

# Battery-Powered Fastening Tools **BT86**

(US, EU, India, Japan, Korea, China, Taiwan, patent pending)



It's time of **battery-powered fastening tools**, combustion-free (no powder loads or gas fuels), w/o delivery trouble, lower recoil, lower noise and lower cost, more environmentally friendly. It will replace **gas-actuated fastening tools** and most of **powder-actuated tools** now and in the future. So far there are four driving systems of battery-powered fastening tools as following:

**1) In 2015, Hilti** developed the world's first battery-powered fastening tool (for concrete & steel), with a power of only 85 joules, using **compressed spring** device, the motor rotates the gear, through the ball screw compression spring, although “the increase in motor speed” does not help to increase power.

**2) DeWalt** developed **flywheel friction drive** mechanism transfers the rotational kinetic energy of the flywheel to a sliding seat through friction between the flywheel and the sliding seat to hit the nail into a target object, the power is about 100-105 joules. with a 21-degree nail magazine which is suitable for wood, but is less suitable for concrete & steel

**3) Milwaukee** uses **compressed storage gas**, with a piston to hit the nail, it is more suitable for wood, not suitable for concrete and steel fastening cause the power is not enough, and the function of the motor is to return the piston rod, so “the increase of motor speed” does not help to increase power. Later, China manufacturers **NailTask**, **Toua** and Bosch (German) also imitated Milwaukee use compressed storage gas to hit nails, and there may be patent issues. It is not easy to break through the above three driving systems and find other driving modes! Moreover, these three systems are patent issued, and imitation must face legal problems!

It is not easy to break through the above three driving modes and find other driving system! Moreover, these three methods are patented, and imitation must face legal problems!

4) After years of research and development, **in 2023** our affiliated company **T-SET** finally developed a new **pulley impact drive**, using the pulley to be pushed by the driving block of wheel which synchronous rotation of the motor, and displacement of the striking nail mechanism indirectly induced by engagement between the pulley and belt for nailing action. Recently, brushless motors have improved a lot, we originally designed for 8,000 rpm with a power of about 100 joules, but now with a speed of 30,000 rpm, the power should be more than 105 joules! The progressive brushless motor speed benefits us the most from the trend method!

We will soon launch 4 types of battery-powered fastening tools (**#1-3** for concrete and steel, *and #4 for framing wood*) as following:

**#1** Magazine type (90-degree), drives nails are same as Gas Nails

**#2** Single type, drives nails & clips same as PAT nails

**#3** Insulation type, drives insulation nails on market

**#4** *Framing type (21-degree), for wood, up to 90mm nails in length*

Each driving system has its own advantage and disadvantage.

Driving system	Firm	Country	tool	Patent	Power	hit nail /sec.	Weight	Advantage	Disadvantage
1. Compressed spring	HILTI	LI	BX3	V	85j	1.3	3.3KG	* light weight	* 85 j. power only
2. Flywheel friction drive	DeWALT	US	DCN890	V	100-105j	1	4.2KG	* Power and even	* Waiting working time of flywheel * Nail magazine 21-degree (suitable for wood, not suitable for steel or concrete)
3. Compressed storage gas	Milwaukee	US		V	less 90j	2			* Power is not enough (for steel /concrete)
	NailTask	CN	DCCN100X	?	less 90 j	"	4.5-5.0KG		* Patent issue
			DCCN100X2		100 j	"	"		* Loss of air volume over time.
	TOUA	CN	GSN40	?	90 j	"	"		* 3 irreversible causes of air leakage
			GSN50C		100 j	"	"		* Repairs are not easy on site.
	Bosch	DE		?	100j	"	4.1 KG	* Air-Spring	* US patent abandoned
4. Pulley impact drive	T-SET	TW	BT86	V	over 105j	3	3.5KG	* More power and even	* New tool
		CN/EU/IN/JP/KR/US/TW Patent Pending						* hit 3 nails per second	
								* Benefit from progress of motor rpm	

# 1. Compressed spring (Hilti BX3)



## 2. Flywheel Friction Drive (DeWalt DCN890)





### 3. Compressed storage gas (Milwaukee)





# 4. Pulley impact drive (T-SET)

