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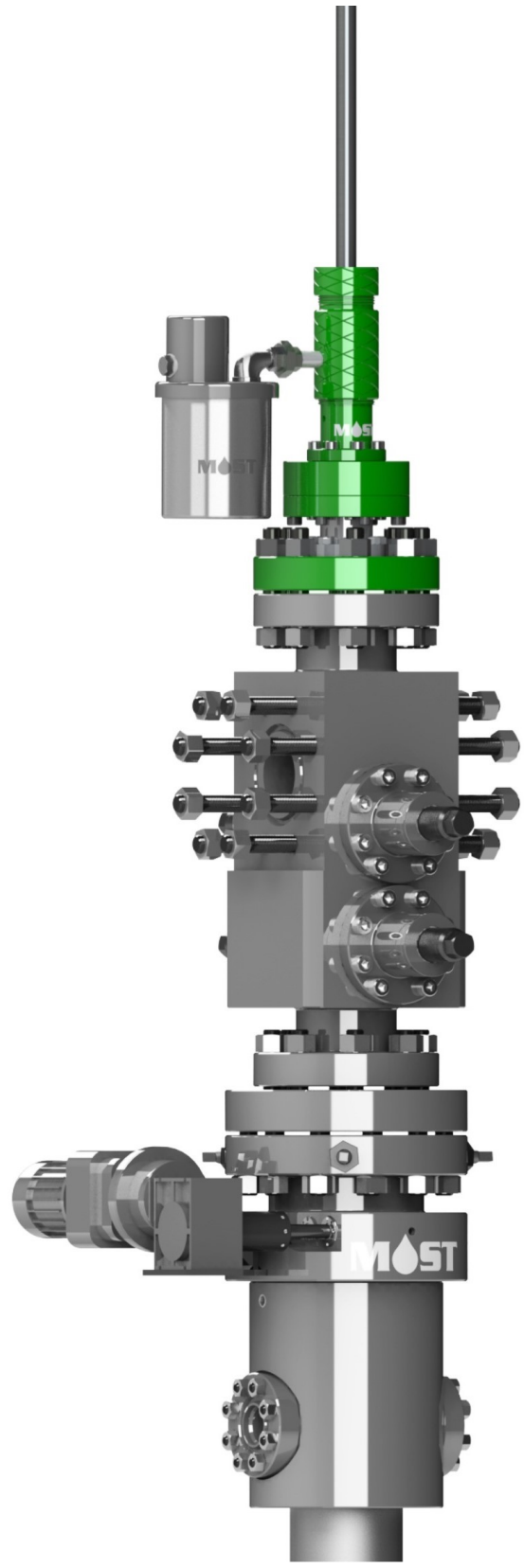

Operation and Maintenance Manual for MOST 3,000PSI and 5,000PSI Dual Pack Stuffing Box (DPSB)

Revision 1 – May 2020

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About This Manual

Notes, Cautions, and Warnings

Notes, cautions and warnings are used throughout this manual to provide readers with additional information and to advise the reader to take specific action to protect personnel from potential injury or lethal conditions. They are also used to inform the reader of actions necessary to prevent equipment damage. Please pay close attention to these messages.

Notes provide useful information and tips that can make the operator's job easier. Those are identified with

Cautions are identified with the caution symbol (symbol), this indicates that the potential damage to equipment or injury to personnel exists. Extreme care should be taken when performing operations or procedures preceded by this caution symbol.

Warnings are identified with the warning symbol (symbol), this indicates a definite risk of equipment damage or danger to personnel. Failure to observe and follow proper procedures could result in serious or fatal injury to personnel, significant property loss, or significant equipment damage.

Illustrations and Photographs

The illustrations and photographs in this manual provide graphical examples of equipment. These examples are not intended to represent every possible situation and will vary in appearance to the actual equipment.

Safety Guidelines

Observe the minimum safety precautions listed below and all safety precautions provided throughout this manual. Following these precautions will protect you and others from injury or death and prevent equipment damage and environmental impact.

- Follow all customer safety guidelines.
- Stand upwind when installing or dismantling equipment.

Hydrogen sulfide gas (H_2S) may be present in high concentrations. You must have proper H_2S detection equipment with you and practice all recommended safety precautions when working around wellheads.

- Live or discharging equipment possess certain hazards that require the awareness and vigilance of operators.

You MUST avoid conducting any repair or maintenance work while the equipment is in operation. Follow proper lockout / tagout procedures before staring any work on the equipment. Failure to heed this warning can result in severe injury or death.

Installation, repair, or maintenance of equipment should only be done while wearing proper PPE. Failure to do so could result in severe injury or death.

- Equipment should be used for its intended purpose only.

MOST Stuffing Boxes are designed to perform specific functions and should only be used for those applications.

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Description

Stuffing Boxes are a safety equipment on the wellhead that are used to prevent leakage and uncontrolled spillage of wellbore fluid. This is achieved by using packing that is compressed against the polished rod to maintain a seal.

MOST has almost 2 decades of experience in manufacturing wellhead equipment for oilfield service. MOST is certified with ISO and API under ISO 9001-2015, API Q1, and API6A Wellhead and Christmas Tree Equipment. This ensures that MOST stuffing boxes are of the highest quality and are fully compatible with API equipment.

MOST stuffing boxes are available in various pressure ratings, including 1,500 PSI, 3,000 PSI and 5,000 PSI. Based on the application, MOST stuffing boxes can be configured with different kinds of packing materials depending on the temperature and service conditions.

Verify the pressure rating, configuration, and the temperature rating of your stuffing box to ensure that it fulfills the requirements of the application.

Dual Pack Stuffing Box (DPSB) – Threaded Base

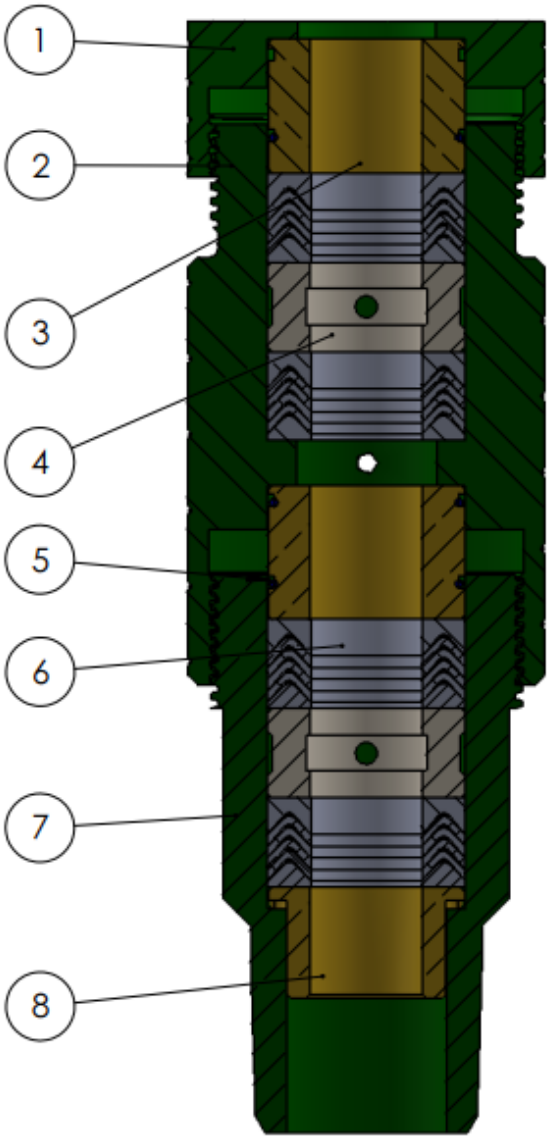

Figure 1:Dual Pack Stuffing Box (DPSB) – Threaded Base

1. Cap
2. Mid Section
3. Brass Block
4. Lantern Ring
5. O-Ring
6. Packing
7. Base Section
8. Brass Insert

Parts may vary depending on stuffing box model. Please refer to specific sales drawings and Bill of Materials for part numbers and quantities.

Dual Pack Stuffing Box (DPSB) – Flanged Base

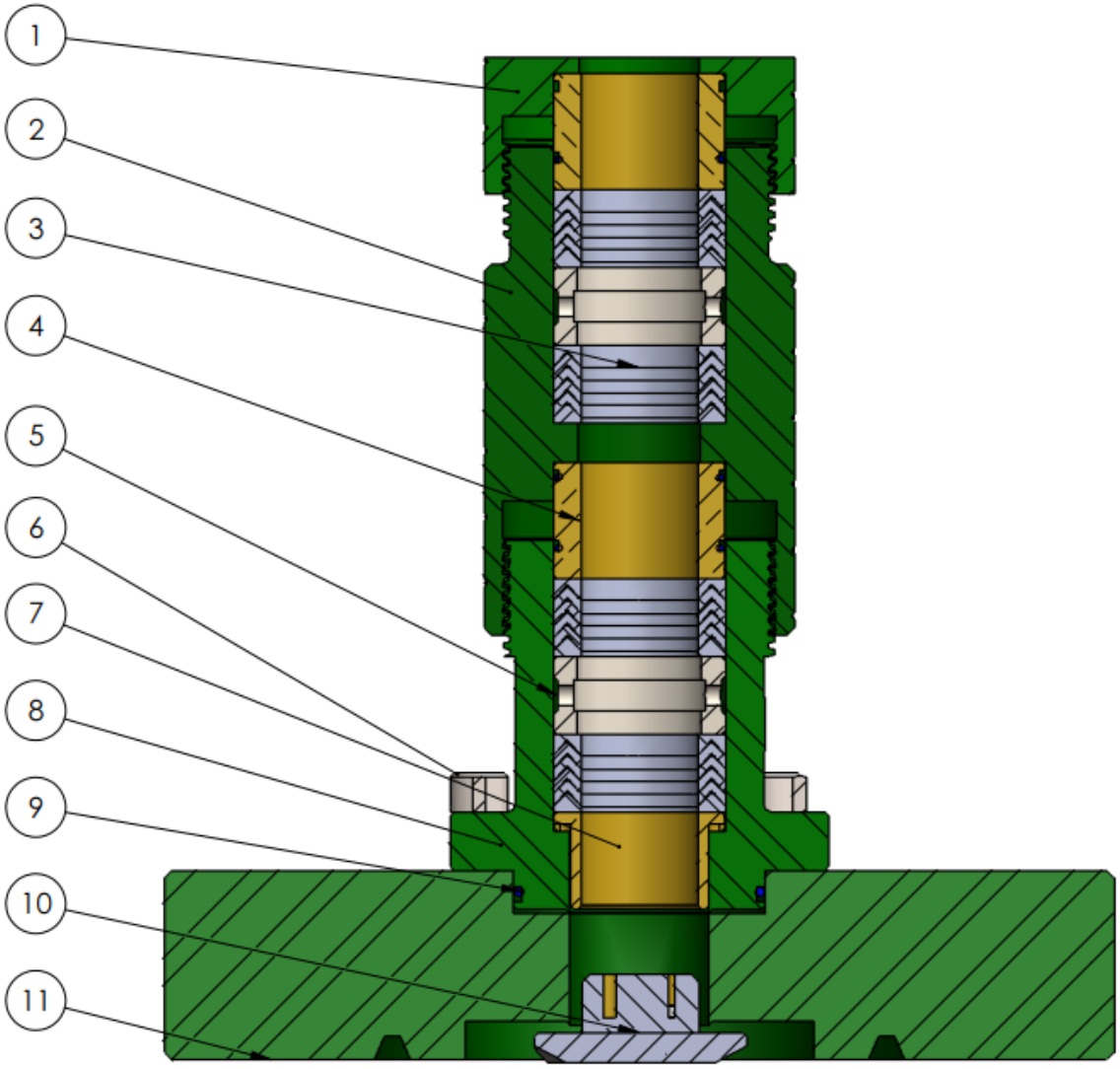

Figure 2:Dual Pack Stuffing Box (DPSB) – Flanged Base

1. Cap
2. Mid Section
3. Packing
4. Brass Block
5. Lantern Ring
6. Socket Head Cap Screw
7. Brass Insert
8. Base Section
9. O-Ring
10. Flapper (if equipped)
11. Flanged Base

Parts may vary depending on stuffing box model. Please refer to specific sales drawings and Bill of Materials for part numbers and quantities.

Dual Pack Stuffing Box (DPSB) with Pivoting Base

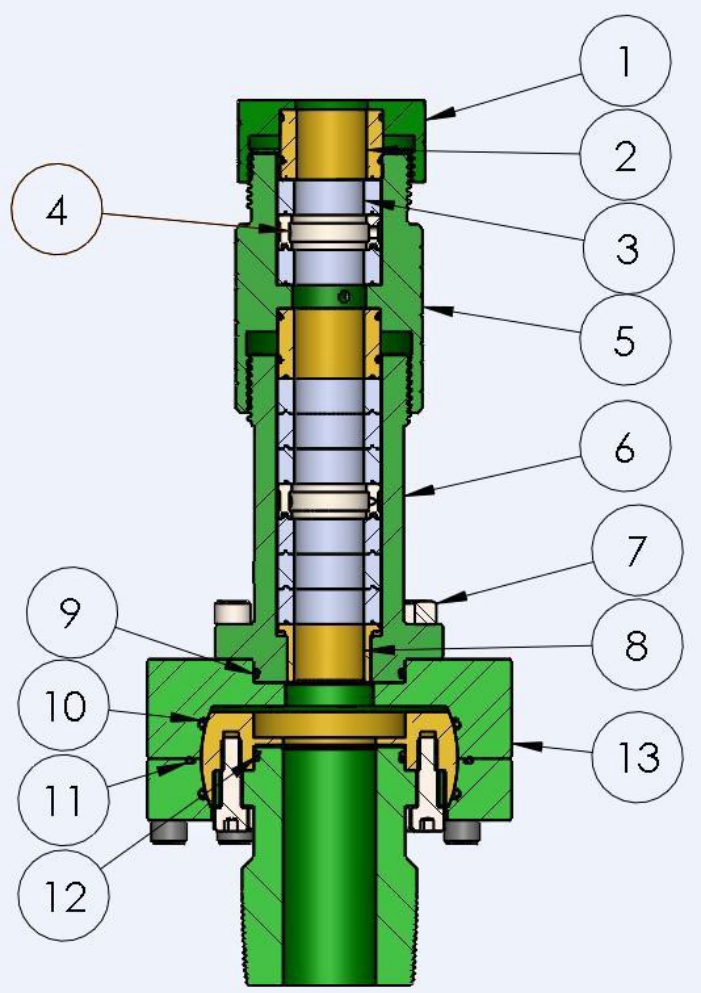

Figure 3: Dual Pack Stuffing Box (DPSB) with Pivoting Base

1. Cap
2. Brass Block
3. Packing
4. Lantern Ring
5. Mid Section
6. Base Section
7. Socket Head Cap Screw
8. Brass Insert
9. O-Ring
10. O-Ring
11. O-Ring
12. O-Ring
13. Pivoting Section

Parts may vary depending on stuffing box model
Please refer to specific sales drawings and
Bill of Materials for part numbers and
quantities.

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Installation

This manual provides a guideline for installation and use of a MOST stuffing box. Always follow local and company safety requirements when working around an oil well.

Pre-Installation Inspection:

MOST stuffing boxes are manufactured according to the requirements of API 6A and are fully tested before leaving the factory.

1. Prior to installation, it should be confirmed that all required installation materials are on hand.
2. Carefully inspect the stuffing box to ensure that there is no damage or missing parts
3. Visually inspect the ring grooves and threaded connections (as applicable) for damage prior to installation.
4. Confirm that the flanges and connections on the stuffing box are compatible with the equipment and hardware that are going to be connected.
5. Confirm that the packing in the stuffing box is of the correct type and free from damage.

Installation – Flanged Bottom:

Follow appropriate safety procedures for lifting, moving, and working around the stuffing box and related equipment.

1. Ensure that the stuffing box is installed right side up.
2. Confirm that all threaded box and pin connections are clean before threading in the stuffing box. Do not cross-thread.

The stuffing box can safely be installed over the polished rod thread protector, provided the thread protector is not larger than the polished rod.

3. Make flanged/studded connections as per standard company API procedure.

Only use new ring gaskets. Ring gaskets deform during installation, and there is no guarantee that a used ring gasket will function correctly.

4. Perform visual inspection to ensure the installation was successful.

Installation – Threaded Bottom:

Follow appropriate safety procedures for lifting, moving, and working around the stuffing box and related equipment.

1. Ensure that the stuffing box is installed right side up.
2. Confirm that all threaded box and pin connections are clean before threading in the stuffing box. Do not cross-thread.

The stuffing box can safely be installed over the polished rod thread protector, provided the thread protector is not larger than the polished rod.

3. Make threaded bottom connection as per standard company procedure.

The stuffing box should be threaded by using a pipe wrench above the threads on the bottom section of the stuffing box.

4. Perform visual inspection to ensure the installation was successful.

Operation

Compressing the Packing:

1. If the stuffing box is equipped with vee or chevron packing, the cap to the mid-body connection needs to be hand tight. The mid body to lower body connection only needs to be tight enough to activate the chevron or vee packing.

Generally, all sections should be hand tight. A section that is too tight will cause the packing to wear quickly and if it is too loose then it will cause the packing to leak.

2. If the stuffing box is equipped with steam seal packing, then the sections need to be tool tight to properly activate the packing. A 36” pipe wrench can be used to tighten until snug.

If equipped with a pivoting section, it may be necessary to hold both the sections being tightened with tools to avoid the possibility to rotation.

3. Ensure that the set screw in the cap and the body of the stuffing box is correctly torqued to minimize the risk of back off during operation.

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Preventative Maintenance

MOST offers a low maintenance stuffing boxes that provide customers with years of service.

Inspection of an operating stuffing box:

1. During operation, the stuffing box must be visually inspected for leaks and seepage.
2. If a leakage is noticed, then the source must be identified.
3. If the leakage is from the bolted flanges/threads, the bolts/thread should be checked for correct torque.
4. If applicable, replace the ring gasket if re-torquing the bolts does not correct the leak.

Ring gaskets should not be reused

5. If the leakage or seepage still continues, the stuffing box needs to be serviced.

Internal Threads:

All internal threads (EU, Line Pipe, etc, depending on model), should be inspected for damage before and after use.

Damaged threads can compromise the integrity of the stuffing box.

External Threads:

External threads are highly susceptible to damage during transit or from poor storage conditions. These threads should be inspected for damage before and after use.

Damaged threads can compromise the integrity of the stuffing box.

Bolts and Flanges:

1. Studded outlets and flange surfaces should be inspected before and after use.
2. Damaged studs should be replaced with equivalent API spec studs.
3. All ring grooves should be inspected for damage prior to and after use.

Ring Gaskets:

1. Only use new ring gaskets.
2. A ring gasket is deformed during the torquing procedure.

No previously used API ring gasket will provide a reliable seal.

Spares and Replacement Parts:

Use only genuine spares and replacement parts.

Five Year Maintenance

A five year maintenance should be performed on all MOST stuffing boxes at a MOST or an authorized repair facility.

1. The stuffing box is fully disassembled, cleaned and inspected.
2. All elastomers and soft parts are replaced.
3. All other parts are repaired or replaced as required.
4. The stuffing box is repainted.
5. The assembly is recertified.

Servicing

- Follow all applicable field safety requirements while installing, uninstalling or servicing a MOST stuffing box.
- Do not remove or service a stuffing box on a pressurized or operating well.
- The refacing of flange surfaces should only be done in a controlled environment using precision equipment.

Field Service:

Servicing the Top Section:

1. Ensure that the set screw in the cap is removed.
2. Remove Cap and support higher up on the rod.
3. The brass block is solid and cannot be replaced if the polished rod is in place.
4. Remove the used upper packing.

A pick or screw tool may be required

5. The lantern ring can now be removed and slid up the rod.
6. The lower used packing can now be removed.
7. Replace all O-Rings on the seal block
8. The top section of the stuffing box can now be reassembled with the new packing
9. Re-torque the set screw to minimize the risk of back off during operation.

A 120 degree offset between seams in the packing is recommended

Servicing the Bottom Section:

1. With the top section assembled, the midsection can be spun off the lower section.
2. Ensure that the set screw in the body of the stuffing box is removed.
3. Rebuild the lower section by following the instructions in the section above.
4. Replace the packing and the O-Rings on the seal block.
5. The lower brass insert cannot be field replaced.
6. After reassembling the lower section and the stuffing box, the top and bottom sections should be greased using the grease ports.
7. Re-torque the cap and body set screws to minimize the risk of back off during operation.

Complete Overhaul:

Some components can only be serviced with the stuffing box removed from the wellhead.

Top Section:

1. Disassemble the top section and replace packing as per field service instructions.
2. Inspect the seal block for wear and replace if necessary.
3. Inspect the lantern ring for wear and replace if necessary.
4. Replace the packing and O-rings.
5. Reassemble

Bottom Section:

1. Disassemble the bottom section and replace packing as per field service instructions.
2. Inspect the seal block for wear and replace if necessary.
3. Inspect the lantern ring for wear and replace if necessary.
4. Replace the packing and O-rings.
5. Reassemble

Pivoting Section (if equipped):

1. Remove fasteners and separate main section from pivoting section.
2. Flip pivot section over so fasteners are facing up.
3. Separate the upper and lower pivot section halves.
4. Inspect the brass pivot for damage and replace.
5. Replace all the O-Rings in the pivoting section.
6. Reassemble and ensure the pivoting section body bolting is facing down.