

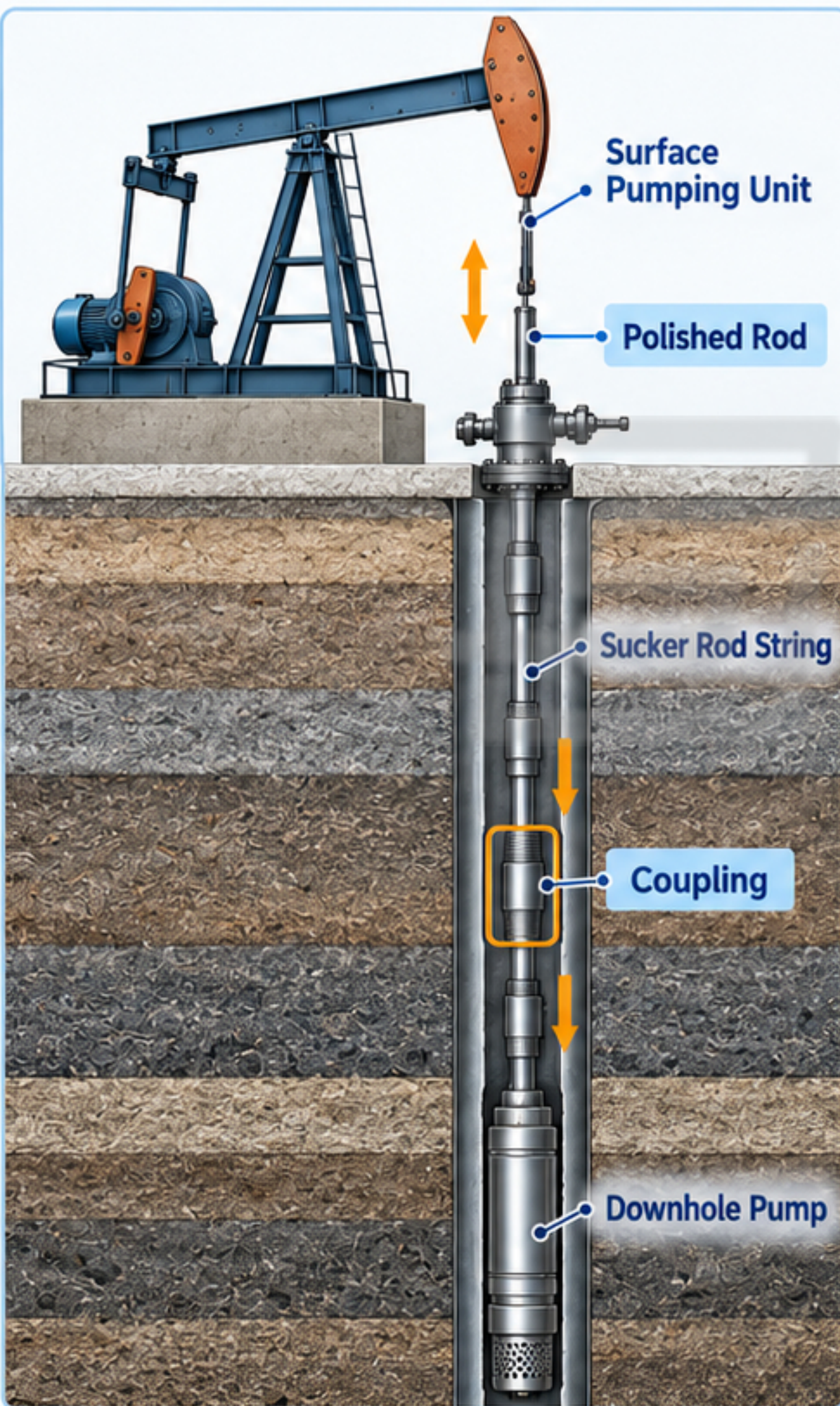
Sucker Rod Coupling Selection Guide

Size, Connection and Service Condition Analysis

Engineering Reference for Selecting Sucker Rod Couplings Based on Rod Size, Connection Compatibility, Clearance Requirements and Operating Conditions

01 / 06

Sucker Rod Coupling Selection Overview



Sucker Rod Coupling in Rod-Lift System

Sucker rod coupling is the threaded connection component that joins individual sucker rod sections in a rod pumping system. It maintains connection continuity while transferring mechanical loads through the rod string during reciprocating pumping operation.

Proper selection requires matching rod size, connection specification, tubing clearance and service condition. These factors influence load transfer reliability, installation compatibility and long-term coupling performance in artificial lift systems.

Key Selection Factors

Selection Factor	Engineering Influence
Rod size compatibility	Determines coupling size and connection matching
Connection design	Controls thread engagement and load transfer
Tubing clearance	Affects coupling envelope and movement space
Service condition	Influences material and wear protection requirements
Operating load	Defines required mechanical performance

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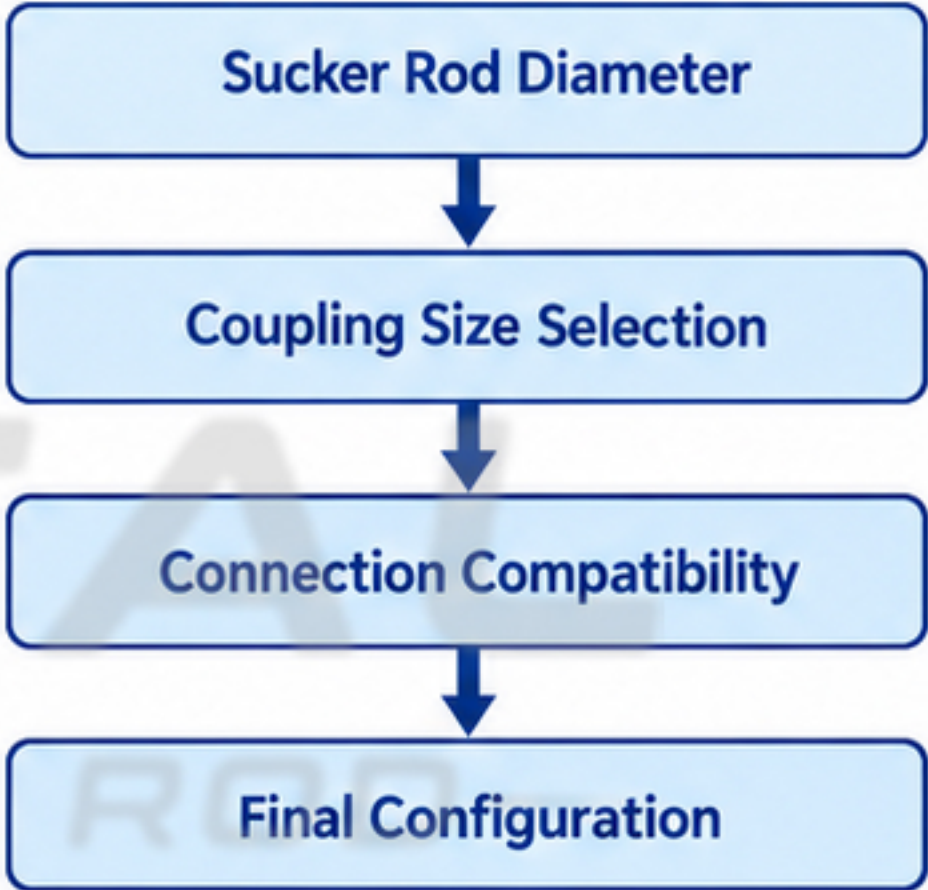
Sucker Rod Size and Coupling Matching

Coupling size selection starts with matching the sucker rod diameter and required connection configuration.

Common Sucker Rod Sizes

Sucker Rod Size	Equivalent Diameter
5/8 in	15.88 mm
3/4 in	19.05 mm
7/8 in	22.23 mm
1 in	25.40 mm
1-1/8 in	28.58 mm

Coupling Size Selection Logic

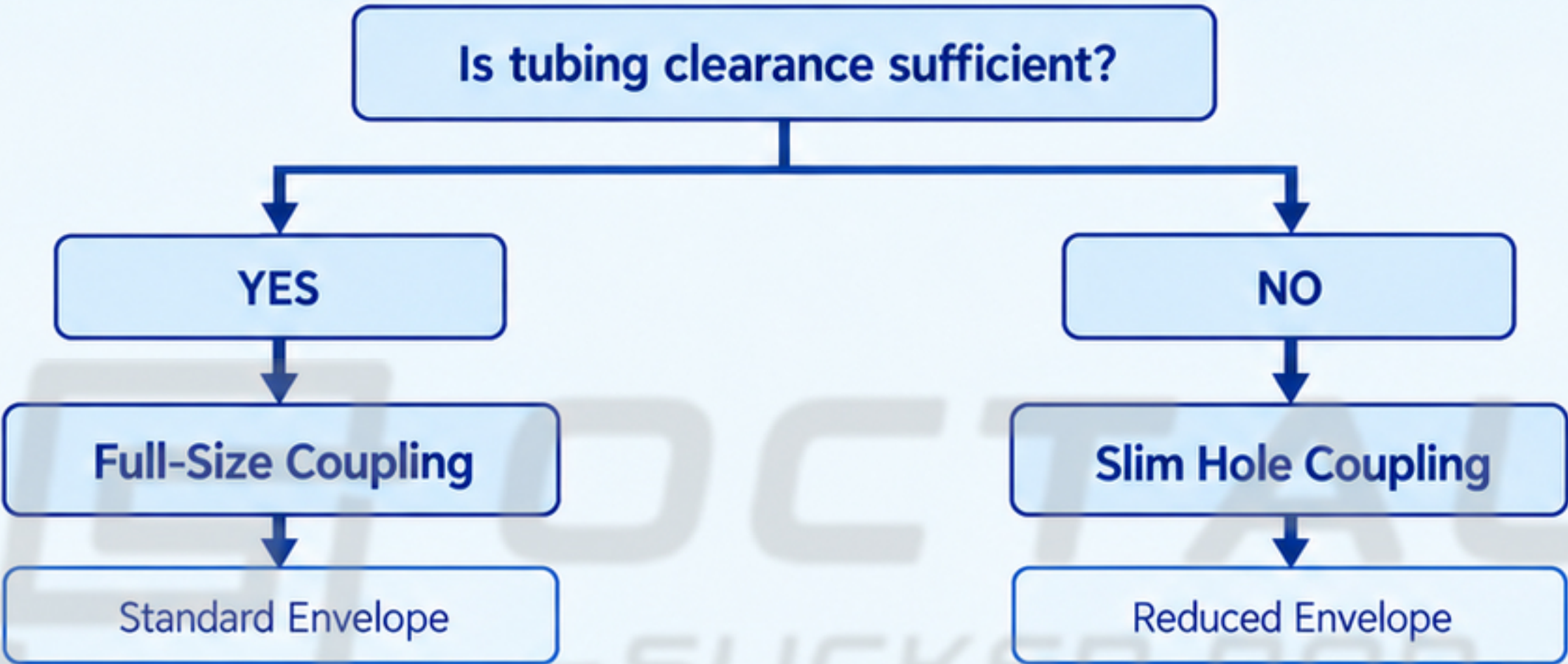


Typical Application Consideration

Rod Size	Typical Application
5/8 in	Smaller rod strings
3/4 in	General pumping systems
7/8 in	Common production wells
1 in	Higher load applications
1-1/8 in	Heavy-duty pumping

Full-Size and Slim Hole Coupling Selection

Full-size and slim hole couplings are selected according to available tubing clearance and rod string operating conditions.



Full-Size vs Slim Hole Coupling Comparison

Selection Factor	Full-Size Coupling	Slim Hole Coupling
Outside Diameter	Standard envelope	Reduced envelope
Clearance	Normal tubing clearance	Limited clearance
Main Objective	Standard connection strength	Space optimization
Typical Condition	Conventional wells	Restricted annular space

Slim hole design is not simply a smaller coupling. It is selected when clearance limitations require a reduced connection envelope while maintaining required connection performance.

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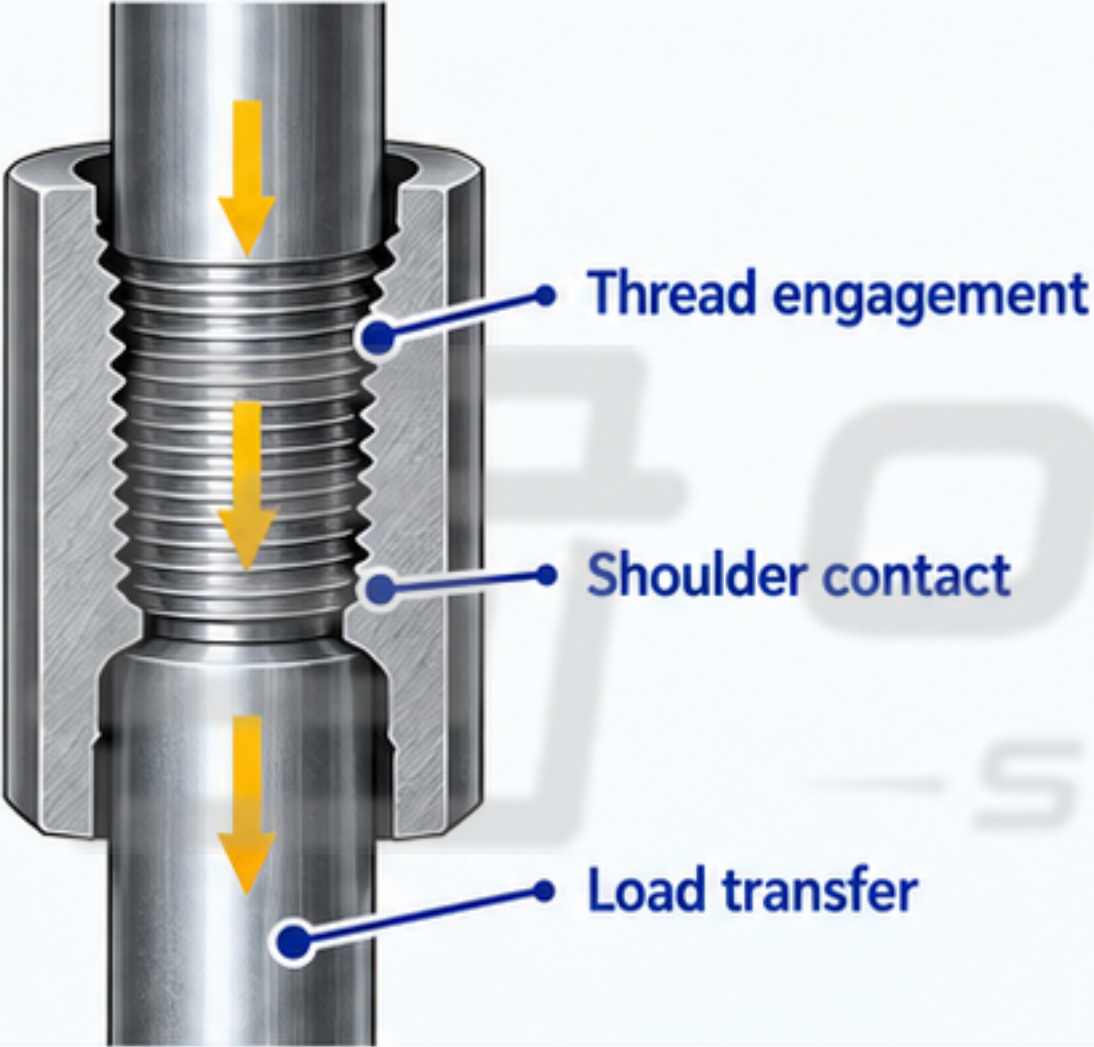
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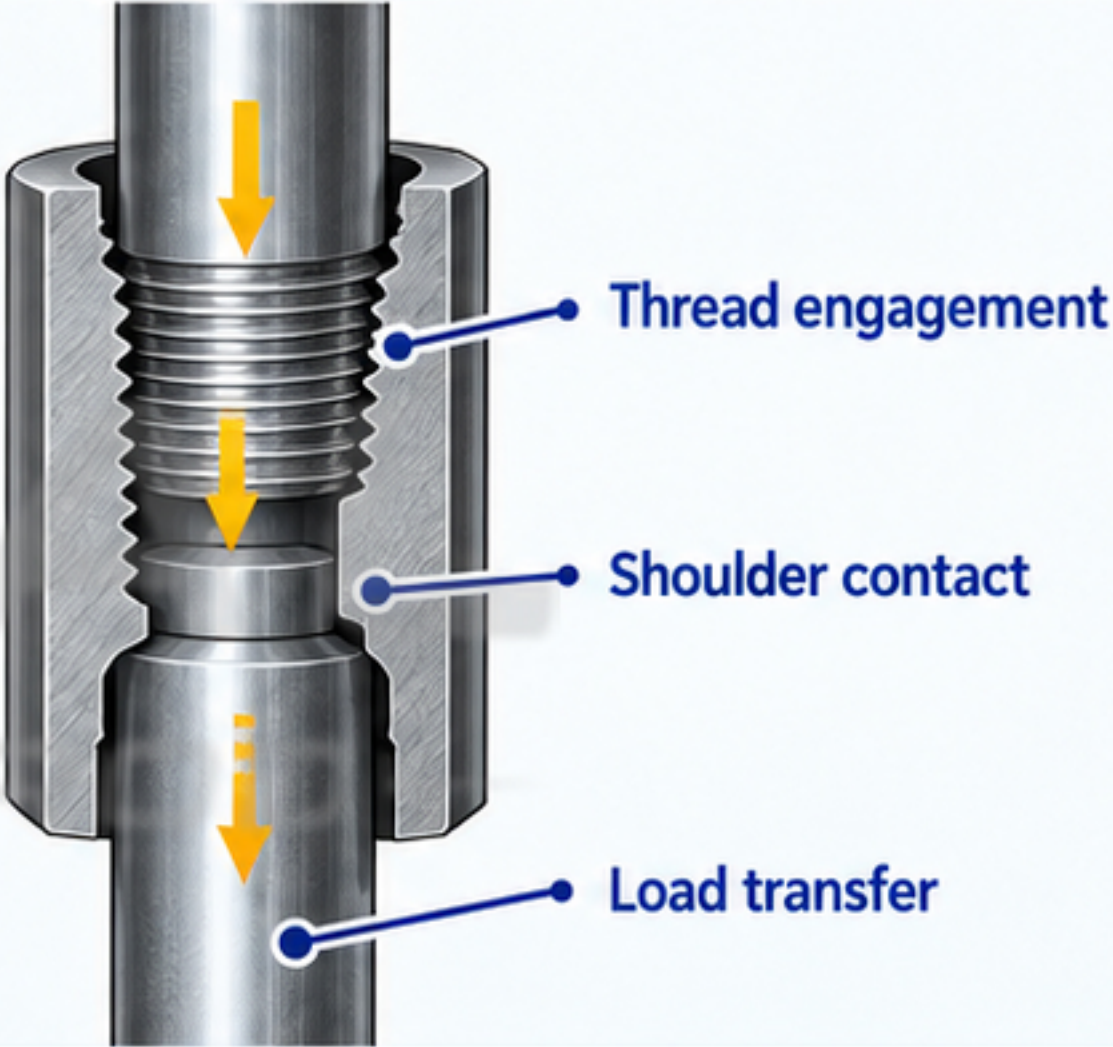
Connection Compatibility and Material Selection

Connection Compatibility

Correct Match



Incorrect Match



Material Selection

Service Condition	Selection Consideration
General pumping	Carbon steel coupling
Higher mechanical load	Alloy steel coupling
Increased wear exposure	Surface treated coupling
Severe operating condition	Enhanced protection requirements

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Service Condition Analysis

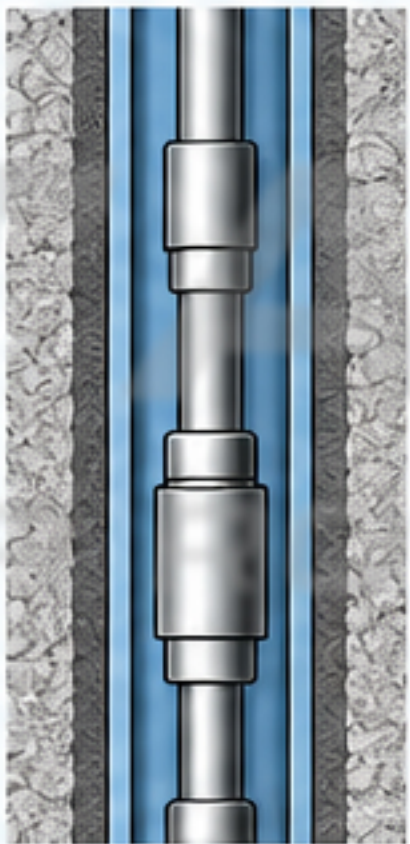
Coupling selection must consider the actual well environment rather than rod size alone.

Operating Condition Evaluation

Condition	Influence on Coupling Selection
Pumping depth	Affects axial load requirement
Pumping frequency	Influences cyclic loading exposure
Well deviation	Increases contact and wear possibility
Tubing clearance	Determines coupling envelope
Production environment	Influences material and surface treatment

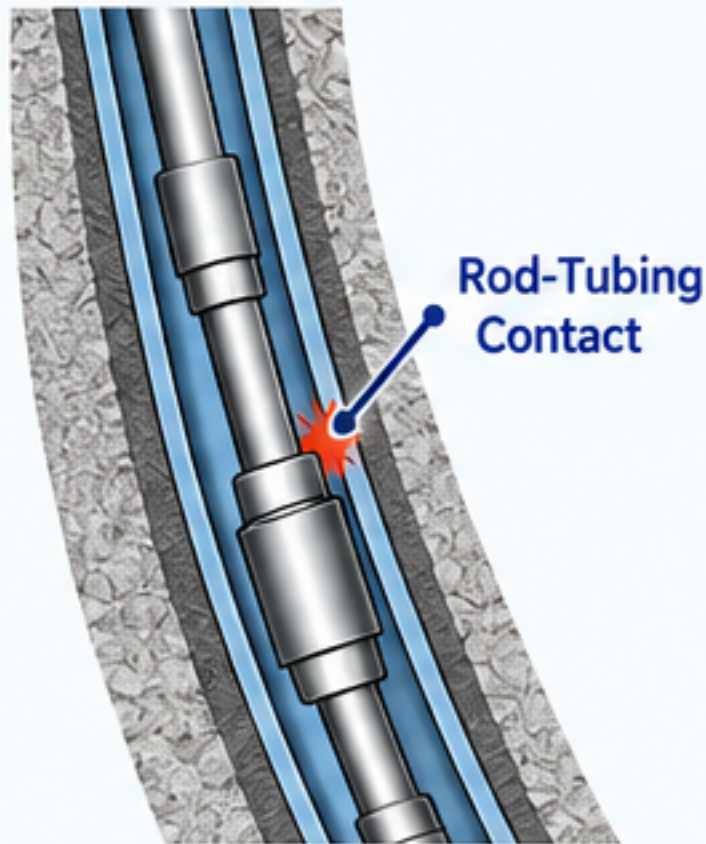
Rod-Tubing Contact Risk

Straight Well



Lower contact risk

Deviated Well



Higher contact and wear risk

Service condition analysis helps determine coupling size, connection design, material route and wear protection requirements before final selection.

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Technical Verification Before Sucker Rod Coupling Supply

A sucker rod coupling configuration should be verified against rod specifications, connection requirements and service conditions before manufacturing or supply.

01 Rod String Compatibility

Verification Item	Technical Requirement
Sucker rod size	Confirm rod diameter and corresponding coupling size
Connection type	Verify thread specification and connection compatibility
Coupling configuration	Confirm full-size, slim hole or special coupling design

02 Operating Condition Review

Verification Item	Technical Requirement
Tubing clearance	Confirm available space for coupling movement
Well deviation	Evaluate potential rod-tubing contact condition
Pumping condition	Consider cyclic loading and operating frequency

03 Material and Surface Requirements

Verification Item	Technical Requirement
Material grade	Select carbon steel or alloy steel according to load requirement
Wear condition	Determine whether surface treatment is required
Corrosion environment	Consider service exposure and protection requirements

04 Manufacturing and Quality Documentation

Verification Item	Technical Requirement
Dimensional records	Verify coupling size and critical dimensions
Material traceability	Maintain heat number and material records
Inspection records	Confirm required inspection documentation

Proper verification of coupling size, connection design and service conditions helps ensure compatibility between the coupling and the complete sucker rod string system.