

# EXEL

- Double locking system operated by hexagonal-head tool
- Single and double channel electronic ballast
- Zones 1, 2, 21, 22

*Reinforced polyester resin body*

*G13 bi-pin lamp holder*



*Internal emergency batteries*



*Reinforced locking system*

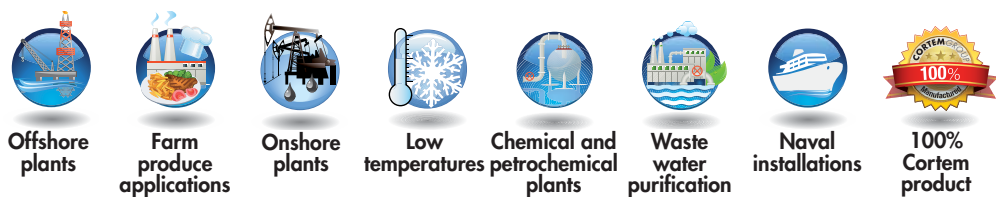


*Transparent polycarbonate cover*

# EXEL series Lighting fixtures for fluorescent tubes

EXEL series increased safety bi-pin fluorescent lighting fixture have a Cortem electronic ballast system that complies with Atex Directive 94/9/EC:1994. They can be installed in hazardous zones 1, 2, 21 and 22 where a high degree of protection and resistance against corrosion is required such as in chemical and petrochemical plants, off-shore and on-shore plants, processing areas in food industries etc... Fluorescent tubes that reach the end of their working lives are safely monitored and switched off by means of the EOL (End-Of-Life) system. The fact that they have different voltage ratings means they can be used worldwide. Thanks to the double channel ballast design, if one of the tubes stops working, the other continues working independently. As cable entries/exits are fitted to both sides of the fixture body, installation is simple and fast. The transparent cover is clipped into place on both sides of the fixture body with 8 clips on the 18W and 14 on the 36W unit. This ensures excellent protection against dust and water over time despite any degradation caused by ageing. For this very reason, these units are often installed in water purification plants and in areas that are hazardous for ships and ferries. A safety switch is housed inside the fixture that automatically cuts off the power supply when the fixture is opened to replace a fluorescent tube and/or an electrical component. EXEL...E series is fitted with a Ni-Cd battery and electronic inverter for use in emergency operation. The operating time under emergency operation can be selected depending on requirements and can last from a minimum of 90 minutes to a maximum of 200 minutes. A red LED warning light comes off if the battery needs to be replaced due to a short circuit or if the battery itself is dead.

## Application sectors:



## CERTIFICATION DATA

**Classification:** 94/9/EC

Group II	Category 2GD		
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**Installation:** EN 60079.14

zona 1 - zona 2 (Gas)	zona 21 - zona 22 ( Dust)		
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**Marking:**

CE 0722 Ex II 2GD - Ex de mb IIC T4 Gb - Ex tb IIIC T70°C Db IP66 (*)
CE 0722 Ex II 2GD Ex de IIC T4 Gb - Ex tb IIIC IP66 (**)

(\*) Marking valid for lighting fixtures with operating type normal and normal + emergency.

(\*\*) Marking valid only for lighting fixtures with operating type emergency and emergency with batteries housed in separate box.

**Certification:**

ATEX CESI 03 ATEX 074			
IEC Ex CES 07.0001	Para todos los datos de certificación IEC Ex, GOST R y INMETRO descarga el certificado del sitio <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>		
GOST R DISPONIBLE			
INMETRO DNV 12.0055 X			

**Standards:**

CENELEC EN60079-0: 2012, EN60079-1: 2007, EN60079-7: 2007, EN60079-18: 2009, EN60079-31: 2009, EN61000-3-2, EN60598-1:2008+A11:2009, EN60598-2-22:1998+ A1:2008, EN60598-2-1:1989, EN61547:2009 and DIRETTIVA EUROPEA 94/9/EC: 1994.  
IEC60079-0:2011, IEC60079-1:2007, IEC60079-7:2006, IEC60079-18:2009, IEC60079-31:2008  
European Directive 2006/95 Low voltage  
European Directive 2004/108 Electromagnetic compatibility  
European Directive 2003/108 WEEE Waste electrical and electronic equipment  
European Directive 2011/64 RoHS

**Ambient temperature:**

Normal operation -40°C +50°C (T4)	Emergency operation -20°C +50°C (T4)	Separate emergency -20°C +55°C (T4)
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**Degree of protection:**

IP66
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# EXEL series Lighting fixtures for fluorescent tubes

Ex de



ORIGINAL PRODUCT

## MECHANICAL FEATURES

<b>Body:</b>	Black shock and UV resistant fibreglass reinforced anti-static polyester resin
<b>Diffuser:</b>	Transparent polycarbonate, shock and UV resistant
<b>Protected opening system:</b>	Sliding system operated by a hexagonal-head tool (for safety reasons, the fixture can not be opened without the tool)
<b>Gasket:</b>	Acid/hydrocarbon resistant expanded silicone
<b>Internal reflector:</b>	White painted aluminium
<b>Inner frame:</b>	Extruded aluminium
<b>Bolts and screws:</b>	Stainless steel
<b>Entries:</b>	4 x Ø25.5 entries (suitable for ISO M25x1.5 threads). Lighting fixture kit contains 3 model PLG2IXEP plugs and 2 model UNI2.1XE cable glands for non-armoured cable
<b>Mounting:</b>	Nickel plated brass inserts with 2 x M8 holes

## ELECTRICAL FEATURES

<b>Lamp holder:</b>	Bi-pin G13
<b>Ballast:</b>	Electronic double channel
<b>Rated voltage:</b>	110/240 V
<b>Rated frequency:</b>	50/60 Hz
<b>Connection:</b>	Directly to terminal board L, N, Pe section 4 mm <sup>2</sup> terminal board with jumpers suitable for input/output from either side
<b>Power factor:</b>	0.97
<b>Emergency unit:</b>	Electronic inverter 110V/240V, 50/60Hz. Batteries Ni/Cd, 4 Ah or 7 Ah, 6 V Battery charging monitored by high luminosity red LED (estimated LED lifespan 50,000 hours)
<b>Safety:</b>	Internal "Ex de" safety switch
<b>Wiring:</b>	Silicone rubber cables with glass braid insulation for high temperatures

## ACCESSORIES AVAILABLE / SPECIAL REQUESTS

2 pin Ø26 fluorescent tubes model T8

Installation brackets

Grey polyester resin body (code EXEL-118EE4G)

Rated voltage: 277 V with electronic double channel ballast (code EXEL-236EF4/277)

Cable entry: 4 x Ø20.5 holes. Lighting fixture kit contains 3 model PLG1IXEP plugs and 2 model UNI1.1XE cable glands for non-armoured cable (code EXEL-118EE4/20)



# Close up of EXEL series lighting fixtures



Certified lamp holder made at fibreglass reinforced polyester. G13 bi-pin fitting

Removable internal reflector

Certified NiCd 6V batteries connected in series for emergency lighting. Can be either 4 or 7Ah units housed in polyethylene box

Certified electronic inverter housed in cylindrical aluminium box with one end sealed to allow passage of cables

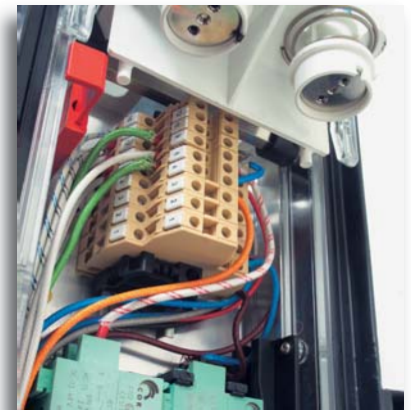
Certified electronic ballast EBV with the electronic part housed in an insulating enclosure completely incorporated in resin. Manufactured with electronic circuit made to match the requirements regarding the lamp's End Of Life (EOL) protection; provided with protections to prevent over heating of the lamps at end of life

Safety switch

Terminal board section 4mm<sup>2</sup>



Close-up of bi-pin lamp holder



Close-up of internal connections




Close-up of LED battery charging light


# EXEL series selection chart

Ex de

## Single and double tube

Code	Dimensions mm				Type of ballast	N° of lamps	Power supply	Watt	Weight Kg	
	A	A1	B	C						
EXEL-118	785	420	185	155	electronic	1	110/240 V 50/60 Hz.	18	5,20	195x155x820
EXEL-136	1370	720	185	155	electronic	1	110/240 V 50/60 Hz.	36	7,90	196x155x1400
EXEL-218	785	420	185	155	electronic double channel	2	110/240 V 50/60 Hz.	18	5,30	196x155x820
EXEL-236	1370	720	185	155	electronic double channel	2	110/240 V 50/60 Hz.	36	7,90	196x155x1400

## Single and double tube with emergency unit

Code	Dimensions mm				Operating type	N° of lamps	Power supply	Watt	Discharge time in minutes	Weight Kg	
	A	A1	B	C							
EXEL-118EF4	785	420	185	155	normal + emergency	1	110/240 V 50/60 Hz.	18	120'	6,90	196x155x820
EXEL-136EF4	1370	720	185	155	normal + emergency	1	110/240 V 50/60 Hz.	36	90'	10,1	196x155x1400
EXEL-218EF4	785	420	185	155	normal + emergency	2	110/240 V 50/60 Hz.	18	120'	7,00	196x155x820
EXEL-236EF4	1370	720	185	155	normal + emergency	2	110/240 V 50/60 Hz.	36	90'	9,60	196x155x1400
EXEL-118EE4	785	420	185	155	emergency only	1	110/240 V 50/60 Hz.	18	120'	5,60	196x155x820
EXEL-136EE4	1370	720	185	155	emergency only	1	110/240 V 50/60 Hz.	36	90'	8,27	196x155x1400
EXEL-118EF7	785	420	185	155	normal + emergency	1	110/240 V 50/60 Hz.	18	200'	7,60	196x155x820
EXEL-136EF7	1370	720	185	155	normal + emergency	1	110/240 V 50/60 Hz.	36	180'	10,0	196x155x1400
EXEL-218EF7	785	420	185	155	normal + emergency	2	110/240 V 50/60 Hz.	18	200'	7,40	196x155x820
EXEL-236EF7	1370	720	185	155	normal + emergency	2	110/240 V 50/60 Hz.	36	180'	10,2	196x155x1400
EXEL-118EE7	785	420	185	155	emergency only	1	110/240 V 50/60 Hz.	18	200'	6,00	196x155x820
EXEL-136EE7	1370	720	185	155	emergency only	1	110/240 V 50/60 Hz.	36	180'	11,5	196x155x1400

### DON'T FORGET TO ORDER THE ACCESSORIES

Example: Type of lighting fixture  
EXEL-118EF4 +

Fluorescent tubes  
LAMPL18W21 +

Installation fittings  
G-244

+ other...see key



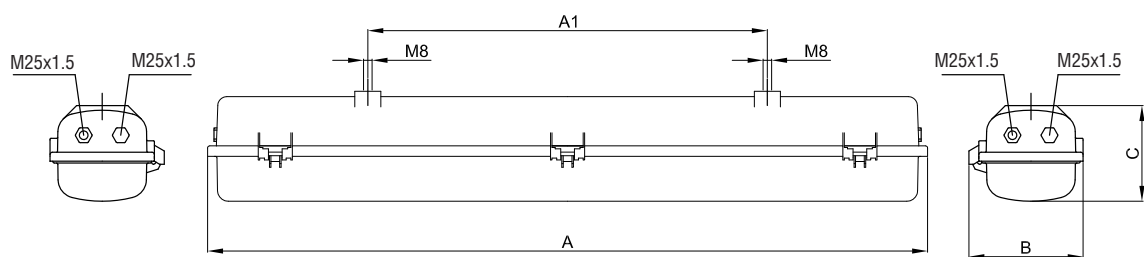
# EXEL series selection chart

Ex de

Single and double lamp units with separate emergency battery pack for temperatures of -20°C to + 55°C

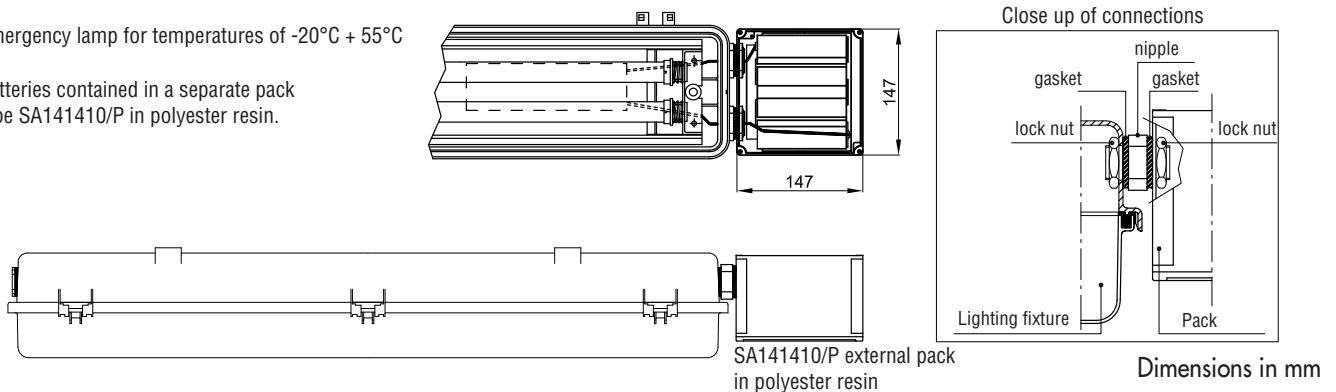
Code	Dimensions mm				Operating type	N° of lamps	Power supply	Watt	Discharge time in minutes	Weight Kg	mm
	A	A1	B	C							
EXEL-118EF4E	785	420	185	155	normal + emergency	1	110/240 V 50/60 Hz.	18	120'	7,80	200x170x950
EXEL-136EF4E	1370	720	185	155	normal + emergency	1	110/240 V 50/60 Hz.	36	90'	11,0	200x170x1550
EXEL-218EF4E	785	420	185	155	normal + emergency	2	110/240 V 50/60 Hz.	18	120'	8,00	200x170x950
EXEL-236EF4E	1370	720	185	155	normal + emergency	2	110/240 V 50/60 Hz.	36	90'	10,7	200x170x1550
EXEL-118EE4E	785	420	185	155	emergency only	1	110/240 V 50/60 Hz.	18	120'	6,50	200x170x950
EXEL-136EE4E	1370	720	185	155	emergency only	1	110/240 V 50/60 Hz.	36	90'	9,20	200x170x1550
EXEL-118EF7E	785	420	185	155	normal + emergency	1	110/240 V 50/60 Hz.	18	200'	8,50	200x170x950
EXEL-136EF7E	1370	720	185	155	normal + emergency	1	110/240 V 50/60 Hz.	36	180'	10,9	200x170x1550
EXEL-218EF7E	785	420	185	155	normal + emergency	2	110/240 V 50/60 Hz.	18	200'	8,50	200x170x950
EXEL-236EF7E	1370	720	185	155	normal + emergency	2	110/240 V 50/60 Hz.	36	180'	11,1	200x170x1550
EXEL-118EE7E	785	420	185	155	emergency only	1	110/240 V 50/60 Hz.	18	200'	7,00	200x170x950
EXEL-136EE7E	1370	720	185	155	emergency only	1	110/240 V 50/60 Hz.	36	180'	12,4	200x170x1550

## DIMENSIONAL DRAWINGS







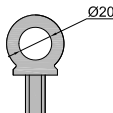


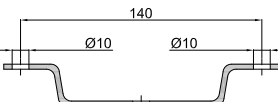


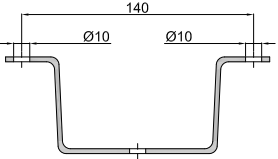


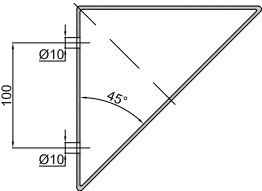


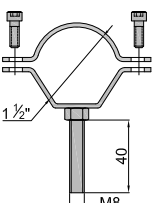








Emergency lamp for temperatures of -20°C + 55°C

Batteries contained in a separate pack type SA141410/P in polyester resin.



# EXEL series Accessories and spare parts available on request

ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	Tri-phosphor fluorescent tubes G13 fitting	18 W	1350 lm (FD18W)	LAMPL18W21	 
		36 W	3350 lm (FD36W)	LAMPL36W21	
	Tige	Length: 250 mm	Material: stainless steel	BRF8MIN/250	 
	Eyebolt		Material: galvanised steel	GOF-8	 
	Type U bracket		Material: galvanised steel	G-244	 
	Type V bracket		Material: galvanised steel	G-263	 
	Type D bracket		Material: galvanised steel	G-258	 
	Type P bracket		Material: galvanised steel	G-0480	 
	Non-armoured cable gland complete with rubbers, seal and lock nut	ISO M25x1.5	Ex e and II IP 66/67 (std. range cable 9-14) (13-18 on request)	UNI2.1XE	
	Plug with seal and lock nut	ISO M25x1.5	Ex e II IP 66/67	PLG2IXEP	

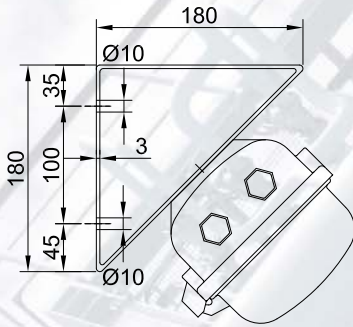
# EXEL series Accessories and spare parts available on request

Ex de

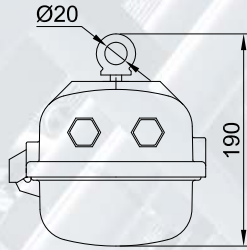
ILLUSTRATION	DESCRIPTION	MODEL	FEATURES	CODE	KEY
	Transparent diffuser	18 W	Material: polycarbonate	<b>B18-363</b>	
		36 W		<b>B36-363</b>	
	Standard Reflector	18 W	Material: white plastic coated aluminium	<b>B18-0213</b>	
		36 W		<b>B36-0213</b>	
	Safety switch: Ex de	18 W 36 W	2 for normal lamps 4 for emergency lamps	<b>M-0530/A</b>	
		solo per 36 W EF	2 pz M-0530/A + 2 pz M-0530	<b>M-0530</b>	
	Inverter fixing bracket		Material: nylon	<b>B-380</b>	
	Hexagonal-head tool	Hexagon 10		<b>CLAFT10</b>	
	Electronic inverter		110/240 V 50/60 Hz	<b>EI-58</b>	
	Battery pack		4 Ah 6V NiCd	<b>G-0309B</b>	
			7 Ah 6V NiCd	<b>G-0309</b>	
	Lamp holder	G13	250 V - 4 A	<b>G-0312E/...</b>	
	Double channel electronic ballast	1 x 18 W	110/240 V 50/60 Hz	<b>EB4118/M</b>	
		2 x 18 W		<b>EB4218/M</b>	
		1 x 36 W		<b>EB4136/M</b>	
		2 x 36 W		<b>EB4236/M</b>	
	Double channel resin-bonded electronic ballast	1 x 18 W 2 x 18 W 1 x 36 W 2 x 36 W	110/240 V 50/60 Hz	<b>EBV-1</b>	
			277 V 50/60 Hz	<b>EBV-277</b> (Work in progress)	



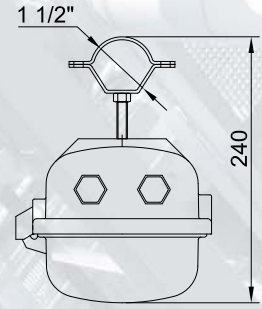
# Installation and mounting methods EXEL series



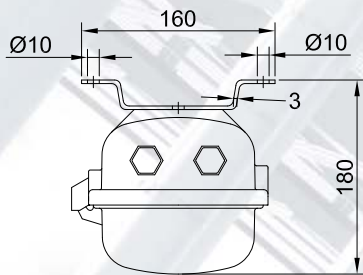
**45° angle mounting  
TYPE "D"**



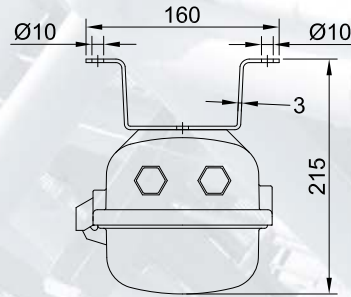
**Pendant mounting  
with eyebolt TYPE "O"**



**Mounting using 1.1/2"  
metal clamps TYPE "P"**

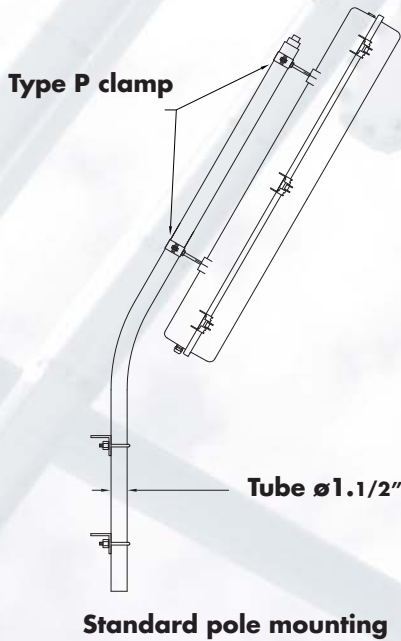


**Low ceiling mounting with  
clamp TYPE "U"**



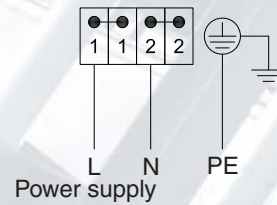
**High ceiling mounting with  
clamp TYPE "V"**

Dimensions in mm

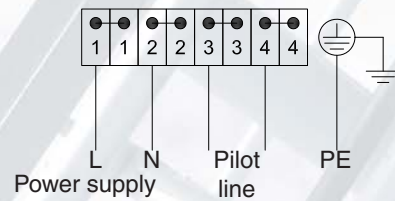


## Wiring diagrams

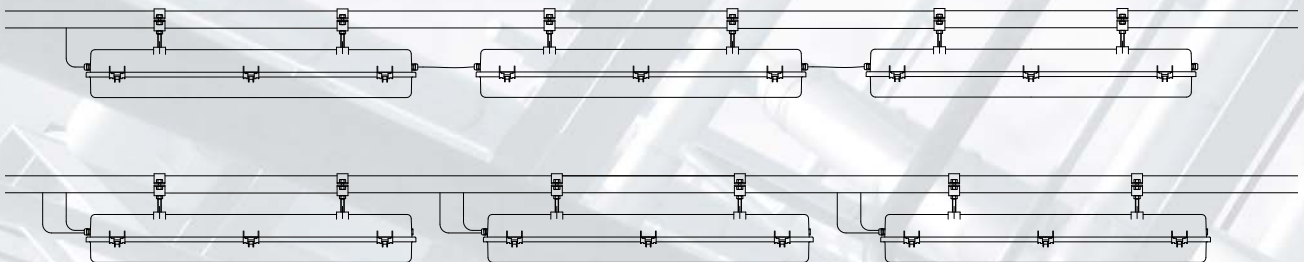
### Normal lighting fixture



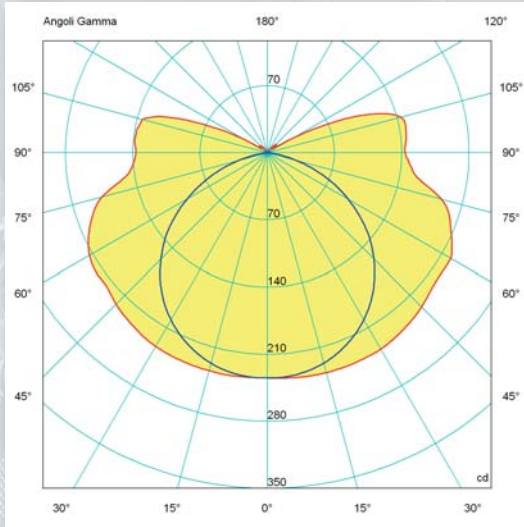
### Lighting fixture with emergency system



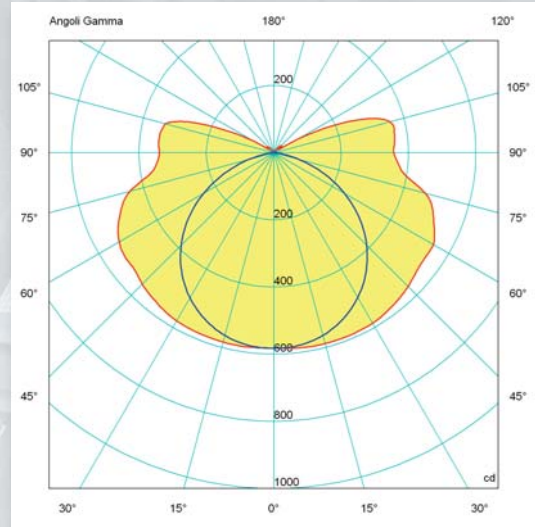
**Connections can be made on either side of the fixture body  
for simple, fast installation**



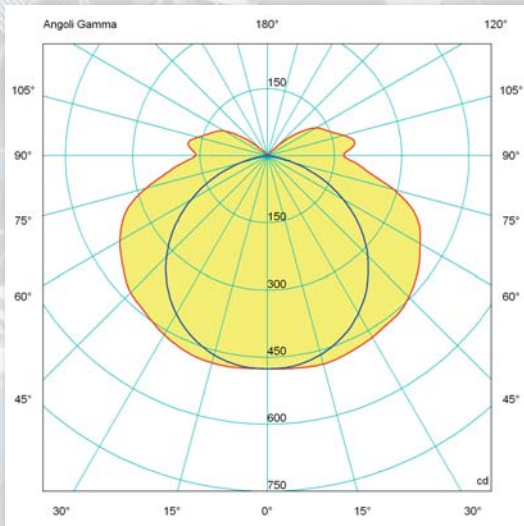
# Photometric diagrams



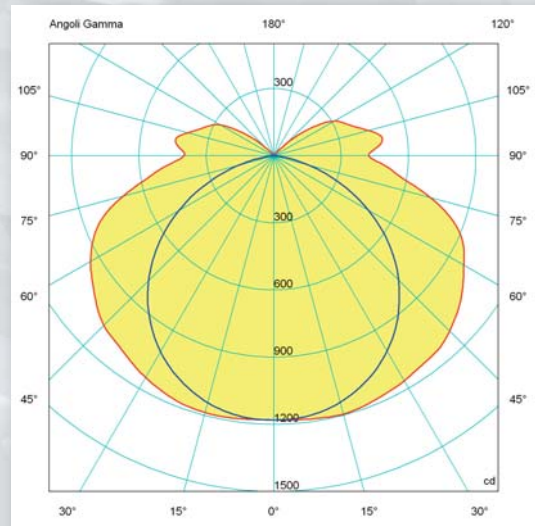
**EXEL-118**



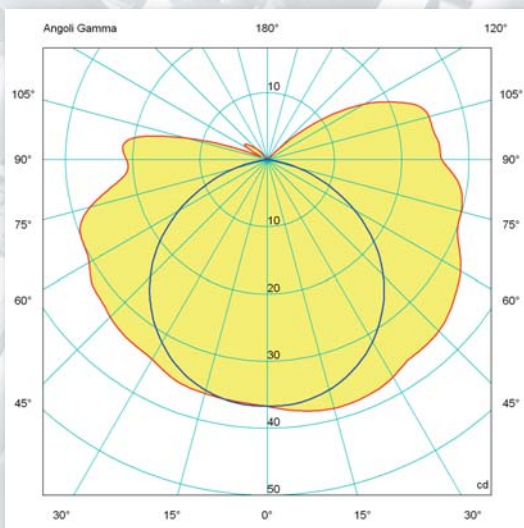
**EXEL-136**



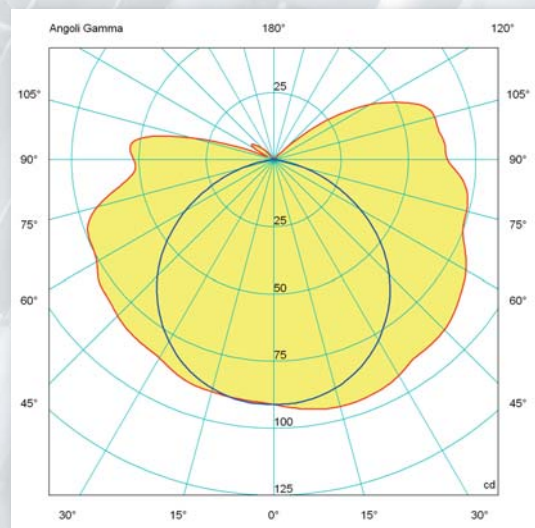
**EXEL-218**



**EXEL-236**



**EXEL-218EF4**



**EXEL-236EF4**

Cortem Group can supply photometric diagram files on request for use in special lighting design projects.  
Contact the Sales Office for further information

— = plane 90270  
— = plane C 0180