REYNOLDS
LIFT TECHNOLOGIES

Installation and Operations Manual

SiO_2 Slayer™

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1. Purpose

Reynolds Lift Technologies SiO_2 Slayer™ is a high performance, solids separating device aimed at Artificial Lift applications such as ESP and rod pump installations where sand and solid laden production fluid hinders pumping operations. This manual presents a guide on how to safely and successfully install the tool into those types of applications. Carefully review the steps in this manual and ensure a thorough understanding before proceeding with work.

2. Scope

This document covers the proper and recommended steps to ensure successful installation and operation of the SiO_2 Slayer™.

3. General Precautions

The list below states general precautions related to the installation of this tool. It is not an exhaustive list and should only be considered general in nature.

1. Use proper lifting techniques when handling equipment
2. Use proper PPE for oilfield operations
3. EUE threaded connections require thread dope prior to making up
4. Where applicable, a torque wrench should be utilized
5. Do not use tongs on housing

4. Definitions

N/A

5. Required Materials and Tools

To facilitate the installation of the SiO_2 Slayer™ the following materials and tools should be available

1. Pipe dope for tapered or EUE threads
    a. Equivalent to pipe dope used for production tubing tapered or EUE threads
        i. E.g., KOPR KOTE® by JET-LUBE
2. 36” Pipe wrench
    a. For making up tapered or EUE threaded connections
3. Hex wrenches and torque wrench
    a. For tightening set screws
4. Caliper or tape measure
    a. Measurement of outer diameter of cup packer to ensure fitment with wellbore casing

6. General Application Information

The SiO_2 Slayer™ installs below the ESP or rod pump assembly and connects to a tailpipe assembly which captures the separated sand and solids. The assembly integrates a cup packer, so when it arrives to location there are only two connection points.

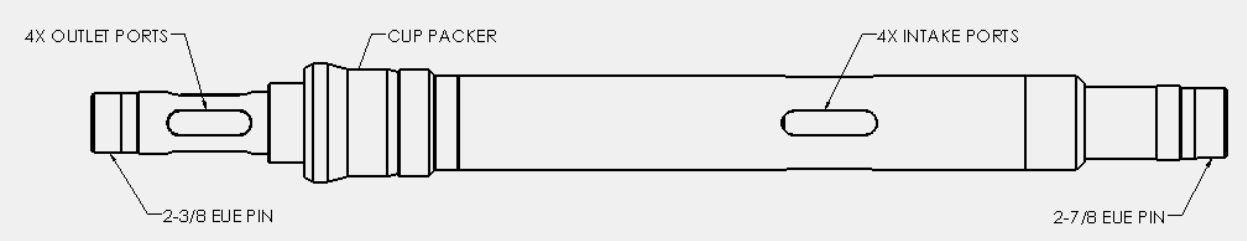

Figure 1 - Annotated Assembly View

The cup packer can be swapped out easily for different casing sizes depending on the application. One upper pin thread is to connect to the sensor or motor base for an ESP application, and one lower pin thread is for connection to the bull plugged tail pipe assembly where solids are captured. The lower connection can rotate relative to the tool after loosening set screws to allow ease of assembly onto the string.

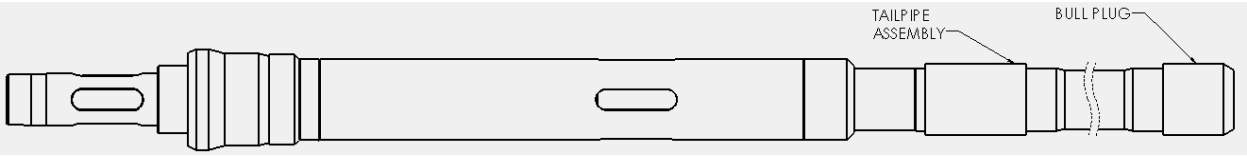

*Figure 2 - SiO_2 Slayer™ with **Tailpipe Assembly and Bull Plug (not included with SiO_2 Slayer)***

7. Installation

Prior to rigging up for the installation of the tool, inspect the top and bottom pin threads for any damage. The tool ships with thread protectors to minimize potential damage to threads.

NOTE: If thread damage is present, the thread form must be repaired before installing.

a. Pre-Run-In Hole Tasks

1. Measure cup packer diameter to confirm dimension matches wellbore casing size
    a. If not, review cup packer replacement instructions in this manual
2. Confirm bull plug is installed on tail pipe assembly
3. Before threading any connections together, place pipe dope on threads

b. Installation

1. With tailpipe assembly locked in with the rig slips, bring tool up to rig floor ensuring threads and cup packer do not sustain any damage
2. Place pipe dope on lower pin thread connection of tool and thread into box thread looking up from tailpipe assembly
3. Tighten tool hand tight with 36” pipe wrench
4. After tightening the lower connection, proceed with locating the two set screws on the lower portion of the tool as shown in figure below

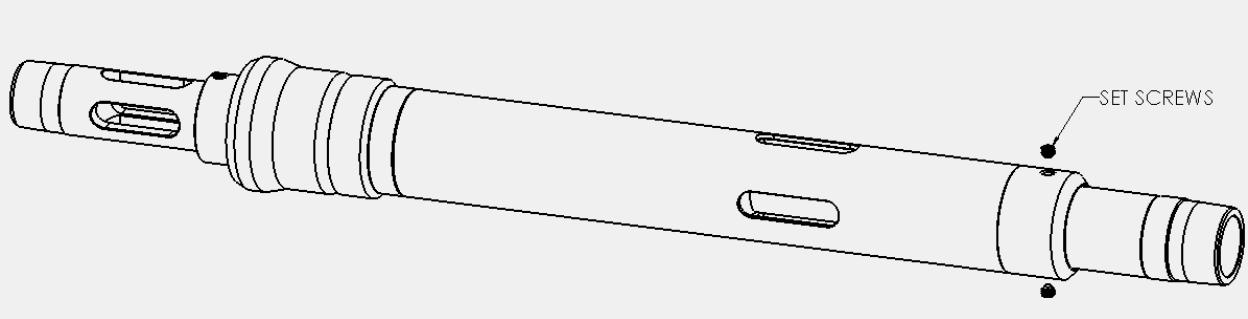

Figure 3 - Location of Lower Set Screws

5. Slightly loosen these two set screws – now the tool can rotate relative to the tailpipe assembly held in the slips, so it can be tightened into the ESP motor or rod pump assembly
6. Proceed with bringing the ESP motor or rod pump assembly on top of the 2-3/8 EUE pin connection looking up
7. Lower the ESP motor or rod pump assembly onto the pin connection and use a 36” pipe wrench to tighten the 2-3/8 pin connection into the box thread
8. Once tighten, locate the lower set screws, and torque these to **60 ft-lbs.**
9. Assembly is now ready to lower into wellbore
10. Ensure cup packer enters well concentrically and does not hang up on any lips inside any wellhead components

c. Operation

Operation of the device requires no additional input from the surface and will function normally as the pumping system operates.

8. Appendix A – Tensile Limits

Table below states the tensile yield limits for two critical locations of the device. The figure defines where these locations are.

Tool Size	Outlet Ports	Intake Ports
400 Series SiO_2 Slayer™	105,000 lbs.	127,000 lbs.

Table 1 - Tensile Limits at Ambient Conditions

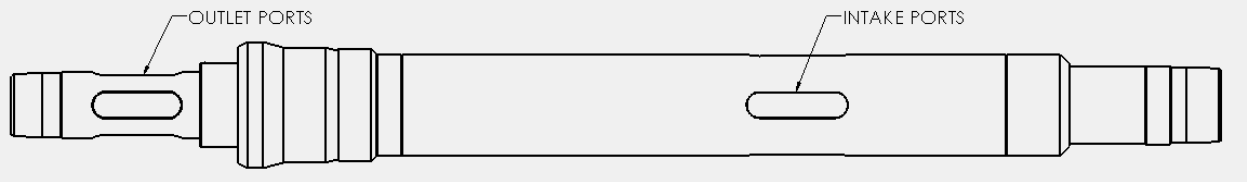

Figure 4 - Critical Locations for Tensile Limits

9. Appendix B – Cup Packer Replacement

The cup packer is field serviceable and requires minimal work to replace the cup packer unit.

1. Remove set screws on top connector
2. Unscrew large retention nut and then slide cup packer off
3. Replace with new cup packer unit and reverse steps
4. Hand tighten retention nut with pipe wrench and torque set screws to **60 ft.-lbs.**

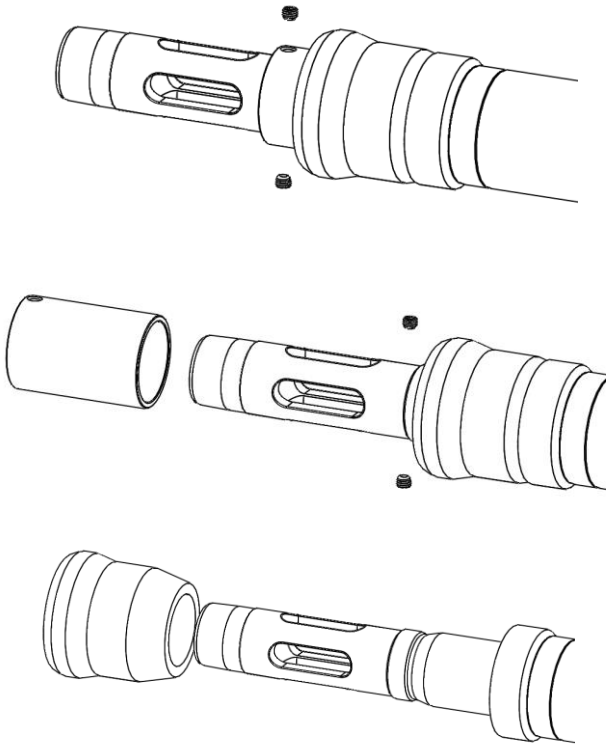

Figure 5 - Steps to Remove and Replace Cup Packer