Product portfolio overview

CROUSE-HINDS SERIES

The safety you rely on.





EATON

Powering Business Worldwide









Energizing a world that demands more.

Advancing industry, new technologies, complex processes—all are driving a growing demand for, and the cost of, electrical power. Business demands solutions that increase uptime and extend equipment life, while keeping personnel and equipment safe.

At Eaton, we're energized by the challenge of powering a world that demands more. With more than 100 years of experience in electrical power management, we have the expertise to see beyond today. From groundbreaking products to turnkey design and engineering services, critical industries around the globe count on Eaton.

In China today, Eaton's distinct businesses includes explosion-proof electrical products, uninterruptible power systems, medium voltage switch panels and switchgears, vacuum circuit breakers and fittings, electrical automation, automotive air conditioning and power steering, hose and tube assemblies, clutches and brakes, engine valves, hydraulic lifters, differentials, hydraulic hose fittings and adapters, directional control valves, vane pumps, power systems, hoses and fittings.

The safety you rely on. Delivering world-class reliability and safety in high consequence harsh and hazardous environments

Our Crouse-Hinds series products stand for safety in the harshest of environments when power management is most critical. While it all began with the Condulet, the Crouse-Hinds series portfolio has grown into the premier name for comprehensive solutions for high-consequence harsh and hazardous environments. Our global portfolio meets the standards and certifications for most of the countries and regions of the world, and consists of:

- Explosion-proof, industrial and marine lighting
- Enclosures
- Motor controls and electrical apparatus
- Connectivity devices
- Conduit and cable management solutions
- Signals, alarms and communications equipment
- Solar power solutions
- Commercial construction electrical products
- Electronic components for process control and protection
- Airport lighting systems

Crouse-Hinds series solutions round out a complete Eaton portfolio that brings you reliable, efficient and safe electrical power management solutions.













Comprehensive global product solutions that fulfill local demand worldwide

Fast-growing industrial and commercial customers alike need international partners who can help them adapt to local requirements, and Eaton's Crouse-Hinds' global capabilities and local expertise help their expansion.

GB
Guo Biao
Chinese certification

ATEX
ATmosphères Explosibles
European Union certification

IEC & IEC-Ex
International Electrotechnical Commission
International certification

CSA
Canadian Standards Association
Canadian certification

CEPEL
Centro de Pesquisas de Energia Elétrica
Brazilian certification

UL
Underwriters Laboratories
American certification

CU-TR
Custom Union Technical Regulation
Belarus, Kazakhstan, and Russia certification

KC
Korea Certification
Korean certification

ABS
American Bureau of Shipping
American marine certification

DNV
Det Norske Veritas
Norwegian marine certification

LR
Lloyd's Register of Shipping
British marine certification

CE
Conformité Européenne
European certification



Hazardous area reference guide:

Hazardous areas due to explosive gases, vapours and liquids

Zone 0 covers areas in which an explosive atmosphere caused by a mixture of air and gases, vapours or liquids is present, continuously, for long periods or frequently.

Zone 1 covers areas in which the occasional occurrence of an explosive atmosphere due to the presence of gases, vapours or liquids is likely.

Zone 2 covers areas in which the occurrence of an explosive of gases, vapours and liquids is not likely, but if one should occur, then only rarely and only for a short period.

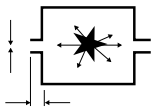
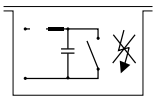
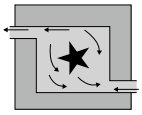
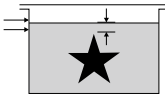
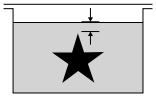
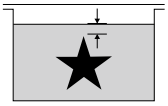
Hazardous areas due to explosive dust/ air mixtures

Zone 20 covers areas in which an explosive atmosphere due to dust/air mixtures is present continuously, for long periods or frequently.

Zone 21 covers areas in which the occurrence of an explosive atmosphere due to dust/air mixtures is to be expected occasionally.

Zone 22 covers areas in which the occurrence of an explosive atmosphere due to whirled-up dust is not likely, but, if it occurs, then in all probability only rarely and only for a short period.

Explosion protection techniques

Symbol	Hazardous areas	Type	Standard	Principle	Application
da	Zone 0	Flameproof	IEC 60079-1 EN 60079-1 AS/NZS 60079-1 GB3836.2		Power-operated apparatus, switchgear, motors (all types of apparatus producing ignitable arcs in normal operation)
db	Zone 1	Flameproof			
dc	Zone 2	Flameproof			
eb	Zone 1	Increased safety	IEC 60079-7 EN 60079-7 AS/NZS 60079-7 GB3836.3		Connection and distribution boxes light fittings, measuring instruments, squirrel cage motors (no ignitable sparks in normal operation)
ec	Zone 2	Increased safety			
ia	Zone 0	Intrinsic safety	IEC 60079-11 EN 60079-11 AS/NZS 60079-11 GB3836.4		Measurement and control devices, data processing (low electric values)
ib	Zone 1	Intrinsic safety			
px	Zone 1	Pressurization	IEC 60079-2 EN 60079-2 AS/NZS 60079-2 GB3836.5		Power-operated apparatus (active safety measures required)
py	Zone 1	Pressurization			
pz	Zone 2	Pressurization			
o	Zone 1	Oil immersion	IEC 60079-6 EN 60079-6 AS/NZS 60079-6 GB3836.6		Transformers (rarely used)
q	Zone 1	Sand filling	IEC 60079-5 EN 60079-5 AS/NZS 60079-5 GB3836.7		Capacitors, electronice components, fuses
nA	Zone 2	Non-sparking apparatus	IEC 60079-15 EN 60079-15 AS/NZS 60079-15 GB3836.8		Zone 2 only. Lamps, motors, plugs and sockets, measurement and control devices
nR	Zone 2	Restricted breathing apparatus			
ma	Zone 0	Encapsulation	IEC 60079-18 EN 60079-18 AS/NZS 60079-18 GB3836.9	Proved by test unable to cause ignition	Measurement and control devices, relays, electronic circuits
mb	Zone 1	Encapsulation			
s	Zone 0 Zone 1	Special equipment	IEC 60079-33 EN 60079-33 AS/NZS 60079-33		Specially tested for specific applications (not widely used)
tb	Zone 20 Zone 21 Zone 22	Dust excluding Ignition proof	IEC 60079-31 EN 60079-31 AS/NZS 60079-31 GB 12476.5		Equipment dust ignition protection by enclosure 't'

Explosion protection techniques

Division of explosion-protected apparatus into explosion groups (Gas-ex area)

Explosion-protected electrical apparatus are divided into group I and II. It is further sub-division of the Explosion Group II into "A", "B" and "C".

Temperature class / Gas group	T1	T2	T3	T4	T5	T6
I	Methane	Ethylalcohol	Petrol	Acetaldehyde		
IIA	Acetone, Ethane	i-amyl acetate	Diesel-fuel	Ethylether		
	Ethyl acetate	n-butane	Aviation-fuel			
	Ammonia, Benzol	n-butylalcohol	Heating-oils			
	Acetic acid		n-hexane			
	Carbon monoxide					
	Methanol, Propane					
	Toluene					
IIB		Ethylene				
IIC		Acetylene				Carbon disulphide

The ignition temperature is the lowest temperature of a surface at which an explosive atmosphere will ignite. Gases and vapours can be divided into temperature classes according to their ignition temperatures. This results in a subdivision of explosion-protected electrical apparatus into the temperature classes T1 to T6. This classification allows explosion-protected apparatus to be used economically. The maximum surface temperature of an apparatus must always be lower than the ignition temperature of the gas/air or vapour/air mixture.

T6 is the highest temperature class with the lowest permissible surface temperature.

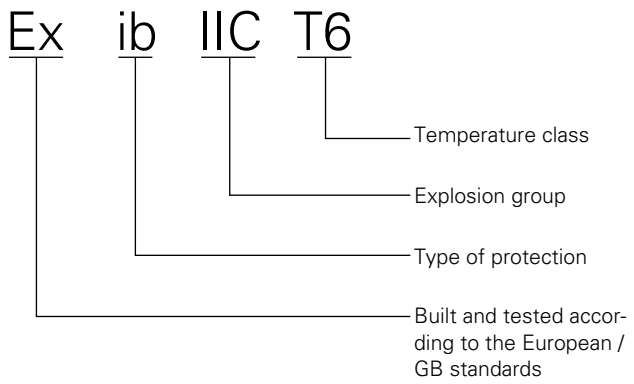
Max surface temperature	NEC table 500-3 (d)	IEC T class
450 °C	T1	T1
300 °C	T2	T2
280 °C	T2A	
260 °C	T2B	
230 °C	T2C	
215 °C	T2D	
200 °C	T3	T3
180 °C	T3A	
165 °C	T3B	
160 °C	T3C	
135 °C	T4	T4
120 °C	T4A	
100 °C	T5	T5
85 °C	T6	T6

IEC group	Representative	NEC group
I	Methane (underground mining)	I
IIA	Propane	D
IIB	Ethylene	C
IIB(H_2)	Hydrogen	B
IIC	Acetylene	A

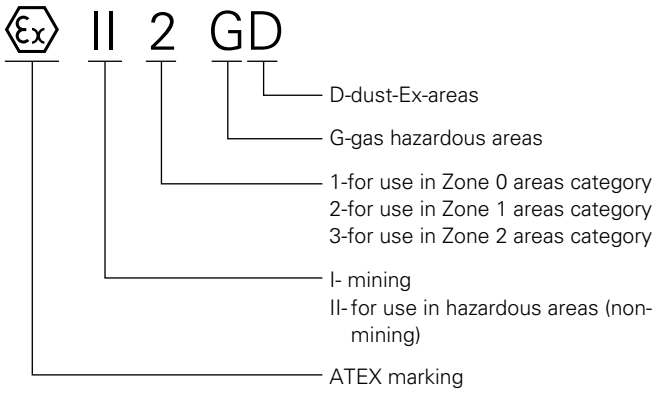
Explosion protection techniques

Marking of explosion protected apparatus

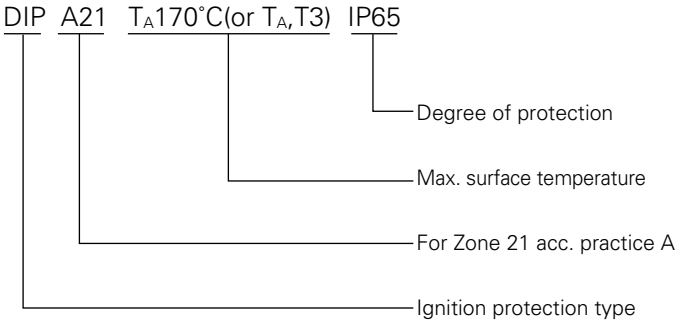
Marketing of apparatus in accordance with the European / GB standards (Gas - Ex)

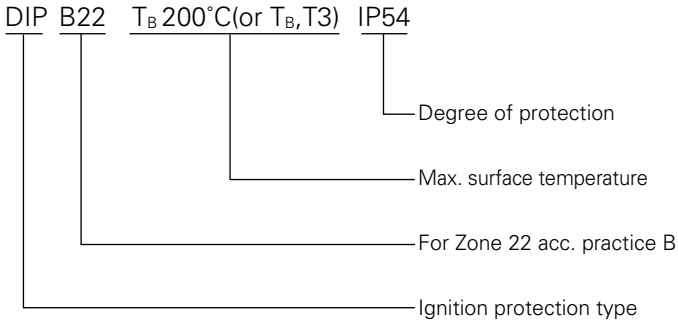


Marking of apparatus in accordance with directive 94/9/EC



Marketing of apparatus in accordance with GB standards (Dust - Ex)





Degrees of protection according to IEC 60529

First number	Degree of protection	Second number	Degree of protection
0	No special protection	0	No special protection
1	Protected against solid foreign bodies Ø 50 mm and larger	1	Protected against vertically dripping water
2	Protected against solid foreign bodies Ø 12.5mm and larger	2	Protected against dripping water when enclosure is incliened up to 15˚C
3	Protected against solid foreign bodies Ø 2.5mm and larger	3	Protected against dripping water when enclosure is incliened up to 60˚C
4	Protected against solid foreign bodies Ø 1mm and larger	4	Protected against splash water from any direction
5	Dust protected	5	Protected against jet water from any di rection
6	Dust-tight	6	Protected against powerful water jets from any direction
		7	Protected against water intrusion when submerged for a limited time
		8	Protected against water intrusion when submerged, time irrelevant

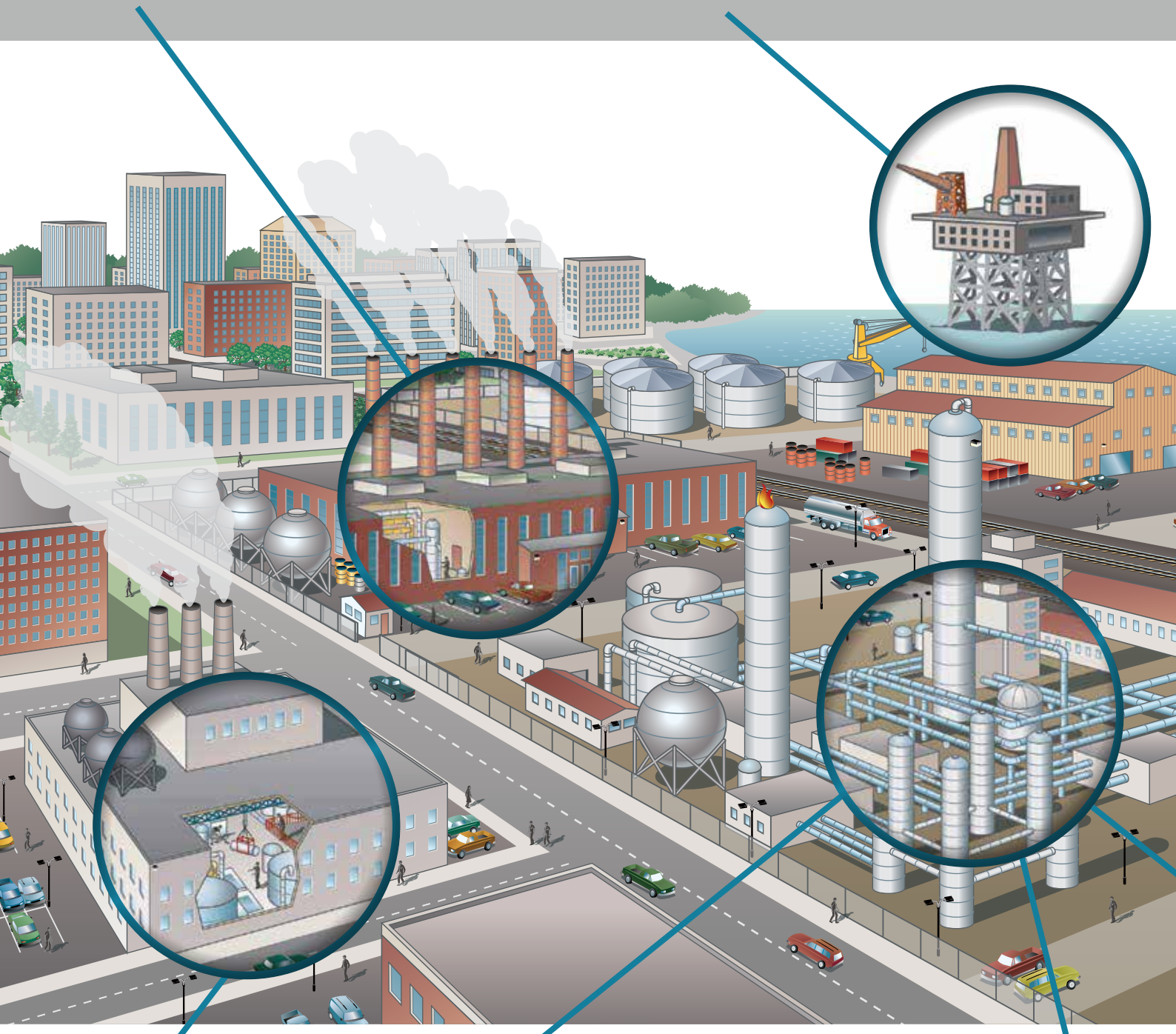
Global, innovative, comprehensive oil & gas solutions

Signal, alarms & surveillance

High powered speakers, strobes and horns for indoor and outdoor applications cover large areas with crisp, intelligible warnings.

Motor control/electrical distribution

High-speed fuses protect large drive systems that run motors on drilling rigs.



Lighting

Crouse-Hinds Series illuminates your way no matter the environment hazardous, emergency or simply general lighting applications.

Enclosures

Junction boxes are used in threaded rigid conduit systems in hazardous and non–hazardous areas to house terminal blocks,relays and other electrical devices.

Motor control/electrical distribution

Explosion–proof VFDs are highly flexible AC drives which can be mounted next to the motor in hazardous locations.

Lighting

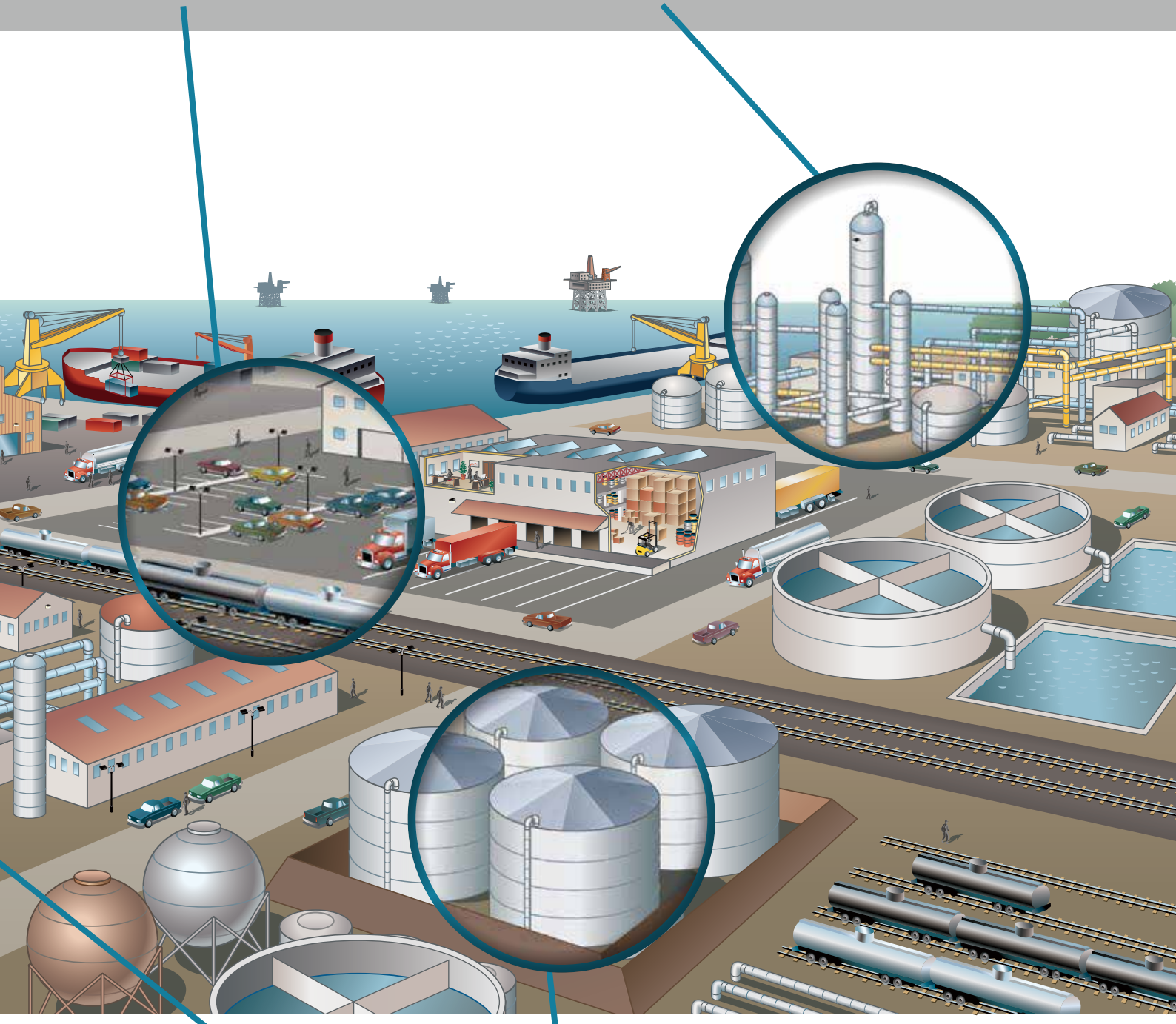
Outdoor area luminaires provide street lighting and floodlighting solutions.

Support structures

Safety grating on walkways and platforms utilizes a unique serrated surface to provide superior slip resistance to traditional methods.

Instrumentation

CCTV cameras centrally monitor all critical areas in order to efficiently respond to a series of simultaneous events.



Connectivity

Rugged construction and numerous interlocking designs safely and reliably connect power where needed, including hazardous areas.

Wireless

Wireless products monitor tank farms, forming part of the plant energy management system and OBL alarm monitoring system.

Industrial fittings & cable glands

Move power where you need it simply and safely in any electrical installation.

One of the biggest manufacture centers in the world



Crouse-Hinds Changzhou Plant

To better serve the market needs, Eaton´ s Crouse-Hinds division invested in a brand new manufacturing facility in Changzhou, China which went into production in 2012. It is one of the three largest manufacturing bases for Crouse-Hinds, and provides world-class quality explosion-proof and industrial products for China, Asia-pacific and the world. Changzhou facility is ISO9001 and ISO14001 certified, and manufactures a wide range of ATEX, IEC-Ex, GB, UL, DNV approved products.





In 2019, the Global Engineering and Technology Center in the Changzhou plant was expanded and put into operation. The global laboratory has been highly upgraded, which can help to identify and reduce the quality risk in the new product development process. The Center is capable of conducting the tests such as IP waterproof and dustproof test, heat/cold resistance test, water pressure test, aging test, impact resistance test, highly accelerated stress test, thermal shock test, high temperature/high humidity test, etc.

We are always customer centric, and we have built up a brand-new technology center, that integrates the products such as lamps, power distribution systems, cable management, instrumentation, explosion-proof communications and bridges, to provide customers with a full range of explosion-proof electrical solutions.

We provide global customers with high value products, delivering world-class reliability and safety.







Key products at-a-glance

Fluorescent lighting		Application area/ degree of protection	Type of protection	Features	Certification
cLLK 07/ cLLK 07 N (Emergency)		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP66	cLLK 07 : • Ex edq • Ex de cLLK 07 N: • Ex edq ib	• GRP enclosure, PC cover • EOL protection for ballast • Central lock locking mechanism • Safety interlocking system • LED display for indication of battery status • Emergency duration 2hrs or 1.5/3 hrs (Marine) • Permissible temp.: -25˚C ~ +50˚C • 2x18W/2x36W	• GB • ATEX • IECEx
cLLK 15/ cLLK 15 N (Emergency)		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP66	cLLK 15: • Ex edq • Ex de cLLK 15 N: • Ex edq ib	• GRP enclosure, PC cover • EOL protection for ballast • Central lock locking mechanism • Safety interlocking system • LED display for indication of battery status • Emergency duration 1.5hrs • Permissible temp.: -20˚C ~ +50˚C(Non-emergency) -20˚C ~ +40˚C(Emergency) • 2x18W/2x36W	• GB • ATEX • IECEx
Emergency exit lighting		**Application area/ degree of protection**	**Type of protection**	**Features**	**Certification**
EXIT		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP66	• Ex e m ib • Ex tb	• Power-saving LED technology, maintenance-free throughout service life • With a self-contained battery and automatic function monitoring, emergency duration 3 hrs • CG-S Modules (Applied to a CEAG emergency lighting installation with monitoring system) • Permissible temp.: -20˚C ~ +50˚C	• ATEX • IECEx
LED lighting		**Application area/ degree of protection**	**Type of protection**	**Features**	**Certification**
eLLK/eLLK NIB (Emergency mode)		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP66	eLLK: • Ex de eLLK NIB: • Ex de mb ib	• Glass-fibre reinforced polyester enclosure • Polycarbonate Protective cover/bowl • Emergency duration 2.4 hrs or / 3.5 hrs • Color Temp.: cool white 5600K/warm white 4000K • Permissible temp.: -25˚C ~ +45˚C/-25˚C ~+55˚C (HT) 2*13W or 2*11W (HT)/2*26w or 2*22W (HT)	• GB • ATEX • IECEx
VLL Linear LED		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP66	• Ex db eb mb • Ex db eb ib mb	• GRP enclosure, PC cover • Lifetime longer than 50000H • Color temp: cool white 5700K/warm white 3000k • Permissible temp.: -40˚C ~ +55˚C -25˚C ~ +55˚C (emergency)	• GB • ATEX • IECEx
HLL linear LED		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP66	• Ex d e ib mb	• Life longer than 50,000 hours • Color Temp.: cool white 5700K/warm white 3000K • Permissible temp.: -40˚C ~ +55˚C -25˚C ~ +55˚C (Emergency)	• GB • ATEX • IECEx
HPL Low-watt LED pendant		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP66	• Ex d e mb	• Up to 66% energy savings comparing to metal halide • More than 50,000H lifespan • Instant illumination and restrike • Color Temp.: cool white 5700K/warm white 3000K • Permissible temp.: -40˚C~+40˚C/45˚C/50˚C	• GB • ATEX • IECEx
LPL High-power LED		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP66	• Ex d e	• Up to 63% energy savings comparing to metal halide • More than 50,000H lifespan • Instant illumination and restrike • Color Temp.: cool white 5700K • Permissible temp.: -40˚C ~ +40˚C/45˚C/55˚C	• GB • ATEX • IECEx
LAL LED aisle light low-watt		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP66	• Ex d	• 15W LED equivalent to 100W traditional incandescent luminaire • EOL over 50,000 hours • Color Temp.: cool white 6500K • Permissible temp.: -20˚C ~ +40˚C/ -45˚C ~ +40˚C • Light, only 700g in weight	• GB • TIIS

Key products at-a-glance

LED lighting		Application area/ degree of protection	Type of protection	Features	Certification
NLE Low-watt LED pendant		• Zone 2 • Zone 21 & Zone 22 • IP66	• Ex nR	• Up to 66% energy savings comparing to metal halide • More than 5 year lifespan • Instant illumination and restrike • Color Temp.: cool white 5700K/warm white 3000K • Permissible temp.: -40˚C~+55˚C	• GB • IECEx
VMVL		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP66	• Ex nA nR	• Up to 77% energy savings comparing to HID • Wattage from 40W up to 232W • Equivalent HID Luminaire from 70W up to 1000W • Wide Voltage Range: 120V-277V • Permissible temp.: -40˚C ~ +40˚C/+55˚C	• UL • IECEx • ATEX
FMVA		• Zone 21 & Zone 22 • IP66	• Ex nA nR	• Up to 77% energy savings comparing to HID • Wattage from 65W up to 531W • Equivalent HID Floodlight from 100W up to 1500W • Wide Voltage Range: 120V-277V • Permissible temp.: -40˚C ~ +40˚C/+55˚C	• UL • IECEx • ATEX
PX LED floodlight		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP66	• Ex db eb op is q	• Up to 70% energy savings over HID fixtures • Life longer than 60,000 hrs • Instant illumination and restrike • Color Temp.: cool white 5700K • Permissible temp.: -50˚C ~ +55˚C	• ATEX • IECEx

Weather proof lighting		Application area/ degree of protection	Features	Certification
PLE harsh & heavy LED lighting		• Industrial area • IP66	• Up to 66% energy savings comparing to metal halide • More than 5 year lifespan • Instant illumination and restrike • Color Temp.: cool white 5700K/warm white 3000K • Permissible temp.: -40˚C ~ +55˚C	• CE
PVML		• Industrial area • IP66	• Up to 77% energy savings over traditional HID fixtures • Wattage from 29W up to 232W • Equivalent HID Luminaire from 70W up to 1000W • Wide Voltage Range: 120V-277 VAC/347-480 VAC/108-250 VDC • Permissible temp.:-40˚C ~ +55˚C	• UL
PFMA		• Industrial area • IP66	• Up to 65% energy savings over traditional HID fixtures • Wattage from 28W up to 531W • Equivalent HID Luminaire from 70W up to 1500W • Wide Voltage Range: 120V-277 VAC/347-480 VAC/108-250 VDC • Permissible temp.: -40˚C ~ +55˚C/65˚C	• UL • CE
ECH-HBL LED		• Industrial area • IP66	• Aluminum die casting housing with attractive looking, resist impact and corrosion • A separate driver compartment, easy for LEDs and driver to dissipate heat independently and effectively • Input voltage AC100-277V, 50/60Hz • Ambient temperature - 25˚C~45˚C	
ECH-FDL03 LED floodlight		• Industrial area • IP66	• Resist impact and corrosion with high strength Aluminum extruded housing • Perfect integrative heat sink • Working lifetime up to about 50,000H • Input voltage AC100-277V, 50/60Hz • Ambient temperature -25˚C~45˚C	
ECH-STL LED		• Industrial area • IP66	• Resist impact and corrosion with Aluminum die casting housing • Perfect integrative heat sink • Working lifetime up to about 50,000H • Input voltage AC100-277V, 50/60Hz • Ambient temperature -25˚C~45˚C	

Key products at-a-glance

Marine lighting		Application area & degree of protection	Features	Certification
HRL Zone 1 Recessed LED		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP66	• Recessed mounting • Lifetime longer than 50000H • Color temp: cool white 5700K/warm white 3000k • Permissible: -40 °C~+55 °C -25 °C~+55 °C (emergency)	• GB • IECEx • ATEX
CMRL recessed LED luminaire		• For Office, wheelhouse, state room • IP 42	• 2x10W/2x20W LED • Housing: Galvanized steel, optional SS316L • Diffuser: translucent white acrylic or PC • Optional 90mins or 180mins emergency light • Terminal block: 6 pole 6mm^2 max • Permissible temp.: -30 °C~+50 °C	• DNV
CMRL/C recessed LED luminaire		• For Office, wheelhouse, state room • IP 44	• 2x10W/2x20W LED • Housing: Galvanized steel, optional SS316L • Diffuser: translucent white acrylic or PC • Optional 90mins or 180mins emergency light • Terminal block: 6 pole 6mm^2 max • Permissible temp.: -30 °C~+50 °C	• DNV
CMML mirror LED light		• For bathroom, mirror or berth • IP 44	• 1x6W LED • Housing: Galvanized steel, optional SS316L • Diffuser: PC • Surface mounting, under cabinet • Terminal block: 3 pole 6mm^2 max • Permissible temp.: -25°C ~ +45°C	• DNV
CMBL berth LED luminaire		• For berth light or desk light • IP 20	• 1x6W LED • Housing: Galvanized steel, optional SS316L • Diffuser: acrylic • Surface mounting • Terminal block: 3 pole 6mm^2 max • Permissible temp.: -25°C ~ +45°C	• DNV
CDLL marine down light		• For meeting room, entertaining room or other interior spaces • IP20-44	• 10W/20W LED • Housing: Galvanized steel, optional SS316L • Diffuser: optional IP44 sealed diffuser on trim ring • Terminal block: 3 pole 6mm^2 max • Permissible temp.: -30 °C~+50 °C	• DNV
MSLL surface LED luminaire		• For engine room, galley or other various applications • IP66/67	• 2x10W/2x20W LED • Housing: Galvanized steel, optional SS316L • Diffuser: clear PC • Terminal block: 6 pole 6mm^2 max • Permissible temp.: -30 °C~+50 °C	• DNV

Ex cable gland		Cable type	Features	Certification	
ADE 1F2		• Non-armoured cable	• Gland Type: With elastomeric seal • Standard: Nickel-plated brass Optional: Stainless steel	• ATEX • IECEx • CE • GB • CEPEL • CCoE • KOSHA • CU-TR	• SABS • UL • DNV • Lloyds • ABS • BV • Inmetro • ECASEx
ADE 1F2 DS		• Non-armoured cable • Braided marine shipboard cable	• Gland Type: With elastomeric seal • Standard: Nickel-plated brass Optional: Stainless steel	• ATEX • IECEx • CE • GB • CEPEL • CCoE • KOSHA • CU-TR	• SABS • UL • DNV • Lloyds • ABS • BV • Inmetro • ECASEx

Key products at-a-glance

Ex cable gland		Cable type	Features	Certification	
ADE 1F2 A clamping		• Non-armoured cable • Braided marine shipboard cable	• Gland Type: With elastomeric seal • Standard: Nickel-plated brass Optional: Stainless steel	• ATEX • IECEx • CE • GB • CEPEL • CCoE • KOSHA • CU-TR	• SABS • UL • DNV • Lloyds • ABS • BV • Inmetro • ECASEx
ADE 1F2 O-Ring		• Non-armoured cable • Braided marine shipboard cable	• Gland Type: With elastomeric seal • Standard: Nickel-plated brass Optional: Stainless steel • Intefrated O-ring on fixing thread	• ATEX • IECEx • CE • GB • CEPEL • CCoE • KOSHA • CU-TR	• SABS • UL • DNV • Lloyds • ABS • BV • Inmetro • ECASEx
ADE 1FC		• Non-armoured cable	• Gland Type: With compound, barrier type • Standard: Nickel-plated brass Optional: Stainless steel	• ATEX • IECEx • CE • GB • CEPEL • CCoE • KOSHA • CU-TR	• SABS • UL • DNV • Lloyds • ABS • BV • Inmetro • ECASEx
ADE 4F		• Steel wire armoured cable • Steel wire braided cable • Steel tape armoured cable • Braided marine shipboard cable • Lead sheathed cable (with additional of earthing washer)	• Gland Type: With elastomeric seal • Standard: Nickel-plated brass Optional: Stainless steel • Suitable for cold flow cable	• ATEX • IECEx • CE • GB • CEPEL • CCoE • KOSHA • CU-TR	• SABS • UL • DNV • Lloyds • ABS • BV • Inmetro • ECASEx
ADE 5F		• Steel wire armoured cable • Steel wire braided cable • Steel tape armoured cable • Braided marine shipboard cable • Lead sheathed cable (with additional of earthing washer)	• Gland Type: With elastomeric seal • Standard: Nickel-plated brass Optional: Stainless steel • Suitable for cold flow cable	• ATEX • IECEx • CE • GB • CEPEL • CCoE • KOSHA • CU-TR	• SABS • UL • DNV • Lloyds • ABS • BV • Inmetro • ECASEx
ADE 6F		• Steel tape armoured cable • Steel wire armoured cable • Steel wire braided cable • Braided marine shipboard cable	• Gland Type: With elastomeric diaphragm • Standard: Nickel-plated brass Optional: Stainless steel • Suitable for cold flow cable	• ATEX • IECEx • CE • GB • CEPEL • CCoE • KOSHA • CU-TR	• SABS • UL • DNV • Lloyds • ABS • BV • Inmetro • ECASEx
ADE 6FC		• Steel tape armoured cable • Steel wire armoured cable • Steel wire braided cable • Braided marine shipboard cable	• Gland Type: With compound, barrier type • Standard: Nickel-plated brass Optional: Stainless steel	• ATEX • IECEx • CE • GB • CEPEL • CCoE • KOSHA • CU-TR	• SABS • UL • DNV • Lloyds • ABS • BV • Inmetro • ECASEx
ADCC		• Non-armoured cable	• Gland Type: With elastomeric seal • Standard: Nickel-plated brass Optional: Stainless steel • Suitable for non-armoured cable in rigid conduit system which can be turned or with flexible conduit	• ATEX • IECEx • CE • GB • Inmetro • KOSHA • BV	• CU-TR • SABS • DNV • Lloyds • ABS • ECASEx

Key products at-a-glance

Ex cable gland		Cable type	Features	Certification
ADCS		• Non-armoured cable	• Gland Type: With elastomeric seal • Standard: Nickel-plated brass Optional: Stainless steel • Suitable for non-armoured cable in rigid conduit system or with flexible conduit	• ATEX • IECEx • CE • GB • Inmetro • KOSHA • BV • CU-TR • SABS • DNV • Lloyds • ABS • ECASEx
ADFS		• Non-armoured cable	• Gland Type: With compound, barrier type • Standard: Nickel-plated brass Optional: Stainless steel • Suitable for non-armoured cable in rigid conduit system or with flexible conduit	• ATEX • IECEx • CE • GB • Inmetro • BV • CU-TR • SABS • DNV • Lloyds • ABS • ECASEx
NEWCAP MS-e		• Non-armoured cable • Braided cable	• Gland Type: With elastomeric seal • Standard: Nickel-plated brass Optional: Stainless steel • Intefrated O-ring on fixing thread • IP68	• ATEX • IECEx • BV
NEWCAP CT-e		• Non-armoured cable • Braided cable • EMC cable	• Gland Type: With elastomeric seal • Standard: Nickel-plated brass Optional: Stainless steel • Intefrated O-ring on fixing thread • Metallic contact inside washer • IP68	• ATEX • IECEx • BV
GHG960		• Non-armoured cable	• Gland Type: With elastomeric seal • Material: Polyamide materials • IP66/IP68	• ATEX • IECEx

Industrial cable gland		Type of cable gland	Features	Compliances
IGA2		• Non-armoured cable	• Gland Type: With elastomeric seal • Standard: Brass Optional: Nickel-plated brass • IP66	• BS6121 • EAC
IGBW		• Steel wire armoured cable	• Gland Type: No elastomeric seal • Standard: Brass Optional: Nickel-plated brass • IP66	• BS6121 • EAC
IGCW		• Steel wire armoured cable	• Gland Type: With elastomeric seal • Standard: Brass Optional: Nickel-plated brass • IP66	• BS6121 • EAC
IGCX		• Steel tape armoured cable • Steel wire braided cable	• Gland Type: With elastomeric seal • Standard: Brass Optional: Nickel-plated brass • IP66	• BS6121 • EAC

Key products at-a-glance

Industrial cable gland		Type of cable gland	Features	Compliances
IGE1W		• Steel wire armoured cable	• Gland Type: With elastomeric seal • Standard: Brass Optional: Nickel-plated brass • IP66	• BS6121 • EAC
IGE1X		• Steel tape armoured cable • Steel wire braided cable	• Gland Type: With elastomeric seal • Standard: Brass Optional: Nickel-plated brass • IP66	• BS6121 • EAC
IGE2W		• Steel wire armoured cable • Lead sheathed cable	• Gland Type: With elastomeric seal • Standard: Brass Optional: Nickel-plated brass • IP66	• BS6121 • EAC
IGE2X		• Steel tape armoured cable • Steel wire braided cable • Lead sheathed cable	• Gland Type: With elastomeric seal • Standard: Brass Optional: Nickel-plated brass • IP66	• BS6121 • EAC
NEWCAP MS		• Non-armoured cable • Braided cable	• Gland Type: With elastomeric seal • Standard: Nickel-plated brass Optional: Stainless steel 316L • Neoprene sealing ring • Dedicated to EMC applications • IP68	• EN 62444
NEWCAP MS multi wired/flat		• Non-armoured cable • Multi-wire cable • Flat cable	• Gland Type: With elastomeric seal • Standard: Nickel-plated brass • Operculated thermoplastic sealing ring • Polyamide materials • IP66/IP68	• EN 62444
NEWCAP CT		• Non-armoured cable • EMC shielded cable • Braided cable	• Gland Type: With elastomeric seal • Standard: Nickel-plated brass • Neoprene sealing ring • Dedicated to EMC applications • IP66/IP68	• EN 62444
EUROCAP		• Non-armoured cable	• Gland Type: With elastomeric seal • Polyamide materials • Neoprene sealing ring • Max operating temp.: +150˚C • IP68	• UL • CSA
ECP		• Non-armoured cable	• Gland Type: With elastomeric seal • Polyamide materials • Operculated PVC coored plasticized sealing ring • IP68	
UNICAP		• Non-armoured cable	• Gland Type: With elastomeric seal • Polyamide materials • Operculated thermoplastic sealing ring • Max operating temp.: +150˚C • IP68	• EN 62444

Key products at-a-glance

Ex control union & control station		Application area & degree of protection	Type of protection	Features	Certification
Ex installation switches GHG 27		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP66	• Ex de • Ex tD	• Modified polyamide material • A protective collar prevents inadvertent operation • Ex cable gland, M25 is from 8-17mm • Rated current: 16A • Permissible temp.: -20°C ~ +40°C/ -55°C ~ +55°C (option)	• ATEX • IECEx • CSA
Ex safety switches GHG 26		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP66	• Ex de • Ex tD	• Full AC-3 switching capacity • Emergency stop • Integrated locking facility for safety • Rated current: 10-180A • Permissible temp.: -55°C ~ +55°C	• GB • ATEX • IECEx • CSA
Ex control switches GHG 28/GHG 29		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP66	• Ex de ia • Ex tD	• Terminal cross section up to 6mm^2 • Integrated locking facility for safety • Rated current: 16-20A • Permissible temp.: -20°C ~ +40°C/ -55°C ~ +55°C (option)	• GB • ATEX • IECEx • CSA
Ex control station GHG 41/GHG 43/GHG44		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP66	• Ex e • Ex eib • Ex de	• Low side walls allows optimum cable connection • Wide components can meet all requirement • Permissible temp.: -20°C ~ +40°C/ -55°C ~ +55°C (option)	• GB • ATEX • IECEx • CUTR • UL • CSA

Ex component		Application area & degree of protection	Type of protection	Features	Certification
Pushbutton		• Zone 1 & Zone 2 • IP66	• Ex de	• Rated current: 16A • DIN rail mounting • Permissible temp.: -20°C ~ +40°C/ -55°C ~ +55°C (option)	• ATEX • IECEx
SIL signal lamp		• Zone 1 & Zone 2 • IP66	• Ex de • Ex d ia	• Rated current: depends on product type • DIN rail mounting • Permissible temp.: -20°C ~ +40°C/ -55°C ~ +55°C (option)	• ATEX • IECEx
Measuring instrument AM45/AM72		• Zone 1 & Zone 2 • IP66	• Ex e • Ex ib	• Movement: moving iron/moving coil • Rated voltage: AM45 420V AM72 750V • DIN rail mounting • Permissible temp.: -20°C ~ +40°C/ -55°C ~ +55°C (option)	• ATEX • IECEx
Control switch Ex 23/Ex 29		• Zone 1 & Zone 2	• Ex de	• Rated current: Ex 23 10A Ex 29 16A • DIN rail mounting • Permissible temp.: Ex 23: -20°C ~ +40°C/ -55°C ~ +45°C (option) Ex 29: -20°C ~ +40°C/ -55°C ~ +55°C (option)	• ATEX • IECEx

Key products at-a-glance

Ex enclosure		Application area & degree of protection	Type of protection	Features	Certification
CTB III stainless steel enclosures		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP66/IP67	• Ex e • Ex ia • Ex e ia • Ex tD	• Extend size to 1000*800*270 mm • EPDM/Silicone rubber gasket • Permissible temp.: -35°C ~ +40°C / -55°C ~ +55°C • 7 J (Nm) / 10 J (Nm) to EN60014	• GB • ATEX • IECEx • CU-TR
STB stainless steel enclosures		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP66	• Ex e • Ex ia • Ex e ia • Ex tD	• Superior ingress protection with a high integrity single piece sealing gasket • Superior ingress protection with using blind nutserts • Permissible temp.: -45°C ~ +40°C/ -45°C ~ +55°C • 7J(Nm) impact resistance	• GB • ATEX • IECEx • UL • CU-TR
Ex-cell stainless steel enclosures		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP66	• Ex e • Ex e ia • Ex tD	• Superior ingress protection with the 1/4 turn lock or the retained stainless steel slotted hex bolt fastenings • High integrity "one piece" closed cell spanded silicone • An integral drain channel prevents liquids • Door document holder opti • Permissible temp.: -55°C ~ +55°C • 7J(Nm) impact resistance	• GB • ATEX • IECEx • UL • CU-TR
C10 Ex-terminal boxes		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP66 • WF2	• Ex d	• Light metal, grey coating RAL7040 • Blind gasket meet the Ex demands without thread stopper • An outside earthing connection • Permissible temp.: -40°C ~ +50°C	• GB
C3 Ex terminal boxes		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP67	• Ex d • Ex tD	• Light metal, grey coating RAL7040 • Connection cross-section vary by up to 6 mm^2 or up to 10 mm^2 • An outside earthing connection • Permissible temp.: -20°C ~ +40°C/-20°C ~ +55°C/ -50°C ~ +40°C	• GB • ATEX • IECEx
GUB flameproof enclosures		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP67	• Ex d • Ex tD	• GUB 00/GUB 20/GUB 30 • Light metal, cover RAL7016, box RAL7031 • Permissible temp.: -20°C ~ +55°C	• GB • ATEX
Gbox		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP66	• Ex eb • Ex tb	• Glass-fiber reinforce polyester • Ambient temperatures: -60°C up to +40°C T6/+55°C T5/+70°C T4 • 7J(Nm) impact resistance • Surface resistance $<10^9$ Ω • Internal/external earth stud: M4, M6, M8, M10 in brass or stainless steel	• ATEX • IECEx
PBEC NEW GRP enclosures		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP67	• Ex e • Ex ia • Ex e ia • Ex tD	• Glass-fiber reinforce polyester • Optional one-piece cruciform brass earth continuity plate or side brass earth plate • Permissible temp.: -50°C ~ +55°C • 7J(Nm) impact resistance	• GB • ATEX • IECEx
GHC72/73/74 universal terminal boxes		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP66	• Ex e • Ex ia • Ex e ia • Ex tD	• Glass-fiber reinforce polyester • Permissible temp.: -20°C ~ +40°C/-55°C ~ +55°C (option)	• GB • ATEX • IECEx

Key products at-a-glance

Industrial panel		Application area & degree of protection	Type of protection	Features	Certification
CTBP		• Industrial area • IP65/66		• 304/316L stainless steel, waterproof design • Available in comprehensive range of different components • Internal installable industrial components	• CE
Ex panel		**Application area & degree of protection**	**Type of protection**	**Features**	**Certification**
AGP17		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP66	• Ex de	• Modular and compact design, easy to maintenance • Complete range of electrical components for application • Anti-corrosion/Anti- UV feature for both SS and GRP enclosure • IIC gas group • Permissible temp.: -20 °C up to +40 °C/-40 °C up to +55 °C (option)	• GB/CCC • ATEX • IECEx • CUTR
GHG64		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP65/66	• Ex d	• 11 size enclosure • Panel control switch • Anti corrosion • Suitable for IIB+H_2 • Permissible temp.: -20 °C up to +40 °C/ -55 °C up to +55 °C (option)	• ATEX • IECEx • CUTR • UL/CSA
GHG66		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP54	• Ex d	• 5 size enclosure • Anti corrosion • Suitable for IIC • Permissible temp.: -20 °C up to +40 °C/-55 °C up to +55 °C (option)	• ATEX • IECEx • CUTR • UL/CSA
GHG619		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP65/66	• Ex de	• Gable entry can choose gland plate • Panel control switch • Anti corrosion • Suitable for IIC • Permissible temp.: -20 °C up to +40 °C/-55 °C up to +55 °C (option)	• GB • ATEX • IECEx • CUTR • UL/CSA
HLCP		• Class I Division 1 & 2 • Zone 1 & Zone 2 • IP66	• Explosion-proof	• NEC500 • Copper free aluminum/Feraloy • Available in comprehensive range of different sizes • Internal installable industrial components • Splicing box	• ATEX • UL
EXKO distribution panel solution		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP66	• Ex de	• Modular design • Max. rate current 630A • Gable entry can choose gland plate • Panel control switch • Anti corrosion • Suitable for IIC • Permissible temp.: -20 °C up to +40 °C/-55 °C up to +55 °C (option)	• ATEX • IECEx • CUTR • UL/CSA
Portable power		**Application area & degree of protection**	**Type of protection**	**Features**	**Certification**
Portable multi-outlet distributions and cable reels		• Zone 1 & Zone 2 • Zone 21 • IP66	• Ex de	• Glass-fibre reinforced polyester housings • Small design for easy storage • Portable distribution of electricity • Variable socket combinations • Permissible temp.: -20°C ~ +40°C	• ATEX
Ex protected portable power supply units		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • IP65	• Ex de • Ex tD	• Sockets with lamellar contacts for safe connection • Padlocking of switch with all-pole disconnection • Full AC3 switching capacity • Customer specific design • Permissible temp.: -20°C ~ +40°C	• ATEX

Key products at-a-glance

Ex plugs & receptacles		Application area	Type of protection	Features	Certification
GHG51 plastic Ex plugs & receptacles		• Zone 1 & Zone 2 • Zone 21 & Zone 22 • Class I, Divsion 2 • IP66 • NEMA 4X	• Ex de • Ex de ia • Ex tD	• Glass-fibre reinforced polyester housings • Low insertion force • Full AC-3 switching ability • Poles: 3-pole, 4-pole and 5-pole • Rated current: 16A-125A • Permissible temp.: -20˚C ~ +55˚C	• ATEX • IECEx • CSA • CU-TR • INMETRO
Roughneck™ multi-pin series • CEX single pole series		• NEMA 4X, 6P • IP66/IP68	• Ex d	• Multi-lam style contacts on single pole connectors deliver reliable continuity • Suited for use with Type P cable • Reversible inserts • Reversible 8-points diamond cord grip • Permissible temp.: -60˚C ~ +55˚C	• ATEX • IECEx • EAC • INMETRO
PowerGard™ universal receptacles and backboxes		• Class I, Groups B, C, D • Class II, Groups F, G • Class III • NEMA 3, 3R, 3RX	• Ex d	• UL certified for use with Type P cable • Saddle clamp wire terminals • Krydon® fiberglass-reinforced polyester faceplate • Fail-safe interlock system • Rated current:15A-20A • Permissible temp.: -50˚C ~ +55˚C	• cULus
Roughneck™ Ex		• Zone2, Division2 • IP54	• Ex ec	• Ten colors available for easy circuit identification • Water-tight insulators • Cable size from 313 to 777 MCM • Electrical ratings: 1000 volts/1135 Amps continuous • Permissible temp.: -25˚C ~ +55˚C	• IECEx • cUL

Industrial plugs & receptacles		Application area	Type of protection	Features	Certification
Roughneck™ connectors		• Industrial area • Class 1, Division 2 • NEMA 3		• Ten colors available for easy circuit identification • Water-tight insulators • Cable size from 313 to 777 MCM • Electrical ratings: 1000 volts/1135 Amps continuous • Permissible temp.: -40˚C ~ +125˚C	• cURus • FM
Cam-Lok™ J-series connectors		• Industrial area • NEMA 3R, 4		• Non-metallic retaining screw for safe, strong and reliable contact retention • E-Z align drive pin increases torque and longitudinal strength 300% • Fully insulated for direct mounting to steel panels • Permissible temp.: -40˚C ~ +105˚C	• UL • CSA
Roughneck™ multi-pin series • CZ&CRIG multi-pin series • CRIG single-pin series		• Industrial area • NEMA 4X, 6P • IP68		• Multi-lam style contacts on single pole connectors deliver reliable continuity • Suited for use with type P cable • Reversible inserts • Reversible 8-points diamond cord grip • Permissible temp.: -60˚C ~ +55˚C	• cURus
Rough-Lok™ single-pin connector		• Industrial area • IP66		• Superior corrosion resistance and low temperature operation • Conductor with high conductivity copper alloy • Hexagonal crimp terminal • Electrical ratings: 1000 volts/1000 Amps continuous • Permissible temp.: -25˚C ~ +40˚C	• CE
Powermate™ drilling pin and sleeve connectors		• NEMA 4X		• Lockout plug • Reversible 8-points diamond cord grip • Split pin contact design • Suited for use with Type P cable • Fixed safety insulator • Rated current: 30A-200A	• UL • CSA

Notes