



ASTRON[®]ex

TYPE AX7685 - REACTIVE GAS GENERATOR

The MKS ASTRON[®]ex reactive gas generator is our highest output, self-contained reactive species source for chamber cleaning and other reactive gas applications. The ASTRONex reactive gas generator uses patented Low-Field-Toroidal plasma technology to efficiently dissociate input gas to produce downstream reactive chemistries. The unique high power design effectively dissociates alternative gases such as C_3F_8 and CF_4 . The increased flow capability provides sufficient reactive gas production for cost-effective use of these alternative process gases.

Relative to other plasma generating technologies, the ASTRONex reactive gas generator is more efficient, has lower cost of ownership and is capable of producing high flows from NF_3 , C_3F_8 , CF_4 , and other gases. The design architecture integrates the power source, control module, and plasma chamber into a single compact module. Due to its simple interface, the ASTRONex reactive gas generator is easily integrated onto both new and existing production tools.

The primary application for the ASTRONex reactive gas generator is as a remote source of reactive gas to clean deposits from interior walls of process chambers using alternative gases; or where high fluxes of a reactant species are required. By generating atomic fluorine that reacts with deposits in the chamber, new gases are formed that are easily scrubbed to minimize the environmental impact. In addition, the remote location of the plasma source reduces wear and tear on the process chamber compared to in situ RF methods.

Features & Benefits

- No Argon required during operation
- Higher reactant flow supports:
 - Alternate source gases
 - Large chamber configurations
 - Increased performance and throughput
- Continuous operation (CW), not duty cycle limited
- Compact, lid-mount design
- Reactive gas delivery at point of use
- High reliability
- No consumables, low CoO



Specifications and Ordering Information

Gas Supply

100% Ar required for ignition only
Up to 6 slm of NF_3 (after plasma ignition NF_3 can be added and the Ar removed)
Contact MKS for alternate gas capability.

Operating Pressure

1 to 4 Torr during ignition measured at ASTRON outlet
1 to 10 Torr post ignition measured at ASTRON outlet once flow is stabilized
>95% dissociation up to 6 slm NF_3 at 5 Torr (0.5 slm to 6.0 slm typical)

Reactant Output

Wetted Materials

6061-T6 Aluminum hardcoat anodized
6061-T6 Aluminum, Chemraz®, Alumina

Control Interface

Inputs

9 and 25 pin D connectors, opto-isolated I/O

Outputs

On/Off

Ready

AC line

Plasma On

Utilities

Power 187 to 228 VAC, 50/60 Hz, 60A, 3 phase

Cooling water 2.0 gpm, < 30°C

Ambient 40°C max.

Physical

74 lb. (33.5 kg)

16.7"L x 14.5"W x 10.1"H (424 x 368 x 26 mm nominal)

Compliance

S2-0200

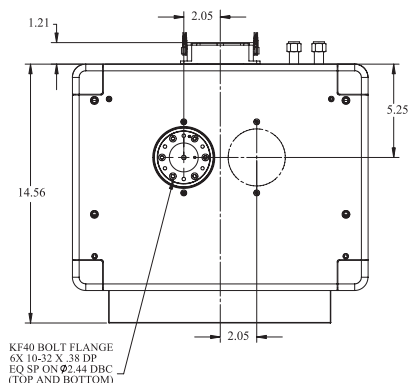
CE, NRTL, F47

Ordering Information:

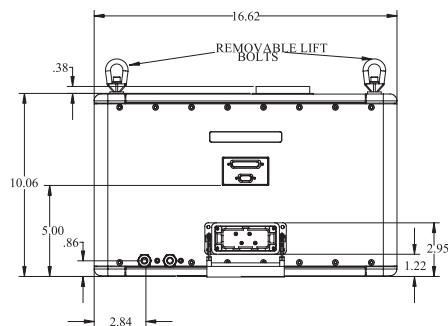
ASTRON®ex Reactive Gas Generator Type AX7685

Alternative Source Gas, Highest Output Reactive Gas Generator

Top View



Front View



Dimensional Drawing —

Note: Unless otherwise specified, dimensions are nominal values in inches.



MKS Instruments, Inc. Global Headquarters

2 Tech Drive, Suite 201
Andover, MA 01810

Tel: 978.645.5500

Tel: 800.227.8766 (in USA)

Web: www.mksinst.com

MKS Instruments, Inc. Plasma & Reactive Gas Solutions

90 Industrial Way
Wilmington, MA 01887

Tel: 978.284.4000