Konica Minolta's business domain spans “from imaging input to output.” We offer diverse products and services for new digital imaging environments in a wide range of fields, for both consumer and business purposes. We also actively develop cutting-edge technologies that will expand the world of imaging, concentrating on proprietary materials, optical, nano-fabrication and imaging technologies. Konica Minolta will continue to pursue technological innovations and synergies, and propose new value by “creating inspiring products and services” in the field of imaging.

The essentials of imaging

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[Business Field]
Imaging—An Increasingly Sophisticated and Diversified Field
Konica Minolta runs a wide range of imaging input/output businesses. Our business domain is broad, including office equipment, optical devices, digital photos, medical imaging, graphic imaging and measuring instruments. Konica Minolta is committed to exploring unique markets and creating new business opportunities focusing on digital input/output, as the possibilities of imaging expand with the progress in digitalization and networking trends.

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[Value]
Always Bringing Fresh Surprises to Customers.
Konica Minolta takes a strict stance to manufacturing and adopts a “market-in” approach to provide unique products and services capable of meeting the ever-changing, sophisticated needs of customers. All of our activities are dedicated to bringing fresh surprises and inspiring new products and services to our customers. Konica Minolta aims to become a company essential to the field of imaging by demonstrating its unique creativity and technological prowess in all business areas.

Innovation

Bring Fresh Surprises to Customer

Create of New Functions
Optimal Solutions
Miniaturization & High Precision
Work-style Innovation
Joy of Creation
Pursuit of Comfort
Konica Minolta is developing technologies for “an imaging input platform,” “an imaging output platform” and “an imaging input/output solutions,” based on its four core technologies (i.e., materials, optical, nano-fabrication and imaging technologies). Konica Minolta will bring about unique innovations through “an all-embracing technology” comprised of a wide range of technological elements, spanning electric/electronic, optical, chemical, high-precision machining and software technologies.

[Technologies]
Innovation through the Fusion of a Wide Range of Technologies

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VIVID/VI Series

3D Digitizers Help Create Reproductions to Preserve Cultural Assets

Konica Minolta’s 3D digitizer did a fantastic job in helping to create a full-size model of the Altamira Cave in Spain. The task involved measuring the shape of the cave’s wall surface spanning 2,600 square meters, covered with prehistoric wall paintings, and converting it into 3D data, as well as measuring the colors simultaneously. These data were then used to create a silicon model of the cave, with natural pigments used to reproduce the wall paintings.

Nano-imprint Technology

Making Optical Elements with Smaller Structures than the Wavelength of Light

Nano-imprint technologies, in which a mold having particular fine patterns engraved on its surface is pressed against a heated and softened material for form transfer, make it possible to manufacture low-cost optical devices by making many precise copies of the mold. Konica Minolta has developed the methods to efficiently transfer high-aspect-ratio patterns with sub-wavelength periods, realizing highly cost-effective polymeric devises such as optical components for CD, DVD and next-generation optical disks. Our nano-imprint technologies enable the production of polymeric fine-structured devices with unique functions, which are hard to obtain with the conventional technologies.
Micro Total Analysis System (µTAS)
Based on Proprietary Micropump and Micro-fabrication Technology

µTAS* has been attracting a great deal of attention in recent years, as a means for densification in chemical analysis, biochemical analysis, etc. Konica Minolta has developed a micropump that can accurately control tiny amounts of liquid, as well as a small plastic chip that has been processed through accumulation of reactive procedures as a minute channel. With the mounting of the micropump, Konica Minolta has also created a controller and detector system, which controls the movement of reagents and detects the reactions within the chips. These developments are applied to genetic testing systems in relation to infectious diseases.

* µTAS: A system which integrates the functions of multiple instruments (analytical instruments, measuring instruments, etc.) on one small chip by using micro-fabrication technology.

Konica Minolta Continues to Evolve towards Innovation,

Lenses for Laser Printers
Contributors to Smaller Printers and High-precision Output

Konica Minolta’s lenses are the fruit of advanced optical design technology and high-precision processing technology on a nanometer scale. They are installed in optical systems of laser color laser printers to help reduce the printer’s footprint and contribute to high-resolution output.

Optical Pickup Lenses for Next-generation Blue Laser
Compatible with Both DVDs and CDs

Konica Minolta supplies optical disks lenses which support both DVDs and CDs, by capitalizing on its ultra-high-precision aspherical plastic lens technology. For next-generation DVD using blue laser, we have developed and started mass-producing optical pickup lenses that are compatible with existing DVD and CD formats.

Camera-Shake Compensation Mechanism “Anti-Shake”
Effective Shake Compensation in Various Digital Cameras

Konica Minolta’s camera-shake compensation mechanism “Anti-Shake” is applied to various types of digital cameras. For example, the digital single-lens reflex (SLR) camera “DYNAX 7D” has a “CCD-shifting system” inside its body, which compensates for vibrations by moving the CCD. The slim portable model “DIMAGE X1” owes its small size to the “lens unit swinging system,” which moves the lens unit integrated with the CCD.
**High-speed Polygon Motors**

*Enabler of Copiers and MFPs with High Speed and High Image Quality*

The optical system that is emitting laser beams onto the photoreceptor drum is the key both the high resolution and the high speed of copiers. Konica Minolta designs and fabricates polygon mirrors*, which is the system’s key optical device, and develops a proprietary air-driven roller bearing polygon motor with high precision and durability. Our MFP “bizhub PRO1050” is equipped with a fast polygon motor (approx. 60,000 rpm) and can output as many as 105 sheets per minute.

* Polygon mirror: A rotating component with many reflective surfaces which are designed to reflect and scan laser beams and emit them onto the photoreceptor drum (i.e., writing).

**Polymerized Toners Based on Emulsion Polymerization Method**

*Meeting the Need for Multifunctional Peripherals (MFPs) and Printers with High Image Quality and High Speed*

“Polymerized toners” are best suited for prints of high image quality, and are superior in terms of environmental friendliness. Konica Minolta has realized low-temperature fixing by applying a manufacturing process which involves mixing the resin particles based on the emulsion polymerization method* prior to coagulating and fusing them chemically with colorants, etc. This has enabled the toners to be loaded even in high-speed models. Various functions can be added to the toners by incorporating alternative elements into the resin particles.

* Emulsion polymerization method: A method of producing resin particles by dissolving emulsifying agents in water like soap, adding water-insoluble resin materials and mixing them together, and binding the molecules with the use of water-soluble initiators.

**Mirror-type Rear Projection System**

*Enabler of Thinner Micro Display Projection TVs (MD-TV)*

There is an increasing demand for thinner models in the growing MD-TV market. Making full use of the latest design and fabrication technologies, Konica Minolta has developed a mirror-type projection system, which realizes thinner rear-projection TVs and reduces chromatic aberration dramatically to a level almost undetectable by the human eye.

**Phase Contrast Technology**

*Enabler of World-leading Mammography Image Quality*

Sharp images of objects with an emphasis on the edges can be acquired by exploiting the variations in image density (phase contrast) attributable to the refraction that occurs when X-rays penetrate objects (phase change). Konica Minolta developed the world’s first digital X-ray mammography system (PCM system) that applies such phase-contrast technology, making it possible to clearly capture pathologic changes which were difficult to see in conventional systems, such as the glandular structure and microcalcification.
Integrated Planetarium System “GEMINISTAR III”
Seamless Integration of Starry Sky Projection with Dynamic Full-dome CG Animation

GEMINISTAR III is a planetarium system for large domes, characterized by an optical planetarium which completely synchronizes with a full-dome digital projection system. While making the most of the beauty of stars projected by the optical system, it can link the images with dynamic real-time computer graphics. GEMINISTAR III provides up-to-date scientific knowledge and excitement to the audience with unlimited visual expression which is far beyond the scope of conventional planetariums.

Piezo Print Heads for Inkjet Printers
Realized Smaller and Faster Droplets

Konica Minolta’s inkjet print heads, driven by the shear mode piezo actuation mechanism, can handle a wide range of inks to meet various application requirements. Their optimized ink channel structure (pressure chamber) and nozzle shape make droplets smaller and faster, thus enabling high efficiency and high quality print engine.

Head-mounted Display
A Lightweight, Transparent and Regularly Wearable Unit

Wearable displays are drawing attention as devices which enable access to information wherever you are in the ubiquitous society. Konica Minolta has developed a lightweight “head-mounted display” which allows the wearer to see images without obstructing his/her view by applying holographic optical elements. It is expected to serve as a display that can be worn in everyday life.

Image by PCM system
Image by conventional system

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