PRODUCT CATALOGUE

Zhengzhou. Henan.China

Company Profile

Henan ZJ Petroleum Equipment Co.,Ltd is a professional manufacturer in the petroleum industry. The main product scope of our factory is artificial lifting equipment and downhole tools. We can supply best support, from parts processing to semi-finished and finished components, and then to sample or drawing processing of non-standard parts, as well as customized products of petroleum mechanical equipment.

Our company's regular products include API standard subsurface sucker rod pump, specialty pump, downhole progressing cavity pump, ESP fittings, sucker rod pumping unit and its spares of gearbox, stuffing box, polished rod BOP, polished rod clamp, sucker rod rotator, stabilizer/centralizer, gas anchor, screen tube, shear coupling, coupling and crossover, related accessories, and other wellhead & downhole tools. We have a strong technical team and rich technical expertise as guidance. With the professional knowledge and efficient technical collaboration, Henan ZJ Petroleum Equipment Co.,Ltd. provides customers with reliable products and oil and gas solutions.

The company is located in Zhengzhou Airport Economy Zone, Henan Province, China. We have our own processing and manufacturing bases in both Puyang and Luoyang cities. Welcome to visit our factory and we are looking for a long-term cooperation !

Factory Summary


BUKAKA
D 456S


质量在我手中


齊齊哈爾第一機床廠

contents

I. Subsurface sucker rod pump

I.i. Subsurface sucker rod pumps

Product Outline

Subsurface sucker rod pumps are main equipment in sucker rod pumping system, which conduct the swabbing of oil well liquid by the power transmitted by the pumping unit and sucker rods.

The products conform to API Spec 11AX Specification for Subsurface Sucker Rod Pump Assemblies, Components, and Fittings, GB/G18607 Petroleum and natural gas industries — Drilling and production equipment — Reciprocating full liner pump, and other related standards.

The company supplies different kinds of tubing pumps, rod pumps and special oil pumps like sand pumps, anti-sand pumps, anti-gas pumps, anti-salt pumps and so on.

Our pumps have high efficiency and a long pump detection period, as well as simple structures, which are convenient for operation and installment.

Pump parts and fittings

◆Pump barrel

The pump barrel is made of the high quality special-purpose pipe, with inside surface processed by surface hardening treatments such as chrome-plating, nickel phosphorus composite coating and carbonitriding. That makes high intensity, good rigidity, wear and corrosion resistances.

◆ Pump plunger

The plunger surface is processed by spray metal coating of nickel base alloy powder, or chrome plating, with good wear and corrosion resistances.

We supply API 11AX regular plunger and weatherford structure plungers.

◆Pum valve ball & seat

The valve ball and seat are made of high-carbon chromium stainless steel, ceramic or tungsten carbide, with long service life. Both API standard and Russian standard valve ball and seats can be supplied.

◆ Pump valve.

Valve ball and seat can be made by API structure and by customization . Materials are generally made of stainless steel, alloy steel (tungsten carbide/titanium carbide). Hard lined valve can be supplied too.

◆Other fittings such as valve rod, barrel coupling, seating nipple, extension coupling/nipple and so on are supplied.

Main technical parameters

Type	Model	Pump bore diameter mm(in)	Plunger length m(ft)	Barrel length m(ft)	Connection tubing OD mm(in)	Connection rod diameter mm(in)	Extension nipple length m(ft)	Applicable well conditions
Tubing pumps	20/25-106TH	27.0 ($1^1/_{16}$)	0.6 ~ 2.1 (2 ~ 7)	3.3 ~ 10.4 (11 ~ 34)	60.3 ~ 73.0 ($2^3/_8$, $2^7/_8$)	15.9,19.1 (5/8,3/4)	0.6 ~ 0.9 (2~3)	Containing salt, sulfur, carbon dioxide,bacteria and other corrosive media; well with a small amount of sand production.
	20/25-125TH	31.8 ($1^1/_4$)	0.6 ~ 2.1 (2 ~ 7)	3.3 ~ 10.4 (11 ~ 34)	60.3 ~ 73.0 ($2^3/_8$, $2^7/_8$)	15.9,19.1 (5/8,3/4)	0.6 ~ 0.9 (2~3)	
	20/25-150TH	38.1 ($1^1/_2$)	0.6 ~ 2.1 (2 ~ 7)	3.3 ~ 10.4 (11 ~ 34)	60.3 ~ 73.0 ($2^3/_8$, $2^7/_8$)	19.1 (3/4)	0.6 ~ 0.9 (2~3)	
	20/25-175TH	44.5 ($1^3/_4$)	0.6 ~ 2.1 (2 ~ 7)	3.3 ~ 10.4 (11 ~ 34)	60.3 ~ 73.0 ($2^3/_8$, $2^7/_8$)	19.1 (3/4)	0.6 ~ 0.9 (2~3)	
	25-200TH	50.8 (2)	0.6 ~ 2.1 (2 ~ 7)	3.3 ~ 10.4 (11 ~ 34)	73.0 ($2^7/_8$)	19.1 (3/4)	0.6 ~ 0.9 (2~3)	
	25-225TH	57.2 ($2^1/_4$)	0.6 ~ 2.1 (2 ~ 7)	3.3 ~ 10.4 (11 ~ 34)	73.0 ($2^7/_8$)	19.1 (3/4)	0.6 ~ 0.9 (2~3)	
	30-275TH	69.9 ($2^3/_4$)	0.6 ~ 2.1 (2 ~ 7)	3.3 ~ 10.4 (11 ~ 34)	88.9 ($3^1/_2$)	22.2 (7/8)	0.6 ~ 0.9 (2~3)	
	40-325TH	82.6 (($3^1/_4$))	0.6 ~ 2.1 (2 ~ 7)	3.3 ~ 10.4 (11 ~ 34)	114.3 ($4^1/_2$)	25.4 (1)	0.6 ~ 0.9 (2~3)	

	40-375TH	95.3 ($3^3/_4$)	0.6 ~ 2.1 (2 ~ 7)	3.3 ~ 10.4 **(**11 ~ 34**)**	114.3 ($4^1/_2$)	25.4 (1)	0.6 ~ 0.9 (2~3)	

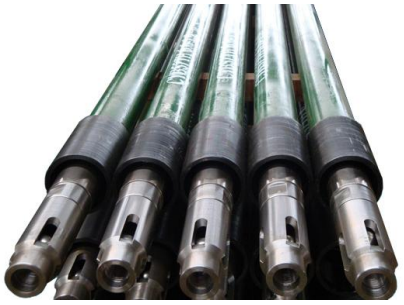
Type	Model	Pump bore diameter mm(in)	Plunger length m(ft)	Barrel length m(ft)	Connection tubing OD mm(in)	Connection rod diameter mm(in)	Extension nipple length m(ft)	Applicable well conditions
Rod pumps	20-125RH/RW	31.8 ($1^1/_4$)	0.6 ~ 2.1 (2 ~ 7)	3.3 ~ 10.4 (11 ~ 34)	60.3 ($2^3/_8$)	19.1 (3/4)	0.15 ~ 0.9/0	
	20/25-150RH/RW	38.1 ($1^1/_2$)	0.6 ~ 2.1 (2 ~ 7)	3.3 ~ 10.4 (11 ~ 34)	60.3/73.0 ($2^3/_8$, $2^7/_8$)	19.1 (3/4)	0.15 ~ 0.9/0	
	25-175RH/RW	44.5 ($1^3/_4$)	0.6 ~ 2.1 (2 ~ 7)	3.3 ~ 10.4 (11 ~ 34)	73.0 ($2^7/_8$)	19.1 (3/4)	0.15 ~ 0.9/0	
	25-200RW	50.8 (2)	0.6 ~ 2.1 (2 ~ 7)	3.3 ~ 10.4 (11 ~ 34)	73.0 ($2^7/_8$)	19.1 (3/4)	/	
	30-225RH/RW	57.2 ($2^1/_4$)	0.6 ~ 2.1 (2 ~ 7)	3.3 ~ 10.4 (11 ~ 34)	88.9 ($3^1/_2$)	19.1 (3/4)	0.15 ~ 0.9/0	
Long plunger anti-sand pump	20/25-125 ~ 225TH	31.8 ~ 57.2 ($1^1/_4$ ~ $2^1/_4$)	3.3 ~ 6.3 (11 ~ 21)	1.2 ~ 2.1 (4 ~ 7)	73.0 ($2^7/_8$)	19.1，22.2 (3/4,7/8)	/	High sand content well.

Type	Model	Pump bore diameter mm(in)	Plunger length m(ft)	Barrel length m(ft)	Connection tubing OD mm(in)	Connection rod diameter mm(in)	Extension nipple length m(ft)	Applicable well conditions
Anti-gas pump	25-125 ~ 225TH	31.8 ~ 57.2 ($1^1/_4$ ~ $2^1/_4$)	1.2 ~ 2.1 (4~7)	3.3 ~ 10.4 (11 ~ 34)	73.0 ($2^7/_8$)	19.1 (3/4)	/	Gas lock and gas pound in gassy well
Hydraulic feedback viscous oil pump	25-225/150TH	57.2 / 31.8 ($2^1/_4$ / $1^1/_4$)	1.2 / 6.3 (4 / 21)	6.6 / 1.5 (22 / 5)	73.0 ($2^7/_8$)	19.1 (3/4)	/	Suitable for viscous well
	25-225/ 175TH	57.2 / 44.5 ($2^1/_4$ / $1^3/_4$)	1.2 / 6.3 (4 / 21)	6.6 / 1.5 (22 / 5)	73.0 ($2^7/_8$)	19.1 (3/4)	/	

I.ii. Specialty pump

Anti-sand pump(Extreme gas handling pump)

Product Outline



It is applied to oil wells with sand production or coal powder.

The combination of long plunger and short pump barrel is adopted, the pump barrel is matched with the plunger in full size,the top oil outlet cage is always outside the pump barrel, and the bottom adopts a bridge type shunt structure to separate the sand settling channel of the outer tube from the liquid inlet channel.

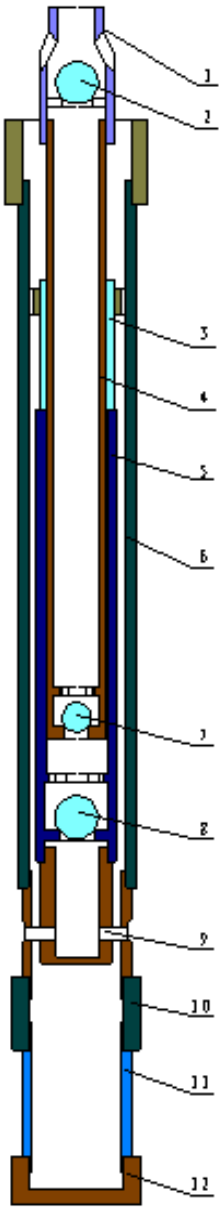
Sand control: The sand enters the sand settling pipe 11 below the pump through the annular space between the sand settling outer cylinder 6 and pump barrel 3. And some sand deposited in the barrel will be brought outside of pump by oil flow due to the short pump barrel. If pumping is interrupted midway, the sand in the fluid in the tubing at top of pump will be also deposited in the sand settling pipe so as to avoid sand plug and sand burial.

Technical Parameters

Nominal diameter (mm)	Stroke range (m)	Tubing connection thread (upper/lower)	Sucker rod connection thread (mm)	Plunger length (m)	Max.OD (mm)
φ31	2.1 ~ 5.1	$2^{7}/_{8}$TBG	φ19/φ22	3.3 ~ 6.3	φ89.5
φ38					φ107
φ44					φ107
φ56		$3^{1}/_{2}$TBG/$2^{7}/_{8}$TBG			φ107

Long plunger overbridge anti-sand pump

(Sand laden fluid pump)



Application

It is applied to oil wells with sand production or pulverized coal, specially used for sand-rich environments

Structure

As the figure shows, the upper oil outlet valve is always outside the barrel.

1---Forced upper oil outlet cage

2---Upper oil outlet valve

3---Short barrel 4---Long plunger 5---Barrel extension tube 6---Sand settling outer cylinder 7---Lower oil outlet valve 8---Oil inlet valve

9---Bridge oil inlet hole 10---Coupling 11—sand settling pipe 12—Plug

Working Principle

Oil pumping: Similar to common oil well pumps, the fluid in well enters the pump through the bridge oil inlet valve (8) in the swabbing process and then will be discharged to the top of pump through long plunger (4).

Sand control: The sand enters the sand settling pipe 11 below the pump through the annular space between the sand settling outer cylinder 6 and pump barrel 3. And some sand deposited in the barrel will be brought outside of pump by oil flow due to the short pump barrel. If pumping is interrupted midway, the sand in the fluid in the tubing at top of pump will be also deposited in the sand settling pipe so as to avoid sand plug and sand burial.

Product features

High pump efficiency: As the top plunger travelling cage is always outside the barrel, the oil outflow section is free from the limit of the barrel bore diameter. As a result, the oil outflow resistance is smaller than that of common pumps. The pump efficiency is high.

Long service life: No fluid exists between the barrel and plunger. It can avoid sand plug, wearing or erosion effectively. So the pump's service life is improved a lot. Meantime the overbridge external pipe can avoid the force deformation of barrel and pump sticking.

Outstanding comprehensive mechanical performance :The long plunger is processed by integral spray welding.The inside surface of pump barrel is chrome plated. The valve seat material is hard alloy. So that enables high resistance of abrasion, corrosion and erosion.

Application of forced top oil outlet cage: As the top oil outlet cage is not limited by the pump bore diameter, the wall thickness increases, which improves the intensity a lot. So that it makes up the easy fracture defect of conventional pump's oil outlet cage because of the thin wall.

Technical Parameters

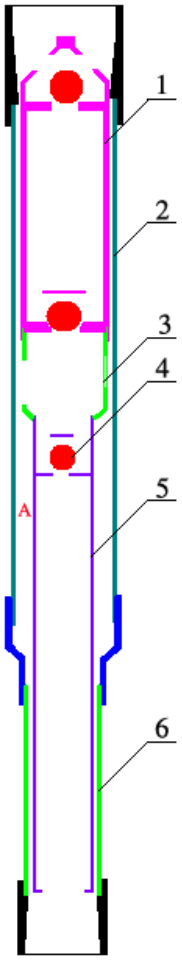
Nominal diameter (mm)	Stroke range (m)	Tubing connection thread (upper/lower)	Sucker rod connection thread (mm)	Plunger length (m)	Max.OD (mm)
φ32	2.1 ~ 5.1	$2^{7}/_{8}$TBG	φ19/φ22	3.3 ~ 6.3	φ89.5
φ38					φ107
φ44					φ107
φ56		$3^{1}/_{2}$TBG/$2^{7}/_{8}$TBG			φ107

Hydraulic feedback viscous oil pump

(High viscosity pump)

Application

Hydraulic-feedback viscous oil pump is suitable for heavy oil extraction, mainly used for steam injection extraction of heavy oil wells without moving the tubing string. When a heavy oil well needs steam injection, simply lift the sucker rod string to ensure that the plunger is completely out of the pump barrel.



Structure

1- Upper plunger and outlet valve seat assembly (large)

2- Upper pump barrel (large)

3- Intermediate connector

4- Oil inlet valve assembly

5- Lower plunger (small)

6- Lower pump barrel (small)

Working principle

During the downstroke, the plunger descends, the volume of annular space (Chamber A) decreases and the pressure increases. Through the intermediate joint 3, the oil inlet valve 4 is closed, the oil outlet valve gets opened, then the oil is discharged into the tubing. At this time ,due to the closure of inlet valve 4, the pressure of the liquid column in the tubing is applied to the plunger through inlet valve 4 (i.e. hydraulic feedback force), increasing the downward force of the plunger.

Sand pump

Product Outline

When there happens sand production from the formulation or sand plug is formed after fracturing, the normal well work is affected. The sand pump shall be used to pump sand from the well and resume the well to normal.

Working principle

Run the sand pump to sand surface position and use the surface tractor hoist as power to actuate the sand pump reciprocating motions by tubing or drill pipes. When the piston moves upward, the travelling valve is closed and certain vacuum is generated in the lower part of the piston. Due to the pressure difference, the sand at the well bottom is forced to enter the sand settling pipe through the inner bore of drill bit with well fluid, while the fluid returns to the well cylinder through the water hole of the upper travelling valve cage of the sand pump.

Main technical parameters

Model	φ63	φ70	φ83	φ95
Pump bore diameter (mm)	φ62.5	φ69.9	φ82.6	φ95.3
Max. OD (mm)	Φ90	φ90	φ100	φ110
Stroke (m)	3.5~4			
Connection tubing OD (in)	$2^{7}/_{8}$			


II. Down hole

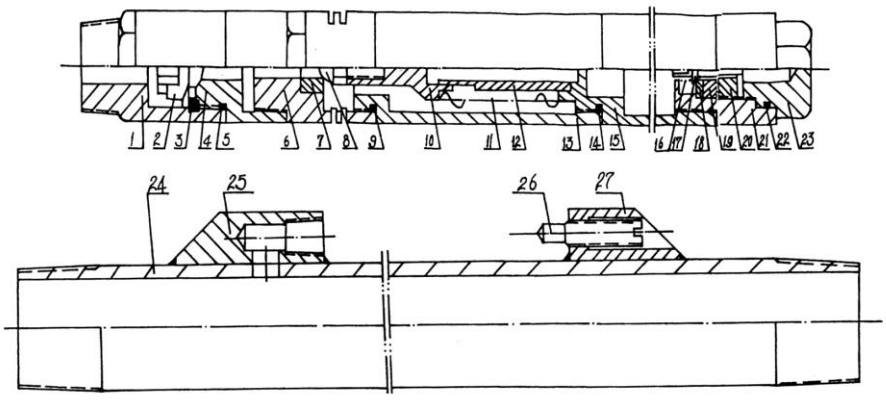
II.i. Fixed Gas lift valve

Product Usage

The product is designed for gas lift oil production.

Structure

As shown in the figure , the gas lift device consists of two main parts: one is the gas lift valve part (items 1-23), and the other is the fixed working cylinder part (items 24-27)



Working principle

High pressure gas enters the gas lift valve from the annular space of the tubing and casing, through the side hole of the lower valve body item 6. When the gas pressure is greater than the required pressure of nitrogen gas acting on its effective area inside the bellows, the valve head 8 descends; The gas pushes open the single flow valve 2 from the inner holes of parts 4 and 6 and enters the tubing through the side hole on the tubing pup joint 24. After high-pressure gas enters the tubing, it can lift the liquid out of the ground as required, achieving the purpose of gas lift oil production. The gas lift valve is installed on the outside of the tubing string. When the working parameters of the gas lift valve need to be adjusted, the tubings must be pulled out.

Technical Parameters：

Working pressure	Gas lift valve OD	Tubing pup joint Connection thread
25MPa	25mm	2-7/8TBG

II.ii. Anchor Series

Insert Pump Anchor

Product Outline

The Insert pump anchor replaces the seating of rod pump to support and seal in tubing. It is used when a seating nipple for an insert pump is not present in the tubing, the insert pump anchor serves the dual purpose of anchoring the pump and packing off the fluid production string.

The product can adjust the installation position of the rod pump according to the need and do not Lift tubing operation, effectively saving the operating cost.

Main Technical parameters

Model	MDQ-73	MDQ-89
Furnished for tubing size	2-7/8”	3-1/2”
Top Connection thread	1.8024 – 14UNS	2.1095 – 11-1/2UNS
Bottom Connection thread	1-1/4" LP	1-1/2" LP
seat or release method	Up-down action	Up-down action
Working pressure psi	3000 psi	3000 psi
Maximum temperature ° C	120	120
Max. OD mm	58	72
ID mm	20	30

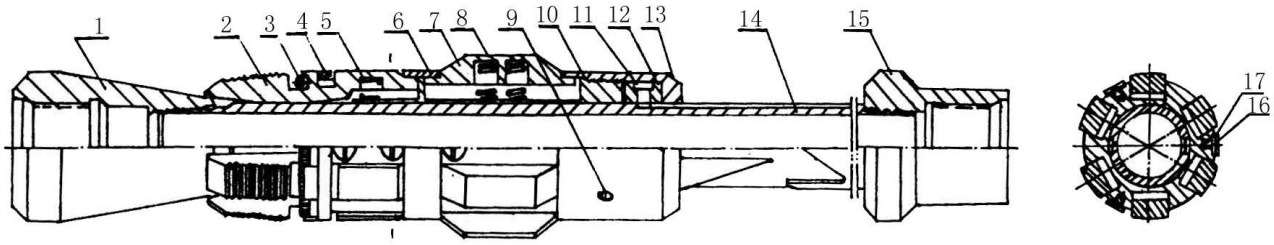
Tubing Anchor

Product outline

Tubing Anchor is a device used to secure oil pipes or pipelines, typically used in the oil and gas industry. Its main function is to prevent the tubing from moving or falling off during installation, use, or maintenance, ensuring the stability and safety of the oil pipe. Prevent tubing creep, reduce packer unsealing, string failure, and pump stroke loss caused by tubing creep.

The main types of tubing anchors

Mechanical tubing anchor-Fix the tubing inside the casing or wellbore using mechanical devices such as clamps, springs, etc. Common mechanical tubing anchors include compression tubing anchors and tension tubing anchors.



Purpose

Connected to the lower part of the packer, serving as the lower support point for the pipe column, used for setting the packer Overcoming the downward thrust generated by the upper pressure of the packer. Wax deposition is strict. Heavy and dead oil wells are not suitable for use.

1. Cone 2. Kava 3. Hoop spring 4. Upper limit ring 5. Internal pressure spring 6. Lower limit ring 7. Friction block 8. External pressure spring 9. Anti loosening screw 10. Straightening seat 11- Slip ring pin 12- Slip ring 13- Support ring 14- Center tube 15- Lower joint 16- Fixed screw 17- Gasket

Hydraulic tubing anchor

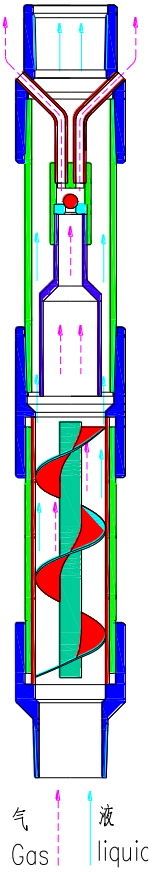
-Fix the oil pipe using hydraulic principles. Hydraulic oil pipe anchors are usually fixed by hydraulic cylinders or pistons, and are suitable for high-pressure or complex working conditions.

It mainly consists of the following parts: upper joint, slip assembly, center tube, piston, locking device, lower joint, etc. Press the clamp to extend, lock the locking mechanism, anchor the pipe column, and lift the pipe column when releasing the clamp.

Helical gas anchor

Product outline

The product is used in swabbing well with high gas-oil ratio so as to reduce the influence of gas on pump efficiency.



Working principle

The oil-gas mixture runs along the helix outside of helical separation part of the gas anchor and gets discharged on the ground by pump through the annular space of the upper outer tube and gas-collecting hook. The gas flow gathers around the helix inside, forms a "gas cap" in gas hood, pushes the check valve open and gets discharged through the exhaust vent.

Main technical parameters

Modle	KQM-107-L
Max.OD (mm)	Φ107
Total length (mm)	2400
Connection thread of both ends	$2^{7}/_{8}$TBG、$2^{7}/_{8}$UPTBG、$3^{1}/_{2}$ TBG

Gravity gas anchor

Product outline

The gravity gas anchor separates gas and liquid by the principle of gravity centrifugalization.It is usually installed at the lower part of the pump suction so as to reduce the effect of gas on pump efficiency.

Working principle

The gas-liquid mixture enters the annular space between the outer tube and inner tube through the outer tube. Due to the density difference and gravity factor, bubbles move upward, gather into big bubbles or airflow, form "gas cap" at the upper part of gas anchor and get discharged through the exhaust hole of upper outer tube. The application of Opposite directions of gas and liquid can be used to enhance the separation effect significantly.

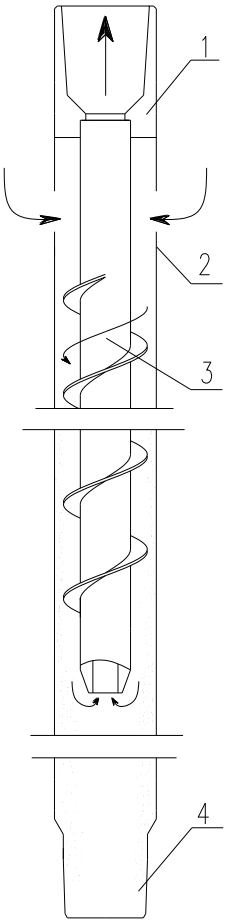
Technical parameters

Modle	KQM-107-Z
Max.OD (mm)	Φ107
Total length (mm)	5000~9000
Connection thread of both ends	$2^{7}/_{8}$TBG、$2^{7}/_{8}$UPTBG、$3^{1}/_{2}$ TBG

Desander (Sand anchor)

Product Outline

The Anchor is suitable for higher sand content oil wells, it connected to the lower of the pump, The lower of the sand anchor connected sand tube.Desander mainly used centrifugal action to separate sand and liquid.



II Structure and working Principle

1——Upper fitting 2— outer tube 3 ——Center Tube Assembly

4——Lower fitting

Liquid with sand into the annular space between the outer tube and central tube from the top, Under the action of screw panel, Liquid is appear spiral flocculent flow in the process of flowing down. Under the effect of centrifugal force, sand flows to the inner wall of the outer tube. The liquid near the axis contains less sand particles and it is sucked into the upper part through the inner hole of the central tube.

Main technical parameters

Model	Connection thread	(mm) Max OD	(mm) Length
KQM-93	2-7/8 UPTBG	φ93	Customizable
KQM-110	3-1/2 UPTBG	φ110	

II.iii. screen

Application

Sand control screens can resolve problems of sand production and pulverized coal.

Types

There are laser slotted screens and wire wrapped screens.The design and manufacture of wire wrapped screens conform to SY/T 5182 Welded stainless steel wire wrapped screen

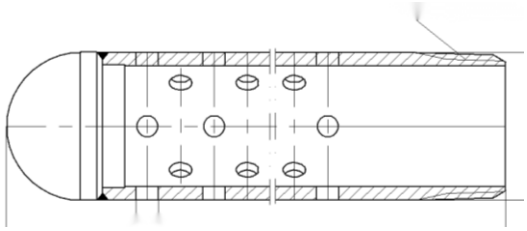
Working principle

The slotting width & length of the laser slotted screen and the wrapping gap & screen length of metal wrapped screen are determined according to the volume of sand and pulverized coal , as well as the particle size.

The laser slotting screen and the wire rapped screen have the same working principle. It is to avoid sand plug and sand burial of subsurface pumps by isolating the sand and pulverized coal with bigger diameter than the slotting width or wrapping gap outside the screen.

Main technical parameters

Types of sand control screens	Connection tubing size (in)	Max.OD (mm)	Min ID (mm)	Slot width (mm)
Laser slotted screens	$2\,^{3}/_{8}$	60.3	50.3	≥0.3
	$2\,^{7}/_{8}$	73	62	
	$3^{1}/_{2}$	88.9	75.9	
Wire wrapped screens	$2\,^{3}/_{8}$	73	50.3	≥0.3
	$2\,^{7}/_{8}$	85	62	



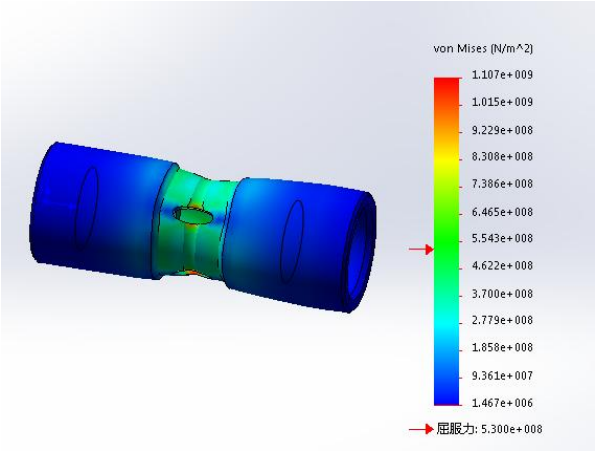
II.iv. Coupling and Crossovers

Shear coupling

Application

Shear coupling (or shear tool), a straight line pulls safety joint release that provides a means of disconnecting the sucker rod string from the pump below the too

Working principle



Shear coupling is the setting of a shear stress section on the basis of a regular coupling, which is smaller in size than the main section and is equipped with shear hole to provide a pre breaking point during shear tension. During normal operation, the shear coupling is installed at a set position on the sucker rod to connect the sucker rod.When the sucker rod is stuck and needs to be shortened, lift the sucker rod at the wellhead for stretching. When the stretching force reaches the set shear force of the shear coupling, the shear coupling is shortened and the sucker rod is disconnected from the shear coupling.ift the disconnected upper sucker rod out of the wellhead and use special tools to salvage the remaining down hole equipment.

Technical Parameters

Item	Model	3/4"-26
1	Connecting thread	1-1/16"-10 UN
2	Shear Strength(K Lbf)	26
3	Length(mm)	203.2±1
4	OD1(mm)	$\Phi 41.3^{\frac{+0.13}{-0.25}}$

Sucker rod / Tubing crossovers and couplings

Product Outline

We produce sucker rod coupling and crossover, tubing coupling and crossover as well as casing

coupling and crossover.

1. The mechanical strength is high and the comprehensive property is good.

2.The thread is formed by special cold-extrusion, with high precision,reliable operation and long service life.

Tubing pup joints,crossovers and couplings conform to API Spec 5CT “Specification for Casing and Tubing, API Spec 5B “Specification for Threading,Gauging and Thread Inspection of Casing,Tubing And Line Pipe Threads” and other related standards. The company can produce plain and EUE tubing pup joints, crossovers and couplings of steel grades J55,N80 and L80.

Technical Features

The product material is of high mechanical strength and good comprehensive performances.

The thread is processed by special CNC machine, with high accuracy of manufacture , good reliability and long service life.

The coupling is made by phosphating and zinc plating surface treatment process, with good properties of anti corrosion and thread anti-galling.

Main Technical parameters

	Size in	Max. OD in(mm)		Min length in(mm)		Grade
		NU	EU	平式 NU	外加厚 EU	
Couplings	$2^{3}/_{8}$	2.875(73.03)	3.063(77.80)	$4^{1}/_{4}$(107.95)	$4^{7}/_{8}$(123.83)	J55 N80 L80
	$2^{7}/_{8}$	3.500(88.90)	3.668(93.20)	$5^{1}/_{8}$(130.18)	$5^{1}/_{4}$(133.35)	
	$3^{1}/_{2}$	4.250(108.00)	4.500(114.30)	$5^{5}/_{8}$(142.88)	$5^{3}/_{4}$(146.05)	
Crossovers	All kinds of crossovers,connections and sub-couplings of grades J55, N80 and L80					

Sucker rod OD in(mm)	5/8（15.88）	3/4 （19.05）	7/8（22.23）	1（25.40）	1 1/8(28.58)
Thread nominal thread in(mm)	15/16 （23.81）	$1^{1}/_{16}$ （26.99）	$1^{3}/_{16}$（30.16）	$1^{3}/_{8}$ （34.93）	$1^{9}/_{16}$ （39.69）
Coupling OD in(mm)	$1^{1}/_{2}$ （38.10）	$1^{5}/_{8}$ （41.28）	$1^{13}/_{16}$ （46.04）	$2^{3}/_{16}$ （55.56）	$2^{3}/_{8}$ （60.33）

II.v. Centralizer Series

Sucker rod guides

Product outline

Sucker rod guides are special tools mainly used for the centralization of the sucker rod string in well and prevent sucker rod and tubing wear. The company manufactures rolling wheel type rod guides, columnar type rod guides and clamp type rod guides, all conforming to SY/T582 The sucker rod string centralizer.

Type: Rolling wheel guides; Columnar rod guides; Clamp rod guide.

Working principle：

Rolling wheel guides：The guides work by rolling wheels' rolling in tubing and prevent the friction between the sucker rod string and tubing.

Columnar rod guides: The guides work by the nylon centralizing sleeve's touching with tubing, so as to avoid the friction between the sucker rod string and tubing. Nylon centralizing sleeves can rotate and keep even wire. To replace wornout centralizing sleeves instead of shoat bole helps to save the production cost。

Clamp rod guides: The guides are clamped over the sucker rod string directly, easy for handling and with low cost.

Tubing centralizer(Cable protector)

Application

The tubing centralizer is fixed on the outer wall of the tubing and used inside the casing to mainly straighten the tubing and prevent wear and tear on the tubing and casing wall caused by tubing creep during the pumping process. When using testing instruments underground, it also has the functions of clamping cables, guiding, etc

Specifications

The company produces centralizers applied to various specifications of tubing and casing.

Technical parameters

Shore Hardness	≥50
Tensile Strength	≥12MPa
Tear resistance	≥35kN·m
Aging coefficient	±25%
Elongation at break	≥300%
Akron abrasion loss	< 0.28cm^3/1.61km

Casing centralizer

API single piece casing centralizer performs satisfactorily in open hole as well as cased hole.These high quanlity product,developed to meet and exceed API 10D specifications for use in highly demanding downhole conditions.Single piece centralizer combines the highest restoring force with zero start force and zero running force.The single piece centralizer is used to position the casing in the center of the wellbore in vertical deviated and horizontal wells.

The single piece centralizers are one piece construction in special high strength steel which imparts excellent hardness and spring action ensuring an unmatched ability to come back to its original shape after undergoing rigorous stress loads conditions.

The single piece centralizers are available in size 4-1/2" to 20".Any special sizes or combination can be available on requirment.

Technical parameters

Model(in)	Hooping in-Dia. (mm)	Hooping thickness (mm}	Hooping height (mm)	Total Length (mm)	Max.Out-Dia. (mm)	Spring Pieces
5-1/2*8-1/2	142-148	3-5	90-120	650±50	225±5	5
7*9-5/8	181-186	3-5	90-120	650±50	255±5	6
7*8-1/2	181-186	3-5	90-120	650±50	235±5	6
8-5/8*12-1/4	223-228	3-5	90-120	650±50	330±5	8
9-5/8*12-1/4	250-255	3-5	90-120	650±50	330±5	8
10-3/4*12-1/4	274-276	3-5	90-120	650±50	330±5	9
13.3/8*17-1/2	342-347	3-5	90-120	650±50	450±5	11
18-5/8*24	476±1	3-5	90-120	600±50	610±5	12
20*26	510±1	3-5	90-120	600±50	660±5	12

III. Wellhead Tools

III.i. Stuffing box

Application

The stuffing box is used to seal polished rod in
the drainage process.

The Company produces various types of stuffing boxes such as common stuffing box and anti-eccentric wear stuffing box, with simple structure, reliable sealing and convenient operation, which are widely used in oilfield and CBM industries.

Technical parameters

Applied polished rod diameter （in）	1″,1 1/8″,1 1/4″,1 1/2″
Working pressure (psi)	1500 psi
Connection thread	2-7/8TBG,2-7/8UPTBG
Structure type	Simple type, DPSB type， Cross type (Anti eccentric wear)

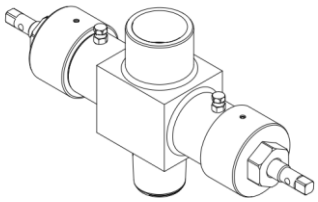
III.ii. Polished rod BOP

Polish Rod Bop Single Ram, 2-7/8” And 3-1/2:, Top And Bottom

Connection: 2-7/8” And 3-1/2” Eue Box X Pin,

C/W Threads Protector, Working Pressure: 3,000 Psi Bidirectional,

Material: Alloy Steel With Corrosion-Resistant Coating, Furnished For Polished Rod, Ram Seal Material: Hnbr



Technical Parameters

Polish Rod BOP Single Ram Technical Parameters			
Item	Mode	73-EU-BOP	89-EU-BOP
1	Top and Bottom Connection	2-7/8” EUE BOX x PIN	3-1/2” EUE BOX x PIN
2	Vertical Bore	2.441 in	2.992 in
3	polished rod size	1.5 in	1.5 in
4	Working pressure	3000 psi	3000 psi
5	Maximum temperature	120° Celsius	120° Celsius

III.iii. Sucker Rod Rotator

Rod Rotator, A Mechanical Device That Rotates The Sucker Rod String To Circumferentially Distribute Sucker Rod String Wear, Rated Load At Least 40k Lbs, Rated Output Torque At Least 240 Ft-Lbs, Furnished For Polished Rod , Material: Ductile Iron With Corrosion-Resistant Coating

Technical Parameters

Technical Parameters		
1	Polished rod size	1-1/8~1-3/4 in
2	Max. recommended load	40,000 lbs
3	Rated output torque	240 ft-lbs
4	Actuator cable	25 ft
5	Required opening between bridle lines	7 in

III.iv. Polished rod clamp

Application

The polished rod clamp is attached at proper position of polished rod by linings.

It makes the polished rod hang through the wireline hanger and bear the load of the sucker rod string.

Technical parameters

Applied polished rod diameter (in)	1″,1 1/8″,1 1/4″,1 1/2″
Rated load (KN)	140
Bolts	Single, Double,Three

III.v. Spray metal Polished rods

Product outline

Polished rods conform to API Spec 11B "Specification for Sucker Rods, Polished Rods and Liner, Couplings, Sinker Bars, Polished Rod Clamps, Stuffing Boxes, and Pumping Tees", SY/T5029 "Sucker Rods" and other related standards.

The company manufactures various specifications of common polished rods, sprayed metal polished rods and electroplated polished rods.

Main technical parameters

<table>
<tr><td>Polished rod nominal diameter in(mm)</td><td>1
(25.4)</td><td colspan="3">1 1/8
(28.58)</td><td>1 1/4
(31.75)</td><td>1 1/2
(38.10)</td></tr>
<tr><td>Pin nominal diameter in(mm)</td><td>15/16
(24)</td><td>Upset end 1 3/16
(30)</td><td>1 1/16
(27)</td><td>Upset end 1 3/8
(35)</td><td>1 3/16
(30)</td><td>1 3/8
(35)</td></tr>
<tr><td>Coupling OD in(mm)</td><td>1.812
(46.0)</td><td colspan="3">2.187
(55.6)</td><td>1.812
(46.0)</td><td>2.187
(55.6)</td></tr>
<tr><td colspan="3">Standard length ft(m)</td><td colspan="4">8 ~ 40
(2.4 ~ 12.2)</td></tr>
<tr><td colspan="3">Polished rod material</td><td colspan="4">Ultimate tensile strength psi(MPa)</td></tr>
<tr><td colspan="3">Carbon steel</td><td colspan="4">90000 ~ 160000 (621 ~ 1103)</td></tr>
<tr><td colspan="3">Alloy steel</td><td colspan="4">95000 ~ 160000 (655 ~ 1103)</td></tr>
<tr><td colspan="2">Stainless steel</td><td colspan="3">304/306:
Min70000 (428)</td><td colspan="2">431:
Min90000 (621)</td></tr>
</table>

IV. Pumping unit

IV.i. API Pumping Units

API B Series Pumping Units

Product Outline

API B series pumping units are light conventional beam pumping units, with walking beam balance mode, which are commonly used surface power equipment in oilfield sucker rod pumping operation.

The products conform to API Spec 11E Specification for Pumping Units and other related standards.

Technical features

1.It has simple structure, easy operation, convenient maintenance and long service life.

2.It is equipped with two-stage reduction symmetrical herringbone gear transmission reducer. The running is steady and reliable.

3.The complete machine mass is small and can be installed and transported conveniently.

4.It is applicable to small stroke, light load and shallow well oil production.

Main technical parameters

S/N	Model	Rated polished rod capacity (lb)	Stroke (in)	Gear reducer rated torque (in·lbs)
1	B-80D-119-82	11,900	82、71	80,000
2	B-80D-119-64	11,900	64、54	80,000
3	B-80D-76-64	7,600	64、54	80,000
4	B-80D-133-54	13,300	54、41	80,000
5	B-80D-119-54	11,900	54、41	80,000
6	B-80D-76-54	7,600	54、41	80,000
7	B-80D-133-48	13,300	48、35	80,000
8	B-80D-109-48	10,900	48、35	80,000
9	B-57D-109-54	10,900	54、41	57,000
10	B-57D-89-54	8,900	54、41	57,000
11	B-57D-76-54	7,600	54、41	57,000
12	B-57D-109-48	10,900	48、35	57,000
13	B-57D-89-48	8,900	48、35	57,000
14	B-57D-89-42	8,900	42、32	57,000
15	B-57D-76-42	7,600	42、32	57,000
16	B-40D-95-59	9,500	59、43	40,000
17	B-40D-89-59	8,900	59、43	40,000
18	B-40D-89-48	8,900	48、35	40,000
19	B-40D-76-48	7,600	48、35	40,000
20	B-40D-76-42	7,600	42、29	40,000

API C Series Pumping Units

Product Outline

API C Series pumping units are conventional beam units, balanced by crank, which are most common and widely used surface power equipment in rod oil production in oilfields.

The products conform to API Spec 11E Specification for Pumping Units and other related standards.

Technical features

1.The modulation and virtual manufacturing technologies are adopted in product design. The product structure pattern is optimized. The components have a high degree in standardization, universalization and seriation.

2.Key structural parts are calculated with finite element analysis. The property is stable and the reliability is high.

3.It is equipped with two-stage reduction symmetrical herringbone gear transmission reducer. That makes good sealing, low noise, steady running and reliable durability.

4.The whole machine operation is simple. The maintenance is convenient and the service life is long.

Main technical parameters

S/N	Model	Rated polished rod capacity (lb)	Stroke (in)	Gear reducer rated torque (in·lbs)
1	C-1824D-427-240	42,700	240、212、196、	1824,000
2	C-1280D-365-240	36,500	240、212、196、	1280,000
3	C-1280D-305-240	30,500	240、212、196、	1280,000
4	C-912D-470-240	47,000	240、212、196、	912,000
5	C-912D-427-216	42,700	216、185、155	912,000

6	C-912D-427-192	42,700	192、165、138	912,000
7	C-912D-305-192	30,500	192、165、138	912,000
8	C-912D-365-168	36,500	168、144、121	912,000
9	C-912D-305-168	30,500	168、144、121	912,000
10	C-912D-427-144	42,700	144、123、102	912,000
11	C-640D-305-192	30,500	192、165、138	640,000
12	C-640D-305-168	30,500	168、144、121	640,000
13	C-640D-365-144	36,500	144、123、102	640,000
14	C-640D-305-144	30,500	144、123、102	640,000
15	C-640D-256-144	25,600	144、123、102	640,000
16	C-640D-305-120	30,500	120、102、84	640,000
17	C-456D-305-168	30,500	168、144、121	456,000
18	C-456D-305-144	30,500	144、123、102	456,000
19	C-456D-256-144	25,600	144、123、102	456,000
20	C-456D-365-120	36,500	120、102、84	456,000
21	C-456D-305-120	30,500	120、102、84	456,000
22	C-456D-256-120	25,600	120、102、84	456,000
23	C-320D-256-144	25,600	144、123、102	320,000
24	C-320D-256-120	25,600	120、102、84	320,000
25	C-320D-213-120	21,300	120、102、84	320,000
26	C-320D-305-100	30,500	100、85、70	320,000
27	C-320D-256-100	25,600	100、85、70	320,000
28	C-320D-213-86	21,300	86、71、56	320,000
29	C-228D-213-120	21,300	120、102、84	228,000
30	C-228D-173-100	17,300	100、86、72	228,000
31	C-228D-246-86	24，600	86、71、56	228,000
32	C-228D-213-86	21,300	86、71、56	228,000
33	C-228D-200-74	20,000	74、64、54	228,000
34	C-228D-173-74	17,300	74、64、54	228,000
35	C-160D-173-86	17,300	86、74、62	160,000
36	C-160D-200-74	20,000	74、64、54	160,000
37	C-160D-173-74	17,300	74、64、54	160,000

38	C-160D-143-74	14,300	74、64、54	160,000
39	C-160D-173-64	17,300	64、54、44	160,000
40	C-114D-119-86	11,900	86、72、59	114,000
41	C-114D-143-74	14,300	74、62、51	114,000
42	C-114D-173-64	17,300	64、54、44	114,000
43	C-114D-143-64	14,300	64、52、40	114,000
44	C-114D-133-54	13,300	54、45、36	114,000
45	C-80D-119-64	11,900	64、53、42	80,000
46	C-80D-133-54	13,300	54、45、36	80,000
47	C-80D-119-54	11,900	54、45、36	80,000
48	C-80D-133-48	13,300	48、40、32	80,000
49	C-80D-109-48	10,900	48、37、25	80,000
50	C-57D-76-54	7,600	54、41、28	57,000
51	C-57D-109-48	10,900	48、37、25	57,000
52	C-57D-95-48	9,500	48、37、25	57,000
53	C-57D-89-42	8,900	42、33、23	57,000
54	C-57D-76-42	7,600	42、33、23	57,000
55	C-40D-76-48	7,600	48、37、27	40,000
56	C-40D-89-42	8,900	42、33、23	40,000
57	C-40D-76-42	7,600	42、33、23	40,000
58	C-40D-89-36	8,900	36、28、20	40,000

API F Series Pumping Units

API F series pumping unit is a new type of non-beam energy-saving unit.It has low appearance, flexible drive and the whole unit can be folded. It's a new type of sucker rod pumping surface unit.The products conform to API Spec 11E "Specification for pumping units" and other related standards.

Technical Features

Use roller and belt to form flexible drive, reduce impulsive load, prolong service life of gear reducer.

Use unique antiphase crank, the complete crank-balance, energy-saving effect is high.

In the reducer use the symmetrical divergence type involute herringbone gear transmission,its seal is good, the noise is low, the revolutioin is steady, it is reliabe and durable.

The complete machine volume mass ratio is small, the outlook is low, which can realize the complete machine to fold. The installment and the transporation are convenient.

The structure is simple, the operation maintenance is convenient, the performance-to price ratio is good.

Technical Parameters

Serial number	Model	Rated polished rod capacity(lbs)	Stroke（in）	Gearbox rated torque(in.lbs)
1	F-320D-256-120	25600	120、102、84	320，000
2	F-320D-256-100	25600	100、86、74	320，000
3	F320D-246-86	24600	86、74、62	320，000
4	F-228D-256-100	25600	100、86、74	320，000
5	F228D-213-86	21300	86、74、62	228，000
6	F-228D-246-86	24600	86、74、62	228，000
7	F-228D-246-74	24600	84、64、54	228，000
8	F-160D-173-86	17300	86、74、62	160，000
9	F-160D-200-74	20000	74、64、54	160，000
10	F-160D-173-74	17300	74、64、54	160，000
11	F-114D-173-64	17300	64、54、44	114，000
12	F-114D-143-54	14300	54、44、34	114，000
13	F-114D-109-54	10900	54、44、34	114，000
14	F-57D-89-42	8900	42、33、25	57,000

IV.ii. CYJ series Beam pumping units

Product outline

Domestic CYJ series pumping units are more widely used surface power equipment for oil production. They gain a broad application scope in domestic oilfields and CBM industry by the simple structure,durability, easy operation and convenient installment.

Domestic beam pumping units have different structures, such as conventional straight beam, curved beam, diameter and torque adjusting type and downward beam weight type, etc. to meet different production needs. The products conform to GB/T 29021 Petroleum and natural gas industries—Beam pumping units and other related standards

Conventional pumping unit

Conventional pumping units are crank-balanced pumping units, with good durability, most widely used in oilfields.

Technical features

1.The product design parameters are reasonable. The performance is steady and the reliability is high.

2.It is equipped with two-stage reduction symmetrical herringbone gear transmission reducer. That makes good sealing, low noise, steady running and reliable durability.

3.The whole machine operation is simple. The maintenance is convenient and the service life is long.

Main technical parameters

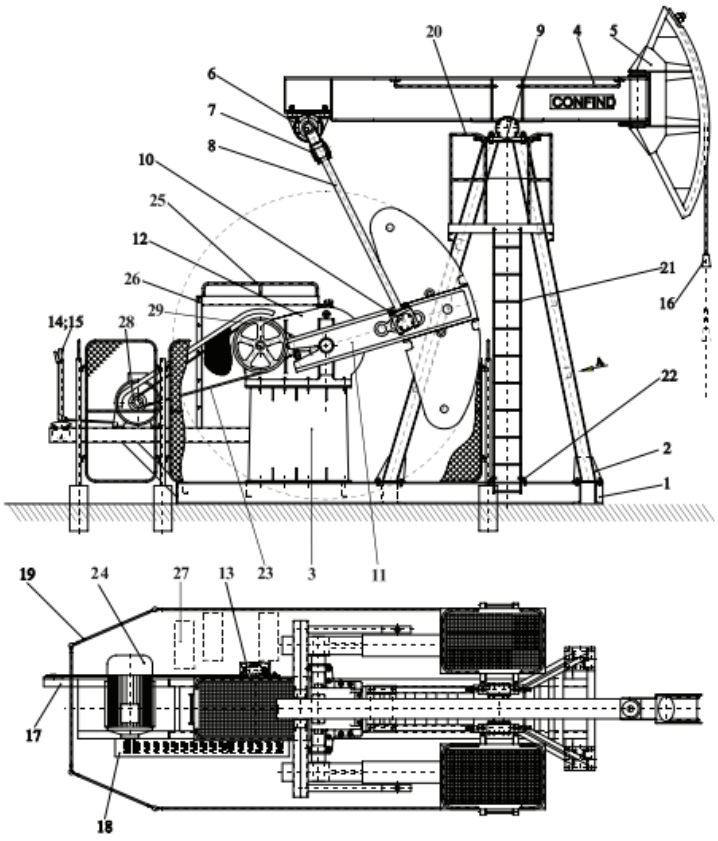
S/N	Model	Rated polished rod capacity (10KN)	Max. stroke (m)	(KN·m) Gear reducer rated torque
1	CYJ3-1.2-6.5	3	1.2	6.5
2	CYJ3-1.5-6.5		1.5	
3	CYJ3-2.1-13		2.1	13
4	CYJ4-1.5-9	4	1.5	9
5	CYJ4-2.5-13		2.5	13
6	CYJ4-3.0-18		3.0	18
7	CYJ5-1.8-13	5	1.8	13
8	CYJ5-2.1-13		2.1	
9	CYJ5-2.5-18		2.5	18
10	CYJ5-3.0-26		3.0	26
11	CYJ6-2.5-26	6	2.5	
12	CYJ8-2.1-18	8	2.1	18
13	CYJ8-2.5-26		2.5	26
14	CYJ8-3.0-37		3.0	37
15	CYJ10-3-37	10	3.0	
16	CYJ10-3-48			48
17	CYJ10-3-53			53
18	CYJ10-4.2-53		4.2	
19	CYJ12-3.6-53	12	3.6	

20	CYJ12-4.2-73		4.2	73
21	CYJ12-4.8-73		4.8	
22	CYJ14-3.6-73	14	3.6	
23	CYJ14-4.8-73		4.8	
24	CYJ14-5.5-73		5.5	
25	CYJ16-4.8-105	16	4.8	105
26	CYJ16-6-105		6	

IV.iii. Pumping units spares and accessories

The picture below presents the beam pumping unit geometry and components.

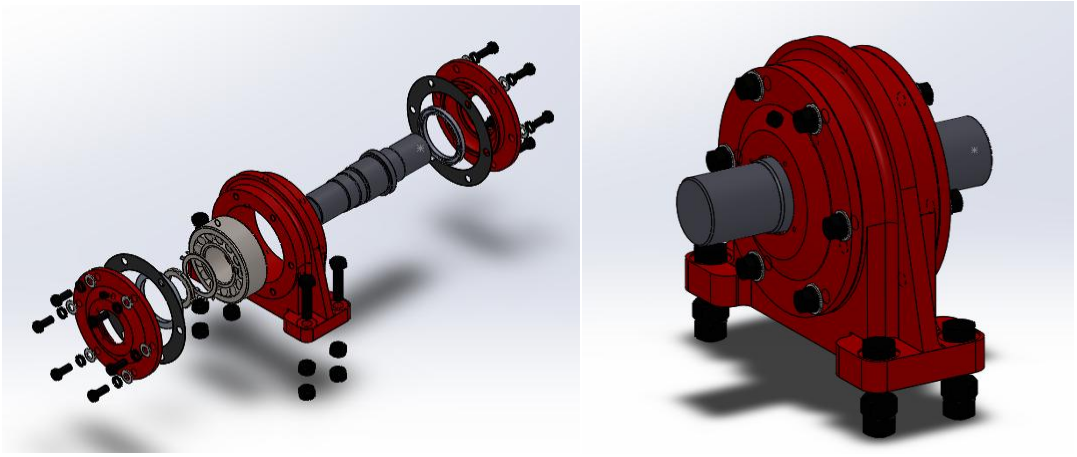
The pumping unit is a conventional type one: the central bearing is located between the horsehead and the ball bearing.



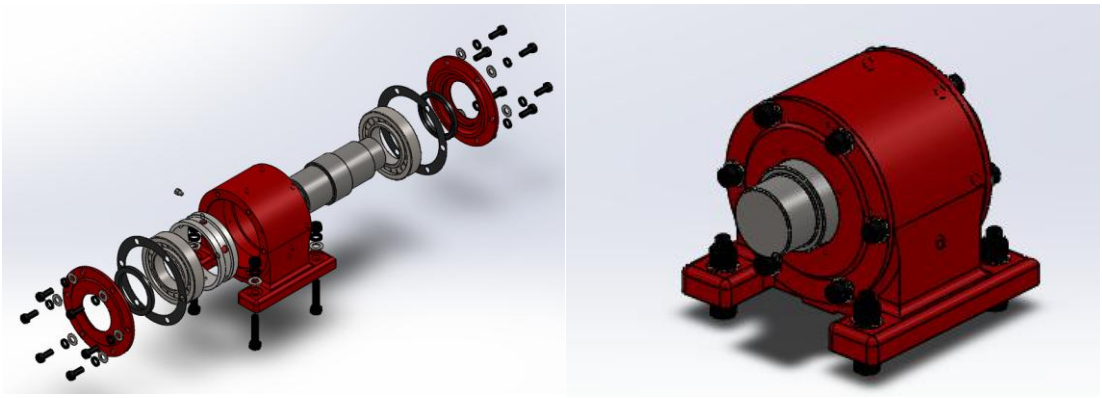
Pos.	Description
1.	Base
2.	Samson Post
3.	Gear reducer base
4.	Walking beam
5.	Horsehead
6.	Equalizer bearing
7	Equalizer
8.	Pitman Arm
9.	Center bearing
10.	Crankpin bearing
11.	Crank with counterweights
12.	Gear reducer
13.	Brake
14.	Brake lever
15.	Brake transmission
16.	Carrier bar
17.	Extension base
18.	Belt cover
19.	Fence
20.	Samson Post platform
21.	Ladder
22.	Ladder support
23.	V-belt
24.	Prime mover
25.	Gear reducer platform
26.	Platform ladder
27.	Electric switch box
28.	Prime mover sheave
29.	Gear reducer sheave

Gear reducer.Bearing assembly Bearing.Crank.Carrier bar.Others and customization service

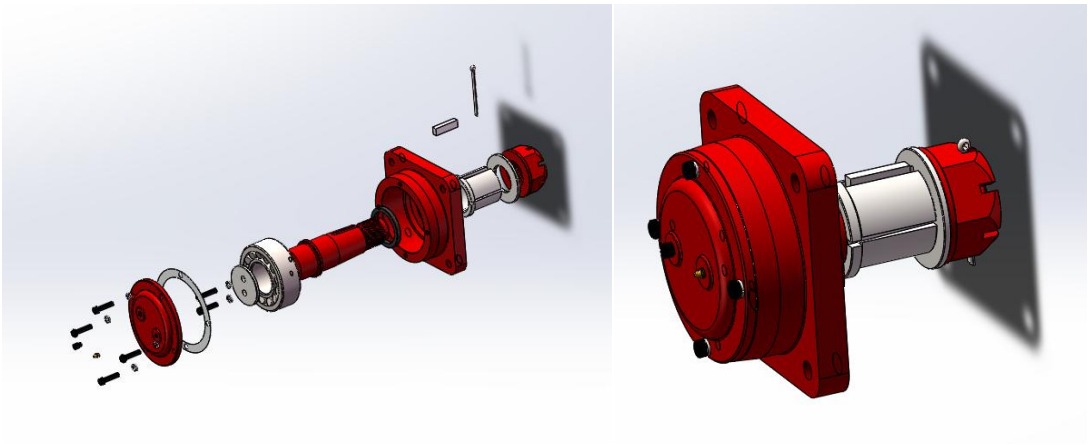
Equalizer bearing Assy



Center bearing Assy



Crank pin Assy



V. Other Production Equipment (Oil pump)

V.i. Downhole progressing cavity pump

The surface drive progressing cavity pump consists of a surface drive and a downhole progressing cavity pump (PCP).The surface drive transmits power to downhole PCP through the rotating motion of the sucker rod. PCP is a positive displacement pump. The rotor rotates within the stator, thus series of cavities are formed and progress gradually from the suction end to the discharge end. The formation fluids are then forced continuously from downhole to surface.

The unit features apparent energy saving, long pump inspection period and wide range of well applications.It is suitable for high viscous, sand cut and gas well production, with displacement ranging from 1 to 400m^3/d and maximum landing depth of 2000m. The company can safeguard that the most suitable stators solutions to be provided to customers, according to factors such as well fluid aromatic hydrocarbon and solid particle content, chemical compound existence of hydrogen sulphide and carbon dioxide and well temperature.

V.ii. Electric submersible pump

Electric Submergible Pump System

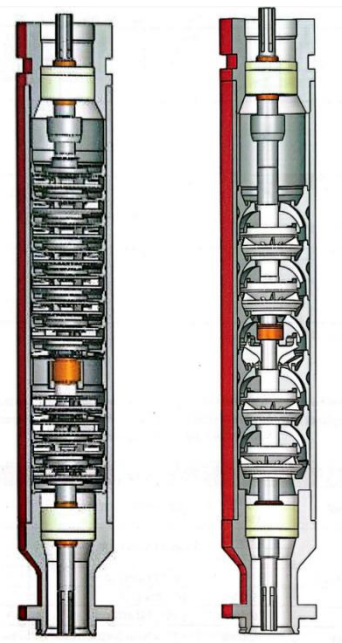
An electric submergible pumping system consists of three parts, which includes surface part, middle part and downhole ESP . Surface part mainly includes transformer, switchboard, junction box, wellhead and surface cable . Middle part is power cable and cable extension which connect surface and downhole equipment and provide motor with power. Downhole part is the main part of the system which includes electric submergible motor, protector, gas separator and multi-stage centrifugal pump,

Fiveseries ESP pump Powerlift can provide, 338/375, 400/456, 513/540, 538/562ESP system is applicable to the production casing of 4-1/2" and aboveand the reservoir temperature is up to 150℃. CaPacity: 150-11000BPD (20- 1600m^3/d)

Head: <14760FT (4500m)

Pump

The Pumps are multistage centrifugal pumps for use with casings above 41/2" .Their discharge at 50 Hz varies from 20 m3/d to 1600 m3/d and greater discharge can be obtained by using frequency converter.We have adopted advanced CAD designing in the stages of pump which,as a result,have obtained high single stage lift and high efficiency.The Pumps are assembled in three types of complete float, complete compresslve and half float, and with a structure of radial flow and mixed flow . The various categories such as standard pump , abraision resistant and anti-corrosion pump are applicable to



different well condition.

You only need to give us the required hydraulic property of the pump , such as flow, head, efficiency and the main dimensional parameters of mounting to get a best produce from us.There are options of differed materials for pump stages according to different well conditions: Ni-resist,high-chrome cast iron,copper aluminum alloy,stainless steel.We can supply the pump for well with high sand and high gas content according to customer' s requests.The various categories such as standard pump, Compression pump, anti-corrosion pump , abraision resistant pump and AR Modular pump are applicable to different well condition.

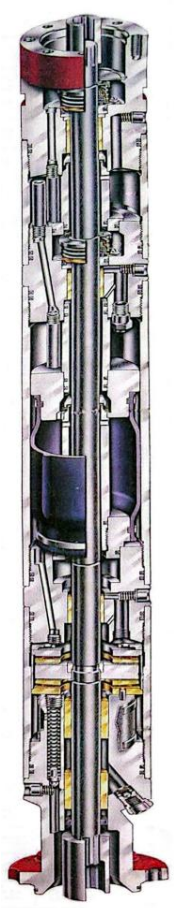
Gas Separator

In order to ensure normal and continuous working of the centrifugal pump in gas-containing oil wells,An oil-gas separator is usually installed between the protector and the pump. Intake, gas separator and high efficiency gas processor can be equipped depending on the different gas content in gassy well. The gas separator type is distinguished into gravity and rotary , and the category is divided into standard , resistant and anti-corrosion-proof.

For oil wells with high gas content double-section separator is used in order to ensure effective separation of free gas. Special separator can be used in high-sand wells and you will get a satisfactory result.

The model in the table is standard equipment, and we can supply tabraision resistant and anti-corrosion-proof according to customer' s requests.

Protector



The protector is set between separator or intake and motor in ESP unit.Except for the connection function,the following is the main features:

1. Seal the power output end of the motor shaft to prevent well fluid from entering into the motor;
2. Balance pressure between the casing annular space and inside the motor;
3. Balance axial force for the pump shaft and the separator shaft;
4. Adapt motor oil inside motor for expanding and contracting.

Protector type include labyrinth chamber, rubber bag chamber and combined chamber, and the category includes standard, high load and anti-corrosion-proof. We can equip different heating resistant protector according to the heating resistant degree of the motor.

Submersible Motor

The submersible motor is a three-phase, squirrel-cage, induction type motor,and its rated revolution speed is 2850 RPM at 50HZ. The submersible motor is vertical suspended construction, it is airtight with oil-immersed method,interior of the motor is completely filled with special lubricant as lubrication, insulatior and thermal conduction.

Because the submersible motor is well-gore,various series and sizes of the submersible motor are designed in order to meet requirements of different oil wells.It limited in varying well-gore,various series and sizes of the submersible motor

are designed in order to meet requirements of different oil wells. lt also can be singer,double or multiple sections tandem according to the different power.

Our company can produce 375 series, 456 series, 540 series and 562 series of submersible motors. we can produce the resistant ESP for 120 ℃,150 ℃ and 150 ℃ well temperature.

Motor is applicable to the casing of 4½", 5", 5½", 7". 9⅝" and above;

Operating voltage: 140V - 3600V

Operating current: 14A - 104A

Rated RPM: 2850r/min@50Hz (3420r/min@60Hz)

Temperature grade: 120 ℃, 150 ℃, 180 ℃,