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# KARTING NSW

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## Engine Technical Specification

IAME 100 REEDJET



**Revision 5.1    Date: 8/10/2024**

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## 1. PREAMBLE

This document provides the Technical Specification for the lame 100 Reedjet engine, as approved by Karting NSW.

This engine is approved for use in the classes as defined in the KNSW Karting Manual.

Unless otherwise specified below, the engine must be original in all components according to the lame 100 Reedjet specifications. Neither the engine nor any of its ancillary components may be modified other than in accordance with the KNSW Rule Book and this Technical Specification.

The General Technical Specification contains the manufacturer's engine specification and must be read in conjunction with the Compliance Specification which defines additional specifications as approved by KNSW .

The engine must always be presented and used in conformity with this Technical Specification and the KNSW Rule Book.

**NON GENUINE PARTS PERMITTED ARE:**      **Clutch Drum,  
Engine Sprockets (10,11,12,13 Tooth)**

### **NON TECH PARTS PERMITTED ARE:**

<b>Start and Stop Buttons or Key</b>	<b>Any similar switch will be acceptable providing it is in line with the OEM's intent and purpose</b>
<b>Starter Motor</b>	<b>Any starter will be acceptable providing it is in line with the OEM's intent and purpose</b>
<b>Wiring Loom</b>	<b>Repairs will be permitted however its length and design must be in line with the OEM's intent and purpose</b>

**ANY ALTERATIONS / MODIFICATIONS ARE STRICTLY PROHIBITED EXCEPT AS SPECIFICALLY AUTHORISED WITHIN THESE SPECIFICATIONS.**

**IF THESE SPECIFICATIONS DO NOT SAY YOU CAN MAKE A MODIFICATION, THEN YOU CANNOT.**

*Note: Registration does not imply or guarantee use in a class or classes. Application for use in a class or classes must be applied for after Homologation and Registration approvals.*

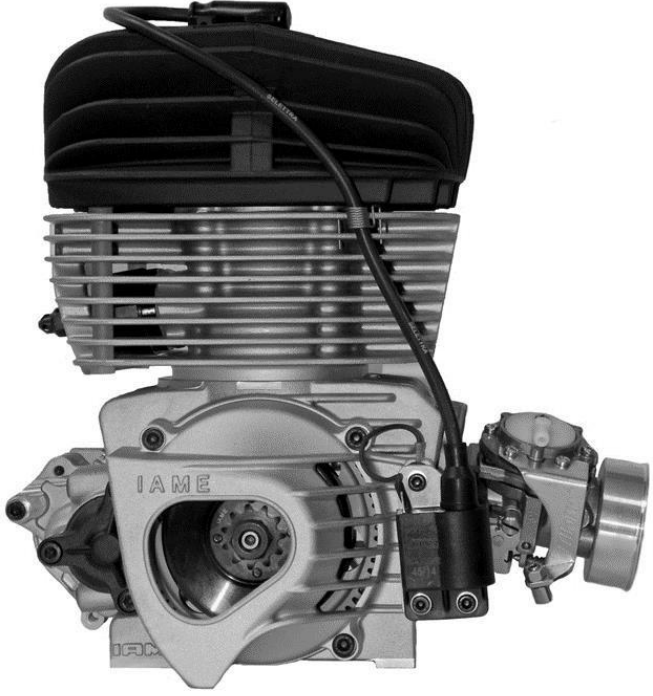

ENGINE			
Manufacturer	<b><u>IAME S.P.A - ZINGONIA</u></b>	Category	
Make	<b><u>IAME</u></b>	Homologation Period	6 years
Model, Type	<b><u>KA100 100CC REEDJET AUS - TAG</u></b>	Pages	<b>72</b>
<p><i>This homologation sheet reproduces description, illustrations and dimensions of the engine at the time of the KNSW Homologation. All motors must be manufactured within these dimensions</i></p>			
ENGINE PHOTO - DRIVE SIDE		ENGINE PHOTO - OPPOSITE SIDE	
			
		<p><i>AUTHORISED BY KARTING NSW</i></p>	
		<p><b>Approved by G. Abbott          Karting NSW State Technical Officer</b></p> <p><b>8th October 2024</b></p>	

PHOTO OF THE ENGINE FROM THE BACK

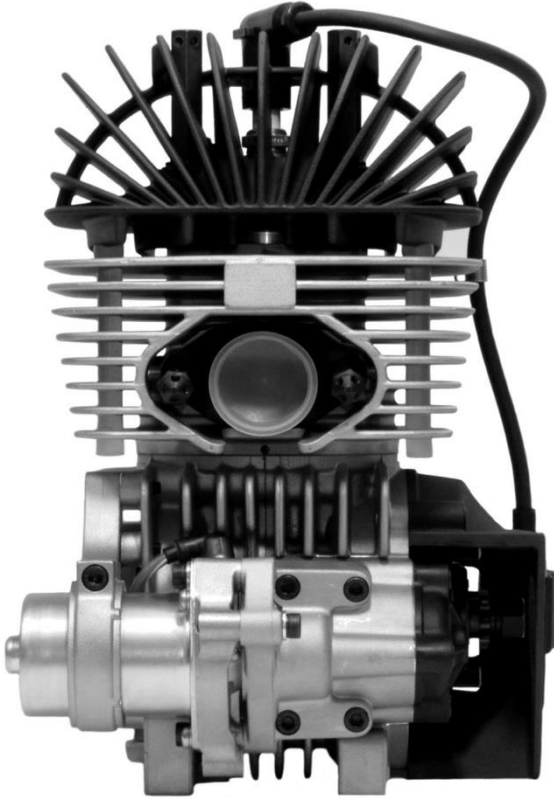


PHOTO OF THE ENGINE FROM THE FRONT

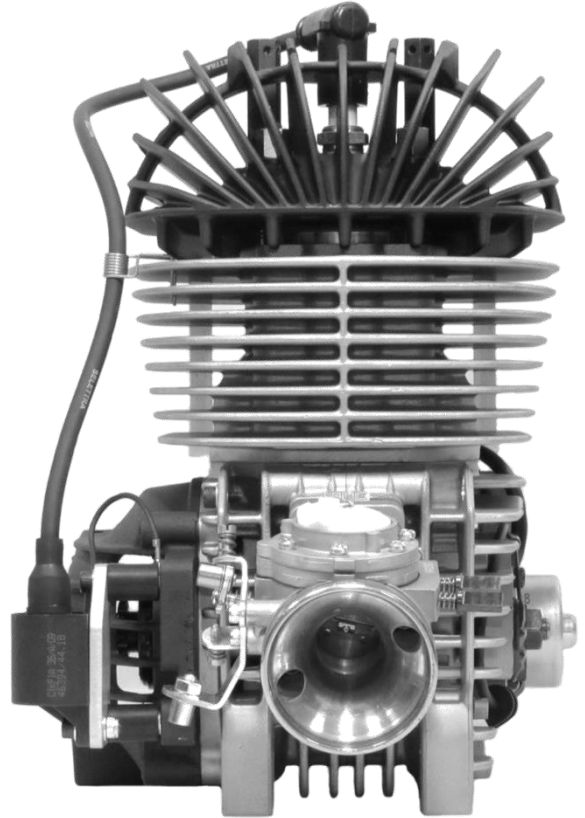
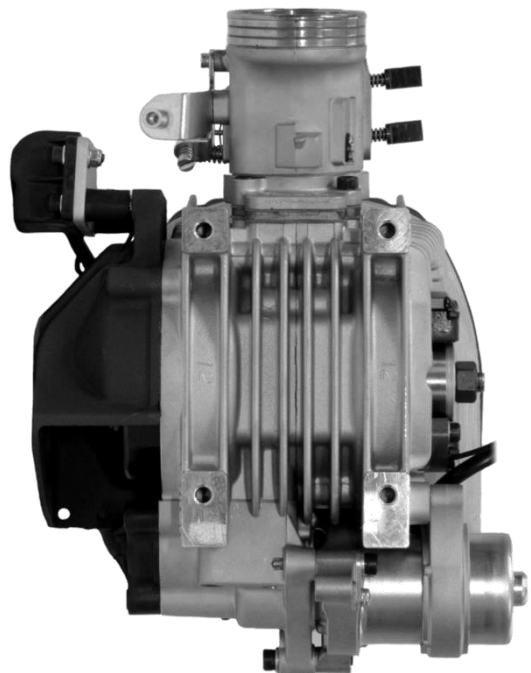


PHOTO OF THE ENGINE FROM ABOVE



PHOTO OF THE ENGINE FROM BELOW



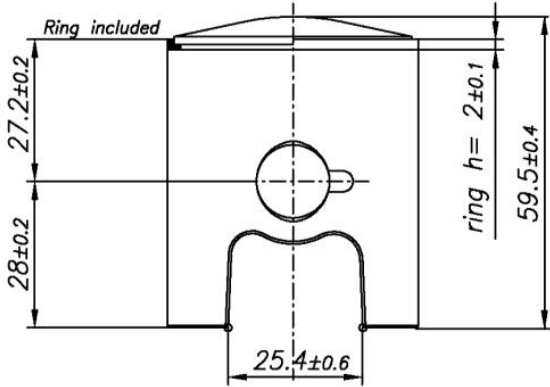
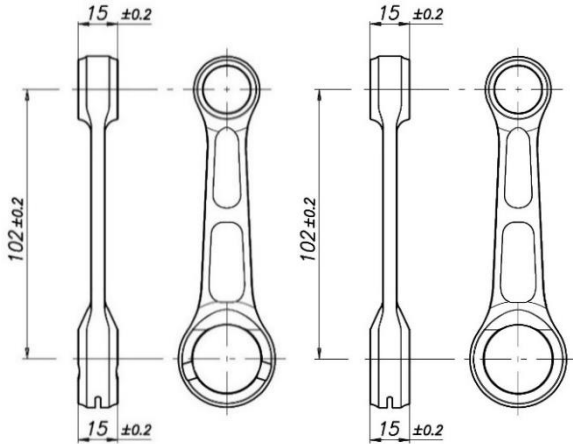
**TECHNICAL INFORMATION**

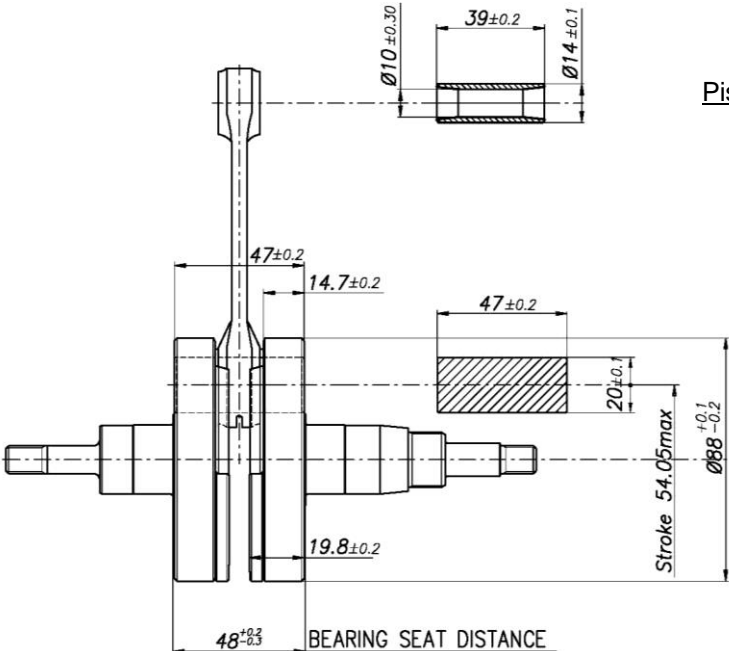
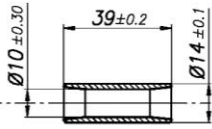
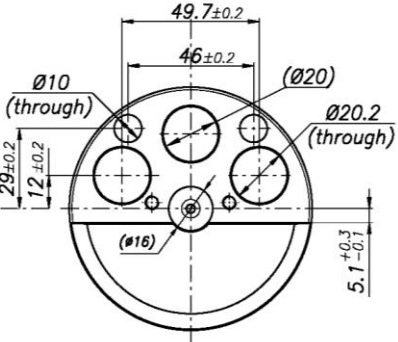
A	CHARACTERISTICS	
<i>The number of decimal places must be 2 or comply with the relevant tolerance.</i>		<i>Tolerances &amp; remarks</i>
<b>Cylinder</b>		
Volume of cylinder	<b>100.00 cm<sup>3</sup> max</b>	--
Original bore	<b>48.20 mm</b>	--
Theoretical maximum bore	<b>48.53 mm</b>	--
Original Stroke	<b>54.05 mm max</b>	--
Number of transfer ducts, cylinder / sump	<b>3 / 3</b>	--
Number of exhaust ports / ducts	<b>3 / 3</b>	--
<b>Cylinder Head</b>		
Combustion Chamber Shape	<b>SPHERICAL</b>	
Volume of the combustion chamber (with AUS insert)	<b>9.2 cm<sup>3</sup></b>	minimum
Volume of the combustion chamber in the cylinder head (with AUS insert)	<b>11.3 cm<sup>3</sup></b>	minimum
<b>Crankshaft</b>		
Number of bearings	<b>2</b>	--
Dimensions of bearings	<b>25 mm</b>	±0.1mm
Minimum weight of crankshaft	<b>1820 g</b>	minimum
<i>All parts represented on page 5 technical drawing</i>		
<b>Connecting rod</b>		
Connecting rod centreline	<b>102 mm</b>	±0.1mm
Diameter of big end	<b>26 mm</b>	±0.05mm
Diameter of small end	<b>18 mm</b>	±0.05mm
Min. weight of the connecting rod	<b>110 g</b>	minimum
<b>Inlet</b>		
Tillotson carburettor	<b>HW-33A HL-398A</b>	
Number of carburettors	<b>1</b>	
Inlet System	<b>REED VALVE</b>	

<b>Piston</b>		
Number of piston rings	<u>1</u>	
Min. weight of the bare piston (ring included)	<u>95 g</u>	minimum
<b>Gudgeon pin</b>		
Diameter	<u>14 mm</u>	±0.1mm
Length	<u>39 mm</u>	±0.2mm
Minimum weight	<u>19.0 g</u>	Minimum
<b>Clutch</b>		
Minimum weight	<u>930 g</u>	minimum
<i>Of all the parts represented on the page 11 technical drawing</i>		

B	OPENING ANGLES	
Of the inlet (main transfer ports)	<u>130°</u>	±2°
Of the inlet (3 <sup>th</sup> transfer duct engine)	<u>125.5°</u>	±2°
Of the exhaust	<u>169.5°</u>	MAX.
Of the boosters	<u>167.0°</u>	MAX.

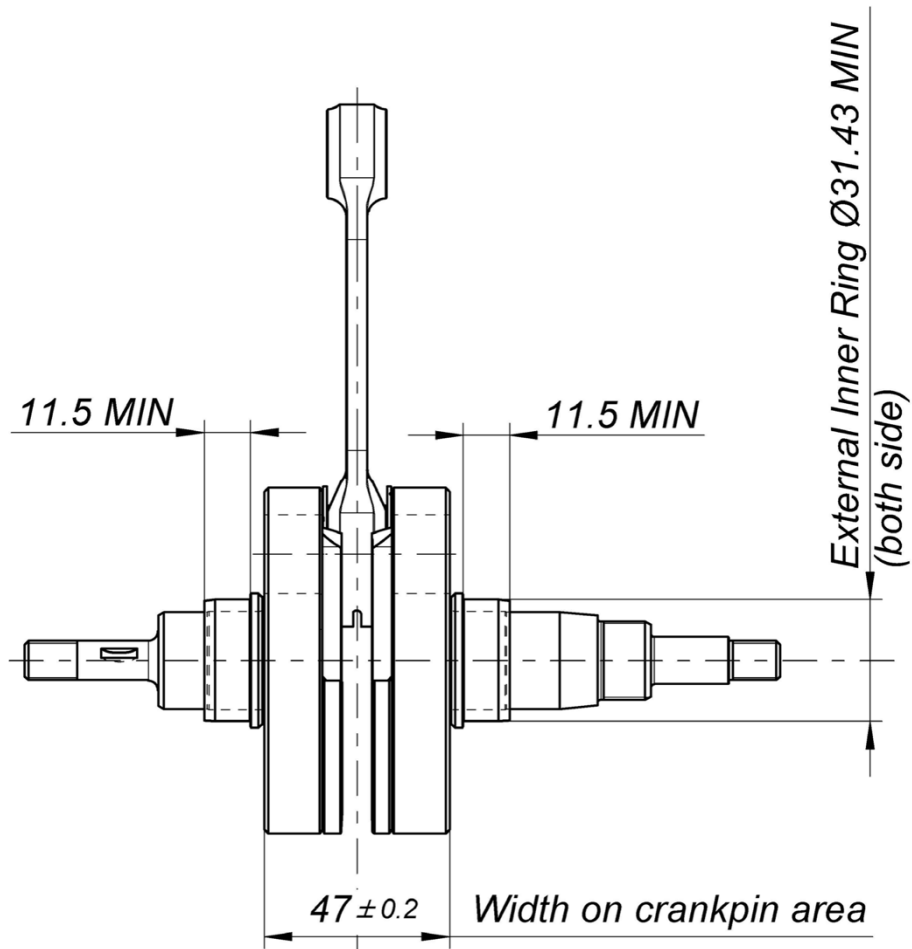
C	DESCRIPTION OF MATERIALS	
Conrod material	<b>Steel</b>	
Crankshaft material	<b>Steel</b>	
Head material	<b>Aluminium</b>	
Cylinder material	<b>Aluminium</b>	
Liner material	<b>Cast Iron</b>	
Crankcase material	<b>Aluminium</b>	
Piston material	<b>Aluminium</b>	
Piston rings material	<b>Cast Iron</b>	
Exhaust muffler material	<b>Sheet-steel</b>	
Bearings	<b>6205 Type or BC1-1442 D</b>	

PISTON	DISTANCE BETWEEN CONROD CENTERS
 <p>Min. weight (ring included) = 95g</p>	 <p>Min. weight=100g</p>

CRANKSHAFT	
	<p>Piston pin min. weight = 19g</p>   <p>Complete crankshaft min. weight = 1820g</p>

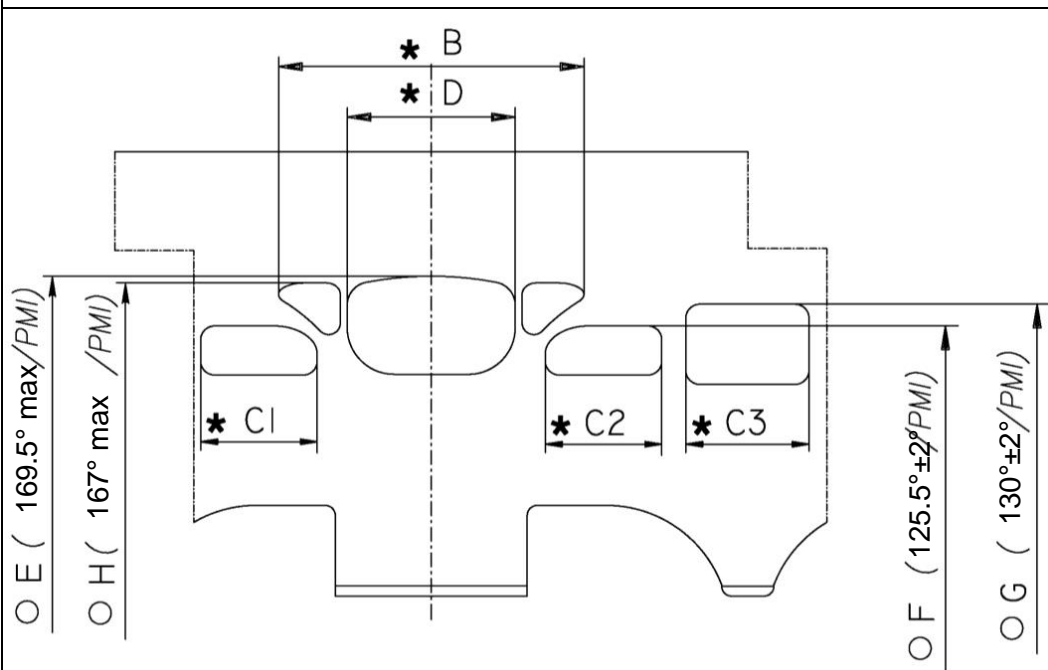


**CRANKSHAFT DIMENSIONS WITH ALTERNATIVE ROLLER MAIN BEARINGS**



Crankshaft complete as pictured min. Weight 1880 g

## CYLINDER DEVELOPMENT

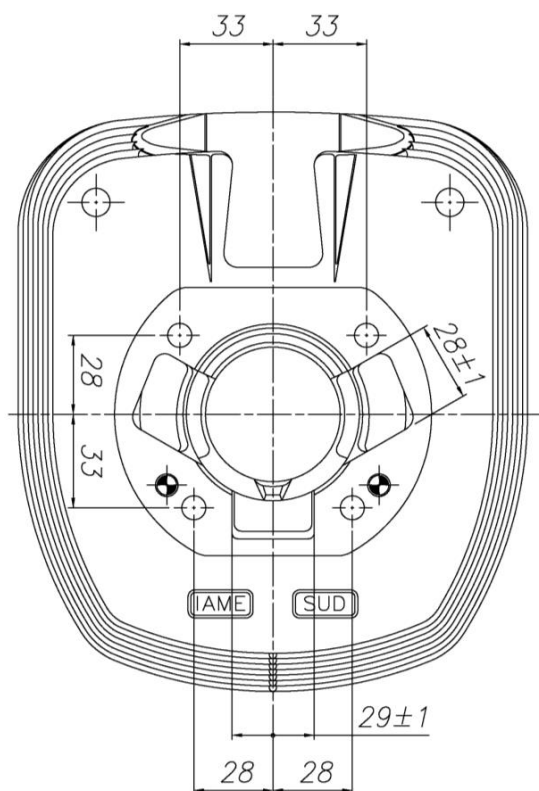


B	≤ 48.2 mm
C1 = C2	≤ 27.2 mm
C3	≤ 27 mm
D	≤ 34 mm
E	169.5° max
F	125.5° ±2°
G	130° ±2°
H	167° max

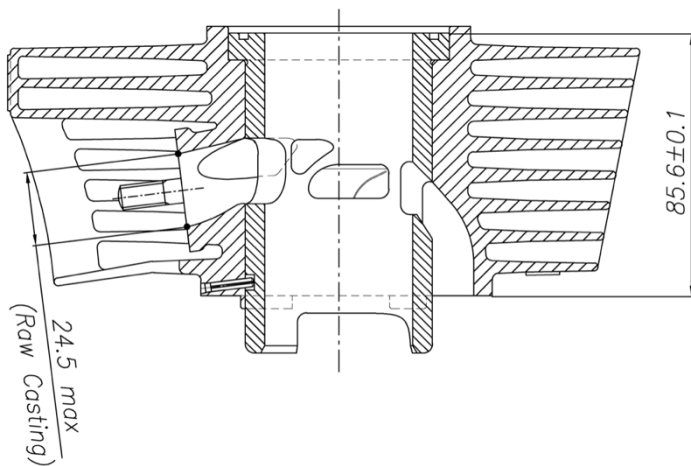
CHORDAL READING

○ ANGULAR READING BY INSERTING A 0.2x5 mm GAUGE

## CYLINDER BASE VIEW

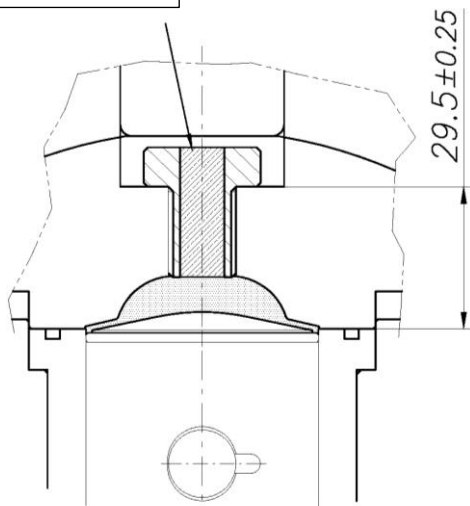


## CYLINDER CROSS SECTION VIEW



## COMBUSTION CHAMBER VIEW

INSERT: 2.4 cm<sup>3</sup>

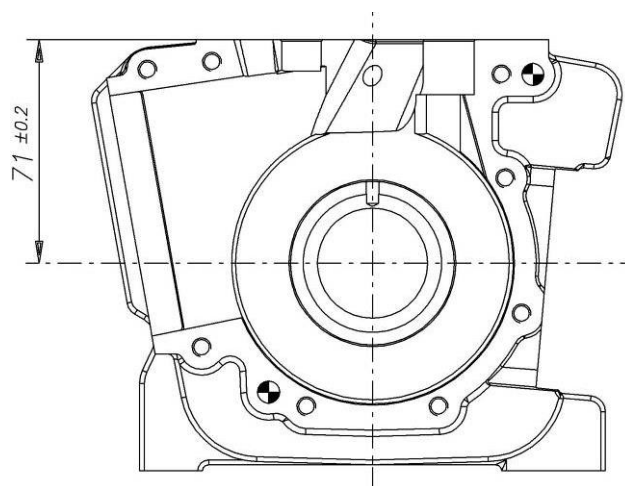


COMBUSTION CHAMBER VOLUME =  
9.2 cm<sup>3</sup> min.

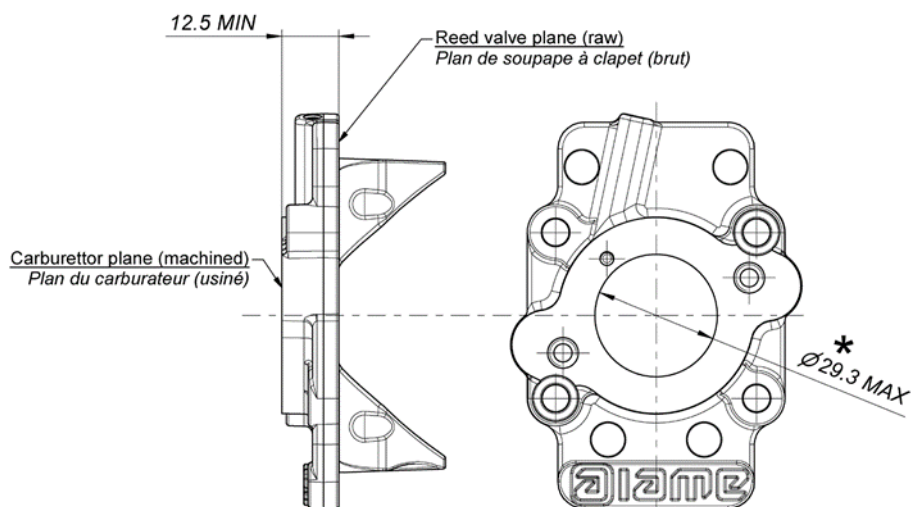
SQUISH MIN.= 1.05 mm  
(measured with Ø2mm TIN)

Combustion chamber volume in the  
cylinder head (with Volumeter and  
Insert):  
11.3cm<sup>3</sup> min

## CRANKCASE INSIDE VIEW



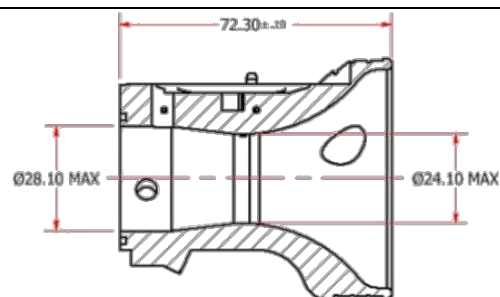
## INLET CONVEYOR DIMENSIONS



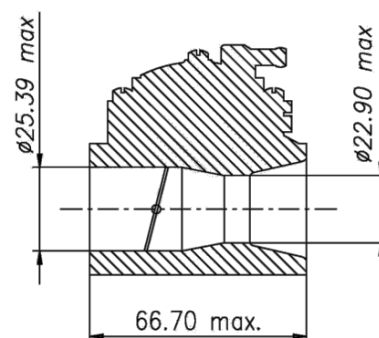
\* Original Ø28.2 is still permitted

## VENTURI CARB. DIMENSIONS

### TILLOTSON HW-33A



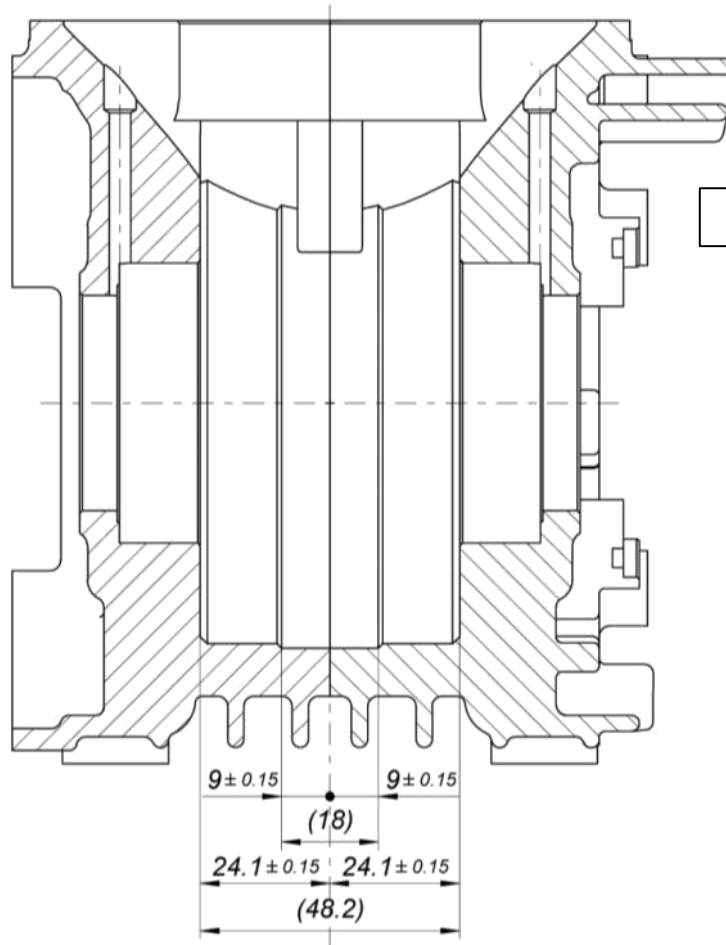
### TILLOTSON HL-398A



CRANKCASE WIDTH DIMENSIONS

DRIVE SIDE

IGNITION SIDE



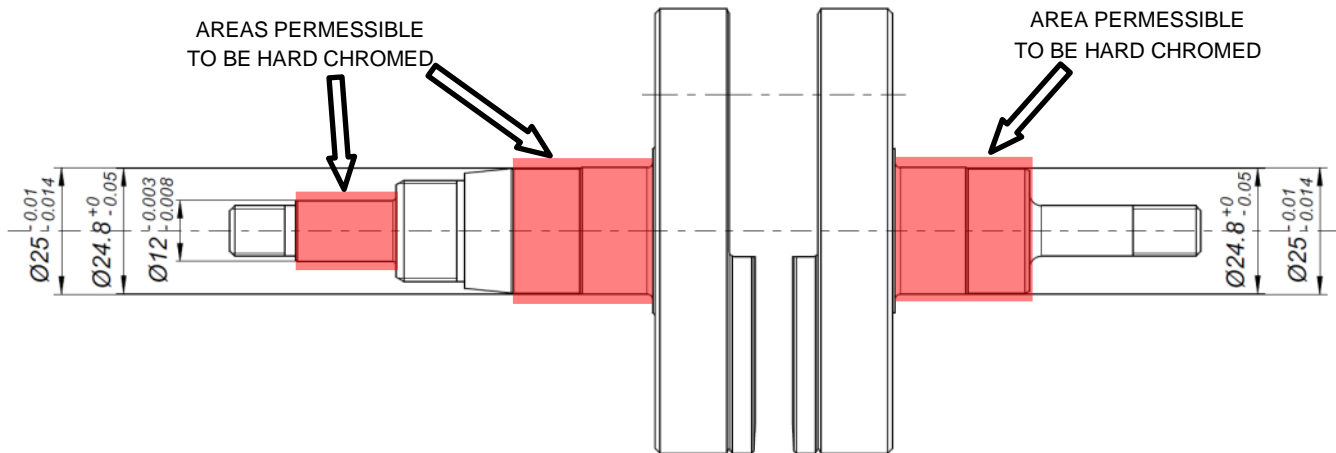
CRANKSHAFT REPAIR BY HARD CHROMING

DRIVE SIDE

IGNITION SIDE

AREAS PERMISSIBLE TO BE HARD CHROMED

AREA PERMISSIBLE TO BE HARD CHROMED



BEARING SHIMS IN OPTIONAL

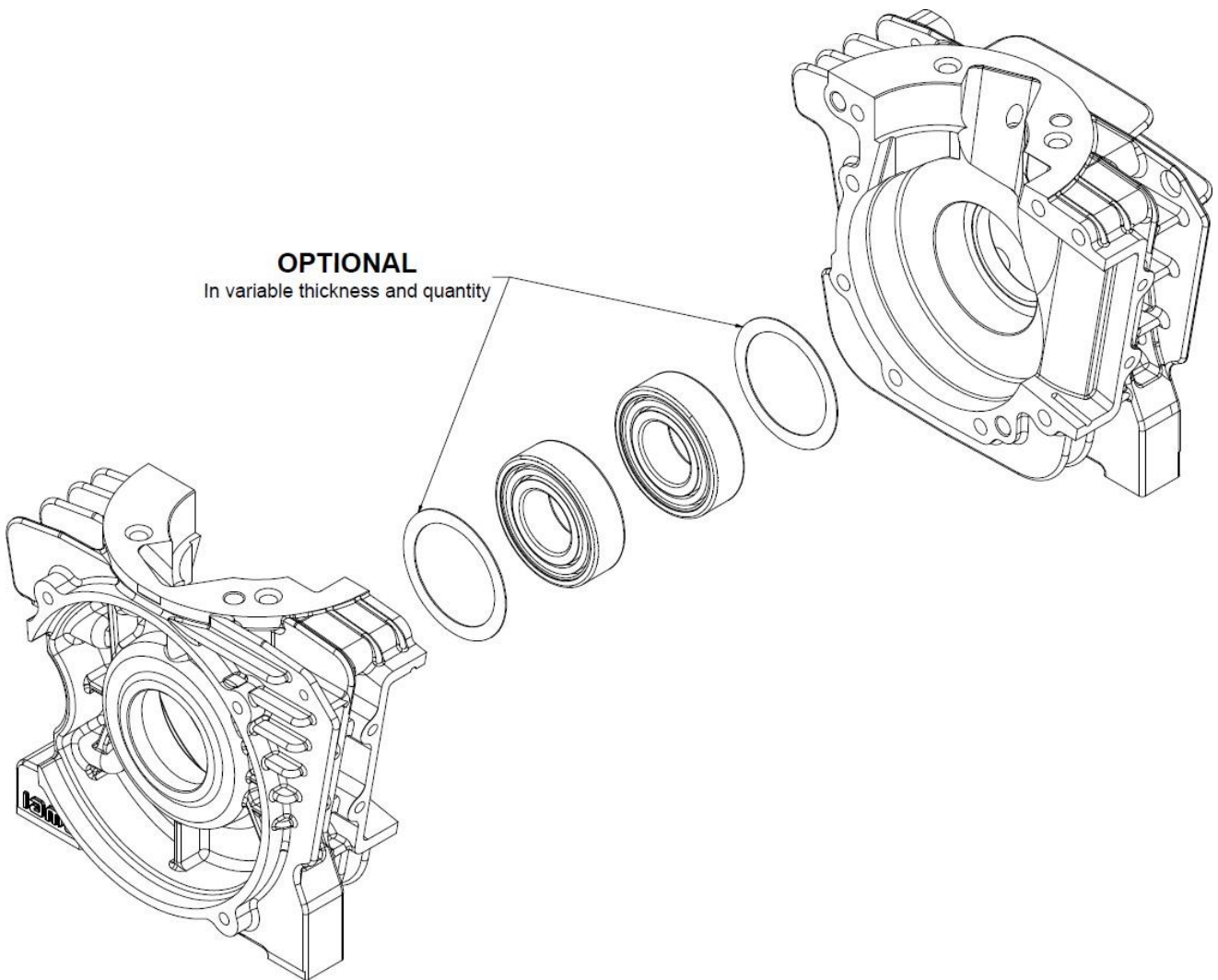
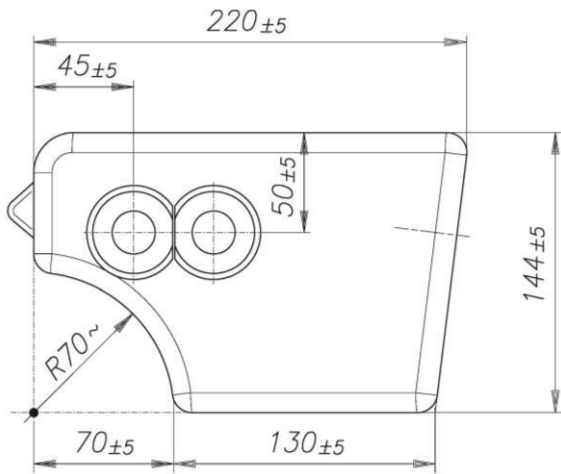
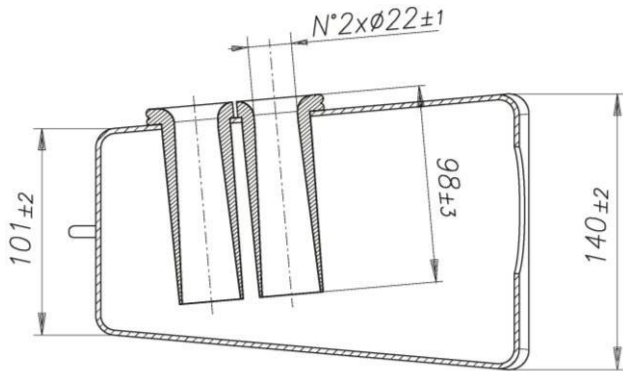


PHOTO IDENTIFICATION OF ALTERNATIVE ROLLER BEARING

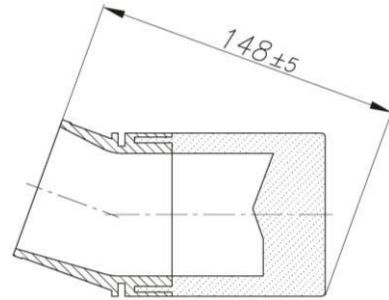
Alternative bearing to 6205 type  
Part No: BC1-1442 D



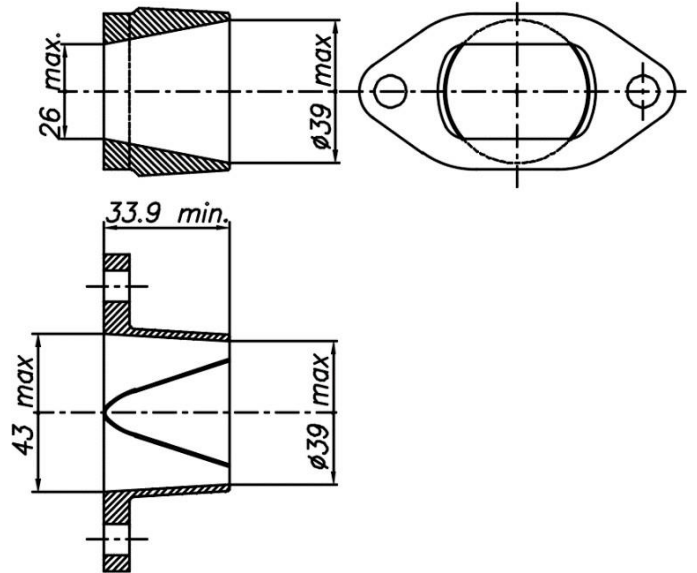
**INLET SILENCER**



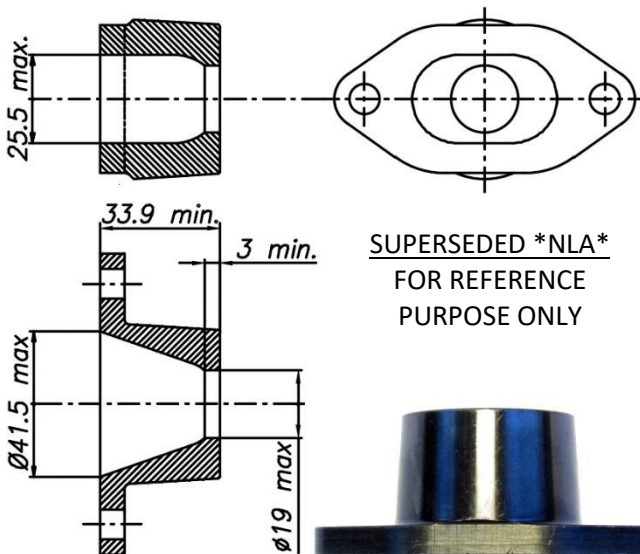
**SPONGE FILTER INLET SILENCER**



**EXHAUST MANIFOLD OPEN**

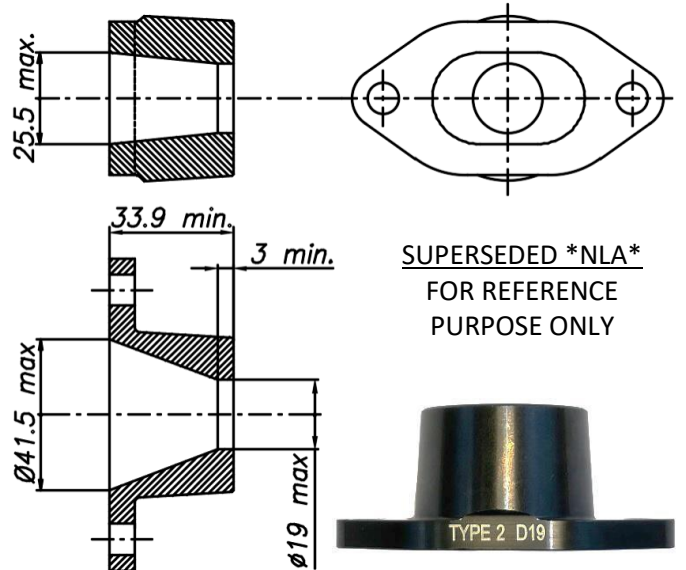


**EXHAUST MANIFOLD RESTRICTED Ø19mm  
 TYPE 1**



SUPERSEDED \*NLA\*  
 FOR REFERENCE  
 PURPOSE ONLY

**EXHAUST MANIFOLD RESTRICTED Ø19mm  
 TYPE 2**



SUPERSEDED \*NLA\*  
 FOR REFERENCE  
 PURPOSE ONLY

EXHAUST MANIFOLD RESTRICTED Ø22mm TYPE 3

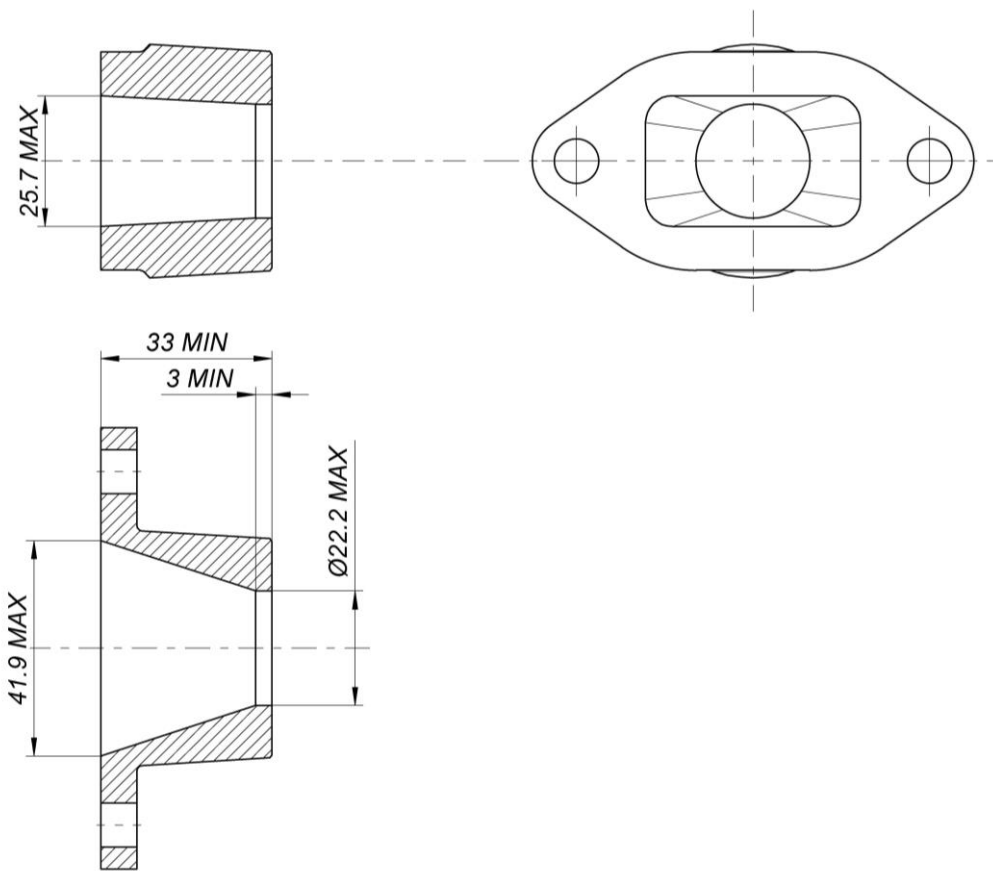


PHOTO IDENTIFICATION OF EXHAUST MANIFOLD RESTRICTED Ø22mm TYPE 3



INLET SILENCER TUBES NEW TYPE

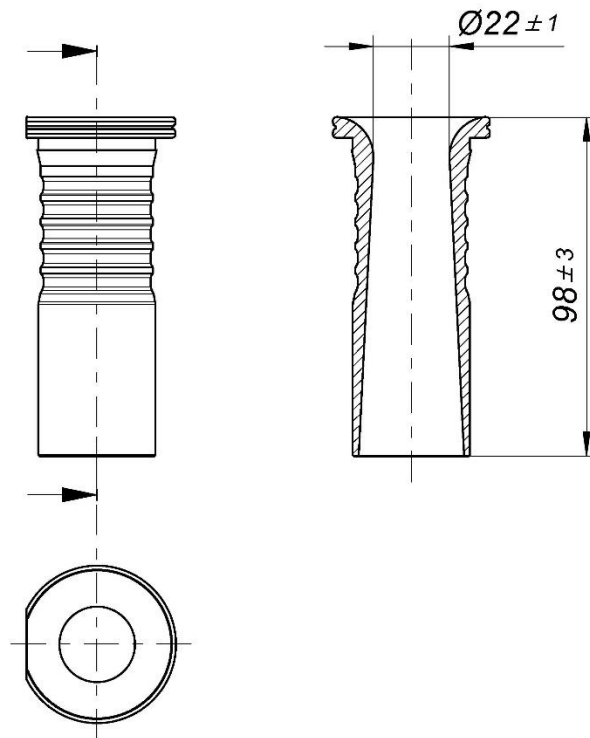


PHOTO IDENTIFICATION OF PERMISSIBLE INLET SILENCER TUBES





RAIN COVER INLET SILENCER – DRAWING

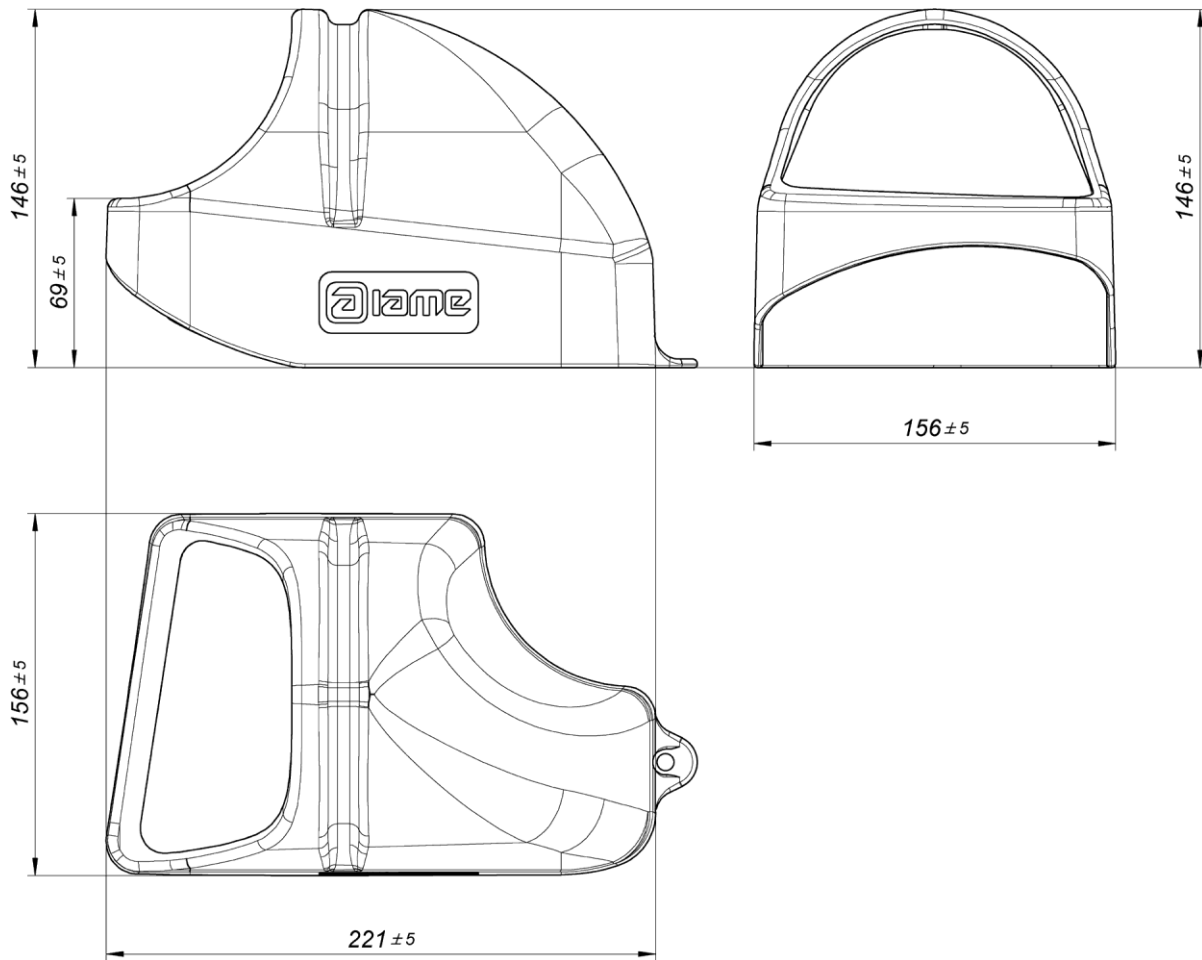
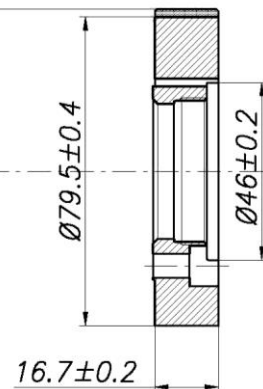
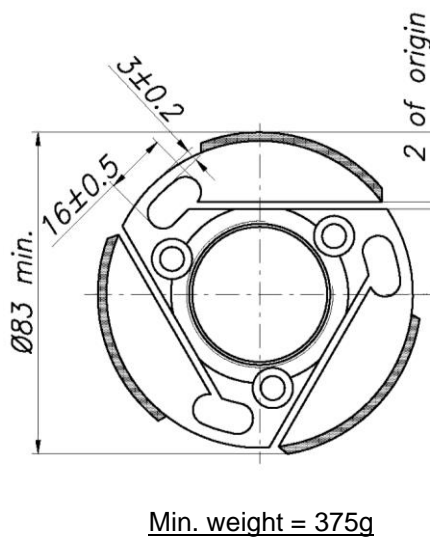
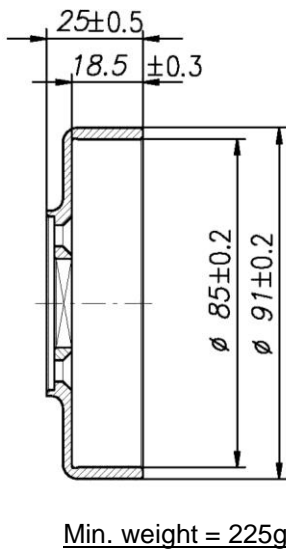
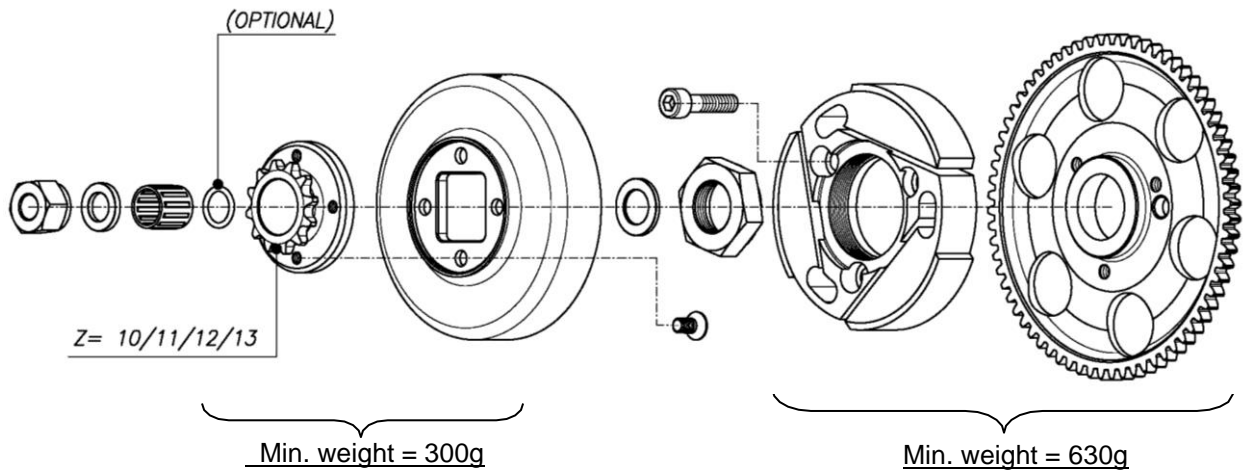


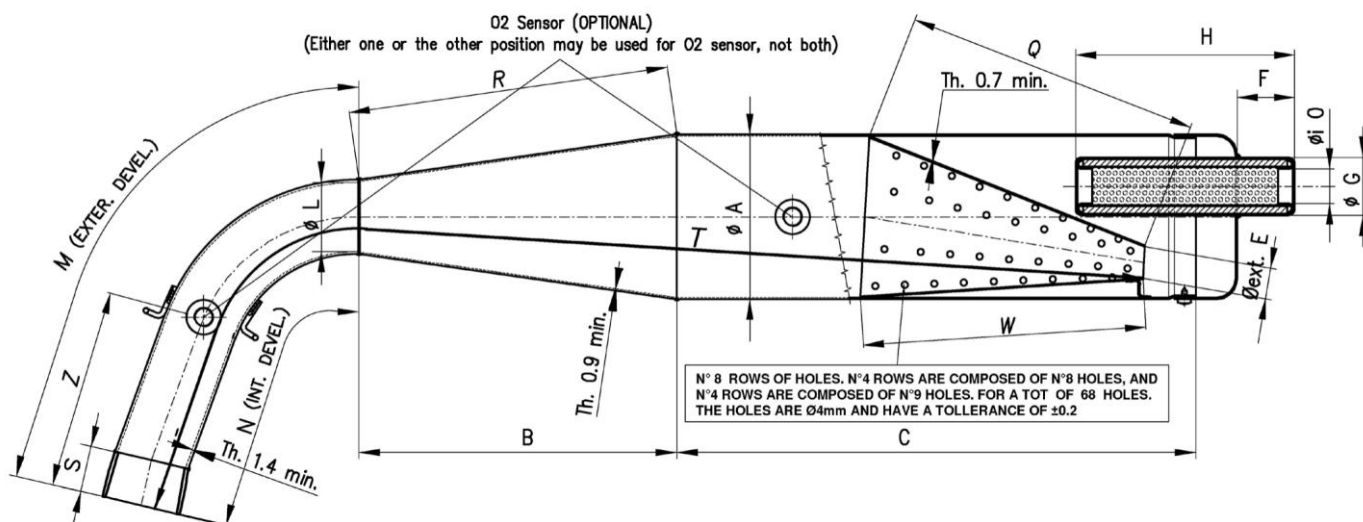
PHOTO IDENTIFICATION OF RAIN COVER INLET SILENCER



DESCRIPTION OF THE CLUTCH



## EXHAUST MUFFLER VIEW AND DIMENSIONS



Min. Weight: 1.905g

<b>ØA:</b> 100 ±1 Øext.	<b>ØE:</b> 23.5 ±2 Øext.	<b>N:</b> 210 ±3 ext.	<b>S:</b> 29 ±1.5
<b>ØL:</b> 45 ±1 Øext.	<b>F:</b> 36 ±2	<b>ØO:</b> 21 ±1 Øint.	<b>T:</b> 692 ±3
<b>B:</b> 193 ±3	<b>H:</b> 132 ±3	<b>R:</b> 194.5 ±3	<b>W:</b> 170 ±3
<b>C:</b> 315 ±3	<b>M:</b> 270 ±3 ext.	<b>Q:</b> 182 ±3	<b>Z:</b> 130 max

### **ATTENTION:**

The dimensions “**M**”, “**N**” and “**T**” must be taken by steel tape measure 6mm wide.

The dimensions “**Q**” and “**W**” must be taken by steel tape measure 12mm wide.

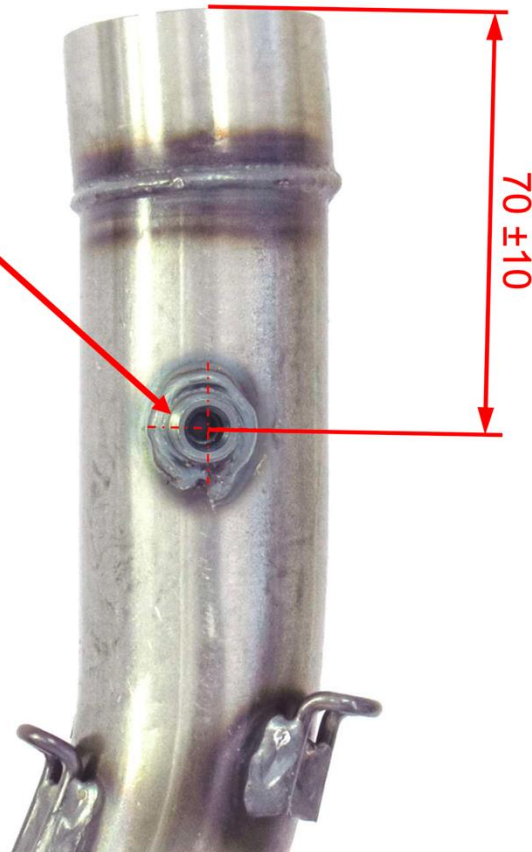
EXHAUST MUFFLER IDENTIFICATION



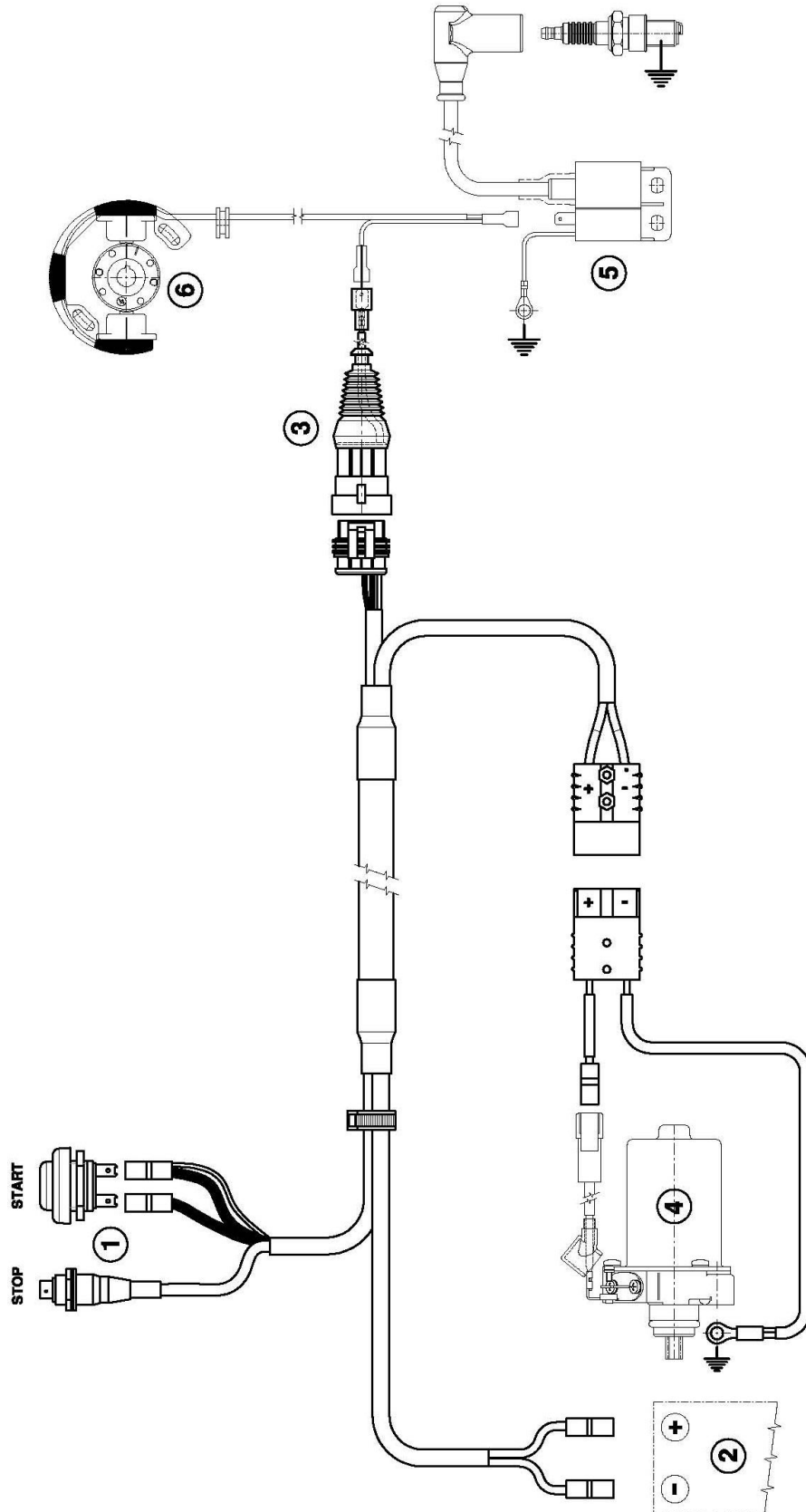
MARKING

Fitting for  
temperature  
probe

OPTIONAL

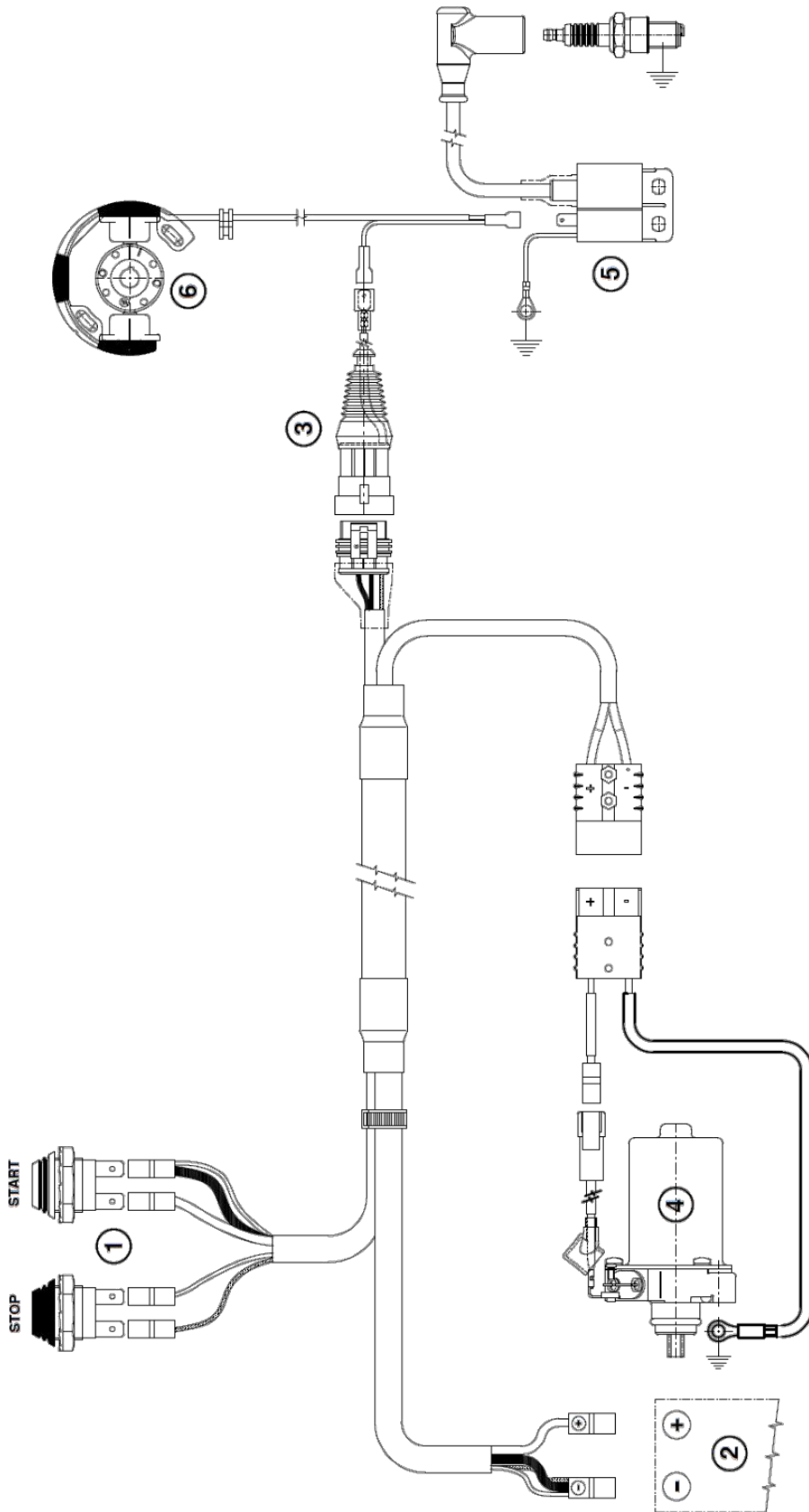


WIRING DIAGRAM



- 1- Push-Button Start & Stop
- 2- Battery
- 3- Ignition Cable Adapter
- 4- Starter
- 5- H.T. coil
- 6- Ignition

ALTERNATIVE WIRING DIAGRAM



- 1- Push-Button Start & Stop
- 2- Battery
- 3- Ignition Cable Adapter
- 4- Starter
- 5- H.T. coil
- 6- Ignition

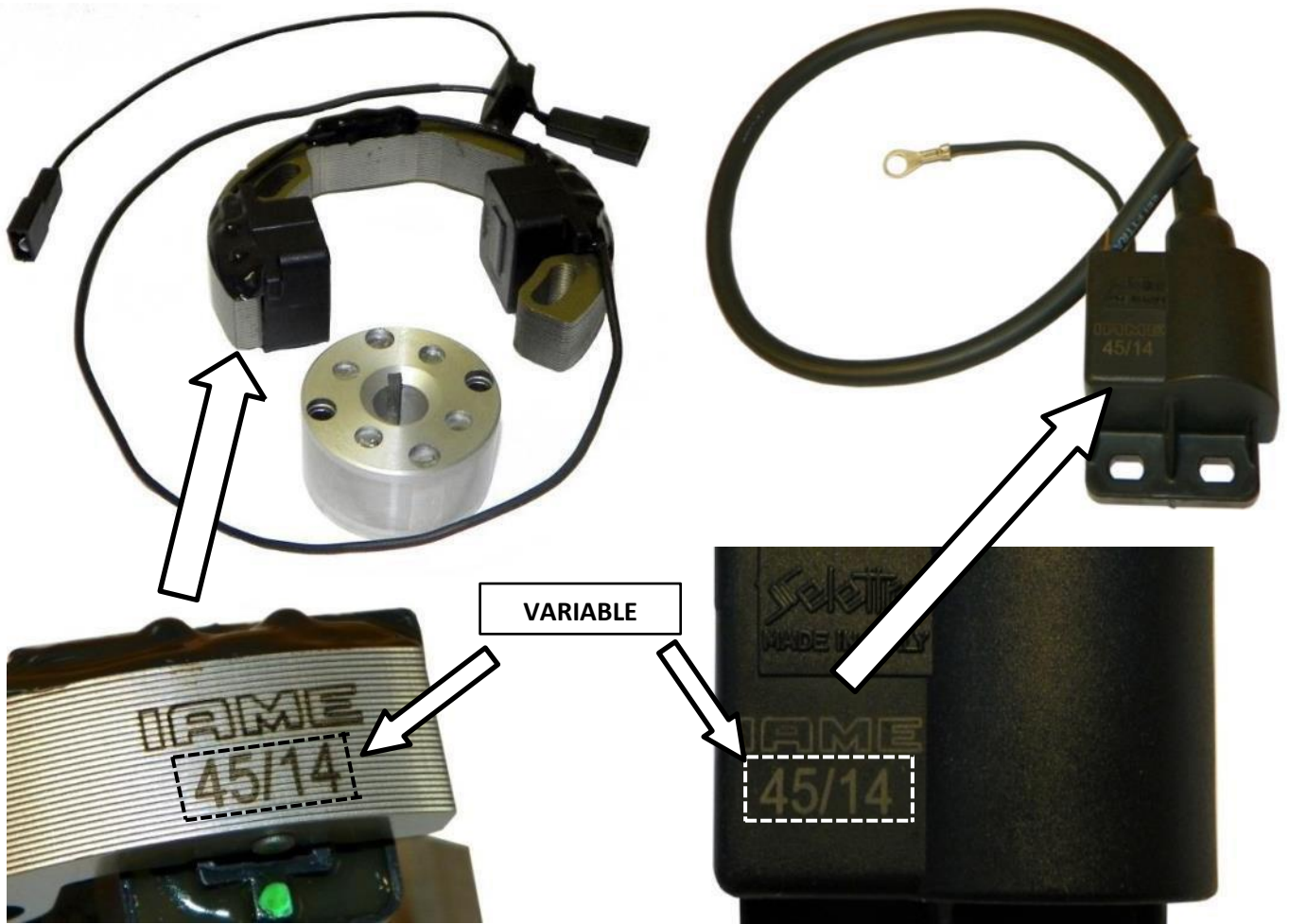
COMPLETE WIRING PHOTO



ALTERNATIVE COMPLETE WIRING PHOTO

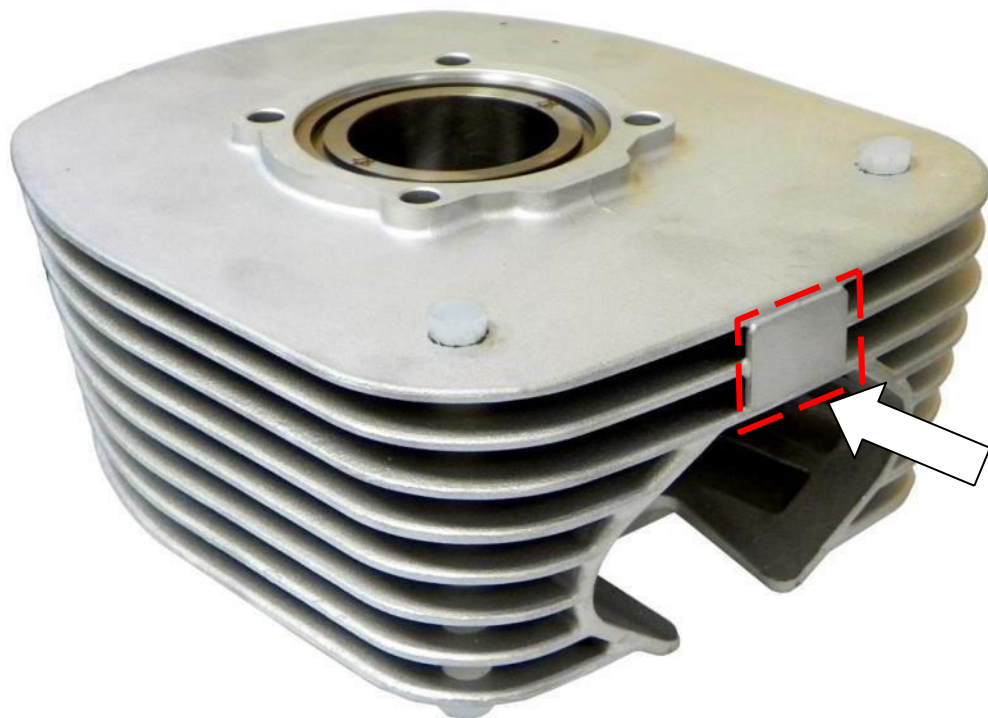


PHOTO OF IGNITION / PHOTO OF H.T. COIL (SELETTA ANALOGUE 2 POLES)





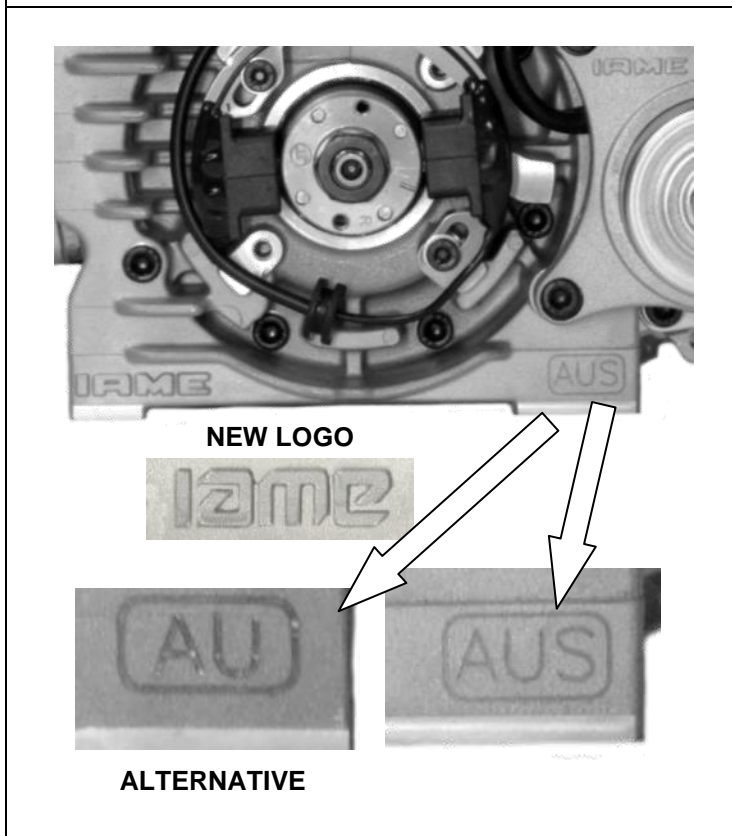
STICKER APPLICATION AREA



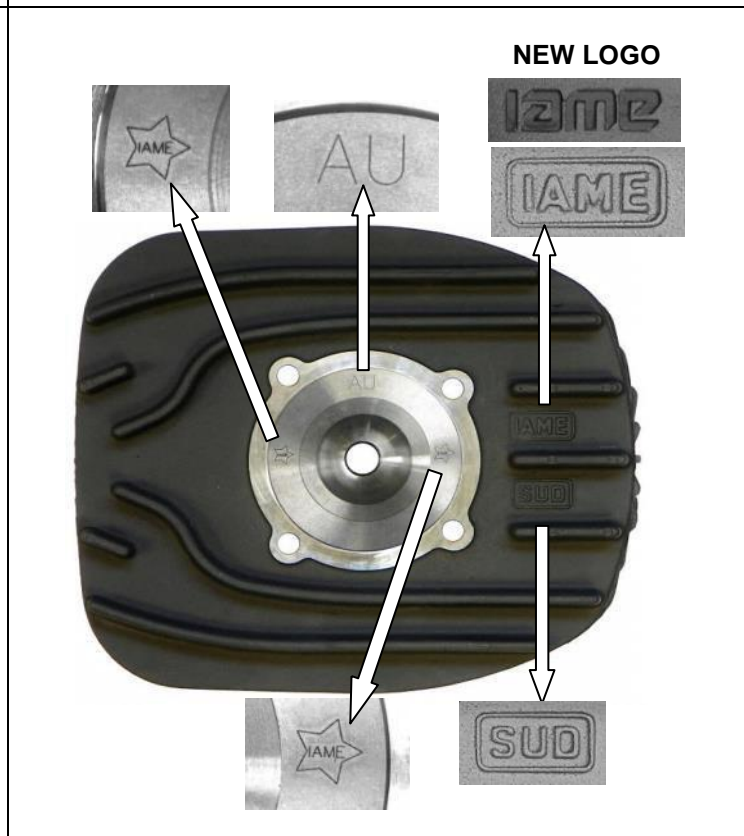
**CYLINDER IDENTIFICATION MARKING**



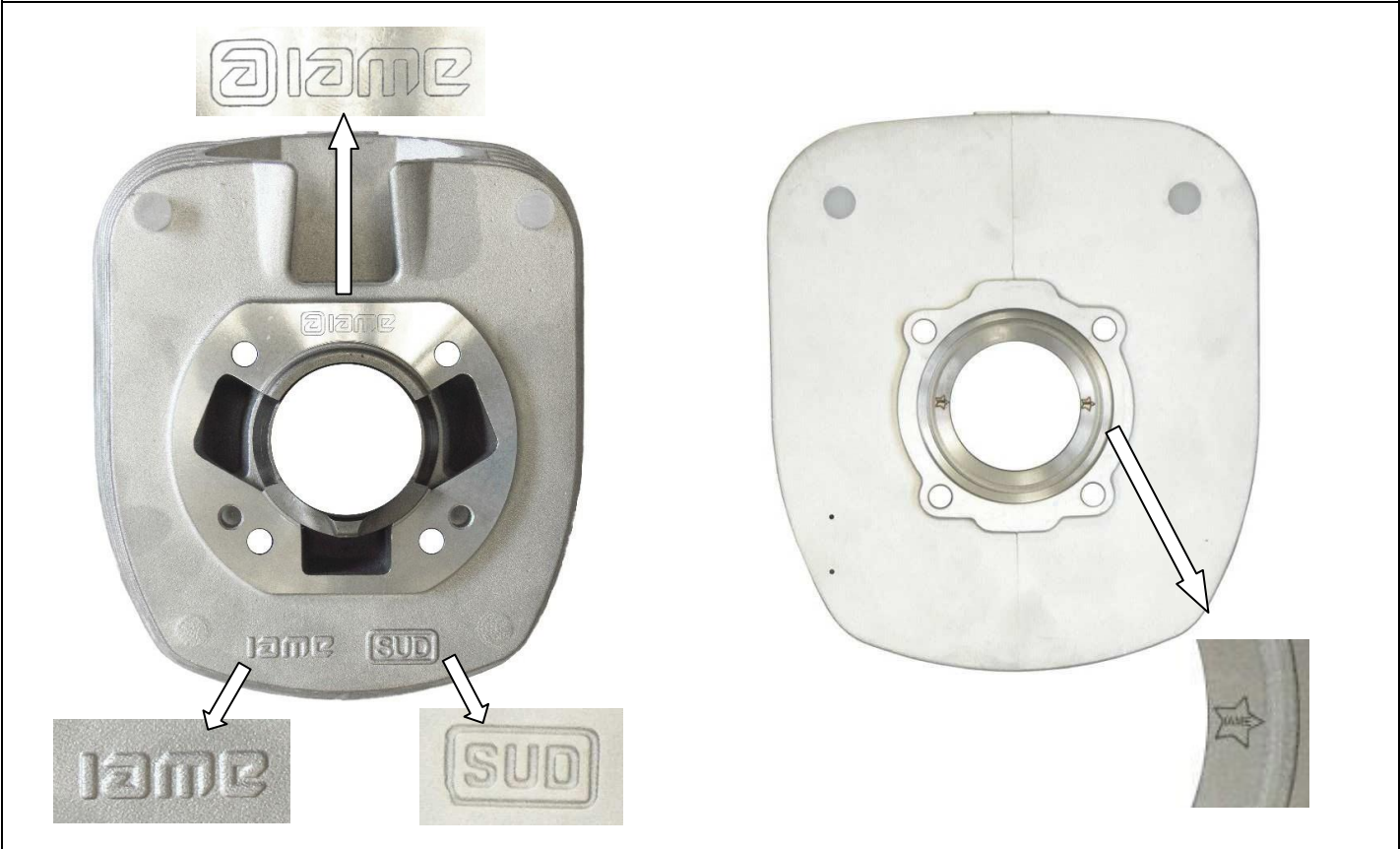
**CRANKCASE IDENTIFICATION MARKING**



**HEAD IDENTIFICATION MARKING**



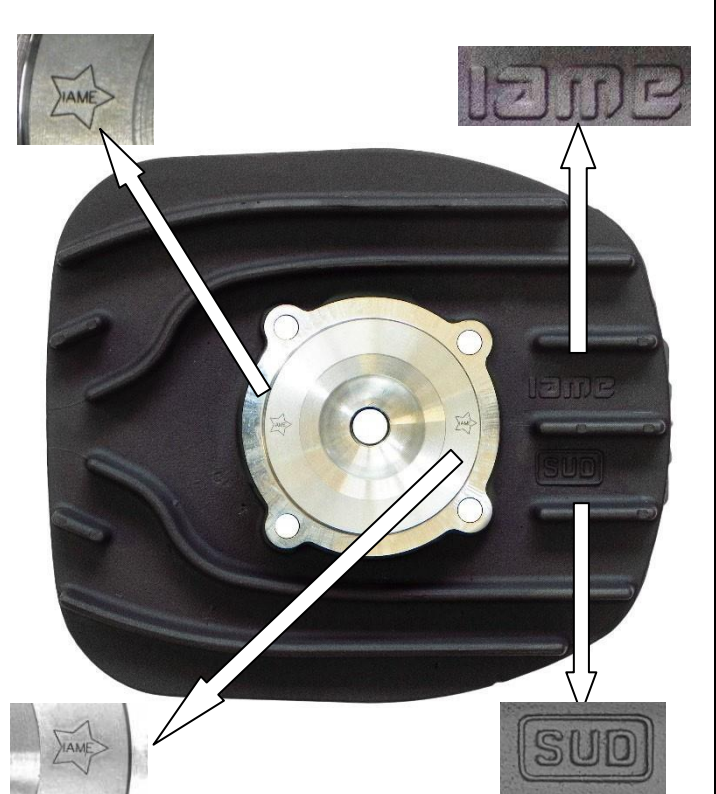
ALTERNATIVE CYLINDER IDENTIFICATION MARKING



ALTERNATIVE CRANKCASE IDENTIFICATION MARKING



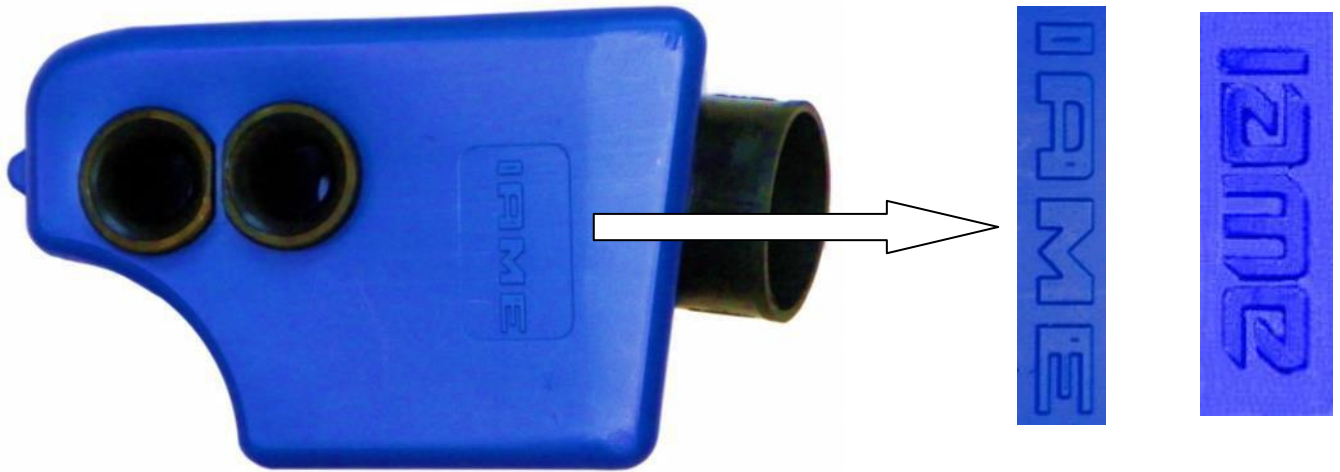
ALTERNATIVE CYLINDER HEAD IDENTIFICATION MARKING



INLET SILENCER - "IAME" IDENTIFICATION MARKING

VARIABLE IN COLOUR

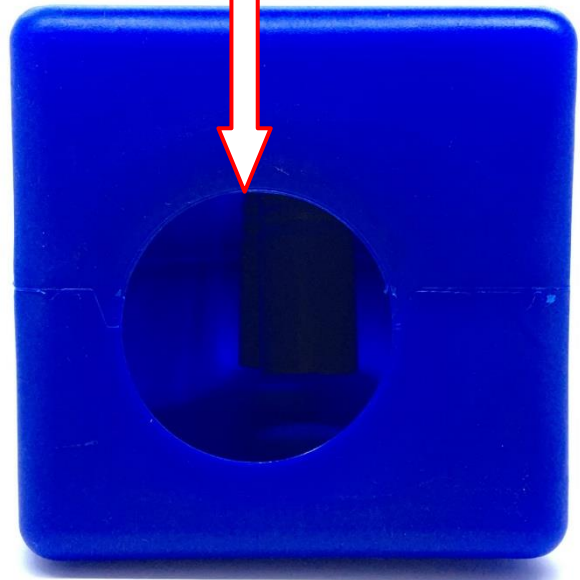
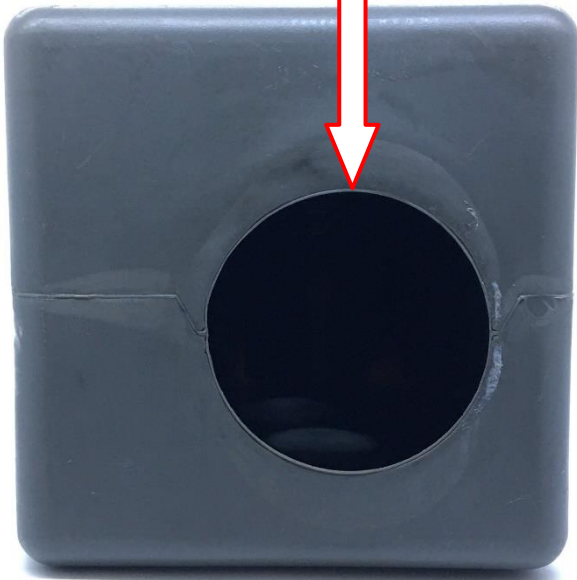
NEW LOGO



INLET SILENCER OUTLET LOCATION

ORIGINAL RIGHT ALIGNED OUTLET

ALTERNATIVE LEFT ALIGNED OUTLET



INLET SILENCER SPONGE FILTER

EITHER SPONGE FILTER IS PERMITTED FOR USE  
USE OF A FILTER IS COMPULSORY

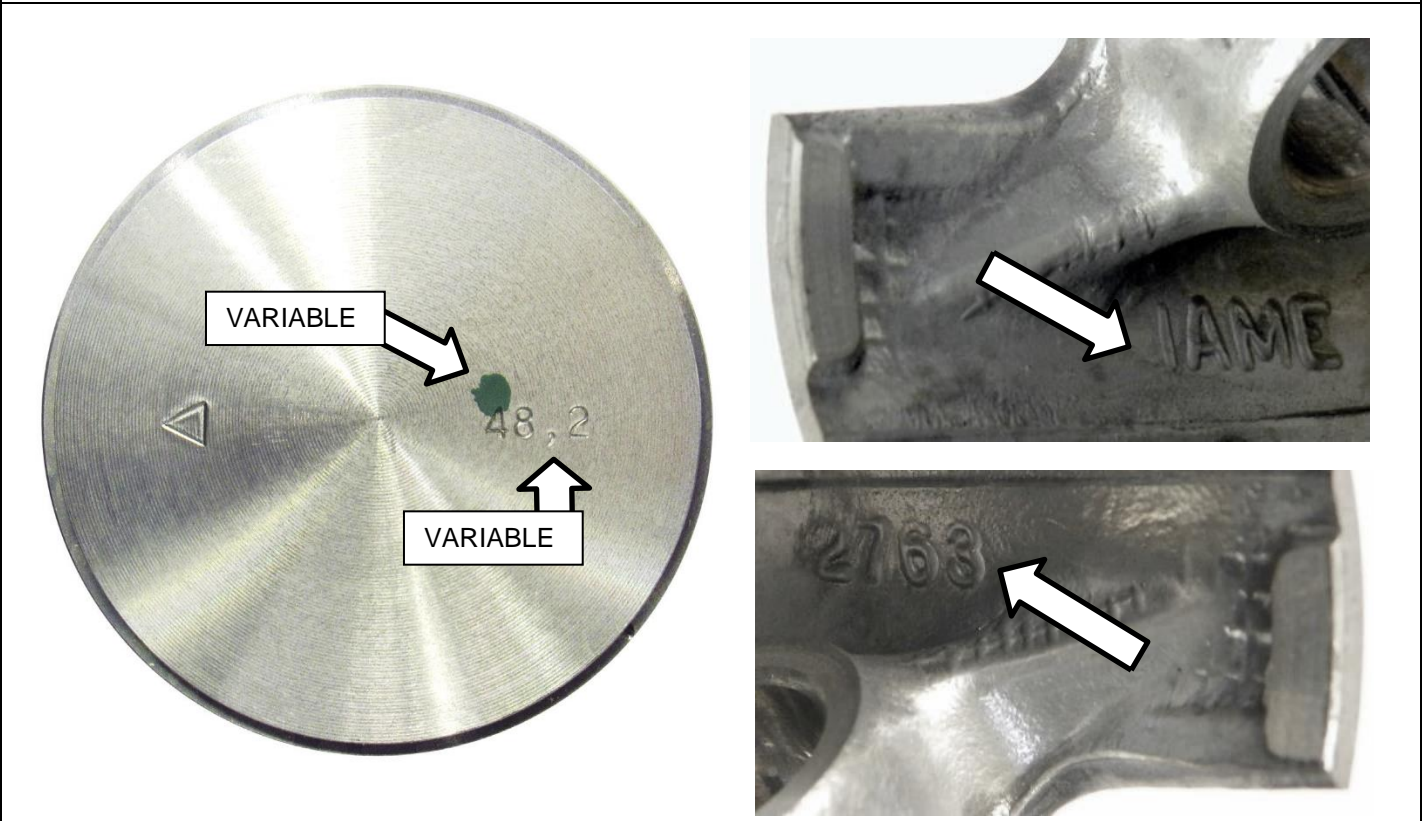
RED (CORSE)



GREEN (FINE)



PISTON IDENTIFICATION MARKING



ALTERNATIVE PISTON IDENTIFICATION MARKING

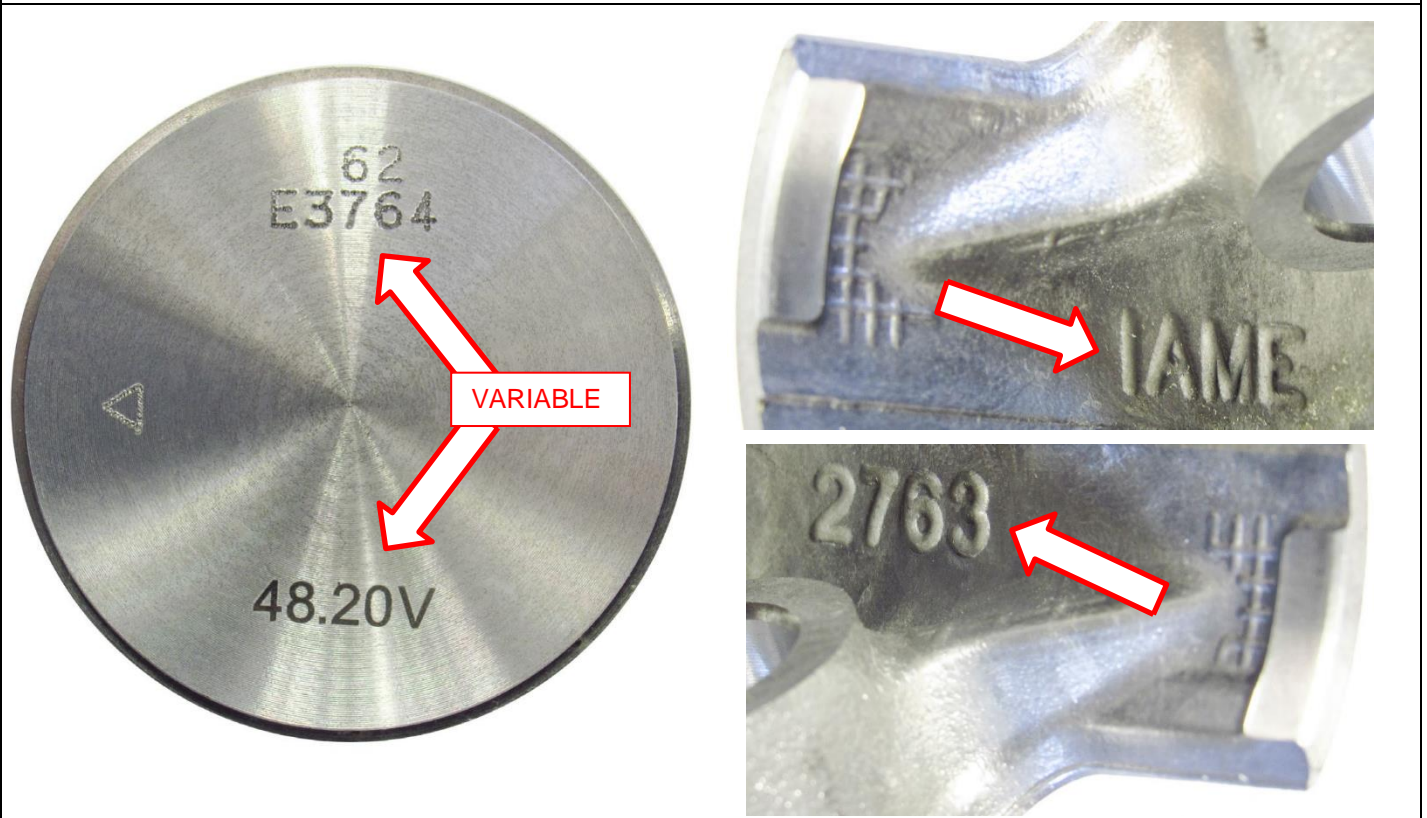


PHOTO IDENTIFICATION CONROD

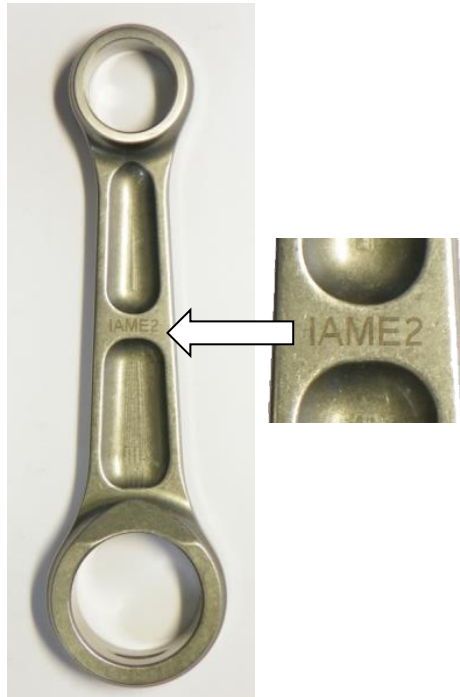
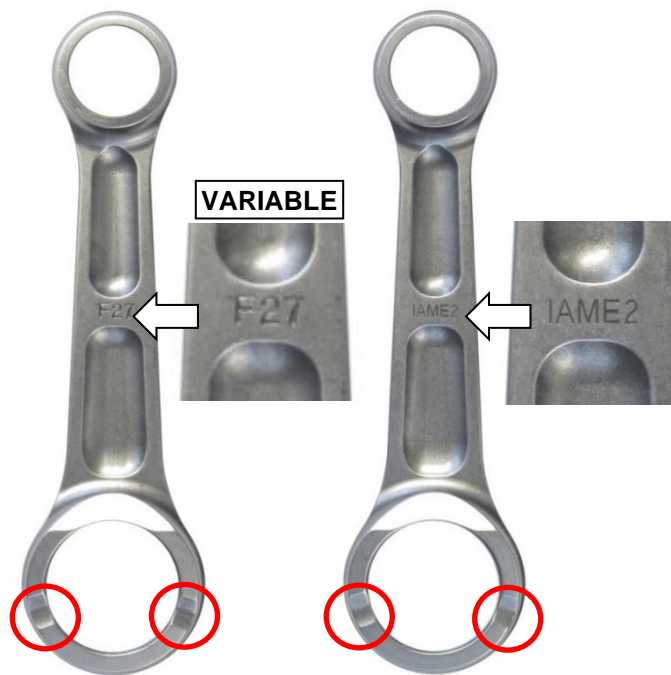


PHOTO OF ALTERNATIVE CONROD



Lubrication Slots - Circled

PHOTO IDENTIFICATION OF SMALL END CONROD BEARING – TYPES ALTERNATIVE

TYPE 1



TYPE 2



PHOTO IDENTIFICATION OF SILVER CONROD WASHER – TYPES ALTERNATIVE

TYPE 1

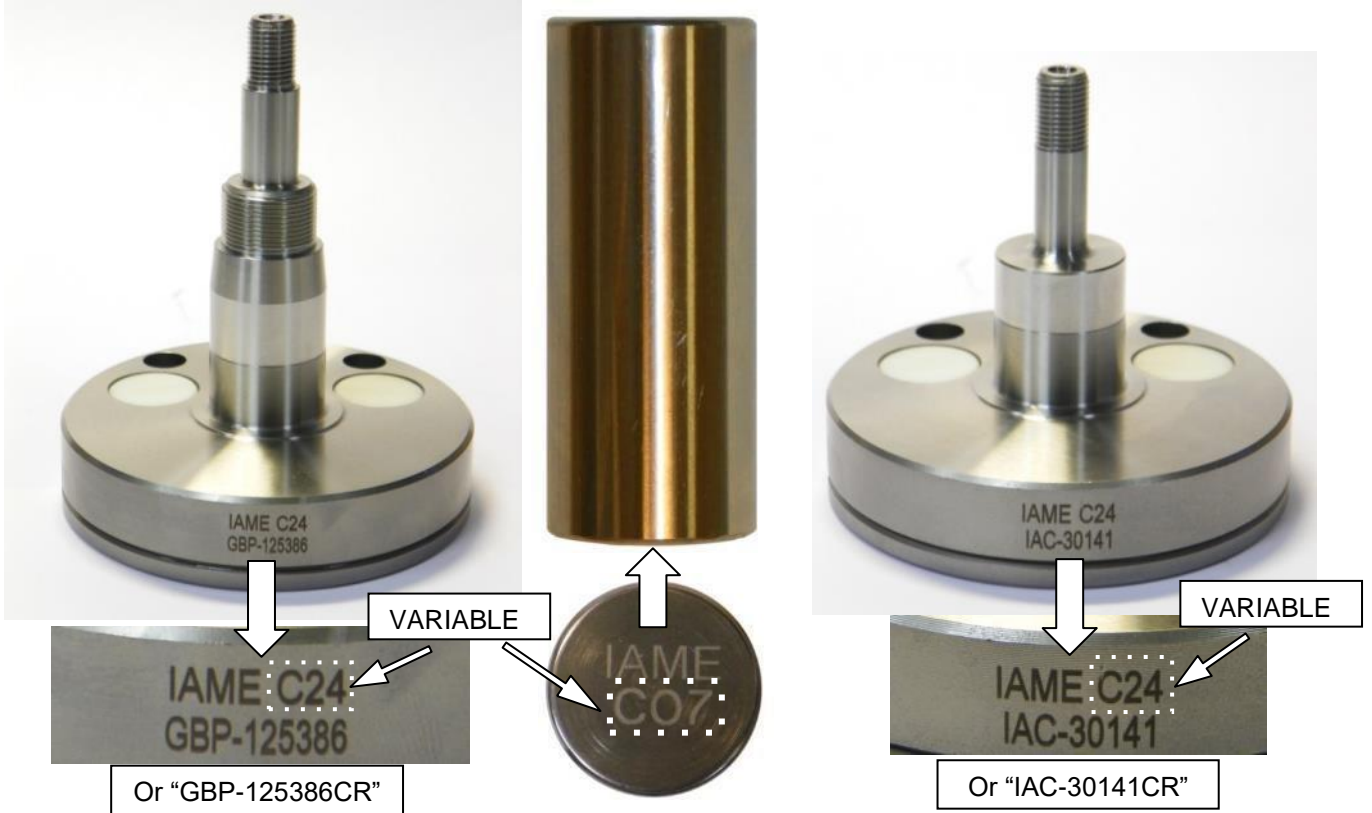


TYPE 2

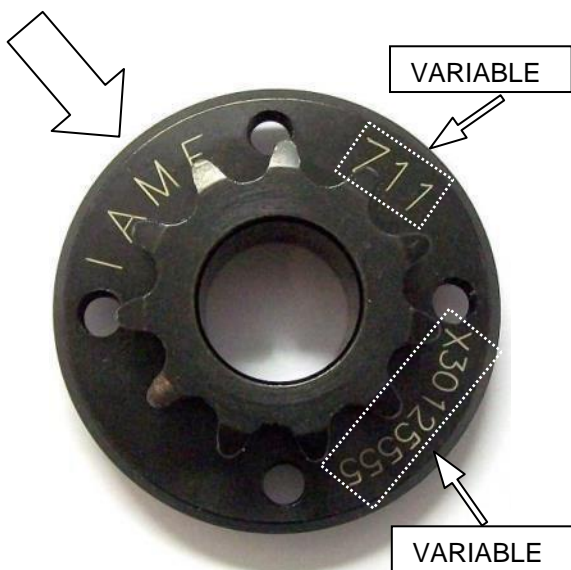




CRANKSHAFT IDENTIFICATION MARKING



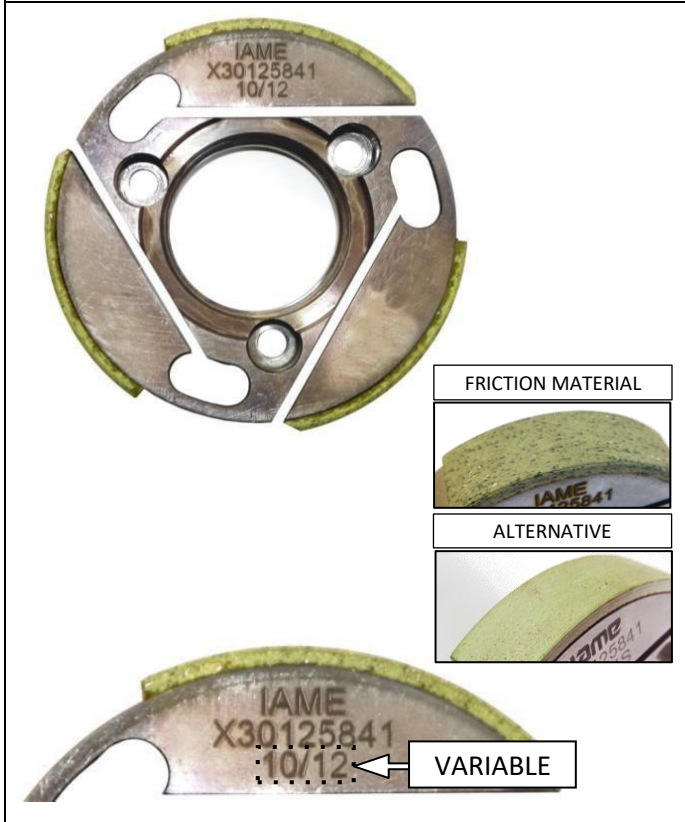
SPROCKET IDENTIFICATION MARKING



STARTER RING IDENTIFICATION MARKING



**CLUTCH BODY IDENTIFICATION MARKING**



**CLUTCH DRUM IDENTIFICATION MARKING**



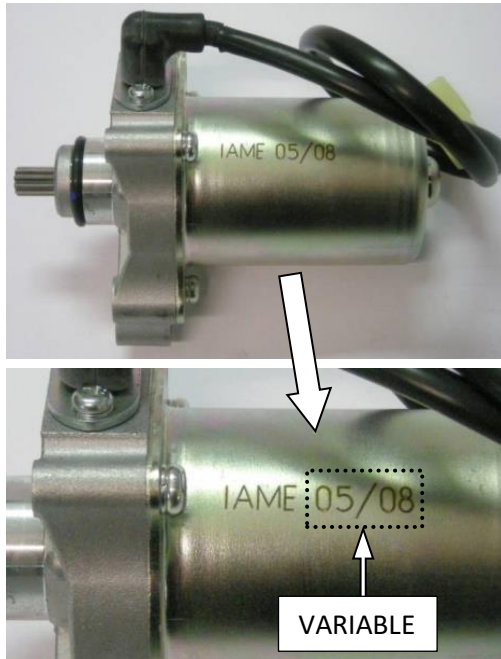
**CARBURETTOR INLET CONVEYOR IDENTIFICATION MARKING**



**BENDIX COVER IDENTIFICATION MARKING**



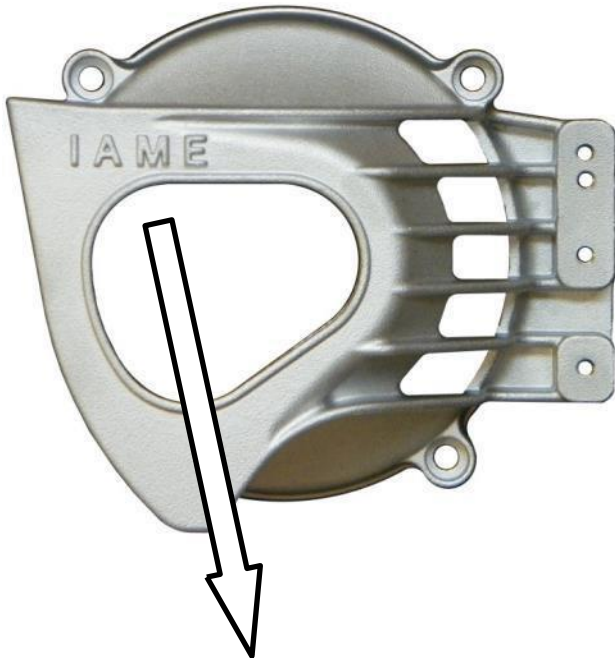
STARTER IDENTIFICATION MARKING



EXHAUST SILENCER IDENTIFICATION MARKING



CLUTCH COVER - ALTERNATIVE SHAPE, SURFACE FINISHING AND MARKING



**NEW LOGO**

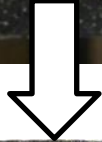
**ALTERNATIVE**



REED GROUP IDENTIFICATION MARKING

CURRENT VERSION

NEW LOGO



ALTERNATIVE VERSION

NEW LOGO

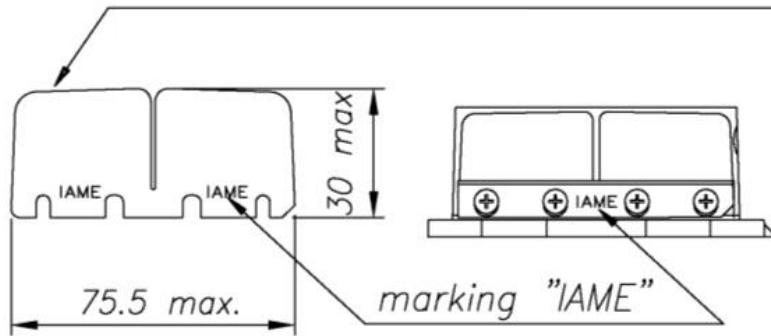


REED PETALS DIMENSIONS

It is permitted to use either Carbon Fibre or Fibreglass Reed Petals

*IAME Carbon Fibre Reed Petals min. thickness = 0.22mm*

*IAME Fibreglass Reed Petals min. thickness = 0.30mm*

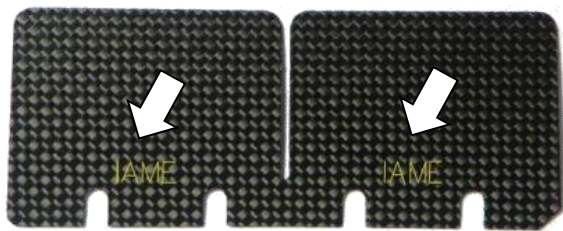


REED PETALS – IMAGES AND IDENTIFICATION MARKS

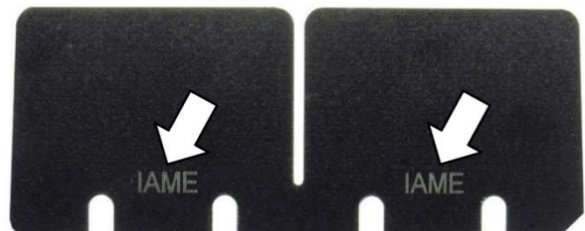
CARBON FIBRE

FIBREGLASS

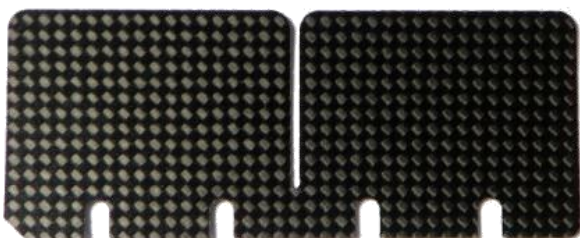
Front Side



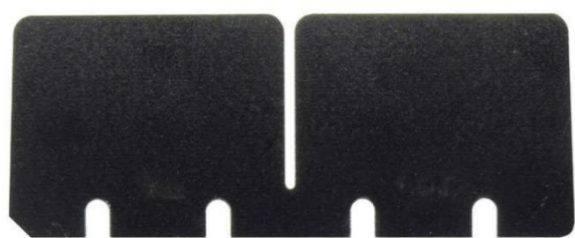
Front Side



Rear Side



Rear Side



INSTALLATION OF GROUND CABLE ON THE CRANKCASE

**STANDARD INSTALLATION**



**ALTERNATIVE INSTALLATION**



COMPONENTS WITH ALTERNATIVE NEW LOGO "IAME"

CRANKCASE TRANSMISSION SIDE



NEW LOGO



ALTERNATIVE SHAPE



STARTER SUPPORT



NEW LOGO





COMPONENTS WITH ALTERNATIVE NEW LOGO "IAME"

**THE OTHERS COMPONENTS OF ENGINE THAT ARE MARKED (LASER OR PUNCHING) UNTIL TODAY WITH LOGO OR WRITTEN "IAME"**

I A M E

*or*

**IAME**

**NOW COULD BE MARKED WITH NEW LOGO "IAME"**

i a m e

*or*

ⓐ i a m e

*or*

ⓐ



**CARBURETTOR - Tillotson HW-33A**



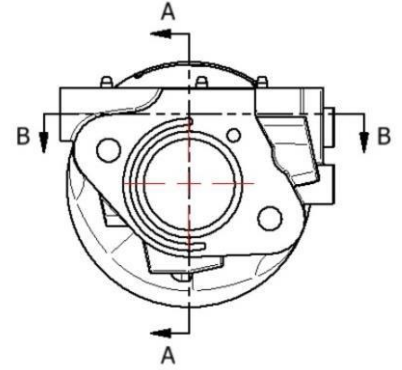
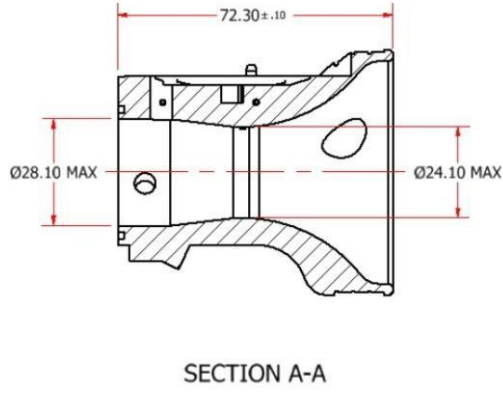
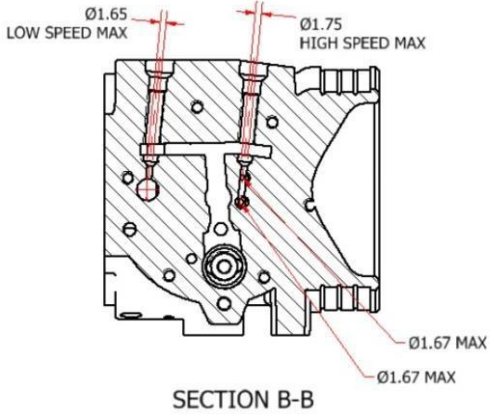
*PHOTO OF ADJUSTING SIDE*



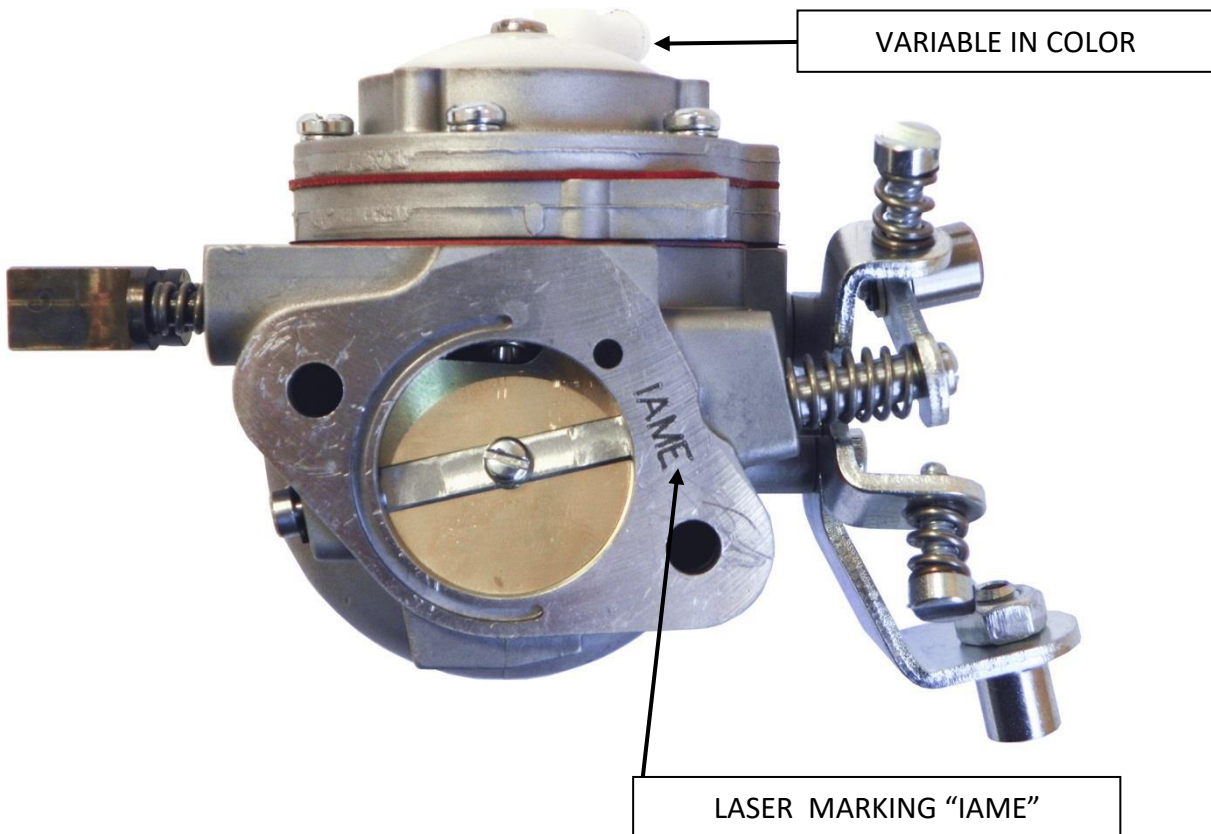
*PHOTO OF INLET SIDE*

Manufacturer	<b>TILLOTSON LTD.</b>
Make	<b>TILLOTSON</b>
Model	<b>HW-33A</b>

SECTION VIEW

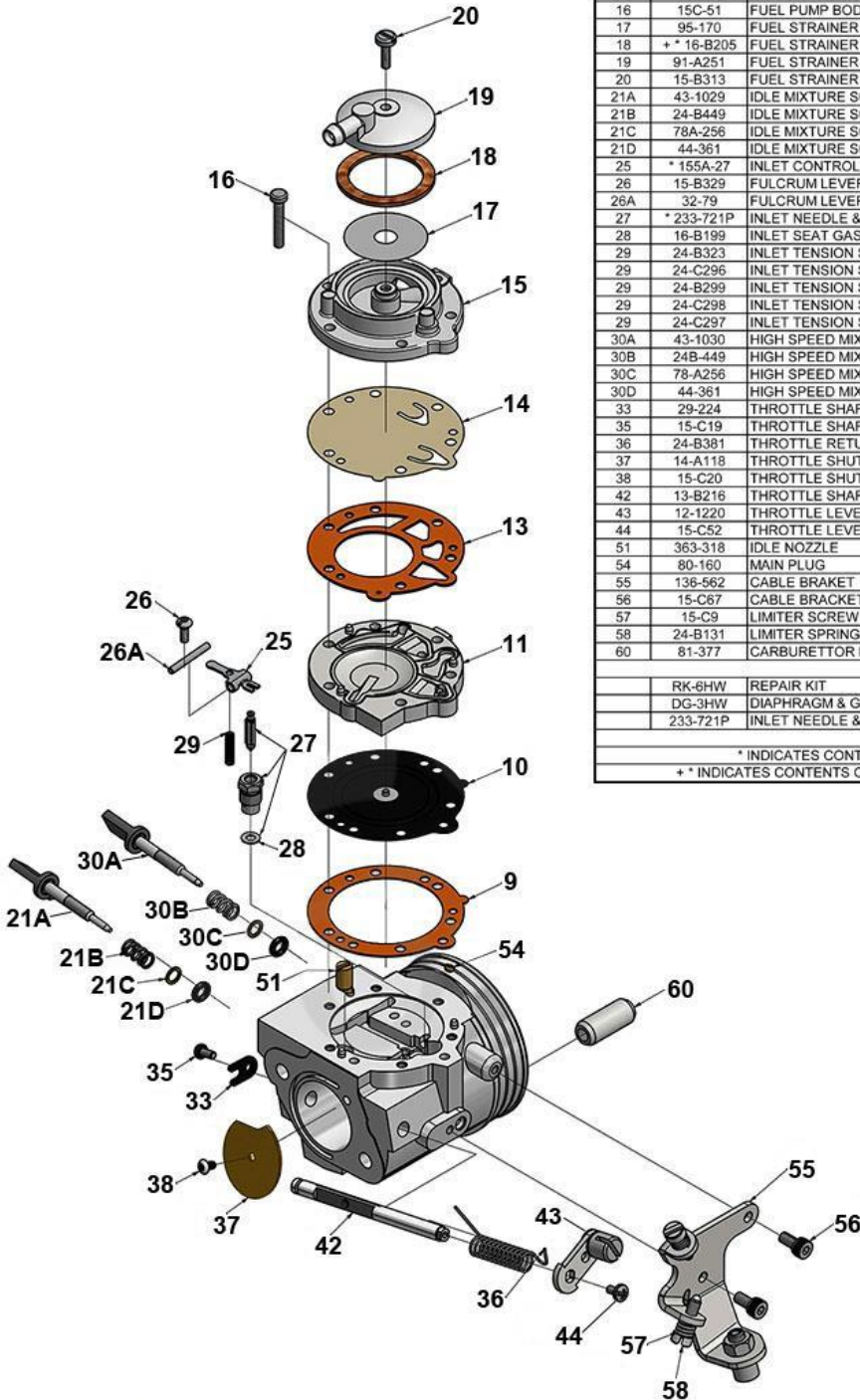


MARKING



## CARBURETTOR DESCRIPTION AND SKETCH OF PARTS

HW-33A



HW-33A CARBURETTOR PARTS LIST			
ITEM	PART NO:	DESCRIPTION	QTY
9	+ * 16-B406	DIAPHRAGM GASKET	1
10	+ * 237-600	DIAPHRAGM	1
11	91A-275	DIAPHRAGM COVER	1
13	+ * 16-B407	FUEL PUMP GASKET	1
14	+ * 237-162	FUEL PUMP DIAPHRAGM	1
15	141-89	FUEL PUMP BODY	1
16	15C-51	FUEL PUMP BODY SCREW	6
17	95-170	FUEL STRAINER SCREEN	1
18	+ * 16-B205	FUEL STRAINER COVER GASKET	1
19	91-A251	FUEL STRAINER COVER	1
20	15-B313	FUEL STRAINER COVER RETAINING SCREW	1
21A	43-1029	IDLE MIXTURE SCREW	1
21B	24-B449	IDLE MIXTURE SCREW SPRING	1
21C	78A-256	IDLE MIXTURE SCREW WASHER	1
21D	44-361	IDLE MIXTURE SCREW PACKING	1
25	* 155A-27	INLET CONTROL LEVER	1
26	15-B329	FULCRUM LEVER SCREW	1
26A	32-79	FULCRUM LEVER PIN	1
27	* 233-721P	INLET NEEDLE & SEAT SET	1
28	16-B199	INLET SEAT GASKET	1
29	24-B323	INLET TENSION SPRING 26G	OPTION
29	24-C296	INLET TENSION SPRING 31G	OPTION
29	24-B299	INLET TENSION SPRING 37G	1
29	24-C298	INLET TENSION SPRING 42G	OPTION
29	24-C297	INLET TENSION SPRING 46G	OPTION
30A	43-1030	HIGH SPEED MIXTURE SCREW	1
30B	24B-449	HIGH SPEED MIXTURE SCREW SPRING	1
30C	78-A256	HIGH SPEED MIXTURE SCREW WASHER	1
30D	44-361	HIGH SPEED MIXTURE SCREW PACKING	1
33	29-224	THROTTLE SHAFT CLIP	1
35	15-C19	THROTTLE SHAFT CLIP RETAINING SCREW	1
36	24-B381	THROTTLE RETURN SPRING	1
37	14-A118	THROTTLE SHUTTER	1
38	15-C20	THROTTLE SHUTTER SCREW	1
42	13-B216	THROTTLE SHAFT	1
43	12-1220	THROTTLE LEVER ASSEMBLY	1
44	15-C52	THROTTLE LEVER RETAINING SCREW	1
51	363-318	IDLE NOZZLE	1
54	80-160	MAIN PLUG	2
55	138-562	CABLE BRACKET	1
56	15-C67	CABLE BRACKET RETAINING SCREW	2
57	15-C9	LIMITER SCREW	2
58	24-B131	LIMITER SPRING	2
60	81-377	CARBURETTOR MOUNTING NUT	2
RK-6HW REPAIR KIT			
DG-3HW DIAPHRAGM & GASKET			
233-721P INLET NEEDLE & SEAT SET			
* INDICATES CONTENTS OF REPAIR KIT			
+ * INDICATES CONTENTS OF DIAPHRAGM & GASKET SET			

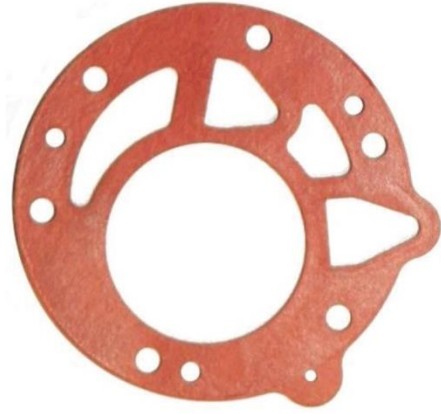
**PARTS OF CARBURETTOR**

REF.9 - P. N°16-B406  
 DIAPHRAGM GASKET (ORANGE COLOR)



Thickness =  $0.5 \pm 0.1$  mm

REF.13 - P. N° 16-B407  
 PUMP DIAPHRAGM GASKET (ORANGE COLOR)



Thickness =  $0.8 \pm 0.1$  mm

REF.10 - P. N°237-600  
 DIAPHRAGM



Thickness =  $0.13 \pm 0.07$  mm

REF.14 - P. N°237-162  
 PUMP DIAPHRAGM

ALTERNATIVE



Thickness =  $0.10 \pm 0.063$  mm

REF.11 - P. N° 91-A275  
 DIAPHRAGM COVER

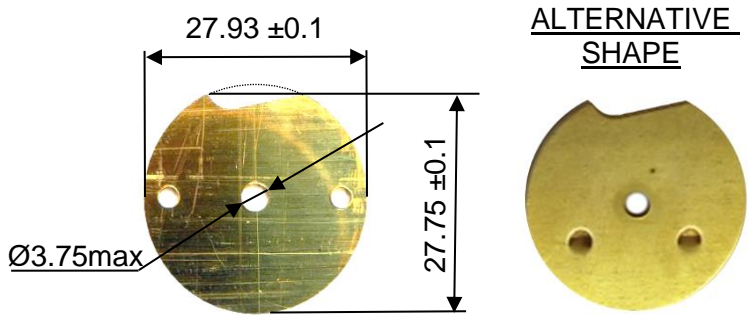
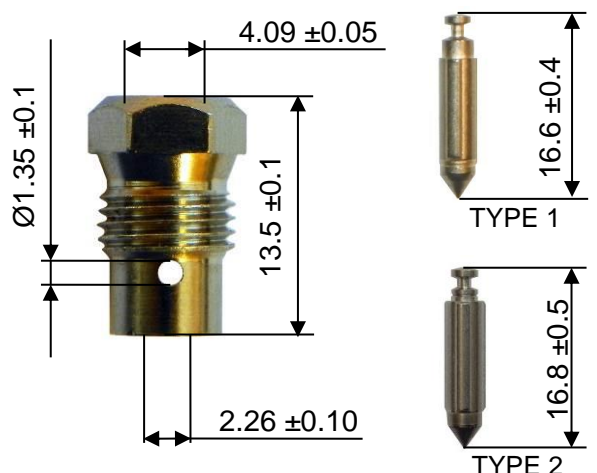
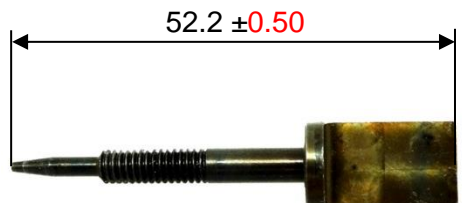
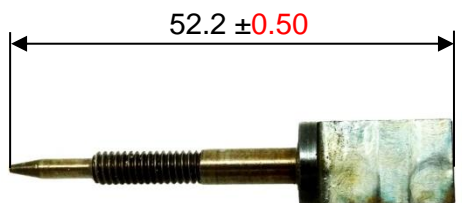

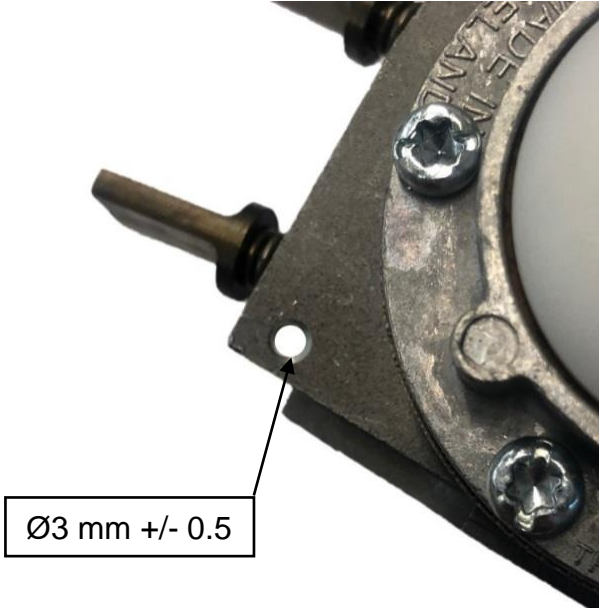


Thickness =  $6.75 \pm 0.15$  mm

REF.15 - P. N° 141-89  
 PUMP COVER



Thickness =  $12.5 \pm 0.15$  mm

<p>REF.37 - P. N° 14-A118 THROTTLE SHUTTER</p>  <p>Thickness = 0.84 ±0.1 mm</p>	<p>REF.27 - P. N° 233-721P SEAT + NEEDLE</p> 
<p>REF.21A - P. N° 43-1029 NEEDLE LOW SPEED</p> 	<p>REF.30A - P. N° 43-1030 NEEDLE HIGH SPEED</p> 
<p>IAME IDENTIFICATION MARKING</p>	<p>OPTIONAL HOLE FOR SEALING TAG</p>
 <p>IDENTIFICATION MARK "KA100"</p>	 <p>Ø3 mm +/- 0.5</p>



**CARBURETTOR**  
**Tillotson HL-398A**



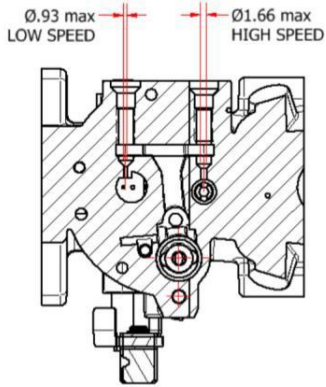
PHOTO OF ADJUSTING SIDE



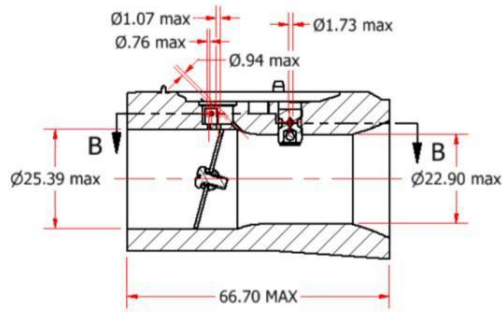
PHOTO OF INLET SIDE

Manufacturer	<b>TILLOTSON LTD.</b>
Make	<b>TILLOTSON</b>
Model	<b>HL-398A</b>

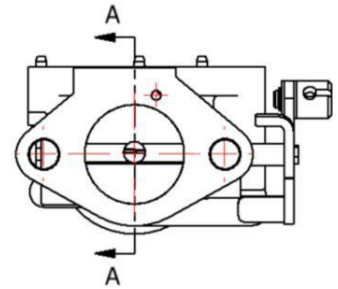
SECTION VIEW



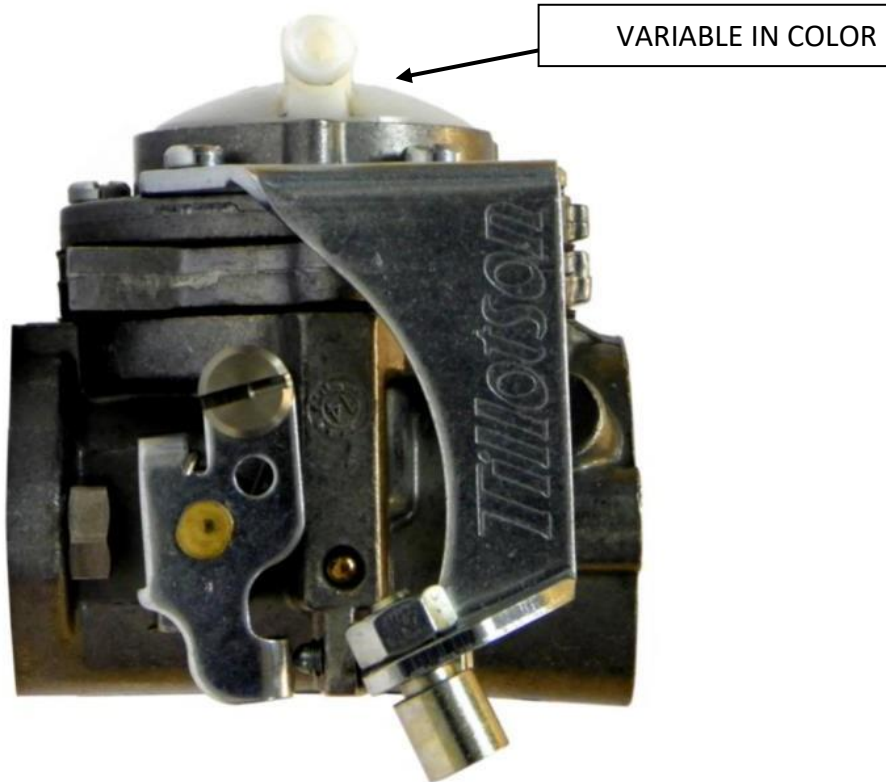
SECTION B-B



SECTION A-A



CABLE BRACKET



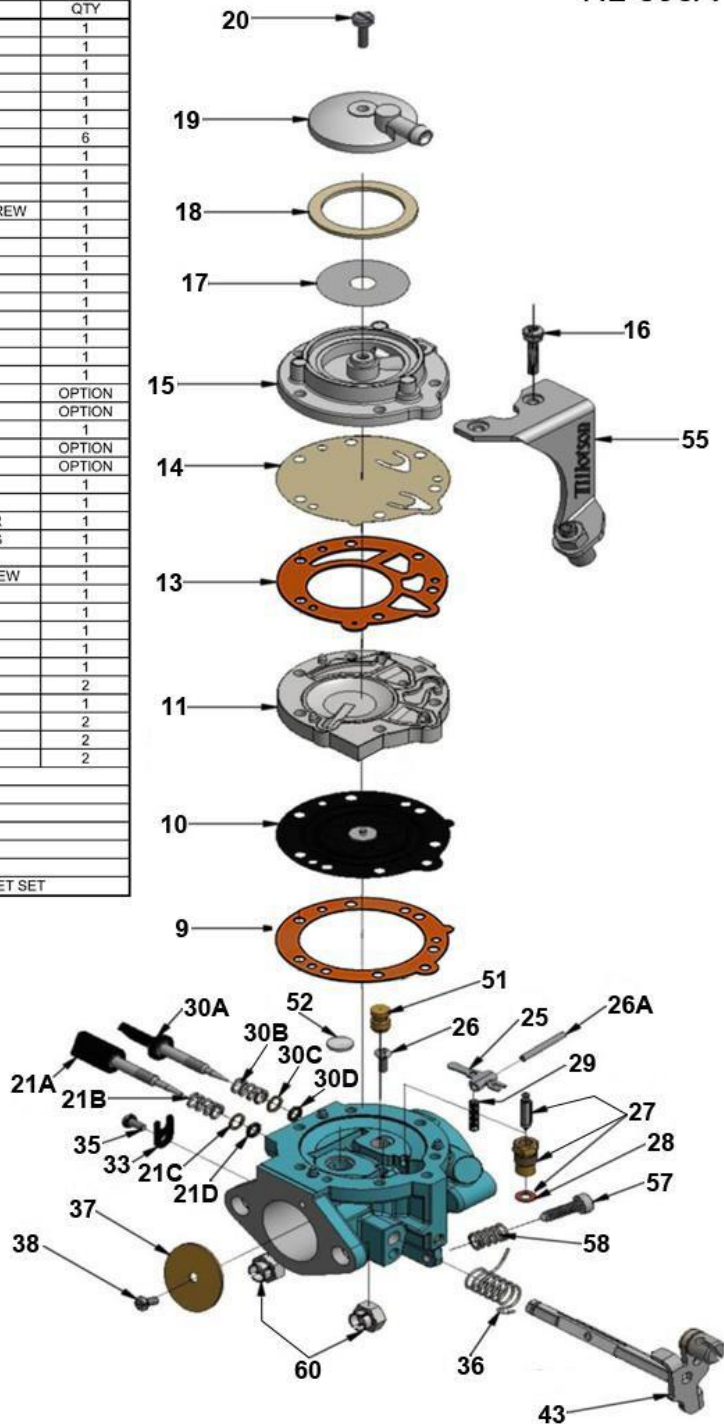


## CARBURETTOR DESCRIPTION AND SKETCH OF PARTS

HL-398A CARBURETTOR PARTS LIST			
ITEM	PART NO.	DESCRIPTION	QTY
9	+ * 16-B406	DIAPHRAGM GASKET	1
10	+ * 237-600	DIAPHRAGM	1
11	91A-275	DIAPHRAGM COVER	1
13	+ * 16-B407	FUEL PUMP GASKET	1
14	+ * 237-162	FUEL PUMP DIAPHRAGM	1
15	141-89	FUEL PUMP BODY	1
16	15C-51	FUEL PUMP BODY SCREW	6
17	95-170	FUEL STRAINER SCREEN	1
18	+ * 16-B205	FUEL STRAINER COVER GASKET	1
19	91-A251	FUEL STRAINER COVER	1
20	15-B313	FUEL STRAINER COVER RETAINING SCREW	1
21A	43-1039	IDLE MIXTURE SCREW	1
21B	24-B449	IDLE MIXTURE SCREW SPRING	1
21C	78A-256	IDLE MIXTURE SCREW WASHER	1
21D	44-270	IDLE MIXTURE SCREW PACKING	1
25	+ * 155A-27	INLET CONTROL LEVER	1
26	15-B329	FULCRUM LEVER SCREW	1
26A	32-79	FULCRUM LEVER PIN	1
27	+ * 233-721P	INLET NEEDLE & SEAT SET	1
28	16-B199	INLET SEAT GASKET	1
29	24-B323	INLET TENSION SPRING 26G	OPTION
29	24-C296	INLET TENSION SPRING 31G	OPTION
29	24-B299	INLET TENSION SPRING 37G	1
29	24-C298	INLET TENSION SPRING 42G	OPTION
29	24-C297	INLET TENSION SPRING 46G	OPTION
30A	43-1038	HIGH SPEED MIXTURE SCREW	1
30B	24B-449	HIGH SPEED MIXTURE SCREW SPRING	1
30C	78-A256	HIGH SPEED MIXTURE SCREW WASHER	1
30D	44-270	HIGH SPEED MIXTURE SCREW PACKING	1
33	29-224	THROTTLE SHAFT CLIP	1
35	15-C19	THROTTLE SHAFT CLIP RETAINING SCREW	1
36	24-B381	THROTTLE RETURN SPRING	1
37	14-407	THROTTLE SHUTTER	1
38	15-C29	THROTTLE SHUTTER SCREW	1
43	13-2158	THROTTLE SHAFT ASSEMBLY	1
51	363-503	MAIN NOZZLE	1
54	179-55	WELCH PLUG	2
55	136-565	CABLE BRAKET	1
57	15-C9	LIMITER SCREW	2
58	24-B131	LIMITER SPRING	2
60	81-380	CARBURETTOR MOUNTING NUT	2
	RK-6HW	REPAIR KIT	
	DG-3HW	DIAPHRAGM & GASKET	
	233-721P	INLET NEEDLE & SEAT SET	

\* INDICATES CONTENTS OF REPAIR KIT  
 + \* INDICATES CONTENTS OF DIAPHRAGM & GASKET SET

HL-398A



Clash Industrial Estate - Tralee - Ireland  
[www.tillotson-racing.com](http://www.tillotson-racing.com)

**PARTS OF CARBURETTOR**

REF.9 - P. N°16-B406  
DIAPHRAGM GASKET (ORANGE COLOR)



Thickness =  $0.5 \pm 0.1$  mm

REF.13 - P. N° 16-B407  
PUMP DIAPHRAGM GASKET (ORANGE COLOR)



Thickness =  $0.8 \pm 0.1$  mm

REF.10 - P. N°237-600  
DIAPHRAGM



Thickness =  $0.13 \pm 0.07$  mm

REF.14 - P. N°237-162  
PUMP DIAPHRAGM

ALTERNATIVE



Thickness =  $0.10 \pm 0.063$  mm

REF.11 - P. N° 91-A275  
DIAPHRAGM COVER

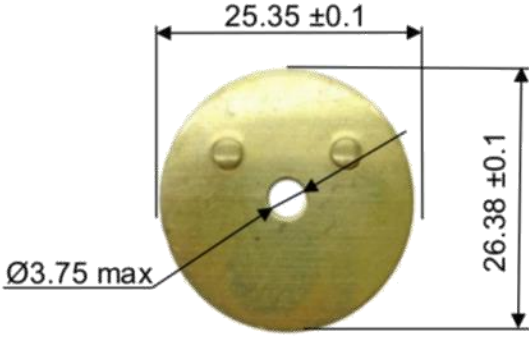
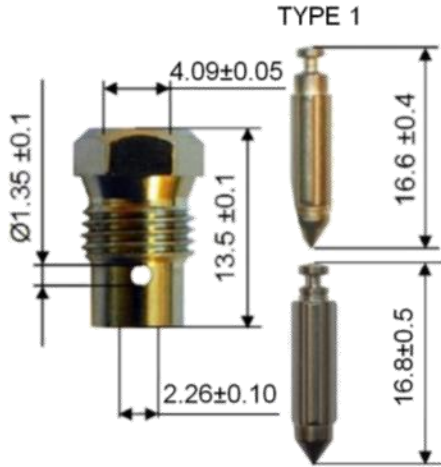

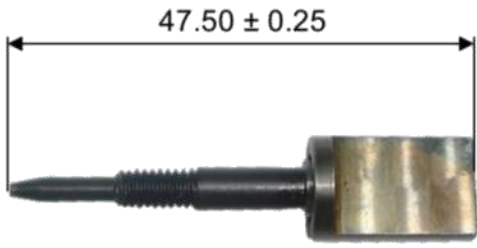
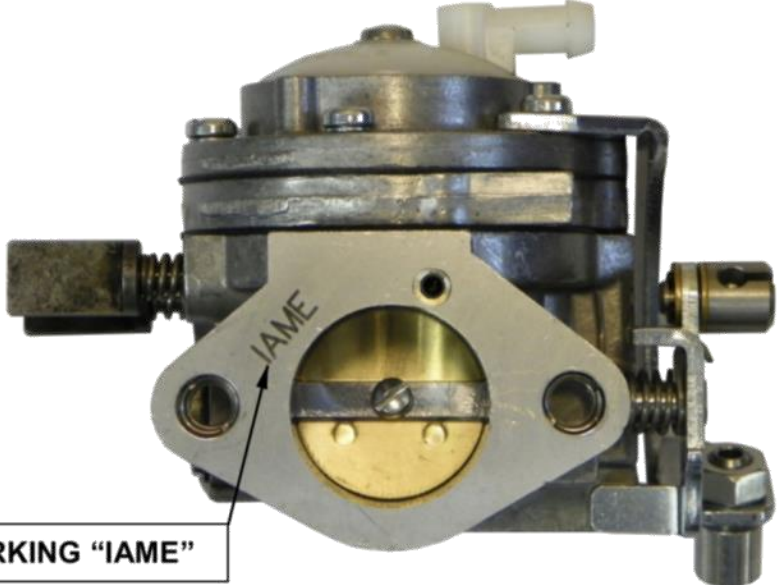


Thickness =  $6.75 \pm 0.15$  mm

REF.15 - P. N° 141-89  
PUMP COVER



Thickness =  $12.5 \pm 0.15$  mm

<p><b>REF.37 - P. N° 14-407 THROTTLE SHUTTER</b></p>  <p>Thickness = 0.81 ± 0.1 mm</p>	<p><b>REF.27 - P. N° 233-721P SEAT + NEEDLE</b></p> 
<p><b>REF.21A - P. N° 43-1039 NEEDLE LOW SPEED</b></p> 	<p><b>REF.30A - P. N° 43-1038 NEEDLE HIGH SPEED</b></p> 
<p style="text-align: center;">MARKING</p>	
 <p><b>LASER MARKING "IAME"</b></p>	

## Appendix to the IAME KA100 Reedjet Homologation Documents

The following notes are additional to the details contained in these homologation documents for the IAME KA100 Reedjet engine (the “Engine”) and are to be read in conjunction with the specifications and details contained therein; they form part of the Homologation Documents for the Engine.

The Engine must at all times be used and presented in strict conformity with the specifications detailed in the homologation documents. All engines must be imported into Australia by Remo Racing Pty Ltd; engine numbers will be recorded. **Unless otherwise expressly permitted by KNSW, the Engine must use only IAME OEM parts in accordance with this Homologation Document.**

Neither the Engine nor any of its ancillary components may be modified other than in accordance with the rules and these homologation documents. Any removal, addition or polishing of material is strictly forbidden. Sandblasting, glass bead blasting, peening, acid etching, spark eroding and/or any other method of metal removal or displacement is not allowed.

The use of thermal barrier coatings/ceramic coatings on or in the Engine/Engine components and on or in exhaust components is prohibited. The use of anti-friction coatings on or in the Engine/Engine components is prohibited. OEM pistons are exempt.

### **UNLESS THE KNSW RULES AND/OR THESE HOMOLOGATION DOCUMENTS SAY THAT YOU CAN, THEN YOU CANNOT.**

#### **A. Base Gaskets**

1. Only genuine IAME base gaskets are permitted.
2. The base gasket/gaskets must have a combined measurement of a minimum of 0.25mm and a maximum of 0.45mm. More than 1 base gasket can be used.

#### **B. Cylinder Head**

1. No material is to be added except for the purpose of spark plug thread repair.
2. The distance from the spark plug sealing face to combustion chamber ceiling face: 29.5mm+/- 0.25mm.
3. The combustion chamber volume shall be a minimum of 9.2cc using the KA Type 1 CC plug.
4. The combustion chamber volume in the cylinder head (with Volumeter and KA Type 1 CC plug): 11.3-cm<sup>3</sup> min.
5. Cylinder head profile must not vary from the original profile and will be checked with the IAME Cylinder Head Profile Gauge (part number ATT-063/1).

#### **C. Head Gasket**

1. If cylinder head gasket/gaskets are fitted, the maximum thickness of any gasket or combination of gaskets is 0.25mm.

#### **D. Squish Gap**

1. The cylinder head squish clearance must be a minimum of 1.05mm.
2. It shall be measured using digital verniers and 2mm solder wire (tin).
  - a) When inserted in the cylinder, the engine shall be rotated only once until the solder is squeezed between the head and piston crown.
  - b) Measure the thickness of the flat section closest to the step formed by the piston ring using the thin tip of the caliper jaws.
  - c) This process must be conducted on both the right and left hand side of the engine in parallel alignment with the gudgeon pin.
3. The average measurement obtained from both tests detailed in points 2 a) and b) above must be a minimum of 1.05mm.

#### **E. Crankshaft**

1. It is permissible to hard chrome the crankshaft in the areas highlighted in the homologation documents to restore the surface to original factory specification.

**F. Carburettor**

1. The carburettor throttle cannot be actuated by electro mechanical means.
2. The only permitted carburettor kits are the Tillotson DG-3HW and RK-6HW carburettor kits.
3. All spare parts for the Tillotson Carburettor are to be genuine Tillotson parts.
4. The entry point to the pulse hole on the back of the HL-398HL carburettor is a non-tech item.
  - a) The pulse hole itself, apart for the entry point (which may only be adjusted in accordance with point 4b herein) must be maintained as per its original diameter.
  - b) Modification to allow better alignment, such as hand chamfering, drill point chamfering, deburring cutter, end milling, or the permanent re-alignment is permitted.
5. It is permissible to bend the carburettor inlet lever to alter the lever height.
6. It is permitted to mount the carburettor (both the HW33A and the HL-398A) either top side up or upside down to provide easier access to the jets for the Driver.
7. Adjustment of carburettor jet needles must only be done by manually turning the jet needle (or its extension).
  - a) It is permitted to fit a second O-Ring on the jet needles to prevent rotation due to vibrations.
  - b) It is permitted to fit a pin or screw to the flat portion of the high jet handle for easier identification. The pin/screw may be fitted parallel or perpendicular in respect to the plane of the jet handle as shown in the following examples:



A. Offset pin perpendicular to Jet handle



B. Centred pin perpendicular to Jet handle

8. The protrusion on the carburettor top plates may be removed to allow more secure fitment of the airbox rubber as pictured:



A. Top plate showing protrusion



B. Top plate with protrusion removed

**G. Induction Silencer**

1. Must display the "IAME" markings and may be of any colour.
2. The only permissible rain/dust/dirt guard allowed to be attached to the induction silencer is the genuine IAME rain/dust/dirt guard.
3. It is permissible to drill a maximum 5mm water drain hole in the bottom of the IAME induction silencer.
4. Use of the IAME OEM sponge filter in the inlet silencer is compulsory; both the green and red IAME sponge filters are permitted for use.
5. The external part of the mounting rubber for the airbox may be modified by the removal of a small amount of material in a curved shape; or a notch sufficient to allow clearance for the notched protrusion on the carburettor and provide a more secure fitment of the rubber to the carburettor as pictured:



a) Unmodified Rubber



b) Curve shaped cut



c) Notch cut out



d) Example of fitment

## H. Ignition

1. Repair of the wiring loom is permitted.
2. The plastic fittings homologated as components of the electrical loom for the ignition and starter assembly are allowed to be replaced with non-genuine fittings.
3. High tension lead retaining spring may be removed.
4. The woodruff ignition rotor key must be retained and may not be modified.
5. The maximum allowable timing advance is 3.2mm. The timing marks on the rotor and the stator must fully align.
6. Spark plug "crush" washer may be removed only when using a head temperature sensor.
7. Spark plug cap must be of original manufacturer. Only the PVL 401 222 or the NGK TB05EMA or the Selettra "S" Spark Plug caps are permitted for use.



PVL 401 222 Spark Plug Cap

NGK TB05EMA Spark Plug Cap

Selettra "S" Spark Plug Cap

## I. Exhaust

1. Only IAME OEM exhaust gaskets are permitted to be used.
2. All exhaust gases must exit the exhaust system through the muffler end cap.
3. When a restrictor is fitted, all exhaust gases must pass through the internal hole of the restrictor.
4. A minimum of one (1) and maximum of two (2) exhaust gaskets are required to be properly fitted to the engine.
5. The mating surfaces between the cylinder/manifold and manifold/muffler must be sealed to prevent any leakage of exhaust gas. It is recommended that High Temperature RTV Silicone is applied between the surfaces to ensure that a gastight seal is created and maintained at all times.
6. An O2 probe/fitting is allowed to be fitted to the muffler as per the diagram in the homologation document. Both locations may have a fitting installed simultaneously but only one (1) may be fitted with an O2 probe. Fittings without a sensor installed must be sealed with a blanking plug.

## J. Oil Seal

1. It is permitted to place a small notch into the oil seal (as shown photo 2 below) to allow a more direct oil flow from the orifice in the crankcase.



**K. Clutch Guard**

1. The top rear of the Clutch Guard edge may be removed to a maximum of 25mm from the back edge of the original Clutch Cover to increase clearance for the chain as pictured. The modifications must be uniform, smooth and must not have any sharp edges.



Alternative 1



Alternative 2

**L. Non-Technical Items**

1. Unless otherwise specified, non-tech items are to be of the same specification as the original item.
2. No alteration from the original manufacturer's specifications is permitted to fit a non-tech item.
3. Non-tech items for the Engine include; spark plug, carburettor gasket between the carburettor and manifold, plastic fittings on the electrical looms for the ignition and starter assembly, battery and stop/start switches, carburettor locating sleeve and fastening nuts, carburettor inlet spring, high tension lead retaining spring.
4. Stickers' that may be removed when requested by the technical inspector are allowed on the engine or induction silencer.
5. Engraving, stamping a name or marking an engine to allow you to identify your engine is permitted. Any such engraving, stamping or marking must not partially or wholly obscure the essential homologation identification markings on the Engine and its ancillary components.

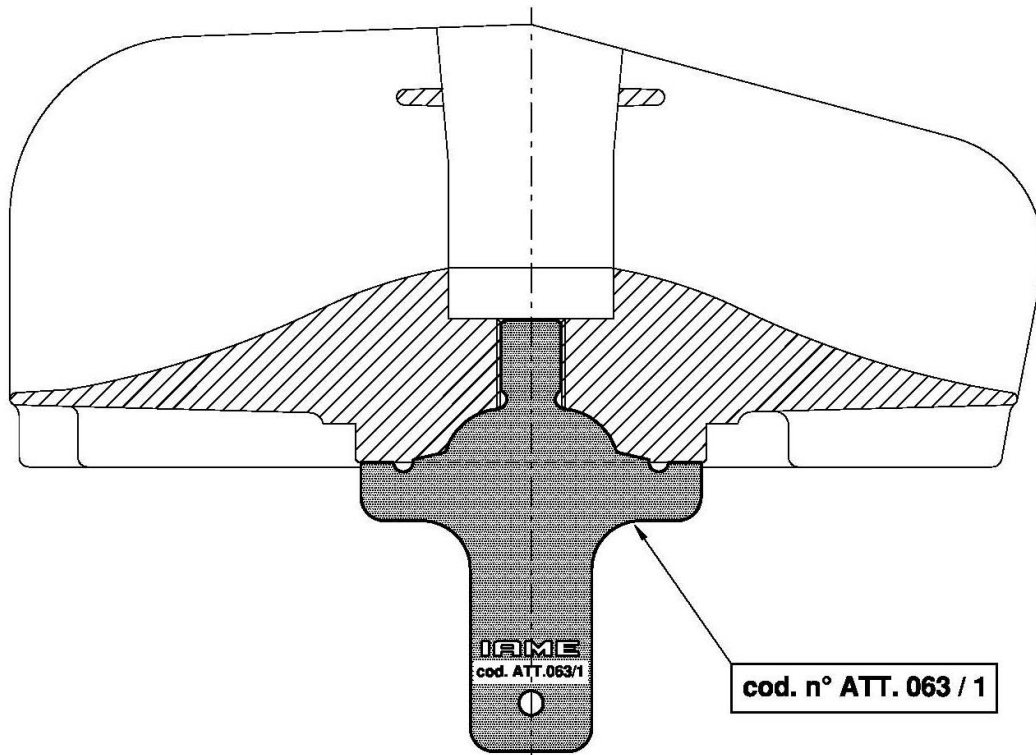
2024 Updates	
Section	Page
Measurement of crankshaft with roller bearings fitted	9
Alternative airbox outlet location	28
Alternative piston markings	30
Amalgamated reed specifications/photos	38
Increased tolerance on HW carby jet length	46
Spark plug "crush" washer removal circumstances	54

## LIST OF AVAILABLE CHECKING TOOLS

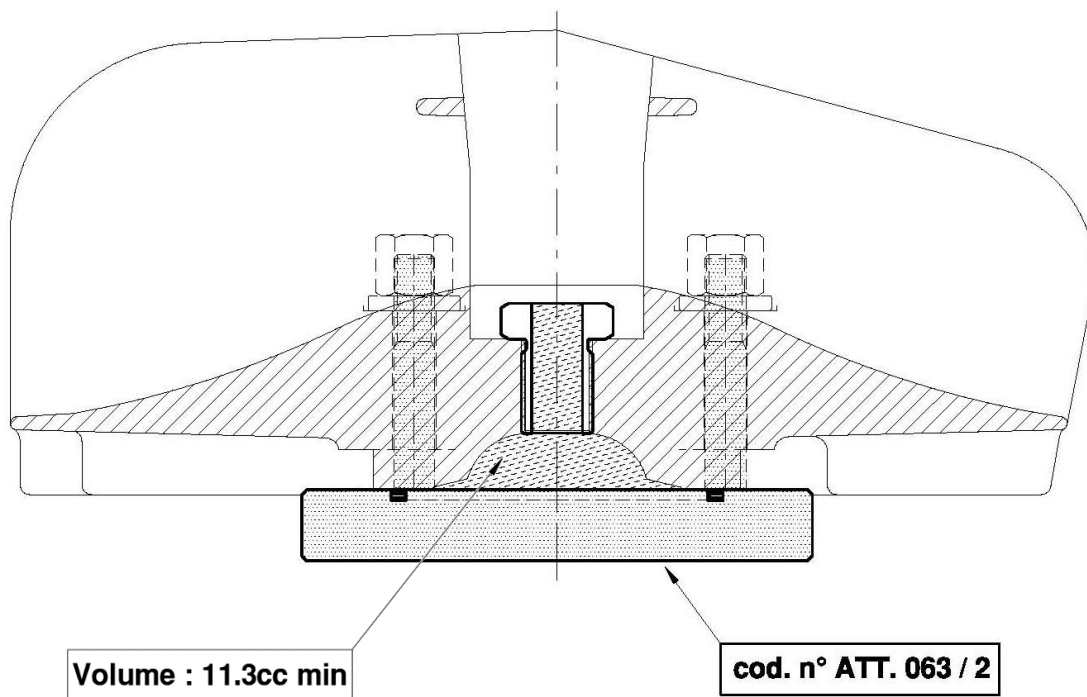
DESCRIPTION OF TEMPLATE	CODE
HEAD DOME SHAPE CONTROL TEMPLATE	ATT.063 / 1
HEAD VOLUME CONTROL TEMPLATE "VOLUMETER"	ATT.063 / 2
0,20mm THICKNESS GAUGE FOR TIMING CHECKING	10194
"NO GO" GAUGE CHECKING INLET, EXHAUST AND TRANSFERS WIDTH	ATT.063 / 3
DOME SHAPE AND PISTON HEIGHT CHECKING TEMPLATE	ATT.063 / 4
"NO GO" GAUGE CHECKING EXHAUST AND TRASFERS HEIGHT	ATT.063 / 5
SHAPE CONTROL TOOL FOR EXHAUST MANIFOLD,"NO GO" GAUGE RESTR. Ø19mm TYPE 1	ATT.063 / 6
SHAPE CONTROL TOOL FOR EXHAUST MANIFOLD,"NO GO" GAUGE RESTR. Ø19mm TYPE 2	ATT.063 / 7
SHAPE CONTROL TOOL FOR EXHAUST MANIFOLD "NO GO" GAUGE RESTR. Ø22mm TYPE 3	ATT.063-15
"NO GO" GAUGE FOR CLUTCH DRUM INNER DIAMETER CHECKING	ATT.047 / 4
"NO GO" GAUGE FOR CARBURETTOR HOLES DIAMETER HL398A	ATT.047 / 16
"NO GO" GAUGE FOR MAX DIAMETER VENTURI CARBURETTOR OUTLET HL398A	ATT.047 / 19
"NO GO" GAUGE FOR MAX DIAMETER VENTURI CARBURETTOR INLET HL398A	ATT.047 / 20
SHAPE CONTROL TOOL FOR CARBURETTOR INLET PROFILE HL398A	ATT.047 / 21
SHAPE CONTROL TOOL FOR CARBURETTOR INLET PROFILE HW-33A AND NO-GO OUTLET	ATT.063 / 8
"NO GO" GAUGE FOR MAX VENTURI CARBURETTOR HW-33A	ATT.063 / 9
"NO GO" GAUGE FOR CARBURETTOR HOLES DIAMETER HW-33A	ATT.047 / 5D
CHECKING TOOL ATOMIZER HEIGHT MINIMUM	ATT.063 / 13
CHECKING TOOL ATOMIZER HEIGHT MAXIMUM	ATT.063 / 14
TOOL FOR CHECKING ATOMIZER HOLES DIMENSIONS	ATT.063 / 19
IGNITION ROTOR MARKING POSITION TEMPLATE	ATT.063 / 10
CYLINDER DUCTS CONTROL TEMPLATE	ATT.063 / CL
REED VALVE PLANE CONTROL TEMPLATE	ATT.035 / 3A



## HEAD DOME PROFILE GAUGE

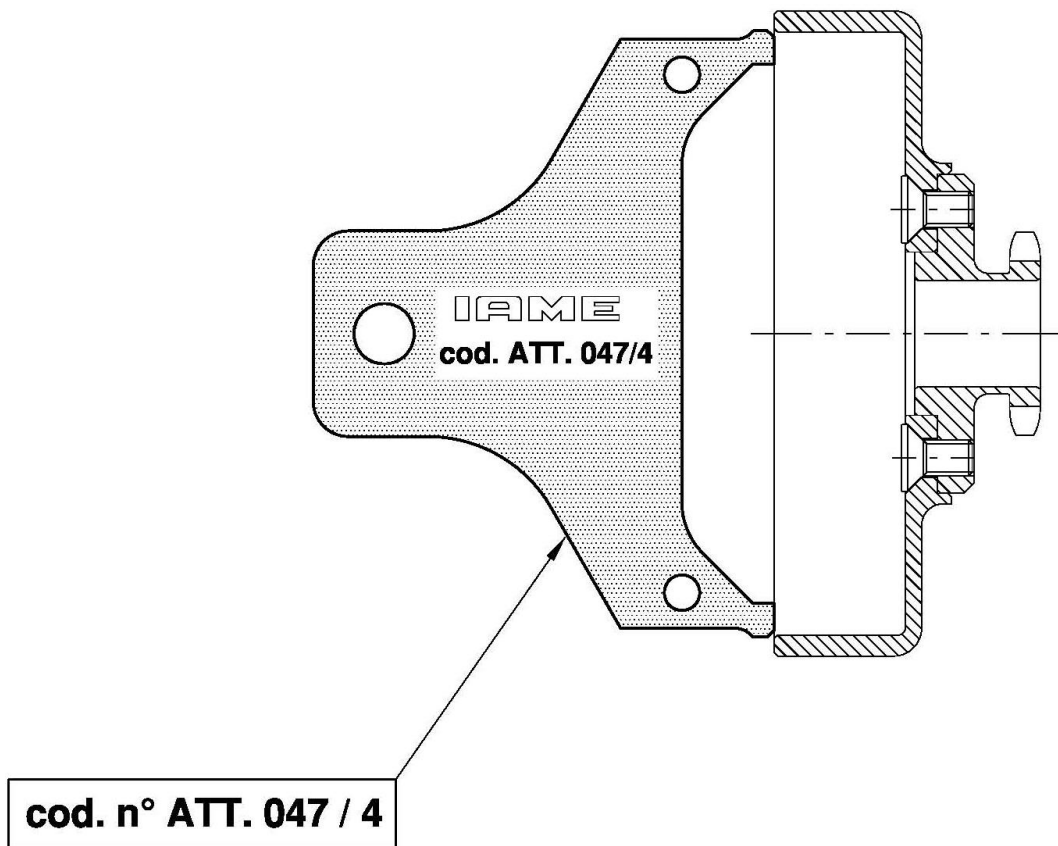


## HEAD VOLUME CHECKING TOOL



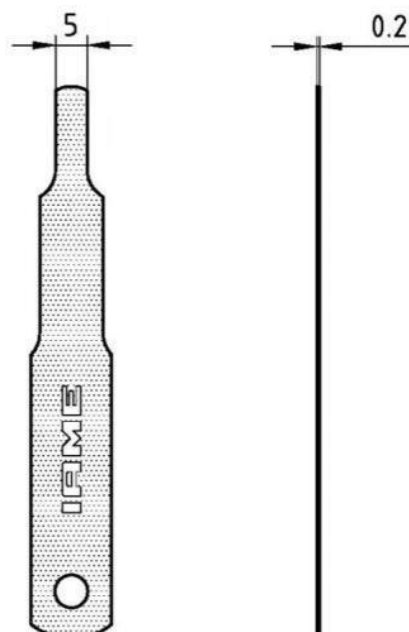
With Volumeter + insert

## CLUTCH DRUM “NO-GO” GAUGE



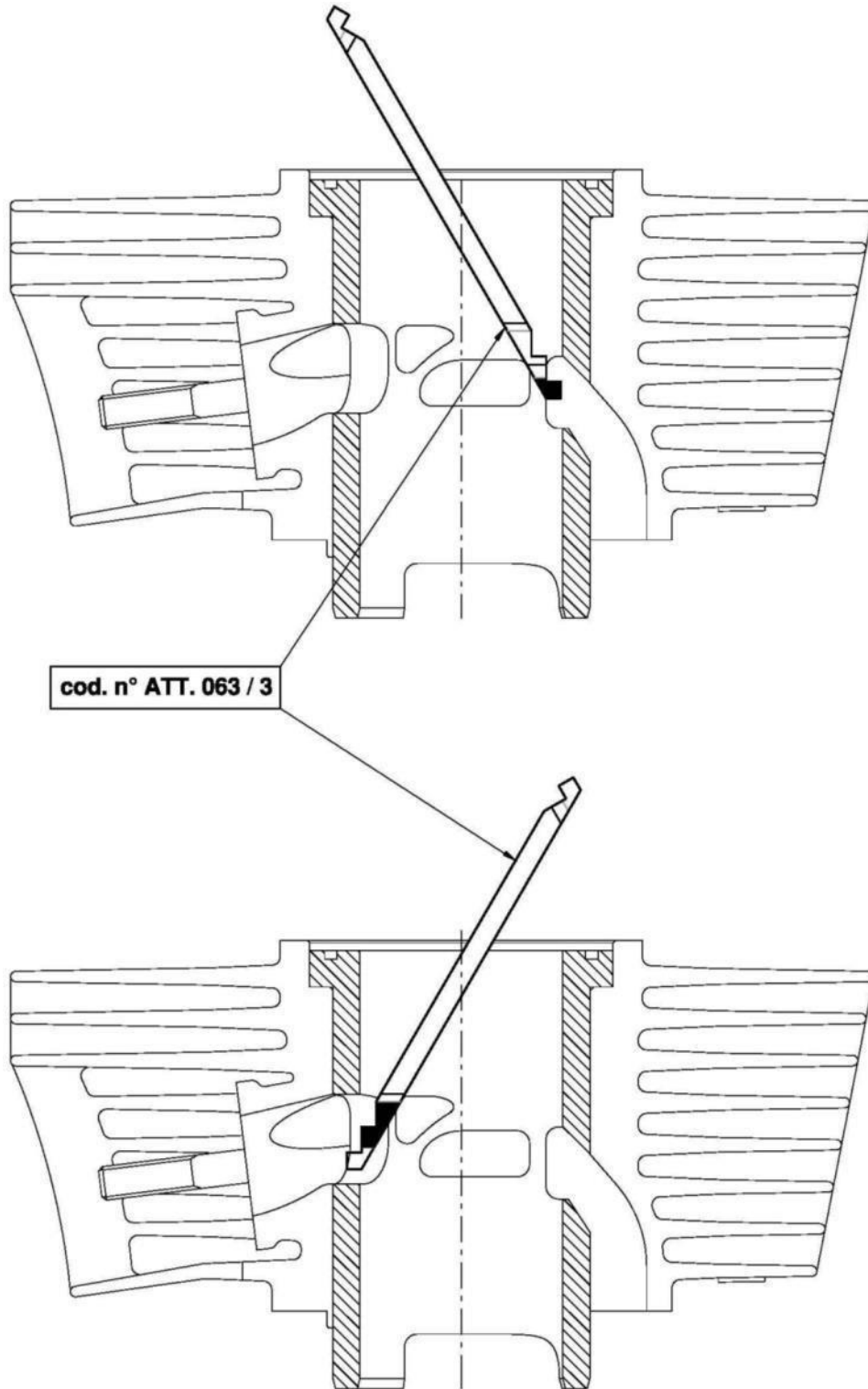
Check that the tool must not enter into the clutch drum in perpendicular position respect at the clutch drum axis.

## PORT TIMING GAUGE



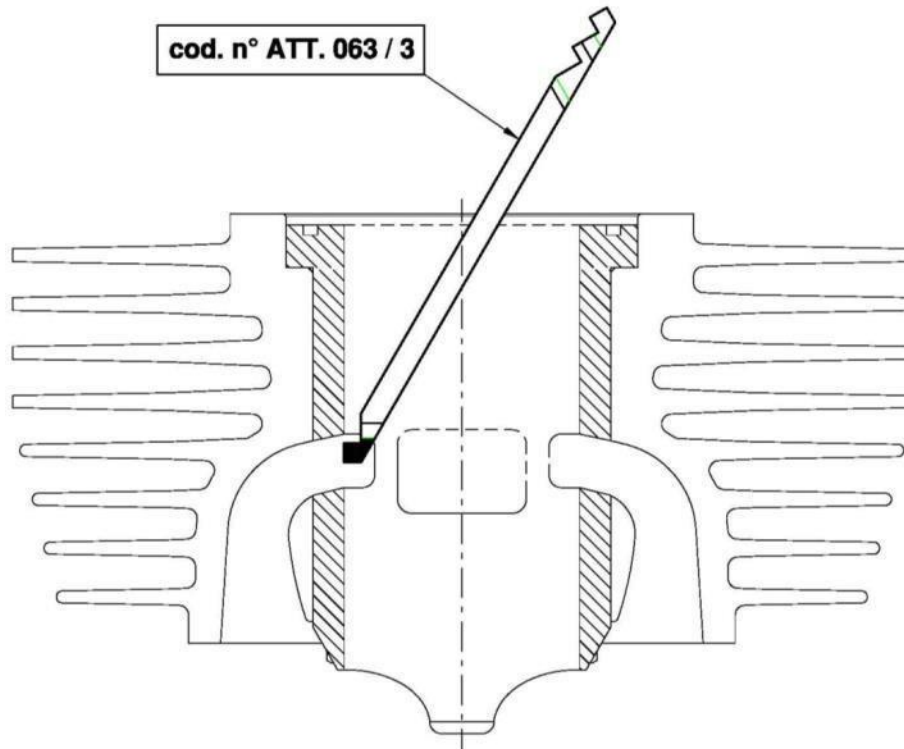
TOOL IAME Cod. 10194

**CYLINDER PORT WIDTH “NO-GO” GAUGE**



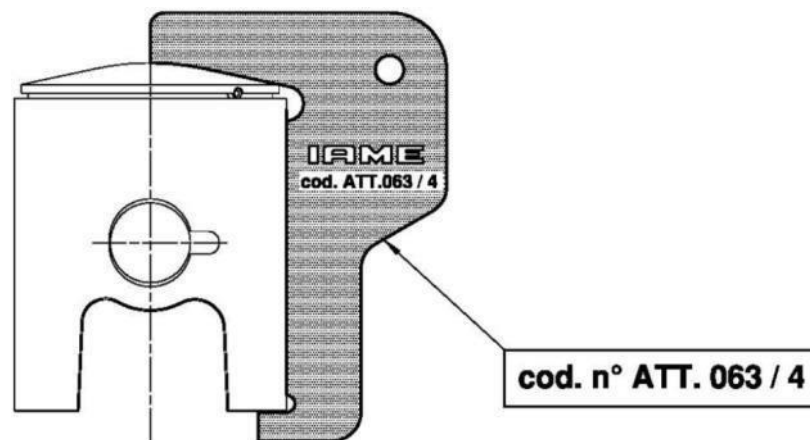
**Check that the tool must not enter into the 3<sup>rd</sup> Port and exhaust ports.**

## CYLINDER PORT WIDTH “NO-GO” GAUGE



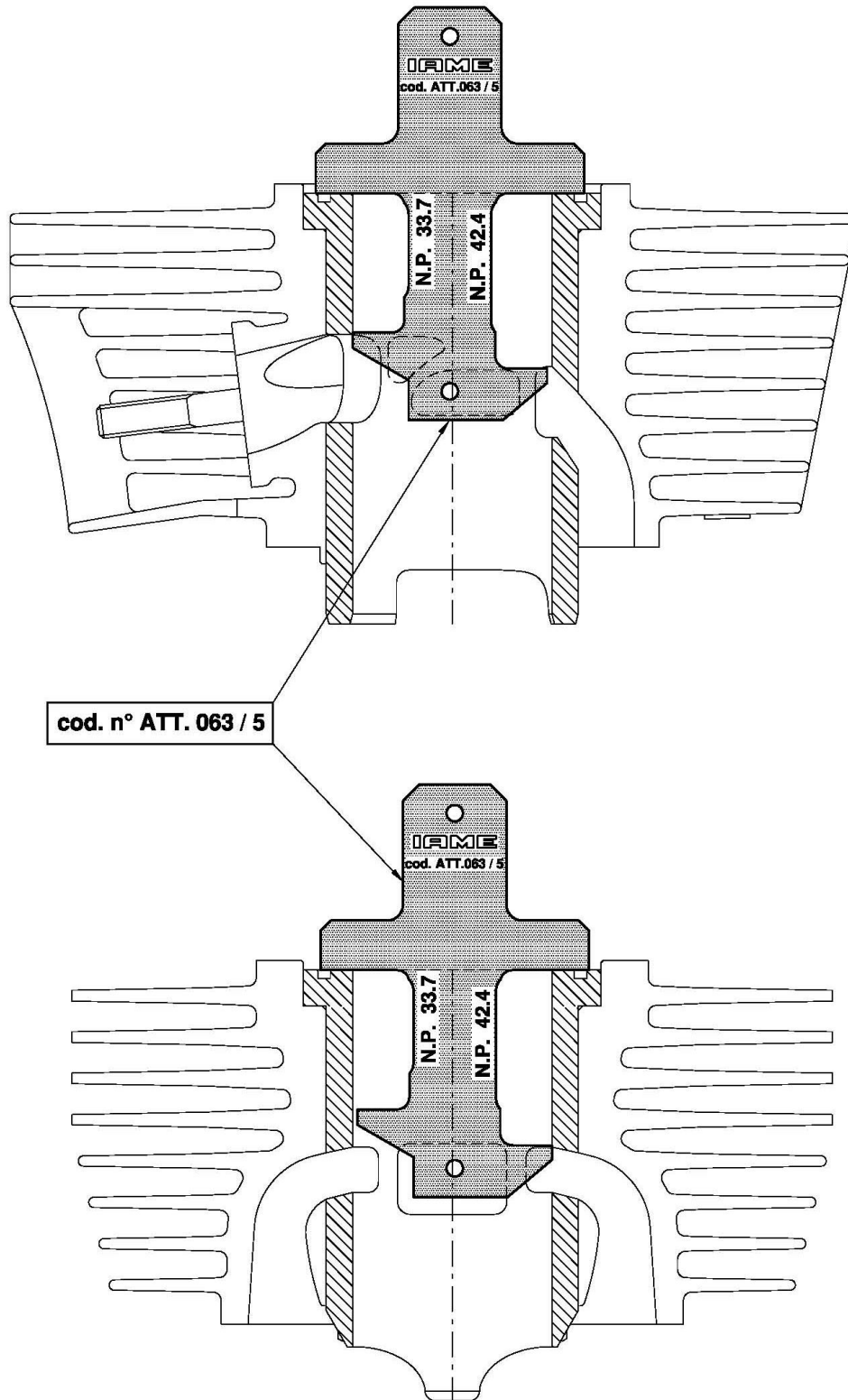
**Check that the tool must not enter into the transfers duct.**

## PISTON PROFILE & HEIGHT GAUGE



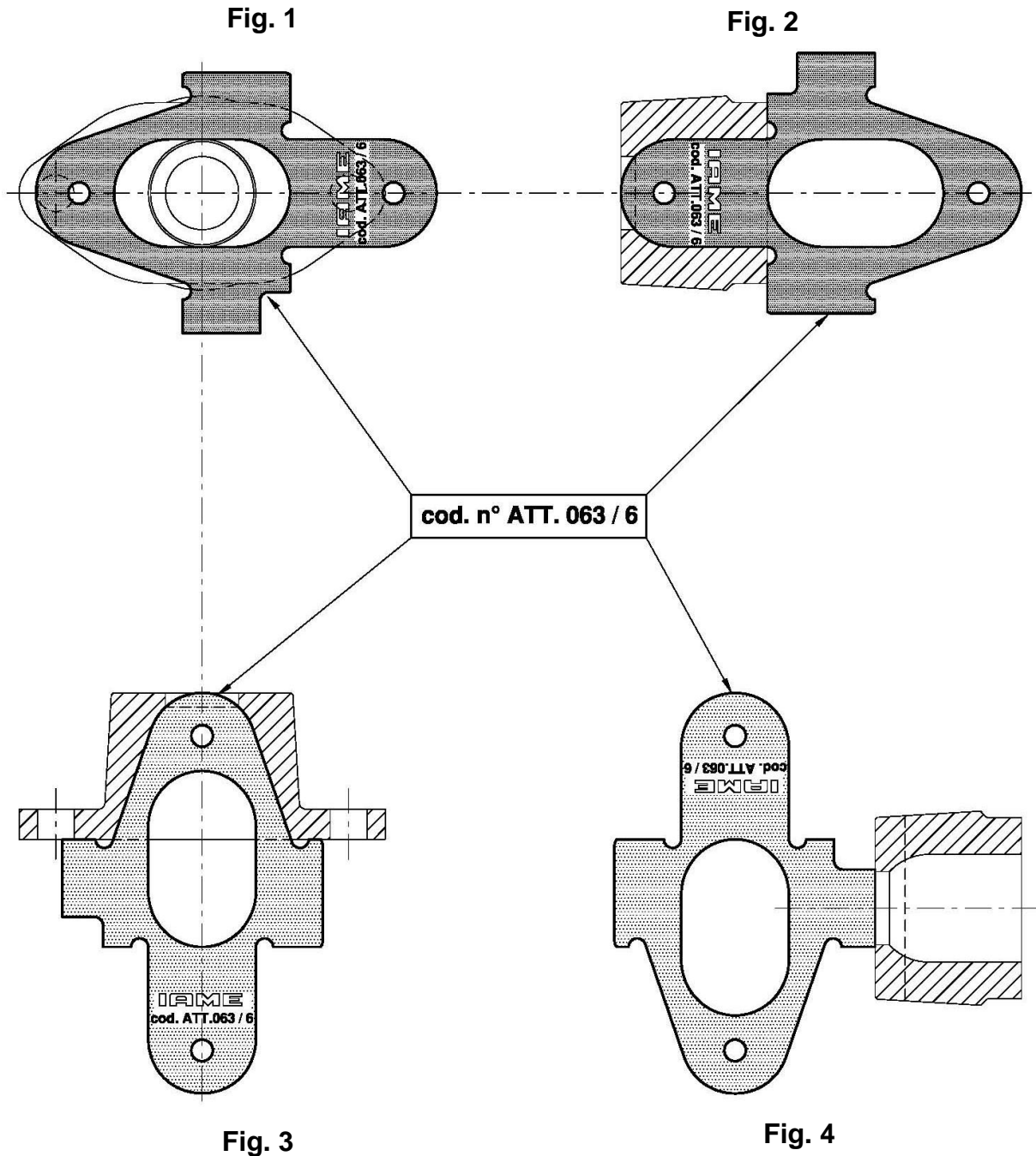
**Check that the tool must be the same shape and height of the piston.**

## CYLINDER PORT HEIGHT "NO-GO" GAUGE



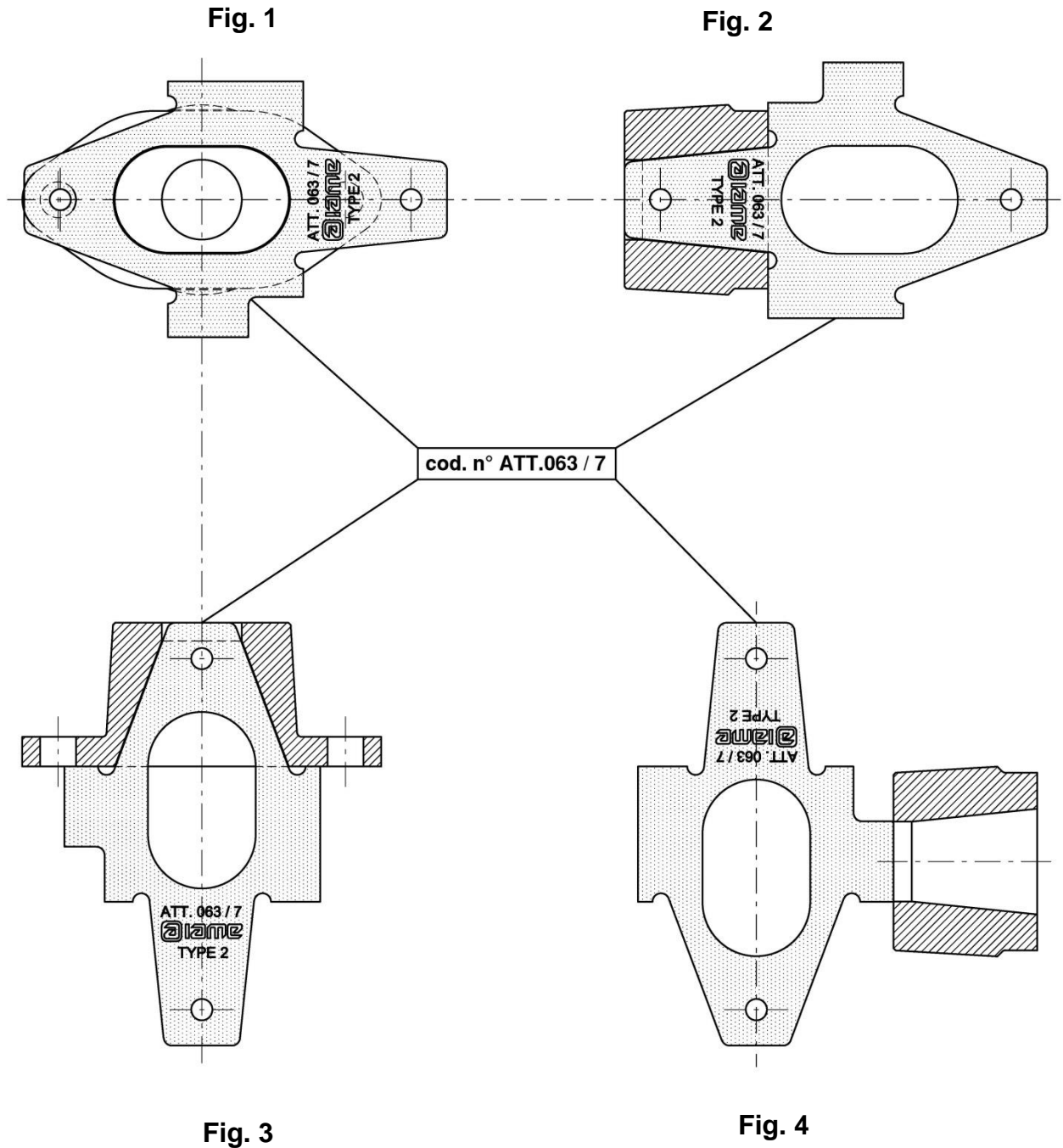
**Check that the tool must not enter into the inlet, transfers duct and exhaust ports.**

## 19mm TYPE 1 EXHAUST MANIFOLD SHAPE & “NO-GO” GAUGE



1. Check that the tool matches the shape of the exhaust manifold. (Fig. 1,2,3)
2. Check that the “no-go gauge” does not enter the exhaust restrictor. (Fig. 4)
3. Check that the tool does not protrude past the face of the manifold. (Fig. 2,3)

## **19mm TYPE 2 EXHAUST MANIFOLD SHAPE & “NO-GO” GAUGE**



- 1. Check that the tool matches the shape of the exhaust manifold. (Fig. 1,2,3)**
- 2. Check that the “no-go gauge” does not enter the exhaust restrictor. (Fig. 4)**
- 3. Check that the tool does not protrude past the face of the manifold. (Fig. 2,3)**

## 22mm TYPE 3 EXHAUST MANIFOLD SHAPE & “NO-GO” GAUGE

Fig. 1

Fig. 2

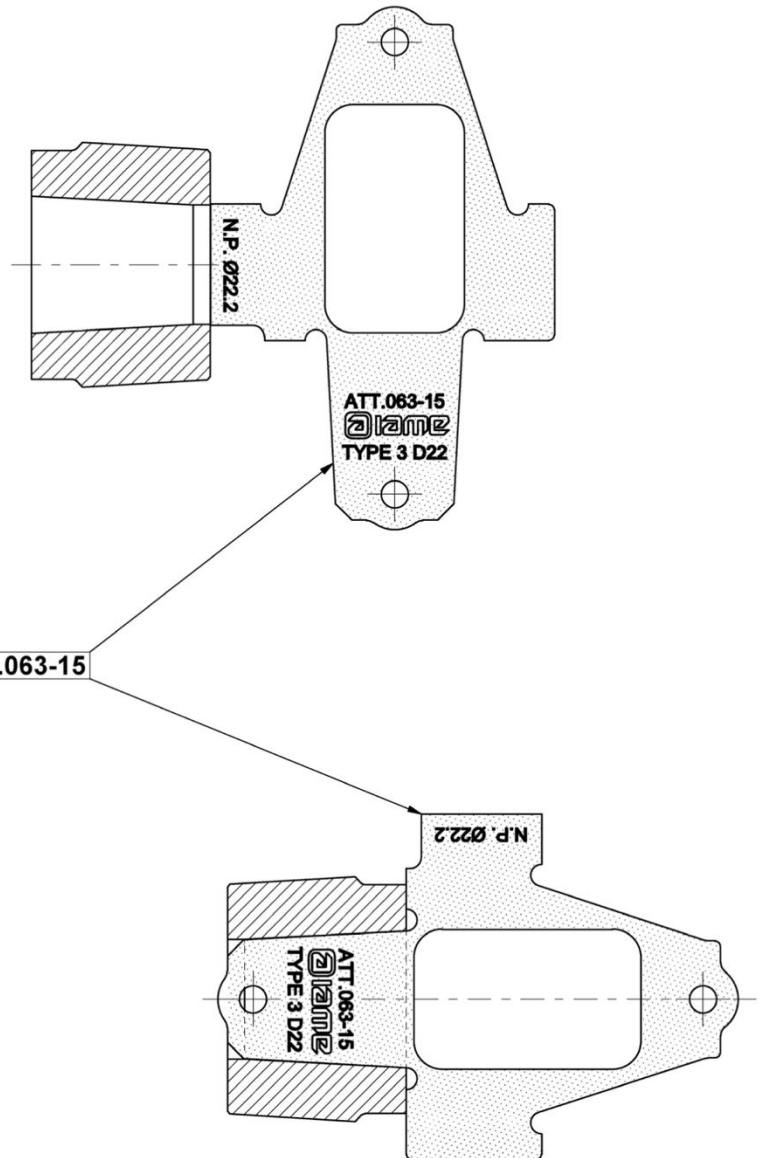
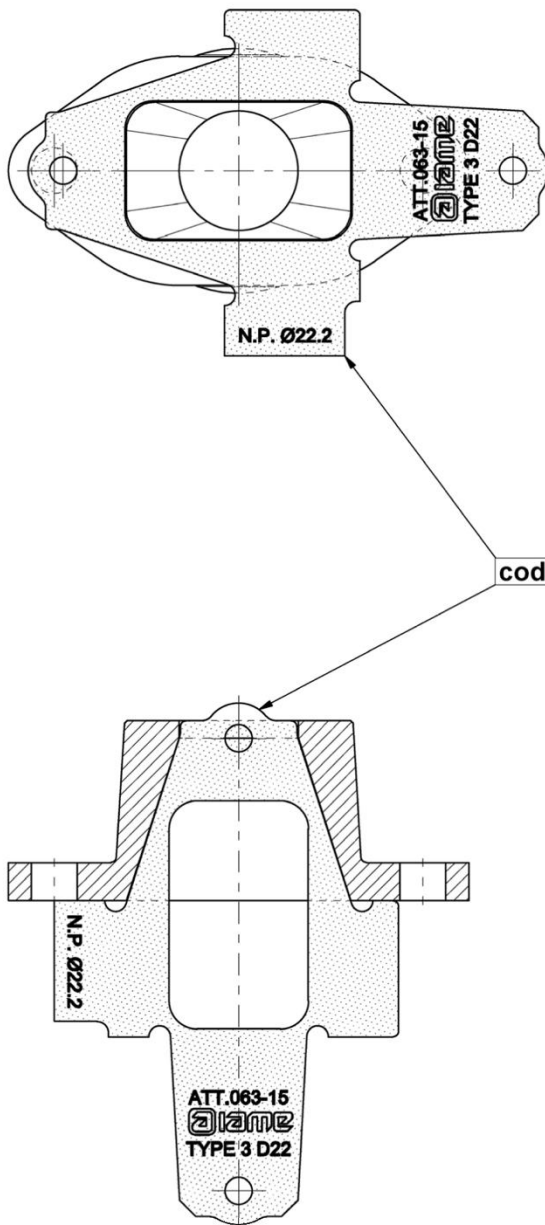


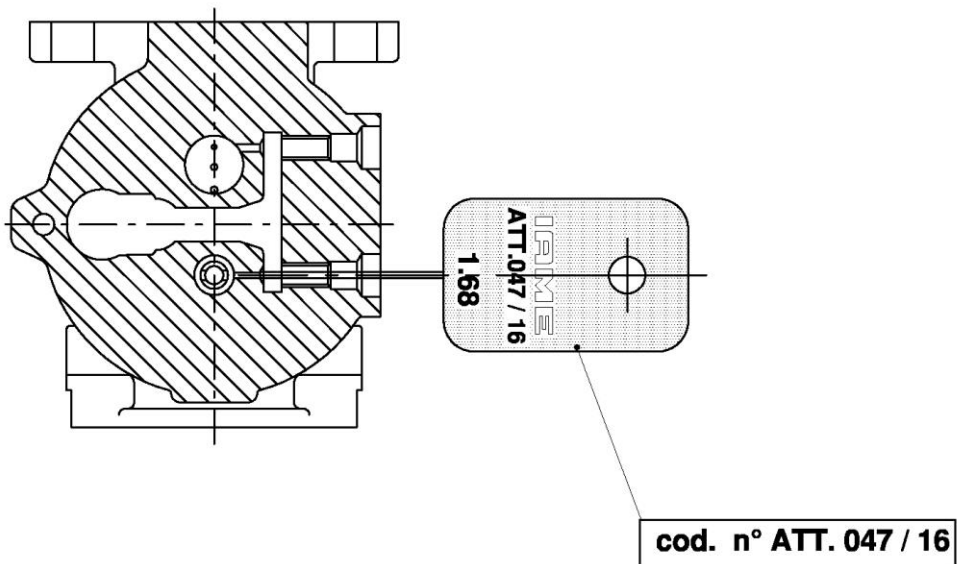
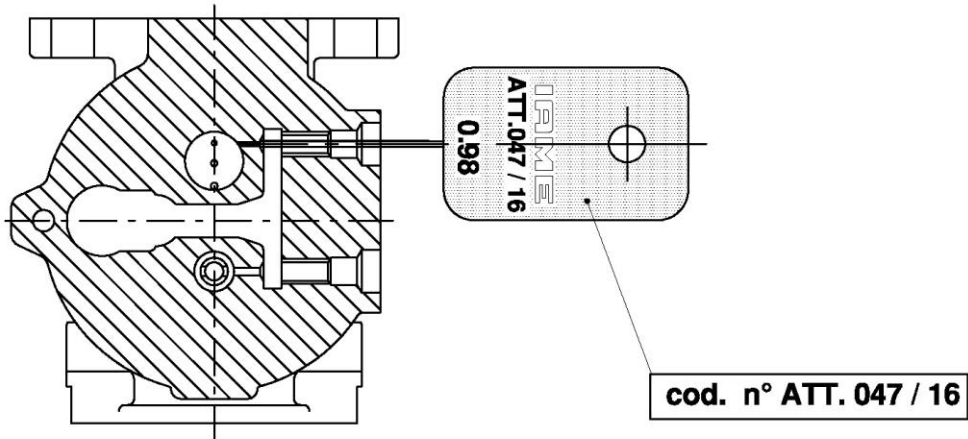
Fig. 3

Fig. 4

- 1. Check that the tool matches the shape of the exhaust manifold. (Fig. 1,3,4)**
- 2. Check that the “no-go gauge” does not enter the exhaust restrictor. (Fig. 2)**
- 3. Check that the sides of tool does not protrude past the face of the manifold. (Fig. 3,4)**

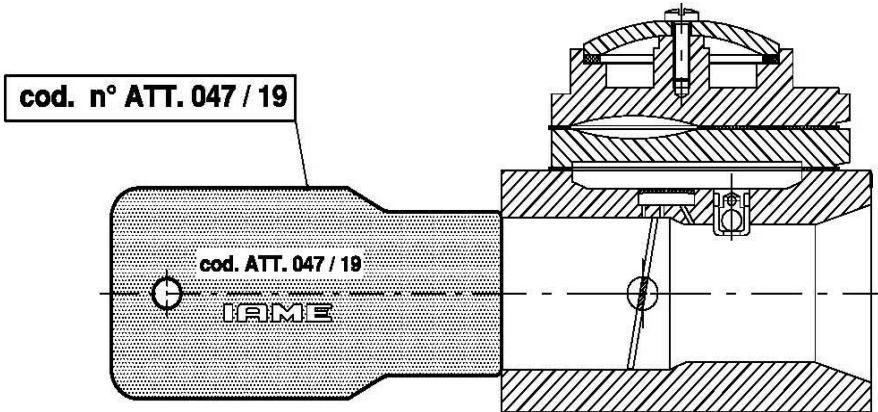


## HL-398A CARBURETTOR JET HOLES “NO-GO” GAUGE

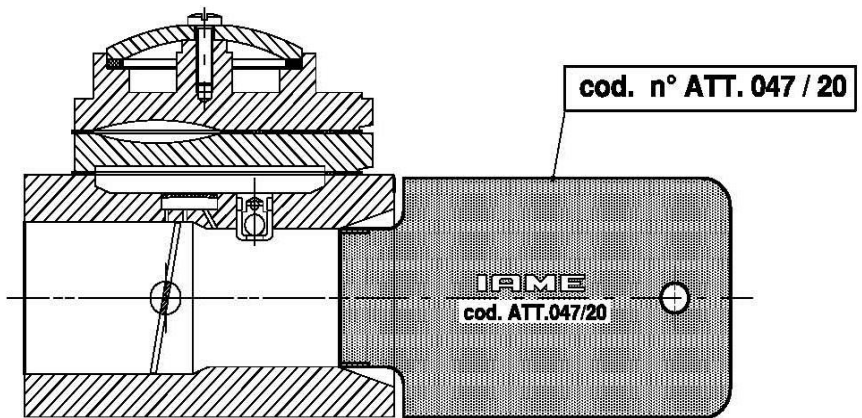


**Check that the spikes do not enter into the holes.**

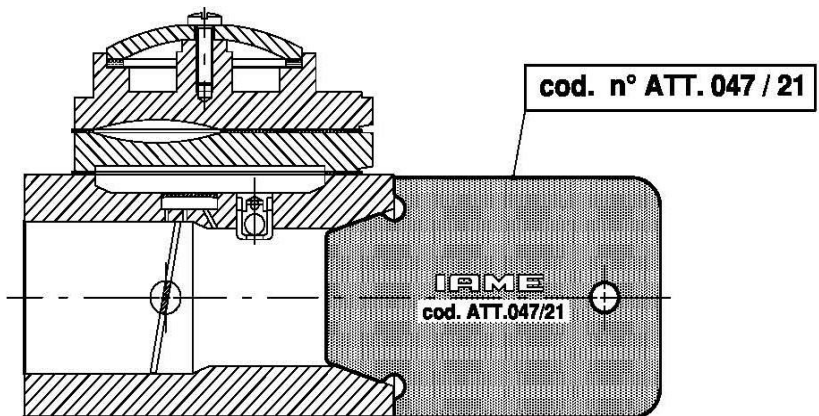
**HL-398A CARBURETTOR SHAPE & "NO-GO" GAUGE**



**Check that the tool must not enter into the venturi duct outlet of carburettor.**

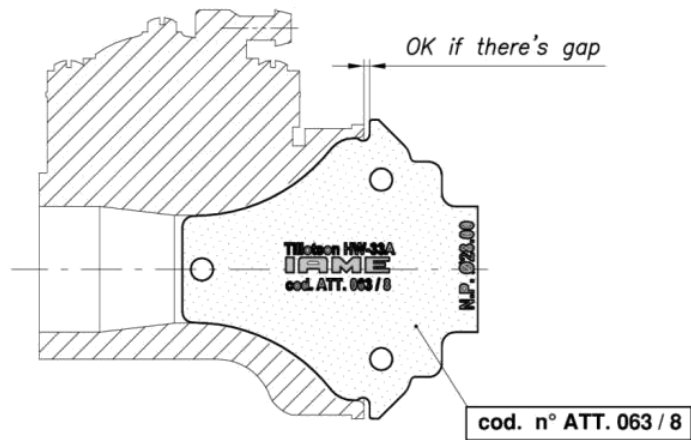


**Check that the tool must not enter into the venturi.  
 The tool must not touch the admission flange.**

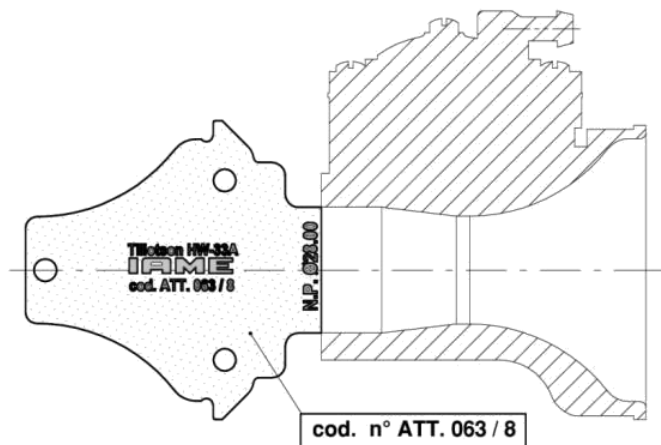


**Check that the carburettor has the same shape of the tool.**

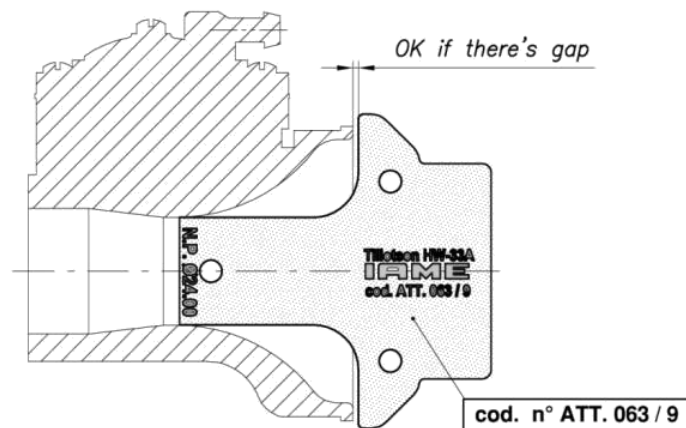
**HW-33A CARBURETTOR SHAPE & “NO-GO” GAUGE**



**Check that the carburettor has the same shape of the tool.**

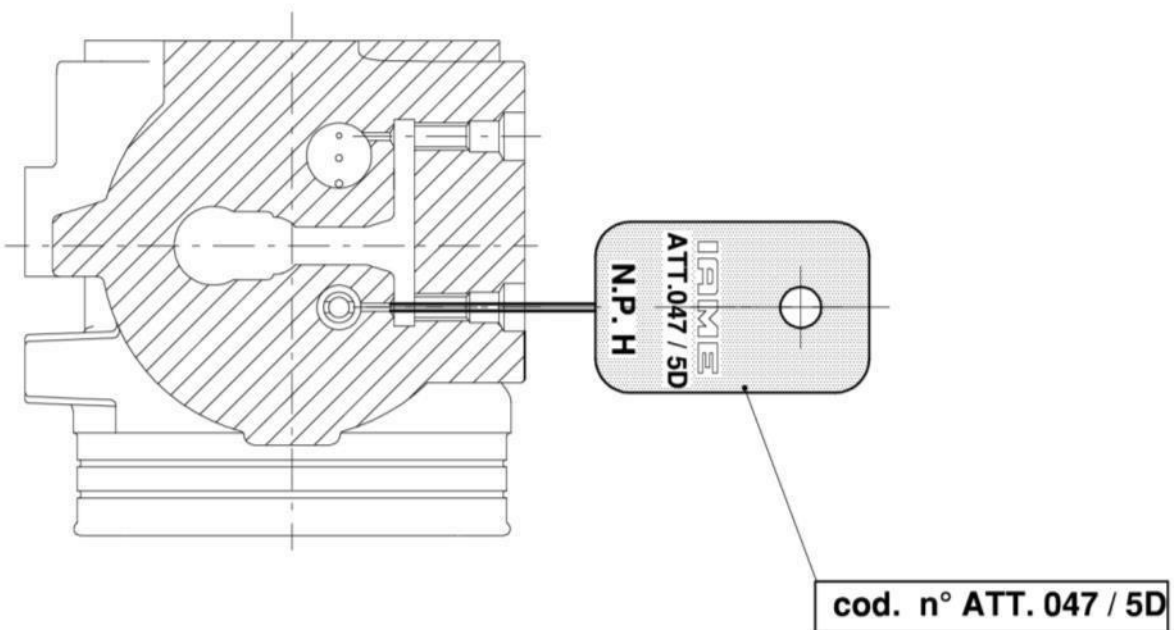
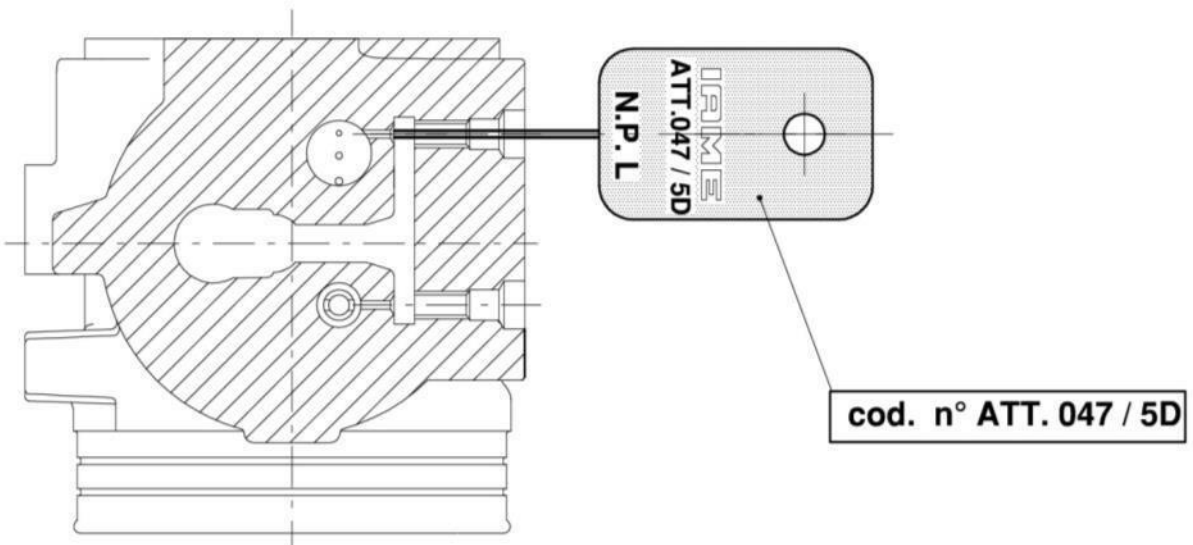


**Check that the tool does not enter into the throttle bore.**



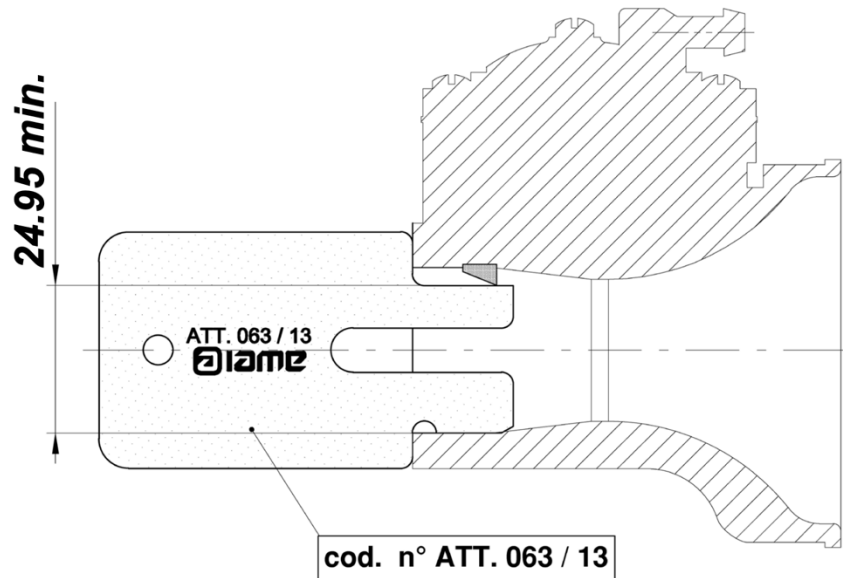
**Check that the tool must not enter into the venturi.**  
**The tool must not touch the admission flange.**

## **HW-33A CARBURETTOR JET HOLES “NO-GO” GAUGE**

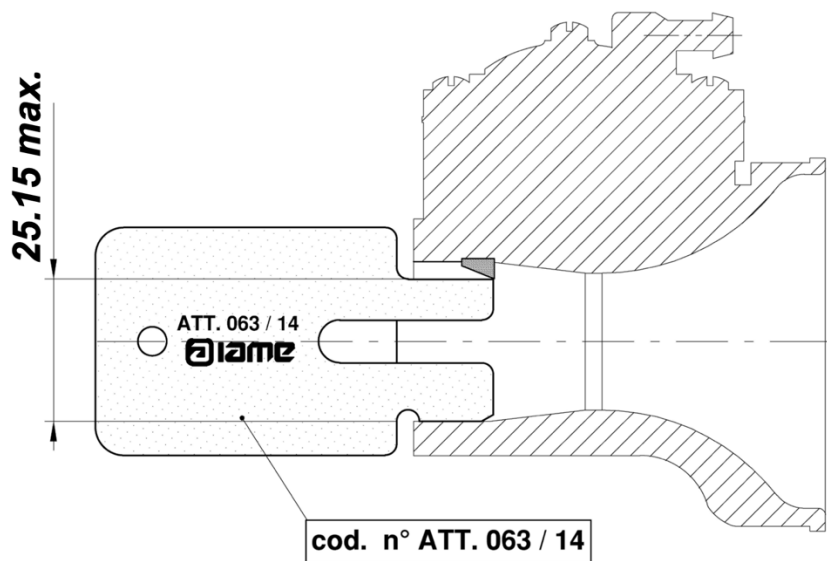


**Check that the spikes do not enter into the holes.**

**CHECKING TOOLS ATOMIZER HEIGHT MINIMUM & MAXIMUM**



**Check that the tool passes the atomizer.**



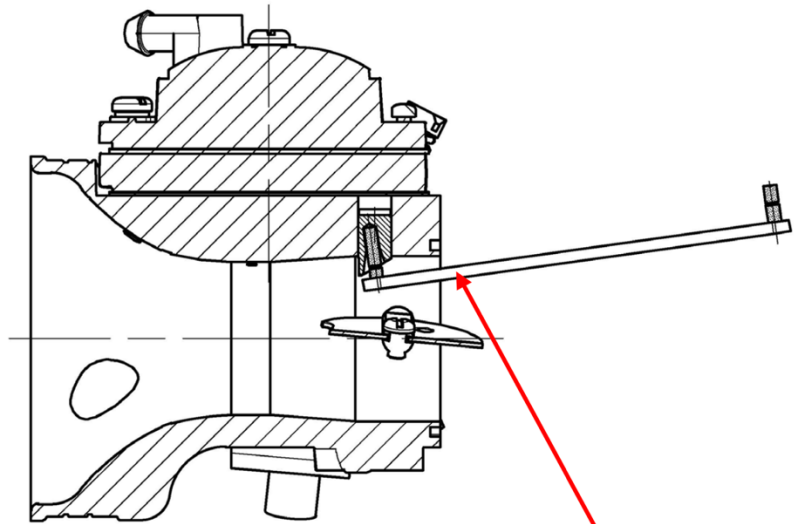
**Check that the tool does not pass the atomizer.**

## TOOL FOR CHECKING ATOMIZER HOLES DIMENSIONS

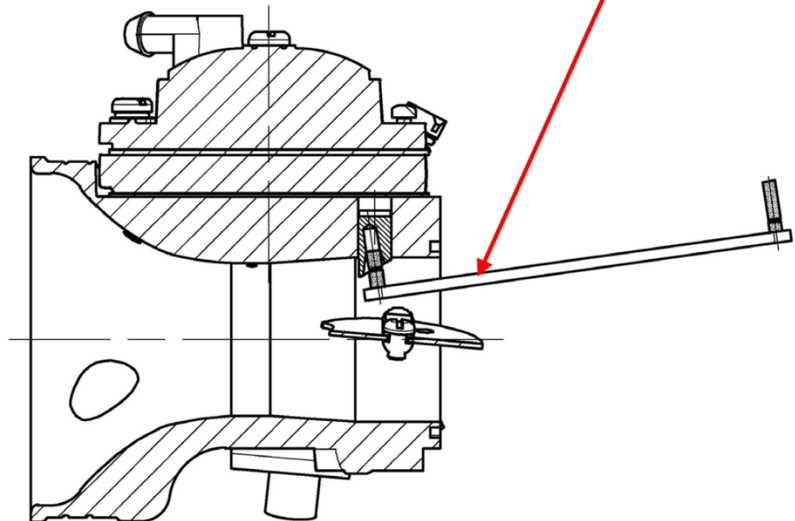
Pass Side - OK



No Pass Side - OK

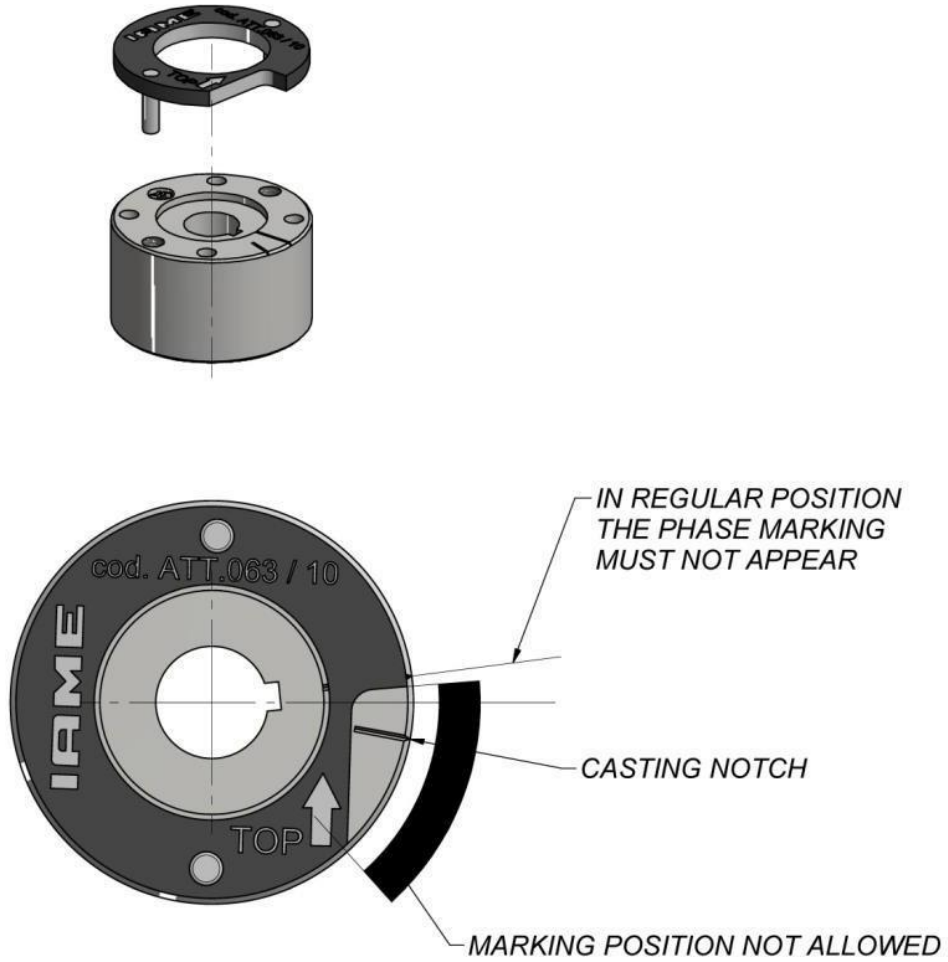


ATT.035 / 19

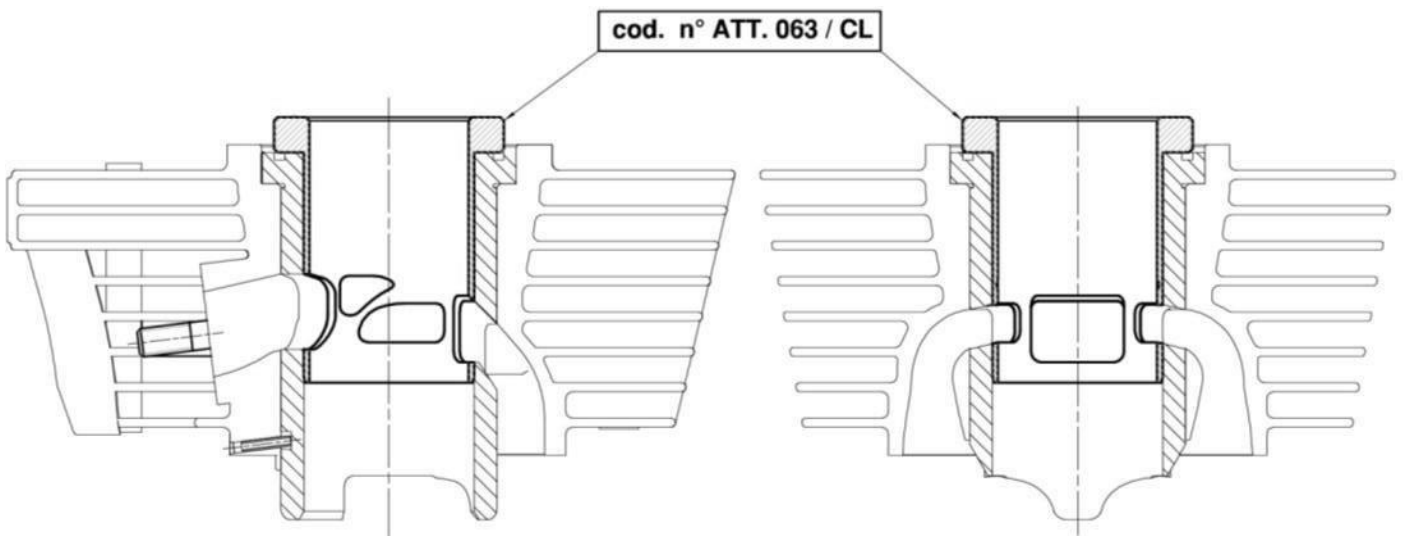


Check dimensions of atomizer holes.

## IGNITION ROTOR TIMING MARK TOOL



## CYLINDER PORT SHAPE TEMPLATE



Visual check of ports.

**REED VALVE PLANE CONTROL TEMPLATE**

