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# **Well Construction Catalog**

# SPIR-O-LIZER®

## Solid Blade Centralizer

### Product

The Spir-O-Lizer is a die-cast, zinc alloy, solid blade centralizer designed to reduce torque and drag while running casing. The blade design will create turbulence promoting 360° cement coverage.

### Features

- Manufactured from zinc alloy providing:
  - High strength – allowing thinner wall sections giving maximum flow-by
  - Exceptional wear resistance – maximum standoff
  - Low coefficient friction – reducing torque & drag
  - Withstands temperatures up to 400°F
- 360° spiral blade configuration gives maximum standoff, assisting with hole cleaning & cement placement
- Self-cleaning blade design to reduce the risk of packing off
- Over one million units run

### Options

- Centralizer placement / T&D analysis available
- Fully machinable allowing for custom ODs
- Split units available
- Size range from 2-7/8" – 13-5/8"



# BLADERUNNER®

## Ultimate Friction Reducing Centralizer

### Product

The BladeRunner ultimate friction reduction Spir-O-Lizer® is designed to reduce cased hole running drag and maximize open hole standoff efficiency. Low friction blade inserts will reduce as the liner is run through the previous casing string to expose the Spir-O-Lizer 360° blade form to aid running as the liner enters open hole. Low friction bands in the bore of the centralizer ensure extremely low start up torque when the liner is rotated during the cementing process.

### Features

- Low friction bearings in bore ensure extremely low start-up torque
- Low friction blade inserts substantially reduce drag
- Maximize torque & drag reduction
- Solid single piece construction, no moving parts eliminate potential junk in the wellbore
- All Spir-O-Lizer design features are incorporated

### Options

- BladeRunner 'BR', 'LD' & 'LT' available
- Centralizer placement / T&D analysis available
- Fully machinable allowing for custom ODs
- Size range from 2-7/8" – 13-5/8"

# ECON-O-GLIDER®

Pressed Steel Centralizer

## Product

The Econ-O-Glider is a pressed steel spiral blade centralizer that has been specifically designed to centralize casing being run in the less demanding vertical & intermediate wells, where positive standoff is required, and torque & drag reduction is not deemed a critical requirement.

## Features

- Positive standoff spiral blade
- Maximum flow-by
- Blades tested to withstand 15-20 tons side loading

## Options

- Dedicated engineering support team
- Centralizer placement / T&D analysis available
- Econ-O-Glider ST (Straight Blade) available
- Integral set screw option (ST only)
- Size range from 2-7/8" – 30"





### Product

The Riser-Lizer is a fabricated heavy duty steel centralizer that has been designed specifically for centralizing large bore casing inside risers, where conventional centralizers are not fit for purpose.

### Features

- Heavy duty assembly
- Axial holding force – 57,000 lbs
- Lateral load 1 blade – 55,000 lbs

### Options

- Split, or one-piece construction
- Centralizer placement / T&D analysis available
- Anti-vibration, high-tensile stainless-steel bolting system
- Size range from 16" – 36"



### Product

The Spir-O-Lizer® 'Passive Angled Four Blade' is a die-cast zinc alloy, solid blade centralizer that has been specifically designed for sand control / gravel pack applications. A four bladed unit c/w reduced blade angle to maximize flow area, minimize back pressure and potential pack-off.

### Features

- Positive standoff protects screen jackets from
- damage while running in through the wellbore and greatly assists with hole clean-up
- Fluid by-pass has been maximized to eliminate pack-off during clean-up and gravel
- pumping operations
- Manufactured from zinc alloy providing:
  - High strength – allowing thinner wall sections giving maximum flow-by
  - Exceptional wear resistance – maximum standoff
  - Low coefficient friction – reducing torque & drag
  - Withstands temperatures up to 400°F
- Maximum torque & drag reduction

### Options

- Centralizer placement / T&D analysis available
- Split unit available
- Size range from 4-1/2" – 7"

# SPIR-O-MIZER®

Heavy Duty, Cast Steel Centralizer

## Product

The Spir-O-Mizer is a heavy duty, one piece, cast steel centralizer offering a cost effective reliable solution. Possessing a material yield strength equal to that of casing, Spir-O-Mizer is the world's strongest casing centralizer.

## Features

- Heavy duty / high impact
- Positive standoff
- Maximum flow-by
- Suitable for HPHT applications
- ADL treatment available

## Options

- Centralizer placement / T&D analysis available
- Dedicated engineering support team
- Size range from 4-1/2" – 9-5/8"

# EXPAND-O-LIZER® BS

## Bow Spring Centralizer



### Product

The standard Expand-O-Lizer 'Bow Spring' range are hinged non-welded bow-spring centralizers designed to centralize in less demanding well-bore applications where rotation is not a requirement. The hinge allows the centralizer to be fitted on larger bore casing where weld-on connectors do not allow for a slip-on unit to be installed.

### Features

- Engineered and tested to exceed industry standards
- Low insertion & running forces
- High restoring forces
- Suitable for passing through well-bore / cased hole restrictions
- High quality spring steel grade

### Options

- Centralizer placement / T&D analysis available
- Dedicated engineering support team
- Size range from 2-7/8" – 30"
- Expand-O-Lizer BS Range
- Conventional Bow Spring
- Semi Rigid Bow Spring
- Positive Bow Spring



# EXPAND-O-LIZER® BS

## Bow Spring Centralizer

### Expand-O-Lizer BS SR

Semi-rigid bow centralizer withstands high lateral loads and is specially designed with a double bow profile, this design increases contact area for less bow penetration into the formation and aids complete mud removal while cementing.

### Expand-O-Lizer BS BR

A traditional non-welded hinged bow type centralizer designed for less demanding applications where rotation is not required. The hinge allows for installation on casing where welded connectors preclude the use of slip-on type centralizers.

### Expand-O-Lizer BS POS

Specifically designed flat-bottomed U-shaped blades are provided for maximum fluid flow-by and required rigidity, the blade form also cuts down on RIH drag due to less surface area contact with the previous casing string it is being run through.

# EXPAND-O-LIZER® ES

Extreme Service Bow Spring Centralizer



## Product

Downhole Products Expand-O-Lizer 'Extreme Service' is the patented engineered solution for a complete under-reamed casing operating, ensuring the best possible conditions for cement placement. A one-piece spring steel unit eliminated welded bows, the ES combines extremely robust manufacture with a proven drag reduction method of deployment.

## Features

- The engineered solution for under-reamed hole applications where annual clearance is greater than 1-1/4"
- Non-welded blades, robust design
- Unique design significantly reduces running forces in cased hole sections
- Integral bi-directional drive collar c/w engineered high holding force set screws
- Providing excellent standoff in the open hole sections
- Testing criteria exceeds industry standards
- Offering the best possible conditions for cement

## Options

- Centralizer placement / T&D analysis available
- Dedicated engineering support team
- Size range from 4-1/2" – 28"

# EXPAND-O-LIZER® ESTD-T

Extreme Service Tear Drop-Taper Centralizer



## Product

Downhole Products Expand-O-Lizer 'Extreme Service Tear Drop - Taper' is the ultimate engineered solution for under-reamed casing applications. Utilizing the already proven Expand-O-Lizer ES unique patented design and now incorporating an offset tear drop taper blade design, the Expand-O-Lizer ESTD-T lowers insertion forces and increases blade strength, providing superior standoff in the open hole sections.

## Features

- Single piece, spring steel design
- Unique design significantly reduces insertion and running forces
- Integral bi-directional drive collar c/w engineered high holding force set screws
- Testing criteria exceeds industry standards

## Options

- Centralizer placement / T&D analysis available
- Dedicated engineering support team
- Product designed to meet specific application requirements
- Size range from 4-1/2" – 28"

# EXPAND-O-LIZER® SS

## Standard Service Bow Spring Centralizer

### Product

Downhole Products Expand-O-Lizer 'Standard Service' is a one-piece semi-rigid bow. Manufactured from spring steel to allow for flexing when in gauge hole applications, where the operator is concerned that swelling/shifting shales are present that could impede a solid blade centralized string from getting to T.D.

### Features

- Non-welded, robust one-piece design
- Suitable for rotation due to axial rigidity
- High restoring forces exceeds industry standards
- Spring steel flexible design significantly reduce running forces and allows easy passage through wellbore obstructions
- Gauge hole OD offering maximum standoff
- Suitable for onshore installation reducing rig time costs and HSE exposure

### Options

- Centralizer placement / T&D analysis available
- Dedicated engineering support team
- Size range from 2-7/8" – 20"



# EXPAND-O-LIZER® SUB

Inline Bow Spring Centralizer



## Product

Downhole Products Expand-O-Lizer SUB is an inline centralizer sub for under-reamed tight tolerance applications where annular clearance is less than 1-1/4". These subs are designed and manufactured specifically to the client's requirements to ensure the best possible solution, minimizing surge and drag while maximizing standoff.

## Features

- One-piece machined sub, spring steel design
- Fully rotatable
- Radius blade edges – casing friendly drag reducing shape
- Bi-directional and in-line design

## Options

- Centralizer placement / T&D analysis available
- Dedicated engineering support team
- Product design to meet specific application requirements
- New sizes design and tested within two weeks
- Size range from 2-7/8" – 20"



# EXPAND-O-LIZER® ASLO

## Under Reamed Bow Spring Centralizer

### Product

The **EXPAND-O-LIZER ASLO** is a premium centralizer designed for optimum performance in under reamed and close tolerance applications. The single piece design with integrated stress relief blade profiles, allows the centralizer blades to flex in tight restrictions, yet return to OD giving restoring force that exceeds industry standards.

**EXPAND-O-LIZER ASLO** is a unique design and a premium addition to Downhole Products EXPAND-O-LIZER centralizer family, providing robust, competent and consistent product performance.

### Features

- Single piece, spring steel design
- Unique blade profile • Stress relief blade features
- Low running forces
- High restoring forces with excellent standoff
- Competent and consistent performance
- Testing criteria exceeds industry standards
- Patent pending

### Options

- Centralizer placement / T&D analysis available
- Dedicated engineering support team
- Designed to meet specific application requirements
- Sizes from 4-1/2" through 24" available



### Product

Downhole Products offer a range of stop collars to suit all centralizer options, all stop collars are tested in accordance with API 10D II recommended practices.

### Ductile Iron

- One piece cast ductile iron stop collar
- High axial holding force

### Heavy Duty

- Heavy duty one-piece steel collar
- High holding force

### Steel

- Fabricated steel stop collar
- 1/2" UNC S.S set screws

### Hinged Bolt

- Self lock in pins
- Low budget

### Hinged Set Screw

- Easy installation
- 1/2" set screws

### Hinged Spiral Nail

- Quick installation
- Spiral nail design



### Product

Downhole Products Shrink-Lok is a high holding force 360° gripping stop collar device, which can be used as a conventional stop collar on casing & liner or a protection device for packer and over-screen applications

### Features

- High holding forces upwards of 40 tonnes
- 360° bi-directional gripping area
- Casing friendly, no set screw penetration or carbon steel impregnation
- Suitable for use on all chrome tubulars

### Options

- Multiple design options available
- Sizes range 2-3/8" – 9-5/8"



### Product

**SPIR-O-BITE®** is a high holding force, slim diameter stop collar for specialist close tolerance applications. With no set screws and quick and simple installation without the need for specialist assembly tools, it is efficient to install.

An easy twist on assembly with robust gripping mechanism and no risk of back-off, allows for the SPIR-O-BITE to be fitted to all API casing grade, sizes and tolerance bands. The slim profile ensures the collar can slide through the tightest restrictions, maintain a holding force in excess of conventional set screw type stop collars and the perfect partner for the **EXPAND-O-LIZER** centralizer family.

### Features

- Simple innovative design
- No specialist assembly tooling or personnel required
- Suitable for all API casing grades, sizes and tolerances
- Low profile
- No set screws or loose parts
- Bi-directional, high holding force
- Low assembly torque
- Anti back-off mechanism
- Simple, quick installation
- Assemble anywhere
- Patent pending

### Options

- Dedicated engineering support team
- Designed to meet specific application requirements
- All casing size options available

### Product

The CaseRUNNER Advanced Casing Drilling Centralizer, is an engineered torque reducing centralizer designed specifically for the casing drilling / liner drilling market. Utilizing proven friction reducing materials, the CaseRUNNER minimizes torque and vibration while casing drilling by centralizing the casing string and providing an 'ultra low friction' bearing surface, enabling smooth rotation of the casing.

### Features

- Optimize centralizer while casing drilling
- Carbon filled low friction bearing minimizes torque and friction whilst withstanding harsh environments
- Engineered to increase flow-by and reduce ECD
- Proven Shrink-Lok® technology giving high holding force
- Castellated break up feature aiding the hole cleaning process

### Options

- Multiple design options available





# PEN-O-TRATOR®

## Reamer Shoe



### Product

The Pen-O-Trator reamer shoe has been specifically designed to aid with the installation of any casing, liner or screen application where the operator has concerns over potential difficult wellbore conditions such as swelling shales, ledges and washed out areas within the wellbore.

### Features

- Casing friendly tungsten carbide cutting structure
- Anti-aggressive left-hand blades minimize torque
- 360° cutting structure facilitates reaming past obstructions with or without rotation
- Wellbore seeking eccentric guide nose negotiates troublesome formations
- EZI-Drill® aluminum guide nose to aid drill-out without compromising nose strength
- Flow ports offering 360° flow area
- Slick body design helps reduce ECD

### Options

- Standard 5,000 PSI & 10,000 PSI valves
- API rated single, double & auto-fill valve options
- Ball deflector / ball catcher options available
- All API and premium connections available
- All material casing grades available

# PEN-O-TRATOR®

## Reamer Shoe



### Product

The Pen-O-Trator reamer shoe has been specifically designed to aid with the installation of any casing, liner or screen application where the operator has concerns over potential difficult wellbore conditions such as swelling shales, ledges and washed out areas within the wellbore.

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- Wellbore seeking eccentric guide nose negotiates troublesome formations
- EZI-Drill® aluminum guide nose to aid drill-out without compromising nose strength
- Flow ports offering 360° flow area
- Slick body design helps reduce ECD

### Options

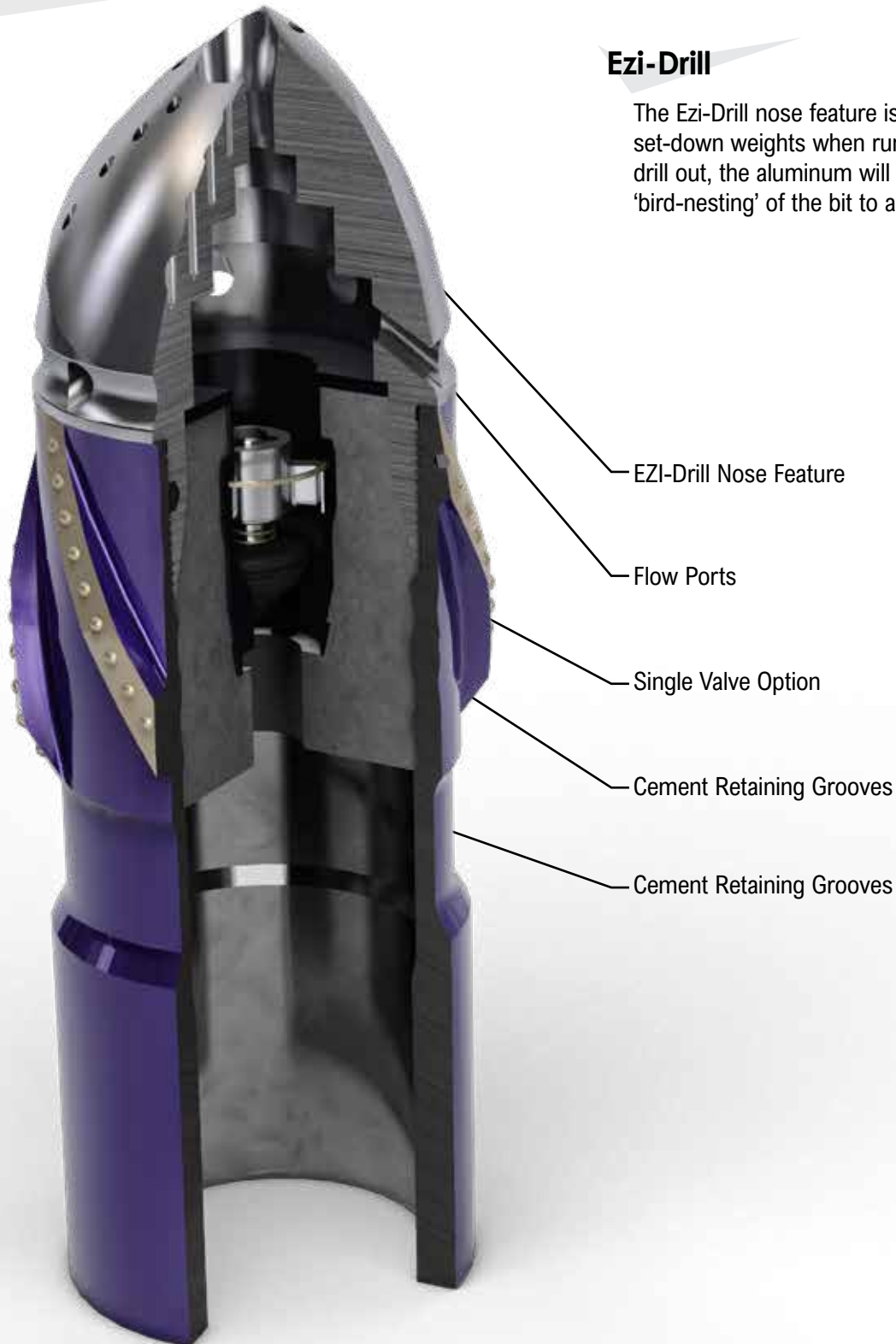
- Standard 5,000 PSI & 10,000 PSI valves
- API rated single, double & auto-fill valve options
- Ball deflector / ball catcher options available
- All API and premium connections available
- All material casing grades available

# PEN-O-TRATOR®

Reamer Shoe

## Ezi-Drill

The Ezi-Drill nose feature is designed to withstand high set-down weights when running the casing to T.D. during drill out, the aluminum will break into small chips to avoid 'bird-nesting' of the bit to allow for a quick drill-out time





### Product

The Pred-O-Tor reamer shoe has been designed to be an uncompromising solution to today's most challenging wellbore conditions. The nose has an innovative profile design to aid in getting casing to T.D. by overcoming wellbore restrictions, but also includes integral hardfaced blades and optimized jetting, to ream and clean out the hole as the casing is run. The addition of PDC cutters on the outer shoulder of the Pred-O-Tor allows the shoe to efficiently ream and open the hole, where formation issues have impacted string progressing. The blades have tungsten carbide buttons to further assist with hole cleaning.

### Features

- Innovative nose profile
- Hardfaced blades
- PDC to aid reaming
- Efficient drillout
- Aggressive right-hand blades
- Casing friendly carbide gauge buttons

### Options

- All API and premium connections available
- All casing grades and weight options
- Customized OD to suit client requirements
- Integral API rated single or dual float valve



### Product

The Reaper reamer shoe has been specifically designed to be an aggressive shoe for extreme wellbore conditions. The nose is designed to aid in getting casing to T.D. by using coated blades and optimized jetting to ream and clean out the hole as casing is run. The body blades have tungsten carbide buttons to further assist with hole cleaning.

### Features

- Nose with integrated blades to assist with well-bore reaming and cleanout
- Wellbore seeking eccentric guide nose negotiates troublesome formations
- Casing friendly tungsten carbide cutting structure on body
- Aggressive right-hand blades
- 360° cutting structure facilitates reaming past obstructions with or without rotation
- One-piece milled steel body
- Optimized flow ports offering efficient hole cleaning
- Aluminum nose designed for fast and efficient drill-out
- Profiled nose to provide good cement key
- Junk slot area position on nose to keep blades clean

### Options

- Integral API rated single or dual valve option
- All API and premium connections available
- All material casing grades available



# PILOT GUIDE SHOE

Slick Body Guide Shoe



## Product

The Pilot Guide Shoe is a slick body aluminum nosed guide shoe to aid with the running of any casing, liner and screen applications. Utilized where the operator has concerns over potentially difficult wellbore conditions and a conventional cement nosed float shoe is not considered robust enough.

## Features

- Wellbore seeking eccentric guide nose negotiates troublesome formations
- EZI-Drill® aluminum guide nose to aid drill-out without compromising nose strength
- Flow ports offering 360° flow area
- Slick body design helps reduce ECD
- API rated integral float valve

## Options

- Standard 5,000 PSI & 10,000 PSI valves
- Single & double valve options
- Concentric or other nose options available
- All API and premium connections available
- All material casing grades available

# NOSE OPTIONS

Float & Reamer Shoe Noses

## EZI-Drill Nose

The EZI-Drill® nose feature is designed to withstand high set down weights when running the casing to T.D. while being drilled out the aluminum will break into small chips to avoid 'bird-nesting' of the bit to allow for a quick drill-out.



## Concentric

The concentric nose assists running casing/liner in difficult well-bore conditions by pathfinding over and around swelling formations. Can be manufactured in both aluminum and phenolic materials.



## Spade

The spade nose is specifically designed for use on less demanding liner applications where only a setting sleeve is run, the spade nose assists running tool released. When set on bottom the spade nose shoe anchors the liner against the formation allowing the running tool to be rotated to release from the liner.



## Composite

Incorporating the engineered EZI-Drill nose features, but produced from a robust and drillable composite material, for applications where drill-out may be a concern and anticipated set down loads during casing running may be less.

# CEMENT PLUG

## Surface Release Cement Plug



### Product

Downhole Products offers a non-rotating surface release cement plug, with a five wiper fin design, offering extremely effective casing wiping.

### Features

- Five wiper fin conventional design for effective casing wiping
- Anti-Rotational heavy duty teeth prevents plugs from spinning during drill-out
- Tapered cone and receiver for easy engagement and landing
- Integral burst disk located in bottom plug
- PDC and roller cone bit drillable



### Options

- Custom pressure burst disk available
- High temperature plugs available
- Conventional plug available

# FLOAT COLLAR

Premium Cement Filled Float Collar

## Product

The premium cement filled float collar is fitted with an API rated valve as standard, the collar can be ordered with single, double or auto-fill valve options.

## Features

- Tightly controlled cementing process for valve installation
- Cement tested for compressive strength & pressure retention
- Fitted with high flow phenolic float valve tested in accordance with API test procedures
- In-house manufacturing capabilities at global manufacturing facilities

## Options

- Standard 5,000 PSI & 10,000 PSI valves
- Single, double & auto-fill valve options
- Ball deflector / ball catcher options available
- All API and premium connections available
- All material casing grades available

# FLOAT SHOE

## Premium Cement Filled Float Shoe

### Product

The premium cement filled float shoe is fitted with an API rated valve as standard, the shoe can be ordered with single, double or auto-fill valve options.

### Features

- Tough durable profiled cement nose
- Tightly controlled cementing process for valve installation
- Cement tested for compressive strength & pressure retention
- Fitted with high flow phenolic float valve tested in accordance with API test procedures

### Options

- Up / Down jet side ports
- Standard 5,000 PSI & 10,000 PSI valves
- Single, double & auto-fill valve options
- Ball deflector / ball catcher options available
- All API and premium connections available
- All material casing grades available





# FLOAT SHOE

Premium Cement Filled Float Shoe



## Up Jets

Side ports on the float shoe allow for a better cement job, offering 2/3rds flow out the nose and 1/3rd out the side ports allowing the flow to circulate round the casing evenly. Up jets can help with cuttings removal and induce turbulence at the shoe to assist with filter cake removal.

## Down Jets

Side ports on the float shoe allow for a better cement job, offering 2/3rds flow out the nose and 1/3rd out the side ports allowing the flow to circulate round the casing evenly. Up jets can help with cuttings removal and induce turbulence at the shoe to assist with filter cake removal.

## Double Valve

The float shoe can be fitted with a double float valve to give added assurance of sealing.

## Auto Valve

The auto-fill option allows the Float Collar to be run with the valve help open to reduce surge on the well-bore when the casing is being run in hole. The valve converts back to a conventional float by increasing the flow rate through the valve to 2.5 bbls/min.

# FLOAT VALVE

5,000 & 10,000 PSI Float Valve



## Product

All DHP float equipment includes an integral API rated float valve. The valve has a 5,000 PSI 400°F rating with a durability / flow rating of 10 bbls/min for 24 hours.

## Features

- High flow phenolic float valve
- Over 15,000 run to date
- 5,000 PSI fitted as standard in all floatequipment
- 10,000 PSI aluminum valve for more challengingapplications

## Options

- Standard 5,000 PSI & high pressure 10,000 PSI
- Single & double valves available
- Auto-fill option available
- Ball deflector / ball catcher options



# LEDGERRUNNER™

Re-orientating ratchet sub



## Product

LedgeRunner is a Casing / Liner running sub, designed to overcome restrictions as the completion string is run into the wellbore. By re-orientating an eccentric nose shoe using pick-up and set-down in order to overcome wellbore restrictions and aid delivery of the casing to bottom every time. Each stroke up or down will advance rotation of the pilot shoe by 30°

## Features

- Re-orientating ratchet sub
- High torque transmission
- High tensile capacity
- Robust design, no external small components
- 30° Advance per stroke (60° per cycle)
- Fully customizable

## Options

- Tool supplied as:
  - Sub
  - Shoe
    - Inclusive eccentric nose
  - Shoe Assembly
    - w/ eccentric or reamer shoe
- All API and premium connections available
- All material grades available

# PILOT GUIDE SHOE FTR

Slick Body Guide Shoe with self-aligning nose



## Product

The Pilot Guide Shoe is a slick body aluminum nosed guide shoe to aid with the running of any casing, liner and screen applications. Run in conjunction with EZI-Drill® Free-To-Rotate (FTR) eccentric nose, this is an ideal solution where the operator has concerns over potentially difficult wellbore conditions, where string rotation is not possible or preferred, FTR nose can self-align to navigate passed or over obstructions.

## Features

- Free-To-Rotate (FTR) self-aligning nose
- Wellbore seeking eccentric guide nose negotiates troublesome formations
- EZI-Drill® nose design to aid drill-out without compromising nose strength
- Flow ports offering 360° flow area
- Slick body design helps reduce ECD
- Integral float valve – Spec API RP 10F Cat IIIC

## Options

- Standard 5,000 PSI & 10,000 PSI valves
- Single & double valve options
- Aluminum or composite nose options
- All API and premium connections available
- All material casing grades available

# PILOT GUIDE SHOE LRL

Slick Body Guide Shoe with self-aligning lockable nose



## Product

The Pilot Guide Shoe is a slick body aluminum nosed guide shoe to aid with the running of any casing, liner and screen applications. Run in conjunction with EZI-Drill® Lock-Rotate-Lock (LRL), a self-aligning eccentric lockable guide nose, engineered to freely orientate passed wellbore obstructions without mechanical intervention. When in its 'locked' position, the nose cannot spin and allows for efficient trouble-free drill out.

## Features

- Lock-Rotate-Lock (LRL) self-aligning nose
- Wellbore seeking eccentric guide nose negotiates troublesome formations
- EZI-Drill® nose design to aid drill-out without compromising nose strength
- Fully locked during drill out
- Flow ports offering 360° flow area
- Slick body design helps reduce ECD
- Integral float valve – Spec API RP 10F Cat IIIC

## Options

- Standard 5,000 PSI & 10,000 PSI valves
- Single & double valve options
- Aluminum or composite nose options
- All API and premium connections available
- All material casing grades available



# PEN-O-TRATOR MAX-V®

Reamer Shoe



## Product

The PEN-O-TRATOR® MAX-V Reamer Shoe is designed to aid with the installation of any Casing, Liner, or Screen application, where the operator has concerns over potentially difficult wellbore conditions such as swelling shales, ledges, and washed-out areas within the wellbore.

## Features

The PEN-O-TRATOR MAX-V has been specifically designed for economically sensitive markets while delivering the same high-standards in performance and reliability known from the PEN-O-TRATOR platform

- Casing friendly tungsten carbide cutting structure
- Anti-aggressive left-hand blades minimize torque
- 360° cutting structure facilitates reaming past the obstructions with or without rotation
- Well-bore seeking eccentric guide nose negotiates troublesome formations
- Ezi-Drill® aluminum guide nose to aid drill out without compromising nose strength
- Flow ports offering 360° flow area.
- Slick body design helps reduce ECD.

## Options

- Standard 5,000 PSI and 10,000 PSI valves
- Up jet side ports available
- Single, double, and auto-fill valve options
- Ball deflector/ball catcher options available
- All API and premium connections available
- All material casing grades available



### Product

AQUEOUS, a proprietary slick body aluminum-nosed wet shoe track uniquely designed for predictable performance and reduction in overall operational costs. The modular, compact design consisting of four valves with provisions to seal a series of high-pressure casing wiper plugs that separate fluid, eliminate casing stringers, and facilitate a casing pressure test.

The AQUEOUS is **the economics leader in casing shoe track technology.**

### Features

- The non-cemented Integrated Wet Shoe track is designed for 10,000psi forward (bump) and back pressure operation at 400°F.
- Four integral float valves tested to Spec API RP 10F Cat D24R10T400P7.5 tested to 10,000psi
- System-matched “latch-in” wiper plug system with Double Bottom (1,000 psi) and Top Plug (3,000 psi) combination
- Proven eccentric nose design

### Value Creation

- Ultra-short design allows the first full fracturing operation to commence closer to the shoe increasing wellbore exposure
- Enabling access to the formation without the use of toe sleeves or Tubing Conveyed Perforating (TCP)
- The system eliminates cost and risk of additional premium connections
- Proven eccentric nose designed to bypass unplanned casing obstructions
- High performance tandem wiper plugs reduce the risk of casing obstructions

### Options

- Available in currently in 5.500” OD size.
- Up jet (standard) or down jet side ports available
- All API and premium connections available
- All material casing grades available



### Product

Downhole Products Grippy Cable Clamp is a cable clamp designed to fit over the coupling to convey and secure cables and control lines in and out of wellbores quickly, safely and efficiently.

### Features

- Each clamp has a four-point friction pad gripping system which deform when clamped to the pipe,
- providing strong grip and preventing slipping
- Triple progressive contact pads on the channel improve gripping characteristics of the cable without compromising the integrity of the cable
- Two hinge pin flanges make contact with the tubular to further assist gripping on the pipe
- Tapered wedge-lock pin with dimples, when inserted, secures the clamp to the tubular
- The channel design allows a smooth transition of cable over the coupling
- The channel length aids in eliminating crimping of cable and damage from sharp edges
- Galvanized to prevent corrosion
- Multiple contact points to grip casing & prevent slippage

### Options

- Custom designs available for various cable configurations
- Mid-joint and dual channel clamps
- Sizes 2-3/8" to 9 5/8"
- Configured for both round and flat ESP cables, SSV's, DHSV's, chemical injection lines, smart well TEC's and fiber optics.



### Product

Downhole Products Grippy Cable Clamp is a cable clamp designed to fit over the coupling to convey and secure cables and control lines in and out of wellbores quickly, safely and efficiently. This Grippy ST is a stainless steel variation, that significantly reduces the risk of galvanic corrosion and provides excellent long shelf life.

### Features

- Stainless steel construction
- Each collar is designed with rechargeable “Four Point Friction Pad Gripping System” so there is no over-gripping of the cable
- The deformation of the “Flat” friction pads during installation prevent damage to the cable / bundle while resisting slipping and rotation
- Designed to provide positive protection of cable between coupling and casing
- Triple progressive indents are designed on both ends of the channel to grip cables more efficiently. The top indent is slightly less pronounced than the last providing uniform compression
- Swan neck design on the channel allows a smooth transition of cable over the coupling. The channel length aids in eliminating crimping of cable and damage sharp edges associated with the coupling.

### Options

- Bespoke designs available for various cable configurations
- Sizes 2-3/8” to 7”
- Configured for both round and flat ESP cables, SSV's, DHSV's, chemical injection lines, smart well TEC's and fiber optics.

### Product

CaseBit is used on casing strings to drill and/or set casing in one trip to T.D. eliminating additional trips and ensuring uninhibited delivery and positioning of the casing string every time. This product combines industry recognized PDF drill bit technologies, force balancing, cutting structure wear modelling, and computational fluid analysis with flexible manufacturing technology.

### Features

- Asymmetric raised blades, blind holes, and other disconformities to accelerate during drill out and improve breakup.
- Pressure controlled rupture port allows for continuous flow of drilling fluids or cement in the event of nozzle/port plugging
- Wide-open hydraulics approach limits body erosion, accommodates wide range of flow rates, and eliminates need for specialty nozzles
- Cutting structure optimized using proprietary SPOT-DN® Software
- Drillable alloy with PDC drill bit
- Full thru-bore after drill out
- Flow ports offering 360° flow area

### Options

- Material choice driven by erosion concerns and finished diameter of product
- Fully flexible design available with varying blade count, tool OD, casing weights and premium connections
- All API and premium connections available
- All material casing grades available

