

**HAND CHAIN BLOCK**  
**From 250 to 20.000 kg**



**OWNER'S MANUAL**

# 1 - EC Declaration of conformity

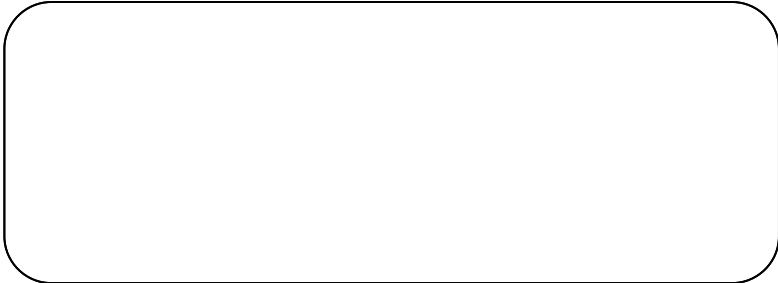


As defined by the EC directive relating to machinery 98/37/EEC.

Annex II A

Herewith, we declare that the product:

Wire rope hoist						
Belt hoist						
Electric chain hoist						
<b>Manual chain hoist</b>						
Electric trolley						
Manual winch						
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**Complies with the following provisions applying to it:**

- Machinery directive 98/37/EEC.
- Directive 73/23/CEE.
- "EMC" Directive 89/336/EEC

**Applied harmonized standards, in particular:**

- EN 60204-1,
- EN 292, parts 1 and 2 (safety of the machines).

**National regulations, standards and specifications:**

- order of June 9, 1993 / circular of September 22, 1993.
- decree no. 92-765, 92-766, 92-767, of July 29, 1992.
- DIN 15400; DIN 15401,

**Quality system applied:**

- EN29001/ISO9001

**Technical standards and specifications complied with, in particular:**

- FEM 9.511 "classification of the mechanisms".
- FEM 9.661 "dimensions and quality of the drive and cable lifting block elements for mass-produced lifting devices".
- EN 818 "chain quality, choice criteria and technical requirements".
- FEM 9.683 "choice of motors".
- FEM 9.755 "steps to be taken to determine the operating periods for mass-produced motorized lifting mechanisms (S.W.P.)".
- FEM 9.751 "Motorized lifting mechanism: safety"
- FEM 9.901 "bases of design for the mass-produced lifting devices for travelling cranes equipped with mass-produced lifting devices".

Bernard DELEFOSSE

# WARNING

**The company reserves the right to modify or improve the material described below and, in this case, to supply the illustrations or specifications which differ from this notice.**

## **GUARANTEE OF MANUAL CHAIN HOIST**

Our equipment is guaranteed for a period of 1 year from the date of delivery for manually-operated equipment.

If delivery is delayed for a reason beyond the control of the seller, the difference in date cannot be in excess of 3 months.

If the utilization (installation) of the equipment is delayed, the extension of the guarantee is limited to 3 months, non-cumulative, to be requested with written agreement.

The seller undertakes to remedy any operating vice resulting from a fault in the design, or implementation, of the components or the materials themselves.

The guarantee does not cover wear and tear\*, nor accidents resulting from a lack of regular and periodical upkeep, it does not cover deterioration due to a lack of surveillance, incorrect manipulations or poor operation of the equipment in particular overloading, pulling sideways.

The guarantee does not apply each time dismantling, modification or changing of parts is carried out without our agreement or by a non-authorized agent.

The guarantee only applies to original spare parts from the constructor including chains.

During the guarantee period, the seller must, free of charge, replace or repair parts recognized as defective after examination by his qualified and authorized engineering department.

The guarantee excludes all other payment or compensation. Under the guarantee, the repairs are in principle carried out in the workshops of the seller or his agent authorized by the constructor. When work is carried out on the material outside these workshops, the manpower costs related to the dismantling or reassembly of these parts are borne by the seller when these operations are carried out solely by his staff or his agent authorized by the constructor. The replaced parts become the property of the seller and must be returned to him at his charge.

For components of special relative importance and not manufactured by the seller himself, and which carry the trademark of specialized constructors, the guarantee, which can vary depending on the constructor, is that which is issued by the latter.

\* The guarantee does not apply to wearing parts defined by the constructor, see the list following:

- Lifting chain,
- Lifting head,
- Hooks,
- Friction disc of brake.

# IMPORTANT

**Read these instructions carefully, they will enable you to install and use your equipment correctly, to maintain it in proper working order and to decrease any risks due to incorrect operation.**

**The constructor will not accept liability for any accident or damage caused by misuse or operation of the equipment in a manner other than as described below. Please ensure that the following instructions are properly followed.**

## Manual Hoist.

### DOS AND DON'TS

#### 1) DOS :

##### GENERAL

Read the instruction manual carefully and follow its recommendations at all times. Only use "original parts" during repair or maintenance. Keep the instruction manual and the recommendations for use near the equipment and available to the operator and the maintenance mechanic at all times.

##### TRANSPORT / STORAGE

Handle the equipment by its structure either using the fittings provided for this purpose or in its original packaging.  
Store the equipment in a non-aggressive environment away from sources of dust or dampness etc.  
Regularly clean and protect from corrosion (oiling etc.).

##### INSTALLATION / MAINTENANCE / SERVICING

Have the equipment installed by mechanically competent and trained personnel.  
Ensure that safety regulations are complied with (safety harness, evacuation of work areas, warning signs, etc.).  
Verify the strength of the structure to which the equipment is to be attached.  
Scrupulously follow the installation instructions provided in the equipment's instruction manual.  
The chain must be fitted in accordance with the instructions and oiled before any load is applied.  
Formulate an inspection programme and record details of all maintenance carried out, particularly with regard to hooks, pulley blocks, the chain, the brake, the end stops, etc.  
Replace any worn or suspect parts.

Verify that all safety items are in good working order (brake, end stop, etc.) in accordance with the instruction manual.  
Regularly check the condition of the chain and hooks (joints, swivels, etc.).  
If any distortion or abnormal wear is observed, the parts concerned must be replaced.  
Keep the chain permanently clean and correctly oiled.  
Periodically check tightness of bolts and assembly fixings.  
Check that the chains are not twisted or damaged in any way.

##### DURING USE

Before any manoeuvre ensure that the load is adequately installed and fixed to the hook. The safety clip on the hook must be correctly closed. Balance the load correctly before moving it. Avoid lifting from a single point, use appropriate accessories (slings, cross struts, etc.). Take the load's centre of gravity into account. When moving the load, make sure that it is high enough off the ground and sufficiently far away from any nearby machines to avoid collision with any obstacles along its route.  
Avoid tipping the load or the hook when using a gantry crab.  
Be aware of the safety rules to be observed during the various manoeuvres.  
Operate the equipment in normal conditions of use (temperature, ambient atmosphere, etc.).  
Equipment used outside should be adequately protected against the weather.  
Oil the chain regularly under no-load conditions.  
Inform a competent person following any dangerous or doubtful operation of the equipment (strange noise, abnormal behaviour, etc.).

## **2) DON'TS :**

### **TRANSPORT / STORAGE**

Do not put the equipment on anything without suitable support otherwise parts on the underside may become damaged.

### **INSTALLATION / MAINTENANCE / SERVICING**

Never modify the equipment without the constructor's advice and authorisation.

Never modify the values and adjustments of the safety devices beyond the ranges specified in the instruction manual or without the constructors approval.

Never override limiting or safety equipment.

### **DURING USE**

Do not allow the hook to pass over the heads of people below, whether loaded or not.

Never attempt to move a load greater than the maximum safe load indicated on the equipment.

Remember that accidental impacts or snagging of the load being handled with surrounding objects may provoke an overload.

Never remove the safety clips on the hooks.

Never jam, adjust or remove the end stops in order to increase left or right travel to more than would otherwise be possible.

Do not use the equipment for extracting or unjamming purposes or for lateral pulling etc.

Never use the equipment to transport people.

Do not touch any moving parts.

Never use the equipment if it is in bad condition (worn, bent, etc.).

Do not use spare parts of unknown or doubtful origin.

Never intentionally allow the load to tip over.

Do not provoke violent impacts with the equipment.

Do not constantly use the end stops as a means of stopping.

Never use the lifting chain as a sling.

Never attach a sling on the point of the hook (risk of hook being damaged and load falling).

Never use the hook in a slanting position.

Never twist the lifting chain (risk of pulley block turning over, etc.).

Do not leave a load suspended unless absolutely necessary.

Never use the equipment as an earth for welding.

Do not use the equipment for a purpose or in a situation for which it is not designed.

Do not use the safety devices as a means of measuring laden weight.

Do not operate jerkily as this provokes deterioration of the equipment.

Never pull the load sideways, bring the equipment to a position above the load before moving it.

**Check that the equipment corresponds with the details on the delivery note attached to the packaging.**

## 1 - INTRODUCTION - PRESENTATION

Fully reliable, the manual chain hoist, is built entirely in steel. Integral housings protect its mechanisms. The reducing mechanism has been specially studied so that the operator has only to make a minimum of effort to lift loads as heavy as 20 tons.

## 2 - BRIEF DESCRIPTION OF THE HOIST

### A - Fixed hook hoist

The manual chain hoist can be suspended immediately from a hoist-carrying crab from our range, so as to be moved along an iron monorail.

It is comprised of:

- Housing chain guide: protects the manipulating flywheel, guides and holds the chain.
- Mechanisms: axles, pinions and gears are in treated steel and greased.
- Lifting sheaves: set on ball bearings.
- Lifting and suspension hooks: in fibred steel, mounted on swivel bearings without threading or bolt pins, with safety seal.
- Braking: automatic by Ferodo disc.
- End of run: low, by end stop on the load chain.
- Lifting chain: high resistance with safety coefficient of at least 4.

OPTION: load limiter, stainless-steel chain, chromed hoist.

### B - Hoist coupled with a crab

The manual chain hoist can be delivered coupled with a crab in order to form a monobloc assembly. This solution is recommended when one wants to reduce wasted height or when it is advisable that the hoist should not unhook easily from the crab.

The manually-operated crab is comprised of:

- Flanges in steel sheeting, full-sized, rigid.
- Rollers in cast iron, mounted on ball-bearings; detachable axles; profiled rims to run on any type of iron monorail.
- Cross piece for hoist assembly in steel.
- Device for adjusting the separation of the flanges, with strips or washers, making it possible to use the crabs on several types of similar iron rails (crabs from 250 kg to 20 tons).
- Chain steered crabs: a high-sided manoeuvring flywheel, driven by an endless chain, attacks the rollers by a pinion with machine-cut teeth. Two guides stop the manoeuvring chain from falling.

## 2.1 - GENERAL CHARACTERISTICS AND DIMENSIONS

### A - Fixed hook hoist

Fig. 343

Fig. 344

Fig. 345

Fig. 347

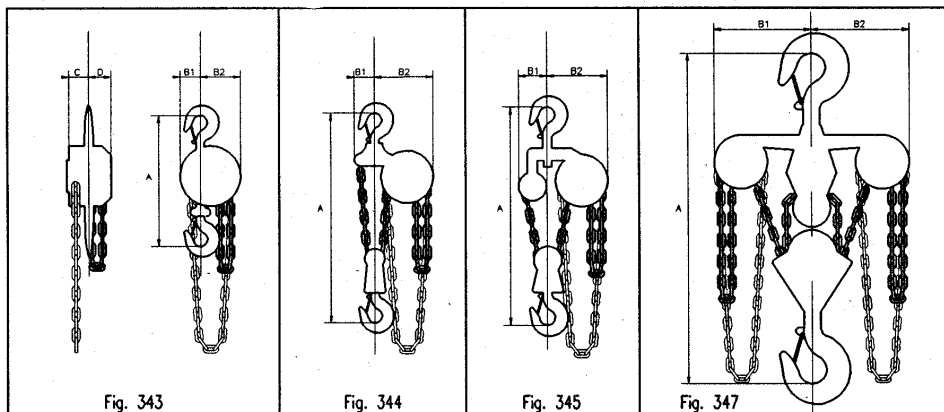


Fig.	Load capacity Kg	LIFTING CHAIN	∅ x pitch	Manoeuvring chain ∅ x pitch	WEIGHT		WEIGHT per m	DIMENSIONS					Effort on manoeuvring chain Kg	Length of chain to pull for 1 m
					Hoist only	Hoist suspended at 3m		A	B1	B2	C	D		
343	250	1	6.5x19.5	5x27.1	9	14	2.5	320	65	115	93	71	26	29
343	500	1	6.5x19.5	5x27.1	9	14	2.5	320	65	115	93	71	26	29
343	1000	1	6.5x19.5	5x27.1	10	15	2.5	350	65	115	93	71	23	43
344	1600	2	6.5x19.5	5x27.1	12	20	3.5	450	60	155	93	71	26	86
344	2000	2	6.5x19.5	5x27.1	13	21	3.5	470	60	155	93	71	32	86
343	2000	1	11x33	5x27.1	25	39	4.5	485	105	210	115	100	23	98
343	3200	1	11x33	5x27.1	25	39.5	4.5	535	105	210	115	100	37	98
344	4000	2	11x33	5x27.1	42	63	7.5	740	115	310	115	100	32	196
344	5000	2	11x33	5x27.1	42	63	7.5	740	115	310	115	100	32	196
344	6300	2	11x33	5x27.1	44	65	7.5	750	115	310	115	100	40	196
345	8000	3	11x33	5x27.1	64	104	10.5	980	150	330	115	100	38	294
345	10000	4	11x33	5x27.1	102	141	14	1010	185	375	95	120	39	392
345	12500	4	11x33	5x27.1	114	153	14	1050	185	375	95	120	49	392
347	16000	2x4	11x33	5x27.1	295	373	27.5	1370	418	418	200	200	*30	*410
347	20000	2x4	11x33	5x27.1	295	373	27.5	1370	418	418	200	200	*38	*410

\* For 1 hoist

### B - Hoist coupled with a crab

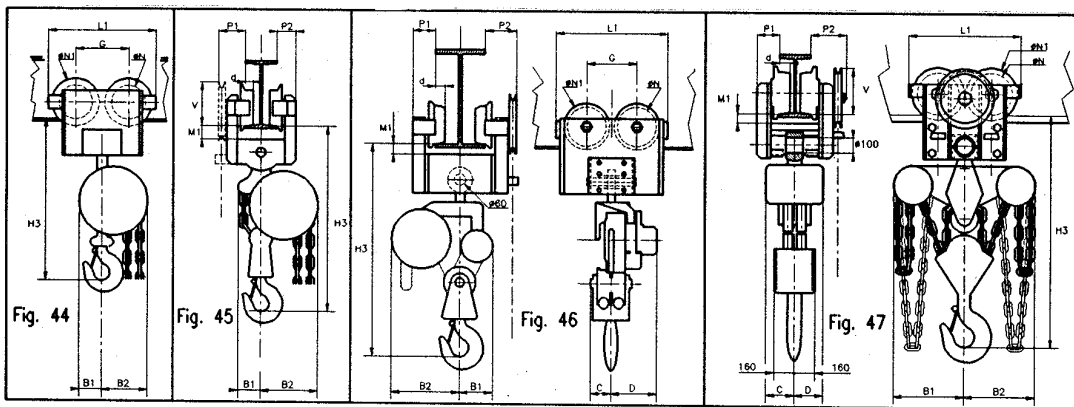
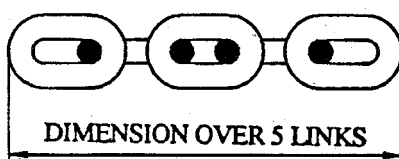


Fig.	Load capacity Kg	LIFTING CHAIN		Weight		Weight. per m	DIMENSIONS								
				Hoist only	Hoist suspended at 3m		d	H3	B1	B2	L1	ON	ON1	P1	P2
44	0.5	1	50-106	21	26	3	18.5	346	65	115	200	70	87	51	78
44	0.5	1	81-143	25	31	3	18	378	65	115	230	70	99	51	83
44	0.5	1	147-310	33-36	39-42	4	25	404	60	155	285	100	126	42	82
44	1	1	64-143	25	31	4	18	390	65	155	230	70	99	51	83
44	1	1	147-310	34	39	5	25	416	65	115	285	100	126	42	82
45	1.6 - 2	2	81-143	36	42	5	25	520	60	155	285	100	126	51	83
45	1.6 - 2	2	147-310	39	45	5	25	545	60	155	285	100	126	42	82
44	2	1	81-143	58	63	8	25	540	105	210	285	100	126	51	83
44	2	1	147-310	58	63	8	25	540	105	210	285	100	126	42	82
44	3.2	1	89-310	84-88	90-94	8	32	615	105	210	370	140	167	64	90
45	4	2	89-310	127-131	135-139	15	32	775	115	310	415	140	167	75	112
45	5	2	89-310	129-133	137-141	15	32	775	115	310	415	140	167	75	112
45	6.3	2	89-310		175-183	15	32	790	115	310	415	140	167	75	112
46	8	3	98-310		264-272	28	35	1005	150	330	445	160	190	111	130
46	10-12.5	3	98-310		301-331	28	35	1120	185	375	445	160	190	111	130
47	16-20	6	155-300		719	28	55	1400	418	418	780	300	340	135	201

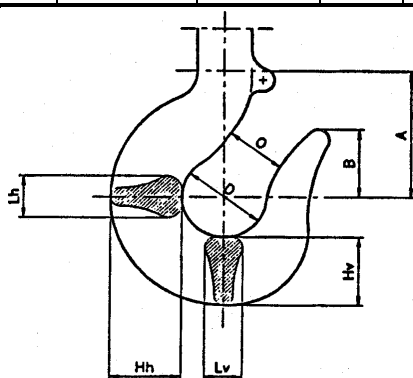
## 2.2 - LIFTING CHAIN CERTIFICATE

Type of chain selected				
Chain Ø x pitch	5 x 15	6,5 x 19,5	6,5 x 19,5	11,5 x 33
Class	P	P	T	T
Minimum breaking strain (N/mm <sup>2</sup> )	500	500	800	800
Standard	DIN 5684-5	NF E 26-011	NF E 26-011	NF-E 26-010
Marking	P ()	P ()	T ()	T ()
Safe load limit on 1 trace (kg)	250	1000	1000	3200
Breaking load (kN)	19,6	33,15	53	166
Min. total elongation over 7 links	16 %	16 %	10 %	10 %
Dimension over 5 links + 2 diameters	85 <sup>+0.33 / -0.16</sup>	110.5 <sup>+0.5</sup>	110.5 <sup>+0.5</sup>	188 <sup>+0.71 / -0.36</sup>
Weight per meter (kg)	0.550	0.945	0.945	3.060
Illustration	Schweissnaht		Schweissnaht	



## 2.3 - HOOK CERTIFICATE

Load capacity kg	Test load kg	No. of traces	Minimum breaking load kg	Classification marking ISO 2766	Material	D	O	B	Hh	Lh	Hv	Lv	A
250	1000	1	2000	16S		31	25	26	26	16	25	14	48
500	1000	1	2000	16S	AF50SAL	31	25	26	26	16	25	14	48
1000	2000	1	4000	19S		38	30	23	33	21	28	19	56
1600	3200	2	6400	21S		43	34	27	40	25	34	22	64
2000	4400	2-1	8000	22S	XC38	53	43	33	43	28	35	25	75
3200	6400	1	12800	24S	AF55C35	60	47	41	51	35	46	31	86
4000	10000	2	20000	27P		67	53	45	66	43	56	35	97
5000	10000	2	20000	27P		67	53	45	66	43	56	35	97
6300	12600	2	25200	28P		75	61	48	75	48	63	41	112
8000	16000	3	32000	29P		85	66	57	85	53	71	48	129
10000	20000	4	40000	30P	AF50SAL	95	75	62	95	60	80	50	150
12500	25000	4	50000	31P		103	78	68	100	68	85	59	165
16000	32000	2x4	64000	33P	XC38	130	95	85	128	80	106	70	185
20000	40000	2x4	80000	33P		130	95	85	128	80	106	70	185



## 3 - HANDLING - TRANSPORT - STORAGE (see "Dos and Don'ts" paragraph - p. 4)

The various models are delivered either packed in cardboard boxes, in boxes on pallets or on film wrapped pallets.



## **4 - INSTALLATION - COMMISSIONING**

**The hoist you have just acquired must only be used for a maximum load equal to the nominal load indicated on the apparatus.**

- Provide fixed anchoring points whenever possible.
- Oil the chains copiously along their entire length and make sure they are not twisted.
- Carry out several raising and lowering operations using the entire length of the chain with no load.
- Grease the hook swivel joints.
- Ensure that the mechanical stop is fitted at 15 cm from the end of the chain.

For hoists coupled to a gantry crab, verify that the rail is correctly fixed and adequate to support the intended loads (see gantry crab technical documentation).

### **Carry out a dynamic test before commissioning:**

This test consists of using the hoist with load at all working positions. Check that the hoist functions correctly and that there is no distortion. Carry out a complete manoeuvre, lifting a load corresponding to the hoist's maximum safe load multiplied by a coefficient of 1.1.

## **5 - UTILISATION** (Also see "Dos and Don'ts" paragraph - p.4)

### **Before lifting a load, check:**

- that the lifting chain is in perfect condition and properly oiled,
- that the lifting chain is correctly fitted and not twisted, especially on equipment fitted with pulley blocks,
- that the load is not greater than the limit marked on the plate fitted by the Constructor,
- that no overload is likely to be caused by adhesion to the ground, jamming, etc.

### **During lifting, it is advisable:**

- to initially lift the load with caution to check that the slings are adequate and correctly positioned,
- not to stand in a position where breakage of the chain may result in personal injury,
- to limit loads to half of the nominal load capacity during periods of cold weather (-15 ° C),
- to stop the manoeuvre if the effort required on the chain is greater than normal as the equipment is almost certainly overloaded.

## **6 - PRECAUTIONS**

The use of the hoists for horizontal or oblique traction is forbidden as the chain guides and the positioning of other parts are not designed for this type of operation. Such use is particularly unsuitable for block and pulley type equipment.

Since the simultaneous use of several hoists to lift the same load is a particularly dangerous manoeuvre, it should only be carried out in the presence of a specially qualified person able to accept full responsibility unless the devices used have been approved by your supplier or by a representative of a Quality Control Organisation.

## 7 - MAINTENANCE (Also see "Dos and Don'ts" paragraph - p.4)

INTERVAL	TYPE OF CHECK	INSPECTION / UPKEEP
1 month	Visual examination	<ul style="list-style-type: none"> <li>- External condition</li> <li>- Condition of mechanism</li> <li>- Check that the loading chain and attachments are in good condition (1)</li> <li>- Check the hooks are in good conditions</li> <li>- Check the condition of accessories</li> <li>- Check that there is no dust</li> <li>- Check the greasing               <ul style="list-style-type: none"> <li>1° - With a rag, oil the loading chain (oil grade SAE 80)</li> <li>2° - Use an oil-can to grease the heads of the hooks at the top and bottom, and also the hoist of the block (for blocks and pulleys)</li> </ul> </li> </ul>
6 months	In-depth examination	<ul style="list-style-type: none"> <li>- Correct operation of the brake</li> <li>- See that the sheave is in good condition</li> <li>- Change spare parts and check for wear</li> </ul>

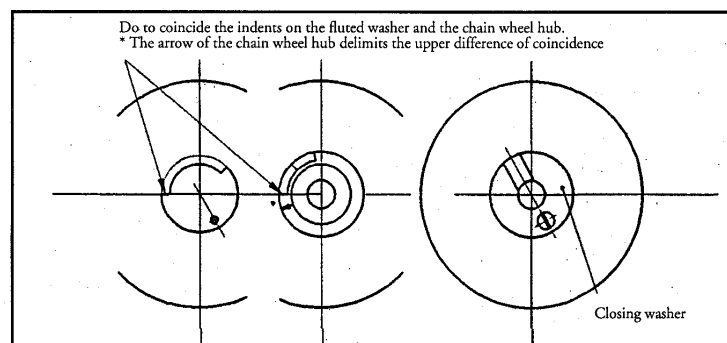
(1) - Always keep the chain clean and free of debris. Clean as necessary with paraffin or diesel, drain and re-oil. Do not clean the chain with thinners or degreasing agents under any circumstances.

### 7.1 - BRAKE ADJUSTMENT

Place the hoist on the gear casing.

- 1) Position the ratchet and the FERODO linings on the fluted shaft.
- 2) On the chain wheel, screw down the hub letting it pass the hub of the aluminium chain wheel by around 4 mm.
- 3) Slide the chain wheel and steel hub sub-assembly onto the fluted shaft.
- 4) Turn the chain wheel towards the right so that the Ferodo linings make contact with the hub of the aluminium chain wheel.
- 5) Use a suitable tool to pull and hold the fluted shaft upwards and exert hand pressure on the extremity of the chain wheel to prevent the shaft from falling back.
- 6) Fit the fluted washer onto the fluted shaft being careful to ensure that the indent on the fluted washer is positioned between the shoulder of the braking ramp and the arrow marked on the hub of the aluminium chain wheel. If necessary, turn the washer over.
- 7) Slide the split washer into the throat of the shaft. Before inserting the screw, lightly tighten any play in the breaks by immobilising the shaft and turning the chain wheel in the clockwise direction.

Check to see that the indent on the fluted washer is close to the shoulder of the ramp. \* Der Pfeil der Kettenradnabe begrenzt die obere Übereinstimmungsabweichung.



## 7.2 - CHAIN WHEEL EFFORT LIMITER (OPTIONAL)

### 7.2.1 - Composition of the KIT

- 1) 1 chain wheel sub-assembly equipped with 2 Ferodo washers and special adjustable hub.
- 2) 1 special limiter thrust washer.
- 3) 1 special limiter cap.

### 7.2.2 - Dismantling

- 1) Remove the standard cap.
- 2) Remove the standard thrust washer by unscrewing the locking screw.
- 3) Remove the fluted washer.
- 4) Unscrew and remove the chain wheel.

### 7.2.3 - Reassembly

- 1) Rest the hoist on its gear casing, pull the cog shaft vertically upwards.
- 2) Screw the chain wheel sub-assembly onto the threaded hub and bring them to the same level.
- 3) Pull the cog shaft upwards as far as it will go and apply axial pressure to the edge of the chain wheel so that the shaft does not slide back down.
- 4) Refit the fluted washer so that the indentation is as near as possible to the split pin going clockwise. To make it easier, slightly unscrew the chain wheel.
- 5) Refit the special limiter thrust washer with the 5mm dia. hole on top.
- 6) Tighten the locking screw CB 5 x 8.

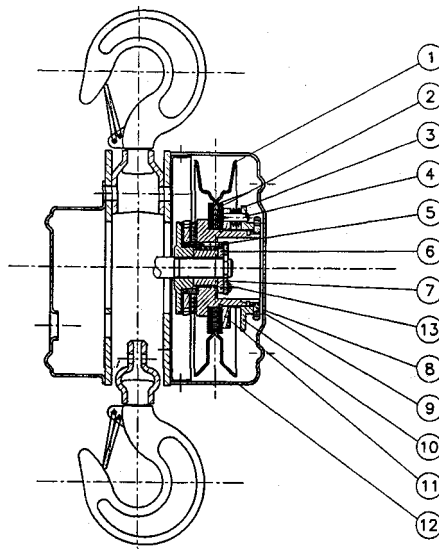
### 7.2.4 - Limiter adjustment

- 1) Adjusting for compensation: nominal load + 25 %  $\pm$  5 %.  
- tighten the limiter adjusting screw so that the hoist can lift a load between 125 % to 140 % of the nominal load,  
- the next compensation adjustment is carried out when the hoist reaches 110 % of the nominal load.
- 2) Refit the special limiter cap.

NOTE: Adjusting spanner - Distance between lugs 70 - 5mm dia. - length 4.5mm.  
Centring nose 46.5mm dia. - length 15mm.  
Length of lever arm 260 mm.

### 7.2.5 - Parts list

NUMBER	DESCRIPTION	QUANTITY
1	"Special limiter" manoeuvring wheel	1
2	Ferodo washer	2
3	Spring washer	24
4	Split pin - 6 x 18	3
5	Split pin - 3 x 18	1
6	Fluted washer	1
7	"Special limiter" thrust washer	1
8	Special effort limiter chain wheel hub	1
9	Limiter adjusting screw	1
10	Limiter plate	1
11	Friction disc	1
12	"Special limiter" cap	1
13	Locking screw CB 5 x 8	1



## 8 - **CHECKS** (Also see table in paragraph 7)

Check the condition of the chain regularly, it should be changed immediately if any of its links are cracked or deformed. Link wear must not exceed 10 % of the diameter of the steel. Dimension X over 5 links depends on the chain type (new chain). (see table page 8).

All checks must be carried out by a qualified person. We recommend that you number each hoist and keep a maintenance register.

### **Fitting the chain:**

- Take a flexible electric wire of about 50 cm.
- Insert it into the aluminium chain-guide and push until it comes out on the other side of the chain-guide.
- Hook the chain onto the end of the wire on the load side.
- Pull the wire to bring the chain into contact with the sheave (at the same time check its position: the soldering of the vertical links must be on the inside. See fig. 1).
- Fix the end-of-run stop assembly correctly.

## 9 - **DECOMMISSIONING - DISMANTLING - SCRAPPING**

If the equipment is decommissioned, remove the used grease for appropriate disposal before scrapping.

## 10 - **INSTRUCTIONS FOR EMERGENCY SITUATIONS**

Stop the lifting manoeuvre if the brake shows any sign of slipping and have the installation checked by the maintenance department.

## SPARE PARTS

Ref.	250kg	0.5 - 2t	2 - 20t	Description
1	1	1	1	Cover for hand wheel
1a	3	3	3	Screw for cover
2	1	1	1	Retaining plate
3	1	1	1	Splined brake washer
3a	1	1	1	Locking screw
4	1	1	1	Hand chain wheel with threaded centre
5	1	1	1	Splined centre hub
6	2	1	0	Ferodo disc
7	1	1	1	Ratchet wheel (+bonded Ferodo 2 to 20 t)
7a	0	1	0	Brass disc internal f int. 3
7b	0	1	0	Brass disc internal f int. 32
8	1	1	1	Brake plate
9	1	1	1	Side plate, hand wheel end
10	1	1	1	Socket "rapid"
10a	3	3	3	Flanged plate to receive hand wheel cover
10b	0	1	1	Locking pinion
11	1	1	1	Centre pin (pinion)
11a	1	0	0	Tapered locking pin
11b	0	1	1	Brake bar
12	0	2	2	Securing screw for brake bar
12a	0	2	2	Space sleeve for securing screw
12b	0	2	2	Space sleeve
13	3	3	2	Slack chain anchor (0.5 to 2 t) - Distance tube for slack chain
14	0	1	(1)	Securing screw for slack chain (0.5 to 2 t)-Bolt for slack chain end (2 to 20 t)
14a	0	1	(1)	Tie bolt between main side plates
14b	0	0	2	Stripper
15	1	1	1	Bolt for stripper -(And chain guide - 2 to 20 t)
15a	1	0	(2)	Distance piece for chain stripper
15b	0	2	0	Top hook assembly complete
16	1	1	1	Suspension pin (top hook assembly 250 kg)
16a	1	(1)	(2)	Bolt (through crosshead) (0.5 to 2 t - 2 to 20 t)
17	1	1	(1)	Lower hook assembly complete (250 kg)- lower hook assembly 500 and 1000kg (0.5 to 2 t)
				Lower hook assembly single fall (2 to 20 t)
17a	1	1	1	Safety clip
17b	1	1	(1)	Chain bolt, bottom hook assembly (250 kg)
				Chain bolt for 500 & 1000kg bottom hooks (0.5 to 2 t)-Chain bolt for single fall hook (2 to 20 t)
17c	0	1	1	Bottom block complete
17d	0	1	1	Load chain anchorage bolt
18				Load chain
19	1	1	1	Overlowering stop assembly
20				Hand chain
21	1	1	1	Load wheel with centre bushes for main shaft
21a	0	1	1	Chain guide
22	2	0	0	Bush bearing for load wheel
22a	0	2	2	Ball race
23	2	1	1	Guide roller
24	1	1	1	Side plate, gear box end
25	1	1	1	Pinion for load wheel
26	1	1	1	Cirelip
27	2	2	2	Intermediate gear
28	1	0	0	Spacer washer for main shaft
29	1	1	1	Main shaft
30	1	1	1	Gear case
30a	3	3	4	Bolt for securing gear case
30b	1	0	0	Bolt, short through gear case

## RECOMMENDED SPARES

ARTIKEL / LAST	250 kg	0.5 bis 2 t	2 bis 20 t
Lifting head	120 024	100 281	100 283
Lifting chain	820 151	820 154 (0.5 t)	820 152
		820 150	
Guide roller	120 013	100 076	100 078
Manoeuvring wheel	120 055	100 466	100 467
Ferodo disc	120 031	001 251	-
Ratchet	120 034	002 001	100 328
Brass disc $\phi$ 32	-	002 004	-
Brass disc $\phi$ 38	-	002 003	-
Brake plate	120 030	001 803	100 309
Stripper	120 012	100 091	100 092
Overlowering stop assembly	100 039	100 050	100 041
Locking pinion	993 289	-	-

