S0016 Les tenons de levage - limites d'usure

S0016	Version 1	Structural	22 Mar 04

Les tenons de levage consistent en 4 composants principaux comme montre le schéma 1.0.

1. Chaîne de Levage
2. Goupille de Chaîne de Levage 20mm
3. Crochet de Levage
4. Goupille de roulement (Gauche ou Droite)

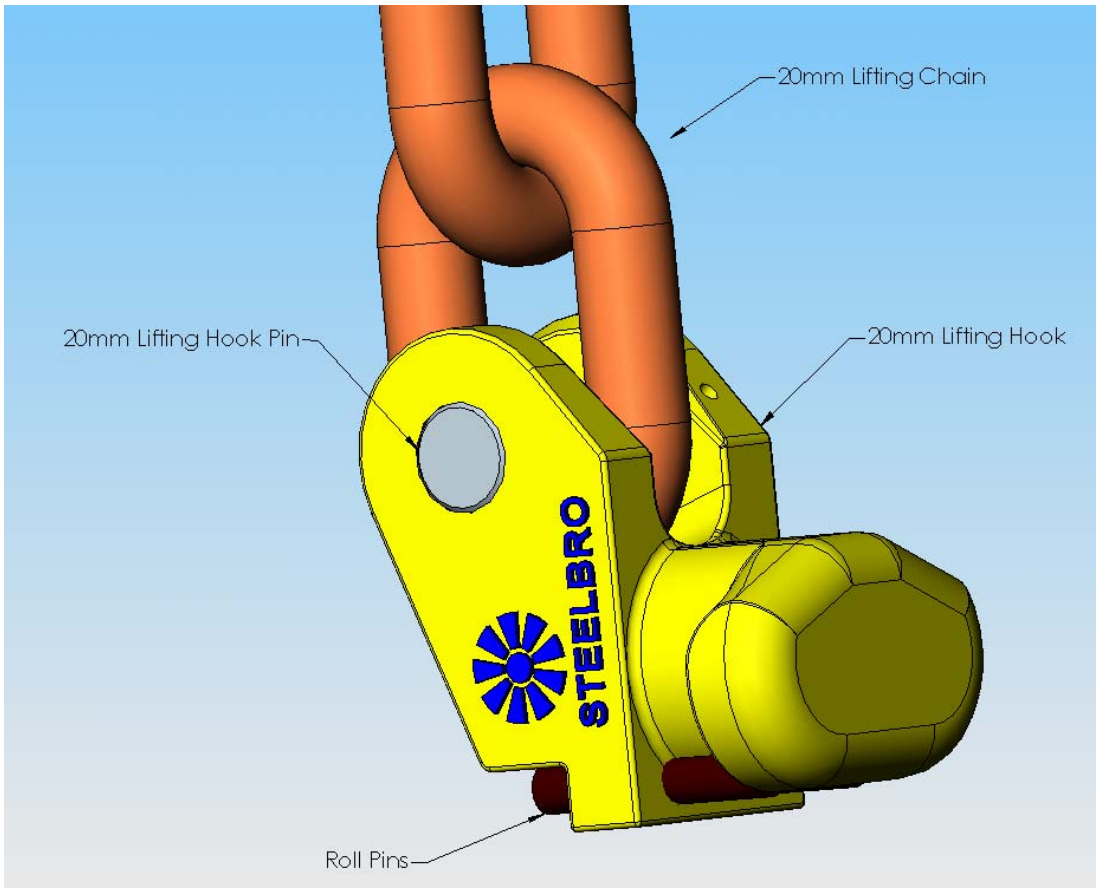

Figure 1.0: Tenon de levage 3 composants.

Chaîne de Levage de 20mm

La chaîne est fabriquée avec de l'acier endurci et trempé pour répondre aux exigences critiques de cette catégorie et a une haute résistance aux impacts et à l'usure. On peut allonger la durée de vie des chaînes STEELBRO en suivant les recommendations suivantes:

1. Stocker les chaînes sur une armature en A ou sur des supports au mur dans un endroit propre et sec lorsqu'elles ne sont pas sur une auto-chargeuse STEELBRO.
2. Huiler légèrement les chaînes avant de les stocker pour un certain temps.

3. Ne jamais permettre aux chaînes d'être exposées à une chaleur extrème.
4. Inspecter toujours la chaîne pour voir s'il n'y a pas de parties endommagées ou usées avant son utilisation.
5. S'assurer que la charge est distribuée équitablement sur toutes les parties de la chaîne durant le levage.
6. S'assurer que la chaîne ne pas entortillée et est protégée de tout coin pointu de la charge.
7. Commencer le levage lentement, en prenant le mou graduellement.
8. Eviter d'écraser la chaîne avec la charge lorsque la charge est levée sur l'auto-chargeuse par un autre moyen.

Inspections:

Il est important d'inspecter la chaîne régulièrement. Les inspections devraient inclure les éléments suivants:

Inspecter chaque maillon individuellement pour voir les signes d'usure, torsion, étirement, entaille ou trou.

1. Tout maillon usé devrait être mesuré pour déterminer le degré d'usure.
2. Les maillons ovales devraient être inspectés pour voir les signes d'usure à l'endroit du support de la charge et pour tout signe de distortion.
3. Les serrures marteaux doivent être inspectées pour voir s'il y a:
   a) Des signes d'usure au point de support de charge.
   b) Trop de jeu de la goupille Excessive play of the load pin within the body halves.
   c) Impaired rotation of the body halves around the pin.
4. Chain links or fittings having any defects should be clearly marked to indicate rejection and the chain sling withdrawn from service until properly repaired.

Chain Wear allowances Grade 80 (Refer Figure 2.0):

	Minimum Permissible Diameters	
Chain Size (mm)	Crown (mm)	Elsewhere (mm)
10.0	8.0	8.5
13.0	10.2	10.8
16.0	12.8	13.6
20.0	16.0	17.0

Chain Wear allowances Grade 100, Pink Chain (Refer Figure 2.0):

	Minimum Permissible Diameters

Chain Size (mm)	Crown (mm)	Elsewhere (mm)
10.0	9.0	9.0
13.0	11.7	11.7
16.0	14.4	14.4
20.0	18.0	18.0

Master/Oblong link Wear allowances Grade 80 and 100:

	Minimum Permissible Diameters	
Chain Size (mm)	Crown (mm)	Elsewhere (mm)
16.0	14.4	14.4
20.0	18.0	18.0

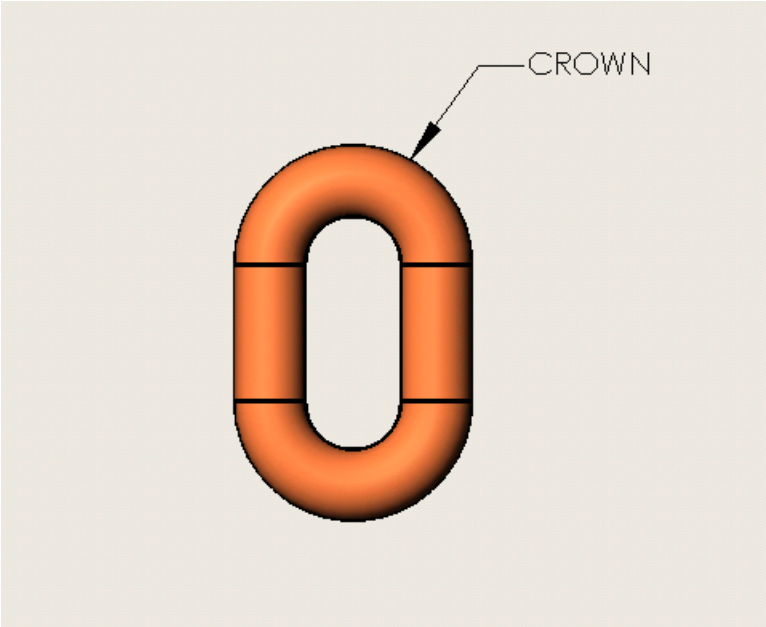

Figure 2.0: Chain illustration showing crown

Lifting Hook 20mm pin:

The lifting hook pins are an alloy steel, which is heat treated to produce a high strength material. These pins are strong but not malleable and will not tolerate large amounts of deflection. The pins should not freely rotate due to the roll pin locking mechanism used however the chain should be free to move around the pin.

Safe use of these pins, requires regular inspections of the pins. Inspections that are required are as follows:

1. Inspect the chain is free to move around the pin.
2. Inspect the pin for wear and gouging.
3. Inspect pin for deformation.

Pin Wear Allowance:

Pin diameter (mm)	Minimum permissible diameter (mm)
22	**21**

If pin wear exceeds the specified allowance then pin must be replaced.

Lifting Hook:

The lifting hook is cast from high-grade steel. The lifting hook has 4 main parts, which are; the clevis ears, the shaft, the shaft ears and the body. They are shown in figure 3.0 below. The lifting hook requires regular inspections.

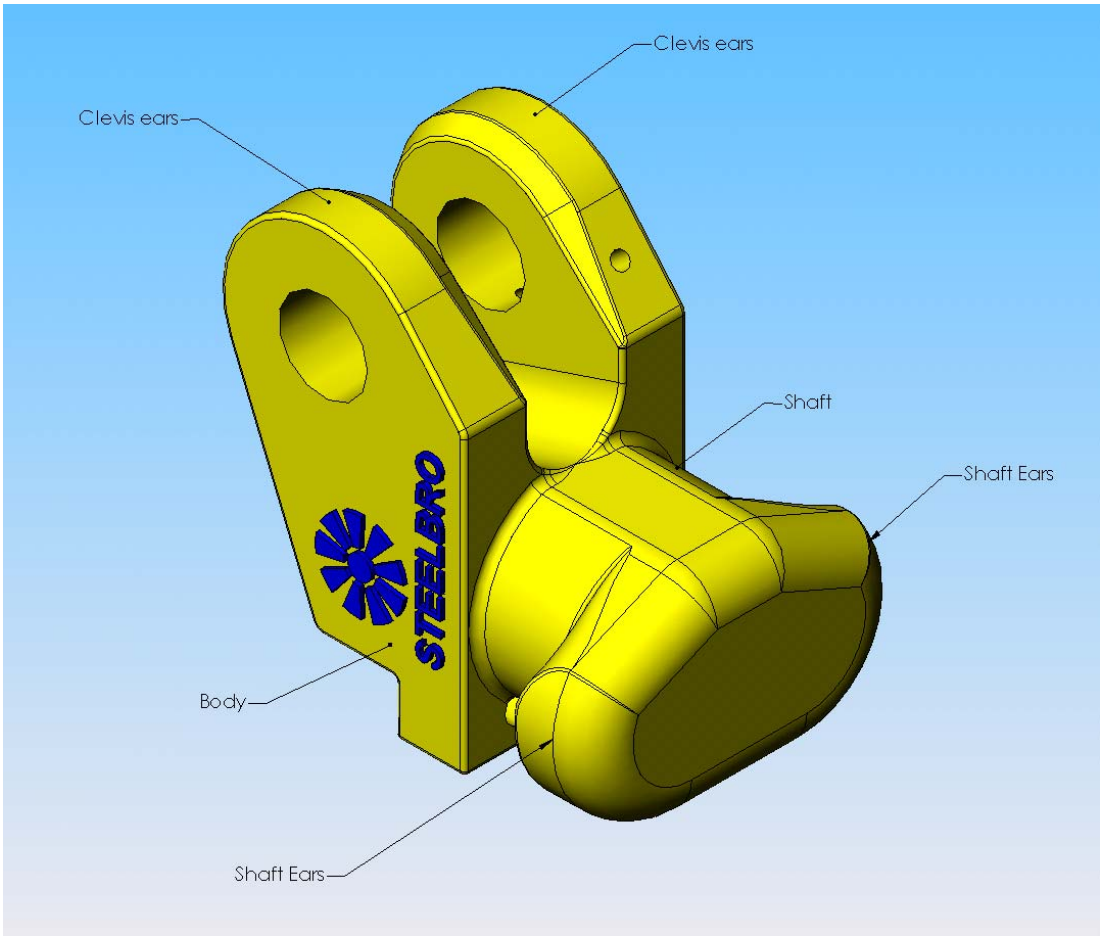

Figure 3.0: Lifting hooks, 4 main parts.

The Clevis Ears Inspections:

The clevis ears require the following inspections to be carried out daily:

1. Inspect for cracking around the pin holes in the clevis ears.
2. Pin holes should be inspected for flogging out.
3. Clevis ears need to be inspected for widening.
4. Binding should not exist between the lifting chain and the clevis ears, or the lifting hook body.

Wear allowances for Clevis ears:

	Standard Size	Maximum Permissible size	Minimum Permissible Size

Gap between Clevis ears (mm)	18	17	16
Gap between Clevis ears (mm)	22	23	20
Pin Hole flogging (mm)	Ø 22	Ø 23.5	

Lifting hooks exceeding the above stated allowances must be discarded and replaced.

The shaft Inspections:

The shaft requires visual inspection of its surface for cracking (specifically where it joins the body and shaft ears), gouging and deformation. If surface defects (previously stated) exceed 50% of surface then the part must be discarded and replaced.

The shaft ears:

These require inspection for cracking (particularly where they join the shaft) and gouging of the ears. No deformation of the shaft ears is tolerated but a wear allowance of 2mm is allowed. If the shaft ears do not conform to the wear allowance or have deformed then the lifting hook must be replaced.

Roll pins for LH/RH operation:

Roll pins must be inspected for deformation of any type (out of roundness, gouging, bending along shaft, etc). If deformation exists in the roll pins then they should be replaced immediately.

Sidelifter Lifting pin (G pin):

This pin is not specified as lifting gear but must be inspected along with the lifting gear. The G pin must be free to rotate on the bearings in the top arm of the Sidelifter so that the Master/Oblong link that sits in the G pin groove does not rotate on the G pin shaft. Inspections of the G pin require the following:

1. Rotating the G pin to insure free rotation occurs and no binding is occurring.
2. Surface inspection for signs of wear on the G pin.
3. Visual inspection of G pin circlip and circlip groove to check for any damage.

If the G pin has bound up and does rotate freely and/or surface wear is seen on the G pin then the specified STEELBRO service agent should be contacted. If circlip is damaged then immediate replacement is required.