

# Pneumatic Torque Wrench

"The best just gets better"



**Reduce downtime, reduce costs, reduce re-work, keep Health and Safety happy**

## C-RAD model 10L



## Christie RAD (C-RAD) Pneumatic Torque Tooling

The Christie RAD (C-RAD) range of pneumatically powered torque tools are an ideal choice for tough bolt tightening and un-tightening operations. The latest compact motor and gearbox technologies combine to offer the highest power to weight ratio of any tools on the market. Single speed and automatic two speed gearboxes are available.

### Time is of the essence

The automatic two speed gearbox allows the C-RAD operator to run down a fastener up to 5 times faster than the normal operating speed. When the torque on the fastener starts to increase, the C-RAD will automatically change to the low gear for final tightening.

Conversely, if the tooling is being used to undo a fastener the C-RAD tool will commence in its high torque/slow speed mode, and automatically change to low torque /high speed once the fastener has 'broken out'.

Because the automatic gearbox changes without operator intervention or having to stop the tool, the tightening cycle can be completed faster than with a single speed version.



### Minimise downtime with tooling designed to last

This extreme duty gearbox incorporates a patented centralising system, to ensure internal gears run true with outer annulus and therefore prolong the tool's life.



### Prevent loss and protect tooling

Storage/carry cases are available to suit individual tool kits. Make transportation easy, protect equipment from the elements, prevent damage during storage and ensure that essential components don't go missing.



## Lubrication units designed for you

Torque control is achieved by adjustment of the air pressure via a C-RAD lubro installed between the air compressor and torque tool. The standard lubro reduces moisture content and lubricates the air supply.

Each lubrication unit is supplied with a standard 3 metre length of strengthened hose, however extended length hose can be provided.

On sites where water in air hoses is a real problem, lubro units can be offered with heavy duty water filters.

For protection to the lubro unit and to prevent tampering, caged and lockable models are available on request.

## Heavy duty C-RAD tools

To produce torques in excess of 11,500 Nm, the heavy duty versions of the C-RAD provide a versatile alternative to the traditional high torque tooling.

The high torque C-RAD models incorporate the standard range of pneumatic tools with an additional 'bolt on' gear module (see photograph below).

This unique design gives the operator a system offering dual usage. When large fasteners are being tightened the standard tooling will be connected to the final gear module, but can be separated in minutes when lower torque values are required.

- Low bedding torques may be applied to fasteners using the standard tool before assembly to module for final torqueing.



**C-RAD 570 Capability 57,000 Nm**

## Health and Safety Information

As an additional safety feature the forward/reverse selector also has a central 'neutral' setting.

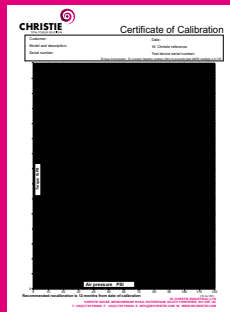
In the neutral position the C-RAD cannot be activated even if the trigger is depressed.

Protected from unexpected 'start up', operators can confidently handle and position equipment without fear of reaction trapping hazards.



## Hard hitting performance – without the vibration

Impact wrenches, commonly used for industrial bolting applications, frequently expose workers to a range of health threats: e.g. vibration white finger and carpal tunnel syndrome. If vibration levels exceed  $2.5 \text{ m/s}^2$  employers should reduce operator exposure. C-RAD tooling vibration levels are below  $2.5 \text{ m/s}^2$  - No risk to operator, No vibration claims and No downtime.



## Tooling accuracy guaranteed

C-RAD torque tools are designed to provide accurate torque control; they will stall repeatedly within  $\pm 5\%$ . All tooling is supplied with a dedicated calibration certificate relating air pressure setting to torque output.

Christie's in-house transducer systems (range 10 – 100,000Nm) and test gauges used to validate the tool accuracy are traceable to National Standards.

## Ensure staff safety, tool accuracy and joint integrity

The Health and Safety Executive are convinced that, "Torque tightening is a specialist skill. Only trained and competent personnel should undertake torque tightening, and they should use equipment which is correctly maintained and calibrated." (Safety Division, June 2000).

Let Christie's personnel guide staff through the safe and correct operation of a range of hand, pneumatic, electric and hydraulic torque tooling, and discover the five key controllable elements that guarantee joint integrity.



## Operator comfort and positive tool activation assured

The C-RAD tool range are ergonomically designed with pistol grip handle. Tool operation is activated by a soft start trigger mechanism and is designed with release to stop safety operation.



**Neutral Position**



**Reverse Position**



**Forward Position**

## Buy or Hire?

FACT – companies needs differ. Capital expenditure is not always the best option; hiring equipment frees your capital for other potentially more profitable uses.

## Good reasons to hire equipment

### Minimise stockholding

Ownership can be expensive when equipment is idle – profit is using the tools, not just owning them.

### Equipment obsolescence

Equipment is changed and updated, make sure you are using the latest and fastest machines by hiring.

### Tax allowances

Hire is 100% allowable immediately, no complicated depreciation sums to work out, no arguments with the revenue.

### Right equipment for the job

Eliminate the costs of using the wrong size or type of equipment and don't restrict yourself to one type of tool when you can hire and choose the best model for the job.

### Cost Control

Knowing the true cost of owning equipment is difficult; job costing is easier with hire.

## Owning your equipment is sometimes the only option

Whilst the hire option is ideal for one off jobs, break downs, strip downs and maintenance closures, these tools are robust enough to use on your regular bolting applications – then there is no comparison to the convenience of you owning the tooling.

## Maintenance and Calibration

This equipment rarely breaks down, but a regular service schedule reduces the risk further. You don't need a workshop, no spares to stock or order, no fitters to pay, no health and safety records to keep and no unexpected repair bills, just use Christies. Its experienced staff and extensive resources will have you up and running with no loss of time or production – we work around you.

### Unique Silencer Configuration



## Noise: The Invisible Menace

The Health and Safety Executive estimates that there are over 1 million employees in Great Britain exposed to levels of noise, which puts their hearing at risk.

The Control of Noise at Work Regulations 2005 came into force, for industry sectors in Great Britain, on 6th April 2006. Under these regulations the level at which employers MUST provide hearing protection and hearing protection zones is 85 decibels (daily or weekly exposure)

Christie C-RAD tooling is fitted with a unique silencer configuration, reducing noise outputs, removing the need for hearing protection and safe guarding operators against the invisible menace.



### Easy access to difficult bolts

Offset gearboxes suit situations of limited head room or tool diameter. They are the ideal solution to tackle long thread protrusion on plate exchangers to speed up production.



### Don't struggle with standard reaction plates – poor reaction will cause tooling damage

Torque tool breakages are often a result of incorrect reaction. Special reactions can be designed and manufactured quickly to suit your individual applications – let Christies advise you.

## Trouble free and cost effective transport

Imagine no more wheels coming loose – use a C-RAD and you can guarantee the correct torque every time with minimum effort.



Couple this with the correct initial tightening sequence and a weekly checking procedure, and imagination will become reality.

## The problem in a nutshell

Impact wrenches commonly used for commercial and industrial vehicle bolting are notorious for torque inaccuracy resulting in under-tightened or over-tightened wheel nuts.

A report prepared for the Department for Transport (2006) found that the frequency of loose or missing wheel nuts is in the thousands each year and the frequency of wheel detachment is in the hundreds each year.

Clamp load applied to the wheel studs must be sufficiently high to withstand all applied forces without being so high that the yield point of the stud is exceeded.



Result of under-tightening

Common causes of wheel nut failure

- Under-tighten
- Over-tighten
- Incorrect tightening sequence
- Poor or insufficient wheel stud maintenance
- Non calibrated torque tooling
- Incorrect use of torque tooling – especially torque wrenches.



## 'Careless Torque Costs Lives' (Department for Transport (DfT), 1997)

Does your contract fitter insist that an impact wrench and torque check with a torque wrench is the best method for wheel nuts? If an impact wrench has surpassed the recommended wheel nut torque, the click type or break back torque wrench will only confirm that torque has been reached – but not that over-tightening has occurred.

Ask yourself – does the fitter use a torque wrench? Is it calibrated? Does the fitter have length dependency awareness regarding torque wrench use? Is the tightening sequence correct?

Worried about the integrity of your vehicles wheels, and the safety of your drivers and other road users?

## Problem Solved

The Christie RAD (C-RAD) range of stall torque tools are the ideal choice for no hassle maintenance. Make sure your tyre fitters use a C-RAD when re-fitting your wheels after changing or repairing your tyres.

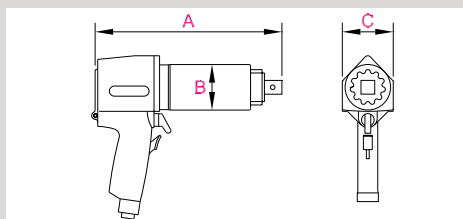
Torque accuracy, sequence, process and the correct equipment will pay dividends – use C-RAD, deal with Christies.



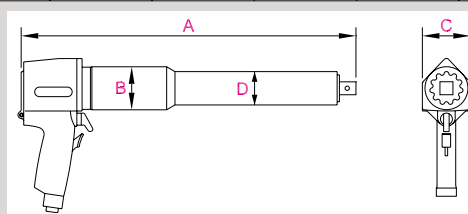
**Call now to discuss Christies solution to your problem. Free demonstrations can be arranged.**



## Technical Specifications



Model	Dimensions (mm)			Weight kg	Speed (rpm)		Torque Range (Nm)		Square Drive
	A	B	C		Single	Auto 2	Min	Max	
C-RAD 1	181	62	69	2.5	290	n/a	20	100	3/4"
C-RAD 5	195	62	69	2.7	55	n/a	80	500	3/4"
C-RAD 5A	254	62	69	4	n/a	250	150	500	3/4"
C-RAD 8	219	62	69	3	35	n/a	160	800	3/4"
C-RAD 8A	268	62	69	4	n/a	160	350	800	3/4"
C-RAD 10L	232	63	69	3.5	30	n/a	150	950	3/4"
C-RAD 10X	228	72	83	4.3	30	n/a	190	1,000	3/4"
C-RAD 10XA	281	72	83	5.3	n/a	150	450	1,000	3/4"
C-RAD 14	232	63	69	3.6	20	n/a	275	1,350	3/4"
C-RAD 14A	283	63	69	4.5	n/a	80	400	1,350	3/4"
C-RAD 21	265	76	83	5.4	15	n/a	350	2,100	1"
C-RAD 21A	317	76	83	6.9	n/a	65	800	2,100	1"
C-RAD 27	265	76	83	5.7	10	n/a	550	2,700	1"
C-RAD 27A	317	76	83	7.3	n/a	45	850	2,700	1"
C-RAD 34	286	77	83	6.5	8.5	n/a	1,100	3,400	1"
C-RAD 40	352	80	96	9.3	11	n/a	800	4,000	1"
C-RAD 40A	400	80	96	10.5	n/a	38	900	4,000	1"
C-RAD 46	338	86	96	10	12	n/a	1,360	4,600	1"
C-RAD 68	375	101	96	13	7	n/a	2,000	6,800	1 1/2"
C-RAD 115	425	115	85	17.4	4.5	n/a	4,100	11,500	1 1/2"
C-RAD 200	600	215	90	42	1.6	n/a	4,500	20,000	2 1/2"
C-RAD 270	615	215	90	50	1.26	n/a	7,000	27,000	2 1/2"
C-RAD 570	655	320	85	102	0.9	n/a	13,500	57,000	2 1/2"
C-RAD 1000	795	320	90	127	0.3	n/a	24,000	100,000	3 1/2"



Model	Dimensions (mm)				Weight kg	Speed (rpm)		Torque Range (Nm)		Square Drive
	A	B	C	D		Single	Auto 2	Min	Max	
C-RAD 10LNA	368	63	69	43	5.4	n/a	115	200	950	3/4"
C-RAD 21XN	546	76	83	50	12.4	14	n/a	400	2,100	1"
C-RAD 27XN	546	76	83	50	12.4	10	n/a	700	2,450	1"

• No statement or data within this literature is warranted or guaranteed to be accurate

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