

600A AC CLAMP METER AUTO RANGING

PART NO:
TTICM1000V
(..151477)



**TO PREVENT SERIOUS INJURY, READ
AND UNDERSTAND ALL WARNINGS
AND INSTRUCTIONS BEFORE USE.**

OPERATING INSTRUCTIONS

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INTRODUCTION

TTTICM1000V is a true RMS (6000 count) auto ranging digital clamp meter with simulation bar. This meter measures AC Current, AC/DC Voltage, Resistance, Capacitance, Diode Test, Continuity and Non Contact Voltage detection.

The instruction manual includes relevant safety information and warning indication, please read them carefully and strictly observes all warnings and notes.

INTENDED USE

The clamp meter is to be used only for electrical inspection within the specifications the device is rated for. Failure to use the device within the specifications may result in serious injury or death.

PRODUCT CONTENTS



CAUTION

The supplied test leads are used for MAINS measurements CATII 1000V, CATIII 600V according to IEC 61010-031

Unpack ensure the following attachments are complete or intact.

1. Operating instruction manual
2. Test Leads
3. TTTICM1000V Clamp Meter

GENERAL SAFETY

Prior to using the clamp meter, please read the product manual and ensure you have a solid understanding of the devices functions and features.



WARNING

The warnings, cautions, and instructions discussed in this instruction manual cannot cover all possible conditions or situations that could occur. It must be understood by the operator that common sense and caution are factors that cannot be built into this product, this must be supplied by the operator.

SAFETY INSTRUCTIONS

SAFE OPERATION AND STANDARDS

This Meter complies with IEC 61010-1, Pollution Degree 2, Over voltage Category (CATII 1000V, CATIII 600V) and Double Insulation standards.

Anyone using this instrument should be knowledgeable and trained about the risks involved with measuring voltage, especially in an industrial setting, and the importance of taking safety precautions and of testing the instrument before and after using it to ensure that it is in good working condition.

This product has been tested to the requirements of IEC 61010

CAT II: Applicable to test and measuring circuits connected directly to utilization points (socket outlets and similar points) of the low-voltage MAINS installation.












CAT III: Applicable to test and measuring circuits connected to the distribution part of the building's low-voltage MAINS installation.

- Check the clamp meter and test leads before using, guard against any damage. If any abnormalities or damage are found, do not use the clamp meter. Carefully examine the insulation around the jaws.
- Inspect the test leads for damaged insulation or exposed wires. Check test leads continuity. Replace damaged test leads with leads that are suitable to the meter that meet or exceed the safety requirements.
- Comply with local and national safety codes. Use personal protective equipment (approved rubber gloves, face protection, and flame-resistant clothes) to prevent shock and arc blast injury where hazardous live conductors are exposed.
- Do not use in CAT III environments without the protective cap of test probe, The protective cap decreases the exposed probe metal < 4mm. This decreases the possibility of arc flash from short circuits.
- Measure a known voltage first to make sure that the meter operates correctly.
- When using the test leads, ensure leads are fully seated and keep your fingers behind the finger guards. Do not contact the bare wire and connector, unused input terminal or the circuit being measured when clamp meter is in operation.
- Do not use the clamp meter without having rear cap and battery cover in place, otherwise electric shock may occur.
- To avoid false readings that can lead to electrical shock and injury, replace the batteries as

soon as the low battery indicator appears. Remove all probes, test leads, and accessories before replacing batteries.

- Hold the meter behind the clamp body as specified in “external overview”.
- Connect the common test lead before the live test lead and remove the live test lead before the common test lead.
- Function selector shall be set at the correct position prior to measurement. Do not change selector settings while measuring to guard against damage to the meter.
- Refrain from applying voltage over DC1000V/AC750V between the clamp meter terminals and ground to guard against electric shock and clamp meter damage.
- Do not touch voltages >30 V ac rms, 42 V ac peak, or 60 V dc.
- When the meter is working at an effective voltage over 60V in DC or 30V rms in AC, special care should be taken as there is danger of electric shock.
- Do not apply more than the rated voltage, between the terminals or between each terminal and earth ground.
- Do not measure current in circuits carrying more than 600A with the meter jaw.
- Do not measure voltage or current higher than the allowable input value.
- Disconnect circuit power and discharge all high-voltage capacitors before you measure resistance, continuity, or capacitance.
- Do not modify the internal wiring in the meter to guard against damage to the meter and danger.
- Do not use the HOLD function to measure unknown potentials. When HOLD is turned on, the display does not change when a different potential is measured.
- Do not store or use clamp meter in an explosive or flammable environment, high temperature, high humidity or strong electromagnetic field.
- Clean the clamp meter case with soft cloth and neutral detergent. To prevent causing corrosion to the case, or damage to the instrument do not use abrasives or solvents. Make sure all water is removed before use.

ELECTRICAL SYMBOLS

	Double insulation		Diode measurement
	Grounding		AC or DC (alternating current or direct current)
	Warning		High voltage hazard
	AC (alternating current)		Continuity measurement
	DC (direct current)		This symbol signifies product complies with Australian requirements
	Capacitance		

GENERAL SPECIFICATIONS

- Display count: approx. 6000
- Sampling rate: 3/s approx.
- Sensor type: coil induction
- Maximum jaw opening: 30mm
- Power supply: 3xAAA 1.5V batteries
- Dimension: 228mm x77mm x41mm

EXTERNAL OVERVIEW

1. Clamp
2. Clamp body: Designed to protect operator from touching the dangerous area.
3. Clamp Trigger: Press to open clamp
4. Function Selector
5. LCD display.
6. Function key: Select basic functions.
7. Terminal inputs: Input test leads to measure via test lead











FUNCTION DIAL OVERVIEW

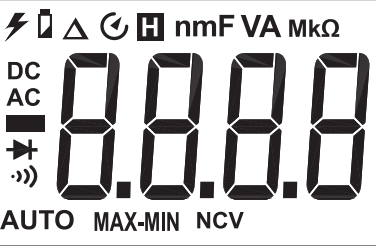
POSITION	DESCRIPTION	
V_{DC}	DC voltage measurement	
V_{AC}	AC voltage measurement	
A_{AC}	AC current measurement	
A_{DC}	DC current measurement	
NCV	Non-contact voltage measurement	
Diode symbol	Diode measurement	
Continuity symbol	Continuity measurement	
Ω	Resistance measurement	
Capacitor symbol	Capacitance measurement	
OFF	Shut-down	

BUTTONS OVERVIEW

BUTTON	DESCRIPTION
	Pressing select allows you to cycle through the options of each function of the multimeter.
	A short press of the HOLD button once will enter data measurement hold mode, press again to exit the data measurement hold mode. A long press of this button will turn the backlight on, if pressed long again it will turn off backlight.
	Short press of this button will enter the maximum/minimum measurement mode and long press will exit the function.
	Press once, LCD will display "MAX" to enter maximum measurement mode, press again, LCD will display "MIN" to enter minimum measurement mode. A long press of this button will exit MAX/MIN. It is only valid for AC voltage, AC current, resistance.

LCD SCREEN OVERVIEW

SYMBOL	DESCRIPTION
	Caution AC/DC voltage is higher than 30V
	Data hold
	Negative reading
AC/DC	AC/DC measurement
	Low battery indicator
	Diode measurement
	Continuity measurement
	Relative value measurement
Ω, kΩ, MΩ	Resistance unit
mV, V	Voltage unit
μA, mA, A	Current unit
nF, μF, mF	Capacitance unit
NCV	Non-contact voltage measurement
AUTO	Auto ranging
	Auto power off



The LCD screen displays the following elements from top to bottom: a lightning bolt symbol, a battery level indicator, a triangle symbol, a circular arrow symbol, a data hold symbol, and measurement units 'nmF VA MκΩ'. Below these is a four-digit display showing '0.000'. To the left of the display are labels 'DC' and 'AC'. Below the display are symbols for diode measurement and continuity measurement. At the bottom, the text 'AUTO MAX-MIN NCV' is displayed.

OTHER FUNCTIONS

Flash Light A press of this button will turn the flashlight on, helping illuminate the desired workplace. Pressing the light button will turn off the flashlight.

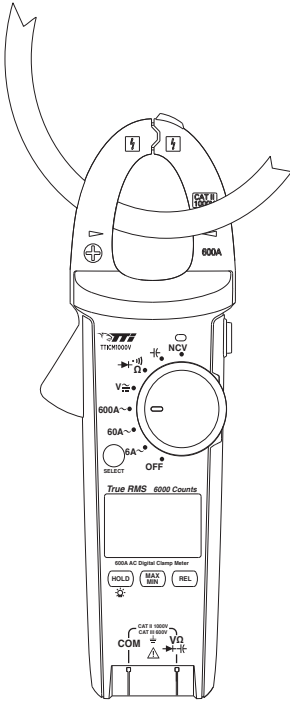
OPERATING INSTRUCTIONS

AC CURRENT MEASUREMENT

1. Set function selector to **A \sim** , open the meter jaw and clamp the conductor to be measured. Be sure the conductor to be measured is clamped at the centre of the clamp.
2. Care should be taken to ensure that the clamp is completely closed.
3. The current measurement will be shown in the display.

⚠ NOTE:


- Disconnect test leads when measuring with the clamp.

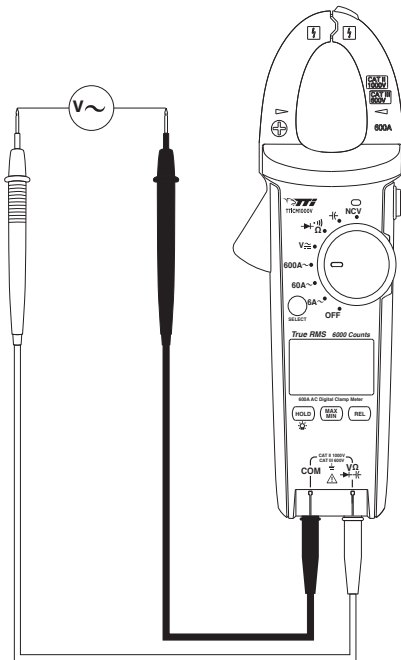


AC VOLTAGE MEASUREMENT

1. Connect common test lead to the COM terminal, then insert the red test lead to V Ω \rightarrow \leftarrow terminal.
2. Set the function selector to the V \sim setting and connect the test lead in parallel with the power or load to be measured.
3. The meter will auto-range to display the most appropriate measurement.

NOTE:

- Do not input voltage higher than AC 750V as damage to the meter may result.
- After completing all measurement operations, disconnect the test lead from the measured circuit.
- When measured voltage is higher than the safety voltage 30V AC, the meter displays the high voltage warning prompt "
- When measured voltage is higher than 750V AC, the meter beeps and displays the high voltage warning prompt.

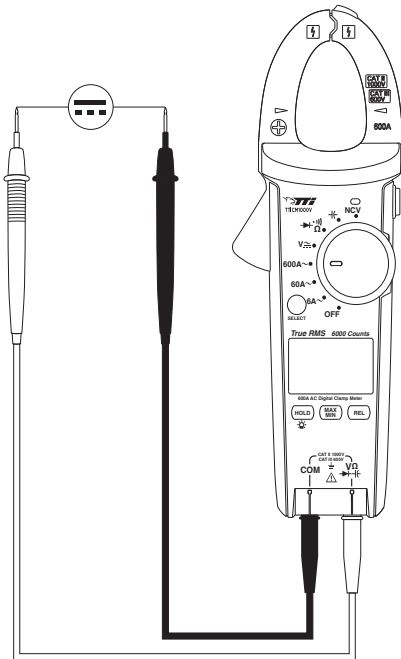


DC VOLTAGE MEASUREMENT

1. Connect common test lead to the COM terminal, then insert the red test lead to V Ω \rightarrow \rightarrow \rightarrow terminal.
2. Set the function selector to **V** and connect the test lead in parallel with the power or load to be measured.
3. The meter will auto-range to display the most appropriate measurement.

NOTE:

- Do not input voltage higher than 1000V as damage to the meter may result.
- When measuring at mV range, relative mode must be used.
- After completing all measurement operations, disconnect the test leads from the measured circuit.
- When the measured voltage is higher than the safety voltage 30V DC, the meter displays high voltage the warning prompt "⚠"
- When measured voltage is higher than 1000V DC, the meter beeps and displays the high voltage warning prompt.



RESISTANCE MEASUREMENT



WARNING

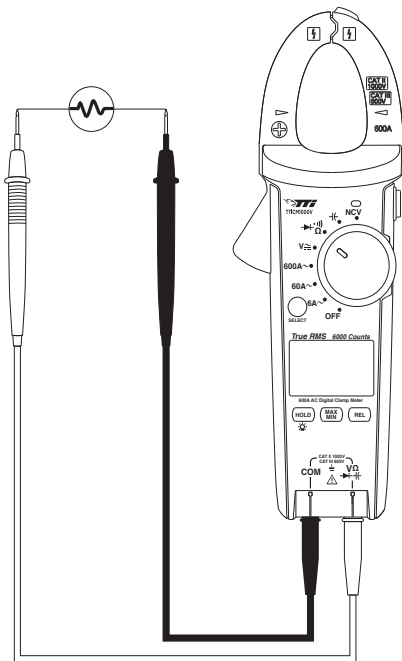
- To avoid damaging the meter or to the device under test, disconnect circuit power and discharge all the high-voltage capacitors before measuring resistance.
- To avoid electric shock, do not input higher than DC 60V or AC 30V voltages.

1. Connect common test lead to the COM terminal, then insert the red test lead to V Ω \rightarrow terminal.
2. Set the function selector to the measurement setting Ω , press **SELECT** until the resistance icon Ω appears on the display.
3. Ensure all power is off in the circuit being measured and that all capacitors have been discharged.
4. Measure resistance by connecting test leads to circuit.



NOTE:

- If the resistance open circuit or resistance being measured exceeds the maximum range of the meter, display will show "OL".



CONTINUITY TESTING



WARNING

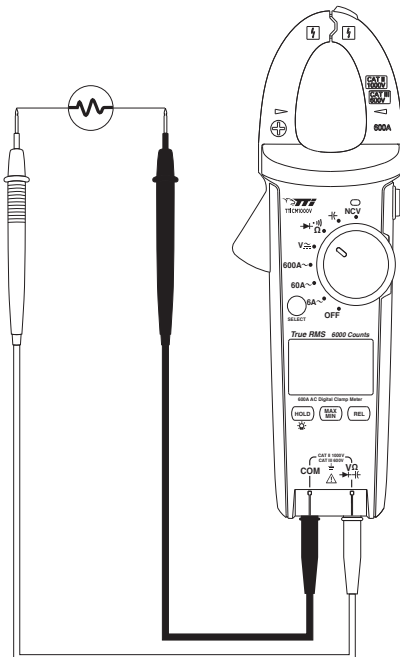
- To avoid damaging the meter or to the device when testing, disconnect circuit power and discharge all the high-voltage capacitors before testing for continuity.
- To avoid electric shock, do not input higher than DC 60V or AC 30V

1. Connect common test lead to the COM terminal, then insert the red test lead to V Ω \rightarrow \rightarrow \rightarrow terminal. Set the function selector to the measurement setting \bullet \bullet \bullet
2. Press **SELECT** until the screen displays \bullet \bullet \bullet
3. Ensure all power is off in the circuit being measured and that all capacitors have been discharged.
4. Measure continuity by connecting test leads to circuit.
5. When the measured resistance between two terminals is $< 30 \Omega$, the circuit should be deemed conductive, the buzzer will sound continuously.



NOTE:

- After completing all measurement operations, disconnect the test leads from the measured circuit.



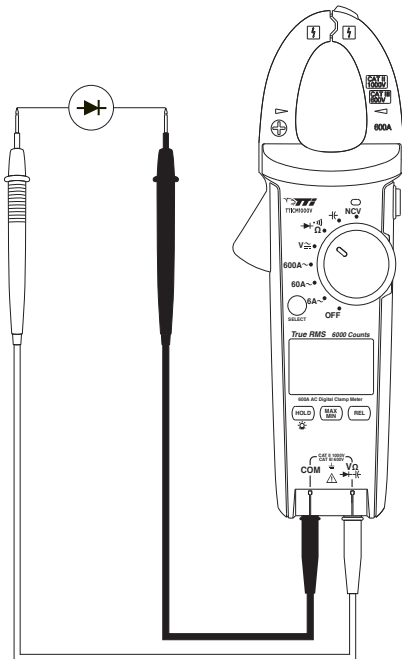
DIODE TESTING



WARNING

- To avoid possible damage to the meter and to the device under test, disconnect circuit power and discharge all high-voltage capacitors before testing diodes.
- To avoid electric shock, do not input higher than DC 60V or AC 30V

1. Connect common test lead to the COM terminal, then insert the red test lead to $V \Omega$ terminal. Polarity of red and black test leads is respectively "+" and "-".
2. Set the function selector to the measurement setting
3. Press **SELECT** until the screen displays
4. Ensure all power is off in the circuit being measured and that all capacitors have been discharged.
5. Touch test leads to diode. A reading of 500-800mV on the display indicates forward bias, "OL" indicates reverse bias. An open device will show "OL" in both polarities and a shorted device will show approximately 0mV.



CAPACITANCE MEASUREMENT



WARNING

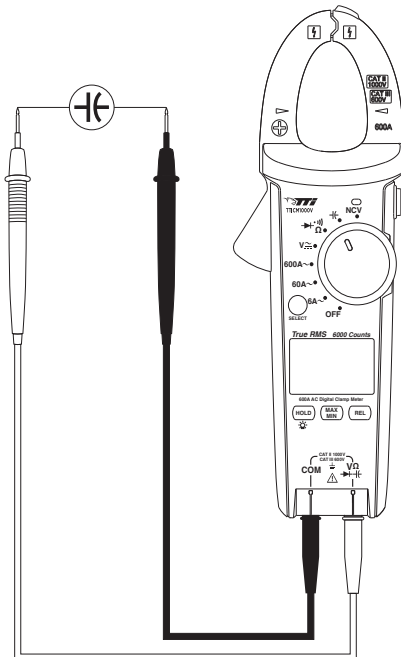
To avoid possible damage to the meter and to the device under test, disconnect circuit power and discharge all high-voltage capacitors before measuring capacitance. Use the DC Voltage function to confirm that the capacitor is discharged.

1. Connect common test lead to the COM terminal, then insert the red test lead to V Ω \rightarrow \rightarrow \rightarrow terminal. Measure by REL mode.
2. Push the range switch to the measurement setting \rightarrow
3. Press **SELECT** to select \rightarrow , connect test leads in parallel with the two terminals of measured capacitance.
4. Ensure all power is off in the circuit being measured and that all capacitors have been discharged.
5. Touch test leads to the capacitor



NOTE:

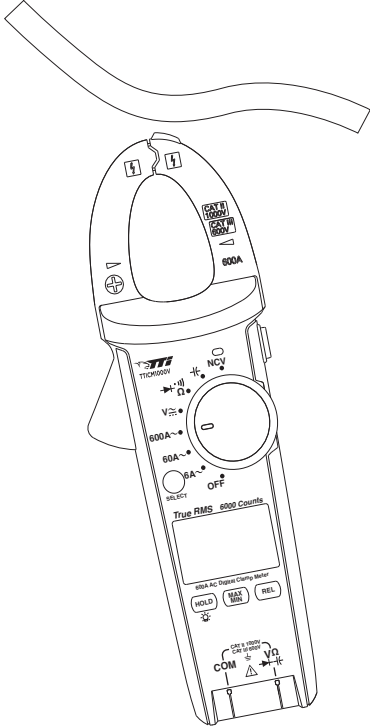
- If the measured capacitor is short circuited or the capacitance exceeds the maximum range of the meter, the display will show "OL". It will take a longer time to achieve the correct reading when measuring capacitance larger than 600 μ F



NON-CONTACT AC VOLTAGE DETECTING (NCV)

In order to sense whether there is AC voltage or electromagnetic field in this space, place the front end of the clamp meter near the conductor to be tested (distance <10mm).

When an electric field voltage is detected (100vRMS), the meter will beep with a red light above the NCV dial.



TECHNICAL INDEX

ENVIRONMENTAL CONSTRAINT

WORKING HEIGHT	Indoor altitude 2000m
POLLUTION GRADE	2
OPERATING HUMIDITY & TEMPERATURE	0°C~30 °C (not bigger than 80%RH) 30°C~40°C (not bigger than 75%RH) 40°C~50°C (not bigger than 45%RH)
STORAGE HUMIDITY & TEMPERATURE	-20°C~60°C (not bigger than 80%RH)

ELECTRICAL SPECIFICATION AC

RANGE	RESOLUTION	ACCURACY	OVERLOAD PROTECTION
6A	0.001A	±(2.5%+30)	600A

AC VOLTAGE MEASUREMENT

RANGE	RESOLUTION	ACCURACY	OVERLOAD PROTECTION
6V	0.001V	±(1.2%+5)	1000V DC 750V AC
60V	0.01V		
600V	0.1V		
750V	1V	±(1.5%+5)	

- Display: Voltage true value; applicable for range 10% to 100%
- Voltage: Input impedance > 10 MΩ
- Frequency response: 40~400Hz

DC VOLTAGE MEASUREMENT

RANGE	RESOLUTION	ACCURACY	OVERLOAD PROTECTION
600mV	0.1mV	±(1.0%+8)	1000V DC 750V AC
6V	0.001V	±(0.8%+1)	
60V	0.01V	±(0.8%+3)	
600V	0.1V		
1000V	1V	±(1.0%+3)	

Input impedance > 10MΩ

RESISTANCE MEASUREMENT

RANGE	RESOLUTION	ACCURACY	OVERLOAD PROTECTION
600Ω	0.1Ω	±(1.2%+2)	1000V DC 750 V AC
6kΩ	0.001kΩ	±(1.0%+2)	
60kΩ	0.01kΩ		
600kΩ	0.1kΩ		
6MΩ	0.001MΩ	±(1.2%+2)	
60MΩ	0.01MΩ	±(1.5%+5)	

CAPACITANCE MEASUREMENT

RANGE	RESOLUTION	ACCURACY	OVERLOAD PROTECTION
99.99nF	0.01nF	±(4.0%+25)	1000V DC 750V AC
999.99nF	0.1nF	±(4.0%+5)	
9.999nF	0.001nF		
99.99nF	0.01nF		
999.9nF	0.1nF		
9.999nF	0.001nF	±(10%)	
59.99nF	0.01nF	For reference only	

NCV MEASUREMENT

RANGE	ACCURACY
NCV	>100Vrms ; <10mm (LED/Buzzer indication)

CONTINUITY MEASUREMENT

RANGE	RESOLUTION	ACCURACY	OVERLOAD PROTECTION
600Ω	0.1Ω	Buzzer beeps when <30Ω	1000V DC 750V AC
		Open-circuit voltage is about 1.2V	

DIODE MEASUREMENT

RANGE	RESOLUTION	OVERLOAD PROTECTION
6V	0.001V	1000V DC 750V AC

POWERING OFF

To power off the clamp meter, move the function selector to the off position. Power off the device after each use to conserve battery.

The clamp meter will auto power off if not used for 15min. To wake up the clamp meter, press any button or move the function dial.

MAINTENANCE



WARNING

Do not attempt to repair or service the meter unless you are qualified to do so and have the appropriate calibration, performance test and service tools. If not, consult you Total Tools store for repair/service.

- Periodically wipe the case with a damp cloth and mild detergent. Do not use abrasives or solvents.
- Turn off the power of the meter when it is not in use.
- Remove the battery when the unit won't be in use for extended periods.
- Do not use or store the meter in an environment of high temperature, humidity, explosive, inflammable and strong magnetic field. The performance of the meter may deteriorate after dampened.

INSTALLATION OR REPLACEMENT OF BATTERY

3 x AAA 1.5V batteries will provide power for this product. Replace battery as follows:

1. Shut down the clamp meter, unplug all any leads from the device
2. Remove the screw from the battery cover on the rear of the device.
3. Replace the batteries currently installed and insert new AAA batteries noting polarity.
4. Replace the battery cover and re-install the battery cover screw.

1 year
guarantee 

WARRANTY INFORMATION

This warranty is provided by Total Tools (Importing) Pty Ltd of 20 Thackray Road, Port Melbourne VIC 3207. Phone: 03 9261 1900 (we, us, our).

Express Warranty

Subject to the exclusions set out below, we warrant that this product will be free from defects in materials or workmanship for 12 months from the date of purchase.

The benefits conferred by this warranty are in addition to all rights and remedies which you may be entitled to under the Australian Consumer Law, and any other statutory rights you may have under other applicable laws. This warranty does not exclude, restrict or modify any such rights or remedies.

Warranty exclusions

This express warranty does not apply where a defect or other issue with the product is caused by normal wear and tear, misuse or abuse of the product.

Consumer guarantees

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage.

You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

Warranty claims

To make a claim under this warranty, you must bring the product along with the proof of purchase and any other documentary evidence which you think is relevant to the Total Tools' place of purchase where the claim will be handled on our behalf. Any cost incurred by you in bringing the product to the place of purchase will be borne by you.

To make a claim under this warranty, the product and proof of purchase must be returned to the Total Tools place of purchase during the warranty period specified above.

If your warranty claim is accepted, we (or the Total Tools store that handles the claim on our behalf) will, at our discretion, repair or replace the product, or refund money to you and take back the product.