
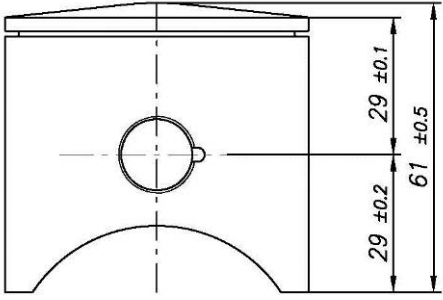
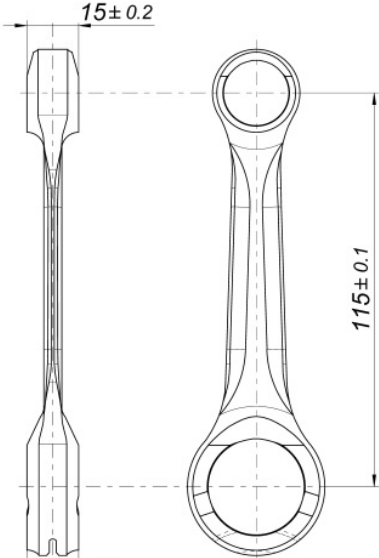
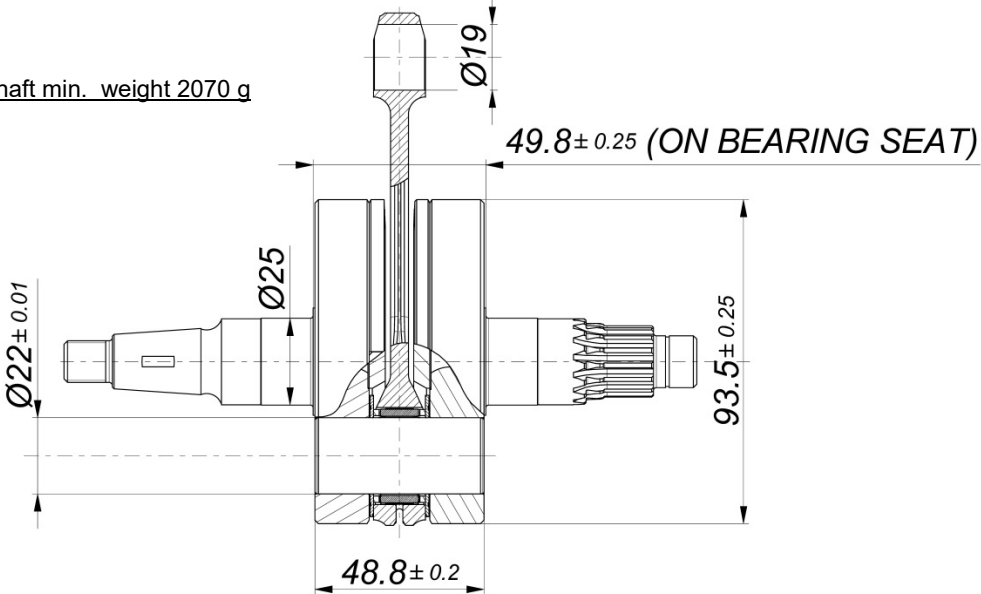


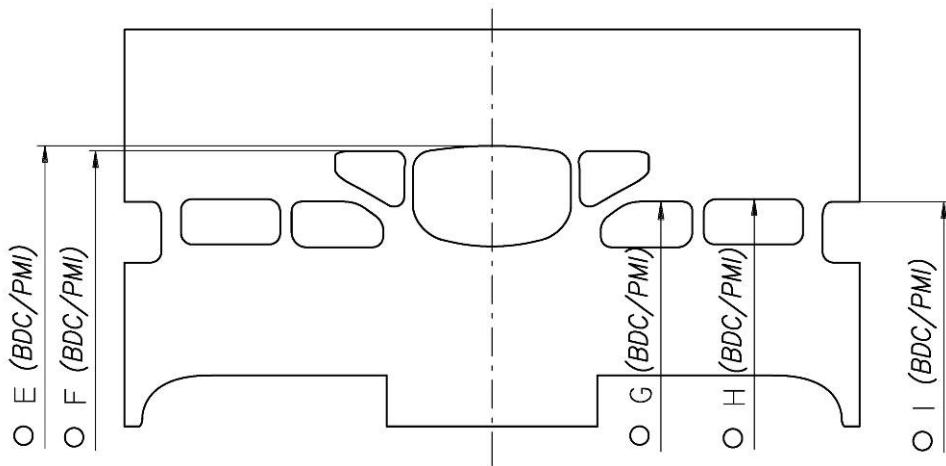


# USA SUPER SHIFTER 175CC

		FEATURES	
		Cylinder volume	174.46 cm <sup>3</sup> (Max 176.6 cm <sup>3</sup> )
		Bore	63.90 mm
		Max. theoretical bore	64.26 mm
		Stroke	54.40 mm
		Distance between conrod centers	115 mm
		Cooling system	Water
		Inlet system	Reed valve
Number of piston rings	1	Cylinder / crankcase transfers n°	5 / 3
Big end conrod bearing diam.	D. Ø22	Inlet / exhaust ports number	5 / 3
Crankshaft bearing diam.	25x52x15 (2Pc.) 15x35x11 (1Pc.)	Combustion chamber shape	Spherical
PVL ignition	Analogic "458"	Small end conrod bearing diam.	15x19x20

DESCRIPTION OF THE MATERIAL		PISTON
Conrod material	Steel	 <p>Piston min. weight (ring incl.) 155 g</p>
Crankshaft material	Steel	
Gearbox shafts material	Steel	
Gears material	Steel	
Starter ring material	Steel or Aluminum	
Head material	Aluminum	
Cylinder material	Aluminum	 <p>Min. Weight 120 g</p>
Liner material	Iron	
Crankcase material	Aluminum	
Piston material	Aluminum	
Piston rings material	Iron	
Exhaust muffler material	Sheet-steel	
<p>Complete crankshaft min. weight 2070 g</p>		

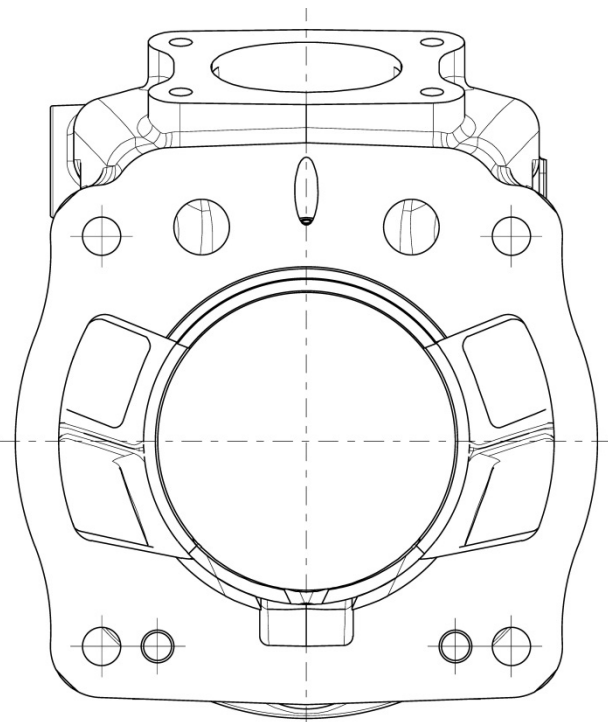
## CYLINDER DEVELOPMENT



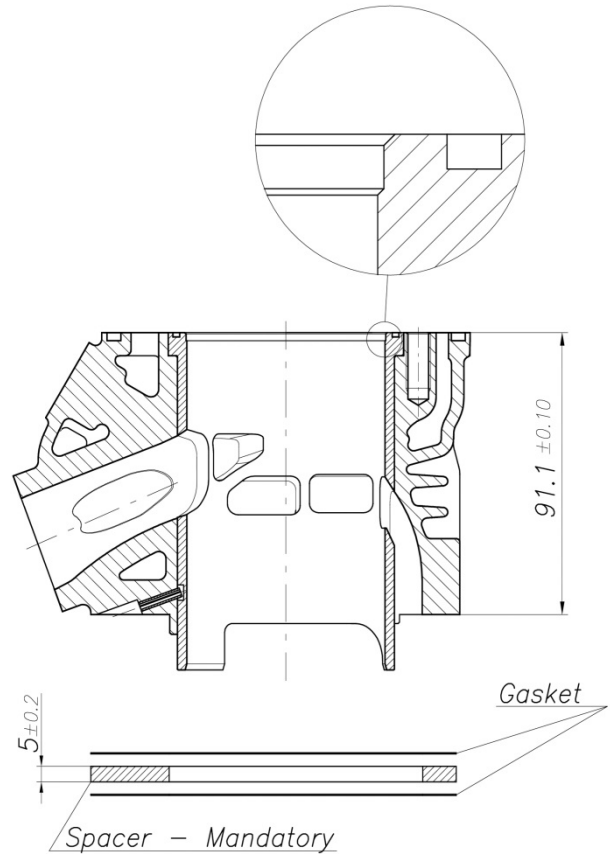
E	$195^\circ \pm 2^\circ$
F	$189^\circ \pm 2^\circ$
G	$122.5^\circ \pm 2^\circ$
H	$125.5^\circ \pm 2^\circ$
I	$121^\circ \pm 3^\circ$

○ ANGULAR READING BY INSERTING A 0.2x5mm GAUGE

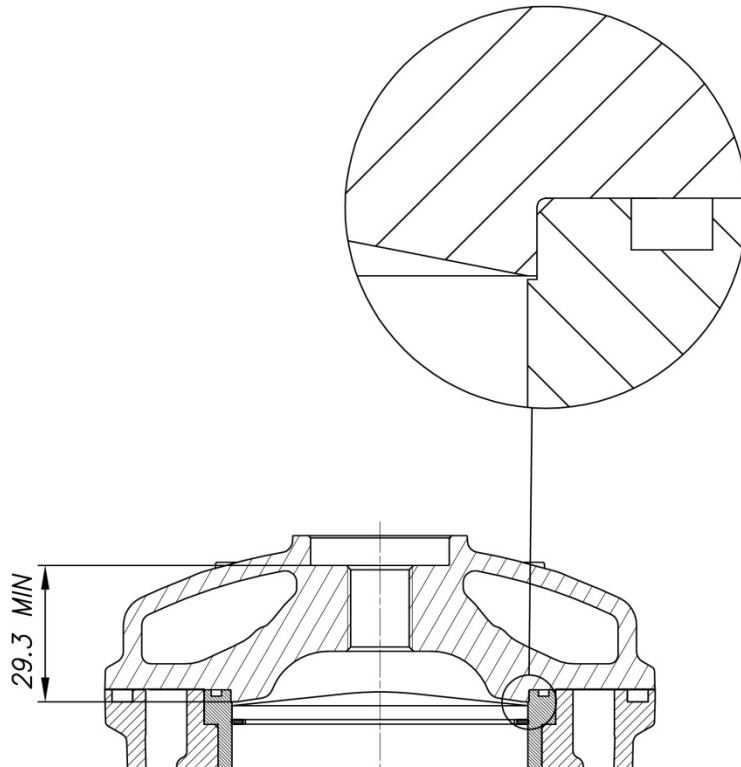
### CYLINDER BASE VIEW



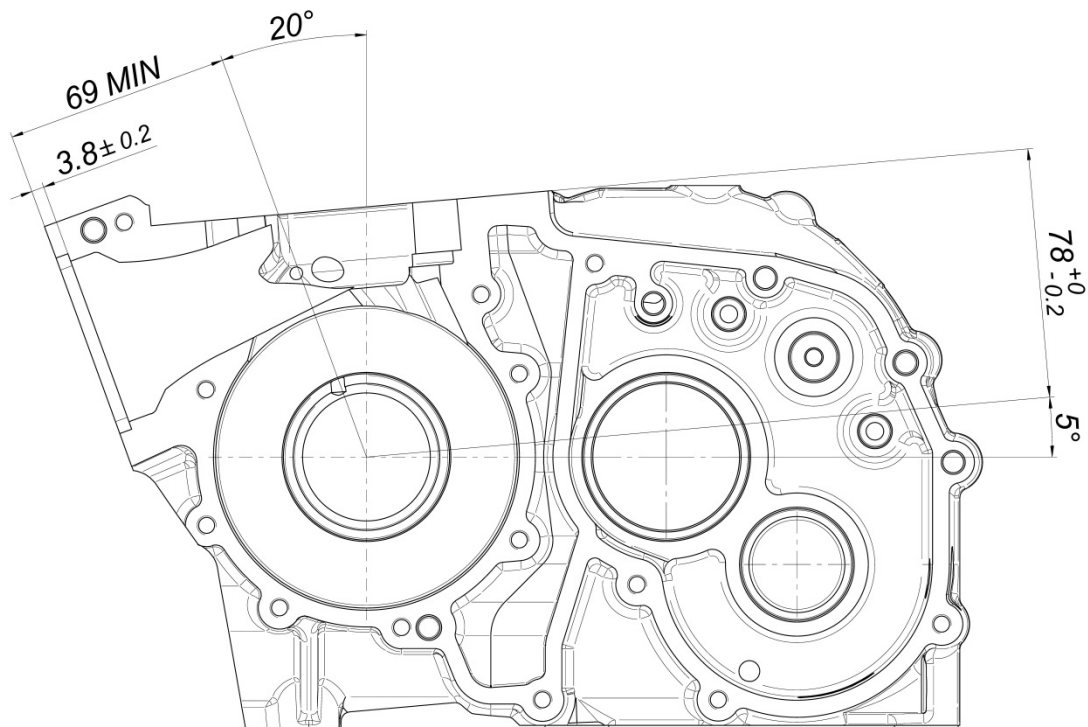
### CYLINDER CROSS SECTION VIEW



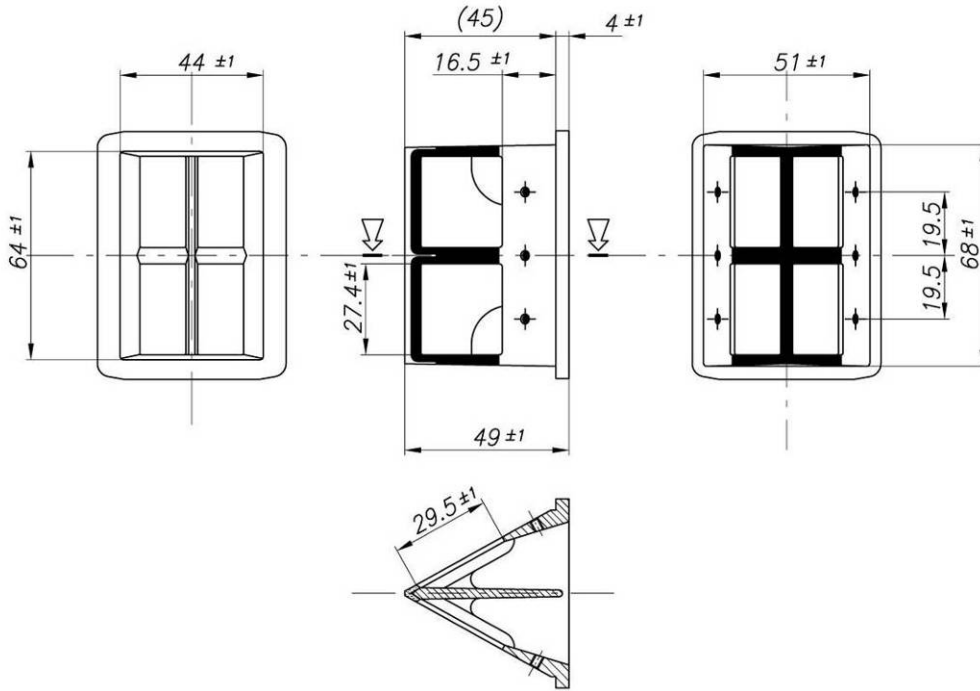
COMBUSTION CHAMBER VIEW



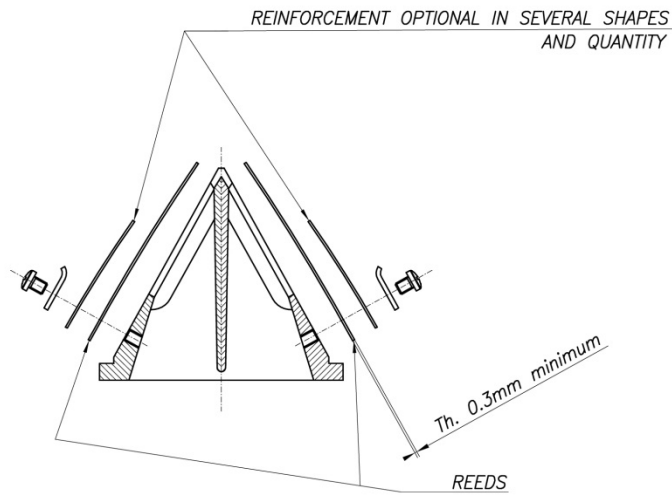
CRANKCASE INSIDE VIEW



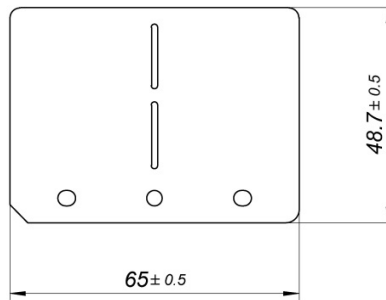
## REED VALVE



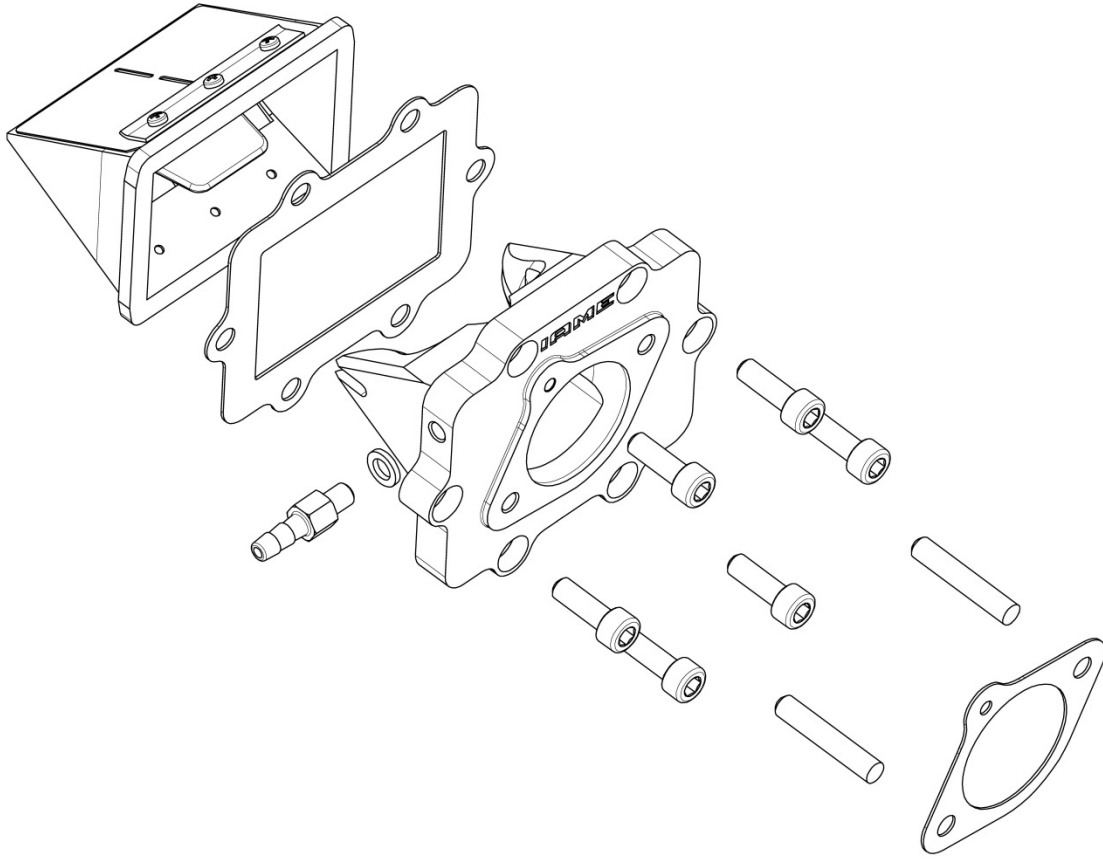
## ASSEMBLY OF REED VALVE



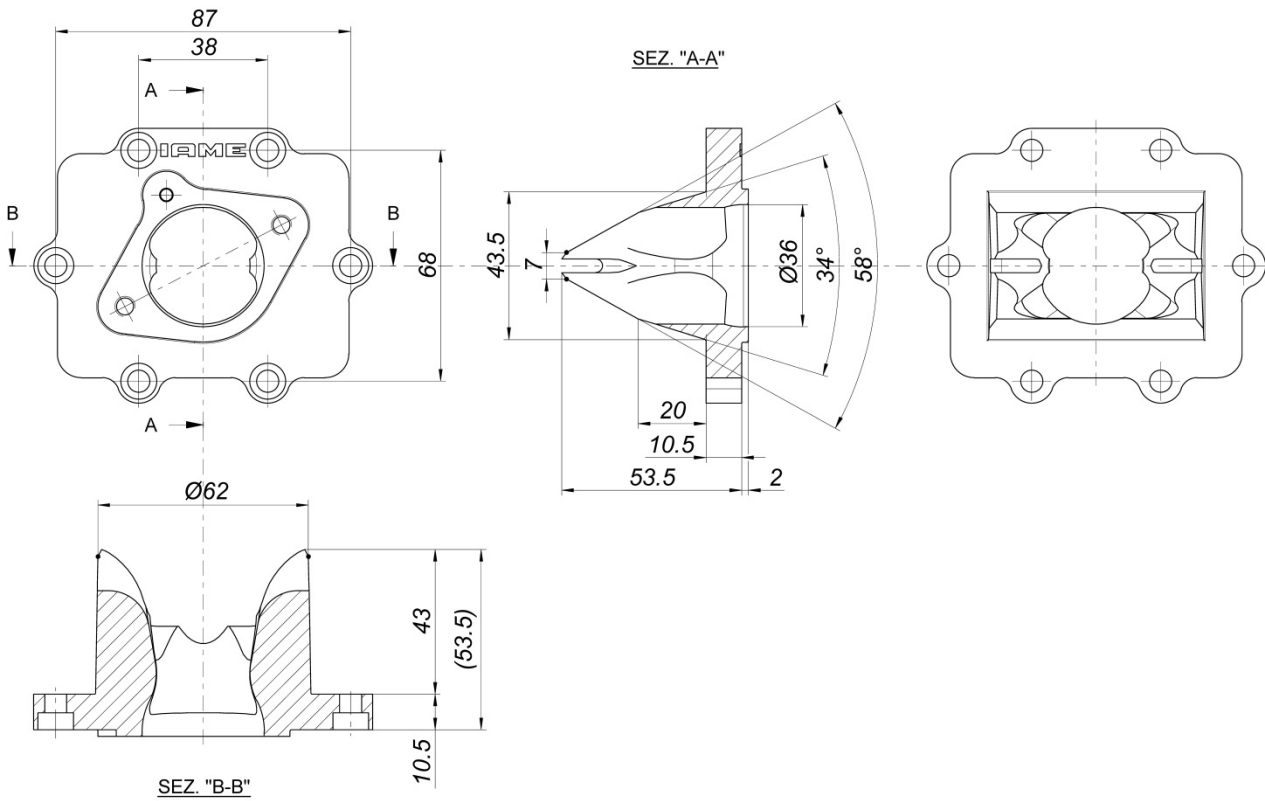
### REEDS



EXPLODED DRAWING - INLET SYSTEM



REED VALVE COVER - INLET SYSTEM



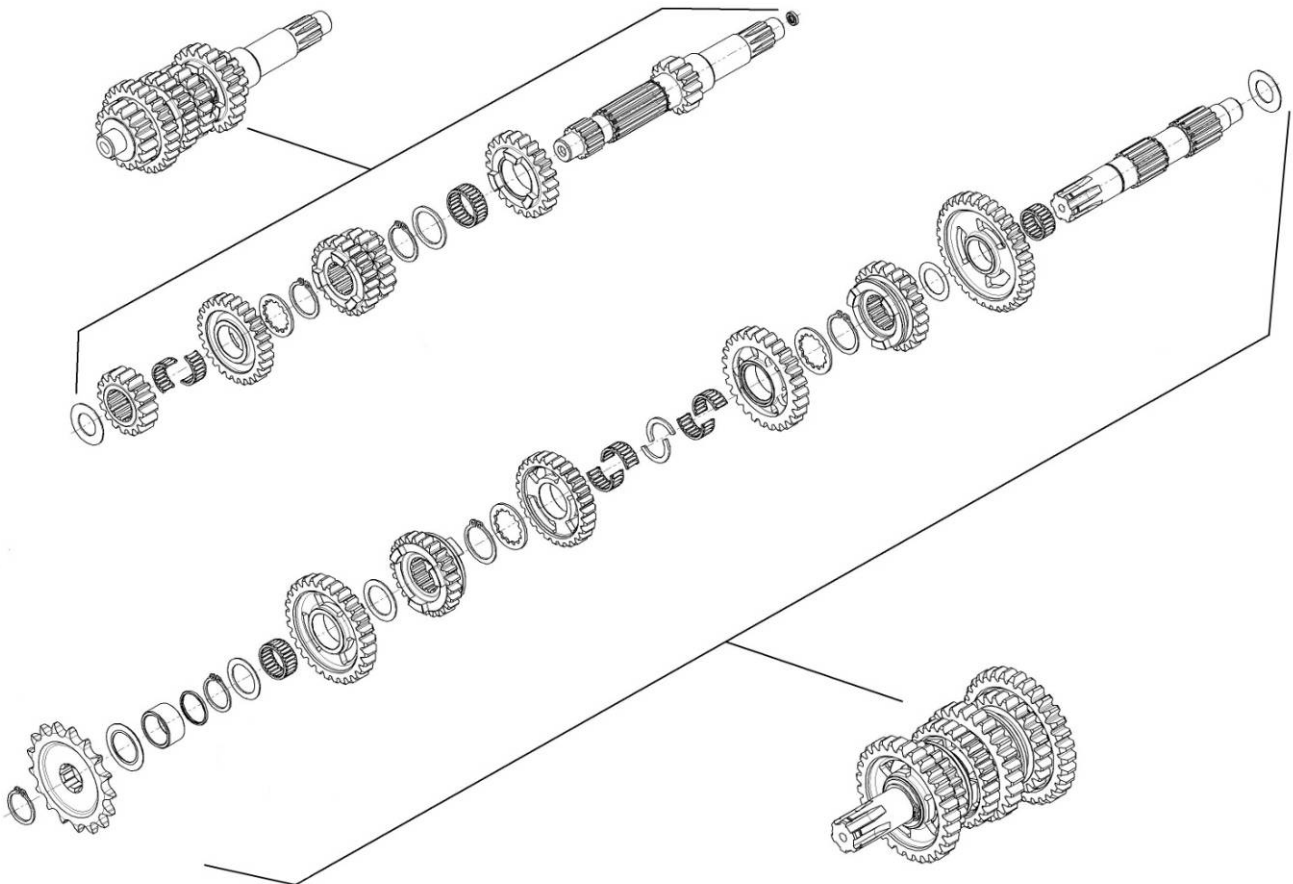
## GEARBOX

Primary coupling - **19 / 75**

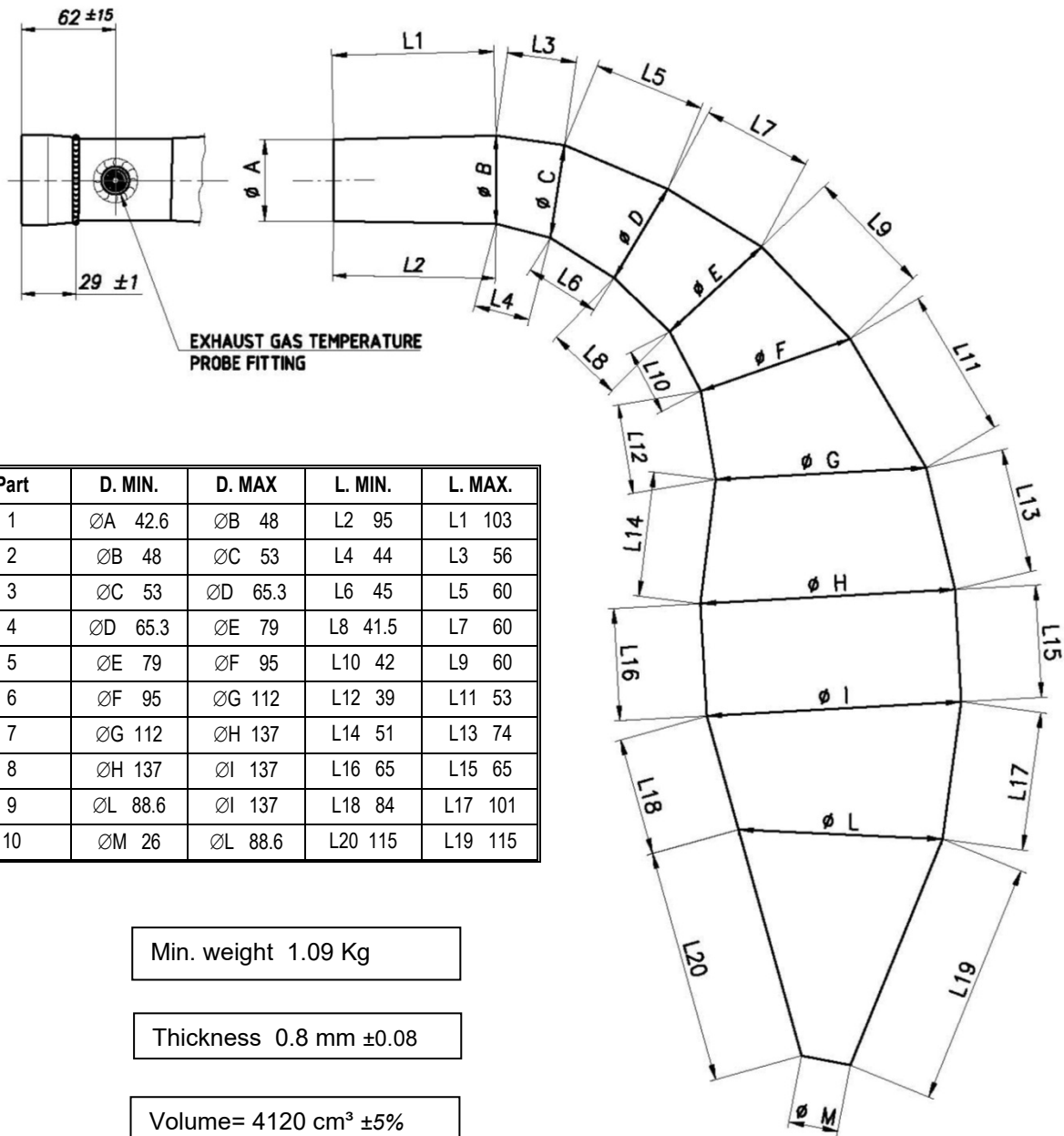
### Gearbox ratios

Gear	Primary shaft	Secondary shaft	Reading of values obtained after three engine revs
1 <sup>st</sup> / 1 <sup>ère</sup>	<b><u>13</u></b>	<b><u>33</u></b>	<b><u>107.78°</u></b>
2 <sup>nd</sup> / 2 <sup>e</sup>	<b><u>16</u></b>	<b><u>29</u></b>	<b><u>150.95°</u></b>
3 <sup>rd</sup> / 3 <sup>e</sup>	<b><u>18</u></b>	<b><u>27</u></b>	<b><u>182.40°</u></b>
4 <sup>th</sup> / 4 <sup>e</sup>	<b><u>22</u></b>	<b><u>27</u></b>	<b><u>222.93°</u></b>
5 <sup>th</sup> / 5 <sup>e</sup>	<b><u>22</u></b>	<b><u>23</u></b>	<b><u>261.70°</u></b>
6 <sup>th</sup> / 6 <sup>e</sup>	<b><u>27</u></b>	<b><u>25</u></b>	<b><u>295.49°</u></b>

### EXPLODED DRAWING OF THE GEARS, MAINSHAFT AND SECONDARY SHAFT



# EXHAUST VIEW, PHOTO, MARKING AND DIMENSIONS



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

Min. weight 1.09 Kg

Thickness 0.8 mm ±0.08

Volume= 4120 cm<sup>3</sup> ±5%



EXPLODED DRAWING OF THE CLUTCH ASSEMBLY

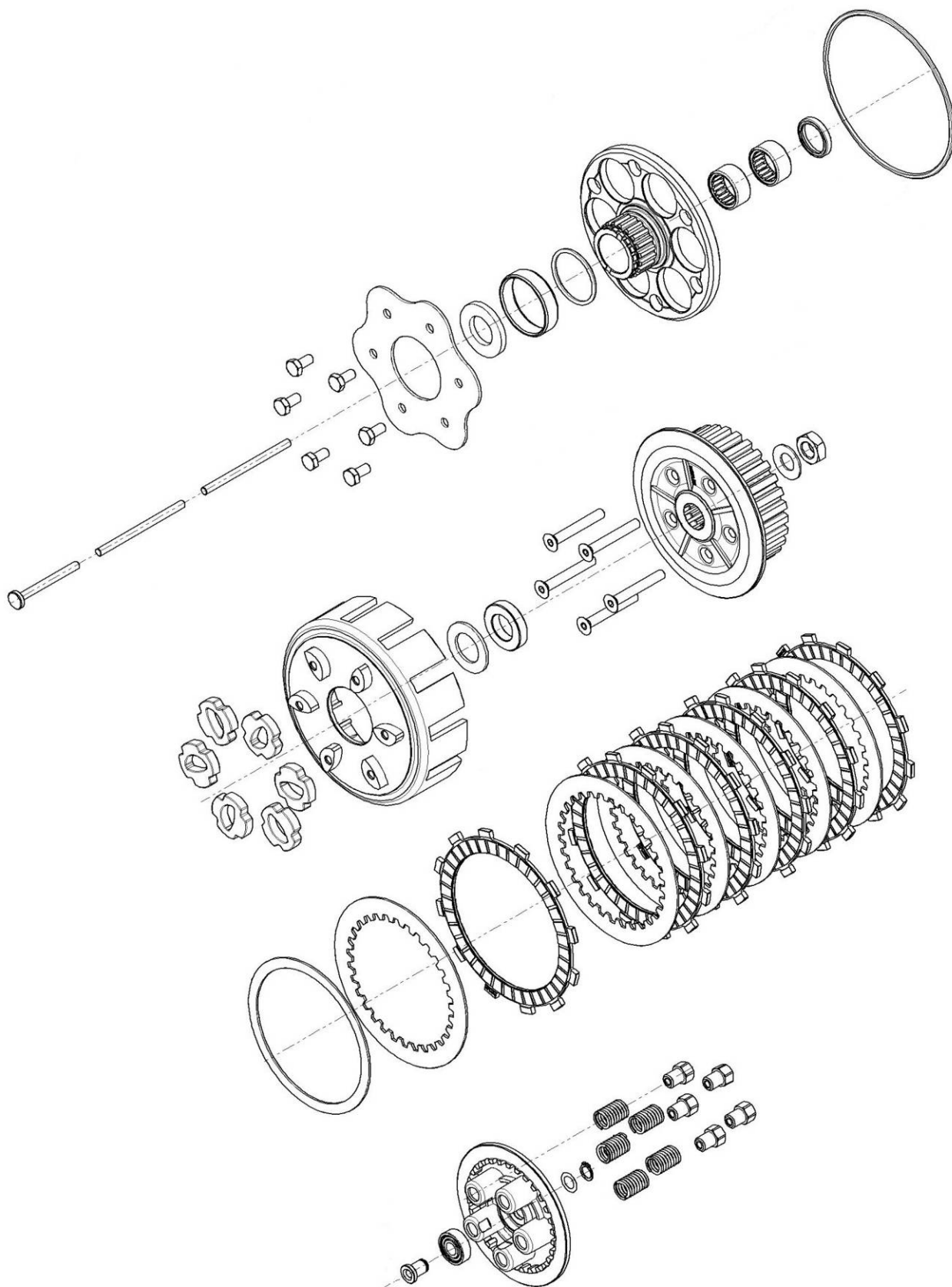
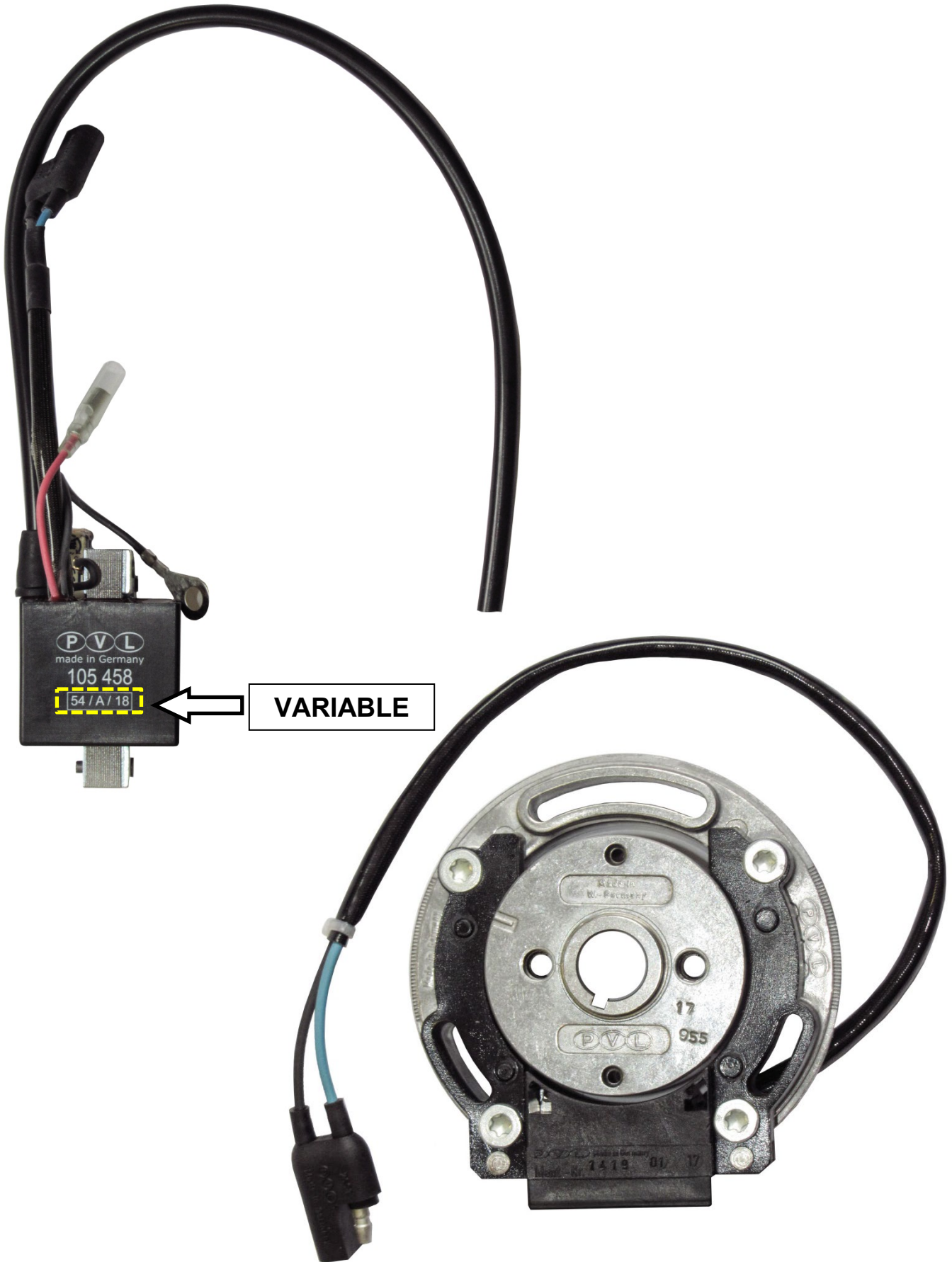
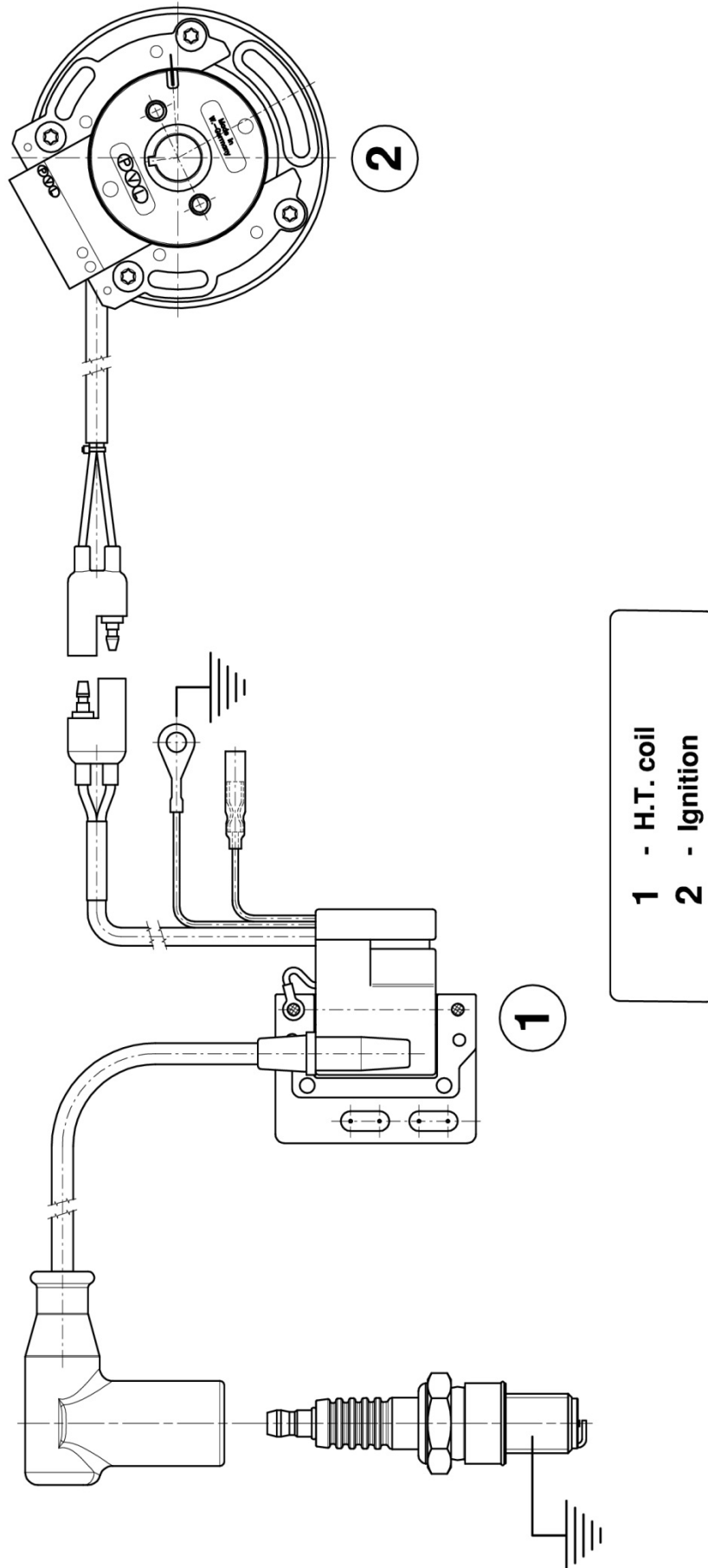


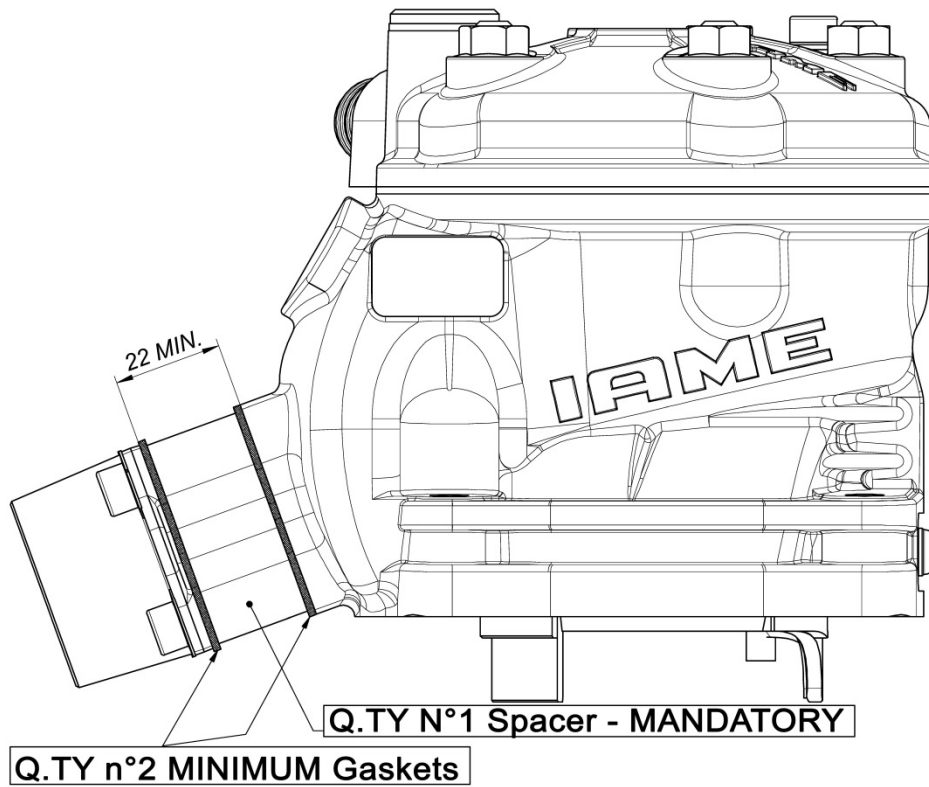
PHOTO OF PVL ANALOGICAL "458" IGNITION



WIRING DIAGRAM (PVL ANALOGICAL "458" IGNITION )



# MINIMUM DISTANCE BETWEEN EXHAUST MANIFOLD AND CYLINDER



# EXHAUST MANIFOLD AND SPACER VIEW, MARKING AND DIMENSIONS

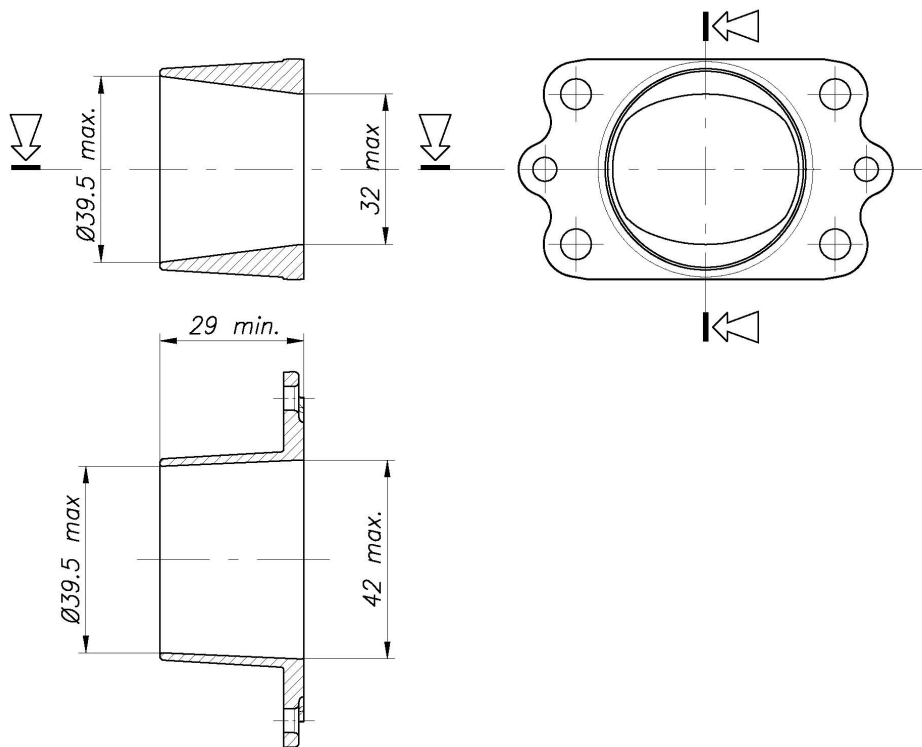


PHOTO CONROD IDENTIFICATION

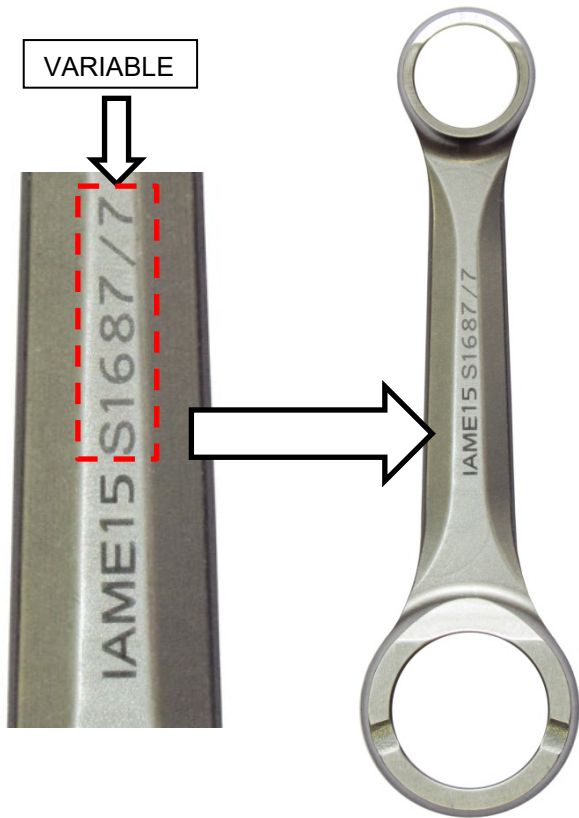


PHOTO OF CYLINDER BASE

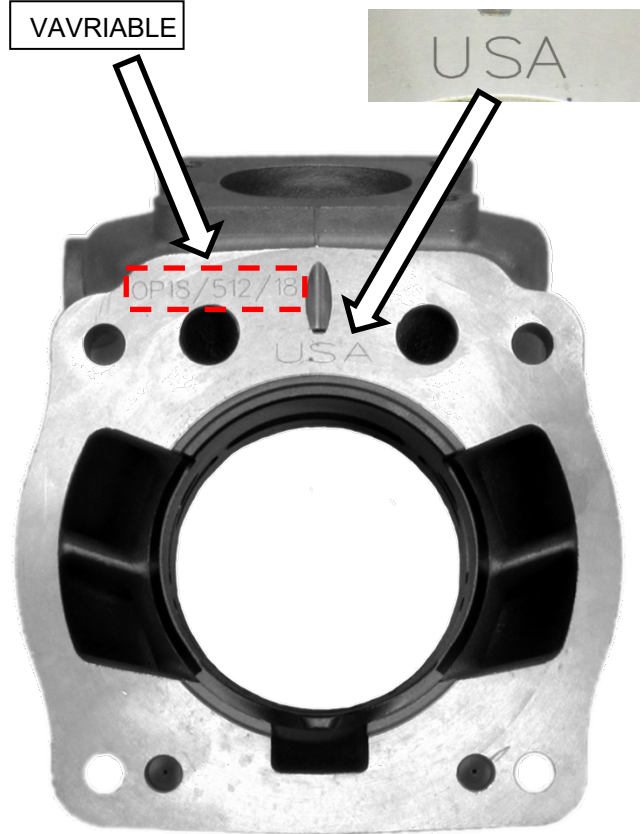
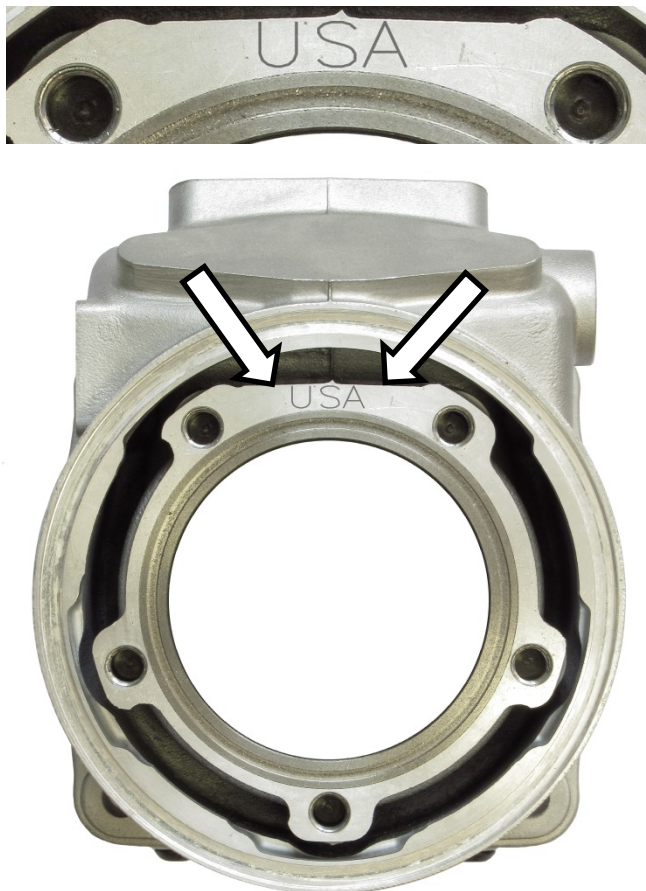
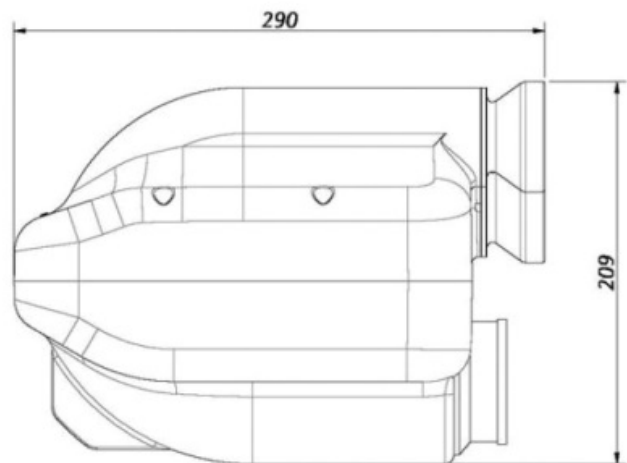
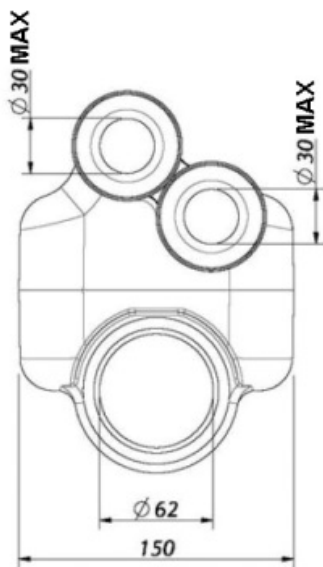


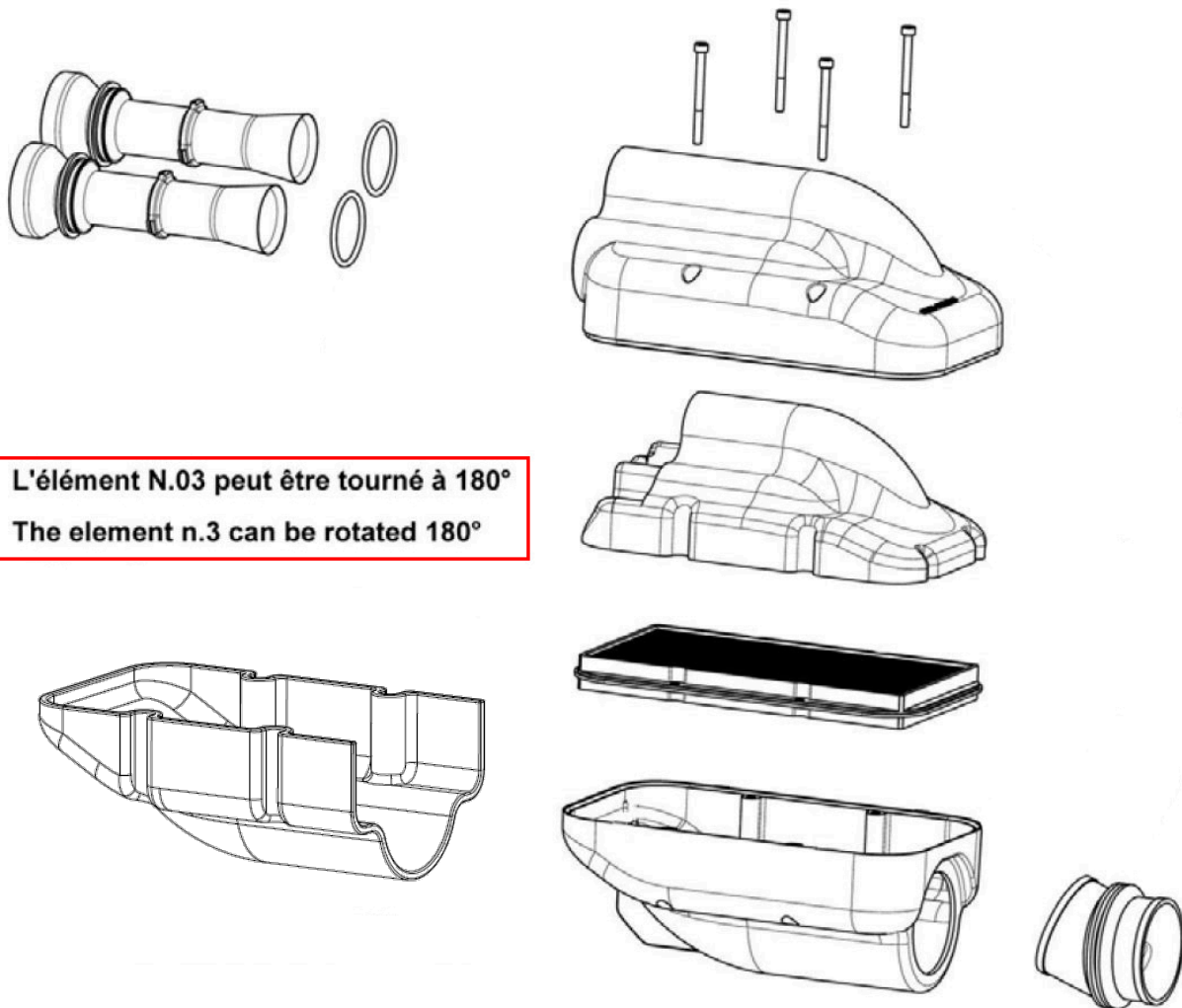
PHOTO OF CYLINDER FROM ABOVE



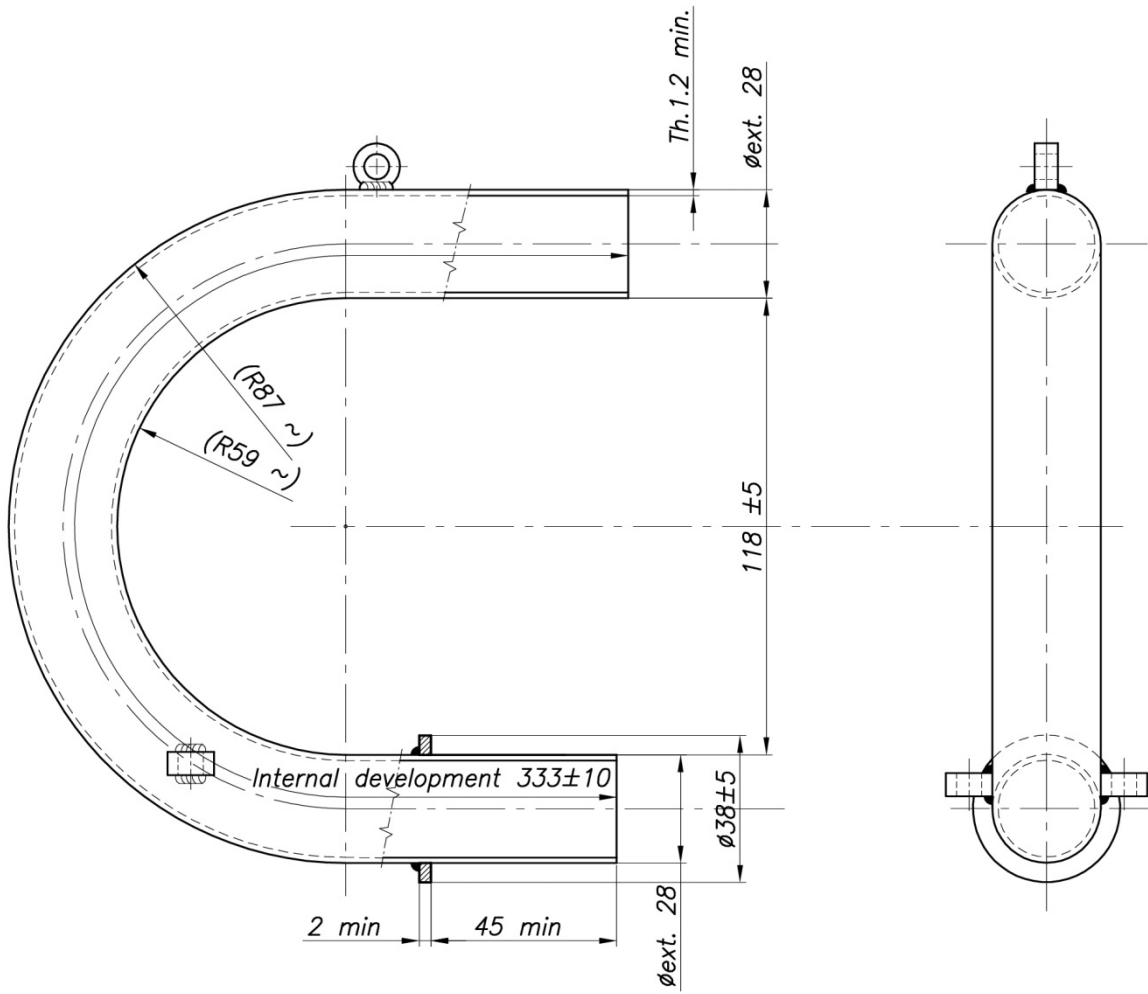
DRAWING OF AIR BOX – Righetti Ridolfi NOX D.30



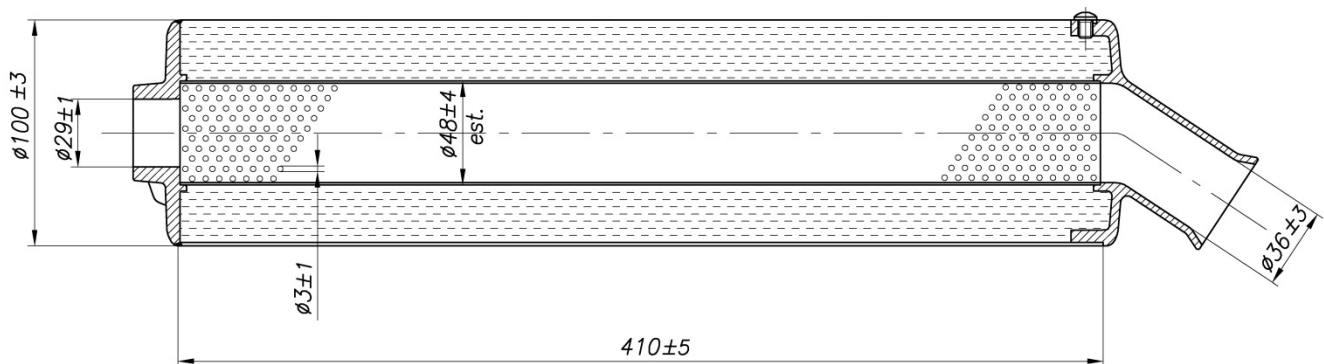
EXPLODED VIEW OF AIR BOX – Righetti Ridolfi NOX D.30



# EXHAUST HEADER



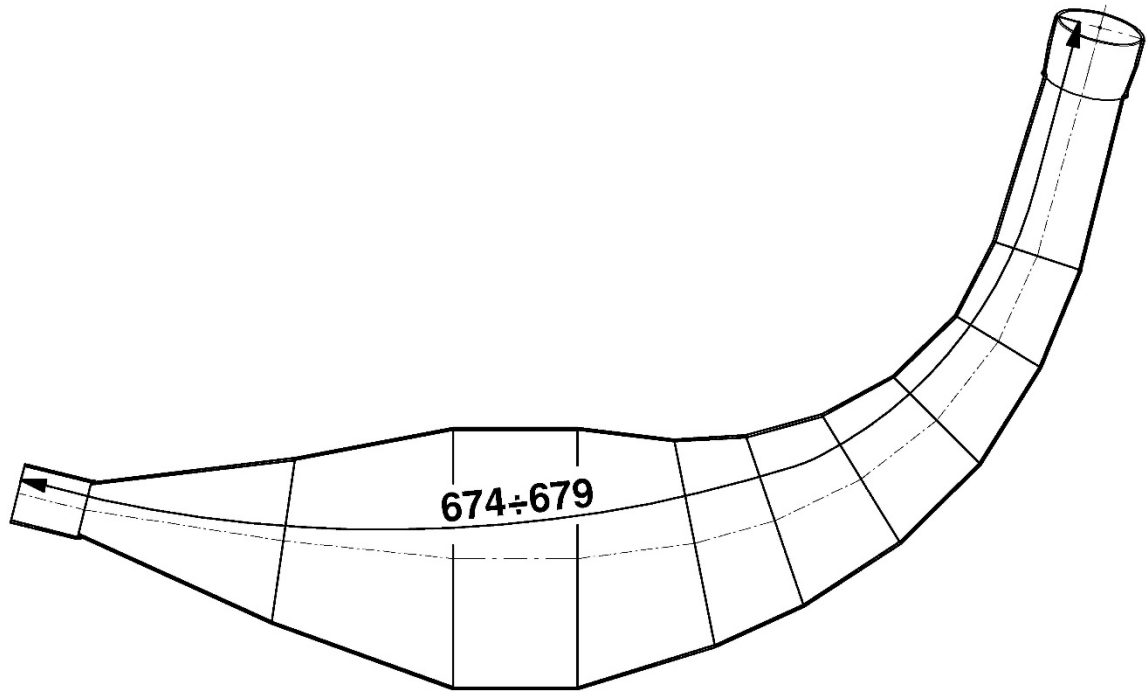
ELTO SILENCER HOMOLOGATION NUMBER



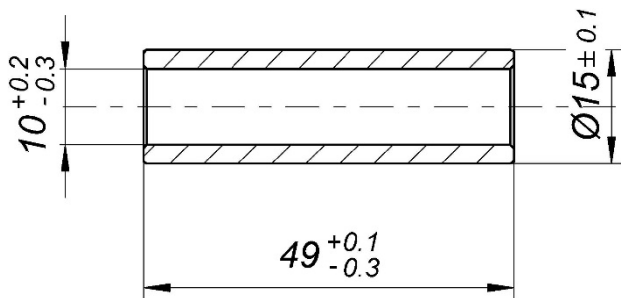
**"Elto Racing" Hom. 104 1697 / 13 SS**



EXHAUST LENGTH [mm]



GUDGEON PIN DIMENSIONS

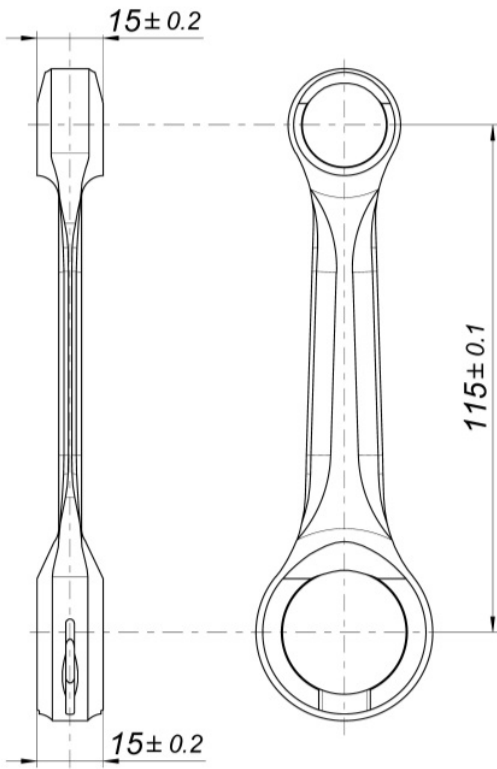


Minimum Weight: 33.7 g

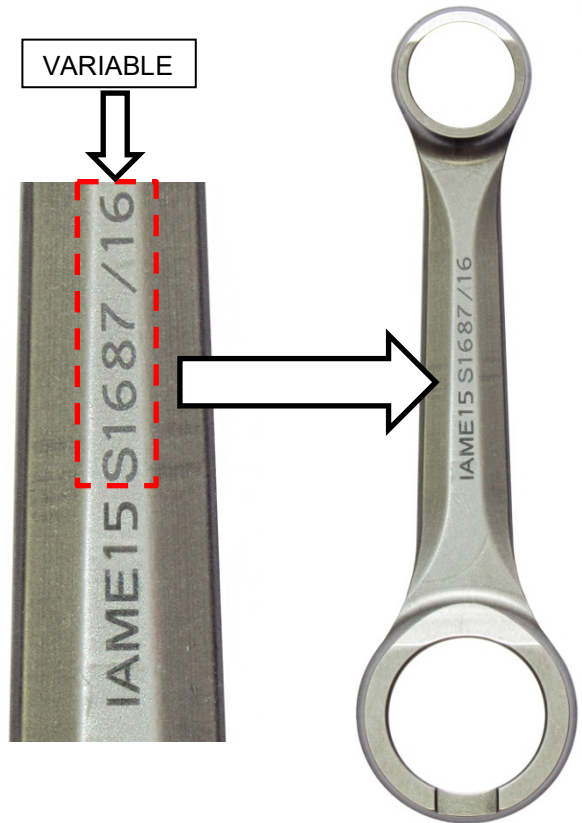
ENGINE STICKER "USA"



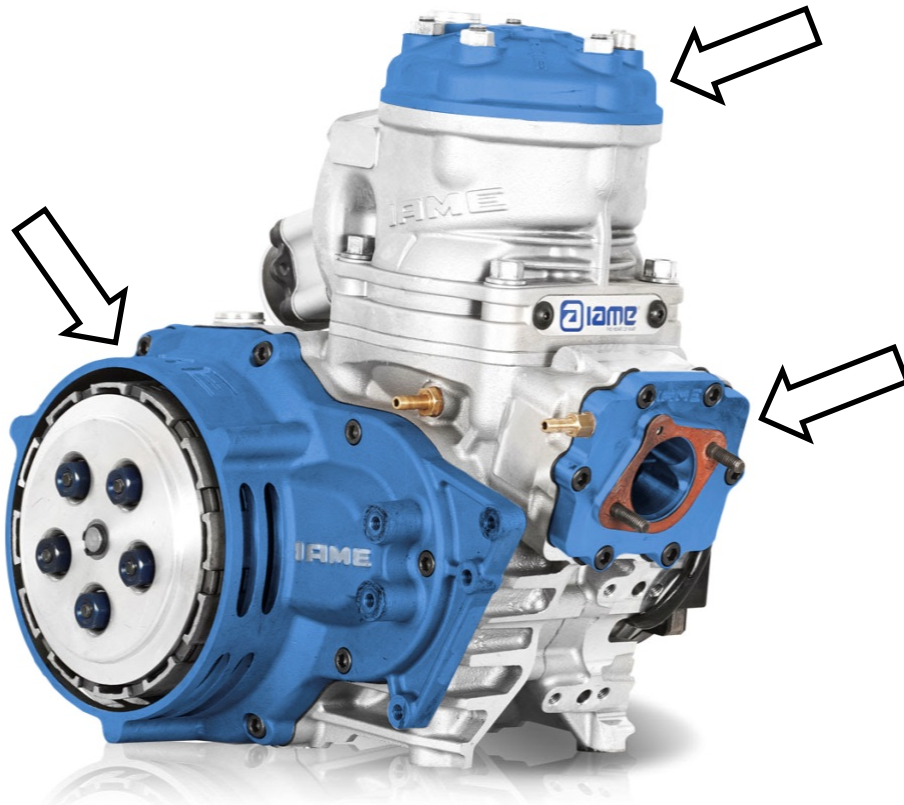
ALTERNATIVE CONROD – Two oil slots



Min. Weight 120 g



ALTERNATIVE COLOURS OF ENGINE COMPONENTS



COMPONENTS WITH ALTERNATIVE NEW LOGO "IAME"

CYLINDER HEAD



NEW LOGO



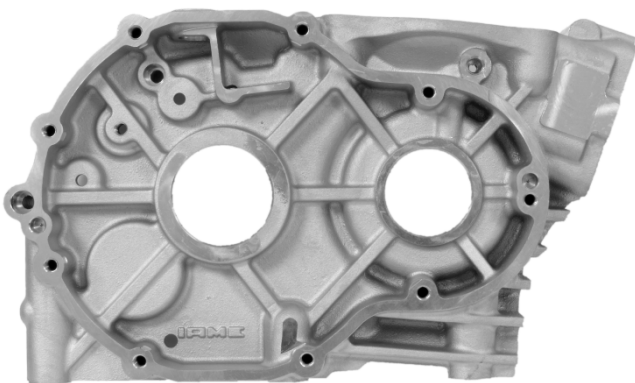
CYLINDER



NEW LOGO



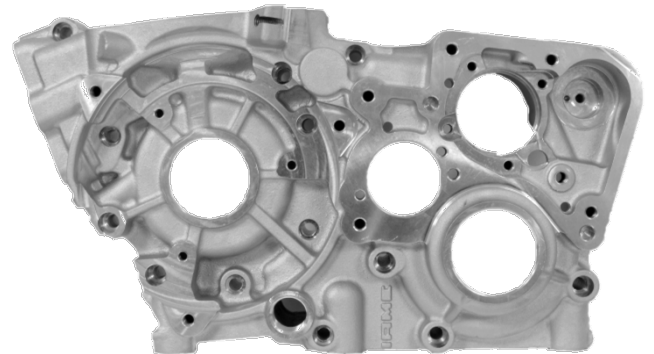
SEMICARTER TRANSMISSION SIDE



NEW LOGO



SEMICARTER IGNITION SIDE



NEW LOGO



COMPONENTS WITH ALTERNATIVE NEW LOGO "IAME"

EXHAUST



NEW LOGO



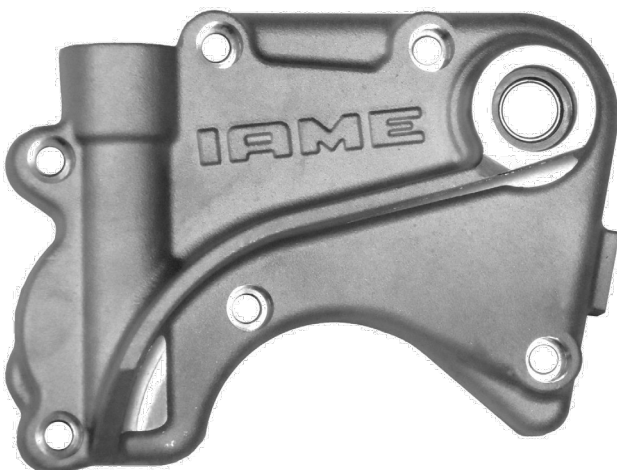
SHIFT CONTROL LEVER



NEW LOGO



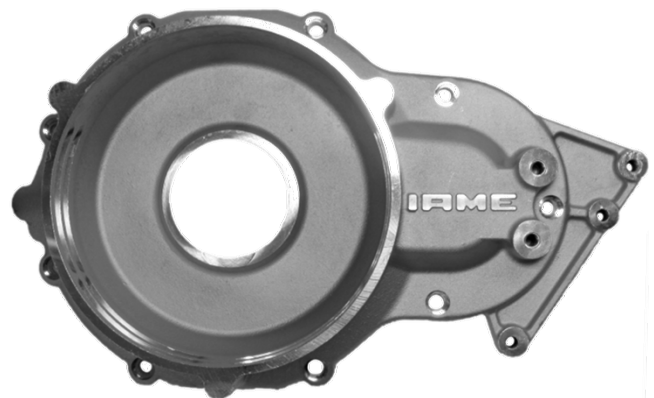
SELECTOR COVER



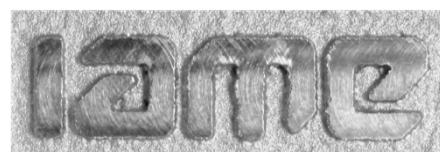
NEW LOGO



CLUCH SIDE COVER



NEW LOGO



COMPONENTS WITH ALTERNATIVE NEW LOGO "IAME"

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

I A M E

or

**IAME**

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

I a m e

or

ⓐ I a m e

or

ⓐ



# CARBURETTOR TILLOTSON HB-15A - USA

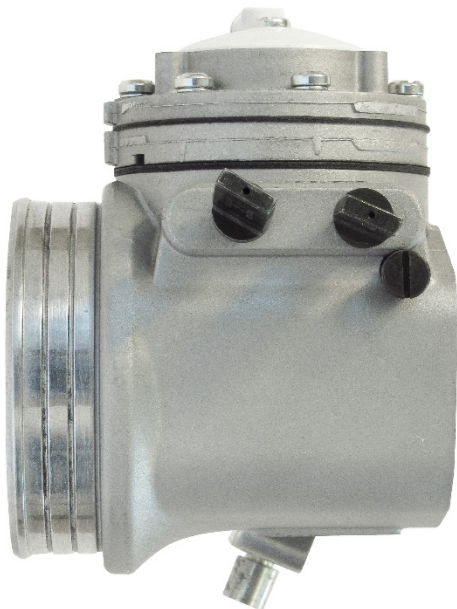


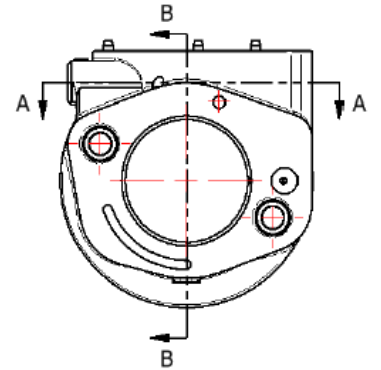
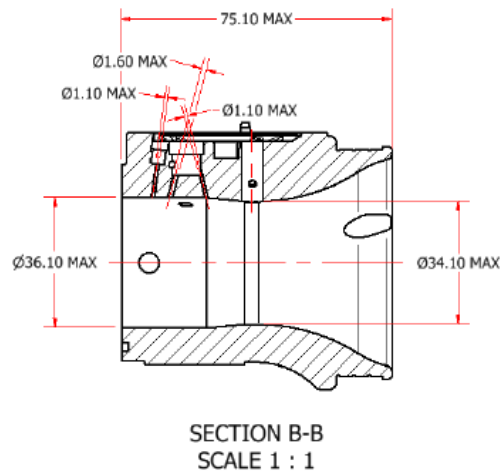
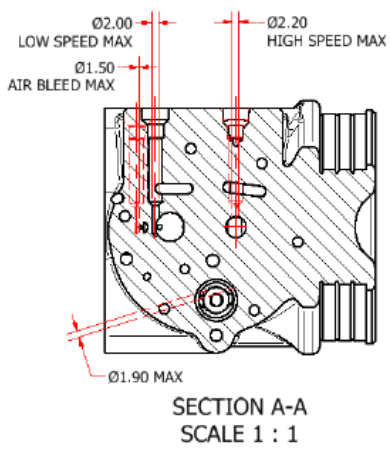
PHOTO OF ADJUSTING SIDE



PHOTO OF INLET SIDE

Manufacturer	TILLOTSON LTD.
Make	TILLOTSON
Model	HB-15A

## SECTION VIEW



## FLANGE SIDE "IAME" MARKING



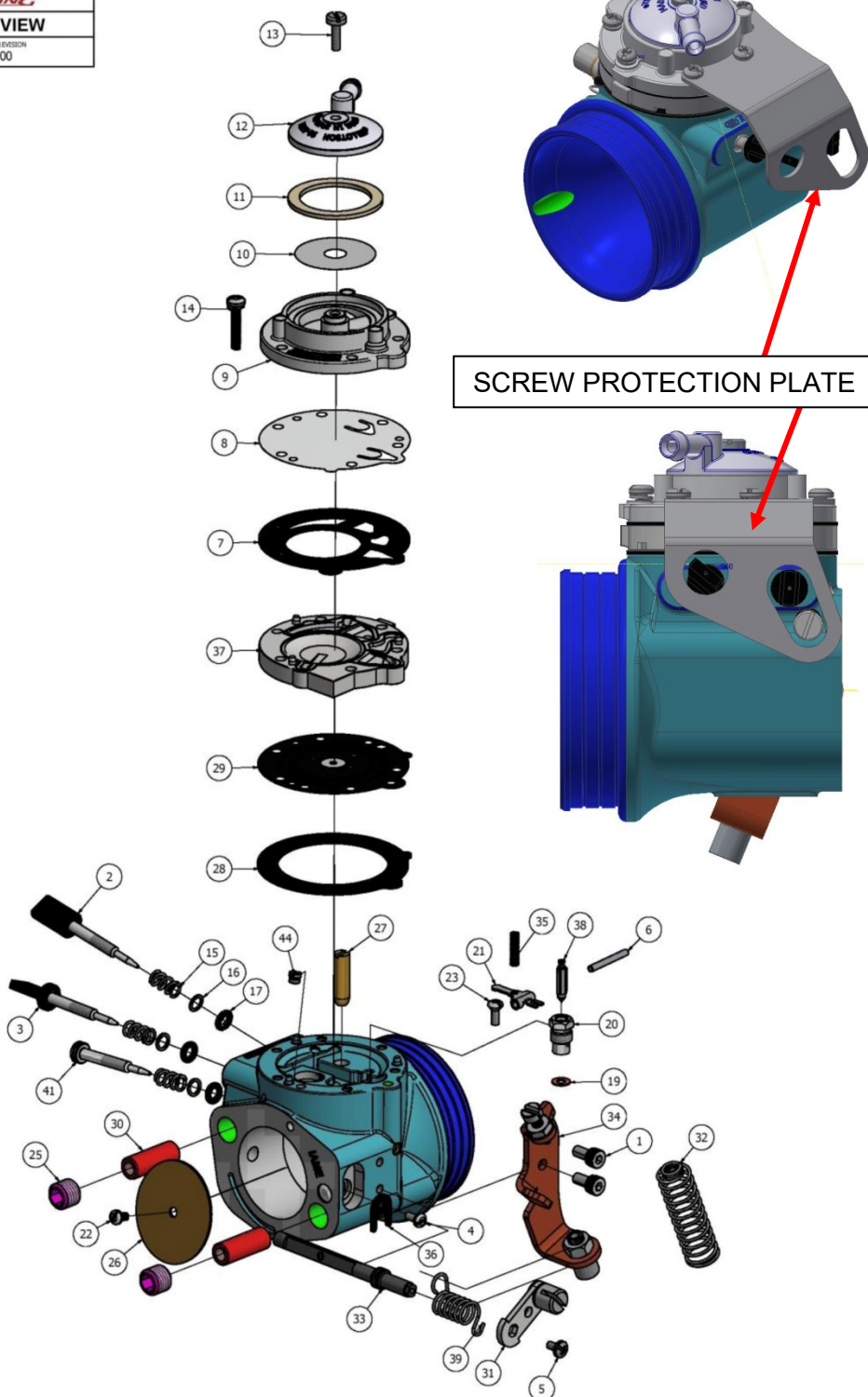
LASER MARKING "IAME"

# CARBURETTOR DESCRIPTION AND SKETCH OF PARTS - THROTTLE LEVER TYPE 1



## HB-15A EXPLODED VIEW

DATE: 27/03/2018    DRAWN BY: P.B    REVISION: 00



SCREW PROTECTION PLATE

ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	15-C67	M4 X 0.7 SOCKET CAP SCREW	17	3	44-361	ADJUSTMENT SCREW O-RING	35	1	24-C296	INLET TENSION SPRING
2	1	43-1029	8-32 UNC ADJUSTMET SCREW	19	1	16-B199	+* INLET SEAT GASKET	36	1	29-253	THROTTLE SHAFT CLIP
3	1	43-1030	8-32 UNC ADJUSTMET SCREW	20	1	36-A42	+ INLET SEAT	37	1	91-A275	FUEL PUMP BODY
4	1	15-C19	4-40 UNC SCREW	21	1	155-A27	+ INLET CONTROL LEVER	38	1	34-229	+ INLET NEEDLE
5	1	15-C52	4-40 UNC SCREW	22	1	15-C20	4-40 UNC SCREW	39	1	24-C353	THROTTLE RETURN SPRING
6	1	32-79	FULCRUM LEVER PIN	23	1	15-B329	FULCRUM LEVER SCREW	41	1	43-A254	ADJUSTMENT SCREW
7	1	16-B392	+* PUMP GASKET	25	2	81-382	RETAINING NUT	44	1	49-B58	FIXED JET
8	1	237-223	FUEL PUMP DIAPHRAGM	26	1	14-A127	THROTTLE SHUTTER				
9	1	141-89	FUEL PUMP BODY	27	1	363-332	MAIN NOZZLE			*	REPAIR KIT CONTENTS
10	1	95 - 170	FUEL STRAINER SCREEN	28	1	16-B408	METERING GASKET			+	DIAPHRAGM & GASKET KIT CONTENTS
11	1	16-B205	+* FUEL STRAINER COVER GASKET	29	1	237-698	+* DIAPHRAGM ASSEMBLY				
12	1	91-A251	FUEL STRAINER COVER	30	2	81-381	CARBURETTOR MOUNTING NUT			RK-1HB	REPAIR KIT
13	1	15-B313	5-40 UNC SCREW	31	1	12-1220	THROTTLE LEVER ASSEMBLY			DG-1HB	DIAPHRAGM & GASKET KIT
14	6	15-C51	6 - 32 UNC SCREW WITH L/W	32	1	24-C334	CABLE RETURN SPRING			233-717P	INLET NEEDLE & SEAT SET
15	3	24-B449	ADJUSTMENT SCREW SPRING	33	1	13-B237	THROTTLE SHAFT				
16	3	78A-256	ADJUSTMENT SCREW WASHER	34	1	136-568	CABLE BRACKET ASSEMBLY				

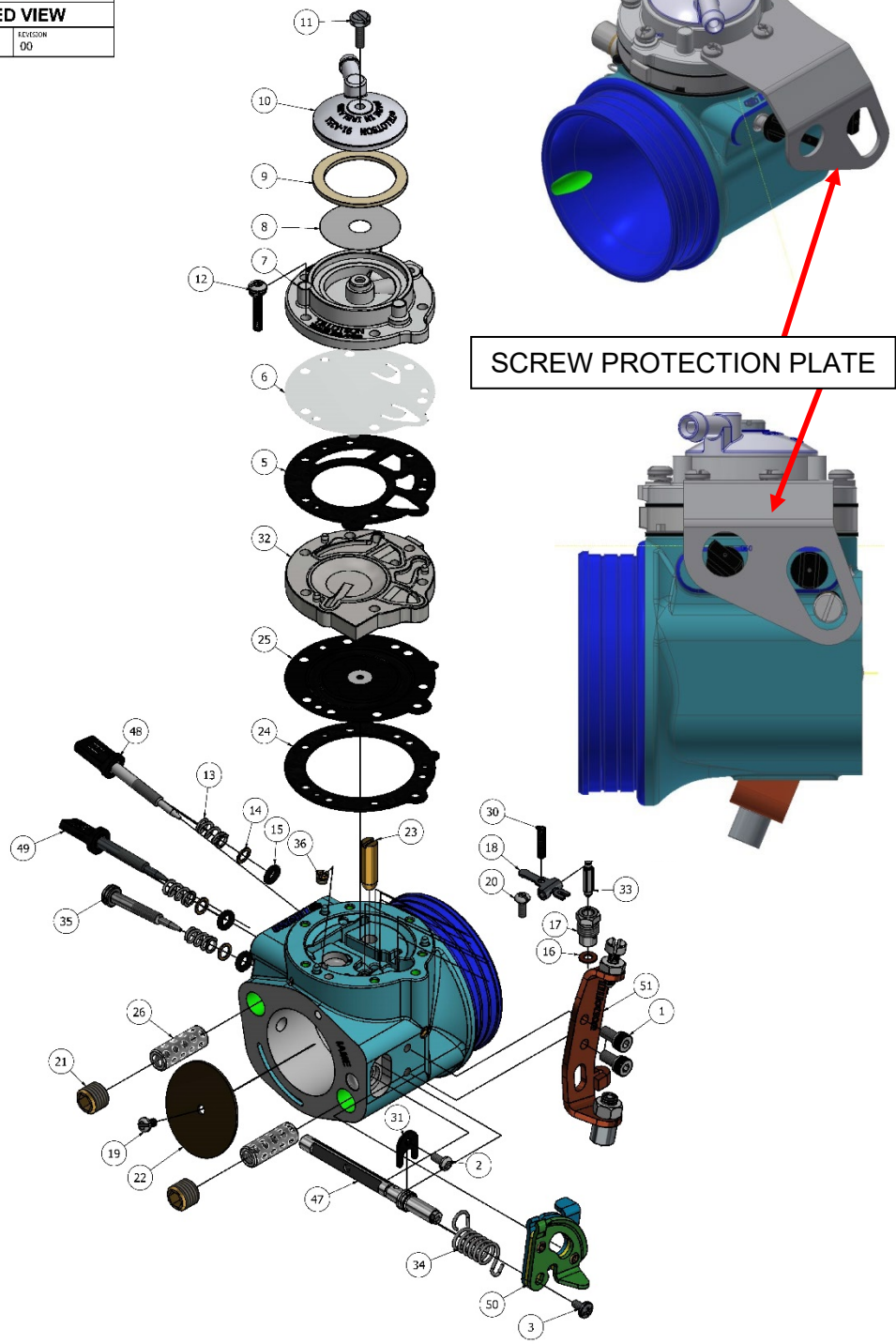


# CARBURETTOR DESCRIPTION AND SKETCH OF PARTS – THROTTLE LEVER TYPE 2

**Tillotson**  
RACING

**HB-15B EXPLODED VIEW**

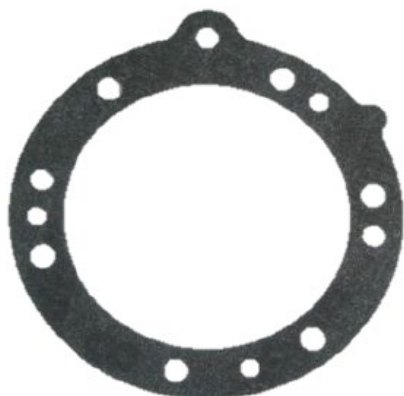
DATE: 06/10/2020	DESIGN BY: K.McC	REVISION: 00
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ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION
	*		REPAIR KIT CONTENTS	8	1	95-170	FUEL STRAINER SCREEN	23	1	363-332	MAIN NOZZLE
	+		DIAPHRAGM & GASKET KIT CONTENTS	9	1	16-8205	+* FUEL STRAINER COVER GASKET	24	1	16-8408	METERING GASKET
		RK-1HB	REPAIR KIT	10	1	91-A251	FUEL STRAINER COVER	25	1	237-698	+* DIAPHRAGM ASSEMBLY
		DG-1HB	DIAPHRAGM & GASKET KIT	11	1	15-B313	5-10 UNC SCREW	26	2	81-361	CARBURETTOR MOUNTING NUT
		233-717P	INLET NEEDLE & SEAT	12	6	15-C51	6-32 UNC SCREW WITH L/W	30	1	24-C298	INLET TENSION SPRING 42g
				13	3	24-B449	ADJUSTMENT SCREW SPRING	31	1	29-253	THROTTLE SHAFT CLIP
				14	3	78A-256	ADJUSTMENT SCREW WASHER	32	1	91-A275	FUEL PUMP BODY
				15	3	44-361	ADJUSTMENT SCREW O-RING	33	1	34-229	+ INLET NEEDLE
1	2	15-C67	M4 X 0.7 SOCKET CAP SCREW	16	1	16-8199	+* INLET SEAT GASKET	34	1	24-C353	THROTTLE RETURN SPRING
2	1	15-C19	4-40 UNC SCREW	17	1	36-A42	+ INLET SEAT	35	1	43-A254	ADJUSTMENT SCREW
3	1	15-C52	4-40 UNC SCREW	18	1	155-A27	+ INLET CONTROL LEVER	36	1	49-B135	FIXED JET
4	1	32-79	FULCRUM LEVER PIN	19	1	15-C20	4-40 UNC SCREW	47	1	13-2163	THROTTLE SHAFT
5	1	16-B392	+* PUMP GASKET	20	1	15-B329	FULCRUM LEVER SCREW	48	1	43-1044	M4 X 0.5 ADJUSTMENT SCREW ASSY H
6	1	237-223	FUEL PUMP DIAPHRAGM	21	2	81-382	RETAINING NUT	49	1	43-1043	M4 X 0.5 ADJUSTMENT SCREW ASSY L
7	1	141-89	FUEL PUMP BODY	22	1	14-A127	THROTTLE SHUTTER	50	1	12-1226	THROTTLE LEVER
								51	1	136-566	CABLE BRACKET

## PARTS OF CARBURETTOR

REF.28 - P. N°16-B408  
DIAPHRAGM GASKET



Thickness =  $1.0 \pm 0.1$  mm

REF.7 - P. N° 16-B392  
PUMP DIAPHRAGM GASKET



Thickness =  $0.8 \pm 0.1$  mm

REF.29 - P. N°237-698  
DIAPHRAGM



Thickness =  $0.13 \pm 0.07$  mm

REF.8 - P. N°237-223  
PUMP DIAPHRAGM



Thickness =  $0.075 \pm 0.07$  mm

REF.37 - P. N° 91-A275  
DIAPHRAGM COVER



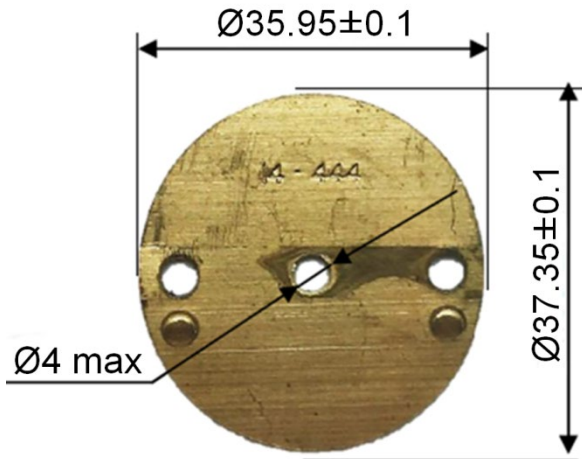
Thickness =  $6.75 \pm 0.15$  mm

REF.9 - P. N° 141-89  
PUMP COVER



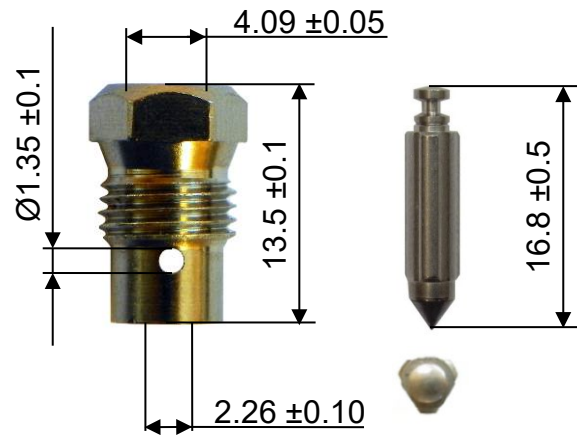
Thickness =  $12.5 \pm 0.15$  mm

REF.26 - P. N° 14-A127  
THROTTLE SHUTTER



Thickness =  $0.81 \pm 0.1$  mm

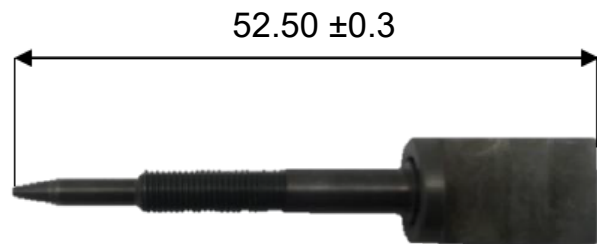
REF.20 / 38 - P. N° 233-717P  
SEAT + NEEDLE



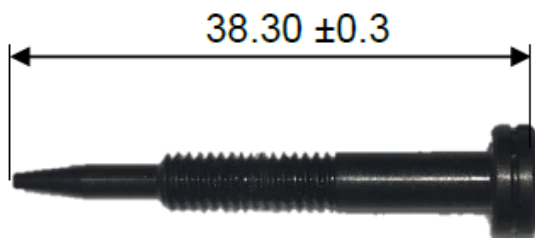
REF.2 - P. N° 43-1029  
NEEDLE LOW SPEED



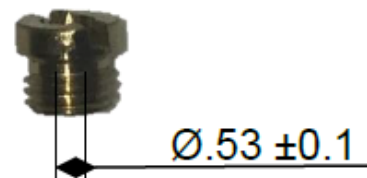
REF.3 - P. N° 43-1030  
NEEDLE HIGH SPEED



REF.41 - P. N° 43-A254  
NEEDLE AIR BLEED

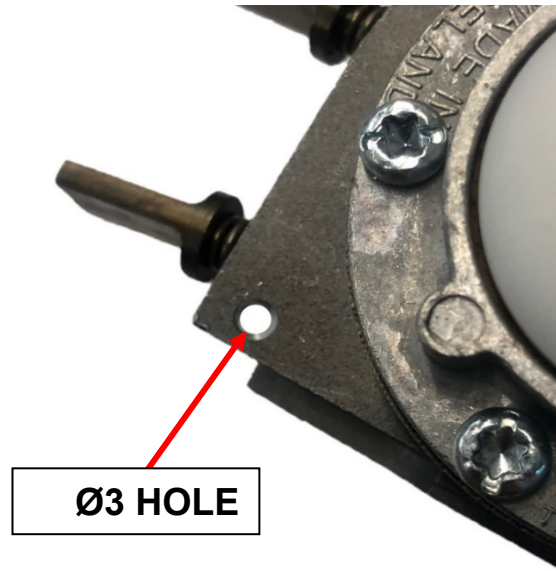


REF.44 - P. N° 49-B58  
FIXED JET



## HOLE FOR CARBURETTOR SEALING

The carburettor can have this hole for sealing.



## BRACKET CABLE & LIMITER ALTERNATIVES TYPES

Type 1



Type 2

