Homologation Nº

117H

NATIONAL HOMOLOGATION FORM

KARTING ENGINE

X30 SUPER SHIFTER - TaG

Manufacturer	**IAME S.P.A - ZINGONIA**
Make	**IAME**
Model	**X30 SUPER SHIFTER - TAG**
Validity of the homologation	*6 years*
Number of pages	**56**
Most Recent Update	**14 December 2021**

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

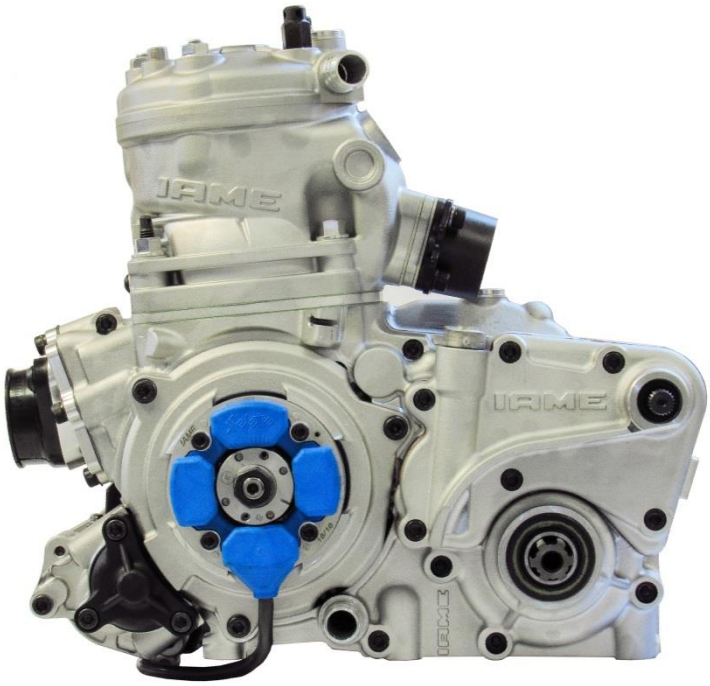


PHOTO OF DRIVE SIDE OF ENGINE

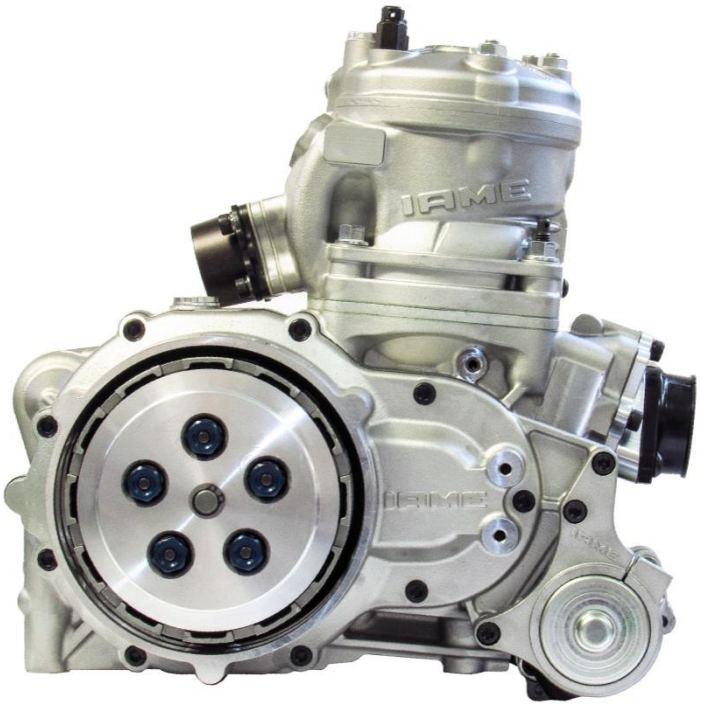


PHOTO OF OPPOSITE SIDE OF ENGINE

Signature and stamp of Karting Australia

Updated
20 October 2020
14 December 2021

First Homologated
15 December 2017

Ashley Woolner
National Technical Commissioner

PHOTO OF DRIVE SIDE OF THE COMPLETE ENGINE

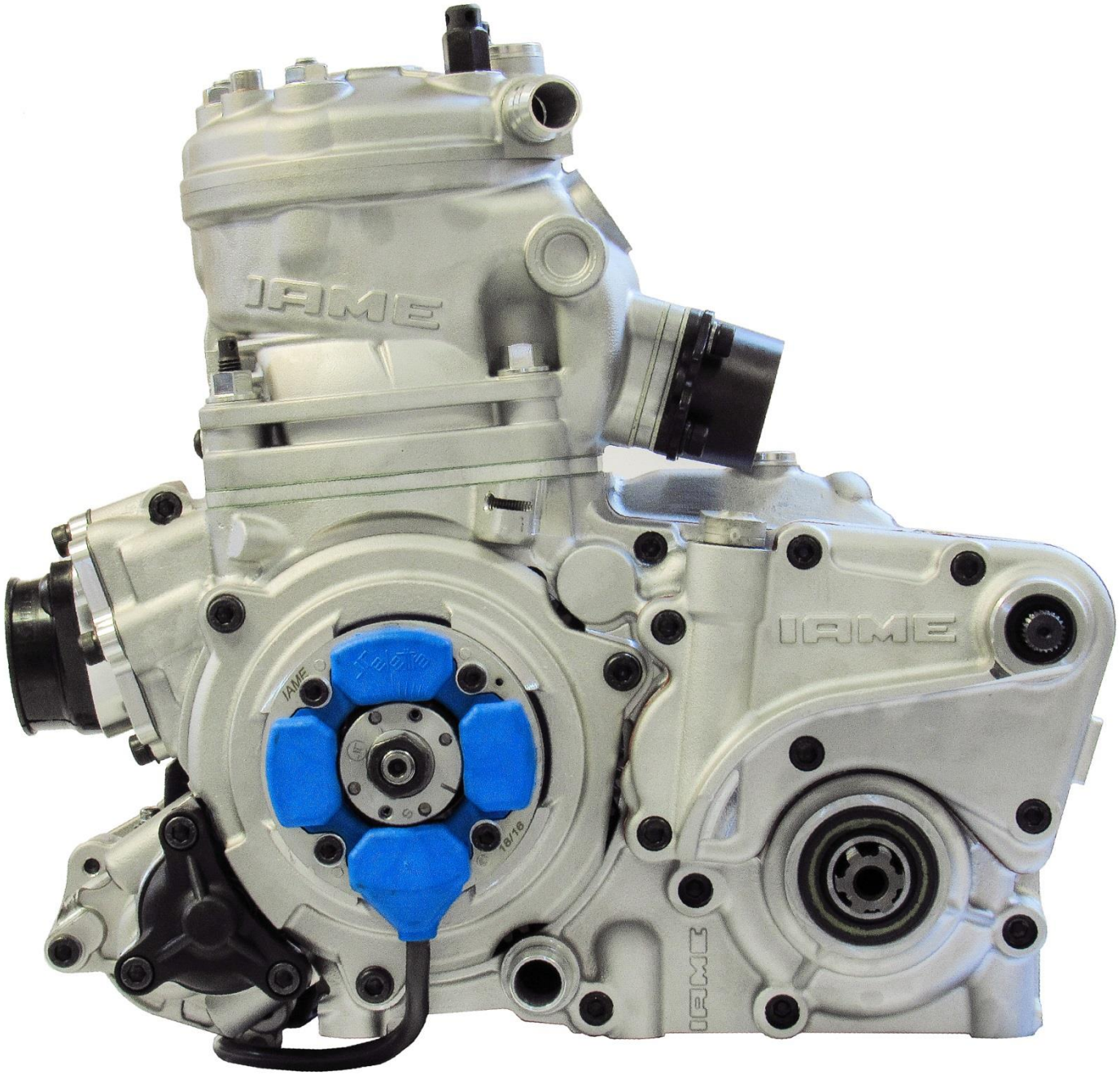


PHOTO OF OPPOSITE DRIVE SIDE OF THE COMPLETE ENGINE

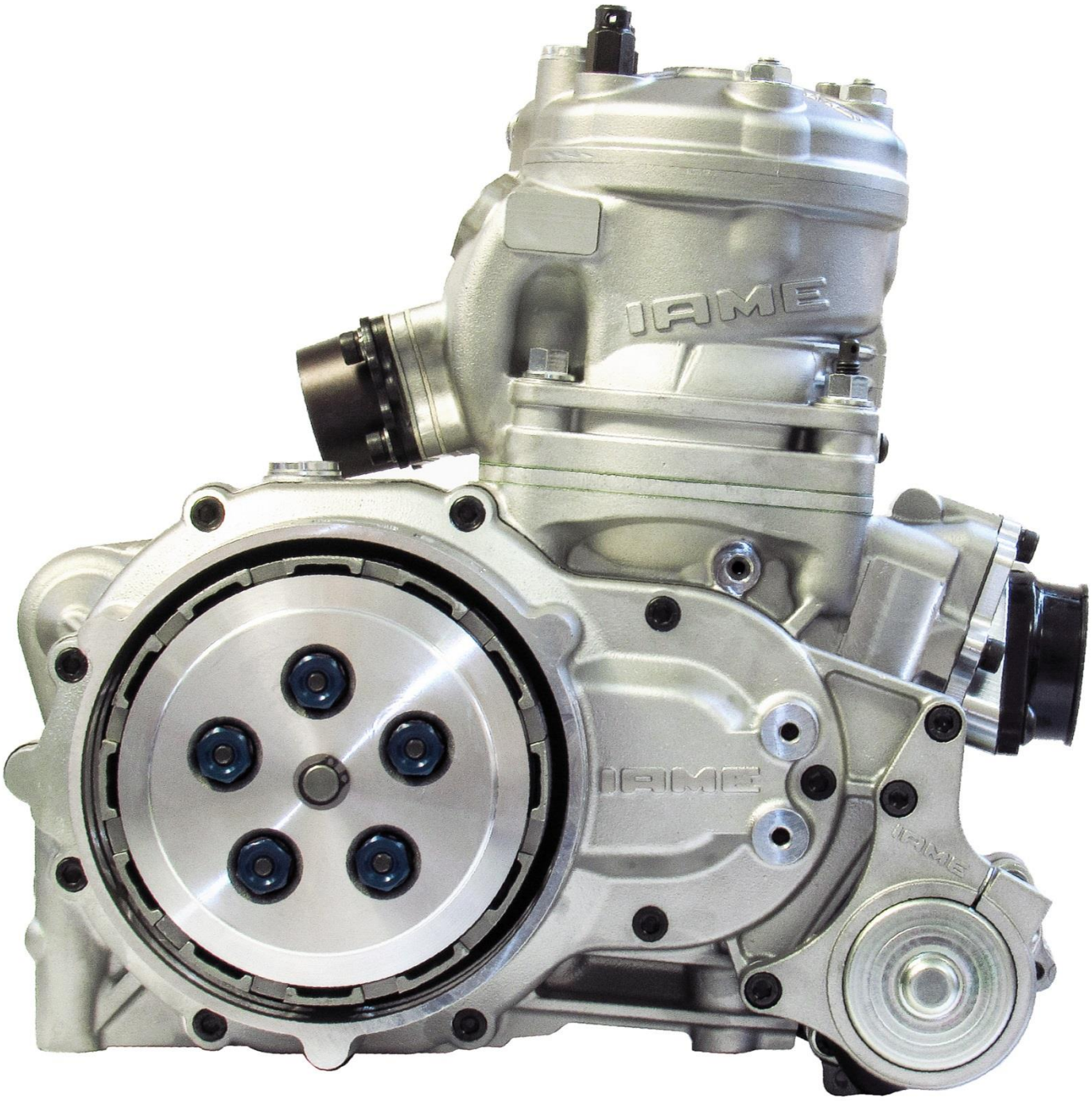


PHOTO OF THE REAR OF THE COMPLETE ENGINE

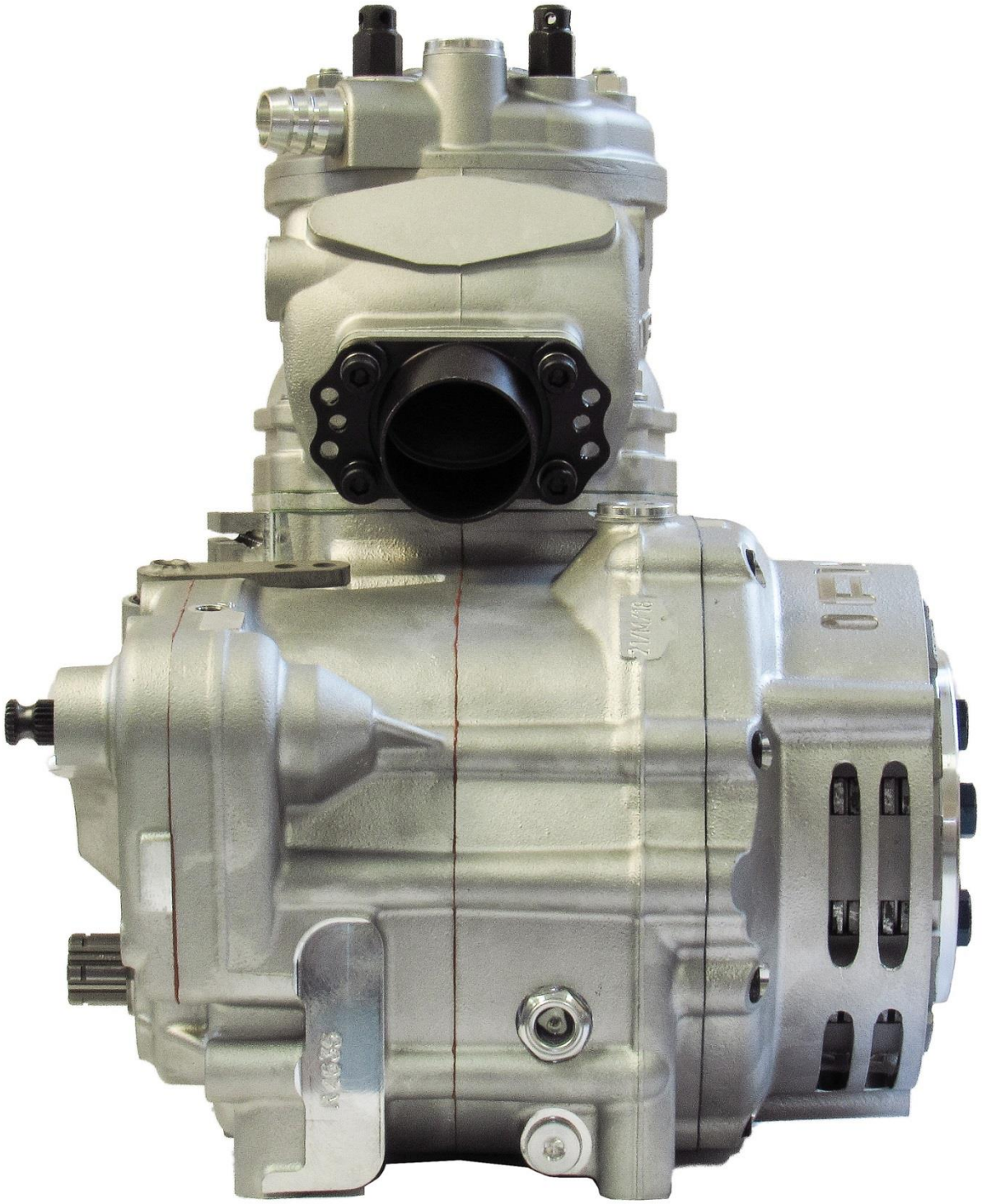


PHOTO OF THE FRONT OF THE COMPLETE ENGINE

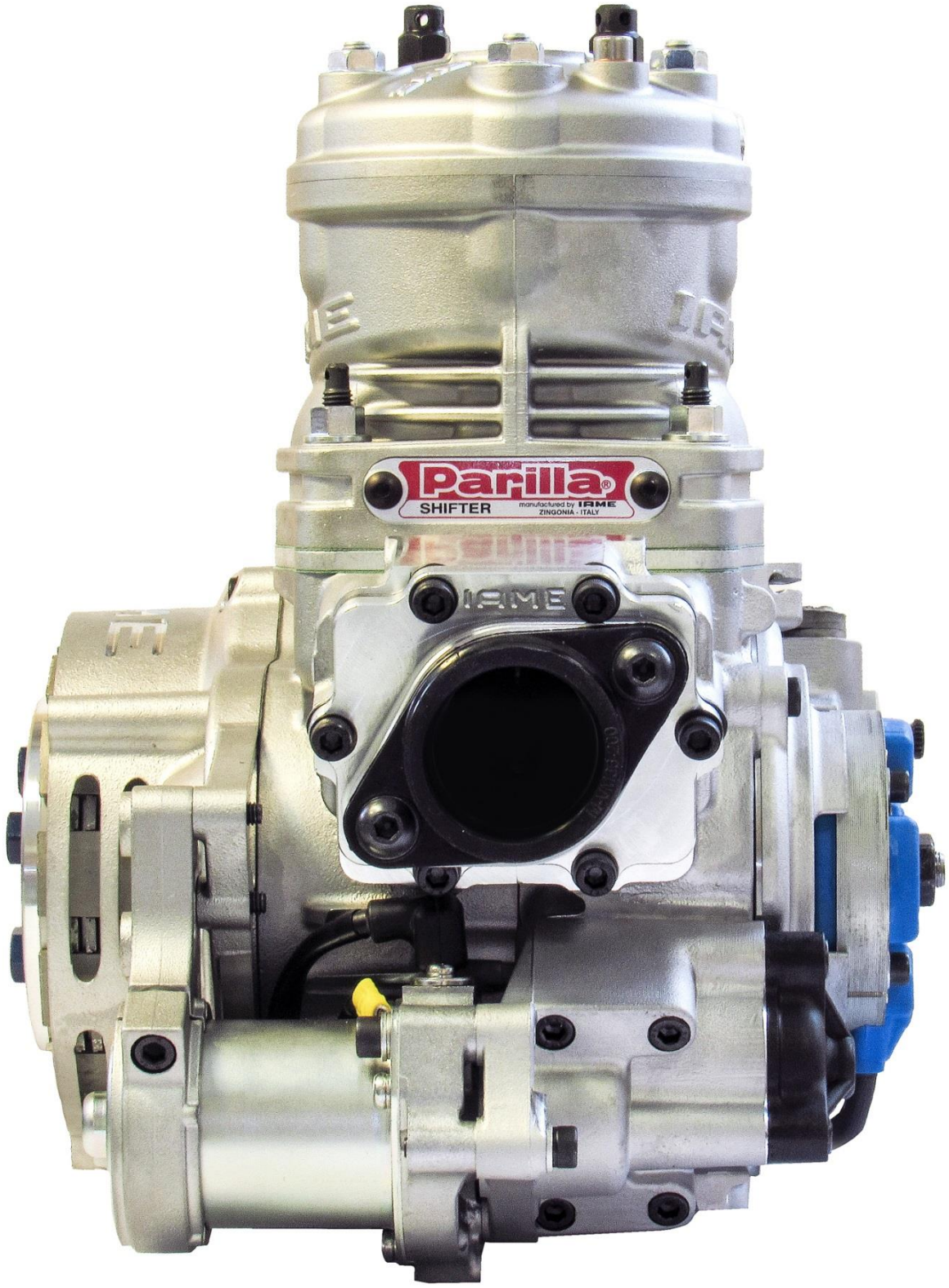


PHOTO OF THE COMPLETE ENGINE TAKEN FROM ABOVE

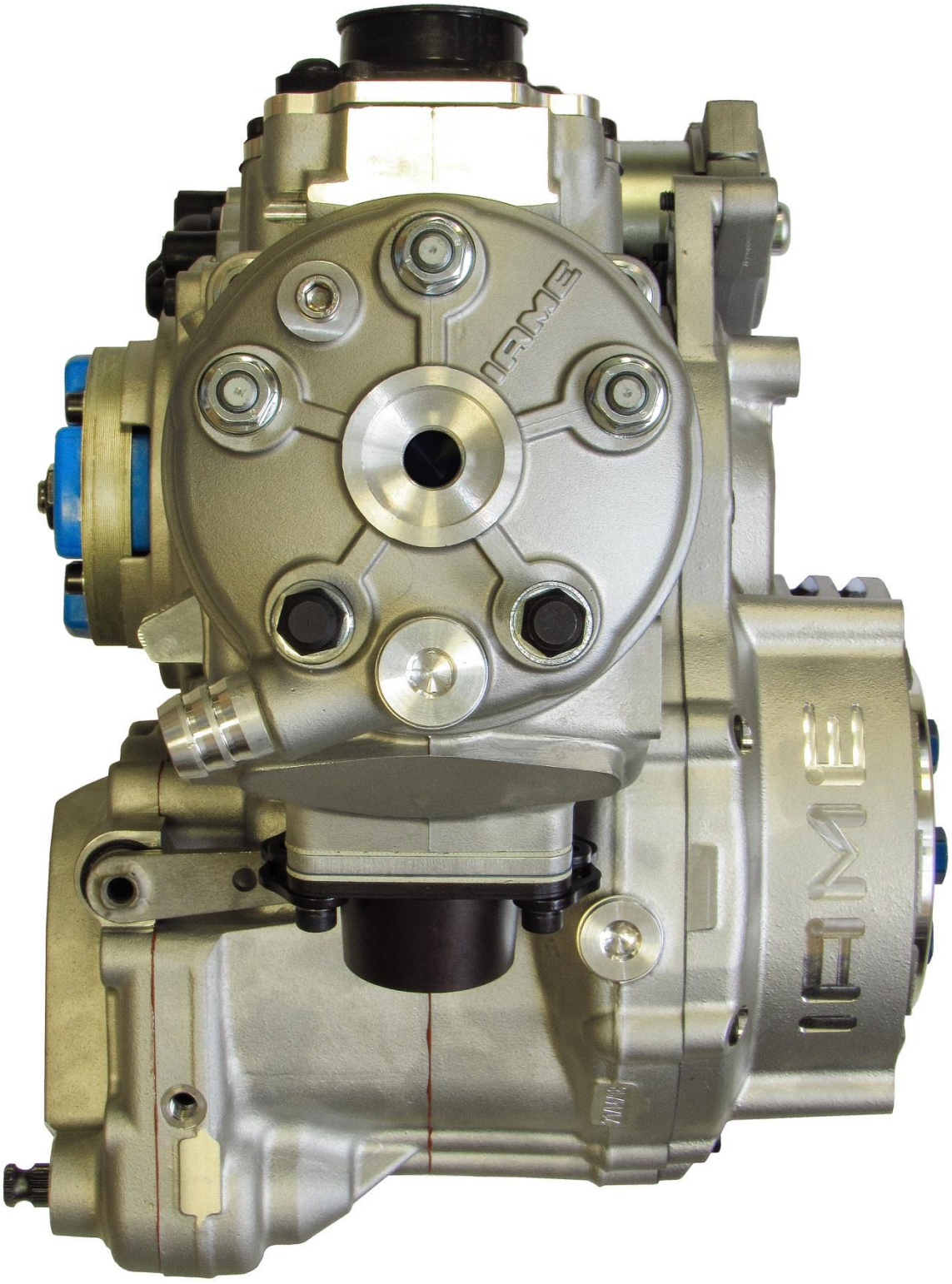
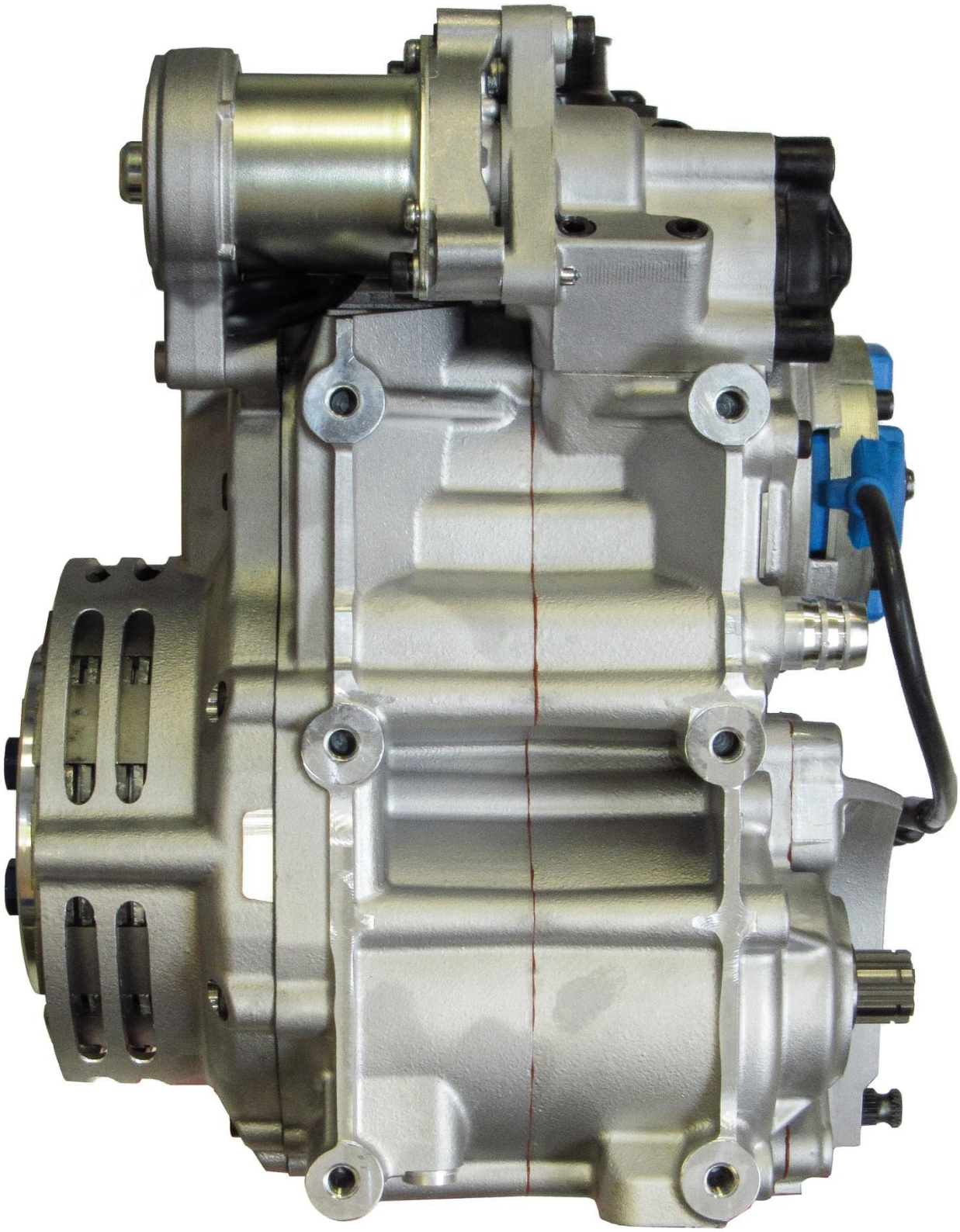


PHOTO OF THE COMPLETE ENGINE TAKEN FROM BELOW



TECHNICAL INFORMATION

A	*CHARACTERISTICS*	
The number of decimal places must be 2 or comply with the relevant tolerance.		*Tolerances & remarks*
Cylinder		
Volume of cylinder	174.46 cm³	<176.60 cm³
Original bore	63.90 mm	--
Theoritical maximum bore	64.26 mm	--
Original Stroke	54.40 mm	--
Number of transfer ducts, cylinder/sump	5 / 3	--
Number of exhaust ports / ducts	3 / 3	--
Volume of the combustion chamber	17.5 cm³	minimum
Volume of the combustion chamber in the cylinder head	17.5 cm³	minimum
Crankshaft		
Number of bearings	2	--
Diameter of bearings	25 mm	±0.1mm
Minimum weight of crankshaft	2070 g	minimum
All parts represented on page 17 photo		
~~***Balance shaft***~~		
~~*Minimum weight of balance shaft*~~	~~- g~~	~~minimum~~
~~*Percentage of balancing*~~	~~- %~~	~~minimum~~
Connecting rod		
Connecting rod centreline	115 mm	±0.2mm
Diameter of big end	26 mm	±0.05mm
Diameter of small end	19 mm	±0.05mm
Min. weight of the connecting rod	119 g	minimum

Piston		
Number of piston rings	1	
Min. weight of the bare piston	155 g	minimum
Gudgeon pin		
Diameter	15 mm	±0.05mm
Length	49 mm	±0.15mm
Minimum weight	34.0 g	Minimum
Clutch		
Minimum weight	1650g	minimum
Of all the parts represented on the page 22 technical drawing		

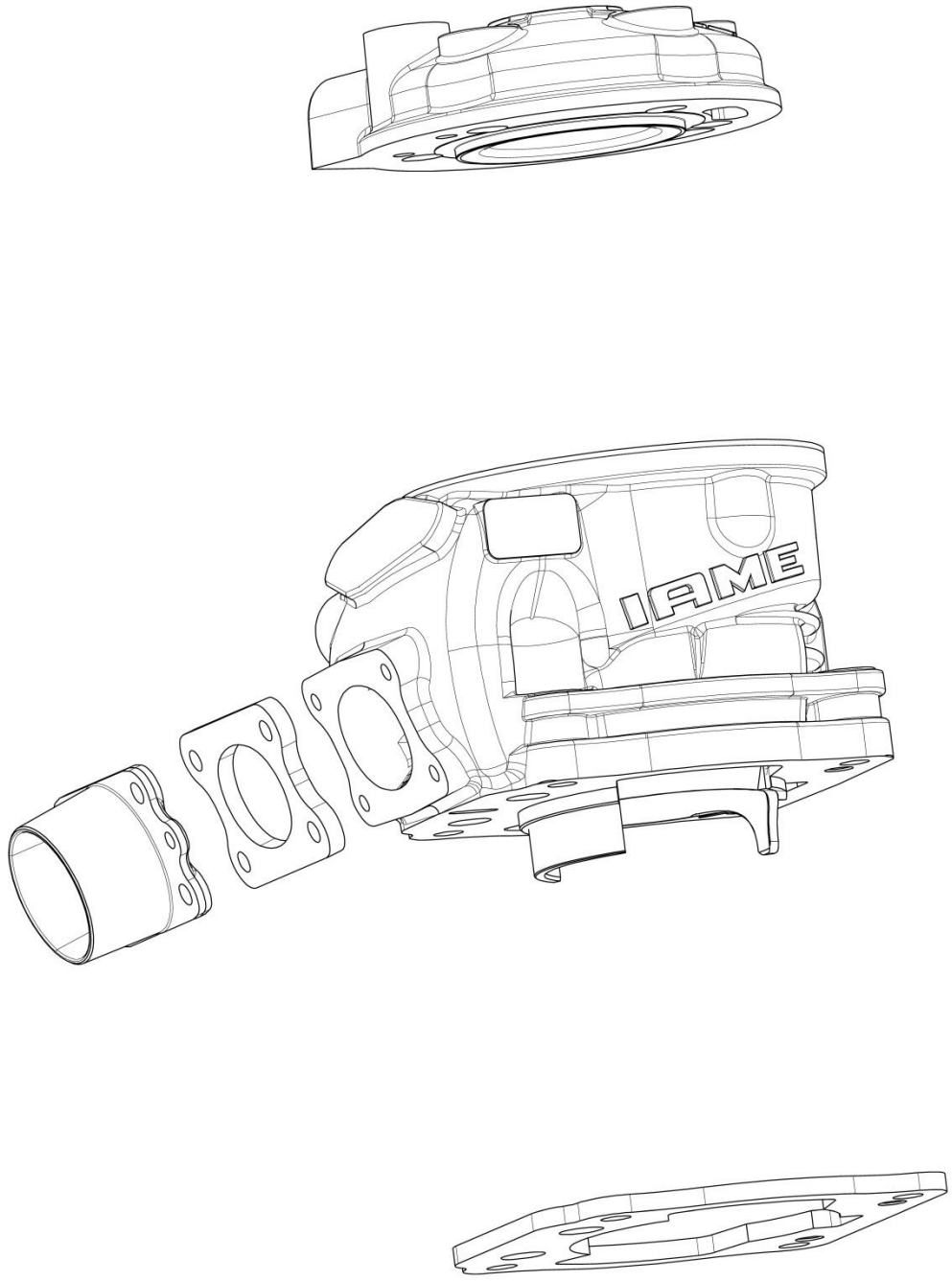
B	*OPENING ANGLES*	
Of the inlet (main transfer ports)	122.5°	**±2°**
Of the inlet (secondary transfer ports, for 5 transfer ducts engine)	125.5°	**±2°**
Of the inlet (5th transfer duct engine)	121°	**±3°**
Of the exhaust	195°	**±2°**
Of the boosters	189°	**±2°**

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*

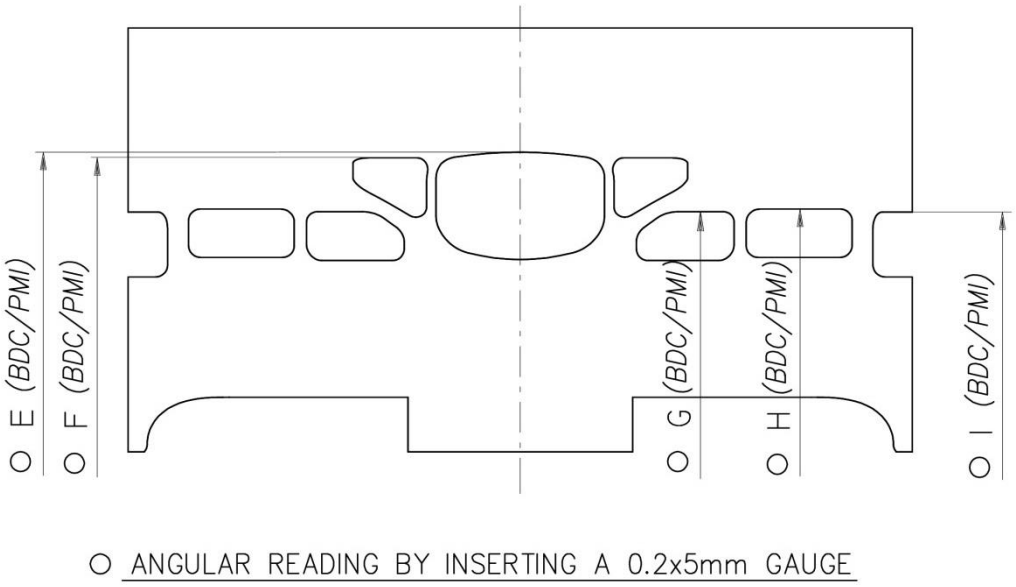
EXPLODED DRAWING OF THE CYLINDER, CYLINDER HEAD AND EXHAUST MANIFOLD UNIT



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



E	195° ± 2°
F	189° ± 2°
G	122.5° ± 2°
H	125.5° ± 2°
I	121° ± 3°

○ ANGULAR READING BY INSERTING A 0.2x5mm GAUGE

Indicate on the drawing:
B1/B2 = minimum thickness of the inlet (transferts) ribs.
A1/A2/A… = maximum inlet width measured at the chord.
E1/E2 = minimum thickness of the exhaust rib (if existing).
C1/C2/C… = maximum exhaust width measured at the chord.

DRAWING OF THE CYLINDER BASE without dimensions

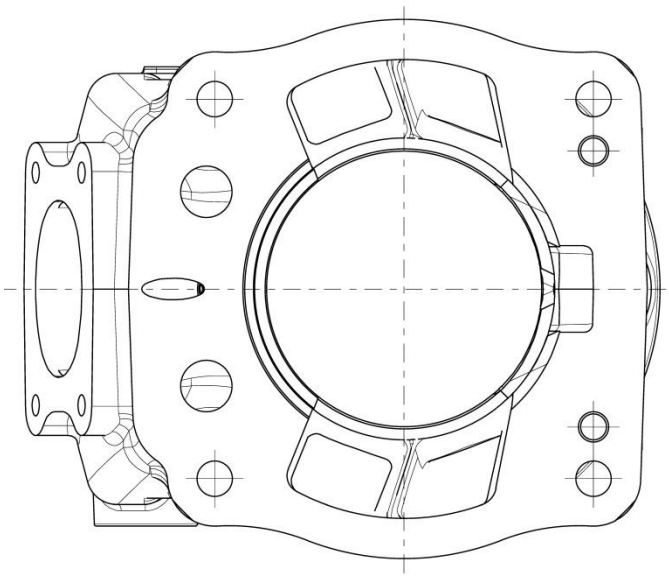
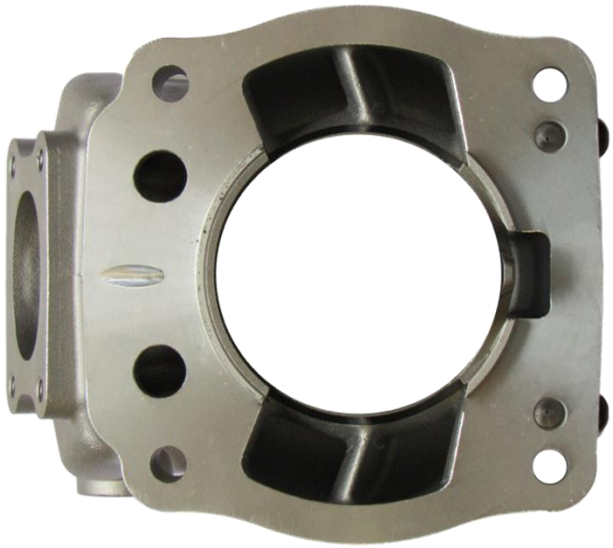
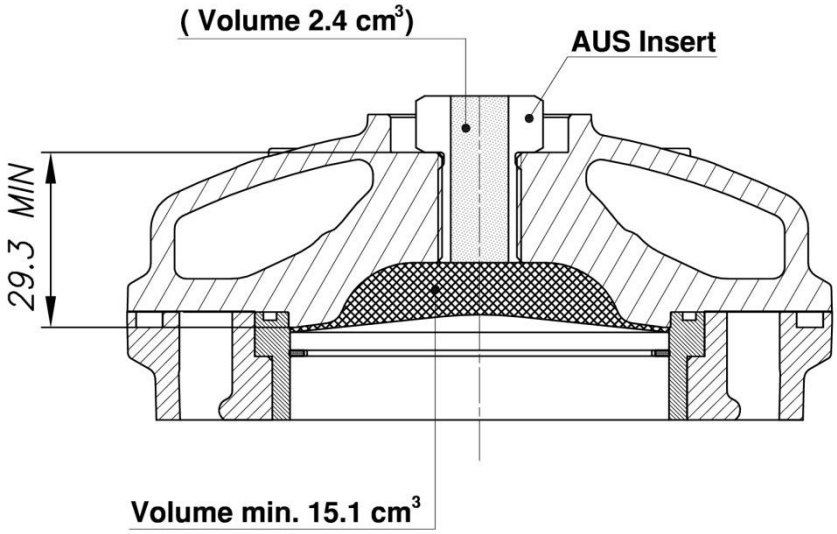


PHOTO OF THE CYLINDER BASE



... Section D.1

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



COMBUSTION CHAMBER VOLUME TOT. = 17.5 cm³ min.

ATT.: SQUISH MIN. = 1.0 mm
(measured with Ø2.0mm TIN)

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

... Section D.1

VERTICAL CROSS SECTION VIEW OF CYLINDER WITH LINER
without dimensions

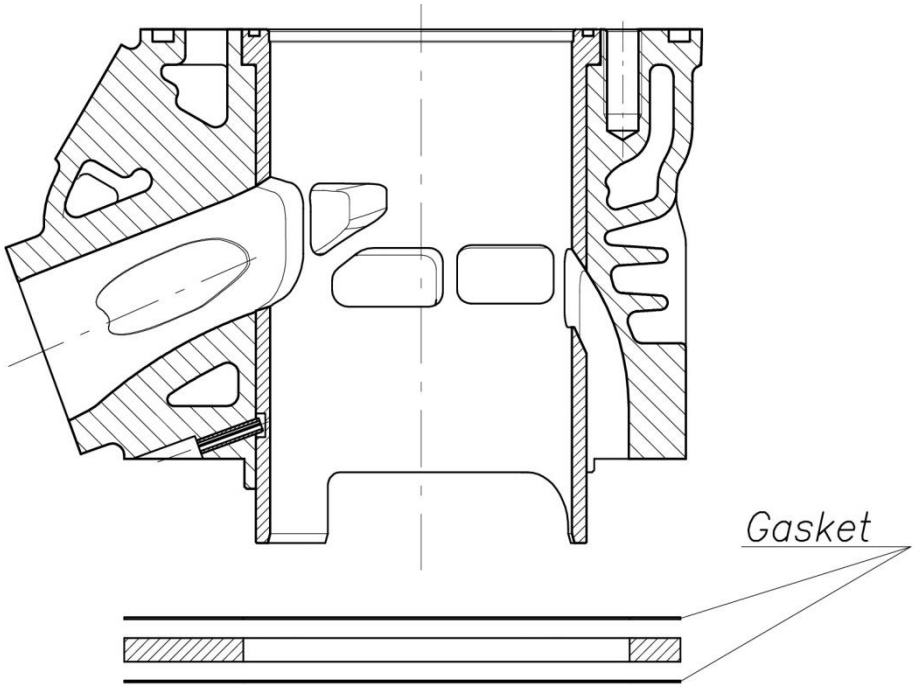


PHOTO OF THE CYLINDER FROM ABOVE

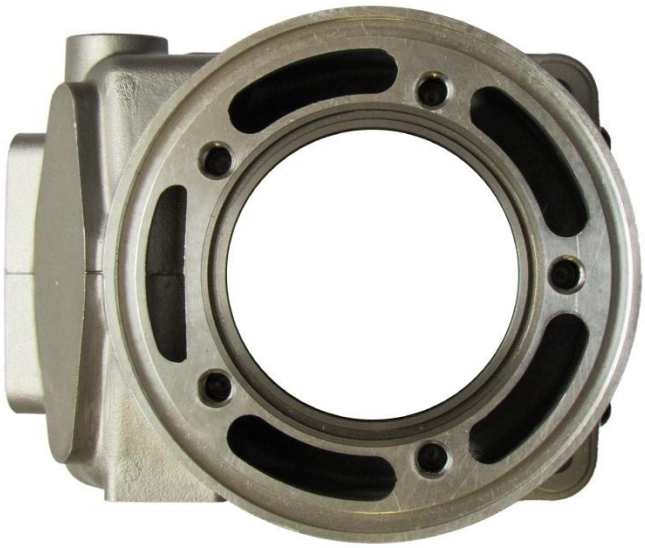


PHOTO OF THE CYLINDER FROM RH SIDE

... Section D.1

VERTICAL CROSS SECTION VIEW OF CYLINDER WITH LINER ALTERNATIVE
without dimensions

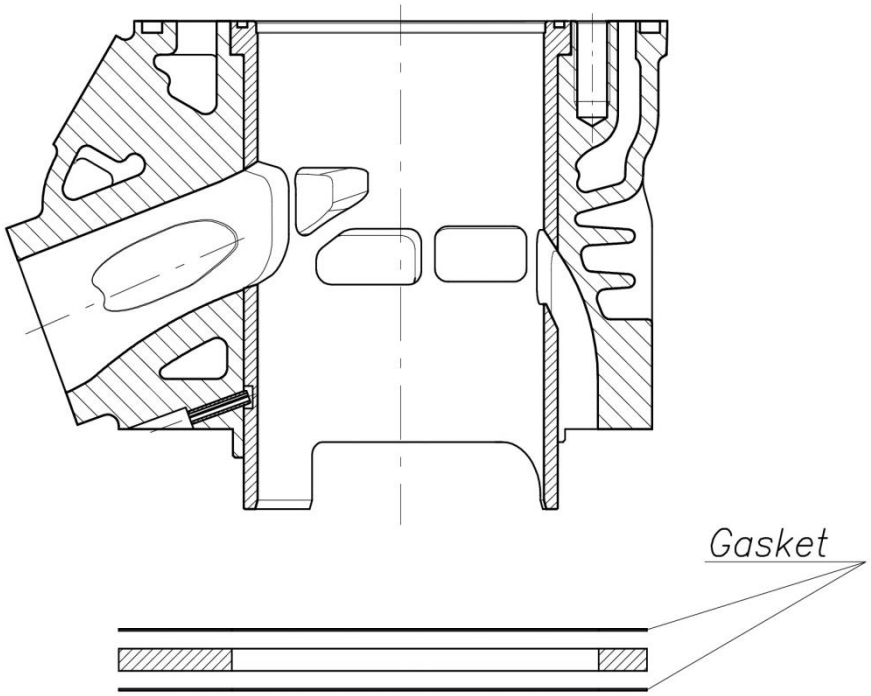
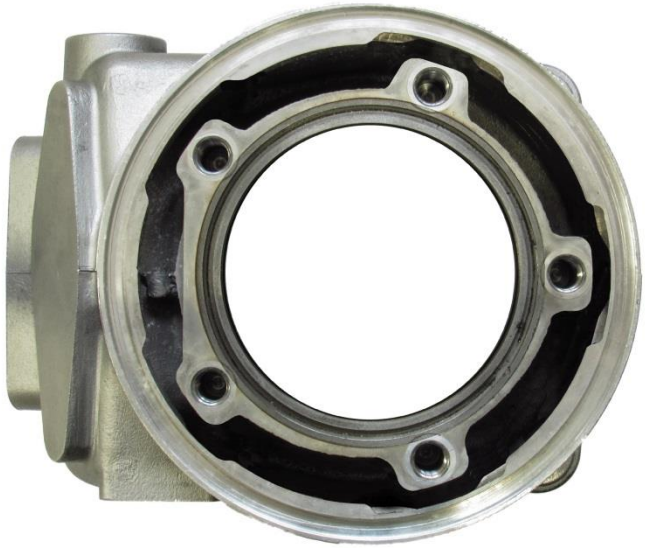
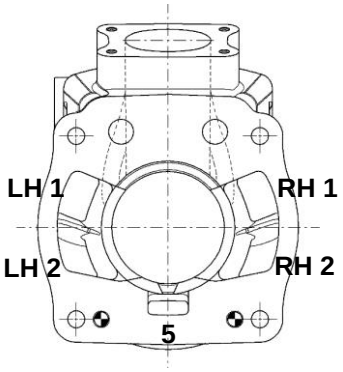
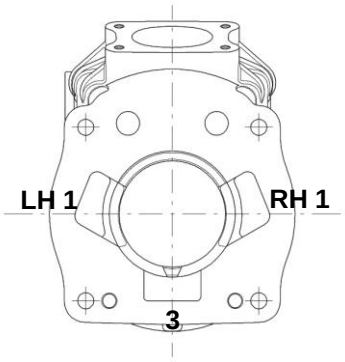
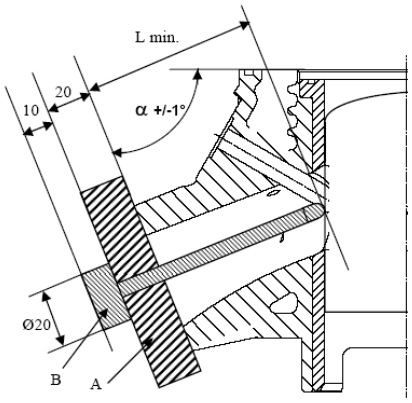


PHOTO OF THE CYLINDER FROM ABOVE ALTERNATIVE	*PHOTO OF THE CYLINDER FROM RH SIDE ALTERNATIVE*
	

... Section D.1

TRANSFER DUCTS VOLUME			
Transfer position on 5-transfer cylinder	*Transfer position on 3-transfer cylinder*	*TRANSFER No.*	*VOLUME in cm³*
		*Transfer No. 1 LH*	*--.-- +/- 5 %*
		Transfer No. 2 LH	*--.-- +/- 5 %*
		Transfer No. 3 or 5	*--.-- +/- 8 %*
		Transfer No. 2 RH	*--.-- +/- 5 %*
		Transfer No. 1 RH	*--.-- +/- 5 %*

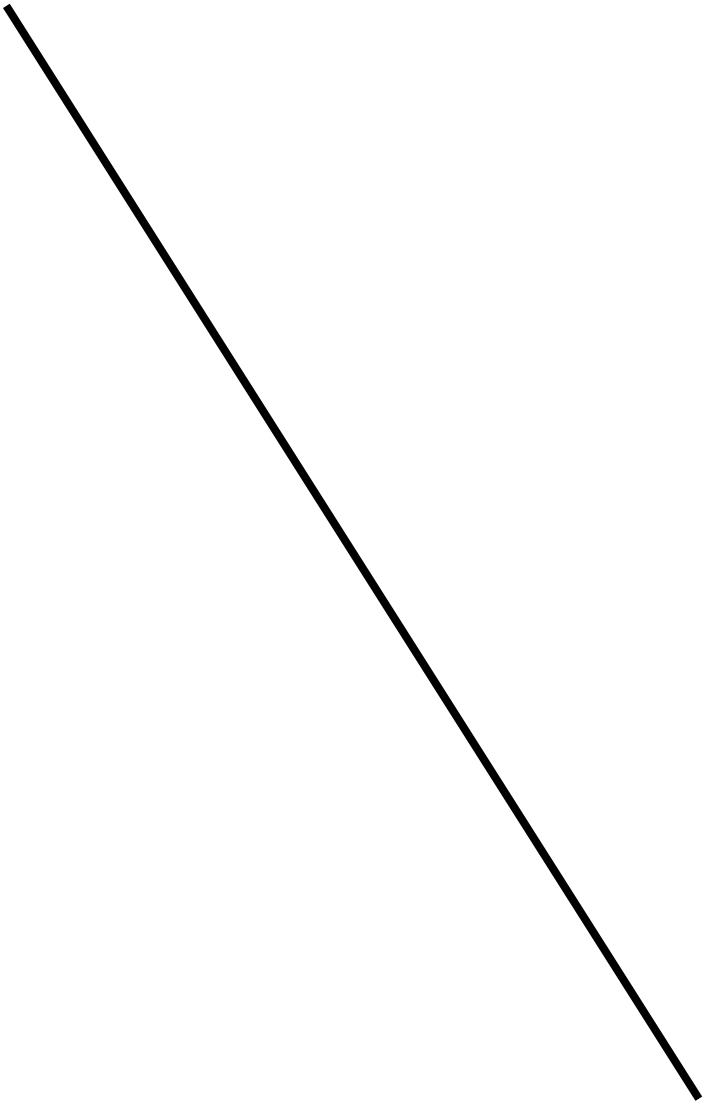
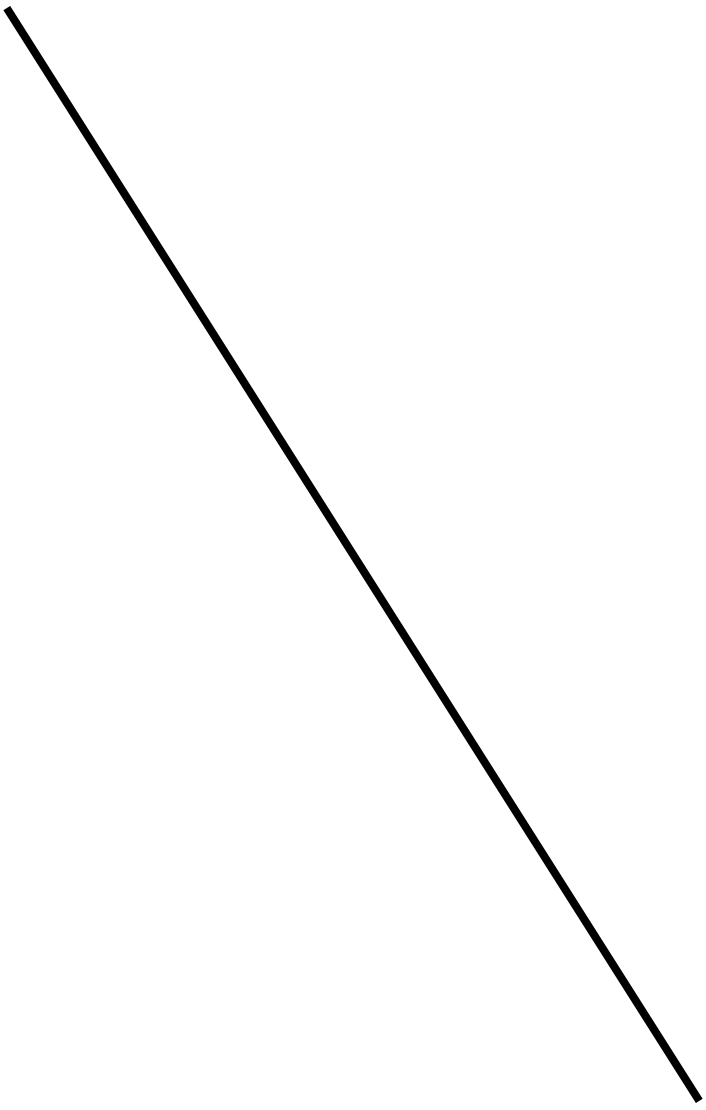
EXHAUST DUCT LENGTH		
	ANGLE α *in* °	**Minimum *in* mm**
	--° +/-1°	-- mm
The L min. dimension will be the result of the value taken on the reference engine minus 5 mm.		
Technical Drawing No.13		



- *A: Centring guide centred in relation to the exhaust duct by the exhaust manifold fixation screws, with a total thickness of 20 +/- 0.05 mm and being drilled in its centre by a hole with a 5 mm diameter, H7 bore.*
- *B: Control gauge composed of a shaft with a 5g6 diameter having a 2.5 mm radius at its end and a length = L min + 20+10.*

... Section D.1

INTERNAL PROFILE OF THE EXHAUST DUCT
Templates of the internal dimensions of the exhaust duct: gasket plane of the manifold.

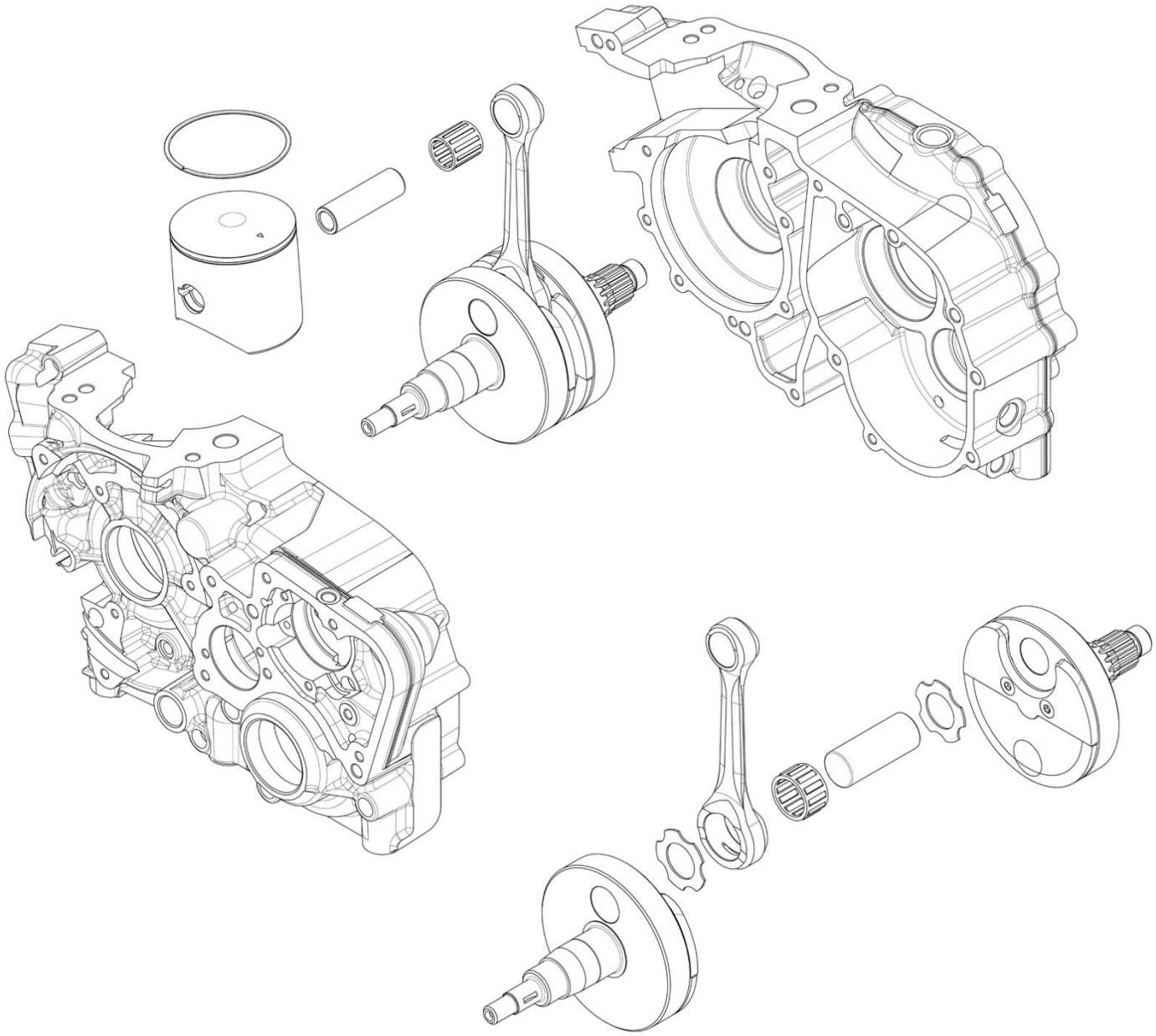
FRONT VIEW DRAWING – with dimensions	
Minimum template	*Maximum template*
	

- *Maximum template: internal profile of the gasket plane of the manifold of the original cylinder plus 1 mm*
- *Minimum template: internal profile of the gasket plane of the manifold of the original cylinder minus 1 mm*
- *Thickness*: 5 +/- 0,05 mm

Technical Drawing No.13 bis

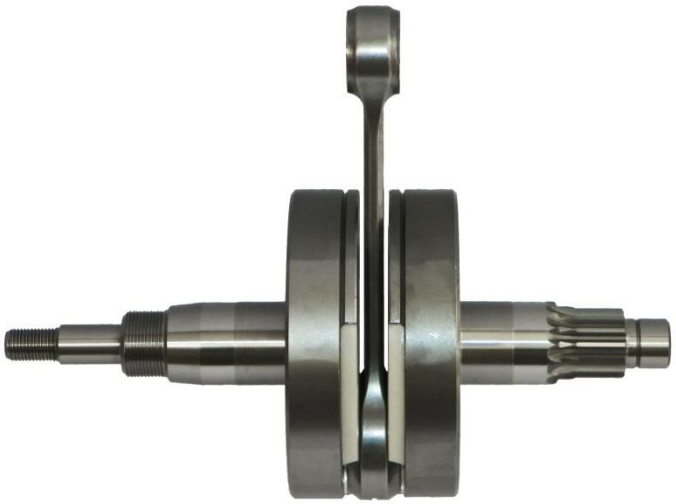
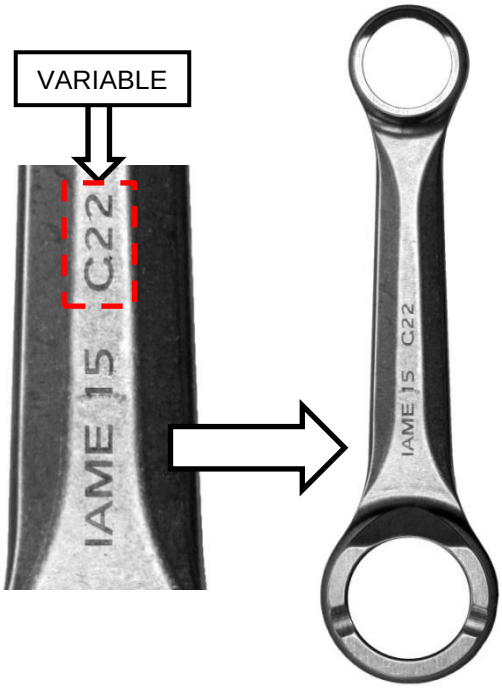
D.2 *CONROD, CRANKCASE, CRANKSHAFT & PISTON*

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

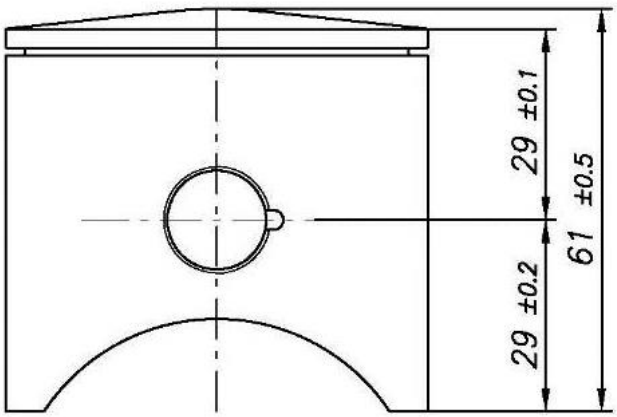


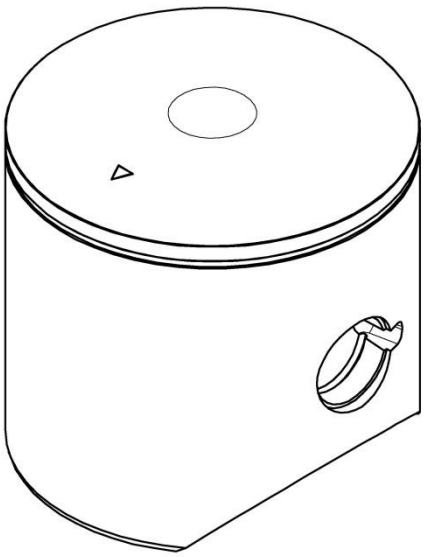
Without screws or gaskets.	***The aim of the exploded drawings is to identify the principles, the functioning and the whole mechanical unit***

...Section D.2

PHOTO OF THE CRANKSHAFT & CONROD	*PHOTO OF THE CONROD*
	

DRAWING OF THE PISTON (MAIN DIMENSIONS incl. tolerances)





...Section D.2

PHOTO IDENTIFICATION OF SILVER CONROD WASHER – TYPES ALTERNATIVE

TYPE 1

TYPE 2

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

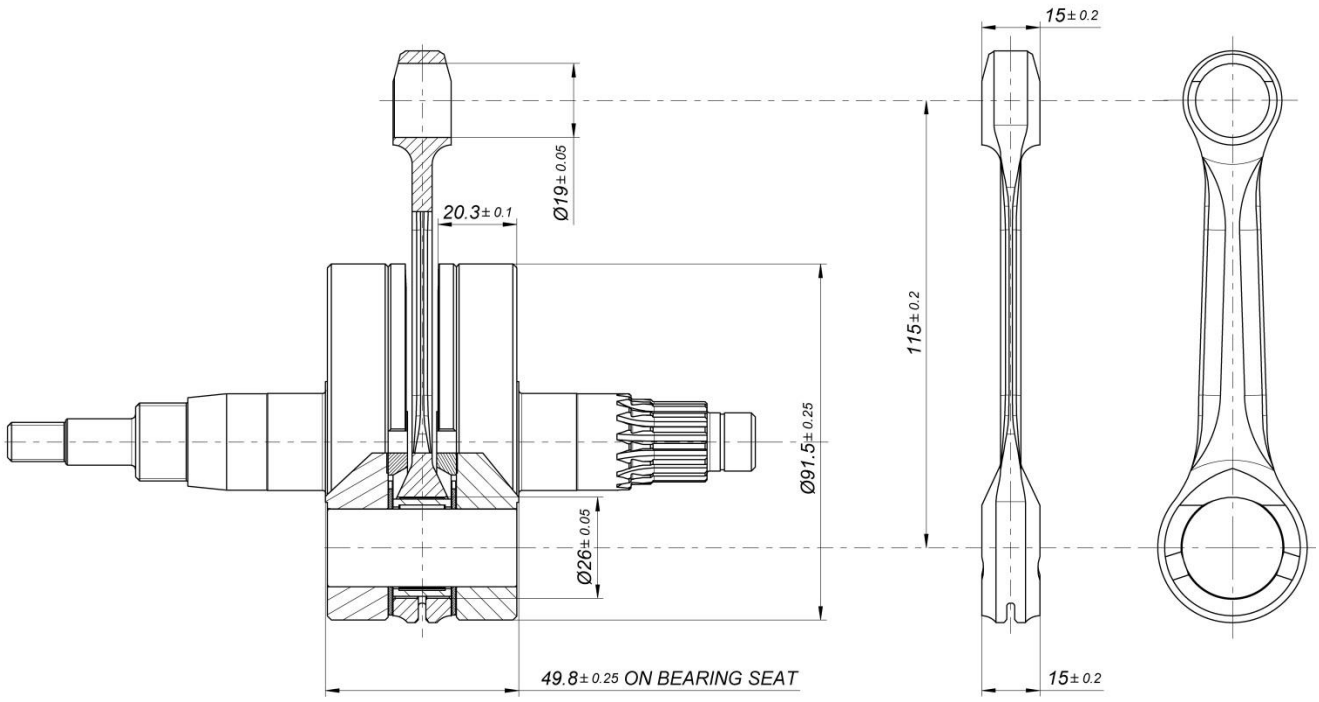
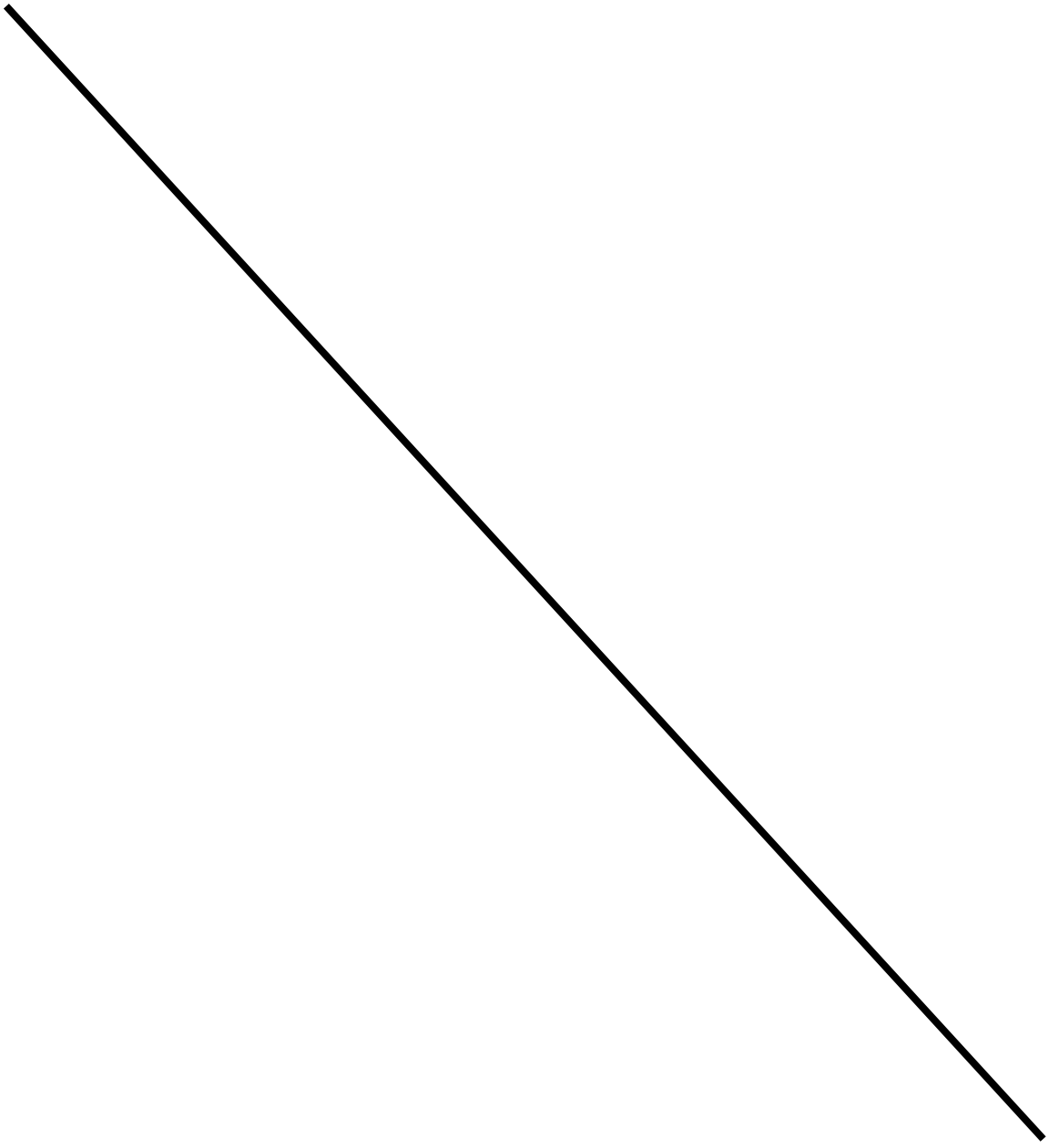


PHOTO OF THE INSIDE OF THE RH CRANKCASE

PHOTO OF THE INSIDE OF THE LH CRANKCASE

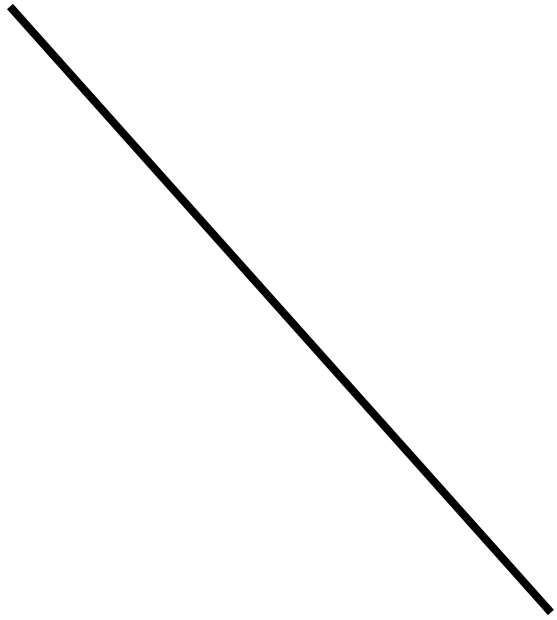
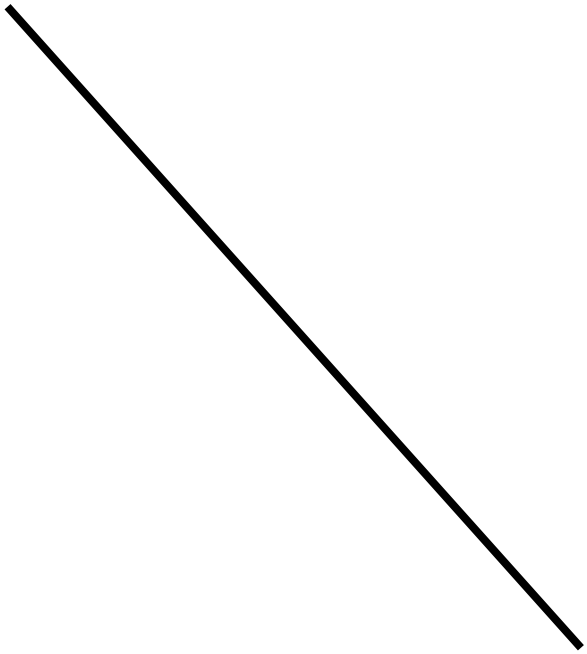
D.3 *BALANCE SHAFT & WATER PUMP*

EXPLODED DRAWING OF THE BALANCE SHAFT, WATER PUMP INCLUDING HOUSING

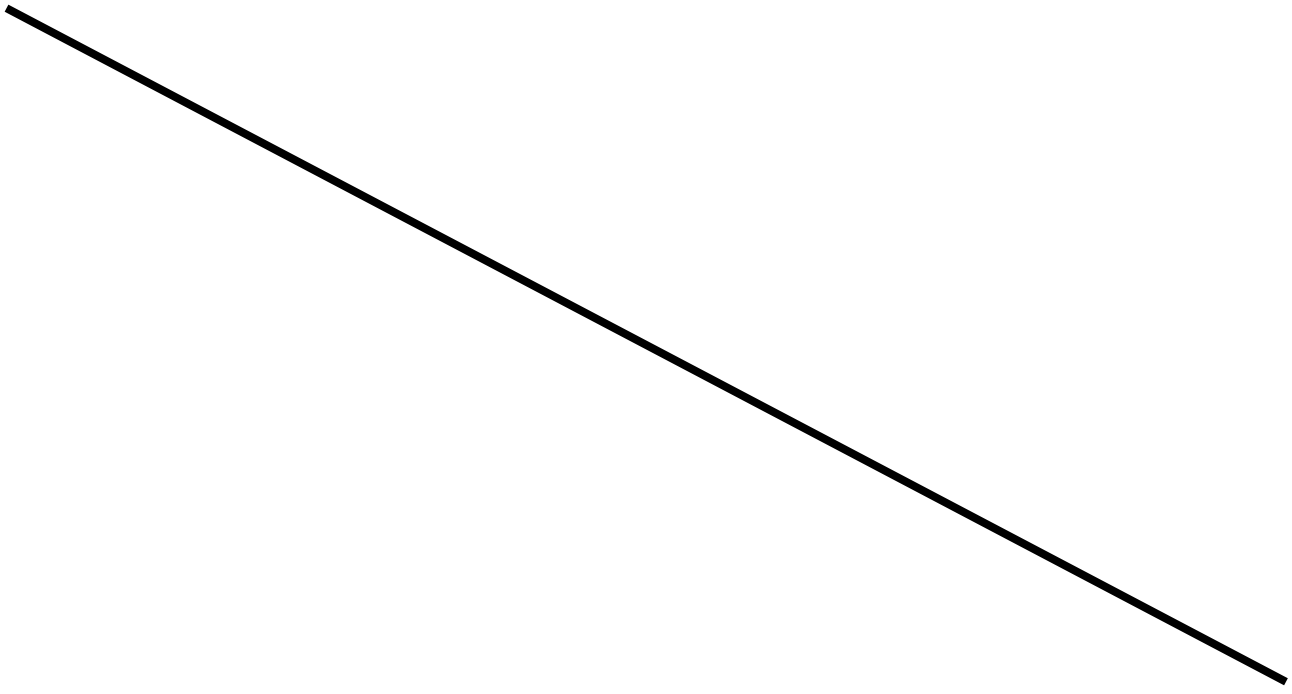


Without screws or gaskets.	***The aim of the exploded drawings is to identify the principles, the functioning and the whole mechanical unit***

...Section D.3

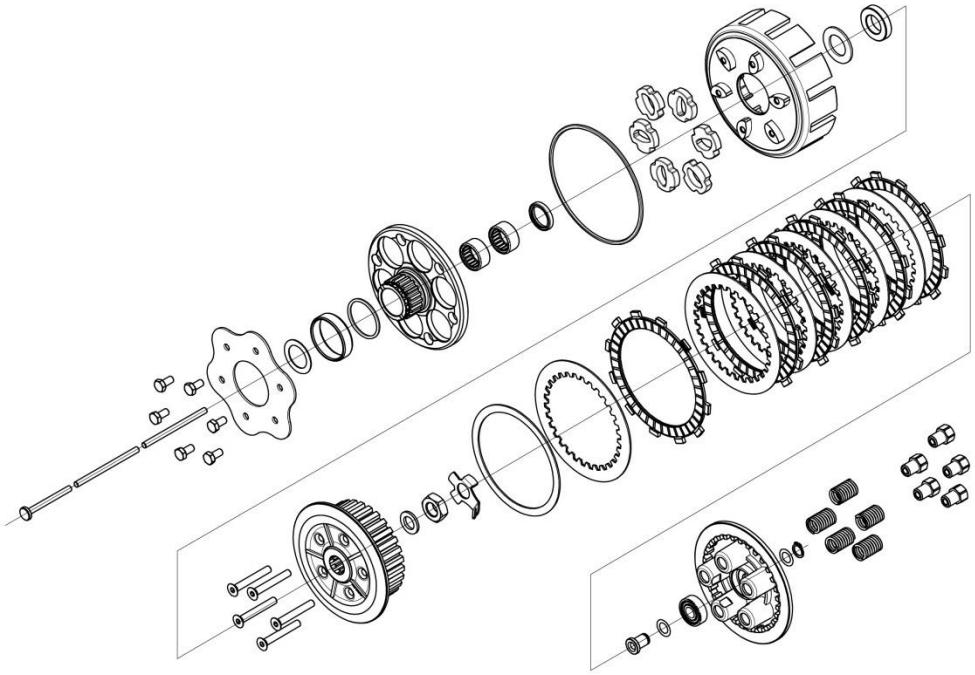
PHOTO OF THE BALANCE SHAFT	*PHOTO OF THE WATER PUMP IMPELLER*
	

DRAWING OF THE BALANCE SHAFT
(DIMENSIONS incl. tolerances)

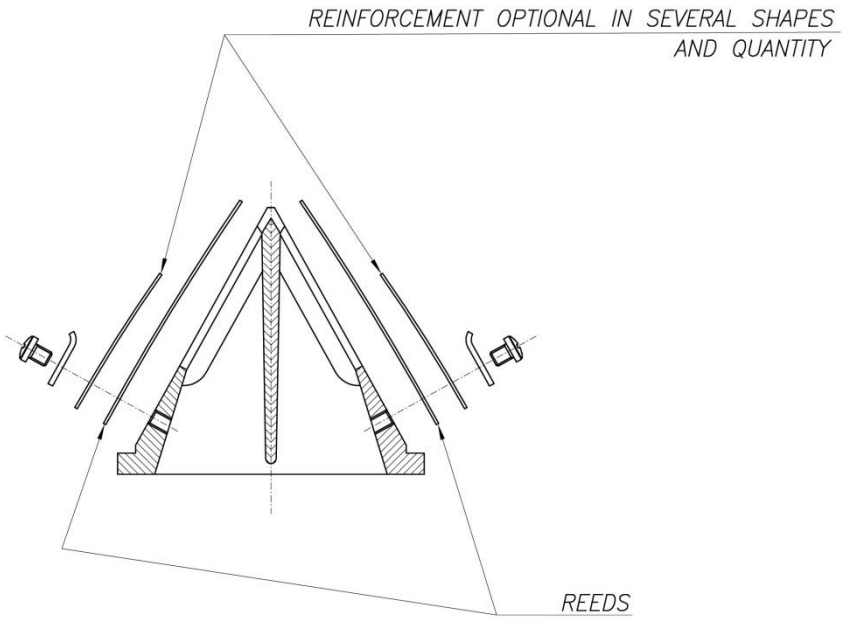


D.4 *REED VALVE & CLUTCH*

TECHNICAL DRAWING (exploded view) OF THE CLUTCH ASSEMBLY



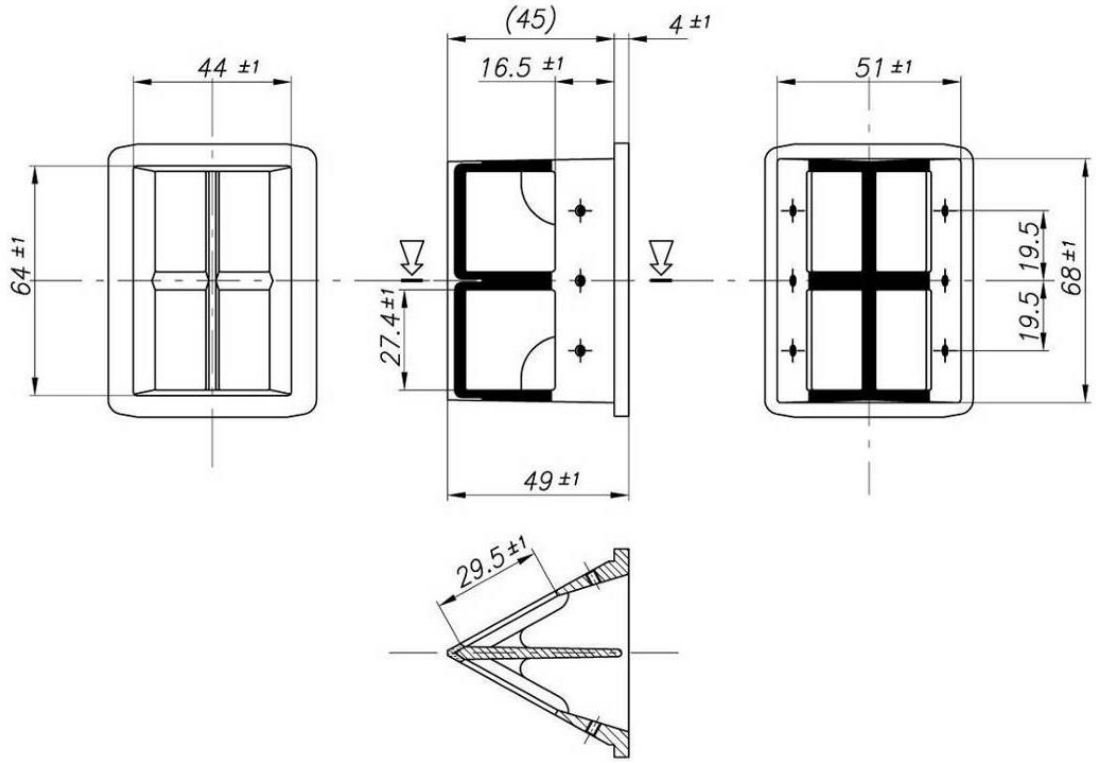
TECHNICAL DRAWING (exploded view) OF THE REED VALVE



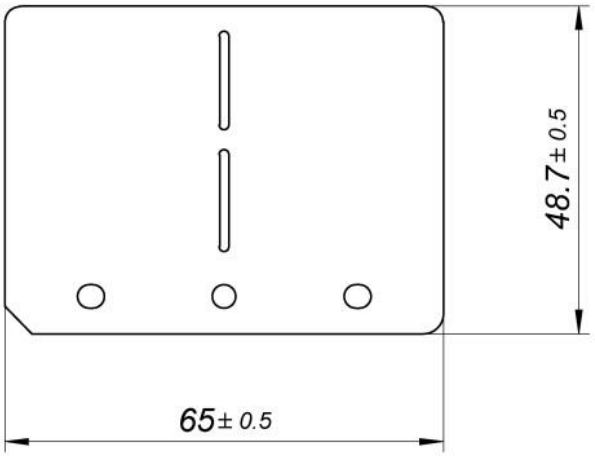
The aim of the exploded drawings is to identify the principles, the functioning and the whole mechanical unit

... Section D.4

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



DRAWING OF THE REEDS

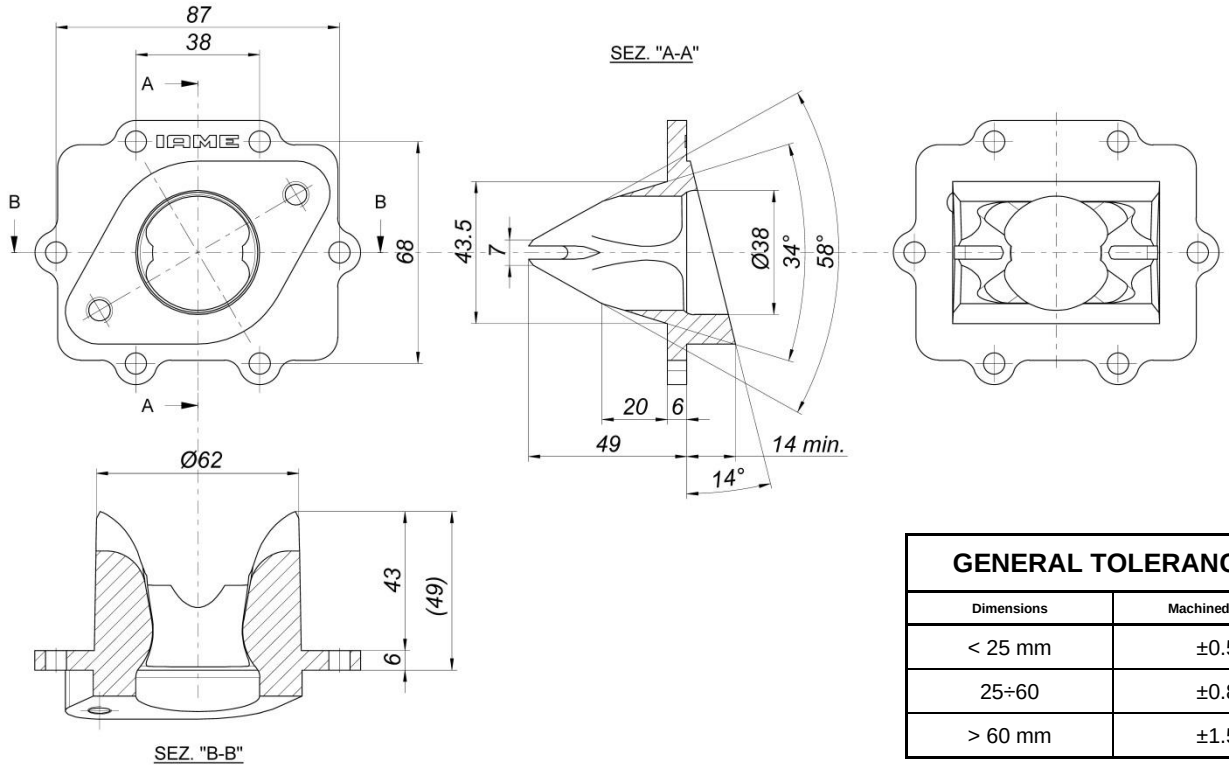


N.B.: THICKNESS 0.30 mm MINIMUM.

ONLY GENUINE "IAME" CARBON FIBRE REEDS ARE PERMITTED

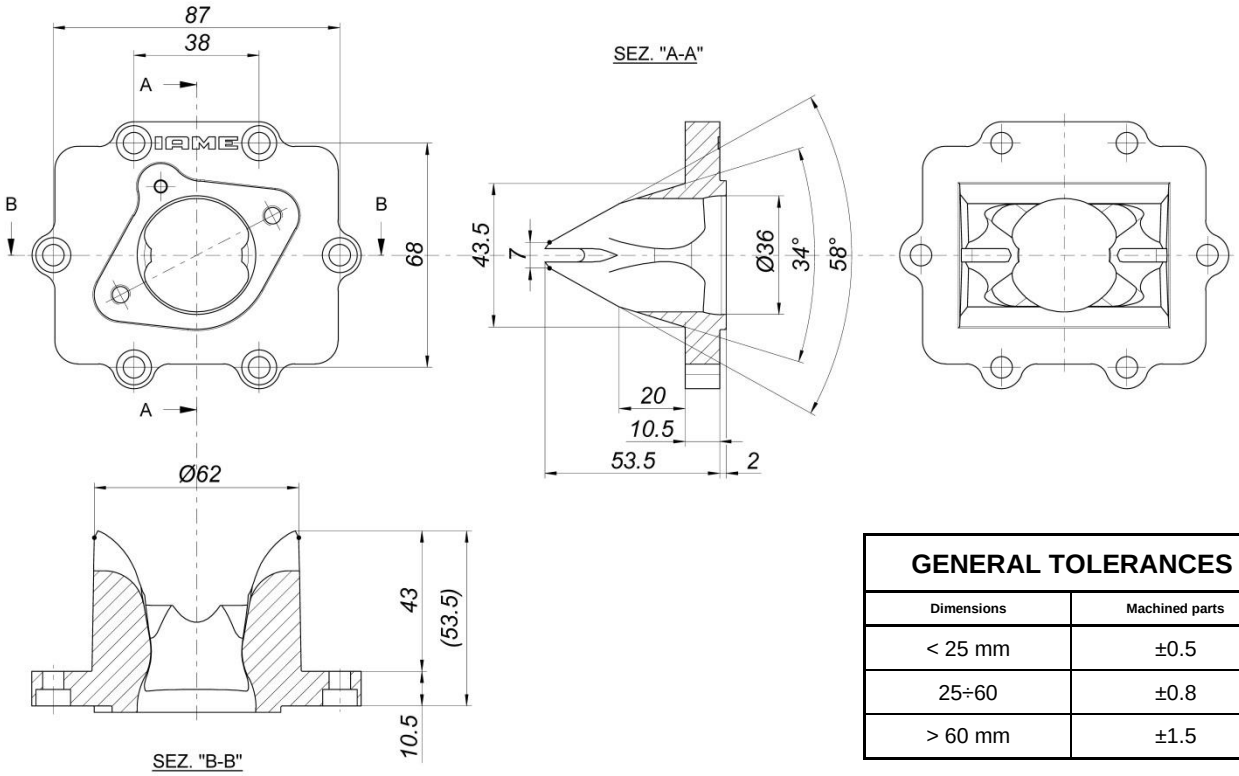
... Section D.4

DRAWING OF THE REED VALVE COVER
FOR CARBURETTOR DELL' ORTO VHSB 36-RD (only basic engine)



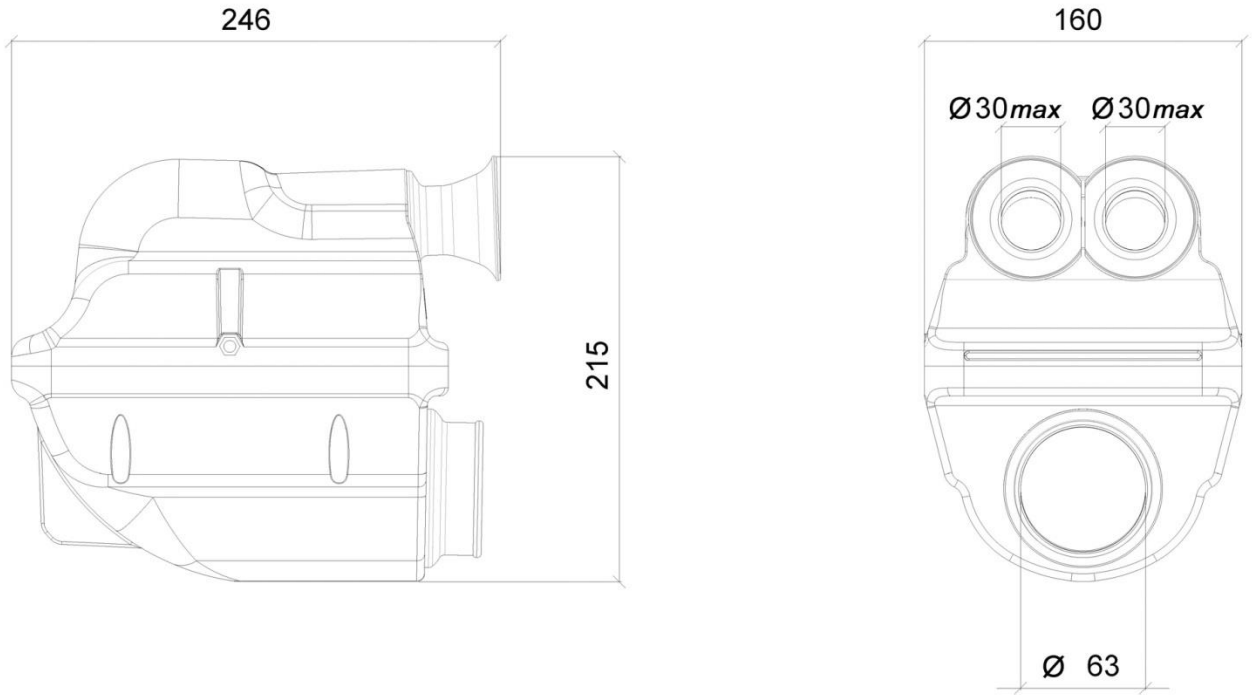
GENERAL TOLERANCES	
Dimensions	Machined parts
< 25 mm	±0.5
25÷60	±0.8
> 60 mm	±1.5

DRAWING OF THE REED VALVE COVER
FOR CARBURETTOR TILLOTSON HB-15A (only basic engine)

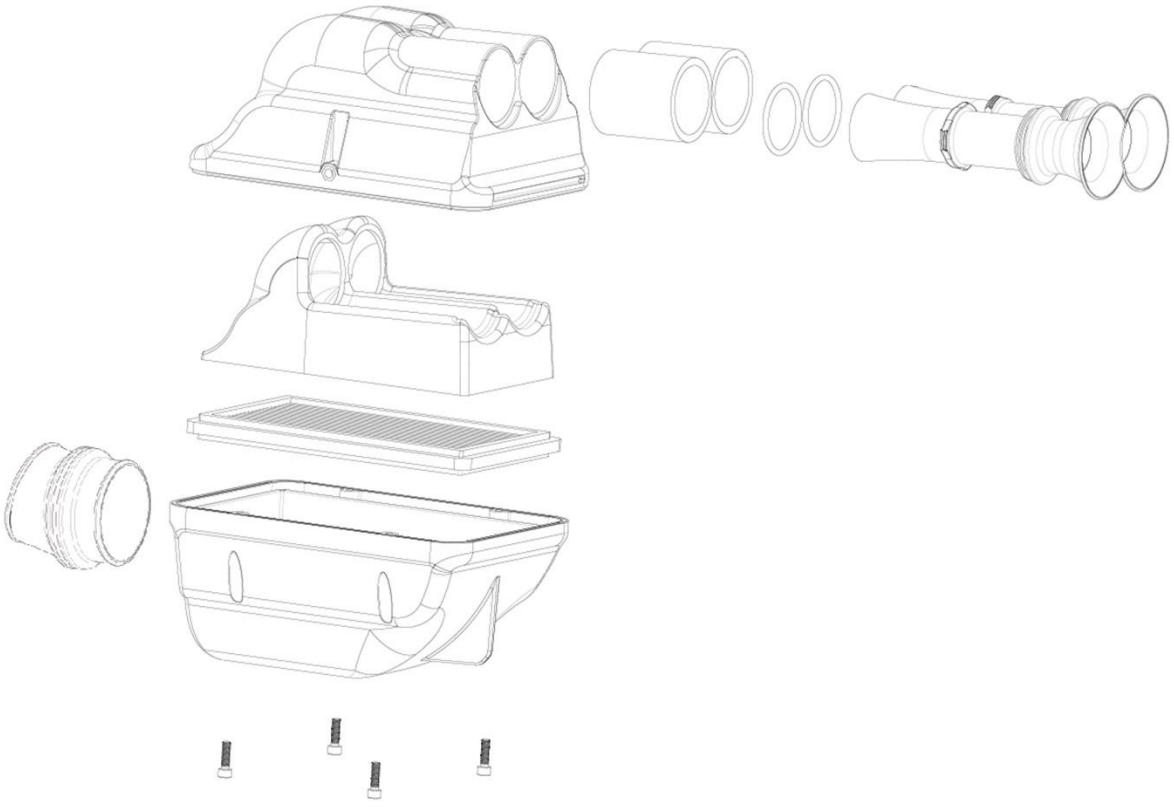


GENERAL TOLERANCES	
Dimensions	Machined parts
< 25 mm	±0.5
25÷60	±0.8
> 60 mm	±1.5

DRAWING OF AIR BOX – KG NITRO 30

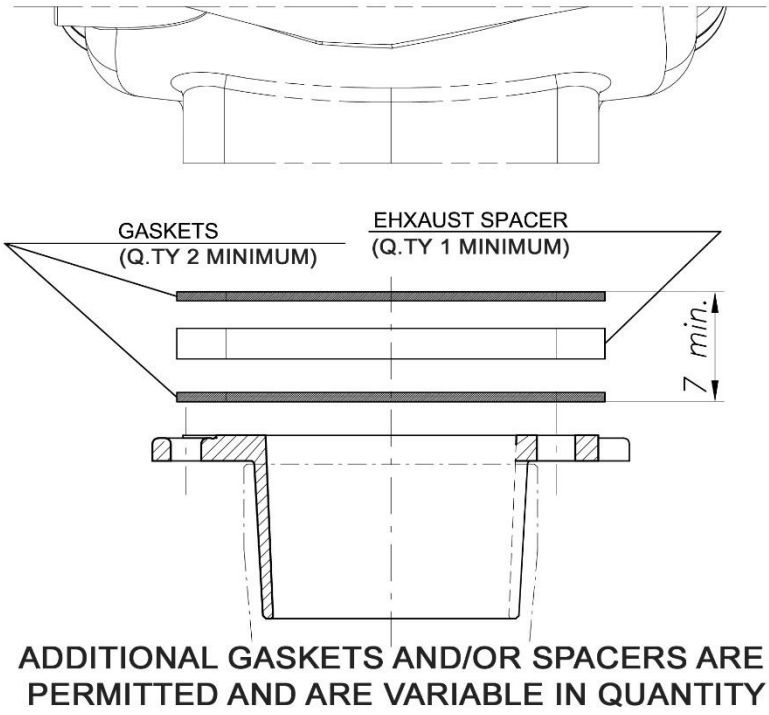


EXPLODED VIEW OF AIR BOX – KG NITRO 30



D.5 *EXHAUST SYSTEM*

PHOTO OF THE EXHAUST MANIFOLD



ADDITIONAL GASKETS AND/OR SPACERS ARE PERMITTED AND ARE VARIABLE IN QUANTITY

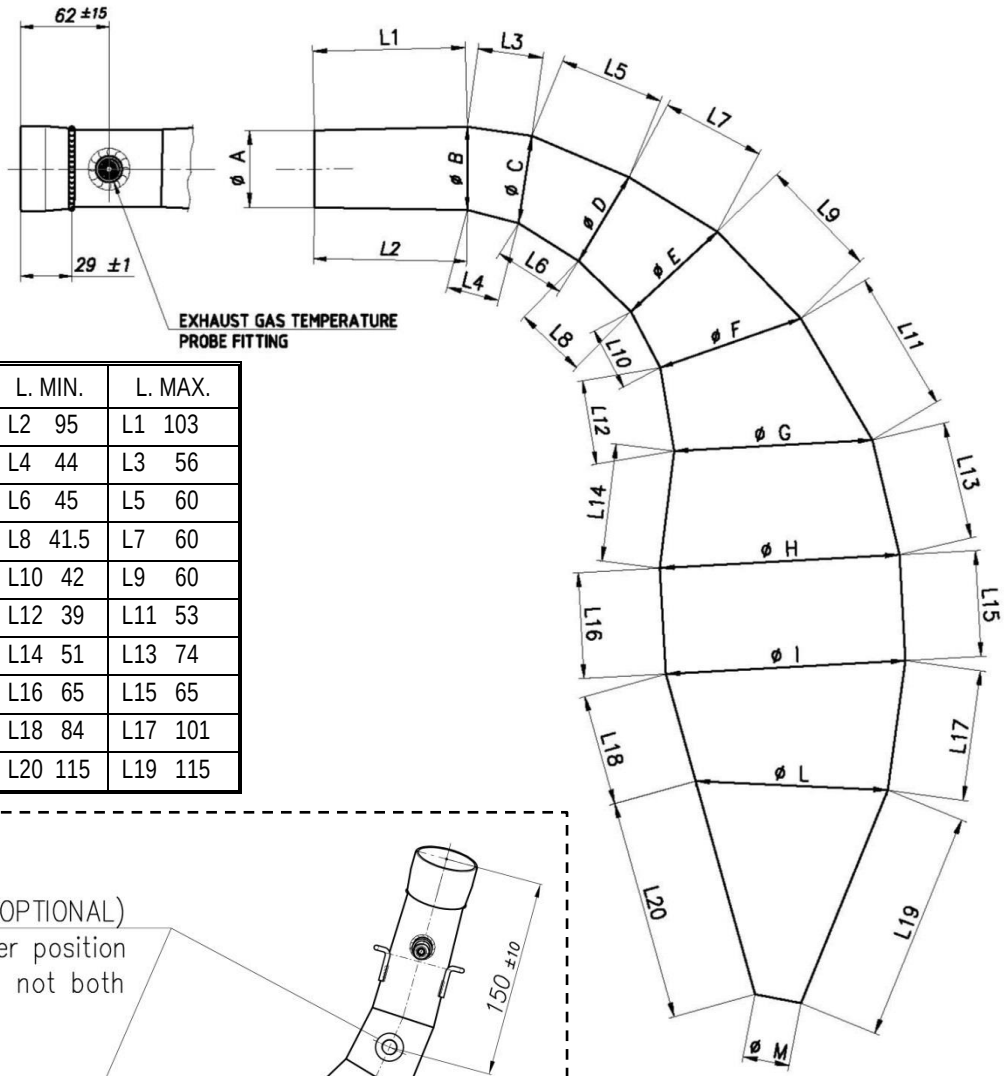
PHOTO AND MARKING OF THE EXHAUST

... Section D.5

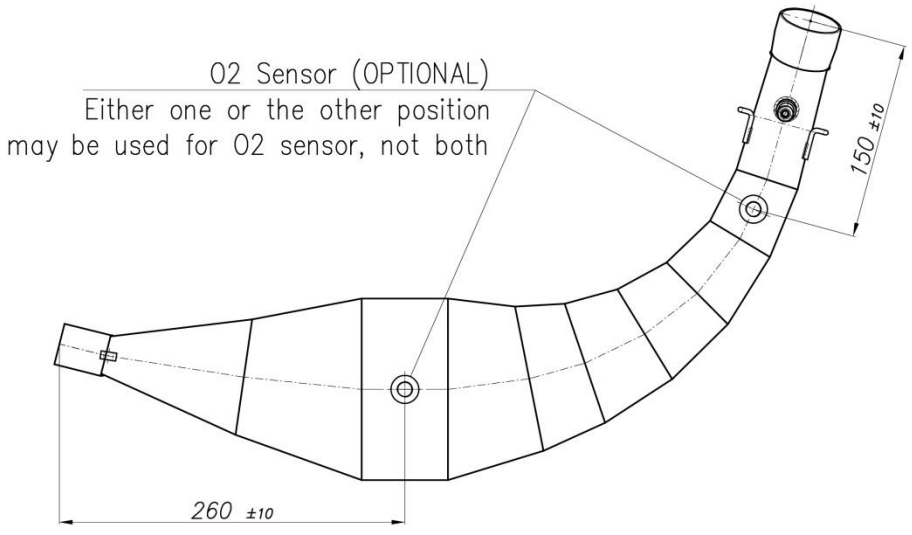
TECHNICAL DESCRIPTIONS OF THE EXHAUST (Art. 8.9.3 of HR)		
Weight in g	**1090**	*Minimum*
Volume in cc	**4120**	*+/-5 %*

TECHNICAL DRAWING

It must include all the information necessary to build this exhaust



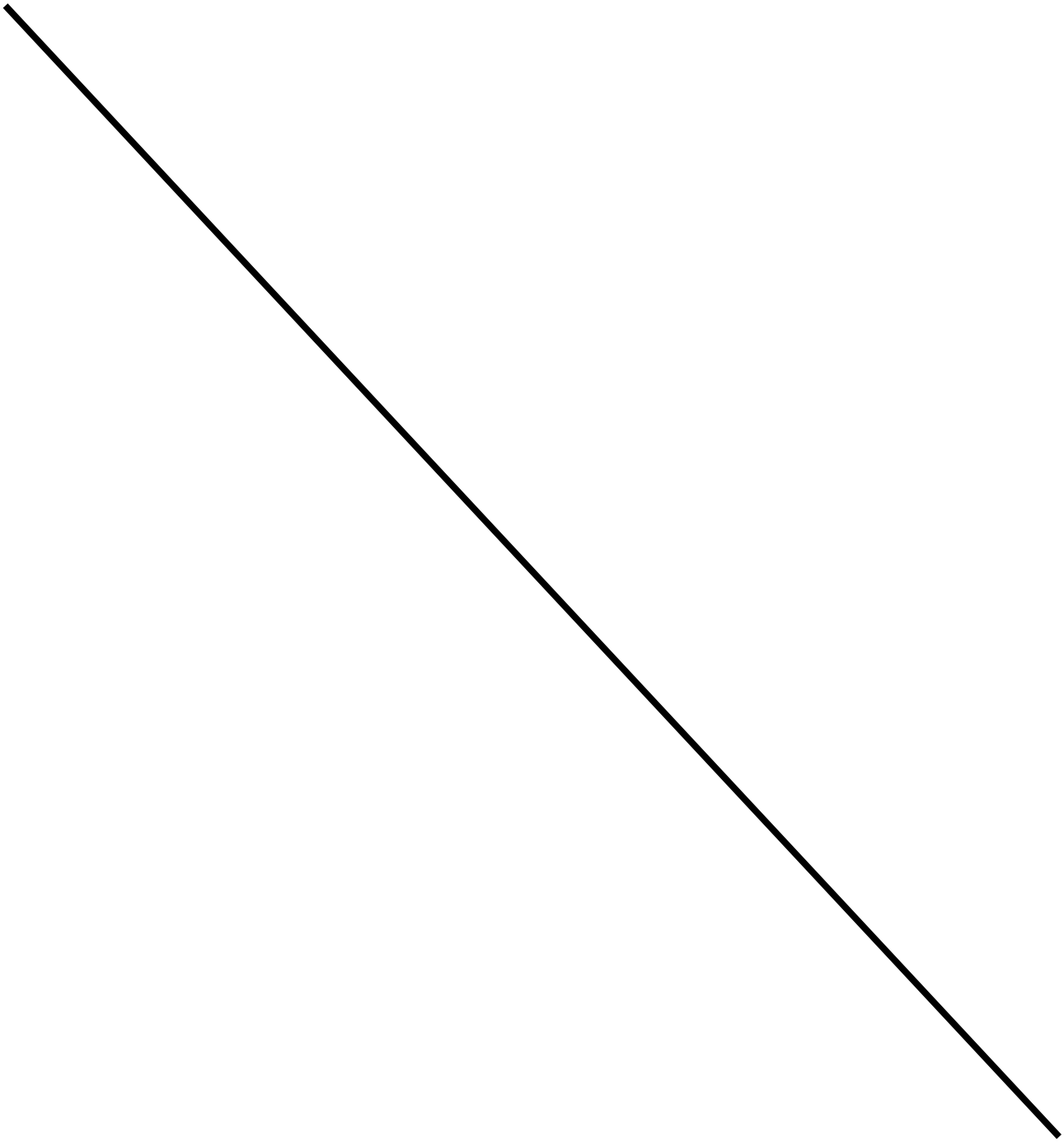
Part	D. MIN.	D. MAX	L. MIN.	L. MAX.
1	ØA 42.6	ØB 48	L2 95	L1 103
2	ØB 48	ØC 53	L4 44	L3 56
3	ØC 53	ØD 65.3	L6 45	L5 60
4	ØD 65.3	ØE 79	L8 41.5	L7 60
5	ØE 79	ØF 95	L10 42	L9 60
6	ØF 95	ØG 112	L12 39	L11 53
7	ØG 112	ØH 137	L14 51	L13 74
8	ØH 137	ØI 137	L16 65	L15 65
9	ØL 88.6	ØI 137	L18 84	L17 101
10	ØM 26	ØL 88.6	L20 115	L19 115



Thickness 0.8mm ±0.08

... Section D.5

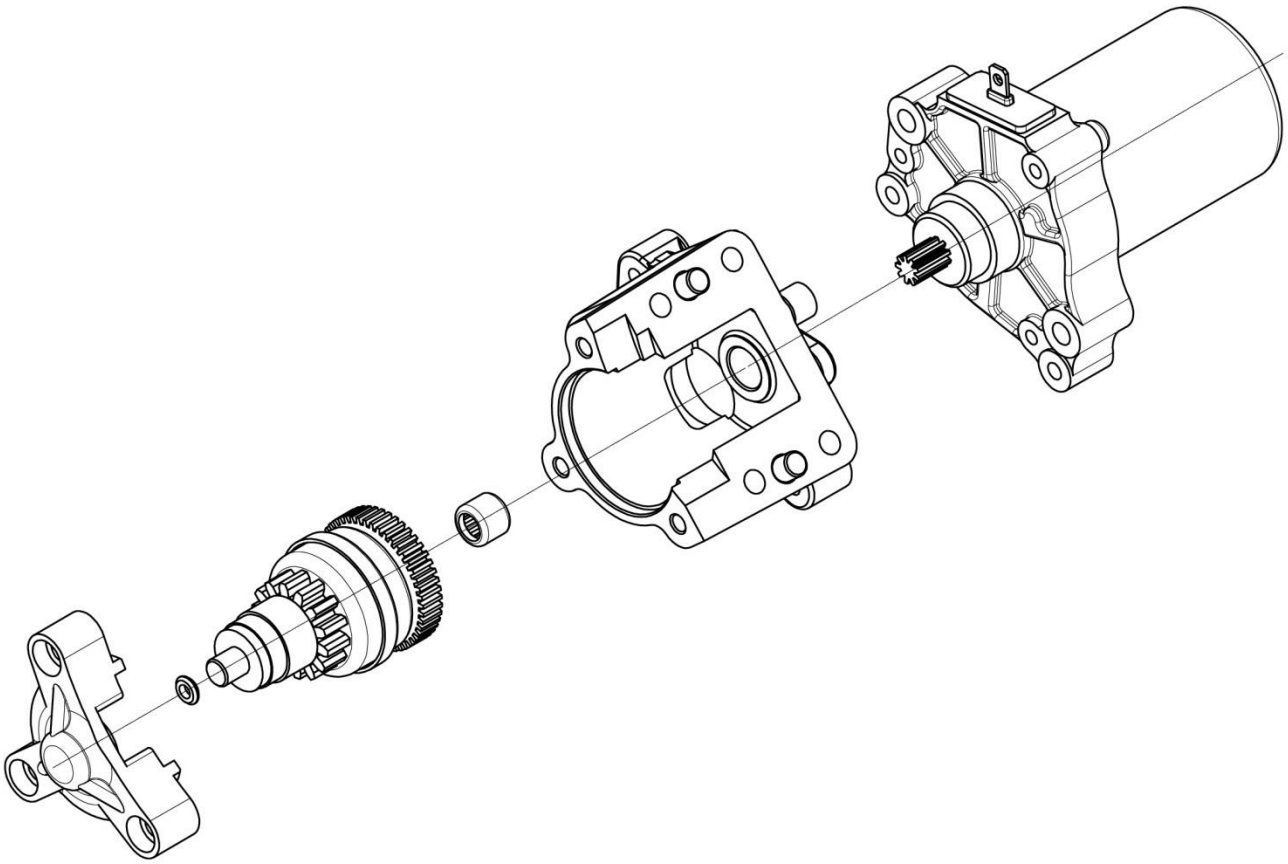
EXPLODED DRAWING AND DESIGNATION OF THE POWER VALVE COMPONENTS



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

D.6 *STARTER*

EXPLODED DRAWING OF THE STARTING UNIT AND OF ITS HOUSING

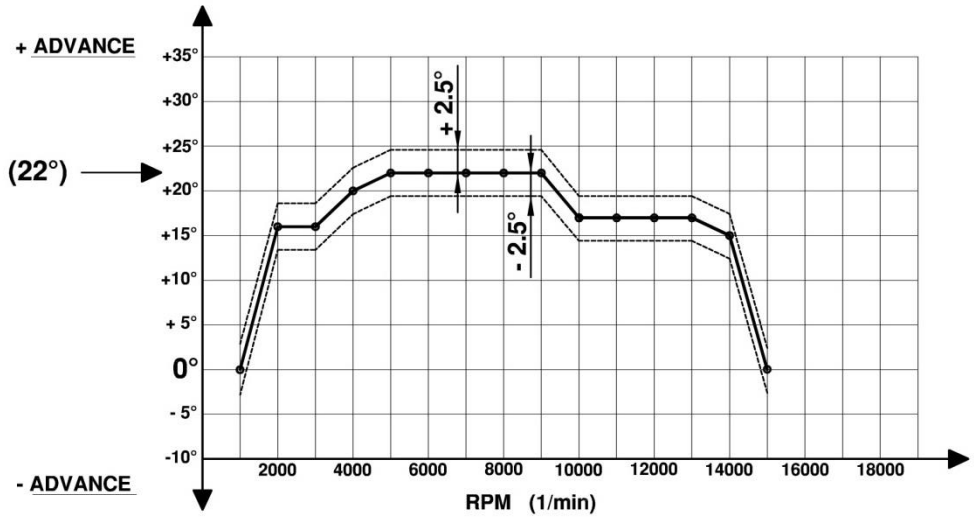


Without screws or gaskets.	***The aim of the exploded drawings is to identify the principles, the functioning and the whole mechanical unit***

D.8 *ELECTRICAL SYSTEM*

IGNITION SYSTEM

ADVANCE CURVE GRAPHS

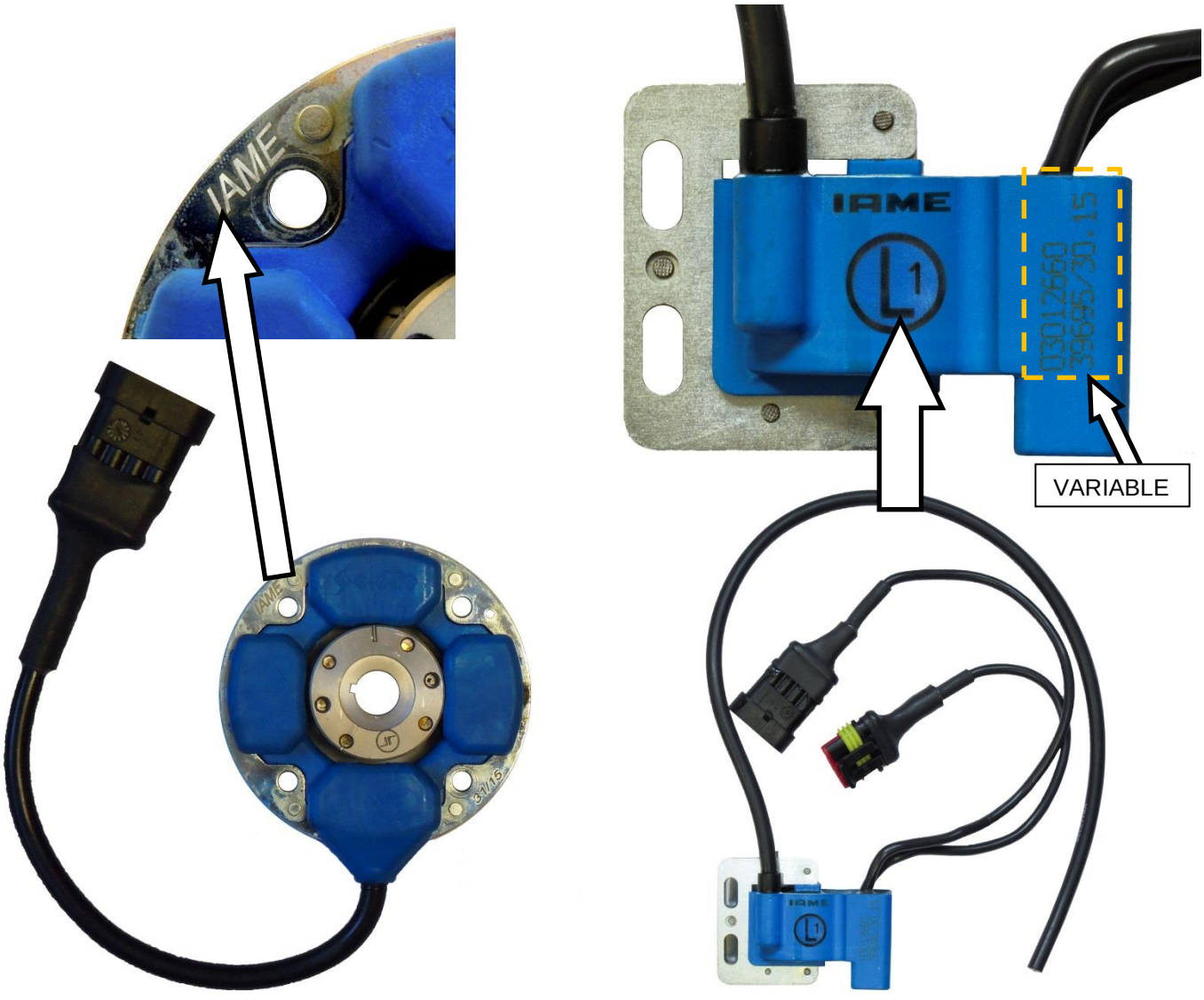


Ignition homologation No.	-	
Ignition homologation No.	-	
Ignition homologation No.	-	
Ignition homologation No.	-	
Code	***SELETTRA (Rotor+Stator) : X30125953***	*Blue*
Code	***SELETTRA (H.T. Coil with ECU) : X30125933L1***	*Blue*

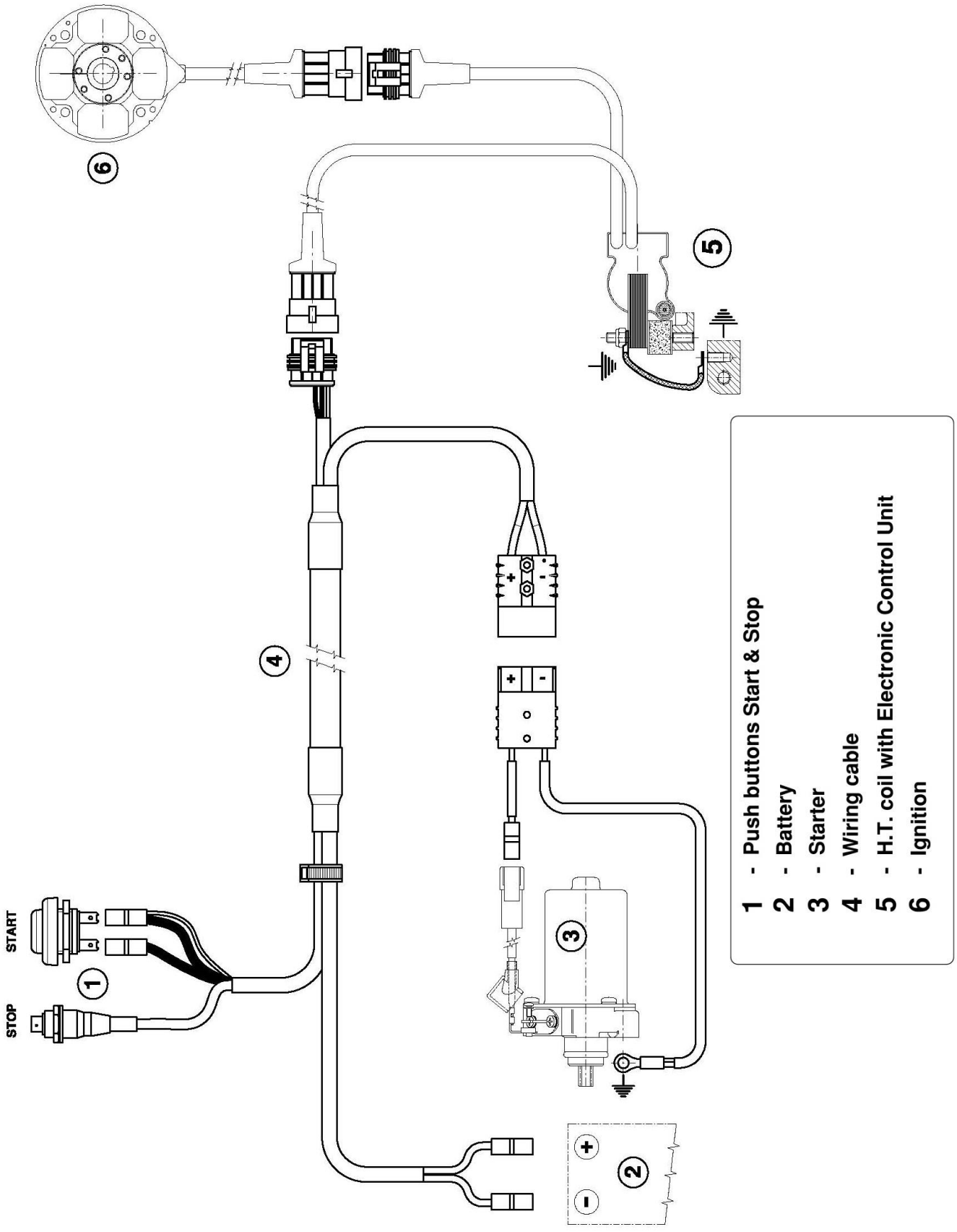
Tr/min	*1000*	*2000*	*3000*	*4000*	*5000*	*6000*	*7000*	*8000*	*9000*	*10000*	*11000*	*12000*	*13000*	*14000*	*15000*
° adv	*0°*	*16°*	*16°*	*20°*	*22°*	*22°*	*22°*	*22°*	*22°*	*17°*	*17°*	*17°*	*17°*	*15°*	*0°*

PHOTO COMPLETE WIRING LOOM

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



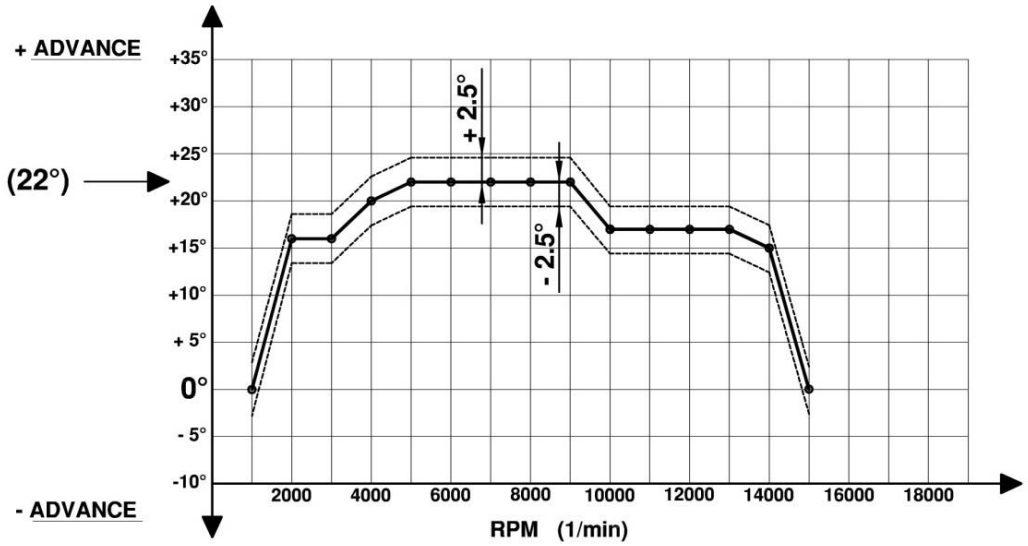
WIRING DIAGRAM - SELETTRA DIGITAL ‘’S’’ IGNITION



ELECTRICAL SYSTEM

ALTERNATIVE IGNITION SYSTEM

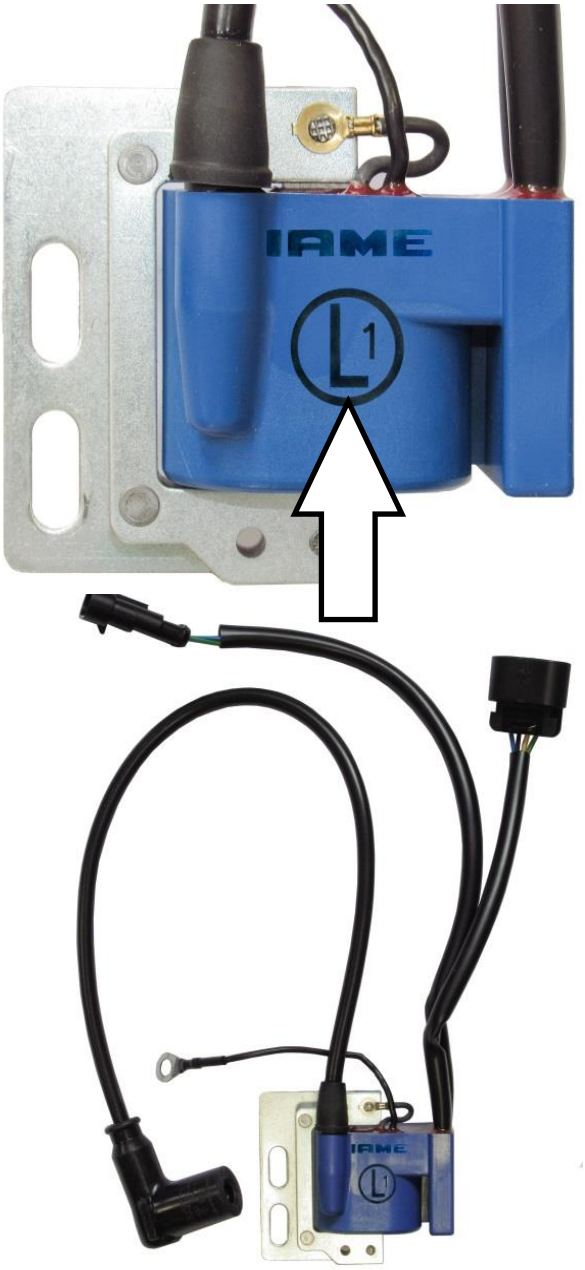
ADVANCE CURVE GRAPHS



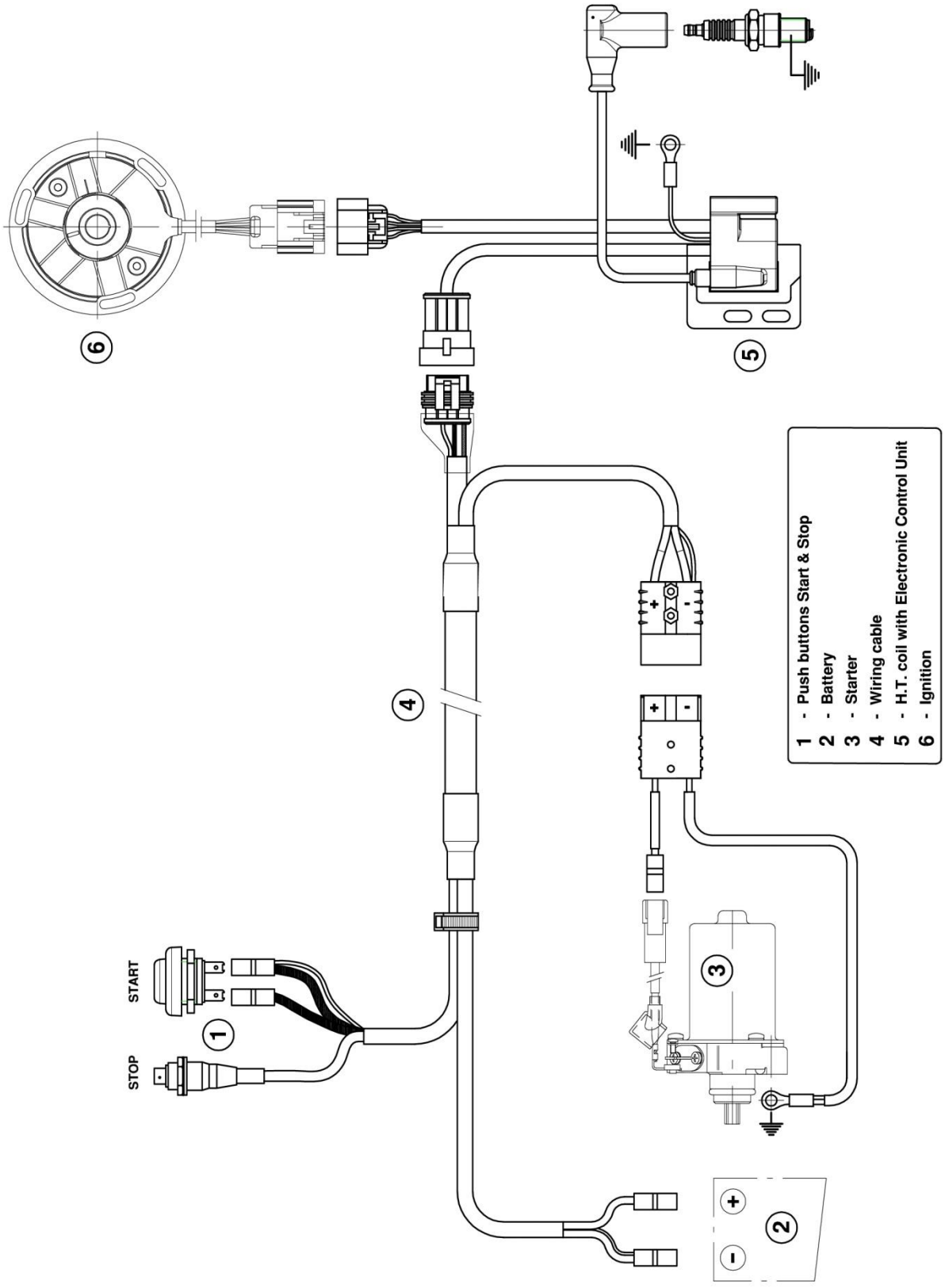
Ignition homologation No.	-	
Ignition homologation No.	-	
Ignition homologation No.	-	
Ignition homologation No.	-	
Code	***PVL (PVL (Stator+Rotor) : 690 600 (684 810 + 690 900)***	*Black*
Code	***PVL (H.T. Coil with ECU) : 690 100L1***	*Blue*

Tr/mln	*1000*	*2000*	*3000*	*4000*	*5000*	*6000*	*7000*	*8000*	*9000*	*10000*	*11000*	*12000*	*13000*	*14000*	15000
° adv	*0°*	*16°*	*16°*	*20°*	*22°*	*22°*	*22°*	*22°*	*22°*	*17°*	*17°*	*17°*	*17°*	*15°*	0°

PHOTO OF ALTERNATIVE DIGITAL IGNITION PVL 690, WITH IAME MARKING

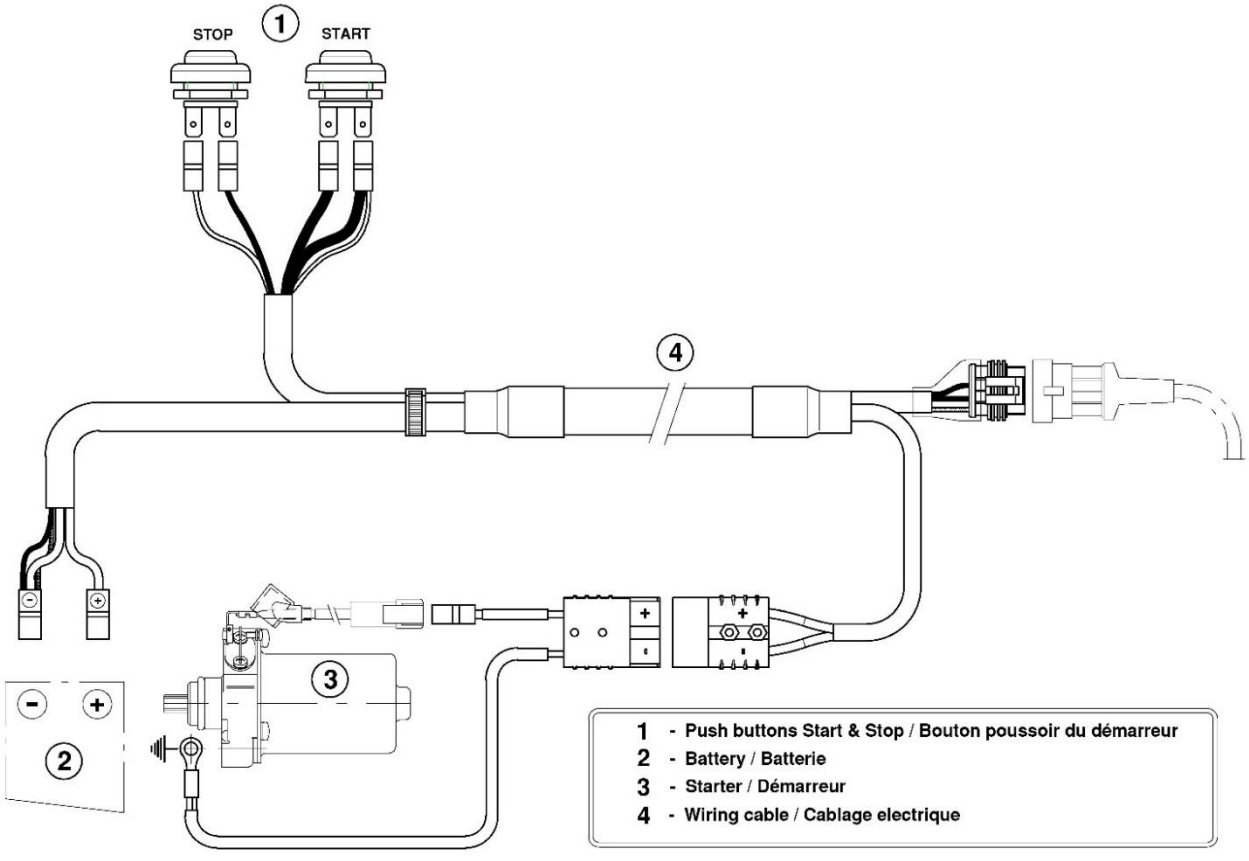


ALTERNATIVE WIRING DIAGRAM – PVL 690 DIGITAL IGNITION

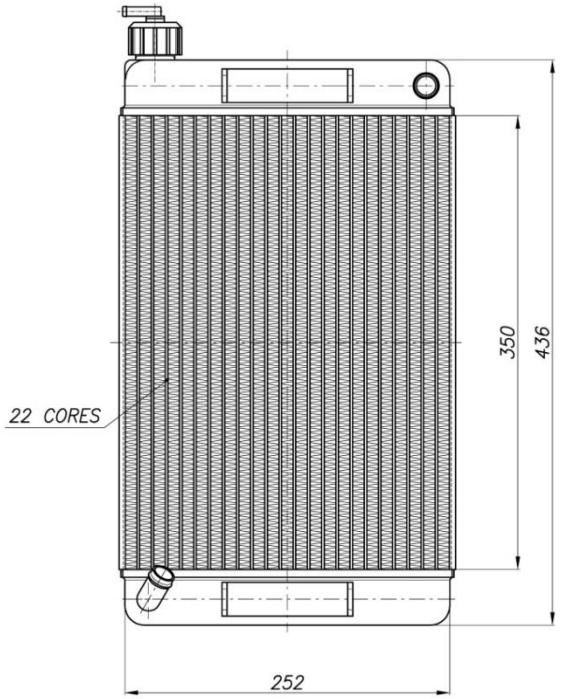


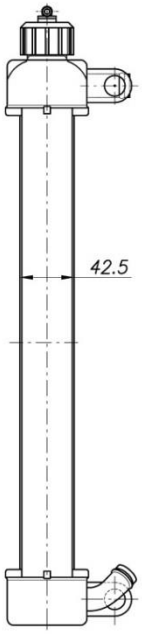
ALTERNATIVE WIRING LOOM

ALTERNATIVE WIRING LOOM DIAGRAM

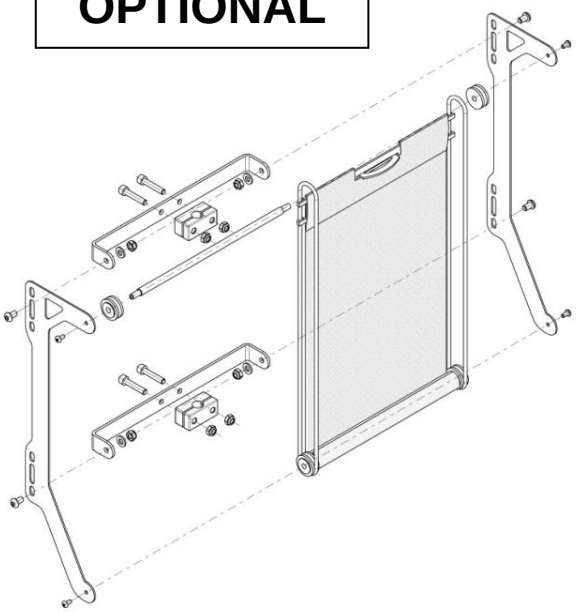


RADIATOR DRAWING AND DIMENSIONS – TYPE 1



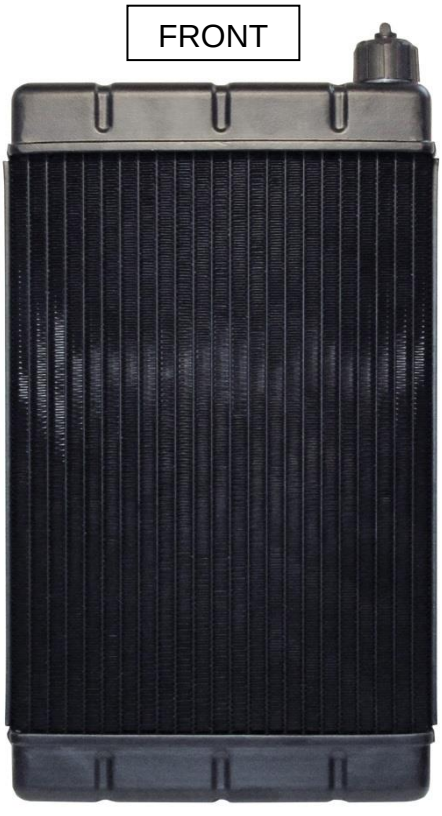


OPTIONAL

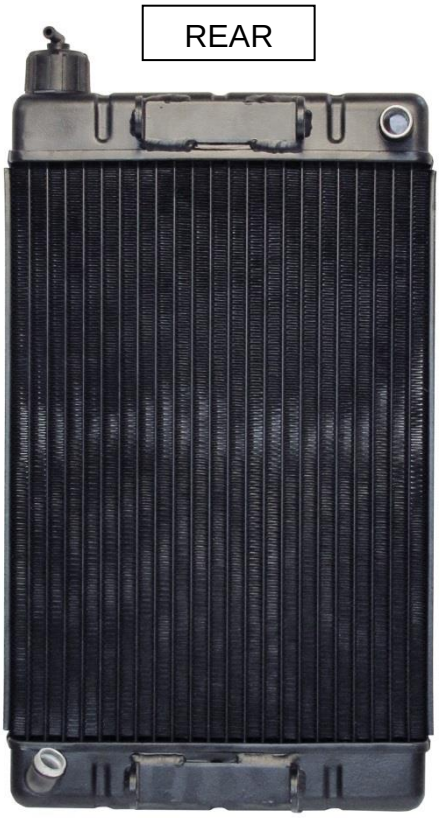


RADIATOR – TYPE 1

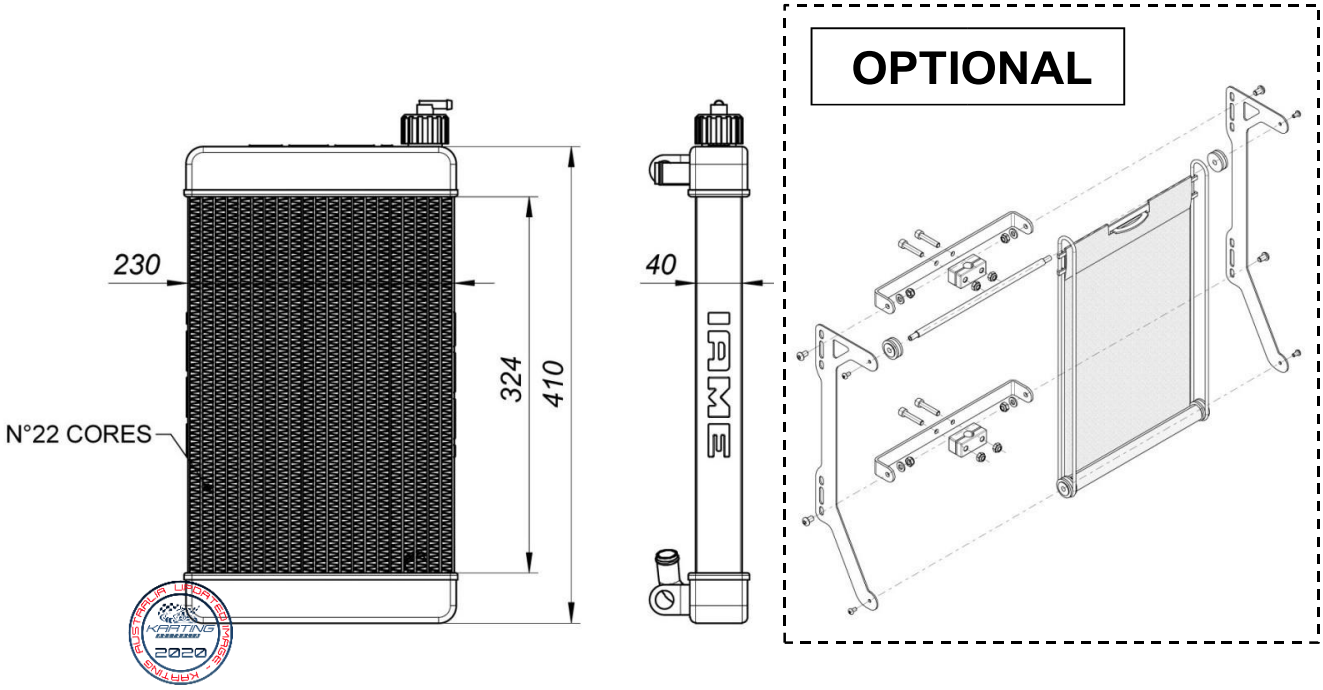
FRONT



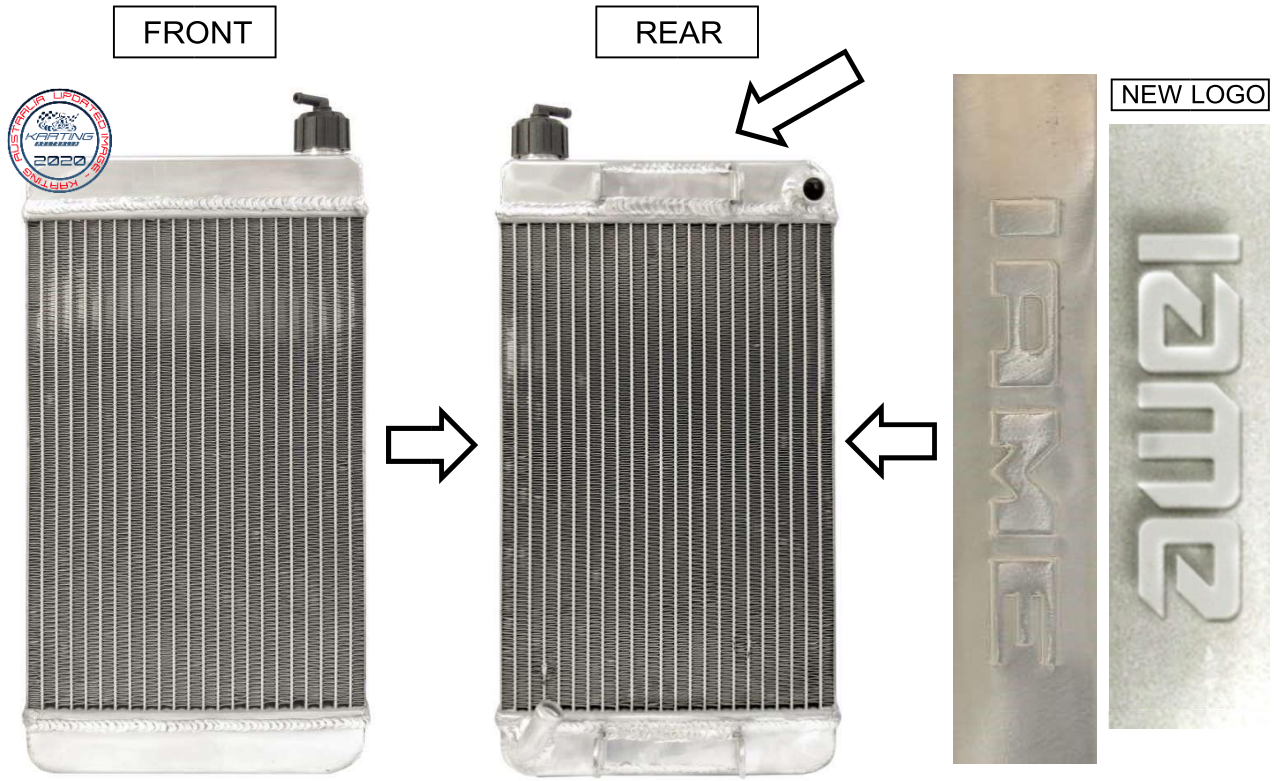
REAR



RADIATOR DRAWING AND DIMENSIONS – TYPE 2



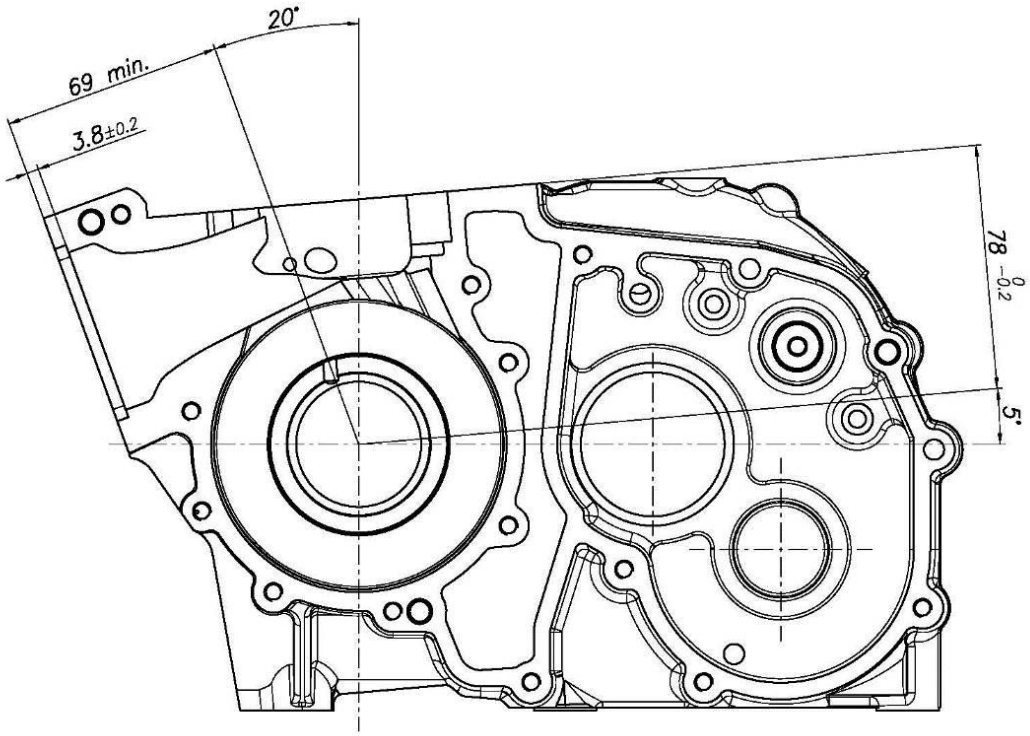
RADIATOR – TYPE 2



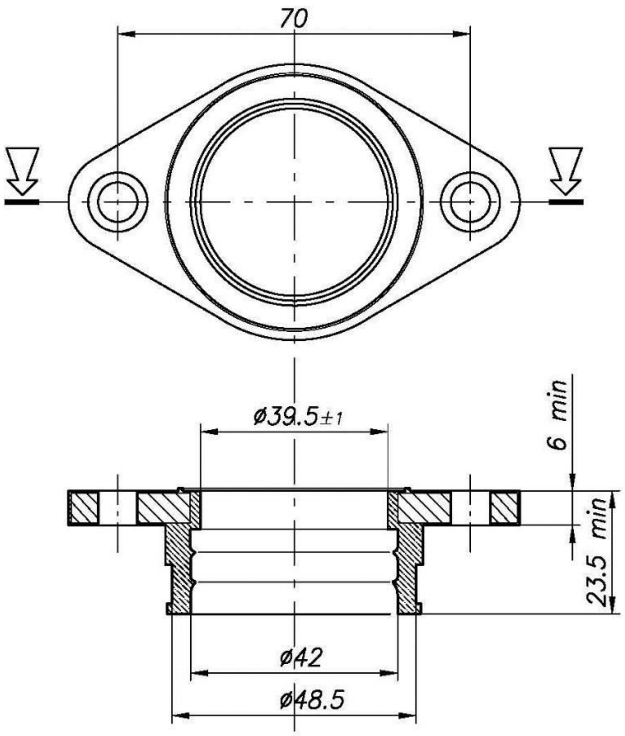
ADDITIONAL INFORMATION, DRAWING AND PHOTO IDENTIFICATION

ADDITIONAL TECHNICAL INFORMATION			
DESCRIPTION	**QUANTITY**	**MATERIAL**	**NOTES / DIMENSIONS**
Piston Rings	1	Iron	-
Exhaust muffler	1	Sheet-steel	Th. 0.8mm ±0.08
Gearbox shafts	-	Steel	-
Gears	-	Steel	-
Starter Ring	1	Steel / Aluminum	-
Big end conr. bearing diameters	1	-	20x26x15
Crankshaft bearing diameters	2	-	25x52x15
3rd Crankshaft bearing diameters	1	-	15x35x11
Small end conrod bearing diameters	1	-	15x19x20
Cooling System	-	-	Water
Inlet System	-	-	Reed Valve
Combustion chamber shape	-	-	Spherical
Electric Starter	-	-	Yes

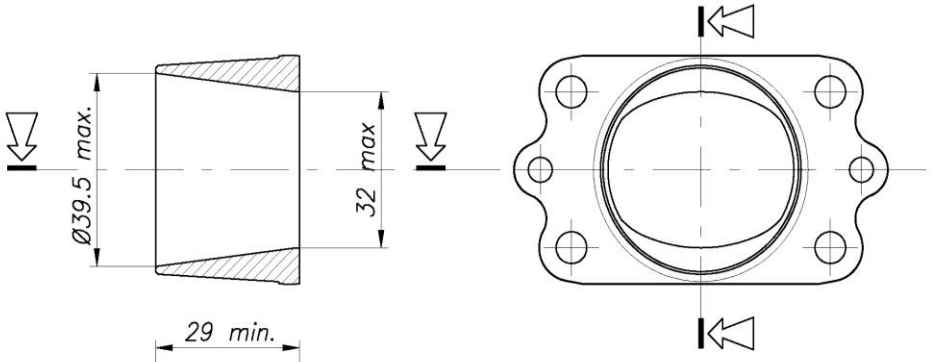
CRANKCASE INSIDE VIEW

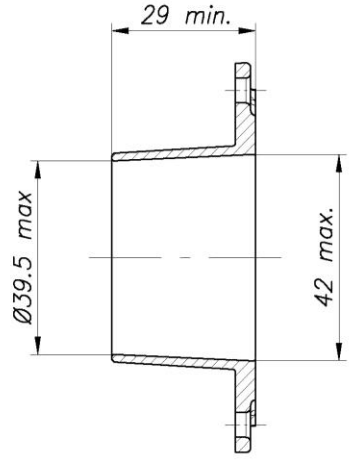


CARBURETOR FITTING RUBBER

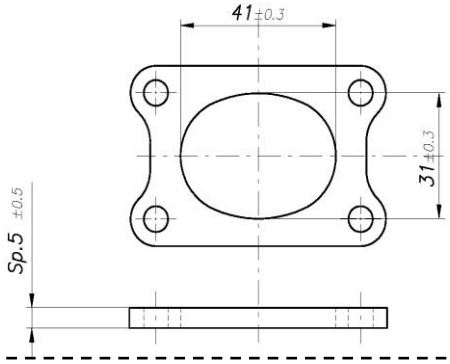


EXHAUST MANIFOLD AND SPACER VIEW AND DIMENSIONS



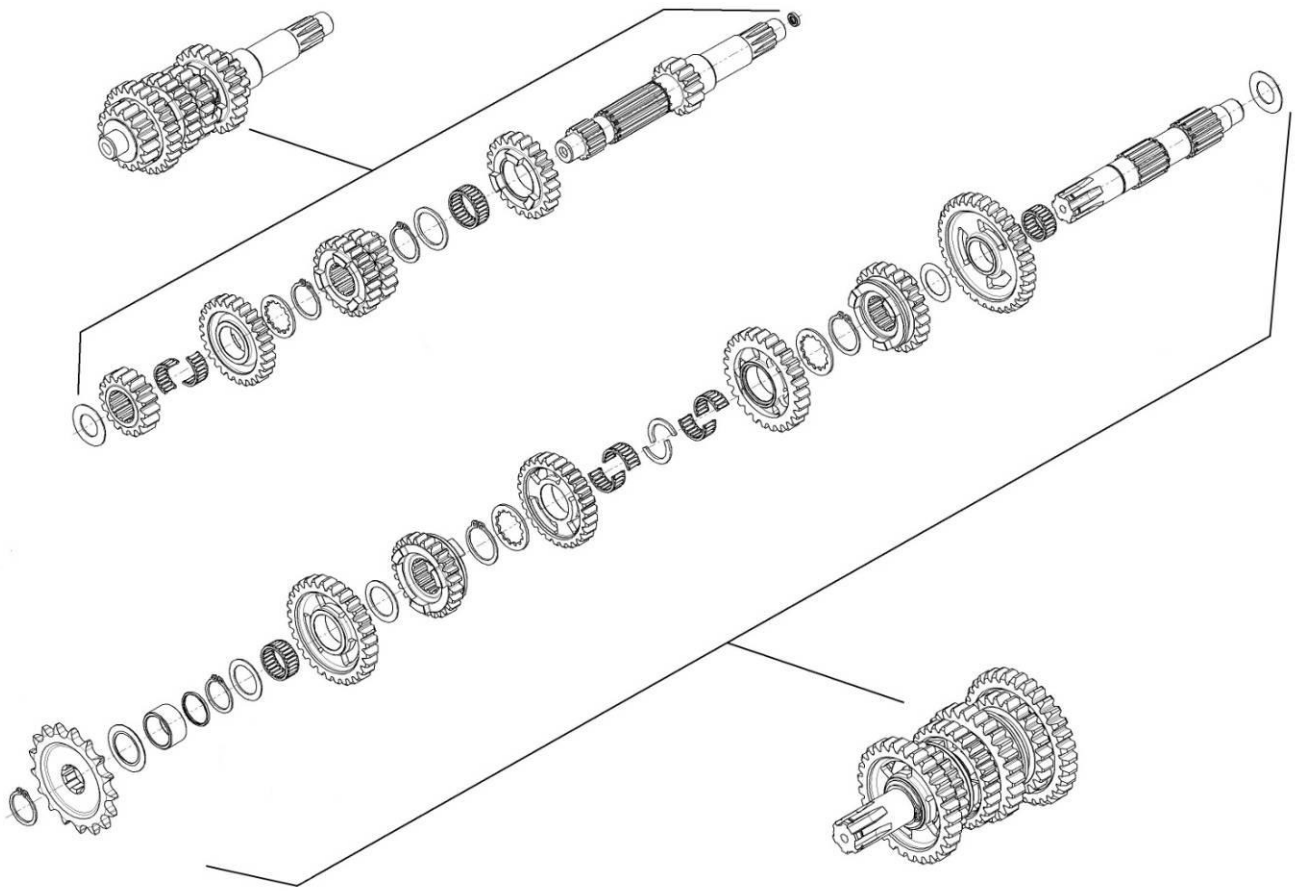


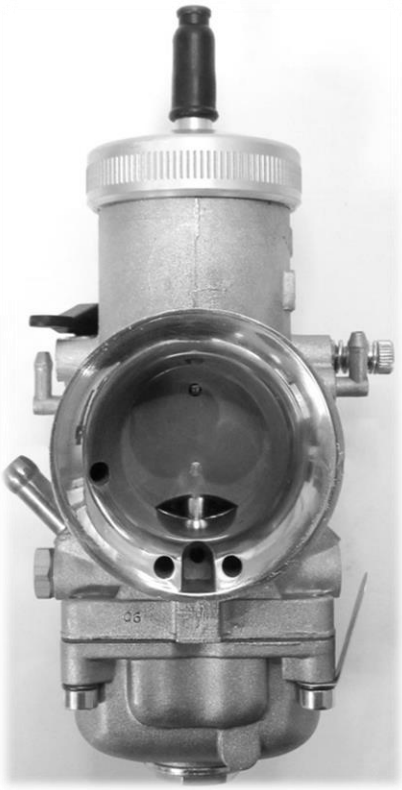
Part n° cod. IFH-20500 - MANDATORY



GEARBOX			
Primary coupling - **19 / 75**			
Gearbox ratios			
Gear	Primary shaft	Secondary shaft	Reading of values obtained after three engine revs
1st / 1ère	**13**	**33**	**107.78°**
2nd / 2e	**16**	**29**	**150.95°**
3rd / 3e	**18**	**27**	**182.40°**
4th / 4e	**22**	**27**	**222.93°**
5th / 5e	**22**	**23**	**261.70°**
6th / 6e	**27**	**25**	**295.49°**

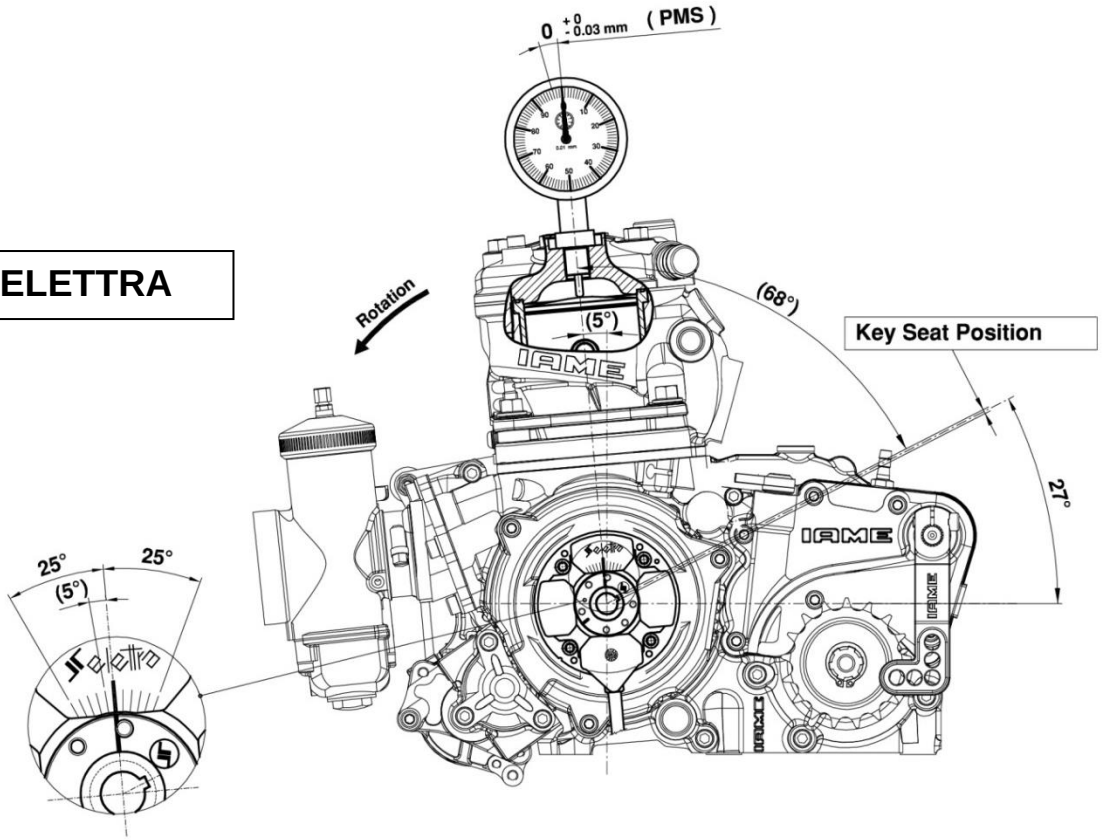
EXPLODED DRAWING OF THE GEARS, MAINSHAFT AND SECONDARY SHAFT



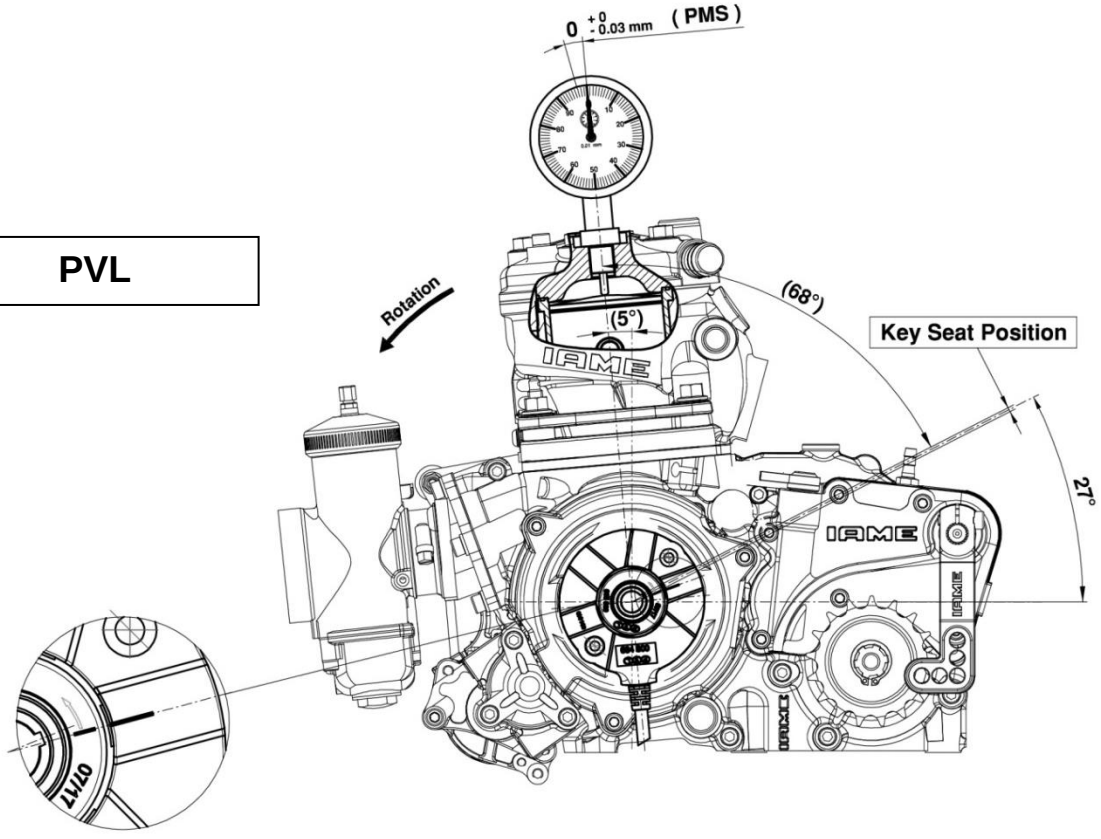
CARBURETTOR – DELLORTO VHSB 36-RD	
PHOTO OF ADJUSTING SIDE	PHOTO OF INLET SIDE
	
CARBURETTOR – TILLOTSON HB-15A	
PHOTO OF ADJUNSTING SIDE	PHOTO OF INLET SIDE
	

SCHEME FOR ADVANCE CONTROL

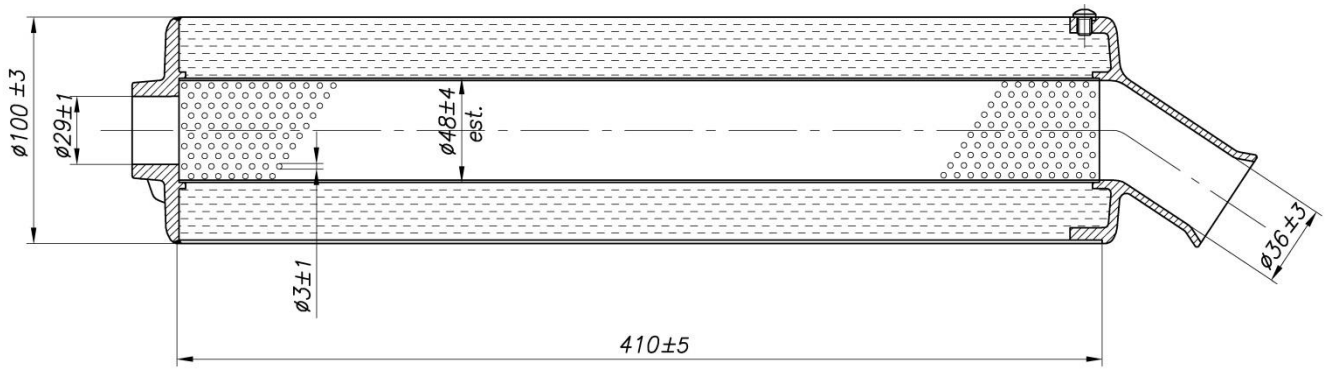
SELETTRA



PVL



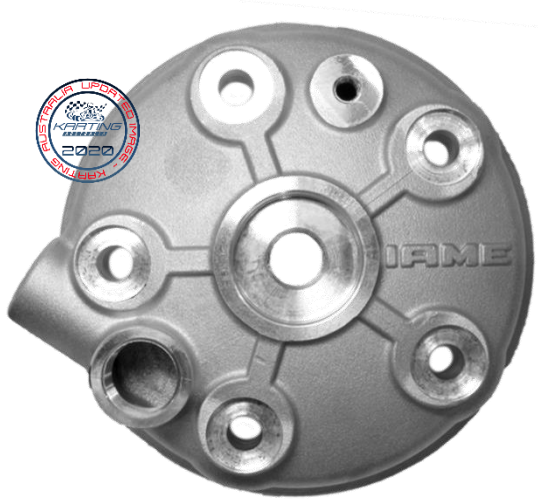
ELTO SILENCER HOMOLOGATION NUMBER



“Elto Racing” Hom. 104 1697 / 13 SS

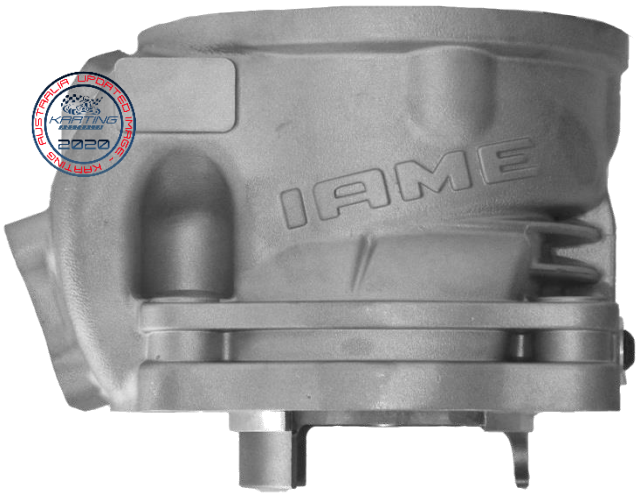
COMPONENTS WITH ALTERNATIVE NEW LOGO "IAME"

CYLINDER HEAD



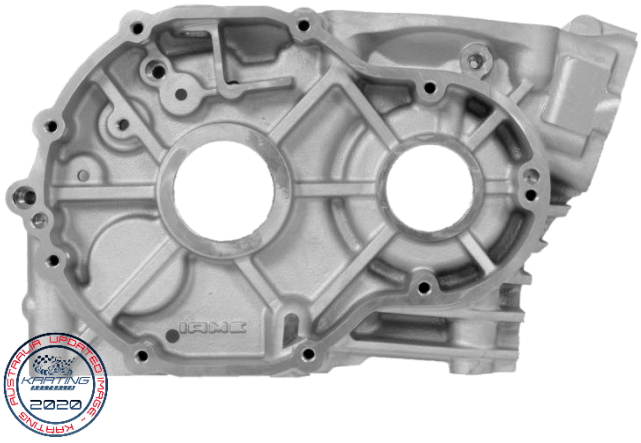
NEW LOGO

CYLINDER



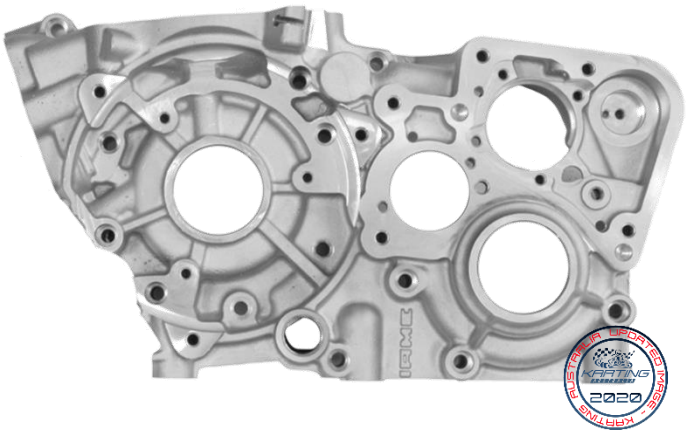
NEW LOGO

CRANKCASE TRANSMISSION SIDE



NEW LOGO

CRANKCASE IGNITION SIDE

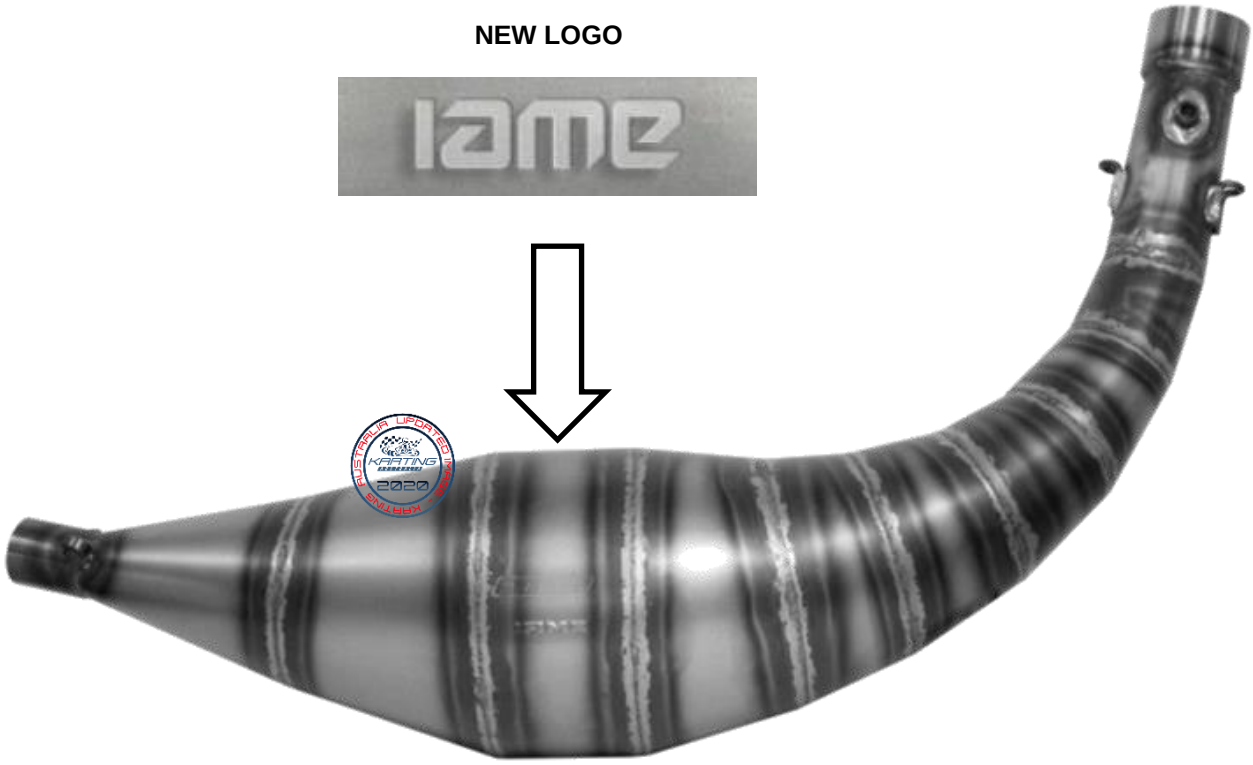


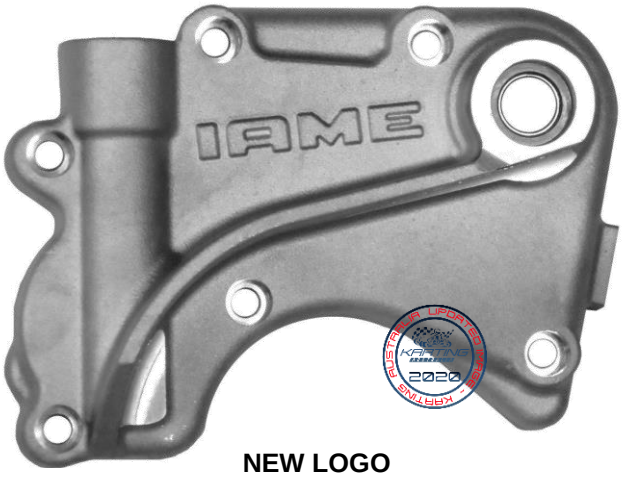
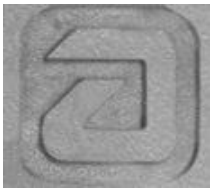
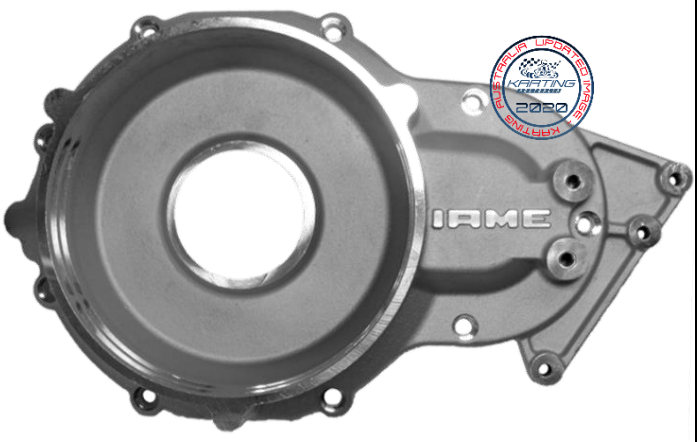
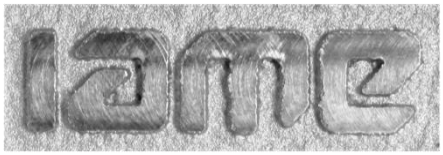
NEW LOGO

COMPONENTS WITH ALTERNATIVE NEW LOGO "IAME"

EXHAUST

NEW LOGO



COMPONENTS WITH ALTERNATIVE NEW LOGO "IAME"	
SELECTOR COVER	SHIFT CONTROL LEVER
 **NEW LOGO** 	 **NEW LOGO** 
CLUTCH SIDE COVER	STARTER SUPPORT
 **NEW LOGO** 	 **NEW LOGO** 

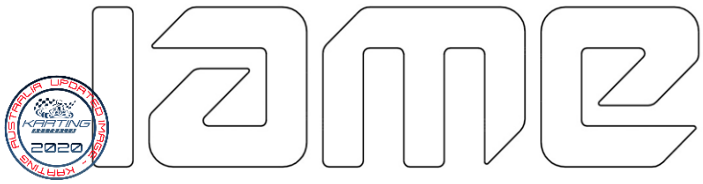
COMPONENTS WITH ALTERNATIVE NEW LOGO "IAME"

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

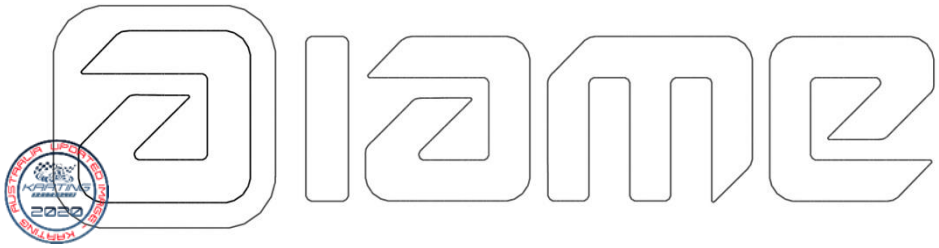
or

IAME

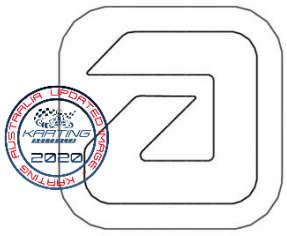
NOW COULD BE MARKED WITH NEW LOGO "IAME"



or



or



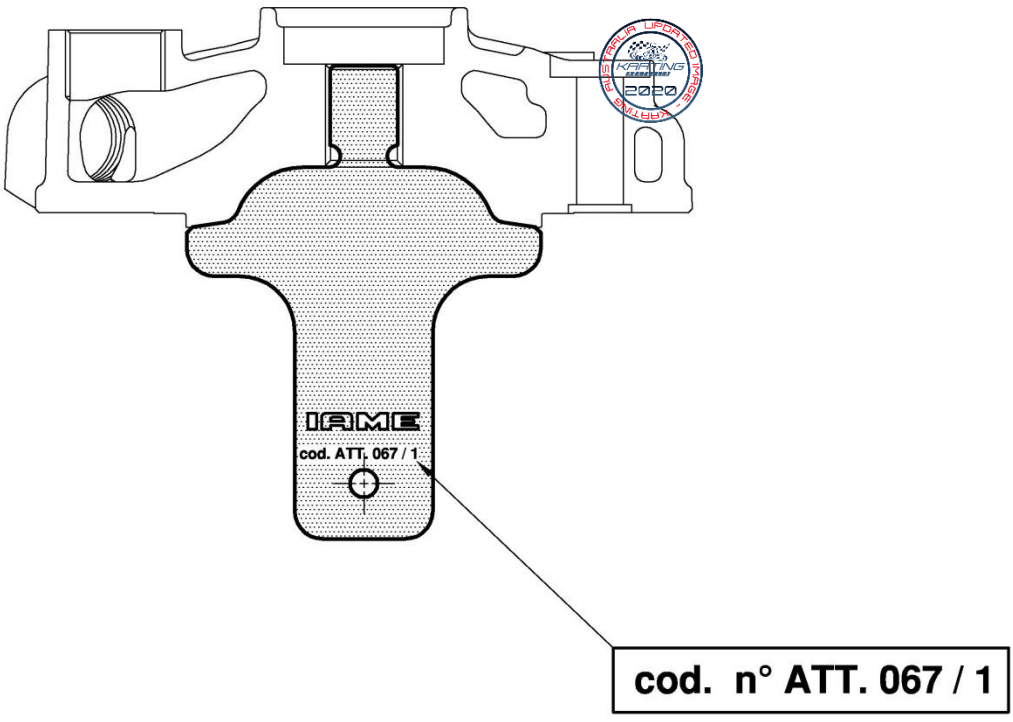
UPDATE LOG

Date	Section	Page
20 October 2020	Type 2 Radiator	39
20 October 2020	New IAME Logo	46-49
20 October 2020	List of Checking Tools	51-56
14 December 2021	Alternative Conrod Thrust Washers	19

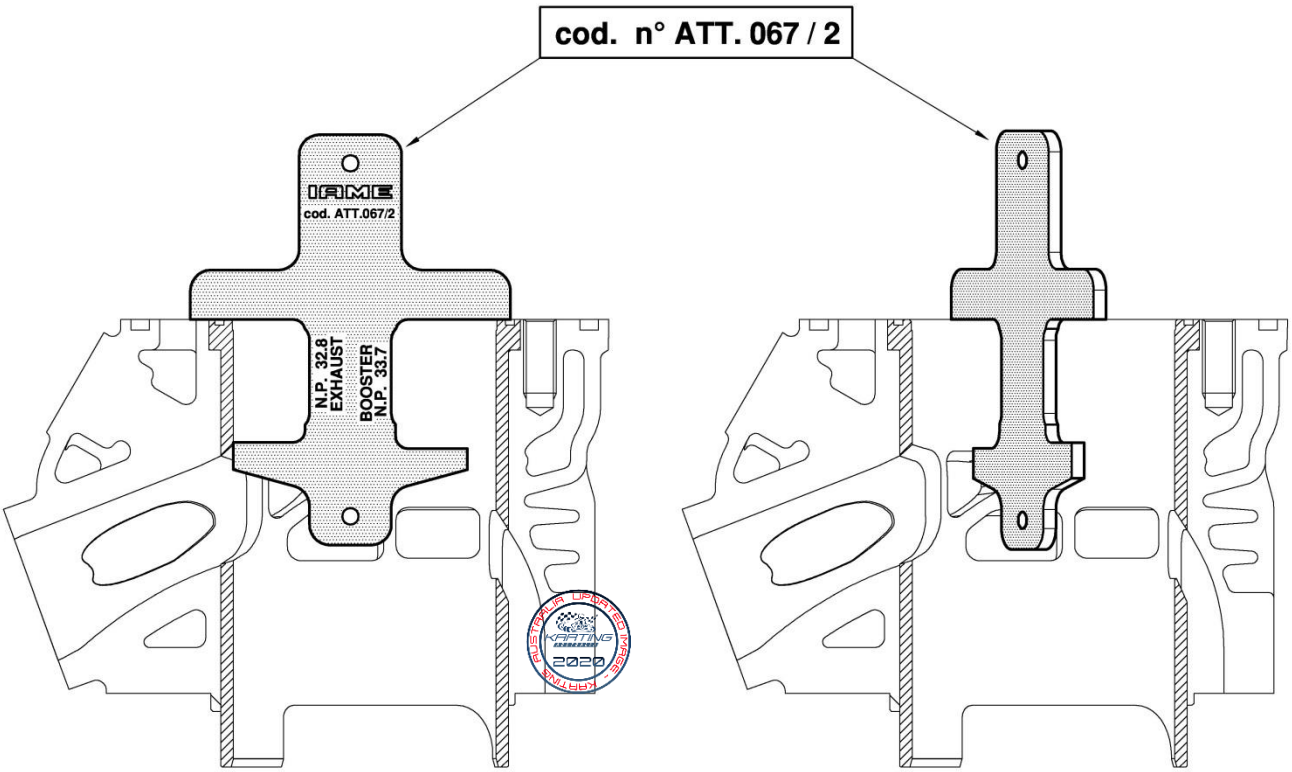
AVAILABLE CHECKING TOOLS

TOOL DESCRIPTION	CODE
HEAD DOME SHAPE CHECKING TOOL	ATT.067 / 1
"NO GO" GAUGE EXHAUST & BOOSTER HEIGHT	ATT.067 / 2
"NO GO" GAUGE MAIN & SECONDARY TRASFERS HEIGHT	ATT.061 / 3
0.20mm THICKNESS GAUGE FOR PORT TIMING CHECKING	10194
PISTON DOME SHAPE AND HEIGHT CHECKING TOOL	ATT.061 / 5
CARBURETTOR INLET PROFILE AND "NO GO" GAUGE HB-15A	ATT.067 / 4
"NO GO" GAUGE FOR VENTURI DIAMETER HB-15A	ATT.067 / 5

HEAD DOME SHAPE CHECKING TOOL

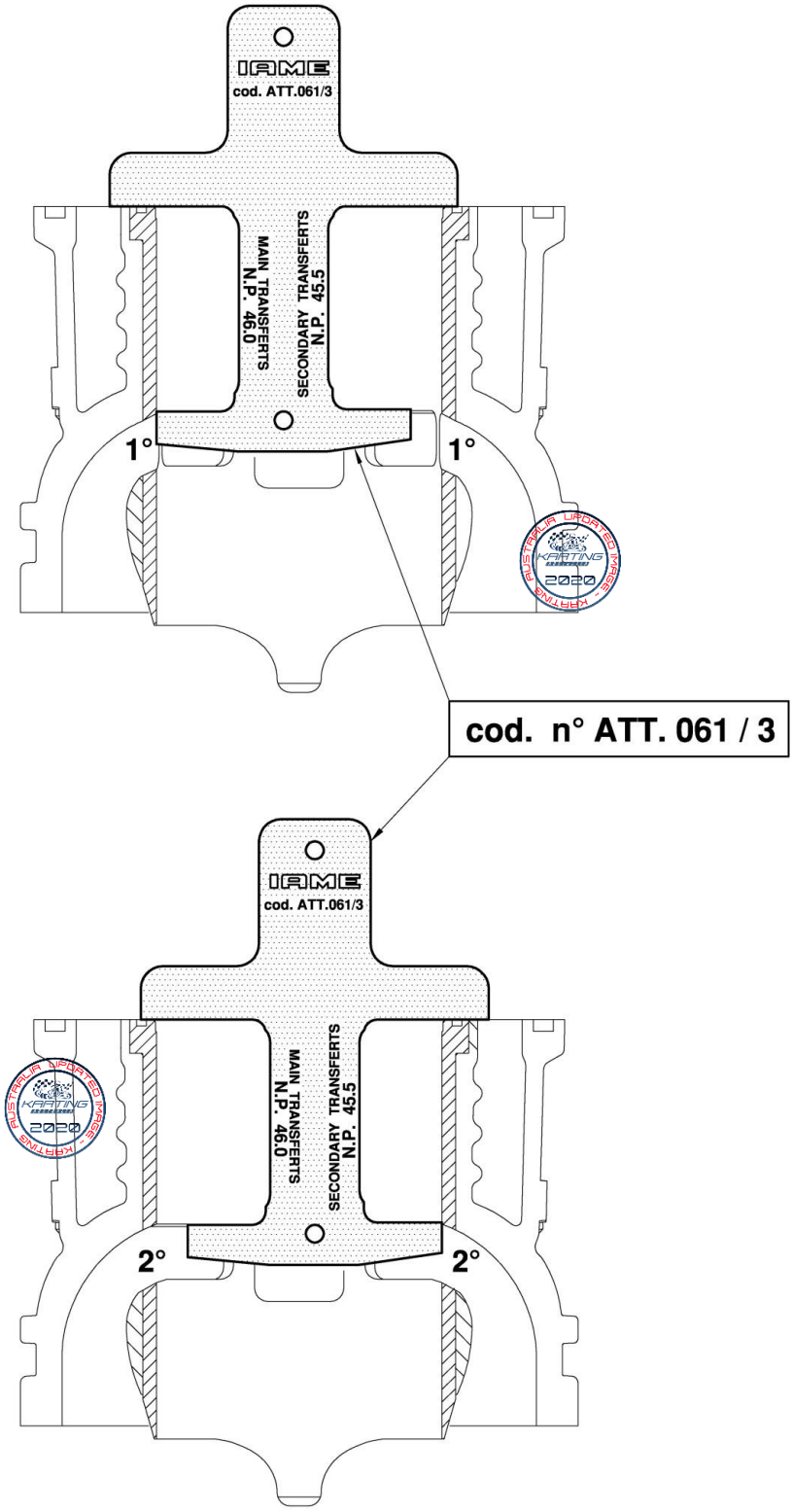


"NO GO" GAUGE EXHAUST & BOOSTER HEIGHT



The tool must not enter into the and exhaust and booster ports

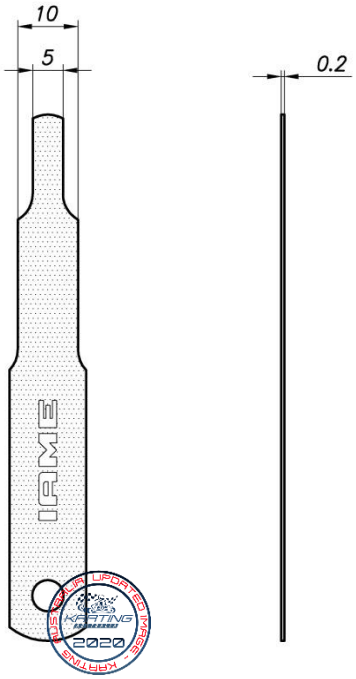
"NO GO" GAUGE MAIN & SECONDARY TRASFERS HEIGHT



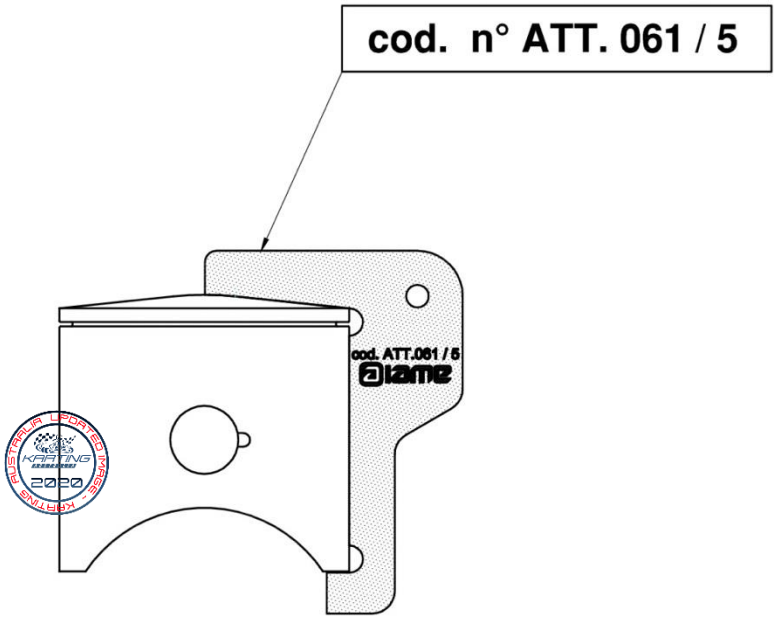
The tool must not enter into the main and secondary transfert ports

PORT TIMING GAUGE

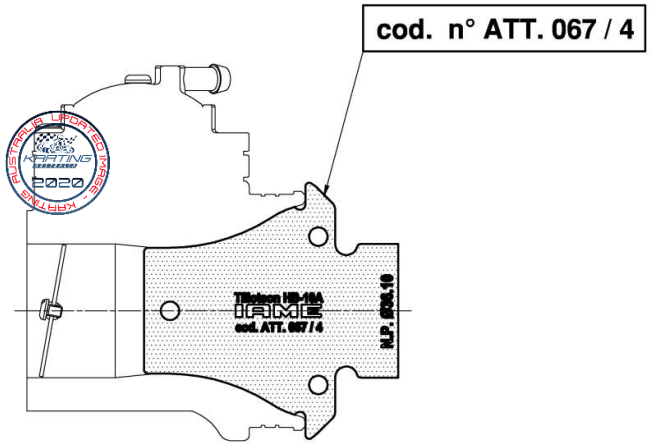
TOOL IAME Cod. 10194



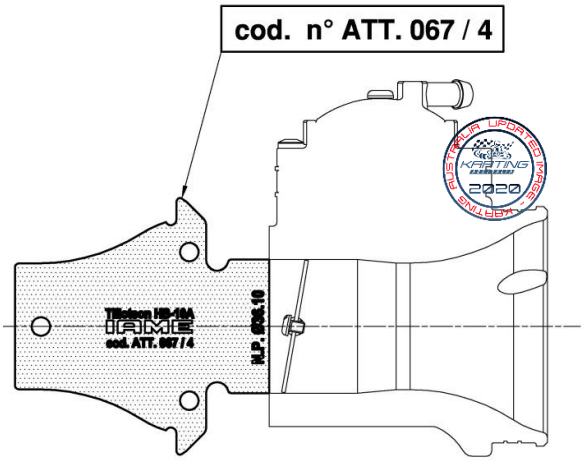
PISTON DOME SHAPE AND HEIGHT CHECKING TOOL



HB-15A INLET PROFILE AND "NO GO" GAUGE

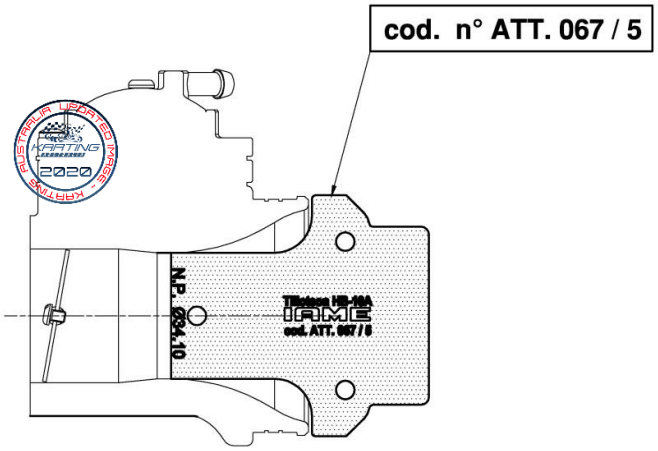


The carburettor inlet must have the same shape of the tool



The tool must not enter into the rear duct of the carburettor.

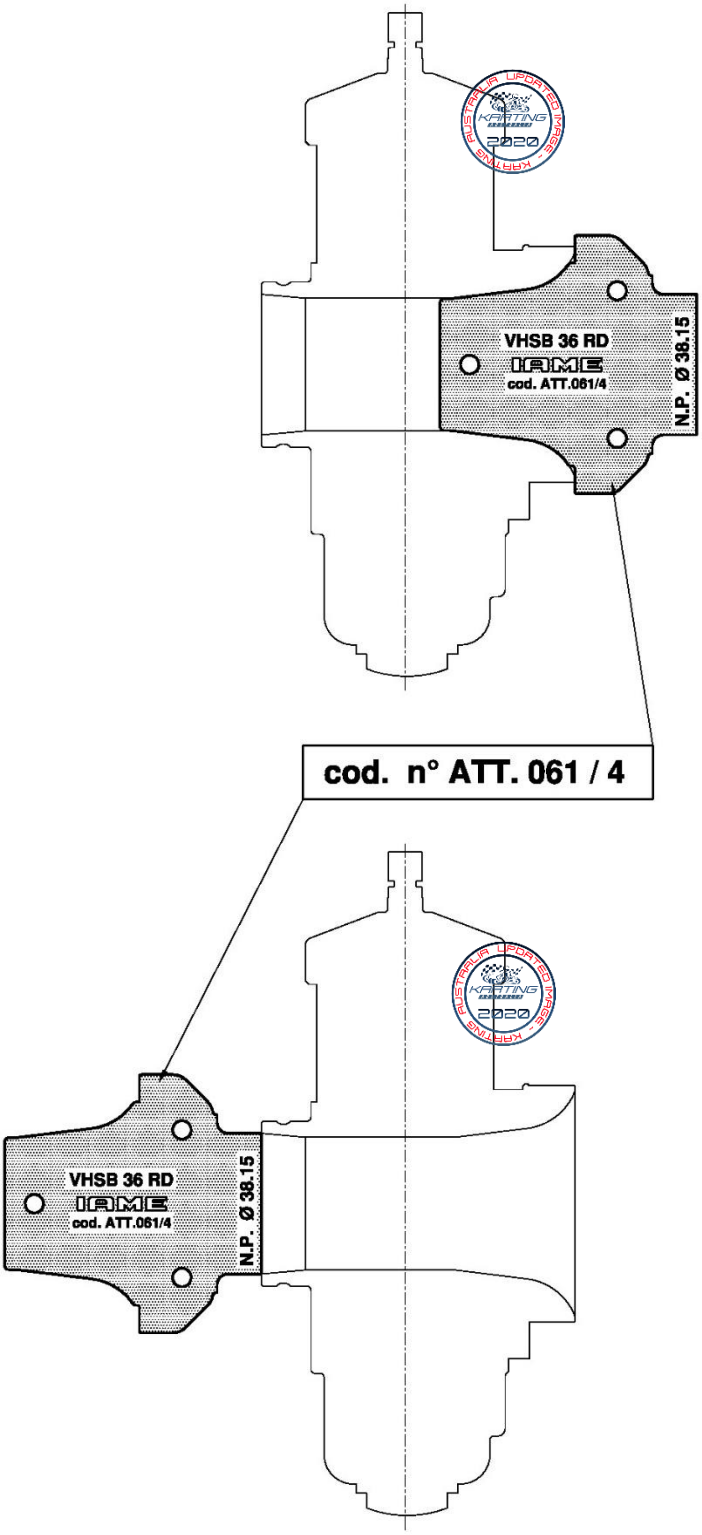
HB-15A "NO GO" GAUGE FOR VENTURI DIAMETER



The tool must not enter into the venturi of the carburettor.
The tool must not touch the carburettor's front flange.

VHSB36RD INLET PROFILE AND "NO GO" GAUGE

The carburettor inlet must have the same shape of the tool



The tool must not enter into the rear duct of the carburettor.