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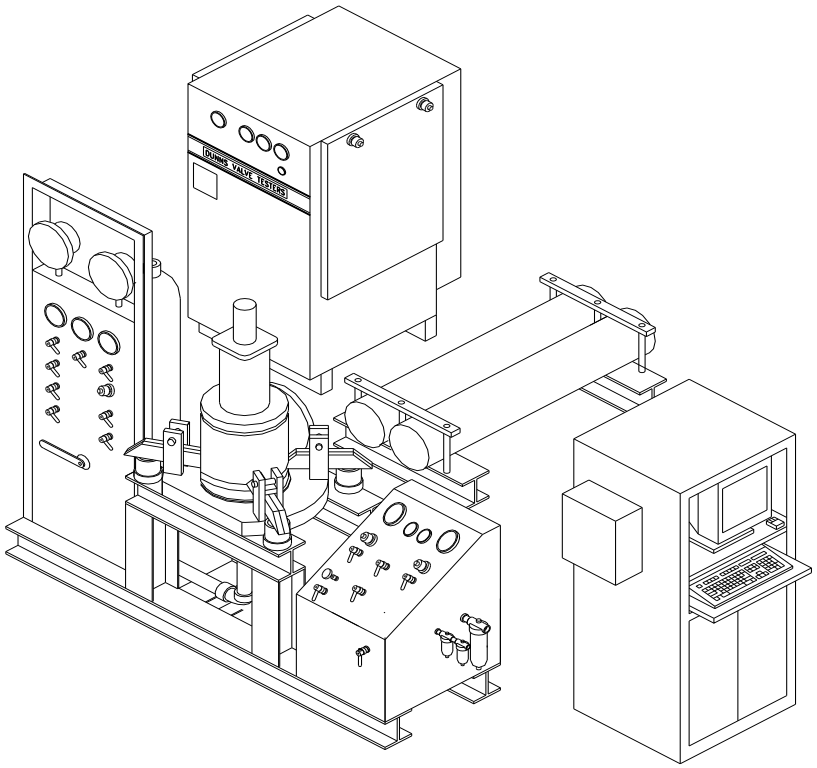
Model RV006/RV011 Technical Specifications

Flange Clamp Type Relief Valve Tester with Optional Compressor, HP Storage, and Data Acquisition System

US Patent Nos. 4311038, 4432227



Theory of Operation

Relief valve testers differ from other test stands in that they must perform a dynamic test as opposed to the usual static pressure tests performed on other valves. The National Board and ASME require that a valve demonstrate "significant" lift during a valid set pressure test. A relief valve tester can produce significant lift during a test only if it can produce a flow rate that is a significant percentage of the rated flow capacity of the test valve. With this in mind, our relief valve test systems include a high flow line with inlet valve to the test vessel, and a high flow line from the test vessel to the table, with an isolation valve in between. The test vessel connects to the test table in a "J-Tube" configuration; this enables the tester to perform both air and air-over-water tests. The volume of the test vessel creates the cushion that allows the disk to settle softly back onto the seat, after its significant lift, without damage, and the isolation valve, when closed between tests, saves the pressure in the test vessel for use in the next test. In short, the size of the line form the test vessel to the table and size of the high flow inlet line and valve to the test vessel determines the size of valve that can be tested. The size of the test vessel determines how slowly the disk settles back onto the seat, and the isolation valve helps reduce the amount of air used for each test.

The preceding discussion is of the test stand itself, the high pressure air source to supply the tester must also be considered. Our available systems include compressors, storage vessels and manifolds, all of which are custom designed and sized for the individual requirements to provide the flow rate needed to test the range of valves specified. A Data Acquisition System is also available to record store and analyze each test.

Hydraulic System

The Hydraulic System includes the Clamp Cylinders, Hydraulic Pump System, and the Controls to operate the system. This system provides rapid advance for the cylinders and produces the clamping force required to seal the valve under test.

- Hydraulic Flange Clamp System
  - Model RV006/RV011 Clamp Cylinders
    - 4 ea., 30 tons, 10000 psi, 2" Stroke
    - Optional Manual Locking Clamp Cylinders
  - Air driven 0-10,000 psi reciprocating pump
    - 2 ½ Gallon Hydraulic Reservoir, y-strainer and sight glass
    - Rapid Advance System
    - 0-10,000 psi Hydraulic Clamp Pressure Gauge
  - Hydraulic Clamp Interlock System to prevent release of clamp force during test

Standard Test System

- Test Vessel
  - 5 Gallon 3000 psi ASME Code approved Electro-less Nickel Plated for air/water service
  - Non-Welded Construction 1½" outlet, ¾" Inlet
- Line from the Test Vessel to the Table
  - 1½" 3000 psi Stainless Steel
  - 1½" 3000 psi full port Stainless Steel air actuated isolation ball valve
- High Flow Line to the Test Vessel with Inlet Valve
  - ¾" 6000 psi Stainless Steel Tubing to the Inlet Valve
  - ¾" 3000 psi Stainless Steel Tubing to the Test Vessel
  - ¾" 6000 psi Full Port (Cv 25) Stainless Steel inlet Ball Valve (Blow-Down Valve)
- Miscellaneous
  - Gauge and Data Acquisition Ports with Isolation Valves and Quick Disconnects
  - Regulated HP circuit for seat tightness tests

Optional Specifications Available

- Test Vessel
  - 5-60 gallons
  - 3000 to 5000 psi
- Line from the Test Vessel to the Table
  - 1" through 4"
  - 3000 to 6000 psi
- High Flow Line to the Test Vessel with Inlet Valve
  - 1/2" through 2" available with auxiliary valves
  - 3000 to 6000 psi
- Dual test system with test pump
  - 3000,6000 or 10000 psi

Optional Equipment Available

- HP Compressor with Full Instrumentation (see individual brochure)
  - 5-50 HP 220/440 3Ph 50 and/or 60 Hz
  - 3000 – 6000 psi
- HP Compressed Air Storage Vessel Assemblies with manifolds
  - 10-100 Gallons , ASME or DOT Code approved
  - 3000 to 5000 psi
- Data Acquisition System (see individual brochure)
- Outlet Seat Tightness Test Flanges per API 527
- Water capture and muffler system

Inlet Flange Size Clamp Capacity*

Model RV006 (4 ea. 30 Ton) / 005 (3 ea. 30 Ton)

	ANSI PRESSURE CLASS						
SIZE	150	300	400	600	900	1500	2500
2	*	*	*	*	*	*	*
3	*	*	*	*	*	*	*
4	*	*	*	*	*	*	
6	*	*	*	*	*		
8	*	*	*	*			
10	*	*					
12	*						

Model RV011 (4 ea. 30 Ton Clamp Cylinders)

	ANSI PRESSURE CLASS						
SIZE	150	300	400	600	900	1500	2500
2	*	*	*	*	*	*	*
3	*	*	*	*	*	*	*
4	*	*	*	*	*	*	*
6	*	*	*	*	*	*	
8	*	*	*	*	*		
10	*	*	*	*			
12	*	*					
14	*	*					
16	*						

* The range of valves that can be set pressure tested is determined by other factors (test vessel size, line sizes etc.) please contact the factory for details