SNAP-ON TOOLS CORPORATION

OPERATOR'S MANUAL

PNEUMATICALLY POWERED TORQUE MULTIPLIER

Part Number: 34321.SNP | Issue 1 | Original Instructions (English)

CONTENTS

PART NUMBERS COVERED BY THIS MANUAL

This manual covers the setup and use of Snap-on® stall tools.

Part Number	Description	Direction	Maximum Torque
PTM370	Dual Trigger / Bi-directional / ¾" Square drive	Clockwise and Anti-Clockwise	370 ft·lbf
PTM590	Dual Trigger / Bi-directional / ¾" Square drive	Clockwise and Anti-Clockwise	590 ft·lbf
PTM740	Dual Trigger / Bi-directional / ¾" Square drive	Clockwise and Anti-Clockwise	740 ft·lbf
PTM1000	Dual Trigger / Bi-directional / 1" Square drive	Clockwise and Anti-Clockwise	1000 ft·lbf
PTM1475	Dual Trigger / Bi-directional / 1" Square drive	Clockwise and Anti-Clockwise	1475 ft·lbf
PTM1990	Dual Trigger / Bi-directional / 1" Square drive	Clockwise and Anti-Clockwise	1990 ft·lbf
PTM2950	Dual Trigger / Bi-directional / 1" Square drive	Clockwise and Anti-Clockwise	2950 ft·lbf
PTM3300	Dual Trigger / Bi-directional / 1 ½" Square drive	Clockwise and Anti-Clockwise	3300 ft·lbf
PTM4425	Dual Trigger / Bi-directional / 1 ½" Square drive	Clockwise and Anti-Clockwise	4425 ft·lbf

Part Number	Gearbox outer diameter
PTM370	52mm Ø
PTM590	52mm Ø
PTM740	72mm Ø
PTM1000	72mm Ø
PTM1475	72mm Ø
PTM1990	92mm Ø
PTM2950	92mm Ø
PTM3300	119mm Ø
PTM4425	119mm Ø

SAFETY

IMPORTANT: DO NOT OPERATE THE TOOL BEFORE READING THESE INSTRUCTIONS. FAILURE TO DO SO MAY RESULT IN PERSONAL INJURY OR DAMAGE TO THE TOOL.

This tool is intended for use with threaded fasteners.

The use of effective ear protectors is recommended.

Do not use these tools in potentially explosive atmosphere as they contain grease, which may cause an explosion hazard in the presence of pure oxygen. These tools also contain aluminium alloy components which may cause a hazard in certain explosive environments.

Unexpected tool movement due to reaction forces or breakage of drive square or reaction bar may cause injuries.

Isolate the tool from all energy sources before changing or adjusting the drive square or socket.

There is a risk of crushing between the reaction bar and work piece.

Keep hands away from reaction bar.

Keep hands away from tool output.

Keep loose clothing, hair, etc. from being caught in any rotating part of the tool.

These tools require a reaction bar. See section on Torque Reaction.

Ensure all hoses are correctly fitted before switching on the air supply. This avoids the risk of injury by whipping air hoses.

Unexpected direction of drive square movement can cause a hazardous situation.

Use only Snap-on™ impact sockets and high quality adaptors which are in good condition and are intended for use with power tools.

Snap-on® Wrenches are non-impacting, torque controlled threaded fastener tightening tools and must always be operated with the following:-

- Clean dry air supply with a minimum flow of 40 CFM (19 litres/sec).
- A Filter, Regulator and Lubricator Unit 12 mm (1/2” Bore).
- Snap-on™ Impact or high quality sockets.
- Reaction bar.

INTRODUCTION

The Snap-on® PTM tools are air driven power tools designed for applying torque to threaded fasteners. There are models to cover torque capacities of 590 ft·lbf to 4425 ft·lbf. The tools use an external air pressure regulator to set the air pressure that controls the stall torque.

Parts Included

Description	Part Number								
	PTM370	PTM590	PTM740	PTM1000	PTM1475	PTM1990	PTM2950	PTM3300	PTM4425
Visual Difference									
Snap-on® Power Tool	PTM370	PTM590	PTM740	PTM1000	PTM1475	PTM1990	PTM2950	PTM3300	PTM4425
Operator's Manual	34321.SNP								
Snap-on® Secondary Handle	19363.01								

FEATURES AND FUNCTIONS

Twin Motor

The tools use two motors; one to quickly run-down the fastener and the other to achieve final torque.

Dual Trigger

The Snap-on® air driven power tools covered in this manual require the operator to press two triggers. This eliminates the risk of hands being caught between the reaction bar and work piece. Both triggers will need to be fully pressed for the tool to work.

Clockwise/Anti-Clockwise Selector

The tool is fitted with this option and can be used for tightening anti-clockwise threaded fasteners and for releasing clockwise threaded fasteners.

Reaction Bar

The reaction bar ensures all reaction forces are contained, so that torque reaction is not passed back to the operator.

Non-Impacting

Low vibration levels make these tools comfortable and safe for the operator to use. In addition there is less damage to the tool, socket and threaded assembly.

Replaceable Drive Square

To avoid internal damage to the tool (especially due to torque overload), the output drive square has been designed to shear first. Snap-on® tools are fitted with a drive square that can easily be replaced.

Hanger

The hanger can be used to suspend the Snap-on® tool from a balancer.

Quick Tool Coupling

Air couplings supplied to allow quick tool connection and disconnection from the air hose.

SET UP INSTRUCTIONS

The Snap-on® set up instructions covers the following items:

1. Snap-on® Hanger and Snap-on® Secondary Handle
2. Connecting Air Supply
3. Air Lubrication
4. Torque Reaction
5. Clockwise / Anti-clockwise operation
6. Setting torque to tighten fastener

Please complete the set up in the order shown.

Snap-on® Hanger

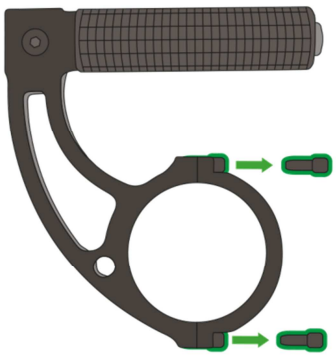
The Snap-on® hanger (Figure 1-E) is designed to be used with a suitable balancer to provide comfortable tool use. If not required the hanger can be removed.

Snap-on® Secondary Handle

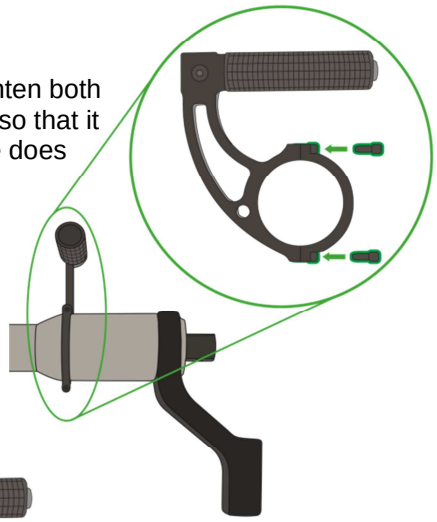
The secondary handle offers additional support and ease of handling when applying torque with Snap-on® air driven power tools covered in this manual.

Installation instructions for Secondary Handle:

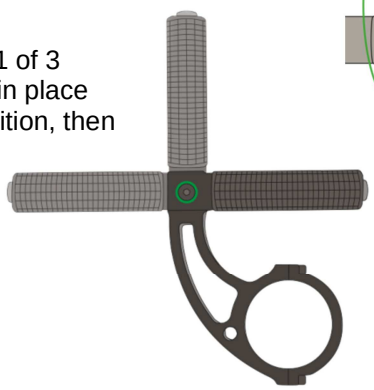
1. Remove both screws with a 4mm Allen Key



2. Position the Secondary Handle over the groove of the gearbox and tighten both screws to 6.6 ft·lbf (9 N·m). The secondary handle has been designed so that it can freely rotate around the tool's gearbox. This means that the handle does not become a trap hazard.



3. The handle grip can be re-positioned into 1 of 3 orientations. Remove the screw holding it in place and place the handle into the required position, then replace and tighten the screw.



Connecting Air Supply

WARNING: TO AVOID HAZARD FROM WHIPPING AIR HOSES MAKE ALL CONNECTIONS TO THE TOOL BEFORE TURNING ON THE AIR SUPPLY.

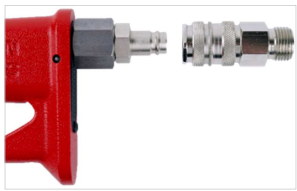
Make sure all hoses are clean, in good condition and free from dirt / water.

Connect the tool air inlet hose (Figure 1-A) to the outlet side of the external air pressure regulator unit (Figure 1-B) (not supplied), observing air flow direction arrows.

TIP: On tools supplied with quick air couplings, fit the coupling plug to the tool inlet and the coupling socket to air hose.

To connect, push couplings together.

To disconnect, pull back lock on socket coupling.



Connect the inlet side of the air pressure regulator unit (Figure 1-B) to the air supply (Figure 1-C) using a minimum hose size of 1/2” bore (12mm). Avoid using 1/2” bore hoses of longer than 16.5 feet (5 meters) from the supply to the air pressure regulator unit as this will reduce the performance of the tool.

Turn on air supply and check for air leaks.

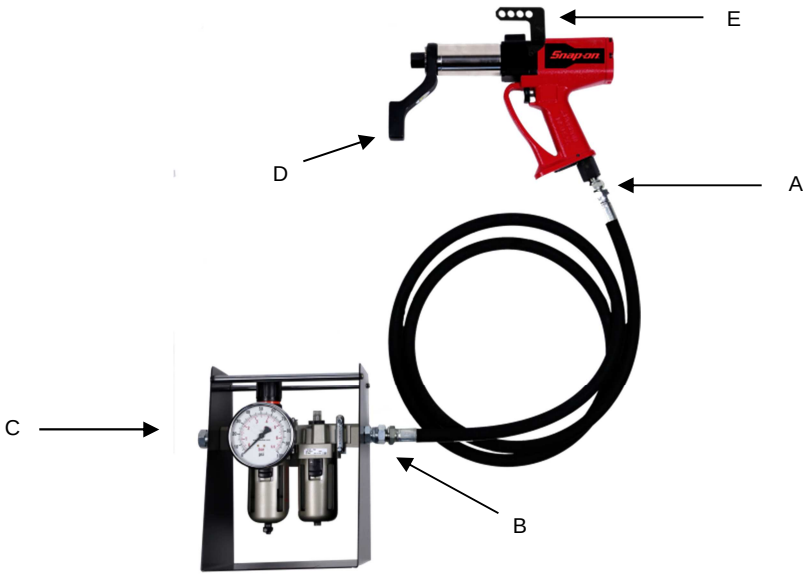


FIGURE 1 – Connections

Air Lubrication

The tool must be used with oil lubrication in the supplied air. This is achieved by using a Snap-on® filter regulator PTQFRL Unit (not supplied).

Set the air lubrication:

a. Fill filter regulator unit with hydraulic oil (Shell Tellus S2M 32 or equivalent good quality hydraulic oil).

b. Ensure the tool drive is free to rotate.

c. Run the tool by pressing the trigger.

d. Adjust filter regulator unit to supply 6 drops of oil per minute.

e. Release trigger.

See Snap-on® filter regulator PTQFRL unit Operator’s Manual for more details.

Torque Reaction

The reaction bar ensures all reaction forces are contained, so torque reaction is not passed back to the operator. Several reaction bar styles are available.

Fit reaction bar as detailed below:

Tool Type	Reaction Bar Type	Fitting Instructions
PTM	Cranked reaction bar (standard)	Fit reaction bar / plate (Figure 1-D) over the drive square to engage reaction splines Secure with circlip supplied

It is essential the reaction bar rests squarely against a solid object or surface adjacent to the fastener to be tightened. The contact area must be within the shaded area of Figure 2, with the contact area as large as possible.

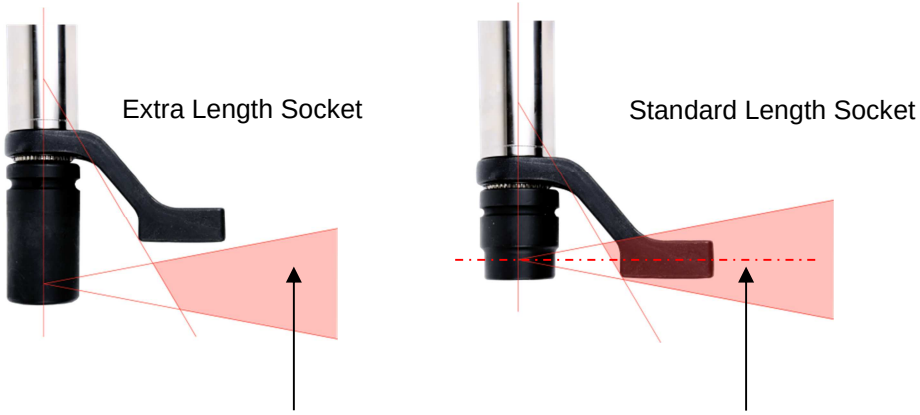


FIGURE 2 – Safe Reaction Window

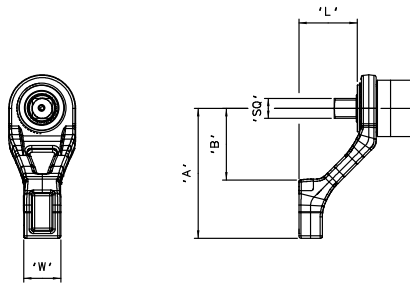
WARNING:CARE MUST BE TAKEN TO ENSURE THAT THE REACTION BAR IS ONLY USED WITHIN THE LIMITATIONS SHOWN IN FIGURE 2.

For special applications or where extra deep sockets must be used the standard bar may be extended but only within the limitations shown on Figure 2. Alternative reaction bars are available, see page 5.

WARNING: FAILURE TO OBSERVE THE LIMITATIONS SHOWN IN FIGURE 2 WHEN MODIFYING STANDARD REACTION BARS MAY RESULT IN PREMATURE WEAR OR DAMAGE TO THE TOOL.

Standard drive square extensions MUST NOT be used as these will cause serious damage to the tool output drive. A range of nose extensions is available for applications where access is restricted. These are designed to support the final drive correctly.

The dimensions of the standard reaction bars is shown in the following table:



Reaction Bars (Standard)	Tool	'L'	'A'	'B'	'W'	'SQ'
	PTM370	59mm	131mm	71mm	35mm	3/4"
	PTM590	59mm	131mm	71mm	35mm	3/4"
	PTM740	73mm	167mm	124mm	29mm	3/4"
	PTM1000	73mm	167mm	124mm	29mm	1"
	PTM1475	73mm	167mm	124mm	29mm	1"
	PTM1990	69mm	175mm	125mm	29mm	1"
	PTM2950	69mm	175mm	125mm	29mm	1"
	PTM4425	91mm	212mm	163mm	35mm	1 1/2"
	PTM4425	91mm	212mm	163mm	35mm	1 1/2"

When the Snap-on® tool is in operation the reaction bar rotates in the opposite direction to the output drive square and must be allowed to rest squarely against a solid object or surface adjacent to the fastener to be tightened. (See Figure 3).

	Torque Reaction	
	Clockwise	Anti-Clockwise
Example of PTM tool	 FIGURE 3(a)	 FIGURE 3(b)

WARNING: **ALWAYS KEEP HANDS CLEAR OF THE REACTION BAR WHEN THE TOOL IS IN USE OR SERIOUS INJURY MAY RESULT.**

Clockwise/Anti-Clockwise Operation

Set clockwise / anti-clockwise as required.

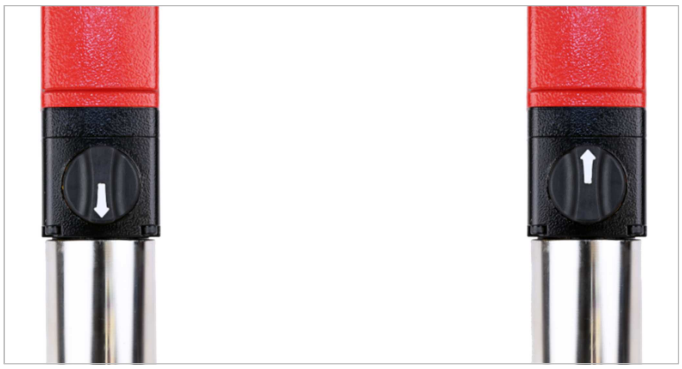


FIGURE 4(a) – **Clockwise**
(Arrow towards drive square)

FIGURE 4(b) – **Anti-Clockwise**
(Arrow away from drive square)

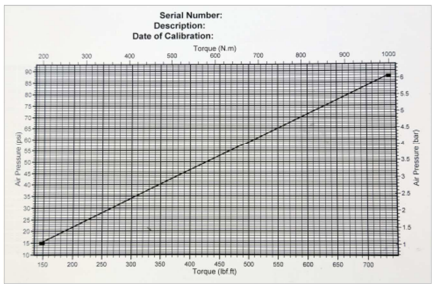
WARNING: **FAILURE TO FULLY ENGAGE THE CLOCKWISE/ANTI-CLOCKWISE OPERATION SELECTOR WILL RESULT IN DAMAGE TO THIS PART OF THE GEARBOX.**

Setting Torque to Tighten Fastener

The torque created by the Snap-on® tool depends on the air pressure setting. All tools are supplied with an Air Pressure Graph that gives the air pressure required to produce the correct torque output.

Set the torque output as follows:-

1. Use the Air Pressure Graph (supplied) to find the air pressure to achieve the required torque.



2. With the tool running, adjust the Filter Regulator Control Unit until the correct air pressure is shown on the gauge.

IMPORTANT: THE WRENCH MUST BE FREE RUNNING WHILE ADJUSTING THE AIR PRESSURE TO GIVE THE CORRECT SETTING.

IMPORTANT: CHECK THAT THE FILTER REGULATOR CONTROL UNIT IS SUPPLYING APPROXIMATELY SIX DROPS OF OIL PER MINUTE WHILE THE TOOL IS FREE RUNNING.

OPERATING INSTRUCTIONS

WARNING: KEEP HANDS CLEAR OF THE REACTION BAR.

WARNING: WHEN USING THIS TOOL IT MUST BE SUPPORTED AT ALL TIMES IN ORDER TO PREVENT UNEXPECTED RELEASE IN THE EVENT OF FASTENER OR COMPONENT FAILURE.

Tightening

1. Fit Snap-on® tool with the correct size impact or high quality socket to suit fastener.

TIP: For added safety it is recommended to secure the socket to the square drive. This is often achieved using a pin and O ring, see socket manufacturer for guidance.

2. Ensure the Clockwise/Anti-clockwise selector is correctly set.
3. Rotate the handle into a convenient position relative to the reaction bar. Fit the tool onto the fastener to be tightened with the reaction bar adjacent to the reaction point. See Figure 5.
4. Adopt a suitable posture to counteract normal or unexpected movement of the tool due to reaction forces.
5. Squeeze the trigger partially to bring the reaction bar into contact with the reaction point.
6. Fully press trigger and keep fully pressed until tool stalls then release trigger.
   If the trigger is not fully pressed full torque will not be applied to the fastener.
7. Remove the tool from the fastener.

FIGURE 5

Releasing

1. Fit the Snap-on® tool with the correct size impact or high quality socket to suit the fastener to be released.

TIP: For added safety it is recommended to secure the socket to the square drive. This is often achieved using a pin and O ring, see socket manufacturer for guidance.

2. Ensure the clockwise/anti-clockwise selector is correctly set.
3. Rotate the handle into a convenient position relative to the reaction bar. Fit the tool onto the fastener to be released with the reaction bar adjacent to the reaction point. See Figure 6.
4. Adopt a suitable posture to counteract normal or unexpected movement of the tool due to reaction forces.
5. Squeeze the trigger partially to bring the reaction bar into contact with the reaction point.
6. Fully press trigger and keep fully pressed until threaded fastener releases.

TIP: If unable to release the fastener, increase the air pressure to the tool. Do not exceed the maximum air pressure for the tool.

WARNING: EXCEEDING THE MAXIMUM AIR PRESSURE WILL CAUSE OVERLOADING AND MAY LEAD TO SERIOUS DAMAGE.

WARNING: CHANGING THE AIR PRESSURE AFTER SETTING THE PRESSURE REGULATOR WILL CHANGE THE STALL TORQUE VALUE.

FIGURE 6

MAINTENANCE

For optimum performance and safety, regular tool maintenance is required. The user maintenance is limited to the replacement of the drive square and the silencer. Any other maintenance or repairs should be carried out by Snap-on® or a Snap-on® agent. Maintenance intervals will depend on the tool usage and the environment in which it is being used. The maximum recommended maintenance and recalibration interval is 12 months.

TIP: Steps the user can take to reduce the amount of maintenance required include:

1. **Use the tool in a clean environment.**
2. **Use an air compressor fitted with a dryer.**
3. **Ensure the Filter Regulator Control Unit has sufficient hydraulic oil.**
4. **Ensure the Filter Regulator Control Unit delivers hydraulic oil at the correct rate.**
5. **Ensure the Filter Regulator Control Unit is regularly maintained, see product manual.**
6. **Maintain the correct torque reaction.**

Air Lubrication

Add Shell Tellus S2M 32 or equivalent good quality hydraulic oil to the Filter Regulator Control Unit.

Gearbox

Under normal operating conditions it is not necessary to re-grease the gearbox. The gearbox contains Lubcon Turmogrease Li 802 EP or equivalent good quality grease.

Silencer

The silencer must be changed every 12 months. This may be more frequent for high tool usage or dirty environments.

TIP: Change silencer with tool upside down, as shown, to ensure internal parts (spring and valve) are kept in place.

1. Remove M4 screw (A) using a 2.5mm hexagon key.
2. Remove pin (B) using a pin punch.
3. Pull out air inlet tube (D) with base plate & silencer.
4. Remove silencer (E) from air inlet tube.
5. Fit new silencer over air inlet tube.
6. Fit air inlet tube assembly (C, D & E) into handle against spring resistance.
7. Fit pin (B) with a hammer.
8. Fit screw (A) and torque to 0.37 ft·lbf (0.5 N·m). Do not over tighten this screw as it is likely to break the base plate moulding.

TIP: When refitting air inlet tube assembly into handle care should be taken to ensure correct alignment between air inlet tube and spring. It may be easier to fit the spring into air inlet tube first and secure with a small amount of grease.

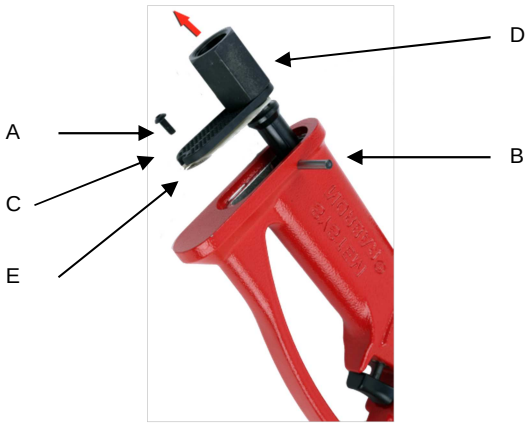


FIGURE 7 – Silencer Replacement

Drive Square

To avoid internal damage (especially due to torque overload), the output drive square has been designed to shear first. This saves major internal damage and allows easy square removal. For drive square part numbers see page 5.

FIGURE 8 – Square Drive Replacement

To replace drive square:

1. Remove the air supply.
2. Support tool in a horizontal position.
3. Remove the screw or spring pin, then remove drive square.
   If the square has sheared it may be necessary to use pliers to remove the broken parts.
4. Fit new drive square.
5. Fit new screw and tighten between 3 ft·lbf to 3.7 ft·lbf (for PTM590) or 6 ft·lbf to 6.6 ft·lbf (for PTM1000 / 2950 / 4425) or insert new spring pin.
6. Connect air supply.

TIP: If the drive square fails continually then seek advice from Snap-on® or a Snap-on® agent.

Calibration

To maintain the tool accuracy it is recommended the tool is recalibrated at least every 12 months. Contact Snap-on® or a Snap-on® agent for more information.

Cleaning

Keep the tool in a clean condition to aid safety. Do not use abrasives or solvent based cleaners.

Disposal

Recycling Considerations:

Component	Material
Handle	Aluminium Case / Steel Internals
Gearbox (Clockwise / Anti-Clockwise)	Aluminium Case / Steel Internals
Gearbox (52mm / 72mm / 92mm / 119mm)	Steel with Nickel Plated Case / Steel Internals

SPECIFICATIONS

Part Number	Torque		Tool Speed
	Minimum	Maximum	
PTM370	74 lbf·ft (100 N·m)	370 lbf·ft (500 N·m)	224rev/min
PTM590	118 lbf·ft (160 N·m)	590 lbf·ft (800 N·m)	148 rev/min
PTM740	147 lbf·ft (200 N·m)	740 lbf·ft (1000 N·m)	122 rev/min
PTM1000	200 lbf·ft (270 N·m)	1000 lbf·ft (1350 N·m)	86 rev/min
PTM1475	295 lbf·ft (400 N·m)	1475 lbf·ft (2000 N·m)	58 rev/min
PTM1990	400 lbf·ft (540 N·m)	1990 lbf·ft (2700 N·m)	46 rev/min
PTM2950	590 lbf·ft (800 N·m)	2950 lbf·ft (4000 N·m)	32 rev/min
PTM3300	660 lbf·ft (900 N·m)	3300 lbf·ft (4500 N·m)	23 rev/min
PTM4425	885 lbf·ft (1200 N·m)	4425 lbf·ft (6000 N·m)	15.5 rev/min

Part Number	Dimensions (mm)									Tool Weight (lbs)	Reaction Weight (lbs)
	L1	L2	H1	H2	H3	ØD	R1	R2	R3		
PTM370	339	104	29	230	116	52	59	60	71	9.0	1.9
PTM590	339	104	29	230	116	52	59	60	71	9.0	1.9
PTM740	371	136	29	230	116	72	73	43	124	13.5	1.5
PTM1000	371	136	29	230	116	72	73	43	124	13.5	1.5
PTM1475	399	164	29	230	116	72	73	43	124	14.3	1.5
PTM1990	422	120	29	230	116	92	69	50	125	18.7	2.97
PTM2950	422	120	29	230	116	92	69	50	125	18.7	2.97
PTM3300	444	142	29	230	116	119	91	49	163	29.3	4.6
PTM4425	444	142	29	230	116	119	91	49	163	29.3	4.6

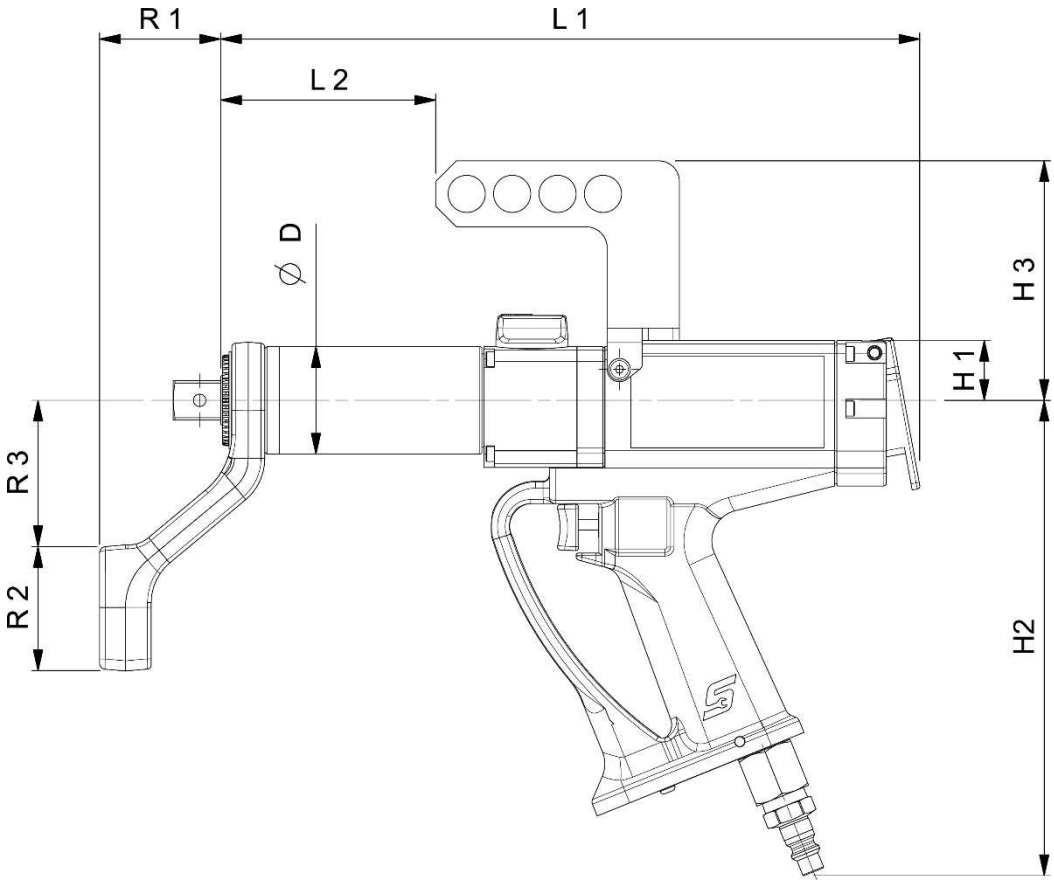


FIGURE 9 – Tool Dimensions

Repeatability:	± 5%
Air Supply:	Maximum pressure 91.4 psi (6.3 bar) (For maximum output speed).
Temperature Range:	32℉ to 122℉ (0℃ to +50℃) (op erating). -4℉ to 140℉ (-20℃ to +60℃) (storage).
Operating Humidity:	85% Relative Humidity @ 86℉ (3 0℃) maximum.
Handle Vibration:	< 2.5 m/s^2 Maximum. Tested in accordance with ISO 8662-7 Hand held portable tools. Measurement of vibrations at the handle.
Sound Pressure Level:	84 dBA measured at 1m equivalent continuous A weighted sound. Tested to BS ISO 3744: 1994 Acoustics. Determination of sound power levels of noise sources using sound pressure. Engineering method in an essentially free field over a reflecting plane. Test conducted in free running condition with a supply pressure of 91.4 psi (6.3 bar).
Environment:	Store in a clean & dry environment.
Machinery Directive:	In conformance with: BSEN 792-6:2000 Hand-held non-electric power tools. Safety requirements. Assembly power tools for threaded fasteners.

Due to continuous improvement all specifications are subject to change without prior notice.

NOTE: If equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment could be impaired.

TROUBLE SHOOTING

The following is only a guide, for more complex faults please contact Snap-on® or a Snap-on® agent.

Problem	Likely Solutions
Tool output does not rotate when trigger pressed	Check air supply is functioning and connected Check air pressure setting (at least 1 bar) Check correct setting of direction knob Check both triggers are fully pressed. Output drive square sheared, needs replacing Gear train or air motor is damaged
Drive square is sheared	See maintenance section to replace drive square
Tool does not stall	Fastener sheared or thread stripped Gear train or air motor is damaged

GLOSSARY OF TERMS

Word or Term	Meaning
A/F	Across Flats
Air pressure Graph	Graph supplied with all stall tools to show the air pressure setting to produce required torque
Bi-directional	Tool capable of Clockwise and Anti-clockwise square rotation
Calibration Device	Torque measurement system to display peak torque using a joint simulator or test fastener
Fastener	Bolt or stud to be tightened
Reaction Bar	Item to counteract applied torque. Also called reaction plate
Stall Tool	Tool will stall due to air pressure set.

NOTES

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