

TEPEX d.o.o.
Prilaz dr. Franje Tuđmana bb
49210 Zabok
tel. 049 222900, fax 049 426450
e-mail: tepex@tepex.hr

**USER MANUAL FOR EXPLOSION PROOF FLUORESCENT LIGHTING
FITTING TYPE FLX 118, FLX 124, FLX 136, FLX 140, FLX 155, FLX 218,
FLX 224, FLX 236, FLX 240, FLX 255**

No: TEPEX.RS.005

Rev : 4

Date: 17.11.2008.

PURPOSE

Explosion-protected fluorescent lighting fitting, type FLX are intended for use in hazardous areas:

- in hazardous areas due to the presence of flammable and explosive gases, vapours or mists in Zones 1 and 2 in accordance with EN 60079-10,
- in hazardous areas due to the presence of flammable and explosive dust in Zones 21, 22 in accordance with EN 61241-10.

MODEL CODE

FLX . . . / . . .

Basic type code

Number of fluorescent tubes in lamp:

- 1 – one tube
- 2 – two tubes

Nominal wattage of tube:

- 18 - 18 W TC-L
- 24 - 24 W TC-L
- 36 - 36 W TC-L
- 40 - 40 W TC-L
- 55 - 55 W TC-L

Type of ballast:

- 0 - magnetic ballast with starter (EEI=B2) (only for types FLX .18, FLX .24, FLX .36)
- 1 - electronic ballast with preheat start (EEI=A2)

Type of entries:

- 0 - Ex d threaded cable entries 3xM20, ISO 965-1, ISO 965-3
- 1 - Ex d threaded cable entries 3 x 3/4"NPT, ANSI/ASME B1.20.1
- 2 - Ex d cable entries 2 x M20, ISO 965-1, ISO 965-3 with one Ex de adapter type ADP 03/24 and one Ex d plug

TYPE OF PROTECTION

The explosion-protection ensure "Flameproof enclosures" type of protection, utilizing "General requirements" according to EN 60079-0:2005, EN 60079-7:2006. The product is in conformity to standard EN 61241-0:2007 i EN 61241-1:2005 - "General requirements", "Protection by enclosure »tD«".

Apparatus category:

- II 2G
- II 2D

Marking of explosion-protection type FLX . . . / 1 .

- II 2G Ex de IIC T6 or Ex d IIC T6
- II 2D tD A21 T80°C IP66 or IP66/IP67
- ambient temperature: $-20^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$

Marking of explosion-protection type FLX . . . / 0 .

- II 2G Ex de IIC T5 or Ex d IIC T5
- II 2D tD A21 T95°C IP66 or IP66/IP67
- ambient temperature: $-20^{\circ}\text{C} \leq T_a \leq +50^{\circ}\text{C}$

Degree of protection (IP Code): IP 66/IP67 in accordance with EN 60529:1991/A1

Degree of protection (IK Code): IK 08 in accordance with EN 50102:1995/A1

Insulation class : I (protective earthing) in accordance with EN 61140:2002/A1

Electromagnetic compatibility: in accordance with the Directive 89/336 EEC

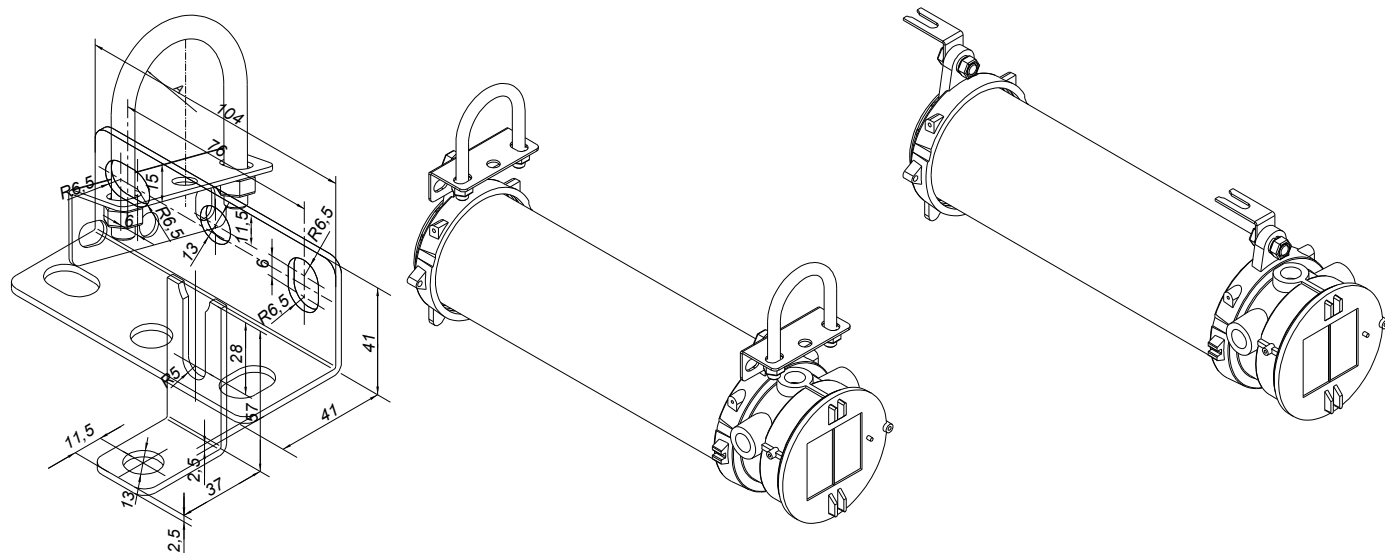
TECHNICAL DATA

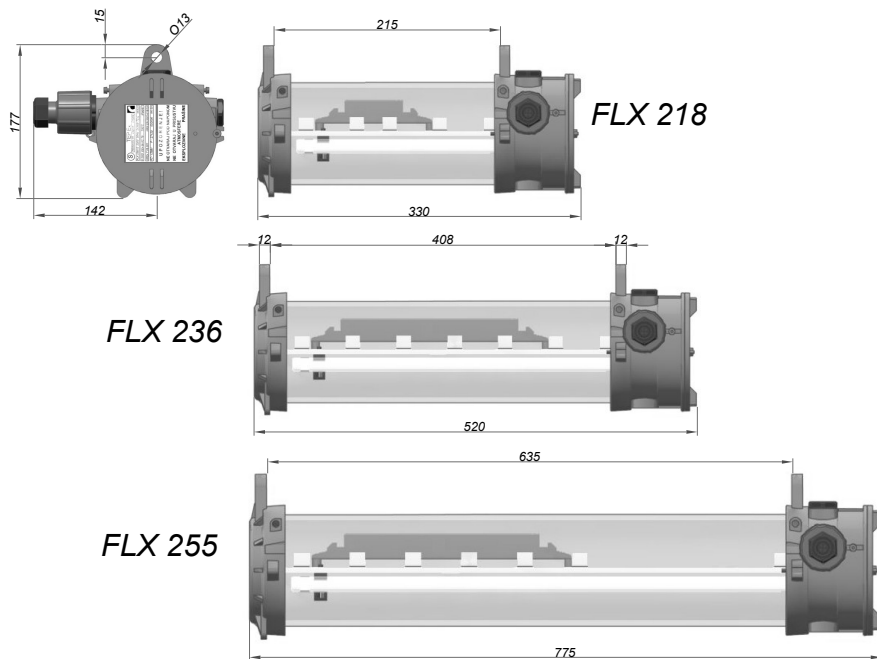
Rated voltage:	- FLX .../1 . - 100 V...280 V / 50Hz, 60Hz, DC - FLX .../0 . - 230 V (+6% -10%) / 50 Hz (240 V/50 Hz, 220 V/60 Hz on special request)
Nominal current:	- 1 A max.
Power factor:	- FLX .../1 . - $\lambda = 0,98$ - FLX .../0 . - $\cos \varphi > 0,95$ ind.
Energy classification:	- FLX .../1 . - EEI=A2 - FLX .../0 . - EEI= B1
Power and type of lamp:	- 18 W, 24 W, 36 W, 40 W, 55 W, compact fluorescent lamps TC-L lampholder 2G11, according to EN 60061-1 Bl. 7004-82
Luminous flux:	- TC-L 18 W - 1100 lm (DULUX L 18W/840, $R_a = 1B$) - TC-L 24 W - 1800 lm (DULUX L 24W/840, $R_a = 1B$) - TC-L 36 W - 2800 lm (DULUX L 36W/840, $R_a = 1B$) - TC-L 40 W - 3500 lm (DULUX L 40W/840, $R_a = 1B$)

Lifetime of sources:	- TC-L 55 W - 4700 lm (DULUX L 55W/840, R _a = 1B) - FLX .../1 . - 18000 h - FLX .../0 . - 10000 h
Luminaire efficiency:	- FLX 1../.. ~ 80 % - FLX 2../.. ~ 60 %
Cable entries:	- 3 x M20, according to EN 60079-1, ISO 965-1, ISO 965-3 or - 3 x 3/4"NPT, according to ANSI/ASME B1.20.1 or - 3 x M20, according to EN 60079-1, ISO 965-1, ISO 965-3, With two Ex d plugs and one adapter type ADP 03/24, II 2GD Ex de IIC T6 IP66 T80°C, for cable Ø _v 6-15 mm
Connection terminals into Ex de adapters ADP 03/23:	- L + N + PE; 2,5 mm ² solid, stranded - tightening torque for clamp screw 1 Nm
Connection terminals:	- L + N + PE; max 2 x 2,5 mm ² solid, strands - through-wired, I _{max} = 16 A
External PA/PE terminals:	- max 2 x 6 mm ² solid, stranded - tightening torque for clamp screw 2 Nm
Tightening torque:	housing of Ex de adapter, type ADP 03/24 and Ex d plug 3,5Nm - cable gland on adapter ADP03/24 2,5 Nm - screw clamp in adapter ADP 03/24 2,0 Nm
Cable terminal stability:	- FLX .../1 . - without limitation - FLX .../0 . -20°C < T _a < 35°C without limitation -20°C < T _a < 40°C cable suitable for a minimum temperature of 85°C -20°C < T _a < 50°C cable suitable for a minimum temperature of 95°C
Dimension LxWxH (over all)	- FLX .18../. - 332 x 160 x 180 mm - FLX .24../. - 432 x 160 x 180 mm - FLX .36../. - 520 x 160 x 180 mm - FLX .40../. - 646 x 160 x 180 mm - FLX .55../. - 646 x 160 x 180 mm
Weight:	- FLX 118/0. - 4,40 kg - FLX 124/0. - 5,20 kg - FLX 136/0. - 5,40 kg - FLX 118/1. - 3,30 kg - FLX 124/1. - 3,60 kg - FLX 136/1. - 5,10 kg - FLX 140/1. - 8,00 kg - FLX 155/1. - 8,00 kg - FLX 218/0. - 4,60 kg - FLX 224/0. - 5,50 kg - FLX 236/0. - 5,80 kg - FLX 218/1 . - 3,30 kg - FLX 224/1 . - 3,60 kg - FLX 236/1 . - 5,10 kg - FLX 240/1 . - 8,00 kg - FLX 255/1 . - 8,00 kg
Marking:	CE

ASSEMBLAGE AND REPLACING THE LIGHT SOURCE

The opening of the enclosure is exclusively allowed in a non-voltage state while respecting the warnings on the label. The non-voltage state should be secured by shutting the voltage off on the main switch. Before opening the casing by screwing the lid, it is necessary to unblock it mechanically by twisting the blockade screw M5x10 ISO 4027 on the lid. The electric connection is performed by linking power supply cable on the plug on terminals on the motherboard: L-phase conductor, N-neutral conductor, PE-protective grounding. The outer grounding, the equalization of potentials- connect the IP to the outer terminal. EEx d glands and plugs or EEx ed adapters for introducing the cables into the casing of the lamp are not a part of the original product, and are secured by the user. During installation, one must follow the instructions of the manufacturers of the glands, plugs, and the adapters. After every opening of the lamp the screw joint should be protected by the lubricating grease "Baplex" protective solution (manufacturer's recommendation). The closing of the casing should be done by a reverse sequence of action. During installation one must also be careful that the maximum number of FLX lamps on one automatic installation fuse IpC 10A is not greater then 8, and on the IpC 16A, not greater then 13. A standard assembly of the lamp is done on a vertical suspension over the eye bolt with a Ø13 mm hole on the casing. With the proper equipment, assembly is possible on other ways:



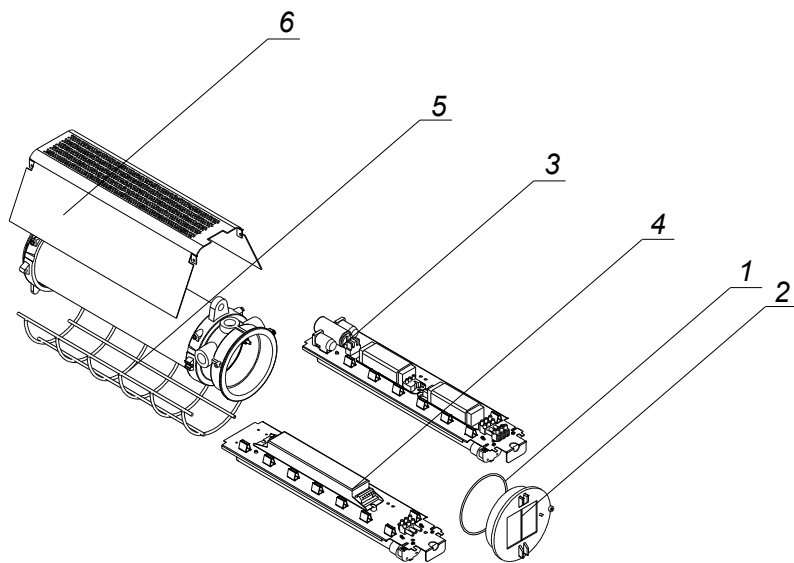


REVIEW, MAINTENANCE AND REPAIR

It is necessary to conduct review and maintenance on all parts on which the explosion proof protection depends in accordance to standards IEC 60079-17, general and individual demands of the manufacturer and the regulations of the user, and especially:

- that all enclosures, all parts of the casing, the protective glass and the gasket of the cover are completely without a crack or damage
- that the enclosure is completely closed by its cover and that the mechanical blockage against selfopening is done
- that the EEx d glands and the plugs and the adapters are installed by the instructions of the manufacturer and that they are tightened with ratio Moment.

The repair of the lamp is done by the manufacturer or a person legally authorized by the manufacturer, with original pieces from the products documentation, and in accordance to the IEC 60079-19 standards. If the repair is done by a third person, the manufacturer is freed of all responsibility from the product, and the declaration of the conformity of the manufacturer becomes null and void.



Spare parts:

1. Cover gasket FLX ...,
2. Cover FLX, compl.
3. Base plate with component FLX.../0
4. Base plate with component FLX .../1

Accessories:

5. Protective grid FLX ..., compl.
6. External reflector FLX ..., compl.
7. Fluorescent tube .. W TL-C,
Dulux L..W/840
8. Starter Does ST 171
9. Assembly kit for quick fixing FLX
10. Assembly kit for fixing 1"1/2 or 1"1/4
on tube
Assembly kit for fixing 2" on tube
11. Assembly kit for ceiling mounting

RESPONSIBILITY AND AUTHORIZATION

Responsibility and authorization are defined by the "Regulation on technical supervision over the electrical stations, installations and equipment intended for usage in potentially explosive atmospheres". This Manual represents the most relevant information about the product. Adequate national laws and regulations supplement it. The person in charge is required to secure its employment in the industrial unit. Every improper usage, as well as every unofficial restructuring, repair or restoration of the product, release the manufacturer of all responsibilities.

STORAGE AND TRANSPORT

Transport and storage is only allowed in the original packaging, on the way pointed out on the carton box.

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tel. 049 222900, fax 049 426450
e-mail: tepex@tepex.hr

UPUTE ZA UPORABU

**PROTUEKSPLOZIJSKI ZAŠTIĆENE FLUORESCENTNE SVJETILJKE TIP FLX 118,
FLX 124, FLX 136, FLX 140, FLX 155, FLX 218, FLX 224, FLX 236, FLX 240, FLX 255**

Broj: TEPEX.RS.005

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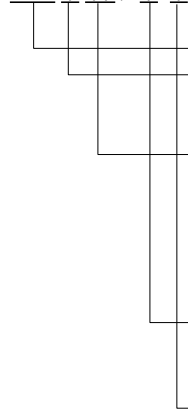
Datum: 17.11.2008.

NAMJENA

Fluorescentna svjetiljka tip FLX je namjenjena za upotrebu u industriji u prostorima ugroženim zapaljivim i eksplozivnim smjesama plinova i zraka, para zapaljivih tekućina i zraka, kao i njihovim međusobnim kombinacijama, u zonama opasnosti 1,2 sukladno normi HRN EN 60079-10:2004. i u prostorima ugroženim eksplozivnim i zapaljivim smjesama prašina sa zrakom u zonama opasnosti 21, 22 sukladno normi HRN EN 61241-10:2007.

IZVEDBE

FLX ... / ...

**osnovna tipna oznaka****broj fluorescentnih cijevi u svjetiljci:**

- 1 - jedna cijev
- 2 - dvije cijevi

snaga fluorescentne cijevi:

- 18 - 18 W TC-L
- 24 - 24 W TC-L
- 36 - 36 W TC-L
- 40 - 40 W TC-L
- 55 - 55 W TC-L

oznaka tipa predspojne naprave:

- 0 - magnetska prigušnica sa starterom (EEI=B2)
- 1 - elektronička prigušnica s predgrijanjem katoda (EEI=A2)

oznaka tipa uvoda:

- 0 - EEx d kabelski uvod 3 x M20, ISO 965-1, ISO 965-3
- 1 - EEx d kabelski uvod 3 x 3/4"NPT, ANSI/ASME B1.20.1
- 2 - EEx d kabelski uvod 2 x M20, ISO 965-1, ISO 965-3 s
jednim montiranim Ex de adapterom tip ADP 03/24 i jednim Ex d čepom

STUPANJ ZAŠTITE

Protueksplozijska zaštita je izvedena sukladno "općim zahtjevima" u vrstama zaštite "povećana sigurnost" i "oklapanje" sukladno normama HRN EN 60079-0:2005, HRN EN 60079-7:2006 i HRN EN 60079-1:2005 i vrsti zaštite "zaštita kućištem" sukladno normama HRN EN 61241-0:2007 i HRN EN 61241-1:2005.

Oznaka kategorije i protueksplozijske zaštite uređaja:

Izvedbe FLX ... / 1 .

- II 2G Ex de IIC T6 ili Ex d IIC T6
- II 2D tD A21 T80°C IP66 ili IP66/IP67
- temperatura okoline: $-20^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$

Izvedba FLX ... / 0 .

- II 2G Ex de IIC T5 ili Ex d IIC T5
- II 2D tD A21 T95°C IP66 ili IP66/IP67
- temperatura okoline: $-20^{\circ}\text{C} \leq T_a \leq +50^{\circ}\text{C}$

Mehanička zaštita: IP66/IP67 kategorija 1 sukladno EN 60529:1991/A1:2000

Otpornost na udar: IK08 sukladno EN 50102:1995/A1:1998

Klasa zaštite: I (zaštitno uzemljenje) sukladno EN 61140:2002/A1:2006

Elektromagnetska kompatibilnost - Direktiva 89/336 EEC: sukladno EN 60598-1:2004/A1:2006, EN 55015:2006/A1:2007

Certifikat o ispitivanju tipa: HREx T 08.

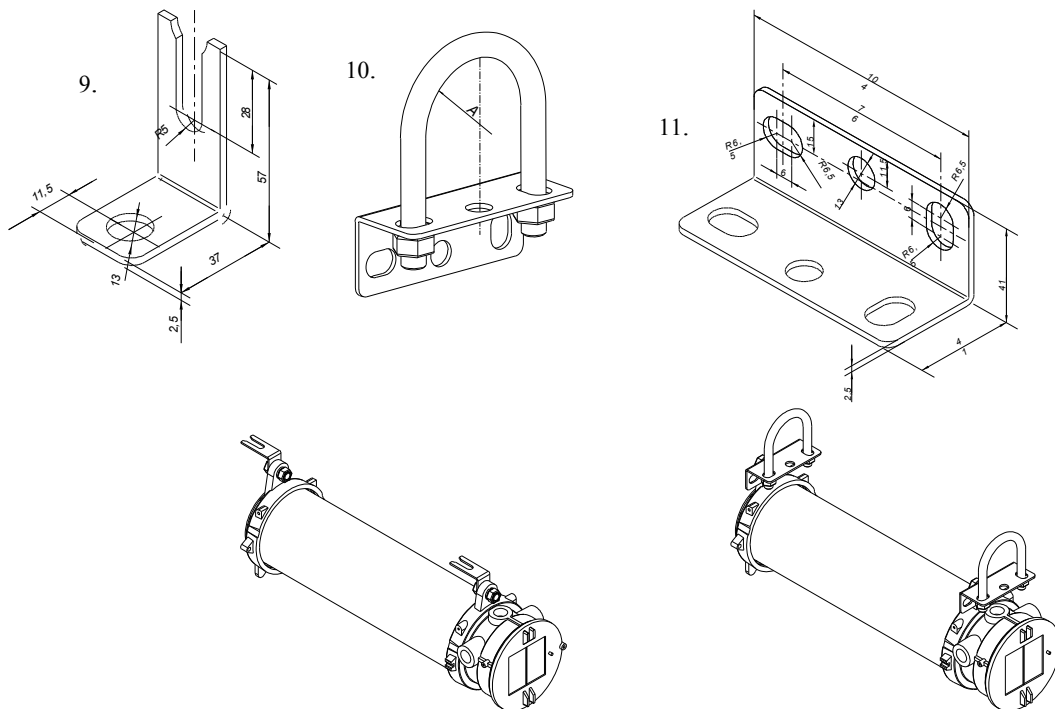
TEHNIČKI PODACI

Nazivni napon:	- FLX .../1 . - 100 V...280 V / 50Hz, 60Hz, DC - FLX .../0 . - 230 V (+6% -10%) / 50 Hz
Nazivna struja:	- 1 A max.
Faktor snage:	- FLX .../1 . - $\lambda = 0,98$ - FLX .../0 . - $\cos \varphi > 0,95$ ind.
Energetska efikasnost:	- FLX .../1 . - EEI=A2 - FLX .../0 . - EEI= B1
Snaga i tip izvora:	- 18 W, 24 W, 36 W, 40 W, 55 W, fluorescentna kompaktna cijev TC-L podnožje 2G11, sukladno EN 60061-1 Bl. 7004-82
Svjetlosni tok izvora:	- TC-L 18 W - 1100 lm (DULUX L 18W/840, $R_a = 1B$) - TC-L 24 W - 1800 lm (DULUX L 24W/840, $R_a = 1B$) - TC-L 36 W - 2800 lm (DULUX L 36W/840, $R_a = 1B$) - TC-L 40 W - 3500 lm (DULUX L 40W/840, $R_a = 1B$) - TC-L 55 W - 4700 lm (DULUX L 55W/840, $R_a = 1B$)
Životna dob izvora, srednja:	- FLX .../1 . - 18000 sati - FLX .../0 . - 10000 sati (80% lm uz 3-satni uklopno-isklopni ritam, 165 min. + 15 min.)

Svjetlosna iskoristivost:	- FLX 1./.. ~ 80 % - FLX 2./.. ~ 60 %
Uvodi:	- tri uvoda M20, sukladno EN 60079-1, ISO 965-1, ISO 965-3 ili - tri uvoda 3/4"NPT, sukladno ANSI/ASME B1.20.1 ili - tri uvoda M20, sukladno EN 60079-1, ISO 965-1, ISO 965-3, s dva Ex d čepa i jednim Ex de adapterom, tip ADP 03/23, II 2GD Ex de IIC T6 IP66 T80°C, za kabele \varnothing_v 6-15 mm
Priključne stezaljke unutar adaptera ADP 03/23:	- stezaljke za priključak faznog, neutralnog i zaštitnog vodiča L + N + PE; 2,5 mm ² jednožični, višezični - moment pritezanja vijka stezaljke 1 Nm
Priključne stezaljke unutar kućišta:	- stezaljke za priključak faznog, neutralnog i zaštitnog vodiča L + N + PE; max 2 x 2,5 mm ² jednožični, višezični - prolazno ožičenje je moguće, I _{max} = 16 A
Vanjska PA/PE stezaljka:	- max 2 x 6 mm ² jednožični, višezični, finožični - moment pritezanja vijka stezaljke 2 Nm
Momenti pritezanja:	- tijela Ex de provodne čahure i Ex d čepa 3,5 Nm - pritisne matice uvodnice adaptera 2,5 Nm - vijaka priključne stezaljke adaptera 2,0 Nm
Priključni kabel:	- FLX .../1 . - bez ograničenja - FLX .../0 . - -20°C < T _a < 35°C bez ograničenja -20°C < T _a < 40°C toplinske postojanosti 85°C -20°C < T _a < 50°C toplinske postojanosti 95°C
Osnovne mjere (DxŠxV)	- FLX .18/.. - 332 x 160 x 180 mm preko svega - FLX .24/.. - 432 x 160 x 180 mm preko svega - FLX .36/.. - 520 x 160 x 180 mm preko svega - FLX .40/.. - 646 x 160 x 180 mm preko svega - FLX .55/.. - 646 x 160 x 180 mm preko svega
Označavanje	CE

MONTAŽA I ZAMJENA IZVORA SVJETLOSTI

Otvaranje kućišta svjetiljke dozvoljeno je isključivo u BEZNAPONSKOM stanju uz poštivanje UPOZORENJA na natpisnoj naljepnici. Beznaponsko stanje je potrebno osigurati isključenjem napona na glavnoj sklopki. Prije otvaranja kućišta, odvrtanjem poklopca, potrebno je provesti mehaničku deblokadu odvrtanjem blokadnog vijka M5x10 ISO 4027 na poklopcu. Električki priključak se obavlja spajanjem napojnog kabela na stezaljke čahuraste utične stezaljke na temeljnoj ploči : L - fazni vodič, N - neutralni vodič, PE - zaštitno uzemljenje. Vanjsko uzemljenje, izjednačenje potencijala - IP priključiti na predviđenu vanjsku stezaljku. EEx d uvodnice i čepovi ne isporučuju se uz svjetiljku, već ih osigurava korisnik. Pri instalaciji treba poštivati upute proizvođača uvodnica, čepova ili adaptera. Nakon svakog otvaranja svjetiljke vijčani spoj treba zaštititi na primjeren način. Zatvaranje kućišta treba izvršiti suprotnim slijedom radnji. Pri instalaciji treba paziti da najveći broj svjetiljaka FLX na jednom automatskom instalacijskom osiguraču 1pC 10A ne bude veći od 8, a na 1pC 16A, ne veći od 13. Standardna montaža svjetiljke se izvodi vertikalnim ovjesom preko ušica s rupom \varnothing 13 mm na kućištu. Uz pribor je predviđena montaža na posebne načine:



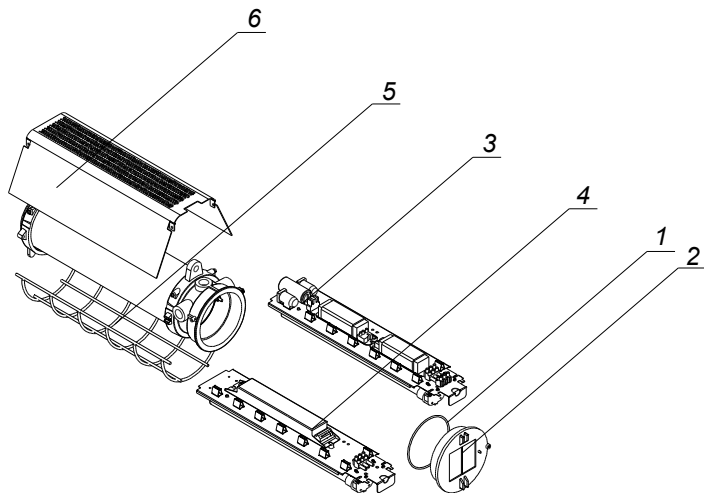
PREGLED, ODRŽAVANJE I POPRAVAK

Potrebno je obavljati preglede i održavati sve dijelove uređaja o kojima ovisi protueksplozijska zaštita sukladno normi HRN EN 60079-17:2007, općim i posebnim uputama proizvođača i Pravilnicima korisnika, a naročito:

1. da su kućišta, svi dijelovi kućišta, zaštitno staklo i brtva poklopca kompletni bez puknuća i oštećenja,
2. da je kućište potpuno zatvoreno poklopcem kućišta i da je izvršena mehanička blokada od samoodvijanja,
3. da su EEx d uvodnice i čepovi ili adapteri instalirani prema uputama proizvođača i da su pritegnuti nazivnim momentom.

Popravlak, obnavljanje ili pregradnju kućišta obavlja proizvođač ili od proizvođača ovlaštena pravna osoba, originalnim dijelovima prema proizvodnoj dokumentaciji, a sve sukladno normi HRN EN 60079-19:2007.

Ukoliko popravlak i/ili obnavljanje i/ili pregradnju vrši treća osoba, prestaje svaka odgovornost proizvođača za proizvod, a izjava sukladnosti proizvođača postaje nevažeća.



Popis rezervnih dijelova:

1. Brtva poklopca FLX,
2. Poklopac FLX, kompl.
3. Sklop temeljne ploče FLX . . . /0 . . , kompl.
4. Sklop temeljne ploče FLX . . . /1 . . , kompl.

Pribor:

5. Zaštitna rešetka FLX . . . , kompl.
6. Odsijač vanjski FLX . . . , kompl.
7. Fluorescentna cijev . . W TL-C,
8. Starter Does ST 171
9. Nosač za brzu montažu FLX, kompl.
10. Nosač za 1"1/2, 1"1/4, 2" cijev, kompl.
11. Nosač za ravne površine, kompl.

SKLADIŠTENJE I TRANSPORT

Transport i skladištenje svjetiljke dozvoljeno je samo u originalnoj ambalaži, na način istaknut na kartonskoj kutiji

ZAKONSKA OSNOVA, ODGOVORNOSTI I OVLAŠTENJA

Proizvodnja, uporaba, certifikacija i nadzor na nacionalnom razini određene su:

- a) Pravilnikom o opremi i zaštitnim sustavima namijenjenim za uporabu u prostorima ugroženim eksplozivnom (NN br. 123/05), i
- b) Pravilnikom o najmanjim zahtjevima sigurnosti i zaštite zdravlja radnika te tehničkom nadgledanju postrojenja, opreme, instalacija i uređaja u prostorima ugroženim eksplozivnom atmosferom (NN br. 39/06 i NN br. 106/07).

PRIPREMA ADAPTERA ADP ZA UGRADNJU:

Na tijelo provodne čahure (1) zavrtiti do pola vijak M4x16 – EN ISO 2342 te na njega staviti brtveni prsten $\varnothing 4 \times 1,5$. Nakon toga staviti sklop stezaljke Exe (2) na sklop provodne čahure ADP te ga pričvrstiti sa dva vijka M4x10 – EN ISO 1207. Na vijke staviti rascjepne podložne pločice B4 DIN 127 i podložne pločice A4 EN ISO 7092. Na sklop stezaljke Exe pričvrstiti vodiče provodne čahure, te staviti brtvu navoja M20 na tijelo provodne čahure sa jedne strane, odnosno brtveni prsten $\varnothing 40 \times 1,5$ sa druge strane.

Nakon toga, ključem adaptera, pritegnuti adapter ADP momentom od 2Nm, zavrtiti vijak M4x16 (koji sprječava samoodvrtnanje) do kraja te zavrtiti kućište ADP 23 (3) na tijelo provodne čahure. Brtvene prstene $\varnothing, 6-10$ i $\varnothing, 9-15$ (4), sidreni prsten SPU 25 (5), te pritisnu maticu SPU 25 (6) montirati redosljedom prema slici. Vodiče spojiti na sklop stezaljke Exe prema shemi spajanja FLX 236/.. Svjetiljka FLX se standardno isporučuje s dva adaptera ADP. Jedan adapter opremljen je crvenim čepom uvodnice M20 (7).

