Selecting Tyres

Wheel/tyre combinations on BMW models

The approved tyre sizes are stated in the certificate of registration. Every year at the time when the model year changes, the BMW Service Information bulletin "Wheels and Tyres ", is published which provides an overview of all wheel/tyre combinations approved and/or recommended by the manufacturer.

Statutory regulations (applies to Germany only)

Sections 20 to 23 in the certificate of registration and the vehicle title of vehicles licensed in Germany contain specifications as to the tyres that may be fitted to the front and rear wheels of a vehicle. Furthermore, these specifications may also be supplemented by extra details binding the vehicle to certain makes of tyre and/or tread patterns, found in section 33 (Bemerkungen / Remarks). These specifications must be observed.

The sizes approved for standard summer tyres may also be used for snow tyres.

The specifications that supplement the standard level of equipment often include further provisions affecting tyre selection.

There are three possible cases:

1. Special sizes for rims and tyres - usually wide tyres - are named. In this case there is no mandatory specification for a make or makes of tyre. Only the load-carrying capacity and speed index have to be observed; higher quality tyres may also be fitted.
2. Special sizes for rims and tyres and manufacturers are named. This is the case (with BMW) for vehicles with a top speed in excess of 230 km/h (143 mph). If this special size is chosen, the customer is bound to fit one of the makes of tyre stated in the certificate of registration.
3. Special sizes for rims and tyres, and manufacturers and tread patterns are named. This is the case for a number of very fast vehicles. If this special size is chosen, the customer is bound to fit one of the makes of tyre and tread pattern stated in the certificate of registration.

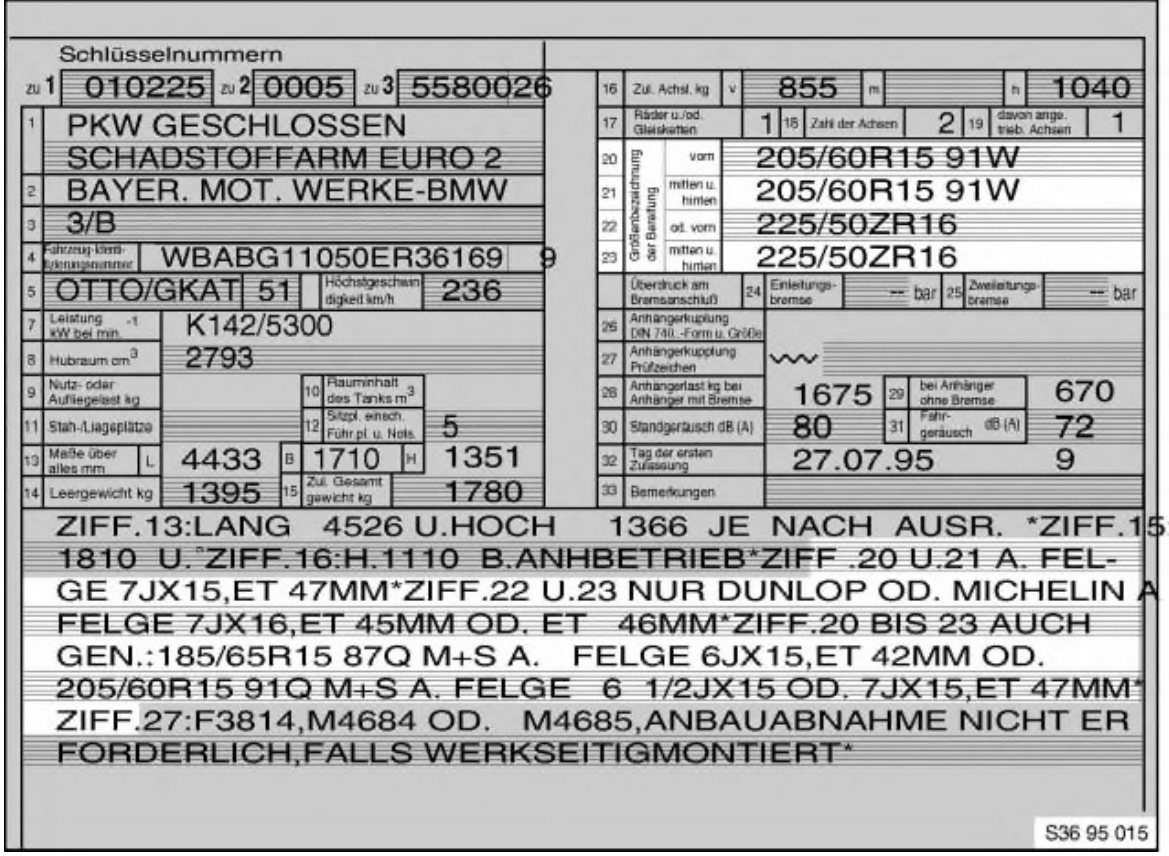
If the customer wants to fit a tyre of the same size but from a manufacturer or with a tread pattern other than one of those stated in the certificate of registration, there are two options:

- The make and/or tread pattern specification is stipulated by the vehicle manufacturer. In this case, a so-called certificate of non-objection is provided by the vehicle manufacturer. This certificate is presented to the vehicle registration office, German Technical Inspectorate (TÜV) or DEKRA (private technical inspection company) and an appropriate entry is made in the certificate of registration and vehicle title.
- Manufacturer or tread pattern restrictions for special wheels. In this case, the expert's report usually contains the restrictions that apply with respect to the use of different tyres. The entry in the certificate of registration and vehicle title is made by the vehicle registration office, TÜV or DEKRA.

If the circumstances or procedure are unclear, the relevant expert at TÜV or DEKRA should be contacted for advice before different tyres are fitted.

When converting to wheels and tyres whose size is not noted in the certificate of registration/vehicle title, release certificates issued by BMW AG and possibly by the wheel or tyre manufacturer must be acquired. If modifications are made to the vehicle (particularly to the wheel houses), the restrictions must be observed and the vehicle presented for inspection and approval by one of the two technical inspection agencies (TÜV or DEKRA); the appropriate entries must be made in the certificate of registration and vehicle title.

Figure 11: Excerpts from a certificate of registration



Use of different tyres on a vehicle

The legislator stipulates that all the wheels of a passenger car must be fitted with tyres of the same design, that is only radial or only cross-ply tyres. Since passenger cars are nowadays only fitted with radial tyres, this regulation has little meaning.

Vehicle and tyre manufacturers recommend that all the wheels be fitted with tyres of the same make and tread pattern. When replacing a pair of tyres, then, (tyres mounted on the rear axle of a rear-wheel-drive vehicle generally wear down quicker) the same type of tyre should be bought again.

Minimum requirement: the tyres on one axle should be of the same make and tread pattern.

It is not recommended to mix "standard" (summer) tyres with snow tyres.

If the tyres fitted are of the same make and tread pattern but are worn down to different degrees, the better tyre should be mounted on the rear axle - contrary to the view widely held. The directional stability of the vehicle is heavily dependent on the rear axle. This is the case irrespective of the type of drive (RWD, FWD, 4WD etc.).

BMW recommends the following rule be followed: replace worn tyres on the same axle (that is, do not swap over and replace on the other axle).

If an owner/operator of a vehicle wants to change the tyres at all cost for economic reasons, this should be done before the tyres have covered 5,000 km (3,000 miles) (see the Owner's Handbook).

The better tyres are fitted at the rear, because a tyre blowout and aquaplaning can be particularly dangerous if they occur at the rear axle.

Standard (summer), snow and all-season tyres

Tyres that are designed for high speeds must have a contact-surface compound that enjoys a high degree of temperature stability, because the temperature in the tyre increases due to the loading at high speeds. At temperatures below 10 degrees Celsius (and not when freezing point is reached!), a rubber compound of this kind becomes quite hard and therefore no longer offers full grip.

Such tyres should be replaced by snow (M + S) tyres during the cold season; these tyres have a softer rubber compound and consequently offer better grip, but they may under circumstances not be allowed to be driven at speeds up to and around the top speed of the vehicle.

Snow tyres have an open tread pattern to give them good grip on snow. Fine slits and the rubber compound ensure good grip on icy roadways. Snow tyres are not high-speed tyres. They are available in the speed classes Q (up to 160 km/h / 100 mph), T (up to 190 km/h / 118 mph) and H (up to 210 km/h / 130 mph). If the top speed of a vehicle is higher than the maximum speed for which the tyre is approved, a sticker indicating the maximum for

which the tyre has been approved must be affixed at a position in the driver's field of vision.

All-season tyres represent a compromise between summer and snow tyres and are suitable for regions where snow and black ice occur only rarely.

The sidewalls of snow tyres and all-season tyres carry the designation M+S. Both types of tyre are regarded as "winter equipment", if restrictions are placed on certain roads or stretches of road when winter road conditions prevail.

Normal and wide tyres

Wide tyres are for the most part chosen for their sporty appearance. Indeed, wide tyres do actually allow a more sporty style of driving thanks to the wider tyre contact area or footprint and the lesser degree of deformation of the sidewall. This means, then, that they absorb greater lateral forces.

Wide tyres do, however, have disadvantages:

- Due to the sidewall not being as high, the suspension characteristics may become poorer (i.e., a harder ride).
- Wide tyres have to displace and expel more water when roads are wet. The earlier susceptibility of vehicles to aquaplaning has in the meantime been defused by special layout of the tread pattern.
- On snow, mud and icy roadways, wide tyres have disadvantages. We therefore recommend that wide tyres be replaced by standard snow tyres during the cold season.

Retreaded tyres

The use of retreaded tyres is totally rejected by BMW.

The possibility of the tyre bodies (or carcasses) being different and in some cases the degree of ageing can lead to a reduction in durability and therefore in vehicle handling and driving safety.

Tyre storage, tyre shipping

Wheel assemblies should never be stored in the shipping sacks. On the one hand corrosion can develop due to the greenhouse effect, while on the other hand vapours given off by plasticizers collect in the form of a liquid in the sack and damage the coat of lacquer on the wheel.

Wheels should be stored either hanging up or flat. If they are stored standing, then on shelves with appropriate depressions and with the tyre inflation pressure increased (3.5 bar).

Make sure that the inflation pressure is sufficient (do not use air which contains a proportion of oil or water).

Always store dismounted wheels and tyres in a cool, dry and, if possible, dark place. Protect tyres against oil, grease and fuel.

After refitting tyres on wheels, have them rebalanced.

Take care of light alloy disk wheels using a wheel cleaning agent (spray), especially during the winter months; do not use aggressive, acidic, heavily alkaline or abrasive cleaning agents or a steam jet at a temperature in excess of 60 degrees Celsius.

Never aim a steam jet directly at the sidewall of a tyre.