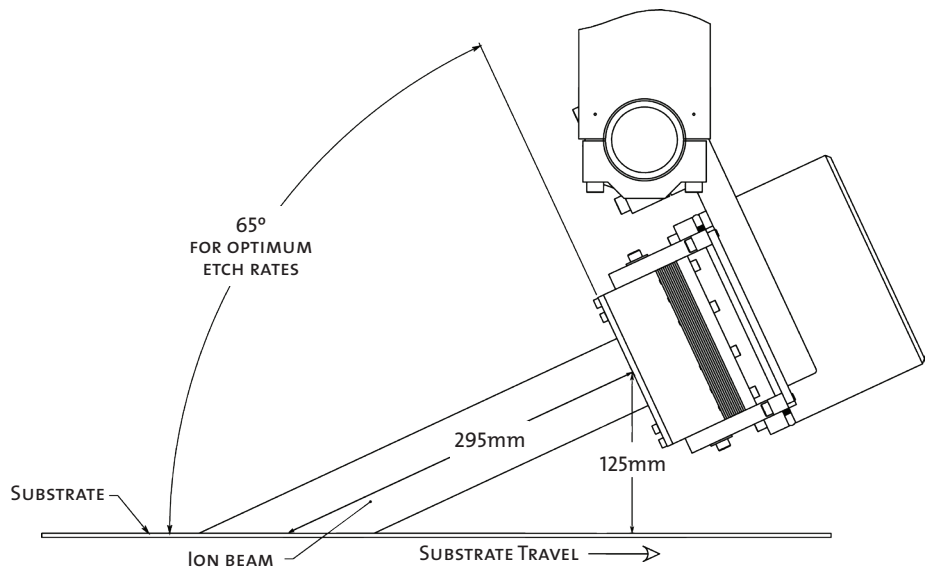
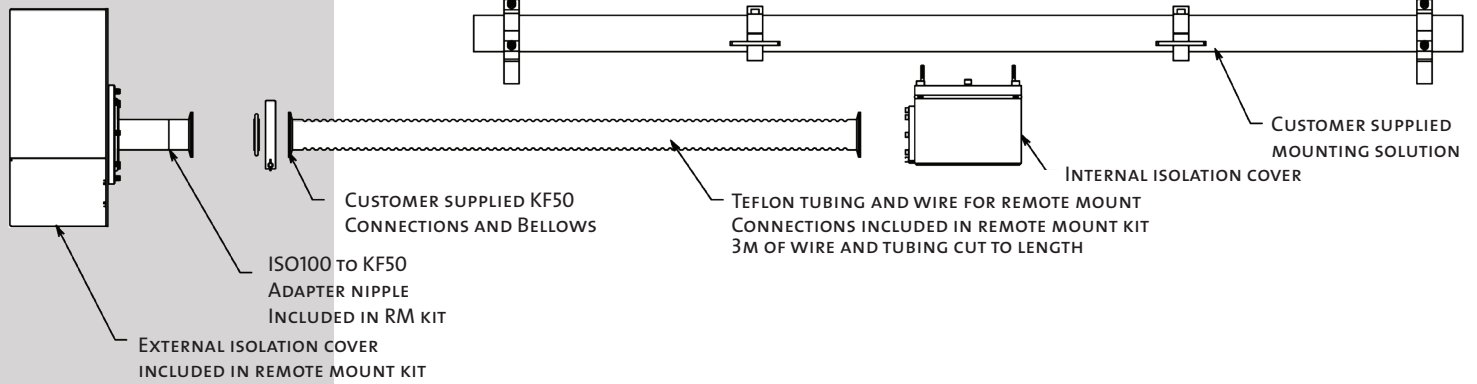
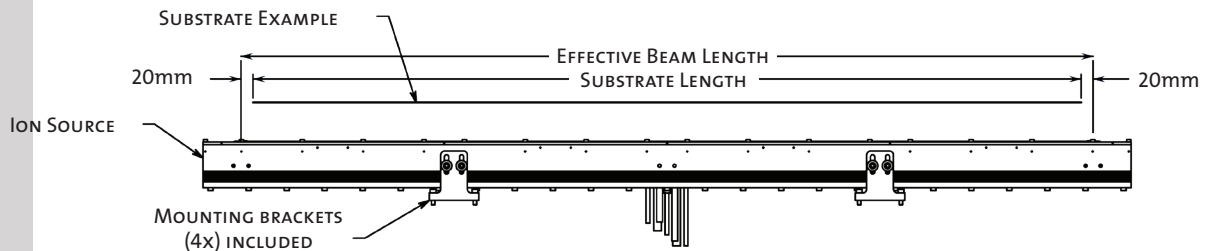
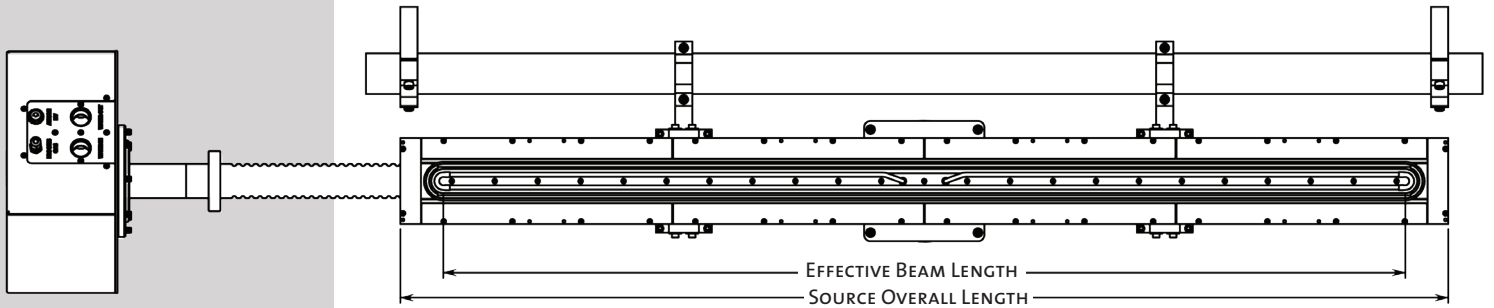




GENERAL PLASMA INC.™

POINTED POLE ANODE LAYER ION SOURCE

REMOTE MOUNT SPECIFICATION SHEET

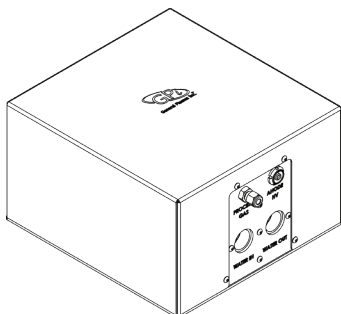


RECOMMENDED SOURCE SUBSTRATE DISTANCE (AS SHOWN)	125mm
RECOMMENDED SUBSTRATE ANGLE	65°

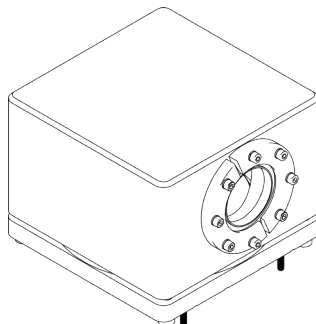
POINTED POLE ANODE LAYER ION SOURCE SPECIFICATIONS

	PPALS30	PPALS36	PPALS56	PPALS81	PPALS112	PPALS142	PPALS203	PPALS304	PPALS325	
OVERALL SOURCE LENGTH	43.2 cm [17 IN]	48.7 cm [19 IN]	68.7 cm [27 IN]	93.7 cm [37 IN]	124.7 cm [49 IN]	154.7 cm [61 IN]	215.7 cm [85 IN]	316.7 cm [125 IN]	337.7 cm [133 IN]	
EFFECTIVE BEAM LENGTH	30.5 cm [12 IN]	36 cm [14 IN]	56 cm [22 IN]	81 cm [32 IN]	112 cm [44 IN]	142 cm [56 IN]	203 cm [80 IN]	304 cm [120 IN]	325 cm [128 IN]	
SOURCE WIDTH	12.7 cm [5 IN]									
SOURCE HEIGHT	7.1 cm [2.79 IN]			8.0 cm [3.17 IN]				8.5 cm [3.35 IN]		
MOUNTING OPTIONS	REMOTE OR FLANGE									
ION CURRENT UNIFORMITY SPECIFICATION	± 2.5% OVER RECOMMENDED SUBSTRATE WIDTH (EFFECTIVE BEAM LENGTH - 4 CM)									
DISCHARGE VOLTAGE RATING	600 TO 4000 VDC									
MEAN BEAM ENERGY	1500 TO 2500 eV									
MAX DISCHARGE CURRENT (COLLIMATED)	≤ 0.63 A	≤ 0.63 A	≤ 0.63 A	≤ 1A	≤ 1A	≤ 2 A	≤ 2 A	≤ 2 A	≤ 2 A	
TYPICAL BEAM CURRENT	60 TO 80% OF DISCHARGE CURRENT									
MAX DISCHARGE POWER	2.5 kW	2.5 kW	2.5 kW	4 kW	4 kW	8 kW	8 kW	14 kW	14 kW	
OPERATING PRESSURE	0.95 TO 1.75 mTORR RECOMMENDED									
TYPICAL GAS FLOW	10-60 sccm	10-100 sccm	10-150 sccm	10-200 sccm	10-250 sccm	10-300 sccm	10-350 sccm	10-450 sccm	10-500 sccm	
RECOMMENDED MINIMUM CHAMBER PUMP SPEED	500 LPS	500 LPS	750 LPS	1000 LPS	1250 LPS	1500 LPS	2000 LPS	2000 LPS	2500 LPS	
WATER FLOW REQUIREMENTS	≥ 4 LPM [1.0 GPM]		≥ 4.5 LPM [1.2 GPM]	≥ 7.5 LPM [2 GPM]	≥ 12.75 LPM [3.4 GPM]	≥ 15.5 LPM [4.1 GPM]	≥ 19 LPM [5.1 GPM]	≥ 23 LPM [6.1 GPM]		
ESTIMATED PRESSURE DROP	≤ 1.0 BAR [15 PSI]									
MAXIMUM WATER PRESSURE	5.17 BAR [75 PSI]									
MINIMUM WATER INLET TEMPERATURE	ABOVE THE DEW POINT OR 10° C [50° F], WHICHEVER IS GREATER									
MAXIMUM WATER INLET TEMPERATURE	40° C [104° F]									
WATER QUALITY	PH BETWEEN 7 AND 9 TOTAL CHLORINE < 20 PPM TOTAL NITRATE < 1 PPM TOTAL SULFATE < 100 PPM TOTAL DISSOLVED SOLID < 64 PPM TOTAL HARDNESS EXPRESSED AS CALCIUM CARBONATE EQUIVALENT < 250 PPM TOTAL DISSOLVED SOLIDS (TDS) AS ESTIMATED BY TDS ≤ $\frac{640,000}{\text{Specific resistivity } (\Omega \cdot \text{cm})}$									
POWER SUPPLY SPECIFICATIONS										
MAXIMUM POWER	3 kW			5 kW		10 kW		16 kW		
INPUT VOLTAGE	SINGLE-PHASE, 198-264 V RMS, 48-63 Hz INPUT			THREE-PHASE, 187-242 V RMS, 48 - 63 Hz INPUT						
OUTPUT VOLTAGE	4000 V MAX									
INPUT CURRENT	< 16 A AT 220 V			< 20 A PER PHASE		< 45 A PER PHASE		< 70 A PER PHASE		
SIZE	177mm x 483mm x 508mm (7.0" x 19.0" x 20.0")			266mm x 483mm x 610mm (10.5" x 19.0" x 24.0")		222mm x 483mm x 610mm (8.7" x 19.0" x 24.0")		889mm x 483mm x 610mm (35.0" x 19.0" x 24.0")		
INTERFACES	FRONT PANEL, REMOTE CONTROL VIA TERMINAL BLOCK. OPTIONAL ANALOG SERIAL COMMUNICATIONS ALSO AVAILABLE									

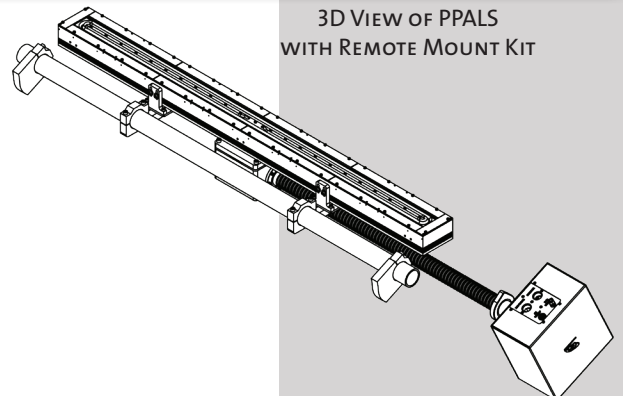
PPALS EXTERNAL ISOLATION COVER



PPALS INTERNAL ISOLATION COVER



3D VIEW OF PPALS WITH REMOTE MOUNT KIT



NP0000M003B