



ARVAL® 5

Models

LC

XLC



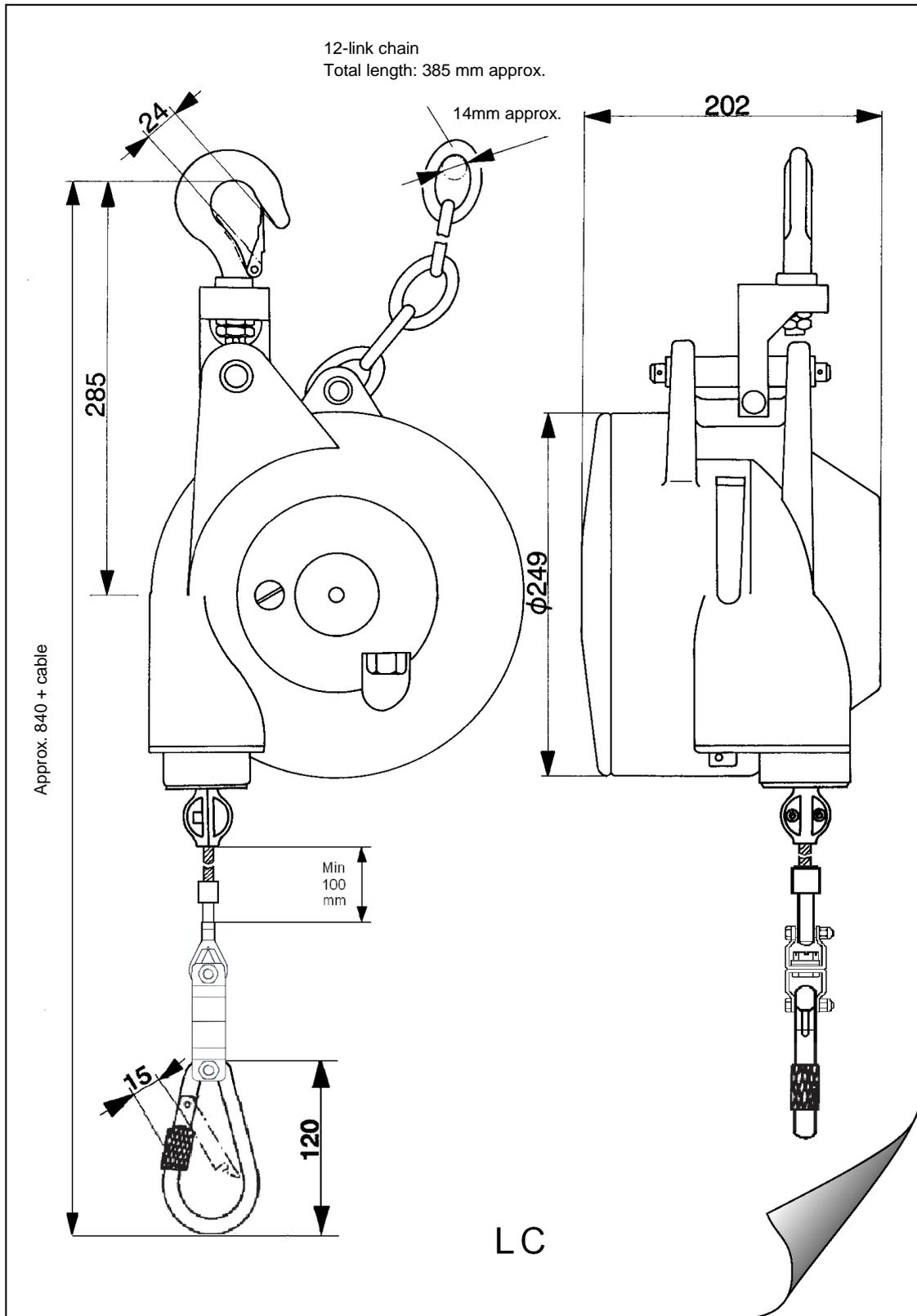
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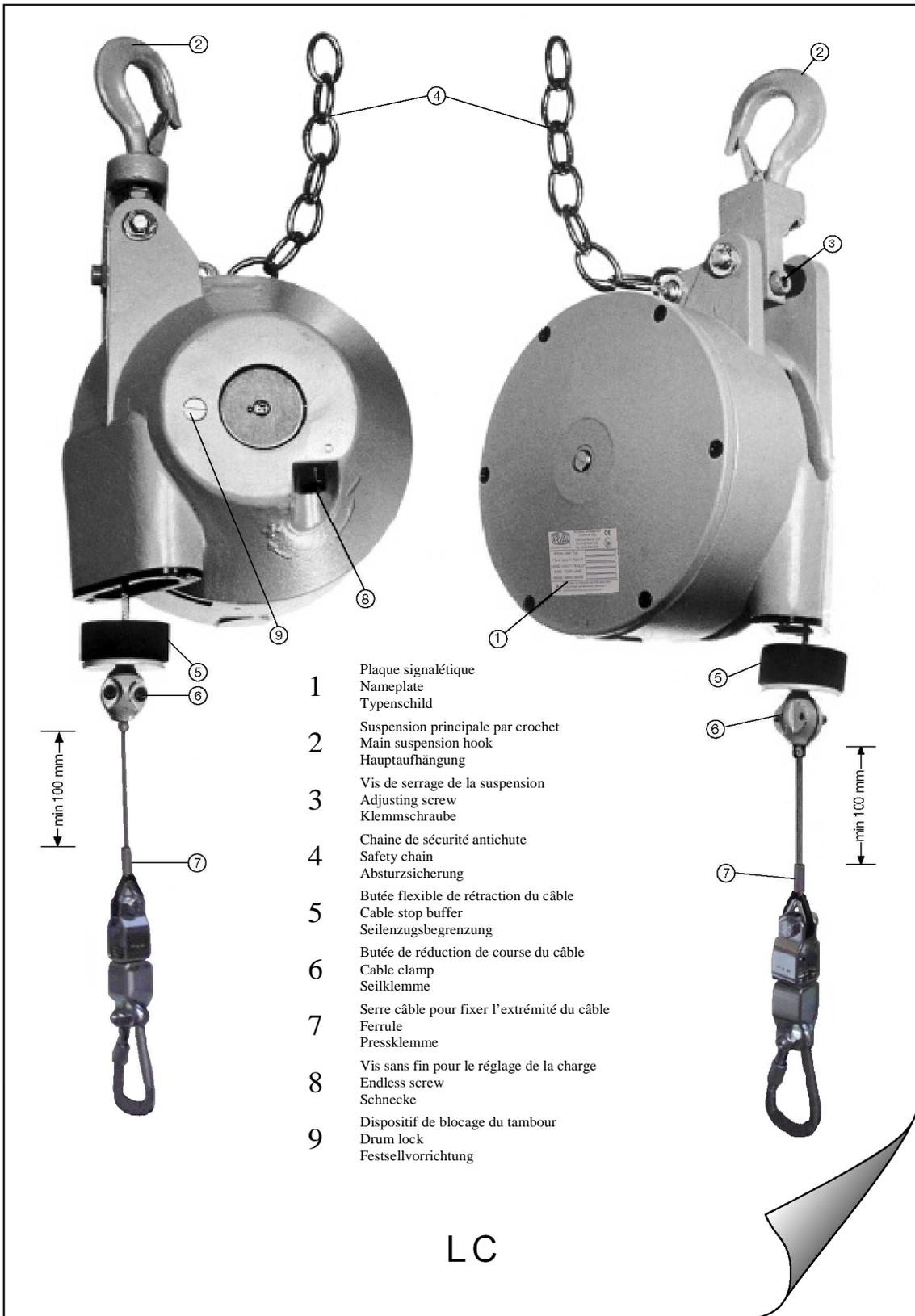
Load Balancer – Instruction Manual

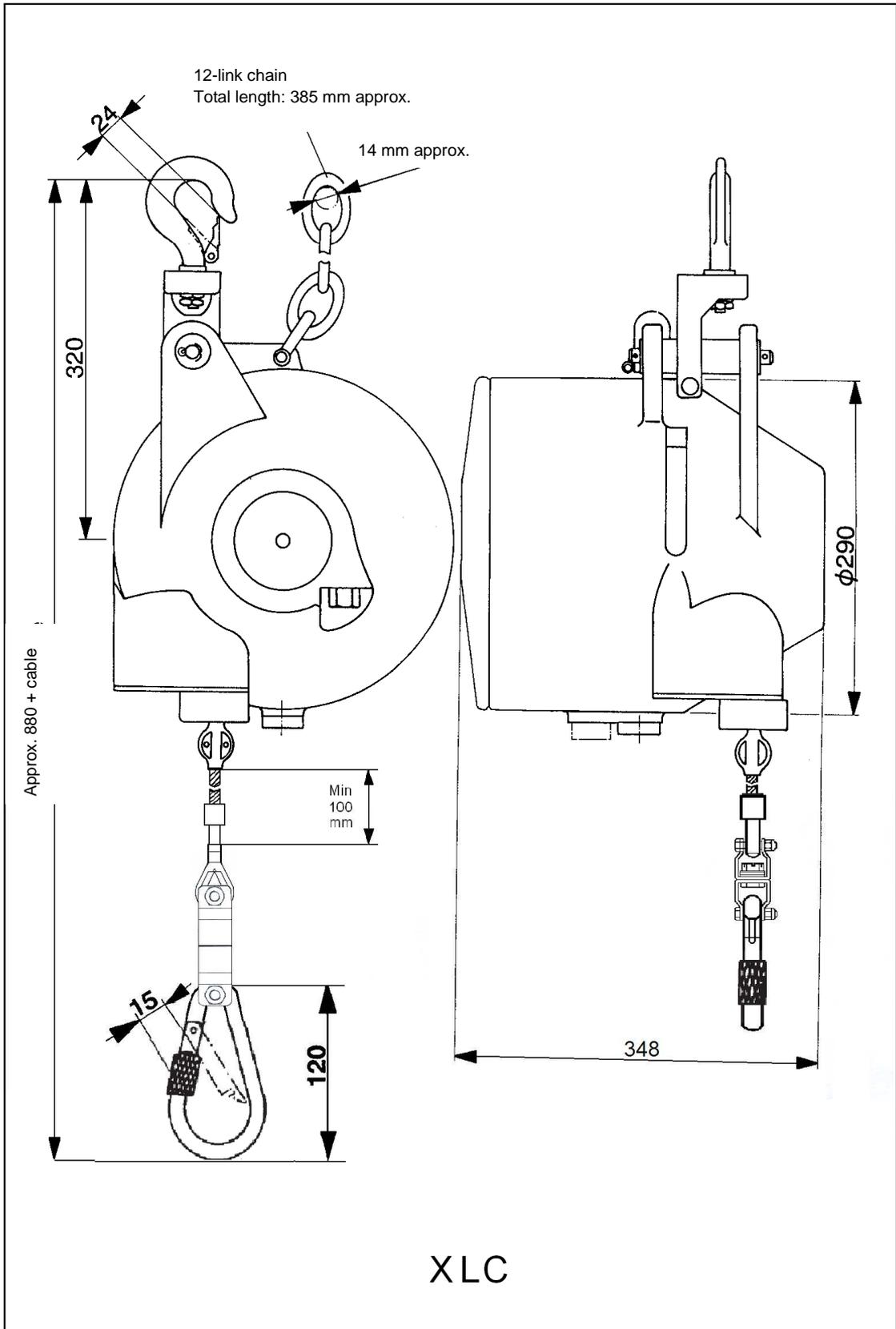
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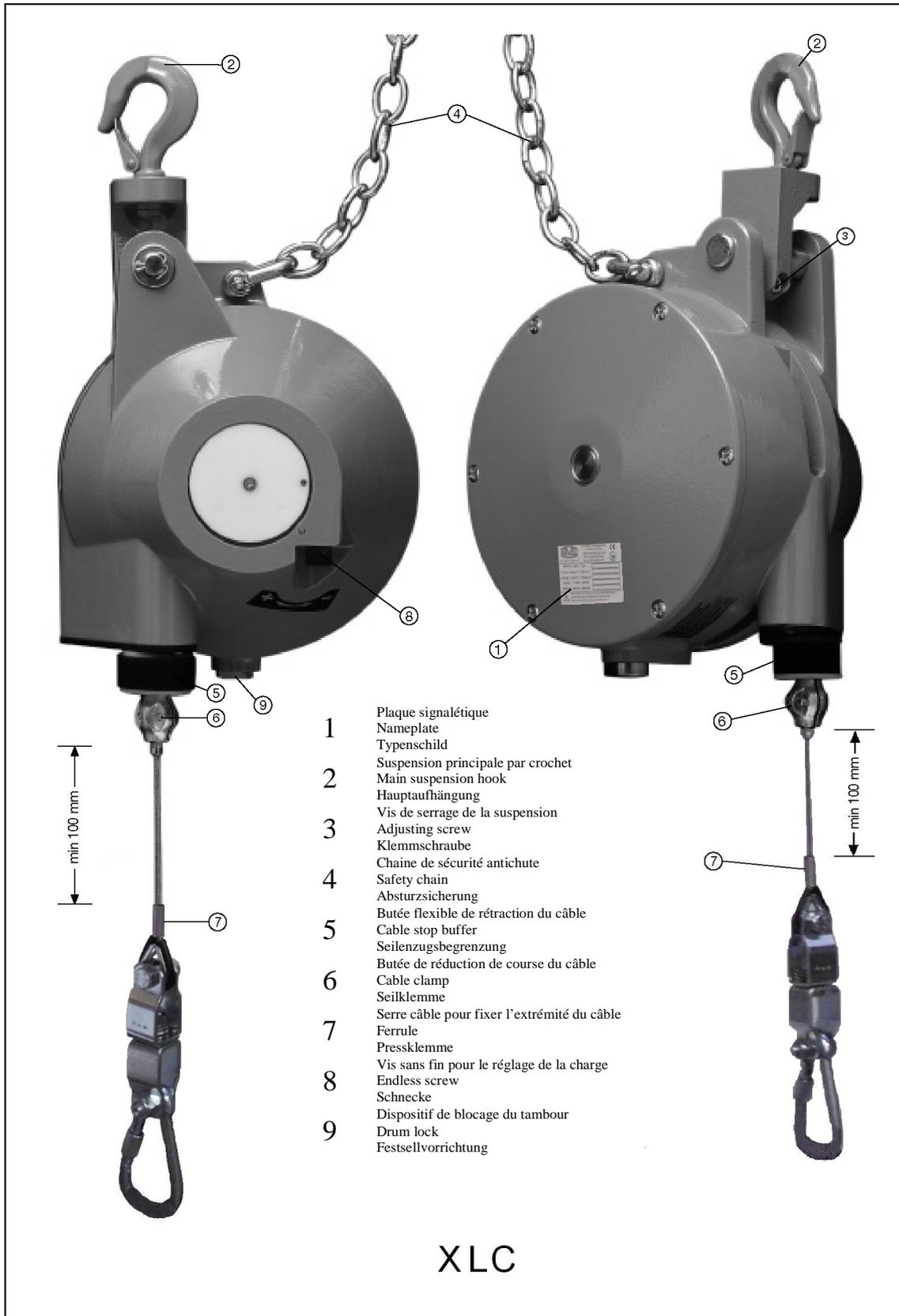
(TRANSLATION OF ORIGINAL FRENCH DOCUMENT)

ARO Welding Technologies SAS









Service instructions		Load Balancers, Models LC & XLC	
Load balancer part number			
Identification No.	Load range (kg)	Weight (kg)	Cable (m)
LC20 (YZKA724102)	20.0-30.0	15.20	2.0
LC30 (YZKA724102)	30.0-45.0	16.90	2.0
LC45 (YZKA724104)	45.0-60.0	17.30	2.0
LC60 (YZKA724105)	60.0-75.0	18.70	2.0
LC75 (YZKA724106)	75.0-90.0	19.70	2.0
LC90 (YZKA724107)	90.0-100.0	20.90	2.0
XLC100 (YZKA 725108)	100.0-115.0	41.80	2.0
XLC115 (YZKA725109)	115.0-130.0	43.20	2.0
XLC130 (YZKA725110)	130.0-140.0	44.60	2.0
XLC150 (YZKA725112)	140.0-150.0	46.00	2.0
XLC (YZKA725113)	150.0-170.0	46.70	2.0
XLC180 (YZKA725114)	180.0-190.0	47.00	2.0
XLC190 (YZKA 725115)	190.0-200.0	47.30	2.0

Applications

Load balancers type LC (YZKA7241..) and XLC (YZKA7251..) are used to balance the weight of hand-held tools and equipment such as welding tongs, filler rod holders, drilling and screwing templates, etc.

General

Balancing remains virtually constant over the entire length of cable travel. The load range of the balancer differs according to the version, as indicated on the nameplate (1).

Load balancer components

- (1) Nameplate
- (2) Suspension hook
- (3) Adjusting screw
- (4) Safety chain
- (5) Cable stop buffer
- (6) Cable clamp (travel reduction stop)
- (7) Ferrule (for attaching free end of cable)
- (8) Endless screw (for adjusting load)
- (9) Drum lock

Safety instructions



WARNING!

- No modifications shall be made to type LC or XLC load balancers and their accessories without the prior written agreement of the manufacturer.
- It is only possible to work safely with the load balancer if you have read the operating manual and safety instructions in full, and strictly comply with the instructions indicated therein.
- The load balancer may only be used, installed, serviced and repaired by duly trained personnel. The personnel must be informed of any potential work hazards.
- Only unhook or suspend a load if the cable is fully retracted.
- The device on which the load balancer and the safety chain are attached must be sufficiently stable and guarantee a safety factor of at least (5 x (weight of spring load balancer + maximum permitted load)).
- The load balancer cable must be inspected periodically, at least once per year, for damage (DIN 15020 part 2). The load balancer must not be used with a damaged cable.
- Do not stand under suspended loads.
- The suspension hooks in compliance with standard DIN 15405 part 1, the safety shackles and chains must be checked routinely. If you detect any damage or wear, replace the load balancer immediately.
- Bear in mind when installing the load that normal or fast retraction of the cable when not yet under load can prevent it from remaining correctly engaged. A cable that is not correctly engaged can come out of the suspension hook, causing the load to fall with the risk of causing damage and injury!

- For maintenance work, the spring must first be fully released, except when replacing the cable (see Replacing the cable).
- Opening the spring box is extremely dangerous and prohibited, as the spring could fly out.
- Operating the load balancer without the supplied safety components (safety chain, spring-rupture safety device, etc.) is strictly prohibited.
- If the load balancer falls subjecting the safety chain to an overload, the safety chain and the casing must be replaced immediately.

Installation

Before installing the load balancer, check that the device to which the balancer and the safety chain are attached is sufficiently stable.

Install the load balancer as follows:

- Hook the load balancer suspension hook (2) on to the main suspension point, such that the balancer can move freely in all directions (DIN 15112, part 3.2).
- Attach the safety chain (4) supplied with the balancer, independently of main suspension point by suspension hook (2), as described in standard DIN 15112, part 3.2. The possible travel in a fall must not exceed 100 mm. The safety chain must not hinder the free movement of the balancer.
- Hook the load onto the screw-shackle on the end of the cable, close the shackle and tighten the locking nut.
- Adjust the balancer to the load (See description **Adjusting the load**).

Adjusting the suspension

It is possible to achieve operation without excessive wear of the cable and drum. To do this, the suspension hook must be adjusted longitudinally such that the balancer centreline of roughly horizontal in the working range.

The distance of the hook above the left-hand slot in the casing is factory-set to the maximum load of each balancer as follows:

LC20 = approx. 8 mm	XLC100 = approx. 1 mm
LC30 = approx. 8 mm	XLC115 = approx. 1 mm
LC45 = approx. 9 mm	XLC130 = approx. 1 mm
LC60 = approx. 10 mm	XLC140 = approx. 1 mm
LC75 = approx. 11 mm	XLC150 = approx. 1 mm
LC90 = approx. 12 mm	XLC170 = approx. 1 mm
	XLC180 = approx. 1 mm
	XLC190 = approx. 1 mm

To do this, proceed as follows: loosen the suspension hook adjusting screw (3), move the suspension hook by the required amount and retighten the adjusting screw (3).

Adjusting the load

The balancer is factory-set to the maximum load according to its type.

- When the load is suspended, fit a 17-mm wrench onto the endless screw (8) and turn it as far as possible in the direction of the "-" symbol until the suspended load is exactly balanced.
- The minimum load can only be adjusted with the cable in the sector situated between the fully retracted and extended by 1 metre position, otherwise the spring anti-rupture safety device could trip. If this safety device does trip, the spring must be retensioned by turning in the "+" direction up to the stop (on block) and the load adjusted again by turning the endless screw (8) in the "-" direction.
- **Do not release the spring too much as this could cause irreversible damage to it! The spring can only be fully released when no load is suspended!**
- Within the balancer load range (as indicated on the nameplate (1)), it is possible to make a continuous adjustment: lighter loads are set by turning the endless screw (8) in the "-" direction, and heavier loads in the "+" direction. It is prohibited to use the balancer outside the load ranges indicated on the nameplate (1).

Adjusting the cable stop buffer/cable travel

The cable retraction stop can be adjusted by loosening the screw and simply moving the flexible cable stop buffer (5) and the cable clamp (6) within the cable travel range. The cable clamp screws must be retightened once adjustment is completed.

The maximum cable travel length must not be exceeded (even for the extended cables)! The factory-installed ferrule acts as a stop.

Drum lock

The drum lock (9) enables the drum to be blocked to replace the cable without having to release the spring (see Replacing the cable).

Servicing/Inspection

CAUTION

The balancer requires routine servicing. All the external moving parts and the friction points on the suspension device and the hook must be greased. **The service life of the cable is significantly increased if it is greased with acid-free grease.**

The safety suspension hook, the safety chain, the hook and the cable (per DIN 15020 part 2) must be checked constantly, and verified by an expert at least once a year. **If damage such as broken strands, blisters, crushing or wear of the cable, or distinctly visible wear on the parts mentioned above is detected, replace the balancer immediately.** If it should be found necessary to replace the spring cable or other parts of your load balancer, they must be ordered from our spare parts department.

Maintenance

The following description only concerns **original spare parts from ARO Welding Technologies SAS**, such as the cable, spring, drum, casing and suspension hook. Only use spare parts from the original equipment manufacturer. Refer to the operating manual provided with any new balancer to replace these sets of spare parts.

Replacing the cable

The cable can be replaced without releasing the spring and disassembling the balancer.

Pull the cable out until it reaches its extension stop. Push in the cable extension stop blocking part (to release the cable retraction stop) and pull the cable as far as possible (cable suspension hook visible through the slit in the bottom part of the casing).

Block the cable drum by pushing fully inwards the stem of the drum

lock (9) with a screwdriver, then turning it 90° to the right. Make sure that the stem and the drum are locked!

Unhook the suspended load. Remove the cable by pulling it from the casing, using a screwdriver if necessary.

Install a new cable by bending it slightly towards the drum and passing it through the hole in the drum casing. Make sure that it is firmly engaged: you must be able to feel that it is correctly engaged in the groove.

• **A cable that is not correctly engaged can come out of the suspension hook, causing the load to fall and risk causing damage and injury!**

Suspend the load and release the cable drum by again pressing in the stem of the drum lock (9) and turning it left to the off-load state, until it returns to the initial position.

Replacing the spring kit and spring anti-rupture device

(A) Disassembly:

Fully retract the cable and unhook the load. If the spring breaks, lock the drum as described in the **Replacing the cable** section.

Unhook the balancer.

Release the spring:

Using a 17-mm wrench, turn the endless screw (8) in the direction of the "-" symbol until the cable no longer moves backwards. The spring anti-rupture device blocks the drum.

• **Do not release the spring too much as this could damage it irreversibly!**

Unscrew the casing cover. Unscrew the cable drum cover. Remove the spring kit from the cable drum.

• **When replacing the spring kit after spring rupture, check the casing, the cable and the drum for possible damage, and replace them if necessary. Enormous dynamic forces are created when a spring breaks and the anti-rupture device is triggered.**

The damaged spring is replaced by a new one. If you use a different strength of spring, the type and load range indication on the name plate must be modified accordingly.

(B) Assembly:

The spring kit label must remain visible when the kit is assembled. After spring rupture: release the attaching device (see **Replacing the cable**) and reel in the cable by turning the drum until the cable retraction stop is reached.

Place the spring kit in the cable drum, by pushing the external lever of the spring anti-rupture safety device against the spring kit.

The spring external attach fitting must enter the drum slit, while the internal attach fitting must enter the spring detent groove to allow perfect operation; if necessary, rotate the spring detent using the spring tension adjustment endless screw such that the spring attach fitting can slide in the the spring detent groove.

Screw on first the cable drum cover, then the casing cover, installing new serrated washers.

Position the endless screw gear disk and tighten.

Put the spring under tension:

The maximum tension of the balancer is reached by turning the spring detent through about X turns by turning the endless screw in the "+" direction

LC20	X	=	6	XLC100	X=	4	1/4
LC30	X	=	5	XLC115	X=	5	1/4
LC45	X	=	5	XLC130	X=	3	1/2
LC60	X	=	4	XLC140	X=	3	1/4
LC75	X	=	4	XLC150	X=	3	1/2
LC90 X = 3				XLC170	X=	3	1/2
				XLC180	X=	3	
				XLC190 X= 3			

Install the balancer as described in the **Installation** section and adjust the load as described in the **Load adjustment section**.

- **The spring kit must not be opened. Defective springs must be disposed of correctly.**

Replacing the casing

• (C) Disassembly:

Release the spring: using a 17-mm wrench, turn the endless screw (8) in the direction of the "-" symbol until the cable no longer moves backwards. The spring anti-rupture device blocks the drum. The spring must not be released, otherwise it could be irreversibly damaged.

Unscrew and remove the endless screw wheel protection disk.

Unscrew the casing cover. Using special pliers, remove the endless screw wheel safety ring. Remove the drum with the spring and the spring detent from the casing, paying attention to the keyway in the spring detent. If necessary make the spring detent pass by the endless screw wheel with a plastic hammer. If necessary, push the drum and the casing onto the spring detent again. Unreel the cable and the drum, unhook it and pull it through the hole in the casing. Remove the suspension hook (See **Replacing the suspension hook**).

• (D) Assembly:

Place the suspension hook on the new casing (See **Replacing the suspension hook**). Position the endless screw wheel in the casing. Place the drum with the spring detent and brass washer in the casing and pass the spring detent by the endless screw wheel (make sure the keyway is correctly positioned with respect to the endless screw wheel. Turn the wheel if necessary). The spring detent groove must be visible. Fit the safety ring into the spring detent groove using special pliers.

Rotate the drum by turning the endless screw in the "+" direction until the suspension hook is visible in the slit in the casing. Introduce the cable from the exterior via the hole in the casing and install it as described in **Replacing the cable**. Reel in the cable by turning the drum using the endless screw in the "+" direction (17-mm wrench). Make sure that the cable is correctly wound in the groove!

Tension the spring and adjust the load as described in **Spring kit replacement** - See • (B).

Replacing the drum

The balancer is disassembled in the same way as in **Replacing the casing** - See • (C). The casing suspension hook, however, is not removed.

Installing a new drum:

Unscrew the cover, place the spring detent in the drum making sure that the ball bearing does not come out of the drum. Place the brass washer on the spring detent, place the endless screw wheel in the casing. Place the drum with the spring detent and brass washer in the casing, passing them via the endless screw wheel; the keyway and the groove must be aligned; turn the spring detent if necessary. Block the endless screw wheel with the safety ring.

Place the spring kit in the drum as described in **Replacing the spring kit** • (B) **Assembly**. Assemble the cable as described in • (D) **Assembly paragraph 2**.

Replacing the suspension hook

Remove the suspension hook pin, washers, rods and tube from the casing. Remove the suspension hook. Position a new suspension hook, insert the rod into the suspension hook and the tube, then secure the rod with the washers and a new pin.

Guarantee

The **spring balancers** are guaranteed for 12 months from the date of delivery and the items sold new are guaranteed against material or constructional defects resulting from a design error or incorrect production, and whose origin precedes risk transfer.

The guarantee does not cover the consequences of normal wear, overload, incorrect handling, modification, repair or installation of parts that are not original parts from ARO Welding Technologies SAS.

ARO Welding Technologies SAS will only honour this guarantee if the appliance has been returned to us fully assembled for verification in our shops.

Any damage further to a material or manufacturing defect will be remedied by repair or delivery of a replacement part.

Our General Terms of Sale are applicable.

CE Declaration of Conformity

SCR/F/CE9503 ind 01 - Anglais

Translation of original French declaration

CE DECLARATION OF CONFORMITY

ARO WELDING TECHNOLOGIES S.A.S.

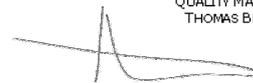
INCORPORATED AS A SIMPLIFIED SHAREHOLDING COMPANY
WITH CAPITAL OF 5 940 000 €
REGISTERED IN LE MANS UNDER COMPANY NUMBER : B 542 102 959
1, AVENUE DE TOURS, BP 40161
72500 CHATEAU-DU-LOIR - FRANCE

HERBERY DECLARES THAT THE SPRING LOAD BALANCERS TYPE XS MEETS THE REQUIREMENTS OF "MACHINERY" DIRECTIVE 2006/42/CE.

CONFORMITY HAS BEEN DECLARED FOLLOWING THE PRESCRIPTIONS FROM STANDARD DIN 15112:1975-05.

HERBERY DECLARES THAT THEY ARE ABLE TO PRODUCE THE TECHNICAL FILE IN LINE WITH DIRECTIVE 2006/42/CE.

Done at Château-du-Loir, le : 04 février 2011
QUALITY MANAGER,
THOMAS BERRY



As the original of these Operating Instructions has been drawn up in the French language, the French version is legally binding. The manufacturer will accept no responsibility for translations.

The original version of the service instructions written in French is deemed authentic. The manufacture declines all responsibility for translations. Document subject to change.

Disposal

- **Before disposing of the spring balancer at the end of its operational life, it is vital to take into consideration all the applicable directives in force relative to metals, plastics, electrical and electronic components, grease and oils, etc.**
- **If it is necessary to disassemble the spring balancer, this must be done by duly qualified personnel.**

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A Langley Holdings Company

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