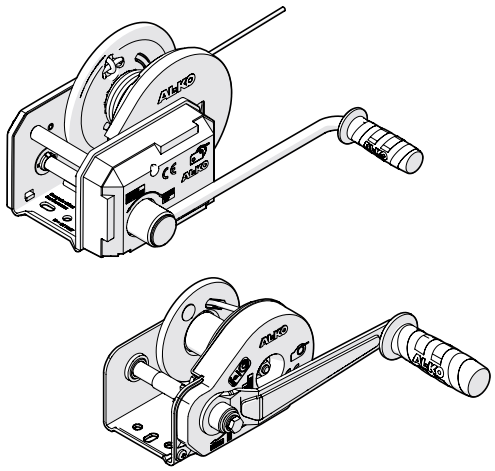
AL-KO

QUALITY FOR LIFE

BETRIEBSANLEITUNG

Winde 351-1201 PLUS



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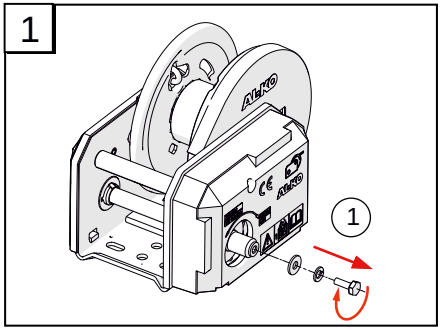

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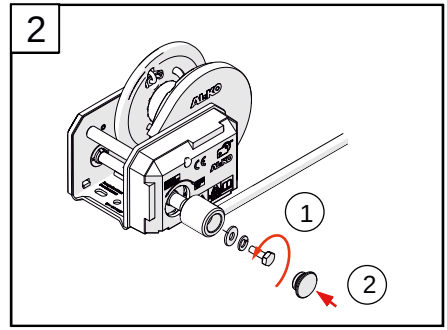

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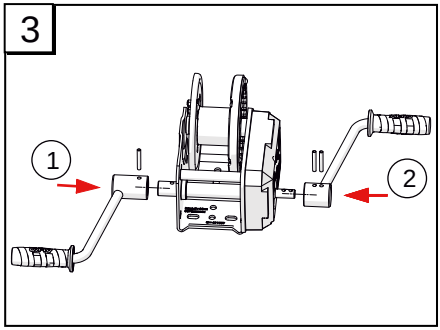

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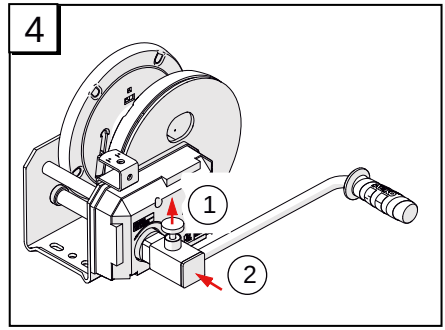

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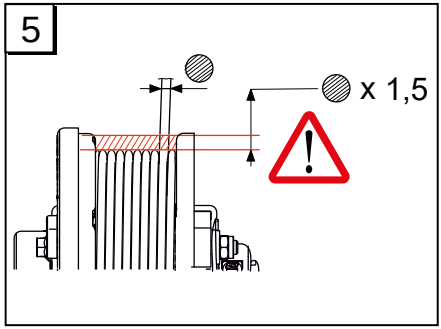

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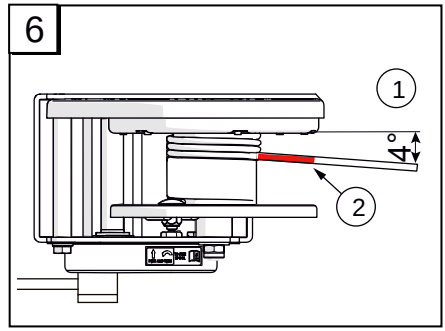

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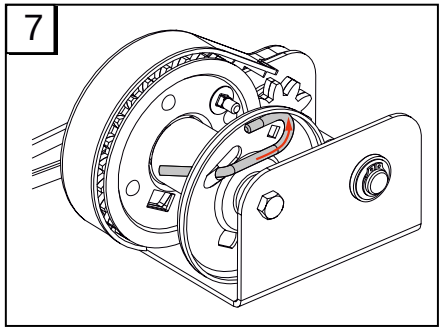

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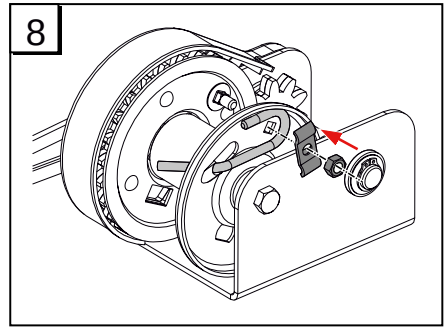

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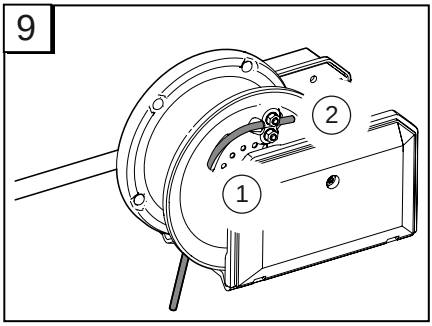

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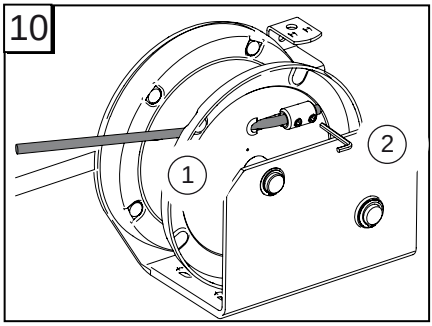

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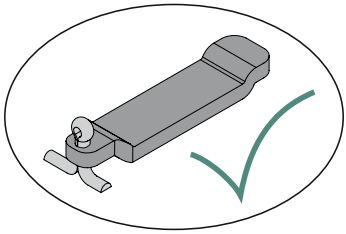

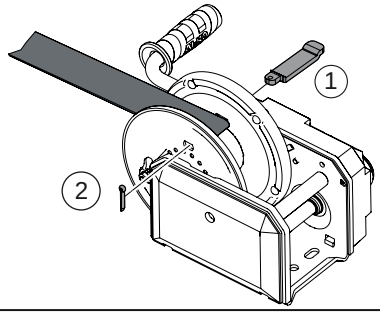

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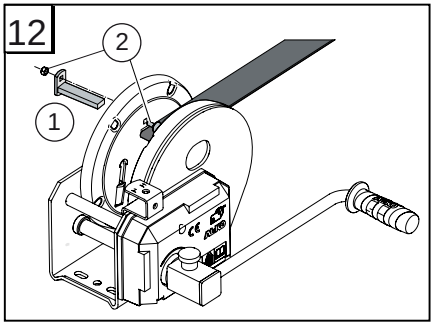

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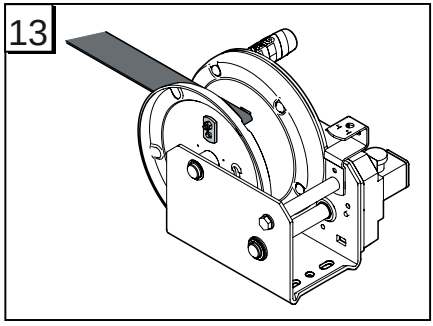

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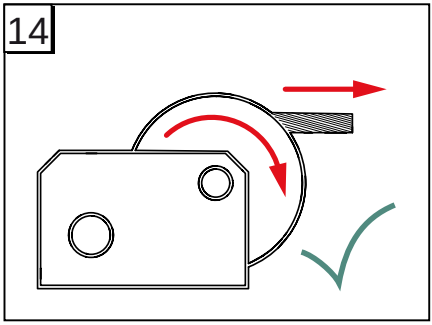

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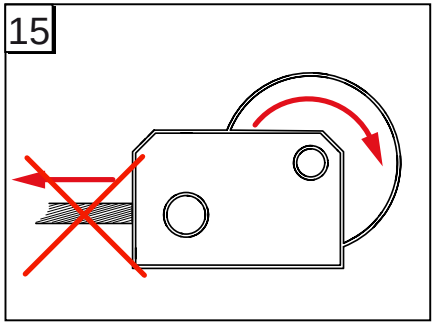

TRANSLATION OF THE ORIGINAL OPERATING INSTRUCTIONS

Contents

ABOUT THIS DOCUMENTATION

- Please read this document before use. This is essential for safe working and trouble-free handling.
- Comply with the safety and warning instructions in this documentation and on the product.
- This document is a permanent component of the described product, and should remain with the machine if it is sold to someone else.

Explanation of symbols

CAUTION!
Following these warning instructions can help to avoid personal injuries and/or damage to property.

Special notes for ease of understanding and regarding handling.

PRODUCT DESCRIPTION

Proper use

The winches of type series: Plus

- 351 standard
- 501 standard / automatic unwinder
- 901 standard / automatic unwinder
- 901D with double crank
- 1201 with automatic unwinder

are only to be used to lift, lower and pull the loads listed in the technical data provided.

Foreseeable misuse

Winches are not permitted for:

- Stages and studios (DGUV regulation 17)
- Hoistable personnel lifting equipment (DGUV regulation 101-005)
- Construction hoists
- Motor operation
- Continuous operation

Winches are not permitted in:

- Potentially explosive atmosphere
- Corrosive atmosphere

TECHNICAL DATA

type series plus	351	501	901D	901	1201
Max. load Traction (N) Lowest rope layer (F_1) Top rope layer ($F_{6/7/9}$)	 3500 N 1500 N	 5000 N 1700 N	 6500 N 3300 N	 9000 N 3300 N	 11500 N 5000 N
Gear reduction	2,5 : 1	3,75 : 1	8,75 : 1	8,75 : 1	10,5 : 1
Rope* Minimum breaking force (F min) Drum capacity (m)	Ø4 mm 10,5 kN 15 m	Ø5 mm 15 kN 20 m	Ø7 mm 27 kN 17 m	Ø7 mm 27 kN 17 m	Ø7 mm 34,5 kN 25 m
Strap** (mm) Minimum breaking force (F min) Drum capacity (m)	35-50x1,6 24,5 kN 3 m	35-45x2,5 35 kN 3,5 m	50x2,5 63 kN 6 m	50x2,5 63 kN 6 m	55x3,5 80,5 kN 9 m
Strap (not permitted for lifting) Minimum breaking force (F_{min}) Drum capacity (m)	42 x 1 9 kN 4 m	42 x 1 12,5 kN 7 m	52 x 1.4 22,5 kN 10 m	52 x 1.4 22,5 kN 10 m	55 x 1.6 30 kN 12,5 m

type series plus	351	501	901D	901	1201
Minimum load (kg)	25 kg	25 kg	25 kg	25 kg	25 kg
Permissible ambient temperature	- 20 °C to + 50 °C				

** in accordance with EN 12385-4 (rope class 6x19 / 6x19 M / 6x19W - / WRC)*

*** acc. to DIN EN 13157 (7-times safety for the strap required)*

SAFETY INSTRUCTIONS

CAUTION!
Danger of brake release!
The load pressure brake can release due to vibration. The winch should not be used to secure loads! Do not remove the crank while under load!

- Danger of fatal injury! - Never stand under suspended loads!
- Risk of accidents! - The brake system can overheat during extended lowering of loads. No continuous operation!
  ⇨ *Maximum lowering duration 2 - 5 minutes depending on the load.*
- Only use cables for which the hook is firmly attached to the cable via a pressed cable loop. End connections according to EN 13411-3 with thimbles according to 13411-1.
  ⇨ *If not otherwise stated in the EN standards listed above, the cable end connections must be able to withstand a force of at least 85% of the minimum breaking force of the cable without a break.*
- Hook and connecting device (triangle) must offer 4-times safety with cables and bands. No permanent distortion is allowed under static load with 2-times the nominal load. At 4-times static load, bending open or deformation is permitted, however the load must still be securely held (see EN 13157). Alternatively, a hook acc. to EN 1677-2 with guaranteed load capacity can be used.
- Sharp edges! Damage from scrapes, crushing, cuts. Always wear work gloves.
- Observe the required minimum breaking load when using a band.
  ⇨ *The breaking force of the stitched band must be at least 7 times the specified tensile force in the lowest cable position.*
- Do not knot together cables / bands.
- Do not expose bands to acids or alkalis.
- Use a cover to protect bands from moisture and constant solar radiation.
- Do not exceed the tensile forces specified in the technical data.
- Always used non-twisting or low-twisting cables for lifting a freely suspended load that could rotate during the lifting procedure!

INSTALLATION

Assembling the crank handle

The crank handle must be able to make at least a ¼ turn to the left without moving the drive shaft or the rope drum.
Use a torque wrench for tightening. Tightening torque 20Nm.

Typ 351 Plus, 501 Plus, 901 Plus, - Standard

1. Remove the hexagon head screw, spring lock washer and washer from the drive shaft (*1-1*).
2. Hold the cable drum firmly and screw on the crank/crank nut fully.
3. Putting spring washer and plate on (*2-1*).
4. Screw in the screw anticlockwise until finger-tight (*2-1*).
5. Hold the crank/crank nut firmly and tighten the screw with a torque wrench.
6. Check if the crank/crank nut can be moved.
7. Push the cover on (*2-2*).

Type 901 Plus D - double crank handle

1. Push crank handle onto the drive shaft (*3-1*).
2. Insert the locking pin.
3. Push crank handle onto the drive shaft at 180° to crank handle (*3-2*).
4. Insert the locking pins.

Type 501 Plus, 901 Plus, 1201 Plus - automatic rolling mechanism

1. Pull out the safety button (*4-1*).
2. Push the crank handle onto the drive shaft (*4-2*).
   ⇨ *The safety button should automatically click into place.*

Installing the rope

When under load, at least two cable windings must remain on the drum. Mark the cable end with a colour.

Type 351 Plus

1. Feed the steel rope through the long hole of the drum from the inside (*7*).
2. Insert the end of the rope into the clamp in a large loop and gently tighten hexagon nut (*8*).
3. Pull the loop back up to the clamp and tighten the hexagon nut with a tightening torque of max. 10 Nm.
4. Wind the rope in two full turns.
   ⇨ *Do so by turning the crank handle in the "Lift" direction.*
5. Mark the rope run-out in colour (*6-2*).

Type 501 Plus, 901 Plus D, 901 Plus

1. Insert the steel cable from the inside to the outside through the slot in the cable drum (*9-1*).
2. Insert the end of the cable through the embossed cable clamp.
   ⇨ *Let the end of the cable project by at least 10 mm (9-2).*
3. Tighten the nuts of the cable clamp firmly (*M5 = 6 Nm; M6 = 10 Nm*).
4. Wind the rope in two full turns.
   ⇨ *Do so by turning the crank handle in the "Lift" direction.*
5. Mark the rope run-out in colour (6-2).

Type 1201 Plus

1. Feed the steel rope through the long hole of the drum from the inside (*10-1*).
2. Insert the steel rope into the clamping piece on the rope drum.
3. Clamp the steel rope using the two Allen screws (*10-2*).
4. Wind the rope in two full turns.
   ⇨ *Do so by turning the crank handle in the "Lift" direction.*
5. Mark the rope run-out in colour (6-2).

Mounting the strap (option)

Our winches can optionally be used with a special loop strap instead of a cable.

CAUTION!
Risk of accidents!
The breaking force of the stitched strap must be at least 7 times the specified tensile force in the lowest cable position.

When mounting the strap, please note:
- Always turn the crank in the "LIFT" direction.

Installing the strap

Typ 351 Plus, 501 Plus, 901 Plus, 901 Plus D

1. Feed the AL-KO connector through the strap loop (*11-1*).
2. Secure with a split pin (*11-2*).
3. Wind the strap in two full turns and mark the strap run-out in colour.

Typ 1201 Plus

1. Feed the AL-KO connector through the strap loop (*12-1*).
2. Secure this with a bolt and a hexagonal nut (*12-2, 13*).
3. Wind the strap in two full turns and mark the strap run-out in colour.

Attaching the winch

Plus type series	Fastening material	Torque
351	■ 3 screws M8 grade 8.8 ■ 3 washers Ø8 DIN 125A	25 Nm
501 901 Plus D 901	■ 3 screws M10 grade 8.8 ■ 3 washers Ø10 DIN 125A	49 Nm
1201	■ 4 screws M10 grade 8.8 ■ 4 washers Ø10 DIN 125A	49 Nm

OPERATION

- Danger of fatal injury! Never stand under suspended loads!
- Risk of accidents! The brake system can overheat during extended lowering of loads. No continuous operation!
  ⇨ *Maximum lowering duration 2 - 5 minutes depending on the load.*

- Check braking function of the winch. There must be a clicking sound when turning in the "lifting" direction!
  ⇨ *ATTENTION for type 901 Plus D: Due to the design, you will only hear a gentle clicking.*
- For type 501, 901 and 1201 with automatic unwinder, check whether the crank is engaged.
- Check the cable / band for damage and replace if necessary.
- The cable / band should not be run over sharp edges.
- When winding up the cable / band without a load, keep it under a slight tension. For proper braking function, a **minimum load of 25 kg** is required.
- Only wind up a cable / band under load to the point that there is an overhang on the flanged wheels of at least 1.5x the cable diameter. (5)

Deflection angle

The deflection angle when winding the rope in or out must not exceed 4° (*6-1*).

CAUTION!
Risk of accidents!
Do not guide the cable out to the bottom left over the drive shaft!
⇨ *The brake function can fail if there is contact between the cable and the drive shaft. (14)*

Winch operation

Raising, pulling the load

1. Turn the crank clockwise.

Holding the load

1. Release the crank.
   ⇨ *The load is kept in the same position.*

Lowering the load

1. Turn the crank anti-clockwise.
   ⇨ *The integrated brake prevents the crank from kicking back.*

Automatic rolling mechanism

CAUTION!
When under load, the crank handle must always be attached to the drive shaft!

1. Turn the crank handle anti-clockwise.
   ⇨ *without turning the rope drum.*
2. Pull out the safety button.
3. Remove the crank handle and place it on the holder designed for this purpose.
4. The rope / strap rolls out quickly.

MAINTENANCE

CAUTION!
Sharp edges!
Damage from scrapes, crushing, cuts. Always wear work gloves.

CAUTION!
Risk of injury
At the end of maintenance and repair work, reattach all covers with the original screws!

CAUTION!
Danger from wear!
The winch operator must check the cables/bands for wear before every use (DIN ISO 4309/DGUV regulation 100-500). Replace damaged cables/bands immediately!

- The winch may only be inspected and maintained by trained technicians!
- The brake mechanism was treated by the manufacturer with a special grease (Wolfracoat 99113). Other oils or greases are not permissible!

Inspecting the winch

The cable winch must always be inspected by a trained technician:

- Before initial start-up
- Every time the unit is remounted
- At least once a year
  ⇨ *Trained technicians are persons with the necessary technical knowledge to inspect the work equipment on account of their professional training, experience and recent occupational activities.*
  Please also note any other applicable national regulations.

Maintenance intervals

- When used regularly to 100% of the rated load: after raising and lowering by 100 m
- When used regularly to 50% of the rated load: after raising and lowering by 200 m

Perform the following tasks at these intervals:

- Inspection work
- Lubrication

Inspection work

- Check that the crank moves freely
- Check that the locking catch engages
- After raising and lowering the winch by 100 m, check the wear of the brake discs and the bonded brake pad.
  ⇨ *The brake pad must be at least 1.5 mm thick.*

Oil and lubrication points

The winch is already lubricated when delivered. Regrease the following points:

- Drum hub
- Sprocket / Gear teeth
- Bearing sleeve of the drive shaft
- Locking sleeve

Grease recommended by AL-KO:

- OMV Whiteplex multipurpose grease.
- Staburags NBU12K multipurpose grease.

REPAIR

Repair work

CAUTION!
Repair work may be carried out only by AL-KO service centres or authorised specialist workshops.

- For repairs, a region-wide network of AL-KO service stations is available to our customers in Europe.
- You can obtain a list of service points directly from us at: **www.alko-tech.com**

Replacement parts are safety parts!

- For the installation of replacement parts into our products, we recommend the use of original AL-KO parts, or parts that we have expressly approved for installation.
- For the clear identification of replacement parts, our service centres require the replacement part identification number (ETI).

TROUBLESHOOTING

Fault	Cause	Solution
Load will not hold	Cable / band wound up incorrectly ⇨ *Direction of rotation incorrect when lifting*	Fit cable / band correctly
	Brake worn or faulty	Check brake parts and replace worn parts
	Brake disc moist or oily	Clean or replace brake discs
Load pressure brake does not open	Brake disc mechanism or brake discs braced	Winch must not be under load! Loosen the brake by gently hitting the crank in the "lowering" direction with the palm of your hand ⇨ *You may need to block some gear wheels until the crank loosens.* ⇨ *Grease the crank attachment thread*
Load pressure brake does not close	Crank not fully untwisted during installation and hexagon bolt therefore strained	Refer to crank installation and inspection instructions
Difficult lowering without or without load	Crank attachment thread is fixed	Grease the crank attachment thread

If you encounter any malfunctions that are not listed in this table or which you cannot rectify yourself, please contact our responsible customer service.

EC DECLARATION OF CONFORMITY

We herewith declare that this product, in the version introduced into trade by us, complies with the relevant provisions of the EC directive and the harmonised standards named in the following.

Product
AL-KO winch

Manufacturer
ALOIS KOBER GmbH
Ichenhauser Str. 14
D-89359 Kötz, Germany

Duly authorised person
ALOIS KOBER GmbH
Tech. Development Head
Standardisation / Data management
Ichenhauser Str. 14
D-89359 Kötz, Germany

Type
351 Plus, 501 Plus, 901 Plus,
901 Plus D, 1201 Plus

EC directives
2006/42/EC

Harmonised standards
DIN EN 13157
EN ISO 12100

Series
YoM 11/2019 - YoM 10/2024

Notified body
DGUV test
Test and certification body
Kreuzstraße 45
D-40210 Düsseldorf, Germany

Model testing
Certificate No.
HSM 19015

01.11.2019 Kötz, Germany

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