VLR / VLR-JUNIOR ROK 2026

IDENTIFICATION SHEET
This Identification Sheet reproduces descriptions, illustrations and dimensions of the **VLR ROK.**

ATTENTION	
	ALL THE ENGINE PARTS MUST BE ORIGINAL BY VORTEX ROK. Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what originally produced (manufactured and assembled). Furthermore this includes any addition and /or removal of material. All dimensions in the technical drawings are in mm.

TECHNICAL INFORMATION AND CHARACTERTICS	
ORIGINAL BORE	42,20 mm +/-0,2mm
MAX ALLOWED BORE	48,53 mm
STROKE	54mm +/- 0,2 mm
ORIGINAL DISPLACEMENT	100 cc
CONROD C-TO-C DISTANCE	102mm +/- 0,2 mm
WEIGHT OF CONROD	127g +/- 2g
SPROCKET	Z10-Z11-Z12

CYLINDER DEVELOPMENT AND DISTRIBUTION	
EXHAUST PORT	169° MAX
BOOSTER	167° MAX
MAIN TRANSFER	123,5° ± 2°
SECONDARY TRANSFER	132° MAX

Check of the distribution as described in the **ROK CUP USA 2026 Technical Regulation.**

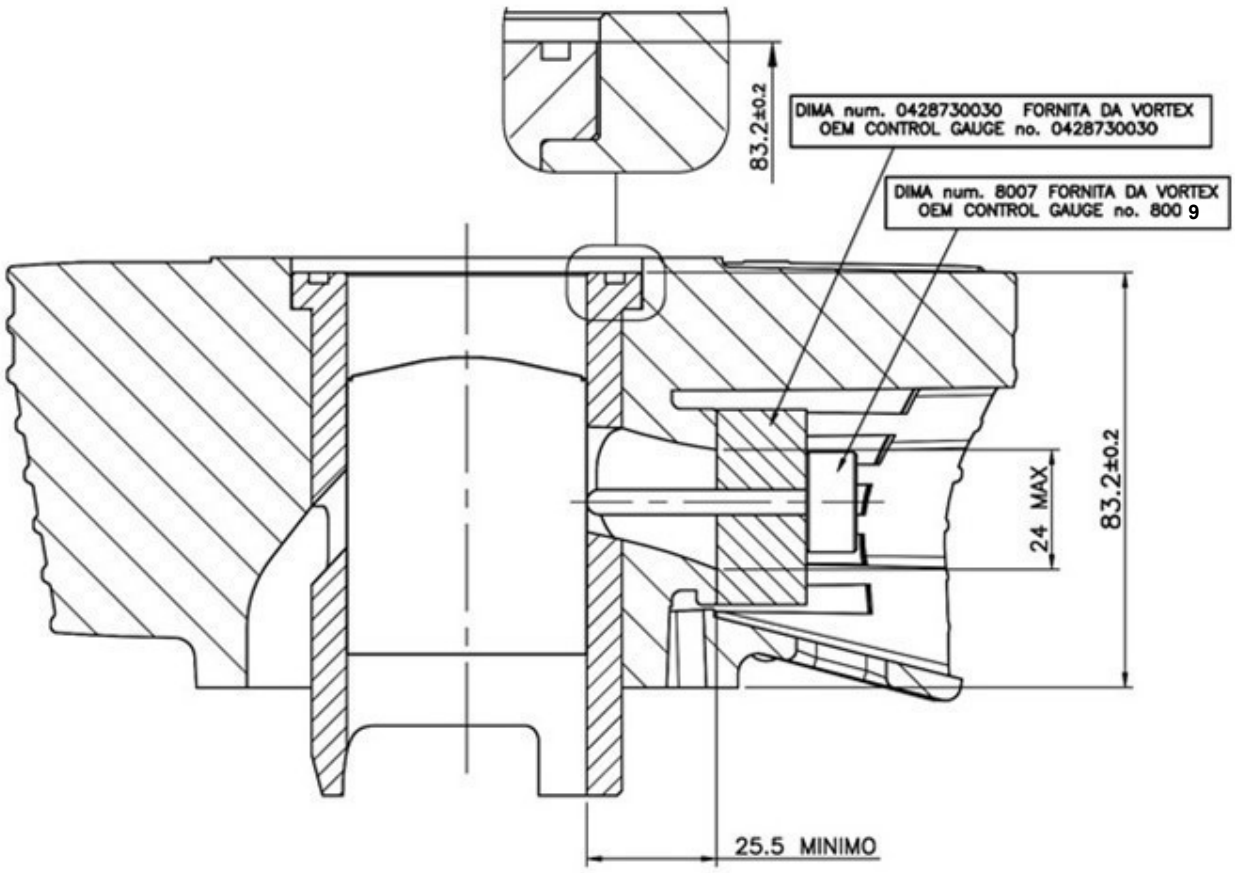
Measurement must be made with engine head mantled (studs tightening torque: 1.8 kgm).

ATTENTION

ALL THE ENGINE PARTS MUST BE ORIGINAL BY VORTEX ROK.
Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what originally produced (manufactured and assembled). Furthermore this includes any addition and /or removal of material.
All dimensions in the technical drawings are in mm.

CYLINDER SECTION

MINIMUM DISTANCE OF THE EXHAUST MANIFOLD PLAN FROM THE CYLINDER AXLE



ATTENTION

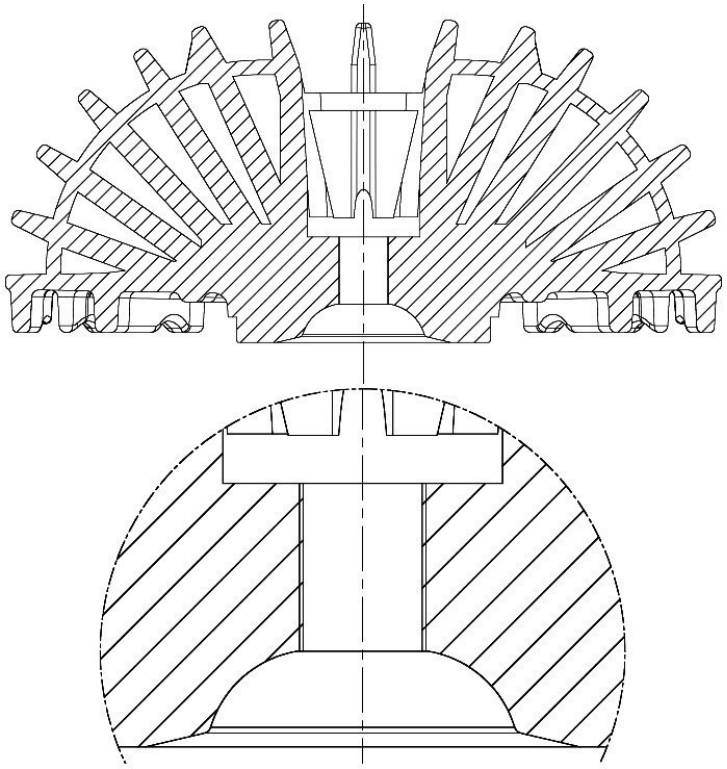
ALL THE ENGINE PARTS MUST BE ORIGINAL BY VORTEX ROK.
Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what originally produced (manufactured and assembled). Furthermore this includes any addition and /or removal of material.
All dimensions in the technical drawings are in mm.

DRAWING OF CYLINDERHEAD AND COMBUSTION CHAMBER

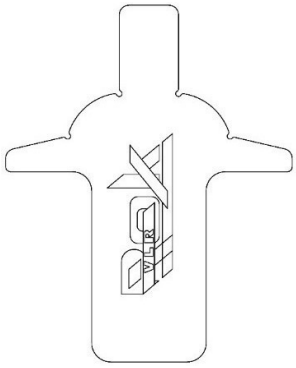
VOLUME OF COMBUSTION CHAMBER	8,60 cc MIN. With FIA INSERT

Average taken from both sides of the piston, using Rotax 2.0mm solder 100g #9735

SQUISH THICKNESS : 1mm MIN



VORTEX TEMPLATE FOR COMBUSTION CHAMBER PROFILE CONTROL



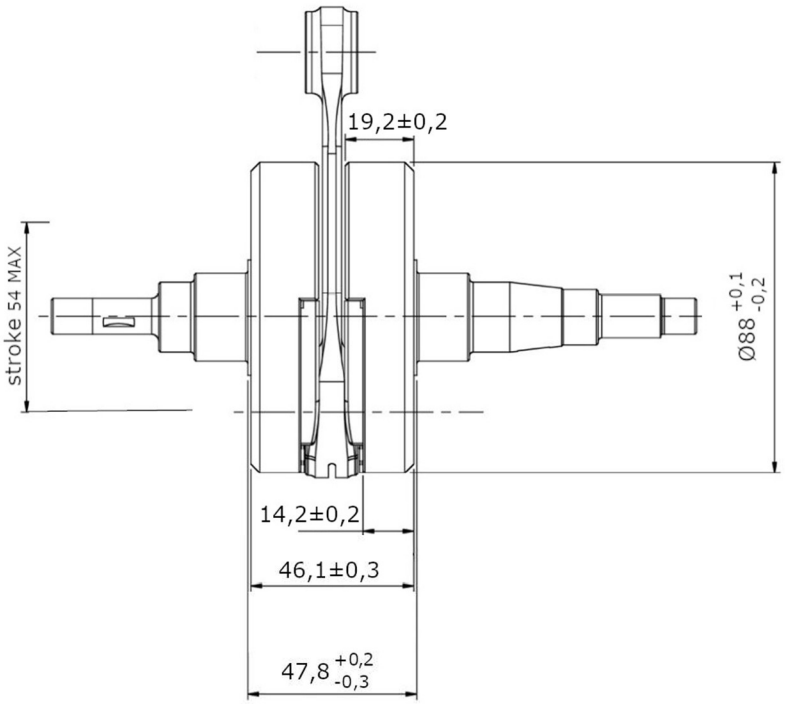
ATTENTION

ALL THE ENGINE PARTS MUST BE ORIGINAL BY VORTEX ROK.

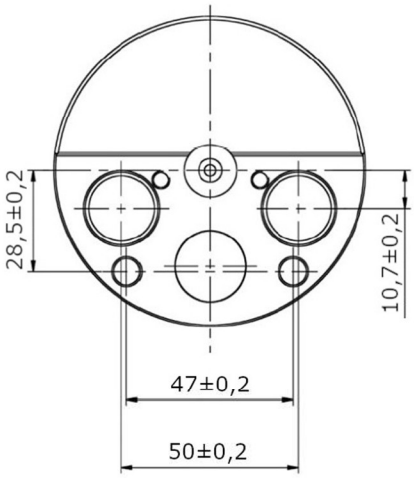
Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what originally produced (manufactured and assembled). Furthermore this includes any addition and /or removal of material.

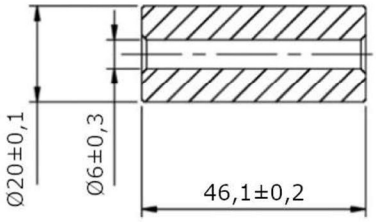
All dimensions in the technical drawings are in mm.

CRANKSHAFT AND CRANKPIN



Peso – Weight – Poid
1.870g +/- 10g



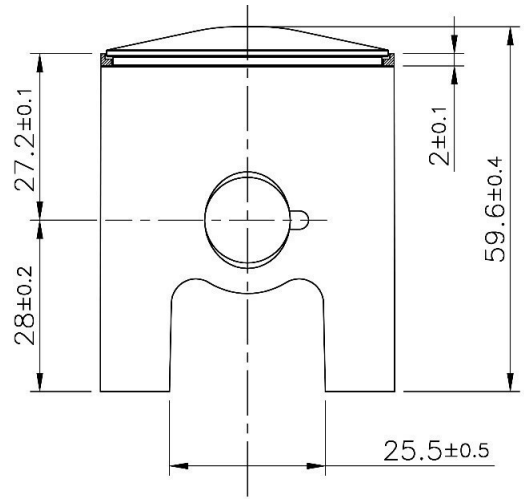


Peso – Weight – Poid
102g +/- 2g

ATTENTION

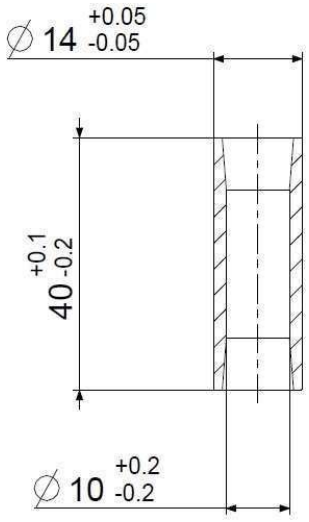
ALL THE ENGINE PARTS MUST BE ORIGINAL BY VORTEX ROK.
Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what originally produced (manufactured and assembled). Furthermore this includes any addition and /or removal of material.
All dimensions in the technical drawings are in mm.

PISTON



WEIGHT
97gr +/- 5 gr

PISTON PIN

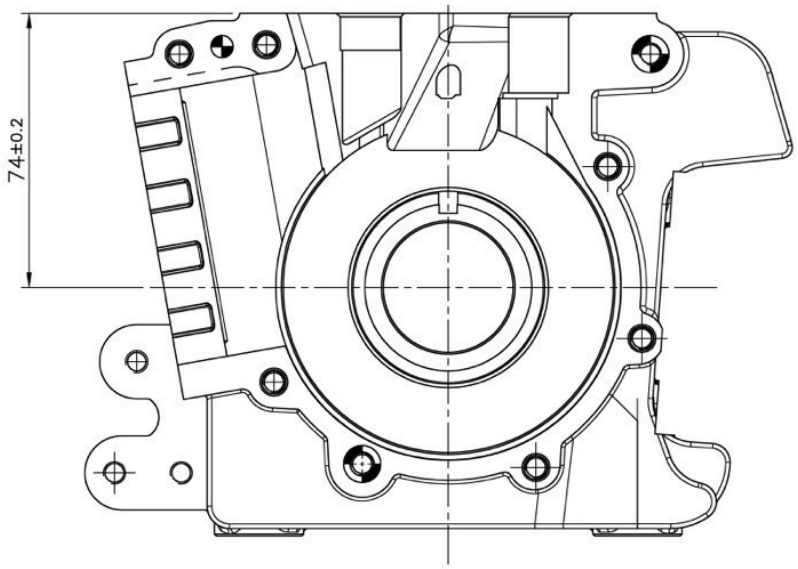


WEIGHT
21gr Min.

ATTENTION

ALL THE ENGINE PARTS MUST BE ORIGINAL BY VORTEX ROK.
Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what originally produced (manufactured and assembled). Furthermore this includes any addition and /or removal of material.
All dimensions in the technical drawings are in mm.

INTERIOR VIEW OF THE CRANKCASE AND ASEMBLY WIEV



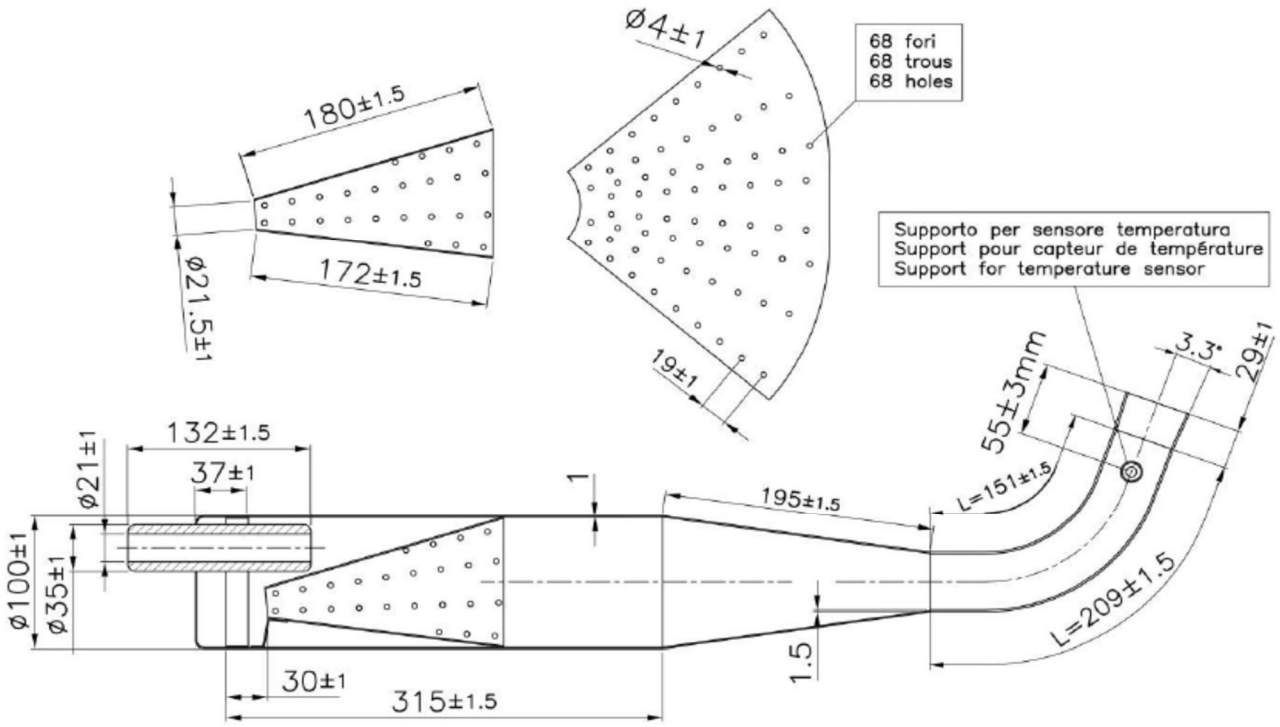
CRANKSHAFT BEARINGS

TYPE	DIMENSION	CHARACTERISTICS
Free brand **6205.C4**	**25x52x15mm**	Steel Balls **9**

ATTENTION

ALL THE ENGINE PARTS MUST BE ORIGINAL BY VORTEX ROK.
Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what originally produced (manufactured and assembled). Furthermore this includes any addition and /or removal of material.
All dimensions in the technical drawings are in mm.

EXHAUST MUFFLER



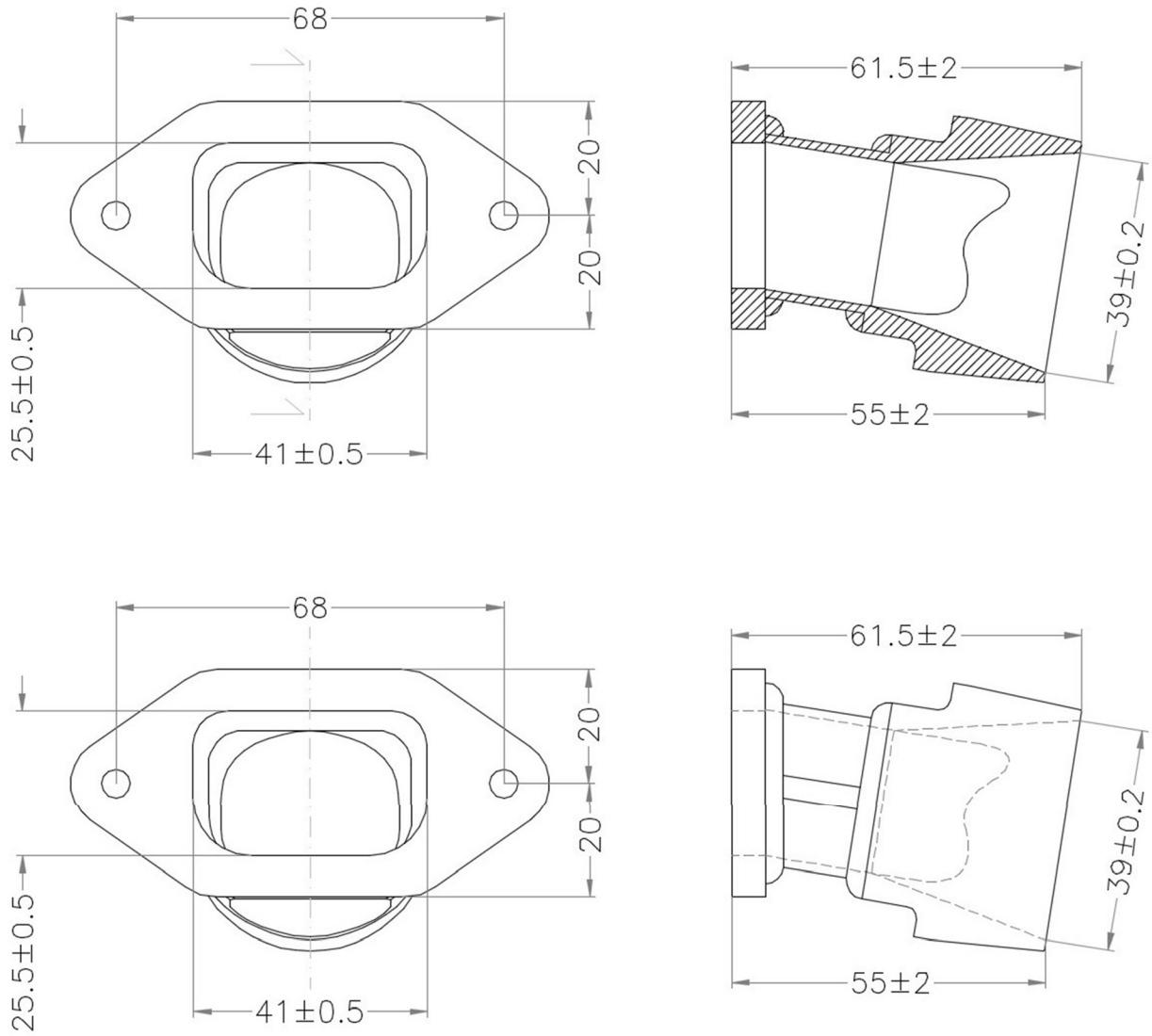
EHAUST WEIGHT
1990 gr +/- 5%

The end parts of the silencer must have two soldered pairs of lugs (one pair at the top and one pair at the bottom) to allow for fixing of seals by the Organizer so that the silencer may be opening during the competition.

ATTENTION

ALL THE ENGINE PARTS MUST BE ORIGINAL BY VORTEX ROK.
Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what originally produced (manufactured and assembled). Furthermore this includes any addition and /or removal of material.
All dimensions in the technical drawings are in mm.

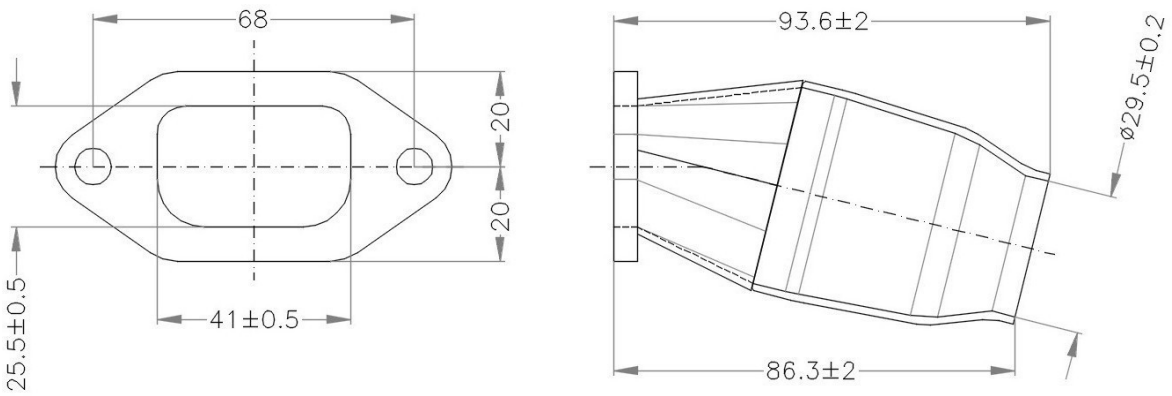
EXHAUST MANIFOLD



ATTENTION

ALL THE ENGINE PARTS MUST BE ORIGINAL BY VORTEX ROK.
Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what originally produced (manufactured and assembled). Furthermore this includes any addition and /or removal of material.
All dimensions in the technical drawings are in mm.

EXHAUST MANIFOLD VLR JUNIOR



PICTURES AMD MARKING OF MANIFOLD

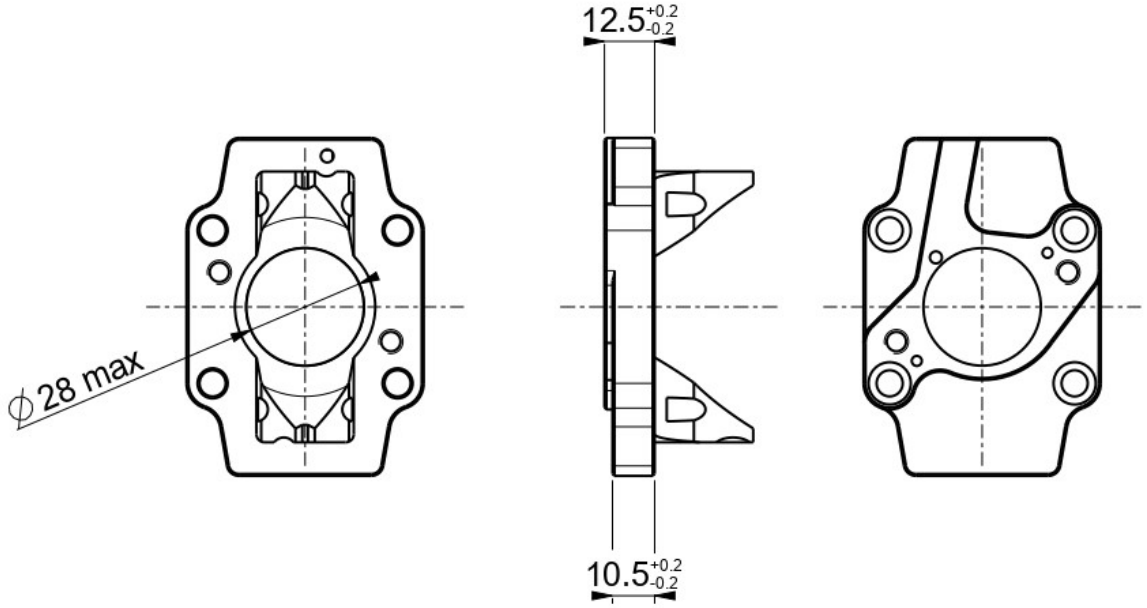
ATTENTION

ALL THE ENGINE PARTS MUST BE ORIGINAL BY VORTEX ROK.

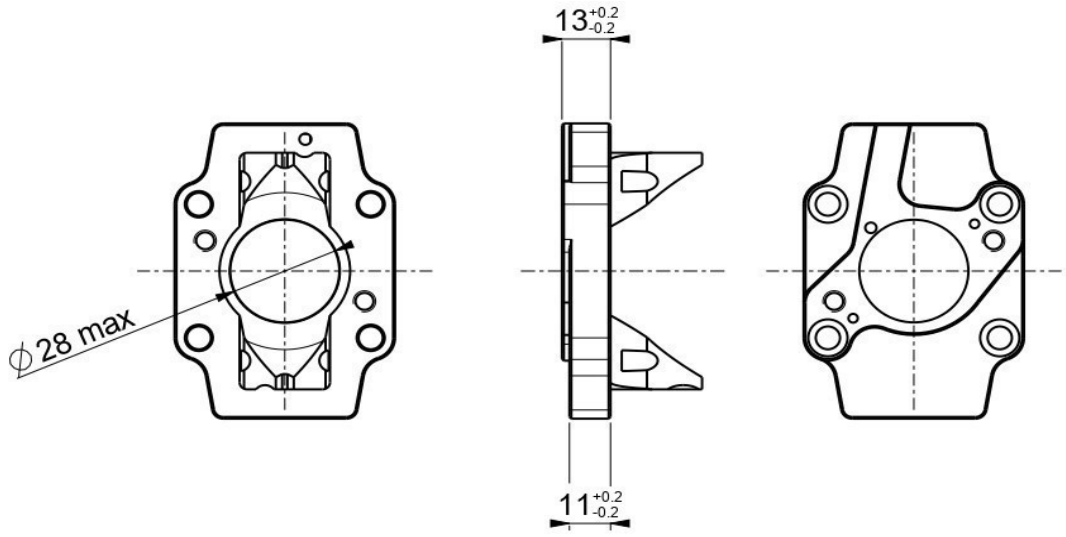
Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what originally produced (manufactured and assembled). Furthermore this includes any addition and /or removal of material.

All dimensions in the technical drawings are in mm.

V1 - DISCONTINUTED



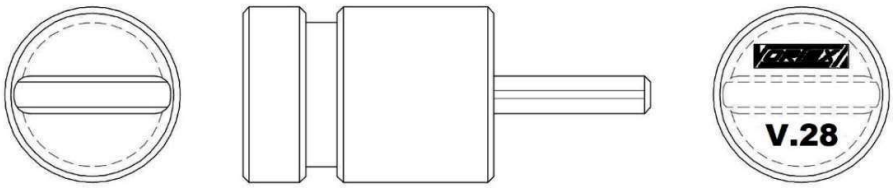
DRAWING OF REED VALVE COVER V2
V1 REED VALVE COVERS NO DQ ONLY CONFISCATED TECH DISCRETION



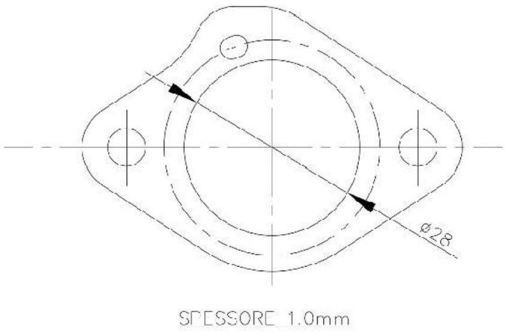
ATTENTION

ALL THE ENGINE PARTS MUST BE ORIGINAL BY VORTEX ROK.
Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what originally produced (manufactured and assembled). Furthermore this includes any addition and /or removal of material.
All dimensions in the technical drawings are in mm.

DISEGNO DIMA DI CONTROLLO DEL CONVOGLIATORE
DRAWING OF THE CONTROL GEUGE OF THE REED VALVE COVER
DESSIN DU GABARIT POUR LA VERIFICATION DU COUVERCLE DE LA BOÎTE À CLAPETS



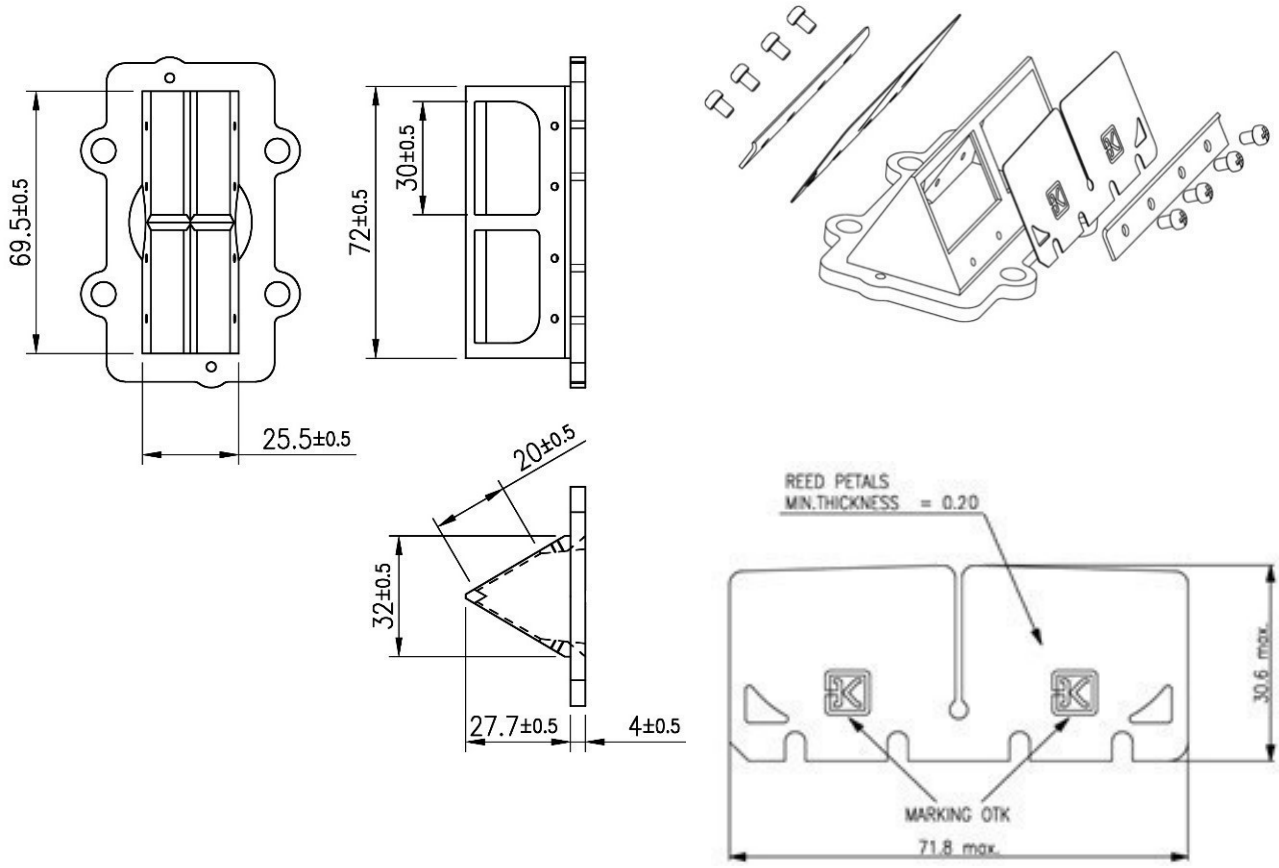
DISEGNO TECNICO GUARNIZIONE TRA CRBURATORE E MOTORE
TECHNICAL DRAWING GASKET BETWEEN CARBURETTOR AND ENGINE
DESSIN TECHNIQUE JOINT ENTRE CARBURATEUR ET MOTEUR



ATTENTION

ALL THE ENGINE PARTS MUST BE ORIGINAL BY VORTEX ROK.
Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what originally produced (manufactured and assembled). Furthermore this includes any addition and /or removal of material.
All dimensions in the technical drawings are in mm.

DRAWING OF REED BLOCK AND REED VALVE



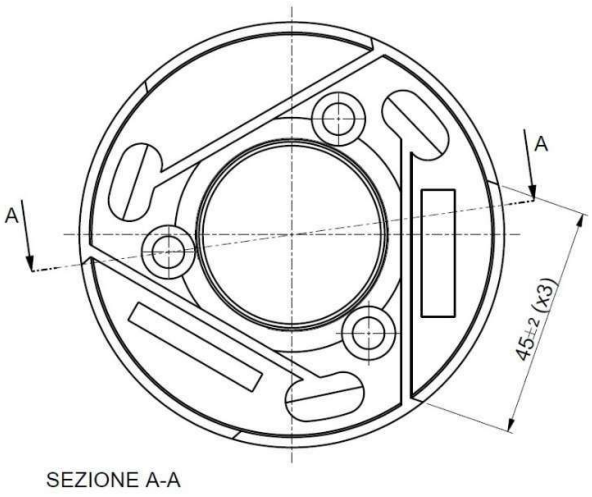
ATTENTION

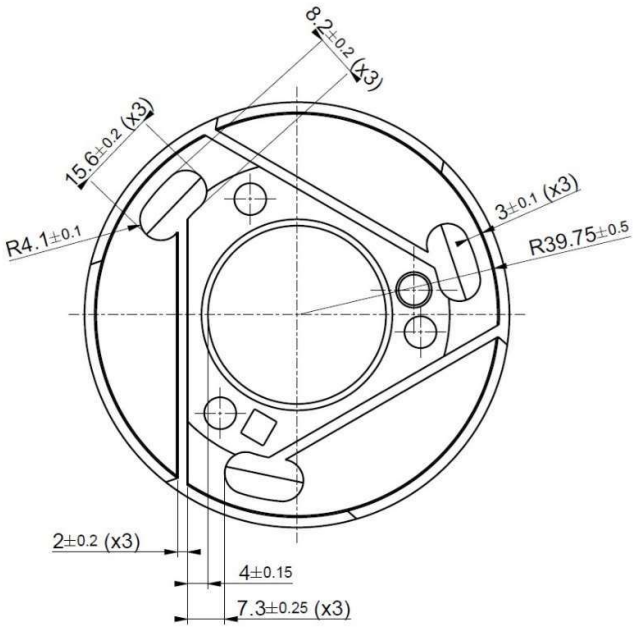
ALL THE ENGINE PARTS MUST BE ORIGINAL BY VORTEX ROK.

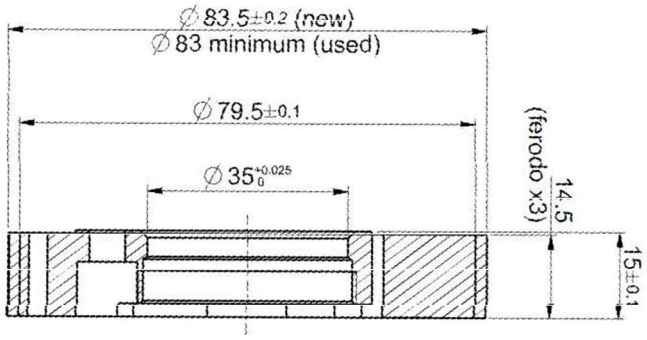
Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what originally produced (manufactured and assembled). Furthermore this includes any addition and /or removal of material.

All dimensions in the technical drawings are in mm.

CLUTCH ROTOR





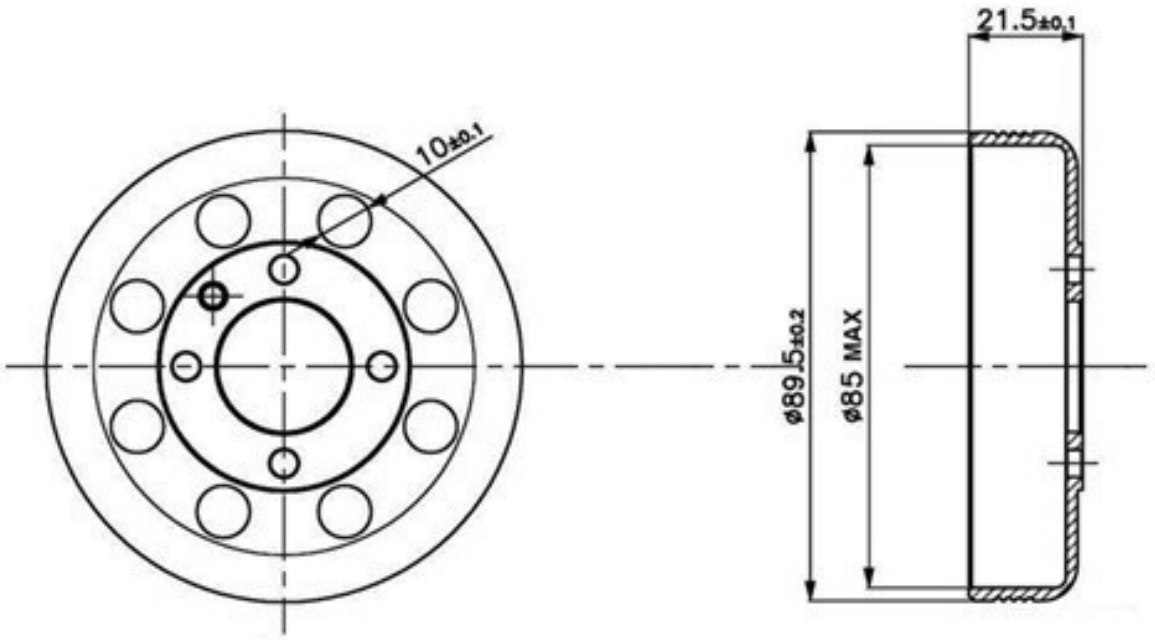


WEIGHT OF CLUTCH ROTOR
356gr +/- 10gr

ATTENTION

ALL THE ENGINE PARTS MUST BE ORIGINAL BY VORTEX ROK.
Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what originally produced (manufactured and assembled). Furthermore this includes any addition and /or removal of material.
All dimensions in the technical drawings are in mm.

CLUTCH HOUSING



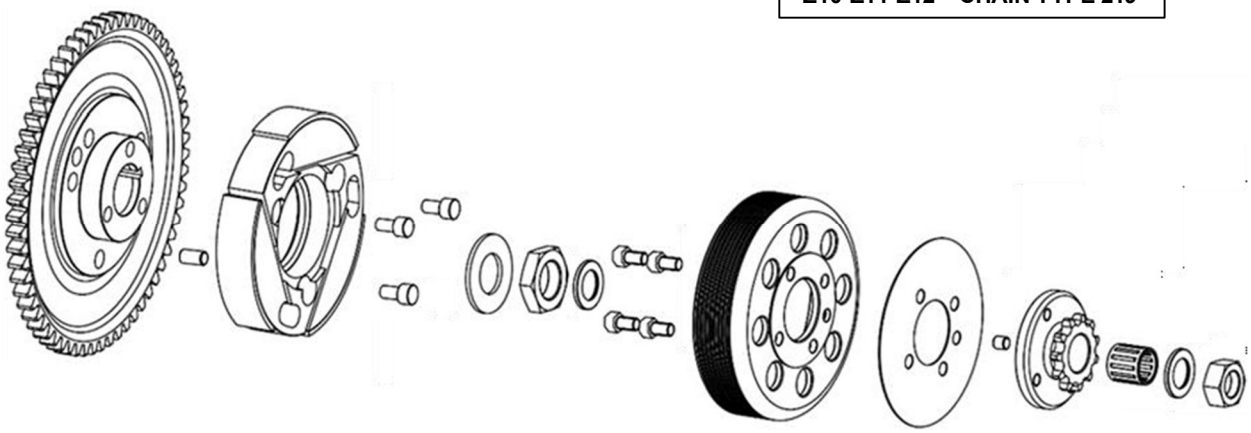
WEIGHT OF CLUTCH HOUSING
177gr +/- 5gr

ATTENTION

ALL THE ENGINE PARTS MUST BE ORIGINAL BY VORTEX ROK.
Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what originally produced (manufactured and assembled). Furthermore this includes any addition and /or removal of material.
All dimensions in the technical drawings are in mm.

COMPL. CLUTCH ROTOR WITH STARTING GEAR

Z10-Z11-Z12 – CHAIN TYPE 219

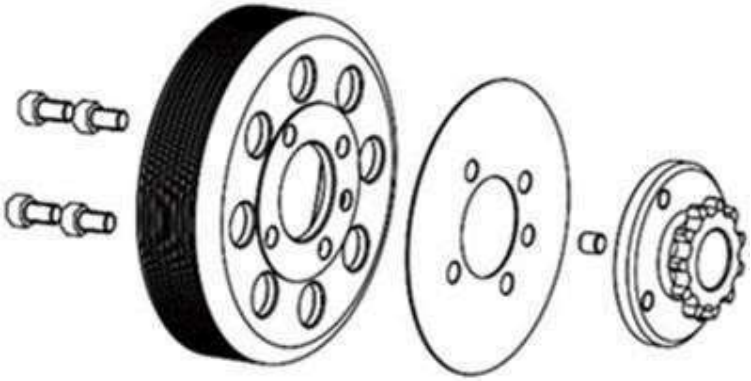


PARTS QUANTITY: 20

WEIGHT OF THE COMPLETE CLUTCH WITH STARTING GEAR AND PROTECTION: 830g MIN.

ENGAGEMENT SPEED (MAXIMUM) CAN BE VERIFIED IN EVERY MOMENT OF THE EVENT: 4000 RPM

DUST COVER RECCOMENDED BUT NOT MANDATORY



PARTS QUANTITY: 8

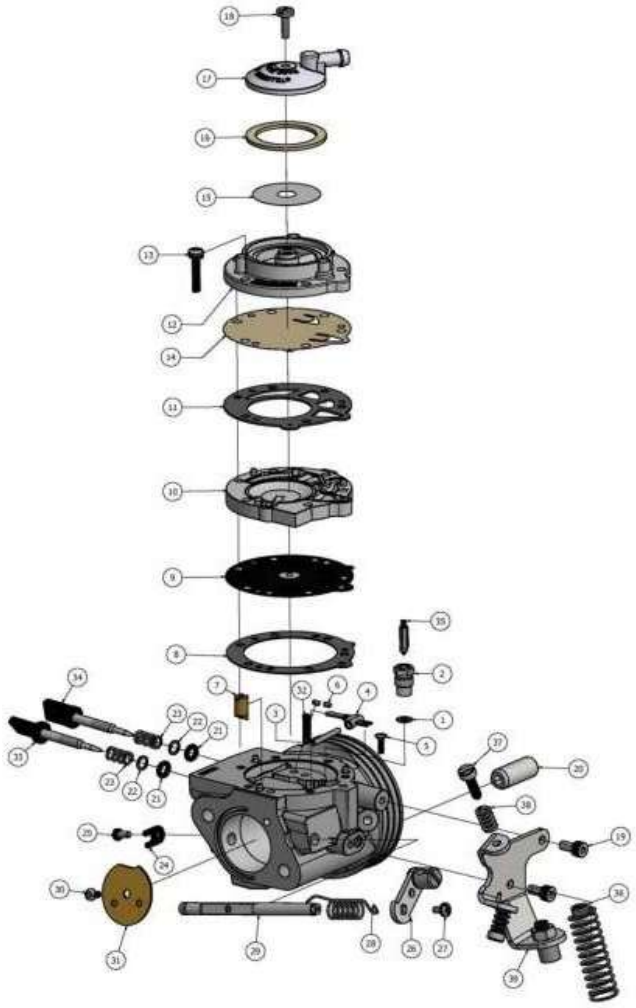
WEIGHT OF THE CLUTCH HOUSING WITH SPROCKET: 264g MIN.

ATTENTION

ALL THE ENGINE PARTS MUST BE ORIGINAL BY VORTEX ROK.
Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what originally produced (manufactured and assembled). Furthermore this includes any addition and /or removal of material.
All dimensions in the technical drawings are in mm.

CARBURETTOR AND COMPONENTS

TILLOTSON CARBURATOR HW 38A



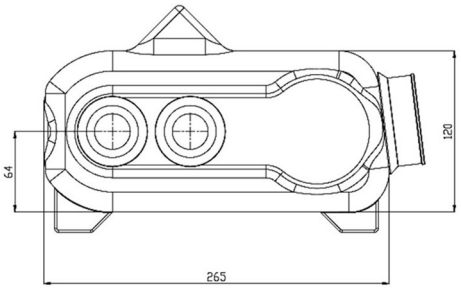
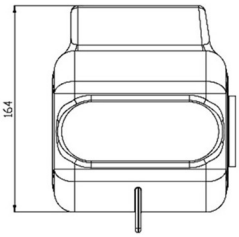
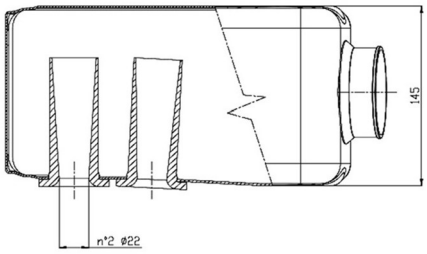
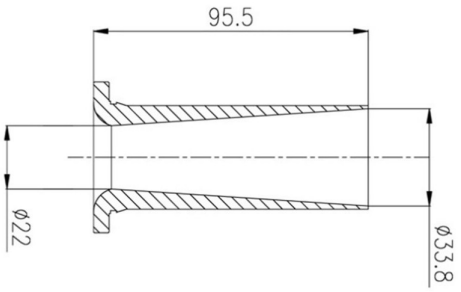
ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION
1	1	+* INLET SEAT GASKET	17	1	FUEL STRAINER COVER	33	1	8-32 UNC ADJUSTMNET SCREW ASSEMBLY
2	1	+* INLET SEAT	18	1	5-40 UNC SCREW	34	1	8-32 UNC ADJUSTMNET SCREW ASSEMBLY
3	1	FULCRUM LEVER PIN	19	2	M4 X 0,7 SOCKET CAP SCREW	35	1	+ INLET NEEDLE
4	1	+ INLET CONTRO LEVER	20	2	CARBURETTOR MOUNTING NUT	36	1	CABLE RETURN SPRING
5	1	FULCRUM PIN SCREW	21	2	ADJUSTMENT SCREW O-RING	37	2	LIMITER SCREW
6	2	BRASS PLUG	22	2	ADJUSTMENT SCREW WASHER	38	2	SPEED CREW SPRING
7	1	IDLE NOZZLE	23	2	ADJUSTMENT SCREW SPRING	39	1	CABLE BRACKET
8	1	+*DIAPHRAGM GASKET	24	1	THROTTLE SHAFT CLIP			
9	1	+*DIAPHRAGM ASSEMBLY	25	1	4-40 UNC SCREW		*	REPAIR KIT CONTENTS
10	1	FUEL PUMP BODY	26	1	THROTTLE LEVER ASSEMBLY		+	DIAPHRAGM & GASKET KIT CONTENTS
11	1	+* FUEL PUMP GASKET	27	1	4-40 UNC SCREW			
12	1	FUEL PUMP BODY	28	1	THROTTLE RETUR SPRING			
13	6	6 - 32 UNC SCREW WITH LOCK WASHER	29	1	THROTTLE SHAFT			
14	1	+* FUEL PUMP DIAPHRAGM	30	1	4-40 UNC SCREW			
15	1	FUEL STRAINER SCREEN	31	1	THROTTLE SHUTTER			
16	1	+* FUEL STRAINER COVER GASKET	32	1	INLET TENSION SPRING 37g			

ATTENTION

ALL THE ENGINE PARTS MUST BE ORIGINAL BY VORTEX ROK.

Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what originally produced (manufactured and assembled). Furthermore this includes any addition and /or removal of material.

All dimensions in the technical drawings are in mm.

INLET SILENCER	
MODEL TYPE	**ARROW FOR VLR**
   	   

ATTENTION

ALL THE ENGINE PARTS MUST BE ORIGINAL BY VORTEX ROK.

Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what originally produced (manufactured and assembled). Furthermore this includes any addition and /or removal of material.

All dimensions in the technical drawings are in mm.

AIR FILTER RUBBER SLEEVE	
OPTION 1	OPTION 2
	
RUBBER BUSH CAN BE CUT ON ONE SIDE.	

ATTENTION	
	ALL THE ENGINE PARTS MUST BE ORIGINAL BY VORTEX ROK. Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what originally produced (manufactured and assembled). Furthermore this includes any addition and /or removal of material. All dimensions in the technical drawings are in mm.

PICTURES OF SELETTRA IGNITION

Engines shall be mandatory swiched on and off by means of onboard starting system. Technical stewart members shall check the on-off onboard system anytime.

ATTENTION

ALL THE ENGINE PARTS MUST BE ORIGINAL BY VORTEX ROK.

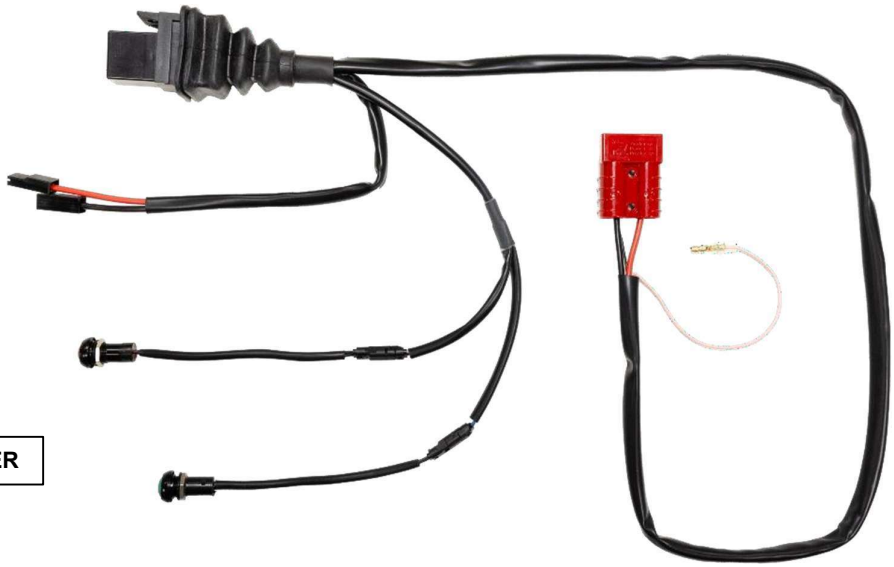
Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what originally produced (manufactured and assembled). Furthermore this includes any addition and /or removal of material.
All dimensions in the technical drawings are in mm.

OPTION 1 & 2 STARTER WIRING RECCOMENDED BUT NOT MANDATORY

OPTION 1

OPTIONAL BUTTON COVER

OPTION 2



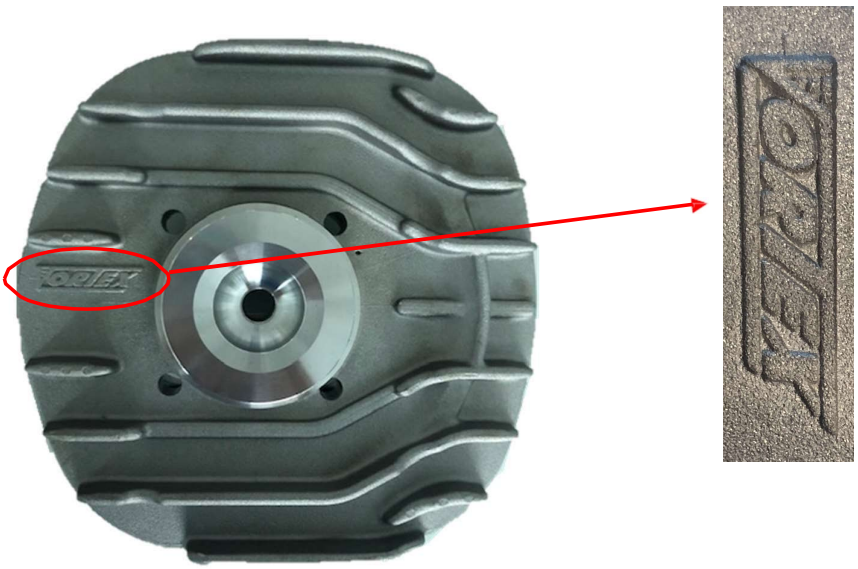
OPTIONAL BUTTON COVER

Engines shall be mandatory swiched on and off by means of onboard starting system.
Technical stewart members shall check the on-off onboard system anytime.

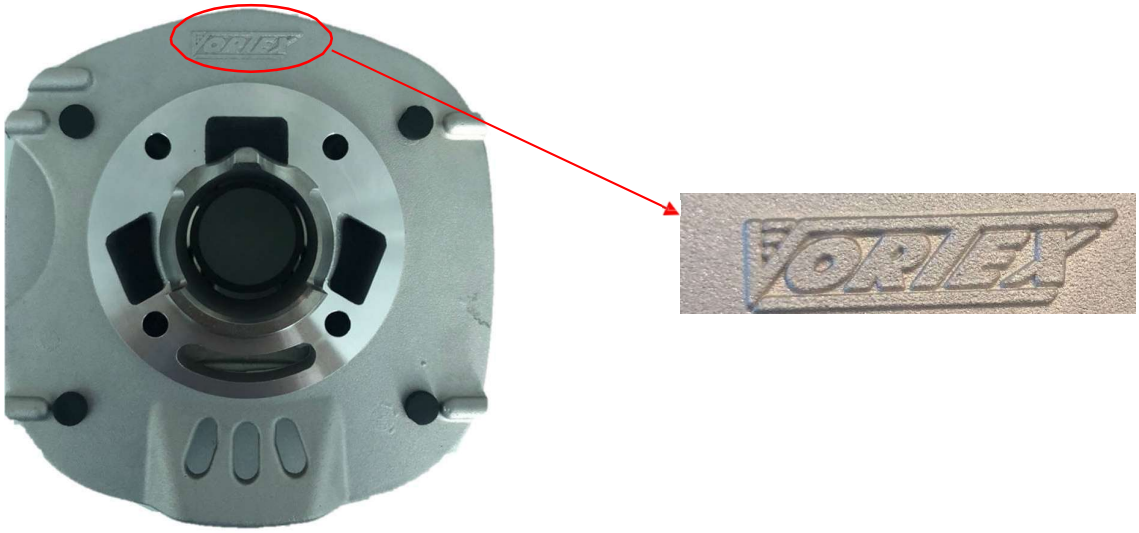
ATTENTION

ALL THE ENGINE PARTS MUST BE ORIGINAL BY VORTEX ROK.
Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what originally produced (manufactured and assembled). Furthermore this includes any addition and /or removal of material.
All dimensions in the technical drawings are in mm.

MARKING OF THE CYLINDERHEAD AND COMBUSTION CHAMBER



MARKING OF CYLINDER BASE



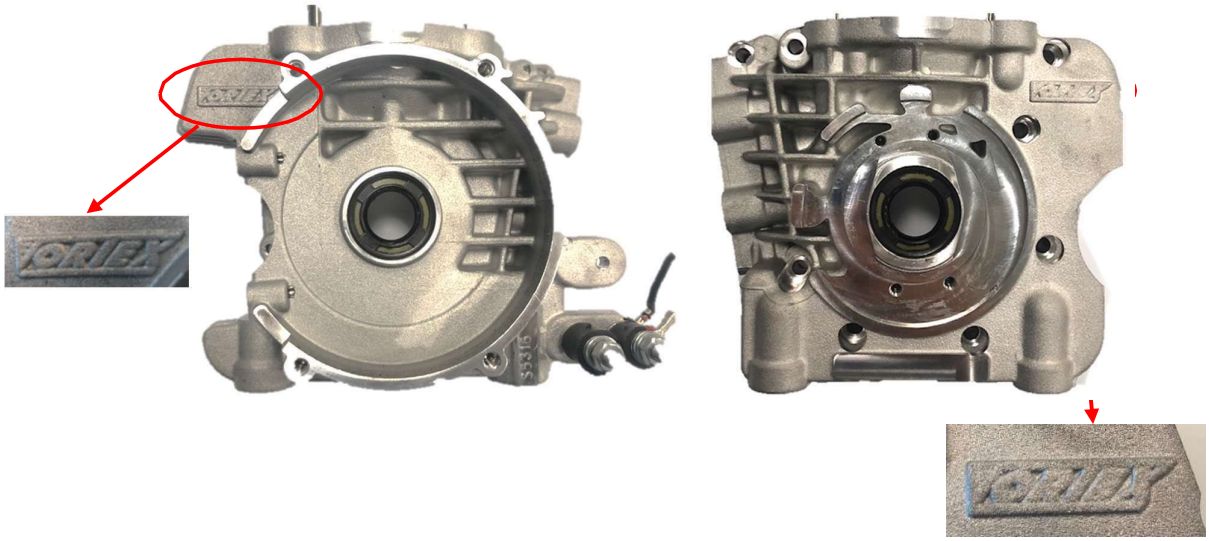
ATTENTION

ALL THE ENGINE PARTS MUST BE ORIGINAL BY VORTEX ROK.

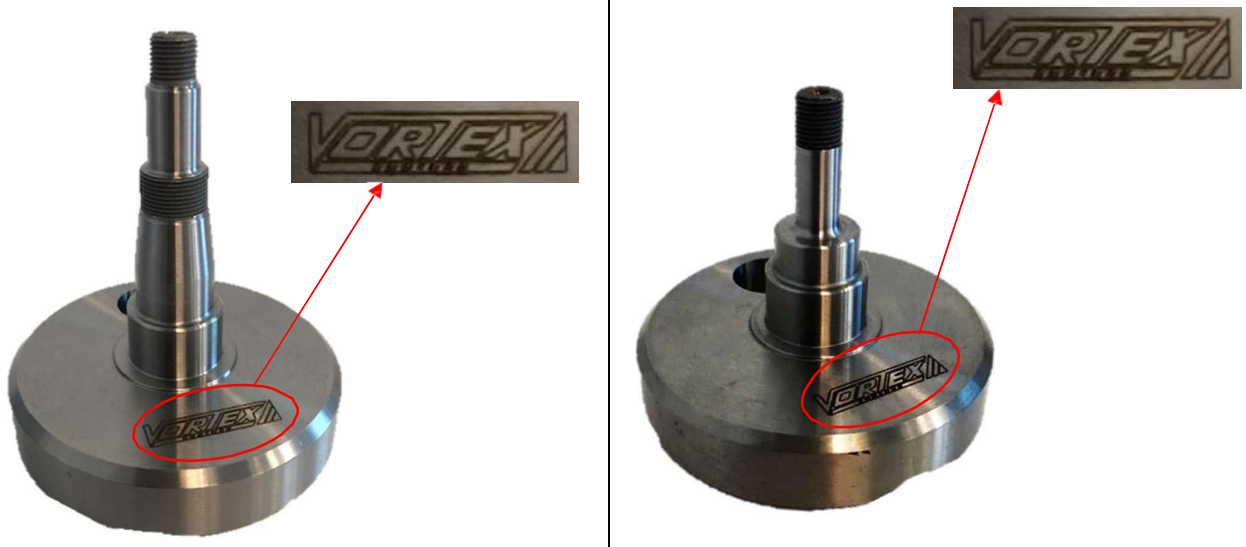
Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what originally produced (manufactured and assembled). Furthermore this includes any addition and /or removal of material.

All dimensions in the technical drawings are in mm.

MARKING OF THE CRANKCASE



MARKING OF CRANKSHAFT



ATTENTION

ALL THE ENGINE PARTS MUST BE ORIGINAL BY VORTEX ROK.

Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what originally produced (manufactured and assembled). Furthermore this includes any addition and /or removal of material.

All dimensions in the technical drawings are in mm.

PICTURE OF THE PISTON	MARKING OF THE CONROD
	

MARKING OF THE PISTON

Mandatory to have the brand VORTEX cast piston as shown in the picture.

ATTENTION

ALL THE ENGINE PARTS MUST BE ORIGINAL BY VORTEX ROK.

Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what originally produced (manufactured and assembled). Furthermore this includes any addition and /or removal of material.

All dimensions in the technical drawings are in mm.

PHOTO AND MARKING OF THE EXHAUST

ATTENTION

ALL THE ENGINE PARTS MUST BE ORIGINAL BY VORTEX ROK.

Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what originally produced (manufactured and assembled). Furthermore this includes any addition and /or removal of material.

All dimensions in the technical drawings are in mm.

PICTURES AND MARKING OF REED VALVE COVER

PICTURES AND MARKING OF PIGNION AND CLUTCH DRUM

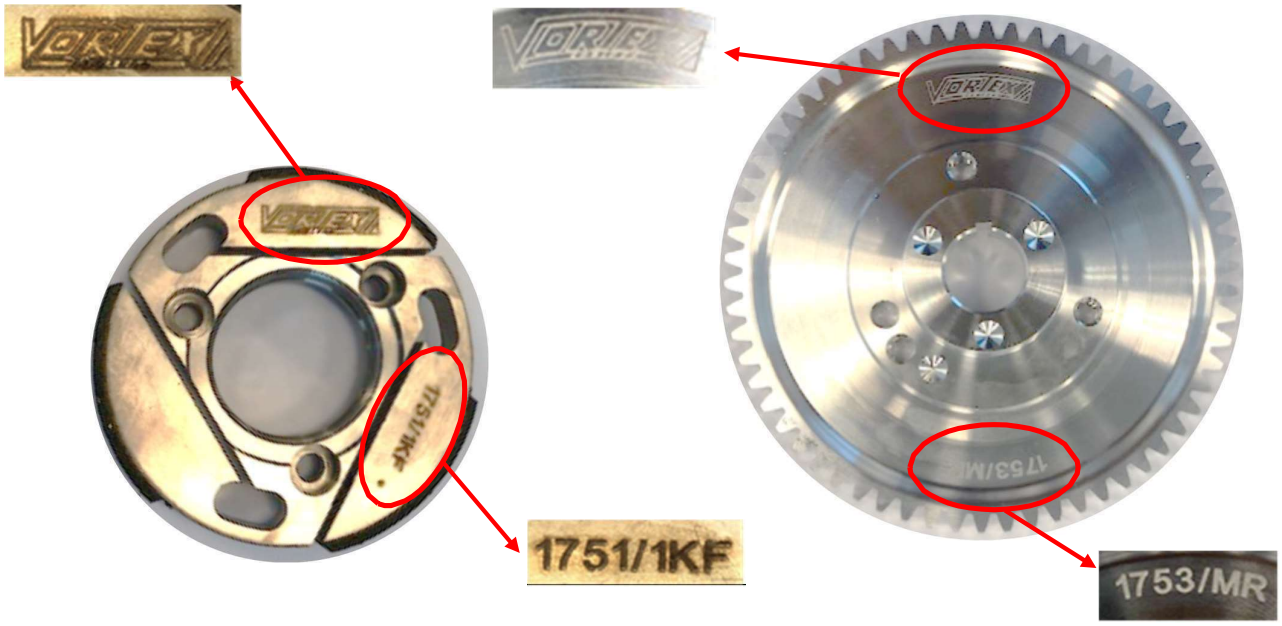
ATTENTION

ALL THE ENGINE PARTS MUST BE ORIGINAL BY VORTEX ROK.

Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what originally produced (manufactured and assembled). Furthermore this includes any addition and /or removal of material.

All dimensions in the technical drawings are in mm.

PICTURES AND MARKING OF CLUTCH BODY AND STARTER WHEELS



REED PETALS

CARBON FIBER REED PETALS MUST BE BOTH, MANDATORY, ORIGINAL AND BRANDED OTK AS SHOWN IN THE PICTURE, MINIMUM THICKNESS 0,20mm.

ATTENTION

ALL THE ENGINE PARTS MUST BE ORIGINAL BY VORTEX ROK.

Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what originally produced (manufactured and assembled). Furthermore this includes any addition and /or removal of material.

All dimensions in the technical drawings are in mm.

VLR ROK 2026

1. Fuel System:

a. All fuel system components must be utilized as supplied.

b. No additional components are permitted.

c. Any fuel filter must be fixed between the carburetor and the fuel tank, and no additional component are permitted.

2. Carburetor:

a. The only allowed Tillotson HW-38A .

b. Replacement parts must be of the same type and size as originally supplied.

3. Air Box:

a. Foam air filter insert is optional.

b. Air box clamps MUST be tight.

c. Air box must not contain any additional holes.

d. No external form of air ducts forcing air inside of air box is permitted.

e. Air box must be secured completely after each track event otherwise last place position is given.

f. Plastic protection under rain conditions is allowed.

4. Coil:

a. Must be mounted to the engine.

b. Must use coil wire as supplied.

5. Wiring Harness:

a. Wire Harness is open and optional.

6. Battery:

a. Battery may as supplied or any lightweight battery as long as it is mounted securely in the supplied battery box. No battery or battery box is also allowed.

b. Battery must fit in supplied battery box.

c. A secondary battery is allowed to power data systems only: Mychron, Unipro, Alfano, etc.

6.5 Spark Plug:

a. Only the following plugs allowed:

i. NGK B/BR 9EG & 10EG.

ii. Must be original and no modification is allowed. (Changing the spark plug gap is allowed).

b. Original supplied spark plug washer or head temperature gauge sender must be in place.

c. Spark Plug Cap must be as supplied.

7. ExhaustPipe:

a. No treatment of any kind.
b. No sand blasting is allowed.
c. No form of thermo wrapping is allowed.
d. Internal dimensions maynot bealtered becauseof rust.
e. No modifications to silencer end cap.
f. No major likings.
g. Exhaust temperature sensor:
    i. One exhaust temperature sensor is allowed.
    ii. One hole only can be drilled on the exhaust pipe for sensor.
    iii. No specific location is required for the exhaust temperature sensor.
    iv. Any hole not being used must be completely plugged if exhaust sensor is not being used.
    v. Exhaust **MUST** remain intact, as provided by the manufacturer. No cracks and/or welding is permitted.

8. ExhaustHeader:

a. As per Homologation File.
b. Headers cannot be cracked or leaking.
c. A go-no go gauge will be used to control headers. It is allowed to clean the restrictor headers with scotch-brite or solvent.

9. Clutch:

a. Clutch components **MUST** not contain significant amounts of any kind of oil or grease.
b. It is NOT mandatory, but recommended to usethedust cover of theclutch bell.

10. IgnitionTiming:

a. Ignition timing non-tech.

11. External Modifications:

a. Any modification clearly not called out inside this document is not to be taken as legally acceptable.

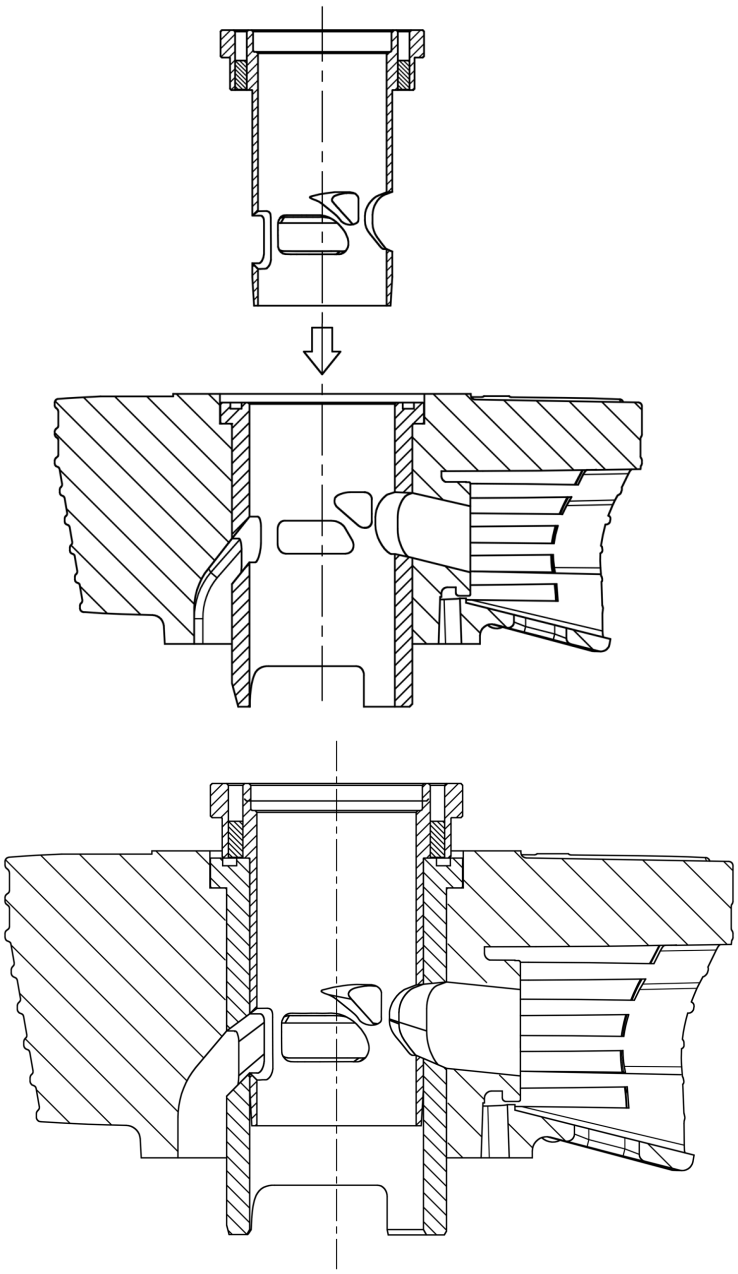
12. Vortex

a. **Engine sprocket:** Vortex 10T, 11T
b. Cylinder base gasket thickness is non-tech and could be changed to adjust the port timing.
c. Copper head gasket to adjust squish is allowed, thickness is non-tech.
d. The shape of the combustion chamber must be original.

13. Fuel and Oil

a. Spec racing fuel for all Rok Categories is Sunoco STANDARD 110.
b. Spec racing oil is Motul 2T. No other oil or additives are allowed.

VLR PORT GAUGE



VLR Port Gauge

VLR Cylinder

Vortex Port Gauge in the Cylinder

By inserting the reference port gauge in the cylinder, after having positioned it correctly, the Technical Officer will be able, at the technical scrutineering, to detect any irregularities.