

# FICHE D'HOMOLOGATION HOMOLOGATION FORM

18/M/24



## COMMISSION INTERNATIONALE DE KARTING - FIA



### MOTEUR / ENGINE OK

|                         |                              |                               |
|-------------------------|------------------------------|-------------------------------|
| Constructeur            | Manufacturer                 | OTK KART GROUP S.R.L. (ITALY) |
| Marque                  | Make                         | <b>VORTEX</b>                 |
| Modèle                  | Model                        | <b>DDS</b>                    |
| Type d'admission        | Inlet type                   | <b>REED VALVE</b>             |
| Durée de l'homologation | Validity of the homologation | 9 ans / 9 years               |
| Nombre de pages         | Number of pages              | <b>18</b>                     |

La présente Fiche d'Homologation reproduit descriptions, illustrations et dimensions du moteur au moment de l'homologation par la CIK-FIA. La hauteur du moteur complet sur les photos doit être de 7 cm minimum.

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



PHOTO DU MOTEUR CÔTÉ PIGNON  
PHOTO OF DRIVE SIDE OF ENGINE

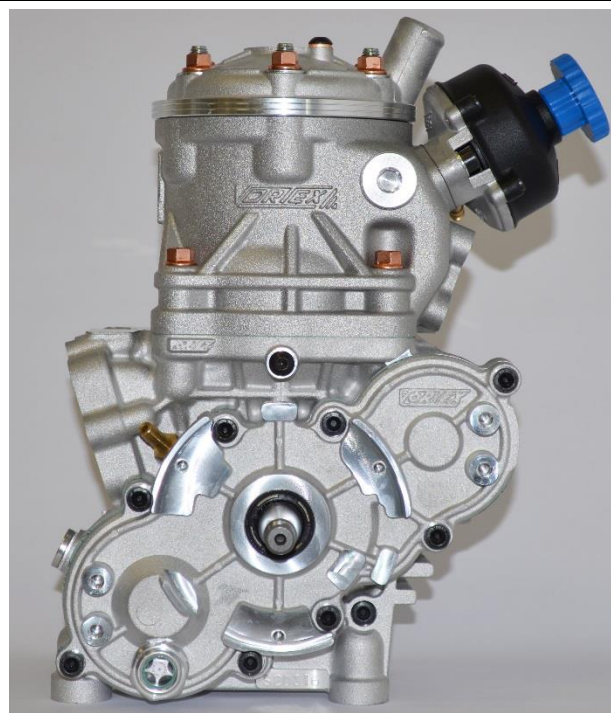


PHOTO DU MOTEUR CÔTÉ OPPOSÉ  
PHOTO OF OPPOSITE SIDE OF ENGINE

Signature et tampon de l'ASN  
Signature and stamp of the ASN

Signature et tampon de la CIK-FIA  
Signature and stamp of the CIK-FIA

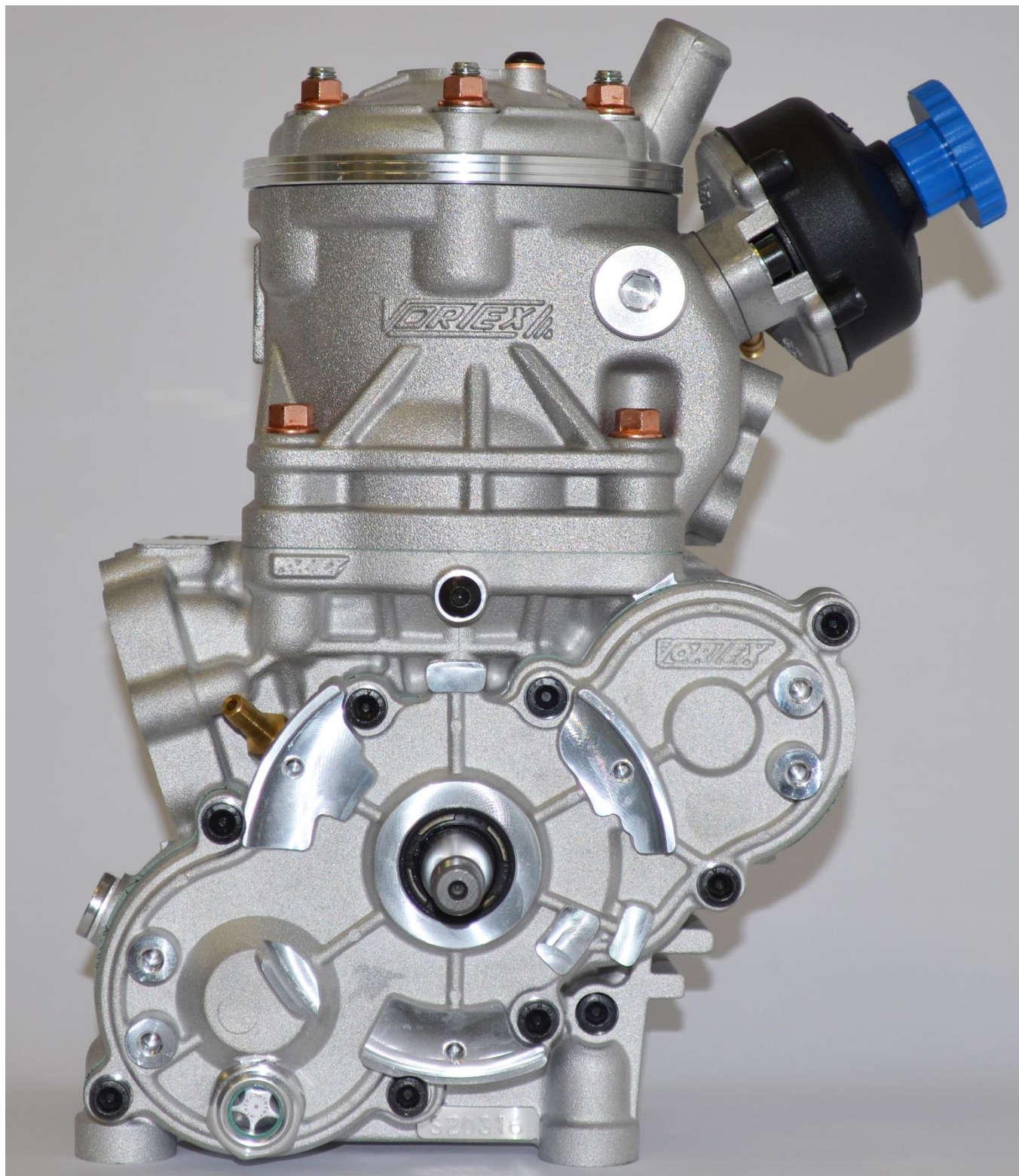
**PHOTO DU MOTEUR COMPLET COTÉ  
PIGNON**

**PHOTO OF DRIVE SIDE OF THE COMPLETE  
ENGINE**



**PHOTO DU MOTEUR COMPLET COTÉ  
OPPOSÉ AU PIGNON**

**PHOTO OF OPPOSITE DRIVE SIDE OF THE  
COMPLETE ENGINE**



**PHOTO DE L'ARRIÈRE DU MOTEUR  
COMPLET**

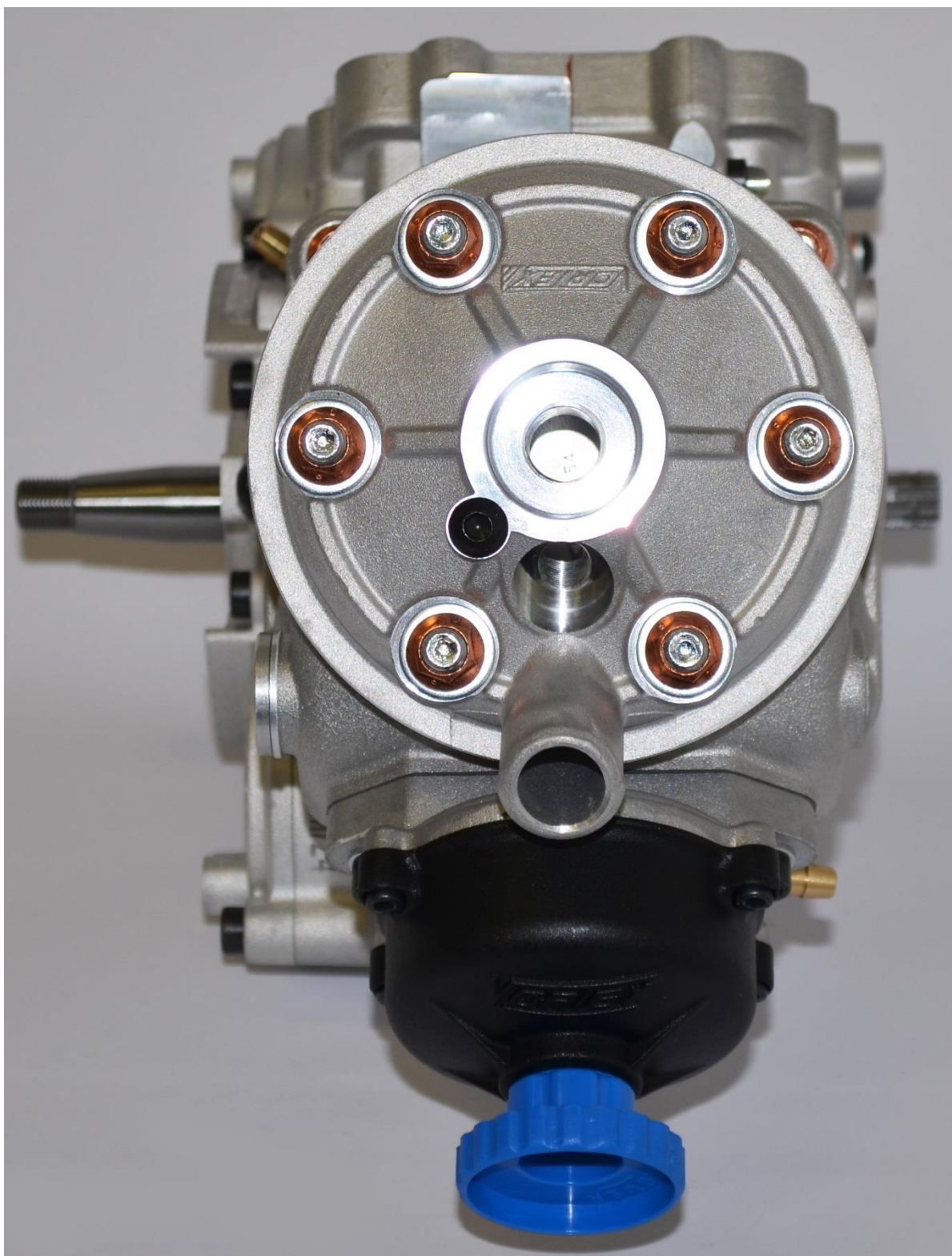
***PHOTO OF THE REAR OF THE COMPLETE  
ENGINE***



**PHOTO DE L'AVANT DU MOTEUR COMPLET**

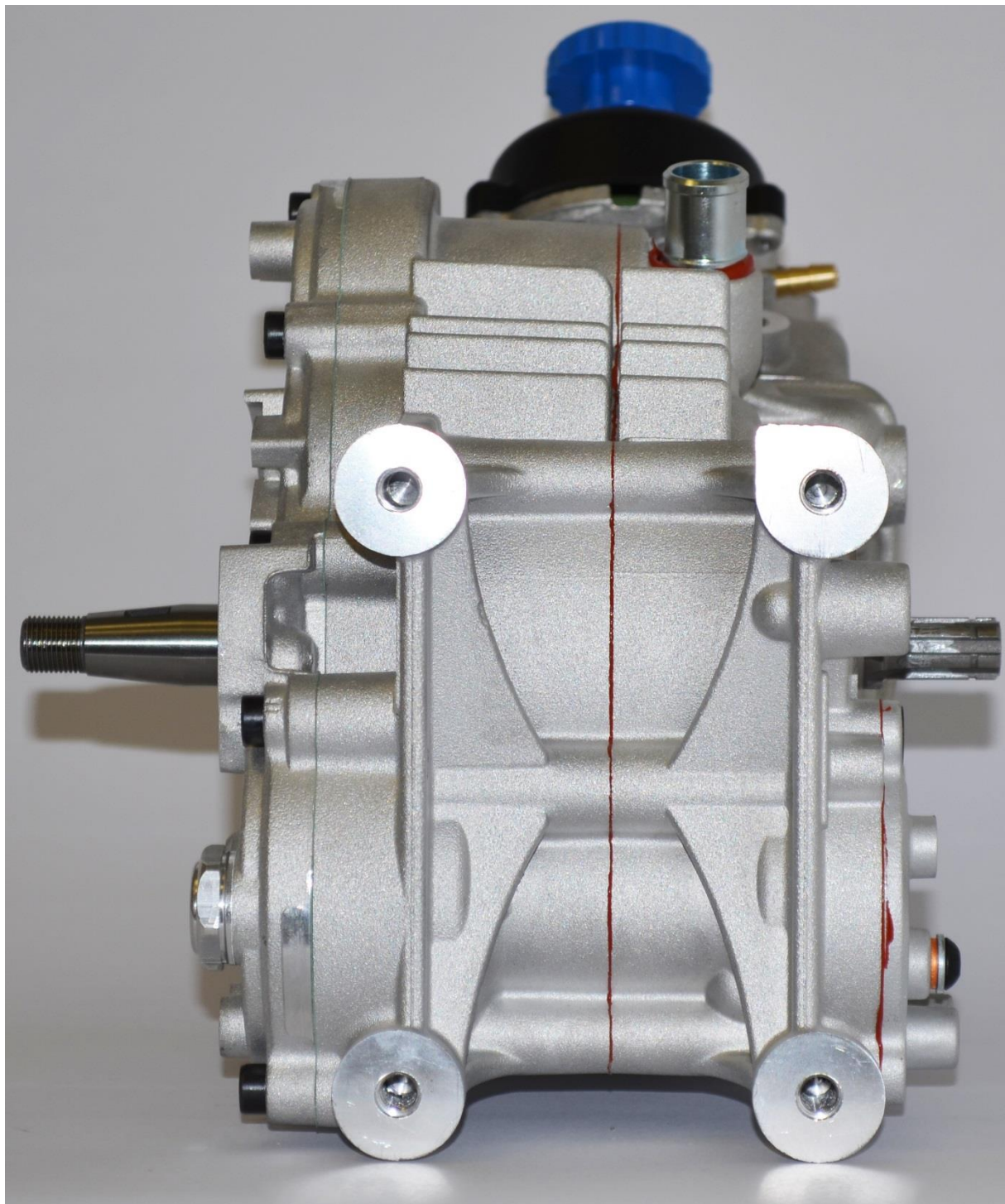
***PHOTO OF THE FRONT OF THE COMPLETE  
ENGINE***



**PHOTO DU MOTEUR COMPLET VU DU HAUT*****PHOTO OF THE COMPLETE ENGINE TAKEN  
FROM ABOVE***

**PHOTO DU MOTEUR COMPLET VU DU  
DESSOUS**

***PHOTO OF THE COMPLETE ENGINE TAKEN  
FROM BELOW***



## INFORMATIONS TECHNIQUES

## TECHNICAL INFORMATION

| A                                                                               | CARACTÉRISTIQUES                        | A                                                                             | CHARACTERISTICS     |
|---------------------------------------------------------------------------------|-----------------------------------------|-------------------------------------------------------------------------------|---------------------|
| Le nombre de décimales doit être de 2 ou en accord avec la tolérance appliquée. |                                         | The number of decimal places must be 2 or comply with the relevant tolerance. |                     |
|                                                                                 |                                         | Tolérances / remarques<br>Tolerances & remarks                                |                     |
| <b>Cylindre</b>                                                                 |                                         | <b>Cylinder</b>                                                               |                     |
| Volume du cylindre                                                              | Volume of cylinder                      | <u>124.96 cm<sup>3</sup></u>                                                  | <125cm <sup>3</sup> |
| Alésage d'origine                                                               | Original bore                           | <u>54.05 mm</u>                                                               | --                  |
| Alésage théorique maximum                                                       | Theoretical maximum bore                | <u>54.289 mm</u>                                                              | --                  |
| Course                                                                          | Stroke                                  | <u>54 mm</u>                                                                  | --                  |
|                                                                                 |                                         |                                                                               |                     |
| Nombre de canaux de transfert, cylindre/carter                                  | Number of transfer ducts, cylinder/sump | <u>5 / 5</u>                                                                  | --                  |
| Nombre de lumières / canaux d'échappement                                       | Number of exhaust ports / ducts         | <u>3</u>                                                                      | --                  |
| Forme de la chambre de combustion                                               | Shape of the combustion chamber         | <u>SPHERICAL WITH VARIABLE RADIUS+ SQUISH</u>                                 |                     |
|                                                                                 |                                         |                                                                               |                     |
| <b>Vilebrequin</b>                                                              |                                         | <b>Crankshaft</b>                                                             |                     |
| Nombre de paliers                                                               | Number of bearings                      | <u>2</u>                                                                      | --                  |
| Diamètre des paliers                                                            | Diameter of bearings                    | <u>25</u>                                                                     | ±0.1mm              |
| Poids minimum du vilebrequin                                                    | Minimum weight of crankshaft            | <u>1763 g</u>                                                                 | minimum             |
|                                                                                 |                                         |                                                                               |                     |
| <b>Arbre d'équilibrage</b>                                                      |                                         | <b>Balance shaft</b>                                                          |                     |
| Poids minimum de l'arbre d'équilibrage                                          | Minimum weight of balance shaft         | <u>196g</u>                                                                   | minimum             |
| Pourcentage d'Equilibrage                                                       | Percentage of balancing                 | <u>25%</u>                                                                    | minimum             |
|                                                                                 |                                         |                                                                               |                     |
| <b>Bielle</b>                                                                   |                                         | <b>Connecting rod</b>                                                         |                     |
| Longueur (entre-axe) de la bielle                                               | Connecting rod centreline               | <u>104mm</u>                                                                  | ±0.2mm              |
| Diamètre de la tête de bielle                                                   | Diameter of big end                     | <u>26mm - 28mm</u>                                                            | ±0.05mm             |
| Diamètre du pied de bielle                                                      | Diameter of small end                   | <u>19mm</u>                                                                   | ±0.05mm             |
| Poids minimum de la bielle                                                      | Min. weight of the connecting rod       | <u>105g</u>                                                                   | minimum             |

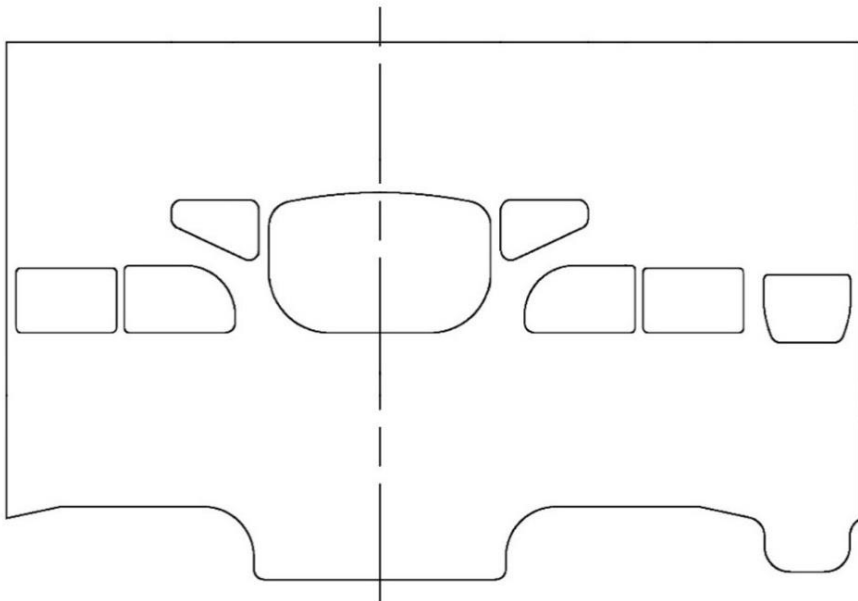
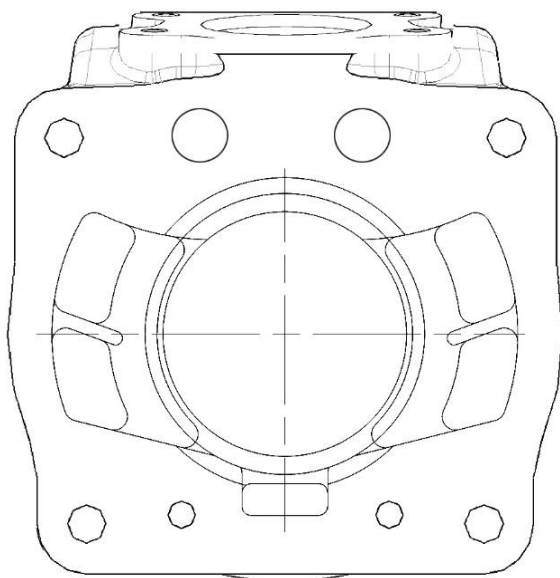
**18/M/24**

| <b>Piston</b>                        | <b>Piston</b>                                                   |                                    |                        |
|--------------------------------------|-----------------------------------------------------------------|------------------------------------|------------------------|
|                                      |                                                                 |                                    |                        |
| Nombre de segments du piston         | <i>Number of piston rings</i>                                   | <b>1</b>                           |                        |
| Poids minimum du piston avec segment | <i>Minimum weight of the bare piston including piston rings</i> | <b>OPTION 1</b><br><b>OPTION 2</b> | <b>109g</b><br>minimum |
| Poids minimum du piston avec segment | <i>Minimum weight of the bare piston including piston rings</i> | <b>OPTION 3</b><br><b>OPTION 4</b> | <b>105g</b><br>minimum |
|                                      |                                                                 |                                    |                        |
| <b>Axe du piston</b>                 | <b>Gudgeon pin</b>                                              |                                    |                        |
| Poids minimum                        | <i>Minimum weight</i>                                           | <b>27.9 g</b>                      | Minimum                |
|                                      |                                                                 |                                    |                        |

| <b>B</b>         | <b>ANGLES D'OUVERTURE</b> | <b>B</b>                 | <b>OPENING ANGLES</b>    |
|------------------|---------------------------|--------------------------|--------------------------|
|                  |                           |                          |                          |
|                  |                           |                          |                          |
| De l'échappement | <i>Of the exhaust</i>     | <b>COMMENT RÈGLEMENT</b> | <b>AS FOR REGULATION</b> |

| <b>C</b>    | <b>MATÉRIAU</b>       | <b>C</b> | <b>MATERIAL</b>                    |
|-------------|-----------------------|----------|------------------------------------|
| Culasse     | <i>Cylinder head</i>  |          | <b>AL – SI – ALLOY</b>             |
| Cylindre    | <i>Cylinder</i>       |          | <b>AL – SI – ALLOY - IRON CAST</b> |
| Carter      | <i>Sump</i>           |          | <b>AL – SI – ALLOY</b>             |
| Vilebrequin | <i>Crankshaft</i>     |          | <b>NI – CR – MO – STEEL</b>        |
| Bielle      | <i>Connecting rod</i> |          | <b>NI – CR – MO – STEEL</b>        |
| Piston      | <i>Piston</i>         |          | <b>AL – SI – ALLOY</b>             |

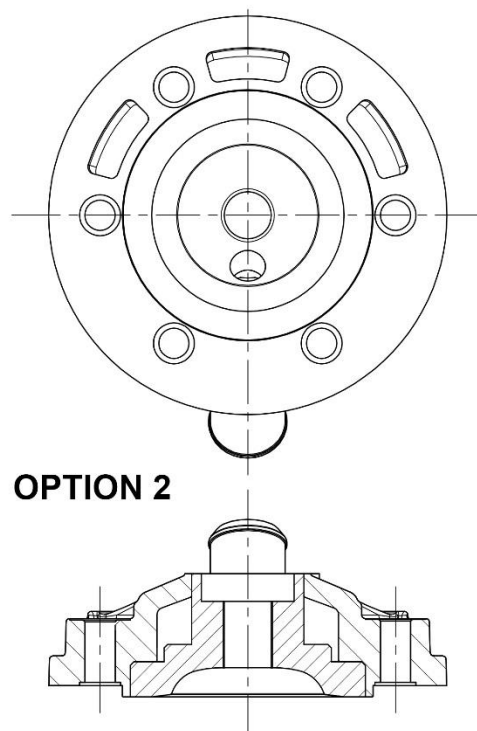
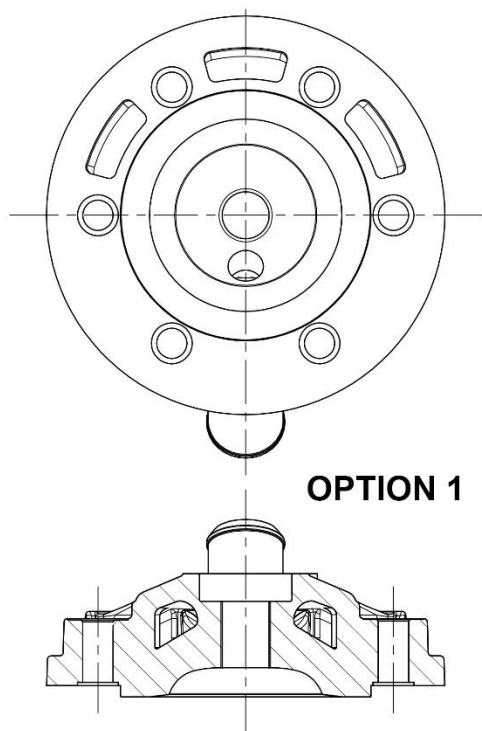
|   |                              |   |                                      |
|---|------------------------------|---|--------------------------------------|
| D | PHOTOS, DESSINS & GRAPHIQUES | D | <i>PHOTOS, DRAWINGS &amp; GRAPHS</i> |
|---|------------------------------|---|--------------------------------------|

| D.1 CYLINDRE / <i>CYLINDER UNIT</i>                                                 |                                                           |                                                                                      |                            |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------------------------------------------|----------------------------|
| DESSIN DU DÉVELOPPEMENT DU CYLINDRE<br>sans dimensions                              |                                                           | DRAWING OF THE CYLINDER DEVELOPMENT<br><i>without dimensions</i>                     |                            |
|  |                                                           |                                                                                      |                            |
| DESSIN DU PIED DU CYLINDRE sans dimensions                                          | DRAWING OF THE CYLINDER BASE<br><i>without dimensions</i> | PHOTO DU PIED DU CYLINDRE                                                            | PHOTO OF THE CYLINDER BASE |
|  |                                                           |  |                            |

**... Section D.1**

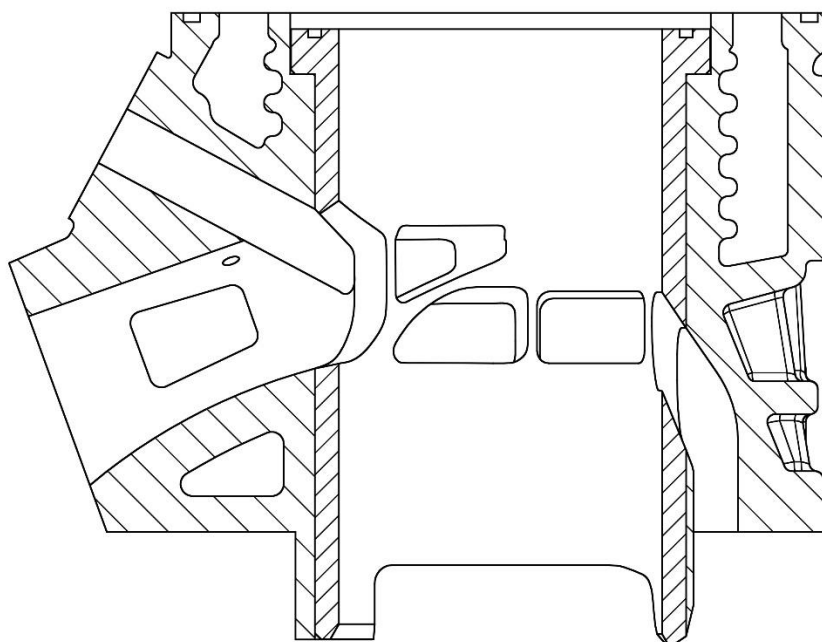
DESSIN DE LA CULASSE ET DE LA CHAMBRE  
DE COMBUSTION sans dimensions

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



VUE EN COUPE VERTICALE DU CYLINDRE  
AVEC LA CHEMISE, sans dimensions

*VERTICAL CROSS SECTION VIEW OF  
CYLINDER WITH LINER, without dimensions*



**D.2 BIELLE, CARTERS, VILEBREQUIN & PISTON / CONROD, CRANKCASE, CRANKSHAFT & PISTON**

PHOTO DE L'EMBIELLAGE  
PHOTO OF THE CRANKSHAFT & CONROD

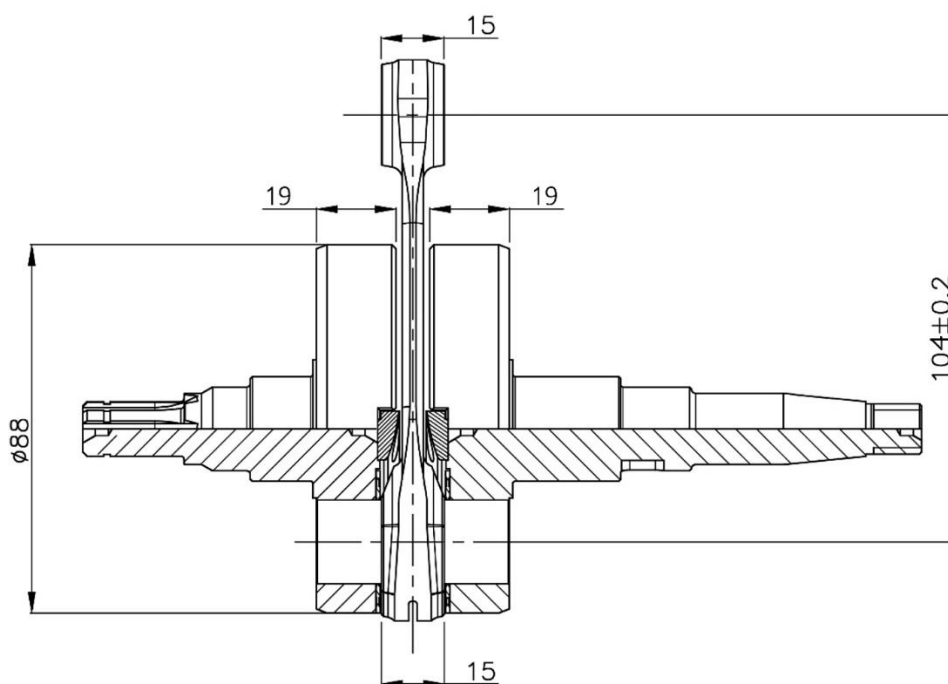


PHOTO DE LA BIELLE  
PHOTO OF THE CONROD



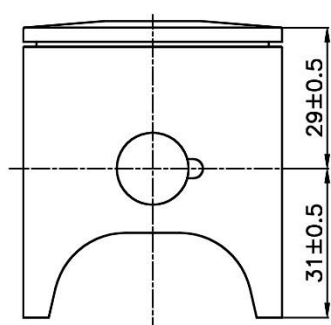
DESSIN DE L'ENSEMBLE VILEBREQUIN -  
BIELLE (DIMENSIONS avec tolérances, largeurs  
pied & tête de bielle, largeur & diamètre des  
contrepoids)

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

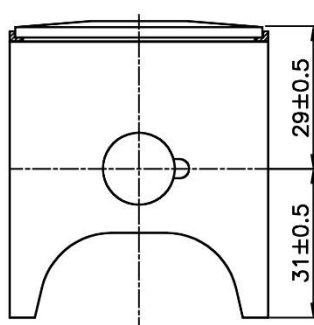


**DESSIN DU PISTON (DIMENSIONS  
PRINCIPALES avec tolérances)**

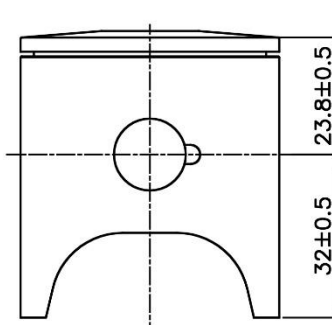
**DRAWING OF THE PISTON (MAIN  
DIMENSIONS incl. tolerances)**



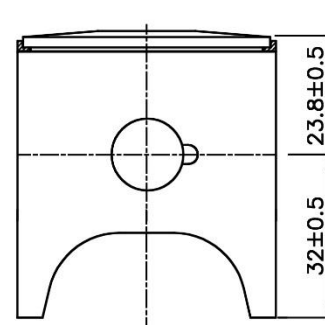
**OPTION 1**



**OPTION 2**



**OPTION 3**



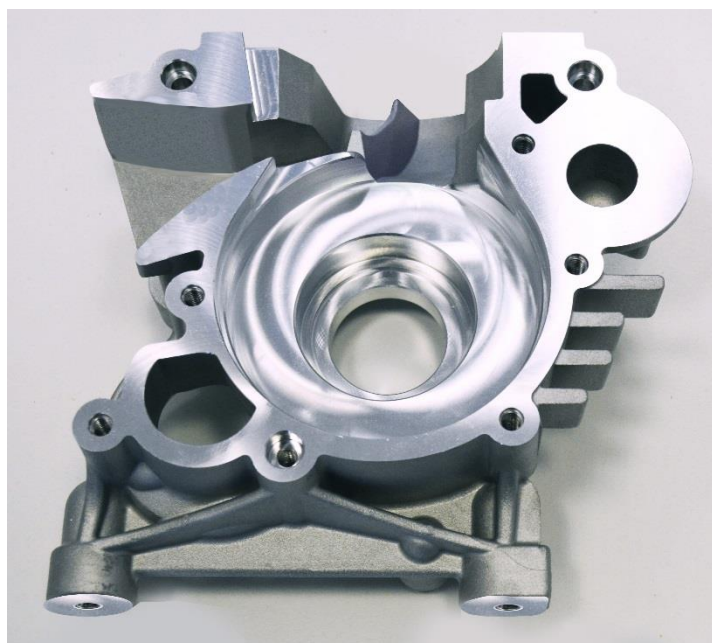
**OPTION 4**

**PHOTO INTÉRIEURE  
DU CARTER DROIT**

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

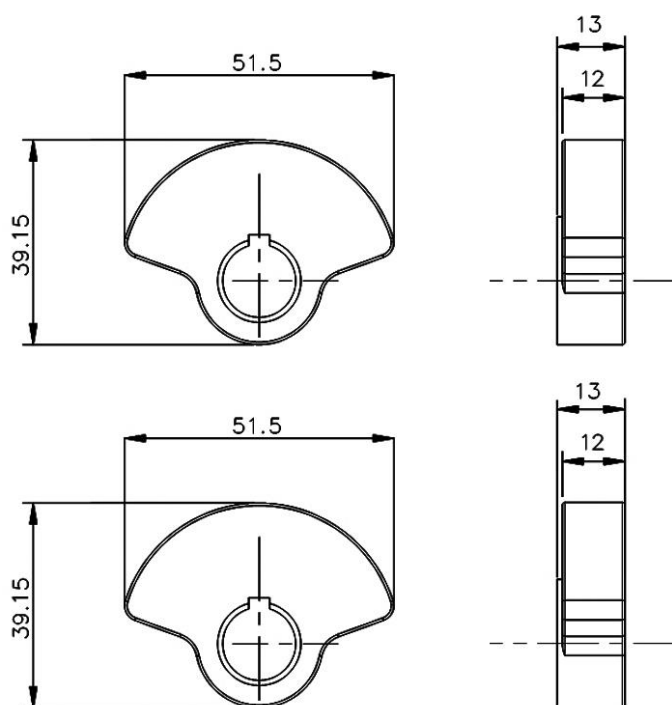
**PHOTO INTÉRIEURE  
DU CARTER GAUCHE**

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



**D.3 ARBRE D'ÉQUILIBRAGE / BALANCE SHAFT**

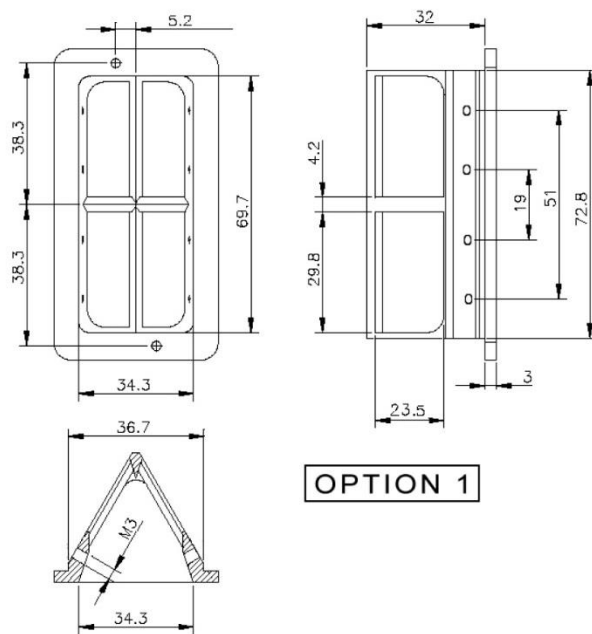
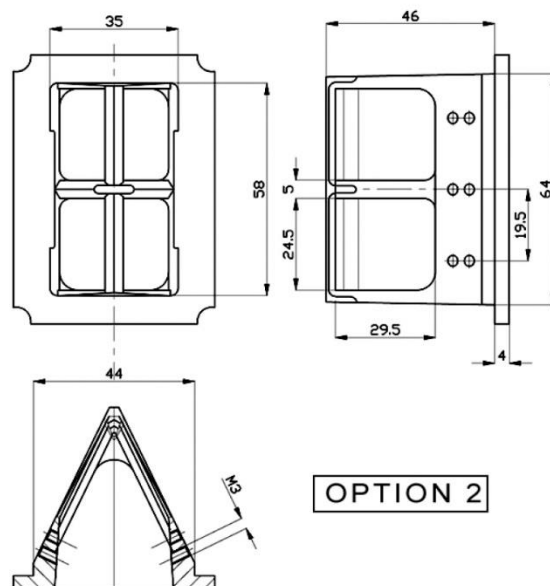
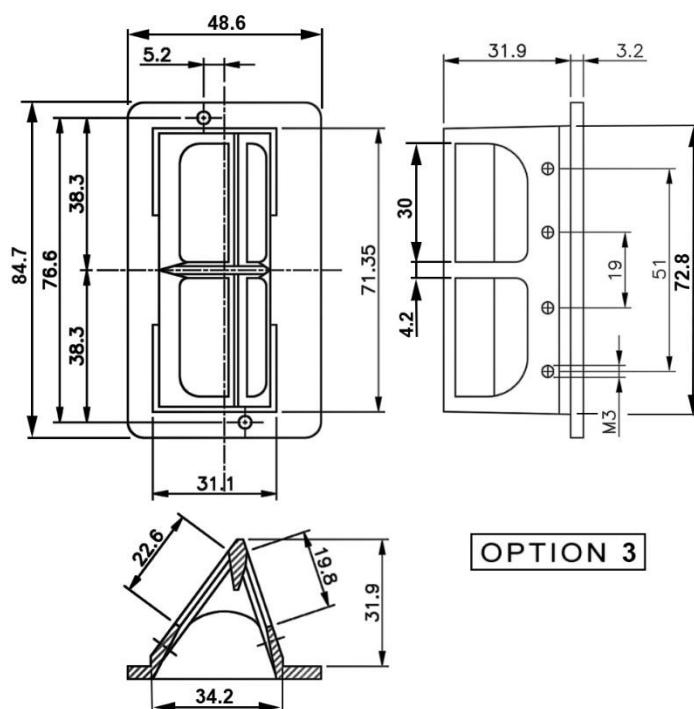
PHOTO DE L'ARBRE D'ÉQUILIBRAGE

*PHOTO OF THE BALANCE SHAFT*DESSIN DE L'ARBRE D'ÉQUILIBRAGE  
(DIMENSIONS avec tolérances)*DRAWING OF THE BALANCE SHAFT  
(DIMENSIONS incl. tolerances)*

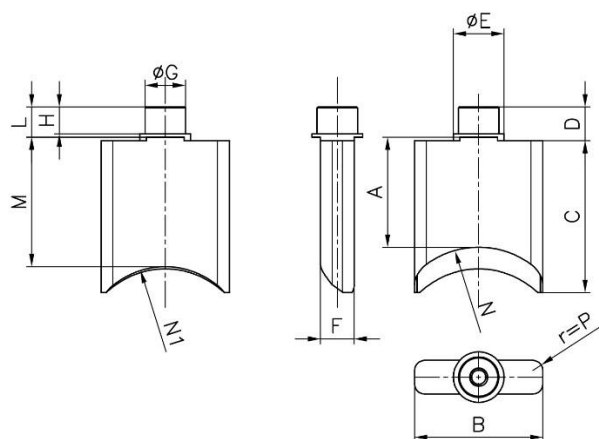
**D.4 CLAPETS & POWER VALVE / REED VALVE & POWER VALVE**

DESSIN DE LA BOÎTE À CLAPETS  
(DIMENSIONS avec **tolérances**)

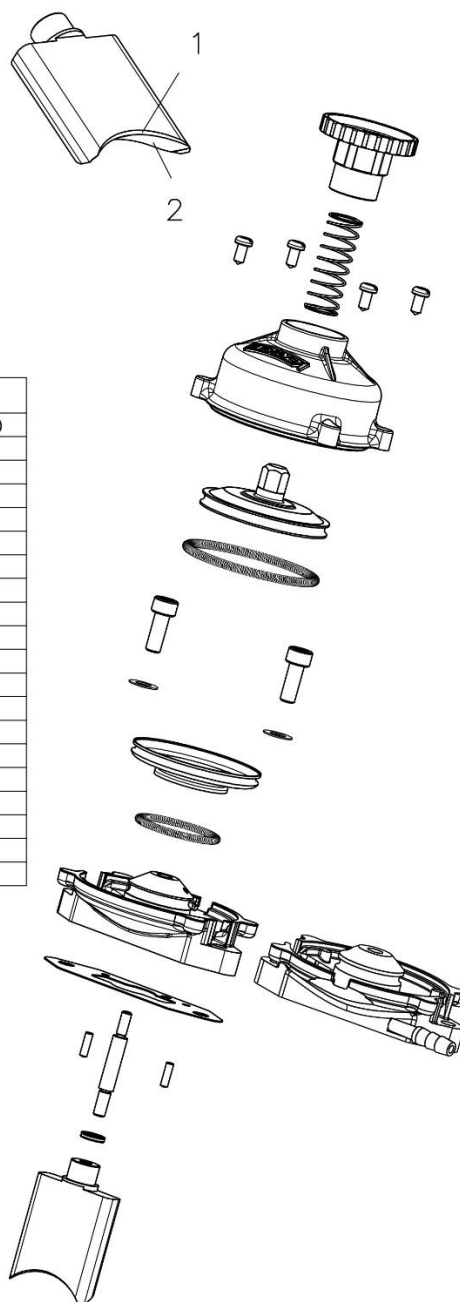
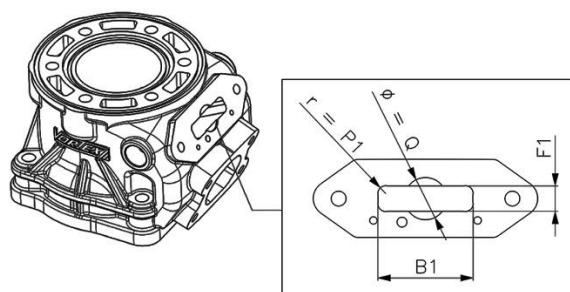
*DRAWING OF THE REED VALVE  
(DIMENSIONS incl. **tolerances**)*

**OPTION 1****OPTION 2****OPTION 3**

## ... Section D.4

**DESSIN EXPLOSE ET DENOMINATION DES  
ÉLÉMENTS DE LA POWER VALVE****EXPLODED DRAWING AND DESIGNATION OF  
THE POWER VALVE COMPONENTS**

| PARAMETER              | DIMENSIONS |                 | TOLERANCE |                 |
|------------------------|------------|-----------------|-----------|-----------------|
|                        | in mm      | (or ° if angle) | in mm     | (or ° if angle) |
| A                      | 33.2       |                 | ± 0.5     |                 |
| B                      | 38         |                 | ± 0.1     |                 |
| C                      | 45         |                 | ± 0.5     |                 |
| D                      | 10         |                 | ± 0.1     |                 |
| E                      | 15         |                 | ± 0.1     |                 |
| F                      | 10         |                 | ± 0.1     |                 |
| G                      | 12         |                 | ± 0.1     |                 |
| H                      | 8          |                 | ± 0.1     |                 |
| L                      | 9          |                 | ± 0.1     |                 |
| M                      | 39.4       |                 | ± 0.5     |                 |
| N ( 3D surface n° 2 )  | 27.4       |                 | ± 0.5     |                 |
| N1 ( 3D surface n° 1 ) | 24.3       |                 | ± 0.5     |                 |
| P                      | 3          |                 | ± 0.1     |                 |
| Q                      | 16         |                 | ± 0.1     |                 |
| Ø                      | 62         |                 | ± 2       |                 |
| B1                     | 38.2       |                 | ± 0.2     |                 |
| F1                     | 10.15      |                 | ± 0.2     |                 |
| P1                     | 3.1        |                 | ± 0.2     |                 |
| Z                      | 4          |                 | Maximum   |                 |



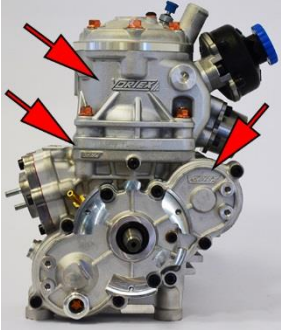
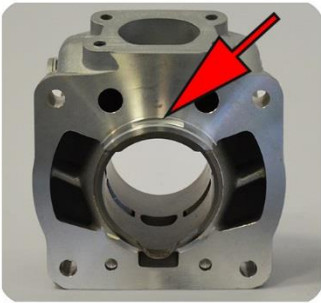
**Le dessin explosé de la power valve devra comprendre le tableau indiquant toutes les dimensions indiquées sur le dessin technique n° 22, y compris celles marquées « free ».**  
**The exploded view of the power valve shall include the table indicating all the measurements shown on the technical drawing No. 22, including those marked “free”.**

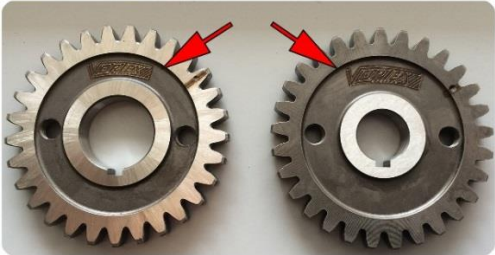
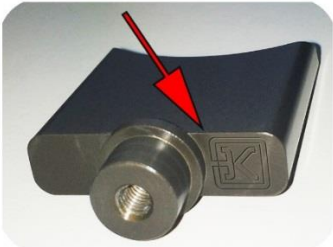
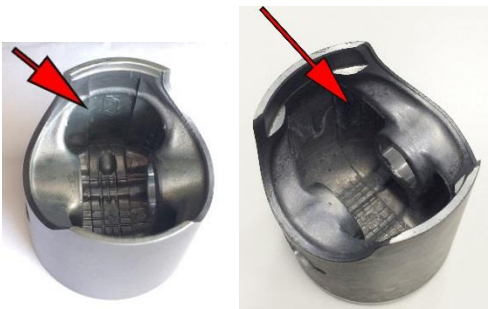
**D.5 MARQUAGE PIECES PRINCIPALES / MAIN PARTS MARKING**

**Pour chaque pièce, photo globale avec le marquage et photo avec zoom sur le marquage**  
**For each part, global picture with marking and zoom picture on marking**

1. Fondries de carter, couvercle d'engrenages, cylindre, culasse
2. Chemise en fonte
3. Demi-vilebrequins
4. Bielle
5. Arbre d'équilibrage
6. Engrenages
7. Couvercle (plastique) de la power valve
8. Guillotine de la power valve
9. Piston

1. Castings of crankcase, gears cover, cylinder, cylinder head
2. Cast iron liner
3. Half-crankshafts
4. Conrod
5. Balancer shaft
6. Gears
7. Power valve (plastic) cover
8. Power valve slide
9. Piston

| Pièces N° / Parts no. | Photo globale / global picture                                                       | Zoom                                                                                  |
|-----------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1                     |    |   |
| 2                     |   |  |
| 3                     |   |  |
| 4                     |  |  |

|   |                                                                                     |                                                                                       |
|---|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 5 |    |    |
| 6 |    |    |
| 7 |   |   |
| 8 |  |  |
| 9 |  |  |