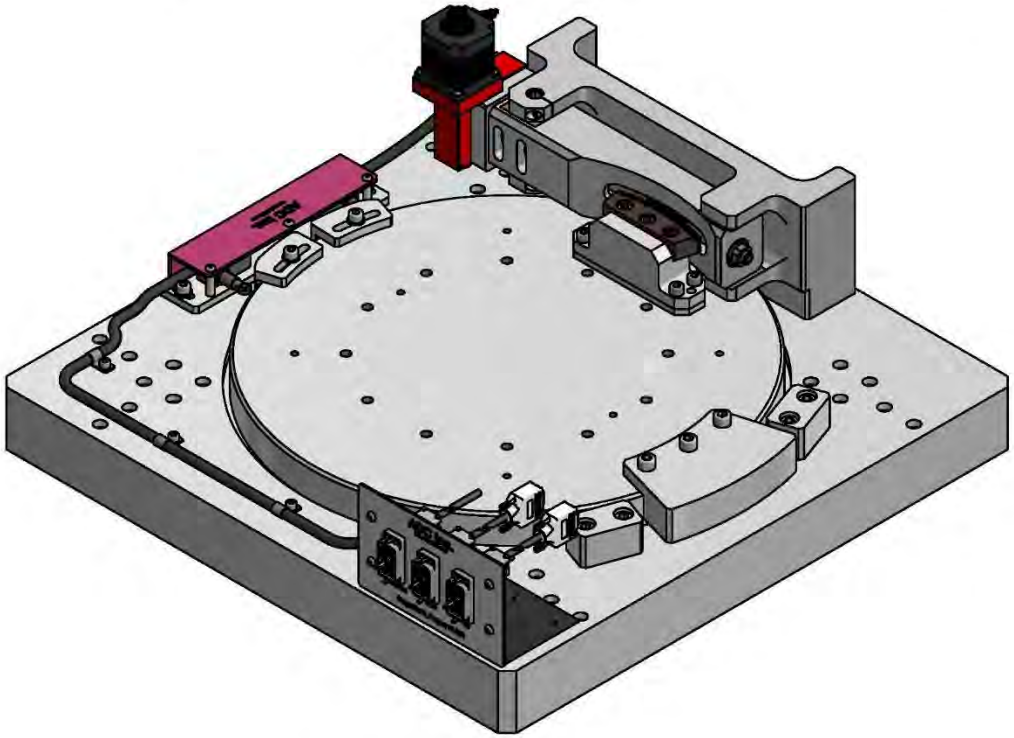
Notes:

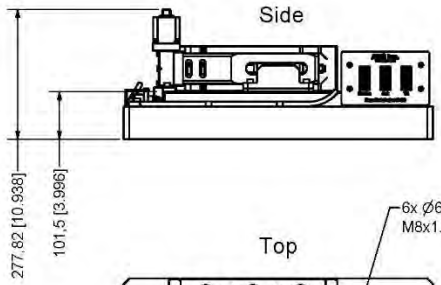
- Travel: 20 mm [.75 in]
- Load Capacity: 125 kg [275 lb] at 0.4 mm/s with motor as shown
- Resolution: 1,3 um / step with 1.8° stepper motor
- Standard Connector: DB-9 (others available on request)
- Encoder Resolution: 0.1 um

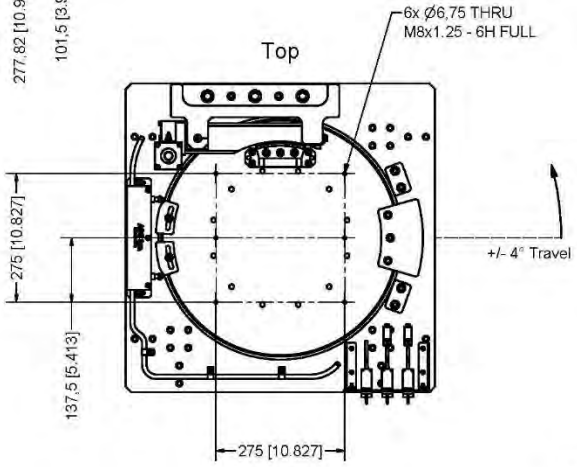
First Angle Projection All dimensions are mm [in] inch dimensions are reference	Drawing Standard: ANSI Y14.5M-1994	Date	ADC Inc. 126 Ridge Road Lansing, NY 14882 Phone: 607.533.3631 / Fax: 607.533.3618 E-mail: adc@adc9001.com / Web: www.adc9001.com ISO 9001:2000 Certified
	Drawn By: B Hoza	2016-05-11	
	Design By: B Hoza	2016-04-22	
Material:	Protective Finish: None		BJ25-20-IE Assembly
UNLESS OTHERWISE SPECIFIED: All Dimensions BASIC N7 machined surfaces 0,13 / 0,38 ⌖ 0,25 A B C ⏥ 0,25 A B C			Part Number: 00028424 · Rev: D1/S1 · Revision: 2 · Size: A2 · Sheet:

Purchased Part Modification: No









Notes:

Travel Range: +/- 4°

Resolution: 5 micro-radian / step with 1.8° stepper motor

Gear Ratio: 320:1 main worm drive, 20:1 reduction at motor

Load Capacity: 2 tons (1800 kg, 4000 lb)

First Angle Projection
All dimensions are mm [in]
Inch dimensions are reference

Material	Protective Finish: None	Drawing Standard: ANSI Y14.5M-1994		Date
		Drawn By	T Shea	2017-08-28
Purchased Part Modification: No	Approximate Mass: 110.8 kg [243.8 lbs]	Design By	T Shea	2017-08-03

UNLESS OTHERWISE SPECIFIED:
All Dimensions BASIC
N7 machined surfaces
0,13 / 0,38
0,25 A B C
0,25 A B C

ADC Inc.
126 Ridge Road
Lansing, NY 14882
Phone: 607 533 3531 / Fax: 607 533 3619
E-mail: adc@adc9001.com / Web: www.adc9001.com

ISO 9001:2008 Certified

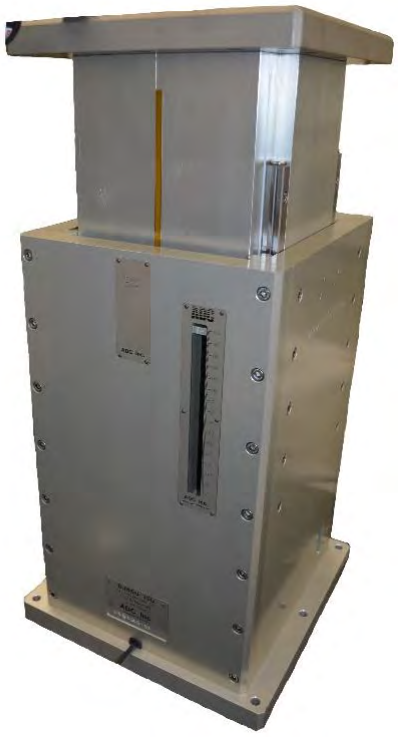
Rotation Stage Assembly, 16 in Stage, 26 in Base

Part Number	Risk	Revision	Size	Sheet
00030019	D2/S1	1	A2	

High Precision Vertical Jack

Customer:

National Institute of STDS and TECH
100 Bureau Drive
Building 310
Gaithersburg MD< 20899-1640

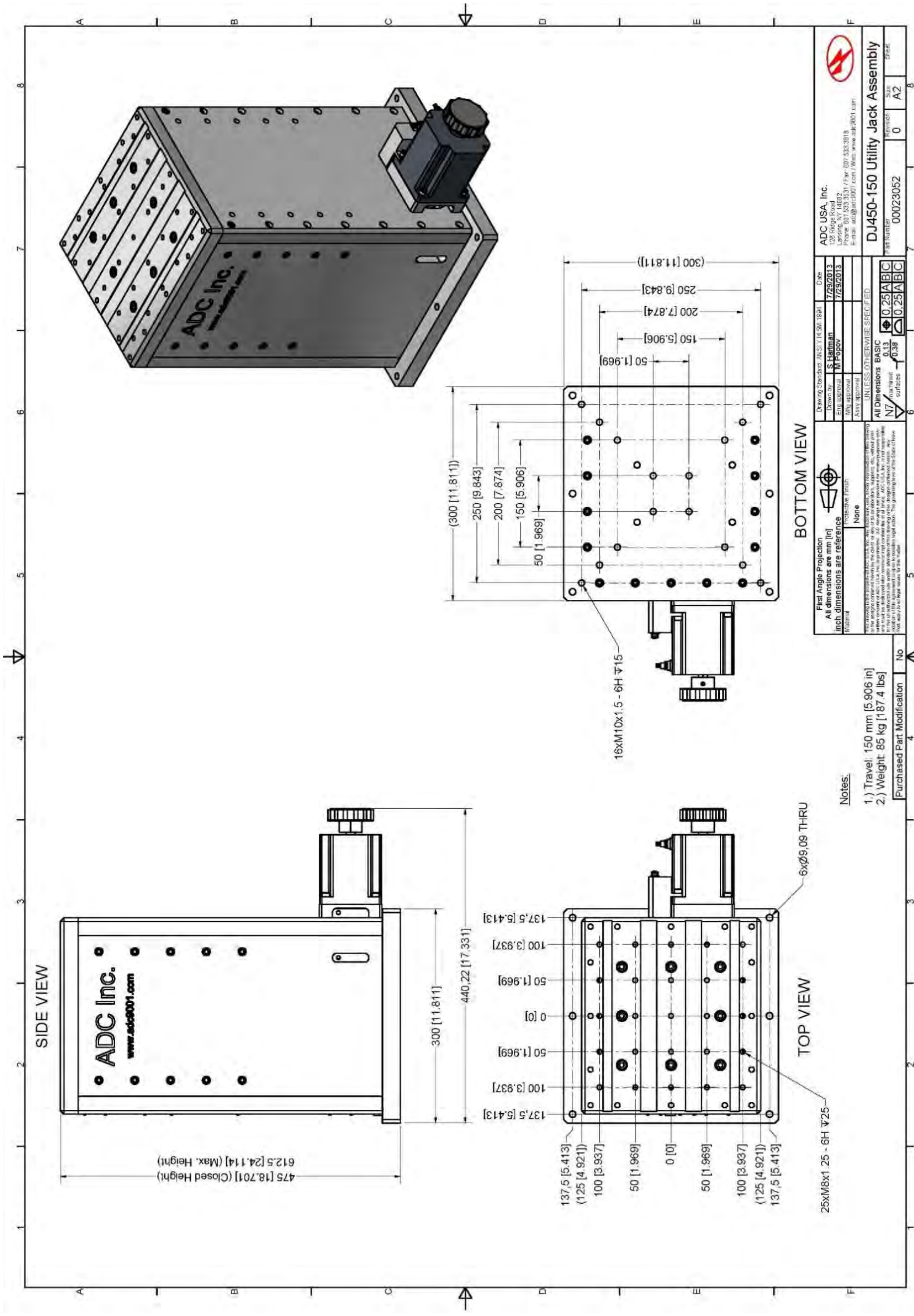


A system was designed for NIST that allows for vertical axis positioning for a 10 kN [~2250 lbf] load. The jack is equipped with four sets of cross-roller bearings with a worm drive screw in the center.

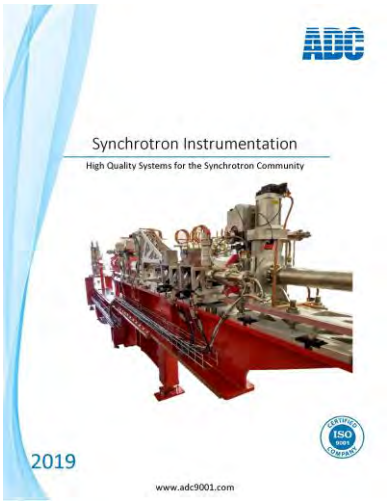
The vertical trajectory straightness deviates by only microns during its travel.

Key Specifications:

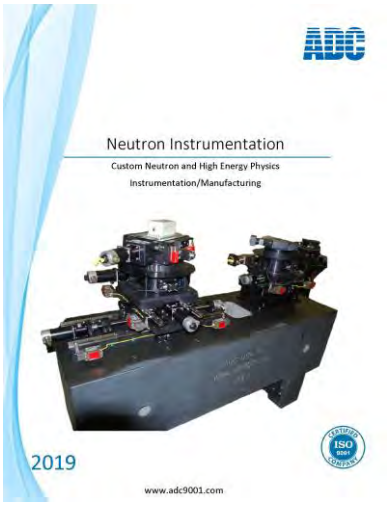
Description	Value	Units
Range of Motion	150 [~6]	mm [“]
Resolution (unit/step)	~0.001041667	mm/step
Minimum dynamic load capacity	10	kN
Weight	85 [188]	Kg [lbs]
Encoder Manuf.	Renishaw	-
Encoder Resolution	0.1	µm


SIDE VIEW
ADC Inc.
www.adc9001.com
475 [18.701] (Closed Height)
612.5 [24.114] (Max. Height)
300 [11.811]
440.22 [17.331]
TOP VIEW
6xØ9.09 THRU
25xM8x1.25 - 6H ⧗25
BOTTOM VIEW
16xM10x1.5 - 6H ⧗15
Notes:
1.) Travel: 150 mm [5.906 in]
2.) Weight: 85 kg [187.4 lbs]
Purchased Part Modification
First Angle Projection
All dimensions are mm [in]
inch dimensions are reference
Drawn by S Hartman 7/29/2013
Eng approval M Popov 7/29/2013
ADC USA, Inc.
DJ450-150 Utility Jack Assembly
Part Number 00023052
Revision 0
Size A2

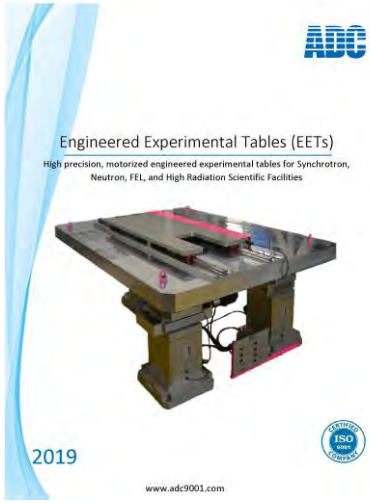
For more information on ADC's products, go to adc9001.com to download all of ADC's catalogs.



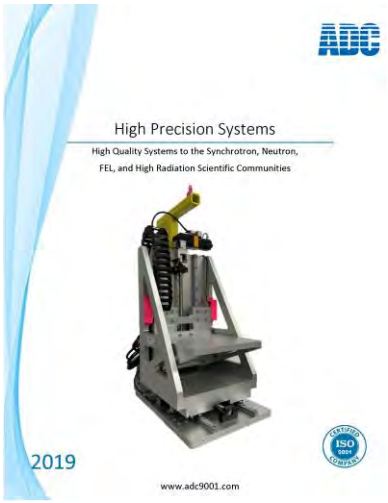
Synchrotron Instrumentation



Neutron Instrumentation



High Precision Engineered Experimental Tables



High Precision Systems

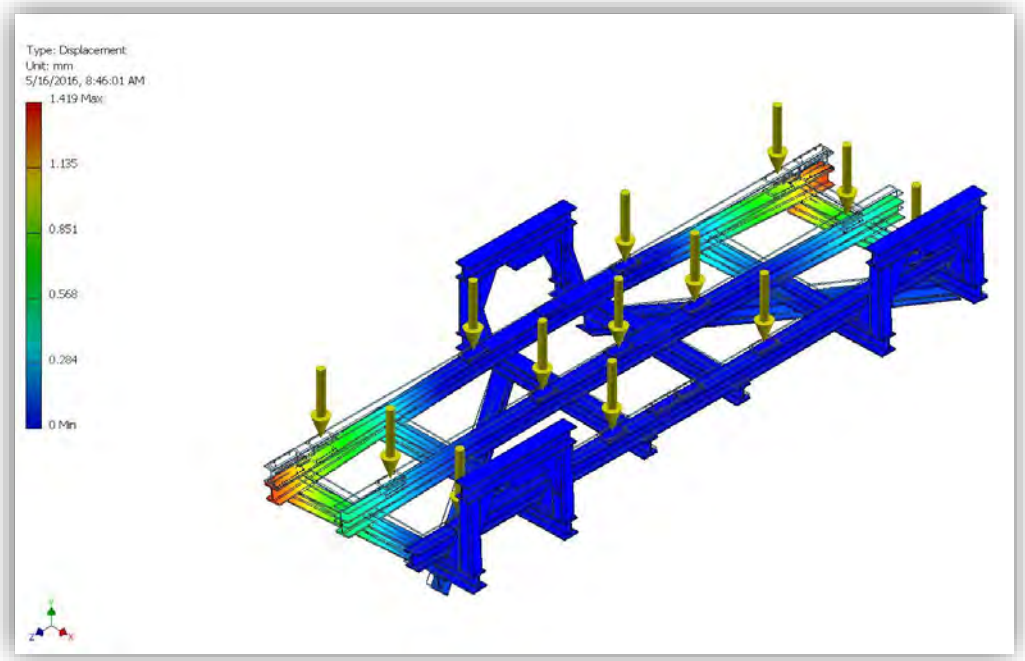
High Precision Slits

Company Capabilities

Engineering Design and Analysis

The Engineering Design and Analysis group is a multi-disciplinary team of engineers with unique training and creativity, and dedication to meeting the needs of our customers. ADC uses the latest computational and graphics software and hardware to approach the most challenging problems in the Aerospace, Automotive, Nuclear, Ultra-High Vacuum, Automated Machinery, Electro-Optical Products, synchrotron, high energy physics, and neutron diffraction communities.

- Finite Element Analysis
- Magnetic Design
- Optics Design
- Conceptual Design
- Materials Selection
- Tooling Design
- Fabrication Specifications
- Virtual Prototyping
- Design Analysis and Optimization
- Detailed Design
- Component Design



Electronics, Instrumentation and Software

ADC has several electrical/software engineers and techs capable of providing custom circuit design and complete turn-key control systems. Some of our skills include integrated PLC design and programming, analog and digital circuit design, logic design (including PLA and FPGA programming), stepper and servo motor applications, microprocessor, RFID, serial and RF communications, and system controllers. The standard motor controls and driver that we offer is the Aerotech Ensemble™ series controllers. However, many of our customers have requirements for custom integration of these components into a functioning system, fully debugged, documented, and ready for operation. Software skills and development platforms include Microsoft Visual C++, LabView, EPICS, Visual Basic, CNC, and generic PLC (AB, NAIS, GE-Fanuc, Schneider, etc.) and Parker ACR and Accroloop. Our primary skill, however, is the integration of these components into a functioning system, fully debugged, documented, and ready for operation.

Vacuum Assembly & Testing

ADC is well equipped to handle any stand-alone fabrication and machining requirement. It is often the integration of these talents, combined with higher level assembly and testing, that brings the value added our customers demand. We have developed processes and employ qualified personnel and systems that allow ADC to assemble and test to challenging requirements. Examples include state-of-the-art, high-resolution, extreme-ultraviolet-light (EUV) microscope making measurements in Nano range for Lawrence Berkeley National Laboratory (LBNL); 26 tone, 20-meter-long, 2.3 meter in diameter complex Time-of-Flight Small Angle Neutron Scattering (ToF SANS) instrument for ANSTO, Australia; and Jefferson Lab 12 GeV Upgrade Cavity Parts Project.

ADC utilizes some of the most advanced measurement equipment available to control the requirements that our customer's complex projects require. This is accomplished through the use of Coordinate Measuring Machines (CMM's) equipped with model-based inspection software, providing us with the ability to verify results using customer supplied CAD models, Elcomat 3000 Autocolimator, and Keyence Optical non-contact Micrometer.

Advanced Manufacturing

ADC provides machining systems and products to our diverse customers from structural metal fabrication to turn key design products with complex control systems. ADC is fully equipped with a CNC precision machine shop; and over the past 4 years our unique ability to fabricate/provide parts for precision vacuum machining equipment has grown immensely. Our process begins with providing quotes, which we prepare, based on specific drawing requirements given to us by the customer.

The following are views of ADC manufacturing and major assembly areas.

Equipment

We use precision equipment to verify each order and are committed to delivering precision machined parts. We are very proud of our shop and the capabilities we can offer because of our state-of-the-art precision CNC milling and CNC turning machines. Equipment used for inspections include a Brown & Sharpe CMM, a Jones & Lamson Optical Comparator, and an extensive selection of gauges. We ensure calibrations are performed and are traceable to meet our standards. Our inspection room is temperature controlled to enable the utmost accuracy and consistency in measurements. We can provide a Certificate of Conformance for all processes as required. These are stored electronically and attached to each job for future reference.

CLAUSING CSG-1224 ASDII SURFACE GRINDER, s/n E1TAJ0079, w/PLC Control, Magnetic Chuck

ADC's precision grinder CSG-1224 is especially suitable for heavy duty grinding. The large spindle is supported by four ball bearings to allow for durability.

Welding Capabilities

At ADC, we offer full service custom metal fabrication which includes welding services for short and long production run jobs. Our extensive welding capabilities utilize both robotic welding and manual welding in MIG and TIG and mesh welding for wire products. We are experienced in welding aluminum, carbon steel, and stainless-steel materials. We also have complete resistance welding, also known as spot welding capabilities. Our unique welding shop supports our custom metal fabrication process.

The welding services at ADC support our full-service fabrication process with capabilities including:

- Resistance Welding / Spot Welding
- Gas Metal Arc Welding (GMAW) / Metal Inert Gas (MIG Welding) - This semi-automatic or automatic process uses a continuous wire feed.
- Gas Tungsten Arc Welding (GTAW) / Tungsten Inert Gas (TIG Welding) - A manual welding process that is extremely precise, especially useful for welding thin materials.
- Mesh Welding - electric flash butt welding where the two wires are pressed together, and the electric current is activated

Benefits of TIG Welding

- Superior quality welds
- Welds can be made with or without filler metal
- Precise control of welding variables (heat)
- Free of spatter
- Low distortion

Benefits of MIG Welding

- All position capability
- Higher deposition rates than SMAW
- Less operator skill required
- Long welds can be made without starts and stops
- Minimal post weld cleaning is required

Benefits of Mesh Welding

- wires resist movement
- it is much faster than traditional welding
- it is a high-quality low-cost spot-welding solution

ADC's Service and Support

ADC takes new approaches to shorten assembly and commissioning times. We create modular construction units which can be installed cost-effectively and extended easily when needed. Our customers can count-on ADC's continued service support after the commissioning stage.

Through intensive technical training sessions and our policy of involving customer personnel at an early stage, we can assure seamless and rapid familiarization with our new technologies. This approach has meant that, in many major projects, our customers have been able to operate their equipment independently and to their satisfaction within a very short period.

ADC Customer Service team provides installation, installation supervision, after sales support and service, troubleshooting and remote diagnostics. We believe that success is in the details and this philosophy delivers high customer satisfaction and instills a strong sense of loyalty. Our friendly and courteous customer service staff is always available for questions and order placement for the key replacement parts to keep ADCs systems running at peak efficiency. Whether it is a small replacement part or a new component, we are committed to the fastest resolution to customer needs.

ADC is uniquely positioned and invested in providing exceptional after-sales support. Available support and services including:

- Installation and start-up
- Service and repair – factory / service center / or onboard
- Service contracts
- Troubleshooting assistance over the phone
- Engineering and technical sales assistance
- Upgrade and retrofit parts and programs
- Spare and replacement parts
- Tailored factory and on-board training
- On-board system and spares analysis

ISO 9001:2015

BUREAU VERITAS
Certification

ADVANCED DESIGN CONSULTING USA, INC.

126 RIDGE RD
LANSING, NY 14882 USA

Bureau Veritas Certification Holding SAS – UK Branch certifies that the Management System of the above organization has been audited and found to be in accordance with the requirements of the management system standards detailed below

ISO 9001:2015

Scope of certification

DESIGN, MANUFACTURE, AND DELIVERY OF DEVICES, INTEGRATED SYSTEMS, COMPONENTS AND INSTRUMENTS FOR COMMERCIAL, ACADEMIC, AND GOVERNMENT AGENCIES

Original cycle start date: **31 December 2014**

Certification / Recertification cycle start date: **31 December 2017**

Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on: **30 December 2020**

Certificate No. ***US010798*** Version: **1**

Signed on behalf BVCH SAS – UK Branch

Certification body address: 5th Floor, 66 Prescot Street, London E1 8HG, United Kingdom
Local office: 16800 Greenspoint Park Drive, Suite 300S, Houston, TX 77060

Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organization. To check this certificate validity please call: +(800) 937-9311

UKAS MANAGEMENT SYSTEMS
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