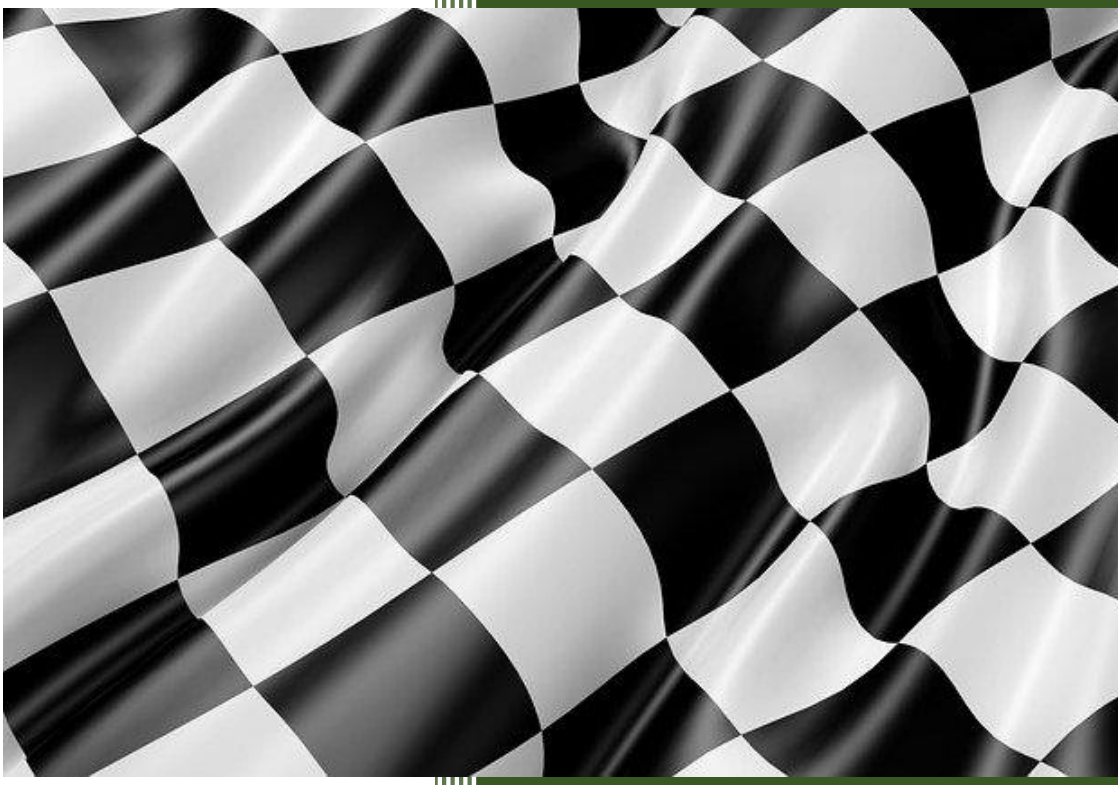
2022

MSA National Karting Technical Regulations



Version 1

1 January 2022

Ref: 162561

REVIEW AND AMENDMENTS

Amendments and updates to the rules will be recorded in the Amendment Record, detailing the amendments, date applicable and a short summary of amendments.

AMENDMENT RECORD

Modified SSR / ART	*Date applicable*	*Date of Publication*	*Clarifications*

CONTENTS

SECTION A – GENERAL REGULATIONS ALL CLASSES

1. ADMINISTRATION

a. Karting is administered under the provisions of the General Competition Rules of Motorsport SA (GCR's), these Standing Supplementary Regulations (SSR's), the class specific Regulations and other regulations and instructions which may from time to time be issued by Motorsport SA (hereinafter referred to as MSA) and the Supplementary Regulations published for each particular kart competition.

b. These Technical Regulations may generally only be amended for safety reasons or because of force majeure

c. It must be noted that MSA Regional and Club Karting regulations may not be in conflict with these MSA National Karting Regulations, unless approval to the contrary has been provided by the Karting Management Group in writing. Where individual Regional and Club Karting regulations are silent on an issue, and in the event of any dispute, these National SSR's will take precedence

2. FUEL AND OIL

a. Where the SR's for an event specify the fuel to be used:

b. The name of the filling station and pump number will be the only permissible fuel for the event in question.

c. The organizers have the right to undertake fuel testing by using a Digitron fuel meter.

d. Only the specified brand of oil and at the specified ratios may be used and this may not be tampered with in any way.

e. The national promotor will nominate the oils prior to each SA National Championship event. These will be the only fuel/oils permitted for the event. The fuel/oils so nominated and appearing in the SR's will be used for any fuel/oil changes ordered by the organisers. Also refer to article 4 Fuel Testing.

3. TYRES

a. The use of wet weather tyres in qualifying or any of the races will not be permitted unless a wet race or practice is declared by the Clerk of the Course. Likewise, the Clerk of the Course can withdraw authorization for wet weather tyres.

b. The only tyre allowed in MSA Rok and Rotax classes are the Levanto tyres.

c. One (1) set Dry and/or Wet tyres are permitted from the start of Timed Qualifying Practice.

d. Only tyres issued by the Promoter/Importer will be permitted for the race.

e. All Drivers must start qualifying practice on new tyres except if it's declared as wet or where the class specific regulations or event SR's permits otherwise.

f. The organisers must arrange for each competitor's tyres to be marked with his/her racing number and class when exiting the circuit after qualifying, where a barcode scanning system is not in place.

The marked (scanned) tyres and/or rims may be impounded by the organisers and re-issued on the day of the race if originally issued prior to race day.

g. Both dry & wet weather tyres must be identified prior to being used. Checks on identified tyres may be made at any time throughout an event and any competitor found using any tyre, which has not been identified for the event will be excluded from the prior races or qualifying races. Exchanging of tyres between competitors is forbidden and the penalty will be the same as above. The only rain tyre which may be used are Bridgestone's.

h. It is prohibited to use any chemical treatment, or other means, to artificially enhance the performance of tyres used during official practice or racing. The organisers reserve the right to replace one or more of any competitor's tyres, with a substitute tyre of similar wear, should they believe such action to be warranted. Should a tyre be worn to the extent that it is no longer safe for use, the organisers may require such a competitor to withdraw from further participation in the event so affected.

i. The only substance that may be used to inflate tyres is normal air (compressed or otherwise). Race organisers shall have the right to require competitors to deflate their tyres on request and re-inflate them under supervision using normal air. The use of any tyre inflation substance other than normal air and/or the failure to respond to a request to deflate/re-inflate tyres as above shall be deemed a contravention of the technical regulations and shall be dealt with accordingly.

j. Tyres may not be deflated after the completion of qualifying or race until your kart has left Parc Ferme'.

k. Tyres allowed per class:

Class	Slick	Wet
Kid ROK	LeVanto KRT MINI	Bridgestone YFD
Mini ROK/Micro Max	LeVanto KRT MINI	Bridgestone YFD
OKJ/Mini Max/Jnr Max/Snr Max/DD2	LeVanto KRT	Bridgestone YLP
KZ2	LeVanto KRT	Bridgestone YLP
KZ	LeVanto KRT	Bridgestone YLP
Bambino	LeVanto KRT MINI	Bridgestone YFD

4. CLASS WEIGHT LIMITS

a. **Bambino –** 74kg weight limit

b. **Kid Rok -** 100kg weight limit

c. **Mini Rok -** 110kg weight limit

d. **OKJ -** 150kg weight limit.

e. **KZ2 -** 180kg weight limit

f. **KZ -** 195kg weight limit.

g. **KZ Masters -** 200kg weight limit

h. **Micro Max –** 105kg weight limit

i. **Mini Max –** 118 weight limit

j. **Junior Max –** 145 weight limit

k. **Senior Max –** 160 weight limit

l. **DD2 –** 174 weight limit

m. **DD2 M –** 180 weight limit

5. SEATS

The kart seat must be rigidly located on the chassis. It must be so designed so that the driver is securely located to resist movement when cornering or braking and shall not be cracked or damaged in such a way as to pinch, lacerate, be insecure, not provide the driver with adequate protection, or endanger a driver in any way. Seats supports MUST be mounted by using nuts, bolts, and a metal or aluminium washer with a minimum diameter of 35 mm and 1,5 mm thickness to eliminate seat supports break through. The lower seat bolts may be loosened in the event of rain.

6. CHAIN GUARD

A chain guard is compulsory and must an effective protection over the top and both sides of the exposed chain and sprocket and extend at least to the lower plane of the rear axle down a line at least level with the centre of both front and rear sprockets. Where engines are fitted with side-mounted carburetors adjoining the front sprocket, a guard must be fitted to prevent the driver's fingers becoming entrapped in the chain.

Club status competitors are exempt from new fully enclosed chain guard, provided the scrutineer is satisfied that the chain guard being used serves the purpose and is in good condition.

7. PEDALS

Brake pedal MUST have a double linkage to the master cylinder. Accelerator pedal MUST be equipped with a return spring. Pedal Extenders and Footrest are allowed.

8. MASS

The mass shall be deemed as being the minimum at all times, including during qualifying, and will include the mass of the driver equipped for racing with helmet, visor or goggles, shoes, gloves and protective clothing. Any ballast carried in order to meet the minimum mass prescribed must be firmly fixed to the chassis or seat only to the satisfaction of the scrutineers. For any ballast weight of up to 2kg, attachment must by a minimum of one bolt or permanent fixings, with an additional bolt or fixing for every 4kg or part thereof.

9. FUEL TESTING

a. The following test method will apply to all karting events and classes as approved by MSA for Club, Regional and National events.

b. The test instrument will be the Digatron FT64 which must be clearly identified by a serial number or identifying mark and will be the only instrument of the day to be used. Only MSA approved Fuel TC's may perform fuel testing.

c. The only calibration on the instrument of the day will be the reading from the mixed reference sample fuel that is kept by the fuel TC.

d. A clearly marked reference sample of every mix ratio (fuel: oil) will be kept by the fuel TC or COC.

e. The difference in reading between the reference sample that is applicable for each class and competitor fuel reading may not be more or less than 2, this value may be changed by the Fuel TC of the event before qualifying. Fuel testing can be done at any time during the event.

f. The temperature difference may not be more than 2 degrees Fahrenheit. If the temperature is not within the limits, the fuel tank of the competitor must be impounded and sealed, the competitors

fuel temperature will be allowed to equalize to the reference sample and a new reading obtained no later than 30 minutes before publication of final results.

g. The minimum amount of fuel in the tank at any time may not be less than 300ml, the fuel may be decanted into a suitable container for the necessary testing to be done.

h. It is the responsibility of the competitor to be present at all times when readings of the fuel are done and to check with the fuel TC that the fuel used by competitor is within the set parameters.

i. The COC or Fuel TC may at any time have competitors fuel replaced with organisers fuel.

j. A penalty of exclusion will apply for any infringements of the above and is not protestable, and repeat offenders will have their race licence revoked.

10. TITANIUM

The use of titanium for any part of a kart is forbidden.

11. BODYWORK – GENERAL

a. Nose cones may NOT have additional fastenings or securing for example, plastic zip ties, other than as stated below. In the interest of safety, it is permitted to secure the nose cone clamps with a single loose cable tie as pictured below to the upper bumper bar.

b. In the event of loss of the front fairing (nose cone) during a race, the competitor must pit within (2) laps to have the fairing replaced. Failure to do so will result in the exclusion

SECTION B – KID ROK

12. DEFINITIONS

a. Chassis – complete kart as supplied from the registered importer excluding the engine.

b. E**ngine** – complete power unit as supplied by the importer including exhaust, carburettor, air box, battery, battery box and excluding wiring harness.

13. CHASSIS

Only chassis permitted as per MSA Karting Sporting Regulations. Chassis is to be raced as supplied by the OEM.

14. AXLES

a. Axle diameter (not allowed to be changed) – Maximum External diameter = 30mm
b. Minimum axle wall thickness – 4.9mm at all points except the key housings
c. Axle Length – 960mm +/- 10mm
d. Axle Mass – 2900g +/- 100g
e. The rear axle used on the chassis does not have to come from the same manufacturer as the chassis itself.
f. Maximum width including rims and tires fitted – 110cm

15. RIMS

The permitted width of rims shall be:

a. Front Maximum 11.5 cm

b. Rear Maximum 15.0cm Minimum 13.0cm

c. Rims used does not have to come from the same manufacturer as the chassis itself.

d. The maximum diameter of rims shall not exceed 5 inches (126mm)

16. TYRES

a. The use of any sort of any artificial heating devise to pre-heat tyres, or tyre treatment,
b. including the use of heat guns is strictly forbidden for removal of access rubber.
c. The organizers reserve the right to replace one or more of any competitor's tyres, with a substitute tyre, should they believe such action to be warranted, with the consent and agreement of the Technical Consultant

17. ENGINE

a. The only engines permitted is as per the homologated engines listed in the National Karting Sporting Regulations.

b. All engines must be sealed by the Technical Consultant and/or Scrutineer. It is the responsibility of the competitor to ensure that the Technical Consultant/Scrutineer has sealed his/her engine/s before taking part in qualifying/races. ALL competitors need to ensure that the cylinder head and cylinder have cross-drilled nuts/bolts to facilitate the fitting of wire seals

c. No type or form of modifications is allowed to the engine or any other parts except those detailed in the engine specification sheet. This includes fuel supply, carburettor, ignition, etc.

d. From qualifying each driver will be allowed to use a maximum of two sealed engines. Should a competitor subsequently wish to change or repair an engine or component thereof, which will necessitate the breaking of a seal or removing any identification, this may only be done under the supervision of the Scrutineers. Once the change of engine or component is complete, the engine or component will again be sealed or identified. The changed component or engine must be impounded by the scrutineers

e. When a competitor elects to use his/her second engine during competition the first engine used must be handed in at Parc Ferme to the Technical Consultant/Scrutineer prior to the start of the competitor's next race.

Note: Engines handed in to the Technical Consultant/Scrutineer will be subject to technical checks.

f. No break allowed in fuel line between tank to fuel pump except for the fitting of a fuel filter.

g. A fuel return pipe may be fitted on the pump side of the fuel line between the pump and the carburettor fuel inlet.

h. The following fuel return specification will apply:

Kid Rock Fuel Line Return Specifications	
Fuel Line, carb to bottom of T Piece	4.8mm ID length not longer then 50mm
Fuel Line T Piece side to fuel pump supply	4.8mm ID L310mm -+ 20 mm
Fuel Line T Piece to return filter	6mm ID L800mm -+ 50 mm

Fuel Line return to fuel tank	6mm ID L 450mm -+ 50mm
Fuel line to create loop pipe for return	6mm ID L 70mm -+ 10mm
T Piece	6mm Festo blue/brass
Fuel Filter OMG Re Usable with spec jet	Dellorto main jet drilled to 2mm maximum

i. No exhaust or cylinder temperature measuring devices or lambda sensors are allowed to be used during qualifying/races. To clarify, these devices and/or sensor must be completely removed and the exhaust must be used as supplied by the engine importer.

j. Competitors must ensure that clutches and clutch drums are free from oil, grease or any other lubricants.

k. Refer to the relevant engine and carburettor specification sheets for technical specifications and carburation, which can be found on the MSA website www.motorsport.co.za

l. The wiring harness is free of restriction

m. The engine kill switch is not mandatory.

18. KID ROK ENGINE SPECIFICATION SHEET

ITEM	**SPECIFICATION**
SPARK PLUG CAP	W420/2 (ROK) OR TB05EM (NGK)
SPARK PLUGS	NGK B9EG OR B10EG
SQUISH	2.65 mm Minimum measured with 3.15mm resin core solder
CC'S CYLINDER HEAD ONLY	ROK PROFILE GAUGE
HEAD GASKET	2.0mm ± 0.1
SHIMS	As Required
EXHAUST PORT DURATION	As per Mini ROK Specification
TRANSFERS	As per Mini ROK Specification
INLET	As per Mini ROK Specification
IGNITION TIMING	Free
EXHAUST MANIFOLD	As per Mini ROK specification with a 16MM exhaust restrictor - NO GO specification: 16.10mm
CARBURETTOR	Dellorto PHBG 18BS
MAIN JET	Dellorto 87 NO GO specification: 0.85mm

EMULSION TUBE	Dellorto AN266 As per current Mini ROK Carburettor Specification
NEEDLE NEEDLE CLIP POSITION	Dellorto W23 As per current Mini ROK Carburettor Specification 2nd Groove from the top of the needle As per current Mini ROK Carburettor Specification
NEEDLE AND SEAT	As per current Mini ROK Carburettor Specification
CHOKE JET	As per current Mini ROK Carburettor Specification
PILOT JET (IDLE JET)	As per current Mini ROK Carburettor Specification
SLIDE	Dellorto 40 As per current Mini ROK Carburettor Specification
FLOATS	Dellorto 4.0 grams As per current Mini ROK Carburettor Specification
SPROCKETS REAR	Choice of 83, 84, 85 or 86 Tooth
ENGINE SPROCKET	10 Tooth
ALL OTHER SPECIFICATIONS	As per current Mini ROK CIK-FIA Homologation Form

SECTION C – MINI ROK

19. DEFINITIONS

a. **Chassis** – complete kart as supplied from the registered importer excluding the engine.
b. **Engine** – complete power unit as supplied by the importer including exhaust, carburettor, air box, battery, battery box and excluding wiring harness.

20. CHASSIS

Only chassis permitted As per MSA National Karting Sporting Regulations

14.1 Axles

a. Axle diameter is not allowed to be changed - External diameter of 30mm
b. Minimum axle wall thickness = 4.9mm at all points except the key housings
c. Axle length: 960mm +/- 10mm and weight 2900g +/- 100g.
d. The rear axle used on the chassis does not have to come from the same manufacturer as the
e. chassis itself.
f. Maximum rear width including rims and tires fitted = 110 cm

21. RIMS

The permitted width of rims shall be:

a. Front Maximum 11.5 cm
b. Rear Maximum 15.0cm Minimum 13.0cm
c. Rims used does not have to come from the same manufacturer as the chassis itself.
d. The maximum diameter of rims shall not exceed 5 inches (126mm)

22. TYRES

The use of any sort of any artificial heating device to pre-heat tyres, or tyre treatment, including the use of heat guns is strictly forbidden for removal of excess rubber.
The organizers reserve the right to replace one or more of any competitor's tyres, with a substitute tyre, should they believe such action to be warranted, with the consent and agreement of the Technical Consultant.

23. SPROCKETS

Front sprockets = T10 and T11.
Rear sprockets = Free

24. ENGINE

a. No type or form of modifications are allowed to the engine or any other parts. This includes fuel supply, carburettor, ignition etc.

b. Minimum allowable combustion chamber volume = 6.8 cc

c. The only engines permitted is as per the homologated engines listed in the National Karting Sporting Regulations.

d. All engines must be sealed by the Technical Consultant and/or Scrutineer. It is the responsibility of the competitor to ensure that the Technical Consultant/Scrutineer has sealed his/her engine/s before taking part in qualifying/races.

e. No type or form of modifications is allowed to the engine or any other parts except those detailed in the engine specification sheet. This includes fuel supply, carburettor, ignition, etc.

f. From qualifying each driver will be allowed to use a maximum of two sealed engines. ALL competitors need to ensure that the cylinder head and cylinder have cross-drilled nuts/bolts to facilitate the fitting of wire seals

g. When a competitor elects to use his/her second engine during competition the first engine used must be handed in at Parc Ferme to the Technical Consultant/Scrutineer prior to the start of the competitor's next race. Should a competitor subsequently wish to change or repair an engine or component thereof, which will necessitate the breaking of a seal or removing any identification, this may only be done under the supervision of the Scrutineers. Once the change of engine or component is complete, the engine or component will again be sealed or identified. The changed component or engine must be impounded by the scrutineers.

Note: Engines handed in to the Technical Consultant/Scrutineer will be subject to technical checks.

h. No break allowed in fuel line between tank to fuel pump and pump to carburettor other than for the fitting of a fuel filter.

i. Competitors must ensure that clutches and clutch drums are free from oil, grease or any other lubricants.

j. No exhaust or cylinder temperature measuring devices or lambda sensors are allowed to be used during qualifying/races. To clarify, these devices and/or sensor must be completely removed and the exhaust must be used as supplied by the engine importer.

k. The wiring harness is free of restriction

l. The engine kill switch is not mandatory.

m. Refer to the engine identification sheet for technical specifications.

n. Spark Plug: The only plug allowed is a NGK B10EG.

o. Port Timing Measurement: Refer to page 2 of the Mini Rok identification sheet. These documents are available on the MSA website www.motorsport.co.za

SECTION D – OKJ

25. DEFINITIONS

a. Chassis
Complete kart as supplied from the registered importer excluding the engine.

b. Engine
Complete power unit as supplied by the importer including exhaust, carburettor and airbox.

c. Vortex SA
Registered Importer of Vortex engines or appointed representative in the event SR's.

26. CHASSIS

Only chassis permitted as per MSA Karting National Karting Sporting Regulations.
Chassis is to be raced as per CIK Regulations

27. AXLES

a. Axle diameter is not allowed to be changed - External diameter of 50mm

b. Minimum axle wall thickness = 2mm – As per CIK regulations

c. Maximum rear width including rims and tires fitted = 140 cm

28. RIMS

The permitted width of rims shall be:
Front Maximum 13.5 cm
Rear Maximum 21.5 cm

29. TYRES

a. The use of any sort of any artificial heating device to pre-heat tyres, or tyre treatment, including the use of heat guns is strictly forbidden for removal of excess rubber.

b. The organizers reserve the right to replace one or more of any competitor's tyres, with a substitute tyre, should they believe such action to be warranted, with the consent and agreement of the Technical Consultant

c. One set of New tyres to be used from Timed Qualifying Practice until the last and final race of the competition.

d. In the case of the race being declared a wet race the competitor is entitled to used 1 set of Wet tyres that has been scanned by the Organizers. Tyres may be used or new.

30. ENGINE

a. For all competitions competitors will use a Vortex DDJ engine which must be sealed by the Technical Consultant and/or Scrutineer. ALL competitors need to ensure that the cylinder head and cylinder have cross-drilled nuts/bolts to facilitate the fitting of wire seals

Note: It is the responsibility of the competitor to ensure that the Technical Consultant/Scrutineer has sealed his/her engine/s before taking part in qualifying/race/s

b. No type or form of modifications/adjustments are allowed to the engine or any other parts except those detailed in article 22.6. This includes the fuel supply, carburettor, ignition, etc.

c. Only engines sealed with the promoters official seal are permitted in any competition.

d. Should a competitor subsequently wish to change or repair an engine or component thereof, which will necessitate the breaking of a seal or removing any identification, this may only be done under the supervision of the Scrutineers. Once the change of engine or component is complete, the engine or component will again be sealed or identified. The changed component or engine must be impounded by the scrutineers

e. No break allowed in fuel line between tank to fuel pump and pump to carburettor other than for the fitting of a fuel filter.

f. No exhaust or cylinder temperature measuring devices or lambda sensors are allowed to be used during qualifying/races. To clarify, these devices and/or sensor must be completely removed and the exhaust must be used as supplied by the engine importer.

31. ENGINE SPECIFICATIONS:

ITEM	**SPECIFICATION**
SPARK PLUG CAP	W420/2 (ROK) OR TB05EM (NGK)
SPARK PLUGS	NGK B9EG OR NGK B10EG
SQUISH	0.85mm Minimum
CC'S CYLINDER HEAD ONLY	14.0cc Minimum
HEAD GASKET	As Required
SHIMS	As Required
EXHAUST PORT DURATION	171° Maximum measured with a 5mm wide ROK feeler guage
ALL PORTS AND PASSAGES	1. All OKJ ports and passages have a cast surface finish. 2. The only exception allowed will be the removal (by the manufacturer) of aluminium cast burr/s at the inlet, exhaust and transfer ports and passages next to the cast iron sleeve to a maximum depth of 15mm. 3. It must be noted that any additional machining not provided for in item 2 is strictly prohibited.
INLET SYSTEM	As per CIK Specification
IGNITION TIMING	Free
EXHAUST MANIFOLD	As per CIK Specification
CARBURETTOR	Dellorto VHST24BS
MAIN JET - HOLDER	Dellorto 18.0 ± 0.1

EMULSION TUBE	Dellorto AQ270 - 2.70MM ± 0.2
NEEDLE	Dellorto D55 - As per Needle Chart
NEEDLE CLIP POSITION	Free
NEEDLE AND SEAT	Dellorto 270 - NO GO Gauge - 2.71mm
CHOKE JET	Dellorto 60 - GO 0.60mm / NO GO 0.62mm
PILOT JET (IDLE JET)	Dellorto U43 Through Holes - GO 0.42mm / NO GO 0.44mm Jet Size - GO 0.98mm / NO GO 1.01mm
SLIDE	Dellorto 50
FLOATS	Dellorto 4.0 grams
SPROCKETS REAR	Free
ENGINE SPROCKET	12 Tooth
ALL OTHER SPECIFICATIONS	As per CIK-FIA Homologation Form

SECTION E – BAMBINO

32. SPECIFICATIONS

NOTE There is no requirement for ROTAX engines to be sealed by ROTAX approved engine builders

a. The Top-Kart Comer C50 according to these regulations is the only permitted kart.

b. Engine must comply with the 2021 Bambino Comer C50 Technical Regulation published on MSA's website

c. Only the Top Kart Kid Kart is eligible

d. It is to be raced as supplied without expensive accessories or replacement parts.

e. Older models are acceptable subject to the current plastic rear bumper being fitted.

f. A generic aluminum engine mount may be used in place of the weld-on metal version.

g. A metal plate maximum 3mm thick may be fitted to aid engine alignment.

h. A rev-counter / lap timer is permitted. No additional sensors (CHT, throttle position etc) are allowed during the event.

i. Top Kart camber washers may be used to adjust caster/camber.

j. No modifications are permitted, and any variations must be approved **in writing** by the MSA Karting Management Group prior to the modification being made.

33. TYRES

a. The use of any sort of any artificial heating devise to pre-heat tyres, or tyre treatment, is strictly forbidden.

b. The organizers reserve the right to replace one or more of any competitor's tyres, with a substitute tyre, should they believe such action to be warranted, with the consent and agreement of the Technical Consultant.

c. The use of heat guns for removal of access rubber is allowed.

34. RIMS

The permitted width of rims shall be:

a. Front Maximum 11.5 cm

b. Rear Maximum 15.0cm Minimum 13.0cm

c. Rims used do not have to come from the same manufacturer as the chassis itself.

d. The maximum diameter of rims shall not exceed 5 inches (126mm)

35. PORT TIMINGS

Port timing measurements will be done with either a digital degree wheel or a graduated disc of Minimum 280mm diameter and a pointer that is sharpened to a knife edge. To avoid arguments over parallax errors the pointer should be less than 3mm from face of the degree wheel where the reading is taken. The sharp point must clearly be on the line defining the maximum measurement. The measurement will be taken with all the slack in the system taken up i.e. the crankshaft will be rotated until it firmly stops against the feeler gauge. The feeler gauge will be 0.2mm thick and 8.0mm wide. The feeler gauge will follow the angle on top of the piston for exhaust port measurement and be held flat on the bottom of the inlet port.

Inlet Port duration maximum 128 degrees no tolerance

Exhaust Port duration maximum 138 degrees no tolerance

6.9cc measured to the top/level of the spark plug sealing face.

36. GEARING

Front Sprocket Z10
Rear Sprocket Z75

37. SPARK PLUG

Champion RCJ7Y or NGK BPMR7A or Bosch WS5F

SECTION F – 125GP

38. TYRES

Supply and Fitting:

a. New tyres can be purchased and fitted to rims on the Friday of the race weekend but must be scanned.

b. New tyres maybe utilised for each SA National and Regional for Qualifying and race day Heats for these events held during 2022

38.1 KZ2 Shifter Class:

a. LeVanto KRT dry (one new set per race day)

b. Bridgestone YLP wet (only one set allowed for the days racing)

38.2 KZ & KZ Masters Classes:

a. LeVanto KRT dry (one new set per race day)

b. Bridgestone YLP wet (only one set allowed for the days racing)

38.3 Damaged tyres:

If a tyre is damaged or deemed to be unsafe by the Clerk of the Course it can be exchanged for a used tyre of similar wear

38.4 Tyre monitoring:

Each barcoded set of tyres will be scanned and allocated to each competitor to ensure that the same set is used for the Official Qualifying and all three races on the day

Tyres may be rotated on the rims between races.

39. CHASSIS

a. The chassis must comply with the following regulations:

b. Rear protection, bodyworks, front panel and spoiler – CIK homologated only.

c. Rear and front homologated brakes of the same type acting on both front and rear wheels KZ type foot

d. Two or three rear axle ball bearings to be operational at all times (no ceramic type ball bearings permitted)

e. Ceramic type disc rotors will no longer be allowed from 2015 as per CIK FIA ruling.

f. One chassis per driver.

g. Any chassis damaged during an ascertained accident will be reported to the technical consultant/ scrutineer who will consult with the relevant officials in deciding if the chassis warrants replacement or not. Only they may authorise the replacement.

h. Any decision to allow the use of an alternative chassis will render the use of the original chassis void.

i. Chassis must also comply with: Conventional chassis, under CIK current homologation.

j. Hollow magnetic steel rear axle, maximum diameter 50mm.

k. The regulations prescribed by CIK (group 2) are strictly applicable for any detail not mentioned in the paragraph concerning the CHASSIS (as per article 2 of the present regulations. Only chassis homologated for use in S.A. may be used.

40. CIK – FIA KZ2 ENGINE

a. **Article 43 - Specific Regulations for KZ2 Engines (All the TM Engines specified for KZ2 and KZ and KZ Masters Shifter Classes)**

b. Water cooled single-cylinder engine with reed-valve intake homologated by the CIK-FIA.

c. Maximum cylinder cubic capacity: 125 cc.

d. Reed-valve box (dimensions and drawing) according to the Homologation Form. Reed-valve box cover: free.

e. Float chamber carburettor made of aluminium, with a venturi type diffuser with a maximum diameter of 30 mm round. For the CIK-FIA Championships, Cups and Trophies, a single carburettor supplier will be designated further to an invitation to tender.

f. The carburettor must remain strictly original. The only settings allowed may be made to: the slide, the needle, the floaters, the float chamber, the needle shaft (spray), the jets and the needle kit, subject to all the interchanged parts being of Dell'Orto origin. The incorporated petrol filter and the plate (part No. 28 on the technical drawing No. 7 appended) may be removed; if they are kept, they must be original.

g. Gearbox: homologated by the CIK-FIA (including the primary torque). With a Minimum of 3 ratios and a maximum 6 ratios allowed. Check of the ratios using a graduated disc with a minimum diameter of 200 mm or a digital coder; the degree decimals given on the Homologation Form must be mentioned in tenths of degrees and not in minutes. For the homologation of the gearbox, the Manufacturer(s) and the model and type must appear on the Homologation Form.

h. In KZ2: hand-operated and exclusively mechanical gearbox control without a servo system. Any system of ignition cutting is forbidden.

i. Total exhaust opening angle of 199° maximum, irrespective of the value indicated on the homologation form (to be read with a graduated circle of a minimum diameter of 200 mm or with a digital device).

j. Volume of the combustion chamber: 11 cc minimum, measured in accordance with the method described in Appendix No. 1a.

k. Spark plug: free make (mass-produced and strictly original). The body of the spark plug (electrodes not included), tightened on the cylinder head and must not extend beyond the upper part of the dome of the combustion chamber.

l. Dimensions of the threaded spark-plug housing- length: 18.5 mm; pitch: M 14 x 1.25.

m. Identifications: machined flat spaces of 30 mm x 20 mm for the attachment of the specified identification stickers:

n. At the front of the cylinder,

o. On the upper part of the reed box housing for the half sumps.

p. It is allowed to add a mass to the ignition rotor; it shall be fixed by at least 2 screws, without any modification to the homologated rotor.

q. Exhaust: homologated and the magnetic steel sheet metal thickness of which must be 0.75 mm minimum.

r. Exhaust silencer: homologated, mandatory use. Fitting of the exhaust and silencer according to the Technical Drawing No. 20.

41. ENGINES PERMITTED

a. KZ & KZ Masters Shifter Classes:

TM KZ10 Homologation Form No. 49/M/18 VERSION 1.3 – 13/12/2012

TM KZ10C Homologation Form No. 32/M/24 VERSION 1.2 – 22/09/2016

TM KZ-R1 Homologation Form No. 041-EZ-75 VERSION – 09/2020

VORTEX RSZ Homologation Form No. 012-EZ-76 VERSION 1 - 15/02/2019

b. KZ2 Shifter Class:

TM KZ10 Homologation Form No. 49/M/18 VERSION 1.3 – 13/12/2012

TM KZ10C Homologation Form No. 32/M/24 VERSION 1.2 – 22/09/2016

TM KZ-R1 Homologation Form No. 041-EZ-75 VERSION – 09/2020

VORTEX RSZ Homologation Form No. 012-EZ-76 VERSION 1 - 15/02/2019

c. All Models to be raced complete with carburettor, exhaust and ignition as supplied by the manufacturer and specified on the motors homologation form and must comply with/to the CIK FIA Technical Regulations for the KZ and KZ2 Engine Specifications.

d. Only original TM components may be used as per TM spare parts lists - of each Homologated TM engine

e. Only original Vortex components may be used as per the Vortex spare parts list - of the Homologated Vortex motor

f. No modifications of these engines or any components including the exhaust and carburettor are permitted unless specifically noted

g. Any modification or adjunction on these engines and its accessories, if not expressly authorized in these regulations, is forbidden. Drivers are responsible for the conformity of their equipment.

h. All engines will be sealed after qualifying and will remain sealed for the entire race day. The seal is to be secured between the cylinder head bolt and the reed cover manifold and to be made as tight as possible. Should there be a technical reason for breaking the seal, you will need to take your kart to "Parc Ferme" and in consultation with the scrutineer carry out the breaking of the seal and necessary repair. The engine will then be resealed. Failure to follow procedure will result in a DQ on race day.

i. Should a motor be replaced then the damaged motor is to remain in the care of the scrutineers until they say it may be handed back.

j. **Please note that the CIK homologation sheets and homologated parts catalogue been used for the engine rules are available on the MSA website. The full CIK – FIA regulations can be found on:** http://www.cikfia.com/regulations/technical.html

42. ENGINE TECHNICAL DESCRIPTION:

a. Cylinder cubic capacity

V volume engendered in the engine cylinder(s) by the upward or downward movement of the piston(s). This volume is expressed in cubic centimetres and, for all calculations concerning engine capacity, the number

''pi '' will be taken inclusively as 3.1416.

$V = 0.7854 \times d^2 \times l \times n$

With: d = bore; l = stroke; n = number of cylinders.

b. Ducts or passages

Ducts or passages are cylindrical or cylindrical-conical elements allowing the passage of gases whatever the length or position of these elements.

Number of ducts or passages: the number of real ducts or passages is the greatest quantity of cylindrical or cylindrical-conical elements which transmit gases from the pump casing to the top of the piston, as well as those which transmit gases from the outside of the cylinder to the inlet ports, or from the exhaust ports to the outside of the cylinder.

c. Inlet or exhaust port

A port is composed of the intersection of the periphery of the cylinder and the inlet or exhaust duct. This port is opened or shut by the passage of the piston.

d. Power valve

By « power valve » is meant any system which can alter by manual, electric, hydraulic or any other means the normal exhaust port timing or the normal flow of exhaust gases at any point between the piston and the final exhaust exit when the engine is running.

43. GENERAL

By engine is meant the propelling unit of the vehicle in running order, including a cylinder block, sump and gearbox, ignition system, carburettor(s) and exhaust silencer.

All systems of injection are forbidden. The spraying of products other than fuel is forbidden. The engine shall not comprise a compressor or any super-charging system.

Any modifications inside the engine may only be carried out by the removal of material. KZ2 and KZ, engines must be described in the Manufacturer's catalogue and be the subject of a descriptive form called ''Homologation Form'' from the model established by the CIK FIA. This Homologation Form shall be stamped and signed by the ASN and the CIK-FIA (see the Homologation Regulations).

a. Cylinders

For UN sleeved engines, repairing cylinders is allowed by addition of material but not of parts.

Cylinder head: it is allowed to replace the spark plug thread by a heli-coil, must remain within factory specs.

b. Water cooling

Only water (H2O) is authorised for liquid cooling.

No glycol based antifreeze is allowed to be used.

For all categories using water cooling, radiators must be placed above the chassis frame, at a maximum height of 50 cm from the ground, at a maximum distance of 55 cm ahead of the rear wheels axle and they must not interfere with the seat. All the tubing must be of a material designed to withstand the heat (150°C) and pressure (10 Bar). To control the temperature, it is only allowed to place at the front or at the rear of the radiator a system of masks. This device may be mobile (adjustable), but it must not be detachable when the kart is in motion, and it must not comprise dangerous elements. Mechanical by-pass (thermostat type) systems, including by-pass lines, are allowed. In line Heat Exchangers are allowed in the water pipes.

c. Water pump

The water pump must be mechanically controlled either by the engine or by the rear wheels axle.

d. Carburettors and inlet duct

Any injection system is forbidden. Any spraying of products other than fuel is forbidden. The inlet duct (mechanical assembly between the homologated inlet silencer and the reed box) must comprise the inlet silencer, the carburettor and the reed box cover, as well as a possible adaptor, spacer and/or gaskets.

No additional component is authorised.

The adaptor (spacer) must have a transversal conical cylinder cross-section, be mechanically attached with tools and present neither any connections fitting together nor parts which overlap each other.

Furthermore, it is forbidden to have any connection resulting in an extra volume (including any groove, hollow space or other such spaces) at the level of the inlet duct. Carburettors in the KZ2 category for the FIA Karting Championships in 2019/2020/2021: technical drawing No. 7 appended. Inline Heat Exchangers and Carburettor Tanks are permitted in the fuel line.

e. Ignition

In all categories the ignition system used must be homologated by the CIK-FIA. For the KZ2, KZ & KZ Masters categories, the ignition system used must be (as per the engines Homologation Form) of analogue type and any variable ignition system (system of progressive advance and delay) is forbidden.

Any electronic system allowing an auto-control of the parameters of functioning of the engine while the kart is in motion is forbidden.

On decision of the GP 125cc Shifter Association and by notifying the race day Stewards in writing, it will be authorised to interchange Entrants' ignition systems for the system supplied by the CIK or the ASN concerned (same homologated models).

f. Spark plug

The ignition spark plug must be mass-produced and remain strictly original. The spark plug barrel and the electrode insulation (electrodes not included) tightened on the cylinder head must not extend beyond the upper part of the combustion chamber dome (see Appendix No. 7).

The spark plug must be installed with its gasket.

A spark plug temperature probe is permitted and if it is min 1.2mm thick, after being fitted and/or used it can act as a spark plug gasket. The insulator must not exceed the spark plug body and the length of the spark plug body itself must be a max 18.5mm

g. Inlet Silencer (Air Box)

An inlet silencer homologated by the CIK-FIA is mandatory.

For the KZ2, KZ and KZ Masters categories: ducts of 30 mm maximum.

Variable volume air boxes are forbidden.

The obligatory homologated intake silencer must be used under strict observance of the

following points:

If the rubber bush is reversible, it may only be cut on one side, the unused one located in the body of the silencer.

The part of the bush linking the silencer to the carburettor must be visible at all times and must be on the outside of the silencer. It allows the rear face of the silencer to be connected to the cylindrical shoulder of the carburettor.

h. Exhaust

In KZ2, KZ & KZ Masters the exhaust must be Engine Specifically homologated. In all categories the exhaust system shall discharge behind the Driver and shall not operate at a height of more than 45 cm from the ground. The exhaust silencer outlet, the external diameter of which must be more than 3 cm, must not exceed the limits of the body or bumper. All systems of « power valve » are forbidden.

On decision of the GP 125cc Shifter Association and by notifying the race day Stewards in writing, it will be authorised to interchange Entrants' exhaust systems for the system supplied by the CIK or the ASN concerned (same homologated models).

i. Silencer

The Exhaust Silencer must be CIK - FIA Homologated.

See CIK – FIA Exhaust Silencer Homologation List

44. FUEL – COMBUSTIVE

a. Fuel

The requirements specified in these regulations are intended to ensure the use of fuels predominantly composed of compounds normally found in commercial fuel, and to prohibit the use of specific power-boosting chemical compounds.
All KZ and KZ2 competitors will only be permitted to use freely and commercially available 95 octane pump fuel.

b. Mixture used in 2-stroke engines

The fuel will be mixed with a CIK-FIA approved 2-stroke lubricant. The KZ2 class will use oil as prescribed by the National Promoters in the event SR's. The KZ and KZ Masters will use either Motul 800 2T or Fuchs Silkolen Pro 2. Modification of the basic fuel composition by the addition of any compound is strictly forbidden. This restriction also applies to the lubricant, which must not change the composition of the fuel fraction when added to the fuel. Furthermore, as for the fuel, the lubricant must not contain any nitro-compounds, peroxides or any other engine power boosting additives. Fuel testing will be the norm in 2022 Nationals and a base needs to be set.

c. Air

Only ambient air may be mixed with the fuel as a combustive.

45. CONTROLS

a. For the control, the following tolerances are allowed:

Connecting rod centre line: +/- 0.2 mm

Piston stroke: +/- 0.2 mm

Crankshaft alone: +/- 0.1 mm

Homologated gearbox: Value obtained after 3 engine rotations: +/- 3°

Exhausts of all 125cc engines: +/- 1 mm

(piston, crankshaft & conrod, reed box, balance shaft):

Dimensions: <25 mm - Tolerance: +/- 0.5 mm

Dimensions: 25-60 mm - Tolerance: +/- 0.8 mm

Dimensions: 60-100 mm - Tolerance: +/- 1 mm

Dimensions: >100 mm - Tolerance: +/- 1.5 mm

- Other parts:

Machined Parts:

Dimensions: <25 mm - Tolerance: +/- 0.5 mm

Dimensions: 25-60 mm - Tolerance: +/- 0.8 mm

Dimensions: >60 mm - Tolerance: +/- 1.5 mm

Welded Parts:

Dimensions: <25 mm - Tolerance: +/- 1.0 mm

Dimensions: 25-60 mm - Tolerance: +/- 1.5 mm

Dimensions: >60 mm - Tolerance: +/- 3.0 mm

The units of measure (including derived units) will be those of the international system: unit of length in metres, unit of mass in kg, unit of time in s, and unit of noise level in decibels. However, the following will be used: for the unit of angle, the ° (degree) instead of the radian; and, for the unit of temperature, the °C instead of the Kelvin.

b. Without tolerance, at all times and whatever the conditions may be:

Cubic capacities.

Diameter of the carburettor venturi. (30.0mm Max)

Mass measurement.

Combustion chamber volume. (11cc Min)

Any minimum and maximum value.

46. CHECKS TO BE DONE BY APPOINTED TECHNICAL CONSULTANT

a. Method for measuring the opening angles of the exhaust ports

All motors: Exhaust 199 degrees Max

In order to make the measurement more accurate, a 0.20 mm thick and 5 mm wide wedge (according to technical drawing No. 18) will be used to establish the start and finish of the measurement.

This wedge will be gripped at the chord axis of each port, between the edge of the upper part of the piston ring or of the piston and its intersection with the edge of the inlet or exhaust port.

The position by which the gripping of the wedge will permit the measurement of the largest possible angle will be considered as the beginning and the end of the measurement of the angle.

This wedge may be set in position through the inside of the cylinder or through the duct of the exhaust port to be checked. It will not be mandatory on any account for the wedge to be placed in a horizontal or vertical position.

The reading will be carried out using a graduated disc with a minimum diameter of 200mm or a digital display measuring device operated by a coder.

b. Volume test for Combustion Chamber

Appendix No. 1 On KZ2 Engines, the volume then measured minus the plug insert (2 cc) must not be less than 11 cc.
Plug Insert Drawing no. 6

c. General method for measuring the volume of the combustion chamber

Remove the engine from the chassis.

Wait until the engine is at ambient temperature.

Have the cylinder head removed to check the protrusion of the spark plug.

Have the spark plug removed (check the 18.5 mm dimension).

Screw the plug insert in place of the spark plug (the plug insert, tightened on the cylinder head, must not extend beyond the upper part of the dome of the combustion chamber. It must be fixed to the cylinder in exactly the same way as the spark plug measuring 18.5mm long).

Make the top part of the piston and the periphery of the cylinder waterproof using grease.

Place the piston at top dead centre and block the crankshaft.

Carefully remove the excess grease.

Place the cylinder head back and screw it in at the torque recommended by the Manufacturer.

With a laboratory graduated burette (mechanical or electronic), fill combustion chamber (with DEXTRON VI type oil) to the uppermost part of the top edge of the plug insert (wetting the plane of the head gasket).

d. Alternative method for measuring the volume of the combustion chamber

Remove the engine from the chassis.

Wait until the engine is at ambient temperature.

Have the spark plug removed (check the 18.5 mm dimension).

Screw in the plug insert in place of the spark plug (the plug insert, tightened on the cylinder head, must not extend beyond the upper part of the dome of the combustion chamber. It must be fixed to the cylinder in exactly the same way as the spark plug measuring 18.5mm long).

Place the piston at top dead centre and block the crankshaft.

With a laboratory graduated burette (mechanical or electronic), fill the combustion chamber (with DEXTRON VI type oil) to the uppermost part of the top edge of the plug insert (wetting

the plane of the head gasket).

In case of discrepancy of the measured value, the complete procedure must be carried out according to the "General Method" of Appendix No. 1.

e. Squish Test

This can be used as an alternative for volume test on race day between races.

A minimum squish of 1mm is permitted.

Measurement will be done with a digital Vernier at the smallest point of the wire up against the shoulder created by the piston.

The Vernier will be owned by the club and will be present on race days for any competitor to check squish prior to the sealing of the motor.

The solder wire to be used will be National Solder 97/3 1.6mm Solid Wire. The solder wire will have a tolerance off +/- 0.1 mm (Appendix A)

The Solder Wire will be available from the 125GP Association.

The squish will be checked on both the left and the right side of the piston parallel to the gudgeon pin.

The smaller of the two measurements will be the measurement used for legality.

Procedure

Remove Plug

Insert solder to touch cylinder wall directly above the Gudgeon pin.

With the solder wire in place the motor will be turned through top dead centre once.

The step on the solder will not be cut off.

The smallest point on the solder against the shoulder measured with the point of the Vernier will be the final measurement. (Appendix B and C)

47. ENGINES

a. KZ2 CIK FIA specified.

Only reed-valve intakes are authorised.

The original parts of the homologated engine must always comply with and be as per the photographs, drawings, materials and physical dimensions described on the Homologation Form.

b. Modifications to the homologated engine allowed:

Reed Manifold can be modified eg. polishing, grinding, sand blasting. Strictly no material may be added. A maximum of 31.5 mm throat diameter is permitted.

Crankcase may be cleaned and polished and sand blasted. Strictly no material may be added. As per homologation sheet and only Original TM Racing parts as per the homologated motors to be used.

Crankshaft may only be statically balanced.

Standard Conrods as per homologated spares list may be polished but not lightened

Carburettors can be polished but the venturi must be a maximum of 30mm and the profile has to remain as per the original Dell'Orto VHSH 30 CS profile

External Water Flow U Tube from Barrel to Crank Casing can be Removed and Sealed due to Seat positioning for the taller or larger competitor.

c. Modifications to the homologated engine not allowed:

Inside the engine:

The stroke,

The bore (outside the maximum limits),

The connecting rod centreline,

The number of transfer ducts and inlet ports in the cylinder and crankcase,

The number of exhaust ports and ducts,

The crankshaft may not be DYNAMICALLY BALANCED (grinding or removal of material is prohibited)

The Reed Valve must be as supplied with strictly no machining permitted,

The restrictions according to the specific regulations.

d. Outside the engine:
number of carburettors and diameter of choke

All the clutch components must be original as per motors Homologation Form without any modifications.

External appearance of the fitted engine.

The following are not considered to be modifications to the external appearance of the engine:

Modification of the colour of the parts, the trimming of cooling connections and modification of the fixations (including but not limited to fixations of the carburettor, of the ignition, of the exhaust, of the clutch or of the engine itself), provided that their homologated position is not modified.

48. GEAR SHIFT

a. In the KZ2 Shifter Class and the KZ and KZ Masters Classes only hand operated gear shift is allowed

b. Paddle shift with a push pull cable is permitted

c. An Electronic paddle shift is permitted

d. Any form of Ignition cutting is strictly forbidden

49. REAR AXLES

a. It is permitted to have rear axle insert so as to strengthen the keyway area where the axle sprocket is located

b. The maximum rear axle width from outside rim to outside rim is 1400mm (not tyres)

50. AIR BOX MODIFICATION

a. Only CIK – FIA air boxes must be fitted

b. In the event of rain to protect the motor from water damage a protective device may be fitted. This device must be securely fitted. Duct tape is permitted to help secure the device

51. MODIFICATION TO THE REGULATIONS

In order to guarantee the progress of the KZ2 Shifter Class, KZ and KZ Masters Class, the GP 125 Shifter Association Committee is mandated to and reserves the right to modify any clause of the technical regulations at any time. MSA need to be notified of such changes 7 (seven) working days prior to an event taking place for ratification.

52. MORATORIUM ON NEWLY HOMOLOGATED TM MOTORS

a. For the foreseeable future in the KZ & KZ Masters Classes - a moratorium is placed on the purchasing of newly homologated motors.

b. Only the KZ10 and the KZ10C are permitted

53. NOT ADHERING TO THE GP 125 SHIFTER ASSOCIATION CONSTITUTION

In the event that any competitor intentionally not adhering to above rules and/or the constitution of the GP125 Shifter Association and/or competes in such a manner which is inconsistent with the above rules and/or the Constitution of the GP125 Shifter Association and/or the spirit of this class and thereby bringing the class into disrepute could face disciplinary actions and his or her membership can be immediately terminated upon the majority decision of the members of this class.

54. DOCUMENTATION SPEC SHEETS

Appendix A DATA SHEET 973 SOLID WIRE -
https://www.motorsport.co.za/DirectoryDisplay/DynamicContentDirectory.aspx?commission=Karting

Appendix B Data Sheet 973 Solid Solder Wire -
https://www.motorsport.co.za/DirectoryDisplay/DynamicContentDirectory.aspx?commission=Karting

Appendix C Where to measure -
https://www.motorsport.co.za/DirectoryDisplay/DynamicContentDirectory.aspx?commission=Karting

Appendix 1 Measuring Combustion Volume -
https://www.motorsport.co.za/DirectoryDisplay/DynamicContentDirectory.aspx?commission=Karting

Appendix 7 - Spark Plugs -
https://www.motorsport.co.za/DirectoryDisplay/DynamicContentDirectory.aspx?commission=Karting

CIK - FIA KZ1-KZ2_Exhaust Silencer Homologation 2014-2022 -
https://www.motorsport.co.za/DirectoryDisplay/DynamicContentDirectory.aspx?commission=Karting

CIK - FIA Technical Regulations -
https://www.motorsport.co.za/DirectoryDisplay/DynamicContentDirectory.aspx?commission=Karting

Drawing_6 for Volume Test Insert -
https://www.motorsport.co.za/DirectoryDisplay/DynamicContentDirectory.aspx?commission=Karting

Drawing_7 Technical drawing no 7 - Carburettor -
https://www.motorsport.co.za/DirectoryDisplay/DynamicContentDirectory.aspx?commission=Karting

Drawing_18 Opening Angles wedge -

https://www.motorsport.co.za/DirectoryDisplay/DynamicContentDirectory.aspx?commission=Karting

Drawing_20 Fitting of the exhaust and silencer - https://www.motorsport.co.za/DirectoryDisplay/DynamicContentDirectory.aspx?commission=Karting

Engine tm KZ-R1 – Part Homologation List – TM - 041 – EZ - 75. https://www.motorsport.co.za/DirectoryDisplay/DynamicContentDirectory.aspx?commission=Karting

Engine tm KZ-R1 – Homologation – TM–041–EZ–75.

https://www.motorsport.co.za/DirectoryDisplay/DynamicContentDirectory.aspx?commission=Karting

Engine tm KZ10C - Part Homologation List – TM–32–M-24. https://www.motorsport.co.za/DirectoryDisplay/DynamicContentDirectory.aspx?commission=Karting

Engine tm KZ10C – Homologation – TM–32–M–24.

https://www.motorsport.co.za/DirectoryDisplay/DynamicContentDirectory.aspx?commission=Karting

Engine tm KZ10 – Part Homologation List – TM–49–M–18. https://www.motorsport.co.za/DirectoryDisplay/DynamicContentDirectory.aspx?commission=Karting

Engine tm KZ10 – Homologation – TM–49–M–18.

https://www.motorsport.co.za/DirectoryDisplay/DynamicContentDirectory.aspx?commission=Karting

Engine Vortex RSZ – Part Homologation – 012–EX–76. https://www.motorsport.co.za/DirectoryDisplay/DynamicContentDirectory.aspx?commission=Karting

Engine Vortex RSZ – Homologation – 012–EX–76.

https://www.motorsport.co.za/DirectoryDisplay/DynamicContentDirectory.aspx?commission=Karting

SECTION G - ROTAX CLASSES

NOTE: There is no requirement for ROTAX engines to be sealed by ROTAX approved engine builders

55. EQUIPMENT

55.1 Chassis 125 Micro MAX, 125 Mini MAX

Any chassis sanctioned by MSA is allowed with a wheel base of 950 mm. Front brakes are not allowed.

55.1.1 Axle diameter (not allowed to be changed) – Maximum External diameter = 30mm

55.1.2 Minimum axle wall thickness = 4.9mm at all points except the key housings

55.1.3 Axle Length = 960mm +/- 10mm

55.1.4 Axle Mass = 2900g +/- 100g

55.1.5 Maximum rear width including rims and tires fitted = 115 cm measured to the outer-most face of the rims or tyres,whichever is the greater.

55.1.6 The permitted width of rims shall be: - (maximum measurement to inside of rim flange, minimum measurements to inside of rim flange): Front Maximum 11.5 cm / Rear Maximum 15.0cm Minimum 13.0cm

55.2 Chassis 125 Junior MAX and 125 Senior MAX

55.2.1 Front brakes are not allowed.

55.2.2 Any chassis sanctioned by MSA is allowed. Maximum outside diameter of rear axle = 50 mm, minimum wall thickness according to CIK-FIA rules.

55.2.3 Axle diameter (not allowed to be changed) – Maximum External diameter = 50mm

55.2.4 Maximum rear width including rims and tires fitted = 140 cm measured to the outer-most face of the rims or tyres,whichever is the greater.

55.3 Chassis 125 MAX DD2/DD2 Masters

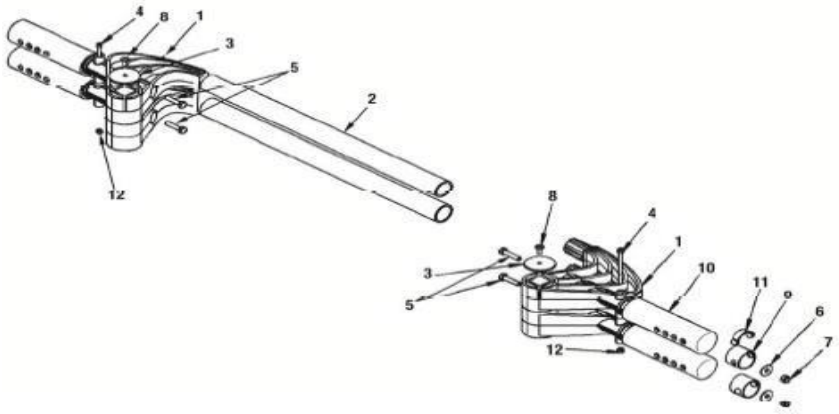
55.3.1 125 MAX DD2/Masters classes, chassis approved by MSA are allowed to be used.

55.3.2 Chassis must be designed according to CIK-FIA rules for shifter classes (front- and rear brakes mandatory).

55.3.3 Maximum rear width including rims and tires fitted = 140 cm measured to the outer-most face of the rims or tyres,whichever is the greater.

55.3.4 Any brake system must have a valid CIK-FIA homologation.

55.3.5 Rotax rear tyre protection system (according to illustration) is optional for MSA Rotax events. No part shall be added or removed from original content (except safety wire or bolt connection between pos. 1 and pos. 2 as well as number plate with support). Rotax original (orange or red) protection rollers only are allowed to be used



55.4 Chassis Protection

It is permitted to attach chassis protectors to the chassis rails left, right and front. The only material permitted is plastic. The installation and wear must satisfy the scrutineers of the event.

55.5 Bodywork 125 Micro MAX, 125 Mini MAX, 125 Junior MAX and 125 Senior MAX

In accordance with regulations of MSA or CIK-FIA.

55.6 Bodywork 125 MAX DD2/Masters

In accordance with regulations of MSA or CIK-FIA.

56 ENGINE MODIFICATIONS, REPAIRS AND ADDITIONS

56.1 Modifications

Neither the engine nor any of its ancillaries may be modified in any way. "Modified" is defined as any change in form, content or function that represents a condition of difference from that originally designed. This is to include the addition and/or omission of parts and/or material from the engine package assembly unless specifically allowed within these rules. The adjustment of elements specifically designed for that purpose shall not be classified as modifications, i.e. carburettor and exhaust valve adjustment screws.

The repair of a thread on the crankcase (maximum of three threaded holes per crankcase) using a "heli-coil" or similar is allowed.

Exception: The threads located under the crankcase to fix the crankcase on the engine mount may be repaired as needed.

The repair of a thread on the cylinder (maximum of three threaded holes per cylinder) using a "heli-coil" or similar is allowed.

Genuine ROTAX components only that are specifically designed and supplied for the 125 Micro MAX, 125 Mini MAX, 125 Junior MAX, the 125 Senior MAX and the 125 MAX DD2 engine are legal, unless otherwise specified.

56.2 Internal additions

No additional material may be added except in the case of engine repairs and shall only restore the engine or components to original specifications.
The use of thermal barrier coatings/ceramic coatings on or in the engine and on or in the exhaust system is prohibited.
The use of anti-friction coatings in or on the engine/engine components is prohibited.

56.3 Legal additions

Chain guard, engine mount, temperature gauge and tachometer/hour meter, catch cans for liquids with mounting brackets.
Customizing the cylinder head cover by painting is legal. Sensor for exhaust gas temperature (see exhaust systems).

56.4 Non-tech items

Non-original fasteners, circlips, washers, throttle cable housing, fuel and pulse line (type and size) as well as length of coolant hoses are allowed unless otherwise specified.

57. TECHNICAL SPECIFICATION WITHIN THE ENGINE

57.1 Squish gap

The crankshaft must be turned by hand slowly over top dead center to squeeze the tin wire.
The squish gap must be measured on the left and right side in the direction of the piston pin.
The average value of the two measurements counts.

125 Mini MAX, 125 Junior MAX, 125 Senior MAX, 125 MAX DD2:

125 Mini MAX	minimum = 1,20 mm
125 Junior MAX	minimum = 1,20 mm
125 Senior MAX	minimum = 1,00 mm
125 MAX DD2	minimum = 1,30 mm

The squish gap must be measured with a certified slide gauge and by using a 2 mm tin wire (Rotax 580130).

125 Micro MAX:

125 Micro MAX	minimum = 2,40 mm

The squish gap must be measured with a certified slide gauge and by using a 3 mm tin wire (Rotax 580132).
To achieve the defined minimum squish gap one spacer (Rotax 626420, with same shape as cylinder base gasket) in combination with at least two-cylinder base gaskets (one below the spacer and one above the spacer) must be used.

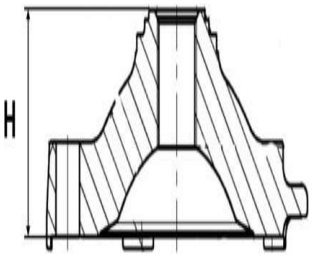
57.2 Combustion chamber insert

Cast identification code has to be "223389" or "223389 1" or "223389 2" or 223389 2/1" or “223389 2/2”.

Casted wording "ROTAX" and/or "MADE IN AUSTRIA" must be shown.

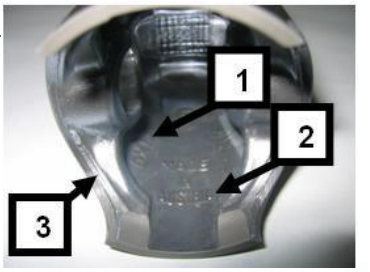
Height of combustion chamber insert has to be
28,80 mm +/- 0,2 mm (H).

The profile of the combustion chamber insert has to be checked with a template (ROTAX 277390). The crack of light between the template and the profile of the combustion chamber insert must be the same over the whole profile.



57.3 Piston with ring assembly

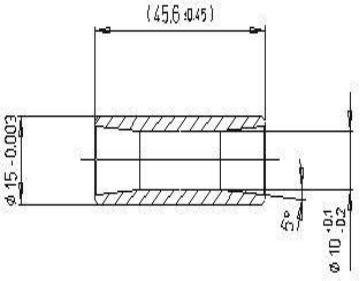
Original, coated, aluminium, cast piston with one piston ring.
The piston has to show on the inside the cast wording "ELKO" (1) and "MADE IN AUSTRIA" (2).
Machined areas are: Top end of piston, outside diameter, groove for the piston ring, bore for the piston pin, inside diameter at bottom end of piston and some pre-existing factory removal (3) of flashing at the cut out of the piston skirt.
All other surfaces are not machined and have cast surface.
Any mechanical treatment or rework of the piston is forbidden, (Altering the pistons profile by reworking carbon build-up is forbidden, if carbon is removed it must be consistently removed across the entire surface without altering the profile of the piston itself).
Example, selectively removing carbon in the squish measurement areas is forbidden.



Original, magnetic, rectangular piston ring.
Ring height: 0,98 +/- 0,02 mm.
Piston ring is marked either with "ROTAX 215547", "ROTAX 215548", “ROTAX 215548 X” or “I ROTAX 215548 X”.
The piston ring is legal also if just parts of the marking are still visible.

57.4 Piston pin

Piston pin is made out of magnetic steel. Dimensions must be according to the drawing. The minimum weight of the piston pin not be lower than 31,00 grams.



57.5 Cylinder

Light-alloy-cylinder with GILNISIL-plating. Any re-plating of cylinder is not allowed.
Maximum bore of cylinder = 54,035 mm (measured 10 mm above the exhaust port).

Cylinder has to be marked with the "ROTAX" logo (see pictures below).

57.5.1 125 Micro MAX, 125 Mini MAX and 125 Junior MAX:

Cylinder with one main exhaust port and without exhaust valve.
Cylinders marked with identification code 223994 only are legal to be used.

57.5.2 125 Senior MAX:

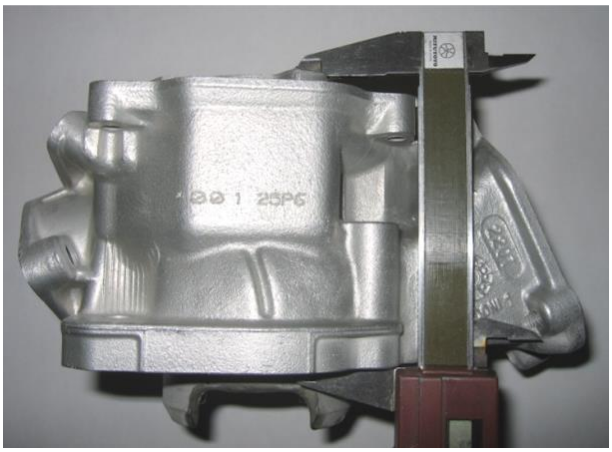
Cylinder with one main exhaust port and exhaust valve.
Cylinders marked (cast or machined) with identification code 223993 only are legal to be used.

57.5.3 125 MAX DD2:

Cylinder with one main exhaust port and two side exhaust ports and exhaust valve.
Cylinder has to be marked with identification code 613933.

Height of cylinder

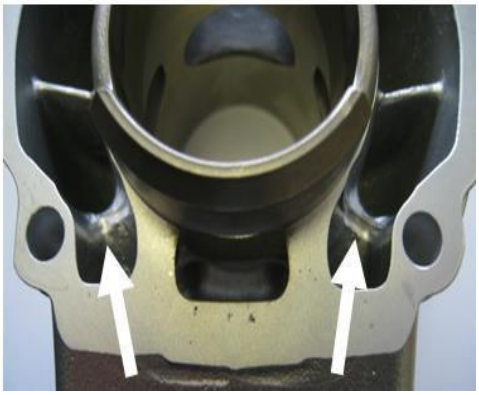
Measured with a digital calliper min. length 200 mm.



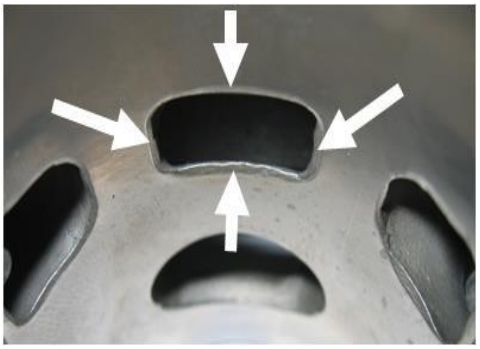
125 Micro MAX, 125 Mini MAX:	87,00 mm -0,05/+0,1 mm
125 Junior MAX, 125 Senior MAX:	87,00 mm -0,05/+0,1 mm
125 MAX DD2:	86,70 mm -0,05/+0,1 mm

Cylinder surfaces

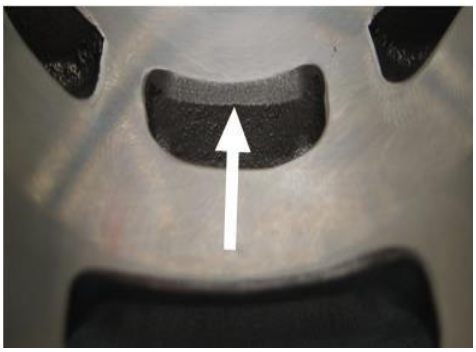
All transfer ports and passages have cast finish surface except some removal (done by the manufacturer) of cast burr at the inlet passage, exhaust port and passages. All ports have chamfered edges to prevent ring snagging.
Any additional machining is not permitted.
The top edge of exhaust port may show some pre-existing machining from the manufacturer.
The sealing flange for the exhaust socket may show signs of machining from the manufacturer.



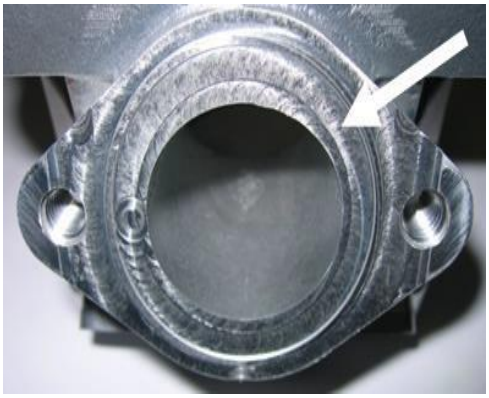
All ports have chamfered edges.
Any additional machining is not permitted.



Cylinders marked 223993, 223994 and 613933 the upper edge of the central boost port may show factory machining.

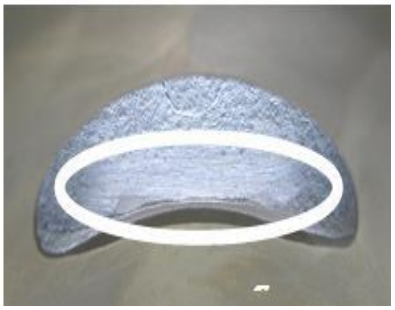


The flange for the exhaust socket may show either cast finish or machined surface. Machined surface can be either flat or show a circular sealing bump.



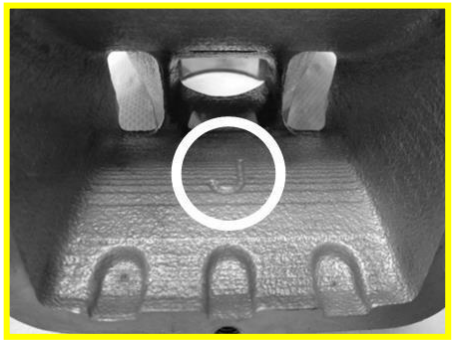
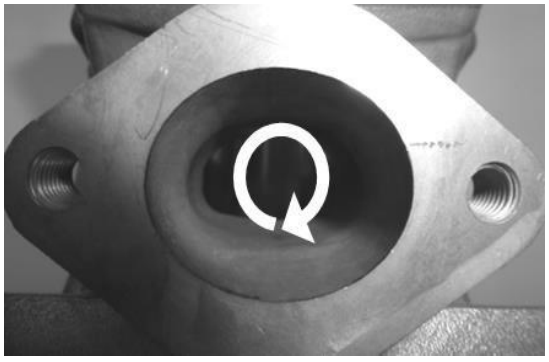
The top edge of the exhaust port may show either just a cast finish surface (left picture) or signs of a CNC machining (central picture) or signs of CNC machining in combination with signs of manual grinding (right picture).

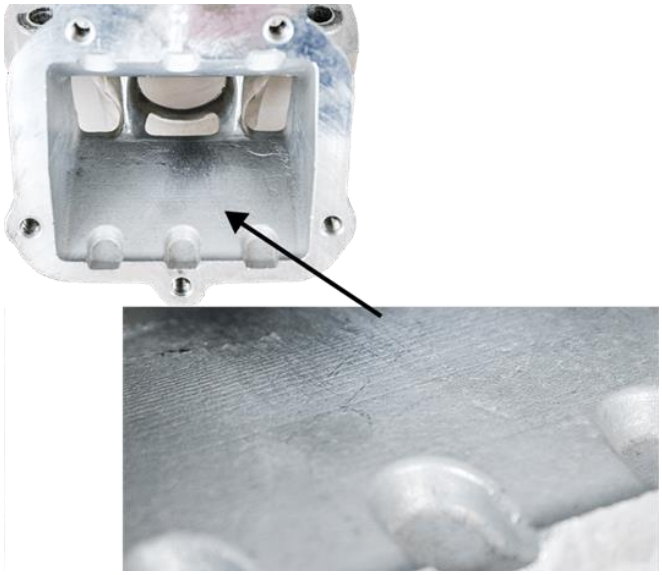


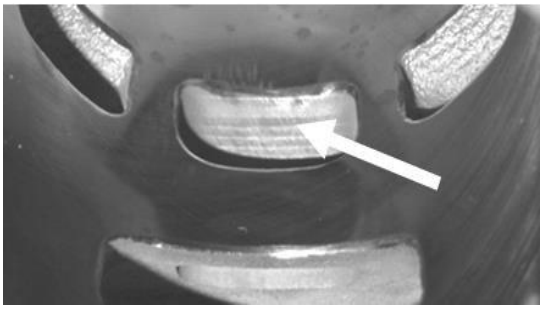


The exhaust port may show partial manual grinding done by the manufacturer to eliminate minor casting defects and/or to eliminate the NIKASIL burr at the end of the NIKASIL plating (see above right picture).

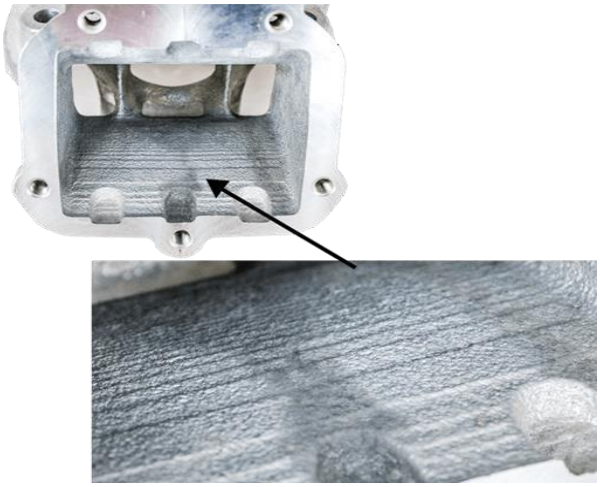
Single Core Cylinder:
Cylinders marked 223994 and 223993 may show in the inlet port a linear texture.
Cylinders marked 223994 and 223993 with linear texture in the inlet port show a fully CNC machined exhaust port and a fully CNC machined top edge of the central boost port.
Cylinders marked 613933 may show in the inlet port a linear texture.





Single Core Cylinder:
linear structured cast finish surface



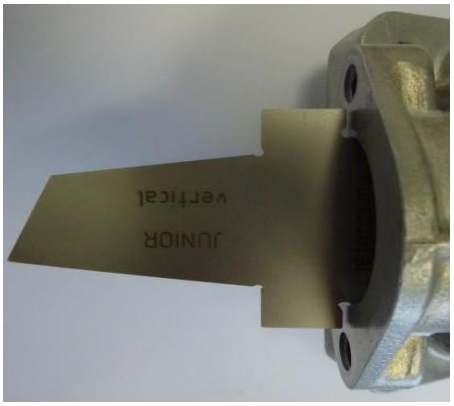
57.6 Exhaust port shape

Cylinder 223994 with fully CNC machined exhaust port only:

The horizontal and vertical dimensions of the exhaust port have to be checked with the template, Rotax 676240.

Cylinder 223993 with fully CNC machined exhaust port only

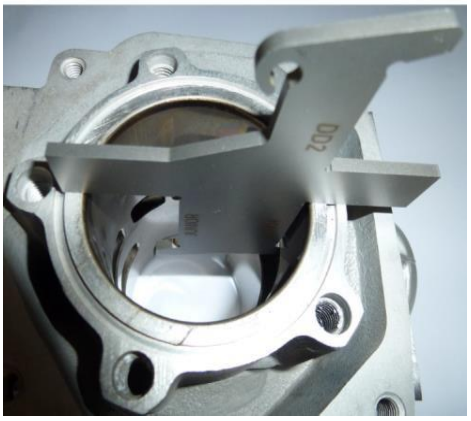
The horizontal and vertical dimensions of the exhaust port have to be checked with the template, marked with 676245*.



normal cast finish surface

The template has to be moved in horizontal and vertical position as far as possible into the exhaust port.
In both directions, the template may not touch the flange for the exhaust socket.

57.7 Exhaust port timing



The "exhaust port timing" (distance from the top of the cylinder to the top of the exhaust port) has to be checked by means of the template (ROTAX 277402).
Insert the template into the cylinder, and move the template (at the highest point of the exhaust port) as far as possible into the exhaust port.
In this position the template may not touch the cylinder wall.

Take care to use the correct gauge for:

- Junior MAX (Junior template to be used for Micro MAX and Mini MAX)
- Senior MAX
- MAX DD2

57.8 Inlet system

57.8.1 Reed valve assy

The reed valve assy. is equipped with 2 petal stops and 2 reeds, each having 3 petals.
The thickness of the reeds is 0,6 mm +/- 0,10 mm.

57.8.2 Inlet manifold

Some factory flash removal may be present at the conjunction of the inside contour and the carburettor stop mounting face. This is a manual trimming operation consisting of a small corner break of less than 3 mm in width. No additional grinding or machining is permitted.

125 Micro MAX, 125 Mini MAX, 125 Junior MAX and 125 Senior MAX:
Inlet manifold marked with the identification code “267915” and the name “ROTAX” or just “267916”.

125 MAX DD2:
Inlet manifold marked with the identification code “267410” and the name “ROTAX” or just “267411”.

57.9 Crankshaft

57.9.1 Con rod

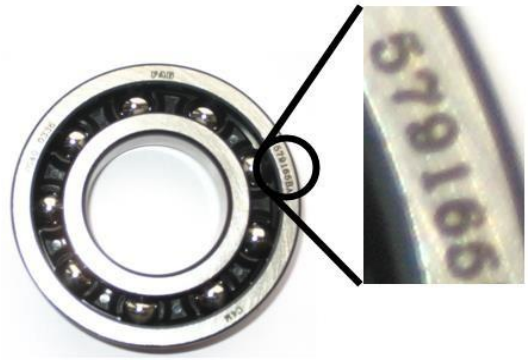
Stroke 54,5 mm +/-0,1 mm
Con rod has to show forged numbers "213", "365", "367" or “362” on shaft.
Shafts of con rods "213", "365" and "367" are not machined and are copper plated.Shaft of con rod “362” is not copper plated and is blank (grey/brown).
Grinding or polishing of shaft of con rod is not permitted.

57.9.2 Ignition signal on crankshaft

Fit the template (Rotax 277391) on the crankshaft.
Align the hole in the template for the big end pin with the big end pin of the crankshaft.
The two edges of the signal machining on the crankshaft must be in line (+/-0,5 mm) with the corresponding edges (MAX or DD2) of the template.

57.9.3 Crankshaft main bearings

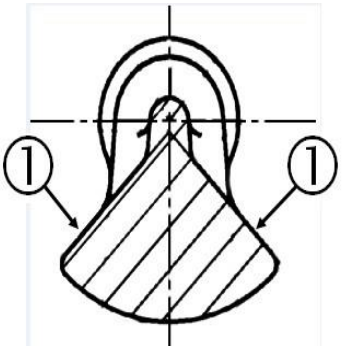
Crankshaft main bearing 6206 from FAG is allowed only.
(must be marked with code 579165BA or Z-579165.11.KL



57.10 Balance Shaft

Balance shaft and balance gears must be installed.

125 Micro MAX, 125 Mini MAX, 125 Junior MAX and 125 Senior MAX:
Balance shaft must show casting code 6237948 or 6237949 on surface (1).
Surface (1) is not machined and must show cast surface. The minimum weigh of the dry balance shaft must not be lower than: 255 grams.



57.11 2-speed gearbox (for 125 MAX DD2 only)

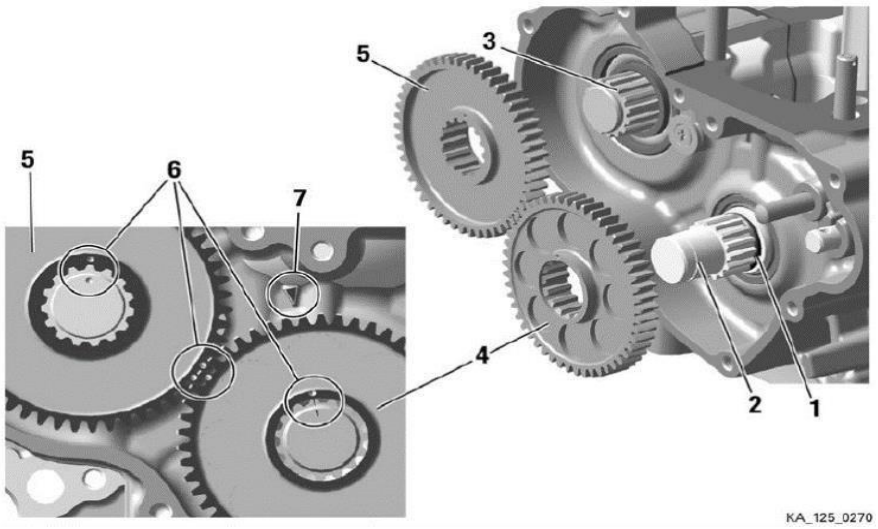
Primary shaft with 19 teeth for 1st gear and 24 teeth for 2nd gear. Idle gear for 1st gear has to have 81 teeth.
Idle gear for 2nd gear has to have 77 teeth

57.12. Crankcase

As supplied by the manufacturer.
No grinding/polishing is permitted in the two main transfer passages as well as in the crank area. For MSA Rotax events only black coated crankcases are legal to be used.
For all other events uncoated or black coated crankcases are legal to be used.

57.13 Balance drive

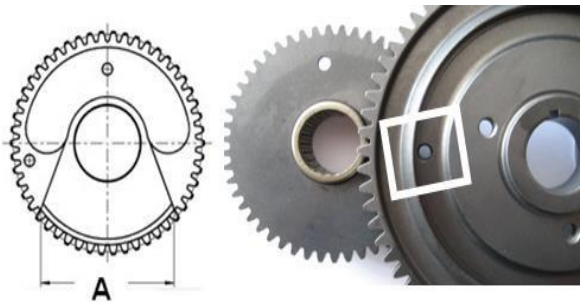
125 Micro MAX, 125 Mini MAX,125 Junior MAX and 125 Senior MAX:
Steel balance gears only (minimum width = 8,8 mm) are legal to be used. Balance gears must be installed and must be aligned according to the instruction in the repair manual.



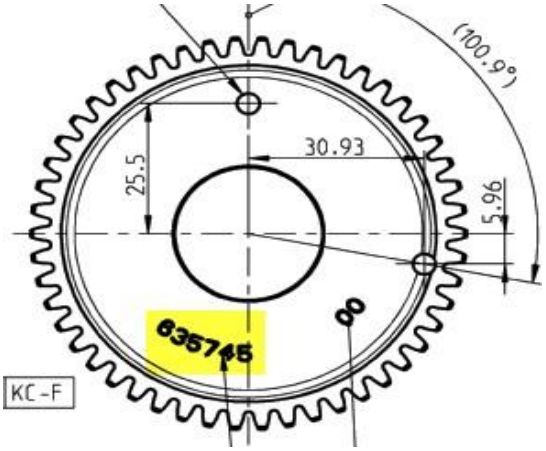
125 MAX DD2:
Balance drive gear must be fitted on crank shaft.
Balance gear must be fitted on primary shaft and must be aligned with the balance drive gear according to the instruction in the repair manual.

Version 1:
Fly weight of balance gear must show cast surface

Version 2:
Fly weight of balance gear can show machined surface.
Dimension A (widest part of balance weight) must be either 53,0 mm +/- 0,5 or 57,0 mm +/- 0,5
The minimum weight of a dry balance gear including bearing must not be lower than 240 grams.



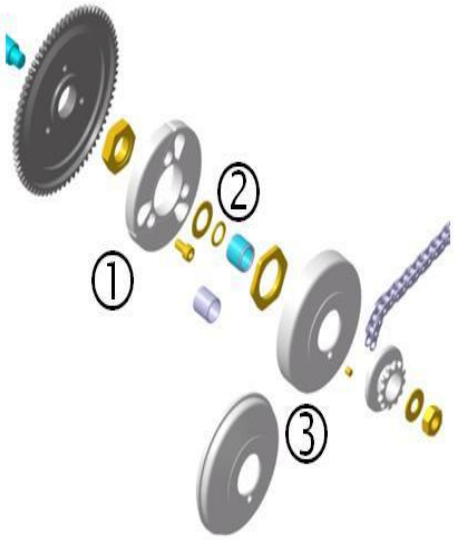
Version 3:
ROTAX part number 635745 (visible on the gear)
Fly weight of balance gear can show machined surface.
The minimum weight of a dry balance gear including bearing must not be lower than 255,0 grams.



57.14 Centrifugal clutch

Components

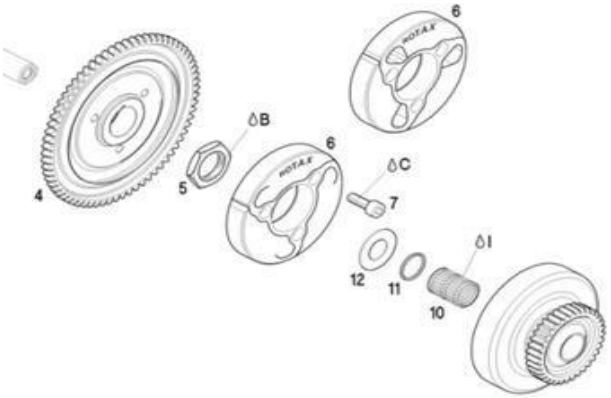
125 Micro MAX, 125 Mini MAX, 125 Junior MAX and 125 Senior MAX:



Engagement speed of centrifugal clutch at maximum 4.000 rpm (the kart without driver must start to move). Two versions of clutch (item 1, with and without holes) are legal to be used.
Both versions are marked with the wording "ROTAX".
O-ring (item 2) must be fitted and must assure an appropriate sealing between the clutch drum and the needle/plain bearing.
Two versions of clutch drum (item 3) are legal to be used. Both versions are marked with the wording "ROTAX".

Signs of emission of grease or substance from the needle/plain bearing into the clutch drum may not exceed the picture beside.
Contact area between clutch and clutch drum has to be dry at any time – no lubrication allowed.

125 MAX DD2:
Engagement speed of centrifugal clutch at maximum 4.000 rpm (the kart without driver must start to move).
Both versions of clutch (item 6, with and without holes) are legal to be used.
O-ring (item 11) must be fitted.

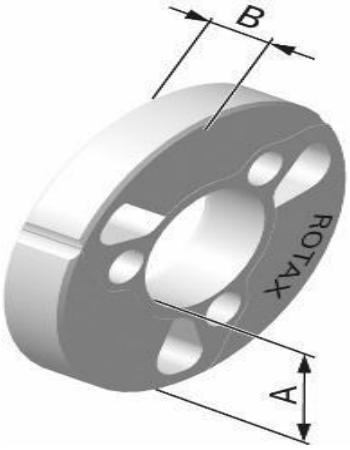


57.15 Clutch dimensions

Thickness of clutch shoe (A):

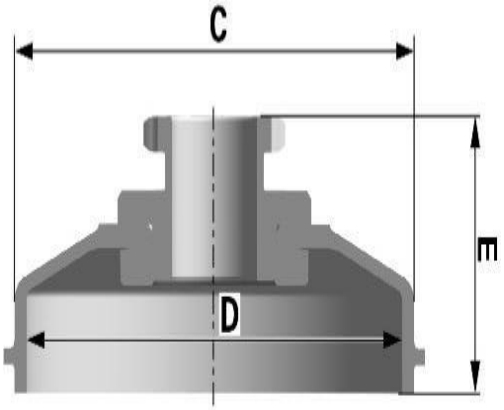
All MAX Engines Minimum = 24,10 mm

Measurement must be done at the 3 open ends of the clutch, 5 - 10 mm from the machined groove (all clutch shoes must be completely closed at measurement - no gap).



Height of clutch (B):

125 Micro MAX, 125 Mini MAX,
125 Junior MAX and 125 Senior MAX: Minimum = 11,45 mm
125 MAX DD2: Minimum = 14,45 mm

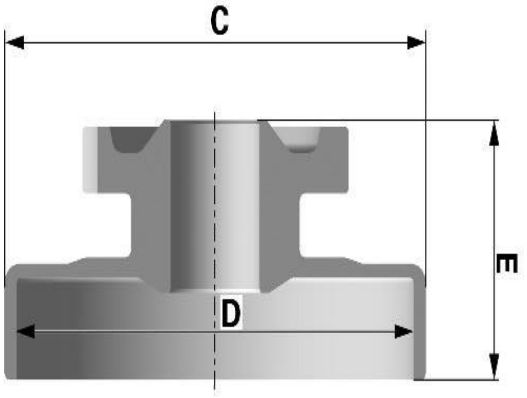


Clutch drum Outer diameter (C):

Minimum = 89,50 mm
Diameter must be measured with a
sliding calliper just beside the radius from the shoulder
(not at the open end of the clutch drum).

Clutch drum Inner diameter (D):

Maximum = 84,90 mm
Diameter must be measured with a sliding calliper.
The measurement must be done in the middle of
the clutch drum (in the contact area between
clutch and clutch drum).



Clutch drum Height (E) with sprocket/primary gear

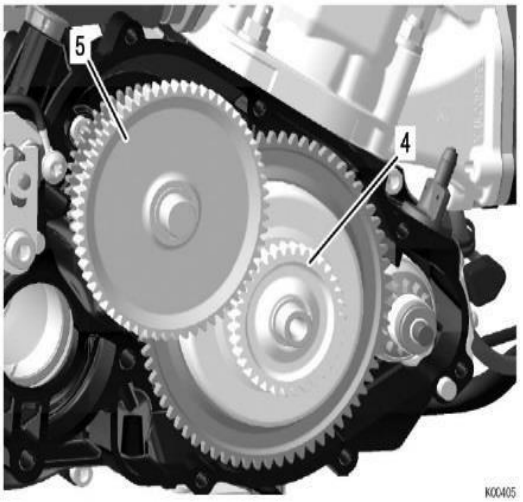
125 Micro MAX, 125 Mini MAX,
125 Junior MAX, 125 Senior MAX: Minimum = 33,90 mm

125 MAX DD2: Minimum = 39,50 mm

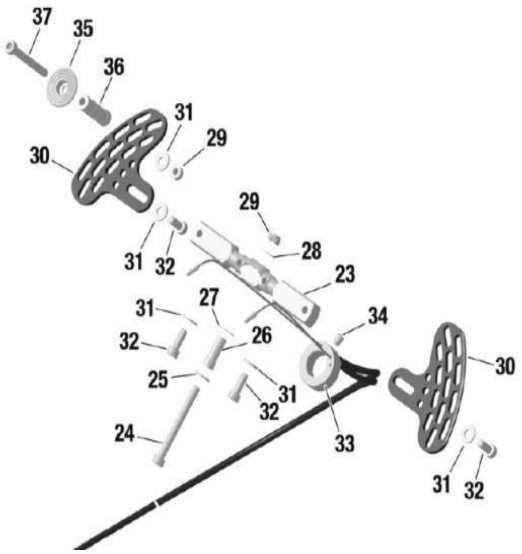
58. Primary drive (125 MAX DD2):

Original primary drive gears (4+5) of following gear ratio options must be used only.
Following combinations are legal to be used.

Drive gear	Driven gear
32	65
33	64
34	63
35	62
36	61
37	60
38	59



A specific primary gear ratio may be determined for each race event by a “Bulletin”.



58.1 Gear shifting (125 MAX DD2)

The 2-speed gearbox must be operated from the steering wheel via the original Rotax paddle shift system (see illustration). Cutting of the original aluminium shift paddles (30) or adding of non-original parts is not allowed.
Mounting the shift paddles (30) on the bottom or top side of the whip (23) is an allowed adjustment.
Optional parts (35-37) can be mounted on the shift paddle (30) in any position.
Bending the aluminium shift paddles to align them to the steering wheel is an allowed adjustment.
The whip (23) offers two connections for the cables (23) on each side for short travel or long travel.
Both connections are legal to be used.
To change the connections of the cables to the whip (23) from left to right and right to left is an allowed adjustment

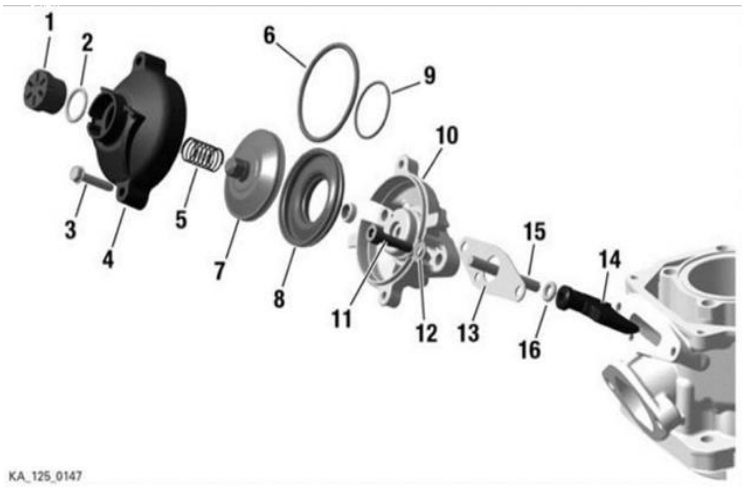
59 Combination of ignition system, carburettor and exhaust system

The combination of components is limited to following specification per engine type.

Component \ MAX Engine	**Micro Mini**	**Junior**	**Senior**	**DD2**
Ignition system Dell'orto	✓	✓	✓	✓
Exhaust valve, electronic timed	•	•	✓	✓
Carburettor XS	✓	✓	✓	✓
Exhaust system, evo	✓	✓	✓	✓

60 Exhaust valve (125 Senior MAX and 125 MAX DD2)

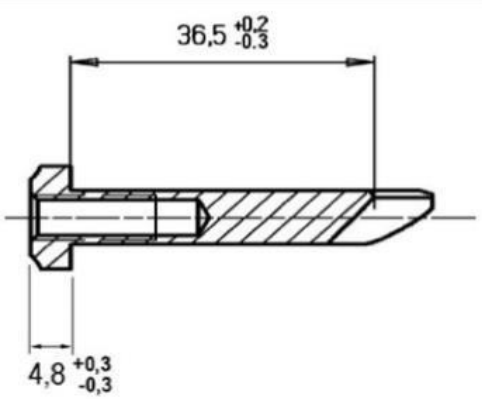
System must be used with all components fitted as shown in the illustration below.
Bellow (8) must have green colour.



60.1 Exhaust valve

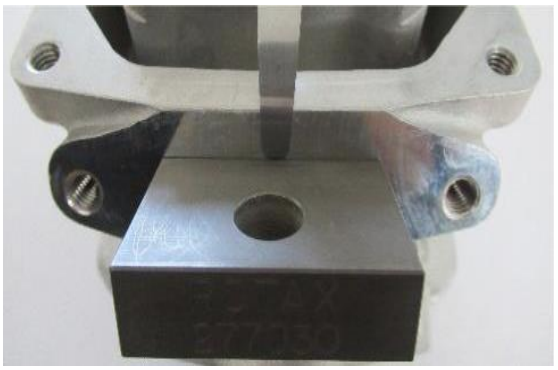
Length of the exhaust valve (item 2):
36,5 mm +0,20 mm/-0,30 mm.

Width of collar: 4,8 mm +/-0,3 mm



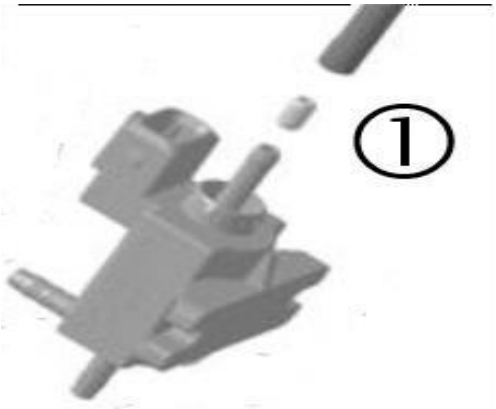
60.2 Distance of exhaust valve flange at cylinder to piston

Turn crankshaft until the piston just closes the exhaust port.
Insert the exhaust valve gauge (Rotax 277030) as shown in the picture until it stops at the flange.
At the circular contact area between exhaust valve and the flange of the cylinder, a feeler gauge 0,25 mm may not fit between the gauge and the flange.



60.3 Impulse nozzle:

Fitting an original impulse nozzle ❶ into the pressure hose is an allowed adjustment.
The direction of the impulse nozzle inside the pressure hose is free.



60.4 Exhaust valve settings

The electronic timed exhaust valve offers two different settings (A or B) for the opening of the exhaust valve.

(A)…additional ground cable not connected
(B)…additional ground cable connected

Both settings are legal to be used.

61 Ignition system

Digital battery ignition system, variable ignition timing, no adjustments possible.

62 Spark plug

125 Micro MAX and 125 Mini MAX:

Spark plug:	NGK GR8DI or NGK GR9DI
Electrode gap (maximum):	Filler gauge 1,20 mm must not fit in between the two electrodes.

125 Junior MAX, 125 Senior MAX:

Spark plug:	NGK GR8DI or NGK GR9DI
Electrode gap (maximum):	Filler gauge 1,00 mm must not fit in between the two electrodes.

For the 125 MAX DD2:

Spark plug:	NGK GR8DI or NGK GR9DI
Electrode gap (maximum):	Filler gauge 1,00 mm must not fit in between the two electrodes.

62.2 Spark plug caps

One version of the spark plug cap is legal to be used.

Red, marked NGK. ROTAX 866707

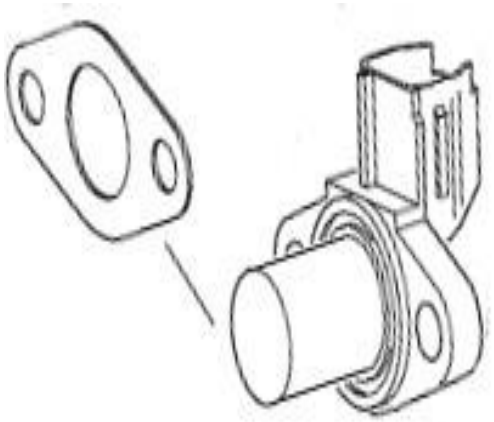
Version 1.

63 Pick-up

The marking of the pick-up must show the following numbers in the first line 029600-0710. A steel ball (diameter 3-5 mm) placed on circular surface of the sensor must stay in the center of the circular

surface.

Mounting the pick-up to the crankcase with a gasket additional to the original rubber sealing ring of the pick-up, is a legal specification. Additional gasket, Rotax 431500, gasket thickness = 0,8 mm Maximum two gaskets (Rotax 431500) are allowed to be fitted.
Fitting position of the additional gasket(s): Crankcase – rubber sealing ring – additional gasket(s) – pick-up.



Note: It is not necessary to install any additional gasket/s with the exception of the rubber sealing ring on crankcases with the machined sealing surface for the pick-up sensor.

64 Ignition System

Dellorto ignition system is legal to be used only.

Race officials may request at any time that the competitor replaces the electronic box (ECU) with another unit provided by the race administration.

The visual appearance of the ignition coil must be identical with the pictures.
Ignition coil must show 2 pins at the terminal.
The ignition coil is labelled with two stickers, "BRP 666820" and "NIG 0105".

The ignition coil is still legal to be used also if one or both stickers disappeared.

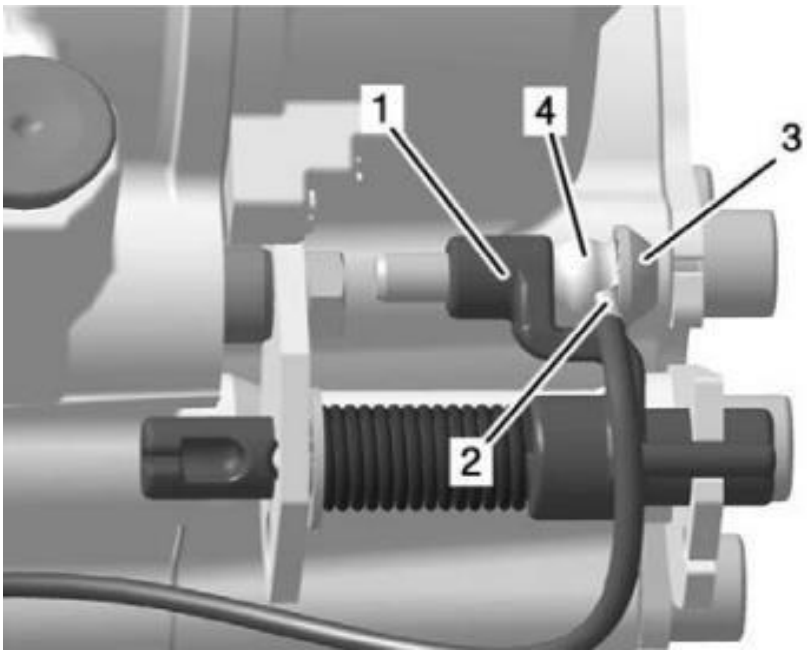
Minimum length of the high tension cable of the ignition coil is 210 mm (from outlet of ignition coil to outlet of spark plug connector = visible length of cable.

Ignition coil (same for all engines) with separate electronic box (ECU, specific for every engine).
Ignition coil and ECU (and magnet valve, for 125 Senior MAX and 125 MAX DD2 only) must be fitted with all components according to the illustrations below.

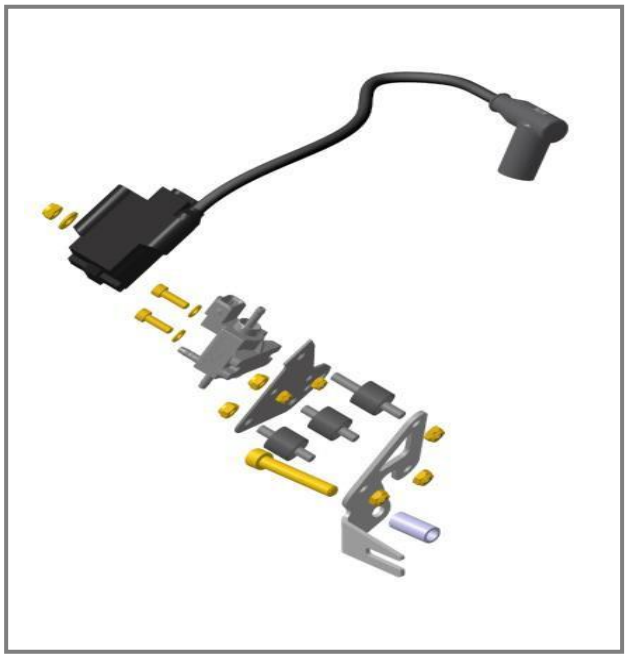
64.1 125 Micro MAX, 125 Mini MAX, 125 Junior MAX and 125 Senior MAX:

In case the mounting bracket (125 Micro MAX, 125 Mini Max, 125 Junior MAX and 125 Senior MAX only) is in conflict with a chassis component, the additions of 2 spacers, one per mounting hole, with a maximum thickness of 20 mm between the mounting bracket and the gearbox cover is allowed.

64.2 125 DD2 MAX / Masters: The electrical contact at the shift assembly must be connected, as per the picture below.



64.3 125 MAX DD2:



65. ECU

The electronic control unit (ECU) is labelled with stickers and is still legal also if the sticker is unreadable or disappeared.

125 Micro MAX:	“666815”
125 Mini MAX:	“666818”
125 Junior MAX:	“666813”
125 Senior MAX:	“666815”
125 MAX DD2:	“666816”

The ECU must be checked with the ECU tester (Rotax 276230) according to following procedure.
Disconnect engine cable harness from ECU.
Connect ECU tester cable harness to ECU.
Connect energy cable of ECU tester cable harness with the charging connector of engine cable harness.
At every connection with the battery the software version of the ECU tester will be

indicated on the display for approx. 2 seconds.
The software version indicated on the display must be 2V00. Start the test by pressing the button "✓" on the ECU tester.
After approx. 3 second the type of ECU ① that is actually tested will be indicated in the second line of the display.
After approx. 30 seconds the result ② of the test will be indicated in the first line of the display.

The ECU tester must indicate following results:

125 Micro MAX category
① 666815MAX
② !! Test OK !!

125 Mini MAX category
① 666818MINIMAX
② !! Test OK !!

125 Junior MAX category
① 666813JNRMAX
② !! Test OK !!

125 Senior MAX category
① 666815MAX
② !! Test OK !!

125 MAX DD2 category
① 666816MAXDD2
② !! Test OK !!

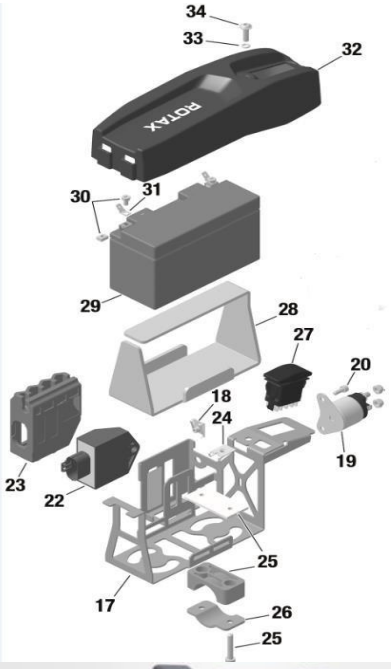
66. Battery, battery fixation and wiring harness

Original batteries with following specification only are legal to be used.
YUASA YT7B-BS (with and without Rotax branding)
ROTAX RX7-12B or RX7-12L (lithium iron phosphate type)

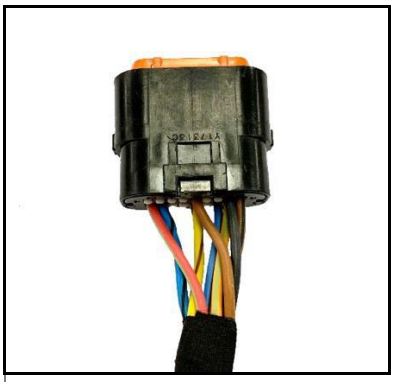
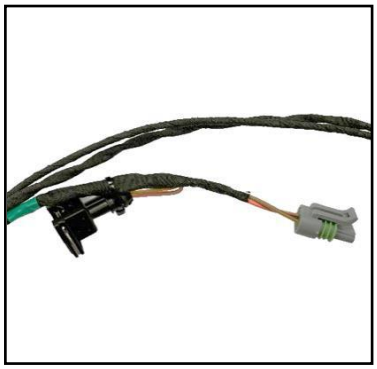
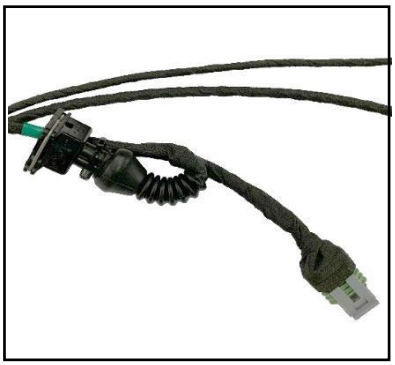
Battery must be fitted with an original battery clamp and battery cover (according to illustrations) and must be fixed to the chassis with both clamps (all 4 screws). Battery clamp with or without cable support is legal for use.

Battery clamp must be mounted on the left side of the Chassis, next to the seat.

When using the more flexible wiring harness (part no. 666 836), it is mandatory to use the battery holder including the cable support (part no. 251 129).
See the figure right to see how the wiring harness must be installed to the battery holder.
The correct installation of the wiring harness ensures that the connections between the battery holder and the wiring harness is not under stress.



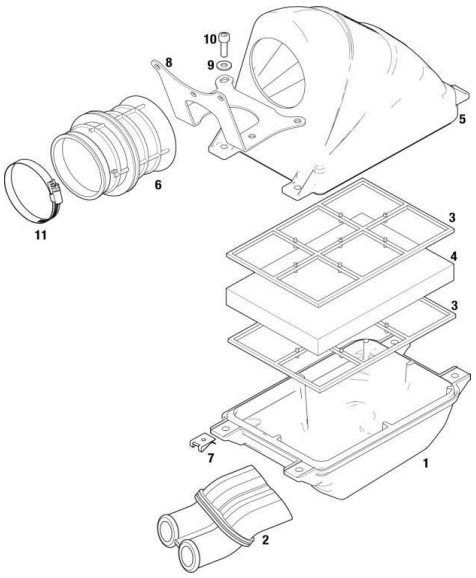
Two versions of the wire harness are allowed to be used.
The differences between the two versions can easily be identified by the key points listed.

	Wiring Harness (666 835)	Wiring Harness (666 836)
ECU Connector		
Charging Connector		
Solenoid Connector		

67. Intake silencer

67.1 125 Micro MAX, 125 Mini MAX, 125 Junior MAX and 125 Senior MAX

Intake silencer with integrated, washable air filter must be used with all parts as shown at the illustration and has to be mounted on the support bracket with two screws (in dry and wet condition).



Intake silencer tube (pos 2) and carburettor socket (pos 6) are marked with the wording "ROTAX".
Intake silencer case bottom is marked on the inside with “225015”.
Intake silencer case, top is marked on the inside with “225025”.

Two versions of original air filters (pos.4) are legal to be used.

Double layer air filter (green/orange),
double layer air filter (green/dark green) marked “Twin Air”.
Depending on the degree of oil-lubrication colours may alter slightly or the surface becomes stained (see examples).

Air filter (pos 4) must be installed as shown in the illustration between the two holders (pos 3) and must cover the complete
area of the intake silencer case bottom (pos1). Pos. 4, legal air filter executions

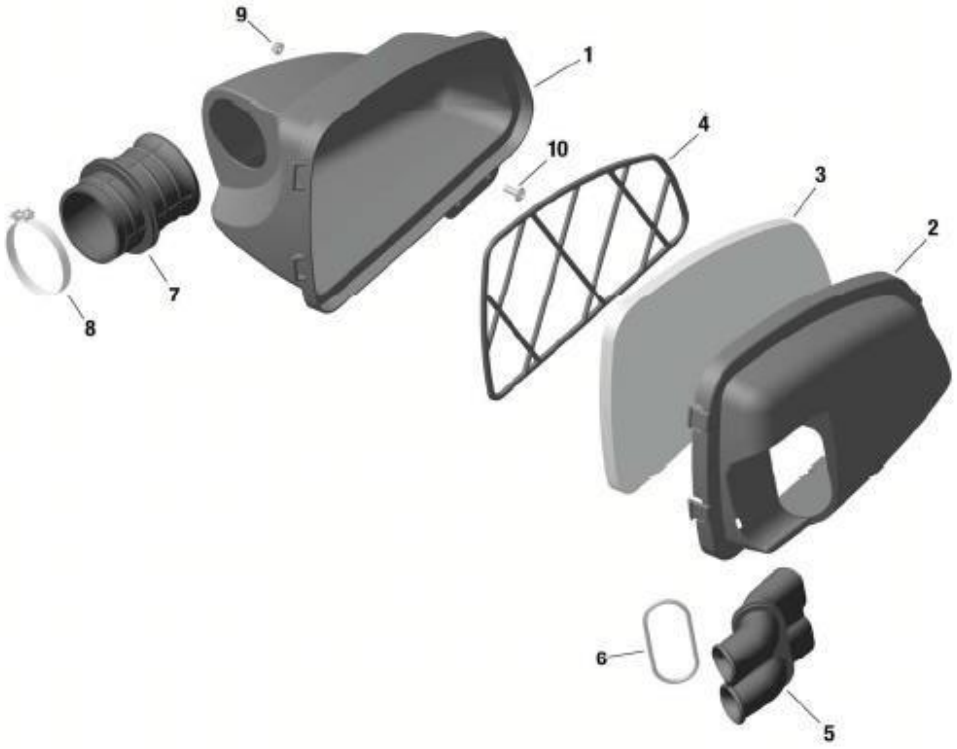
During wet condition, it is not allowed to attach anything to the air box to protect the air inlet from water spray.

67.2 125 MAX DD2:

Intake silencer with integrated washable air filter as shown in illustration.
The intake silencer case (pos 1) is marked on the inside with “225012” (4 clips) or “225013” (5 clips).
The intake silencer cover (pos 2) is marked on the inside with “225022” (4 clips) or “225023” (5 clips).

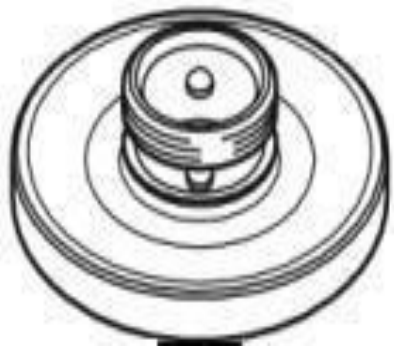
Two versions of air filters (pos 3) are legal to be used. Version 1, with integrated steel frame.
Version 2, with separate plastic frame (pos 4).

The air filter must be assembled between the intake silencer case and the intake silencer cover that the whole area of the intake silencer case is covered.



At intake silencer cover (pos. 2, Rotax 225022), it is mandatory to fit the O-ring (pos. 6) on the intake silencer tube (pos. 5). Intake silencer tube (pos 5) and carburettor socket (pos 7) are marked with the wording "ROTAX".
Sealing the top of the intake silencer using adhesive tape is an allowed modification.
During wet condition, it is not allowed to attach anything to the air box to protect the air inlet from water spray.

68. Carburettor



Dellorto carburettor, housing must show the cast wording “VHSB 34”Carburettor housing is stamped with “XS”.
The complete inlet bore of the carburettor must show cast surface.Optional carburettor plug screw marked "ROTAX" (ROTAX part no. 261 030) is legal to be used.
The two vent fittings must be connected with the original air vent hose min 155 mm (Rotax 260260). The location of the opening has to be placed at the rear side of the carburetor.
Settings of the carburettor adjustment screws (idle and idle air) are free. The position of the jet needle is free.

All jets must be correctly seated and securely fitted at any time (tightened)!
A minimum required size of main jet may be determined for each race event by a “Bulletin”.
The complete inlet bore of the carburettor housing must show cast surface. The venturi hole of the carburettor insert can show signs of a CNC control machining.
Carburettor can be used with and without fuel sieve in the carburettor housing.

fuel sieve

The height of the two arms of the float lever must be within the slot of the carburettor gauge (Rotax 277400) by their normal weight measured at carburettor housing without gasket in reverse upright position.

Needle valve assembly stamped "150" Needle of needle valve marked with diamond symbol ”INC" only.

Start jet is stamped with the digits “60”.

Any Dellorto main jet number even if not offered from Rotax is legal to be used.
Carburettor slide shows digits “45” in casting. Jet needle must be stamped with “K57”.
Two floats marked "4,0 gr" are legal to be used only

Needle jet
Stamped with ”DP267”
Total length: 51,0 +/- 0,5 mm

Length of bottom section: 33,0 +/- 0,45 mm

Top bore diameter 2,67 +/- 0,10 mm

Idle jet
Idle jet has to be stamped with 60.
Plug gauge 0,65 mm may not enter the bore
(use jet gauge set Rotax part no. 281 920).

Idle emulsion tube
Idle emulsion tube has to be stamped with 45.
Plug gauge 0,50 may not enter the central bore.
(use jet gauge set Rotax part no. 281 920)

Atomizer
Remove atomizer from carburettor body by means of venturi tool set (Rotax part no. 676 034); Atomizer, total length: 23,75 +/- 0.35 mm

Atomizer, length of cylindrical part:
15,75 +/- 0,25 mm

Atomizer, dimension of cutaway: 5,8 +/- 0,3 mm

Atomizer, dimension of cross bore: 5,0 +/- 0,15 mm

Carburettor insert must show stamping “12,5”

Angular bore of carburettor insert
Plug gauge 0,60 may not enter the bore (use jet gauge set Rotax part no. 281 920).

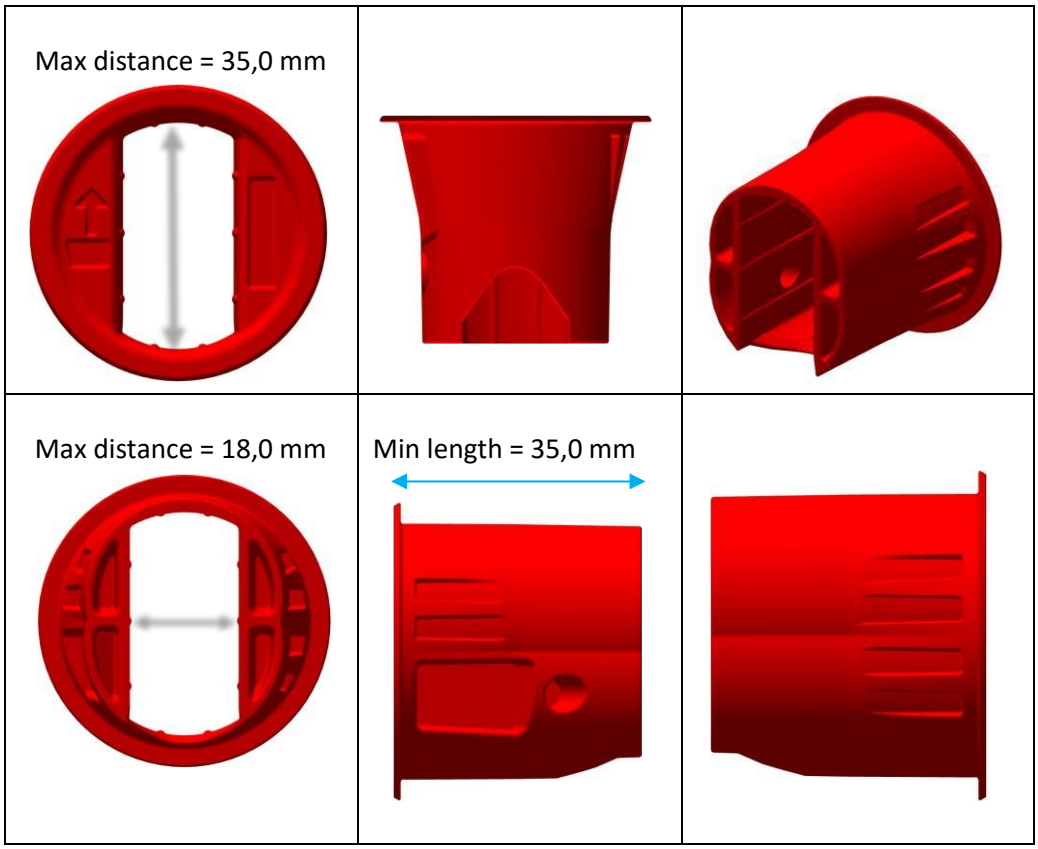
Vertical bore of carburettor insert
Plug gauge 1,30 may not enter the bore (use jet gauge set Rotax part no. 281 920).

68.1 125 Micro MAX and Mini MAX:

The throttle body restrictor must be installed in the rear of the carburettor and in the correct orientation at all times (see picture 1 below for reference).

ROTAX part number: 267536

No modifications are allowed, the ribbed surface on the inlet is to help ensure dimensions have not been modified.



Picture 1.

69. Fuel pump, fuel filter

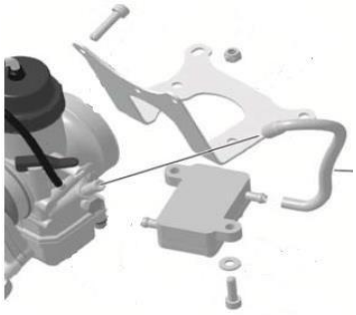
MIKUNI diaphragm pump, (see picture) must be used and must be mounted as shown in the illustration.

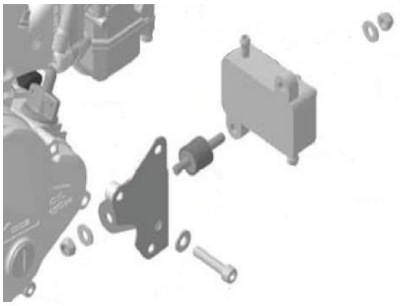
69.1 125 Micro MAX, 125 Mini MAX, 125 Junior MAX and 125 Senior MAX:

Fuel pump must be mounted on the bottom side of the support bracket for the intake silencer (left illustration).

69.2 125 MAX DD2:

Fuel pump must be mounted on the support bracket, marked 651055 or 651056, attached to the clutch cover (right illustration).
Mounting the fuel pump with the two original rubber buffers to the chassis is an allowed option. In this case the fuel pump must be mounted below the inlet center line of the carburettor.





70. Fuel filter

Two versions of original fuel filter are legal to be used (see pictures). The fuel filter must be mounted between the fuel tank and the fuel pump.
Except the fuel line, the fuel pump and the original fuel filter no additional parts are legal to be mounted between fuel tank and carburettor.

71. Radiator

The removal of the thermostat from the cylinder head cover is an allowed modification.
Radiator must be mounted with all components as shown in the respective illustration.
To apply tape (neutral tape without advertising only) around the radiator is an allowed modification to control the air flow through the radiator.
Tape may not be removed from the radiator during operation on the track. Any other non-original device to control the air flow through the radiator is prohibited.

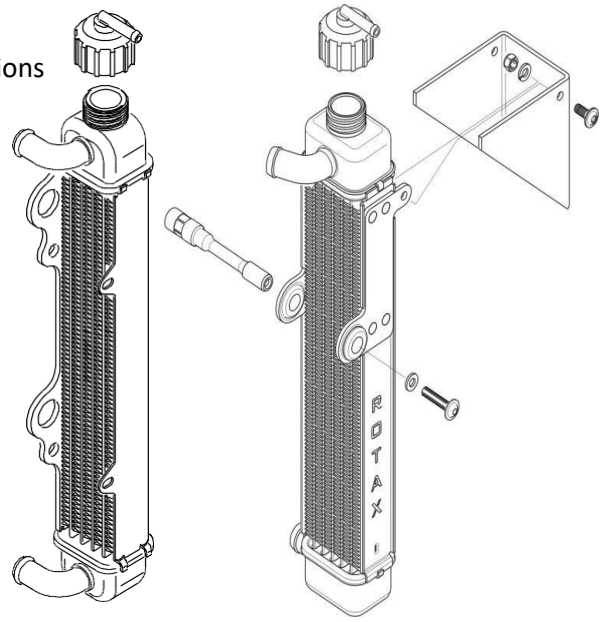
71.1 125 Micro MAX and 125 Mini MAX:

Two different versions as shown in the illustrations are legal to be used.

Cooling area:

Height:	280 – 300 mm
Width:	58 – 62 mm
Thickness of radiator:	30 – 34 mm

To remove the original flap is an allowed modification.



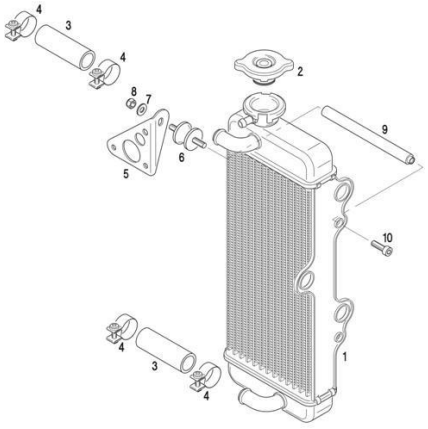
71.2 125 Junior MAX and 125 Senior MAX:

The radiator must be mounted on the right side of the engine.
Three different versions as shown in the illustrations are legal to be used.

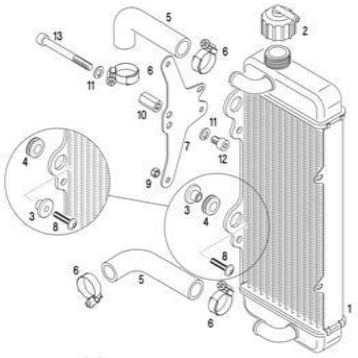
Version 1

Cooling area:

Height:	290 mm
Width:	133 mm
Thickness of radiator:	32 mm



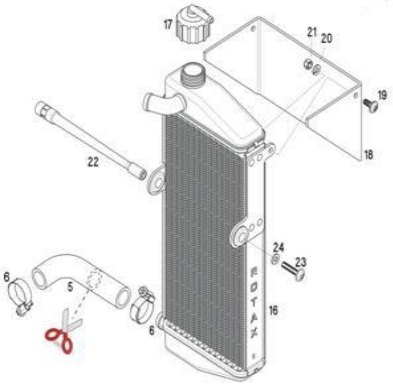
Version 2



Cooling area:
Height: 290 mm
Width 133 mm
Thickness of radiator: 32 mm

The support plate (pos. 7) enables two different mounting positions (height) of the radiator. Both mounting positions are legal to be used.

Version 3



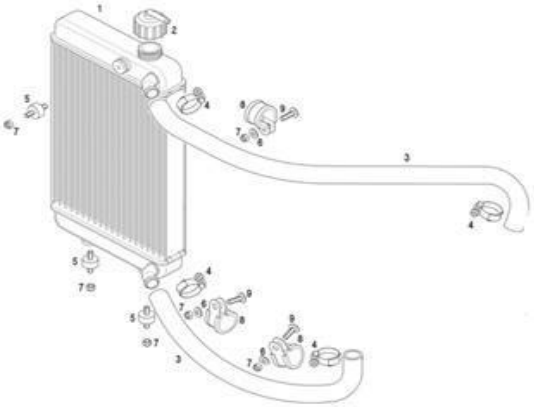
Cooling area:
Height: 290 mm
Width: 138 mm
Thickness of radiator: 34 mm

Radiator must be stamped on the side with the wording "ROTAX".
To remove the original flap is an allowed modification.

71.3 125 MAX DD2:

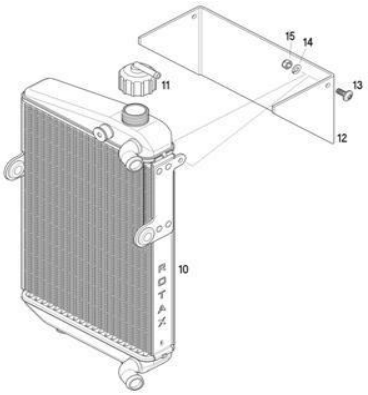
The radiator has to be mounted on the left side of the driver seat.
The highest point of the radiator with cap may not be higher than 400 mm above the main tube of the kart chassis.
Two different versions as shown in the illustrations are legal to be used.

Version 1



Cooling area:
Height: 284 mm
Width: 202 mm
Thickness of radiator: 32 mm

Version 2



Cooling area:
Height: 290 mm
Width: 196 mm
Thickness of radiator: 34 mm

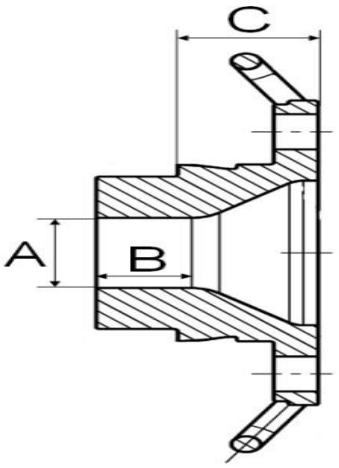
To remove the original flap is an allowed modification.

72. Engine coolant

Plain water without any additives has to be used.

73. Exhaust socket (Restrictor)

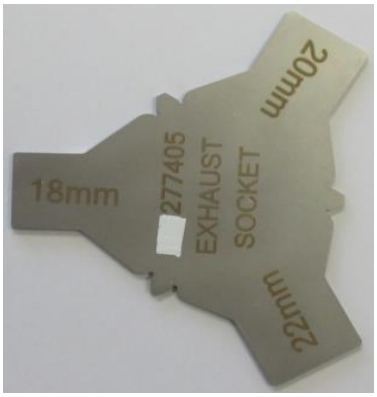
73.1 125 Micro MAX and 125 Mini MAX :



Just exhaust sockets with gasket ring are legal to be used.
Diameter (A) must apply for a length (B) of at least 12 mm.
Maximum inner diameter (A) of exhaust sockets are:
125 Micro MAX: 18,20 mm (Rotax part no. 273 192)
125 Mini MAX: 22,20 mm (Rotax part no. 273 196)

The measurement (C) must be at least 18,5 mm.

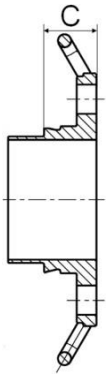
The internal profile of the exhaust socket has to be checked with the template, Rotax 277 405.



Fit the template (**125 Micro MAX** "18 mm", **125 Mini MAX** "22 mm") as far as possible into the exhaust socket (without gasket, carbon deposits removed). There has to be a constant crack light between the profile of the exhaust socket and the profile of the template.

73.2 125 Junior MAX, 125 Senior MAX, 125 MAX DD2:

Only Rotax part no. 273 190 is allowed to be used.
The measurement (C) must be at least 15,5 mm.



74. Exhaust system

The use of maximum 4 pieces of original Rotax exhaust springs, to fix the exhaust system to the cylinder is allowed (a "safety wire" in the exhaust flange area is not allowed).

Original exhaust system as supplied by Rotax is mandatory to be used for the relevant class.
Welding at the exhaust system is only allowed in the case of a repair.

Allowed modifications on the original exhaust systems are:

- Replacing the original rivets of the silencer end cap by 4 mm metric screws and corresponding locking nuts.
- Replacing the isolating mat (just one original isolating mat may be fitted) inside the silencer and the silencer end cap with perforated tube by original Rotax spares parts.

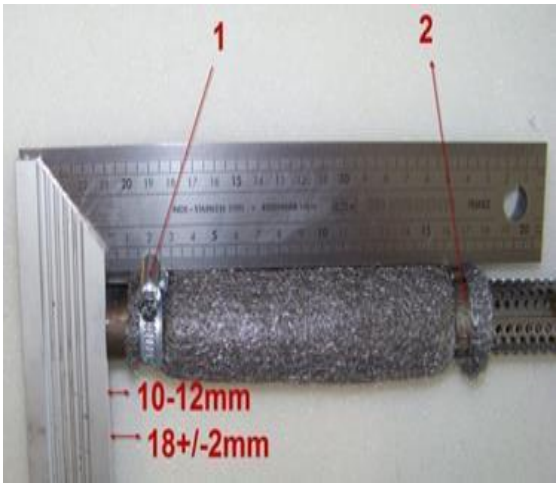
125 Micro MAX	ROTAX part number 297982
125 Mini MAX	**ROTAX part number 297985**
125 JNR MAX	ROTAX part number 297982
125 SNR MAX	ROTAX part number 297982
125 DD2 MAX	ROTAX part number297982

Note: For post-race technical scrutineering checks on the exhaust isolating mat, only the used weight is to be controlled.
The new size and weight specifications can only be applied for pre-race / event technical checks against new material prior to installation and sealing of the exhaust system, if specified by the event /series organizer.

- Welding a socket (in a distance of 50-80 mm from the ball joint) on the top of the exhaust system for measuring the exhaust gas temperature.

- Addition extra elements after the original silencer for further noise reduction.

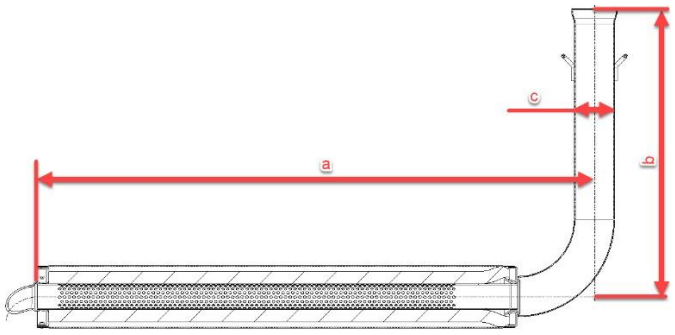
- Additional to the standard isolation mat a steel isolation mat (Rotax part no. 297 983) with the square dimension of 165 +10 mm is legal for use in the JNR / SNR and DD2 category's only (not mandatory) to be assembled underneath the standard isolation mat according to the illustration.
  Clamp (1) must be fitted at a distance of 18+/-2mm, measured from the end of the tube.
  Clamp (2) must be fitted at the end area of the steel isolation mat.
  The measurement 10-12 mm from the end of the perforated tube to the beginning of the steel isolating mat is a specification for assembly purpose only!
  Both clamps (1 and 2) are mandatory to be fitted and tightened.



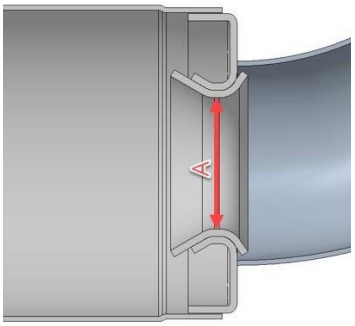
74.1 125 Micro MAX:

A specific Exhaust system has to be used for the 125 Micro MAX engine. ROTAX Part number 273136
The Exhaust external body is a common component to Mini MAX, but with alternative internal components (Inserts).
The silencer must be mounted in a position where the direction of the 90° elbow outlet (direction of the hot exhaust gasses) does not harm any component of the chassis.

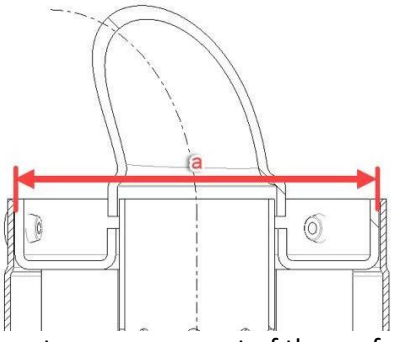
The measurements in the diagram below are as follows:
(a) 580 mm +/- 5mm
(b) 299 mm +/- 5mm
(c) 42 mm +/- 3mm



A steel ball with a 28.0mm diameter **must not** pass through Section “A” and a steel ball with a 26.0mm diameter must be able pass through Section “A” in the below diagram from the inlet and through the 90-degree elbow completely.
(Internal exhaust components must first be removed)



The inner measurement of the exhaust system silencer end (a) in the below diagram must be a maximum of 63.0 mm.



(Note: this is not a measurement of the perforated tube)

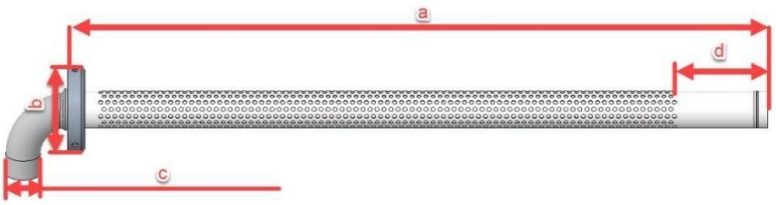
The Exhaust must be installed firmly to the chassis using a rigid mount/s.
The Exhaust must be mounted to the rigid mount/s using 2 ROTAX silent blocks. (part 660920 and or 260657 allowed).
The deflection of the 2 silent blocks is the only Exhaust movement allowed.
The Exhaust must be mounted in a neutral position with no stress on the 2 silent blocks.

74.2 125 Micro MAX Perforated tube

ROTAX part number: 273212

The measurements in the diagram below are as follows:

(a) at least 498 mm
(b) minimum outside diameter of 61mm
(c) maximum outside diameter of 26mm
(d) minimum length 63mm



The measurements in the diagram below are as follows:

(a) minimum outside diameter of 26.0mm

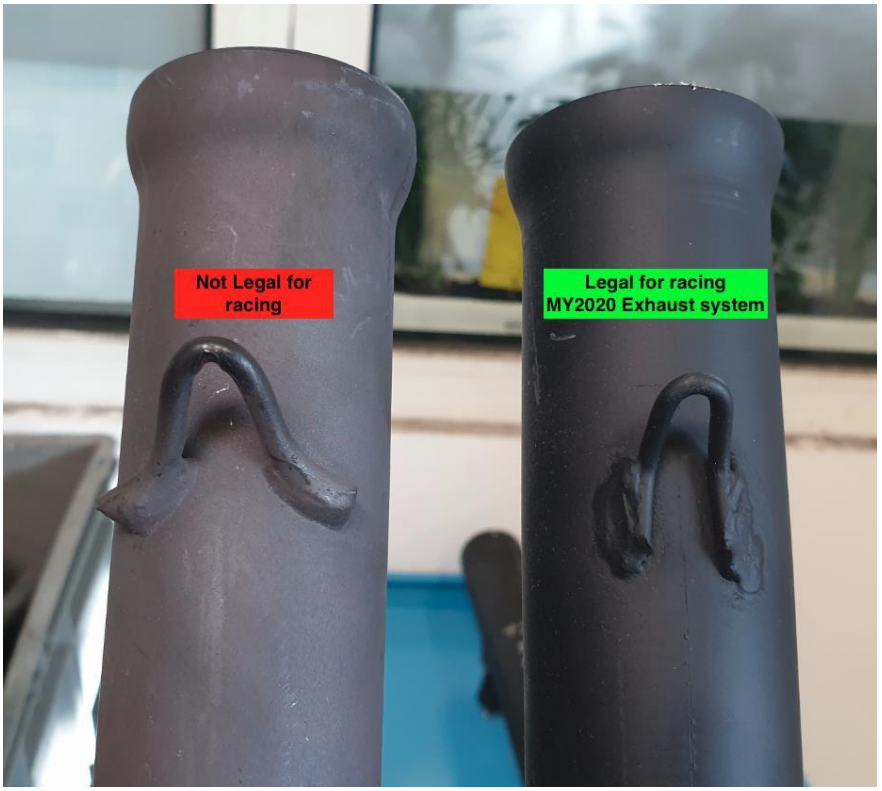
The only legal Isolation matting for 125 Micro MAX is: RO-TAX part number 297982

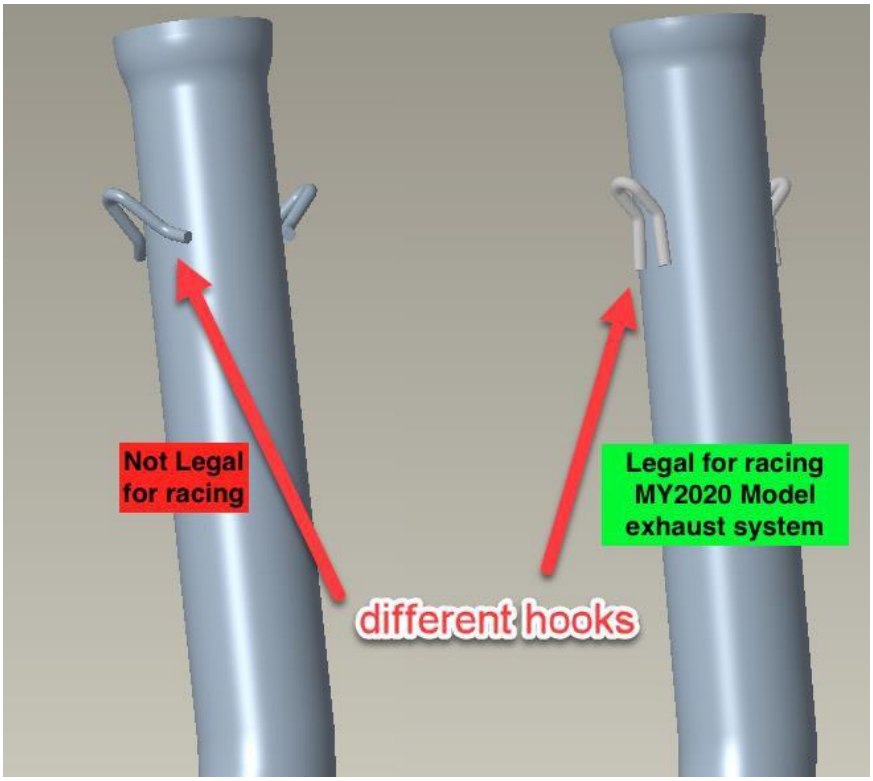
New size minimum 480 x 270mm (+/-10mm)
New weight 207gr (176g – 238g)
Used weight minimum 140g
Used weight maximum 300g

NOTE:

The only exhaust system allowed for racing in the 125 Micro and 125 Mini MAX category's is the MY2020 version.
The exhaust has 3 clear visual differences to identify the MY2020 version.

1. Exhaust hooks
2. Connecting socket / ball joint connect at manifold
3. Wall thickness of the exhaust system is 1.0mm (older exhaust system which is not allowed for racing has a wall thickness of 1.5mm)

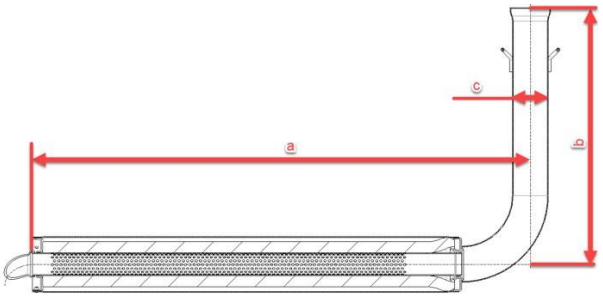

Not Legal for racing
Legal for racing MY2020 Exhaust system


Not Legal for racing
Legal for racing MY2020 Model exhaust system
different hooks

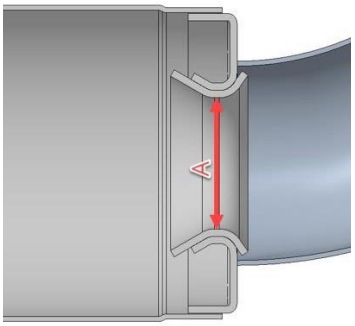
74.3 125 Mini MAX:

A specific Exhaust system has to be used for the 125 Mini MAX engine. ROTAX Part number 273137
The Exhaust external body is a common component to Micro MAX but with alternative internal components.
The silencer must be mounted in a position where the direction of the 90° elbow outlet (direction of the hot exhaust gasses) does not harm any component of the chassis.

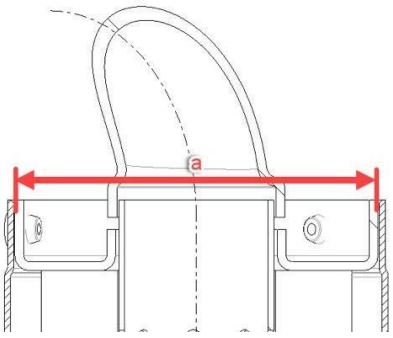
The measurements in the diagram below are as follows:
(a) 580 mm +/- 5mm
(b) 299 mm +/- 5mm
(c) 42 mm +/- 3mm



A steel ball with 28.0mm diameter **must not** pass through Section "A" and a steel ball with 26.0mm diameter must be able pass through Section "A" in the below diagram from the inlet and through the 90-degree elbow completely.
(Internal exhaust components must first be removed)



The inner measurement of the exhaust system silencer end (a) in the below diagram must be a maximum of 63.0 mm.



(Note: this is not a measurement of the perforated tube)

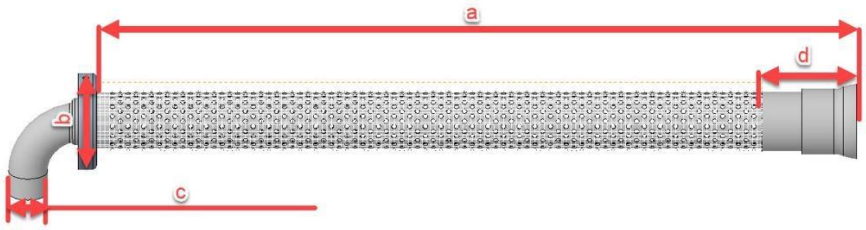
The Exhaust must be installed firmly to the chassis using a rigid mount/s.
The Exhaust must be mounted to the rigid mount/s using 2 ROTAX silent blocks. (part 660920 and or 260657 allowed).
The deflection of the 2 silent blocks is the only Exhaust movement allowed.
The Exhaust must be mounted in a neutral position with no stress on the 2 silent blocks.

74.5 125 Mini MAX Perforated tube

ROTAX Part number 273211

The measurements in the diagram below are as follows:

(a) at least 484 mm
(b) minimum outside diameter of 61 mm
(c) maximum outside diameter of 26 mm
(d) at least 63 mm



Note:
Mini MAX perforated tube has a stamped ID marker " X " visible externally.

The only legal Isolation matting for 125 Mini MAX is: ROTAX part number 297985

New size minimum 490 x 180mm (+/-10mm)
New weight 141gr (119g – 163g)
Used weight minimum 110g Used weight maximum 300g

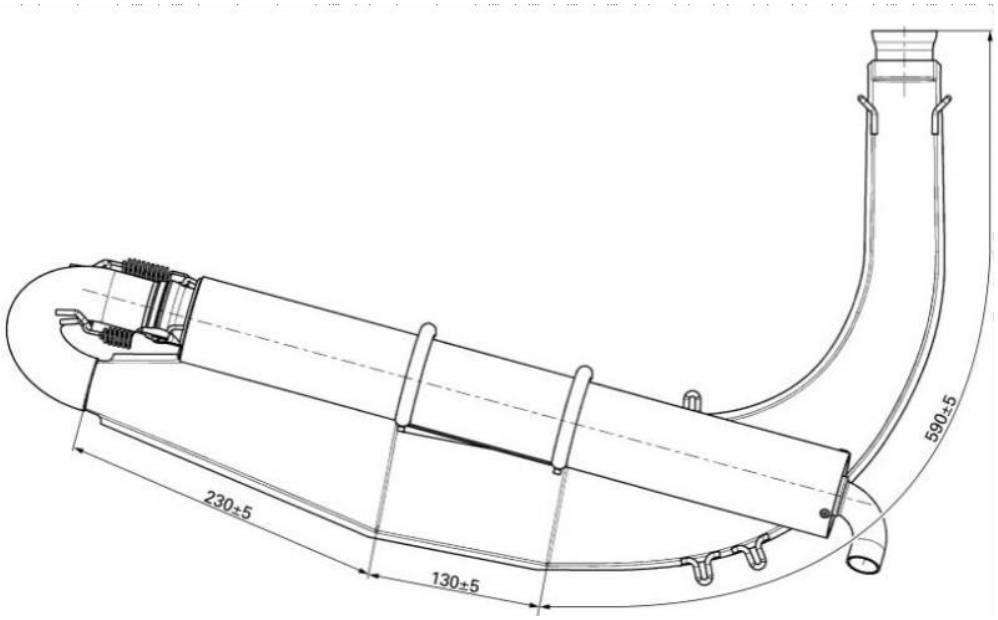
74.6 Junior MAX and 125 Senior MAX:

A steel ball with 27,5 mm diameter must pass through the tuned pipe from the inlet and through the 180-degree elbow completely (silencer disconnected).

The silencer must be mounted in a position where the direction of the 90° elbow outlet (direction of the hot exhaust gasses) does not harm any component of the chassis.

Dimensions to be checked:

Length of inlet cone:	590mm +/-5mm
Length of cylindrical part of exhaust pipe:	130mm +/-5mm
Length of end cone:	230mm +/-5mm



The only legal Isolation matting for 125 Junior and 125 Senior MAX is: ROTAX part number 297982

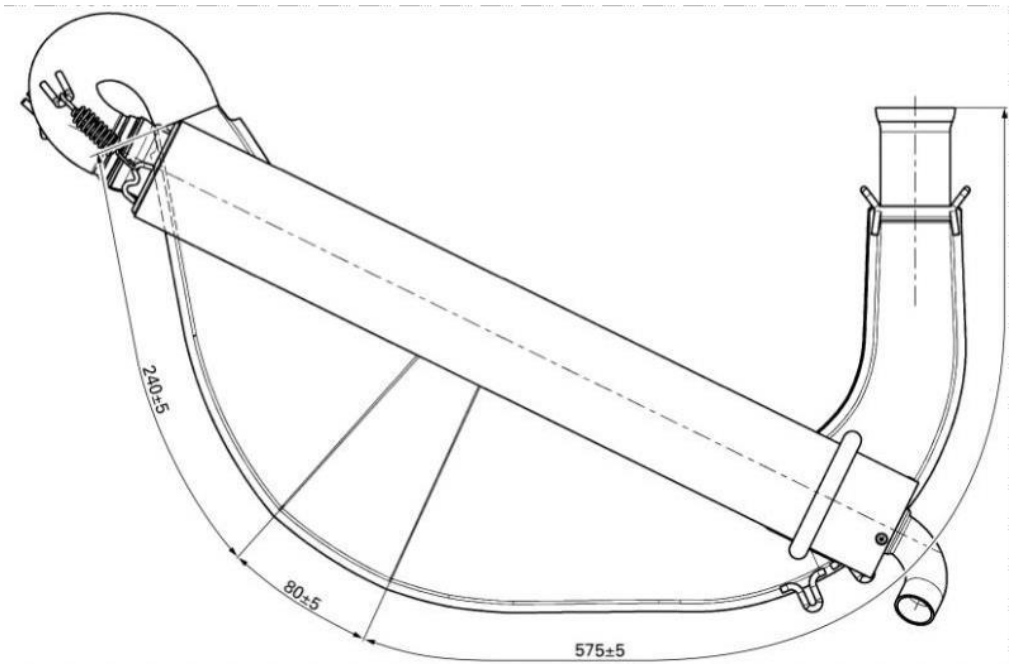
New size minimum 480 x 270mm (+/-10mm)
New weight 207gr (176g – 238g)
Used weight minimum 140g Used weight maximum 300g

74.7 125 DD2 MAX:

The silencer must be mounted in a position where the direction of the 90° elbow outlet (direction of the hot exhaust gasses) does not harm any component of the chassis.

Dimensions to be checked:

Length of inlet cone:	575mm +/-5mm
Length of cylindrical part of exhaust pipe:	80mm +/-5mm
Length of end cone:	240mm +/-5mm



The only legal Isolation matting for 125 DD2 MAX is: ROTAX part number 297982

New size minimum 480 x 270mm (+/-10mm)
New weight 207gr (176g – 238g)
Used weight minimum 140g Used weight maximum 300g

75. Additional seat support (125 MAX DD2)

On the engine side, maximum one additional seat support can be used.
The additional seat support must be fastened to the engine using the Allen screw (2). The distance sleeve (3) may be removed for this purpose.