

FEODE

深圳市远东石油钻采工程有限公司

SHENZHEN FAR EAST OIL
DRILLING ENGINEERING LTD.

PRODUCT CATALOGUE · 产品手册

Completion Equipment & Tools

完井设备与工具 · Safety Valves · Packers · Flow Control · Accessories

API Q1

API 6A

API 11D1

API 14A

API 14L

ISO 9001

Shenzhen Far East Oil Drilling Engineering Ltd.

901A, No.3333 Zhongxin Road, Nanshan District, Shenzhen, China

enquiry@feode.com | www.feode.com

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COMPANY PROFILE

FEODE Completion Equipment & Services

Shenzhen Far East Oil Drilling Engineering Ltd. (FEODE), founded in 1985, provides an integrated completion product stack: subsurface safety valves, permanent and retrievable packers, flow control, seals and completion accessories, plus fracturing and sand control.

Products are engineered and manufactured to international standards, covering pressures up to 20,000 psi, temperatures to 450 F, and tubing from 2-3/8 in to 13-3/8 in, certified to API Q1, 5CT, 11D1, 14A and 14L, and ISO 9001:2015.

FEODE delivers design, precision manufacturing, assembly and testing, and field service as one-stop support to global oil and gas operators.

enquiry@feode.com | www.feode.com

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01 TRSVS SERIES TUBING RETRIEVABLE SAFETY VALVE WITHOUT NIPPLE

Product Family No.A1101

DESCRIPTION

The TRSVS is a tubing retrievable surface controlled subsurface safety valve that was designed to address the unique challenges that shallow set safety valves (typically <1,500 ft [457 m]) must endure. An ultra strong power spring delivers high closing forces needed to provide reliable and consistent closings in the presence of paraffin and other produced solids.

One-quarter of all safety valve failures occur due to wireline damage during interventions into the wellbore. The TRSVS design team developed an advanced flapper design to virtually eliminate this failure mode. This design ensures all seal surfaces are protected from wireline contact even during accidental closure of the valve during wireline operations.

The TRSVS is a cost-effective product. The tool is no longer designed to match the profile of the wireline safety valve to reduce costs.

FEATURES/BENEFITS

- ✔ Ultra strong power spring - ensures smooth and reliable closures
- ✔ Wireline damage resistant flapper - design protects sealing integrity during wireline operations
- ✔ Flapper self-equalizing
- ✔ Nonelastomeric dynamic seal assembly
- ✔ Metal-to-metal seal technology - 100% metal-to-metal sealing and containment of wellbore fluids when the valve is in the closed position.

TRSVS SPECIFICATION GUIDE

SIZE	MAX OD	SEALBORE	PRESSURE	DEPTH	TEMPERATURE
in	in	in	psi	ft	F
2 3/8	3.75	1.875	5000	1376	325
2 7/8	4.51	2.313	5000	1376	325
3 1/2	5.65	2.813	5000	1376	325
4 1/2	6.50	3.813	5000	1376	325
5 1/2	8.00	4.562	5000	1376	325

◆ More about TRSVS ,please contract representative for additional information.



01 TRSVP SERIES TUBING RETRIEVABLE SAFETY VALVE WITH NIPPLE

Product Family No.A1102

DESCRIPTION

Company commitment to innovation has resulted in the TRSVP Series surface controlled subsurface safety valve. Innovative field-proven technology reduced the number of typical safety valve failure of safety valves through the years. TRSVP standard features include wireline damage resistant flapper, nonelastomeric seal technology, and metal-to-metal containment of wellbore fluids in the closed position. These standard features deliver unprecedented reliability, efficiency, and adaptability.

One-quarter of all safety valve failures occur due to wireline damage during interventions into the wellbore. The TRSVP design team developed an advanced flapper design to virtually eliminate this failure mode. This design ensures all seal surfaces are protected from wireline contact even during accidental closure of the valve during wireline operations.

The TRSVP is designed to match the locking profile to provide possibility for WLSV wireline safety valve and its supporting tools such as flapper lock open tool, separation sleeve and communication tool. The TRSVP safety valve up to 7", which can meet the requirements of large wellbore (Monobore) well completion.

FEATURES/BENEFITS

- ✔ Flapper self-equalizing
- ✔ Nonelastomeric dynamic seal assembly
- ✔ Wireline damage resistant flapper - design protects sealing integrity during wireline operations
- ✔ Metal-to-metal seal technology - 100% metal-to-metal sealing and containment of wellbore fluids when the valve is in the closed position
- ✔ Lock open system and WLSV - achieved via one wireline trip and allows flow through the locked open valve with no ID restriction
- ✔ Optional chemical injection capability - injection mandrel within the TRSV eliminates the need for a mandrel above the valve and allows injection of fluids directly into spring cavity for maximum effectiveness

TRSVP SPECIFICATION GUIDE

SIZE	OD	SEALBORE	PRESSURE	DEPTH	TEMPERATURE
in	in	in	psi	ft	F
2 7/8	4.73	2.313	5000	1376	325
3 1/2	5.38	2.813	5000	1376	325
4 1/2	6.95	3.813	5000	1376	325

◆ More about TRSVP, please contract representative for additional information.



01 WLSV SERIES WIRELINE RETRIEVABLE SAFETY VALVES

Product Family No.A1201

DESCRIPTION

The WLSV Series is a wireline retrievable safety valve that offers premium features similar to a tubing retrievable safety valve. The WLSV-Series are non-elastomeric safety valves that can be supplied with or without a self-equalizing feature. WLSV Series valves are designed to be insert safety valves for tubing retrievable safety valves; however, they can easily be adapted for use in a wireline nipple completion. These wireline valves are premium valves due to the use of nonelastomeric seal material, metal-to-metal housing threads, high tensile strength metallurgy, and unique HP/HT packing and piston seal stacks when required by the application. These design features are imperative when considering applications for big bore, high temperature, high pressure, extremely corrosive, and hostile.

FEATURES/BENEFITS

- ✔ The thru-the-flapper self-equalizing - most successful and widely used system available to the market two step metal-to-metal sealing system provides strength and sealing under the harshest conditions.
- ✔ Large bore design - minimizes pressure drop and maximizes production capability through the valve.
- ✔ Also, allows access for certain wireline tools to be run through the valve, thereby saving downtime expenses normally associated with pulling a wireline retrievable valve
- ✔ Rugged flapper construction - a large high strength alloy hinge pin eliminates bending



01 PUNCTURE COMMUNICATION TOOL

Product Family No.A1202

The Puncture Communication Tool is designed to establish control line communication to the tubing through the ID of a tubing retrievable safety valve or landing nipple in one wireline trip. Communication is achieved by radial motion while wireline jarring which punctures a hole in the control system area of the tubing retrievable equipment. The communication tool was developed to remove all communication methods from the TRSV which caused premature communication during wireline operations.

01 FLAPPER LOCK OPEN TOOL

Product Family No.A1203

The Flapper Lock Open Tool is designed to lock the TRSV open for preparation of wireline insert safety valve installation or retrieval of the TRSV while pulling the completion. The flapper lock open tool deposits an expanding sleeve into the flapper cavity to permanently lock the safety valve open. The tool is easily installed into the nipple profile of the safety valve and is actuated by removal of an inner mandrel. The lock open tool design guarantees proper placement of the lock open ring for reliable lock open.

01 SEPARATION SLEEVE

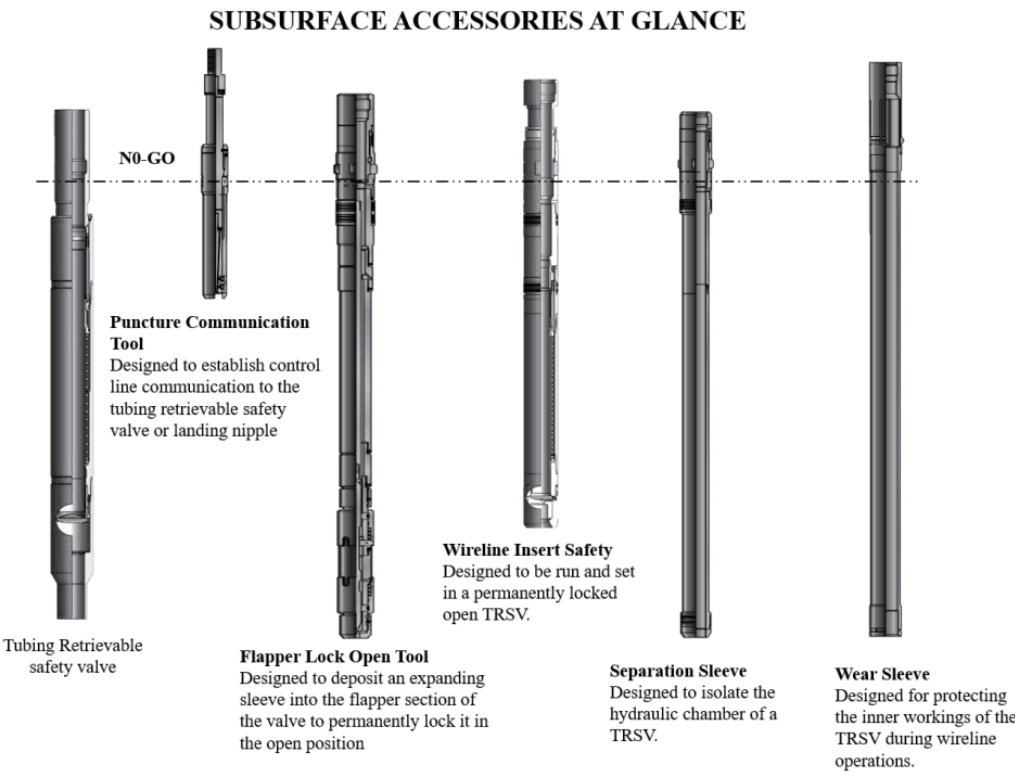
Product Family No.A1204

The Separation Sleeve is used to isolate the subsurface safety valve from well bore pressure by sealing in the upper and lower seal bores. This accessory tool can be used primarily in three ways. First, the sleeve is used to prevent well bore contaminants from entering the control system. Second, it can be installed to permanently lock open the TRSV and continue flowing operations. Third, the separation sleeve can be installed to hold the flapper open while pulling the tubing string.

01 WEAR SLEEVE

Product Family No.A1205

The Wear Sleeve or Seal Bore Protection Sleeve is designed for the sole purpose of protecting the inner workings of the TRSV during wireline operations. The wear sleeve is run in prior to wireline work. This eliminates the chance for damaging seal bores with grooves in the TRSV. By preventing such grooves this will allow a good seal in case of insert applications. This sleeve also reduces the opportunity for scale deposits. Furthermore, the Wear Sleeve is used to protect the flapper during wireline operations. The Wear Sleeve is typically designed for use in non-flowing and non-pressured conditions.



◆ More about WLSV ,please contract representative for additional information.

01 TRSVH15/20 SERIES HTHP TUBING RETRIEVABLE SAFETY VALVE

Product Family No. A1301/A1302

DESCRIPTION

The new TRSVH Series tubing retrievable surface controlled subsurface safety valves are specifically designed for high pressure / high temperature (HP/HT) applications. TRSVH Series safety valves build upon the success of the TRSV and use state-of-the-art technology to provide the industry's most reliable safety valve for these critical applications. The TRSVH Series reduces operating expenses by providing absolute pressure ratings. The control chamber, dynamic seal system and rod piston are capable of withstanding full differential pressures. This capability eliminates the requirement to stage tubing pressures during installation, thus reducing installation cost and risk of over pressuring the valve.

FEATURES/BENEFITS

- ✔ Absolute pressure ratings
- ✔ Non-elastomeric dynamic seal assembly
- ✔ Metal-to-metal seal technology
- ✔ Ultra strong curved flapper design
- ✔ Two step metal-to-metal sealing system provides strength and sealing under the harshest conditions



TRSVH SPECIFICATION GUIDE

SIZE	MAX OD	SEALBORE	PRESSURE	DEPTH	TEMPERATURE
in	in	in	psi	ft	F
3 1/2	5.50	2.562	20000	1376	325
	5.65	2.562	15000	1376	325
4 1/2	5.50	2.562	20000	1376	325
	6.13	2.875	20000	1376	325
	7.13	3.437	20000	1376	325

◆ More about TRSVH ,please contract representative for additional information.

01 FLOW COUPLING

Product Family No. A1401

DESCRIPTION

The Flow Coupling is used to protect the integrity of tubing from erosive turbulence. Flow Couplings are often used above and below a geometric restriction in the flow path, depending on the well conditions. API Recommended Practices 14B advises use of Flow Couplings above and below safety valves



01 CONTROL LINE

Product Family No. A1402

DESCRIPTION

Control line is used to operate surface controlled subsurface safety valves. Control line can be provided to meet the specific application of each customer. The control line provided by company complies with ASTM specifications and can be offered in wide range of metallurgies.



01 CONTROL LINE PROTECTION

Product Family No. A1403

DESCRIPTION

Control line protection is required to secure the control line to the tubing to prevent slacking during installation. Company provides various control line protection options depending on the customer's requirements and application.

- ✔ Banding Straps
- ✔ Offset Clamps - Two-Piece Design
- ✔ Offset Clamps - One-Piece Design
- ✔ Eccentric Protectors



01 PRESSURE TEST ACCESSORY

Product Family No. A1404

02 PWA SERIES HYDRAULIC SET PERMANENT PACKER WITH ANCHOR

Product Family No. A2101

DESCRIPTION

The PWA packer is a single-trip permanent millable production packer. It is ideal for highly deviated and/or single-trip production and injection applications. This packer includes a one-piece mandrel and sealbore, which eliminates a potential leak path. It has a low profile for greater running clearance to help reduce problems that may occur when running in highly deviated and horizontal wells. Premium, metal-to-metal thread connections add to the dependability of the packer. This packer sets with low pressure, major components are rotationally locked, and materials are suitable for milling. No tubing manipulation is required to set the packer, and the hydraulic-set Perma-Series packer is compatible with standard Halliburton accessory equipment.

FEATURES/BENEFITS

- ✔ One-piece mandrel and sealbore
- ✔ Case-carburized slips
- ✔ Metal-to-metal backup rings with 360° casing wall contact
- ✔ Ratch-Latch sealbore with seal anchor
- ✔ Triple-seal multi-durometer element package
- ✔ Single-piece bottom sub and piston housing
- ✔ MTM premium thread connections standard on the packer, seal anchor, and Ratch-Latch assembly
- ✔ Minimal number of pressure- containing o-ring seals
- ✔ Large bore through packer and seal assembly



PWA PACKER SPECIFICATION

CASING SIZE	CASING WEIGHT	PACKER OD	PACKER SEALBORE					
			UPPER SEALBORE	PACKER AND SEAL ASSEMBLY MIN ID	LOWER SEALBORE	PACKER AND SEAL ASSEMBLY MIN ID	PRESSURE	TEMPERATURE
in[mm]	lb/ft	in[mm]	in[mm]	in[mm]	in[mm]	in[mm]	psi	°F
5[127.00]	15-21	3.96[100.58]	3.12[79.25]	1.91[48.51]	-	-	10000	40 ~ 350
5.5[139.7]	13-20	4.54[115.32]	3.50[88.9]	2.36[59.95]	2.38[60.33]	1.74[44.07]		
5.5[139.7]	20-23	4.54[115.32]	3.50[88.9]	2.36[59.95]	2.38[60.33]	1.74[44.07]		
7[177.80]	17-23	6.18[156.97]	4.25[107.95]	3.17[80.52]	3.25[82.55]	2.35[59.69]		
7[177.80]	23-32	5.88[149.23]	5.00[127.00]	3.88[98.43]	4.00[101.60]	2.88[73.03]		
9.625[244.48]	40-47	8.42[213.87]	7.00[177.80]	6.00[152.40]	6.00[152.40]	4.85[123.19]		
9.625[244.48]	53.5	8.31[211.07]	7.25[184.15]	6.02[152.98]	6.00[152.40]	4.85[123.19]	10000	40 ~ 350
10.75[273.05]	55.5-60.7	9.28[235.71]	7.00[177.80]	6.00[152.40]	6.00[152.40]	4.85[123.19]		

02 PAR SERIES HYDRAULIC SET PERMANENT AND REMOVABLE PACKER

Product Family No. A2102

DESCRIPTION

The PAR retrievable packer combines the pressure and temperature ratings and reliability of a permanent packer with the convenience of a retrievable packer.

The PAR packer can be connected directly to the production tubing or to an anchor seal. By pressing the plugging device below the packer, operation of setting packer is completed. The packer is recovered with a special recovery tool to avoid accidental release of the packer during production. For some operating environments, the packer can also be recovered from the production tubing by cutting the center pipe with chemical or mechanical cutting tools.

PAR packers are widely used in high temperature and high-pressure injection wells, gas wells and fracturing operations.

FEATURES/BENEFITS

- ✔ Barrel slip
- ✔ Big ID design
- ✔ HPHT application and can achieve V0
- ✔ Single-trip completions
- ✔ Hot, corrosive, deep, deviated, production, or test completions
- ✔ Slips located below element package for protection from debris
- ✔ No-mandrel movement operation
- ✔ Premium metallurgy and elastomers

PAR PACKER SPECIFICATION GUIDE

CASING SIZE	CASING WEIGHT	PACKER OD	PACKER ID	PRESSURE	TEMPER ATURE
in[mm]	lb/ft	in[mm]	in[mm]	psi	F
7[177.80]	23-26	5.92[150.36]	2.92[74.20]	15000	40 ~ 350
7[177.80]	29-32	5.875[149.40]	2.92[74.20]		
7[177.80]	32-35	5.82[147.82]	2.92[74.20]		
7.625[158.75]	33.7-39	6.41[162.69]	2.92[74.20]	10000	
9.625[244.48]	47-53.5	8.35[212.09]	5.80[147.32]		
10.75[273.05]	97.1-99.5	8.64[219.46]	4.65[118.11]		



02 PWT SERIES HYDRAULIC SET PERMANENT PACKER WITH TUBING

Product Family No. A2103

DESCRIPTION

The PWT series hydraulic set permanent packer is ideal for highly deviated and/or single-trip production and injection applications. This packer includes a one-piece mandrel, which eliminates a potential leak path. It has a low profile for greater running clearance to help reduce problems that may occur when running in highly deviated and horizontal wells. Premium, metal-to-metal (MTM) thread connections add to the dependability of the packer.

FEATURES/BENEFITS

- ✔ One-piece mandrel
- ✔ Case-carburized slips
- ✔ Metal-to-metal backup shoes with 360° casing wall contact
- ✔ Triple-seal multi-durometer element package
- ✔ MTM premium thread connections standard on the packer
- ✔ Minimal number of pressure-containing o-ring seals
- ✔ Large bore through packer
- ✔ Low profile
- ✔ Self-contained hydraulic setting system
- ✔ Pin x pin connections



PWT PACKER SPECIFICATION GUIDE

CASING SIZE	CASING WEIGHT	PACKER OD	PACKER ID	PRESSURE	TEMPERATURE
in[mm]	lb/ft	in[mm]	in[mm]	psi	°F
5[127.00]	15-21	3.96[100.58]	3.12[79.25]	15000	40 ~ 350
5[127.00]	18	4.10[104.14]	3.12[79.25]	10000	
5.5[139.7]	14-20	4.54[115.32]	3.50[88.9]		
5.5[139.7]	20-23	4.45[113.03]	3.50[88.9]		
5.5[139.7]	23-26	4.36[110.74]	3.50[88.9]		
7[177.80]	17-20	6.25[158.75]	5.00[127.00]		
7[177.80]	17-23	6.18[156.97]	4.25[107.95]		
7[177.80]	23-32	5.88[149.23]	5.00[127.00]		
7[177.80]	32-44	5.47[138.89]	4.25[107.95]		
9.625[244.48]	40-47	8.42[213.87]	7.25[184.15]		
9.625[244.48]	53.5	8.31[211.07]	7.25[184.15]		
10.75[273.05]	55.5-60.7	9.28[235.71]	7.00[177.80]		

02 PWS SERIES HYDRAULIC / WIRELINE SET PERMANENT PACKER

Product Family No. A2104

DESCRIPTION

The PWS series hydraulic / wireline set permanent packers are the most widely used, most versatile, high performance permanent production packer available. They are frequently used as a permanent squeeze or testing packer, or as a permanent or temporary bridge plug.

The PWS packer can be threaded (box or pin) bottom guide. This PWS guide can be specified for acceptance of a Mill-out Extension, a Seal Bore Extension, or virtually any component desired. Model D Packers and their guides can also be ordered separately by those interested in maximum inventory flexibility.

FEATURES/BENEFITS

- ✔ Proven reliability
- ✔ Slim-line design
- ✔ Solid construction that makes possible a significant savings in rig- time by providing a 50% faster run- in without fear of impact damage or premature setting
- ✔ Two opposed sets of full-circle, full strength slips assure that the packer will stay where it is set
- ✔ A packing element that resists swab-off but packs off securely when the packer is set
- ✔ Unique interlocked expandable metal back-up rings contact the casing and create a positive barrier to packing element extrusion
- ✔ Aflas packing element is available in select casing weight ranges



02 PSS SERIES OIL/WATER SWELLING PERMANENT PACKER

Product Family No. A2105

DESCRIPTION

The PSS oil or water swelling packer are composed of a metal central pipe and an expansion rubber cylinder. When the oil-swelling rubber is in contact with oil or water-based medium, the oil or water molecules enter the rubber through physical effects such as capillary diffusion and surface adsorption and form a strong binding force with some molecules in the polymer. The structure undergoes elastic deformation after continuous absorption of the medium. When the anti-deformation force and the osmotic pressure of the medium reach a relative balance, the deformation reaches a stable state, that is, the expansion seal is realized. It is mainly used in the fields of layered and staged production of cased wells or open-hole wells, water control and water shutoff, and reservoir reconstruction.

The swelling packer can continue to expand when encountering oil and water and adapts itself according to the shape of the wellbore. It is suitable for high temperature and high-pressure wells and cased wells without the use of hydraulic and mechanical actions. The packers can be used in smart completions, screen completions, gravel packs, stimulation and injection and various other completion application.



02 RHS SERIES HYDRAULIC SET PULL RETRIEVABLE PACKER

Product Family No. A2201

DESCRIPTION

The RHS is the new standard for high performance single string retrievable hydraulic set, shear release packers The RHS offers features that provide maximum pre-set prevention while running, improved sealing and retrieving reliability, and metallurgy and elastomer selections fit for the well environment. The simple and reliable design is commendable.

APPLICATION

- ✔ Production, injection, and zonal isolation
- ✔ Single string selective completions with multiple packers
- ✔ Completions where maximum pre-set prevention while running is desired
- ✔ Deviated wells or other applications where no rotation for installation or removal is desired
- ✔ Applications where displacing and setting the packers after the well is flanged up is desirable
- ✔ Applications where it is desirable to test the tubing string before packer setting or to independently set and test individual packers in multiple packer completions
- ✔ Stacked packer applications

FEATURES/BENEFITS

- ✔ Operationally simple
- ✔ Hydraulically set and Shear release
- ✔ Built-in unloader and by pass to aid in releasing and retrieving
- ✔ Hydraulic interlock system prevents preset
- ✔ All o-ring tested during assembly of the packer
- ✔ Bi-directional slip
- ✔ Short , compact design
- ✔ No mandrel movement during setting allows stacked packer application



RHS SPECIFICAITON

CASING SIZE	CASING WEIGHT	PACKER OD	PACKER ID	PRESSURE	TEMPER ATURE
in[mm]	lb/ft	in[mm]	in[mm]	psi	°F
4.5[114.30]	11.6-13.5	3.75[95.25]	1.89[47.98]	7500	40
5[127.00]	18	4.05[102.99]	1.93[49.02]		
5[127.00]	21.4	3.85[97.99]	1.60[40.65]		
5.5[139.7]	17-23	4.50[114.30]	2.13[54.00]		
7[177.80]	23-26	5.98[151.00]	2.92[74.17]		
7[177.80]	29-32	5.88[149.22]	2.92[74.17]		~
7[177.80]	32-35	5.82[147.78]	2.36[59.99]		
9.625[244.48]	40-47	8.50[215.90]	3.89[98.90]		350
9.625[244.48]	40-47	8.50[215.90]	2.92[74.17]		
9.625[244.48]	47-53.5	8.31[211.07]	3.89[98.90]		
9.625[244.48]	47-53.5	8.31[211.07]	2.92[74.17]		

◆ More about RHS packer ,please contract representative for additional information.

02 RRH SERIES HYDRAULIC SET PULL RETRIEVABLE PACKER

Product Family No. A2202

DESCRIPTION

The hydraulic-set RRH packers are designed to be set by pressuring up the tubing string against a plugging device below the packer.

RRH packers lock-set mechanically using spring-loaded internal slips. A lower set of mechanical slips holds the packer set against downward forces and an upper set of pressure- actuated button slips hold the packer set against differential pressure from below. The packers are released and retrieved by a straight upward pull on the tubing string.

FEATURES/BENEFITS

- ✔ Requires only a straight pull to release
- ✔ Has a low-pressure setting requirement so rig pumps usually provide enough pressure
- ✔ Allows varied setting pressures with varied numbers of shear screws
- ✔ Allows adjustment of pull-to-release in the field
- ✔ Works well in all types of casing



RRH SPECIFICAITON

CASING SIZE	CASING WEIGHT	PACKER OD	PACKER ID	PRESSURE	TEMPERATURE
in[mm]	lb/ft	in[mm]	in[mm]	psi	°F
5.5[139.7]	14-17	4.62[117.35]	1.94[49.28]	7500	40 ~ 350
5.5[139.7]	17-23	4.50[114.30]	1.94[49.28]		
7[177.80]	17-23	6.19[157.23]	2.36[60.00]		
7[177.80]	26-32	5.94[150.88]	2.89[71.41]		
9.625[244.48]	36-40	8.50[215.90]	3.89[98.90]	5000	
9.625[244.48]	40-47	8.38[212.85]	4.73[120.14]		
9.625[244.48]	40-47	8.38[212.85]	3.00[76.20]		
9.625[244.48]	40-47	8.38[212.85]	2.34[59.44]		
9.625[244.48]	47-53.5	8.31[211.07]	4.73[120.14]		
9.625[244.48]	47-53.5	8.31[211.07]	3.00[76.20]		
9.625[244.48]	47-53.5	8.31[211.07]	2.34[59.44]		

◆ More about RRH packer ,please contract representative for additional information.

02 RHD SERIES HYDRAULIC SET DUAL-STRING PULL RETRIEVABLE PACKER

Product Family No. A2203

DESCRIPTION

The RHD series packer is a dual-string retrievable packer with high performance hydraulic setting, shearing release and unsealing. The RHD packer include a pre-set prevention design, improved sealing and retraction reliability, and maximum application flexibility. The simple and reliable design of the packer utilizes a system of built-in multifunctional sealing components, ideal for use in high pressure gas wells.

FEATURES/BENEFITS

- ✔ Operationally simple, install and retrieve multiple packers on the production string without tubing manipulation or well intervention
- ✔ Hydraulically set Shear release - allows packer to be released by simply pulling on either tubing string
- ✔ Built-in bypass - to aid in releasing and retrieving
- ✔ Hydraulic interlock system prevents preset - all components are mechanically locked to the mandrel during run in
- ✔ Reliable performance - defined by performance envelopes which graphically describe simultaneous effects of load and pressure
- ✔ Bi-directional slip eliminates the extra leak paths associated with hydraulic hold-down buttons
- ✔ Unique arrangement of shear rings improves retrieving reliability and flexibility
- ✔ Short, compact design
- ✔ No mandrel movement during setting allows stacked packer applications



RHD SPECIFICATION

CASING SIZE	CASING WEIGHT	PACKER OD	1ST STRING ID	1ST STRING ID	PRESSURE	TEMPER ATURE
in[mm]	lb/ft	in[mm]	in[mm]	in[mm]	psi	F
7[177.80]	20-26	5.94[150.88]	1.94[49.28]	1.94[49.28]	5000	40 ~ 350
7[177.80]	26-32	5.94[150.88]	2.38[60.45]	1.53[38.36]		
7[177.80]	26-32	5.94[150.88]	1.94[49.28]	1.94[49.28]		
7[177.80]	35	5.84[148.34]	1.92[48.77]	1.54[39.12]		
9.625[244.48]	36-43.5	8.62[218.95]	2.90[73.66]	2.90[73.66]		
9.625[244.48]	40-47	8.44[214.38]	2.90[73.66]	2.44[61.98]		
9.625[244.48]	40-47	8.44[214.38]	2.90[73.66]	2.90[73.66]		
9.625[244.48]	40-47	8.50[215.90]	2.90[73.66]	2.90[73.66]		
9.625[244.48]	40-47	8.50[215.90]	3.81[96.77]	1.92[48.77]		
9.625[244.48]	47-53.5	8.34[211.84]	2.90[73.66]	2.44[61.98]		

◆ More about RHD packer ,please contract representative for additional information.

02 RHR SERIES HYDRAULIC SET PULL RETRIEVABLE PACKER

Product Family No. A2204

DESCRIPTION

The RHR packer is a retrievable, hydraulic-set production packer set in casing to divert casing-to-tubing flow. It is set by pressuring up the tubing string against a plugging device below the packer. Bi-directional, case-carburized slips hold the packer against well pressures from above and below. Spring-loaded Internal slips maintain the packer in the set position.

The RHR packer is a straight shear-to-release packer that is convertible to cut to release. The shear release value is adjustable.

APPLICATION

- ✔ Multizone production applications
- ✔ Single-trip applications
- ✔ Multi-string completions with control line feed through
- ✔ Electric submersible pump comple-tions

FEATURES/BENEFITS

- ✔ API 11D1-V3-R validated
- ✔ Single-trip capability
- ✔ Barrel slip design
- ✔ Single-piece mandrel construction
- ✔ Triple-seal multi durometer element
- ✔ Straight shear or cut to release

RHR PACKER SPECIFICATION

CASING SIZE	CASING WEIGHT	PACKER OD	PACKER ID	PRESSURE	TEMPER ATURE
in[mm]	lb/ft	in[mm]	in[mm]	psi	F
5.5[139.7]	20-23	4.50[114.30]	2.35[59.69]	5000 ~ 7500	40
7[177.80]	20-26	6.10[154.93]	3.88[98.42]		~ 350
7[177.80]	23-29	6.00[152.39]	3.88[98.42]		
7[177.80]	26-32	5.93[150.52]	3.88[98.42]		
9.625[244.48]	40-47	8.47[215.13]	4.73[120.14]		
9.625[244.48]	47-53.5	8.31[211.07]	4.73[120.14]		

◆ More about RHR packer ,please contract representative for additional information.



02 RHC SERIES HYDRAULIC SET CUT RETRIEVABLE PACKER

Product Family No. A2205

DESCRIPTION

The RHC retrievable packer is a hydraulic-set, cut-to-release production packer. The unique design allows either the packer ID to be maximized or have multiple bores or control line feed throughs. The large bore and no mandrel movement when setting make this packer ideally suited for multi-zone stacked packer applications.

The RHC packer can be configured as either a straight-shear-release retrievable packer, or where high pressures are expected, it can be set up as cut to release. In the cut-to-release design, the packer mandrel is cut, and the packer with tailpipe is retrieved without leaving any packer components in the well.

APPLICATION

- ✔ Multizone production applications
- ✔ Single-trip applications
- ✔ Multi-string completions with control line feed through
- ✔ Electric submersible pump completions
- ✔ High-pressure and tubing-conveyed perforating applications with cut-to-release option

FEATURES/BENEFITS

- ✔ Large ID for maximum tubing size or multiple bores
- ✔ Single-trip capability
- ✔ Triple-seal multi durometer element package
- ✔ Case-carburized barrel slip
- ✔ Single-piece mandrel construction
- ✔ Straight pull (in some cases) or cut to release

RHC PACKER SPECIFICAITON

CASING SIZE	CASING WEIGHT	PACKER OD	PACKER ID	PRESSURE	TEMPERATURE
in[mm]	lb/ft	in[mm]	in[mm]	psi	°F
7[177.80]	26-29	5.96[151.38]	2.95[74.93]	7500	40
7[177.80]	29-32	5.93[150.62]	3.90[99.06]		~
7[177.80]	32-35	5.82[147.83]	3.90[99.06]		350
9.625[244.48]	43.5-47	8.45[214.63]	6.02[152.91]	5000	
9.625[244.48]	43.5-53.5	8.31[211.07]	4.88[123.95]		

◆ More about RHC PACKER, please contract representative for additional information.



02 RMS SERIES MECHANICAL SET RETRIEVABLE PACKER

Product Family No. A2301

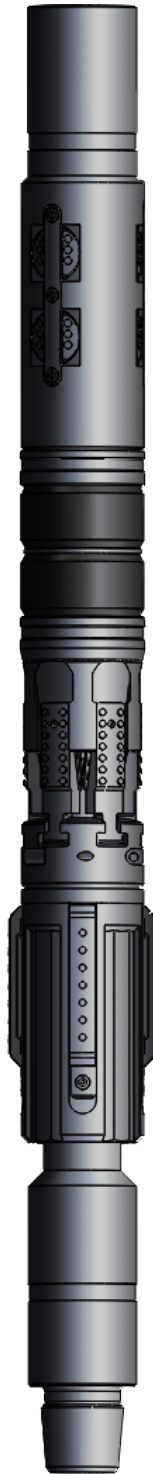
DESCRIPTION

The RMS packer is a full-opening, hook wall packer used for testing, treating, and squeeze cementing operations. In most cases, the tool runs with a circulating valve assembly. The packer body includes a J-slot mechanism, mechanical slips, packer elements, and hydraulic slips. Large, heavy-duty slips in the hydraulic hold-down mechanism help prevent the tool from being pumped up the hole. Automatic J-slot sleeves are standard equipment on all RMS packer bodies

The pressure must be equalized across the packer to unset it. As the tubing is picked up, the circulating valve remains closed, establishing reverse circulation around the lower end of the packer. The circulating valve will open by the action - lower tubing , rotate to the right and pick up.

FEATURES/BENEFITS

- ✔ Full opening design of the packer mandrel bore allows large volumes of fluid to pump through the tool
- ✔ Packer can be set and relocated as many times as necessary
- ✔ Tungsten carbide slips provide greater holding ability and improved wear resistance in high-strength casing
- ✔ Optional integral circulating valve locks into open or closed position during squeezing or treating operations and opens easily to allow circulation above the packer



RMS PACKER SPECIFICATION

CASING SIZE	CASING WEIGHT	PACKER OD	PACKER ID	PRESSURE	TEMPERATURE
in[mm]	lb/ft	in[mm]	in[mm]	psi	°F
4.5[114.30]	11.6-13.5	3.75[95.30]	1.80[45.70]	10000	40 ~ 350
4.5[114.30]	15.1-18.3	3.55[90.20]	1.51[38.40]		
5[127.00]	11.5-13	4.25[107.90]	1.80[45.70]		
5[127.00]	15-18	4.06[103.1]	1.80[45.70]		
5[127.00]	23.2	3.75[95.30]	1.80[45.70]		
5.5[139.7]	13-20	4.55[115.60]	1.80[45.70]		
5.5[139.7]	20-23	4.38[111.30]	1.80[45.70]		
5.5[139.7]	23-26	4.25[107.90]	1.80[45.70]		
7[177.80]	17-26	6.00[152.40]	2.38[60.30]		
7[177.80]	23-29	5.75[146.10]	2.38[60.30]		
7[177.80]	32-38	5.65[143.50]	2.38[60.30]		
9.625[244.48]	47-53.5	8.15[207.00]	3.75[95.30]	7500	

◆ More about RMS packer, please contact representative for additional information.

02 RMV SERIES MECHANICAL SET RETRIEVABLE PACKER

Product Family No. A2302

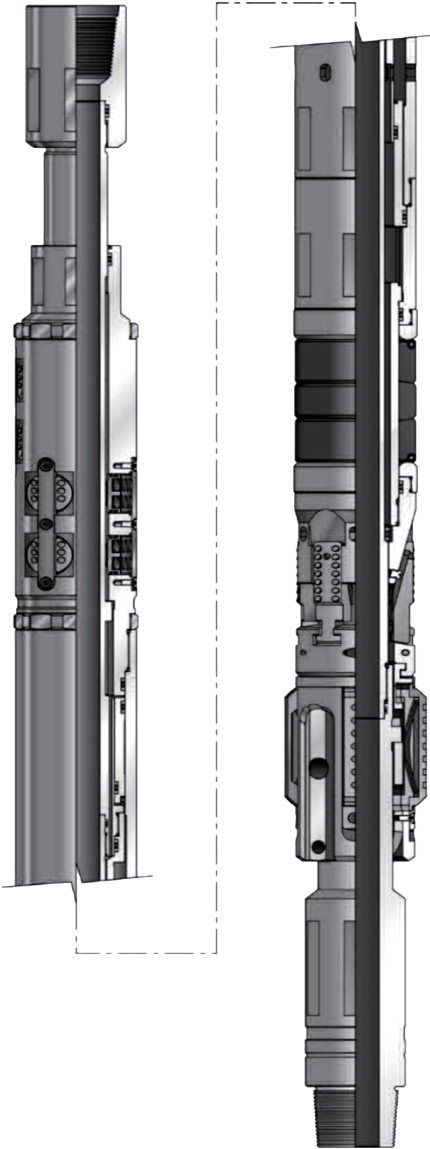
DESCRIPTION

The RMV non-rotational packer is ideal for deepwater, extended-reach situations where getting enough torque downhole to manipulate the tool string can be a major challenge. It is made up of a hook wall retrievable packer with a concentric bypass and a continuous indexing J-slot.

The RMV non-rotational packer is constructed with higher grade materials, and all elastomers are supported with backup rings. The J-slot enables the packer to be run in the casing, set, and unset without applying any rotation to the work string. The packer can cycle from the run-in-hole position to the set and pull-out-of-hole positions simply by lifting or lowering the drill pipe or tubing in the wellbore.

FEATURES/BENEFITS

- ✔ Easily operated in extended-reach or highly deviated wellbores
- ✔ No rotation required to set the packer
- ✔ Locked in the “run in hole” position until the hydrostatic pressure at a pre- determined depth is reached or annulus pressure is applied
- ✔ Easily relocated to multiple zones during a single trip for treating, testing, or squeezing
- ✔ Concentric bypass enables a larger bypass flow area with positive circulation below packer and tailpipe
- ✔ Rated up to 15,000 psi (103.42 MPa working pressure with a temperature rating of up to 400°F (204.4°C)



02 EP3 SERIES ESP RETRIEVABLE PACKER

Product Family No. A2401

DESCRIPTION

The EP3 Packer is a short, economical packer designed for deployment of Electric Submersible Pumps. The simple, compact design minimizes the number of parts, making running and servicing easier. The solid body configuration eliminates relative movement between strings and permits optional porting configuration for multiple instrumentation and chemical injection lines, and gas venting. No downward movement is required for setting the packer which allows stacked packer arrangements.

FEATURES/BENEFITS

- ✔ Short, economical design suitable for most ESP installations
- ✔ Pressure and temperature rating: 2,500-3000 psi and 200-300 F
- ✔ Fewer parts simplify running and servicing the packer, reduces potential leak paths
- ✔ Hydraulic set and straight pull/ shear release simplifies operation
- ✔ Short compact design easier to make up on the string
- ✔ Multiple ports through packer available by special order
- ✔ Available in Standard and H2S service materials



EP3 SPECIFICATION

CASING SIZE	CASING WEIGHT	PACKER OD	1ST STRING	2ND STRING	PRESSURE	TEMPERATURE
in[mm]	lb/ft	in[mm]			psi	F
5.5[139.7]	15.5-17	4.65[118.00]	2-7/8 EU	1.9 NU	3000	40 ~ 300
7[177.80]	20-26	5.94[150.88]	2-7/8 EU	1.9 NU		
7[177.80]	26-29	5.94[150.88]	2-7/8 EU	1.9 NU		
9.625[244.48]	36-47	8.50[215.90]	3-1/2 EU	2-7/8 EU		
9.625[244.48]	43.5-47	8.44[214.38]	3-1/2 EU	2-7/8 EU		

◆ More about EP3 packer ,please contract representative for additional information.

02 EP5 SERIES ESP RETRIEVABLE PACKER

Product Family No. A2402

DESCRIPTION

The EP5 packer is a single- trip, single-bore, hydraulic-set packer with a dual head designed to reduce the overall costs of submersible pump completions. It is made up on the tubing string allowing a full-bore production tubing ID and passage of an electric cable and control line.

Case carburized bi-directional slips anchor the packer against well pressure from above or below. Slip design offers exceptional hang weight capability. Straight pull shear release allows simple retrieval without a retrieving tool. Shear value is field adjustable. No tubing rotation is required to set or release.

FEATURES/BENEFITS

- ✔ Chemical injection and pressure monitoring ports can easily be added through the packer without significant costs.
- ✔ Field redress is quick, easy and cost effective.
- ✔ Pressure and temperature rating: 5000 psi and 300 F
- ✔ Compatible with feed-through equipment.
- ✔ Easy installation can help make marginally economic wells attractive to produce



EP5 SPECIFICATION

CASING SIZE	CASING WEIGHT	PACKER OD	1ST STRING	2ND STRING	PRESSURE	TEMPERATURE
in[mm]	lb/ft	in[mm]			psi	F
7[177.80]	23-26	6.12[155.40]	2-7/8 EU	1.9 NU	5000	40 ~ 300
7[177.80]	29	5.99[152.10]	2-7/8 EU	1.9 NU		
9.625[244.48]	40-47	8.46[215.10]	3-1/2 EU	1.9 NU		
9.625[244.48]	47-53.5	8.35[212.00]	3-1/2 EU	1.9 NU		

◆ More about EP5 packer ,please contract representative for additional information.

02 EPPO SERIES PACKOFF ASSEMBLY

Product Family No. A2403

DESCRIPTION

The EPPO pack-off assembly is used to seal the cable on the ESP packer, isolating the pressure difference between the packer and the cable, and the overall operation does not need to cut the cable like the BIW cable traversing device. When using EPPO to seal the cable, it is only necessary to peel off the armor of the cable to expose the rubber sleeve, and the installation is simple.

FEATURES/BENEFITS

- ✔ No splicing required when running cable through the packer
- ✔ Assembly onto the cable is simple, requiring only 3/4 – 1 turns with a pipe wrench to pack off onto the cable
- ✔ 2,500 psi differential pressure rating up to & including 200°F



02 AGV SERIES ANNUAL GAS VALVE

Product Family No. A2404

DESCRIPTION

The AGV annulus control safety valves that are control line actuated valves which attach directly to the top of the ESP Packer. The valves is used to control the flow of annulus gas across the ESP packers. It is a normally closed valve which is opened by applying control line pressure.

FEATURES/BENEFITS

- ✔ Simple operation - simplicity in design ensures reliable operations
- ✔ Modular design - vent valves designed in conjunction with ESP Packer
- ✔ Ultra-strong closure mechanism – enables absolute sealing for annulus gas



02 ASA ANCHOR SEAL ASSEMBLY

Product Family No. A2501

DESCRIPTION

The ASA anchor seal assembly is an anchoring and sealing device that connects the upper seal bore of the permanent packer and tubing. The anchor seal assembly is connected to the packer, and the sealing assembly is sealed with the packer sealing cylinder to maintain wellbore integrity

FEATURES/BENEFITS

- ✔ The upper part of the ASA anchor seal is connected to the tubing coupling by high quality metal-to-metal threads
- ✔ Provide enough space for the installation of anchor joints
- ✔ Simple and convenient replacement of sealing units
- ✔ The anchor seal can be separated from the seal cartridge of the permanent packer by turning the upper string to the right



ASA SPECIFICATION

TYPE	SIZE in./mm										
	20-30	40-32	40-36	41-36	80-40	80-52	81-47	82-47	82-48	190-60	190-75
OD in./mm	3.188 80.98	3.75 95.25	4.375 111.13		4.5 114.3	5.937 150.80	5.5 139.7			6.5 165.10	7.63 193.8
ID in./mm	2.375 57.73	2.375 57.73	2.972 75.49	2.875 72.57	3.00 76.20	3.948 100.28	3.875 98.43	3.984 101.2	3.875 98.43	4.823 122.5	6.03 53.16
SEAL OD in./mm	2.39 60.76	3.25 82.55	3.625 92.08		4.0 101.2	5.25 133.35	4.75 120.65		4.875 123.83	6.0 152.4	7.5 190.5

◆ More about ASA anchor seal ,please contract representative for additional information.

02 LSA SERIES LOCATOR SEAL ASSEMBLY

Product Family No. A2502

DESCRIPTION

The LSA The 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 “locates” 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.

When a Locator Tubing Seal Assembly is landed in a packer, the tubing is normally set in compression to compensate for any contraction of the tubing during treating operations.



02 SLS SERIES SNAP-LATCH SEAL ASSEMBLY

Product Family No. A2503

DESCRIPTION

The SLS Snap-Latch Seal Assemblies are similar to shear release anchor seal assemblies because they are latched in place with set-down weight and released with tension. However, unlike shear release anchor, snap-latch seal assemblies may be snapped into and out of a packer many times. Initially, 8,000 to 12,000 lbs tension is required to remove the snap-latch from the packer's bore. Snap-latch seal assemblies are used in those installation where a mechanical snap-in, snap-out indication is required to verify the seal assembly is properly positioned in the packer's bore. Typical applications include sump packers in gravel packs and lower packers in tandem completions which cannot be pressure tested.



02 MOE SERIES MILLOUT EXTENSION

Product Family No. A2504

DESCRIPTION

A MOE Mill-out Extension can be run directly below a seal bore packer when a Seal Bore Extension or other tailpipe is run below the packer. For permanent packers, the Mill-out Extension is required to accommodate the mandrel and catch sleeve during packer milling. In the case of a retrievable seal bore packer, the Mill-out Extension will accommodate the mandrel and catch sleeve of the retrieving tool



02 SBE SERIES SEALBORE EXTENSION

Product Family No. A2505

DESCRIPTION

The SBE Seal Bore Extensions can be run below a seal bore packer. A Seal Bore Extension is run to provide additional sealing bore when a long seal assembly is run to accommodate considerable tubing movement. The Seal Bore Extension has the same ID as the corresponding packer seal bore it is run with, thus all seals of a long seal assembly seal off in the Seal Bore Extension.



02 SJ SERIES SAFETY JOINT

Product Family No. A2506

DESCRIPTION

The Safety Joint is designed to enable an emergency disconnection of part of the tubing string when it becomes necessary to abandon the equipment below. It features precision-machined left-hand square threads, allowing for a reliable release by applying right-hand rotation to the tubing.



02 TJ SERIES TRAVEL JOINT

Product Family No. A2507

DESCRIPTION

The TJ Travel Joint is designed for use in both single and multiple string completions to compensate for tubing movement. It provides 10 feet or more of travel and incorporates durable bonded seals to ensure reliable, long-term performance. The tool's telescoping action allows it to function as a bumper sub or jar during retrieval operations. Shear screws can be installed to preset the joint in an extended, collapsed, or mid-position. Additionally, a rotation lock enables the operator to transmit torque through the joint in any position.

TJ SPECIFICATION

SIZE		OD		ID		TORQUE		STROKE	
in.	in.	mm	in.	mm	ft-lbs	ft	m		
2-3/8	3.765	95.63	1.930	49.02	2,000	2.0	0.61		
2-7/8	4.531	115.08	2.400	60.96	2,500				
3-1/2	5.03	127.00	2.875	73.03	3,500				
4-1/2	6.41	162.8	3.875	98.43	5,000				



02 BS SERIES SHEAR-OUT BALL SEAT

Product Family No. A2508

DESCRIPTION

The BS Shear-Out Ball Seat Sub are installed on the bottom end of the tubing to allow the tubing string to be pressured. When the differential pressure at the tool reaches a pre-determined value, the plug, or ball and seat, are pumped out of the tool. After the plug or ball seat have been pumped out, these subs allow unrestricted access from the tubing into the casing below the tubing string.



FEATURES/BENEFITS

- ✔ Shear value is easily adjusted before going downhole
- ✔ Simple design and field-proven
- ✔ The tool can be used to fill fluid when running down the string
- ✔ The tool is full bore after the ball seat is cut off
- ✔ Leaves a flare on the string for easy rope access

BS SPECIFICATION

TUBING		SHEAR-OUT BALL SEAT			
SIZE	WEIGHT	OD	SEAT ID	BALL SIZE	ID AFTER SHEAR
in.	lb/ft	in.(mm)	in.(mm)	in.(mm)	in.(mm)
1.900	2.8	2.500(63.5)	1.000(25.4)	1.250(31.8)	1.531(39.8)
2-3/8	4.7	3.062(77.8)			1.937(49.2)
2-7/8	6.5	3.668(93.2)	1.250(31.8)	1.500(38.1)	2.375(60.3)
3-1/2	9.3	4.500(114.3)	2.250(57.2)	2.500(63.5)	2.937(74.6)
4-1/2	12.8	5.563(141.3)	3.250(82.6)	3.500(88.9)	3.937(100.0)
5-1/2	17.0	6.050(153.7)	1.875(47.6)	2.000(50.8)	4.500(114.3)

◆ More about BS, please contract representative for additional information.

02 HTS SERIES HYDRO TRIP SUB

Product Family No. A2509

DESCRIPTION

The HTS HYDRO Trip Sub is used below a hydraulically actuated tool such as a hydraulic set packer to provide a means of applying the required tubing pressure for tool activation. The unique sub uses a ball to set and seal on a seat, after the packer is set, increased pressure forces the ball seat down until the fingers snap back into a groove. The sub is then full opening, and the ball passes on down the tubing.

FEATURES/BENEFITS

- ✔ Full bore after shearing
- ✔ Allow fluid to circulate before pitching
- ✔ Reliable shearing mechanism
- ✔ Adjustable shear value



HTS SPECIFICATION

SIZE	BALL SIZE		BALL SEAT			
			BEFORE		AFTER	
in.	in.	mm	in.	mm	in.	mm
1.900	1-7/16	36.5	1.25	31.8	1.516	38.5
2-3/8	1-1/2	38.1	1.375	34.9	1.860	47.2
	1-3/4	44.5	1.625	41.3	1.906	48.4
2-7/8	2-1/8	53.0	2.000	50.8	2.375	60.3
3-1/2	2-1/2	63.5	2.312	58.7	2.781	70.6
	2-3/4	69.9	2.500	63.5	2.953	75.0
4-1/2	3-1/16	77.8	2.734	69.4	3.615	91.8
	3-3/8	85.7	2.985	75.8	3.865	98.2

◆ More about HTS ,please contract representative for additional information.

02 WEGS SERIES GUIDE SHOE

Product Family No. A2510

DESCRIPTION

The WEGS wireline guide shoe is connected to the bottom of the pipe string to help guide the wire rope tool when it enters and exits the bottom end of the pipe string again. Wire guide shoes are available in the following 3 types:

- ✔ Half-Mule Guide Shoe
- ✔ Flat Guide Shoe
- ✔ Stabilizer Type Guide Shoe



02 HA SERIES HYDRAULIC ANCOHR

Product Family No. A2511

DESCRIPTION

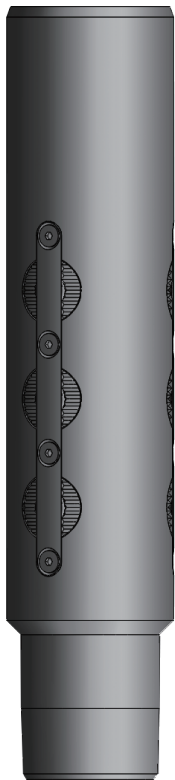
The HA hydraulic anchor is a product commonly used in oil fields. It is a kind of oil pipe anchoring device that can be opened by hydraulic pressure and can be retracted automatically. It is mainly used for acidizing and anchoring pipe strings during fracturing.

The HA hydraulic anchors are mainly designed with leaf springs, and the selected leaf springs are made of high-quality spring materials to ensure that the hydraulic anchors can be retracted effectively. The HA hydraulic anchors can effectively upright, support the pipe string, ensure the stability of the well completion operation, and effectively prevent the pipe string from moving due to changes in temperature, pressure, and load torque during construction.

There are two types of hydraulic anchor claws, one slip type and one alloy tooth type, which are respectively used in casings of different steel grades. According to different well conditions, we can provide the most suitable type of hydraulic anchor according to user needs.

FEATURES/BENEFITS

- ✔ Simple structure and easy to use
- ✔ Provides greater anchoring force under high differential pressure
- ✔ Large diameter, suitable for high pressure and large sand volume fracturing construction



02 CIV/CIM SERIES CHEMCIAL INJECTION VALVE & MANDREL

Product Family No. A2512

DESCRIPTION

The CIV and CIM Model Chemical Injection Valve & Mandrel is a one piece, corrosion-resistant, eccentric mandrel with integral protective lugs, dual-stage redundant check valves, and integral joints. This one-piece mandrel has an integral oil pipe joint, one-way valve protector and control line protection lugs. The one-piece eccentric design of the mandrel makes it easy to repair and maintain during use.

FEATURES/BENEFITS

- ✔ Two-stage check valve
- ✔ Applicable to a wide range of tubing sizes
- ✔ Pressure ranges from 5000psi to 20000psi
- ✔ One-piece eccentric design



CIM SPECIFICATION

TUBING		MANDREL			
SIZE	WEIGHT	OD		ID	
in.	lb/ft	in.	mm	in.	mm
2 7/8	6.4	4.50	114.30	2.35	59.61
3 1/2	9.2	5.20	132.08	2.87	72.82
4 1/2	12.6	6.22	158.00	3.83	97.36
5 1/2	20	7.13	183.31	4.65	118.19

◆ More about CIV ,please contract representative for additional information.

02 GLV SERIES GASLIFE SYSTEM

Product Family No. A2513

DESCRIPTION

The GLV gas lift valve and its mandrels can be used as part of a tubing string for gas lift production, chemical injection, water injection and other special applications. The cross-section of the eccentric mandrel is designed to be oval, and it has various specifications of tubing and threaded connections. The mandrel has an integral one-piece pocket and tool guide function, which ensures that large wire tools enter the pocket area and guide smaller eccentric tools into the pocket. Locating sleeves in highly deviated wells helps ensure that tools are precisely aligned for pocket delivery or fishing.

FEATURES/BENEFITS

- ✔ Positioning sleeve guide positioning system
- ✔ Forged tool guides guide large tool deflection into tube bores
- ✔ Integral forged pockets
- ✔ A variety of optional materials



GLV SPECIFICATION

SIZE	GASLIFT MANDREL					
	OD		ID		INTERNAL PRESSURE	EXTERNAL PRESSURE
in.	in.	mm	in.	mm	psi	psi
2 3/8	4.25	107.95	1.91	48.41	11500	11000
2 7/8	5.00	127.00	2.35	59.62	1100	10200
3 1/2	5.51	139.95	2.87	72.82	11000	10200
4 1/2	6.44	163.58	3.83	97.36	7500	6000

◆ More about GL system ,please contract representative for additional information.

02 PBR SERIES POLISHED BORE RECEPTACLE

Product Family No. A2514

DESCRIPTION

The PBR is run as an integral part of the production tubing above the completion packer. The most common completion method is to run the PBR as pictured with the seal assembly fully inserted into the receptacle. After reaching the desired depth, sufficient tension is applied to shear the screws or shear ring. The well can then be spaced out as desired.

02 YTA SERIES Y-TOOL

Product Family No. A2516

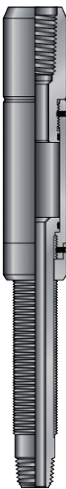
DESCRIPTION

02 ASS SERIES ADJUSTABLE SPACER SUB

Product Family No. A2517

DESCRIPTION

The Adjustable Spacer Sub with Rotational Lock is used below a dual packer to facilitate making tubing connections, spacing out, etc., between two retrievable packers. The spacer sub has 24" (609.6 mm) of travel, and when it has been adjusted to the desired length, it is locked to prevent telescoping or rotational movement.



02 HST SERIES HYDRAULIC SETTING TOOL

Product Family No. A2518

DESCRIPTION

The Hydraulic Setting Tool is designed to set mechanical set bridge plugs on coiled tubing. The HST is available in the same sizes as the Wireline Pressure Setting Assembly (WLPSA) and can be used in place of the WLPSA when applicable. The HST uses the same adapter kits as the WLPSA. A setting ball is used to activate the setting tool; however, a “non-ball” operated system is available that utilizes specific flow rates to operate the tool. The HST can be run in high angle or deviated wells where wireline setting is extremely difficult or impossible.

02 OOT SERIES ON-OOFF TOOL

Product Family No. A2520

DESCRIPTION

The left-hand-release on-off tool has the capability to simply and reliably retrieve the production string without disturbing the companion packer below. Its sealing system allows the tubing to be disconnected for fluid circulation, while ensuring seal integrity when reconnected.



02 PJ SERIES PUP JOINT

Product Family No. A2522

DESCRIPTION

It can be customized according to the customers' requirements, including various materials, lengths, and requirements for the inner and outer diameters.

02 PPJ SERIES PERFORATED PUP JOINT

Product Family No. A2523

DESCRIPTION

The PPJ Perforated Spacer Tube is used at the end of a tubing string to provide an alternate flow path in cases where wireline measuring devices are used.

02 PRT SERIES PAR PACKER RETRIEVING TOOL

Product Family No. A2524

DESCRIPTION

The PRT Retrievable Tool is designed to retrieve PAR packers. To initiate retrieval, the tool is run into the tubing string and inserted into the inner bore of the packer. Once engaged, the tool locates the packer’s release ring and lifts the unpacking sleeve upward, triggering the release mechanism.

The process continues by lifting the string further to disengage the unpacking sleeve and packer mandrel, allowing the slips to retract and the packer to be fully unset. No rotation is required during the unsealing process.

To remove the retrieval tool from the packer, six to eight right-hand rotations are needed to disengage the split jaws from the packer’s top connector.



02 WLAK SERIES WIRELINE ADAPTER KIT

Product Family No. A2525

DESCRIPTION

The appropriate size wireline adapter kit is installed in the packer, which is then connected to the pressure setting assembly. The complete assembly is run to the desired setting depth using either electric wireline or tubing.

02 FTR SERIES RETRIEVABLE FEED THROUGH PACKER

Product Family No. A2601

DESCRIPTION

The Feedthrough Premier Packer is a hydraulic set tool with Slip-Element-Slip arrangement. This provides the sealing performance of a Permanent Packer combined with the ease of removal of a Retrievable Packer. Since no body movement occurs during pack off performance is assured when run as part of either a multi-packer or standard completion.

This Packer has been supplied with several Control Line feedthroughs. Various configurations can be supplied to suit customer operational requirements. Feedthrough and testing is available and can be performed at the rig site.

FEATURES

- ✔ Multiple forms of feedthroughs are available
- ✔ No body movement during setting
- ✔ Multiple options of release mechanism



02 FTP SERIES PERMANENT FEED THROUGH PACKER

Product Family No. A2602

DESCRIPTION

The permanent feed-through packer is a specialized completion tool designed to provide a reliable seal in the wellbore while allowing electrical, fiber optic, or hydraulic lines to pass through.

The FTP series permanent packer with feed-through functionality shares a similar structure with the FTR packer. By eliminating the release feature, the design not only reduces cost but also enhances the structural integrity for long-term, permanent applications.

FEATURES

- ✔ Enables seamless integration of downhole monitoring and control systems
- ✔ Enhances well integrity with a secure, permanent seal



02 HRRBP SERIES HYDRAULIC SET RETRIEVABLE BRIDGE PLUG

Product Family No. A2701

DESCRIPTION

The retrievable bridge plugs can be used for selective fracturing, acidizing, testing and or treating of several intervals in a well in one trip and for temporary pressure containment from either above or below. One of the primary applications for these retrievable bridge plugs is for use with full-bore retrievable cementers in straddle operations, such as selective multiple-zone or single-zone fracturing, acidizing, testing, or cementing.

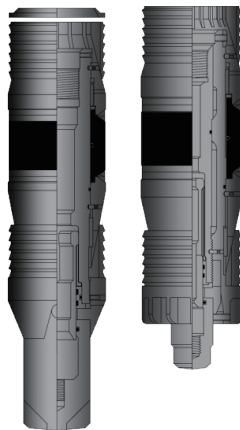


02 MRBP SERIES MECHANICAL SET RETRIEVABLE BRIDGE PLUG

Product Family No. A2702

DESCRIPTION

The MRBP cement retainer is a high-performance, drillable cement retainer ideal for most remedial cementing applications. The MRBP was designed to function as a drillable squeeze packer which, after cementing, acts as a plug, trapping squeeze pressure on the cement below the retainer and isolating the newly cemented area from the hydrostatic pressures above the cement retainer.



02 BPRT SERIES BRIDGE PLUG RETRIEVING TOOL

Product Family No. A2703

DESCRIPTION

BPRT bridge plug retrieving tool is designed for HRRBP to make it easy to pull out of casing.

02 ESP FLOW CONTROLLER

Product Family No. A2801

DESCRIPTION

The ESP Flow Controller is a specialized downhole tool used in Electric Submersible Pump (ESP) completions. Installed just above the ESP, it facilitates automatic communication between the tubing and annulus. When the ESP is inactive, the ESP Flow Controller remains open to allow free-flowing production, bypassing the pump. Once the ESP is activated, the internal valve closes automatically under differential pressure, ensuring production flows through the pump. This seamless operation allows for efficient transition between free flow and artificial lift modes and protects the pump components during shutdown periods.

FEATURES/BENEFITS

- ✔ Minimized Downtime: Large flow ports enable rapid fluid drainage to the annulus, reducing restart times for ESPs.
- ✔ Enhanced Reliability: Made with high-grade Inconel metal seals and Teflon-encapsulated O-rings, the ESP Flow Controller withstands multiple open/close cycles under harsh conditions.
- ✔ Improved Well Productivity: By allowing flow to bypass the pump during shutdowns, the ESP Flow Controller avoids sand accumulation in the ESP, reducing wear and maintenance.
- ✔ Smart Activation: It uses pump differential pressure to control valve operation, ensuring a fully open or closed position—eliminating partial flow issues.
- ✔ Operational Flexibility: In partially free-flowing wells, it boosts productivity by automatically managing transitions without mechanical interference.

03 SSD/SSU SERIES SLIDING SLEEVE

Product Family No. A3101/A3102

DESCRIPTION

The SSD/SSU Series Sliding Sleeves are high-performance, equalizing sleeves designed to enable communication between the tubing and annulus for circulation or selective zone production. The sleeves can be shifted open or closed as needed using standard wireline methods and a B-type shifting tool.

These tools are engineered to accommodate various lock profiles and compatible seal bores, allowing for the use of a wide range of wireline locks and accessories, offering maximum flexibility in completion design.

FEATURES/BENEFITS

- ✔ A specially designed diffuser ring made of high-strength thermoplastic is critically spaced between the flow ports and the upper packing unit.
- ✔ The seal stack is manufactured from proprietary, high strength, non-elastomeric compounds that are chemically inert and 30% stronger than commercially available materials.
- ✔ Mill slots replace drill holes as flow ports on both the housing and the insert to allow more flow area, reduce erosion and allow higher torque and tensile strength through the sleeve.
- ✔ Locating the threaded connection inside the primary seal stack eliminates the need for O-ring thread seals and cuts the number of potential leak paths in half.
- ✔ A locking, angled torque shoulder replaces traditional square shoulder to allow higher torques and reduce thread back-off.



SSD/SSU SPECIFICATION

SIZE	SEALBORE	PRESSURE	TEMPER ATURE	TENSILE	TORQUE	
in.	in./mm	psi	°F	lb	ft•lb	
2-3/8	1.562/39.67	10,000	350	96,000	1,782	
	1.812/46.02					
	1.875/47.63					
2-7/8	2.188/55.58			140,000	3,500	
	2.250/57.15					
	2.313/58.73					
3-1/2	2.562/65.07			182,600	4,000	
	2.750/69.85					
	2.813/71.43					
4	3.125/79.38	7,500	350	291,900	5,700	
	3.312/84.12					
4-1/2	3.437/87.30	8,200		270,000	6,000	
	3.500/88.90					
	3.562/90.47					
	3.688/93.68					
	3.750/88.90					
	3.813/96.82					
5	4.000/101.24	7,300		350	315,000	5,500
	4.125/104.78					
5-1/2	4.313/109.52	6,300			351,000	6,200
	4.437/112.70					
	4.562/115,.87					
7	5.625/142.88	7,000			628,000	8,700
	5.750/146.05					
	5.875/149.22					

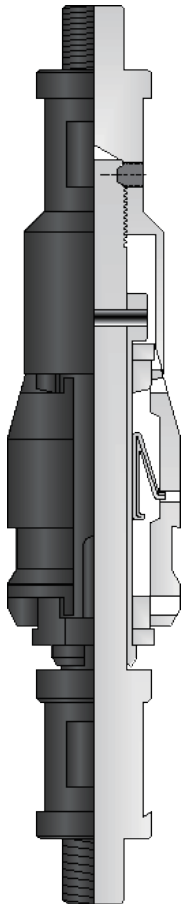
◆ More about Sliding Sleeve ,please contract representative for additional information.

03 BST SERIES SLIDE SLEEVE SHIFTING TOOL

Product Family Nos. A3103

DESCRIPTION

The BST Sliding Sleeve Shifting Tool is designed to engage the positioning groove of the sliding sleeve using a retractable positioning block. The sleeve is opened or closed by applying upward or downward jarring action. A spring-loaded mechanism within the positioning block keeps the shifting tool in an expanded (open) state. During deployment, if the tool encounters restrictions due to tubing ID changes, the spring compresses to reduce the tool's outer diameter, allowing it to pass through until it reaches the sliding sleeve's positioning groove. Once the sliding sleeve is opened or closed, continued upward or downward movement causes the positioning block to retract, disengaging it from the groove. The shifting tool can then pass smoothly through the sleeve and be retrieved from the wellbore.



03 SST SERIES SLIDE SLEEVE SELECTIVE SHIFTING TOOL

Product Family Nos. A3104

DESCRIPTION

The Selective Shifting Tool is a specially made shifting tool exclusively for the SSD/SSU Sliding Sleeve. The tool is designed with a selective feature incorporated to shift multiple sleeves in a string or shift a single sleeve.

◆ More about SSD system ,please contract representative for additional information.

03 LN SERIES LANDING NIPPLE

Product Family No.A3201,A3202,A3203,A3204,A3205,A3206,A3207

DESCRIPTION

The “BX” Non-Ported Seating Nipple is a top no-go, downhole tubing nipple used to locate, seal, and retain Halliburton ‘X’ Locks

The “BXN” Non-Ported Seating Nipple is a bottom no-go, down-hole tubing nipple used to locate, seal, and retain Halliburton ‘XN’ Locks

The “BR” Non-Ported Seating Nipple is a top no-go, downhole tubing nipple used to locate, seal, and retain Halliburton ‘R’ Locks.

The “BRN” Non-Ported Seating Nipple is a bottom no-go, downhole tubing nipple used to locate, seal, and retain Halliburton ‘RN’ Locks

The BF Seating Nipples are the Top No-Go line of seating nipples. These nipples contain a no-go shoulder and a locking groove. The no-go shoulder is used to locate and set the flow control device that is being run into the well. When running the flow control device in the well, a no-go shoulder located on the flow control device will come into contact with the no-go shoulder of the seating nipple.

The BR seating nipples are the Sur-Set bottom no-go line of seating nipples. BR seating nipples are downhole tubing nipples that provide for the location of various wireline flow-control devices in the production string. They also contain a no-go shoulder and a locking groove.



FEATURES/BENEFITS

- ✔ Sealbore provides maximum sealing performance
- ✔ Polished seal cartridges can pass through the seal assembly without damage
- ✔ Complete locking groove
- ✔ Lengthened top barrel reduces the possibility of premature blocking
- ✔ Simple design
- ✔ The bearing capacity is independent of the bearing capacity of the NO-GO part

APPLICATION

- ✔ Setting plugs, for shut-in or tubing testing
- ✔ Check valve
- ✔ Sit and place test tools, such as pressure thermometers, etc.

F/R LANDING NIPPLE

TUBING			PROFILE SIZE			
SIZE		WEIGHT	SEALBORE		NO-GO SIZE	
in.	mm	lb/ft	in.	mm	in.	mm
2.875	73.03	6.50	2.313	58.72	2.257	57.33
			2.250	57.15	2.160	54.86
		7.90	2.188	55.58	2.098	53.29
		8.70	2.125	53.98	2.05	51.69
			2.062	52.37	2.005	50.93
		11.00	1.875	47.63	1.822	46.28
1.812	46.02		1.760	44.70		
3.500	88.90	9.30	2.813	71.42	2.760	70.10
			2.750	69.85	2.660	67.56
		12.95	2.562	65.07	2.472	62.79
		15.80	2.313	58.72	2.230	56.64
		16.70	2.250	57.15	2.160	54.86
		17.05	2.188	55.58	2.089	53.29
4.500	101.60	11.00	3.312	84.12	3.256	82.70
		11.60	3.250	82.55	3.160	80.26
		1.40	3.125	79.38	3.072	78.03
		16.50	2.813	71.42	2.760	70.10

X/XN LANDING NIPPLE

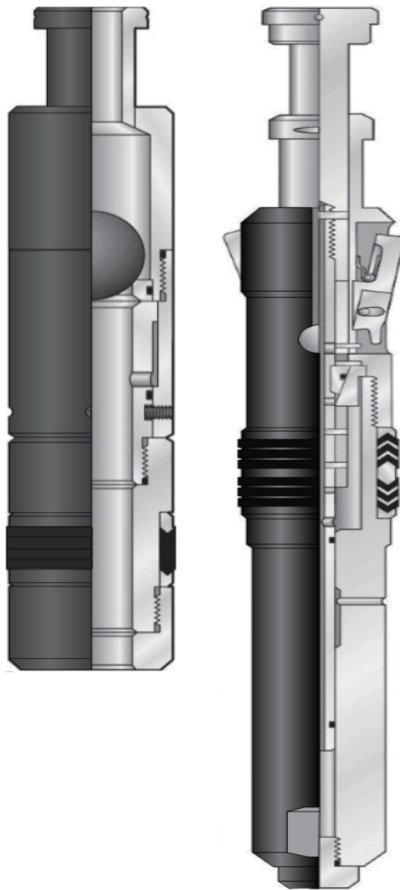
TUBING				X		XN				PRONG ID	
SIZE	WT	ID		SEALBORE		SEALBORE		NO-GO ID			
in.	lb/ft	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
23/8	4.6	1.995	50.67	1.875	47.63	1.875	47.63	1.791	45.49	1	25.40
	4.7										
2-7/8	6.4	2.441	62	2.313	58.75	2.313	58.75	2.205	56.01	1.38	35.05
	6.5										
3-1/2	9.3	2.992	76	2.813	71.45	2.813	71.45	2.666	67.72	1.75	44.45
	10.2	2.922	74.22	2.75	69.85	2.75	69.85	2.635	66.93		
4-1/2	12.75	3.958	100.53	3.813	96.85	3.813	96.85	3.725	94.62	2.62	66.55

03 PLUG & LOCK MANDREL

Product Family No. A3301,A3302,A3303,A3304,A3305,A3306,A3307

DESCRIPTION

The LM Plug and its corresponding lock mandrel are designed to prevent downward flow while allowing upward flow. This wireline-deployed tool is set in a seating nipple with the appropriate profile and is commonly used for tubing testing, setting hydraulic packers, and preventing fluid entry into the formation when gas lift operations are suspended. The LM system also includes a bypass plug—a wireline-retrievable tubing plug that does not require over-the-top access. It features a removable mandrel designed to balance pressure. During deployment, the running tool holds the movable mandrel in the bypass position, allowing fluid to flow through the plug while seated in the landing nipple. Once the plug is locked into place, the movable mandrel is detached and locked, effectively closing the bypass port and isolating the tubing.



FEATURES/BENEFITS

- ✔ Large circulation area
- ✔ Recover with fluid bypass
- ✔ Single trip installation and removal
- ✔ Simple design

03 WL SERIES WIRELINE RUNNING PULLING TOOLS

Product Family No.A3601-A3701

DESCRIPTION

The WL wireline running and pulling tools are used for running lock mandrel or retrieving .The tool can be released by jarring downwards, and can also be released by jarring upwards.

SPGWL wireline running and pulling tools include upper fitting with hydraulic cylinder, inner mandrel and loaded spring clamp. Once the tool is engaged behind the profile neck, a downward shock will shear off the pin and release the spring block, returning the tool to the retracted position. During recycling, the cylinder must touch the top of the tool.



WL RUNNING PULLING TOOL

SIZE	OD	SIZE	ENGAGE	NECK	THREAD
in	in	in	in	in	
1.250	1.160	1.080	0.880	1.000	5/8-11UN
1.500/1.750	1.470	1.620	1.060	1.187	15/16-10UN
2.000	1.750	1.620	1.380	1.375	15/16-10UN
2.000	1.810	1.620	1.380	1.375	15/16-10UN
2.500	2.160	1.620	1.810	1.750	15/16-10UN
2.500	2.160	1.620	1.810	1.750	15/16-10UN
3.000	2.250	1.620	2.310	2.313	11/16-10UN
3.500	2.720	1.620	2.620	2.313	11/16-10UN
4.000	3.110	1.620	2.120	2.313	11/16-10UN
5.000	3.620	1.820	4.000	3.125	11/16-10UN

04 BPM SERIES CAST IRON BRIDGE PLUG & CEMENT RETAINER

Product Family No. A4101

DESCRIPTION

The BPM Series Bridge Plug and Cementing Retainer features a compact design and smooth outer surface, making it suitable for various casing sizes. Compared to other types of bridge plugs and cementing retainers, this model offers a smaller outer diameter, allowing for faster and easier deployment. The tool is equipped with integral slips to prevent premature setting and to ensure easy drill-out. Its smooth metal back ring, single cartridge design, and ratchet lock ring between the sleeve and seal contribute to a reliable and efficient seal.

For pressure testing, the valve body should remain closed. A key advantage of the BPM Series is its ability to complete both the cement retainer setting and cement placement in a single trip, enhancing operational efficiency.

FEATURES/BENEFITS

- ✔ Reliable setting of casings of any grade (including P-110)
- ✔ Ratchet lock ring maintains the setting load to ensure reliable sealing under pressure changes
- ✔ Single rubber cartridge and smooth metal back ring form a reliable sealing system
- ✔ Integral slips avoid halfway setting and are easy to drill out
- ✔ The opening and closing of the pressure balance valve is controlled by the ground, which is more convenient and reliable



04 BPC SERIES COMPOSITES BRIDGE PLUG & CEMENT RETAINER

Product Family No. A4102

DESCRIPTION

The BPC composite bridge plug and cementing retainer is designed to replace part of the function of the cast iron bridge plug and cementing retainer. It is used for the temporary plugging of oil and gas wells and the well conditions that need to be drilled as soon as possible. It is suitable for temporary plugging of unconventional oil and gas wells by multi-staged fracturing.

BPC composite bridge plugs and cementing retainer are made of composite materials, rubber and ceramics with excellent performance. it has an anti-pre-setting design, which can be effectively and quickly drilled out. The BPC composite bridge plug and cementing retainer is designed with conventional Baker 5#, 10#, 20# tools for setting, and a special adapter is used to connect the bridge plug and the setting tool.

FEATURES/BENEFITS

- ✔ Optional pin or shear sleeve for bridge plug release.
- ✔ High temperature resistance, high pressure resistance
- ✔ Can be delivered by wireline ,slickline, tubing, coiled tubing.
- ✔ The composite material is easy to drill and grind, and the chips are easier to return to surface.
- ✔ Anti-rotation design, suitable for drilling and removing multi-stages fracture application



04 BPD SERIES DISSOLVING BRIDGE PLUG

Product Family No. A4103

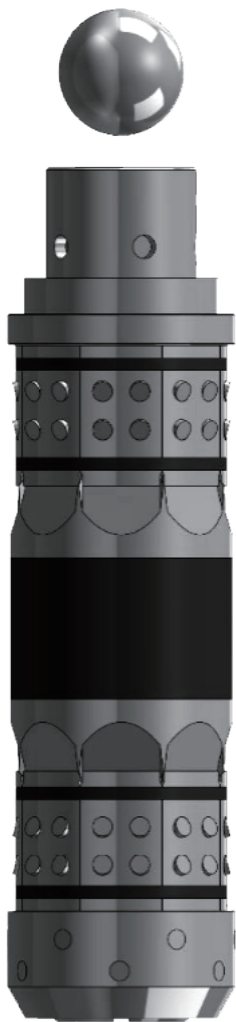
DESCRIPTION

The BPD dissolving bridge plugs are made of the most advanced dissolving metal and rubber materials in the industry. It is mainly designed for short-term temporary plugging during multi-staged fracturing of casing completion in oil and gas wells and can dissolved in the well fluid by itself after the end of use.

The BPD dissolving bridge plugs can adjust the material of soluble bridge plugs according to different well conditions to adjust the solubility of soluble bridge plugs and ensure that the soluble bridge plugs are fully dissolved in the environment specified by the customer. The BPD dissolving bridge plugs has an anti-pre-setting design, which can be safely pumped within the range that the cable can bear, minimize construction risks, improve construction efficiency, and ensure safe and smooth operation. The bridge plug design uses conventional Baker5#, 10#, 20# setting tools for setting, and uses a special adapter to connect with the bridge plug.

FEATURES/BENEFITS

- ✔ Simple structure and stable performance. Body, cartridge, and slip are all dissolved
- ✔ Optional low temperature, normal temperature, high temperature, the temperature range covers 30-160°C, and the pressure is up to 70MPa.
- ✔ Save operation time and effectively reduce the cost of oil and gas well development.
- ✔ A variety of dissolution rate soluble materials to meet different customer needs



04 TOES SERIES TOE SLEEVE

Product Family No. A4104

DESCRIPTION

The TOES Toe Sliding Sleeve is primarily used in the initial stage of casing cementing for multi-stage fracturing operations. Engineered with customizable metal and sealing materials, it is adaptable to a variety of downhole environments. The sleeve is pre-programmed to open at a designated pressure, enabling precise control during deployment. Its flow area exceeds the casing’s inner diameter, ensuring unobstructed passage of fracturing fluids and maintaining optimal treatment efficiency.

Designed to integrate seamlessly with cementing rubber plugs and contact pressure seats, the TOES sleeve enhances operational reliability. The cementing plugs are made from ultra wear-resistant materials, making them compatible with all types of drilling muds and displacement fluids.

FEATURES/BENEFITS

- ✔ Large ID design can be adjusted according to well conditions.
- ✔ Sliding sleeve and cementing plug have anti-backward design
- ✔ Open completely by the pressure inside the casing



04 FHP SERIES MULTI-STAGE FRAC SYSTEM-HANGER PACKER

Product Family No. A4201

DESCRIPTION

The FHP Multi-Stage Frac System Hanger Packer is a permanent, hydraulically set packer designed for high-performance multi-stage fracturing operations. It is deployed using a dedicated setting tool and can be set using either hydraulic or mechanical methods, depending on well conditions.

Engineered for durability, the FHP packer is capable of withstanding high pressures and stresses, making it ideal for challenging fracturing environments.

FEATURES/BENEFITS

- ✔ High stress and pressure rating: suitable for fracturing operations
- ✔ Large bore: The large bore facilitates tool access to the tailpipe
- ✔ Tool differential pressure up to 10,000psi, service temperature up to 400F
- ✔ Inner locking, expanded metal support ring design, which helps the packer and casing form a seal, and ensures that the rubber is not damaged



04 FOHP SERIES MULTI-STAGE FRAC SYSTEM-OPENHOLE PACKER

Product Family No. A4202

DESCRIPTION

The FOHP Multi-Stage Frac System Open-Hole Packer is designed to isolate horizontal production stages in open-hole completions. It features a metal expansion support ring that provides high packing pressure and reliable zonal isolation.

One key advantage is that the mandrel remains stationary during setting, allowing multiple packers to be run and set in a single trip for multi-stage separation.

The packer is rated for demanding downhole conditions, with performance specifications of 350°F (177°C) and 10,000 psi (70 MPa), making it suitable for high-pressure, high-temperature (HPHT) environments.

FEATURES/BENEFITS

- ✔ The mandrel does not move during setting
- ✔ Anti-extrusion expansion metal support ring
- ✔ Short design for easy passage through doglegs
- ✔ Adjustable initial setting pressure



OPENHOLE PACKER SPECIFICATION

OH SIZE	ID	OD	ELEME NT	TEMPER ATURE	TENSILE	TORQUE	PRESS URE
in./mm	in./mm	in./mm		F	lb	ft-lb	psi
4.625/117.5	2.810-71.4	4.350/110.5	Nitrile	150-350	200000	5000	10000
4.75/120.7							7500
6.000/152.4	3.813/96.9	5.625/142.9	Nitrile	150-300	310000		8000
			HNBR	150-350			10000
6.125/155.6	3.835/97.4	5.820/147.8	Nitrile	100-300	250000		10000
HNBR			100-350	8500			
6.250/158.8			HNBR	150-350			10000
8.500/215.9	4.790/120.7	8.000/203.2	HNBR	150-350	500000		8000
8.750/222.2			Nitrile			100-250	5000
8.50/215.9	4.790/121.7	8.310/110.5		HNBR		150-350	7890
						10000	

04 FBS SERIES MULTI-STAGE FRAC SYSTEM-BALLSEAT SLEEVE

Product Family No. A4203

DESCRIPTION

The FBS multi-stage frac system ball seat sleeve use as fracture sleeve between packers to form fracturing and production channels. The slide is opened by pressing the ball seat.

In the fracturing operation, the balls of corresponding size can be put in at the end of the previous fracturing and the pressure of the second stages starts to complete the continuous fracturing construction. This method can greatly reduce the fracturing time and it is easy to perform continuous multi-stages fracturing.

FEATURES/BENEFITS

- ✔ Special design ball seat geometry reduces ball seat wear
- ✔ Pressure and temperature ratings up to 10,000psi and 350°F
- ✔ The flow area is twice the area inside the tube
- ✔ Standard designs and materials can be used according to customer needs



BALLSEAT SLEEVE SPECIFICATION

OD	ID	START P	P/Screw	TENSILE	TORQUE	T	P	FLOW AREA
in.	in.	psi	psi	lb	ft-lb	°F	psi	sq.in.
4.35	2.813	3392-4595	399	200000	4000	350	10000	13.65
5.625	3.813	2737-3707	402	310000	5000	350	10000	13.485
5.765	3.835	2591-3505	381	310000	5000	350	10000	14.46
7.78	4.798	3192-4319	375	500000	7595	350	10000	34.14

04 FPS SERIES MULTI-STAGE FRAC SYSTEM-PRESSURE SLEEVE

Product Family No. A4204

DESCRIPTION

The FPS muti-stage frac system pressure open sleeve is similar as the ball seat sleeve. The pressure-opening sleeve normally be installed the first stage. The pressure opening of the sliding sleeve is driven by pressure through the difference in the cross-sectional area of the inner cylinder.

The pressure-opening sleeve can optionally be opened after the tubing string is in place, or when the fracturing equipment arrives on site to prepare for fracturing.

FEATURES/BENEFITS

- ✔ The sliding sleeve is opened by the pressure difference generated by the cross-sectional area difference of the inner cylinder of the sliding sleeve.
- ✔ Pressure rating; 10,000psi, temperature rating 300°F
- ✔ Has a larger flow channel area The outflow area is twice the cross-sectional area inside the tube, so no erosion will occur



PRESSURE OPEN SLEEVE SPECIFICATION

OD	ID	TENSILE	TORQUE	OPENING PRESSURE	P/SCREW
in.	in.	lb	ft-lb	psi	psi
3.65	2.375	115000	3500	4200	1050
4.35	2.695	200000	5000	4285	536
5.56	3.835	310000		4780	797
7.78	4.785	500000	7590	5320	532

04 FWIV SERIES MULTI-STAGE FRAC SYSTEM-WELLBORE ISOLATION VALVE

Product Family No. A4205

DESCRIPTION

The FWIV multi-stage frac system WIV (wellbore isolation valve) is a ball-throwing shut-off valve. Once closed, the isolation between the inside and outside of the pipe is formed. At this time, all the packers and the top hanger packer can be pressed and set. The wellbore is kept isolated from the reservoir before the pressure sleeve is opened.

FWIV SPECIFICATION

ID	OD	ID	CLOSE P	TORQURE	TENSILE	T	P
in.	in.	in.	psi	ft-lb	lb	F	psi
1.0	4.35	1.25	2174	5000	200000	350	10000
	5.03		2177		275000		
	7.03		1908	7595	500000		

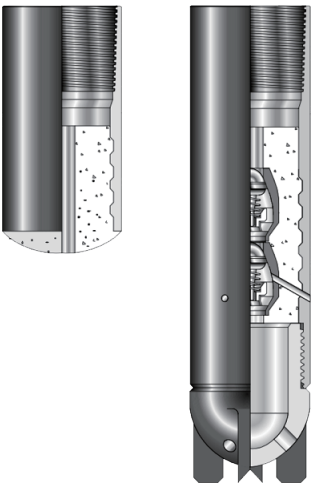


04 FFC/FFS SERIES MULTI-STAGE FRAC SYSTEM-FLOAT EQUIPMENT

Product Family No. A4206/A4207

DESCRIPTION

The FFC/FFS multi-stage frac system floating collar and shoe go down to the bottom of the liner, which is used to guide the liner through the open hole while preventing backflow. Side and bottom ports ensure reliable circulation even when the liner sits on the bottom of the well.



07 GP SERIES SAND CONTROL TOP PACKER

Product Family No. A7101

DESCRIPTION

The GP series packer is specifically designed to increase reliability and improve all aspects of sand control operations. The rugged GP packer is the core component of the gravel-pack completion system, which is designed for single trip production gravel packing in vertical ,deviated and horizontal wells.

APPLICATIONS

- ✔ Stand-alone screen applications
- ✔ Production or drillstem testing
- ✔ Single and multizone completions
- ✔ Vertical, high deviated, and horizontal wellbores

BENEFITS

- ✔ Large-bore design maximizes production
- ✔ Improved performance parameters increase reliability and reduce risk



PACKER SPIFICATION

CASING SIZE	CASING WEIGHT	PACKER OD	PACKER ID	PRESSURE	TEMPERATURE
in[mm]	lb/ft	in[mm]	in[mm]	psi	°F
7[177.80]	26-29	6.00[152.40]	3.80[98.55]	6500	300
9.625[244.48]	40-47	8.45[214.63]	6.00[152.40]		

◆ More about GP packer ,please contract representative for additional information.

07 GP SERIES CROSSOVER TOOL

Product Family No. A7102

DESCRIPTION

The GP Crossover Tool is specifically engineered to operate in conjunction with a sand control top packer, enabling effective gravel pack operations in open-hole horizontal completions. It is designed to maintain hydrostatic balance across the gravel pack packer assembly during both the packer setting and releasing stages.

A key feature of the tool is its secondary mini bypass flow area, which allows annulus hydrostatic pressure to transfer across the packer, ensuring pressure equilibrium throughout the operation.

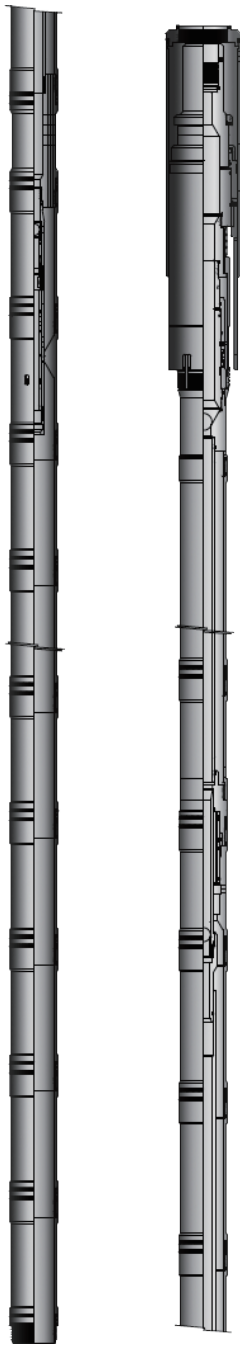
The modified Crossover Tool can also be used for post-gravel pack formation chemical treatments or external casing packer inflation, enhancing its versatility. Upon completion of the gravel pack, a conversion ball is pumped down to seat in the bypass tube. Applied tubing pressure then isolates the return bypass ports and redirects fluid flow through the inner diameter (ID) of the washpipe, enabling further operations.

APPLICATIONS

- ✔ Vertical, high deviated, and horizontal wellbores
- ✔ Single and multizone completions

BENEFITS

- ✔ Maintains hydrostatic overbalance on openhole during all steps of operations
- ✔ Primary setting ball is used and locked on seatwith no pressure surge to formation



07 GP SERIES KNOCK-OUT ISOLATION VALVE

Product Family No. A7103

DESCRIPTION

The GP Series Knock-Out Isolation Valve is a mechanical fluid-loss prevention device, commonly used in sand control completions, among other applications. By integrating the valve into the production string, it eliminates the need to introduce potentially damaging fluid-loss control materials after retrieving the service tool from the packer assembly.

The valve features a flapper mechanism that is held open by the wash pipe during operations. Upon removal of the wash pipe, the flapper automatically closes, providing an effective fluid barrier. When production is ready to begin, the flapper is mechanically or hydraulically broken into equal-sized, pie-shaped segments, allowing for a fullbore opening and unobstructed flow.

APPLICATIONS

- ✔ Sand-control completions in all normal environment
- ✔ Severs service (option)

BENEFITS

- ✔ Minimizes loss of completion fluid to the formation
- ✔ Eliminates need for formation-damaging loss-containment pills



07 GP SERIES SEAL ASSEMBLY

Product Family No. A7105

DESCRIPTION

The assembly's no-go positions the seal units in the polished bore of the packer at the bottom of the available stroke. There are few type of seal assembly, such as no-go or snap latch to achieve different purpose. Seal units could also be used in dependence with seal bore to making an isolation between each zone.



07 GP SERIES QUICK CONNECTION

Product Family No. A7104

DESCRIPTION

GP series quick connection is designed for gravel pack operation, aim to making a quick and reliable connecting between service tool and screen. This tool could meet requirement on both seal and torque transmit.

APPLICATIONS

- ✔ Sand-control completions in all normal environment
- ✔ Severs service (option)

BENEFITS

- ✔ Rugged structure
- ✔ Saved rig time
- ✔ Customized



07 GP SERIES SEAL BORE RECEPTACLE

Product Family No. A7106

DESCRIPTION

The Gravel Pack Seal Bore Receptacle is used in Dual Zone Gravel Packing to isolate the lower zone while gravel packing the upper zone. The Seal Bore Receptacle can also be used anywhere in the tubing or casing string where a sealing area is required.

The Seal Bore Receptacle is compatible with all Seal Assemblies and can be ordered with any threads desired.



07 GP SERIE S-1 SHIFTING TOOL

Product Family No. A7107

DESCRIPTION

The S-1™ Shifting Tool is installed below the Crossover Tool to shift the multiple-acting Sliding Sleeve in a Extension. The spring force of the Shifting Tool Collet causes engagement of the Collet with the ID profile of the Sliding Sleeve and shifts the Sliding Sleeve open (down) or closed (up) when the Shifting Tool passes through the ID of the Gravel Pack Sliding Sleeve.

The Closing Tool is a variation of the Shifting Tool that performs only one function as indicated by its name. The construction of this tool is the same as the Shifting Tool with the only difference being the catch profile on the OD of the Collet.



07 GP SERIES EXTENSION

Product Family No. A7108

DESCRIPTION

The GP series Extension provides flow path for the gravel to be pumped from the tubing to the casing annulus in a frac or gravel pack operation without damaging the casing.

Extension with Sliding Sleeve is a multiple-acting gravel pack Sliding Sleeve assembly for use when positive closure of the gravel pack ports is required. After gravel packing, the Closing Sleeve is shifted to the closed position using a standard Model “S-1” Shifting Tool. Once closed, the Sleeve cannot be reopened with a straight downward force from the Shifting Tool or from any other tool that passes through the Sliding Sleeve.

