

COSL Completion Tools  
Upfirst series

**COSL**  
中海油田服务股份有限公司  
China Oilfield Services Limited



**Completion Tools | Upfirst Series**  
**完井工具 | 生产管柱系列**

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China Oilfield Services Limited

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## 简介

完井工具制造中心是中海油服旗下从事完井工具和防砂筛管的研发、制造、检测和试验、维保、现场服务等业务的专业公司。

中心位于天津市滨海新区塘沽海洋高新区，占地30000平方米。我们已经成功通过API Spec Q1、ISO 9001质量管理体系认证和API Spec 11D1、API Spec 5CT、API Spec 14A产品认证。

目前，中心的主要产品有两大类：一大类是完井工具，

另一大类是防砂筛管。完井工具类产品包括生产管柱用相关工具和防砂管柱用相关工具，如井下安全阀、过电缆封隔器、桥塞、滑套等。防砂筛管类产品包括绕丝筛管、金属网布筛管（CMS）、双重介质绕丝筛管（CDWS）、冲缝筛管和割缝筛管等。这些产品已经在渤海、南中国海、东南亚、中东、北非、西非、北美和墨西哥湾等地成功应用，并赢得用户的良好评价。除了提供完井相关产品，我们还能提供成套完井和防砂管柱的设计、制造和现场服务。

## Introduction

Completion-tool Manufacturing Center is a professional company of Production Optimization Division, COSL. The center engages in the research and development, manufacturing, inspection, and testing of completion tools and sand control screen.

The center locates in Tanggu Marine Hi-Tech Development Area, Binhai New Area, Tianjin City. The center has successfully passed the certification of API Spec Q1, ISO 9001 quality management system and API Spec 11D1, API Spec 5CT, API Spec 14A.

The center provides two types of products: completion tools and sand control screen. Completion tools include

production string tools and sand control string tools, such as: ESP packer, subsurface safety valve, bridge plug, sliding sleeve, etc. Sand control screen includes wire-wrap screen, metal mesh screen, dual-filter wire-wrap screen, punched screen, slotted liner. These products were widely employed by both onshore and offshore oilfield in South China Sea, Bohai Bay, South-east Asia, Middle-east, North Africa, West Africa, North America and Mexico Gulf. We won lots of good comments from clients. We can provide string design, manufacturing and field service depending on special requirement also.





## 质量控制

我们已经通过API Spec Q1和 ISO 9001质量管理体系认证，并且取得了APISpec 11D1, API Spec 14A、API Spec 5CT产品认证，我们拥有先进的产品检测设备，包括超声探伤仪、轮廓仪、全交流磁粉探伤机、移动式半波整流磁粉探伤机等，配备了各种规格的油、套管螺纹量规、美制螺纹量规等专用检测工具。

此外，我们建立了多功能检测实验室，可对各种完井工具进行检测和功能试验。



## Quality Control

We have passed the API Spec Q1, ISO9001, API Spec 11D1, API Spec 14A & API Spec 5CT certificates. We have advanced product testing equipment, including ultrasonic flaw detector, profiler, all AC magnetic flaw detector, mobile half-wave rectified magnetic particle inspection machine, etc. We equipped with oil and casing thread gauges of various specifications, American standard thread gauges and other specialized testing tools. We have built a multi function testing lab. The lab can perform inspection and functional testing for completion tools.

我们必须做得更好  
ALWAYS DO BETTER



Completion Tools Upfirst Series  
完井工具生产管柱系列



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ALWAYS DO BETTER



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液压解封可回收式过电缆封隔器	06	Hydraulic-Release ESP Packer
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流动短节	16	Flow Coupling
Y型接头	17	Y-Block
Y型接头工作筒	18	Seal Nipple for Y-Block
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伸缩节	22	Travel Joint
旋转接头	24	Swivel Joint
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引鞋	25	Mule Shoe

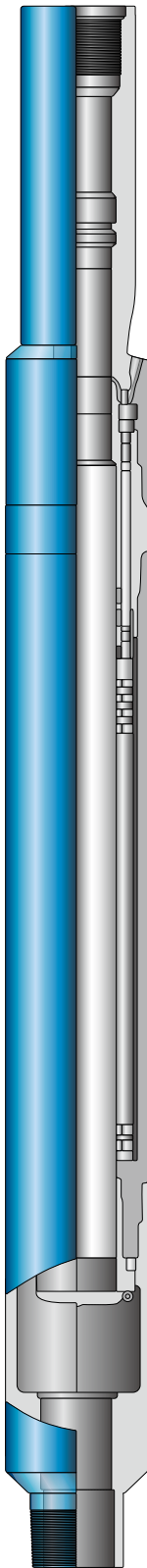
井下安全阀

产品说明：  
井下安全阀是一种地面控制的油管携带式井下安全阀，安全阀直接连接在油管管柱上。液压控制管线从安全阀接通到地面，地面控制柜加压使安全阀保持打开状态；当地面压力泄掉时，安全阀阀板闭合，关闭油管通道。

- 主要特性：
- 包含自平衡与非自平衡两种结构形式；
  - 安全阀上端含标准锁定、密封结构；
  - 密封腔体采用金属对金属硬密封结构，保证长期密封可靠；
  - 上下连接扣型可以根据客户要求提供对应规格的各种气密扣。

主要参数：

油管规格		最大外径		密封筒尺寸		工作压力		温度等级	
in		in	mm	in	mm	psi	Mpa	℉	℃
2 3/8		3.625	92.1	1.875	47.6	5000	34.5	300	149
2 3/8		3.625	92.1	1.875	47.6	10000	69.0	300	149
2 7/8		4.625	117.5	2.312	58.7	5000	34.5	300	149
2 7/8		5.135	130.4	2.312	58.7	10000	69.0	300	149
3 1/2		5.38	136.7	2.812	71.4	5000	34.5	300	149
3 1/2		5.65	143.5	2.812	71.4	10000	69.0	300	149
4 1/2		5.125	130.2	3.812	96.8	5000	34.5	300	149
4 1/2		7.5	190.5	3.812	96.8	10000	69.0	300	149
5 1/2		8.375	212.7	4.562	115.9	5000	34.5	300	149
5 1/2		8.375	212.7	4.562	115.9	10000	69.0	300	149



Subsurface Safety Valve

Introduction  
Subsurface Safety Valve is a kind of tubing retrievable safety valve which is controlled at surface. It directly connects to the tubing string. There is a hydraulic control line connecting to the safety valve from ground. While certain amout of pressure is supplied through this control line to the safety valve, the valve remains open; while the pressure is released, the safety valve will close and the tubing pass is closed at the same time.

- Features/ Benefits
- The flapper has pressure equalizing type and non-pressure equalizing type
  - Locking and sealing structure are designed at the upper side
  - It is highly reliable to use metal to metal sealing style in the sealing chamber
  - The upper and bottom thread can be adjusted according to clients' requirements

Specifications

Demension		Max OD		Sealing Bore		Working pressure		Temp resistance	
in		in	mm	in	mm	psi	Mpa	℉	℃
2 3/8		3.625	92.1	1.875	47.6	5000	34.5	300	149
2 3/8		3.625	92.1	1.875	47.6	10000	69.0	300	149
2 7/8		4.625	117.5	2.312	58.7	5000	34.5	300	149
2 7/8		5.135	130.4	2.312	58.7	10000	69.0	300	149
3 1/2		5.38	136.7	2.812	71.4	5000	34.5	300	149
3 1/2		5.65	143.5	2.812	71.4	10000	69.0	300	149
4 1/2		5.125	130.2	3.812	96.8	5000	34.5	300	149
4 1/2		7.5	190.5	3.812	96.8	10000	69.0	300	149
5 1/2		8.375	212.7	4.562	115.9	5000	34.5	300	149
5 1/2		8.375	212.7	4.562	115.9	10000	69.0	300	149



可回收式过电缆封隔器

产品说明:

PR-ESP过电缆封隔器主要用于电潜泵完井, 该封隔器是双管串、单行程、液压坐封可回收式封隔器。

封隔器坐封锁定机构采用带弹簧载荷的内卡瓦。下部机械式外卡瓦能够使封隔器保持坐封状态, 并能承受向上和向下的作用力。密封胶筒能保证封隔器在高压或者低压状态下以及不规则套管内完好坐封。通过上提油管可使封隔器解封并回收。

主要优点:

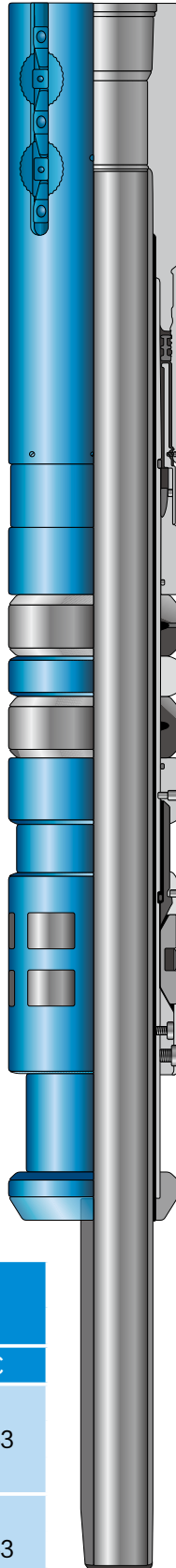
- 坐封压力低;
- 直拉油管解封;
- 允许调整剪切销钉的数量调整坐封压力和解封力;
- 允许现场调整解封力;
- 有效降低电潜泵完井的费用。

应用:

- 用于电潜泵完井。

主要特性:

- 顶部通过螺纹连接电缆密封穿越器;
- 其余通孔可以连接放气阀、化学注入管线、液压控制管线以及井下监视系统;
- 由双重密封胶筒组成的密封系统适用于不规则套管和低压状态;
- 经过表面热处理的双向卡瓦可使封隔器承受向上或向下的作用力;
- 上部具有压力启动的水力锚可使封隔器承受来自井下的压差;
- 座封压力2500psi-3000psi;
- 解封力可通过剪切销钉调节。



主要参数:

套管			最大外径		压力等级		温度等级	
规格		磅级						
in	mm	lb/ft	in	mm	psi	MPa	°F	°C
9 5/8	244.5	36-40	8.59	218.19	3000	20.7	325	163
		40-47	8.50	215.90				
		47-53.5	8.26	209.80				
7	177.8	23-26	6.10	154.94	3000	20.7	325	163
		26-29	6.00	152.40				
		29-32	5.94	150.88				

Pull-Release ESP Packers

Introduction

PR-ESP Electric Submersible Pump Packer is designed to be run with Electric Submersible Pumps. It is a double-string, single-trip, upper single-bore, hydraulic-set retrievable packer.

The PR-ESP Parker's lock-set uses spring-loaded internal slip. A lower set of mechanical slips holds the packer set against downward forces and upward forces. The double-seal element is designed to maintain a seal against high and low pressures. The packers are released and retrieved by a straight upward pull on the tubing string.

Benefits

- Low pressure set
- Requires only straight pull to release
- Allows varied setting pressure with varied numbers of shear screws
- Allows adjustment of pull-to-release in the field
- Efficiently reduce the overall costs of submersible pump completions

Applications

- In shallow or in deviated wellbores requiring electric submersible pump

Features

- A pack-off power cable feed-through system is provided with thread connections
- Additional bores for venting of annular pressure, chemical-injection lines, control lines, and well-monitoring devices through the packer
- Double-seal elements have the same or different hardness
- Case carburized bi-directional slips anchor the packer against well pressure from above or below
- An upper set of pressure-actuated button slips holds the packer set against differential pressure from below
- Setting pressure range: 2500psi-3000psi
- Shear screws allow operator to vary the release force

Specifications

Casing			Max. OD		Pressure Rating		Temperature Rating	
Size		Weight						
in	mm	lb/ft	in	mm	psi	MPa	°F	°C
9 5/8	244.5	36-40	8.59	218.19	3000	20.7	325	163
		40-47	8.50	215.90				
		47-53.5	8.26	209.80				
7	177.8	23-26	6.10	154.94	3000	20.7	325	163
		26-29	6.00	152.40				
		29-32	5.94	150.88				

◎ 液压解封可回收式过电缆封隔器

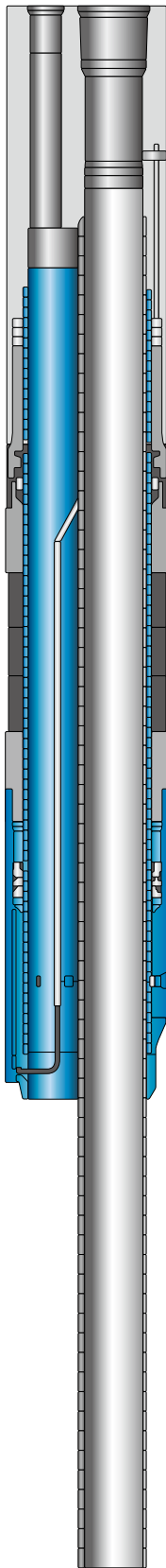
产品说明：  
HR-ESP过电缆封隔器是一种液压坐封、液压解封的可回收生产型封隔器，主要应用于需要在封隔器下部安装电潜泵的完井。该封隔器无座封卡瓦，通过油管打压座封，液压管线打压解封。封隔器含有一个旁通孔并通过密封元件以使电缆穿过封隔器，为电潜泵提供动力。这种封隔器既可以与扁式电缆配合使用，也可与圆式电缆配合。封隔器上预留多个孔，可用于安装化学注入管线、放气阀和解封控制管线等。

- 主要特性：
- 封隔器主体可选择用于单电缆的或双电缆的；
  - 可以联接电缆穿越总成、放气阀、化学注入管线、液压控制管线以及井下监视系统；
  - 由胶筒组成的密封系统适用于不规则套管和低压状态；（有两种胶筒密封系统，可互换）
  - 上部具有压力启动的水力锚可使封隔器承受来自井下的压差；
  - 通过液压管线打压解封；
  - 解封压力可通过剪切销钉进行调整。

- 应用：
- 液压解封过电缆封隔器；
  - 用于电潜泵完井。

主要参数：

套管			最大外径		坐封压力		解封压力		压力等级		温度等级	
尺寸		磅级										
in	mm	lb/ft	in	mm	psi	MPa	psi	MPa	psi	MPa	°F	°C
9 5/8	244.5	36-40	8.59	218.19	2500	17.2	4100	28.3	3000	20.7	325	163
		40-47	8.5	215.9								
		47-53.5	8.26	209.8								
		26-29	6	152.4								
		29-32	5.94	150.88								



◎ Hydraulic-Release ESP Packers

Instruction  
HR-ESP Electric Submersible Pump Packer is designed to be run with Electric Submersible Pumps. It is a double-string, single-trip, upper single-bore, hydraulic-set hydraulic retrievable packer.  
The HR-ESP Parker’s lock-set uses spring-loaded internal slip. A lower set of mechanical slips holds the packer set against downward forces and upward forces. The double-seal element is designed to maintain a seal against high and low pressures. The packer is released by the pressure of control line at surface.

- Features
- A pack-off power cable feed-through system is provided with thread connections
  - Additional bores for venting of annular pressure , chemical-injection lines, control lines, and well-monitoring devices through the packer
  - Double-seal elements have the same or different hardness
  - An upper set of pressure-actuated button slips holds the packer set against differential pressure from below
  - Released by the pressure of control line
  - Shear screws allow operator to vary the release pressure

- Applications
- Hydraulic retrievable Electric Submersible Pump Packer
  - In shallow or in deviated wellbores requiring electric submersible pump

Specifications

Casing			Max. OD		Setting Pressure		Release Pressure		Pressure Rating		Temperature Rating	
Size		Weight										
in	mm	lb/ft	in	mm	psi	MPa	psi	MPa	psi	MPa	°F	°C
9 5/8	244.5	36-40	8.59	218.19	2500	17.2	4100	28.3	3000	20.7	325	163
		40-47	8.5	215.9								
		47-53.5	8.26	209.8								
		26-29	6	152.4								
		29-32	5.94	150.88								

◎ 可回收生产封隔器

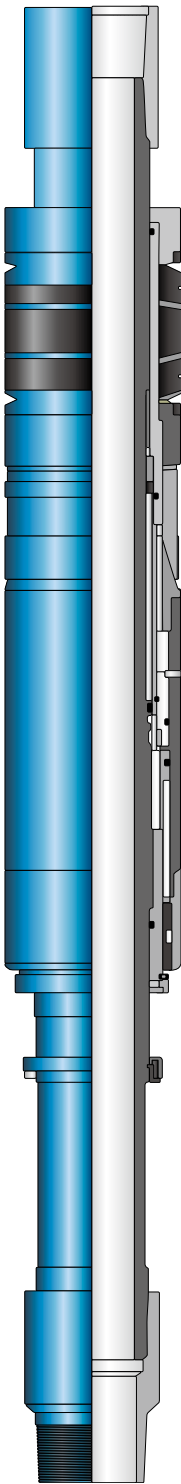
产品说明:

可回收生产封隔器是一种生产井用液压坐封封隔器，它是通过油管加压的形式挤压胶筒实现油套环空密封，同时双向卡瓦撑开锚定到套管上，保证密封的可靠性。采用上提管柱的方式解封。

- 主要特性:
- 解封拉力范围：2万磅-5万磅；
  - 胶筒材料：氢化丁腈橡胶、四丙氟橡胶（AFLAS）；
  - 本体材料：4140、13Cr等，根据客户要求选用；
  - 最大座封压力2500psi；
  - 上下连接扣型可以根据客户要求选用各种规格的油管扣和气密扣螺纹。

主要参数:

套管规格	套管磅级	通径		外径		螺纹 (EUE)	压力等级 (psi)
		in	mm	in	mm		
5 1/2	15.5-23	1.93	49	4.5	114.3	2 3/8	6000
		2.373	60.3			2 7/8	
7	23-26	2.92	74.2	6.08	154.5	3 1/2	5000/7500
		2.373	60.3			2 7/8	
		1.93	49			2 3/8	
	23-32	2.92	74.2	5.91	150.1	3 1/2	
		2.373	60.3			2 7/8	
		1.93	49			2 3/8	
9 5/8	40-53.5	1.93	49	8.31	211.1	2 3/8	5000/7500
		2.373	60.3			2 7/8	
		2.92	74.2			3 1/2	
		3.894	98.9			4 1/2	



◎ Retrivable Production Packer

Introduction

PK Series Production Packer is hydraulic-set packer employed in production well. It seals the tubing-casing annulus by seal elements,at the same time the bi-directional slips will expand and anchor against inter face of casing. The packer is released by pulling the string.

- Features/Benefits
- Range of release force: 20000lb-50000lb
  - Seal elements material: hydrogenated nitrile-butadiene rubber and AFLAS
  - Material: 4140、13Cr,etc. according to customer requirement
  - Maximum setting pressure is 2500psi
  - The connection threads are available on request

Specifications

casing size	casing class	full bore		OD		thread (EUE)	testing pressure(psi)
		in	mm	in	mm		
5 1/2	15.5-23	1.93	49	4.5	114.3	2 3/8	6000
		2.373	60.3			2 7/8	
7	23-26	2.92	74.2	6.08	154.5	3 1/2	5000/7500
		2.373	60.3			2 7/8	
		1.93	49			2 3/8	
	23-32	2.92	74.2	5.91	150.1	3 1/2	
		2.373	60.3			2 7/8	
		1.93	49			2 3/8	
9 5/8	40-53.5	1.93	49	8.31	211.1	2 3/8	5000/7500
		2.373	60.3			2 7/8	
		2.92	74.2			3 1/2	
		3.894	98.9			4 1/2	



◎ 放气阀

产品说明:

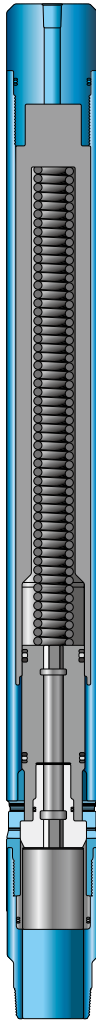
放气阀安装于过电缆封隔器上，通过螺纹与封隔器相连。通过液控管线由地面实现控制功能，在液控管线内加压使阀打开，积聚在封隔器下面的气体就会排放到环空内。释放管线内的压力，阀就会回到通常的关闭状态。

主要特性:

- 通过液控管线压力进行控制；
- 金属对金属密封可靠，寿命长；
- 过流面积大；
- 通过排气使电潜泵保持最佳的液面。

主要参数:

规格		过流面积		压力等级		最大外径		螺纹扣型
in	mm	in <sup>2</sup>	mm <sup>2</sup>	psi	MPa	in	mm	
1	25.4	0.7854	506.71	5000	34.5	1.575	40.01	1 NPT P × 1/4 NPT B
1 1/2	38.1	1.7670	1140.00	5000	34.5	2.200	55.88	1 1/2 NPT P × 1/4 NPT B
1.9	48.26	1.767	1140.00	5000	34.5	1.931	49.05	1.9PAI-NU P × 1/4 NPT B



◎ Gas Vent Valve

Introduction

Gas Vent Valve is designed to be installed above the ESP packer, connected to one of the ports in the packer with thread. It is a control line actuated valve from surface. When control line pressure is applied, the valve opens to allow annulus gas which has accumulated below the packer to vent up to the annulus; when control line pressure is released, the valve returns to the normally closed position.

Features/Benefits

- Controlled by hydraulic control-line pressure
- Sealing reliable and long service life
- Large flow area
- Venting the gas to maintain optimum fluid levels for the ESP

Specifications

Size		Flow Area		Pressure Rating		Max. OD		Connection Thread
in	mm	in <sup>2</sup>	mm <sup>2</sup>	psi	MPa	in	mm	
1	25.4	0.7854	506.71	5000	34.5	1.575	40.01	1 NPT P×1/4 NPT B
1 1/2	38.1	1.7670	1140.00	5000	34.5	2.200	55.88	1 1/2 NPT P×1/4 NPT B
1.9	48.26	1.767	1140.00	5000	34.5	1.931	49.05	1.9API-NU P×1/4 NPT B

◎ 电缆密封总成

产品说明:

电缆密封总成安装于过电缆封隔器上部，实现电缆在过电缆封隔器两端的穿越和密封。电缆由胶筒包裹穿越电缆密封总成内部，通过机械扭矩把上部短节和下部短节拧紧到中间的密封短节上，使密封胶筒压缩，实现密封功能。安装过程中，拧紧程度由操作者决定，而不是止动台肩止动。为了保证电缆与胶筒之间的有效密封，选择一个合适的扭紧力矩是非常重要的。

主要特性:

- 压缩式弹性密封；
- 多胶筒密封结构，密封可靠；
- 密封件和电缆型号相匹配，适用于圆电缆和扁电缆；
- 机械扭矩决定密封效果，扭矩值应控制在200ft-lb左右。

主要优点:

- 结构简单；
- 尺寸较小；
- 多层密封，密封效果好。

主要参数:

规格		过流面积		压力等级		最大外径		螺纹扣型
in	mm	in <sup>2</sup>	mm <sup>2</sup>	psi	MPa	in	mm	
2 3/8	60.33	1	25.4	1500	10.3	2.62	66.55	2 3/8 API-NU PIN
1.9	48.26	1	25.4	1500	10.3	1.931	49.05	1.9 API-NU PIN

◎ Cable Pack-Off

Introduction

Cable Pack-Off Assembly is used with the ESP packer to provide a seal between the packer and the electric cable. The cable is installed through the secondary side of the ESP packer. The pack-off assembly makes up into the mandrel of the packer with the cable running through the inside. Packing located in the bottom sub and the packing sub seal around the cable by making up the bottom sub and the top sub into the packing sub. Note that the degree of make-up is a matter of individual judgment but not of metal shouldering out on metal. Make-up torque should be applied until a good pack-off between the cable and the elements is achieved.

Features

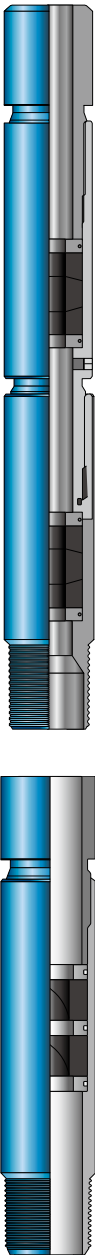
- Compression energized elastomeric seals
- Multi seal elements
- Seals on cable OD, designs available for round and flat cables
- Seal is energized mechanically with torque, and the torque value should be about 200ft-lb

Benefits

- Simple design
- Small size
- Redundant seals

Specifications

Size		Flow Area		Pressure Rating		Max. OD		Connection Thread
in	mm	in <sup>2</sup>	mm <sup>2</sup>	psi	MPa	in	mm	
2 3/8	60.33	1	25.4	1500	10.3	2.62	66.55	2 3/8 API-NU PIN
1.9	48.26	1	25.4	1500	10.3	1.931	49.05	1.9 API-NU PIN



◎ 坐落接头

产品说明:

CX和CXN型坐落短节随完井管柱下入井中，为井下流动控制工具提供精确的坐落位置，CX和CXN型坐落短节适用于标准磅级的油管。

完井时可根据需要，在管柱上以任意次序下入任意多个相同内径的坐落短节，这样就可以在管柱内提供任意多个位置来坐落和锁定井下流动控制工具。流动控制工具与配套的锁紧心轴通过钢丝携带的下入工具一起下入井中。

钢丝作业者选用相应的下入工具，可将流动控制工具坐落在预定深度某一个坐落短节上。如果这个坐落位置不合适或者井况发生了变化，可以通过钢丝作业将流动控制工具上提或下放到管柱内另外一个合适的坐落短节上，而且这个过程并不需要压井。

CXN型坐落短节用于使用单一坐落短节的情况，也可以用于CX型坐落短节串的最下部。对于同一规格的油管管柱，CXN型与CX型坐落短节内径相同。（N代表止动短节）

主要特性:

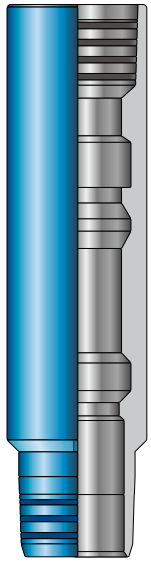
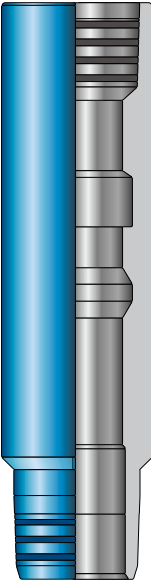
- 大内径，降低流动限制；
- 相同的内部剖面结构使短节更通用。

主要优点:

- 多功能性，可降低完井和生产维护成本；
- 操作简单；
- 下入、定位和回收井下流动控制工具的方式有多种选择。

应用:

- 悬挂测量工具，测井底温度、压力等；
- 几乎可以在任意位置坐落和锁定井下流动控制工具。



主要参数:

油管							标准规格油管					
							CX 型		CXN 型			
规格		磅级	内径		通径		密封筒		密封筒		NO-Go内径	
in	mm	lb/ft	in	mm	in	mm	in	mm	in	mm	in	mm
1.9	48.3	2.4	1.660	42.16	1.516	38.51	1.495	37.97	1.495	37.97	1.448	36.78
		2.76	1.610	40.89								
		2.9										
2 3/8	60.3	4.6	1.995	50.67	1.901	48.29	1.8725	47.56	1.8725	47.56	1.791	45.49
		4.7										
2 7/8	73.0	6.4	2.441	62.00	2.347	59.61	2.3125	58.74	2.3125	58.74	2.205	56.01
		6.5										
3 1/2	88.9	9.3	2.992	76.00	2.867	72.82	2.8125	71.44	2.8125	71.44	2.666	67.72
		10.2	2.922	74.22	2.797	71.04	2.745	69.72	2.745	69.72	2.635	66.93
4 1/2	114.3	12.75	3.958	100.53	3.833	97.36	3.8125	96.84	3.8125	96.84	3.725	94.62
5 1/2	139.7	17	4.892	124.26	4.767	121.08	4.5615	115.86	4.5615	115.86	4.455	113.16

◎ Landing Nipple

Introduction

CX and CXN landing nipples are run into the well on the completion tubing to provide a specific landing location for subsurface flow control equipment. These landing nipples are used in standard weight tubing.

The completion can have as many selective nipples with the same ID in any sequence as desired on the tubing string. This versatility results in an unlimited number of positions for setting and locking subsurface flow controls. The flow control, which is attached to the required lock mandrel, is run in the well via the selective running tool on slickline.

The slickline operator using the selective running tool can set the flow control in any one of the landing nipples at the desired depth. If this location is unsatisfactory or if well conditions change, the flow control may be moved up or down the tubing string to another nipple location. These operations can be done by slickline under pressure without killing the well.

The CXN landing nipple is designed for use in single nipple installations or as the bottom nipple in a series of CX landing nipples. These landing nipples have the same packing bore ID for a particular tubing size and weight. (The N designates no-go nipples)

Features

- Large bore for minimum restriction
- Universal nipple with one internal profile

Benefits

- Versatility helps reduce completion and production maintenance costs
- Simple operation
- Multiple options when running, setting, or retrieving subsurface flow controls

Applications

- Gauge hangers for bottom hole pressure/temperature surveys
- Almost unlimited locations for setting and locking subsurface flow controls

Specifications

Tubing							For Standard Tubing Weights					
							CX profile		CXN profile			
Size		Weight	ID		Drift		Packing bore		Packing bore		NO-Go ID	
in	mm	lb/ft	in	mm	in	mm	in	mm	in	mm	in	mm
1.9	48.3	2.4	1.660	42.16	1.516	38.51	1.495	37.97	1.495	37.97	1.448	36.78
		2.76	1.610	40.89								
		2.9										
2 3/8	60.3	4.6	1.995	50.67	1.901	48.29	1.8725	47.56	1.8725	47.56	1.791	45.49
		4.7										
2 7/8	73.0	6.4	2.441	62.00	2.347	59.61	2.3125	58.74	2.3125	58.74	2.205	56.01
		6.5										
3 1/2	88.9	9.3	2.992	76.00	2.867	72.82	2.8125	71.44	2.8125	71.44	2.666	67.72
		10.2	2.922	74.22	2.797	71.04	2.745	69.72	2.745	69.72	2.635	66.93
4 1/2	114.3	12.75	3.958	100.53	3.833	97.36	3.8125	96.84	3.8125	96.84	3.725	94.62
5 1/2	139.7	17	4.892	124.26	4.767	121.08	4.5615	115.86	4.5615	115.86	4.455	113.16



滑套

产品说明:

循环生产滑套是一种可以通过开关服务工具控制内滑套实现开、关功能的流量控制工具。三处弹性爪锁紧槽可让滑套处于全开、平衡或全关三种状态，当滑套在全开与全关位置转换时，内滑套上的平衡孔可以平衡油管与油套环空之间压力差。

通过滑套可以实现油管与油套环空的连通。在一根油管管柱中可以下入多个滑套，这些滑套能够通过一趟钢丝作业实现全开或全关，也可以根据需要进行选择性的开关某一滑套。

循环滑套的压缩强度、拉伸强度与抗内压强度均不低于N80级别的油管，也有强度不低于P110级别的滑套。

主要特性:

- 滑套的标准配置是CX坐落接头，也可以根据需要配置其它类型坐落接头；
- 非橡胶密封；
- 密封面光洁度高；
- 滑套循环/生产的过流面积与油管截面积相同；
- 向上/向下两种打开方式可选；
- 循环滑套开启/关闭转换后处于静密封状态；
- 三处弹性爪锁紧槽；
- 内滑套上的平衡孔可以平衡压力差。

主要优点:

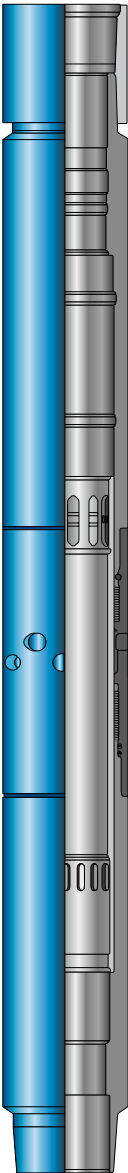
- 针对不同开关方向的两种滑套，可实现与其他完井工具的配合；
- 开关可靠；
- 平衡压差最高可达7500psi；
- 即使滑套外部充满砂石，内滑套依然可以顺利开启、关闭；
- 单管柱中可下入多个循环滑套；
- 滑套能够通过一趟钢丝作业实现全开或全关，也可以根据需要进行选择性的开关某一滑套；
- 内滑套可重复多次开启、关闭。

应用:

- 单管分层开采；
- 循环压井；
- 二次开采；
- 封隔器上部洗井。

主要参数:

油管规格		油管磅级	油管内径		油管通径		密封孔径		承压级别			
in	mm	lb/ft	in	mm	in	mm	in	mm	psi	MPa		
2 3/8	60.3	4.6	1.995	50.67	1.901	48.29	1.875	47.63	7500	51.7		
		4.7	1.995	50.67	1.901	48.29						
		5.3	1.939	49.25	1.845	46.86						
2 7/8	73.0	6.4	2.441	62.00	2.347	59.61	2.313	58.75				
		6.5	2.441	62.00	2.347	59.61						
		7.9	2.323	59.00	2.229	56.62						
3 1/2	88.9	9.3	2.992	76.00	2.867	72.82	2.813	71.45			5000	34.5
		10.3	2.992	76.00	2.797	71.04	2.750	69.85				
		12.95	2.750	69.85	2.625	66.68						
4	101.6	10.9	3.476	88.29	3.351	85.12	3.313	84.15				
		11	3.476	88.29	3.351	85.12						
		11.6	3.428	87.07	3.303	83.90						
4 1/2	114.3	12.75	3.958	100.53	3.833	97.36	3.813	96.85				
		13.5	3.920	99.57	3.795	96.39						
		15.5	3.826	97.18	3.701	94.01						



Sliding Sleeve

Introduction

Sliding Sleeve is a full-opening device with an inner sleeve that can be opened or closed using standard slickline methods. A three-position collet lock helps keep the sleeve in full-open, equalizing, or full-closed position. Equalizing ports in the inner sleeve are designed to allow pressure differential between the tubing and casing annulus to equalize while shifting into the full-open or closed position. This sleeve enables communication between the tubing and tubing/casing annulus. Any number of circulation equipment pieces can be run in a single tubing string, and all can be opened or closed on a single slickline trip. Individual sleeves can also be opened or closed selectively as needed.

Compression, tensile, and burst strengths of circulation equipment are equal to or greater than N-80 tubing. Models are also available in strengths equal to or greater than P-110 tubing.

Features

- CX nipple profile profile is standard, other profiles available on request
- Non-elastomer seals
- Polished pack off area
- Circulation/production area equals the tubing area

- Opens up or down
- Packing does not move when the sleeve is shifted
- Three-position collet lock
- Equalizing ports in the inner sleeve allow equalizing at high differential pressure

Benefits

- Two versions for different shifting needs and compatibility with other completion equipment
- Reliable shifting for the life of the well
- Can equalize against 7,500psi differentials
- Sleeve can be shifted even when outside of sleeve is packed with sand
- Several pieces of equipment can be run in a single tubing string
- All the pieces of equipment can be shifted on a single trip of the slickline, and individual sleeves can also be opened or closed selectively as desired
- Inner sleeve can be shifted repeatedly

Applications

- Single selective completions
- Circulating kill fluids
- Secondary recovery
- Washing above packer

Specifications

Tubing Size		Tubing Weight	Tubing ID		Tubing Drift		Seal Bore		Pressure			
in	mm	lb/ft	in	mm	in	mm	in	mm	psi	MPa		
2 3/8	60.3	4.6	1.995	50.67	1.901	48.29	1.875	47.63	7500	51.7		
		4.7	1.995	50.67	1.901	48.29						
		5.3	1.939	49.25	1.845	46.86						
2 7/8	73.0	6.4	2.441	62.00	2.347	59.61	2.313	58.75				
		6.5	2.441	62.00	2.347	59.61						
		7.9	2.323	59.00	2.229	56.62						
3 1/2	88.9	9.3	2.992	76.00	2.867	72.82	2.813	71.45				
		10.3	2.992	76.00	2.797	71.04	2.750	69.85				
		12.95	2.750	69.85	2.625	66.68						
4	101.6	10.9	3.476	88.29	3.351	85.12	3.313	84.15	5000	34.5		
		11	3.476	88.29	3.351	85.12						
		11.6	3.428	87.07	3.303	83.90						
4 1/2	114.3	12.75	3.958	100.53	3.833	97.36	3.813	96.85				
		13.5	3.920	99.57	3.795	96.39						
		15.5	3.826	97.18	3.701	94.01						

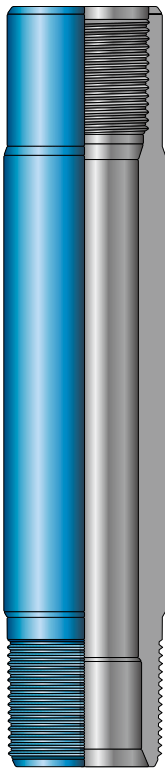
◎ 流动短节

产品说明：  
流动短节是一种厚壁管，用于完井管柱内管串内径发生变化的位置及射孔段位置，厚壁可以抵御携带磨蚀固体颗粒的地层流体的冲蚀。流动短节结构简单，外径与油管接箍相同。

- 主要特性：
- 应用：
- 有多种不同长度及材料。
  - 射孔段位置；
  - 油管内径发生变化的位置。

主要参数：

尺寸		磅级	最大外径		通径	
in	mm	lb/ft	in	mm	in	mm
2.375	60.3	4.6	3.063	77.80	1.995	50.67
2.875	73.0	6.5	3.668	93.17	2.441	62.00
3.500	88.9	9.3	4.500	114.30	2.992	76.00
4.500	114.3	12.8	5.563	141.30	3.833	97.36
5.500	139.7	17.0	6.050	153.67	4.767	121.08
7.000	177.8	26.0	7.875	200.03	6.151	156.24



◎ Flow Coupling

Introduction  
Flow Coupling are thick-walled tubular components normally utilized in completions and located adjacent to changes in the tubing ID or across from perforations. Flow Coupling has the same OD with coupling. The thick walls of this tube resist the erosive blast of fluid from the formation, which often carries abrasive solid particles.

- Features
- Applications
- Available in various lengths and materials
  - Placement across from perforations
  - Placement adjacent to changes in the tubing ID

Specifications

Size		Weight	Max. OD		Drift Diameter	
in	mm	lb/ft	in	mm	in	mm
2.375	60.3	4.6	3.063	77.80	1.995	50.67
2.875	73.0	6.5	3.668	93.17	2.441	62.00
3.500	88.9	9.3	4.500	114.30	2.992	76.00
4.500	114.3	12.8	5.563	141.30	3.833	97.36
5.500	139.7	17.0	6.050	153.67	4.767	121.08
7.000	177.8	26.0	7.875	200.03	6.151	156.24

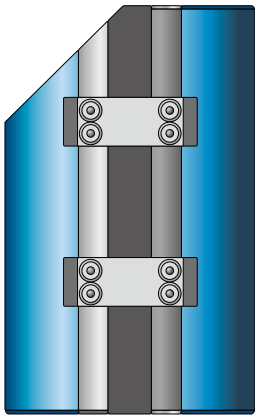
◎ Y型接头

产品说明：  
Y型接头主要应用于电潜泵完井管柱，其上部连接油管，下部分别与工作筒和电潜泵相连。Y型接头具有不低于N80钢级的抗拉和抗压强度，同时还具有抗腐蚀性能。

- 主要特性：
- 应用
- 较大的过流面积；
  - 直井，定向井及水平井；
  - 结构简单。
  - 单管分层开采。

主要参数：

规格		上部接箍	下部主接箍	下部次接箍	通径		工作压力	
in	mm	in	in	in	in	mm	psi	MPa
9 5/8	244.5	3 1/2 EU	3 1/2 EU	2 7/8 EU	2.9	73.66	5000	34.5
		3 1/2 NU	3 1/2 NU	3 1/2 NU				
		3 1/2 NEW VAM	3 1/2 NEW VAM	3 1/2 NEW VAM				
		3 1/2 FOX	3 1/2 FOX	2 7/8 FOX				
7	177.8	2 3/8 EU	2 3/8 EU	2 3/8 EU	1.9	48.26	5000	34.5
		2 7/8 NU	2 7/8 NU	2 3/8 NU	2.4	60.96		
		2 7/8 NEW VAM	2 7/8 NEW VAM	2 3/8 NEW VAM	2.4	60.96		



◎ Y-Block

Introduction  
Y-Block is designed to be run with Electric Submersible Pumps. It joints with tubing upside, the two ports on the lower side joint with a seal nipple and ESP discharge separately. Compression, tensile, and burst strengths of it are equal to or greater than N-80 tubing. And the Y-Block is corrosion-resistant.

- Features
- Applications
- Large flow area
  - Simple design
  - Vertical, deviated, or horizontal wellbores
  - Single string selective completion

Specifications

Size		Top Connection	Bottom Primary Connection	Bottom Second Connection	Drift Diameter		Working Pressure	
in	mm	in	in	in	in	mm	psi	MPa
9 5/8	244.5	3 1/2 EU	3 1/2 EU	2 7/8 EU	2.9	73.66	5000	34.5
		3 1/2 NU	3 1/2 NU	3 1/2 NU				
		3 1/2 NEW VAM	3 1/2 NEW VAM	3 1/2 NEW VAM				
		3 1/2 FOX	3 1/2 FOX	2 7/8 FOX				
7	177.8	2 3/8 EU	2 3/8 EU	2 3/8 EU	1.9	48.26	5000	34.5
		2 7/8 NU	2 7/8 NU	2 3/8 NU	2.4	60.96		
		2 7/8 NEW VAM	2 7/8 NEW VAM	2 3/8 NEW VAM	2.4	60.96		



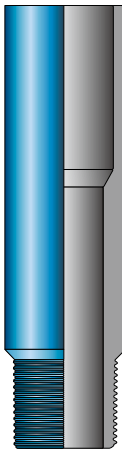
◎ Y型接头工作筒

产品说明：  
连接在Y型接头本体下部，用于生产堵塞器或者测试堵塞器的定位密封短节。

- 主要特性：
- 结构简单；
  - 标准API连接螺纹；
  - 密封面光洁度高。

主要参数：

规格		密封筒尺寸		最大外径		连接螺纹
in	mm	in	mm	in	mm	3 1/2API-EU PIN X 27/8API-EU PIN
2 3/8	60.33	2.375	60.33	3.75	95.25	



◎ Seal Nipple for Y-Block

**Introduction**  
Seal Nipple for Y-Block is designed to be run with Y-Block. It joints with a Y-Block upside.Seal Nipple for Y-Block is use for Seal-production Plug for Y-Block or Seal-testing Plug for Y-Block.

- Features**
- Simple design
  - Standard API thread
  - Lower friction, smooth operation

**Specifications**

size		Seal bore size		Max OD		Thread
in	mm	in	mm	in	mm	3 1/2API-EU PIN X 27/8API-EU PIN
2 3/8	60.33	2.375	60.33	3.75	95.25	

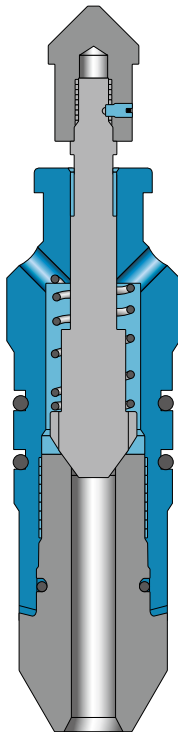
◎ Y型接头生产堵塞器

产品说明：  
投放于Y型接头工作筒内，是密封Y型接头本体以下潜油泵井生产/测试管柱的专用工具。

- 主要特性：
- 设计简单、紧凑；
  - 最优的可靠性和耐用性；
  - 打捞便利。

主要参数：

规格		最大外径		压力级别		配套打捞工具
in	mm	in	mm	psi	Mpa	2"SB
2 3/8	60.33	2.61	66.30	3500	24.14	



◎ Y-Plug

**Introduction**  
Y-Plug is designed to be run with Seal Nipple for Y-Block. It can block the channel under the Y-Block.

- Features**
- Simple,compact design
  - Optimum reliability and durability
  - Fishing convenience

**Specifications**

size		Max OD		Pressure rate		Fishing tool
in	mm	in	mm	psi	Mpa	2"SB
2 3/8	60.33	2.61	66.30	3500	24.14	

◎ 定位插入密封总成

产品说明:

一、定位密封总成:

定位密封总成是配有密封筒的封隔器的最基本的密封方式。定位密封总成随生产管柱下入井中，利用自身的止动台肩实现在封隔器顶部的定位。它可以同时实现一组或多组密封在封隔器密封筒中的定位，建立起封隔器和油管之间的密封。

◎ Locator Tubing Seal Assembly

Introduction

Locator Tubing Seal Assembly is the most basic packer sealing system for packers incorporating a sealing bore. It is run in the well on the production tubing string until its no-go shoulder "locator" on the top of the packer. This positions one or more seal stacks in the packer's seal bore and establishes a seal between the packer and tubing.

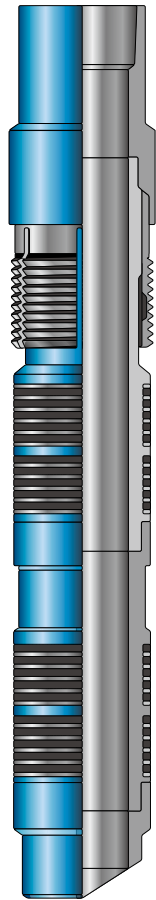
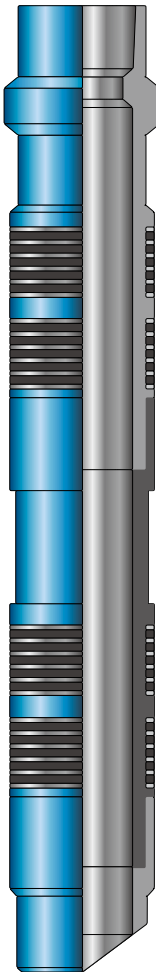
二、锚定密封总成

锚定密封总成随着生产管柱下入，下放定位后，锚定卡瓦上螺旋牙扣入封隔器顶部对应螺纹牙，扣入后锚定和油管就会定位。任何油管收缩引起拉力载荷会作用在管柱上，使用锚定密封总成时，必须小心确保不会使油管拉断，右旋10到12圈即可松开与封隔器的锚定。

◎ Snap Latch Tubing Anchor Seal Assembly

Introduction

Snap Latch Tubing Anchor Seal Assembly is used as an alternative to set-down weight which is desirable to land the tubing in tension. The Snap Latch Tubing Anchor Seal Assembly is run into the well on the production string. Set-down weight will cause the anchor's threaded latch to engage the corresponding threads in the top of the packer. Once engaged, the anchor and tubing are securely locked in place. Any tubing contraction will cause a tensile load to be applied to the tubing string. Care must be taken to ensure tensile forces development do not part the tubing whenever an anchor is used. To release the anchor, it must be rotated to the right by 10 to 12 turns at the packer.



主要参数:

密封尺寸		最大止动外径		内径		备注
in	mm	in	mm	in	mm	
3.250	82.55	3.60	91.44	1.995	50.67	可满足 所有连 接形式
3.500	88.90	3.85	97.79	2.441	62.00	
3.880	98.55	4.25	107.95	2.441	62.00	
4.000	101.60	4.40	111.76	2.441	62.00	
4.500	114.30	4.80	121.92	2.992	76.00	
4.750	120.65	5.10	129.54	3.548	90.12	
5.000	127.00	5.40	137.16	3.548	90.12	
5.500	139.70	5.85	148.59	4.276	108.61	
6.000	152.40	6.40	162.56	4.892	124.26	
6.500	165.10	6.85	173.99	4.892	124.26	

Specifications

Seal Bore Size		Maximum No-Go OD		ID		Remarks
in	mm	in	mm	in	mm	
3.250	82.55	3.60	91.44	1.995	50.67	C/W All kinds of connections
3.500	88.90	3.85	97.79	2.441	62.00	
3.880	98.55	4.25	107.95	2.441	62.00	
4.000	101.60	4.40	111.76	2.441	62.00	
4.500	114.30	4.80	121.92	2.992	76.00	
4.750	120.65	5.10	129.54	3.548	90.12	
5.000	127.00	5.40	137.16	3.548	90.12	
5.500	139.70	5.85	148.59	4.276	108.61	
6.000	152.40	6.40	162.56	4.892	124.26	
6.500	165.10	6.85	173.99	4.892	124.26	



◎ 伸缩节

产品说明:

伸缩节总成用于单管串完井和双管串完井。可用于生产井、注水井、处置井中以补偿油管的伸长或收缩变形。作为油管串的一部分，伸缩节总成可随油管串整体下入，其内径与标准油管相同，可兼容其他井下控制工具。当封隔器及相关设备就位后，伸缩节便可通过剪断剪切销钉或者是下入电缆工具启动。

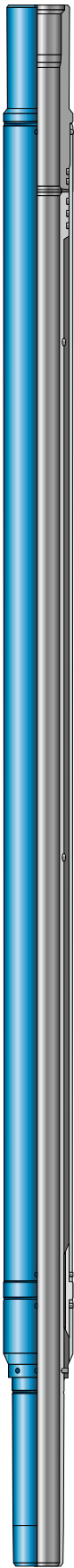
伸缩节的剪钉可以通过拉力或挤压力而剪切，可以在前期的完井作业中剪切也可以在后期达到预定位置时剪切。这种伸缩节可以在行程的任何位置销钉锁定，剪切值可以通过剪钉的数目调整。可补偿油管最大5ft的运动。

主要特性:

- 可补偿各种作业环境下油管的变形；
- 通过调整销钉数量种类来调整剪切值；
- 伸缩节包含三个锁定位置：开启位置、中心位置、闭合位置；
- 与标准规格油管有相同的通径。

主要参数:

规格		外径		内径		最大剪切值	行程	
in	mm	in	mm	in	mm	lbs	ft	m
2 7/8	73.0	4.300	109.22	2.370	60.20	40000	5.00	1.52
3 1/2	88.9	4.800	121.92	2.930	74.42			



◎ Travel Joint

Introduction

Travel joint is designed for use in both single and multiple string completions, and provide alternate methods of compensating for tubing contraction and elongation in producing, injection, and disposal wells. It is run as an integral part of the tubing string and have a full tubing drift ID that is compatible with other downhole control equipment. After packers and associated equipment are in place, travel joint may be activated. Depending on the application, travel joint may be activated by shear pins or standard wireline tools.

The travel joint may be sheared by tension or compression. They also may be sheared during initial completion operations or left in the pinned condition to be sheared at a predetermined value later. The travel joint can be pinned at any point in the stroke. The release value can be varied by the number of shear screws. The tool provides 5 ft of movement.

Features

- Compensating for tubing in various conditions
- Shear screws easily added or removed to adjust shear value
- Tool can be locked in open, mid-stroke, or closed positions
- ID of the tool is compatible with tubing ID

Specifications

Size		OD		ID		Max. Shear Value	Stroke	
in	mm	in	mm	in	mm	lbs	ft	m
2 7/8	73.0	4.300	109.22	2.370	60.20	40000	5.00	1.52
3 1/2	88.9	4.800	121.92	2.930	74.42			

◎ 旋转接头

产品说明：  
旋转式接头可用于单管串完井和双管串完井，在保持油管与环空隔离的同时可以进行连续的360度旋转。作为油管串的一部分，旋转接头可随油管串整体下入，其内径与标准油管相同，可兼容其他井下控制工具。旋转接头可以通过剪断剪切销钉启动。

- 主要特性：
- 可补偿各种作业环境下油管的转动；
  - 通过调整销钉数量种类来调整剪切值；
  - 与标准规格油管有相同的通径。

主要参数：

规格		外径		内径		最大剪切值
in	mm	in	mm	in	mm	lbs
2 7/8	73.0	4.300	109.22	2.370	60.20	40000
3 1/2	88.9	4.800	121.92	2.930	74.42	

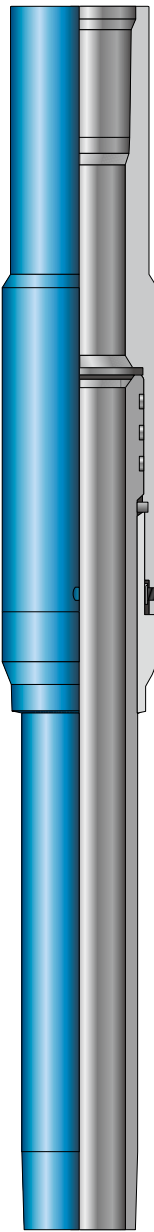
◎ Swivel Joint

Introduction  
Swivel Joint helps with spacing out between packers or near the surface designed for use in both single and multiple string completions, the joint offer continuous 360° rotation while isolating the tubing from the annulus. The swivel joint is run as an integral part of the tubing string and have a full tubing drift ID that is compatible with other downhole control equipment, and may be activated by shear pins

- Features
- Compensating for tubing swivel in various conditions
  - Shear screws easily added or removed to adjust shear value
  - ID of the tool is compatible with tubing ID

Specifications

Size		OD		ID		Max. Shear Value
in	mm	in	mm	in	mm	lbs
2 7/8	73.0	4.300	109.22	2.370	60.20	40000
3 1/2	88.9	4.800	121.92	2.930	74.42	



◎ 变扣接头

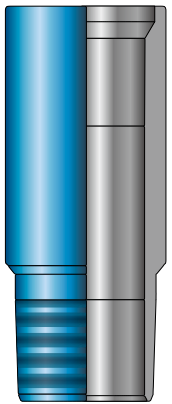
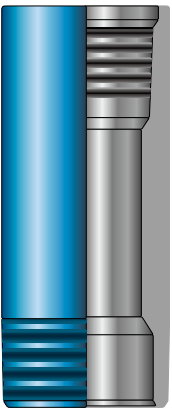
产品说明：  
变扣接头用于不同扣型及不同直径的油管或井下工具之间的连接。变扣接头的类型取决于需要连接的油管或井下工具的扣型。

- 主要优点：
- 连接扣型可根据客户要求选用各种规格的螺纹。

◎ Crossover Sub

Introduction  
Crossover Sub can connect the pipes or tools with different diameters and different threads in hole. Their types are determined by connections between pipes and pipes or between pipes and tools.

- Benefits
- Thread can be adjusted upon request.



◎ 引鞋

产品说明：  
引鞋的作用是连接在生产管柱最下端用来引导管柱顺利下到位置，起减小下入阻力的作用。

◎ Mule Shoe

Introduction  
The role of mule shoe is connected to the bottom of the production string for guiding to position the string smoothly, from the decrease in resistance of the effect

