Freyssinet parking joints

CIMAC Range

The July 2007 edition of technical documentation « Joints de parking CIMAC VLB/PLB/PLH » (Ref JCIMAC CCF 001) was part of the preliminary opinion of SOCOTEC N° EX 4261/2.

1. INTRODUCTION

All structures are subject to deformations due to the live loads and variations in temperature. In addition to this, concrete structures are also subject to shortening due to creep and shrinkage.
This phenomena leads to incorporate into these structures expansion joints so as to ensure the free movement of each element in the structure. This zone needs to be protected by special equipment of which the characteristics depend upon the particular type of traffic to which it will be exposed.
The range of FREYSSINET parking joints responds to this necessity.
Its has been specially designed to respond to joint problems in circulation zones of buildings and car parks.

These joints are particularly adapted of use in the following cases :

- Zones circulated by light vehicles and/or heavy vehicles at speeds permitted in pedestrian zones.
- Top level parking areas where waterproofing is required.

2. DESCRIPTION

FREYSSINET joints allow relative displacements (longitudinal, transversal or vertical movements and rotations) between two structural elements (e.g. reinforced concrete, prestressed concrete or steel) while assuring the continuity of the circulated surface and waterproofing of the structure.

From a simple and robust design, FREYSSINET joints are composed of

- an aluminium alloy section
- prestressed anchorages with controlled tightening
- an elastomeric profile assuring the protection of the joint (superficial rain water evacuation and protection against penetration of foreign bodies in the gap)
- a supple membrane of elastomeric attached to the metallic elements (continuous waterproofing of structure)
- standard accessoires (intersections joints, T joints, …)

The range of CIMAC joints have been designed to fulfil the requirements of various traffic types, namely light vehicles and heavy vehicles, but also different thickness of standard surfacing for new structures or for the reparation of existing structures.

SURFACING TYPE / TRAFFIC TYPE	SURFACING THICKNESS <100 MM	SURFACING THICKNESS >100 MM
Light Weight Vehicles	**VLB**	**PLH**
Heavy Vehicles	**PLB**	

3. FIELDS OF USE

For new structures, the models of the CIMAC range can be anchored in a recess or to supporting elements by pre placed fixings placed during the construction of the support.
For existing structures or new structures where dispositions have not been put in place in advance, drilled fixings with controlled tightening can be used.
The CIMAC range allows absorption of horizontal displacements ranging form 0 to 50mm and vertical displacements from –10mm to +10mm. The CIMAC range also allows usual rotations permitted in the buildings.

4. PRINCIPAL APPLICATIONS

Principal applications include

- Cover slabs used in areas such as car parks.
- Access ramps (halls, car parks…)
- Floors for goods handling vehicles
- Access routes and slabs (fire escapes, fund deliveries, goods deliveries…)
- Circulated areas in depots, train / bus stations, commercials areas..

5. ADVANTAGES

For the owner the significant advantages include

- Comfort and satisfaction of users
- Simple and robust design
- General structural aesthetics
- Reduced running costs
- Increased useful lifespan

These advantages are due to the principal qualities of FREYSSINET joints:

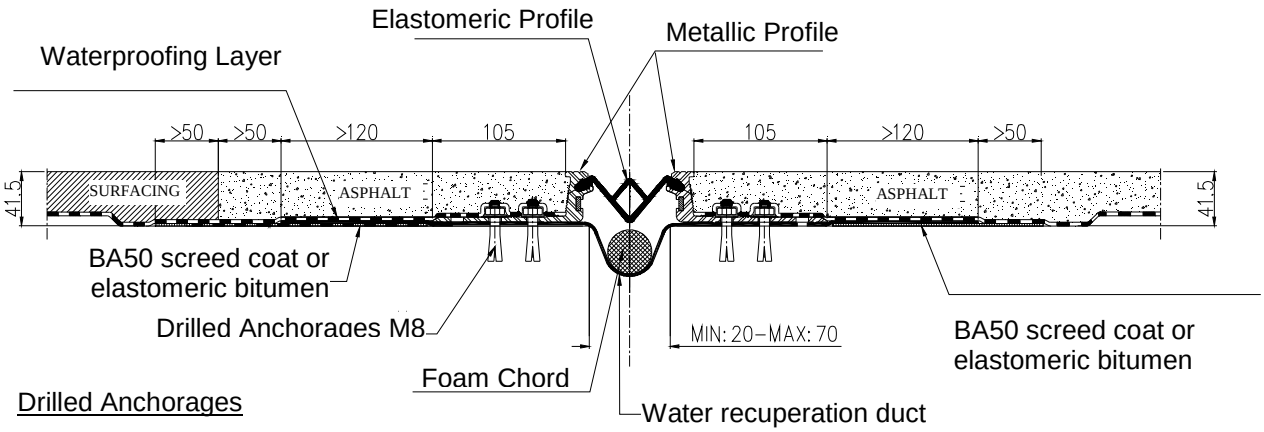
- Resistance against corrosion (aluminium profile)
- Durability (prestressed anchorages)
- Watertightness (continuous membrane not exposed to traffic)
- No specific maintenance required (no deep grooves)
- Reduction in disturbances due to noise or vibrations (no free moving metallic parts)
- Ability to be used in supple structures (possibility for stepped joints in structure)

6. TECHNICAL CHOICE

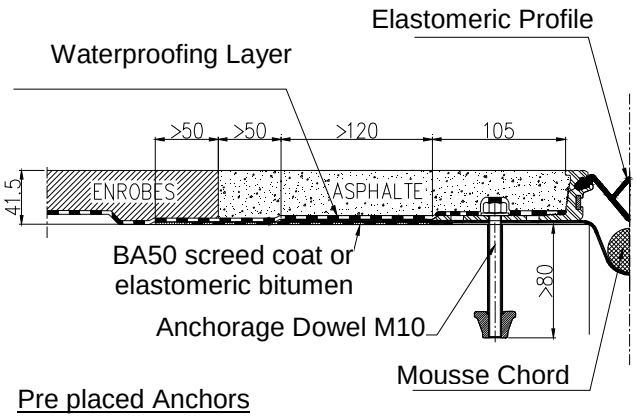
- **CIMAC VLB (Light Weight Vehicles)**

These joints are adapted to the circulation of light weight vehicles (axel weight up to 2 tonnes) with speed unlimited and occasional heavy vehicles at limited speeds (<50 km/h) and occasional fire brigade vehicles for example.

CIMAC VLB

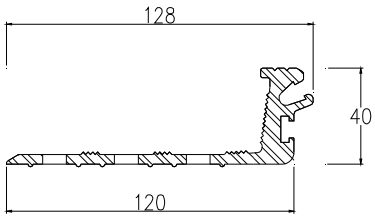


Drilled Anchorages



Pre placed Anchors

Cross Section

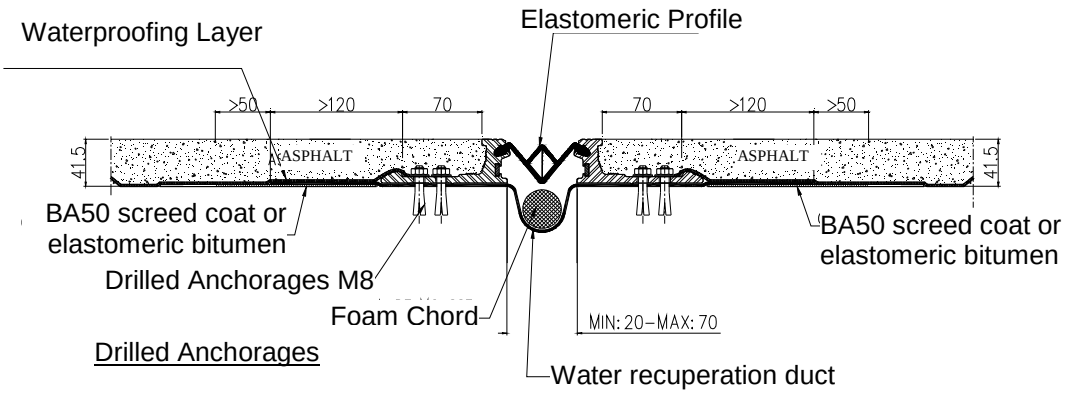


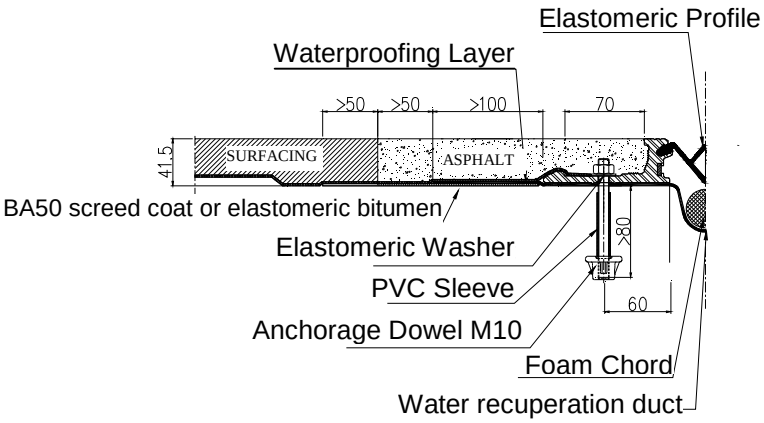
6. TECHNICAL CHOICE (Continuation)

- **CIMAC PLB (Heavy Vehicles)**

Circulation of heavy vehicles at reduced speeds.

CIMAC PLB





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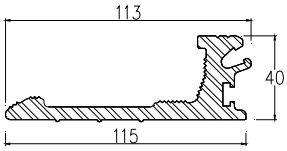
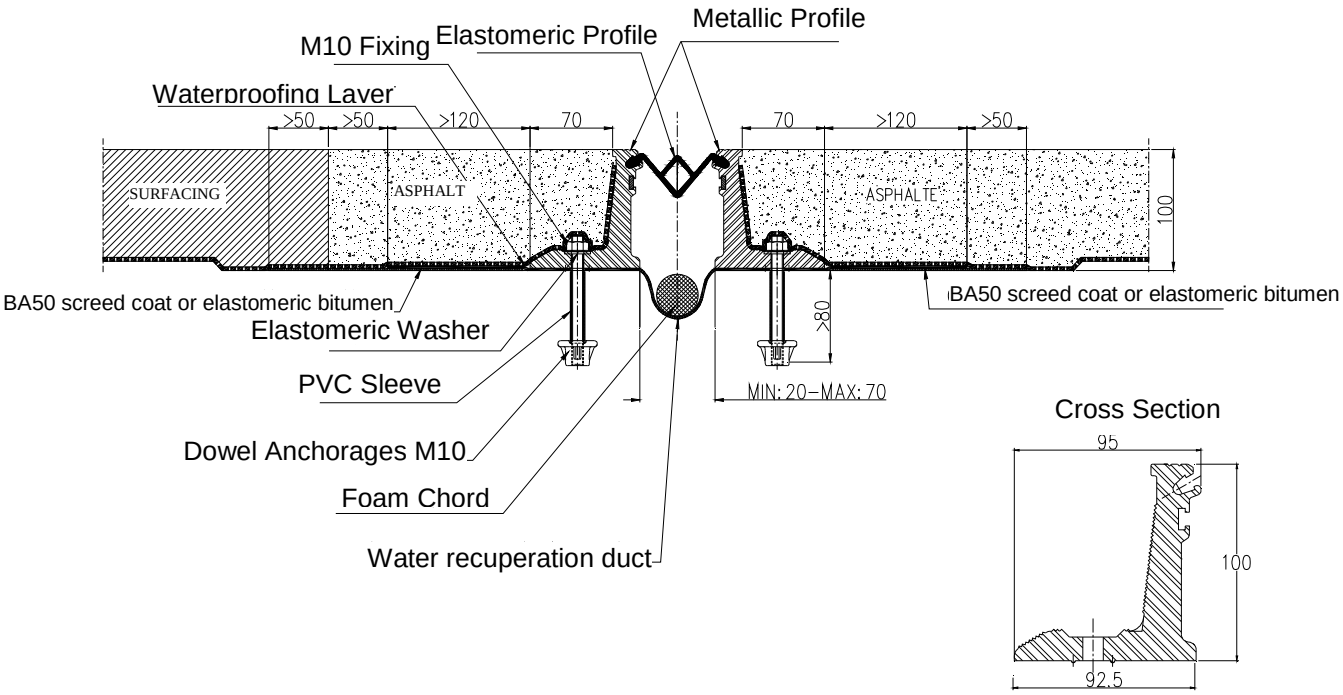


6. TECHNICAL CHOICE (Continuation)

- **CIMAC PLH (Heavy Vehicles)**

Intensive circulation at limited speeds of heavy vehicles, forklifts, etc…

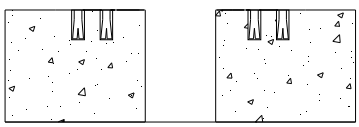
CIMAC PLH



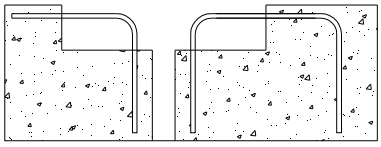
7. INSTALLATION

The installation of joints is carried out by specialist FREYSSINET teams using the following methods:

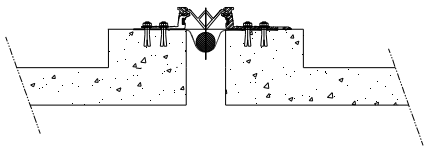
Anchorages Drilled



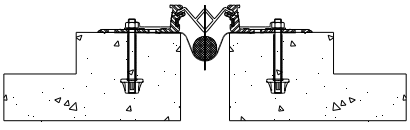
Positioned in place



Positioning - Drilled Anchorages



Positioning - Anchorages Pre Placed



8. DISTRIBUTION

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