



## ATEX Directive compliant product guide

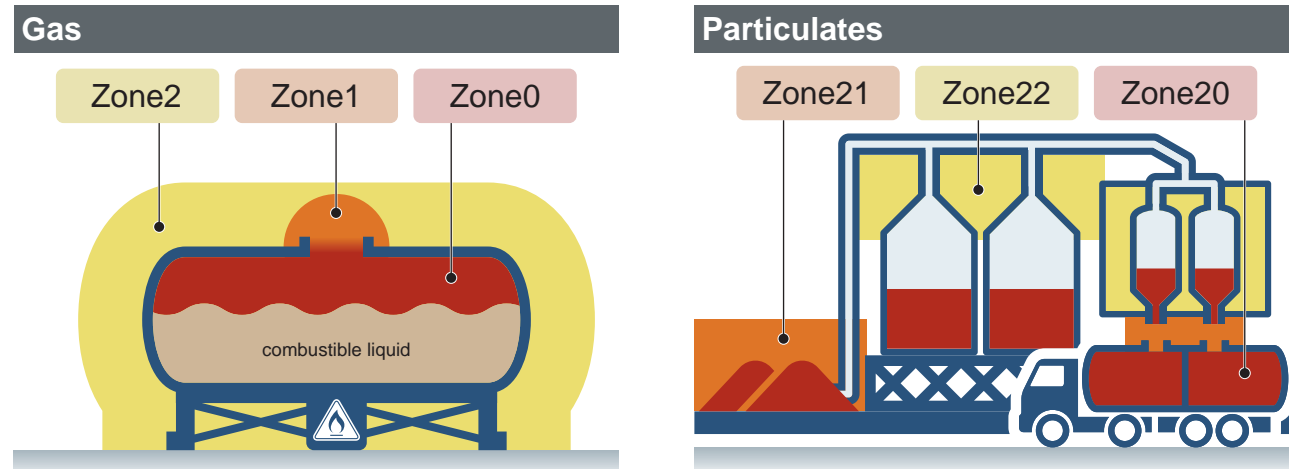
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## What is the ATEX Directive?

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.



### 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



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

Ultra-dry environment compatible grease is used.

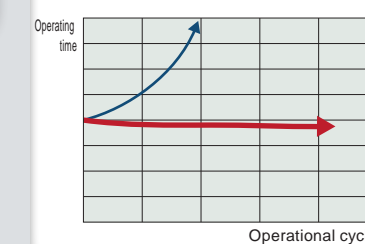
Retains the smooth operation of the sliding part for long periods, even in dry environments.



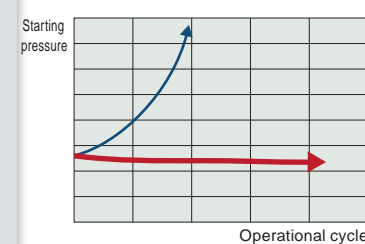
### Contributing to a system that never stops

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



### 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.

# Pneumatic cylinders



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.

# Pneumatic cylinders

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						Rechargeable Battery compatible		
		Gas			Particulates					
		0	1	2	20	21	22			
Pilot operated 3, 5-port solenoid valve 4GD/E EA		II2G Ex ib IIC T4 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 [ja 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 HMV,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





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		●	●		●	●	

# Auxiliary components

Product name/model No.	Explosion-proof grade	Zone						Rechargeable 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 QE2		Not applicable		●	●				●
Shuttle valve SHV2		Not applicable		●	●				●
Check valve CHV2		Not applicable		●	●				●
Block valve FPV		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	●	●	●	●	●	●	



# Related products

	Product name/model No.	Explosion-proof grade	Zone						Rechargeable Battery 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) <sup>®</sup> FSM3-EX Environment-resistant specifications		II 3G Ex ec IIC T6 Gc			●				

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## **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**



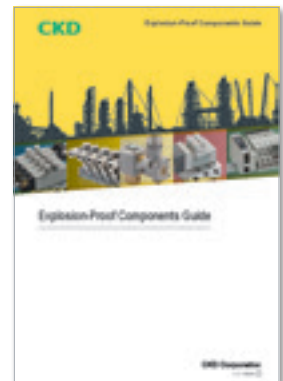
## **Explosion-proof Components Guide** **CC-1494A**

### **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





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