## Improving your ability to stop

As a motorcyclist you are likely to encounter situations where you will need to brake hard; something across the road surface, an animal darting out or a car turning in front of you. How well you are able to brake could be the difference between slowing down safely or crashing.

Practising your braking and having good skills is important, however even the most experienced rider can make mistakes when confronted with life threatening situations.

Unfortunately, many riders fail to brake enough or overreact, lock the brakes, skid and crash. Some studies estimate that up to 60 per cent of motorcycle accidents with injuries or fatalities involve either insufficient braking or locking up when braking.

To improve motorcycle braking performance and reduce crashes, manufactures have developed anti-lock braking systems (ABS) for motorcycles.

## Other technologies

Motorcycle manufactures are constantly investigating new technologies to improve rider safety.

Combined/linked braking systems and traction control are examples of such technologies.

When purchasing a motorcycle discuss the features and benefits of these technologies with the retailer.

## Further information

Further information on safe riding and correct braking techniques is available in the Roads and Maritime Services – *Motorcycle riders handbook,* available on the Roads and Maritime Services website www.rms.nsw.gov.au


References

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May 2012 Cat No 45071639

RMS 12.117


NSW GOVERNMENT Transport Roads & Maritime Services

# Motorcycle ABS

## How does Anti-Lock Braking System (ABS) work?

ABS is designed to prevent skidding and allow maximum braking efficiency on a range of surfaces.

If excessive braking pressure or a change in surface grip occurs, ABS sensors detect the change in the motorcycle's wheel speed and automatically adjusts braking force to prevent the wheel from locking. These adjustments occur many times a second varying braking pressure to maintain optimum stopping performance.

Early systems were quite heavy and only available on large touring motorcycles, but with advancements in technology the latest generation of motorcycle ABS units weigh only 700 grams, making it practical for even small motorcycles and scooters.

## What are the benefits?

ABS is shown to improve braking in both wet and dry conditions for even the most experienced riders.

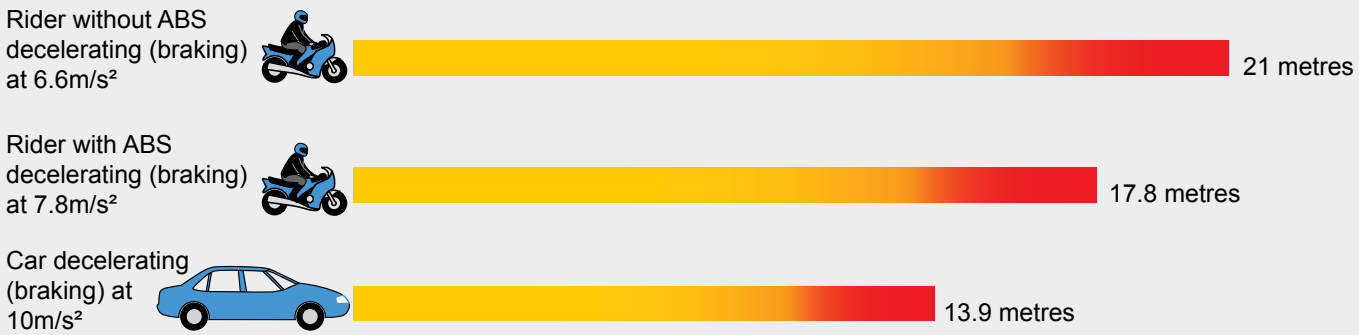
The average modern passenger car can achieve a deceleration rate of about 10 m/s² in optimal conditions. Motorcycle braking tests in Austria* conducted with 134 experienced riders (average of 10 years experience) using their own motorcycles found the experienced riders could only achieve an average deceleration rate of 6.6 m/s² in the same conditions.

Using a motorcycle fitted with ABS the same riders achieved significantly better braking, decelerating at 7.8 m/s². Tests with 47 novice riders found an even greater improvement in braking when using an ABS motorcycle (refer diagram below).

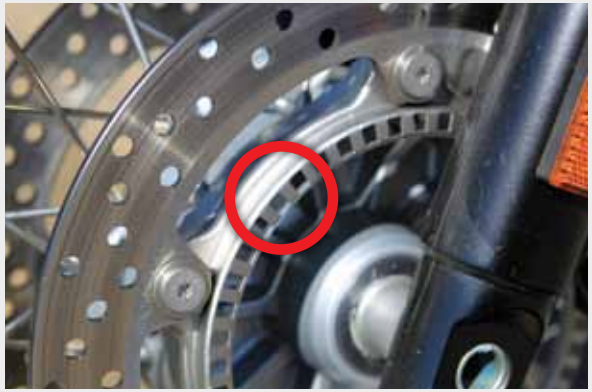
## Stopping distances

When following other vehicles, remember that cars can stop quicker and in a shorter distance than a motorcycle.

**Braking distances: at 60 km/h in optimal braking conditions (flat, dry, clean roadway).**




A recent study of motorcycles fitted with ABS found that they had a fatal crash involvement rate 37 per cent lower than for the non-ABS versions.**



The ABS sensor is an inner perforated ring (circled).

## How do I know if a motorcycle has ABS?

In normal braking ABS feels basically the same as non-ABS brakes. It is only when the ABS is adjusting brake pressure to prevent a skid that the rider will feel the difference.

When ABS is activated the rider will feel a pulsing or shuddering sensation. This is a normal feeling that occurs with ABS in both cars and motorcycles. If this sensation ccurs don't panic and continue to brake firmly.

You can see if a motorcycle is fitted with ABS by looking at the motorcycle's wheels. If the motorcycle has ABS you will see an ABS sensor which is a perforated ring between the brake disc and the axle (as shown in the image above).