Direct-Drive Gimbals

AMG

Smooth, Stable Pointing, Tracking & Simulation

Our AMG-series motorized gimbals deliver the smoothest, most stable and precise rotary motion in an elevation-over-azimuth format. Harnessing the power of direct-drive motor technology and high-resolution position feedback, AMG gimbals provide maximum performance and reliability for defense, industrial and R&D applications. Plus, we can provide as much or as little customization as you need. Whether your application involves tracking a target, steering a beam, pointing an optic or antenna, or simulating complex motion, AMG gimbals are the preferred choice for professionals who demand the highest levels of precision, stability and reliability without compromise.

Key Applications

AMG direct-drive gimbals are extremely precise and robust, making them ideal for high-performance pointing, tracking and motion simulation applications, such as:

- Missile seeker testing & calibration
- Electro-optical sensor testing
- Airborne target tracking
- Motion simulation
- Inertial sensor testing, including gyroscopes, accelerometers & other MEMS devices
- Inertial navigation system testing & qualification
- Optical testing of space-based sensors in vacuum
- Pointing of optics, lasers, antennas & more
- Integration into gimbal systems

KEY FEATURES:

- Provides **CONTINUOUS 360° ROTATION** in both azimuth & elevation
- Accommodates **PAYLOADS UP TO 600 mm** diameter
- **ULTRA-PRECISE POSITIONING** & **SMOOTH TRACKING** thanks to high-resolution encoder feedback
- Ironless direct-drive motors provide **OUTSTANDING VELOCITY STABILITY** & **LONG-TERM RELIABILITY**
- **CUSTOMIZABLE DESIGN** to suit your application, including special payload cells, yokes, travel range, environmental conditions & more

AMG SERIES SPECIFICATIONS

Basic Model		AMG200	AMG300	AMG400	AMG500	AMG600
Travel		360° continous, AZ/EL				
Maximum Bus Voltage		340 VDC				
Maximum Torque (Continuous)	**Azimuth**	2.36 N·m	11.12 N·m	11.12 N·m	19.71 N·m	19.71 N·m
	Elevation	2.36 N·m	2.36 N·m	2.36 N·m	11.12 N·m	11.12 N·m
Clear Aperture Diameter[1]		194 mm	292 mm	394 mm	489 mm	591 mm
Accuracy		±24 to ±144 µrad[2] (±5 to ±30 arc sec)				
Repeatability		±2.4 µrad (±0.5 arc sec)				
Maximum Rotary Speed[3]		100 rpm	100 rpm	100 rpm	50 rpm	50 rpm
Maximum Load Capability		20 kg	40 kg	40 kg	70 kg	70 kg
Axis Wobble		48 µrad (10 arc sec)				
Orthogonality		24 µrad (5 arc sec)				
Standard Finish		Black Anodize with Hard-Coated Cell				
Max Component Diameter[4]		206 mm	306 mm	407 mm	509 mm	610 mm
Nomincal Component Thickness		41 mm	54 mm	64 mm	95 mm	102 mm
Mass (Without Mirror)		29 kg	47 kg	54 kg	116 kg	137 kg
Inertia AZ[5]		0.97 kg·m$_2$	1.877 kg·m$_2$	2.71 kg·m$_2$	10.4 kg·m$_2$	14.94 kg·m$_2$
Intertia EL[5]		0.019 kg·m$_2$	0.105 kg·m$_2$	0.27 kg·m$_2$	0.974 kg·m$_2$	2.33 kg·m$_2$

Notes:
1. Special cell adapters and slip ring assemblies by special order.
2. ±24 µrad calibrated; ±144 µrad uncalibrated.
3. Maximum speed based on stage capability; maximum application velocity may be limited by system data rate and sytem resolution.
4. Tolerance equals +0/-0.25.
5. Unloaded inertia.

AMG ENCODER FEEDBACK DETAILS

Model	Feedback	Azimuth	Elevation
AMG200	-E4 -E5 -E6	14,452 lines/rev 4.48 arc sec 0.45 arc sec	14,452 lines/rev 4.48 arc sec 0.45 arc sec
AMG300 **AMG400**	-E4 -E5 -E6	22,304 lines/rev 2.91 arc sec 0.29 arc sec	14,452 lines/rev 4.48 arc sec 0.45 arc sec
AMG500 **AMG600**	-E4 -E5 -E6	22,304 lines/rev 2.91 arc sec 0.29 arc sec	22,304 lines/rev 2.91 arc sec 0.29 arc sec

AMG SERIES ORDERING OPTIONS

AMG Series Direct-Drive Gimbals

AMG200	AMG200 direct-drive gimbal, 200 mm nominal aperture
AMG300	AMG300 direct-drive gimbal, 300 mm nominal aperture
AMG400	AMG400 direct-drive gimbal, 400 mm nominal aperture
AMG500	AMG500 direct-drive gimbal, 500 mm nominal aperture
AMG600	AMG600 direct-drive gimbal, 600 mm nominal aperture

Feedback (Required)

-E4	Incremental encoder, 1 Vpp
-E5	Incremental encoder, digital RS422
-E6	Incremental encoder, digital RS422, high resolution

Metrology (Required)

-PL1	Metrology, uncalibrated with performance plots
-PL2	Metrology, calibrated (HALAR) wtih performance plots

Integration (Required)

Aerotech offers both standard and custom integration services to help you get your system fully operational as quickly as possible. The following standard integration options are available for this system. Please consult Aerotech if you are unsure what level of integration is required, or if you desire custom integration support with your system.

-TAS **Integration - Test as system**

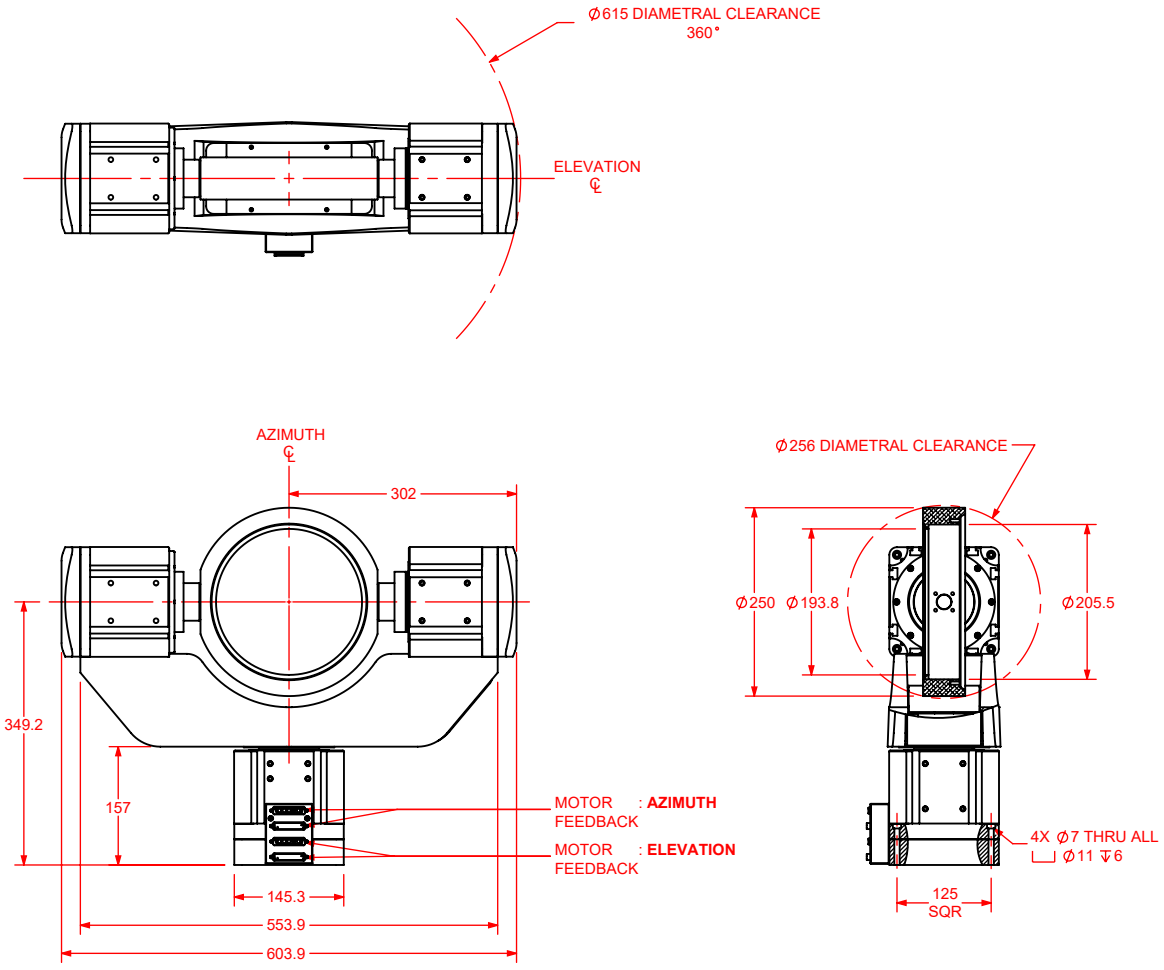
Testing, integration, and documentation of a group of components as a complete system that will be used together (ex: drive, controller, and stage). This includes parameter file generation, system tuning, and documentation of the system configuration.

-TAC **Integration - Test as components**

Testing and integration of individual items as discrete components that ship together. This is typically used for spare parts, replacement parts, or items that will not be used together. These components may or may not be part of a larger system.

AMG DIMENSIONS

AMG200

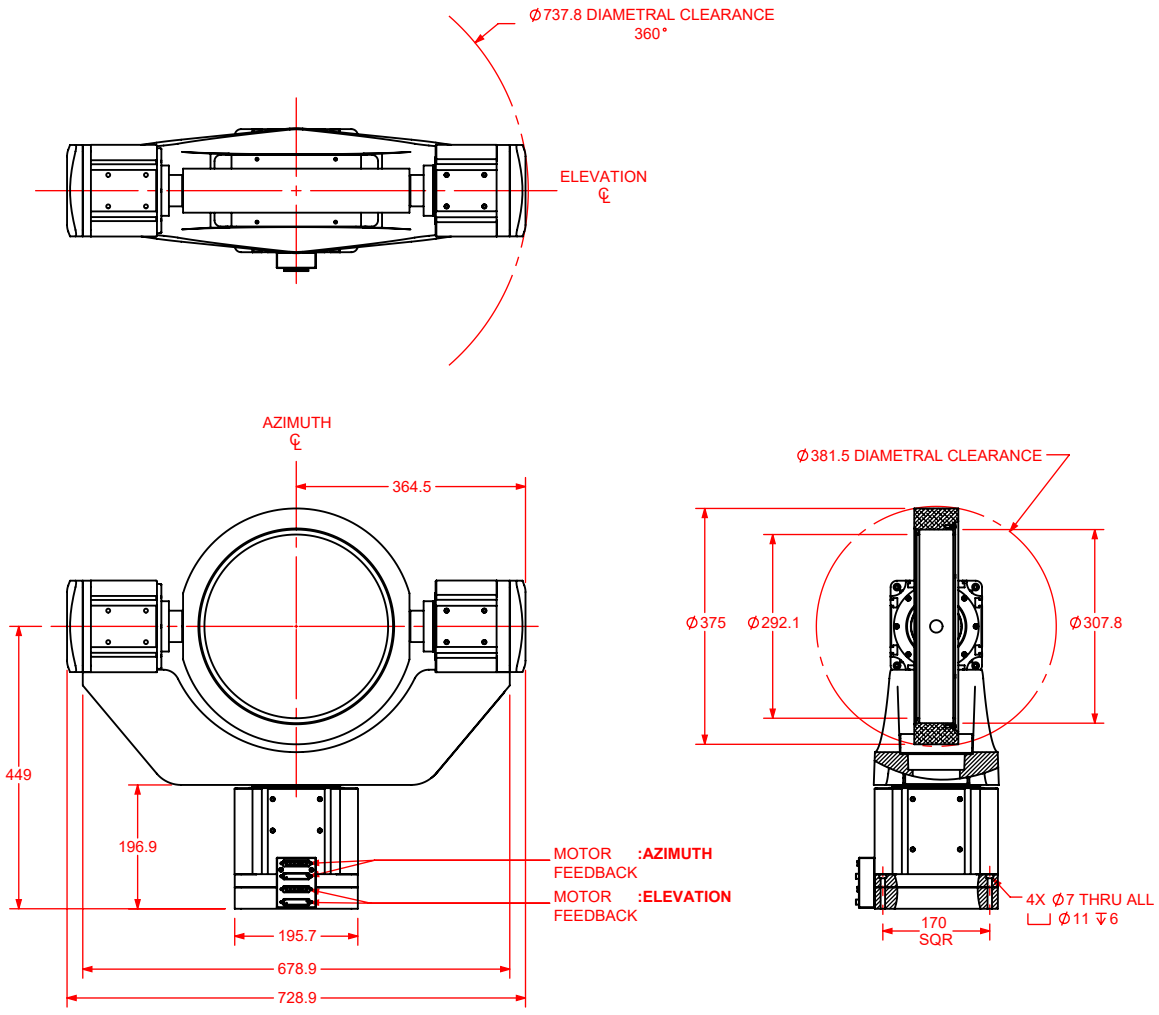


NOTE - THIS PRODUCT IS EXPORT CONTROLLED: ECCN 2B120

DIMENSIONS: MILLIMETERS

AMG DIMENSIONS

AMG300

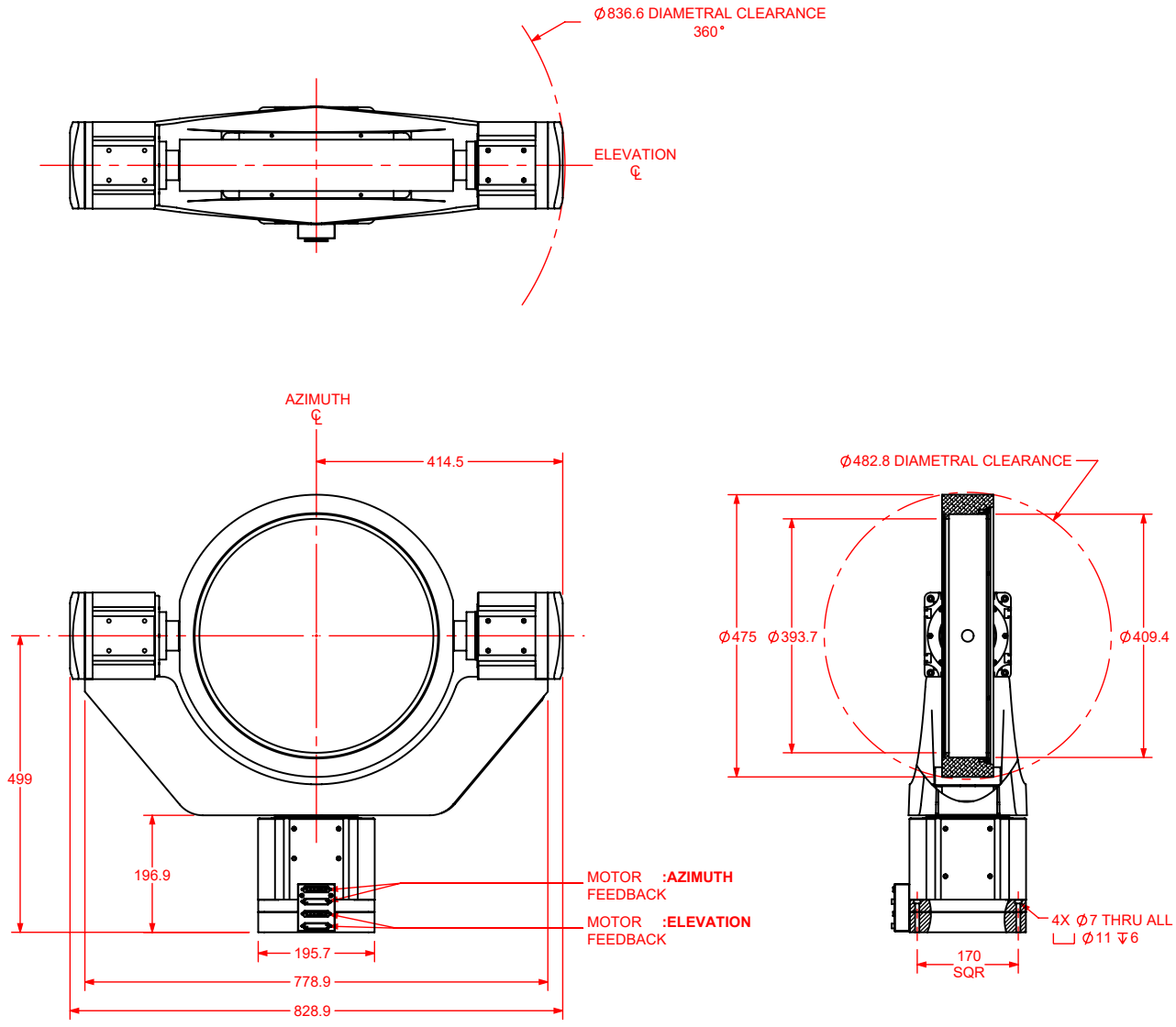


NOTE - THIS PRODUCT IS EXPORT CONTROLLED: ECCN 2B120

DIMENSIONS: MILLIMETERS

AMG DIMENSIONS

AMG400

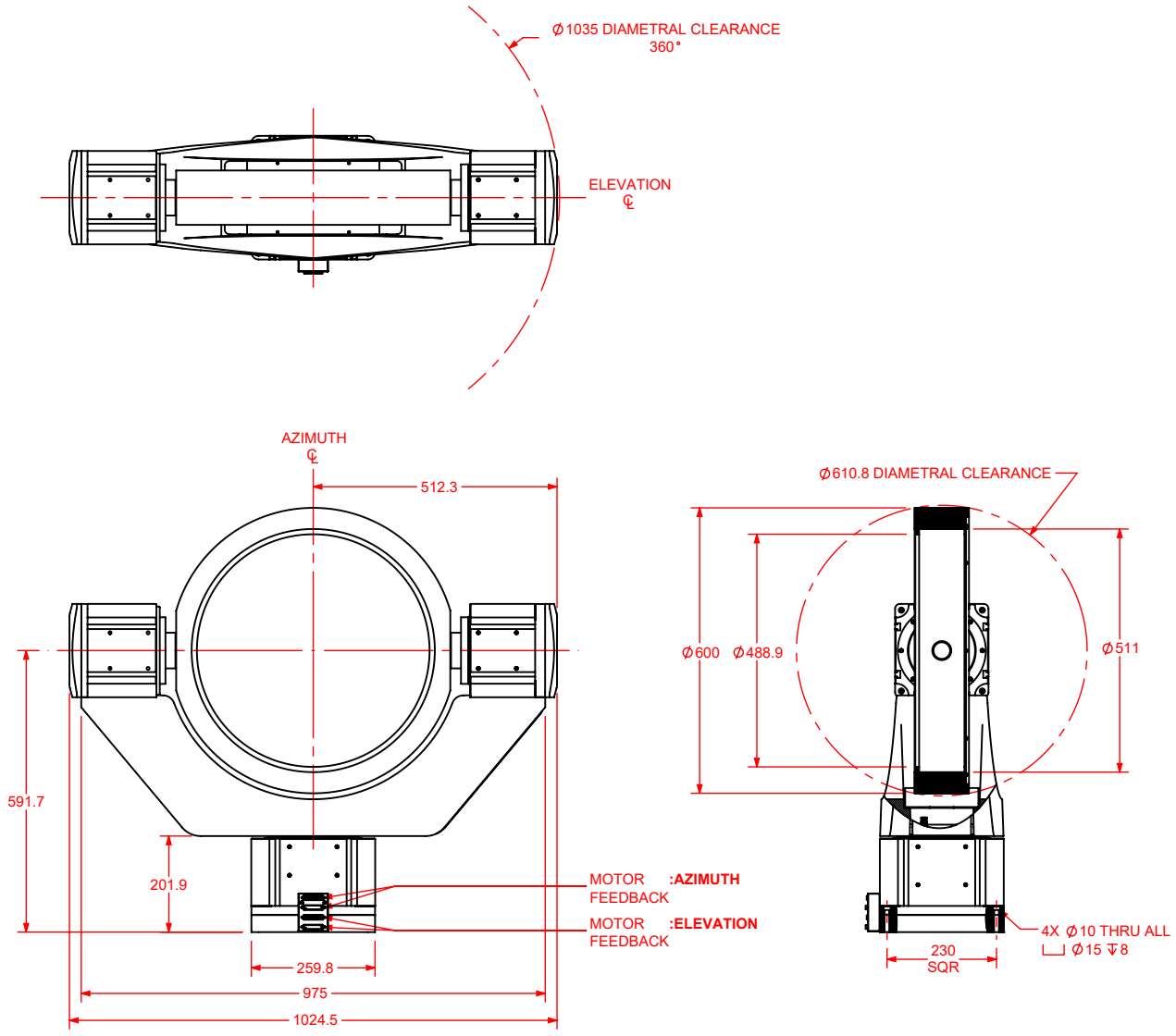


NOTE - THIS PRODUCT IS EXPORT CONTROLLED: ECCN 2B120

DIMENSIONS: MILLIMETERS

AMG DIMENSIONS

AMG500

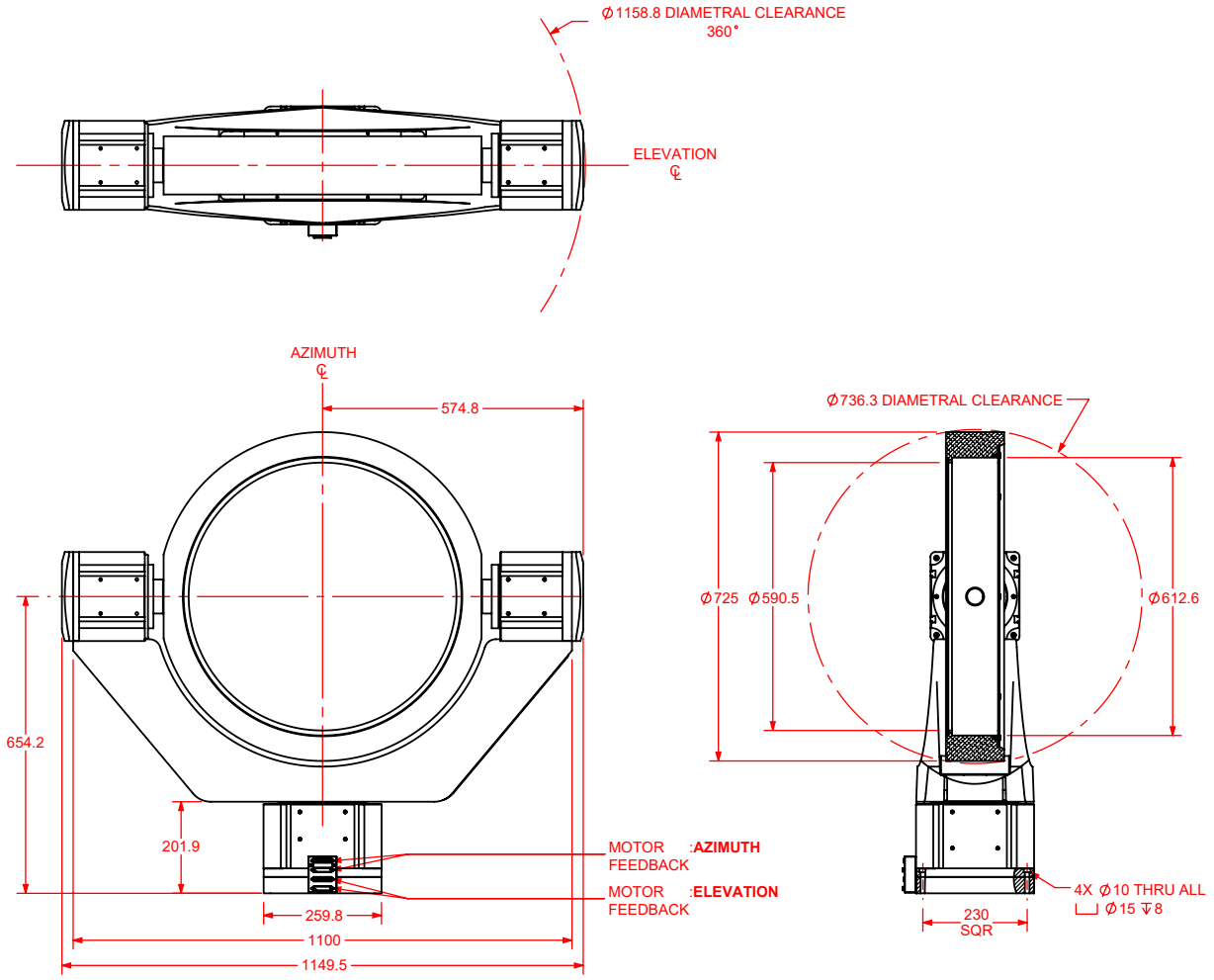


NOTE - THIS PRODUCT IS EXPORT CONTROLLED: ECCN 2B120

DIMENSIONS: MILLIMETERS

AMG DIMENSIONS

AMG600



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DIMENSIONS: MILLIMETERS