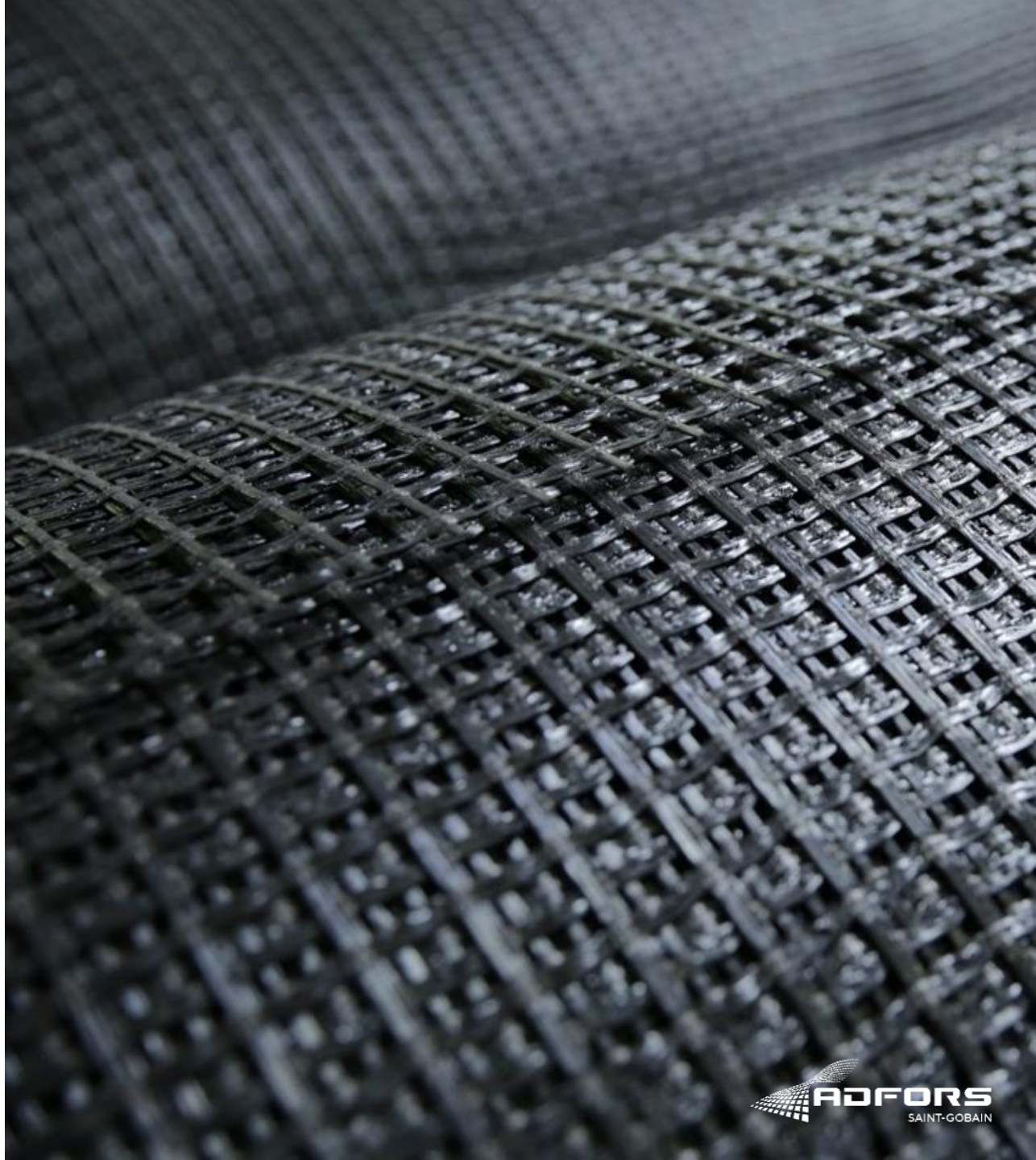
ADFORS GLASGRID ARMATURNA MREŽA ZA ASFALT

Aleksandar Glisic – *Saint-Gobain Adfors*
aleksandar.glisic@saint-gobain.com
+381 63 10 17 245

Ljubljana, 27.05.2025.

AGENDA

1. Globalna proizvodnja GlasGrid tehnologije
2. Ključni tehnički parametri za primenu armaturne mreže u asfaltnoj kolovoznoj konstrukciji
3. Tipovi mreža i odabir u zavisnosti od područja primene
4. Primeri projekata u regionu i podrška
5. Zaključak



INTERNACIONALNA PRISUTNOST ADFORS GLASGRID

Amerika

Evropa

AZIJA (Bangalore)

Više od **4,500 ZAPOSLENIH**

11 ZEMALJA

600 M€

14 FABRIKA

ADFORS SAINT-GOBAIN

PROBLEMI SA PUKOTINAMA

Reflektujuće pukotine iz betona

Pukotine nakon komunalnih intervencija

Reflektujuće pukotine na spojevima

Pukotine izazvene temperaturnim dilatacijama

Aligator pukotine zbog loše konstrukcije

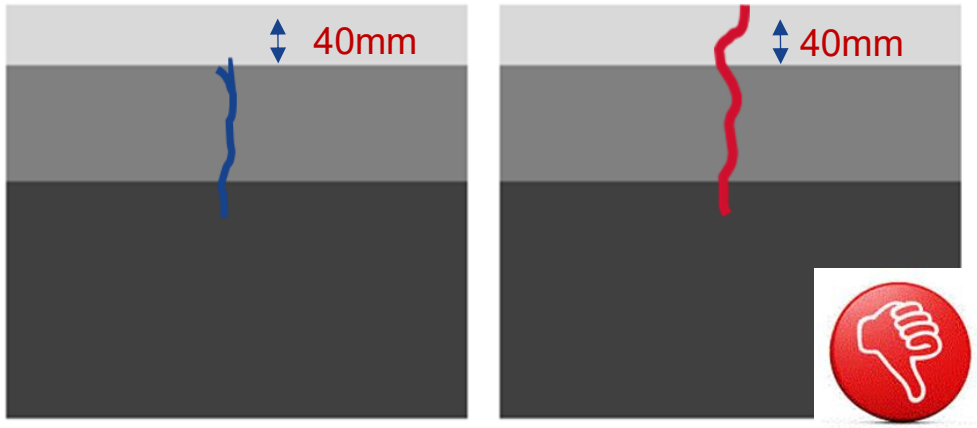
Pukotine usled loše osnove

REŠENJE – KAKO MREŽA FUNKCIONIŠE?

Bez mreže GlasGrid

Naprezanja prolaze neometano uzrokujući pukotine

bez **ADFORS GlasGrid®**



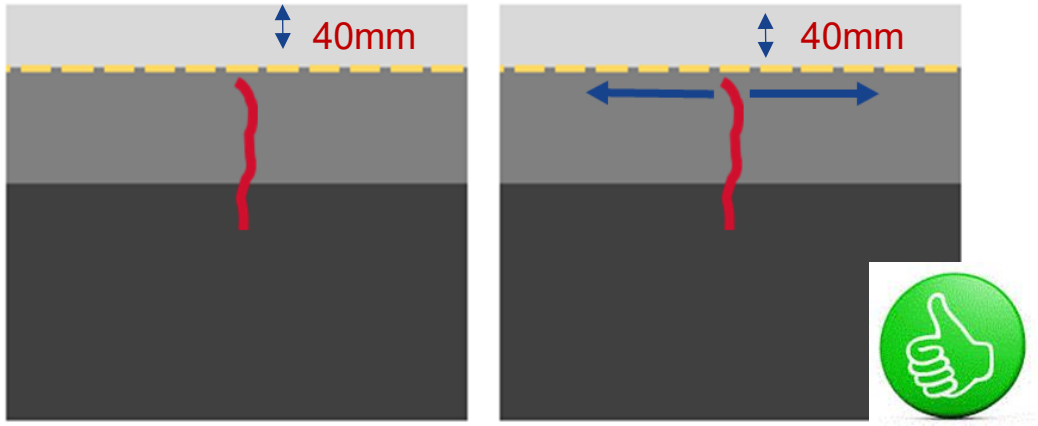
Prodor pukotine **10-25mm / godišnje**

Nakon 3-5 godina

Sa mrežom GlasGrid

Naprezanje izazvano saobraćajnim opterećenjem i vibracijama preuzima armaturna mreža i preusmerava horizontalno

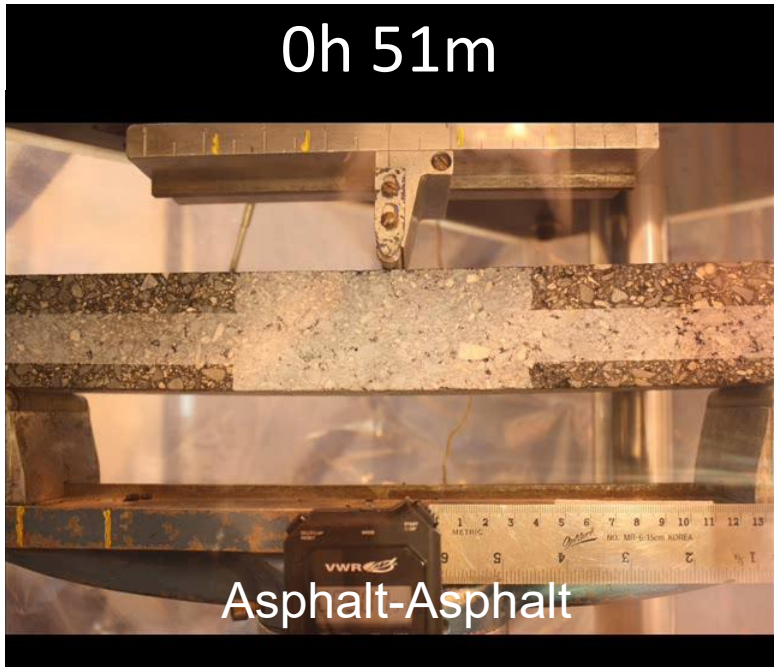
sa **ADFORS GlasGrid®**

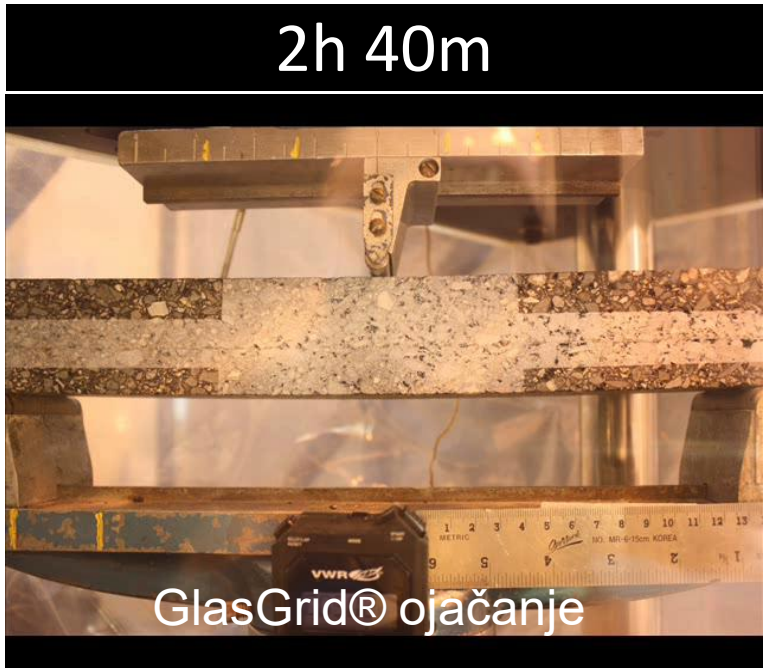


Produženje veka trajanja asfaltnog sloja za 200-300%

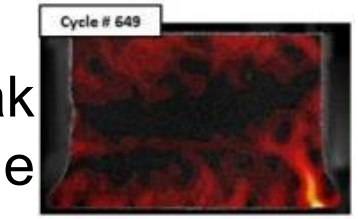
ADFORS GLASGRID *PUCANJE*

- **Parma University – 3-5 usporavanje efekta reflektujućeg pucanja**

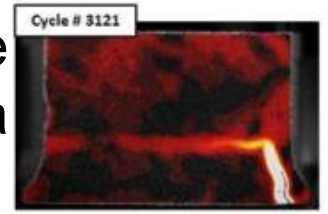




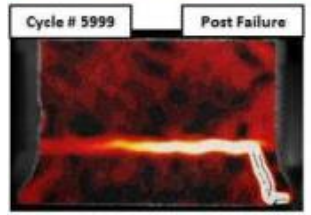
Nastanak pukotine



Pukotina dopire do međusloja

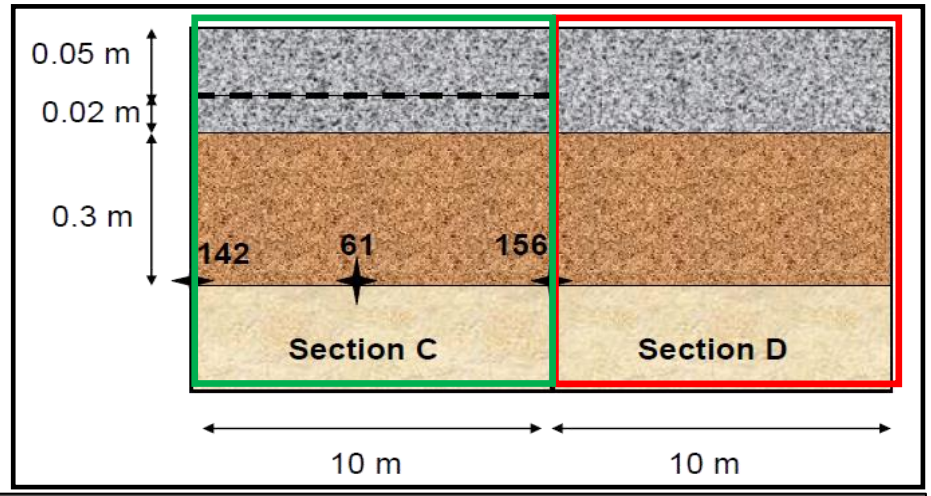


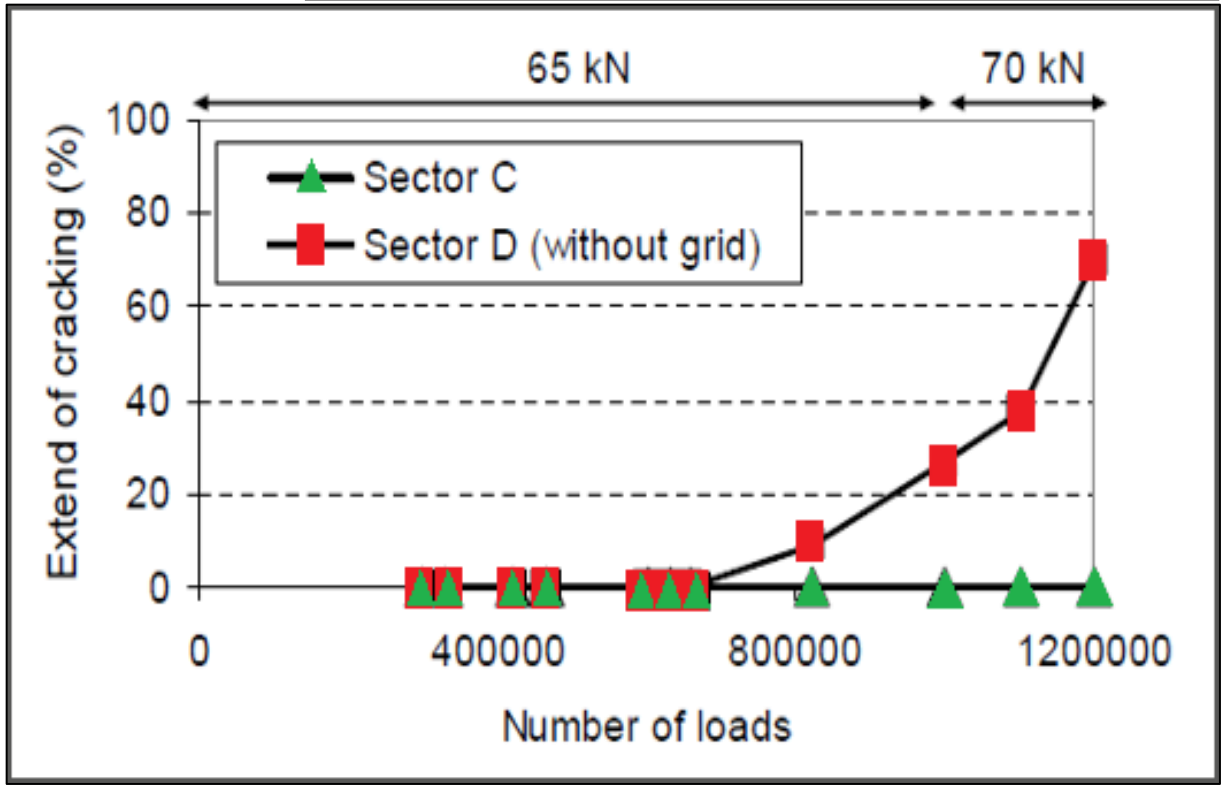
Pukotina obuzdana međuslojem



IFFSTAR TESTIRANJE U PUNOM OBIMU

- 1,2 miliona ciklusa sa opterećenjem od 65-70 kN
- Simulacija 10 - godišnjeg saobraćajnog opterećenja
- Pojava pukotina na 600.000 / 1.200.000 cycle
- 70% nearmirane deonice je potpuno ispucalo



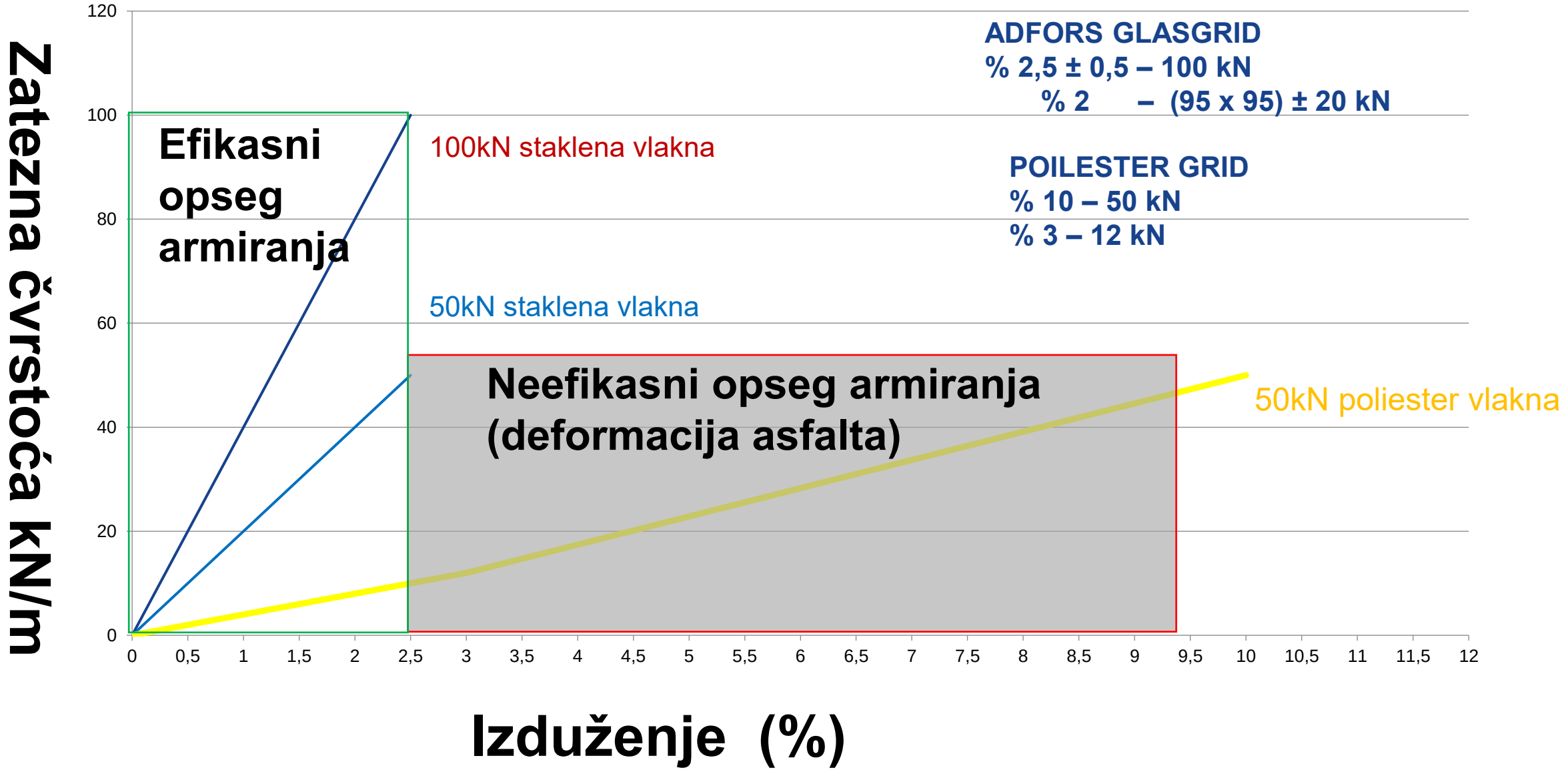


7

ADFORS GLASGRID®

Ključni tehnički parametri za primenu armaturne mreže u asfaltnoj kolovoznoj konstrukciji

UČINAK ARMIRANJA – STAKLENA VLAKNA U ODNOSU NA POLIMERNA



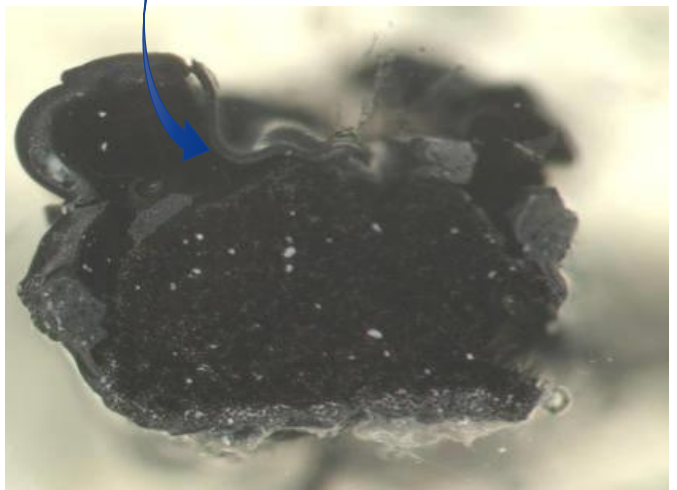
TERMIČKA STABILNOST – TEMPERATURNA OTPORNOST

BEZ ili SA BITUMENSKIM PREMAZOM

- BEZ zaštitnog premaza
- Bitumenski premaz (< 160 °C)

POLIMERNI PREMAZ:

- Polimerno modifikovani premaz
- Stabilna geomreža, termička stabilnost (> 230 °C)
- Tačka topljenja staklenih vlakana > 820 °C



ZAŠTITA TOKOM PROCESA UGRADNJE – ZAŠTITNI PREMAZ

- DIN EN ISO 10722 - Test koji simulira mehanička oštećenja uzrokovana zrnastim materijalom, pod uzastopnim opterećenjem.
- Test oštećenja dokazuje efikasnost našeg polimernog premaza

Bez premaza

- 60%

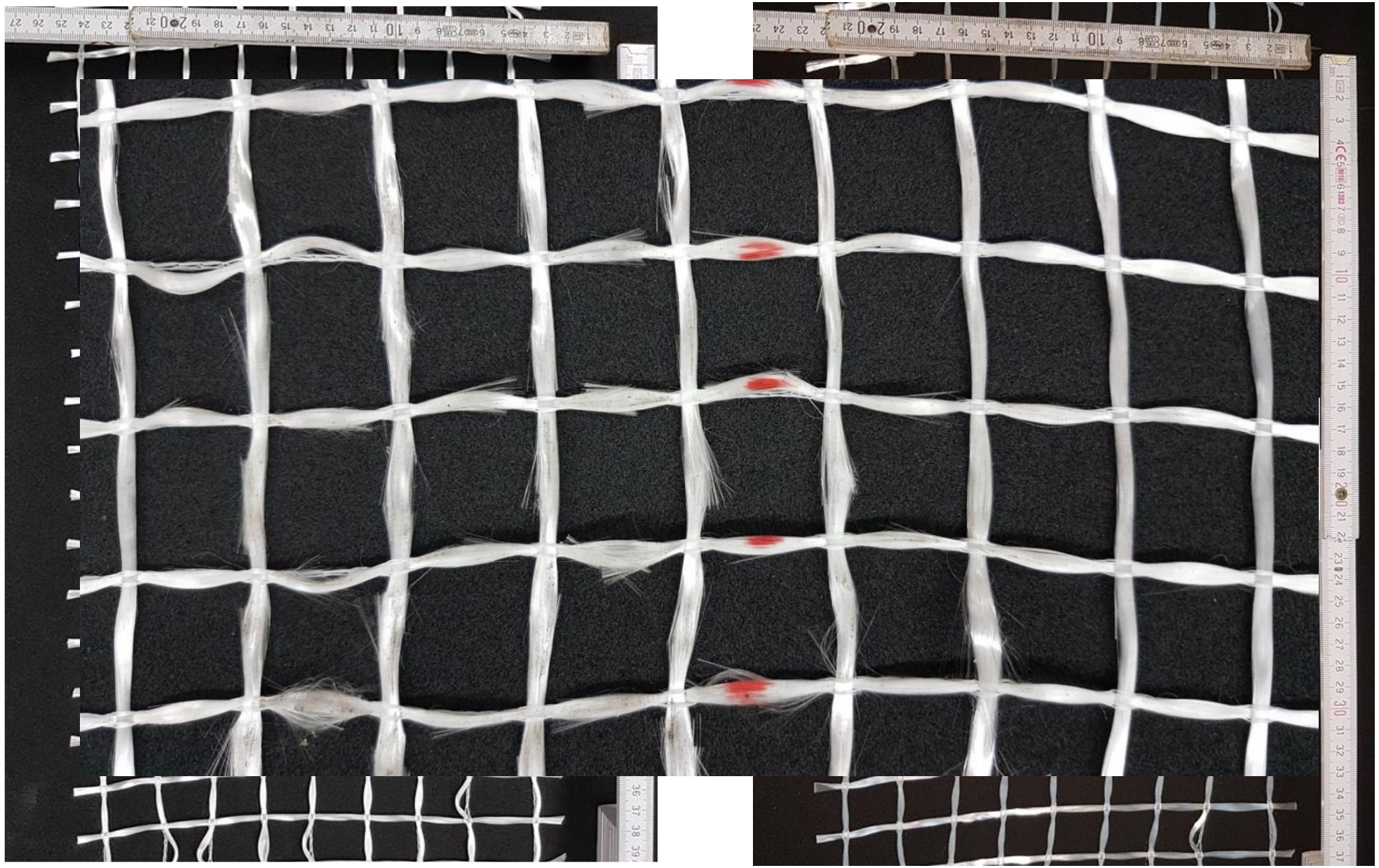
Polimerni premaz

- 10%

Bez premaza

Polimerni premaz

DAMAGE TEST



GRID DAMAGE TEST DURING INSTALLATION

Prüfbericht-Nr. 1.1 / 26015 / 0529.0.1-2018

Kurzfassung der Ergebnisse

Datum/Aktenzeichen : 08.08.2018 / str

Auftraggeber : SAINT-GOBAIN ADFORS CZ s.r.o., Sokolovska 106, 57021 Litomysl, TSCHECHIEN

Materialbeschreibung: unbeschichtetes Glasgitter (schwarz/weiß)
ADFORS GlasGrid GG100 (uncoated)

Prüfung	Norm	Einheit	Results
Verfahren zur Nachahmung von beim Einbau auftretenden Beschädigungen [1)] [1)] Referenzmaterial wurde im gesamten Prüfbehälter einem statischen Druck von 500 kPa für 60 s ausgesetzt. Hieraus wurden die Referenzprüfkörper entnommen.	**DIN EN ISO 10722 08.2007**		
Restfestigkeit MD		%	46,5
Restdehnung MD		%	141,1

GRID DAMAGE TEST DURING INSTALLATION

Prüfbericht-Nr. 1.1 / 26015 / 0528.0.1-2018

Kurzfassung der Ergebnisse

Datum/Aktenzeichen : 08.08.2018 / str

Auftraggeber : SAINT-GOBAIN ADFORS CZ s.r.o., Sokolovska 106, 57021 Litornysl, TSCHECHIEN

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ADFORS GlasGrid GG100 (coated)

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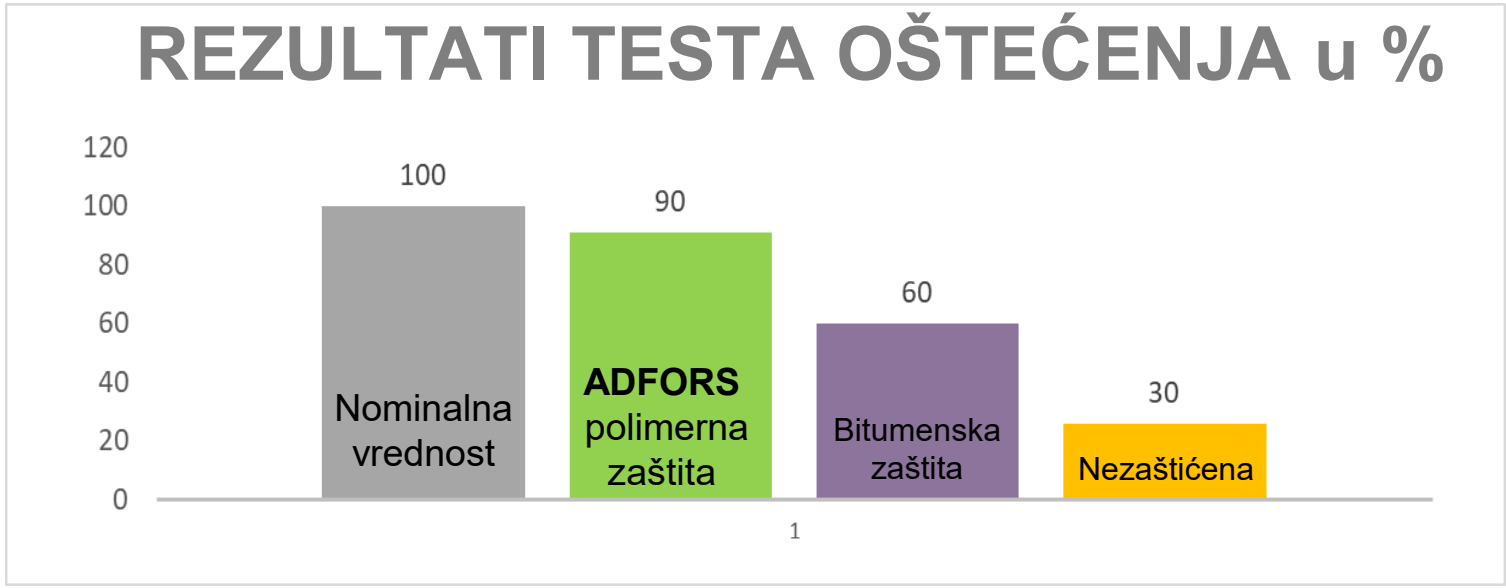
Restfestigkeit MD		%	105,0
Restdehnung MD		%	108,9

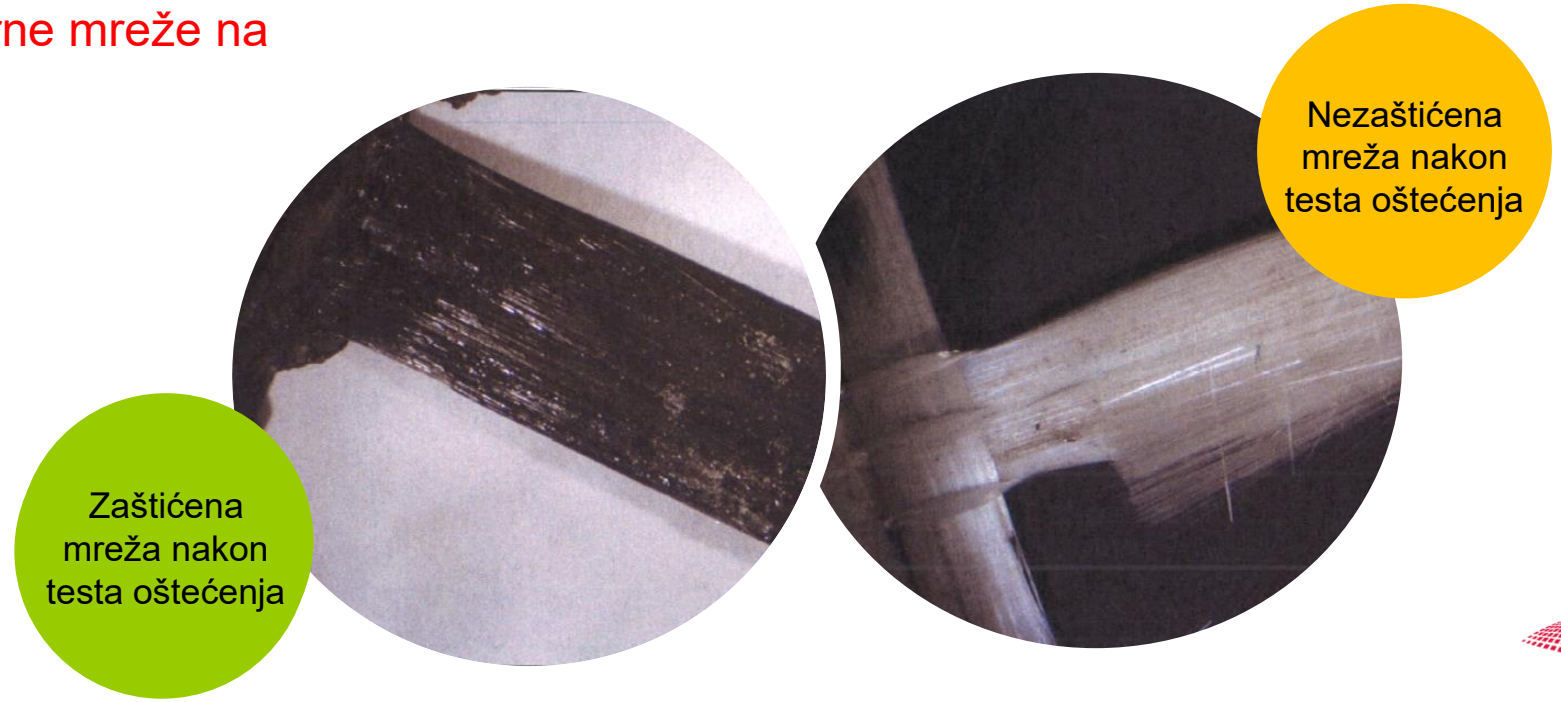
TEST PERFORMANSI

TEST OŠTEĆENJA PRILIKOM UGRADNJE

Test method EN ISO 10722:2020

- Test simulira dinamičko opterećenje i gubitak zatezne čvrstoće u procesu ugradnje i asfaltiranja.
- Test oštećenja dokazuje efikasnost termički stabilnog polimernog premaza i potvrđuje otpornost ADFORS armaturne mreže na oštećenja tokom ugradnje.

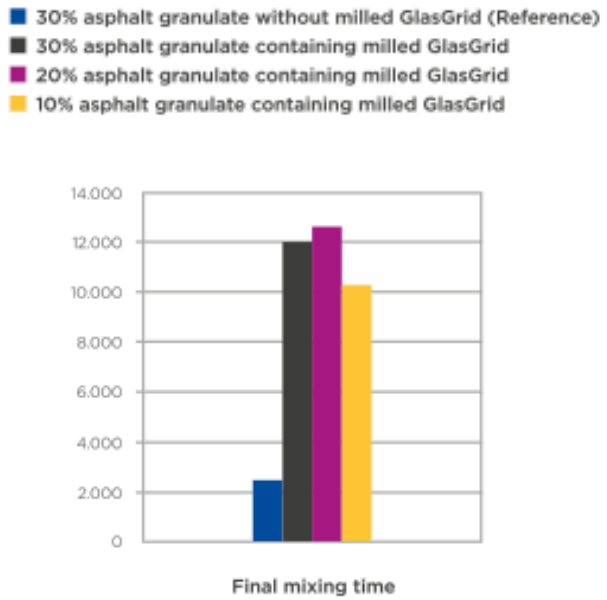




STRUGANJE I PONOVNA UPOTREBA

Lako glodanje

Vlakna u asfaltnom granulatu



5X puta veći broj ciklusa pod opterećenjme

Izveštaj br. 1204791 „Istraživanje mlevenja i reciklaže asfaltnih slojeva ojačanih staklenim vlaknima“ naručio Saint-Gobain Adfors, RVTH Aachen DE, novembar 2012.

ADFORS GLASGRID®

Tipovi mreža i odabir u zavisnosti od područja primene

ODABIR ARMATURNE MREŽE U ZAVISNOSTI OD PODRUČJA PRIMENE

RANIJE - fokus na specifična područja primene

- PUTEVI
- AUTO PUTEVI
- AERODROMI
- PARKINZI
- MOSTOVI
- ŠAHTOVI

KOJi PROIZVOD UPOTREBITI?
Nejasna poruka

SADA - prezentujemo primenu armaturnih mreža u zavisnosti od vrste, odnosno veličine površine

1. **SANACIJE VELIKIH POVRŠINA**
2. **LOKALNE SANACIJE**

KOJi PROIZVOD UPOTREBITI?
Jednostavniji pristup

1. SANACIJE VELIKIH POVRŠINA

- Samolepljiva mreža namenjena za ravne površine **GlasGrid GG**
- Kompozitna mreža namenjena za struganu podlogu **GlasGrid CGL**

PREDNOSTI:

- Laka i brza ugradnja bez upotrebe eksera
- Obeležene ivice za lakše preklapanje
- Ne oštećuje se tokom ugradnje i sabijanja asfalta
- Moguć je saobraćaj radnih mašina (kamioni, finišeri)
- Odlično povezivanje sa asfaltnim slojevima

Primer pukotina za velike sanacije

Atatürk International Airport, Turkey

ADFORS GlasGrid® GG – ZA SANACIJE VELIKIH POVRŠINA

- Samolepljiva Geomreža
- 50/100/200 kN/m zatezna čvrstoća
- **Ugrađuje se na ravne površine**

Ugradnja GlasGrid GG na ravne površine

Pritisnuti mrežu za aktiviranje samolepljivog sloja

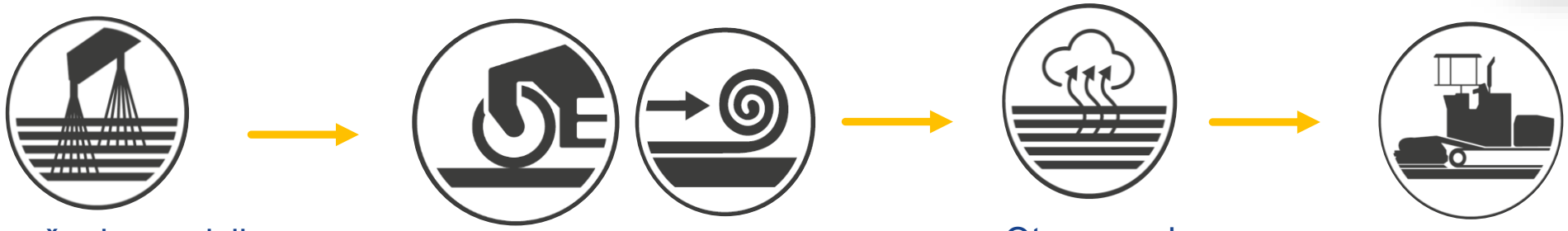
Nanošenje emulzije (za povezivanje slojeva asfalta)

Otparavanje emulzije

Asfaltiranje

ADFORS GlasGrid® CGL – ZA SANACIJE VELIKIH POVRŠINA

- Kompozitna mreža sa ultralakim geotekstilom zbog optimalnije potrošnje emulzije
- 50/100/200 kN/m zatezna čvrstoća
- **Ugrađuje se na struganu podlogu**

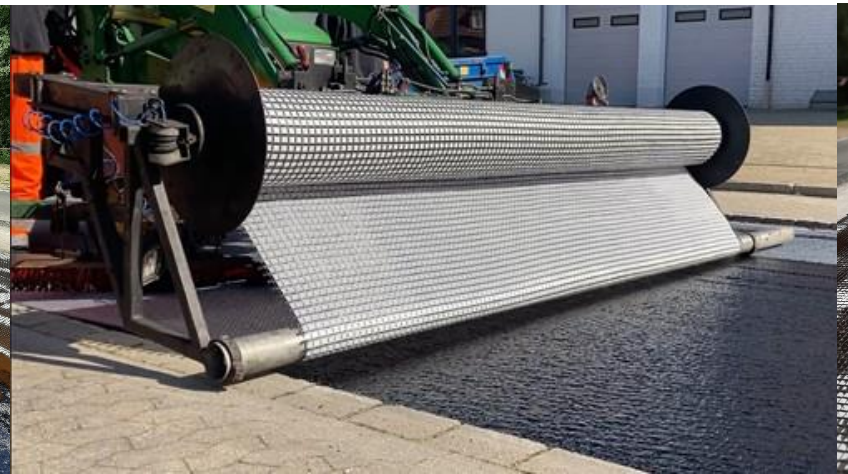


Nanošenje emulzije

Ugradnja mreže na struganu podlogu i utiskivanje u svežu emulziju

Otparavanje emulzije

Asfaltiranje

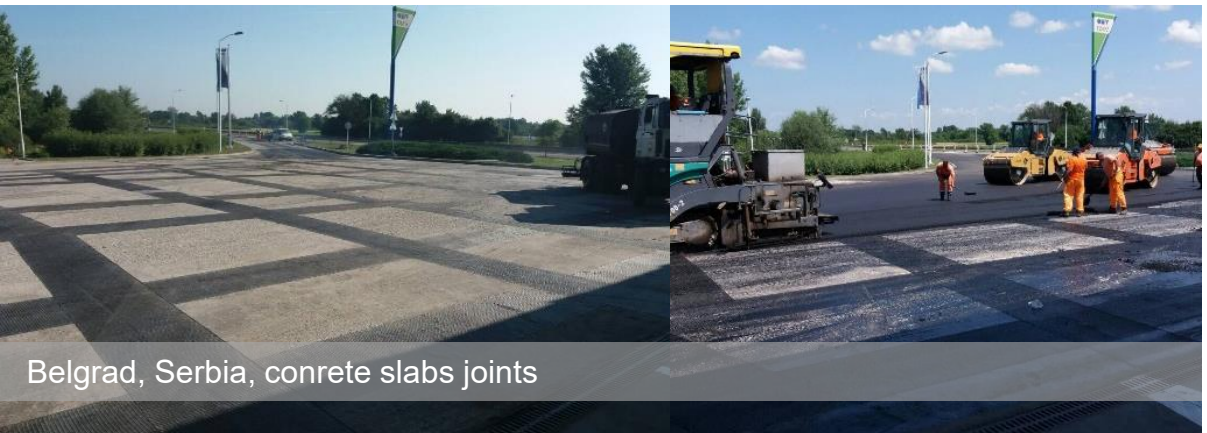


2. LOKALNE SANACIJE

- Samolepljiva mreža **GlasGrid® RAPID**
- Lokalna sanacija asfaltnih površina na kritičnim područjima udarnih rupa, spojeva/dilatacija, nakon komunalnih radova, oko šahtova....

PREDNOSTI:

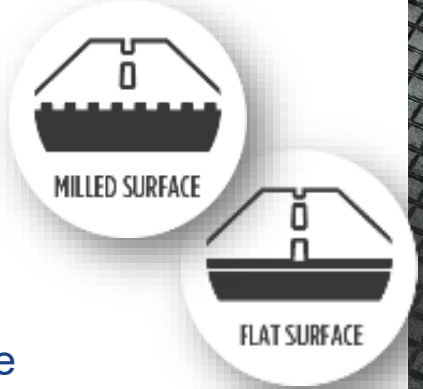
- Brza sanacija = ZALEPI & ASFALTIRAJ
- Ugrađuje se na sve vrste podloga, strugane i glatke (beton ili asfalt)
- Brza i laka ručna ugradnja zahvaljujući samolepljivom bitumenskom sloju
- Ušteda radne snage i vremena uz manje mehanizacie na gradilištu
- Dostupno u rolnama kao i u specijalnim oblicima za područja oko šahtova i hidranata
- Mogućnost izvođenja radova uz minimalno zatvaranje saobraćaja



Belgrad, Serbia, conrete slabs joints

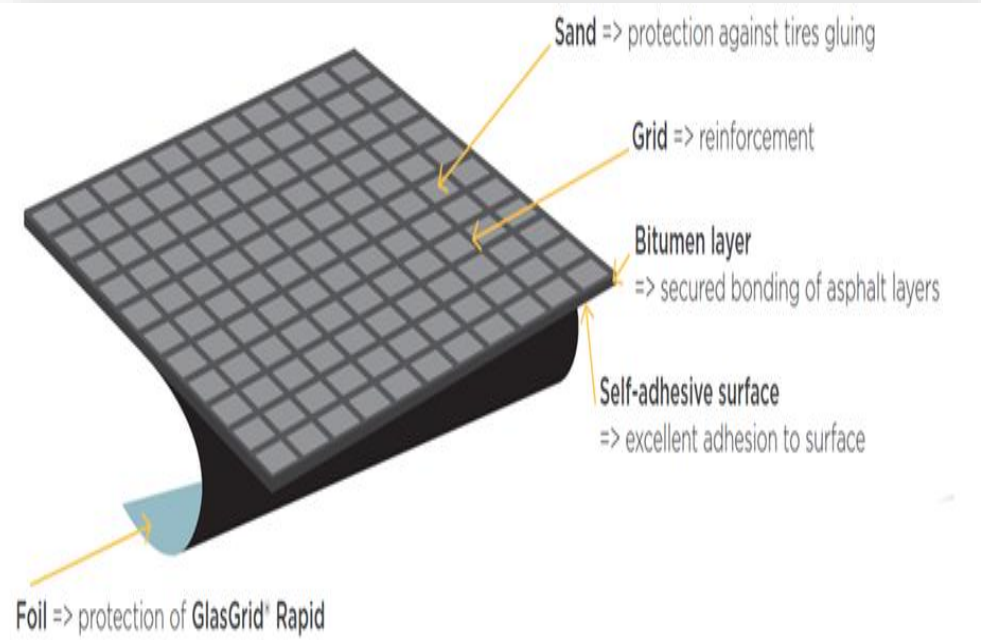
GlasGrid® RAPID – ZA LOKALNE SANACIJE

- Superiorno rešenje za ojačanje kolovozne konstrukcije sa ugrađenim visoko modifikovanim bitumenskim samolepljivim slojem. Projektovano i predviđeno rešenje za drastično ubrzanje procesa ugradnje zamenjujući potrebu za nanošenjem emulzije
- **Ugrađuje se na sve vrste podloga, strugane i glatke (beton ili asfalt)**
- **500 gr. PMB po m2 mreže**




GlasGrid Rapid

Postavljanje GlasGrid RAPID | Pritiskanje mreže | Asfaltiranje






Glodanje, Čišćenje | Postavljanje | Pritiskanje | Asfaltiranje

ADFORS SAINT-GOBAIN

NEW GENERATION OF ASPHALT REINFORCEMENT

ADFORS GLASGRID®

PRIMENA I PROJEKTI U REGIONU

ADFORS U ADRIATIC REGIONU

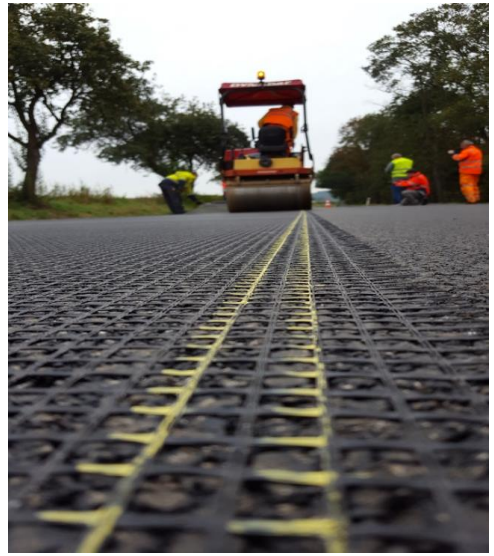
- Više od 1.000.000 m2 **Adfors GlasGrid®** ugrađeno u Adriatic regionu
- Više od 100 projekata u proteklih 5 godina.
- Obim projekata od 100 m2 do 150.000 m2
- Aerodromi, Auto putevi, Mostovi, Benzinske stanice, Parkinzi..

ADFORS GLASGRID® CGL

PRIMENA I PROJEKTI U REGIONU

ADFORS GLASGRID® CGL SA ULTRALAKIM GEOTEKSTILOM

FREZANE BETONSKE / ASFALTNE POVRŠINE – Sanacije velikih površina



- **Brza i efikasna ugradnja**
- **Ultralagana geotekstilna podloga** (17 gr/m2) omogućava efikasno vezivanje asfaltnih slojeva i obezbeđuje visoku apsorpciju bitumena za brzo i kvalitetno polaganje.
- **Ugradnja direktno** na frezanu površinu, bez potrebe za izravnavajućim slojem
- **Visoka krutost mreže**: Obezbeđuje ugradnju bez nabora i deformacija.
- **Lako sečenje** mreže na potrebne dimenzije i oblike
- **Stabilnost mreže** pod opterećenjem građevinske mehanizacije
- **Termička i hemijska postojanost**: Stabilne performanse pri visokim temperaturama i uslovima izloženosti hemikalijama.
- Lako glodanje (frezanje) i mogućnost reciklaže

PROJEKAT – BRZA SAOBRAĆAJNICA POŽAREVAC – GOLUBAC (DUNAVSKI KORIDOR)

Izgradnja brze saobraćajnice IB kategorije (67 km)

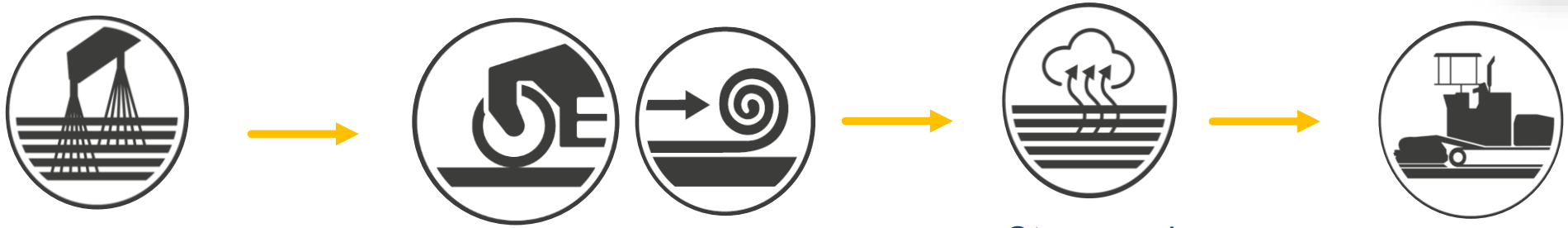
Autoput E-75 Beograd–Niš (petlja) – Požarevac (obilaznica) – Veliko Gradište – Golubac, Srbija

PRIMENA ARMATURNE MREŽE ZA ASFALT I CILJEVI

- Zaštita od propagacije pukotina kroz nove slojeve asfalta, koje potiču sa stare frezovane podloge i sa spojeva starog i proširenog dela kolovoza
- Početak projekta Jun 2024 – u toku

PROIZVOD - ADFORS GlasGrid® CG100L

- Kompozitna mreža sa ultralakim geotekstilom (17gr/m2) zbog optimalnije potrošnje emulzije
- 100 kN/m zatezna čvrstoća
- **Ugrađuje se na struganu podlogu (rolne širine 1, 1,5, 2, 3 M)**
- Namenjana za sanaciju velikih površina

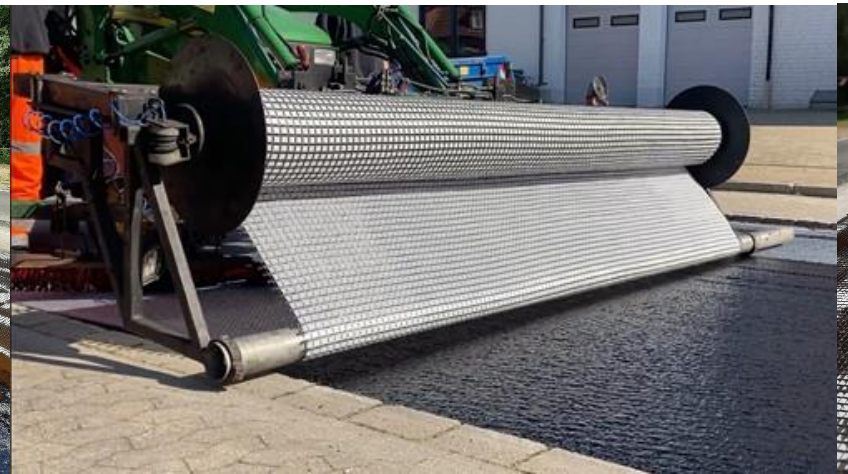


Nanošenje emulzije

Ugradnja mreže na struganu podlogu i utiskivanje u svežu emulziju

Otparavanje emulzije

Asfaltiranje



DETALJI PROJEKTA

1. Stari asfaltni slojevi su frezovani i uklonjeni.
2. Saobraćajnica je proširena i poravnata sa prethodno frezovanom površinom.

DETALJI PROJEKTA

3. Na frezovanu i novu površinu je naneta bitumenska emulzija.

4.Na tako pripremljenu podlogu ugrađena je Adfors GlasGrid® CG100L armaturna mreža.

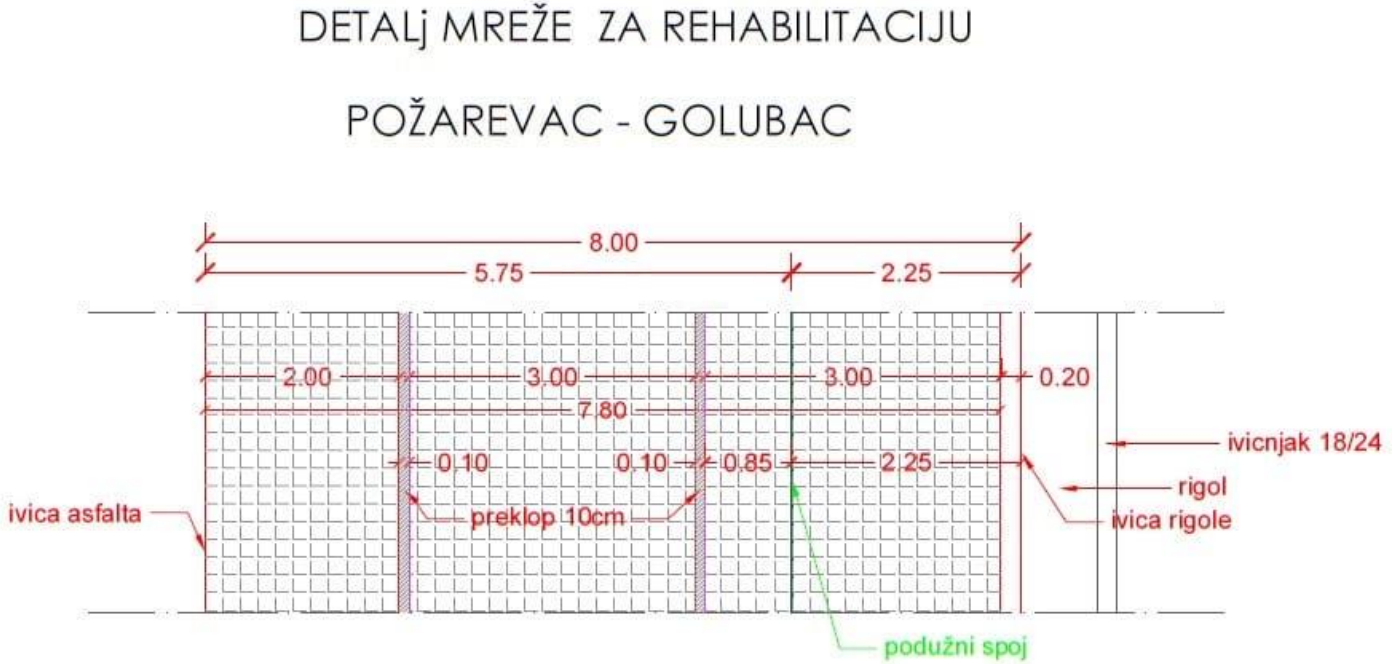
DETALJI PROJEKTA

5.Geomreža CG100L je zatim prekrivena prvim slojem asfalta tipa BNS22sa sa Pmb (polimer-modifikovanim bitumenom) debljine 8 cm.

6.Završni sloj asfalta je tipa AC11s sa Pmb, debljine 4 cm.

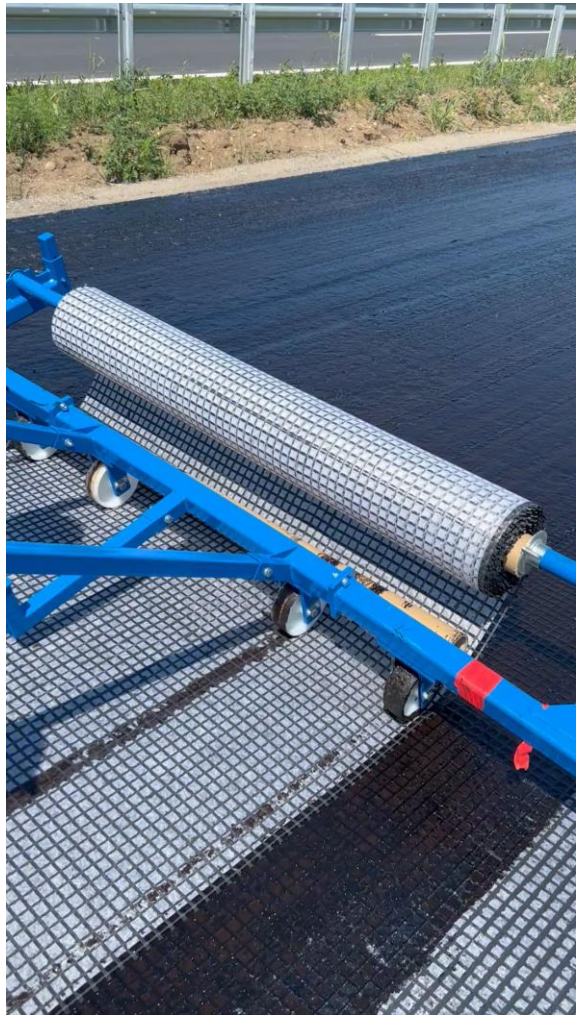
POSTUPAK UGRADNJE ADFORS AMRATURNE MREŽE ZA ASFALT

1. Sastanak predstavnika Adforsa na deonici sa projektantom, nadzorom i izvođačem radova
2. Definisanje modela ugradnje mreže radi optimizacije i uz minimalne gubitke



POSTUPAK UGRADNJE ADFORS AMRATURNE MREŽE ZA ASFALT

1. Prskanje bitumenske emulzije
2. Postavljanje CG100L geomreže (širine 2 m i 3 m) uz pomoć pripremljenog alata za različite širine – ručno potiskivanog



POSTUPAK UGRADNJE ADFORS AMRATURNE MREŽE ZA ASFALT

1. Pričvršćivanje mreže pomoću metli (četki)
2. Sušenje emulzije uz proveru prijanjanja geomreže (hook test)

Minimalno 9 kg (>90N)

POSTUPAK UGRADNJE ADFORS AMRATURNE MREŽE ZA ASFALT

1. Nakon ugradnje nije bilo talasa ni neravnina
2. Asfaltiranje

POČETAK RADOVA

DEO OTVORENE DEONICE

ZAPISNIK SA OBILASKA DEONICE - UGRADNJA MREŽE

ZAPISNIK SA OBILASKA GRADILIŠTA

Lokacija gradilišta:
Izgradnja državnog puta IB reda broj 33, deonica Autoput E-75 Beograd-Niš (petlja Požarevac) – Požarevac (obilaznica), km 2+500 i km 10+200

Datum i vreme obilaska: Utorak, 23.07.2024. u 08:00h i četvrtak, 25.07.2024. u 11:30h

Zaključak:

- Svrha obilaska pomenutih deonica vezana je za pružanje tehničke podrške prilikom ugradnje armaturne mreže za asfalt tip Adfors GlasGrid CG100L, kao i pružanje tehničke podrške prilikom ugradnje asfaltnog sloja preko prethodno ugrađene mreže.

- U utorak 23.07.2024. vršena je ručna ugradnja mreže GlasGrid na deonici od km 10+200 do km 10+900. Ugradnju su vršili radnici zaposleni u preduzeću RAS Inžinjering iz Beograda. Prema potrebama projekta ugrađena je mreža Adfors GlasGrid CG100L u rolnama od 2m i 3m širine. Za navedenu mrežu predviđeno je prskanje 60% bitumenske emulzije, a zatim postavljanje mreže.

- Radnici su došli spremni sa distributerom za emulziju kao i svim potrebnim sredstvima za ugradnju. Takođe na lokaciji su bila dva alata za ugradnju mreže, širine 2m i 3m, prethodno obezbeđena od strane preduzeća ABL-System iz Beograda. Prema uputstvima proivođača emulzija je prskana u količini od 700 – 900 gr/m², a mreža je potom postavljana i utapana u svežu emulziju, kako instrukcije za ugradnju i nalažu (Slika 1). Posebno se obraćala pažnja na zategnutost mreže pri postavljanju, kako bi se izbeglo naboravanje mreže, što je bitan element pri ugradnji (Slika 2). Takođe iza radnika koji su upravljali alatom na kome se nalazila rolna mreže, išli su radnici koji su četkama utapali mrežu, kako bi obezbedili dobro upijanje emulzije, koja će u konačnici obezbediti da se mreža pričvrsti za podlogu, da bi se preko iste mogao ugraditi sloj asfalta bez podizanja mreže prilikom ugradnje.

- Na predlog zaposlenih u preduzeću RAS, a takođe u zajedničkom dogovoru, odrađene su manje modifikacije na alatima, kako bi se obezbedila sigurnija i lakša ugradnja mreže (Slika 3). Modifikacija je prilikom ugradnje mreže u četvrtak 25.07.2024. na km 2+500 do km 3+000 zaista doprinela lakšoj, bržoj i sigurnijoj ugradnji.

- U četvrtak je na deonici od km 10+200 do km 10+900 vršena ugradnja asfaltnog sloja preko prethodno ugrađene mreže. Kako su na hook testu rezultati bili odlični, odnosno pokazivali vrednost od 15 – 25 kg (Slika 4), što je značajno iznad minimalne vrednosti za asfalltiranje koja iznosi 9 kg, asfaltiranje je prošlo bez ikakvih problema (Slika 5 i 6).

- Kao tehnička podrška možemo reći da se mreža ugrađuje u skladu sa preporukama i standardima proizvođača i da protiče u najboljem redu, što potvrđuju i predstavnici izvođača radova.

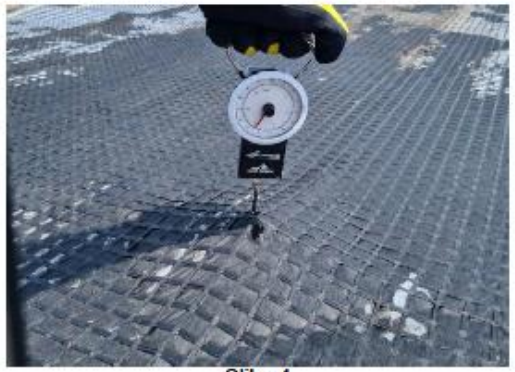
Zapisnik sastavio: Stefan Plavšić	Datum izrade zapisnika: Utorak, 30.07.2024. god.

ABL-System d.o.o. Zapisnik sa obilaska


Slika 1


Slika 2


Slika 3


Slika 4

Slika 5


Slika 6

ADFORS
SAINT-GOBAIN

PROJEKAT ASFALTIRANJA STAJANKE ZRAČNE LUKE PULA

- Zona I stajanke ZL Pula

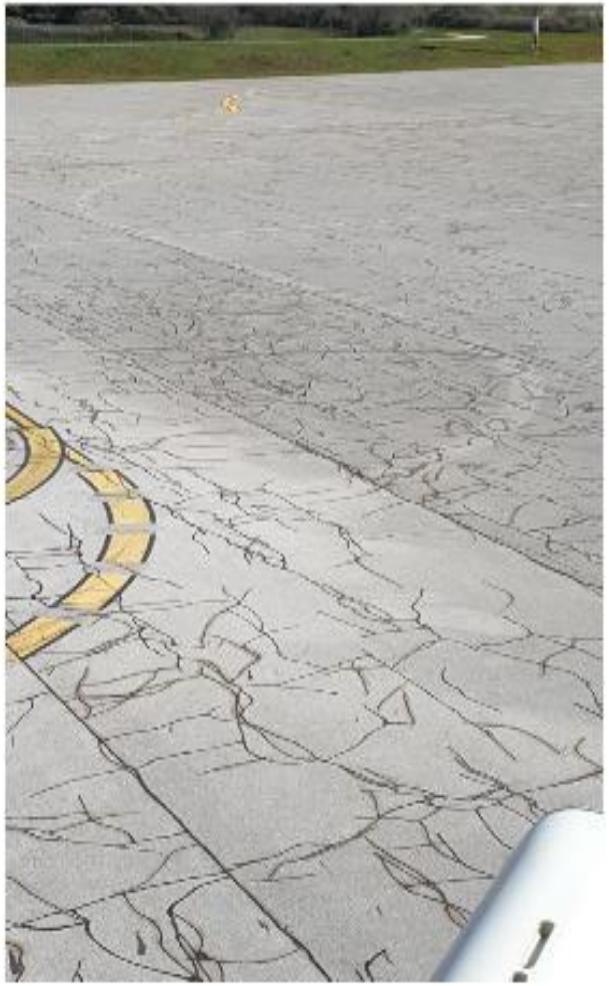
PROJEKAT ASFALTIRANJA STAJANKE ZRAČNE LUKE PULA

- Skidanje postojećih asfaltnih slojeva glodanjem u debljini od 6 cm na zoni I (5 cm na zoni II)
- Sanacija pukotina i eventualnih manjih lokalnih oštećenja nosivog sloja (izrada popravka asfaltnom mješavinom AC 16 bin 45/80-65 AG6 M1)
- Špricanje površine postojećeg asfaltnog sloja bitumenskom emulzijom na bazi polimerom modificiranog bitumena prije ugradnje geosintetskog kompozita (mreža + netkani tekstil)
- Polaganje geosintetskog kompozita (mreža + netkani tekstil) za armiranje asfalta na nosivi sloj prešprican bitumenskom emulzijom
- Izrada habajućeg sloja, mješavina AC 16 surf 45/80-65 AG3 M1, debljina habajućeg sloja 6 cm na zoni I (5 cm na zoni II)
- Premazivanje radnih spojeva habajućeg sloja asfalta bitumenskom pastom na bazi polimerom modificiranog bitumena

PROJEKAT ASFALTIRANJA STAJANKE ZRAČNE LUKE PULA

- Detalji umreženih pukotina na Zoni I - sjever stajanke ZL Pula, pozicije 1 i 2



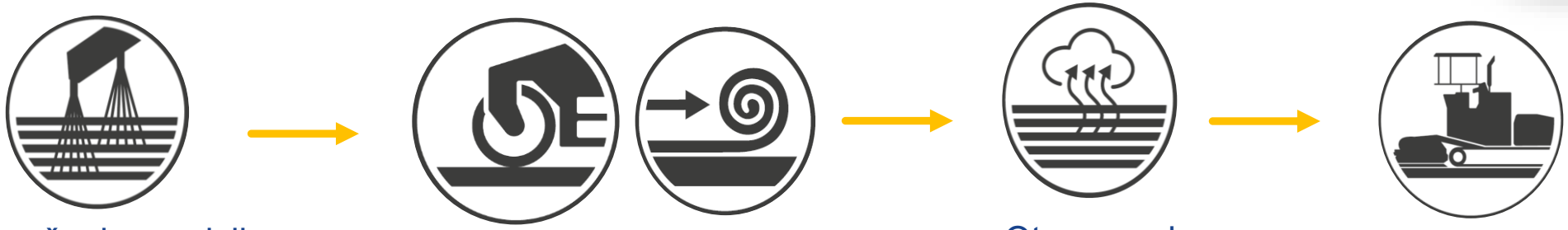



PROJEKAT ASFALTIRANJA STAJANKE ZRAČNE LUKE PULA

- Svojstva materijala moraju biti dokumentirana i certificirana prema primjenjivim i opće priznatim standardima. Prije odabira, proizvod je potrebno ispitati u ovlaštenom ispitnom laboratoriju.
- Geosintetik za armiranje asfalta mora biti reciklabilan. Instalacija geosintetika za armiranje asfalta ne smije utjecati na mogućnost reciklaže asfaltnog sloja.
- Kako bi se zaštitila vlakna preporuča se da odabrani proizvod bude zaštićen slojem od modificiranog polimera kako bi zadržao stalna svojstva tijekom instalacije te nakon integracije u asfaltne slojeve.
- Vlačna čvrstoća prema HRN EN ISO 10319
  - uzdužno min. 115 kN/m (±15 kN/m)
  - poprečno min. 115 kN/m (±15 kN/m)
- Vlačna čvrstoća pri izduženju od 2% (prema HRN EN ISO 10319)
  - uzdužno 95 kN/m (±15 kN/m)
  - poprečno 95 kN/m (±15 kN/m)
- Izvođač je dužan dostaviti referentnu listu radova na postavljanju i ugradnji geomreže za armiranje asfalta čime dokazuje svoju kompetentnost i iskustvo u radu sa sustavom.

PROIZVOD - ADFORS GlasGrid® CG120L

- Kompozitna mreža sa ultralakim geotekstilom (17gr/m2) zbog optimalnije potrošnje emulzije
- 120 kN/m zatezna čvrstoća
- **Ugrađuje se na struganu podlogu (rolne širine 1, 1,5, 2, 3 M)**
- Namenjana za sanaciju velikih površina

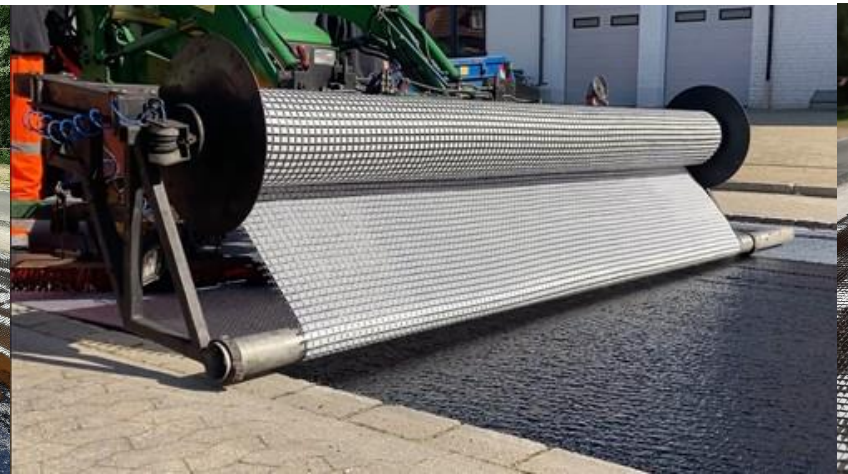


Nanošenje emulzije

Ugradnja mreže na struganu podlogu i utiskivanje u svežu emulziju

Otparavanje emulzije

Asfaltiranje



PROIZVOD - ADFORS GlasGrid® CG120L

- **DECLARATION OF PERFORMANCE (DoP)**

Declaration of Performance

No. 1 DOP – CG120L 8521 ULV

1.	Type:	CG120L (8521 ULV)
2.	Intended use of the product:	For reinforcement, stress relief and interlayer barrier of asphalt overlays.
3.	Producer:	SAINT-GOBAIN ADFORS CZ, s.r.o. Sokolovská 106 570 01 Litomyšl Česká republika
4.	System of assessment and verification of constancy of performance of the construction product:	System 2+
5.	Harmonised standard:	EN 15381:2008
6.	Information about notified body:	Textilní zkušební ústav, s.p., Brno Notified body No. 1021, Issued certificate No. 1021 – CPR – 040/15-1

Essential characteristics	Performance	Harmonized Standard
Tensile strength MD x CMD, kN/m	(125 x 125) - 5	EN ISO 10319
Elongation MD x CMD, %	(2,5 x 2,5) ± 0,5	EN ISO 10319
Asphalt Retention, kg/m²	0,17 ± 0,1	EN 15381-Annex C
Resistance to static puncture, kN	Min 0,013	EN ISO 12236
Dynamic Perforation Resistance, mm	> 50	EN ISO 13433
Durability	To be covered within 1 month after installation	EN 15381-Annex B
Alkali Resistance, %	> 60	EN 14030

The performance of the product identified above is in conformity with the set of declared performance/s. This declaration of performance is issued, in accordance with Regulation (EU) No 305/2011, under the sole responsibility of the manufacturer identified above.

Signed for and on behalf of the manufacturer by:

In Litomyšl 01.08.2024

Jana Kalášková
Product and Communication Manager

SAINT-GOBAIN ADFORS CZ s.r.o.
Headquarters • Sokolovska 106 • CZ-570 01 Litomysl • the Czech Republic • Tel: +420 461 651 111 • Fax +420 461 651 350 • www.adfors.com
Identification number: 000 12 661 • VAT number: CZ 000 12 661
Bank account CZK: CITIBANK, IBAN: CZ54 2600 0000 0020 6208 0105, BIC: CITICZPX
Bank account EUR: CITIBANK, IBAN: CZ05 2600 0000 0020 6208 0308, BIC: CITICZPX
SAINT-GOBAIN ADFORS CZ s.r.o. registered in Commercial Register held by Court in Hradec Kralove, Section C, Insert 22416, registered office as above

PROIZVOD - ADFORS GlasGrid® CG120L

- **TECHNICAL DATA SHEET (TDS)**

GlasGrid®
CGL

FOR AREA-WIDE REPAIRS

Technical Data Sheet
1/2

General Description

CompoGrid Lite Pavement Reinforcement System and Moisture Barrier System is manufactured at a Saint-Gobain ADFORS facility that has achieved ISO 9001:2015 certification and meets the requirements of EN 15381. CompoGrid is a composite material consisting of fiberglass reinforcement grid coated in an elastomeric polymer, bonded to a non-woven textile. CompoGrid Lite is resistant to ultraviolet degradation and to biological and chemical environments normally found in soils. ADFORS GlasGrid CGL conforms to the property values listed below, which have been derived from quality conformance testing performed by a laboratory:

Property	Unit	CG 50L	CG 100L	CG 120L	CG 200L	Test Method
Tensile Strength (MD x XD) Ultimate	kN/m	(55 x 55) - 5	(115 x 115) - 15	(135 x 135) - 15	(115 x 215) - 15	EN ISO 10319
Tensile Elongation Ultimate	%	2,5 ± 0,5	2,5 ± 0,5	2,5 ± 0,5	2,5 ± 0,5	EN ISO 10319
Tensile Resistance @ 2% Strain (MD x XD)	kN/m	(46 x 46) ± 10	(95 x 95) ± 20	(105 x 105) ± 20	(95 x 180) ± 20	EN ISO 10319
Secant Stiffness EA @ 1% Strain (MD x XD)	N/mm	(2.200 x 2.200) ± 200	(4.600 x 4.600) ± 600	(4.600 x 4.600) ± 600	(4.600 x 8.600) ± 600	EN ISO 10319
Young's Modulus E	MPa	73.000	73.000	73.000	73.000	
Mass per Unit Area	g/m²	222	422	497	620	EN ISO 9864
Melting Point Coating	°C	>232	>232	>232	>232	ASTM D 276
Roll Length	m	150	100	100	70	
Roll Width	m	1,0; 1,5; 2,0; 3,0	1,0; 1,5; 2,0; 3,0	1,0; 1,5; 2,0; 3,0	1,0; 1,5; 3,0	
Roll Area	m²	150, 225, 300, 450	100, 150, 200, 300	100, 150, 200, 300	70, 105, 210	
Grid Size (Center to Center of Strand)	mm	25 x 25	25 x 25	25 x 25	25 x 19	
Material		Fiberglass reinforcement with modified polymer coating bonded to a non-woven textile specifically engineered for asphalt overlays.				

Properties

- High grid stiffness provides a wrinkle-free installation and a direct load transmission
- Low elongation
- Thermal and chemical stability

The values and tolerances given are obtained in our laboratories and in accredited testing institutions. The information given in this data sheet is to the best of our knowledge true and correct. However new research and practical experience can make revisions necessary. We reserve the right to make changes at any time. Statements concerning possible use of our product are not intended as recommendations for their use in the infringement of any patent. No patent warranty of any kind, expressed or implied, is made or intended.

PROIZVOD - ADFORS GlasGrid® CG120L

- **CE CERTIFICATE**

TZÚ

TEXTILNÍ ZKUŠEBNÍ ÚSTAV, s.p.
(TEXTILE TESTING INSTITUTE)
Notified body No. 1021
Cejl 480/12, Zábrdovice, 602 00 Brno, Czech Republic

issues

CERTIFICATE OF CONFORMITY OF THE FACTORY PRODUCTION CONTROL

No. 1021 - CPR – 040/15-1

In compliance with Regulation No. 305/2011 (EU) of the European Parliament and of the Council of 9 March 2011 (Construction Products Regulation – CPR) this certificate applies to the construction products:

GEOGRIDS

geogrids made of glass fibres, function - reinforcement

GEOCOMPOSITES

geocomposites made of glass fibres and nonwoven textile, function – reinforcement, stress relief, interlayer barrier

declared for use in pavements, roadway overlays and for local repair of pavements and roadway overlays

Manufacturer: **SAINT-GOBAIN ADFORS CZ s.r.o.,**
Sokolovská 106, 570 21 Litomyšl, Czech Republic
ID: CZ00012661

Manufacture location: SAINT-GOBAIN ADFORS CZ s.r.o.,
Sokolovská 106, 570 21 Litomyšl, Czech Republic

This certificate attests that all provisions concerning the assessment and verification of constancy of performance described in Annex ZA of the standard:

EN 15381:2008

under system 2+ are applied and that

the factory production control is assessed to be in conformity with the applicable requirements.

The present certificate was issued on the basis of the protocol No. 1021/15/101 (13.07.2015), No. 1021/15/289 (12.11.2015), No. 1021/19/175 (11.06.2019), No. 1021/19/255 (09.09.2019), No. 1021/21/210 (26.05.2021), No. 1021/22/053 (07.02.2022) and Inspection reports related to regular surveillance issued by NB 1021 TZÚ Brno. This certificate was first issued on 13.07.2015 and will remain valid as long as neither the harmonised standard, the construction product, the AVCP methods nor the manufacturing conditions in the plant are modified significantly, unless suspended or withdrawn by the notified factory production control certification body.
Products and their variants that are manufactured in the certified system of factory production control are mentioned in the Annex of this certificate.

Brno, 13.07.2015
Updated 30.09.2022

RNDr. Pavel Mašek
Managing Director

FORS SAINT-GOBAIN

PROIZVOD - ADFORS GlasGrid® CG120L

- ISO CERTIFICATE

LRQA

Current issue date: 22 November 2023
Expiry date: 21 November 2026
Certificate identity number: 10557937

Original approval(s):
ISO 14001 - 5 December 2001
ISO 9001 - 8 June 1995
ISO 50001 - 22 November 2020

Certificate of Approval

This is to certify that the Management System of:

SAINT-GOBAIN ADFORS CZ s.r.o.

Sokolovská 106, 570 01 Litomyšl, Czech Republic

has been approved by LRQA to the following standards:

ISO 14001:2015, ISO 9001:2015, ISO 50001:2018

Approval number(s): ISO 14001 – 0052352, ISO 9001 – 0052353, ISO 50001 – 00027605

This certificate is valid only in association with the certificate schedule bearing the same number on which the locations applicable to this approval are listed.

The scope of this approval is applicable to:

Production and procurement of glass fibres and yarns, chopped strands, woven and knitted fabrics, laid scrims, glass mats and warp beams.

Paul Graaf

Area Operations Manager, Europe

Issued by: LRQA Limited

Issued by: LRQA Limited, 1 Trinity Park, Bickenhill Lane, Birmingham B37 7ES, United Kingdom

PROIZVOD - ADFORS GlasGrid® CG120L

- **MILLABILITY and RECYCLING REPORT**

RWTH
Institut für Straßenwesen Aachen

Direktor: Dr.-Ing. habil. Markus Oeser
Universitätsprofessor

isac

Certificate

Nr.: 1204791

Oberflächen
Oberbau
Unterbau
Erdbau
Baustoffe

Date: 19.11.2012

Final report

Investigation on millability and recycling of glass fibre reinforced asphalt layers

Commissioned by: Saint-Gobain Adfors

This certificate includes 19 pages.
This Certificate may not be published in unshortened form without approval.

Institut für Straßenwesen • Anerkannte Prüfstelle nach RAP Stra
Mies-van-der-Rohe-Str. 1 • 52074 Aachen • Telefon: 0241/80-25222 • Telefax: 0241/80-22141

PROIZVOD - ADFORS GlasGrid® CG120L

- **MELTING POINT (Coating > 230 °C)**

TRI ENVIRONMENTAL
TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
Austin, TX - USA | CA - USA | SC - USA | Gold Coast - Australia | Suzhou - China | Sao Paulo, Brazil | Johannesburg - Africa

October 8, 2020

Mail To:

Jana Kalaskova
Saint Gobain
Sokolovska 106
570 01 Litomysl
Czechia

email: jana.kalaskova@saint-gobain.com

Bill To:

<= Same

Dear Ms. Kalaskova:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs.
TRI is pleased to submit this final report of the laboratory testing for the sample(s) listed below.

Project:	Laboratoy Testing
TRI Job Reference Number:	59717
Material(s) Tested:	Two, Saint Gobain Coated Woven Geotextile(s)
Test(s) Requested:	DSC Melting Point (ISO3146 modified via ASTM E 276)

If you have any questions or require any additional information, please call us at 1-800-880-8378

Sincerely,

Mansukh Patel
Laboratory Manager
Geosynthetic Services Division

*Signature is on file

PROIZVOD - ADFORS GlasGrid® CG120L

- **TEST OŠTEĆENJA ISO 10722 (>90%)**

Kiwa GmbH

Kiwa GmbH
Gutenbergstr. 29
48269 Greven

T: +49 (0) 2571 5872 - 12
F: +49 (0) 2571 5872 – 39
E: Frank.Heimbecher@kiwa.com

www.kiwa.com

Expertise

for the assessment of mechanical damages under repeated loading for following product range

„ADFORS GlasGrid® GG“ of company SAINT-GOBAIN ADFORS

April 26th, 2021

Customer:

SAINT-GOBAIN ADFORS CZ s.r.o.
Sokolovska 106
570 01 Litomysl
Czech Republic

The expertise includes 9 pages in total

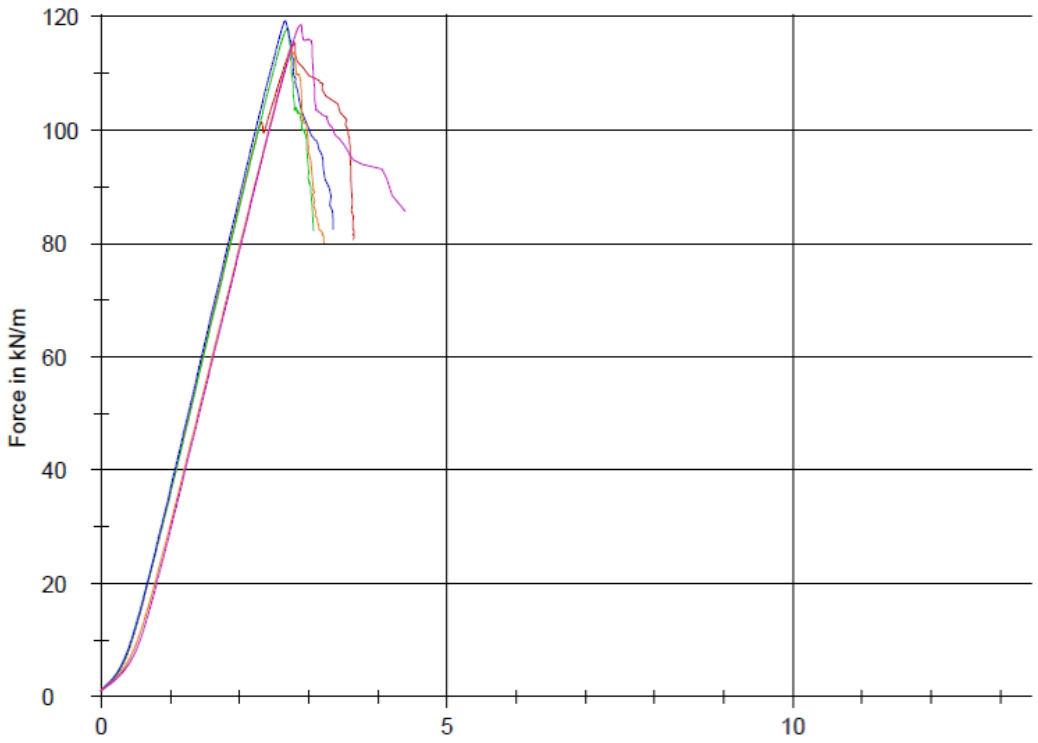
IZVEŠTAJ LABORATORIJSKOG TESTIRANJA

Test results:

ADFORS CG 120L

Nr	$F_{2\%}$ kN/m	F_{max} kN	T_{max} kN/m	ε_{max} %
1	86,6	23,1	116	2,8
2	86,4	23,6	118	2,7
3	88,1	23,9	119	2,7
4	79,3	22,9	115	2,8
5	78,7	23,7	119	2,9

Series graph:

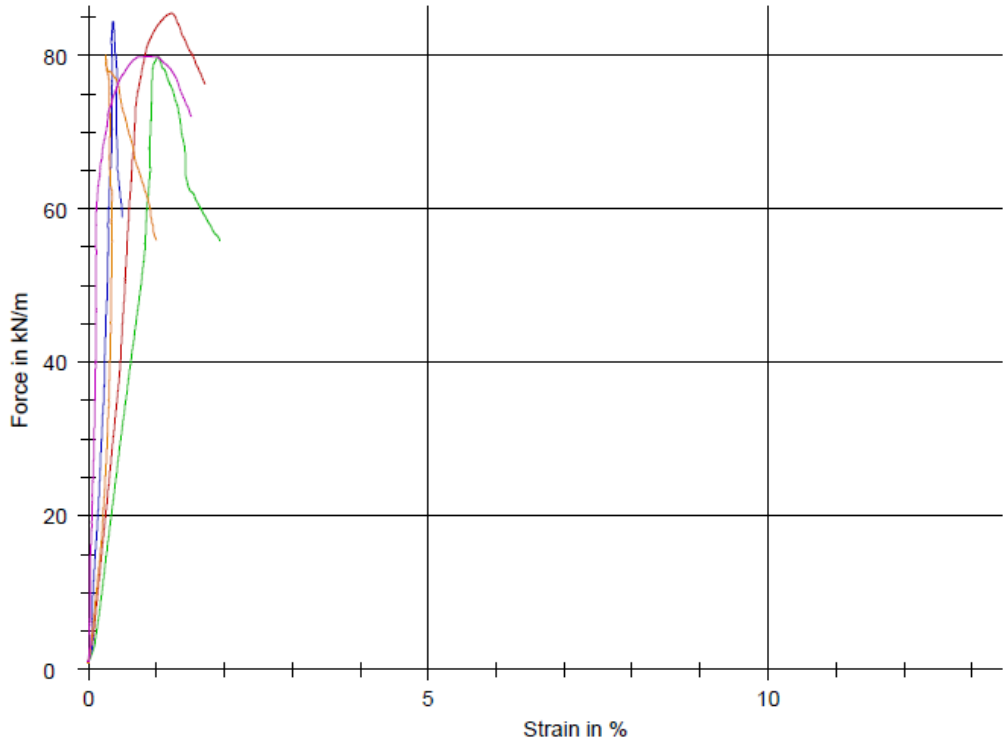


Test results:

DRUGI PROIZVOD

Nr	$F_{2\%}$ kN/m	F_{max} kN	T_{max} kN/m	ε_{max} %
1	-	17,1	85,5	1,23
2	-	16,0	79,8	1,03
3	-	16,9	84,4	0,37
4	-	16,0	80,0	0,26
5	-	16,0	79,9	0,88

Series graph:



PROIZVOD - ADFORS GlasGrid®

- **REFERENCE**

ADFORS SAINT-GOBAIN

REFERENCE BOOK

ADFORS GlasGrid® paving reinforcement products have been installed worldwide, offering proven performance in a variety of applications and climates.

Based on 40 years of experiences and successful installations around the world, ADFORS GlasGrid extends pavement life up to 300% and typically provides a 50% reduction in future investment cost (e.g. maintenance, rehabilitation and use costs) over the life of an average road.

1/64

SAINT-GOBAIN

40 Years of GlasGrid®

CONTENT per type of application

5/64

PROIZVOD - ADFORS GlasGrid® REFERENCE

PAVEMENT REINFORCEMENT SYSTEM
GLASGRID®

AIRPORT PROJECTS

USA

Fairbanks International Airport, Alaska
Flagstaff Airport, Arizona
Williams Airport, Arizona
Springerville Airport, Arizona
California Logistics Airport, Adelanto, California
Fall River Mills, Shasta County, California
Hawthorne / Jack Northrop Field, California
Inyokern, California
Lost Hills-Kern County Airport, California
Paso Robles Municipal Airport, California
Palm Springs International, California
Ramona Airport, San Diego, California
San Nicolas Island (Navy Project), California
Santa Maria Airport, California
Santa Ynez Airport, California
Southern CA Logistics Victorville, California
Eagle County, Colorado
Salida Airport, Colorado
Yampa Valley Airport, Hayden, Colorado
Montrose Airport, Colorado
Rocky Mountain Airport, Colorado
Wilmington Airport, Delaware
Naples Florida Airport, Florida
Okeechobee Airport, Florida
Patrick AFB, Florida
Sarasota - Bradenton International Airport, Florida
Chicago O'Hare International Airport, Illinois
Dixon Airport, Illinois
Greater Peoria Regional Airport, Illinois
Joliet Regional Airport, Illinois
Connersville Airport, Indiana
Grissom Air Force Base, Indiana
Indianapolis International Airport, Indiana
Frankfort Capital City Airport, Kentucky
Baton Rouge Municipal Airport, Louisiana
New Orleans International, Louisiana
Shreveport Downtown Airport, Louisiana
Lakefront Airport, Louisiana

Bangor International, Maine
Iron County Airport, Menominee, Michigan
West Branch Community Airport, Michigan
Lake Elmo Airport, Minnesota
Albany Airport, New York
Binghamton, New York
Chautauqua County Airport, New York
MacArthur Airport, Islip, New York
Rochester International Airport, New York
Westchester County, White Plains, New York
Goldsboro, Wayne Municipal Airport (Taxiway), North Carolina
Hector Fargo International Airport, North Dakota
Williston Airport, North Dakota
Bismarck Airport, North Dakota
Georgia Airport, Ohio
Knox County Airport, Mount Vernon, Ohio
Madison County Airport, Ohio
Marion County Airport, Ohio
Portage Co Airport, Ohio
Rickenbacker International, Columbus, Ohio
Youngstown-Warren Regional Airport, Ohio
Ross County - Shoemaker Airport, Ohio
Seminole Airport, Oklahoma
Beaver County Airport, Pennsylvania
Clarion Airport, Pennsylvania
Pittsburgh Airport, Pennsylvania
Nashville International Airport, Tennessee
Houston International Airport, Texas
Burlington International Airport, Vermont
Norfolk Naval Military Base, Virginia
Tucson West Virginia Regional Airport, Martinsburg, West Virginia
Tri-State Airport (Milton J. Ferguson Field), West Virginia
Timmerman Airport, Wisconsin
Volk Field Air Force Base, Wisconsin

CANADA

Calgary International Airport, Alberta
Grande Prairie, Alberta
Vancouver International Airport, British Columbia
Winnipeg International Airport, Manitoba
Churchill Falls Airport, Newfoundland
Brockville Airport, Ontario
Goderich Airport, Ontario
Guelph/Waterloo Airport, Ontario
Kapuskasing, Ontario
Kingston Airport, Ontario
Stratford Municipal Airport, Ontario
St. Thomas Airport, Ontario
Toronto Lester B. Pearson International Airport, Ontario

ASIA

Shek Kong Military, Hong Kong
Chek Lap Kok International Airport, Hong Kong
Jorhat Airfield, Military Airfield, Assam, India
Tezpur Airfield, Military Airfield, Assam, India
Daman Airfield, Military Airfield, Daman & Diu, India
Indira Gandhi Delhi International Airport, Delhi, India
Ahmedabad Airport, Civil Airport, Gujarat State, India
Ambala Airfield, Military Airfield, Haryana, India
Sirsa Airfield, Military Airfield, Haryana, India
Raipur International Airport, Civil Airport, Chhattisgarh, India
Awantipur Airfield, Military Airfield, Jammu & Kashmir, India
Jammu Airfield, Military Airfield, Jammu & Kashmir, India
Leh Airfield, Military Airfield, Jammu & Kashmir, India
Srinagar Airfield, Military Airfield, Jammu & Kashmir, India
Udhampur Airfield, Military Airfield, Jammu & Kashmir, India
Yelahanka Airfield Bangalore, Military Airfield, Karnataka, India

ASIA

Naval Airfield Kochi, Military Airfield, Kerala, India
Trivandrum Airport, Civil Airport, Kerala, India
Maharajpur Airfield, Military Airfield, Madhya Pradesh, India
NDA Pune Airfield, Military Airfield, Maharashtra, India
Mumbai International Airport, Civil Airport, Maharashtra, India
Palam Airfield, Military Airfield, New Delhi, India
Adampur Airfield, Military Airfield, Punjab, India
Amritsar Airport, Civil Airport, Punjab, India
Chandigarh Airfield, Military Airfield, Punjab, India
Halwara Airfield, Military Airfield, Punjab, India
Jaisalmer Airfield, Military Airfield, Rajasthan, India
Jodhpur Airfield, Military Airfield, Rajasthan, India
Suratgarh Airfield, Military Airfield, Rajasthan, India
Chennai Airport, Civil Airport, Tamil Nadu, India
Naval Air Station-Arakkonam, Military Airfield, Tamil Nadu, India
Tambaram Airfield, Military Airfield, Tamil Nadu, India
Bareilly Airfield, Military Airfield, Uttar Pradesh, India
Lucknow Airfield, Uttar Pradesh, India
Kolkata Airport, Civil Airport, West Bengal, India
Osaka (Itami) International Airport, Japan
Kota Kinabalu International Airport, Malaysia
Changi International Airport, Singapore
Singapore Changi International, Singapore
Hualien Airport, Taiwan
Kaohsiung Airport, Taiwan
Kinmen Airport, Taiwan
Songshan Airport, Taiwan
Taoyuan Airport, Taiwan
Phuket International Airport, Thailand
Cat Bi Airport, Vietnam
Noi Bai Airport, Vietnam
Pleiku Airport, Vietnam
Phu Bai Airport, Vietnam
Rach Gia Airport, Vietnam
Tan Son Nhat Airport, Vietnam

EUROPE

Brussels National Airport, Belgium
Ostende International Airport, Belgium
Sarajevo International Airport, Bosnia
Zagreb Airport, Croatia
Dubrovnik Airport, Croatia
Airport Vaclav Havla, Czech Republic
Military Airport Clermont, France
Military Airport Cognac, France
Military Airport Orange, France
Montpellier Airport, France
Orly Airport, France
Airport Schönefeld BER, Germany
Military Air Base Ramstein, Germany
Kecskemét, Hungary
Pécs, Hungary
Dublin Airport, Ireland
Shannon Airport, Ireland
Linate Airport, Milano, Italy
S. Angelo Airport, Italy
Venice Airport, Italy
Riga Airport, Latvia
Malta International Airport, Malta
Schiphol Airport, Netherlands
Maribor, Slovenia
Ljubljana International Airport, Slovenia
Arlanda International Airport, Sweden
Kiruna Airport, Sweden
Linköping, Sweden
Saab Airport, Sweden
Stockholm Arlanda, Sweden
Ankara Esenboga International, Turkey
Ataturk Airport Istanbul, Turkey
Esenboga, Ankara, Turkey
Mares Airport, Turkey
Dundee Airport, UK
East Midlands Airport, UK
Gatwick International Airport, UK
Glasgow Airport, UK
Heathrow Airport, UK
Jersey Airport, UK
Luton Airport, UK
Prestwick Airport, UK
R.A.F. Mildenhall, UK
R.A.F. Northolt, UK
R.A.F. Brize Norton, Oxfordshire, UK
R.A.F. Leconfield, Humberside, UK
R.A.F. Coningsby, UK
R.A.F. Woodford, UK

Australia

Adelaide Airport, Adelaide
Mascot Airport, Sydney
R.A.A.F. Base East Sale, Victoria
Tindal Airport, Northern Territory
Melbourne Airport, Victoria

Middle East

Cairo International Airport, Egypt
Queen Alia International Airport, Amman, Jordan
Abha International Airport, Saudi Arabia
Al-Baha Domestic Airport, Saudi Arabia
King Airfield Jeddah, Saudi Arabia
King Khaled Military City Airport, Saudi Arabia
Rafha Domestic Airport, Saudi Arabia
Sharurah Domestic Airport, Saudi Arabia
Tabuk Regional Airport, Saudi Arabia
Turaif Domestic Airport, Saudi Arabia
Qaisumah Airport, Saudi Arabia
Damascus International Airport, Syria
Aden International Airport, Yemen

The Others

Africa - Johannesburg International Airport, South Africa
Africa - Harare International Airport, Zimbabwe
Americas - Roatán International Airport, Honduras
Americas - Lima Jorge Chavez International, Peru
Caribbean - EB Lettsome International Airport, British Virgin Islands
Caribbean - Aeropuerto Internacional del Cibao, Santiago, Dominican Republic
Caribbean - Turks & Caicos, Turks & Caicos Islands

- Aerodrom Zagreb

- 1997 godina

ADFORS SAINT-GOBAIN

PROJECT PROFILE
1/1

PROJECT Airport rehabilitation

LOCATION Zagreb International Airport, taxiway J, Croatia

APPLICATION Area-wide repair

AREA BASE Concrete

SURFACE Existing surface

PRODUCT GlasGrid® GG 100

QUANTITY 50 000 m²

INSTALLATION DATE 1997

PARTNER/DISTRIBUTOR Ooms International Holding bv

CONTRACTOR no info

PROJECT DETAILS

- The old continuously reinforced concrete pavement of taxiway J at Zagreb International Airport was seriously cracked which caused loose concrete parts and as a consequence Foreign Object Damage (FOD).
- **An overlay solution with GlasGrid® and a** Sealoflex® **polymer modified tieing coat was** provided as an alternative to complete rehabilitation of the pavement. The asphalt overlay was only 50 mm in thickness.
- An inspection after 5 years learned that none of the cracks had reflected to the service in contrary to the shoulder structure where no **GlasGrid® was applied.**

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38/64

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PAVEMENT REINFORCEMENT SYSTEM GLASGRID®

PROJECT PROFILE

PROJECT
Airport Dubrovnik

LOCATION
Croatia, City: Dubrovnik
42°33'48.4"N 18°15'46.6"E

APPLICATION
Protection against penetration of cracks through the new asphalt layer on the mid part of the runway.

PRODUCT
CG50L

QUANTITY
51.750m²

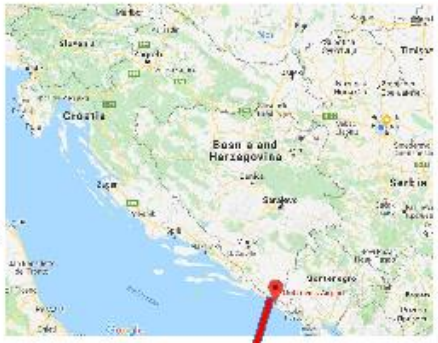
DISTRIBUTOR
Trafex d.o.o., Zagreb

CONTRACTOR
Strabag - PZC Split d.d.

INSTALLATION DATE
November and December 2018

PROJECT DETAILS

- ❑ GlasGrid® CG50L is installed on the milled surface
- ❑ GlasGrid® CG50L is covered with:
- ❑ Leveling course: AC 16 – 50mm
- ❑ Binder course : AC 22 – 70mm
- ❑ Wearing course: AC 16 – 50mm
- ❑ Environmental conditions: Favorable weather condition, sunny without precipitation.
- ❑ Installation: clean and dry surface, no waves after installation, adhesion 9kg/m².



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SAINT-GOBAIN ADFORS CZ s.r.o.
Sokolovská 105
570 21 Litomyšl
Czech Republic
Tel: +420 461 651 111
glasgrid.cz@saint-gobain.com
www.adfors.com

CE 1021-CPR-040/15
2015

GlasGrid is manufactured at an ISO 9001:2008 registered facility of Saint-Gobain ADFORS.
GlasGrid is a registered trademark of SAINT-GOBAIN ADFORS. U.S. Patent 8,038,364; 8,349,431 and 8,882,395. Additional patents pending.

ADFORS SAINT-GOBAIN

PAVEMENT REINFORCEMENT SYSTEM GLASGRID®

PROJECT PROFILE

PROJECT
Rehabilitation Project of Airport runway "Nikola Tesla"
Belgrade, Serbia

LOCATION
Belgrade, Serbia, 44.8190677, 20.3078108

APPLICATION
Protection against penetration of cracks through new asphalt layers

PRODUCT
CG100L

QUANTITY
76 400 m2 (roll width 2m and 3m)

DISTRIBUTOR
ABL-System d.o.o. Belgrade

CONTRACTOR
Vinci Terna Construction JV (sub-contractor purchased and installed the Geogrid = Baumeister d.o.o.)

INSTALLATION DATE
September-October 2023

PROJECT DETAILS

1. Old asphalt layers were milled and removed.
2. Bitumen emulsion was sprayed on milled surface.
3. The GlasGrid® CG100L was applied on the sprayed surface.
4. Grid CG100L was covered with first layer of BNS22sa Pmb type asphalt (8cm)
5. Second/final layer of asphalt was installed type AC16S Pmb (6cm)
6. Installation:

- Spraying of the bitumen emulsion
- Laying down the CG100L Product (2m and 3 m width) on the surface with specially prepared tool attached to truck
- Press it with brooms
- Curing of the bitumen emulsion with excellent adhesion of the grid
- No waves after installation
- Paving

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SAINT-GOBAIN ADFORS CZ s.r.o.
Sokolovská 106
570 21 Litomyšl
Czech Republic
Tel: +420 461 661 111
glasgrid.at.saint-gobain.com
www.adfors.com

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PROJEKAT ASFALTIRANJA STAJANKE ZRAČNE LUKE PULA

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PROJEKAT ASFALTIRANJA STAJANKE ZRAČNE LUKE PULA

PRE

POSLE

ADFORS GLASGRID® GG

PRIMENA I PROJEKTI U REGIONU

ADFORS GLASGRID® GG SAMOLEPLJIVA MREŽA

ZA RAVNE POVRŠINE– Sanacije velikih i lokalnih površina

- **Brza i efikasna ugradnja**: Samolepljiva podloga omogućava jednostavnu ugradnju bez upotrebe eksera.
- **"Zalepi i asfaltiraj"** rešenje za brzu ugradnju, bez upotrebe emulzije**.**
- **Visoka krutost mreže**: Obezbeđuje ugradnju bez nabora i deformacija.
- **Lako sečenje** mreže na potrebne dimenzije i oblike
- **Stabilnost mreže** pod opterećenjem građevinske mehanizacije
- **Termička i hemijska postojanost**: Stabilne performanse pri visokim temperaturama i u uslovima izloženosti hemikalijama.
- Lako glodanje (frezanje) i mogućnost reciklaže

ADFORS GlasGrid® GG – ZA SANACIJE VELIKIH POVRŠINA

- Samolepljiva Geomreža
- 50/100/200 kN/m zatezna čvrstoća
- **Ugrađuje se na ravne površine**

Ugradnja GlasGrid GG na ravne površine

Pritisnuti mrežu za aktiviranje samolepljivog sloja

Nanošenje emulzije (za povezivanje slojeva asfalta)

Otparavanje emulzije

Asfaltiranje

PAVEMENT REINFORCEMENT SYSTEM
GLASGRID®

PROJECT PROFILE

PROJECT
Highway protection

LOCATION
Serbia, E-75 (IA1), section: Caricina dolina – tunnel Manajle

APPLICATION
Protection against penetration of cracks through new asphalt layers

PRODUCT
GG100 / 8511

QUANTITY
85.000m²

DISTRIBUTOR
Trafex Advant d.o.o., Belgrade

CONTRACTOR
Ogranak Integral Inženjering Niš

INSTALLATION DATE
May 2018

PROJECT DETAILS

- ☐ GlasGrid® GG100 is placed on flat surface course
- ☐ GlasGrid® GG100 is applied tack coat PMB60, 0.2 L/m²
- ☐ GlasGrid® is covered with one asphalt layer
- ☐ Wearing course: SMA 16s Pmb - 50mm
- ☐ Environmental conditions: Favorable weather condition, mostly sunny without precipitation.
- ☐ Installation: clean and dry surface, no waves after installation, adhesion 9kg/m2.

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SAINT-GOBAIN ADFORS CZ s.r.o.
Sokolovská 105
570 21 Litomyšl
Czech Republic
Tel: +420 461 651 111
glasgrid.cz@saint-gobain.com
www.adfors.com

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CE 1021-CPR-040/15
2015

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GlasGrid is a registered trademark of SAINT-GOBAIN ADFORS. U.S. Patent 8,038,364; 8,349,431 and 8,882,385.
Additional patents pending.

Autoput E75 deonica Caričina dolina – Tunal manajle

Proizvod GG100 – 85000 m2

Maj, 2018.

ADFORS
SAINT-GOBAIN

PAVEMENT REINFORCEMENT SYSTEM GLASGRID®

PROJECT PROFILE

PROJECT
Local road rehabilitation

LOCATION
Croatia, Velika Gorica, Str. Slavka Kolara
45°42'22.0"N 16°03'51.7"E

APPLICATION
Protection against penetration of cracks through the new asphalt layer

PRODUCT
GG100 / 8511

QUANTITY
1.000m²

DISTRIBUTOR
Trafex d.o.o., Zagreb

CONTRACTOR
VG Komunalac d.o.o., Velika Gorica

INSTALLATION DATE
May 2017

PROJECT DETAILS

- GlasGrid® GG100 is placed on flat surface/ leveling course
- GlasGrid® GG100 is covered with:
- Wearing course: AC 11sa Pmb - 50mm
- Environmental conditions: Favorable weather condition, sunny without precipitation.
- Installation: clean and dry surface, no waves after installation, adhesion 0kg/m².

Left side

Right side

Velika Gorica, Hrvatska
Lokalna sanacija ulice
1000 m2
Maj, 2017.

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Sokolovská 105
570 21 Litomyšl
Czech Republic
Tel: +420 461 651 111
glasgrid.cz@saint-gobain.com
www.adfors.com

CE 1021-CPR-040/15
2015

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PAVEMENT REINFORCEMENT SYSTEM
GLASGRID®

PROJECT PROFILE

PROJECT
Lane extension

LOCATION
Croatia, City: Rovinj, section: Rovinj – Pula, ŽC 5105

APPLICATION
Protection against penetration of cold joint through the new asphalt layer

PRODUCT
GG100

QUANTITY
3.300m²

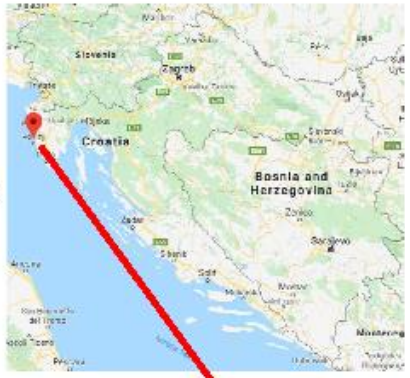
DISTRIBUTOR
Trafex d.o.o., Zagreb

CONTRACTOR
Ceste d.o.o., Pula

INSTALLATION DATE
August 2019

PROJECT DETAILS

- ❑ GlasGrid® GG100 is placed on the leveling course over the cold joint
- ❑ GlasGrid® GG100 is covered with:
- ❑ Wearing course: AC 11 - 40mm
- ❑ Environmental conditions: Favorable weather condition, sunny without precipitation.
- ❑ Installation: clean and dry surface, no waves after installation, adhesion 0kg/m².



Rovinj – Pula saobraćajnica

Proširenje saobraćajnice

Proizvod GG 100, 3300 m2

Avgust, 2019.

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SAINT-GOBAIN ADFORS CZ s.r.o.
Sokolovská 106
270 21 Libomyšl
Czech Republic
Tel: +420 461 65 111
glasgrid.eu@saint-gobain.com
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CE 1021-CPR-040/15
2015

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ADFORS GLASGRID® RAPID

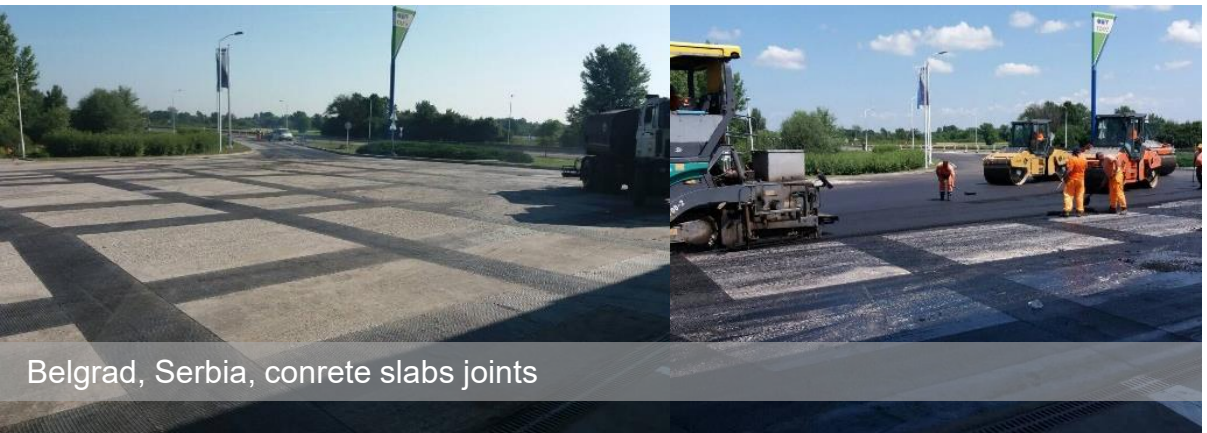
PRIMENA I PROJEKTI U REGIONU

PROIZVOD - GlasGrid® RAPID

- Lokalna sanacija asfaltnih površina na kritičnim područjima udarnih rupa, spojeva/dilatacija, nakon komunalnih radova, oko šahtova....

PREDNOSTI:

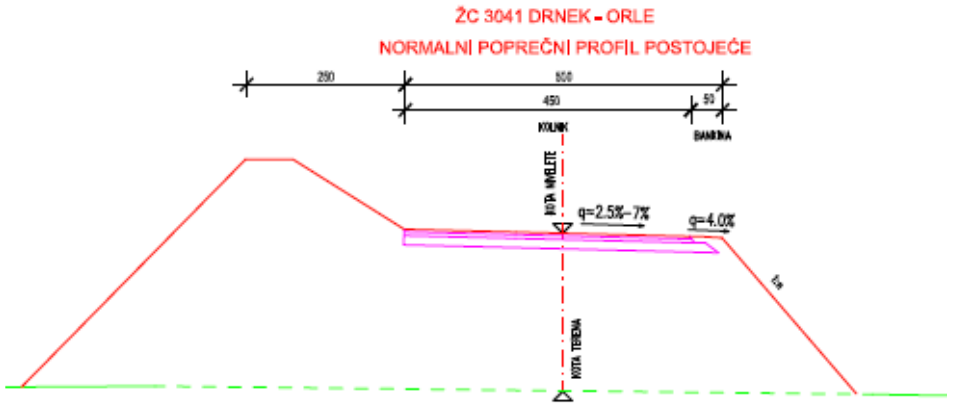
- Brza sanacija = ZALEPI & ASFALTIRAJ
- Ugrađuje se na sve vrste podloga, strugane i glatke (beton ili asfalt)
- Brza i laka ručna ugradnja zahvaljujući samolepljivom bitumenskom sloju
- Ušteda radne snage i vremena uz manje mehanizacie na gradilištu
- Dostupno u rolnama kao i u specijalnim oblicima za područja oko šahtova i hidranata
- Mogućnost izvođenja radova uz minimalno zatvaranje saobraćaja

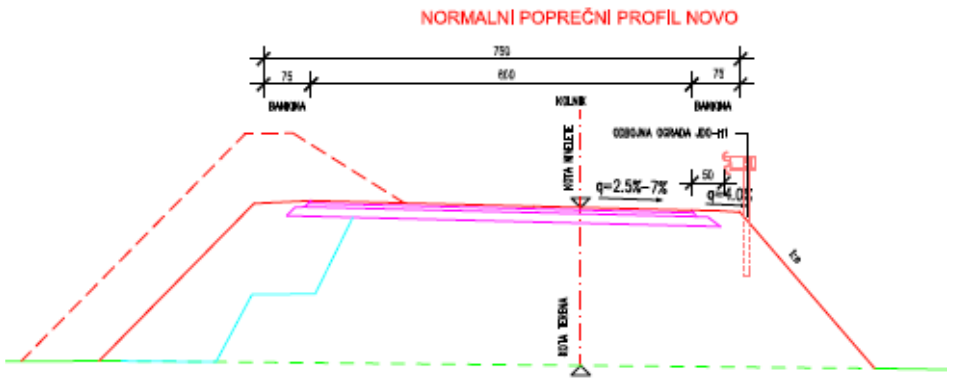


Belgrad, Serbia, conrete slabs joints

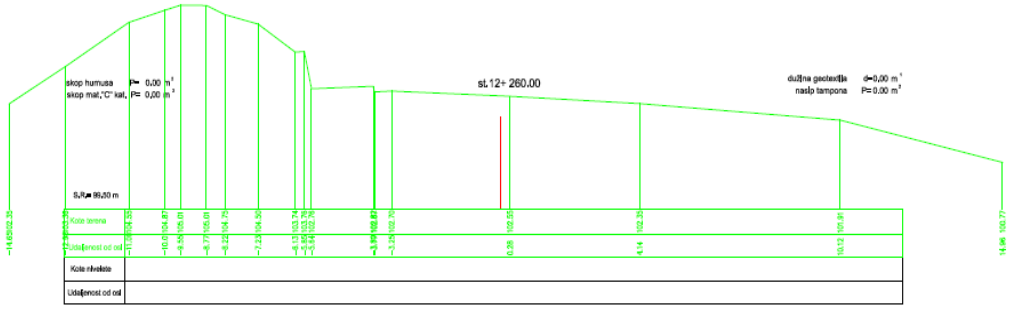
PROJEKAT – IZVANREDNO ODRŽAVANJE ŽC 3041 – OPŠTINA ORLE, HRVATSKA

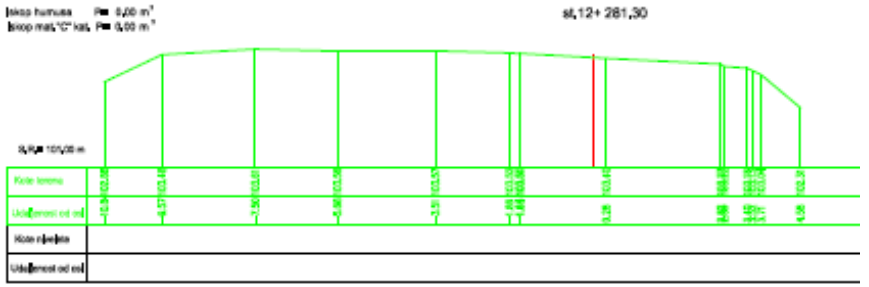
CILJ PROJEKTA – PROŠIRENJE POSTOJEĆE SAOBRAĆAJNICE





POSTOJEĆE STANJE KOLOVOZNE KONSTRUKCIJE

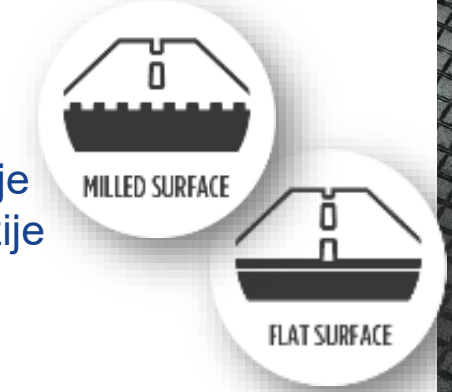


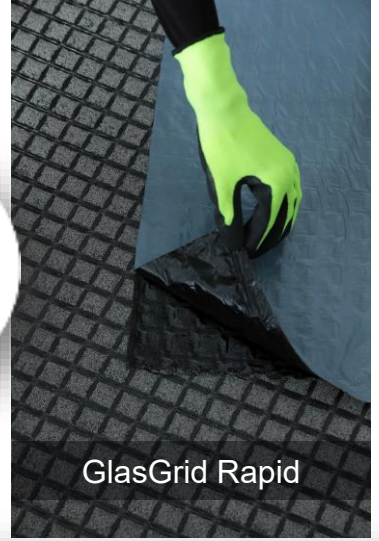


NOVO STANJE KOLOVOZA NAKON RUŠENJA DELA NASIPA I PROŠIRENJA SAOBRAĆAJNICE

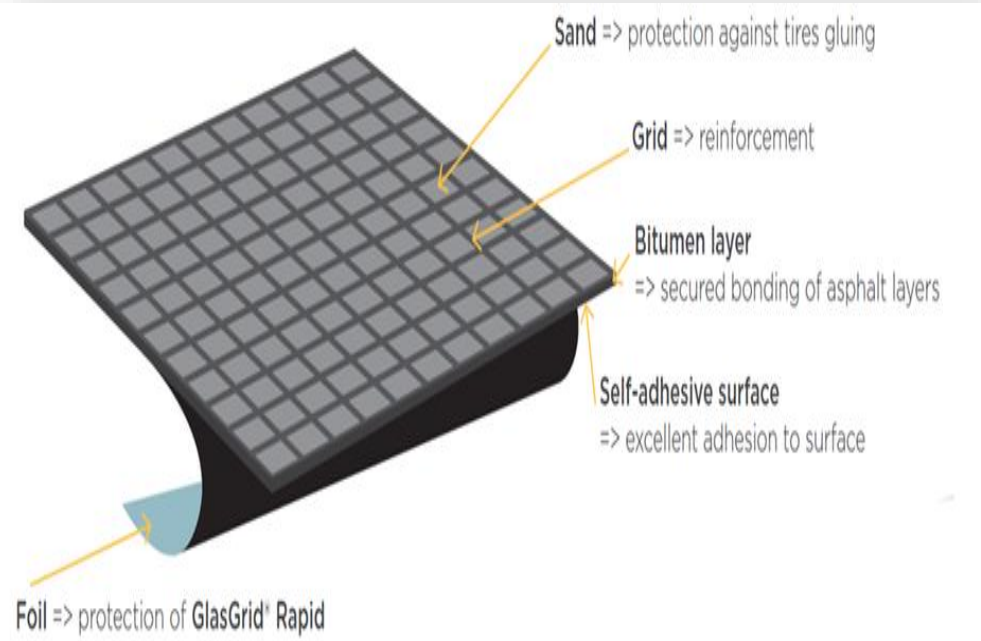
PROIZVOD - GlasGrid® RAPID

- Superiorno rešenje za ojačanje kolovozne konstrukcije sa ugrađenim visoko modifikovanim bitumenskim samolepljivim slojem. Projektovano i predviđeno rešenje za drastično ubrzanje procesa ugradnje zamenjujući potrebu za nanošenjem emulzije
- **Ugrađuje se na sve vrste podloga, strugane i glatke (beton ili asfalt)**
- **500 gr. PMB po m2 mreže**
- **Dimenzija rolne 40 x 1 M**




GlasGrid Rapid

Postavljanje GlasGrid RAPID | Pritiskanje mreže | Asfaltiranje



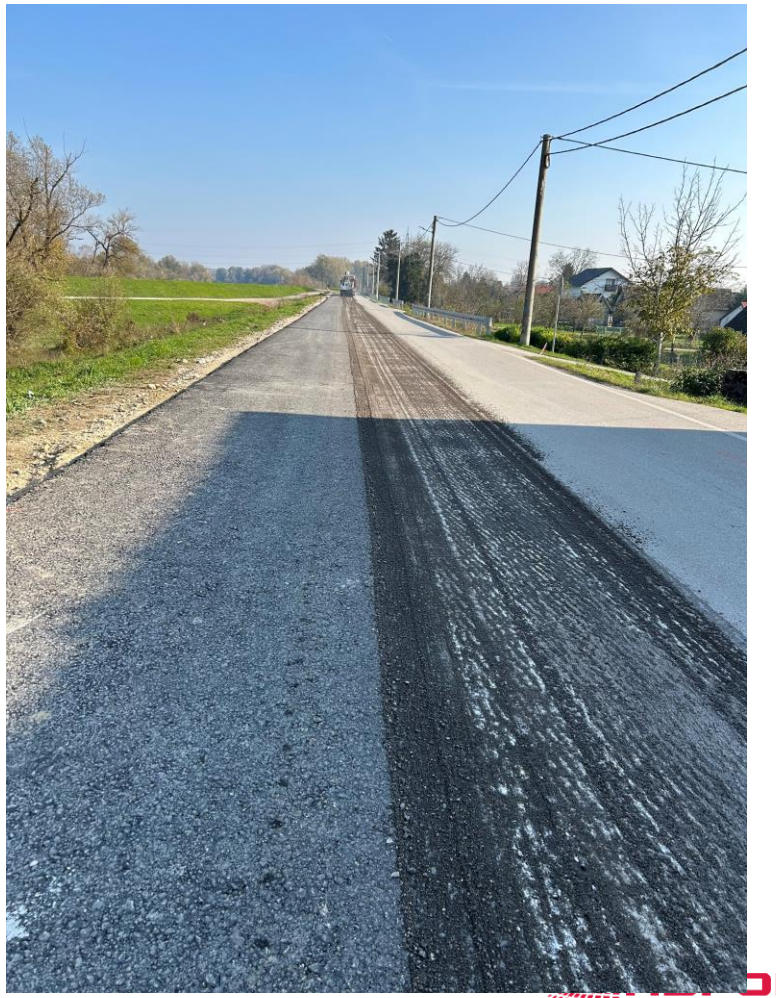



Glodanje, Čišćenje | Postavljanje | Pritiskanje | Asfaltiranje

ADFORS SAINT-GOBAIN

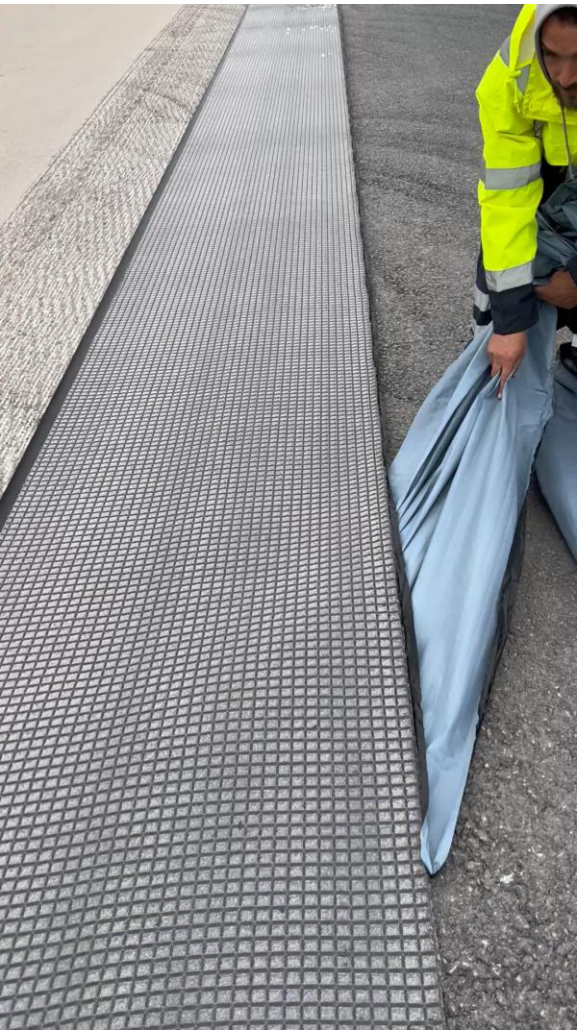
PRIMENA ARMATURNE MREŽE ZA ASFALT I CILJEVI

- Zadržavanje starih slojeva asfalta, čak i u losijem stanju
- Sprečavanje pojave uzdužnih pukotina na spoju starog i novog dela kolovoza
- Ugradnja armaturne mreže na nosivi sloj asfalta i postojeći habajući sloj asfalta



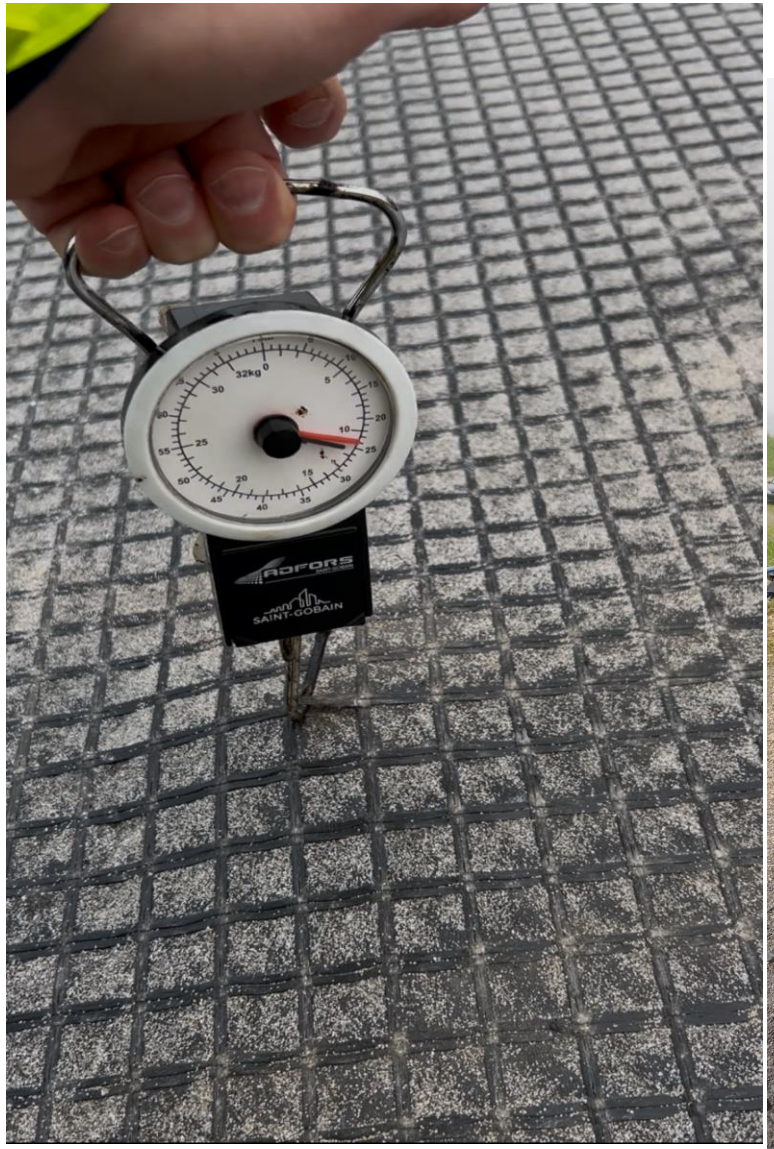
POSTUPAK UGRADNJE GlasGrid® RAPID ARMATURNE MREŽE ZA ASFALT

1. Čišćenje površine od nečistoća i prašine
2. Postavljanje GlasGrid Rapid armaturne mreže za asfalt



POSTUPAK UGRADNJE GlasGrid® RAPID ARMATURNE MREŽE ZA ASFALT

1.



SILA IZNAD 110 N

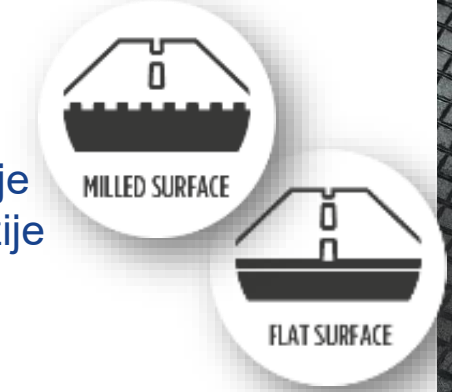
Asfaltiranje

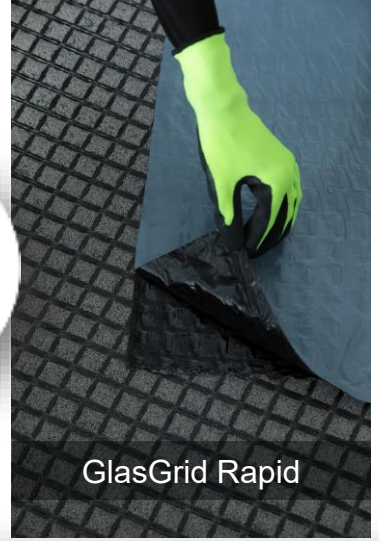
PROJEKAT – REKONSTRUKCIJA KOLOVOZA U ZONI TRAMVAJSKIH ŠINA – OSIJEK, HRVATSKA

- Cilj ugradnje armaturne mreže za asfalt je sprečavanje propagacije pukotina u novi asfaltni sloj u zoni betonskih spojnica

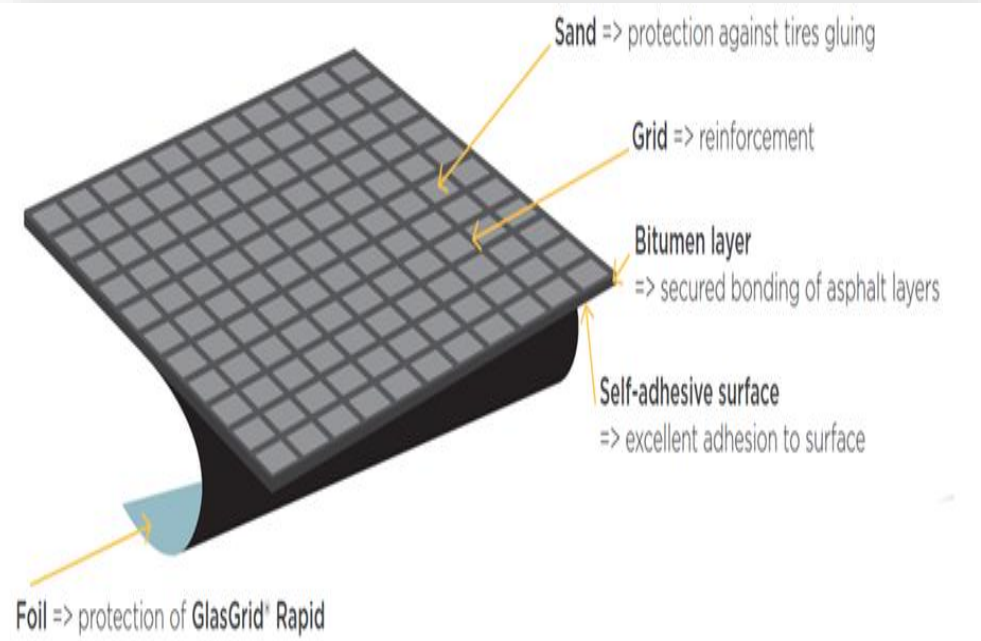
PROIZVOD - GlasGrid® RAPID

- Superiorno rešenje za ojačanje kolovozne konstrukcije sa ugrađenim visoko modifikovanim bitumenskim samolepljivim slojem. Projektovano i predviđeno rešenje za drastično ubrzanje procesa ugradnje zamenjujući potrebu za nanošenjem emulzije
- **Ugrađuje se na sve vrste podloga, strugane i glatke (beton ili asfalt)**
- **500 gr. PMB po m2 mreže**
- **Dimenzija rolne 40 x 1 M**




GlasGrid Rapid

Postavljanje GlasGrid RAPID | Pritiskanje mreže | Asfaltiranje






Glodanje, Čišćenje | Postavljanje | Pritiskanje | Asfaltiranje

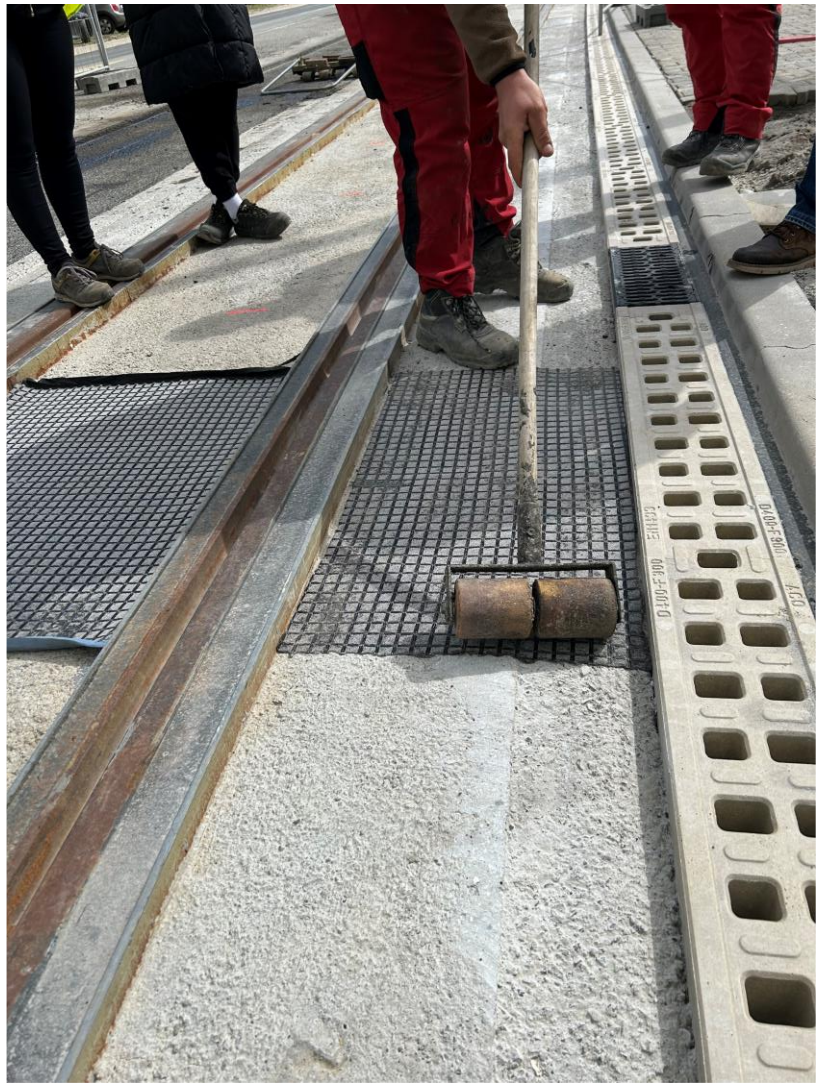
ADFORS SAINT-GOBAIN

POSTUPAK UGRADNJE GlasGrid® RAPID ARMATURNE MREŽE ZA ASFALT

1. Čišćenje površine od nečistoća i prašine
2. Postavljanje GlasGrid Rapid armaturne mreže za asfalt zoni spojnica betonskih ploča (0,5 M levo i desno od spojnice), na kontaktu betona i asfaltnog zastora

POSTUPAK UGRADNJE GlasGrid® RAPID ARMATURNE MREŽE ZA ASFALT

1. Čišćenje površine od nečistoća i prašine
2. Postavljanje GlasGrid Rapid armaturne mreže za asfalt zoni spojnica betonskih ploča (0,5 M levo i desno od spojnice), na kontaktu betona i asfaltnog zastora



POSTUPAK UGRADNJE GlasGrid® RAPID ARMATURNE MREŽE ZA ASFALT

Asfaltiranje

PAVEMENT REINFORCEMENT SYSTEM
GLASGRID®

GlasGrid Rapid
Propust Odzaci, Srbija
Jul, 2023

PROJECT PROFILE

PROJEKAT

Projekat rehabilitacije državnog puta IIA reda broj 110,na km 20+458, most preko kanala u blizini Odžaka, Srbija

LOKACIJA

Odžaci, Srbija – 45.504346, 19.309108

PROIZVOD

GlasGrid RAPID

KOLIČINA

40 m2 (rolne širine 1m)

IZVOĐAČ

JP Putevi Srbije (podizvođač koji je ugradio mrežu = MDJ Most-NS d.o.o.)

DATUM UGRADNJE

Jul 2023

DETALJI PROJEKTA

1. Postojeći slojevi asfalta su frezovani i uklonjeni.
2. Položen je prvi sloj asfalta tipa BNS22sA debljine 8 cm.
3. Potom je GlasGrid Rapid armaturna mreža ugrađena u zoni spoja šljunčanog klina i betonske ploče. (između puta i mosta, 1,5 M levo i desno od spoja)
5. Položen je završni sloj asfalta tipa AC11s, debljine 4 cm.
6. Proces ugradnje GlasGrid Rapid armaturne mreže za asfalt

- Polaganje proizvoda Rapid na pripremljenu površinu
- Kako je dimenzija rolne 1 x 40 m, sečeni su komadi dimenzija 1 × 3 m i slagani jedan do drugog.
- Pritisak lakim valjkom
- Asfaltiranje

SAINT-GOBAIN

SAINT-GOBAIN ADFORS CZ s.r.o.
Sokolovská 105
570 21 Litomyšl
Czech Republic
Tel.: +420 461 611 111
glasgrid.cz@saint-gobain.com
www.adfors.com

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PROJECT PROFILE 1/2

PROJECT Gas station rehabilitation

LOCATION Highway E-75 IA1, Belgrade - NB, right side, gas station, Serbia

APPLICATION Local repair

AREA BASE Concrete

SURFACE Milled surface

PRODUCT GlasGrid® RAPID PATCH

QUANTITY 3 000 m²

INSTALLATION DATE May 2018

PARTNER/DISTRIBUTOR Trafex Advant d.o.o., Belgrade

CONTRACTOR AD Sremput Ruma

PROJECT DETAILS

- Old asphalt layers was milled.
- GlasGrid Rapid Patch was placed over dry and clean concrete slabs joints without application of tack coat below the patch.
- The roller was used to press the GlasGrid Rapid to the surface. Excellent bond achieved thanks to self-adhesive bitumen layer on back side.
- Wearing course SMA 11sa Pmb by 50 mm covered GlasGrid Rapid.
- Favourable weather condition. Sunny, no rain showers.

PROJECT PROFILE 2/2

FIRST VISIT: 14th of May 2021 after 3 years of use. The location is a connection off the motorway to the gas station and is heavily burdened by heavy lorry traffic. Locally, in areas without reinforcement, micro-cracks are penetrating the surface after just three years of use. At the joints of the concrete slabs where GlasGrid Rapid was applied, the micro-cracks are not visible.

GlasGrid Rapid
Benzinska pumpa OMV Lapovo, E75 Auto put
Maj, 2018.

ZAKLJUČAK

- Adfors pruža podršku u svim fazama procesa – od projektovanja do asfaltiranja
- Sistemsko rešenje u okviru projekta
- Lideri u regionu po broju projekata – posebno se ističemo učešćem na rekontrukcijama aerodroma u regionu i svetu
- Posedujemo sertifikate i testove nezavisnih laboratorija za svaku pojedinačnu karakteristiku proizvoda
- Svi proizvodi su od prirodnih, reciklažnih materijala – idemo u korak sa zelenom agendom
- Prisutni smo na svim seminarima i konferencijama u regionu – podižemo svest o pozitivnim efektima armiranja kolovoznih konstrukcija
- Gradimo partnerske odnose zasnovane na dugoročnom zajedničkom interesu

CONNECT WITH GLASGRID: LINKEDIN AND YOUTUBE

- **LINKEDIN GLASGRID PRODUCT PAGE**

  2459 followers and growing!

  - Stay connected with our international GlasGrid community
  - Do you already have a LinkedIn profile? Let´s connect!
  - Promote your events through our GlasGrid LinkedIn page
  - Need support? We´re happy to share content that benefits both sides

- **VIDEOS**

  - **Explore our installation and product videos on our ADFORS YouTube channel**

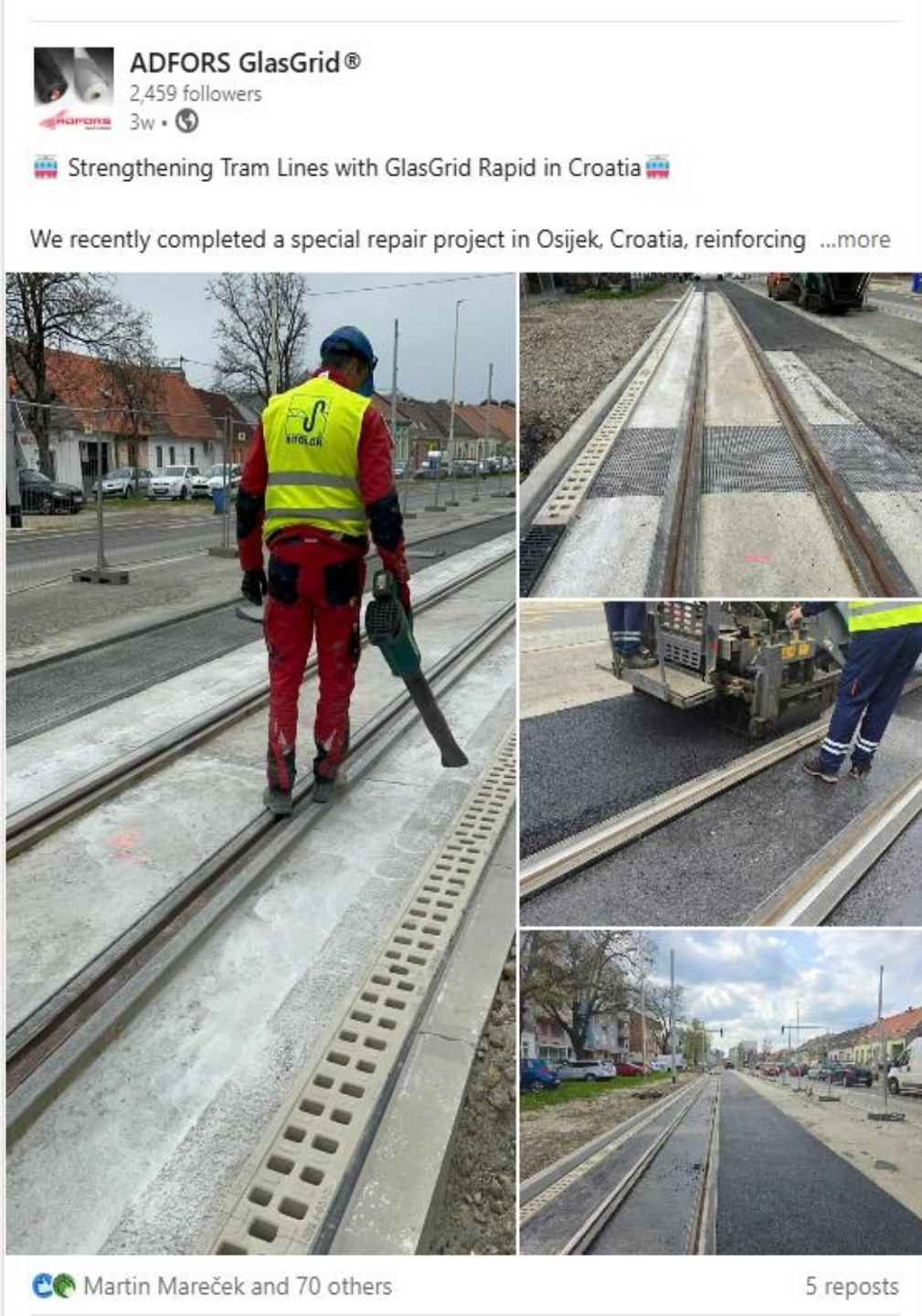
    https://www.youtube.com/playlist?list=PLTdp8YJjQY7O_TqxAcPEjyVOccE-p6jUh

  - **Watch our latest video**

    https://youtu.be/Lb6HJfxFhtY?si=q6IQI7K58AVJp2Z6

- **VISIT OUR WEBSITE**

  https://eu.adfors.com/asphalt-reinforcement



HVALA VAM NA PAŽNJI

Aleksandar Glisic – ***Saint-Gobain Adfors***
aleksandar.glisic@saint-gobain.com
+381 63 10 17 245