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PLUGS & SOCKETS, DECONTACTOR™, CONNECTORS, BOXES, LIGHTING, PANELS & CONTROL STATIONS



marechal.com

NEED A SAFE ELECTRICAL CONNECTION FOR Ex ATMOSPHERES?

MARECHAL ELECTRIC's comprehensive, ATEX approved range provides solutions for all your applications.

Products that will be used in hazardous areas need to meet demanding standards and regulations. To manage the diverse risks associated with explosive atmospheres you need an electrical connector that adapts to the requirements of your application. MARECHAL® connectors are:

- Safe
- Easy to use
- Flexible
- High quality

... and offer a broad range of products that fit the requirements of all your sites, ensuring complete peace of mind.

MARECHAL ELECTRIC'S EX DECONTACTOR™ are ATEX approved plugs and sockets with an integrated load-break isolating switch. Combining these functions into the same unit makes the DECONTACTOR™ a safe, reliable, compact and cost-effective disconnection device for motors and power supplies in Ex atmospheres, saving your time and money.





DXN COMPACT & WATERTIGHT DECONTACTOR™ P. 4

DX METAL DECONTACTOR™ P. 12



COMPACT CONNECTOR P. 20

PNCX



PXN12C / DXN25C / DXN37C MULTI-CONTACT CONNECTORS P. 22

> SPeX SINGLE POLE POWER CONNECTOR P. 26





B2X JUNCTION BOXES P. 30

TECHNOR LIGHTING, FLAMEPROOF ENCLOSURES, JUNCTION BOXES, CONTROL STATIONS, AUDIBLE & VISUAL SIGNALS, CABLE GLANDS & ACCESSORIES P. 34

TECHNICAL SPECIFICATIONS P. 36

DXN

COMPACT & WATERTIGHT DECONTACTOR™ 20 A / 32 A / 63 A

- 🕨 🖾 II2 G D Ex de IIC Gb
- ▶ IP66/IP67 WATER- AND DUST-TIGHT
- **INTEGRATED LOAD-BREAK SWITCH**
- ROBUST AND COMPACT DESIGN
- HIGH PERFORMANCE POLY CASING

DXN decontactors are designed for hazardous areas, with 'de' protection mode. They comply with the ATEX 94/9/CE Directive. They can be used in zones 1 & 2 (Gas) and zones 21 & 22 (Dust). They are certified according to IECEx standards.

MOUNTING: SWITCH SHOULD BE ON THE UPPER SIDE!

The decontactor is a socket-outlet with integral switching. It does not need to be interlocked with a switch. The switch button is highlit for easier identification. When installing the socket-outlet, ensure the switch button is positioned upwards.





- The essential safety requirements of IEC 60309-1 & IEC 60309-4 international and European standards (plugs and socket-outlets for industrial purposes),
- The switch utilization categories AC-22 and AC-23 described in IEC EN 60947-3,
- The French NF C 15-100 standard,
- The European 'Machine Directive' 2006/42/CE regarding equipment isolation,
- The French decree dated 20 December 2011 pertaining to the wiring and operating conditions of movable electrical apparatuses,
- The decrees relating to workers' protection in Belgium, Spain and Italy,

Also certified by VERITAS LCIE, KGS KOREA, GOST, INMETRO and cCSAus (French, Korean, Russian, Brazilian and American-Canadian* European and international notified bodies) and by BUREAU VERITAS MARINE.







Other voltages, frequencies and contact configurations are available.

MARECHAL ELECTRIC MAROMME (Ex) II2 G D Ex de IIC tD A21 $\label{eq:constraint} \text{-40 °C} \leq \text{Ta} \leq \text{+60 °C} \quad \text{T5} \quad \text{T90 °C}$ $-40 \ ^{\circ}\text{C} \le \text{Ta} \le +40 \ ^{\circ}\text{C} \qquad \text{T6} \qquad \text{T70} \ ^{\circ}\text{C}$ IECEx LCI 09.0005X / LCIE 99 ATEX 6027 X



BOXES Ex poly cable gland included				
	Wall box poly 30°		Wall box poly 70°*	
Ex cable gland				
M20	251AB53	7-14 mm	251AB58	7-14 mm
M25	251AB5325P	10-18 mm	251AB5825P	10-18 mm
M32			251AB5832P	17-24 mm

* For alternatives with Earth continuity or several entries, cable glands for armoured cable, please contact us



INFO +

Compatible with DSN1 socket

180° opening and self-returning lid Socket no. + 18

Upon request, the DXN1 'de' plugs (20 A) can be connected to the industrial DSN1 (20 A) socket-outlet and coupler sockets.

Thus, you can move mobile Ex devices equipped with a DXN1 plug in and out of your Ex zones. Contact us.



Self-ejecting DXN1

INFO +

The DXN1 is available in ejection. Thank you to consult us to define your current, voltage, polarity and assembly needs.





32 A IP66/IP67

TYPICAL CONFIGURATION	VALL BOX DXN3	PI	LUG DXN3	Wall box poly 70° 253AB58 ● Straight handle poly 253A753	Socket-outlet 2534017 Inlet 2538017
MAIN FEATURES	The second s	A.		and the second sec	
Rated current (with wiring acco	rding to standard)	32 A	Flexible wiring (min-max)		2,5 - 10 mm ²
Maximum voltage		750 V	Stranded wiring (min-max)		2,5 - 16 mm ²
IP protection lid closed	A.C.	IP66/IP67	Other wiring	de la companya de la comp	on request
IP protection connected plug	and the second se	IP66/IP67	Keying positions		24
Shock resistance	Supremaine	IK08	Protection mode		de
Ambient temperature	-40 °	°C to +60 °C	ATEX zones	The second secon	1 & 2, 21 & 22
A State of the sta				1	New York Contraction of the Internet of the In
Temperature rating		1		/	1
Gas temperature cl	asses		T6 : surface T° ≤ 85 °C for a	an ambient T° betweer	n -40 and +40 °C
		1	T5 : surface $T^{\circ} \leq 135 \ ^{\circ}C$ for a	an ambient T° betweer	n -40 and +60 °C
Dust surface tempe	rature classes	1	Surface $T^{\circ} \leq 57 \ ^{\circ}C$ for a	an ambient T° betweer	n -40 and +40 °C
1. Constanting of the second		The state of the s	Surface $T^{\circ} \leq 77 \ ^{\circ}C$ for a	an ambient T° betweer	n -40 and +60 °C
Comply with EN 60309-1	None of the second				32 A / 750 V
			SOCKET- OUTLET female DXN3 (32 A)	INLET male DXN3 (32 A)	(î)
EACH SOCKET OUTLET OR INLET	Voltage 50 Hz Po	larity	Part	no	Part no.
MUST BE ASSOCIATED WITH A	20 - 24 V 2P	2	25340	8A	253808A
BUX, A SLEEVE UK A HANDLE.	190 - 230 V 3P	+E	25340	33	2538033
	220 - 250 V 1P	+N+E	25340	15	2538015
	380 - 440 V 3P	+E	25340	13	2538013
	380 - 440 V 3P	+N+E	25340	17	2538017
	480 - 500 V 3P	+E	25340	93	2538093
	480 - 500 V 3P	+N+E	25340	97	2538097
	Other voltages fr	requencies	and contact configurations a	re available	

Socket-outlet with 2 auxiliary contacts (5 A / 550 V) Inlet with 2 auxiliary contacts (5 A / 550 V) Socket no. + 972 Inlet no. + 972



BOXES Ex poly cable gland included	B			
	Wall box poly 30°		Wall box poly 70°*	
Ex cable gland				
M20	253AB53	7-14 mm	253AB5820P	7-14 mm
M25	253AB5325P	10-18 mm	253AB58	10-18 mm
M32			253AB5832P	17-24 mm

* For alternatives with Earth continuity or several entries, cable glands for armoured cable, please contact us



INFO +

Compatible with DSN3 socket

Upon request, the DXN3 'de' plugs (32 A) can be connected to the industrial DSN3 (32 A) socket-outlet and coupler sockets.

Thus, you can move mobile Ex devices equipped with a DXN3 plug in and out of your Ex zones. Consult us.



Self-ejecting DXN3

INFO +

The DXN3 is available in ejection. Thank you to consult us to define your current, voltage, polarity and assembly needs.





63 A IP66/IP67



MARECHAL ELECTRIC MAROMME (Ex) II2 G D Ex de IIC tD A21 $\label{eq:constraint} \text{-40 °C} \leq \text{Ta} \leq \text{+60 °C} \quad \text{T4} \quad \text{T107 °C}$ $-40~^\circ\text{C} \le \text{Ta} \le +40~^\circ\text{C} \qquad \text{T5} \qquad \text{T87}~^\circ\text{C}$ IECEx LCI 09.0007 / LCIE 05 ATEX 6150

AUXILIARY CONTACTS

Socket-outlet with 2 auxiliary contacts (5 A / 550 V) Inlet with 2 auxiliary contacts (5 A / 550 V)

Socket no. + 972 Inlet no. + 972



BOXES Ex poly cable gland included				
	Wall box poly 30°		Wall box poly 70°*	
Ex cable gland				
M20			256AB5820P	7-14 mm
M25	256AB53	10-18 mm	256AB5825P	10-18 mm
M32			256AB58	17-24 mm
M40			256AB5840P	17-31 mm
* For alternatives with	Earth continuity or several en	tries, cable glands for armour	ed cable, please contact us	

SLEEVES Inclined poly 70° Inclined poly 30° 256A027 256A757 HANDLES Ex cable gland included Straight poly Straight poly with poly cable gland with métal cable gland with Earth continuity Ex cable gland M20 256A25320P 7-14 mm 256A25320M 8-10 mm M25 256A753 10-18 mm 256A25325M 12-14 mm 17-24 mm M32 256A25332P 256A25332M 18-24 mm M40 256A25340P 17-31 mm ACCESSORIES & OPTIONS Locking with shaft for 3 padlocks ø 4 mm (padlocks not supplied) Socket no. + 844 Box equipped with ATEX metal entry with Earth continuity. Consult us Inlet cap 256A126

180° opening lidSocket no. + 10Self-returning lidSocket no. + R180° opening and self-returning lidSocket no. + 18



DXN3 & DXN6 with 2 auxiliary contacts

2 auxiliary contacts are available for signal and control purposes, as well for auxiliary circuits such as light monitors.



Self-ejecting DXN6

INFO +

The DXN6 is available in ejection. Thank you to consult us to define your current, voltage, polarity and assembly needs.



DX

METAL DECONTACTOR™ 20 A / 32 A / 63 A / 125 A / 200 A

- 🕨 🐼 II2 G D Ex de IIC
- ▶ IP65 WATER- AND DUST-TIGHT
- ▶ INTEGRATED LOAD-BREAK SWITCH
- **LOCKING IN ON/OFF POSITIONS BY KEYING AXIS**

DX decontactors are designed for hazardous areas, with 'de' protection mode. They comply with the ATEX 94/9/CE Directive. They can be used in zones 1 & 2 (Gas) and zones 21 & 22 (Dust). They are certified according to IECEx standards.







)	DX1	DX3	DX6	DX9	DX2	
Rated current (In)	20 A	32 A	63 A	125 A	200 A	
Umax	750 V	750 V	750 V	750 V	750 V	and the second second
Keying positions ⁽¹⁾	12	12	12	12	12	
Ambient temperature	-25 °C ≤ T	a ≤ +60 °C	-4	$0 \circ C \le Ta \le +60 \circ$	С	
Protection mode			«de» for all DX			
ATEX zones	Zon	es 1 & 2 (gas)	Zones 21 & 22	(dusts) - for all	DX	and the second

 $^{\scriptscriptstyle (1)}$ To distinguish between different power supplies and applications

STANDARDS ASPECTS

DX decontactors comply with:

- The ATEX 94/9/CE Directive,
- IEC EN 60079-0, IEC EN 60079-1, IEC EN 60079-7 and IEC EN 60079-31 international standards
- The essential safety requirements of IEC 60309-1 & IEC 60309-4 international and European standards (plugs and socket-outlets for industrial purposes),
- The French NF C 15-100 standard,
- The European 'Machine Directive' 2006/42/CE regarding equipment isolation,
- The French decree dated 20 December 2011 pertaining to the wiring and operating conditions of movable electrical apparatuses,
- The decrees relating to workers' protection in Belgium, Spain and Italy,

Also certified by KGS KOREA, GOST and VERITAS LCIE (Korean, Russian and French European and international notified bodies).





CONFIGURATION		WALL BOX D	X1		W 26	all box 90° 2AB53	B Soc 2624	ket-outlet 4017
ТҮРІСАL		E.	þ	PLUG DX1			Plu 262	9 1017
Ra Ma IP Sh Ar	Ated current (with wiring a aximum voltage protection lid closed protection connected plug bock resistance mbient temperature	ccording to stand	ard) 20 750 IP IP IK -25 °C to +60	 A Flexible wir V Stranded wi Other wiring Keying position Protection n C ATEX zones 	ing (min-max) iring (min-max) g tions node		2,5 - 2,5 - on 1 & 2,	10 mm ² 10 mm ² request 12 de 21 & 22
			SOCKET- OUTLET femal DX1 (20 A)	e 🕵 II	NCLINED PPLIANCE INLET rale DX1 (20 A)	¢	PLUG male DX1 (20 A	
EACH MUS BO)	SOCKET OUTLET OR INLET ST BE ASSOCIATED WITH A K, A SLEEVE OR A HANDLE.	Voltage 50 Hz 220 - 250 V 380 - 440 V 380 - 440 V	Polarity 1P+N+E 3P+E 3P+N+E	Part no. 2624015 2624013 2624017		Part no. 2626015 2626013 2626017	8-13 mm 8-13 mm 8-13 mm	Part no. 2621015 2621013 2621017
		Other voltag BOXES Ex metal cable gland included*	es, frequencies a Wall box metal 90°	and contact confi	gurations are avail HANDLES Ex metal cable gland included*	able.	le	
		Cable gland entry M20 M25 M32	Part no. 262AB53 262AB5325M 262AB5332M	8-13 mm 9-16 mm 12-21 mm	Cable gland entry M20 M25 M32	Part no. 262A963 262A95325M 262A95332M	8-13 n 9-16 n 12-21	nm mm
		* For alternatives wi	th Earth continuity, ple	ase contact us	1102	2027/00021	12-21	

Locking position connected or disconnected by lockable shaft as standard.

 LOCKING





CONFIGURATION	WALL BOX D	K3			Wall box 90° 26 3A B53	Socket-outle 26 34 017	ŧ
TYPICAL	G.		PLUG DX3			Plug 26 31 017	
MAIN FEATURES Rated current (with wiring a Maximum voltage IP protection lid closed IP protection connected plug Shock resistance Ambient temperature	ccording to standa	ard) 3 75 11 11 11 -25 °C to +60	22 A Flexible 50 V Stranded P65 Other wi P65 Keying p K10 Protectio 0 °C ATEX zor	wiring (min-max) I wiring (min-max) ring ositions on mode nes		2,5 - 10 mm ² 2,5 - 10 mm ² on request 12 de 1 & 2, 21 & 22	
		SOCKET- OUTLET femal DX3 (32 A)	•	INCLINED APPLIANCE INLE male DX3 (32 A)	Ē	PLUG male DX3 (32 A)	
EACH SOCKET OUTLET OR INLET MUST BE ASSOCIATED WITH A BOX, A SLEEVE OR A HANDLE.	Voltage 50 Hz 220 - 250 V 380 - 440 V 380 - 440 V	Polarity 1P+N+E 3P+E 3P+N+E	Part no. 2634015 2634013 2634017	/	Part no. 2636015 2636013 2636017	Part n 9-16 mm 26310 9-16 mm 26310 9-16 mm 26310	1 0. 15 13 17
	Other voltage BOXES Ex metal cable gland included*	wall box	and contact co	nfigurations are av	ailable.	dle	
	Cable gland entry	metal 90° Part no.		Cable gland entry	metal Part no.		
	M20 M25 M32 * For alternatives wit	263AB5320M 263AB53 263AB5332M h Earth continuity, pl	8-13 mm 9-16 mm 12-21 mm	M20 M25 M32	263A95320N 263A963 263A95332N	1 8-13 mm 9-16 mm 1 12-21 mm	

 LOCKING

Locking position connected or disconnected by lockable shaft as standard.



FIGURATION		WALL BOX D	X6		Wa 266	NIL box 90° AB53	+ Soc 2664	ket-outlet
TYPICAL CON) P	LUG DX6			Plu 266	9 1017
Ra M. IP St Ar	Ated current (with wiring a aximum voltage protection lid closed protection connected plug nock resistance mbient temperature	ccording to stand	ard) 63 A 750 V IP65 IP65/IP66 IK10 -40 °C to +60 °C	Flexible wiring Stranded wirin Other wiring Keying position Protection mod ATEX zones	g (min-max) ng (min-max) ns de		16 - 16 - on 1 & 2,	50 mm ² 50 mm ² request 12 de 21 & 22
			SOCKET-OUTLET female DX6 (63 A)	IN AF	CLINED PPLIANCE INLET ale DX6 (63 A)	Ē	PLUG male DX6 (63 /	
EACH	SOCKET OUTLET OR INLET	Voltage 50 Hz	Polarity	Part no.	1	Part no.	and the second second	Part no.
MUS	ST BE ASSOCIATED WITH A	220 - 250 V	1P+N+E	2664015	and the second	2666015	12-21 mm	2661015
RO	X, A SLEEVE UK A HANDLE.	380 - 440 V	3P+E	2664013		2666013	12-21 mm	2661013
		/380 - 440 V	3P+N+E	2664017		2666017	12-21 mm	2661017
	(Other voltage BOXES Ex metal cable gland included*	es, frequencies and	contact configu HA Ex n incl	rations are availa ANDLES netal cable gland uded*	able.		
			Wall box metal 90°		\sim	Straight hand metal	lle	
		Cable gland entry	Part no.		Cable gland entry	Part no.		
		M25	266AB5325M	9-16 mm	M25	266A95325M	9-16 n	nm
		M32	266AB53	12-21 mm	M32	266A963	12-21	mm
		M40	266AB5340M	16-27 mm	M40	266A95340M	16-27	mm
		* For alternatives wit	th Earth continuity, please	contact us				

LOCKING

Locking position connected or disconnected by lockable shaft as standard.





GURATION	WALL BOX	DX9			Wall box 90° 269AB53		Socket-outlet 2694017
TYPICAL CONF	đ	B	PLUG DX9				Plug 2691017
MAIN FEATURES Rated current (with wiring a Maximum voltage IP protection lid closed IP protection connected plug Shock resistance Ambient temperature	ccording to star	ndard) 129 750 IP IP65/IP IK -40 °C to +60	5 A Flexible D V Stranded 65 Other wi 66 Keying p 10 Protectio °C ATEX zor	wiring (min-max) I wiring (min-max) ring ositions on mode nes			50 - 70 mm ² 50 - 70 mm ² on request 12 de & 2, 21 & 22
		SOCKET-OUTLET female DX9 (125 A)	Q.	INCLINED APPLIANCE INLET male DX9 (125 A)	Ê	PLUG male DX9 (12	25 A)
EACH SOCKET OUTLET OR INLET MUST BE ASSOCIATED WITH A BOX, A SLEEVE OR A HANDLE.	oltage 50 Hz 380 - 440 V 380 - 440 V	Polarity 3P+E 3P+N+E	Part no. 2694013 2694017		Part no. 2696013 2696017	16-27 mm 16-27 mm 23-35 mm 23-35 mm 36-48 mm	Part no. 2691013 2691017 269101350M 269101750M 269101363M 269101763M
	Other voltage: BOXES Ex metal cable gland included*	s, frequencies and	contact confi	gurations are availa HANDLES Ex metal cable gland included*	able.	thandle	
	Cable gland entry M32 M40	Part no. 269AB5332M 269AB53	12-21 mm 16-27 mm	Cable gland entryM32M40	Part no 269A95 269A96	332M 1 3 1	2-21 mm 6-27 mm
MARECHAL ELECTRIC MAROMME $\textcircled{ (x) }$ II2 G DEx de IICtD A21-40 °C \leq Ta \leq +60 °CT5T90 °C-40 °C \leq Ta \leq +50 °CT6T80 °C	M50 M63 * For alternatives	269AB5350M 269AB5363M with Earth continuity, ple	23-35 mm 36-48 mm rase contact us	M50 M63	269A95 269A95	350M 2 363M 3	3-35 mm 6-48 mm





MARECHAL ELECTRIC MAROMME

LOCKING

Locking position connected or disconnected by lockable shaft as standard.



PNCX

COMPACT CONNECTOR 10 A

- ▶ (€x) || 3 G D
- CAN BE USED IN ZONES 2 (GAS) AND 22 (DUST)
- COMPACT AND EASY TO USE
- IP66/IP67 WATERTIGHT (IP68 ACCORDING TO **SPECIFICATION**)
- **LONG LIFE**

The PNCX is a compact and rugged connector designed for all types of aggressive environments (humidity, corrosion, pollution) found in many industrial hazardous areas. The 5 contacts connection can meet all needs and applications such as lighting. The PNCX connector is both quickly assembled and put into service. Its locking ring resists vibration thus preventing accidental disconnection of the plug on load.

MARECHAL®'s technically advanced silver-nickel butt contact system assures next level performance no matter the conditions. The PNCX guarantees a long-lasting and electrically efficient connection for your industry.

ELECTRICAL FEATUR	ES /	MECHANICAL FEATU	RES	
Voltage	440 V	Casing & insulator	Glassfibre reinforced	
Impulse withstand voltage	5 kV / Pollution degree 3		Coppor alloy with	
Contact resistance	< 2mΩ	Butt contacts	silver-nickel tips	
Permitted current range	4-20 mA / 10 A	Contact protection	Tinning	
Polarity	3P+N+E	Load cycles	More than 2000 cycles	
Conductors accepted	From 0,75 mm ² to 2,5 mm ² Mechanical terminals	Shock resistance	IK08	
Cable diameter	From 7 to 14 mm (smaller ø available according to specification)	Vibration	Frequency 5-1000 Hz, 1g (90 minutes on each critical frequency) according to IEC	
CLIMATIC FEATURES	20.90 à 1/0.90	ATEX MARKINGS	00000-2-0	
IP protection Socket	-20 Ca +60 C	ATEX zones	Gas zone 2 and Dust zone 22	
with cap	IP69K 100bar (1450 PSI) 80 °C			
IP protection connected	IP66/IP67 IP68 tested at 10 meters deep	ATEX markings	(x_x) 113GD EX NAC IIC EX to IIIC -20°C \leq Ta \leq +60 °C T5 T76°C -20°C \leq Ta \leq +50 °C T6 T66°C	
plug	for 15 days (please contact us for references) IP69K 100bar (1450 PSI) 80 °C	Technical manual	MAR X 13.0001	
Salt, Fog performance	200 h minimum not connected - More than 1000 h connected			

STANDARDS ASPECTS

PNCX connectors comply with:

The ATEX 94/9/CE Directive,

Resistance to fluids

- The requirements of IEC 61984, IEC 60529, IEC 62262, IEC 60068-2-6, EN/IEC 60079-0, EN/IEC 60079-15 et EN/IEC 60079-31 International standards,
- The European Low Voltage Directive 2006/95/CE,
- The French NF C 15-100 standard,
- The French decree dated 20 December 2011 pertaining to the wiring and operating conditions of movable electrical apparatuses,

Motor oils, petrol,fats,

detergents...

The decrees relating to workers' protection in Belgium, Spain and Italy.

MARECHAL 20



PXN 12C MULTI-CONTACT CONNECTORS DXN25C DXN37C

10 A

- ▶ € II2 G D Ex e ia OR ib IIC
- FROM 12 TO 37 CONTACTS
- LOCKING IN CONNECTED OR
- **DISCONNECTED POSITION**
- CORROSION-FREE METAL CASING

|--|

	PXN12C	DXN25C	DXN37C
Rated current (In)	10 A	10 A	10 A
Umax	220 V	440 V	230 V
Number of contacts	11P+E	24P+E	36P+E
IP protection lid closed	IP65/IP66	IP66/IP67	IP66/IP67
IP protection connected plug	IP65/IP66	IP66/IP67	IP66/IP67
Shock resistance		IK09 for all Multicontact connector	s
Ambient temperature	-40 °C to +55 °C	-40 °C to +60 °C	-40 °C to +55 °C
Protection mode		«e» for all Multicontact connectors	5
ATEX zones	Zones 1 & 2 (gas)	Zones 21 & 22 (dusts) - for all Multi	icontact connectors

STANDARDS ASPECTS

PXN12C, DXN25C and DXN37C comply with:

- The ATEX 94/9/CE Directive,
- IEC EN 60079-0, IEC EN 60079-7 and IEC EN 60079-31 International standards
- The French NF C 15-100 standard,
- The decrees relating to workers' protection in Belgium, Spain and Italy,

Also certified by VERITAS LCIE and GOST (French and Russian European and international notified bodies).





SPECIFICATION

Multicontact connectors IP65/IP66 with increased safety «e» for hazardous areas (ATEX), comply with BECMA international standard.



PXN12C EX METAL MULTI-CONTACT CONNECTORS

10 A IP65/IP66

9-16 mm

12-21 mm

MAIN FEATURES

Rated current (with wiring according to standard)	10 A
Maximum voltage	220 V
Number of contacts	11P+E
IP protection lid closed	IP65/IP66
IP protection connected plug	IP65/IP66
Shock resistance	IK09

Ambient temperature	-40 °C to +55 °C
Flexible wiring (min-max)	1 - 2,5 mm²
Wiring	crimping
Protection mode	e + i
ATEX zones	1 & 2, 21 & 22
Keying positions	2

CONNECTION OR DISCONNECTION **SCREW LOCKING IMPRINT BTR 2.5.**

06NA126

61CA500

ACCESSORIES & OPTIONS

MARECHAL ELECTRIC MAROMME

⟨€x⟩ II2 G D Ex e IIC Gb tbIIIC Db -40 °C \leq Ta \leq +55 °C T5 T69 °C Ex ia or ib IIC T6 Gb

Inlet cap

Crimping tool

Helavia sleeve

expansion tool

WALL MOUNTING **SOCKET** female PXN12C (10 A) Ex cable gland M25

M32

female

INCLINED

SOCKET female **PXN12C (10 A)**

COUPLER SOCKET



06A000125M

Part no. 06A7001









INCLINED **APPLIANCE INLET**



Part no. 06A9001

WALL MOUNTIN APPI male



LMOUNTING	1
LIANCE INLET	
PXN12C (10 A)	

G	
Г	
A)	a

61CA400	PXN12C (10 A)	Ó		male PXN12C (10 A)			
	Ex cable gland	Part no.		Ex cable gland	Part no.		
	M25	06A300125M	9-16 mm	M25	06A600125M	9-16 mm	
	M32	06A3001	12-21 mm	M32	06A6001	12-21 mm	
OMME	For the second section of the day						

Each product is supplied with 1 bag of 13 contacts depending on the maximum configuration. This allows you to set up the product to suit your needs.

BAG OF 13 CONTACTS (SUPPLIED WITH INSULATION SLEEVES AND FERRULES)					
Female socket-outlet Part Number 01AA213					
Male inlet Part Number 01AA113					





24 MARECHAL





IP66/IP67

AL CONFIGURATION		WALL MOUNTIN	IG SOCKET DX	N37C			Wall mounting socket MCC0003
ТҮРІС							Plug 16C1003
Rat Max Nur IP p	MAIN FEATURES ed current (with wiring kimum voltage nber of contacts rotection lid closed	according to standard)	10 A 230 V 36P+E IP66/IP67	Ambient temper Flexible wiring Wiring Protection mode	rature (min-max) e	-40 °C 1	to +55 °C - 2,5 mm ² crimping e + i
IP p Sho	rotection connected plu	1g	IP66/IP67 IK09	Keving position	s	1 Å	2, 21 & 22
		and the second s				Starting and a second second	
LOCKING	POSITION CONNECTED OR DISCONNECTED BY LOCKABLE SHAFT.	WALL MOUNTING SOCKET female DXN37C (10 A)			PLUG male DXN37c (10 A))
	No. of Concession, Name	Ex cable gland	Part no.		Ex cable gland	Part no.	10.01
		M32	36C000332M	12-21 mm	M32	36C100332M	12-21 mm
		M4U With padlocking shaft (padloc INCLINED SOCKET female DXN37C (10 A)	k not included)	16-27 mm	INCLINED APPLIANCE INLET male DXN37C (10 A)	3601003	16-27 mm
			Part no.			Part no.	
			36C7003		/	36C9003	
		With padlocking shaft (padloc	k not included)	/	7		
ACCESSORIES	5 & OPTIONS		-00	and the second sec			
Inlet cap	36NA126	COUPLER	0		WALL MOUNTING		
Crimping too	61CA500	SOCKET female DXN37C (10 A)	0		APPLIANCE INLET male DXN37C (10 A)	46	
expansion to	ol 61CA400	Ex cable gland	Part no.		Ex cable gland	Part no.	
		M32	36C300332M	12-21 mm	M32	36C600332M	12-21 mm
		M40	36C3003	16-27 mm	M40	36C6003	16-27 mm
MARECHAL E $\langle \widehat{f}_{x} \rangle$ II2 G D -40 °C < Ta < +	LECTRIC MAROMME Ex e IIC Gbtb IIIC Db 40 °C T6 T56 °C	With padlocking shaft (padloc Each product is supplied witl This allows you to set up the	k not included) n 3 bags of 13 contac product to suit your	ts depending on the r needs.	maximum configuration.		
-40 °C ≤ Ta ≤ +	55 °C T5 T76 °C	BAG OF 13 CONTACTS	(SUPPLIED WITH	INSULATION SLE	EVES AND FERRULES)		
Ex ia o	or ib IIC T6 Gb	Female socket-outle Male inlet Part Num	et Part Number ber	01AA213 61CA113			

SPE SINGLE POLE POWER CONNECTOR

SINGLE POLE 680 A

- ► 🖾 II2 G D Ex e IIC
- IP65/IP66 WATER- AND DUST-TIGHT
- ELECTROMECHANICAL INTERLOCKING SYSTEM
- MECHANIC AND VISUAL KEYING

The highest possible safety

- Reliable mechanical and electrical interlocking,
- IP2X socket-outlet when cap removed,
- Automatic IP65/IP66 when plug is connected.

An simple-to-use connector

- Straight insertion of the plug into the socket-outlet,
- Different mechanical keying for L1, L2, L3, N and E, positive and negative (d.c.)
- Visual identification by standard colours,

Performances

With 240 mm² wiring, the SPeX accepts a permanent current up to 570 A / 1000 V a.c. with T5 ATEX classification at 40 $^\circ\text{C}$ ambient temperature.



the neutral and earth has a different diameter)

SPeX ATEX classification according to cable cross-section and Ta (ambient Temperature)

	-20°C ≤ Ta ≤ +40°C G D T5 / T56°C	-20°C ≤ Ta ≤ +40°C G D T6 / T56°C	-20°C ≤ Ta ≤ +60°C G D T5 / T76°C
70 mm ²	290 A	235 A	235 A
95 mm²	415 A	335 A	335 A
120 mm ²	456 A	376 A	376 A
150 mm ²	493 A	415 A	415 A
185 mm²	530 A	450 A	450 A
240 mm ²	570 A	497 A	497 A
300 mm ²	620 A	540 A	540 A
400 mm ²	680 A	600 A	600 A
			1

Energy distribution system with separate connection of contacts

The pilot contact breaks the circuit in conformity with ATEX Directive (increased safety "e"). The breaking system is not supplied

Pilot wiring is mandatory to break and make on load





SPECIFICATION

IP65/IP66 single pole power connector with increased safety «e» for hazardous areas (ATEX), comply with BECMA international standard.





MAIN	FFUI	RES
		1. Carlos and a second s

SOCKET-OUTLET female

Rated current	according to category and cable
Maximum voltage a.c.	1000 \
Maximum voltage d.c.	1500 \
Short-circuit current lcc	20 kA during 250 ms
IP protection - lid closed	IP65/IP66
IP protection - connected plug	IP65/IP66
Shock resistance	IKO
dl.	8

Ambient temperature	see table
Wiring (min - max)	see table
Keying position	mechanical (5) and visual
Protection mode	e
ATEX zones	1 & 2, 21 & 22
Number of operations	2000
Pre-wired pilot circuit	6 A / 250 V
X	

SPe) with	K (680 A) Jout lug	\$	SPeX (680 A) without lug	and the second s	(
Туре	European color coding*	Part no.	Part no. 18 to 25 mm	Part no. 24 to 34 mm	Part no. 34 to 42 mm	Part no. 40 to 48 mm
L1	Brown	4647001	464100132P	464100140P	464100150P	464100163P
L2	Black	4647002	464100232P	464100240P	464100250P	464100263P
L3	Grey	4647003	464100332P	464100340P	464100350P	464100363P
Neutral	Blue /	464700N	464100N32P	464100N40P	464100N50P	464100N63P
Earth	Green	464700T	464100T32P	464100T40P	464100T50P	464100T63P
Positive	Red	464700P	464100P32P	464100P40P	464100P50P	464100P63P
Negative	Black	464700M	464100M32P	464100M40P	464100M50P	464100M63P

0

INLET male

SPeX (680 A)

* Part-numbers valid for Europe and Japan.

For other countries, replace the prefix 46 by : 42 for the USA / 43 for Australia / 44 for UK and South-Africa.

LUGS

Lug choice depends on the cable: the cross-section of the flexible cable mentioned in the table below is for information only. Please check dimensions as these may vary according to cable types and manufacturers.

Sec.

Wiring	(mm²)	Straight with hole	Straight threaded M12*	Internal diameter (mm)
Flexible	Stranded	Part no.	Part no.	
50	70	454A50C	454A50D	11
70	95	454A70C	454A70D	13,1
95	120	454A95C	454A95D	14,5
120	150	454A12C	454A12D	16,2
150	185	454A15C	454A15D	18
185	240	454A18C	454A18D	20,6
240	300	454A24C	454A24D	23,1
300	400	454A30C	454A30D	26,1
400	500	454A40C	454A40D	29,2

MARECHAL ELECTRIC MAROMME IECEx LCI 12.0005X / LCIE 07 ATEX 6073 X

* Wiring with crimping lugs, according to NF C20-130 standard (for VDE 0220 standard, please contact us) Crimping: Double hexagonal crimping is recommended.

SOCKET-OUTLET COMBINATION BOXES 63 A

- ► 🐼 II2 G D Ex e ia OR ib IIC
- ▶ IP66 WATER- AND DUST-TIGHT
- ▶ UP TO 24 SOCKET-OUTLETS
- ASSEMBLY OF MULTI-CONTACT CONNECTORS AND
 - SOCKET-OUTLETS ON THE SAME ENCLOSURE

Equipped with 20 to 63 A decontactors and/or 10 A multicontact connectors, these reinforced polyester resin fiberglass and graphite loaded socket-outlet combination boxes are designed for making electrical connections in hazardous areas, offering from 12 to 37 contacts. They provide increased safety and intrinsic safety, allowing them to be used in zones 1 & 2 (gas), 21 & 22 (dust). This comprehensive range is also ideal for wet environments – such as food and beverage or chemical industries – thanks to their corrosion resistance.

It is possible to mount both socket-outlets and multicontact connectors on the same box, with some models able to accommodate up to 24 socket-outlets or connectors.

TECHNICAL FEATURES

ASSOCIATED MARECHAL® PRODUCTS	
Decontactors	DXN1, DXN3 and DXN6
Multicontact connectors	PXN12C, DXN25C and DXN37C
ELECTRICAL FEATURES	
Maximum voltage*	750 V
Maximum nominal current*	63 A
Stranded wiring (min-max)*	1,5 - 25 mm²
Flexible wiring (min-max)*	1,5 - 16 mm²
* depending on the socket-outlet	
Junction	Terminal blocks. Feed through and loop-in loop-out connection
Cable entries and glands	M12 to M63 depending on the size of the box / Polyamide cable gland for unarmoured cable Nickel plated brass cable gland for unarmoured cable and armoured cable (with plate or washer bonding inside the box)
THERMAL SPECIFICATION	
Temperature range and ratings	From -40 °C to +60 °C From -40 °C \leq Ta \leq +40 °C T6 to T4* From -40 °C \leq Ta \leq +55 °C T5 to T4* From -40 °C \leq Ta \leq +60 °C T4 * depending on the internal components and socket mix (consult us)
MECHANICAL FEATURES	
Degree of protection	IP66
Shock resistance	IK09 according to IEC and EN 62 262.
Material	Enclosure made of polyester resin reinforced with fibreglass and graphite loaded for boxes. Casing made of High performance Poly for DXN1, DXN3 and DXN6 decontactors Casing made of Metal for PXN12C, DXN25C and DXN37C multicontact connectors Stainless steel screw
ATEX MARKINGS	
ATEX zones	Gas and Dust : zones 1 & 2, 21 & 22
ATEX markings	 (£) II 2 G D Ex e II T4 to T6 Ex tD A21 increased safety (£) 2 G D Ex ia IIC T6 tD A21 or (£) II 2 G D Ex ib IIC T6 tD A21 intrinsically safety (£) 2 G D Ex e ia IIC T6 tD A21 or (£) II 2 G D Exe e ib IIC T6 tD A21 increased safety and intrinsic safety
Standards compliance	IEC EN 60079-0, 60079-1, 60079-7, 60079-11 and 60079-31
Certificates	Certificates IECEx N° IECEx LCI 11.0042 and ATEX N° LCIE 11 ATEX 3047

MXBS



SPECIFICATION

Socket boxes IP66 for hazardous areas (ATEX), comply with BECMA international standard.



MAXIMUM NUMBER OF SOCKET-OUTLETS PER BOX (T6 at +40 °C ambient temperature)

Туре		DXN1	p.20-20-20	C. C. S.	DXN3			DXN6	1997 - C.	PXN12C	DXN25C	DXN37C
Box	1P+N+E	3P+E	3P+N+E	1P+N+E	3P+E	3P+N+E	1P+N+E	3P+E	3P+N+E	and a second		
MXBS1	3	3	3	1	1	1	_	(-	-	3	1	1
MXBS2	4	4	3	1	1	1	1*	1*	1*	3	1	1
MXBS3	7	4	3	2	2	2	1*	1*	1*	7	2	2
MXBS4	7	6	4	2	2	2	1*	1*	1*	4	1	1
MXBS5	13	9	6	4	4	4	1*	1*	1*	5	2	1
MXBS6	11	7	5	11	7	5	1	1	1	5	2	1
MXBS7	14	9	7	13	9	6	1	1	1	6	3	2
MXBS8	12	8	6	12	8	6	2	2	2	5	2	1
MXBS9	19	12	9	18	12	9	2	2	2	8	4	2
MXBS10	24	16	12	24	16	12	2	2	2	11	5	3

* T5 at = 40 °C

Note : Special configurations, wiring terminal blocks and a mixture of socket outlets are available. Please contact us.

MAXIMUM NUMBER OF POLY CABLE GLANDS PER SIDE (For metal cable gland for armoured cable contact us)

			- 2 A A			3		4	
		M12	M16	M20	M25	M32	M40	M50	M63
Box	Side	(H = 15 mm)	(H = 22 mm)	(H = 24 mm)	(H = 33 mm)	(H = 42 mm)	(H = 53 mm)	(H = 60 mm)	(H = 70 mm)
MXBS1	A/B C/D	15 5	6 2	6	-2 1	2 1	-):	-
MXBS2	A/B C/D	12 12	5 5	4 4	2 2	1 1	1 1	/ :	-
MXBS3	A/B C/D	32 12	14 5	12 4	6 2	3 1	2 1	-	-
MXBS4	A/B C/D	26 18	14 8	9 6	6 3	3 2	2 1	2 1	-
MXBS5	A/B C/D	72 18	38 8	26 6	16 3	7 2	5 1	4 1	-
MXBS6	A/B C/D	69 51	32 24	24 18	12 10	8 7	4 3	3 3	3 2
MXBS7	A/B C/D	117 50	56 22	42 18	21 10	14 6	7 3	5 2	5 2
MXBS8	A/B C/D	108 50	52 24	36 18	18 10	12 7	6 3	4 3	4 2
MXBS9	A/B C/D	117 95	56 46	42 36	21 18	14 13	7 6	5 5	5 4
MXBS10	A/B C/D	215 256	102 158	81 123	43 65	26 40	18 27	11 18	10 14

ACCESSORIES ON REQUEST

- Inclined sleeve
- Earth stud
- Earth bar • Hinges
- Mounting brackets



BJUNCTION BOXES 350 A ▶ € II2 G D Ex e ia OR ib IIC ▶ IP66 WATER- AND DUST-TIGHT GLASS REINFORCED, GRAPHITE-FILLED **POLYESTER RESIN ENCLOSURES**

These junction boxes are designed with reinforced polyester resin with fibreglass and graphite loaded, and are designed for making electrical connections in hazardous areas. They provide increased safety and intrinsic safety, allowing them to be used in zones 1 & 2 (gas), 21 & 22 (dust). This comprehensive range is also ideal for wet environments - such as food and beverage or chemical industries - thanks to their corrosion resistance.

TECHNICAL FEATURES

ELECTRICAL FEATURES	
Maximum voltage*	750 V
Maximum nominal current*	350 A
Flexible or stranded wiring (min - max)*	0,2 - 240 mm ²
* depending on the type of terminal connection	
Cable entries	M12 to M63
THERMAL SPECIFICATION	
Temperature range and ratings	From -55 °C to +60 °C From -55 °C to +40 °C (T6 = 85 °C surface temperature) From -55 °C to +55 °C (T5 = 100 °C surface temperature) From -55 °C to +60 °C (T4 = 135 °C surface temperature)
MECHANICAL FEATURES	
Degree of protection	IP66
Shock resistance	IK09 according to IEC and EN 62 262.
Material	Casing made of polyester resin reinforced with fibreglass and graphite loaded Stainless steel screws
ATEX MARKINGS	
ATEX zones	Gas and Dust : zones 1 & 2, 21 & 22
ATEX markings	 (i) II 2 G D Ex e II T4 to T6 Ex tD A21 increased safety (i) 2 G D Ex ia IIC T6 tD A21 or (i) II 2 G D Ex ib IIC T6 tD A21 intrinsic safety (i) 2 G D Ex e ia IIC T6 tD A21 or (i) II 2 G D Exe e ib IIC T6 tD A21 increased safety and intrinsic safety
Standards compliance	IEC EN 60079-0, 60079-1, 60079-7, 60079-11 and 60079-31
Certificates	Certificates IECEx N° IECEx LCI 11.0026 and ATEX N° LCIE 11 ATEX 3028

ACCESSORIES ON REQUEST

- Earth stud
- Earth bar
- Shield bar
- Junction bar
- Hinges
- Mounting brackets







SPECIFICATION

Junction boxes IP66 for hazardous areas (ATEX).

CONDUCTORS CROSS-SECTION : NUMBER OF TERMINALS / In MAX (A)

	1.5	mm²	2.5	mm²	4.5	mm²	6 r	nm²	10	mm²	16	mm²
Box	Nr	In Max	Nr	In Max	Nr	In Max	Nr	In Max	Nr	In Max	Nr	In Max
MXBJ1	14 10	13 A 15 A	14 7	15 A 20 A	11 5	18 A 25 A	/-	- (-	-	-)	-	-
MXBJ2	19	12 A	15	15 A	15	17 A	13	22 A	10	31 A	7	43 A
	11	15 A	9	20 A	7	25 A	6	32 A	4	45 A	3	65 A
MXBJ3	42	8 A	34	10 A	34	11 A	29	15 A	22	21 A	17	28 A
	11	15 A	9	20 A	7	25 A	6	32 A	4	45 A	3	65 A
MXBJ4	28	11 A	23	14 A	23	15 A	19	20 A	14	29 A	11	39 A
	15	15 A	11	20 A	9	25 A	7	32 A	6	45 A	- 4	65 A
MXBJ5	76	7 A	61	9 A	61	11 A	51	14 A	39	21 A	31	28 A
	17	15 A	14	20 A	12	25 A	11	32 A	8	45 A	5	65 A
MXBJ6	102	6 A	82	8 A	82	9 A	70	12 A	52	17 A	42	23 A
	16	15 A	13	20 A	12	25 A	12	32 A	8	45 A	5	65 A
MXBJ7	170	5 A	138	7 A	138	8 A	116	11 A	86	16 A	35	30 A
	20	15 A	17	20 A	15	25 A	13	32 A	11	45 A	7	65 A
MXBJ8	264	4A	214	5 A	214	6 A	180	8 A	136	12 A	54	23 A
	17	15 A	15	20 A	14	25 A	12	32 A	10	45 A	7	65 A
MXBJ9	255	5 A	207	6 A	207	8 A	174	10 A	129	15 A	70	25 A
	27	15 A	24	20 A	11	25 A	19	32 A	15	45 A	10	65 A
MXBJ10	402	4 A	324	6 A	324	7 A	273	9 A	136	17 A	110	23 A
	35	15 A	30	20 A	28	25 A	25	32 A	20	45 A	14	65 A
				2	and the second		and all all all all all all all all all al	and the				

	25	mm²	35	mm²	50	mm²	70	mm²	95	mm²	120) mm²
Box	Nr	In Max	Nr	In Max	Nr	In Max	Nr	In Max	Nr	In Max	Nr	In Max
MXBJ4	7 3	62 A 85 A	7 2	71 A 105 A	1-	-	- /	-		-	-	-
MXBJ5	21 5	43 A 85 A	21 2	47 A 105 A	6 3	105 A 130 A	5 2	123 A 170 A	-	-	-	-
MXBJ6	14 5	51 A 85 A	12 3	60 A 105 A	10 4	89 A 130 A	-	-	-	-	-	-
MXBJ7	23 7	46 A 85 A	23 5	50 A 105 A	18 6	80 A 130 A	9 3	105 A 170 A	-	-	-	-
MXBJ8	36 6	36 A 85 A	36 5	39 A 105 A	28 5	58 A 130 A	9 3	102 A 170 A	6 2	140 A 205 A	-	-
MXBJ9	23 9	55 A 85 A	22 7	61 A 105 A	18 9	93 A 130 A	16 4	93 A 170 A	-	-	-	-
MXBJ10	27 13	59 A 85 A	35 10	57 A 105 A	28 9	80 A 130 A	25 6	88 A 170 A	22 5	105 A 205 A	18 5	149 A 235 A

	150	mm²	185	i mm²	240) mm²
Box	Nr	In Max	Nr	In Max	Nr	In Max
MXBJ10	18 4	150 A 265 A	15 4	197 A 305 A	10 5	254 A 350 A

MAXIMUM NUMBER OF POLYESTER CABLE GLANDS PER SIDE : idem MXBS

B2X BOXES

JUNCTION



- ► 🖾 II2 G D Ex e IIC
- **UP TO 750 V**
- IP66/IP67 WATER- AND DUST-TIGHT
- EQUIPPED WITH TERMINALS AND/OR SOCKET-OUTLETS



This range is equipped with CRIC increased safety 'e' terminal blocks and cable glands and complies with the 94/9/CE Directive. All external fastening accessories are in stainless steel.

SPECIFICATION

Junction boxes IP66/IP67 with increased safety «e» for hazardous areas (ATEX), comply with BECMA international standard.

MAIN FEATURES

Maximum voltage a.c.	750 V
Ambient temperature	-40 °C to +60 °C
Protection mode	e
Protection	IP66/IP67
ATEX zones	1 & 2, 21 & 22
Dimensions (H x L x P)	173 x 173 x 118 mm





This box can be equipped with:

- Two DXN1 with 30° inclined sleeve, or
- One DXN1 and one DXN3 with 30° inclined sleeves.

Standards compliance

- The European ATEX 94/9/CE Directive
- IEC EN 60079-0, IEC EN 60079-7, IEC EN 61241-0, IEC EN 61241-1 et IEC EN 60079-31

Junction

Three kinds of increased safety 'e' terminal blocks are available:

- 20 A : 3 x 4 mm2 max. per terminal block
- 40 A : 3 x 10 mm2 max. per terminal block
- 70 A : 3 x 25 mm2 max. per terminal block

(one M40 cable gland maximum per side)

Boxes fitted with terminals only

MARECHAL ELECTRIC MAROMME ⟨€x⟩ II2 G D Ex e II tD A21 $-40 \ ^\circ\text{C} \le \text{Ta} \le +60 \ ^\circ\text{C} \qquad \text{T6} \qquad \text{T85 } ^\circ\text{C}$ LCIE 05 ATEX 6128

Boxes fitted with terminals + DXN

MARECHAL ELECTRIC MAROMME ⟨Ex⟩ II2 G D Ex e II tD A21 -40 °C \leq Ta \leq +60 °C T4 T130 °C LCIE 05 ATEX 6128





A WIDE RANGE OF TECHNOLOGICALLY ADVANCED PRODUCTS

SAFETY OF PEOPLE

EQUIPMENT AND INFRASTRUCTURE IN POTENTIALLY EXPLOSIVE ATMOSPHERE

TECHNOR is a worldwide technology company of MARECHAL ELECTRIC GROUP, with operational businesses in Italy, United Arab Emirates and Singapore. TECHNOR has a high level of experience in developing and designing Ex equipment for most applications.

The company main markets are within Oil & Gas and Petrochemical Industries.

Products enable safe transport and application of electric signals and power in potentially explosive atmospheres. The core business is in the electrical, instrumentation and electronics fields.

All the equipment for use in explosive atmosphere satisfy the requirements of international and national regulations (Atex, IECEx and Gost) and each individual systems' component is certified in accordance with specific Ex-certification requirements.

LIGHTING

RMS... SERIES (Ex) IP66/IP67, Ex-nA, Ex-de Fluorescent Lights

EVF-P Ex-de, Ex-em Fluorescent Lights

Ideal for Onshore and Offshore, Marine applications and for all kinds of industry where a high level of corrosion resistance is required. Stainless steel AISI-304 or AISI-316L body, glass tempered window and glass-frame done in one unit without welding.

Range of buit in control gear HID lighting fixtures, for general lighting applications,

providing Ex-e junction box, adjustable SS AISI 304 mounting bracket suitable for

universal installation, facilitate mounting and maintenance. Compact design in

aluminium grade body, for onshore and offshore applications.

Fluorescent luminaries manufactured with cylindrical polycarbonate lamp housing and two end-cups in Copper free aluminium. The high resistance polycarbonate light housing is made of 3 different layers extrusion with UV filter to grant the best possible protection against direct sun heating and radiation effects. Shape has been designed to minimize wind resistance. Suitable for marine enviroment conditions.







HID floodlight, for general lighting application, platform installation, cranes, providing integral looping facility Ex-e junction box, stainless steel adjustable fixing bracket, built in ballast, internal anti condensation paint, compact design in aluminum grade body as well as stainless steel, for onshore and offshore installation.





FLAMEPROOF ENCLOSURES

GUB..., EJB... 🚱 Ex-d IIB, IIB+H2 and IIC Enclosure

Large range of enclosures manufactured in Copper free aluminium, Cast Iron or Stainless steel. Ideal for instrument housing, control, check, connection, automation, interruption and/or protection use. They can be equipped with pushbuttons, pilot lamps and selector switches. Enclosures can be customized project by project to get control panel, lighting distribution boards, heat tracing distribution boards, motor starters, as well as, assembled together, or mounted on a self supporting frame, generate switch-rack for onshore and offshore applications.

CONTROL STATIONS

CP... /EF... (Ex) Ex-d, Ex-e, Ex-de, Ex-dem Control Station



Range of GRP, Copper free aluminium or Stainless Steel control stations designed to offer a flexible, light weight and cost effective solution tailor made upon customer request. To be assembled with Ex-de operators in case EF.. Ex-de version and with PL.. operators in case of CP.. Ex-d version.

VISUAL SIGNAL

AWL... SERIES EV-de 🐼 Ex-d, Ex-de IIC Warning Lights



The top of technology among Aircraft Warning Lights, LIOL, MIOL with LED technology, reliable long life and maintenance saving products, in compliance with ICAO and FAA, along with signalization unit like beacons, flashing unit, rotating light.

JUNCTION BOXES



The AQ/AR range of stainless steel AISI-316L enclosure used as instrument and electrical terminal boxes, as well as control panels equipped with push button and switches, all designed for use in any environment where an explosive atmosphere may be present and are especially recommended for chemical agent environments, sea-water corrosion resistance and extremis of low and high temperature, offshore and onshore oriented.



CX EX-U/e Cable olailus



Single seal, double seals cable glands, suitable for unarmored and armored cables. Nickel-chrome plated brass, stainless steel and aluminum made, hexagon shape, anti-ageing EPDM oil resistant gaskets. These cable glands are used in classified Area Zone 1 & 2 and Zone 21 & 22.

EXPLOSION-PROOF PRODUCTS



INTRODUCTION

Particular standards and Directives apply when flammable gases, vapours or dusts are likely to be present in the environment and cause an explosion (referred to as «hazardous areas»).

Plugs and socket-outlets intended to operate in such environments must have obtained a certificate of conformity to these standards from an official test house, assuring that they will not cause a fire or an explosion in the surrounding atmosphere.

Standards

- IEC/EN 60079-0: Products for use in explosive gas atmospheres General rules
- IEC/EN 60079-1: Explosive atmospheres Part 1: Equipment protection by flameproof enclosures "d"
- IEC/EN 60079-7: Explosive atmospheres Part 7: Equipment protection by increased safety "e"
- IEC/EN 60079-31: Explosive atmospheres Part 31: equipment protection against ignition of dust by enclosure "t".

Products complying with these requirements bear the symbol and the marking 'Ex'.

Directives

In Europe, two Directives apply to explosion-proof products:

ATEX 94/9/CE DIRECTIVE (EXPLOSIVE ATMOSPHERES)

Since July 1st 2003, manufacturers may only sell products that comply with the ATEX 94/9/CE Directive. This Directive sets the essential safety requirements and imposes a classification of the products in categories, depending on their level of protection. A distinction is now made according to the nature of the explosive atmosphere: gas or dust.

This Directive requires:

- For products: a type certification, a declaration of conformity and an instruction manual, allowing to affix the **C** marking,
- For the manufacturers: a quality assurance system audited annually by a notified body, and the appointment of an authorised person called the ATEX Manager.

1999/92/CE DIRECTIVE

Since July 1st 2003, this Directive imposes on users of explosion-proof products:

- To evaluate the risk of explosion on their site, to define zones and to implement minimum guidelines to ensure workers' safety,
- To purchase only products according to ATEX 94/9/CE Directive for new installations as well as extensions to existing installations.

Products designed according to the **harmonised standards** are deemed to comply with the essential safety and health requirements set forth in the ATEX Directive.

Protection mode(s)

Depending on the type of product, there are several modes of protection intended to prevent explosion: increased safety "e", internal overpressure "p", oil immersion "o", flameproof chamber enclosure "d", powder filling "q", encapsulation "m", etc.

Whatever the protection mode(s), products intended to operate in potentially explosive atmospheres must:

- Prevent the formation of an arc likely to cause an explosion or contain inflammation,
- Resist shocks, to a higher degree than usually is required for normal industrial products,
- Not be likely to accumulate electrostatic charges that may generate a spark,
- Have, within an ambient temperature range of at least -20 °C / +40 °C, a surface temperature below the self ignition temperature of the surrounding atmosphere or that of the layer of dust that may have accumulated on the equipment.

Protection mode for plugs and socket-outlets

Plugs and socket-outlets with integral switching include two distinct areas, that require the implementation of two different modes of protection:

- An area which contains the contacts used to establish and break the current and where arcs or sparks occur in normal operation when a plug is inserted or withdrawn. This area requires a "d" flameproof chamber in order to contain the arc, to resist the overpressure of an internal explosion and to laminate the flame of this explosion so that it does not propagate to the surrounding atmosphere,
- Areas where there are no arcs or sparks, where conductors are connected to the plug and socketoutlet terminals. These areas use the mode of protection increased safety "e", to prevent any failure.

Plugs and socket-outlets without integral switching

use the sole mode of protection by increased safety "e". They are fitted with a locking device and warning labels to prevent any accidental disconnection under load. The outer enclosure and seal also provide increased safety "e".

"d" FLAMEPROOF ENCLOSURE

The arc chamber that contains the contacts used to make and break the circuit must constitute an flameproof enclosure, resisting the effects of a possible internal explosion. IEC 60079-1 standard defines the characteristics of such a 'd' flameproof chamber that must:

- Resist the pressure of an explosion,
- Allow this pressure to escape through insterstice precisely rated in length and thickness, in order to extinguish the flame so that it cannot reach the outside of the enclosure.



These safety experimental maximum interstices, also called flamepath, are defined according to the explosive substance and the internal volume of the enclosure.



DXN1 plug and socket-outlet interior mouldings and contacts: the various flamepaths (in red) extinguish the flame and allow expulsion of burnt gases in case of an explosion when an arc strikes.

E.g.: in an environment that may contain Acetylene and with an inner volume less than to 100 cm³, the minimum length of the cylindrical flamepath is 6 mm and the maximum interstice is 0.1 mm.

"e" increased safety

The expensive requirements of the "d" mode of protection are not necessary for the parts of the product where conductors are terminated on the plug side and socket-outlet side as well as for plugs and socket-outlets that are not likely to create a spark. Particular precautions, for increased safety "e" equipment, are anyhow required in order to:

- Provide proper termination of cables in the enclosures,
- Not to damage conductors on tightening and to prevent the loosening of terminals in case of shock, vibration, thermal cycling or conductor yielding,• Prevent short-circuits by defining air and creepage distances larger than those required from industrial products.
- provide a degree of protection IP54 minimum.

Plugs and socket-outlets, which combine flameproof "d" chambers for the switching of contacts and increased safety for cables and conductors termination, are identified by the symbol **(Ex de**.



DXN: a captive pad protrudes into the terminal chamber to protect the strands of the conductors from contact with the tightening screw

Plugs and socket-outlets whose sole mode of protection is increased safety are identified by the symbol 🔂 Ex e.

PROTECTION MODE 'tD' OR 't' AGAINST DUST



Plugs and socket-outlets intended for use in the presence of flammable dust, either in suspension or accumulated, must be protected against dust ingress. They must bear details of their maximum surface temperature, in a given range of ambient temperatures (Ta), taking into account the layer of dust that may accumulate. This mode of protection by dust-proof enclosure is identified by the symbol tD A21 (formerly DIP: Dust Ignition Proof) completed by the IP rating.

Example of marking: Ex tb IIIC T66 °C Db IP66

 $-40 \degree C \le Ta \le +60 \degree C.$

Product Groups

Electrical products are classified according to the inner volume of their explosion-proof chamber, if any, and the dimensions of their flame path, in group I, IIA, IIB, IIC, IIIA, IIIB and IIIC, and according to chemical products and gases having similar explosive characteristics.

- Plugs and socket-outlets of Group I are suitable for firedamp mines (natural methane) in underground applications.
- Plugs and socket-outlets of Group II are intended for surface industry applications.

Group II gases are divided into IIA, IIB and IIC, corresponding to a decreasing tolerance of the flame path in such a way that a IIC product is automatically suitable for groups IIA and IIB.

- Group IIA: Accessories intended to operate in presence of the less explosive substances: industrial methane, propane, butane, benzene, kerosene, gasoline, ethanol, acetone ...
- Group IIB: ethylene, methacrylate, cyclopropane ...

- Group IIC: Accessories intended to operate in presence of the most explosive substances: hydrogen, acetylene, ethyl nitrate ...

• Plugs and socket-outlets of Group III are designed for dust surface explosive atmospheres.

Group III is subdivided into IIIA, IIIB and IIIC corresponding to the characteristics of the explosive dust atmosphere. A IIIC equipment is suitable for IIIB and IIIA applications and a IIIB equipment is suitable for IIIA applications.

- Subdividion IIIA: combustible particles in suspension.
- Subdividion IIIB: non-conductive dust.
- Subdividion IIIC: conductive dusts.

The marking of Ex "de" products (DXN, DX, PX) is completed by the indication of their gas group, according to their flame path and inner volume, e.g. **Ex de IIC**. The marking of "e" products (PXN12C, DXN25C, DXN37C, SPeX, MXBS, MXBJ) is also completed by an indication of their group. e.g. **Ex e II**. They can be used in the presence of all gases (except natural methane in mines that requires group I certified equipment).

Product categories and explosive zones

There are three categories of devices corresponding to six explosive areas and 6 levels of EPL, gas or dust zones:

- Products in category 1 are intended for Zone 0 (gas) and/or Zone 20 (dust): zones with a permanent explosive atmosphere. EPL level Ga and Da. These zones cannot be equipped with socket-outlets.
- **Products in category 2** are intended for Zone 1 (gas) and/or Zone 21 (dust): zones where an explosive atmosphere is likely to appear in normal

operation. EPL level Gb and Db. These zones can be equipped with 🔂 socket-outlets.

• Products in category 3 are intended for Zone 2 (gas) and/or Zone 22 (dust): zones where an explosive atmosphere may only appear accidentally, in case of malfunction of the installation. EPL level Gc and Dc. These zones can also be equipped with socket-outlets.



Considering the increasing risk, products of category 2 can be used where products of category 3 are required. The marking on the product is completed by the indication of their permitted zones.

L.g.	3D = zone 22 2G D = zones 1, 2, 21 et 22		
PRODU	CT CATEGORY	701	IFS
Directi	ve	201	
		Flammable gas, vapour or mist	Cloud of flammable dust
Category of or frequer Ga and Da	I : Permanent It presence	Zone 0 No socket- outlet	Zone 20 No socket- outlet
Category 2 (normal) p Gb and Db	2: Occasional presence	Zone 1 2G or 2G D socket-outlet	Zone 21 2G or 2G D socket-outlet
Category 3 term pres Gc and Dc	3: Irregular / short ence (abnormal)	Zone 2 3G or 3G D socket-outlet	Zone 22 3G or 3G D socket-outlet
Ex II2 (D means that the accessory	can be used in zone	s 1 2 21 & 22

Gas Temperature classes

All chemicals listed in the various groups have a specific self-ignition temperature.

Electrical products must bear details of their maximum temperature, in a specified maximum ambient temperature (Ta).

Indication is given by a capital "T" followed by a number from 1 to 6, in decreasing order of temperature:

Category	Maximum surface temperature
Т6	≤ to 85 °C*
Т5	≤ to 100 °C
Τ4	≤ to 135 °C
T3	≤ to 200 °C
T2	≤ to 300 °C
T1	< to 450 °C

* As an example, a T6 classification at 40 °C means that the maximum heating will be 40 K with 5 K safety margin, in an ambient temperature of 40 °C. The maximum temperature of the device must be less than the temperature of self-ignition of the gas found in the hazardous area.Dust surface temperature marking

Flammable dust have specific self-ignition temperatures.

Electrical products must bear the indication of their maximum surface temperature, in a specified maximum ambient temperature (Ta). This temperature takes into account the layer of dust likely to accumulate on the accessory. Indication is given by a capital "T" followed by the surface temperature in °C, to distinguish it from the gas temperature class, e.g.: T107 °C.

Example of marking for a DXN1



This marking is completed with the following indications (e.g.: DXN3 sticker):

Type - Part number	DXN3	2534017972
Contact configuration – main circuit Assigned voltage Nominal current	3P+N+T Ue 400 V 50Hz Ie 32A	+2AUX. 550V 5A
CE marking = compliance with European Directives - Identification of the notified body (0081 - Varitas ICIE)		IP66/IP67 19/11

(0081 =-Veritas LCIE)

Contact configuration secondary circuit (if any)

IP rating Week / year of manufacture





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