

ASSEMBLY

Combining Efficiency, Reliability and Value...

Putting it all together

To keep up with the rapidly growing demands of modern assembly applications, Sioux Tools remains on the cutting edge of engineering design. We continue to be innovative in creating new tools to provide faster rundown speeds with exceptional accuracy and consistent torque delivery, combined with ergonomic design for operator comfort and safety.

We build every tool to help assembly operators become more productive. We believe they deserve tools that will help improve their quality of performance and maximize the skills they bring to the job.

Exclusive Designs

Sioux Tools is the exclusive manufacturer of the Z-handle. This unique feature allows access to tight, hard to reach angles.

Impact Wrenches

Suitable for general assembly, repair jobs etc. When you require a powerful, lightweight tool, with little reaction force and moderate accuracy. This is the best choice for loosening joints.

Screwdrivers

Sioux Tools offers a wide range of screwdrivers designed to meet today's fast paced, high output assembly and manufacturing applications.

Nutrunners

Sioux offers nutrunners that are designed for high volume industrial production. You can choose from free speeds of up to 2200 rpm, and a torque range of up to 600 in lb (68 Nm). These are outstanding tools for fast accurate assembly.

Assembly Safety

Broken sockets, bits and adapters can cause injury.

Proper eye protection must be worn at all times by tool user and bystanders. Use only sockets, bits and adapters made for power tools and that are in good condition. Use only bits and adapters that are in good condition. Keep hands away from sockets, bits and adapters.

Sudden and unexpected tool movement can cause injury.

Be sure your body position allows you to have control of the tool at all times. Make sure your footing is secure. Consult manufacturer for proper reaction bar if movement is excessive.

Tools starting unexpectedly can cause injury.

Always remove the tool from air supply and activate trigger to bleed air line before making any adjustments, changing accessories, or doing any maintenance or service on the tool.

Falling tools can cause injury.

If the tool is used with a balancer or other suspension device, be sure the tool is firmly attached to the device.

Assembly Principles of Operation

An air motor and planetary reduction gearing are used to drive a clutch spindle, producing torque in a fastener.

The action of the torque creates clamp-load in the assembly.

Motor size (horsepower), gear ratio, and type of clutch determine performance, and are key factors in selecting the appropriate tool for a given application.

Generally equipped with a 1/4" female hexagon spindle that allows inserting a screwdriver bit.

An Easy Drive Home



Sioux Tools offers a wide range of screwdrivers and nutrunners designed to meet today's fast paced, high output assembly and manufacturing applications. Sioux Tools is able to provide a perfect match for any job requirement. As industries strive to reduce fastener requirements, we work to meet the demand for greater accuracy and precision in fastening performance. The productivity demands for quality and speed, as well as user comfort, convenience and safety make Sioux Tools your number one choice.

Configurations

Sioux screwdrivers are available in pistol grip, inline, right angle and our exclusive Z-handle configurations. Most screwdriver models offer your choice of Quick Change or Locking Internal Hex spindles. The spring-loaded chuck on the Quick Change

allows for fast, easy bit changes without the need for additional tools or hardware. The slimmer design of the Locking Internal Hex ensures that the bit stays firmly in place until you choose to remove it with the aid of a vise or pliers.

Reducing Physical Load

We design all our screwdrivers with ergonomics in mind. We help you get the job done with a minimum amount of effort and wear and tear on the operator. By reducing the physical load on the operator, which includes noise and oil mist, productivity will be improved. Sioux Tools offers many benefits including high torque accuracy, low sound levels and ergonomic grips. Fast clutch shutoff reduces reaction force, while the shape reduces the amount of gripping and trigger force required.

Clutch Selection

Positive Clutch – Spindle will not turn with motor until operator exerts forward pressure on spindle engaging the clutch. The clutch ratchets when torque resistance from the fastener overcomes the forward pressure and the jaws begin to cam apart. Torque output of the tool is determined by forward pressure from operator and by the cam angle of the clutch jaws. For wood, sheet metal, and machine screws and lag bolts.

Sioux Tools is the exclusive manufacturer of three different positive clutches; Low, Mid and High torque output. Your choice of clutch allows you to more precisely control the amount of torque exerted on the fastener.

Stall Drive – Spindle is coupled directly with the output of the motor. Final torque is reached when resistance of the fastener overcomes the torque output of the motor. Final torque can be influenced by air pressure and/or operator twisting the tool.

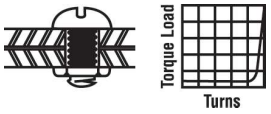

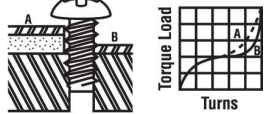


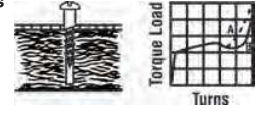
For prevailing torque or soft pull applications involving machine, wood, or self-tapping screws.

Adjustable Clutch – Spindle will not turn with motor until operator exerts forward pressure on spindle engaging the clutch. When fastener is tight, clutch will ratchet. Adjusting spring pressure will effect final output torque. Offers consistent torque control with little operator reaction.

Torque Control – Motor shuts off automatically when fastener is tight. Adjusting spring pressure changes final output torque for critical torque requirements. Perfect for applications with little or no prevailing torque where final torque is substantially higher than rundown torque.

Direct Clutch – Spindle will not turn with motor until operator exerts forward pressure on spindle engaging the clutch. Final torque is reached when resistance of the fastener overcomes the torque output of the motor. Excellent stall type tool when tightening group of fasteners without turning off motor.

Clutch Selection Guide

Type of Job	Clutch Performance			
	Torque Control	Adjustable	Direct/Stall Drive	Positive Clutch
1. Free-Running – Sudden Stop  <p>Turns easily until screw head or nut seats against a solid stop. Resistance then builds up suddenly.</p>	Excellent for all size screws.	Good for all size screws. Close torque control is not required.	Good for large or medium nuts or cap screws only.	Fair for all size screws where close torque accuracy is not required.
2. Soft Pull-Up  <p>Turns easily until screw head or nut seats, then resistance builds up gradually through one or more turns as resilient material compressed.</p>	Excellent for all size screws.	Good for most screws. Close torque control is not required. Slow on large screws with long pull-up.	Good for large and medium size screws. Must be adjusted to run rather slowly for small screws.	Good for small to medium size screws. Requires considerable operator pressure on large screws.
3. Self-Tapping in Thick Material  <p>Increasing heavy resistance through entire travel until screw head seats. Then either (A) gradual, or (B) sudden final build-up resistance.</p>	Excellent for all size screws. Not suitable if tapping torque exceeds stripping torque.	Good for most screws. With proper operator technique, can be used where tapping torque exceeds stripping torque. Slow on large screws.	Not recommended unless stripping torque is considerably higher than tapping torque.	Good for most size screws where stripping torque is considerably higher than tapping torque. Excellent in non-uniform or misaligned material.
4. Sheet Metal Screws  <p>Resistance increases rapidly at first, then eases slightly. At the end, it usually builds up suddenly when screw head seats.</p>	Good for all size screws. Not suitable if tapping torque exceeds stripping torque.	Good for most screws. With proper operator technique, can be used where tapping torque exceeds stripping torque.	Not recommended unless stripping torque is considerably higher than tapping torque.	Good for all size screws where stripping torque is considerably higher than tapping torque. Excellent when sheets are frequently misaligned.
5. Lock Nuts  <p>Starts with heavy resistance that last through entire travel until screw or nut seats. Then either (A) gradual, or (B) sudden further build-up resistance.</p>	Excellent for all size screws.	Good for most screws. Close torque control is not required.	Good for large and medium screws. Must be adjusted to run rather slowly for small screws.	Fair for all size screws.
6. Wood Screws  <p>Starts with small resistance that steadily increases through entire travel with additional resistance as screw head seats.</p>	Fair for all size screws.	Good for all size screws.	Excellent for large and medium screws. Must be adjusted to run rather slowly for small screws.	Excellent for all size screws.

Tool Selection Guide

Considerations for Selecting Screwdrivers

This should be done in a systematic way to ensure no details are overlooked that could have an adverse affect on job function or results. The following are variables that must be considered to ensure proper tool selection.

What is being assembled?	What is the production rate?
What material is involved?	Are there clearance problems?
What type of screw or nut is being driven? What head type?	What handle style is required (straight or pistol)?
What screw size (standard or metric)?	Is the tool to be hand held or fixtured?
What U.S. grade or metric class?	What type of clutch?
What torque (inch pounds or Newton meters)?	Speed required?
What torque tolerance (accuracy)?	Is there a need for a reversible tool?
What is the run-down torque vs. seating torque?	What type of drive (square, 1/4" hex, quick change)?
What type of joint pull-up (hard, medium, soft)?	How is the application being done now?
What pull-up conditions (free run-down, sheet metal, wood, or plastic)?	Special consideration?

What is the size and type of screw or fastener on which the tool will be used?

No 1 Series Tools – 2 to 50 in lb of torque. (Fasteners up to 1/4")

.6 & 1 HP Signature Series Tools – 5 to 400 in lbs of torque. (Fasteners up to 3/8")

No 3 Series Tools – 5 to 50 ft lbs of torque. (Fasteners up to 1/2")

What kind of application and material will the fastener be used on?

The type of material helps to determine which type of clutch is needed.

Application & Material Guide

Screw Size				
	Clutch	Free Run Down	Soft Pull-Up	Prevailing Torque
No 8 and Smaller				
	Adjustable	Excellent	Excellent	Excellent
	Stall	Excellent	Good	Excellent
	Direct	Good	Good	Good
	Positive	Fair	Fair	Good
No 10 and Larger				
	Adjustable	Good	Fair	Fair
	Stall	Good	Excellent	Excellent
	Direct	Good	Excellent	Excellent
	Positive "P"	Good	Excellent	Excellent
	Positive "PS"	Good	Excellent	Excellent

What are the torque requirements?

Most air tools share the quality: as the speed increases, the torque decreases. This applies to tools within the same horsepower rating.

- A.** Stall or direct clutch gives the most torque.
- B.** Positive clutch tools are operator influenced.
- C.** Adjustable torque clutches are available on most Sioux fastening tools.
- D.** Torque control is available on No 1

At what angle or position will the tool be used?

This will determine the style of tool best suited from an ergonomics point of view.

- A.** If the fastener is in a vertical position, a straight or lever style tool will be best.
- B.** If the fastener is in a horizontal position a pistol style tool will be best.
- C.** If the fastener is in a tight or constricted area the "2S" series works well in this application.

Is reversing necessary?

Most fastening applications are going to require a reversible tool. Keep in mind that in most cases a non-reversing tool will have more torque than a reversible tool.

Is the application operator influenced or restricted?

- A.** Is the operator male or female? This can be a factor in determining the size of the power tool (weight for example).
- B.** Does the application lend itself to an auto start tool, as in the No 1 series?

An example of applying these questions to an application would be:

Driving a 2" long wood screw into hardwood with a pilot hole. The fastener is in a horizontal position during assembly. A test with a hand torque wrench indicates a prevailing torque of 80 in lbs, and a failing torque of 120 in lbs.






























- 1.** 2" long wood screw
- 2.** Hard Wood use positive clutch
- 3.** SSD10P20PS – 100 in lbs
- 4.** Pistol will work best
- 5.** Need reversing
- 6.** Mostly male workers

Screwdriver Maintenance



Guide to Fasteners

Guide To Fasteners

Screw Type	Standard Nosepieces Available For All Fasteners Shown Below			
Wood Screws	 flat head	 round head	 oval head	
Machine Screws	 round head	 flat head	 fillister head	 oval head
* Standard or Special, depending on the washer diameter.	 truss head	 binding head	 washer head*	 pan head
	 flat side binding head	 fillister pan head	 flat fillister head	 undercut flat head
	 knob screw head	 lentil head	 Jackson head	 undercut oval head
Tapping or Sheet Metal Screws	 round head	 flat head	 oval head	 pan head
	 truss head			
Drive Systems	Standard			Special*
	 Phillips	 Reed-Prince	 slotted	 clutch
				 Torx
* Special bits required for Clutch and Torx internal and external. Call factory.				

* Special bits required for Clutch and Torx internal and external. Call factory.