TSC

The Rig Mechanisation Business Unit within TSC Group designs, manufactures, builds and supplies a range of material handling equipment for use on Jack-up Vessels, Semisubmersible Vessels and Drill Ships.

Whether the client needs new equipment, up-grades, refurbishments or spares, TSC will work in partnership with the client to supply a fully integrated solution to each unique situation.

TSC Engineering Ltd is an ISO 9001:2008 accredited company.

TSC Group is a truly world-wide company with manufacturing facilities, service depots and sales offices across the globe.

For more information contact the address below or your local, regional office.

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Units D & E, Shipley Wharf, Wharf Street, Shipley, West Yorkshire, BD17 7DW Tel: 44 (0) 1274 531 862 Fax: 44 (0) 1274 531 716

12111

Unit 3, Horace Green Business Centre, Station Works, Cononley, North Yorkshire, BD20 8LN Tel: 44 (0) 1535 656 471 Fax: 44 (0) 1535 657 896

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PANAMA

d Integration Seamless Solutions



TSC offers a full range of options across the full scope of equipment that we can supply. We will work in partnership with the client to establish the best technical and commercial solution to meet the customer requirements and whether we offer a new build, up-grade, refurbishment or spares package, we will apply the same degree of expertise, commitment and attention to detail.

TSC Engineering Ltd is an ISO 9001:2008 accredited company.

New Build

TSC provide bespoke design and manufacture of the full range of TSC Mechanical Handling equipment to meet the exacting standards of today's oil and gas industry. The design, manufacture, testing and delivery of all our equipment is professionally managed by a dedicated team of Project Managers and Engineers who will work in conjunction with the supply chain to ensure that all deliverables are met or exceeded.

Upgrade

Should any of your TSC equipment need to be up-graded to give greater capacity or improved performance, TSC will evaluate the situation and propose a programme to meet the timescales required and minimise downtime. TSC will support this work with a full package of documentation, certification and manuals to reflect the new, improved profile of the equipment.

Refurbishment

TSC recognise that equipment used in this harsh environment needs to be regularly checked and/or refurbished. We offer a full surveying service to investigate the condition of all areas of your TSC equipment and recommend an efficient course of action to replace any worn or damaged parts. This can include NDT examinations to establish the condition of critical load-bearing components.

Spares

TSC will supply spares on a supply only basis if the part can be easily replaced by the rig personnel. We have built extremely strong relationships with our supply chain to ensure rapid supply and reliable service.

Rig Mechanisation

Within TSC Group the Rig Mechanisation Business Unit is dedicated to the design, manufacture, build and supply of an associated range of handling equipment.

The personnel within this Business Unit have extensive experience of this equipment and are able to evaluate the clients' requirements, address the problems and offer a bespoke solution.

Further details of this equipment can be found on the following pages and can be split into 4 groups as follows :

BOP and Subsea Handling Pages 4 - 11 Horizontal Pipe Handling Pages 12 - 16 Vertical Pipe Handling Pages 17 - 25 Drillfloor Tools/ Miscellaneous Equipment Pages 26 - 35



BOP and Subsea Handling

TSC supply a full range of BOP and Xmas Tree handling and guidance solutions to Drillships, Semi-submersibles and Jackups.

Key Features:

- Robust design for enhanced performance, quality and safety
- Standard safety features
- Control options available
- Bespoke design to meet specific client requirements



BOP Crane

BOP Cranes provide solutions for handling the BOP Stack within and between the Moonpool area and BOP storage area.

Works in conjunction with BOP Transporter, BOP Skid and Guidance units for a complete handling system.

- Robust design for enhanced performance, quality and safety
- Goliath, Semi-Goliath and Gantry designs available
- Span, height of lift and lift capacity are specific to client requirements
- Suitable for hazardous area operation
- Wire rope hoists with multi reeved arrangement terminating with lift blocks
- Positive rack and pinion long travel drive
- Optional auxiliary hoists for handling during maintenance
- Control options available. Operators Cabin, Radio Control, Pendant Control or Control Station



- PLC controlled. Hydraulically or electrically (VFD) powered
- Synchronised long travel drives and synchronised hoisting units
- Integrated Hydraulic Power Unit if required. Fitted with hydraulic load sensing capability ensuring the HPU runs efficiently
- Standard safety features including overload protection, emergency load lowering, fail to safe braking on all drives with dual braking on hoisting units, upper and lower limits, speed ramps for end of travel
- Optional triple braking system on hoisting units
- Optional collision protection if required



Xmas Tree Crane

Xmas Tree Cranes, providing solutions for handling the Xmas Tree within and between the Moonpool area and Xmas Tree storage area.

Works in conjunction with Xmas Tree Carrier, Xmas Tree Skid and Guidance units for a complete handling system.

Key Features

- Robust design for enhanced performance, quality and safety
- Goliath, Semi-Goliath and Gantry designs available
- Span, height of lift and lift capacity are specific to client requirements
- Suitable for hazardous area operation
- Wire rope hoists with multi reeved arrangement terminating with lift blocks
- Positive rack and pinion long travel drive
- Optional auxiliary hoists for handling during maintenance
- Control options available. Operators Cabin, Radio Control, Pendant Control or Control Station
- PLC controlled. Hydraulically or electrically (VFD) powered
- Synchronised long travel drives and synchronised hoisting units
- Integrated Hydraulic Power Unit if required. Fitted with hydraulic load sensing capability ensuring the HPU runs efficiently
- Standard safety features including overload protection, emergency load lowering, fail to safe braking on all drives with dual braking on hoisting units, upper and lower limits, speed ramps for end of travel
- Optional triple braking system on hoisting units
- Optional collision protection if required

Xmas Tree Carrier / Trolley

Xmas Tree Carriers are used to transfer the Xmas Tree within the moonpool area between the Well Centre and parked positions.

Works in conjunction with Xmas Tree Crane, Xmas Tree Skid and Guidance units for a complete handling system.

- Robust design for enhanced performance, quality and safety
- 'C' Frame, Flat Top, Sunken and Elevating Frame designs available
- Span, height of lift and lift capacity are specific to client requirements
- Suitable for hazardous area operation
- Positive rack and pinion long travel drive
- Elevation motion provided by rack and pinion or hydraulic cylinder
- Long Travel motion supported on Roller Wagons or suitable wheel assemblies
- Option for Hang-Off facility to support Pipe or Casing Hang-Off. Hang-Off Spiders and Adaptors available
- Option for integrated Test Stump, either fixed or retractable
- Control options available. Radio Control, Pendant Control or Control Station



- Hydraulically powered
- Integrated Hydraulic Power Unit if required. Fitted with hydraulic load sensing capability ensuring the HPU runs efficiently
- Standard safety features including fail to safe braking on all drives and load holding valves on cylinders





BOP and Xmas Tree Skid Units

A wide and varied range of Skid Units are available to meet the specific requirements for moving Subsea packages around the vessel deck, between storage/assembly location and moonpool.

Key Features

- Robust design for enhanced performance, quality and safety
- Capacity to suit client requirement
- Span to suit deck mounted skid beams
- Flat top Skid designs to suit multiple packages
- Low height Skid Unit to maximise available headroom
- Low friction replaceable skid pads between Skid and Skid Beam
- Hydraulic cylinder actuation to move Skid Unit along the Skid Beams
- 2-Way or 4-Way skidding
- Alternate designs for Skid Head; Locking Pawl, Hydraulic Gripper Pot or Locking Pin

- Option for Test Stump mounting
- Option for Guide Posts
- Option for Keyhole Slot
- Standard safety features including load holding valves on cylinders. Spring to centre (deadman) controls
- Hydraulic Supply from dedicated package HPU or rig supply
- Control options available. Deck mounted Control Console
- Skids are also available for other Subsea equipment: Guide bases, Templates, Mud mats etc.

BOP Transporter / Carrier

BOP Transporters are used to transfer the BOP Stack within the moonpool area between the Well Centre and parked positions.

Works in conjunction with BOP Crane, BOP Skid and Guidance units for a complete handling system.

- Robust design for enhanced performance, quality and safety
- 'C' Frame, Fixed Fork and Elevating Fork designs available
- Span, height of lift and lift capacity are specific to client requirements
- Suitable for hazardous area operation
- Positive rack and pinion long travel drive
- Elevation motion provided by rack and pinion or hydraulic cylinder
- Long Travel motion supported on Roller Wagons
- Option for Hang-Off facility to support Riser Spider and Gimbal



- Option for integrated Test Stump, either fixed or retractable
- Control options available. Radio Control, Pendant Control or Control Station
- Hydraulically powered
- Integrated Hydraulic Power Unit if required. Fitted with hydraulic load sensing capability ensuring the HPU runs efficiently
- Standard safety features including fail to safe braking on all drives and load holding valves on cylinders



BOP Chain Hoists

A range of BOP Chain Hoists are available to provide lift and transverse movements of the BOP Stack.

Key Features

- Robust design for enhanced performance, quality and safety
- Capacity, Lift height and Speed of operation to suit client requirement
- Low headroom designs to maximise the space envelope
- Positive Rack and Pinion drive no wheel spin
- Secondary Hangoff points for added safety
- Lift Block and / or Links to suit lifting application and BOP design

- Hydraulic or pneumatic actuation. Festoon or catenary supply to unit
- Filter, regulator and lubricator assembly supplied with pneumatic unit
- Standard safety features including overload protection, upper and lower limits and spring to centre (deadman) controls
- Hydraulic or Pneumatic Supply from rig
- Control options available. Deck mounted Control Console, Pendant or Radio Control

Guidance System

The use of Guidance Systems is very important on a dynamic vessel. Without the systems in place the equipment has the potential to swing during lifting and cause damage or injury to personnel. A range of guidance systems are available to prevent this movement and stabilise the equipment.

TSC provide Horizontal and Vertical Guidance systems to suit the handling requirements.

The options for Guidance Systems are to either provide the system as part of another piece of equipment or to supply the system as a specialised unit, eg Splash Zone Guidance (SZG) and Bulkhead Guidance.

Examples of Guidance systems mounted to other equipment are:

- SZG mounted underneath BOP Transporters
- SZG mounted underneath Spider Beams
- Capture Arms mounted on BOP Cranes

Key Features - Splash Zone Guidance

- Robust design for enhanced performance, quality and safety
- The size and capacity of any Guidance System depends on the equipment being handled
- Extend and retract to capture and release the equipment
- Retractable skirt to fold away when not in use
- Hydraulic cylinder actuation
- Fixed Parking position for Operation and Storage
- Standard safety features including load holding valves on all cylinders
- Hydraulic Supply from rig
- Control options available. Deck mounted
 Control Console



Key Features - Bulkhead Guidance

- Robust design for enhanced performance, quality and safety
- The size and capacity of any Guidance System depends on the equipment being handled
- Capture Arms to latch onto equipment
- Positive Rack and Pinion Drive
- Standard safety features include load holding valves on all cylinders and fail to safe brakes on drives
- Hydraulic Supply from rig
- Control options available: Deck mounted Control
 Console, Pendant or Radio Control
- Independent operation or synchronised with other equipment

Horizontal Pipe Handling

The TSC horizontal pipe handling system typically comprises a gantry crane, or pipe handling crane, to locate pipes from the initial storage rack and place them onto the catwalk machine or conveyor. This then transports the pipe, riser or other equipment to the derrick and drill floor.

Key Features:

- Robust design for enhanced performance, quality and safety
- Standard safety features
- Control options available
- Bespoke design to meet specific client requirements



Gantry Crane

TSC Gantry Cranes, delivering solutions for moving risers and drilling tubulars from the storage area to the catwalk or conveyor.

Key Features

- Robust design for enhanced performance, quality and safety
- Span, height of lift and lift capacity are specific to client requirements
- Option for fixed mast arrangement which is dedicated to riser handling or travelling masts for handling all tubulars
- Stabilising telescopic masts to prevent load swing during operation ensuring quicker delivery and providing increase cycle rate per hour
- Toe hooks for Riser handling
- Range of heads available to suit other tubular diameters
- Optional auxiliary hoists for general handling
- Control options available. Operators cabin, Pendant or Radio Control
- PLC controlled. Hydraulically or electrically (VFD) powered



- Synchronised long travel drives and synchronised hoisting units
- Integrated Hydraulic Power Unit if required. Fitted with hydraulic load sensing capability ensuring the HPU runs efficiently
- Interlocked with Catwalk and other deck equipment to promote safe and efficient operation
- Standard safety features including overload protection, emergency load lowering, fail to safe braking on all drives with dual braking on hoisting units, upper and lower limits, speed ramps for end of travel
- Optional triple braking system on hoisting units

Tubular Range

2-7/8" to 60"



Catwalk/Conveyor

A range of Catwalks, Conveyors and Riser Skates are available to accurately transport tubulars, from Drill Pipe to Risers and Telescopic Joists, between the handling equipment on the pipe storage area to the Drill Floor. Other drill floor equipment can also be transported to and from the Drill Floor.

Key Features

- Robust design for enhanced performance, quality and safety
- Length of equipment to suit length of tubular to be handled, up to 90' Risers
- Capable of transporting single tubulars or multiple tubulars of specific size on some models
- Option for tubular feed systems mounted adjacent to the equipment. The feed systems ensure there are tubulars available for transport rather than waiting for handling equipment or deck crane supply
- Option for Tailing Arm mounted on the front of the equipment. The tailing arm stabilises, tails and guides the tubular on Drill Floor
- Option for Tubular Lift and Separator Arms. Ideal when using the Horizontal to Vertical Arms
- Option for tubular raise
- Optional auxiliary hoists for general handling

- Control options available. Operators cabin, Drill Floor Console or Radio Control
- Hydraulically or electrically (VFD) powered
- Integrated Hydraulic Power Unit if required. Fitted with hydraulic load sensing capability ensuring the HPU runs efficiently
- Interlocked with tubular handling equipment on the deck and in the derrick to promote safe and efficient operation
- Standard safety features including overload protection, emergency load lowering, fail to safe braking on all drives with dual braking on hoisting units, upper and lower limits, speed ramps for end of travel
- Optional triple braking system on hoisting units

Tubular Range 2-7/8" to 60"

Pipe Handlers

A varied range of Pipe Handlers are available to satisfy the specific requirements and configuration on board any rig type. The Pipe Handlers provide accurate, guick and efficient transportation of tubulars between the pipe deck storage areas and the catwalk or conveyor.

Key Features

- Robust design for enhanced performance, quality and safety
- Knuckle Boom and Fixed Boom options available. Slewing or rigid frame
- Pipe Handler reach to suit client requirements
- Lift capacity is specific to client requirements, maximum 5 tonne
- Tubular handling options available: Griphead, Capture head, Electro-Magnets
- Positional mapping of head position available to ensure accurate control and provide anti-collision
- Head level facility. Levels the tubular when picked up off centre
- Head parallel facility. The tubular remains parallel with the catwalk / conveyor and the pipe storage bays. Promotes quicker and accurate handling
- Control options available. Drillers Cabin, Operators cabin, Radio Control or Control Console



- Integrated Hydraulic Power Unit if required. Fitted with hydraulic load sensing capability ensuring the HPU runs efficiently
- Interlocked with Catwalk and other deck equipment to promote safe and efficient operation
- Standard safety features including overload protection, emergency load lowering, fail to safe braking on all drives, speed ramps for end of travel

Tubular Range

2-7/8" to 20"



Tailing Arm/Guide Arm

Tailing Arms and Guide Arms are mounted on the Drill Floor to tail, guide and position tubulars between V-Door, Setback and Well Centre positions without the need for manual intervention.

Key Features - Tailing Arm

- Robust design for enhanced performance, quality and safety
- Compact unit with articulated or telescopic arm to suit Drill Floor layout and operator requirement
- Control options available. Drillers Cabin, Drill Floor mounted Console, Radio Control or Local Control
- Interlocked and integrated into Drilling System
 Zone Management
- Standard safety features including load holding valves on cylinders

Tubular Range

2-7/8" to 60"

Key Features – Guide Arm

- Robust design for enhanced performance, quality and safety
- Option for mounting. Drill Floor mounted on a pedestal or mounted on a travelling Trolley
- Slew, luff and extend functions to suit Drill Floor layout and operator requirement
- Horizontal head facility. Ensure head is always horizontal regardless of the arm angle
- Positional mapping of head available to ensure accurate control
- Control options available. Drillers Cabin, Drill Floor mounted Console, Radio Control or Local Control
- Interlocked and integrated into Drilling System
 Zone Management
- Standard safety features including load holding valves on cylinders, fail to safe brakes on all drives

Tubular Range 2-7/8" to 20"



Vertical Pipe Handling

The TSC vertical pipe handling system typically comprises handling arms and racking units with fingerboards to handle the tubulars in the vertical position. It also enables the off-line assembly of drill stands into double, triples or quads and stores them in the set-back area ready to be moved to well centre for drilling operations.

- Robust design for enhanced performance, quality and safety
- Standard safety features
- Control options available
- Bespoke design to meet specific client requirements



Bridge Racker

Mounted within the derrick above the Fingerboard level, the Bridge Racker handles and guides tubulars between the Fingerboard / Setback area and Well Centre position.

Key Features

- Robust design for enhanced performance, quality and safety
- Main bridge beam spanning the derrick mounted on runway beams
- Griphead and racking column are slew bearing mounted to a trolley which is mounted between the bridge beams
- Control options available. Drillers Cabin, Derrickmans Cabin or Control Station
- Independent operation or synchronised operation with other racking arms provided
- Interlocked and integrated into Drilling System Zone Management
- Standard safety features including load holding valves on cylinders and fail to safe brakes on all drives

Tubular Range

2-7/8" to 9-3/4"



Fingerboard

Mounted within the Derrick at approximately 85' above Drill Floor, the Fingerboards are capable of storing any combination of tubulars providing the space is available.

Key Features

- Robust design for enhanced performance, quality and safety
- Individual pneumatic actuated latches provided to secure each tubular. Latches mounted on top of the Fingerboard with the pneumatic cylinders protected inside the fingers
- Adjustable fingers available to suit tubulars
- Control options available. Drillers Cabin or Derrickmans Cabin
- Independent operation or synchronised operation with the racking system
- Interlocked and integrated into Drilling System
 Zone Management
- Standard safety features including spring return to close on the cylinders to ensure positive tubular retention



Tubular Range

2-7/8" to 9-3/4"





Derrickmans and Assistant Driller Cabin

Cabins are mounted in the derrick to provide a safe, climate controlled area for the operation of equipment.

Key Features

- Robust design for enhanced performance, quality and safety
- Insulated double skin construction from steel or stainless steel with internal lighting
- Hinged access door with spring close
- Anti-vibration mounting
- Toughened, single or double glazed windows available on all sides, floor and roof to suit requirements
- Fully adjustable ergonomic swivel chair
- HVAC for climate control
- Control options available. Full range from basic direct hydraulic actuation to touchscreen HMI



Access / Stabbing System

Mounted in the derrick to provide personnel assistance during stabbing operation and to provide access to equipment for inspection and maintenance. A versatile range of systems with different reaches and capacities are provided.

- Robust design for enhanced performance, quality and safety
- Two types available: A range of slewing telescopic arms and baskets or the vertical rail mounted elevating foldable platform
- Control options available. Dual control from local station and remote station either on Drill Floor or in Drillers Cabin

- Interlocked and integrated into Drilling System Zone Management
- Standard safety features including load holding valves on cylinders and fail to safe brakes on all drives
- Complies with man-riding requirements

Guardian Racker (GR)

The function of the Guardian Racker is to transfer tubulars between the horizontal position from the catwalk or conveyor to the vertical position when presented into the derrick for Make-up at Well Centre or Mousehole positions. Used in conjunction with other equipment to Make-up doubles, triples or quads offline. The stands can be presented directly to Well Centre or stored in the setback area.

Key Features

- Robust design for enhanced performance, quality and safety
- Lower rail recessed in the drill floor to support the column weight and reduce trip hazard
- Upper rail mounted in the derrick to guide the top of the column
- Winch mounted on the top of the column hoisting the main arm up and down, incorporating a cylinder for make-up and break out compensation
- Column travel provided by rack and pinion drive. Slew bearing mounted
- Main Arm and Guide Arm with reach and retract function ,slew on column to suit Drill Floor layout
- Griphead to grip the doubles and triples and Guidehead and to guide the lower of the tubular
- Tubular Stab In function
- Hydraulically actuated
- Control options. Drillers Cabin. Backup manual control on the Guardian Racker
- Manual and automated control modes
- Interlocked and integrated with Drilling System Zone Management
- Standard safety features including overload protection, emergency load lowering, fail to safe braking on all drives, speed ramps for end of travel, tubular engage sensors, load holding valves on all cylinders

Tubular Range

Griphead and Guidehead 3-1/2" to 9-5/8" Elevator for 3-1/2" to 9-5/8" Elevator for 10-3/4" to 20"

Capacity

10,000kg: main arm, reach 3m or 7000kg: main arm reach 4m



Mousehole

The Mousehole is Drill Floor mounted and used in conjunction with other tubular handling equipment for offline make-up and break out operations to increase operation efficiency.

Key Features

- Robust design for enhanced performance, quality and safety
- Powered Rabbit, dropped load impact absorber, drain line
- Tubular centralising mechanism
- Powered or non-powered
- Tilted or vertical mounted
- Single or dual mousehole models
- Fixed length or telescopic
- Control options available. Drillers cabin or Drill Floor mounted Control Station

Tubular Range

2-7/8" to 13-5/8"





Horizontal to Vertical Arm (HTV)

The function of the Horizontal to Vertical Arm is to transfer tubulars between the horizontal position from the catwalk or conveyor to the vertical position when presented into the derrick for Make-up at Well Centre or Mousehole positions. Used in conjunction with other equipment to Make-up doubles, triples or quads offline. The stands can be presented directly to Well Centre or stored in the setback area.

Key Features

- Robust design for enhanced performance, quality and safety
- Vertical rails supported on Drill Floor and mounted to the derrick structure
- Vertical travel Carriage mounted between the rails, supporting the HTV Arm. Carriage travel provided by rack and pinion drive or wire rope hoist
- Telescopic HTV Arm with reach and slew function to suit Drill Floor layout
- Griphead spreader beam
- Tubular Stab In function
- Hydraulically actuated
- Control options available. Operators cabin, Drillers Cabin, Drill Floor Console or Radio Control. Backup manual control on the HTV Arm
- Manual and automated control modes

- Interlocked and integrated with Drilling System Zone Management
- Standard safety features including overload protection, emergency load lowering, fail to safe braking on all drives, speed ramps for end of travel, tubular engage sensors, load holding valves on all cylinders

Tubular Range

2-7/8" to 20"

Capacity

10,000 kg

2 Arm Racking System

A standard 2 Arm Racking System includes a Top Racking Arm (TRA) and a Centre Racking Arm (CRA). The system handles and guides tubulars between the Setback area and Well Centre position.

Key Features - Top Racking Arm (TRA)

- Robust design for enhanced performance, quality and safety
- Trolley mounted, slewing telescopic arm to suit the Fingerboard arrangement and Well Centre reach
- TRA Trolley runs on a support structure located within the derrick at Fingerboard level
- Control options available: Drillers Cabin or **Operators** Cabin
- Independent operation or synchronised operation with the CRA
- Interlocked and integrated into Drilling System Zone Management
- Standard safety features including load holding valves on cylinders and fail to safe brakes on all drives

Tubular Range

2-7/8" to 9-3/4"



Key Features - Centre Racking Arm (CRA)

- Robust design for enhanced performance, quality and safety
- Trolley mounted, slewing telescopic arm to suit the Fingerboard arrangement and Well Centre reach. Lift capacity 10 tonne
- CRA Trolley runs on a support structure within the derrick at an intermediate level between Drill Floor and Fingerboard
- Control options available. Drillers Cabin or **Operators** Cabin
- Independent operation or synchronised operation with the TRA
- Interlocked and integrated into Drilling System Zone Management
- Standard safety features including load holding valves on cylinders and fail to safe brakes on all drives

Tubular Range

2-7/8" to 9-3/4"

Drillfloor Tools/ Miscellaneous Equipment

TSC supply a full range of drill floor equipment including Iron Roughnecks, Catheads, Drill Floor Manipulator Arms to further automate and streamline the drilling process.

TSC supply both Conductor and Secondary Tensioning Systems for a number of different Jackup models, along with Drillfloor and Cantilever Skidding units.

Key Features:

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- Robust design for enhanced performance, quality and safety
- Standard safety features
- Control options available
- Bespoke design to meet specific client requirements

Drill Floor Manipulator Arm (DFMA)

The function of the Drill Floor Manipulator Arm is to tail and guide tubulars between the V-Door ramp / Catwalk / Conveyor, Setback Area, Mousehole and Well Centre position.

Key Features

- Robust design for enhanced performance, quality and safety
- Telescopic Arm with reach to suit Drill Floor layout and client requirements
- Slew, Tilt and Extend functions on the Telescopic Arm
- Option for mounting. Drill Floor mounted on a pedestal or underslung from the TOP Drive Guide Rails
- Range of heads available to suit tubular diameters
- Rollers fitted on Riser Head to protect Riser bouyancy
- Tilt and rotate functions on the heads to accommodate for handling leaning tubulars



- Optional padeye on the Racker Head for general handling around the Drill Floor
- Control options available. Operators cabin, Drill Floor Console or Radio Control. Backup manual control on the DFMA
- Hydraulically actuated
- Interlocked and integrated with Drilling System Zone Management

Tubular Range

2-7/8" to 60"



Hydraulic Cathead

The function of the Cathead is to provide the force necessary to make up and break out drill pipes and collars. The Cathead working with the manual rig tongs provide the required torque. The Cathead is a drill floor mounted tool.

Key Features

- Robust design for enhanced performance, quality and safety
- Mounted to suit the drill floor arrangement
- Control options available. Drillers cabin, Drill Floor mounted console or Radio Control
- Torque adjustment to suit make up or break out requirements
- Interlocked and integrated with Drilling System Zone Management
- Suitable for Zone 1 operation

Technical Data

Pull Force	Operation Arc	Rope Travel		
0 – 150KN	± 90 degrees	2500mm		



Drill Line Spooler

TSC Drill Line Spoolers form an integral part of the Drilling System package. The Spoolers store the Drill Line and provide the facility to deploy during the Cut and Slip operation. One of the main considerations during the design development was to ensure that the reel change-out process was quick, efficient and safe for personnel.

- Robust design for enhanced performance, quality and safety
- Rope storage capacity and speed of operation are specific to client requirements
- Heavy duty steel frame complete with certified lift eyes and forklift pockets
- Removable drive shaft complete with retractable drive plate
- Split bearings for ease of shaft installation and removal
- Guards around moving parts



- Two direction rotation of drum
- Hydraulic, pneumatic or electric motor actuation
- Suitable for hazardous area operation
- Access stairs to provide easy access to shaft and bearings for reel change-out
- Control options available. Locally mounted Control Station. Proportional control for increased safety
- Standard safety features including fail to safe braking on all drives in addition to load holding valves



Iron Roughneck

Core Models

- IRN 1000: Rail mounted
- IRN 2000: Rail mounted

Key Features

- Robust design for enhanced performance, quality and safety
- 2 Jaw or 3 Jaw options
- Manual, semi or full automatic control modes
- Automatic clamp pressure setting relative to tubular diameter
- Well centre and mousehole operations

- IR120: Pedestal mounted
- IR150: Pedestal mounted
- Operation from roughneck, drill floor panel, drillers chair or radio control
- Mousehole tilt accommodated on IRN1000 and IRN2000 models
- Bit Breaker adaptors

Tubular Range

2-7/8" to 9-3/4"

Model	Make up Torque (ft lb)	Break Out Torque (ft lb)	Spinner Speed (rpm)	Stickup Height Min/Max (mm)	Reach (inch)	Weight (Kg)
IRN1000	100,000	122,000	0-140	740/1540	1	7500
IRN2000	100,000	122,000	0-140	740/1240	1.1	9500
IR120	100,000	120,000	0-100	860/1610	120	6500
IR150	100,000	120,000	0-100	860/1610	150	7000

3 Jaw High Performance Torque Wrench

 Self-aligning triple clamping jaw for higher but uniform clamping force

Less wear and deformation on tool joints

- Less wear on dies, reduced slippage on tubular and longer operation between changes.
- Increased reliability

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Conductor Tensioning Unit (CTU)

The TSC Conductor Tensioning Unit is a push-type system that maintains the tension in the conductor during operation. TSC design and supply a lower capacity 'Mini CTU' Unit with a capacity up to 200Te which may be mounted on the Texas Deck or alternatively the TSC 'Standard CTU' Unit which has a capacity up to 300Te and is mounted on a dedicated TSC Conductor Tensioning Platform.

Whether the client requires the Mini or Standard CTU System, TSC can design and supply the Accumulator Pack to suit the specific requirements.

The TSC Conductor Tensioning Platform (CTP) can be skidded to port or starboard to suit multiple slots and can be supplied with the TSC Sliding Panel system which fully encloses the Platform. The TSC CTU System can be operated independently or can be integrated with the TSC STU System to give a complete tensioning solution.

Key Features

- Mini CTU Tensioner Stroke +/-6"
- Mini CTU System supplied with interchangeable inserts to suit Tubulars up to 36" diameter
- Standard CTU Tensioner Stroke +/-12"
- Robust, reliable design for optimum performance, quality and safety
- Hazardous area electrical controls as standard
- Dedicated Lifting Tool available
- The standard CTU can be supplied integrated with an STU, a CTP and Sliding Panels to give a complete tensioning System



Secondary Tensioning Unit (STU)

The STU is a pull type tensioner and is used to support the weight of the BOP, generally when smaller sizes conductors are in operation. The STU is installed above the BOP, between the underside of the Drill Floor and the BOP Annulus.

The STU can be operated independently or combined and integrated with a CTU into a complete tensioning system.

Key Features

- Robust design for enhanced performance, quality and safety
- Compact unit with articulated or telescopic arm to suit Drill Floor layout and operator requirement
- Control options available. Drillers Cabin, Drill Floor mounted Console, Radio Control or Local Control
- Interlocked and integrated into Drilling System Zone Management
- Standard safety features including load holding valves on cylinders

Tubular Range 2-7/8" to 60"







Hydraulic Power Unit (HPU)

As part of a handling system the Hydraulic Power Unit is critical to operation. Hydraulic Power Units are provided to suit all applications from single individual items of equipment to complete handling systems with available flowrates in excess of 1000 ltr/min and pressures in excess of 345 bar (5000 psi).

Key Features

- Robust design for enhanced performance, quality and safety
- Fixed or variable displacement pumpsets to suit application
- Pressure, return and offline filters
- Water or air blast cooled
- Flow / pressure monitoring to ensure efficient usage and reduced power consumption

- Stainless steel tank
- Suitable for hazardous area
- Control options available. Drillers Cabin or local station
- Standard safety features including high temp probe, low and ultimate low level switches
- Acoustic enclosure option

Skidding Systems

Skidding Systems are used to move large structures around the rig or platform in a safe and efficient manner. There are three main types of Skidding System supplied by TSC:

- Cantilever Skidding
- Drill Floor Skidding (Lift and Roll)
- Module Skidding

The use of Skidding Systems allows the rig or platform to operate within a designated space envelope to develop a well pattern which is an efficient method for handling a multiple well program.

- Robust design for enhanced performance, quality and safety
- Capacity and skidding speed to suit client requirement
- Hydraulic Supply from dedicated package HPU or rig supply
- Control options available. Deck mounted **Control** Console

