Homologation N °

00X / XX

ENGINE

IAME X30 - TaG

Manufacturer	**IAME S.P.A - ZINGONIA**
Make	IAME
Model	**X30 125cc RL - TAG**
Validity of the homologation	*9 years*
Number of pages	64

This Homologation Form reproduces descriptions, illustrations and dimensions of the engine at the time that Australian Independent Kart Association 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

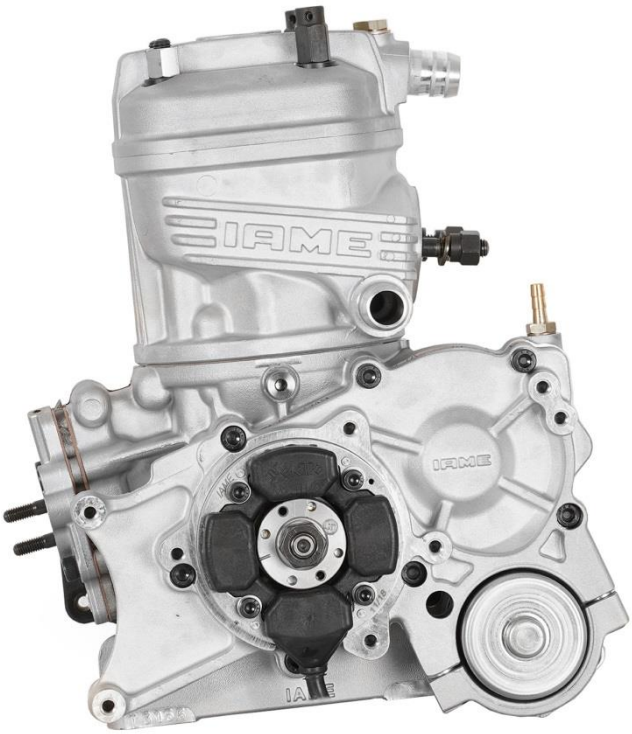


PHOTO OF OPPOSITE SIDE OF ENGINE

Signature and Stamp Australian Independent Dirt Kart Association

Homologation N °

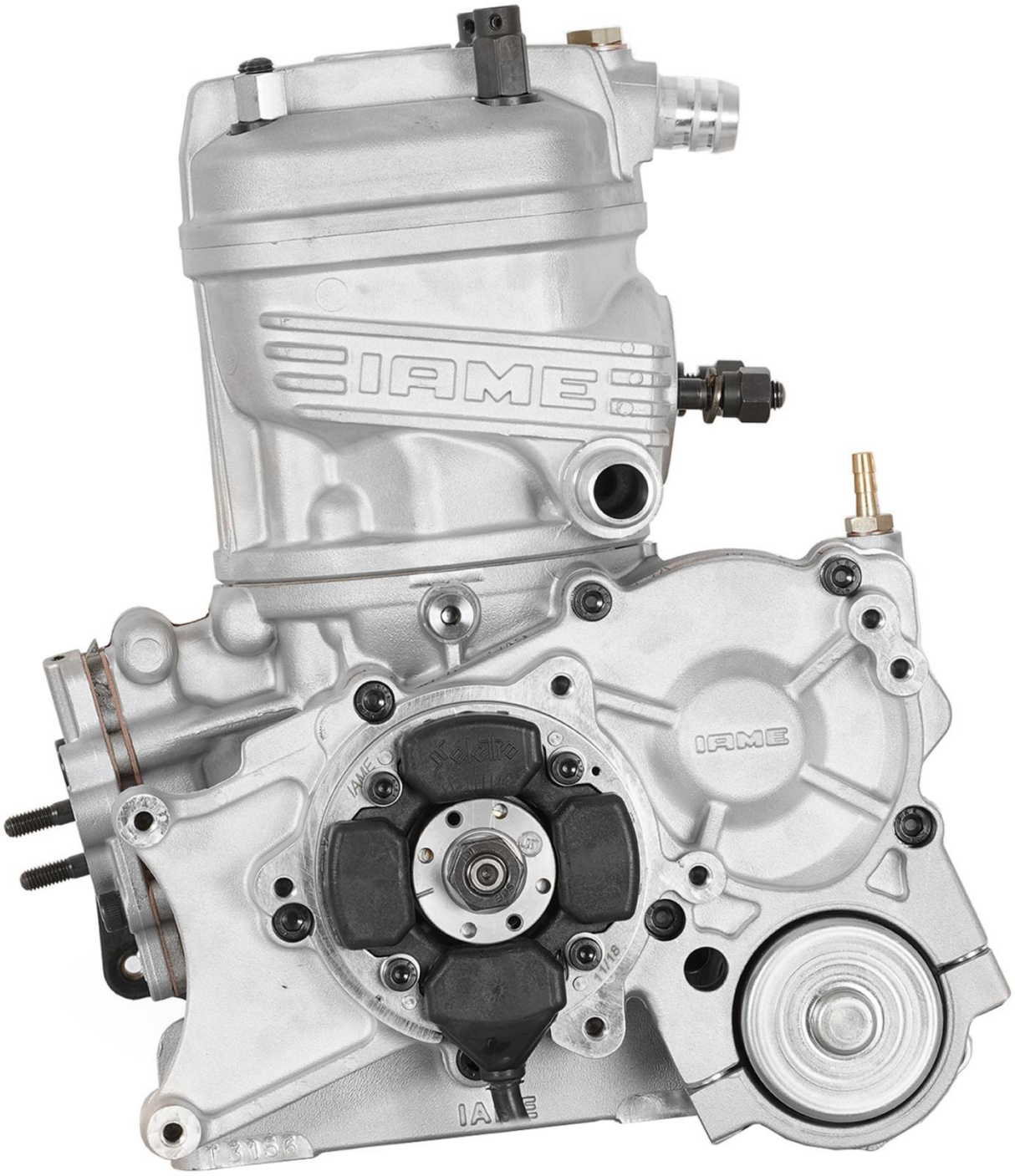
00X / XX

PHOTO OF DRIVE SIDE OF THE COMPLETE ENGINE

Homologation N °

00X / XX

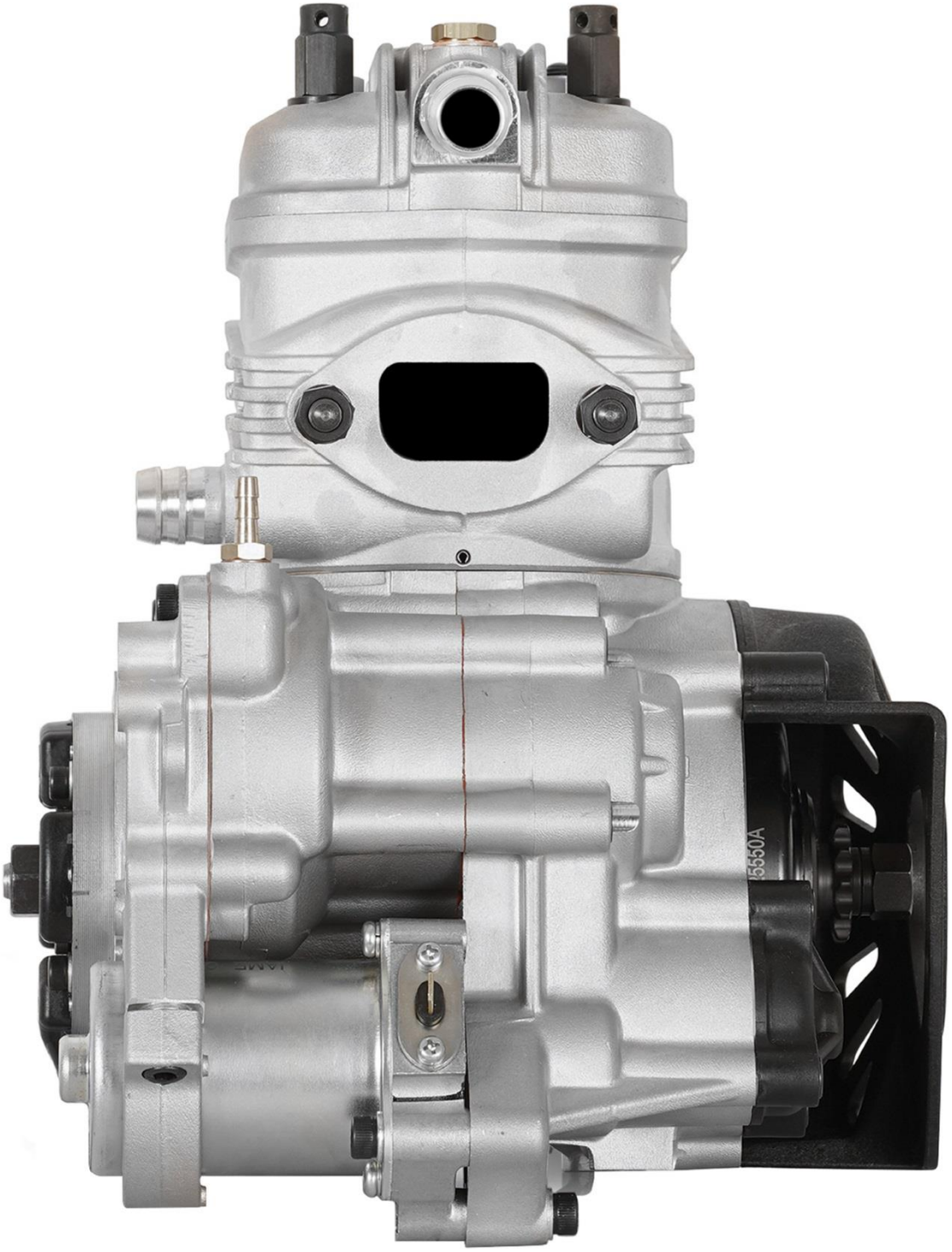
PHOTO OF OPPOSITE DRIVE SIDE OF THE COMPLETE ENGINE



Homologation N °

00X / XX

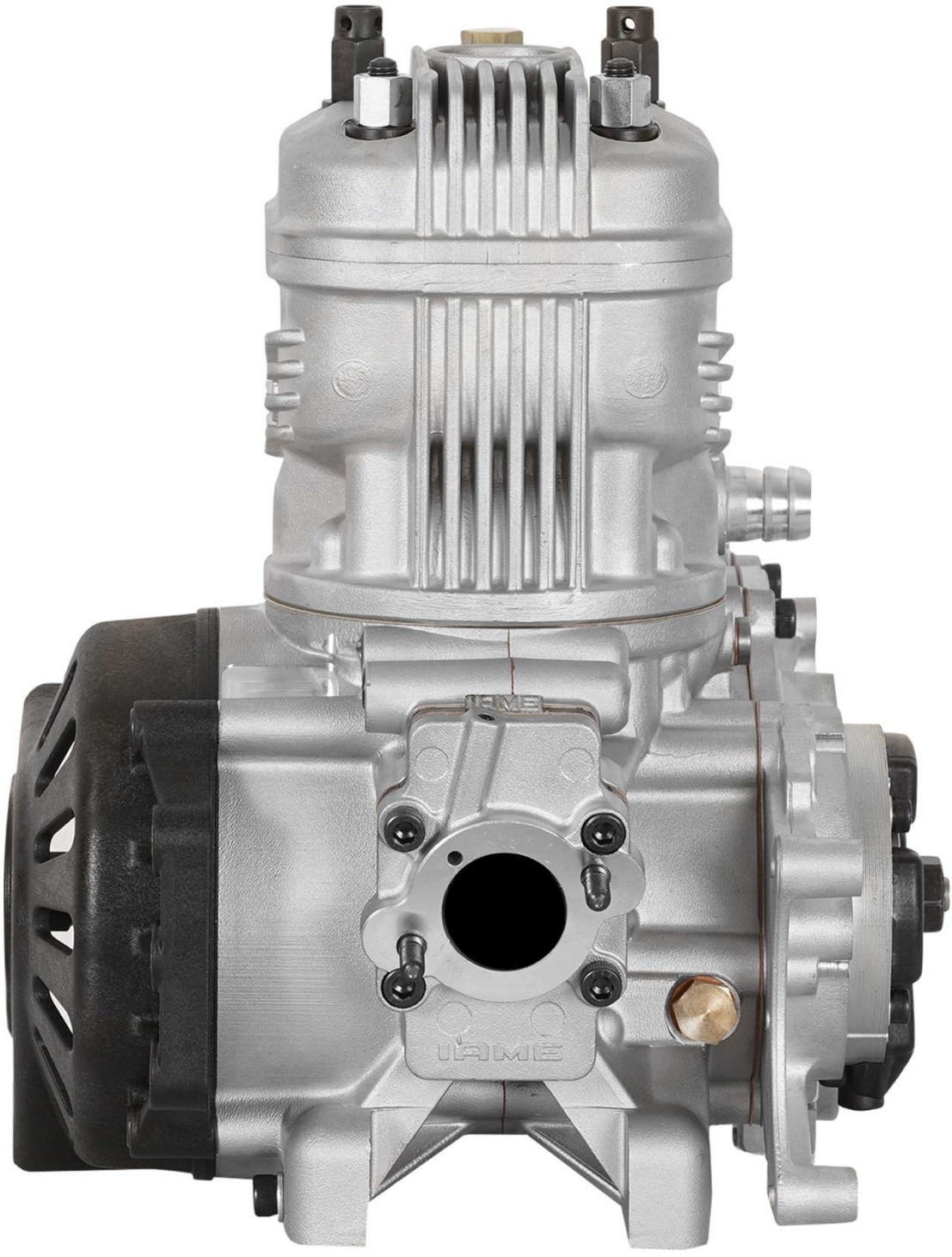
PHOTO OF THE REAR OF THE COMPLETE ENGINE



Homologation N °

00X / XX

PHOTO OF THE FRONT OF THE COMPLETE ENGINE



Homologation N °

00X / XX

PHOTO OF THE COMPLETE ENGINE TAKEN FROM ABOVE

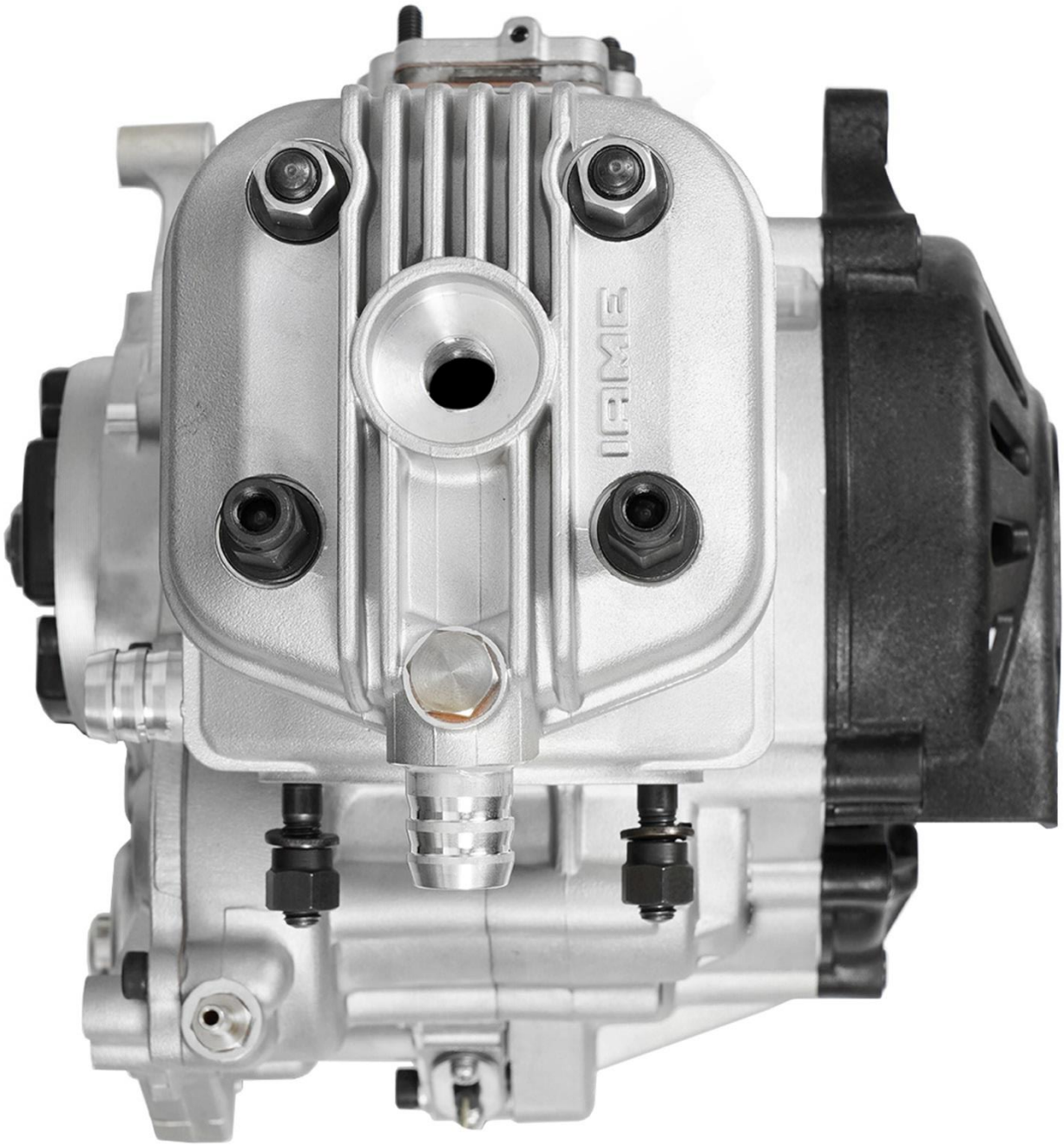
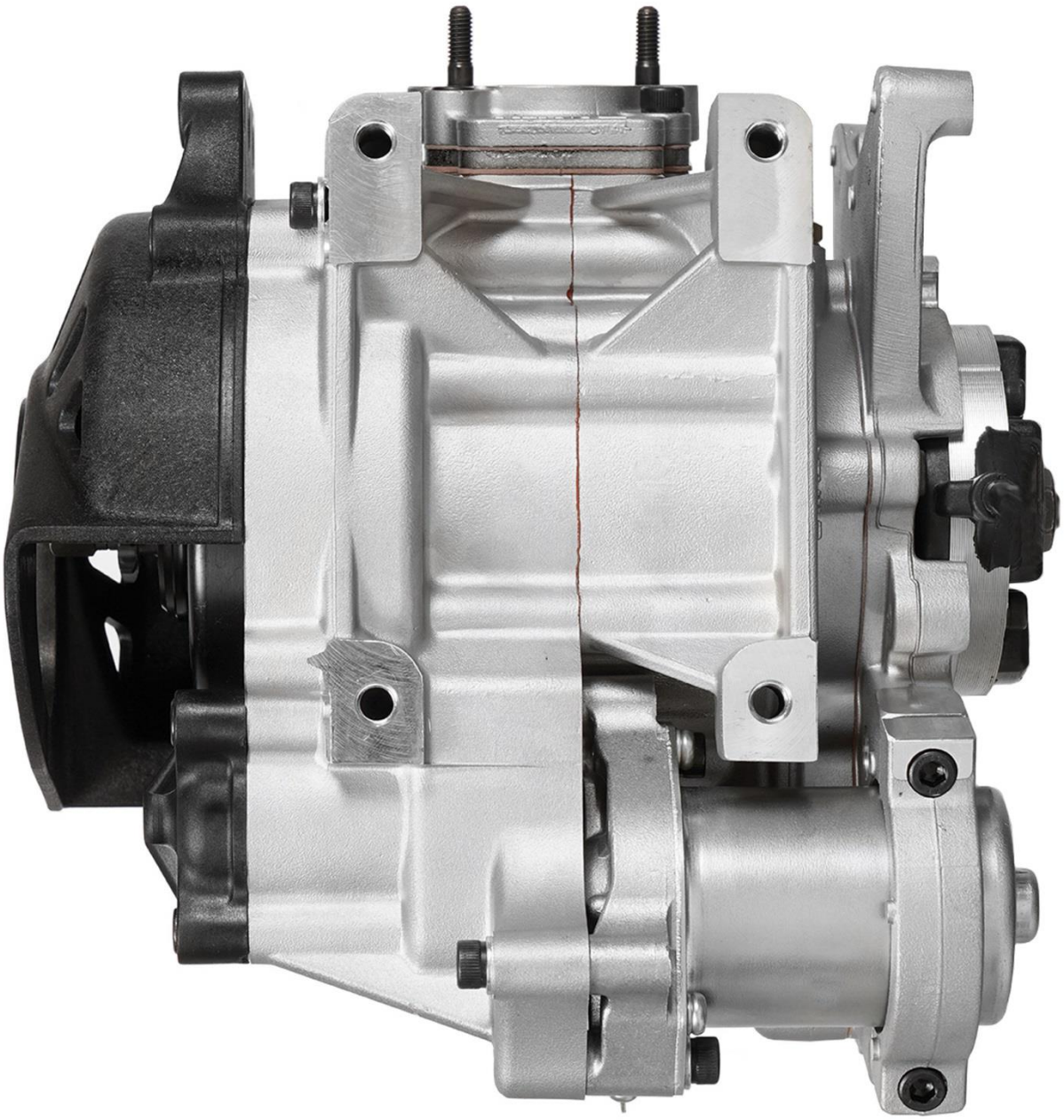


PHOTO OF THE COMPLETE ENGINE TAKEN FROM BELOW



Homologation N °

00X / XX

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 in the cylinder head	**12.8 cm³**	minimum
(with AUS insert)		
Crankshaft		
Number of bearings	**2**	--
Diameter of bearings	**30 mm**	±0.1mm
Minimum weight of crankshaft	**2150 g**	minimum
All parts represented on page 16 photo		
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
Of all the parts represented on the page 19 technical drawing		

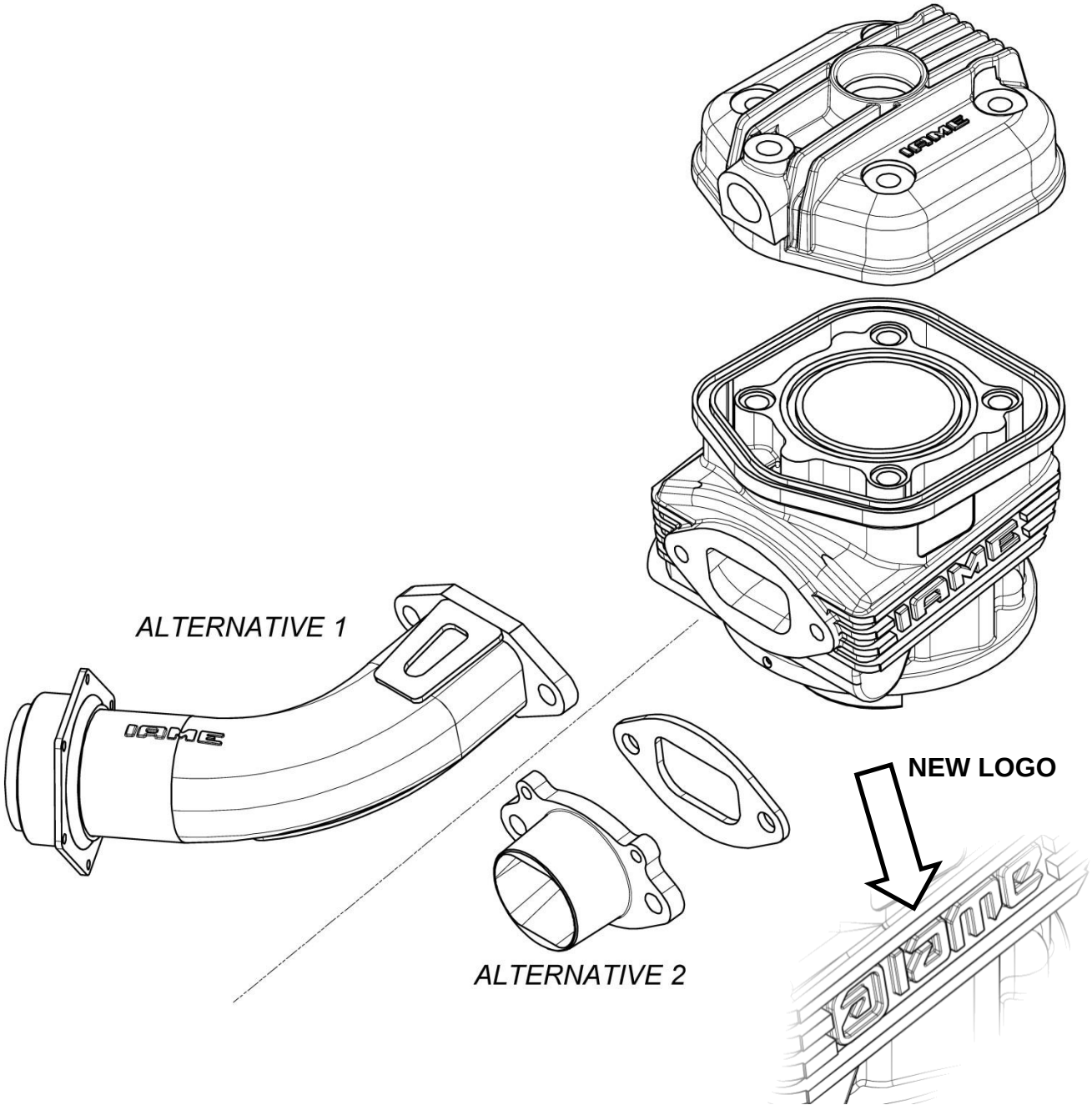
B	*OPENING ANGLES*	
Of the inlet (main transfer ports)	**126°**	**±2°**
Of the inlet (3th transfer duct engine)	**127°**	**±2°**
Of the exhaust	**177.5°**	**MAX.**
Of the boosters	**177.5°**	**MAX.**

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*

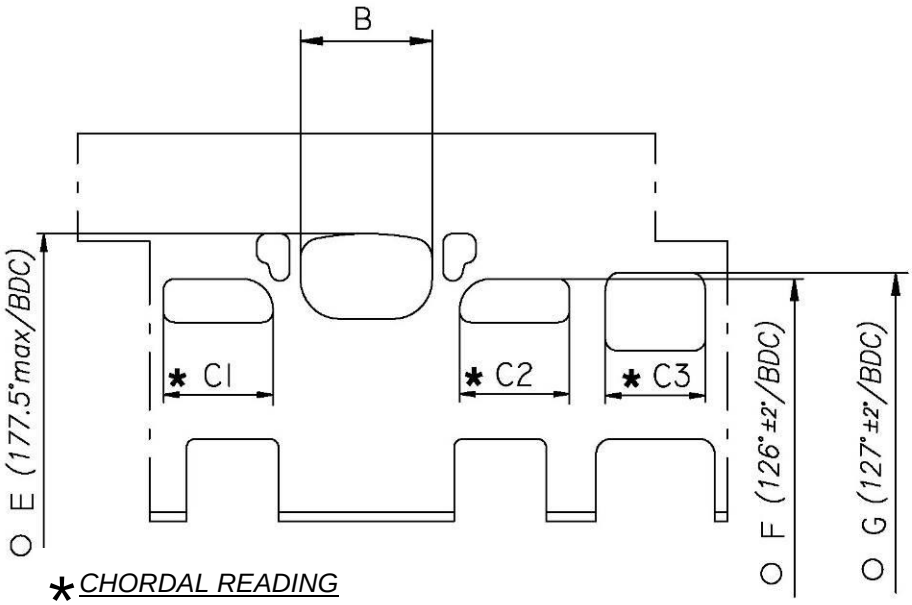
EXPLODED DRAWING OF THE CYLINDER, CYLINDER HEAD AND EXHAUST MANIFOLD UNIT



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

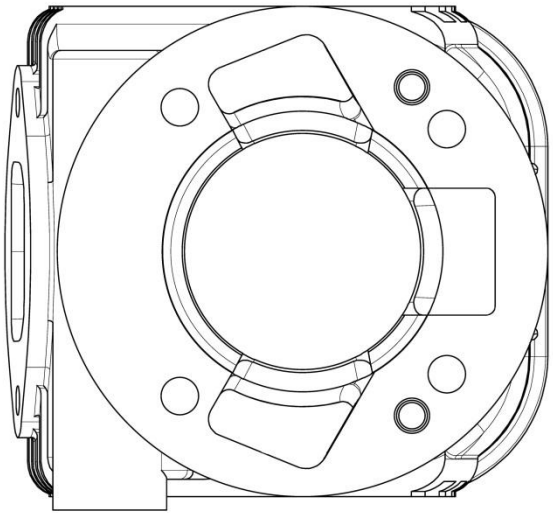
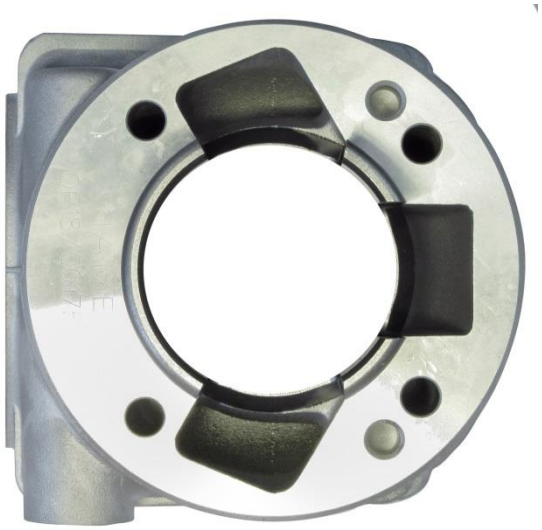
DRAWING OF THE CYLINDER DEVELOPMENT



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

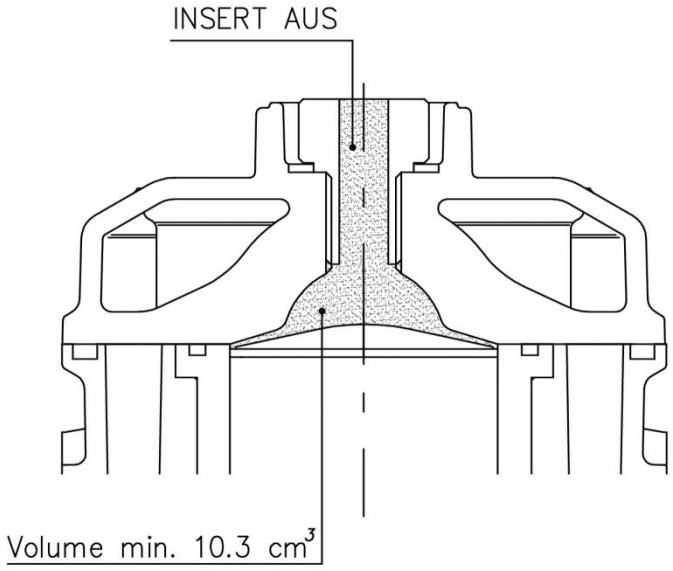
* *CHORDAL READING*

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.

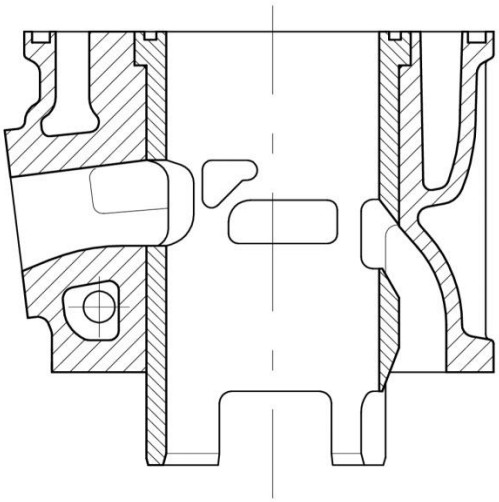
ATT: SQUISH MIN. = 0.90 mm
(Measured with Ø2.0mm TIN)

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

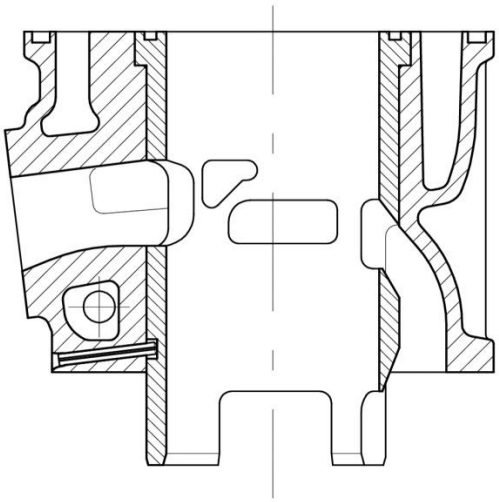


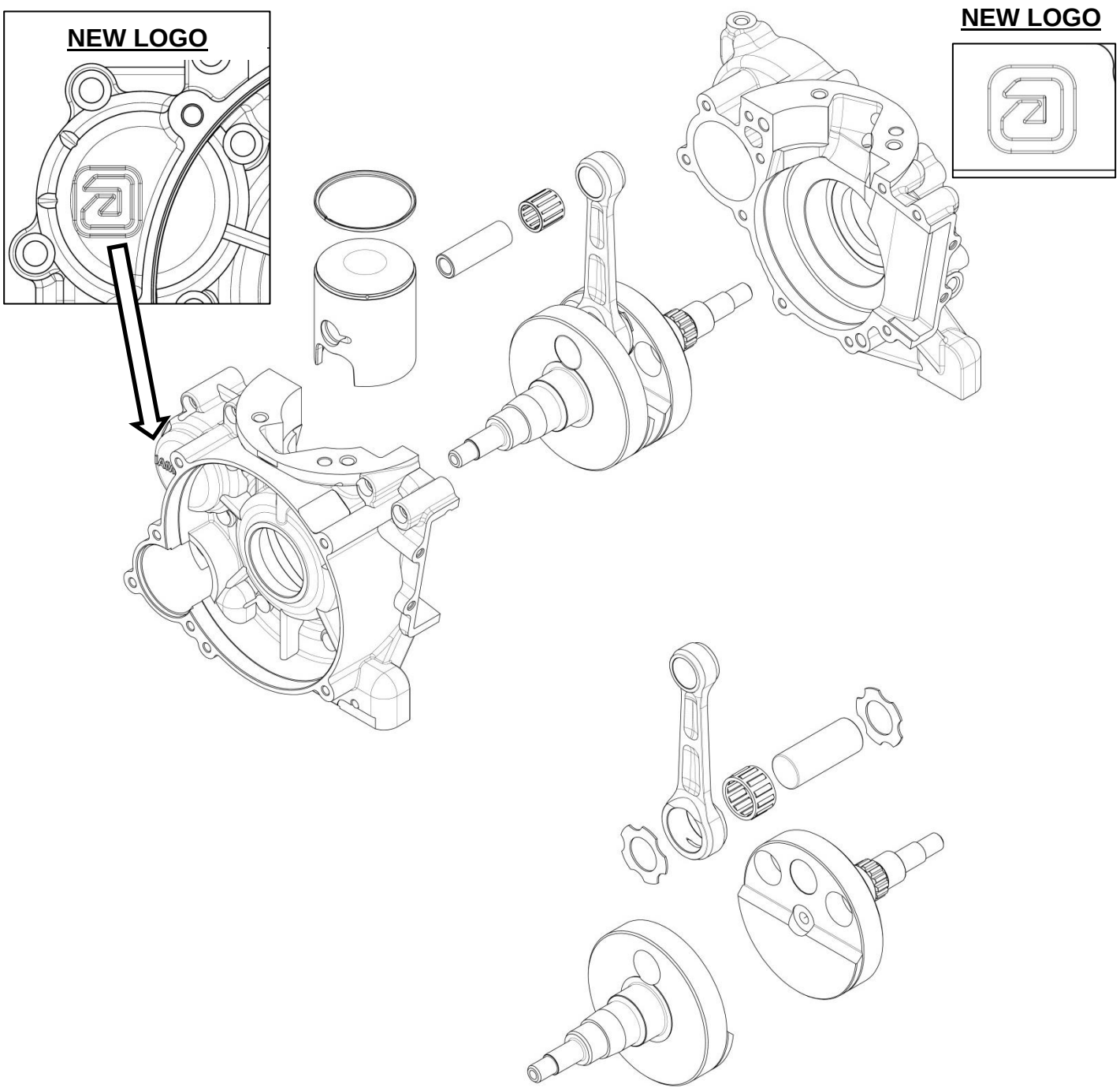
PHOTO OF THE CYLINDER FROM ABOVE

PHOTO OF THE CYLINDER FROM RH SIDE

NEW LOGO

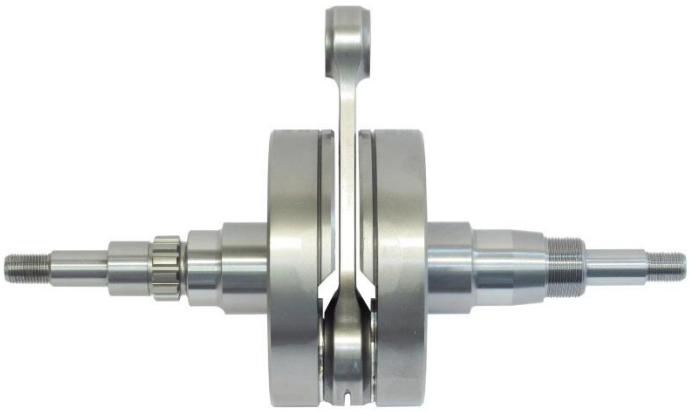
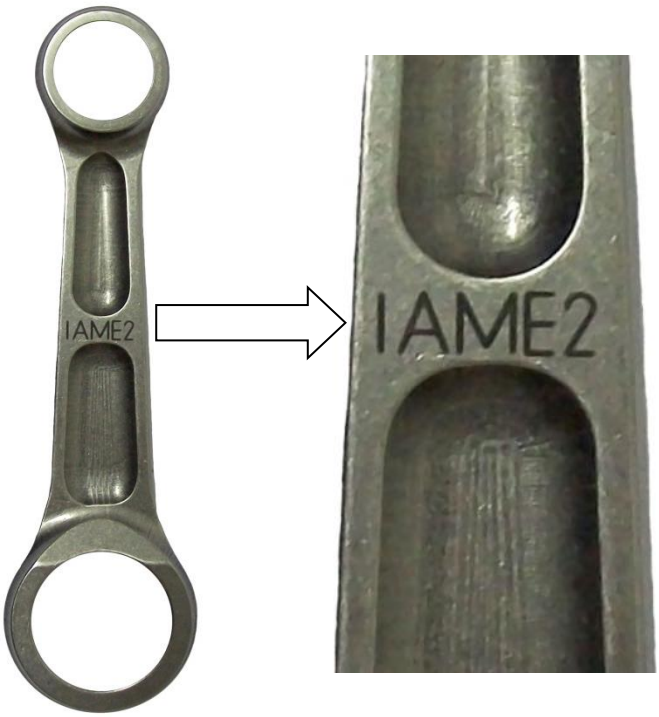
D.2 *CONROD, CRANKCASE, CRANKSHAFT & PISTON*

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

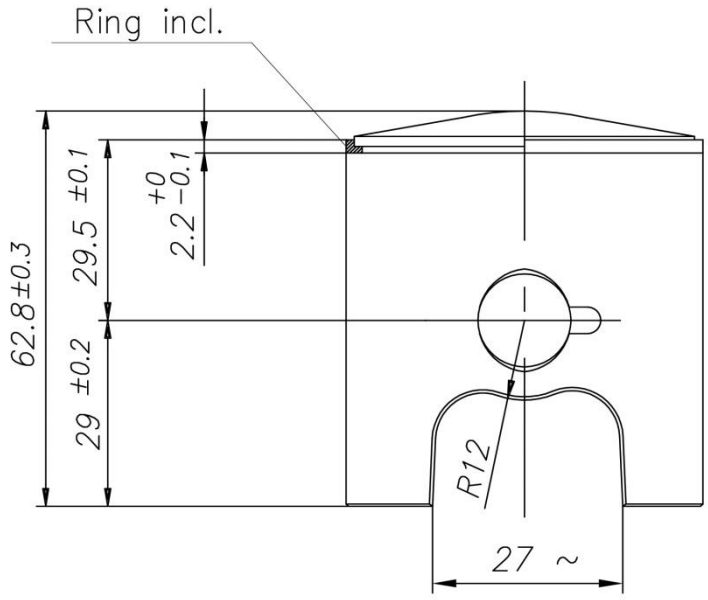


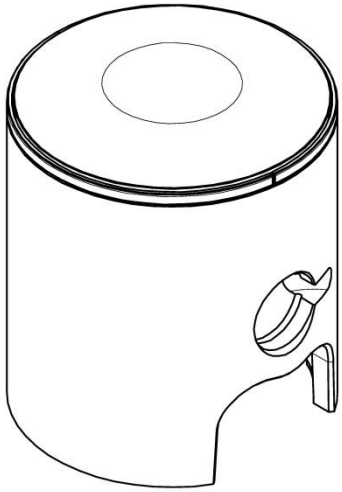
Without screws or gaskets.	***The aim of the exploded drawings is to identify the principles, the functioning and the whole mechanical unit***

...Section D.2

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

DRAWING OF THE PISTON (MAIN DIMENSIONS incl. tolerances)

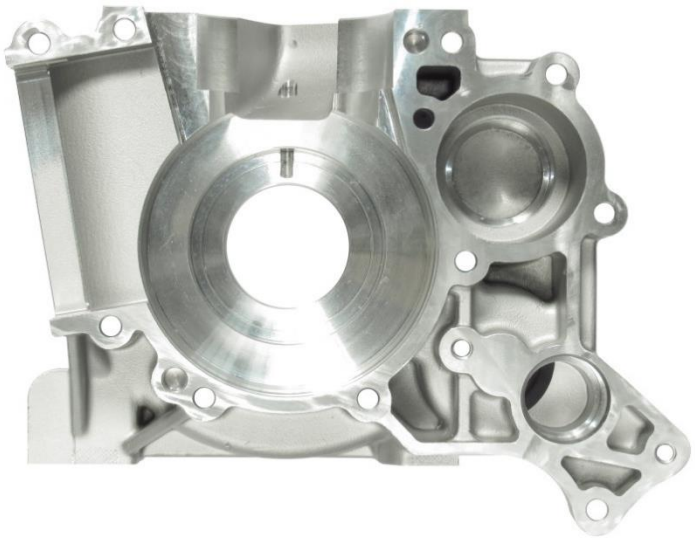
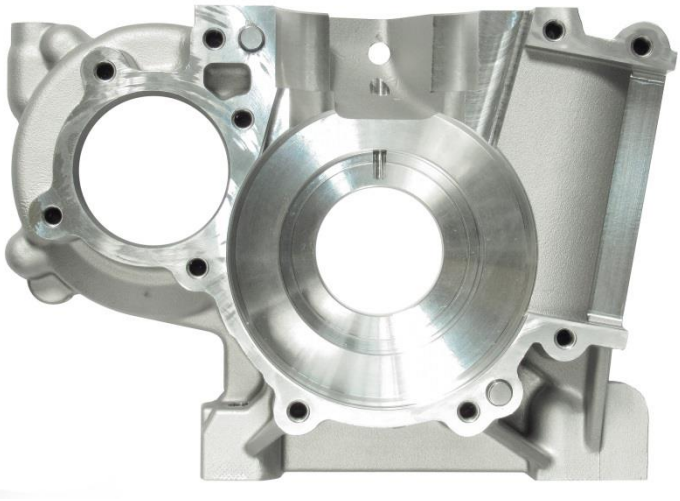




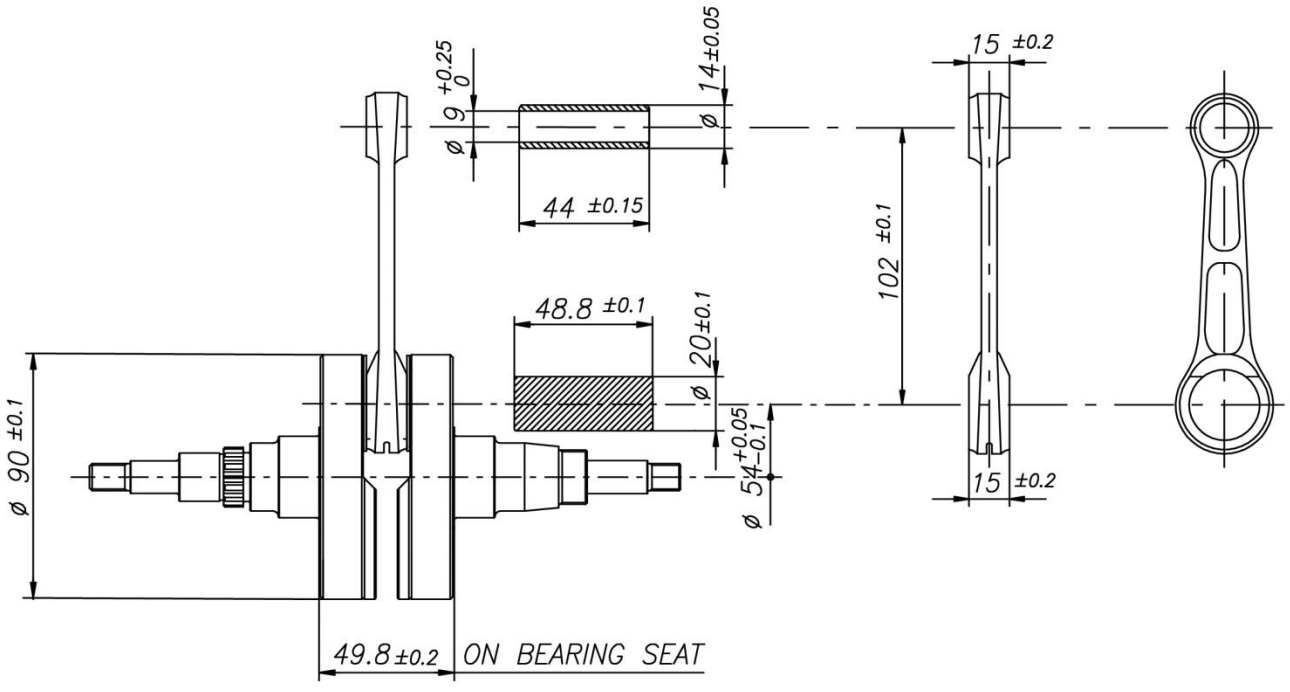
...Section D.2

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

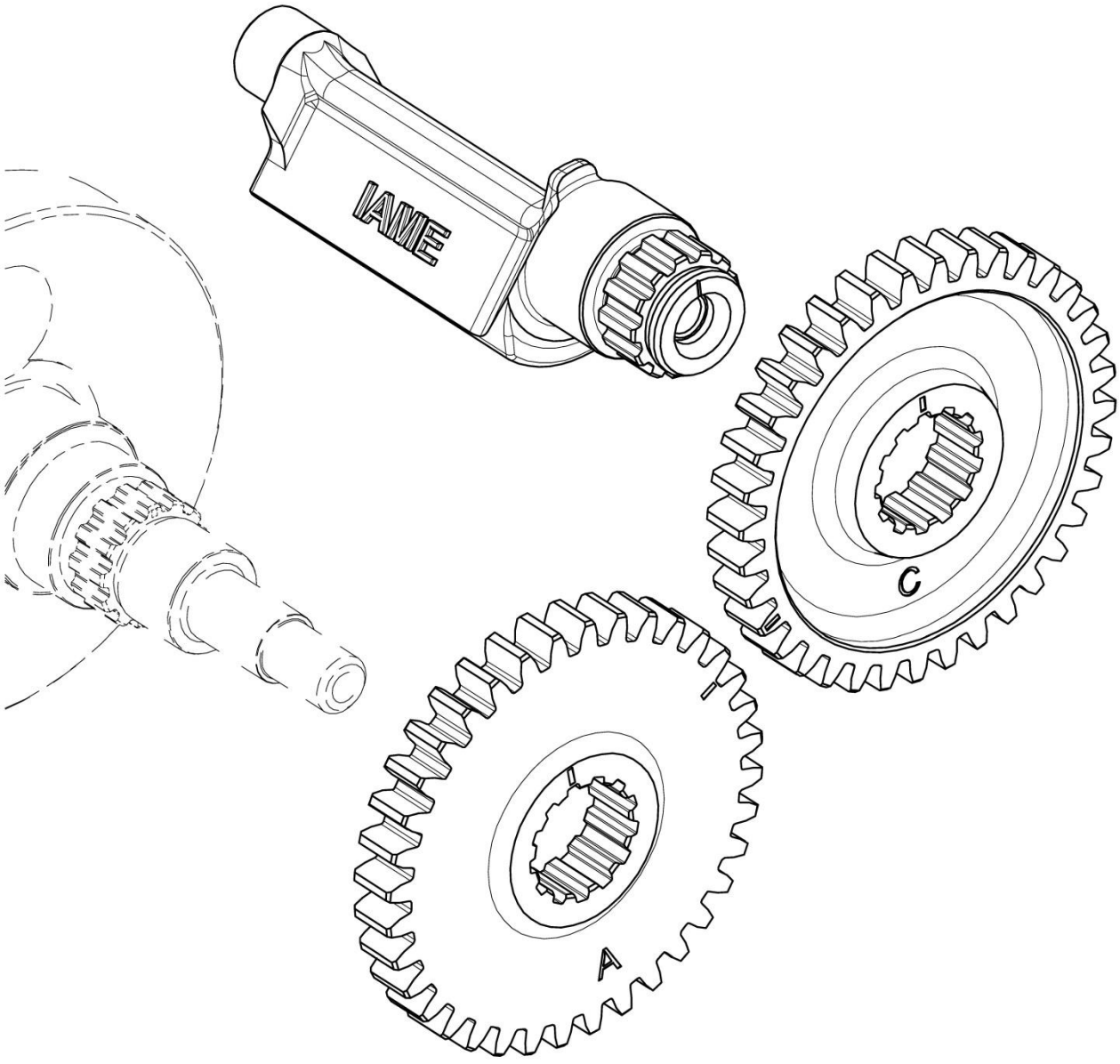
PHOTO OF THE INSIDE OF THE RH CRANKCASE	*PHOTO OF THE INSIDE OF THE LH CRANKCASE*
	

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



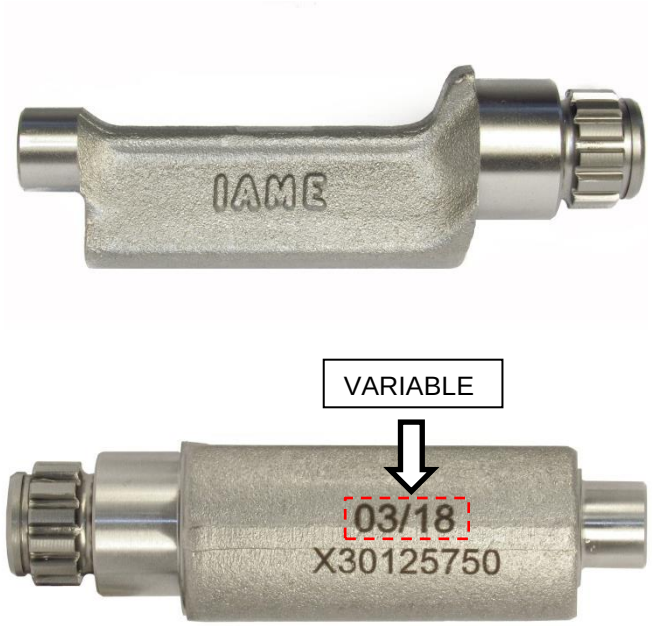
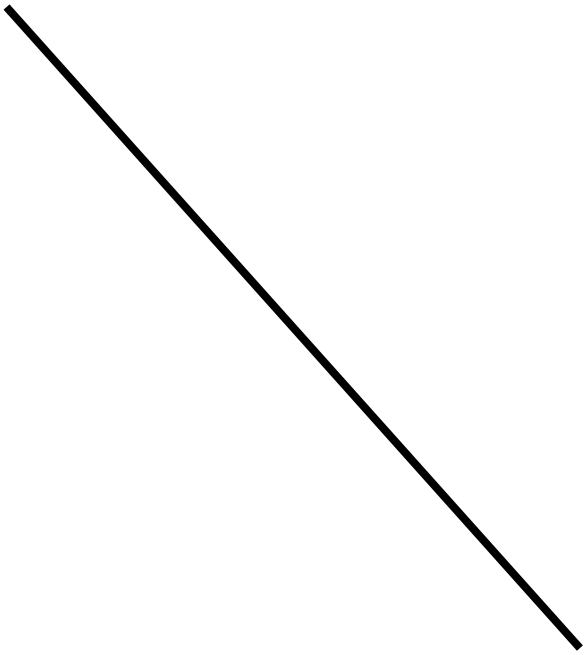
D.3 *BALANCE SHAFT*

EXPLODED DRAWING OF THE BALANCE SHAFT

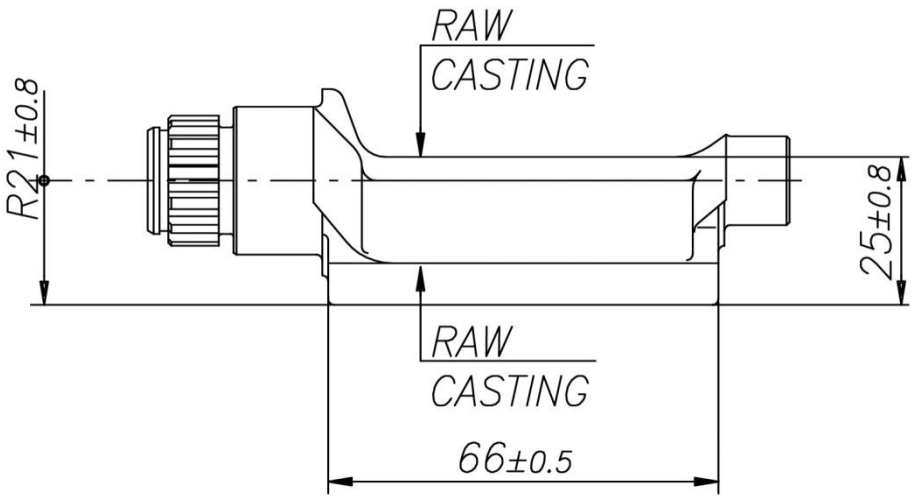


Without screws or gaskets.	***The aim of the exploded drawings is to identify the principles, the functioning and the whole mechanical unit***

...Section D.3

PHOTO OF THE BALANCE SHAFT	PHOTO OF THE WATER PUMP IMPELLER
	

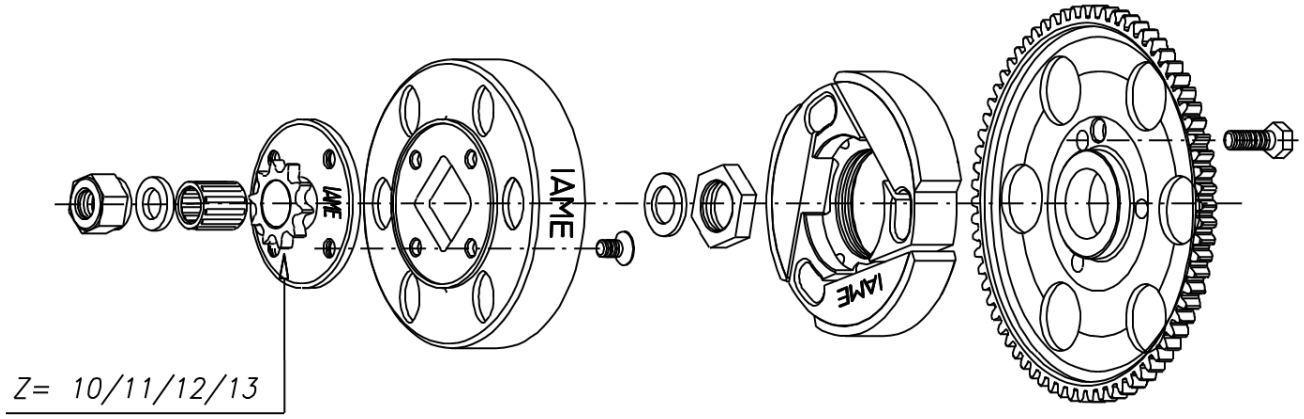
DRAWING OF THE BALANCE SHAFT
(DIMENSIONS incl. tolerances)



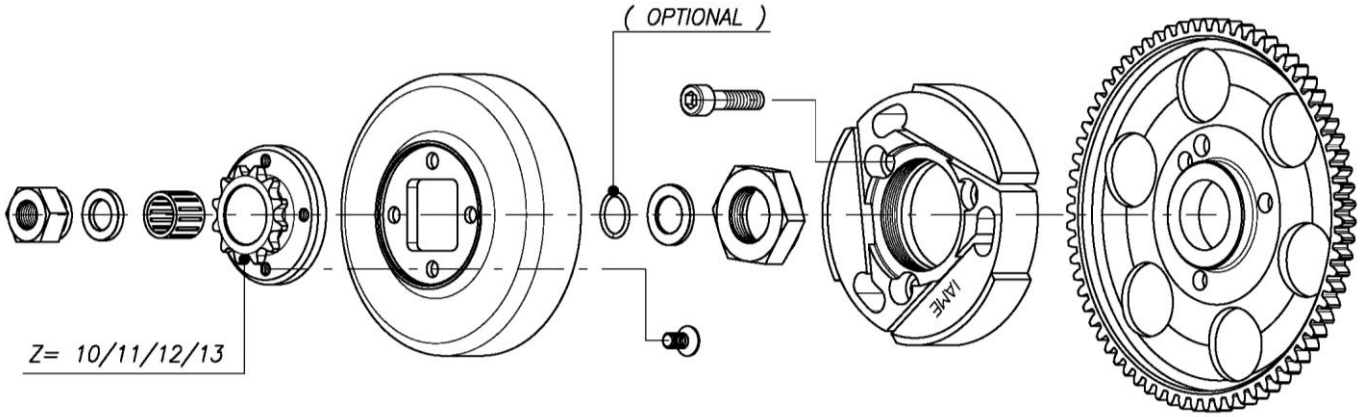
Tot. Min. weight 315 g

D.4 *REED VALVE & CLUTCH*

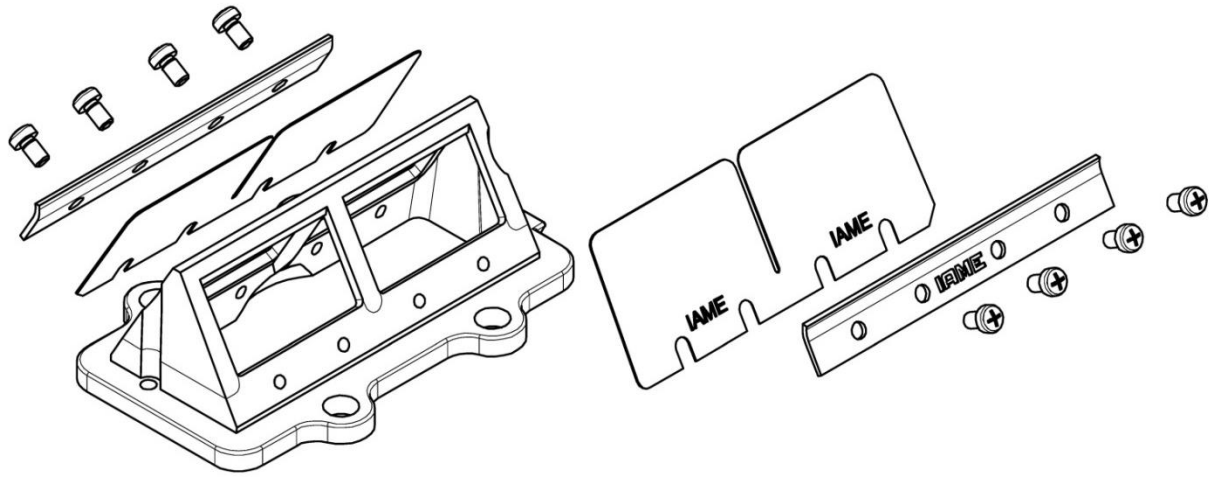
TECHNICAL DRAWING (exploded view) OF THE CLUTCH ASSEMBLY



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

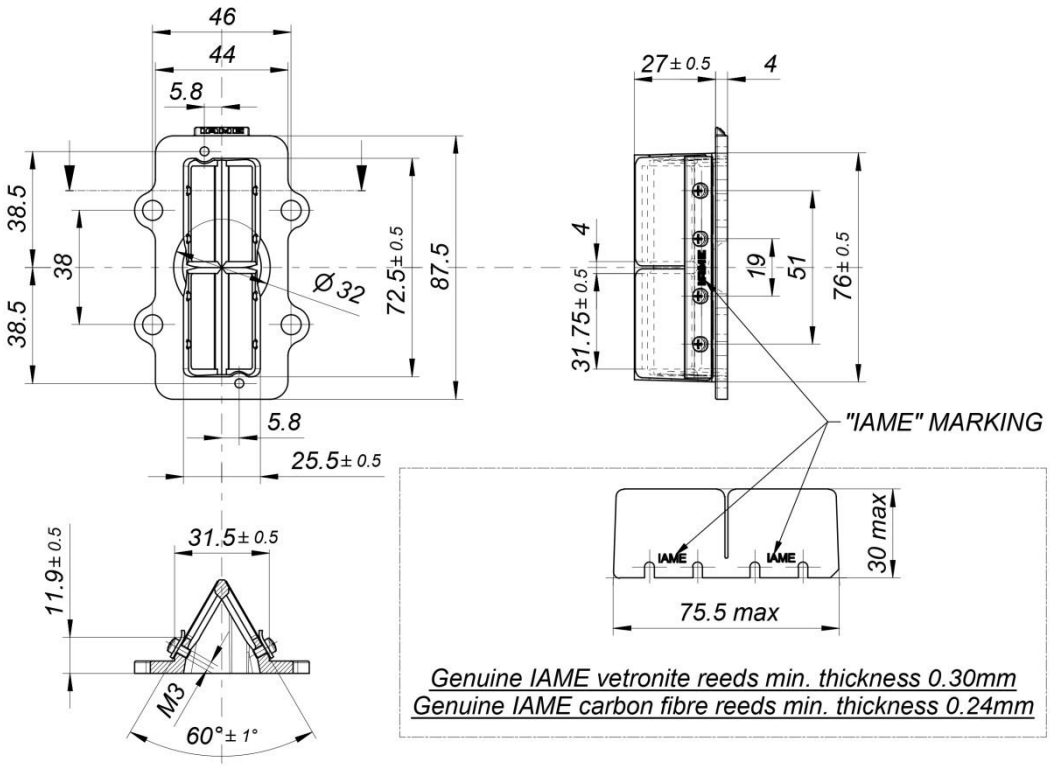


TECHNICAL DRAWING (exploded view) OF THE REED VALVE

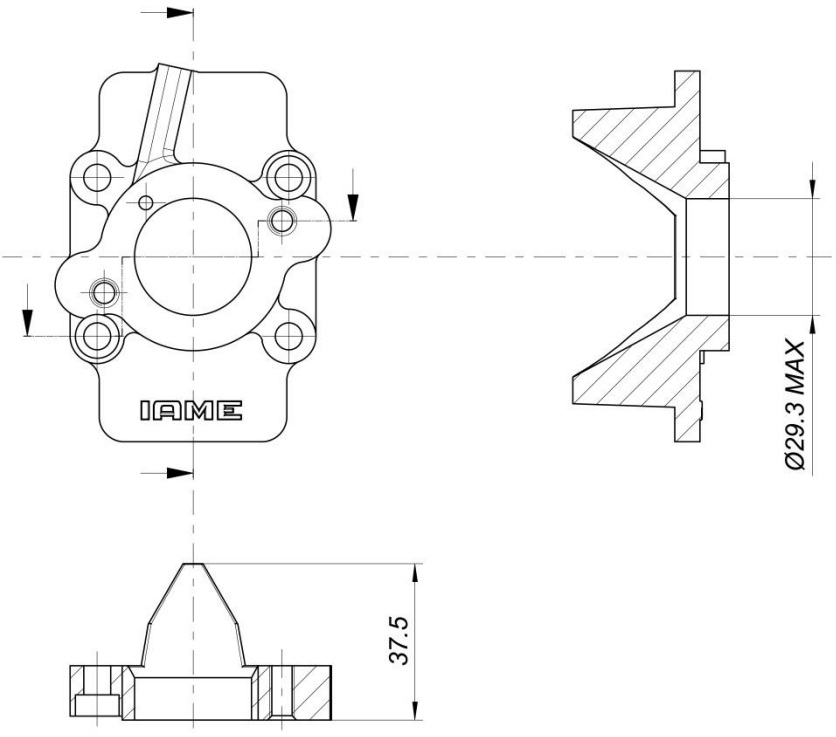


The aim of the exploded drawings is to identify the principles, the functioning and the whole mechanical unit

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



DRAWING OF THE INLET CONVEYOR

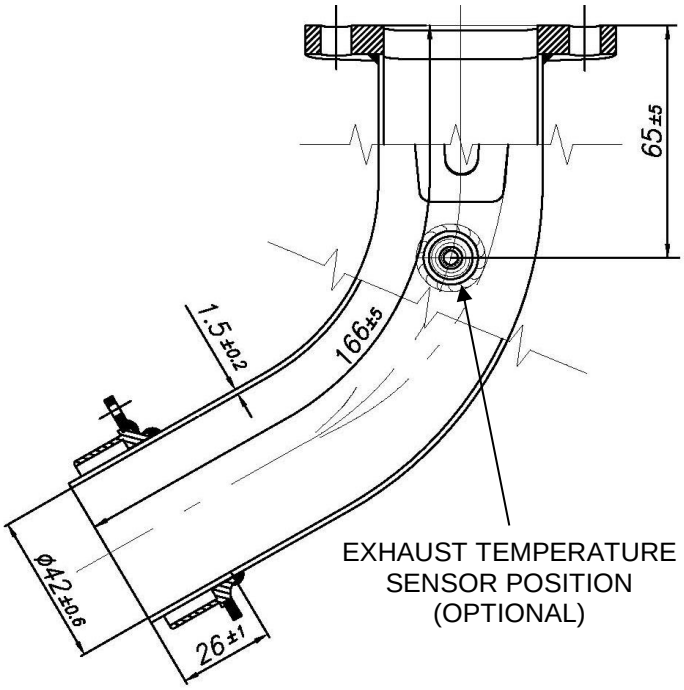


GENERAL TOLERANCES	
Dimensions	**Machined parts**
< 25 mm	±0.5
25÷60	±0.8
> 60 mm	±1.5

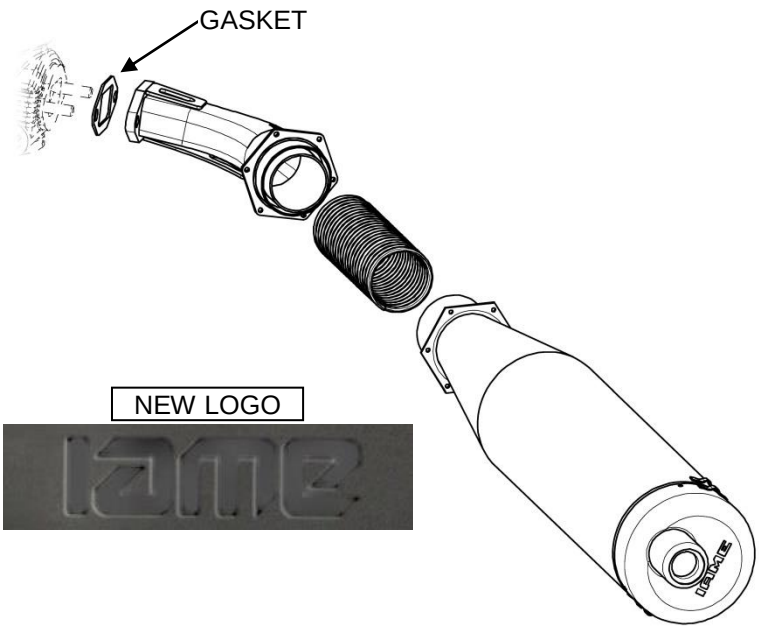
... Section D.4

D.5 *EXHAUST SYSTEM*

TYPE 1 - EXHAUST HEADER DRAWING

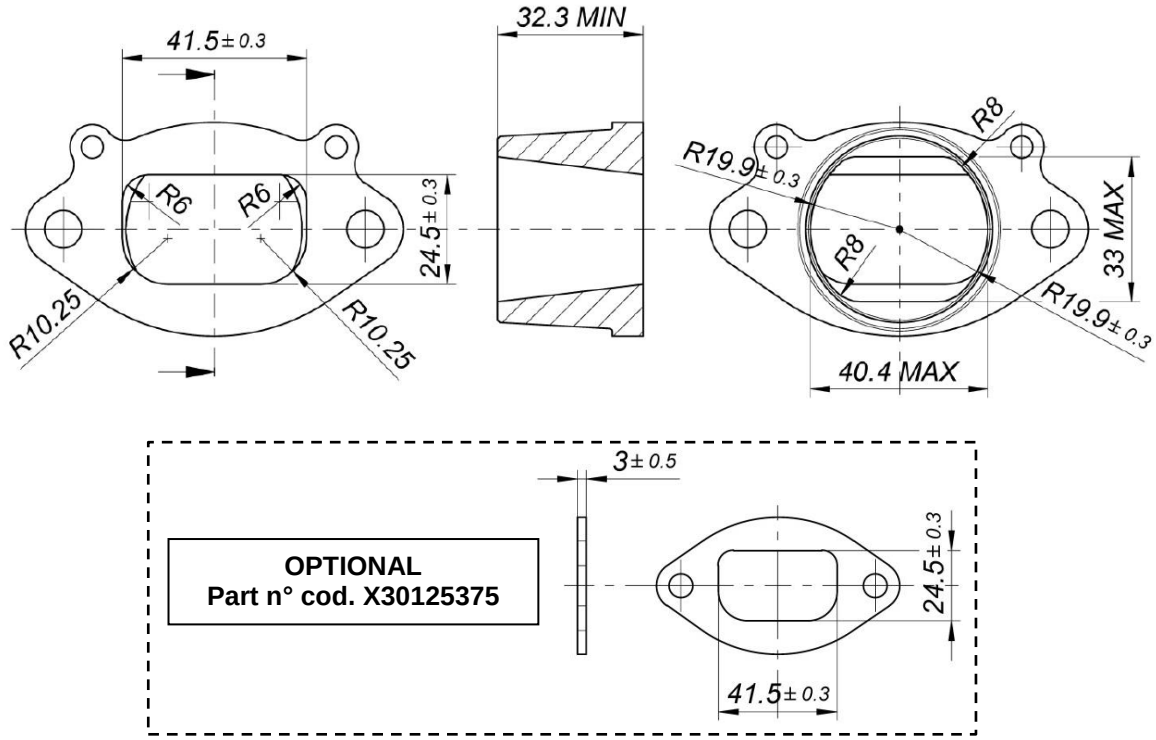


TYPE 1 - EXHAUST HEADER ASSEMBLY AND MARKING

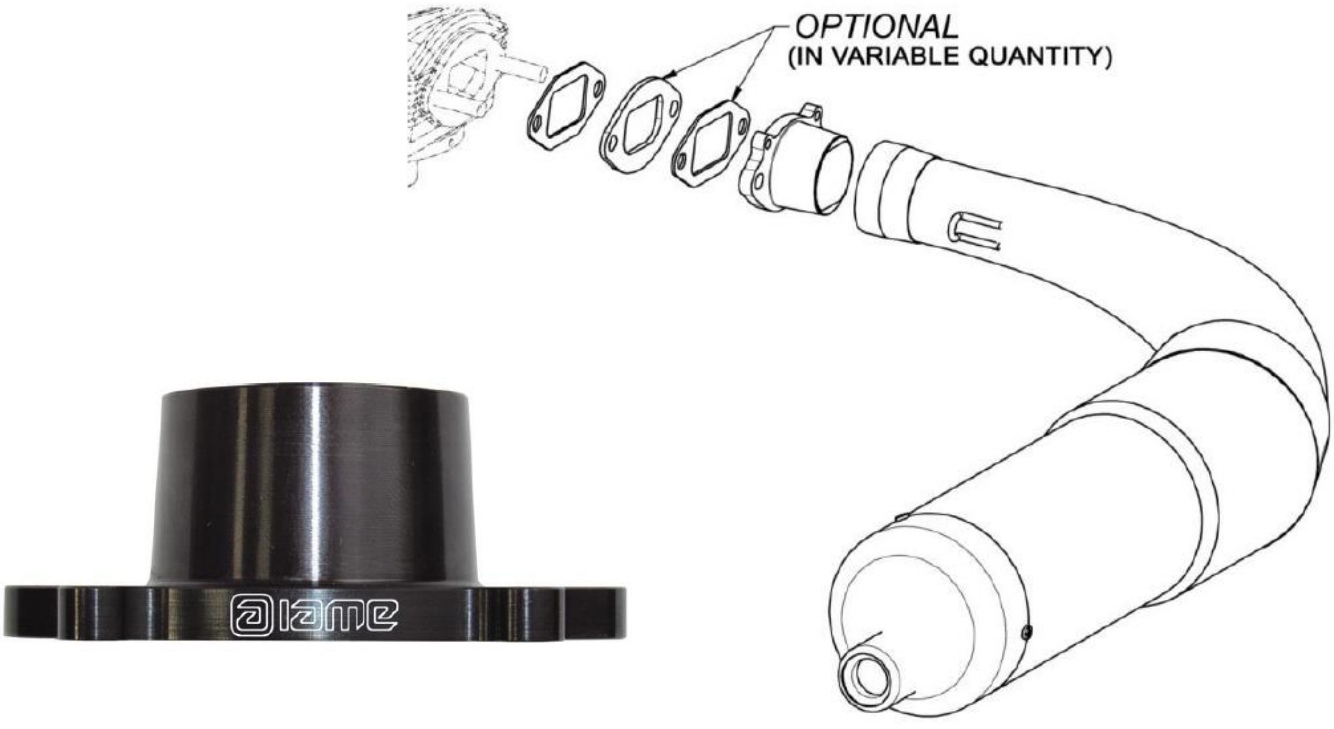


D.5 *EXHAUST SYSTEM*

TYPE 2 - EXHAUST MANIFOLD DRAWING



TYPE 2 - EXHAUST MANIFOLD ASSEMBLY AND MARKING



D.5 *EXHAUST SYSTEM*

PHOTO OF THE EXHAUST – TYPE 1

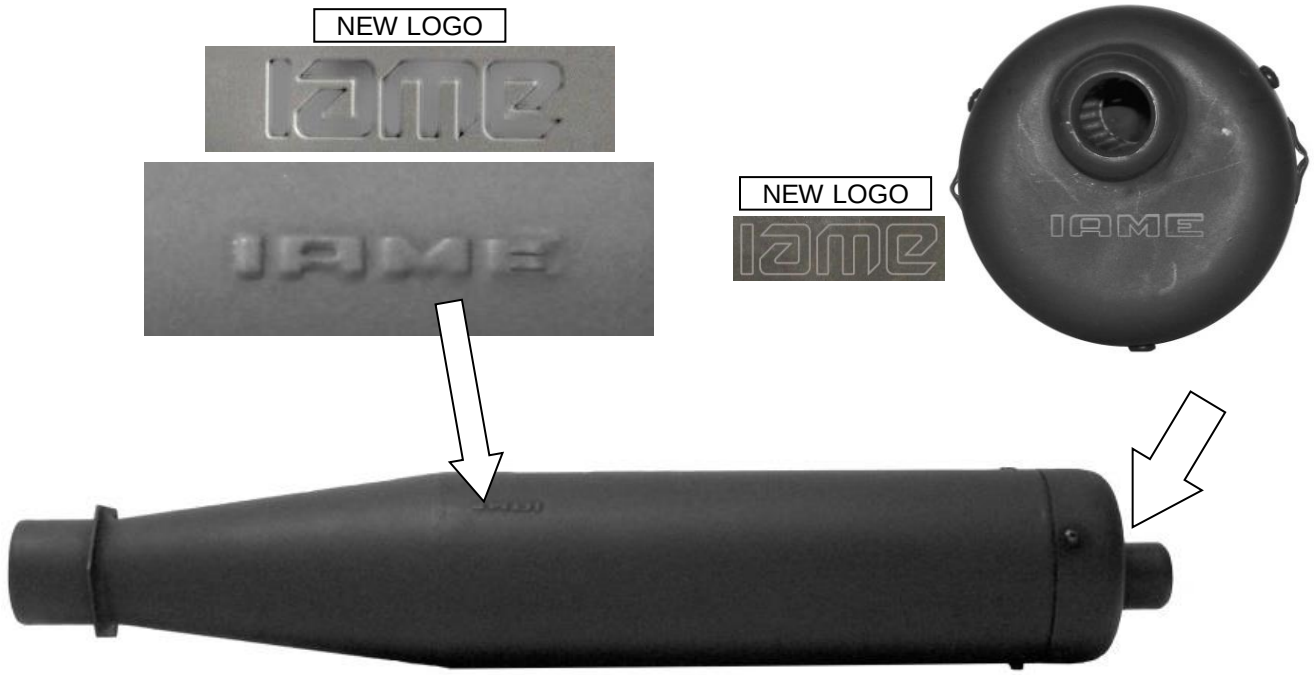


PHOTO OF THE EXHAUST – TYPE 2

Homologation N °

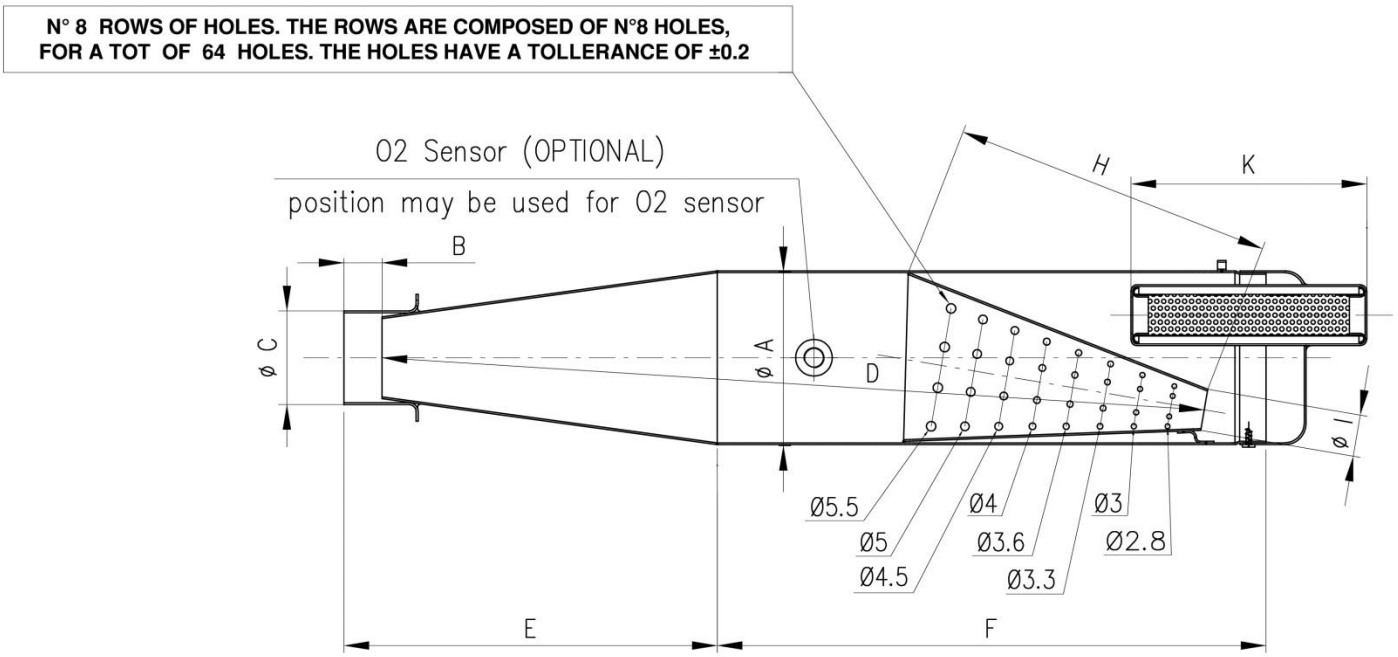
00X / XX

... 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.

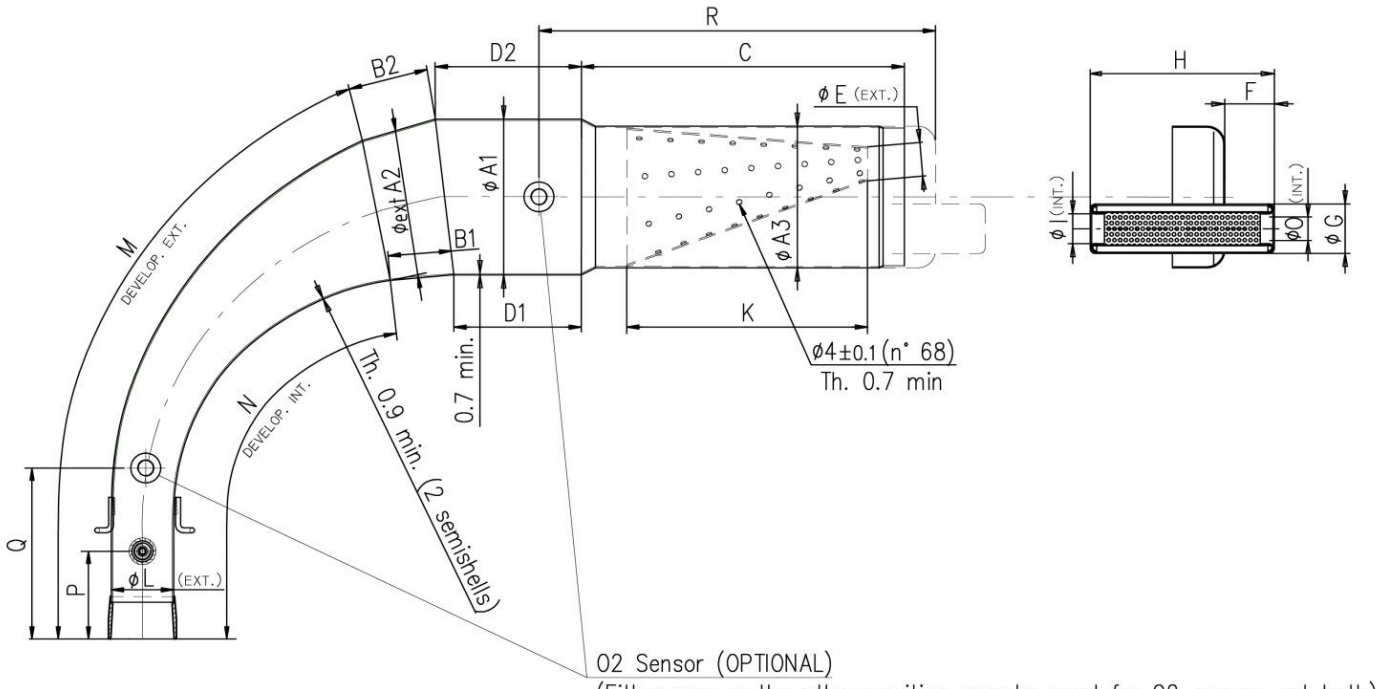
C: 54 ±1 øext. F: 315 ±3 K: 130 ±3

... 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

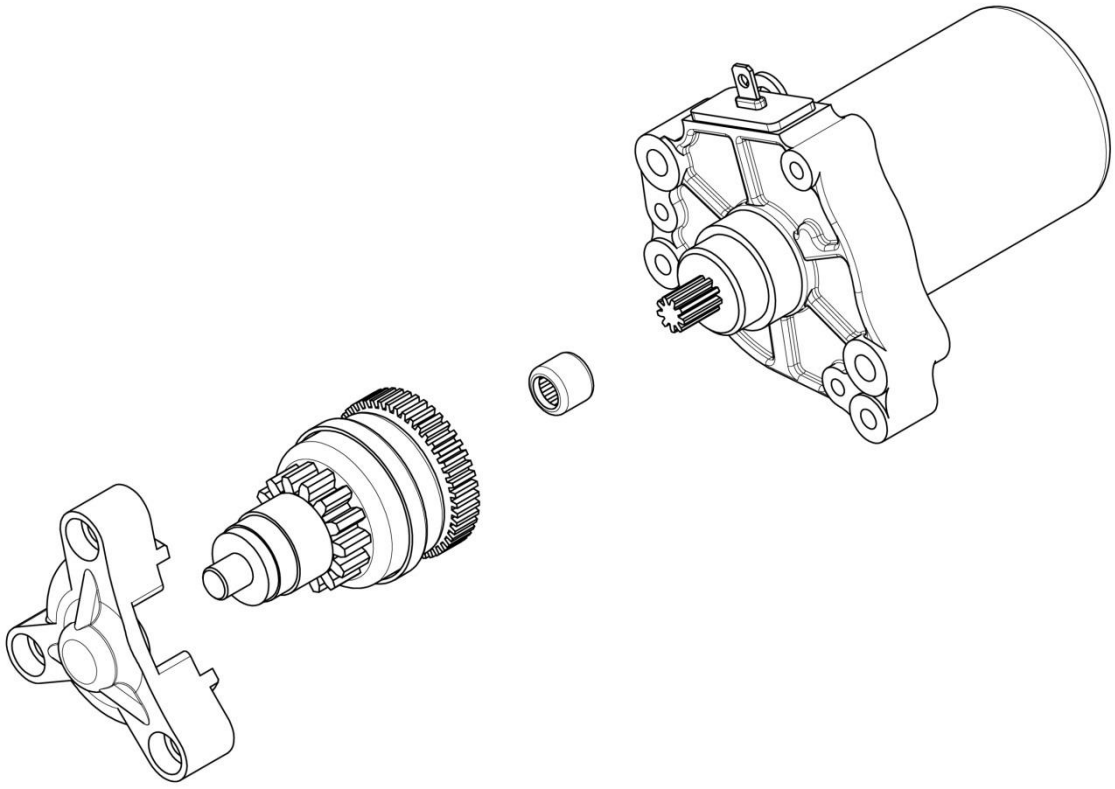
It must include all the information necessary to build this exhaust



A1:	110 ±1.5	B1:	59 ±3	D1:	89.5 ±3	F:	36 ±2	I:	21 ±1	M:	435 ±3	P:	50 ±10
A2:	102 ±1.5	B2:	59 ±3	D2:	109 ±3	G:	35 ±1	K:	170 ±3	N:	340 ±3	Q:	120 ±10
A3:	100 ±1.5	C:	219 ±3	E:	23 ±2	H:	132 ±2	L:	42.5 ±1.5	O:	21 ±1	R:	270 ±10

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***

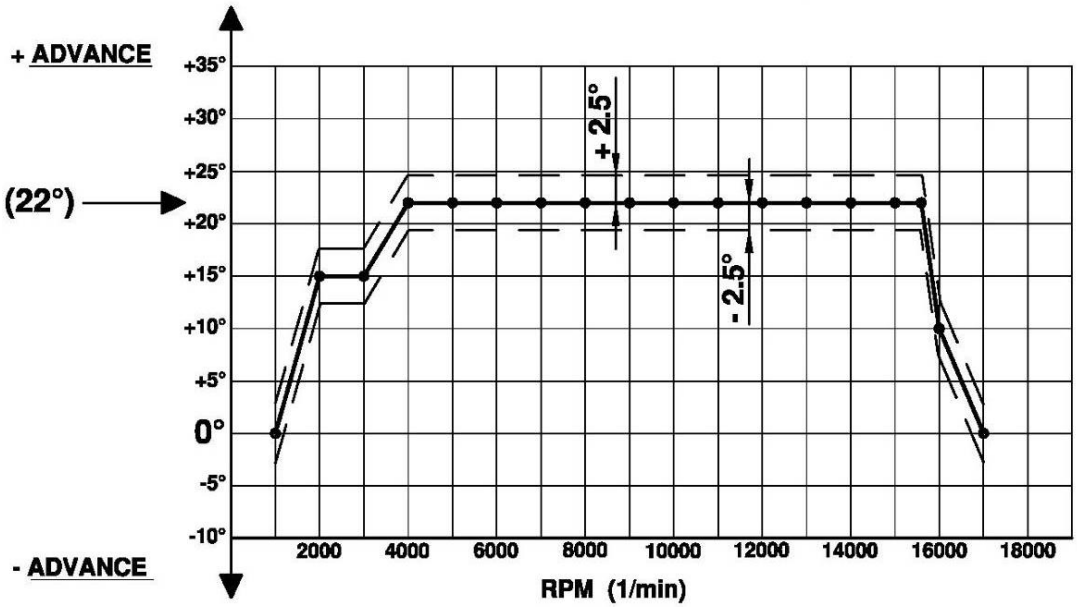
Homologation N °

00X / XX

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”

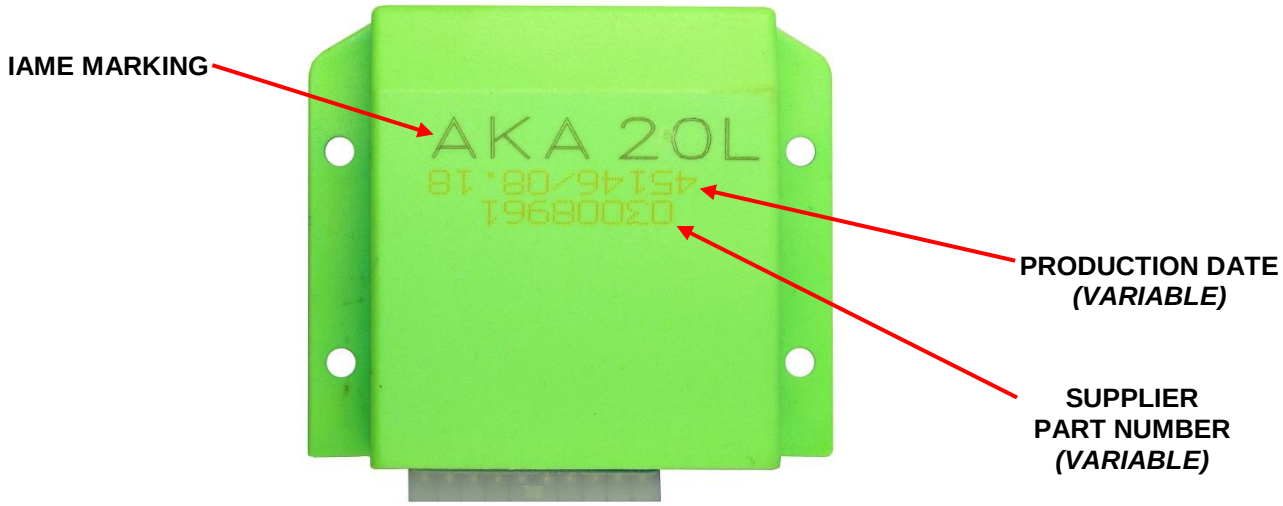


PHOTO OF SELETTRA DIGITAL “K” IGNITION WITH “IAME” MARKING

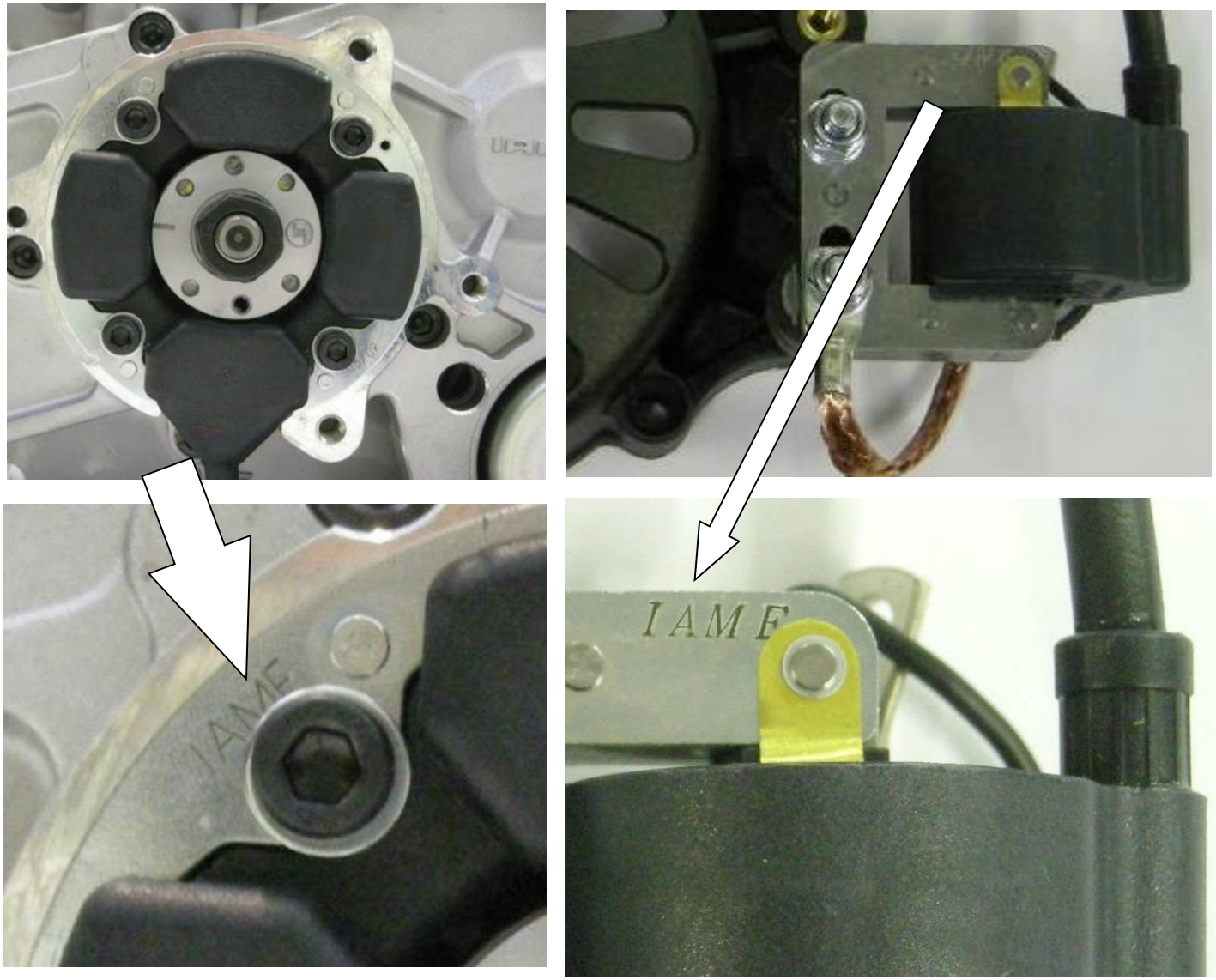
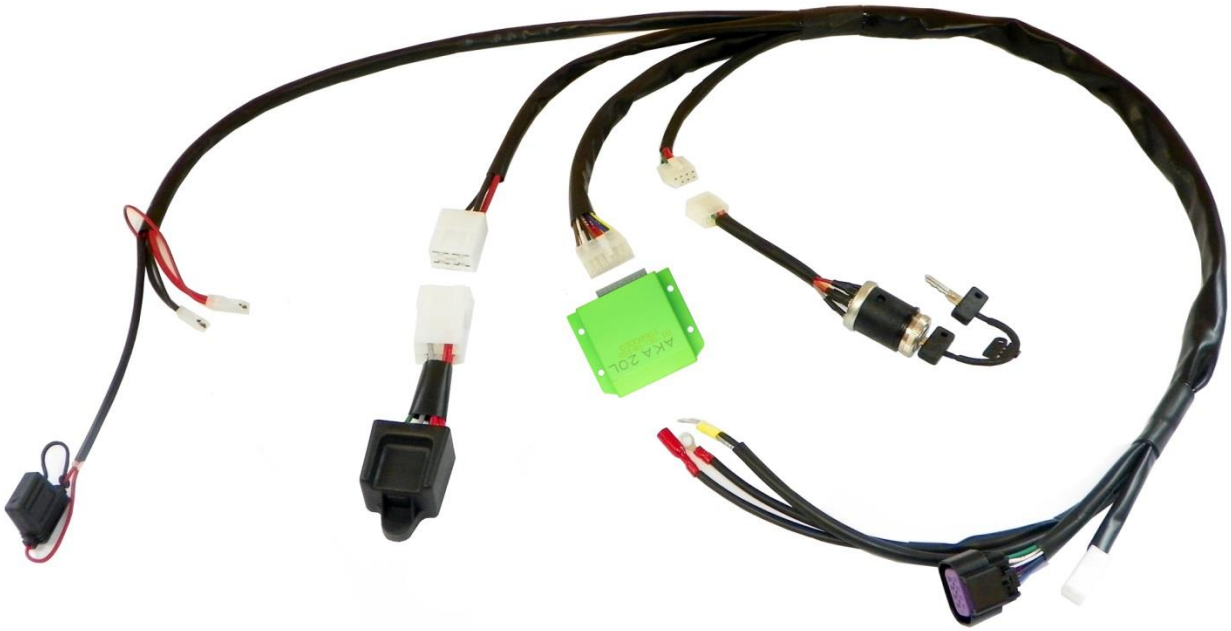


PHOTO COMPLETE WIRING LOOM



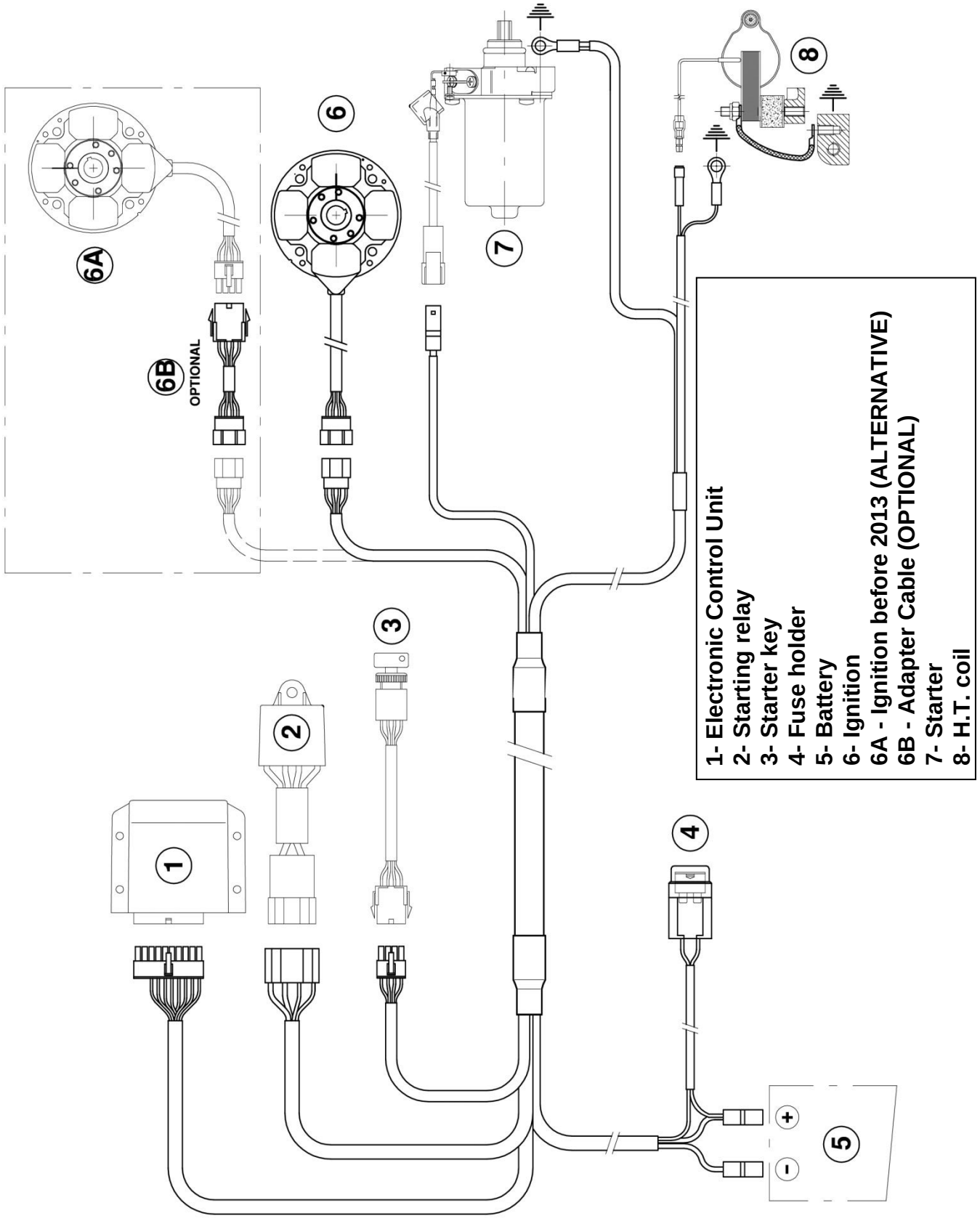
ALTERNATIVE STARTER KEY

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



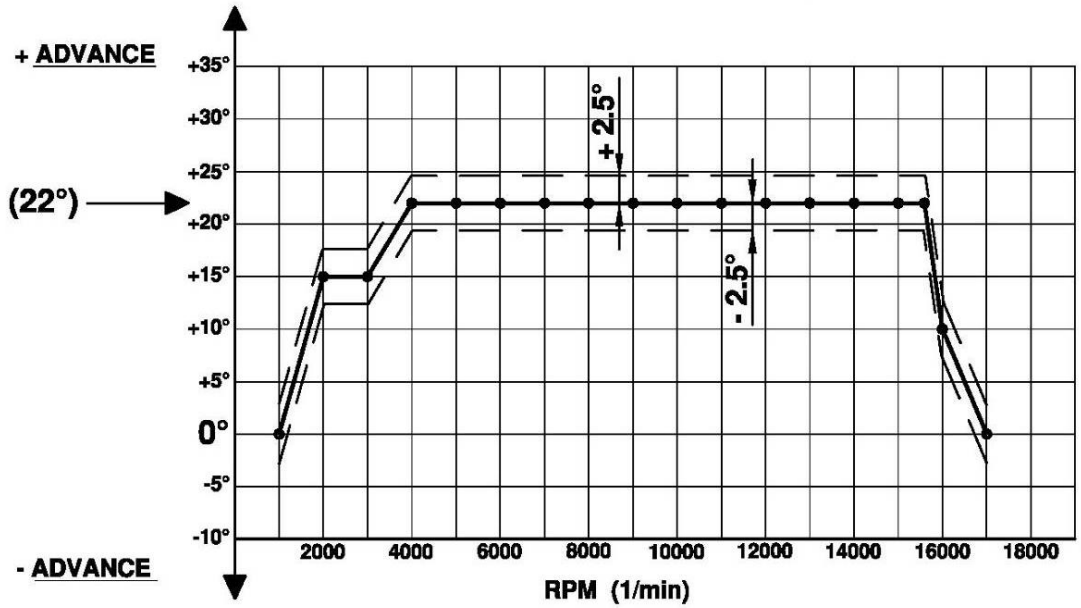
Homologation N °

00X / XX

ELECTRICAL SYSTEM

ALTERNATIVE IGNITION SYSTEM – TYPE 2

ADVANCE CURVE GRAPHS – PVL DIGITAL « 690 »

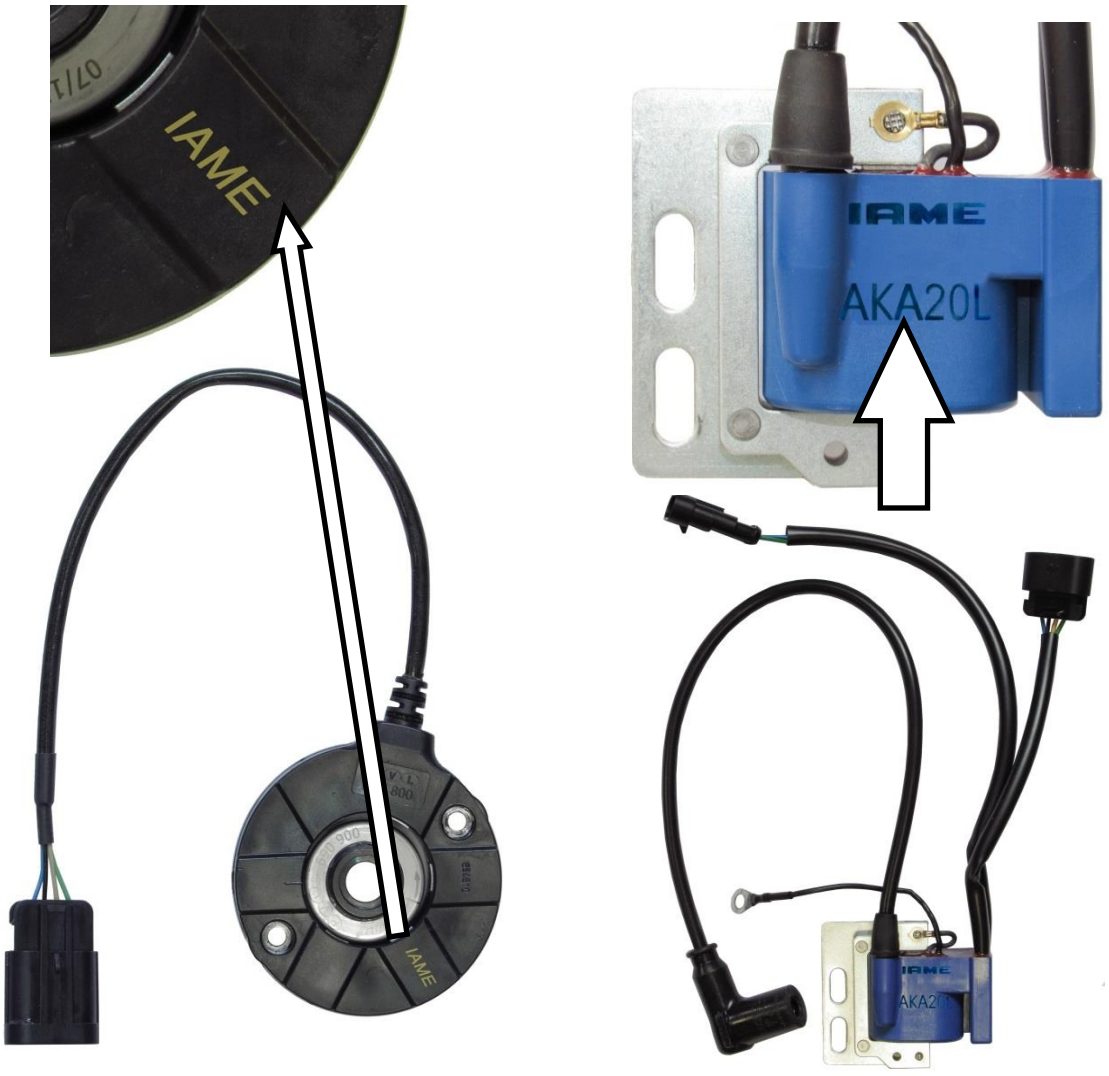


Ignition homologation No.	-	
Ignition homologation No.	-	
Ignition homologation No.	-	
Ignition homologation No.	-	
Code	***PVL (Stator+Rotor) : 690 600 (684 810 + 690 900)***	*Black*
Code	***PVL (H.T. Coil with ECU) : 690 100 – AKA 20L***	*Blue*

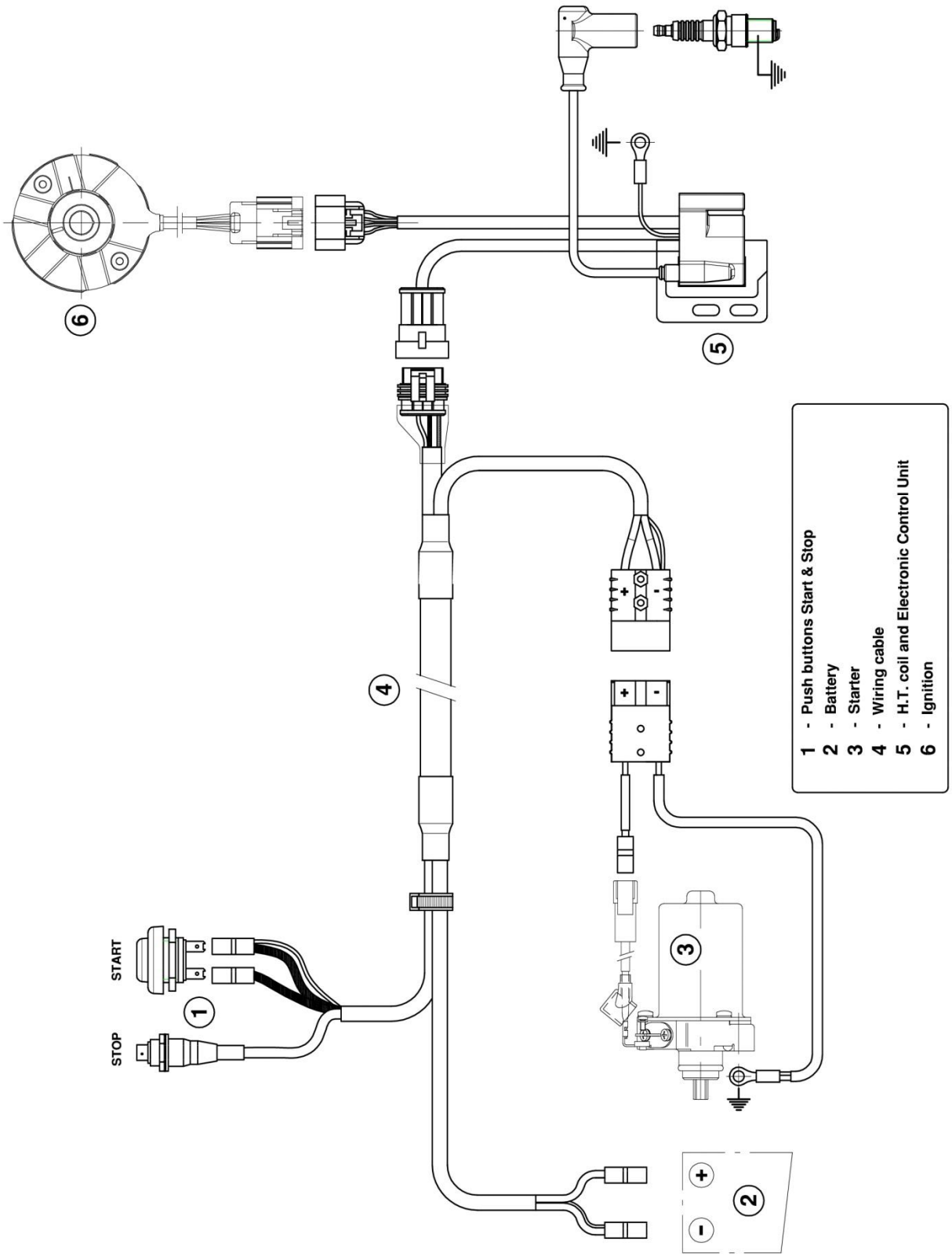
Tr / min	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15500	16000	17000
°adv	0°	15°	15°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	22°	10°	0°

PHOTO COMPLETE ALTERNATIVE WIRING LOOM

PHOTO OF ALTERNATIVE DIGITAL IGNITION PVL 690, WITH IAME MARKING

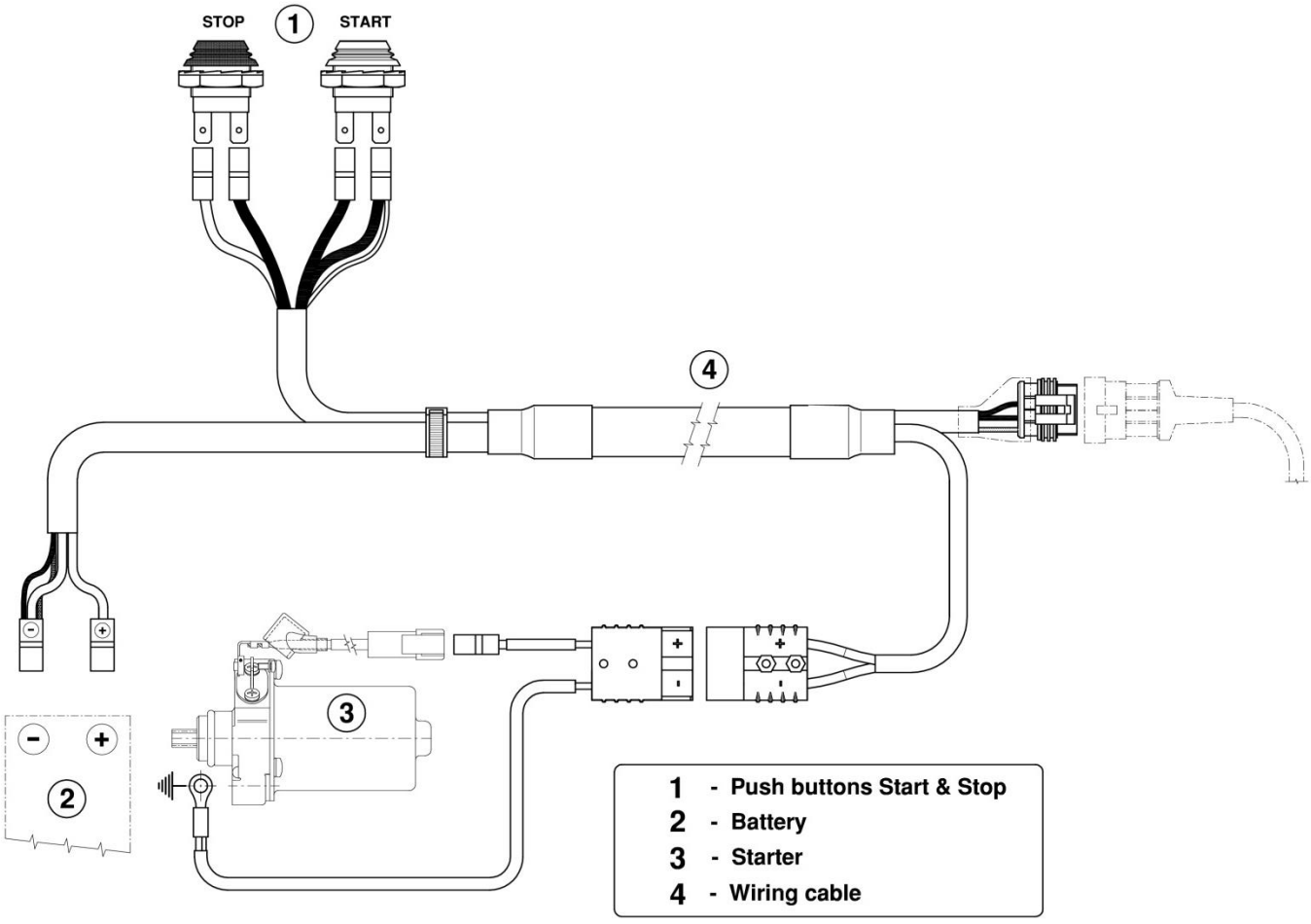


ALTERNATIVE WIRING DIAGRAM – PVL 690 DIGITAL IGNITION

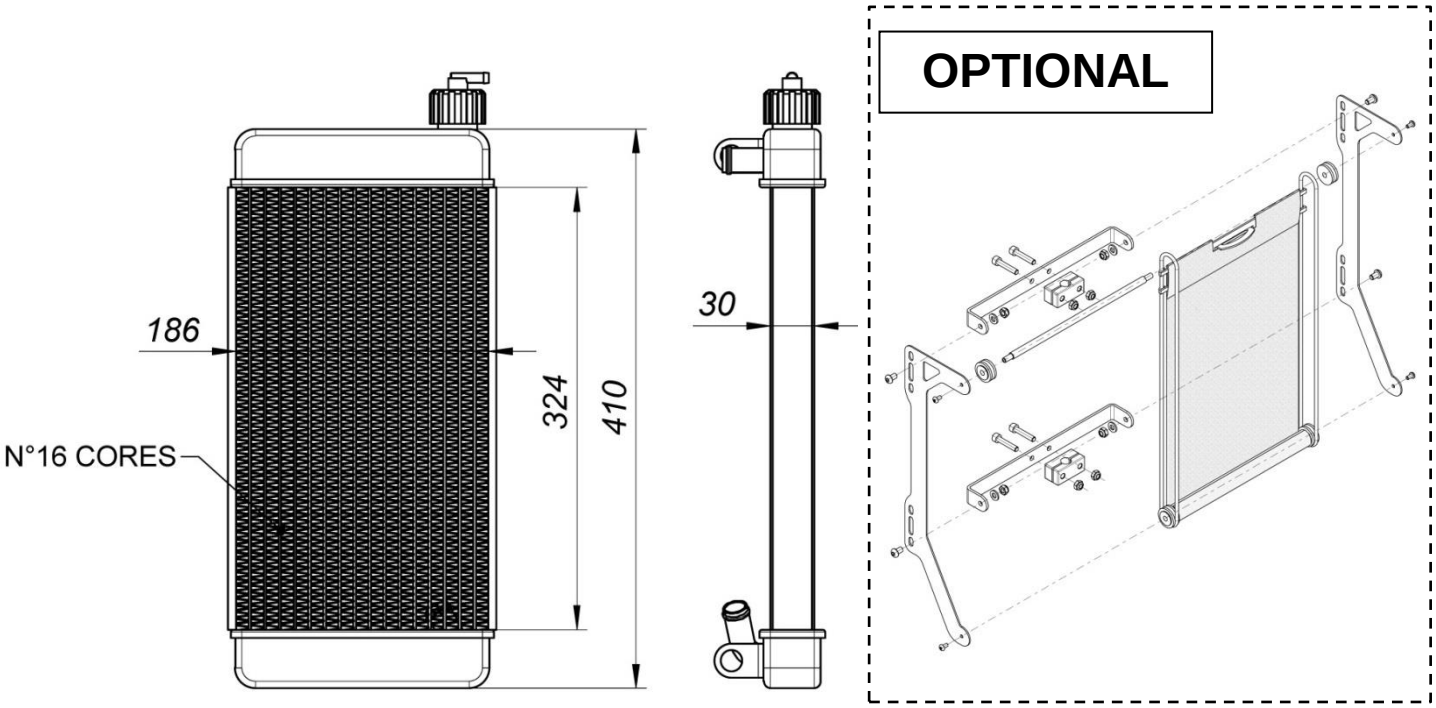


ALTERNATIVE WIRING LOOM

ALTERNATIVE WIRING LOOM DIAGRAM

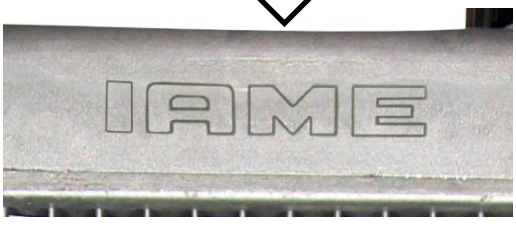


RADIATOR DRAWING AND DIMENSIONS – TYPE 1



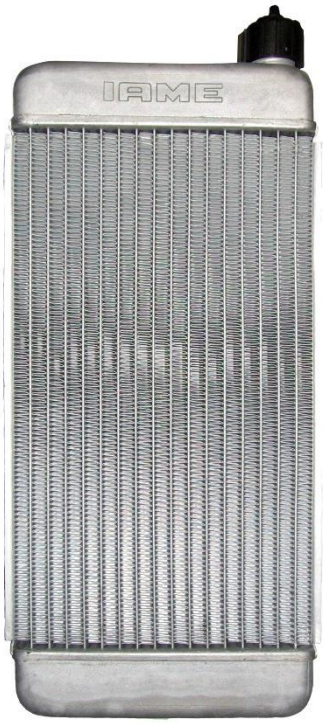
RADIATOR – TYPE 1

PUNCHED MARKING



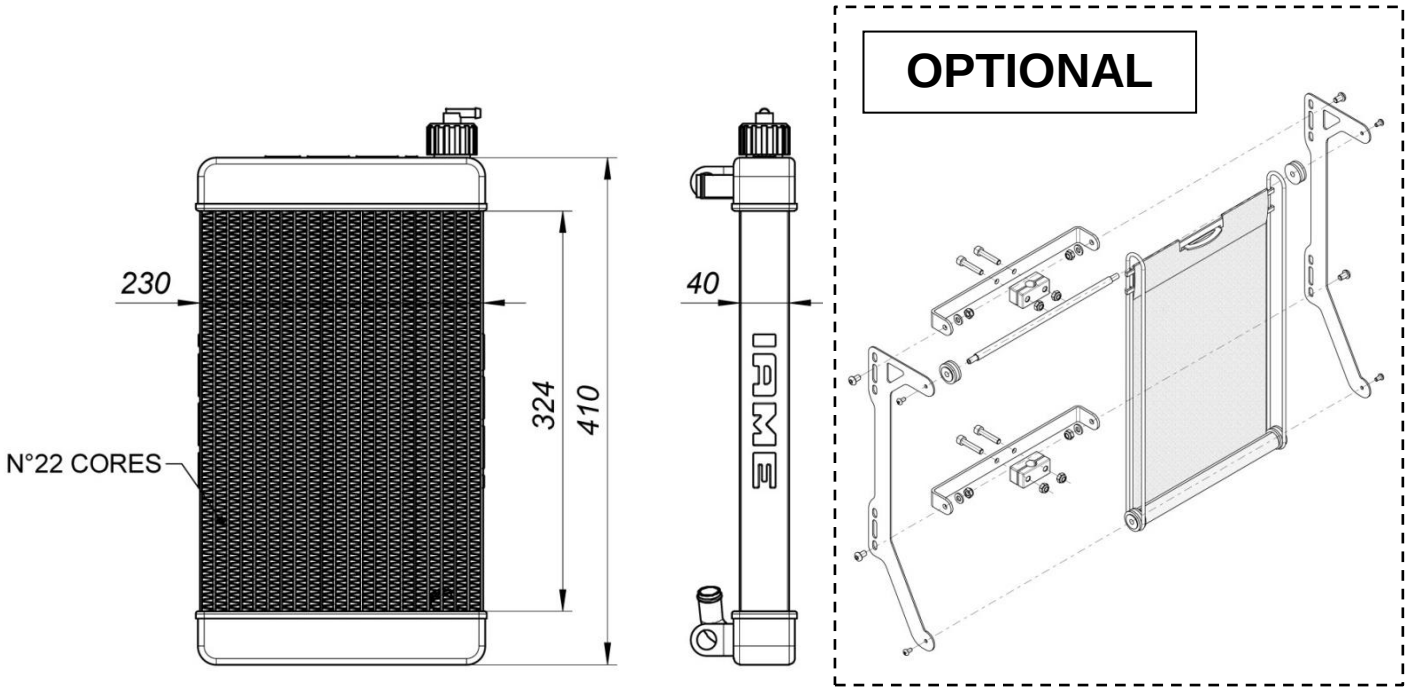
NEW LOGO

FRONT

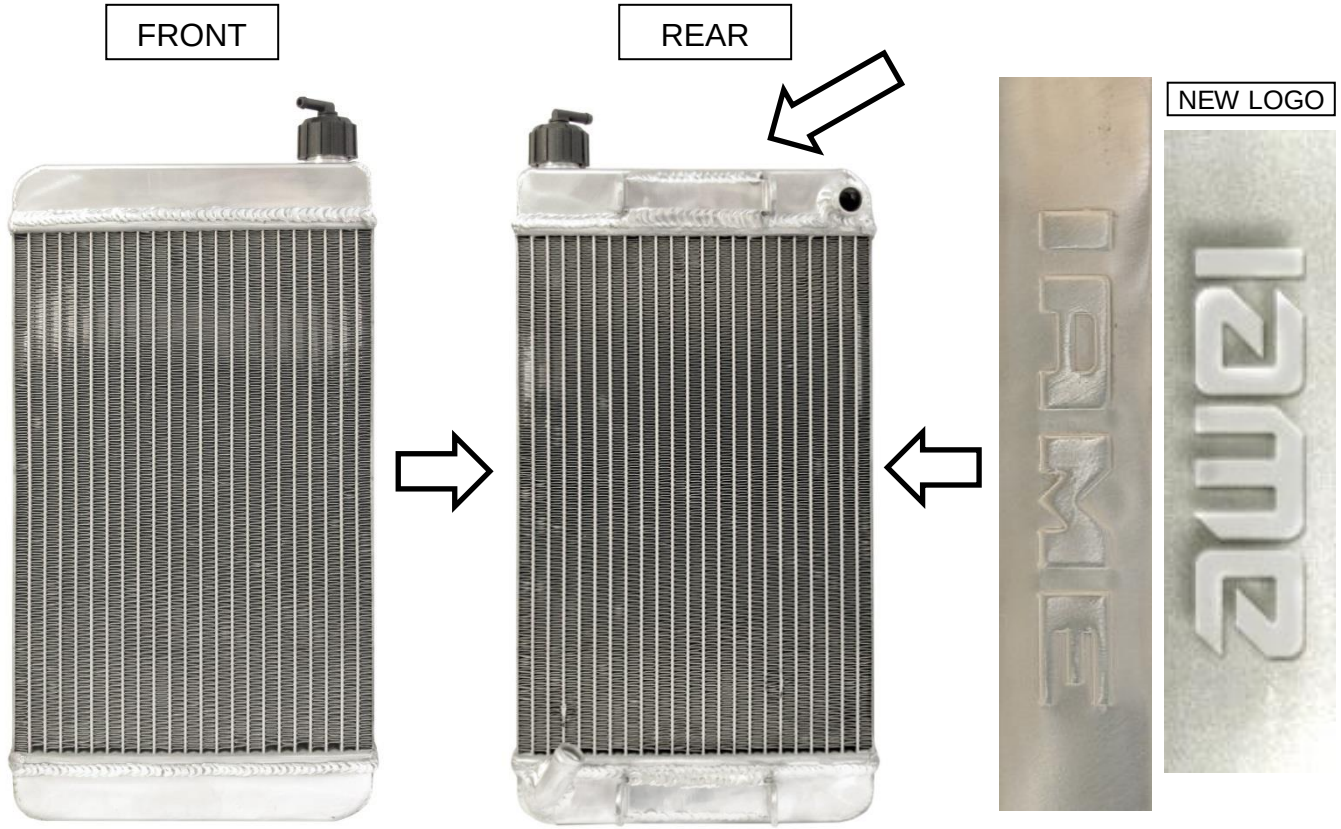


REAR

RADIATOR DRAWING AND DIMENSIONS – TYPE 2



RADIATOR – TYPE 2



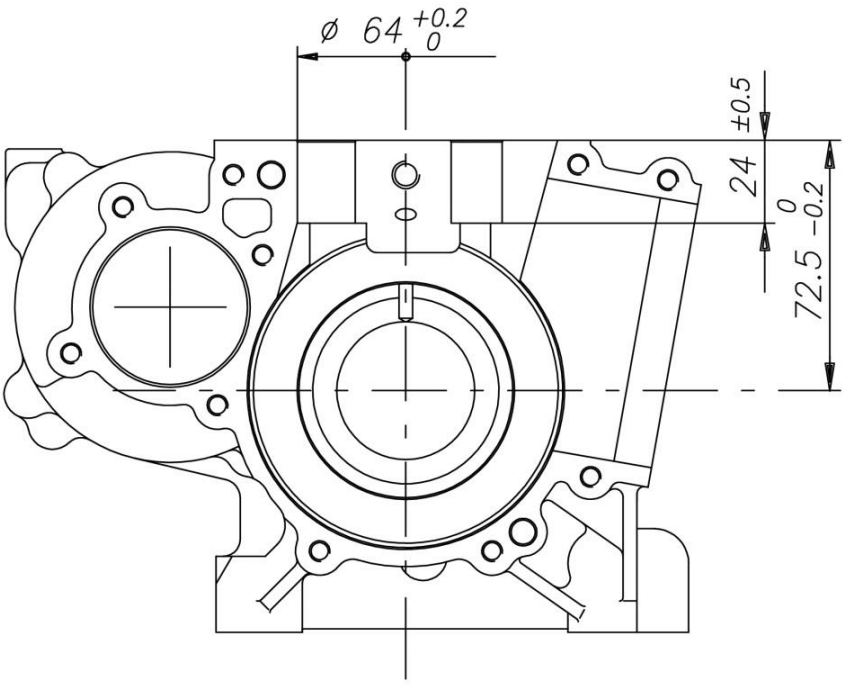
Homologation N °

00X / XX

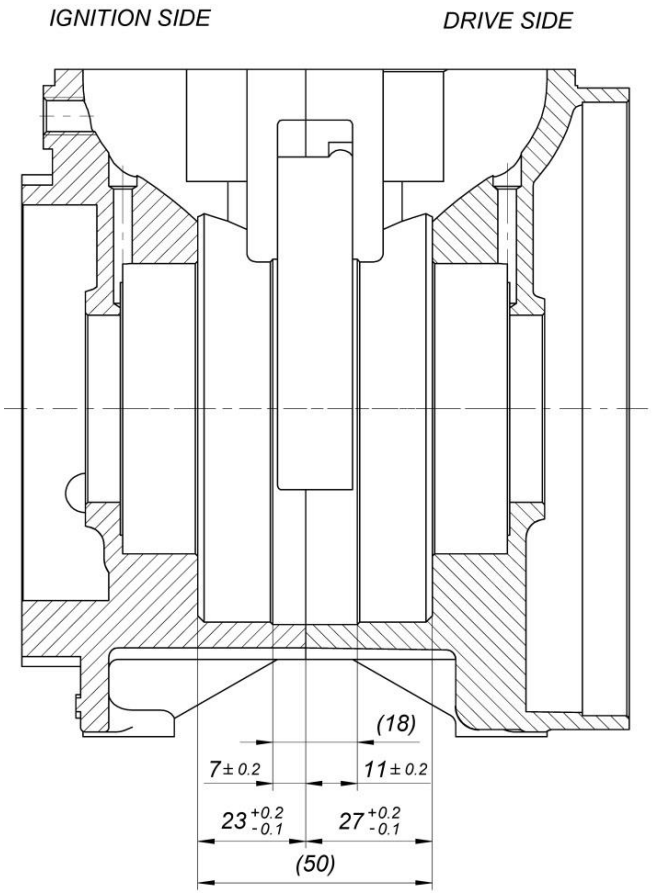
ADDITIONAL INFORMATION, DRAWING AND PHOTO IDENTIFICATION

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

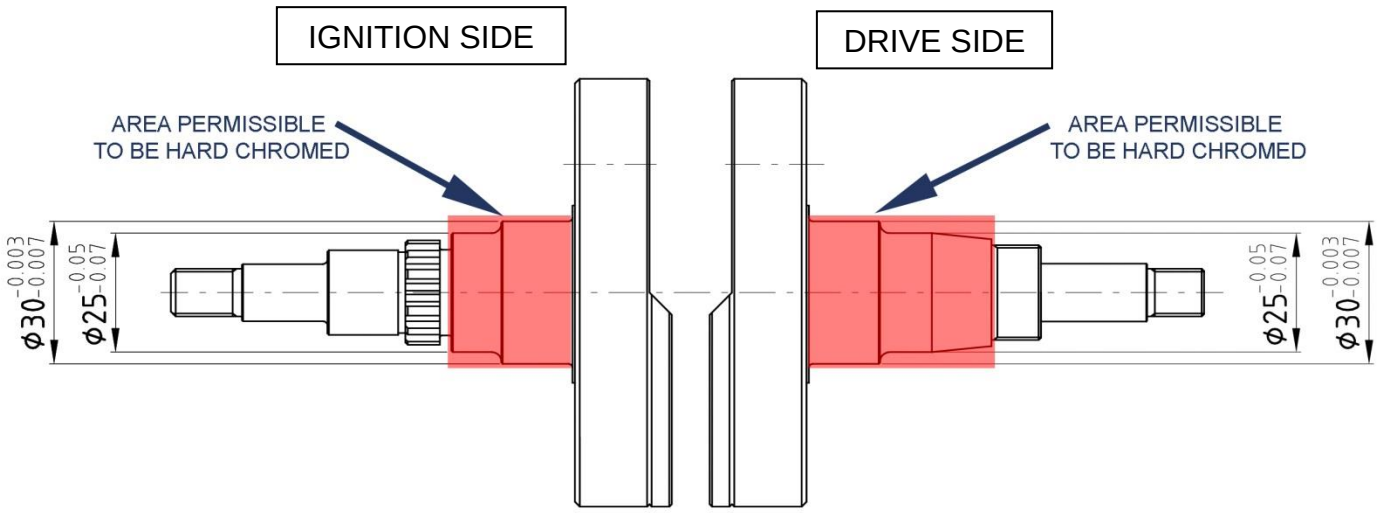
CRANKCASE INSIDE VIEW



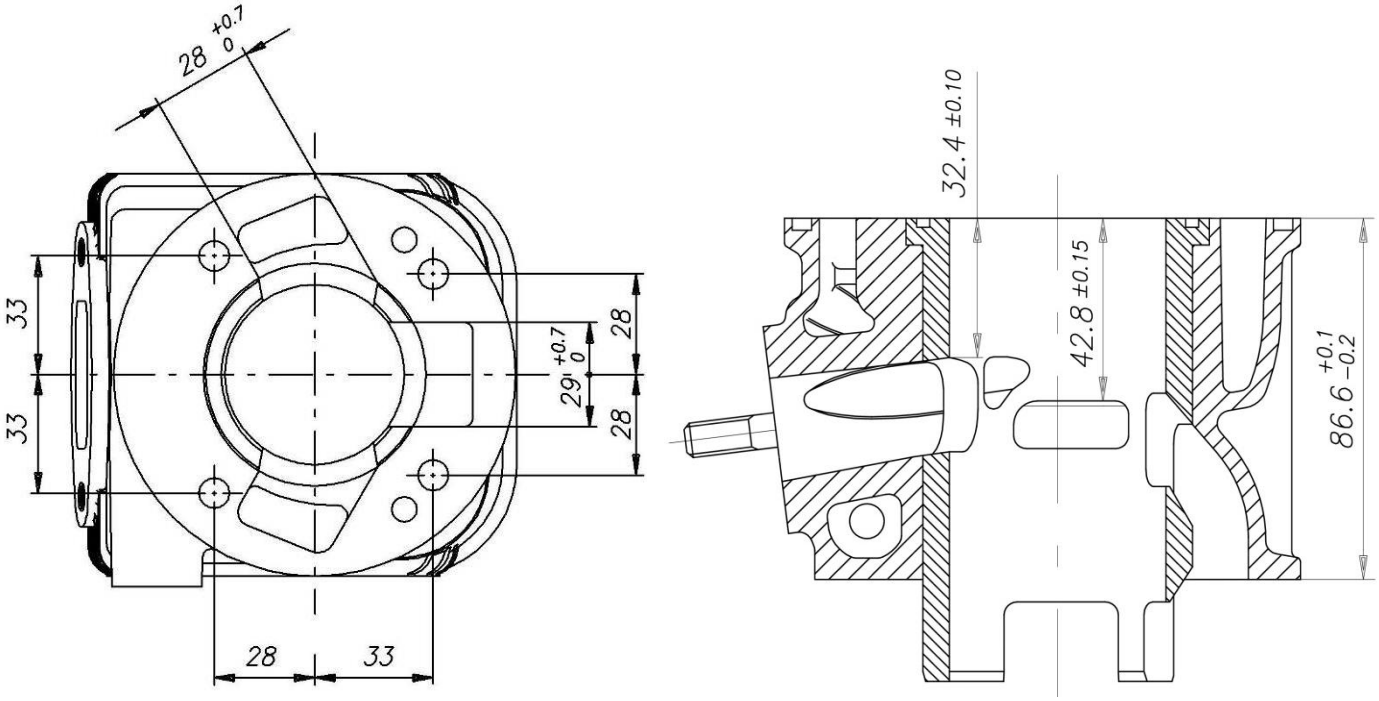
CRANKCASE ASSEMBLY DIMENSIONS



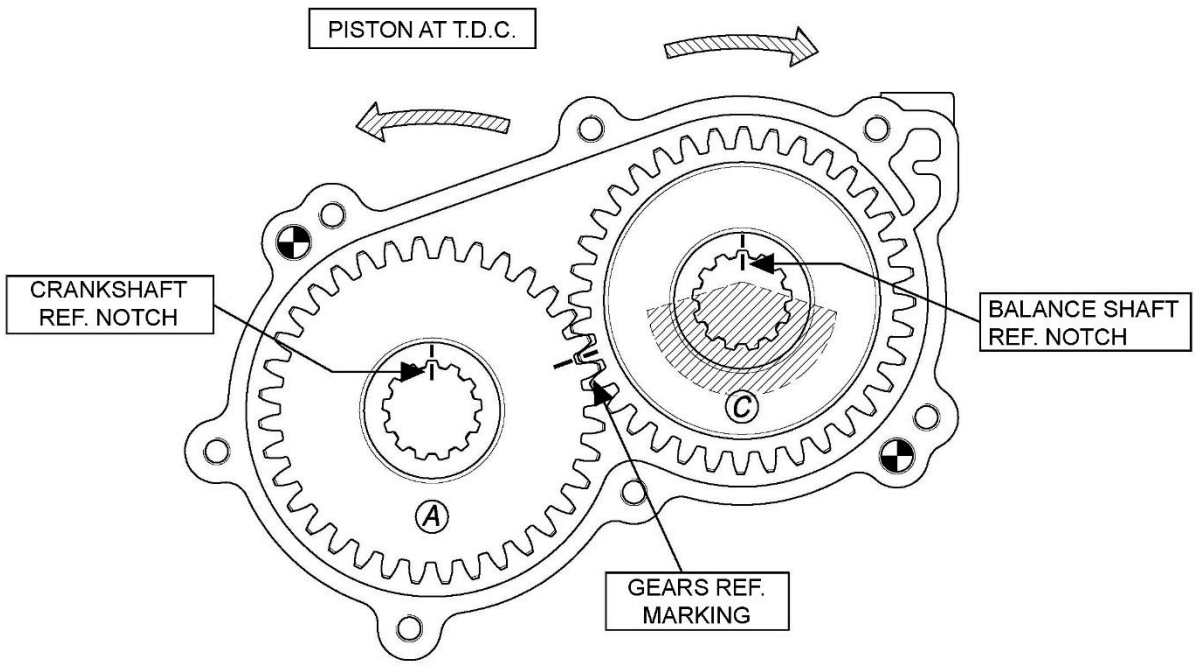
CRANKSHAFT REPAIR BY HARD CHROMED



CYLINDER BASE HOLES AND CROSS SECTION (with dimensions)

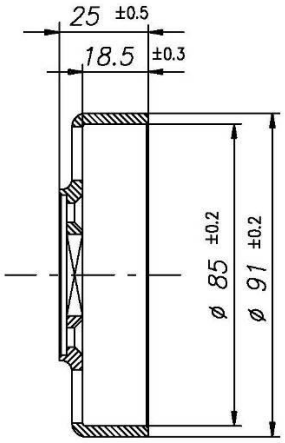


GEARS TIMING COMMAND BALANCING SHAFT



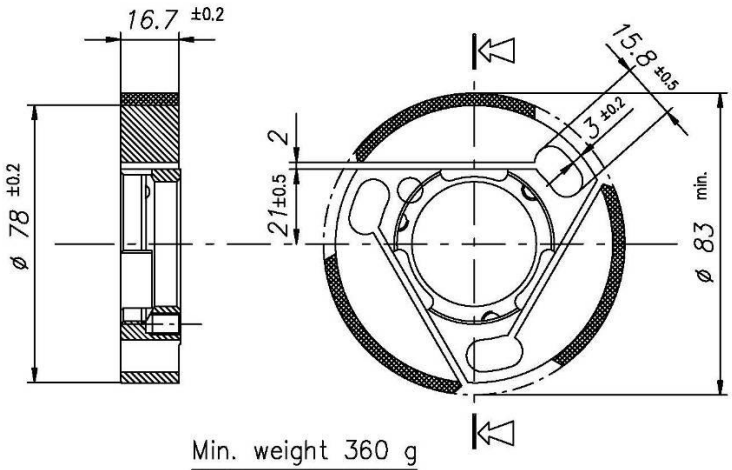
CLUTCH GROUP DRAWING AND ASSEMBLY – ALL TYPES

P.N. X30125550



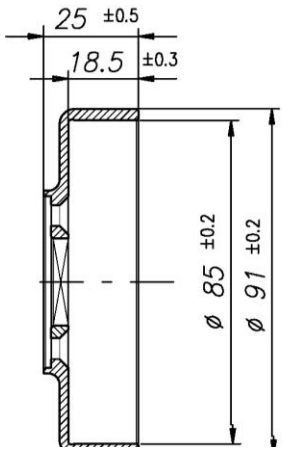
Min. weight 225 g

P.N. X30125840



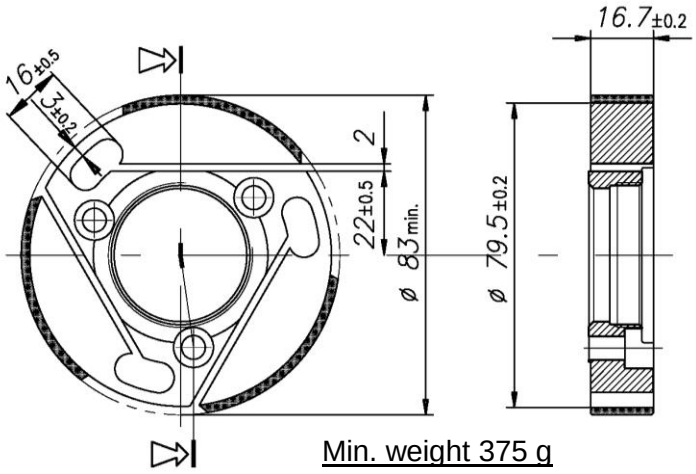
Min. weight 360 g

P.N. X30125550A



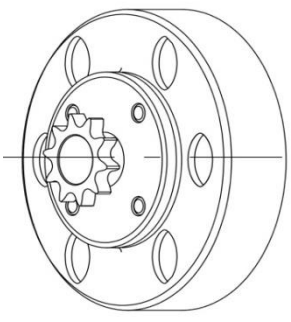
Min. weight 225 g

P.N. X30125841



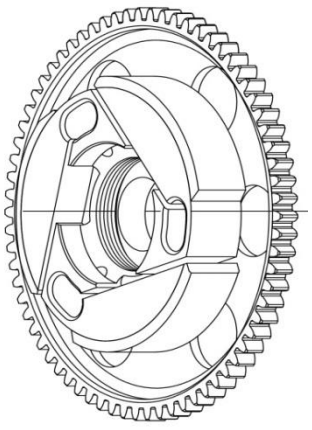
Min. weight 375 g

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



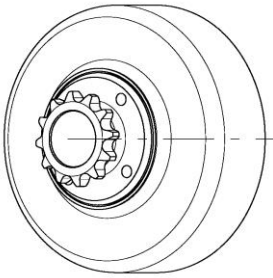
Min. weight 300 g

P.N. X30125840 & P.N. X30125830



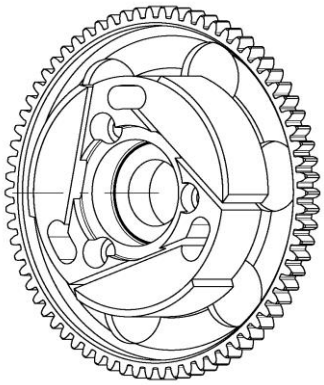
Min. weight 650 g

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



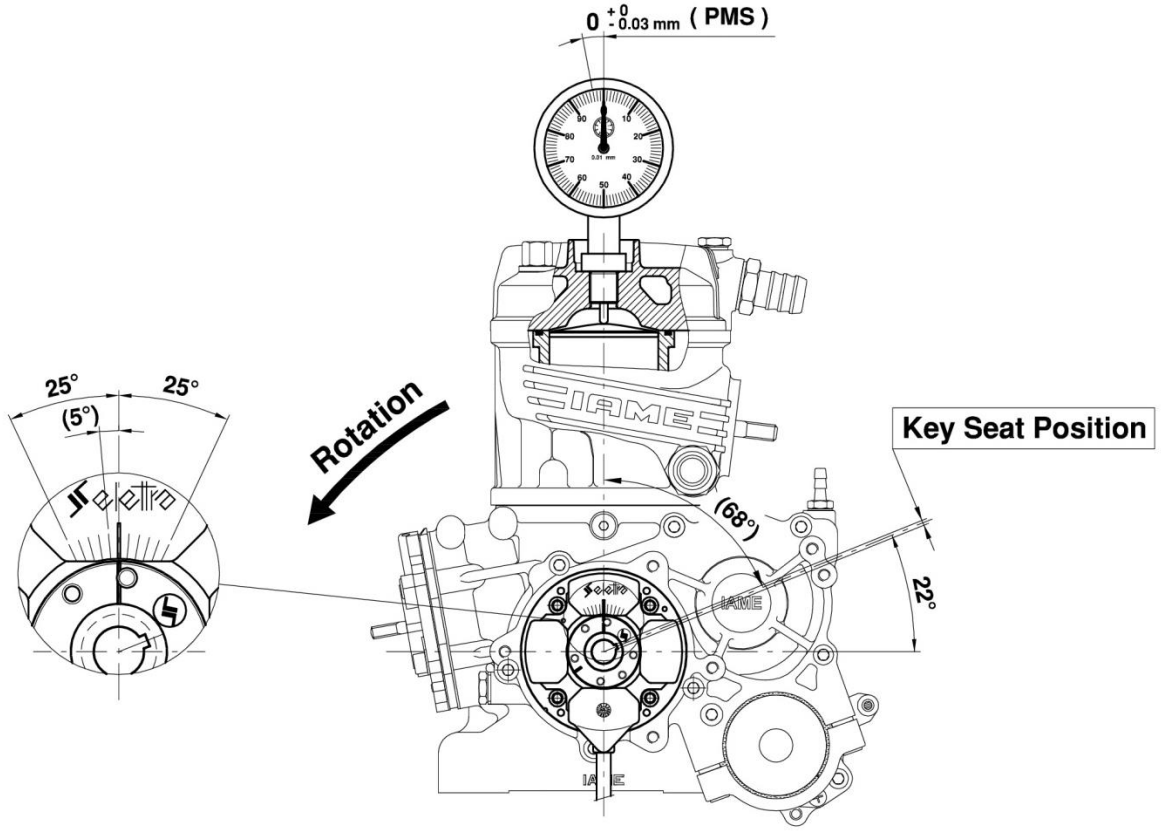
Min. weight 300 g

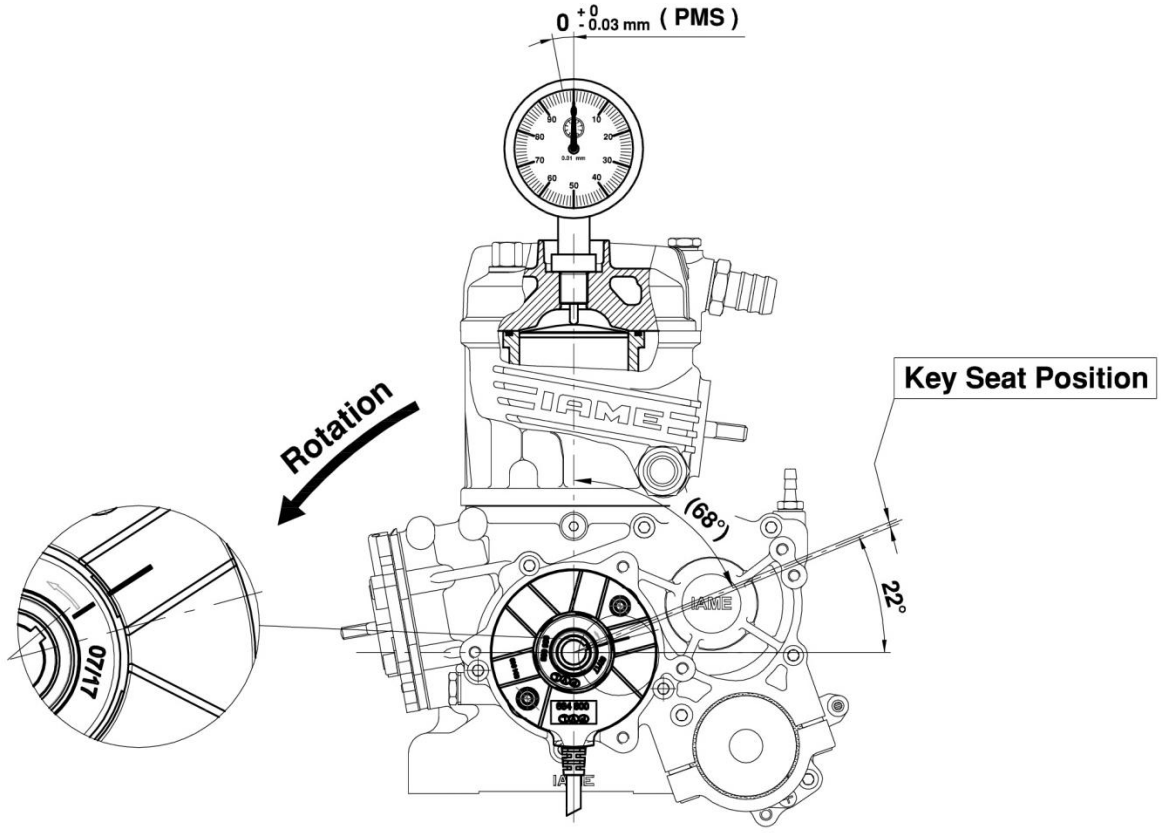
P.N. X30125841 & P.N. X30125831



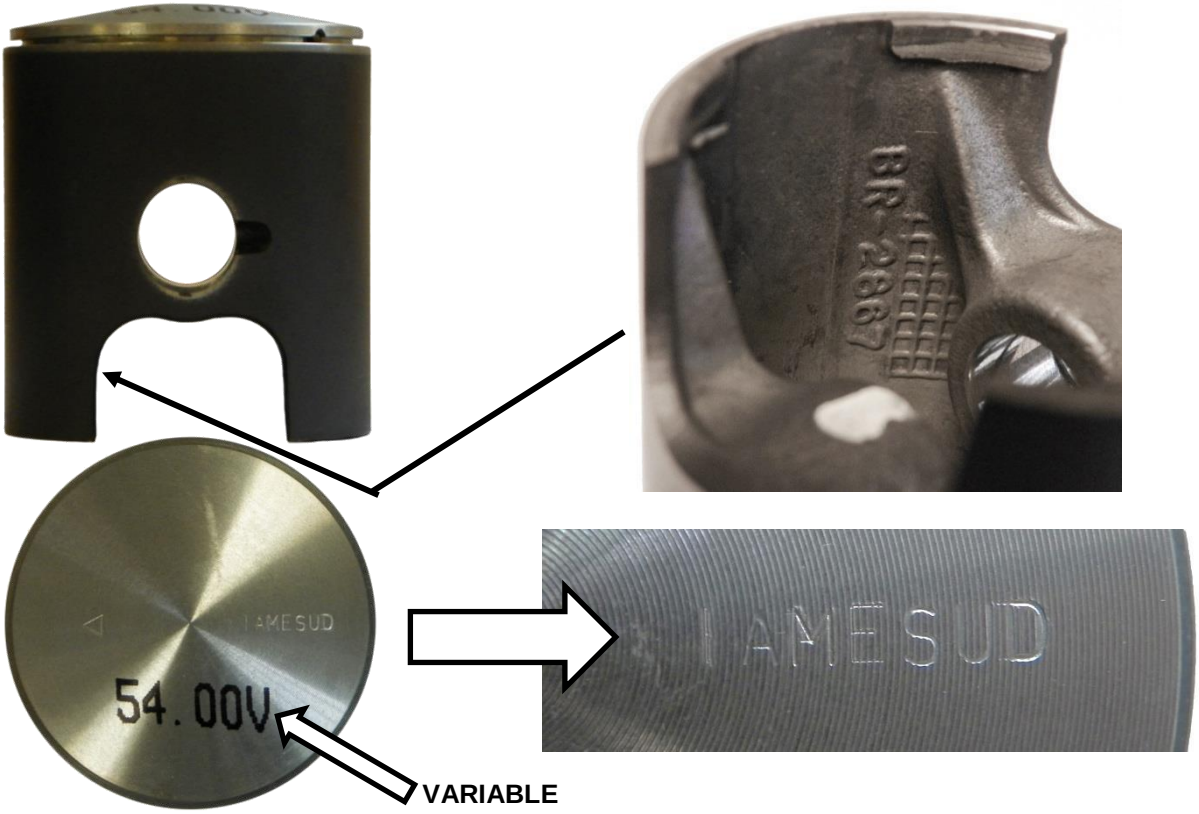
Min. weight 680 g

SCHEME FOR ADVANCE CONTROL

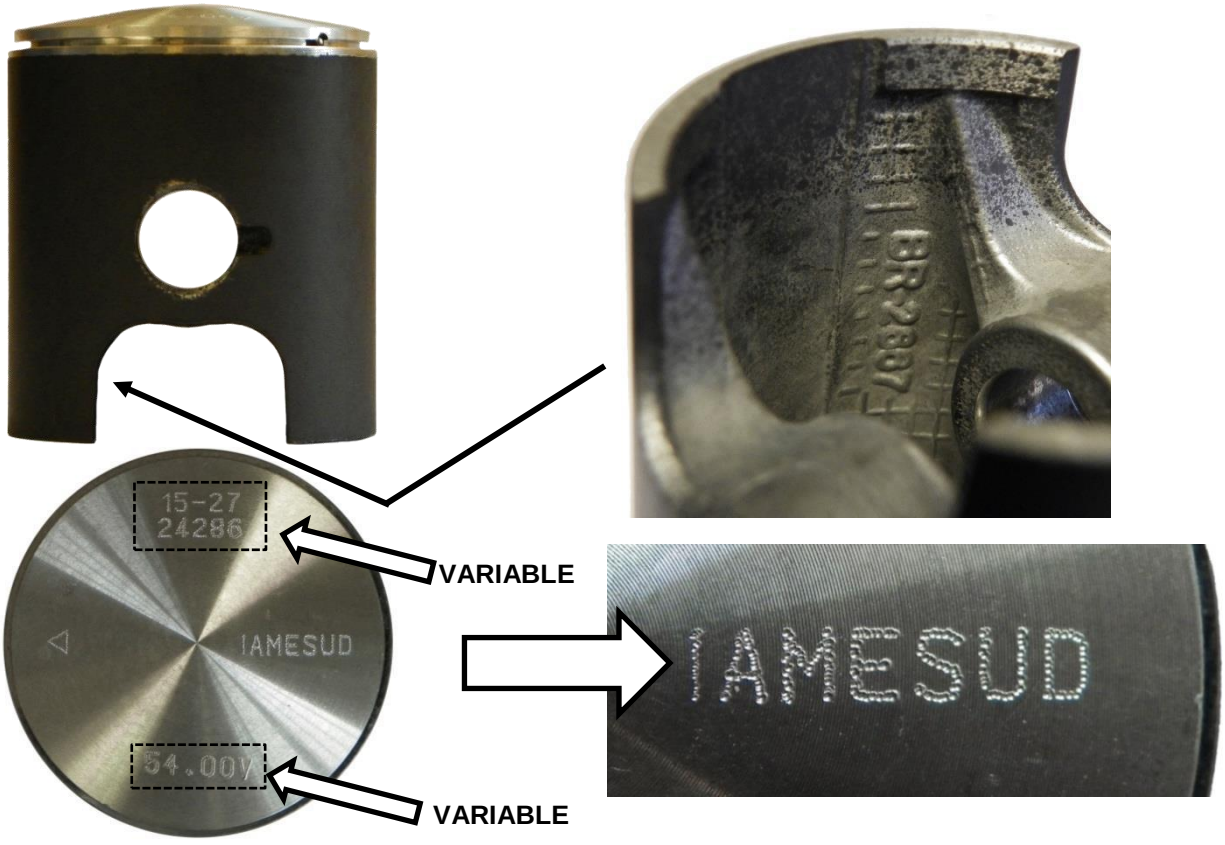




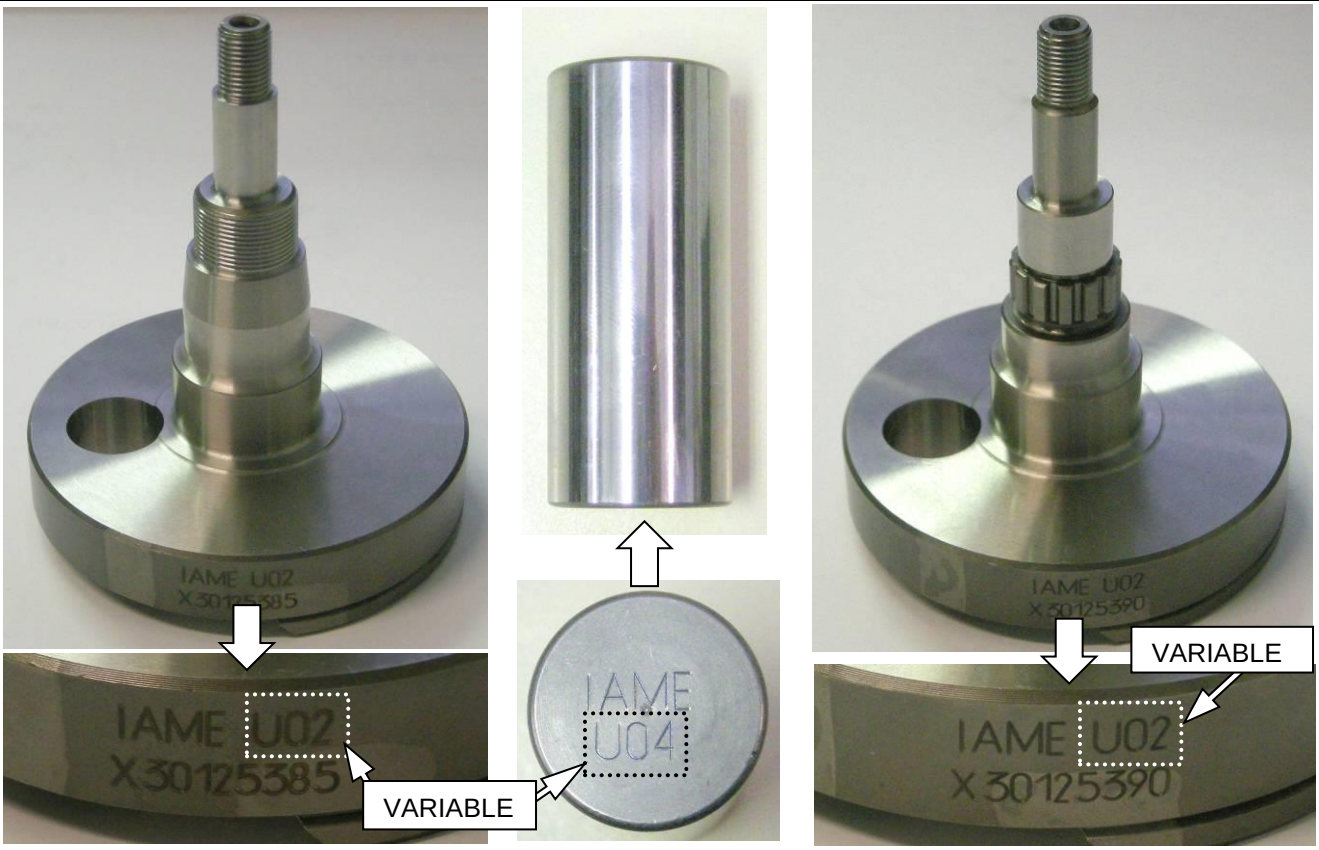
PISTON IDENTIFICATION MARKING



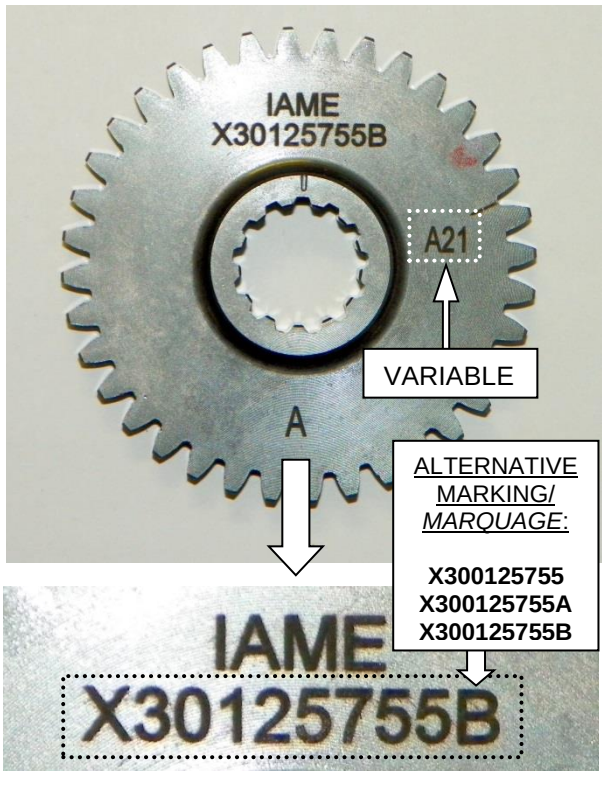
ALTERNATIVE



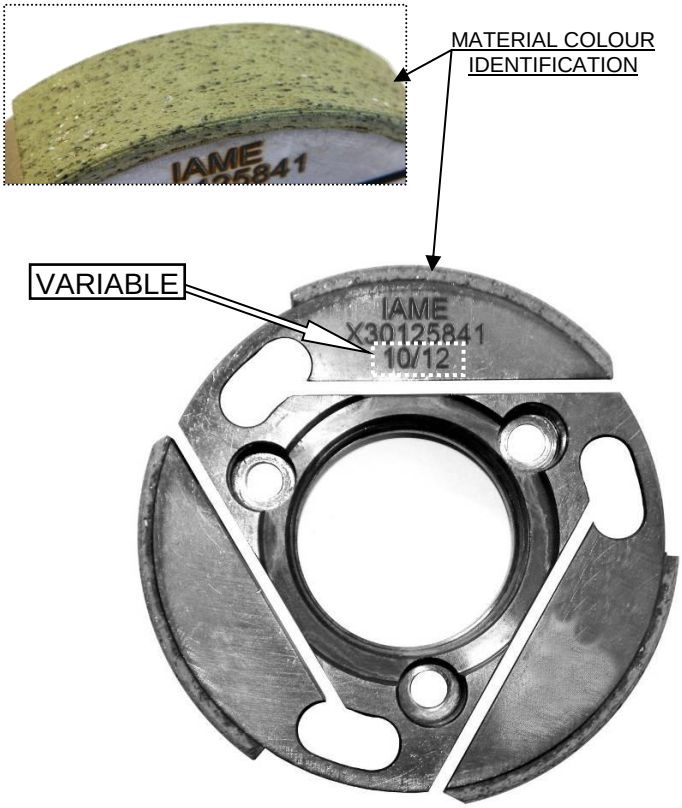
CRANKSHAFT IDENTIFICATION MARKING



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

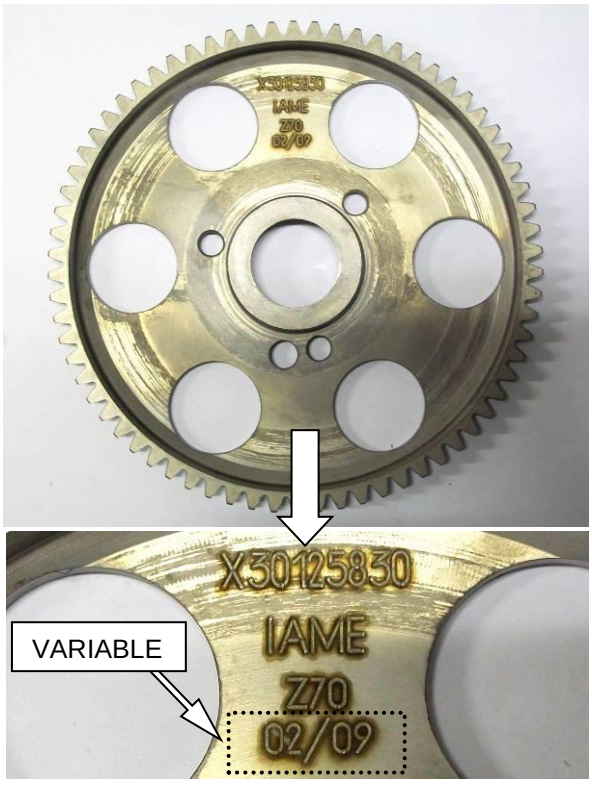
NEW LOGO

VARIABLE IN COLOUR

SPROCKET IDENTIFICATION MARKING

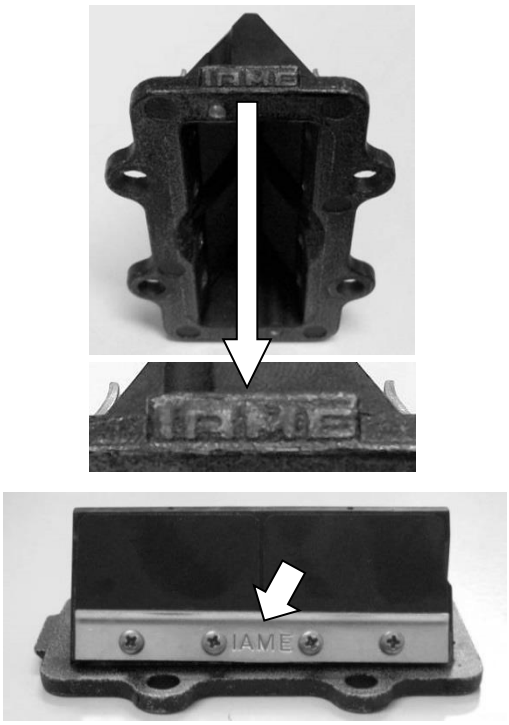
NEW LOGO

STARTER RING IDENTIFICATION MARKING
- TYPE 1 -

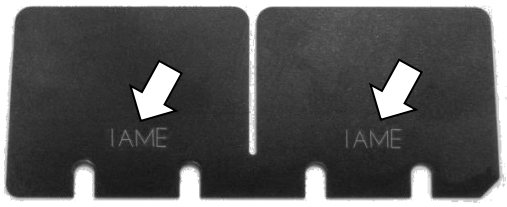


STARTER RING IDENTIFICATION MARKING
- TYPE 2 -

REED GROUP & PETALS IDENTIFICATION PHOTO

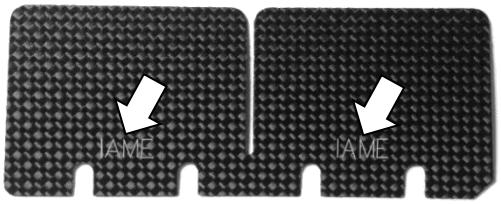


VETRONITE WITH “IAME” MARKING

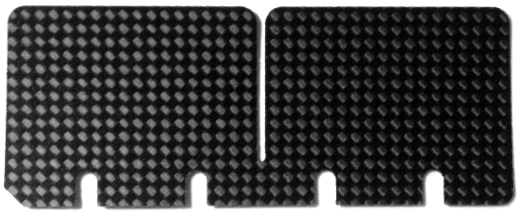


CARBON FIBRE WITH “IAME” MARKING

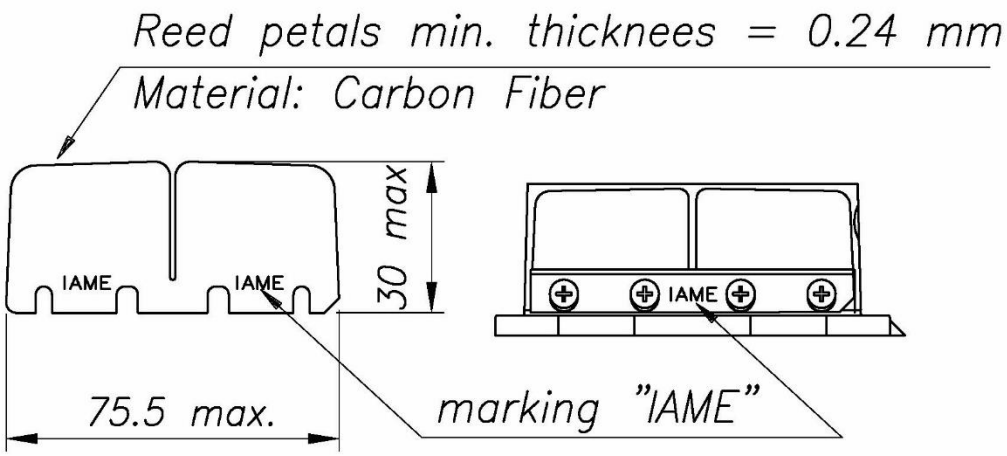
FRONT SIDE



REAR SIDE



ALTERNATIVE REED PETALS MATERIAL

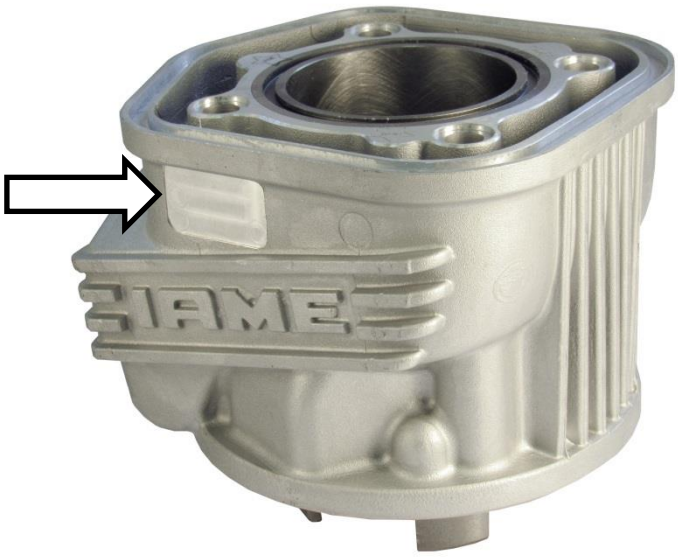


BENDIX COVER IDENTIFICATION MARKING

ALTERNATIVE

VARIABLE IN COLOUR

STICKER APPLICATION AREA



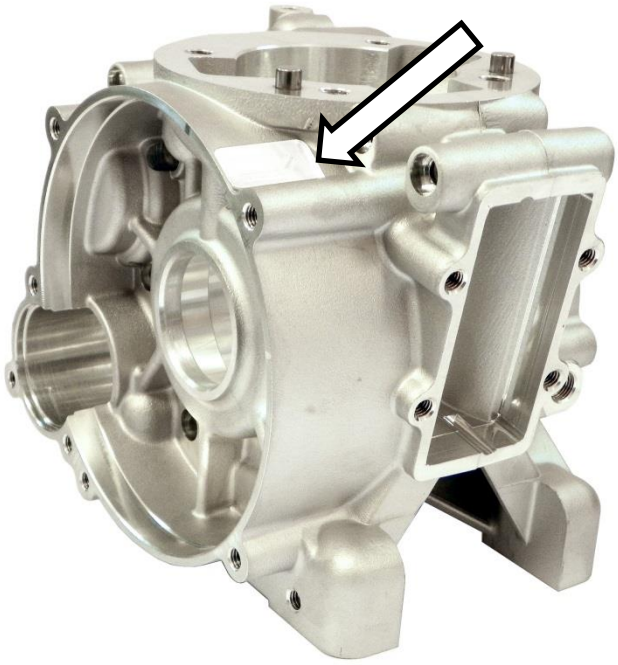
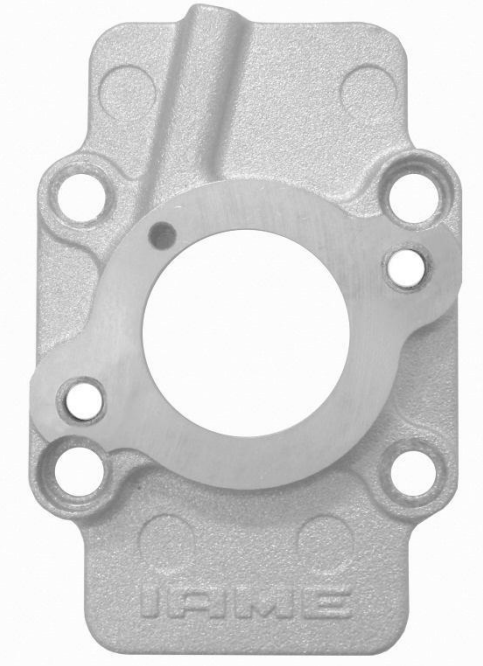
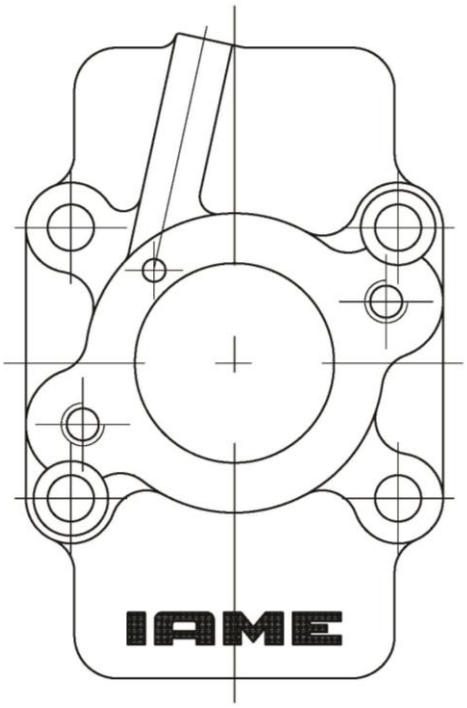


PHOTO IDENTIFICATION CARBURETTOR INLET CONVEYOR

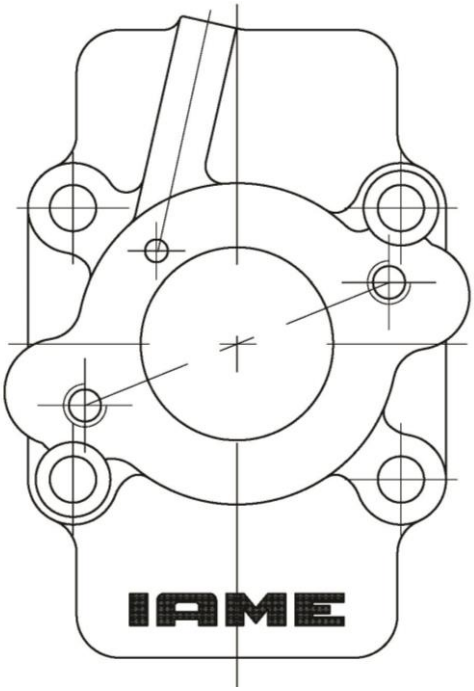
Old version - while stocks last



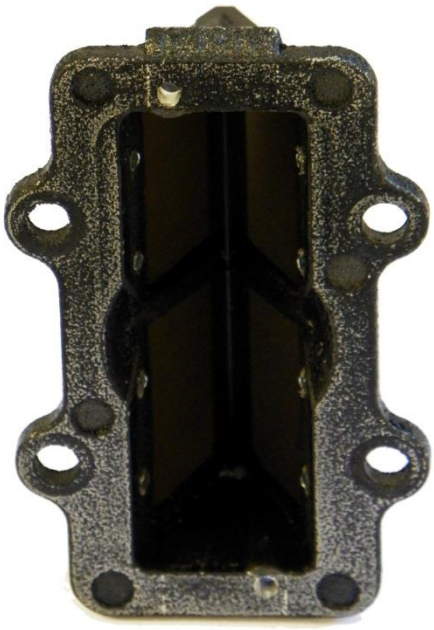
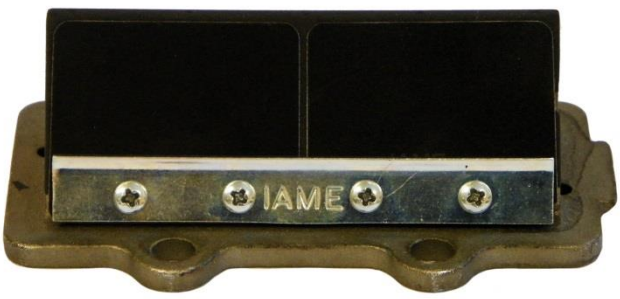


IN ALTERNATIVE

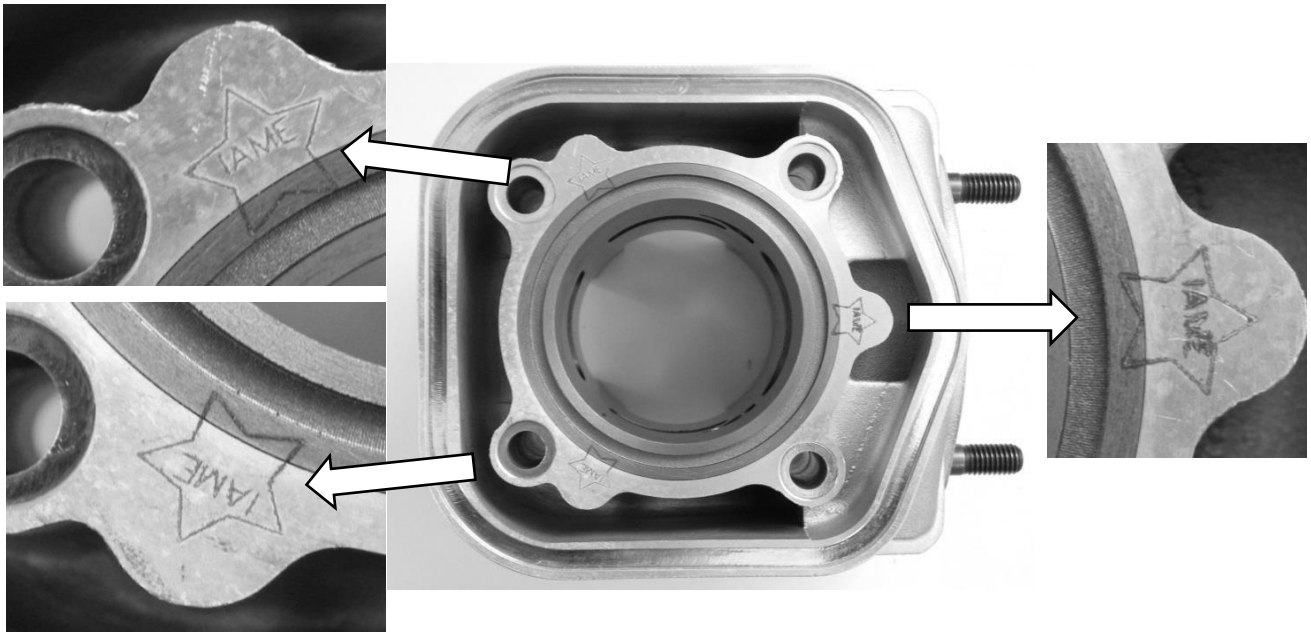
New version

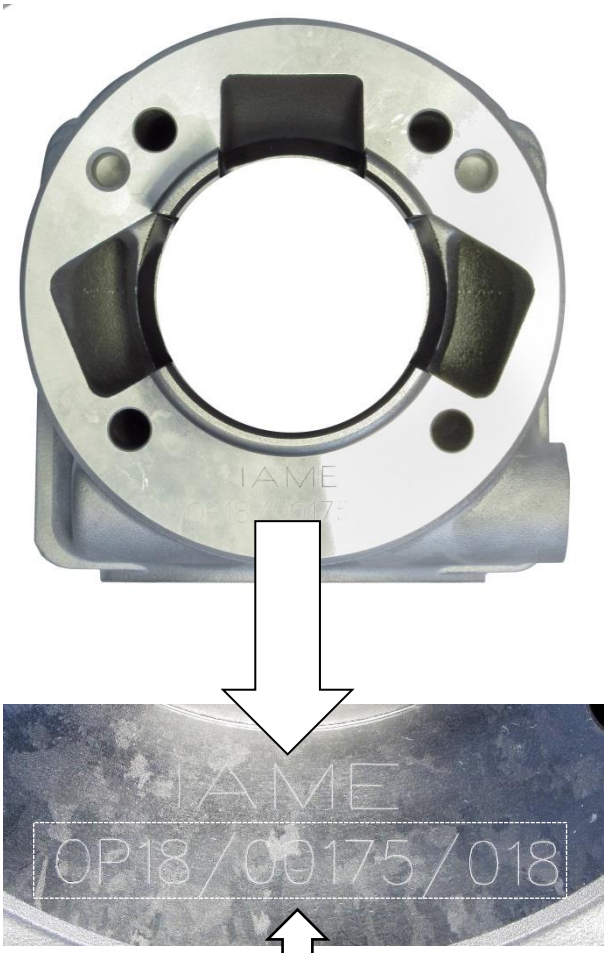


NEW LOGO

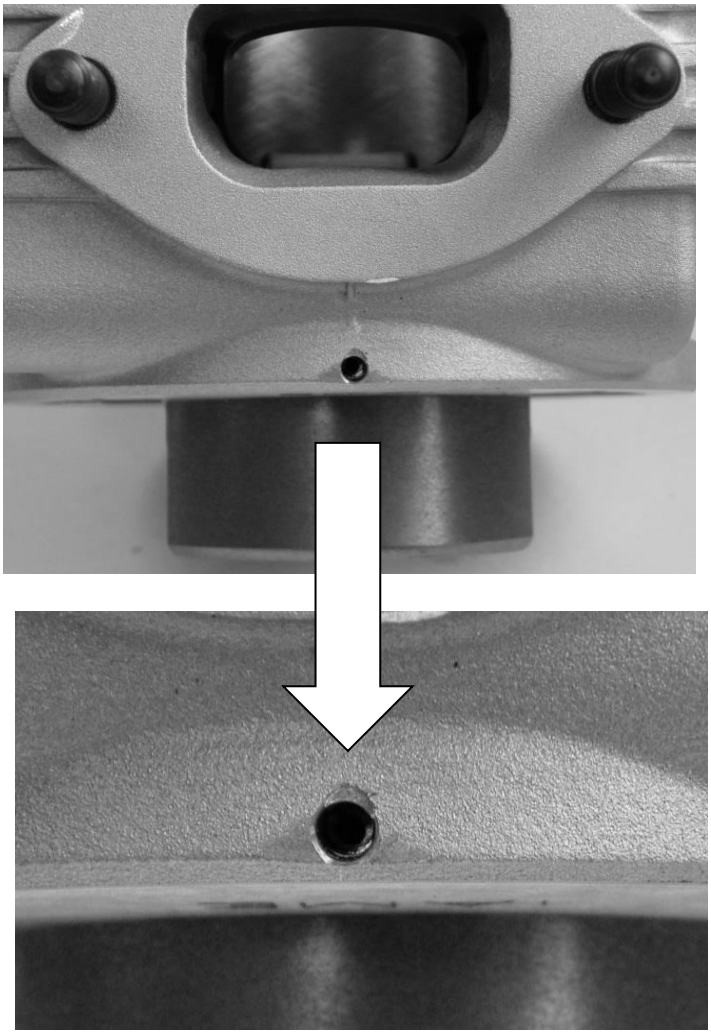
PHOTO IDENTIFICATION REED GROUP	
CURRENT VERSION	*ALTERNATIVE VERSION*
  	NEW LOGO    

CYLINDER IDENTIFICATION MARKING (since 2014)





VARIABLE



Homologation N °

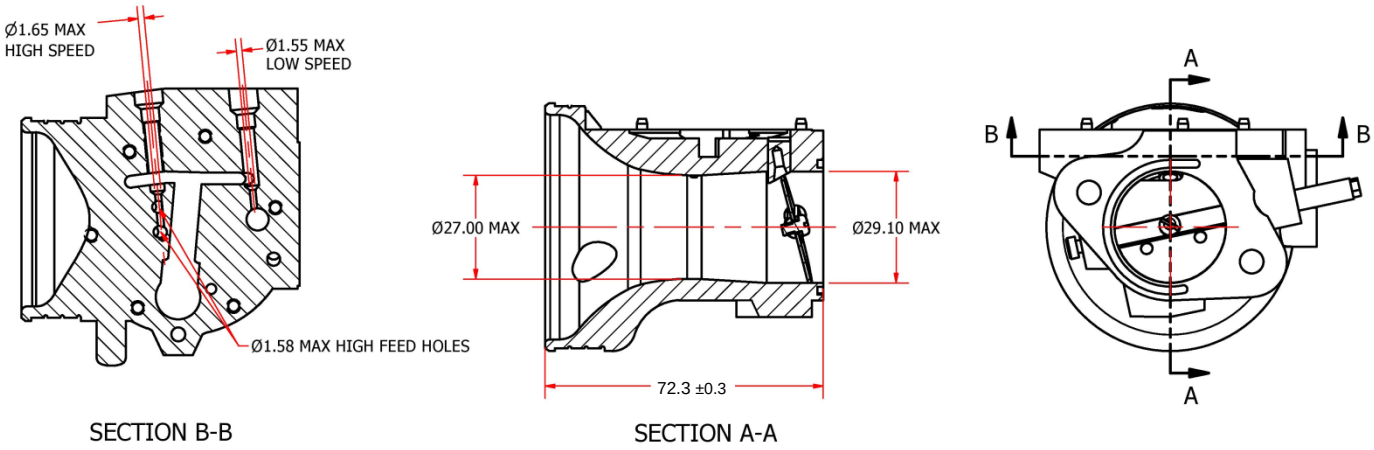
00X / XX

CARBURETTOR - Tillotson HW-27A

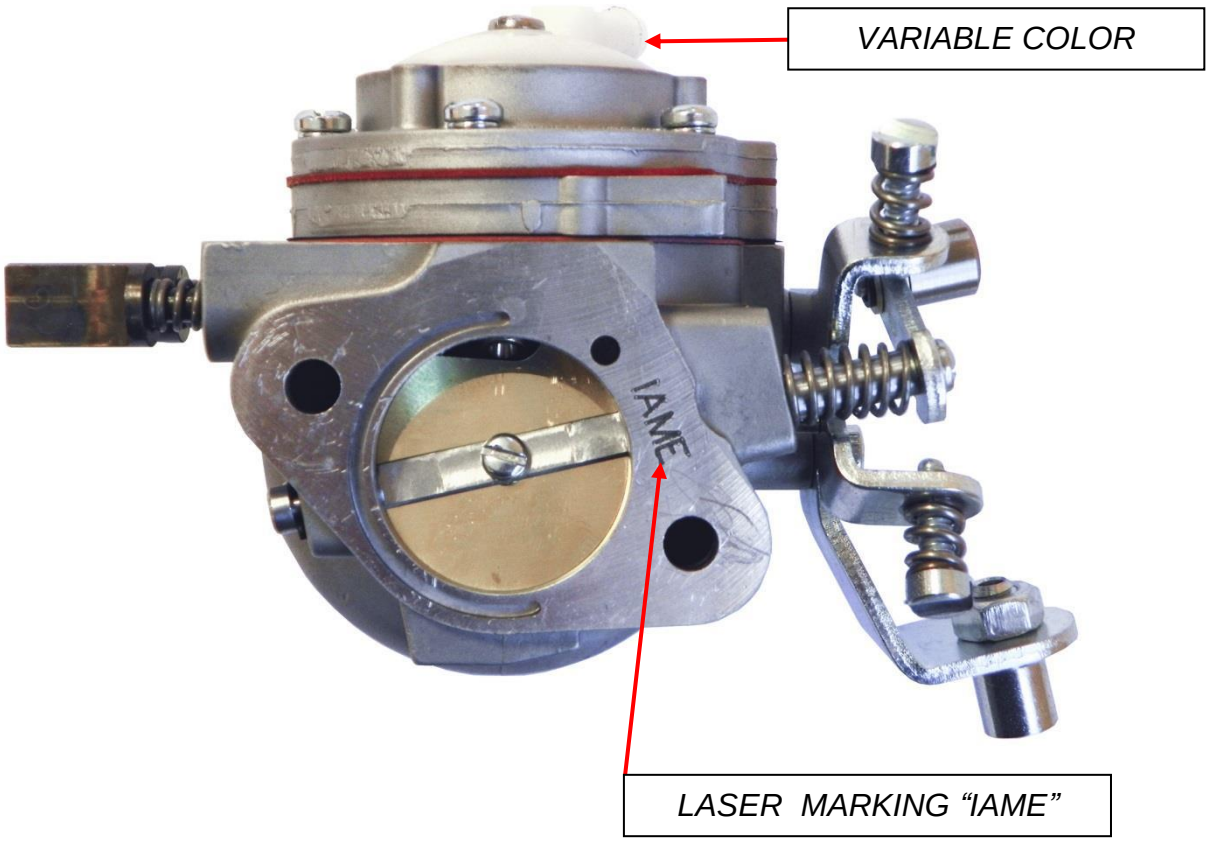
	
PHOTO OF ADJUSTING SIDE	*PHOTO OF INLET SIDE*

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

SECTION VIEW



MARKING

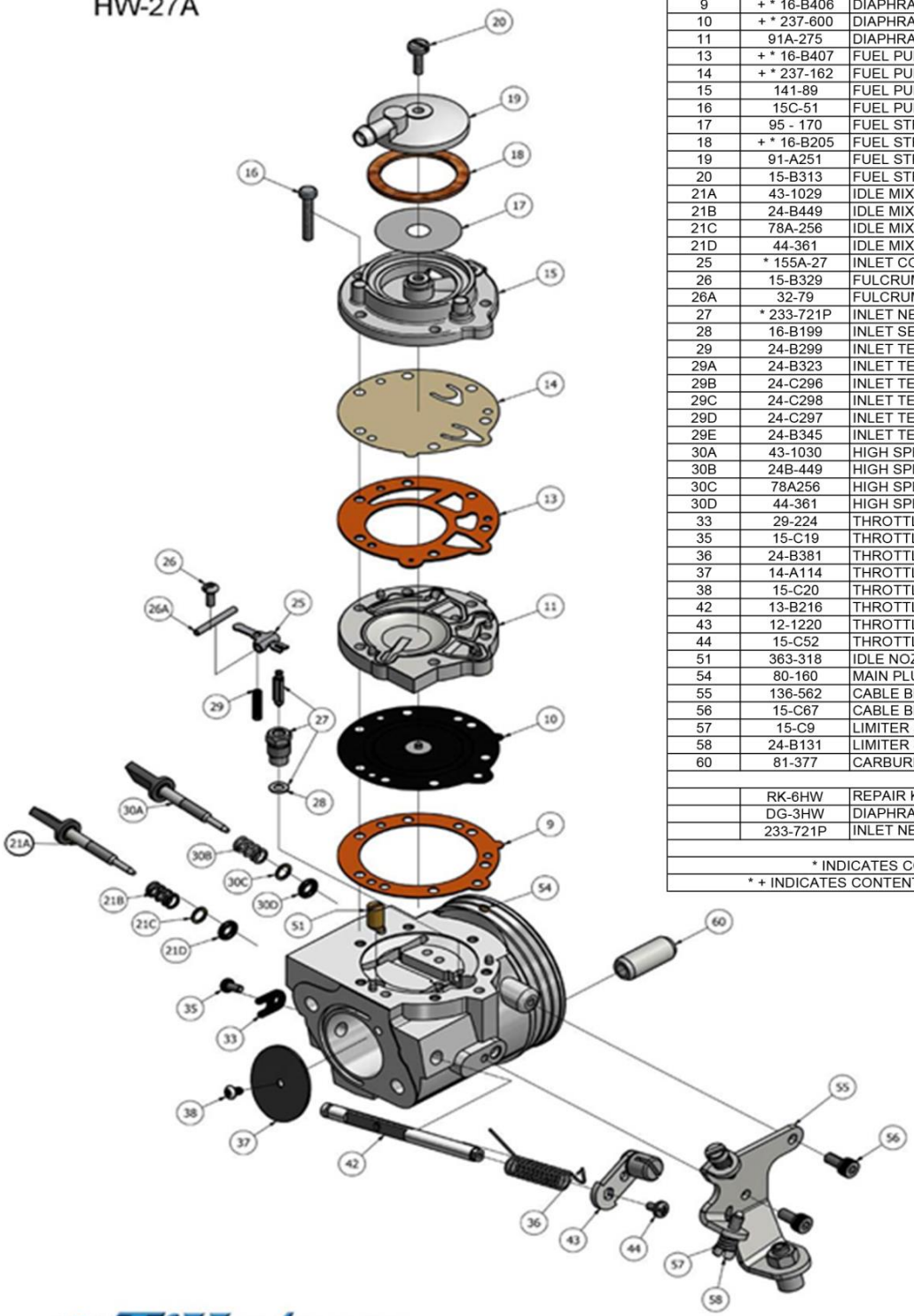


Homologation N °

00X / XX

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

PARTS OF CARBURETTOR

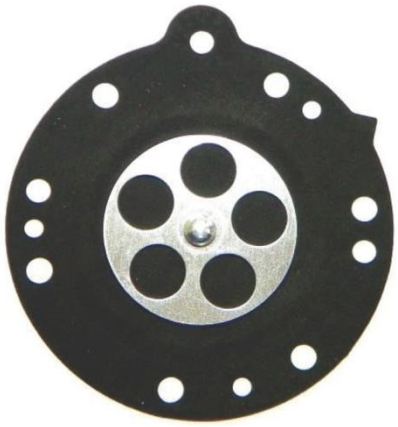
REF.9 - P. N°16-B406
DIAPHRAGM GASKET (ORANGE COLOR)

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

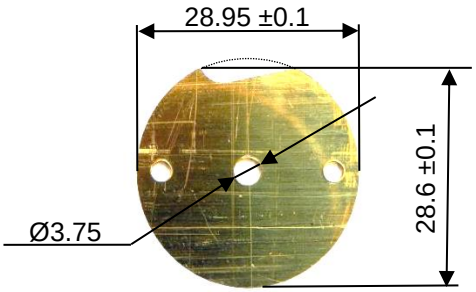
REF.11 - P. N° 91-A275
DIAPHRAGM COVER

Thickness = 6.75 ±0.15 mm

REF.15 - P. N° 141-89
PUMP COVER

Thickness = 12.5 ±0.15 mm

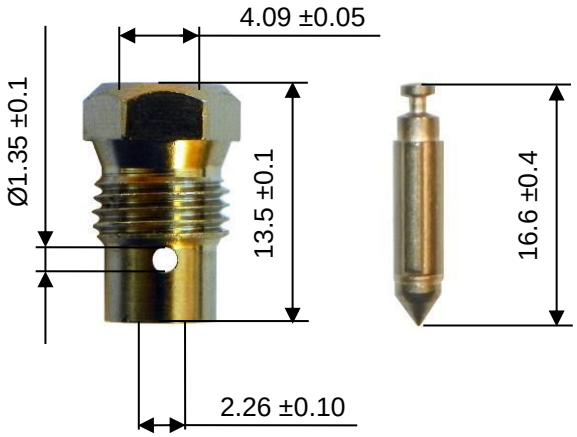
REF.37 - P. N° 14-A114
THROTTLE SHUTTER



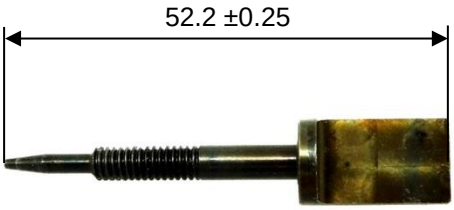
ALTERNATIVE SHAPE

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

REF.27 - P. N° 233-721P
NEEDLE

Homologation N °

00X / XX

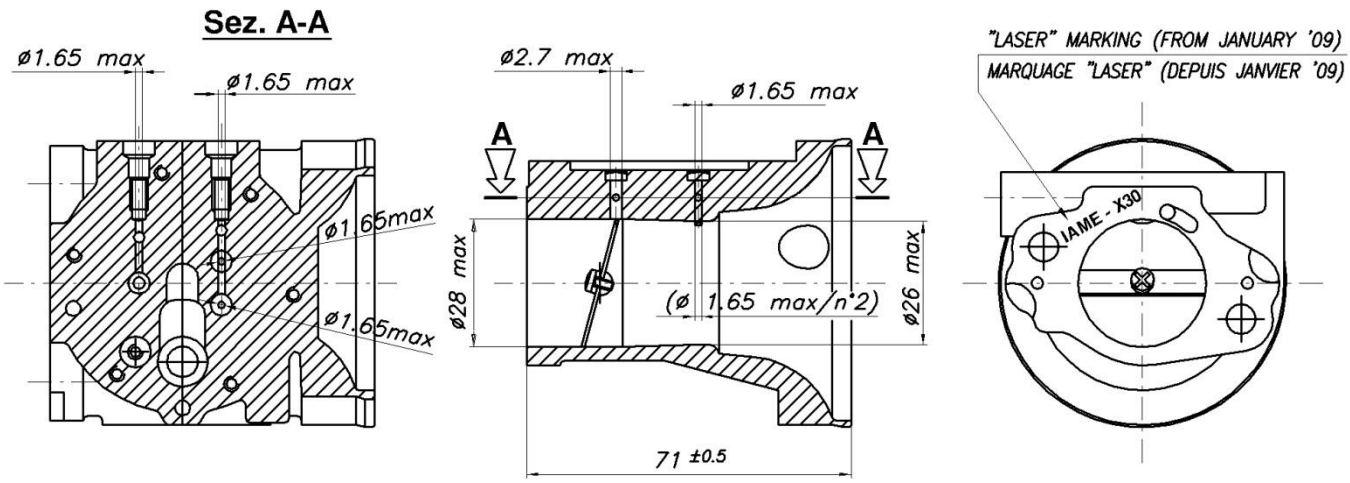
CARBURETTOR - TRYTON HB 27-C

PHOTO OF INLET SIDE

PHOTO OF ADJUSTING SIDE

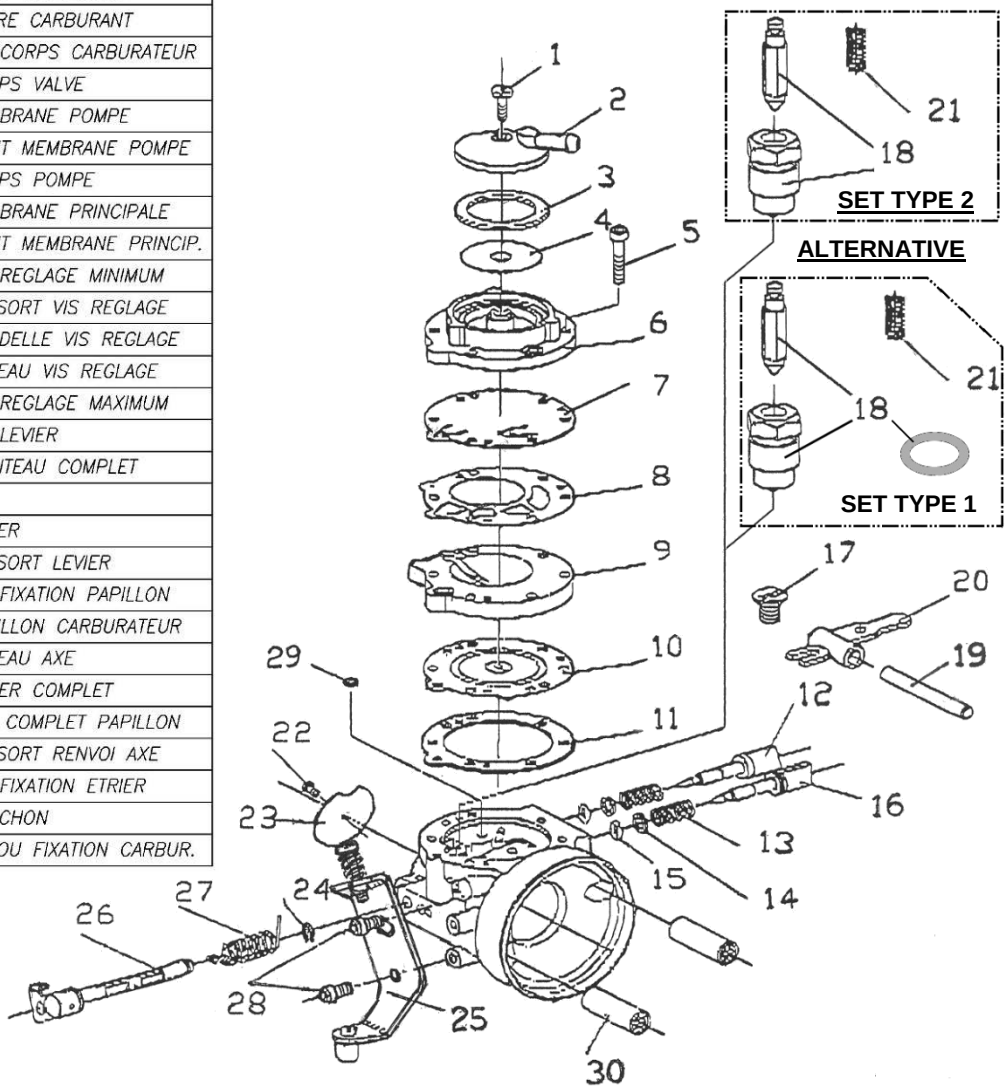
Manufacturer	**VA.MEC SRL**
Make	**TRYTON**
Model	**HB 27-C**

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.*



Homologation N °

00X / XX

SET TYPE 1	SET TYPE 2

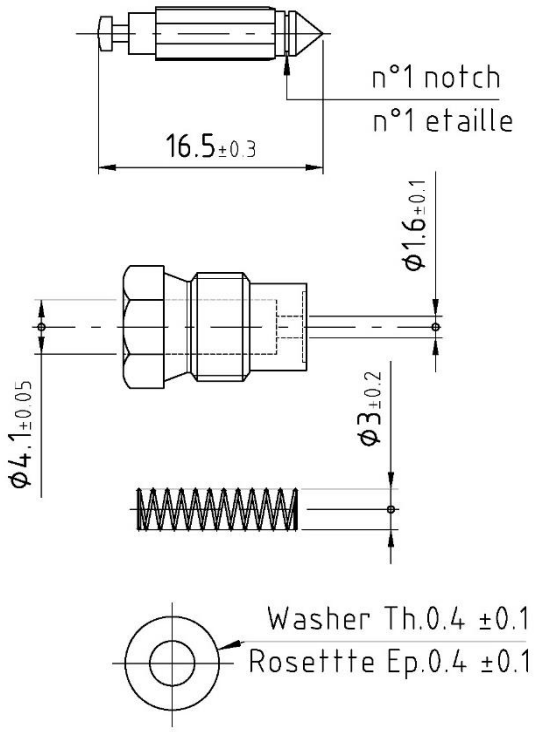
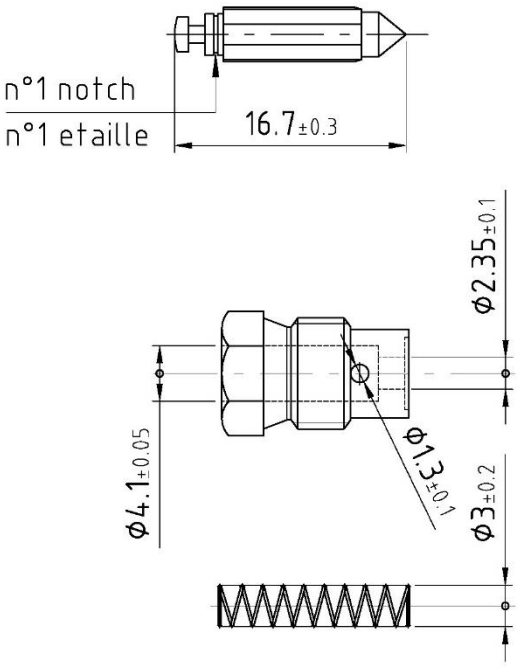
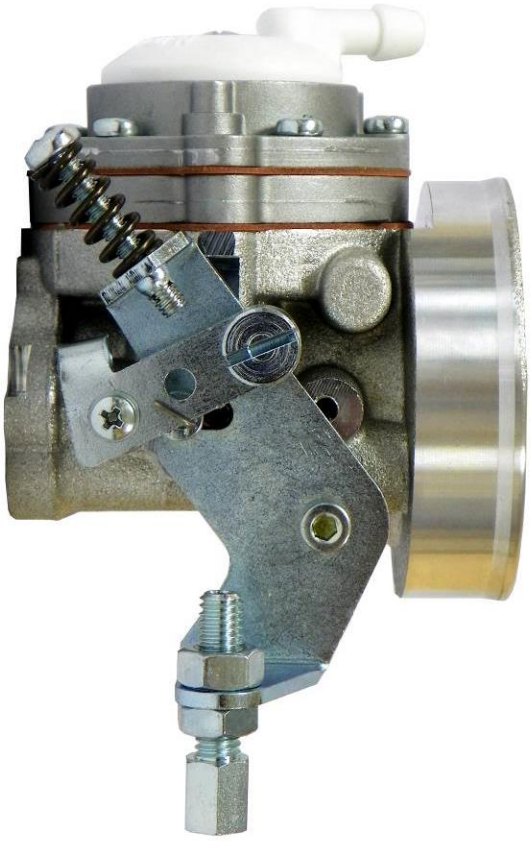

	

PHOTO IDENTIFICATION SET TYPE 1	PHOTO IDENTIFICATION SET TYPE 2
	

BRACKET CABLE & LIMITER



IN ALTERNATIVE