



**TELEDYNE**  
**TEST SERVICES**  
A Teledyne Technologies Company

**Teledyne QUG IV**

**Program *MidasWL***

**MOV Integrated Data Acquisition System**  
**WEAK LINK**  
**Analysis Software**

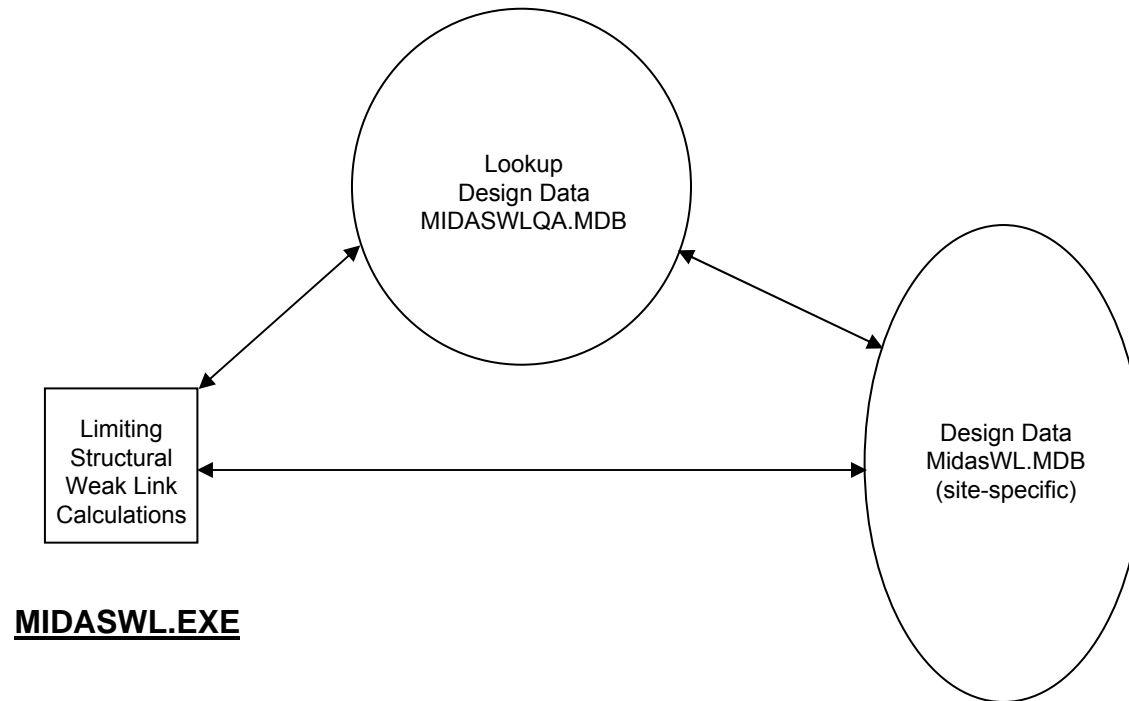


## MidasWL Analysis Software - Features

---

- Software is an Engineering Tool
- Software use is controlled by the Utility
- Software is Appendix B – QA Software
- Software is User Friendly
- Software User Manual - documents required analysis inputs for individual component configurations
- Software is customized to use Site Specific Design Acceptance Criteria and Material Properties

# MidasWL Analysis Software - Structure



## **MidasWL - Input Data Panels**

---

- **Design Data – Valve, Actuator & Motor Data**
- **General Data – Temperatures & Seismic Data**
- **Disc Configuration Data**
- **Bonnet Configuration Data**
- **Actuator Bolting Configuration Data**
- **Stem Configuration Data**
- **Valve Body Configuration Data**
- **Yoke Configuration Data**

# MidasWL - Calculations Main panel

Midas Weak Link Calculations - Test Valve

File Edits Tables View References Help

Test Valve GATE

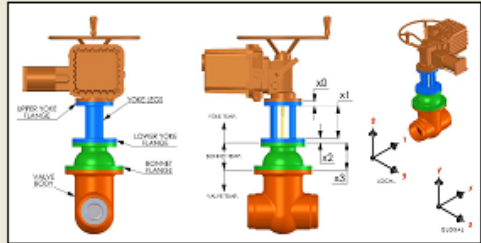
Stem Valve Body Yoke Output  
Input Data Disc Bonnet Actuator

Design Data General Data

Parameter	Dir	Value	Ref
Actuator Orientation		Vertical	N/A
Maximum Temperature at the Yoke		120	N/A
Maximum Temperature at the Bonnet		200	N/A
Maximum Temperature at the Valve		300	N/A
Seismic Analysis		W & V7	N/A

Comments:

General Data



Rich Enos 08/09/2010 11:17 NOT APPROVED 08/09/2010 11:17

The image shows a software interface for 'Midas Weak Link Calculations - Test Valve'. It features a menu bar (File, Edits, Tables, View, References, Help) and a title bar. Below the title bar, there are dropdown menus for 'Test Valve' and 'GATE'. The main area is divided into several sections: 'Stem', 'Valve Body', 'Yoke', and 'Output' at the top; 'Input Data', 'Disc', 'Bonnet', and 'Actuator' below that. The 'Input Data' section is active and contains two sub-sections: 'Design Data' and 'General Data'. The 'General Data' section contains a table with columns for 'Parameter', 'Dir', 'Value', and 'Ref'. The table lists parameters such as 'Actuator Orientation', 'Maximum Temperature at the Yoke', 'Maximum Temperature at the Bonnet', 'Maximum Temperature at the Value', and 'Seismic Analysis'. Below the table is a 'Comments' section with a text area containing 'General Data'. At the bottom of the main area, there are three technical diagrams of a valve assembly. The left diagram is a side view with labels: 'UPPER YOKE FLANGE', 'YOKE LEGS', 'LOWER YOKE FLANGE', 'BONNET FLANGES', and 'VALVE BODY'. The middle diagram is a front view with dimensions: 'X0', 'X1', 'X2', 'X3', 'X4', 'X5', 'X6', 'X7', 'X8', 'X9', 'X10', 'X11', 'X12', 'X13', 'X14', 'X15', 'X16', 'X17', 'X18', 'X19', 'X20', 'X21', 'X22', 'X23', 'X24', 'X25', 'X26', 'X27', 'X28', 'X29', 'X30', 'X31', 'X32', 'X33', 'X34', 'X35', 'X36', 'X37', 'X38', 'X39', 'X40', 'X41', 'X42', 'X43', 'X44', 'X45', 'X46', 'X47', 'X48', 'X49', 'X50', 'X51', 'X52', 'X53', 'X54', 'X55', 'X56', 'X57', 'X58', 'X59', 'X60', 'X61', 'X62', 'X63', 'X64', 'X65', 'X66', 'X67', 'X68', 'X69', 'X70', 'X71', 'X72', 'X73', 'X74', 'X75', 'X76', 'X77', 'X78', 'X79', 'X80', 'X81', 'X82', 'X83', 'X84', 'X85', 'X86', 'X87', 'X88', 'X89', 'X90', 'X91', 'X92', 'X93', 'X94', 'X95', 'X96', 'X97', 'X98', 'X99', 'X100'. The right diagram is a top view with labels: 'X0', 'X1', 'X2', 'X3', 'X4', 'X5', 'X6', 'X7', 'X8', 'X9', 'X10', 'X11', 'X12', 'X13', 'X14', 'X15', 'X16', 'X17', 'X18', 'X19', 'X20', 'X21', 'X22', 'X23', 'X24', 'X25', 'X26', 'X27', 'X28', 'X29', 'X30', 'X31', 'X32', 'X33', 'X34', 'X35', 'X36', 'X37', 'X38', 'X39', 'X40', 'X41', 'X42', 'X43', 'X44', 'X45', 'X46', 'X47', 'X48', 'X49', 'X50', 'X51', 'X52', 'X53', 'X54', 'X55', 'X56', 'X57', 'X58', 'X59', 'X60', 'X61', 'X62', 'X63', 'X64', 'X65', 'X66', 'X67', 'X68', 'X69', 'X70', 'X71', 'X72', 'X73', 'X74', 'X75', 'X76', 'X77', 'X78', 'X79', 'X80', 'X81', 'X82', 'X83', 'X84', 'X85', 'X86', 'X87', 'X88', 'X89', 'X90', 'X91', 'X92', 'X93', 'X94', 'X95', 'X96', 'X97', 'X98', 'X99', 'X100'. The bottom status bar shows 'Rich Enos 08/09/2010 11:17 NOT APPROVED 08/09/2010 11:17'.

# MidasWL - Disc panel

Midas Weak Link Calculations - Test Valve

File Edits Tables View References Help

Test Valve

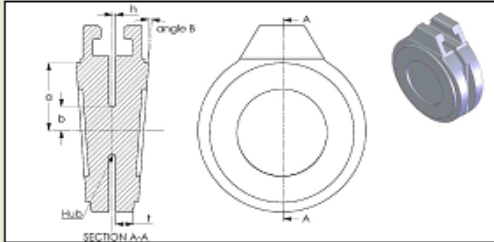
Stem Valve Body Yoke Output  
Input Data **Disc** Bonnet Actuator

Disc Disc/Stem Connection Disc Arm

Parameter	Dir	Value	Ref
Disc Configuration		Flexible Wedge	N/A
Disc Material		A216 WCB	N/A
Hub Radius (b)		0.9690	N/A
Hub Length (assumed conservative) (h)		0.25	N/A
Disc Radius (a)		3.4375	N/A

Comments:

Disc Comments



Flexible Wedge

Rich Enos 08/09/2010 11:17 NOT APPROVED 08/09/2010 11:17

# MidasWL - Bonnet panel

Midas Weak Link Calculations - Test Valve

File Edits Tables View References Help

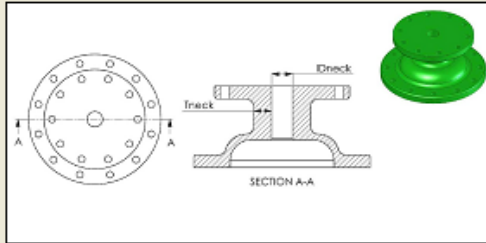
Test Valve GATE

Stem Valve Body Yoke Output  
Input Data Disc **Bonnet** Actuator

**Valve Bonnet Neck** Bonnet/Valve Conn

Parameter	Dir	Value	Ref
Bonnet Neck Configuration		Valve Bonnet Neck	N/A
Bonnet Material		A351-CF8M	N/A
Packing Gland Diameter (Idneck)		1.875	N/A
Stem Diameter (Dstem)		0.000	N/A
Wall Thickness (Tneck)		0.360	N/A

Comments:  
N/A



Valve Bonnet Neck Evaluation

Rich Enos 08/09/2010 11:17 NOT APPROVED 08/09/2010 11:17

# MidasWL - Actuator panel

Midas Weak Link Calculations - Test Valve

File Edits Tables View References Help

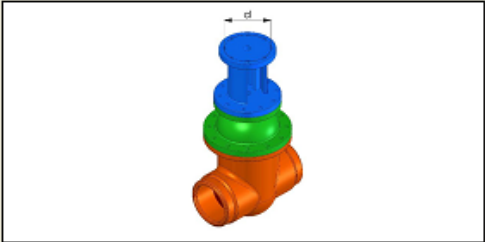
Test Valve GATE

Stem Valve Body Yoke Output  
Input Data Disc Bonnet **Actuator**

**Operator Bolts** HBC Bolts

Parameter	Dir	Value	Ref
Operator Bolts Configuration		Operator Bolt Evaluation	N/A
Operator Bolt Description		5/8" - 11 UNC	N/A
Operator Bolt Material		SAE-J429 Gr5 (PI)	N/A
Operator Bolt Material Type		Ferritic	N/A
Number of Bolts		4	N/A

Comments:



Operator Bolt Evaluation

Rich Enos 08/09/2010 11:17 NOT APPROVED 08/09/2010 11:17

# MidasWL - Stem panel

Midas Weak Link Calculations - Test Valve

File Edits Tables View References Help

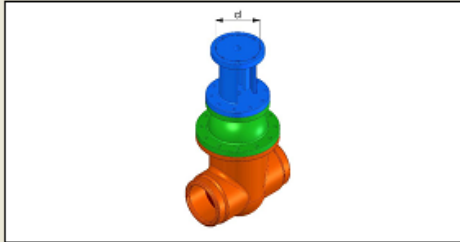
Test Valve GATE

Stem Valve Body Yoke Output  
Input Data Disc Bonnet **Actuator**

**Operator Bolts** HBC Bolts

Parameter	Dir	Value	Ref
Operator Bolts Configuration		Operator Bolt Evaluation	N/A
Operator Bolt Description		5/8" - 11 UNC	N/A
Operator Bolt Material		SAE-J429 Gr5 (PI)	N/A
Operator Bolt Material Type		Ferritic	N/A
Number of Bolts		4	N/A

Comments:



Operator Bolt Evaluation

Rich Enos 08/09/2010 11:17 NOT APPROVED 08/09/2010 11:17

# MidasWL – Valve Body panel

Midas Weak Link Calculations - Test Valve

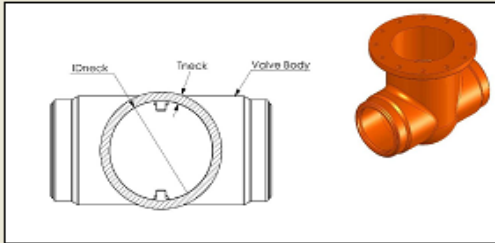
File Edits Tables View References Help

Test Valve GATE

Input Data Disc Bonnet Actuator  
Stem **Valve Body** Yoke Output

Valve Body Neck		Body/Bonnet Flange	
Parameter	Dir	Value	Ref
Valve Body Configuration		Valve Body Neck	N/A
Valve Body Material		A216 WCB	N/A
Valve Neck to Body Bonnet Flange		4.500	N/A
Gasket Diameter		9.500	N/A
Valve Neck ID (IDneck)		8.500	N/A

Comments:



Valve Body Neck Evaluation

Rich Enos 08/09/2010 11:17 NOT APPROVED 08/09/2010 11:17

# MidasWL – Yoke panel

Midas Weak Link Calculations - Test Valve

File Edits Tables View References Help

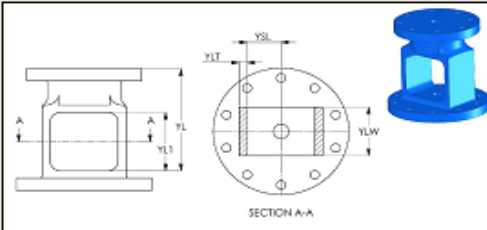
Test Valve

Input Data Disc Bonnet Actuator  
Stem Valve Body **Yoke** Output

Yoke Leg Yoke / Bonnet Conn Yoke Flange

Parameter	Dir	Value	Ref
Yoke Leg Configuration		Rectangular Yoke Leg	N/A
Yoke Leg Material		A216 WCB	N/A
Yoke Clamp Allowable		0	N/A
YSL		1.7500	N/A

Comments:



Rectangular Yoke Leg

Rich Enos 08/09/2010 11:17 NOT APPROVED 08/09/2010 11:17

# MidasWL - Output panel

**Midas Weak Link Calculations - Test Valve**

File Edits Tables View References Help

Test Valve

Input Data    Disc    Bonnet    Actuator  
 Stem    Valve Body    Yoke    **Output**

Parameter	Dir	Value
Max Operating Pressure		50
Disc - S Allowable		17500
Disc - Sy Allowable		31900
Disc - Su Allowable		62028
Disc - E Allowable		29000000
Disc - Normal - Weak Link - Component	(C)	Disc/Wedge Thrust
Disc - Normal - Weak Link	(C)	61743
Disc - Normal - Weak Link - Component	(O)	Disc/Wedge Thrust
Disc - Normal - Weak Link	(O)	61743
Disc - Upset - Weak Link - Component	(C)	Disc/Wedge Thrust
Disc - Upset - Weak Link	(C)	68350
Disc - Upset - Weak Link - Component	(O)	Disc/Wedge Thrust
Disc - Upset - Weak Link	(O)	68350
Disc - Emergency - Weak Link - Component	(C)	Disc/Wedge Thrust
Disc - Emergency - Weak Link	(C)	68350
Disc - Emergency - Weak Link - Component	(O)	Disc/Wedge Thrust
Disc - Emergency - Weak Link	(O)	68350
Disc - Design Basis - Weak Link - Component	(C)	Disc/Wedge Thrust
Disc - Design Basis - Weak Link	(C)	61743
Disc - Design Basis - Weak Link - Component	(O)	Disc/Wedge Thrust
Disc - Design Basis - Weak Link	(O)	61743
Disc - MOV Test - Weak Link - Component	(C)	Disc/Wedge Thrust
Disc - MOV Test - Weak Link	(C)	76918
Disc - MOV Test - Weak Link - Component	(O)	Disc/Wedge Thrust
Disc - MOV Test - Weak Link	(O)	76918

Rich Enos    08/09/2010 11:17    NOT APPROVED    08/09/2010 11:17

## MidasWL – Electronic Sign-off Capability

The check command is provided to facilitate an electronic review of the changes made to the MIDASWL calculations. By clicking on FILE \ CHECK \ CALCULATION, the user may check the calculation changes made by another user. This command is only available to privileged users other than the Preparer.

## MidasWL - Reports

---

- Reverse References
- History
- Main Report (Full WL Analysis Report)
- Data Sheet
  - Inputs & Results Grouped
  - Inputs & Results Sorted