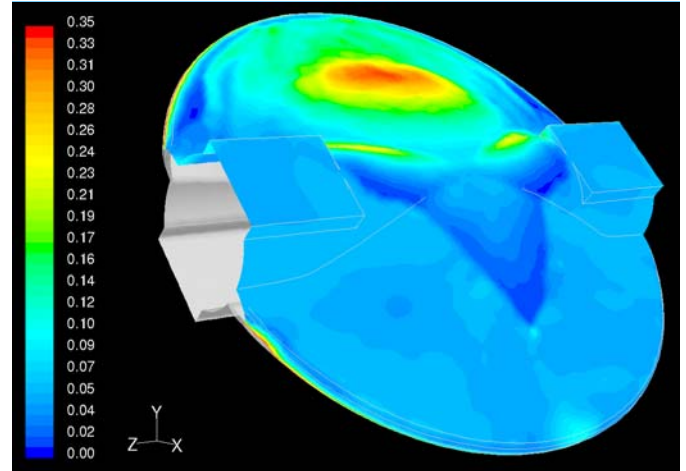


KVAP - Kalsi Valve & Actuator Program

The Leading AOV & MOV Software in the Industry

Product Description

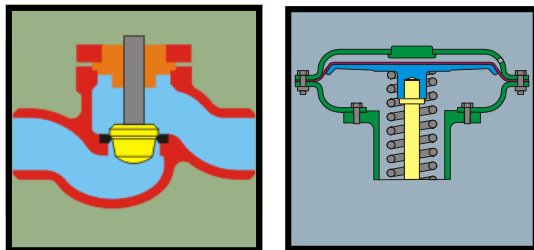
With demonstrated benefits at over 50 plants, KVAP has emerged as the leading AOV/MOV software in the industry. KVAP is a state-of-the-art software based on first principles models and extensive 10CFR50 Appendix B testing, for performing design basis calculations for all common linear and quarter-turn AOVs and MOVs in the industry. The KVAP *validated quarter-turn models with position-dependant accuracy*, which no other software contains, provide substantial margin increases in many applications.



Flow Analysis used for Accurate Modeling



Compressible and incompressible flow loop testing



Typical KVAP valve & actuator graphics

Applications, Advantages & Benefits

- Increases margins with advanced models
- Eliminates invalid margin concerns based on excessive conservatism of other industry models for symmetric and single-offset butterfly valves
- Assists with JOG MOV PV implementation
- Compensates for plant personnel turnover
- Validated models based upon testing
- Recovers margins lost in power up-rate

Training and Technical Support

- Comprehensive KVAP training seminars
- Technical support to address questions

*KVAP has user friendly graphic displays.
Improve efficiency and eliminate errors.*

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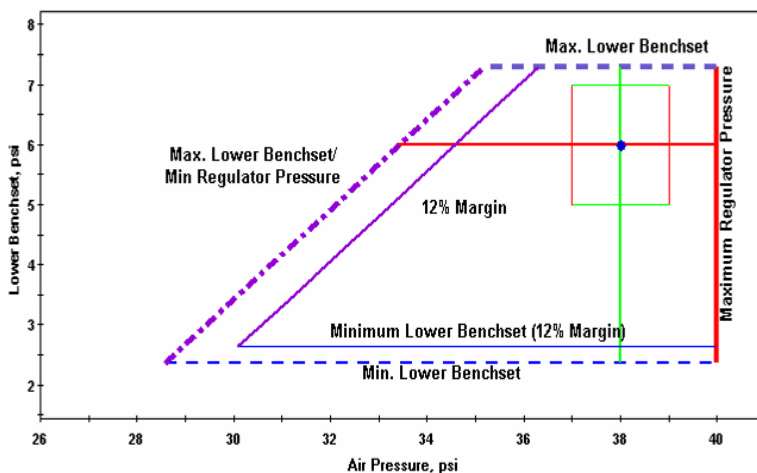
Brochure PN 559-4, Rev. 2

Key Features

- Incorporates valve and actuator models for evaluating all common linear and quarter-turn AOVs and MOVs
- Includes accurate & reliable models with flow & torque coefficients based on 10CFR50 Appendix B data for:
 - Butterfly valves* – symmetric, single-offset, double-offset;
 - Ball valves* – full, segmented (V-notch), Camflex; and
 - Plug valves* – cylindrical, tapered
- An AOV setup utility option calculates the lower bench set range and the actuator supply pressure range necessary to ensure a positive margin.
- Analyzes incompressible, compressible, low-pressure, choking, and flashing flow conditions
- Includes valve specific upstream elbow effect models for butterfly, ball & plug valves
- Evaluates AOV & MOV margin at each stroke position
- Provides an intuitive *graphical* user interface & comprehensive database capabilities
- Allows test data overlay to compare with KVAP prediction
- Meets 10CFR50 Appendix B requirements



AOV Setup Box



AOV Setup Utility Benefits

- Provides a user friendly design space to aid in set point selection
- Design space accounts for static and dynamic stroke requirements
- Provides flexible implementation of uncertainties and user imposed margin restrictions

MOV Actuator Module Benefits

- User-friendly graphical interface eliminates common calculation errors
- Calculate the following for Limitorque SMB/SB/SBD and HBC actuators
 - Pullout torque/thrust,
 - Stall torque/thrust,
 - Running torque/thrust
 - Stem speed
- The model comprises equations, and built-in manufacturers' tables for actuator efficiency, overall gear ratios, application factors, motor ratings and temperature effects.
- The model is capable of performing actuator capability calculations using ComEd methodology.
- The Rotork actuator module uses torque and thrust output capability values listed in the Rotork catalog. The user selects the gearbox and stem RPM, and enters stem diameter, stem lead, stem pitch and coefficient of friction between the stem and stem nut. The model selects the corresponding values of torque rating and thrust rating and calculates the thrust output. The values returned are applicable to A/NA Range 3 phase Rotork actuators. The Rotork actuator can be coupled with any quarter turn unit supplied by Rotork, Limitorque, Master Gear, Hopkinson etc.

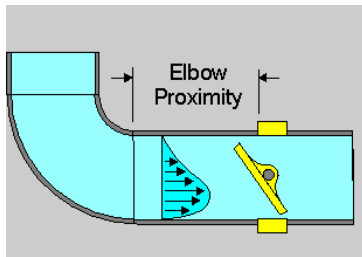
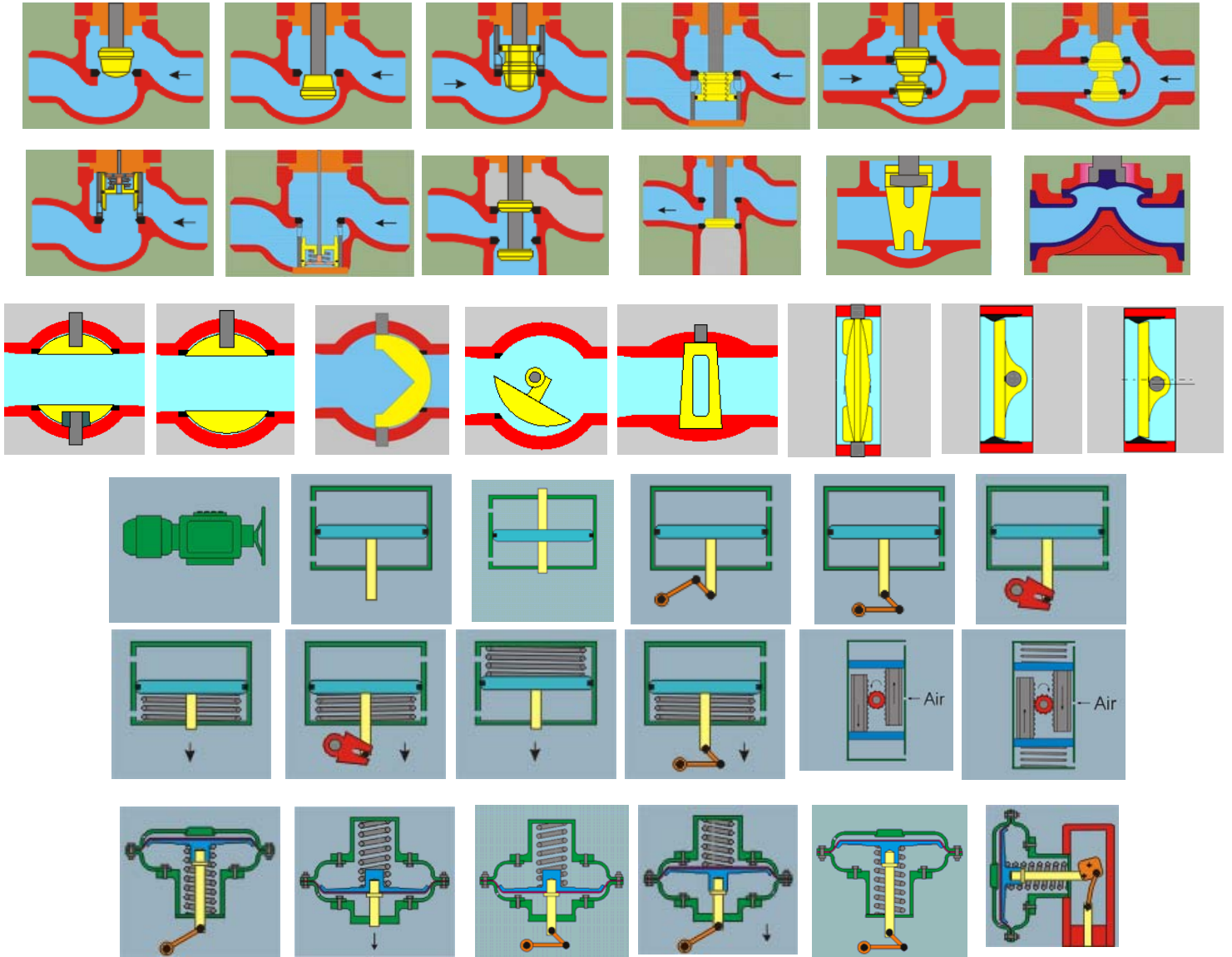


This module can augment calculations performed during the implementation of the GL-96-05 MOV JOG Periodic Verification program.

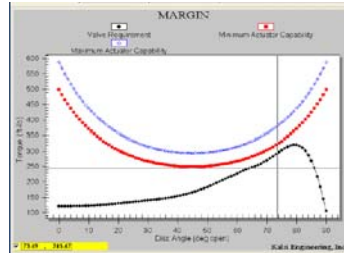
KVAP Version 3.0 New Features

- JOG MOV PV predictions
- SQL server database
- Force equations in reports
- Packing friction force calculator
- Parallel slide gate valve model
- MOV setup window
- Butterfly valve disc weight equations
- Spring characteristics for bellows sealed valves
- Nested spring equations for air operators
- Data import & export features
- SI units
- MOV setup window
- Autotork & AUMA actuator capability tables

KVAP scope includes all common linear and quarter-turn valves and actuators



Typical installation graphic



Typical margin plot

KVAP has user friendly graphic displays.