



# COSASCO<sup>®</sup> MODEL 60 RETRACTABLE 1500 PSI SYSTEM RETRACTOR KIT

## Work Instruction



11841 Smith Avenue  
Santa Fe Springs, CA 90670  
Tel: (562) 949-0123 • (800) 635-6898  
Fax: (562) 949-3065

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[www.cosasco.com](http://www.cosasco.com)

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**Cosasco® 1500psi Model 60 Retractable System Retractor Kit  
Work Instruction**

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	8, 10, 12	B	08/16/13	Updated Scope of Doc, Temp Rating, Pre Job Preparation	KR	ENG	RA
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## 1 IMPORTANT INSTRUCTIONS

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Cosasco is committed to providing the safest and highest quality products, services, and training for the industries it serves. We are committed to ensuring that all users of our equipment work safely and efficiently. Fully anticipating the infinite variety of conditions that may be encountered in the field would be impossible, but we have designed this work instruction to emphasize safe working practices, and as much as possible, to convey the full benefit of our knowledge and collective experience in the use of the Coassco Model 60 Retractor and 1" Access Valve Assembly. This work instruction is not meant to be a sole source of instruction or training guide. Because these tools are used in a broad range of environments and applications, it is important that the owner and operation personnel have been assessed, certified, and deemed competent in all safety, work management and additional risk assessment requirements in the application of this procedure.

### **WARNING**



Installing, operating or maintaining a Cosasco low pressure retractor tool improperly could lead to serious injuries. Comply with all information on the product, in this work instruction, and in Cosasco System Safety Awareness Training that apply to the product. Do not allow untrained or inexperienced personnel to work with this product. Use Cosasco parts and work procedures specified in this work instruction.

### **BE SURE ALL PERSONNEL READ AND FOLLOW THE INSTRUCTIONS IN THIS WORK INSTRUCTION AND ALL PRODUCT WARNINGS.**

#### Product Owners (Purchasers)

1. Use the correct product for the environment and pressures present. If you are unsure, discuss your needs with your Cosasco representative.
2. Inform, educate, and train all personnel in the proper installation, operation, and maintenance of this product.
3. To ensure proper performance, only competent, field experienced and trained personnel should install, operate, repair and maintain this product.
4. Save this work instruction for future reference.

#### Product Operation Personnel (Personnel):

1. Read and understand all instructions and operating procedures for this product.
2. Follow all warnings, cautions, and notices marked on, and supplied with, this product.

3. Follow all instructions during the installation, operation, and maintenance of this product.
4. To prevent personal injury, ensure that all components are in place prior to and during operation of the product.
5. If you do not understand an instruction, or do not feel comfortable following the instructions, contact a Cosasco service technician for clarification or assistance.
6. If this work instruction is not correct for your Cosasco product, contact your regional Cosasco office and Cosasco will provide you with the requested work instruction.
7. Use only replacement parts specified by Cosasco. Unauthorized parts and procedures can affect this product's performance, safety, and invalidate the warranty. "Look-a-like" substitutions may result in improper operation and may result in serious injury or death.
8. Save this work instruction for future reference.

## **2   DISCLAIMER**

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This disclaimer relates to the use of these work instructions by non-Cosasco persons and entities.

Any person or organization utilizing this work instruction, for any purpose, does so at their own risk. Rohrback Cosasco Systems, Inc., its affiliates and employees assume no liability arising from the use of, or reliance on the information provided in any Cosasco work instructions.

Information provided in this work instruction should not be considered as all-encompassing or suitable for all situations, conditions or environments. Each individual and the organization he or she represents are responsible for implementing their own program of training and safety awareness in connection with this work instruction.

Application of information furnished by this work instruction does not guarantee that the information furnished will meet applicable USA (including OSHA), United Kingdom, or any other country's health or safety standards or requirements or, that by implementing any of the programs you or your company will comply with such rules and regulations. Always seek the advice of your legal, medical or other advisors before using this information.

### **3 SAFETY WARNINGS**

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#### **WARNING**



It is imperative that the following safety warnings are taken into important consideration before and during use of Retractable System Equipment. Safety warnings are noted throughout this document to ensure precautions are taken for all procedures where there are risks involved. Failure to follow these warnings could result in serious injuries.

1. Do not use the Retractor equipment unless you have been properly trained in its safe operation.
2. Safe operation requires a minimum of one trained operator.
3. If it has been longer than 90 days since your last operation, you should review this work instruction and first practice on a dummy (no pressure) fitting.
4. Make sure you have complied with all plant safety requirements and environmental regulations.
5. Identify the type of media, its pressure and temperature. Review material safety data information of the media prior to operation.
6. Ensure you have all the required safety equipment for the given media, (i.e. hard hat, safety glasses, protective clothing, safety gloves, respirator, spill safety equipment, etc...).
7. Any actions which could vary system pressure such as surges caused by opening and closing of valves and chokes should be delayed until completion of the retraction operations.
8. Ensure you have enough clearance for safe operation. Note wind direction prior to starting operations involving hazardous products.

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## **4 SCOPE OF DOCUMENT**

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This document details the procedure for the installation and retrieval of corrosion and erosion monitoring devices or chemical injection equipment using the Cosasco Model 60 Retractable System Retractor Kit.

Caution must be used at all times when working with pressurised equipment and before actual field work personnel must be trained in the safe use of the retractor.

This document is not to be used as a training manual in the use of the fore mentioned equipment and is intended for use by Cosasco trained and qualified personnel or service personnel of clients who have been assessed, certified, and deemed competent in all safety, work management and additional risk assessment requirements in the application of this procedure. The lead technician is responsible for strict adherence to this work instruction.



## **5 HOW THE RETRACTABLE SYSTEM WORKS**

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### **5.1 Retractable System Retractor Kit**

The Retractable System consists of a retractor tool which clamps onto a stuffing box seal assembly which is connected to a preinstalled ball valve via an NPT fitting. With the use of a Retractor Tool, various probes, coupons or chemical injection equipment can be removed and installed through the valve while the system is under pressure.

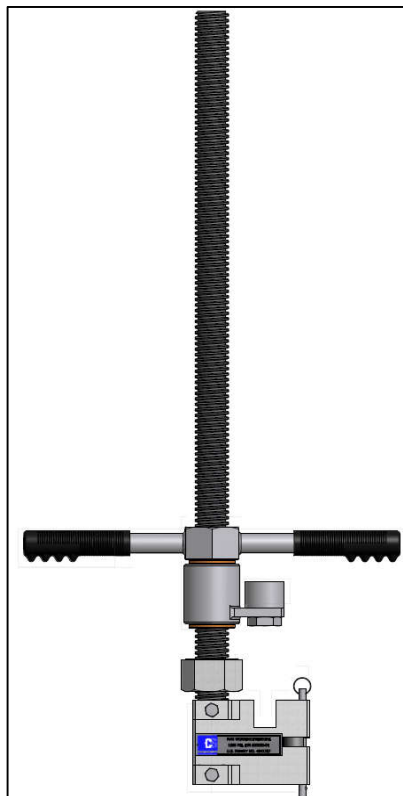


## 5.2 The Retractor Tool

The Cosasco Retractor is a lightweight tool capable of retrieving corrosion monitoring devices in pressurized systems up to 1500psi (103bar) and temperatures up to 535°C (995°F).

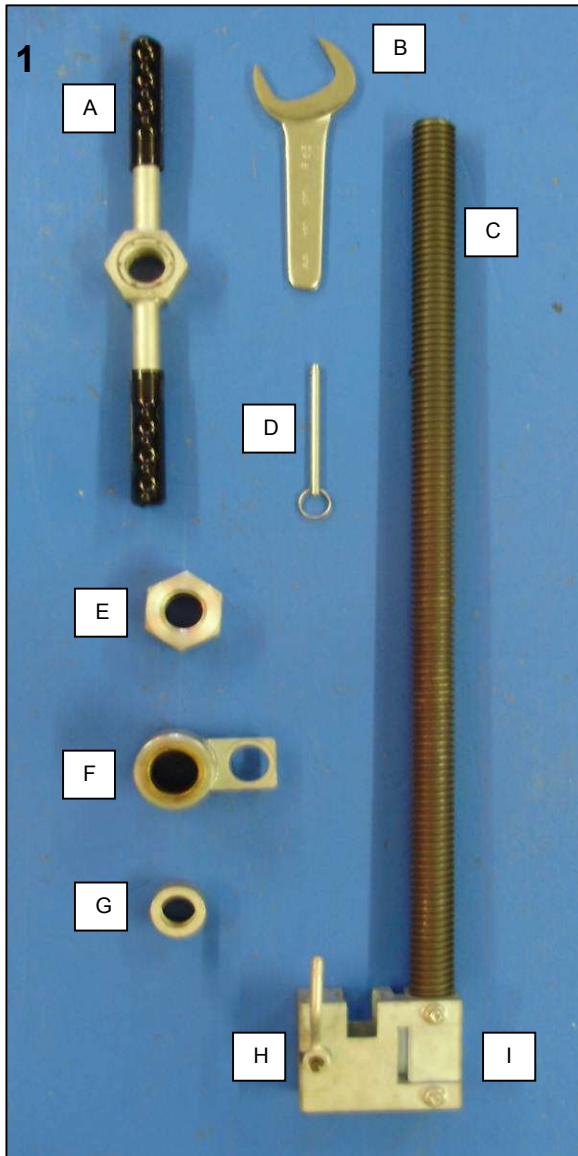
The Retractor Tool comes in two sizes, 24” and 36”. The tool size determines the length of device the tool can retrieve from the line.

Some useful tool specifications are included in the table below:



Description	Ordering Length	
	24"	36"
Retractor Overall Length	35" 0.89m	47" 1.2m
Minimum Working Radius	9.5" 0.24m	9.5" 0.24m
Maximum Device Size Which Can Be Retracted.	24"	36"
Retractor Assembly Weight	19# 8.64kg	22# 9.98kg

### Retractor Reference Diagram



- A. Handle Nut
- B. 1-1/2" Hex Nut  
Spanner
- C. Retractor Shaft
- D. Quick Release Pin
- E. Hex Nut Plate
- F. Thrust Coupling
- G. 1" Coupling Fitting
- H. Lever Nut
- I. Clamp Assembly

## **6 PRE JOB PREPARATION**

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The following three sections discuss the major steps required prior to starting any on-line retrieval using the Retractor Kit. The lists in the following sections are prompts and are not intended to replace client Risk Assessments or Job Safety Analysis which will also have to be completed prior to work start.

### **6.1 Site Survey**

It is necessary to perform a Job Step Analyses at each work location prior to work start, to ensure the following variable information is known:

- Scaffolding or any additional access requirements to ensure safe access and egress to work site
- Clearance for using the Retractor tool. *See table in section 5.2 for guidance on clearances required.*
- Pipe line pressures & temperatures, so that operating pressure of tools is not exceeded
- Any potential hazards around the worksites, such as slip, trip or fall hazards
- Emergency access & egress routes
- The pipe line media, which the equipment and operators will be exposed to
- Means of raising alarm in emergency situations

### **6.2 Documentation & Communication**

Prior to work start the following documentation must be generated and reviewed:

- Permit to Work, as specified by the client
- Client specific Risk Assessment or Job Step Analyses, with Cosasco personnel input
- Critical Step Checklist
- SAFR Location Sheet
- Personnel competency certificates

A toolbox talk will be performed by the Cosasco Technician, including but not limited to the following:

- The main steps involved in the job
- Equipment to be used
- Review of work permit and risk assessment
- PPE required
- Means of communication with Control Room personnel
- Actions to be taken in the event of an emergency
- Control room is aware of work party location
- All personnel involved with the work are aware of all control measures and are competent to be involved in the work
- Work party are aware of any other work taking place in close proximity to worksite

- Any additional hazards identified during this talk should be reviewed and control measures implemented

### **6.3 Worksite Checks**

Upon completion of the steps in section 6.1 & 6.2 final checks should be made at the worksite prior to work starting, as follows:

#### **Worksite**

- Ensure any scaffolding to be worked on is certified
- Check previously identified escape routes are still clear
- Test means of communication with control room
- Double check PPE is in good condition and fit for purpose
- Identify any other work parties in proximity work location

All equipment including Retractor Kit, hand tools and corrosion monitoring equipment is to be inspected pre-job to ensure it is fit for purpose and in good working order.

#### **WARNING**



If a situation arises during the execution of this Work Instruction, which requires a deviation, then an approved Job Step Analysis will be required before continuing with the operations at the monitoring location concerned. The JSA must be approved by Cosasco and by the Operator of the site before proceeding with the deviation. Site specific work permit policies should be followed to ensure site management are fully aware of the deviation to the standard procedures. No further steps may be taken at the monitoring location concerned until this is completed. Work may proceed as per the work scope at the next applicable monitoring location whilst the JSA is reviewed and issued for approval.

## **7 RETRACTABLE SYSTEM CONSTRUCTION & PREPARATION**

1. An online access valve must be used with a minimum bore of .95" and a 1" NPT nipple for mounting to the stuffing box. This nipple should be sized appropriately to ensure clearance of the fully retracted probe when closing the access valve.
2. All probes/devices (here after referred to as 'probes') must have a mechanical stop (velocity shield or stop ring) installed. The mechanical stop ensures that the probe cannot be removed from the stuffing box while online (under pressure).

**NOTE:** A safety clamp kit assembly and retractor are required when pressures are in excess of 150psi and/or above temperatures of 150°F.

3. The 3/8" threaded rods on the safety clamp assembly must be sized prior to using the retractor to allow sufficient mounting clearance. Any rod in excess of 1" past either end of the safety clamp jam nuts, at position of desired insertion, must be cut off.

## 8 INSTALLATION OF MONITORING DEVICE

1. **NOTE:** If probe is not already online refer to section 9 "Access Valve and Stuffing Box Installation".
2. Assemble the two halves of the clamp assembly around the probe stuffing box such that the cut out in the clamp aligns with the threaded rods (when present) and ensuring that the safety cable is not crossed or interfering. Draw the clamp assembly together and secure with the lever nut. Insert the quick release pin into the hole provided on the right half of the clamp assembly.
3. Remove the dust cover or any instrumentation cabling connected from the connector end of the probe and install the thrust coupling over the 1" NPT connector threads. If the connector has other than 1" NPT threads a separate adaptor must be used.
4. Install the coupling fitting on the connector or the adapter. Rotate the handle until it rests just above the thrust coupling.
5. Slowly open the access valve. The stuffing box is now pressurised; loosen the 1" hex locking nut and the 1-1/2" hex stuffing nut, **but do not remove**. Should leakage occur around the 1-1/2" hex stuffing nut, tighten as necessary. Do not tighten to the point that it is difficult to push the probe through the stuffing box assembly.

### **IMPORTANT!**

Loosen the 1" hex locking nut and the 1-1/2" hex stuffing nut, **but do not remove**.

6. Insert the probe by rotating the handle nut in a clockwise direction until the desired insertion depth is obtained and orient the probe in the flow as required. Tighten the 1 1/2" hex stuffing box nut 1/2 turn past hand tight then tighten the 1" hex locking nut 3/4 turn past hand tight. When the probe has a safety clamp kit then reinstall the jam nuts onto the threaded rods and push the safety flanges toward each other and tighten the inside jam nuts flush with the inside of the inboard and outboard safety flanges. Check for any leaks and tighten as necessary.
7. To remove the retractor from the probe first remove the coupling fitting from the connector end of the probe then back off the handle nut counter clockwise and lift the thrust coupling off and clear of the probe. Remove the quick release pin and loosen the lever nut on the clamp assembly. Swing open the clamp assembly and remove the retractor from the probe.

### 8.1 Retraction of Monitoring Device

1. Install the retractor onto the stuffing box as per section 8. Do not remove the safety clamp assembly or loosen the 1-1/2" hex stuffing box nut or 1" hex locking nut before retractor is installed.

#### **WARNING!**



Do not remove the safety clamp assembly or loosen the 1-1/2" hex stuffing box nut or 1" hex locking nut before retractor is installed.

2. Loosen and remove the top two 9/16" hex jam nuts from the top safety flange closest to the probe end connector.
3. Loosen the 1" hex locking nut until it can be turned freely. Carefully loosen the 1-1/2" hex stuffing nut until the probe can be retracted smoothly but no more than one full turn. Should leakage occur around the 1-1/2" hex stuffing nut then tighten as necessary.
4. Remove the probe by rotating the handle nut counter clockwise, allowing system pressure to drive the probe out until it is fully retracted (safety cable will become fully taut) which will allow closing of the access valve assembly.
5. Close the access valve and bleed off the pressure in the nipple by loosening the stuffing box body. Once all the pressure is bled off then remove the stuffing box assembly from the nipple.

**NOTE:** The retractor lower 2-1/4" hex nut (across flats) is provided on the threaded shaft in the event that system pressure is not sufficient to drive the probe. If required, rotate nut counter clockwise (with 2-1/4" wrench) until it makes contact with the bottom surface of the thrust coupling. Locate the handle nut so that no more than two threads are visible between the handle nut and the thrust coupling. This will provide a stopper in the event of sudden movement. Rotate the 2-1/4" hex nut counter clockwise while keeping the handle nut two threads above the thrust coupling.

#### **WARNING!**



Only after the probe has been retracted and the access valve closed and the pressure in the nipple between the access valve and the probe body has been bled off (by loosening the stuffing box body threads) can the probe and retractor be safely removed from the system.

## **9 ACCESS VALVE & STUFFING BOX INSTALLATION**

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1. Assemble the access valve and nipples (if not already online). A 1" female NPT connection is provided on the stuffing box body to mate with the thread on the access valve outlet nipple.
2. Close the access valve. The vessel may now be pressurised.
3. If a safety clamp kit assembly has been installed remove the outer two jam nuts closest to the probe connector end.
4. Loosen the 1" hex locking nut and the 1-1/2" hex stuffing nut **but do not remove**.

### **IMPORTANT!**

Loosen the 1" hex locking nut and the 1-1/2" hex stuffing nut, **but do not remove**.

5. Slip the stuffing box assembly as far forward (toward the shield/measuring element, quill, or coupon end) as possible.
6. Apply thread sealing compound or PTFE tape to the threads of the access valve and outlet nipple.
7. Mount the stuffing box assembly onto the access valve outlet nipple and tighten 2-3/4 to 3-1/4 full turns past hand tight. (Normal thread engagement to make a tight joint is 0.66".)
8. Tighten the 1-1/2" hex stuffing nut **HAND TIGHT**.



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## **10 CLEANING AND MAINTENANCE OF RETRACTOR**

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The retractor should be kept clean and free of dirt, sand and foreign material that could hamper the operation of the retractor. The threaded shaft should be kept lightly lubricated with a high quality and waterproof grease.



Cosasco • [sales@cosasco.com](mailto:sales@cosasco.com) • [www.cosasco.com](http://www.cosasco.com)