

Bend Lighting

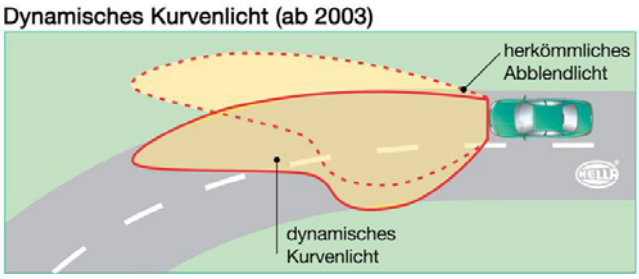
Design and function

Dynamic bend lighting is realized by swivelling the dipped beam to match the radius of the bend being negotiated. The projection headlamp is built into a frame (see Fig. 1) which can be rotated about the vertical axis. The swivelling angle in the range of plus/minus 15 degrees is designed for bend radii up to around 200 metres. If the range normally illuminated by the dipped beam when entering a bend with a radius of 190 meters is normally around 30 metres, this new headlamp technology increases the range by a further 25 metres (see Fig. 2).

Fig. 1

Dynamic bend lighting (from 2003)

Fig. 2



Conventional dipped beam

Dynamic bend lighting

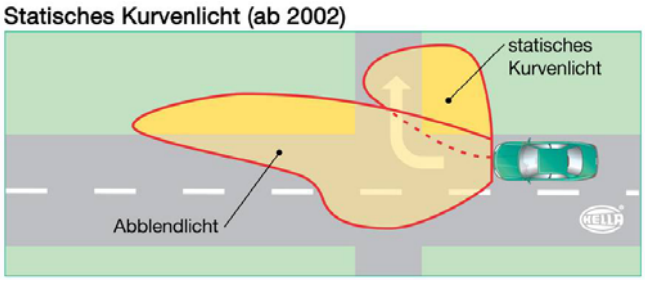
Since the light distribution corresponds to the respective steering angle, the driver can determine the course of the bend early when steering into it and can adapt his or her driving accordingly. Active bend lighting works both with dipped beam and main beam, and continuously adapts to the respective vehicle speed: Whilst at high speeds, the headlamps follow the turning angle of the steering wheel in seconds, the swivelling mechanism works correspondingly more slowly at lower speeds in order to distribute the light as the driver requires it.

Combined static/dynamic bend lighting

For larger (e.g. on motorways) or smaller bend radii (on country roads), there is the possibility of supporting dynamic bend lighting via additional static bend lighting or via a cornering light. It is switched on automatically in addition to

the dipped beam, depending on speed, when the driver operates the direction indicator for turning, or when driving through sharp bends. For this purpose, a control unit evaluates the speed, steering angle and direction indicator parameters. To increase the convenience of this lighting function, the light is not switched on and off abruptly, but rather, the system brightens and dims in accordance with special time parameters.

Static bend lighting (from 2002) Static bend lighting



Dipped beam

Effect of failure

- No illumination of bends in the case of dynamic bend lighting
- No illumination of static bend lighting when turning.
- Warning light on the dashboard illuminates.

Fault diagnosis

- The function of dynamic bend lighting can be checked when driving slowly by turning the steering wheel slightly.
- Operation of static bend lighting can be checked by operating the direction indicator and alternately driving in a circle (not faster than 40 km/h) .
- On some vehicles, e.g. Mercedes Benz W 211, it is also possible to carry out system diagnosis with the aid of a diagnostic tester.