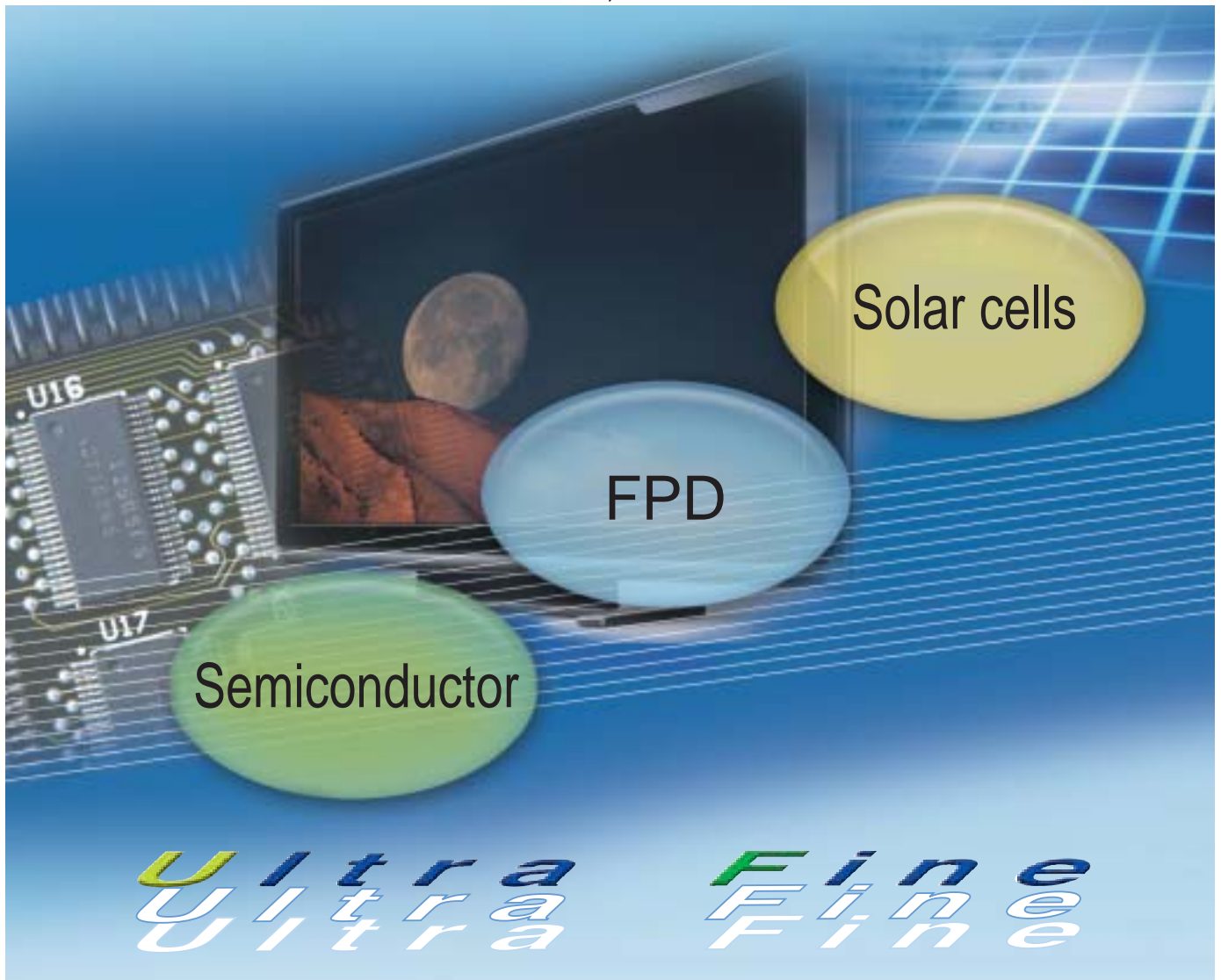


Semiconductor/FPD/ Solar cells process components

- Chemical liquids control components
- Process gas control components
- High vacuum control components
- Peripheral devices

EQUIPMENT FOR SEMICONDUCTOR, FPD & SOLAR CELLS MANUFACTURING PROCESSES

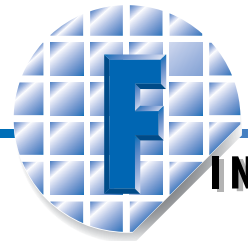


CKD's never-ending search for Ultra-high Level Process Control.

Class 1 now realized.

Promising customers high purity and high accuracy.

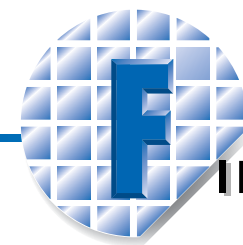
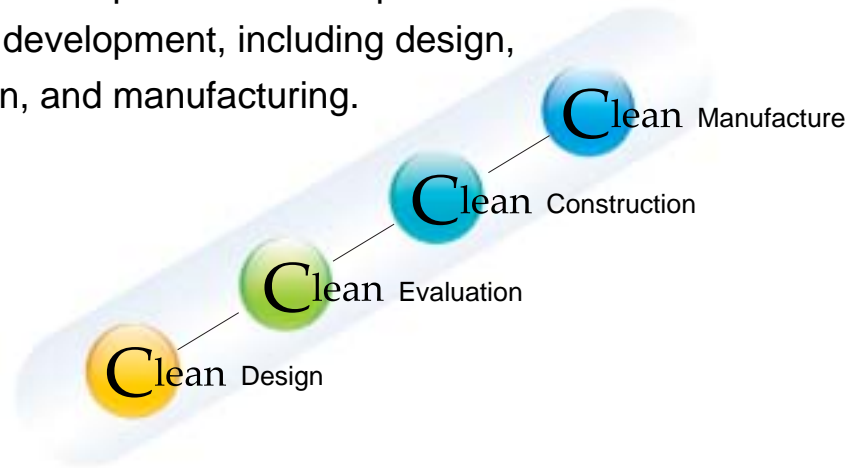
CKD provides customers with total solutions -- comprehensive products and services -- for all aspects of semiconductor devices, including gas and fluid system supply and exhaust.



"Ultra Fine" is our bottom line

INE CONTROL SYSTEM

Extensive cleanliness is incorporated in all important factors vital to product development, including design, evaluation, construction, and manufacturing.



Uniform high-level production to respond to different needs

INE CONTROL SYSTEM

- Product development
 - Product development focusing on quality is conducted to ensure safety and eco-aware devices.
 - CKD responds to customer needs with confidence based on years of experience.
- Production
 - Our cleanroom meets a 0.3 μm Class 1 level standard enabling all processes from assembly to packaging to be completed in uniform clean production.
 - Quality Control follows ISO 9001.
- Evaluation
 - We are continuing our challenge to include quality from the materials we use.
 - Strict evaluations are conducted to keep our product and production environment cleanliness at the highest level.
- Service organization
 - Our service and support organization is available in Japan and worldwide.

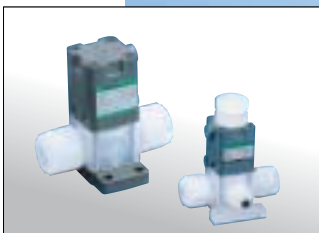


Chemical liquid control components

FINE CONTROL SYSTEM

Air operated valve AMD/AMG

- 2 way valve, 3 way valve
- Connection: Rc1/8 to Rc1, O.D. $\phi 3$ to $\phi 25$, 1/8" to 1" tube
- Super Fitting, Super 300 Fitting
- F60 fitting, F-LOCK joint, etc
- With regulator, with by-pass, flow control with by-pass



High pressure valve for liquid supply (0.7 MPa) AMD*1H/MMD*0H

- Air operated valve, manual valve
- Connection: 1/2" to 1 1/4" tube, 1/4" to 1" deposit pipe
- Variation, water-hammer reduction



Regulator PYM/PMM/PMP

- Connection Rc1/8, 1/4, $\phi 10$, 3/8" tube
- Body material SUS316 (PYM), fluorine resin (PMM/PMP)
- Outstanding pressure and flow characteristics
- Space saving and compact



Manual valve MMD/TMD/FMD

- Turn type, toggle type
- Connection: Rc1/8 to Rc3/4, O.D. $\phi 3$ to $\phi 19$, 1/8" to 3/4" tube
- Super Fitting, Super 300 Fitting
- F60 Fitting, F-LOCK joint, etc



Manifold valve for chemical liquid GAMD

- Great varieties of combination



Level switch KML70

- Detection point: 8 points
- Remote control possible
- Resistant to environment pressure fluctuation
- Detection flow setting not required



Drip prevention valve AMS/AMDS

- Discrete valve, air operated valve, drip prevention valve integrated type
- Connection: Rc1/8, O.D. $\phi 3$ to 6, 1/8" to 1/4" tube
- Super Fitting, F60 fitting joint, etc
- Max. suction rate: 0.04 cm³, 0.12 cm³



Water hammerless valve AMD*1L

- Water-hammer reduction is greatly increased
- Ideal for FPD and solar cells manufacturing
- Connection: 15AU to 50AU polyvinyl chloride union
- Valve with flow control, with by-pass, with flow control/by-pass



Discharge valve

- Connection: 25A to 100A
- Connection is free.
- Fluid discharge time is shortened.
- All fluorine resin wetted section also available



● Different customized orders are available. Contact CKD for details.
● Refer to the High Purity Chemical Liquid System Component General Catalog (No. CB-031A) for product details.



Process gas control components

FINE CONTROL SYSTEM

Regulator for process gas

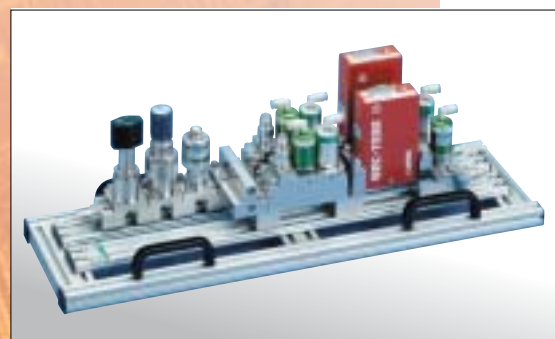
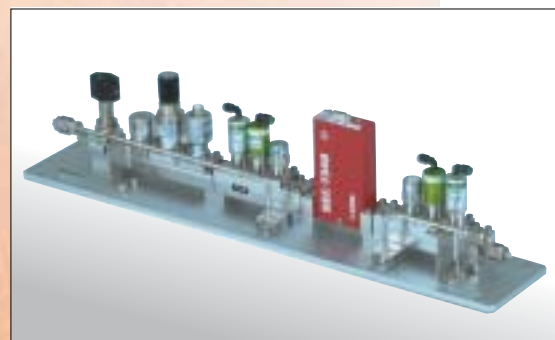
PGM

- Connection: 1/4 inch J X R joint, varied integrated valve (IGS) interface



Integrated gas supply system

IAGD3/4/5



Air operated valve

AGD**V

- Connection: 1/4", 3/8" JXR male joint, female joint, double barbed joint
- Actuation: N.C., N.O.
- Custom order: Block valve, flow diverter valve, angle valve, valve with flow control, with visual indicator, with open/close sensor, etc.



Manual valve

MGD/OGD*0V

- 270° rotation method, 90° rotation snap action
- Connection: 1/4", 3/8" JXR male joint, female joint, double barbed joint
- Custom order parts: Flow dividing valve, angle valve, type with lock mechanism, etc.



Vacuum generator for process gas exhaust

VG

- Nozzle diameter: $\phi 5$



- Different customized orders are available. Contact CKD for details.
- Refer to the High Purity Gas Control System (Catalog No. CB-035A) for product details.



High vacuum control components

FINE CONTROL SYSTEM

Air operated valve

AVB*1V (Aluminum body)

- Formed bellows type
- Connection: NW16/25/40/50



Compact type air operated valve

AVB3** (Stainless steel body)

- Formed bellows type
- Connection: NW25/40/50/80



Air operated valve

AVB*7 (Aluminum body)

- Formed bellows type
- Wide variation
- Connection: NW16/25/40/50/63



Air operated valve

Custom order

- Compatible with heater for valve heating, type with bypass valve, straight flange, and slow exhaust



Solenoid valve

HVB

- High vacuum retention force
- Back pressure available (reverse vacuum available)
- Connection: NPT 1/8, 1/4, ø48, ø52 flange



Air operated valve

AVB2/AVP**2**

- Formed bellows type
- Double O ring shaft seal method
- Connection: 1/4" tube, NW25/40/50/80



Delay solenoid valve for vacuum

HVL

- Solenoid valve with OFF delay
- Oil rising prevention at power failure
- Connection: Rc 1/8, 1/4", double barbed joint, NW10/16 flange for vacuum



- Different customized orders are available. Contact CKD for details.
- Refer to the High Purity Gas Control System (Catalog No. CB-035A) for product details.

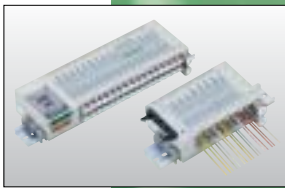


Peripheral components

ACCESSORIAL EQUIPMENT

Air operated valve for solenoid valve control

- 3, 4 port pilot operated valve MN3E0/MN4E0 Series
- 3, 5 port pilot operated valve 3G/4G/MN4G Series
- Direct acting 3 port valve 3MA0/3MB0 Series



Actuator

- Linear slide cylinder LCG/LCM Series
- Magnet type rodless cylinder MRL2 Series
- Fine speed cylinder



Flow sensor

- Small size flow sensor FSM2 Series
- Flow sensor for compressed air PF Series



Dryer

- Refrigerating type dryer G Series
- High polymer membrane air dryer Super dryer SD Series



Pressure sensor

- Digital pressure sensor PPX Series



Electro-pneumatic regulator

- Electro pneumatic regulator EVD/EV/MEVT Series



F.R.L

- F.R.L. C Series
- Main line filter AF Series



Direct drive actuator

- Direct drive actuator AX Series





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