



世联丰禾

耐高温双金属螺杆泵

HIGH-TEMPERATURE DUAL-METAL OIL SCREW PUMP

稠油开采领域划时代产品

This product is an epoch-making product in the field of heavy oil recovery.



世联丰禾

无锡世联丰禾石化装备科技有限公司
WUXI SLFH PETROCHEMICAL EQUIPMENT TECHNOLOGY CO., LTD

地址 / ADD: 无锡市惠山区锡澄路堰桥北段28号-18
28-18, Xicheng Road Yanqiao North Part,
Huishan District, Wuxi, Jiangsu Province, China

总机 / TEL: 0510-88360988 88739666

传真 / FAX: 0510-88360388

网址 / WEBSITE: www.slhwx.com

邮箱 / E-mail: slhwx@163.com

无锡世联丰禾石化装备科技有限公司

WUXI SLFH PETROCHEMICAL EQUIPMENT TECHNOLOGY CO., LTD



资质证书 QUALIFICATION CERTIFICATES

公司经营理念:

专业专注、诚信优质、高效共赢、可持续发展

公司成长目标:

客户紧密共赢的合作伙伴, 和客户一起成长, 携手共创美好明天!

公司简介 Company Profile

无锡世联丰石化装备科技有限公司是采设备制造、设备集成、油气田节能增效领域, 油井人工举升系列设备研发、制造, 以及(超)稠油注采一体化现场服务专业厂家。

先后通过了ISO9001:2015质量管理体系及中石化、中石油HSE体系认证, 三级安全生产标准化企业, 美国石油学会API Q1认证。是中石油(能源一号网会员)、中石化(易派客会员)供应商。历经多年的研发、制造和现场技术服务经验积累, 已获得4项发明专利和15项实用新型专利, 著作权3项, 并形成了一套成熟完善的油田产品(地面设备、井下管、杆柱)制造以及设备集成工艺、油田井筒增效等技术服务。

我公司秉承诚信、务实、创新的企业精神, 为用户创造价值, 为企业赢得朋友的营销理念, 为油田稠油开采技术领域节能增效, 提供更为优质的产品解决方案, 为用户带来可观的经济效益。

Wuxi Shilian Fenghe Petrochemical Equipment Technology Co., Ltd. is a professional manufacturer of equipment manufacturing, equipment integration, oil and gas field energy conservation and efficiency, oil well artificial lifting series equipment research and development, manufacturing, and (super) heavy oil injection and production integration field service.

It has passed ISO9001:2015 quality management system and Sinopec, CNPC HSE system certification, three-level safety production standardization enterprise, American Petroleum Institute API Q1 certification. It is a supplier of CNPC (Energy One Network Member) and Sinopec (EPEC Member). After years of experience in R&D, manufacturing and on-site technical services, it has obtained 4 invention patents, 15 utility model patents and 3 copyrights, and has formed a mature and complete oilfield product (ground equipment, downhole pipe, pole). Technical services such as manufacturing and equipment integration processes, oilfield wellbore synergies.

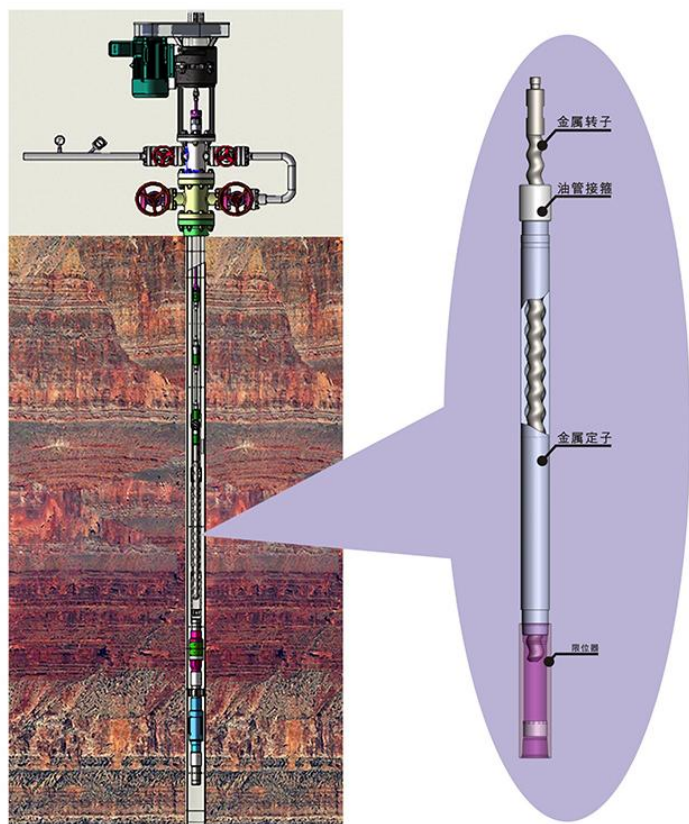
Our company adheres to the enterprise spirit of honesty, pragmatism and innovation, creates value for users, wins the marketing concept of friends for the enterprise, provides energy-saving efficiency for oilfield heavy oil exploitation technology, and provides better product solutions, bringing considerable benefits to users. The economic benefits.





稠油蒸汽吞吐注采一体化装置

HEAVY OIL STEAM STIMULATION INJECTION AND EXTRACTION
INTEGRATION DEVICE

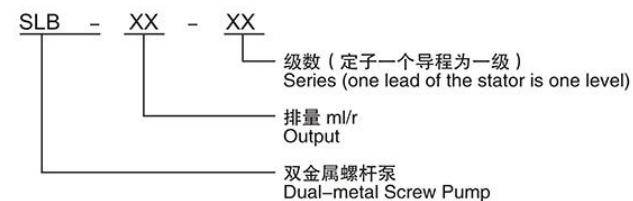


技术规格参数 Technical Specification

泵型号	每周排量 Vc(ml/r)	理论排量 m^3/d 100~ 300r/min	导程 mm	泵扬 程m	定子外 径mm	适用抽油杆 mm/in	适用光杆 mm/in	油管连接 API	适用温度 $^{\circ}C$
SLB72-33	72	10.4~30	120	1600	96	25(1)D	29(1 1/8)	3 1/2 NU	≤450
SLB84-28	84	12~36	140	1400	96	25(1)D	29(1 1/8)	3 1/2 NU	
SLB112-28	112	16~48	140	1400	96	25(1)D	29(1 1/8)	3 1/2 NU	
SLB128-24	128	18~54	160	1200	96	25(1)D	29(1 1/8)	3 1/2 NU	
SLB160-24	160	23~69	160	1200	96	25(1)D	29(1 1/8)	3 1/2 NU	
SLB200-20	200	29~87	200	1000	96	25(1)D	29(1 1/8)	3 1/2 NU	
SLB240-25	240	34~102	240	1200	96	25(1)D	29(1 1/8)	3 1/2 NU	
SLB264-27	264	38~114	220	1300	114	25(1)D	29(1 1/8)	4 NUP	
SLB288-25	288	41~123	240	1200	114	25(1)D	29(1 1/8)	4 NUP	
SLB336-25	336	48~144	240	1200	114	25(1)D	29(1 1/8)	4 NUP	
SLB364-23	364	52~156	260	1100	114	25(1)D	29(1 1/8)	4 NUP	
SLB384-25	384	55~165	240	1200	114	25(1)D	29(1 1/8)	4 NUP	
SLB448-21	448	65~195	280	1000	114	25(1)D	29(1 1/8)	4 NUP	
SLB528-20	528	76~228	300	1000	127	29(1 1/8)H	32(1 1/4)	4 1/2EUP	
SLB598-17	598.4	86~258	340	800	127	29(1 1/8)H	32(1 1/4)	4 1/2EUP	
SLB693-17	693	100~300	350	800	127	29(1 1/8)H	32(1 1/4)	4 1/2EUP	
SLB792-15	792	114~342	400	750	127	29(1 1/8)H	32(1 1/4)	4 1/2EUP	

注：对于适用抽油杆、油管及连接方式，根据使用现场并予以最终确认

Note: For the application of sucker rods, tubing and connection methods, final confirmation according to the site conditions.



泵型号说明
Pump model description



稠油蒸汽吞吐注采一体化装置

HEAVY OIL STEAM STIMULATION INJECTION AND EXTRACTION INTEGRATION DEVICE



技术背景 Technical background

蒸汽吞吐作为稠油热采的主要工艺，目前已在稠油开发过程中得到广泛应用，但该工艺在使用抽稠泵生产过程中，到了蒸汽吞吐的中后期，随着地层温度的降低，稠油粘度增大，注塞泵进油通道又较长，造成稠油进泵困难，蒸汽吞吐生产周期缩短，周期产油量减少，因此系统效率较低。

针对抽稠泵在蒸汽吞吐生产过程中存在的缺陷，我司研制出适用于稠油蒸汽吞吐的双金属螺杆泵和耐高温耐高压地面驱动装置，满足稠油蒸汽吞吐注采一体化工艺的需要，同时也提高了生产效率，延长了转轴时间，降低稠油开发成本，具有良好的应用前景。

Cycle steam stimulation with the high-temperature is the main measures for heavy oil extraction, it has been widely used in heavy oil development process at present, but this process requires two sets of devices that are steam injection and oil extraction. When the steam injection, remove the tubing pipe from the wellbore to be replaced with heat insulation tubing and injection steam wellbore etc. device. This work is very complicated; it not only takes a lot of production time, but also requires a lot of manpower and resources. It increases product cost of heavy oil.

In order to simplify the process of cycle steam stimulation, shorten the turn over time, improve production efficiency, reduce production costs, our company has developed heavy oil cycle steam stimulation integration devices, which simultaneously meet process of the steam injection and the oil extraction. By this means, it does not need the equipment of workover but can continuously work with steam injection and oil extraction.

设计思路 Design Ideas

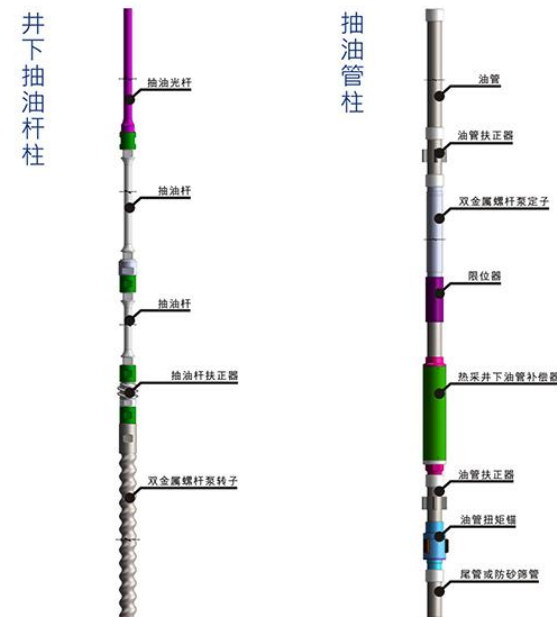
开发耐高温、耐高压的蒸汽吞吐注采一体化地面驱动装置，先把双金属螺杆泵下入井下，完井后安装好驱动装置。注汽时把转子提出泵筒，打开注汽通道，采油时，再将转子放入泵筒，直接开井生产，实现注汽、采油一体化，再次注汽时，不用上作业，重复以上工艺。

Develop blowout preventer with high temperature resistance, high pressure resistance, wellhead has been sealed by the blowout preventer during the steam injection process. When oil is extracted, blowout preventer will be opened. Due to wellhead is sealed, steam injection and oil extraction can be done with the same integrative device. When steam is injected, taking the rotor from the stator of the metal pcg to open steam passage, when extracting oil, lower rotor into pcg, in this way, steam injection and oil extraction are integration.

装置组成 System Composition

该装置主要由地面注采一体化驱动装置和井下注采一体化双金属螺杆泵及工具两部分组成。其中地面装置包括螺杆泵驱动头和远程数据控制系统、采油井口密封器、注汽井口防喷器组成；井下部分包括耐超高温双金属螺杆泵金属定子和金属转子、螺杆泵专用油管锚、可传递扭矩热采补偿器、螺杆泵专用扶正器等组成。

The device is mainly composed of stram injection and oil extraction which are in the wellhead on the ground and under the well. Device on the ground comprises a screw pump driving head, wellhead sealing device, wellhead steam blowout preventer and remote data control system. Device underground includes ultra high temperature resistance dual metal screw stator and rotor, connector, centering guide, oil pipe, sucker rod etc.





稠油蒸汽吞吐注采一体化装置

HEAVY OIL STEAM STIMULATION INJECTION AND EXTRACTION INTEGRATION DEVICE

UR



热采可传扭矩
油管补偿器

凸轮式扭距锚

螺旋抽油杆
扶正器

高温光杆
密封器



补偿距离：0.8m

适用温度：370°C

适用油管：3 1/2NU

适用套管：177.8mm(7in)

最大外径：140mm

内径：76mm

适用温度：370°C

适用油管：3 1/2NU

适用套管：177.8mm(7in)

内径：76mm

锚定方式：油管右旋

解封方式：油管左旋

适用油管：3 1/2NU

最大外径：72mm

适用温度：370°C

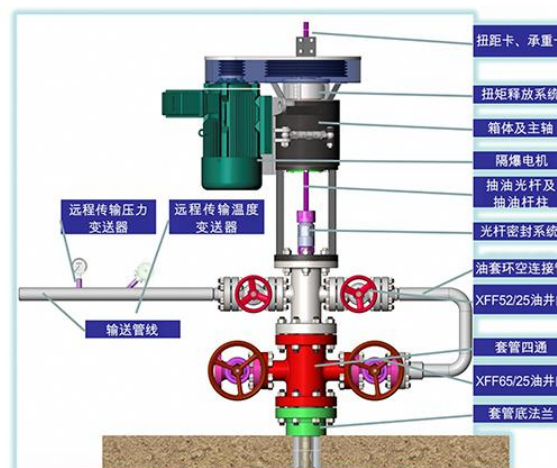
扶正体：刚性，可旋转

适用温度：370°C

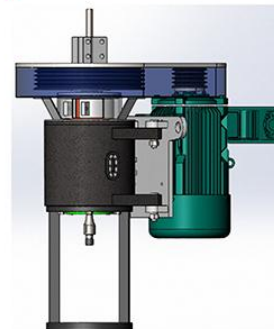
适用光杆：29 (1 1/8min)

密封方式：级软密封盘根

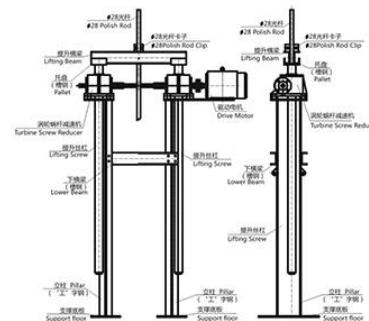
1级金属硬密封



侧驱式驱动装置
涡轮蜗杆+超越离合器扭矩
释放系统或液压ABS方式



直驱式驱动装置
电磁扭矩释放系统



抽油杆举升装置



稠油蒸汽吞吐注采一体化装置

HEAVY OIL STEAM STIMULATION INJECTION AND EXTRACTION INTEGRATION DEVICE



主要创新点 Main Innovation

- 1 研发能够满足注汽、采油一体化的超高温双金属螺杆泵采油装置，该装置耐高温、高耐磨、适应稠油举升，具有注汽和采油液流通道；
- 2 研发能够满足注汽、采油一体化的耐高温、耐高压地面驱动装置，可以确保注汽、采油过程的井口安全；
- 3 将整套装置科学地组合在一起，形成了一套完整、高效的稠油注汽热采开发技术，实现了注汽、采油两个环节连续转换，省时省力，方便快捷。

1 Ultra high temperature screw oil pump can meet steam injection and oil extraction integration. This equipment is high temperature resistance, corrosion-resistant. It is suitable for heavy oil. There is passage for steam injection and oil extraction.

2 Steam blowout preventer with high temperature resistance and high pressure meeting steam injection, oil extraction integration, can ensure wellhead safety during steam injection and oil extraction.

3 The whole device scientifically combined together, form complete and high efficient oil extraction technology in the heavy oil, realize the steam injection and oil extraction become one complete equipment to work continuously with these two functions.



新疆油田现场
Xinjiang Oilfield site

技术优点 Technical advantages

与现有的抽油机深井泵采油系统相比，该蒸汽吞吐注采一体化装置具有多方面的技术优点：

- 1 节能低碳，操作简便，便于维护管理；
- 2 通过转速调节，实现蒸汽吞吐前期的快速排水，减少热量损耗，为中后期稠油热采积蓄能量；
- 3 在热采后期，即使油井温度降低原油流动性变差，也能维持较长时间的生产。从而大大延长热采周期，提高周期产油量，减少注汽量，一次作业长期采油，提高热采经济效益；
- 4 双金属螺杆泵具有耐磨、防腐、抗砂等优点，可以克服普通橡胶定子螺杆泵干磨极易烧泵和砂卡的问题。即使在产液能力较差的井内也可连续安全运行；
- 5 具有地面安装空间小，举升能耗低等优点，与普通泵相比，具有防气锁、防偏磨等优点，使用寿命长，可以大大降低设备的维护费用。

Compared with current oil sucking machine, heavy oil cycle steam stimulation in tegration devices has many technical advantages:

- 1 When injecting steam, pump has already been in the well. It can increase production efficiency, reduce thermal source cost.
- 2 It has normal screw pump function. After oil temperature decrease, even well deliverability is very poor. Oil extraction still can work. So, it can extend production period of oilwell and increase oil production and benefit.
- 3 This dual metal screw pump has abrasion resistant characteristic corrosion protection and it also can transport oil with sands. Common rubber stator screw pump easily burn, our pump don't have such problem. It can safely run even oil quantity is very few underground.
- 4 As common screw pump, it occupies small installation space on the ground and has less lifting energy consumption. Compared with common screw pump, our screw pump can avoid block due to high pressure air and also it has eccentric wearing resistance, which can extend service life, can greatly reduce the equipment maintenance cost.



河南油田现场
Henan Oilfield site



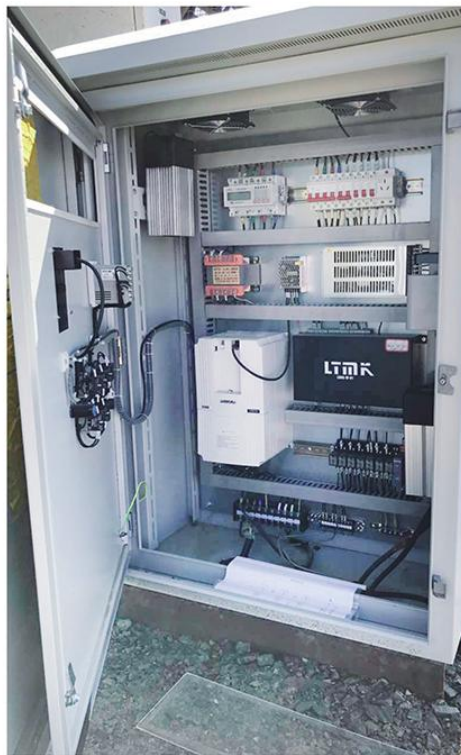
远程数据控制系统 REMOTE DATA CONTROL SYSTEM



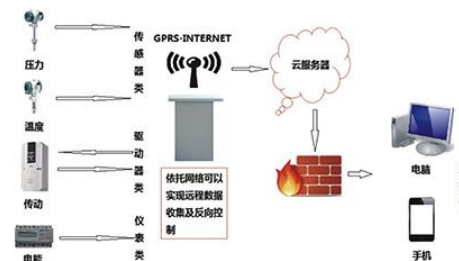
基本介绍 Introduction

油田远程监控系统主要用于监测抽油机的运行频率、运行电流、输出电压、输出功率、设备转速、输出扭矩、油温、油压、用电量、相电压、线电压。同时可以远程调速、远程启停、远程故障复位、远程故障查询。通过无线GPRS/EDGE/CDMA1X/3G网络，将检测数据和视频数据传输到监控中心，监控中心依据监控站后台设定的超限值，自动判断抽油机工作是否正常、并且给出报警信息，根据现场情况和告警情况分析判断并通知相关人员采取措施。

The oilfield remote monitoring system is mainly used to monitor the running frequency, running current, output voltage, output power, equipment speed, output torque, oil temperature, oil pressure, electricity consumption, phase voltage and line voltage of pumping unit. At the same time can remote control, remote start and stop, remote fault reset, remote fault query. Through the wireless GPRS / EDGE / CDMA1X / 3G network, the detection of data and video data transmission to the monitoring center, the monitoring center based on the monitoring station background set limits, automatically determine the pumping unit is working properly, and give the alarm information, According to the scene and the alarm situation analysis and notify the relevant personnel to take measures.



运行图 Running Diagram



总结 Summary

无锡世联丰禾石化装备科技有限公司提供稳定成熟的油田监控产品和无线解决方案，解决了油田布线难的问题，节省了运营维护成本，为油田集中监控提供了有力保障。随着油田自动化程度的提高，无锡世联丰禾石化装备科技有限公司将会更加彰显出其核心价值。

Wuxi Shifeng Fenghe Petrochemical Equipment Technology Co., Ltd. provides stable and mature oilfield monitoring products and wireless solutions to solve the difficult problem of oil field wiring, saving operation and maintenance costs, centralized monitoring for the oil field provides a strong guarantee. With the increase in the degree of automation of the oil field, Wuxi World Alliance Fenghe Petrochemical Equipment Technology Co., Ltd. will be more prominent its core value.

技术参数 Technical Parameter

基本参数	供电: +5~+36V宽电压输入
	电源接口: 内正外负
	最大工作电流360mA@+5V DC
	待机电流80mA@+5V SC
	数据接口: RS232/485/422/TTL
	工作温度: -40℃~+80℃
配置	工作相对湿度: 95%@+40℃
	尺寸: 103x64x24mm (不包括天线和安装把手)
数据中心	串口配置
	超级终端, 菜单配置
稳定性	支持域名
	兼容多种数据中心软件
数据传输	主CPU: 32位ARM处理器
	内置软硬件看门狗
	内置TCP/IP协议栈
	数据接口波特率可设
	支持串口硬流控
	支持标准TCP/IP协议, UDP, TCP
	心跳间隔及心跳超时时可设
数据通信	支持永远在线
	支持短信及振铃唤醒(唤醒在线)
	Address-IMEI Mapping技术节省无线宽带



高端数控加工设备 CNC MACHINING EQUIPMENT

检验与客户评价 INSPECTION AND EVALUATION



金属定子数控加工设备
Metal Stator CNC



管螺纹加工设备
Tubing Screw CNC



金属转子加工设备
Metal Rotor CNC



全自动测试平台
Full-automatic Test Platform

