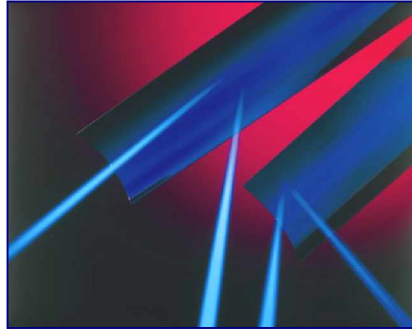


# VERA 1600 / VERA 2000

**Precision in a high vacuum –  
Complete systems for  
large area optical coatings**



These fully automated production coating systems are specified for the inexpensive optical coating of planar and convex components in production.



The VERA series offers a very flexible and wide range of technological possibilities for the production of anti-reflection coatings, highly reflective mirror coatings, beam splitters or edge filters in the spectral range from ultraviolet through to near infrared, for example.

VTD also develops customized technological coating solutions.

The hardware is characterized by the following main features:

- Fully automated, computer-controlled process
- Use of an industrially-tested vacuum system
- Stainless steel chamber to hold components in an production circle of 1,400 to 1,750 mm in diameter
- Electron-beam evaporators and/or resistance evaporators according to your specification
- Ion source for ion-assisted deposition (IAD) of sophisticated coating systems
- Film thickness and deposition rate measurement with a quartz-crystal thin film monitor or an optical film thickness gauge as required
- A wide variety of supplementary technological equipment
- Data management for quality control and external networking
- Easy handling during maintenance and service

## Technical data

		VERA 1600	VERA 2000
<b>System type</b> (Configuration example)			
Substrate		glass, glass ceramics, various plastics, metal	glass, glass ceramics, various plastics, metal
<b>Productivity</b>			
Calotte diameter	mm	1,480	1,750
Coatable area	dm <sup>2</sup>	approx. 150	approx. 240
Typical batch time (thin-walled optical components)	min	approx. 300 > 60 λ/4 layers	approx. 60 4 layers, broadband
<b>Vacuum chamber</b>			
Inner Diameter	mm	1,650	2,000
Height (inside)	mm	1,700	2,100
<b>Pump system</b>			
Oil diffusion pump	l/s	2 x 17,000	2 x 20,000
PolyCold * cryogenerator	l/s (H <sub>2</sub> O)	200,000	200,000
Refrigerator cryopump *	l/s	2 x 10,000	2 x 10,000
<b>Fittings</b>			
Electron-beam evaporator with multi-pocket crucible	kW	2 x 5 or 2 x 10	2 x 5 or 2 x 10
Resistance evaporator *	kW	2 x 5	up to 18 as evaporator array
Evaporator shutters		1 x at each source	1 x at each source
Shutter to adjust the film thickness		connectable	connectable
Quartz-crystal thin film monitor		multiple head	multiple head
Optical film thickness gauge	nm	300 ...1,670	300 ...1,670
Ion-beam source			
Glow-discharge unit	kVA	3 kV @ 500 mA	3 kV @ 500 mA
Radiation heater: front	kW	6 x 2,5	8 x 2,5
Gas-inlet system		up to 3 gases	up to 3 gases
<b>Vacuum values</b>			
Working pressure	mbar	5 x 10 <sup>-6</sup>	5 x 10 <sup>-6</sup>
Evacuation time (up to working pressure) with PolyCold	min	25	25
<b>Dimensions</b>			
Installation dimensions (H x W x L)	cm	approx. 240 x 430 x 470	approx. 370 x 480 x 580
Weight	kg	approx. 6,500	approx. 7,800

\* optional

Further information:

VTD Vakuumtechnik Dresden GmbH,  
Bismarckstrasse 66, D-01257 Dresden, Germany  
Phone +49 351 2805 -223, Fax +49 351 2805 -222  
E-mail: sales@vtd.de; www.vtd.de