



# **STILETTO SERIES**

HV Magnetron Sputtering Sources



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# GENERAL INFORMATION

The AJA International **Stiletto Series** magnetron sputtering sources have been designed to meet the most challenging needs of the thin film research community for high vacuum applications while maintaining the flexibility and features of the world class A300 Series UHV sources. Stiletto Series magnetrons are offered in the following target sizes:

- **ST10: 1.0" target diameter**
- **ST15: 1.5" target diameter**
- **ST20: 2.0" target diameter**
- **ST30: 3.0" target diameter**
- **ST40: 4.0" target diameter**
- **ST60: 6.0" target diameter**
- **ST1550 : 1.5" x 5.00" rectangular target**
- **ST1580 : 1.5" x 8.00" rectangular target**
- **ST2056 : 2.0" x 5.63" rectangular target**
- **ST2080 : 2.0" x 8.00" rectangular target**



**ST 40 / ST 20 Sources**  
On 12" HV mounting stalks with UBQD Option



**ST 2056 Rectangular Source**  
On 1.5" OD support for compression seal mounting

## THE UNIQUE MODULAR MAGNET ARRAY

The Stiletto Series magnetron sputtering sources feature a unique "modular magnet array" which is completely isolated from the cooling water to eliminate magnet deterioration and subsequent degradation of source performance. This design permits access to the internal magnet arrangement thus allowing the same source to be:

- Operated as a **balanced** magnetron
- Operated with **magnetic material** targets
- Configured for **reverse** sputtering
- Configured for **high or low electron energies** as they arrive at the substrate surface
- Operated in a variety of **unbalanced** magnetron configurations
- Operated as a **diode** sputtering source
- Configured for **very high or very low rate** sputtering
- Configured for **optimal discharge voltage** conditions
- Configured for **facing target** sputtering

## CLUSTER FLANGES

AJA International Stiletto Series magnetron sputtering sources can be mounted to a wide variety of cluster flange configurations. By incorporating the manual tilt, in-situ tilt or linked in-situ tilt options, the focal point of the sources can be adjusted to optimize uniformity for different working distances and materials. Conventional sputtering wisdom suggests that to achieve good uniformity, the source must be larger than the substrate. With a variable tilt angle however, excellent uniformity is achievable with sources which are smaller than the substrate. For example, uniformities of better than +/- 1% have been achieved on 4.0" substrates with angled ST20 sources (2.0" target) and simple substrate rotation. For users building their own system, incorporating an AJA cluster flange with in-situ tilt and an AJA rotating, heated, RF biasable substrate holder, can guarantee proven performance and eliminate design errors which limit system functionality and flexibility.



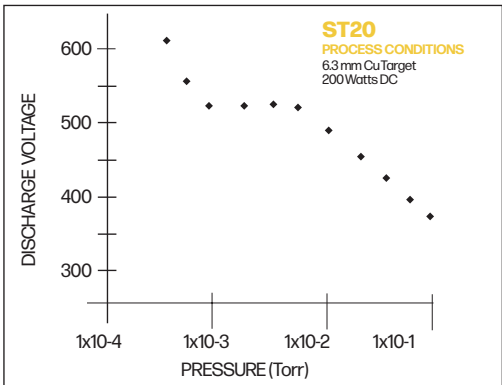
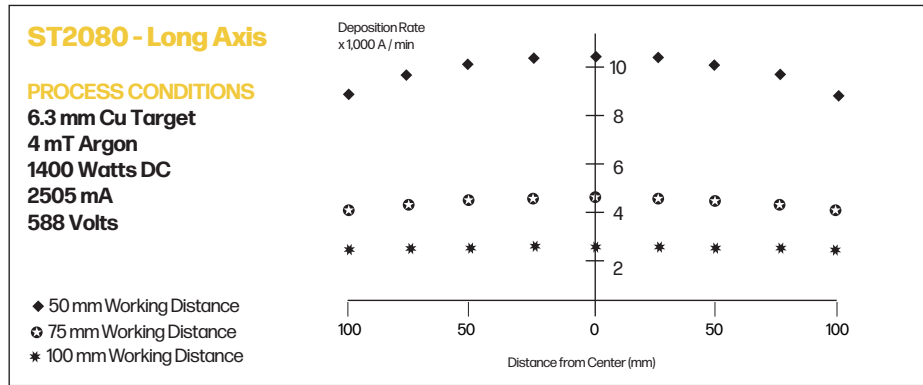
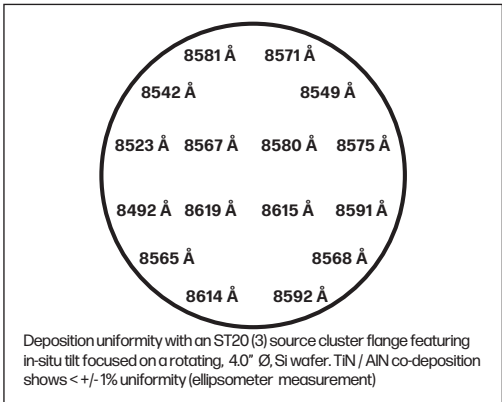
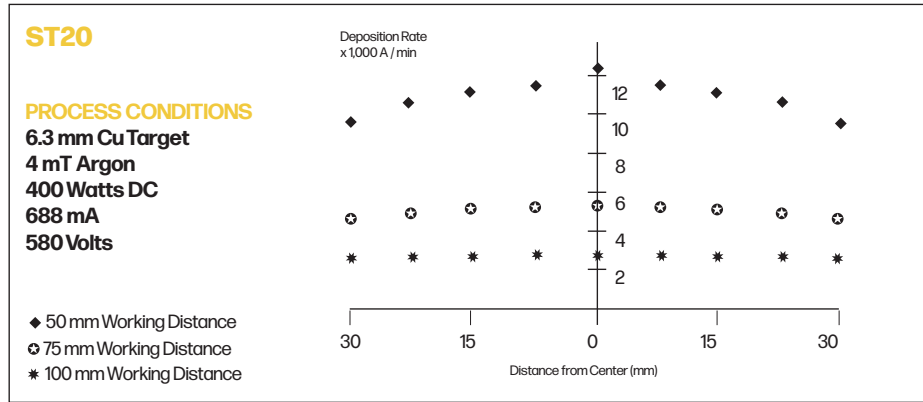
**HV Cluster Flange with (3) ST20**  
fixed sources fitted with flip shutters.

# FEATURES

- Modular Magnet Array
- +/- 45° Tilt
- In-situ tilt
- Magnetic material sputtering
- Easy removal of large magnetic targets
- Integral gas injection and source shutters
- 0.5 to 700 mTorr operating pressure
- Axial or right angle head orientation
- Excellent uniformity and target utilization
- Variety of mounting configurations
- Rugged HV construction
- Cluster flange configurations



# TYPICAL PERFORMANCE



# POWER SUPPLIES

Power supply packages include a full cable set and are pre-configured for trouble free start-up.



	POWER	MODEL
<b>DC Power Supplies</b>	750 watt	DCX-750
	1500 watt	DCX-1500
<b>RF Power Supplies</b>	100 watt	A100-MU
	300 watt	A300-MU
	600 watt	A600-MU
<b>Pulse DC Power Supplies</b>	1500 watt	DCXP-1500
<b>HIPIMS</b>	100 A/1000 V	HIPSTER 1
	600 A/1000 V	HIPSTER 6

# SPECIFICATIONS & DIMENSIONS

\* Sources configured for 0.250" (6.3 mm) thick targets unless specified in order

MODEL NUMBER	ST10	ST20	ST30	ST40
TARGET DIAMETER / MAXIMUM THICKNESS [in (mm)]	1.0" / 0.125" (25.4 / 3.2)	2.0" / 0.250" (50.8 / 6.3)	3.0" / 0.375"* (76.2 / 9.5*)	4.0" / 0.375"* (101.6 / 9.5*)
MAXIMUM POWER - DC / RF (WATTS)	150 / 150	700 / 500	1200 / 800	1500 / 1000
COOLING WATER (liters / minute)	0.5	1.7	2.3	3.0
SOURCE HEAD DIAMETER (D) [in (mm)]	1.80" (45.7)	3.50" (88.9)	4.63" (117.6)	5.63" (143.0)
SOURCE HEAD HEIGHT (H) [in (mm)]	1.50" (38.1)	4.80" (122.0)	4.80" (122.0)	4.80" (122.0)

MODEL NUMBER	ST1550	ST1580	ST2056	ST2080
TARGET DIAMETER / MAXIMUM THICKNESS [in (mm)]	5.0" x 1.5" / 0.125" (38.1 x 127 / 3.2)	8.0" x 1.5" / 0.125" (38.1 x 127 / 3.2)	5.63" x 2.0" / 0.250" (50.8 x 143 / 6.3)	8.0" x 2.0" / 0.250" (50.8 x 203.2 / 6.3)
MAXIMUM POWER - DC / RF (WATTS)	150/150	200/200	1200/800	1500/1000
COOLING WATER (liters / minute)	0.4	0.6	2.3	3.0
SOURCE HEAD DIMENSIONS (L x W)	6.35" x 2.85" (161.3 x 72.4)	9.35" x 2.85" (237.5 x 72.4)	7.13" x 3.50" (181.1 x 88.9)	9.51" x 3.50" (241.6 x 88.9)
SOURCE HEAD HEIGHT (H)	2.85" (72.4)	2.85" (72.4)	3.68" (93.5)	3.68" (93.5)

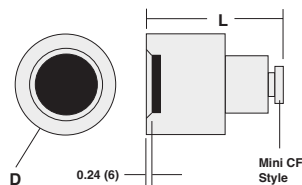
## SOURCE HEAD CONFIGURATIONS

- MM (Magnetic Material)
- R (Right Angle)
- S (Non-Standard Special)
- LP (Low Profile)

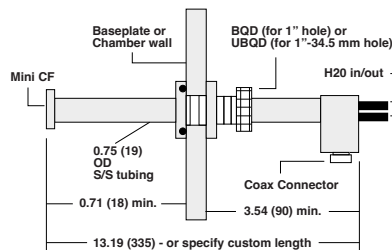
## TYPICAL MOUNTING OPTIONS (Custom designs available)

UBQD	Universal Baseplate Quick Disconnect for 01.00" - 34.5mm hole (304 S/S/PTFE/Viton)
BQD	Baseplate Quick Disconnect for 01.00" hole (Aluminum/Viton)
FQD - XXX	Flange Welded Quick Disconnect (for example FQD-6"CF or FQD-IS0100)
PH - XXX	"PANAMA HAT" Port Extension - mounts to flange and allows lull retraction of source head (for example, PHHS0200 is an IS0200 flanged "PANAMA HAT" with a 2.00" quick disconnect)

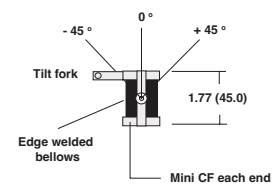
## ST 10/20/30/40 SOURCE HEAD



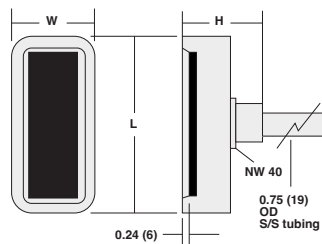
## HV MOUNTING STEM & BQD/UBQD FT



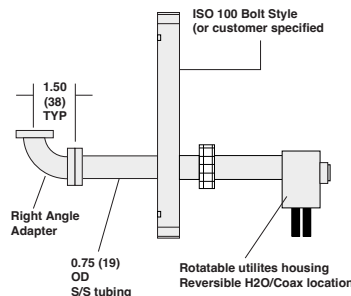
## MINI TILT GIMBAL



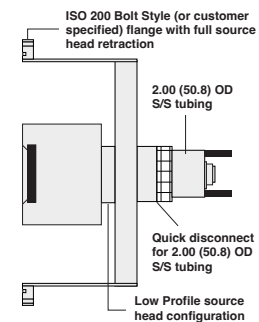
## ST 1550/1580/2056/2080 SOURCE HEAD



## FLANGE WELDED QUICK DISCONNECT (FQD)



## "PANAMA HAT" PORT EXTENSION



For questions, quotes and ordering information please contact us directly:



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