



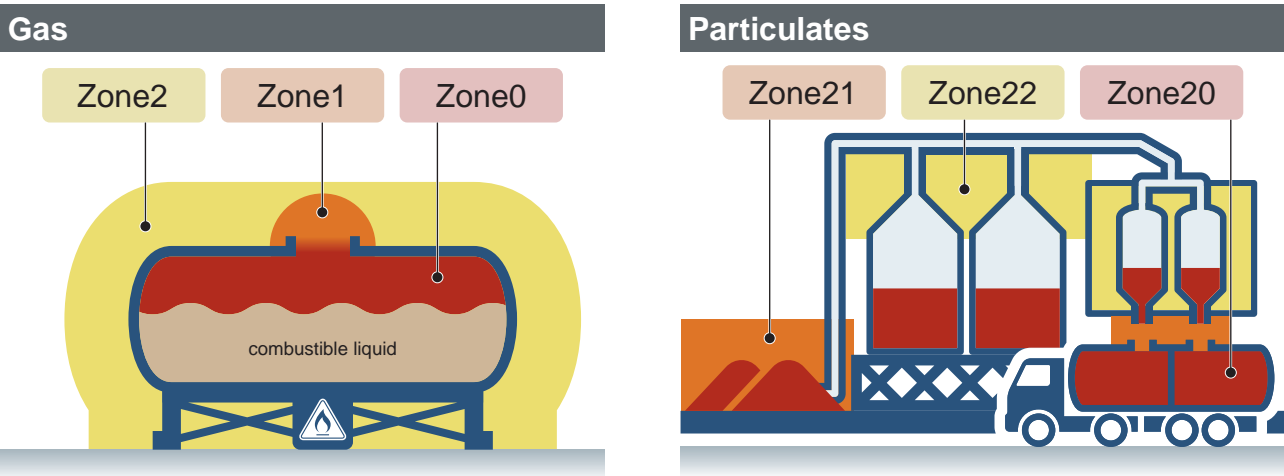
ATEX Directive compliant product guide



What is the ATEX Directive?

Issued in July 2003 as part of the CE Marking Compliance Directive by the EU (European Community) Directive 94/9/EC. Electrical components and non-electrical components (cylinders that cause friction, impact, or wear) intended for use in explosive atmospheres when manufactured, sold, distributed, or installed in EC member countries are subject to regulations. The current ATEX command number is 2014/34/EU.

Examples of Dangerous Zones



Components Category	Dangerous zone (Gas)	Dangerous zone (Particulates)	Explanation of Dangerous Zones
1	Zone 0	Zone 20	Zones where explosive atmospheres are present continuously or for long periods (more than 1000 hours/year. *1)
2	Zone 1	Zone 21	Zones where explosive atmospheres may be generated during normal operation of the plant, etc. (10 to 1000 hours/year. *1)
3	Zone 2	Zone 22	Zones where explosive atmospheres are not likely to be generated during normal operation of a plant or the like and are only present for a short time even if generated (1 to 10 hours/year. *1)

*1 Time to generate explosive atmosphere

CKD Components Usable in ATEX Directives

To expand the range of components required for equipment configuration, CKD offers a large lineup of ATEX-certified and non-ATEX-certified components.

Components subject to the ATEX Directive

Components are classified into categories such as electrical and non-electrical products, and certification and self-declaration are conducted by certification bodies.

Component category (Zone)	Electrical Component (solenoid valve, flow rate sensor, etc.)	Non-electrical components (cylinder, air operated valve, etc.)
Category 1 (Zone 0/20)	Certification by Certification Body	Certification by Certification Body
Category 2 (Zone 1/21)	Certification by Certification Body	Self-declaration by CKD
Category 3 (Zone 2/22)	Self-declaration by CKD	Self-declaration by CKD

Handling of components not subject to the ATEX Directive

Products that meet the following conditions are excluded from EU Directive 2014/34/EU and can be used in explosive atmospheres without meeting special requirements.

- Equipment that does not have a potential ignition source.
- Components that do not have the autonomous functions required for the safety function of the ATEX Component or protection system.

Rechargeable battery compatible component P4* Series

The development of rechargeable batteries and next-generation batteries have progressed, and the explosion-proof components have also met the component requirements with improved dry environmental performance. These products provide production stability in the manufacturing process, meeting the needs of rechargeable battery manufacturing, from electrode production to packaging.

* In this guide, "*" is indicated for models that are compatible with rechargeable batteries so that users can select ATEX Directive-compliant and rechargeable battery-compatible models.

Material restrictions

Configuration parts material limitations

Limited use of inappropriate material and surface treatment in the rechargeable battery manufacturing process. Product failure of rechargeable batteries is reduced.

Limited copper material

Limited zinc material

Limited nickel-based material

Limited zinc plating

Limited electrolytic nickel plating

Dry environment

Long service life even in -70°C dew point environments

Ultra-dry environment compatible grease is used. Retains the smooth operation of the sliding part for long periods, even in dry environments.

Stable operation

Contributing to a system that never stops

Uses a special grease that supports low dew points and high frequency. Contributes to stable operation of equipment.

Change in tact time

Change in starting pressure

Standard cylinder

P4 Series


Counters dust & dust generation

Long service life even in dusty environments






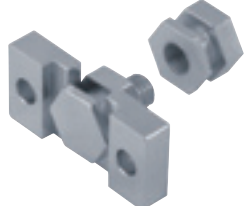

Strong dust-proof mechanisms such as scraper/rod packing are used. Suppresses dust entry into the cylinder.

Suppresses dust generation of metal wear powder


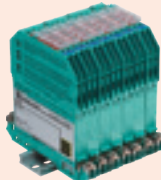

Equipped with a local exhaust function (vacuum treatment port). Prevents contamination to the electrodes or cell by not leaking the metal wear powder outside.

Product name/model No.		Explosion-proof grade	Zone						Rechargeable Battery compatible
			Gas			Particulates			
			0	1	2	20	21	22	
Small bore size cylinder CMK2-SX		II 2G IIBc T6		●	●				●
Tie rod cylinder SCG-SX		II 2G IIBc T6		●	●				●
Round shaped cylinder SCM-SX		II 2G IIBc T6		●	●				●
Space saving cylinder SSD2-SX		II 2G IIBc T6		●	●				●
Space saving cylinder SSD-SX		II 2G IIBc T6		●	●				●
Cylinder with linear guide LCR-SX		II 2G IIBc T6		●	●				●
Cylinder with linear guide LCG-SX		II 2G IIBc T6		●	●				●
Guided cylinder UCA2-SX		II 2G IIBc T6		●	●				●

*Indicates the Zone that can be installed when the cylinder does not have a switch. The Zone that can be utilized when the cylinder is equipped with a switch.

Product name/model No.		Explosion-proof grade	Zone						Rechargeable Battery compatible
			Gas			Particulates			
			0	1	2	20	21	22	
Guided cylinder STG-SX		II 2G IIBc T6		●	●				●
Magnet rodless cylinder MRL2-SX		II 2G IIBc T6		●	●				●
Rodless cylinder SRL3-SX		II 3G IIBc T6			●				●
Cylinder switch SW-T,K,F,M-SX		II 3G Ex nC II CT4 X			●				●
Shock absorber NCK-SX		II 2G IIBc T5		●	●				●
Floating fitting FJ-SX		II 2G IIBc T5		●	●				●
Simplified floating fitting FK-SX		II 2G IIBc T5		●	●				●
Parallel hand LHA/LHAG-SX		II 2G IIBc T6		●	●				●

Directional control valve

Product name/model No.		Explosion-proof grade	Zone						Portability Battery compatible
			Gas			Particulates			
			0	1	2	20	21	22	
Pilot operated 3, 5-port solenoid valve 4GD/E EA		II2G Ex ib IICT4 Gb		●	●				●
Pilot operated 3, 5-port solenoid valve 4GD2/4GE2 EB [Europe Only Release]		II3G Ex ec IIC T5 Gc X			●				
Insulation barrier (1 ch) D5048S		II3(1)G Ex nA [ia Ga] IIC T4 Gc, II(1)D [Ex ia Da] IIIC, I(M1)[Ex ia Ma] I	●	●	●	●	●	●	●
Zener barrier (1ch) Z728		II(1)GD, I(M1) [Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I	●	●	●	●	●	●	
Zener barrier (2ch) Z779		II(1)GD, I(M1) [Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I	●	●	●	●	●	●	
Manual selector valve HMOV,HSV		Not applicable	●	●	●	●	●	●	
Quick valve 2QV,3QV		Not applicable	●	●	●	●	●	●	● *
Mechanical valve MS,MM,MAVL		Not applicable		●	●		●	●	
Logic valve RTD,AL,SAL		Not applicable		●	●		●	●	

* 2QV only





Refining and pressure adjusting components





Product name/model No.		Explosion-proof grade	Zone						Rechargeable Battery compatible
			Gas			Particulates			
			0	1	2	20	21	22	
Filter/regulator W**00-W		Not applicable		●	●		●	●	●
Filter/regulator Flame-resistant Series W**00-G4		Not applicable		●	●		●	●	
Filter/regulator WB500		Not applicable		●	●		●	●	●
Filter/regulator B + 7019		Not applicable		●	●		●	●	
Air filter F*000-W		Not applicable		●	●		●	●	●
Air filter Flame-resistant Series F*000-G4		Not applicable		●	●		●	●	
Oil mist filter M*000-W		Not applicable		●	●		●	●	●
High-performance oil mist filter MX*000-W		Not applicable		●	●		●	●	
Compact air filter A1019		Not applicable		●	●		●	●	
Inline filter FSL		Not applicable		●	●		●	●	●
Oil mist filter Medium pressure Series MM*000-W		Not applicable		●	●		●	●	
Large bore size filter 1138/1126,A1338/1326, 1238/1226/1226J		Not applicable		●	●		●	●	
Clean exhaust filter FAC		Not applicable		●	●		●	●	
Anti-bacterial/bacteria-removing filter SFC-FP2/SFS-FP2		Not applicable		●	●		●	●	
Inline Clean exhaust filter FCS		Not applicable		●	●		●	●	●
Regulator R**00-W		Not applicable		●	●		●	●	●
Regulator/flame-resistant Series R*000-G4		Not applicable		●	●		●	●	
Regulator oil-prohibition Series RN*000-W		Not applicable		●	●		●	●	
Regulator medium pressure Series RM*000-W		Not applicable		●	●		●	●	
Compact piston regulator RA800		Not applicable		●	●		●	●	
Compact piston regulator RB500/MNRB500		Not applicable		●	●		●	●	●
Compact direct acting precision regulator RJB500, MNRJB500		Not applicable		●	●		●	●	

Refining and pressure adjusting components

Auxiliary components

Product name/model No.		Explosion-proof grade	Zone						Rechargeable Battery compatible
			Gas			Particulates			
			0	1	2	20	21	22	
Clean regulator RC2000		Not applicable		●	●		●	●	
Clean regulator 2619		Not applicable		●	●		●	●	
Compact regulator B2019		Not applicable		●	●		●	●	
Large bore size regulator 2215		Not applicable		●	●		●	●	
Compact reverse regulator 2419		Not applicable		●	●		●	●	
Large bore size reverse regulator 2415		Not applicable		●	●		●	●	
Dial regulator 2302/2303/2304		Not applicable		●	●		●	●	
Relief valve B + 6061		Not applicable		●	●		●	●	
Lubricator L*000-W		Not applicable		●	●		●	●	
Compact lubricator A + 3019		Not applicable		●	●		●	●	
Large bore size lubricator 3003E,3004E,3005E		Not applicable		●	●		●	●	
Residual pressure exhaust valve V*0*0-W		Not applicable		●	●				●
Drain discharger DT3000-W,DT4000-W		Not applicable		●	●		●	●	
Drain discharger 5100-4C		Not applicable		●	●		●	●	
Low-profile pressure gauge G401-W		Not applicable		●	●		●	●	
Miniature pressure gauge G29D,G39D		Not applicable		●	●		●	●	
Pressure gauge with safety marker G40D		Not applicable		●	●		●	●	●
Pressure gauge with limit marker G45D		Not applicable		●	●		●	●	
Pressure gauge with limit marker G41D		Not applicable		●	●		●	●	●
General-use pressure gauge G49D,G59D		Not applicable		●	●		●	●	●
Pressure gauge for panel mounting G53D		Not applicable		●	●		●	●	
Vacuum pressure gauge with limit marker VG41D		Not applicable		●	●		●	●	
Moisture indicator 6119-2C		Not applicable		●	●		●	●	
Drain separator FX		Not applicable		●	●		●	●	●
Desiccant air dryers Manual air dryer 4001, 4002		Not applicable		●	●		●	●	

Product name/model No.		Explosion-proof grade	Zone						Rangeable Battery compatible
			Gas			Particulates			
			0	1	2	20	21	22	
Speed controller SC3W		Not applicable		●	●		●	●	●
Speed controller, universal SC3U		Not applicable		●	●		●	●	
Speed Controller Direct Port Elbow SC3R		Not applicable		●	●		●	●	
Speed Controller Stainless Steel Corrosion Resistance SC3P		Not applicable		●	●		●	●	
Speed controller Line type SCL2, SCD2		Not applicable		●	●		●	●	●
Speed controller, large bore size type SC		Not applicable		●	●		●	●	
Miniature speed controller SC-M		Not applicable		●	●		●	●	
Miniature meter-in meter-out speed controller SCD		Not applicable		●	●		●	●	
Speed controller, medium bore size SC1		Not applicable		●	●		●	●	
Speed controller with adjusting dial DSC		Not applicable		●	●		●	●	●
Needle valve with adjusting dial DVL		Not applicable		●	●		●	●	
Quick exhaust valve with push-in fitting QEL		Not applicable		●	●				●
Quick exhaust valve QEV2		Not applicable		●	●				●
Shuttle valve SHV2		Not applicable		●	●				●
Check valve CHV2		Not applicable		●	●				●
Block valve FVPV		Not applicable		●	●				
Fitting GW		Not applicable	●	●	●	●	●	●	
Fitting Stainless steel ZW		Not applicable	●	●	●	●	●	●	●
Fitting Mini GWJ		Not applicable	●	●	●	●	●	●	
Fitting Stainless steel ZSP		Not applicable	●	●	●	●	●	●	
Miniature fitting F		Not applicable	●	●	●	●	●	●	
Tightening fitting MJ, JL		Not applicable	●	●	●	●	●	●	
Tightening fitting Stainless steel ZJ		Not applicable	●	●	●	●	●	●	
Rotary fitting RJF		Not applicable	●	●	●	●	●	●	
Fiber tube/dedicated fitting UP, PTN2, PTNL2, EH, PG, CG, RG		Not applicable	●	●	●	●	●	●	
Tube F, FH, NU, U, KX, SR, AZ		Not applicable	●	●	●	●	●	●	
Silencer Small bore size/resin body SL, SLW		Not applicable	●	●	●	●	●	●	
Miniature Silencer SLM		Not applicable	●	●	●	●	●	●	
Silencer SL		Not applicable	●	●	●	●	●	●	
Metering valve with silencer SMW2		Not applicable	●	●	●	●	●	●	●
Metering valve with silencer FMS,SMW		Not applicable	●	●	●	●	●	●	
Nozzle BN		Not applicable	●	●	●	●	●	●	

	Product name/model No.	Explosion-proof grade	Zone						Reconfigurable Data compatible	
			Gas			Particulates				
			0	1	2	20	21	22		
Vacuum System Components	Vacuum filter VFA		Not applicable		●	●		●	●	●
Vacuum System Components	Vacuum pad VSP		Not applicable	●	●	●	●	●	●	●
Flow rate sensor	Karman Vortex Flow Rate Sensor WFK2-EX		II 3G Ex ec IIC T4 Gc X			●				
Flow rate sensor	Compact flow rate sensor (RAPIFLOW)® FSM3-EX Environment-resistant specifications		II 3G Ex ec IIC T6 Gc			●				

MEMO

ATEX Directive compliant 4GD/E EA Series **CC-1458A**

■ **Explosion-proof performance** II 2G Ex ib IIC T4 Gb

Intrinsic safety explosion-proof

■ **ATEX category 2**



ATEX Directive compliant 4GD2/4GE2 EB Series E-CC-1460A

■ **European Limited Release**

■ **Explosion-proof performance** II3G Ex ec IIC T5 Gc X

Increased safety explosion-proof structure

■ **ATEX category 3**



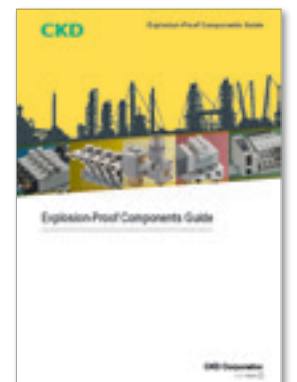
Explosion-proof Components Guide **CC-1494A**

■ Intrinsic safety explosion-proof/Pressure and explosion-proof components are listed.

Usable locations: Zones 1, 2

■ Products with global explosion-proof standards are listed.

Certified Regions: Europe, China, South Korea, Taiwan, Japan, International (IECEx)

Components for rechargeable battery production P4* Series **CC-1226A** **CC-1530**

■ Material restrictions

Configuration parts material limitations

■ **Dry environment**

Long service life even in -70°C dew point environments

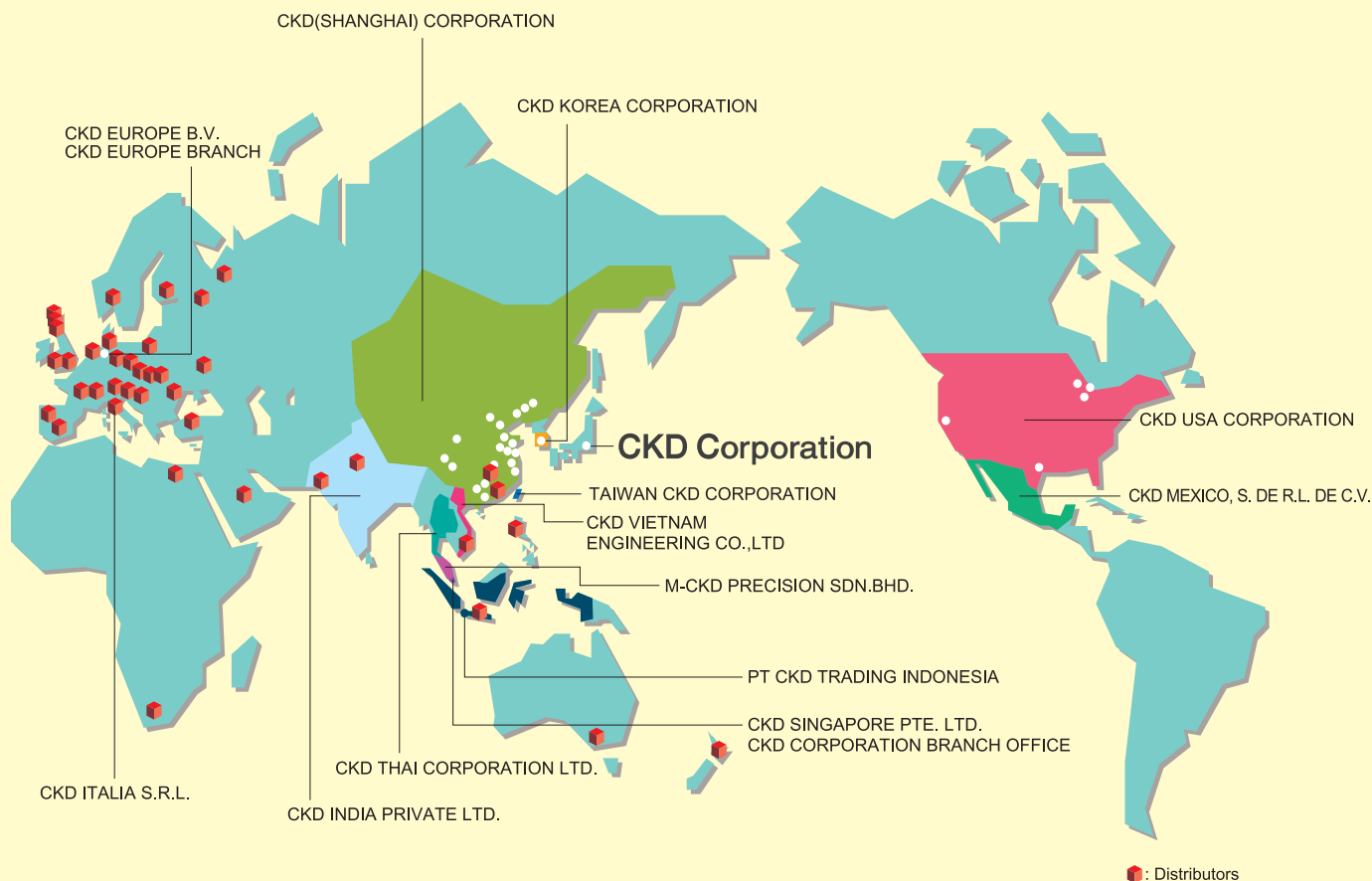
■ Stable operation

Contributing to a system that never stops

■ Counters dust and dust generation

Long service life even in dusty environments Suppresses dust generation of metal wear powder





CKD Corporation

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

- 2-250 Uji, Komaki City, Aichi 485-8551, Japan
- PHONE +81-568-74-1338 FAX +81-568-77-3461

ASIA

喜開理(上海)機器有限公司

CKD(SHANGHAI) CORPORATION

- 營業部/上海浦西事務所(SALES HEADQUARTERS / SHANGHAI PUXI OFFICE)
Room 612, 6th Floor, Yuanzhongkeyan Building, No. 1905
Hongmei Road, Xuhui District, Shanghai 200233, China
PHONE +86-21-60906046 FAX +86-21-60906046
- 上海浦東事務所(SHANGHAI PUDONG OFFICE)
- 寧波事務所(NINGBO OFFICE)
- 杭州事務所(HANGZHOU OFFICE)
- 無錫事務所(WUXI OFFICE)
- 昆山事務所(KUNSHAN OFFICE)
- 蘇州事務所(SUZHOU OFFICE)
- 南京事務所(NANJING OFFICE)
- 合肥事務所(HEFEI OFFICE)
- 成都事務所(CHENGDU OFFICE)
- 武漢事務所(WUHAN OFFICE)
- 鄭州事務所(ZHENGZHOU OFFICE)
- 長沙事務所(CHANGSHA OFFICE)
- 重慶事務所(CHONGQING OFFICE)
- 西安事務所(XIAN OFFICE)
- 廣州事務所(GUANGZHOU OFFICE)
- 中山事務所(ZHONGSHAN OFFICE)
- 深圳西事務所(WEST SHENZHEN OFFICE)
- 深圳東事務所(EAST SHENZHEN OFFICE)
- 東莞事務所(DONGGUAN OFFICE)
- 廈門事務所(XIAMEN OFFICE)
- 福州事務所(FUZHOU OFFICE)
- 瀋陽事務所(SHENYANG OFFICE)
- 大連事務所(DALIAN OFFICE)
- 長春事務所(CHANGCHUN OFFICE)
- 北京事務所(BEIJING OFFICE)
- 天津事務所(TIANJIN OFFICE)
- 青島事務所(QINGDAO OFFICE)
- 濰坊事務所(WEIFANG OFFICE)
- 濟南事務所(JINAN OFFICE)
- 烟台事務所(YANTAI OFFICE)

CKD INDIA PRIVATE LTD.

- HEADQUARTERS
Unit No. 607, 6th Floor, Welldone Tech Park, Sector 48,
Sohna Road, Gurgaon-122018, Haryana, India
PHONE +91-124-418-8212
- BANGALORE OFFICE
- PUNE OFFICE
- CHENNAI OFFICE
- MUMBAI OFFICE
- HYDERABAD OFFICE

PT CKD TRADING INDONESIA

- HEAD OFFICE
Menara Bidakara 2, 18th Floor, Jl. Jend. Gatot Subroto Kav.
71-73, Pancoran, Jakarta 12870, Indonesia
PHONE +62-21-2938-6601 FAX +62-21-2906-9470
- MEDAN OFFICE
- BEKASI OFFICE
- KARAWANG OFFICE
- SEMARANG OFFICE
- SURABAYA OFFICE

CKD KOREA CORPORATION

- HEADQUARTERS
(3rd Floor), 44, Sinsu-ro, Mapo-gu, Seoul 04088, Korea
PHONE +82-2-783-5201~5203 FAX +82-2-783-5204
- 水原營業所(SUWON OFFICE)
- 天安營業所(CHEONAN OFFICE)
- 蔚山營業所(ULSAN OFFICE)

M-CKD PRECISION SDN.BHD.

- HEAD OFFICE
Lot No.6,Jalan Modal 23/2, Seksyen 23, Kawasan MIEL,
Fasa 8, 40300 Shah Alam,Selangor Darul Ehsan, Malaysia
PHONE +60-3-5541-1468 FAX +60-3-5541-1533
- JOHOR BAHRU BRANCH OFFICE
- PENANG BRANCH OFFICE

CKD SINGAPORE PTE. LTD.

- No.33 Tannery Lane #04-01 Hoestee Industrial
Building, Singapore 347789, Singapore
PHONE +65-67442623 FAX +65-67442486

CKD CORPORATION BRANCH OFFICE

- No.33 Tannery Lane #04-01 Hoestee Industrial
Building, Singapore 347789, Singapore
PHONE +65-67447260 FAX +65-68421022

CKD THAI CORPORATION LTD.

- HEADQUARTERS
19th Floor, Smooth Life Tower, 44 North Sathorn Road,
Silom, Bangkok, Bangkok 10500, Thailand
PHONE +66-2-267-6300 FAX +66-2-267-6304-5
- NAVANAKORN OFFICE
- EASTERN SEABOARD OFFICE
- LAMPHUN OFFICE
- KORAT OFFICE
- AMATANAKORN OFFICE
- PRACHINBURI OFFICE
- SARABURI OFFICE

台灣喜開理股份有限公司

TAIWAN CKD CORPORATION

- HEADQUARTERS
16F-3, No. 7, Sec. 3, New Taipei Blvd., Xinzhuang Dist.,
New Taipei City 242, Taiwan
PHONE +886-2-8522-8198 FAX +886-2-8522-8128
- 新竹營業所(HSINCHU OFFICE)
- 台中營業所(TAICHUNG OFFICE)
- 台南營業所(TAINAN OFFICE)
- 高雄營業所(KAOHSIUNG OFFICE)

CKD VIETNAM ENGINEERING CO.,LTD.

- HEADQUARTERS
18th Floor, CMC Tower, Duy Tan Street, Cau Giay
District, Hanoi, Vietnam
PHONE +84-24-3795-7631 FAX +84-24-3795-7637
- HO CHI MINH OFFICE

EUROPE

CKD EUROPE B.V.

- HEADQUARTERS
Beechavenue 125A, 1119 RB Schiphol-Rijk, the Netherlands
PHONE +31-23-554-1490
- CKD EUROPE GERMANY OFFICE
- CKD EUROPE UK
- CKD EUROPE CZECH O.Z.

CKD CORPORATION EUROPE BRANCH

- Beechavenue 125A, 1119 RB Schiphol-Rijk, the Netherlands
PHONE +31-23-554-1490

CKD ITALIA S.R.L.

- Via di Fibianna 15 Calenzano (FI) CAP 50041, Italy
PHONE +39 0558825359 FAX +39 0558827376

NORTH AMERICA & LATIN AMERICA

CKD MEXICO, S. DE R.L. DE C.V.

- Cerrada la Noria No. 200 Int. A-01, Querétaro Park II,
Parque Industrial Querétaro, Santa Rosa Jáuregui,
Querétaro, C.P. 76220, México
PHONE +52-442-161-0624

CKD USA CORPORATION

- HEADQUARTERS
1605 Penny Lane, Schaumburg, IL 60173, USA
PHONE +1-847-648-4400 FAX +1-847-565-4923
- LEXINGTON OFFICE
- SAN ANTONIO OFFICE
- SAN JOSE OFFICE/ TECHNICAL CENTER
- DETROIT OFFICE
- BOSTON OFFICE

The goods and/or their replicas, the technology and/or software found in this catalog are subject to complementary export regulations by Foreign Exchange and Foreign Trade Law of Japan. If the goods and/or their replicas, the technology and/or software found in this catalog are to be exported from Japan, Japanese laws require the exporter makes sure that they will never be used for the development and/or manufacture of weapons for mass destruction.