

DYNABOX

Servo-réducteurs à renvoi d'angle Right-angle precision servo gearheads

INSTRUCTIONS DE SERVICE

Nous vous remercions d'avoir choisi un servo-réducteur **DYNABOX**.

Celui-ci, grâce à sa conception robuste, à la fabrication sous qualité totale de tous ses composants, au contrôle 100 % du produit fini avant emballage, fera preuve d'une fiabilité sans égale durant des dizaines de milliers d'heures.

Afin de garantir cela, veuillez suivre scrupuleusement les procédures de montage ci-après :

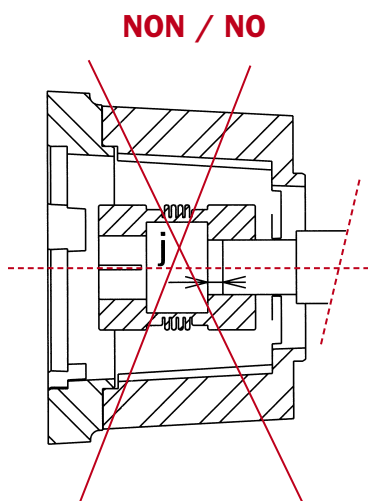
SERVICE INSTRUCTIONS

Many thanks for having chosen a **DYNABOX** gearhead.

Thanks to its strong design, production of all components under total quality, and 100 % inspection before shipment, it will prove an amazing reliability during thousands of hours, as soon as following recommendations are assumed :

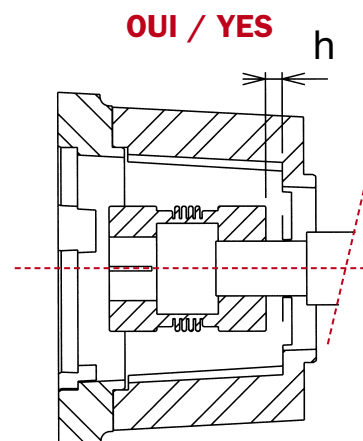
MONTAGE DE L'ACCOUPLEMENT SERVO

Emmancher l'accouplement sur l'arbre d'entrée du réducteur. Le positionner axialement afin que la partie utile de serrage porte sur toute sa longueur, en veillant à laisser un petit espace (h) entre l'accouplement et la bride du réducteur :



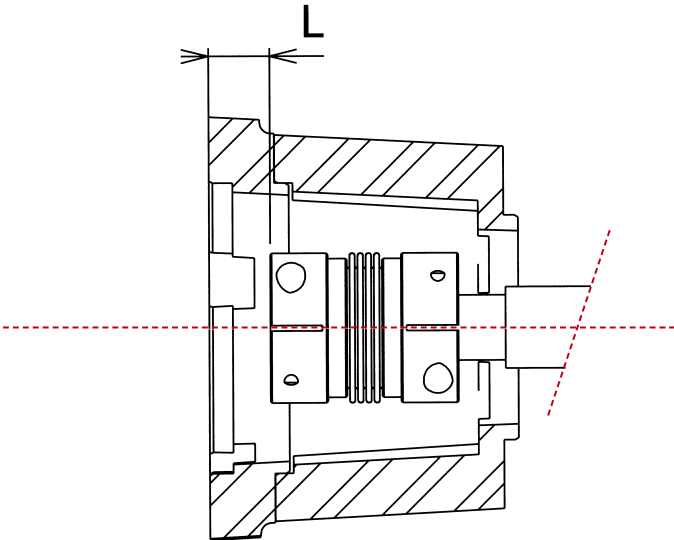
SERVO COUPLING MOUNTING

Engage the coupling on the gearbox input shaft. Position it axially taking care that the clamping length is totally used, leaving a small gap (h) between the coupling and the gearbox flange face.



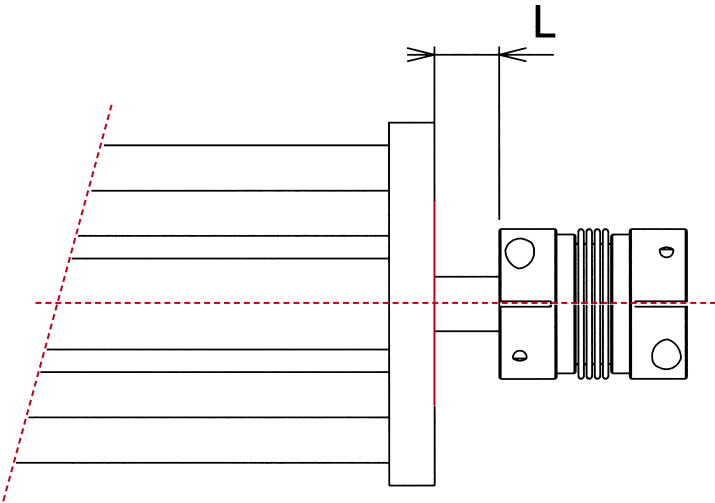
Mesurer la longueur (L) entre la face d'appui du moteur et la face avant de l'accouplement :

Measure the length (L) between the motor flange face and the coupling front face :



Démonter l'accouplement du réducteur et le monter sur l'arbre du moteur en respectant la longueur (L) :

Dismount the coupling of the gearbox and engage it on the motor shaft, respecting length (L) :



Avant montage, et pour faciliter un démontage éventuel, huiler légèrement l'alésage de l'accouplement.

Prior to mounting, and to ease dismounting, make sure the coupling hub is slightly oiled.

Serrer la vis de blocage de l'accouplement côté moteur, au couple indiqué dans le tableau ci-dessous :

Tighten the coupling screw on motor side at the required torque as per following chart :

Taille accouplement / Coupling size	N° 2	N° 5	N° 10	N° 15	N° 30	N° 60	N° 80
Couple de serrage / Tightening torque (Nm)	1,5	3	4	8	15	40	70

Emmancher l'ensemble (moteur + accouplement) sur le réducteur.

Engage the (motor + coupling) assembly on the gearbox.

Serrer les vis de fixation du moteur sur la bride du réducteur.

Hold the motor flange and gearbox flange together with the 4 screws.

Serrer la vis de fixation de l'accouplement sur l'arbre du réducteur selon le tableau ci-dessus.

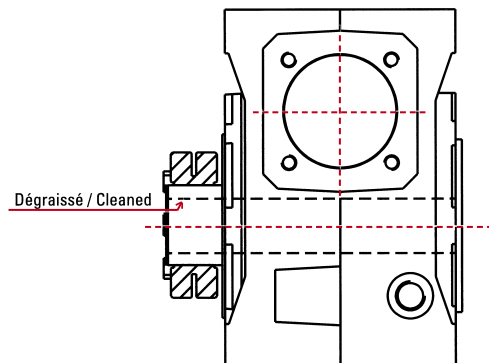
Tighten the coupling screw on gearbox side (thru the radial bore located on the gearbox flange) at the required torque, as per previous chart.

MONTAGE DE LA FRETTE DE SERRAGE

DYNABOX arbre creux lisse seulement

La frette est livrée prête à être fixée. Ne pas la démonter.

Dégraissier très soigneusement l'alésage du réducteur et l'arbre récepteur.

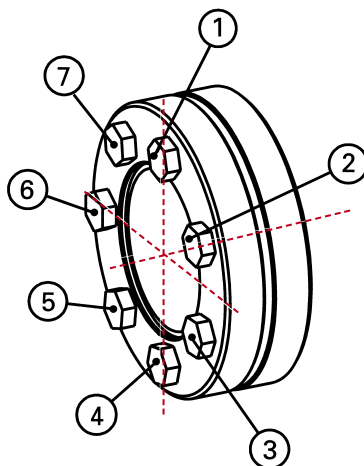


Ne pas serrer les vis de la frette avant d'avoir emmanché le réducteur sur l'arbre de la machine.

Emmancher le réducteur sur l'arbre.

Fixer le réducteur sur la machine.

Serrer les vis de la frette, en augmentant le couple de serrage très progressivement. Ne pas effectuer de serrage « en croix » mais un serrage « circulaire », en respectant l'ordre indiqué sur le schéma ci-dessous.



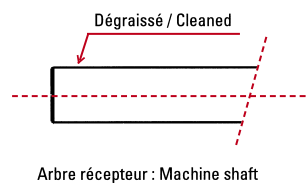
Continuer l'opération jusqu'à obtention d'un couple de serrage identique pour chaque vis, selon le tableau ci-dessous. **Il est normal de devoir serrer chaque vis plusieurs fois avant que le serrage ne soit terminé.**

MOUNTING OF SHRINK DISC

DYNABOX smooth hollow shaft only

Shrink disc is delivered ready for use. Do not dismount it.

Remove carefully any grease from the gearbox output bore and from the machine shaft.



Do not tighten the shrink disc screws before having engaged the gearbox on the machine shaft.

Engage the gearbox on the shaft.

Hold the gearbox on the machine.

Tighten the shrink disc screws, in the same order than below sketch, increasing the torque very progressively.

This must be operated as soon as the tightening torque is reached for all the screws of the shrink disc, as per below chart. **It is normal that each screw must be tightened several times until the torque is obtained.**

Ø des vis de la frette Shrink disc screw Ø	Couple de serrage Tightening torque
M5	4 Nm
M6	12 Nm
M8	30 Nm
M10	59 Nm

LUBRIFICATION

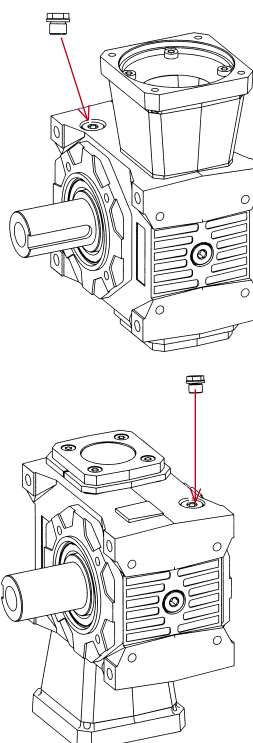
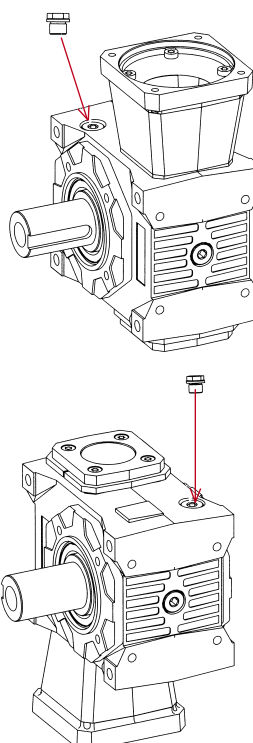
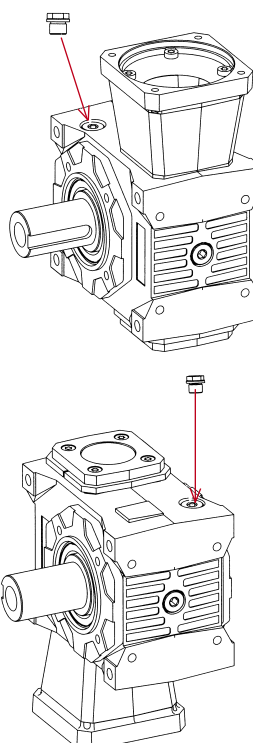
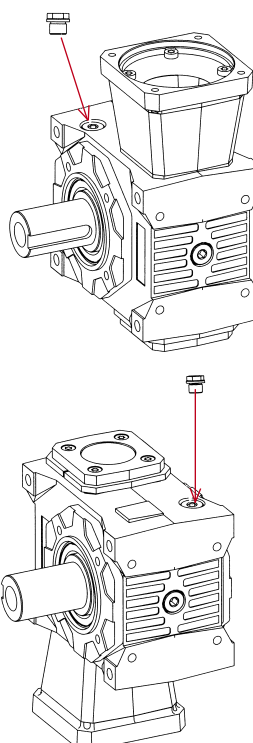
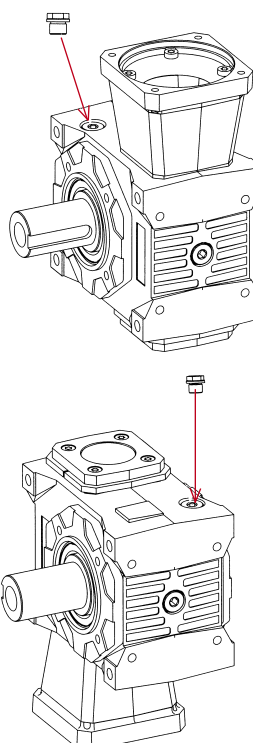
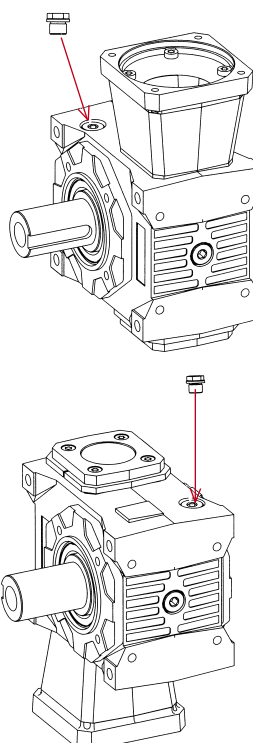
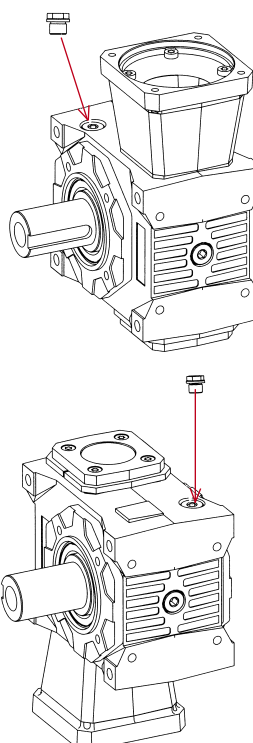
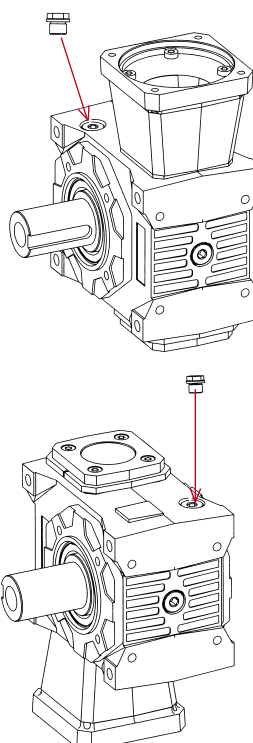
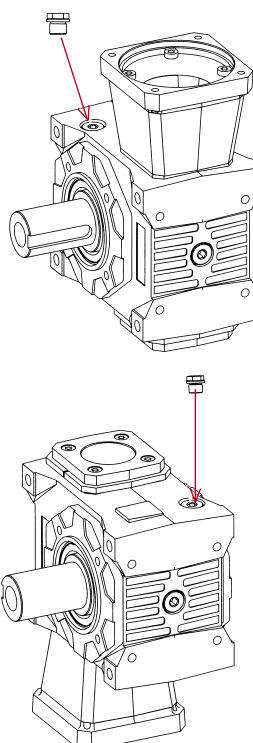
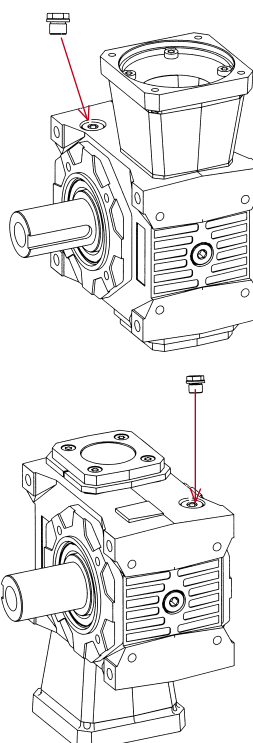
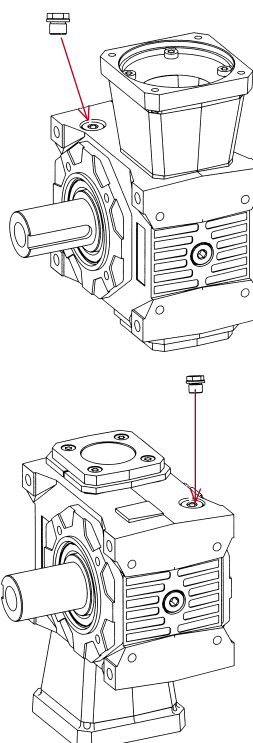
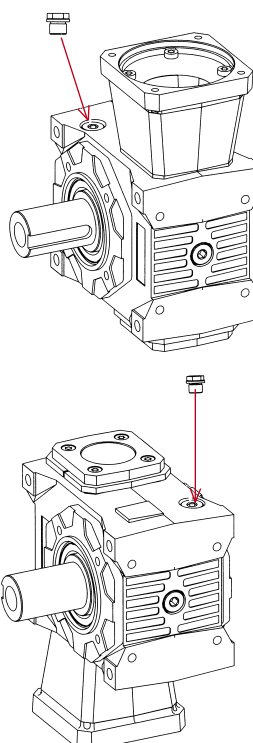
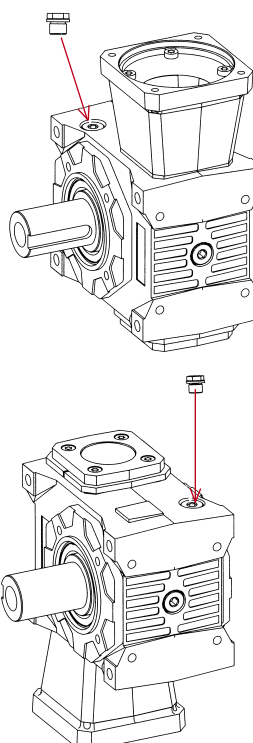
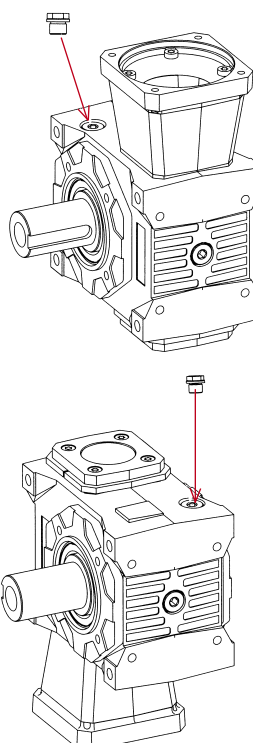
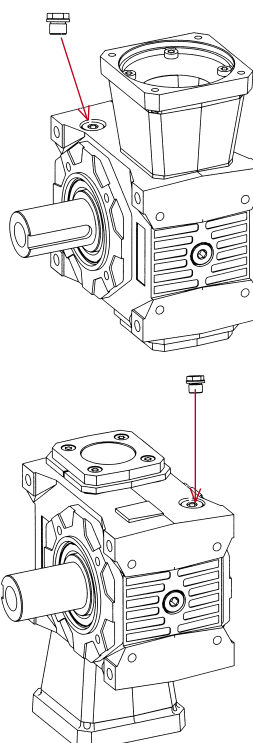
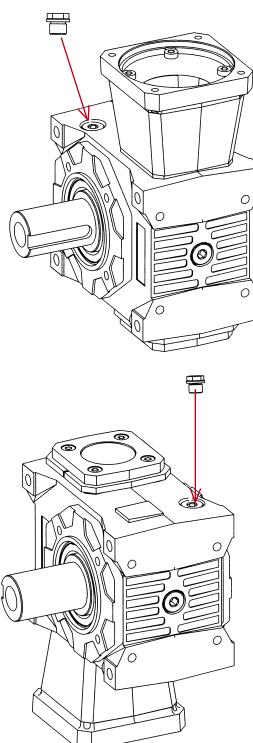
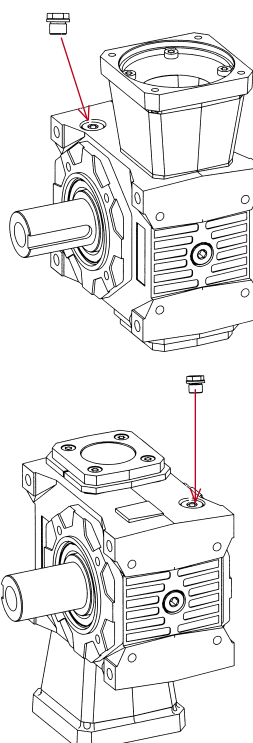
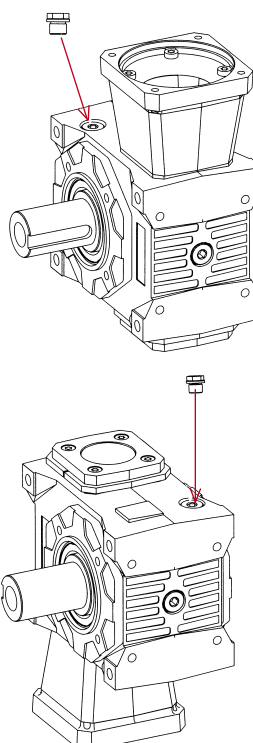
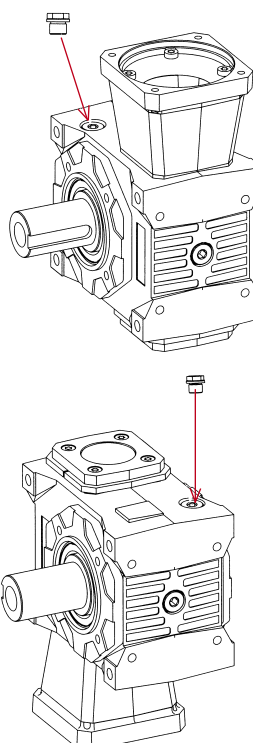
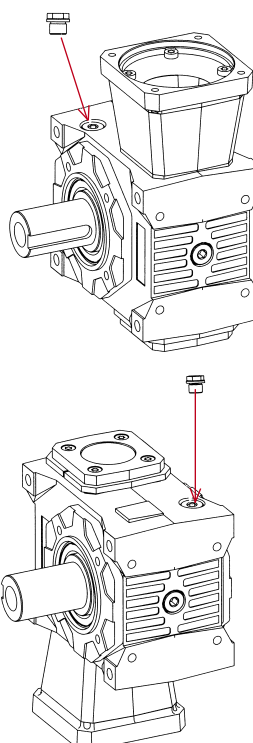
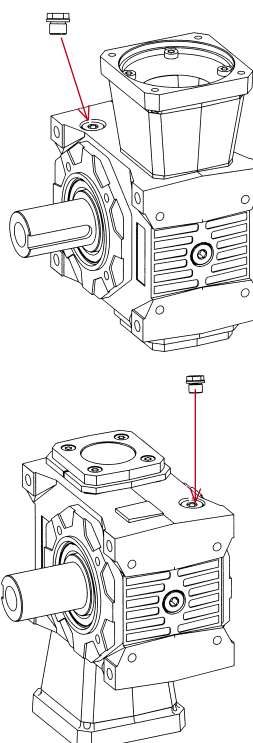
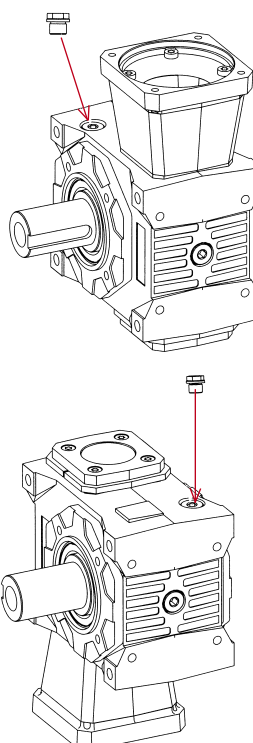
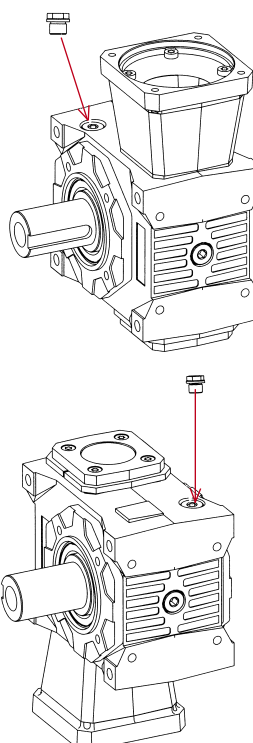
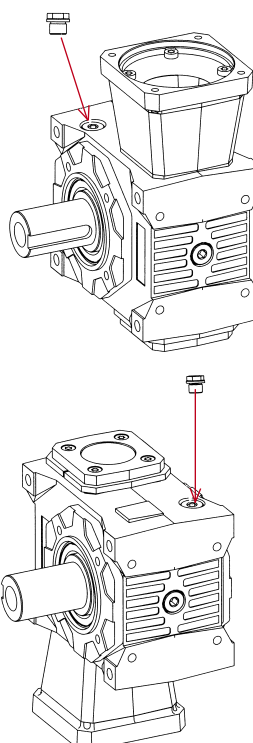
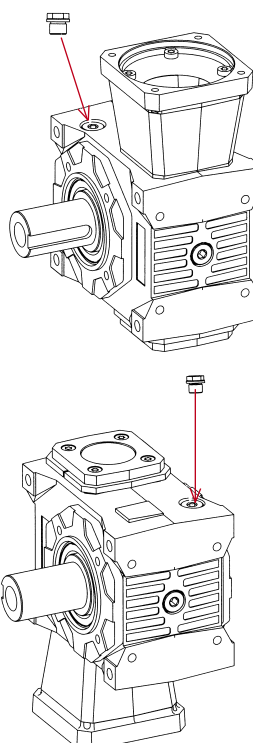
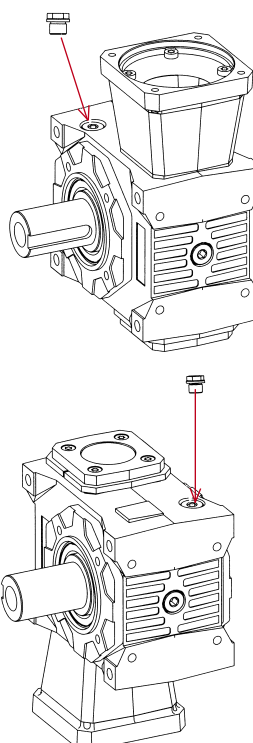
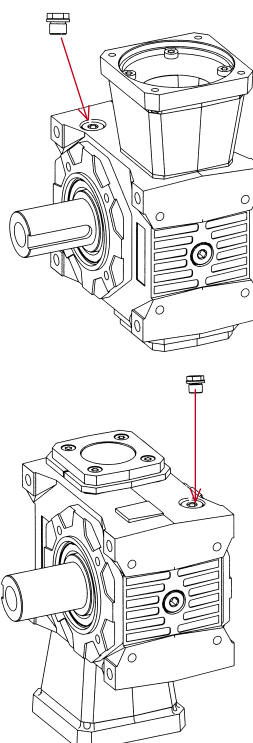
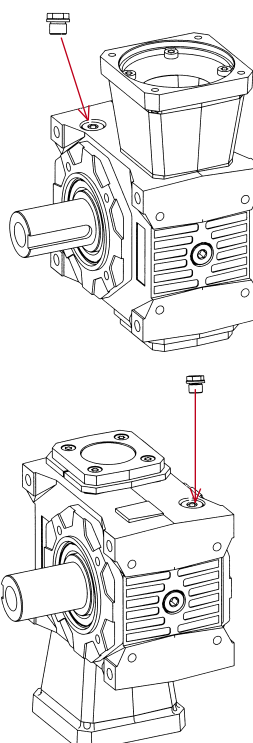
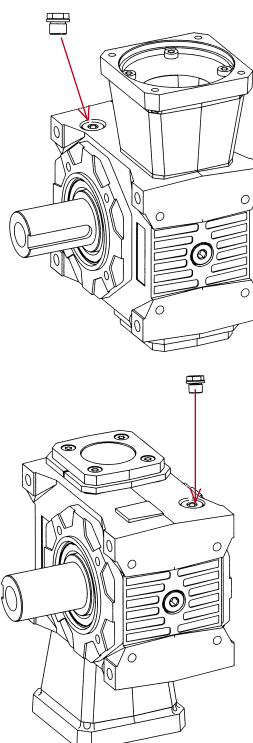
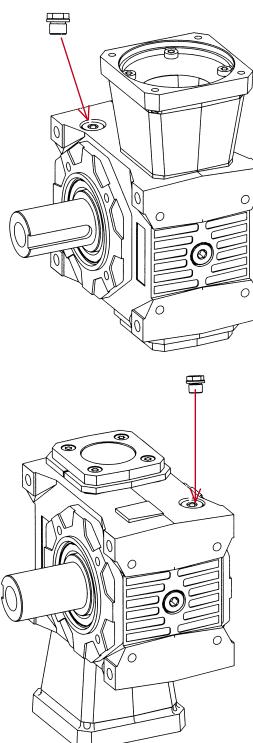
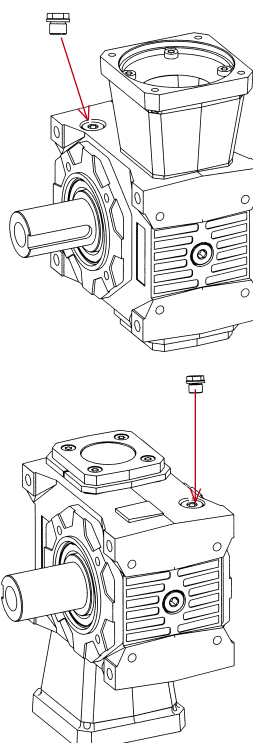
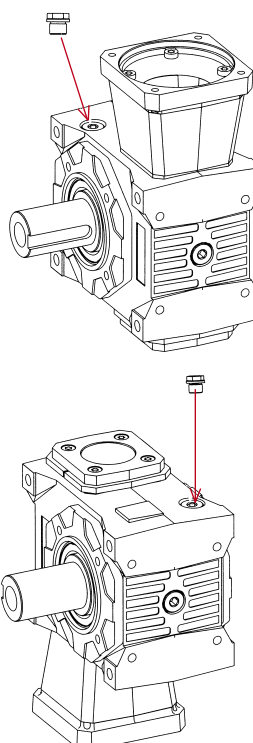
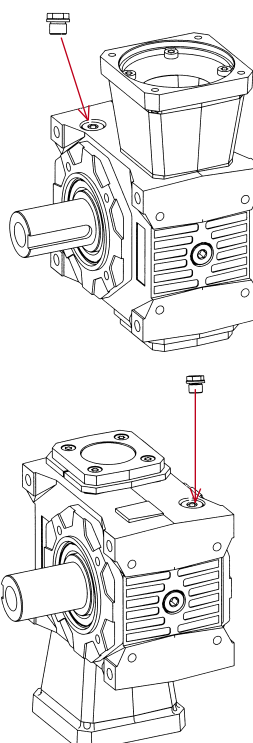
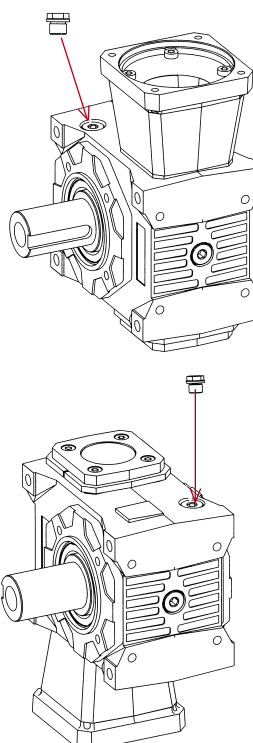
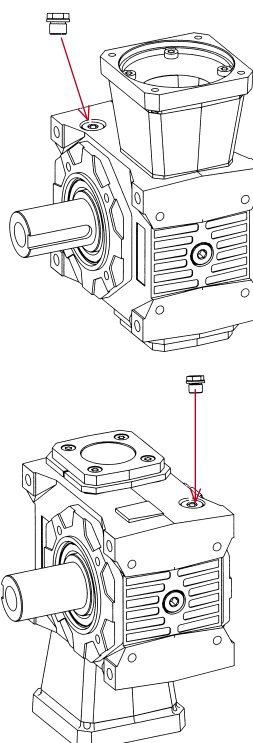
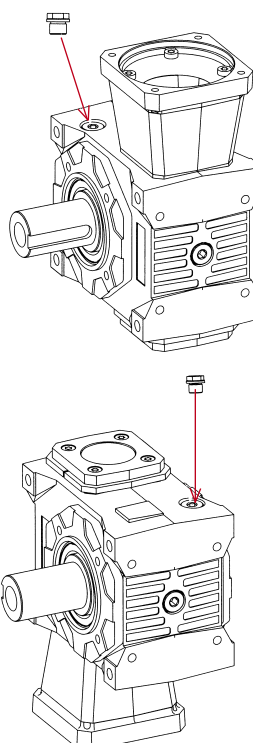
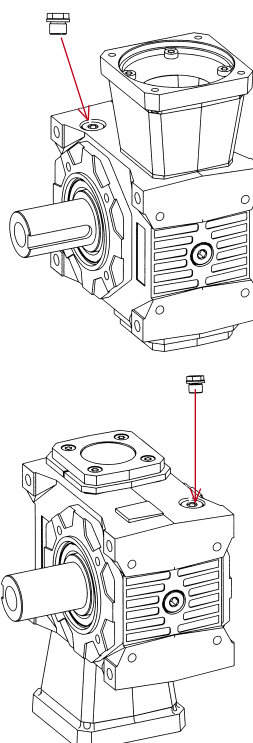
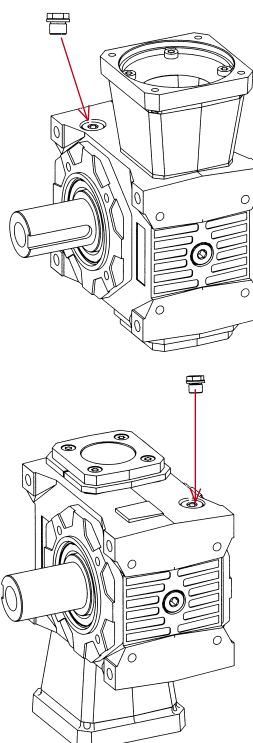
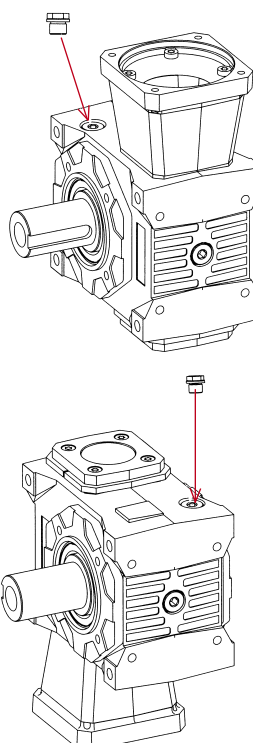
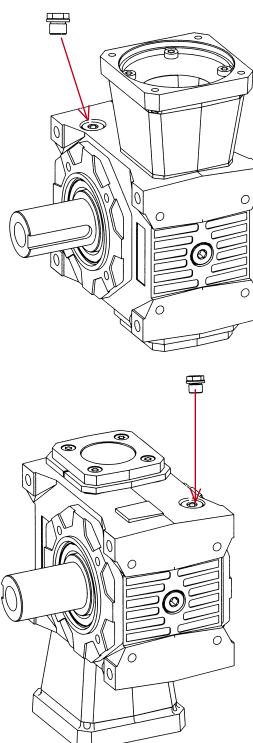
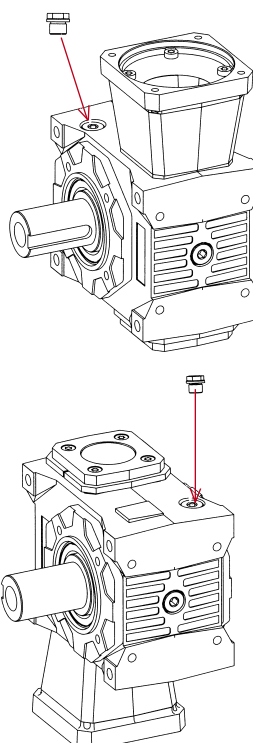
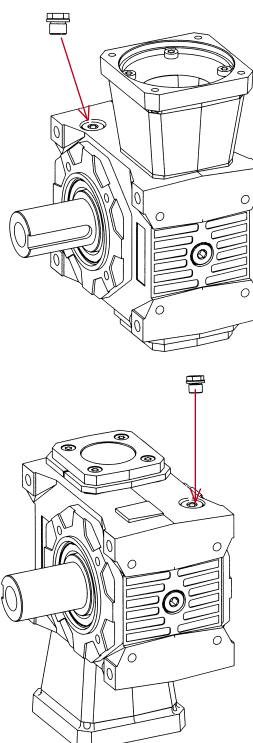
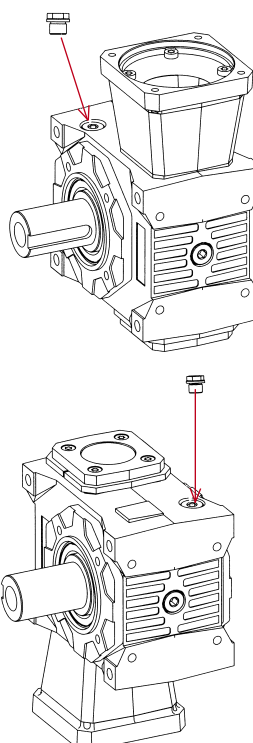
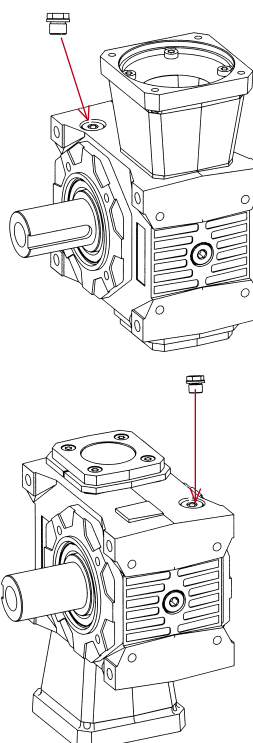
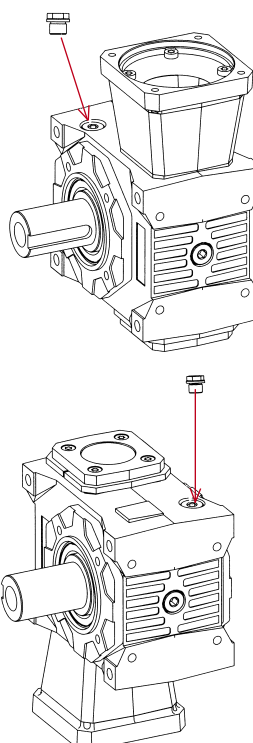
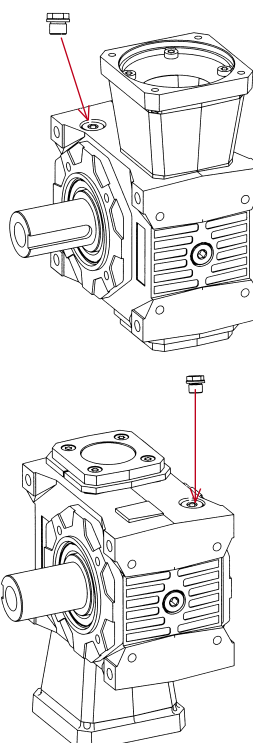
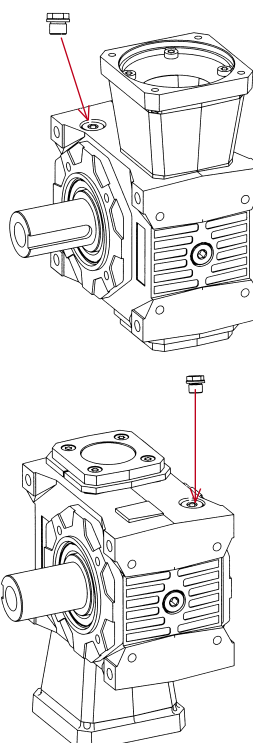
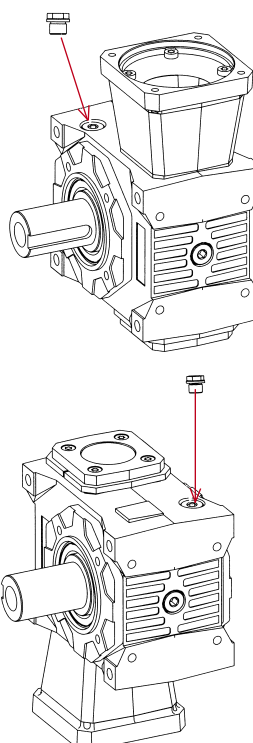
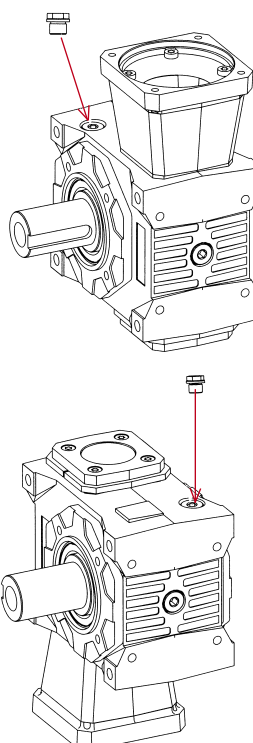
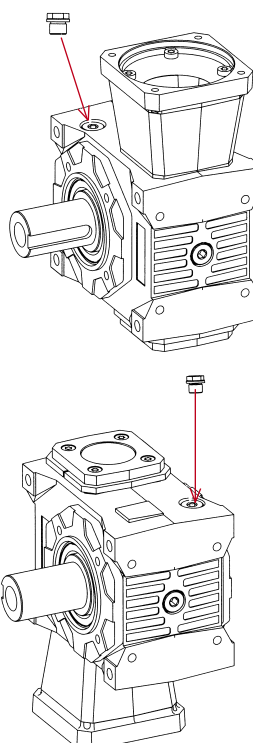
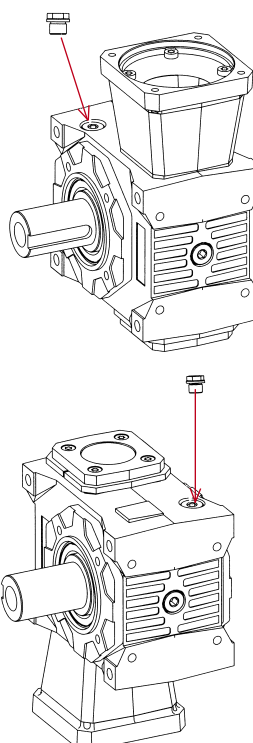
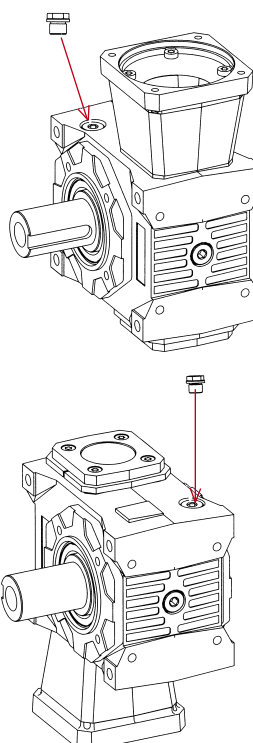
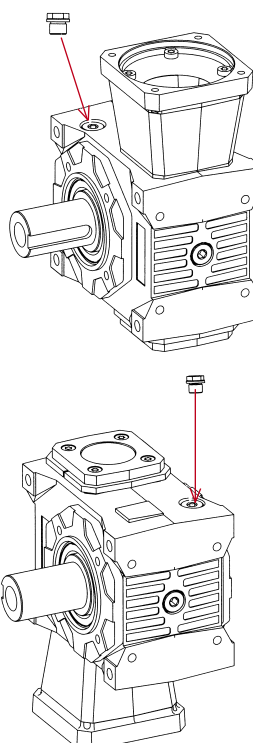
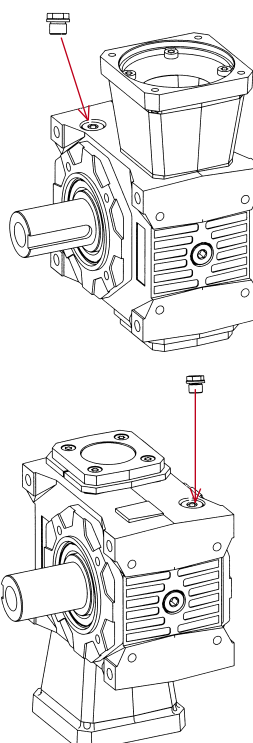
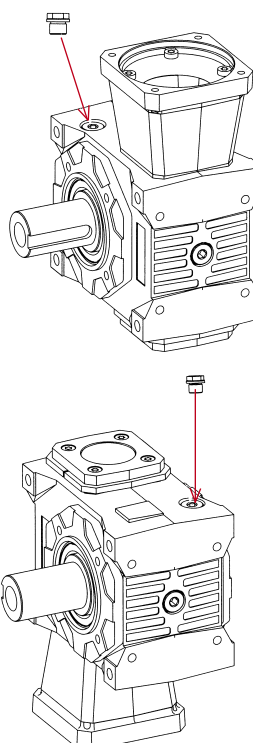
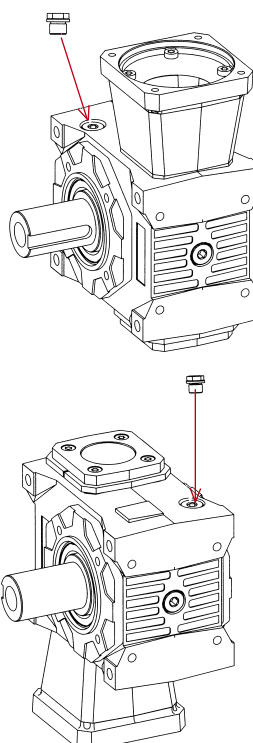
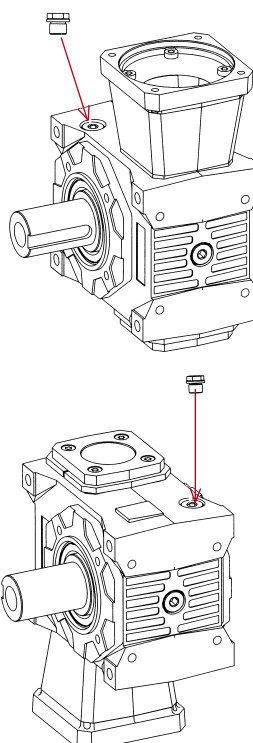
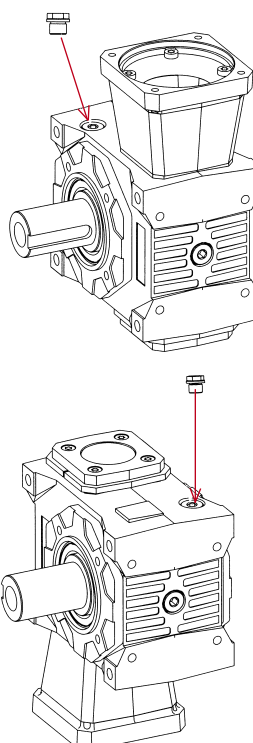
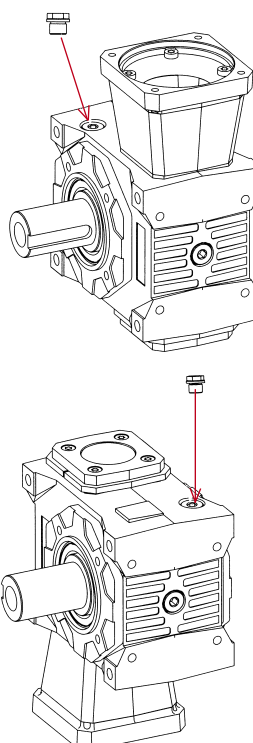
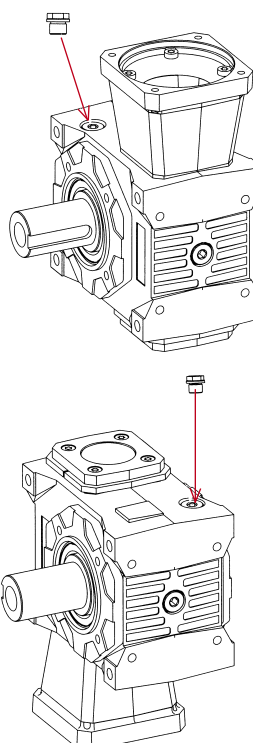
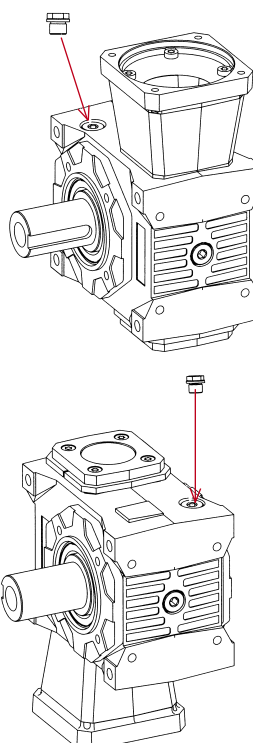
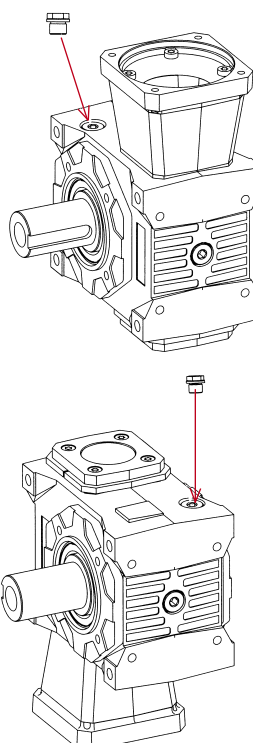
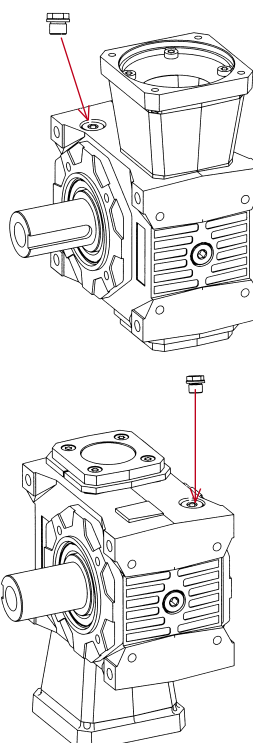
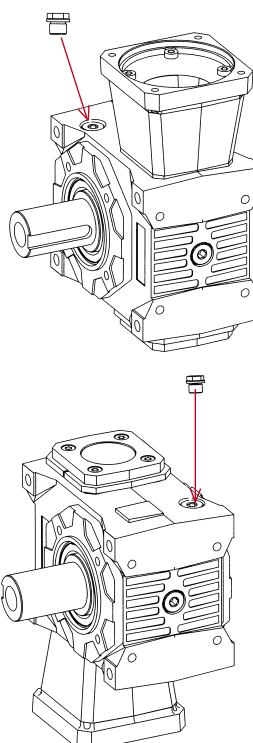
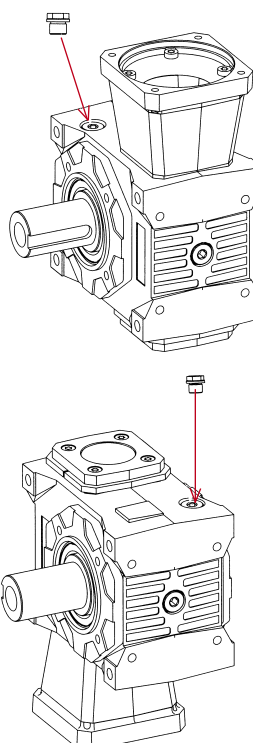
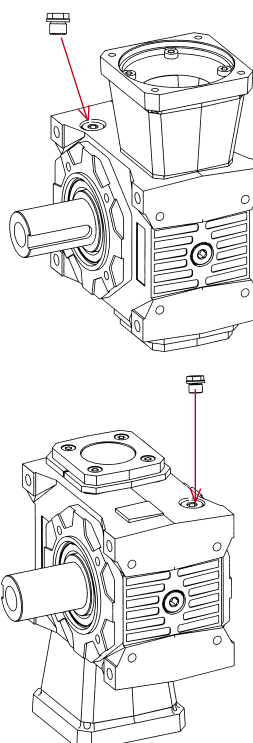
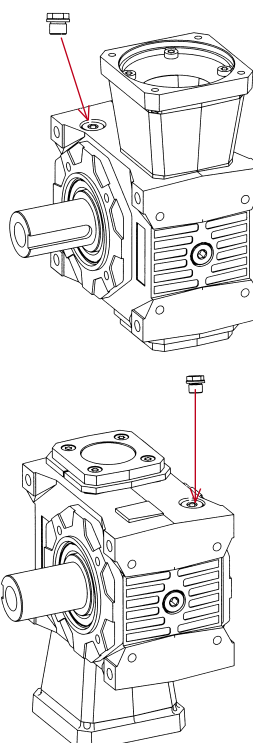
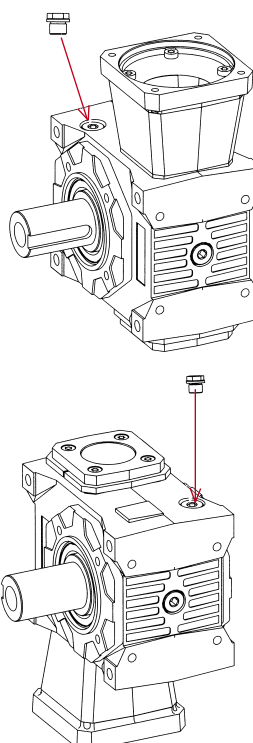
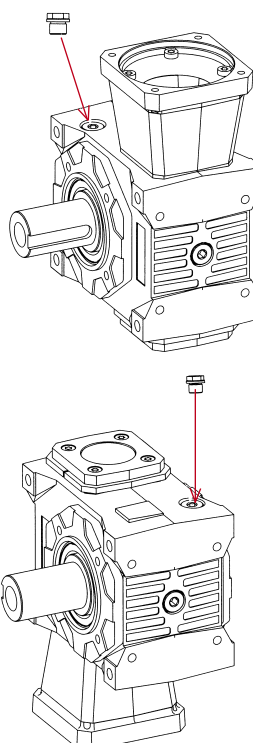
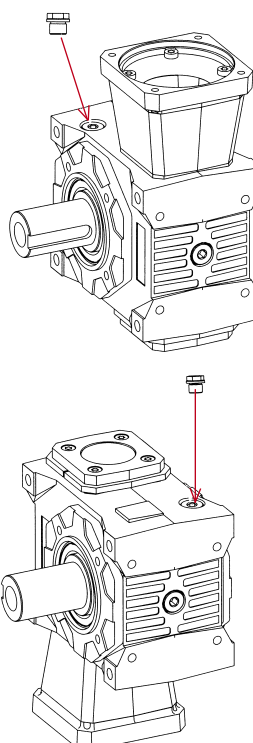
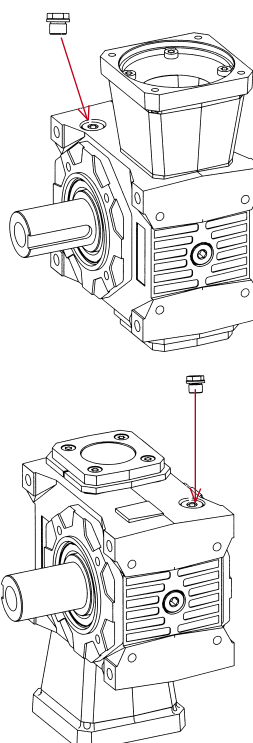
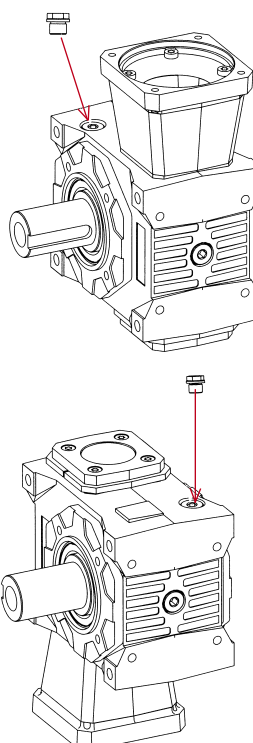
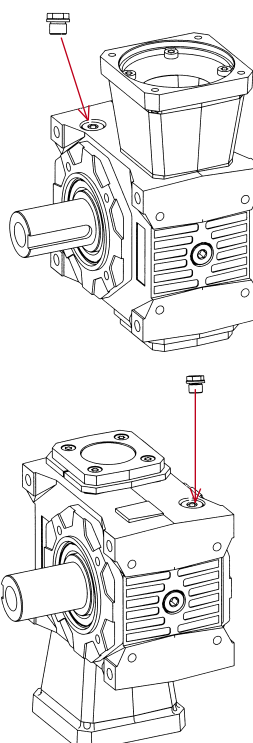
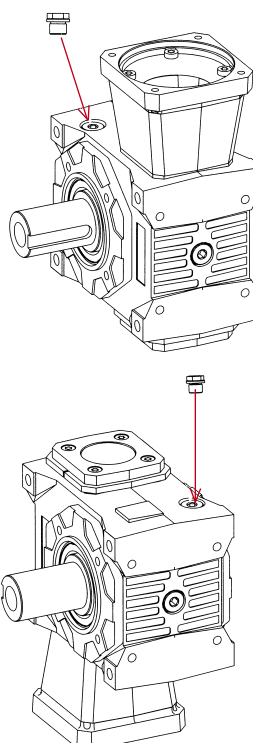
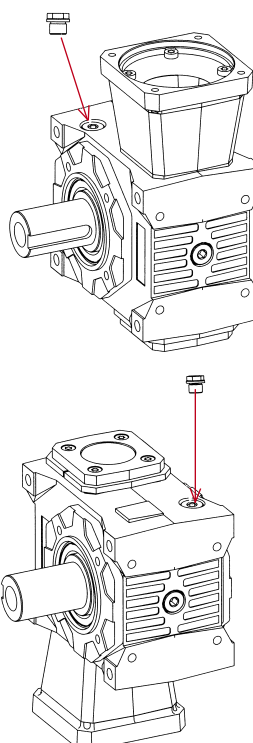
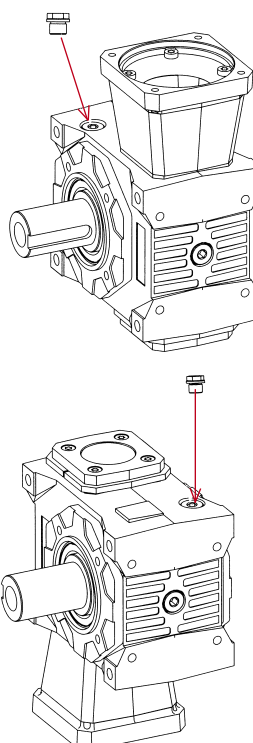
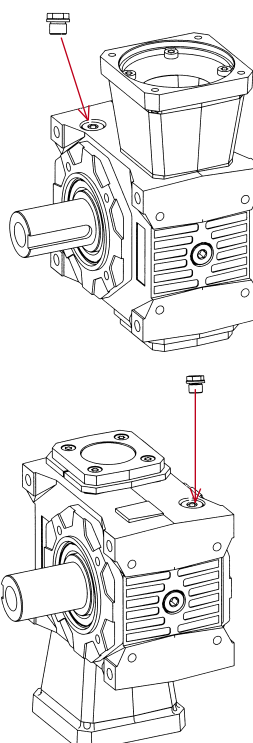
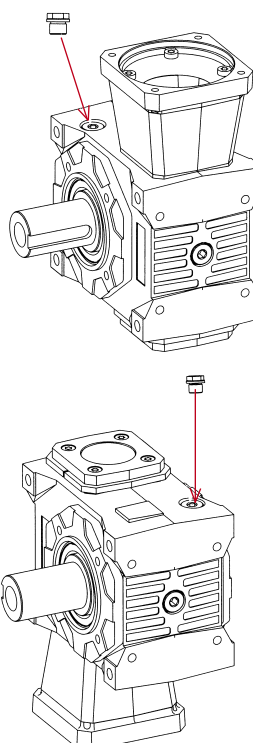
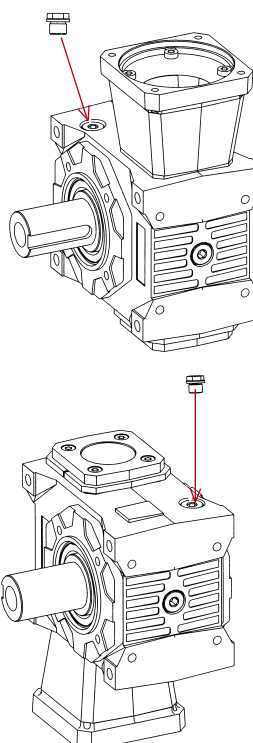
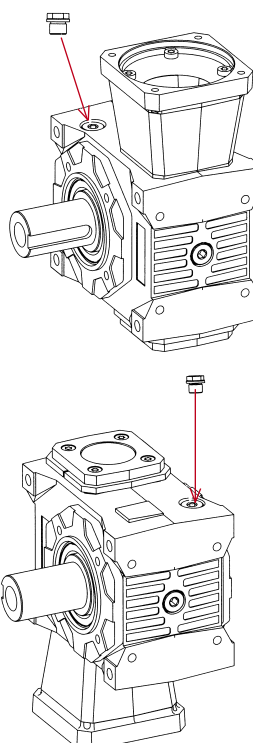
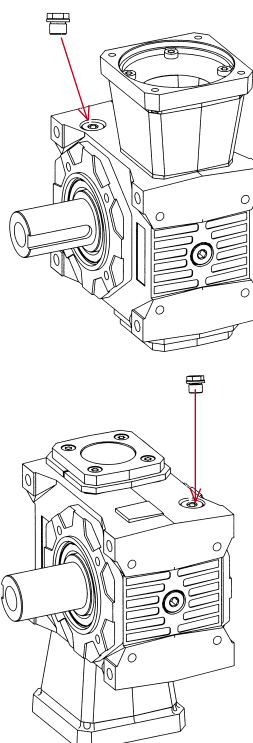
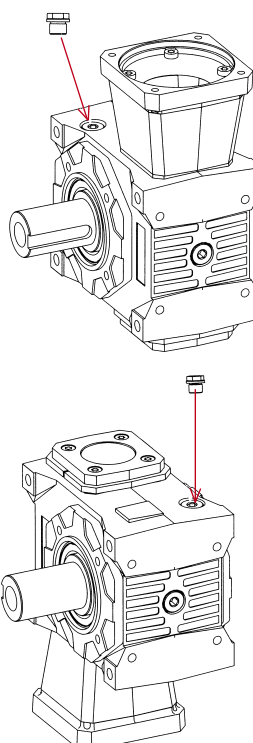
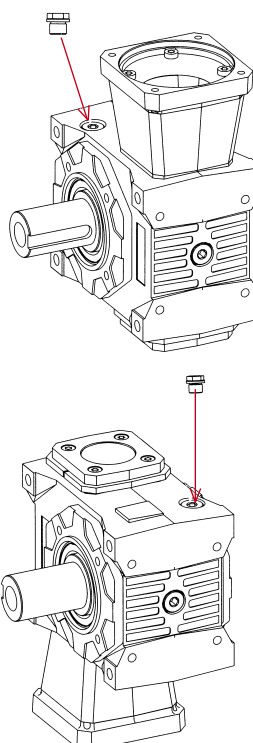
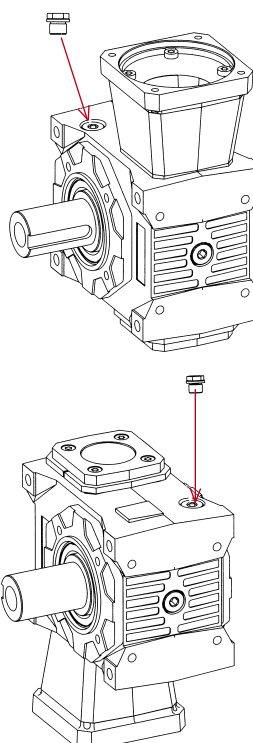
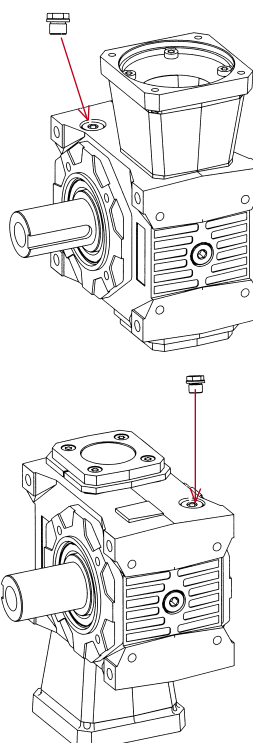
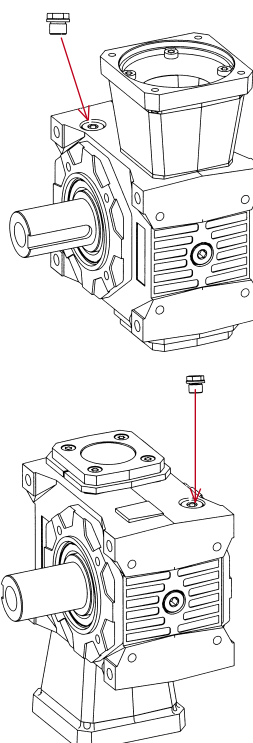
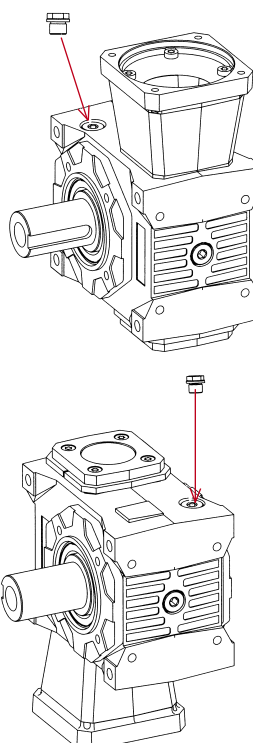
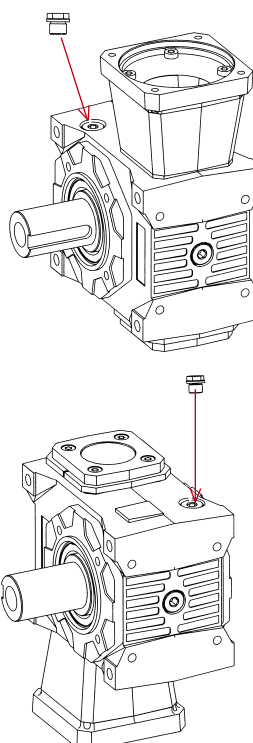
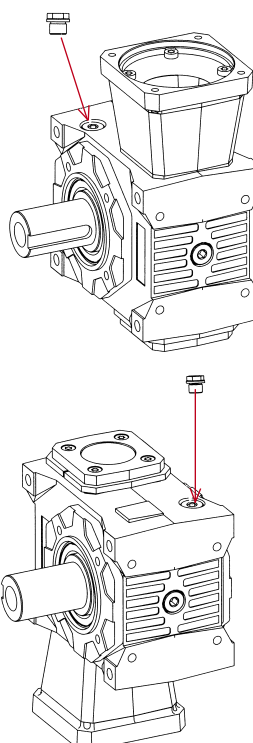
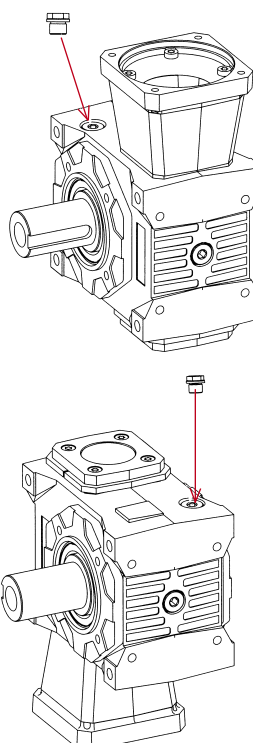
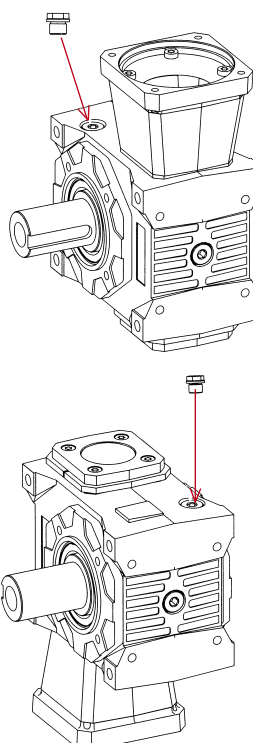
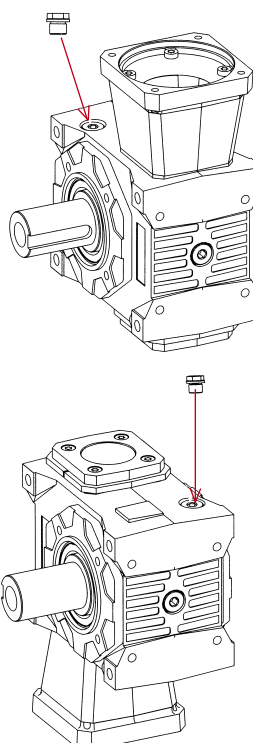
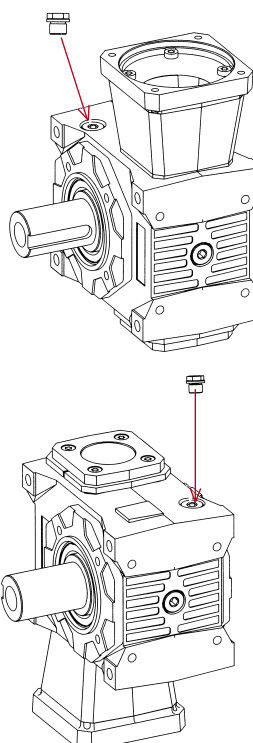
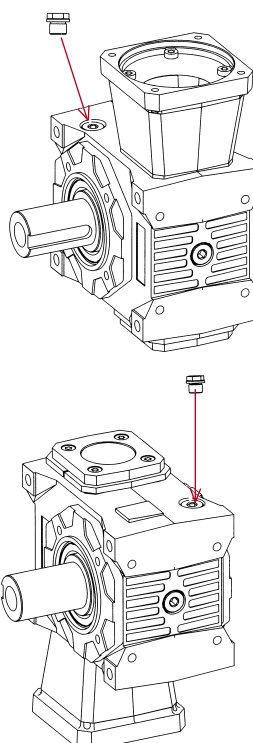
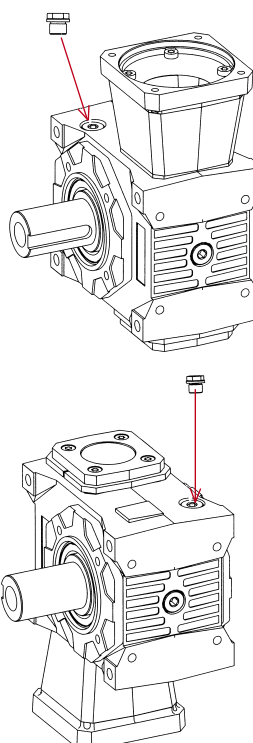
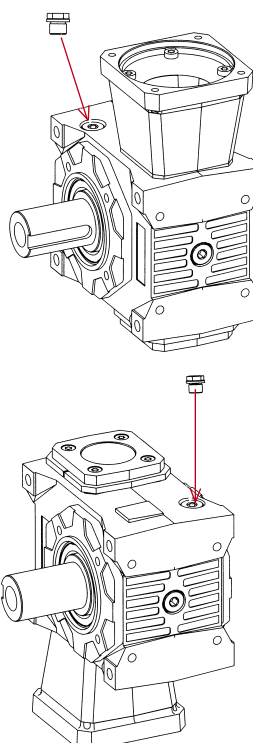
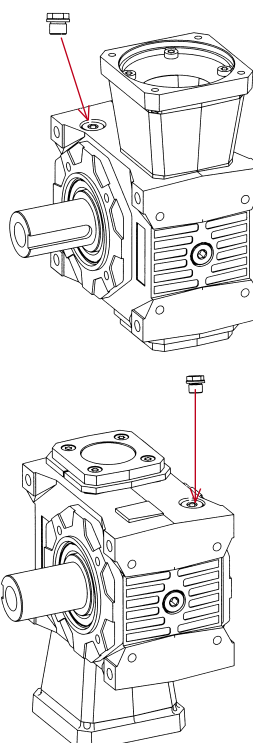
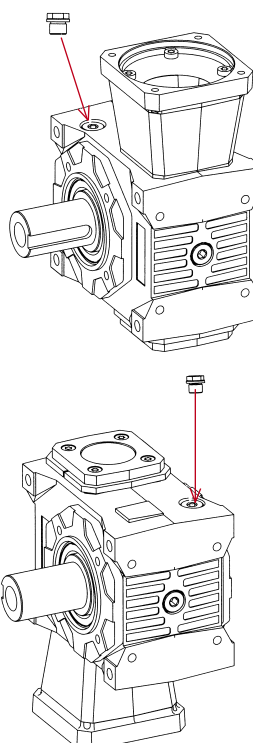
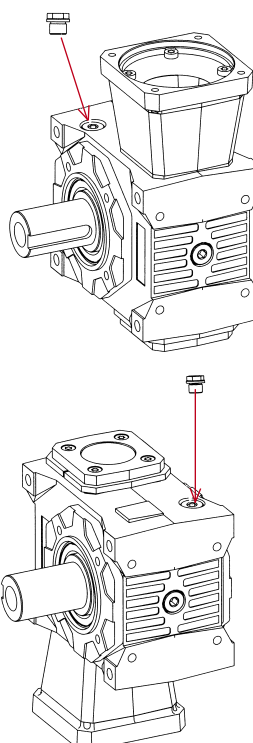
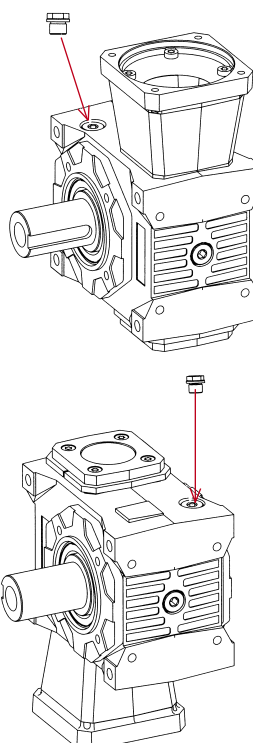
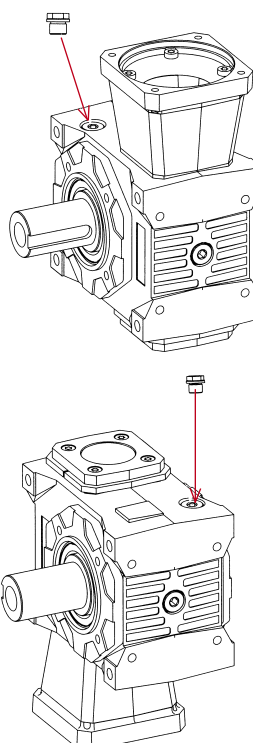
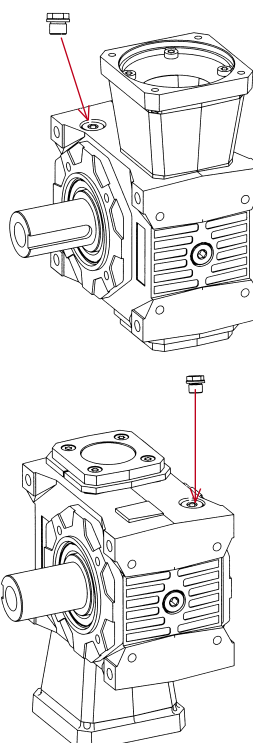
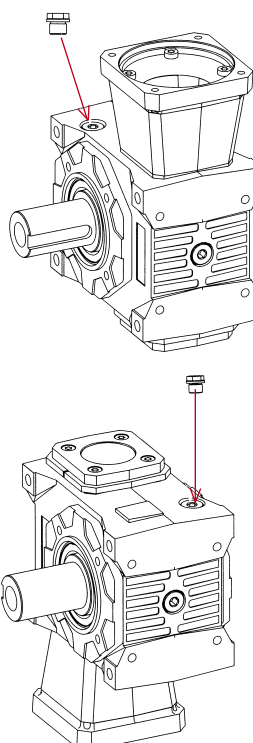
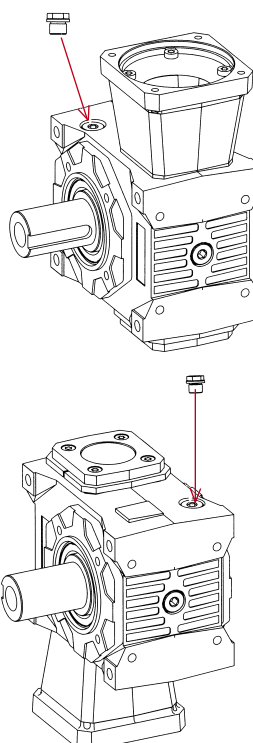
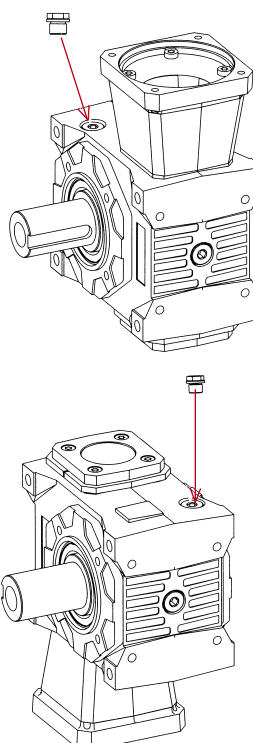
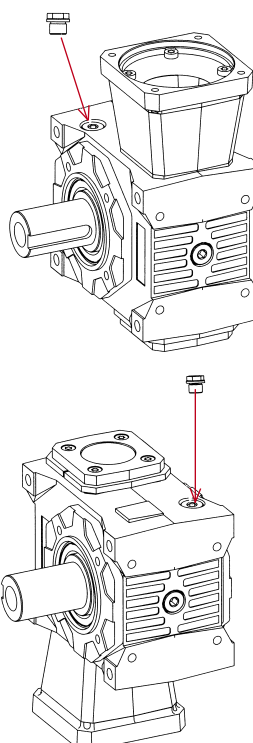
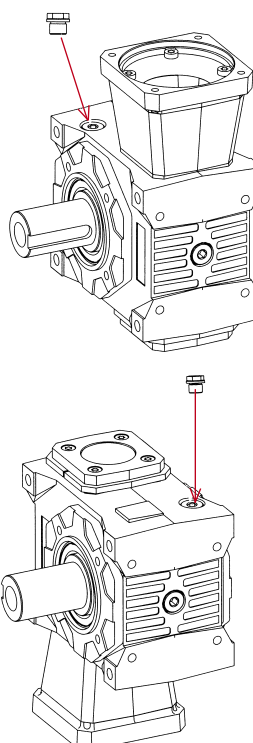
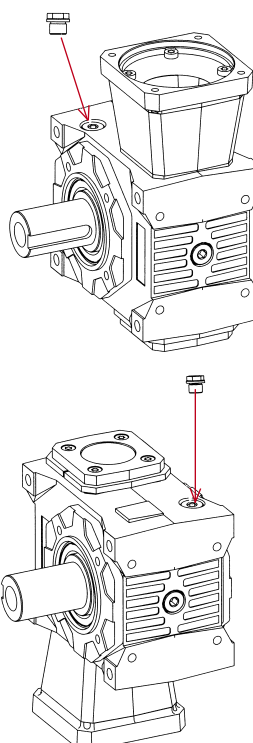
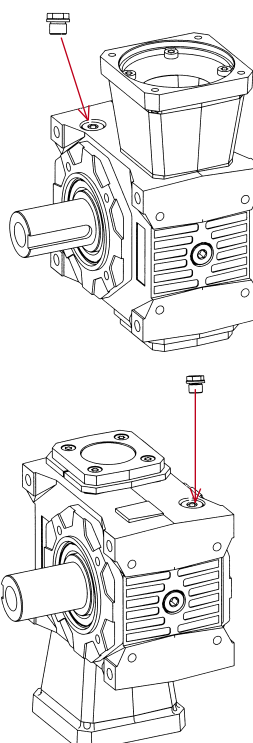
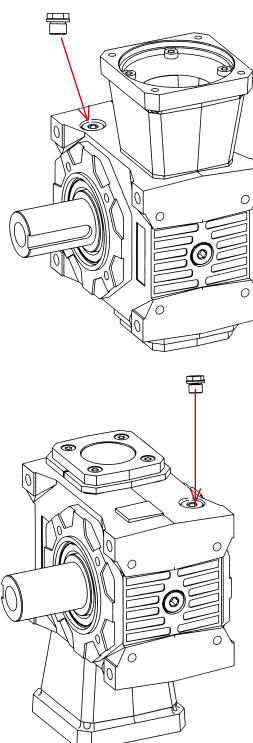
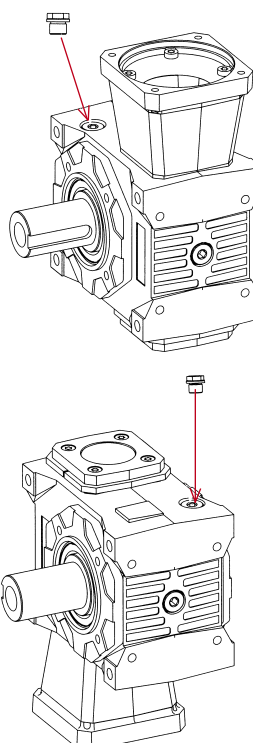
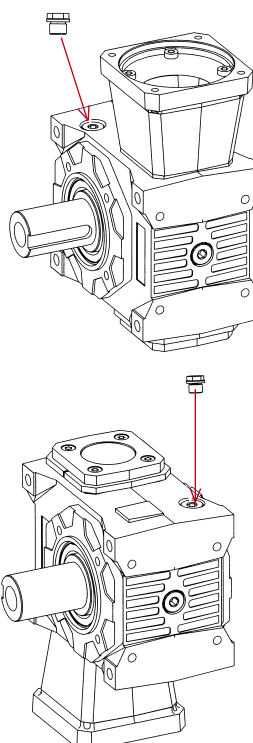
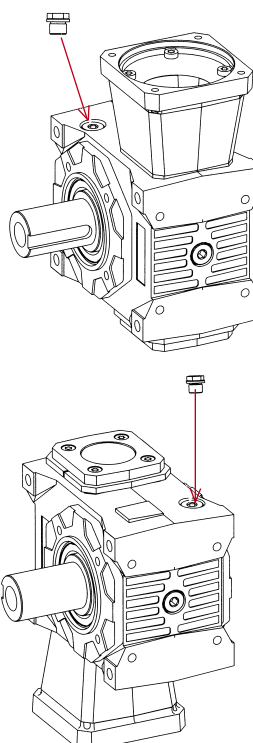
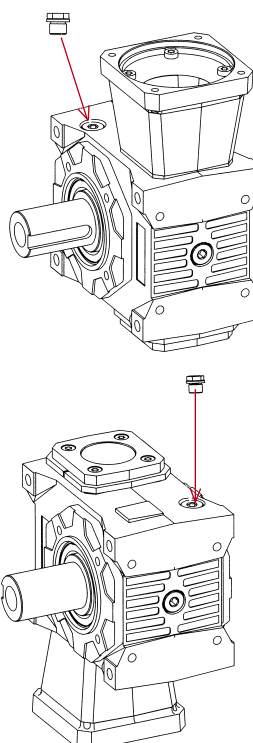
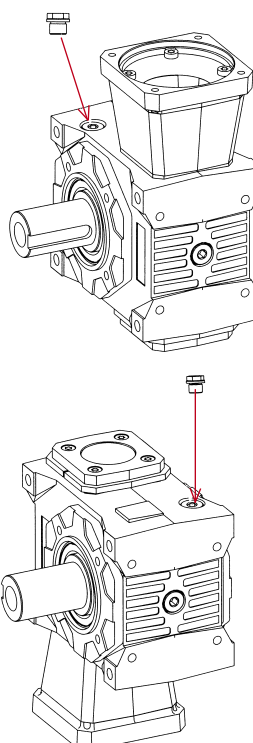
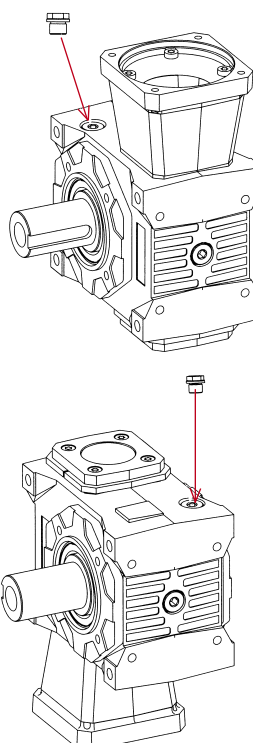
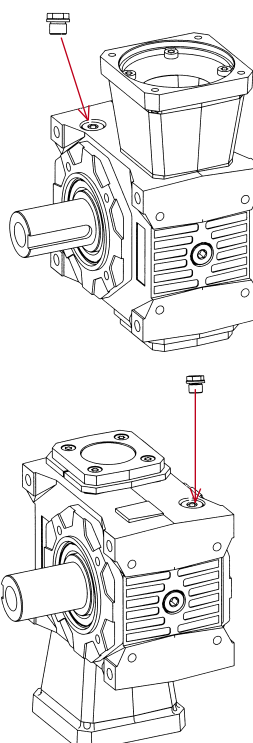
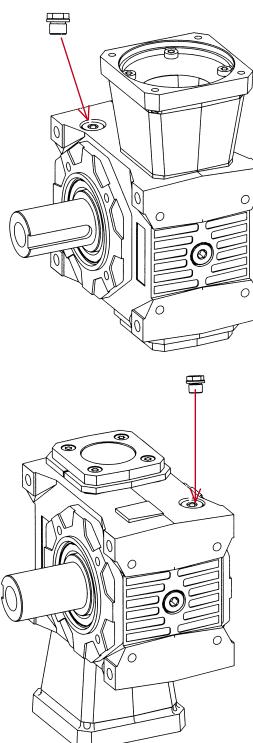
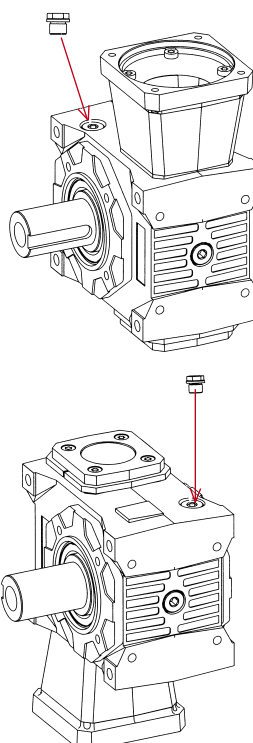
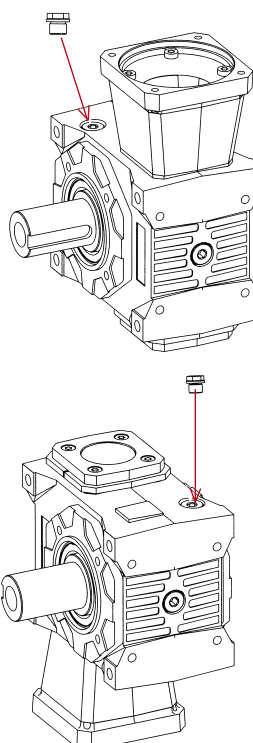
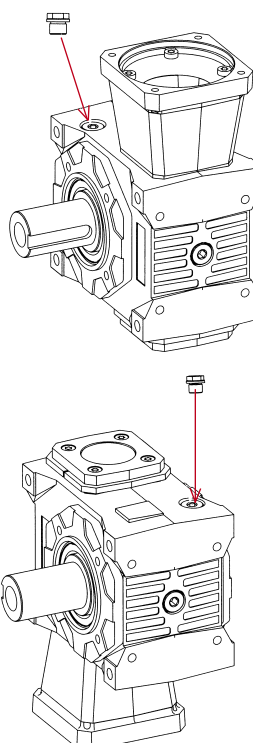
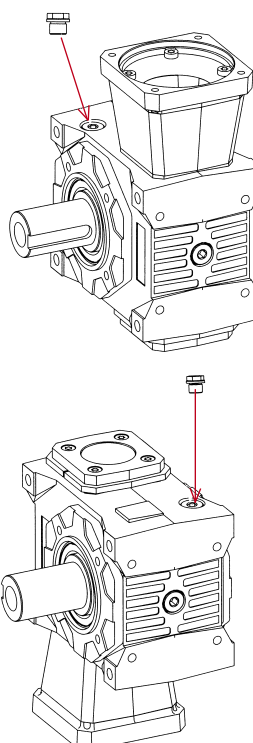
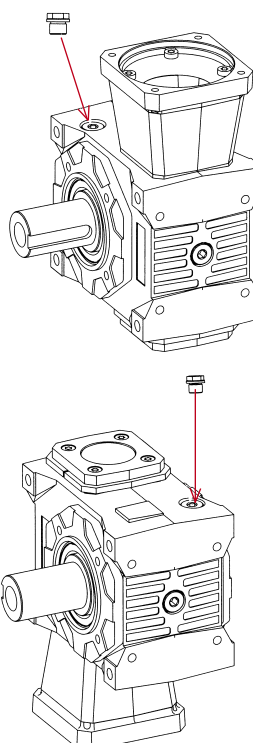
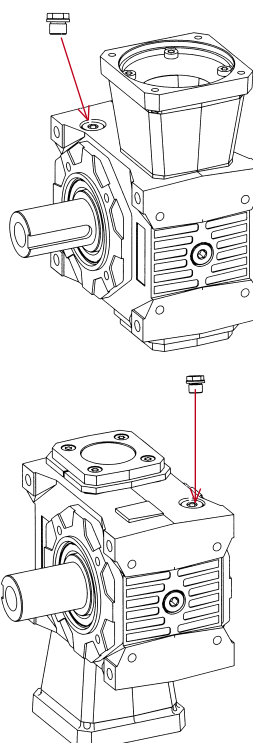
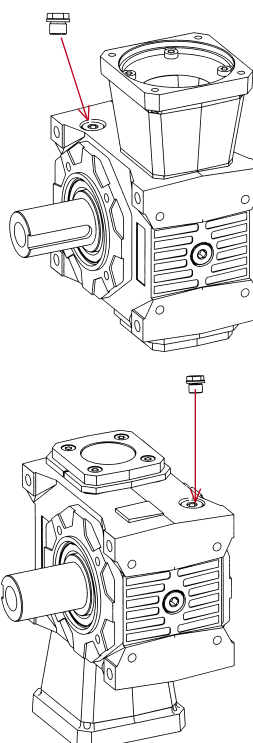
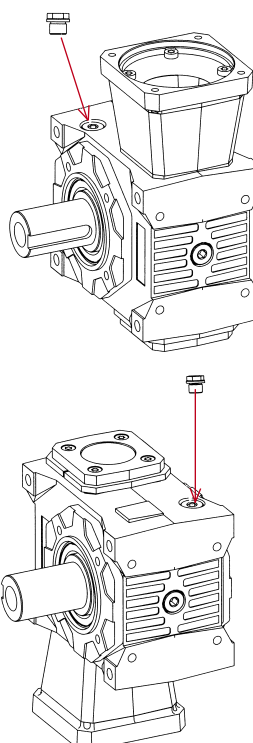
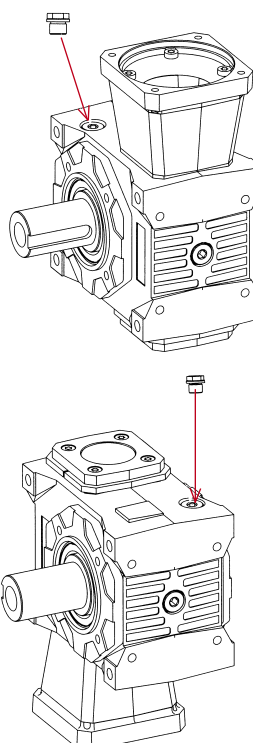
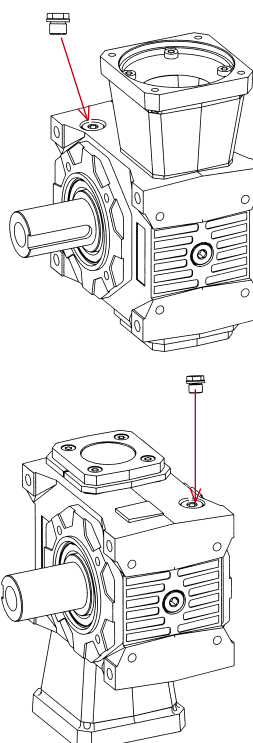
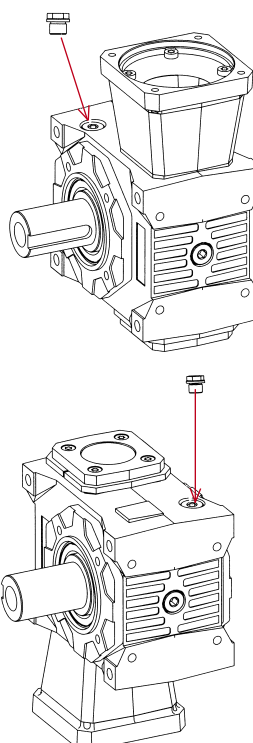
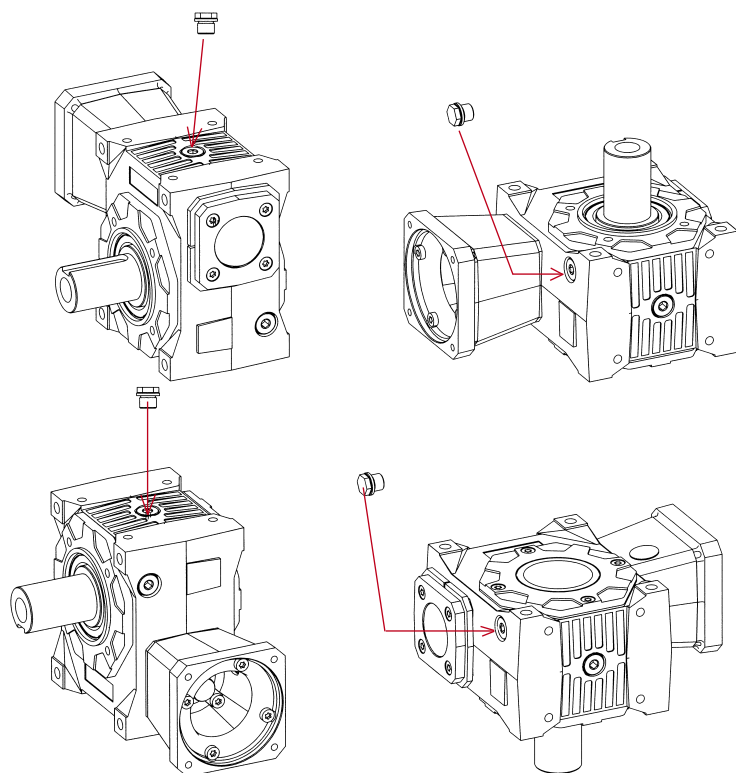
Les servo-réducteurs **DYNABOX** sont livrés avec plein d'huile de synthèse **MOBIL GLYGOILE 30**.

Les caractéristiques principales de ce lubrifiant hautes performances sont :

- Plage d'utilisation de -30°C à +130°C
- Réduction des frottements jusqu'à 20 %
- Exceptionnelles propriétés anti-usure
- Durée de vie du lubrifiant jusqu'à 4 fois supérieure aux lubrifiants classiques. **Pour cette raison, il n'est pas nécessaire de prévoir de vidange du réducteur.**

Ne jamais mélanger cette huile avec d'autres types d'huile.

Attention: Avant la mise en service, monter le bouchon d'évent (livré avec le réducteur) en partie haute, à la place d'un bouchon de fermeture.



RÉGLAGE DU JEU TORSIONNEL

Version **EXPERT** seulement

Les hautes caractéristiques mécaniques des alliages utilisés pour la fabrication des engrenages, ainsi que la pression spécifique très faible (due à une surface de contact très élevée, optimisée par ordinateur à chaque série de production), doivent permettre un fonctionnement du **DYNABOX** sans aucune intervention avant plusieurs années, lorsqu'il est utilisé dans des conditions de charge n'excédant pas les valeurs figurant au catalogue technique.

Si, par cas, un réglage du jeu doit être effectué, il convient de procéder comme suit :

Se référer à la vue éclatée en pages 5 et 6.

- Desserrer la vis de blocage de l'accouplement servo (rep. 19), côté réducteur.
- Desserrer les vis de fixation rep. 2. Il n'est pas nécessaire de les démonter du carter.
- Enlever les cales d'épaisseur.
- Mesurer leur épaisseur totale.
- Diminuer leur épaisseur totale (en diminuant le nombre total de cales) de la valeur nécessaire à l'obtention du jeu torsionnel désiré (voir tableau ci-dessous).
- Remonter les cales restantes.
- Resserrer les vis rep. 2.
- Resserrer la vis de blocage de l'accouplement servo (rep. 19), côté réducteur.
- Vérifier que le couple d'entraînement à l'entrée du réducteur est constant (en entraînant manuellement ou en vérifiant la consommation du moteur), preuve que le jeu torsionnel n'a pas été réglé à une valeur trop faible. Les **DYNABOX EXPERT** sont livrés avec un jeu torsionnel égal à une minute.

Leur bon fonctionnement avec une valeur sensiblement inférieure à une minute n'est pas garanti.

Le tableau ci-dessous indique la diminution du jeu torsionnel en minutes d'angles, en retirant une cale de l'épaisseur précisée dans la deuxième colonne, en fonction de la taille du réducteur et du rapport de réduction (nominal).

SETTING OF TORSIONAL BACKLASH

EXPERT version only

High strength gears alloys added to the lowest specific gear contact pressure (provided by the Largest contact surface, computer optimized during each production batch), should allow the **DYNABOX** to run maintenance free for several years, if used within catalogue specifications.

If any backlash adjustment should be done, proceed as following : **Refer to 3D view as per pages 5 and 6.**

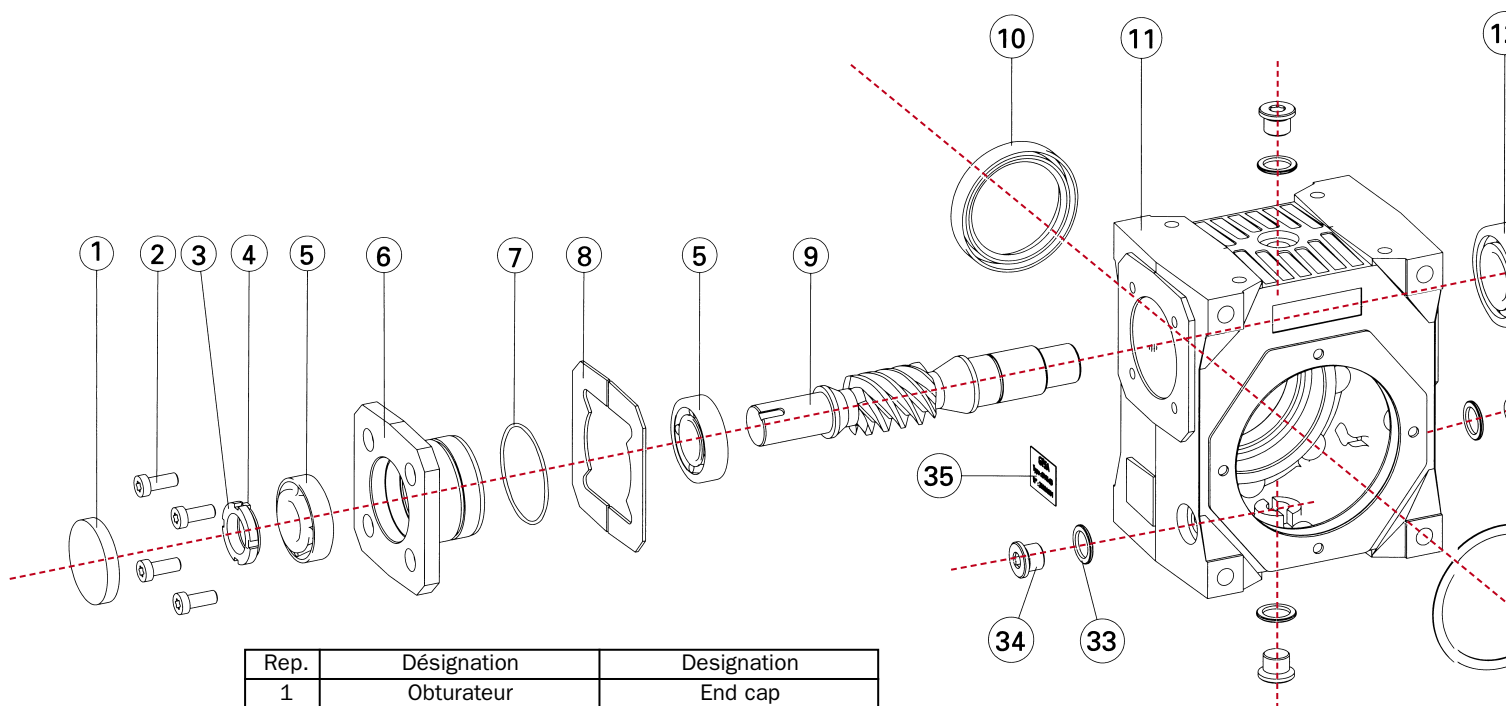
- Loosen the coupling screw (part nber 19), on gearbox side.
- Loosen screws part nber 2, without dismounting them from housing.
- Remove shims part nber 8.
- Measure their total thickness.
- Decrease the total thickness (by removing the necessary number of shims) in order to obtain the required backlash value. See chart below.
- Remount remaining shims.
- Tighten screws part nber 2.
- Tighten coupling screw on gearbox side.
- Check that the torque at the gearbox input is constant (manually or by checking the motor consumption), in case of the torsional backlash could have been set to low. **DYNABOX EXPERT** are delivered set at 1 arcminute of torsional backlash.

An adjustment appreciably under 1 arcminute is done under user's responsibility.

Below chart indicates the amount of backlash reduction (in arcminute), for each shim removed (of the thickness indicated in column 2), function of gearbox size and nominal ratio.

Total shims thickness and backlash are strictly proportional.

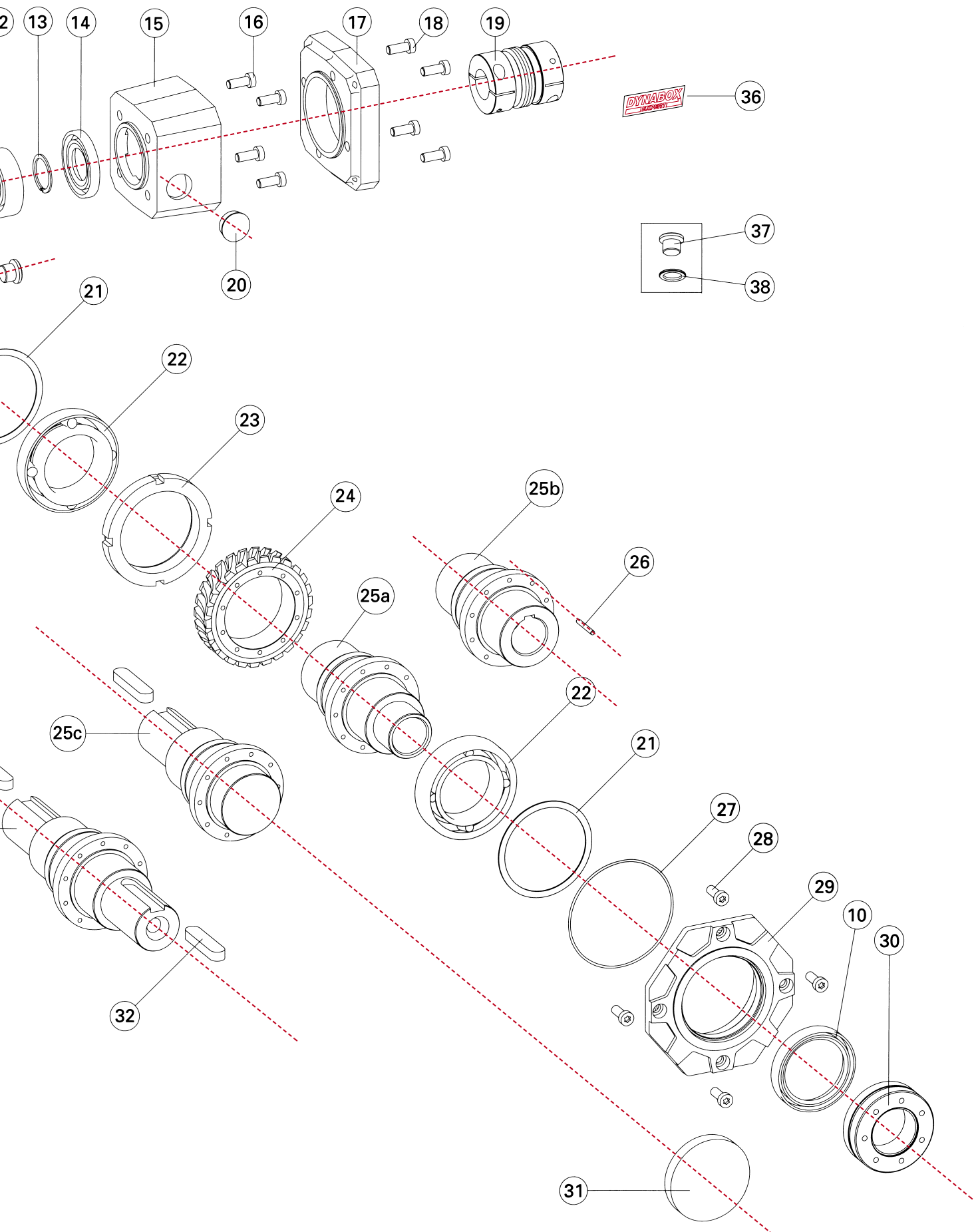
	épaisseur cale / shim thick.	i = 5	i = 7	i = 10	i = 15	i = 20	i = 30	i = 45	i = 60	i = 90
DYNABOX 35	0,2	0,5	0,5	0,5	0,5	0,5	1	0,9	0,9	0,3
DYNABOX 45	0,3	0,4	0,6	0,6	0,6	0,6	1	0,9	0,9	0,3
DYNABOX 55	0,3	0,4	0,6	0,6	0,6	0,6	0,8	0,9	0,9	0,3
DYNABOX 63	0,3	0,3	0,5	0,5	0,5	0,4	0,7	0,6	0,6	0,2
DYNABOX 75	0,4	0,4	0,6	0,6	0,6	0,5	0,7	0,7	0,7	0,3
DYNABOX 90	0,4	0,3	0,3	0,4	0,4	0,4	0,6	0,7	0,5	0,2
DYNABOX 110	0,6	0,6	0,4	0,4	0,4	0,4	0,4	0,6	0,6	0,2



Rep.	Désignation	Designation
1	Obturateur	End cap
2	Vis	Screw
3	Écrou	Nut
4	Rondelle frein	Washer
5	Roulement	Tapered bearing
6	Module de réglage	Bearing bush
7	Joint torique	O Ring
8*	Cales de réglage	Adjustment shims
9	Vis sans fin	Wormshaft
10	Joint à lèvres	Oil seal
11	Carter	Housing
12	Roulement	Ball bearing
13	Circlips extérieur	Retaining ring
14	Joint à lèvres	Oil seal
15	Lanterne	Motor flange
16	Vis	Screw
17	Contrebride	Counterflange
18	Vis	Screw
19	Accouplement	Servo coupling
20	Obturateur	End cap
21	Cales d'épaisseur	Adjustment shims
22	Roulement	Tapered bearing
23	Écrou	Nut
24	Roue tangente	Wormwheel
25a	Arbre creux lisse	Smooth hollow shaft
25b	Arbre creux rainuré	Keyed hollow shaft
25c	Arbre lent simple	Single male shaft
25d	Arbre lent double	Dual male shaft
26	Goupilles Mécanindus	Pins
27	Joint torique	O Ring
28	Vis	Screw
29	Flasque	Flange
30	Frette de serrage	Shrink disc
31	Obturateur	End cap
32	Clavette	Key
33	Bague d'étanchéité	Washer
34	Bouchon de vidange	Oil plug
35	Plaque signalétique	S/N plate
36	Étiquette nom	Name plate
37	Bouchon reniflard	Airvent plug
39	Bague d'étanchéité	Washer

* **EXPERT** seulement / **EXPERT** only

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