

14th Annual QUG Conference

VIRTUAL MEETING of the
QUIKLOOK USERS GROUP

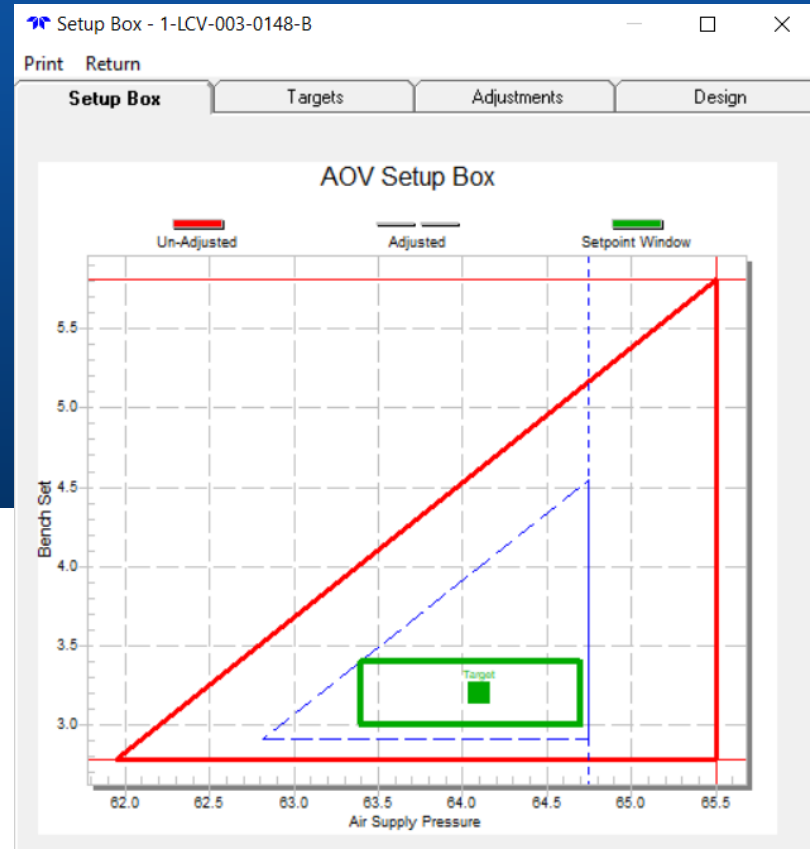
August 12th, 2021

presentation by:
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Director of Operations



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ACE Update





- Version 2018.129
- Bug Fixes
 - Remove the option to use a calculated total seating/unseating torque when a ball valve is selected. This choice should not be available for ball.
 - Quarter turn report showed the wrong value for valve travel.
 - Large number of references caused an overflow condition.



- Version 2020.149
- Software Error Notice 2020-03 - Min Supply Pressure at Min Lower Bench
 - When calculating the setup window, min required air pressure at min and max lower bench are calculated. This calculation only uses “Min Required Thrust to Open” in the calculation. For rising stem valves which are Fail Close - Flow Assisted, the results may be very conservative which in some instances result in an invalid setup window.

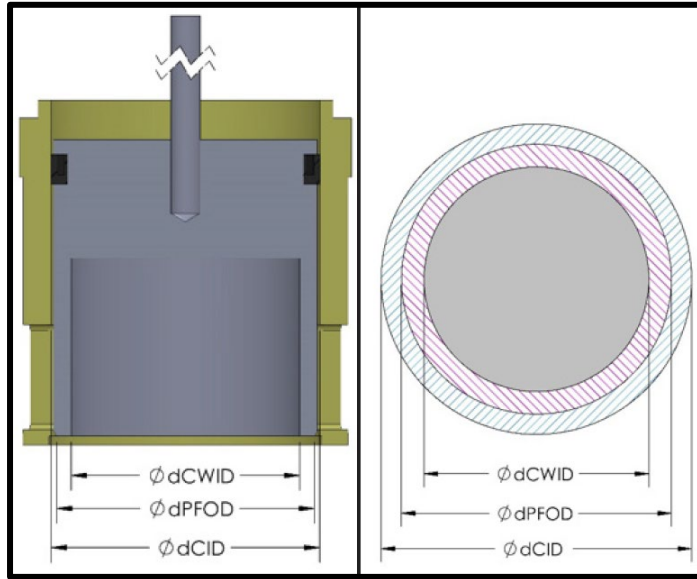


- Bug Fixes
 - Cannot add a work order if revision number in ACE is not numeric
 - Regulator Pressure does not import when importing from QUIKLOOK FS or Viper
 - Adding new work order does not copy Pre-Test comments to new work order
 - If a test file is renamed it does not show up in the import list.



Our Customers are requesting upgrades to ACE to incorporate new EPRI Methods for AOVs and MSIVs

- Incorporating EPRI Disk to Body/Cage Friction (Side Loading)
- Trims styles will be included on the Configuration Tab
- Flow velocity calculator will be included
- Mid-Stroke Effects
- MSIV thrust determination and actuator capability
- Records Management similar to Midas
- ACE 4.4 to be released 4th quarter of 2021



Side Loading inputs

ACE Calculations

File Edits Tables References Tools Help

RS-029-GL-B-U-SL **Globe - Balanced - Flow Under - Down to Close** Check

Air Cylinder - Spring Return - Direct Acting

Packing Accessories Adjustment Factors Output

General Configuration **Valve** Actuator

Parameter	Dir	Value	Ref
Maximum Allowable Thrust (Weak Link) (lbf)	(O)	11,000	N/A
Maximum Allowable Thrust Component	(O)	Open Component	N/A
Seating Load Option		Calculated	N/A
Alternate Seat Load (lbf)		0.0	N/A
Alternate Seat Load (lbf/in)		0.0	N/A
Seating Load Seat Option		Seat	N/A
Seat Type		Hard	N/A
Leak Class		3	N/A
Additional Thrust Load (Closing) (lbf)		1.6	N/A
Additional Thrust Load (Opening) (lbf)		1.1	N/A
Additional Thrust Load (Full Open) (lbf)		1.2	N/A
Rated Stroke Length (in)		0.000	N/A
Valve Travel (in)		2.690	N/A
Valve Stem Diameter (in)		1.000	N/A
Plug Weight (lb)		0	N/A
Valve Factor to Close		1.10	N/A
Valve Factor to Open		1.10	N/A
Seat to use for the DP Load Calculation		Port and Inside Cage Diameter	N/A
Unbalanced Area (sq in)		0.0000	N/A
Seat Diameter (in)		6.500	N/A
Port Diameter (in)		6.460	N/A
Inside Cage Diameter (in)		6.588	N/A
Radius to Body Cavity		1.00	N/A
Radius to Cage Outer Diameter		2.00	N/A
Port Radius		3.00	N/A
Height of Cavity Clearance		4.00	N/A
Trim Characteristics		Linear	N/A
Disk cylindrical wall inner diameter		0.740	N/A
Disk proud face OD		0.800	N/A
Cage inner diameter (along sealing surface)		0.875	N/A
Disk outer diameter		0.913	N/A
Opening Stroke - Use Multi Point Model	(O)	Use Multi Point Model	N/A
Closing Stroke - Use Multi Point Model	(C)	Use Multi Point Model	N/A

Note-02

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Side Loading



Return

Validated Approach for Determining Fdpt for Balanced Globe Valves

Step 3d
Step 3e
Step 3f - 1
Step 3f - 2
Step 3g

Step 1
Step 2
Step 3a
Step 3b
Step 3c

Screen to determine if validated FDPT model can be used

Body Cavity / Cage Clearance

<u>Parameter</u>	<u>Value</u>	<u>Ref</u>
Radius to Body Cavity	<input type="text" value="2.00"/>	<input type="text" value="12"/>
Radius to Cage Outer Diameter	<input type="text" value="1.00"/>	<input type="text" value="11"/>
Port Radius	<input type="text" value="3.00"/>	<input type="text" value="13"/>
Height of Cavity Clearance	<input type="text" value="4.00"/>	<input type="text" value="14"/>
Clearance	0.14	

Body Cavity/Cage Clearance > 0.12

FDPT Model can be used

Input form mimics the steps in the EPRI guide

Inputs required to determine F_{DPT}

ACE 4.4 – Flow Velocity Calculator



Side Loading

Return

Validated Approach for Determining Fdpt for Balanced Globe Valves

Step 3d Step 3e Step 3f - 1 Step 3f - 2 Step 3g
 Step 1 Step 2 Step 3a Step 3b **Step 3c**

Calculate the Normalized Velocity

Calculation Method

- Flow Velocity
- Volumetric Flow Rate
- Mass Flow Rate

Parameter	Value	Ref
Mean Seat Diameter	6.500	N/A
Valve Differential Pressure at Closed Position	180	
Density	0.887	N/A
Valve Inlet Maximum Velocity	123	N/A
Mass Flow Rate	100	N/A
Volumetric Flow Rate	1,500	N/A
Normalized Velocity	0.804	



ACE Calculations

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RS-028-GL-8-U-SL **Globe - Balanced - Flow Under - Down to Close** Check

Air Cylinder - Spring Return - Direct Acting

Packing Accessories Adjustment Factors Output
 Configuration Valve Actuator

Parameter	Dir	Value	Ref
Calculation Number		V&V Test Case RS-008	N/A
Calculation Revision		1	N/A
System		FW	N/A
Name		Test Valve	N/A
Fail Position		Close	N/A
Media		Water	N/A
Flow Diagram / P&ID		M-207	N/A
Max. Fluid Temperature (Deg F)		100	N/A
Line Pressure Upstream (psig)	(C)	200.00	N/A
Line Pressure Upstream (psig)	(D)	100.00	N/A
Line Pressure Downstream (psig)	(C)	20.00	N/A
Line Pressure Downstream (psig)	(D)	10.00	N/A
Category		3	N/A
Air System Name		Station Instrument Air	N/A
Stem Material		A182 Type F6	N/A
Young's Modulus (E)		31,600,000	N/A
Poisson's Ratio (v)		0.277	N/A
Density		0.887	N/A
Valve Inlet Maximum Velocity		123	N/A
Mass Flow Rate		100	N/A
Volumetric Flow Rate		1,500	N/A
Normalized Velocity Option		Flow Velocity	N/A

Note-00

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Any Questions?

Thank you
for your time.



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