Guidance on
Using Screw Guns

Installation methods, including the use of screw guns, is important to consider and get right as it can affect the longevity of the project. They ensure that the optimum mechanical performance of a self-drilling fastener is obtained, supporting the integrity of the building envelope.

The majority of fastener-related problems on site are linked to using incorrect tooling.

Organisations such as NFRC & MCRMA agree that there must be a collective responsibility between designers, contractors and installers to get it right.

Do

- Install roofing and cladding self-drilling fasteners using either a battery screw gun or a 110v screw gun, ideally with a nose piece tapered at the sides (this allows the installer to check the EDPM washer compression during installation)
- Ensure that the screw gun is fitted with a correctly adjusted depth locating nose piece (unless the fastener has features to prevent overdriving)
- Install roofing and cladding self-drilling fasteners at speeds less than 2000 rpm whether or not the fastener has
- Always use the correct PPE to avoid personal injury
- Ensure correct sockets and drive bits are used
- Any magnet must be recessed deep enough to clear the head
- External sockets must drive on the flange at the base of the screw head.

Do not

- Install roofing and cladding fasteners with either an impact driver or a dry wall screw gun
- Apply excessive end loads (bodyweight) force via the screw gun whilst the fastener is drilling, particularly on thicker hot rolled / heavy section steel

Guidance on
Using Screw Guns

RPM speed

- Drill points do not perform well at high speed, so a maximum of 2000 rpm

Too high e.g. 4000 rpm - will burn out the fastener's drill point

- This is cruicially important as higher tensile (harder) grades of steel are being increasingly used
- This higher tensile material stretches the self-drilling performance tolerance
- Therefore, it is imperative that the correct installation tools are specified to minimise the number of cases where fasteners are burning out

An adjustable depth locating nose piece

- This nose piece aides correct thread engagement relative to the components being joined - and washer engagement to create a consistently good seal.

Drill Speed - Light / Heavy / Stitching

- Applying excessive end load via the screw gun whilst the fastener is drilling can also be counterproductive and increase the risk of the fastener burning out
- This is, perhaps naturally, more common on thicker hot rolled / heavy section steel
- The exact speed of the screw gun will vary depending on the fastener type and the steel substrate, but the slower a fixing is installed, the higher the mechanical performance

Light section	Heavy Section Rail	Stitcher 0.7mm x 2
2000 rpm MAX	1800 rpm MAX	2000 rpm MAX

Screw Gun example

A pistol grip screw gun is shown in the images of the guidance.

Examples of typical screw guns

Guidance on
Using Screw Guns

Features	Current Fein ASCS 18-6.3	Fein ASCM 18-4 QM AS	DeWalt - 622N-XJ	Hilti ST1800	Hilti ST2000
Screw Gun					
Setting Speed, rpm	1800 rpm	Gear 1 : 430 rpm Gear 2: 850 rpm Gear 3: 2000 rpm	2000 rpm	2000 rpm	2000 rpm
Torque Adjustment	Yes	Yes	Yes	Yes	Yes
Max Torque	10 Nm	12 Nm	11 Nm	12Nm	12Nm
Ergonomic Grip	In-line/Pistol Grip	No (Std grip)	In-line/Pistol Grip	In-line/Pistol Grip	In-line/Pistol Grip
Clutch	Yes	Yes	Yes	Yes	Yes
Chuck Type	Quick-release chuck 1/4»	Option: Quick-release chuck 1/4»	Quick-release chuck 1/4»	Quick-release chuck 1/4»	Quick-release chuck 1/4»
Battery	18 V-lithium-ion	18 V-lithium-ion	18 V-lithium-ion	22 V-lithium-ion	22 V-lithium-ion
Weight without Battery	1.1 kg	1.3 kg	1.4 kg	1.8 kg	1.4 kg
Compatible SFS Ergodek® Setting Tool	Yes	No	Yes	Yes	Yes
Motor Technology	Brushless	Brushless	Brushless	Standard	Brushless
Available on the market	Discontinued	Yes	Yes	Hilti e-shop only	Hilti e-shop only
Accessories - setting Depth Control	FEIN -Depth Stop 20mm FEIN -Depth Stop 28mm 	QUICKIN depth stop, including stop sleeve (Till 28mm diameter) 	N/A	Depth Gauge ST-DG 19 Depth Gauge ST-DG 22 	Depth Gauge ST-DG 19 Depth Gauge ST-DG 22 

Guidance on
Using Screw Guns

Feature	Definition
Drill speed	The rate at which the motor spins
RPM	Revolutions per minute
Torque	A twisting force that causes rotation
Torque Adjustment	Prevents the screw gun from producing an excess of torque at one time when driving the screws
Nm	Newton metres
Clutch	Main role of the clutch is to control the driving force of the drill bits or screw. This force of power is torque. Essentially, when the clutch is engaged you are controlling how much torque is applied when drilling
Chuck	Drill chucks are devices used to hold drill bits, they allow for quick changeovers
Size of a chuck	These measurements refer to the size of the drill chuck - the part that holds the bit - and indicates the largest bit shank that will fit into the drill
Ergo Dek®	New metal deck setting tool - compatible with CDM fastener
Brushless Motor	Brushless power tools, in general, are higher performing. Removing the brushes from the motor results in less friction. Less energy is lost in friction and heat, more energy goes into creating higher torque. Brushless motors also have less wearable parts leading to longer durability
Pistol Grip	Pistol Grip refers to holding the screw gun like the following... 

Information on this document was sourced from MCRMA and NFRC guidance documents
MCRMA, GD32: https://mcrma.co.uk/publications-2/publications-guidance-documents/
NFRC, GN01: https://www.nfrc.co.uk/knowledge/guidance.html.›

SFS Group Fastening Technology Ltd.
Division Construction
153 Kirkstall Road
Leeds, LS4 2AT
ukenquiries@sfs.com
www.uk.sfs.com