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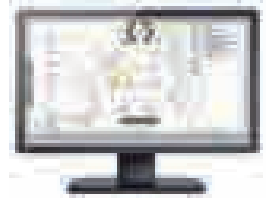
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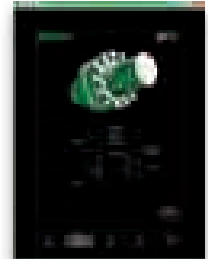
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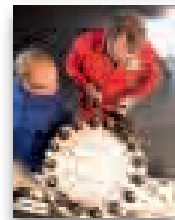
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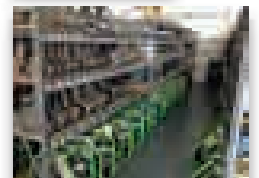
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**TOPSIDE
TORQUE WRENCH
1/4" COUPLERS
700 bar/10,000 psi**



Twin-line Topside Hoses

Standard IJ100 Twin-line Hoses (2:1 Burst)	
Order No.	DESCRIPTION
TWH15-BS	15 ft twin-line hose
TWH20-BS	20 ft twin-line hose
TWH50-BS	50 ft twin-line hose

Standard CE Twin-line Hoses (4:1 Burst)	
Order No.	DESCRIPTION
TWH3E	3 meter twin-line hose
TWH6E	6 meter twin-line hose
TWH10E	10 meter twin-line hose

Additional lengths (all styles) available upon request.

9072		700 bar, 10,000 psi gauge for torque wrench applications
9042DG		700 bar, 10,000 psi gauge for torque wrench applications. Custom scale enables the following units to be displayed: lb-ft or Nm
252365		Metal Dust Cover for male coupler
252364		Metal Dust Cover for female coupler
(male) 251411		Quick-connect, screw-on male nipple. Used on 700 bar torque wrenches, nutsplitters, hoses, and pumps. 1/4" NPT Female Thread
(female) 251410		Quick-connect, screw-on female coupling. Used on 700 bar torque wrenches, nutsplitters, hoses, and pumps. 1/4" NPT Female Thread

Refer to page 114 for complete calibration services

Tensioner Hoses

Order No.	Topside, with Locking Collar DESCRIPTION
HL1M-LC	1 m Hose, 1,500 bar, CE, with locking collar (only stocked in Europe & Asia)
HL13M-LC	1.3 m Hose, 1,500 bar, CE, with locking collar (Optionally available in the Americas)
HL3M-LC	3 m Hose, 1,500 bar, CE, with locking collar
HL5M-LC	5 m Hose, 1,500 bar, CE, with locking collar
HL8M-LC	8 m Hose, 1,500 bar, CE, with locking collar
HL10M-LC	10 m Hose, 1,500 bar, CE, with locking collar

For hoses without locking collars, remove "-LC" from the part number. In the Americas, the 1.3 m hose is typically stocked without a locking collar (No. HL13M). Hoses with locking collars are available upon request (No. HL13M-LC).

Additional lengths available upon request.

TOPSIDE TENSION

1,500 bar/21,750 psi

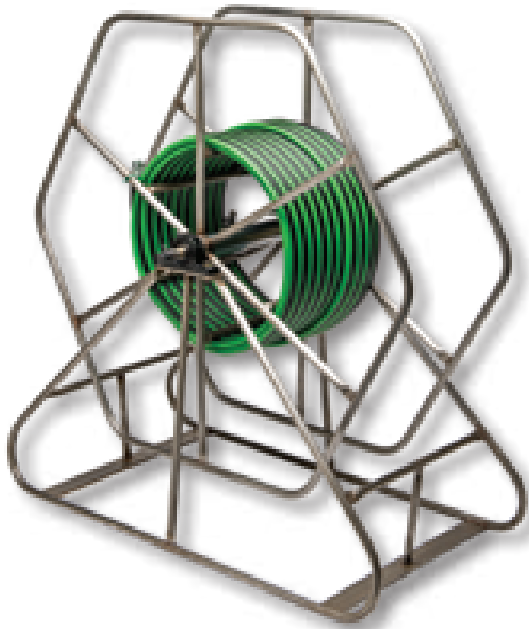


2002278		2,000 bar; 30,000 psi gauge for PE8 pumps. Typically attached with quick coupler (ordered separately).
HHAMA150001		1,500 Bar Elbow Block: Used to change direction of tensioner hoses if standard orientation is not possible. Hoses can swivel around coupling axis.
HHAMA150003		1,500 Bar Tee Block Assembly: Used to interconnect tensioners with single ports.
HHAMA150004		1,500 Bar Banjo Assembly: Used to allow a hose to connect to a tool at 90 degrees. The nipple can be oriented in any direction around the port axis but must be tightened to create a seal. Does not act as a swivel around port axis.

2001772		Male Coupling: Quick-connect, push-in male nipple. Used on 1,500 bar tensioners and pumps. G 1/4" Female Thread
2008547		Female Coupling: Quick-connect, push-in female coupling with locking collar. Used on 1,500 bar tensioners hoses. G 1/4" Female Thread.
STDHC000025		1/4" BSP Plug: Used to plug a port when a banjo assembly or coupling will not be used.



Hoses come standard with recessed female coupler type (2008547). Flat Face couplers available upon request.

**SUBSEA
TORQUE WRENCH
1/4" COUPLERS
700 bar/10,000 psi**



Hose reel stand complete with twin down line for offshore equipment use.

Couplers for hose reel and offshore equipment.

<p>(male) 251411</p>		<p>Quick-connect, screw-on male nipple. Used on 700 bar torque wrenches, nutsplitters, hoses, and pumps. 1/4" NPT Female Thread</p>
<p>(female) 251410</p>		<p>Quick-connect, screw-on female coupling. Used on 700 bar torque wrenches, nutsplitters, hoses, and pumps. 1/4" NPT Female Thread</p>



Remote Diver Control Valve (HCUCV070001) uses 1 each of all four couplings shown on this page.

SUBSEA TWIN-LINE HOSES



SPX FLOW can customize a reel and hose combination for your specific job. Standard reel construction is powder coated carbon steel. Aluminum reels optional. Contact factory for details.

Twin-line Subsea Hoses	
Standard CE Twin-line Subsea Hoses (4:1 Burst)	
Order No.	DESCRIPTION
<p>TWH06E-SS</p>	<p>6 meter (20 ft) twin-line subsea hose, uses red couplers shown below (2008549 & 2008550)</p>
Standard IJ100 Twin-line Hoses (2:1 Burst)	
Order No.	DESCRIPTION
<p>TWH100</p>	<p>30 meter (100 ft) twin-line subsea hose, uses red couplers shown below (2008549 & 2008550)</p>
<p>TWH100-SS</p>	<p>30 meter (100 ft) twin-line subsea hose, uses stainless steel couplers</p>

Additional lengths (all styles) available upon request.

<p>9072</p>		<p>700 bar, 10,000 psi gauge for torque wrench applications</p>
<p>9042DG</p>		<p>700 bar, 10,000 psi gauge for torque wrench applications. Custom scale enables the following units to be displayed: lb-ft or Nm</p>

Couplers for Diver Control Valve and select subsea tools.

<p>(male) 2008549</p>		<p>Quick-connect, push-in male nipple. Used on Subsea 700 bar torque wrenches, nutsplitters, flange pullers, hoses, and pumps. 1/4" NPT Female Thread</p>
<p>(female) 2008550</p>		<p>Quick-connect, push-in female coupling with locking collar. Used on 700 bar torque wrenches, nutsplitters, flange pullers, hoses, and pumps. 1/4" NPT Female Thread</p>

SUBSEA TENSION HOSES



SPX FLOW can customize a reel and hose combination for your specific job. Standard reel construction is powder coated carbon steel. Stainless hose reels optional. Contact factory for details.

Downline hoses usually supplied in 30 m lengths, male/female quick connect couplings so they can be linked together to make up the desired length of hose.

Maximum hose length capacity 500 m

Subsea Tensioner Hoses	
Order No.	Subsea, without Locking Collar DESCRIPTION
HL1M	1 m Hose, 1,500 bar, CE, without locking collar (only stocked in Europe & Asia)
HL13M	1.3 m Hose, 1,500 bar, CE, without locking collar (only stocked in the Americas)
HL3M	3 m Hose, 1,500 bar, CE, without locking collar
HL5M	5 m Hose, 1,500 bar, CE, without locking collar
HL8M	8 m Hose, 1,500 bar, CE, without locking collar
HL10M	10 m Hose, 1,500 bar, CE, without locking collar
Order No.	Subsea down-line hose DESCRIPTION
HL30M-DL	30 m Hose, 1500 bar, CE, with locking collar, 1 x male + 1 x female coupler with locking collar. Used to link hoses together between hose reel and subsea work site.

Additional lengths available upon request.

HPSTP150004		2,000 bar; 30,000 psi gauge for HPUTP pumps
HHAMA15002		1,500 Bar 3-Port Manifold Assembly: Used in Subsea hose arrangement to split single downline into two hoses which connect to the first two tensioners in the circuit. Can also be used to split a single feed hose to feed 2 tensioners.

SUBSEA TENSION

1,500 bar/21,750 psi



Hose reel stand complete with tensioner down line for offshore equipment use.

2008548		Female Coupling: Quick-connect, push-in female coupling without locking collar. Used on 1,500 bar Subsea tensioner hoses. G 1/4" Female Thread
2001772		Male Coupling: Quick-connect, push-in male nipple. Used on 1,500 bar tensioners and pumps. G 1/4" Female Thread

Hoses come standard with recessed female coupler type (2008548). Flat Face couplers available upon request.

SPLITTERS & SPREADERS

3/8" COUPLERS

700 bar/10,000 psi



9764

IJ100 HYDRAULIC HOSE ASSEMBLY (AMERICAS & ASIA)

No. 9764 – Hose assembly consisting of 9767 (6' hose), 1/4" I.D. polyurethane with 9798 hose half coupler and 9800 dust cap assembly. Complies to MHI Standard IJ100 (2:1 Burst).

CE HYDRAULIC HOSE ASSEMBLY (EUROPE)

No. 9764E – Hose assembly consisting of 9767E (2m hose), 6mm I.D. polyurethane with 9798 hose half coupler and 9800 dust cap assembly. Complies to CE Standards (4:1 Burst over Nominal pressure ratio).

Note: Not for EHN Nut Splitter. For topside EHN, see page 102. For Subsea EHN, see page 104.

9040 9040E		Gauge for 700 bar; 10,000 psi hand pumps. 9040 has psi as primary unit. 9040E has bar as primary unit.
9042DG		700 bar, 10,000 psi gauge for torque wrench applications. Custom scale enables the following units to be displayed: lb-ft or Nm

9670		Tee adapter. For installing gauge between pump and hose coupling. Has 1/4" and 3/8" NPTF female and 3/8" NPTF male ports.
9799		Optional metal dust cap (hose half)
9797		Optional metal dust cap (pump/tool half)
9798 (male coupler)		Male (hose) half coupler (with No. 9800 dust cap). 3/8" NPTF.
9796 (female coupler)		Female (pump/tool) half coupler (with No. 9800 dust cap). 3/8" NPTF.
9800		Dust cap for male or female 3/8" NPTF half couplers.

See page 114 for gauge calibration services.

STANDARD HYDRAULIC OIL

- For dependable performance of all your hydraulic pumps and cylinders.
- Contains foam suppressant additives and has a high viscosity index.

FLAME-OUT® 220 FIRE RESISTANT HYDRAULIC FLUID*

- Contains anti-rust, anti-foam and anti-sludge additives.
- Provides fire resistant protection.

(Note: Will burn if heat source is extreme enough. Will not, however, propagate the flame and is self-extinguishing when there is no ignition source.)

- Provides maximum lubrication and heat transfer.
- Offers a wider operating temperature range.
- No need to change seals in your equipment. Just drain the standard oil and replace it with Flame-Out® 220.

LOW TEMPERATURE OIL

Provides smooth, reliable operation in the coldest climate conditions.

HYDRAULIC FLUIDS

Standard, Flame Out®, Biodegradable and Low Temperature

BIODEGRADABLE HYDRAULIC FLUID

- Biodegradable, non-toxic fluid withstands moderate to severe operating conditions; provides excellent protection against rust.
- Offers superior anti-wear properties, has excellent multi-metal compatibility.

Developed to meet stringent performance requirements and satisfy growing environmental needs for hydraulic fluids which are readily biodegradable and non-toxic. Depending on the contamination or degradation levels which might be present in used fluid, small amounts of this substance, if spilled, will not affect ground water or the environment. This fluid has been tested against EPA 560/6-82-003 and OECD 301 for biodegradability, and toxicity has been tested against EPA 560/6-82-002 and OECD 203: 1-12. Not recommended for operation in temperatures below 20°F (-7°C) or above 160°F (71°C). Recommended storage temperatures not below -10°F (-23°C) or above 170°F (77°C).

Specifications and Dimensional Data

Description	Grade (ASTM)	Specific Gravity @ 60°F (16°C)	Color (ASTM)	Flash Point		Fire Point		Pour Point		Viscosity			Foam Test (ASTM)
				°F	°C	°F	°C	°F	°C	SUS @ 100°F (38°C)	SUS @ 210°F (99°C)	Index min.	
Standard Oil	215	.88	2.0	400	204	430	221	-30	-34	215	48	100	Pass
Flame-Out®	220	.91	Light Amber	500	260	550	288	-15	-26	220	55	140	Pass
Biodegradable	—	.92	2.0	432	224	NA*	NA*	-22	30	183	53	213	Pass
Low Temp.	—	.87	6.5 (Red)	356	180	399	204	-48	45	183	52	190	Pass

Ordering Information

Order No.	Description	Quantity
9636	Standard Oil	1 qt. (57 cu. in.) 0.9l
9637	Standard Oil	1 gal. (231 cu. in.) 3.8l
9638	Standard Oil	2-1/2 gal. (577 cu. in.) 9.5l
9616	Standard Oil	55 gal. 208l
9639	Flame-Out®	1 gal. (231 cu. in.) 3.8l
9640	Flame-Out®	2-1/2 gal. (577 cu. in.) 9.5l
9645	Biodegradable	1 gal. (231 cu. in.) 3.8l
9646	Biodegradable	2-1/2 gal. (577 cu. in.) 9.5l
9647	Low Temp.	1 gal. (231 cu. in.) 3.8l



For additional technical information or to order a Material Safety Data Sheet call 1-800-477-8326 or go to www.spxboltingsystems.com.

FLANGE MANAGEMENT SYSTEMS INTRODUCTION

FLANGEPRO provides a fully featured Flange Management System, maximizing the control of the Flange Register, allowing comprehensive and consistent operation of all flange break, make-up and inspection processes or commissioning, operations and turnarounds/shutdown applications.

WHY IS FLANGE INTEGRITY SO IMPORTANT?

Flange Management Systems can help address elements of SEMS, SEMS II, and RP 75, such as:

- Maintaining key information on flanged joints, leak testing, and controlled bolting bolt load calculations and methods.
- Documentation of operating procedures for controlled bolting processes.
- Help maintain mechanical integrity of piping assets.

Flange Management Systems can help address KP4 requirements:

- Help track flange records for ageing assets and maintain a documented record of their condition.

Flange Management Systems provides a system to help manage hydrocarbon-containing equipment from experiencing a hydrocarbon release.



FLANGE INTEGRITY MANAGEMENT SYSTEMS

A **3 year** study on the impact of leaking pipe flanges showed a major refinery averaged **630** leaks per year resulting in **380,000** pounds of volatile organic compounds (VOC) being released into the atmosphere. Estimated monetary losses from fines, materials, and labor charges averaged **\$440K** per year (not including production losses)*.

What's it worth to help prevent a catastrophic event?

- The Deepwater Horizon accident resulted in the loss of eleven lives and the overall cost was several billion dollars.
- The Piper Alpha accident cost the loss of 167 lives and changed the face of the North Sea O&G industry entirely.
- A high consequence event that occurred in a California refinery which resulted when a 4inch 300# gasket failed due to improper tightening. The refinery reported that consequential damages due to production loss, fines, and rework were in excess of \$500M*.

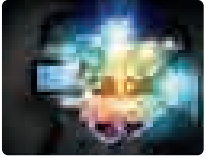
Our Flange Management Systems helps to:

- Mitigate & Avoid high consequence events
- Extend the life of an asset
- Maintain expected performance
- Manage Risk

(* Source: 2014 AFPM Reliability & Maintenance Conference)

FLANGE MANAGEMENT SYSTEMS

PRODUCT FEATURES



MULTIPLE PROJECTS

A centralized repository to capture, store and visualize multiple project or asset related information.



CLOUD PLATFORM

Internet-based global delivery of integrity systems to support both regional and international project execution and governance.



MARKUP TOOL

This tool combines powerful document editing, markup and collaboration technology and when combined with our intelligent workflow system a comprehensive visualization tool.



ASSET IDENTIFICATION

Rapid operations using barcoding and RFID for identification of physical and paper assets to automate business processes and improve accuracy.



CONFIGURABILITY /FLEXIBILITY

Our software is very flexible and can be extensively customized to mirror your organizational process and procedures.



ISO 27001

Our Data Centers are all ISO 27001 and 9001 accredited and operated at tier 3+ equivalent levels, ensuring you receive the highest standard of service.

Product Features	Personal	Professional	Enterprise
Core Features			
Cloud-based service with full resilience	Standard	Standard	Standard
Adviser Bolt Load Calculation Tool	Standard	Standard	Standard
Flange Management System	Standard	Standard	Standard
Inspection & Leak Test Planning System	Standard	Standard	Standard
Configurable Integrity Management Platform	Standard	Standard	Standard
All Upgrades / Software Maintenance	Standard	Standard	Standard
Easy Data Out Policy	Standard	Standard	Standard
Annual Software Training & Integrity Awareness		Standard	Standard
Priority Access to Technical Assurance Centre		Limited	Standard
Collaboration			
Multi-user collaboration		Standard	Standard
Offline / Desktop Application			Standard
Hardware Integrity Kit Rental	Optional	Optional	Optional
Floating License Option			Optional
Named Users to Floating License Max Ratio		1:1	1:2
Back to Back License Option			1:1
Feature Packs		Optional	Standard
TAR - Project Management Module		Optional	Standard
TAG - Tag production and workflow system		Optional	Standard
MARKUP - Document Markup System		Optional	Standard
LINKSYNC - Integration Middleware		Optional	Standard

Due to ongoing development work the product features may change

FLANGE MANAGEMENT SYSTEMS

FLANGEPRO BENEFITS



FLANGEPRO

FlangePro provides a fully featured Flange Management System, maximizing the control of the flange register, allowing comprehensive and consistent operation of all flange break, make-up and inspection processes for commissioning, operations and turnarounds/shutdown applications.

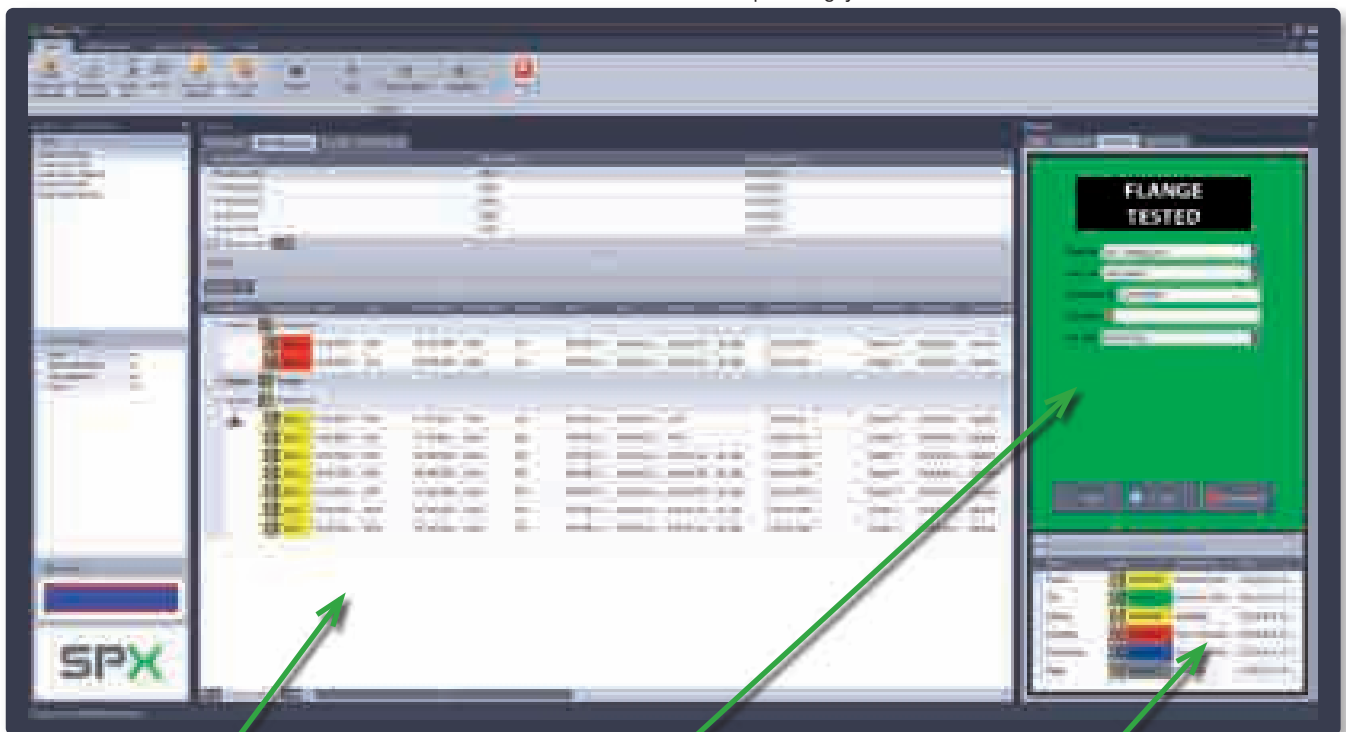
Built upon our unique and highly flexible Integrity Management System platform, FlangePro can be used in many different fields, project phases (Pre-Bid, On Site Work, Pre-Work and Completion Handover) and for many different service lines and activities, such as;

- Flange Management
- Equipment & Inventory Management
- Personnel management
- Service, Inspection and Process Management
- Shutdown Project Management
- Pre-Commissioning Completions Management
- Leak Test planning
- On-demand version allows licensing for specific short term projects

Product Features:

- Multiple Projects
- Secure Cloud Platform
- Asset Identification
- Configurability/Flexibility
- Markup tool

Visit spxboltingsystems.com for more details



Sort workpacks/activities by status for ease of management

Visual workflow status matching any tagging process adopted

Full history of workflow/activities is recorded against the safety critical artifact and the activity pack it is held on.

ADVISER BOLT LOAD CALCULATOR

The adviser software considers many years of bolt working experience, where data has been channeled into a single computer software program. Bolt tightening data, procedures and recommendations for standard, non-standard and specialty joints makes advisor an invaluable tool to any industry.

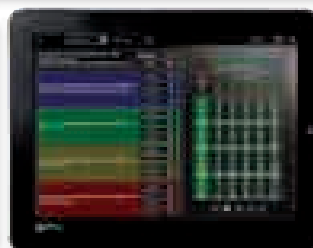
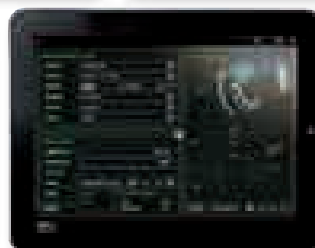
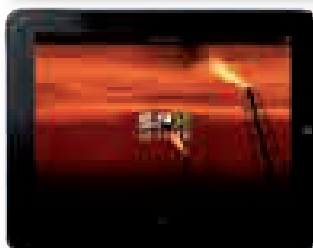
The Adviser software package includes:

- Tightening data for BS1560, MSS SP44, API 6A and 17D flanged joints.
- Encompasses standard flanges, wafer check valves, spade and spacers, and swivel flange assemblies.
- Torque data and tensioning tool pressures for both Subsea and Topsides applications.
- Bolt extension calculations.
- Tightening procedures and Torque sequences.
- Joint specific recommendations for improved integrity.
- Large database of bolt materials.
- Large database of bolt lubricants.
- Dimensional data of flanges.
- Recommended bolt lengths.
- Simple user interface with 'Windows' look and feel.
- New bolt materials and lubricants can be added!

BOLT LOAD CALCULATOR ADVISER



Visit the Apple AppStore for mobile applications



TRAINING

SPX FLOW Bolting Systems offer a range of courses covering joint integrity and flange management to industry recognized standards. All of our instructors have many years' experience in the joint integrity/ flange management sector most of which have spent considerable time in a hands on role actually doing the job that they are now training others to do. Our instructors have nationally recognized teaching qualifications which reinforce the quality of the training programs that we offer.

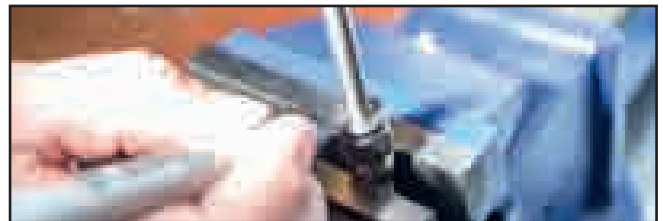
Our courses contain a mix of both theoretical and practical elements providing a positive learning experience for the learner. We have purpose built training facilities around the globe which house the latest in flange management tooling and associated equipment and in which learners are encouraged by our Instructors to embrace all aspects of Health and Safety and to



strive for a right first time approach to all joint integrity applications. Courses can be delivered in a variety of formats including:

- Industry Approved training
- Well established in-house programs
- Bespoke options tailored to a client's requirements, such as ASME PCC-1-2013

SPX FLOW Bolting Systems are an ECITB and API approved training provider.



Engineering Construction Industry Training Board

APPROVED PROVIDER

ECITB APPROVED TRAINING

The ECITB has approved the following specific courses which are derived from the new Mechanical Joint Integrity and Small Bore Tubing Technical Training Standards.

- MJI10 - Hand Torque Bolted Connection Techniques – one day duration
- MJI18 - Hydraulically Tension Bolted Connection Techniques – one day duration
- MJI19 - Hydraulically Torque Bolted Connection Techniques – 1.5 days duration
- MJI 10, 18 & 19 - Hydraulically Torque and Tension Bolted Connection Techniques – 2.5 days duration
- SBT01 Assemble and Install Small Bore Tubing with Twin Ferrule Mechanical Grip Fittings – 2 days duration

TECHNICAL TESTS

Technical Testing with an associated ECITB certificate of achievement plays a key role in validating an individual's skill, ability and job knowledge in a specific task area. Each test consists of a knowledge test and practical activity test against identified test criteria.

- There are five ECITB approved Technical Tests covering mechanical joint integrity and two covering Small Bore Tubing
- TMJI10 Dismantle, Assemble and Hand Torque Flanged Joints

- TMJI11 Dismantle, Assemble and Hand Torque Clamp Connectors
- TMJI18 Dismantle, Assemble and Tensioning Bolted Connections (Hydraulic Tensioning)
- TMJI 19 Dismantle, Assemble and Hydraulically Torque Flanged Joints
- TMJI 20 Dismantle, Assemble and Hydraulically Torque Clamp Connector Joints
- TSBT 01 Assemble and Install small bore tubing assemblies- Twin Ferrule
- TSBT 02 Disassemble and reinstall small bore tubing assemblies

ECITB courses and technical tests can be delivered at:

- SPX FLOW UK ECITB approved training and testing centers
- SPX FLOW Houston, TX, USA ECITB approved training and testing centers
- SPX FLOW Global Training facilities – subject to approval via SPX FLOW Training UK and ECITB
- Client Site UK – subject to approval via SPX FLOW Training UK.
- Client Site Global - subject to approval via SPX FLOW Training UK and ECITB



AMERICAN PETROLEUM INSTITUTE - APPROVED TRAINING

As an API-U approved training provider SPX FLOW can offer a two day course covering the assembly, tightening and disassembly of bolted connections. This course includes in depth practical instruction on the safe and effective use of both hand and hydraulic bolt tightening equipment.

This SPX FLOW API approved training course can be delivered at:

- SPX FLOW global training facilities
- Client Site Global – subject to approval via SPX FLOW Training UK.

API-U is dedicated to providing excellence in petroleum industry training. Because API has access to the largest pool of subject experts in the industry, API-U programs are taught by the best trainers who utilize today's innovative methods. The practical knowledge gained from API-U training enables participants to maintain professional competency.



ADDITIONAL COURSE OFFERINGS

SPX FLOW ADVISOR

– controlled bolting software

SPX FLOW FLANGEPRO

– joint monitoring software

Service and Maintenance of SPX FLOW products



IOSH Managing Safely

IOSH Working Safely

Manual Handling

Level 2 Award in Emergency First Aid at Work - UK

Level 3 Award in First Aid at Work – UK

Level 2 Award in Paediatric First Aid – UK

Level 2 Award in CPR and AED - UK



RENTAL, CALIBRATION & SERVICE CENTERS

SPX FLOW Rental Service Centers offer full range of hydraulic torque wrenches, topside tensioners, subsea tensioners, nut splitters, pump units and ancillary equipment all available 24/7 to meet our customers needs.

All SPX FLOW Bolting Systems Service Centers offer calibration services for all hydraulic torque wrenches, torque pump units and tensioner pump units. Please contact your local SPX FLOW Service Center for details and pricing.





HOUSTON, TEXAS

- Located in Pasadena, TX near the O&G, Refinery and Petrochemical market
- Full Rental Inventory
- Training Facilities
- Calibration
- Repair
- 24/7 Availability



ABERDEEN, SCOTLAND

- Near key North Sea Offshore customers
- Rental Inventory
- Training Facilities



PERTH, AUSTRALIA

- Serves SE Asia customers
- Rental Inventory
- Training Facilities



OTHER LOCATIONS

- Baton Rouge, LA
- Ashington, UK (Center of Excellence)
- Eyselshoven, Netherlands
- Singapore
- Corpus Christi, TX