BFGoodrich g-Force Tire

Application Guide
for
Mazda MX-5 Cup

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MAZDA

MX-5 CUP

PRESENTED BY: BFGoodrich Tires

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BFGoodrich g-Force Tires for Mazda MX-5 Cup

Dry Tire:

215/610R17 BFGoodrich g-Force Slick - MSPN 71869, equivalent to 215/40R17

Wet Tire:

20/61-17 P2G BFGoodrich g-Force Wet (Michelin P2G) - MSPN 16399

Wheel:

Use of a Rays 17x7.5 wheel is required per series specifications

Recommended Vehicle Static Camber for traditional non-banked circuits:

Front camber: -2.0 to -3.0˚
Rear camber: -2.0 to -3.0˚

Minimum Cold Pressure for traditional non-banked circuits:

26 psi (1.8 bar) front and rear for dry tire
26 psi (1.8 bar) front and rear for wet tire

Recommended Hot Pressure for traditional non-banked circuits:

34 psi (2.35 bar) front and rear for dry tire
32 psi (2.2 bar) front and rear for wet tire

Physical Dimensions:

Dry- Section width 218 mm, Overall Diameter 610 mm on 7.5" wheel
Wet- Section width 215 mm, Overall Diameter 605 mm on 7.5" wheel
Tires are non-directional and symmetric; and may run on left or right-side.

Radial Spring Rate:

Dry: 31.6 kg/mm at 2.2bar, 272 kg, 33.4 kg/mm at 2.4bar, 272 kg
Wet: 29.6 kg/mm at 2.2bar, 272 kg, 31.6 kg/mm at 2.4bar, 272 kg

Operating temperatures:

Optimum range for dry tire is 170-210˚ F (76 – 99 ˚ C) verified by a needle type pyrometer. The tire has a very broad window and will provide consistent grip on either side of this range. It is not a tire that will "switch on" at a temperature.

Heat Cycling:

Not required. The tire is resistant to graining with proper care.

Daytona International Speedway – Roval

BFGoodrich g-Force® slick tires are designed for maximum dry performance on traditional road course circuits. The 31º banking at Daytona International Speedway results in very high vertical loads on the tires, much more than at a traditional road course circuit. As a result, it will be necessary to take precautions at Daytona to maximize tire performance with a very strong focus on safety and longevity.

- Static camber must be restricted to no more than -3 deg at either the front or rear axle positions. Negative camber results in more load on the inside sidewall of the tire. Higher negative camber values combined with the high loads resulting from the banking can overstress the inside shoulder of the tire.
- It will be necessary to increase both the cold and the hot pressures due to the load from the banking and the increased deflection of the tire that is the result. The **minimum** target hot pressure should be in the 34 psi range. It may be necessary to be higher in some cases because of specific aerodynamic down force loads, roll center heights, and other considerations. The **minimum** cold pressure should be 26 psi (this is the minimum, so if your normal cold pressures are already higher than this do NOT lower them). Use of nitrogen is recommended.
- The tire is most vulnerable to damage during the early laps before reaching its hot operating pressure. You **must** warm-up the tire and build as much pressure as quickly as possible on the out or pace laps. During practice sessions do not run flat out on the banking on the opening lap until pressure and temp is built into the tire. Avoid curb strikes until tire has built heat.
- As always, be very diligent in keeping up with the pressures and temperatures to ensure they are where they need to be. You **must** be very diligent about removing the wheel assembly and inspecting the tires off the car after every session. BFGoodrich technical assistance will be on-site to assist with inspection.
- Withdraw from service any tires presenting clear signs of aging or fatigue (cracks in the outer tread, shoulder, bead flank, deformation, etc.)

The hot pressure recommendation is based on calculations to determine the load that the right-side tires will see on a non-banked surface vs. the load that the same tire will see in Turn 4 at Daytona with the banking. As the vertical load increases significantly with speed on the banking.

Running at lower hot pressures or excessive camber (more than -3 deg) will compromise the integrity of the tire and thus safety.

BFGOODRICH SAFETY RECOMMENDATIONS

FOR USE OF CUSTOMER COMPETITION TIRES

INTRODUCTION

Recommendations and instructions for use:

These recommendations are valid subject to more restrictive local regulations issued or imposed by the organizers of competitions, rallies, or circuits regarding the use of tires.

Failure to respect these recommendations or instructions may lead to the use of incorrect equipment or incorrect assembly, provoking premature wear and degradation of tire performance.

Commercial slick tire use on banked circuits requires specific preparations (e.g. camber and pressure). Prior to use on banked circuits; i.e. 'roval', ensure that you have read the recommendations for use issued from Michelin Motorsport North America.

RECOMMENDATIONS

Verification prior to use:

The tire selection must correspond to the recommendation, as defined by the vehicle manufacturer.

Ensure that all tires on the same axle are of the same type (brand, industrial reference, dimensions, structure).

Before mounting, ensure that:

- The diameter of the rim is an exact fit to the inner seat diameter of the tire.
- The width of the rim corresponds to that recommended by the tire manufacturer or, failing that, to applicable standards (ETRTO, TRA, JATMA, etc.).
- The type of rim (tubeless, tube type) corresponds to the type of tire casing used.
- The rim is in good condition, true, and does not have excessive wear or damage present (cracks, deformation, loose or aged fasteners, etc.).
- The rim and associated hardware is able to support the required mounting pressure.
- The tires have not been damaged, repaired, and/or show evidence of aging and are in usable condition.

VALVE:

- Respect all instructions provided by both the wheel and valve manufacturer; as to compatibility with the rim, type of alloys, dimensions, and psi.
- Systematically tighten the polyamide valve cap with an O-Ring (polyamide is used for its thermal resistance qualities). This ensures the valve core is protected from dirt and debris; and maintains an airtight seal on the assembled tire.
- The valves and valve cores are in proper condition (no ovalization, no traces of impact, etc.), and if not replace them.
- Regularly check the tightening torque of closed valve assemblies and valve cores.
- Only use metal valves of proper diameter and length to negate deformation from heat, pressure, impact, etc.
- Alternatively, an EPDM rubber valve may be used of the proper head diameter and short length to avoid excessive protrusion. EPDM valves should be checked regularly for cracking or ozone deterioration.

TIRE MOUNTING AND REMOVAL:

Tire mounting, removal, inflation and balancing must be done on professional equipment in good condition. These actions should be entrusted to qualified and trained personnel who will ensure:

- Compliance with manufacturer's rules and legislation governing the selection of tires.
- Prior examination of the external and internal aspect of the tire.

• Compliance with industry standard tire mounting, removal, balancing and inflation procedures.
• Correct positioning of the rim and tire assembly on the vehicle (left, right, front, rear).
• Correct cold operating pressure utilizing nitrogen or dry compressed air
• Measuring equipment such as pressure gauges, torque wrenches, etc., must be calibrated and inspected at least once a year by a certified body or failing that by the supplier or manufacturer.
• Ensure that the mounting equipment is suited to the assembly work. Prior to using the equipment, refer to the manufacturer's user manual.
• Respect the mounting direction for directional tires.
• Lubricate tire rim seats and casing beads with a suitable *non-water* based product.

INFLATION:

• Important note: only use inflation equipment intended for that purpose. Under no circumstances should an operator remain in the immediate proximity of a tire being inflated. Therefore, ensure that the compressed air hose attached to the valve is equipped with a safety clip and that there is sufficient length for the operator to remain beyond the trajectory of flying particles in the event of an incident. Use of a blowbox and ear protection is highly recommended. People not involved in the inflation procedure should move away from the location where it is carried out.

Conversion of Bar to PSI

2 Bar	*29 PSI*
2.2 Bar	*31.9 PSI*
2.5 Bar	*36.3 PSI*

• Remove the high-temp (red) valve core.
• Start inflation and check that tire beads are properly centered with respect to the rim flange(s).
• If the beads are incorrectly centered, deflate and start the operation over, including lubrication.
• Continue inflating to a pressure of 3.5 BAR/51 PSI to ensure the beads are seated correctly. For higher bead seating pressures, use of a protective cage when inflating the tire is required.
• Replace the valve core and adjust to cold operating pressure.
• Replace the polyamide valve cap with an O-ring to ensure an airtight seal.

BALANCING:

• For use on a circuit, it is recommended to balance the four wheels with an electronic dynamic balancer.
• Balancing machines must be calibrated in accordance with manufacturer instructions.
• Pay special attention to the centering devices (cone / screw plate) on the machine.
• Use of lead-free weights is required in the State of California, please check your local ordinances

TIRE RETREADS and REPAIR:

• Retreading of a new or used competition tire is prohibited.
• Repair of competition tires with patches or plugs is prohibited
• Use of inner tubes is *not* recommended
• Use of sealants is *not* recommended

STORAGE AND TRANSPORT:

It is important to respect certain points when storing and transporting tires, such as minimum temperatures:

Minimum transport and storage temperature:
Slick (Circuit) and Asphalt (Rally) 50º F / 10º C

Moreover, tires must not be subject to:

• Direct and prolonged exposure to sunlight.
• Sources of heat and humidity, including storage in tropical conditions, and/or below freezing
• If the tire has frozen avoid energy spikes on or off vehicle and slowly bring back up to room temperature to avoid cracking.

• Solvents, lubricants, fuels and other chemical products.
• Ozone emissions from equipment such as transformers, welders, electric motors, appliances, etc.
• Long term storage in stacks.

Failure to comply with these storage recommendations may greatly reduce the period over which the tire will retain its peak performance. The storage location must be dry, ventilated, without direct light and used to store tires only. Racks enabling tires to be stored vertically should be used to avoid exerting pressure on the casings.

TIRE AGING:

• Tires age even when not used, or if they are only used occasionally. Excessive tire aging may lead to a loss of grip and/or structural fatigue.
• Withdraw from service any tires presenting clear signs of aging or fatigue (cracks in the outer tread, shoulder, bead flank, deformation, etc.). If in doubt contact a tire professional.
• We recommend that BFGoodrich competition tires be used within 24 months of purchase (within 6 months if stored in severe, tropical like conditions).

MONITORING AND MAINTENANCE:

• Check the tire pressures before and after each session and correct the pressure if it does not match the desired hot operating pressure. BFGoodrich recommendations are based on “hot” pressures.
• Inflation using nitrogen does not dispense you from regular checks of tire pressures.
• In the event of unusual pressure loss, check the external and internal condition of the tire and the state of the wheel and valve assembly.
• Any perforations, cuts or visible deformations must be examined closely by a tire professional. Never use a damaged tire or one that rolled flat without the inspection of a professional.

CONDITIONS OF USE:

• Never apply chemical products or sealants to the outer tread or inner casing of the tire.
• Never use tires with an unknown past.
• Ensure that the pressures, camber angles, speed and axle load values comply with BFGoodrich recommendations for the intended use.
• BFGoodrich competition tires are *not* highway legal and for use only on closed-course motorsport circuits. No warranty implied or expressed. Purchaser and user knowingly acknowledge all risks associated with motor racing and accept all liabilities.

Mazda MX5 Cup Tire Distributors:

Flis Perfromance — Mazda MX-5 Cup constructor
Contact - Ashli Richardson 1.386.256.7021 ashli@flisperformance.com

Jackson Motorsports Group (JMG)
Contact – Paul Hanna 1.800.RACE.BFG paul.hanna@jacksonmg.com