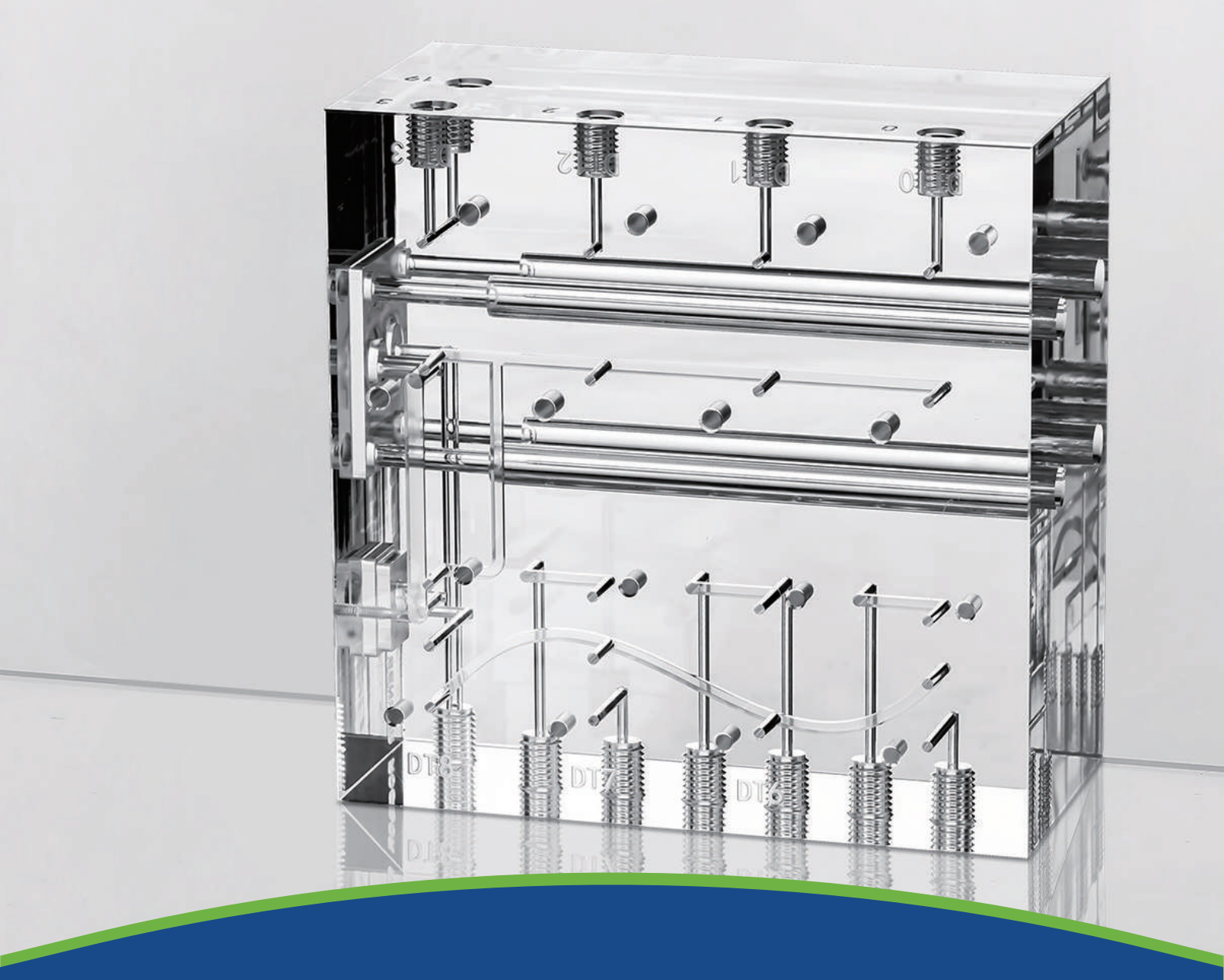


PRECISION MACHINING SOLUTIONS

Keyto

INNOVATION TOWARDS FUTURE

ABOUT KEYTO



Keyto Fluid Technology is a leading manufacturer specializing in developing, producing, and customization of precision fluid control components and system solutions. We empower products in the medical devices, life sciences, biopharma, environmental monitoring, and industrial automation industries.

- **Decades of development and application experience**
- **Leading technology in microfluid control**
- **Highly skilled engineering teams**
- **Tailored solutions for unique needs**
- **Full life cycle quality traceability**
- **ISO 9001, 14001, 13485, CE, RoHS certified**
- **100+ R&D patents**
- **Rapid response and technical support**
- **Cutting-edge in-house machining capabilities**
- **High-precision molding and CNC automation**

9001 ISO14001 ISO13485 CE RoHS

MACHINING CAPABILITIES



Materials

Engineering Plastics: Over 30 types, including PMMA, PEI, PTFE, PCTFE, PEEK, PVDF, PET, and PI

Hard and Brittle Materials: Ceramic, sapphire, and borosilicate glass

Metals: Titanium alloys, stainless steel, copper, aluminum, nickel, and more

Processes and Manufacturing





CNC Machining: Over 70 CNC machines, including 3-axis, 4-axis, and 5-axis machining centers and CNC lathes, all equipped with automated tool setting systems and online measurement.

Grinding: Micron-level precision with honing, centerless grinding, cylindrical grinding, coordinate grinding, and surface grinding equipment.

Laser Micro/Nano Machining: 5-axis femtosecond laser for micro-holes as small as 7μm ± 1μm.

Surface Treatment: Plasma treatment for enhanced hydrophobicity or hydrophilicity, and metallization processes for improved conductivity on non-metal surfaces.

Laser and Ultrasonic Welding: Capabilities for welding metals and alloys (titanium, stainless steel, copper, nickel) and plastics (PEI, PC, PP, PVC).

Bonding: Includes diffusion bonding (PMMA, PEI, COP), overmolding (rubber-to-ceramic, rubber-to-metal), and coating (rubber-to-PTFE).

Injection Molding: Specializing in materials like PEEK, PVDF, ETFE, and PFA.

Distinctive Machined Products

- **High-Transparency Components:** Precision bonding with channels as small as 0.5 mm
- **High-Precision Components:** Micron-level grinding accuracy
- **Deep Hole Parts:** Holes ranging from 0.5 to 1 mm in diameter, with lengths up to 80 mm (length-to-diameter ratio > 100:1)
- **Ultra-Micro Holes:** Minimum hole diameter of φ0.07 mm ±0.003mm
- **Needles & Tubes & Connetors:** Holes as small as φ0.7 mm, with depths up to 18 mm

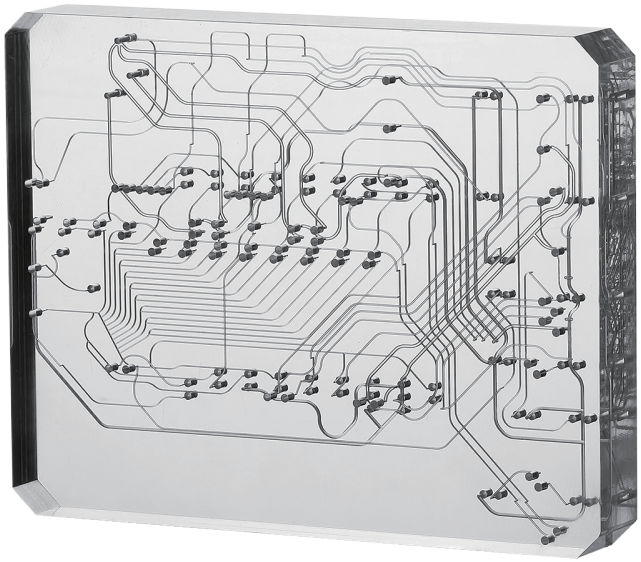
Inspection

Measurement Parameter	Instrument	Accuracy
Cylindricity	Cylindricity Measuring Instrument	0.025 μm
Surface Roughness	White Light Interferometer	0.0025 μm
Flatness	White Light Interferometer	0.0096 μm
Ultra-Micro Holes	OGP	1.2 μm
Positional Accuracy	CMM (Coordinate Measuring Machine)	0.7 μm
Concentricity	CMM	0.7 μm
Outer Diameter	Laser Diameter Gauge	0.1 μm
Inner Diameter	Pnumatic Gauge	0.3 μm

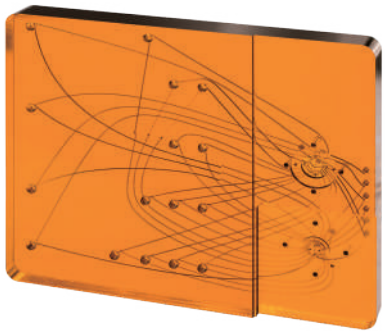
Keyto supports customers with

- Flexible customization for diverse products, small runs, and fast response
- Design optimization and long-term project capability
- Comprehensive nondisclosure agreements

BONDED MANIFOLDS







Keyto specializes in precision plastic-bonded manifolds for fluid applications, offering solutions with a wide range of materials from single-layer to multi-layer designs. By simplifying complex systems, we create more compact, modernized products that effectively address even the most challenging fluid management needs.

- **Material Options**

  Acrylic (PMMA), Ultem (PEI), COP, Polycarbonate (PC), Polypropylene (PP), and more

- **Bonding Technologies**

  Diffusion, solvent, laser, and ultrasonic

- **Minimum Channel Diameter**

  0.5 mm

- **Channel Tolerance**

  ± 0.01 mm

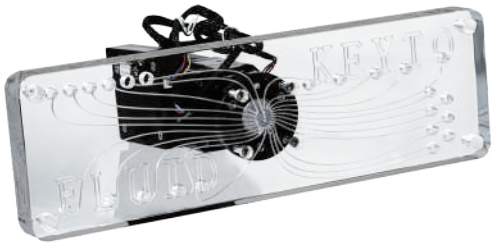
- **Layering Capability**

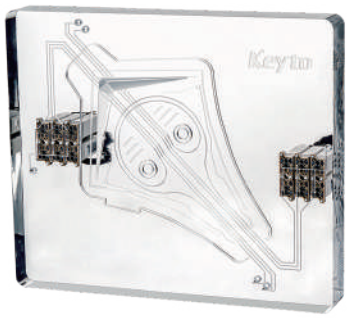
  Up to 5 layers

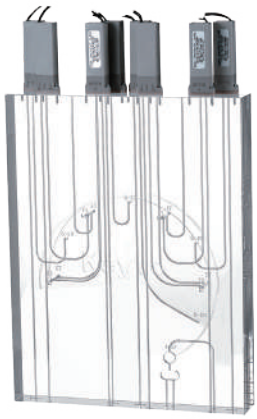
- **Channel Geometries**

  Square, round, or D-shaped

MANIFOLD ASSEMBLIES







By integrating valves, pumps, and connections into manifold assemblies, Keyto creates fully assembled systems that undergo rigorous testing to meet specific application requirements, optimizing performance for enhanced efficiency and reliability.

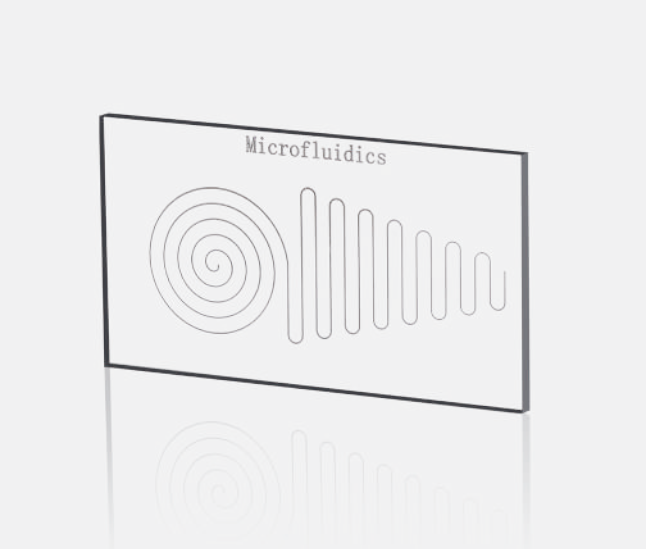


- **A wide variety of material options**
- **Lower assembly and installation costs**
- **Space & weight savings**
- **System operation visualization**
- **Ease of maintenance**

Completely customizable with the available options:

- Solenoid Valves
- Rotary Shear Valves
- Pumps
- Tubing
- Fittings

MICROFLUIDIC CHIPS



Material Options

PMMA, Polypropylene (PP), Polycarbonate (PC), PVC, Polystyrene (PS), and more

Fluid Path Orifice Range

50 μm to 200 μm

Integrated Functions

Sampling, dilution, reagent addition, reaction, separation, and detection



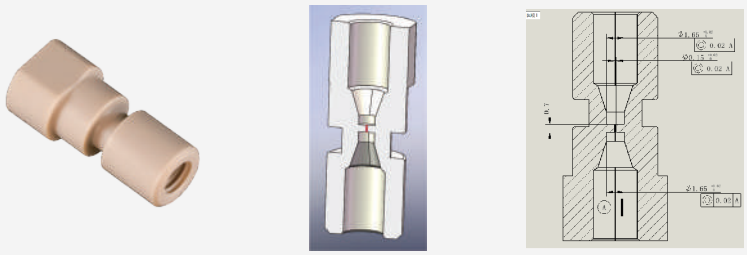
PRECISION MACHINED PARTS SHOWCASE

Ultra-Micro Hole Machining



Micro Connectors

Material: PMMA, PEI
Hole Diameter: 0.07 mm
Depth: 1.5 mm



Spray Needle Holder

Material: PEEK
Hole Diameter: 0.15 mm (magnified 200x, burr-free round hole)
Concentricity: 0.02 mm

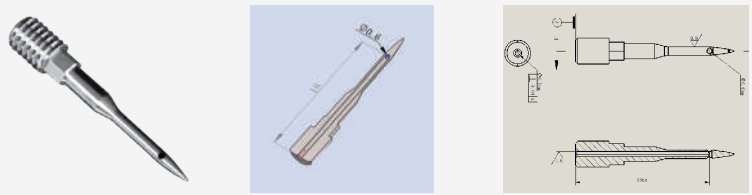
Micron-Level Grinding Accuracy



Ceramic Parts for Metering Pumps

Material: Zirconia, Alumina
Cylindricity: 0.0015 mm (sleeve), 0.001 mm (rod)
Surface Roughness: Ra 0.1

Needle Machining



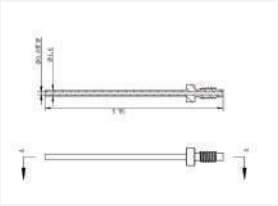
FTAT Needles

Material: Titanium Alloy
Hole Diameter: 0.6 mm
Depth: 18 mm

Deep Hole Machining



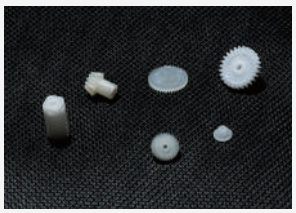




Long Core Needle Tubes

Material: POM
Hole Diameter: 0.8 mm
Length: 50.6 mm

Injection Molding







Gears



Connectors



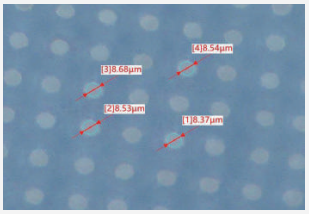




Tips

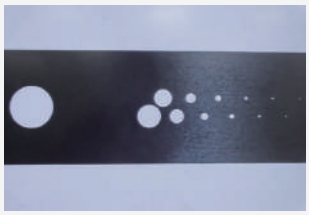
Laser Micro/Nano Machining

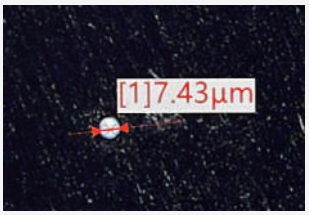




PDMS Film Micro-Hole

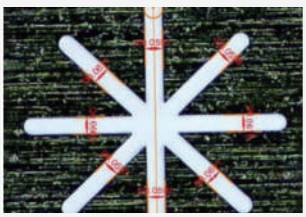
Material: PDMS
Hole Diameter: 8 μm
Thickness: 0.2 mm

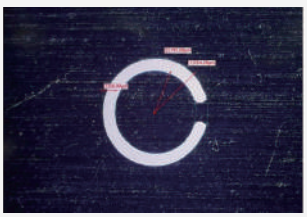




Aperture Plate Micro-Hole

Material: Film
Minimum Hole Diameter: 7 μm
Accuracy: ± 1 μm

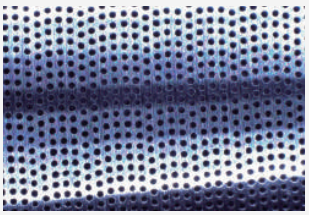




Custom-Shaped Micro-Hole

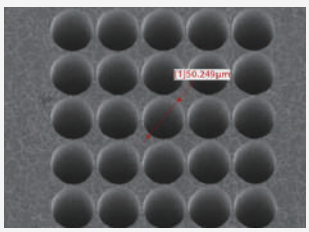
Material: Stainless Steel
Cross-Shape Width: 58 μm
C-Shape Width: 60 μm

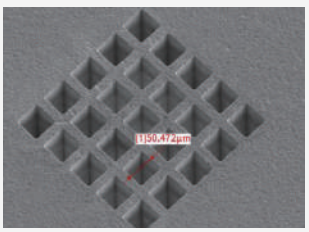




Filter Mesh Micro-Hole

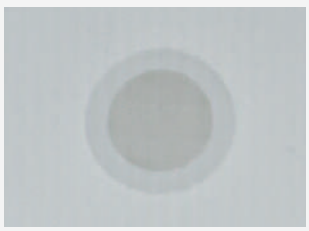
Material: Stainless Steel
Number of Holes: 19,000
Hole Diameter: 0.15 mm

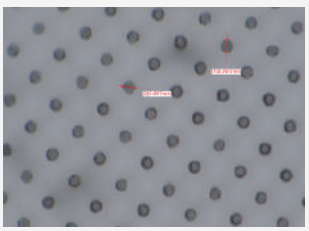




Silicon Nitride Rectangular Holes/Through Holes

Material: Silicon Nitride
Dimensions: 0.05 x 0.05 mm
R Corner ⩽ 0.005 mm





Cell Filtration Membrane Micro-Holes

Material: PET
Hole Diameter: 7 μm
Number of Holes: 100,000

PRECISION FLUID CONTROL PRODUCTS & SOLUTIONS



Micro Solenoid Valves

- Diaphragm, Pinch, Proportional valve types
- 2-Way, 3-Way designs
- Low internal volume
- Long lifetime
- Multiple seal materials avaiable



Rotary Shear Valves

- Fast response time
- High reagent compatibility
- Excellent switching accuracy
- Long lifetime
- Selection & injection options



Air Displacement Pipettes

- Capable of 9mm & 18mm center pipetting
- Z axis & movement mechanism options
- Wide range of dispense volumes: 1μL to 1000μL
- Minimized contamination risk
- Long lifetime without maintenance



Programmable Syringe Pumps

- High accuracy and precision
- Versatile with ceramic/plastic rotary and solenoid valves
- Compatible with syringes from 100 μL to 25 mL
- RS232/RS485/CAN communication with configurable baud rates



Precision Piston Pumps

- High precision & long lifespan
- Compact design
- Low cost and maintenance-free
- Wide range of dispense volumes: 100μL to 20mL



Micro Metering Pumps

- Capable of single-cycle and multi-cycle precise dosing
- Adjustable angle range: 0.5° to 20°
- Maximum suction height: ⩾ 6m
- Long lifespan & high performance



Miniature Diaphragm Pumps

- Oil-free operation
- Available in single or dual head configurations with brushed or brushless DC motors
- Reliable and maintenance-free
- Low Vibration and Noise



Microfluidics & Manifolds

- Competitive pricing
- Broad range of material selection
- Streamlined reagent flow paths
- Space & weight savings
- Lower assembly costs

Keyto

INNOVATION TOWARDS FUTURE

Keyto Headquarters

No.2 Yuandong East Road, Baoan District, Shenzhen 518103, China

Keyto Malaysia Factory

PMT 844 Jalan Cassia Selatan 3/3, Taman Perindustrian Batu Kawan,
14110 Bandar Cassia, Penang, Malaysia

86-755-29516669

info@keyto.com

en.keyto.com

LinkedIn

YouTube

360 VR Tour