

SAFETY SHEAR SWIVEL

SWIVEL FOR TAPERED STRING OPERATIONS

Patent pending

APPLICATIONS

- Safety shear swivel x-over for tapered string operations

FEATURES

- Prevents excess torque to be transmitted to the smaller pipe
- Sealed bearings
- All internal connections are mechanically locked
- Simple on site redress
- No third party service personel required on site
- Standard tool joint dimension
- Serve as thread XO

BENEFITS

- Prevents overtorque and twist off
- Permits internal pressure
- Preserve equipment and avoid fishing jobs
- Permits re-use
- Simple operation
- Eliminates additional rental tools
- Saves cost and rig time

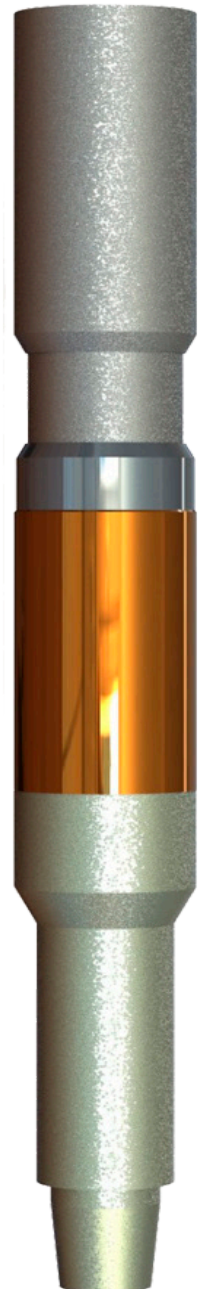
Tapered string operations are characterized by a higher torque capacity in the upper and larger pipe than the lower and smaller pipe. If the string is rotated the torque should always be adapted to the weakest link.

When completing a well, a normal operation is to displace the mud with brines. As brines typically contain less friction-reducing agents, the rotating friction may increase. The brine is often displaced through the bottom of the string, potentially exposing the lower section to higher torque than the upper string.

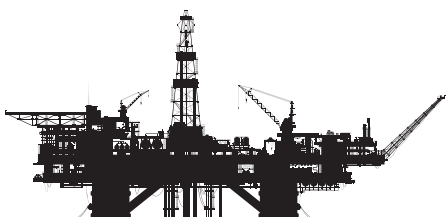
Innovar has developed the Safety Shear Swivel to minimize the risk of undesired torque being applied to the lower part of the string, and to reduce the risk of damaging the string.

The Safety Swivel serves several important functions:

- It serves as a controlled weak-link. The Safety Swivel can be set to shear at the desired torque.
- It serves as the cross over sub from the upper and larger pipe to the lower and smaller pipe. Saving the cost of a rental thread cross over sub.

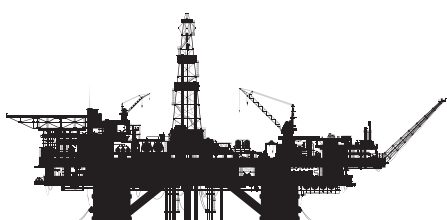
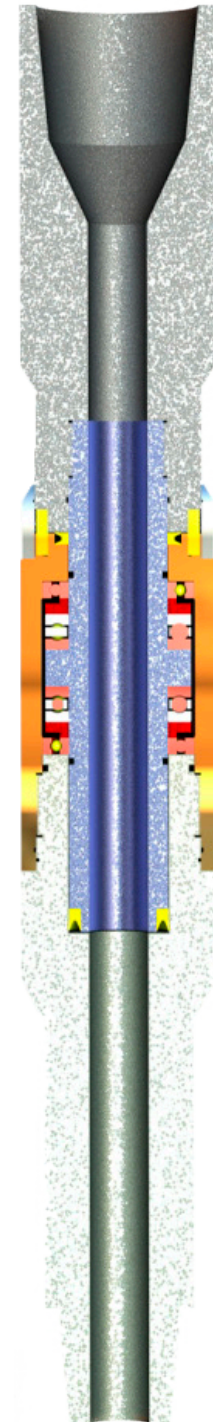


Built with high-quality radial and thrust roller bearings, the Safety Shear Swivel is designed to accept continued rotation of the upper string, while the lower string is held stationary and attached in both tension and compression. Seals maintain a 5000 psi internal working pressure before activation. While rotating, low friction dynamic seals continue to restrict leaks and preserve the bearing technology, Even after the high-pressure seals start to wear out. The Safety Shear Swivel is designed to be redressed on-site and all threaded connections are mechanically locked from coming loose while in downhole service.



SAFETY SHEAR SWIVEL SSW 50 38

Dimensional data	
Upper connection	NC 50
Lower connection	NC 38
Max OD, inch	6,63
Min. ID, inch	2,00
Length, mm	1128
Material properties	
Body material	AISI 4145
Seal material max. temp.	200 °C
Pre shear operational data	
Max tension	141 metric ton
Max compression	65 metric ton
Max RPM	350
Max pressure	345 bar
Shear force table	
Max torque: 1 shear pin	1 500 lbs/ft
Max torque: 2 shear pin	3 700 lbs/ft
Max torque: 3 shear pin	5 800 lbs/ft
Max torque: 4 shear pin	7 800 lbs/ft
Max torque: 5 shear pin	9 800 lbs/ft
Max torque: 6 shear pin	11 300 lbs/ft
Max torque: 7 shear pin	12 800 lbs/ft
Max torque: 8 shear pin	14 100 lbs/ft
After shear operational data	
Max tension while rotating	20 metric ton
Max compression while rotating	20 metric ton
Max RPM (recommended)	200
Max torque	N/A
Make-up torque	
NC50 box connection	27 000 ft/lbs
NC38 pin connection	11 000 ft/ lbs



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