

SENTINEL® Series Stud Driver with Torque Control



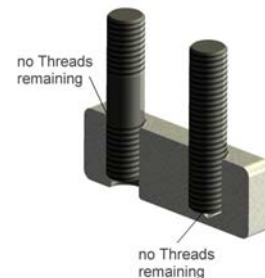
The **SENTINEL® Series** represents a unique combination: a stud driving tool plus low cost torque control. Its micro-design enables the **SENTINEL® Series** to be used on many applications. Productivity is enhanced due to the ability to use these rather than reversing type stud drivers, which require twice the cycle time of automatic stud drivers.

Cartridge Design for easy Maintenance

The **SENTINEL® Series** incorporates a unique cartridge design. By simply unscrewing the Assembly Cap, all internal parts may be literally poured out onto the workbench. This eliminates time consuming and costly repairs, as well as the need to keep expensive 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 stud is flush with part**). The **SENTINEL® Series** 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, it is not necessary to stop rotation, because the **SENTINEL®** is self-opening.



Two Stage, anti-strip loading and unloading Cycles

SENTINEL® 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.

Posi-Load/Machine-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)



Posi-Load



Machine-Load

Power Source

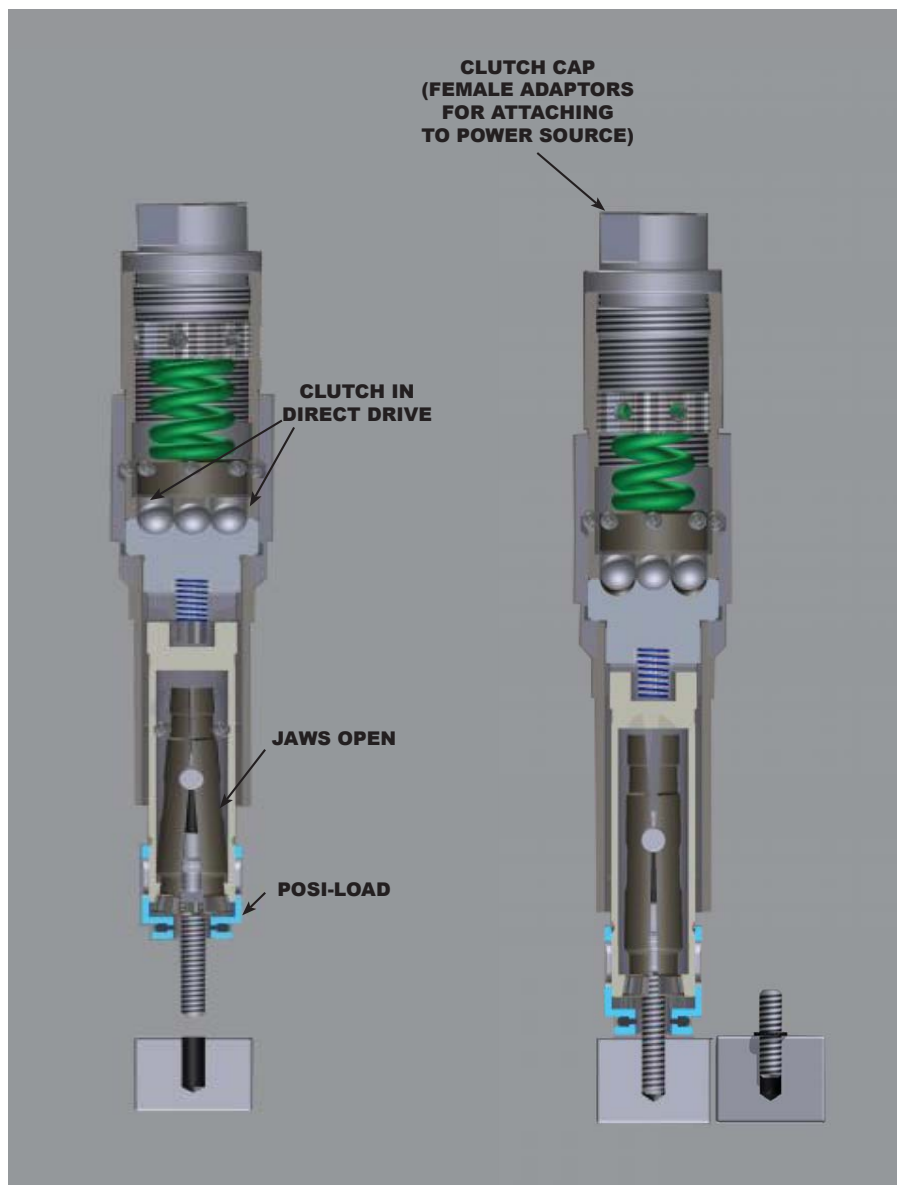
SENTINEL® stud drivers are adjustable to any power source, **except impact wrenches**.

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 2

Stud has been fully driven to bottom of hole (or shoulder on stud). Although jaws are still closed on stud and the main drive tang and drive slot are still engaged, 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 Performance-Options



Centering Guide

- use when studs are pre-started into workpiece



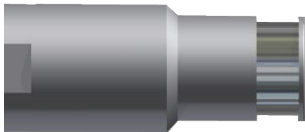
Posi-Load Stud Retainer

- for semi-automatic (hand loading) of stud into stud driver
- may also be used for machine loading of stud



ML Machine-Load Stud Retainer

- for fully automatic pre-loading of stud into stud driver
- NOT recommended pre-loading by hand



#10 Gage

- for adjustable stud projection height
- Studs must be pre-started into workpiece
- trips tool into "non-drive, free wheeling" mode when face of gage touches workpiece
- NOT recommended when driving studs to torque



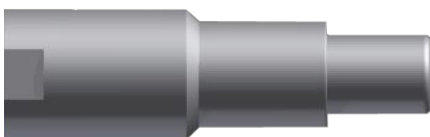
#10 AL Auto-Load Gage

- for adjustable stud projection height
- for semi-automatic (hand loading) of stud into stud driver
- trips tool into "non-drive, free wheeling" mode when face of gage touches workpiece
- may also be used as stud retention with longer studs



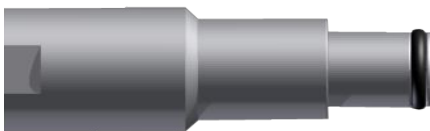
#10 ML Machine-Load Gage

- for fully automatic pre-loading of longer studs into stud driver
- may also be used as stud retention with longer studs, provides superior concentricity
- NOT recommended pre-loading by hand



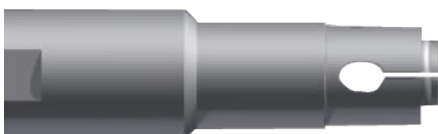
#11 thru #15 Gage

- For adjustable stud projection for longer studs or stud projections



#10 AL thru #15 AL

- use same as #10 AL Gage, but for longer studs or stud projections
- SPECIAL TO ORDER -



#11 ML thru #15 ML

- use same as #10 ML Gage, but for longer studs or stud projections
- SPECIAL TO ORDER -



#1 open Gage

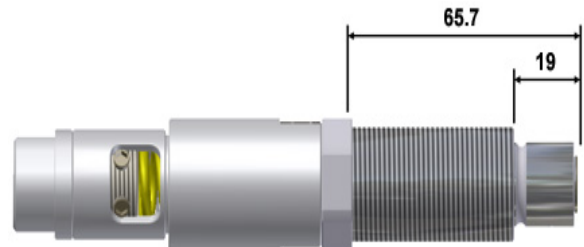
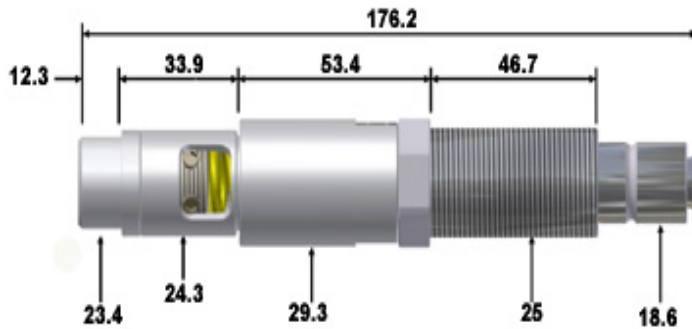
- use same as #10 Gage on studs with extremely short stud projections

SENTINEL-0® Dimensions

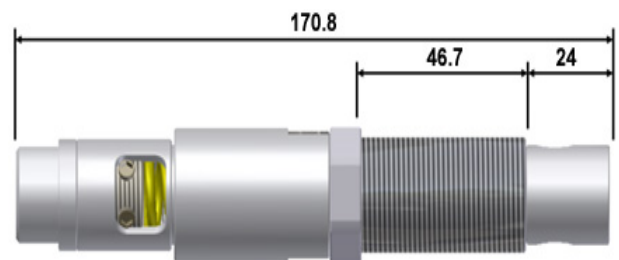
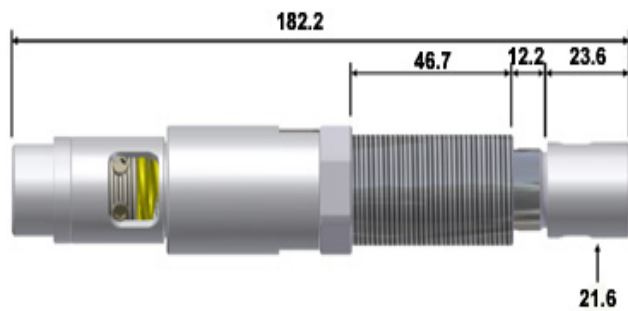
all dimensions are in millimeters

Jaws open, unloaded

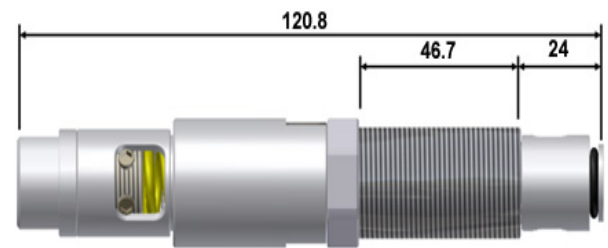
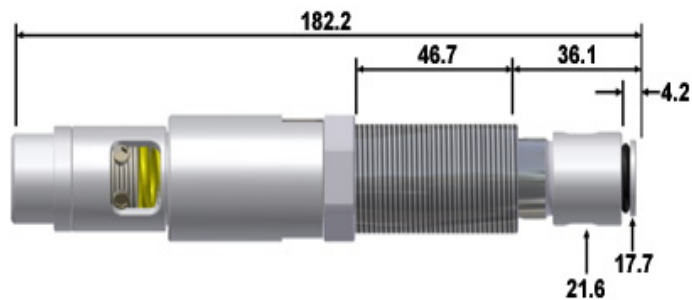
Jaws closed, loaded



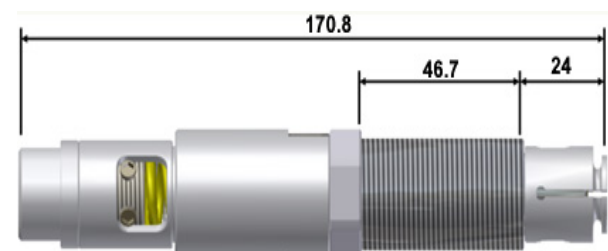
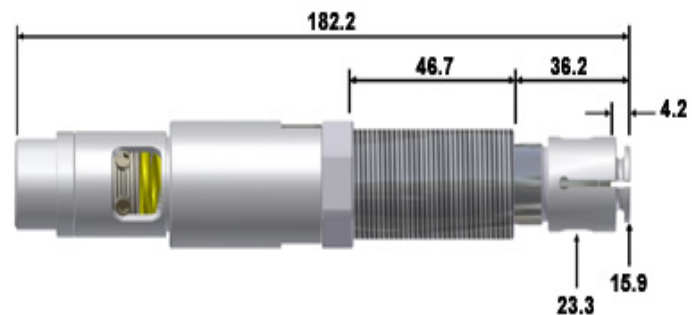
less Gage



with Centering Guide



with Posi-Load Stud Retainer



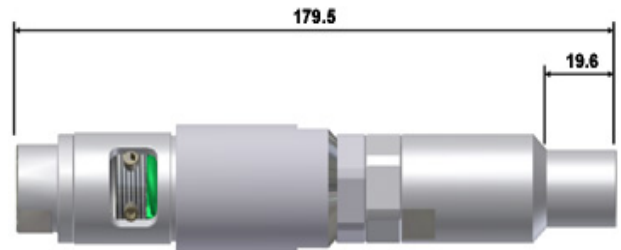
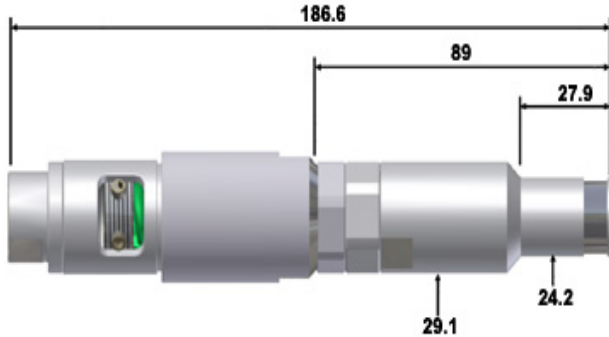
with Machine-Load Stud Retainer

SENTINEL-0® Dimensions

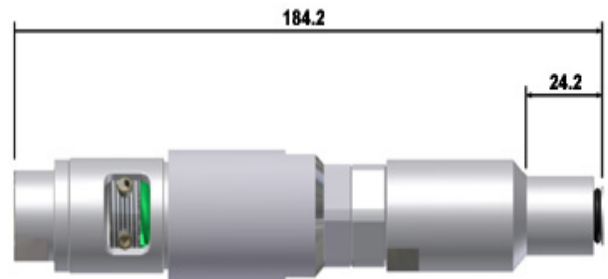
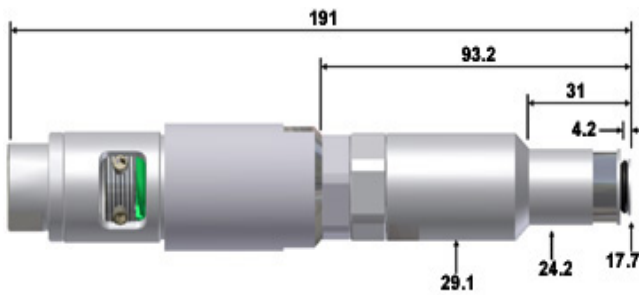
all dimensions are in millimeters

Jaws open, unloaded

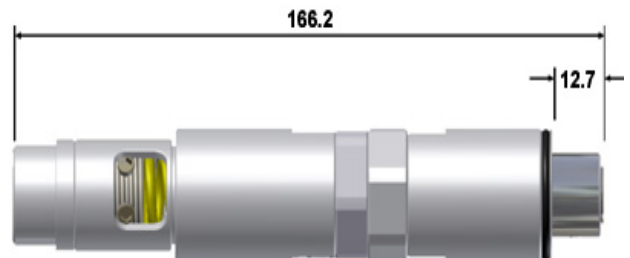
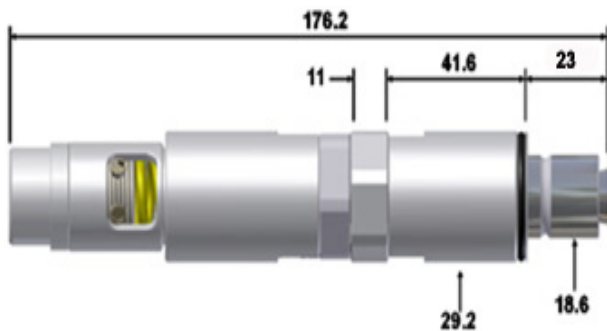
Jaws closed, loaded



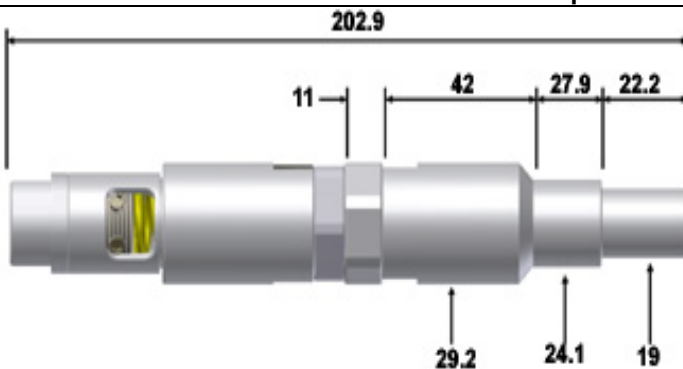
with #10 Gage set at minimum Projection



with #10 AL Gage set at minimum Projection



with Special Stud Retention



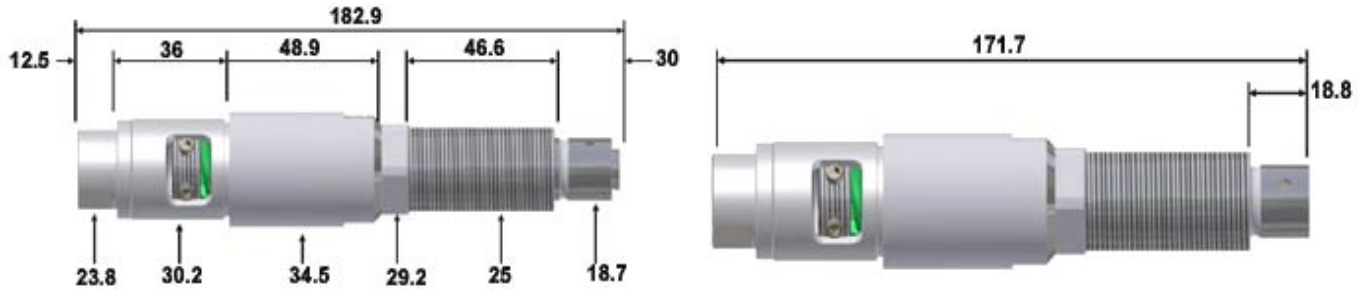
with Gage #11 set at minimum projection, loaded or unloaded
#11 AL Auto-Load Gage same dimensions

SENTINEL-1® Dimensions

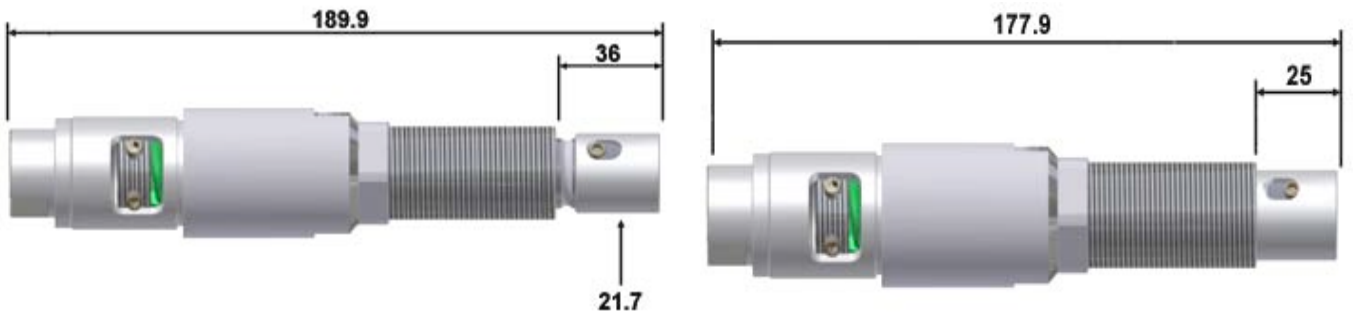
all dimensions are in millimeters

Jaws open, unloaded

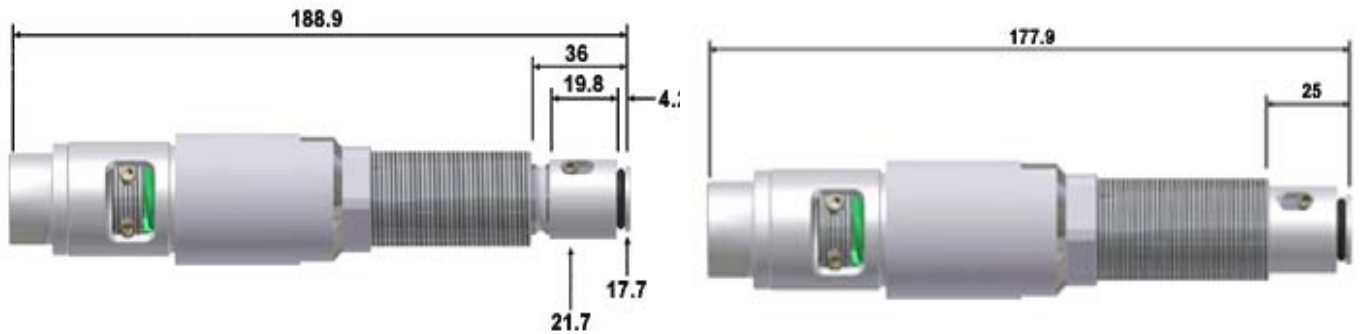
Jaws closed, loaded



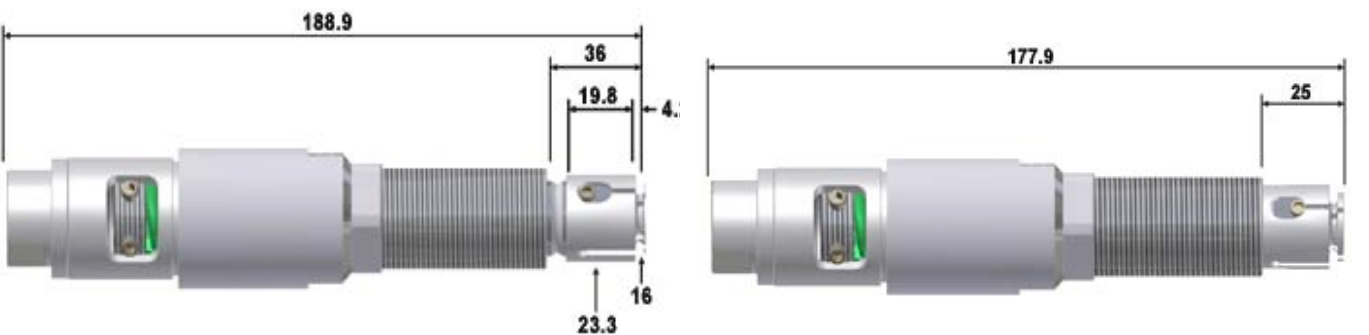
less Gage



with Centering Guide



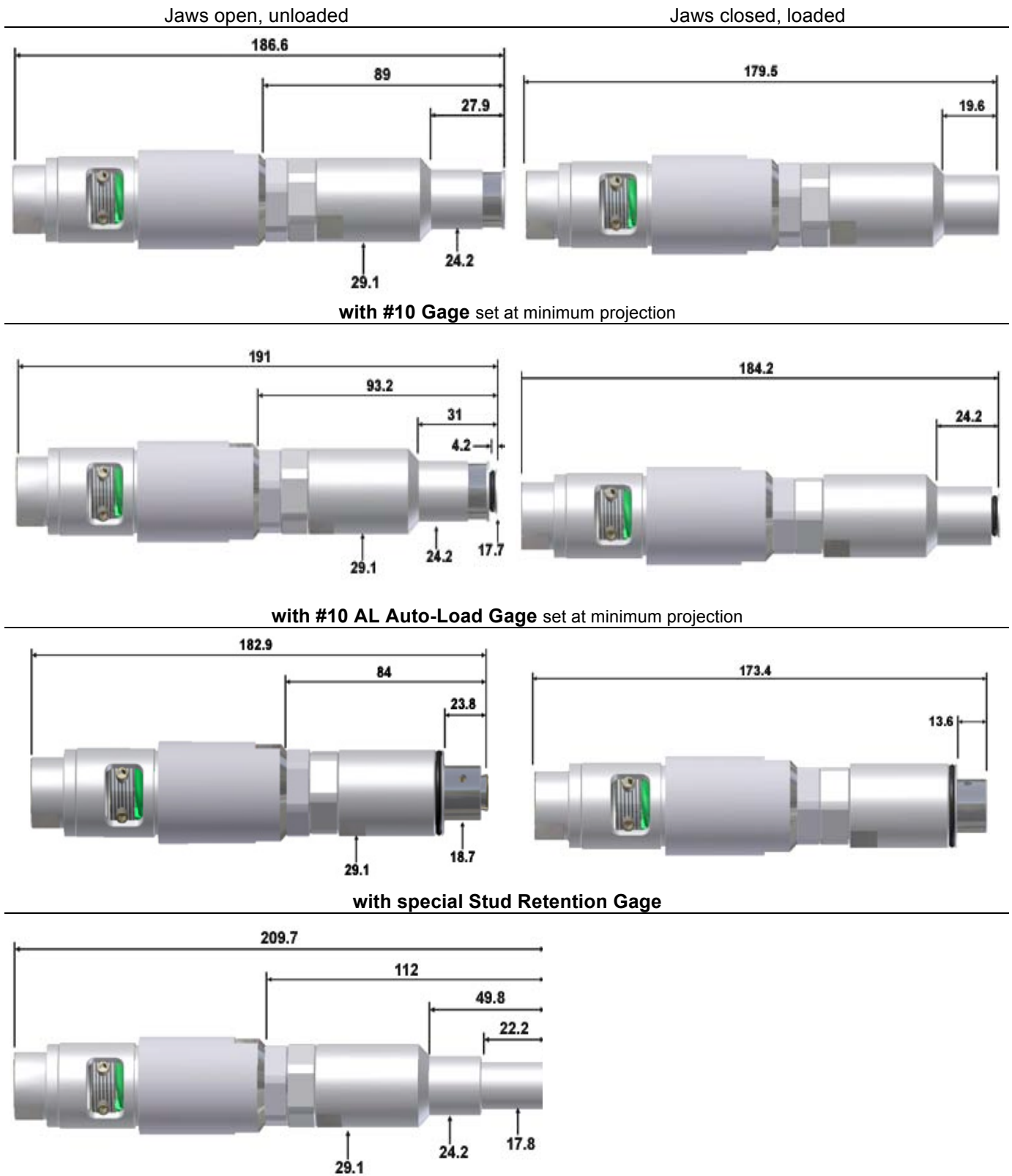
with Posi-Load Stud Retainer



with Machine-Load Stud Retainer

SENTINEL-1® Dimensions

all dimensions are in millimeters

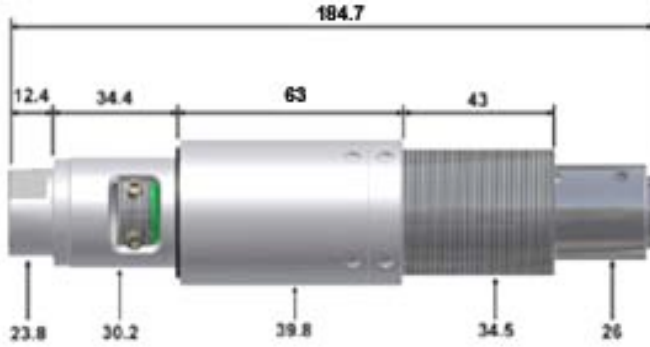


with Gage #11 set at minimum projection, loaded or unloaded
#11 AL Auto-Load Gage, and #11 Machine-Load Gage same dimensions

SENTINEL-2® Dimensions

all dimensions are in millimeters

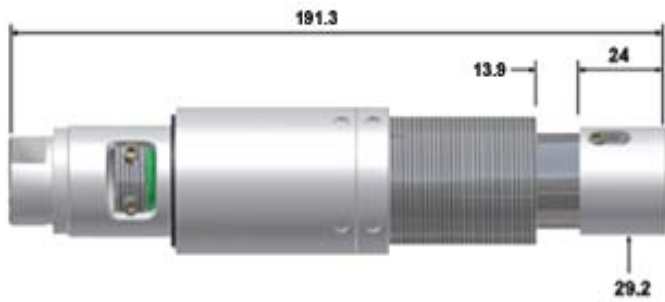
Jaws open, unloaded



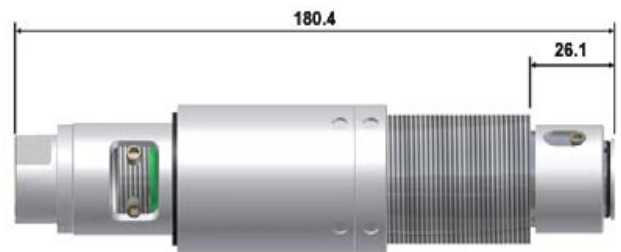
Jaws closed, loaded



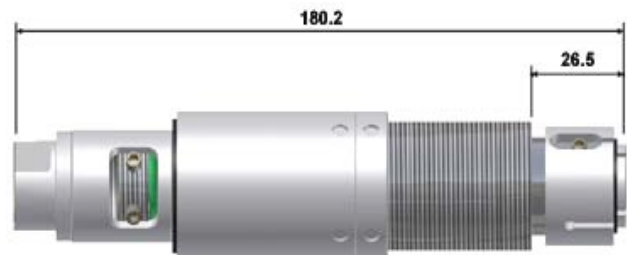
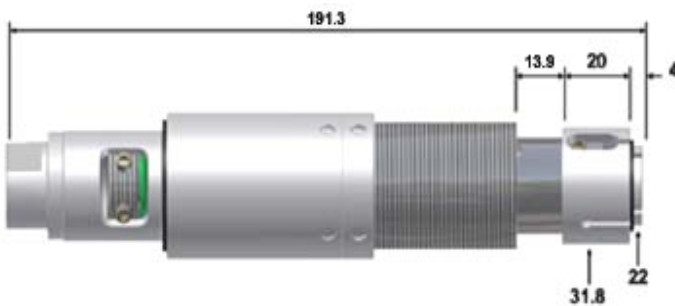
less Gage



with Centering Guide



with Posi-Load Stud Retainer



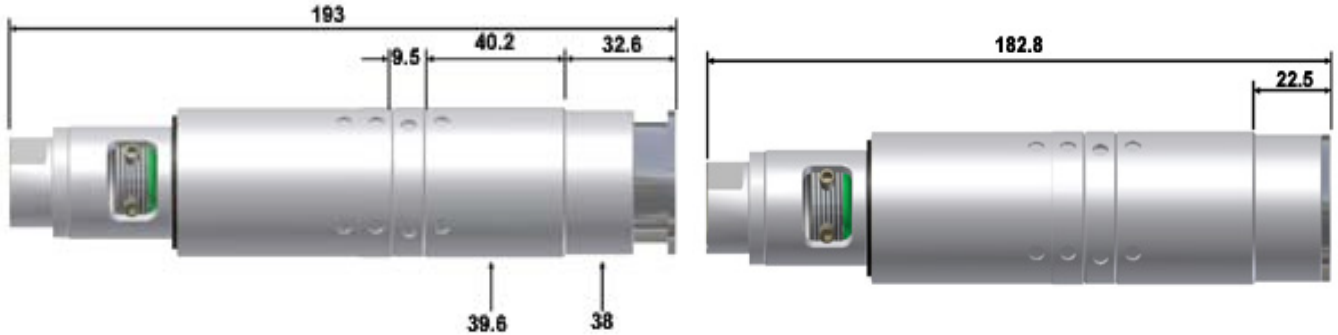
with Machine-Load Stud Retainer

SENTINEL-2® Dimensions,

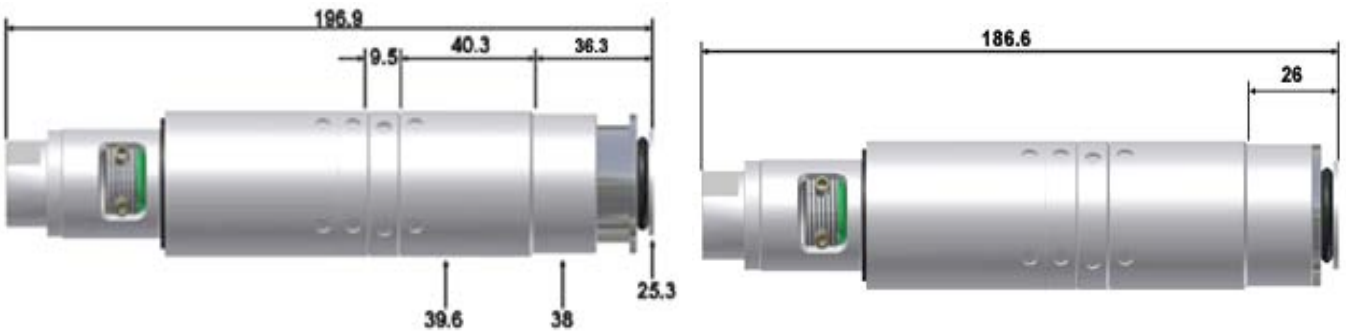
all dimensions are in millimeters

Jaws open, unloaded

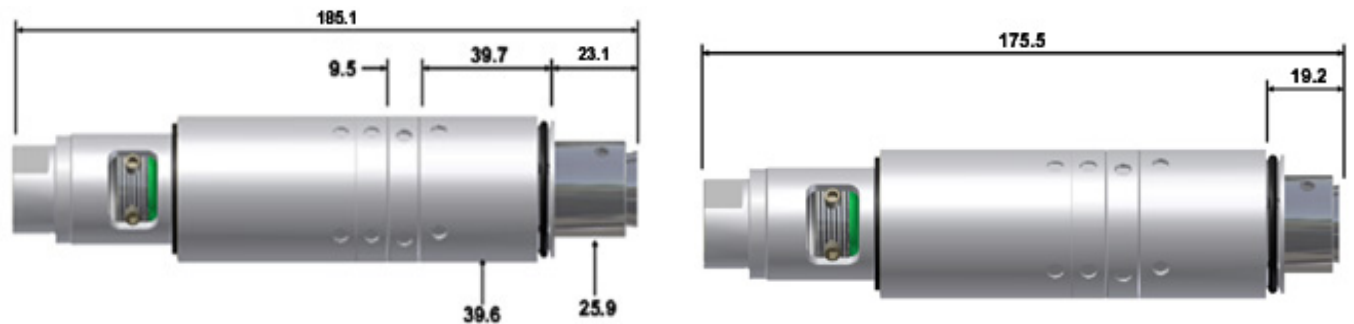
Jaws closed, loaded



with #10 Gage set at minimum projection



with #10 AL Auto-Load Gage set at minimum projection



with special Stud Retention Gage



with Gage #11 set at minimum projection, loaded or unloaded

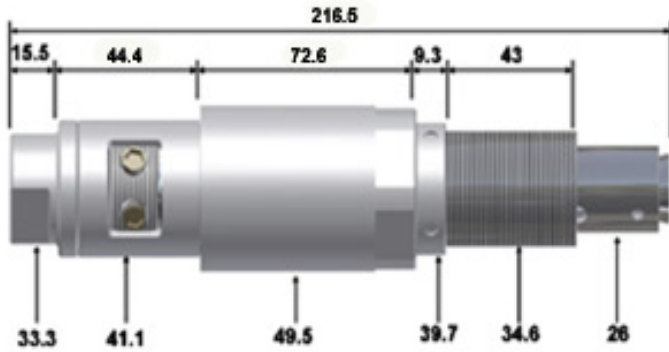
#11 AL Auto-Load Gage, and #11 Machine-Load Gage same dimensions

SENTINEL-2A® Dimensions

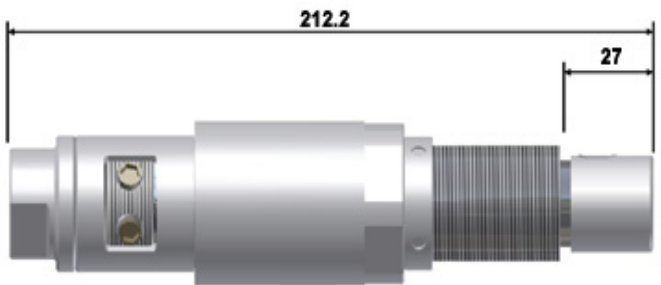
all dimensions are in millimeters

Jaws open, unloaded

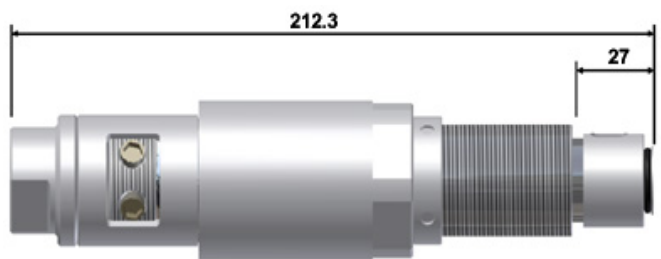
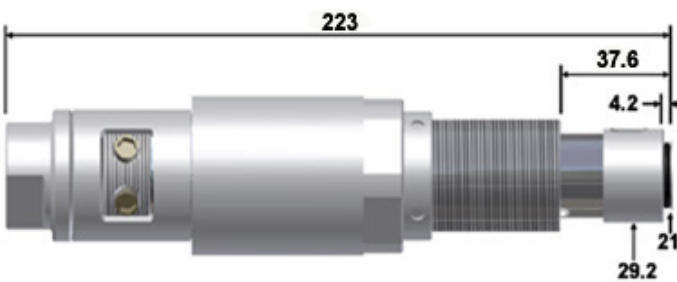
Jaws closed, loaded



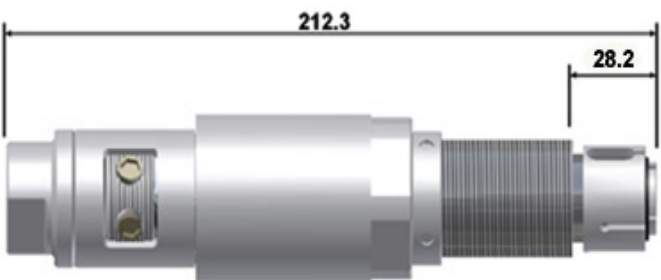
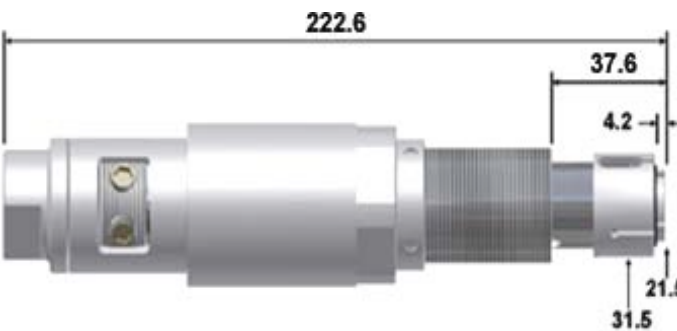
less Gage



with Centering Guide



with Posi-Load Stud Retainer



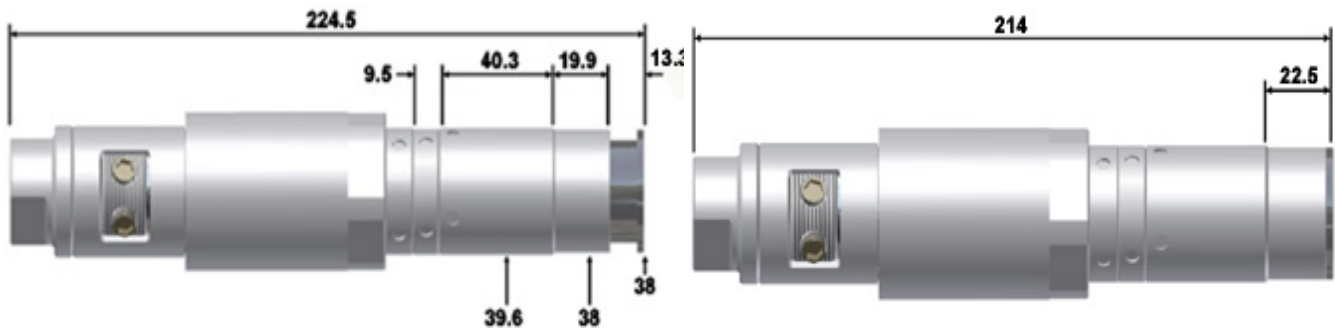
with Machine-Load Stud Retainer

SENTINEL-2A® Dimensions

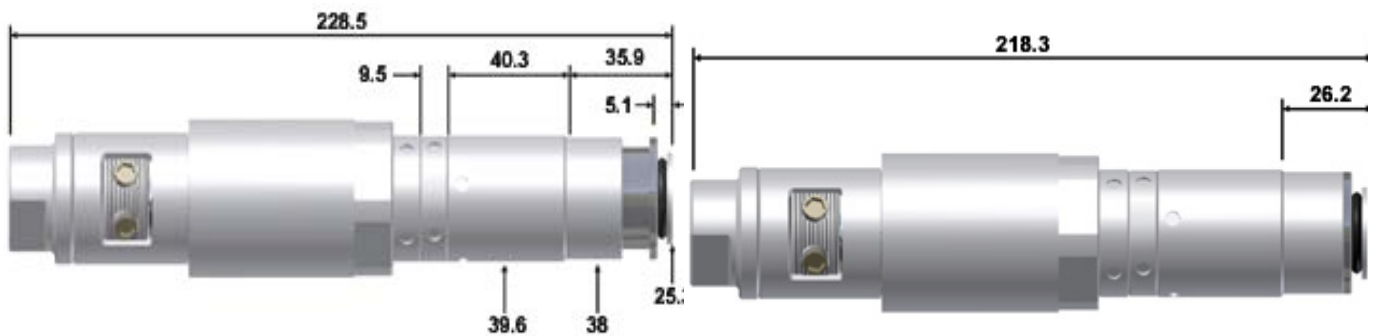
all dimensions are in millimeters

Jaws open, unloaded

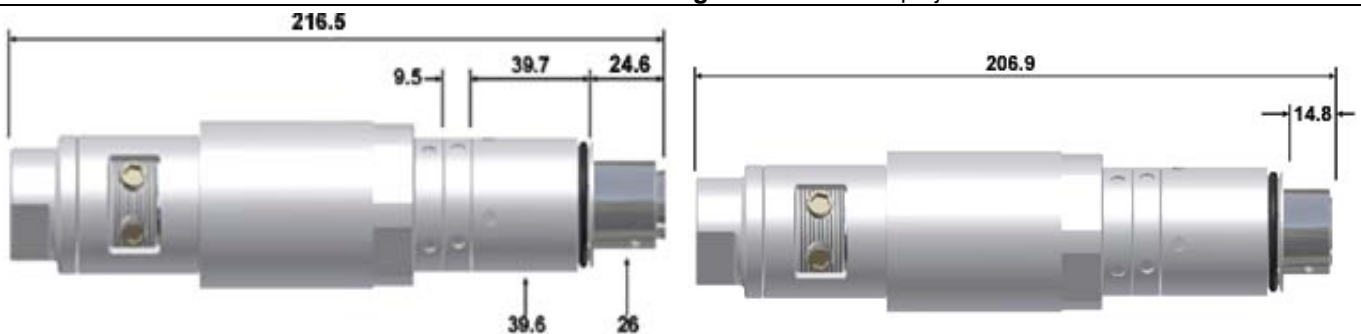
Jaws closed, loaded



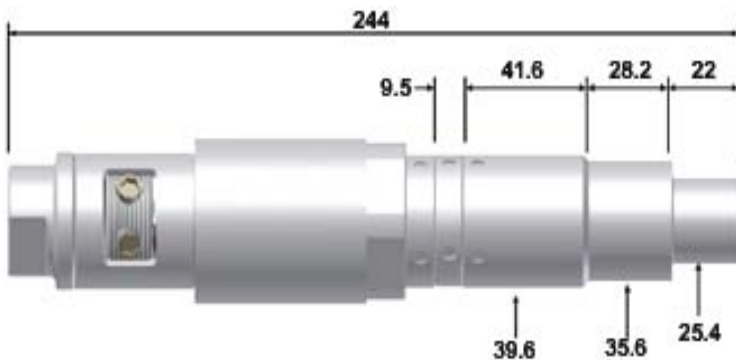
with #10 Gage set at minimum projection



with #10 AL Auto-Load Gage set at minimum projection



with special Stud Retention Gage



with Gage #11 set at minimum projection, loaded or unloaded

#11 AL Auto-Load Gage, and #11 Machine-Load Gage same dimensions

| Stud Engagement for SENTINEL-1, - 2 and - 2A | | | | | |
|---|---|-------------------|----------------|-------------|---------------------|
| Stud Size | | M4, M5 #8, #10 | M6, M7 1/4" | M8 5/16" | M10, 3/8", 7/16" |
| Sentinel-0 | Thread Grip | 7 mm | 9.5 mm | 12 mm | - |
| | Total Stud Engagement with Posi-Load | 10.3 mm | 15 mm | 17.5 mm | - |
| Sentinel-1 | Thread Grip | 7 mm | 9.5 mm | 12 mm | - |
| | Total Stud Engagement with Posi-Load | 10.3 mm | 15 mm | 17.5 mm | - |
| Sentinel-2 Sentinel-2A | Thread Grip | - | - | 12 mm | 12 mm |
| | Total Stud Engagement with Posi-Load | - | - | 17.5 mm | 17.5 mm |

For studs with other thread lengths, contact us for special modifications.

Weight of the stud drivers:

SENTINEL-0: 0,5 kg
 SENTINEL-1: 0,6 kg
 SENTINEL-2: 0,9 kg
 SENTINEL-2A: 1,3 kg

Automatic / Multiple Spindles

For enhanced performance always use a **TTSL**® Spindle Adaptor with **SENTINEL**® Stud Drivers.

Important:

Do not use **SENTINEL® Stud Drivers with Impact Wrenches.**

Ordering Information **SENTINEL®** Series Stud Drivers

| Tool Size | Female Adaptors (Choose one) | Clutch Spring (Choose one) | Stud Size (Choose one) | | Gages (Choose one) |
|--------------------|--|---|---|--|--|
| | | | inch | metric | |
| SENTINEL-0 | M14x1.00 3/8" Square 1/2" Square 3/8"-24 Thread 1/2"-20 Thread 5/8"-16 Thread | light (yellow) 0-9.5 NM | #8-32 #10-24 #10-32 1/4"-20 1/4"-28 5/16"-18 5/16"-24 | M4 x 0.7 M5 x 0.8 M6 x 1.00 M7 x 1.00 M8 x 1.25 M8 x 1.00 | Centering Guide Posi-Load Machine-Load* #10 Gage #10 AL Gage (Auto-Load) |
| SENTINEL-1 | M14x1.00 3/8" Square 1/2" Square 3/8"-24 Thread 1/2"-20 Thread 5/8"-16 Thread | light (yellow) 0-9.5 NM medium (green) 0-17 NM | #8-32 #10-24 #10-32 1/4"-20 1/4"-28 5/16"-18 5/16"-24 | M4 x 0.7 M5 x 0.8 M6 x 1.00 M7 x 1.00 M8 x 1.25 M8 x 1.00 | #10 ML Gage (Machine-Load*) #11 – #15 Gage #11 – #15 ML Gage (Machine-Load*) |
| SENTINEL-2 | M14x1.00 3/8" Square 1/2" Square 3/8"-24 Thread 1/2"-20 Thread 5/8"-16 Thread | medium (green) 0-17 NM heavy (red) 17-23 NM | 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 | #1 open Gage |
| SENTINEL-2A | M14x1.00 3/8" Square 1/2" Square 3/8"-24 Thread 1/2"-20 Thread 5/8"-16 Thread | heavy (black) 27-47 NM | 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 | |

* all Machine Load (ML) Types must be fitted to your sample stud.
Therefore sample stud must be sent with purchase order.

Ordering Process:

1. Choose a tool size depending from Torque, Stud Size and Clearance.
2. Choose a Stud Size.
3. Choose a Gage (page 2).
4. Choose a Drive Size (see above Chart).

We have specialized in stud driving and offer many years of experience in this field. We encourage you to contact us before proceeding with any new applications involving our tools. If you are not sure to select the correct tool for your application, please fill our online contact form. We will be happy to quote to you the tool for your job.

Please include sample studs with your inquiry or purchase order if possible.

Automatic stud drivers without Torque Control please see our **LANCER®** Series.

Patents: U.S. Patents: 4,470,329 4,476,749, 4,513,643 4,819,519 5,119,700 worldwide