



ADVANCED  
BOLTING  
TECHNOLOGY



PNEUMATIC



ELECTRONIC



BATTERY



ELECTRIC



SMART SOCKET

[WWW.RADTORQUE.COM](http://WWW.RADTORQUE.COM)

# PNEUMATIC SERIES USER MANUAL

# RAD TORQUE SYSTEMS

## PNEUMATIC SERIES



- **PATENTED PLANETARY GEAR REDUCTION**  
Delivers one of the highest power-to-weight ratios of any pneumatic controlled bolting system
- **SMOOTH CONTINUOUS FLOW OF CONTROLLED TORQUE**  
Eliminates destructive hammering
- **LIGHTWEIGHT ERGONOMIC PISTOL GRIP DESIGN**  
Reduces operator strain and injury; resulting in increased productivity
- **UNMATCHED RELIABILITY AND QUALITY**  
Delivered by one of the most advanced engineered gear boxes on the market

## ELECTRONIC SERIES E-RAD



- **PUSH-BUTTON SELECT TORQUE**  
Fast and convenient error-free digital single increment torque settings
- **DIGITAL TORQUE CONSOLE DISPLAY**  
Maximum accuracy by seeing the set torque value and the actual delivered torque value
- **LIGHTWEIGHT AND ERGONOMIC PISTOL GRIP DESIGN**  
Advanced low-profile handle to reduce operator fatigue and increase productivity
- **EXTREMELY LOW NOISE LEVEL ONLY 75DB**  
World's quietest extreme torque gun, ideal for sensitive environments and standards
- **LED GREEN (PASS) OR RED (FAIL) INDICATOR LIGHTS**  
Unmistakable visual signal indicates status of torque procedure for maximum accuracy and speed

## BATTERY SERIES B-RAD



- **QUICK ADJUST TORQUE SETTINGS**  
Fast and accurate "dial a torque" for maximum versatility and efficiency
- **SOFT-START VARY SPEED TRIGGER**  
Allows operator to safely and quickly set reaction arm before full torque is applied
- **EQUAL POWER IN FORWARD AND REVERSE**  
Convenience and cost effective use of same tool for break away and final torque
- **IMAGINE THE FREEDOM - NO AIR LINES, NO POWER CORDS!**  
The lightweight design of the B-SERIES makes it ideal for any application, especially where compressed air and electricity are not readily available.
- **ADVANCED GEARBOX DESIGN**  
PATENTED planetary gear reduction drive system delivering one of the highest power-to-weight ratios of any controlled bolting system

## ELECTRIC SERIES V-RAD



- **QUICK ADJUST TORQUE SETTINGS**  
Fast and accurate "dial a torque" for maximum versatility and efficiency
- **SOFT-START VARY SPEED TRIGGER**  
Allows operator to safely and quickly set reaction arm before full torque is applied
- **EQUAL POWER IN FORWARD AND REVERSE**  
Convenience and cost effective use of same tool for break away and final torque
- **ADVANCED ULTRA-DURABLE ELECTRIC MOTOR DESIGN**  
Extreme duty designed to reduce maintenance cost and increase reliability
- **ADVANCED GEARBOX DESIGN**  
Patented planetary gear reduction drive system delivering one of the highest power-to-weight ratios of any controlled bolting system

## SMART SOCKET™ SERIES



- **MEASURE AND DISPLAY PEAK TORQUE**  
Transducer technology combined with a custom socket measures the actual torque applied to the bolt during a torque cycle.
- **PASS OR FAIL INDICATION**  
Unmistakable digital signal indicates peak torque achieved for maximum accuracy
- **BLUE TECHNOLOGY**  
View and download logs onto your smartphone or tablet
- **IDEAL ON SITE CALIBRATION TOOLS**  
Comparable in size to a standard socket, it's the perfect tool for inspecting bolted joints and can function as a master calibrator for your torque tools

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## IMPORTANT SAFETY NOTICE

**RAD TOOLS ARE SAFE AND RELIABLE. NOT FOLLOWING PRECAUTIONS AND INSTRUCTIONS OUTLINED HERE CAN RESULT IN INJURY TO THE TOOL, OPERATOR AND FELLOW WORKERS.**

**NEW WORLD TECHNOLOGIES INCORPORATED IS NOT RESPONSIBLE FOR ANY SUCH INJURY.**

The intended use of the RAD® Pneumatic Tool System is for commercial and industrial bolting applications.

Do not operate the RAD® Pneumatic Tool System before reading and understanding this user manual and noting the Safety Notices displayed on the RAD® Pneumatic Tool System and throughout this manual.

Only qualified personnel with training in the safe operation of torque tooling and the RAD® Pneumatic Tool System should attempt the installation, operation and diagnosis of the RAD® Pneumatic Tool System.

The RAD® Pneumatic Tool System is connected to high voltage power and consists of external rotating parts. Improper training and use can cause serious or fatal injury.

Do not disassemble or attempt to repair the RAD® Pneumatic Tool System; doing so will void warranty. If breakdown, malfunction or damage occurs and the RAD® Pneumatic Tool System fails to operate correctly, contact New World Technologies Inc. Technical Support (refer to Section 6.0 – Contact Us).

The RAD® Pneumatic Tool System should only be used if environmental storage and operation specifications have been met. Refer to Section 1.2.3 – Environmental Specifications.

Electrical Shock can cause serious or fatal injury. Do not apply power to the RAD® Pneumatic Tool System without verifying the Earth Ground.

Ensure all AC Mains Power wiring to the RAD® Pneumatic Tool System comply with all National and Local Electrical Codes. Improper wiring may result in unsafe conditions for equipment and personnel.

Do not operate the RAD® Pneumatic Tool System in explosive atmospheres, including, but not limited to, the presence of flammable liquids, gases or dust. The RAD® Pneumatic Tool System creates sparks which could ignite these substances.

Do not expose the RAD® Pneumatic Tool System to wet conditions. Water in the RAD® Pneumatic Tool System will cause damage to the tool and increase the risk of electric shock.

While operating the RAD® Pneumatic Tool System, always wear safety goggles and keep all body parts clear of moving parts and the reaction arm contact point.

Never exceed the Maximum Torque of the RAD® Pneumatic Tool System. Failure to comply, will result in void warranty.

The RAD® Pneumatic Tool System has been calibrated by a qualified Calibration Technician. Calibration must be done by a qualified Calibration Technician. Improper calibration can cause damage to the tool and joint.

## 1.0 General Information

### 1.1 System Components

The RAD® Pneumatic Tool System is shipped from New World Technologies Inc. in a tool regulator cage with the following parts:

- RAD® Pneumatic Tool (Figure 1.1-1)
- Standard Reaction Arm and Snap Ring (Figure 1.1-2)
- Calibration Certificate
- User Manual
- Computer Based Training CD (CBT)



Figure 1.1-1: RAD® Pneumatic Tool

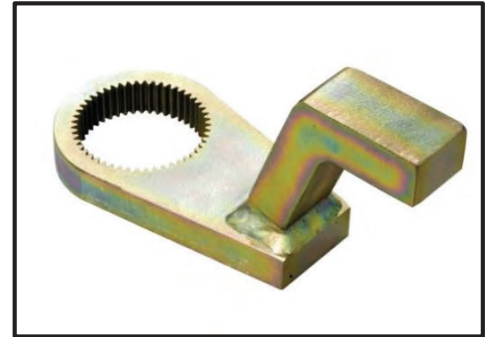


Figure 1.1-2: Standard Reaction Arm

**Note:** Some distributors may ship additional parts along with the RAD® Pneumatic Tool System.

## 1.2 Specifications

### 1.2.1 Metric Specifications

The following table outlines the torque ranges, in Newton-Meters, of each RAD® Pneumatic Tool System:

Tool Model	Torque Range	Noise Level	Vibration
10GX	150 – 950 Nm	80 db	<2.5 m/s <sup>2</sup>
10GX-R	400 – 950 Nm	80 db	<2.5 m/s <sup>2</sup>
14GX	275 – 1350 Nm	80 db	<2.5 m/s <sup>2</sup>
14GX-2	450 – 1350 Nm	80 db	<2.5 m/s <sup>2</sup>
14GX-NX	275 – 1350 Nm	80 db	<2.5 m/s <sup>2</sup>
20DX	400 – 2000 Nm	80 db	<2.5 m/s <sup>2</sup>
20DX-2	700 – 2000 Nm	80 db	<2.5 m/s <sup>2</sup>
20DX-NX	400 – 2000 Nm	80 db	<2.5 m/s <sup>2</sup>
34GX	700 – 3400 Nm	85 db	<2.5 m/s <sup>2</sup>
34GX-2	950 – 3400 Nm	80 db	<2.5 m/s <sup>2</sup>
46GX	1400 – 4600 Nm	85 db	<2.5 m/s <sup>2</sup>
80DX	2700 – 8000 Nm	85 db	<2.5 m/s <sup>2</sup>
115GX	4100 – 11500 Nm	110 db	<2.5 m/s <sup>2</sup>
475SL	70 – 475 Nm	80 db	<2.5 m/s <sup>2</sup>
2400NG	700 – 2450 Nm	85 db	<2.5 m/s <sup>2</sup>
2400NGX-R	700 – 2450 Nm	85 db	<2.5 m/s <sup>2</sup>
6800	2000 – 6800 Nm	85 db	<2.5 m/s <sup>2</sup>

Table 1.2.1: Metric Specifications

### 1.2.2 Environmental Specifications

#### CAUTION!

Only operate the RAD® Pneumatic Tool System if the following environmental storage and operation specifications have been met.

Temperature Ranges	°C	°F
Operating Temperature	-20 – 40	-4 – 104
Storage Temperature	-25 – 70	-13 – 158
Humidity	10% to 90% non-condensing	
Shock	10G according to DIN IEC 68-2-6/29	
Vibration	1G, 10-150Hz according to DIN IEC 68-2-6/29	
Required Operating Conditions	Non explosive atmosphere Dry location	

Table 1.2.2: Environmental Specifications



## 2.0 Tool System

The following sections give a visual and functional description of the Tool Handle and Regulator Cage.

### 2.1 Tool Handle Description



### 2.2 Regulator Cage Description

#### AIR PRESSURE REGULATOR

To increase air pressure (and torque), turn the "T" handle clockwise

**NOTE: THE TOOL MUST ALWAYS BE RUNNING WHEN SETTING AIR PRESSURE**

#### 1/2" NPT INLET

Install your air supply to the 1/2" NPT female port in the regulator. A minimum 1/2" air line must be used capable of 100psi at 30 cfm.

#### TORQUE CHART

Always set air pressure with tool running

#### WARNING LABELS

**FILTER DRAIN VALVE**  
(bottom of air regulator and filter, accessed from under cage assembly)

#### RAD® TOOL STORAGE

#### 1/2" NPT OUTLET

Install the supplied airline to the 1/2" NPT outlet port on the automatic oiler. The quick connect fitting at the opposite end of the hose will be attached to the RAD® tool.

#### LIQUID FILLED PRESSURE GAUGE

#### AUTOMATIC OILER

Fill the automatic oiler with air tool oil only. Fill from the top, or by removing and filling the bowl, then reinstalling from the bottom.

#### AIR FILTER

## 3.0 General Operating Instructions

### WARNING!

Only qualified personnel with training in the safe operation of torque tooling and the RAD® Pneumatic Tool System should operate this tool. Refer to the Important Safety Notice for more information.

The RAD® Pneumatic Tool operates in Torque Cycles. The Torque Cycle passes when the Actual Torque reaches the Target Torque and the Cycle fails if it is interrupted and the Actual Torque does not reach the Target Torque.

This section instructs the operator in the assembly of the RAD® Pneumatic Tool, proper use of the Reaction Arm needed for the RAD® Pneumatic Tool operation and how to conduct a Torque Cycle.

### 3.1 Tool Assembly

1. Blow out hoses before connecting.
2. Connect the wrench Air Inlet (A) to the outside of the Cage Assembly, observing airflow direction.
3. Connect air supply to Inlet side of Cage Assembly using a minimum hose size of 1/2 inch.
4. Check oil level in lubricator and fill to correct level.
5. Attach Reaction Arm (B) to Spline or Serpentine (C) adjacent to the Output Drive (D) of the wrench and secure with circlip.

### 3.2 Reaction Arm

#### WARNING!

Always keep body parts clear of the Reaction Arm when the RAD® Pneumatic Tool System is in use. Serious injury could occur.

#### CAUTION!

Ensure the Reaction Arm has a solid contact point before operating the RAD® Pneumatic Tool System.

#### 3.2.1 Installing the Reaction Arm

Ensure the reaction arm and snap ring are installed securely to hold the reaction arm in place. Make sure the reaction arm is in contact with a solid reaction point before you operate the tool. Keep your body parts clear of the reaction arm when the tool is in operation.

When the tool is in operation the Reaction Arm rotates in the opposite direction to the Output Square Drive and must be allowed to rest squarely against a solid object or surface adjacent to the bolt to be tightened (Figure 3.2.1-1).

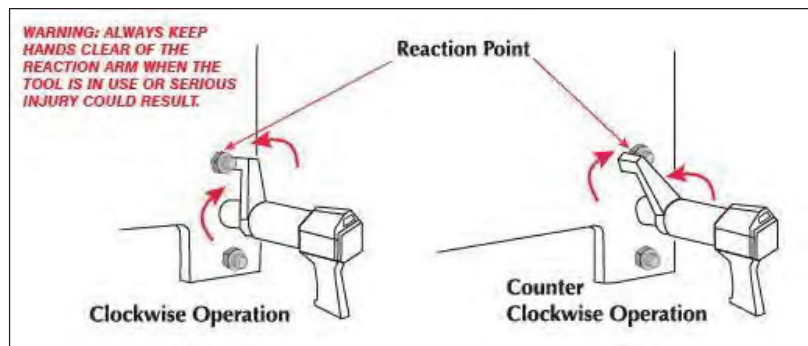


Figure 3.2.1-1: Reaction Point

**CAUTION!**

Keep your hand and body parts clear of the Reaction Arm and barrel when the tool is in operation.



Figure 3.2.1-2: Incorrect Placement of Hand/Body Parts During Operation

**3.2.2 Reaction Arm Height**

Ensure the height of the socket is even with the height of the Reaction Arm as seen below in Figure 3.2.2-1. The height of the socket cannot be shorter or higher than the height of the Reaction Arm as seen below in Figure 3.2.2-2.

**CORRECT:** The Reaction Arm and socket are even height.

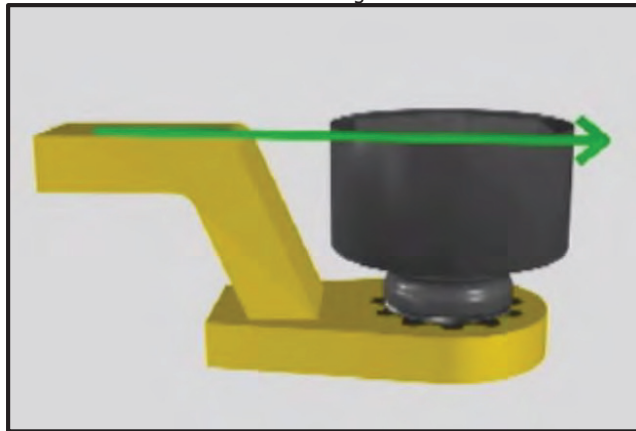


Figure 3.2.2-1: Correct Height

**INCORRECT:** The leg of the Reaction Arm is too short on the left side, and too long on the right side.

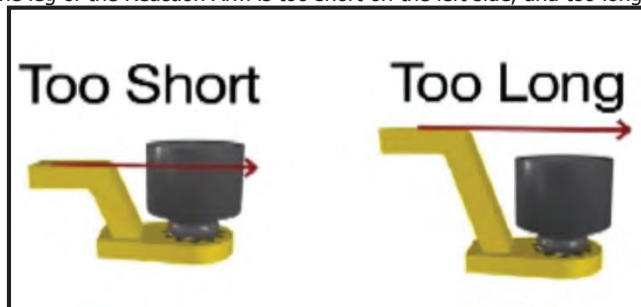


Figure 3.2.2-2: Incorrect Height

IMPROPER REACTION WILL VOID WARRANTY AND CAN CAUSE PREMATURE TOOL FAILURE.

**3.2.3 Reaction Arm Foot**

Ensure the foot of the Reaction Arm aligns with the length of the nut as seen in Figure 3.2.3-1. The length of the foot cannot be shorter or longer than the nut as seen in Figure 3.2.3-2.



**CORRECT:** The foot of the Reaction Arm aligns with the length of the nut.

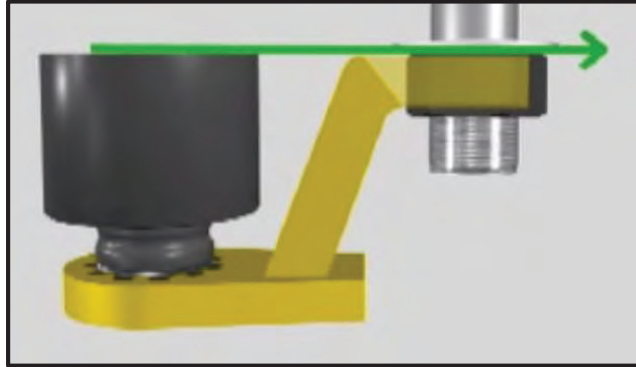


Figure 3.2.3-1: Correct Length

**INCORRECT:** The foot of the Reaction Arm is too short on the left side, and too long on the right side.

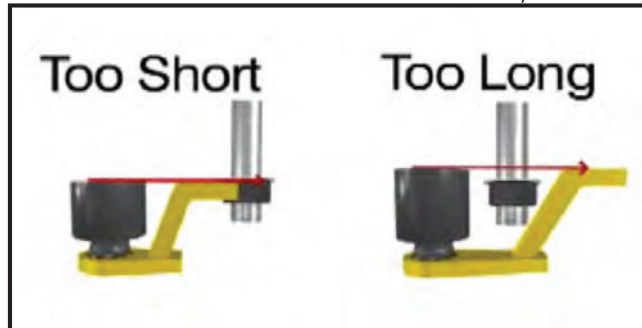


Figure 3.2.3-2: Incorrect Length

Please contact New World Technologies Inc or your local RAD Authorized distributor for custom Reaction Arms.

### 3.2.4 Reaction Points

Ensure the Reaction Arm reacts off the middle of the foot as seen in Figure 3.2.4-1. Do not react off the heel of the reaction foot as seen in Figure 3.2.4-2.

**CORRECT:** Reaction Arm is reacting off the middle of the Reaction Arm's foot.



Figure 3.2.4-1: Correct Reaction Point

**INCORRECT:** Reaction Arm is reacting off the heel of the reaction arm. This can cause premature tool failure.

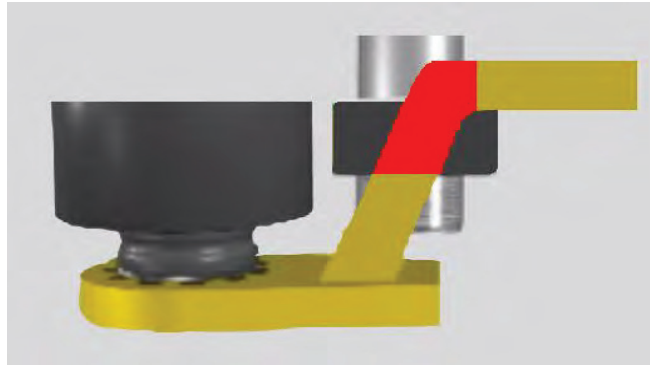


Figure 3.2.4-2: Incorrect Reaction Point

### 3.3 Setting Torque for Bolt Tightening

Every RAD® Torque Wrench is supplied with a Torque Chart which relates output to air pressure. Set the torque as follows:

1. Ensure the Forward/Reverse switch (E) is set to the Forward position.
2. Establish the air pressure required using the Torque Chart.
3. Adjust the regulator until the correct pressure is shown on the gauge.

#### **CAUTION!**

Do not exceed maximum air pressure setting on the Torque Chart.

#### **IMPORTANT!**

The wrench must be free running while adjusting the air pressure to give the correct setting.

### 3.4 Setting Torque for Bolt Loosening

1. Ensure the Forward/Reverse switch (E) is set to the Reverse position.
2. Establish maximum air pressure from the Torque Chart and set the air pressure the same as with tightening.

#### **WARNING!**

Exceeding the maximum air pressure will overload the wrench and may cause serious damage.

### 3.5 Operating the Wrench

1. Fit the wrench with the correct size impact socket to suit the bolt to be tightened.
2. Check the Forward/Reverse switch is in the correct position.
3. Rotate the handle to a convenient position relative to the Reaction Arm.
4. Fit the tool to the bolt to be tightened with the Reaction Arm adjacent to the Reaction Point (Figure 3.2.1-1)
5. Squeeze the Trigger (F) partially to bring the Reaction Arm into contact with the Reaction Point.

#### **WARNING!**

Keep hands clear of the Reaction Arm.

#### **WARNING!**

In use this tool must be supported at all times in order to prevent unexpected release in the event of a fastener or component failure.

6. Fully depress the Trigger and keep fully depressed until wrench stalls. If the Trigger is released before the wrench stalls, full torque will not be applied to the bolt.
7. Release the Trigger and remove the tool from the bolt.

## 4.0 Error

#### **IMPORTANT!**

Disassembling or attempting repair will void warranty

If breakdown, malfunction or error occurs, contact New World Technologies Inc. Technical Support (refer to Section 5.0 – Contact Us).



# Certificate of Conformity

For

## New World Technologies Inc.

30580 Progressive Way  
Abbotsford, British Columbia  
V2T 6Z2, Canada

For Compliance of:

**Equipment:** Pneumatic Torque Wrenches  
**Imperial Model Nos.:** RAD350SL, RAD50, RAD60DX, RAD1800NG-2, RAD15DX, RAD15DX-2, RAD7GX-R, RAD350SL-2, RAD550SL, RAD550SL-2, RAD800NG, RAD800NG-2, RAD1400NG, RAD1400NG-2, RAD1800NG, RAD7GX, RAD10GX, RAD25GX, RAD34GX, RAD1400NGX-R, RAD1800NGX-R, RAD30, RAD2000, RAD2000-2 and RAD30-2  
**Metric Model Nos.:** RAD4000; RAD6800; RAD10GX; RAD1100NG; RAD1100NG-2; RAD14GX; RAD1900NG; RAD1900NG-2; RAD1900NGX-R; RAD2400NG; RAD2400NG-2; RAD2400NGX-R; RAD34GX; RAD4000-2; RAD46GX; RAD475SL; RAD475SL-2; RAD750SL; RAD750SL-2; RAD20DX; RAD20DX-2; RAD10GX-R; RAD80DX;  
**Rated:** 100psi max  
**Report No.:** 8773-1.0

To the following Directive(s):

- 2006/42/EC – Machinery Safety Directive

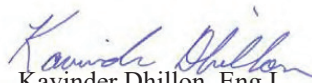
To the following standard(s):

EN 792-12 (2000) + A1 (2008)

Project No.: 10701

Issue Date: February 21, 2012

Issued by:

  
Kavinder Dhillon, Eng.L.  
Certification Manager

# PNEUMATIC SERIES LIMITED WARRANTY

## NEW TOOL WARRANTY

Any new tool branded with the RAD name and purchased from New World Technologies Inc., or through one of its authorized distributors or agents, is warranted to the original purchaser against defects in materials and workmanship for a period of one (1) year from the date of original calibration. Electric drive components such as electric motors, switches, and batteries etc., are covered for a period of three (3) months from the date of original calibration. Under the terms of this warranty, New World Technologies Inc., at its option and F.O.B. either its factory or an authorized service center, will replace or repair for the original purchaser, free of charge, any part or parts, found upon examination by New World Technologies Inc., to be defective in material or workmanship or both. If any product or part is replaced or repaired under the terms of this warranty, that product or part will carry the remainder of the warranty from the date of original calibration.

## REPAIRED TOOL WARRANTY

Once a tool is beyond its new tool warranty, New World Technologies Inc., for a period of three (3) months from the date of repair, will replace or repair for the original purchaser, free of charge, any part or parts, found upon examination by New World Technologies Inc., to be defective in material or workmanship or both. If any product or part is replaced or repaired under the terms and conditions of this warranty, that product or part will carry the remainder of the warranty from the date of original repair.

To qualify for the above mentioned warranties, written notice to New World Technologies Inc. must be given immediately upon discovery of such defect, at which time New World Technologies Inc. will issue an authorization to return the tool. The defective item must promptly be returned to New World Technologies Inc. all freight charges prepaid. When returning a tool, the reaction arm/s being used with the tool must also be returned.

**NEW WORLD TECHNOLOGIES INC. | T: 1.800.983.0044 | E: [INFO@RADTORQUE.COM](mailto:INFO@RADTORQUE.COM)**

## EXCLUSIONS FROM WARRANTY

At New World Technologies Inc.'s sole judgment tools or accessories that have been altered, damaged, misused, abused, badly worn due to excessive utilization, lost, or improperly maintained will NOT be covered under the terms of this warranty.

Tools returned without the reaction arm/s will not be covered under the terms of this warranty.

Consumable parts and accessories (such as extensions, reaction blanks/arms) are not covered under this warranty.

Tools that have been relabeled without prior written consent of New World Technologies Inc. will not be covered under this warranty.

Equipment and accessories not manufactured by New World Technologies Inc. (measuring equipment, etc.) are warranted only to the extent of the original manufacturer's warranty.

*\*There is no other express warranty. Implied warranties, including those of merchantability and fitness for a particular purpose are limited to one year from date of calibration and to the extent permitted by law. Liability for consequential damages under any and all warranties are excluded to the extent exclusion is permitted by law.*

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# LIGHTER FASTER STRONGER SAFER



## ABOUT NEW WORLD TECHNOLOGIES INC.

New World Technologies is a leading Canadian manufacturer of pneumatic, battery powered, and electronic pistol grip torque wrenches. Our advanced products have proven to be successful all over the world in such industries as oil and gas, petrochemical, mining, aerospace, and manufacturing. We continue to invest in and employ the latest technology to achieve the highest level of Innovation, quality, and performance - which has resulted in multiple patents for our products.



## NEW WORLD TECHNOLOGIES INC

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