

# INTEGRALEED

MODEL BDL800IR AND BDL600IR  
WITH INTEGRAL SHUTTER

CONVENTIONAL BACK-DISPLAY LEED-AES SPECTROMETER  
FEATURING UNIQUE DESIGN AND PERFORMANCE:



HIGH ENERGY & IMAGE RESOLUTION  
FOR LEED AND AES

MINIATURE ELECTRON GUN  
WITH DOUBLE FOCUSING

SUITABLE FOR "IN SITU"  
GROWTH MONITORING

INTEGRAL LINEAR MOTION  
AND SHUTTER

LOW OUTGASSING RATE



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# INTEGRALEED

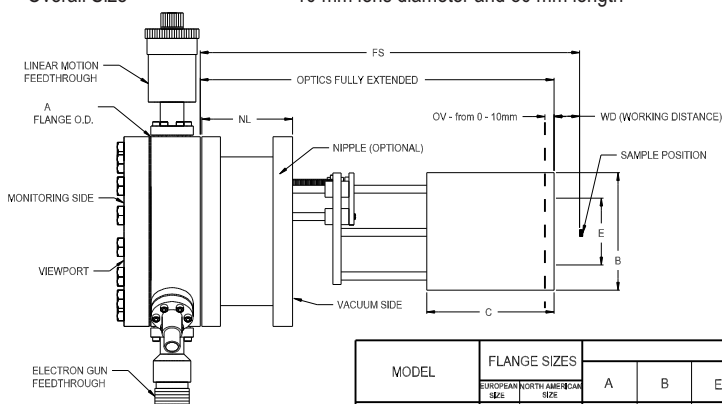
## SPECIFICATIONS

### LEED-AUGER OPTICS (Models BDL600IR and BDL800IR)

Glass-Display	Fused silica glass coated with indium-tin oxide conductive layer and P31 phosphor ( ZnS:Ag:Cu-green, 525 nm wavelength)
BDL600IR.....	90° angle of acceptance from sample at a distance of 50 mm
BDL800IR.....	100° angle of acceptance from sample at a distance of 75 mm
Retarding Field Analyzer	Concentric assembly of hemispherical grids
BDL600IR.....	Working distance from sample 15 mm
BDL800IR.....	Working distance from sample 18 mm
Grid Material.....	Gold coated tungsten wire mesh ( 100 mesh, 81% transparency)
Energy Resolution.....	0.2% - 0.5% at low modulation volt.
Monitoring	6" or 8" standard viewport
Linear Motion	Up to 150 mm retraction from sample (100mm standard); linear ball bearing and acme thread with all spring electr. connections
Integral Shutter	Open and close at any position of the linear motion
Magnetic Shielding Assembly	Mu-metal cylinder with front cover for maximum attenuation Extreme-high-vacuum compatibility with stainless steel, high alumina and Au-plated copper alloy materials
Mounting	6" (CF100) or 8" ( CF150) double sided conflat flange with sample distance 145 mm - 500 mm
Bakeability	Under vacuum, 250° C maximum

### INTEGRAL MINIATURE ELECTRON GUN

Beam Energy	LEED - 5 eV to 750 eV AES to 3000 eV
Beam Current	LEED - 2 µA at 100 eV and 0.5 mm beam size AES - up to 100 µA at 3 keV
Beam Size	from 1 mm to 250 µm - adjusted by wehnelt potential, limited by exchangeable aperture down to 50 µm
Electron Source	Tungsten-2%Thoriated filament standard, single crystal LaB6 filament optional
Energy Spread	0.45 eV (thoriated-tungsten filament)
Overall Size	10 mm lens diameter and 80 mm length



## BDL800/600/450-LMX length calculation

MODEL	FLANGE SIZES		DIMENSIONS							Optics length - fully extended with 100mm retraction	FS - fully extended with 100mm retraction	FORMULA
	EUROPEAN SIZE	NORTH AMERICAN SIZE	A	B	E	WD	C					
BDL800	DN150	CF8"	∅203mm	∅142mm	∅57mm	18mm	127mm	355mm	373mm	FS = 173mm + 2 LMX - OV		
BDL600	DN100	CF6"	∅152mm	∅94mm	∅44.5mm	15mm	108mm	335.5mm	350.5mm	FS = 150.5mm + 2 LMX - OV		
BDL450	DN63	CF4.5"	∅114mm	∅57mm	∅30.5mm	10mm	114mm					
MCP-LEED												
BDL800-MCP-100DEG	DN150	CF8"	∅203mm	∅142mm	∅38mm	10mm	124mm	355.5mm	365.5mm	FS = 165.5mm + 2 LMX - OV		
BDL800-MCP-77DEG	DN150	CF8"	∅203mm	∅142mm	∅44.5mm	15mm	127mm	358mm	373mm	FS = 173mm + 2 LMX - OV		
BDL600-MCP-72DEG	DN100	CF6"	∅152mm	∅94mm	∅44.5mm	15mm	108mm	335.5mm	350.5mm	FS = 150.5mm + 2 LMX - OV		

NL - Nipple (optional)

#### NOTE:

- If the calculated Flange - Sample length FS is shorter than the actual Port length of the UHV chamber, the addition of the Nipple adaptor is required.  
The Nipple length (NL) can be calculated:  
NL= FS - actual port length of UHV chamber.
- If the calculated Flange - Sample length FS is longer than the actual Port length of the UHV chamber, the holding posts are extended.

FS - Flange to Sample distance  
(required port length for given retraction distance)

WD - Working distance

LMX - Retraction distance

OV - overlapping (from 0 to 10mm)

(with overlapping the LEED optics is not fully extended in the operating position)

## ORDERING GUIDE

BDL800IR-CP	Complete LEED-Auger package with 8" flange( incl. LMX, ISH, V800, LPS300, LOA10-AES, LIM08)
BDL600IR-CP	Complete LEED-Auger package with 6" flange (incl. LMX, ISH, V600, LPS300, LOA10-AES, LIM08)
BDL800IR	LEED optics with integral electron gun on 8" flange (Specify 3 or 4 grid)
BDL600IR	LEED optics with integral electron gun on 6" flange (Specify 3 or 4 grid)
LMX	Linear motion (X=retraction distance)
ISH	Integral shutter
V800	8" viewport
V600	6" viewport
LPS075	Power supply with voltage range 0 - 750V
LPS300	Power supply with voltage range 0 - 3kV
AES-Ser	AES software for external Lock-in Ampl.
LIM08	LEED imaging software with CCD camera, full version
LIM08B	LEED imaging software with CCD camera, basic version
LOA10-AES	Digital AES controller with ramp voltage, sinewave oscillator, lock-in and AES software
LOA100	External Lock-in Amplifier
RVO	Ramp Voltage and oscillator