8 Years of Symposiums!

2014

Hex Technology

2014 Bolting Symposium

2015

Tuesday Schedule

01

Introduction (8:00-8:30)

Lessons Learned While Implementing a Bolting Program (8:30-10:00)

During this past year, we have learned several things that make implementing a bolting program easier. Scott Hamilton (Hex Technology) will lead this discussion, with input from Guy Colbert (LSB Chemical), Jason Wright (NCRA), and other End Users.

Training Qualifications (10:00-Noon)

There has been a big push amongst End Users to have Contractors trained to a consistent standard. In order to do this, the End Users must agree on basic concepts that their employees/contractors should know for several different levels of training. Scott Hamilton (Hex Technology) will lead the discussion, while Ben Hantz (Valero), and Jason Wright (NCRA) will give input from lessons learned.

Lunch: Noon-1:00

Stronghold LLC (Bolting Symposium Sponsor) will be introduced, and lunch will be served.

Flange Tagging / Data Collection System (1:00-3:00)

Since last year Scott Hamilton (Hex Technology) and Kevin Turpin (PK Technologies) have been working on a flange tagging system that End Users can use while owning the data that is put it. I have taken the suggestions given by the group and teamed it up with PK Technologies patented intrinsically safe iPad/RFID system. Not only does this system collect your data but can tell you in real time what flanges have been: disassembled; blinded; stabbed; assembled. PK and Hex's goal is to make a tagging system that caters to End Users, and am looking for as much input as they can get.

Jet-Lube (3:00-4:00)

Don Oldiges with Jet Lube and Hex Technology are working on furthering R&D which we will discuss for the first 30 minutes. The second 30 minutes we will open up a Q&A with him about lubricants.

General Discussion (4:00-5:00)

This section is dedicated to further discussion of any topics that have been covered during the day, and/or other discussions/questions End Users would like to ask other End Users.

Networking Session (5:00-7:00)

Drinks will be provided by Stronghold and this is a good opportunity to meet other End Users

Wednesday Schedule

02

Dr. Warren Brown (8:00-9:00)
Warren is going to discuss some of the research and projects that he is working on.

Updates to PCC-1 (9:00-10:00)
Clay Rodery (BP) is going to discuss new items that the PCC-1 Sub Committee are looking at changing/adding to PCC-1. We would also like to get End User input on changes and/or items to be added or taken out of this document.

Gasket Testing Developments through Dimensional Testing (10:00-11:00)
This year Ben Hantz (Valero) and Scott Hamilton (Hex Technology) have been working on Gasket Testing. The primary focus was on dimensional/destructive testing per B16.20. During this discussion, Ben is going to walk End Users through his findings and ultimately walk them through the process to provide basic QA/QC to their plants.

MOC Process and How to Monitor Suppliers (11:00-Noon)
Earlier this year it was brought to several End Users that a manufacturer had changed their manufacturing process and didn't inform the End Users. This hour is going to be used to discuss how End Users go about monitoring and making sure the products that they are receiving are what they ordered, and the MOC process that needs to be followed in most companies.

Lunch (Noon-1:00)

Hot Bolting and Hot Torqueing Procedures/Practices (1:00-2:00)
There seems to be a lot of confusion between the two, and it doesn't seem that there is real clarification on processes and procedures to do this. This will be the beginning of the discussion of how to make "industry standard" of these by July 2015.

Research and Development (2:00-3:00)
There are several topics that End Users are looking at researching. This hour is dedicated to the discussion of what End Users would like to see as far as R&D for the next year.

General Discussion (3:00-4:00)
This section is dedicated to further discussion of any topics that have been covered during the day, and/or other discussions/questions End Users would like to ask other End Users.

Conclusion (4:00-5:00)
We will be wrapping up all our discussions.

Syllabus of Training Requirements

History of Nuts and Bolts	SME	QA/QC	Assembler	On-board
The Process of How Bolting Industry has Changed Over the Years	X	X	X	X
Introduction to the Different Codes On Bolted Flange Joints	X			
Explanations of Definitions Related to PCC-1 2013	X			
Implications of Failed Bolted Flange Joints	X	X	X	X
Sources of information on design	X			
Design of Bolted Flange Joints				
Introduction to Limiting Factors				
Why 50% of yield is not always the correct answer	X	X	X	X
Parameters that determine appropriate bolt load	X	X	X	X
Relationship between bolt stress and gasket stress	X	X	X	
Assembly technique and gasket recognition in relation to flange-face type				
Flat face versus raised face versus RTJ and their appropriate gaskets	X	X	X	
Understanding of nominal pipe size and pressure class	X	X	X	
Common flange types of flanges	X	X	X	
Installation and operational characteristics of common flange types	X			
The importance of multipoint tightening on RTJ and lens ring joints	X	X	X	
The potential consequences of mating flat-faced flanges to raised-face flanges	X	X		
Failure potential of brittle cast flanges on valves, pumps, and similar equipment	X			
Tightening piping joints connecting to rotating equipment				
The need to ensure equipment alignment	X		X	
Equipment-allowable nozzle loads and moments	X			
Purpose of piping expansion joints	X			
The Bolt				
The principles of bolt elongation and bolt load	X	X	X	
Relationship between bolt stress and bolt elongation	X	X	X	
Influence of bolt length on bolt-load loss	X			
Relationship between applied torque and achieved bolt stress/load	X	X	X	
Misc bolting terminology (e.g., kips, psig, psi, lb., ft-lb, N·m, ksi, tpi)	X			
Bolt types and their limitations				
Brief detail of common bolting materials, including yield strength	X	X	X	X

SW Gasket Conformance
Hex Technology Bolting Symposium

January 13, 2015

B. F. Hantz
Technology Advisor, Mechanical Engineering
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Markings

Letter Height	Para 3.4.1	≥ 0.1”
Manufacturer Or Trademark	Para 3.4.1 (a)	MFGr Name or Trademark
Flange Size	Para 3.4.1 (b)	
Pressure Class	Para 3.4.1 (c) & 3.4.2	
Winding Metal Abbv.	Para 3.4.1 (d) & Table 19	Not required when 304
Filler Material Abbv.	Para 3.4.1 (e) & Table 19	
Inner Ring Material	Para 3.4.1 (f) & Table 19	Not required when 304
Centering Ring Material	Para 3.4.1 (f)	Not required when CRS
Flange Identification	Para 3.4.1 (g)	Not required for B16.5 Required for B16.47A and B16.47B
ASME B16.20	Para 3.4.1 (h)	Not required for MFGr’s special gaskets, e.g. SW with GMC Inner Rings
Color Code	Para 3.4.3 & Table 19	

2016

Tuesday Schedule

01

7:30 - 8:00am:	***Introduction and Review Schedule for Week***
8:00 - 9:45am:	***End User Introduction & Lessons Learned Round Table***
9:45 - 10:00am:	**BREAK**
10:00 - 11:30am:	***Cost and Experience of Implementing a Comprehensive bolting program during a large Turnaround (NCRA & HEX)***
11:30 - 1:30pm:	**Lunch Break**
1:30 - 3:00pm:	***Process mapping of Bolted Flange Joints*** - Hex Technology has put together the process mapping for the implementation of a complete bolting program.
3:00 - 3:15pm:	**BREAK**
3:30 - 4:00pm:	***RAGAGEP (Dow & Group) –*** Discussion among end users how this will effect your organizations.
4:00 - 5:15pm:	***QA/QC - Roles, Responsibilities, Categorization, and Inspections Discussion:*** This will be a open conversation where the goal is to determine these roles within an organization.
5:15 - 5:30pm:	***Closing Comments***
5:30 - 8:00pm:	**Happy Hour**

Wednesday Schedule

02

7:30am - 9:30am:	***Discussion with Dr. Warren Brown*** - This will include: updates on Research and Development, Risk Based Joint Inspection (RBJI), a Q/A Session, and other updates from our International friend.
9:30am - 9:45am:	**Break**
9:45am - 11:30am:	***Cost and Experience of Implementing a Comprehensive bolting program during a large Turnaround (NCRA & HEX)***
11:30am -1:30pm:	**Lunch Break**
1:30pm - 3:00pm:	***Flange Tracking Proof of Concepts (POC) / Documentation Development*** - PK Technology has completed multiple POC's for End Users, and can share the results from their technology.
3:00pm - 3:15pm:	**BREAK**
3:15pm - 4:00pm:	***QA/QC - Roles, Responsibilities, Categorization, and Inspections Discussion:*** This will be a open conversation where the goal is to determine these roles within an organization.
4:00pm - 5:00pm:	***R&D Projects*** - This will include a discussion on what has been researched the past year and gather ideas/volunteers from the group for 2016.
5:00pm - 5:30pm:	**Closing Comments**
5:30pm - 8:00pm:	**Happy Hour**

Thursday Schedule

03

7:30am - 9:00am:	**Updates & Discussion about PCC-1 and Other Applicable Bolting ASME/API Codes**
9:00am - 9:45am:	**Accuracy/Repeatability of Pneumatic Torque Wrenches ("RAD Guns")** - CHS (formerly NCRA), Hex Technology, CARBER and Valero have completed a preliminary study on the accuracy and repeatability of "RAD Guns"! Finally we get to see if we like them!
9:45 - 10:00am:	**BREAK**
10:00 - 11:30am	***Open Questions with Contractors*** - TEAM Industrial, CARBER, and REPCON are the three invited companies. This will be an open forum that will be a Q&A session.
11:30 - 12:00pm:	***Closing of Bolting Symposium***
1:00pm - 3:00pm:	**Accuracy and Efficiency of PCC-1 Bolting Patterns** - Which bolting pattern is the most efficient in time (this is popular for maintenance individuals) and final bolt load (engineers).

2017

2017 Bolting Symposium Schedule

Tuesday (End User Only)			Wednesday			Thursday		
7:30	Introductions	Group Discussion	7:30	RBJI - Risk Based Joint Inspection & Different Methods of Applying Bolt Load - Including Load Indicating Studs	Dr. Warren Brown (Integrity Engineering Solutions)	7:30	Torque Pattern Study using FEA and lab tests	Gong Jung
8:00			8:00			8:00		
8:30	Process Mapping for BFJA's	Scott Hamilton (HEX)	8:30	Flange Criticality vs. QA/QC Methods	General Discussion with End Users and Contractors	8:30	Single Stud Replacement (Hot Bolting / Odd Bolting)	Mark Ruffin (Chevron) & Lorna Carpenter (BP)
9:00	"Bolting Therapy" - Lessons learned or issues that End Users have within their program	Group Discussion - Please feel free to volunteer	9:00			9:00		
9:30			9:30	Accuracy & Repeatability of Torque Wrenches	Jason Wright (CHS); Brittany Vegso (Hex)	9:30	Standardization of K-factor testing	Don Oldiges (Jet Lube)
10:00	Break		10:00	Break		10:00	Break	
10:30	"Bolting Therapy" - Lessons learned or issues that End Users have within their program	Group Discussion - Please feel free to volunteer	10:30	Proposal for learning about the frequency of calibrating torque tools	Mike McCowan (Industrial Bolting Technology)	10:30	R&D Needs	Group Discussion
11:00			11:00			11:00	Closeout of Symposium	Scott Hamilton (Hex)
11:30			11:30	Placement of Kammprofile gaskets in RTJ flanges	Mark Ruffin (Chevron)	11:30		
12:00	Lunch Break		12:00	Lunch Break		12:00	Lunch Break	
12:30			12:30			12:30		
13:00			13:00			13:00		
13:30	General Training Requirements	Scott Hamilton (HEX) -Appendix A findings and how what to expect from your company and contractors	13:30	Eliminating Leak Paths Leads to Leaks	Mark Ruffin (Chevron)	13:30	Open Discussions, Round Tables & Networking (Optional)	
14:00			14:00			14:00		
14:30	Using contract QA/QC bolting inspectors	General Discussion - Please feel free to share your experiences	14:30	Comparison of industry standard torque values & anti-seize compounds	Scott Hamilton & Brittany Vegso (HEX)	14:30		
15:00			15:00			15:00		
15:30	Break		15:30	Break				
16:00	Self Assessments	Scott Hamilton (HEX) - findings of how to assess bolting programs	16:00	Performance Testing Proposal for B16.20 gaskets	Jose Viega (TEADIT)			
16:30			16:30					
17:00	Inhibited graphite testing	Ben Hantz (Valero)	17:00	PCC-1: Discussion with group on upcoming changes	Clay Rodery (BP)			
17:30			17:30					

Hex Technology

2018

2018 Bolting Symposium Schedule - January 16-18

Tuesday (End User Only)			Wednesday			Thursday		
Time	Topic	Discussion Leader	Time	Topic	Discussion Leader	Time	Topic	Discussion Leader
7:30	Introductions		7:30	Vendor/Contractor Introductions		7:30	Different Equipment Accuracy and Repeatability - 300 Assemblies and their lessons	Scott Hamilton (Hex Technology)
8:00			8:00	Warren Brown Discussion - Update on Corrosion Testing, Patterns, etc.	Warren Brown (Integrity Engineering)	8:00		
8:30	Bolting Jeopardy (Group Discussion)		8:30			8:30		
9:00			9:00	TED Jr. Demo - How to use a smaller TED for Training	Scott Hamilton (Hex Technology)	9:00	QA/QC/Inspection Roles & Documentation: Can the industry standardize?	Group Discussion
9:30			9:30			9:30		
10:00	Break		10:00	Break		10:00	Break	
10:30	Bolting Therapy (Group Discussion)		10:30	All I Need Is This Clicker Wrench - Analysis of quantities of flanges assembled in plants	Ben Hantz (Valero)	10:30	R&D - What would we like to learn more about? Who would like to contribute?	Group Discussion
11:00			11:00			11:00		
11:30			11:30			11:30	Closeout	
12:00	Lunch Break (Landry's)		12:00	Lunch Break		12:00	Lunch Break (Landry's)	
12:30			12:30			12:30		
13:00			13:00			13:00		
13:30	Assessments: Lessons Learned from Contractor Assessments	Brett Thibodeaux (Sasol)	13:30	B16.20 Performance Testing - Taking it one step further	Jose Veiga (TEADIT)	13:30	Open Discussions, Round Tables & Networking (Optional)	
14:00			14:00			14:00		
14:30	End User Training Specs for Employees and Contractors	Jason Wright (CHS)	14:30	Case Study: Coated Bolt Performance in a Corrosive Environment	Carlos Girault (Dox Steel)	14:30		
15:00			15:00			15:00		
15:30	Break		15:30	Break				
16:00	Review of what PCC-1 Appendix A States	Scott Hamilton / Clay Rodery	16:00	Alan: RBJI and Bolt load calculator for planners	Dan Mahoney (Hex Technology)			
16:30			16:30					
17:00	Training Procedures for the Industry	(Group Discussion)	17:00	Update for PCC-1 2018	Clay Rodery (BP)			
17:30			17:30					

Hex Technology

2019

2019 Bolting Symposium Schedule - January 8th-10th

Tuesday (End User Only)

Time	Topic	Discussion Leader
7:30	Introductions	
8:00 – 8:30	Bolting Therapy (Group Discussion)	
9:00 – 9:30	B16.20 Testing	Scott Hamilton (Hex)
10:00	Break	
10:30	Flange Leak Data	Stefan Smith (Citgo)
11:00	Flange Leak Data	Mark Ruffin (Chevron)
11:30	Tracking Leaks: How?	Group Discussion
12:00 – 13:00	Lunch Break (Moody Gardens)	
13:30 – 14:00	How to train your plant as an end user.	Stefan Smith (Citgo)
14:30 – 15:00	Contractor Assessments: 2018 Findings	Ben Hantz (Valero)
15:30	Break	
16:00 – 16:30	Success of a Bolting Practice	Brett Thibodeaux (Sasol)
17:00 – 17:30	Independent Testing from End Users	Brett Thibodeaux (Sasol), Jason Wright (CHS) and Group Discussion
18:00 – 22:00	End User Networking Garden Cay at the Moody Gardens	

Wednesday

Time	Topic	Discussion Leader
7:30	Vendor/Contractor Introductions	
8:00	Relaxation Passes - Are they needed?	Scott Hamilton (Hex)
8:30	Inventing the best lubricant	Don Oldiges (JetLube)
9:00 – 9:30	Bolts: Lessons with PTFE Coated Studs / QC tolerances / Path for End Users	Carlos Girault (Dox)
10:00	Break	
10:30 – 11:30	Calibration: Creating the Standard for Powered Equipment / Battery & Pneumatic Results	Scott (Hex), Andy Smith (Hex), Clay Rodery, James Sullivan (Atlas Copco), Dan Provost (RAD Torque)
12:00 – 13:00	Lunch Break (Moody Gardens)	
13:30 – 14:00	Gaskets: Updates on several gasket research projects	Jose Veiga (TEADIT)
14:30 – 15:00	Machining Flanges: Does more shavings mean a better job?	Clay Rodery & Neil Ferguson (TEAM)
15:30	Break	
16:00 – 16:30	Training: Appendix A Training - Game plan for execution	Scott Hamilton (Hex)
17:00 – 17:30	Practical Magic Tricks Learned from Training	Andy Smith (Hex) & Scott Hamilton (Hex)
18:00 – 23:00	Dinner, Drinks, and Networking: Garden Cay at the Moody Gardens	

Thursday

Time	Topic	Discussion Leader
7:30 – 8:00	Single Stud Replacement (hot bolting): The how and when	Clay Rodery, Lorna Carpenter (BP Upstream), Mark Ruffin (Chevron),
8:30 – 9:30	QA/QC, Flange Inspections, Documentation: Can we as an industry standardize?	Group Discussion
10:00	Break	
10:30 – 11:00	R&D - What should the industry be focusing on?	Group Discussion
11:30	Closeout	
12:00 – 12:30	Lunch Break	
13:00 – 17:30	ASME PCC-1 Face to Face Meeting	

Hotel Information

Location: Moody Gardens Hotel, Galveston
Group Reservation: Hex Technology
Group Rate: ($139/night)
Cutoff Date: December 17, 2019

Conference Location:

Moody Gardens Hotel
Floral Hall A
Seven Hope Blvd, Galveston, Texas 77554

Contact Information

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Hex Technology

2020

7th Annual Bolting Symposium Schedule - January 7th-9th, 2020 & PCC-1 Meeting

Tuesday (End User Only)

Time	Topic	Discussion Leader
8:00	Introductions	
8:30 9:00	Bolting History, Path Forward, and a Tale of Righty Tighty	Scott Hamilton (Hex) / Clay Rodery (C&S Tech.) / Chris Cary (Dow)
9:30	Bolting Therapy (Group Discussion)	Group Discussion
10:00	Break	
10:15 11:15	Lessons Learned from 12 Site Assessments	Antonio Seijas (P66)
11:30	Bolting Program Implementation	Josh Hevekost (BP Whiting)
12:00 12:30	Lunch Break (Moody Gardens)	
1:00 1:30	Lessons Learned from Writing an Effective Bolting Procedure	Ben Hantz (Valero)
2:00 2:30	Leak Reporting and Documentation	Matt Oglesby (P66) and Antonio Seijas (P66)
3:00	Break	
3:15 3:30	End User Breakout Session: Go network and ask questions!	Group Discussion
4:30 5:00 5:30	Magic Show: Load Indicating Studs and UT	Andy Smith (Hex)
18:00 | 10:00	End User Networking: Garden Cay at the Moody Gardens	

Wednesday

Time	Topic	Discussion Leader
8:00	Vendor/Contractor Introductions	
8:30 9:00	Single Stud Replacement: Estimating Gasket Stress Reduction	Ben Hantz (Valero)
9:30	K-Factor Capabilities	Don Oldiges (JetLube)
10:00	Break	
10:15 11:15	PTFE on Alky Gaskets; PTFE Gasket Performance Testing	Jose Veiga (TEADIT)
11:30	Inner Ring Tolerances for Midstream Applications	Shane Szemanek (Marathon Pipeline) / Jose Veiga (TEADIT)
12:00 12:30	Lunch Break (Moody Gardens)	
1:00 1:30	Calibration info during a Turnaround	Scott Hamilton (Hex) / Jason Wright (CHS)
2:00 2:30	Results from Calibration Testing	Scott Hamilton (Hex) / RAD and Norbar Torque
3:00	Break	
3:15 3:30	Bolting Patterns & Wrench Time Analysis	Shane Szemanek (Marathon Pipeline)
4:30 5:00 5:30	Magic Show: Torque Verification Methods	Andy Smith (Hex)
6:00 | 10:00	Dinner, Drinks, and Networking: Garden Cay at the Moody Gardens	

Thursday

Time	Topic	Discussion Leader
8:00	Rotating & Fixed Equipment: Who should win?	Scott Hamilton (Hex)
8:30 9:00	Stainless Steel Flanges: Do we need separate torque values?	Ben Hantz (Valero)
9:30	Hardened Steel Washers: Do they really help?	Jason Wright (CHS) / Scott Hamilton (Hex)
10:00	Break	
10:15 11:15	R&D - What should the industry be focusing on?	Group Discussion
11:30	Closeout	Group Discussion
12:00 12:30	Lunch Break (Moody Gardens)	
1:00 1:30 2:00 2:30 3:00 3:30 4:00 4:30 5:00 5:30	ASME PCC-1 Face to Face Meeting	

Friday

Time	Topic
8:00 12:00	ASME PCC-1 Face to Face Meeting

Hotel Information

Location: Moody Gardens Hotel, Galveston
Group Reservation: Hex Technology
Group Rate: ($145/night)
Cutoff Date: December 17, 2019

Conference Location:

North Floral Ballroom
Moody Gardens Hotel
Seven Hope Blvd, Galveston, Texas 77554

Contact Information

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Hex Technology

2021

8th Annual Bolting Symposium Schedule - January 5th-6th,

Tuesday			Wednesday		
Time	**Topic**	**Discussion Leader**	**Time**	**Topic**	**Discussion Leader**
8:00	Introductions		8:00	Vendor/Contractor Introductions	
8:30 9:00	8 Years of Symposiums	Scott Hamilton	8:30 9:00	High-Temperature Graphite	Jose Veiga (TEADIT)
9:30	Bolting Therapy (Group Discussion)	Group Discussion	9:30	Galling Applications	Mark Ruffin (Chevron) & Mike Dolan (Hytorc)
10:00	Break		10:00	Break	
10:15 11:15	Backup Tooling: Pro's / Cons	Scott Hamilton	10:15 11:15	Procuring Bolts	Lamons
11:30	In Shop Gasket Manufacturer Assessments	Mark Ruffin (Chevron)	11:30	Paint & Relaxation	Shane Szemanek (Marathon)
12:00 12:30	Lunch Break (Moody Gardens)		12:00 12:30	Lunch Break (Moody Gardens)	
1:00 1:30	Flange Thickness Determination	Chris Cary (Dow)	1:00 1:30	Energy, The Election, and What's Next	Frank Blake, Chairman, Delta Airlines and former DOE
2:00 2:30	Lessons from COVID-19: Share your experience	Group Discussion	2:00 2:30	K-Factor (Washer Testing)	Hex R&D
3:00	Break		3:00	Break	
3:15 3:30	Training at Scale: Upleveling Contractors & Staff at a 300K+ Barrell Refinery	Hex Technology	3:15 3:30	K-Factor (Black & Silver Bolts)	Hex R&D
4:30 5:00	New Solutions for Practical Training	Hex R&D	4:30 5:00	K-Factor (PTFE Bolts)	Hex R&D
5:30			5:30	R&D / Closeout	Group Discussion
18:00 | 10:00	End User Networking: Garden Cay at the Moody Gardens		6:00 | 10:00	Dinner, Drinks, and Networking: Garden Cay at the Moody Gardens	

Conference Location:

North Floral Ballroom
Moody Gardens Hotel
Seven Hope Blvd, Galveston, Texas 77554

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