

# Product Guide for Machine Tools









**Carrier Lines** 





**Coolant Control** 

**Processing Machines** 

**Processing Jigs** 

Pneumatic Devices

CKD Corporation cc-1144AA 7

# Pneumatic Supply

Supplies stable air for stable machining.

# CKD: Your Machine Tool

Machine tools used at manufacturing sites all over the world continue to evolve. We continuously leverage our fluid and pneumatic pressure **Evolution Partner** 

technologies to provide solutions to support all machines tools.



Technological support for low pressure loss, extreme pressure, space-saving and other applications.





Helps bring Factory Automation (FA) reform by improving work environments.





Displays contact gaps, which are directly linked with machining precision.





# Visualizes machine tools to suggest applications.





Our CXU Series air units promise to reform piping in the machine tools industry, under our motto of "Eliminate Bothersome Piping." In addition to air units, we also carry a full lineup of pneumatic products required for all types of machine tool designs. We use our extensive track record in compressed-air management to bring you the products you need.





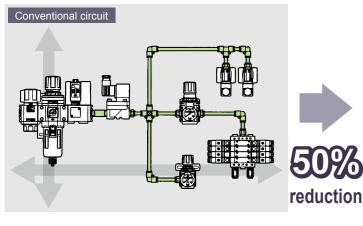




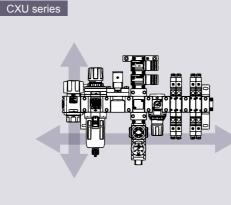




Eliminates bothersome piping design and labor. A single unit reduces a range of labor-intensive tasks.



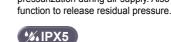








Miniature electromagnetic residual pressure exhaust valve. Host command completely releases residual pressure when the device has stopped, helping to reduce space



Provides precisely-controlled pressure for stable machining.

Precision regulator **RP** Series

Drain separator

FX Series

efficiency

flow rate (ANR)

valve for air units

VE Series

rking



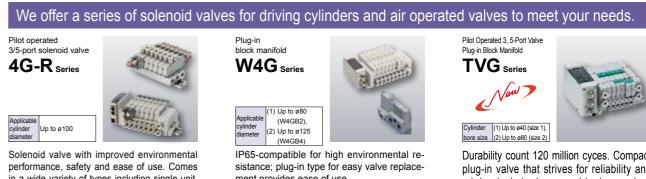
1965 😯 M12



Precision regulato

Provides high precision control of air pressure used in machine tools. Perfect for controlling main shaft purge pressure. Capable of providing precise control even at especially low pressures, due to stable flow characteristics with little pressure drop.

Provides high precision control of air pressure-and saves energy. Features a revised internal structure for 70% less air consumption. Can be modularized for easy coupling with an oil mist filter.



in a wide variety of types including single unit, manifold and reduced wiring.



ment provides ease of use.



03







Provides simple and stable supply of ultra dry air. Required for precision machining devices. Modularized high polymer membrane air dryer makes system upgrades with peripherals simple.

Air supply speed can be adjusted. Prevents cylinders from popping out due to sudden pressurization during air supply. Also includes

Residual pressure exhaust valve with spool position detection





Capable of outputting the open/close status of solenoid valves for emergency cutoff. Can be used in combination with a variety of types of products including double cutoff, unitization, internal pilot and external pilot.







Miniature regulator perfect for saving space. Compact with a width of only 25 mm, features built-in reverse flow function with fitting included. Also available as panel mount and manifold type.



Durability count 120 million cyces. Compact plug-in valve that strives for reliability and minimal air leakage, achieving carbon neutrality, high reliability, and ease of use. •‰IP65 🛛 •‰IP67 🛛 🔂 M12





Our CV Series of coolant valves is available in several variations to meet your needs, such as low pressure loss, high flow rate 2, 3-port and manifold specifications-all developed under our motto of "Flawless Prevention of Cutting Chip / Foreign Matter Entry." In addition to valves, we also offer a diverse lineup of products required in coolant environments.







Check valve prevents dripping and improves discharge response with liquid retention in the tube.

- Resistant to foreign debris
- Excellent sealing
- Injection direction adjustment function
- Max. working press.: 1.0 MPa Ample Connection variations





Flow rate 0.5 to 60 L/min

•%IP65

Discrete valve for

Discrete valve for

coolants (Low pressure)



Coolant: Compatible with water-soluble coolant fluid, its perforated structure can withstand foreign matter. For use in managing and optimizing coolant fluid flow rates. Straight pipe section not required on both ends for easy installation.





### Our mission is to help you to control a wide variety of coolant fluids. Contact us to discuss your needs.



Coolant fluid: Low pressure/switch output type. Mechanical type requires no power supply/voltage. Perfect for lower limit pressure observation, etc.

Discrete valve for coolants (high pressure)  $CV_{\text{Series}}$ 



20.0 MPa

Supports extreme pressure of 20 MPa. Supports machining method diversification; specification dramatically improved from standard 7 MPa. (Made-to-order specification)



Working pressure 3.0 MPa



Modular structure compatible with 3 MPa. Expanded GCV usage pressure to help save space. (Made-to-order specification)

Electronic pressure switch for coolants **CPD** Series



Pressure adjusting 0.00 to 7.0 Mpa

Coolant fluid: High pressure/2-point switch output with display. Peak/bottom hold function allows for accurate confirmation of pressure.





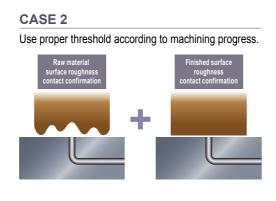


We propose solutions based on our many years of reliable track record. Our "GPS2 Series" and "GPS3 Series" contact switches, and our "G2/G3 Series" cylinders with special structures that flawlessly prevent cutting fluids from entering, make high precision and stable clamping and positioning possible.

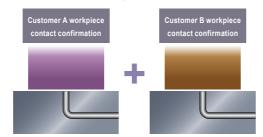
#### Digital gap switch



## New solutions provided with a single GPS3 CASE 1 (µm) Protect workpieces/jigs from unreasonable clamping. 400 300 200 CASE 3 150 Clogs equivalent to 400µm are output for preventative maintenance. Contact 100 Foreign matter 30



### CASE 4 Realize machine manufacturing independent of customer threshold.



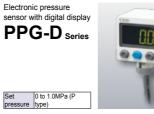


record of reliability. Uses an air bridge circuit for contactless detection. Modularized for implementation together with peripherals.



🐝 IP67 😵 M12

±0.005 mm



resistance. Analog output also supported.

Simple seating confirmation can be done with the pressure switch. It is also possible to detect non-contact and environmental



## We have optimized our air cylinders for improved tact time and superior resistance even under cutting fluids.

High energy absorption

HCM Series

Bore size ø20 to 63 mm

50 to 2,000 mm

cylinder

Working piston speed

mechanism

G3 Series

Coolant proof cylinders

High speed cylinder HCA Series Bore size ø20 to 100 mm Norking



50 to 3,000 mm

Uses air action with superior shock absorption ability to support high speeds of 3 m/s. Perfect for door opening/closing applications. Lightweight and durable.

Coolant proof cylinders G2 Series



A degree Using nitrile rubber heavy duty scraper

Pneumatic cylinder that can be used in locations constantly exposed to cutting fluid.Uses a nitrile rubber heavy duty scraper to prevent cutting fluid penetration.

Pneumatic cylinder that can be used in locations constantly exposed to cutting fluid. Uses a fluoro rubber heavy duty

eavy duty scrape

A degree Using fluoro rubber

07

GPS3

GPS3-E

20





Perfect for medium speed range (2 m/s) under heavy loads. Perfect for door opening/ closing applications. New cushioning mechanism provides a smooth stop at the stroke end. Also includes adjustment



scraper to prevent cutting fluid penetration.

Speed controller with adjusting dial





Port size M5 to R1/2

With little individual variation between flow characteristics in proportion to dial indicator value, setting the speed is easy, and work-hours are greatly reduced.



PUR code

Water proof improved



Achieves over 6 times better water resistance compared to conventional models. Available in T-type, which accommodates a wide variety of cylinder types.





We are entering the age of sensors. In addition to pressure and flow sensors for air, gas, water, coolant fluids and more, we also propose product applications.

### IO-Link compatible components Series





Capacitive electromagnetic flow rate sensor



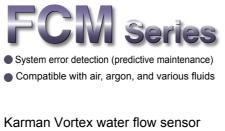
Measure liquid temp. and flow rate, and transmit to upper level No straight piping required

Compact flow rate sensor RAPIFLOW®



What is IO-Link?

Compact flow rate controller RAPIFLOW®





(standard) Easy manual flow adjustment

Digital pressure sensor



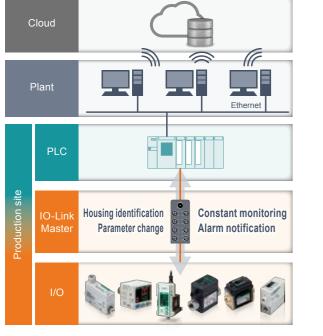
COM3 adopted transmission speed Output error in 2 levels, "caution" or "abnormal"



**O**IO-Link

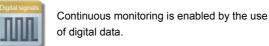
IO-Link is a digital communication specification for on-site sensors and actuators in plants. (IEC61131-9)

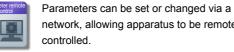
This enables the transmission of parameters and event data that could not be transmitted by analog communication.

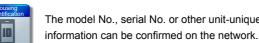


\* The IODD file of each product can be downloaded from our homepage.

Features of IO-Link









Settings can be copied from the master (scanner) unit. This frees the operator from the trouble of having to reset parameters during maintenance.

Device failures and disconnections can be confirmed.

It is possible to connect by changing to an field bus Ethernet network, enabling the creation of an IoT system.





Air: Digital display. Analog, 2-pt. output switch are available. For original pressure confirmation, pressure abnormality output applications. Overseas compatible (Press. Unit changeable).



-0.1 to 1.000 Mpa





%IP65

sure (P types) Air: Increased visualization with twin digital displays. Selectable outputs. According to usage, 3 types available including IO-Link.



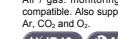
%.IP65

### Flow rate management solutions for air, gas, water, coolant fluid and more.





Robust model with IP65 or equivalent. Ideal





flow sensor FLUEREX WFK2 Series



Port size Rc 3/8 to Rc1 1/2 Water: Ideal for monitoring of coolants.

Various outputs can be switched. Water thermometer is standard equipment. Compatible with temperatures up to 95°C.











Full scale flow rate 0.5 to 1,000 L/min

Air / gas: monitoring flow rates. IO-Link compatible. Also supporting mixed gases of

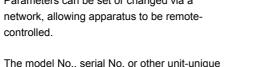






Coolants: Corresponds to water solubility, resistant to foreign matter with Flo-Thru structure. For flow rate control and optimization of coolants. Straight pipes in the front and rear are unnecessary, and installability is excellent.





WFC Series













for environments exposed to water or oil mist









😘 IP67 😧 M12 🕻 C 🤆









IO-Link



(%IP65)

### We help you to manage a wide range of pressures.



Air: Analog output, miniature, display-less. Switch output also available. Inline, plug, and screw types available.



Coolant fluid: Low pressure/switch output type. Mechanical type requires no power supply/voltage. Perfect for lower limit pressure observation etc.







Air: Uses stainless steel diaphragm sensor. Perfect as a countermeasure for miscellaneous air. Supports both 2-point switch output and analog output.



Electronic pressure switch for coolants





Coolant fluid: High pressure 2-point switch output type with display. Peak/bottom hold function allows for accurate confirmation of pressure







Flow rate sensor for compressed air (FLUEREX) **PFD** Series



Full scale 500 to 16,000 L/min (normal)

Air: High flow rate compatible. Complete air consumption management of machines. Switch, analog, pulse output compatible. Modularization possible.



Compact flow rate controller RAPIFLOW® FCM Series Full scale flow rate 0.5 to 100 L/min



For air/gas flow rate control. Equipped with predictive maintenance functionality. Conventional functions are improved with IO-Link.





A new lineup of air blowers frequently used in machine tools will be proposed. With regard to convenyance, we are preparing not only simple types, but also single-axis two dimensional transport and three dimensional transport assist.

Pilot 2-port solenoid valve for compressed air



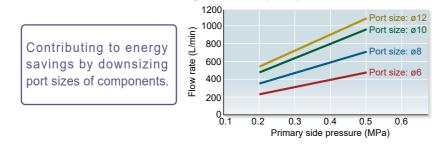




### High flow rate / low power consumption realized

By adopting the pilot system using a low power consumption (0.6 W) 3-way valve for the actuator, both high flow rates and low power consumption were achieved. (PC direct drive possible)

Flow rate of secondary side at atmosphere pressure release



### Linear guide lock



# Contributes to energy saving when locked Ideal for linear drive lock



# Spring-locked

Lock normally and release by pressurizing air. Holding force: 1150 N

### Components for air blow have also been expanded.



We propose a nozzle for energy saving with air blow. Energy-saving and blower specifications are available.



Flow rate of the blow can be visually managed. Easy adjustment with flow characteristics in proportion to dial value (needle position) and push lock.



Regulator and solenoid valve integrated. Space saving. Reduced man-hours. Sealant is not used. Simplified order placement



### Grips the workpiece. High gripping force is also available.





Compact and high gripping force electric gripper. In addition to a rubber cover and option with case, it supports degree of protection IP50.







IO-Link

Linear guide with increased rigidity to achieve high rigidity, high precision, and high durability. Helps achieve stable operation at non-stop production facilities.





The linear slide hand is equipped with a displacement sensor (LVDT). Contributes to workpiece model judgment and predictive maintenance by detecting the gripping position with high repeatability of ±0.04 mm and linearity of F.S.±0.5%.





The design of the guide has been revised to increase the rigidity of the guide by 1.3 times. Durability more than twice that of conventional models is realized by technological innovation in sliding. Maintenance work-hours are greatly reduced by adopting the "positioning hole" of grip center reference and a new switch replacement method.

The design of the guide has been revised to increase the rigidity of the guide by 1.3 times. Durability more than twice that of conventional models is realized by technological innovation in sliding. Compact and high gripping force

Series Special-order product Theoretical (1) 5500N(CKT)	Series Special-order product Theoretical (1) 5500N(CKT) groping force (2) 8333N(CKU)	Theoretical (1) 5500N(CKT)	i ngir grip	ping force chuck
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High gripping force of 8333N compatibility. Long stroke, 70 mm compatible. Long jaw, lightweight, with switch.



Electric gripper suitable for robot arms. Long stroke and high rigidity for gripping large workpieces. IP54 protection structure available on special order.





Long measuring hand with high precision analog output of finger position. The linear slide hand has a built-in displacement sensor and amplifier. The integrated structure achieves a high repeatability of ±0.02 mm.



realized by double piston structure.





Thin design from double piston system. High rigidity and high precision are realized by improving the performance of the linear guide. Helps achieve stable operation at non-stop production facilities.





High gripping force of 5333N compatibility. Long stroke, 70 mm compatible. Long iaw. lightweight, with switch.



# Homepage

# Catalog PDFs and CAD data of CKD products are available for download.



# **MEMO**

### Transport workpieces. Motor drive, air drive, and assist components are available.

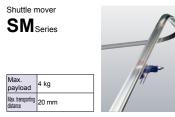


Electric actuator that achieves both compactness and high rigidity. Dust-proof option with long service life in dusty environments is available. Compatible with protection degree of IP50.





Motorless specifications electric actuator. Belt drive supports long strokes.



Air driven three-dimensional transport system. Free layout is possible by combining units (vertical, horizontal curves, straight).



CE



This is an unparalleled balancer that can operate from below and from the front when inserting workpieces and jigs into machine tools and when changing setups - a capability not found in other similar devices.



A motorless specification for electric actuators that can be controlled by attaching motors from various manufacturers. Achieves both compactness and high rigidity.



Electric Actuator

actuator. Highly rigid, with a wide lineup of variations.



Electric Shuttle Mover

Single-axis 2D transport. Ideal for gate-type transport within the factory. Enables multi-point positioning with a long stroke of up to 20 m.



Generates high pressure air double the primary pressure with no power supply. 2x or more durability than conventional models is realized. Long service life enables significant reduction of unexplained stoppages.





# WORLD-NETWORK



## CKD Corporation

Website https://www.ckd.co.jp/en/

### ASIA

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