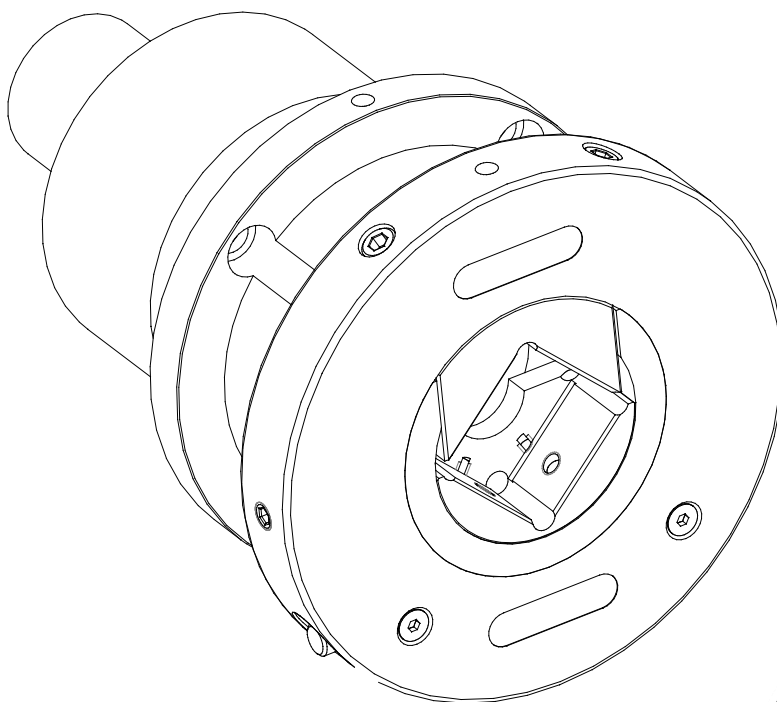




**DOUBLE E**  
Engineering Excellence



# USER'S GUIDE AND MAINTENANCE MANUAL FOR SAFETY CHUCKS



**ENG**

# *USER'S GUIDE AND MAINTENANCE MANUAL FOR SAFETY CHUCKS*

*Version 1.1*

*June 15, 2018*

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# A. INTRODUCTION

## A.1 Introduction

We thank you for choosing Double E Company safety chucks and are pleased to have you as a customer. We are confident that our product will provide you with years of satisfaction. For optimal performance, please use and maintain your safety chucks as outlined in this manual.

We recommend that you read this manual carefully and refer to it whenever a problem may arise. Our Technical Support department is also always available for advice and assistance. This manual describes the installation, operation, usage precautions, and detailed information about this product's accessories and options.

The product must be used according to the instructions. Keep this manual as a reference for the future.

Double E Company reserves the right, at any time, to make changes (without any obligation of revision), felt to be useful for the product improvement or for any constructive or commercial reason. Copying, buffering and transmission in any form (electronic, mechanical, by photocopying, translating or others) of this publication is forbidden without express Double E Company authorization.

Double E Company refuses any responsibility in case supplied safety chucks are set at work before the machine where they are going to be fitted has been declared to be in accordance with provision of the law 89/392 and its subsequent modifications.

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## A.3 Important

- Do not use this product before having read and understood the whole content of this manual.
- Double E Company has done everything possible to make this manual complete and correct.
- Please transfer this manual to subsequent users if the product is lent or sold.
- Should this documentation or the warning labels applied on the device be lost or damaged, please request replacements from the supplying company.

## A.4 Warranty

See general terms of sale. Our standard warranty is available on our website at [www.ee-co.com](http://www.ee-co.com).

## B. SAFETY

### B.1 Safety Instruction - Symbolology

- For safe operation of safety chucks, carefully read these safety instructions before use.
- Follow every WARNING and ATTENTION note, described in this section, as they are extremely important for safety.
- In this manual, warnings and are indicated by the following signal word conventions.



Indicates a potentially dangerous situation that, if not avoided, is almost certain to cause serious injuries or death.



Indicates a potentially dangerous situation that, if not avoided, can cause moderate to serious injuries, or even death.



Indicates a potentially dangerous situation that, if not avoided, can cause minor to moderate injuries or damage to the equipment.



Highlights information needed to ensure the proper use of this device.

## B.2 Safe Operation of Equipment



*Double E Company designs and manufactures safety chucks with maximum safety in mind. Please take careful note of the following rules for safe operation:*

- Double E recommends always using the safety chuck carefully without abusing it. Avoid strong collisions and/or accidental impacts with foreign bodies. These collisions can damage the safety chuck's faceplate assembly, inserts, or body.
- There is risk of injury or pinching from the rotation of the spindle and faceplate during un/winding. Keep sufficient distance during un/winding and do not touch any part of the shaft during rotation.
- Do not wear loose hair or clothing near rotating safety chuck for risk of entanglement.
- Avoid unnecessary emergency braking.
- Do not cantilever the shaft in safety chuck.
- Do not use safety chucks in working conditions different than stated in the specifications table or on any notes on the approval drawing.
- Do not exceed the operating loads of the safety chucks as specified on the customer quotation and/or approval drawing. This voids safety chuck warranty and can be unsafe.
- Make sure all fasteners are in place and torqued to the appropriate specification before operation.
- All replacement parts on this safety chuck should be original equipment supplied by the Double E Company.



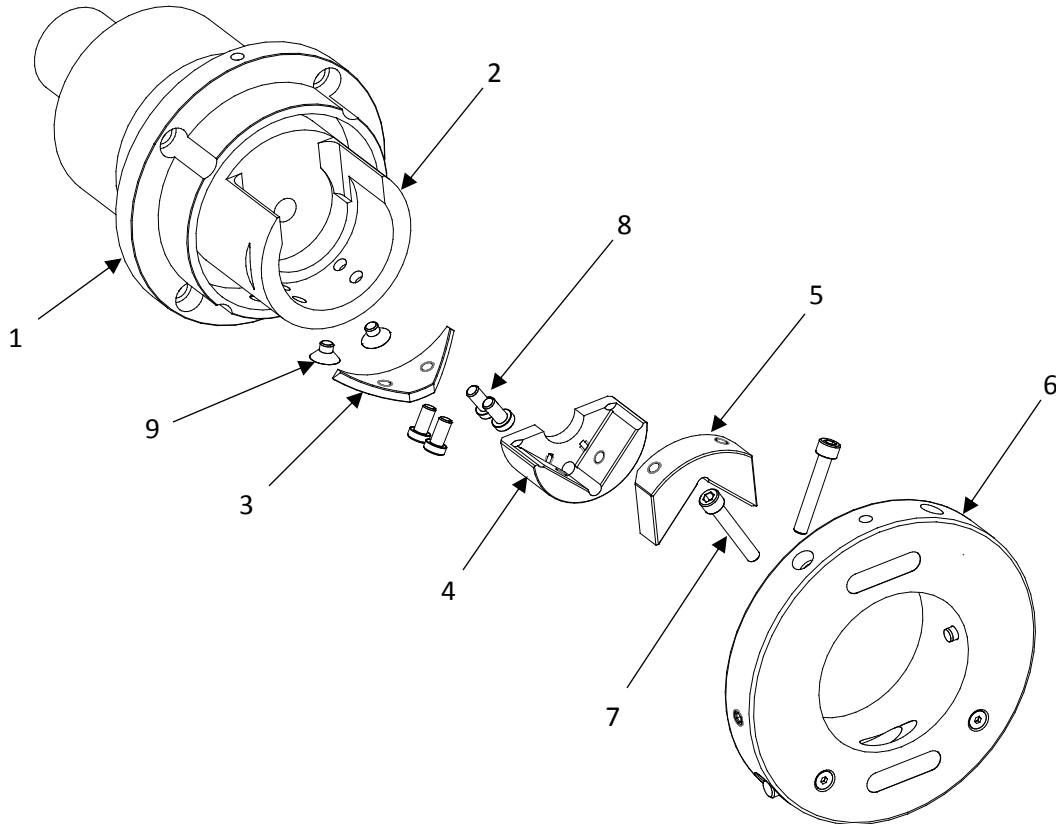
**Visually inspect the safety chuck prior to each use:**

- Check the body for any cracks or excessive wear in the bearings.
- Check the faceplate for any cracks or excessive wear and for sliding functionality.
- Check the upper and lower insert for any cracks or excessive wear.

**In the event that any of the above conditions are identified, do not put the safety chuck in service and contact Double E Company Technical Support at 508-588-8099 extension 571.**

## C. TERMINOLOGY

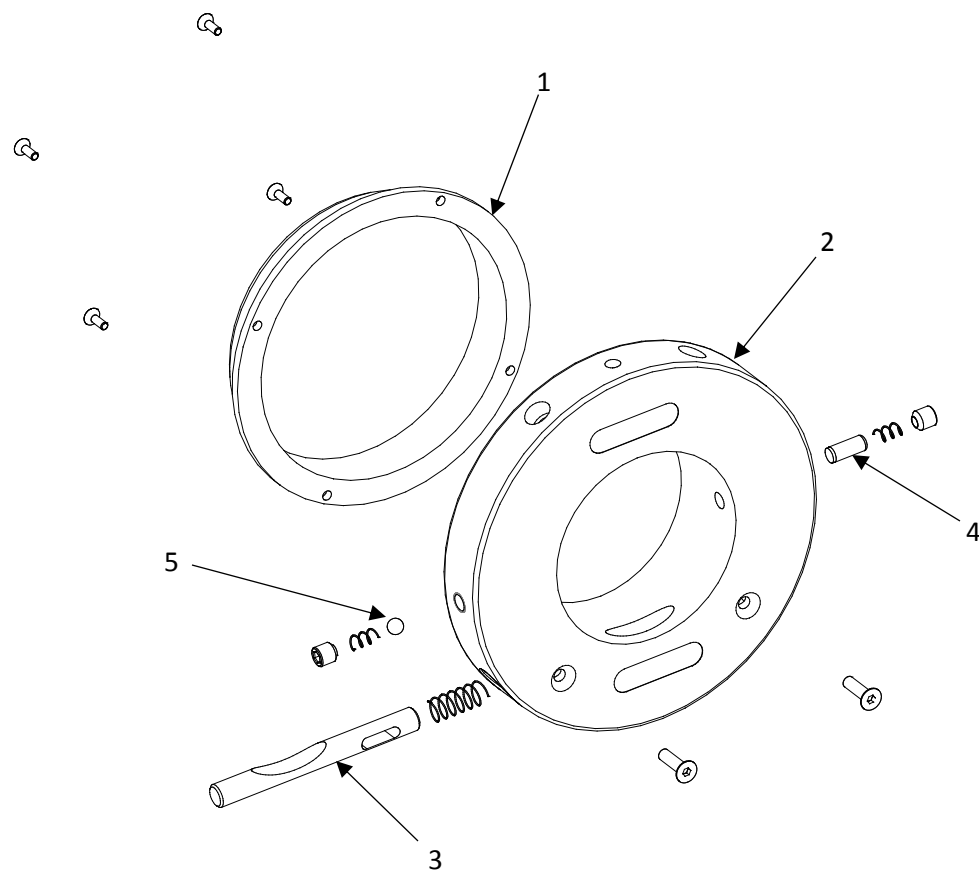
### C.1 Safety Chuck Components



- 
- |                   |                            |
|-------------------|----------------------------|
| 1. Body / Housing | 6. Faceplate Assembly      |
| 2. Spindle        | 7. Screws for Upper Insert |
| 3. Cam Plate      | 8. Screws for Lower Insert |
| 4. Lower Insert   | 9. Screws for Cam Plate    |
| 5. Upper Insert   |                            |

*Drawing is for reference only. Actual configuration may vary. Please refer to your approval drawing for an exact list of components included.*





- 
1. Protective Sleeve
  2. Faceplate
  3. Push Button
  4. Pin (Right Side)
  5. Ball Bearing (Left Side)

*Drawing is for reference only. Actual configuration may vary. Please refer to your approval drawing for an exact list of components included.*

## D. PRODUCT DESCRIPTION



### **WARNING**

*Do not attempt to open or close faceplate while safety chuck is rotating.*

### D.1 Fixed Safety Chucks

These safety chucks feature a chrome front ring that slides open with a patented push-button mechanism. These are fixed safety chucks with a sliding faceplate that opens and closes manually.

### D.2 Sidelay Safety Chucks

Most sliding models, as per above, can be manufactured with a sidelay option. They are identified by the number “500” after the model code at the beginning of a chuck abbreviation. Sidelay models are available with 2in [50mm] or 4in [100mm] stroke. These are sidelay safety chucks with a sliding faceplate that opens and closes manually.

### D.3 Competitor Equivalent Safety Chucks

Competitor equivalent safety chucks are designed and manufactured to fit interchangeably with original competitor equipment. There is no difference in the envelope dimensions with these chucks. These are fixed safety chucks with a sliding faceplate that opens and closes manually.

### D.4 Air-Operated Pneumatic Safety Chucks

Most sliding models, as per above, can be manufactured with air operated opening. They are identified by the letters “AP” at the very beginning of a chuck abbreviation. These are pneumatically activated chucks with a faceplate that opens and closed via a double-acting piston.

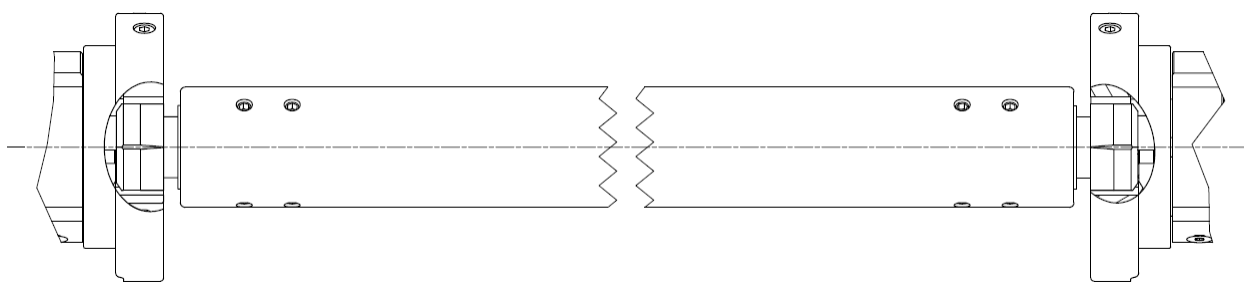
### **NOTICE**

*Never try to remove shafts from the safety chuck without fully opening the faceplate. This can cause serious damage to the safety chuck and/or shaft.*

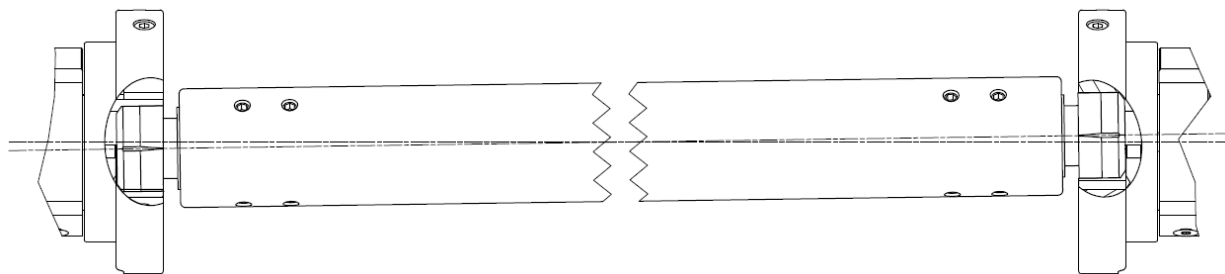
## E. MOUNTING INSTRUCTIONS

### E.1 Safety Chuck Alignment

In order to protect your safety chucks, shafts, and journals against undue wear, and to maintain functionality, it is necessary for the chucks to be properly aligned. Proper alignment ensures that the shaft is correctly positioned in both the horizontal and vertical planes. Any misalignment of the unit reduces the useful life of both your shaft and safety chucks. The safety chucks must be mounted at the same height and at a distance from each other that allows free movement without excessive shaft deflection.



*Correct alignment and spacing – Side view*



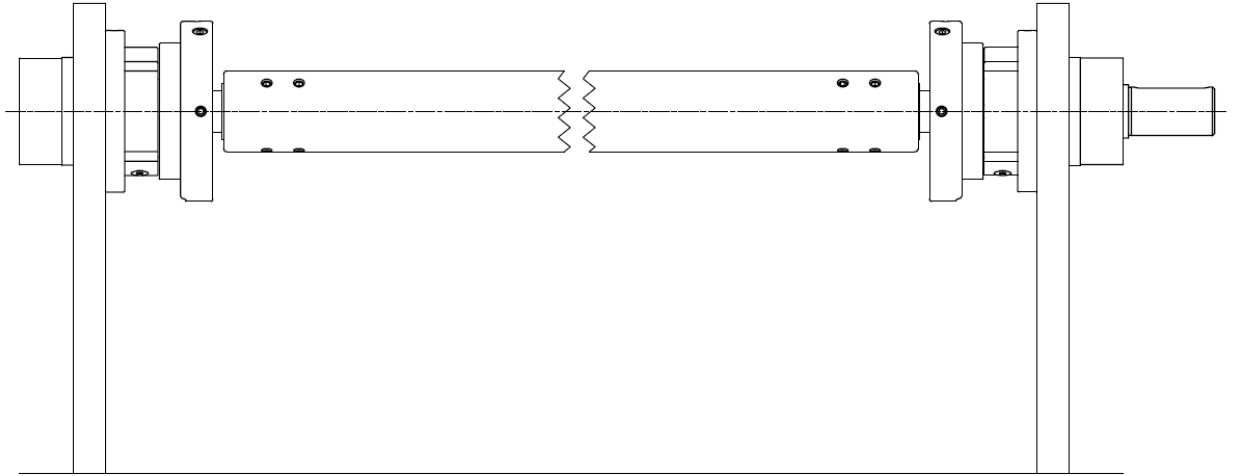
*Incorrect alignment and spacing – Side view*

#### **⚠ CAUTION**

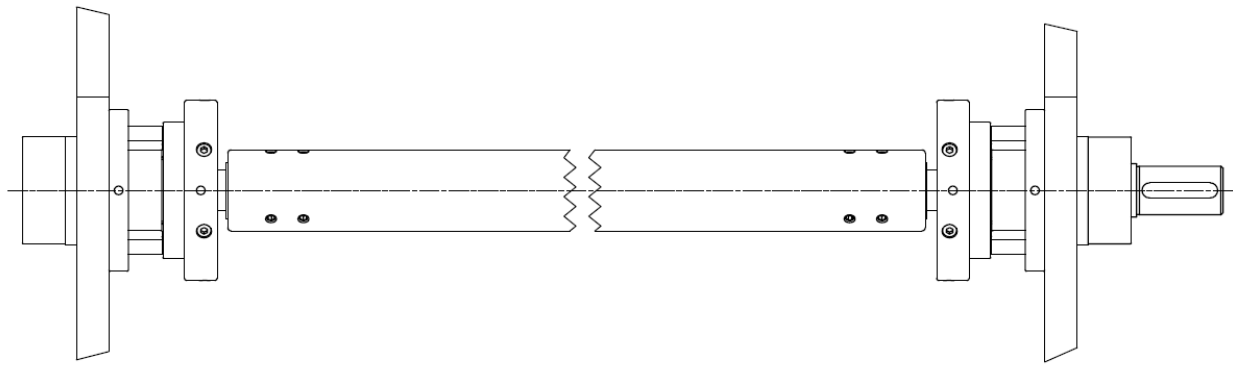
*Failure to align the safety chucks properly can result in a lack of functionality and/or premature wear.*

## E.2 Safety Chuck Mounting

To mount the safety chucks correctly, they must be accurately aligned both horizontally and vertically. They must also be mounted at the same height and at the appropriate distance for your application. The following diagrams illustrate the correct alignment of safety chucks.



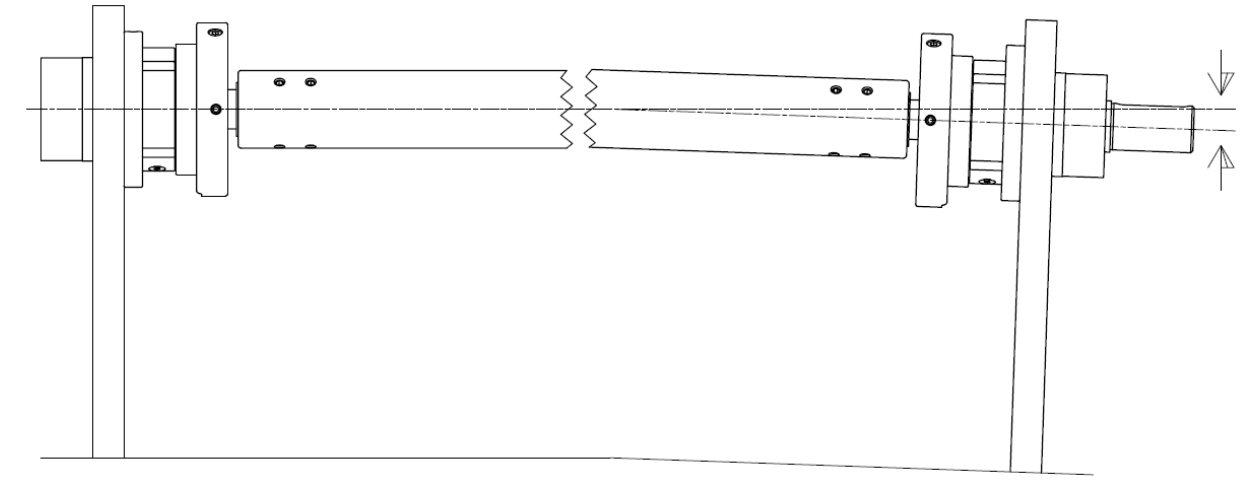
*Correct alignment and mounting – Side view*



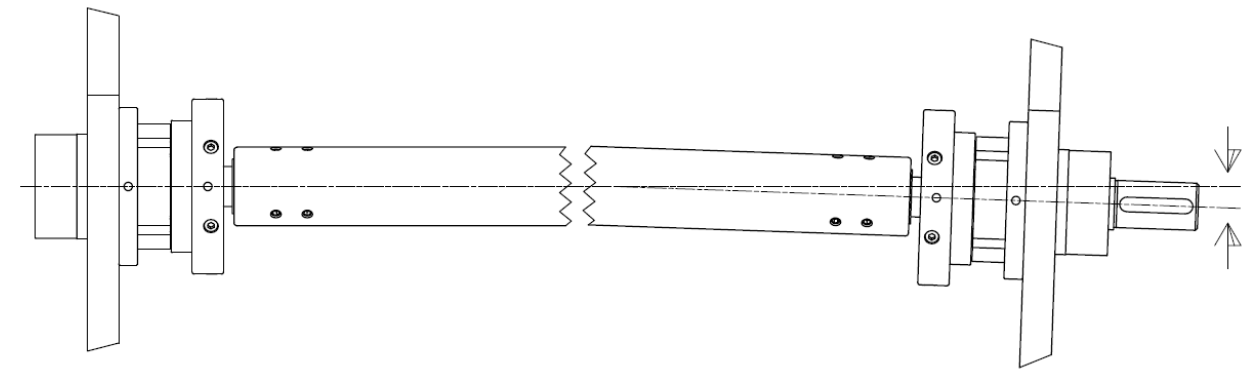
*Correct alignment and mounting – Top view*

## E.3 Safety Chuck Mounting

Even when the safety chucks are correctly aligned relative to each other, it is still possible to mount them incorrectly. Both mounting surfaces need to remain parallel during mounting to ensure that the safety chuck bodies fit correctly. When the relative alignment is good and the mounting is skewed, the inserts and journals will wear more quickly. The following drawings illustrate incorrect mounting.



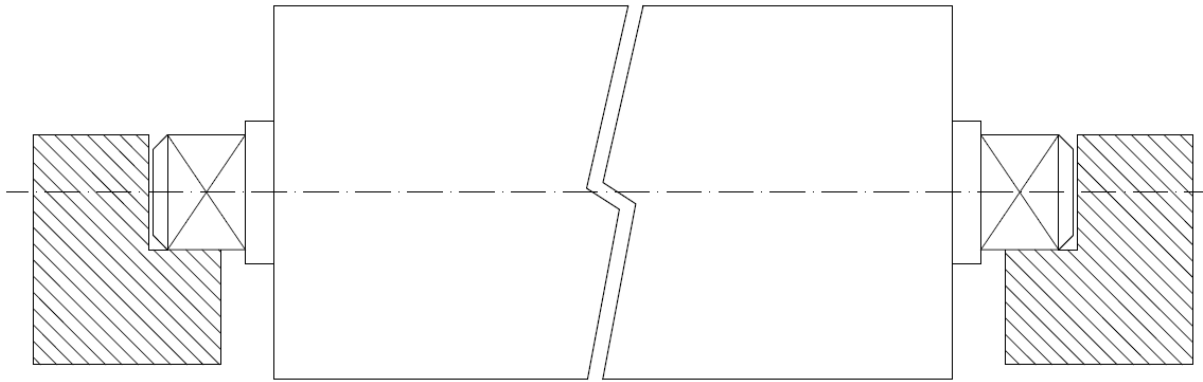
*Incorrect alignment and mounting – Side view*



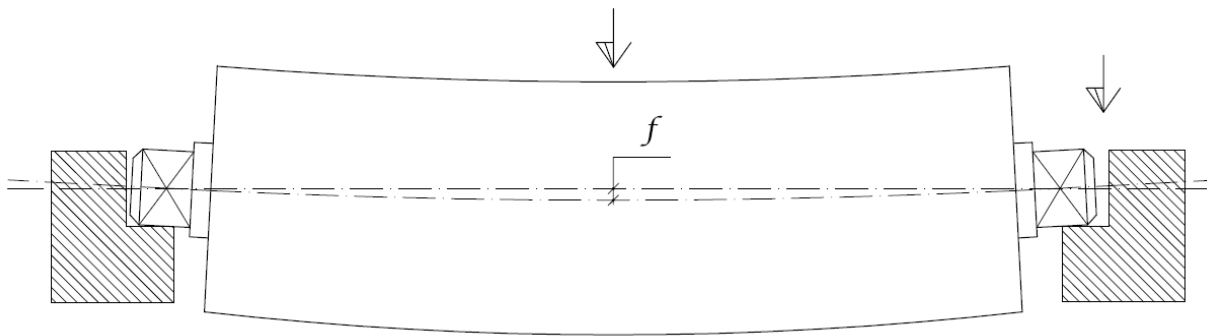
*Incorrect alignment and mounting – Top view*

## E.4 Safety Length and Deflection

A slight axial space between the safety chuck and shaft is necessary. Double E recommends .02" [0.5mm] on each end for square journals and .04" [1.0mm] on each end for circular splined journals. This small bit of space allows for trouble-free winding and unwinding. Double E's general recommendations are that the shaft should not deflect more than .018in/ft [1.5mm/m] as measured from the center of the shaft (see figure below). This allows a maximum deflection of 1.7°.



*Proper shaft length and alignment.*



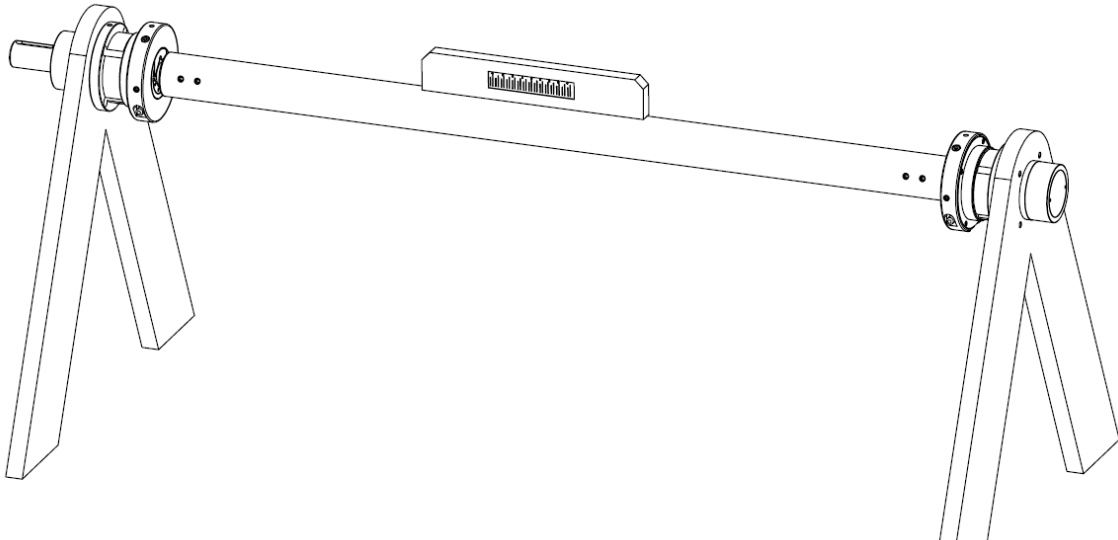
*Shaft must be precisely engineered for deflection under load, axial space increases due to deflection.*

## E.5 Alignment of Safety Chucks

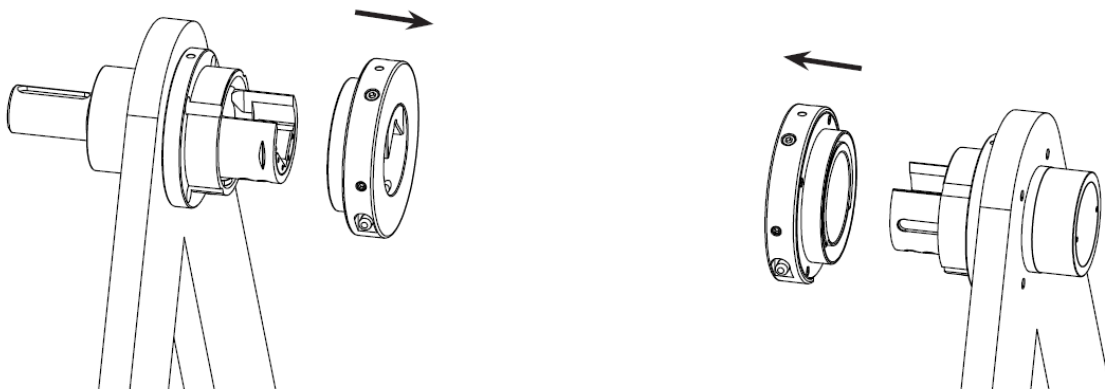
Your new safety chucks need to be aligned during installation. Double E recommends using a machinist's level in conjunction with a laser alignment tool like the one shown below.

### Alignment procedure

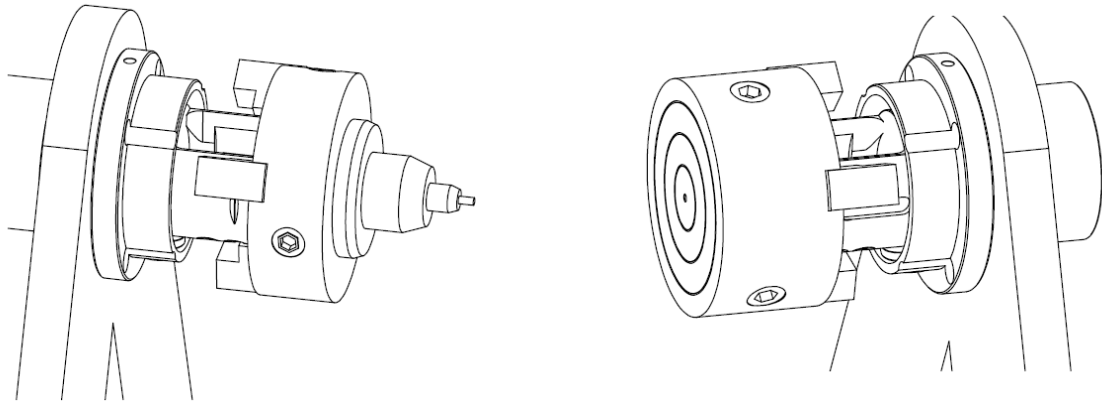
1. Insert a shaft into your safety chucks.
2. Make sure the shaft is leveled using a machinist's level. A carpenter's level is not precise enough for this installation.



3. Make necessary adjustments during setup to ensure that the shaft is level.
4. Remove the faceplates from the safety chucks. See dedicated section later in this manual for instruction on how to remove a faceplate. There is no need to remove the chuck from the machine to remove the faceplate.



5. Mount the laser assembly on one safety chuck.
6. Mount the target assembly on the opposite safety chuck.

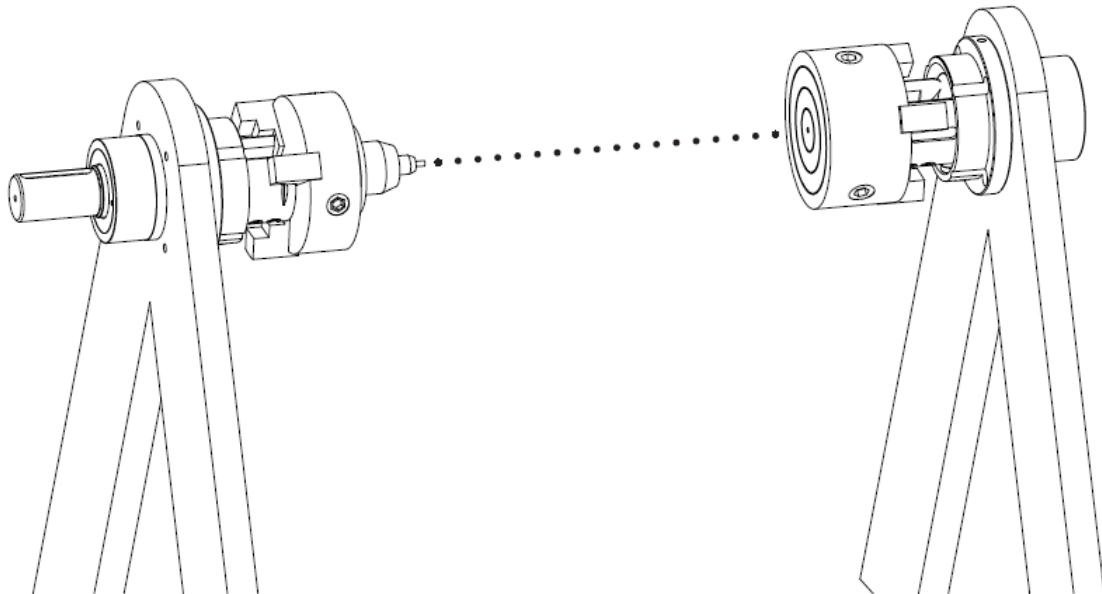


7. Turn on the laser. Rotate the chuck with the laser and observe the position of the light on the target during rotation.

## **CAUTION**

*Use the laser in accordance with the safety guidelines as instructed in the laser user manual.*

8. Adjust bolt position or add necessary spacers to achieve desired alignment.



9. Reverse the mounting positions for laser and target assemblies.
10. Repeat steps 7 and 8 for the reversed positions.
11. Reassemble the faceplates to the safety chucks. The safety chucks should now be aligned and ready for operation.



## F. OPERATING INSTRUCTIONS

### F.1 Technical Specifications



*Do not exceed the operating parameters of the safety chuck as specified in the manual. This voids the safety chuck warranty and can cause serious injury.*

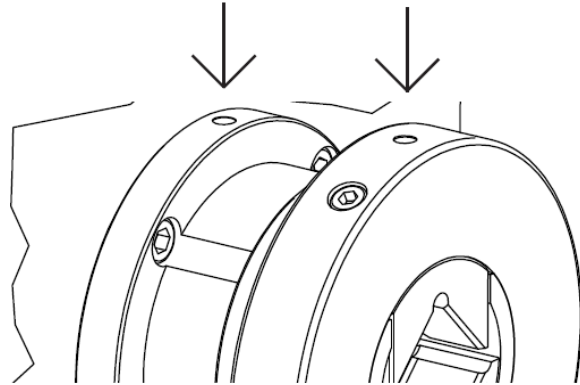
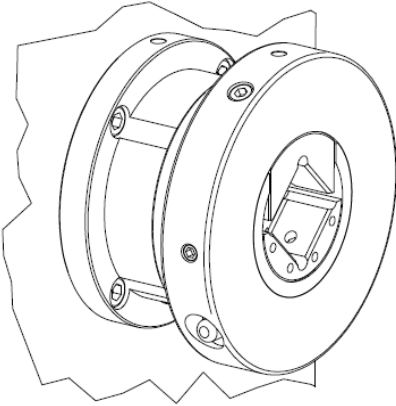
Load Limit Chart

Safety Chuck Model	Load Limit per Chuck (lbs)	Style
SL100	785	Fixed
SM100	1,615	Fixed
SP11	1,585	Fixed
SP100	3,145	Fixed
SL500/C50	770	Sidelay
SL500/C100	660	Sidelay
SM100/C50	1,585	Sidelay
SM100/C100	1,100	Sidelay
SP100/C50	3,080	Sidelay
SP100/C100	2,200	Sidelay
BSL100	450	Competitor Equivalent
BSM100	900	Competitor Equivalent
BSP100	1,800	Competitor Equivalent
BSPP100	3,150	Competitor Equivalent

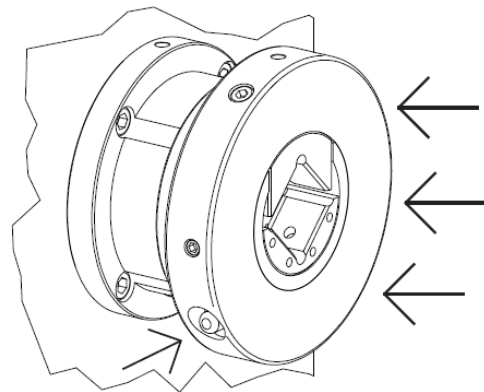
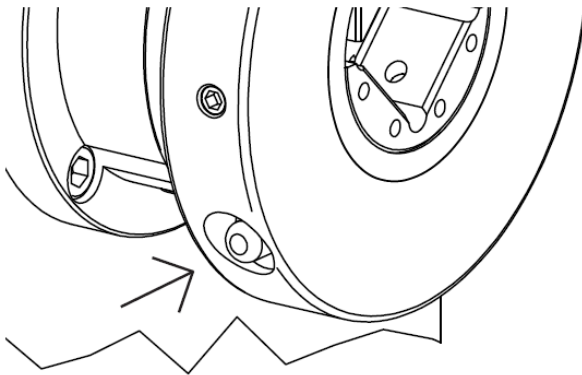
### F.2 Faceplate Opening

Unlike many of our competitors' products, Double E safety chucks can be safely opened without the need for additional tools. The patented push button mechanism only opens and closes when the safety chuck is in the upright position. The sliding faceplate dramatically diminishes the risk of finger jams that are common with tilting faceplate models.

1. Rotate the chuck's faceplate until the red dot on the faceplate is in the upright, 12 o'clock position. The safety chuck will not open unless it is in this position.



2. Depress the push button mechanism and slide the faceplate back towards the chuck's body. The faceplate should move freely but require some force to initially slide back.



### F.3 Faceplate Closing

Slide the faceplate forward as far as it will go. There will be an audible click noise when it is completely closed. The faceplate will remain closed until the push button is depressed.

#### **! WARNING**

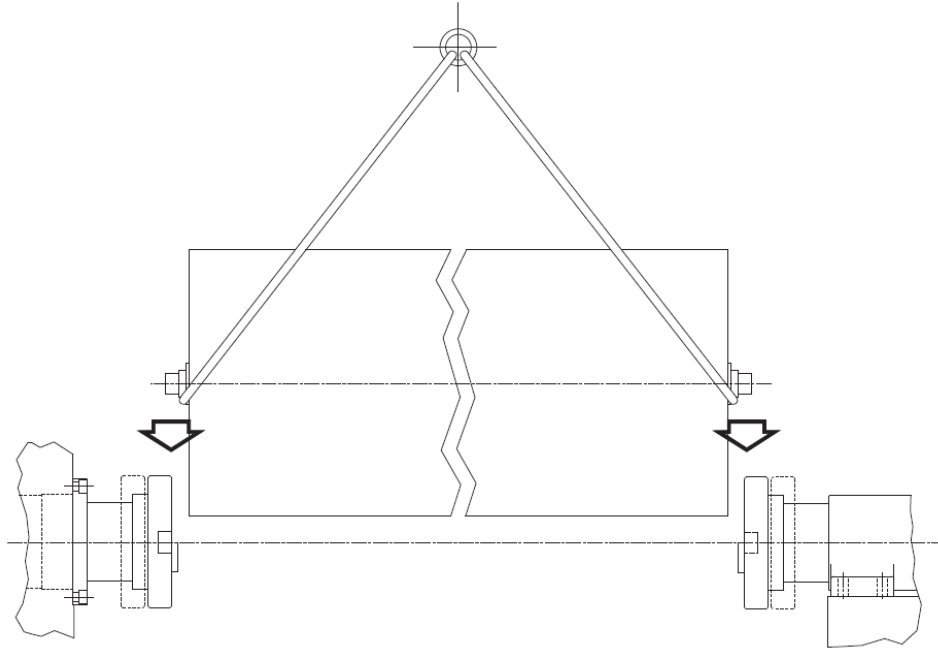
*Although there is a cam that will close the faceplate, it is not intended for regular use. The faceplate must be closed manually before each start. Failure to do so may result in bodily harm and void of warranty.*

## E.4 Loading a New Roll

### **⚠ CAUTION**

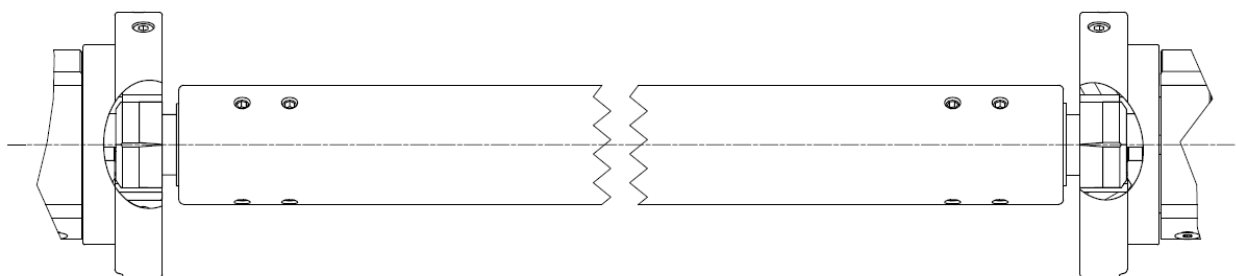
*Open both faceplates before attempting to remove shaft. Ensure that both faceplates are fully open.*

Unloading a roll: Using a suitable lifting device, secure the roll and make sure that it remains parallel to the axis of the safety chucks (see figure).



Loading a roll: Move the roll toward the safety chucks. Make sure that it remains parallel to the chucks' axis. Gradually lower the roll, without hitting the safety chucks, until the journals are properly inserted into the jaws and the safety chucks can be closed manually.

Close the safety chucks



# G. MAINTENANCE

## G.1 Routine Inspection

Perform routine inspection *monthly*. Routine inspection can usually be accomplished without disassembly or removal of the safety chuck from the machine. The purpose of routine inspection is to ensure that the safety chuck is functioning properly prior to being used in the machine. Every 30 days, or whenever necessary, perform the following:

- Inspect the upper insert surfaces for any damage caused during the roll loading/unloading process.
- Inspect the lower insert surfaces for any damage caused during the roll loading/unloading process.
- Examine the upper insert surfaces for wear.
- Examine the lower insert surfaces for wear.
- Check that the faceplate opens and closes without destructive force.
- Check that all hardware is present.

## G.2 Annual Maintenance

Perform annual inspection/maintenance *yearly*. Double E safety chucks do not need to be lubricated (except for sidelay safety chucks). The bearings are sealed and should remain lubricated throughout their useful life. If the safety chuck faceplate is removed, then it is recommended to clean all sliding surfaces and lubricate all parts as they are replaced and/or reassembled. When the faceplate is removed, check the front of the cam and the back of the faceplate for extreme wear. All hardware should be checked that it is present and torqued properly. Common maintenance may include replacing inserts, faceplates, and faceplate hardware kits.

## G.3 Non-Routine Maintenance

If the product is used under normal conditions and inspected regularly, it is rare that any non-routine or extraordinary maintenance will be needed. In the event that it is necessary, it is recommended that you contact Double E Company Technical Support at 508-588-8099 extension 571.

## G.4 Decommissioning

If the product is withdrawn or removed from service, it is necessary to make all at-risk components harmless through proper demolition. These operations must be carried out in accordance with the provisions existing in the nation or locale in which the product will be disposed.

## G.5 Product Storage

All Double E safety chucks should be carefully stored when not in use. To ensure maximum performance, Double E safety chucks should be rested on padded surfaces to protect the metal components. Storage locations should be in cool, dry environments away from high levels of human or vehicle traffic.

## H. REPLACEMENT OF COMPONENTS

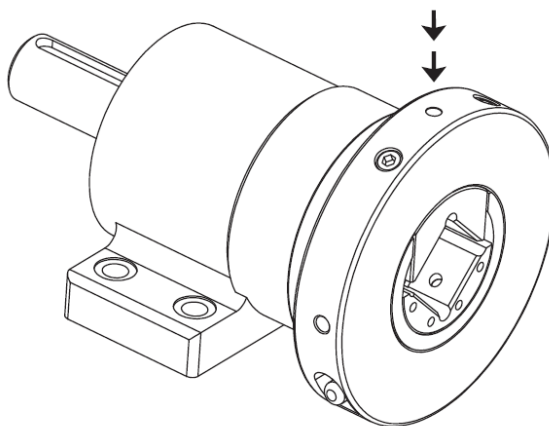
### CAUTION

*Replace components only when the machine is completely stopped and locked out.*

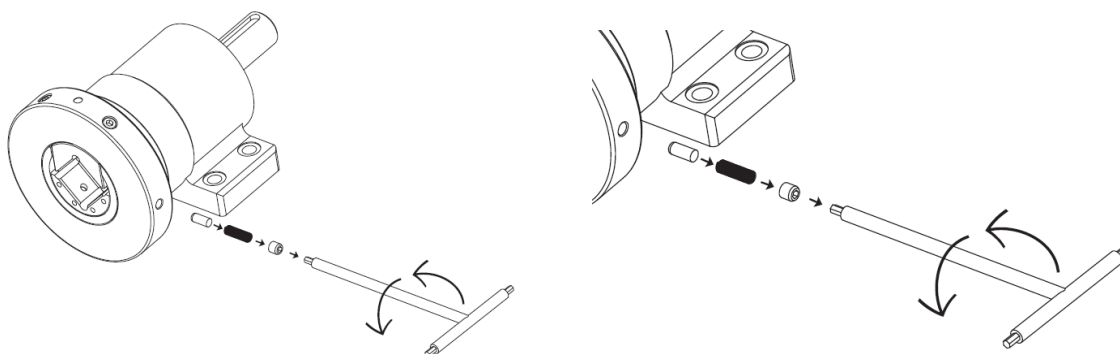
### H.1 Removing the Faceplate

Removing the safety chuck's faceplate is the first step in making several of the most common repairs to Double E Safety Chucks. You will need to remove the faceplate before replacing either removable inserts or the push-button release mechanism.

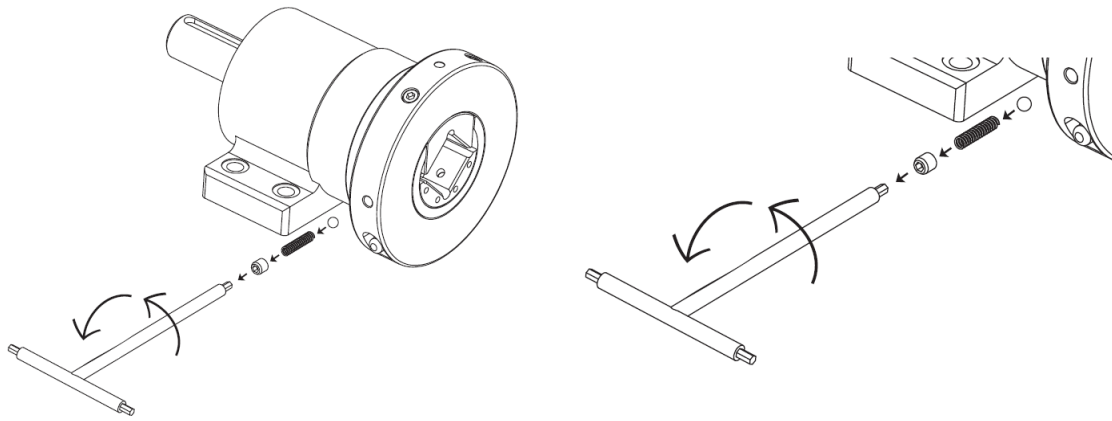
1. With the safety chuck in the closed position, rotate the faceplate until the red dot is at 12 o'clock (the standard position for opening and closing the safety chuck).



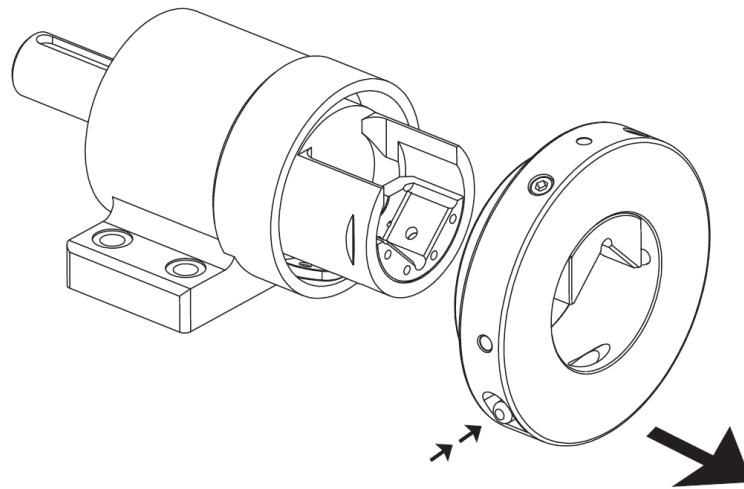
2. Locate the hex bolt at 3 o'clock position on the side of the faceplate. Remove the set screw, spring, and pin. The pin sometimes sticks inside after removing the spring. Gravity can be used to remove the pin.



3. Locate the hex bolt at 9 o'clock position on the opposite side of the faceplate. Remove the hex bolt, spring, and ball bearing.



4. Press the push button as though you are opening or closing the safety chuck. The faceplate can now be removed.



## H.2 Installing the Faceplate

1. Examine the safety chuck shaft assembly carefully for rough edges. Smooth any rough edges with a Dynaflex or similar tool before attaching the faceplate.
2. Apply grease to the safety chuck spindle and the inside of the faceplate.
3. Align the safety chuck body and shaft so that inserts (upper) will be opposite the insert (lower). Ideally, the red dot will be aligned at 12 o'clock.
4. Slide the faceplate onto the spindle assembly.
5. Insert the pin, spring, and set screw into the opening at 3 o'clock. Tighten the set screw to flush with the outside of the faceplate or lower.
6. Insert the ball bearing, spring, and set screw into the opening at 9 o'clock. Tighten the set screw to flush with the outside of the faceplate or lower. Adjusting the tension of this mechanism affects how much force is needed to open and close your safety chuck.
7. Depress the push button and test the safety chuck to make sure that it easily opens and closes. Test safety chuck's rotation before mounting on your machine. Make sure it rotates freely.

## H.3 Replacing Upper Inserts

Upper inserts can be replaced without removing the faceplate from the chuck. Remove the fasteners at the top of the faceplate to release the upper insert. When reinstalling the upper insert, be sure to use new fasteners or clean the existing fasteners thoroughly. Coat the fasteners with Red Loctite (271) or equivalent. Align the upper insert with the faceplate with the chamfer side toward the back. Tighten the fasteners to secure the upper insert in place.

## H.4 Replacing Lower Inserts

Remove the safety chuck's faceplate as shown in the preceding sections of this manual.

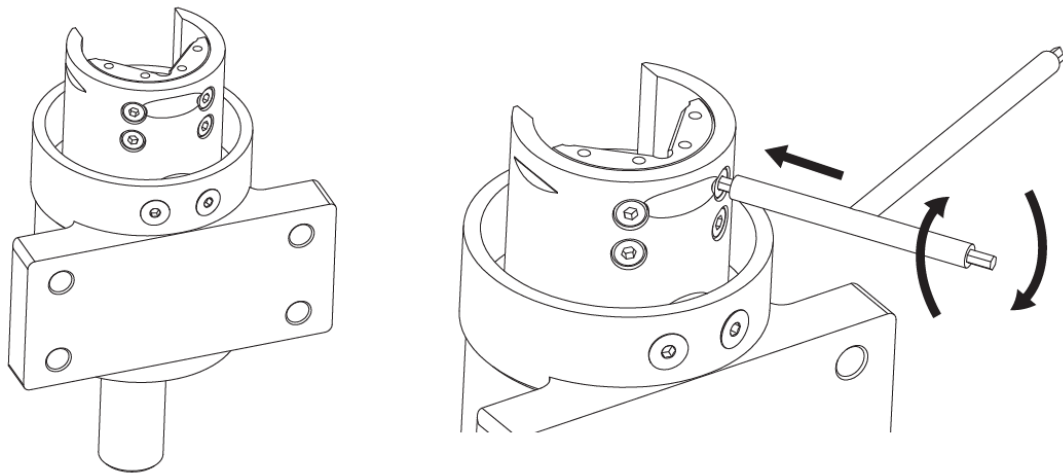
### Removing existing lower insert

1. The insert is attached to the safety chuck spindle with four fasteners which have been sealed with Loctite so it may be necessary to use heat to remove the screws.



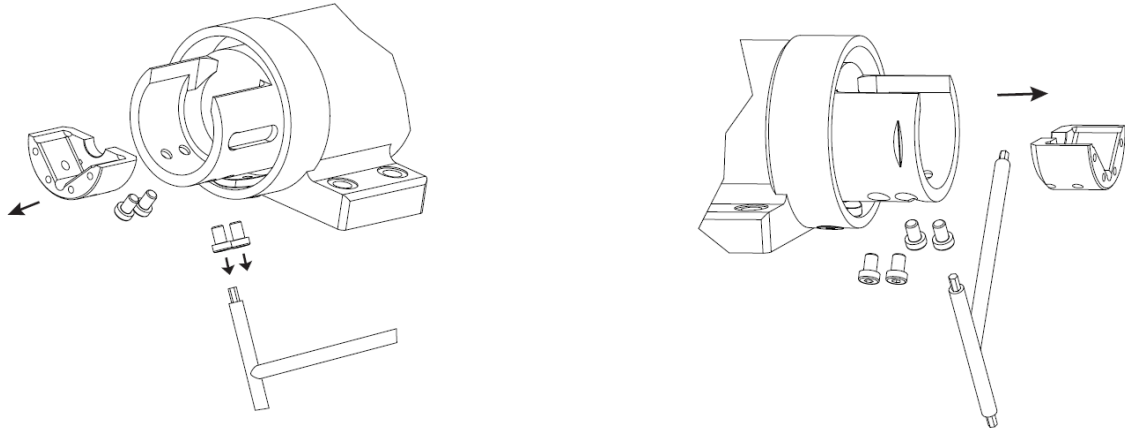
**WARNING** Only trained staff should operate the torch.

2. Using a 5mm hex key, remove the screws holding the insert in place in the spindle pocket. It is recommended to hold the spindle in a vice while removing the lower insert.



3. Remove insert from spindle by sliding it out axially.





4. Examine the insert for wear and replace if needed. Examine spindle for wear and damage while the insert is removed.

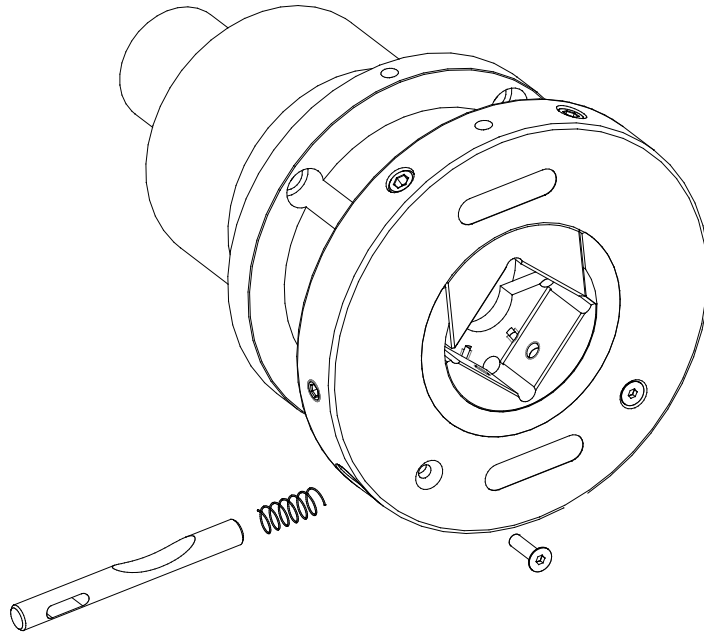
#### Installing new lower insert:

1. Either use new fasteners or clean existing fasteners thoroughly to remove thread sealant, grease, and dust.
2. Slide the insert into place in the spindle.
3. Coat the fasteners with Red Loctite (271) or equivalent.
4. Tighten the fasteners to secure the inserts in the spindle pocket.
5. Smooth any rough edges with a Dynaflex or equivalent instrument.

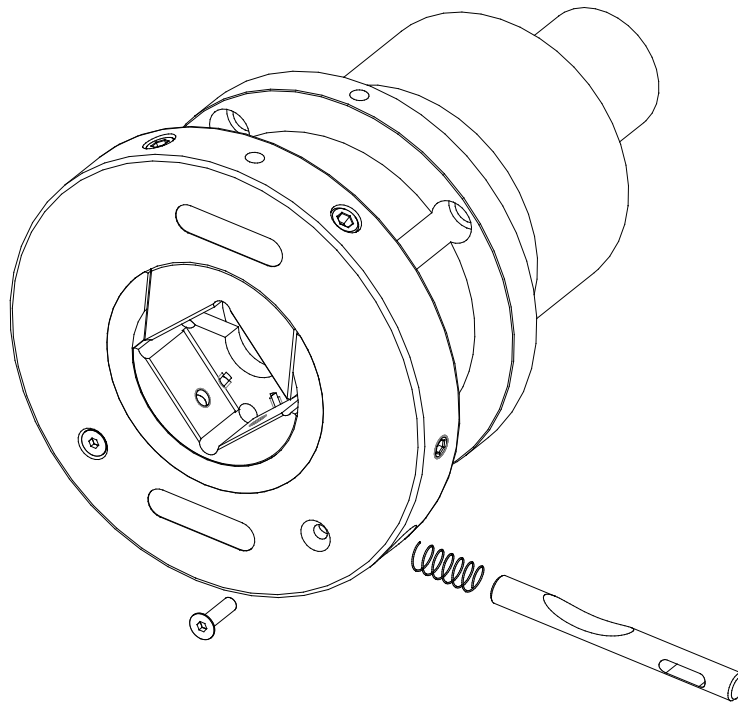
## H.5 Changing the Push Button

The push button can be either replaced or switched to the opposite side without removing the faceplate. The push button is self-contained in the faceplate and will not fall out if the faceplate is removed.

1. Using a 4mm Allen key, remove the M6 flat head screw on the push button side of the faceplate
2. Remove the push button and spring from the slot



3. With the push button and spring removed, put the original M6 screw back in and take the opposite M6 screw out.
4. Move the spring and pin to the other side of the faceplate. Insert the spring and then the push button, making sure that the curved surface is facing upwards.



5. Replace the M6 flat head screw, inserting it through the groove on the push button.

# I. TROUBLESHOOTING

## I.1 Troubleshooting

<b>Problem</b>	<b>Faceplate does not open or close freely</b>
Solution 1	Check to make sure there is nothing blocking the path behind the protective sleeve.
Solution 2	Back off the set screw located at 9 o'clock on the faceplate to relieve pressure.
Solution 3	Remove the faceplate. Check for burrs inside the faceplate and on the outside of the spindle. Deburr areas and install faceplate.

<b>Problem</b>	<b>Shaft ends do not fit inside of safety chuck inserts</b>
Solution 1	Check to make sure that the safety chuck and the shaft use the same nominal values.
Solution 2	If it is not a Double E shaft, check that the shaft ends have been designed with proper tolerances.

<b>Problem</b>	<b>Shaft does not fit between the two safety chucks</b>
Solution 1	Measure the distance between the back of the lower inserts on each side and the overall shaft length. The shaft length should be 0.4" shorter than the other dimension.
Solution 2	Check that the shaft matches the print and that the safety chucks are mounted properly. Check the depth of the lower insert.

<b>Problem</b>	<b>Metal shavings on the spindle or coming from behind the faceplate</b>
Solution 1	Remove the faceplate and look at the back surface. If a ring has worn into the chuck and/or the female cam surface has been deformed, then the cam is regularly being used to close the faceplate. Train the operators to close the faceplate every time.
Solution 2	Replace the cam and faceplate assembly.

## J. MANUFACTURER'S DECLARATION

Buyer shall afford Double E Company prompt and reasonable opportunity to inspect any goods as to which a claim is made and Double E Company shall have the right of final determination of the cause and existence of any defect under this warranty. No material may be returned to Double E Company without Double E Company's express prior permission in the form of a return authorization number.

Correction of non-conformities, in the manner and for the period provided above, shall constitute fulfillment of all liabilities of Double E Company to Buyer with respect for the goods, whether based on contract, negligence, strict tort, or otherwise.

## K. RETURNS

Warranty and non-warranty returns are initiated through the issuance of a return material authorization (RMA) number from an authorized Double E Company sales or service/support representative. This can be obtained by calling Double E Company in West Bridgewater, MA at 508-588-8099.

The RMA number should be clearly evident on the shipping label and/or invoice and the package should be shipped freight prepaid. If questions arise or if additional information is required, please call the Inside Sales department at 508-588-8099

Product returns should be sent to the address below:

Double E Company, LLC  
319 Manley Street  
West Bridgewater, MA 02379  
ATTN: RMA # \_\_\_\_\_

## This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

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