No limits
No boundaries

IHC Handling Systems
product overview 2014/2015
‘Lots of reasons why.’ IHC Handling Systems
**No limits, no boundaries.** This means that issues such as ‘large’, ‘heavy’ and ‘deep’ are relative terms to us. The crux is identifying opportunities and translating these into practical applications. As a global expert in the field of tools for installing foundations and structures, we know our market. And our market - in turn - is fully aware of what we have to offer as a technology innovator, as a reliable partner and as a producer of efficient fail-safe tools to ensure the best possible safety.

IHC Handling Systems, part of IHC Merwede, is a leading supplier of high-quality handling systems and services as well as a problem solver for handling issues. At IHC Handling Systems we have a rich history as an innovative company experienced through various offshore installation or removal ‘challenges’. We have been ahead of market developments for many years now. How? Innovation and thinking in terms of the market are deeply entrenched in our company’s DNA. We enjoy limitless conceptualisation.

Together with our sister companies IHC Hydrohammer® and IHC Sea Steel we offer a full package of offshore installation equipment, either from our standard range of products or to our clients specific needs or requirements. We invite you to step into our world in order to learn more about our company, products and services and the reason we are proud to say ‘No limits, no boundaries’.

IHC Merwede is focussed on the continuous development of design and construction activities for the specialist maritime sector. It is the global market leader for efficient dredging and mining vessels and equipment – with vast experience accumulated over decades – and a reliable supplier of custom-built ships and supplies for offshore construction.

IHC Merwede has in-house expertise for engineering and manufacturing innovative vessels and advanced equipment, as well as providing life-cycle support. Its integrated systematic approach has helped to develop optimum product performance and long-term business partnerships.

The company’s broad customer base includes dredging operators, oil and gas corporations, offshore contractors and government authorities.

IHC Merwede has over 3,000 employees based at various locations in The Netherlands, Brazil, China, Croatia, France, India, Malaysia, the Middle East, Nigeria, Serbia, Singapore, Slovakia, South Africa, the United Kingdom and the United States.

Technological innovation will remain the company’s underlying strength through its continuous investment in research and development. Moreover, it helps to safeguard a sustainable environment.
Company vision

Locations in the world
The Netherlands, Brazil, China, Croatia, France, India, Malaysia, the Middle East, Nigeria, Serbia, Singapore, Slovakia, South Africa, the United Kingdom and the United States.
Oil & Gas

We invite you to step into our world of equipment in order to learn more about our company and the reason we are proud to say ‘Your world, our challenge’.

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<td>IHC Handling Systems long history in the Oil &amp; Gas industry has a strong connection with the installation of structures. The challenges, faced by our customers led to the design and fabrication of dedicated equipment which ‘nowadays’ is available on a rental or a purchase basis.</td>
<td>Over the years, the Oil &amp; Gas industry moved (and still is moving) from shallow to deeper, and even ultra-deep waters. IHC Handling Systems supported its customers during this ‘evolution’ by designing and producing equipment capable of withstanding deep water conditions.</td>
<td>IHC Handling Systems involvement in the pipelaying market started in the mid 90’s with the supply of our first line-up clamps. Since then, the growth of offshore activities led to a demand for a wide range of equipment, all of which is currently available within our product range.</td>
<td>A relatively new market in which IHC Handling Systems is involved is the removal market. The removal of structures, jackets, subsea templates and pipelines requires specialised and customised equipment or, in other cases, equipment that is a ‘spin-off’ from existing tools.</td>
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## Oil & Gas

### Product Overview 2014/2015

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The offshore wind business is clearly a growth market. During the coming decades sizeable wind farms will be created, especially offshore. IHC Handling Systems has been involved in this market from the very early start and nowadays, it is a very important ‘second’ pillar of the business.

**Jackets & Tripods**
The offshore wind industry is currently moving into deeper waters and due to the ever-increasing capacity of wind turbines, jackets and tripods are more often chosen as foundation type. For the installation of structure foundations IHC Handling Systems can contribute its experiences from the Oil & Gas market.

**Monopiles**
Since 2001, IHC Handling Systems is involved in the installation of monopiles, starting with the installation of the Horns Rev I project off the Danish coast. Since then, IHC Handling Systems has been involved in 95% of all monopile projects that followed Horns Rev I.

**Gravity Based**
A rare type of foundation is the Gravity Base foundation, which requires huge constructions to be handled and installed offshore. IHC Handling Systems experience in handling and lifting heavy constructions is an assurance for the successful installation of these foundations.

**Deck Equipment**
Apart from the equipment used during the installation of foundations, IHC Handling Systems is increasingly involved in the handling of structures, piles, etc on deck of installation vessels, this varies from the hydraulic operated pile storage frames to guiding and/or positioning frames.
## Wind

### Monopiles
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IHC Handling Systems has a rich history as an innovative ‘problem-solving’ company and has gained extensive experience through various offshore installation or removal ‘challenges’. Innovation and thinking in terms of solutions for our customers are deeply entrenched in our company, starting from our experienced sales team, through our engineering and our service department. IHC Handling Systems is capable of limitless conceptualization.
Various

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All IHC Handling Systems equipment is hydraulically operated, both for surface and for subsea operations. IHC offers its customers complete equipment packages, which result in a ‘plug-and-play’ solution. A major advantage for our customers is the fact that they can rely on equipment packages that already have been tested as an assembly. Obviously, having one single point of contact for an equipment package that consists of several components is an additional benefit for the customer.
## Supporting Equipment

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ILT

Internal Lifting Tool

ILT’s are used for upending of piles, conductors and lifting of jackets, templates, buoyancy tanks and modules.

Specifications
- Standard pile range 16” - 96”
- Lifting capacities of 200t - 2000t
- Standard operating water depth is 500m
- Special modifications allow for:
  - pile OD 108”
  - water depth up to 2500m
  - capacity up to 2000t
  - Certified and designed according Lloyds Lifting Appliances
- Available for rental & purchase

Applications
An evolution in ILT use has taken place over the years from simple pile handling into use during various installations, such as:
- Lifting of bouyancy tanks
- Lifting of jackets
- Lifting of topside modules
- Lifting of subsea manifolds

Product Range
The ILT “family” consists of five standard size ranges with different lifting capacities.

16” - 30” 200t
20” - 36” 300t
24” - 42” 250t
42” - 60” 500t
60” - 96” 1200t
The ILT is equipped with IHC’s innovative Fail Safe Principle:

- Mechanical load applied on the tool in longitudinal direction results in a transversal force on the pile which creates the ‘locking / fail safe’ connection

**Projects**

- 2013 OSX-3 - Brazil
- 2013 Diyabekir - Turkmenistan
- 2013 KMA - Malaysia
- 2012 EMEPMI TE-A, TA-Q, TE-B - Malaysia
- 2012 FSO Erawan-2 mooring installation - Thailand
- 2012 Bubut & Danau - Brunei
- 2012 EPRD Ekofisk cessation - North Sea
- 2012 Pertamina Hulu Energy - Indonesia
- 2011 Pierce Manifold Installation - North Sea
- 2011 SHWE project - Myanmar
- 2011 D1 project - India
- 2011 Esso Kipper Tuna - Australia
- 2011 MHN Re-development - India
- 2011 Montara - Australia
- 2011 Bien Dong 1 - Vietnam
- 2010 Gumusut-Kakap - Malaysia
- 2010 Devil Creek - Australia
- 2010 Gajah Baru - Indonesia
- 2010 Castor T & I - Spain
- 2010 KNPG-B jacket - Malaysia
- 2010 Ekosfisk removal - North Sea

**Projects prior to 2010 upon request**
ELT

External Lifting Tool

ELT’s are used for pile upending, pile lifting and as a hang off clamp.

Specifications
- Pile range 20” - 112”
- Lifting capacity up to 1200t
- Max. operating depth of 250m
- Certified and designed according Lloyds Lifting Appliances
- Available for purchase

Features
- The ELT has some specific innovative features.
  - Subsea operation via ROV or umbilical
  - ELT can be optional delivered with side opening
  - Centralizing system improving position prior to clamping

Applications
- Pile upending in a dual crane operation
- Use as hang-off clamp
- Use a temporary clamping device during welding of leg piles

Fail Safe Principle
- The ELT is equipped with IHC’s innovative Fail Safe Principle
  - Mechanical load applied on the tool in longitudinal direction results in a transversal force on the pile which creates the ‘locking / fail safe’ connection

Projects
- 2012 Conoco Eldfisk - Norway
- 2012 North Rankin B - Australia
- 2012 Jasmine - North Sea
- 2010 Castor T & I - Spain
- 2009 North West Hutton - Norway
- 2009 Peregrino - Brasil
- 2009 Mexilhao - Brasil
- 2008 Tombua Landana - Angola

Projects prior to 2008 upon request
Upending Frames enable offshore installation contractors to increase their sphere of activity and efficiency by upending long piles with a relatively short crane boom.

**Specifications**
- Pile range 54” - 108”
- 600t holding capacity
- Requires ILT at the pile top
- Available for rental & purchase

**Features**
- Hydraulically operated
- Rotation of frame 0° - 100°
- Lateral freedom of movement ±10°
- Full pile weight can be taken by frame
- Frame can be equipped with inclino sensor for accurate digital angle information
- New design with hydraulic hinge back

**Projects**
- 2013 KPOC - Malaysia
- 2013 KBB Northern Hub project - Malaysia
- 2012 Global Tech 1 Offshore Wind Farm - Germany
- 2012 Hai Thach / Bien Dong - Vietnam
- 2012 Cendor phase 2 - Malaysia
- 2011 Yetagun-C - Myanmar
- 2011 B-193AP & B-193AQ - India
- 2011 Bien Dong MT1 - Vietnam
- 2011 Dai Hung - Vietnam
- 2010 F23R - Malaysia
- 2009 Chim Sao - Vietnam
- 2007 Krishna Godavari - India

Projects prior to 2007 upon request
The latest frames are equipped with a hydraulic hinge back option, this additional device allows the Upending Frame to return into its horizontal position without additional tools, such as tugger winches and/or cranes. This latest design further improves the efficiency of offshore operations.
Leveling Tool

The Leveling Equipment can be used for leveling of jackets and/or templates.

Specifications
- Surface and subsea leveling operations
- Leveling capacity up to 3000t
- Fail safe design
- Certified and designed according Lloyds Lifting Appliances
- Available for rental & purchase

Features 1600t – 3000t equipment
- Subsea leveling tool
- Leveling capacity 1600t - 3000t
- Pile range 72” - 102”
- Guide cone requires an integrated rolled vertical ring only to facilitate leveling tool
- Leveling tool operates independent from pile stick up
- Operates in combination with a Jacket
- Free orientation during installation of tool

Features 200t – 1600t equipment
- Above water and subsea use
- Leveling capacity 200t / 800t / 1600t
- Adjustable to all pile diameters
- Stroke 1000mm / 1800mm
- Emergency release via hot-stab (ROV)
- Stick-up height variable
- Recommended to operate in combination with a Jacket Pile Gripper during subsea leveling
- No special preparations to jacket/template structure are required:
  - Connects with pile guide / catcher plate in subsea use
  - Connects with jacket pad eye in surface use
LT
Leveling Tool

Fail Safe Principle
The LT is equipped with IHC’s innovative Fail Safe Principle:
• Mechanical load applied on the tool in longitudinal direction results in a transversal force on the pile which creates the ‘locking / fail safe’ connection

Projects
2013 Thang Long Dong Do Project - Vietnam
2012 Forties Alpha - North Sea
2012 Jasmine II - North Sea
2012 Greater Ekofisk - Norway
2011 Dai Hung - Vietnam
2011 Jasmine I - North Sea
2009 Chim Sao - Vietnam
2009 alhall & Harding - North Sea
2007 Ledong - China
2007 Xijiang 23-1 - China
2006 Pany PY31 - China
2006 Britsats - North Sea

Projects prior to 2006 upon request
Pile Anti Running Clamp

Specific designed Clamp to stop pile running during pile driving.

Specifications
- Pile range 30” - 84”
- To prevent damage to jacket, crane and hammer caused by running piles
- Hydraulically controlled
- Available for purchase

Features
- PARC stops piles from running
- PARC operates in combination with a standard power pack and high pressure accumulator set
- Initial low clamping pressure of PARC during pile driving, to create pile / clamp contact
- When pile running occurs energy from the accumulator package is release in order to stop the pile run within milliseconds
- Automated or manual system
- PARC has the ability to overcome transversal welds between pile sections

Projects
- 2011 Pemex - Mexico
- 2009 Several projects - India
- 2007 Pemex - Mexico
Pile grippers are used to create a temporary connection between the skirt pile and jacket.

**Specifications**
- Capacities are limitless
- Pile diameters are limitless
- Hydraulically operated
- 3rd party certification is optional
- Available for purchase

**Features**
- Securing jacket during bad weather conditions and abandonment
- Retaining elevated position after leveling
- Provides high jacket stability during grouting process
- Operated from surface with subsea redundancy control
- Optional completely subsea controlled
- Optional multiple hydraulic circuits
- Extensive track record
Product overview 2014/2015

Jacket Pile Gripper

• Re-usable Jacket Pile Gripper;
  - Special jacket pile gripper design to be re-used on project with multiple jackets
  - Connection to skirt sleeve by mechanical or hydraulic operated pin connection

• Inside-out Jacket Pile Gripper;
  - Jacket pile gripper which is part of the pile grips internally in skirt sleeve or bucket arrangement

Projects

2013  Laila - Malaysia
2013  Edvard Grieg - North Sea
2013  Montrose - North Sea
2013  Martin Linge - Norway
2013  Kepodang - Malaysia
2012  Forties Alpha - North Sea
2012  Jasmine II - North Sea
2011  Jasmine I - North Sea
2011  Hornsea Met Mast - North Sea
2011  Dai Hung - Vietnam
2010  EAPL Kipper Tuna - Australia
2010  Greater Ekofisk - Norway
2009  Valhall & Harding - North Sea
2008  Baraka - Tunesia
2007  Heera - India
2007  Bohai Phase II - China
2006  Ikalou - Congo
2006  Ikalou sud - Congo
2006  Britsats - North Sea

Projects prior to 2006 upon request

Specials
Hydraulic Release Shackle

Hydraulic release shackles are used for lifting and positioning structures both subsea as well as at the surface.

**Specifications**
- Capacity 17.5t - 2000t
- Remote controlled engagement and disengagement of shackles
- Available for rental & purchase
- Independent of shackle brand
- Ultra deep water versions available

**Features**
- Hydraulic operated pin
- Standard suitable for 500m water depth
- Several, optional, back-up activation methods available:
  - Hot Stab
  - Secondary back-up cylinders
  - Accumulators
  - Mechanical back-up

**Projects**
- 2013 Nexen Golden Eagle - North Sea
- 2013 Eldfisk II - North Sea
- 2013 El Dolphin - Australia
- 2013 Washit Gas - UAE
- 2012 Britannia - North Sea
- 2012 Togi - North Sea
- 2012 HST & HSD Project - Vietnam
- 2012 Jasmine II - North Sea
- 2011 OIG - Norway
- 2011 Liwan - China
- 2011 Dai Hung - Vietnam
- 2011 London Array OWF - North Sea
- 2011 Hornsea Meteorological Mast - North Sea
- 2011 Total Gabon Anguille - Gabon
- 2010 Topaz - Asia
- 2010 Cape Lambert - Australia
- 2009 Ormonde OWF - Belgium
- 2009 Alpha Ventus OWF - Germany
- 2009 Montara - Australia
- 2008 Montara - Australia

**New**
New patented mechanical pin lock design.

Projects prior to 2008 upon request
Pile plugs create an air and water tight seal at one or both ends of a pile.

Specifications
- Can be used in combination with all standard foundation pile sizes
- Hydraulically controlled from surface or by ROV
- Available for purchase

Features
- Suitable for upending and/or transportation
- Suitable for shallow water depths
- Available for straight and angled pipe ends
- Hydraulically operated

Latest development
- Special ILT with a fixed pile plug attached.
- Pile plug integrated with ILT which allows for a combined operation of pile upending and sealing

Projects
- 2012 SHWE - Myanmar
- 2009 Chim Sao - Vietnam
Skidding System

Skidding systems are used for accurate positioning, load out of heavy objects or launch of jacket structures.

Specifications
- Hydraulic push-pull system
- Movement of loads up to 10,000t
- Available for rental & purchase

Features
- Double hydraulic system: gripping and push-pull
- Easy to operate
- Controllable and accurate positioning
- No special skid beam preparations
- Low maintenance costs

Skidding principle
- Pressurize gripper jacks on beam
- Extend skid jacks (= push object)
- Release gripper jacks
- Retract skid jacks

Projects
- 2012 SHWE - Myanmar
- 2011 Netmak - Turkey
- 2010 FDS2 - Saipem
- 2009 Mexilhão - Brazil
- 2008 Well Enhancer - Helix
- 2007 Perenco Group23 - Congo

Projects prior to 2007 upon request
Bear Cage

Bear cages are used to line up piles prior to welding.

Specifications

- Suitable for various diameters
- For use at surface only

Features

- Line up of two pile sections
- Can operate on battered piles
- Hydraulic clamping
- Capacity to hold full pile section weight
- Welding platform can be integrated in design

Projects

- 2012  Pemex - Gulf of Mexico
- 2012  Ceyhan - Caspian
- 2011  Pemex - Gulf of Mexico
- 2010  Block17 - Angola
- 2009  Camarupin - Brazil
- 2008  India - Punji Lloyd
- 2007  Pemex - Gulf of Mexico

Projects prior to 2007 upon request
Deep water Internal Lifting Tool

Deep water ILT’s are used for lifting and positioning mooring piles, conductors and subsea structures in ultra deep waters.

Specifications

- Standard pile range 16” - 96”
- Lifting capacities of 200t - 1200t
- Maximum operating depth of 2500m
- Certified and designed according Lloyd's Lifting Appliances
- Available for rental & purchase

Features

- ILT control panel is ROV operated
- Built-in accumulator pack

Fail Safe Principle

The ILT is equipped with IHC’s innovative Fail Safe Principle:

- Mechanical load applied on the tool in longitudinal direction results in a transversal force on the pile which creates the 'locking / fail safe' connection

Projects

- 2013  Big Foot - Gulf of Mexico
- 2010  Block 31 - Angola
- 2010  Gumusut-Kakap - Malaysia
- 2008  Kikeh II - Malaysia
- 2007  Kikeh I - Malaysia
- 2003  Kizomba A - Angola
Pin Release Mechanism

Pin release mechanisms are operated in deep water for the installation of templates, structures and suction piles.

Specifications
- Custom made design
- Lifting capacities up to 2000t
- Maximum operating depth of 3000m
- Certified and designed according Lloyd’s Lifting Appliances
- Available for purchase

Features
- Can be integrated in any structure or lifting beam arrangement
- Hydraulic operated pin
- Hydraulic energy through accumulators
- Mechanical back-up
- Many additional (back-up) options available
  - Hot Stab
  - Secondary cylinders
  - Separate hydraulic circuits

Projects
- 2013 Jack & St. Malo FPU - Gulf of Mexico
- 2013 Lucius FPU - Gulf of Mexico
- 2011 Kizomba Satalites - Angola
- 2011 Castoro II
- 2010 Valhall - North Sea
- 2009 Mexilhão - Brazil
- 2008 BC-10 - Brazil
- 2006 Inepence Hub - Gulf of Mexico
- 2005 Thornton Bank OWF - Belgium
- 2004 Thunderhorse - Gulf of Mexico
- 2004 Mad Dog - Gulf of Mexico
- 2004 Atlantis Chains - Gulf of Mexico

Projects prior to 2004 upon request
Chain clamps are used for the positioning of deep water mooring chains.

**Features**
- Positioning of deep water mooring chain
- Various chain link sizes possible
- Fail safe design
- Hydraulic release by ROV

**Specifications**
- Project related lifting capacities
- Unlimited operating depth
- Certified and designed according Lloyds Lifting Appliances
- Available for purchase

**Projects**
- 2004 Holstein - Gulf of Mexico
- 2004 Thunderhorse - Gulf of Mexico
- 2004 Atlantis Chains - Gulf of Mexico
- 2003 Gunnison - Gulf of Mexico
- 2003 Vastar - Gulf of Mexico
- 2002 Horn Mountain - Gulf of Mexico
Suction Pile Lifting Frame

Suction pile lifting frames are specifically designed for upending and lifting of suction piles for deep water moorings.

**Specifications**
- Pile diameters up to 6700mm
- Operating depth up to 3000m
- Certified and designed according Lloyd's Lifting Appliances
- Available for purchase

**Features**
- Upending and positioning of suction piles
- Deepwater applications with accumulator
- ROV operated
- Standard modular design frame adapts to various pile diameters

**Projects**
- 2013 Jack & St. Malo FPU - Gulf of Mexico
- 2013 Lucius FPU - Gulf of Mexico
- 2011 Kizomba Satellites - Angola
- 2006 Indepence Hub - Gulf of Mexico
- 2004 Thunderhorse - Gulf of Mexico
- 2004 Mad Dog - Gulf of Mexico
- 2004 Atlantis Chains - Gulf of Mexico
- 2003 Vastar - Gulf of Mexico
- 2003 Gunnison - Gulf of Mexico

Projects prior to 2003 upon request
Accumulator Set

Hydraulic energy supply for deep water tool applications.

Specifications
- Max operating depth of 3000m
- Max working pressure 500bar
- Available for purchase

Features
- Available in various sizes
- Fully ROV operated
- ROV access from three sides (incl. pressure read out)
- Several back-up operations possible, including subsea hydraulic pump

Projects
- 2011 Kizomba Satalites - Angola
- 2006 Indepence Hub - Gulf of Mexico
- 2004 Thunderhorse - Gulf of Mexico
- 2004 Mad Dog - Gulf of Mexico
- 2004 Atlantis Chains - Gulf of Mexico
- 2003 Vastar - Gulf of Mexico
- 2003 Nikika - Gulf of Mexico
- 2003 Gunnison - Gulf of Mexico
- 2003 Valhall - Norway
- 2002 Na Kika - Gulf of Mexico
- 2002 Horn Mountain - Gulf of Mexico
Hydraulic Release Shackles are used for lifting piles, subsea structures, modules and templates.

**Specifications**
- Capacity 17.5t - 2000t
- Max operating depth 3000m
- Remote controlled engagement and disengagement of shackles
- Fully ROV operated
- Independent of shackles brand
- Available for purchase

**Features**
- Several, optional, back-up activation methods available:
  - Hot Stab
  - Secondary back-up cylinders
  - Accumulators
  - Mechanical back-up

**Projects**
- 2013  Jack & St. Malo FPU - Gulf of Mexico
- 2012  Togi - Norway
- 2012  Laggan & Tormore - UK
- 2009  Ormen Lange - Norway

**New**
New patented mechanical pin lock design.
Subsea connection frames can be used for the connection of mooring chains.

**Features**
- Integrated system redundancy
- Subsea connection operation
- Operated by ROV from subsea control panel
- Pin locking by ROV
- Designed for re-use

**Specifications**
- Used to reconnect mooring chains
- Used during installation of new mooring chains
- Re-usable frame for several link sizes
- Available for purchase

**Projects**
- 2013 Banff - North Sea
- 2011 Cascade & Chinook - Gulf of Mexico
- 2009 Neptune Deepwater - Boston USA
- 2009 Peregrino - Brazil
- 2008 FPSO Berge Helene - Mauritania
**Pipe Recovery Tool**

A tool specifically designed for the recovery of pipes or pipelines.

**Specifications**
- Capacity up to 1000t
- Pipe range 8” - 42”
- Max water depth 3000m
- Subsea de-watering possible
- Certified and designed according Lloyd’s Lifting Appliances
- Available for rental & purchase

**Features**
- Long friction pads prevent overstressing of pipe wall
- Removable lifting arm allows for retrieval via stinger

**Fail Safe Principle**
The PRT equipped with IHC’s innovative Fail Safe Principle:
- Mechanical load applied on the tool in longitudinal direction results in a transversal force on the pipe which creates the ‘locking / fail safe’ connection

**Projects**
- 2013 Gorgon - Australia
- 2012 Desfa - Greece
- 2012 Castorone
- 2011 Castor pipeline - Spain
- 2009 Peregrino - Brazil
- 2008 Gjøa - North Sea
- 2008 South Pars - Iran
- 2008 Halldan - Denmark
- 2006 Tangguh - Indonesia
- 2006 Ormen Lange - Norway
**PAT**

**Pipe Abandonment Tool**

A tool designed to seal off a pipeline in case of abandonment.

**Specifications**
- More efficient abandonment process compared to existing techniques
- Extends pipelay operation time
- Certified and designed according Lloyds Lifting Appliances
- Available for purchase

**Features**
- Double seal element seals off pipeline
- Long friction pads prevent overstressing of pipe wall
- Integrated hydraulics
- Integrated check valve for subsea dewatering

**Fail Safe Principle**
The PAT is equipped with IHC’s innovative Fail Safe Principle:
- Mechanical load applied on the tool in longitudinal direction results in a transversal force on the pipe which creates the ‘locking / fail safe’ connection

**Projects**
- 2011 Goliat - Norway
- 2010 Marulk - Norway
- 2007 Morvin - Norway
- 2006 Asgard - Norway
- 2006 Fram East - Norway
- 2006 Alvheim - Norway
A&R Cable Connector

A tool to lay down or recover pipelines from the seabed.

Specifications
- Capacity up to 1000t
- Max. water depth 3500m
- Certified and designed according Lloyd’s Lifting Appliances
- Available for purchase

Features
- Construction design allows to follow stinger radius
- Primary release hydraulically by acoustic signal from the surface
- Secondary release by ROV operated spindle
- Sensors for open / close indication
- Release under 50t load

Components
1. Hull
2. Latch
3. Main hook
4. Release hook (2x)
5. Load cells and A&R cable connection

Projects
2009 Standard equipment Allseas Solitaire
2009 Independence trail - Gulf of Mexico

A&R

Oil & Gas
Pipelay

A&R
Pin Release Mechanism

Pin release mechanisms can be used for the installation of pipelines or PLEM constructions.

Specifications
- Custom made design
- Lifting capacities up to 2000t
- Maximum operating depth of 3000m
- Certified and designed according Lloyds Lifting Appliances
- Available for purchase

Features
- Subsea system
- Power supply via integrated accumulator(s)
- Several, optional, back-up activation methods available:
  - Hot Stab
  - Secondary back-up cylinders
  - Mechanical back-up

Projects
- 2013 FDS2 assets - Italy
- Various - not by name
Bear Cage

Bear cages are used to line up pipes prior to welding.

**Specifications**
- For use at surface only
- Suitable for a various range of diameters

**Features**
- Final weld between landfall and sea pipeline
- Hydraulic clamping
- Hydraulic controlled weld gap adjust
- Clamp and line up of two pipe ends

**Projects**
- 2012 Baku - Azerbaijan
- 2010 Block 17 - Angola
- 2009 Camarupin - Brazil
- 2008 Al Aqaba - Jordan
- 2007 Balgzand - The Netherlands
**ILT**

**Internal Lifting Tool**

The ILT can be used for lifting structures, structure sections and topside modules during decommissioning operations.

**Specifications**

- High longitudinal capacity Internal Lifting Tool
- ILT's are equipped with accumulators to overcome use of hoses
- ILT's are equipped with IHC’s innovative Fail Safe Principle
- Certified and designed according Lloyds Lifting Appliances
- Available for rental & purchase

**Projects**

- 2013 Ekofisk 2/4S - Norway
- 2012 Ekofsk - Norway
- 2012 Togi - Norway
- 2010 North West Hutton - UK
- 2009 Frigg DP2 - Norway
- 2005 Frigg DP1 - Norway
- 2005 Brent Spar Flare Tower - Norway

<table>
<thead>
<tr>
<th>Size</th>
<th>Capacity</th>
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<tr>
<td>20&quot;</td>
<td>300t</td>
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<tr>
<td>36&quot;</td>
<td>1000t</td>
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<td>54&quot;</td>
<td>1750t</td>
</tr>
<tr>
<td>84&quot;</td>
<td>2500t</td>
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</tbody>
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**Oil & Gas**

**Decommissioning**
External Lifting Tool

ELT’s can be used for lifting structures or structure sections during decommissioning operations.

Specifications
- Pile range 72” - 112”
- Lifting capacity up to 1200t
- Max. operating depth of 250m
- Certified and designed according Lloyds Lifting Appliances
- Available for purchase

Features
- ELT’s are equipped with IHC’s innovative Fail Safe Principle
- Subsea operation via ROV or umbilical
- ELT’s can be designed with side opening
- Integrated centralizing system for tool positioning

Projects
2010 North West Hutton - UK
**BuC**

**Buoyancy Clamp**

Clamping equipment integrated in buoyancy tanks can be used for the removal of offshore structures in floating condition.

**Specifications**
- Fully computer controlled operation
- Available for purchase

**Projects**
2009 Frigg DP2 - Norway

**Components**
- Upper clamp
- Lower clamp
- Upper pull in system (750t)
- Lower pull in system (750t)
**Hydraulic Release Shackle**

Remote controlled engagement and disengagement of shackles.

**Specifications**
- Capacity 17,5t - 2000t
- Lifting and handling support during the dismantle of structures
- Remote controlled engagement and disengagement of shackles
- Independent of shackle brand
- Available for rental & purchase

**Features**
- Hydraulic operated pin
- Standard suitable for 500m water depth
- Adjustable for any shackle brand
- Many additional (back-up) options available:
  - Hot Stab
  - Mechanical back-up

**New**
New patented mechanical pin lock design.

**Projects**
- 2009 Frigg DP2 - Norway
**Upending Tool**

Upending Tool for upending large diameter piles (monopiles).

### Specifications
- Lift diameters up to 6500mm
- Lifting capacities of 290t, 700t and 1000t
- Certified and designed according Lloyd's Lifting Appliances
- Available for rental

### Features
- Adjustable to any diameter (within range)
- Hydraulically operated
- UT’s are equipped with IHC’s innovative Fail Safe Principle
- No special preparations of pile
- Optional jigger winch
- Compatible with IHC Monopile Plugs (pag.91)
- Optional tool monitoring systems

### Operating Steps

#### Jigger Winch

Excl. Jigger Winch
Project overview 2014/2015

**UT**

**Upending Tool**

**Projects**

- 2014 Westermost Rough - North Sea UK
- 2013 Northwind - North Sea Belgium
- 2013 Gwynt y Mor - Irish Sea UK
- 2013 HelWin & BorWin OWF - Germany
- 2013 West of Duddon Sands - Irish Sea UK
- 2012 Gwynt y Mor - Irish Sea UK
- 2012 London Array - North Sea UK
- 2012 Meerwind - North Sea German Bight
- 2011 Teesside - North Sea UK
- 2011 Lincs - North Sea UK
- 2011 Sheringham Shoal - North Sea UK
- 2011 London Array - North Sea UK
- 2010 Baltic I - Baltic Sea Germany
- 2010 Belwind - Belgium
- 2009 Thanet - North Sea UK
- 2009 Bard I - Germany
- 2009 Walney 1 - Irish Sea UK
- 2008 Rhyl Flats - Irish Sea UK
- 2008 Horns Rev II - North Sea Denmark

Projects prior to 2008 upon request
Flange Pile Upending Tool

Flange pile upending tools are used for the upending and lifting of large diameter piles with an integrated flange.

**Specifications**
- Using the flange geometry as a support during lifting
- Lifting capacities up to 750t
- Certified and designed according Lloyds Lifting Appliances
- Available for rental & purchase

**Features**
- Remotely operated using integrated power pack
- All contact areas covered with protective material
- Optional tool monitoring systems
- No special preparations of pile
- Integrated redundancy

**Projects**
- 2013  Amrumbank - North Sea Germany
- 2013  Humber Gateway - North Sea UK
- 2003  Scroby Sands - North Sea UK
**MoPl**

**Monopile Plug**

Monopile plugs create an air and water tight seal at one or both ends of a pile.

### Specifications
- For monopile diameters up to 8000mm
- Certified and designed according Lloyds Lifting Appliances
- Available for purchase
- Patented design

### Features
- Towing directly on plug
- No special preparations to monopiles required
- Can be used in combination with Upending Tool (pag.85)
- Sealing by solid rubber
- Hydraulically operated
- Design includes redundancy

### Projects
- 2010  Belwind - North Sea Belgium
- 2009  Walney 1 - Irish Sea UK
- 2008  Rhyl Flats - Irish Sea UK
- 2008  Gunfleet Sands - North Sea UK
**ILT**

**Internal Lifting Tool**

ILT’s are used for upending/lifting of piles, tripods, jackets and modules.

**Specifications**
- Standard pile range 16” - 96”
- Standard lifting capacities of 200t – 1200t
- Special lifting capacities up to 2000t
- Standard operating water depth is 500m
- Certified and designed according Lloyds Lifting Appliances
- Available for rental & purchase

**Features**
ILT’s are equipped with IHC’s innovative Fail Safe Principle:
- Mechanical load applied on the tool in longitudinal direction results in a transversal force on the pipe which creates the ‘locking / fail safe’ connection

**Projects**
- **OWF**
  - 2013 West of Duddon Sands - Irish Sea
  - 2012 Borkum West 2 - Germany
  - 2011 Hornsea Meteorological Mast - North Sea
  - 2010 Walney 2 - Irish Sea
  - 2007 Lynn & Inner Dowsing - North Sea
- **Oil & Gas**
  - 2012 EMEPMI TE-A, TA-Q, TE-B - Malaysia
  - 2012 FSO Erawan-2 mooring installation - Thailand
  - 2012 Bubut & Danau - Brunei
  - 2012 EPRD Ekofisk cessation - North Sea
  - 2012 Pertamina Hulu Energy - Indonesia
  - 2011 Pierce Manifold Installation - North Sea
  - 2011 SHWE project - Myanmar
  - 2011 D1 project - India
  - 2011 Esso Kipper Tuna - Australia
  - 2011 MHN Re-development - India
  - 2011 Montara - Australia
  - 2011 Bien Dong 1 - Vietnam

*Projects prior to 2011 upon request*
The upending frame enables installation contractors to increase their sphere of activity and efficiency by upending long piles with a relatively short crane boom.

**Specifications**
- Pile range 54” - 108”
- Requires ILT at the pile top
- 600t holding capacity
- Other dimensions and capacities upon request
- Available for rental & purchase

**Projects**

**Oil & Gas**
- 2013 KPOC - Malaysia
- 2012 Hai Thach / Bien Dong - Vietnam
- 2012 Cendor phase 2 - Malaysia
- 2011 Yetagun-C - Myanmar
- 2011 B-193AP & B-193AQ - India
- 2011 Bien Dong MT1 - Vietnam
- 2011 Dai Hung - Vietnam
- 2010 F23R - Malaysia
- 2009 Chim Sao - Vietnam
- 2007 Krishna Godavari - India

Projects prior to 2007 upon request

**Features**
- Hydraulically operated
- Hydraulic hinge back option
- Rotation of frame 0° - 100°
- Lateral freedom of movement ±10°
- Frame can be equipped with inclino sensor for accurate digital angle information
- New design with hydraulic hinge back
Leveling Tool

Leveling tools can be used for leveling of jackets and tripods.

Specifications
- Surface and Subsea leveling operations
- Available capacities 200t, 400t, 800t, 3000t
- Pile range 54” - 108”
- Certified and designed according Lloyds Lifting Appliances
- Available for rental & purchase

Features
- LT’s are equipped with IHC’s innovative Fail Safe Principle
- Connects to pile catcher plate
- Emergency release via ROV hot stab

Projects

Oil & Gas
- 2013 OWF West of Duddon Sands - Irish Sea
- 2012 Forties Alpha - North Sea
- 2012 Jasmine II - North Sea
- 2012 Greater Ekofisk - Norway
- 2011 Jasmine I - North Sea
- 2009 Valhall & Harding - North Sea
- 2007 Ledong - China
- 2007 Xijiang 23-1 - China
- 2006 Britsats - North Sea

Projects prior to 2006 upon request
Pile grippers are used to create a temporary connection between the skirt pile and jacket.

Specifications

- Capacities are limitless
- Pile diameter is limitless
- Certification by Lloyds optional
- Consumable (single use) or re-usable
- For pre-piling or post-piling
- Available for purchase

Features

- Securing jacket during bad weather conditions and abandonment
- Retaining elevated position after leveling
- Provides high jacket stability during grouting process
- Multiple hydraulic circuits possible
- Extensive track record
- Optional completely subsea controlled
- ROV operable (clamp / release)

Projects

**OWF**
2013  West of Duddon Sands - Irish Sea
2012  NordSee Ost - Germany
2011  Hornsea Meteorological Mast - North Sea

**Oil & Gas**
2013  Laila - Malaysia
2013  Edvard Grieg - North Sea
2013  Montrose - North Sea
2013  Martin Linge - Norway
2013  Kepodang - Malaysia
2012  Forties Alpha North Sea
2012  Jasmine II - North Sea
2011  Jasmine I - North Sea
2011  Dai Hung - Vietnam
2010  EAPL Kipper Tuna - Australia
2010  Greater Ekofisk - Norway

Projects prior to 2010 upon request
Hydraulic Release Shackle

Hydraulic release shackles are used for lifting and positioning of structures or foundation piles.

Specifications

- Capacity 17.5t - 2000t
- Independent of shackle brand
- Remote controlled engagement and disengagement of shackles
- Available for rental & purchase

Features

- Hydraulic operated pin
- Standard suitable for 500m water depth
- Several, optional, back-up activation methods available
- Mechanical back-up

Projects

**OWF**
- 2013 Northwind - Belgium
- 2013 Haliade - Belgium
- 2011 London Array - UK
- 2011 North Sea Meteorological Mast - North Sea
- 2009 Ormonde - Belgium
- 2009 Alpha Ventus - Germany

**Oil & Gas**
- 2012 Britannia - North Sea
- 2012 Togi - North Sea
- 2012 HST & HSD Project - Vietnam
- 2012 Jasmine II - North Sea
- 2011 OIG Norway
- 2011 Liwan - China
- 2011 Dai Hung - Vietnam
- 2011 Total Gabon Anguille - Gabon
- 2010 Topaz - Asia
- 2010 Cape Lambert - Australia
- 2009 Montara - Australia
- 2008 Montara - Australia

*Projects prior to 2008 upon request*

New

New patented mechanical pin lock design.
**Pile Plug**

Pile plugs create an air and water tight seal at one or both ends of a pile.

### Specifications

- Can be used in combination with all standard foundation pile sizes
- Hydraulically controlled from surface or by ROV
- Available for purchase

### Features

- Suitable for upending and/or transportation
- Suitable for shallow water depths
- Available for straight and angled pipe ends
- Hydraulically operated

### Latest development

Special ILT with a fixed pile plug attached.
- Pile plug integrated with ILT which allows for a combined operation of pile upending and sealing

### Projects

**OWF**
- 2010 Belwind - Belgium
- 2009 Walney 1 - UK
- 2008 Rhyl Flats - UK
- 2008 Gunfleet Sands - UK

**Oil & Gas**
- 2012 SHWE - Myanmar
- 2009 Chim Sao - Vietnam
Pin Release Mechanism

Pin release mechanisms are used in custom-made lifting applications.

Specifications
- Standard suitable for 500m water depth
- Custom made design
- Lifting capacities up to 2000t
- Certified and designed according Lloyds Lifting Appliances
- Available for purchase

Features
Specifically used for the connection between the crane and the gravity based foundation.

Projects
OWF
2011 Hornsea Meteorological Mast - UK
2008 Thorton Bank 1 - Belgium
Stacking frames are used for stacking and handling multiple foundation piles on deck of an installation vessel.

**Specifications**
- Storage and handling of foundation piles
- Efficient use of deck space
- Available for purchase

**Features**
- Fully hydraulically operated
- Option to use in combination with upending support such as:
  - saddle & hook
  - pile guide and positioning frame

**Projects**
- **OWF**
  - 2009  BARD I - Germany
**PGPF**

**Pile Guide and Positioning Frame**

The frame can be used for guiding of foundation piles during upending and positioning of these piles during pile-driving.

**Specifications**

- Increase of crane efficiency, no vertical pile movement after upending
- Significant reduction of offshore installation time
- Accurate positioning of monopile
- Adjusting verticality of monopile after upending
- Available for purchase

**Features**

- Innovative design
- Handling of pile diameters up to 6000mm
- Hook holding capacity 700t
- Maximum tilting motion of PGPF ± 6°
- Upending angle range 0° - 93°
- Option to use in combination with other IHC deck equipment
- Upending tool required at top of monopile for upending

**Projects**

**OWF**

2012 Meerwind - Germany
Saddle & Hook

The saddle and hook system creates a controlled fixed hinge point during the upending of long foundation piles.

**Specifications**
- Provides an extended working window for offshore cranes
- Significant reduction of offshore installation time
- Available for purchase

**Features**
- Hook takes axial load of pile
- Saddle to guide piles during upending
- Hook retrievable via a winch
- Lifting capacities up to 1000t

**Projects**
**OWF**
2009 BARD I - Germany
Flange Structure Lifting Tool

Equipment designed to lift structures equipped with a connection flange.

Specifications
- Lifting of transition pieces, jackets and tripods
- No special arrangement on flange required
- Increase in efficiency during offshore operations
- Current design for 1000t and pile diameter 6000mm
- Certified and designed according Lloyd’s Lifting Appliances
- Available for purchase

Features
- Remotely operated using integrated power pack
- Integrated optical warning systems
- Zero forces on flange during lifting
- Integrated redundancy
- Different lifting points for COG adjustment
- Remotely operated
- Integrated hydraulic power pack
- Minimum of bending stresses in pile
Pipe Cutter

Equipment designed to cut jacket and structures.

Specifications

- Hydraulically operated
- Innovative manipulator arm allows for subsea repositioning
- Current designs for pipe size 12” - 36” and 24” - 48”
- Pipe cutting forces 1000t - 1300t
- Designed for maximum water depth of 150m
- Cost and time effective design compared to existing alternatives
**UH Upending Hinge**

Equipment designed to support the pile tip of monopiles during upending on deck.

**Specifications**

- Pile tip is mechanical locked during upending
- During entire upending sequence ± 6° transversal freedom
- Hydraulic hinge back
Hammer Gripper

Optional hydraulic hammer equipment.

Specifications

- Gripper frame designed for lifting piles with a hydraulic hammer
- Reduce the number of equipment changes during an offshore operation
- Time efficient installation
- Lifting tool for hydraulic hammer
- Vertical pile lift and handling only

Gripping
The upending frame takes the full longitudinal force by gripping the pile prior to lifting.

Lifting
The pile can be lifted into position by a special gripping frame connected to a hydraulic hammer or an Internal Lifting Tool.
Power Pack ILT
Standard power pack of 5.5kW - 350 bar max

Power Pack Leveling Tool
Standard power pack
5.5kW - 350 bar max (200t, 400t tools)

Power Pack PARC
Standard power pack of 5.5kW - 350 bar max

Power Pack Jacket Pile Gripper
Standard power pack of 5.5kW - 350 bar max

Power Pack Hydraulic Release Shackle
Standard power pack of 5.5kW - 350 bar max

Power Pack Pile Plug
Standard power pack of 5.5kW - 350 bar max

Power Pack Bear Cage
Standard power pack of 5.5kW - 350 bar max

Power Pack Pin Release Mechanism
Standard power pack of 5.5kW - 350 bar max, water glycol fluid

Power Pack Chain Clamp
Standard power pack of 5.5kW - 350 bar max, water glycol fluid

Power Pack Suction Pile Lifting Frame
Standard power pack of 5.5kW - 350 bar max, water glycol fluid

Power Pack Accumulator Set
Standard power pack of 5.5kW - 350 bar max, water glycol fluid

Power Pack Hydraulic Release Shackle
Standard power pack of 5.5kW - 350 bar max, water glycol fluid

Power Pack Connection Frame
Standard power pack of 5.5kW - 350 bar max, water glycol fluid

Power Pack PRT
Standard power pack of 5.5kW - 350 bar max, water glycol fluid

Power Pack PAT
Standard power pack of 5.5kW - 350 bar max, water glycol fluid

Power Pack Pin Release
Standard power pack of 5.5kW - 350 bar max, water glycol fluid

Specifications
- Supply of hydraulic energy to operate hydraulic equipment
- In combination with hose reel standard supporting equipment of IHC

Features
- Multi voltage, multi cycle E-motor
- 9 ltr/min at 1750 rpm
- Max. operating pressure 350 bar
- Hydraulic fluids; mineral or environmental friendly oil, water glycol

Applicable for following IHC equipment
- ILT - Internal Lifting Tool
- LT 200T - Leveling Tool 200t
- PARC - Pile Anti Running Clamp
- JPG - Jacket Pile Gripper
- HRS - Hydraulic Release Shackle
- PiPl - Pile Plug
- UF - Upending Frame
- BC - Bear Cage
- SPLF - Suction Pile Lifting Frame
- PRM - Pin Release Mechanism
- SCF - Subsea Connection Frame
- PRT - Pipe Recovery Tool
- PAT - Pipe Abandonment Tool
- UT - Upending Tool
**PP22**

**Hydraulic Power Pack 22kW**

**Power Pack ELT**
Standard power pack of 22kW - 350 bar max

**Power Pack Upending Frame**
Standard power pack of 22kW - 350 bar max

**Power Pack Leveling Tool**
Standard power pack, 22kW - 350 bar max (800t, 3000t tools)

**Power Pack Deep Water ILT**
Standard power pack of 22kW - 350 bar max, water glycol fluid

**Power Pack Upending Tool**
Standard power pack of 22kW - 350 bar max

**Specifications**
- Supply of hydraulic energy to operate hydraulic equipment
- In combination with hose reel standard supporting equipment of IHC

**Features**
- Multi voltage, multi cycle E-motor
- 24 l/min at 1750 rpm
- Max. operating pressure 350 bar
- Hydraulic fluids; mineral or environmental friendly oil, water glycol

**Applicable for following IHC equipment**
- ELT - External Lifting Tool
- LT 800t - Leveling Tool 800t
- LT 3000t - Leveling Tool 3000t
- UT - Upending Tool
- UF - Upending Frame

¹ 2x 28.5 l/min at 1750 rpm – 400 bar
PP157

Diesel Hydraulic
Power Pack 157 kW

Specifications
• Supply of hydraulic energy to operate hydraulic equipment

Features
• Diesel driven Volvo Penta motor
• 220 l/min at 2100 rpm
• Max operating pressure 380 bar
• Hydraulic fluids; mineral or environmental friendly oil

Applicable for following IHC equipment
• SkS - Skidding System
**Hose Reel ILT**
Hose reel with 2 pc 1/2” high pressure hose, min 2x 160m

**Hose Reel Leveling Tool (200t, 800t)**
Hose reel with 4 pc 1/2” high pressure hose, min 2x 160m

**Hose Reel PARC**
Hose reel with 2 pc 1/2” high pressure hose, min 2x 160m

**Hose Reel Jacket Pile Gripper**
Hose reel with 2 pc 1/2” high pressure hose, min 2x 160m

**Hose Reel Pile Plug**
Hose reel with 2 pc 1/2” high pressure hose, min 2x 160m

**Hose Reel Bear Cage**
Hose reel with 2 pc 1/2” high pressure hose, min 2x 160m

**Hose Reel Deep Water ILT**
Hose reel with 2 pc ½” high pressure hoses 40m

**Hose Reel Chain Clamp**
Hose reel with 2 pc ½” high pressure hoses 40m

**Hose Reel Suction Pile Lifting Frame**
Hose reel with 2 pc ½” high pressure hoses 40m

**Hose Reel Accumulator Set**
Hose reel with 2 pc ½” high pressure hoses 40m

**Hose Reel Hydraulic Release Shackle**
Hose reel with 2 pc 1/2” high pressure hose, min 2x 160m

**Hose Reel Connection Frame**
Hose reel with 2 pc 1/2” high pressure hose, min 2x 160m

**Hose Reel PRT**
Hose reel with 2 pc ½” high pressure hoses 2x 400m (depending on water depth)

**Hose Reel PAT**
Hose reel with 2 pc ½” high pressure hoses 2x 400m (depending on water depth)

**Hose Reel Pin Release Mechanism**
Hose reel with 2 pc 1/2” high pressure hose, min 2x 160m

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**Hydraulic Hose Reel 2x160m / 2x 320m / 4x 160m**

**Specifications**
- Connection between power pack and hydraulic equipment
- In combination with hose reel standard supporting equipment of IHC

**Features**
- Hose internal diameter ½”
- Hose length 2x 160m, 2x 320m or 4x 160m
- Average reel speed 15 m/min
- Max. pull force 580kg

**Applicable for following IHC equipment**
- ILT - Internal Lifting Tool
- ELT - External Lifting Tool
- LT 200t - Leveling Tool 200t¹
- LT 800t - Leveling Tool 800t¹
- JPG - Jacket Pile Gripper
- HRS - Hydraulic Release Shackle
- PiPl - Pile Plug
- BC - Bear Cage
- PRT - Pipe Recovery Tool
- PAT - Pipe Abandonment Tool
- UT - Upending Tool
- PARC - Pile Anti Running Clamp

¹ 4 hoses required
**Hose Reel ELT**
Hose reel with min 6 pc ¾” high pressure hose lines 250m

**Hose Leveling Tool (3000t)**
Hose reel with min 6 pc ¾” high pressure hose lines 250m

**Hydraulic Hose Reel 6x200m**

**Specifications**
- Connection between power pack and hydraulic equipment
- In combination with hose reel standard supporting equipment of IHC

**Features**
- Hose internal diameter ¾” & ½”
- Hose length 6x 200m
- Average reel speed 25 m/min
- Max pull force 2670kg

**Applicable for following IHC equipment**
- LT 3000t - Leveling Tool 3000t
- ELT - External Lifting Tool
Hot Stab ILT
Male hot stab connector (IHC type)

Hot Stab ELT
Male hot stab connector dual line (Oceaneering)

Hot Stab Leveling Tool
Male hot stab connector dual line (Oceaneering)

Hot Stab Hydraulic Release Shackle
Male hot stab connector dual line (Oceaneering)

Hot Stab Pin Release Mechanism
Male hot stab connector dual line (Oceaneering)

Hot Stab Shackles
Male hot stab connector dual line (Oceaneering)

Hot Stab Jacket Pile Gripper
Male hot stab connector dual line (Oceaneering)

Hot Stab Deep Water ILT
Male hot stab connector dual line (Oceaneering)

Hot Stab Chain Clamp
Male hot stab connector dual line (Oceaneering)

Hot Stab Suction Pile Lifting Frame
Male hot stab connector dual line (Oceaneering)

Hot Stab Accumulator Set
Male hot stab connector dual line (Oceaneering)

Hot Stab Connection Frame
Male hot stab connector dual line (Oceaneering)

Hot Stab PRT
Male hot stab connector dual line (Oceaneering)

Hot Stab PAT
Male hot stab connector dual line (Oceaneering)

Specifications
- Connection between power pack and hydraulic equipment subsea
- Can be used in combination with hose reel for shallow water

Features
- ILT uses an IHC design hot stab
- Deep water applications use an Oceaneering type hot stab
- Hydraulic fluids; mineral or environmental friendly oil, water glycol

ILT hotstab
Oceaneering hotstab
Applicable for following IHC equipment
- LT 200t - Leveling Tool 200t
- LT 800t - Leveling Tool 800t
- LT 3000t - Leveling Tool 3000t
- JBP - Jacket Pile Gripper
- HRS - Hydraulic Release Shackle
- SPLF - Suction Pile Lifting Frame
- PRM - Pin Release Mechanism
- SCF - Subsea Connection Frame
- PRT - Pipe Recovery Tool
- PAT - Pipe Abandonment Tool
Colofon

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