

# TITAN TOOL

## SENTINEL<sup>®</sup> SERIES MICRO-MATIC STUD DRIVER WITH TORQUE CONTROL

1. Drives studs to pre-determined torque.
2. Prevents stud or part damage when driving to shoulder or bottom of hole.
3. Quick releasing, non-reversing design assures high speed stud driving production.
4. Offers micro-design for close clearance areas.

### Excellent results on:

- Power Hand Tools
- Single or multiple spindle units
- Semi- or fully automatic assembly machines

### Features:

- Two tool sizes covering #8-32 thru 7/16" and M4 thru M10 stud sizes
- Posi-Load<sup>®</sup> gage for "automatic stud pick-up"
- "Cartridge design for fast easy maintenance procedures"



# SENTINEL® SERIES MICRO-MATIC STUD DRIVER WITH TORQUE CONTROL



SENTINEL-2 TORQUE CONTROLLED  
STUD DRIVER

## THE TITAN SENTINEL® SERIES

The TITAN SENTINEL SERIES represents a unique combination: a new generation in stud driving tools PLUS newly patented, low cost torque control. Its micro-design enables the SENTINEL SERIES to be used on many applications previously inaccessible with automatic torque controlled stud drivers. Productivity is enhanced due to the ability to use the SENTINEL SERIES rather than reversing type stud drivers, which require twice the cycle time of automatic stud drivers. Internally, the SENTINEL SERIES is the culmination of newly patented design concepts resulting in several performance advantages:

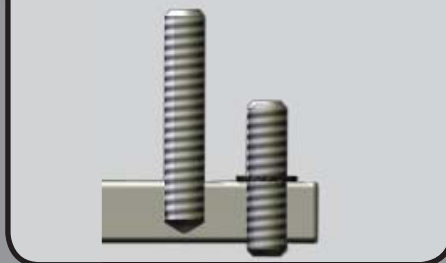
### CARTRIDGE DESIGN FOR EASY MAINTENANCE

The TITAN SENTINEL incorporates a unique cartridge design. By simply unscrewing the upper clutch portion of the tool, all internal parts may be literally poured out onto the work table. This eliminates time consuming and costly repairs, as well as the need to keep excessive quantities of replacement tools on hand. All parts are made of special alloy steel, heat treated to optimum levels and are independently replaceable.

### PREDETERMINED, CONTROLLED TORQUE

Studs have been driven to their maximum possible depth (either to the bottom of hole or until the shoulder on

#### NOTE POSITION OF STUDS:



stud is flush with part). The SENTINEL is designed to drive the stud to this point, at which time the patented clutch overruns, producing an audible torque tone, signaling the operator to lift the tool from the stud. Since the clutch is free-wheeling at this moment, and, because the SENTINEL is self-opening, it is not necessary to stop rotation.

### TWO STAGE, ANTI-STRIP LOADING AND UNLOADING CYCLES

TITAN SENTINEL SERIES AUTOMATIC stud drivers incorporate a unique camming sequence which prevents any torque from being transmitted to the stud while the jaws are only partially engaged. Whether in the loading or unloading cycle, the jaws are unable to shift position relative to the stud while the main drive tang is engaged. This greatly reduces the danger of thread stripping on the stud.

### THE POSI-LOAD® STUD RETAINER

1. Eliminates the need to pre-start stud into casting.
2. The stud may be inserted by hand, by automatic feed or by shuttle plate.
3. Enables operator to pre-load stud driver quickly and simply without danger. (There is no torque on the stud when it is inserted into the Posi-Load only).
4. Pins provide positive grip on stud.



### POWER SOURCE

SENTINEL SERIES stud drivers are adaptable to any power source, except impact wrenches  
Recommended RPM: 500  
The SENTINEL SERIES is ideal for use on semi and fully automatic assembly machines. Also their light weights and sleek profiles make them a popular tool for use on hand held applications.

### WHAT ABOUT TOOL MAINTENANCE?

Titan SENTINEL SERIES stud drivers are easy to maintain and repair. Instruction sheets and parts lists are available upon request. If desired, TITAN TOOL COMPANY offers a prompt, economical repair service of your stud driver when returned to the factory.

# THE TITAN SENTINEL® SERIES

FIGURE 1

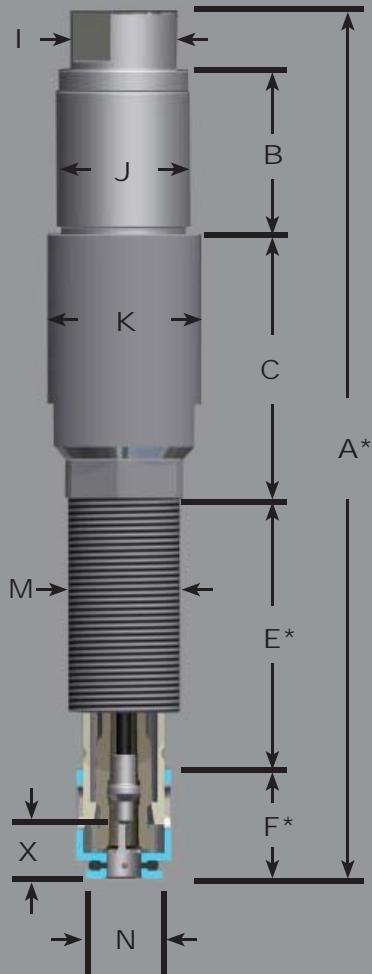


FIGURE 2

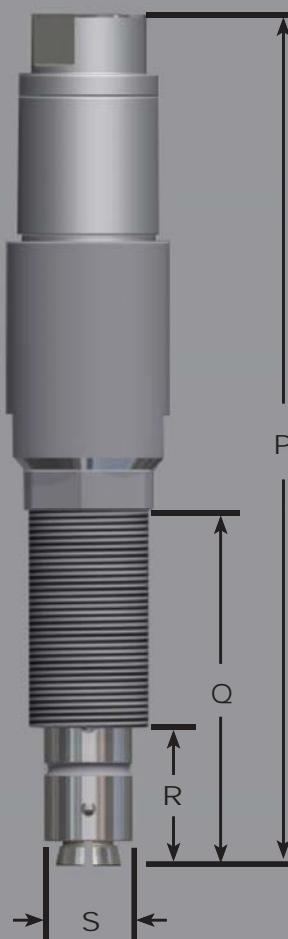
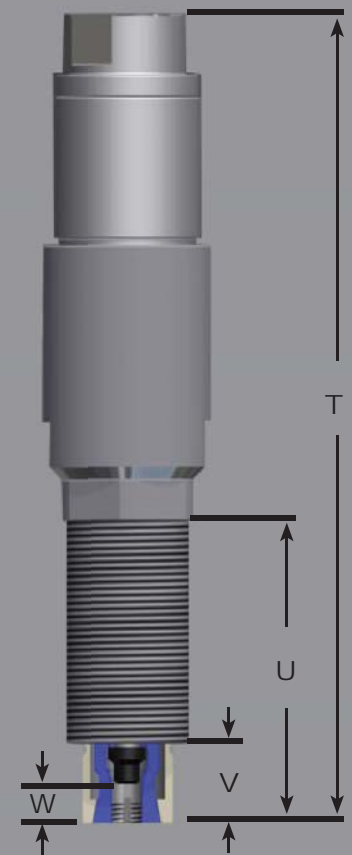


FIGURE 3



## PHYSICAL DIMENSIONS FOR SENTINEL-1, 2, AND 2A

	Dimensions	A	B	C	D	E	F	I	J	K
SENTINEL -1	INCHES	6 15/16	1 15/16	1	13/16	2 3/4	15/16	15/16	1 5/32	1 3/8
	MILLIMETERS	176	49	25	21	70	24	24	29	35
SENTINEL -2	INCHES	7	1 15/16	31/32	7/8	2 21/32	15/16	15/16	1 5/32	1 3/8
	MILLIMETERS	178	49	25	22	67	24	24	29	35
SENTINEL -2A	INCHES	8 7/32	2 3/4	1 1/4	7/8	2 21/32	29/32	1 5/16	1 5/8	1 29/32
	MILLIMETERS	209	70	32	22	67	23	33	41	48

	Dimensions	M	N	P	Q	R	S	T	U	V
SENTINEL -1	INCHES	1	27/32	7 1/8	2 29/32	1 1/8	3/4	6 25/32	2 1/2	3/4
	MILLIMETERS	25	21	181	74	29	19	172	64	19
SENTINEL -2	INCHES	1 3/8	1 5/32	7 1/4	3	1 1/4	1 1/32	6 3/4	2 1/2	3/4
	MILLIMETERS	35	29	184	76	32	26	171	64	19
SENTINEL -2A	INCHES	1 3/8	1 5/32	8 1/4	3	1 1/4	1 1/32	7 3/4	2 1/2	3/4
	MILLIMETERS	35	29	206	76	32	26	197	64	19

NOTE: All dimensions ± 1/32" or ± 0.8mm

WEIGHT: SENTINEL-1 1.30 lbs.  
 SENTINEL-2 1.90 lbs.  
 SENTINEL-2A 2.95 lbs.

# THE TITAN SENTINEL® SERIES



FIGURE 1: SENTINEL with Posi-Load Stud Retainer

\*Tool shown in shortest position (with jaws fully engaged on stud). Add 19/32" when tool is unloaded.

FIGURE 2: Less Posi-Load - Jaws unloaded (open).

FIGURE 3: Less Posi-Load - Jaws loaded (closed).

NOTE: When side interference prevents use of Posi-Load due to diameter restrictions, the SENTINEL may be run less Posi-Load. However the stud must be hand started into casting when this occurs.

## STUD ENGAGEMENT FOR SENTINEL-1, 2 AND 2A

		STUD SIZES	M4, M5, #8, #10	1/4, M6, M7	5/16, M8	3/8, 7/16, M10
SENTINEL-1	W THREAD GRIP	INCHES	9/32"	3/8"	15/32"	-
		MILLIMETERS	7mm	9.5mm	12mm	-
	X TOTAL STUD ENGAGEMENT WITH POSI-LOAD	INCHES	13/32"	19/32"	11/16"	-
		MILLIMETERS	10.3mm	15mm	17.5mm	-
SENTINEL-2 AND SENTINEL-2A	W THREAD GRIP	INCHES	-	-	15/32"	15/32"
		MILLIMETERS	-	-	12mm	12mm
	X TOTAL STUD ENGAGEMENT WITH POSI-LOAD	INCHES	-	-	11/16"	11/16"
		MILLIMETERS	-	-	17.5mm	17.5mm

NOTE: All dimensions  $\pm 1/32"$  or  $\pm 0.8\text{mm}$

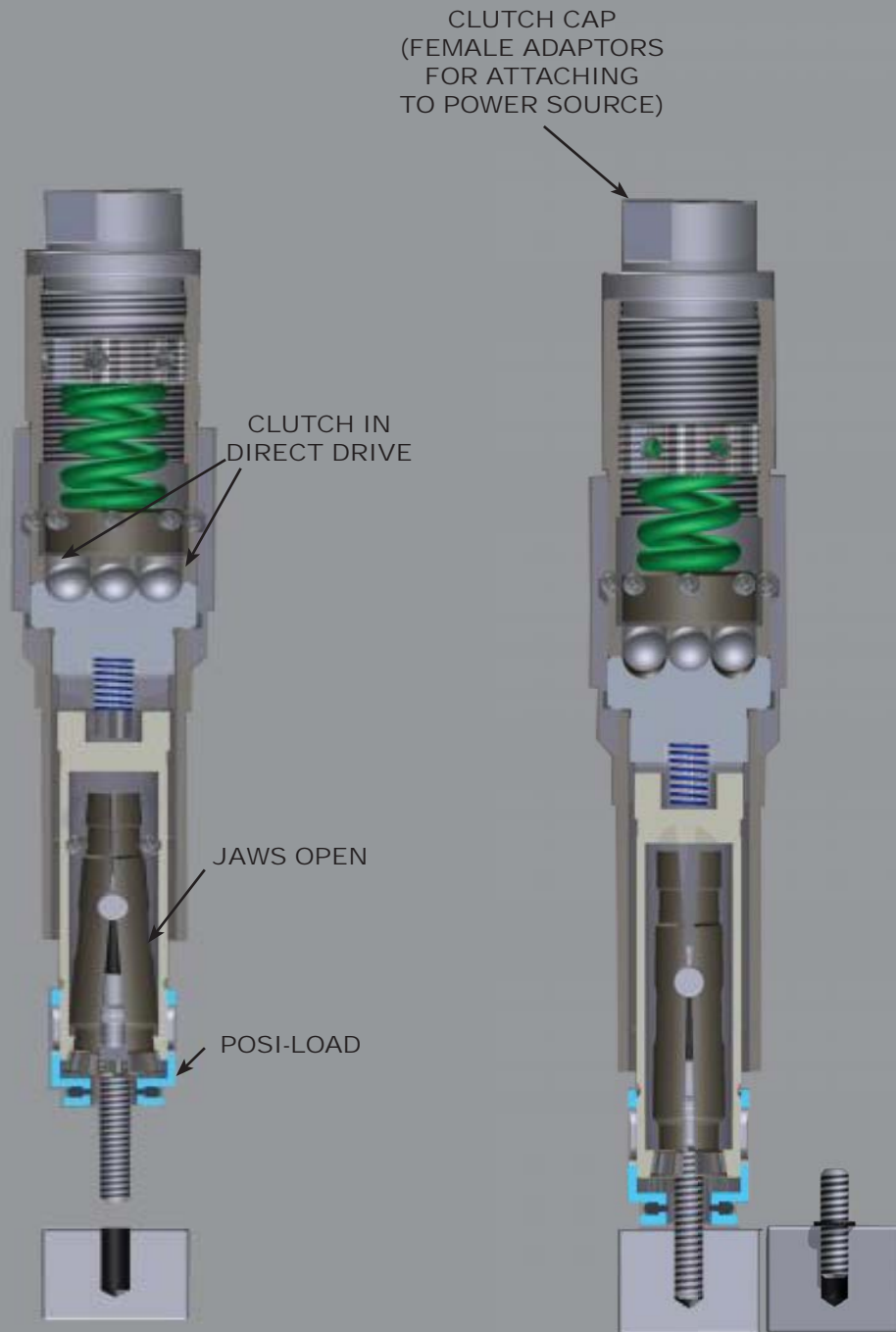
IMPORTANT: For studs with thread lengths shorter than dimension "W", contact TITAN TOOL COMPANY for special modifications.

**Figure 1**

Tool prior to loading of jaws. Stud has been pre-loaded into Posi-Load. Jaws will load automatically when stud contacts casting. Tool should be rotating prior to contact with casting.

**Figure 3**

Stud has been fully driven to bottom of hole (or shoulder on stud). Although jaws are still closed on stud, the adjustable clutch is over-running. Tool is ready to be lifted off stud, which will cause the jaws to open. (Spindle should be rotating continuously during drive and retraction cycles. Tool can be lifted off stud at anytime during drive cycle.)



# SENTINEL® SERIES MICRO-MATIC STUD DRIVER

## SENTINEL ORDERING INFORMATION

TOOL SIZE	FEMALE ADAPTORS (Choose one)	CLUTCH SPRING (Choose one)	STUD SIZE (Choose one)		EQUIPPED WITH
			U.S.	METRIC	
SENTINEL-1	3/8"-24 Threaded 1/2"-20 Threaded 5/8"-16 Threaded M14x1.00 Threaded 3/8" Square 1/2" Square	Medium 0-12 foot lbs. (Green) 0-17 NM 0-1.7 Kgm.	#8-32 #10-24 #10-32 1/4"-20 1/4"-28 5/16"-18 5/16"-24	M4 x .7 M5 x .8 M6 x 1.00 M7 x 1.00 M8 x 1.25 M8 x 1.00	Posi-Load Stud Retainer  Optional: - #10 Gage - Auto-Load Gage
SENTINEL-2	3/8"-24 Threaded 1/2"-20 Threaded 5/8"-16 Threaded M14x1.00 Threaded 3/8" Square 1/2" Square	Medium 0-12 foot lbs. (Green) 0-17 NM 0-1.7 Kgm.  Heavy 12-17 foot lbs. (Red) 17-23 NM 1.7-2.4 Kgm.	5/16"-18 5/16"-24 3/8"-16 3/8"-24 7/16"-14 7/16"-20	M6 x 1.00 M7 x 1.00 M8 x 1.25 M8 x 1.00 M10 x 1.50 M10 x 1.25	Posi-Load Stud Retainer  Optional: - #10 Gage - Auto-Load Gage
SENTINEL-2A	3/8"-24 Threaded 1/2"-20 Threaded 5/8"-16 Threaded M14x1.00 Threaded 3/8" Square 1/2" Square	Heavy 20-35 foot lbs. (Black) 27-47 NM 2.7-4.8 Kgm.	5/16"-18 5/16"-24 3/8"-16 3/8"-24 7/16"-14 7/16"-20	M8 x 1.25 M8 x 1.00 M10 x 1.50 M10 x 1.25	Posi-Load Stud Retainer  Optional: - #10 Gage - Auto-Load Gage

### EXAMPLES FOR ORDERING:

(Assume 1/2" Male Square on power tool.)

- A. M6 x 1.00 stud being driven to 7NM  
Specify: SENTINEL-1, M6 x 1.00, Medium, 1/2" square.
- B. M10 x 1.50 stud to be driven to 20NM  
Specify SENTINEL-2, M10 x 1.50, Heavy, 1/2" square.
- C. 7/16"-14 stud to be driven to 39 foot lbs.  
Specify SENTINEL-2A, 7/16"-14, Heavy, 1/2" square.

### WHEN ORDERING:

TITAN TOOL COMPANY has specialized in stud driving since 1920. We offer many years of experience in this field. We encourage you to contact us before proceeding with any new set-ups involving our tools. Our service is prompt and free of charge.

### IMPORTANT:

- SEND COMPLETED "CUSTOMER SPECIFICATION SHEET" WITH ORDER
- INCLUDE SAMPLE STUD WITH ORDER
- DO NOT USE ON IMPACT WRENCH

### SPRING LOAD NECESSITY

IMPORTANT - On all single and multiple spindle applications:

- Always mount tools on spring-loaded spindles - otherwise, tool life and performance will be adversely effected
- Refer to literature on the TITAN TTSL series of spring loaded adaptors.

### PROJECTION HEIGHT REQUIRED?

CONSIDER THE TITAN LANCER STUD DRIVER

Note the position of stud:  
driven to a required projection height, it has not been driven to bottom of tapped hole, and threads are still visible above surface on casting end of stud. The TITAN LANCER with "Trip Gage" is designed specifically for this purpose Please refer to the TITAN LANCER SERIES MICRO-MATIC STUD DRIVER Brochure for details on this type of application.



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