NATIONAL HOMOLOGATION FORM - ENGINE

Homologation N°

116H

Manufacturer	**VORTEX**
Make	**DVS JNR**
Model	**125CC**
Validity of the homologation	*10 years*
Number of pages	**30**

This Homologation Form reproduces descriptions, illustrations and dimensions of the engine at the time that Karting Australia conducted the homologation. The height of the complete engine on all photographs must be as a minimum 7 cm.

PHOTO OF DRIVE SIDE OF ENGINE **DVS J**

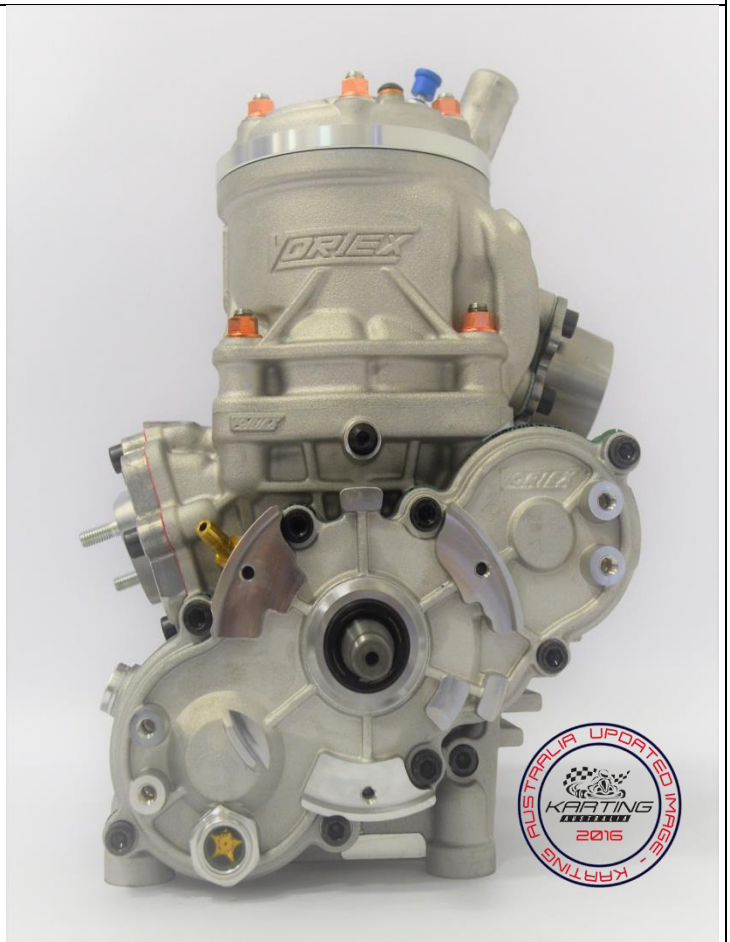


PHOTO OF OPPOSITE SIDE OF ENGINE **DVS J**

Signature and stamp of Karting Australia

Les Allen
National Technical Commissioner
10 December 2015

Homologation No.
116H

PHOTO OF DRIVE SIDE OF THE COMPLETE ENGINE DVS J

PHOTO OF OPPOSITE DRIVE SIDE OF THE COMPLETE ENGINE DVS J

Homologation No.
116H

PHOTO OF THE REAR OF THE COMPLETE ENGINE DVS J

PHOTO OF THE FRONT OF THE COMPLETE ENGINE DVS J

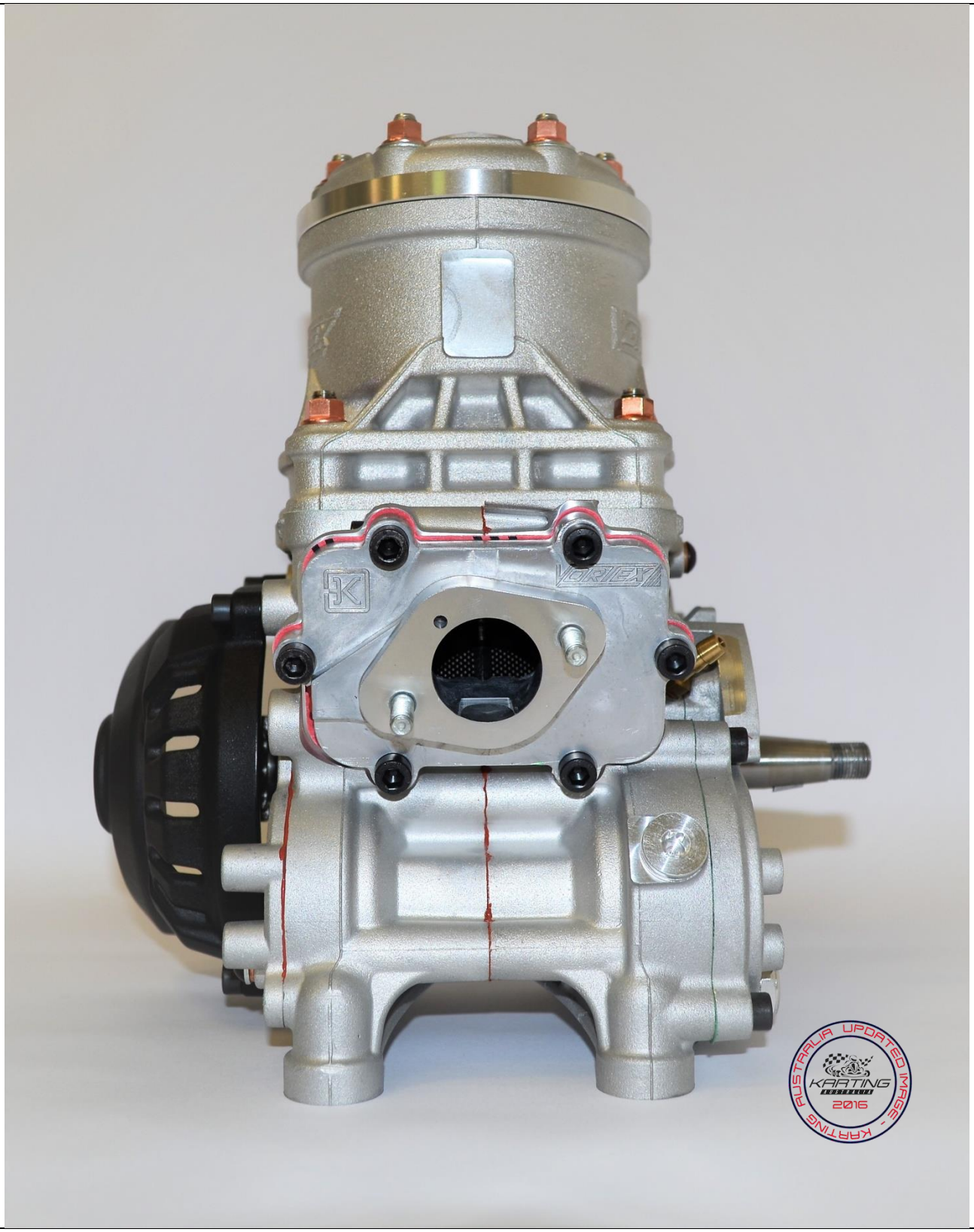
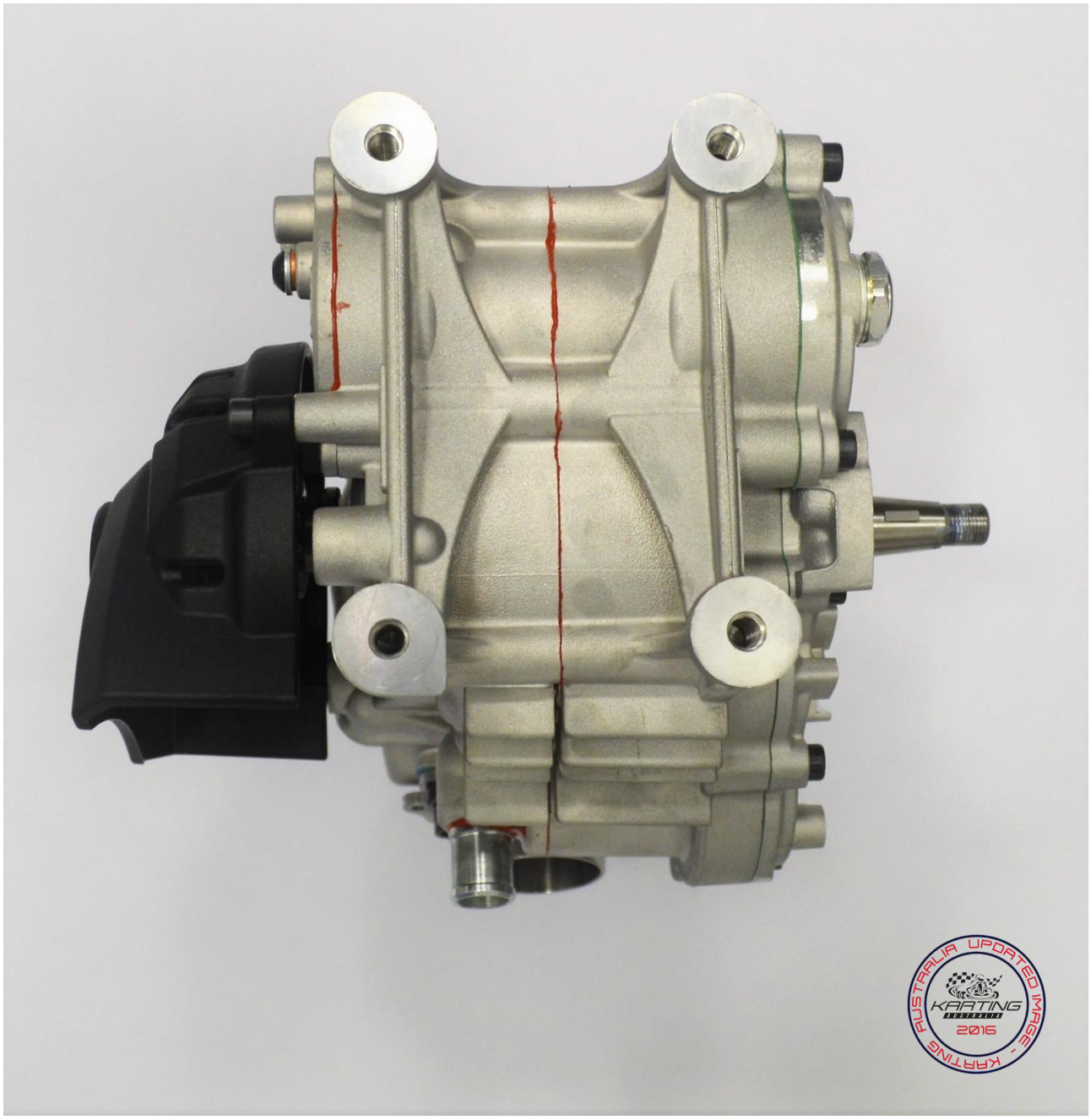


PHOTO OF THE COMPLETE ENGINE TAKEN FROM ABOVE DVS J

PHOTO OF THE COMPLETE ENGINE TAKEN FROM BELOW DVS J



Homologation N °

116H

UNIQUE “AU” SERIAL NUMBER SAMPLE FOR COMPLIANCE WITH KA HOMOLOGATION DVS J

No deviation from the manufacturers Australian "AU" spec engine is allowed. All components must remain OEM and therefore only engines stamped with the "AU" as the second and third identifier in the engine serial number for example 5AU0001 will comply with Australian Homologation.

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 previously conceived.

Furthermore this includes any addition and /or removal of material and /or parts from the engine set-up package unless provided by this regulation. No ceramic bearings or component coatings.

Homologation No.

116H

TECHNICAL INFORMATION DVS J			
A	**CHARACTERISTICS**		
The number of decimal places must be 2 or comply with the relevant tolerance.		*Tolerances & remarks*	
Cylinder			
Max displacement	**124.176 cc.**		
Max allowed bore	**54.28 mm**		
Stroke	**54.00**		±0.20mm
Standard Bore Size	**54.10**		
Admission system in the cylinder	**Crankcase Reed Valve**		
Cooling system	**Water Cooled**		
Carburettor	**IBEA DVS 2 Jets**		
Number of transfers	**5**		
Shape of exhaust transfer	**Oval plus 2 Boosters**		
Width of Exhaust Transfer	**38.2 mm**		Max
Width of Booster	**20.5 mm**		Max
Shape of combustion chamber	**Spherical, verifiable with gauge supplied by Vortex the Manufacturer.**		
Squish minimum measurement (use 2.0 mm solder)	**0.8mm**		Minimum
Crankshaft (PVL ignition update)			
Weight of crankshaft with Conrod	**1976g**		±10.0g
Crankpin (Big End)			
Diameter	**20mm**		±0.05mm
Length	**46.1mm**		±0.05mm
I.D.	**6.05mm**		±0.1mm
Weight of crankpin	**103g**		±1.0g
Connecting rod			
Connecting rod centreline	**102mm**		±0.20mm
Width of rod ends	**14.9mm**		±0.2mm
Weight of the connecting rod	**124g**		±5.0g
Piston			
Total Height of Piston	**59.15**		±0.20mm
Number of piston rings	**1**		
Weight of the piston	**122G**		±5.0g

Gudgeon Pin		
Diameter	**15mm**	±0.01mm
Length	**45.05mm**	-0.20mm
Minimum weight	**30g**	Minimum
I.D.	**10mm**	±0.10mm
Direct Drive		
Engine Sprockets Option Only	**Z11-12**	

B	***OPENING ANGLES***	
Of the main transfers	**130°**	Max
Of the secondary transfers	**126°**	Max
Of the exhaust	**170°**	Max
Of the boosters	**170°**	Max

C	***MATERIAL***
Cylinder head	**AL-SI**
Cylinder	**AL-SI/ CI**
Cylinder wall	**CI**
Sump	**AL/SI**
Crankshaft	**ACIER NI-CR-MO**
Connecting rod	**ACIER NI-CR-MO**
Piston	**AL/SI**

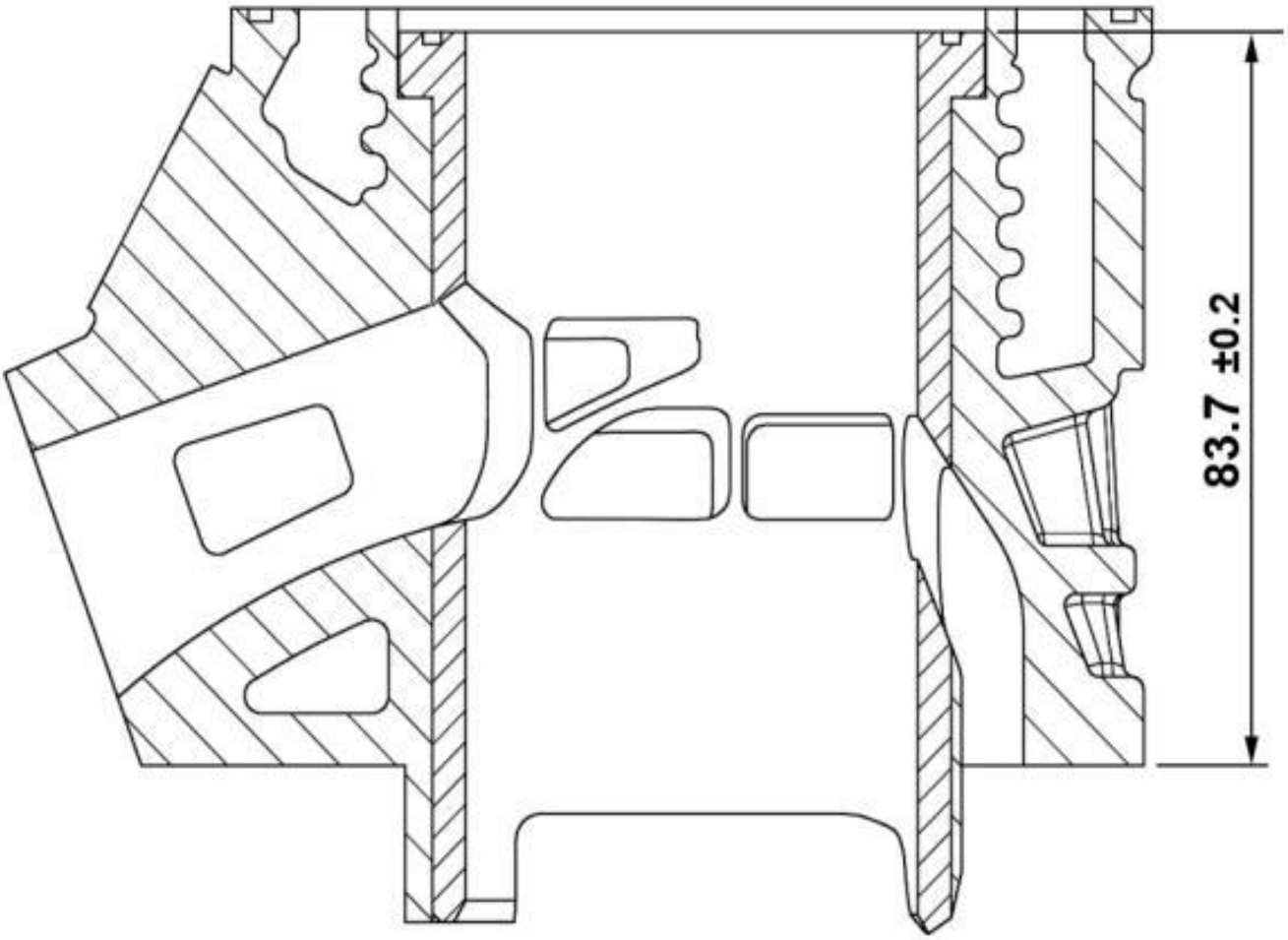
No deviation from the manufacturers Australian "AU" spec engine is allowed. All components must remain OEM and therefore only engines stamped with the "AU" as the second and third identifier in the engine number for example "5AU0001" will comply with Australian Homologation. Opening Angles adjustable via base gasket thickness only.
A Further importers identification stamp will be applied to the cylinder and cases upon the machined areas located at the front of cylinder and top of cases.

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 previously conceived. Furthermore this includes any addition and /or removal of material and /or parts from the engine set-up package unless provided by this regulation.

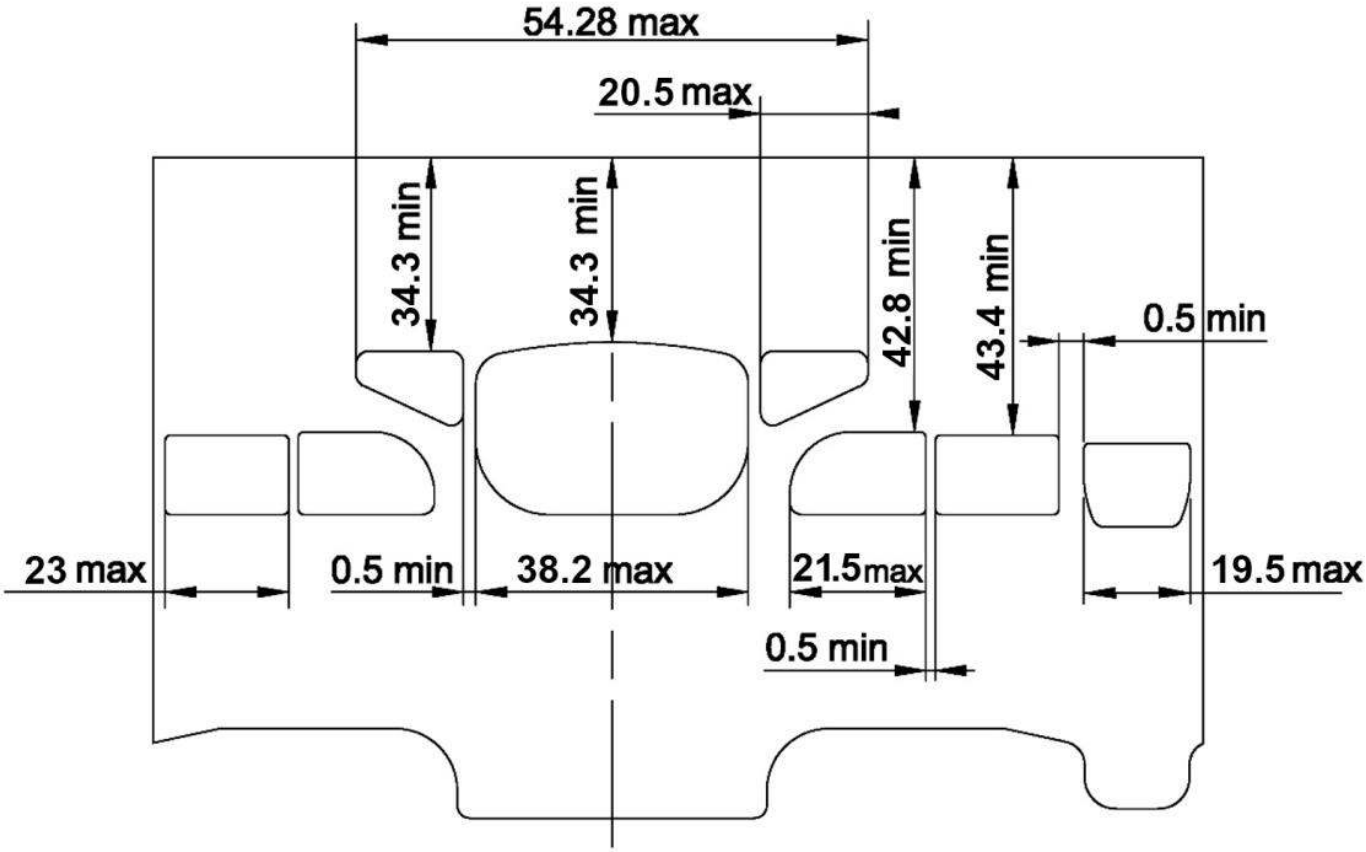
D	PHOTOS, DRAWINGS & GRAPHS DVS J

D.1 *CYLINDER UNIT*

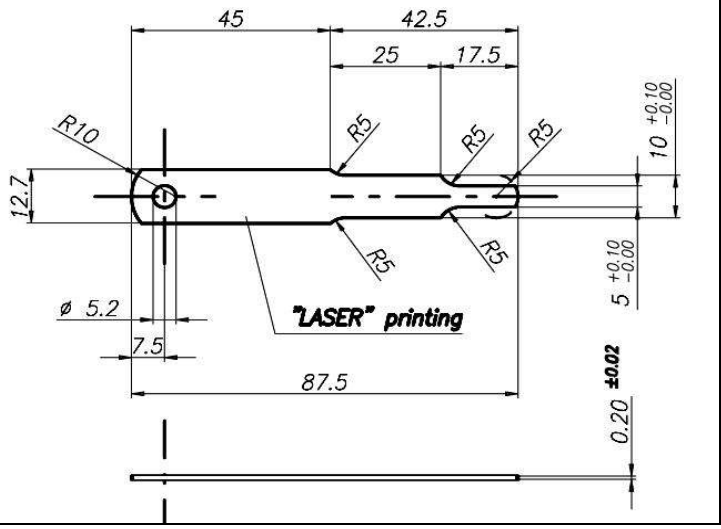
DISTANCE OF THE CYLINDER SECTION



DRAWING OF THE CYLINDER DEVELOPMENT DVS J



EXHAUST	170° MAX
BOOSTER	170° MAX
MAIN TRANSFERS	130° MAX
SECONDARY TRANSFERS	126° MAX



The exhaust angular reading must be measured with a 0,20 mm thick and 5 mm wide wedge. (see drawing beside).
(VORTEX Tool WD016)

PROCEDURE USED TO MEASURE the Transfer and Exhaust Port Durations

A. Disassemble the spark plug (verify the height of 18,5mm)

B. Disassemble the cylinder head in order to verify the projection of the spark plug inside the combustion chamber.

C. Set up degree wheel with minimum of 200 mm diameter. (or digital rotary angle decoder)

D. The measuring will be done with a 0.20mm gauge as per the drawing on previous page
When placing the gauge into the port the gauge is not to be bent

E. It must be inserted at 45° degrees on the wall, you should be able to move it forward and backward during this operation, it must not give the sensation that it is somehow blocked.

F. Once the piston has made contact, no pressure must be applied to the crankshaft to block the forward and backward movement of the gauge. The feeling should be the same as when “setting a tappet on a four stroke engine ’. Not on any account the wedge to be placed in a horizontal or vertical position.

Attention : **ALL THE ENGINE PARTS MUST BE ORIGINAL VORTEX DVS J**.

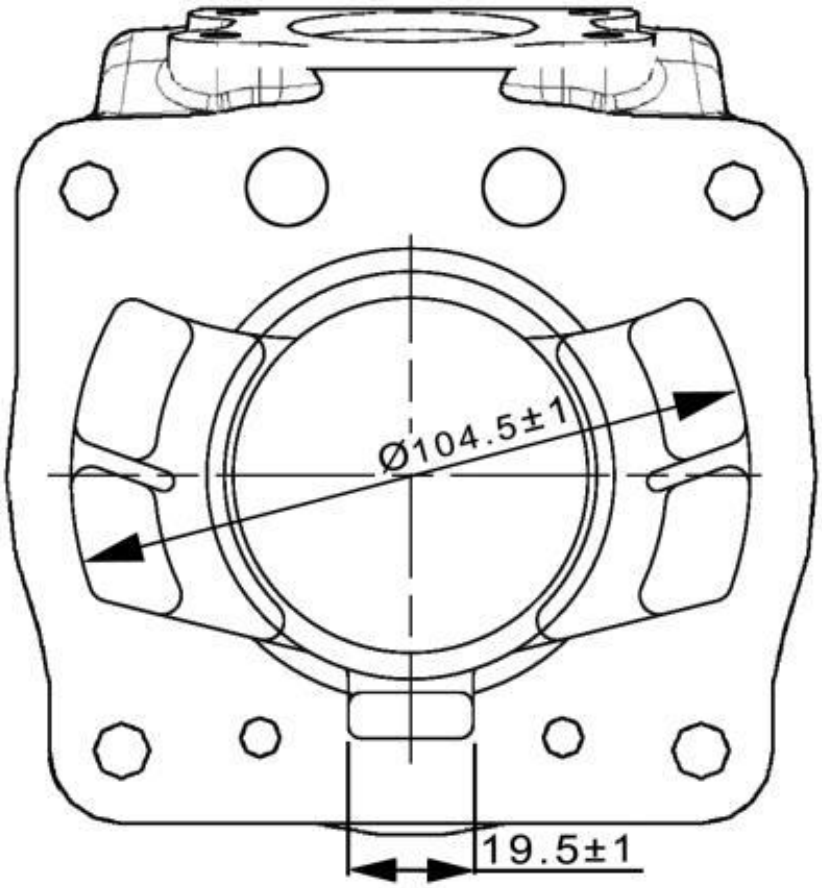
Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what previously conceived.

Furthermore this includes any addition and /or removal of material and /or parts from the engine set-up package unless provided by this regulation.

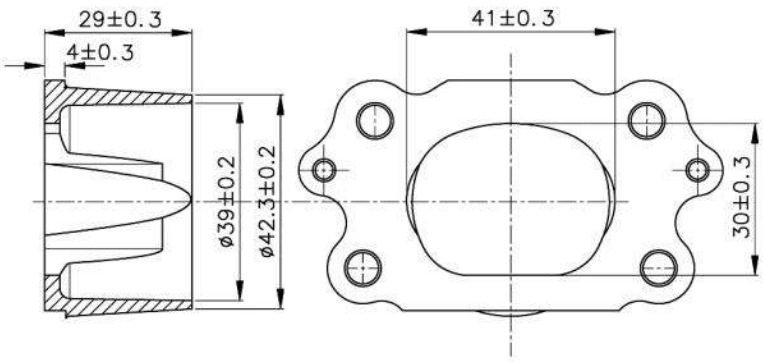
Homologation No.
116H

DRAWING OF THE CYLINDER BASE DVS J

with dimensions



EXHAUST MANIFOLD



EXHAUST GASKET

ONLY 1 pcs. DVS J

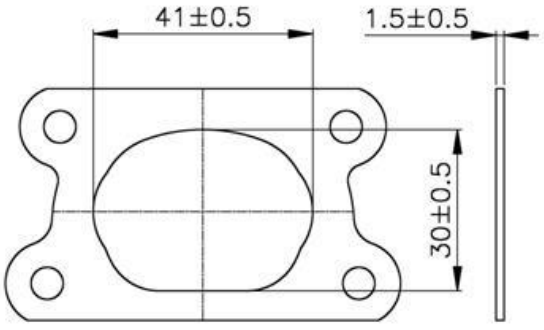
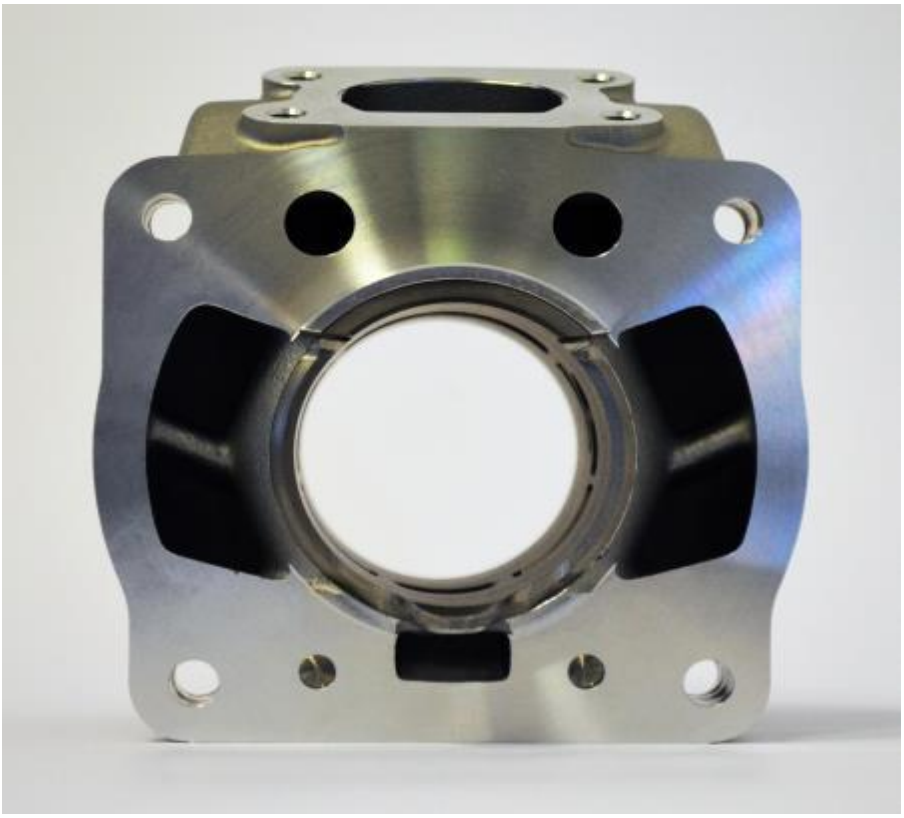


PHOTO OF THE CYLINDER BASE DVS J

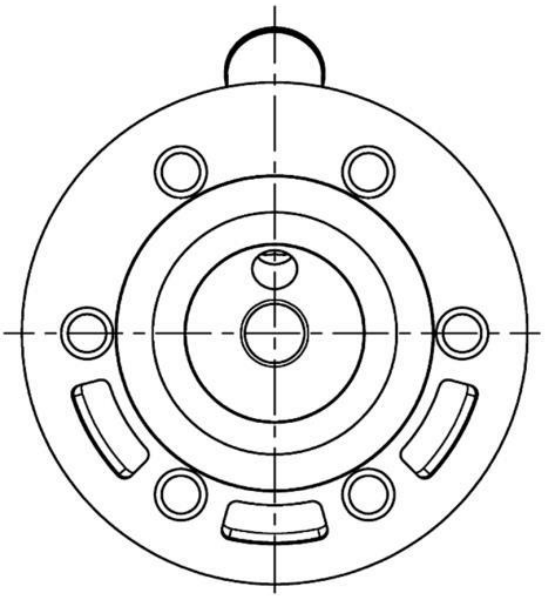


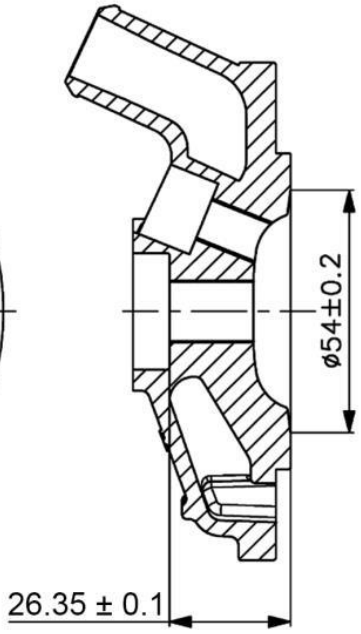
EXHAUST DUCT DVS J

Homologation No.
116H

DRAWING OF THE CYLINDER HEAD AND OF THE COMBUSTION CHAMBER DVS J

with dimensions

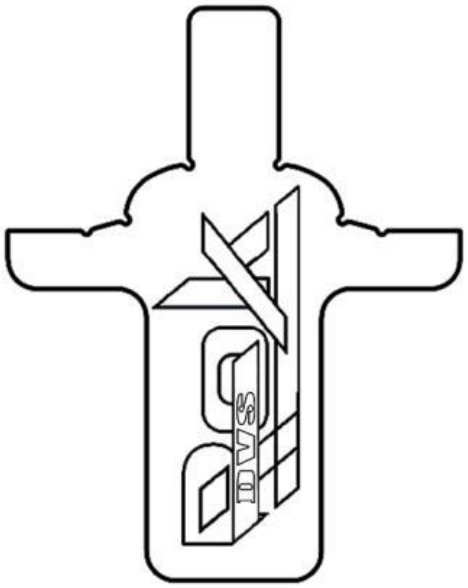


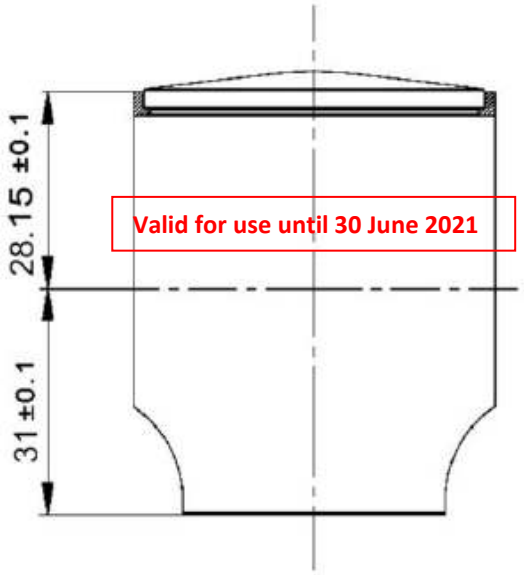
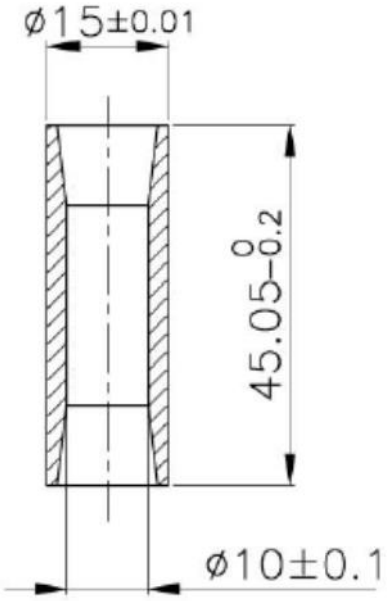


Decomp Valve Must maintain the original washer

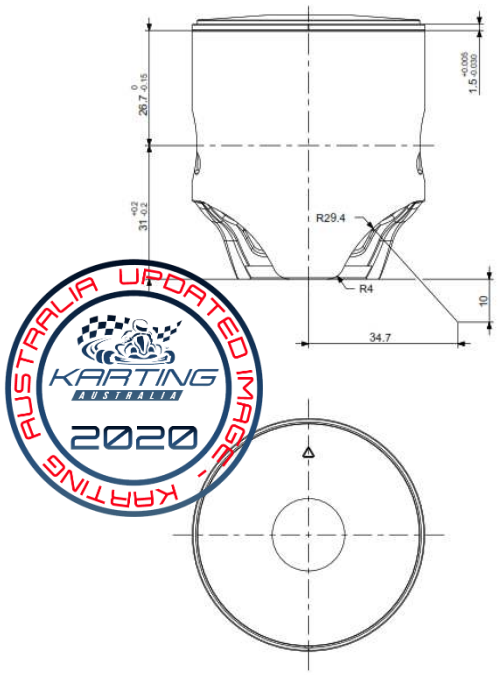
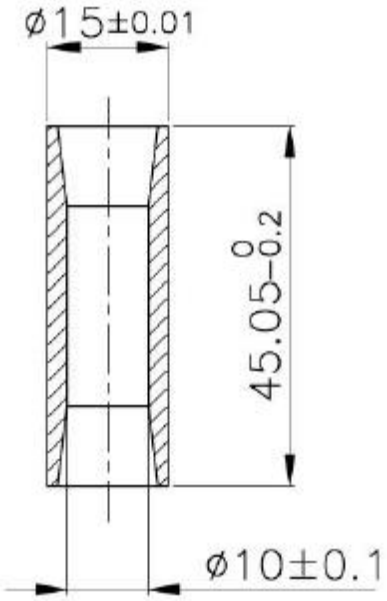
SQUISH THICKNESS: 0.80 mm. Minimum
Verified using 2.0 mm tin solder, Conducted on Left & Right side of the squish band,
Test is conducted inline with the gudgeon pin.
The average taken of these 2 measurements is deemed the minimum squish regulation.

COMBUSTION CHAMBER TEMPLATE JNR	HEAD - DVS J Identification

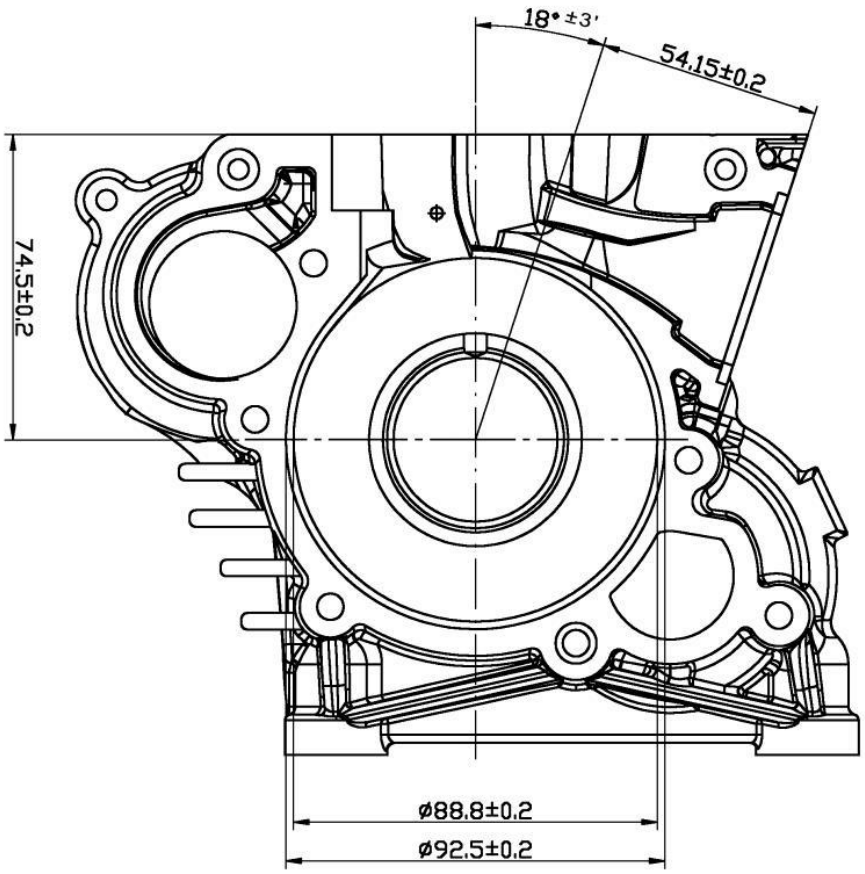


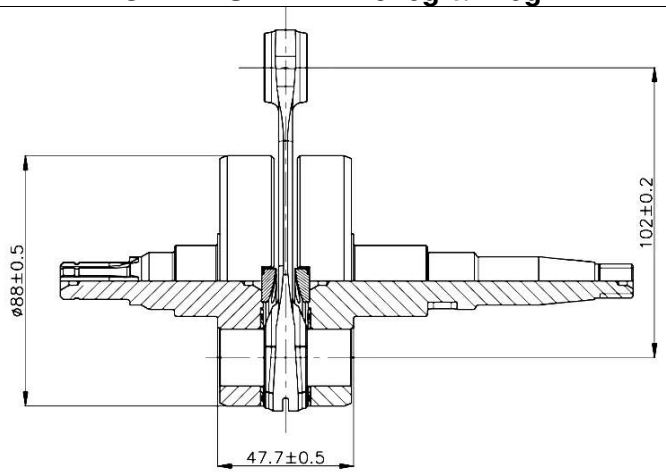
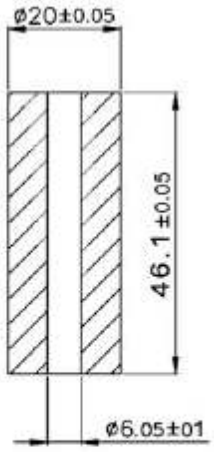
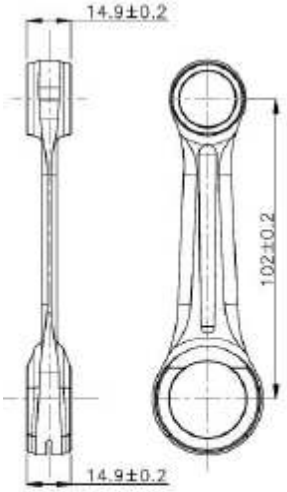
PISTON PRODUCT CODE: RKF	PISTON PIN
 PESO WEIGHT **122g / ±5g** **It is mandatory to have the VORTEX brand cast piston as shown in the picture.**	 PESO WEIGHT **30g min**
	

Homologation No.
116H

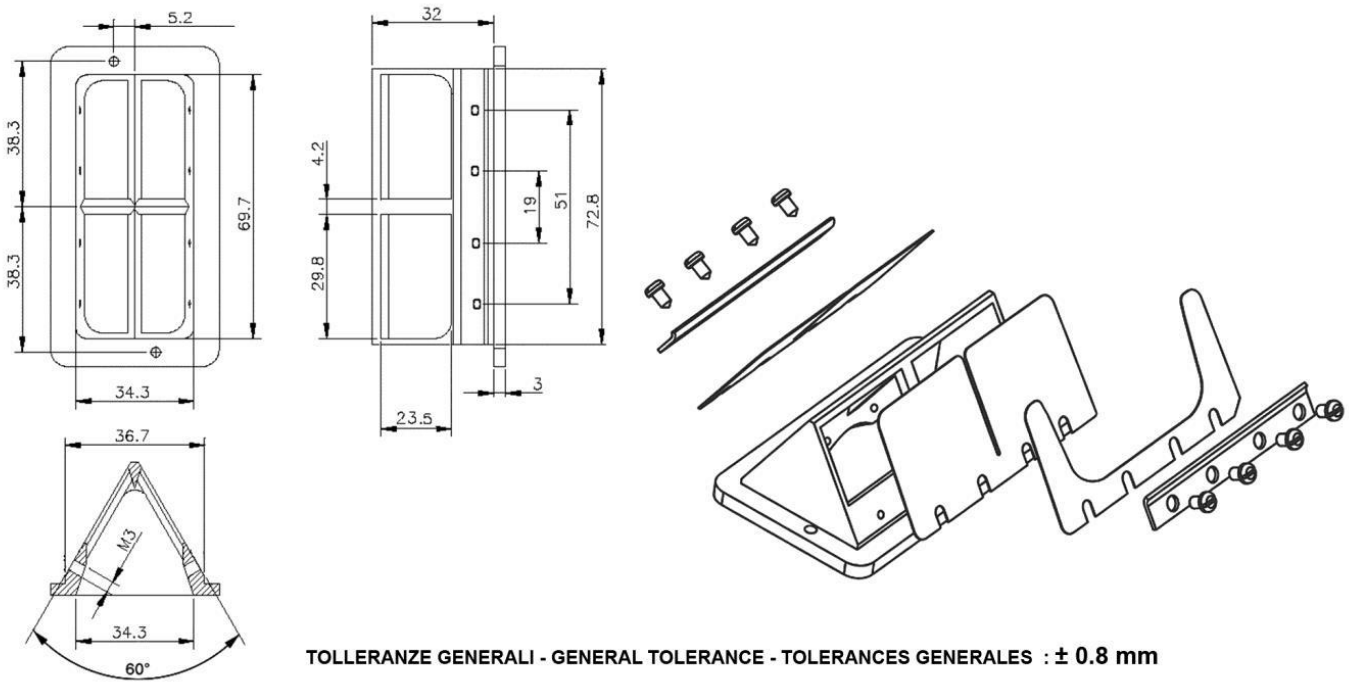
PISTON ***PRODUCT CODE: RKFVP***	***PISTON PIN***
 **PESSO/WEIGHT** **118gr +/- 5g** **It is mandatory to have the VORTEX brand cast piston as shown in the picture.**	 PESO WEIGHT **30g min**
	

INTERIOR VIEW OF THE CRANKCASE DVS J



CRANKSHAFT 1976g +/- 10g	CRANKSHAFT PIN	CONROD
		
PESO COMPLETO COMPLETE WEIGHT POID COMPLETE **1.976 g / ±10g**	PESO WEIGHT **103 ±1gr**	PESO WEIGHT **124g / ±5g**

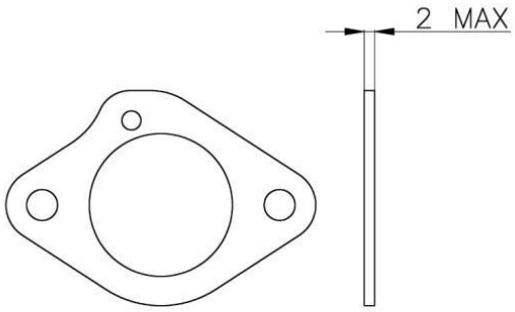
REED BLOCK AND CONVEYOR DVS J



TOLLERANZE GENERALI - GENERAL TOLERANCE - TOLERANCES GENERALES : ± 0.8 mm

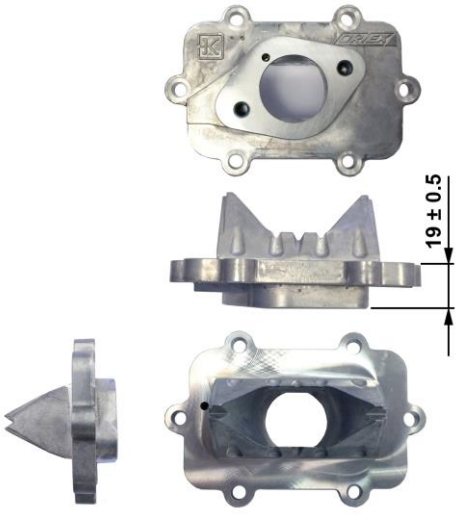
IT'S ALLOWED TO ADD ONLY ONE in TOTAL REINFORCEMENT (STIFFENER) ON THE PETALS for DVS J
As per picture on page 20

GASKET



SPESSORE MAX GUARNIZIONE 2 MM
MAX GASKET THICKNESS 2 MM
JOINT D'EPAISSEUR MAXIMALE 2 MM

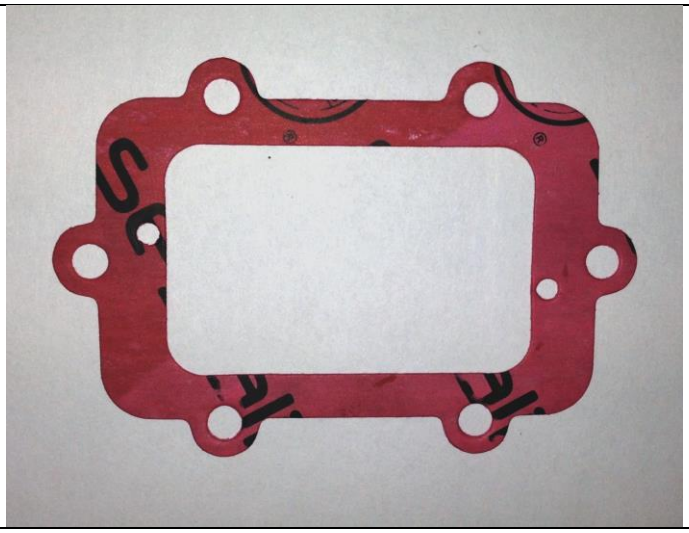
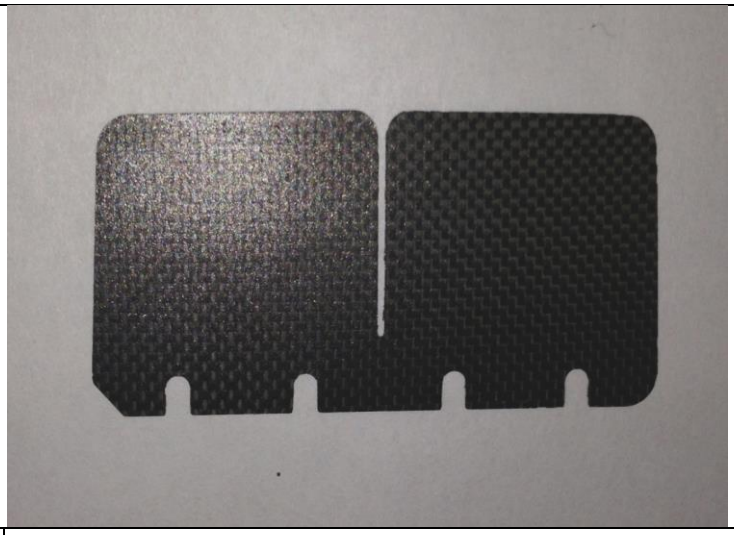
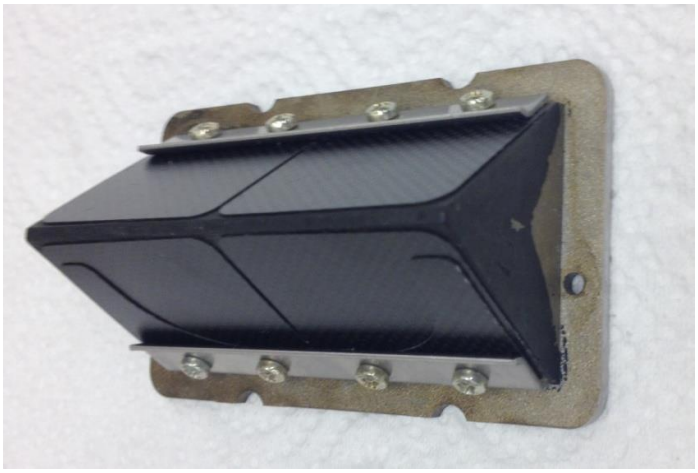
REED VALVE COVER



Attention: ALL THE ENGINE PARTS MUST BE ORIGINAL BY VORTEX DVS J

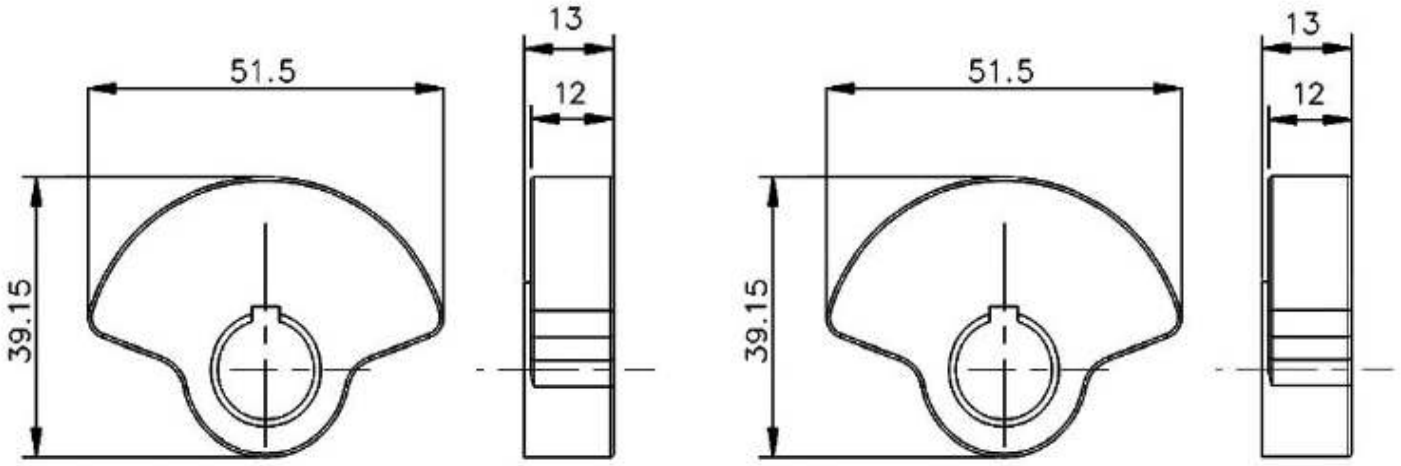
Neither engines nor accessories can be modified. By this we mean any shape, content or function changes which may differ from what previously conceived.

Furthermore this includes any addition and /or removal of material and /or parts from the engine set-up package unless provided by this regulation.

REED BLOCK GASKET 0.5mm	REED PETALS 0.28 +/- 0.04mm
	
DVS AIR FILTER	***JNR REED BLOCK (1 Stiffiner Max)***
	
50 P.P.I	

Homologation No.
116H

BALANCER SHAFT DVS J



TOLLERANZE GENERALI GENERAL TOLERANCE ± 0.15 mm

PESO WEIGHT
212g / ±5g

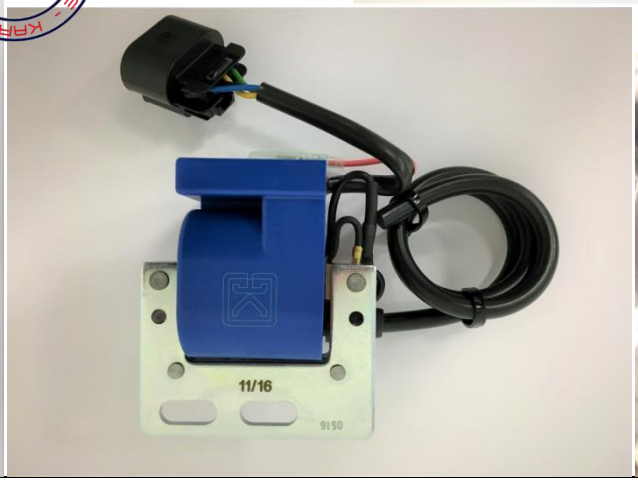
PHOTO OF THE BALANCE SHAFT

Attention :
ALL THE ENGINE PARTS MUST BE ORIGINAL VORTEX DVS J.
Neither engines nor accessories can be modified.

By this we mean any shape, content or function changes which may differ from what previously conceived.

Furthermore this includes any addition and /or removal of material and /or parts from the engine set-up package unless provided by this regulation.

Picture of CRANKSHAFT and PVL OTK IGNITION DVS JNR



As per part of the Karting Australia Technical Regulations, on decision of the stewards and/or the technical officer, KA will be authorised to interchange entrants' ignition systems for the systems supplied by the organisers (same homologated models).

Only blue coil marked PVL OTK will be allowed (14,000 rpm limited) - shown in the above picture.

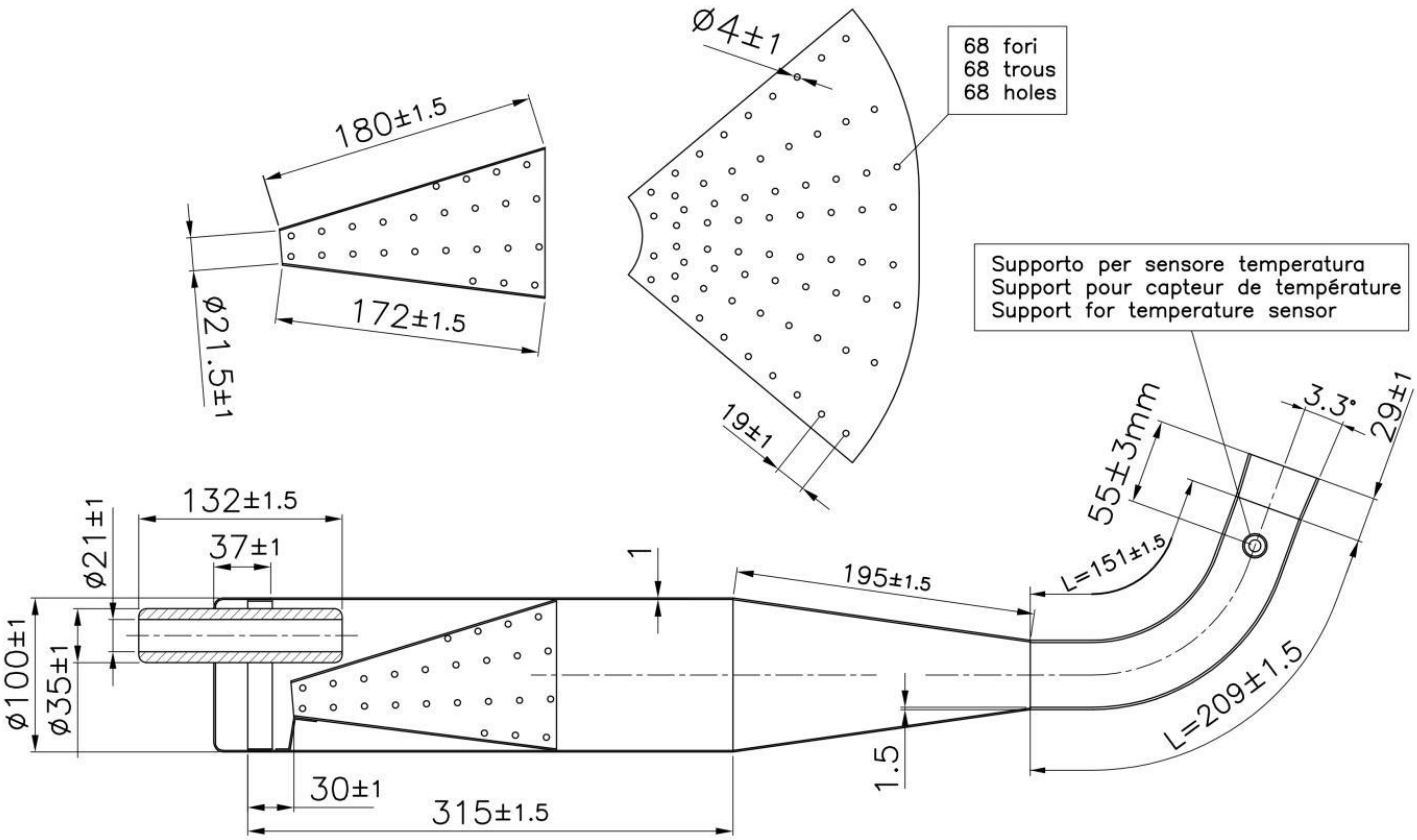
SPARK PLUG:

- Only spark plugs approved by Karting Australia for use in the Vortex DVSJ engine will be permitted.
- Spark plug must be standard and have the original washer fitted.
- Shank length 18.5mm maximum. No machining permitted.

No wiring loom repairs permitted, **except:**

- The HT lead may be shorted as a repair. HT lead must not have a join.
- The loom wire connectors to the coil/earth may be replaced/repaired with like for like components.
- Stator mounting ring must be PVL OTK OEM.
- JNR Timing spec- see Page 28
- A thumb operated stop button (momentary action) must be used mounted to the steering wheel spoke.

EXHAUST MUFFLER, SILENCER AND COMPONENTS DVS J



WEIGHT

1985 gr. min

No machining, No polishing, No linishing is allowed

DURING EXAMINATION, ON THE EXHAUST IT MUST BE INDICATED THE IDENTIFICATION LOGO DVS J, IMPRINTED DIRECTLY BY THE MANUFACTURER.

Attention : ALL THE ENGINE PARTS MUST BE ORIGINAL VORTEX DVS J.
Neither engines nor accessories can be modified.

By this we mean any shape, content or function changes which may differ from what previously conceived.

Furthermore this includes any addition and /or removal of material and /or parts from the engine set-up package unless provided by this regulation.

D.3

CARBURETTOR ROK DVS IBEA 2 JET

DIMA CONTROLLO CARBURATORE
CARBURETTOR CHEKING TEMPLATE
GABARIT POUR LA VERIFICATION DU PROFIL
DU CARBURATEUR

ELENCO PARTI DI RICAMBIO - SPARE PARTS

351 — guarnizione diaframma
Diaphragm Gasket

352 — diaframma
Diaphragm

353 — copertura diaframma
Diaphragm Cover

355 — guarnizione pompa benzina
Fuel Pump Gasket

356 — diaframma pompa benzina
Fuel Pump Diaphragm

357 — corpo pompa benzina
Fuel Pump Body

358 — vite pompa benzina
Fuel Pump Screw

359 — schermo filtro del carburatore
Fuel Strainer Screen

360 — guarnizione coperchio filtro carburatore
Fuel Strainer Cover Gasket

361 — coperchio filtro del carburatore
Fuel Strainer Cover

362 — vite coperchio filtro del carburatore
Fuel Strainer Cover Ret. Screw

363 — vite miscela del minimo
Idle Mixture Screw L.

364 — molla vite miscela del minimo
Idle Mixture Screw Spring

365 — rondella vite miscela del minimo
Idle Mixture Screw Washer

366 — packing miscela del minimo
Idle Mixture Screw Packing

369 — leva controllo apertura
Inlet Control Lever

370 — fulcro leva di controllo di apertura
Inlet Control Lever Fulcrum

371 — vite leva di controllo di apertura
Inlet Control Lever Screw

372 — sede spillo di aspirazione e guarnizione
Inlet Needle Seat & Gasket

373 — molla di tensione di aspirazione 6 gr.
Inlet Tension Spring 6 gr.

374 — vite H miscela alta velocit
High Speed Mixture Screw H

400 — vite farfalla
Screw for Butterfly

401 — otturatore
Shutter

402/1 — cambio speciale con otturatore
Special shaft with shutter

403 — molla per cambio
Spring for Shaft

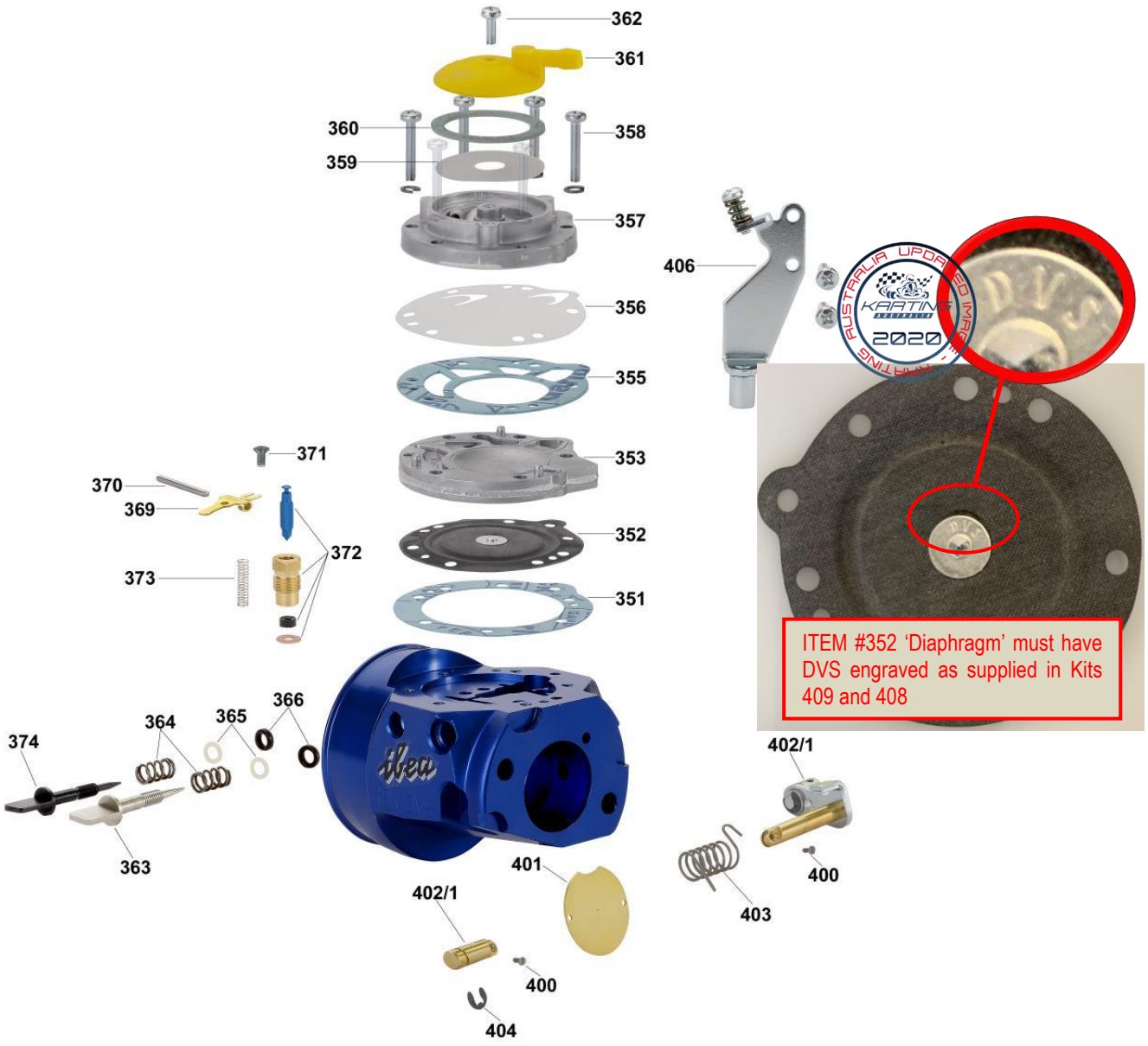
404 — molletta cambio
Shaft Clip

406 — supporto cavo
Support for Cable

407 — dado speciale M6
Special nut M6

408 — kit membrane
Kit Membrane

409 — kit completo
Kit complete



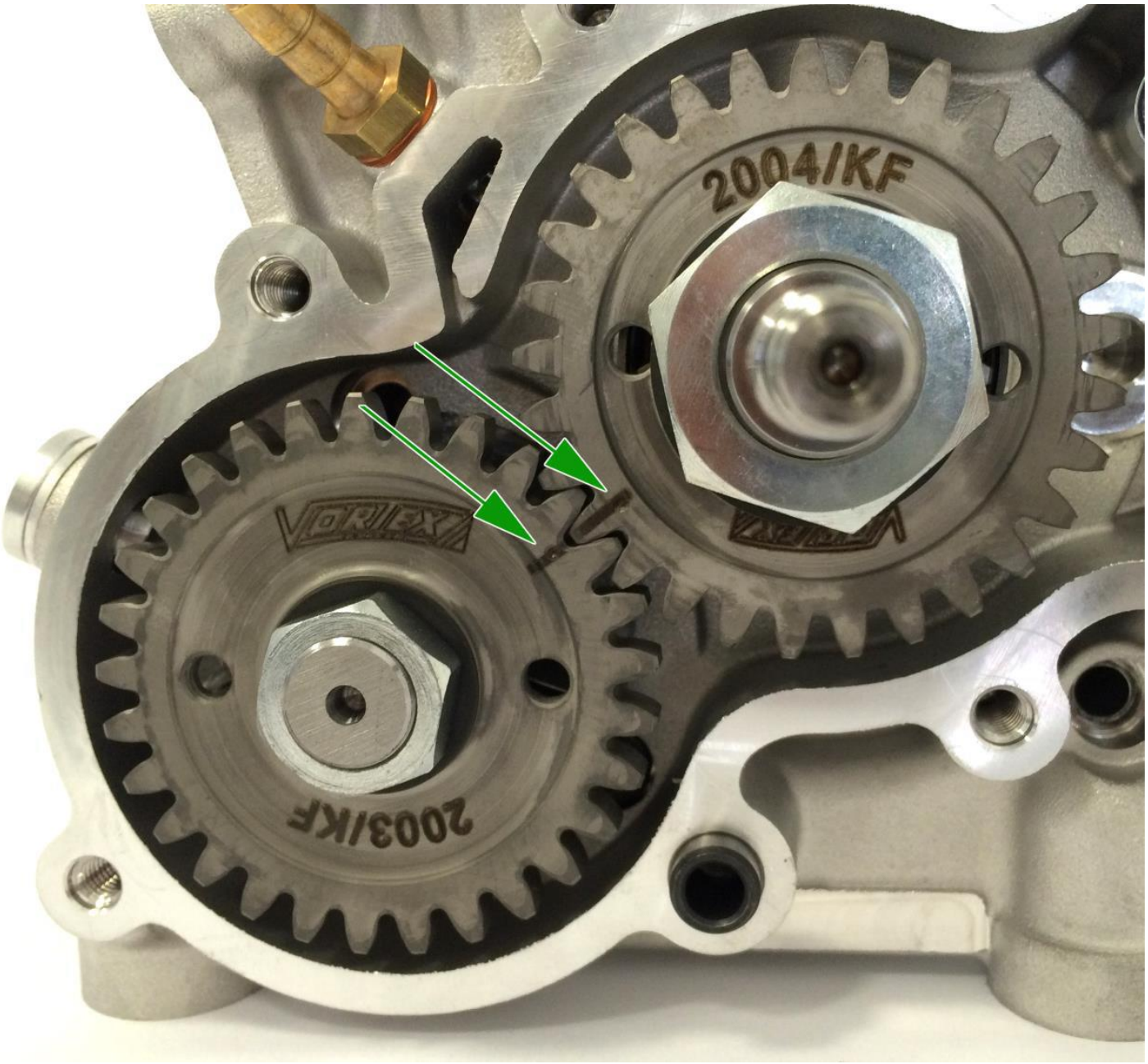
CARBURETTOR PARTS CHANGES ARE ALLOWED ONLY EMPLOYING ORIGINAL IBEA ROK DVS PARTS

- Low 1.4mm (diameter max)
- High 1.5mm (diameter max)
- Venturi taper 28mm (diameter max) checked with IBEA DVS template
- Venturi 24mm (diameter max)

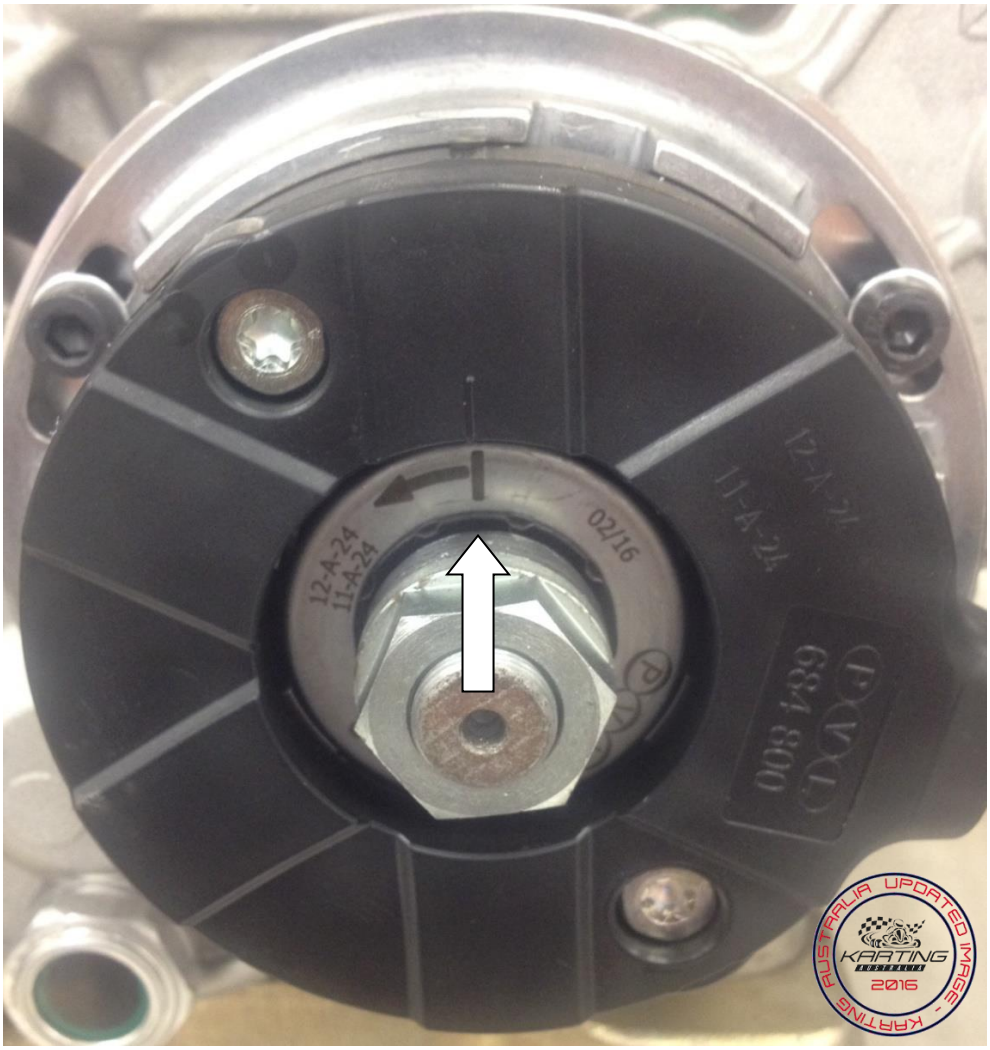
BALANCER SHAFT PHASING

In the picture below, we show you in details the original position (to be respected) of the balancer shaft phasing in the DVS engine.

As the timing should be regular, the notchs of the gears and the balancer shaft should correspond when the piston is at the dead upper point. As shown on the drawing.



DVS JNR PVL Ignition Timing Marks

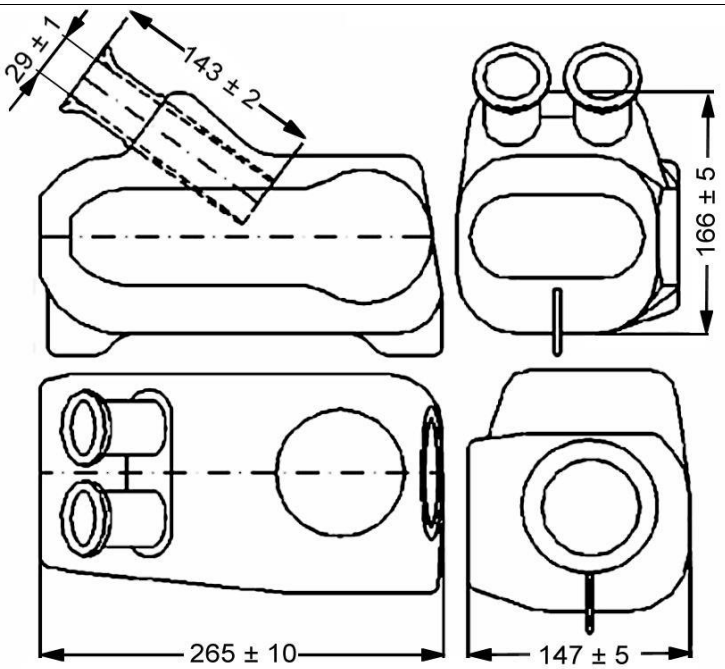


VORTEX DVS JNR IGNITION TIMING - Maximum permissible timing of 3.1mm

Remove spark plug. Insert dial gauge into spark plug thread and screw in tightly.

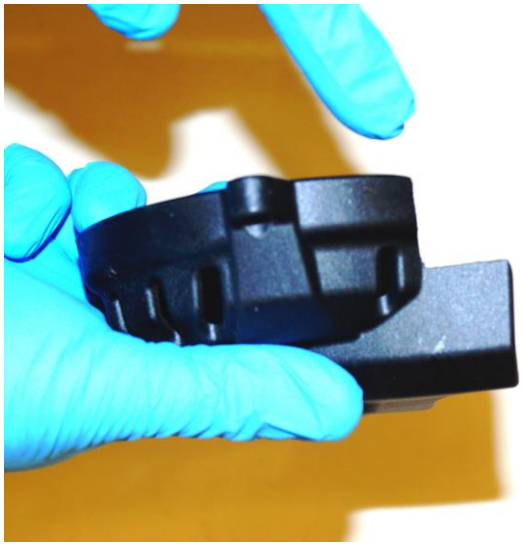
- Rotate engine past TDC and set gauge to read 0 at true TDC.
- Slowly rotate engine until the marks align, must not exceed the maximum of 3.1mm

Homologation No.
116H

INLET SILENCER	
MODEL TYPE	ARROW, E
	

Drain hole is permitted underneath air box no larger than 8mm drill

PINION COVER



It is permitted on the bottom side of the cover to shorten as per sample, not breaching the first vent hole to allow greater chain clearance.

If desired, a hole of 32mm is permitted to allow remote starter to access crankshaft.

POSITION OF SEALING NUTS