

2023 North European Championship

FORMULA OFFROAD

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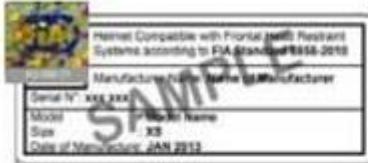
1. DRIVERS PERSONAL SAFETY EQUIPMENT

1.1 Mandatory: Driving suit approved by: FIA 8856-2000 SFI 3-2A/5 Any other FIA or SFI approval with flameproof underwear Fireproof balaclava Fireproof gloves Fireproof shoes Fireproof socks.

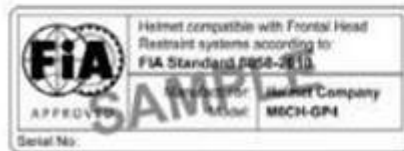
Optional: When driving in water, mud or heavy rain it is allowed to wear other fire retardant suits not approved by FIA or SFI as an outer layer on top of the ones specified above to protect the fireproof qualities of driving suits.

1.2 Full face helmet approved by:

FIA 8858-2010

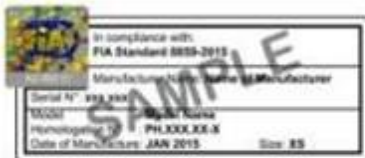


FIA 8860-2004 (Valid until 31.12.2020)



FIA 8860-2004 Nationally valid until 2025.

FIA 8859-2015



SNELL SA & SAH 2010



SNELL SA 2015



Through-and-back type lock chin strap highly recommended.

1.3 Splinter safe helmet-visor or goggles.

1.4 FHR=Frontal Head Restrain system, FIA 8858-2002, 8858-2010, 8859-2015 or SFI 38-1. 1.5 3" wide FIA/SFI approved seatbelts of 5- or 6-point design. Narrower shoulderbelts to better fit FHR systems also approved. Seatbelts with latch style locks are highly recommended. Seat belt must be without any damage and within approved date limitations.

2. TECHNICAL REGULATIONS

2.1. Regulations are common for Modified and Unlimited, unless noted.

3. APPROVED VEHICLES, MODIFIED

3.1. All vehicles must have two axles and four-wheel drive.

3.2. The car may be driven in four-wheel drive or two wheel drive.

3.3. Overall design of vehicle is free of choice within these regulations.

3.4. Two regular size seats must be installed side by side.

4. APPROVED VEHICLES, UNLIMITED

4.1. All vehicles must have two axles and four wheel drive.

4.2. The car can be driven in four wheel drive or two wheel drive

4.3. Overall design of vehicle is free of choice within these regulations.

5. CHASSIS

Vehicles must have a main frame structure built from

5.1. Original frame from a mass produced 4x4 vehicle, or

5.2. Seamless steel tubing of minimum size 45x2,5 mm or 50x2mm, or

5.3. Rectangular tubing of minimum size 40x60x3 mm, or

5.4. Square tubing of minimum size 45x45x3 mm

5.5. Aluminum, Stainless steel, docol steel and Chrome moly steel is not allowed.

5.6. Main frame structure is considered the part of the frame connecting the six main bars from the roll cage together.

6. TIRES, MODIFIED

6.1. Only paddle tires up to 33" equal to "Multipaddle" and "Padla Trak" Designed before 2013 are allowed.

6.2. All DOT approved tires are allowed, these can be custom grooved unless they are resurfaced.

6.3. No snow chains or any kind of attachments to tires are allowed.

7. TIRES, UNLIMITED

7.1. Free of choice. Tires must be made of rubber and inflated with air.

7.2. Snow chains or any kind of attachments to improve traction is not allowed.

8. WHEELS

Free of choice.

9. SUSPENSION

9.1. Properly mounted bumpstops/airshocks of gas charged hydraulic design is mandatory.

9.2. Otherwise free of choice.

9.3. Shock absorbers Free of choice

10. ENGINE

10.1. Engines are free of choice.

10.2. Harmonic balancer (if so equipped) and flexplate/flywheel must be of racing type.

10.3. Dual, correctly working return springs must be installed on the carburetor/throttle body or throttle pedal if using a drive-by-wire system.

10.4. Electronic throttle body does not require return springs on throttle body, but one for the throttle pedal or throttle pedal with a hook.

10.5. Supercharger(s), Turbocharger(s) and Nitrous Oxide are allowed.

10.6. For roots type superchargers a shield made of 1,5 mm steel or 2,5 mm aluminum must cover the drive belt. The shield must be securely mounted to the engine or chassis. Any fuel, nitrous or oil hoses nearby this drive belt must be enclosed in steel pipe or be of a steel reinforced type.

10.7. SFI 14.1 approved limiting straps must be installed if using this type of supercharger to prevent the supercharger from blowing off the manifold. Nationally valid 2 years after SFI validity. All fuel hoses must have sufficient length not break in such a situation.

11. FUEL SYSTEM

11.1. Fuel tank must be designed for racing, and securely fastened outside the driver's compartment. The fuel cap must be leak proof and a check valve must be installed in the vent hose.

11.2. There must be a wall to prevent fuel leaking into the driver compartment in case of a rollover. All fuel lines must be securely fastened. Any fuel lines passing through the driver compartment must pass through a steel tube of 1 mm thickness with a diameter of 2 times the diameter for the fuel line.

11.3. Fuel tank, fuel filters and fuel hoses must be protected by a 1 mm steel or 2 mm aluminum shield, where exposed for possible damage.

11.4. Diesel, Bio Diesel, E85, Gasoline and Racing-gasoline are allowed as fuel.

11.5. Lead substitute and Octane booster is allowed; all other fuel additives are banned.

11.6. Water injection is allowed.

11.7. Propane (LPG) injection is not allowed.

11.8. All other fuels than Gasoline and Racing-gasoline must be marked on the vehicles.

12. METHANOL FUEL, UNLIMITED ONLY

12.1. Methanol fuel is allowed in Unlimited if the vehicle is clearly marked front and rear "METHANOL FUELED" in a yellow square 15x30 cm.

12.2. If using Methanol, a FIA/SFI approved fire extinguishing system must be installed in the vehicle with at least 2 nozzles front of engine towards back to engine and 1 nozzle behind engine towards to front way to engine and 2 nozzles in the driver compartment.

13. NITROUS OXIDE

Nitrous oxide is allowed if installed according to these regulations:

13.1. Only complete systems from reputable manufacturers installed according to instructions are allowed.

13.2. Nitrous bottle must be securely mounted with two steel bands of at least 2,5x25 mm completely circling the bottle.

13.3. Nitrous bottle cannot be installed in the engine compartment.

13.4. Nitrous bottle must be installed with the valve end pointing away from the driver or have a shield protecting the driver from a valve blow off made of 2 mm steel or 4mm aluminum plate.

13.5. Nitrous bottle must be installed in such a way that it is protected from outside impact in case of a rollover.

13.6. All nitrous hoses must be able to handle at least 3000 psi.

13.7. All nitrous hoses must be securely fastened.

13.8. Circuits cannot be negative switched.

13.9. It should not be possible to switch system on unless ignition is on.

13.10. The system must have a separate arming switch for the driver clearly marked NOS On/Off.

- 13.11. System should only be possible to activate at Wide Open Throttle.
- 13.12. System should only be possible to activate above 2000 engine rpm.
- 13.13. Enclosed vehicles must have a FIA/SFI approved fire extinguishing system installed with at least one nozzle aimed at the driver and one aimed at the engine.
- 13.14. FIA/SFI warning sign for NOS must be fitted to the rear of vehicle.
- 13.15. Bottle warming system must be from a reputable manufacturer and installed according to instructions. No open flames allowed!
- 13.16. Nitrous pressure gauge must be installed if bottle warming system is used.

14. COOLING SYSTEM

- 14.1. Radiator and overflow tank is not allowed the driver compartment.
- 14.2. All hoses must be undamaged and of high quality.
- 14.3. Any hoses or tubes passing through the driver compartment must be covered and without splices.

15. EXHAUST SYSTEM

Noise level cannot exceed 100dB according to FIA measurement rules. Otherwise free of design.

16. ELECTRICAL SYSTEM

- 16.1. Battery must be of dry cell design and securely mounted with upper and lower brackets.
- 16.2. The positive battery post must be securely covered with a non-conductive material.
- 16.3. All cables must be securely fastened.
- 16.4. An electrical master switch must be installed in reach of the driver when sitting with the seatbelts tightened.
- 16.5. A second switch or a wire actuating the primary switch must be installed in the rear of the vehicle.
- 16.6. The rear switch or release handle must be clearly marked with a blue triangle and a red lightning inside the triangle.

17. TRANSMISSION AND DRIVE SHAFTS

- 17.1. Automatic transmissions must have a properly working neutral safety switch
- 17.2. A SFI 4.1 transmission shield or made from 4 mm thick steel plate or 2 mm high strength steel like Domex 650 MC

17.3. Transmissions with a FIA/SFI 1.1 and 1.2 approved bellhousing do not need the flexplate shield. A transmission with a FIA/SFI approved casing does not need the transmission shield.

17.4. Vehicles with manual transmissions must have the starting current wired through a switch mounted on the clutch pedal in such a way that the vehicle will only start with the pedal fully depressed.

17.5. Front and rear drive shafts must have a safety loop made of 4x50 mm steel or 2 mm high strength steel like Domex 650 MC or 20x1,5 mm steel tube bolted to the chassis or transfer case with minimum two grade 8.8 M10 bolts.

17.6. The safety loops must be on the Transfer case made of aluminum needs protection shield made from 4 mm thick steel plate or 2 mm high strength steel like Domex 650 MC covering the top and both sides if there are two seats in the car transfer case end of the drive shafts.

18. BRAKE SYSTEM

18.1. Main brakes free of choice, but must be operated by foot, positively work on all four wheels and capable of locking up all four wheels simultaneously. Driveshaft mounted brakes are not allowed.

18.2. Properly working handbrake and/or park function in transmission must be installed.

18.3. All brake lines must be securely fastened and without damage.

18.4. Steering break is allowed, but the brake must always be in working order on all four wheels.

19. STEERING SYSTEM

19.1. The vehicle must be controlled by a conventional steering wheel mounted in front of the driver.

19.2. Hydraulic steering and all types of conventional steering from vehicle manufacturer are allowed.

19.3. All steering components must be well dimensioned for safe control of the vehicle at all times.

19.4. All hydraulic hoses except for the drain hose must have pressed-on ends, be free of any damages and have sufficient length to allow full movement of the suspension.

19.5. All steering hoses must be protected from potential damage caused by engine or suspension components.

19.6. All hoses connected to the steering valve must be shielded from the driver.

19.7. Minimum diameter of the steering rod in a hydraulic cylinder is 22 mm. Mid-chassis steering is not allowed.

20. BODY, MODIFIED

20.1. Length of body must at least cover the wheelbase of the vehicle. Hood and side body panels must be installed.

20.2. Engine air intake protruding through the body must be designed to protect the driver from direct blowback from the carburetor/throttle body.

20.3. Any windows must be made of laminated glass or polycarbonate/ lexan.

21. BODY, UNLIMITED

21.1. Length of body must at least cover the wheelbase of the vehicle. Hood and side body panels must be installed.

21.2. Engine air intake protruding through the body must be designed to protect the driver from direct blowback from the carburetor/throttle body.

21.3. Any windows must be made of laminated glass or polycarbonate/ lexan

22. DRIVER'S COMPARTMENT

22.1. Walls separating the driver's compartment from the engine, oil coolers and radiator must be installed. The purpose is to prohibit spreading of fluids and/or flames.

22.2. Any engine air intake in the driver's compartment must be baffled to protect the driver from any blowbacks.

22.3. Arm straps or window nets with maximum 50 mm web size and minimum 2 mm thread size must be used if the distance from the center of driver's seat to the outer edge of the roll cage is less than 50 cm.

22.4. If the distance from the center of driver's seat to the outer edge of the roll cage is less than 40cm window nets must be used.

22.5. Arm straps must be attached below the elbow of the driver and must be released simultaneously with the seatbelt.

22.6. In modified class A passenger seat must be installed side by side with the driver's seat. Passenger seat is free of choice, but must be of regular size.

23. FLOOR

23.1. Floor of the vehicle must be made of 1 mm steel or 2 mm aluminum and completely cover the whole floor.

23.2. If the front driveshaft passes under the driver seat, the material in this area must be at least 2 mm steel or 3 mm aluminum.

24. DRIVER'S SEAT

24.1. Driver's seat must be of racing type and have cut holes for a 5 point seat belt.

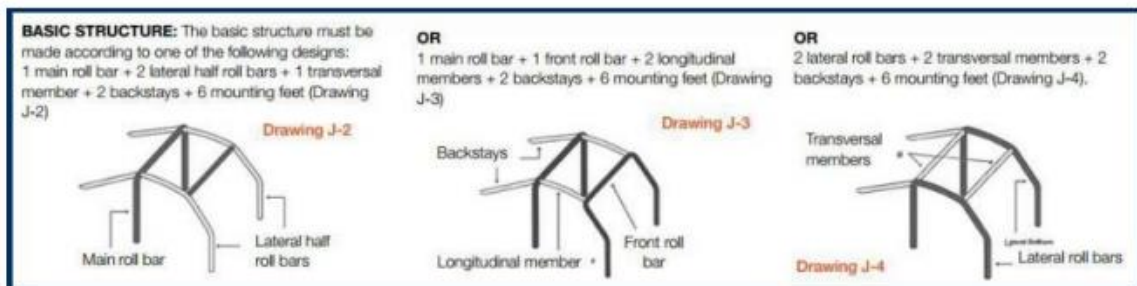
24.2. Seat must be securely fastened and the back of the seat must rest against the roll cage or braced in a similar way.

- 24.3. If the seat is mounted on a sliding bracket, there must be an extra safety pin installed to prevent sliding of the seat.
- 24.4. The back of the seat must be high enough to cover 2/3 of the driver's helmet.
- 24.5. Side supports for the driver's helmet must be installed to the seat or in the chassis behind the seat. This support must be FIA/SFI approved or made of minimum 10 cm wide and 3 mm thick aluminum or steel plate.
- 24.6. Side support must extend forward at least 20 cm from the back of the seat in no less than 75 ° and insulated, not to damage the helmet during normal use.
- 24.7. Distance from side of helmet to support must be no more than 10 cm.
- 24.8. Side supports must be installed by welding or bolted with minimum 2x M8 bolts each side.
- 24.9. Seats approved by FIA/SFI with integral helmet supports needs no additional support.
- 24.10. There must be a free distance of at least 10 cm between the top of the driver's helmet and the roll cage.

25. ROLL CAGE

- 25.1. All vehicles must have a six point roll cage mounted directly to the frame or chassis structure that connects all six points.
- 25.2. Roll cage must be designed to protect the driver from all sides.
- 25.3. Seamless Steel tubes of at least 350 N/mm² must be used.
- 25.4. Aluminum, Stainless steel, Docol steel or Chrome moly Steel is not allowed.
- 25.5. Tube size must be minimum 2.5x45 mm, alternatively 2x50 mm.
- 25.6. No tube bends may be smaller than 3x the tube diameter.
- 25.7. All welds must be of high quality. No grinding of welds is allowed.
- 25.8. Minimum requirements of cage design (refer to schematic drawing):
- 25.8.1. One-piece main rollbar installed from side to side of vehicle.
- 25.8.2. Main rollbar must be installed within 75-105 °. (+/- 15° from vertical)
- 25.8.3. One-piece front bar installed from side to side or one piece side bars with front bar connecting the two.
- 25.8.4. Rear braces from rear top corners to back of vehicle in 40-80° angle.
- 25.8.5. Diagonal cross braces in main rollbar (Cars built before 1.1.2006 that do not have diagonal cross braces in main rollbar must have documentation on approved cage structure from his homeland ASN).
- 25.8.6. If the width of rollbar is more than 100 cm, a vertical bar must be fitted from the top center of rear rollbar to meeting point of cross braces.
- 25.8.7. "V" or "X" bars in top of roll cage.

- 25.8.8. Tube connecting left and right side of main rollbar mounted as low as possible in the chassis.
- 25.8.9. Tubes connecting front and rear rollbar. Preferred location is as low as possible in front bar and mid height in the main rollbar.
- 25.8.10. Minimum width of roll cage is 100 cm.
- 25.8.11. Minimum distance from the center of driver seat to the outer edge of roll cage is 40 cm (measured at shoulder height).
- 25.8.12. These are the preferred construction schematics for the roll cage.



26. ROOF PLATE

- 26.1. All vehicles must have a roof plate mounted on top of roll cage:
- 26.2. 1 mm steel plate securely welded in, or 2 mm steel plate bolted in with M8 bolts of 8.8 grade no more than 50 cm apart, or 3 mm aluminum plate bolted in with M8 bolts of 8.8 grade, no more than 50 cm apart.
- 26.3. If plate is bolted, mounting brackets must be welded to roll cage.
- 26.4. No drilling of holes allowed in the roll cage.
- 26.5. Minimum size of roofplate is 0,75 m²



27. SEATBELTS

27.1. FIA/SFI approved seatbelts of 5- or 6-point design. When FHR-system are used, seatbelt must be approved for FHR. Narrower shoulder belts to better fit of FHR system also approved. Seatbelts with latch style locks are highly recommended.

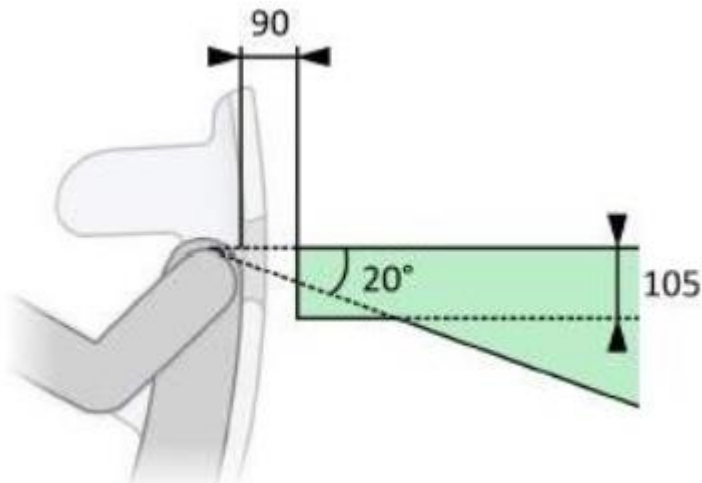
27.2. Seat belt must be without any damage and within approved date limitations.

27.3. Shoulder straps must be installed in line with the drivers shoulder or lower such that the angle between the back of the seat and shoulder straps is between 0-20°.

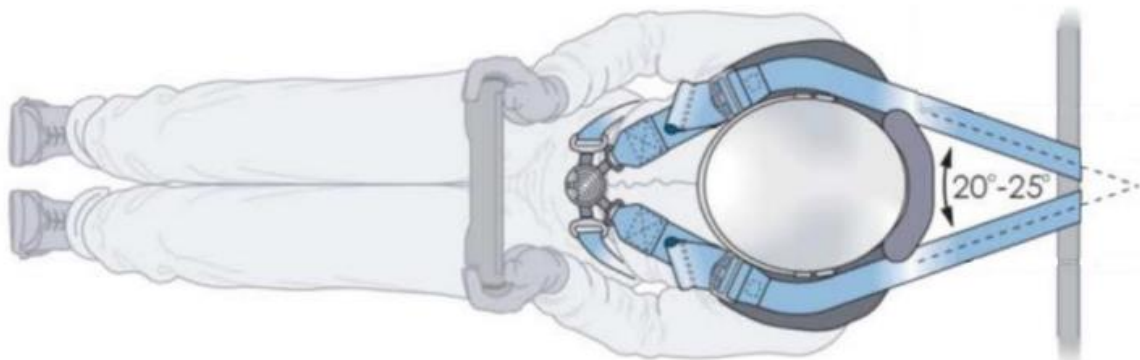
27.4. If the seatbelt is installed using bolts the bolts must be 7/16 UNF.

27.5. If the bolts are installed in the bodywork, the area must be reinforced with a 2mm steel plate of at least 20 cm².

27.6. Drilling in the roll cage for mounting seatbelts is not allowed.



253-61c



253-61d

28. LIGHTS

Any external lighting made of glass must be taped.

29. GAUGES AND SWITCHES

Free of choice.

30. TOW HOOKS

30.1. Front and rear tow hooks or eyes with at least 35 mm diameter hole must be in the front and rear of the vehicle.

30.2. There must also be a lifting point on the top of the vehicle, preferably in the balance point of the vehicle. (May be through a suitable point in the roll cage).

30.3. Towing and lifting points must be marked in bright color.

31. COMMUNICATION

Any wireless communication must be shut down while driving the tracks.

32. WEIGHT

Minimum weight without driver is 600 kg. Any extra weight must be securely fastened.

33. EXTRA EQUIPMENT

Any extra equipment (fire extinguishers, flags, aerodynamic wings, etc.) must be securely fastened and must not pose as a potential hazard to the driver or spectators/officials.

34. VENTILATION

All vent hoses from fuel tank, transmission, hydraulic system, transfer case, engine and axles must be routed in such a way that it will not leak in case of a rollover – or connected to a catch tank

35. INFORMATION

All information regarding the NEC Formula Offroad Championship 2023 will be found at

<https://bilsport.no/grener/offroad/>

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