

## DMSB Technical Regulations 2018 for the Superstock 600 class

As at: 13.06.2018 – changes are shown in *italics*

In case of doubt only the German text of the regulations is binding.

The following rules are intended to give freedom to modify a homologated model in the interest of safety and improved competition between various motorcycle concepts.

Everything that is not explicitly authorised and prescribed in the following rules is forbidden.

Superstock 600 motorcycles require an FIM homologation or a DMSB homologation. All motorcycles must comply in every respect with the following Technical Regulations and the Technical Regulations for road racing (see DMSB Motorcycle Yearbook, orange section), unless they are already equipped as such ex-works on the homologated model.

The appearance of Superstock 600 motorcycles from the front, rear and the profile must conform to the homologated shape (as originally produced by the manufacturer), except when otherwise stated,

Any homologation extension of parts submitted by the manufacturer and approved by the FIM will only be eligible in the following year and after verification and approval by the DMSB.

### 1. Motorcycle specification

All parts and systems not specifically mentioned in the following articles must remain as originally produced by the manufacturer for the homologated motorcycle.

### 2. Division into classes

Over 401 cm <sup>3</sup> up to 600 cm <sup>3</sup>	4 stroke	4 cylinder
Over 401 cm <sup>3</sup> up to 675 cm <sup>3</sup>	4 stroke	3 cylinder
Over 401 cm <sup>3</sup> up to 750 cm <sup>3</sup>	4 stroke	2 cylinder

All engines must be normally aspirated.

### 3. Minimum weights

600 cm<sup>3</sup> / 4 cylinder: 162 Kg

675 cm<sup>3</sup> / 3 cylinder: 167 Kg

750 cm<sup>3</sup> / 2 cylinder: 167 Kg

The use of ballast is allowed. The ballast must be securely connected with screws.

At any time during the event, the weight of the machine must not be less than the minimum weight.

Nothing may be added before the weighing.

### 4. Start numbers

See DMSB Motorcycle Yearbook, red section, DMSB IDM and blue section, drawings to the Technical Regulations.

### 5. Fuel

See DMSB Motorcycle Yearbook, blue section, FIM fuel regulations.

Each participant/team must declare the make and exact type of fuel to be used, the source of supply and the manufacturer in the scrutineering certificate at the preliminary checks and declare any changes before the event to the chief scrutineer.

Fuel samples may be taken by the DMSB at any time during an event for checking purposes.

### 6. Tyres

The use of moulded, commercially available treaded tyres and rain tyres is permitted. The tyres must be commercially available on the free market to the public. Tyres must have the tyre index V and Z, or (W). Like for commercial tyres, both side walls of the tyres must be marked with the manufacturer's name, the product specification, the dimensions, a DOT and/or an E identification etc. The marking of the tyres shall take place during the heating process and must not be applied subsequently in form of stickers or rubber

labels etc. The depth of the tyre tread over the whole pattern at pre-event scrutineering must be at least 2.0 mm. All tyres must comply with the general safety standards of the corresponding manufacturer. The use of tyre warmers is permitted

## **7. Engine**

Any change of engine must be declared to the scrutineers in advance.

### **7.1. Fuel injection system**

Fuel injection systems refers to throttle bodies, fuel injectors, variable intake tract devices, fuel-pump and fuel pressure regulator and may not be modified.

Air and air/fuel mixture must go to the combustion chamber exclusively through the throttle body valves. Electronically controlled throttle valves, known as "ride-by-wire", may be only used if the homologated model is equipped with the same system. Software may be changed, all the safety systems and procedures as originally provided by the manufacturer must however be retained.

### **7.2. Crankcase and all other engine cases**

#### **7.2.1. Lateral covers and protection**

Oil leading components (e.g. engine and gearbox cases as well as ignition, clutch and generator covers) which risk to be damaged in case of an accident must be protected by additional means made of steel, light-alloy, carbon, Kevlar or composite material components. The protection of at least 50% of the area under risk is mandatory.

Engine case guards in the form of strengthened engine side covers may be installed / machined, but those parts must be made of the same material and may not be lighter in weight than the standard material.

The original covers on the engine side may be modified. The pinion cover may be removed or modified.

Covers of a dry clutch may be modified or replaced to achieve a better cooling.

### **7.3. Transmission/Gearbox**

Electronic quick-shift systems and shift indicator for upshifting as well as quick-shift systems to downshifting (blipper) are allowed. Pinions, chain sprockets, chain pitch and size may be changed.

### **7.4. Clutch**

Friction and drive discs as well as clutch springs may be replaced and/or changed but their numbers and operating systems must remain as original. The fluid container may be modified or replaced. The springs of the original anti-hopping clutches may be changed or modified.

### **7.5. Oil pumps and oil lines**

Oil lines may be changed or replaced.

Oil lines containing positive pressure, if replaced, must be of metal reinforced construction with swaged or threaded connectors.

### **7.6. Radiator and oil cooler**

*The original water radiator must remain unchanged. In addition either a water radiator or an oil cooler may be used. In any case only one additional cooler is permitted.* The original heat exchanger between oil and water circuit may be modified, replaced or removed.

Additional protective meshes may be added in front of the oil and water radiator(s).

The radiator cap is free but it must be secured to prevent accidental opening.

The coolant expansion tank may be modified or replaced.

The cooling system hoses from and to the engine may be replaced.

Flexible wave-type connecting pipes are permitted but without additionally formed cooling fins.

The thermostat inlet may be removed or modified.

The only permitted cooling liquid is pure water. Additives are allowed to prevent corrosion, cavitation and abrasion, provided that they do not contain MEG (monoethylene glycol).

## 7.7. Airbox

Secondary air systems and charcoal filter may be removed and the connections be closed.

The airbox must be completely closed around the induction bell mouth of the carburettor/ injection system.

The induction area / air trumpets must be entirely within the air box.

The air box drains must be sealed.

All motorcycles must have a closed breather system with catch tank. A combination with other systems is prohibited. The breather system (air box plus any breather oil collector box) must be capable of retaining a minimum of 500 cc of discharged liquid in the event of a damage (see DMSB Yearbook, blue section, drawings in the Technical Regulations: figure C).

Sound-proofing materials, if originally existing on or in the airbox, may be removed.

The air filter element may be modified or replaced but not removed.

Sensors for data recording may be added.

## 7.8. Exhaust system

Exhaust manifold, collecting pipes and silencers may be replaced or modified, position and arrangement of the silencer/s must remain as originally homologated.

The number and shape of the exhaust final exit of the exhaust pipes are free, but there must be no sharp edges.

Wrapping of exhaust systems is not allowed except in the area of the rider's foot or an area in contact with the fairing, for protection from heat.

## 7.9. Noise limit

The noise limit is 107 dB/A, with a 3 dB/A tolerance after the race only.

## 8. Electrics and electronics

### 8.1. Ignition / Engine Control Unit (ECU)

The engine control unit (ECU) must be the original system as homologated. The installation position may not be modified. A change of software is allowed.

It is permitted to add external modules for the ignition and/or fuel injection. The combined retail price of the additional modules (including software and tuning tools) must not be more than €1000 (VAT excluded) on the free market. A special connecting part may be used to connect the module/s and the ECU.

The use of data recording systems is permitted provided that those are commercially available on the free market for everybody and that the combined retail price is not more than €1000 (VAT excluded).

The addition of a device for the infrared transmission of a signal between the rider and his team may solely be used for lap times.

The addition of a GPS unit to determine lap times and track positions is permitted.

Wiring harness:

The main wiring harness may only be cut or shortened in the area of the unused lighting installations.

The ignition lock may be relocated or removed.

The battery is free, but the use of lithium polymer batteries is prohibited.

If lithium-ion batteries are used, they must be provided with appropriate and approved BMS protection circuit.

### 8.2. Alternator, generator, electric starter

It must at all times (practice/race) be possible that the motorcycle (engine) can be started.

The alternator must supply the battery with measurable charging tension whilst the engine is running.

All mechanical parts of the alternator / generator (regulator / stator / rotor / coil with windings etc.) must remain as original and meet the manufacturer's homologation.

## 9. Main frame

The sides of the frame may be covered by a protective part made of plastic or composite material. These protectors must fit the form of the frame.

All motorcycles must display a vehicle identification number punched on the frame body (chassis number). Should the original vehicle identification number be missing, the team manager / rider must establish proof of the originality. The scrutineers shall then apply a seal onto the main frame.

## **9.1. Frame body and rear sub frame**

The rear sub frame may be changed or replaced, but composite materials are prohibited. Additional seat brackets are allowed.

Notwithstanding the dimension of the homologated total height, the height of the frame rear part / rear cowl height is free.

## **9.2. Front fork**

Only original internal parts of the fork such as springs, oil, shims and damper pistons may be replaced or modified by commercial, freely available parts. The fork clamps may not be modified, so-called cartridges are not permitted.

It is prohibited to use aftermarket or prototype suspension components with electronic control unless any such suspension is originally fitted in the standard model of the homologated motorcycle. The fitted electronic system must comply with the type of the manufacturer, the software and interior mechanical components are free.

Height and position of the front fork (stanchion) in relation to the fork bridge is free.

The surface finish of the fork tubes (stanchions, fork pipes) may be changed. Additional surface treatments are allowed.

Steering dampers may be added or replaced by an aftermarket damper. The steering damper must not act as a steering lock limiting device.

Foil fork warming devices may be added to pre-heat the fork.

Due to the variable fork positions and the freedom regarding the windscreen, the total height is free, irrespective of the homologated total height.

It is permitted to modify, to replace or to remove fork dust cuffs / seals on the front fork.

## **9.3. Rear fork (swing-arm)**

The rear wheel chain tensioning device is free.

It is permitted to securely lock the brake calliper and bracket permanently in one position on the fork, but the brake calliper itself may not be altered. A bore of up to approximately 8.0 mm may be applied on the brake calliper (provided that a sufficient wall thickness is ensured).

For safety reasons, a chain guard must be fitted in such a way to reduce the possibility that any part of the riders' body may become trapped between the lower chain run and the rear wheel sprocket.

In the case of a swing arm with lower tube this lower tube may assume the function of a chain guard.

## **9.4. Rear suspension unit**

Rear suspension units including spring(s) are free, but the original attachments to the frame and to the rear fork as well as the homologated levers and their original attachments must be used.

The combined retail price for one suspension strut may not be more than 2000€ (VAT excluded). It must be freely available on the market for everybody.

No parts with electronic control may be used unless any such suspension is installed on the production model of the homologated motorcycle. The fitted electronic system must comply with the type of the manufacturer, the software and interior mechanical components are free.

## **9.5. Wheels**

It is permitted to replace and modify the spacers.

The addition of crash bobbins at the wheel axles is permitted.

Front and rear wheel bearings are free.

## **9.6. Brakes**

The external diameter and thickness of the brake discs as well as the vent systems must remain as originally produced by the manufacturer for use on the homologated motorcycle. A tolerance of +/- 2mm is accepted for the external diameter. A tolerance of -1.0 up to +1.5 mm is accepted for the thickness of the brake discs. Internally ventilated discs are not allowed as after-market part. The brake discs must be of ferrous material. Otherwise, the brake discs are free.

Cover plates may be removed. Fixed heat protection sheets between the brake pad carrier and the brake piston are allowed.

The use of fitting springs on the locking pins between the brake pads – solely at the rear brake – is allowed. The construction must ensure that the brake pistons do not move back independently.

Spacers made of steel up to 1.5 mm thick for the adjustment on the socket of the brake callipers are allowed.

The brake fluid reservoir may be modified or replaced.

Front and rear brake lines are free.

The split of the front brake lines for both front brake callipers must be made above the lower fork bridge. In exceptional cases, a permanent, secure fixation to the lower fork bridge, immediately beneath, is possible.

The front and rear brake pads may be replaced. Brake pad locking pins may be modified for quick change type.

The function of an ABS system, if existing, may be deactivated and/or removed.

### 9.7. Handle bars and hand controls

Handle bars may be replaced (except for the brake and clutch master and slave cylinders) or be relocated.

Clutch and brake levers may be replaced by an after-market part, optionally with manual adjusting device.

Handlebars made of carbon or carbon/Kevlar or of other composite materials are prohibited.

### 9.8. Foot rests/foot controls

Foot rests may be replaced but the hanger/brackets must be mounted to their original frame mounting points.

Foot control devices may be modified to invert the gear selection, foot rests may be rigidly mounted or of a folding type but folding types must incorporate a device to return them to the normal position.

The end of the foot rest must have a solid spherical radius of at least 8mm (see DMSB Yearbook, blue section, drawings in the Technical Regulations: figures A and C).

Non-folding 'metallic' footrests must be sealed at the end.

The sealing plug must be permanently fixed and be made of plastic, Teflon or an equivalent type of material (radius at least 8mm).

### 9.9. Fuel tank

The fuel tank may be protected with a cover (also made of carbon and/or carbon composite material). These covers must fit the shape of the fuel tank.

A drain hole/device may be added but it must be fixed with protection inside the chassis / frame (not in the frame).

The fuel tank filler cap may be modified or replaced, but it must be mounted in a way that it does not protrude beyond the tank surface and that it may not break away in the case of an accident.

Fuel tanks with tank breather pipes must be fitted with non-return valves that discharge into a catch tank with a minimum volume of 250 cc and made of a suitable material.

All fuel tanks must be completely filled with fire retardant material (preferably Explosafe®).

### 9.10. Fairing / bodywork

Fairing may be replaced and the material may be changed.

The use of carbon or carbon composite materials is not permitted, unless this is an original part. (Except for tank fairing, frame protection, air intake ducts, front and rear fender).

Local reinforcements made of Kevlar® or carbon (diameter of 20 to 25 mm) at the fairing inside and only around the mounting bores are permitted. (Co-ordination with the Chief Scrutineer).

The fairing may be slightly cut at the front, in the area of the radiator, but **only** towards the bottom, to achieve a better air supply to the radiator. Additional fairing elements, situated at the inside, between radiator system and main fairing elements as well in the area of the lower fork bridge, are admitted but only to achieve a better cooling air supply to the cooling system.

The mountings must for this purpose be located within or on the fairing and be fitted so that the vehicle handling is not compromised.

The fairing in the area of generator, gearbox and crankshaft may be closed.

The windscreen may be replaced by a duplicate of transparent material, the shape may be changed (so called bubble form).

The suspension / attachment to the fairing must be as homologated.

No fairing may be added to motorcycles which were originally not equipped with a fairing.

The original combined bracket for instrument/ fairing may be replaced. All other fairing brackets may be altered or replaced. Each attachment point of the front/rear wheel suspension must either be screwed to the frame or to the engine block. No part may protrude beyond the fairing (except foot pads). Modifications of the fairing for the sole purpose of the foot pads are permitted. The maximum distance between the foot pads or supports and the fairing must not represent any kind of danger.

The original air ducts running between the fairing and the air box may be altered or replaced. The outer air inlet openings in the fairing must remain as original and may only be adjusted at the interior or for the air inlet ducts. Additional air inlets are prohibited.

The lower fairing must be constructed to hold, in case of an engine breakdown, at least half of the total oil and engine coolant capacity used in the motorcycle (minimum 5 litres).

The lower edge of the openings in the fairing must be positioned at least 50 mm above the bottom of the fairing.

The lower part of the fairing must incorporate a minimum of one and a maximum of two holes with a 25mm diameter each at the lowest point. This(ese) hole(s) must remain closed in dry conditions and may only be opened in wet race conditions as declared by the Clerk of the Course.

The front mudguard may be replaced. The front mudguard may be spaced upwards for increase of tyre clearance. The appearance must comply with the original.

The rear mudguard may be modified, replaced or removed.

Rear mudguards fixed to the swing arm that incorporates the chain guard may be modified / replaced to accommodate larger diameter rear sprockets.

All exposed edges must be rounded.

### **9.11. Seat**

Seat, seat base and associated bodywork may be replaced with parts of the same shape as originally produced by the manufacturer for the homologated motorcycle. The appearance from front, rear and profile must conform to the homologated shape. The top portion of the rear bodywork around the seat may be modified to a solo seat and be closed on the lower part towards the wheel.

The use of carbon fibre or carbon composite materials is not allowed.

All exposed edges must be rounded.

### **9.12. Rear safety light**

All motorcycles must have a functioning red rear light provided with LEDs. This light must be mounted to the rear fairing, at least 600mm above the ground and be located in the area between the rear wheel and the hump. It must be ensured that it is not obstructed by components and/or by the rider and that its lights are directed to the rear with a deviation of maximum 5° in relation to the vehicle longitudinal axis. Glare prevention is mandatory.

It must be switched on only in the case of a wet-race or upon instruction of Race Control.

### **9.13. Fasteners / connectors**

Standard fasteners/ connectors (note: e.g. screws, bolts) may be replaced. Aluminium fasteners may only be used in non-structural locations.

These fasteners may be drilled for safety wire, but intentional weight-saving modifications are not allowed. Titanium fasteners may not be used.

Fairing/bodywork fasteners may be replaced with the quick disconnect type.

## **10. The following items may be altered or replaced**

Any type of filter, lubrication, brake or suspension fluid as well as any type of spark plugs, hoses and valves may be used.

Wheel balance weights may be removed, replaced or added.

Gaskets as well as painted external surface finishes, anodisation and decals are free.

It is permitted to fit or to remove heat protection mats (except Article 7.12.).

## **11. The following items may be removed - replaced**

- Instrument brackets,
- Tachometer, drive shaft and drive,
- Chain guard as long as it is not incorporated in the rear fender.
- Components screwed onto the sub frame,
- Ignition lock and wiring,
- Emission control system components inside or in the vicinity of the air box,
- Control motors and their control cables from the area of the exhaust system,
- Lambda sensor
- Secondary air system
- Air ducts in the area fairing/cooler.

## **12. The following items must be removed**

- Rear view mirror,
- Lights and reflectors,
- Horn
- Licence plate bracket,
- Toolkit,
- Passenger foot rests,
- Passenger grab rail,
- Safety bars, centre and side stands.

## **13. The following items must be altered**

Electric fuel pumps must be connected to the ignition breaker switch.

Motorcycles must be equipped with a functional ignition kill switch or button mounted on either side of the handlebar within reach of the hand while on the hand grips that is capable of stopping a running engine.

It is compulsory to fit a tip-over switch.

It must be ensured that, after the qualifying practice or the race, it is working within 15 seconds.

Safety bars, centre and side stands must be removed, but fixed brackets must remain.

All drain plugs must be safety wired. External screws and bolts in the area of an oil flow must be safety wired and external oil filter be fully secured.

Where breather or overflow pipes are fitted, they must discharge via existing outlets. The original closed system must be retained. No direct atmospheric emission is permitted.

Where oil breather pipes are required and fitted, the outlet must discharge into a catch tank located in an easily accessible position and which must be emptied before the start of a race. The minimum size of this catch tank must be 500 cc for gearbox engine breather pipes.

All motorcycles must have a closed breather system.

## **14. Equipment and protective clothing**

Rider clothing / equipment in compliance with FIM Article 1.65 is mandatory.

The rider's name must appear on the right arm of the rider's clothing near the wrist (embroidered, patch).

## **15. Camera / Camera mounting**

It is permitted to mount a camera to the motorcycle. It must be solidly connected to the vehicle, e.g. using clamp brackets. The use suction pad mountings or magnetic foot mountings is prohibited. The camera must moreover be additionally secured, e.g. with a cable which is attached both to the camera housing and to the motorcycle. The camera must be fitted to the motorcycle when it is presented for scrutineering. It is at the discretion of the scrutineers to decide whether the camera is safely mounted.