ME - MV

MANUAL WINCH

English

VERLINDE LIFTING EQUIPMENT

04/2011

This document is a copy.

Read the instructions supplied with the product before installation and commissioning.

Keep the instructions in a safe place for future reference.

Table of content

1 MANUAL WINCHES TYPE ME / MV

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.

ME = GEARED WINCH
MV = WINCH WITH WORM GEAR

1.1 Does

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.
- These winches are designed for pulling and lifting loads**.**
- Never attempt to move or to draw a load greater the maximum safe load indicated on the equipment.
- This device is designed to lift a load. Under no circumstances should it be used to hold a load in tension, especially if this load is likely to increase because this would result in the rupture of the cable or the winch (barges, circus tents, etc.)
- Never use the winch for lifting personnel.
- This device should not under any circumstances be used above people without the load being secured by another means.
- The operator will check the good condition of the machine, the cable, the hook, the branding and the fixing.
- The manufacturer denies all responsibilities concerning the consequences to use or install machines not mentioned on this instructions sheet. Also the consequences of dismantling, modification or replacement of parts (mechanical or electrical) by an unauthorized party or without his written confirmation obtained.
- Never motorize the apparatus.

1.2 Don't

- Before usage of any kind, ensure that there is no cause of overload such as: attachment to the ground, suction, wedging, etc. It is forbidden to:
- Never attempt to move or to draw a load greater the maximum safe load indicated on the equipment
- Never unwind the drum completely (always leave 2 or 3 turns).
- Never pull the load sideways.
- Never swing the load intentionally
- Never use the winch for lifting personnel.
- Never walk underneath the load.
- Never use cables which do not correspond in diameter or texture to the specifications of the present notice (coefficient 5).

- Never use cables which are damaged or have been spliced.
- Use hooks without a pawl, not corresponding to the loads indicated on the device, or in bad working order.
- Never add objects to parts which are moving.
- Never intervene when the apparatus is loaded.
- Never disengage the drum when loaded.
- Never let the load fall freely.
- Never motorize the apparatus.
- Never use the cable of the apparatus as a sling.
- Never use any cranks other than original ones.
- Never use the apparatus for operations other than those for which it is intended.
- Do not use spare parts of unknown or doubtful origin.
- Never reeve when positioning the fixed point on the winch.
- 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 constructor's approval.
- Never override limiting or safety equipment.

TRANSPORT / STORAGE

Handle the equipment by its structure either using the fittings provided for this purpose or in its original packaging.
From 1000 kg, for winch handling and installation, insert a sling around the drum, the machine tilt and move easily in full safety.
Store the equipment in a non-aggressive environment away from sources of dust or dampness etc.
Regularly clean and protect from corrosion (oiling etc.).

1.3 Garantee of manual winch

The company reserves the right to modify or improve the material described below and, in this case, to supply it different to the illustrations or specifications in this manual.

Our equipment is guaranteed for a period of 2 years from the date of delivery.

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, or 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.

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 cable.

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 the 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 an 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 following list:
Hooks
Wire-rope

1.4 Description

Manual winches have been designed to be used either in "lifting mode", with all the safety precautions of the standards in force, or in "traction and hauling mode", with lifting strength.

MV type : Winches with worm gear, 6 possible strengths in the range 250 to 3.000 kg

Rigid chassis in steel
Drum in steel or cast iron,
Reduction system protected by a metal cover,
System for disengaging the drum, (Never disengage the drum when loaded.) except for 250 kg on the type with endless screw,
Automatic brake,
Ergonomic crank ensemble with turning handle. The arm of this crank is adjustable depending on the load, to minimize effort.
Protection by painting and electrocoating, galvanised frame or stainless steel as an option.

ME type : Geared winches, with 5 possible strengths in the range 150 to 2.000 kg

Rigid chassis in steel
Drum in steel or cast iron, or in polymer material
Reduction system protected by a metal or a plastic cover,
System for disengaging the drum (Never disengage the drum when loaded.)
Automatic brake,
Ergonomic crank ensemble with turning handle. The arm of this crank is adjustable depending on the load, to minimize effort.
Protection by painting and electrocoating, galvanised frame or stainless steel as an option.

1.5 General characteristics and dimensions

1.5.1 Geared winch

Dimensions

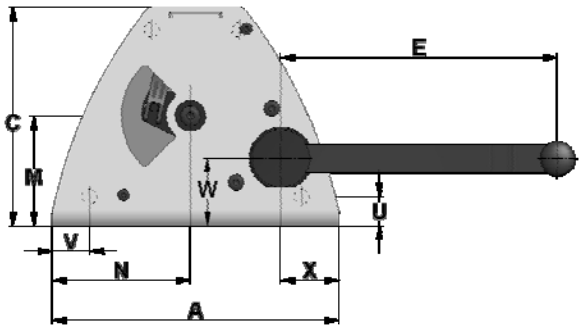
Load kg	A	B	C	D	E	F	G	H	J	K	Ø L	M	N	Ø P	Q	R	S	T	U	V	W	X
150	180	325	147	157	340	154	100	13	22	114	8Ø9	73	90	40	77	24	132	48	31	24	73	90
300	249	400	190	217	240	200	145	18	37	144	8Ø13	95	120	62	124	25	184	76	25	33	58	51
500	249	400	190	217	240	200	145	18	37	144	8Ø13	95	120	62	124	25	184	76	25	33	58	51
1000	410	485	305	300	340	370	-	20	32	236	4Ø17	145	200	103	180	35	-	-	-	-	104	68
2000	510	585	360	400	340	440	-	35	38	325	4Ø21	151	187	118	248	47	-	-	-	-	267	191

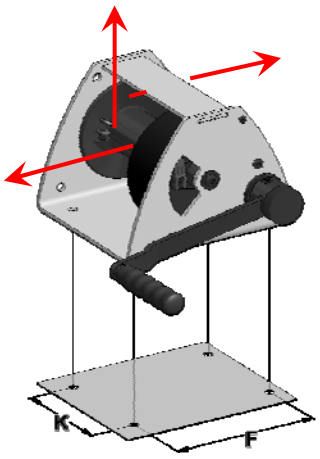
Technical characteristics

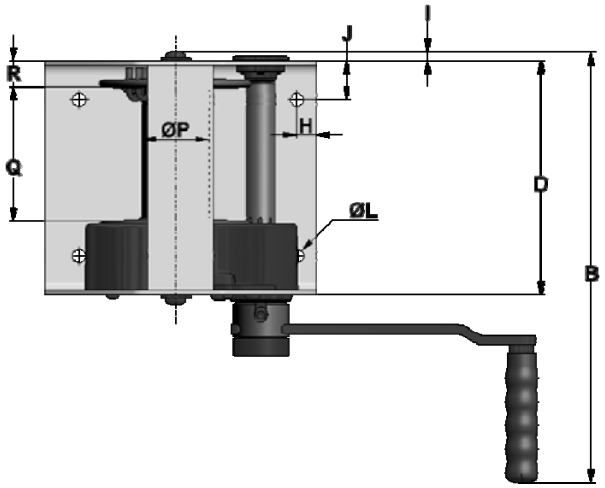
Load Kg	Capacity on the 1st layer kg	Capacity on the last layer kg	Wire rope			Crank force kg	Lift per crank revolution mm	Weight (without rope) kg
			Ø mm	Max lenght m	Number of layers			
150	280	150	4	19	6	20	138	5.6
300	520	300	5	38	6	12.5	30,5	15
500	790	500	6,8	17	4	19	31.5	15
1000	1480	1000	9	30	4	14.5	16	44
2000	2790	2000	13	25	3	16.5	9.5	83

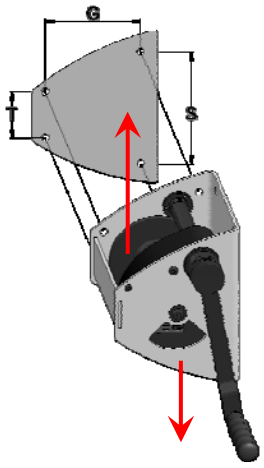
The above indicated rope diameter corresponds to the capacity on the last layer.

CAUTION ! it is obligatory to check that the resistance coefficient of the wire rope is in compliance with the lifted load (coefficient 5)

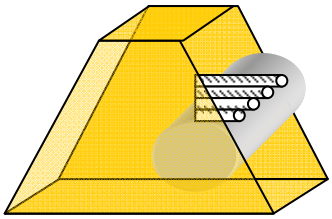








Maximum loads for use according to the level of cable used



Maximum efforts applicable for towing (kg)						
Type	1st layer	2nd layer	3rd layer	4th layer	5th layer	6th layer
150	250	230	200	180	160	150
300	500	450	400	350	320	300
500	750	650	560	500		
1000	1450	1250	1100	1000		
2000	2750	2300	2000			

Maximum efforts applicable for lifting (kg)						
Type	1st layer	2nd layer	3rd layer	4th layer	5th layer	6th layer
150	180	180	180	180	160	150
300	400	400	400	350	320	300
500	750	650	560	500		
1000	1300	1250	1100	1000		
2000	2600	2000				

1.5.2 Winch with worm gear

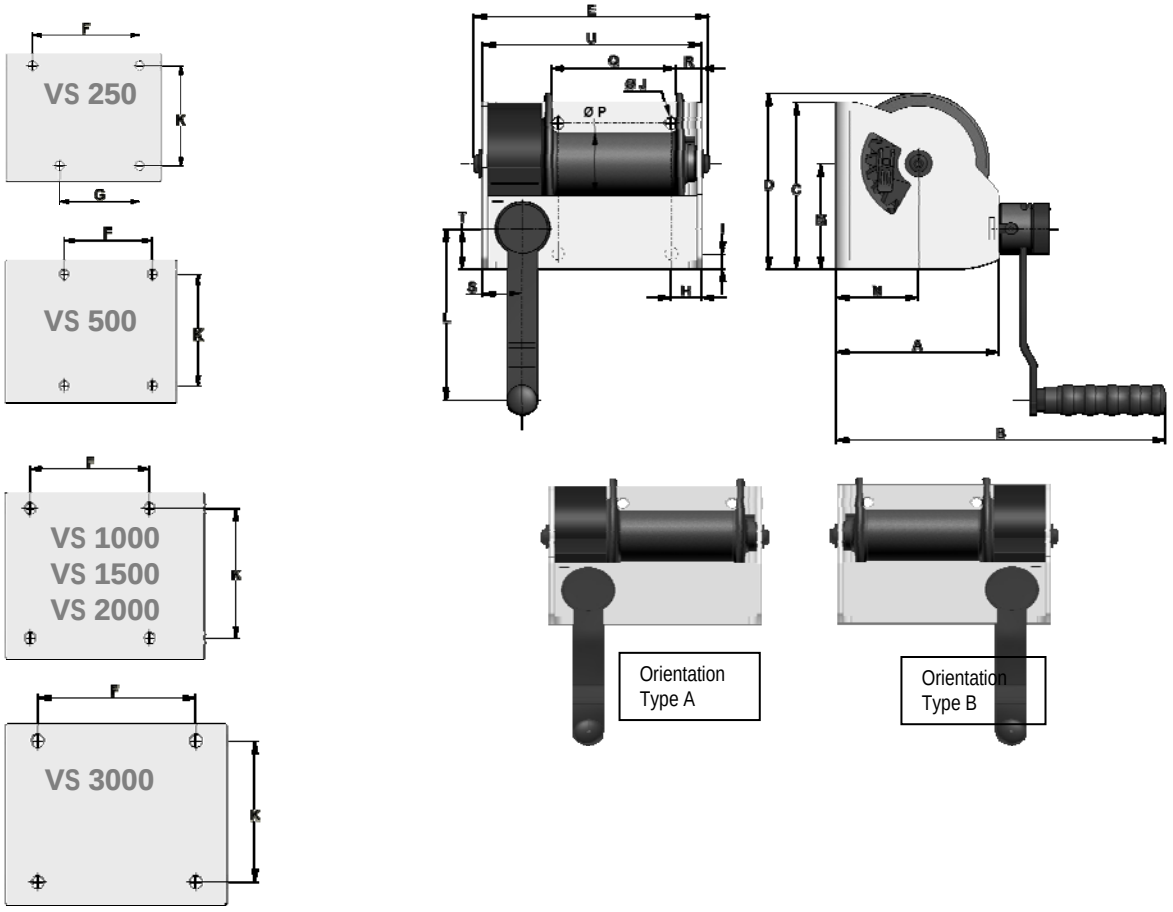
Dimensions

Load kg	Orient typee	A	B	C	D	E	F	G	H	I	ØJ	K	L	M	N	Ø P	Q	R	S	T	U
250	A	140	307	135	142	206	130	95	25	14	Ø11	100	240	84	73	50	100	21	40	35	190
500	A	162	325	166	175	233	112	-	30	15	Ø13	130	240	105	82	62	124	25	40	40	217
1000	B	302	470	290	302	322	167	-	45	20	Ø17	250	340	180	130	103	180	35	56	50	300
1500	B	350	518	330	330	370	200	-	50	25	Ø21	250	340	194	162	105	220	39.5	58/123	50	350
2000	B	356	520	390	390	420	260	-	39	25	Ø21	295	340	224	171	121	262	45.5	60/125	50	400
3000	A	480	640	450	450	530	390	-	55	40	Ø25	380	340	307	153	145	289	54.5	62/126	55	500

Technical characteristics

Force (Kg)	Speed	Capacity on the 1st layer kg	Capacity on the last layer kg	Wire rope			Crank force kg	Lift per crank revolution mm	Weight (without rope) kg
				Ø (mm)	Max lenght m	Number of layers			
250	1	380	250	5	15	4	11	17	7,5
500	1	790	500	6,8	17	4	14	11	12
1000	1	1480	1000	9	30	4	14	8	37.5
1500	2	2100	1500	11,5	23	3	14	6	52
2000	2	2500	2000	13	17	2	14.5	5	80
3000	2	3500	3000	15,8	18	2	16	5	140

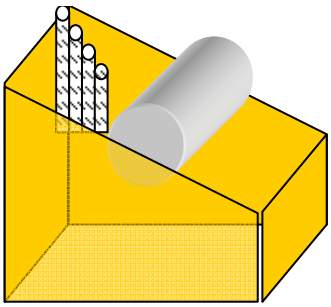
*The 250 kg winch is not equipped with disengaging drum.



The above indicated rope diameter corresponds to the capacity on the last layer.

CAUTION ! it is obligatory to check that the resistance coefficient of the wire rope is in compliance with the lifted load (coefficient 5)

Maximum loads for use according to the level of cable used



Type	1st layer	2nd layer	3rd layer	4th layer
250	386	327	283	**250**
500	797	665	571	**500**
1000	1 480	1 276	1 121	**1000**
1500	2 100	1 750	**1 500**	
2000	2 397	**2 000**		
3000	**3 000**			

Accessories

ME – MV winches can be delivered with cables and accessories.
The pulleys and pulley systems used with these winches must be in accordance with regulation EN 13157.

Operation

When the crank is turned, and following the rotational direction, the load is raised or lowered.
As soon as effort ceases to be applied to the crank, the break comes into action and maintains the load in position.

1.6 Installation

- 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 cable must be fitted in accordance with the instructions.
- Do not put the equipment on anything without suitable support otherwise delicate parts on the underside may become damaged.
- 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. 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.
- 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.
- Inform a competent person following any dangerous or doubtful operation of the equipment (strange noise, abnormal behaviour, etc.).

DURING USE

- Never let an unqualified person use the machine.
- Remember that accidental impacts or snagging of the load being handled with surrounding objects may provoke an overload.
- Do not touch any moving parts.
- Never use the equipment if it is in bad condition (worn, bent, etc.).
- Do not provoke violent impacts with the equipment.

- Never attach a sling to the point of the hook (risk of hook being damaged and load falling).
- Never use the hook in a slanting position.
- Do not leave a load suspended or drew unless absolutely necessary.
- Do not operate jerkily as this provokes deterioration of the equipment.
- Long descents can cause overheating of the braking system and damage it. It is strongly advised to pause for a few minutes, roughly every 5 metres, during the descent phase. This recommendation mainly concerns the 1000 and 2000 kg models.
- Temperatures of use must be between – 10° C and + 50° C.
- These winches must be used regularly, even without a load, and especially when used in harsh environments. Prolonged inactivity can result in damage to the braking system (brake becoming stuck).
- It is strongly recommended not to handle the cable without protection from gloves.

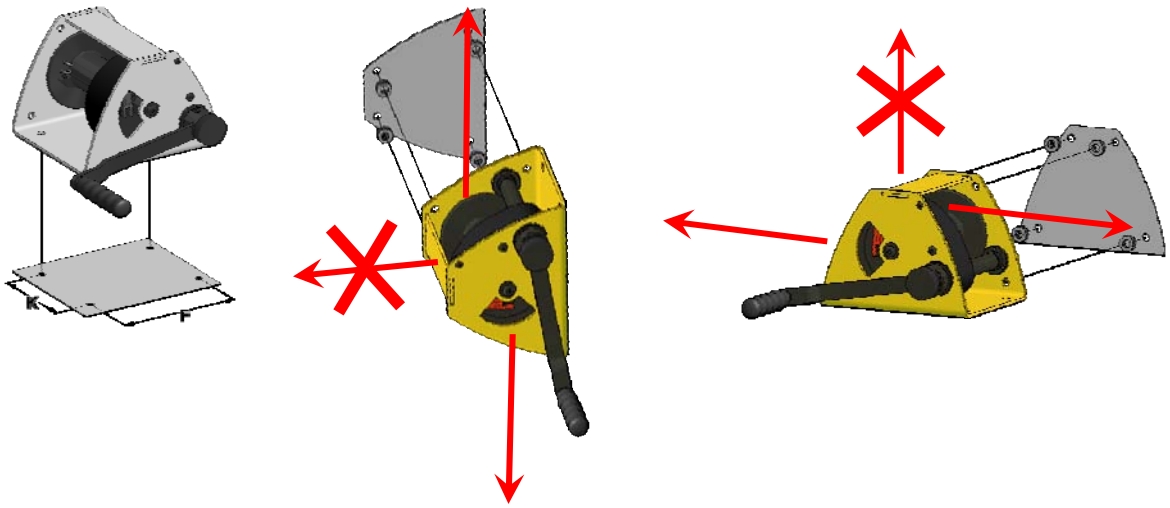
Before lifting or pulling a load, the following must be checked :

that the cable is in perfect condition,
that the fixed point is correct,
that the load is not greater than the limit market on the plate fitted by the Constructor,
that no overload is likely to be caused by adhesion on the ground, jamming, etc.

During lifting or pulling, it is advisable :

that the hold of the fixed point is firm,
that the operator is in such a position that if the cable breaks he runs no risk of accident,
that when the force on the cable is higher than normal the manoeuvre should be stopped, since in this case the load is certainly higher than the load for the machine.

1.6.1 Fixation for Geared winch

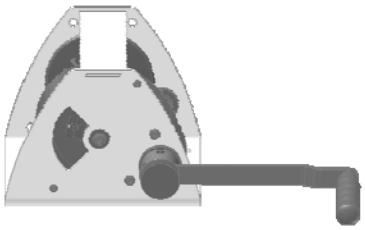


For wall mounting, add washers between the frame and the wall support on each screw.
Length of spacers: 4 mm (150 kg) and 8 mm (300/500)

Fixation screws

Type	Flat installation	Wall mounting
150 kg	4 screws 8 mm	4 screws 8 mm + 4 x 3 washers Ø 8 mm
300 kg	4 screws 12 mm	4 screws 12 mm + 4 x 3 washers Ø 12 mm
500 kg	4 screws 12 mm	4 screws 12 mm + 4 x 3 washers Ø 12 mm
1000 kg	4 screws 16 mm	■
2000 kg	4 screws 20 mm	■

All these screws must have a minimum grade of 6.8.

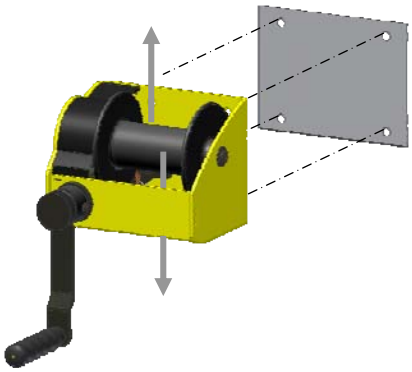


When the winch is wall mounted, only outputs from lateral cables should be used.

1.6.2 Fixation for winch with worm gear

Type	Fixation screws
250	4 screws 10 mm
500	4 screws 12 mm
000	4 screws 16 mm
1500	4 screws 20 mm
2000	4 screws 20 mm
3000	4 screws 24 mm

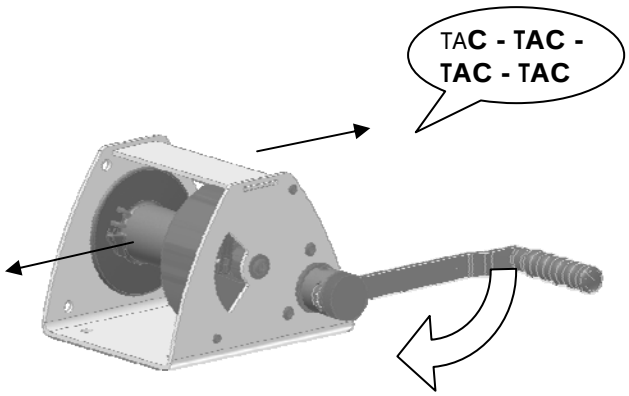
All these screws must have a minimum grade of 6.8.



Calculate and check that the fixation stands have a resistance which is much higher than the loads to be lifted or hauled.

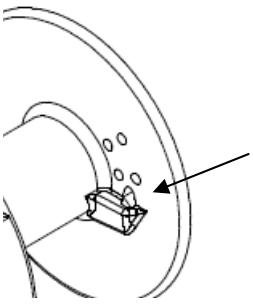
1.6.3 Rope mounting ME winch

Model	Ø (mm)	Maxi load (m)	Number of layers
150	4	19	6
300	5	38	6
500	6,8	17	4
1000	9	30	4
2000	13	35	3



1.6.4 Rope mounting ME winch

Model	Ø (mm)	Maxi load (m)	Number of layers
250	5	15	4
500	6,8	17	4
1000	9	30	4
1500	11,5	23	3
2000	13	17	2
3000	15,8	10	1



A fool proofing device is located on the drum in order to wind the cable in the right direction

CAUTION ! With all type of winches : It is obligatory to check that the resistance coefficient of the wire rope is in compliance with the lifted load (coefficient 5)

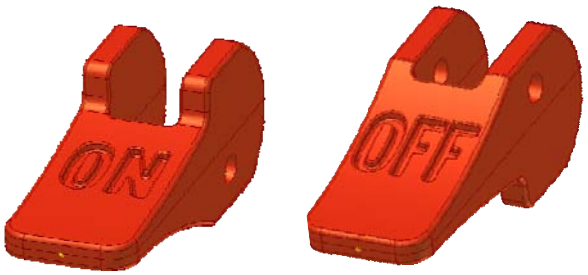
Scrupulously respect the direction of rolling the cable.
The drum must never be completely unwound, keep two or three turns in place.
To lift the load, turn the crank clockwise: a click will be heard.
To lower the load, turn the crank anti-clockwise.

DANGER ! If the cable is wound in the wrong direction, the brake will not operate.

1.6.5 Disengaging

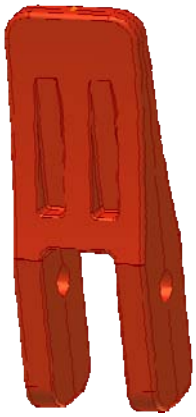
The drum of the winch can be disengaged (except for the 250 kg endless screw type), thanks to a small lever which is easy to reach. This allows the cable to be completely unwound.

ME Winch



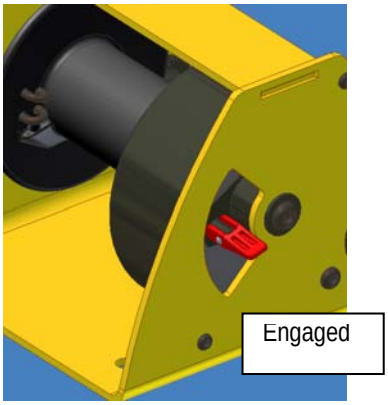
Winches 150 kg :

- ON : Engaged
- OFF : free drum

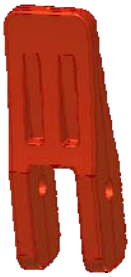


Winches 300 / 500 / 1000 / 2000 kg

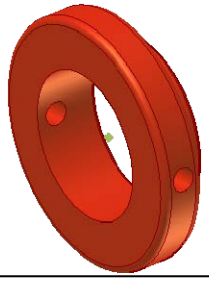
Disengaging a winch 500 or 1000 kg :



MV Winch

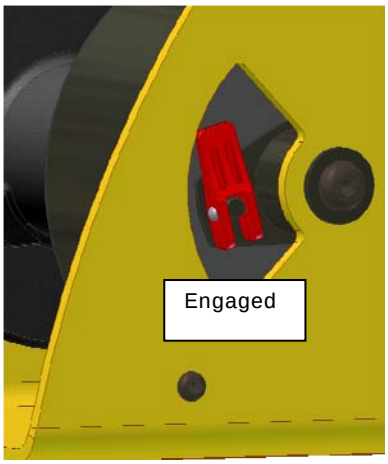


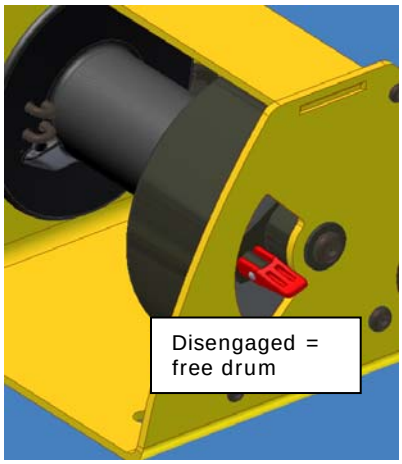
500 / 1000 kg



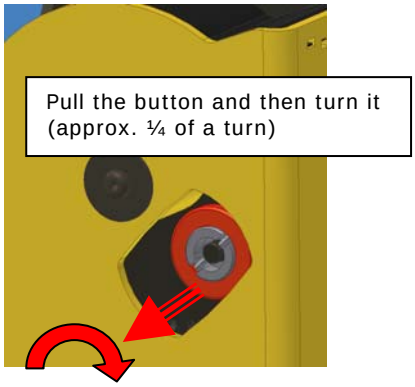
1500 / 2000 / 3000 kg

Disengaging a winch 500 or 1000 kg :





Disengaging a winch 1500, 2000 or 3000 kg :



To engage it again, the button should just be turned until it is set in motion.

Attention ! With all type of winches :
Never disengage when loaded !

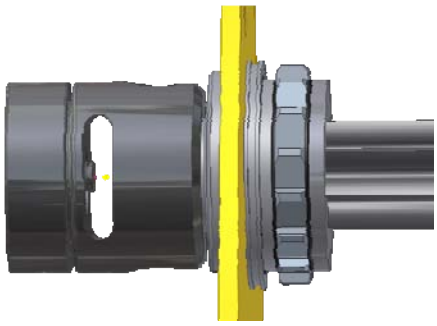
When loaded, a device tightens the release lever in such a way that it becomes impossible to manoeuvre.
Before releasing, ensure that no load is attached to the cable. The cable must not show any sign of tension.

1.7 Maintenance

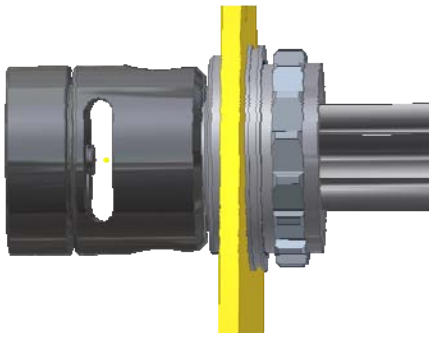
A maintenance check is necessary at least once a year.
In accordance with the provisions of the decree of 2 March 2004, to establish an inspection programme and register all maintenance performed on the devices and more specifically the hook, the cable,
Regularly, and prior to use check the state of the cable, the hook and its safety pawl.
Replace any suspect or worn parts.

Regularly lubricate the gears with a **grade EP.2 grease for open gears.** Using the winch with the gears not lubricated, or badly lubricated, will result in them **wearing in a premature and uncontrolled way.**

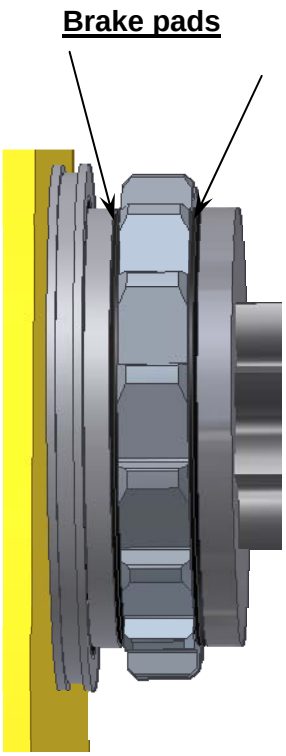
If the cable and the hook are not supplied with the device by the manufacturer, ensure that the cable and hook used guarantee a safety level corresponding to rupture coefficient 5 (directive 2006/42/CE on Machinery).
Periodically check that the brake is in good working order (static tests: nominal load + 50 %).
Regularly monitor the wearing of the brake pads. When they are no longer visible, they must be replaced.
During annual maintenance, don't forget to **oil the bearing**. Oil to use: ISO VG 220 (for example: Mobil Glygoyle 30).



New brake = visible to the naked eye



Worn brake = invisible to the naked eye



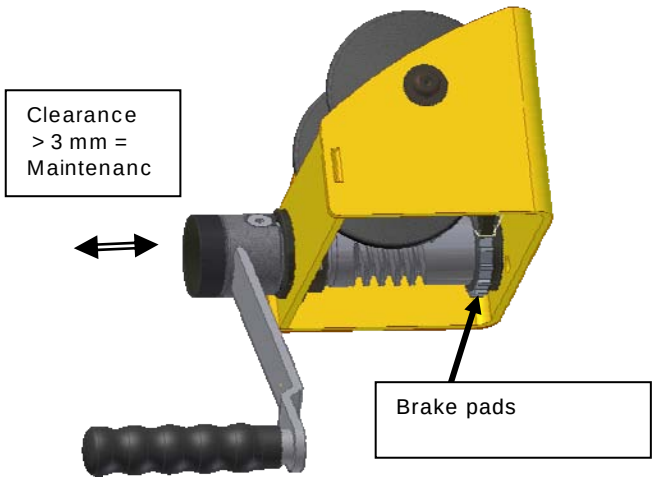
A maintenance check is necessary at least once a year.

In accordance with the provisions of the decree of 2 March 2004, to establish an inspection programme and register all maintenance performed on the devices and more specifically the hook, the cable,
Regularly, and prior to use check the state of the cable, the hook and its safety pawl.
Replace any suspect or worn parts.
Regularly lubricate the gears with a **grade EP.2 grease for open gears.** Using the winch with the gears not lubricated, or badly lubricated, will result in them **wearing in a premature and uncontrolled way.**

If the cable and the hook are not supplied with the device by the manufacturer, ensure that the cable and hook used guarantee a safety level corresponding to rupture coefficient 5 (directive 2006/42/CE on Machinery).
Periodically check that the brake is in good working order (static tests: nominal load + 50 %).
Regularly monitor the wearing of the brake pads. When they are no longer visible, they must be replaced.
During annual maintenance, don't forget to **oil the bearing**. Oil to use: ISO VG 220 (for example: Mobil Glygoyle 30).
Automatic locking of the brake.

The brake will lock automatically according to the minimum loads below:

Type	150 kg	300 kg	500 kg	1000 kg	2000 kg
Mini load	10 kg	15 kg	25 kg	50 kg	100 kg



INTERVAL	TYPE OF CHECK	INSPECTION / UPKEEP
1 month	Visual examination	- External condition - Condition of mechanism - Check that the cable is in good condition - Check that the hook is in good condition - Check that there is no dust - Check the greasing - Wear of brake lining
12 months	Upkeep	- Substitution of wearing parts

NOTE : This material has been designed to be tested :
to coefficient 1.1 for dynamic trials
to coefficient 1.5 for static trials

1.8 Decommissioning - Dismantling - Scrapping

When the material reaches a state of dilapidation which could cause risks, the user is obliged to eliminate this material, i.e. decommission it so that it cannot be use, and eventually dismantle it. When the apparatus is decommissioned or discarded, the used oil must be recuperated so that it can be returned to the appropriate service for destruction.

1.9 Instructions for emergency situations

If the brake is not operating efficiently, stop the manoeuvre and have the apparatus checked by the servicing department.

Problems

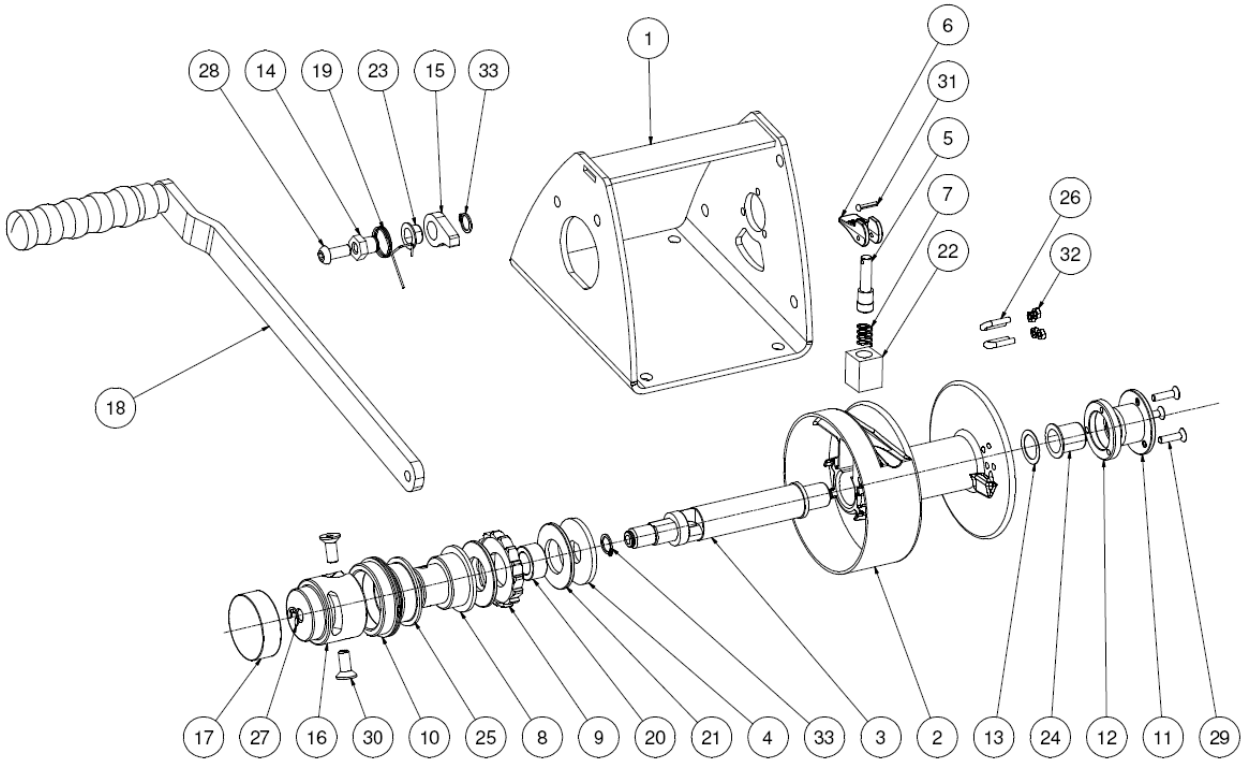
Problem	Cause	Solution
Le tambour ne tourne pas lorsque l'on tourne la manivelle	Le treuil est débrayé	S'assurer que le levier de débrayage est bien en position enclenchée.
	Le câble est monté dans le mauvais sens et la sécurité s'est déclenchée.	S'assurer que le câble est monté dans le bon sens.
Le levier de débrayage est trop dur à manipuler	Le treuil est encore en charge ou le câble est simplement sous tension.	Vérifier qu'aucune charge n'est appliquée au treuil et qu'il n'y a plus de tension dans le câble.
L'effort à la manivelle est très élevé	La charge à lever ou tirer est trop élevée	Reposer avec précaution la charge et s'assurer du poids réel à lever ou tirer. La charge ne doit pas dépasser la force limite du treuil.
Le treuil vibre ou « siffle »	Surchauffe du frein. Ce phénomène n'apparaît que dans le sens de déroulage du câble.	Laisser refroidir pendant au moins 5 minutes.
	Les garnitures du frein sont trop usées.	Le treuil nécessite une révision.
	Les engrenages ne sont plus graissés.	Graisser les engrenages.

1.10 Spare parts

1.10.1 Geared winch - 150 kg

Rep.	Code	Designation
1	22901	Body frame
2	22902	Drum
3	22903	Shaft
4	22904	Brake keep plate
5	22905	Disengaging usher
6	22906	Disengaging lever
7	22907	Release support
8	22908	Brake nut
9	22909	Ratchet wheel manufactured steel
10	22910	Forward bearing
11	22911	Behind bearing
12	22912	Tightening ring
13	22913	Adjustment spacer 18x26x05
14	22914	Pawl axle
15	22915	Pawl
16	22916	Head of crank
17	22917	Tightening button

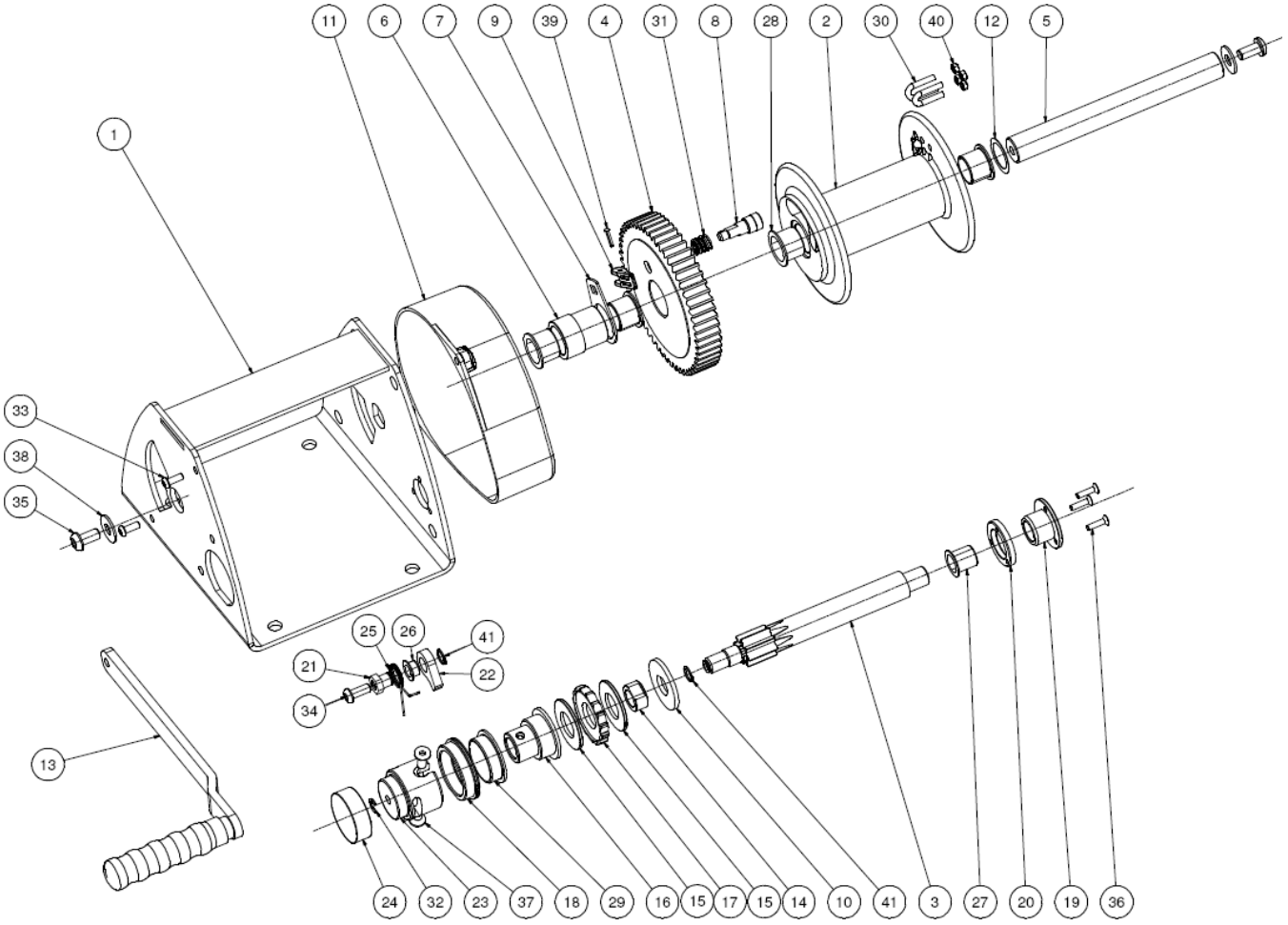
Rep.	Code	Designation
18	22918	Long crank assembled
19	22919	Pawl spring
20	22939	Brake ring
21	22758	Brake washer
22	21628	Compression spring 11.5
23	2760	Ring GFM 1214 09
24	2762	Ring GFM 1820 22
25	2766	Ring GFM 4044 14
26	2776	Locking Rope ø4
27	13505	Spring retaining wheel 7144 - 7
28	13643	Screw TBHc M8x20
29	13648	Screw TBHc M5x20
30	13650	Screw TFHc M8x20
31	13659	Rivet 3.2x16
32	13667	Nut M4
33	21045	Circlips E 12



1.10.2 Geared winch - 300 et 500 kg

Rep.	Code	Designation
1	22921	Body frame
2	22922	Drum
3	22933	8-tooth pinion shaft
4	22924	Wheel 55 teeth
5	22925	Drum axle
6	22926	Hub spacer
7	22927	Plate
8	22928	Disengaging usher
9	22929	Disengaging lever
10	22930	Brake kKeep plate n°2
11	22931	Cover
12	22932	Adjustment spacer 26x35x05
13	22933	Short crank assembled
14	22939	Brake ring
15	22758	Brake washer
16	22908	Brake nut
17	22909	Ratchet wheel manufactured steel
18	22910	Forward bearing
19	22911	Behind bearing
20	22912	Tightening ring

Rep.	Code	Designation
21	22914	Pawl axle
22	22915	Pawl
23	22916	Head of crank
24	22917	Tightening button
25	22919	Pawl spring
26	2760	Ring GFM 1214 09
27	2762	Ring GFM 1820 22
28	2765	Ring GFM 2528 21
29	2766	Ring GFM 4044 14
30	2775	Locking Rope
31	2779	Disengaging spring
32	13505	Spring retaining wheel 7144 - 7
33	13640	Screw TBHc M6x16
34	13643	Screw TBHc M8x20
35	13645	Screw TBHc M10x20
36	13647	Screw TFHc M5x16
37	13650	Screw TFHc M8x20
38	13658	Washer LLU 10
39	13659	Rivet Alu 3.2x18
40	13666	Stainless nut M5
41	21045	Circlips E 12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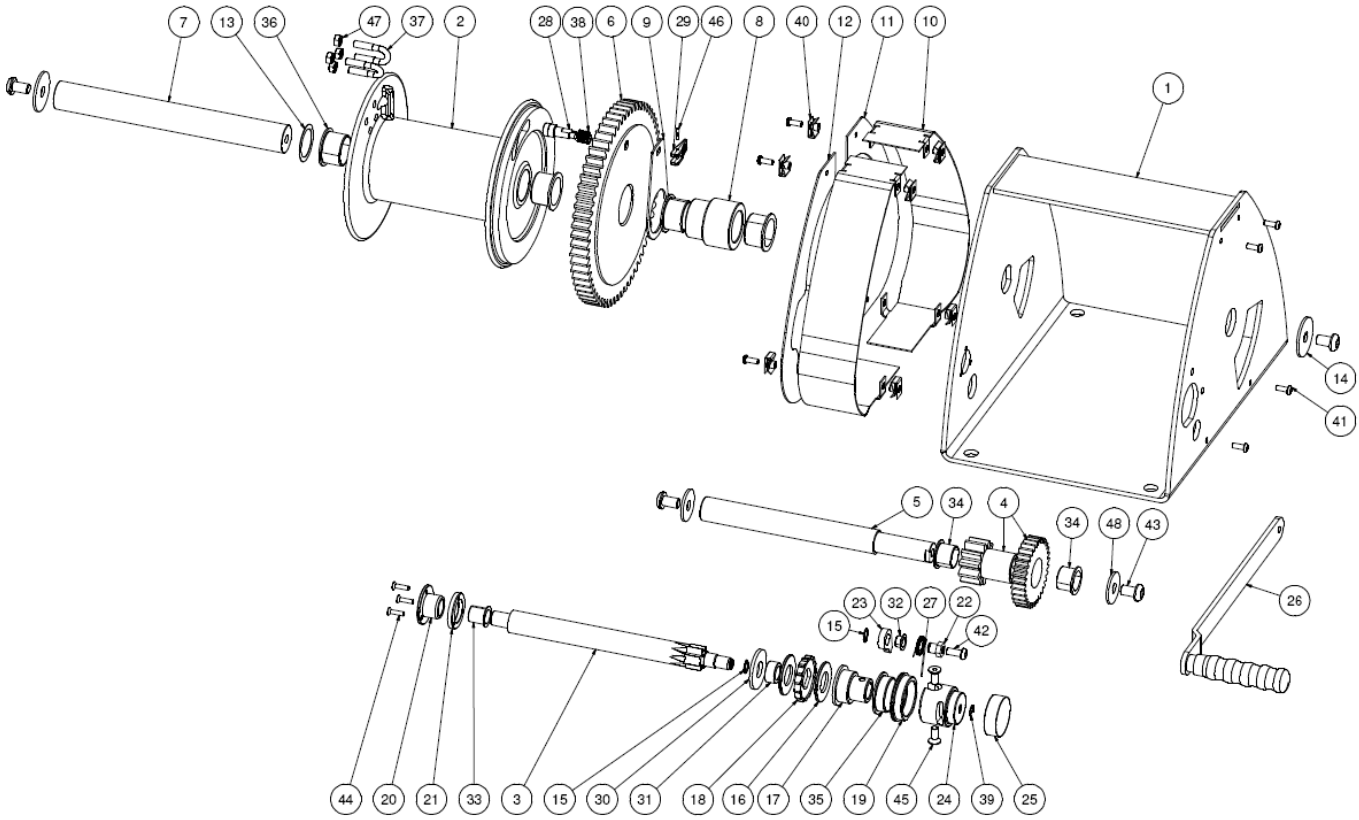
1.10.3 Geared winch - 1 000 kg

Rep.	Code	Designation
1	22941	Body frame
2	22942	Drum
3	22943	8-tooth pinion shaft
4	22944	Intermediary S.E. pinions
5	22947	Intermediary shaft
6	22948	Wheel 63 teeth
7	22949	Drum axle
8	22950	Wheel hub
9	22951	Plate
10	22952	Half Cover
11	22953	Plate Cover n°1
12	22954	Plate Cover n°2
13	22955	Adjustment spacer 36x47x05
14	22978	Washer 12x50x3
15	21045	Circlips E 12
16	22758	Brake washer
17	22908	Brake nut
18	22909	Ratchet wheel manufactured steel
19	22910	Forward bearing
20	22911	Behind bearing
21	22912	Tightening ring
22	22914	Pawl axle
23	22915	Pawl
24	22916	Head of crank

Rep.	Code	Designation
25	22917	Tightening button
26	22918	Long crank assembled
27	22919	Pawl spring
28	22928	Disengaging usher
29	22929	Disengaging lever
30	22930	Brake support washer n°2
31	22939	Brake Ring
32	2760	Ring GFM 1214 09
33	2762	Ring GFM 1820 22
34	2765	Ring GFM 2528 21
35	2766	Ring GFM 4044 14
36	2768	Ring GFM 3539 26
37	2774	Locking Rope
38	2779	Disengaging spring
39	13505	Spring retaining wheel 7144 - 7
40	13622	Nut M6
41	13640	Screw TBHc M6x16
42	13643	Screw TBHc M8x20
43	13646	Screw TBHc M12x20
44	13647	Screw TFHc M5x16
45	13650	Screw TFHc M8x20
46	13659	Rivet Alu 3.2x18
47	13665	Stainless nut M8
48	13670	Washer LLU 12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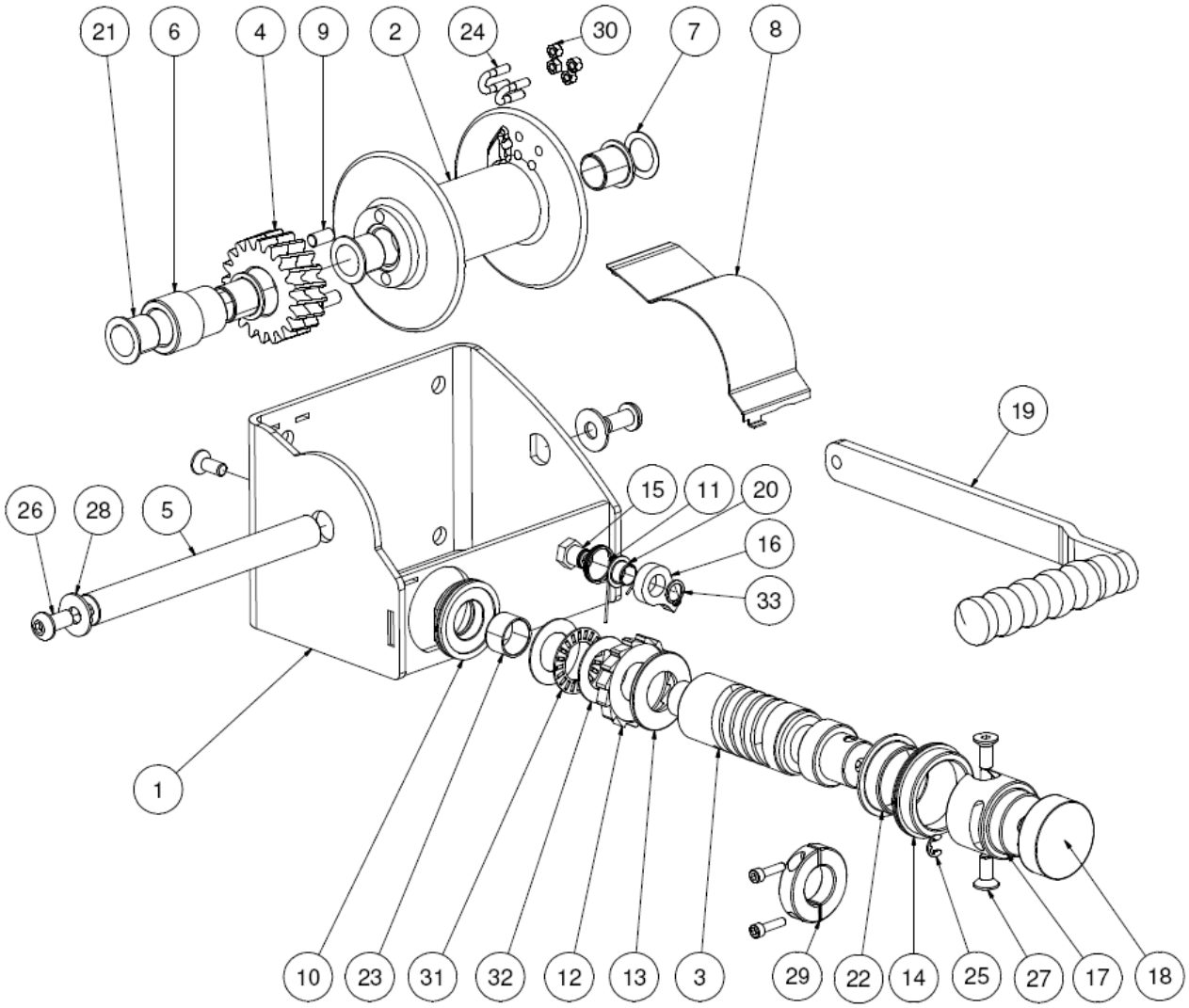
1.10.4 Winch with worm gear - 250 kg

Rep.	Code	Designation
1	22981	Body frame
2	22982	Drum
3	22983	Screw
4	22984	Wheel 20 teeth
5	22985	Drum axle
6	22986	Hub spacer
7	22987	Adjustment spacer 21x30x05
8	22988	Cover
9	22989	Pile
10	22995	Behind bearing
11	22996	Pawl spring
12	22757	Ratchet wheel
13	22758	Brake washer
14	2291	Forward bearing
15	22914	Pawl axle
16	22915	Pawl
17	22916	Head of crank

Rep.	Code	Designation
18	22917	Tightening button
19	22933	Short crank assembled
20	2760	Ring GFM 1214 09
21	2763	Ring GFM 2023 21
22	2766	Ring GFM 4044 14
23	2772	Ring GSM 2225 15
24	2777	Stainless locking Rope D5
25	13505	Spring retaining wheel 7144 - 7
26	13645	Screw TBHc M10x20
27	13650	Screw TFHc M8x20
28	13658	Washer LLU 10
29	13663	Split locking ring 2-25
30	13666	Stainless nut M5
31	20043	Needle thrust bearing AXK 2542-A
32	20044	Bearing washer AS 2542
33	21045	Circlips E 12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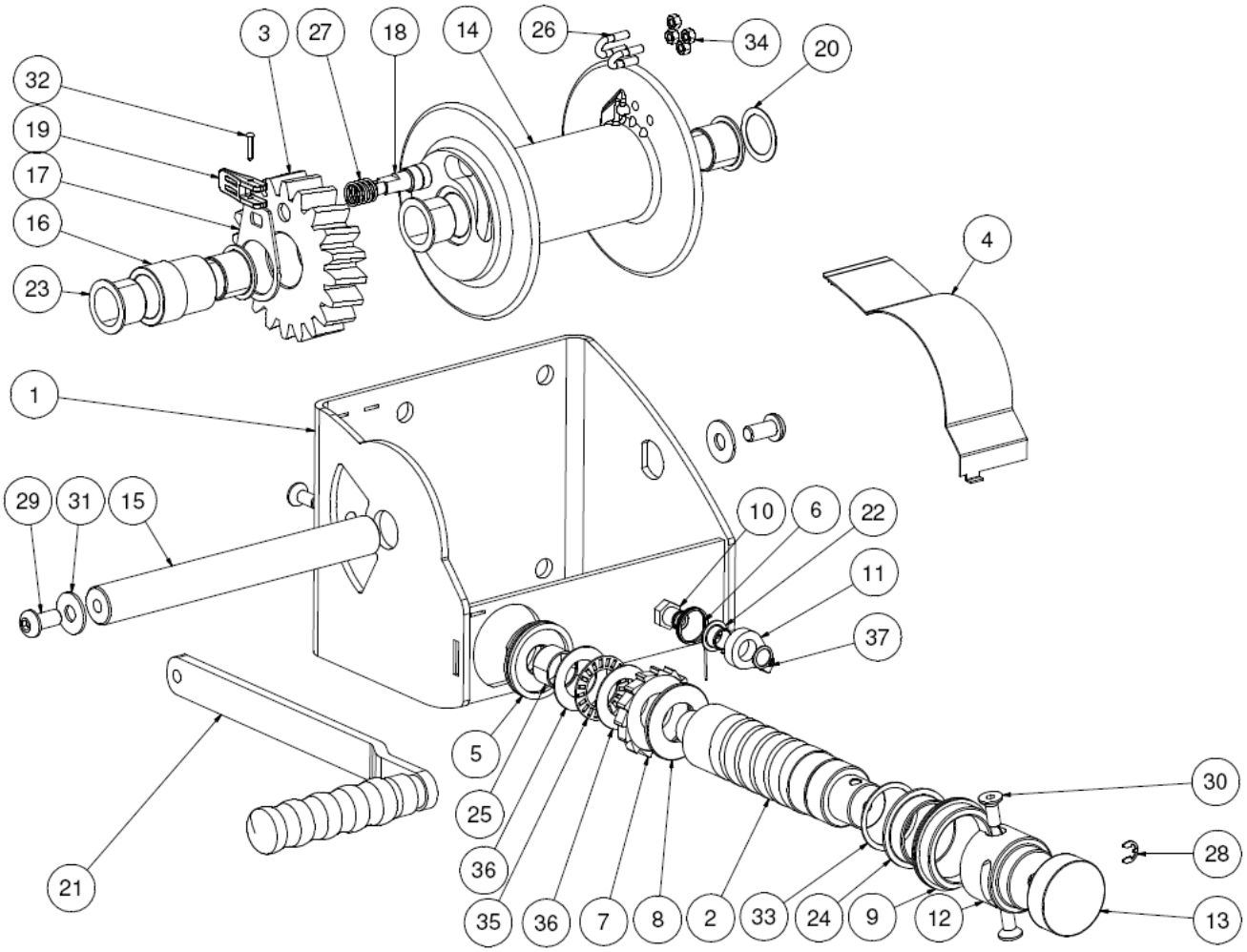
1.10.5 Winch with worm gear - 500 kg

Rep.	Code	Designation
1	22991	Body frame
2	22992	Drum
3	22993	Wheel 20 teeth
4	22994	Cover
5	22995	Behind bearing
6	22996	Pawl spring
7	22757	Ratchet wheel
8	22758	Brake washer
9	22910	Forward bearing
10	22914	Pawl axle
11	22915	Pawl
12	22916	Head of crank
13	22917	Tightening button
14	22922	Drum
15	22925	Drum axle
16	22926	Hub spacer
17	22928	Plate
18	22929	Disengaging usher
19	22911	Disengaging lever

Rep.	Code	Designation
20	22932	Adjustment spacer 26x35x05
21	22933	Short crank assembled
22	2760	Ring GFM 1214 09
23	2765	Ring GFM 2528 21
24	2766	Ring GFM 4044 14
25	2772	Ring GFM 2225 15
26	2775	Locking Rope
27	2779	Disengaging spring
28	13505	Spring retaining wheel 7144 - 7
29	13645	Screw TBHc M10x20
30	13650	Screw TFHc M8x20
31	13658	Washer LLU 10
32	13659	Rivet Alu 3.2x18
33	13664	Circlips 40x1.75
34	13666	Stainless nut M5
35	20043	Butée à aiguilles AXK 2542-A
36	20044	Bearing washer AS 2542
37	21045	Circlips E 12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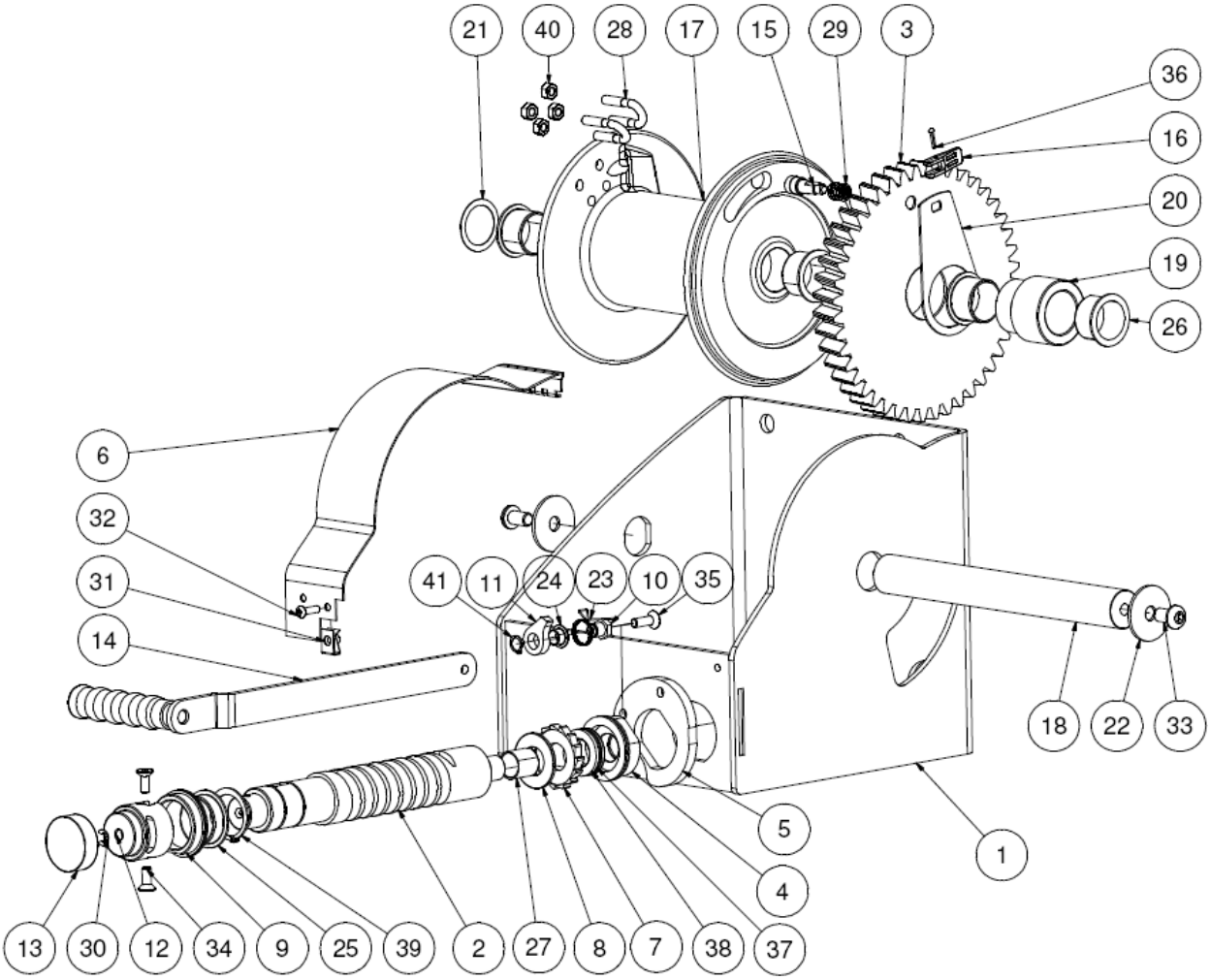
1.10.6 Winch with worm gear - 1000 kg

Rep.	Code	Designation
1	22751	Body frame
2	22752	Screw
3	22753	Wheel 44 teeth
4	22754	Behind bearing VSn°2
5	22755	Behind bearing plate
6	22756	Cover
7	22757	Ratchet wheel
8	22758	Brake washer
9	22910	Forward bearing
10	22914	Pawl axle
11	22915	Pawl
12	22916	Head of crank
13	22917	Tightening button
14	22918	Long crank assembled
15	22928	Disengaging usher
16	22929	Disengaging lever
17	22942	Drum
18	22949	Drum axle
19	22950	Wheel hub
20	22951	Plate
21	22955	Adjustment spacer 36x47x05

Rep.	Code	Designation
22	22978	Washer 12x50x3
23	22996	Pawl spring
24	2760	Ring GSM 1214 09
25	2766	Ring GSM 4044 14
26	2768	Ring GSM 3539 26
27	2773	Ring GSM 2225 25
28	2774	Locking Rope
29	2779	Disengaging spring
30	13505	Spring retaining wheel 7144 - 7
31	13622	Nut M6
32	13641	Screw TBHc M6x20
33	13646	Screw TBHc M12x20
34	13650	Screw TFHc M8x20
35	13651	Screw TFHc M8x25
36	13659	Rivet Alu 3.2x18
37	13661	Roller bearing 8-11-05
38	13662	Washer GS 8-11-05
39	13664	Circlips 40x1.75
40	13665	Stainless nut M5
41	21045	Circlips E 12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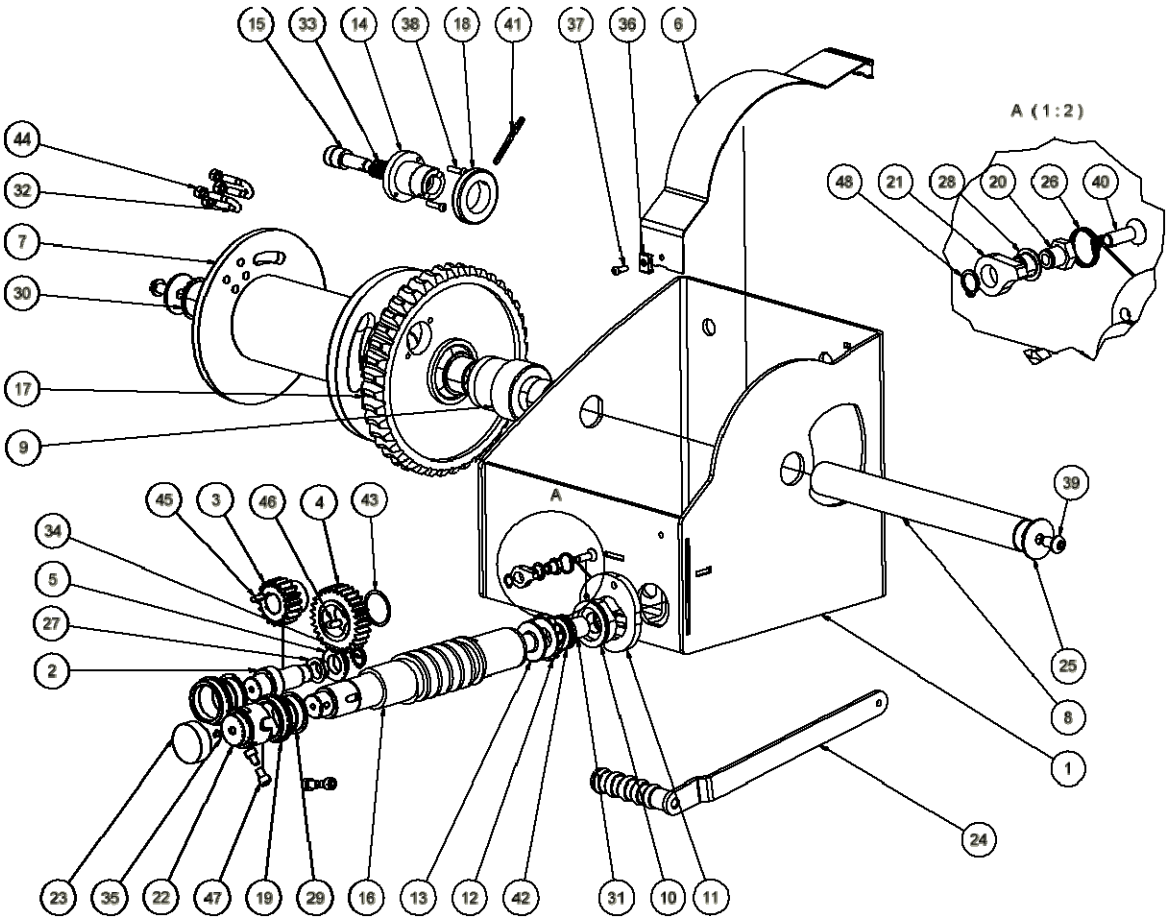
1.10.7 Winch with worm gear - 1500 kg

Rep.	Code	Designation
1	22761	Body frame
2	22762	Low speed shaft
3	22763	Pinion 18 teeth
4	22764	Wheel 29 teeth
5	22765	Bearing 2 speed
6	22766	Cover
7	22767	Assembled Drum
8	22768	Axle
9	22769	Hub
10	22754	Behind bearing VSn°2
11	22755	Behind bearing plate
12	22757	Ratchet wheel
13	22758	Brake washer
14	22773	Release boss
15	22774	Disengaging usher
16	22790	Screw VS1500-3000
17	22791	Wheel 40 teeth
18	22323	Release button
19	22910	Forward bearing
20	22914	Pawl axle
21	22915	Pawl
22	22916	Head of crank
23	22917	Tightening button
24	22918	Long crank assembled

Rep.	Code	Designation
25	22978	Washer 12x50x3
26	22996	Pawl spring
27	2749	Ring GFM 2033 11
28	2760	Ring GSM 1214 09
29	2766	Ring GSM 4044 14
30	2769	Ring GSM 4044 30
31	2773	Ring GSM 2225 25
32	2774	Locking Rope
33	2857	Compression spring 21.6
34	13045	Ext. Circlips 20x1.2
35	13505	Spring retaining wheel 7144 - 7
36	13622	Nut M6
37	13640	Screw TBHc M6x16
38	13642	Screw TBHc M6x25
39	13646	Screw TBHc M12x20
40	13651	Screw TFHc M8x25
41	13660	Mech. pin 6x65
42	13661	Roller bearing 8-11-05
43	13664	Circlips 40x1.75
44	13665	Stainless nut M8
45	13672	Cotter 6x6x20 FA
46	13228	Cotter 8x7x20 FA
47	13275	Screw CHC M8x40
48	21045	Circlips E 12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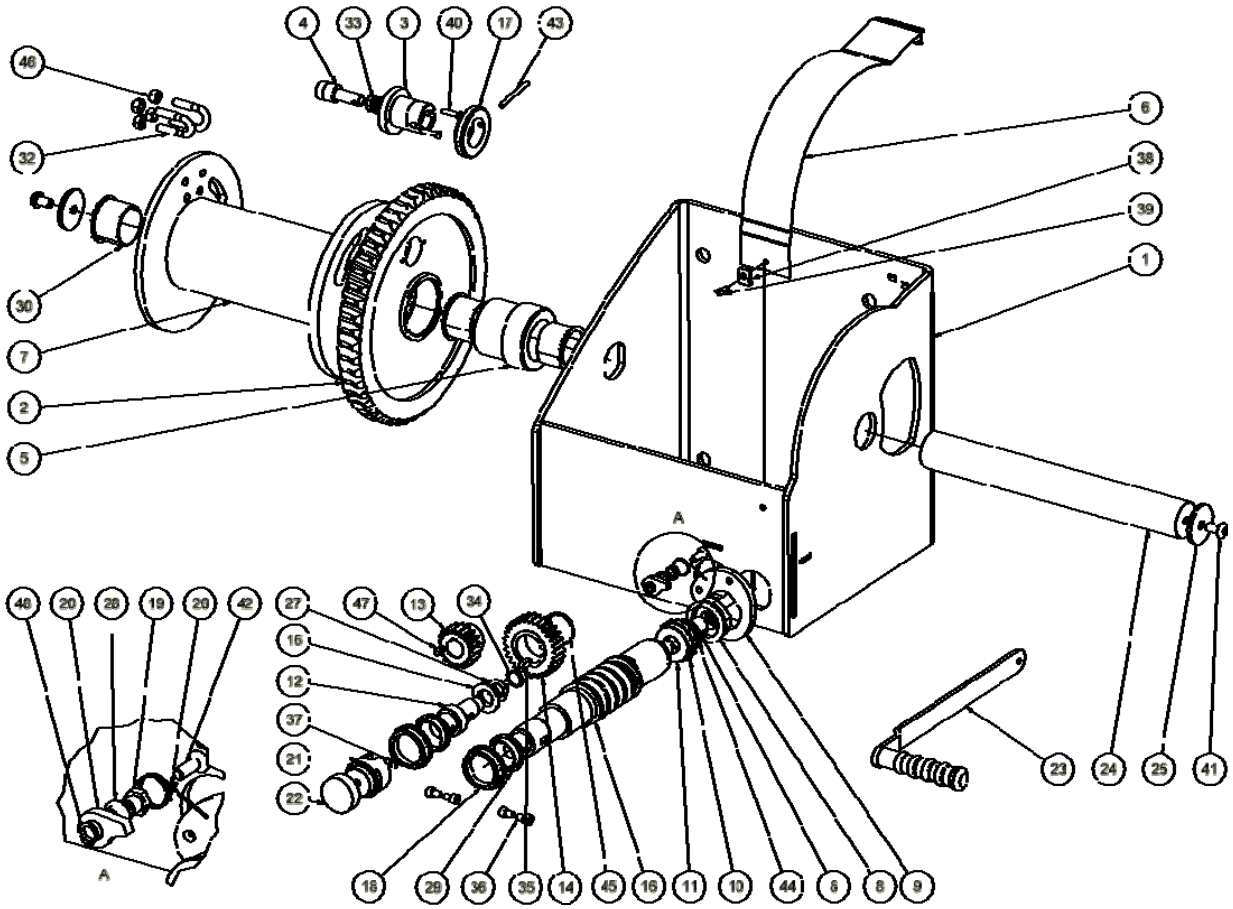
1.10.8 Winch with worm gear - 2000 kg

Rep.	Code	Designation
1	22771	Body frame
2	22772	Wheel 50 teeth
3	22773	Release boss
4	22774	Disengaging usher
5	22775	Hub
6	22776	Cover
7	22777	Assembled Drum
8	22754	Behind bearing VS n°2
9	22755	Behind bearing plate
10	22757	Ratchet wheel
11	22758	Brake washer
12	22762	Low speed shaft
13	22763	Pinion 18 teeth
14	22764	Wheel 29 teeth
15	22765	Bearing 2 speed
16	22790	Screw VS1500-3000
17	22323	Release button
18	22910	Forward bearing
19	22914	Pawl axle
20	22915	Pawl
21	22916	Head of crank
22	22917	Tightening button
23	22918	Long crank assembled
24	22971	Drum axle

Rep.	Code	Designation
25	22979	Washer 12x55x5
26	22996	Pawl spring
27	2749	Ring GFM 2003 11
28	2760	Ring GSM 1214 09
29	2766	Ring GSM 4044 14
30	2770	Ring GSM 5055 40
31	2773	Ring GSM 2225 25
32	2778	Locking Rope inox ø13
33	2857	Compression spring 21.6
34	13045	Ext. Circlips 20x1.2
35	13228	Cotter 8x7x20 FA
36	13275	Screw CHC M8x10
37	13505	Spring retaining wheel 7144 - 7
38	13622	Nut M6
39	13640	Screw TBHc M6x16
40	13642	Screw TBHc M6x25
41	13646	Screw TBHc M12x20
42	13651	Screw TFHc M8x25
43	13600	Mech. pin 6x65
44	13661	Roller bearing 8-11-05
45	13664	Circlips 40x1.75
46	13668	Stainless nut M10
47	13672	Cotter 6x6x20 FA
48	21045	Circlips E 12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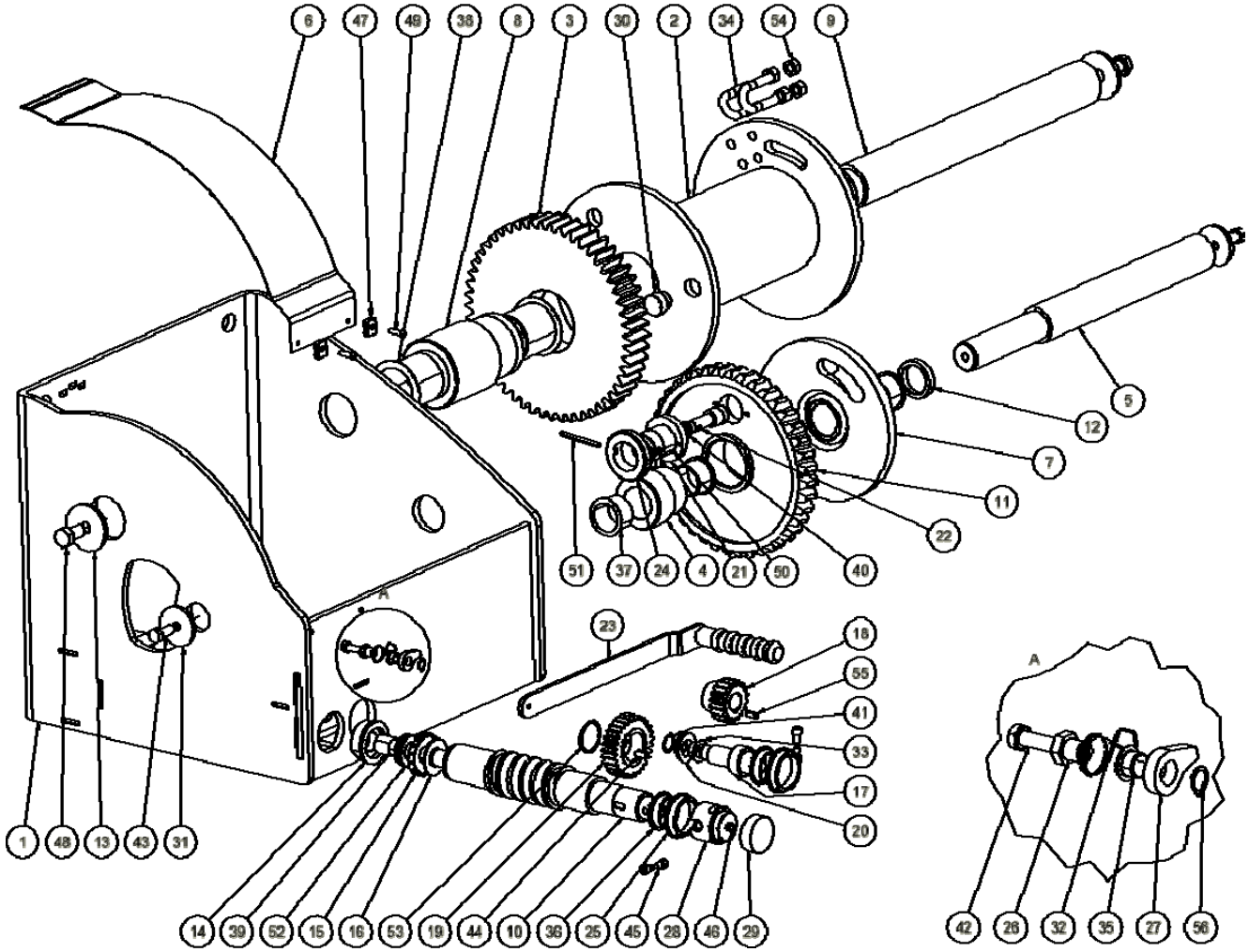
1.10.9 Winch with worm gear - 3000 kg

Rep.	Code	Designation
1	22781	Body frame
2	22782	Assembled Drum
3	22783	Wheel 53 teeth
4	22784	Intermediary hub
5	22785	Intermediary shaft
6	22786	Cover
7	22787	Sub-assembly Pinion flange
8	22788	Wheel hub
9	22789	Drum axle
10	22790	Screw VS1500-3000
11	22791	Wheel 40 teeth
12	22792	Shaft bearing ø53
13	22795	Washer 16x65x5
14	22754	Behind bearing VS n°2
15	22757	Ratchet wheel
16	22758	Brake washer
17	22762	Low speed shaft
18	22763	Pinion 18 teeth
19	22764	Wheel 29 teeth
20	22765	Bearing 2 speed
21	22773	Release boss
22	22774	Disengaging usher
23	20107	Assembled crank
24	22323	Release button
25	22910	Forward bearing
26	22914	Pawl axle
27	22915	Pawl
28	22916	Head of crank

Rep.	Code	Designation
29	22917	Tightening button
30	22974	Pile
31	22979	Washer 12x55x5
32	22996	Pawl spring
33	2749	Ring GFM 2023 11
34	2758	Locking Rope inox ø13
35	2760	Ring GFM 1214 09
36	2766	Ring GFM 4044 14
37	2769	Ring GFM 4044 30
38	2771	Ring GFM 606580-62
39	2773	Ring GSM 2225 25
40	2857	Disengaging spring
41	13045	Circlips extérieur 20x1.2
42	13066	Screw TH M8x25
43	13083	Screw TH M12x30
44	13228	Cotter 8x7x20 FA
45	13275	Screw CHC M8x10
46	13505	Spring retaining wheel 7144 - 7
47	13622	Nut M6
48	13625	Screw TH M16x60
49	13641	Screw TB M6x20
50	13642	Screw TBHc M6x25
51	13660	Mech. pin 6x65
52	13661	Roller bearing 8-11-05
53	13664	Circlips 40x1.75
54	13669	Stainless nut M12
55	13672	Cotter 6x6x20 FA
56	21045	Circlips E 12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