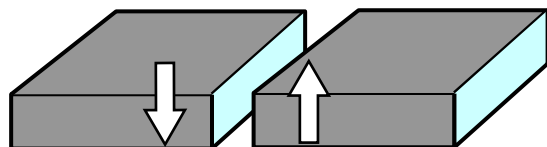
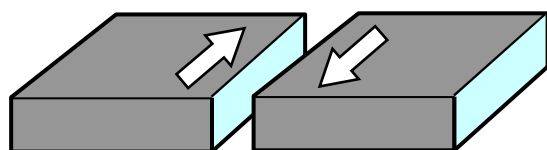
**Strain**

⇒ reinforcement in lengthwise or crosswise direction

**Vertical shear**

⇒ For example in existing concrete slabs that undergo bituminous resurfacing of the pavement layer, local stabilisation of the concrete slab is carried out by means of PU injection.

**Horizontal shear**

⇒ Force-locked bonding of old cracks

Figure 1: Mechanisms acting inside asphalt pavement ⇒ repair technique

Figure 1 clearly indicates that the asphalt reinforcement should be combined with other repair techniques.

## 2. Different types of asphalt pavement interlayers

A distinction is to be made between **SAMI** (**S**tress **A**bsorbing **M**embran **I**nterlayer) sealings and **grid interlayers**. The two systems are often used in combination.

### SAMI sealings

Two possibilities are available

- SAMI non-woven
- SAMI surface dressing

### Grid interlayers

Conventional grid interlayers are made of different fibre-rovings that form a grid structure. The grid is bitumen-friendly or SBR-coated and partially covered with an adhesive on the bottom side. With conventional grid interlayers of this kind the required layer bonding can only be achieved at the construction site when the mesh opening of the grid is at least 15-20 mm and an additional SAMI surface dressing is provided on the grid interlayer.

**S&P grids are pre-bituminised to stabilise the grid structure during transport to the site. When unrolling the grid and laying of the asphalt mixture the grid structure dissolves under the high temperatures. The carbon fibre or glass fibre strands are now arranged displacement free. Large grains in the mixture ideally integrate with the existing pavement layer during compaction through the displacement of the fibre strands. The fibre strands that can also be displaced in lengthwise direction adjust to the uneven surface of the existing pavement layer. Thanks to the S&P technique “Opening of the junction bonding under the influence of heat“ a layer bonding of the reinforced asphalt layer according to Leutner >15kN (150mm test core) is achieved.**

### **Reinforcing grid / non-woven interlayers**

In compound products a non-woven is laid in addition to the reinforcing grid. The reinforcing grid can basically be combined with different non-woven variants:

- **Hot-melt non-woven** (grammage 20-80g/m<sup>2</sup>)  
The hot-melt non-woven is removed during the laying process under the influence of heat.
- **Covering non-woven** (grammage 20-80g/m<sup>2</sup>)  
The covering non-woven is used as an auxiliary means during the laying procedure. The ability of the non-woven to absorb bitumen is too low to ensure a SAMI function.
- **SAMI non-woven** (grammage 90-140/m<sup>2</sup>)  
The bitumen absorption of a SAMI non-woven is 0.9-1.3 kg/m<sup>2</sup> (effective bitumen quantity). The non-woven impregnated with bitumen acts as a stress-reducing intermediate layer.

Practice has shown that the required layer bonding according to the Leutner method of > 15 kN (Ø150mm test core) is frequently not achieved with these combination products. This situation is pointed out in various publications. Because an asphalt grid can only develop its full potential with satisfactory bonding, compound products of this kind are no longer used in several countries.

For asphalt overlays on old concrete roads both a SAMI sealing and a reinforcing grid are required. In such cases it is recommended to combine an asphalt reinforcing grid with a SAMI surface dressing. The required layer bonding can be achieved with this combination.

For asphalt overlays on a cement-stabilised sub-base it is possible to lay the SAMI non-woven as a sealing directly on the stabilised sub-base and to lay the prebituminised S&P grid between two bituminised layers with proper layer bonding.