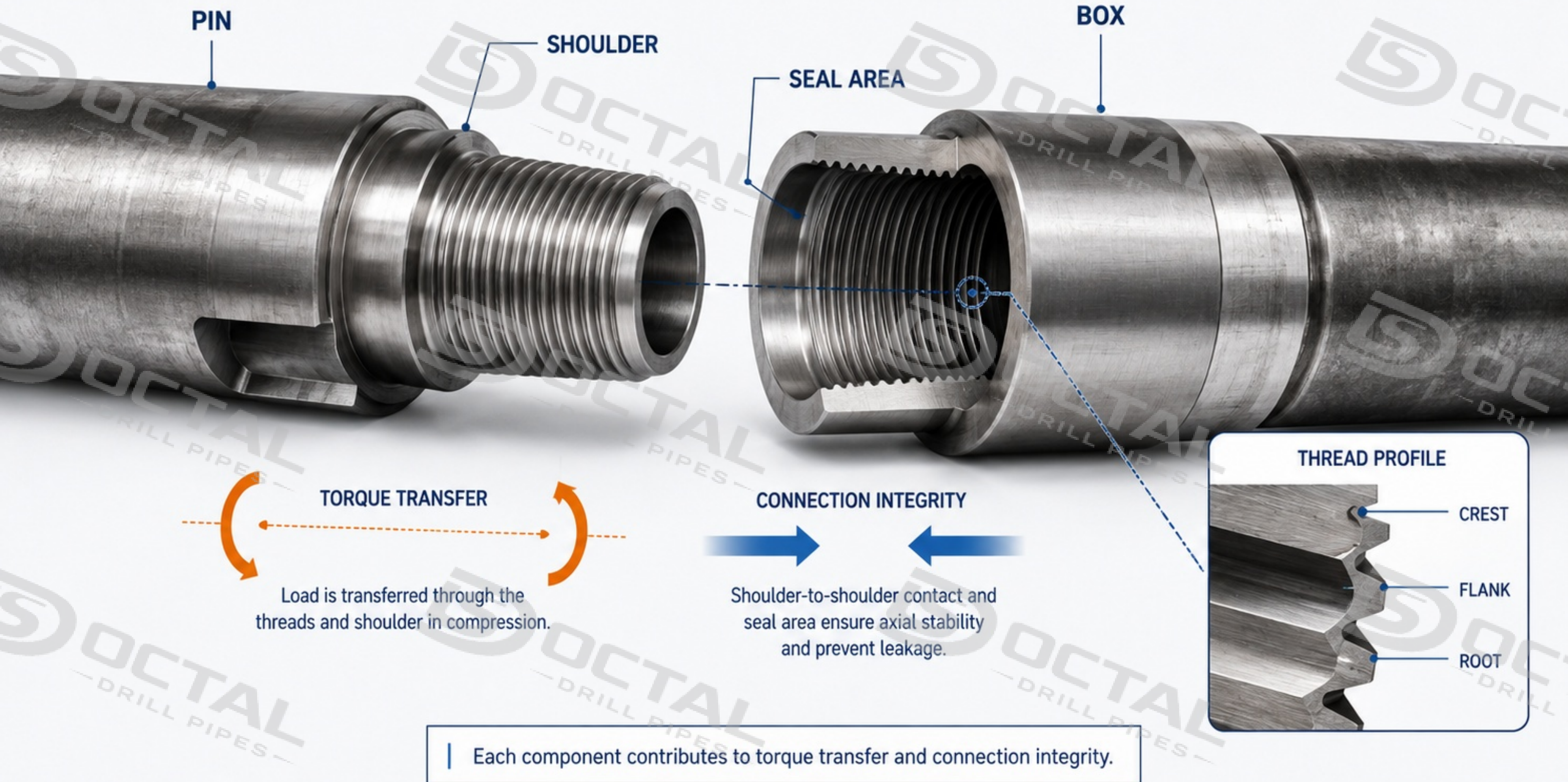


Drill Pipe Connection Structure Overview

ENGINEERING SELECTION GUIDE | CONNECTION STRUCTURE

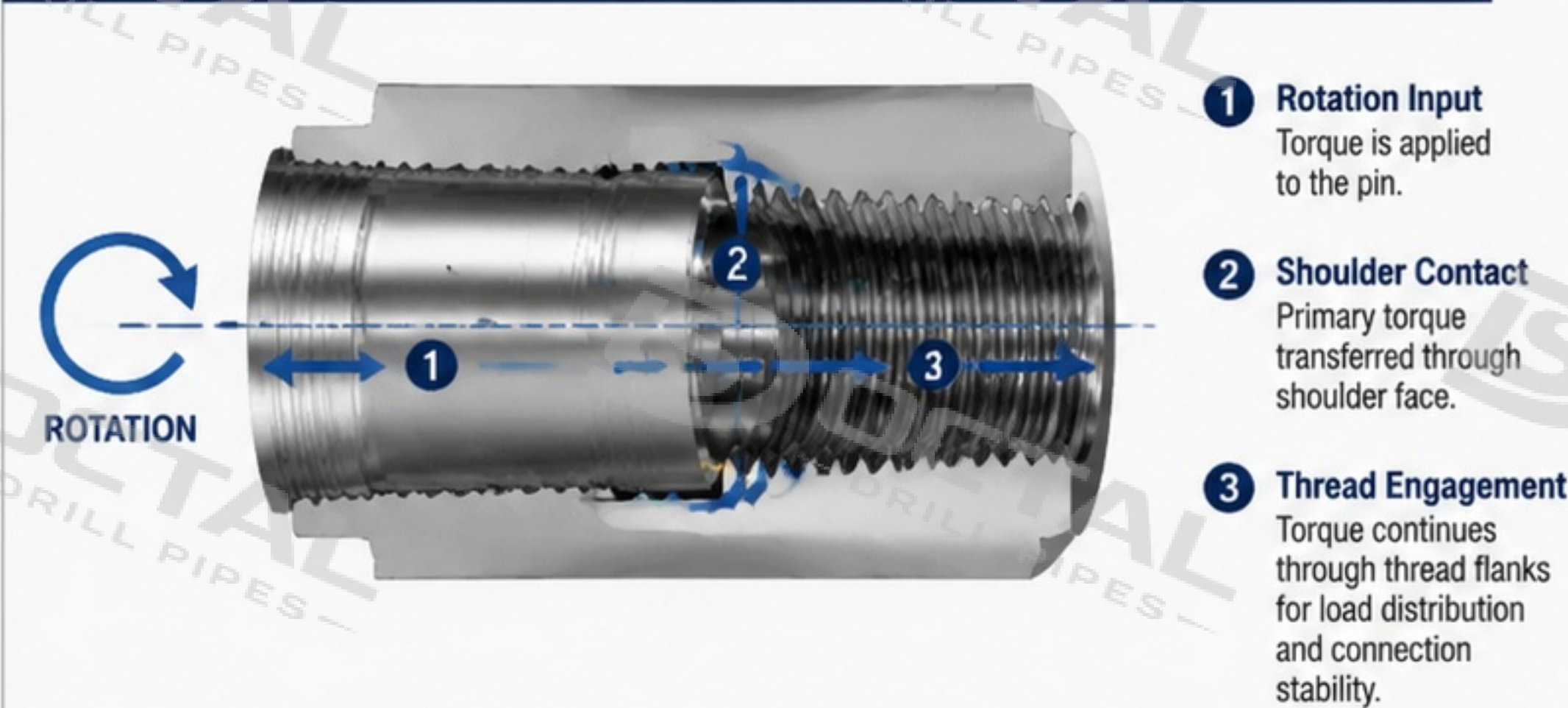
ROTARY SHOULDERED CONNECTION (TYPICAL)



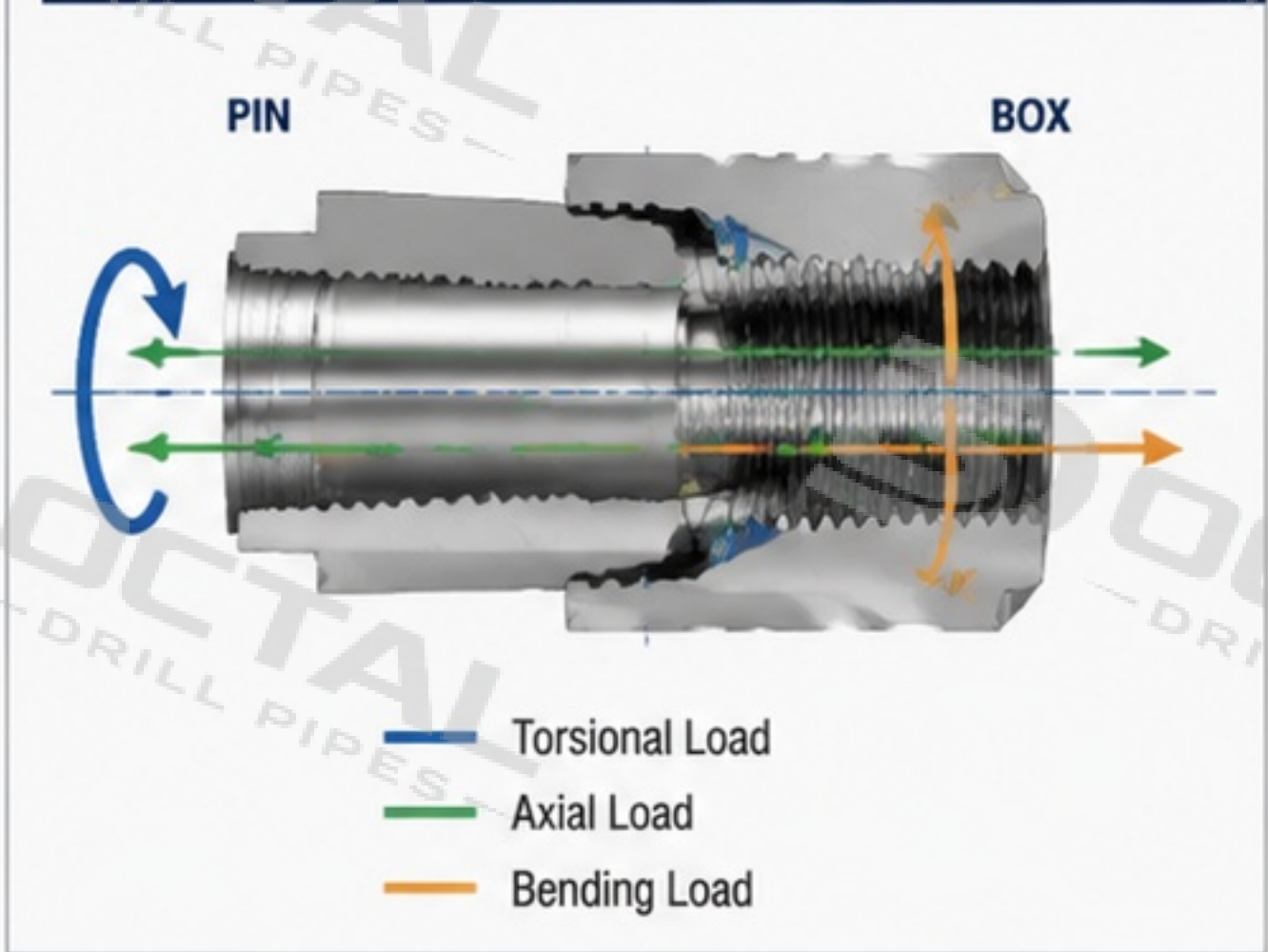
CONNECTION GEOMETRY AND LOAD TRANSFER MECHANISM

Torque is transferred from rotation to shoulder contact and thread engagement.
Optimized geometry improves load distribution and reduces stress concentration.

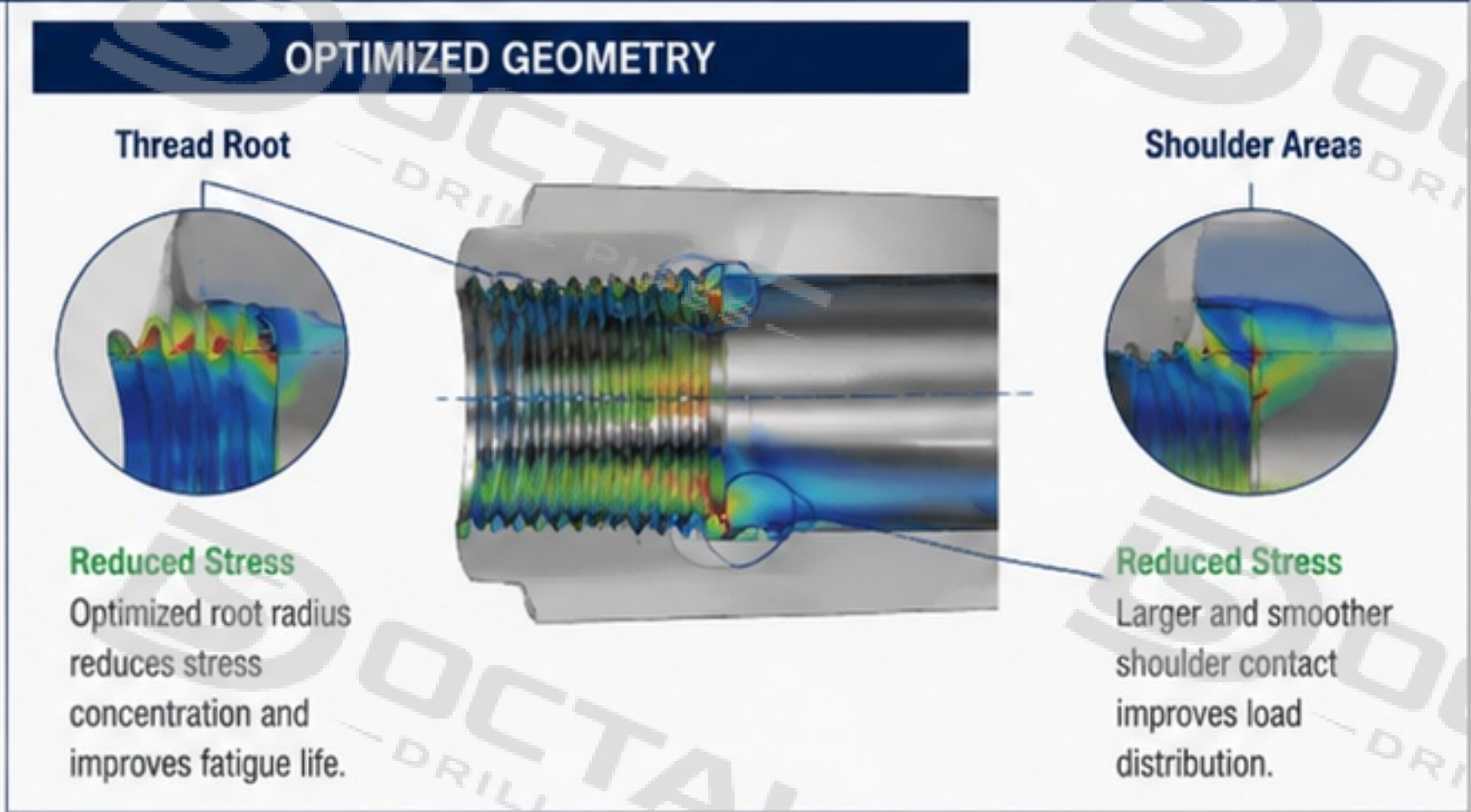
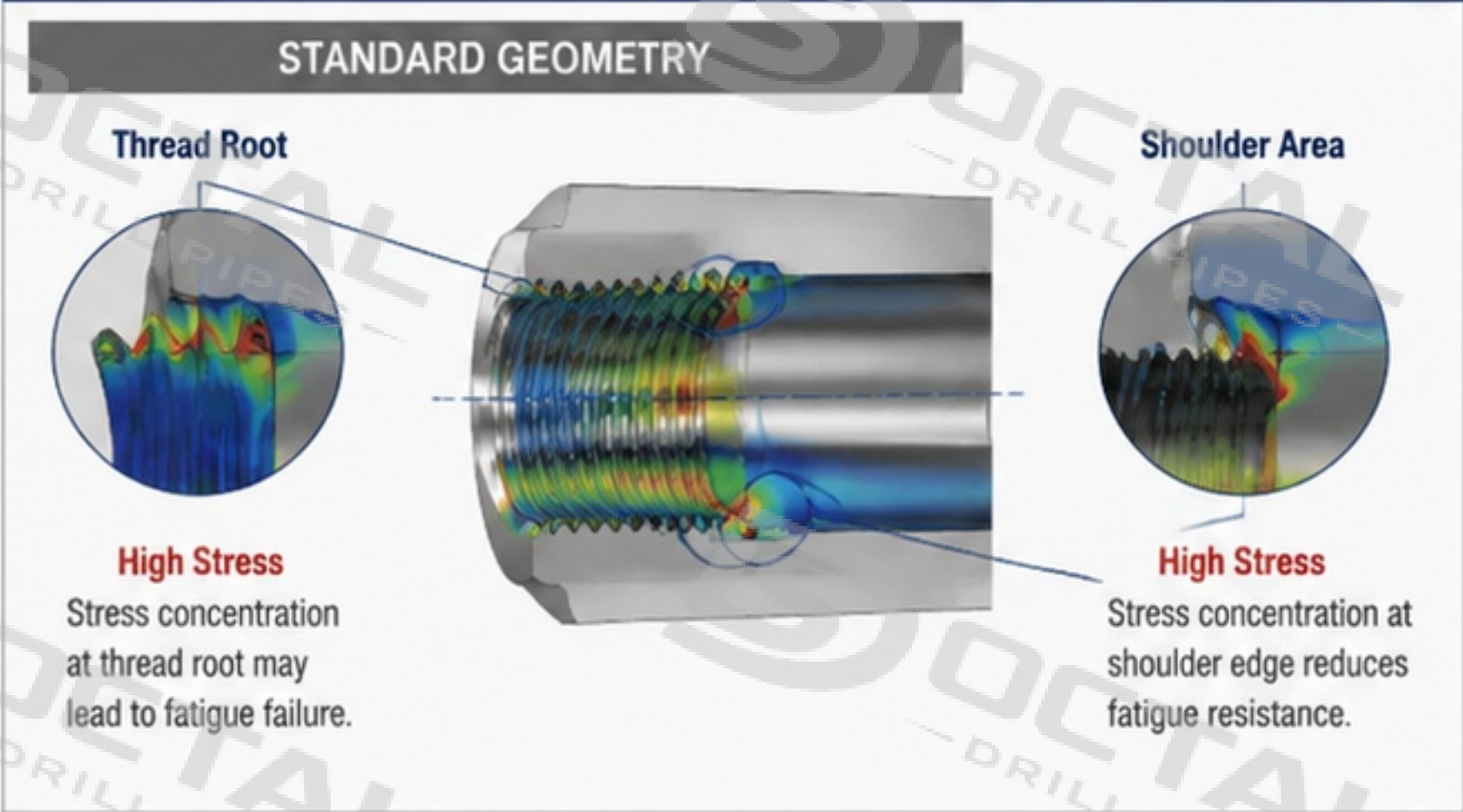
TORQUE TRANSFER PATH



LOAD TRANSFER MECHANISM



STANDARD GEOMETRY vs OPTIMIZED GEOMETRY

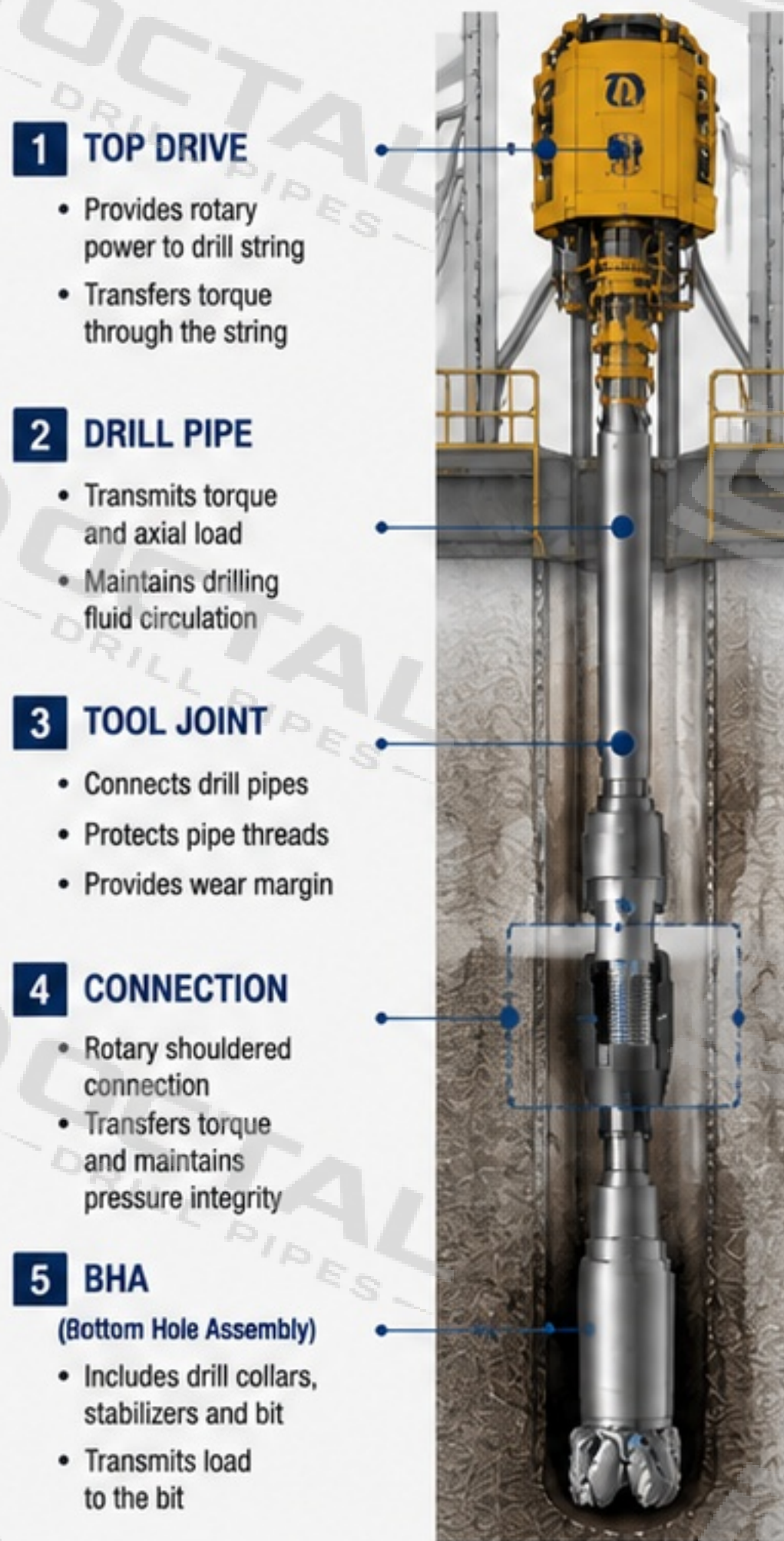


ENGINEERING BENEFITS OF OPTIMIZED GEOMETRY

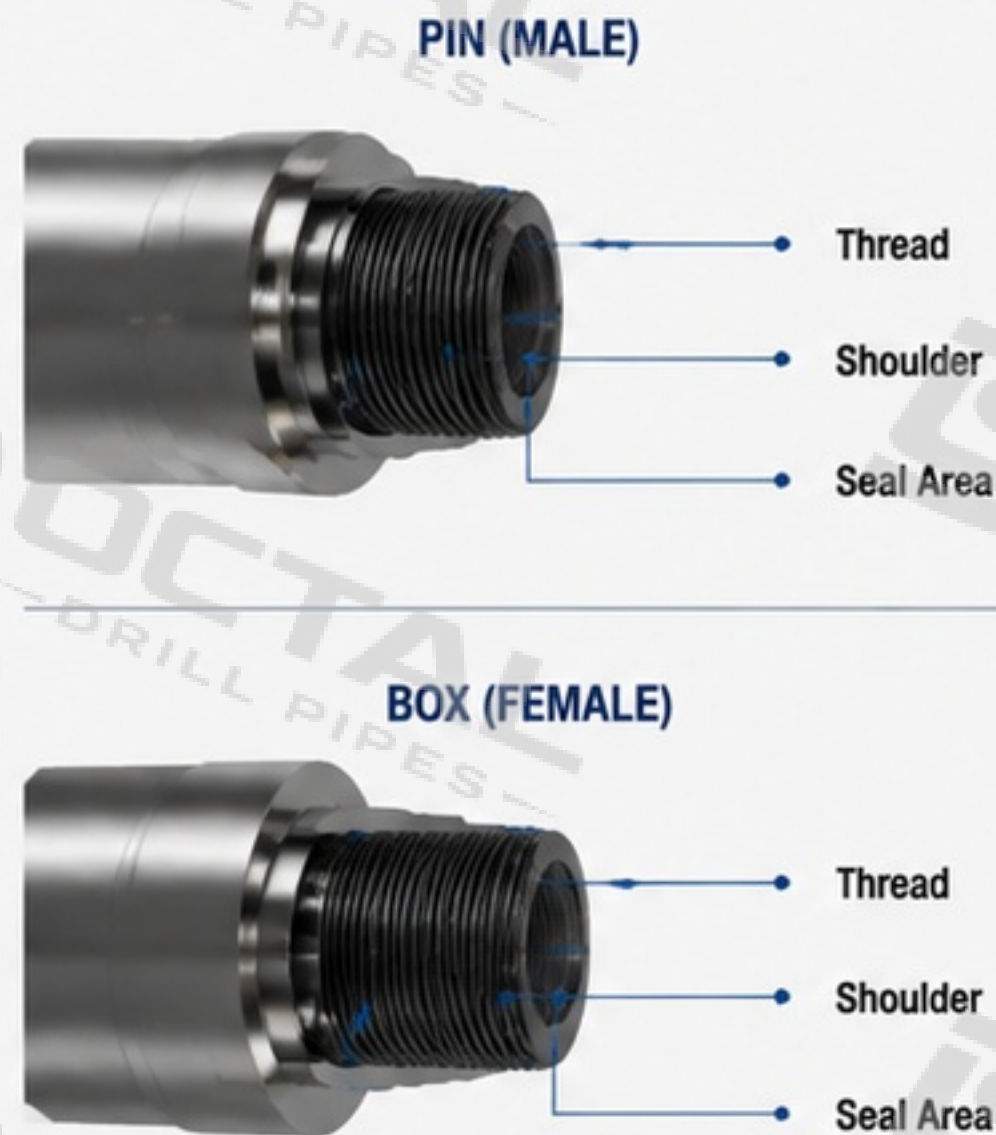
Higher Torque Capacity Improved load distribution increases torque margin.	Better Fatigue Performance Reduced stress concentration extends connection life.	Enhanced Reliability Lower risk of thread and shoulder failure.	Improved Drilling Efficiency Stronger connections support demanding drilling conditions.
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CONNECTION COMPATIBILITY WITHIN DRILL STRING ASSEMBLY

Proper connection compatibility ensures load continuity, pressure integrity and reliable drilling performance.



CONNECTION INTERFACE (TYPICAL)



LOAD TRANSFER PATH



CONNECTION MATCHING REQUIREMENTS

- 1 THREAD TYPE**
- Pin and box must use the same thread form and pitch
 - Example: NC50, 6 5/8 REG
- 2 SIZE**
- Nominal size (OD) must match
 - Wall thickness and schedule must be compatible
 - Example: 5 1/2 in., API 5DP
- 3 CONFIGURATION**
- Connection configuration (standard / flush / special)
 - Shoulder angle and length must be consistent

COMPATIBILITY CHECKLIST

- ✓ Thread type match (pin & box)
- ✓ Nominal size and wall thickness
- ✓ Connection configuration match
- ✓ Shoulder length and angle compatibility
- ✓ Material grade compatibility
- ✓ Torque capacity requirement
- ✓ Inspection and certification records

INCOMPATIBILITY RISKS

- Thread mismatch**
Causes galling and connection damage
- Size mismatch**
Leads to poor load transfer and premature failure
- Configuration mismatch**
Results in improper shoulder contact and torque loss
- Performance impact**
Increases risk of fatigue failure and NPT (non-productive time)

RELIABILITY BENEFITS OF COMPATIBLE CONNECTIONS

- Consistent Load Transfer**
- Optimized Performance**
- Maintained Pressure Integrity**
- Reduced Failure Risk**
- Improved Drilling Efficiency**



Always verify connection compatibility before running in hole.
Proper matching ensures safe operations and maximizes drill string life.

