



Impact statement: The Makita and Milwaukee 18V brushless $\frac{3}{4}$ " impact wrenches add some serious firepower to mechanical repairs. The convenience of battery power sure beats lugging an air hose from job to job, especially one large enough to power a heavy-duty pneumatic impact wrench.

Heavy-duty impact wrenches talk the torque

Over the past 10 years or so, the cordless impact wrench has made the transition from novelty to indispensable tool.

By Josh Giumelli with photos by Ben White

As cordless tools become the preferred choice to 240V, with longer lasting, lighter battery packs and efficient brushless motors, many farmers reach for a battery impact wrench in preference to a compressed air-driven version.

Any tool that can save time always becomes a favourite with farmers, and the cordless impact wrench is a prime example. Changing points on a seeding bar, undoing wheel nuts, or even stripping down machinery is quicker when you can power through the nuts and bolts.

Since we tested standard $\frac{1}{2}$ " drive

battery impact wrenches back in February 2006, a lot has changed. Lithium ion batteries have provided increased run times, with capacities of 5 amp-hours now commonplace. The tools themselves have also transitioned from universal motors fitted with carbon brushes, to EC brushless motors, delivering improved efficiency and less wearing parts.

While there are some pretty heavy-duty $\frac{1}{2}$ " drive battery impact wrenches on the market, only now are we seeing $\frac{3}{4}$ " drive units become available. In fact, they are so new on the scene, only the Makita and Milwaukee 18V models are currently

available in Australia. The larger $\frac{3}{4}$ " drive allows the use of larger sockets, taking full advantage of the high output of both tools.

Farmers who own one of these large impact wrenches are generally full of praise for the tool, and the time it saves around the farm. Truck wheel nuts are no problem for the $\frac{3}{4}$ " drive tools, and the only issues we have heard of is snapping of smaller fasteners due to the sheer torque of the tool. As there were only two to test, we decided to put them head-to-head in a practical test.

Acknowledgements:
 Toolmart, Western Australia.



1

In the red corner is the Milwaukee Fuel 18V brushless impact wrench, weighing in at 3.47kg including battery. This tool has a high (1016 Newton metres fastening) and low (508Nm fastening) torque level. Its maximum removal torque, or 'nut-busting' torque is quoted as 1626Nm. It costs \$769 in a kit with charger and two 5Ah batteries, or as a bare tool (or 'skin') for \$439 (all prices quoted include GST).



2

In the blue corner is the 18V Makita DTW1001Z brushless impact wrench, boasting three power levels of 400, 600 and 1050Nm fastening torque, and nut-busting torque of 1700Nm. A little heavier at 3.69kg including battery, but a little lighter on the pocket. In a kit with two 5Ah batteries and charger it costs \$679, or \$416 as a skin if you already have Makita 18V tools.

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Head-to-head, both tools have similar specifications on paper (see table 1). The Makita stands a little taller, but is probably slightly more comfortable to hold and operate, although this is probably a case of personal choice. Both tools have a large amount of rubberised coating, but the Makita also has a slightly flexible base, reducing vibrations transmitted to the battery. Both wrenches use a friction ring on the end of the 3/4" anvil to retain the socket, although there is a hole through the anvil if you want to use a retaining pin.

Table 1. On paper – 3/4" drive battery impact wrenches

Make	Makita	Milwaukee
Model	DTW1001Z	M18 CHIWF34
Voltage	18	18
Battery (Ah)	5	5
Weight (kg, inc. battery)	3.69	3.47
Max. impact rate (impacts/min)	2200	2300
Max (claimed) torque, fastening (Nm)	1050	1017
Max (claimed) torque, removing (Nm)	1700	1626
Speed/torque ranges	3	2
Warranty (years)	3	5
Country of origin	Japan	China



To put size in perspective, here's a typical 1/2" impact wrench alongside the Milwaukee tool. The 1/2" tool has a typical maximum torque of 250Nm, which pales in comparison with the performance of the bigger tool.



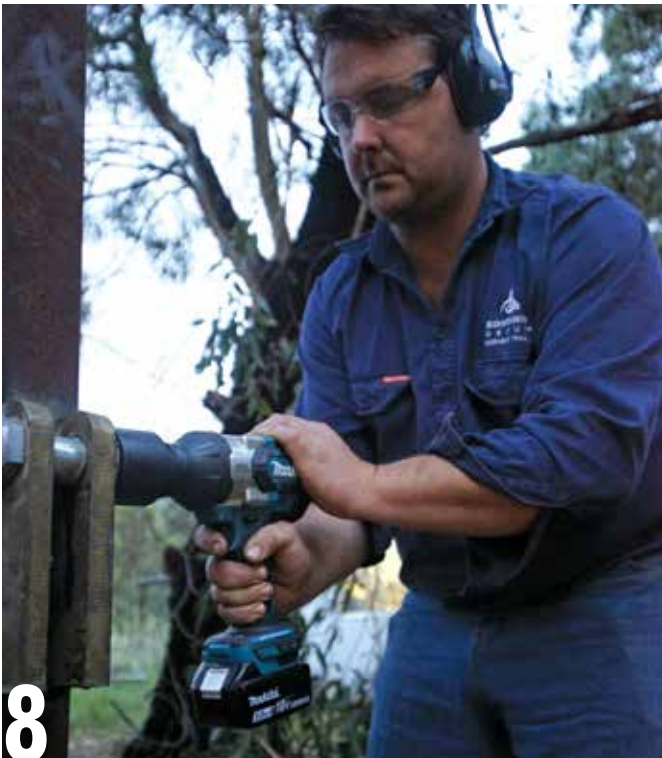
In order to test the ability of these 18V heavyweights to loosen the tightest of bolts, we had to go large on the size of fasteners as well. These M30 metric bolts (30mm diameter shank) can easily handle being torqued to 1500Nm. In imperial terms, that's about 1100 foot-pounds (note 1ft lb = 1.356Nm).



Large bolts and high torques need a very large torque wrench. Our M30 bolts were installed in a purpose-built frame and torqued to varying levels, starting at 1000Nm.



A 50mm 3/4" drive impact socket was fitted to the tools for testing. Note the hole in the socket and anvil, which allows a retaining pin or clip to be used to hold the socket in place if the friction ring doesn't do the job.


8

Each tool was tested with a new nut, bolt and washer, and the threads were oiled before tightening up. Both tools had no problems loosening fasteners torqued up to 1100Nm.


9

THE VERDICT

It's the Makita by a nose. While both impact wrenches are very capable tools, the Makita was the only one which could consistently loosen the M30 bolt pre-torqued to a level of 1200Nm. Neither tool came close to their specified nut-busting torque levels of 1600-1700Nm, but the result was impressive nonetheless. To put things in perspective, it was only just possible for a single person to tighten the M30 bolt to 1200Nm using a 1.2m long torque wrench.

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