

■ protoSCRIBE

Performance,  
Flexibility,  
Ease of Use

The  
protoScribe  
Laser Scribing  
System Generates  
High Precision  
Scribes P1, P2, &  
P3 Plus Edge  
Deletion for Thin  
Film Photovoltaic  
(PV) Test Coupons  
and Full Size  
Panels



Thin Film Photovoltaic  
Low To Medium Volume  
Panel Manufacturing Solution

**Vyteck**  
VYTEK LASER SCRIBING SYSTEMS

protoSCRIBE offers these important benefits:

- Enables Concurrent Development of Thin Film Recipes and Laser Scribing Methods
- Generate Full-Length Scribes As Narrow As 25 micron
- Scribe in X and Y Directions
- Film-Side-Up or Film-Side-Down Scribing
- Flexible Optical Subsystem
- Fine Tune Laser Scribing Methods for Various Coating Layers and Thicknesses
- Manageable Lead-Times
- Produce Panels and Coupons Necessary To Demonstrate Technology & Achieve Funding Milestones

Innovative head assembly facilitates precise Z-Axis moves for focusing and rapid change-out to a range of focusing optics.

protoSCRIBE  
with 60cm x 120cm panel

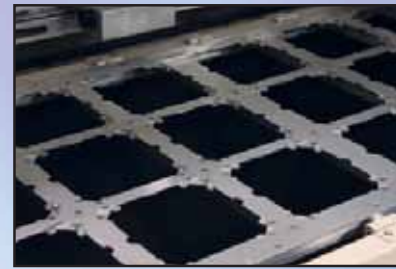


protoScribe boasts an optical subsystem that shapes the native Gaussian laser beam to deliver a homogenized laser spot for scribing. The system delivers an orthogonal beam to the entire work area.



protoSCRIBE Delivers A Precision, Shaped, Stable Laser Spot That:

- Creates Scribes with Uniform Depth and Width
- Creates Clean Scribe Edges
- Minimizes HAZ
- Eliminates Hot Spots That Can Damage Underlying Layers
- Eliminates Scalloping That Can Cause Shunting



15cm x 15cm coupon fixture

## protoSCRIBE

### System Specifications

Dimensions	46" deep x 49" wide x 42" high	
Work Area	60cm x 120cm (larger sizes available)	
Drive Type	High-speed AC brushless servo motors	
Position Detection	High-precision linear encoders	
Cooling System	Air cooled (no chiller required)	
Beam Delivery	X/Y flying optic	
System Software	LaserWorx software in raster or vector mode, with additional macros	
Interface	Ethernet	
Warranty	1 year parts and labor	
Laser Class	Full class 1 system enclosure with safety interlocks	
Laser Types Available	Additional Features	
Near-infrared (1micron) pulsed fiber laser	Air/Nitrogen assist (film side up)	
Green (532nm) laser	Downdraft plenum	
Available Options		
Air/Nitrogen assist (film side down)		
Fume scrubber (activated charcoal + HEPA)		
Fixtures for 60cm x 120cm or 15cm x 15cm panels and custom sizes		
On-site installation and training		

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protoScribe is the Centerpiece of Phase 2 of Vytek's 3-Phase Thin Film PV Panel Manufacturing Solution:

- Phase 1: Vytek Generates Initial Scribes On Test Coupons and Offers *FiberCab* Galvo Scanner-Based Scribing Systems For Panels As Large As 300mm x 300mm
- Phase 2: *protoScribe* Low to Medium Volume Full-Size Panel Laser Scribing System
- Phase 3: *Axiom* Production Laser Solutions for Scribes P1, P2, and P3 plus Edge Deletion



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