

OEM-S100-HL

DESIGNED FOR CZTS, CIGS, OLED
DEDICATED TO Cu, Ga, In, Zn, Sn, Se, S,
Ag, LiF, Mg, etc.



- CIGS - CZTS PVD MACHINE
- OLED CONTACT LAYER GEN 5.5 MACHINE
- TEMPERATURE RANGING FROM 100°C - 1450°C



The S100-HL cell is a **single-heater effusion source** equipped with an **integrated water cooling**. More than 700 sources have been delivered in the field. They are currently **used on mass production PVD machines in the OLED (GEN5.5) and CIGS pilot line fields**.

The source has proven its **versatility by evaporating low vapor pressure materials** such as Ag at 2 g/min, ionic compounds such as LiF at 14 g/min and high vapor pressure materials such as Mg at 0.5 g/min.

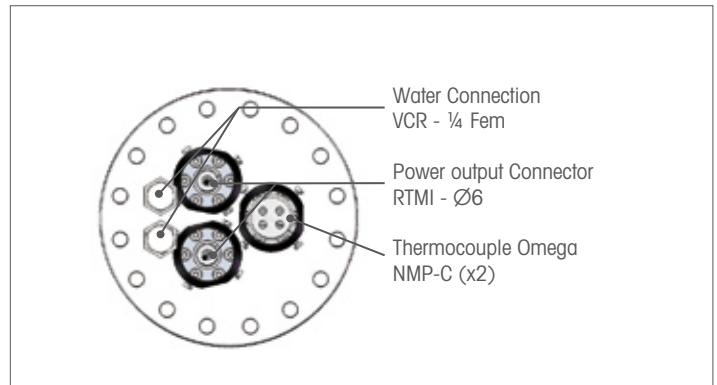
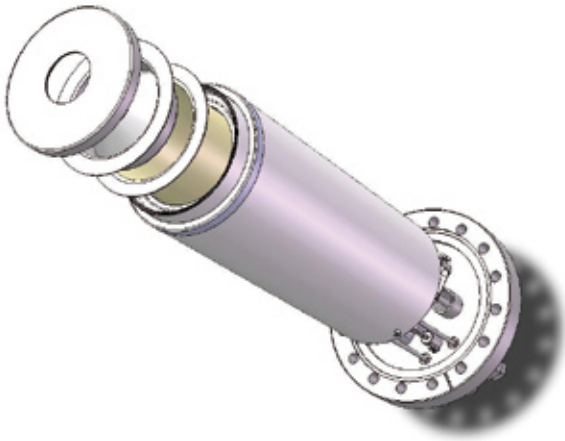
The same source is used for the evaporation of low vapor pressure materials such as Mg and Zn, for ionic materials such as LiF and MoO and low vapor pressure materials

such as In, Ga, Ag or Cu. The innovative design allows having a **constant flux distribution that is independent of the filling level of the source**. The source is then **suitable for the in line-process**.

The source is particularly suitable for **integrating into PVD machines** (vertical position) dedicated to the advanced study of the CIGS, CZTS or OLED processes.

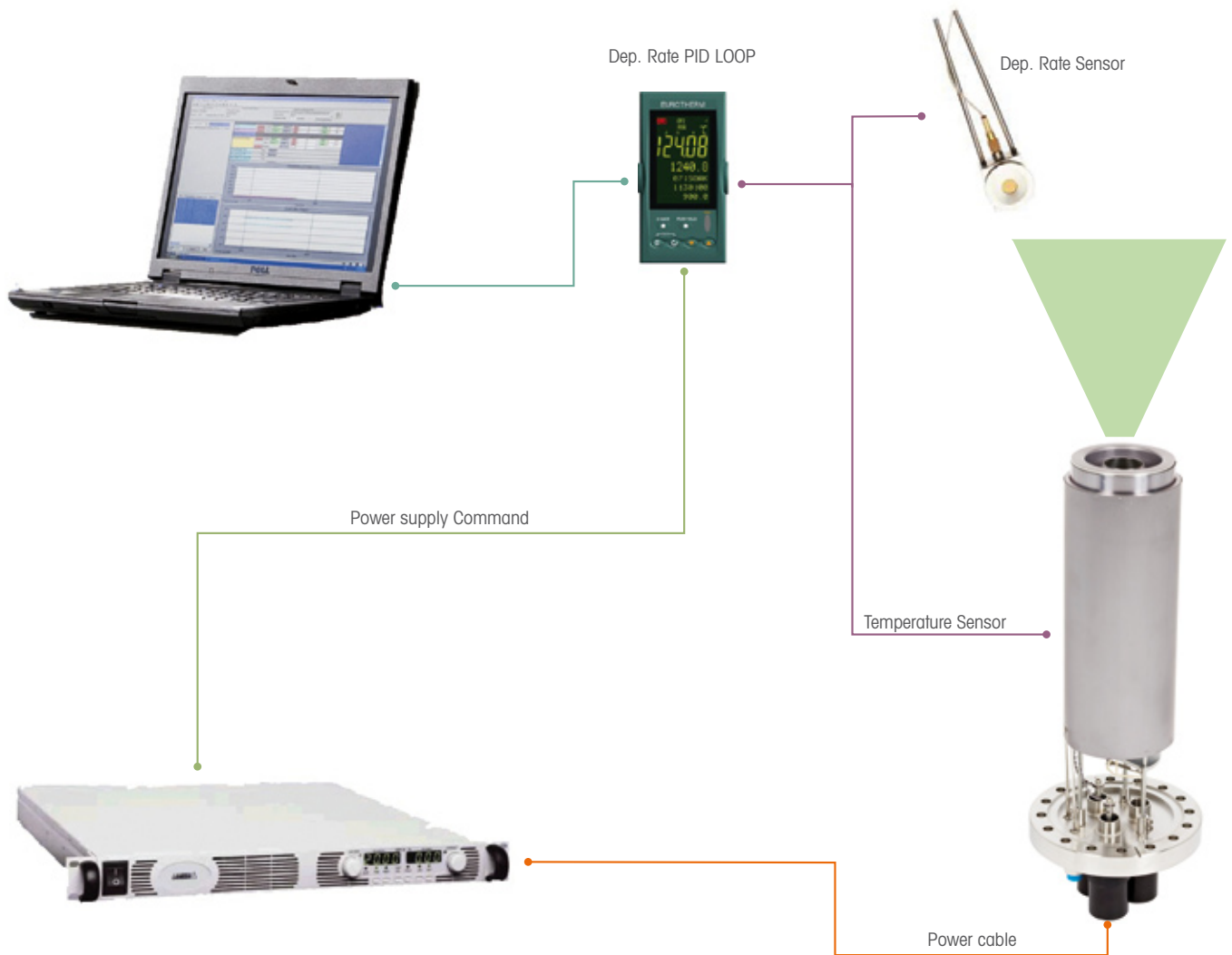
The source is integrated into a PVD machine for coating on a squared glass substrate measuring 650 x 750 mm with a uniformity of $< \pm 5\%$ (rotating) or into an in-line Pilot line machine (600 - 800 mm in width).

SPECIFICATIONS



CHARACTERISTICS	CELL MODEL S100 HL
Filament	Single
Heating filament (Tantalum)	Wire
Thermocouple	double C-type
Crucible	pBN Crucible - Insert - Cap
Mounting flange (minimum)	CF 100 (6")
Integrated water shielding	Yes
Typical operating temperature	100°C - 1350°C
Maximum continuous temperature	1450°C
Temperature stability	± 0.2°C
WATER / GAS / ELECTRICAL	
Power consumption typical	1400W
Power supply recommended	100V - 15A
Power output connector	RTMI Ø6
Thermocouple connector	HMPW-C-M
Water connection	VCR ¼ Fem
Water temperature input	25° max
Inlet water pressure	ΔP > 4 bar
Water flow rate	0.2l/mn (min)
Integrated water shielding	Yes

OPERATING THE SOURCE



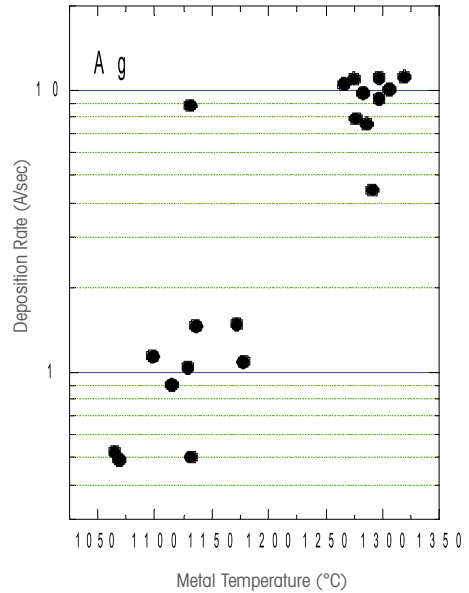
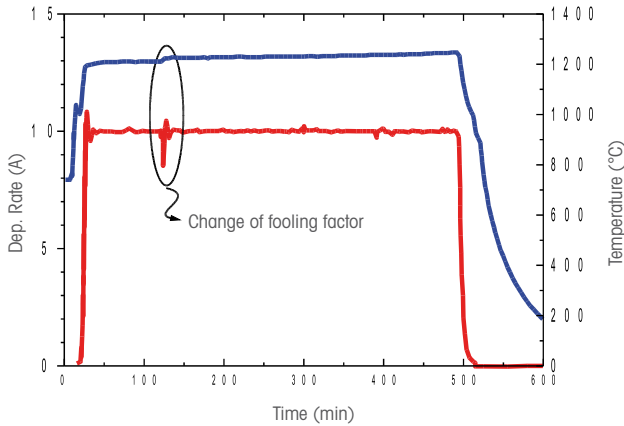
In PVD, the source is generally warmed up with a constant ramp of power.

The evaporation rate is measured with a quartz monitor (or an in-line thickness measurement). A PID loop controls the power of the source using the deposition rate signal. The source can also be used in temperature control using the source thermocouple.

RESULTS

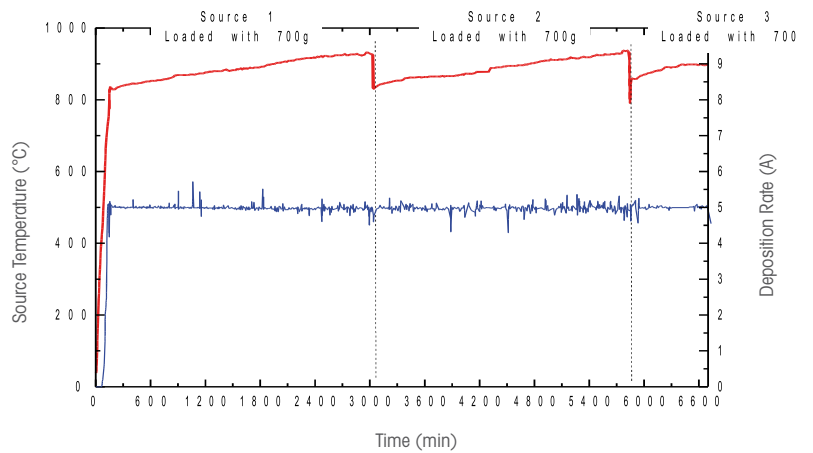
Evaporation of Ag at ~1300°C.

The deposition rate is continuously measured and is used in a PID loop to control the power of the source. At 10 Å/sec, the source evaporates at 2 g per minute and is used for coating on a rotating glass substrate measuring 750 x 650 mm.

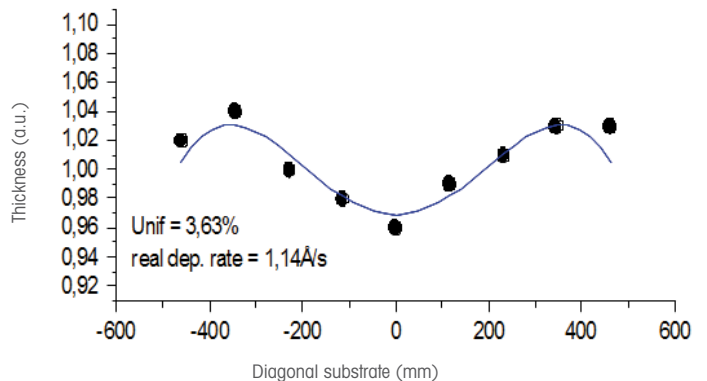
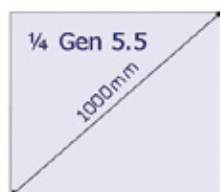


Evaporation of LiF at ~900°C.

The deposition rate is continuously measured and is used in a PID loop to control the power of the source. At 5 Å/sec, the source evaporates 14 g per hour. The process is kept continuous by switching when the source is empty. The coating is deposited on a rotating glass substrate measuring 750 x 650 mm.

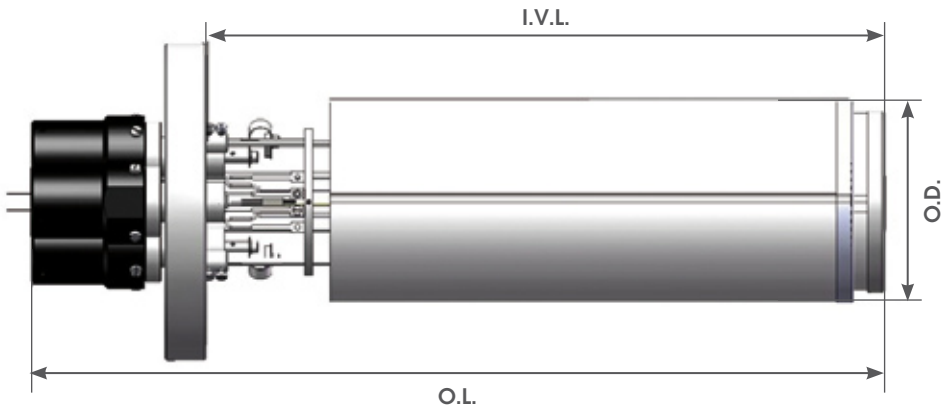


Uniformity does not change during the evaporation. A uniformity of $\pm 5\%$ has been achieved on a rotating glass substrate measuring 750 x 650 mm. The picture shows a thickness profile along the diagonal of the substrate (~1000 mm).



ORDERING INFORMATION

SOURCE

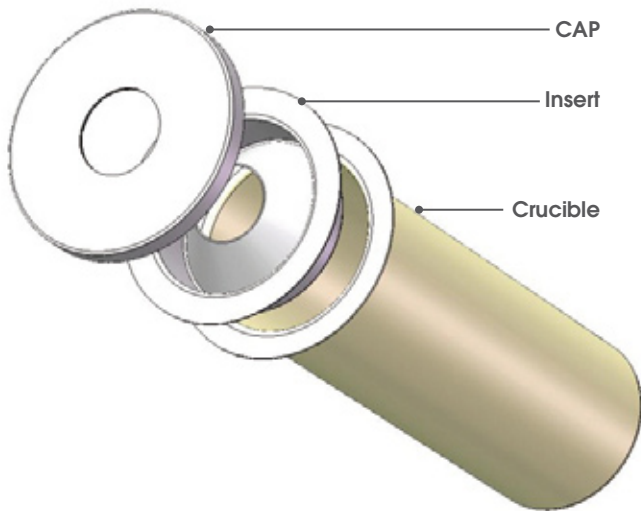


CELL PRODUCT GUIDE			
	Gauge	Technology	Volume cc
OEM	S100	HL	550

CELL MODEL	P.N.	H2O	FLANGE	I.V.L.	O.L.	O.D.
OEM S 100 HL 550	R235 002 1	Yes	CF 100 (6")			

Contact RIBER

CRUCIBLES



CRUCIBLE PRODUCT GUIDE			
	Gauge	Volume	Material
OEM	8	100	550 PBN

Shape : 8 - cylindrical Crucible
 7 - conical Crucible
 CAP - Cap
 INS - Insert

CELL MODEL	CRUCIBLE	P.N.	CAP	P.N.	INSERT	P.N.
OEM S 100 HL 550	OEM 8 100 550 PBN	R330 001 8	CAP100550-02	R235 075 4	INS100550-01	R330 064 3
OEM S 100 HL 550	OEM 8 100 550 PBN	R330 001 8	CAP100550-04	R235 084 9	INS100550-02	R330 195 1

TECHNOLOGICAL LEADERSHIP

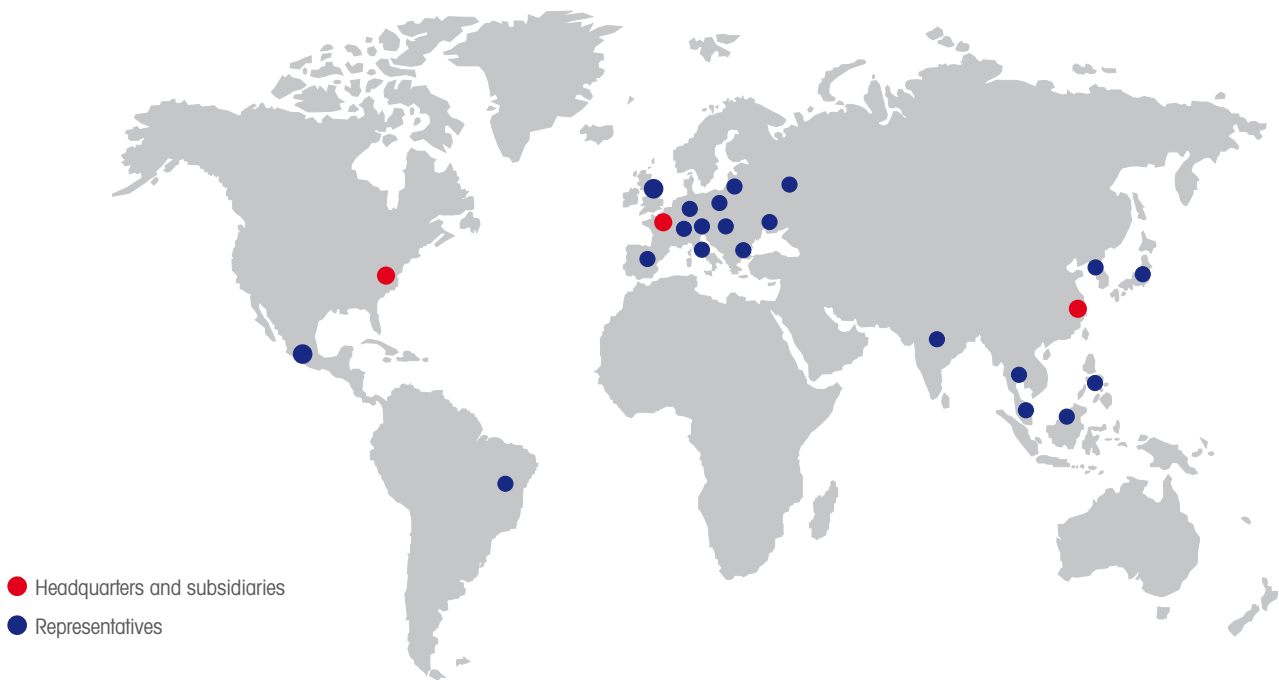
RIBER Company is the world leading supplier of MBE processing equipment and related services.

Capitalizing on more than 30 years of experience in the development of effusion sources for MBE, RIBER has been created to develop and market evaporation sources for a wide range of vacuum evaporation applications. Riber products concern thin film vacuum evaporation. This thin film field covers OLED, Solar CIGS cells, batteries, anti-corrosion coating and plenty of advanced applications.

RIBER is a key player in the promotion of PVD thin film technology and vacuum evaporation technology for mass production.

More than products, RIBER provides solutions.

WORLDWIDE PRESENCE



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