

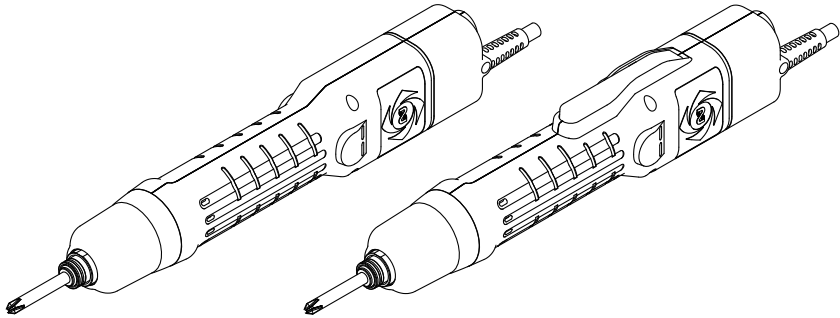
INSTRUCTION MANUAL

Professional tool ELECTRIC SCREWDRIVER

delvo

Model: DLV30A/DLV45A/DLV70A Series

Product Operational Information



Indoor Use Only

Brushless Motor

Grounded bit function

[Specifications]

Lever Start Model	DLV30A06L-AD	DLV30A12L-AD	DLV30A20L-AD	DLV45A06L-AD	DLV45A12L-AD	DLV70A06L-AD
Push to Start Model	DLV30A06P-AD	DLV30A12P-AD	DLV30A20P-AD	DLV45A06P-AD	DLV45A12P-AD	DLV70A06P-AD
Torque [Nm(Lb-in)]	Low torque spring: 0.4 to 1.6 (3.5 to 14.2)			2.0 to 4.5 (17.7 to 39.8)		3.8 to 7.0 (33.6 to 61.9)
	High torque spring: 1.2 to 3.0 (10.6 to 26.6)					
Free Speed [min ⁻¹]	650	1200	2000	650	1200	650

- Please refer to p. 4 for details.

- Please read manual carefully before you attempt to use your tool so that you may use it properly and safely.
- Keep the manual handy - so you can use it whenever necessary.

- Due to continuous product development/improvement the specifications and configurations in this document are subject to change without prior notice.

Manufactured by.

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Thank you very much for your purchase of this **NITTO KOHKI** product.

Before using your tool, please read this manual carefully so that you may use it properly to get the most out of it.

Please keep the manual handy - so you can use it whenever necessary.

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Product Specific Safety Rules

⚠ WARNING

- **This product is for domestic use.**

This unit complies with the domestic safety standards only. The product cannot be used overseas.

- **When using an extension cord, select the wire diameter according to the extended length.**

If the power cord is too long or a thin cable is wound on a coil drum for a long length, voltage drop could be caused. In such a case, the original product performance cannot be demonstrated.

Maximum extended cable length	Wire diameter (conductor nominal cross-sectional area)
10 m	1.25 mm ² or more
20 m	2 mm ² or more
30 m	3.5 mm ² or more

- **Do not use the product together with another electric tool.**

⚠ CAUTION

- **This tool is not an impact type electric screwdriver. Do not tighten twice (extra tightening). Also, it cannot be used for screw tightening of such things as wood or drywall.**

Depending on fastening conditions, screws may become loose.

Improper impacts could decrease product life or cause product failure.

- **Do not use the tool for anything other than screw tightening.**

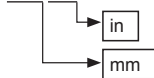
It should not be used for tasks such as drilling or threading (such as a tapper).

About Unit Notation

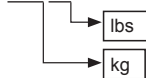
This instruction manual is written using both SI units and the imperial measurement method (yards, pounds).

Numeric values outside the () are the value in SI units, while those inside the () are the imperial measurement value.

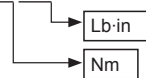
Notation Example: Length 25.4 (1")



Weight: 0.45 (1)



Torque: 1.13 (10)



1 Application

This is a hand-held electric screwdriver used to tighten screws.
The tool is equipped with an environmentally-friendly brushless motor.

2 Checking Inside the Package

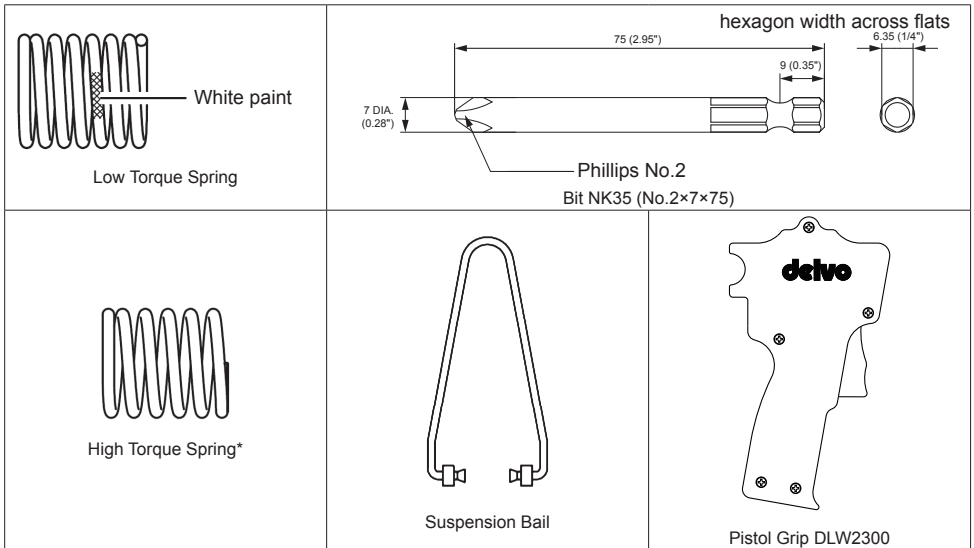
When you open the package box, check the content of the package and also check for any damage caused by incidents during transportation.

If a problem is found, consult with the store where you purchased the product.

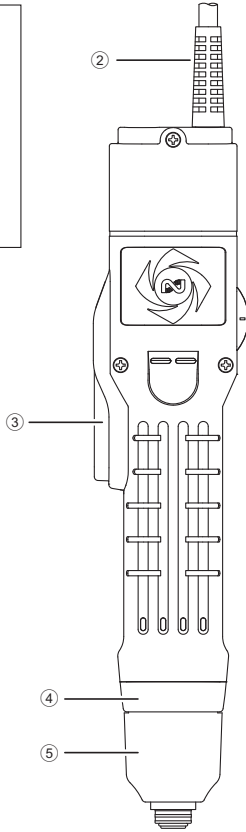
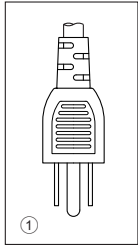
Package content and list of accessories

DLV30A series		DLV45A series / DLV70A series	
Package content and accessories	Quantity	Package content and accessories	Quantity
Electric screwdriver (main unit)	1	Electric screwdriver (main unit)	1
Bit NK35 (No.2×7×75)	1	Bit NK35 (No.2×7×75)	1
Low Torque Spring	1	Suspension Bail	1
High Torque Spring*	1	Pistol Grip DLW2300	1
Suspension Bail	1	Instruction Manual	2
Instruction Manual	2		

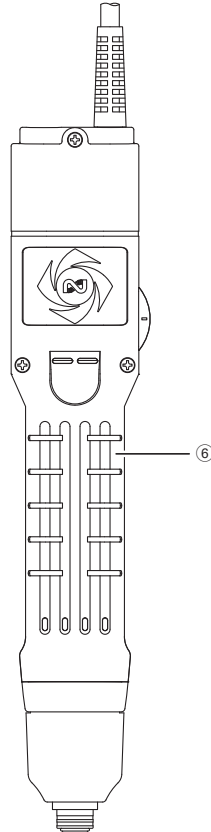
* The high torque spring is built inside the main unit at the factory default.



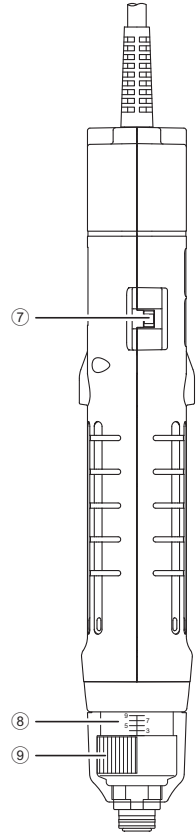
3 Part Names



Lever start type



Push start type



- ① Power plug
- ② Power cord
- ③ Lever Switch
- ④ Coupling
- ⑤ Torque Adjustment Ring Cover
(the material varies by model)

- ⑥ Frame Handle (exterior resin part of main unit)
- ⑦ Changeover Switch
- ⑧ Torque Scale (standard)
- ⑨ Torque Adjustment Ring

Model		Coupling	Torque adjustment ring cover
Lever start type	Push start type		
DLV30A06L-AD	DLV30A06P-AD	Resin/Yellow	Resin/transparent
DLV30A12L-AD	DLV30A12P-AD	Resin/Blue	
DLV30A20L-AD	DLV30A20P-AD	Resin/Red	
DLV45A06L-AD	DLV45A06P-AD	Aluminum/black	Aluminum/black
DLV45A12L-AD	DLV45A12P-AD		
DLV70A06L-AD	DLV70A06P-AD		

- The torque adjustment ring cover prevents unexpected torque setting change. We recommend the cover be attached.

4 Specifications

⚠ CAUTION

- **The output torque is the value measured in combination with the output torque measurement device.**
When the output torque is measured by some other measuring device or combination, the value may be different.
- **The output torque and torque that occurs in screws do not match.**
Use a torque wrench to check the torque generated on screws.

Model	Lever Start	DLV30A06L-AD	DLV30A12L-AD	DLV30A20L-AD
	Push to Start	DLV30A06P-AD	DLV30A12P-AD	DLV30A20P-AD
Torque (Nm(Lb-in))	Low Torque Spring	0.4 to 1.6 (3.5 to 14.2)		
	High Torque Spring	1.2 to 3.0 (10.6 to 26.6)		
Free speed (for reference) (min ⁻¹)		650	1200	2000
Screw Size (for reference)	Metric Thread (mm)	2.6 to 5.0		
	Inch Thread	#3 to #10		
	Tapping Screw (mm)	2.5 to 4.0		
Bit Type		NK35 (HEX 6.35mm(1/4"))		
Mass (kg(lbs))		0.7 (1.54) (excluding the power cord)		
Power supply		115 V AC 50/60 Hz		
Power Consumption (W)		55		
Duty Cycle		ON time 0.5 sec./OFF time 3.5 sec.		

Model	Lever Start	DLV45A06L-AD	DLV45A12L-AD	DLV70A06L-AD
	Push to Start	DLV45A06P-AD	DLV45A12P-AD	DLV70A06P-AD
Torque (Nm(Lb-in))		2.0 to 4.5 (17.7 to 39.8)		3.8 to 7.0 (33.6 to 61.9)
Free speed (for reference) (min ⁻¹)		650	1200	650
Screw Size (for reference)	Metric Thread (mm)	4.5 to 6.0		5.0 to 8.0
	Inch Thread	#10 to #12		#10 to 5/16"
	Tapping Screw (mm)	4.0 to 5.0		4.5 to 6.0
Bit Type		NK35 (HEX 6.35mm(1/4"))		
Mass (kg(lbs))		0.87 (1.92) (Pistol Grip is included, excluding the power cord)		
Power supply		115 V AC 50/60 Hz		
Power Consumption (W)		55		
Duty Cycle		ON time 0.5 sec./OFF time 3.5 sec.		

DLV30A/45A/70A Series common specifications

Noise emission (dB) (According to EN60745)	LPA ^{*1} LWA ^{*2}	75 (uncertainty :K=3dB) 86
Vibration level (m/s ²) (According to EN60745)		Less than 2.5
Temperature Range (°C (°F))	Operating	-5 to +50 (+23 to +122)
	Storage	-20 to +70 (-4 to +158)
Relative Humidity		Free of Dew (include time of the Storage)
Operating Environment		less than 2000 m above sea level
Pollution Degree (According to IEC60664-1)		Pollution Degree 2
Over Voltage Category (According to IEC60664-1)		Over Voltage Category I

*1 LPA; A-weighted surface sound pressure level

*2 LWA; A-weighted sound power level

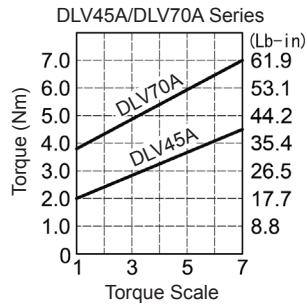
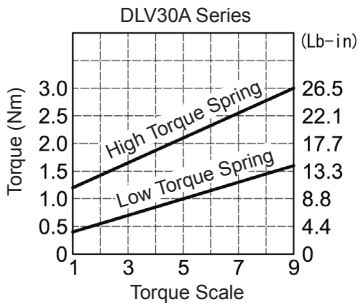
Torque Measurement Device

Electric Screw Driver	DLV30A Series	DLV45A Series	DLV70A Series
Torque Checker	DLT1673A	DLT1673A	DLT1973A
Bit Joint	DLW4360	DLW4360	DLW4000

Torque scale and output torque

⚠ CAUTION

- The torque scale is for reference. The output torque range is not guaranteed. Make sure to measure torque.
- Use the tool within the specified range.
- When the torque decreases, increase the torque based on the measured value.



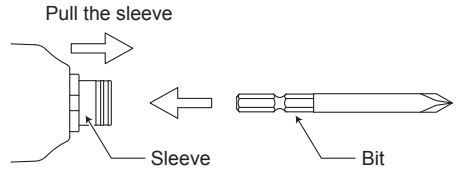
5 Preparation

Attaching a bit

⚠ WARNING

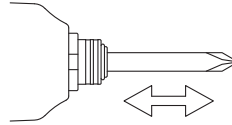
- When attaching or removing the bit, always disconnect the power plug from the outlet.

1 Insert a bit while pulling the sleeve



2 Release the sleeve and make sure the bit does not come off

To remove the bit, pull out the bit while pulling the sleeve.

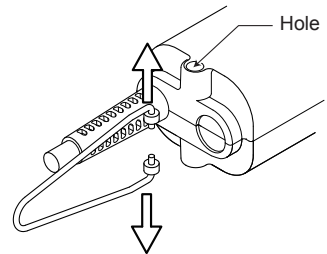


Attaching the suspension bail

⚠ CAUTION

- If the suspension bail is pulled forcefully, it may not return to original status. Use an appropriate strength necessary for attachment or removal.

1 Lightly pull both sides of the suspension bail and fit it into the hole



Replacing a torque spring

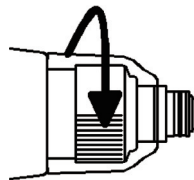
⚠ WARNING

- Before attaching or detaching the torque spring, always disconnect the power plug from the outlet.

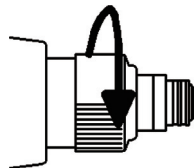
⚠ CAUTION

- **The spring plate assembly must be oriented correctly.**
The ball goes into the recess of the torque adjustment ring. When it is attached in the opposite orientation, the torque adjustment ring easily gets loose. Also, when the torque adjustment ring is turned, there will be no clicking sound.
- **Recommended grease (separately sold)**
Idemitsu Kosan Co., Ltd.: Daphne Eponex SR No. 2
Showa Shell Sekiyu K.K.: Alvania Grease S2
Cosmo Oil Co., Ltd.: DYNAMAX No. 2

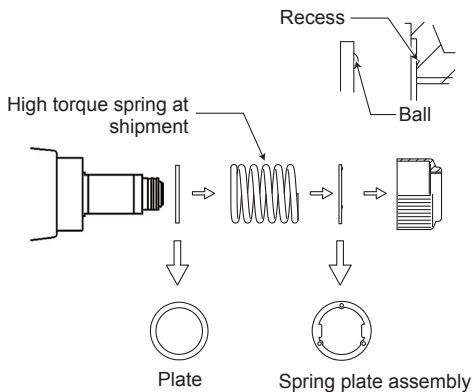
- 1** Turn the torque adjustment ring cover counterclockwise to remove



- 2** Turn the torque adjustment ring counterclockwise to remove



- 3** Remove the spring plate assembly
→ torque spring → plate, in that order



- 4** Apply grease to the torque spring

- 5** Replace the torque spring

To reattach, perform the order in reverse.

Attaching the Pistol Grip

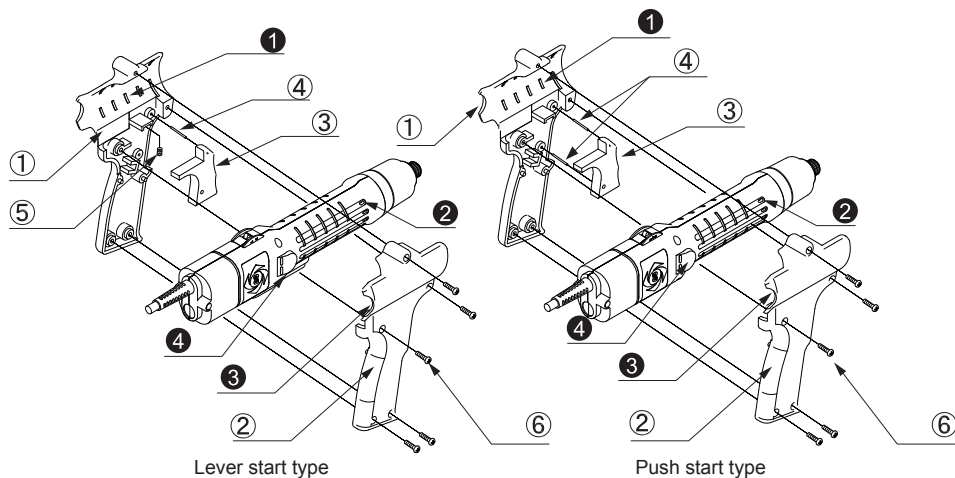
⚠ WARNING

- When attaching or removing the Pistol Grip, always disconnect the power plug from the outlet.
- After fixing the Pistol Grip with the screw, check for looseness, slip, and displacement of the screw.

⚠ CAUTION

- Use care not to lose parts.

- 1 Match the rib of the Pistol Grip body A and the groove of the frame handle**
Match the semicircle cut-out of the Pistol Grip body A and the semicircle rib of the frame handle.
- 2 Attach the parts to the positions shown in the following figure**
- 3 Match the rib of the Pistol Grip body B and the groove of the frame handle**
Match the semicircle cut-out of the Pistol Grip body B and the semicircle rib of the frame handle.
- 4 Tighten the screws**

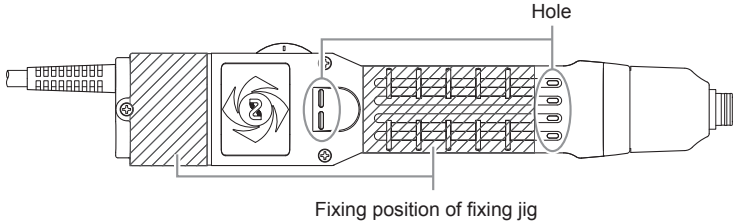


- ① Body A..... 1 piece
- ② Body B 1 piece
- ③ Trigger..... 1 piece
- ④ Pin 1 piece (2 pieces for push start type)
- ⑤ Spring..... 1 piece (lever start type only)
- ⑥ Screw 5 pieces
- ① Rib
- ② Groove
- ③ Semicircle cut-out
- ④ Semicircle rib

Notes on attaching a commercially available fixing jig

⚠ CAUTION

- Do not block the hole on the frame handle, as doing so could cause a failure due to heating.



6 Basic Operation

Start

⚠ WARNING

- Properly connect the power plug.
- Always make sure the tool is grounded.
No grounding the tool could cause failure or electric shock at the time of electrical leakage.
If you are not sure about the grounding of the outlet, request an electrical contractor to check if it is grounded.
When an extension cord is used, use a 3-core cord that includes a ground wire.

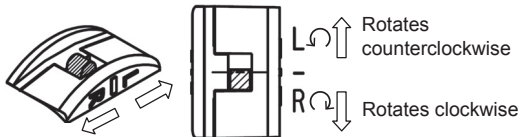
1 Insert the power plug into an outlet (230 V AC)

Changeover switch

⚠ CAUTION

- Do not operate the changeover switch while the tool is rotating. Doing so could cause a failure.
- When the tool is not used, set the switch to neutral position.
- Do not apply a shock (such as dropping) or excessive load to the changeover switch. Doing so could cause a failure.

By sliding the changeover switch, you can change the rotation direction of the electric screwdriver.
“-” means neutral. The electric screwdriver does not rotate.



Start and stop

⚠ WARNING

- Never touch the bit while it is rotating.
- Do not direct the bit toward people or animals.

⚠ CAUTION

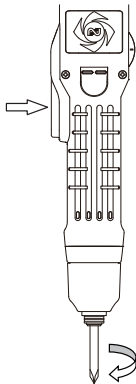
- Make sure to properly press the start switch.

Slide the changeover switch to the direction in which you want the tool to rotate and press the start switch to start. Releasing the start switch stops rotation.

Lever start type

When you press the lever switch, the bit rotates. Releasing the lever switch stops rotation.

For the lever start type, the lever switch work as the start switch.

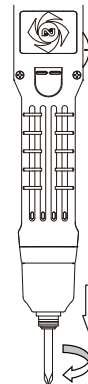


Push start type

The bit rotates when the electric screwdriver is pushed in the bit direction.

Releasing it stops rotation.

The push start type has a start switch inside the electric screwdriver.



Screw tightening

⚠ WARNING

- Firmly hold the main body to avoid losing your grip.

⚠ CAUTION

- Properly apply the bit end to the screw head.
- Check that the bit is not worn.

- 1 Slide the changeover switch to the "R" side
- 2 Apply the bit end to the screw head and press the start switch
- 3 When the electric driver stops, release the start switch

Adjusting the output torque

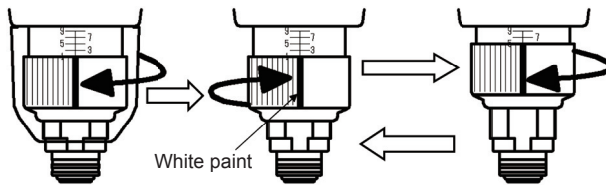
⚠ WARNING

- When adjusting the output torque, always disconnect the power plug from the outlet.

⚠ CAUTION

- The torque scale is a standard. The output torque range is not guaranteed.

- 1 Turn the torque adjustment ring cover counterclockwise to remove it
- 2 To increase the output torque, turn the torque adjustment ring clockwise
To decrease the output torque, turn the torque adjustment ring counterclockwise



7 Appendix

Troubleshooting

Symptoms	Location to investigate	Solution
The electric screwdriver does not operate	Is the power plug inserted into an outlet? Is power supplied to the outlet?	Properly insert the power plug into the outlet. Check the power supply.
	Is the changeover switch set to neutral?	Slide the changeover switch to the R or L side.
The output torque is low Screws cannot be tightened	Are you using a combination of NITTO KOHKI measuring devices for measurement?	Use a combination of NITTO KOHKI's measuring devices for measurement. (p. 4)
	Are you turning the torque adjustment ring clockwise? Has the output torque dropped?	The output torque decreases as the tool is used. Turn the torque adjustment ring clockwise. (p. 11)
	Did you check the correlation between the output torque occurred on screws and the output torque measured using a measurement device?	The output torque occurred on screws and the output torque measured by the measurement device are different. Adjust the output torque according to the screw fastening conditions. (p. 4)
	Is the bit worn out?	When the bit is worn out, it becomes difficult to transmit torque to screws. Replace the bit. (p. 6)
	Are you tightening while crushing a part between the screws. Has regression loosening occurred?	Torque may not be transmitted. Crush the part once and then tighten the screw.
	Has axial force occurred to the screw?	Without axial force, even though the output torque is increased, screws are not tightened. Review the screw fastening conditions. Also, by tightening at low speed, it becomes easier to transmit torque.
	Has initial loosening occurred?	Initial loosening occurs as a result of permanent set in fatigue when fine irregularities such as surface roughness are lost over time after the screw is tightened or outside force is applied. Tighten the screw again.
	Has the permanent set in fatigue occurred due to permanent deformation of sealing material such as the gasket?	Carefully check the screw fastening conditions and set the output torque. Depending on the material, torque may not be transmitted.
	Is the area surrounding the screw at a high temperature?	Screws could be extended or loosened by temperature changes. Review the screw fastening conditions and process.
The output torque is high Screws are tightened too much	Have you considered the occurrence of vibration or outside force?	Loosening of screw occurs if no measures are taken for vibration or outside force. Take appropriate loosening prevention measures.
	Did you check the correlation between the output torque occurred on screws and the output torque measured using a measurement device?	The output torque occurred on screws and the output torque measured by the measurement device are different. Adjust the output torque according to the screw fastening conditions. (p. 4)
	Have you attached a heavy jig or a jig having a large radius at the end?	After the torque reaches the set torque, the inertial force of the jig might have been transmitted to screws. Review the jig and reduce the weight or size of the jig.
The torque scale and output torque do not match	The torque scale is a standard. The output torque range is not guaranteed. The output torque range sometimes differs from the scale but this is not a product error. (p. 5)	

Symptoms	Location to investigate	Solution
The electric screwdriver gets hot	Is the ON time of the electric screwdriver too long? Alternatively, is the OFF time too short?	Review the operation time. The rated operating time is 0.5 sec. ON and 3.5 sec. OFF. Aim at 15 screws per minute. (p. 4)
	Is the input voltage 115 V AC?	Check the input voltage.
	Even though the output torque is set to the specification lower limit value, does the screwdriver get hot to a level where you cannot touch it?	When the output torque becomes higher, the electric screwdriver becomes hot. If it gets hot to a level where you cannot touch even with the specification lower limit value, a failure is suspected.
The rotation speed is not stabilized.	Is the electric screwdriver heating up? Is it the same electric screwdriver?	The specification value of the rotation speed is a standard. The rotation speed could change due to temperature or mechanical loss of the main unit or grease conditions. Also, it differs by the unit. (p. 4)

Maintenance and inspection

Store the tool according to the following warnings and cautions.

⚠ WARNING

- When performing maintenance and inspection, always disconnect the power plug from the outlet.
- Do not disassemble or alter the tool.
- Use genuine parts.

⚠ CAUTION

- For repair or part replacement, ask your dealer.
Repair requires special knowledge and skills. If repair is performed at a place other than a specialty store, the tool may not demonstrate its full performance or it could lead to an accident or injury.
- Request repair with the failed status kept intact.
When requesting a repair, do not throw away damaged parts. It could be important information for investigating the failure cause so do not change the status.

For the purpose of making proper use, request the following check and maintenance by an authorized service facility.

Routine inspections and Parts to be replaced	DLV30A series				DLV45A series, DLV70A series			
	Number of Tightening (million)							
	0.5	1.0	1.5	2.0	0.25	0.5	0.75	1.0
Routine inspection								
(1) Operation check	○	○	○	○	○ ^{*1}	○ ^{*1}	○ ^{*1}	○ ^{*1}
(2) Grease-up				○		○ ^{*2}		○ ^{*1}
Parts to be replaced								
(1) Motor assembly				○		○ ^{*2}		○ ^{*1}
(2) Gear				○		○ ^{*2}		○ ^{*1}
(3) Rollers and Balls				○		○ ^{*2}		○ ^{*1}
(4) Bearing				○		○ ^{*2}		○ ^{*1}

*1: DLV45A series, DLV70A series

*2: DLV70A series

Inspection locations	CAUTION
Cable	Failure to perform inspection could result in fire or electric shock. <ul style="list-style-type: none"> ● Check if cables are damaged and if found, stop using the tool. ● Do not store the cord by wrapping it around the main unit. If it is stored with the cable wrapped around the main unit, immediately change the storage method.
Power plug	Failure to perform inspection could result in fire or electric shock. <ul style="list-style-type: none"> ● Check for damage on the power plug. If damaged, stop using it. ● Check if the power plug has dust or metallic material adhering to it. If attached, disconnect the power plug and use a dry cloth to remove it. ● Check that the power plug is properly inserted into the outlet all the way to the base. ● Check for play in the power plug and outlet.
Bit	<ul style="list-style-type: none"> ● Check for wear or damage on the bit end. Using the tool as is, the screw head could be damaged or torque may not be transmitted. Replace with a new bit.
Main unit	<ul style="list-style-type: none"> ● Check for damage, cracks or breaks on the main unit. ● Check the screws on the main unit (including accessory Pistol Grip). If screws are loose, tighten them.
Output torque	<ul style="list-style-type: none"> ● Use a combination of NITTO KOHKI's measuring devices to measure the output torque. ● If the output torque value has decreased, turn the torque adjustment ring to adjust the torque.
Care	<ul style="list-style-type: none"> ● If the main unit is stained, use a cloth soaked in soapy water and wrung out well to wipe off the stain. The tool does not have a waterproof structure and if water enters inside, it could fail. ● Because the main unit uses plastic, the following chemicals cannot be used. Acetone, benzine, thinner, ketone, ether, trichlorethylene and other similar chemicals

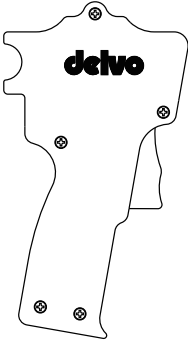
Disposal

- Separate power tools, accessories, and packing materials for environmentally-friendly recycling.
- Do not dispose of the power tool as household garbage.
- When disposing of electric tools, give them to NITTO KOHKI or your dealer.
- Within the EU region, Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC is rolled out in domestic laws and it is prescribed to separately collect power tools, which are recycled and reused.



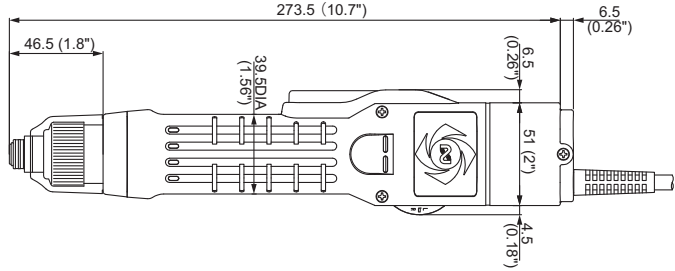
Separately-sold products

The following products are sold separately. To purchase these items, please contact your dealer where you purchased your electric screwdriver.

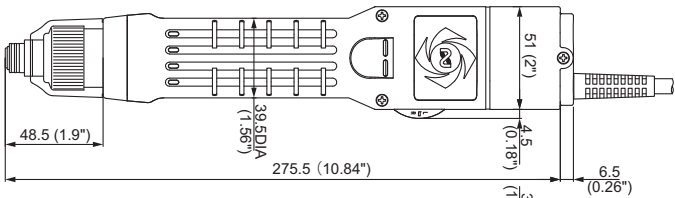
Product name (model)	Appearance	Specification, etc.
<p>Pistol Grip (DLW2300)</p>		<p>Grip used for reaction force measures or transverse tightening</p> <ul style="list-style-type: none"> ● DLV45A/DLV70A series standard accessories ● Can be used for DLV30A series as well

External dimensions

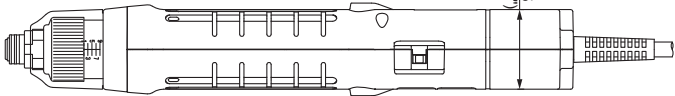
Front view
DLV30A06L-AD
DLV30A12L-AD
DLV30A20L-AD



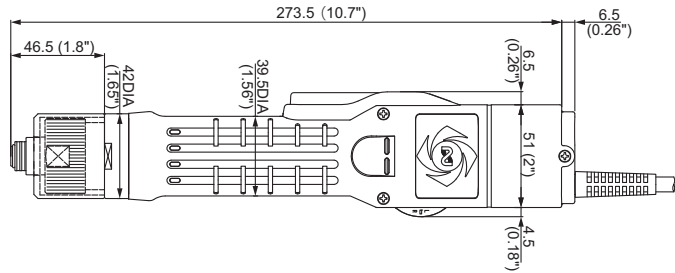
Front view
DLV30A06P-AD
DLV30A12P-AD
DLV30A20P-AD



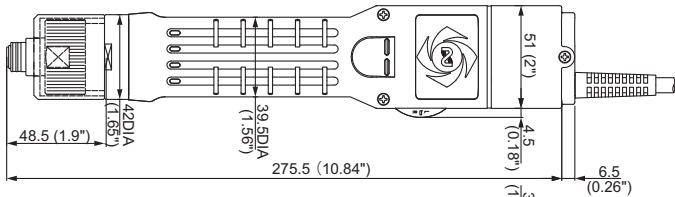
Side view
Common to DLV30A



Front view
DLV45A06L-AD
DLV45A12L-AD
DLV70A06L-AD



Front view
DLV45A06P-AD
DLV45A12P-AD
DLV70A06P-AD



Side view
Common to DLV45A
Common to DLV70A

