Refurbishment Manual POLYFLEX® Advanced PU acc. to ETA-12/0260

INDEX

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1. Repair of Surface Damages

1.1 Required Equipment

- Compressor with air hose
- Power unit
- Small angle grinder (FLEX)
- Diamond grinding cup wheel
- Brush
- Small trowels
- Agitator with squirl
- Plastic bucket to repot
- Adhesive tape
- Levelling iron

Optional for top coat

- Hand drill with squirl
- Measuring cup (1 litre)
- Scales with accuracy of 1 gramme
- Paint roller

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1.2 Material Components

- ***RW 91P - Primer flexible plug material*** (5 kg unit)
- ***RW 60A - Flexible plug material*** (unit size part A+B 10 kg or 27,5 kg)
- Dried quartz sand 0,7 - 1,2 mm

Optional for top coat

- ***RW 82V - Top coat colorless*** (unit size part A+B 10 kg)

1.3 Check-up of the installation conditions

- Traffic management in accordance with the traffic permission
- Dry weather for the filling process required
- Surface temperature min. +5°C
- Check of the dew point with a suitable Dew Point Meter
- During application and curing the ambient temperature must be min. 3°K above the dew point.
- Visual inspection of the contact surfaces for cracks and damages.

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1.4 Installation

1.4.1 Surface Preparation

Clean the surface from dust and debris by means of compressed air.

Grind the damaged parts using the grinding cup wheel. Also the surface dressing in the adjacent areas shall be removed by grinding to a depth of 2-3 mm

Remove loose dust by means of compressed air and mask the borders of the refurbishing area by adhesive tape.

1.4.2 Application of Primer

Apply a thin layer of Primer ***RW 91P - Primer flexible plug material*** by brush to the prepared areas. Allow the primer to evaporate according to TDS.

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1.4.3 Coating and Surface Dressing

Mix ***RW 60A - Flexible plug material*** according to TDS.

Apply ***RW 60A - Flexible plug material*** and spread the flexible plug material using small trowels.

Use the levelling iron to match the adjacent carriageway and remove excess material.

Immediately apply dried quartz sand 0,7 – 1,2 mm as surface dressing by hand and remove adhesive tape afterwards.

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1.4.4 Optional Top Coat

Works for top coat can begin when the surface of the joint filling material has hardened and is not sticky anymore. This can be assumed after approximately 4 to 6 hours at an air temperature of +20°C. At lower temperatures waiting time has to be extended accordingly. Blow off the excess quartz sand by means of compressed air and mask the area with adhesive tape. Mix the parts of ***RW 82V - Top coat colorless*** at their correct mixing ratio according to TDS using measuring cups and scales. Apply ***RW 82V - Top coat colorless*** and spread it using a paint roller. Remove adhesive tape and seal containers airtight.

1.5 Opening for Traffic

Opening for traffic without top coat can take place after 12 hours assuming an air temperature of 25°C. If a top coat is part of the system this period extends to 24 hours at 25°C.

1.6 General

If the requirements according to section 1.3 are not fulfilled, the works have to be stopped and/or suspended.

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2. Repair of Small Areas

2.1 Required Equipment

See section 1.1 and in addition

- Chisel
- Hammer drill (HILTI) with flat chisel
- Steel file
- Large angle grinder (FLEX) with diamond cutting disc
- Circular wire brush

2.2 Material Components

See section 1.2 and in addition

- ***RW 60P - Primer concrete / asphalt*** (unit size part A+B 10 kg)

Optional for steel surfaces

- ***RW 81P - Primer steel*** (unit size part A+B 10 kg)
- Dried quartz sand 0,1 - 0,4 mm

Optional

- Elastomer foil

2.3 Check-up of the installation conditions

See section 1.3

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2.4 Installation

2.4.1 Removal of damaged parts

Excavate loose damaged parts using an angle grinder with a diamond cutting disc. If the systems contains stabilizing elements they have to be probed and excavated carefully using a manual chisel. In areas, where no automatic cutting is possible (e.g. in corner areas etc.) excavation has to be done by manual or automatic chiselling. Also remove the material in the surrounding of the steel angle. Remove adhesive parts from the steel angle using an angular grinder with a diamond grinding cup wheel and roughen the steel surface. The surface of the existing joint has to be chamfered along the excavated damaged area (approx. 30mm in width and 15mm in depth).
After that the surface shall be cleaned from dust and debris my means of compressed air.

2.4.2 Application of Primer to perforated Steel Angle

Apply primer ***RW 81P - primer steel*** to the perforated steel angle using a brush and apply dry quartz sand 0,1 – 0,4 mm. Allow the primer to evaporate according to TDS.

2.4.3 Intermediate Cleaning

Clean surface using compressed air and mask working area by means of adhesive tape.

2.4.4 Optional Repair of Elastomer Foil

If an elastomer foil is part of the system and if major damages are visible within the working area it shall be partially renewed.

2.4.5 Applying Primer to ***RW 60A – flexible plug material***

Apply a thin layer of primer ***RW 91P - Primer flexible plug material*** to all prepared connection surfaces to the existing plug joint material using a brush. Allow the primer to evaporate according to TDS.

2.4.6 Coating and Surface Dressing

See section 1.4.3

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2.4.7 Optional Top Coat

See section 1.4.4

2.5 Opening for Traffic

See section 1.5

2.6 General

See section 1.6

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3. Replacement of Sections

3.1 Required Equipment

See sections 1.1 and 2.1 and in addition

- Asphalt cutter
- Caulk gun

3.2 Material Components

See sections 1.2 and 2.2 and in addition

- Perforated steel angle
- Mechanical fasteners
- Hammer drill (HILTI) with drills
- Impact wrench
- Assembly lever
- Plug material for cold processing plug material (***Refug 2K***)
- Rubber caps for protection of the anchors

Optional

- Stabilizing elements
- Foam rubber
- Elastomer foil

3.3 Check-up of the installation conditions

See section 1.3

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3.4 Installation

3.4.1 Removal of damaged parts

Replacement of damaged sections shall be done in a way that the connecting joints between old and new parts of the flexible plug expansion joint is situated in low trafficked areas. The connecting joints are accomplished using a dovetail shaped connection. If stabilizing elements are part of the system the dovetail shaped connection shall be centered between adjacent stabilizing elements.

Break out the damaged area starting with two cuts parallel to the joint axis and 1-2 cm outside of the joint using the asphalt cutter. The cuts shall be made down to the top of the waterproofing membrane (if applicable). In the lines of the later dovetail connection the joint shall be cut out in the direction of the main movement (direction of the stabilizing elements) using an angle grinder with a diamond cutting disc. In doing so also the steel angles shall be cut. If damages to the adjacent surfacing are unavoidable, these cuts shall be filled after curing of the new joint with ***Refug 2K*** using a caulking gun.

The damaged part of the joint can then be taken out by cutting along the front side of the steel angles parallel to the joint axis. Excavate the areas of the holes in the steel angle as well as the anchor bolts using a manual chisel and/or a machine driven chisel, remove the anchor nuts and put them aside. Loosen the steel angles using the assembly lever.

Remove the rest of the plug material using a hammer drill with a chisel. After that grind all connecting areas using an angle grinder with wire brush. If the anchors and the nuts can not be used again the anchors shall be cut off.

3.4.2 Intermediate cleaning

Remove dust and debris by means of compressed air.

3.4.3 Check-up and measuring of the working trench

Check substructure for obvious cracks and chippings. After that the trench and the structural gap shall be measured. The values shall be written down in the installation protocol together with the temperatures.

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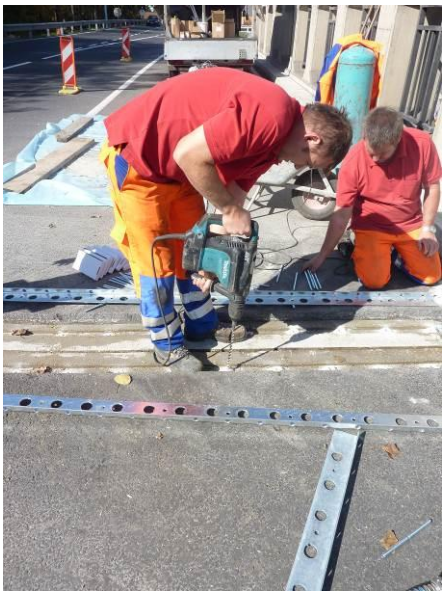
3.4.4 Optional drilling of bore holes for perforated steel angle

The perforated steel angles shall be used as a template. If possible whole 3-metre-elements shall be installed in one piece. If shorter installation sections are required the steel angles shall be fixed with 3 anchors at least. The bore holes shall be centered between the truncated existing anchors. Marking holes shall be drilled through the holes in the steel angle using a small drill. After removing the steel angles the bore holes shall be enlaged using a bigger drill in accordance with the TDS of the anchors. After drilling the bore holes shall be dried and cleaned by means of compressed air.



3.4.5 Cleaning of the working trench

Connecting surfaces like asphalt, steel or concrete shall be sandblasted, whereas the anchor bolts shall be protected by rubber caps. After that the debris has to be removed from the working trench and the surrounding areas.

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3.4.6 Installation of the anchors for the perforated steel angles

Insert the anchors into the boreholes and check the alignment by placing the perforated steel angle on the anchors. Adjust the anchors where necessary and put the steel angle aside.

3.4.7 Intermediate cleaning

The working areas next to the joint shall be cleaned from dust and debris by means of compressed air. Make sure that no dust gets into the open working trench.

3.4.8 Application of the primer to the substructure

The primer ***RW 60P - Primer concrete / asphalt*** shall be applied to the faces connecting to the surfacing as well as to the substructure below the perforated steel angles including two strips of 1 cm width in front of the steel angles. The area between the steel angles (less 2x1 cm in front of the angles) may not be primed as this area works as extension part.
After taking out proper amounts of the primer with measuring cups the containers shall be closed airtight again. Waiting times before installation of ***RW 60A – flexible plug material*** according to the TDS of the primer shall be obeyed. Installation of the ***RW 60A – flexible plug material*** shall be accomplished within 24 hours assuming a temperature of 15°C, whereas wheather conditions have to be observed. If installation of ***RW 60A – flexible plug material*** can not be accomplished within that time, the old primer shall be grinded and the above described process has to be repeated.

3.4.9 Application of primer to ***RW 60A – flexible plug material*** at the areas of the connection joints

Apply a thin layer of primer ***RW 91P - primer flexible plug material*** to all prepared surfaces connecting to the existing joint material with a brush. Allow the primer to evaporate according to the TDS.

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3.4.10 Installation of the sliding sheet

The sliding sheet shall be cut to the required width (distance between the steel angles less 2 cm) and be placed exactly onto the clean surface between the steel angles. Make sure that the foil is laid out completely flat and that no wrinkles are visible.

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3.4.11 Installation of the elastic expansion part ***RW 60A – flexible plug material***

Cover the areas next to the working trench by tape and foil (about 50-100 cm wide). The stabilizing elements shall be prepared for installation next to the working trench. The containers with the ***RW 60A – flexible plug material*** shall either be tempered in an appropriate container or by means of a drum heater to 15-25°C. The ***RW 60A – flexible plug material*** shall then be mixed according to the TDS. First, the areas below the steel angles shall be filled up to ~1cm and the steel angles together with the distance strips shall be fixed with the washers and nuts. Then fill the areas between the angles as well as the gap between angle and surfacing up to the bottom of the holes in the angles. Insert stabilizing elements according to the type drawing whereas the holes of the steel angles must not be covered by the stabilizing elements. After that fill up the joint up to carriageway level and flatten the surface using the levelling iron. Particular attention should be paid to the gap between the steel angles and the surfacing (e.g. by stuffing the flexible plug material). Always work from one side only and complete about 3m of joint length one by one. If working breaks of more than 12 hours are necessary the contact surfaces shall be primed again using ***RW 91P – flexible plug material***. Immediately apply dried quartz sand 0,7 – 1,2 mm as surface dressing by hand and remove adhesive tape afterwards.

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3.4.12 Optional top coat

See section 2.4.6

3.5 Opening for Traffic

See section 1.5

3.6 General

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