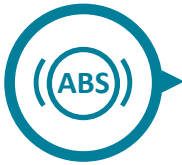


# Active safety technologies

Improving road safety for motorcyclists and other unprotected road users

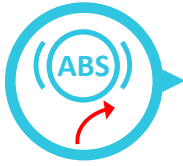
PTWs – “powered two-wheelers” is a collective term for various types and sizes of motorcycles, scooters and mopeds.



## Antilock braking system

Prevents skids from wheel lock up during hard braking to maintain traction, even in wet conditions. Facilitates faster, more controlled stopping with reduced risk of loss of control and falling. For PTWs, activation is limited to straight line travel or low lean angles.

*Available, mandatory in Europe for PTWs over 125 cc.*



## Cornering ABS

Automatically modulates braking forces on each wheel during hard braking in curves, preventing loss of control and falls.

*Available on high-end and mid PTWs.*



## Traction control

Automatically reduces engine power to reduce rear wheel spin and traction loss while accelerating, especially on slippery or uneven surfaces. Works in straight-line travel and cornering.

*Available on a broad range of high power-to-weight PTWs.*



## Motorcycle proximity warning – car

Detects the presence of a motorcycle in the vicinity of the vehicle, even if hidden from view, to alert the driver to a potential conflict.

*Available on a range of high-tech passenger cars.*



## Left turn assist – car

Uses sensors to detect a potential conflict with oncoming vehicles or other road users when the driver is making a left turn. Provides a warning to the driver or automatically applies the brakes to prevent a collision.

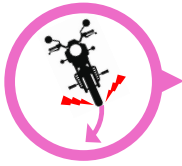
*Under development.*



## Collision warning

Uses sensors to detect vehicles, objects or other road users and alerts the driver to a potential collision so they can take evasive action.

*Soon to be launched on high-end PTWs.*



## Curve assistance

Uses sensor information on speed, lean angle and traction conditions and automatically adjusts suspension and reduces speed for improved control and stability while taking curves.

*Under investigation.*



## Autonomous emergency braking

Uses sensors to detect potential collisions with objects or other road users and if the rider or driver does not take an avoidance action, automatically applies the brakes to prevent collision or reduce the force and severity of impact of inevitable collisions.

*Available on most cars, under investigation for PTWs.*



## Blind spot assistance

Sensors detect the presence of vehicles not visible to the driver or rider in the side mirrors. The system gives warning of a potential collision if the operator attempts to change lanes.

*Available on a broad range of cars and in high-end PTWs.*



## Adaptive cruise control

Assists the rider by monitoring the distance from the vehicle ahead and automatically adjusts vehicle speed to maintain a safe distance.

*Available on high-end PTWs.*



## Intelligent speed adaptation – car

System compares vehicle speed to posted speed limits and provides warnings to driver or automatic speed adjustments to ensure compliance.

*Available on a range of cars, by different names. Mandatory in the EU as of 2024.*



## Enhanced emergency braking

Sensing an impending collision, the system compares braking force applied by the rider to how much is required, enhancing brake activation if necessary to produce the PTW's full deceleration potential.

*Available in high-tech PTWs.*

