Sucker Rod Pump

Technical Specifications, Dimensions and Connection Options

Sucker rod pumps provide artificial lift for oil wells by transferring reciprocating motion from a surface pumping unit through a sucker rod string to a downhole pump. Pump configuration, dimensions, valve arrangement and material selection must match the well's fluid conditions, solids production, gas interference and completion geometry.

What This Guide Covers

- Product family overview
- Dimensional and connection ranges
- Configuration comparison
- Selection guidance by well conditions

Product Groups

Wear-Resistant and Corrosion-Resistant Sucker Rod Pumps
- Anti-Wear and Anti-Corrosion Tubing Pump
- Anti-Wear and Anti-Corrosion Rod Pump

Anti-Sand Sucker Rod Pumps
- Long-Plunger Anti-Sand-Sticking Sucker Rod Pump
- Long-Plunger Sand-Settling Sucker Rod Pump

Anti-Gas Sucker Rod Pumps
- Hollow Anti-Gas Sucker Rod Pump
- Sucker Rod Pump with Forced Mechanical Valve



28–95.25 mm
Nominal diameter span

3,000–12,000 mm
Conventional barrel length

3.0–9.0 m
Long-plunger length

3 Groups
Wear/corrosion resistance, sand management, gas interference

DIMENSIONS | CONNECTIONS | CONFIGURATION | SELECTION

This guide presents key dimensional ranges, product groups and configuration options for sucker rod pumps used in artificial-lift service.

Wear-Resistant and Corrosion-Resistant Pump Specifications

Dimensional and connection data for tubing and rod pump configurations

01 Anti-Wear and Anti-Corrosion Tubing Pump

Installed as part of the tubing assembly. The listed configurations use a 1,200 mm plunger and a 3,000–12,000 mm barrel.



Nominal diameter (mm)	API designation	GB designation	Upper tubing thread	Lower tubing thread	Sucker rod thread	Pump constant (m^3/d)	Max. OD (mm)
28	25-(112–225)TH	CYB28TH–57.15TH	2 7/8 in NU	2 7/8 in NU	3/4 in	0.88	88.9
31.75	25-(112–225)TH	CYB28TH–57.15TH	2 7/8 in NU	2 7/8 in NU	3/4 in	1.14	88.9
38.1	25-(112–225)TH	CYB28TH–57.15TH	2 7/8 in NU	2 7/8 in NU	3/4 in	1.64	88.9
44.45	25-(112–225)TH	CYB28TH–57.15TH	2 7/8 in NU	2 7/8 in NU	3/4 in	2.24	88.9
57.15	25-(112–225)TH	CYB28TH–57.15TH	2 7/8 in NU	2 7/8 in NU	3/4 in	3.69	88.9
69.85	30–275TH	CYB69.85TH	3 1/2 in NU	2 7/8 in NU	7/8 in	5.5	108
82.55	35–325TH	CYB82.55TH	4 in NU	3 1/2 in NU	1 in	7.79	114
95.25	40–375TH	CYB95.25TH	4 1/2 in NU	3 1/2 in NU	1 in	10.2	132

Upper and lower tubing connection threads can be specified to meet customer requirements.

02 Anti-Wear and Anti-Corrosion Rod Pump

Insert-type installation; retrieval through the sucker rod string is possible in compatible completions.



Parameter	28 mm	31.75 mm	38.1 mm	44.45 mm	57.15 mm
Stroke length (m)	1.8–10.0	1.8–10.0	1.8–10.0	1.8–10.0	1.8–10.0
Working temperature (°C)	<100	<100	<100	<100	<100
Clearance code	I, II, III	I, II, III	I, II, III	I, II, III	I, II, III
Plunger length (mm)	1,200	1,200	1,200	1,200	1,200
Barrel length (mm)	3,000–12,000	3,000–12,000	3,000–12,000	3,000–12,000	3,000–12,000
Pump constant (m^3/d)	0.89	1.14	1.64	2.24	3.69
Upper/lower tubing thread	2 3/8 in NU/EU	2 7/8 in NU/EU	2 7/8 in NU/EU	2 7/8 in NU/EU	3 1/2 in NU/EU
Sucker rod thread	5/8 in	3/4 in	3/4 in	3/4 in	3/4 in



Tubing Pump

Installed as part of the tubing assembly.



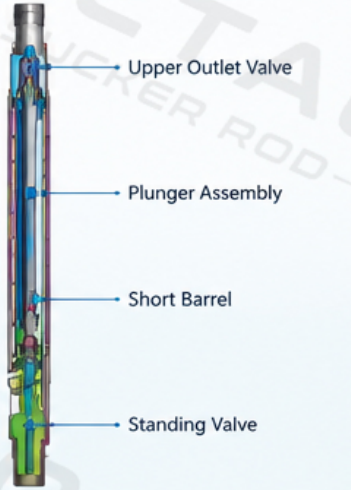
Rod Pump

Insert-type design; retrieved through the sucker rod string in a compatible completion.

ANTI-SAND SUCKER ROD PUMP SPECIFICATIONS

Long-Plunger Anti-Sand-Sticking Pump | Long-Plunger Sand-Settling Pump

01 LONG-PLUNGER ANTI-SAND-STICKING PUMP

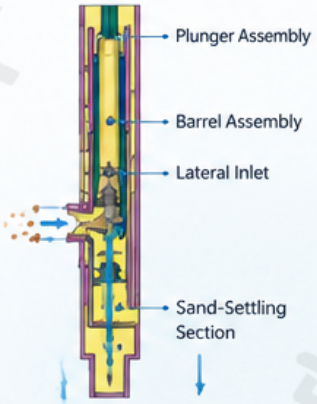


An extended plunger and short barrel help reduce sand accumulation around working surfaces. The extended outlet valve cover provides additional flow area, while the lower connecting passage is designed to reduce resistance during the downward stroke. This design is suitable for sand-prone wells where plunger sticking and abrasive contact can affect pump operation.

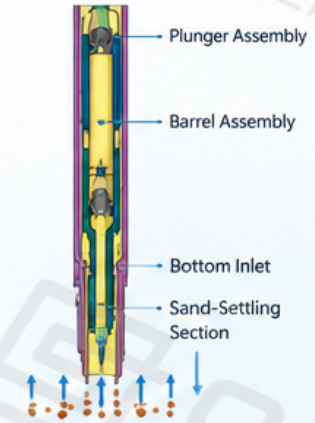
02 LONG-PLUNGER SAND-SETTLING PUMP

A dedicated settling passage provides a defined route for sand away from the working barrel. Two inlet configurations are available: lateral inlet and bottom inlet. Their dimensions are similar, but their intake positions and internal flow paths differ.

LATERAL INLET



BOTTOM INLET



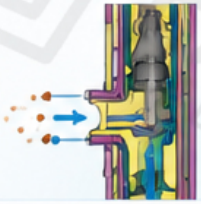
ANTI-SAND-STICKING PUMP — DIMENSIONAL DATA

Parameter	28 mm	31.75 mm	38.1 mm	44.45 mm	57.15 mm	69.85 mm
Barrel length (m)	1.2	1.2	1.2	1.2	1.2	1.2
Plunger length (m)	3.0–9.0	3.0–9.0	3.0–9.0	3.0–9.0	3.0–9.0	3.0–9.0
Stroke length (m)	1.8–8.0	1.8–8.0	1.8–8.0	1.8–8.0	1.8–8.0	1.8–8.0
Pump body thread, up/down	2 7/8 in NU	2 7/8 in NU	2 7/8 in NU	2 7/8 in NU	3 1/2 in NU	3 1/2 in NU
Sucker rod thread	3/4 in	3/4 in	3/4 in	3/4 in	3/4 in	7/8 in
Maximum OD (mm)	88.9	88.9	88.9	88.9	108	108
Pump constant (m^3/d)	0.88	1.14	1.64	2.24	3.69	5.5
Clearance code	I, II	I, II	I, II	I, II	I, II	I, II

SAND-SETTLING PUMP — DIMENSIONAL DATA

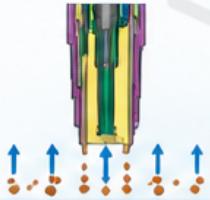
Parameter	28 mm	31.75 mm	38.1 mm	44.45 mm	57.15 mm	69.85 mm
Barrel length (m)	1.2	1.2	1.2	1.2	1.2	1.2
Plunger length (m)	3.0–9.0	3.0–9.0	3.0–9.0	3.0–9.0	3.0–9.0	3.0–9.0
Stroke length (m)	1.8–8.0	1.8–8.0	1.8–8.0	1.8–8.0	1.8–8.0	1.8–8.0
Pump body thread, up/down	2 7/8 in NU	2 7/8 in NU	2 7/8 in NU	2 7/8 in NU	3 1/2 in NU	3 1/2 in NU
Sucker rod thread	3/4 in	3/4 in	3/4 in	3/4 in	3/4 in	7/8 in
Maximum OD (mm)	108	108	108	108	108	121
Pump constant (m^3/d)	0.88	1.14	1.64	2.24	3.69	5.5
Clearance code	I, II	I, II	I, II	I, II	I, II	I, II

INLET CONFIGURATION COMPARISON



LATERAL INLET

- Side-entry liquid path
- Separate sand-settling passage
- Intake path separated from settling section



BOTTOM INLET

- Lower-end liquid intake
- Lower settling section
- Downward sand path

SELECTION FOCUS

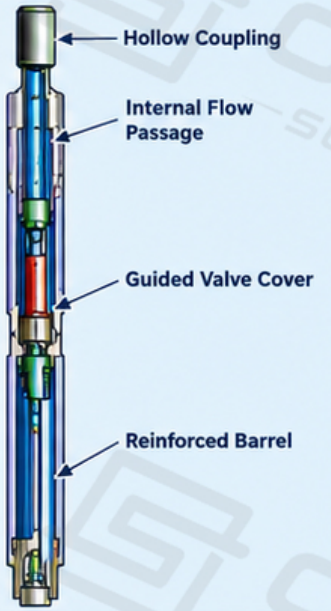
Choose the anti-sand-sticking design when sand accumulation around the plunger is the main concern. Choose the sand-settling design when a dedicated internal settling passage is required. Select lateral or bottom inlet to match completion geometry and the required intake path.

Page 4 — Anti-Gas Sucker Rod Pump Specifications

This page presents the two anti-gas pump designs, their structure highlights, dimensional data, and a direct comparison.

1 Hollow Anti-Gas Sucker Rod Pump

The hollow anti-gas sucker rod pump uses a hollow coupling assembly and an internal flow arrangement intended to reduce gas interference within the pump. A guided valve cover supports valve movement, while the reinforced barrel provides mechanical strength. Material options for valve components and the plunger connection can be selected to address the intended wear and corrosion conditions.

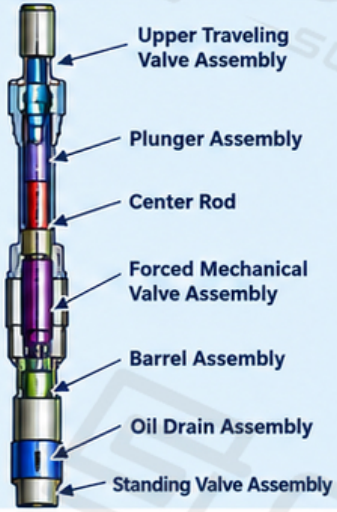


Dimensional and Connection Specifications

Parameter	28	31.75	38.1	44.45	57.15	69.85	82.55	95.25
Plunger length (mm)	1200	1200	1200	1200	1200	1200	1200	1200
Barrel length (mm)	3000–12000	3000–12000	3000–12000	3000–12000	3000–12000	3000–12000	3000–12000	3000–12000
Upper tubing thread	2 7/8" NU	2 7/8" NU	2 7/8" NU	2 7/8" NU	2 7/8" NU	3 1/2" NU	4" NU	4 1/2" NU
Lower tubing thread	2 7/8" NU	2 7/8" NU	2 7/8" NU	2 7/8" NU	2 7/8" NU	2 7/8" NU	3 1/2" NU	3 1/2" NU
Sucker rod thread	3/4"	3/4"	3/4"	3/4"	3/4"	7/8"	1"	1"
Pump constant (m^3/d)	0.88	1.14	1.64	2.24	3.69	5.5	7.79	10.2
Maximum OD (mm)	88.9	88.9	88.9	88.9	88.9	108	114	132

2 Sucker Rod Pump with Forced Mechanical Valve

The sucker rod pump with forced mechanical valve uses a specialized valve arrangement and a multi-section sealing structure to address gas-related pumping problems under demanding downhole conditions. The guided valve assembly supports controlled valve movement, while the center-rod arrangement is intended to reduce eccentric wear in suitable well configurations.



Dimensional and Performance Specifications

Parameter	38.1	44.45	57.15	69.85	82.55	95.25
Stroke length (m)	2.7–7.2	2.7–7.2	2.7–7.2	2.7–7.2	2.7–7.2	2.7–7.2
Barrel length (m)	4.5–9.0	4.5–9.0	4.5–9.0	4.5–9.0	4.5–9.0	4.5–9.0
Sucker rod thread	3/4"	3/4"	3/4"	7/8"	1"	1"
Maximum OD (mm)	88.9	88.9	88.9	108	114	132
Pump constant (K)	1.64	2.24	3.69	5.54	7.79	10.2

3 Comparison of the Two Anti-Gas Designs

Hollow Anti-Gas Pump	Forced Mechanical Valve Pump
Hollow coupling and internal flow arrangement	Specialized mechanical valve and multi-section sealing structure
Focus on internal gas-interference management	Focus on controlled mechanical valve operation
Verify gas conditions and pump dimensions	Verify gas conditions, valve configuration and pump dimensions

This page helps readers compare the structural differences of the two anti-gas pumps while reviewing their dimensional ranges and key connection data.

Pump Selection and Engineering Verification

Model Selection Matrix, Dimensional Checks and Order Confirmation



Pump selection requires a match between well conditions, pump configuration, completion dimensions and connection interfaces. Nominal diameter alone does not establish compatibility. The selected design must also suit the expected fluid, solids and gas conditions, as well as the installation and retrieval method.

1. Selection Matrix

Well condition	Pump design to evaluate	Key checks
Abrasive wear and corrosive fluids	Anti-wear and anti-corrosion tubing pump or rod pump	Fluid chemistry, material options, coatings, installation and retrieval
Fine sand causing plunger sticking	Long-plunger anti-sand-sticking pump	Plunger length, barrel length, clearance code and solids loading
Sand accumulation requiring a settling passage	Long-plunger sand-settling pump	Lateral or bottom inlet, completion geometry and settling path
Gas interference	Hollow anti-gas pump or forced mechanical valve pump	Gas conditions, valve arrangement, pump dimensions and submergence
Deviated or horizontal well	Model-specific rod-pump configuration	Deviation, eccentric-wear risk, completion geometry and operating limits

2. Dimensional Verification

Confirm the following parameters before finalizing a pump configuration.

Parameter	Verification requirement
Nominal pump diameter	Match the selected model to the required pump size.
Maximum outside diameter	Check available completion clearance and restrictions.
Upper tubing connection	Confirm nominal thread size and NU/EU designation where applicable.
Lower tubing connection	Verify independently; do not assume it matches the upper connection.
Sucker rod thread	Match the rod thread and mating coupling.
Plunger and barrel length	Confirm the specific design and dimensional configuration.
Stroke length	Verify the applicable model range and surface-unit requirements.
Clearance code	Confirm the required clearance for the selected model.
Inlet configuration	Specify lateral inlet or bottom inlet where applicable.

3. Order Confirmation Checklist

Item	Confirmation
Selected pump type	
Nominal diameter	
Upper tubing thread	
Lower tubing thread	
Sucker rod thread	
Maximum outside diameter	
Plunger / barrel length	
Stroke length	
Clearance code	
Inlet configuration, if applicable	
Required material or coating options	

Pump constants are sizing parameters rather than guaranteed field production rates. Actual liquid output also depends on stroke rate, effective stroke, pump fillage, fluid properties and gas interference.