KARTING NSW

Engine Technical Specification

IAME X30

Revision 4 Date: 1/01/2024

Table of Contents

1. PREAMBLE

This document provides the Technical Specification for the Iame X30 engine, as approved by Karting NSW.

This engine is approved for use in the classes as defined in the KNSW Rule Book.

Unless otherwise specified below, the engine must be original in all components according to the Iame X30 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.

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.

KNSW Homologation No: KNSW-003-23

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	**IAME S.P.A - ZINGONIA**	*Category*	
Make	**IAME**	*Homologation Period*	*6 years*
Model, Type	**X30 125cc RL - TAG**	*Pages*	**82**

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

ENGINE PHOTO - DRIVE SIDE	ENGINE PHOTO - OPPOSITE SIDE
	
	AUTHORISED BY KARTING NSW
	Approved by G. Abbott **Karting NSW State Technical Officer** **1st December 2023**

KNSW Homologation No: KNSW-003-23

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*	
The number of decimal places must be 2 or comply with the relevant tolerance.		*Tolerances & remarks*
Cylinder		
Volume of cylinder	**123.67 cm³**	≤125.00 cm³
Original bore	**54.00 mm**	--
Theoritical maximum bore	**54.28 mm**	--
Original Stroke	**54.40 mm**	--
Number of transfer ducts, cylinder / sump	**3 / 3**	--
Number of exhaust ports / ducts	**3 / 3**	--
Volume of the combustion chamber (with AUS insert)	**10.3 cm³**	minimum
Volume of the combustion chamber (with Volumeter & AUS insert)	**12.8 cm³**	minimum
Crankshaft		
Number of bearings	**2**	--
Diameter of bearings	**30 mm**	±0.1mm
Minimum weight of crankshaft	**2150 g**	minimum
All parts represented on page 12 technical drawing		
Balance shaft		
Minimum weight of balance shaft	**315 g**	minimum
Percentage of balancing	**52 %**	minimum
Connecting rod		
Connecting rod centreline	**102 mm**	±0.1mm
Diameter of big end	**26 mm**	±0.05mm
Diameter of small end	**18 mm**	±0.05mm
Min. weight of the connecting rod	**110 g**	minimum

Piston		
Number of piston rings	**1**	
Min. weight of the bare piston (ring incuded)	**128 g**	minimum
Gudgeon pin		
Diameter	**14 mm**	±0.05mm
Length	**44 mm**	±0.15mm
Minimum weight	**28.0 g**	Minimum
Clutch		
Minimum weight	**950 g**	minimum
All the parts represented on the page 15 technical drawing		

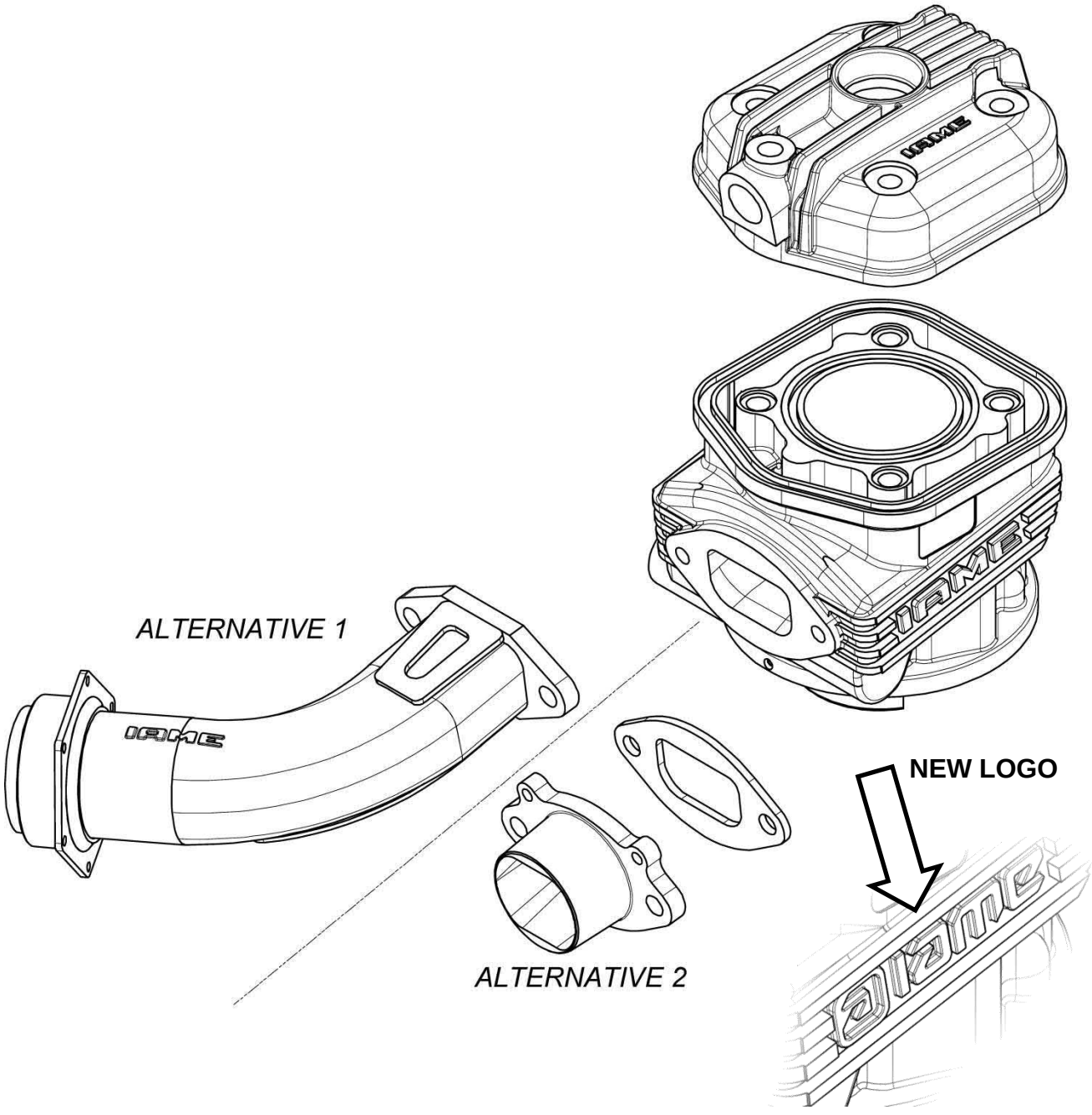
B	*OPENING ANGLES*	
Of the inlet (main transfer ports)	**126°**	**±2°**
Of the inlet (3th transfer duct engine)	**127°**	**±2°**
Of the exhaust	**177.5°**	**MAX.**
Of the boosters	**177.5°**	**MAX.**

C	*MATERIAL*
Cylinder head	**ALUMINIUM**
Cylinder	**ALUMINIUM**
Cylinder wall	**CAST IRON**
Sump	**ALUMINIUM**
Crankshaft	**STEEL**
Connecting rod	**STEEL**
Piston	**ALUMINIUM**

D	*PHOTOS, DRAWINGS & GRAPHS*

D.1 *CYLINDER UNIT*

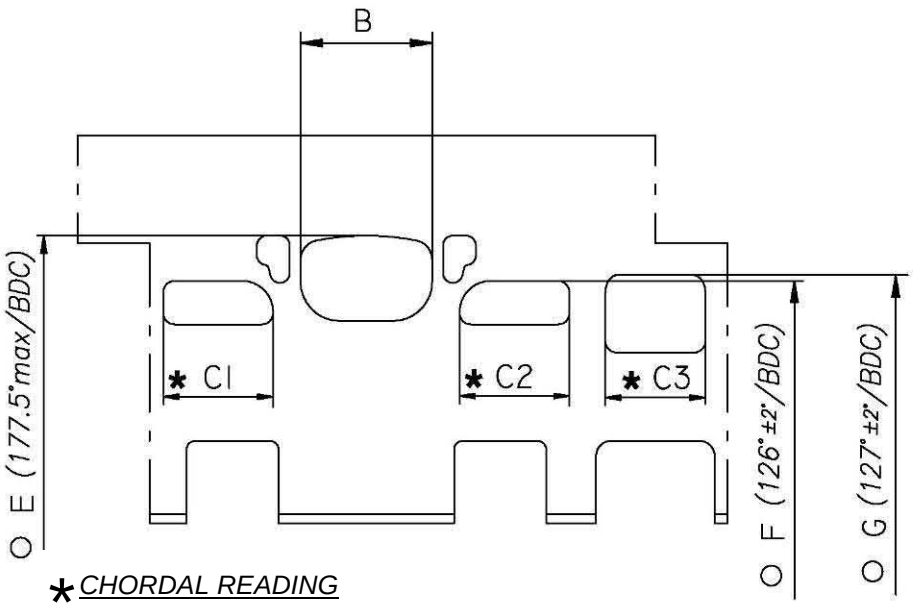
EXPLODED DRAWING OF THE CYLINDER, CYLINDER HEAD AND EXHAUST MANIFOLD UNIT



Without screws or gaskets.	***The aim of the exploded drawings is to identify the principles, the functioning and the whole mechanical unit***

... Section D.1

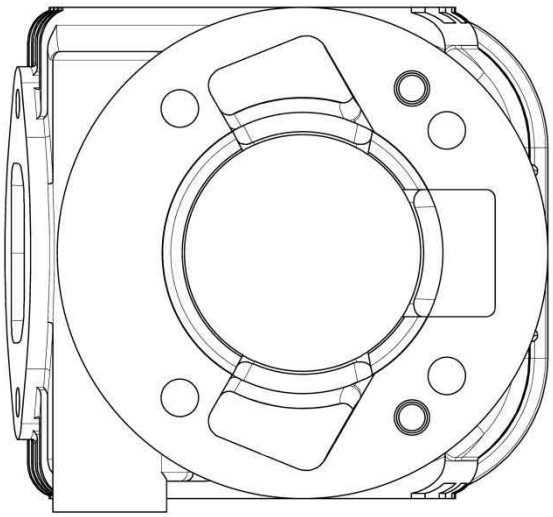
DRAWING OF THE CYLINDER DEVELOPMENT



B	≤ 36.5 mm
C1 = C2	≤ 30 mm
C3	≤ 28.5 mm
E	177.5° max
F	126° ± 2°
G	127° ± 2°

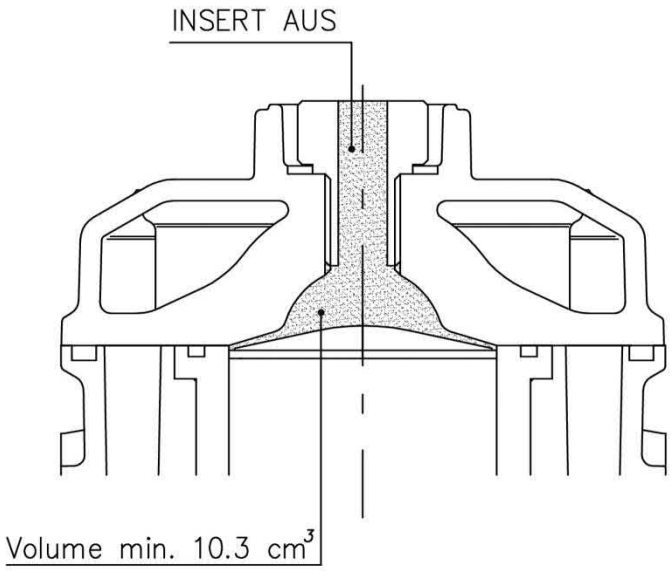
* *CHORDAL READING*

O *ANGULAR READING BY INSERTING A 0.2x5 mm GAUGE*

DRAWING OF THE CYLINDER BASE (without dimensions)	*PHOTO OF THE CYLINDER BASE*
	

... Section D.1

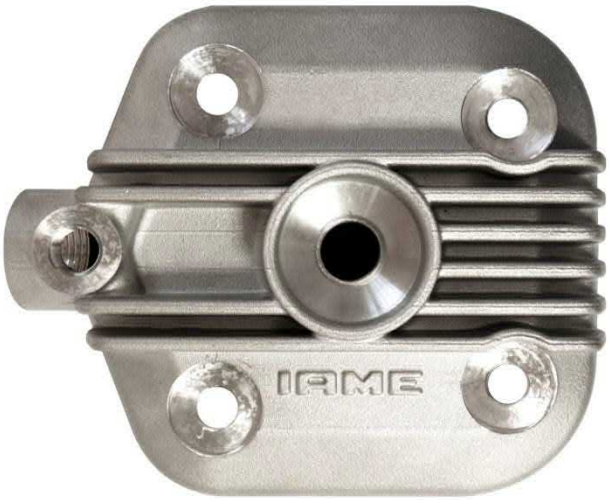
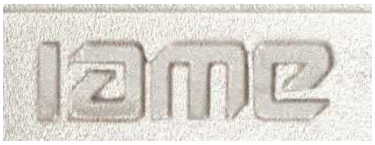
DRAWING OF THE CYLINDER HEAD AND OF THE COMBUSTION CHAMBER without dimensions



COMBUSTION CHAMBER VOLUME TOT. = 10.3 cm³ min.

ATT.: SQUISH MIN. = 0.90 mm
(measured with Ø2.0mm TIN)

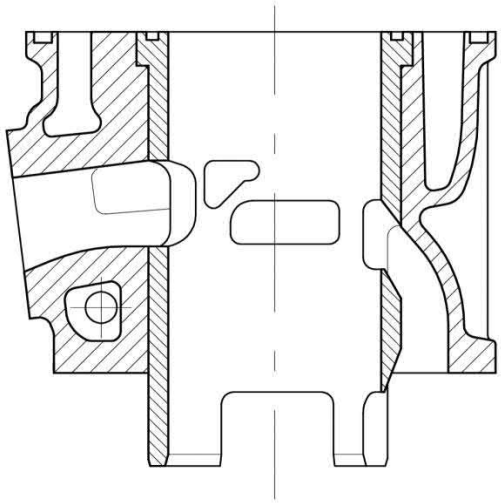
Combustion chamber volume in the cylinder head (with Volumeter and Insert):
12.8 cm³ min

PHOTO OF THE CYLINDER HEAD	*PHOTO OF THE COMBUSTION CHAMBER IN THE CYLINDER HEAD*
 **NEW LOGO** 	

... Section D.1

VERTICAL CROSS SECTION VIEW OF CYLINDER WITH LINER, without dimensions

OLD TYPE



CURRENT TYPE

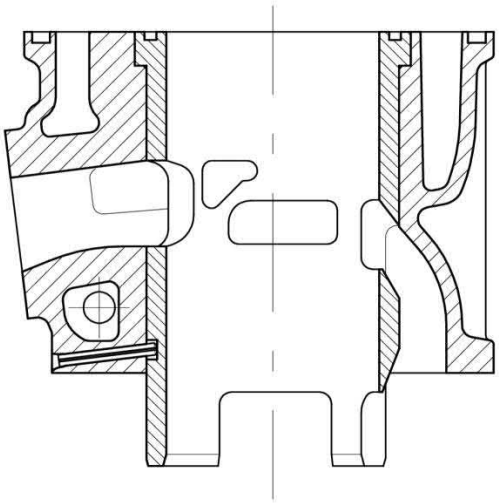


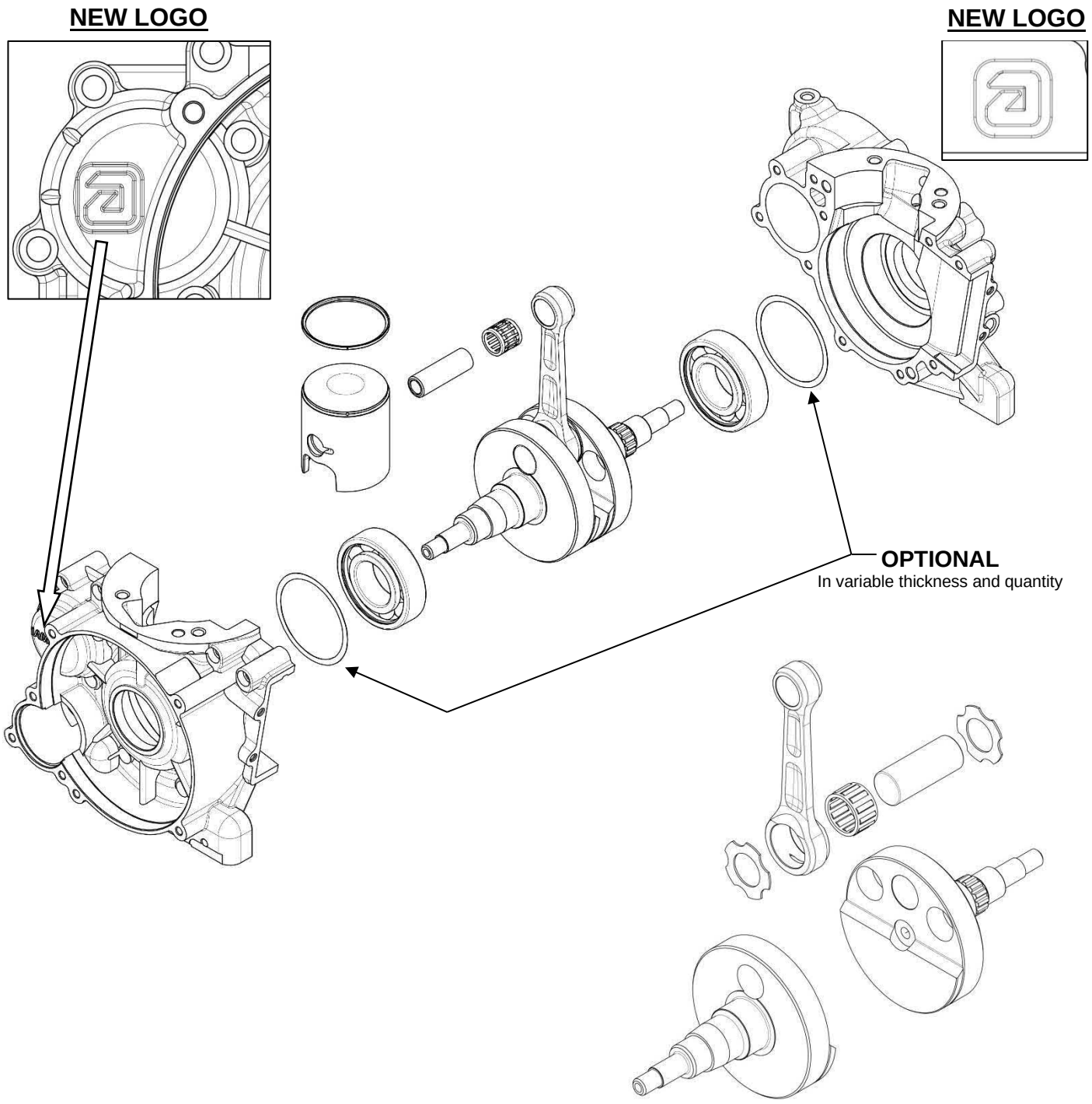
PHOTO OF THE CYLINDER FROM ABOVE

PHOTO OF THE CYLINDER FROM RH SIDE

NEW LOGO

D.2 *CONROD, CRANKCASE, CRANKSHAFT & PISTON*

EXPLODED DRAWING OF THE PISTON, CRANKSHAFT, CONNECTING ROD AND CRANKCASES UNIT (exploded crankshaft)



Without screws or gaskets.	***The aim of the exploded drawings is to identify the principles, the functioning and the whole mechanical unit***

...Section D.2

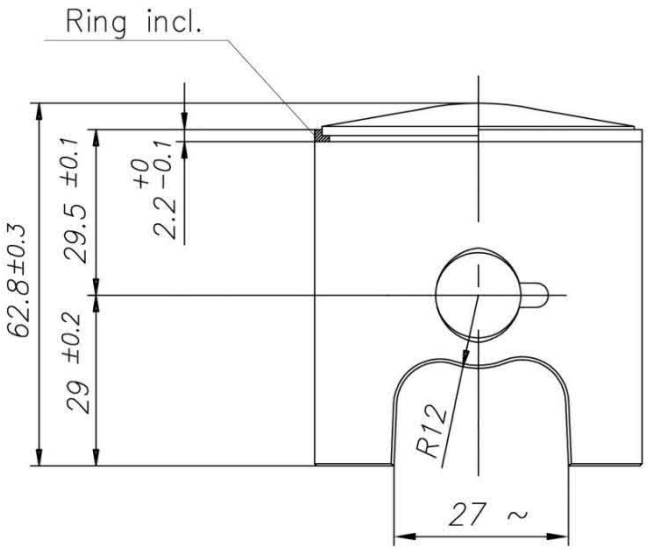
PHOTO OF THE CONROD	*PHOTO OF ALTERNATIVE CONROD*
	
DRAWING OF THE PISTON (MAIN DIMENSIONS incl. tolerances)	*PHOTO OF THE CRANKSHAFT & CONROD*
	

PHOTO IDENTIFICATION OF SMALL END CONROD BEARING – TYPES ALTERNATIVE

TYPE 1

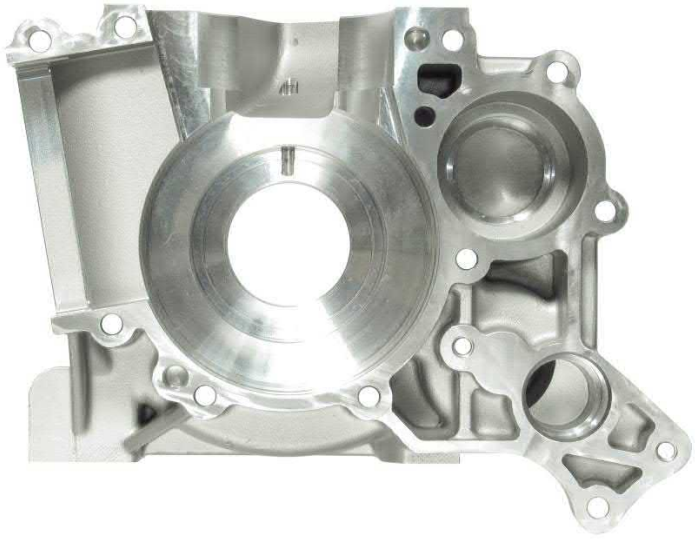
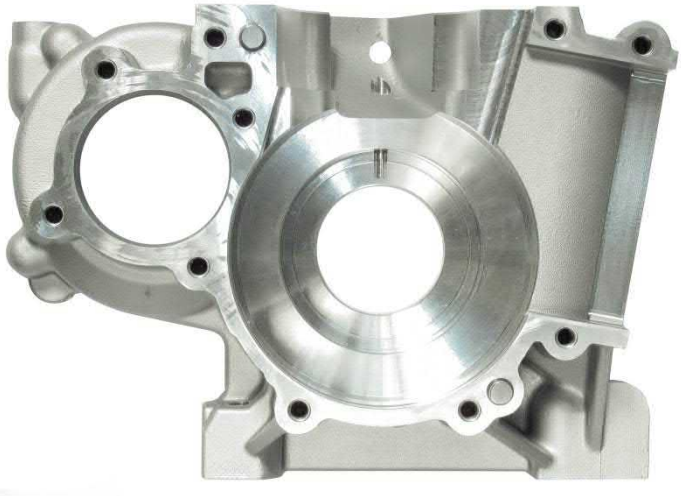
TYPE 2

PHOTO IDENTIFICATION OF SILVER CONROD WASHER – TYPES ALTERNATIVE

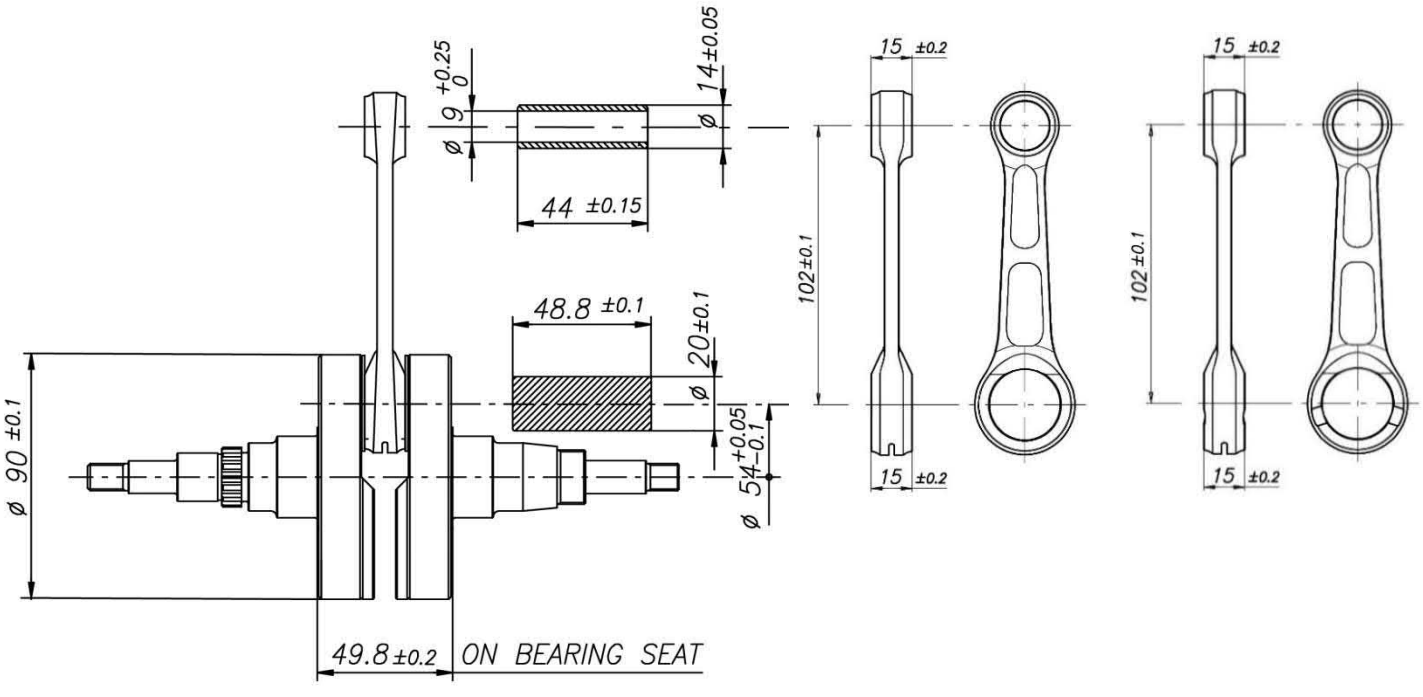
TYPE 1

TYPE 2

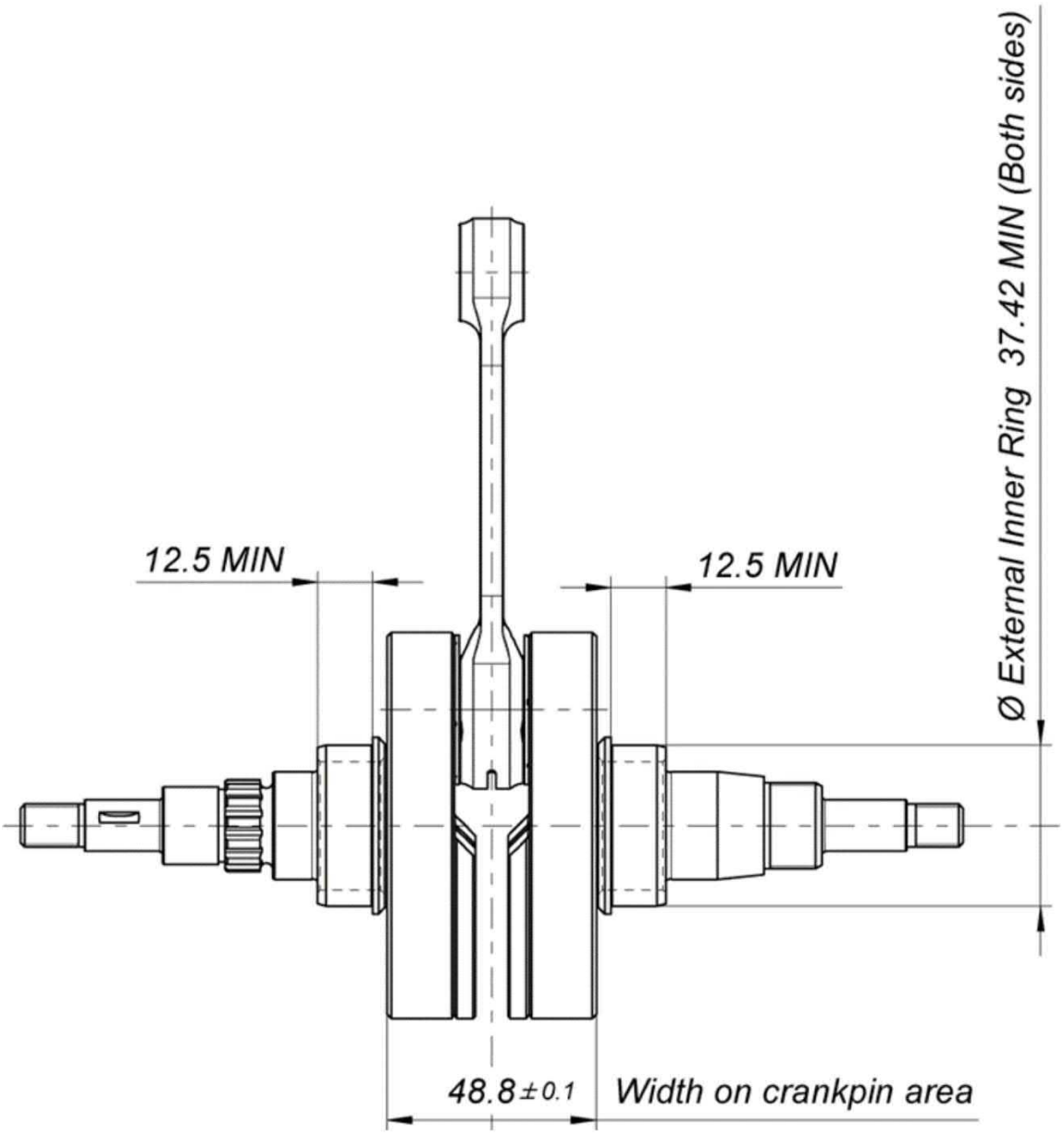
...Section D.2

PHOTO OF THE INSIDE OF THE RH CRANKCASE	*PHOTO OF THE INSIDE OF THE LH CRANKCASE*
	

DRAWING OF THE CRANKSHAFT - CON ROD UNIT (DIMENSIONS incl. tolerances, big & small ends thickness, crank mass thickness & diameter)



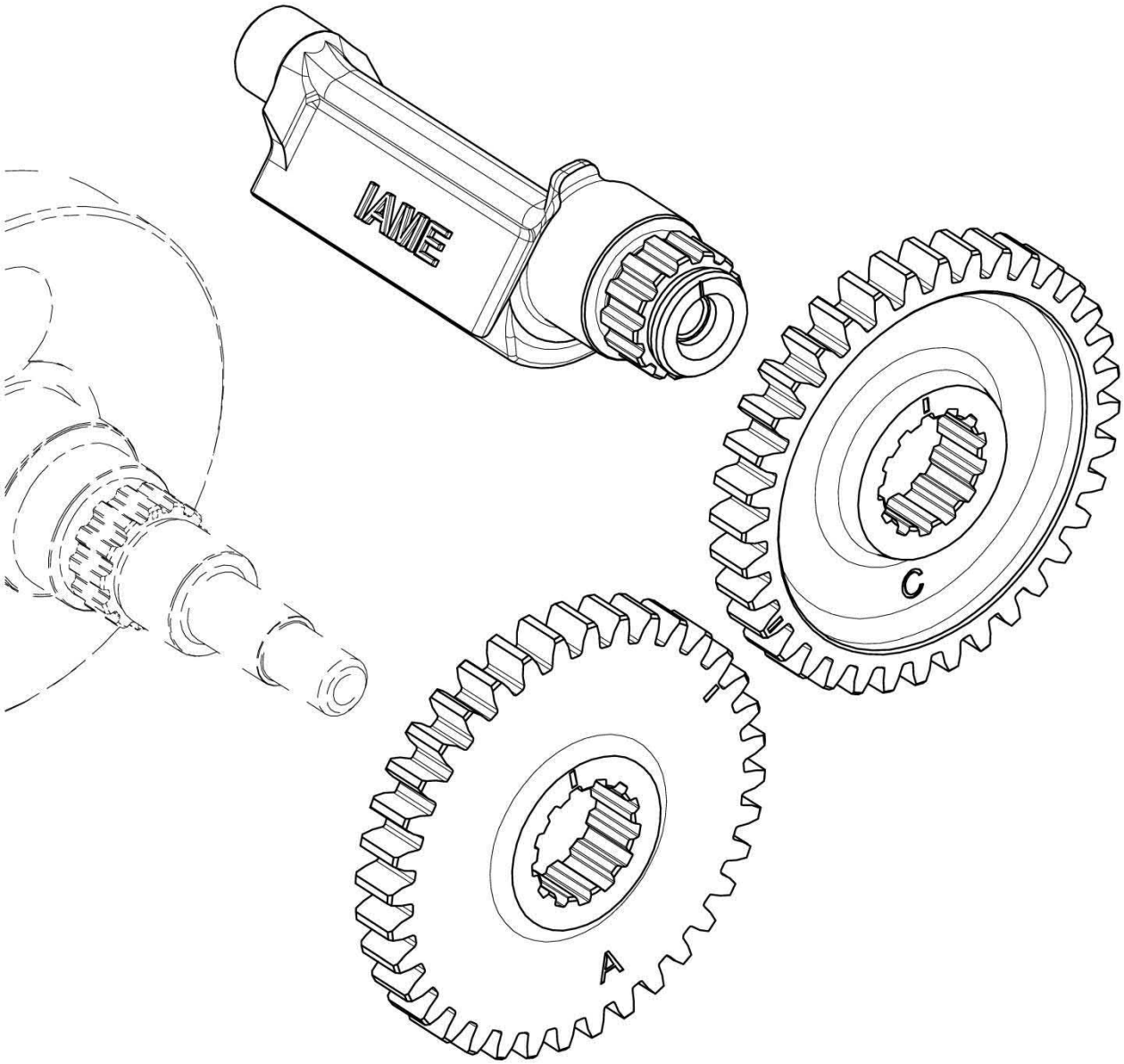
CRANKSHAFT DIMENSIONS WITH ALTERNATIVE ROLLER MAIN BEARINGS



Crankshaft complete as pictured min. Weight 2220 g

D.3 *BALANCE SHAFT*

EXPLODED DRAWING OF THE BALANCE SHAFT

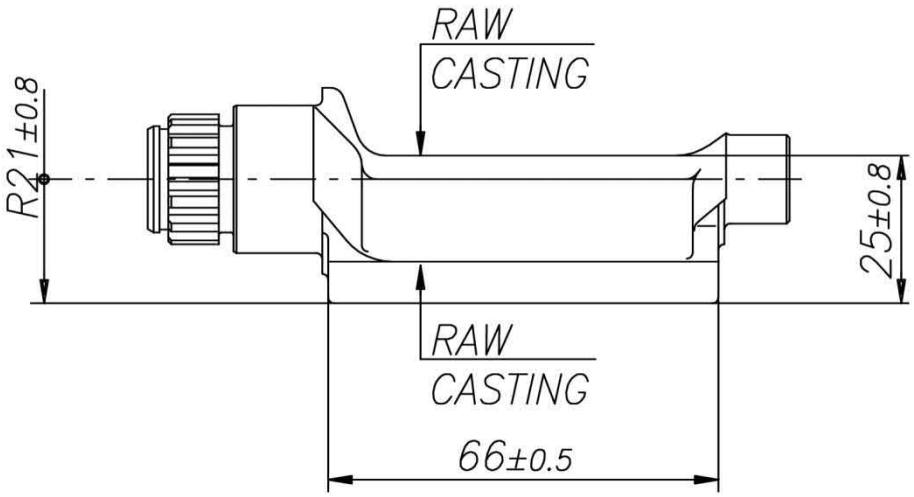


Without screws or gaskets.	***The aim of the exploded drawings is to identify the principles, the functioning and the whole mechanical unit***

...Section D.3

PHOTO OF THE BALANCE SHAFT	*PHOTO IDENTIFICATION OF ALTERNATIVE ROLLER BEARING*
	Alternative bearing to 6206 type Part No: BC1-3342 B 

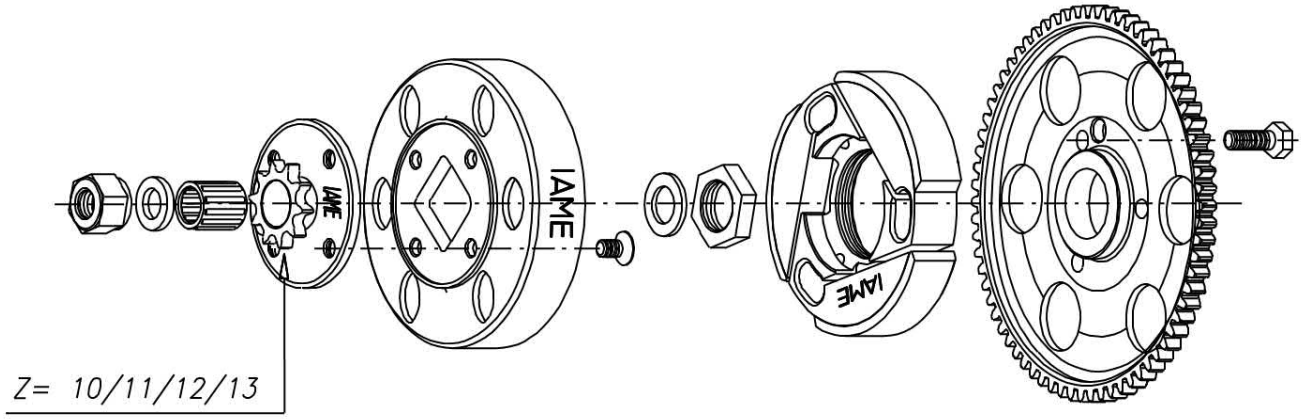
DRAWING OF THE BALANCE SHAFT
(DIMENSIONS incl. tolerances)



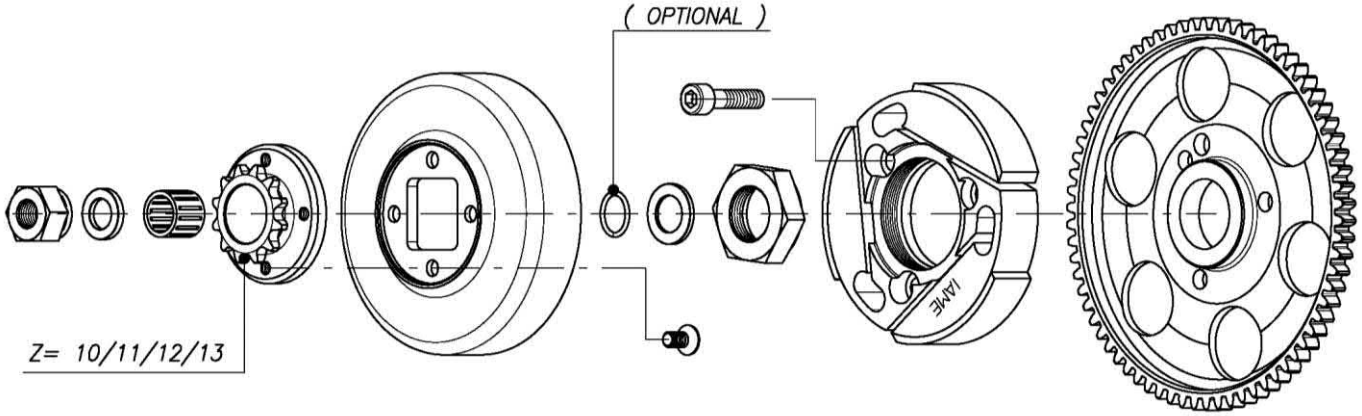
Tot. Min. weight 315 g

D.4 *REED VALVE & CLUTCH*

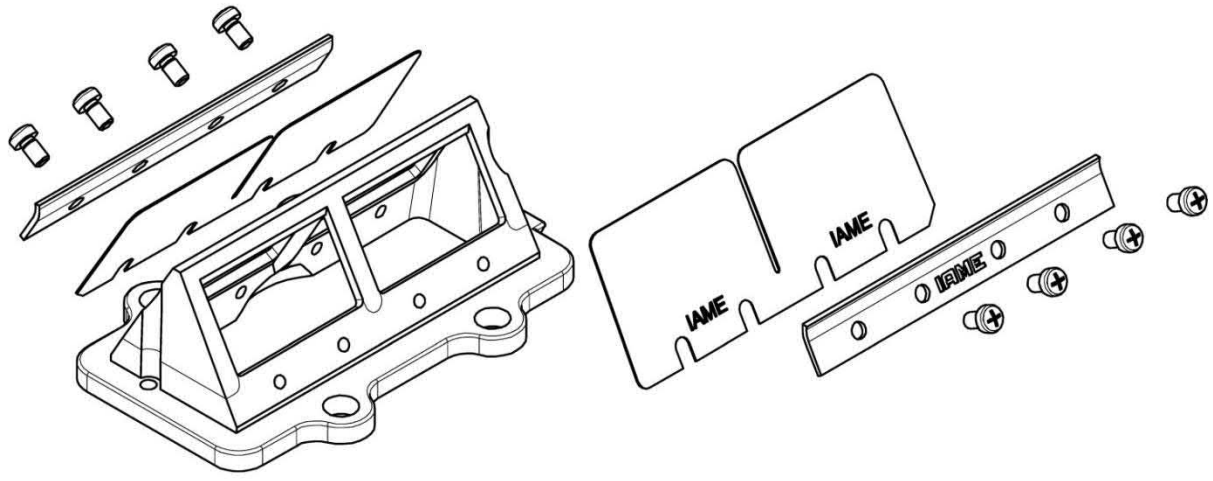
TECHNICAL DRAWING (exploded view) OF THE CLUTCH ASSEMBLY



TECHNICAL DRAWING (exploded view) OF THE CLUTCH ASSEMBLY – ALTERNATIVE



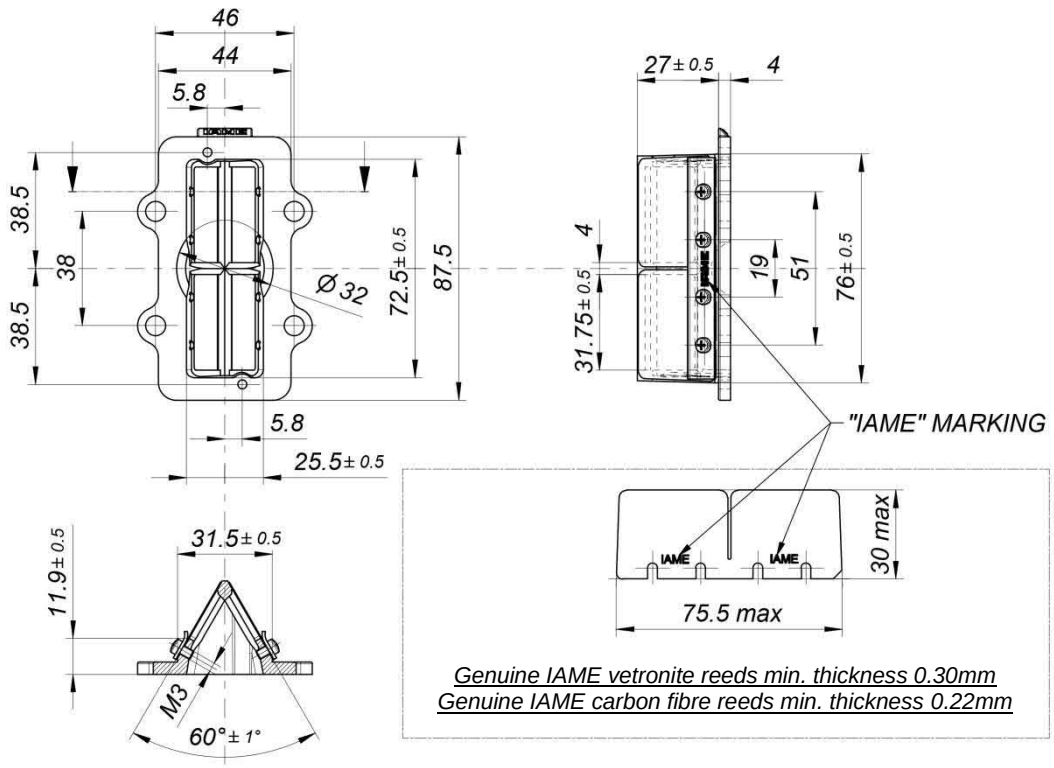
TECHNICAL DRAWING (exploded view) OF THE REED VALVE



The aim of the exploded drawings is to identify the principles, the functioning and the whole mechanical unit

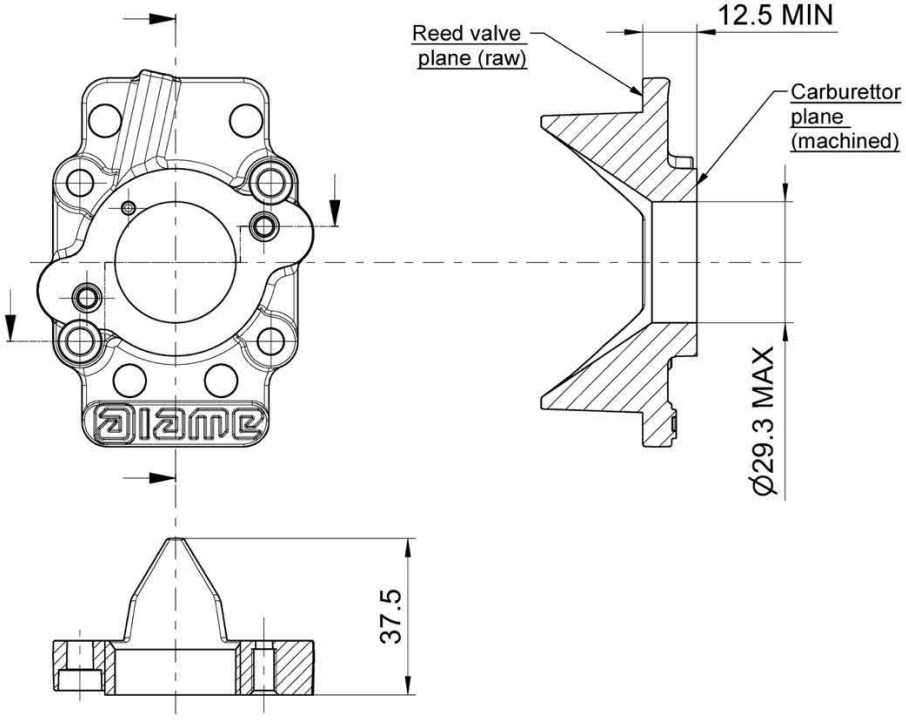
... Section D.4

DRAWING OF THE REED VALVE
*(DIMENSIONS incl. **tolerances**)*



Genuine IAME vetronite reeds min. thickness 0.30mm
Genuine IAME carbon fibre reeds min. thickness 0.22mm

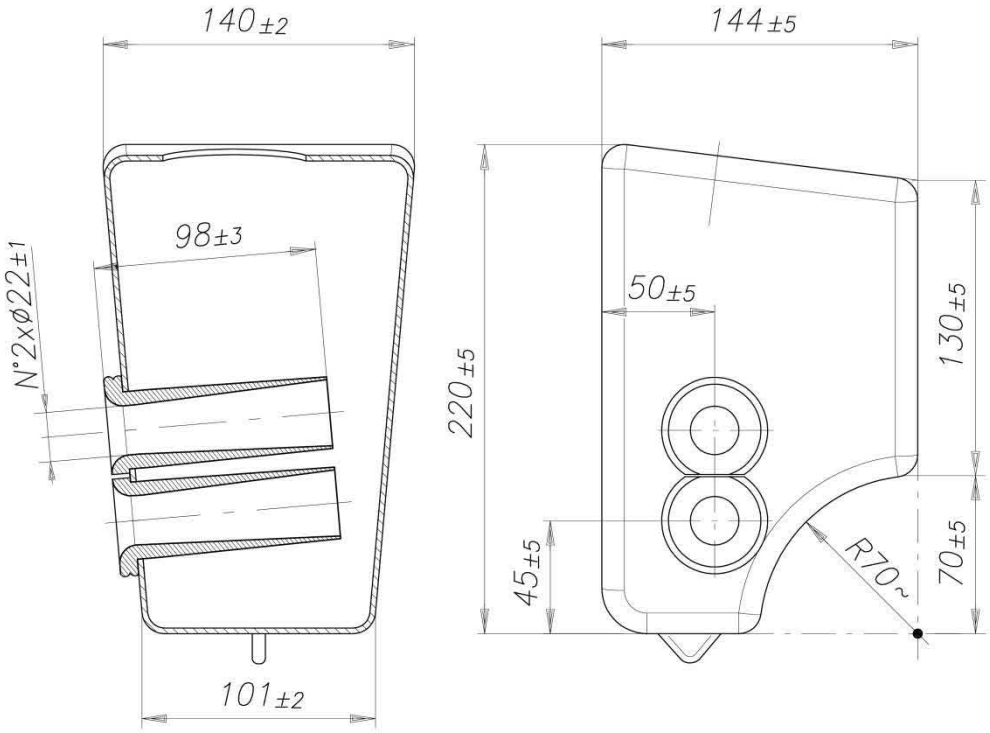
DRAWING OF THE INLET CONVEYOR



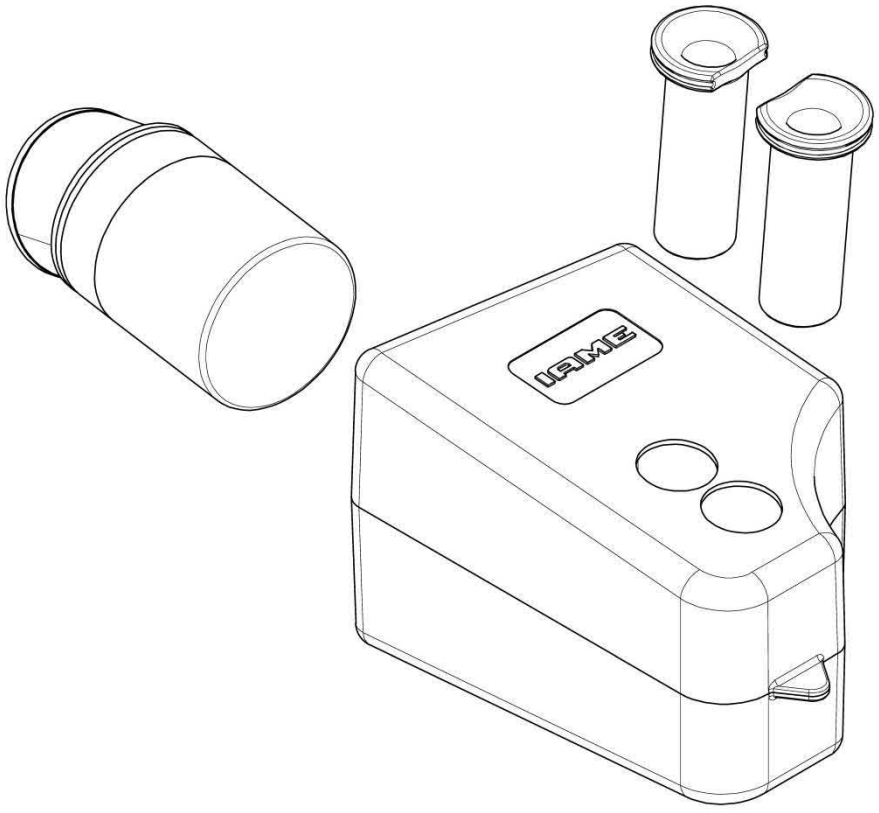
GENERAL TOLERANCES	
Dimensions	Machined parts
< 25 mm	±0.5
25÷60	±0.8
> 60 mm	±1.5

... Section D.4

DRAWING OF AIR BOX



EXPLODED VIEW OF AIR BOX



INLET SILENCER TUBES NEW TYPE

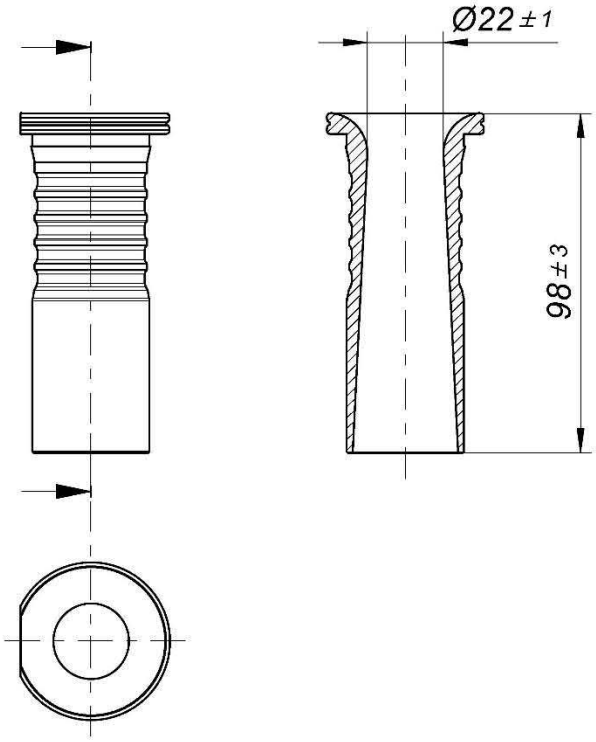


PHOTO IDENTIFICATION OF PERMISSIBLE INLET SILENCER TUBES

OLD TYPE

NEW TYPE

RAIN COVER INLET SILENCER – DRAWING

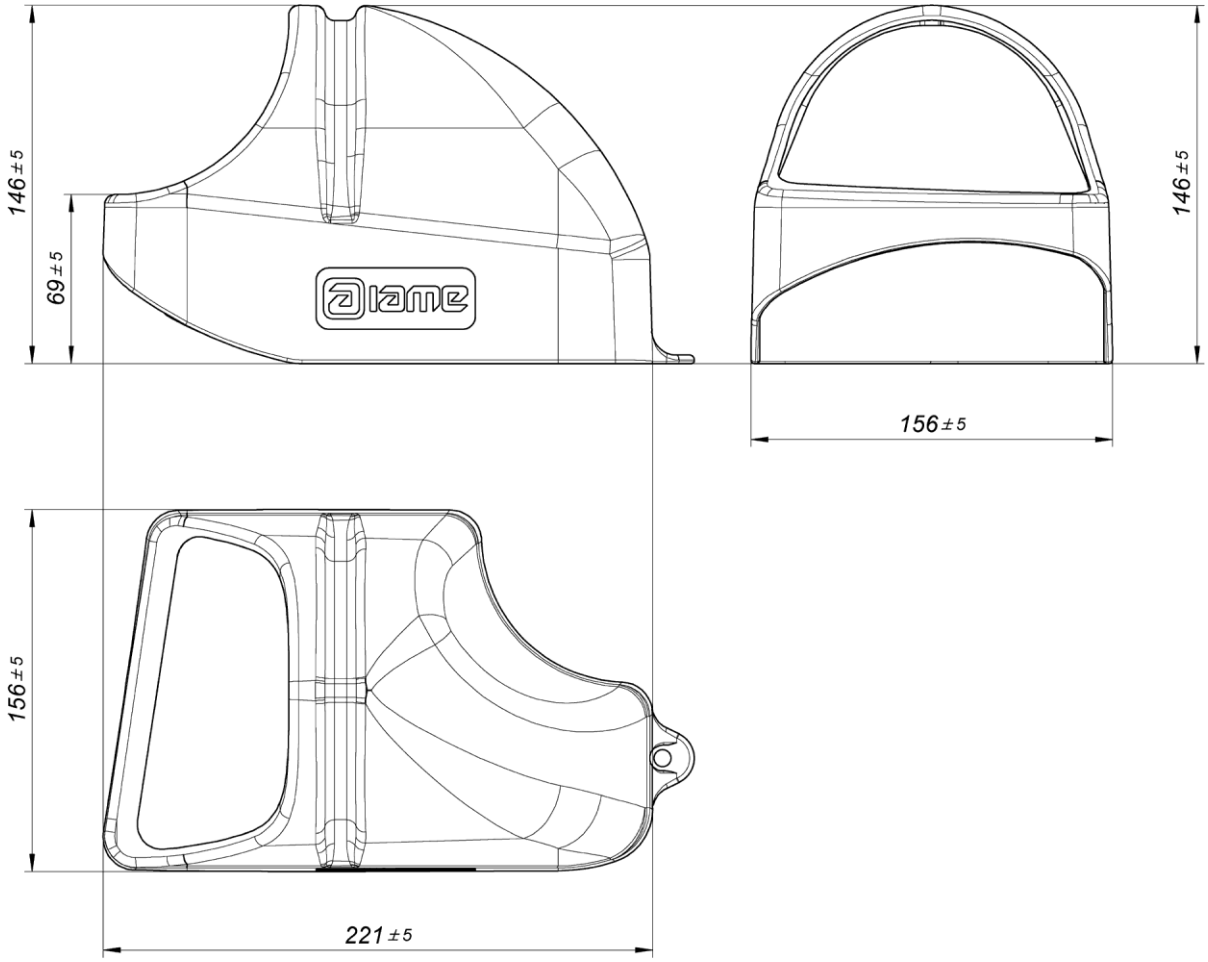
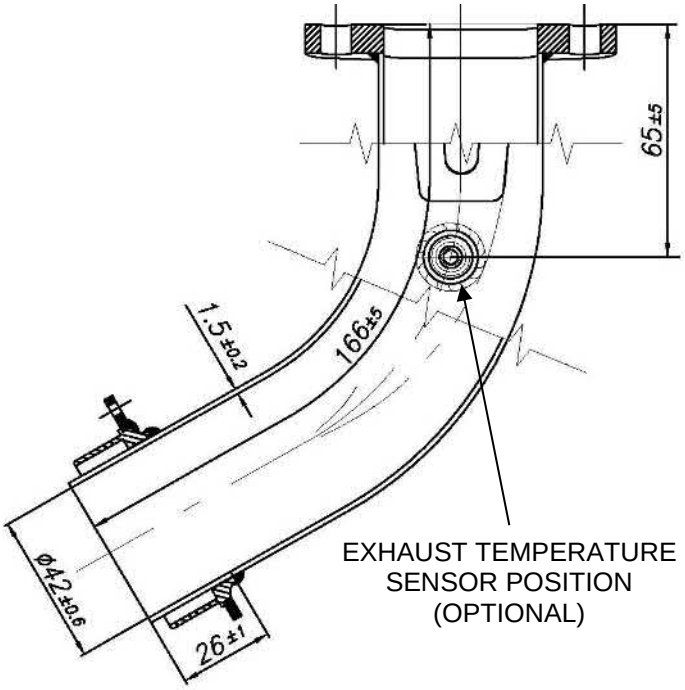


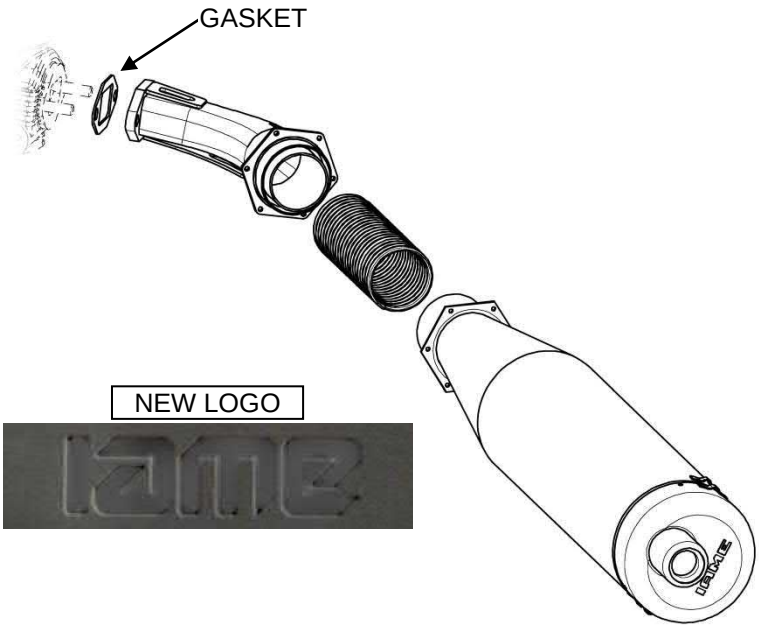
PHOTO IDENTIFICATION OF RAIN COVER INLET SILENCER

D.5 *EXHAUST SYSTEM*

TYPE 1 - EXHAUST HEADER DRAWING

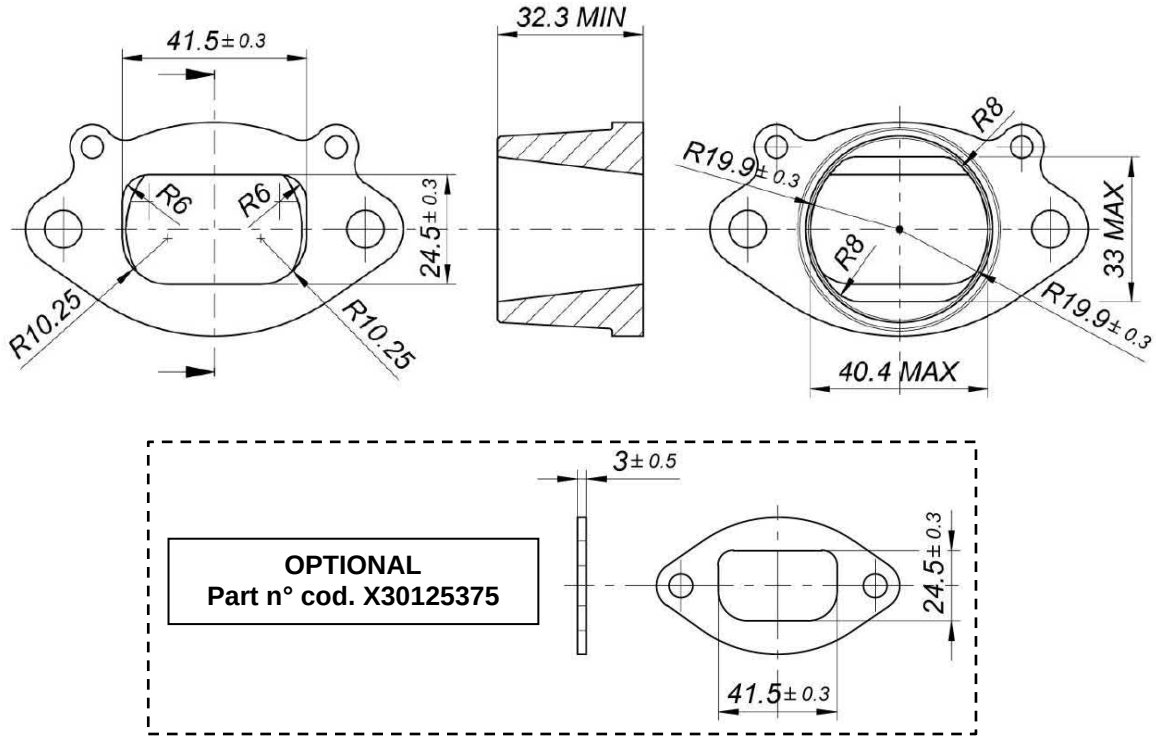


TYPE 1 - EXHAUST HEADER ASSEMBLY AND MARKING



D.5 *EXHAUST SYSTEM*

TYPE 2 - EXHAUST MANIFOLD DRAWING



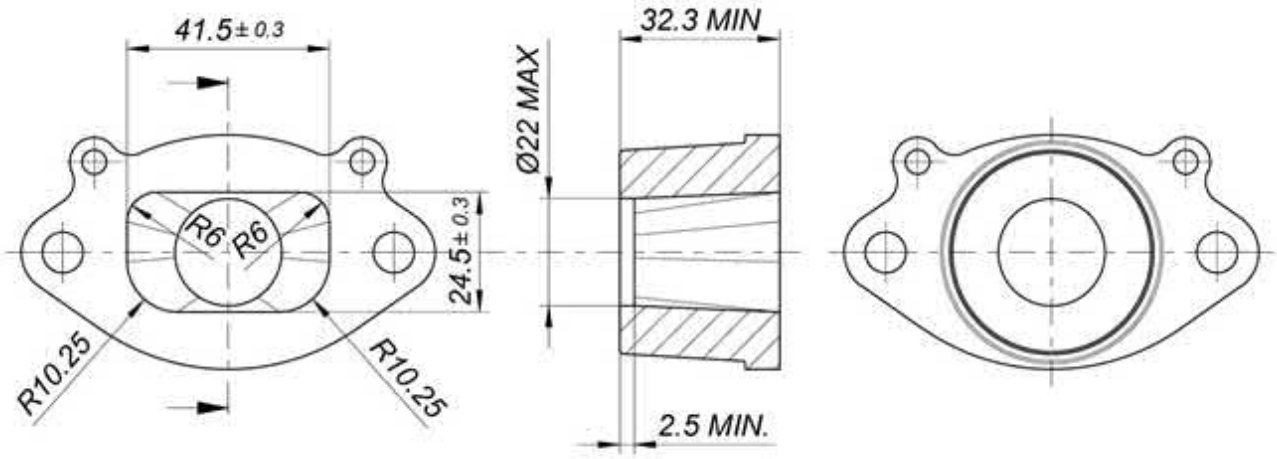
TYPE 2 - EXHAUST MANIFOLD ASSEMBLY AND MARKING

D.5 *EXHAUST SYSTEM*

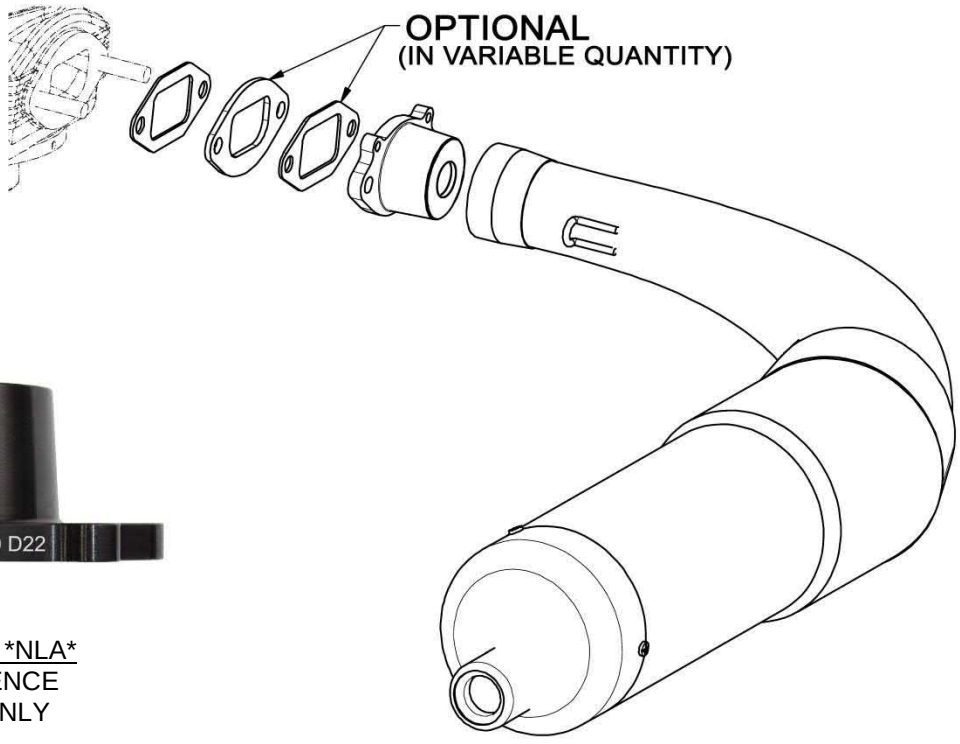
TYPE 2 - EXHAUST MANIFOLD WITH RESTRICTOR - D22

SUPERSEDED *NLA*
FOR REFERENCE
PURPOSE ONLY

For use in:
- Restricted 125
- Junior Performance
- X30 Junior



TYPE 2 - EXHAUST MANIFOLD WITH RESTRICTOR D22 - ASSEMBLY & MARKING

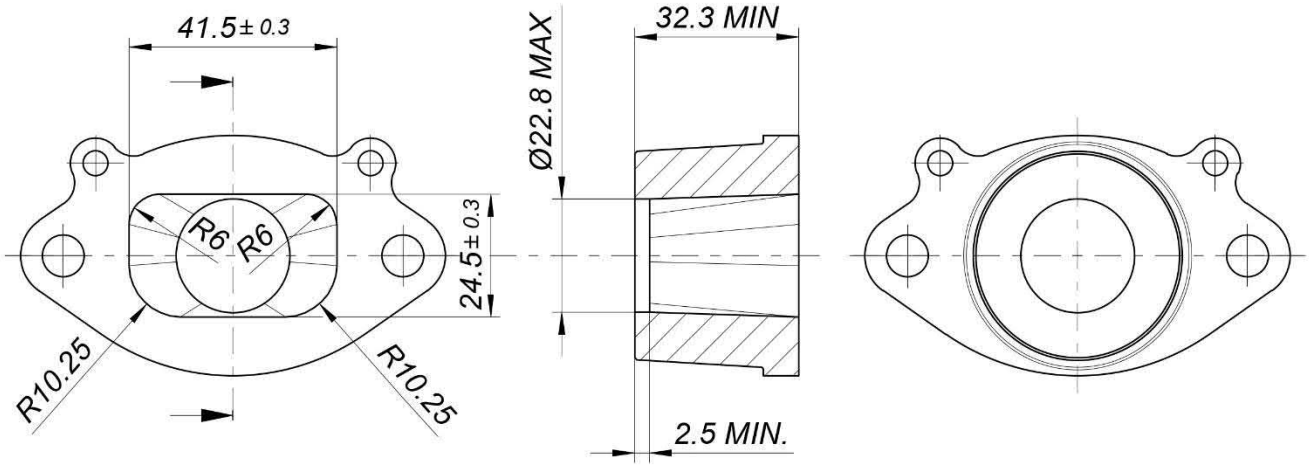


SUPERSEDED *NLA*
FOR REFERENCE
PURPOSE ONLY

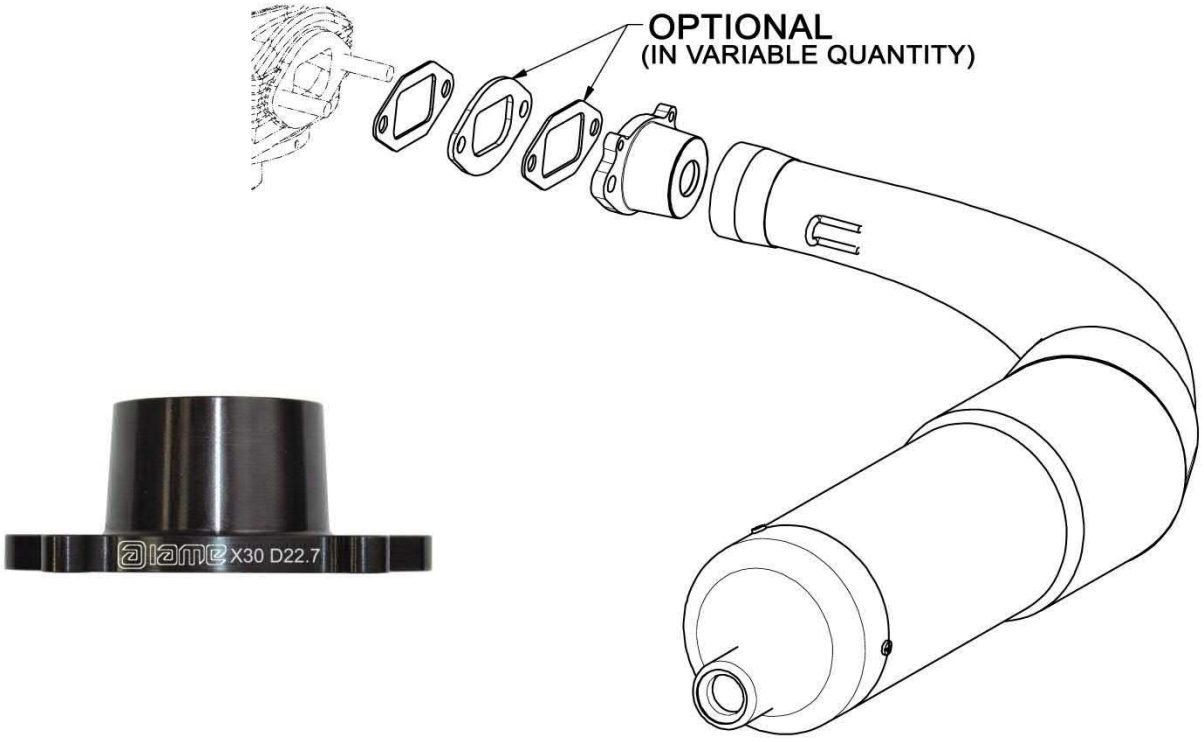
D.5 *EXHAUST SYSTEM*

ALTERNATIVE - TYPE 2 - EXHAUST MANIFOLD WITH RESTRICTOR – D22.7

For use in:
- Restricted 125
- Junior Performance
- X30 Junior



ALTERNATIVE TYPE 2 - EXHAUST MANIFOLD WITH RESTRICTOR D22.7 ASSY AND MARKING



D.5 *EXHAUST SYSTEM*

PHOTO OF THE EXHAUST – TYPE 1

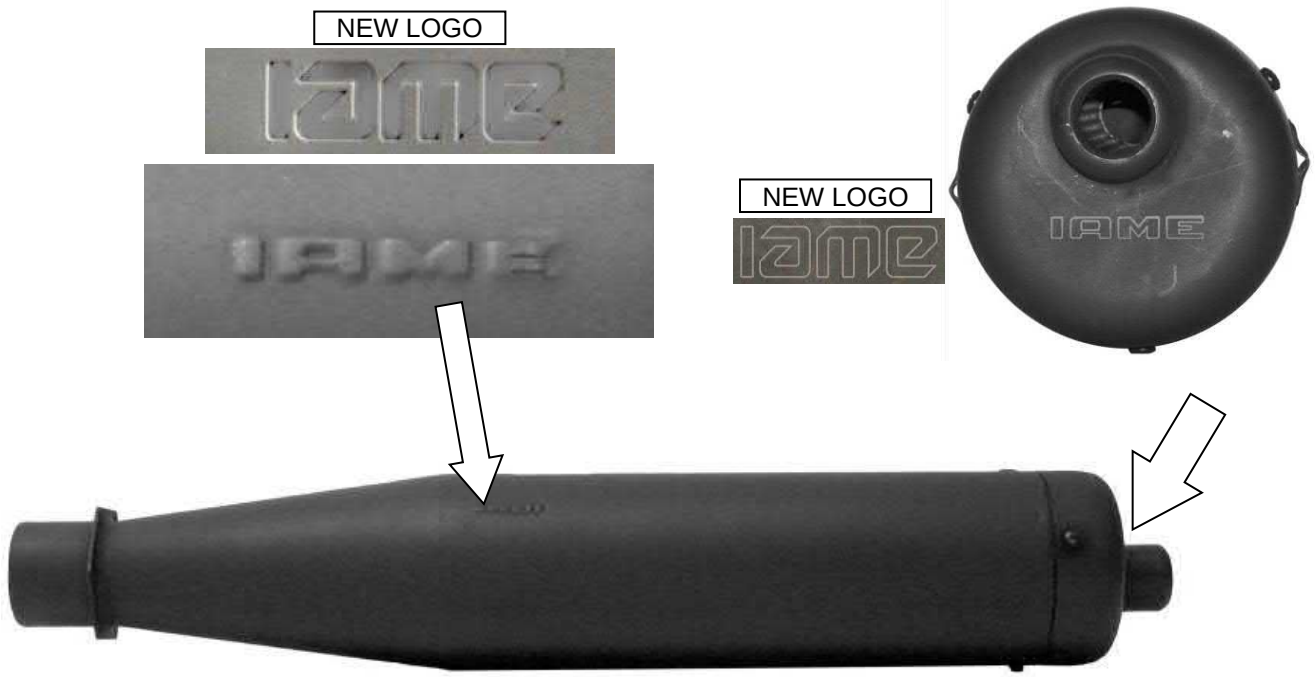


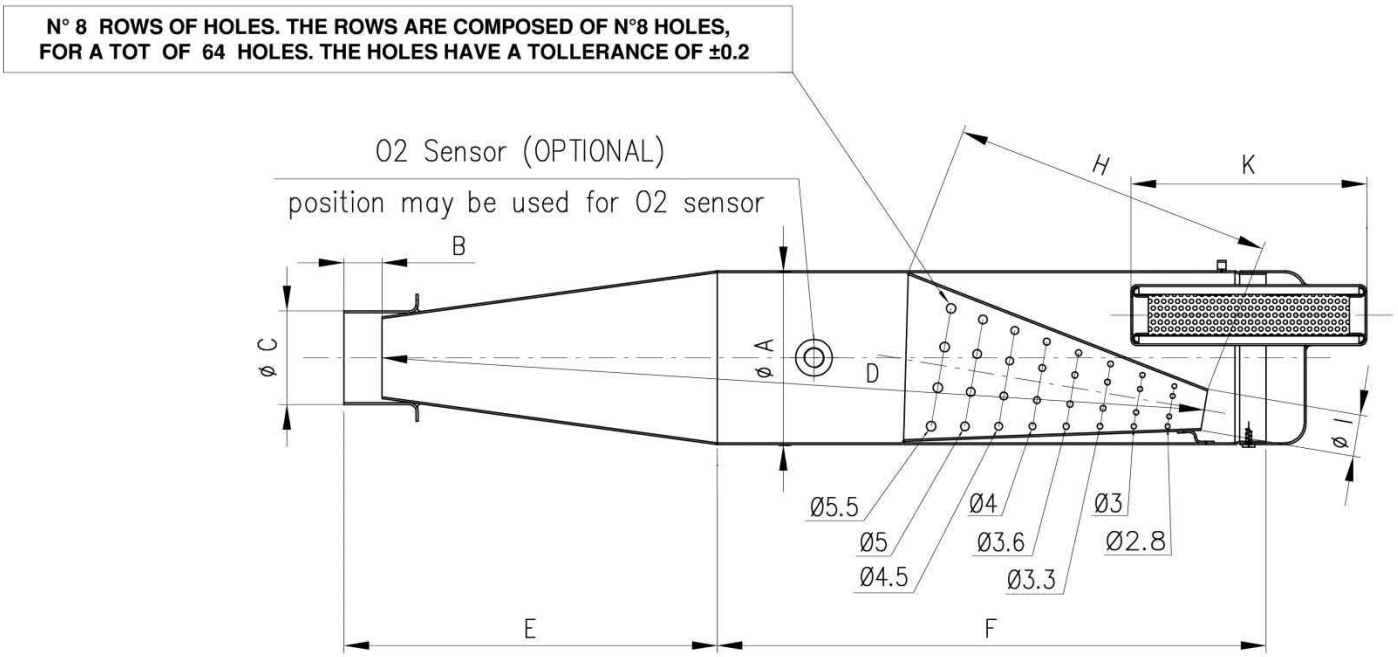
PHOTO OF THE EXHAUST – TYPE 2

... Section D.5

TECHNICAL DESCRIPTIONS OF THE EXHAUST (Art. 8.9.3 of HR) – TYPE 1		
Weight in g	**1390**	*Minimum*
Volume in cc	**3330**	*+/-5 %*

TECHNICAL DRAWING – TYPE 1

It must include all the information necessary to build this exhaust



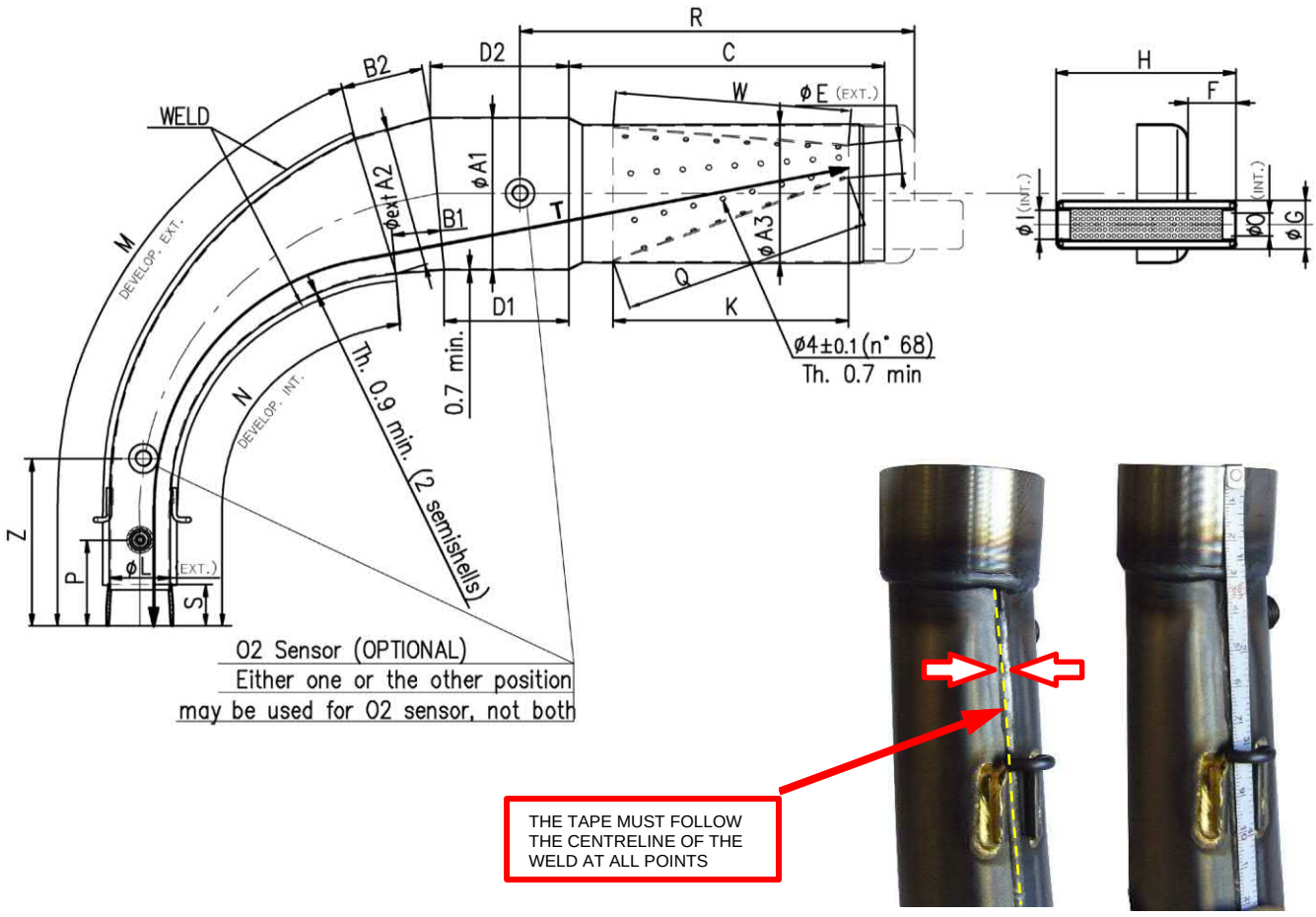
A: 100 ±1 øext.	D: 485 ±5	H: 180 ±5
B: 22 ±1	E: 218 ±5	I: 24 ±2 øext.
C: 54 ±1 øext.	F: 315 ±3	K: 130 ±3

... Section D.5

TECHNICAL DESCRIPTIONS OF THE EXHAUST (Art. 8.9.3 of HR) – TYPE 2		
Weight in g	**1780**	*Minimum*
Volume in cc	**4250**	*+/-5 %*

TECHNICAL DRAWING – TYPE 2

It must include all the information necessary to build this exhaust

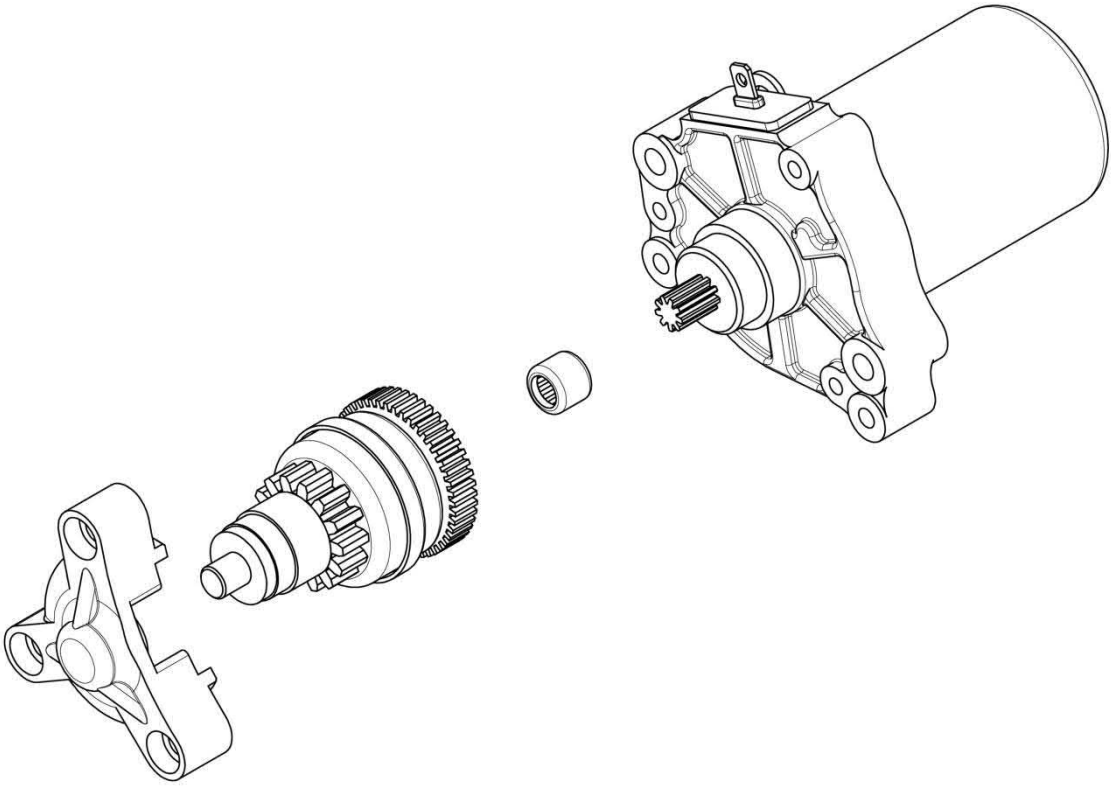


ØA1: 110 ±1.5 Øext	**C:** 219 ±3	**ØG:** 35 ±1 Øext.	**M:** 439 ±3	**T:** 690 ±3
ØA2: 102 ±1.5 Øext.	**D1:** 90 ±3	**H:** 132 ±3	**N:** 341 ±3	**W:** 170 ±3
ØA3: 100 ±1.5 Øext.	**D2:** 109 ±3	**ØI:** 21 ±1 Øint.	**ØO:** 21 ±1 Øint.	**Q:** 182 ±3
B1: 60 ±3	**ØE:** 23.5 ±2 Øext.	**K:** 170 ±3	**P:** 50 ±10	**Z:** 120 ±10
B2: 60 ±3	**F:** 36 ±2	**ØL:** 42.5 ±1.5 Øext.	**S:** 29 ±1.5	**R:** 270 ±10

The dimensions "**M**", "**N**" and "**T**" must be taken by steel tape measure 6mm wide.
The dimensions "**M**" and "**N**" must be taken on the weld centerline.
The dimensions "**Q**" and "**W**" must be taken by steel tape measure 12mm wide.

D.6 *STARTER*

EXPLODED DRAWING OF THE STARTING UNIT AND OF ITS HOUSING

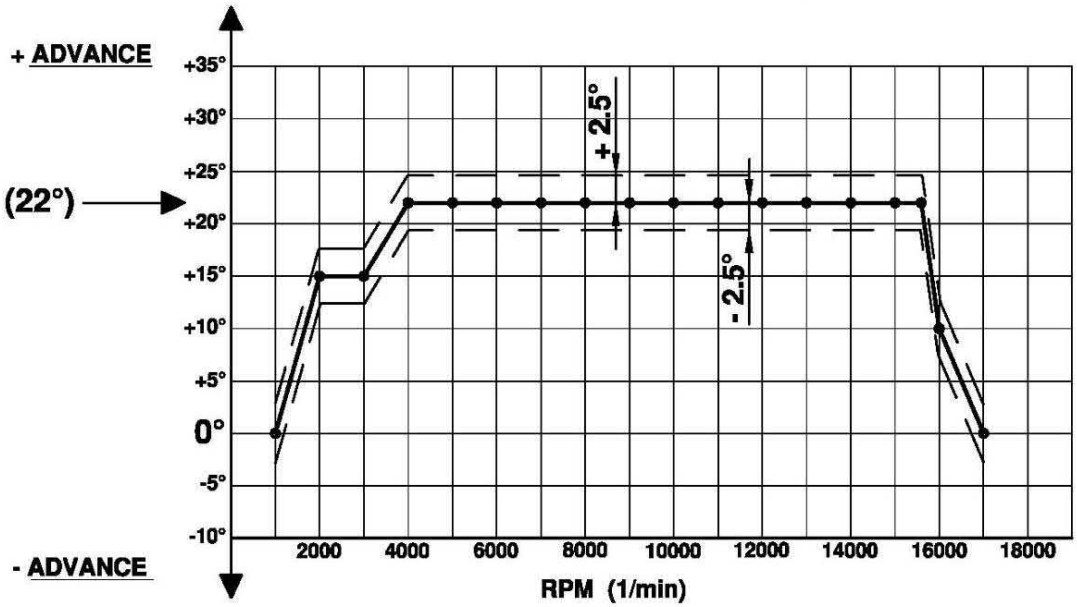


Without screws or gaskets.	***The aim of the exploded drawings is to identify the principles, the functioning and the whole mechanical unit***

D.8 *ELECTRICAL SYSTEM*

IGNITION SYSTEM – TYPE 1

ADVANCE CURVE GRAPHS – SELETTRA DIGITAL « K »



Ignition homologation No.	-	
Ignition homologation No.	-	
Ignition homologation No.	-	
Ignition homologation No.	-	
Code	***SELETTRA (Rotor+Stator) : X30125950***	*Black*
Code	***SELETTRA (H.T. Coil) : X30125955***	*Black*
Code	***SELETTRA (ECU – AKA 20L) : X30125932***	*Green*

Tr / min	*1000*	*2000*	*3000*	*4000*	*5000*	*6000*	*7000*	*8000*	*9000*	*10000*	*11000*	*12000*	*13000*	*14000*	*15500*	*16000*	*17000*
°adv	*0°*	*15°*	*15°*	*22°*	*22°*	*22°*	*22°*	*22°*	*22°*	*22°*	*22°*	*22°*	*22°*	*22°*	*22°*	*10°*	*0°*

ELECTRONIC BOX MARKING “AKA 20L”

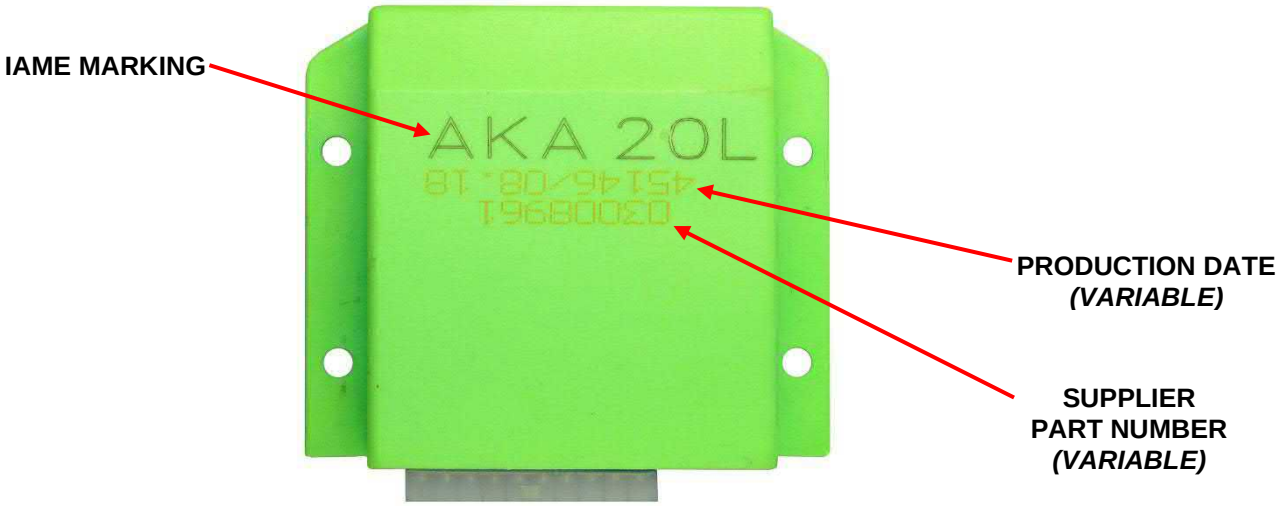


PHOTO OF SELETTRA DIGITAL “K” IGNITION WITH “IAME” MARKING

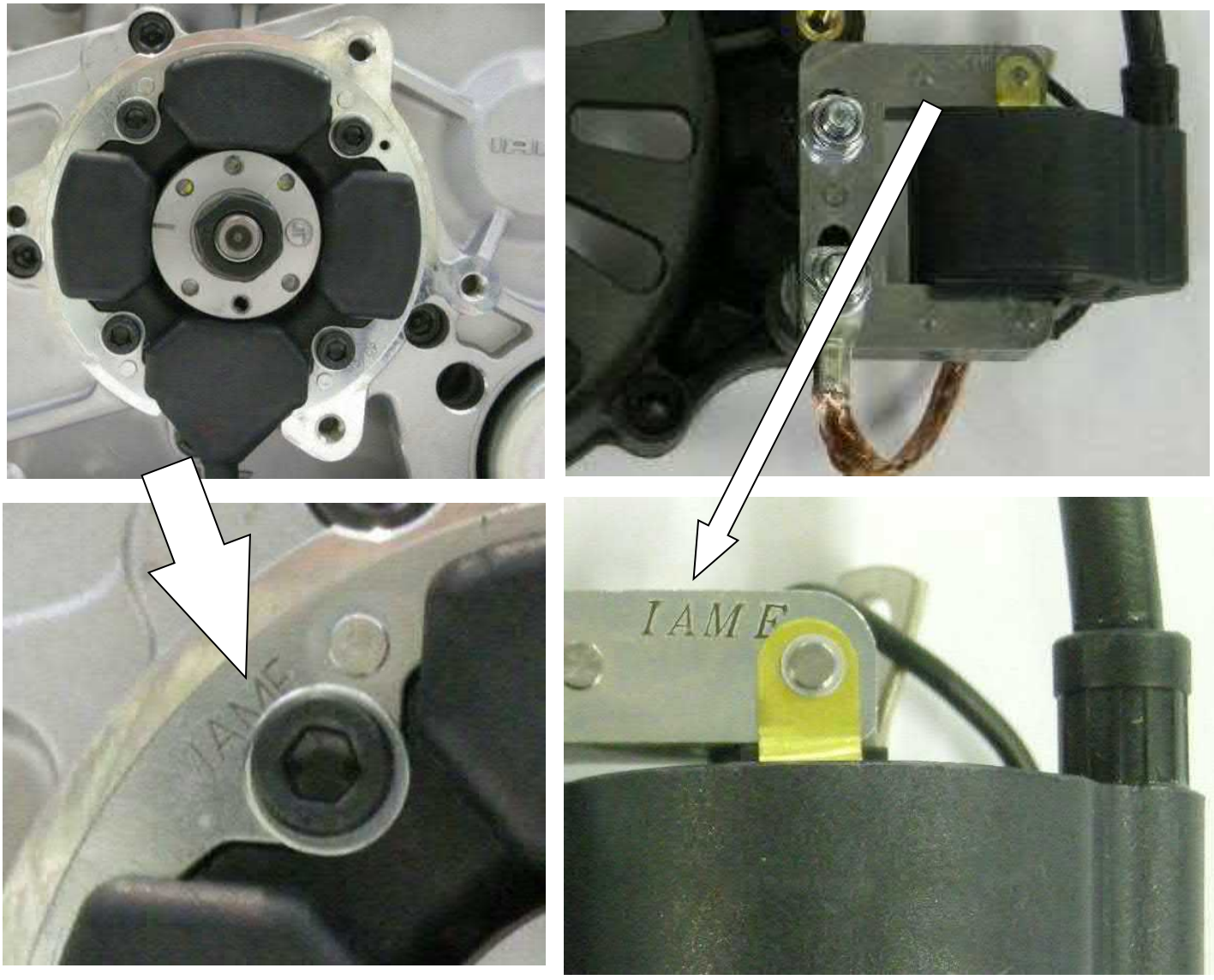
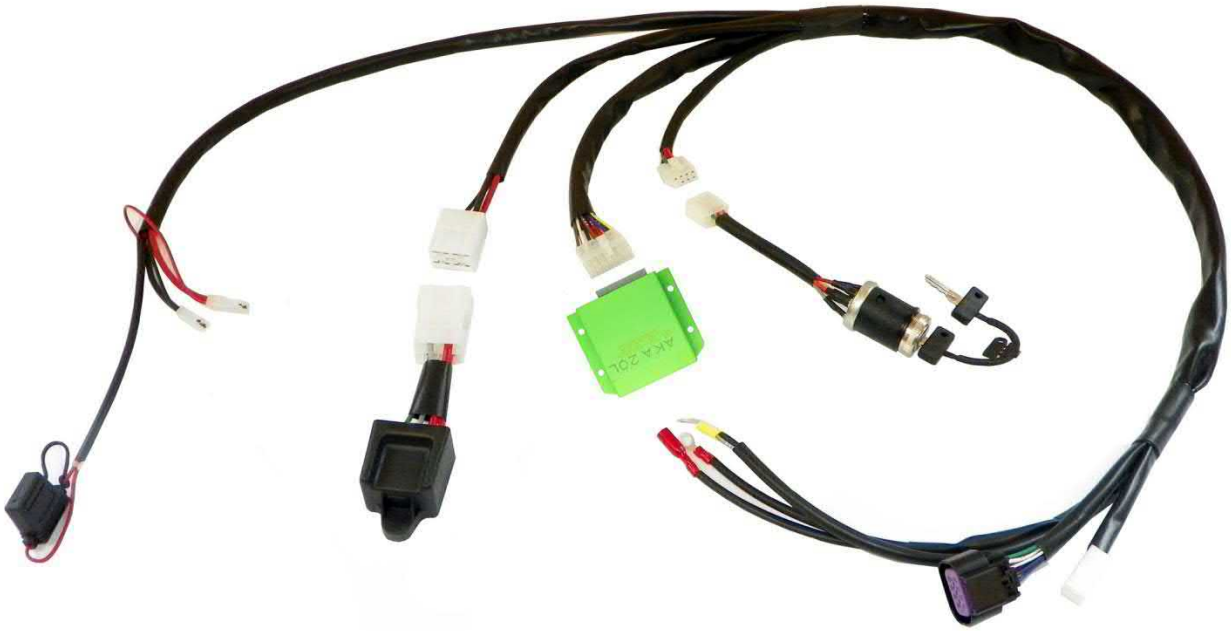


PHOTO COMPLETE WIRING LOOM



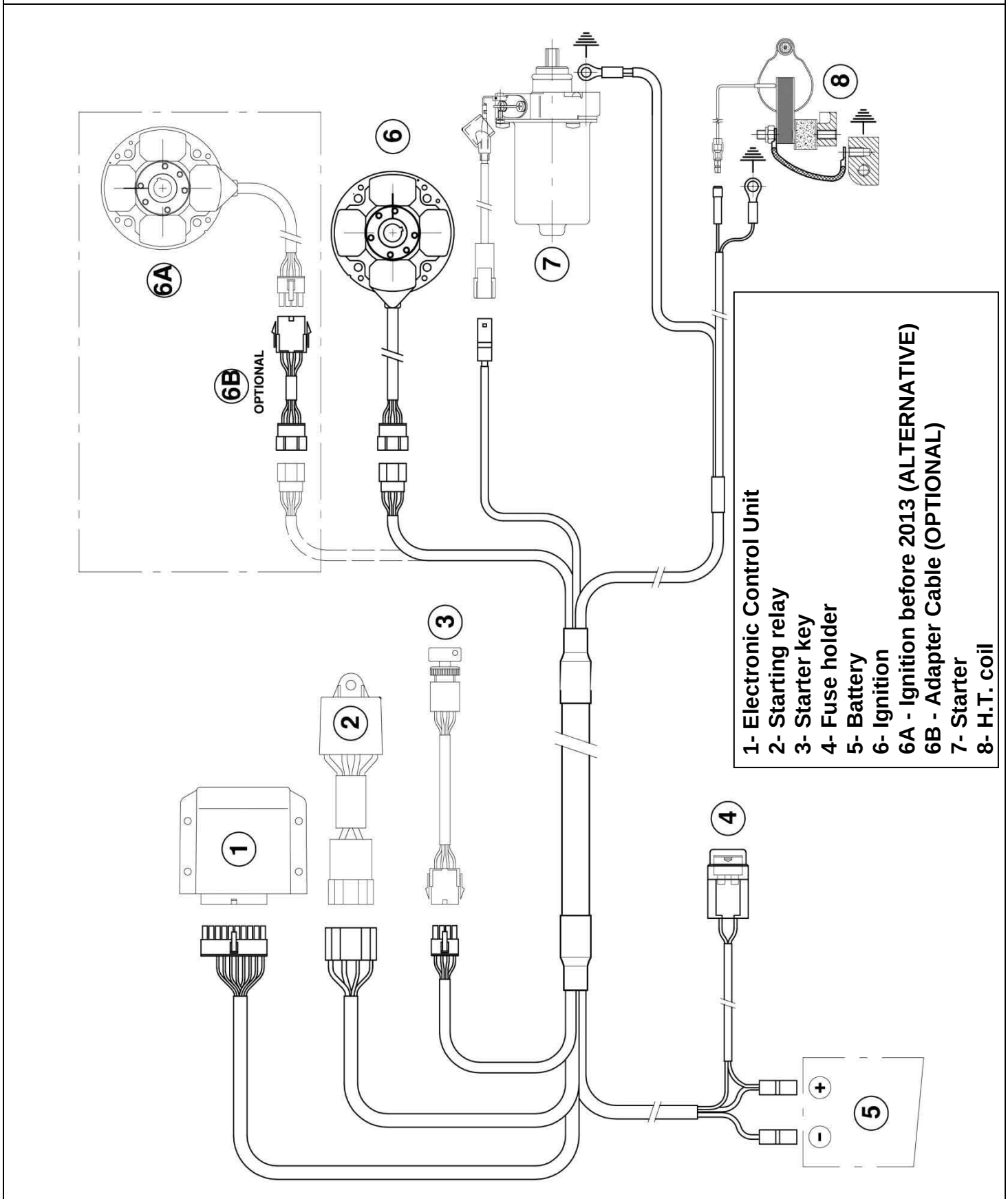
ALTERNATIVE STARTER KEY

It is permitted to use either the "Original Starter Switch (Key) or the "Alternative Starter Switch"detailed herein.

ORIGINAL STARTER KEY

ALTERNATIVE STARTER KEY

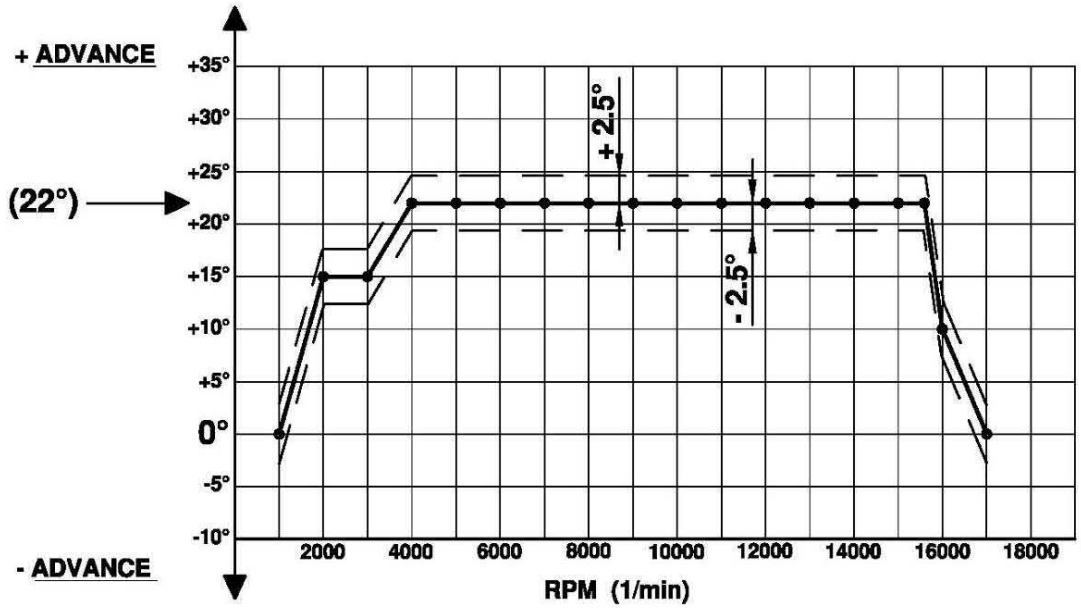
WIRING DIAGRAM - SELETTRA DIGITAL "K" IGNITION



ELECTRICAL SYSTEM

ALTERNATIVE IGNITION SYSTEM – TYPE 2

ADVANCE CURVE GRAPHS – PVL DIGITAL « 690 »

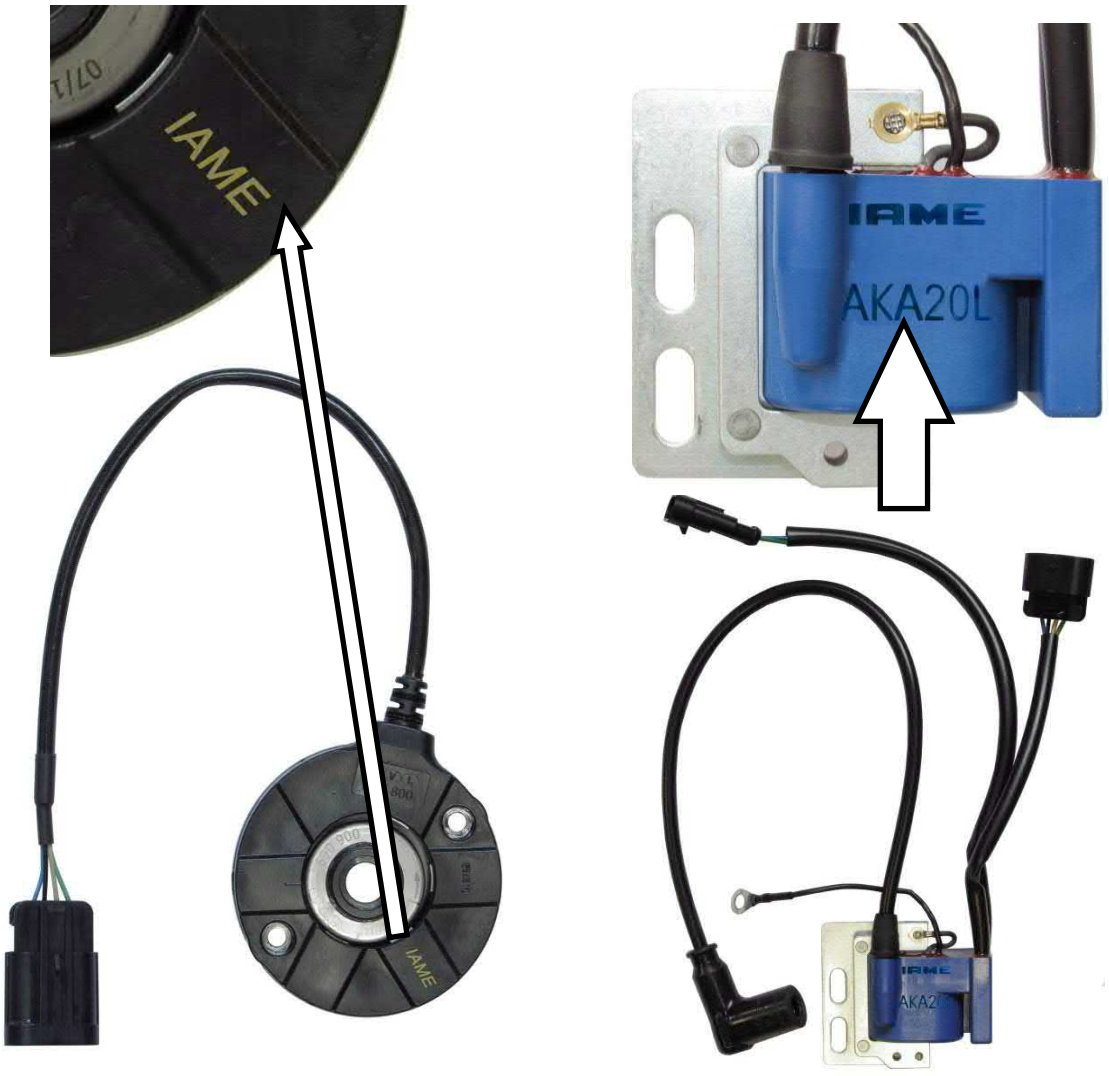


Ignition homologation No.	-	
Ignition homologation No.	-	
Ignition homologation No.	-	
Ignition homologation No.	-	
Code	***PVL (Stator+Rotor) : 690 600 (684 810 + 690 900)***	*Black*
Code	***PVL (H.T. Coil with ECU) : 690 100 – AKA 20L***	*Blue*

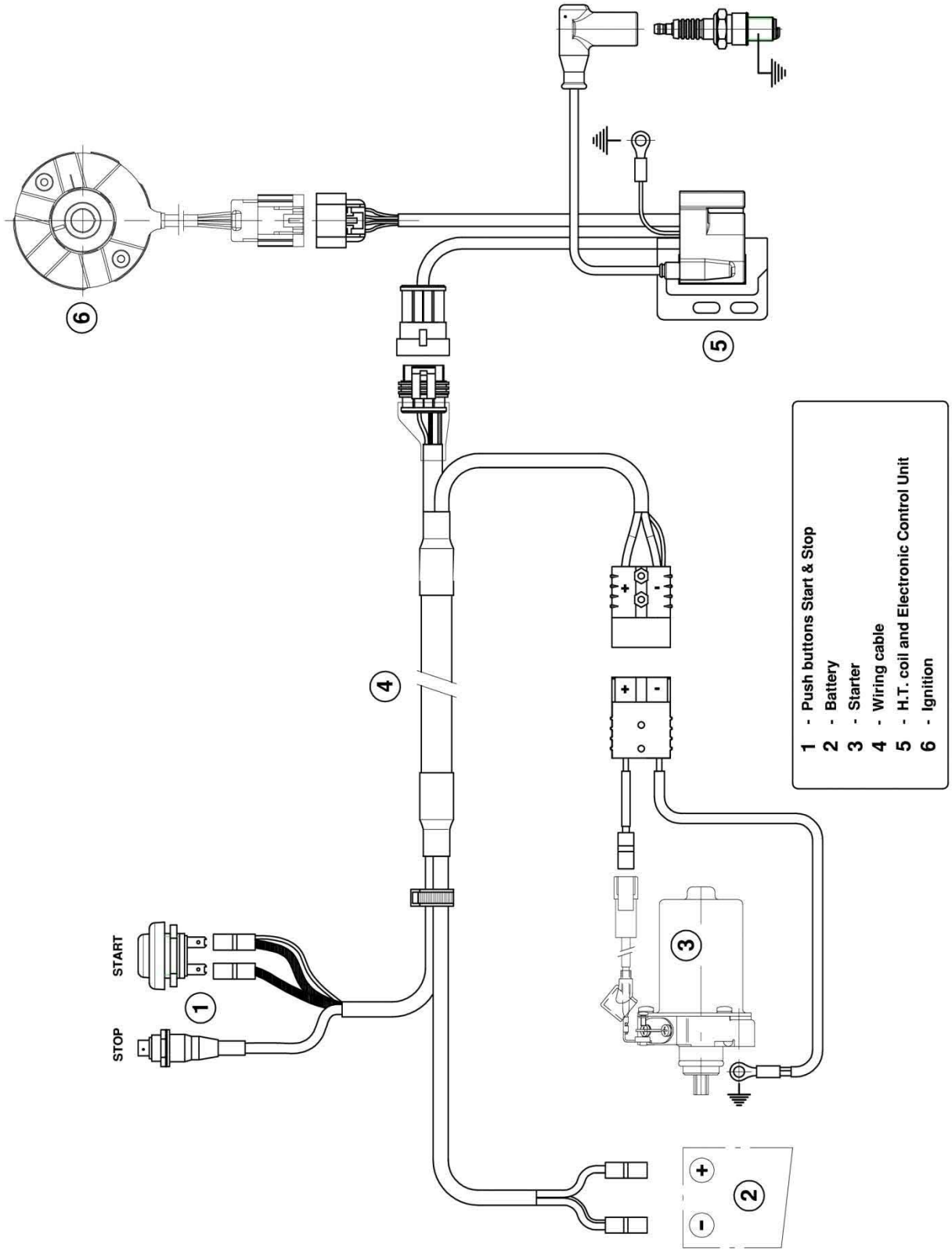
Tr / min	*1000*	*2000*	*3000*	*4000*	*5000*	*6000*	*7000*	*8000*	*9000*	*10000*	*11000*	*12000*	*13000*	*14000*	*15500*	*16000*	*17000*
°adv	*0°*	*15°*	*15°*	*22°*	*22°*	*22°*	*22°*	*22°*	*22°*	*22°*	*22°*	*22°*	*22°*	*22°*	*22°*	*10°*	*0°*

PHOTO COMPLETE ALTERNATIVE WIRING LOOM

PHOTO OF ALTERNATIVE DIGITAL IGNITION PVL 690, WITH IAME MARKING

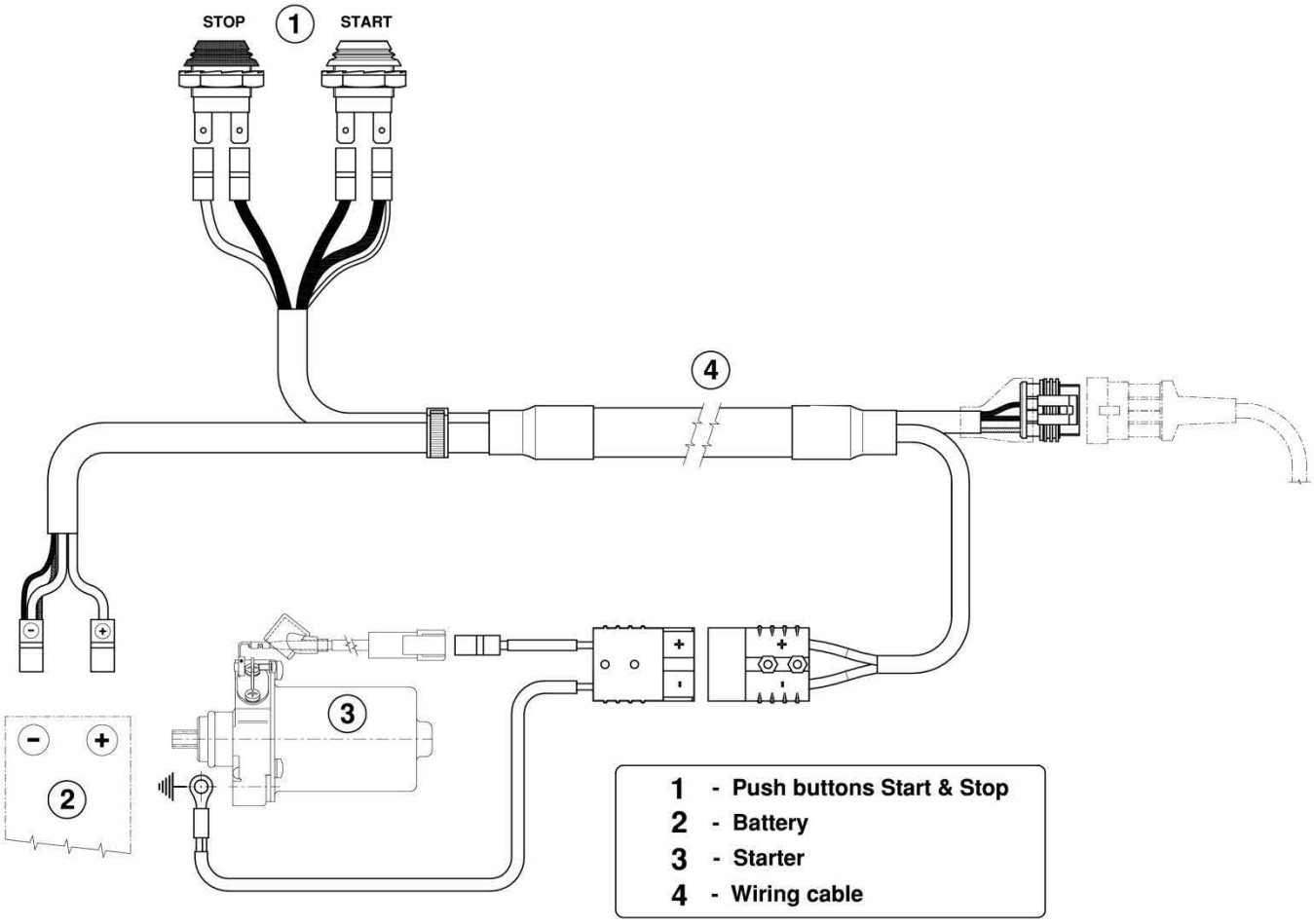


ALTERNATIVE WIRING DIAGRAM – PVL 690 DIGITAL IGNITION



ALTERNATIVE WIRING LOOM

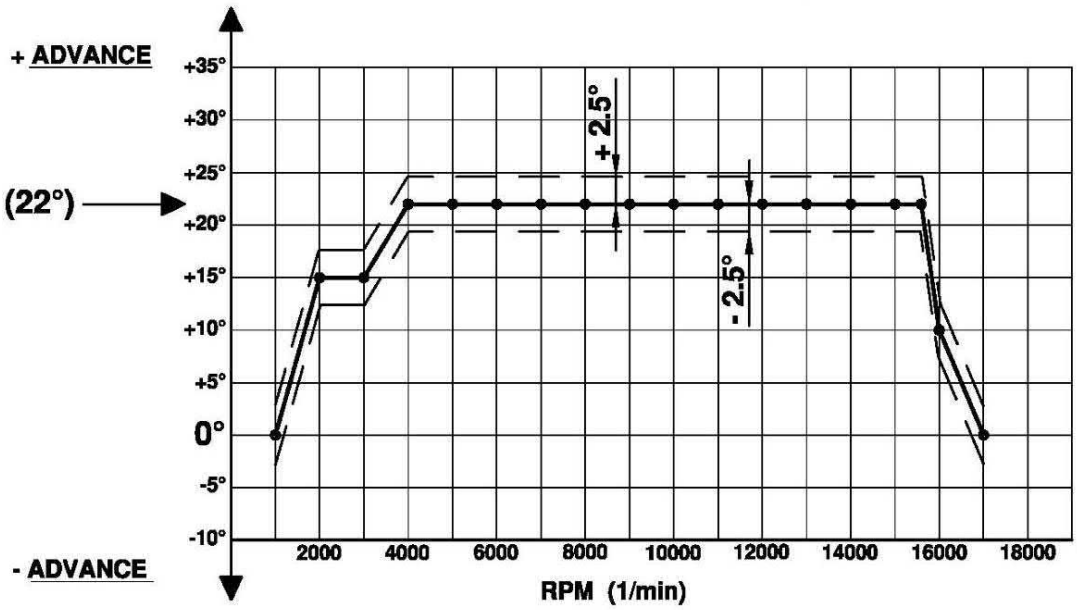
ALTERNATIVE WIRING LOOM DIAGRAM



ELECTRICAL SYSTEM

IGNITION SYSTEM – TYPE 3

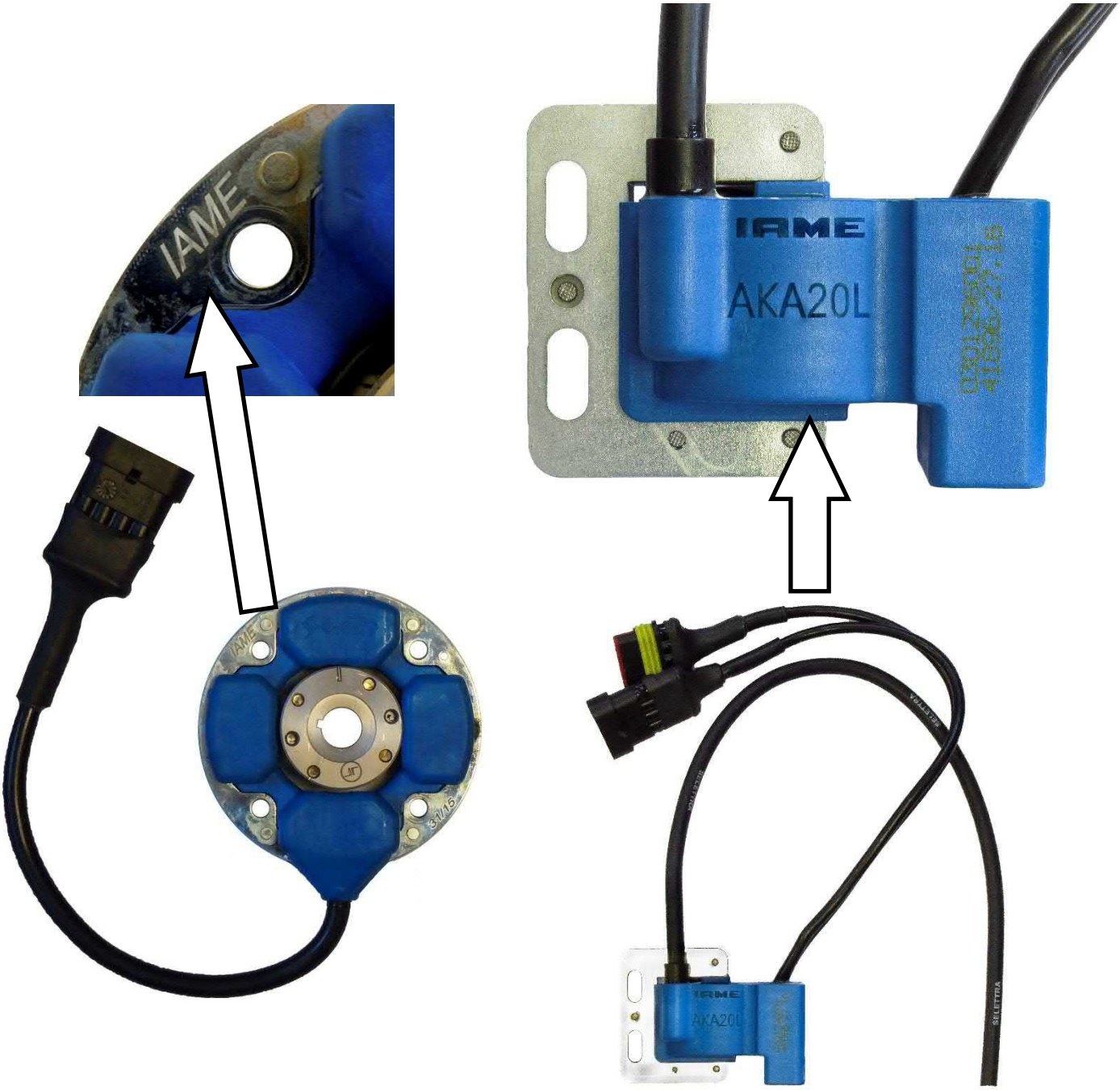
ADVANCE CURVE GRAPHS – SELETTRA DIGITAL « S »



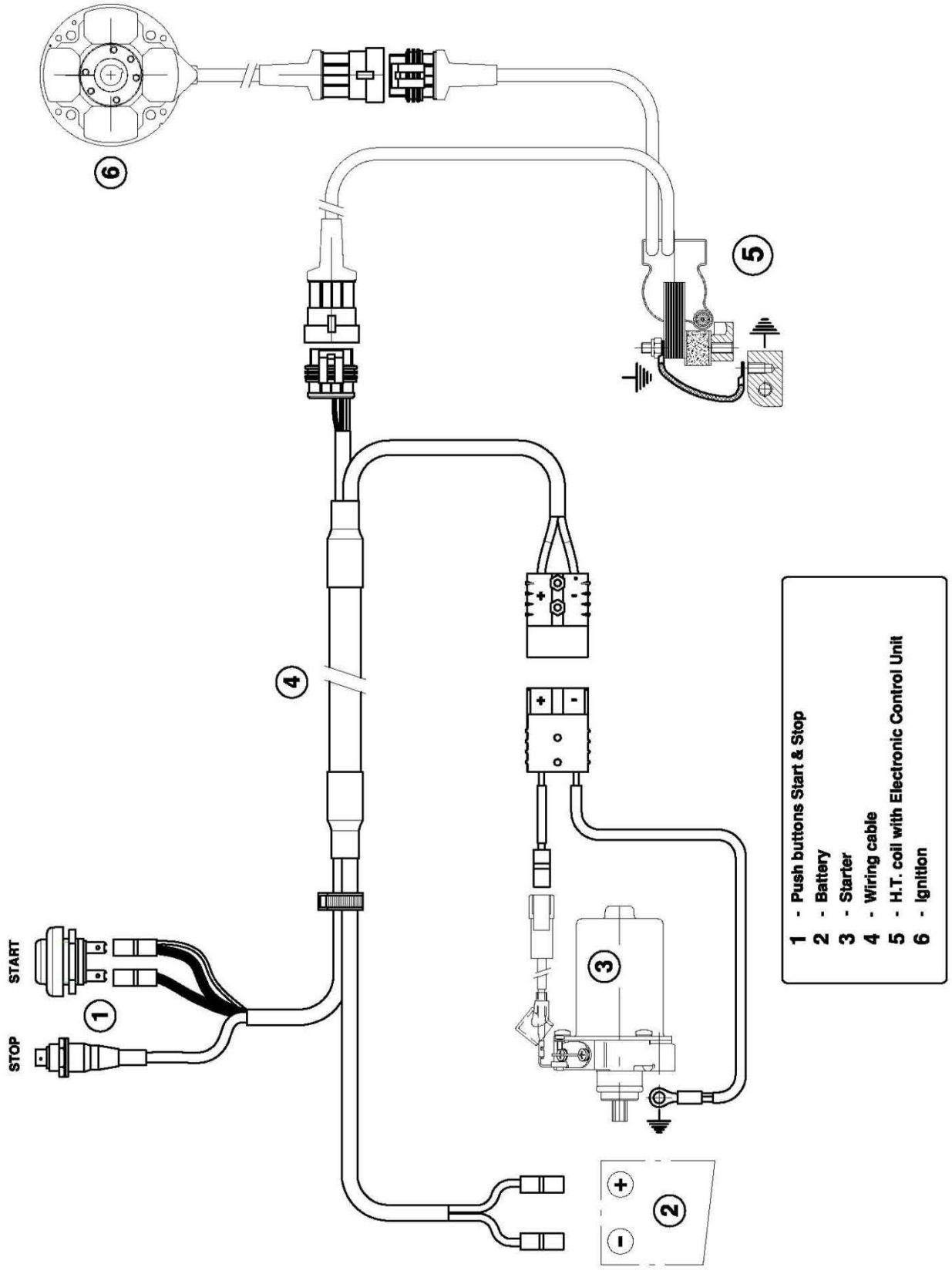
Ignition homologation No.	-	
Ignition homologation No.	-	
Ignition homologation No.	-	
Ignition homologation No.	-	
Code	***SELETTRA (Rotor+Stator) : X30125953***	*Blue*
Code	***SELETTRA (H.T. Coil with ECU) : X30125933AKA***	*Blue*

Tr / min	*1000*	*2000*	*3000*	*4000*	*5000*	*6000*	*7000*	*8000*	*9000*	*10000*	*11000*	*12000*	*13000*	*14000*	*15500*	*16000*	*17000*
°adv	*0°*	*15°*	*15°*	*22°*	*22°*	*22°*	*22°*	*22°*	*22°*	*22°*	*22°*	*22°*	*22°*	*22°*	*22°*	*10°*	*0°*

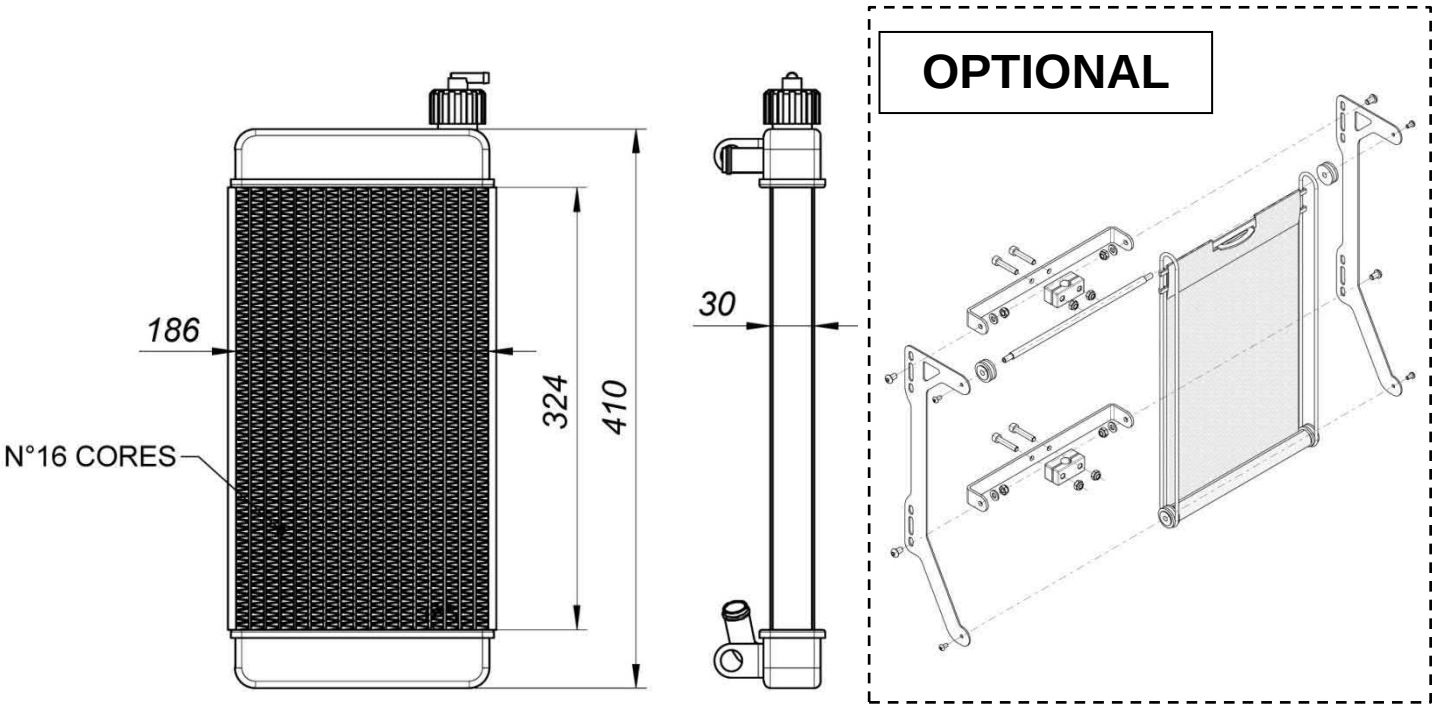
PHOTO OF SELETTRA ALTERNATIVE DIGITAL “S” IGNITION, WITH IAME MARKING



WIRING DIAGRAM (SELETTRA DIGITAL ‘’S’’ IGNITION)

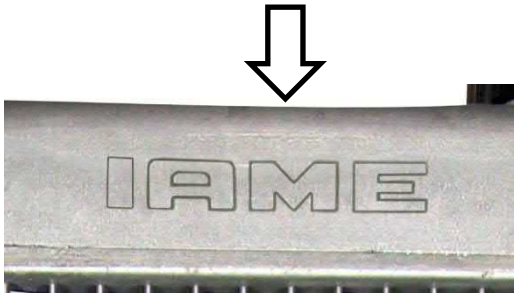


RADIATOR DRAWING AND DIMENSIONS – TYPE 1

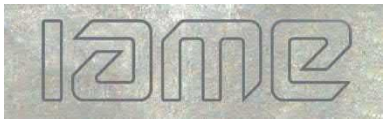


RADIATOR – TYPE 1

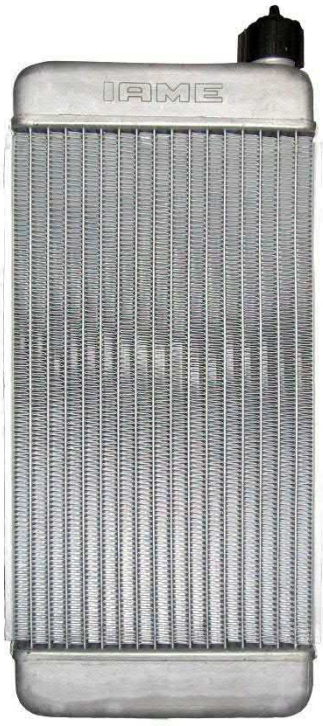
PUNCHED MARKING



NEW LOGO

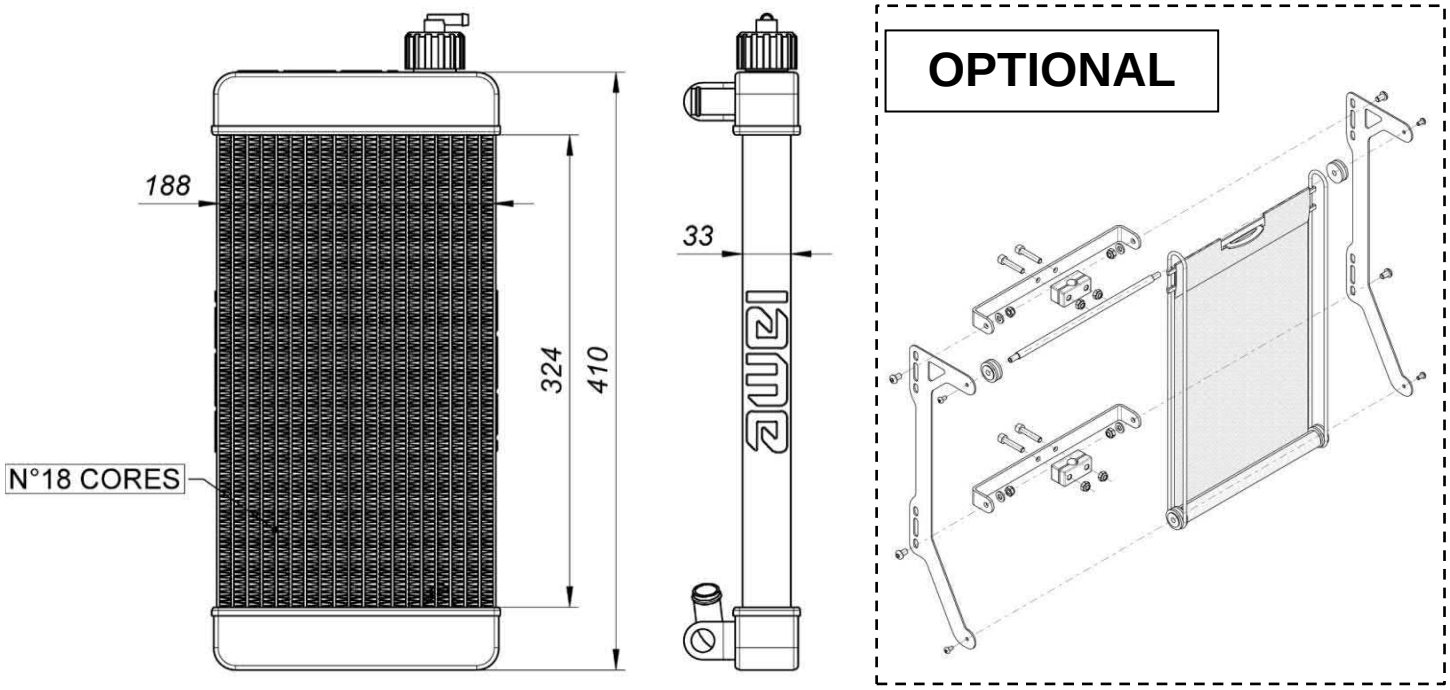


FRONT

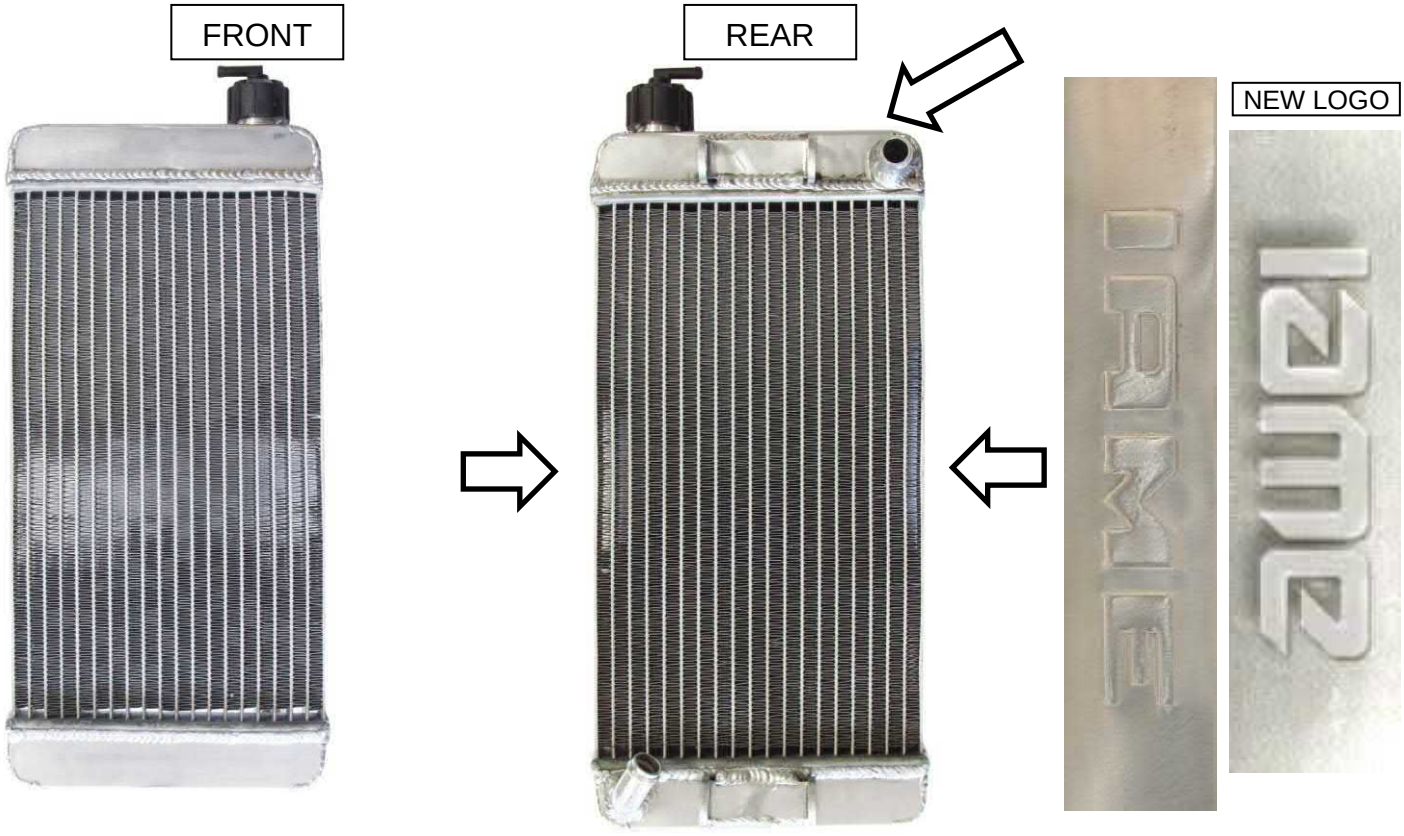


REAR

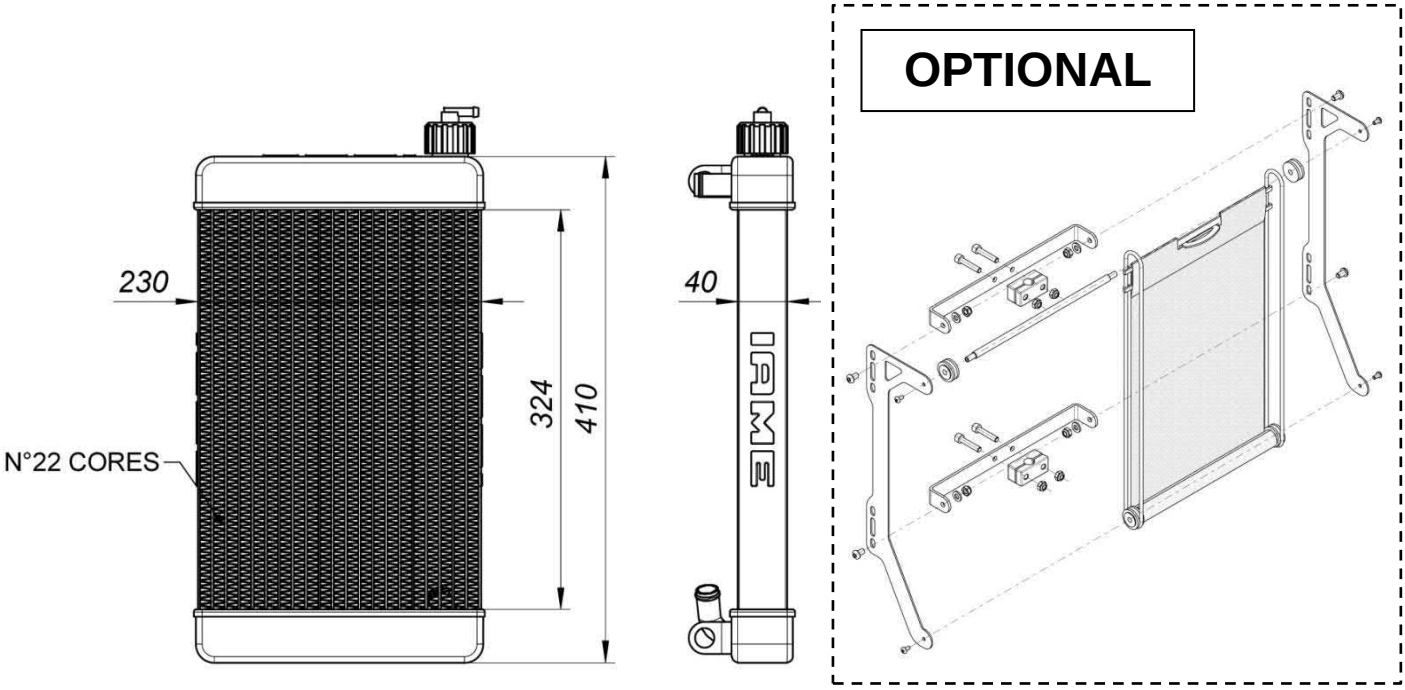
RADIATOR DRAWING AND DIMENSIONS – TYPE 2



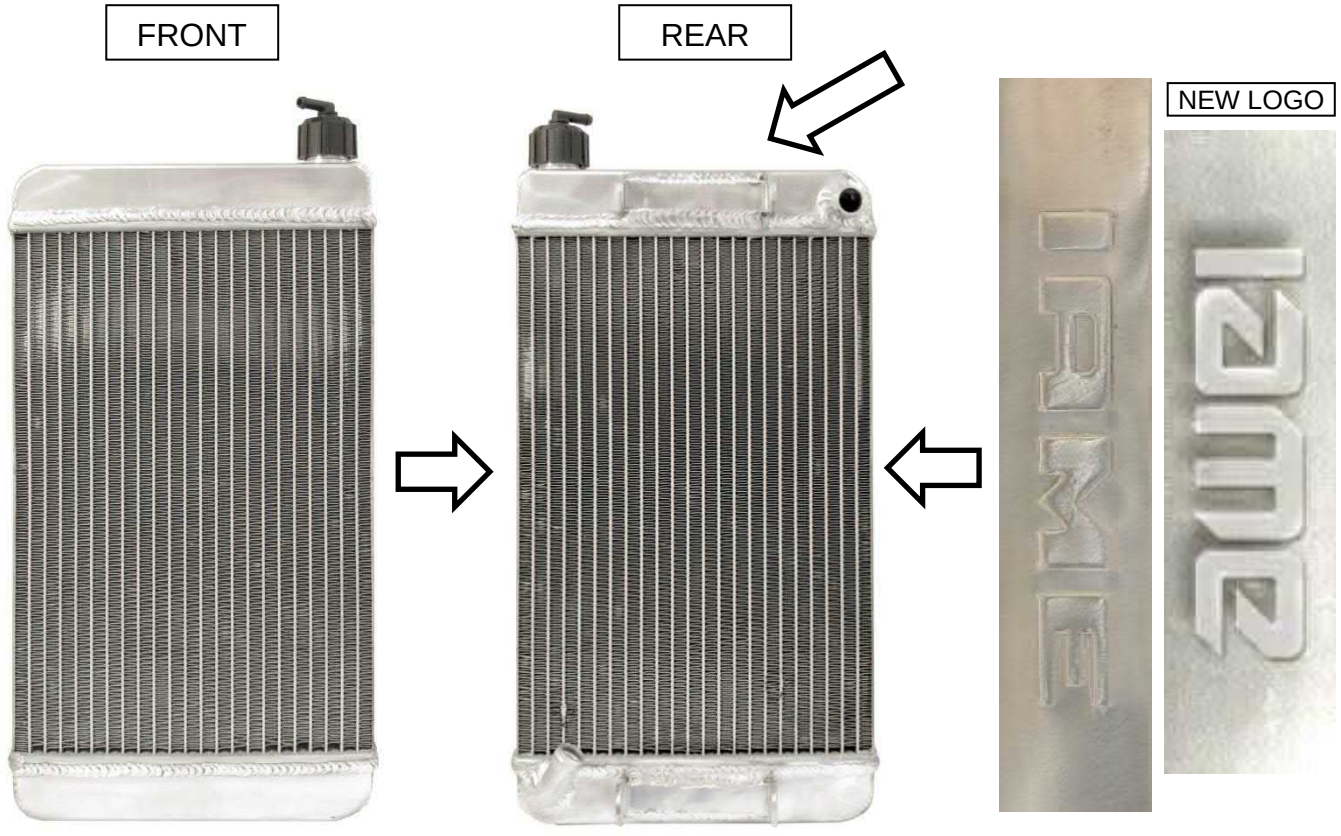
RADIATOR – TYPE 2



RADIATOR DRAWING AND DIMENSIONS – TYPE 3



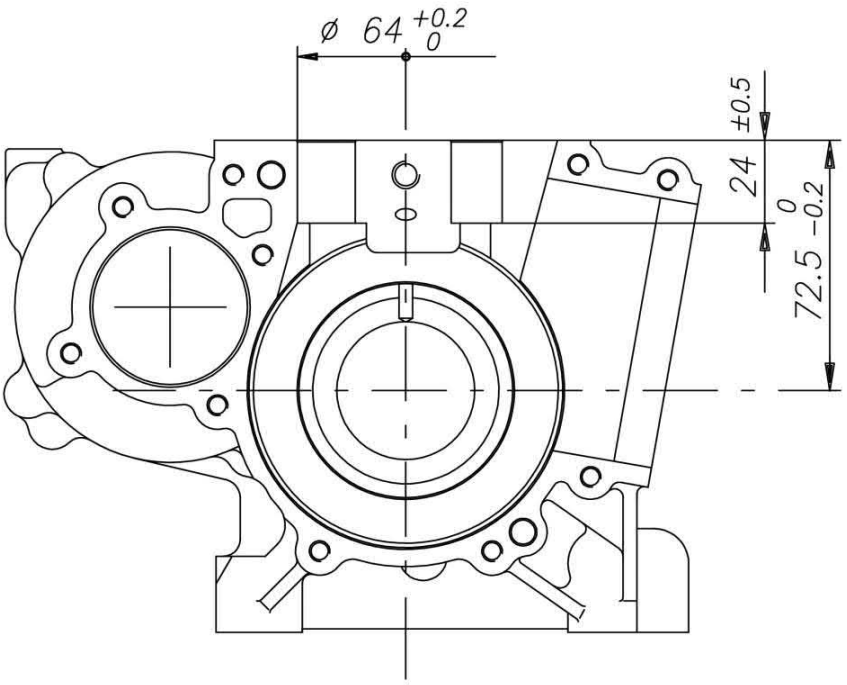
RADIATOR – TYPE 3



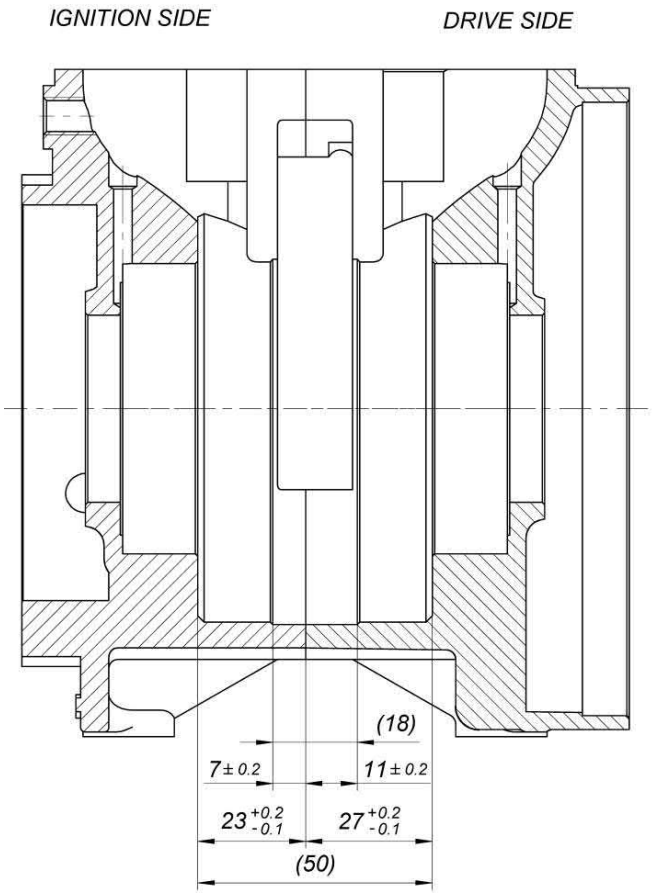
ADDITIONAL INFORMATION, DRAWING AND PHOTO IDENTIFICATION

ADDITIONAL TECHNICAL INFORMATION			
DESCRIPTION	**QUANTITY**	**MATERIAL**	**NOTES / DIMENSIONS**
Piston Rings	1	Iron	-
Balancing shaft	1	Steel	-
Exhaust muffler	1	Sheet-steel	-
Gears	-	Steel	-
Starter Ring	1	Steel	-
Big end conrod bearing diameters	1	-	20x26x15
Crankshaft bearing diameters	2	-	30x62x16
Small end conrod bearing diameters	1	-	14x18x17.5
Cooling System	-	-	Water
Inlet System	-	-	Reed Valve
Combustion chamber shape	-	-	Spherical
Centrifugal Clutch	-	-	Yes
Electric Starter	-	-	Yes

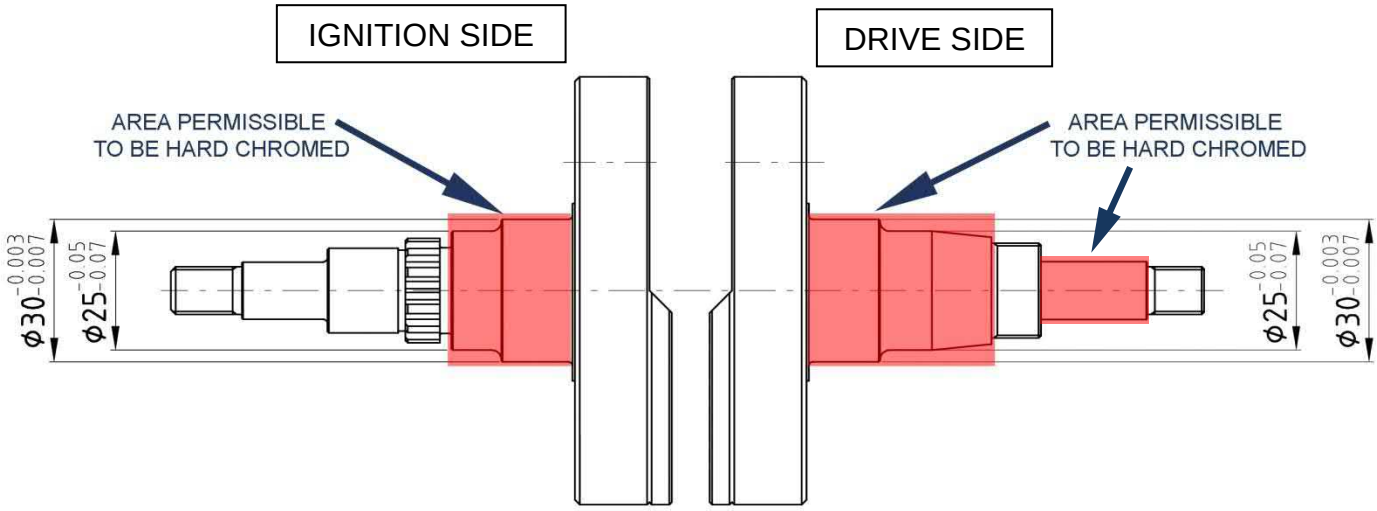
CRANKCASE INSIDE VIEW



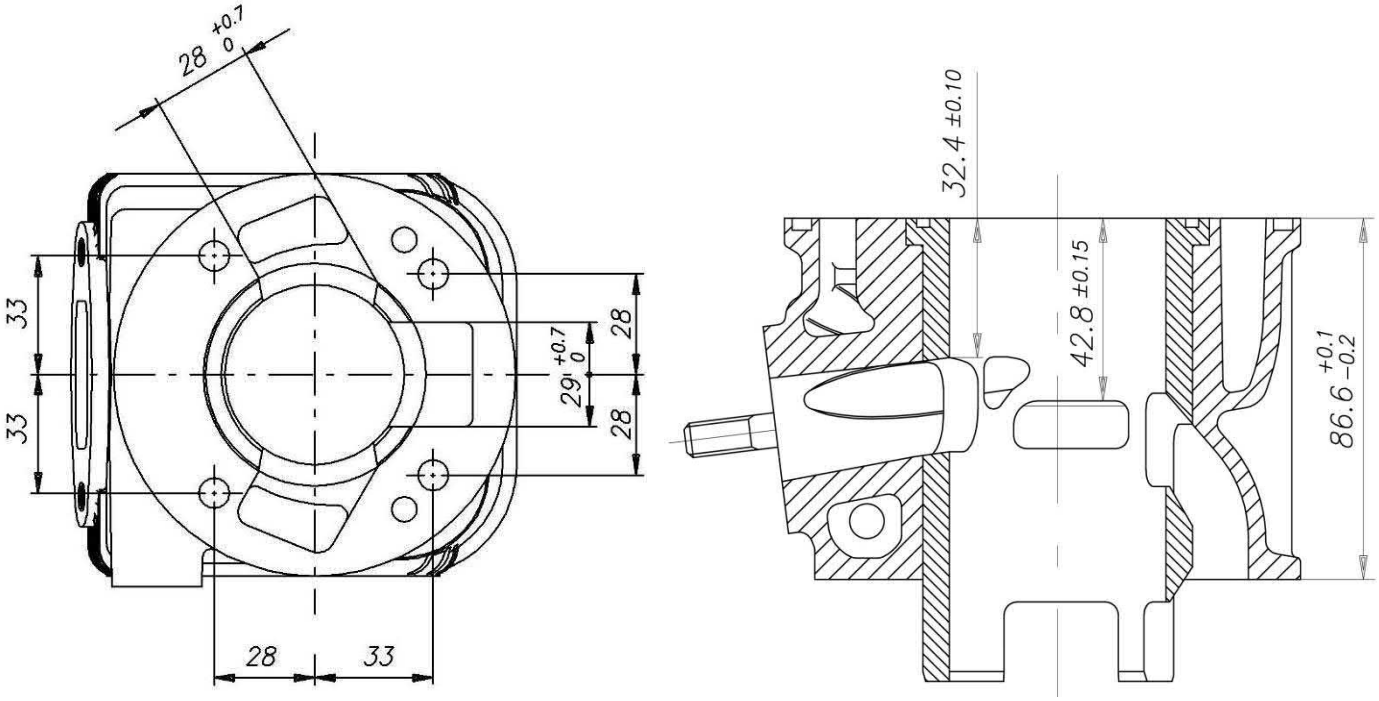
CRANKCASE ASSEMBLY DIMENSIONS



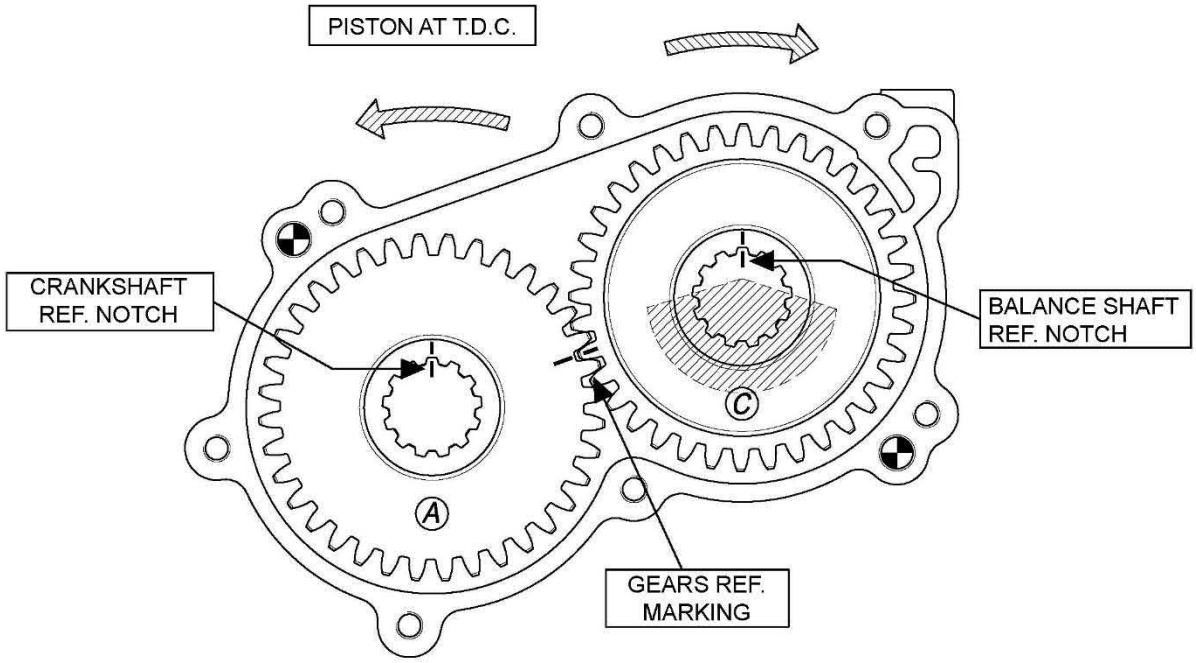
CRANKSHAFT REPAIR BY HARD CHROMED



CYLINDER BASE HOLES AND CROSS SECTION (with dimensions)

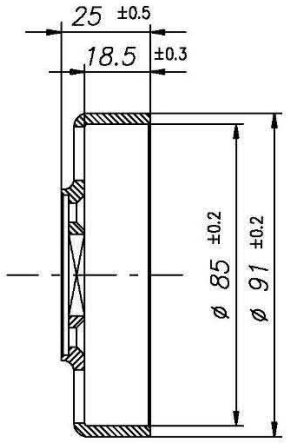


GEARS TIMING COMMAND BALANCING SHAFT



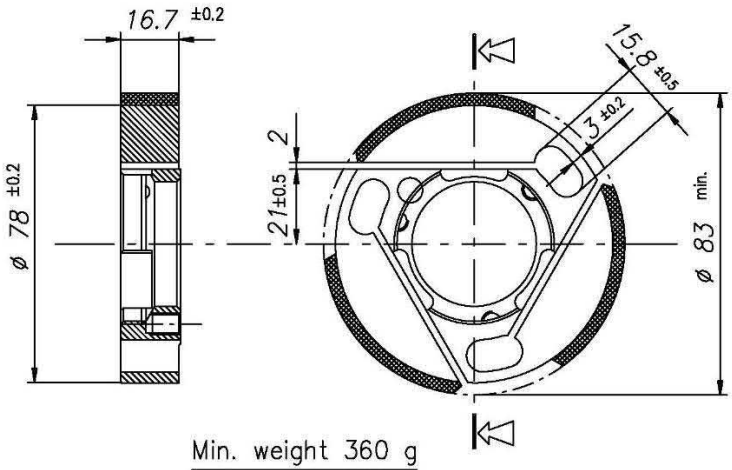
CLUTCH GROUP DRAWING AND ASSEMBLY – ALL TYPES

P.N. X30125550



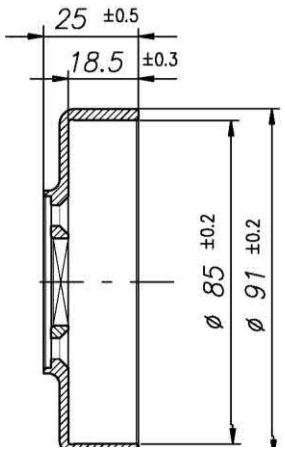
Min. weight 225 g

P.N. X30125840



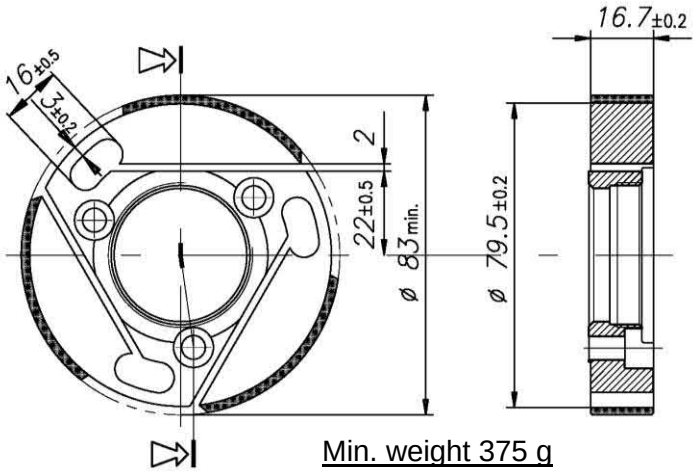
Min. weight 360 g

P.N. X30125550A



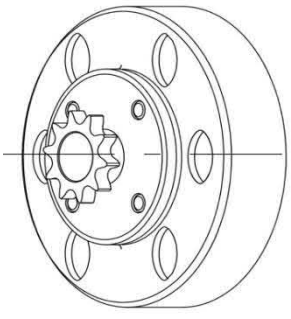
Min. weight 225 g

P.N. X30125841



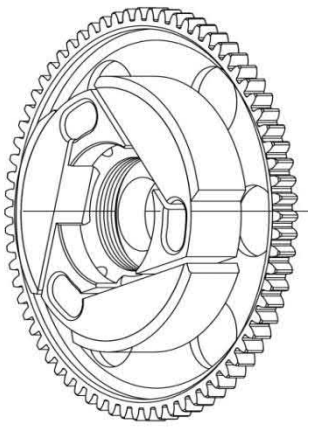
Min. weight 375 g

P.N. X30125550 & P.N. X30125554-C



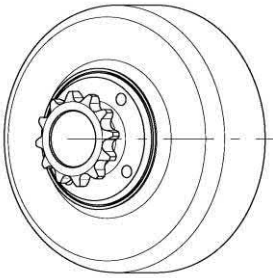
Min. weight 300 g

P.N. X30125840 & P.N. X30125830



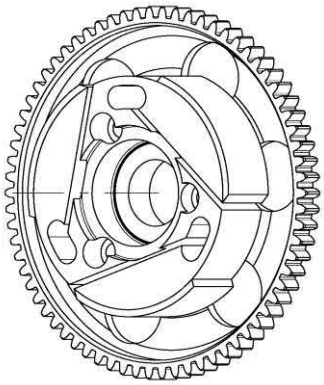
Min. weight 650 g

P.N. X30125550A & P.N. X30125554-C



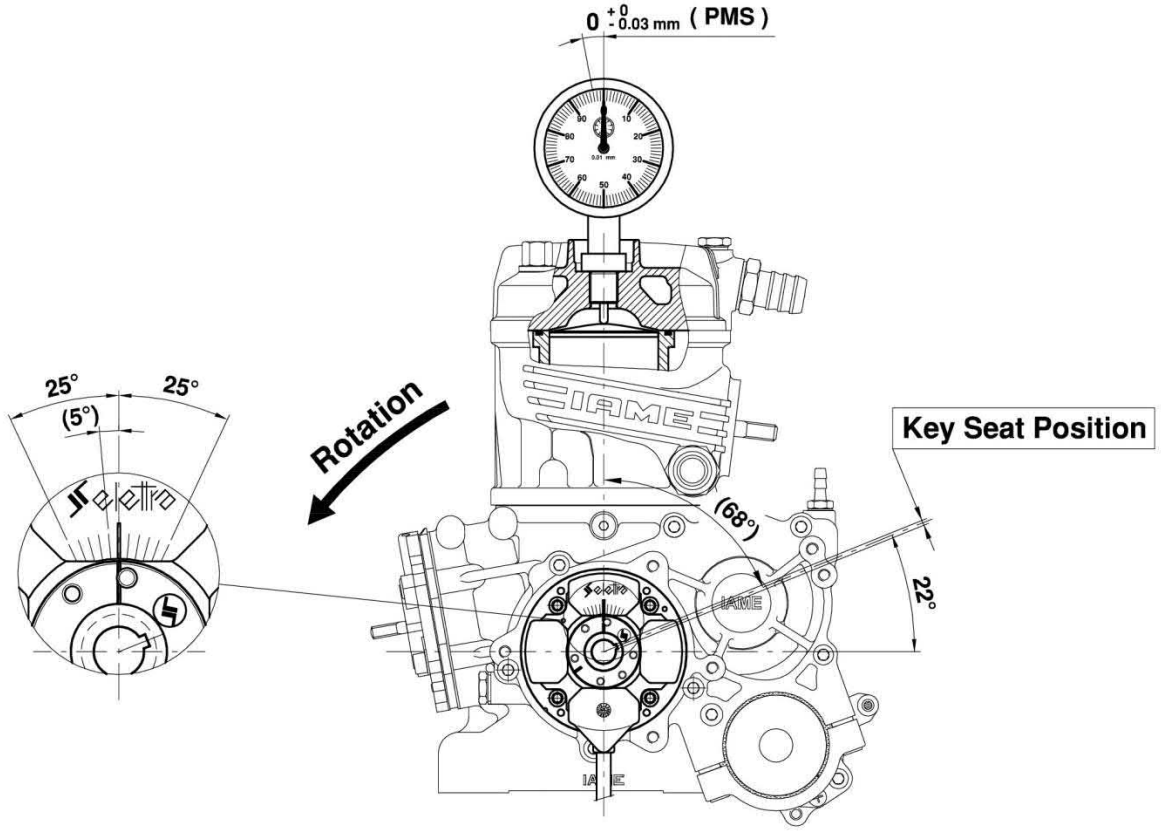
Min. weight 300 g

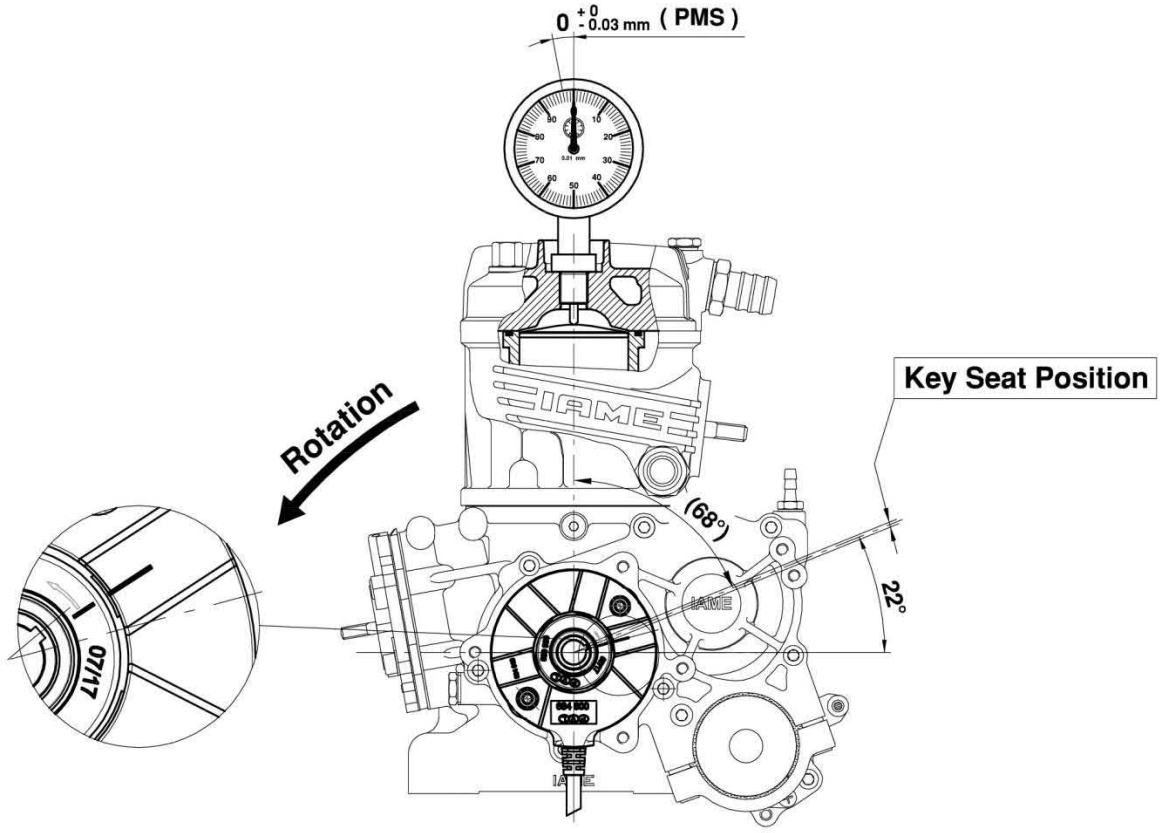
P.N. X30125841 & P.N. X30125831



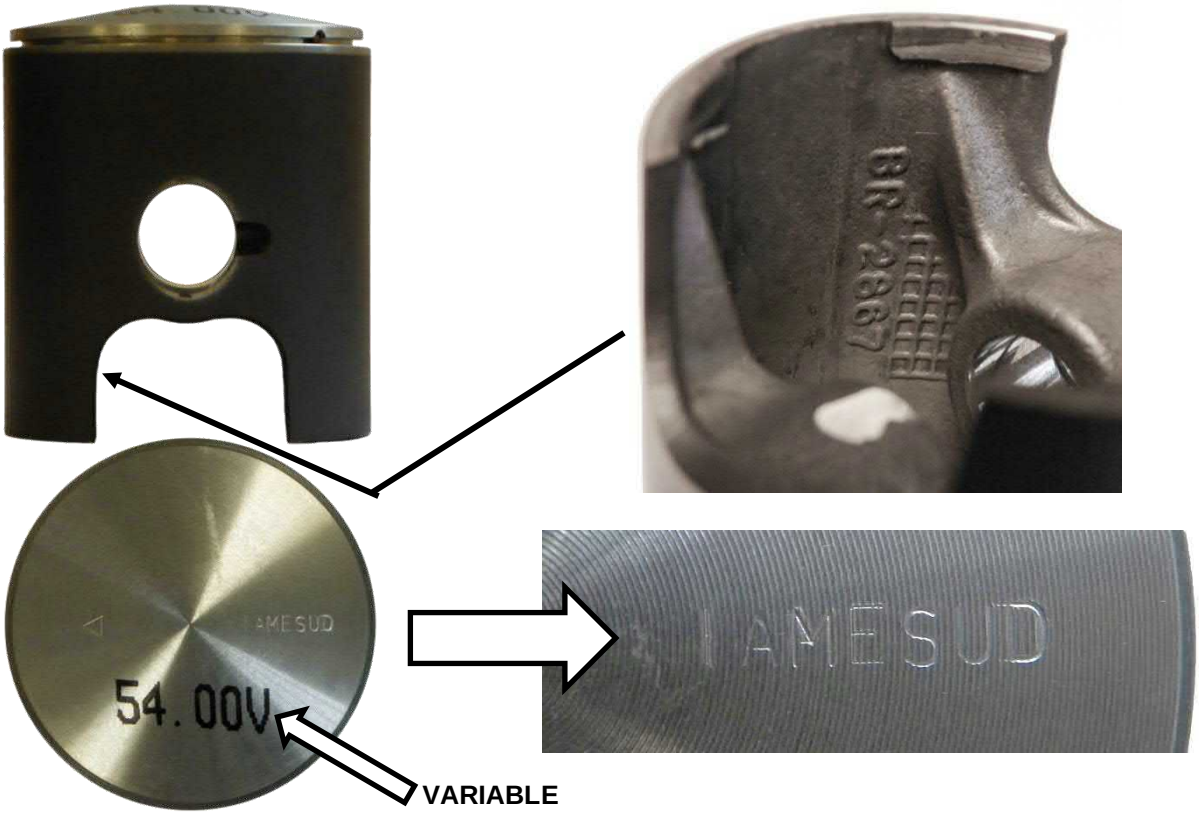
Min. weight 680 g

SCHEME FOR ADVANCE CONTROL

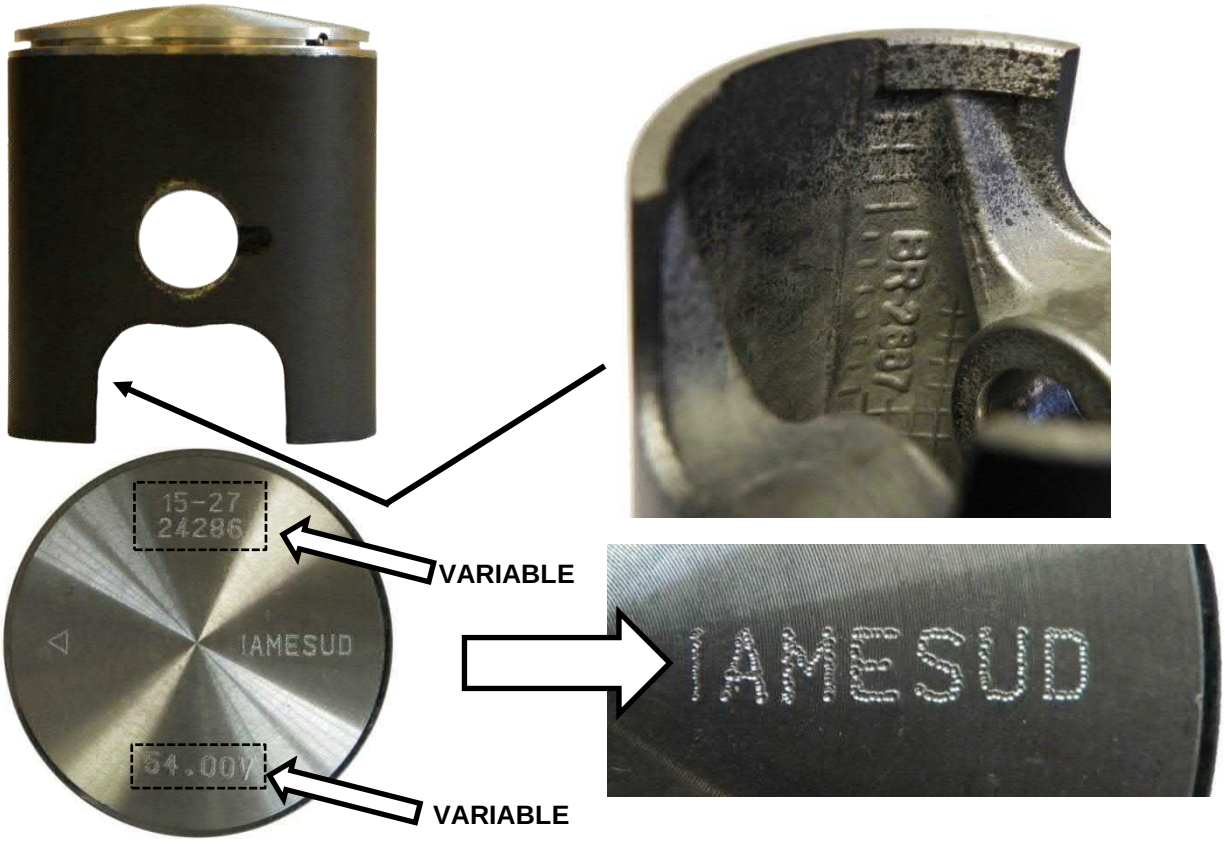




PISTON IDENTIFICATION MARKING

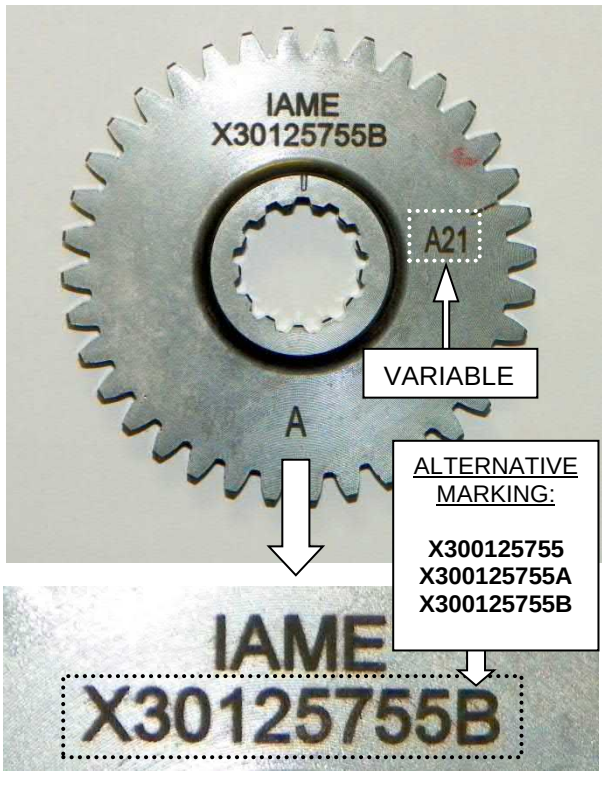


ALTERNATIVE



CRANKSHAFT IDENTIFICATION MARKING

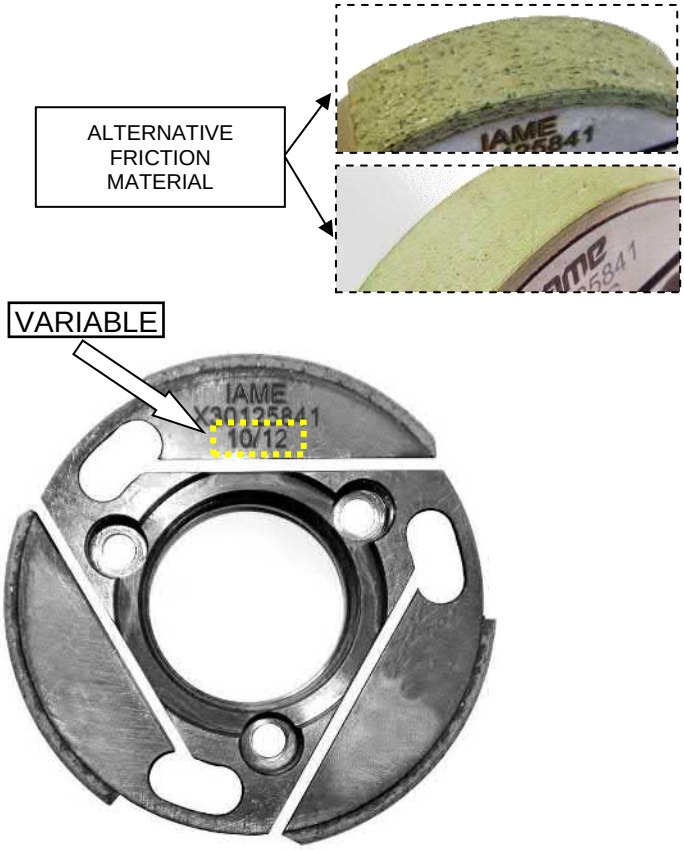
DRIVE GEAR FOR BALANCE SHAFT IDENTIFICATION MARKING



STARTER IDENTIFICATION MARKING

CLUTCH HUB IDENTIFICATION MARKING
- TYPE 1 -

CLUTCH HUB IDENTIFICATION MARKING
- TYPE 2 -



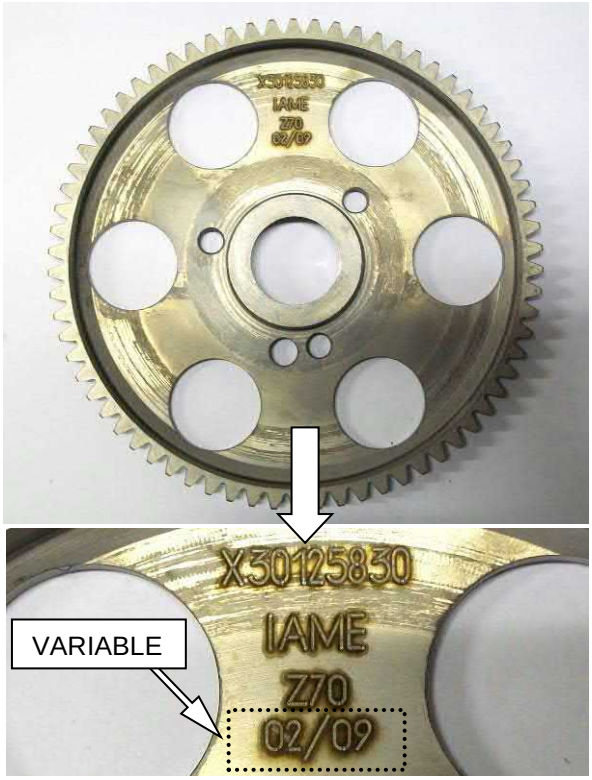
CLUTCH DRUM IDENTIFICATION MARKING

CLUTCH DRUM IDENTIFICATION MARKING

CLUTCH COVER IDENTIFICATION MARKING

SPROCKET IDENTIFICATION MARKING

STARTER RING IDENTIFICATION MARKING
- TYPE 1 -

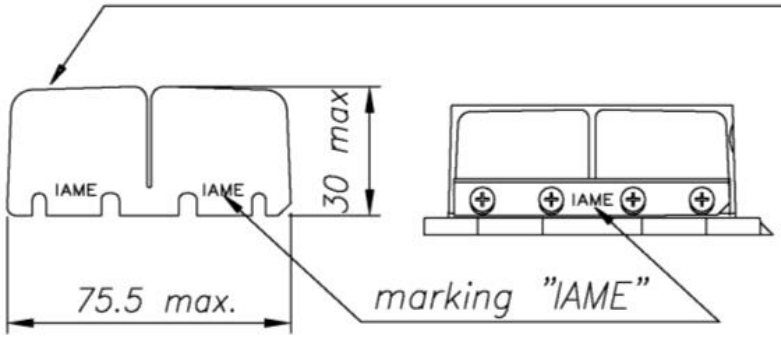


STARTER RING IDENTIFICATION MARKING
- TYPE 2 -

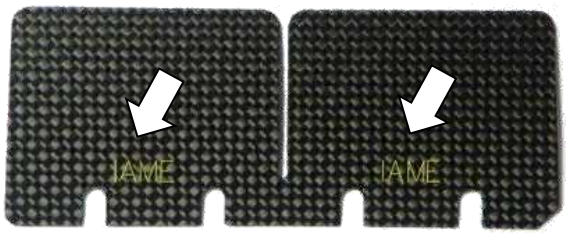
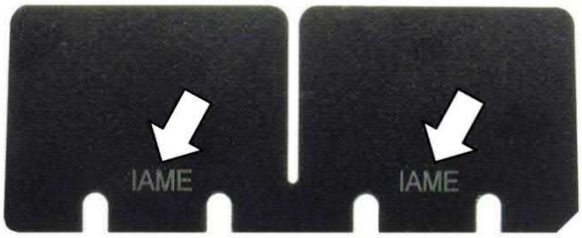
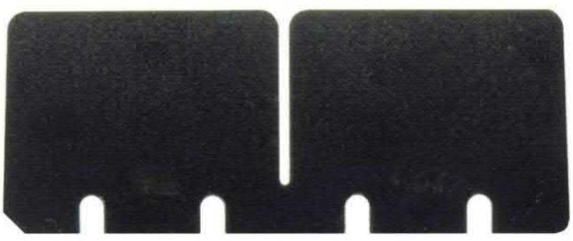
REED PETALS DIMENSIONS

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

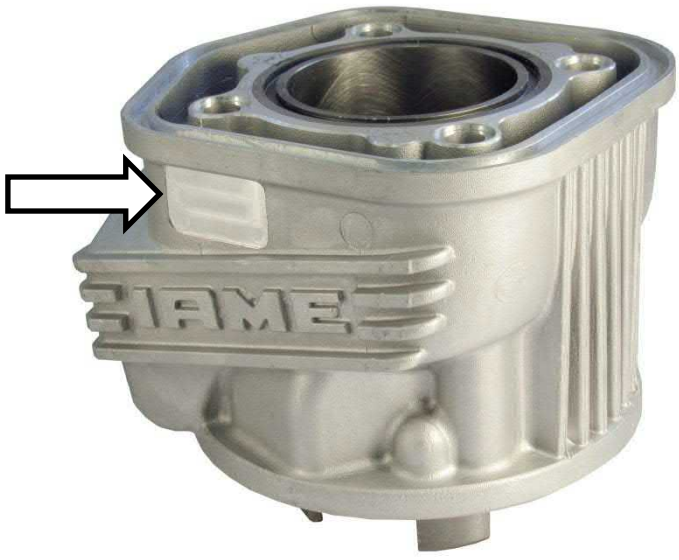
CARBON FIBRE	FIBREGLASS
Front Side	Front Side
	
Rear Side	Rear Side
	

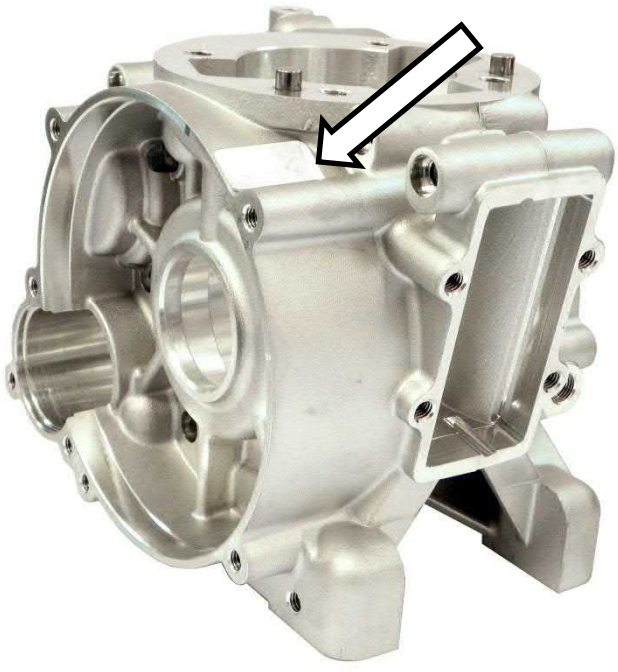
BENDIX COVER IDENTIFICATION MARKING

ALTERNATIVE

VARIABLE IN COLOUR

STICKER APPLICATION AREA



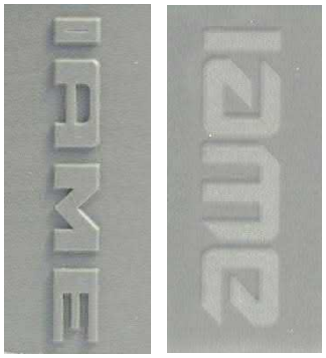


INLET SILENCER - "IAME" IDENTIFICATION MARKING

VARIABLE IN COLOUR

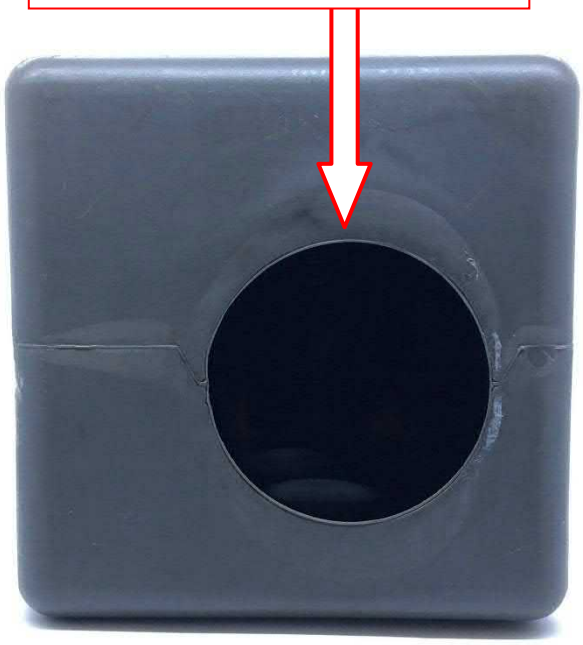
ALTERNATIVE LOGO

NEW LOGO

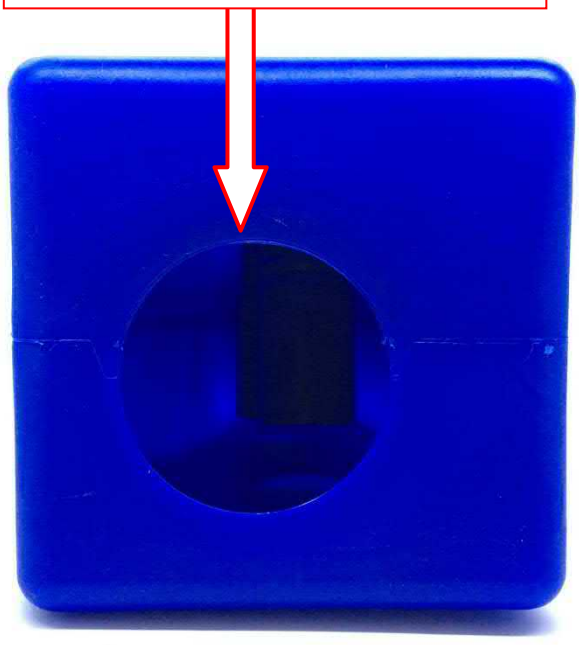


INLET SILENCER OUTLET LOCATION

ORIGINAL RIGHT ALIGNED OUTLET



ALTERNATIVE LEFT ALIGNED OUTLET



INLET SILENCER SPONGE FILTER

EITHER SPONGE FILTER IS PERMITTED FOR USE

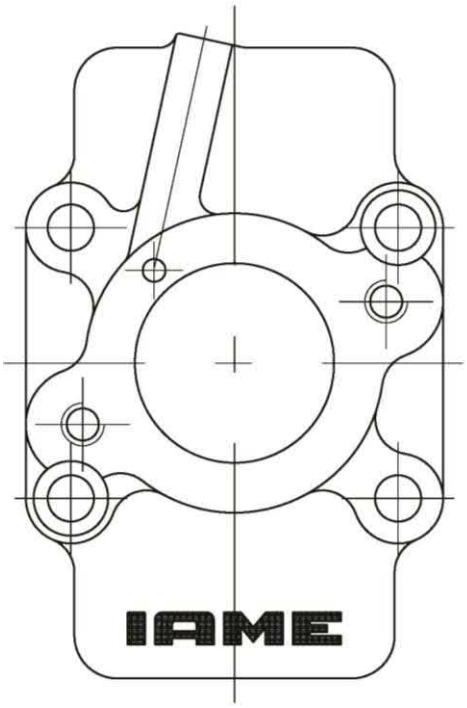
USE OF A FILTER IS COMPULSORY

RED (CORSE)

GREEN (FINE)

PHOTO IDENTIFICATION CARBURETTOR INLET CONVEYOR

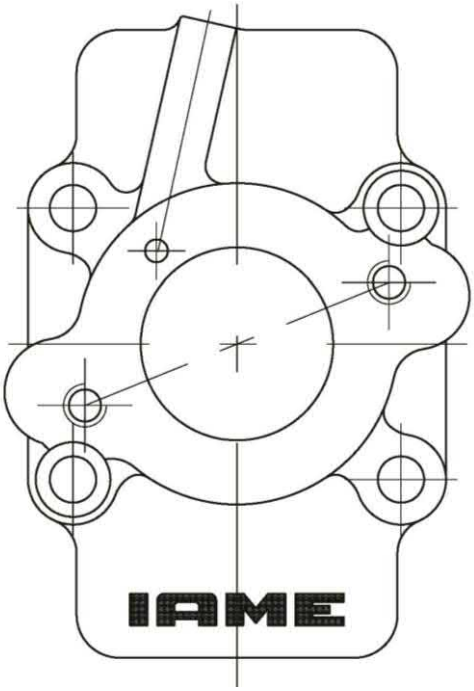
Old version



ALTERNATIVE

New version

NEW LOGO



KNSW Homologation No: KNSW-003-23

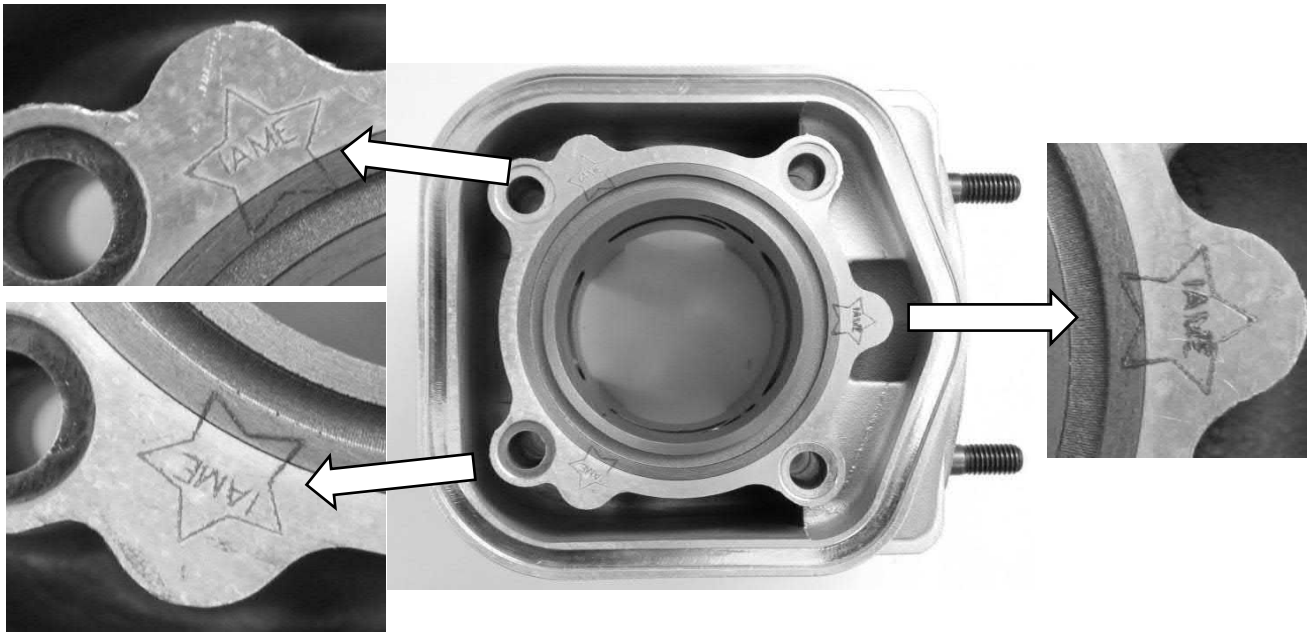
PHOTO IDENTIFICATION REED GROUP

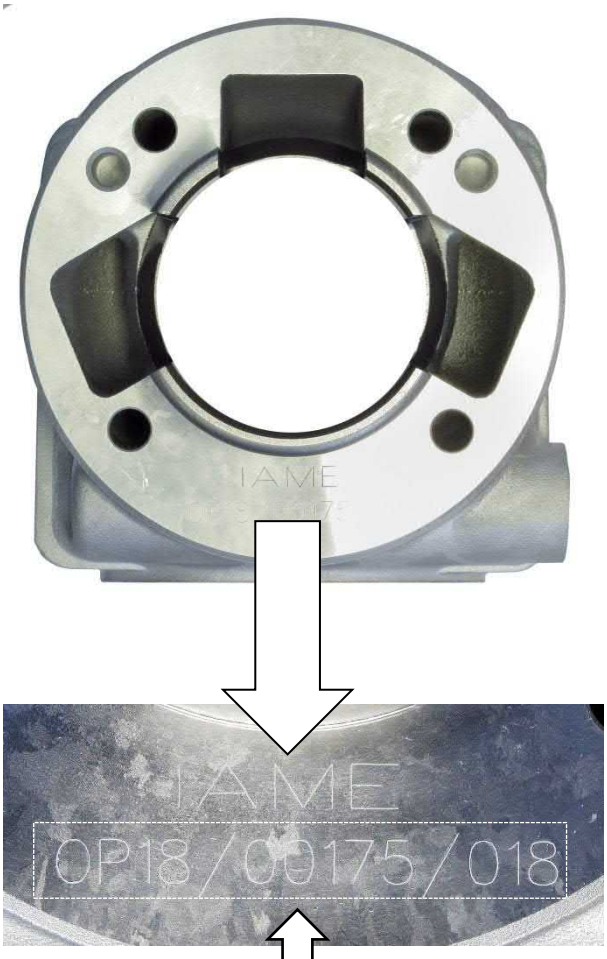
CURRENT VERSION

ALTERNATIVE VERSION

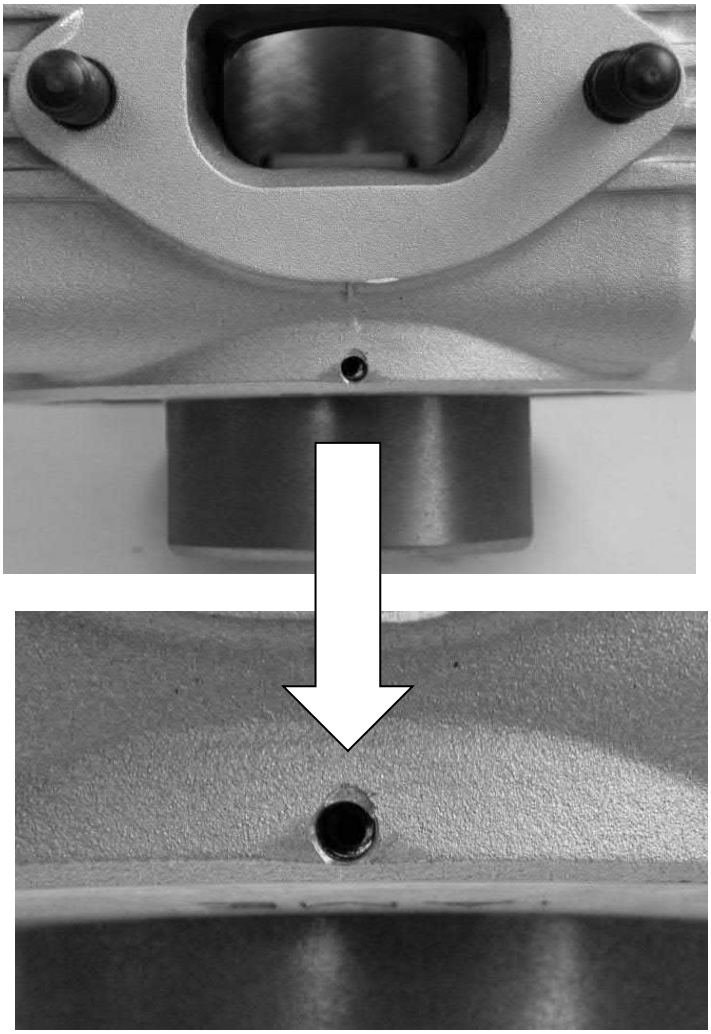
NEW LOGO

CYLINDER IDENTIFICATION MARKING (since 2014)





VARIABLE



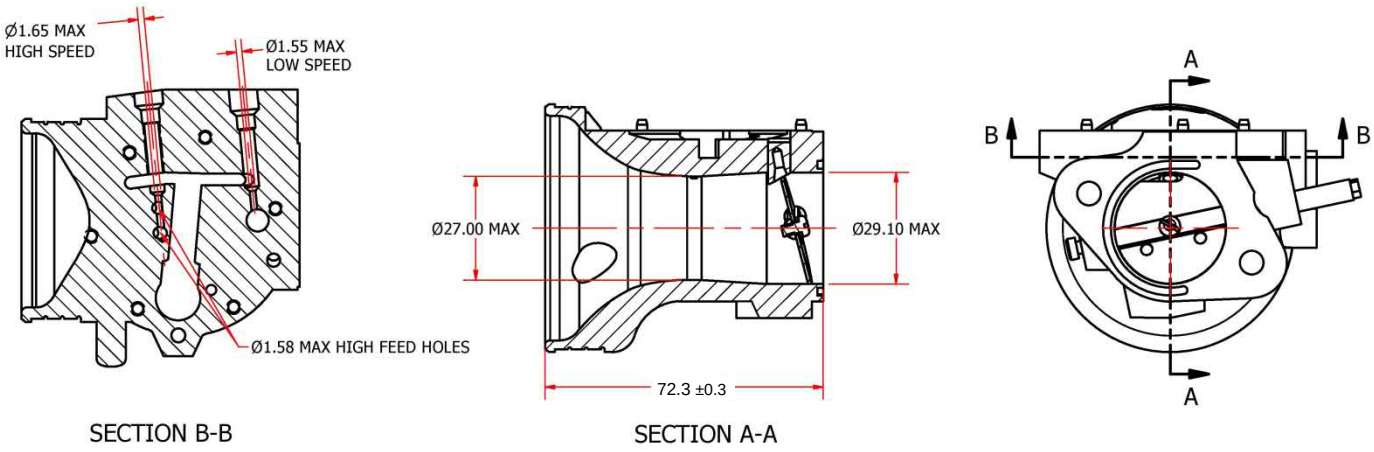
KNSW Homologation No: KNSW-003-23

CARBURETTOR - Tillotson HW-27A

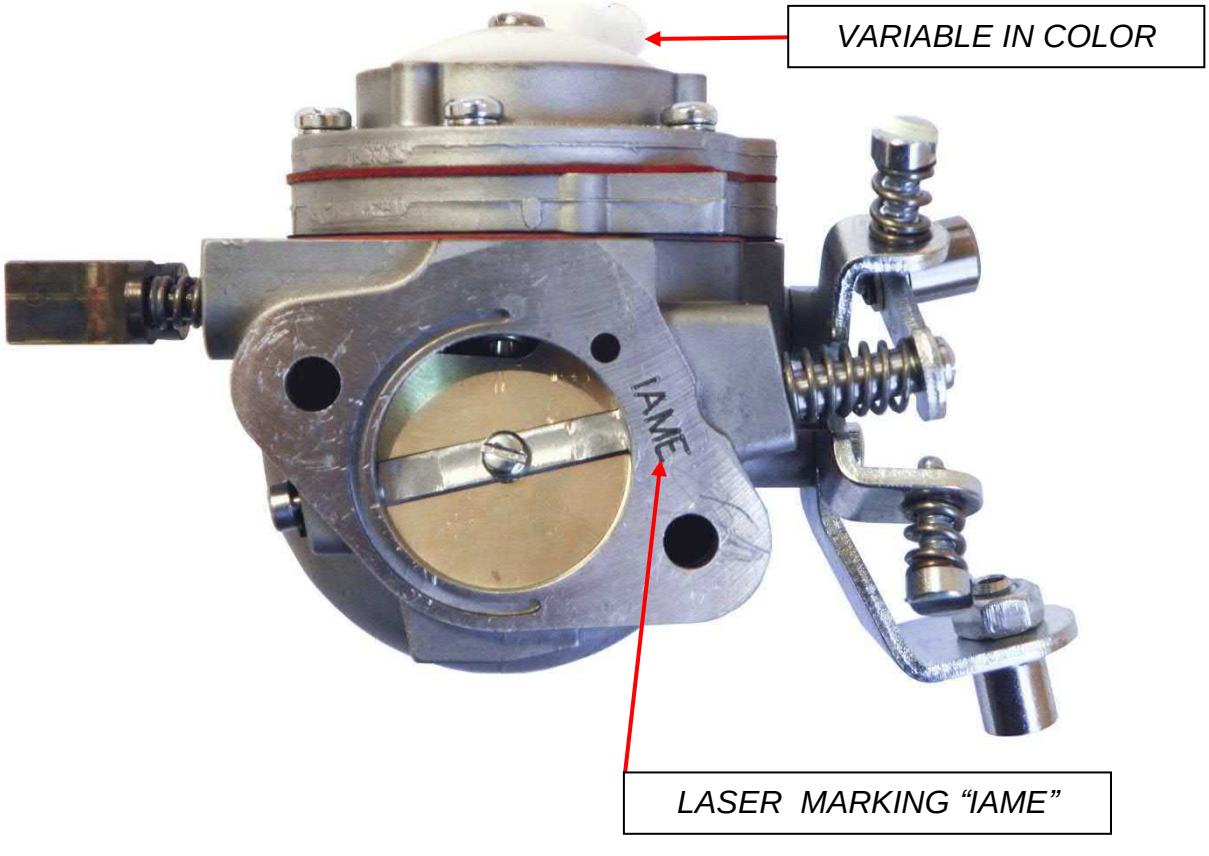
	
PHOTO OF ADJUSTING SIDE	*PHOTO OF INLET SIDE*

Manufacturer	**TILLOTSON LTD.**
Make	**TILLOTSON**
Model	**HW-27A**

SECTION VIEW

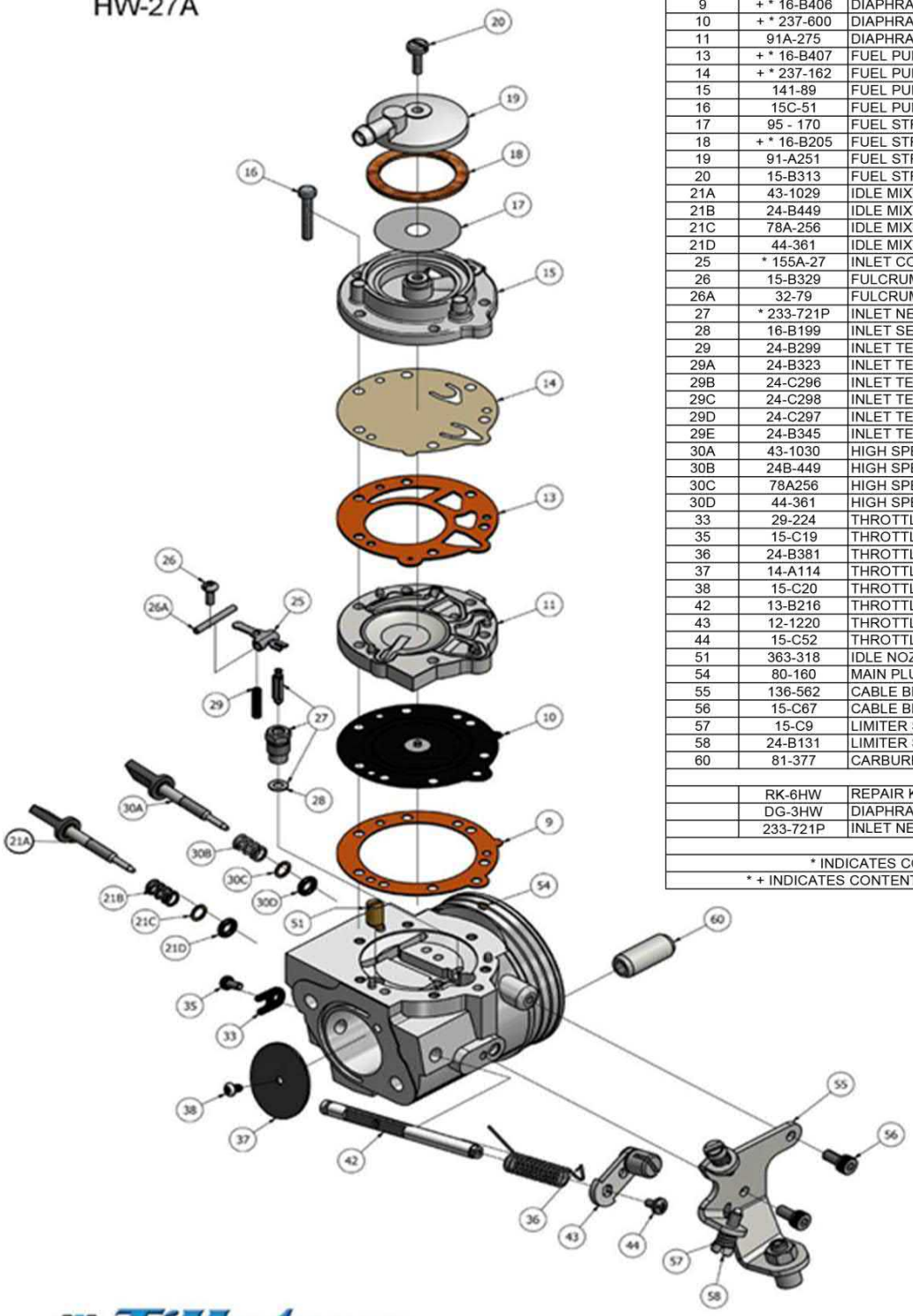


MARKING



CARBURETTOR DESCRIPTION AND SKETCH OF PARTS

HW-27A



ITEM	PART NO:	DESCRIPTION	QTY
9	+ * 16-B406	DIAPHRAGM GASKET (ORANGE)	1
10	+ * 237-600	DIAPHRAGM	1
11	91A-275	DIAPHRAGM COVER	1
13	+ * 16-B407	FUEL PUMP GASKET (ORANGE)	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-B299	INLET TENSION SPRING (STD 37 grams)	1
29A	24-B323	INLET TENSION SPRING (26 grams)	1
29B	24-C296	INLET TENSION SPRING (31 grams)	1
29C	24-C298	INLET TENSION SPRING (42 grams)	1
29D	24-C297	INLET TENSION SPRING (46 grams)	1
29E	24-B345	INLET TENSION SPRING (48 grams)	1
30A	43-1030	HIGH SPEED MIXTURE SCREW	1
30B	24B-449	HIGH SPEED MIXTURE SCREW SPRING	1
30C	78A256	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-A114	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	136-562	CABLE BRAKET	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 (STANDARD)	
	233-721P	INLET NEEDLE & SEAT SET	
* INDICATES CONTENTS OF REPAIR KIT			
* + INDICATES CONTENTS OF DIAPHRAGM & GASKET SET			

Tillotson RACING
Clash Industrial Estate - Tralee - Ireland
www.tillotson-racing.com

iame

PARTS OF CARBURETTOR

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

Thickness = 0.5 ±0.1 mm

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

Thickness = 0.8 ±0.1 mm

REF.10 - P. N°237-600
DIAPHRAGM

Thickness = 0.13 ±0.07 mm

REF.14 - P. N°237-162
PUMP DIAPHRAGM

ALTERNATIVE

Thickness = 0.10 ±0.063 mm

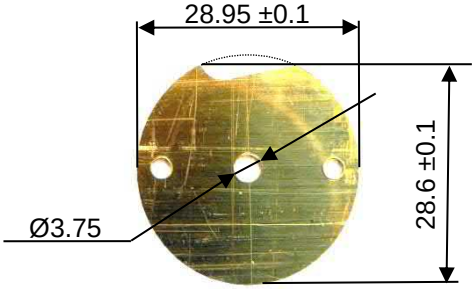
REF.11 - P. N° 91-A275
DIAPHRAGM COVER

Thickness = 6.75 ±0.15 mm

REF.15 - P. N° 141-89
PUMP COVER

Thickness = 12.5 ±0.15 mm

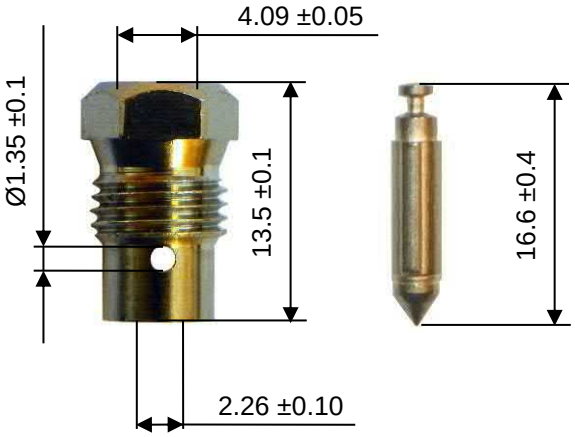
REF.37 - P. N° 14-A114
THROTTLE SHUTTER



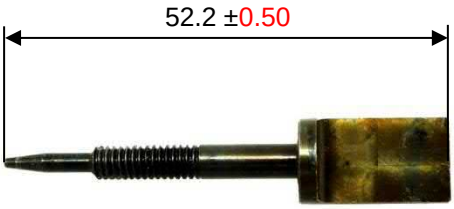
ALTERNATIVE SHAPE

Thickness = 0.81 ±0.1 mm

REF.27 - P. N° 233-721P
SEAT + NEEDLE



REF.21A - P. N° 43-1029
NEEDLE LOW SPEED

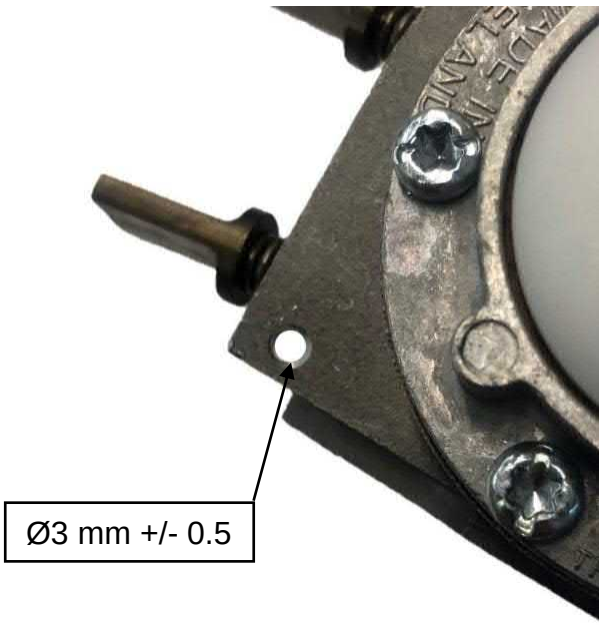


REF.30A - P. N° 43-1030
NEEDLE HIGH SPEED

ALTERNATIVE FUEL NEEDLE

OPTIONAL HOLE FOR SEALING TAG

REF.27 - P. N° 233-721P
NEEDLE



KARTING NEW SOUTH WALES EST 1987

KNSW Homologation No: KNSW-003-23

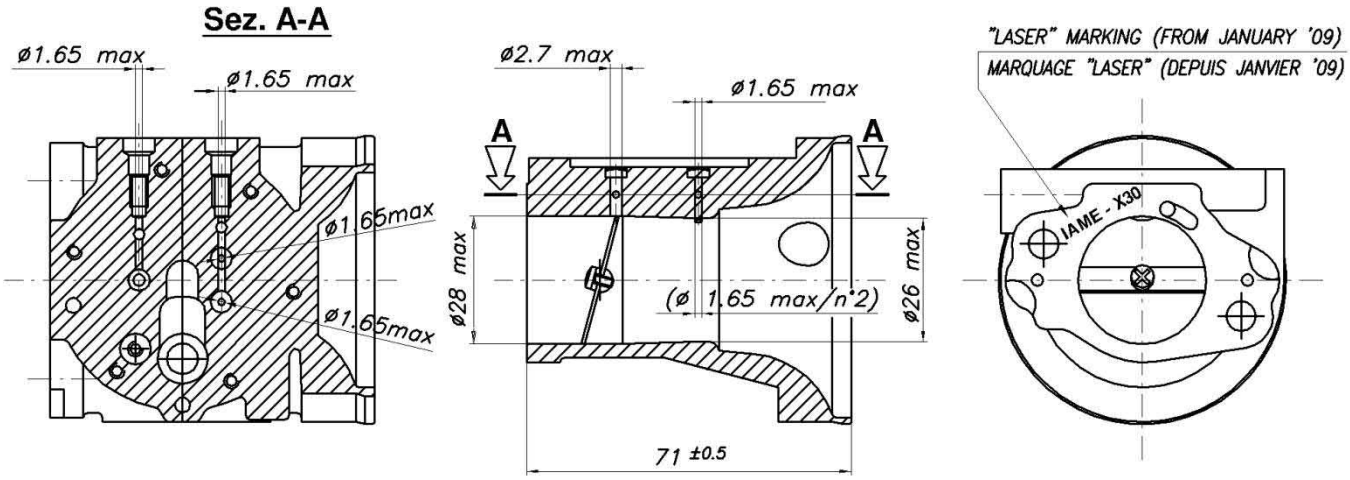
CARBURETTOR - TRYTON HB 27-C

PHOTO OF INLET SIDE

PHOTO OF ADJUSTING SIDE

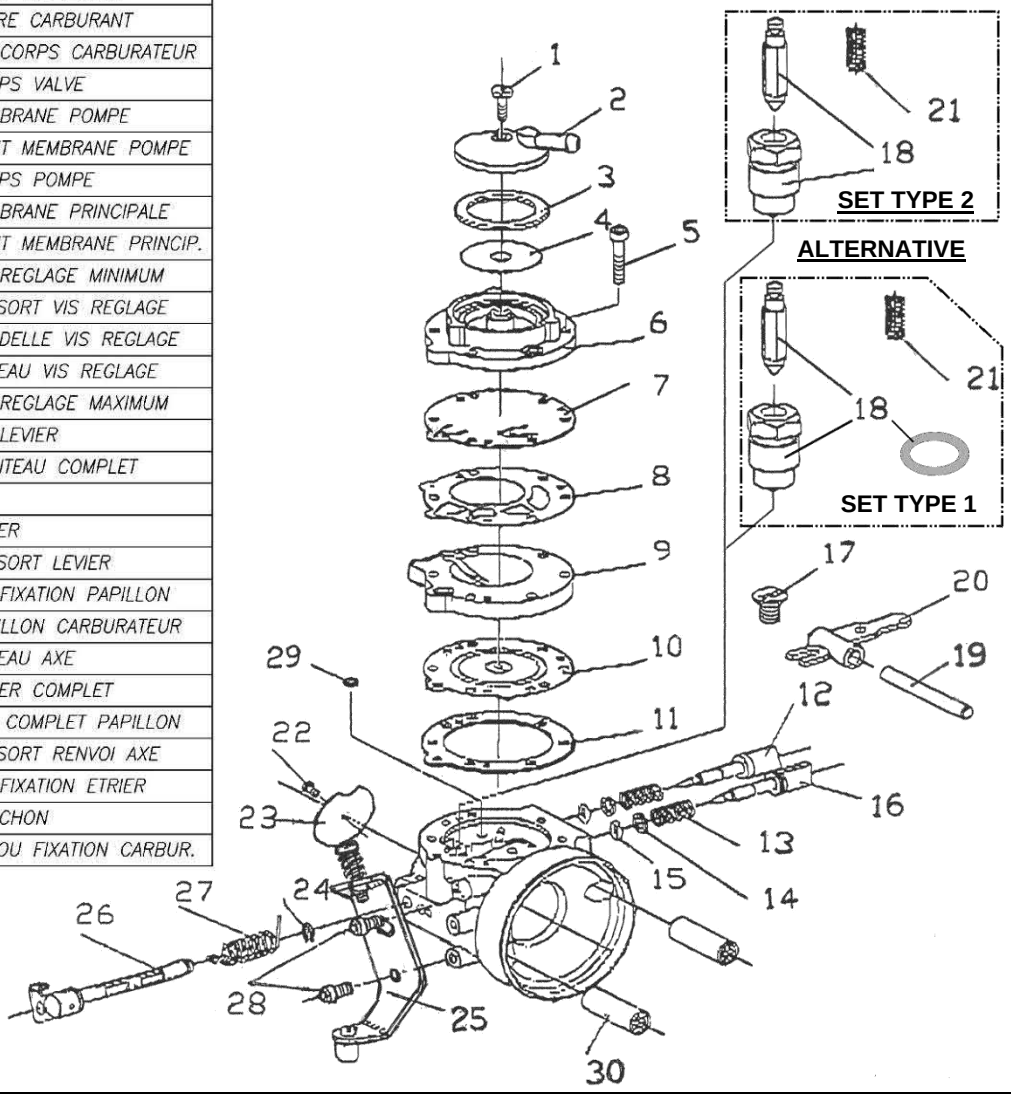
Manufacturer	**VA.MEC SRL**
Make	**TRYTON**
Model	**HB 27-C**

SECTION VIEW



CARBURETTOR DESCRIPTION AND SKETCH OF PARTS

Rif.	DESCRIPTION	
1	COVER SCREW	*VIS COUVERCLE*
2	FILTER COVER	*COUVERCLE FILTRE*
3	COVER GASKET	*JOINT COUVERCLE*
4	FUEL SCREEN FILTER	*FILTRE CARBURANT*
5	BODY SCREW	*VIS CORPS CARBURATEUR*
6	VALVE BODY	*CORPS VALVE*
7	PUMP DIAPHRAGM	*MEMBRANE POMPE*
8	PUMP DIAPHRAGM GASKET	*JOINT MEMBRANE POMPE*
9	PUMP BODY	*CORPS POMPE*
10	DIAPHRAGM	*MEMBRANE PRINCIPALE*
11	DIAPHRAGM GASKET	*JOINT MEMBRANE PRINCIP.*
12	NEEDLE LOW SPEED	*VIS REGLAGE MINIMUM*
13	NEEDLE SPRING	*RESSORT VIS REGLAGE*
14	NEEDLE WASHER	*RONDELLE VIS REGLAGE*
15	NEEDLE O-RING	*ANNEAU VIS REGLAGE*
16	NEEDLE HIGH SPEED	*VIS REGLAGE MAXIMUM*
17	SCREW LEVER	*VIS LEVIER*
18	NEEDLE VALVE	*POINTEAU COMPLET*
19	LEVER PIN	*AXE*
20	INLET LEVER	*LEVIER*
21	INLET LEVER SPRING	*RESSORT LEVIER*
22	THROTTLE SHUTTER SCREW	*VIS FIXATION PAPILLON*
23	THROTTLE SHUTTER	*PAPILLON CARBURATEUR*
24	SHAFT RETAINING RING	*ANNEAU AXE*
25	BRACKET	*ETRIER COMPLET*
26	SHAFT SHUTTER	*AXE COMPLET PAPILLON*
27	SHAFT SPRING	*RESSORT RENVOI AXE*
28	BRACKET SCREW	*VIS FIXATION ETRIER*
29	PLUG	*BOUCHON*
30	BOLT	*ECROU FIXATION CARBUR.*



KNSW Homologation No: KNSW-003-23

SET TYPE 1	SET TYPE 2

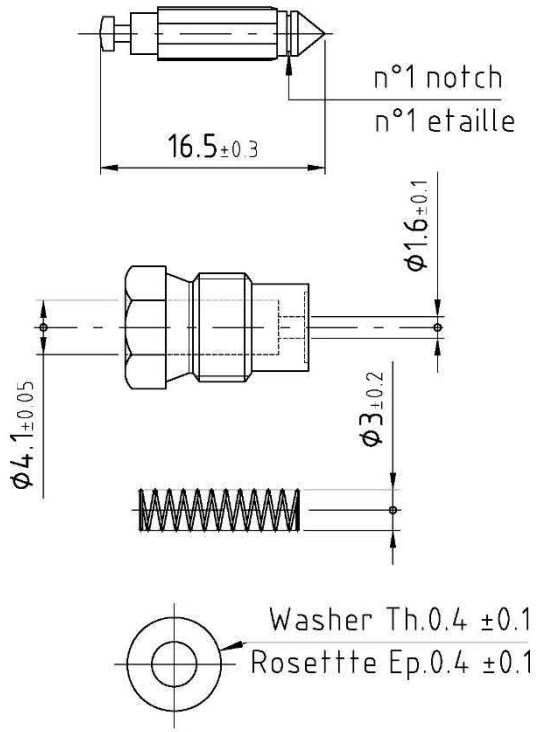
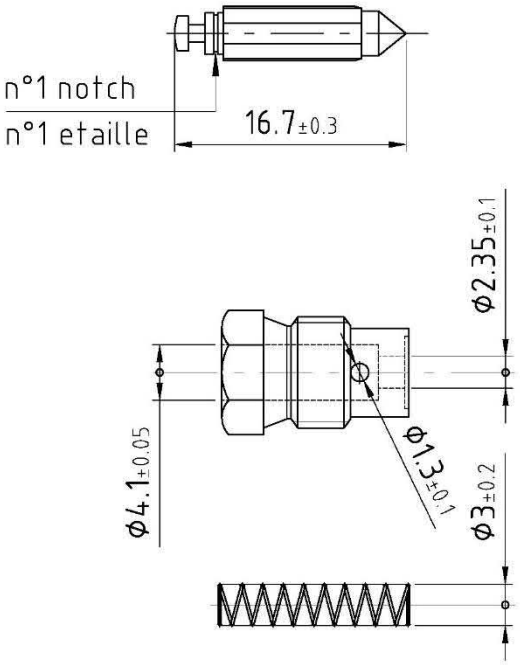
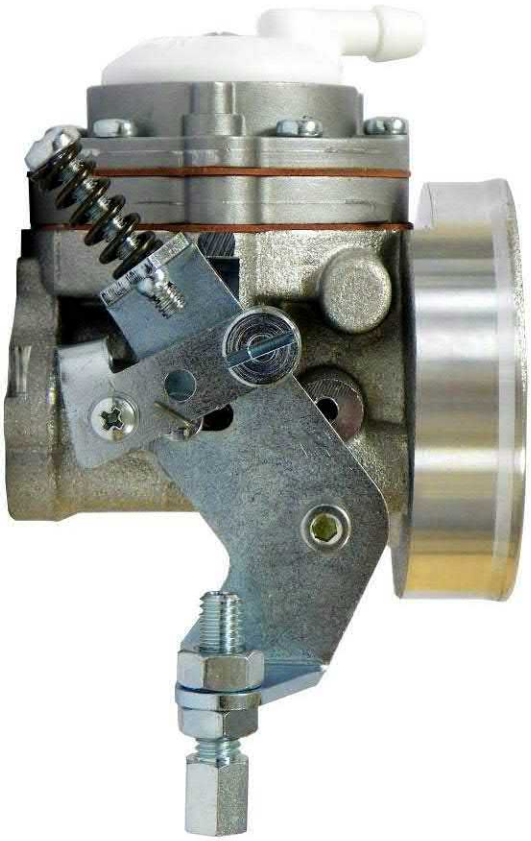

	

PHOTO IDENTIFICATION SET TYPE 1	PHOTO IDENTIFICATION SET TYPE 2
	

BRACKET CABLE & LIMITER



IN ALTERNATIVE

Appendix to the IAME X30 125 Homologation Documents

The following notes are additional to the details contained in these homologation documents for the IAME X30 125 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 IN THE KNSW RULES AND/OR THESE HOMOLOGATION DOCUMENTS IT SAYS THAT YOU CAN, THEN YOU CANNOT.

The Engine is approved for use in the following classes:

- X30
- X30 Junior
- TaG 125
- TaG 125 Restricted
- Junior Performance
- Open Performance

A. Cylinder

1. All ports must be of intended design as manufactured and conforming to the homologation drawings.
2. No modifications or grinding to the ports is allowed.
3. Water connections to the cylinder are free but must retain the homologated position and threaded sizes.

B. Base Gaskets

1. The type of material is a non-tech item.
2. The base gasket/gaskets must be a minimum of 0.30mm and a maximum of 0.45mm.
3. More than 1 base gasket can be used.

C. Cylinder Head

1. Cylinder Head must be of original Engine manufacturer and conform to homologation drawings.
2. No material to be added except for spark plug thread repair.
3. Distance from spark plug sealing face to combustion chamber ceiling face 29.3mm+/- 0.25mm.
4. The combustion chamber volume shall be a minimum of 10.3cc using the KA Type 1 CC plug.
5. The combustion chamber volume in the cylinder head (with Volumeter & KA Type 1 CC plug): 12.8 cm^3 min.
6. Water connections to the cylinder head are free but must retain the homologated position and threaded sizes.
7. Cylinder head profile must not vary from the original profile and will be checked with the IAME Cylinder Head Profile Gauge (part number ATT-025/1).

D. Squish Gap

1. The Cylinder Head Squish clearance shall be a minimum of 0.9mm as per homologation.
2. Squish shall be measured using digital verniers and 2mm solder wire (tin).
3. When inserted in the cylinder the Engine shall be rotated until the solder is squeezed between the head and piston crown.
4. Measure the thickness of the flat section closest to the step formed by the piston ring using the thin tip of the caliper jaws.
5. The process shall be conducted on both the right and left-hand side of the engine parallel to the piston pin.
6. The two measurements shall be averaged out and must equal no less than 0.9mm.

E. Crankcase, Crankshaft and Con Rod

1. Must be of original Engine manufacturer and conform to homologation drawings.
2. 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. Piston

1. Piston must be of original manufacturer, supplied by IAME with “IAME SUD” marking on dome and conform to homologation drawings. No modifications are permitted.

G. Piston Pin

1. No special alloys are allowed, must be of magnetic material and comply with the drawing as supplied by the manufacturer.

H. Clutch

1. Must be of original manufacturer and conform to the homologation drawings and display original IAME X30125840 or IAME X30125841 markings on the clutch hub. No modifications are permitted.
2. Both the X30125550 and X30125550A clutch drum may be used and are interchangeable with the clutch hubs listed above.

I. Reed Block, Reed Valves and Inlet Conveyor

1. The only reed petals to be used are the genuine IAME Fibreglass (Vetronite) or genuine IAME Carbon Fibre Reed Petals; both with IAME markings.
2. Fibreglass Reed Petals are to be a minimum thickness of 0.3mm; Carbon Fibre Reed Petals are to be a minimum thickness of 0.22mm.
3. Reed block must be original as supplied by IAME.
4. It is permissible to alter the inlet conveyor to conform to the maximum dimension of 29.3mm as detailed in the homologation.

J. Carburettor

1. No sleeving of the carburettor throttle bore is permitted.
2. Adjustment of carburettor jet needles must be done by manually turning the jet needle (or its extension) only. It is permissible to fit a second O-Ring on the jet needles to prevent rotation due to vibrations.
3. It is permissible to mount the carburettor upside-down to provide easier access to the jet needles for the driver.
4. Carburettor throttle cannot be actuated by electro mechanical means.
5. It is permissible to fit a mechanical stop to limit the range of carburettor jet needle movement; however, no modifications to the carburettor are permitted to mount such a stop.
6. The only permissible carburettor kits for use with the Tillotson HW27A are the DG-3HW Gasket & Diaphragm Kit and the RK-6HW Repair Kit; all spare parts must be genuine Tillotson.
7. The carburettor kit, inlet needle & seat for the Tryton HB27 are a non-tech item.
8. It is permissible to bend the carburettor inlet lever to alter the lever height.
9. 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

K. Induction Silencer

1. The only permissible induction silencer is the square style Socorem as per homologation drawings and can be of any colour.
2. Minimum tube length 94.5mm.
3. It is permissible to drill a maximum 5mm water drain hole in the bottom of the induction silencer.
4. The only internal filter that may be used in the Induction Silencer/Air Box is the genuine IAME filter as detailed in the homologation; use of this filter is compulsory.

L. Ignition

1. The woodruff ignition rotor key must be retained and may not be modified.
2. The Spark plug cap must incorporate a minimum of a 5kΩ resistor.
3. The only Selettra ignition module to be used is the green module marked with AKA20L.
4. The only PVL ignition coil to be used is the blue module marked with AKA20L.
5. The blue Selettra ignition coil must be marked with AKA20L.
6. Spark plug “crush” washer may be removed.
7. In the event of required repairs the plastic fittings registered and homologated as parts of the electrical systems are permitted to be replaced with non-supplied fittings.

M. Exhausts

1. The only permissible exhaust systems are as supplied from IAME; they must carry the IAME identification markings and conform to the drawings in the homologation papers.
2. Mixing of Type 1 & Type 2 exhaust system components is prohibited.
3. An O2 probe/fitting is allowed to be fitted to the muffler as per 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.

N. Header Pipe

1. The only permissible header pipe for use with the Type 1 exhaust system is as supplied by IAME and must carry the IAME identification.
2. It is permissible to fit a maximum of three separate flange support brackets to the original header, any such support flange must not exceed 60mm maximum in total length, and not exceed 40mm maximum in total width.
3. An O2 probe/fitting is allowed to be fitted to the header pipe in accordance with the KA Manual.

O. Cooling System

1. The only permissible thermostat is the original IAME component (part number T-8400-C) as supplied with the Engine.
2. The use of racing tape or similar as an air flow restriction device is permitted. Tape may be removed at any time but must remain with the kart and cannot be discarded on the circuit.
3. It is permissible to fit a sealed recovery tank with a minimum capacity of 25mL such as the one pictured below to make the water cooling system a sealed unit.

A. Recovery Tank

B. Mounted Vertically

C. Mounted Horizontally

P. Non-Tech Items

1. Unless otherwise specified, non-tech items are to be of the same type and style as the original. No alteration from the original manufacturer specifications are permitted to fit a non-tech item.
2. Stickers that may be removed when requested by the technical inspector are allowed on the Engine, induction silencer and radiator.
3. Engraving, stamping or marking an Engine for identification purposes is permitted. Any such engraving, stamping or marking must not obscure any homologation or identification markings on the Engine or its ancillary components.
4. Non-tech items for the IAME X30 Engine include:
   Gaskets, Seals, Big & Little End Roller Cages, Fasteners, Washers, Spark Plug, Spark Plug Lead, Spark Plug Resistor Cap, 6206 Ball Type Main Bearings, Water Hoses, Hose Clamps, Water Pump, Axle O-Ring, Axle Pulley, Exhaust Flex, Tryton carburettor gasket/diaphragm repair kit including needle and seat, start/stop buttons, plastic fittings and terminals of the wiring looms and connected component.

January 2024 Updates	
Section	**Page**
Clarification of alternative CC measurement using Volumeter	6, 10, 72
Measurement of crankshaft with roller bearings fitted	16
Alternative airbox outlet location	57
Increased tolerance on HW carby jet length	66
Additional checking tools added	81, 82

"NO GO" GAUGE & PROFILE CHECKING TOOL
EXHAUST MANIFOLD WITH RESTRICTOR Ø22mm

fig. 1

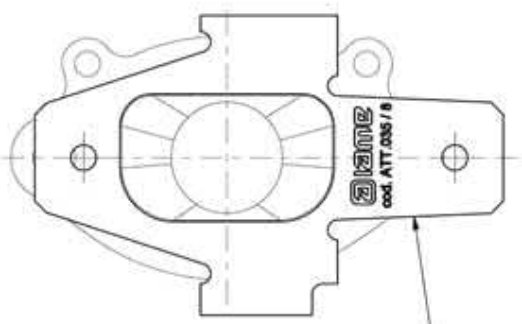


fig. 2

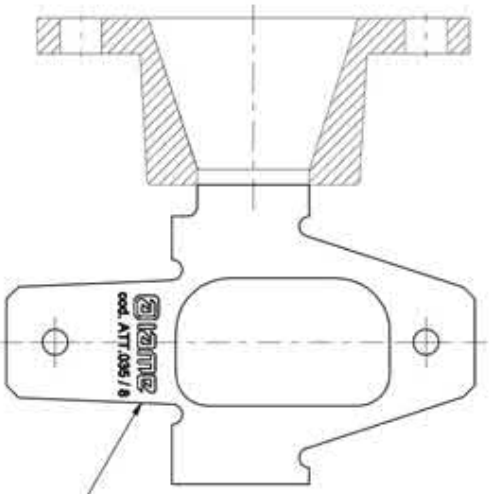


fig. 3

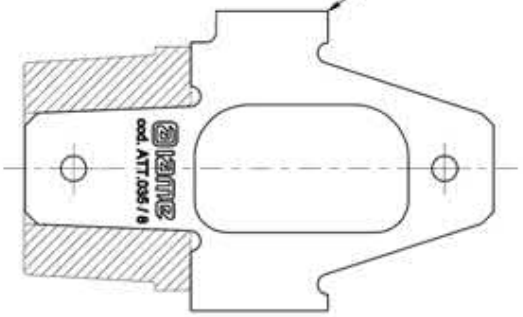
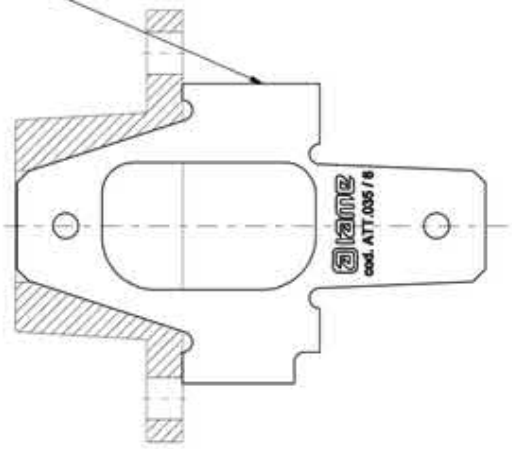


fig. 4



The National Technical Commissioner and State Technical Commissioners/State Scrutineer's are supplied with a "No Go" Gauge & Profile Checking Tool that is manufactured by IAME. They are to be used as indicated herein.

1. CHECK THAT THE NO-GO GAUGE DOES NOT ENTER INTO THE EXHAUST RESTRICTOR - (fig.2)

2. CHECK THAT THE TOOL MATCHES THE SHAPE OF THE EXHAUST MANIFOLD - (fig.1,3 and 4)

3. CHECK THAT THE TOOL DOES NOT PROTRUDE PAST THE FACE OF THE MANIFOLD - (fig.3 and 4)

"NO GO" GAUGE & PROFILE CHECKING TOOL
EXHAUST MANIFOLD WITH RESTRICTOR Ø22.8mm

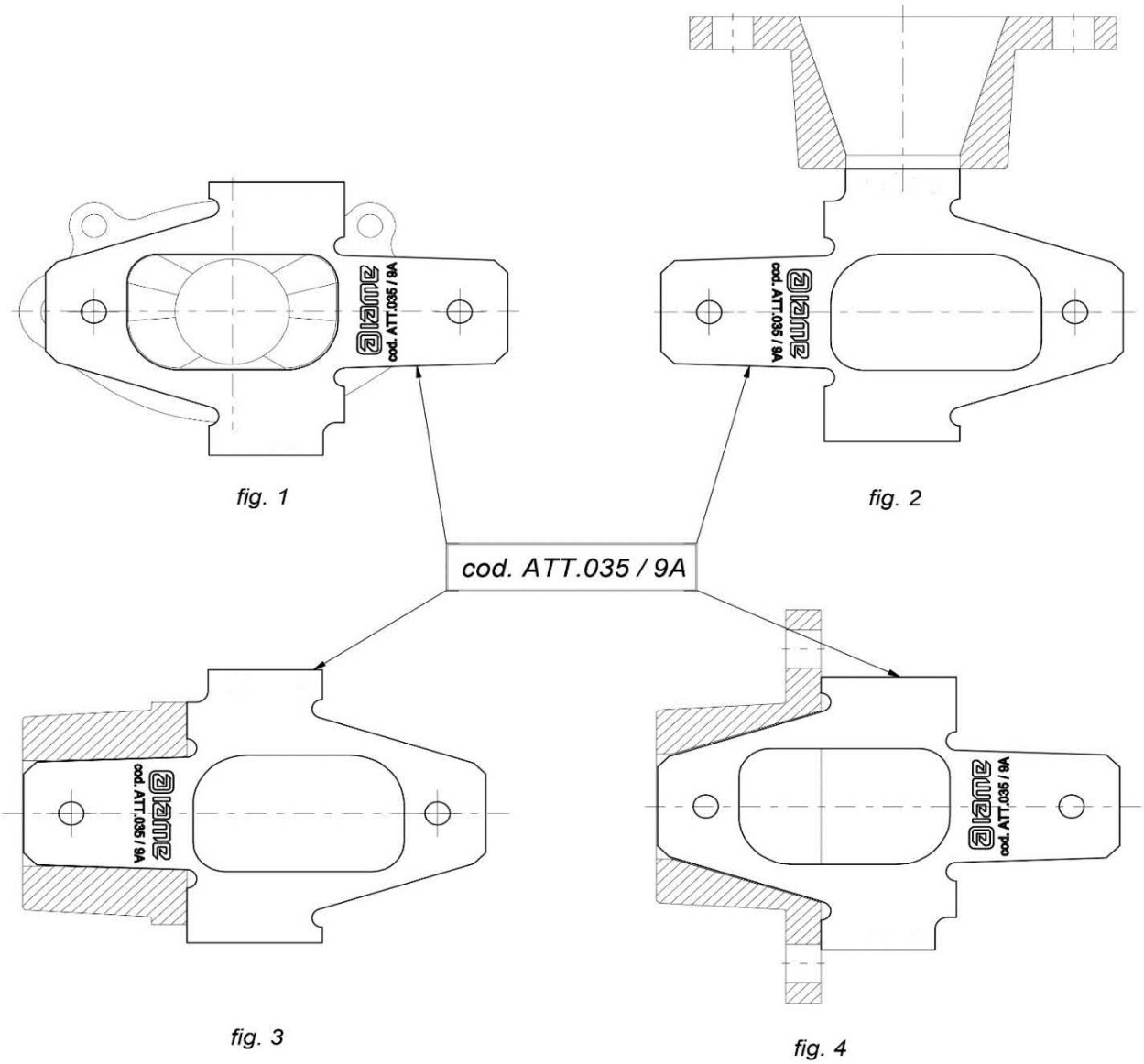


fig. 1

fig. 2

fig. 3

fig. 4

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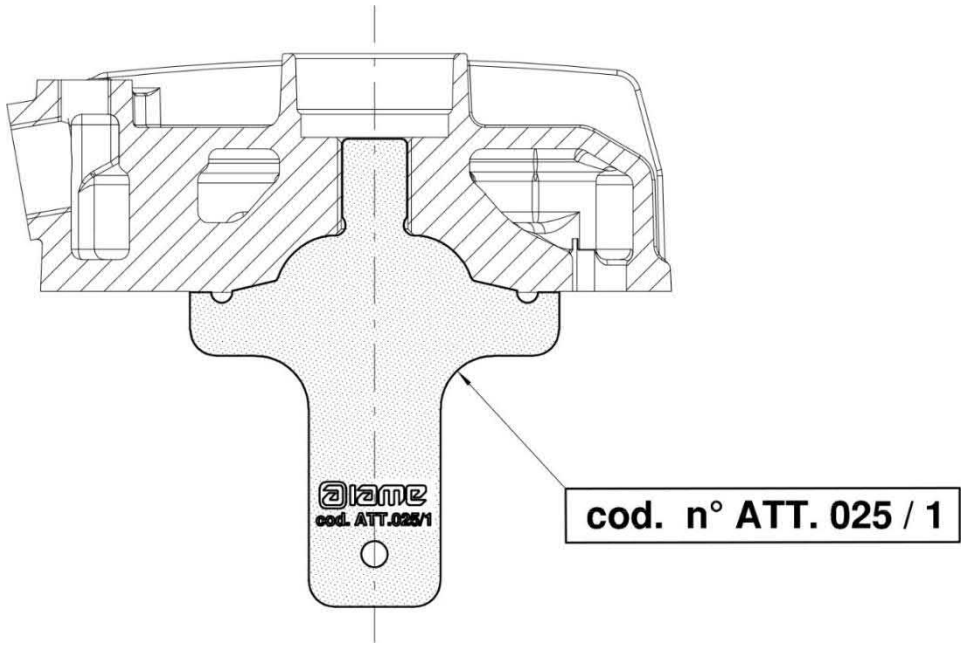
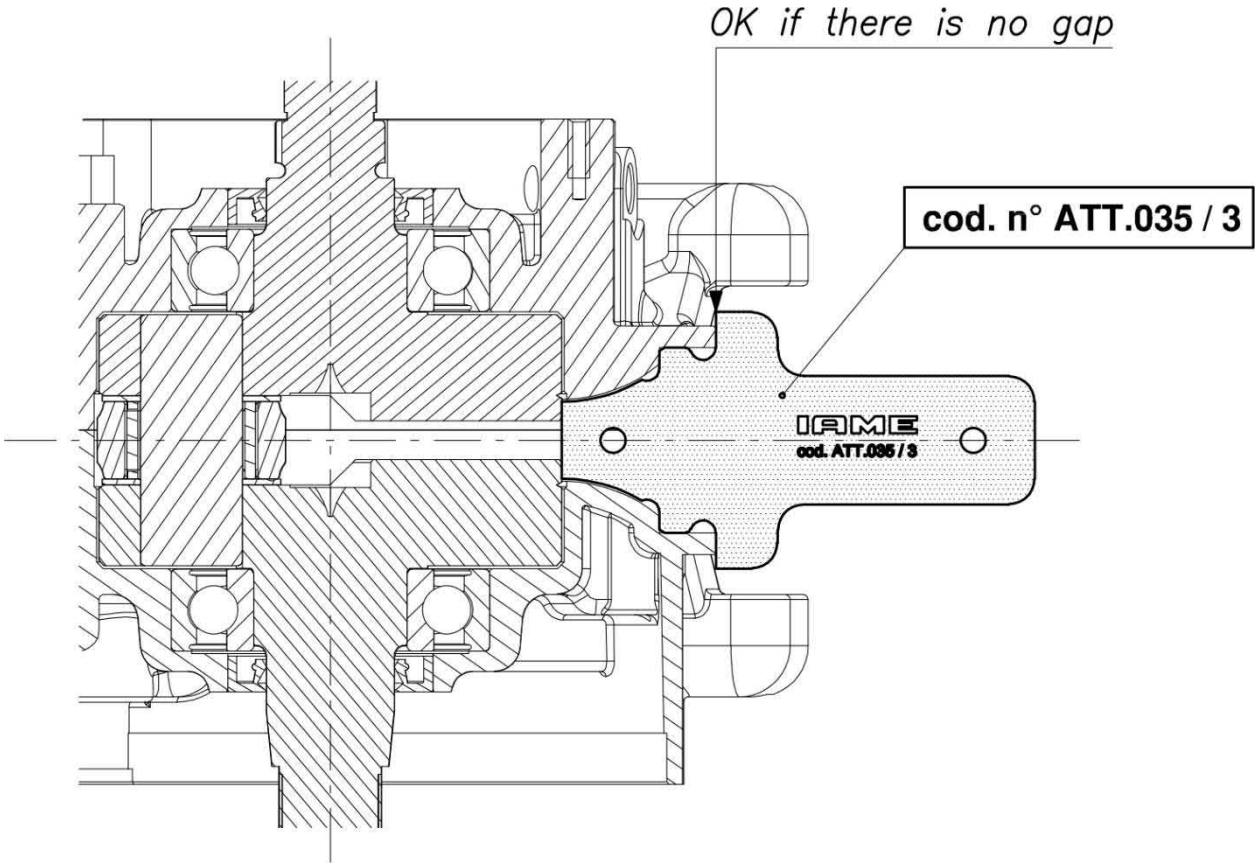
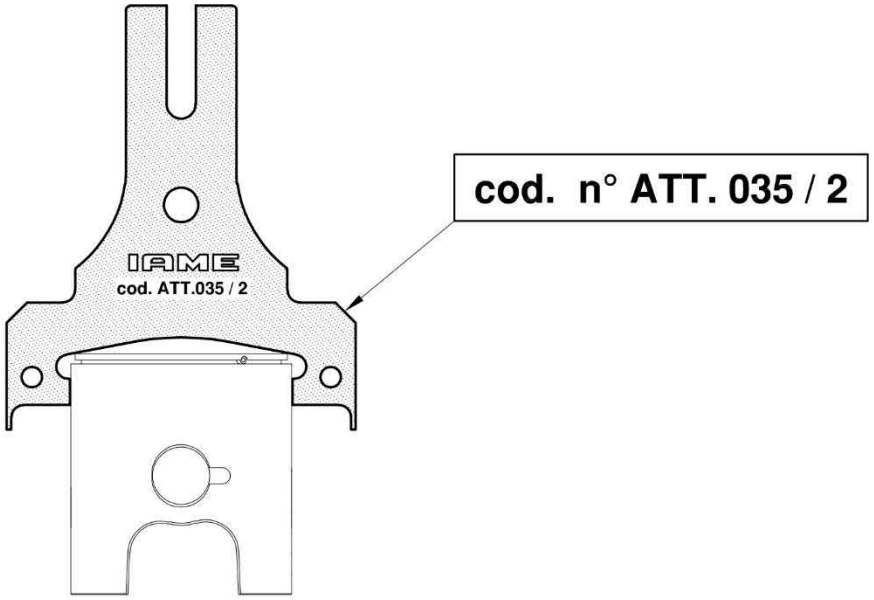
HEAD DOME PROFILE GAUGE

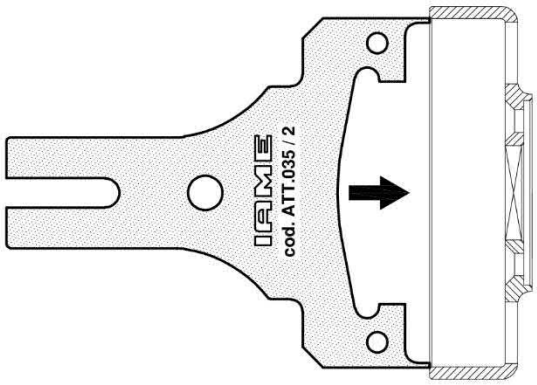


REED VALVE PLANE CONTROL TEMPLATE

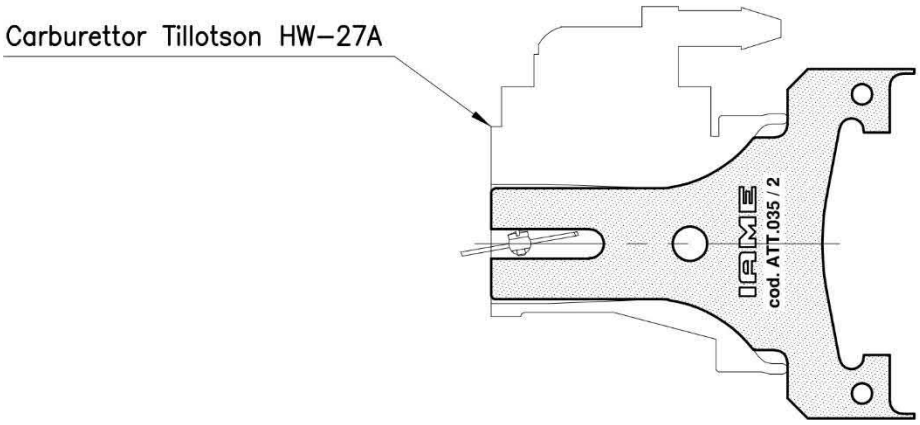


CARBURETTOR, DRUM AND PISTON CHECKING TOOL

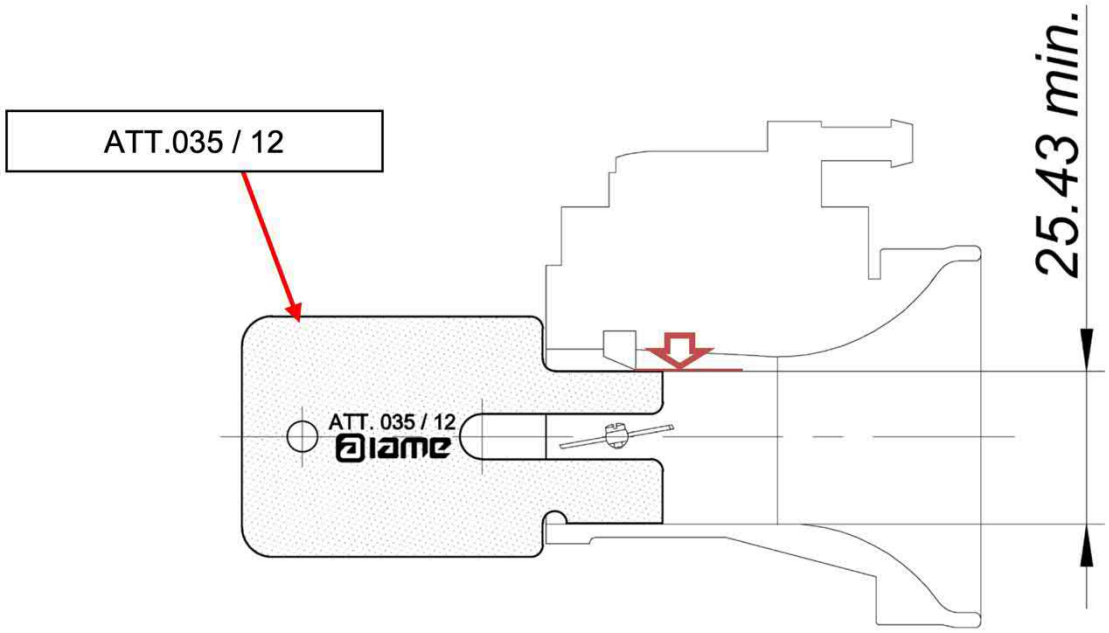




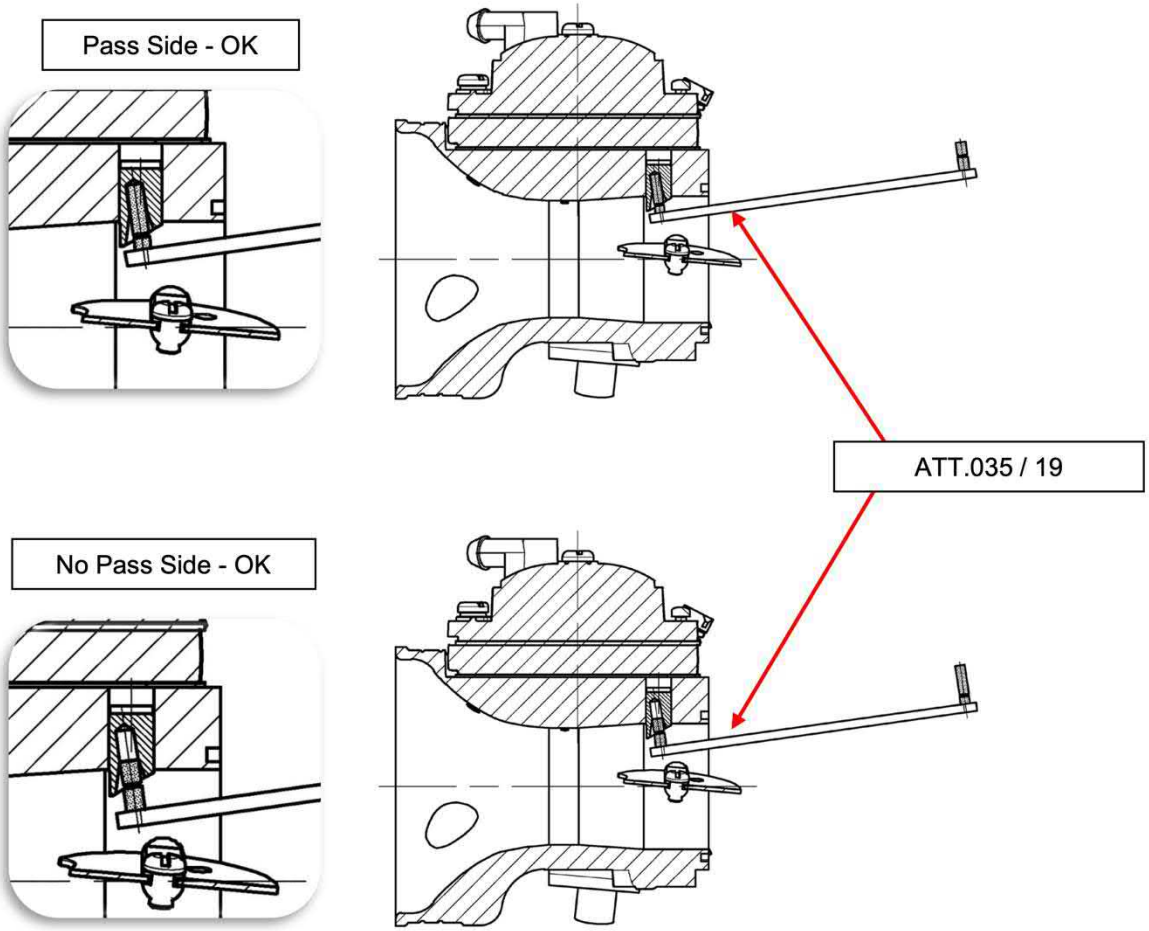
DOES NOT PASS INTERNAL CLUTCH DRUM



CHECK THE MINIMUM HIGHT OF ATOMIZER – GO IF IT'S OK

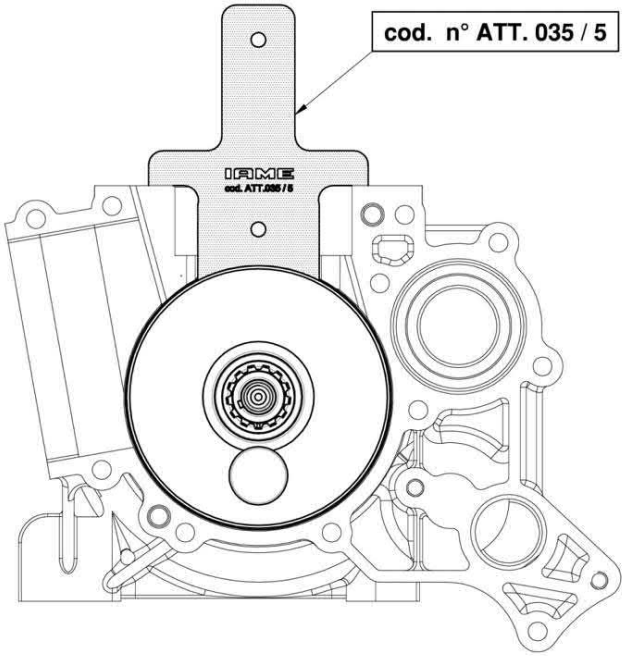


CHECK HOLE OF ATOMIZER



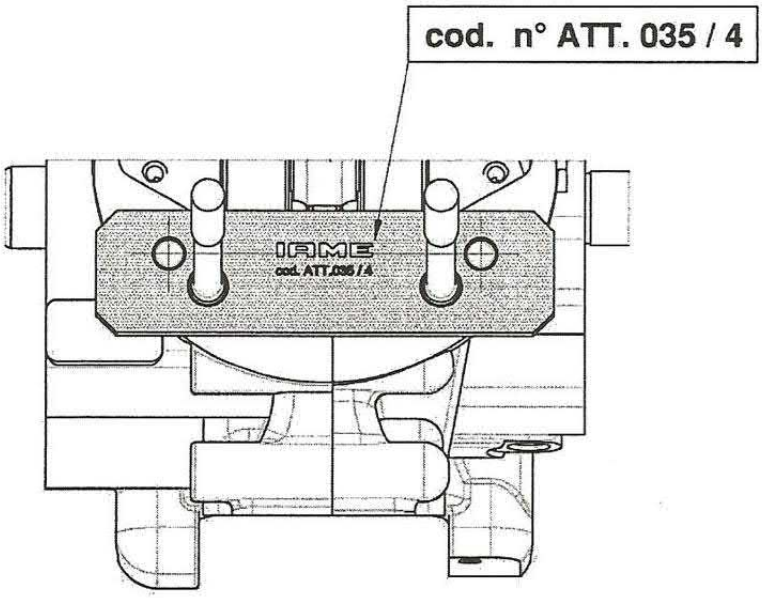
CRANKCASE TOP FACE CHECKING TOOL

Tool is placed into crankcase on top of the crankshaft, edges of tool must contact top surface of crankcase.



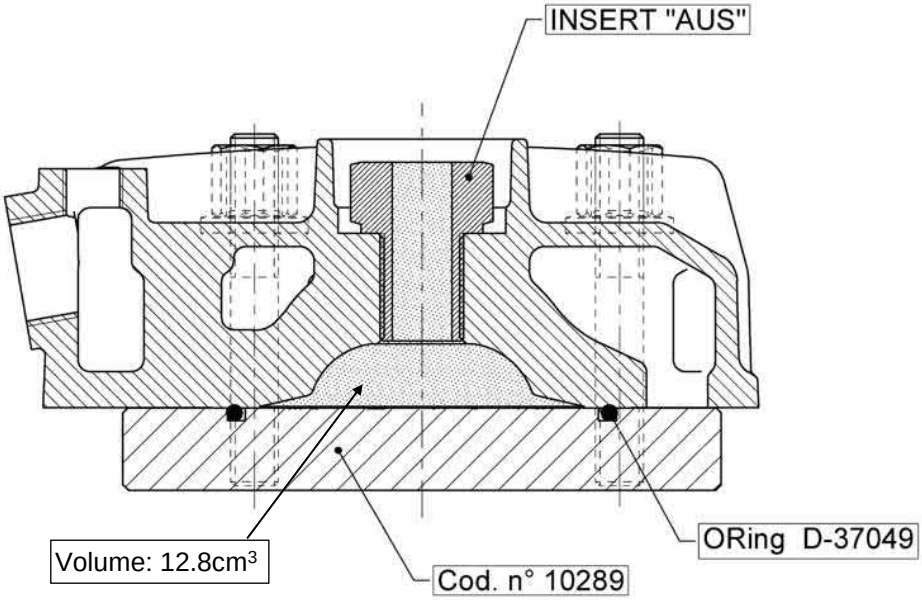
CRANKCASE WIDTH CHECKING TOOL

Tool fits over crankcase studs & dowel pins to check crankcase width is correct.



HEAD VOLUME CHECKING TOOL (VOLUMETER)

Bolt volumeter to bottom of head to check the volume of the cylinder head when removed from engine.



SELETTRA DIGITAL "S" (BLUE STATOR) TIMING MARK CHECKING TOOL

Tool is placed into the holes in the rotor, timing mark should be hidden under the tool and not be visible in the cut-out section.