

CRYSTECH

青岛海泰



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MISSION

- Focusing on KTP series crystals;
- Focusing on high quality coating;
- Professional supplier for laser components

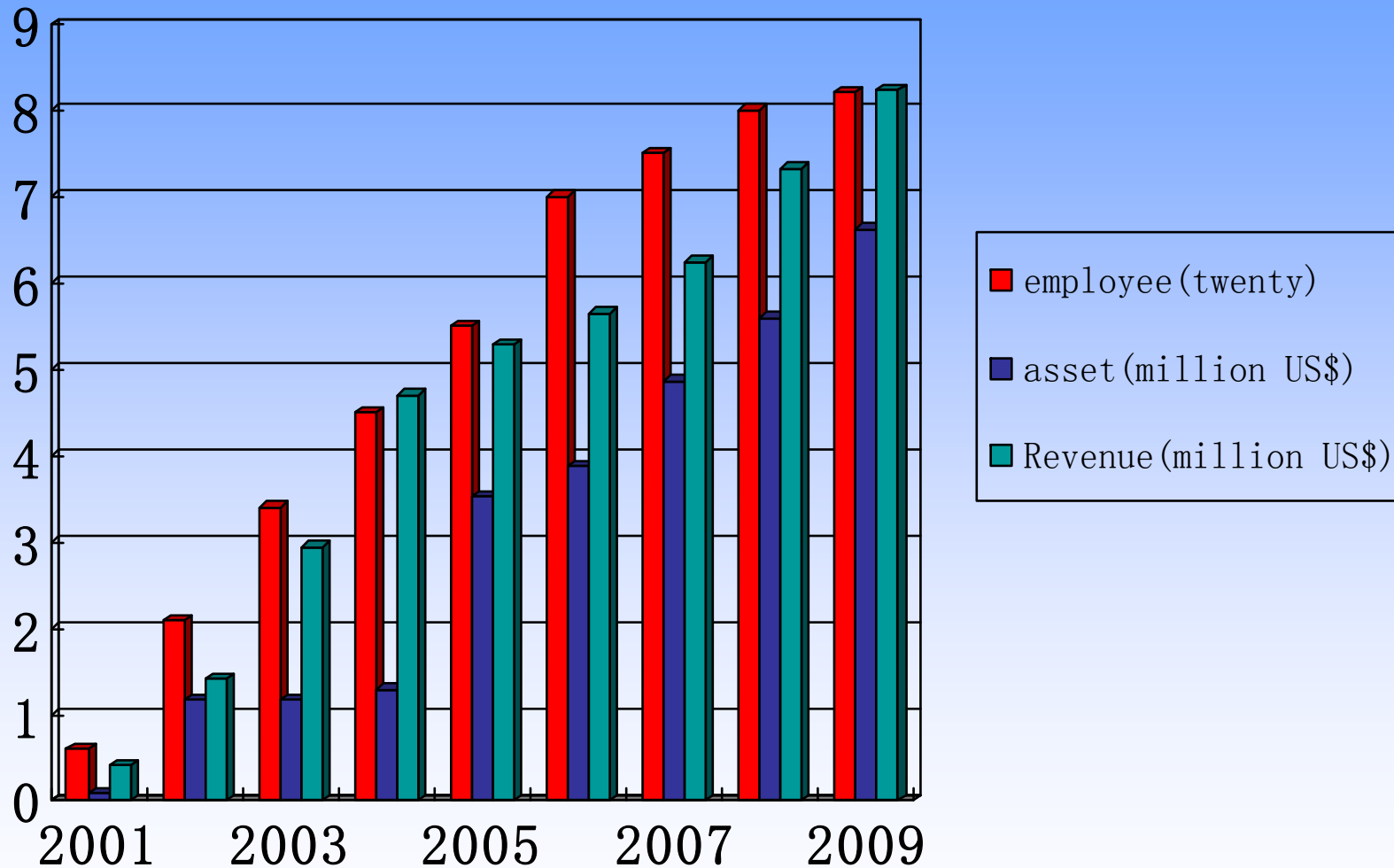


MILESTONE

1. 2000, CRYSTECH Inc. was established.
2. 2002, the asset was raised to 1.2 million US\$ to enlarge the NLO crystals production line.
3. 2006, CRYSTECH got the ISO9001:2000 certified; **GTR-KTP** boule was grown in CRYSTECH.
4. 2007, 1.5 million US\$ investment to improve production facilities, the **world's largest NLO crystals (KTP) production line** was set up.
5. 2008, CRYSTECH enlarged the DPM production line for half million pieces p.a..
6. 2010, CRYSTECH moved to new address.



DEVELOPING



CRYSTECH'S TECHNICAL SUPPORT



FIRSM
(Chinese Academy of Science)



Shandong University



CRYSTECH'S QUALITY CERTIFICATE

ISO 9001:2008 Certification



CRYSTECH'S MAIN PRODUCTS



Optical Components

KTP, GTR-KTP, KTA, BBO,
BIBO, RTP, AGS, etc.

Nd:YVO₄, Nd:YAG, Nd:GdVO₄,
Composite crystals, etc.



Laser Crystals



NLO Crystals



DPM(Nd:YVO₄+KTP) Crystals



Pockels Cells (RTP, KD*P, LN)



PROCESSING

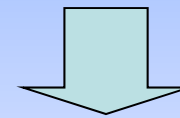
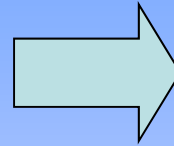
Procedure	Type	Characters		Products
		Advantage	Disadvantage	
Orientation	X-RAY orientation	High precision, easy operation	Staff protected	NLO&Laser crystals
Cutting	Internal cutting	High precision, low cutting loss	Low efficiency	KTP, Nd:YVO4, Nd:GdVO4, KTA, BIBO, BBO, etc.
	External cutting	High Efficiency	Low precision, high cutting loss	Optics
	Linear cutting	High precision and efficiency, low cutting loss	High equipment cost	Small size and large volume laser& optical components
Grinding Polishing	Manual grinding/polishing	High precision, easy for abnormality crystal	Low efficiency, limited by operators	Small volume, high precision, special crystals
	Mechanical grinding/polishing	Good consistency, high efficiency	Common precision	Large volume, big size optics& crystals
Cleaning	Manual cleaning	Good quality	Low efficiency, limited by operators	Small volume crystals
	Ultrasonic cleaning	High efficiency, low cost	Common quality	Large volume optics



PROCESSING FLOW



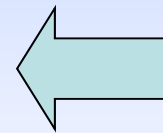
Orientation



Cutting



Grinding & Polishing

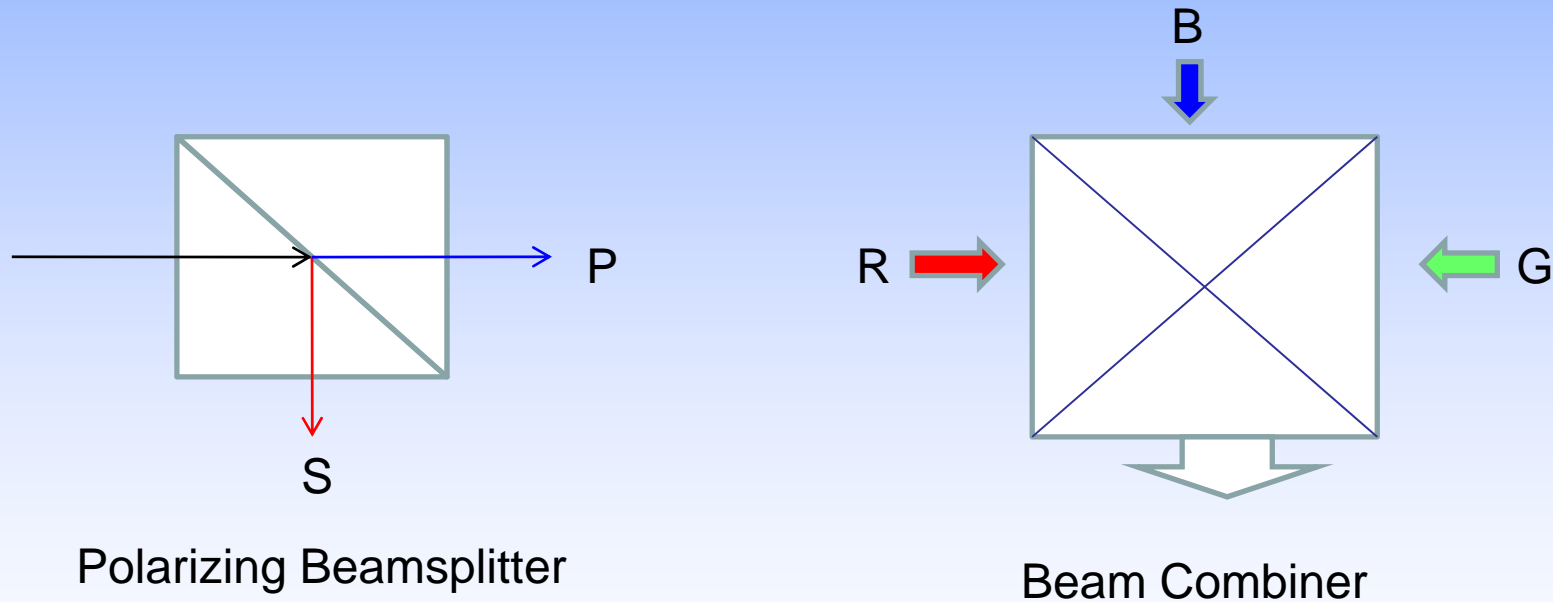


Cleaning



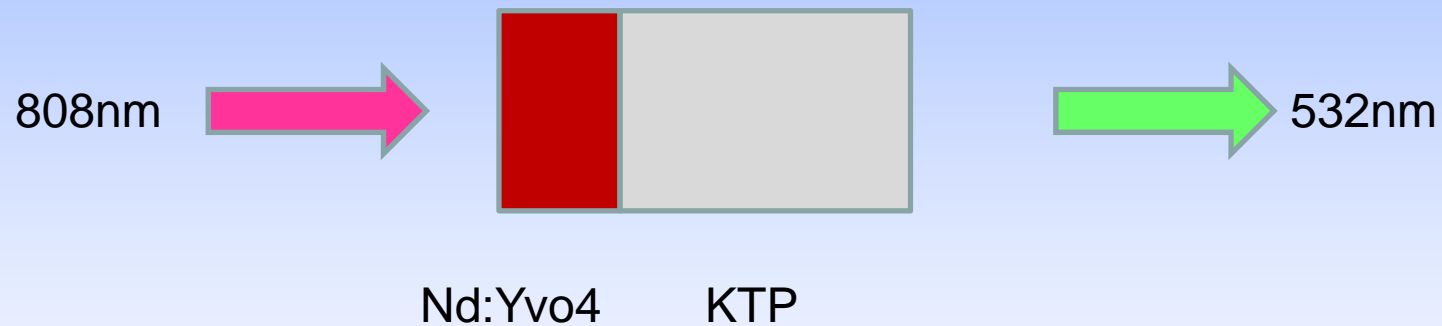
SOME PROCESS FOR SPECIAL APPLICATIONS(1)

Glue



SOME PROCESS FOR SPECIAL APPLICATIONS(2)

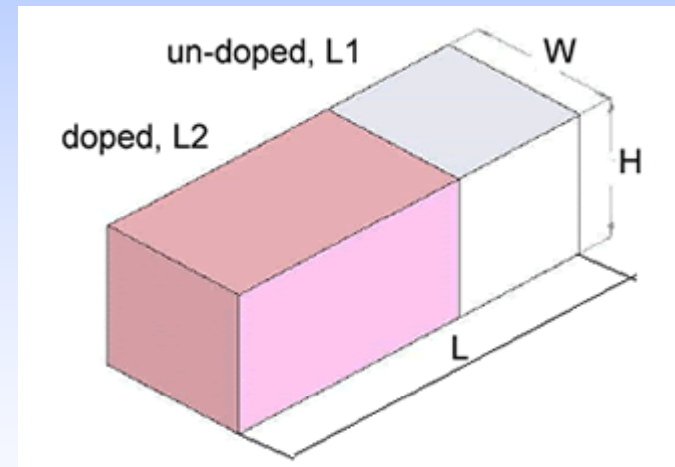
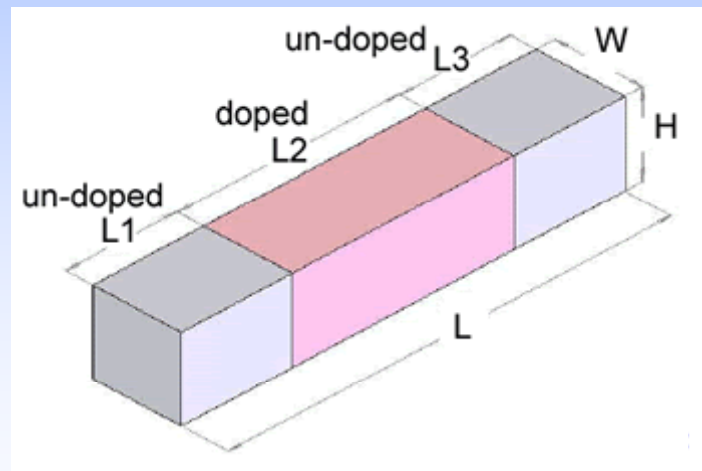
- Optical bonding



SOME PROCESS FOR SPECIAL APPLICATIONS(3)

Diffusion Bonding

reduce thermal effect



SOME PROCESS FOR SPECIAL APPLICATIONS(4)

- Gold-Coated

Good Thermal Dissipation



COMPARISON OF COATING TECHNOLOGY

Coating Technology	Type	Characters		Products
		Advantage	Disadvantage	
Thermal evaporation	Thermal Resistance Evaporation	Simple device, easy control	Refractory metal is not available, easily to be polluted	Metal Coatings
	Electron beam evaporation	Wide applicability, little be polluted	Low film density	Crystals & optics for low power lasers
Ion-assisted deposition	IAD	Higher film density, lower absorption	Higher cost	Laser coating, precision optics coating
Ion beam sputtering	IBS	higher film density, lower absorption, High working temperature		Filters, precision optics and laser coating



CRYSTECH'S COATING WORKSHOP



IBS Coating (Veeco)



IAD coating (Leybold)



QUALITY CONTROL



Microscope for Surface Quality



Spectrometer for reflection (R%) & transmission (T%), etc.



PCI for Bulk & Surface Absorption of Crystals



3D Profilometer for Roughness, etc.



Interferometer for TWD, Flatness, etc.

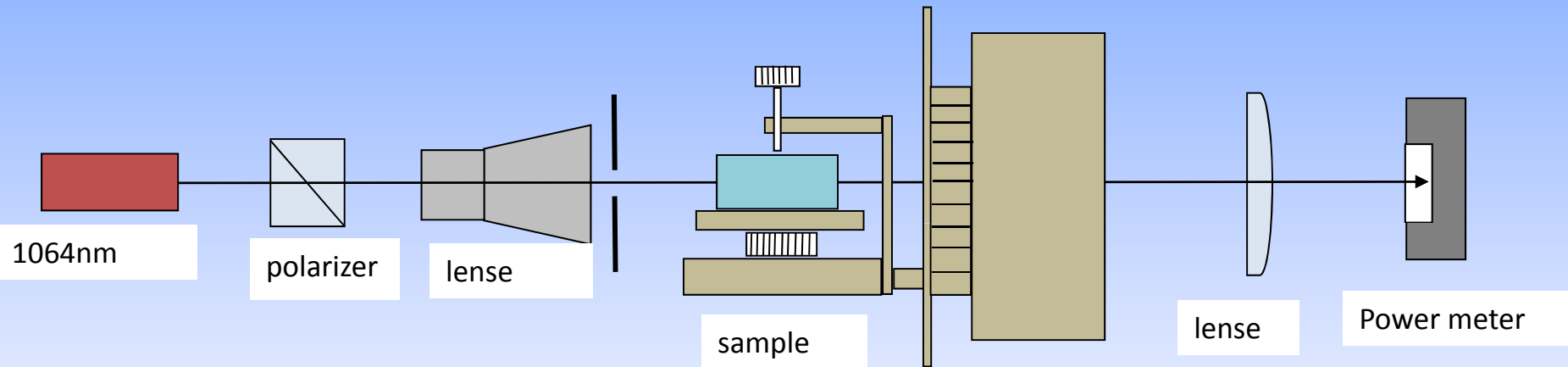


Laser active test for Damage threshold, etc.



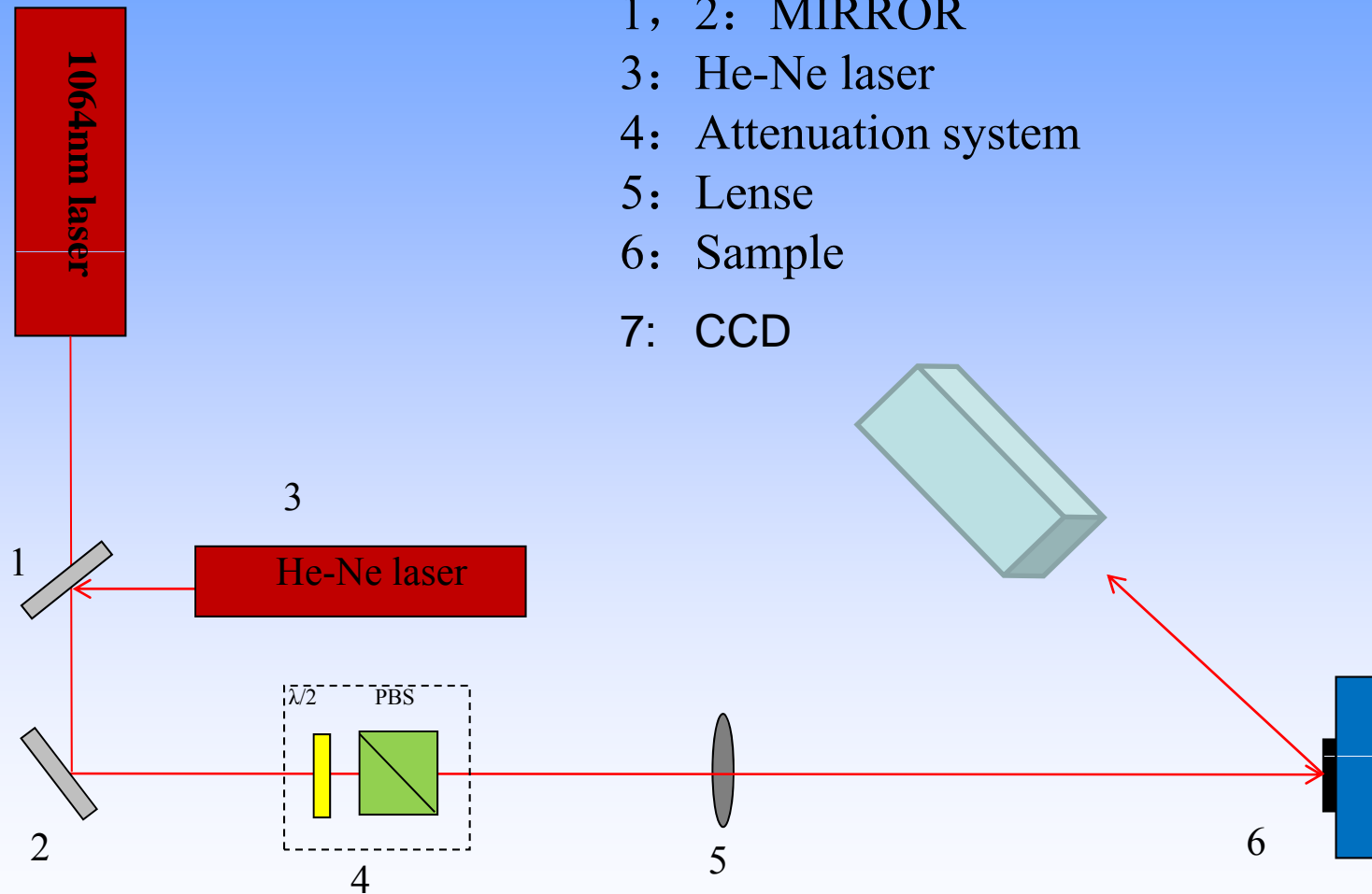
LASER ACTIVE TEST(1)

Testing System For Extinction Ratio



LASER ACTIVE TEST(2)

Testing System For Damage Threshold

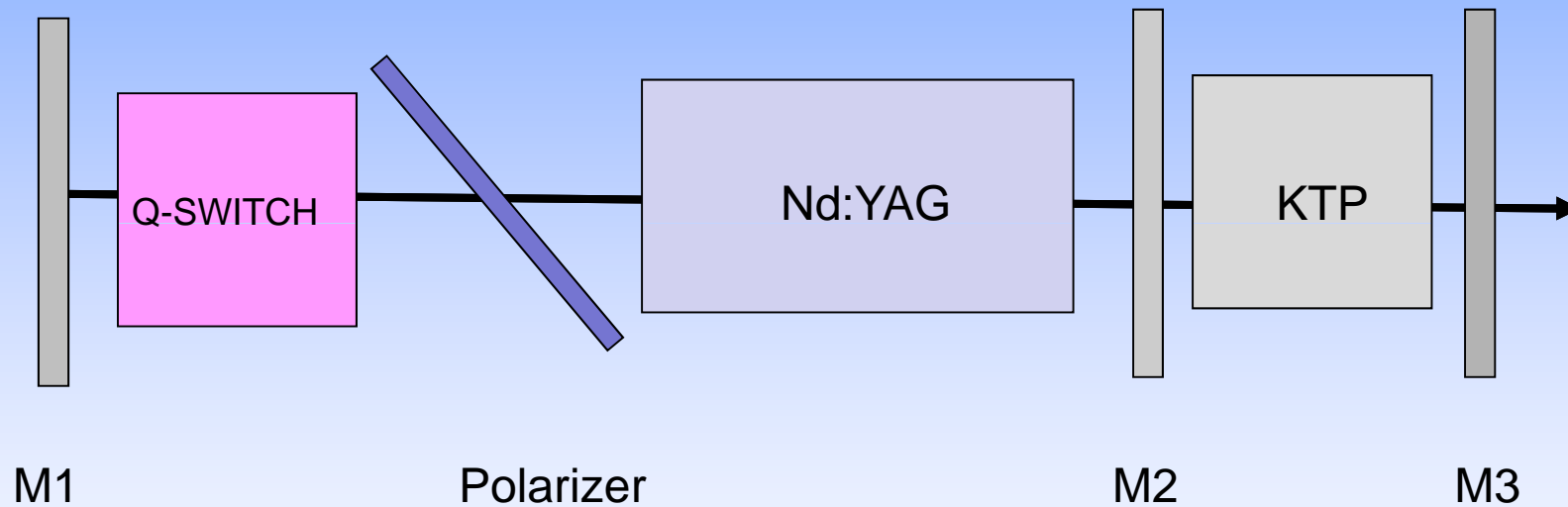


- 1, 2: MIRROR
- 3: He-Ne laser
- 4: Attenuation system
- 5: Lense
- 6: Sample
- 7: CCD



LASER ACTIVE TEST(3)

Testing System For OPO & SHG

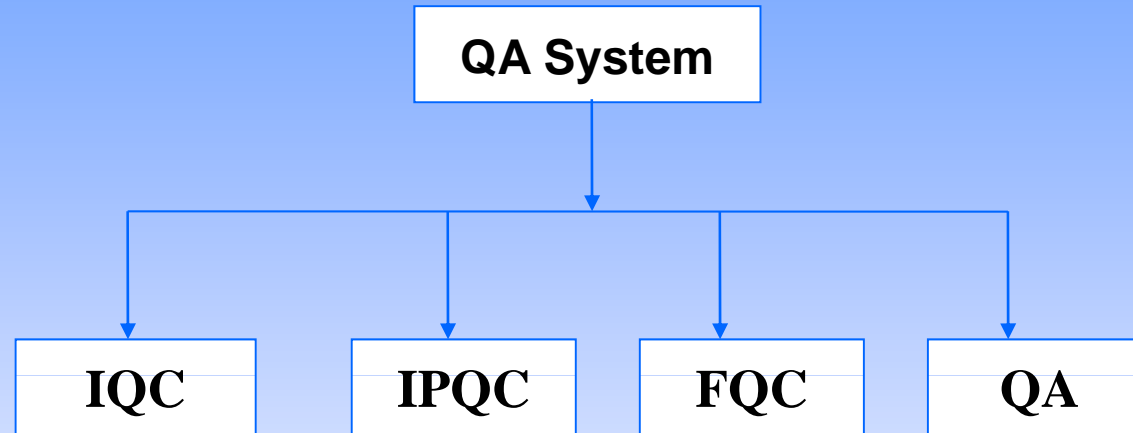


REFERENCE STANDARDS

- MIL-PRF-13830B Surface Quality
- MIL-C-48497 Coating Test
- MIL-STD-105E Sample Inspection
- ISO-11254 Damage Threshold



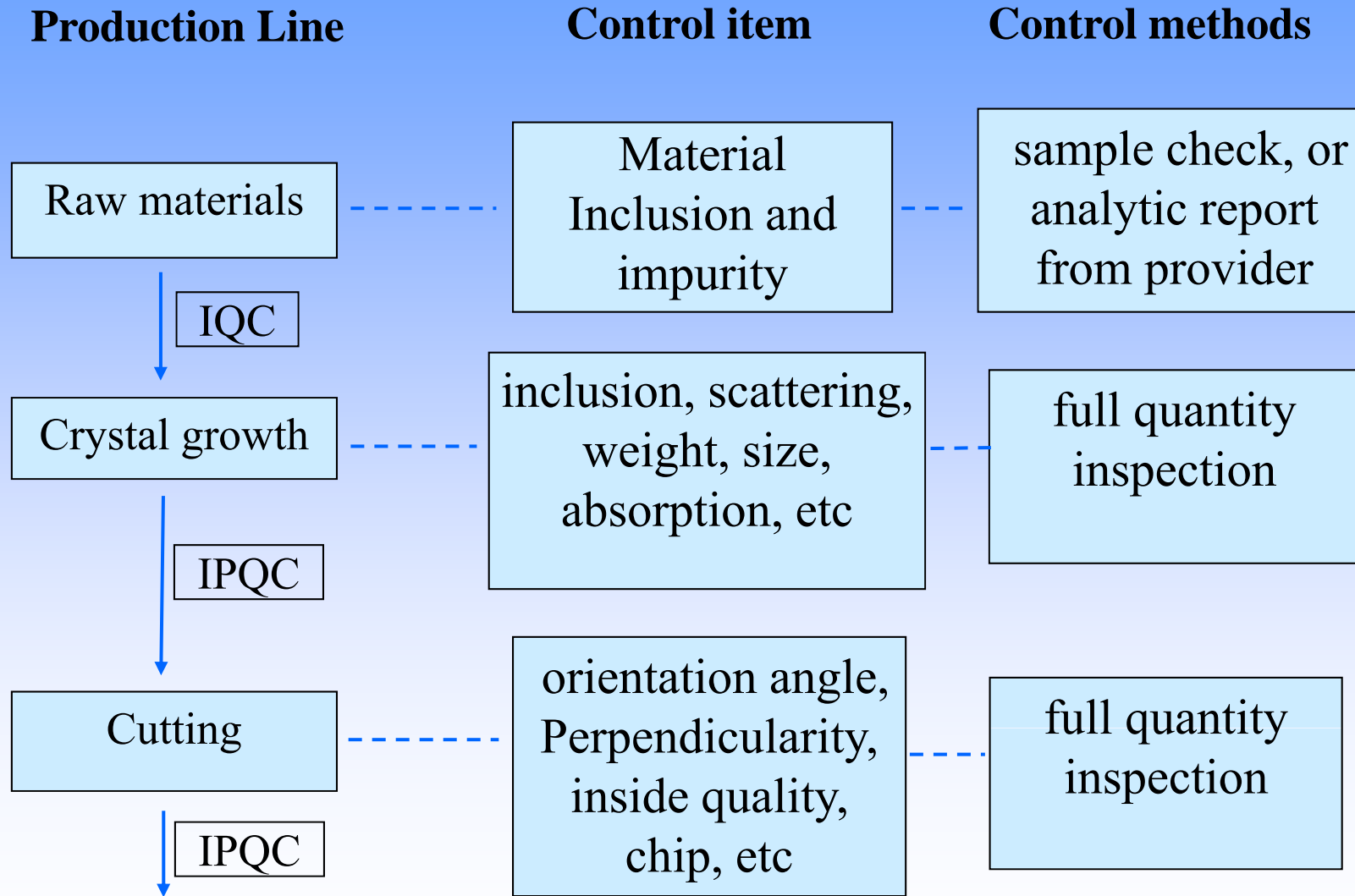
FRAME OF QA SYSTEM



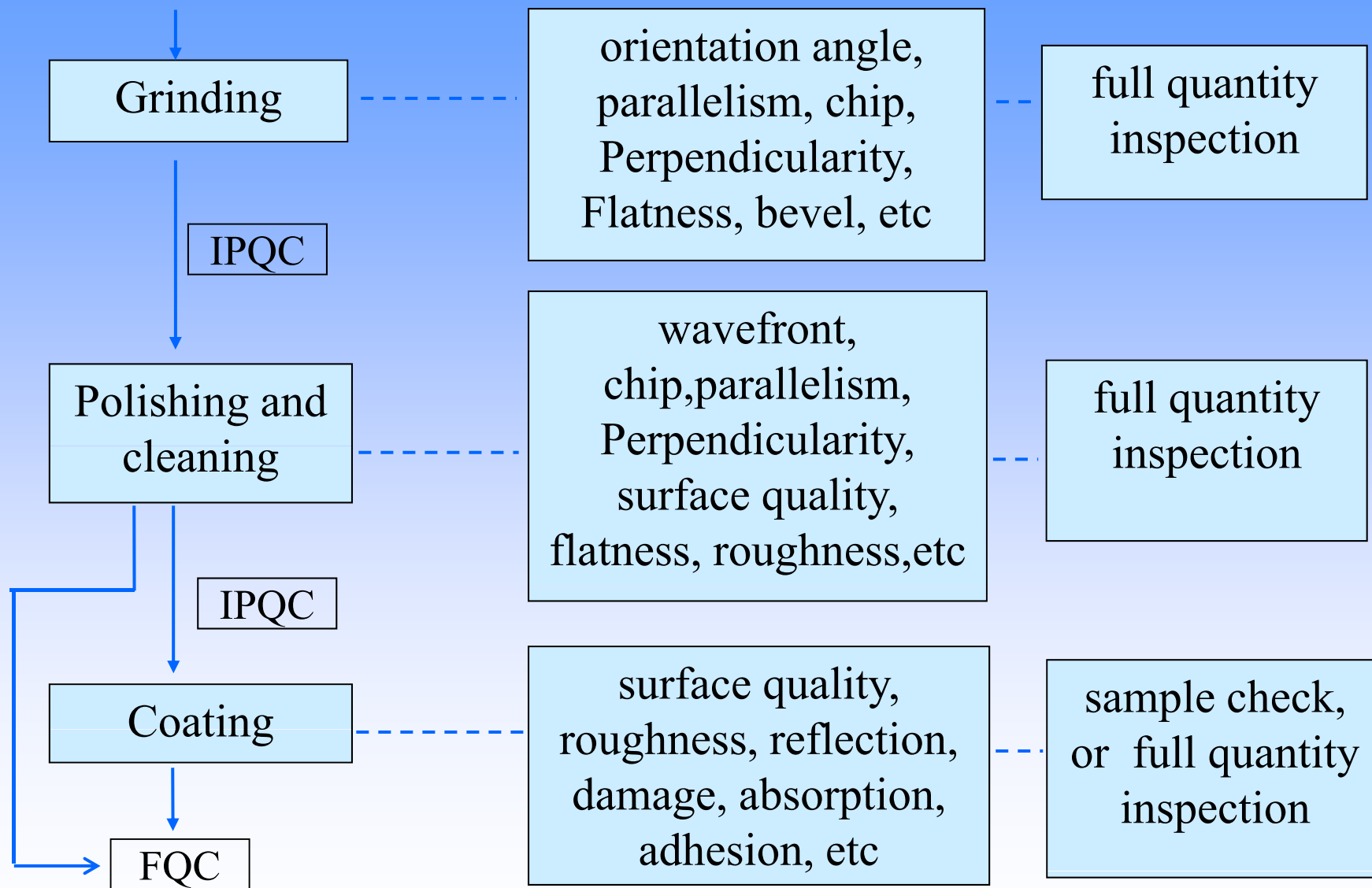
IQC (Incoming Quality Control);
IPQC (In Process Quality Control);
FQC (Final Quality Control);
QA (Quality Assurance).



PRODUCTION FLOW & QA SYSTEM



PRODUCTION FLOW & QA SYSTEM



DISTRIBUTORS

Crystal
GmbH in
Germany

VLOC in
North America

IL
Photonics
in Israel

Dhow in
Japan

CRYSTECH



Thank you!



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