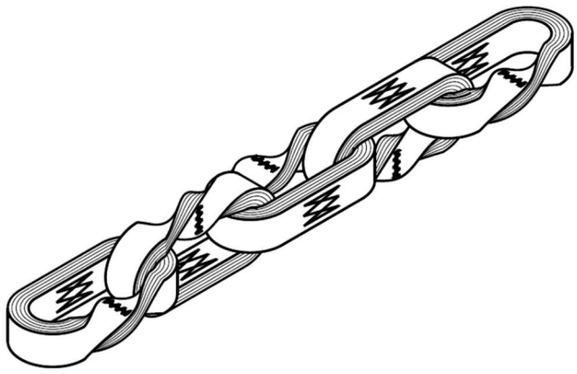
SYNTHETIC CHAIN AND MASTERLINK INSTRUCTIONS MANUAL



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In case of any questions, please contact

+49 (0) 8331-937-9623

info@pfeifer.de

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1. General

Full data of the manufacturer and the technical service:

Industrias Murtra Cadenas S.L.
Jordi Camp, 94, 08403 - Granollers, Barcelona
Telephone: +34 938 46 72 00
E-mail: info@murlink.com

2. Equipment data

Brand: MURLINK®
Models synthetic chain: 102004 – 152006 – 172007 – 202008 – 243006 – 283007 – 323008 – 423010– 503013 - 524010 – 604011 - 644012 – 724013 – 764014 – 885012 – 1005013 – 1085014 – 1287511 – 1447512 – 1607513 – 1767514 – 2007516 – 2207518 – 2407520 – 2807523 – 3207526.

Model synthetic masterlink:

- SIMPLELINK 243006 – 323008 - 524010 – 724013 – 885012 – 1287511 – 1767514.
- TRIPLELINK 323008 - 524010 – 724013 – 1085014 – 1287511 – 1767514.

Serial number: from 0000001-1-001 to 999999-9-999

Detailed description of the equipment: The synthetic chain and masterlink consists of links formed by Möbius type winding of Dyneema (UHMWPE) fibre woven webbing.

Use: Synthetic chain and masterlink for lifting loads.

The maximum workloads for synthetic chains in lifting operations and for a single-chain straight lift configuration, are shown in Table 1.

The WLL for the Masterlink in lifting operations, for 2-leg sling (Simplelink) and for 4-leg sling (Triplelink), are shown in Table 2 and Table 3, respectively.

The following chain configurations are allowed: straight lifts, choked lifts, choked basket hitches, 2-leg sling, 3 and 4-leg sling. To determine the maximum workload for settings other than straight lift, refer to the tables in this manual.

Table 1. Range of Murlink® synthetic chains.

Chain reference	Breaking load (kg)	Maximum workload WLL (kg) when lifting	Nominal dimensions		Weight (kg/m)
			Link internal length (mm)	Link maximum cross-section (mm)	
MURLINK 102004	10.000	2.500	100	20x8	0,325
MURLINK 152006	15.000	3.750	100	20x12	0,475
MURLINK 172007	17.500	4.375	100	20x14	0,585
MURLINK 202008	20.000	5.000	100	20x16	0,625
MURLINK 243006	24.000	6.000	125	30x12	0,710
MURLINK 283007	28.000	7.000	125	30x14	0,835
MURLINK 323008	32.000	8.000	125	30x16	0,940
MURLINK 423010	42.000	10.500	250	30x20	1,050
MURLINK 503013	50.000	12.500	250	30x26	1,268
MURLINK 524010	52.000	13.000	250	40x20	1,467
MURLINK 604011	60.000	15.000	250	40x22	1,612
MURLINK 644012	64.000	16.000	250	40x24	1,749
MURLINK 724013	72.000	18.000	250	40x26	1,904
MURLINK 764014	76.000	19.000	250	40x28	2,050
MURLINK 885012	88.000	22.000	300	50x24	2,100
MURLINK 1005013	100.000	25.000	300	50x26	2,275
MURLINK 1085014	108.000	27.000	300	50x28	2,450
MURLINK 1287511	128.000	32.000	400	75x22	3,061
MURLINK 1447512	144.000	36.000	400	75x24	3,337
MURLINK 1607513	160.000	40.000	400	75x26	3,615
MURLINK 1767514	176.000	44.000	400	75x28	3,892
MURLINK 2007516	200.000	50.000	500	75x32	4,350
MURLINK 2207518	220.000	55.000	500	75x36	4,893
MURLINK 2407520	240.000	60.000	600	75x40	5,250
MURLINK 2807523	280.000	70.000	600	75x46	6,038
MURLINK 3207526	320.000	80.000	700	75x52	6,826

Table 2. Range of SIMPLELINK.

Masterlink reference	Breaking load (kg)	Maximum workload WLL (kg) when lifting	Dimensions (mm)	Weight (kg)
			AxBxC	
SIMPLELINK 243006	24.000	6.000	12x90x170	0,28
SIMPLELINK 323008	32.000	8.000	16x100x185	0,34
SIMPLELINK 524010	52.000	13.000	20x110x215	0,51
SIMPLELINK 724013	72.000	18.000	24x160x320	0,88
SIMPLELINK 885012	88.000	22.000	26x180x365	1,15
SIMPLELINK 1287511	128.000	32.000	24x190x365	1,7
SIMPLELINK 1767514	176.000	44.000	32x200x405	2,18

Industrias Murtra Cadenas S.L.
c. Jordi Camp, 94
08403 Granollers
Barcelona · Spain
Tel. +34 938 467 200
murlink@murlink.com
www.murlink.com

Table 3. Range of TRIPLELINK.

Masterlink reference	Server Reference	Breaking load (kg)	Maximum workload WLL (kg) when lifting	Dimensions (mm)		Weight (kg)
				AxBxC	axbxc	
TRIPLELINK 323008	Server 243006	32.000	8.000	16x100x185	12x90x170	0,76
TRIPLELINK 524010	Server 423010	52.000	13.000	20x110x215	19x100x215	1,24
TRIPLELINK 724013	Server 503013	72.000	18.000	24x160x320	23x110x215	1,8
TRIPLELINK 1085014	Server 764014	108.000	27.000	26X190X370	26x110x240	2,64
TRIPLELINK 1287511	Server 885012	128.000	32.000	24x190x365	25x160x250	3,28
TRIPLELINK 1767514	Server 1085014	176.000	44.000	32x200x405	26x160x280	4,15
	Server 1287511				25x180x315	5,05

Improper or prohibited uses:

- The product is not to be used at temperatures above 70°C or below -40°C.
- Chains are not to be used in exceptionally dangerous conditions:
  - lifting potentially dangerous loads (molten metals and acids, glass panes, corrosive or fissile materials).
  - lifting people.

Basic characteristics of the attachable accessories:

The connectors specified by Industrias Murtra Cadenas S.L. must be used to attach the synthetic chain to other accessories. A list of valid connectors for each of the chain references is found in "Annex 1. Murlink chain compatible accessories" of this manual.

Airborne noise emitted by the equipment:

The synthetic chain is silent. In any case, the chain noise is under 70 dBA.

3. Transport and storage instructions

Transport and storage conditions:

- It is recommended to store the chains in a dry place, free of corrosive or dusty atmospheres, in a fire-proof area and avoiding sparks or flames.
- When the chains are not used, they should be stored in a purpose-designed support, keeping the packaging closed and avoiding direct exposure to sunlight.
- Chains must not be stored or moved in direct contact with the ground.

4. Instructions for installation and putting into service

Before the synthetic chain and masterlink is used for the first time, it must be ensured that:

- the chain is exactly suited to what was requested and ordered.
- a valid manufacturer's certificate and EC declaration of conformity are available.
- the product is properly labelled.
- the product instructions manual is available.
- the identification and maximum workload mentioned on the chain are the same as the information provided in the certificate.

- the chain users have received the appropriate instructions and training.
- the chain users have the necessary PPE to handle the load.
- the chain has been checked and it has no defects that might be detrimental to its use.

5. Instructions for use

Chain attachment to loads and/or accessories:

- Attachments must always be made with the load or accessory lashing points at one end (rounded sections of the link). Attachments should not be made in the straight section or on the turn of the link (Figure 1).
  The chain must not be attached to accessories other than those specified in this manual. Attachment to unspecified accessories may reduce the chain workload. The chain must not be attached to unspecified accessories without consulting and receiving the agreement of the technical department of Industrias Murtra Cadenas S.L.

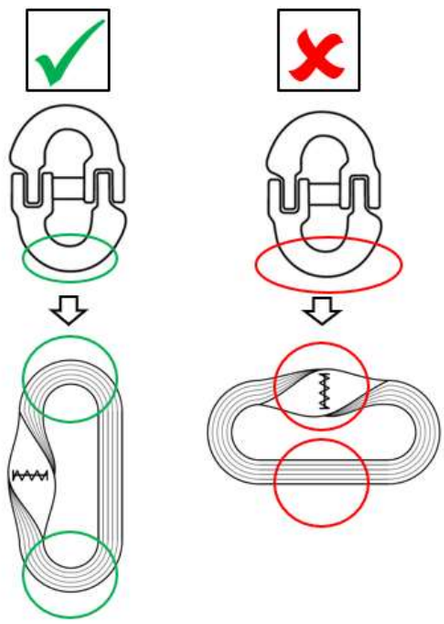


Figure 1. Link placement in the metallic accessory.

- **Before placing a synthetic chain or synthetic masterlink on a metallic accessory, check that the contact surface between the metallic element and the synthetic one is polished and has no sharp areas.**
  If the chain or masterlink is directly connected to a bolt, also check that it is in good condition and polished.

- An intermediate link in the chain must never be used as a master link (Figure 2).

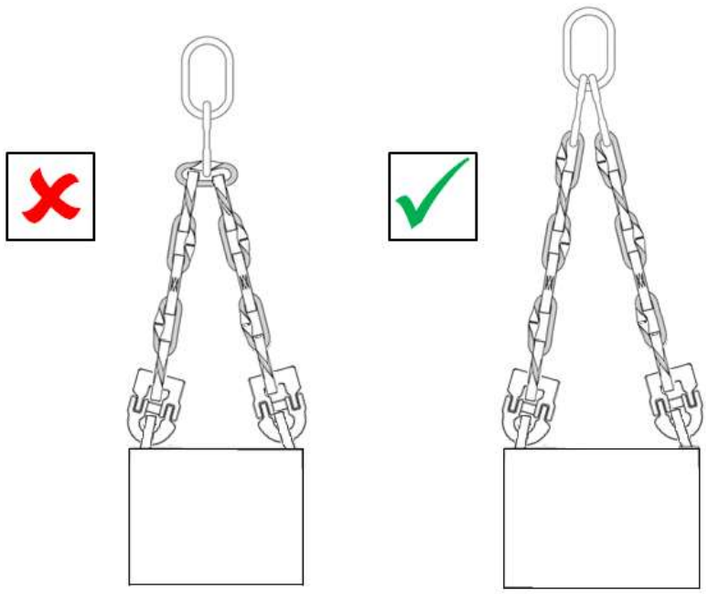


Figure 2. Placement of link in metal Masterlink.

- The chain can be shortened in any of its links (Figure 3). Never shorten the chain by making a knot.

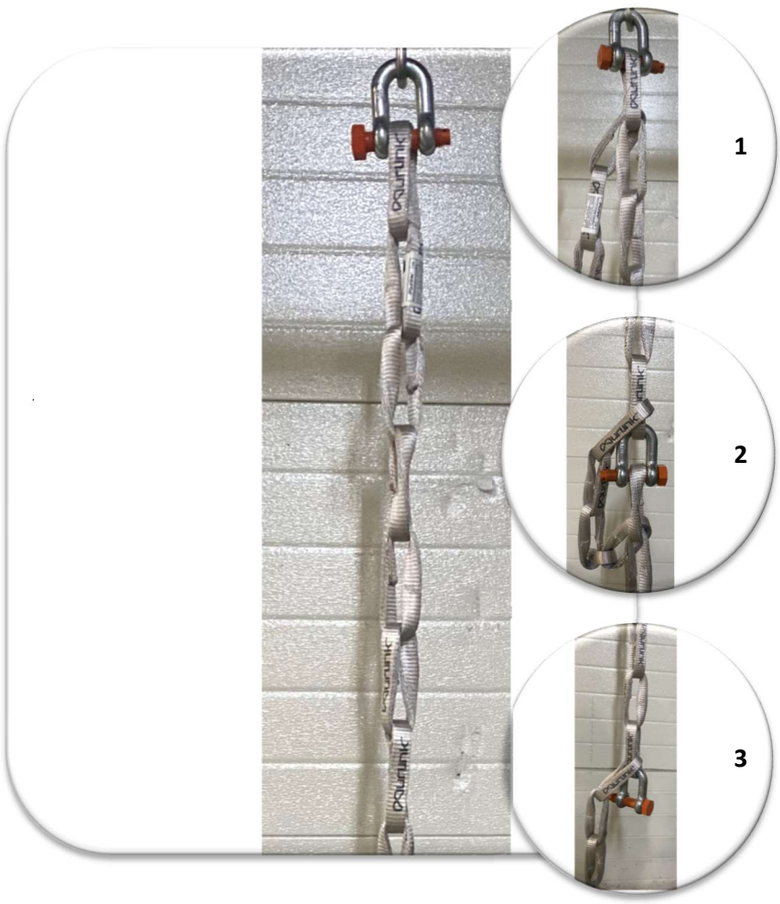


Figure 3. Murlink® chain shortening.

During the lifting procedure:

- Sharp accelerations or decelerations in lifting loads should be avoided. The load must always be lifted and lowered slowly. Before the load is lifted completely, the chain should be tautened gently and the load raised slightly to check its lashing and balance. Operators must be aware of the risks and dangers associated with sudden movements that could cause the sling to snap.

- Before starting to lift, it must be ensured that the load is free to move and that it is not bolted or fastened in any other way. The point receiving the load must be prepared and adapted to its weight and shape. Access to the site must be free of any unnecessary obstacles and there should be no people around it.

- Lifting/lowering must be avoided near objects that may be in the path of the load.

- The chain should never be allowed to rotate on its axis.

- The load or the chain itself should not be touched while tautening the chain. Hands and other body parts should be kept away from the chain to avoid any harm in tautening the chain.

- Check whether specific instructions for lifting the load have been provided by the load manufacturer. The weight of the load must be known in order to select the chain with the correct maximum workload. If the weight of the load is not indicated, the information must be obtained from the carriage letters, manuals or designs, or it must be evaluated with the appropriate calculations.

- Never support chains directly on sharp edges (Figure 4). Corner protections or protection brackets must be used in loads with sharp edges. Protections must be used to prevent sharp edges and corners damaging the chain. Industrias Murtra Cadenas S.L. recommends the use of UHMWPE tubular type protections. Unprotected contact between the chain and edges of radii smaller than the width of the webbing forming the link must generally be avoided.

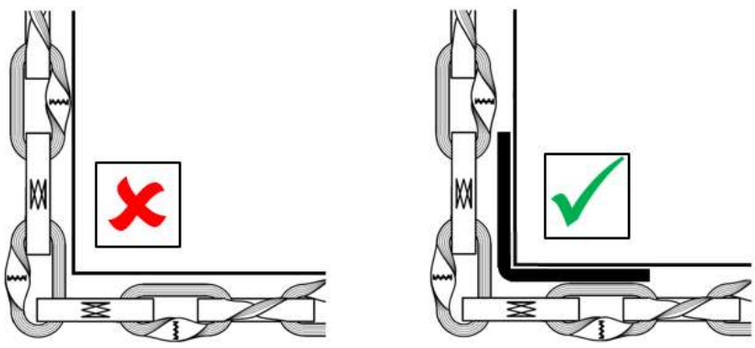


Figure 4. Use of sharp corners.

- It must be ensured that the load to be moved is able to withstand both the vertical and the horizontal force without damage.

- The chain must be prevented from becoming trapped under the load, as this could damage it.

- The chain must never be overloaded.
- Before allowing the chain to slacken, the load must be checked to ensure that it is stable and properly supported. The chain must then be released by hand and not with the lifting component.

- Care must be taken in positioning when handling the load. The load could slip and cause damage. Personnel within the working area of the lifting equipment must not be exposed to danger when the load is lifted or moved. Never stand or walk under a suspended load. Avoid having objects behind you that prevent your movement.

- Personnel lifting loads must use all appropriate PPE: helmet, high visibility clothing, safety shoes, gloves and any other PPE considered necessary for the handled load.

- The load must be lifted vertically to prevent it from swaying as it leaves the ground.

- In cutting or welding operations, it must be ensured that the chain is not affected by heat or splashes produced by the welding.

- The chain must never be shortened by making a knot.

- Suspended loads must never be left unattended.

- In the event of an accident:
    - Workplaces will have material for first aid in the event of an accident. This should be adequate in terms of quantity and characteristics for the number of workers, the risks to which they are exposed and the ease of access to the nearest medical centre.
    - Personnel are not to be allowed in the danger zone, until a specialist makes sure there is no more danger.
    - The emergency services are generally to be contacted to attend injured persons.

Multi-leg chain sling assemblies:

- The load must be distributed as evenly as possible between the legs.

- Chain slings should be used with perfectly straight legs, without twists, knots or breaks. The load must be secured by the sling so that it cannot tip over or fall from the sling in lifting.

- All multi-leg chain slings exert a horizontal force that increases as the angle formed by the legs grows. The load must be able to withstand the stresses generated by multiple slinging.

- Multi-leg slings can have of 2, 3 or 4 legs. A master link gathers the legs. The master ring must move freely at the base of the crane hook. All synthetic chains must be attached to the master link through intermediate rings. Two or more synthetic chains must not be attached directly to the master link without using intermediate links.

- If the lengths of the legs are not equal, overloading may occur in one of them. This situation should be avoided by using chains of the same length. Chains of different load capacities must not be combined in the same assembly. In the case of slings of 3 and 4 legs, if the legs

are not arranged symmetrically in the plane, the greatest tension will occur in the leg where the sum of the angles of the plane to the adjacent legs is greater. If abnormal stretching is seen in the links during or after handling the load, the chain must be discarded.

- Assemblies must be identified with a strong label containing the following information:
  - Maximum workload and permitted range of angles.
  - EC marking
  - Number of legs
  - Manufacturer name

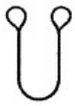
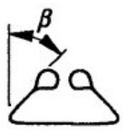
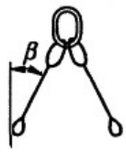
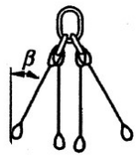
- The centre of gravity of the load must be considered. The following conditions must be met to prevent leaning or toppling:
  - For endless slings of one leg, the attaching point must be set directly above the centre of gravity.
  - For two-leg slings, the attachment points must be on both sides and above the centre of gravity.
  - For three- and four-leg slings, the attachment points must be distributed on a plane around the centre of gravity. The weight must be distributed evenly between the different lifting points, which should be placed above the centre of gravity.
  - The hook from which the chain sling hangs should be located directly above the centre of gravity.

- When two-, three- or four-leg chain slings are used, the hitching points and the chain sling configuration must be selected to ensure that the angles formed by the chain sling legs and the vertical are in the admissible range marked on the chain sling. All angles should preferably be equal in relation to the vertical. Angles of less than 15° relative to the vertical should be avoided as far as possible, as this produces a much more significant risk of causing load unbalancing.

- If using the synthetic chain to form a sling of several legs, all the details of the sling (components, diameter, number of legs, angle, grade) must be recorded in the register of the lifting equipment.

- Depending on the chain configuration used, the following correction factors indicated in the table 4 must be used.

Table 4. Maximum working loads for different chain configurations.

Ref.	WLL (kg)	Vertical lift (kg)	Strangled elevation (kg)	Strangled basket (kg)			Sling 2 legs (kg)		Sling 3 and 4 legs (kg)	
										
				Parallel	B=0 a 45º	B=45 a 60º	B=0 a 45º	B=45 a 60º	B=0 a 45º	B=45 a 60º
		M=1	M=0,8	M=2	M=1,4	M=1	M=1,4	M=1	M=2,1	M=1,5
MURLINK 102004	2.500	2.500	2.000	5.000	3.500	2.500	3.500	2.500	5.250	3.750
MURLINK 152006	3.750	3.750	3.000	7.500	5.250	3.750	5.250	3.750	7.875	5.625
MURLINK 172007	4.375	4.375	3.500	8.750	6.125	4.375	6.125	4.375	9.188	6.563
MURLINK 202008	5.000	5.000	4.000	10.000	7.000	5.000	7.000	5.000	10.500	7.500
MURLINK 243006	6.000	6.000	4.800	12.000	8.400	6.000	8.400	6.000	12.600	9.000
MURLINK 283007	7.000	7.000	5.600	14.000	9.800	7.000	9.800	7.000	14.700	10.500
MURLINK 323008	8.000	8.000	6.400	16.000	11.200	8.000	11.200	8.000	16.800	12.000
MURLINK 423010	10.500	10.500	8.400	21.000	14.700	10.500	14.700	10.500	22.050	15.750
MURLINK 503013	12.500	12.500	10.000	25.000	17.500	12.500	17.500	12.500	26.250	18.750
MURLINK 524010	13.000	13.000	10.400	26.000	18.200	13.000	18.200	13.000	27.300	19.500
MURLINK 644012	16.000	16.000	12.800	32.000	22.400	16.000	22.400	16.000	33.600	24.000
MURLINK 724013	18.000	18.000	14.400	36.000	25.200	18.000	25.200	18.000	37.800	27.000
MURLINK 764014	19.000	19.000	15.200	38.000	26.600	19.000	26.600	19.000	39.900	28.500
MURLINK 885012	22.000	22.000	17.600	44.000	30.800	22.000	30.800	22.000	46.200	33.000
MURLINK 1005013	25.000	25.000	20.000	50.000	35.000	25.000	35.000	25.000	52.500	37.500
MURLINK 1085014	27.000	27.000	21.600	54.000	37.800	27.000	37.800	27.000	56.700	40.500
MURLINK 1287511	32.000	32.000	25.600	64.000	44.800	32.000	44.800	32.000	67.200	48.000
MURLINK 1447512	36.000	36.000	28.800	72.000	50.400	36.000	50.400	36.000	75.600	54.000
MURLINK 1607513	40.000	40.000	32.000	80.000	56.000	40.000	56.000	40.000	84.000	60.000
MURLINK 1767514	44.000	44.000	35.200	88.000	61.600	44.000	61.600	44.000	92.400	66.000
MURLINK 2007516	50.000	50.000	40.000	100.000	70.000	50.000	70.000	50.000	105.000	75.000
MURLINK 2207518	55.000	55.000	44.000	110.000	77.000	55.000	77.000	55.000	115.500	82.500
MURLINK 2407520	60.000	60.000	48.000	120.000	84.000	60.000	84.000	60.000	126.000	90.000
MURLINK 2807523	70.000	70.000	56.000	140.000	98.000	70.000	98.000	70.000	147.000	105.000
MURLINK 3207526	80.000	80.000	64.000	160.000	112.000	80.000	112.000	80.000	168.000	120.000

M= correction factor

Chain slings should not be used other than for those applications for which they were designed. However, in practice lifting may need to be performed with fewer legs than the number of legs of the chain sling. In this case, the maximum workload should be reduced with respect to the load marked on the chain sling, applying the corresponding factor specified in the Table 5.

Table 5. Factor to apply according to the number of legs.

Sling type	No. legs used	Factor to be applied to the maximum usage load marked
With 2 legs	1	1/2
With 3 and 4 legs	2	2/3
With 3 and 4 legs	1	1/3

- Synthetic chains can be used, assembled directly to the synthetic masterlink, either in 2 legs (Table 6) or 4 legs (Table 7). For the union of 2 legs, the Simplelink is used and for 4 legs the Triplelink.
  All the synthetic masterlink have spacers, you can not use the legs, without these branch spacers (Figure 5 and 6)**.** A cover will be placed on the upper part of the masterlink, which indicates that it is in contact with the hook.

a)  b) 

Figure 5. Synthetic Masterlink. a) SImplelink. b) Triplelink.

Figure 6. Simplelink with 2 legs.

Table 6. Maximum workloads for 2-leg, with synthetic chain and masterlink

Simplelink		2 legs			
Reference simplelink	WLL (kg) lifting	Reference chain	WLL chain (kg)	WLL(KG) = WLLchain · M	
				M = 1,4 ß>0°, ß<45°	M = 1 ß<45°, ß<60°
SIMPLELINK 243006	6.000	Murlink 102004	2.500	3.500	2.500
		Murlink 152006	3.750	5.250	3.750
SIMPLELINK 323008	8.000	Murlink 172007	4.380	6.132	4.380
		Murlink 202008	5.000	7.000	5.000
SIMPLELINK 524010	13.000	Murlink 283007	7.000	9.800	7.000
		Murlink 323008	8.000	11.200	8.000
SIMPLELINK 724013	18.000	Murlink 423010	10.500	14.700	10.500
		Murlink 503013	12.500	17.500	12.500
SIMPLELINK 885012	22.000	Murlink 524010	13.000	18.200	13.000
		Murlink 604011	15.000	21.000	15.000
SIMPLELINK 1287511	32.000	Murlink 644012	16.000	22.400	16.000
		Murlink 764014	19.000	26.600	19.000
		Murlink 885012	22.000	30.800	22.000
SIMPLELINK 1767514	44.000	Murlink 1005013	25.000	35.000	25.000
		Murlink 1085014	27.000	37.800	27.000
		Murlink 1287511	32.000	44.000 (máx. anilla)	32.000

Table 7. Maximum workloads for 4-leg, with synthetic chain and masterlink.

Triplelink			4 legs			
Reference simplelink	Reference server	WLL (kg) lifting	Reference chain	WLL chain (kg)	WLL(KG) = WLLchain · M	
					M = 2,1 ß>0°, ß<45°	M = 1,5 ß<45°, ß<60°
TRIPLELINK 323008	Server 243006	8.000	Murlink 102004	2.500	5.250	3.750
			Murlink 152006	3.750	7.875	5.625
TRIPLELINK 524010	Server 423010	13.000	Murlink 172007	4.380	9.198	6.570
			Murlink 202008	5.000	10.500	7.500
			Murlink 243006	6.000	12.600	9.000
TRIPLELINK 724013	Server 503013	18.000	Murlink 283007	7.000	14.700	10.500
			Murlink 323008	8.000	16.800	12.000
TRIPLELINK 1085014	Server 764014	27000	Murlink 423010	10.500	22.050	15.750
			Murlink 503013	12.500	26.250	18.750
TRIPLELINK 1287511	Server 885012	32.000	Murlink 604011	15.000	31.500	22.500
TRIPLELINK 1767514	Server 1085014	44.000	Murlink 644012	16.000	33.600	24.000
			Murlink 724013	18.000	37.800	27.000
	Server 1287511		Murlink 764014	19.000	39.900	28.500
			Murlink 885012	22.000	44.000 (máx. anilla)	33.000

6. Instructions for maintenance

Before each use, the sling must be visually inspected for possible damage or wear. If any wear is found in the inspection, the sling will be removed from service and sent to a specialist for in-depth examination.

A periodic inspection must also be made following the safety regulations of each country. This is necessary because the products can be affected by wear, misuse, overloading, etc. and the structure of the material can be deformed and altered.

Any company that considers that it must carry out a few inspections greater than the minimum determined by the law in force in its country will be free to do so. This periodic review may be carried out by a person competent in the matter, who knows the rejection criteria relevant to Murlink chains.

The sling should be inspected throughout its length to detect any possible wear, distortion, or external damage. Records of such inspections must be made.
If a chain link need replacing, chains must be repaired exclusively by the chain manufacturer. Never try to repair the chain yourself.

The chain must be removed immediately, if any of the following damage is detected:

- Chains or accessories considerably deformed.
- Broken fibres seen in the synthetic webbing forming the link.
- The identification tag is illegible or unavailable.
- Twisting or breakage in the chain or any of its components.
- Damaged chain stitching.
- Wear caused by abrasion on the outer face of the chain or in the area between links.
- Damage due to heating or friction. This may be indicated by the fibres, which become shiny and, in extreme cases, may be melted together.
- Cuts, notches or holes in the synthetic webbing.
- At some point the chain has held a load exceeding its maximum workload.

If a chain has been stored for a long period of time, it must be inspected before being reused.
Inspections must be made by a trained person with sufficient knowledge of the design, use and maintenance of lifting equipment.
The chain connectors must be removed immediately, if any of the following damage is detected:

- Bent or deformed connectors
- Connectors that reveal corrosion or cracks.
- The pin that joins the two parts of the connector does not hold firmly in place. The pin operation must be checked by knocking it on one of its ends; the bolt must not move easily in this operation.
- Deformed hitching holes.
- Reduction of the connector cross-section due to usage.
- The manufacturer’s brands and connector model are not legible.

7. Instructions for scrapping

All possible waste generated must be managed in accordance with the applicable national and local regulations.

This product does not generate hazardous waste in accordance with European Directive 2008/98/CE.

8. Information regarding lashing operations

If the chain is used for lashing operations, the maximum workloads are the Table 8.

Table 8. Maximum workloads for lashing operations.

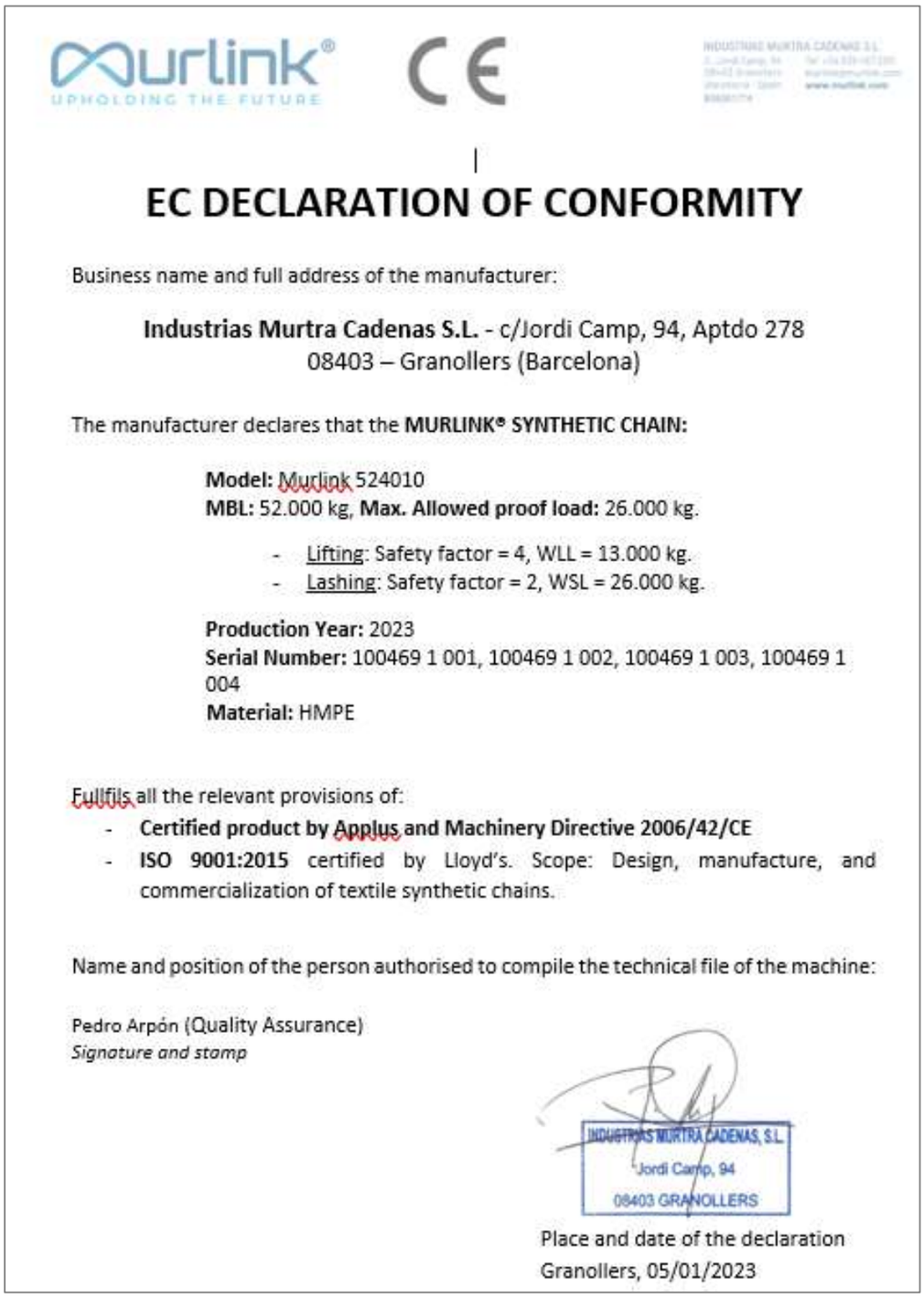
Chain reference	Breaking load (kg)	Maximum workload (kg) when lashing	Nominal dimensions	
			Link internal length (mm)	Link maximum cross-section (mm)
MURLINK 102004	10.000	5.000	100	20x8
MURLINK 152006	15.000	7.500	100	20x12
MURLINK 172007	17.500	8.750	100	20x14
MURLINK 202008	20.000	10.000	100	20x16
MURLINK 243006	24.000	12.000	125	30x12
MURLINK 283007	28.000	14.000	125	30x14
MURLINK 323008	32.000	16.000	125	30x16
MURLINK 423010	42.000	21.000	125	30x20
MURLINK 503013	50.000	25.000	150	30x26
MURLINK 524010	52.000	26.000	250	40x20
MURLINK 604011	60.000	30.000	250	40x22
MURLINK 644012	64.000	32.000	250	40x24
MURLINK 724013	72.000	36.000	250	40x26
MURLINK 764014	76.000	38.000	250	40x28
MURLINK 885012	88.000	44.000	300	50x24
MURLINK 1005013	100.000	50.000	300	50x26
MURLINK 1085014	108.000	54.000	300	50x28
MURLINK 1287511	128.000	64.000	400	75x22
MURLINK 1447512	144.000	72.000	400	75x24
MURLINK 1607513	160.000	80.000	400	75x26
MURLINK 1767514	176.000	88.000	400	75x28
MURLINK 2007516	200.000	100.000	500	75x32
MURLINK 2207518	220.000	110.000	500	75x36
MURLINK 2407520	240.000	120.000	600	75x40
MURLINK 2807523	280.000	140.000	600	75x46
MURLINK 3207526	320.000	160.000	700	75x52

In addition to everything indicated in this manual, it must be remembered that:

- The lashing chains must be of sufficient strength and of a length appropriate to the form of use.
- The way to fix and release the chain must be established before the moving.
- The lifting equipment must be removed before the load is lashed.
- Consider the possibility that there may be partial unloading operations during lashed loads being moved over long distances.
- The compatibility of fasteners and auxiliary lashing devices with the lashing chain must be considered.
- In loosening the lashing, it must be ensured that the stability of the load is independent of the lashing chain and that the slackening does not cause accidental falls. If necessary, the load must be hitched to the lifting equipment before slackening to avoid any accidental fall.
- Before an unloading operation is undertaken, the lashing chains must have been removed and not obstruct the unloading.
- If load is secured on road vehicles, the metal accessories used in conjunction with the chain must comply with EN 12195-3.
- When load binders are used, it must be ensured that the hitching point or accessories with the synthetic chain are correct. A list of valid connectors for each of the chain references is found in “Annex 1. Murlink chain compatible accessories” of this manual.
- The load binders to be used with the chain must have a minimum tension distance/range of 290 mm.

9. EC Declaration of Conformity for Lifting Chains

Figures 7 and 8 show an example of the EC declaration of conformity model for synthetic chains and masterlink + synthetic chain.



EC DECLARATION OF CONFORMITY

Business name and full address of the manufacturer:

Industrias Murtra Cadenas S.L. - c/Jordi Camp, 94, Aptdo 278
08403 – Granollers (Barcelona)

The manufacturer declares that the **MURLINK® SYNTHETIC CHAIN:**

Model: Murlink 524010
MBL: 52.000 kg, **Max. Allowed proof load:** 26.000 kg.

- Lifting: Safety factor = 4, WLL = 13.000 kg.
- Lashing: Safety factor = 2, WSL = 26.000 kg.

Production Year: 2023
Serial Number: 100469 1 001, 100469 1 002, 100469 1 003, 100469 1 004
Material: HMPE

Fullfils all the relevant provisions of:

- **Certified product by Applus and Machinery Directive 2006/42/CE**
- **ISO 9001:2015** certified by Lloyd's. Scope: Design, manufacture, and commercialization of textile synthetic chains.

Name and position of the person authorised to compile the technical file of the machine:

Pedro Arpón (Quality Assurance)
Signature and stamp

INDUSTRIAS MURTRA CADENAS, S.L.
Jordi Camp, 94
08403 GRANOLLERS

Place and date of the declaration
Granollers, 05/01/2023

Figure 7. Model CE declaration synthetic chain.

EC DECLARATION OF CONFORMITY

Business name and full address of the manufacturer:

Industrias Murtra Cadenas S.L. - c/Jordi Camp, 94, Aptdo 278
08403 – Granollers (Barcelona)

The manufacturer declares that the **MURLINK® SYNTHETIC CHAIN AND MASTER LINK:**

Master link model: Triplelink 323008
- Lifting: Safety factor = 4, WLL = 8.000 kg.

Chain model: Murlink 102004
MBL: 10.000 kg, **Max. Allowed proof load:** 5.000 kg.
- Lifting: Safety factor = 4, WLL = 2.500 kg.

Serial Number: 100467 1 001, 100467 1 002, 100467 1 003, 100467 1 004

Product: Master link 4 legs, 5.250 kg (ß<45º), 3.750 kg (60º>ß>45º)
Production Year: 2023
Material: HMPE

Fullfils all the relevant provisions of:
- **Certified product by Applus and Machinery Directive 2006/42/CE**
- **ISO 9001:2015** certified by Lloyd's. Scope: Design, manufacture, and commercialization of textile synthetic chains.

Name and position of the person authorised to compile the technical file of the machine:

Pedro Arpón (Quality Assurance)
Signature and stamp

INDUSTRIAS MURTRA CADENAS, S.L.
Jordi Camp, 94
08403 GRANOLLERS

Place and date of the declaration
Granollers, 02/01/2023

Figure 8. Model CE Declaration Masterlink + synthetic chain.

10. Annex 1. MURLINK chain compatible accessories

Accessories must comply with 2006/42/CE directive and the following standards:

- EN 1677 1,2,3 for components for slings - Grade 8
- EN 13889 for forged steel shackles - Grade 6

Table 9. Compatible element for direct chain connection - grade 80 metallic accessories.

Accessory	**Eye hook**	**Hammerlock**	**D-Shackle Shortener**	**Master Link 1 leg**	**Master Link 2 legs angle <45º**	**Master link 4 legs angle <45º**
Accessory grade	G80	G80	G60	G80	G80	G80
Chain reference	WLL [ton]	WLL [ton]	WLL [ton]	WLL [ton]	WLL [ton]	WLL [ton]
MURLINK 102004	3,15	5,3	3,25	3,15	5,3	6,7
MURLINK 152006	5,3	5,3	4,75	5,3	5,3	11,2
MURLINK 172007	5,3	5,3	4,75	5,3	8	11,2
MURLINK 202008	5,3	5,3	6,5	5,3	8	11,2
MURLINK 243006	8	8	8,5	8	11,2	17
MURLINK 283007	8	8	8,5	8	11,2	17
MURLINK 323008	8	12,5	8,5	8	11,2	17
MURLINK 423010	12,5	12,5	12	11,2	17	26,5
MURLINK 503013	12,5	15	13,5	14	21,2	26,5
MURLINK 524010	15	21,2	17	14	21,2	31,5
MURLINK 604011	15	21,2	17	17	21,2	31,5
MURLINK 644012	21,2	21,2	17	17	31,5	45
MURLINK 724013	21,2	21,2	25	21,2	31,5	45
MURLINK 764014	21,2	21,2	25	21,2	31,5	45
MURLINK 885012	31,5	31,5	25	31,5	31,5	74,8
MURLINK 1005013	31,5	31,5	25	31,5	45	74,8
MURLINK 1085014	31,5	31,5	35	31,5	45	74,8
MURLINK 1287511	-	-	55	45	63	74,8
MURLINK 1447512	-	-	55	45	63	-
MURLINK 1607513	-	-	55	45	63	-
MURLINK 1767514	-	-	55	45	63	-

Table 10. Compatible element for direct chain connection - grade 100 metallic accessories.

Accessory	**Eye hook**	**Hammerlock**	**D-Shackle Shortener**	**Master Link 1 leg**	**Master Link 2 legs angle <45º**	**Master link 4 legs angle <45º**
Accessory grade	G100	G100	G100 (solo rud)	G100	G100	G100
Chain reference	WLL [ton]	WLL [ton]	WLL [ton]	WLL [ton]	WLL [ton]	WLL [ton]
MURLINK 102004	4	6,7	6,7	3,5	3,5	5,3
MURLINK 152006	4	6,7	6,7	5	7,6	14
MURLINK 172007	6,7	6,7	6,7	5	7,6	14
MURLINK 202008	6,7	6,7	6,7	7,6	8	14
MURLINK 243006	10	10	10	7,6	10	21,2
MURLINK 283007	10	10	10	7,6	10	21,2
MURLINK 323008	10	14	16	14	14	21,2
MURLINK 423010	14	14	16	14	25,1	33,6
MURLINK 503013	14	19	25	14	25,1	33,6
MURLINK 524010	19	26,5	25	14	25,1	33,6
MURLINK 604011	19	26,5	25	25,1	25,1	33,6
MURLINK 644012	26,5	26,5	25	25,1	26,5	40
MURLINK 724013	26,5	26,5	25	25,1	26,5	40
MURLINK 764014	26,5	26,5	25	25,1	26,5	40
MURLINK 885012	40	40	31,5	25,1	40	56
MURLINK 1005013	40	40	31,5	40	40	56
MURLINK 1085014	40	40	31,5	40	40	84
MURLINK 1287511	-	-	-	40	-	-
MURLINK 1447512	-	-	-	40	-	-
MURLINK 1607513	-	-	-	40	-	-
MURLINK 1767514	-	-	-	-	-	-

11. Annex 2. Pin diameter

The recommended diameter for Murlink chains is shown in Table 11.

Table 11. Recommended pin diameter.

Murlink chain	MBL [T]	Ø pin Minimum [mm]	Ø pin Maximum [mm]
102004	10	13	30
152006	15	13	30
172007	17	13	30
202008	20	13	30
243006	24	16	35
283007	28	16	35
323008	32	20	35
423010	42	20	40
503013	50	22	40
524010	52	26	40
604011	60	26	40
644012	64	26	50
724013	72	26	50
764014	76	26	50
885012	88	40	100
1005013	100	40	100
1085014	108	40	100
1287511	128	40	100
1447512	144	50	100
1607513	160	60	100
1767514	176	65	100

12. Warnings and precautions

All maximum workloads given in this manual only apply to new or previously unused products.

All product dimensions in this catalogue are nominal dimensions. All design, materials and/or specifications may be subject to change without prior notice.

If you do not use our products but resell them as part of products manufactured by you, please consider our precautions and warnings, and duly inform your customer. Industrias Murtra Cadenas S.L. accepts no liability for any misuse or damage caused with, by or on the premises of its customers due to negligence.

If the chain must be used in any type of conditions beyond the situations described in this manual, the manufacturer must be consulted over the feasibility of these uses.