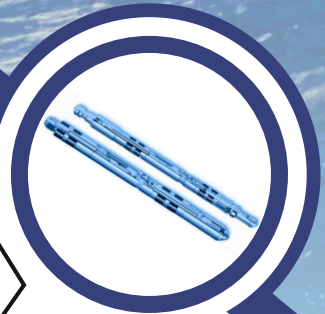




UNITED DRILLING TOOLS LTD.

WORLD CLASS QUALITY AND SERVICES AT UNMATCHED PRICES



UDT General Catalogue

An ISO & API Certified Company



AN OHSAS 18001 CERTIFIED COMPANY
Certificate No: 161224039101



AN ISO 14001 CERTIFIED COMPANY
Certificate No: 161224029101



AN ISO 9001 CERTIFIED COMPANY
Certificate No: 41952



LIC NO 5CT-0565, 5L-0424, 7-1-0393,
19G1-0008, 19G2-0010

CERTIFICATIONS/ACCREDITATIONS

API Certificates

Certificate of Authority to use the Official API Monogram
License Number: 5L-0424 ORIGINAL

The American Petroleum Institute hereby grants to
UNITED DRILLING TOOLS LIMITED
C-41, Sector-81
Noida
Distt Gautam Budh Nagar, Uttar Pradesh
India

the right to use the Official API Monogram® on manufactured products under the conditions in the official publications of the American Petroleum Institute entitled API Spec Q12™ and **API-5L** and in accordance with the provisions of the License Agreement.

In all cases where the Official API Monogram is applied, the API Monogram shall be used in conjunction with this certificate number: **5L-0424**

The American Petroleum Institute reserves the right to revoke this authorization to use the Official API Monogram for any reason satisfactory to the Board of Directors of the American Petroleum Institute.

The scope of this license includes the following: **Manufacturer of Line Pipe Couplings - Type of Pipe: SMLS / Max. Grade: X70; Threader**

QMS Exclusions: Design and Development; Servicing

Effective Date: **SEPTEMBER 18, 2018**
Expiration Date: **SEPTEMBER 30, 2020**

To verify the authenticity of this license, go to www.api.org/verifyapi.

Certificate of Authority to use the Official API Monogram
License Number: 5CT-0555 ORIGINAL

The American Petroleum Institute hereby grants to
UNITED DRILLING TOOLS LIMITED
C-41, Sector-81
Noida
Distt Gautam Budh Nagar, Uttar Pradesh
India

the right to use the Official API Monogram® on manufactured products under the conditions in the official publications of the American Petroleum Institute entitled API Spec Q12™ and **API-SCT** and in accordance with the provisions of the License Agreement.

In all cases where the Official API Monogram is applied, the API Monogram shall be used in conjunction with this certificate number: **5CT-0555**

The American Petroleum Institute reserves the right to revoke this authorization to use the Official API Monogram for any reason satisfactory to the Board of Directors of the American Petroleum Institute.

The scope of this license includes the following: **Manufacturer of Couplings - Type of Pipe: SMLS / Max. Grade: X70; Threader**

QMS Exclusions: Design and Development; Servicing

Effective Date: **SEPTEMBER 18, 2018**
Expiration Date: **SEPTEMBER 30, 2020**

To verify the authenticity of this license, go to www.api.org/verifyapi.

Certificate of Authority to use the Official API Monogram
License Number: 7-1-0393 ORIGINAL

The American Petroleum Institute hereby grants to
UNITED DRILLING TOOLS LIMITED
C-41, Sector-81
Noida
Distt Gautam Budh Nagar, Uttar Pradesh
India

the right to use the Official API Monogram® on manufactured products under the conditions in the official publications of the American Petroleum Institute entitled API Spec Q12™ and **API-7-1** and in accordance with the provisions of the License Agreement.

In all cases where the Official API Monogram is applied, the API Monogram shall be used in conjunction with this certificate number: **7-1-0393**

The American Petroleum Institute reserves the right to revoke this authorization to use the Official API Monogram for any reason satisfactory to the Board of Directors of the American Petroleum Institute.

The scope of this license includes the following: **Blankets, Threading for Rotary Shouldered Connections and C&I Stem Size**

QMS Exclusions: Design and Development; Servicing

Effective Date: **SEPTEMBER 18, 2018**
Expiration Date: **SEPTEMBER 30, 2020**

To verify the authenticity of this license, go to www.api.org/verifyapi.

Certificate of Authority to use the Official API Monogram
License Number: 19G2-0010 ORIGINAL

The American Petroleum Institute hereby grants to
UNITED DRILLING TOOLS LIMITED
C-41, Sector-81
Noida
Distt Gautam Budh Nagar, Uttar Pradesh
India

the right to use the Official API Monogram® on manufactured products under the conditions in the official publications of the American Petroleum Institute entitled API Spec Q12™ and **API-19G2** and in accordance with the provisions of the License Agreement.

In all cases where the Official API Monogram is applied, the API Monogram shall be used in conjunction with this certificate number: **19G2-0010**

The American Petroleum Institute reserves the right to revoke this authorization to use the Official API Monogram for any reason satisfactory to the Board of Directors of the American Petroleum Institute.

The scope of this license includes the following: **Injection Pressure Operated, Orifice, Dummy - Functional Testing Grade: F1, F2, F3 - Design Validation Grade: V1, V2, V3**

QMS Exclusions: Servicing

Effective Date: **SEPTEMBER 30, 2017**
Expiration Date: **SEPTEMBER 30, 2020**

To verify the authenticity of this license, go to www.api.org/verifyapi.

Certificate of Authority to use the Official API Monogram
License Number: 19G1-0008 ORIGINAL

The American Petroleum Institute hereby grants to
UNITED DRILLING TOOLS LIMITED
C-41, Sector-81
Noida
Distt Gautam Budh Nagar, Uttar Pradesh
India

the right to use the Official API Monogram® on manufactured products under the conditions in the official publications of the American Petroleum Institute entitled API Spec Q12™ and **API-19G1** and in accordance with the provisions of the License Agreement.

In all cases where the Official API Monogram is applied, the API Monogram shall be used in conjunction with this certificate number: **19G1-0008**

The American Petroleum Institute reserves the right to revoke this authorization to use the Official API Monogram for any reason satisfactory to the Board of Directors of the American Petroleum Institute.

The scope of this license includes the following: **Side-pocket mandrels - Functional Testing Grade: F1, F2, F3 - Design Validation Grade: V1, V2, V3**

QMS Exclusions: Servicing

Effective Date: **SEPTEMBER 30, 2017**
Expiration Date: **SEPTEMBER 30, 2020**

To verify the authenticity of this license, go to www.api.org/verifyapi.

ISO Certificates

ABS Quality Evaluations
Certificate of Conformance

This is to certify that the Quality Management System of
United Drilling Tools Ltd.
C-41, Sector-81
Noida
Distt. Gautam Budh Nagar, Uttar Pradesh 201 305
India

has been assessed by ABS Quality Evaluations, Inc. and found to be in conformance with the requirements set forth by **ISO 9001:2015**

The Quality Management System applicable to:
DESIGN, MANUFACTURE & REPAIR OF OIL DRILLING, PRODUCTION & EXPLORATION EQUIPMENTS

The activities may be found in the ABS QC Details under design control. The certificate issued in the People's Republic of China information may also be found in the ABS website (www.abs.com).

Certificate No: 41922
Certificate Date: 20 January 2019
Onsite Date: 25 Jan 2018
Expiration Date: 19 January 2020
Issue Date: 25 Jan 2018

Issued by: *Alex Weisberg, President*
Alex Weisberg, President

IAF, ABS, IAF

Certificate of Registration
Certificate No: 181224029981

This is to certify that the Environmental Management System of
UNITED DRILLING TOOLS LIMITED
PLOT NO-C-41, SECTOR-81, NOIDA, U.P. INDIA

has been assessed and found to be in accordance with the requirements of **ISO 14001:2015**

This Certificate is valid for the following scope:
"Design, Manufacture & Repair of Oil Drilling, Production and Exploration Equipments"

Initial Registration Date: 14th Dec. 2015 Issue Date: 14th Dec. 2018
1st Surveillance on or before: 14th Nov. 2017 Valid till: 14th Dec. 2019
2nd Surveillance on or before: 14th Nov. 2018

For check validity of the certificate please visit www.tkvcertification.com or call at given numbers

IAF, JAS-ANZ, G, TCV Certification Pvt Ltd

Certificate of Registration
Certificate No: 181224029981

This is to certify that the Occupational Health and Safety Management System of
UNITED DRILLING TOOLS LIMITED
PLOT NO-C-41, SECTOR-81, NOIDA, U.P. INDIA

has been assessed and found to be in accordance with the requirements of **OHSAS 18001:2007**

This Certificate is valid for the following scope:
"Design, Manufacture & Repair of Oil Drilling, Production and Exploration Equipments"

Initial Registration Date: 14th Dec. 2015 Issue Date: 14th Dec. 2018
1st Surveillance on or before: 14th Nov. 2017 Valid till: 14th Dec. 2019
2nd Surveillance on or before: 14th Nov. 2018

For check validity of the certificate please visit www.tkvcertification.com or call at given numbers

JAS-ANZ, G, TCV Certification Pvt Ltd

Certificate of Registration

This certificate has been awarded to
United Drilling Tools Limited
Plot No.-129 G25-26, 43-44, NSEZ, Noida Dasti Road, Phase-II, Noida,
Uttar Pradesh, 201305, India

In recognition of the organization's Health and Safety Management System which complies with
OHSAS 18001:2007

The scope of activities covered by this certificate is defined below:
Design Manufacture and Repair of Oil Drilling Production and Exploration Equipment

Certificate Number: 181224029981 Date of Issue (Original): 14 May 2018 Date of Issue: 14 May 2018
Issue No.: 1 Expiry Date: 14 November 2021

Issued by: *Alex Weisberg* On behalf of the System Manager

IAF, ABS, IAF

Certificate of Registration

This certificate has been awarded to
United Drilling Tools Limited
Plot No.-129 G25-26, 43-44, NSEZ, Noida Dasti Road, Noida, Uttar Pradesh, 201305, India

In recognition of the organization's Quality Management System which complies with
ISO 9001:2015

The scope of activities covered by this certificate is defined below:
Design and Manufacture of Oil Drilling, Production and Exploration Equipments

Certificate Number: 181224029981 Date of Issue (Original): 20 December 2018 Date of Issue: 20 December 2018
Issue No.: 1 Expiry Date: 20 December 2021

Issued by: *Alex Weisberg* On behalf of the System Manager

IAF, JAS-ANZ, G, TCV Certification Pvt Ltd

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United Drilling Tools Limited
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Issued by: *Alex Weisberg* On behalf of the System Manager

IAF, JAS-ANZ, G, TCV Certification Pvt Ltd

ABOUT OURSELVES



UNITED DRILLING TOOLS LTD. is a leading manufacturer of wire line & well service equipment, Gas lift equipments, Downhole tools and large OD casing connectors in the world. The production facilities are specially adapted to the manufacture of standard precision equipment or special tools trimmed to customer's particular specifications to international standards in technical collaboration with reputed manufacturers of Europe and America. All the equipment can be supplied with most **reliable designs and quality and are very competitively priced** as compared to other suppliers.



UNITED DRILLING TOOLS LTD. is dedicated to manufacture high quality products of proven test designs in conformity with **international standards as per ISO 9001 & American Petroleum Institute (API Licence No. 5CT-0565, 5L-0424, 7-1-0393, 19G1-0008, 19G2-0010)**. Also, all raw materials are obtained from reputed suppliers as per ISO specifications. The manufacturing activities are undertaken by highly skilled crew under strict control of well-qualified and experienced engineers and managerial personnel of high professional dedication and competence. The manufacturing facilities have the most advanced machines and include four-major sections:



- Machine shop with CNC and Special-Purpose Lathes, Milling Machines, Drilling Machines, Cylindrical Grinders etc.
- Fabrication, Assembly and Testing Shops.
- Design, Research, Development and Engineering Dept.
- Quality Assurance Dept. to provide destructive and non-destructive testing such as ultrasonic magnaflux, X-Ray and dye-penetration tests.

OUR PRODUCT RANGE

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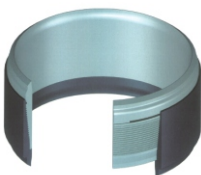

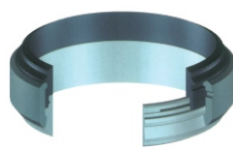
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HIGH PERFORMANCE CONNECTORS

Connector Range	Key Features								
	Reversible	Reusable	Plieable	Metal Seals	Remote Release	Elastomer Seals	High Torque	Pre-Loaded	Assembly
SWIFT 	✓	✓		✓		✓		✓	1 ½ Turn Rotation
LEOPARD 	✓	✓	✓			✓		✓	<1 Turn Rotation
LYNX 	✓	✓	✓		✓	✓	✓		Weight Set

Worldwide Leaders In Connector Technology

These Fast make-up high performance connectors are being manufactured with technical backup from Oil States (UK) Ltd. as per the highest quality standards. These connectors are designed for use in offshore and onshore, where rig costs and environmental conditions dictate a need for fast connector make-up combined with superior performance. These connectors have following special features.

1. These connectors are manufactured to the highest industry standards to assure a trouble-free installation service.
2. These connectors are designed and verified by extensive testing and analysis for compatibility with the strength and capacities of the pipe. Engineering testing and analysis utilize modern engineering tools such as Pro/Engineer CAD, Finite Element analysis, metallurgical laboratories, as well as functional and on load testing equipments.
3. These connectors are machined on state of the art on CNC Machines and each connector is inspected for dimensional accuracy and reliability with most precision instruments available.
4. All connectors are phosphated to prevent corrosion and galling.

HIGH PERFORMANCE CONNECTORS

LEOPARD



The Leopard is a high strength connector which has been used in many different application environment and drilling programmes for land, platform, jack up including highly deviated deep well.

The Leopard combines the advantages of a preloaded thread-type connector with the rapid make-up desired for offshore operations. It has strength characteristics higher than those of the casing pipe.

The Leopard is a self-aligned connector with a high-cone angle and is available in twin or four-start thread. When stabbed, the box swallows approximately 90% of the pin length. The stabbing guide prevents cross-threading. Full make-up is achieved in less than half a turn with a four-start thread and less than one turn for a two-start thread.

To prevent back-off during driving and to permit the connection to transmit torque, integral anti-rotation tabs can be engaged using a hand-held Hilti gun or manual shear tool. Use of the anti-rotation tabs increases breakout torque to as high as 90,000 ft-lb, depending on the number of tabs engaged.

These connectors are available in standard materials for normal operations and high strength materials upto 110 ksi for driving as well as high current deep well applications. Alternate material options of 125 ksi are available on request.

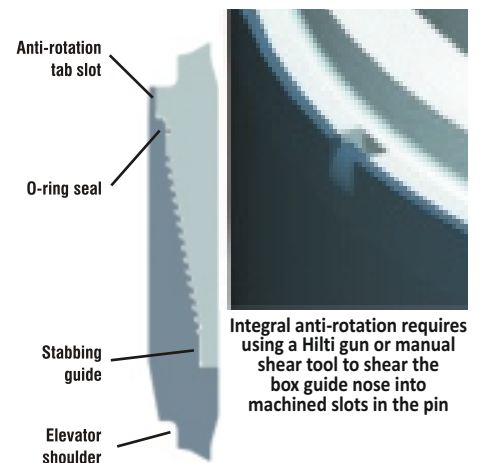
Sizes

Leopard connectors are available in following sizes:

- 18.625" x 0.435"
- 20" x 0.438", 20" x 0.625", 20" x 1.0"
- 24" x 1.0"
- 26" x 0.75", 26" x 1.0"
- 30" x 1.0", 30" x 1.5"
- 36" x 1.0", 36" x 1.5"

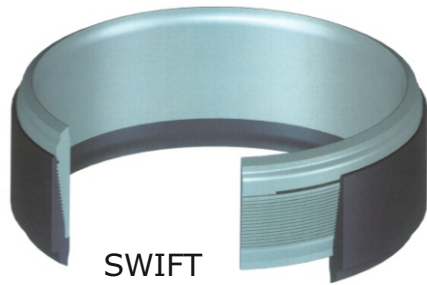
Threaded connector for conductor and casing

- Self Aligned.
- Low torque make-up with rig tongs.
- Less than one turn make-up.
- Integral 4 points anti-rotation provision.
- Suitable for piling.
- Reversible and reusable.
- Visual indication of make-up.
- Preloaded for fatigues.
- High pressure Sealing.



HIGH PERFORMANCE CONNECTORS

SWIFT



The Swift is a heavy-duty threaded connector for use on exploration and platform casing strings where high strength and pressure integrity are important. Compared to other connectors of similar performance, the Swift requires very low make-up torque and can be assembled using standard rig tongs. It has strength characteristics higher than those of the casing Pipe.

The Swift combines a rugged, double-start thread form with a deep stabbing design to eliminate cross threading. The double-start thread reaches full pre-loaded make-up in 1½ rotations. Full make-up is visually confirmed by inspecting external indicator faces (see drawing). Sealing is provided by an integral metal-to-metal seal, with an elastomer O-ring secondary seal.

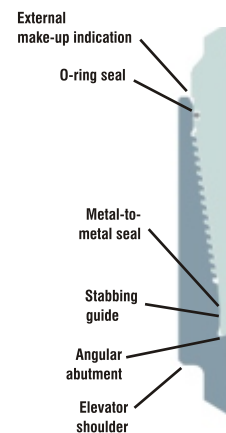
Sizes

Swift connectors are available in following sizes:

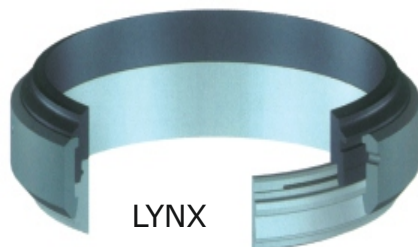
Size : 18.625" x 0.435", 20" x 0.438", 20" x 0.625", 20" x 1.0", 22" x 0.625", 22" x 1.0", 24" x 1.0", 26" x 1.0", 30" x 1.0", 30" x 1.5", 36" x 1.5"

Metal-seal connector for conductor and casing

- Pre-loaded for fatigue.
- Primary metal seal, back-up elastomer.
- Environmental seal.
- Strength equivalent to casing.
- Reversible and reusable.
- Fast twin start, low-torque make-up using rig tongs.



LYNX



The lynx is a robust connector for conductor. It is the simplest type of connector to run, requiring no special tools or personnel. The connector is designed to meet the bending capabilities of the mating pipe body and be piled.

All Lynx models stab easily, self-align axially and assemble under the weight of the joint. When the box is stabbed over the pin, joint weight expands the lock-ring, the abutment faces meet and the lock-ring snaps closed. Full make-up is visually confirmed by inspection of the lock-ring. Lynx connectors disengage by running jacking bolts through the lock-ring to release the pin.

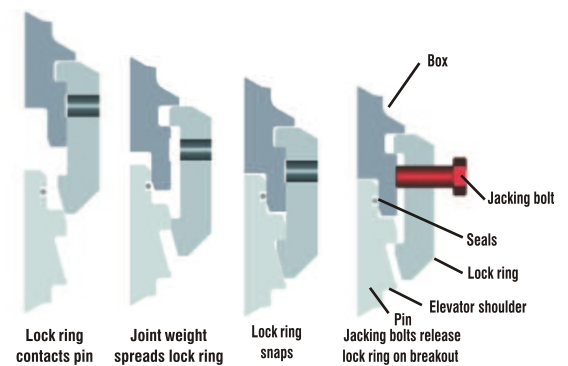
Sizes

Lynx connectors are available in following sizes:

Size : 18.625" x 0.435", 20" x 0.625", 24" x 1.0", 26" x 1.0", 30" x 1.0", 30" x 1.0", 36" x 1.0", 40" x 1.0".

Weight-set connector for conductor

- Assembly requires no special tools or personnel.
- Suitable for piling.
- Visual indication of make-up.
- Anti-rotation resistant.
- Quick release.
- Remote release.



LARGE OD CONDUCTOR CASING

CASING PIPES WITH CONNECTOR JOINT



UDT stocks connectors of various sizes and procure pipes of required grades to fabricate casing joints quickly upon customer request. Connector stocks are kept for fast delivery. UDT supplies connectors, pipes and fabrication for turnkey casing joints of consistent and verifiable high quality. Quality certificates are available for all pipes to ensure quality and traceability.



UDT manufacturing facilities are equipped to fabricate connectors to casing joints in accordance with customer specifications, using qualified procedures that conform to industry standards.



LARGE OD CONDUCTOR CASING

FABRICATION OF CASING JOINTS

CASING PIPE ASSEMBLY AND WELDING

UDT uses state-of-the-art welding equipment to ensure that connectors are welded to the pipe in conformity with industry standards. Pipe body and joint are butt welded and main control points include alignment tolerance, group of clearance, perpendicularity & straightness. Typical welding processes used are Tungsten inert gas welding and submerged arc welding.



QUALITY INSPECTION

After welding, the girth seams are inspected by phased array and radiography and the weld height is treated according to relevant standards. UDT procedures and welders are qualified and certified in accordance with relevant industry standards. The inspection procedures used by UDT conform to API Spec. 1104.

TRACEABILITY

Data sheets that include inspection and material certification are prepared for each casing joint. This data, which is recorded by a unique serial number, provides 100% material traceability.

FAST TURNAROUND

UDT emphasizes quality production and fast turnaround for on-time delivery of casing joints.

SIZES

UDT supplies Casing pipe with connector joints in following sizes: (Pipe Ø x Wall Thickness)

- 18.625" x 0.435"
- 20" x 0.438", 20" x 0.625", 20" x 1.0"
- 24" x 1.0"
- 26" x 0.75", 26" x 1.0"
- 30" x 1.0", 30" x 1.5"
- 36" x 1.0", 36" x 1.5"

For any additional sizes kindly contact us.

Pipes are supplied in both PSL 1 & PSL 2 grades. Pipes are procured from API 5L certified companies.

WIRELIN WINCH UNITS

UDT SLIM SPLIT

Skid mounted two piece wireline unit comprising power pack module with 84-120 hp engine and Winch Module with operator cabin and winch system. This is compact, versatile, self-contained wireline winch unit may be supplied in single or dual drum configuration. The system is suitable for Slickline, 7/32" e-line and upto 5/6" cased hole for fishing application. This slim split can be supplied in different configuration as per application requirement.

DIMENSIONS: double drum Slickline application

- **Power Pack Module :** (L) 1.17m , (W) 1.65m , (H) 2.4m.
- **Winch Module :** (L) 3.35m , (W) 1.50m , (H) 2.4m
Weight and dimension may vary depending on application.

HYDRAULIC SYSTEM

- Powerful 375 bar (5,438 psi) closed loop hydraulic system.
- Capable of Slickline / logging at ultra low speed.
- Effective fast acceleration for effective jarring.
- Hydraulic tank – 150 litres.

WINCH SYSTEM

Application:

- Slickline 0.092", 0.108", 0.125", 0.140" and 0.160".
- Braided line and e-line: 3/16", 7/32, 5/16".
- Drum capacity – 25, 000 ft.
- Winch drum is driven by hydraulic motor via planetary gearbox with chain sprocket system.
- Fail-safe spring return positive brake.
- Over-pull shut-down system: Stop winch rotation on preset desired over pull.
- Equivalent to ASEP Spooling arm or overhead spooling arm.

MEASURING HEAD

- Compact & light weight two or three wheel wrap-around design and no change of wheel is required with the change of wire.
- Make: Benchmark or equivalent.
- Wire or cable can be removed from measuring head without cutting the wire.

DATA RECORDER & DISPLAY

- Digital data recorder and display that displays and records real time depth tension and line speed, Data can be downloaded to a USB for further data processing: Make: Benchmark or equivalent.
- Mechanical back-up depth counter.
- Back-up Hydraulic line pull indicator: Make: Matin Decker or equivalent.

POWERPACK

- Diesel engine driven hydraulic power pack.
- Engine make: JCB, Perkins, Cummins and Caterpillar as per application requirement.
- Engine rating: 85 hp or 125 hp as per application requirement.
- Battery starter and 12 VDC Alternator Spark Arrestor.
- Over-speed Shutdown valve: Chalwynn.



LINE SPEED AND PULL

- Max line speed at core – 1600 ft/min.
- Max line speed at rim/surface – 2700 ft/min.
- Max line pull at core – 9000 lbs.
- Max line pull at rim/surface – 5000 lbs.
- Minimum line speed 6 ft/min and 3 ft/min optional.

OPERATOR CABIN

- Ergonomic operator chair and operator console.
- Short or long cabin as per application.
- 2 persons additional seats.

Operator Console

- Hydraulic double lever Joystick for drum rotation, pump and motor displacement control.
- Engine Throttle Control.
- Hydraulic Pressure Gauges.
- Brake Control.
- Drum Selector.
- Spooling arm and side shift control.

OPTIONAL:

- Zone-2 rated or Zone-1 rated.
- Atex certified engine.
- Touch Screen winchman panel.
- Air-conditioned operator Cabin.
- 3 pieces configuration.
- Long Cabin.
- Logging System.
- Open loop hydraulics for Slickline application.

WIRELINER WINCH UNITS

UDT FLYLINE

This is a two piece skid mounted open console, compact dual-lift wireline winch suitable for rapid deployment onshore and offshore in temperate and tropical climate. Medium Duty Wireline Winch is a solution in situation where critical requirements such as access, footprint or weight is a key factor in winch selection. This compact, versatile, self contained wireline winch may be supplied in single or dual drum configuration.

DIMENSION & WEIGHTS

- Power Pack Module (L) 2.0m, (W) 1.2m, (H) 1.5m
 - Winch Module (single) (L) 2.2m, (W) 1.4m, (H) 1.4m
- Weights are specific to each individual requirement.

FEATURES & BENEFITS

- Powerful water cooled four cylinder diesel engine delivering up to 84 hp.
- One or two drums for slickline well servicing and heavy duty fishing.
- Dual lift for ease of transport.
- Open operator station on winch module for visibility and light weight.
- Ergonomic, safe operator friendly controls.
- Minimum servicing requirements equals maximum availability.

HYDRAULIC DRIVE SYSTEM

- Powerful open loop hydraulic system.
- Capable of fast acceleration for effective jarring.
- Hydraulic tank – 250 litres.

WINCH SYSTEM

- Drum capacity – 25,000 ft
- Application: Slickline: 0.092" – 0.125", Braided line: 3/16" – 7/32"
- Winch drum is driven by hydraulic motor via four speed gearbox with chain sprocket system.
- Fail safe spring return positive brake

DEPTH & TENSION SYSTEM

- Wrap around standard measuring head with 16" diameter measuring wheel
- Mechanical Veeder Root Depth counter to measure depth in meter/feet.
- Hydraulic Weight indicator with load cell. Make: Martin Decker
- Available with slickline measuring device Benchmark / Halliburton type

POWERPACK

- Powerful 84 hp diesel engine.
- Electric start battery type heavy duty starter or mechanical recoil spring starter.
- Control voltage 12 VDC
- Diesel reservoir – 100 litres
- Engine controls – start & stop / RPM meter / monitoring and safety system.



LINE SPEED & LINE PULL with 0.108" drum

- Max line speed at core – 1334 ft/min
- Max line speed at surface – 3,016 ft/min
- Max line pull at core – 7,000 lbs
- Max line pull at surface – 3,098 lbs

CONTROL PANEL

Ergonomic, safe and responsive operator controls & gauges.

- Hydraulic main pressure gauge
- RPM gauge
- Line tension control
- Engine Throttle control
- Winch direction and speed control valve
- Air pressure
- Brake control
- Emergency stop button

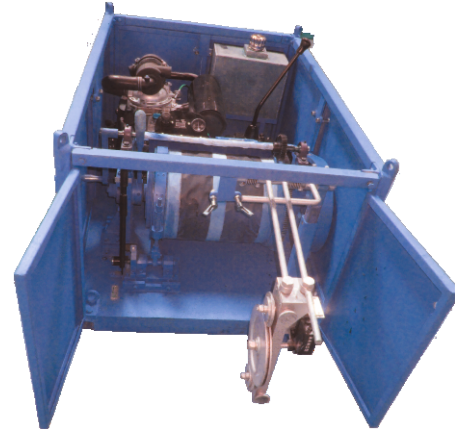
OPTIONS

- Available in zone-II or zone-I configuration on request.
- Heliportable Light weight aluminum skid
- Double drum configuration
- Measuring Wheel 8"
- Closed loop hydraulic system
- Over-pull shut-down system
- 125 hp power pack

WIRELINER WINCH UNITS

UDT SCRAPPING LINE

This is a single drum wireline unit designed to provide a light weight, compact winch for performing light duty slickline operations onshore or offshore. The light weight frame incorporates a four point lifting eye for crane handling. Scrapping winch can be used for Bailing, Bottom Hole pressure / Temperature surveys, Fluid level testing, Paraffin cutting, Setting and retrieving tools and Tag bottom.



SPECIFICATIONS, DIMENSIONS & WEIGHT :

MECHANICAL DRIVE UNITS :

1. With 3-Speed Transmission

Specification	ENGINE CONFIGURATIONS		
	10 hp Engine (7.4 kW) ,Gasoline	16 hp Engine (11.9 kW) ,Gasoline	22 hp Engine (16.4 kW) ,Diesel
Drive Assembly	Chain & Sprocket with hand clutch	Chain & Sprocket with hand clutch	Chain & Sprocket with hand clutch
Brake Assembly	Mechanical, Wide band	Mechanical, Wide band	Mechanical, Wide band
Line Pull & Speed (approx)	Max line pull=1,165 lbs Max Line speed=1,885 ft/min	Max line pull=2,265 lbs Max Line speed=1,810 ft/min	Max line pull= 3,105 lbs Max Line speed= 1634 ft/min
Dimensions (approx)	L= 121 cm, W= 83 cm, H= 66 cm	L = 121 cm,W= 83 cm,H= 66 cm	L = 142 cm,W=104 cm,H= 66 cm
Weights (approx)	577 lbs	589 lbs	1,100 lbs

2. With Direct Drive

Specification	ENGINE CONFIGURATIONS		
	10 hp Engine (7.4 kW),Gasoline	16 hp Engine (11.9 kW) ,Gasoline	22 hp Engine (16.4 kW) ,Diesel
Drive Assembly	Chain & Sprocket with hand clutch	Chain & Sprocket with hand clutch	Chain & Sprocket with hand clutch
Brake Assembly	Mechanical, Wide band	Mechanical, Wide band	Mechanical, Wide band
Line Pull & Speed (approx)	Line pull at core=622 lbs Line speed at flange=942 ft/min	Line pull at core=970 lbs Line speed at flange=1131 ft/min	Line pull at core= 1,325 lbs Line speed at flange=1021 ft/min
Dimensions (approx)	L= 121 cm,W= 83 cm,H= 66 cm	L =121 cm,W = 83 cm,H = 66 cm	L = 121 cm,W =104 cm,H= 66 cm
Weights (approx)	511 lbs	484 lbs	988 lbs

WINCH SYSTEM

- Drum Capacity - 0.082"x 18,000 ft, 0.092"x 18,000 ft, 0.108"x 10,000 ft, 0.125"x 7,500 ft
- Designed for light duty - 0.082" to 0.125"
- Trouble free mechanical brake system

DEPTH & TENSION SYSTEM

- Compact & light weight measuring head
- Depth counter to measure depth in meter/feet
- Weight indicator in 0-2000 lbs with load cell

POWER PACK

- Powered by Gasoline / Diesel engine
- Electrical control / engine controls - Start & stop

CONTROL PANEL

- Ergonomic, safe and responsive operator controls & gauges.
- Electric start/stop buttons
- Manual braking lever
- Drum speed control
- Depth/Weight indicator
- Line pull control
- Veeder root mechanical depth counter

FEATURES & BENEFITS

- Light weight
- Designed for ease of operation
- Compact unit
- Ergonomically designed for operator comfort
- Ease of transportation

OPTIONS & ACCESSORIES AVAILABLE

- Offshore coating or High gloss urethane
- Trailer mounting
- Wireline clamps
- Wireline wiper
- Wireline oiling system
- Protective cover

WIRELINER WINCH UNITS

UDT TRUCK LINE

Skid mounted single piece wireline unit with 3 compartments power pack, operator cabin and winch with 84 or 120 hp engine. This is compact, versatile, self contained wireline winch unit may be supplied in single or dual drum configuration. The system is suitable for Slickline, 7/32" e-line and upto 5/6" cased hole and fishing application. This truck mounted unit can be supplied in different configuration as per application requirement. This can be mounted on 4x4, 6x4 or 6x6 truck chassis as per terrain requirement

DIMENSION & WEIGHTS

- 6 x 2.4 x 2.4 meter high
- WEIGHT: may vary depending on application

HYDRAULIC SYSTEM

- Powerful 5,000 psi closed loop hydraulic system.
- Capable of Slickline / logging at ultra low speed.
- Effective fast acceleration for effective jarring.
- Hydraulic tank – 250 litres

POWERPACK

- Diesel engine driven hydraulic power pack
- Engine make: JCB, Perkins, Cummins and Caterpillar as per application requirement
- Engine rating 80 hp or 120 hp as per application requirement
- Battery starter and 12 VDC Alternator
- 30 KVA electrical generator
- Spark Arrestor
- Over-speed Shutdown valve: Chalwynn

WINCH SYSTEM

Application:

- Slickline 0.092", 0.108", 0.125", 0.140" and 0.160"
- Braided line and e-line: 3/16", 7/32, 5/16"
- Drum capacity – 25,000 ft
- Winch drum is driven by hydraulic motor via planetary gearbox with chain sprocket system.
- Fail safe spring return positive brake
- Over-pull shut-down system: Stop winch rotation on preset desired over pull
- Equivalent to ASEP Spooling arm or overhead spooling arm

MEASURING HEAD

- Compact & light weight two or three wheel wrap around design and no change of wheel is required with the change of wire. Make: Benchmark or equivalent
- Wire or cable can be removed from measuring head without cutting the wire

DATA RECORDER & DISPLAY

- Digital data recorder and display that displays and record real time depth tension and line speed, Data can be downloaded to a USB for further data processing: Make: Benchmark or equivalent
- Mechanical back up depth counter
- Back up Hydraulic line pull indicator: Make: Martin Decker or equivalent

LINE SPEED & LINE PULL for Slickline with 0.125" wire drum

- Max line speed at core – 937 ft/min
- Max line speed at rim – 1330 ft/min
- Max line pull at core – 10,615 lbs
- Max line pull at rim/surface – 6,195 lbs
- Minimum line speed 6 ft/min and 3 ft/min optional

OPERATOR CABIN

- Ergonomic operator chair and operator console
- Air-Conditioned operator cabin
- 2 persons additional seats



OPERATOR CONSOLE

- Hydraulic double lever Joystick for drum rotation, pump and motor displacement control
- Engine Throttle Control
- Hydraulic Pressure Gauges
- Brake Control
- Drum Selector
- Spooling arm and side shift control

OPTIONS

- Zone-2 rated or Zone-1 rated
- Atex certified engine
- Touch Screen winchman panel
- Air-conditioned operator Cabin
- Logging System
- Foldable Sleeping berth
- PTO Driven Hydraulics instead of self contained engine driven power pack
- BOP and Stuffing Box Control with hose reel
- On board hydrostatic pressure test system up to 15K psi
- Two-way communication system, Talk-Back

WIRELINER WINCH UNITS

UDT LANDLINE

This is a tandem axle combination crane and wireline unit for Slickline, Braided Line and upto 7/32" logging service work applications. It has Integrated swivel operator's control cabin and draw-works compartment. All-weather thermal-insulated cabin with climate-controlled interior ergonomically designed control panel.

FEATURES & BENEFITS

- Rotating cabin and draw-works compartment External storage compartment.
- Aluminum operator's control cabin section.
- Rear-mounted hydraulic boom crane.
- Capable of being fitted to conventional 6 x 4 or 6x6 truck chassis.
- 10 Kw hydraulic driven generator.
- Excellent jarring characteristics.

WINCH SYSTEM

Application:

- Slickline 0.092", 0.108", 0.125", 0.140" and 0.160".
- Braided line and e-line: 3/16", 7/32".
- Drum capacity – 25, 000 ft.
- Winch drum is driven by hydraulic motor via planetary gearbox with chain sprocket system.
- Fail safe positive brake.
- Over-pull shut-down system: Stop winch rotation on preset desired over pull.
- Equivalent to ASEP Spooling arm or overhead spooling arm.

HYDRAULIC SYSTEM

- Powerful 5,000 psi closed loop hydraulic system.
- Truck PTO driven hydraulics.
- Capable of Slickline / logging at ultra low speed.
- Effective fast acceleration for effective jarring.
- Hydraulic tank – 250 litres.

MEASURING HEAD

- Compact & light weight two or three wheel wrap-around design and no change of wheel is required with the change of wire
Make: Benchmark or equivalent.
- Wire or cable can be removed from measuring head without cutting the wire.

DATA RECORDER & DISPLAY

- Digital data recorder and display that displays and record real time depth tension and line speed, Data can be downloaded to a USB for further data processing.
Make: Benchmark or equivalent.
- Mechanical back up depth counter
- Back up Hydraulic line pull indicator: Make: Martin Decker or equivalent.



LINE SPEED & LINE PULL with 0.125" drum

- Max line speed at core – 900 ft/min.
- Max line speed at rim/surface – 1650 ft/min.
- Max line pull at core – 9000 lbs.
- Max line pull at rim/surface – 5000 lbs.
- Minimum line speed 6 ft/min.

CRANE

- 20 USt Rear Mounted telescopic boom crane with 90 ft boom.
- Rear and front outrigger cylinders.

OPERATOR CABIN

- Ergonomic operator chair and operator console
- Air-Conditioned operator cabin.
- 2 persons additional seats.

Operator Console

- Hydraulic double lever Joystick for drum rotation, pump and motor displacement control.
- Engine Throttle Control.
- Hydraulic Pressure Gauges.
- Brake Control.
- Drum Selector.
- Spooling arm and side shift control.

OPTIONS

- Zone-2 rated with integrated diesel engine driven hydraulic power-pack with Atex certified engine.
- Crane options: 10, 12, 15, 18 USt.
- Touch Screen winchman panel.
- Logging System.
- BOP and Stuffing Box Control with hose reel.
- On board hydrostatic pressure test system up to 15K psi.
- Two-way communication system, Talk-Back.

WIRESLINE WINCH UNITS

UDT LOGGING UNIT

UDT make Computerized onshore truck mounted logging unit consists of Reel skid comprising of comfortable operator cabin and drum compartment mounted on the Truck chassis of 6 x 4 or 6 x 6 drive. Winch drum is driven through Truck PTO or through Power pack engine with capacity suitable for operation of winch unit. This is compact, versatile, self contained wireline winch unit supplied in single or double drum or split drum configurations (as per customer requirement).

Van Body Dimensions & Weights (approx)

(L) 6.75m , (W) 2.43m , (H) 2.00m

Weight : May vary depending on application

Hydraulic Drive System

- 5,000 psi closed loop hydraulic system.
- Variable displacement hydraulic pump and hydraulic motor.
- Capable of stable logging at ultra-low speeds.
- Capable of fast acceleration at extremely high speeds.
- Hydraulic dynamic braking.
- Low maintenance system.
- Hydraulic tank: Capacity : min 150 litres
- Hydraulic hoses are pressure rated with adequate safety factor.

Cased Hole Operations

Based on Mono Conductor Cable,Capacity 20,000 ft of 5/16" or 7/32"

- Max Speed at Core 370 fpm
- Max Speed at Rim 880 fpm
- Max Pull at Core 26,000 lbs
- Max Pull at Rim 15,400 lbs

Winch System

- Winch drum is chain driven.
- Single Drum for 5/16" or 7/32" mono conductor cable.
- Drum Capacity: 6,000 meter of 5/16" or 7/32" mono conductor cable.
- Winch drum is driven through Truck PTO.
- Fail safe spring return brake.
- Dual band brakes.
- Heavy duty drum shaft bearing.

Measuring Head

- Suitable for 5/16" and 7/32" cable without changing any wheel.
- Application: Cased hole logging and production logging.
- Wireline installed quickly and easily by removing one quick release pin.
- No wheel change needed when changing cable sizes.
- Spring loaded pressure roller ensures depth accuracy under low tension conditions.
- Can measure wireline tension up to 10,000 pounds – 4,535 kg.
- Encoder is to match customer's requirements.
- Can be fitted with second optical encoder for redundancy.
- Load pin for tension read out.



Operator Control Panel

- Winchman Touchscreen panel
- Hydraulic main pressure gauge
- RPM gauge
- Line Tension valve
- Throttle Control
- Winch direction and speed control valve
- Air pressure
- Brake control
- Emergency stop button

Features & Benefit

- Standard Single drum mount system
- Intercom two way communication system to communicate from operator cabin to wellhead crew.
- Rear access underfloor tool or lubricator storage
- Versatile interior layout easily accommodates operators and client representative
- Extensive interior storage solutions
- Air supply from truck chassis air brake reservoir tanks.
- Storage systems for logging tools, BOP, Lubricators, Slickline Tools
- Unit has hydraulic driven generator rated 15 Kw /220-240V/single phase 50 Hz
- Smart monitor compatible
- Air conditioning with dehumidifier and heating functions
- Control voltage : 12 VDC/24 VDC (from Truck chassis battery).
- Field proven, closed loop hydraulic system
- Extensive customized options, because every customer has different needs

Documentation & Certification

- 2 sets of operational manual (soft and hard copies)
- Certified by 3rd party DNV/ABS/BV

Options

- Direct drive through gearbox and motor mounted on winch drum.
- Rack with Warrior system and colour printer.
- Drum - Split/Double drum
- Additional gearbox for extra low speed up-to 2 ft/min.
- Measuring head as per customer requirements
- Instead of Truck PTO Driven hydraulics, integrated diesel engine driven Hydraulic also available.

WIRELINER WINCH UNITS

UDT SURVEY LINE

This is a single drum wireline unit designed to provide a light-weight, compact winch for performing light duty slickline operations onshore or offshore. It has the option to select prime mover as diesel engine or electrical motor.

The light-weight frame incorporates forklift pockets in base for ground handling and a single-point lifting eye crane handling. Survey winch can be used for deviation survey, drill-stem testing, fishing and tag bottom also. The open console style allows the operator to comfortably stand at the unit for ease in operation.

DIMENSIONS & WEIGHTS

Weights and dimensions are specific to each individual requirements.

FEATURES & BENIFITS

- Light weight.
- Heliportable.
- Ergonomically designed for operator comfort.
- Single point lift.
- Prime Mover options (diesel engine / electric motor).
- Integral fork lift pockets.
- Customizing options as per customer's different needs.

WINCH SYSTEM

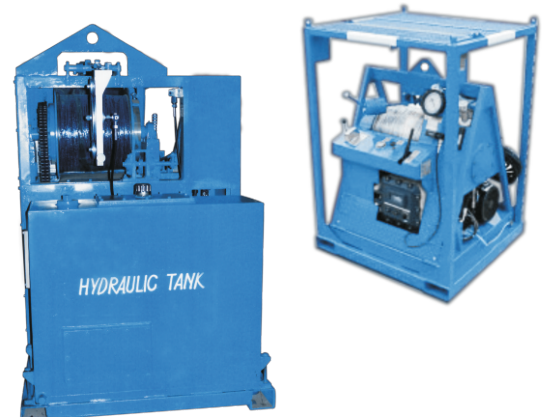
- Drum capacity – 25000 ft.
- Application: 0.092" / 0.108" slickline.
- Winch drum is driven by hydraulic motor via gearbox with chain
- Sprocket system.
- Trouble-free manual braking system.

PRIME MOVER

- Powered by electric motor / diesel engine.
- Electrical motor starter / heavy duty electric start battery-type starter.
- Electrical control / engine controls – start & stop / RPM Meter / monitoring & safety system.

DEPTH & TENSION SYSTEM

- Compact & light-weight measuring head.
- Depth counter to measure depth in meter/feet.
- Weight indicator in 0-2000 lbs with load cell.



HYDRAULIC DRIVE SYSTEM

- Open-loop hydraulic system.

CONTROL PANEL

- Ergonomic user-friendly operator console.
- Hydraulic main pressure gauge.
- Electric start/stop buttons.
- Manual braking lever.
- Drum rotation control.
- Line pull control.
- Spool steering wheel.
- Veeder Root mechanical depth counter.

OPTIONS

- Closed-loop hydraulics for constant low line speed.
- Zone-1 rated with explosion proof electrical motor and explosion proof switch gear.

GAS LIFT EQUIPMENTS

WIRELINE RETRIEVABLE GAS LIFT VALVES

Like the conventional gas lift valves, UDT line of wireline retrievable gas lift valves include, casing-pressure-operated, tubing-pressure operated (fluid-operated) types in a full selection of sizes. Each valve has a large dome volume and Monel multi-ply bellows. Every valve is constructed of stainless steel and monel, selected on the basis of corrosion resistance and strength. Bellows are silver-soldered by induction soldering technique and all valves are factory tested for high reliability.

Wireline retrievable gas lift valves provide self-contained packing as a sealing means in retrievable mandrels and each valve has integral check-valve to prevent flow between tubing and casing.



CASING PRESSURE OPERATED VALVES

TYPE (In)	O.D. (In)	PORT SIZES (In)	
		MIN.	MAX.
UR-20	1.500	1/8"	1/2"
UBK	1.000	1/8"	5/16"
UBK-1	1.000	1/8"	3/8"

FLUID (TUBING) OPERATED VALVES

TYPE (In)	O.D.(In)	PORT SIZES (In)	
		MIN.	MAX.
URF-10	1.000	1/8"	1/4"

ORIFICE VALVES

"UDT Make" Orifice Valves is a retrievable valve used to install in the side pocket mandrel prior to circulation. It prevents the pocket damage from abrasive well fluids while circulating. Efficiency of back check valve provides large flow capacities. Positive sealing feature of back check valve provides protection from intrusion of production fluid into casing annulus. Various orifice materials (SS, monel, inconel & tungsten carbide) available to meet application requirements.

Orifice sizes available for this valve design range from 1/8 through 7/16 inch in 1 inch size and from 1/8 through 51/64 inch in the 1-1/2 inch size, thus making them suitable for a wide range of operating conditions.



TECHNICAL DATA SHEET

NOMINAL OD(In)	PACKING OD (In)		PORT SIZE (In)	
	UPPER	LOWER	MIN	MAX
1	1-1/32	1-1/32	1/8	7/16
1-1/2	1-9/16	1-1/2	1/8	51/64

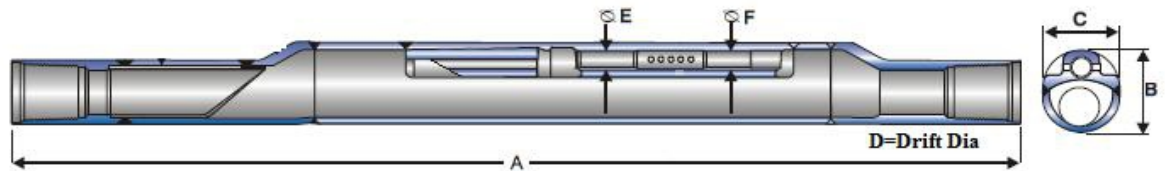
GAS LIFT EQUIPMENTS

SIDE POCKET MANDRELS

“UDT Make” Side Pocket Mandrels offer the advantage of providing an internal profile that guides the valve being installed towards the pocket. These mandrels feature a one piece-pocket, an orienting sleeve for positive kickover tool alignment in highly deviated well and a tool discriminator to exclude larger slick line tools from the product area. The pocket is offset to clear the tubing bore which maximize the flow area and permits passage of tools through the mandrel without meeting restriction. The external shape allows dual string installations without requiring a reduced mandrel ID. These mandrels are available in a variety of tubing connections in both EU and / or premium thread configurations and incorporate all the design features required by customer. These are available in both orienting and non-orienting design. Our side pocket mandrels are available for 1.1/2” & 1” Gas Lift Valves for tubing sizes upto 4.1/2” OD. These mandrels can accept 1” & 1.1/2 OD side pocket devices.



TECHNICAL DATA FOR 1-INCH & 1.5 INCH OD VALVES



All dimensions are in inches

Tubing Size	Valve OD	Length A	Major OD B	Minor OD C	Drift Dia D	ØE	ØF
2-3/8	1.0	83	4.25	2.92	1.901	1.027	1.027
2-3/8	1.5	102	4.75	4.00	1.901	1.558	1.496
2-7/8	1.0	89	4.75	4.00	2.347	1.027	1.027
2-7/8	1.5	103	5.50	4.59	2.347	1.558	1.496
3-1/2	1.0	85	5.43	4.12	2.867	1.027	1.027
3-1/2	1.5	104	6.06	5.00	2.867	1.558	1.496
4.0	1.0	86	5.85	5.00	3.351	1.027	1.027
4.0	1.5	107	6.63	5.55	3.351	1.558	1.496
4-1/2	1.0	86	6.45	5.50	3.833	1.027	1.027
4-1/2	1.5	107	7.87	5.625	3.833	1.558	1.496



DUMMY VALVES

"UDT Make" Dummy Valves is a retrievable dummy valve used to blank off communication between tubing and casing. In new installations, dummies can be retained in the mandrels until gas lift valves are required to maintain production. Then, dummies are pulled and gas lift valves installed by wireline. During the life of the well, gas lift valves installed above the fluid level can be replaced with dummies to block off injection gas. They are available in 1 and 1- 1/2 inch sizes.

ENGINEERING DATA

NOMINAL OD(Inch)	PACKING OD (In)	
	UPPER	LOWER
1	1-1/32	1-1/32
1-1/2	1-9/16	1-1/2



EQUALIZING VALVES

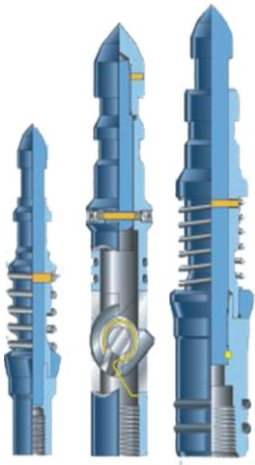
"UDT Make" Equalizing Valves with integral latches are designed to equalize tubing and casing pressure and/or circulate prior to pulling the valve. They are also available in both 1 and 1-1/2 inch sizes.

ENGINEERING DATA

NOMINAL OD(Inch)	PACKING OD	
	UPPER	LOWER
1-1/2	1-9/16	1-1/2
1	1-1/32	1-1/32

GAS LIFT EQUIPMENTS

LATCHES



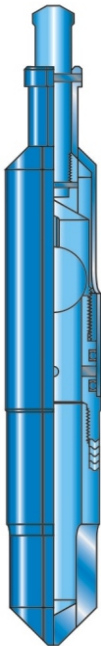
Latches are available in a wide range of designs for use with retrievable gas lift and circulation valves to be installed in side pocket mandrels and make it easy to install and remove Gas Lift Valves, very little force is required to operate these latches to keep the wireline time to a minimum. These are available in 1"-1.1/2" sizes.

ENGINEERING DATA

All dimensions are in inches.

Latch Type	Pulling Neck OD	Running Neck OD	Max OD	Side Pocket Mandrel Accessory OD
RK	1.185	0.936	1.787	1.5
BK-2	0.875	0.750	1.358	1.0

STANDING VALVES



Standing Valves are used to allow pressure to be equalized before removal from a nipple. They are normally used in intermitting or chamber lift wells in the bottom of the tubing or chamber. This valve can be inserted or retrieved by wireline. They are offered in sizes 2"-2.1/2".

ENGINEERING DATA

All dimensions are in inches.

Nominal Size	Dimensions			Bottom Thread
	Max OD	Fishing Neck OD	Fishing Neck Length	
2	1.860	1-3/8	3-3/16	1 NPT
2-1/2	2.298	1-3/8	3-3/16	1 NPT

GAS LIFT EQUIPMENTS



RUNNING TOOLS

Running Tools are used to install several wireline equipments such as appropriate latches with valves in side pocket mandrels.

ENGINEERING DATA

All dimensions are in inches.

NOMINAL SIZE	Max OD	Connecting Thread (Pin)	Suitable for Latch Type
1.0	1.340	15/16-10	BK-2 Latch
1.5	1.456	15/16-10	RK Latch



PULLING TOOLS

Pulling Tools are designed to remove subsurface devices, with outside fishing necks, from a well. Featuring collet type dogs with a large latching area, they will withstand repeated impacts and save considerably on dog repair.

ENGINEERING DATA

All dimensions are in inches.

NOMINAL SIZE	Max OD	Fishing Neck OD	Connecting Thread (Pin)	Suitable for Latch Type
1-1/4	1.291	1.187	15/16-10	BK-2 Latch
1-5/8	1.625	1.187	15/16-10	RK Latch

KICK OVER TOOLS

UDT Kick over tools are used to install and retrieve flow control devices in Side Pocket Mandrel that have an integral orienting sleeve. The orienting sleeve aligns the kickover tool, enabling installation or retrieval of flow control devices for gas lift applications.

ENGINEERING DATA

All dimensions are in inches.

Tools	Fishing Neck OD	Connecting Thread	Length (approx)	Suitable for Side Pocket Mandrel
2-3/8 x 1.0 KOT	1.375	15/16-10	38	2-3/8 x 1.0
2-7/8 x 1.0 KOT	1.375	15/16-10	38	2-7/8 x 1.0
2-3/8 x 1.5 KOT	1.375	15/16-10	48	2-3/8 x 1.5
2-7/8 x 1.5 KOT	1.375	15/16-10	48	2-7/8 x 1.5
3-1/2 x 1.0 KOT	1.375	15/16-10	39	3-1/2 x 1.0
3-1/2 x 1.5 KOT	1.375	15/16-10	46	3-1/2 x 1.5



GAS LIFT EQUIPMENTS

CONVENTIONAL CASING PRESSURE OPERATED GAS LIFT VALVES



"UDT Make" 'AN' Series Valves are charged with nitrogen pressure acting on the bellows. This determines the set pressure of the valve. Nitrogen charged valves are primarily sensitive to casing pressure. The valve is open when the combination of pressures supplied by the casing and tubing exceed the dome pressure. As the casing pressure declines to the valve set pressure, the gas lift valve closes. Since the casing pressure controls the valve operation, the nitrogen charge is reduced in each lower valve to avoid interference with the upper valves.

All UDT Series Valves are suitable for either continuous, flow or intermittent lift wells.

Features :

- Valves are sized to be compatible with most conventional mandrels in service today.
- Mechanical stops limit bellows travel in both directions. This provides bellows protection and assures long life by keeping bellows travel within design limits.
- Tungsten carbide balls and seats provide for long wear against abrasive and corrosive fluids.
- Replaceable floating seats give excellent alignment for positive seal.
- Large dome volume gives smooth stable valve operation that prevents stem and seat cutting.

'AN' SERIES VALVE SPECIFICATIONS

VALVE TYPE & O.D. (In)	LENGTH (In)	SEAT SIZE (In)	BELLOWS AREA (Sq. In)	AV/AB	1-AV/AB
AN-15 1.5	14-7/16	12/64	0.78	0.035	0.965
		1/4		0.062	0.938
		5/16		0.097	0.903
		3/8		0.141	0.859
		7/16		0.192	0.808
AN-10 1.0	12-7/8	8/64	0.31	0.040	0.960
		10/64		0.062	0.938
		12/64		0.087	0.913
		1/4		0.158	0.842
		5/16		0.246	0.753

GAS LIFT EQUIPMENTS



CONVENTIONAL TUBING PRESSURE OPERATED GAS LIFT VALVES

“UDT Make” 'AF' Series gas lift valve is designed to open or close on a fluid load signal, When a predetermined fluid load is reached, the AF Series Valve opens. This allows casing gas to enter the tubing string and lift the fluid to the surface. The AF Series Valve will remain open until the fluid load drops to the closing pressure pre-set on the valve.

The AF Series Valve uses a cross over seat which allows the valve to accept a check and to fit into a conventional type mandrel.

The AF Series Valve is intended for use on wells having a high continuous flow rate. It is also well suited to multiple string completions using the annulus as a common source of injection gas.

Features:

- Uses existing pressure valve mandrels.
 - Mechanical stops limit bellows travel in both directions, which prevents overstressing
 - by keeping bellows travel within design limits.
 - Utilizes standard check valves.
 - Utilizes full line pressure.
- Not affected by temperature. No dome charge is used in the valve, therefore the valve is not affected by temperature.

AF-10 SERIES VALVE SPECIFICATIONS

O.D. (In)	LENGTH (In)	SEAT SIZE (In)	BELLOWS AREA (Sq. In)	AV/AB	1-AV/AB	CEF %
1	13-3/4	8/64	0.31	0.040	0.960	4.2
		10/64		0.062	0.938	6.6
		12/64		0.089	0.911	9.8

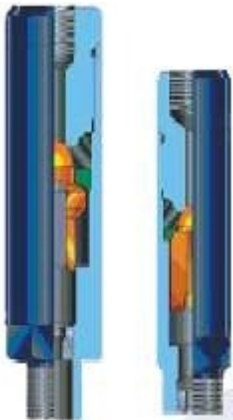
CONVENTIONAL REVERSE-FLOW CHECK VALVES

“UDT Make” Conventional Reverse-Flow Check Valves are velocity check valves used with conventional gas lift valves that do not have integral reverse –flow check valves. These check valves protect the casing from backflow through valves that are below the working valves and allow the application of pressure to the tubing for circulation.

Reverse –flow check valves require flow to close. As the differential pressure across the check dart of the valve increases, the dart contacts the soft seat and then the hard seat to form a seal and close the check valve.

Features:

- Made of corrosion resistant material.
- Dual seats, one metal to metal and one metal to Buna-N.
- Inconel spring loaded drop providing a normally closed check.
- Heat treated stainless steel drop with a large flow bypass.



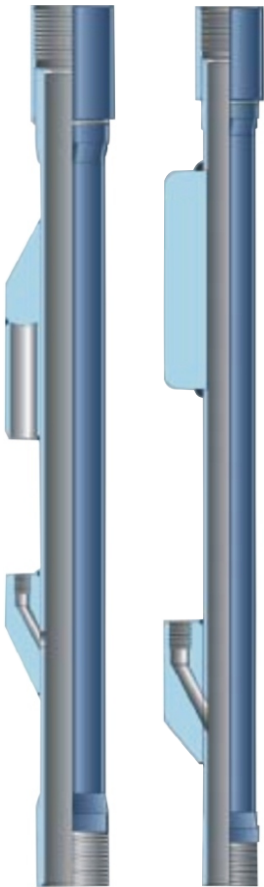
GAS LIFT EQUIPMENTS

CONVENTIONAL GAS LIFT MANDRELS

UDT manufactures a wide range of gas lift mandrels in L-80, N-80 and P-110 grade tubing. These Mandrels are designed to accept 1" & 1-1/2" Gas lift valves and reverse flow check valve. The Gas Lift Mandrels are manufactured with heavy duty properly chamfered steel lug welded to their outside surface so as to protect the valve & check valve during running in and pulling out operation. The mandrels will be duly heat treated and stress relieved. All threaded ends shall be provided with suitable thread protectors.

DIMENSIONAL DATA – CONVENTIONAL GAS LIFT MANDRELS

All dimensions are in inches.



Tubing Size & Thread Type	Weight (PPF)	Tubing Outside Diameter	Wall Thickness	Inside Diameter	Max. Mandrel Running OD (with valve)	
					Valve Size 1.0	Valve Size 1.5
2-3/8 EU	4.7	2.375	0.190	1.995	3.920	4.577
2-3/8 EU	5.95	2.375	0.254	1.867	3.920	4.577
2-3/8 NU	4.6	2.375	0.190	1.995	3.840	4.484
2-7/8 EU	6.5	2.875	0.217	2.441	4.490	5.130
2-7/8 EU	8.7	2.875	0.308	2.259	4.490	5.130
2-7/8 NU	6.4	2.875	0.217	2.441	4.400	5.046
3-1/2 EU	9.30	3.5	0.254	2.992	5.125	5.859
3-1/2 EU	12.95	3.5	0.375	2.750	5.125	5.859

INTERCHANGABLE SLEEVE STABILIZERS

FEATURES

“UDT Make” Interchangeable sleeve stabilizer comes in two different types : One-piece body constructions or with a two-piece body with the sleeve blocked in the middle. Different size sleeve may fit same body. It is composed of a 4145 H AISI heat treated steel mandrel and a sleeve made of special alloy steel. Hard facing on the blades can be any of the four different types offered in section "Hardfacing".

This type of stabilizer is often used in fields where repairs and hard facing of the blades are not available and is thus a time and money saving tool.

ORDERING INSTRUCTIONS

- Hole size and type of body construction.
- Drill Collar size.
- Hardfacing chosen for the blade.
- Connection type and size.

DIMENSIONAL DATA - INTERCHANGABLE SLEEVE STABILIZERS

All dimensions are in inches.

Hole Size /Sleeve OD Range	Drill Collar Size /Mandrel OD	Inside Diameter / Bore	Connection Box x Pin (String)	Connection Near bit Lower	Sleeve Blade / Rib Width	Sleeve Length (min)	Fishing Neck Length
5-1/8 to 7-3/8	4-3/4	2.25	NC38 (3-1/2 IF)	3-1/2 REG	2	14	20-30
7-1/2 to 7-7/8	6-1/2	2-13/16	NC46 (4 IF)	4-1/2 REG	2.5	14	20-30
8 to 9-5/8	6-1/2 to 6-3/4	2-13/16	NC50 (4-1/2 IF)	4-1/2 REG	2.5 to 3	14	22-30
9-1/2 to 15-1/2	8	2-13/16	6-5/8 REG	6-5/8 REG	3 to 3.5	14	22-30
15-5/8 to 20	8	2-13/16	6-5/8 REG	7-5/8 REG	3.5 to 4	18	22-30
12-1/4 to 20	9-1/2	3	6-5/8 REG	7-5/8 REG	3 to 3.5	18	22-30
20 to 26	9-1/2 to 11	3	7-5/8 REG	7-5/8 REG/ 8-5/8 REG	3.5 to 4	24	22-30
>26	11	3	8-5/8 REG	8-5/8 REG	3.5 to 4	24	22-30

INTEGRAL BLADE STABILIZERS

FEATURES

In order to significantly improve the safety & life span of stabilizers UDT has offered, after extensive engineering studies and field experience, the Integral Blade Stabilizers. **"UDT Make"** integral blade stabilizer has a single body made of 4145 H modified alloy steel fully heat-treated to 285-341 Brinell hardness and 54 Joules minimum impact strength. **UNITED** stabilizers are available in either near-bit or string-type. Connections are cold-rolled, phosphatized, coated and equipped with thread protectors. These are gauged to API standards. **"UDT Make"** Integral Blade Stabilizer are sturdy, rugged and easy to repair and maintain tools which can be safely used in highly deviating wells for side tracking and fishing etc. Our stabilizer shall provide 250 to 360 degree hole wall contact and the rib surface shall be hard faced as described under heading "hardfacing".



SPECIAL FEATURES

- Deep spiral machining to allow maximum mud circulation.
- Long fishing neck and bottom neck.
- Wide blades and long wall contact to increase wear resistance and wall contact.

DIMENSIONAL DATA - INTEGRAL BLADE STABILIZERS

All dimensions are in inches.

Hole Size /Stabilizer OD Range	Neck Diameter/ Mandrel OD	Inside Diameter / Bore	Connection Box x Pin (String)	Connection Near bit Lower	Blade Width	Blade Length (min)	Fishing Neck Length
5-1/8 to 7-3/8	4-3/4	2.25	NC38 (3-1/2 IF)	3-1/2 REG	Min 2.25	11-3/4	20-30
7-1/2 to 7-7/8	6-1/2	2-13/16	NC46 (4 IF)	4-1/2 REG	Min 2.25	11-3/4	20-30
8 to 9-5/8	6-1/2 to 6-3/4	2-13/16	NC50 (4-1/2 IF)	4-1/2 REG	Min 2.25	11-3/4	20-30
9-1/2 to 15-1/2	8	2-13/16	6-5/8 REG	6-5/8 REG	3 to 3.5	12	20-30
15-5/8 to 20	8	2-13/16	6-5/8 REG	7-5/8 REG	3.5 to 4	17	25-30
12-1/4 to 20	9-1/2	3	6-5/8 REG	7-5/8 REG	3 to 4	17	20-30
20 to 26	9-1/2 to 11	3	7-5/8 REG	7-5/8 REG/ 8-5/8 REG	Min 4	20	Min 30
>26	11	3	8-5/8 REG	8-5/8 REG	Min 4	20	Min 30

HARDFACING

UDT has developed different types of hard facings for stabilizer blades, each adapted to a specific use to meet your particular requirement.

UDT currently provides a solution to all problems of abrasion linked with drilling operations and equipment through different types of hard facings.

Applications and Performances

HF 1000:

Crushed Tungsten Carbide, held in a nickel bronze matrix.

HF 2000:

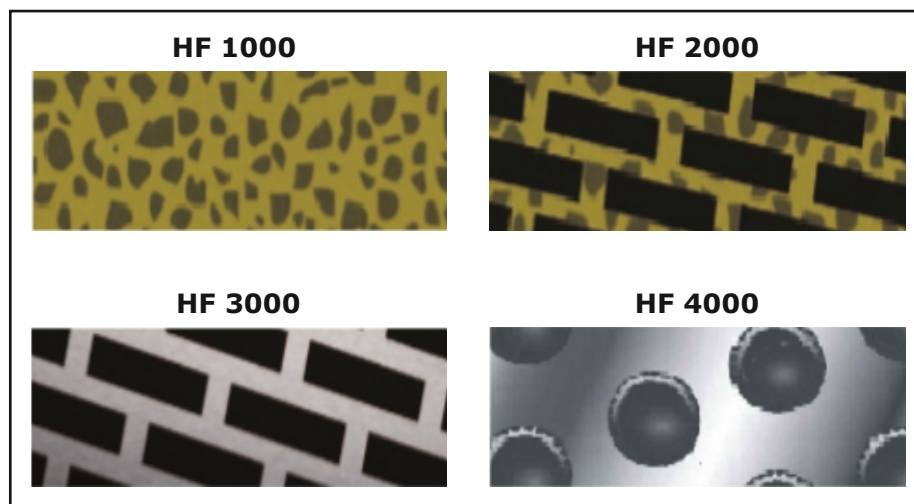
Trapezoidal tungsten carbide inserts are held in a sintered carbide nickel bronze matrix. This will give a greater depth of carbide coverage – ideal for high deviation drilling in abrasive formations.

HF 3000:

Tungsten carbide inserts, set in a powder spray deposit. This spray deposit is ideal for abrasive formations.

HF 4000:

Tungsten carbide inserts (button type). The inserts have been developed to allow cold insertion and maintain close fit. A greater concentration of inserts on the bottom third of the blade and leading edge will increase surface contact to reduce wear in highly abrasive formations.



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