

Welcome to Carl Zeiss Jena



Carl Zeiss
The Carl Zeiss Jena GmbH



Carl Zeiss Foundation

100 %

100 %

Carl Zeiss

Schott

100 %

100 %

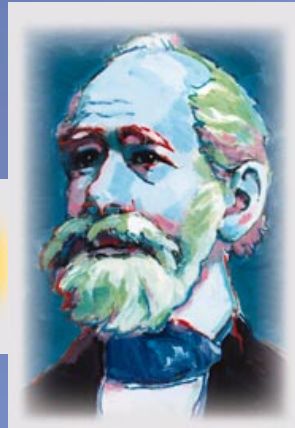
**Carl Zeiss Jena
GmbH**

**Jenaer Glaswerk
GmbH**

Carl Zeiss
Our Pioneers



Carl Zeiss
Precision mechanic
Company founder
1816 - 1888



Ernst Abbe
Physicist / Founder of the Stiftung
1840 - 1905



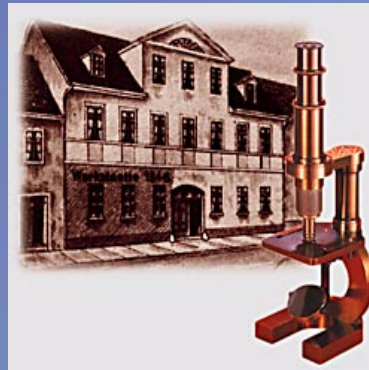
Otto Schott
Glass researcher / Founder of Schott Glaswerke
1851 - 1935



Carl Zeiss Milestones

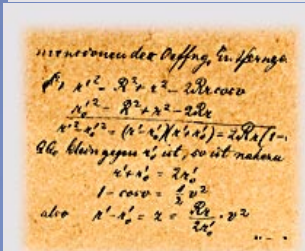


1846



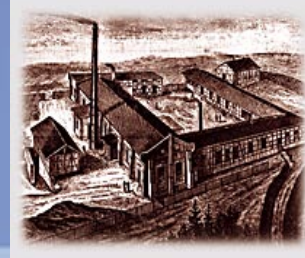
Carl Zeiss opens a workshop for precision engineering and optics in Jena

1872



Abbe's theory of microscope image formation

1884



Founding of what will later be called Jenaer Glaswerk Schott & Genossen

Carl Zeiss Milestones



1889

Ernst Abbe founds the
Carl-Zeiss-Stiftung

1945

Partial destruction in the war,
followed by separation into Carl Zeiss
“Optische Werke Oberkochen” and the
state-owned “VEB Carl Zeiss Jena”



1991

Re-unification of the separated companies

1996


150 Years of Carl Zeiss -
Innovation in Optics



Carl-Zeiss-Stiftung (Carl Zeiss Group + Schott Group) Key Figures Worldwide 1997/98

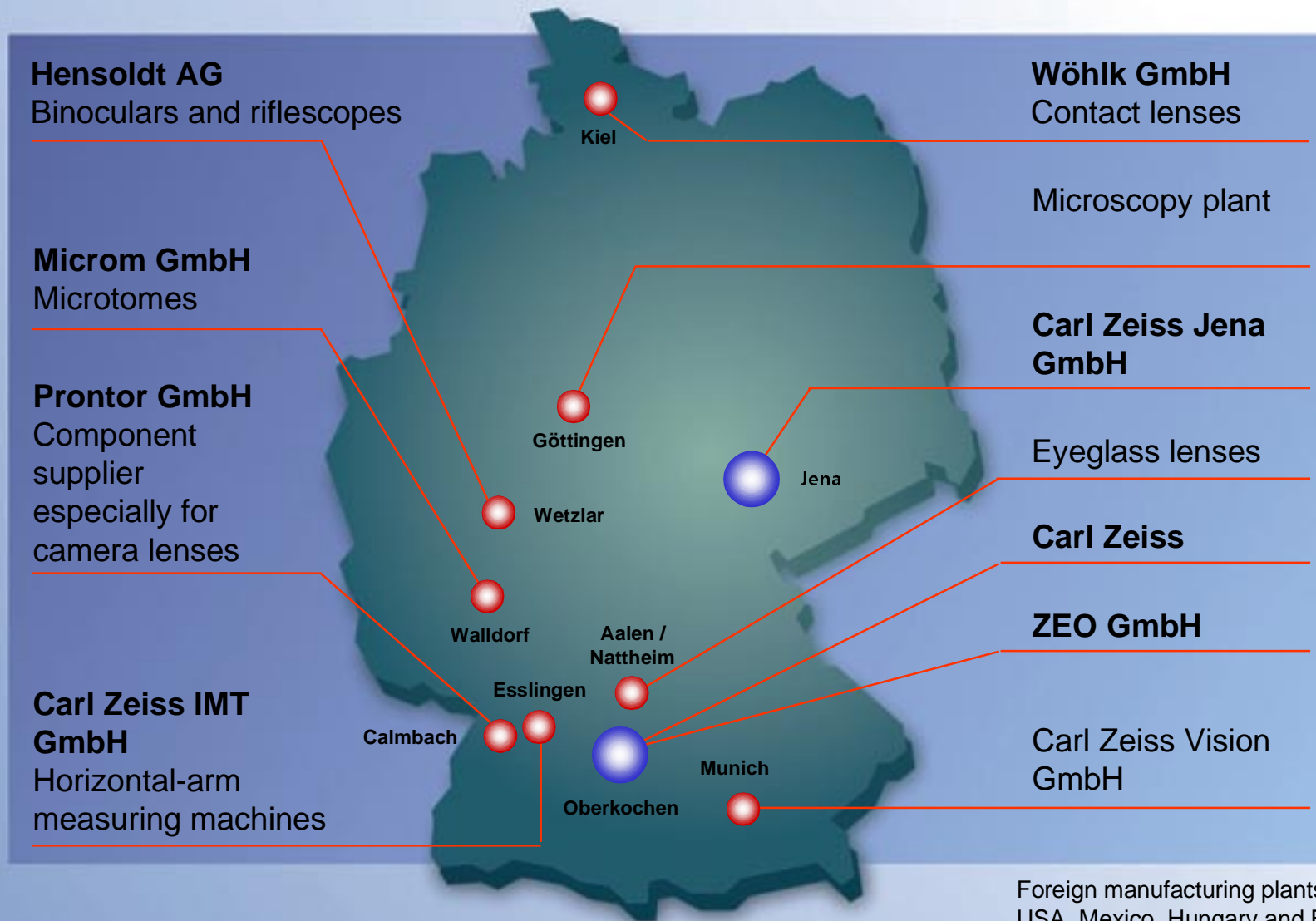


	Total	Zeiss	Schott
Sales	DM 6.1 billion	DM 3.0 billion	DM 3.1 billion
Sales outside Germany	73 %	74 %	72 %
Employees (approx.)	28,500	13,500	15,000



Including non-consolidated subsidiaries

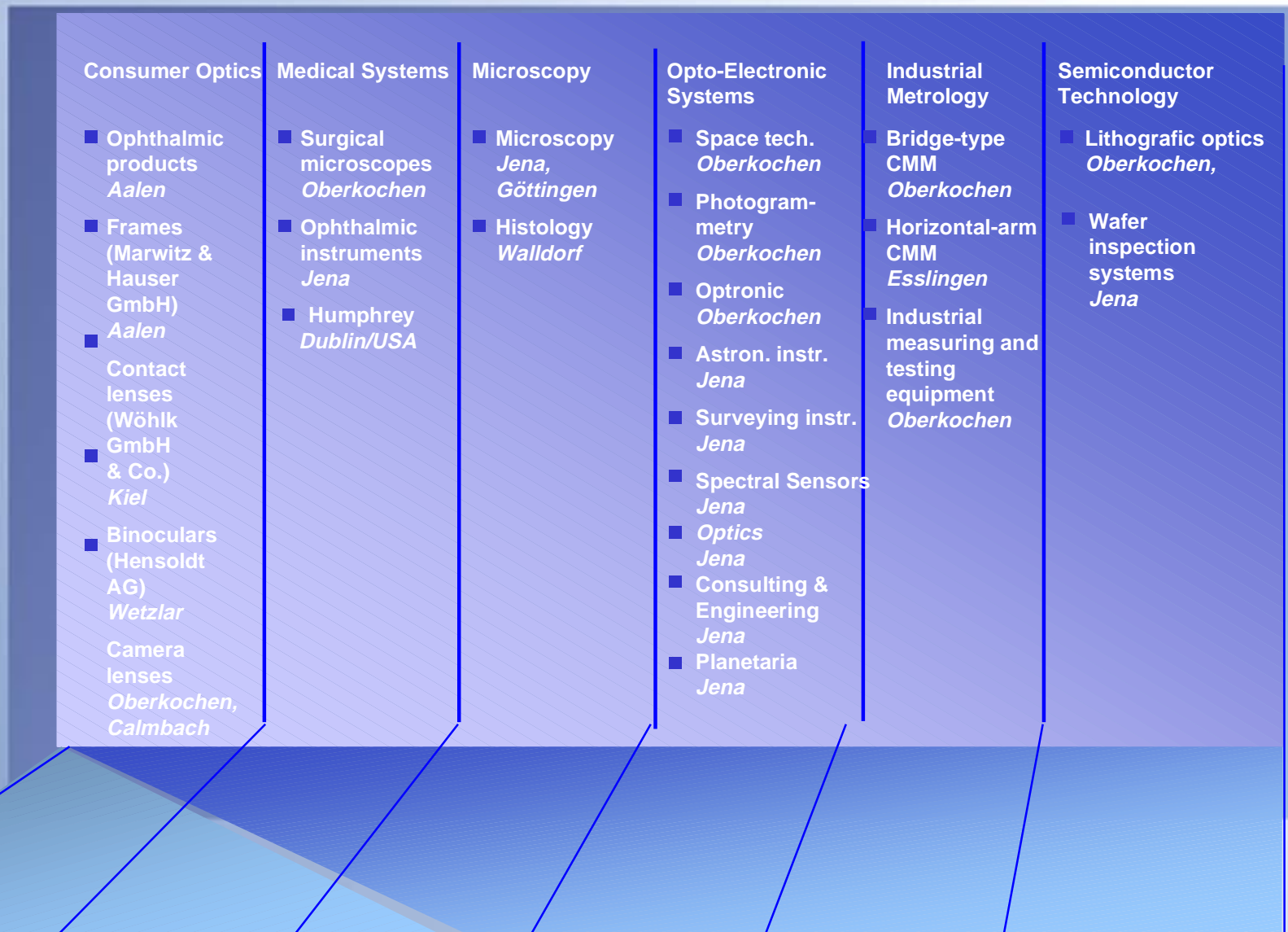
Carl Zeiss Group Manufacturing Locations in Germany

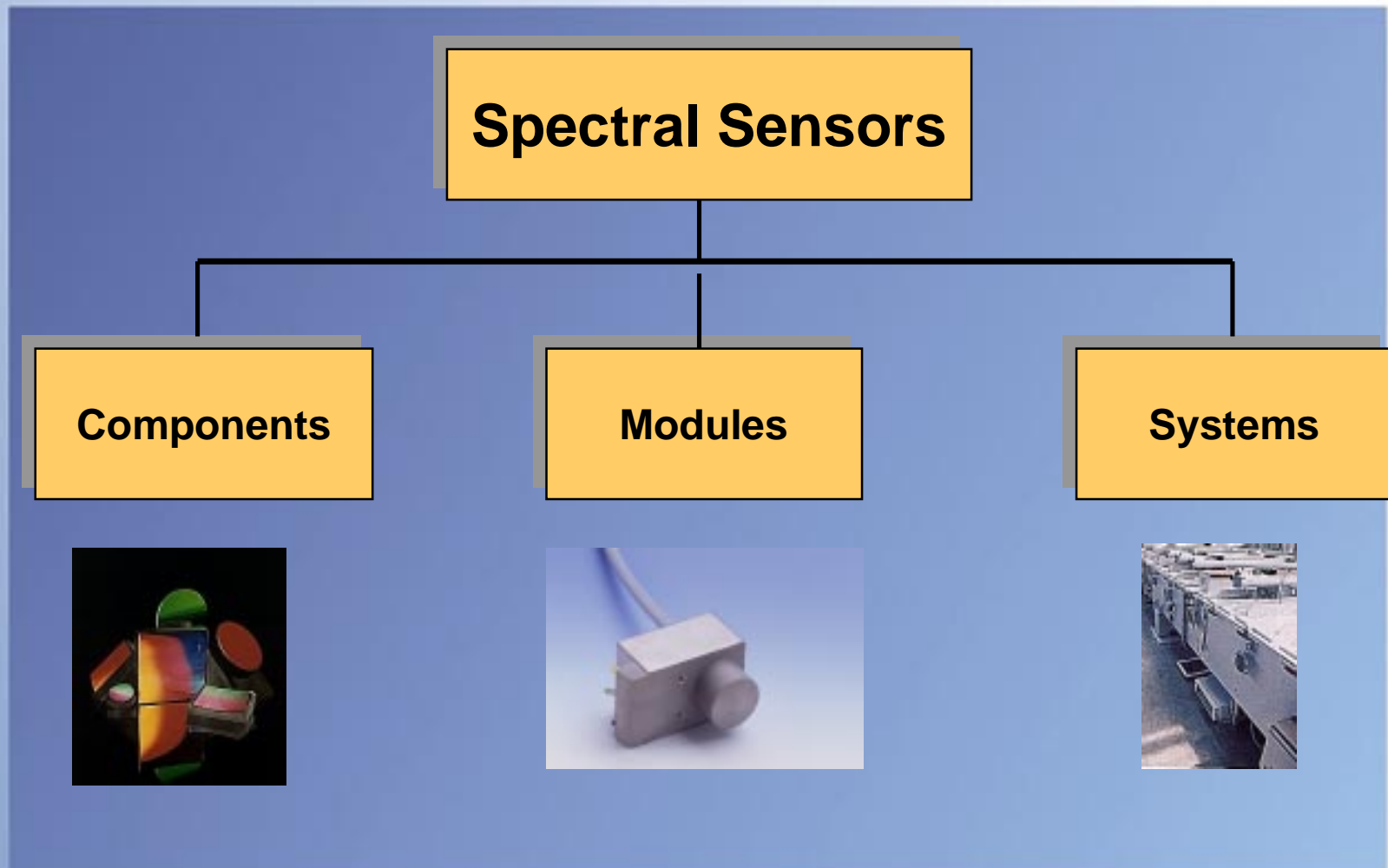


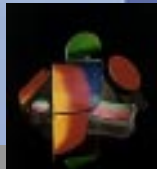
Carl Zeiss Group Major Manufacturing and Sales Locations



Carl Zeiss Group Business Groups and Locations



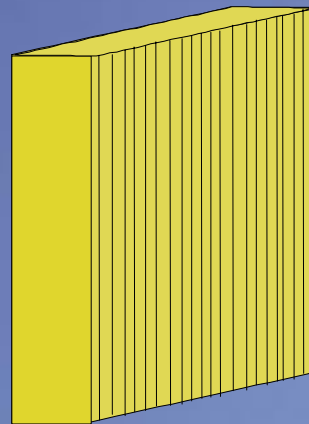




Components

Gratings

- Plane gratings
- Concave gratings
- Flatfield gratings
- Laser gratings



mechanically ruled
holographically exposed
10-6000g/mm

blazed
sinusoidal
laminar

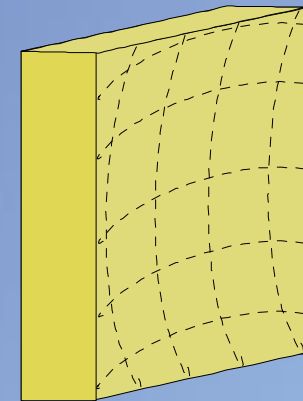
UV lenses



CaF₂
MgF₂
Quartz

plane
spherical

Mirrors



flat
concave
toroidal

Al pure
Al p-protected
Al+MgF₂
Au
Ag enhanced

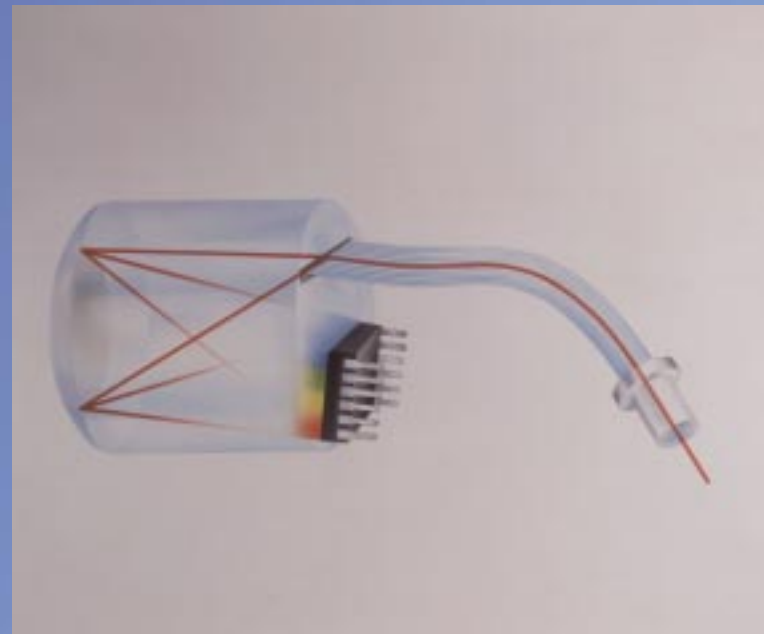
Carl Zeiss
Business unit - Spectral Sensors



Modules

Type	Resolution	Accuracy	Pixel No.	λ - range
MMS 1	10 nm	0.3 nm	256	300-1100 nm
MMS UV	3 nm	0.1 nm	256	200-400 nm
MMS UV-VIS	7 nm	0.2 nm	256	200-720 nm
MMS NIR	18 nm	0.5 nm	128/256	0.9-2.2 μ m
MCS	2,4 nm	0.3 nm	512/1024	200-1100 nm

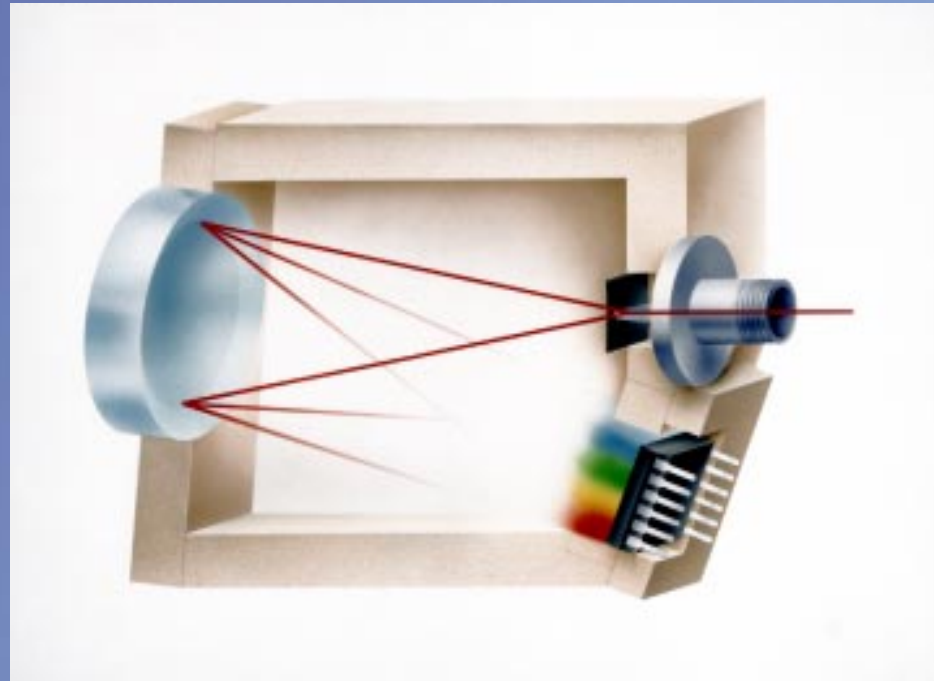
MMS Design Principle



- Fiber cross-section converter as optical input, SMA connector
- Holographically recorded and blazed imaging grating
- Photodiode Read-out
- Robust housing, no moving parts

Modules

MCS Modules



Modules

- MCS UV-NIR 190 - 1015 nm
- MCS UV-VIS 190 - 620 nm
- MCS VIS 360 - 780 nm
- MCS NIR 680 - 1100 nm

Carl Zeiss Business unit - Spectral Sensors



Systems

Software

ASPECT PLUS
COLOUR
THICKNESS
METHOD
MCA
Labview Library
C- Library



Interfaces

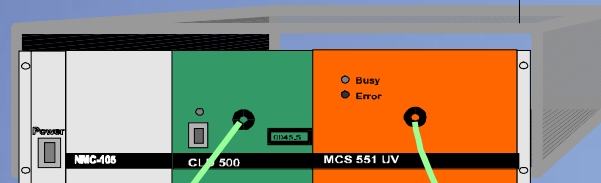
RS 422 PC
RS 422 PC/T8
PCMCIA

Spectrometer units

MCS 501
MCS 551 UV
MCS 551 VIS
MCS 551 NIR
MCS 521 UV
MCS 521 UV-VIS
MCS 521 VIS
MCS 522 VIS
MCS 522 UV VIS
MCS 511 NIR

Probes

Monofibres
Fibre bundles
Immersion probes
Immersion probes for reflection
OMK 500
ATR probes
Collimator optics
Measuring heads
Microscope adapters



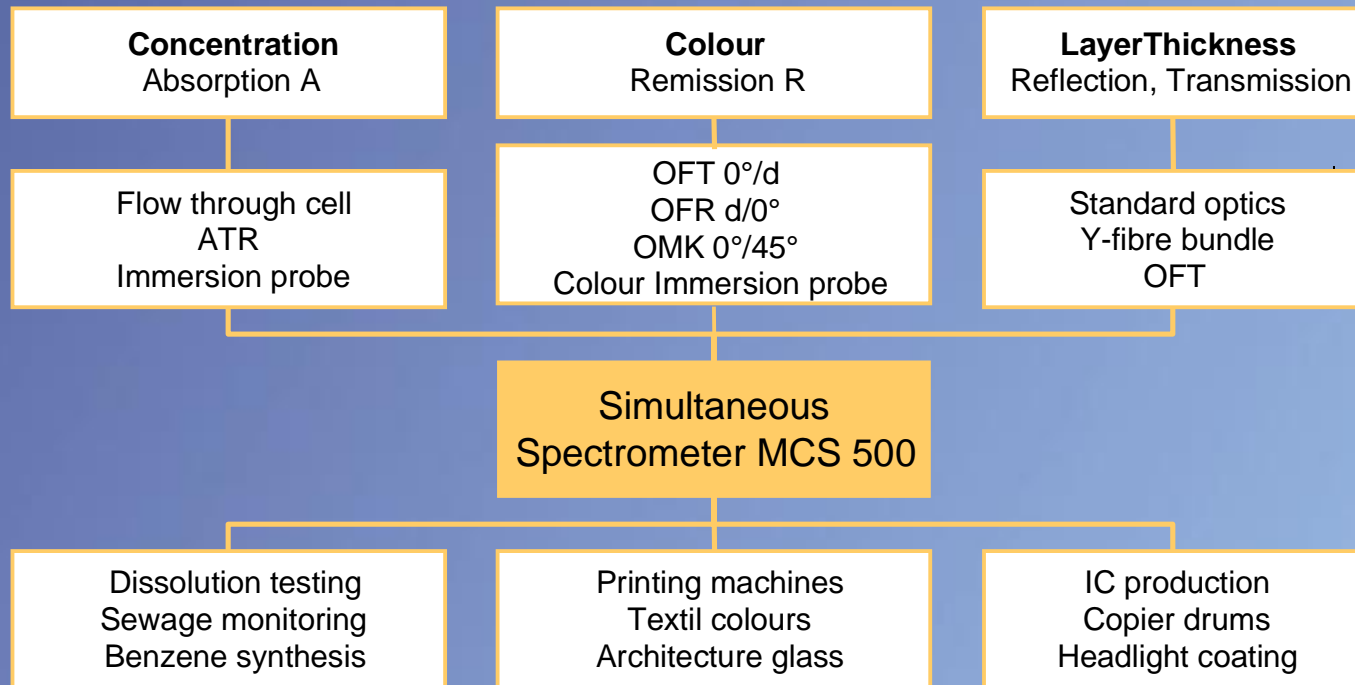
Light sources

CLD 500
CLH 500
CLX 500
BLX 500/4
BLX 500/6
2 channel multiplexer
4 channel multiplexer

Carl Zeiss Business unit - Spectral Sensors



Systems



Carl Zeiss
Business unit - Spectral Sensors



Systems

- Over 1500 systems installed worldwide
- Installations in over 30 countries
- 25 engineering, sales and service partners worldwide
- reliable in-line operation since 1988

Carl Zeiss
Business unit - Spectral Sensors



Systems

- Coating on glass
- Coating on semiconductors
- Color of textiles, plastics
- Color of liquid dyes
- Protein, fat, water in food
- Emission of LED's, lamps etc
- Alcohol, sugar, starch in beverages
- Aromatics in water
- Permanganate time analysis
- Cleaning validation and dissolution monitoring
- Additives in polymers and blends
- a lot of confidential applications

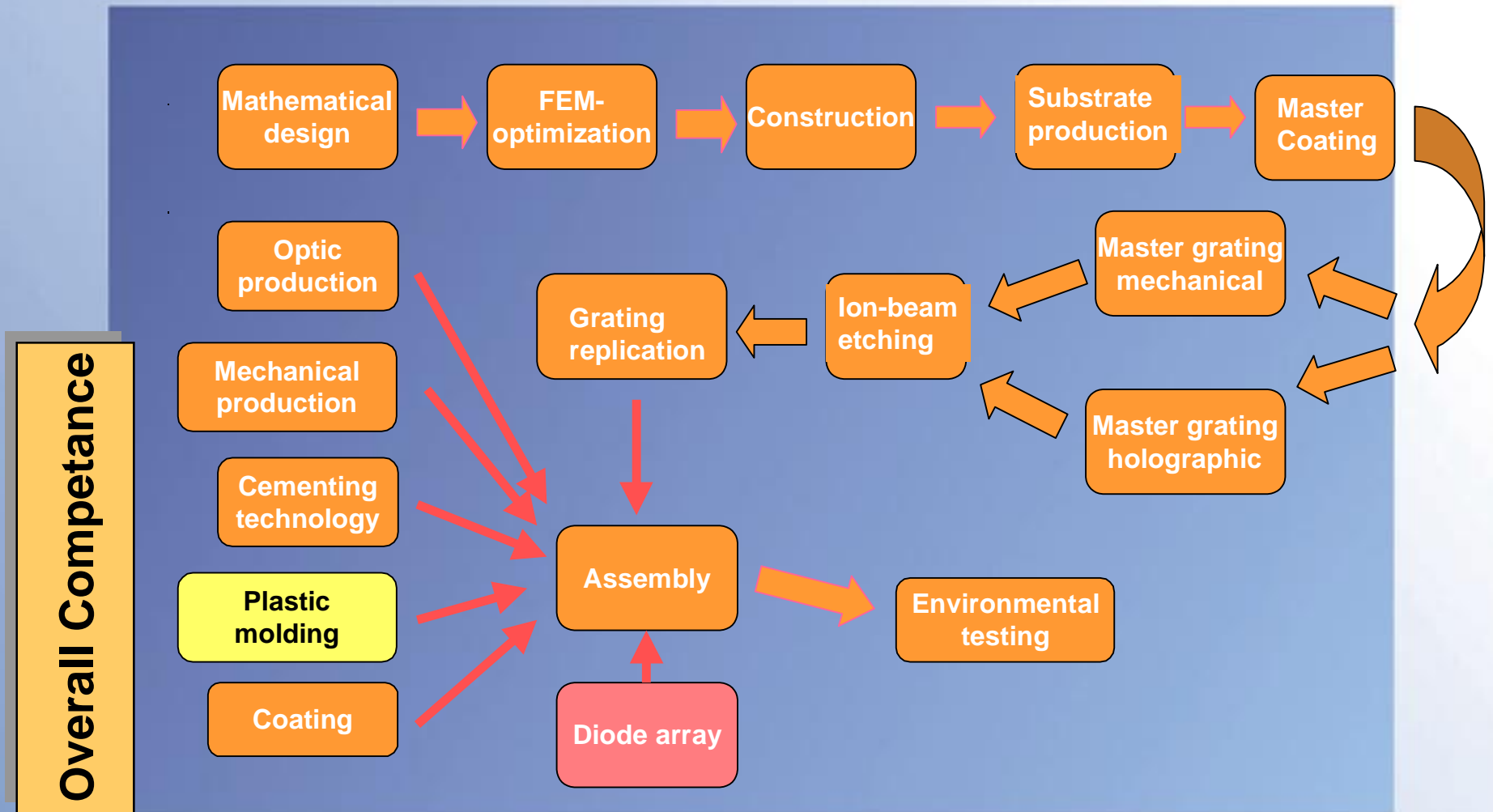
Carl Zeiss
Business unit - Spectral Sensors



Systems

• BASF	35 systems
• Leybold	150 systems
• Essilor	55 systems
• Bayer	18 systems
• Bosch	25 systems
• General Electric	23 systems
• OCE	10 systems
• Hewlett Packard	7 systems
• Rodenstock	12 systems
• Akzo Nobel	8 systems
• Mahlo	55 systems
• Shell	17 systems
• Pfizer	6 systems
• Siemens	14 systems
• Philips	10 systems
• Dow Chemicals	6 systems

Carl Zeiss Business unit - Spectral Sensors



Carl Zeiss
Business unit - Spectral Sensors



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