

9.1 Meter ESA

The Kratos 9.1 Meter Earth Station Antenna gives you high-performance in C-, X-, Ku- or K-band geostationary satellite applications. This earth station antenna provides superior performance through the use of precision stretch-formed reflector panels and a dual-shaped Cassegrain feed. Corrugated conical feed horns ensure excellent antenna gain and sidelobe performance.

Forty-eight high-strength aluminum panels are durable enough to withstand rough handling and a range of environmental conditions. Antenna panels mount to radial trusses attached to a central hub. The hub also provides a protective enclosure for sensitive electronics. The high-strength structural steel mount employs an elevation over azimuth geometry for easy pointing to any satellite within the visible orbital arc. The mount's stiff, rugged construction provides pointing accuracy for continuous operation, even under adverse wind conditions.

This antenna includes a TORQUETUBE™ mount with continuous 120° of motorized azimuth coverage in three overlapping sectors.



Features

- High-efficiency shaped Cassegrain optics
- Use with C-, X-, Ku or K-band systems
- Precision high-strength structural steel TORQUETUBE™ mount
- 170° continuous azimuth coverage option
- Full line of feed, reflector, and mount options available including TT&C pointing upgrade
- CE compliant

Compliance

ITU-R S.580-6, 465-6, 732-1	C, X, Ku, K Band
US FCC 25.209	C, X, Ku, K Band
Intelsat	F-3
Eutelsat	
Asiasat	

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Design Standards

Reflector	Aluminum painted with highly diffusive white paint
Ground Mount	Hot-dipped galvanized steel, per ASTM-A123 for structural steel.
Hardware	Sizes \leq 3/8 in (9.5mm), stainless steel, passivated per MIL-F-14072-E300 Sizes \geq 3/8 in (9.5mm), hot-dipped galvanized stainless steel, passivated per ASTM-A123

Environmental Performances

Operating Temperature	-40° to 65°C (-40° to 150°F)
Seismic (Earthquake)	1 G Vertical and Horizontal acceleration. Equivalent to a Richter Magnitude 8.3, and Grade 11 on the modified Mercalli Scale
Operational Winds	45mph (72km/h) Gusting to 65mph (105km/h)
Drive-to-stow	90 mph (145 km/h)
Survival Winds	100 mph (161 km/h) any position; 125 mph (201 km/h) stowed
Rain	4 in (102 mm) per hour
Solar Radiation	360 BTU/hr/ft ² (1135 Watts/m ²)
Relative Humidity	100%
Shock and Vibration	As encountered by commercial Air, Rail and Truck shipment.
Atmospheric Conditions	As encountered by Moderately Corrosive Coastal and Industrial Areas.

Mechanical Performances

The 9.1m Antenna mechanical general specifications and performances are listed in below table. Additional information, dimensions and layout may be provided by Kratos on a case-by-case basis.

Optics Type	Dual reflector, shaped axi-symmetric
Reflector Material	Precision-Formed Aluminum
Reflector Segments	48
Mount Type	EI over Az

Antenna Pointing Range Coarse/(Continuous)

Elevation:	0-90° (90°) (NOMINAL)
Azimuth:	160° in 3 overlapping 120° sectors Optional 170° continuous (NOMINAL)
Polarization	180° (180°)

Hub/Enclosure External Dimensions

Diameter	74 in (1.87 m)
Depth	37 in (0.94 m)

Shipping Information

Packing Options

Standard Commercial Domestic Pack	Included
Ocean Export Pack - For non-containerized, packed for seal against salt water spray	OCEANSHP-LG
Air Export Pack - For freighter aircraft shipments. Lower deck AirPack requires specialized bids	AIR EXPORT PACK-LG
Container Packaging	CNTPCK-LG

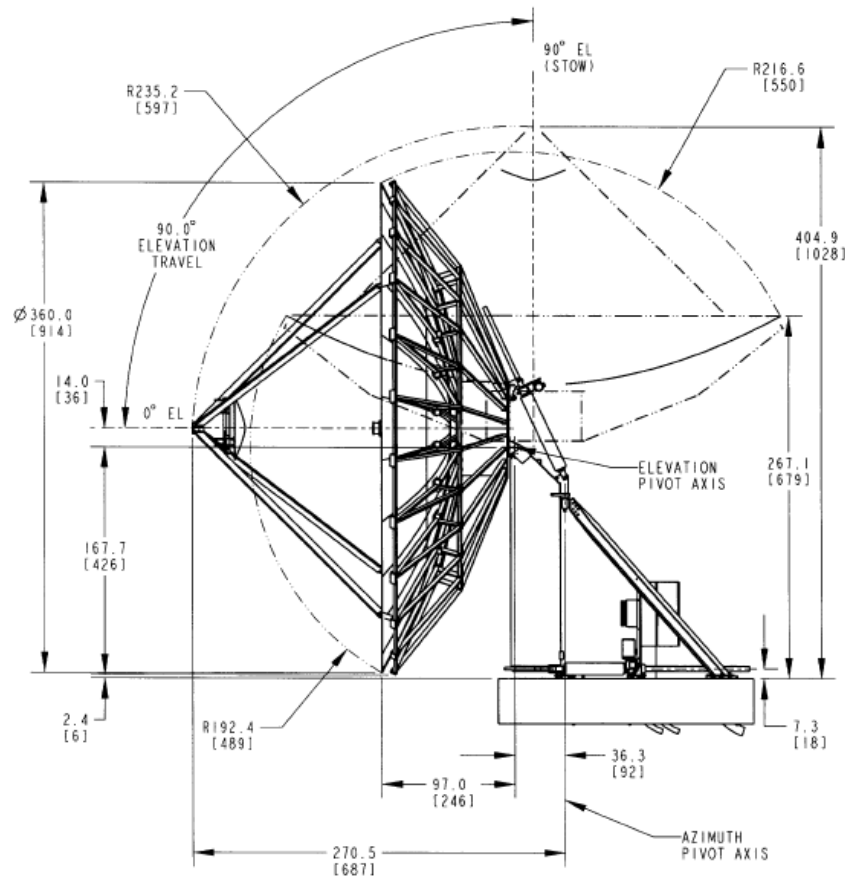
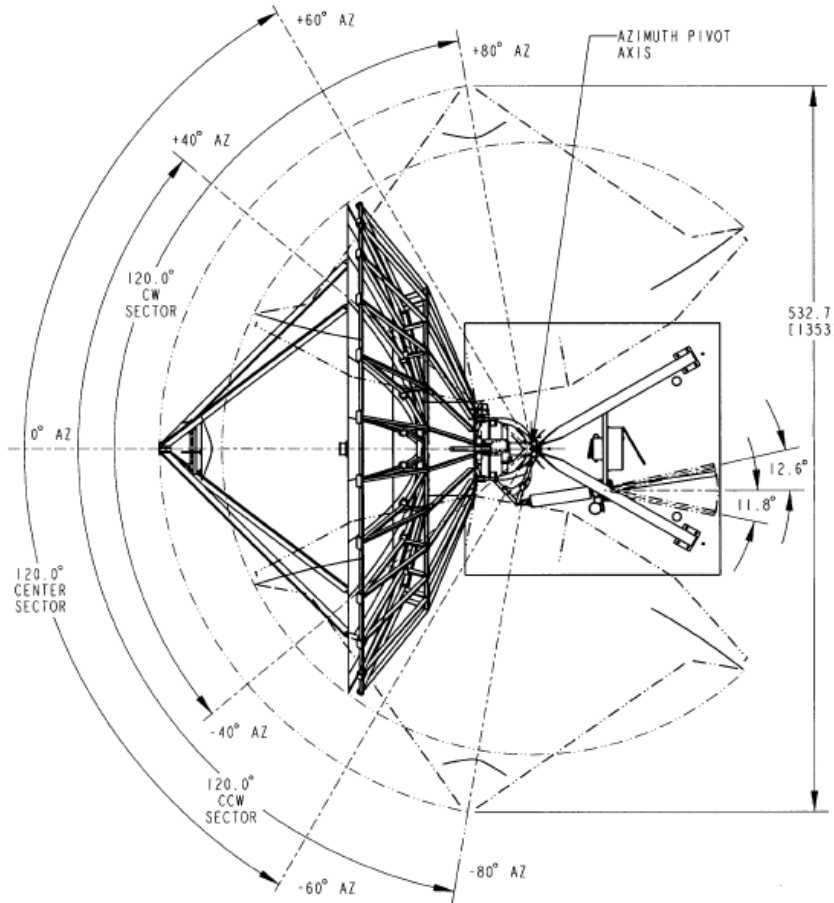
Required Shipping Container

Standard 20 ft land/sea container	contact Kratos
Standard 40 ft land/sea container	contact Kratos

Shipping container information is given for basic configuration and may vary depending on the selected options, please contact Kratos for specific container loading plan.

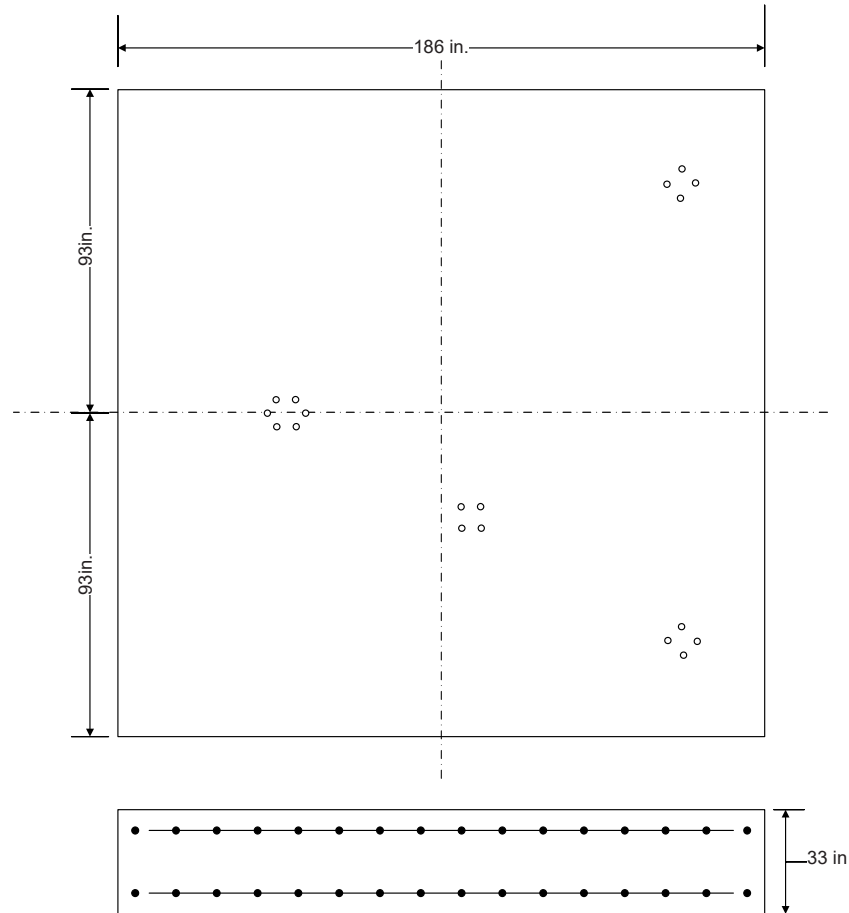
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Dimensional Drawings



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Typical 120deg Foundation Design



Soil Bearing Capacity,	not less than 2,000 lb. per sq. foot [96 kPa]
Reinforcing Steel,	
Concrete Compressive Strength,	3000 lb. per sq. inch [20685 kPa]
Foundation Size:	
Length	186 in (4.7 m)
Width	186 in (4.7 m)
Depth	33 in (0.84 m)
Concrete Volume	23.6 yd ³ (18.6 m ³)
NOTE: Other typical foundation designs are available. Soil borings and foundation analysis should be performed by a qualified civil engineer.	

Foundation information are provided in specific bulletin, please contact Kratos.

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Motor Drive Speed Summary

	Variable	
Azimuth	0.05°/s	0.2°/s
Elevation	0.05°/s	0.2°/s
Polarization	1°/s	

Maximum achievable speed, may vary depending on antenna configuration, please contact Kratos

Motorization

One motorization system is available for this antenna: the NGC tracking system that can support Steptrack, Smartrack and Ephemeris orbital tracking.

Motor Kit	
Azimuth/Elevation Motor Kit	NGC-MK91
Azimuth/Elevation Motor Kit High Accuracy	NGC-MK91HA
Outdoor Unit Controller (Tracking)	
Power 200 - 230 VAC, 3 Phase 50/60 Hz	NGC-ODU-208-5
Power 380 - 460 VAC, 3 Phase 50/60 Hz	NGC-ODU-380-5
Power 200 - 230 VAC, 3 Phase 50/60 Hz High Accuracy	NGC-ODU-208-5-HA
Power 380 - 460 VAC, 3 Phase 50/60 Hz High Accuracy	NGC-ODU-380-5-HA

Antenna controller, motorization and options are detailed in specific bulletins, please contact Kratos.

Antenna Configuration

Earth Station Antennas	
120° Motorizable Mount with Az/EI Jackscrews.	ES91-1
170° Motorizable Mount with Az/EI Jackscrews.	ES91MPEX-1
Extreme Environment 120° Motorizable Mount with Az/EI Jackscrews.	ES91-EE-1
Extreme Environment 170° Motorizable Mount with Az/EI Jackscrews.	ES91MPEX-EE-1
TT&C 120° Motorizable Mount with Az/EI Jackscrews.	ES91-EE-1-TTC
TT&C 170° Motorizable Mount with Az/EI Jackscrews.	ES91MPEX-EE-1-TTC

Motorization and NGC Options

Indoor	
NGC2-IDU	NGC Rack Mounted Antenna Controller W/LCD Touch Panel, 4 RU Unit
NGC2-IDU-1	NGC Rack Mounted Antenna Controller, 1 RU Unit
NGC2-IDU-2	NGC Rack Mounted Antenna Controller, 2 RU Unit
NGC2-002-06	NGC2-IDU Spectrum Analyzer Card - Analog; 1 X 6 Multi-Input Switch
NGC2-002-EDR	NGC2-IDU Spectrum Analyzer Card - Analog; Enhanced Dynamic Range
NGC2-002-EDR-06	NGC2-IDU Spectrum Analyzer Card - Analog; 1 X 6 Multi-Input Switch; Enhanced Dynamic Range
NGC2-004-03	NGC2 IDU, L-Band Internal Beacon Receiver
NGC2-006	NGC2-IDU Emergency Stop Button
NGC2-007	NGC2-IDU 10 MHz Reference GPS Based Source
NGC2-008	NGC2-IDU Power Supply
NGC2-009	NGC2-IDU Rack Slides
NGC2-100	NGC2-IDU HEO Tracking Software
NGC2-101	NGC2-IDU Step Tracking Software
NGC2-102	NGC2-IDU Smartrack Software
NGC2-103	NGC2-IDU Predictive Tracking Software
NGC2-104	NGC2-IDU Full Tracking Capability Software
NGC2-106	NGC2-IDU Remote Access Software Package
NGC2-107	NGC2-IDU Enhanced Spectrum Analyzer Function Software
NGC2-108	NGC2 Receive Pattern Testing Tool
NGC2-109	Redundancy/Switching Control Software
NGC2-111	Sand/Dust Deviator Feature
NGC2-112	Carrier Monitoring
NGC2-119	NGC2 Redundancy Control Software
Outdoor	
NGC-201	NGC ODU Low Temperature Kit (-40 C)
NGC-202	NGC ODU High Temperature Kit (+60 C)
NGC-206	NGC Exterior Emergency Stop Button
NGC-207	Pre Movement Alert Warning Light and Annunciator
NGC-211	Dual Path NGC Redundancy
NGC-AESC	Environmental System Controller

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Feed Matrix

C- BAND FEED SYSTEMS	PORT	Co-Pol	CP	LP	RX 3.625 - 4.2 GHz	RX 3.4 - 4.2 GHz	TX 5.850 - 6.425 GHz	TX 5.850 -6.725 GHz	TX 5.725 - 6.725 GHz
4CPWWC-91-206	4		X			X			X
4LPWWC-91-VP	4			X		X			X

Ku- BAND FEED SYSTEMS	PORT	LP	RX 10.7 - 12.75 GHz	RX 10.7 - 11.7 GHz	TX 12.75- 13.25 GHz	TX 13.75- 14.8 GHz
4LPKU-91-1	4	X	X			X

K- BAND FEED SYSTEMS	PORT	CP	LP	RX 10.7 - 12.75 GHz	TX 17.3- 18.4 GHz
4CPKK-91	4	X		X	X
4LPKK-91-1-VP	4		X	X	X

RF Feed Specifications are detailed in specific bulletins, please contact Kratos.

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Antenna Options and Spares

Anchor Bolt and Template Kits Options	
519083	120° Foundation Kit
726772-0001	170° Foundation Kit
360061	120° Foundation Kit EE/TT&C
268817	170° Foundation Kit EE/TT&C

Azimuth and Elevation Cross Axis Waveguide Options	
XAPC-91	C-Band cross Axis and Polarization Axis Waveguide Kit.
XAPC-91-UPG	C-Band Cross Axis and Polarization Axis Waveguide Kit Upgrade. Upgrades XAPKK-91 for use with 4-port C-Band Feeds.
XAPKU-91	Ku-Band Cross Axis and Polarization Axis Waveguide Kit. Single run for 2-Port Ku-Band Feeds.
XAPKU-91-UPG	Ku-Band Cross Axis and Polarization Axis Waveguide Kit Upgrade. Upgrades XAPKU-91 for use with 4-Port Ku-Band Feeds. Provides Additional Waveguide Run.
XAPKK-91	K-Band Cross Axis and Polarization Axis Waveguide Kit. Single run for 2-Port K-Band Feeds.
XAPKK-91-UPG	K-Band Cross Axis and Polarization Axis Waveguide Kit Upgrade. Upgrades XAPKK-91 for use with 4-Port K-Band Feeds. Provides Additional Waveguide Run.

Heating Options	
FHC-91	C-Band Feed Heater
FHX-91	X-Band Feed Heater
FHKUK-91	Ku-K-Band Feed Heater
WEC91R-208-100	Electric Hot Air De-Ice System, 208 VAC, 3 Phase
WEC91R-380-100	Electric Hot Air De-Ice System, 380 VAC, 3 Phase

Hub Equipment Options	
EMRGYLT-115	Emergency Hub Light Kit, 115 VAC
EMRGYLT-230	Emergency Hub Light Kit, 230 VAC
721734	Fan Vent Kit, 115 VAC
578904	Fan Vent Kit, 230 VAC
HUBHTR-230	Antenna Hub Heater, 230 VAC
HUBLCNTR-115/240	Hub Power Center, 115/240 VAC
HUBLCNTR-230	Hub Power Center, 230 VAC
HUBLT-LED	Hub Light Kit, 115/240 VAC

Safety Options	
ANTGND-91	Foundation Installed Grounding Kit
LRK9	Lightning Rod Kit
MANPL113-120	Maintenance Platform and Ladder Kit 120° Mnt
MANPL113-180	Maintenance Platform and Ladder Kit 170° Mnt
MANPL113-ENH	Full Maintenance Platform and Ladder Kit use with 120° or 170° Mounts
OBWRNLT-UNV	Obstruction Warning Light Kit

Other Options	
209906-91	Lubrication and Maintenance Kit
201769-91	Handwheel Kit
FTST	Feed System Testing
TK-VEP-LG	Tool Kit, Large Motorized Antennas
1011807	TT&C Mount Alignment Kit
516212	Theodolite Alignment Kit
ANGVERN-91	Manual Angle Indicator

Environment Systems Options	
PDKUK-91-208	Precipitation Deviator Ku-K, 208/230 VAC.
PDKUK-91-380	Precipitation Deviator Ku-K, 380/415 VAC.



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READY FOR WHAT'S NEXT™



Kratos Antenna Solutions
3801 E. Plano Parkway, Suite 200
Plano Texas 75074
USA
Phone: +1-214-291-7654
Fax: +1-214-291-7655
Email: Space@KratosDefense.com

for information visit: www.KratosDefense.com

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