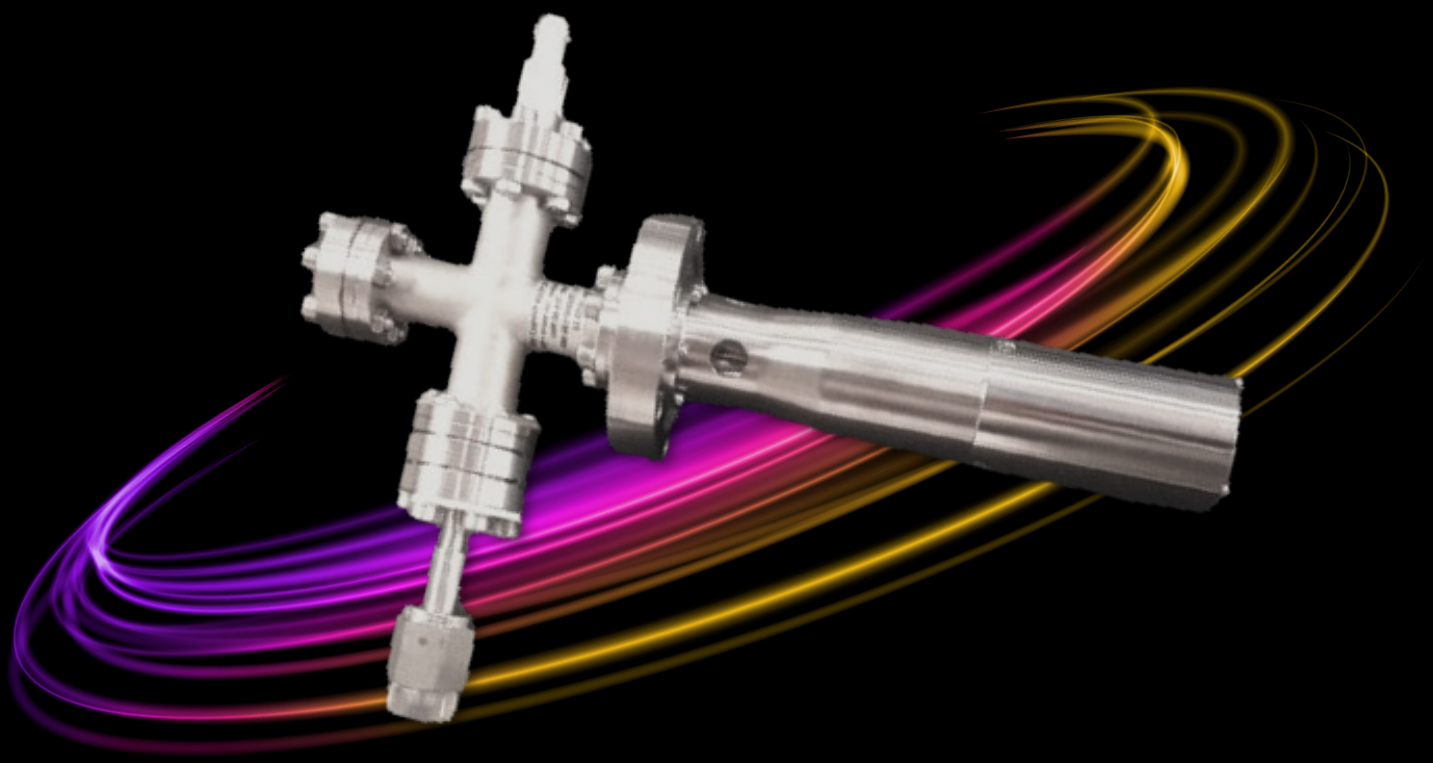
POLYGON PHYSICS

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TES-40

ELECTRON SOURCE/NEUTRALIZER
ULTRA-LOW BEAM POWER (5W MAX)

Neutralization • Electron Chemistry • Surface Modification

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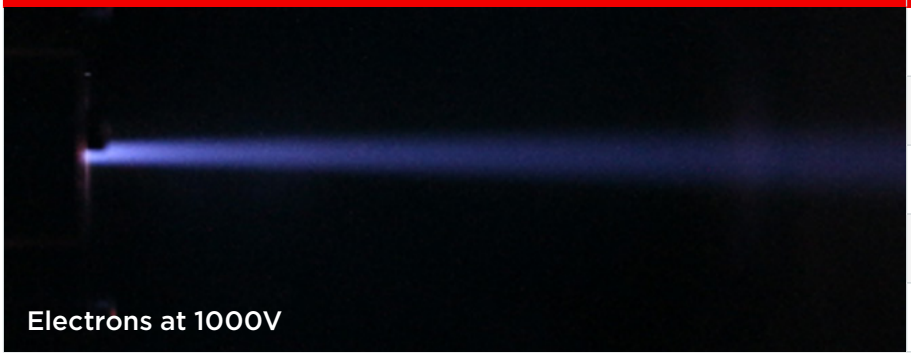
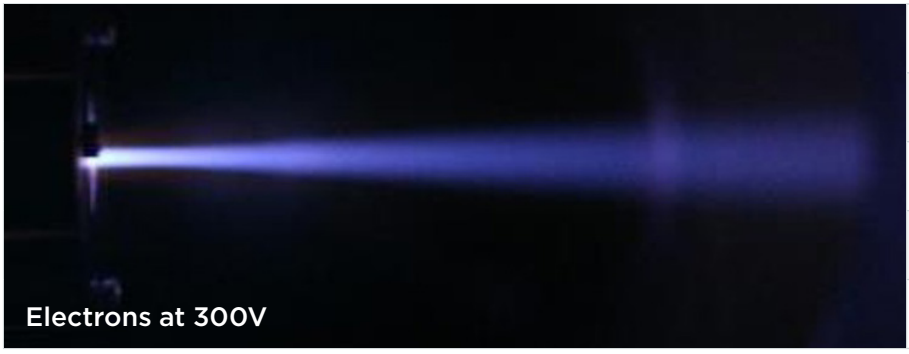
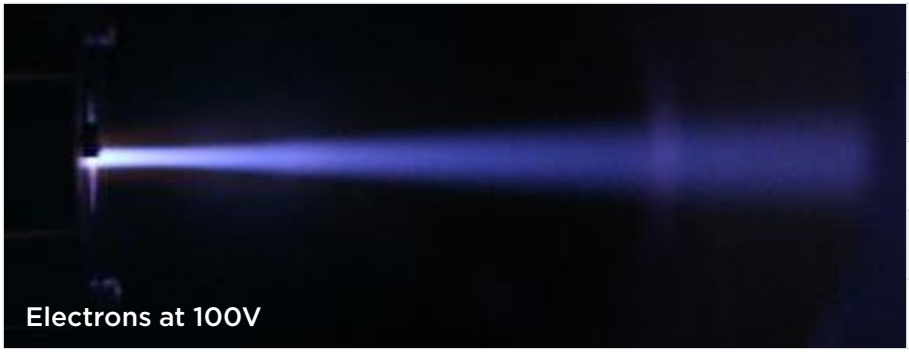
TES-40 ELECTRON SOURCE/NEUTRALIZER ULTRA-LOW BEAM POWER (5W MAX)

TES-40 GENERAL CHARACTERISTICS	
Discharge	ECR filament free
Gas	H_2, He, N_2, O_2, noble gas, molecular gas
Microwave power typ. (2.45 GHz)	0.5 to 5 W
Maximum Energy	5 kV
Diameter in vacuum	36.5 mm
Flange type	CF40
Cooling	None
Cable length outside vacuum	2 m Option: 5 m
Electronics	One or two 19" racks : Control command (inc.HF) and HV
Hardware control	API available via Microcontroller
Communication protocol	Ethernet UDP, RS232
User interface	GUI executable (ethernet UDP only)
Source gas control	Mass-Flow Controller (MFC)

ULTRA-LOW BEAM POWER (5W MAX)	
Applications	Neutralization, electron chemistry, surface modification
Energy range	Up to 1 kV
Current	Up to 17 mA (300 V max, lower for higher energies)
Beam power	5 W max
Beam size (typ. at 4 cm)	3 - 30 mm
Insertion depth	140 mm
Option	Einzel lens, longer cables, pulsed mode

BEAM EXTRACTION CASES

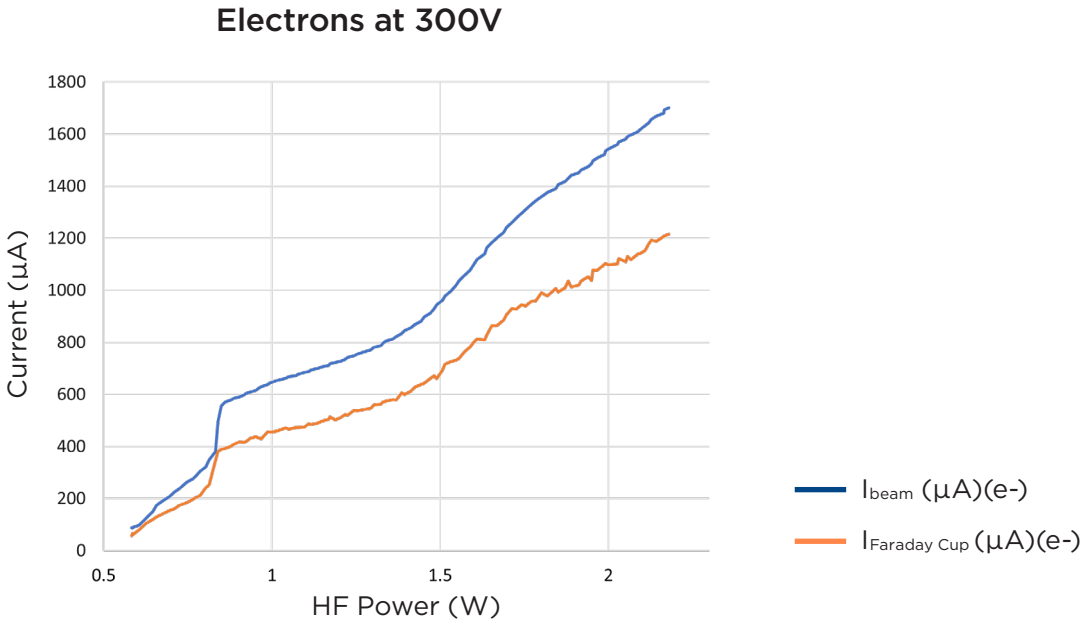
Example : Electrons extraction, Argon gas supplied to the source

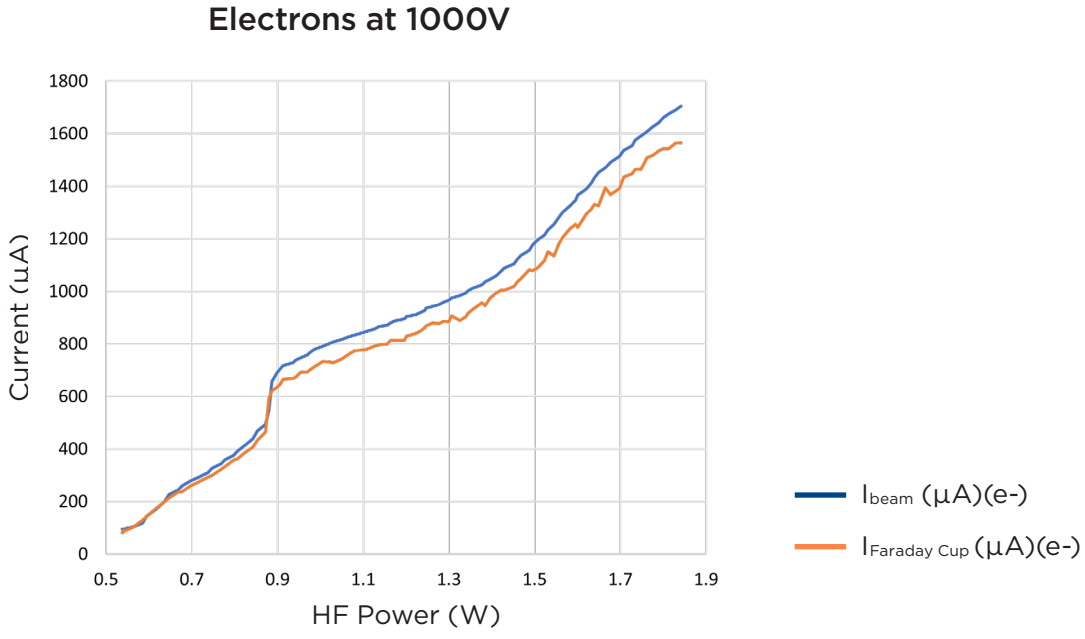
BEAM SHAPE	SOURCE PARAMETERS	
 Electrons at 1000V	**Gas flow (sccm)**	0.04
	Pressure (mbar)	2.9E-6
	HF Power (W)	1.5
	I_{beam} (µA)	1312
	$I_{Faraday\ Cup}$ (µA)	1200
 Electrons at 300V	**Gas flow (sccm)**	0.04
	Pressure (mbar)	2.9E-6
	HF Power (W)	2
	I_{beam} (µA)	1550
	$I_{Faraday\ Cup}$ (µA)	1090
 Electrons at 100V	**Gas flow (sccm)**	0.04
	Pressure (mbar)	3E-6
	HF Power (W)	1.15
	I_{beam} (µA)	902
	$I_{Faraday\ Cup}$ (µA)	500

Actual working point/data on system delivered may be different depending on user's environment.

BEAM CURRENT TUNING WITH HF POWER

SOURCE PARAMETERS	
Gas	Argon
Gas flow (sccm)	0.04
Pressure (mbar)	3.1E-6
Aperture (mm)	1

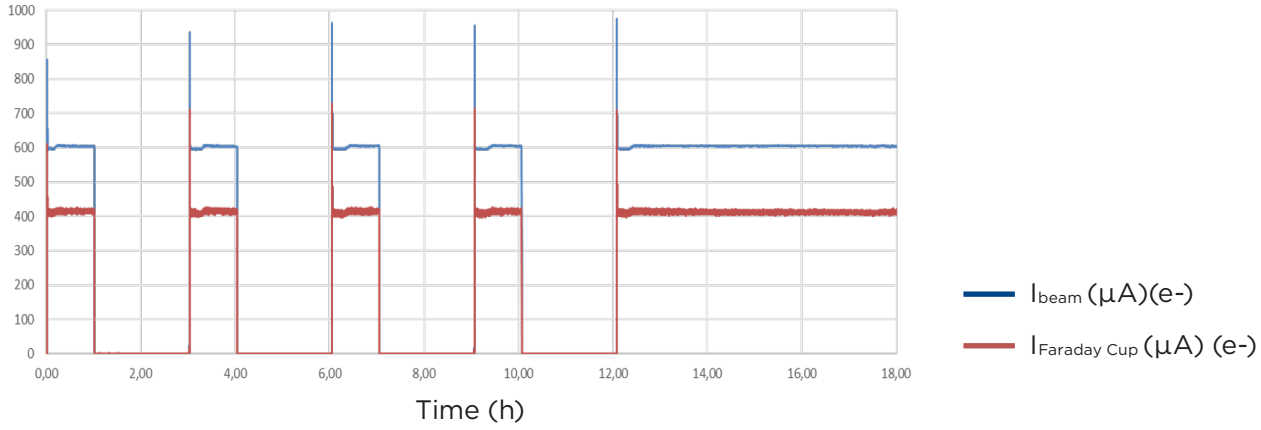




Actual working point/data on system delivered may be different depending on user's environment.

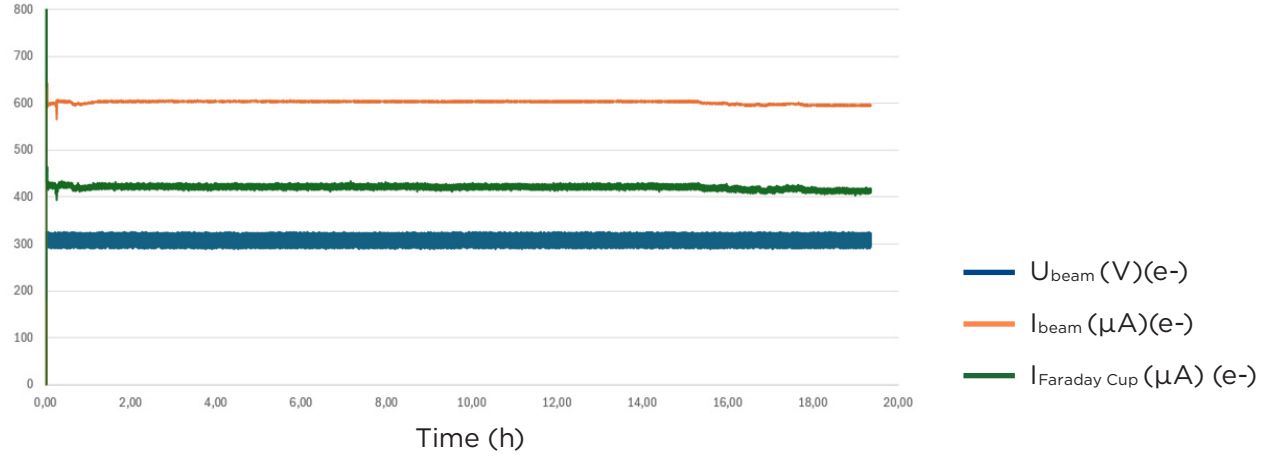
AUTOSTART AND REPRODUCIBILITY

5 successive autostarts - Reproducibility test



BEAM LONG-TERM STABILITY (WITH HF POWER REGULATION)

Example : Electrons (from Ar plasma)



Actual working point/data on system delivered may be different depending on user's environment.



CAMECA (Corporate Headquarters)
29 Quai des Grésillons
92622 Gennevilliers Cedex - France
Tel: +33 1 43 34 62 00
cameca.info@ametek.com

CAMECA Source Technology Center
19 rue de Sassenage
38600 Fontaine - France
Tel: +33 4 80 42 09 06

CAMECA Atom Probe Technology Center
5470 Nobel Drive
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