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Anton Completion Technology

东方智慧 全球分享
Oriental wisdom , Global sharing

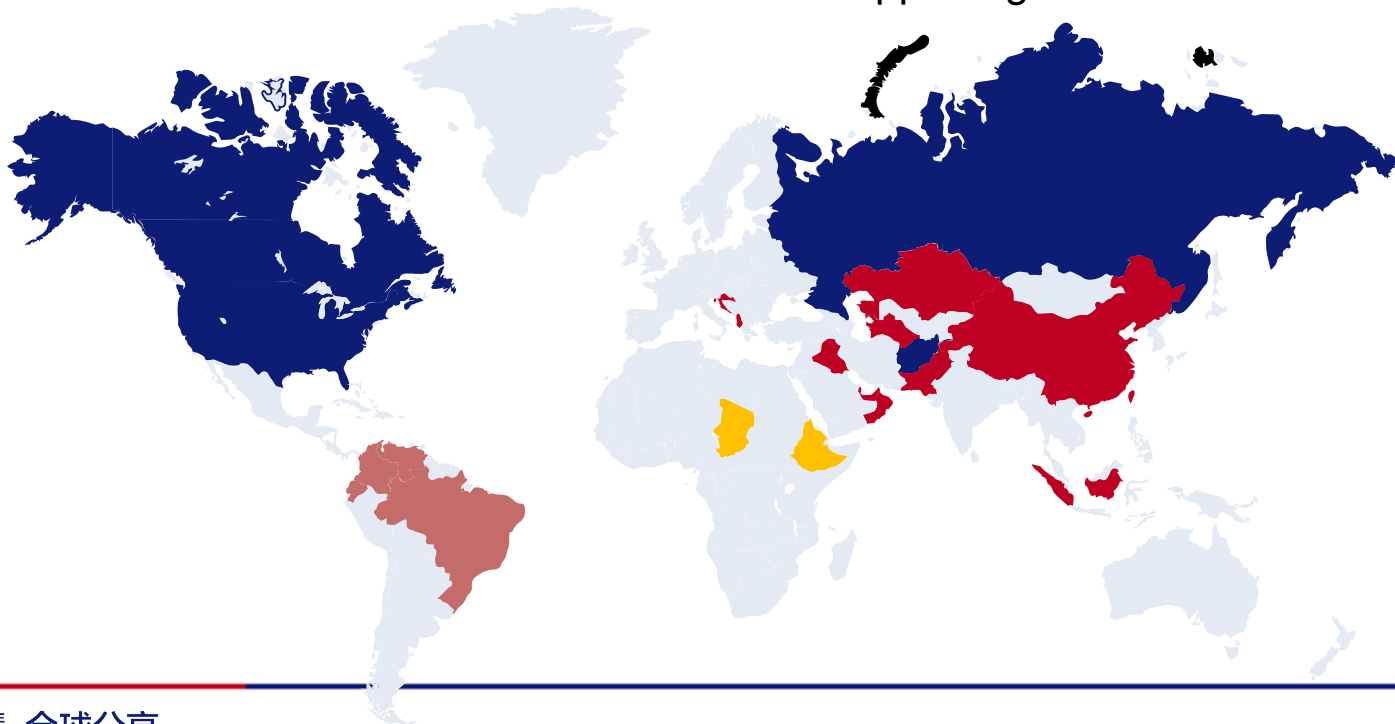
Contents

- 01** Completion Production Line
- 02** Completion Technology
- 03** Services Tools and Equipment
- 04** Global Clients

1. Completion Product Line

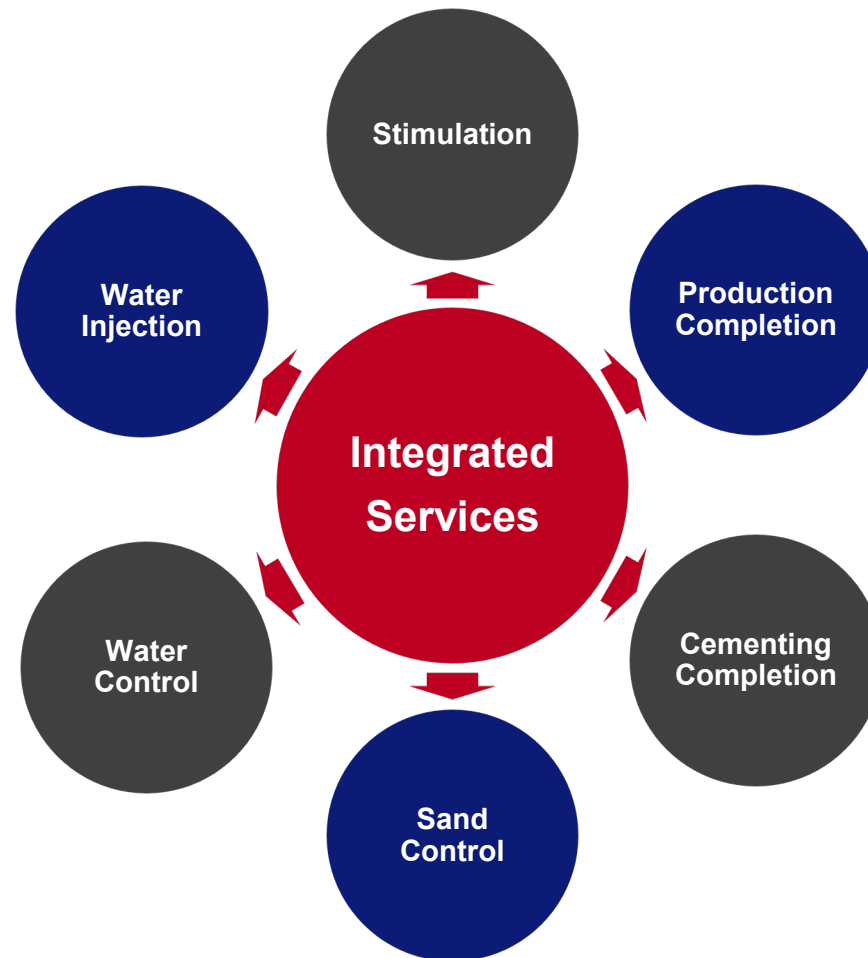
◆ Anton completion focuses on integrated service

- A leading completion service provider locally in China
- Also an excellent partner with other IOSC globally
- Completion services and productions business in 17 countries
- 9 international service bases and 300 members supporting field services



1. Completion Product Line

◆ Business Scope



1. Completion Production Line

◆ Services Capacity

Integrated completion design

Reservoir evaluation, engineering design, effect evaluation, simulation experimental.

Full-set down-hole tools

HTHP and Anti-corrosive completion tools, with 4 manufacture base in China.

Surface equipment

11set Coiled tubing units and 100,000 HHP pumping capacity.

Professional service group

7 Seiner experts and 60 engineers support global field operation, with 9 services bases globally.

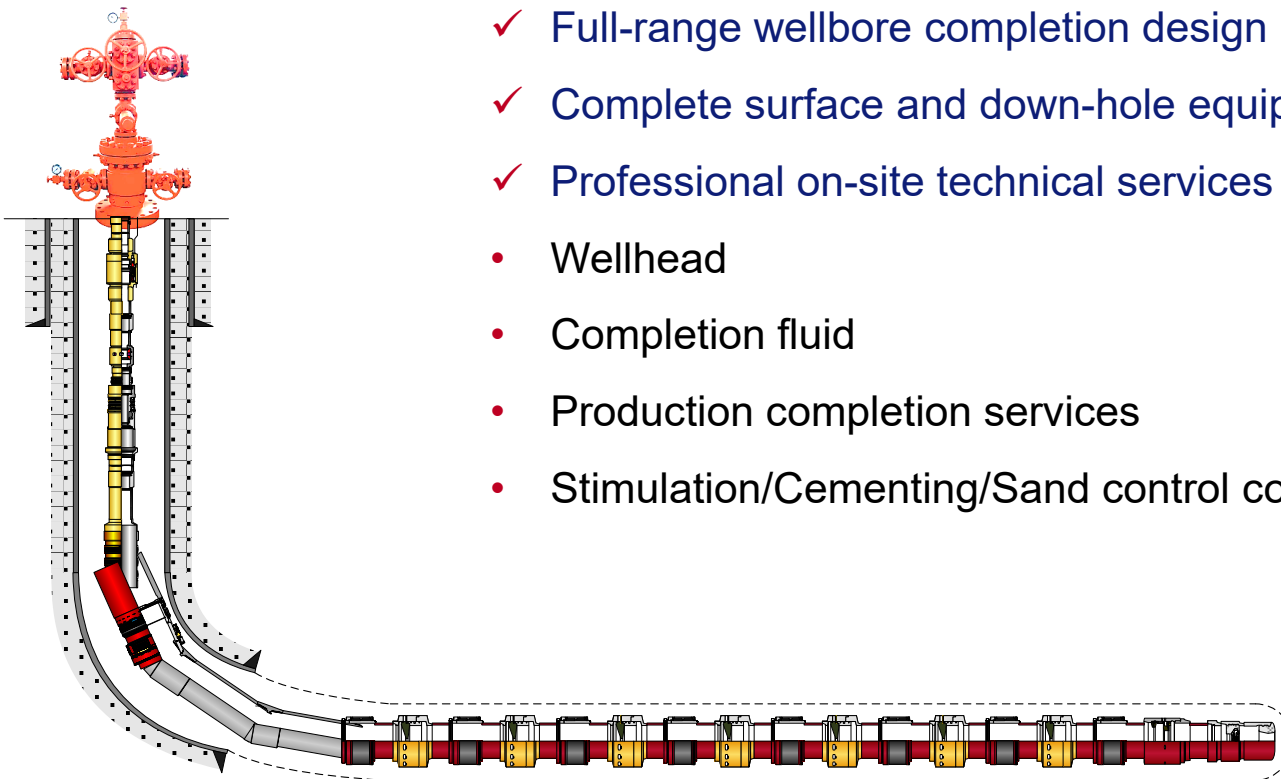
Contents

- | | |
|----|------------------------------|
| 01 | Completion Production Line |
| 02 | Completion Technology |
| 03 | Services Tools and Equipment |
| 04 | Global Clients |

◆ Anton provide characteristic completion technology

(1) Integrated completion solution

Integrated

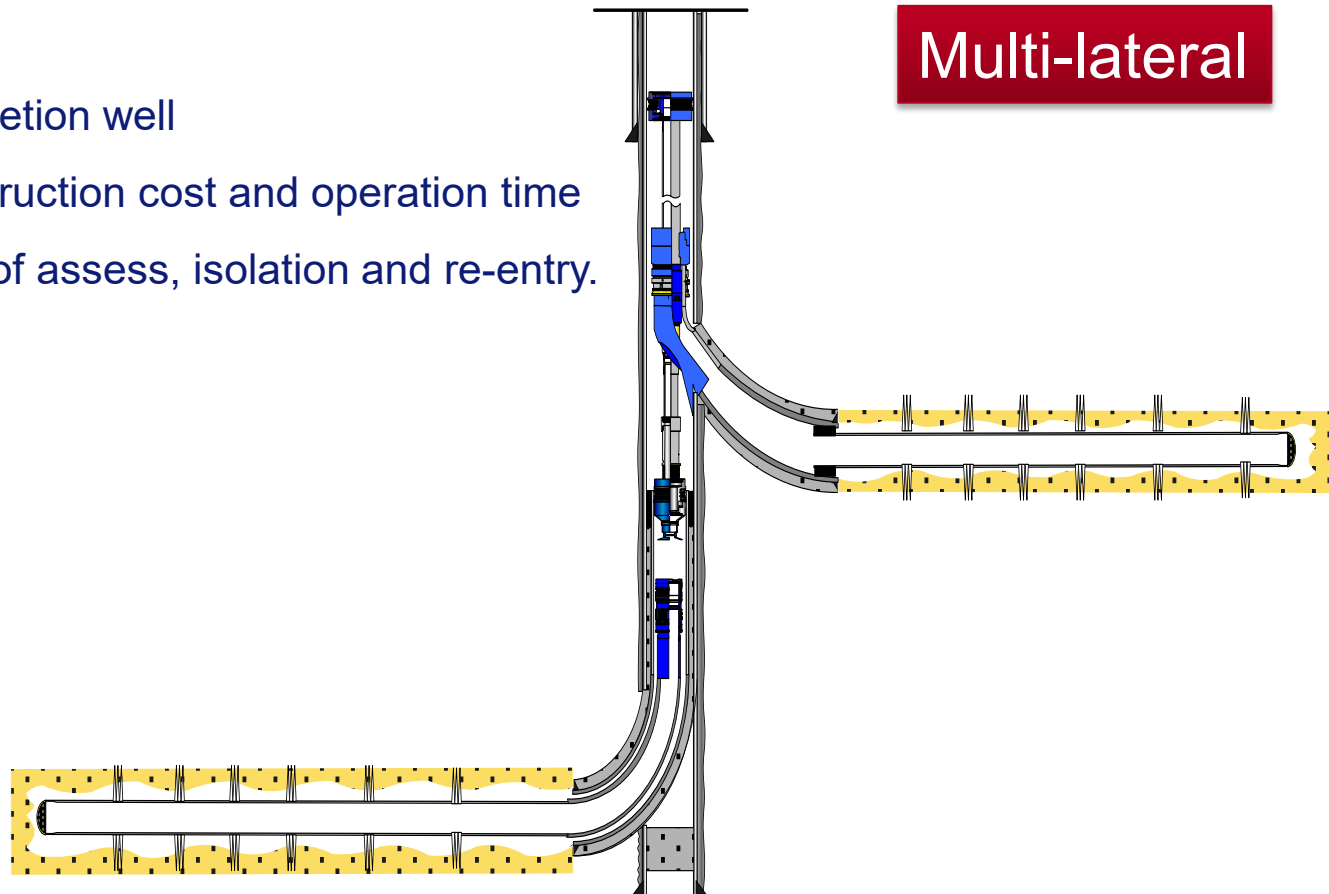


- ✓ Full-range wellbore completion design
- ✓ Complete surface and down-hole equipment
- ✓ Professional on-site technical services
 - Wellhead
 - Completion fluid
 - Production completion services
 - Stimulation/Cementing/Sand control completion services

2. Completion Technology

(1) Integrated completion solutions

- ✓ Multi-lateral completion well
- ✓ Reduce well construction cost and operation time
- ✓ Key technologies of assess, isolation and re-entry.



2. Completion Technology

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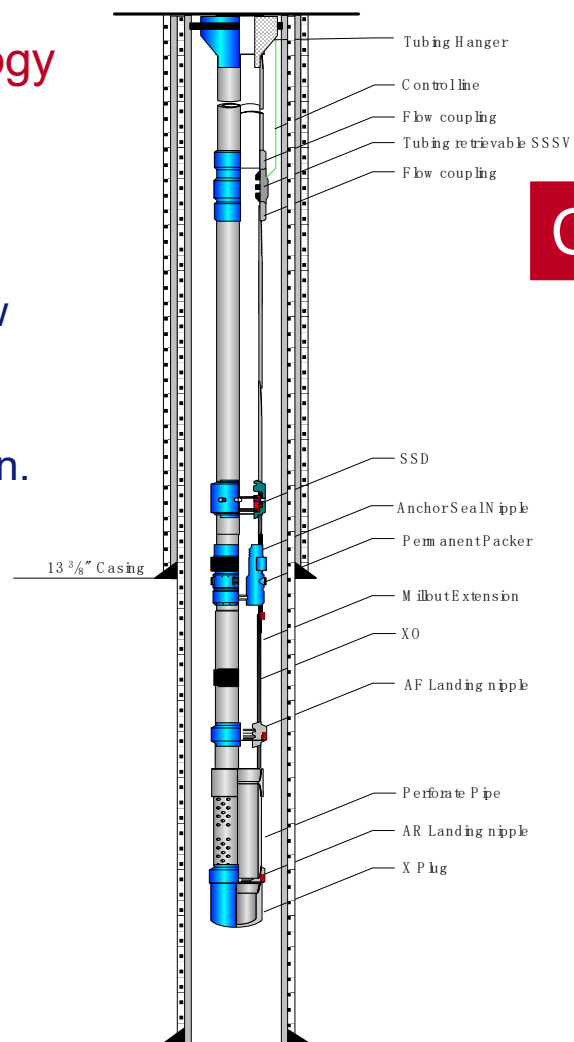
(2) Production completion technology

- ✓ HT/HP well or CO₂/H₂S gas well.
- ✓ Reliable safety valve systems, flow control systems, and packer systems secure a stable production.

150
°C

Max.
1500
0psi

Nicke
l
base
alloy

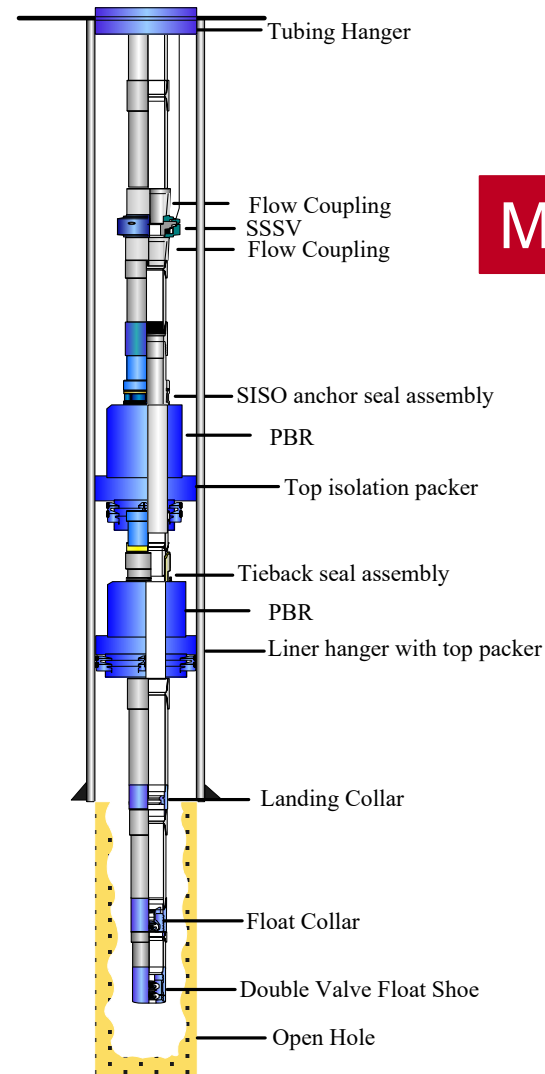


Complicated well

2. Completion Technology

(2) Production completion technology

- ✓ Using a permanent packer and PBR re-connection.
- ✓ Larger ID for higher pumping and production rates.
- ✓ One trip of completion system.



2. Completion Technology

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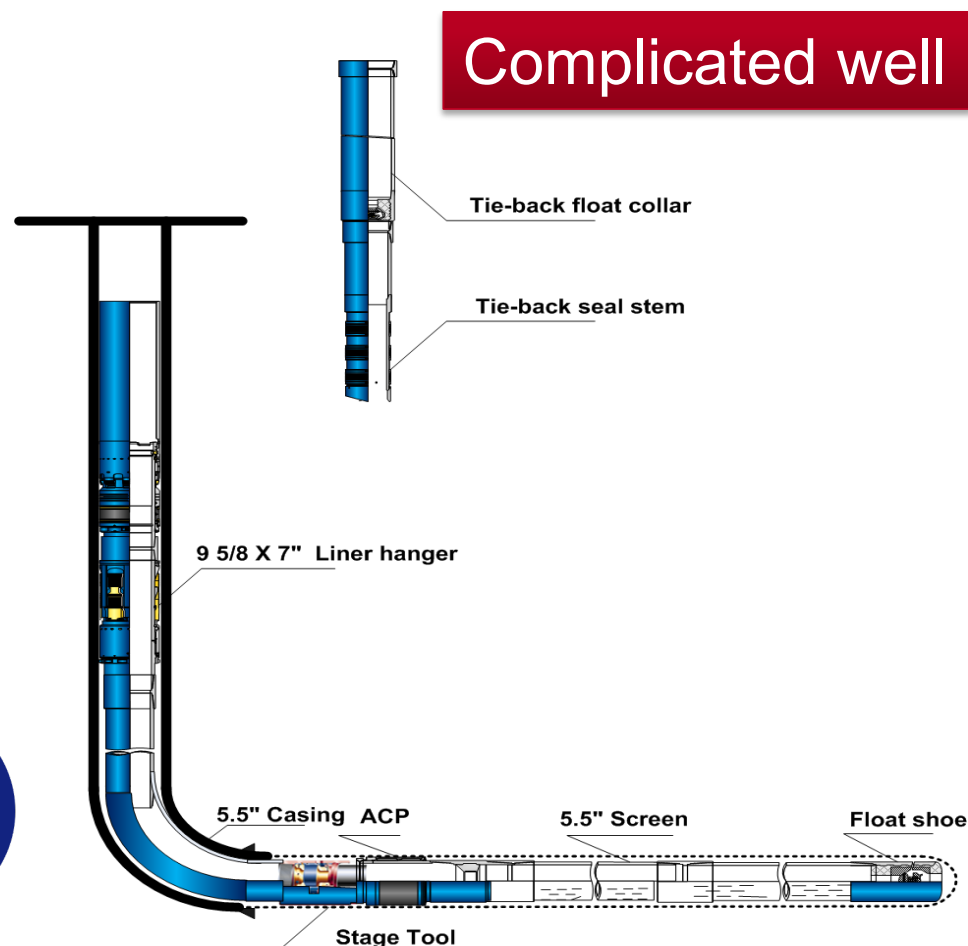
(3) Liner hanger technology

- ✓ CO₂ gas well or HTHP wells.
- ✓ Liner hanger & top packer system ensure cementing quality.
- ✓ High-pressure tie-back system provides reliable wellbore integration.

150
°C

1000
0psi

Tie
back

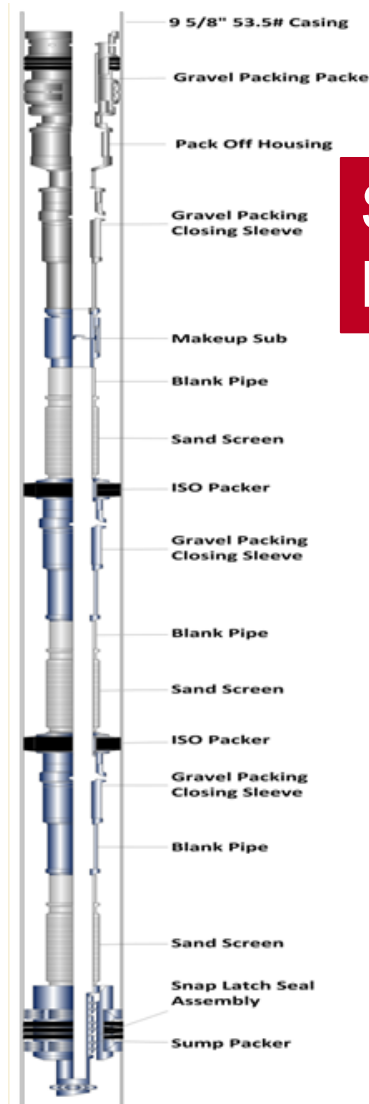


2. Completion Technology

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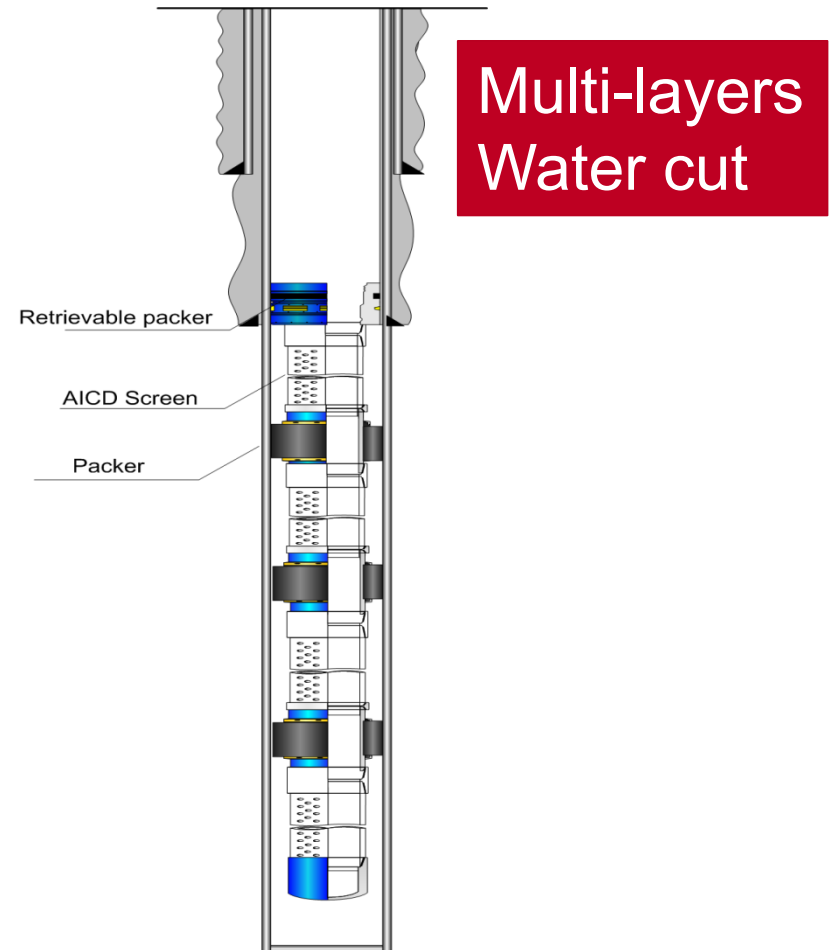
(4) Multi-layers gravel pack technology

- ✓ Single trip multi-layers system for fracturing or circle gravel packing.
- ✓ Unique dual seal system ensures independent operation.
- ✓ Unique self-alignment Weight Down design can easily locate the indication coupling.
- ✓ The large 3.88" inner production bore.



(5) Multi-layers AICD technology

- ✓ Automatic identification of oil and water production in isolation layers
- ✓ Control high water-cut
- ✓ Adjust the oil production contribution in multiple-layer reservoirs
- ✓ Integrate the sand control, water control with stimulation

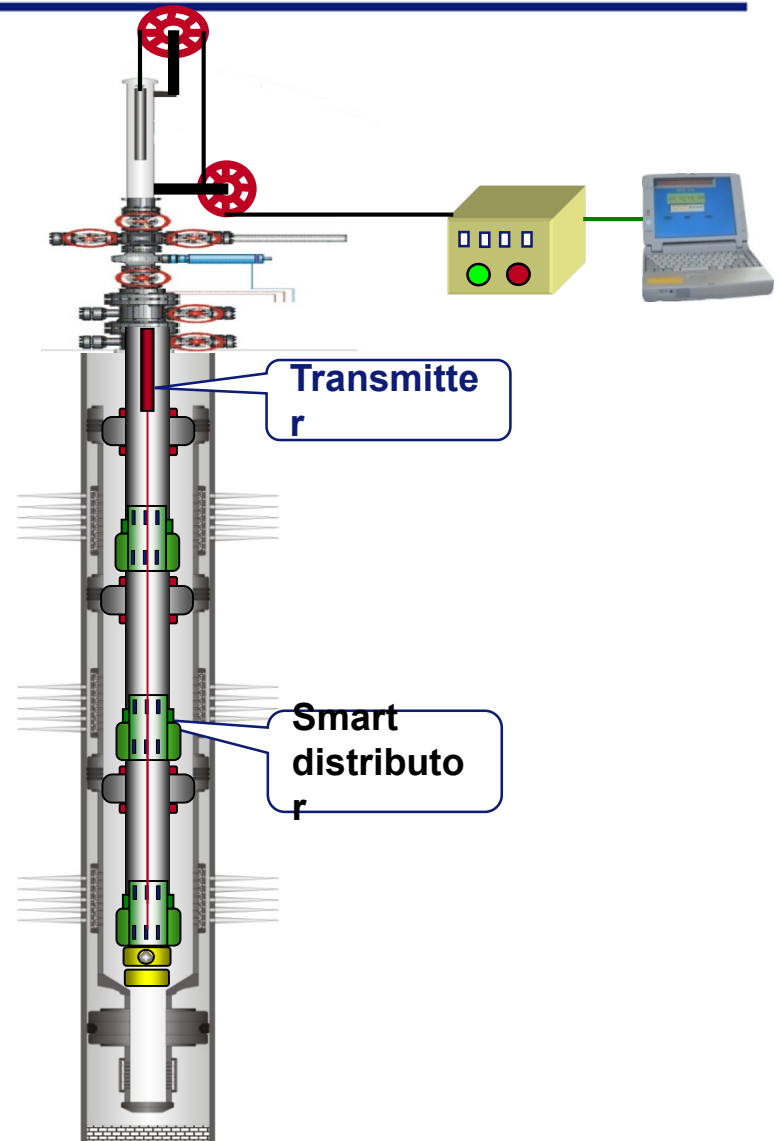


2. Completion Technology

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(6) Intelligent water injection technology

- Real-time monitoring of injection parameters
- Manage injection parameters according to monitoring data lively
- Reduce time and cost of work-over



Contents

- | | |
|----|------------------------------|
| 01 | Completion Production Line |
| 02 | Completion Technology |
| 03 | Services Tools and Equipment |
| 04 | Global Clients |

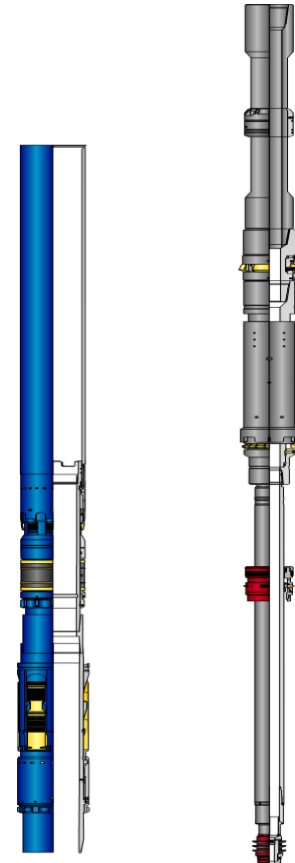
3. Services Tools and Equipment

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◆ Liner hanger system

■ Hong^{AT} rotatable liner hanger system

- Ideal for gas storage wells, severe corrosion gas wells, 3D wells and other hostile wells.
- Can rotate liner while RIH or cementing job.
- Work load up to 200tons.
- 10000psi working pressure.
- 180 Deg.C working temperature.
- High performance raw material selected.



3. Services Tools and Equipment

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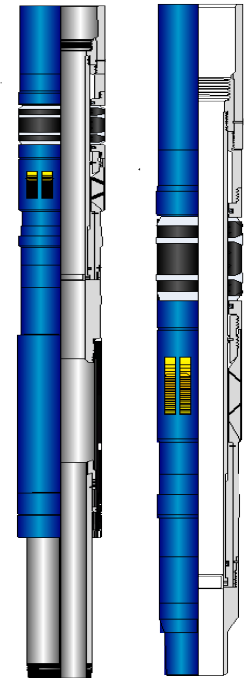
◆ Liner hanger system

■ Thermal Retrievable Packer

- Hydraulic set and release.
- Retrieving by pulling directly.
- Easily operating in directional and horizontal wells.
- Sealing capacity:
 - Special polymer materials: Temperature 400 °F, Pressure 5,000Psi
 - Metal polymer materials: Temperature 550°F, Pressure 3,000Psi
 - Special material: More than Temperature 662 °F, Pressure 2,000Psi

■ Applications

The successful applications are more than 60 wells in Venezuela and Ecuador.



◆ Production Completion Tools

■ Packer system

- Permanent/Retrievable
- Cable production packer

■ Safe valve system

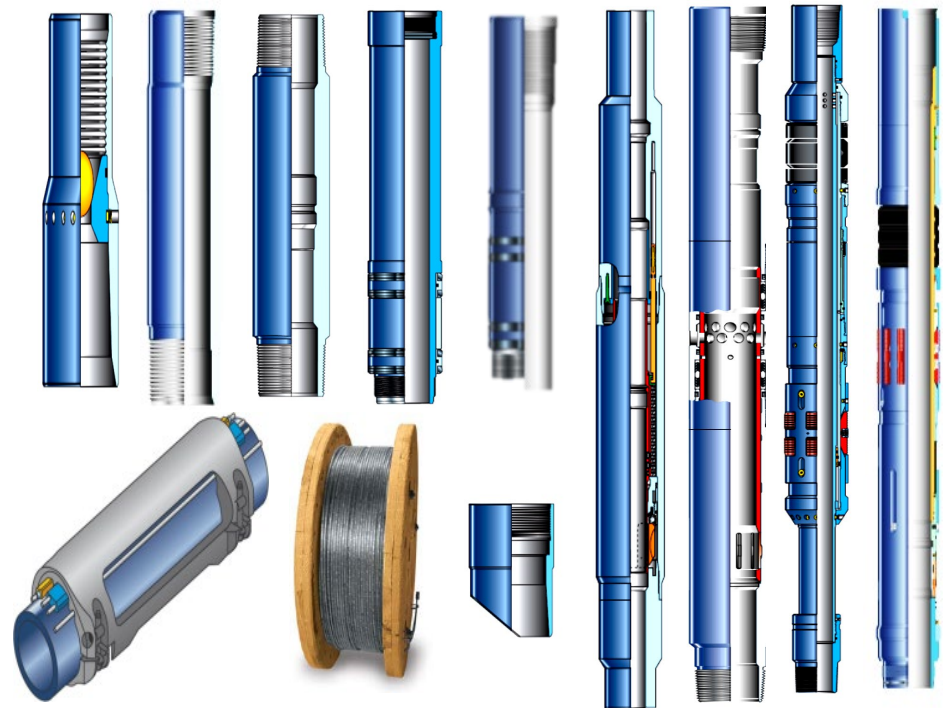
- Sub-surface safety valve
- Flow sub
- Hydraulic control pipe

■ Flowing system

- Sliding sleeve

■ Applications

Main market: China, Iraq, Ethiopia, Central Asia, South America

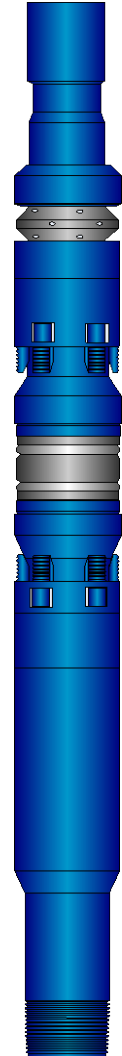


Integrate global resources for Customer.

◆ Production Completion Tools

■ AT-PP Premium Retrievable Packer

- For HTHP gas wells.
- Retrievable and hydraulic-set .
- With performance of a permanent packer as a retrievable packer.
- Retrieval by mechanical cut or shear release.
- 10000psi WP.
- 300 Deg.F WT.
- 9Cr, 13Cr, 718 material selected.



◆ Stimulation Completion Tools

■ Packer

- Open Hole Packer
- Bridge Plug Packer
- Dissolve Bridge Plug

■ Frac-Sleeve

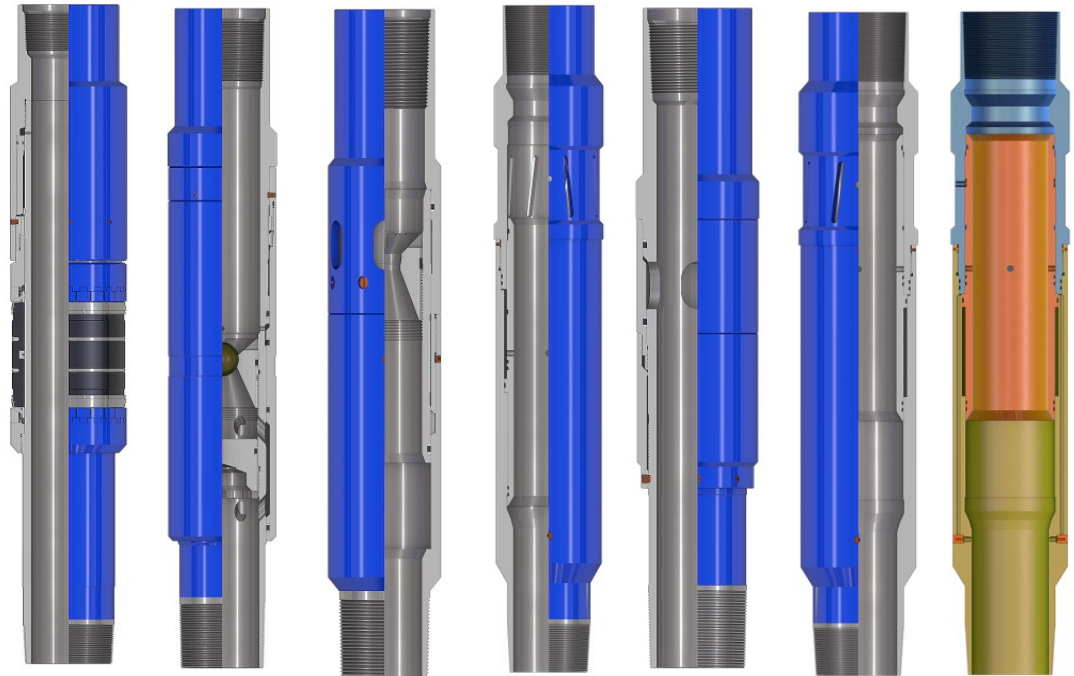
- Open Hole Frac-sleeve
- Cement Frac-sleeve
- Full bore Frac-sleeve

■ Other Fracturing Tools

- Polymer ball/Dissolve ball
- Isolation valve

■ Applications

The first China local company apply segment hydraulic fracturing technology. Over 800 wells have been applied in open-hole and casing bore.



◆ Stimulation Completion Tools

■ AT-DFP Dissoluble Bridge Plug

High-performance plug is rated to 10,000 psi for zonal isolation during wellbore stimulation with the most advanced dissolvable metal and rubber materials.

- Materials dissolve time based on temperature and salinity.
- Provides an entire wellbore ID for future operations upon complete dissolution.
- Helps eliminate the risk and costs of conventional plug removal.
- Special slim design for deformed casing in shale development



◆ Stimulation Completion Tools

■ Chemical Agent

- Fracture liquid system
- Acid liquid system
- Nano stimulation liquid system



■ Block off material

- Temporary plug material
- Chemical plug material



■ Proppant

- Low/Middle/High density ceramsite
- High strength ceramsite



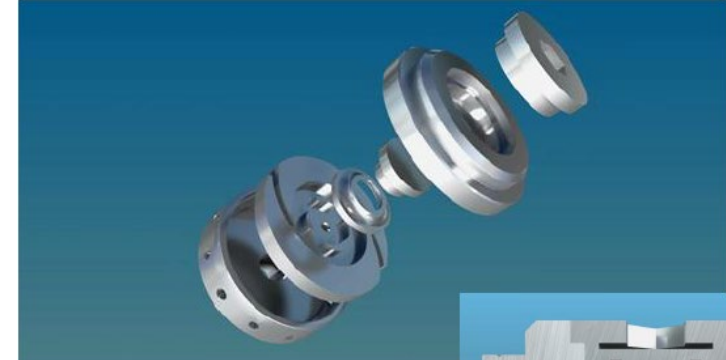
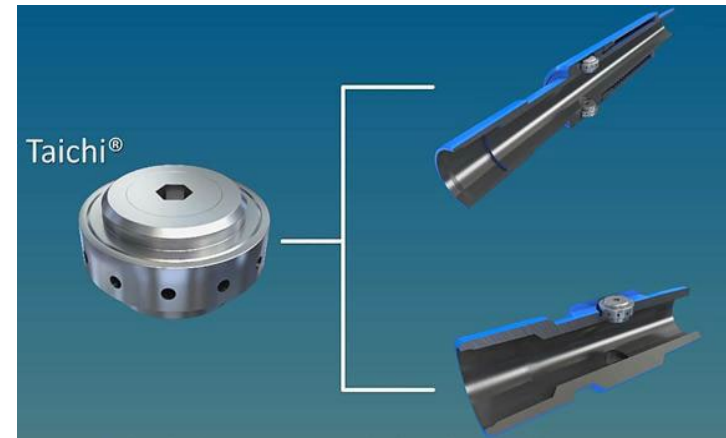
◆ Flow Control Product

■ AICD (Autonomous Inflow Control Device)

- Automatic identification of oil and water
- Achieve a balanced production
- Prevent early water breakthrough
- Limit water area production

■ Applications

Totally we have applied 36 wells in CNPC, Sinopec, and offshore CNOOC.



Composite structure design, more efficient and accurate.

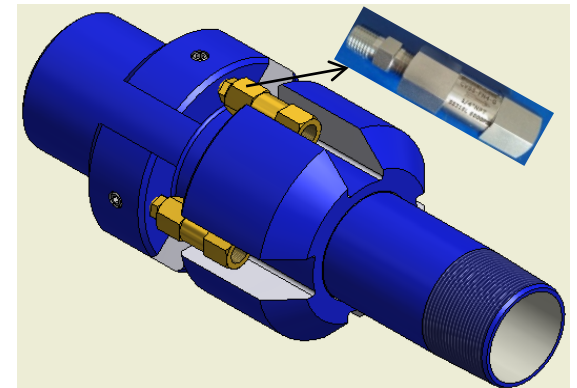


◆ Flow Control Product

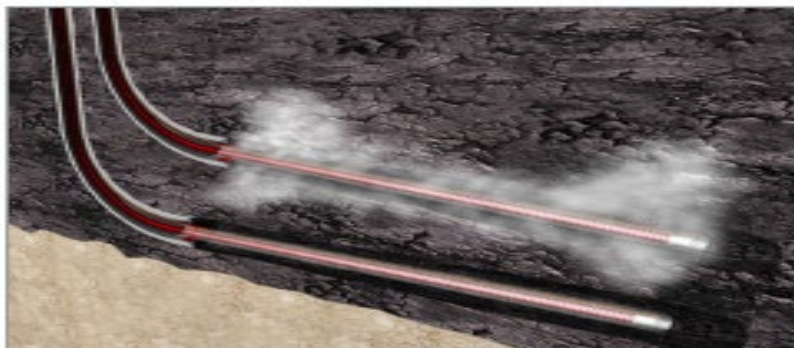
■ FCD (Flow Control Device)

We can provide a comprehensive solution to steam injection and production.

- Uniform steam inject in segmented horizontal wells
- Single directional inject channel
- Automatic inflow control during production
- Single string with steam injection and oil production in CSS or SGAD.



Steam Injection Valve

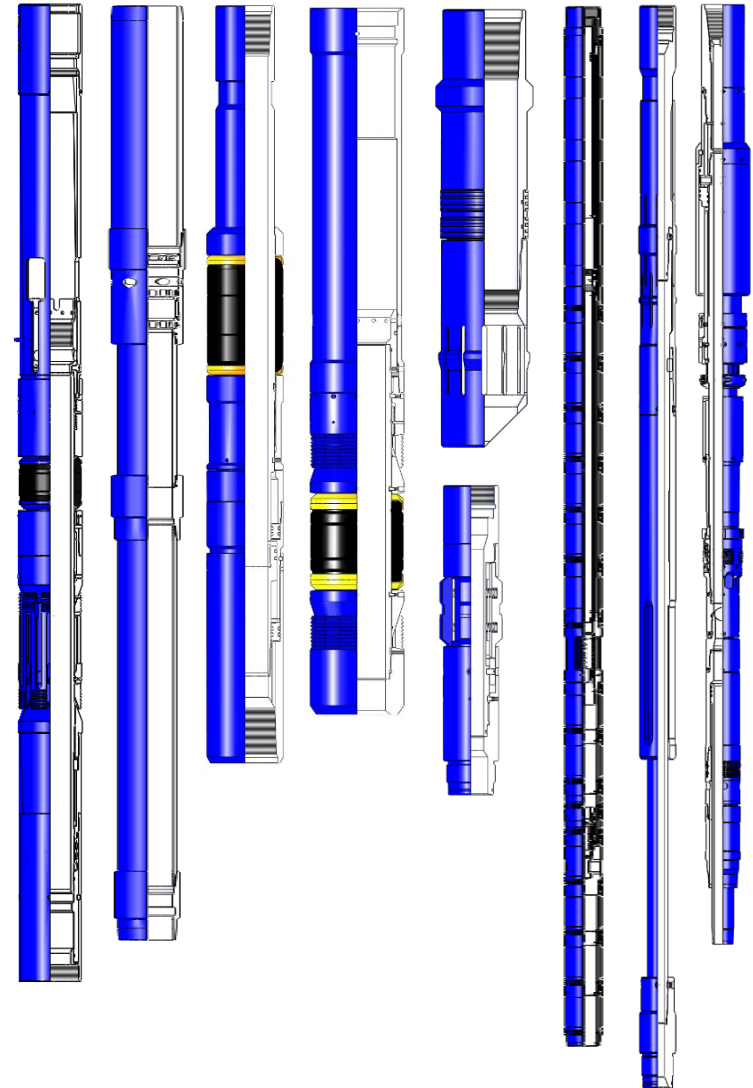


Without EmulFlow® FCD



With EmulFlow® FCD controlled steam injection

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◆ Sand Screens

■ Sand Screen Product:

- Precise Punched Slots Screen **(PPS)**
- Precise Micropore Composite Screen **(PMC)**
- Water and sand control screen **(AICD)**
- Pre-Packed Screen **(PPK)**

■ Applications

More than **1,280,000 meters** of global installed, main markets: Most oilfield in China, Canada, South America, Central Asia, Middle East and Africa regions.

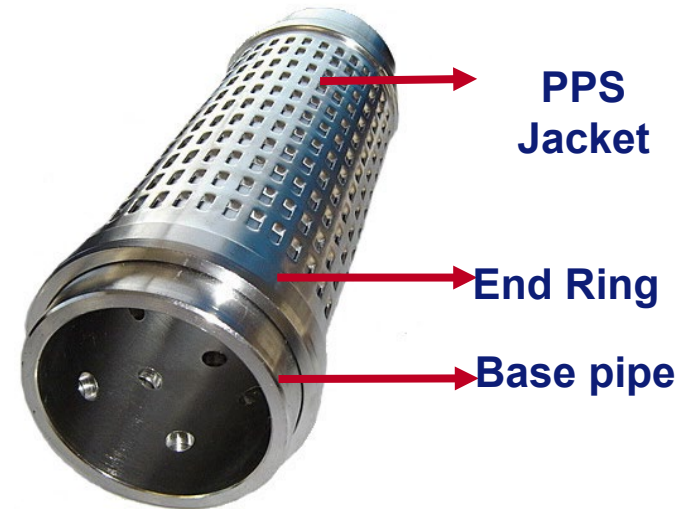


◆ Sand Screens

■ PPS screens

Special Lateral Slots

- Punched slots patented technology, three-dimensional structure design.
- Embedded bridge slots, the rapid formation of sand bridge.
- Lateral slots flow structure, avoid formation fluid directly erosion.



◆ Pump services equipment

Services Capacity:

- 100,000 HHP.
- 47 Pump trucks.
- 3 Liquid nitrogen pump trucks.
- 9 Blander trucks.
- 8 Instrument trucks.
- 5 Pipe line integration trucks.
- More than 100 other trucks.
- 3660 m³ liquid tanks.



Single well Max. 40,000 m³ liquid and 1,600 m³ proppant pumping record.

Max. pump rate 22m³ /min, Max. pump pressure up to 98Mpa.

◆ Coiled tubing equipment

Services Capacity:

- 11 Coiled tubing service teams.
- Size from 1 ¼" – 2 3/8".
- Max. operation depth record 5712m.
- Provides a coiled tubing drive packer fracturing.



3. Services Tools and Equipment

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◆ Manufacturing Base

- Tianjin base: Screen and Completion tools
- Qingdao base: Gravel packing tools
- Dongying base: Gravel packing and chemical material
- Suining base: Proppant



3. Services Tools and Equipment

◆ Qualification certificate

- API SPEC 5CT
- API Q1
- API 11D1
- API 14A
- ISO 9001:2008 IDT
- ISO 14001:2004 IDT
- OHSAS 18001:2007 IDT



Contents

- | | |
|----|------------------------------|
| 01 | Completion Production Line |
| 02 | Completion Technology |
| 03 | Services Tools and Equipment |
| 04 | Global Clients |

4. Clients

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THANKS!

Helping others succeed...