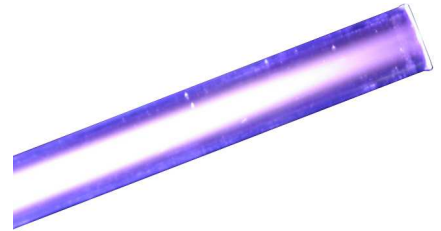


# Manitou Systems Inc.



## *E-Z GLOW™* *EDUCATIONAL AND R&D* *RF PLASMA SOURCE*



### **Cost effective approach to add a plasma capability to an existing vacuum system or vacuum furnace**

- Perform exploratory plasma based thin film processes
- Ideal for educational demonstrations
- Test for optical emissions of gas
- Process powders & linear substrates
- Create nano-materials
- Enhance and modify material surfaces
- Assist with H<sub>2</sub>O desorption on vacuum chamber surfaces
- Inductively heat materials
- Perform gas reactions
- Create Ozone



The Model EG-50™ RF Plasma Source enables the user to add a plasma process capability to most vacuum process systems. The EG-50 component set includes a 300 watt/13.56MHz RF power generator with a manually tuned impedance matching network, the EG-50 RF plasma source and a coaxial connection cable.

The EG-50 plasma source is simply mounted over an existing quartz (or other dielectric) tube. The user simply adds an upstream process gas source with flow control and you are ready to process !

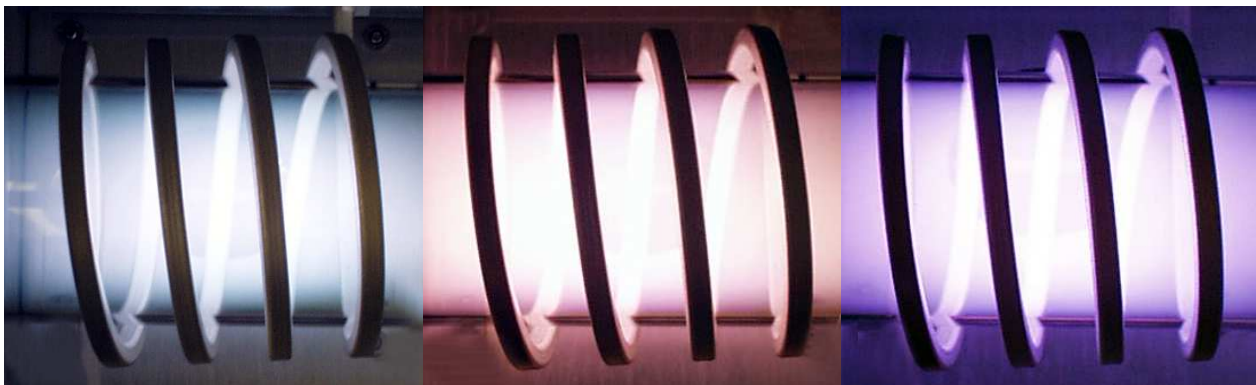
# EG-50 Plasma Source Specifications

- Physical size 5.5" diameter 6.0" tall
- Operating pressure range The EG-50 will ignite a plasma and operate over a wide pressure range from 1 millitorr through 10 Torr.
- RF power control Using the complementary Model PB3-300 RF power system the RF power is continuously variable from 2 > 300 watts.
- RF Power System See the Model PB3-300 data sheet for complete specifications.
- Maximum RF input power 300 watts
- RF input connector Type HN female.
- Cooling Convection & radiant cooling when used in an open environment. When the plasma source is mounted in an enclosed cabinet, it may be necessary to add forced air cooling. An active house exhaust may be sufficient to provide the necessary cooling airflow.
- Environment Non condensing.
- Impedance matching The EG-50 requires a Pi topology impedance matching network optimized for specific pressure, flow and gas types.
- Mounting & Gnd. points Four 8-32 tapped holes provided on each end plate. Any orientation.
- Construction Solid aluminum end plates with a perforated aluminum shield. Silver plated copper antenna coil.
- Max process tube size 50mm outer diameter.
- Process gas compatibility Most reactive and non-reactive gasses will form a stable plasma discharge using 13.56MHz RF power. User to ensure vacuum system, process tube & seals are compatible with the gas type used.
- Compliance The EG-50 component has not been tested
- Safety considerations The EG-50 is designed as a low cost developmental component only and does not include all features necessary for compliance to typical industrial and laboratory safety standards. It there is the user's responsibility to consult local health & safety authorities for specific information. We do suggest adding an active exhaust to vent any ozone that will develop with the use of a quartz process tube. It is also necessary to wear protective eye glasses to prevent looking directly at the plasma discharge. A Plexiglas or borosilicate glass shield will provide protection against UV radiation. The use of a borosilicate process tube will also attenuate UV radiation.

Helium Plasma

Nitrogen Plasma

Argon Plasma



## Order a complete plasma system

- E-Z Glow Plasma Source System PN 00009378  
Including Model EG-50 RF plasma source and Model PB3-300  
13.56MHz 300 watt Integrated RF power system  
Add one of the optional RF coaxial cables listed below to complete the package.

## Order individual components and options

- Model EG-50 RF plasma source PN 00005752
- Model PB3-300 13.56MHz 300 watt Integrated RF power system PN 00009379  
This model includes a Pi topology impedance matching network  
and step start plasma ignition system.
  
- Coaxial cable 36" long, Type HN-male inline connectors PN 15-700124-76
- Coaxial cable 36" long, Type HN-male inline & 90° connectors PN 00009380
- Coaxial cable 48" long, Type HN-male inline connectors PN 00004549
- Coaxial cable 48" long, Type HN-male inline & 90° connectors PN 00009381
- Type HN Male > Female 90 degree adapter PN 00-503075-56  
(add to one end to enable a swivel for easy installation)
  
- Fixed shunt capacitors to tune specific plasma loads Consult factory

Type HN inline connector

Type HN 90 degree adapter

Type HN 90 degree connector



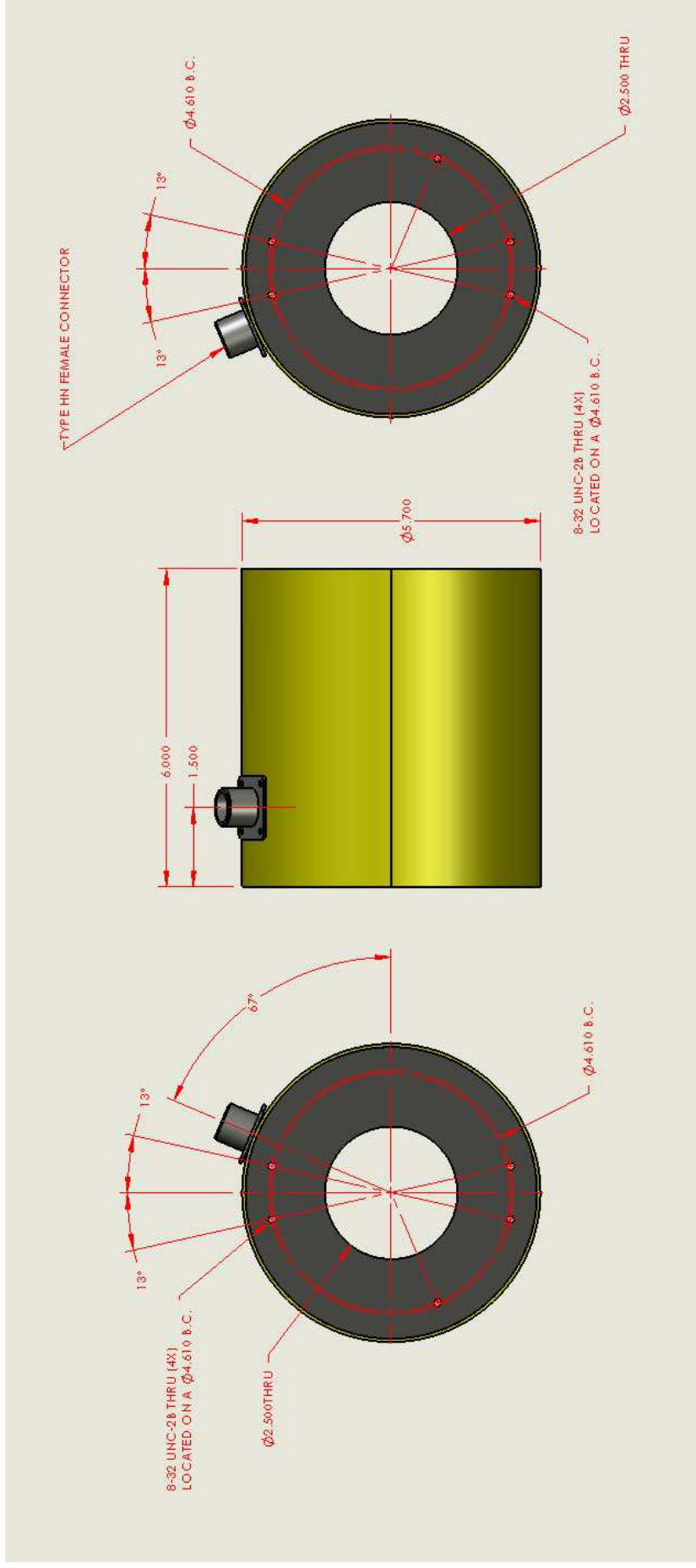
**Manufactured in the USA**



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*Technical specifications are subject to change without prior notice.  
See our web site or contact us directly for the latest specifications and pricing.*

April 2015



## Installation drawing

# Model EG-50 RF Plasma Source

March 2014

[WWW.MANITOUSYS.COM](http://WWW.MANITOUSYS.COM)